LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 5

2022

Bate Stamp Numbers
01079015 – 01080981

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2022

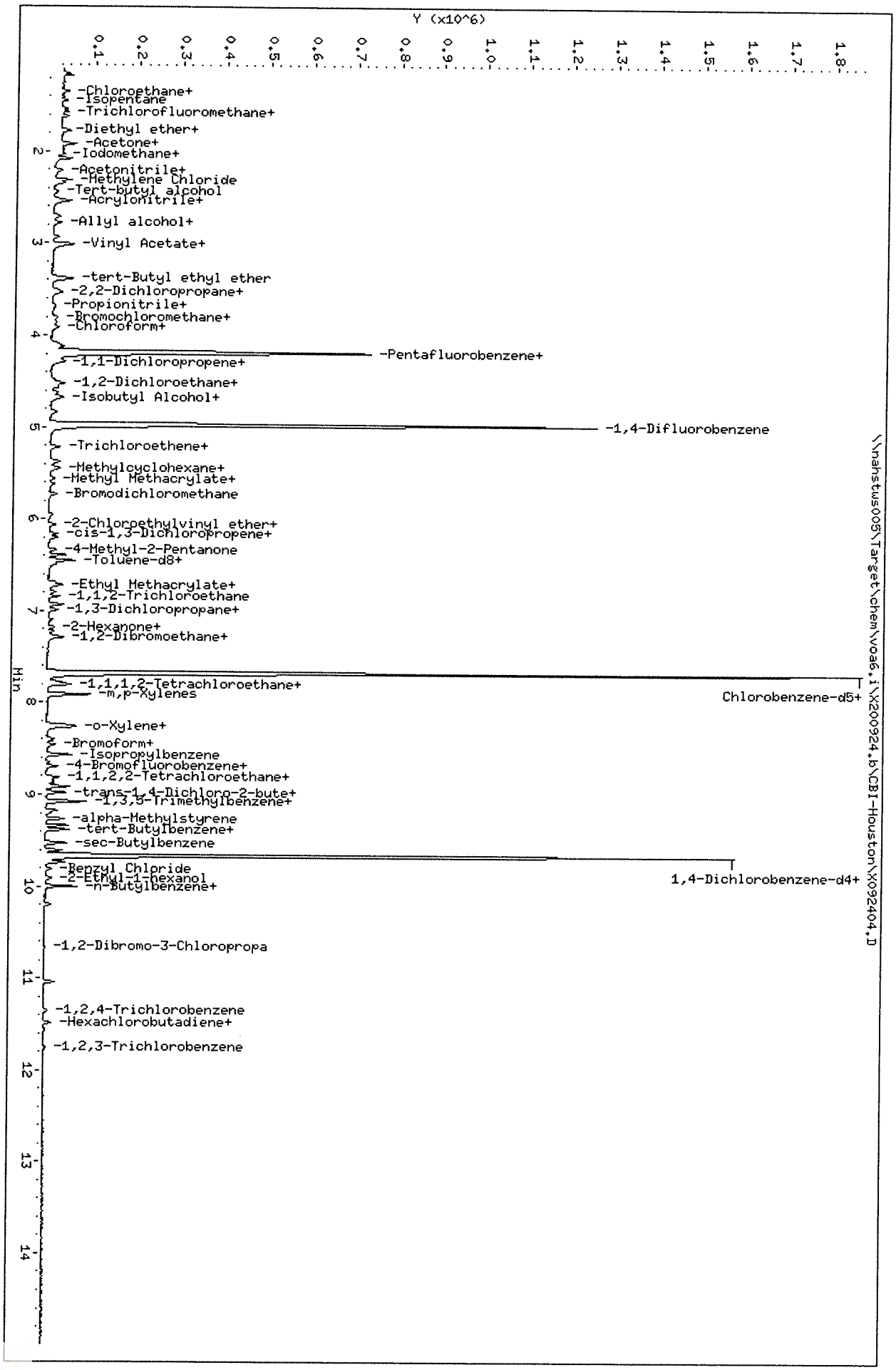
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD – CHRONOLOGICAL INDEX

VOLUME 5

2022

A. Title: (Cont.) Report – Appendix D Level IV DoD to Draft Final Seventh Annual Remedial Action Operation Report, LHAAP-50 Former Sump Water Tank, Longhorn Army Ammunition Plant, Karnack, Texas, March 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: March 1, 2022
Bate Stamp: 01079015 – 01080844

B. Title: Report – Draft Final First Annual Remedial Action Operation Report, LHAAP-16 Landfill, Longhorn Army Ammunition Plant, Karnack, Texas, March 2022
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: March 7, 2022
Bate Stamp: 01080845 – 01080981



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092404.D
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Purge Volume: 5.0
Column phase: DB624

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

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Data File: X092405.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

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Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 12:46 Cal File: X092404.D
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Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

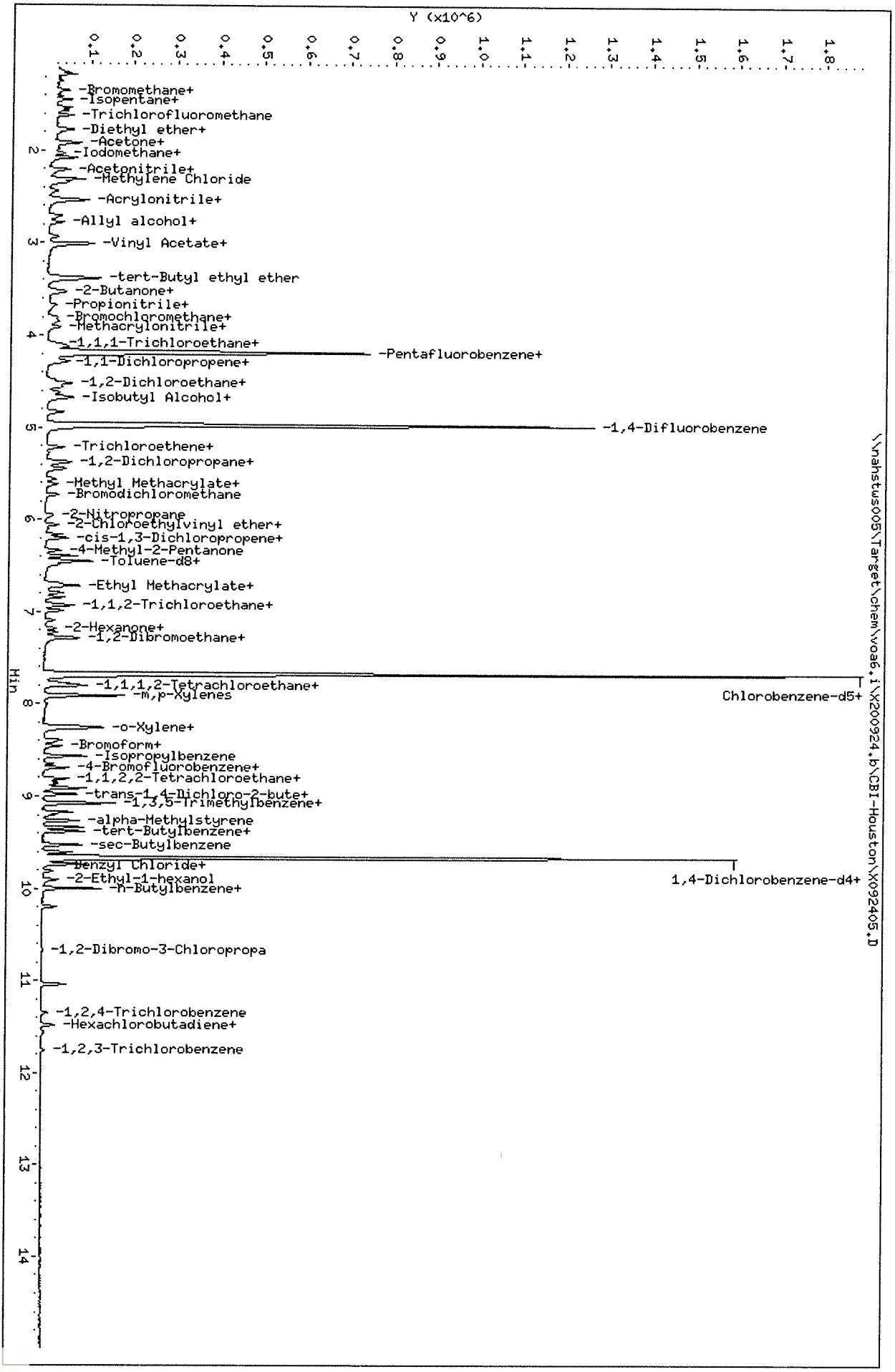
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Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	644357	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	12469	2.00000	1.88(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	13937	2.00000	1.92(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1019524	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	903632	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	46992	2.00000	1.97(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	18232	2.00000	1.52(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	382631	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	15623	2.00000	1.87(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11109	2.00000	1.91(a)
17 Methylene Chloride	84	2.313	2.313	(0.552)	16648	2.00000	1.68(a)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	15564	2.00000	1.97(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	16818	2.00000	1.91(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	14627	2.00000	2.00(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10973	2.00000	2.06(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	12381	2.00000	2.16(a)

QC Flag Legend

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



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Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092406.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092406.D
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Inj Date : 24-SEP-2020 13:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:10 Cal File: X092405.D
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Dil Factor: 1.00000
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Target Version: 4.14
Processing Host: NAHSTW7056

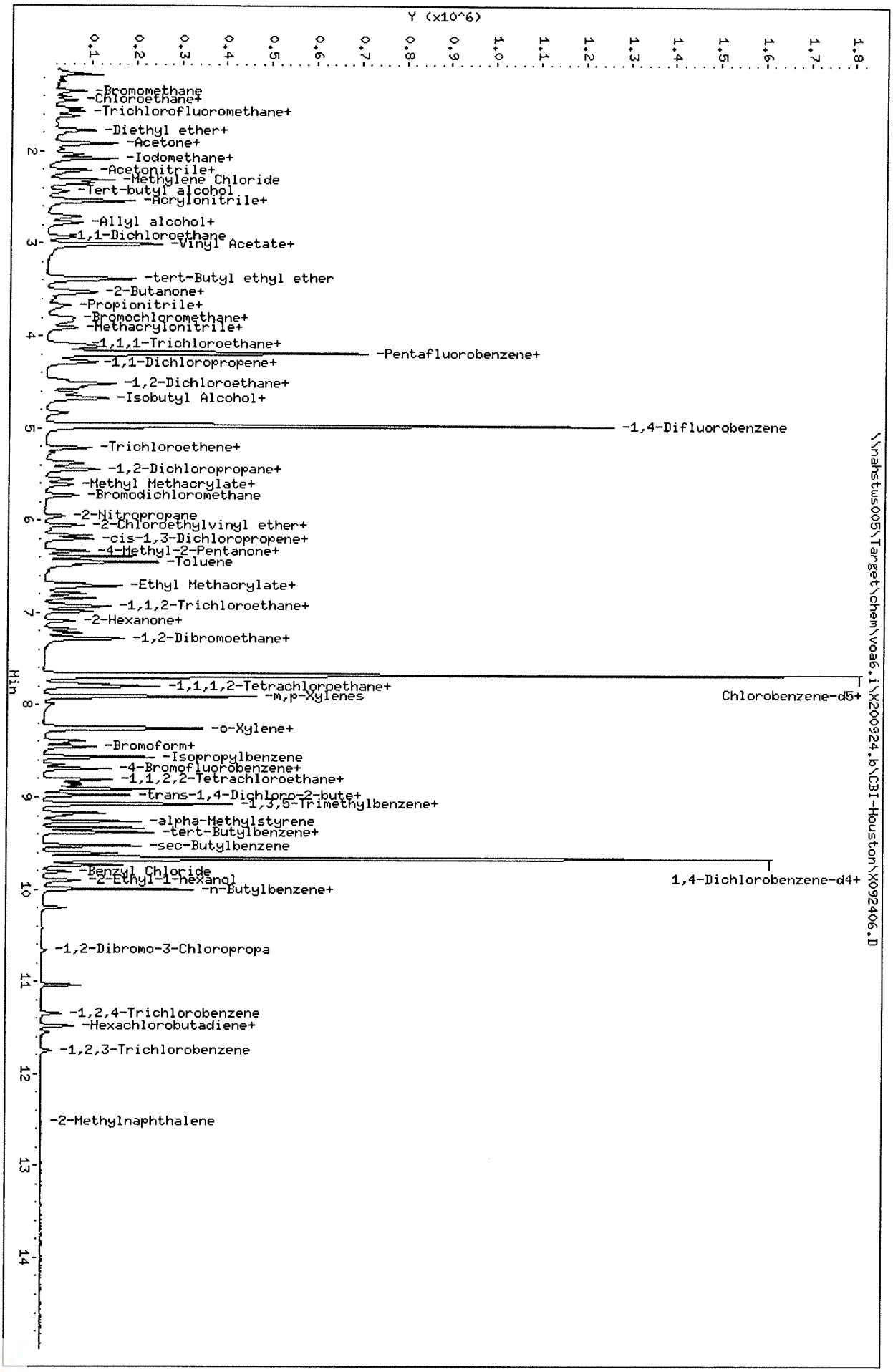
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	604947	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	34017	5.00000	5.47
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	35655	5.00000	5.24
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	968132	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	862629	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	124776	5.00000	5.50
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	43900	5.00000	5.10
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	366206	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	38248	5.00000	4.89(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	27129	5.00000	4.98(a)
17 Methylene Chloride	84	2.313	2.313	(0.552)	39690	5.00000	5.37
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	40006	5.00000	5.39
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	45690	5.00000	5.47
38 Trichloroethene	130	5.214	5.214	(1.049)	36421	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	27209	5.00000	5.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	28143	5.00000	5.16

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092406.D
Date : 24-SEP-2020 13:33
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: X092407.D
Report Date: 26-Oct-2020 07:27

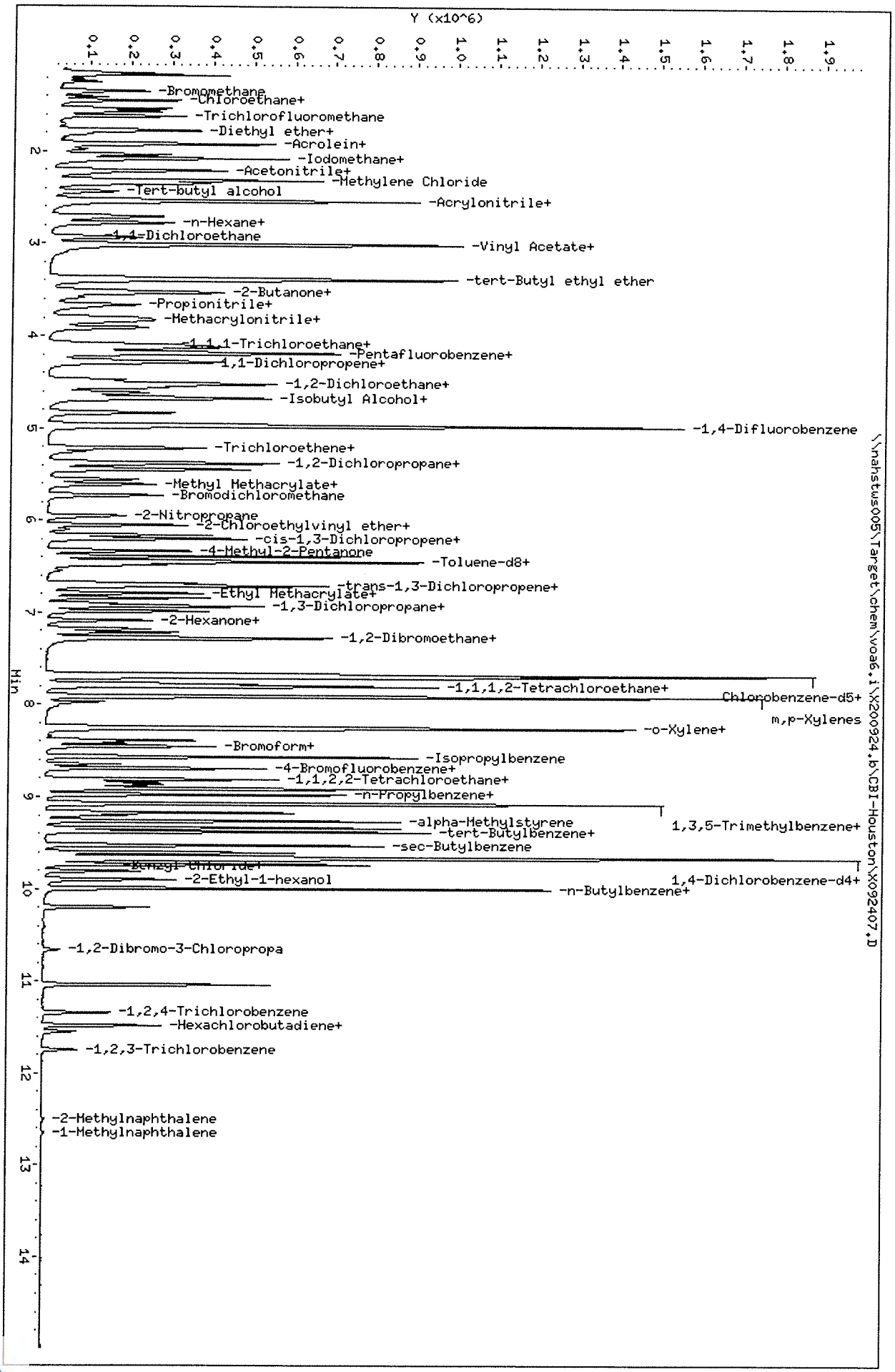
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092407.D
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Inj Date : 24-SEP-2020 13:57
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:33 Cal File: X092406.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	597686	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	120544	20.0000	19.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	130718	20.0000	19.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	958262	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	861110	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	439641	20.0000	19.41
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	154353	20.0000	20.07
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	364939	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	146437	20.0000	18.96
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	104067	20.0000	19.36
17 Methylene Chloride	84	2.305	2.305	(0.550)	137362	20.0000	20.58
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	142521	20.0000	19.46
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	153916	20.0000	18.62
38 Trichloroethene	130	5.214	5.214	(1.049)	129379	20.0000	18.87
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	97092	20.0000	19.14
56 Tetrachloroethene	164	6.933	6.933	(0.904)	104308	20.0000	19.17



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092407.D
Date : 24-SEP-2020 13:57
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: X092408.D
Report Date: 26-Oct-2020 07:27

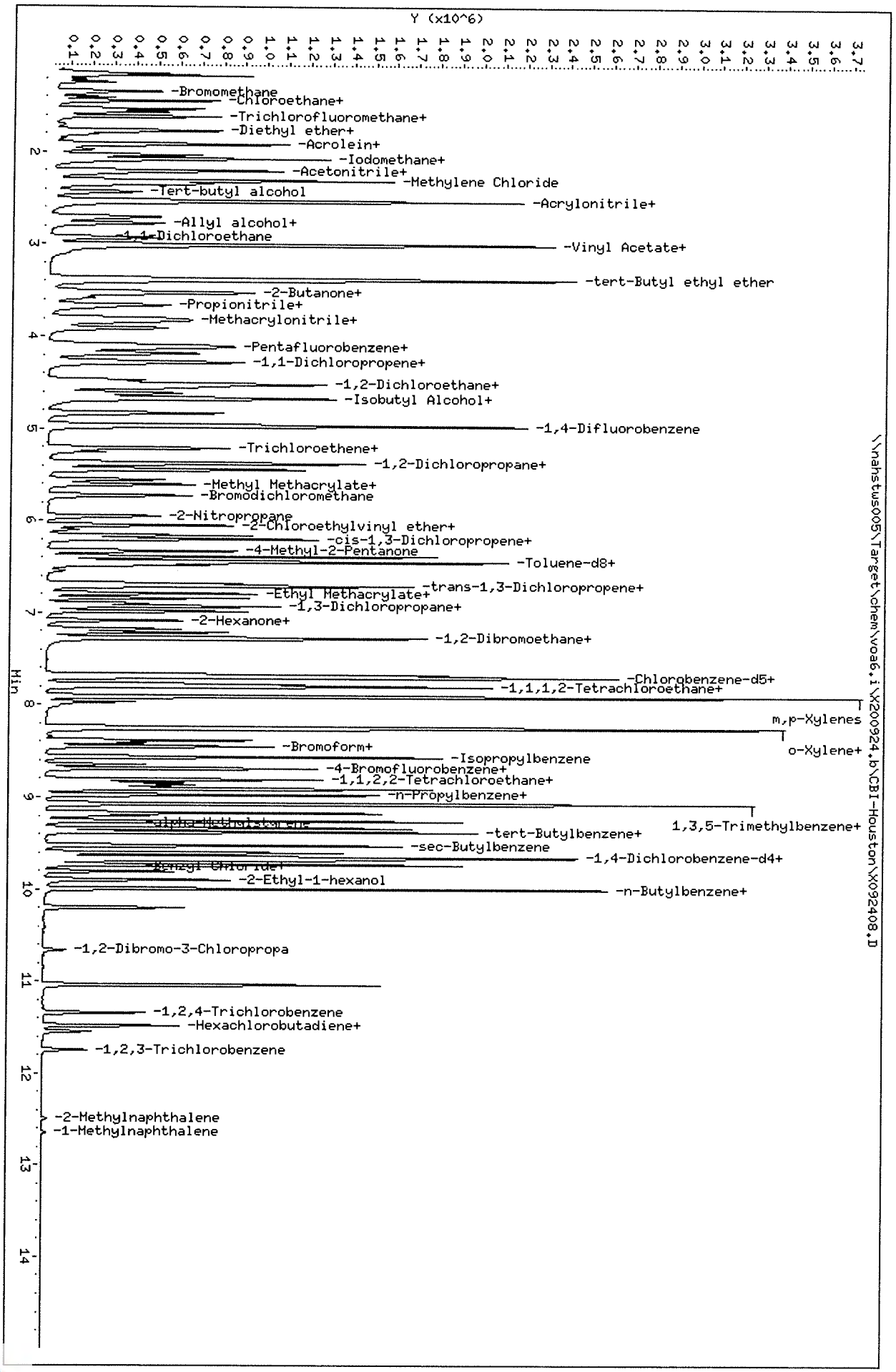
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-SEP-2020 14:21
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:57 Cal File: X092407.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	565166	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	277712	50.0000	47.81
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	307872	50.0000	48.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	910705	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	829935	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1029825	50.0000	47.19
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	368645	50.0000	50.98
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	353927	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	327079	50.0000	44.80
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	227518	50.0000	44.77
17 Methylene Chloride	84	2.305	2.305	(0.550)	303593	50.0000	49.06
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	318945	50.0000	46.06
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	356652	50.0000	45.42
38 Trichloroethene	130	5.214	5.214	(1.049)	284429	50.0000	43.66
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	221270	50.0000	45.26
56 Tetrachloroethene	164	6.933	6.933	(0.904)	209713	50.0000	39.99



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092408.D
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Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
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Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: X092409.D
Report Date: 26-Oct-2020 07:27

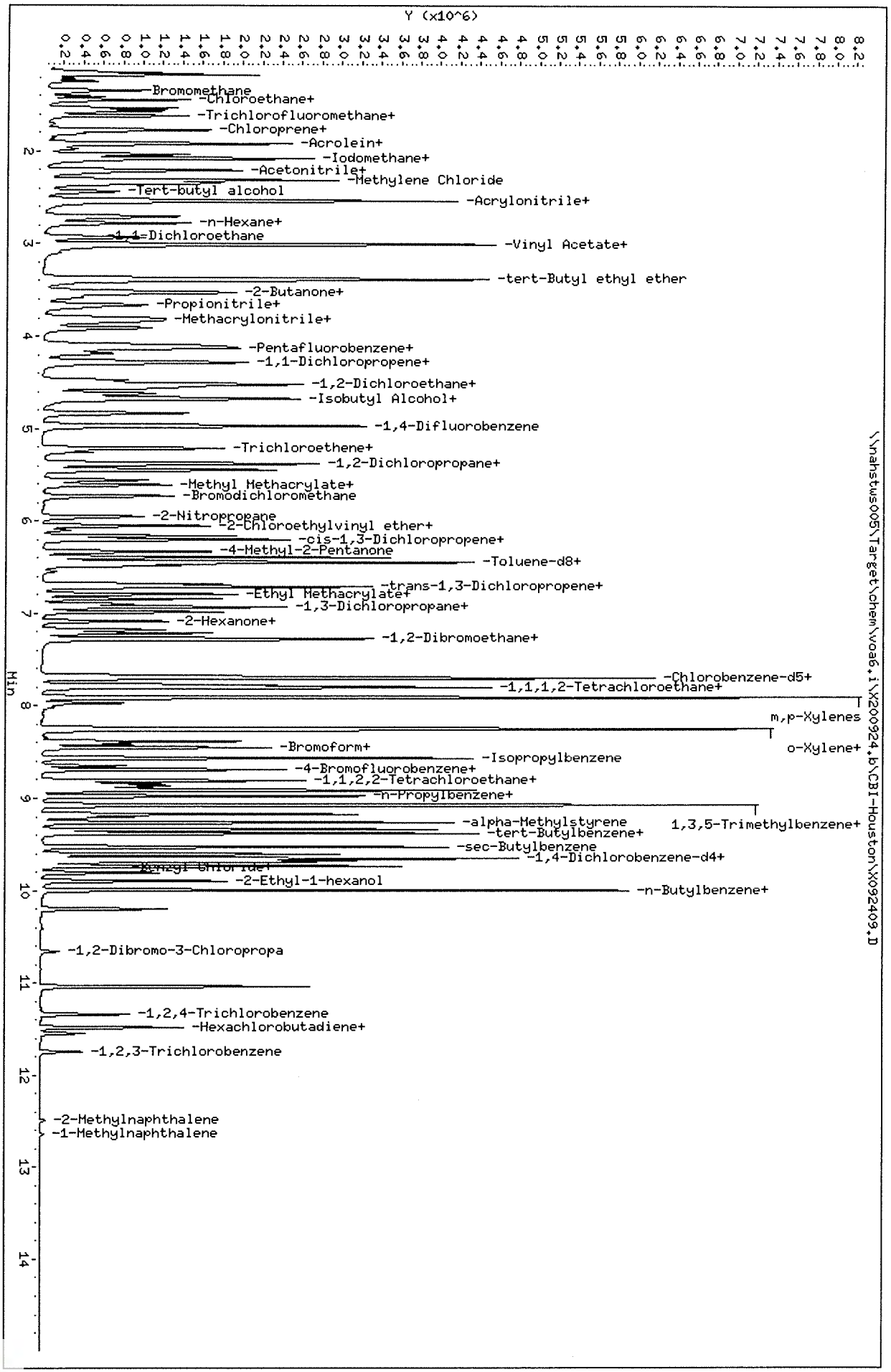
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092409.D
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Inj Date : 24-SEP-2020 14:45
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	546812	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	537287	100.000	95.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	594732	100.000	96.75
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	873571	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	810573	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1988260	100.000	93.29
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	706326	100.000	100.80
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	336603	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	730234	100.000	103.38
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	479537	100.000	97.53
17 Methylene Chloride	84	2.306	2.306	(0.550)	605902	100.000	101.96
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	637736	100.000	95.19
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	692994	100.000	92.00
38 Trichloroethene	130	5.214	5.214	(1.049)	604179	100.000	96.69
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	433386	100.000	90.78
56 Tetrachloroethene	164	6.933	6.933	(0.904)	489193	100.000	95.52



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092409.D
Date : 24-SEP-2020 14:45
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: X092410.D
Report Date: 26-Oct-2020 07:27

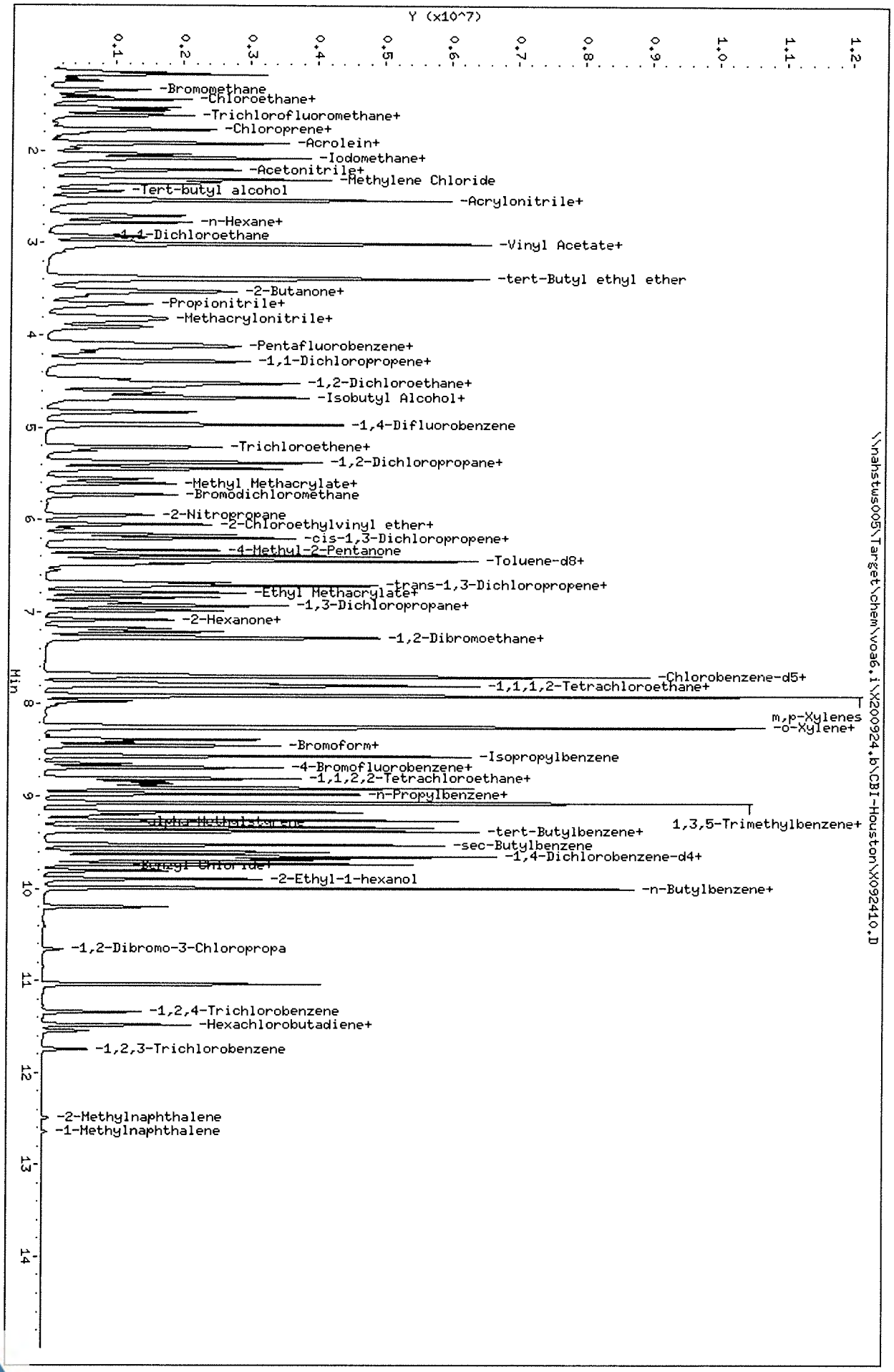
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092410.D
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Inj Date : 24-SEP-2020 15:09
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:45 Cal File: X092409.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	531920	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	770629	150.000	140.98
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	856168	150.000	143.18
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	840978	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	779079	50.0000	
$	48 Toluene-d8	98	6.388	6.388	(0.833)	2823072	150.000	137.82
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1011330	150.000	150.58
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	329958	50.0000	
	5 Vinyl Chloride	62	1.145	1.145	(0.273)	1069212	150.000	155.61
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	699764	150.000	146.31
	17 Methylene Chloride	84	2.305	2.305	(0.550)	861961	150.000	149.44
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	926983	150.000	142.24
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1012585	150.000	139.64
	38 Trichloroethene	130	5.207	5.207	(1.048)	882316	150.000	146.68
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	627933	150.000	136.85
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	708095	150.000	143.86



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092410.D
Date : 24-SEP-2020 15:09
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: X092411.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 24-SEP-2020 15:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:09 Cal File: X092410.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

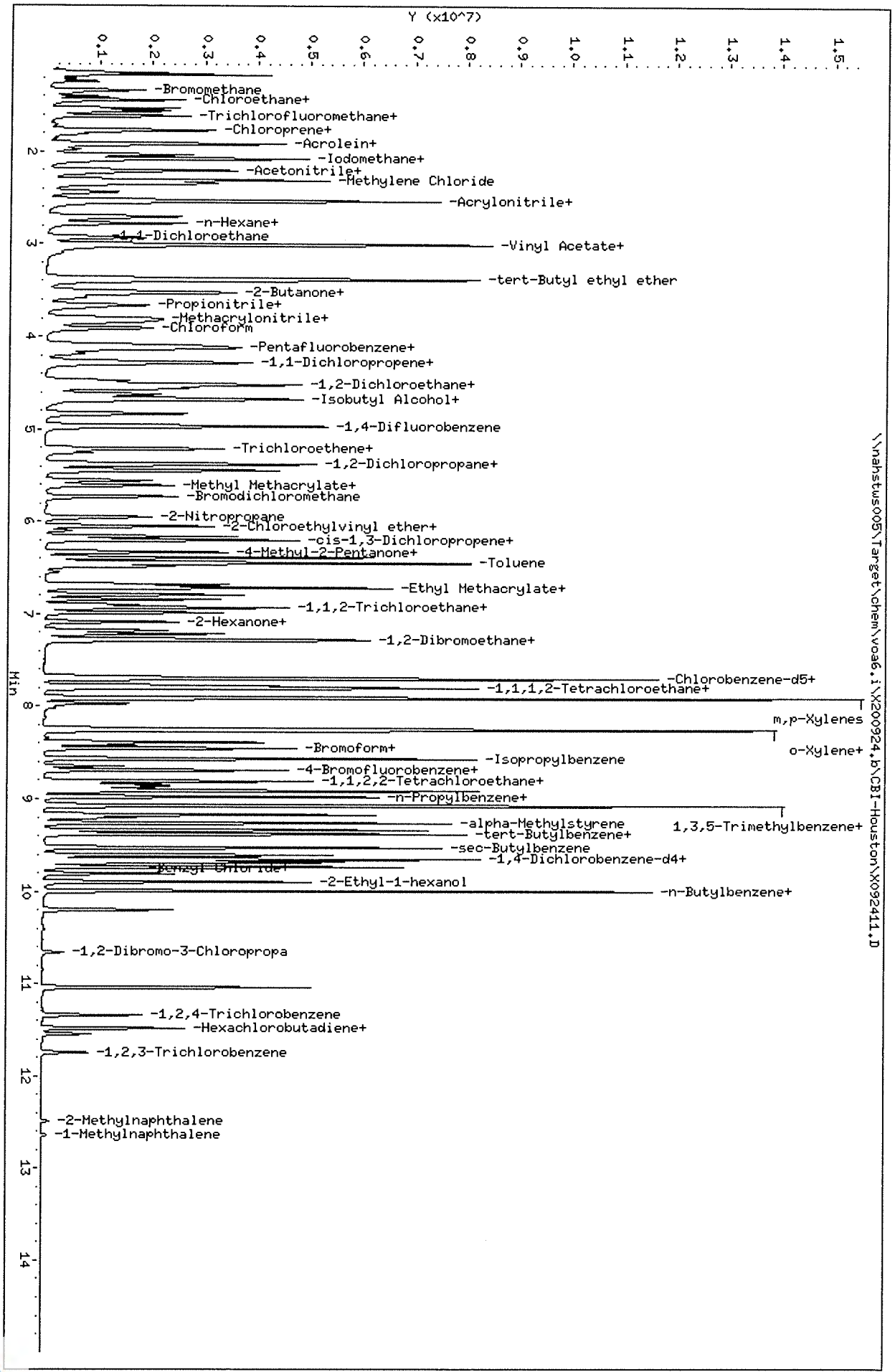
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	514617	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	997974	200.000	188.72
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	1108704	200.000	191.65
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	818151	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	766117	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	3650737	200.000	181.25
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1311827	200.000	198.89
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319805	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1412833	200.000	212.53(A)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	898417	200.000	194.16
17 Methylene Chloride	84	2.305	2.305	(0.550)	1112263	200.000	199.56
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	1197643	200.000	189.96
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1311886	200.000	185.97
38 Trichloroethene	130	5.214	5.214	(1.049)	1150173	200.000	196.54
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	811095	200.000	179.76
56 Tetrachloroethene	164	6.933	6.933	(0.904)	917390	200.000	189.53

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092411.D
Date : 24-SEP-2020 15:33
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092414.D
Report Date: 26-Oct-2020 07:27

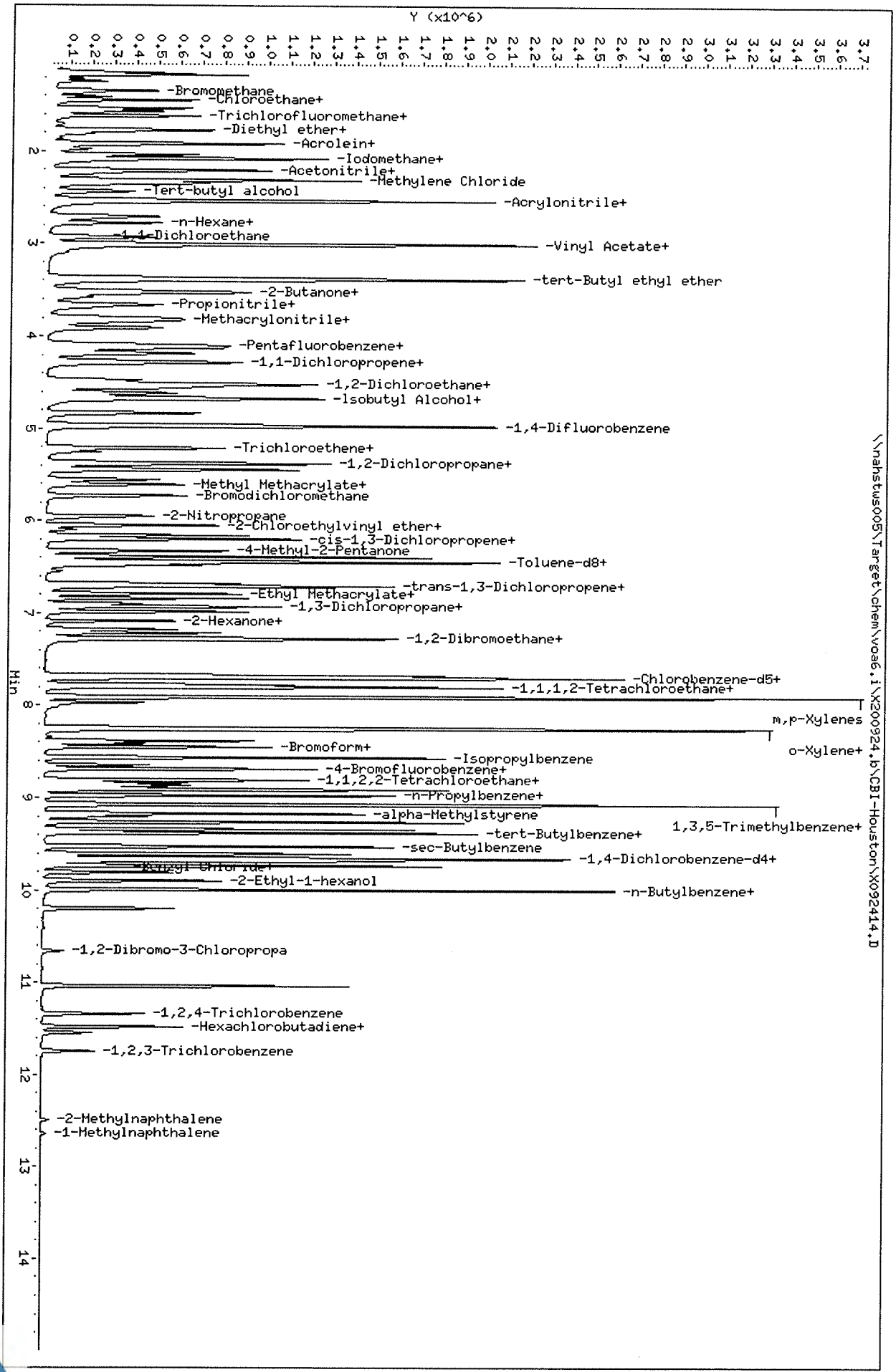
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092414.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-SEP-2020 16:45
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	555853	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	270370	47.3353	47.33
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	292397	46.7950	46.79
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	880879	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	809143	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	992617	46.6609	46.66
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	357664	50.7296	50.72
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	340955	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	314294	43.7725	43.77
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	215034	43.0259	43.02
17 Methylene Chloride	84	2.306	2.305	(0.550)	293086	48.1510	48.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	305678	44.8873	44.88
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	342758	45.1289	45.12
38 Trichloroethene	130	5.214	5.214	(1.049)	279338	44.3352	44.33
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	212341	44.5585	44.55
56 Tetrachloroethene	164	6.933	6.933	(0.904)	211119	41.2989	41.29



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092414.D
Date : 24-SEP-2020 16:45
Client ID: ICV
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 42002 **Analyst:** Presenta Cabascango

Date: 10-06-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	10-06-2020 11:25 am	1.00	50 mL	50 mL	X010601a.D	Liquid	Y	NA
	auto find/ purged									
2	BFB	TUNE	10-06-2020 11:49 am	1.00	50 mL	50 mL	X010602.D	Liquid	Y	NA
	Auto find/ purged									
3	CCV	CCV	10-06-2020 12:13 pm	1.00	50 mL	50 mL	X010603.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	10-06-2020 12:37 pm	1.00	50 mL	50 mL	X010604.D	Liquid	Y	NA
5	VLCSW-200106	LCS	10-06-2020 01:01 pm	1.00	50 mL	50 mL	X010605.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLK	SAMP	10-06-2020 01:25 pm	1.00	50 mL	50 mL	X010606.D	Liquid	Y	NA
7	VBLKW-200106	MBLK	10-06-2020 01:49 pm	1.00	50 mL	50 mL	X010607.D	Liquid	Y	NA
8	HS20091333-03	SAMP	10-06-2020 02:13 pm	1.00	50 mL	50 mL	X010608.D	Liquid	Y	<2
9	HS20100037-10	SAMP	10-06-2020 02:37 pm	1.00	50 mL	50 mL	X010609.D	Liquid	Y	<2
10	HS20100037-11	SAMP	10-06-2020 03:01 pm	1.00	50 mL	50 mL	X010610.D	Liquid	Y	<2
11	HS20100067-08	SAMP	10-06-2020 03:25 pm	1.00	50 mL	50 mL	X010611.D	Liquid	Y	<2
12	HS20100074-01	SAMP	10-06-2020 03:49 pm	1.00	50 mL	50 mL	X010612.D	Liquid	Y	<2
13	HS20100074-03	SAMP	10-06-2020 04:13 pm	1.00	50 mL	50 mL	X010613.D	Liquid	Y	<2
14	HS20100074-04	SAMP	10-06-2020 04:37 pm	1.00	50 mL	50 mL	X010614.D	Liquid	Y	<2
15	HS20100074-01MS	MS	10-06-2020 05:01 pm	1.00	50 mL	50 mL	X010615.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
16	HS20100074-01MSD	MSD	10-06-2020 05:25 pm	1.00	50 mL	50 mL	X010616.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
17	HS20100074-03	SAMP	10-06-2020 05:49 pm	50.00	1 mL	50 mL	X010617.D	Liquid	Y	<2
18	HS20100074-04	SAMP	10-06-2020 06:13 pm	50.00	1 mL	50 mL	X010618.D	Liquid	Y	<2
19	BLK	SAMP	10-06-2020 06:37 pm	1.00	50 mL	50 mL	X010619.D	Liquid	Y	NA
20	HS20100067-02	SAMP	10-06-2020 07:02 pm	1.00	50 mL	50 mL	X010620.D	Liquid	Y	<2
21	HS20100067-03	SAMP	10-06-2020 07:26 pm	1.00	50 mL	50 mL	X010621.D	Liquid	Y	<2
22	HS20100067-04	SAMP	10-06-2020 07:50 pm	1.00	50 mL	50 mL	X010622.D	Liquid	Y	<2
23	HS20100067-05	SAMP	10-06-2020 08:14 pm	1.00	50 mL	50 mL	X010623.D	Liquid	Y	<2
24	HS20100067-07	SAMP	10-06-2020 08:38 pm	1.00	50 mL	50 mL	X010624.D	Liquid	Y	<2
25	HS20100067-01	SAMP	10-06-2020 09:02 pm	1.00	50 mL	50 mL	X010625.D	Liquid	Y	<2
26	HS20100067-06	SAMP	10-06-2020 09:26 pm	1.00	50 mL	50 mL	X010626.D	Liquid	Y	<2
27	HS20100074-05	SAMP	10-06-2020 09:50 pm	1.00	50 mL	50 mL	X010627.D	Liquid	Y	<2
28	HS20100074-06	SAMP	10-06-2020 10:14 pm	1.00	50 mL	50 mL	X010628.D	Liquid	Y	<2
29	HS20100074-02	SAMP	10-06-2020 10:38 pm	5.00	10 mL	50 mL	X010629.D	Liquid	Y	<2
30	HS20100074-02	SAMP	10-06-2020 11:02 pm	50.00	1 mL	50 mL	X010630.D	Liquid	Y	<2
31	CCV-END	CCV	10-06-2020 11:26 pm	1.00	50 mL	50 mL	X010631.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-47-06
IS ID	31106-47-06
CAL STD ID	31106-50-01/02
BFB ID	31106-47-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-200106	96	96	96	102	0
02	VBLKW-200106	93	91	100	107	0
03	HS20100074-01	95	92	98	107	0
04	HS20100074-03	95	92	97	108	0
05	HS20100074-04	93	91	96	105	0
06	HS20100074-01	95	92	98	104	0
07	HS20100074-01	94	91	98	104	0
08	HS20100074-03	95	92	99	105	0
09	HS20100074-04	94	92	98	105	0
10	HS20100074-05	94	90	101	104	0
11	HS20100074-06	94	90	99	105	0
12	HS20100074-02	96	93	97	104	0
13	HS20100074-02	93	90	100	103	0
14						
15						
16						
17						
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19						
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21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(70-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(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 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200106

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID: X010607 Lab Sample ID: VBLKW-200106

Date Analyzed: 10/06/20 Time Analyzed: 1349

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200106	VLCSW-200106	X010605	1301
02	HS20100074-0	HS20100074-01	X010612	1549
03	HS20100074-0	HS20100074-03	X010613	1613
04	HS20100074-0	HS20100074-04	X010614	1637
05	HS20100074-0	HS20100074-01M	X010615	1701
06	HS20100074-0	HS20100074-01M	X010616	1725
07	HS20100074-0	HS20100074-03	X010617	1749
08	HS20100074-0	HS20100074-04	X010618	1813
09	HS20100074-0	HS20100074-05	X010627	2150
10	HS20100074-0	HS20100074-06	X010628	2214
11	HS20100074-0	HS20100074-02	X010629	2238
12	HS20100074-0	HS20100074-02	X010630	2302
13				
14				
15				
16				
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28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID: X010602 BFB Injection Date: 10/06/20

Instrument ID: VOA6 BFB Injection Time: 1149

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.9
75	30.0 - 60.0% of mass 95	48.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.5 (0.8)1
174	Greater than 50.0% of mass 95	64.1
175	5.0 - 9.0% of mass 174	5.5 (8.7)1
176	95.0 - 101.0% of mass 174	62.4 (97.4)1
177	5.0 - 9.0% of mass 176	4.6 (7.3)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X010603	10/06/20	1213
02	VLCSW-200106	VLCSW-200106	X010605	10/06/20	1301
03	VBLKW-200106	VBLKW-200106	X010607	10/06/20	1349
04	HS20100074-0	HS20100074-01	X010612	10/06/20	1549
05	HS20100074-0	HS20100074-03	X010613	10/06/20	1613
06	HS20100074-0	HS20100074-04	X010614	10/06/20	1637
07	HS20100074-0	HS20100074-01M	X010615	10/06/20	1701
08	HS20100074-0	HS20100074-01M	X010616	10/06/20	1725
09	HS20100074-0	HS20100074-03	X010617	10/06/20	1749
10	HS20100074-0	HS20100074-04	X010618	10/06/20	1813
11	HS20100074-0	HS20100074-05	X010627	10/06/20	2150
12	HS20100074-0	HS20100074-06	X010628	10/06/20	2214
13	HS20100074-0	HS20100074-02	X010629	10/06/20	2238
14	HS20100074-0	HS20100074-02	X010630	10/06/20	2302
15	CCV-END	CCV-END	X010631	10/06/20	2326
16					
17					
18					
19					
20					
21					
22					

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID (Standard): X010603 Date Analyzed: 10/06/20

Instrument ID: VOA6 Time Analyzed: 1213

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	568422	4.19	900353	4.97	820467	7.67
	UPPER LIMIT	1136844	4.69	1800706	5.47	1640934	8.17
	LOWER LIMIT	284211	3.69	450177	4.47	410234	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200106	606107	4.19	956665	4.97	864172	7.67
02	VBLKW-200106	562362	4.19	894334	4.97	790092	7.67
03	HS20100074-01	564739	4.19	905056	4.97	809011	7.67
04	HS20100074-03	557192	4.19	893444	4.97	731819	7.67
05	HS20100074-04	551546	4.19	875772	4.97	733584	7.67
06	HS20100074-01	518455	4.19	835770	4.97	765854	7.67
07	HS20100074-01	512375	4.19	819291	4.97	747092	7.67
08	HS20100074-03	558735	4.19	891359	4.97	803822	7.67
09	HS20100074-04	567356	4.19	901752	4.97	811980	7.67
10	HS20100074-05	570466	4.19	909409	4.97	792730	7.67
11	HS20100074-06	576014	4.19	908846	4.97	782750	7.67
12	HS20100074-02	562700	4.19	901996	4.97	761731	7.67
13	HS20100074-02	559349	4.19	894647	4.97	774725	7.67
14							
15							
16							
17							
18							
19							
20							

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

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

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

FORM VIII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Instrument ID: VOA6 Calibration Date: 10/06/20 Time: 1213

Lab File ID: X010603 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6271538	0.6271538	0.1	2.92	20.00	AVRG
Methylene Chloride	50.646713	50.000000	0.5542062	0.1	-1.29	20.00	LINR
1,1-Dichloroethene	0.4490000	0.4374444	0.4374444	0.1	2.57	20.00	AVRG
1,2-Dichloroethane	0.4310000	0.4047424	0.4047424	0.1	6.09	20.00	AVRG
Trichloroethene	0.3580000	0.3430210	0.3430210	0.2	4.18	20.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2755199	0.2755199	0.1	6.28	20.00	AVRG
Tetrachloroethene	0.3160000	0.2966957	0.2966957	0.2	6.11	20.00	AVRG
Dibromofluoromethane	0.5140000	0.4946290	0.4946290	0.1	3.77	20.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5402148	0.5402148	0.1	3.88	20.00	AVRG
Toluene-d8	1.3140000	1.2696416	1.2696416	0.1	3.38	20.00	AVRG
4-Bromofluorobenzene	51.826607	50.000000	0.4514331	0.1	-3.65	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Instrument ID: VOA6 Calibration Date: 10/06/20 Time: 2326

Lab File ID: X010631 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6592574	0.6592574	0.1	-2.05	50.00	AVRG
Methylene Chloride	53.437388	50.000000	0.5843227	0.1	-6.87	50.00	LINR
1,1-Dichloroethene	0.4490000	0.4564084	0.4564084	0.1	-1.65	50.00	AVRG
1,2-Dichloroethane	0.4310000	0.4036936	0.4036936	0.1	6.34	50.00	AVRG
Trichloroethene	0.3580000	0.3436808	0.3436808	0.2	4.00	50.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2762324	0.2762324	0.1	6.04	50.00	AVRG
Tetrachloroethene	0.3160000	0.2887096	0.2887096	0.2	8.64	50.00	AVRG
Dibromofluoromethane	0.5140000	0.5147056	0.5147056	0.1	-0.14	50.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5686242	0.5686242	0.1	-1.18	50.00	AVRG
Toluene-d8	1.3140000	1.2639088	1.2639088	0.1	3.81	50.00	AVRG
4-Bromofluorobenzene	51.690465	50.000000	0.4502659	0.1	-3.38	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID (Standard): X010603 Date Analyzed: 10/06/20

Instrument ID: VOA6 Time Analyzed: 1213

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

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	336663	9.66				
	UPPER LIMIT	673326	10.16				
	LOWER LIMIT	168332	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-200106	359669	9.66				
02	VBLKW-200106	331940	9.67				
03	HS20100074-01	336340	9.67				
04	HS20100074-03	316803	9.66				
05	HS20100074-04	304483	9.67				
06	HS20100074-01	322259	9.67				
07	HS20100074-01	311528	9.66				
08	HS20100074-03	323548	9.66				
09	HS20100074-04	347464	9.67				
10	HS20100074-05	314638	9.67				
11	HS20100074-06	323714	9.67				
12	HS20100074-02	321193	9.67				
13	HS20100074-02	311466	9.67				
14							
15							
16							
17							
18							
19							
20							

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

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010602.D

Date : 06-OCT-2020 11:49

Client ID: BFB

Instrument: voa6.i

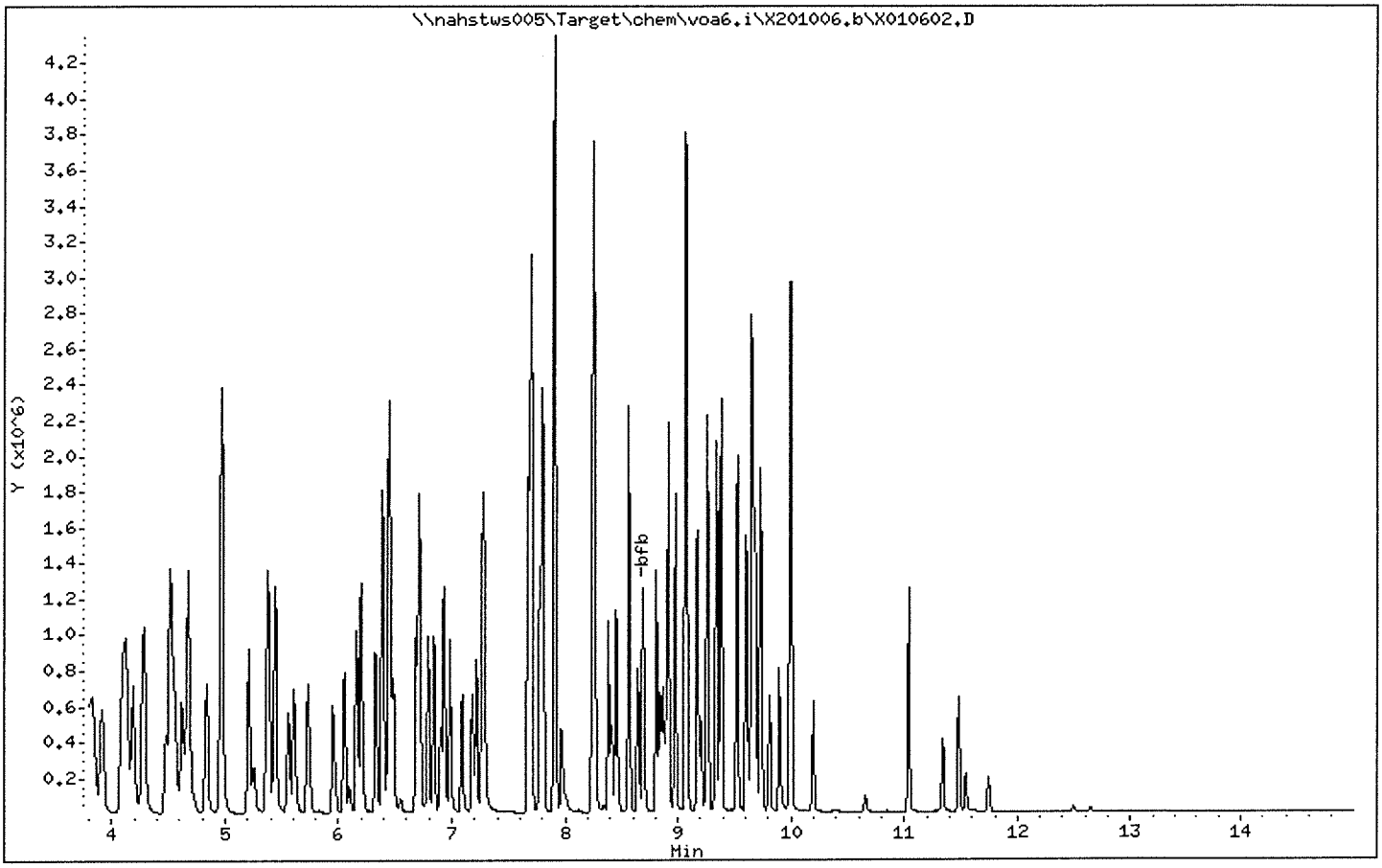
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010602.D Page 2

Date : 06-OCT-2020 11:49

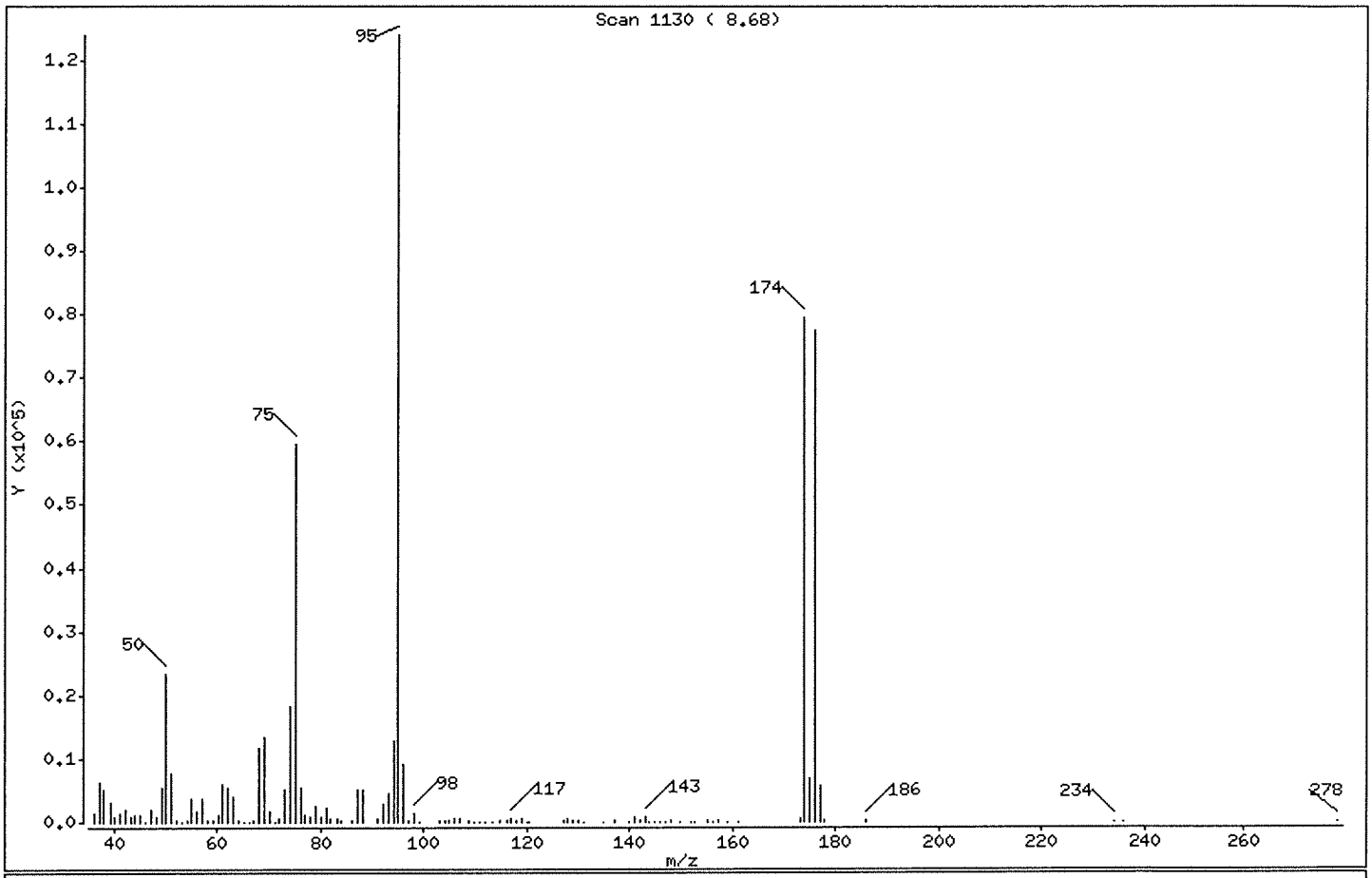
Client ID: BFB Instrument: voa6.i

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	18.87
75	30.00 - 60.00% of mass 95	48.00
96	5.00 - 9.00% of mass 95	7.33
173	Less than 2.00% of mass 174	0.52 (0.81)
174	Greater than 50.00% of mass 95	64.08
175	5.00 - 9.00% of mass 174	5.54 (8.65)
176	95.00 - 101.00% of mass 174	62.44 (97.44)
177	5.00 - 9.00% of mass 176	4.56 (7.31)

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010602.D

Date : 06-OCT-2020 11:49

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: X010602.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.10
Number of points: 113

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1475	64.10	382	96.10	9080	141.00	718
37.10	6277	65.10	92	97.20	300	142.00	168
38.10	5254	66.10	118	98.10	1454	143.00	811
39.20	3200	67.10	372	99.30	131	143.90	77
40.10	943	68.10	11732	103.10	146	144.90	73
41.10	1334	69.10	13351	104.10	382	145.80	76
42.10	2068	70.10	1728	105.00	415	146.90	75
43.10	911	71.20	107	106.00	533	148.00	284
44.10	1147	72.00	555	107.10	454	149.80	93
45.10	1238	73.10	5188	108.90	309	151.90	76
46.10	106	74.10	18296	109.90	113	152.80	87
47.00	1932	75.10	59472	110.90	80	155.10	284
48.10	831	76.10	5273	111.90	66	156.00	120
49.10	5310	77.00	1022	113.20	51	157.10	220
50.10	23384	78.10	811	114.90	171	158.90	115
51.10	7717	79.00	2671	116.00	389	161.00	125
52.10	369	80.10	958	117.00	544	173.10	642
53.00	132	81.00	2373	118.00	353	174.00	79392
53.30	140	81.90	587	118.90	518	175.00	6869
54.10	240	83.10	476	119.90	66	176.00	77360
55.10	3693	84.10	150	120.30	76	177.10	5656
56.10	1816	85.90	180	127.10	169	177.90	181
57.10	3619	87.00	5214	128.00	445	186.00	264
58.00	169	88.10	5263	129.00	232	233.90	98
59.20	253	91.00	489	130.00	360	235.90	57
60.10	1080	92.00	2901	130.90	138	278.00	113
61.10	6049	93.10	4655	134.90	140		
62.10	5286	94.10	12861	137.00	163		
63.10	4091	95.10	123904	139.80	53		

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010603.D Page 1
Report Date: 26-Oct-2020 09:37

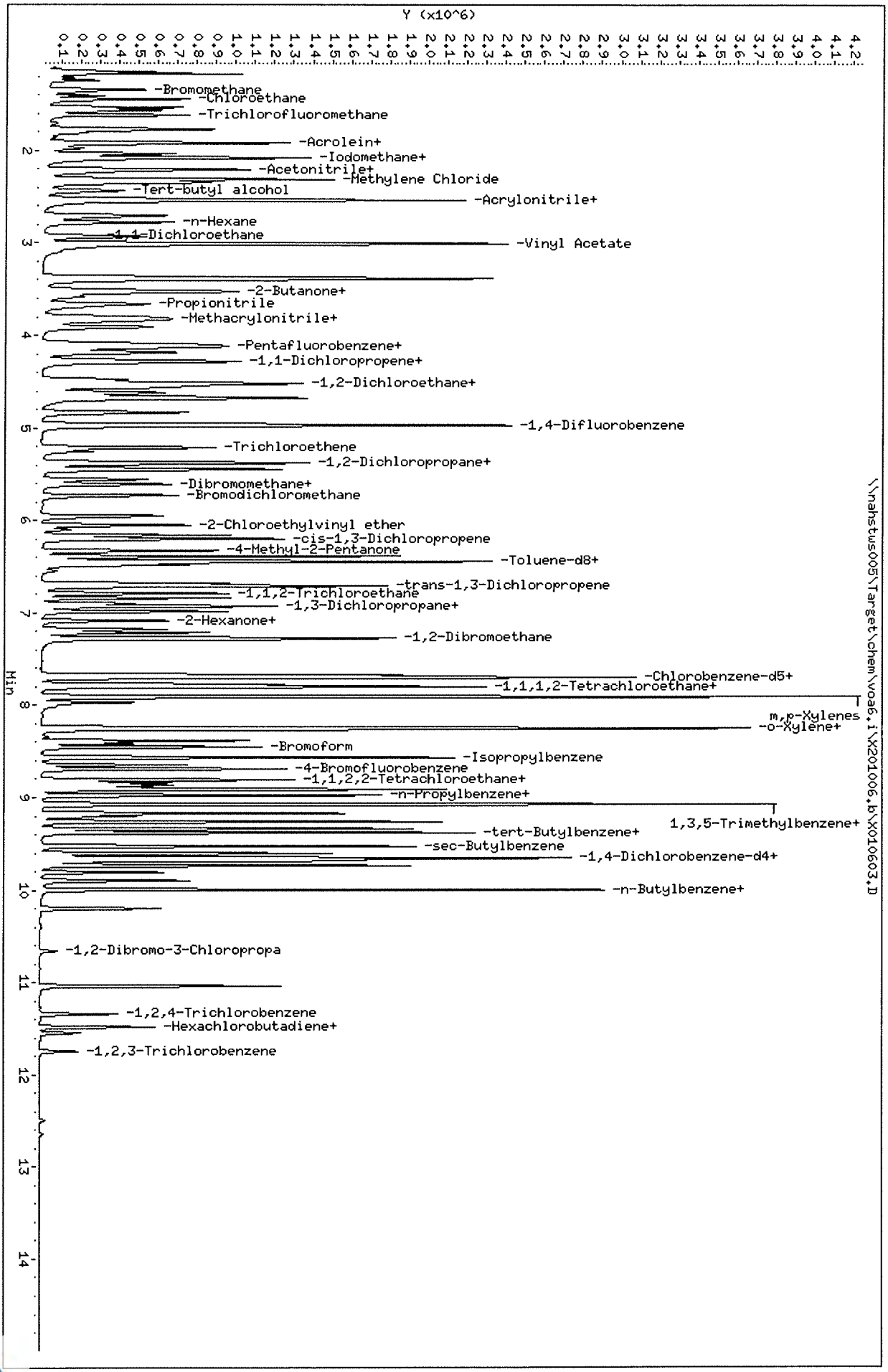
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010603.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 06-OCT-2020 12:13
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	568422	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	281158	50.0000	48.13
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	307070	50.0000	48.05
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	900353	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	820467	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1041699	50.0000	48.29
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	370386	50.0000	51.82
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	336663	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	356488	50.0000	48.55
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	248653	50.0000	48.65
17 Methylene Chloride	84	2.305	2.305	(0.550)	315023	50.0000	50.64
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	333712	50.0000	47.92
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	364411	50.0000	46.94
38 Trichloroethene	130	5.214	5.214	(1.049)	308840	50.0000	47.95
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	226055	50.0000	46.78
56 Tetrachloroethene	164	6.933	6.933	(0.904)	243429	50.0000	46.96



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010603.D
Date : 06-OCT-2020 12:13
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010605.D Page 1
Report Date: 26-Oct-2020 09:37

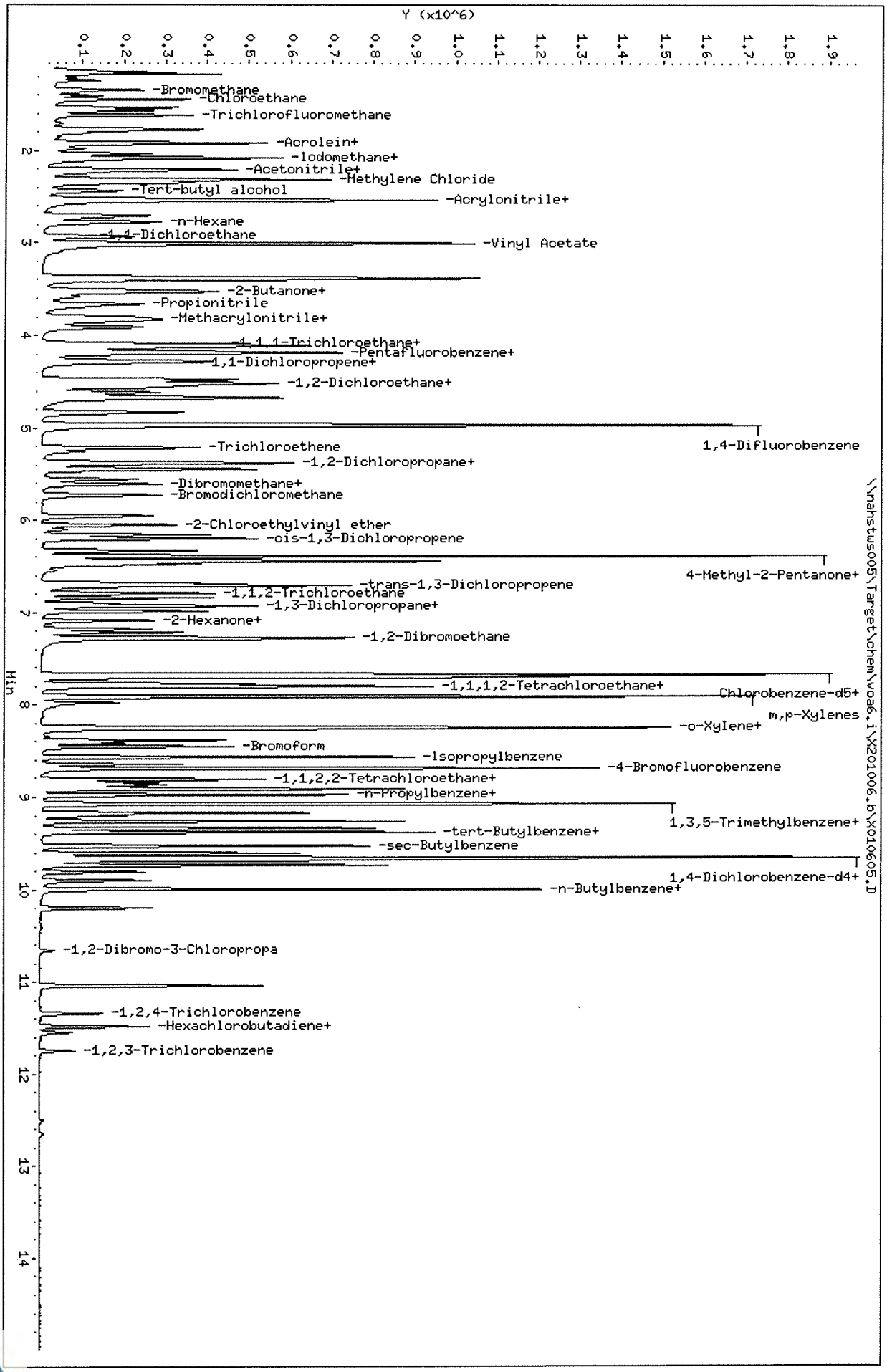
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010605.D
Lab Smp Id: VLCSW-200106 Client Smp ID: VLCSW-200106
Inj Date : 06-OCT-2020 13:01
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200106;VLCSW-200106;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	606107	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	300327	48.2205	48.22
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	325538	47.7792	47.77
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	956665	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	864172	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1086432	47.8188	47.81
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	385994	51.2703	51.27
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	359669	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	145671	18.6058	18.60
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	103606	19.0116	19.01
17 Methylene Chloride	84	2.313	2.305	(0.552)	135625	20.0270	20.02
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	142652	19.2109	19.21
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	156821	19.0120	19.01
38 Trichloroethene	130	5.214	5.214	(1.049)	127695	18.6616	18.66
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	97028	19.0642	19.06
56 Tetrachloroethene	164	6.933	6.933	(0.904)	100411	18.3915	18.39



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010605.D
Date : 06-OCT-2020 13:01
Client ID: VLCSW-200106
Sample Info: VLCSW-200106;VLCSW-200106;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010607.D Page 1
Report Date: 26-Oct-2020 09:37

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010607.D
Lab Smp Id: VBLKW-200106 Client Smp ID: VBLKW-200106
Inj Date : 06-OCT-2020 13:49
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200106;VBLKW-200106;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

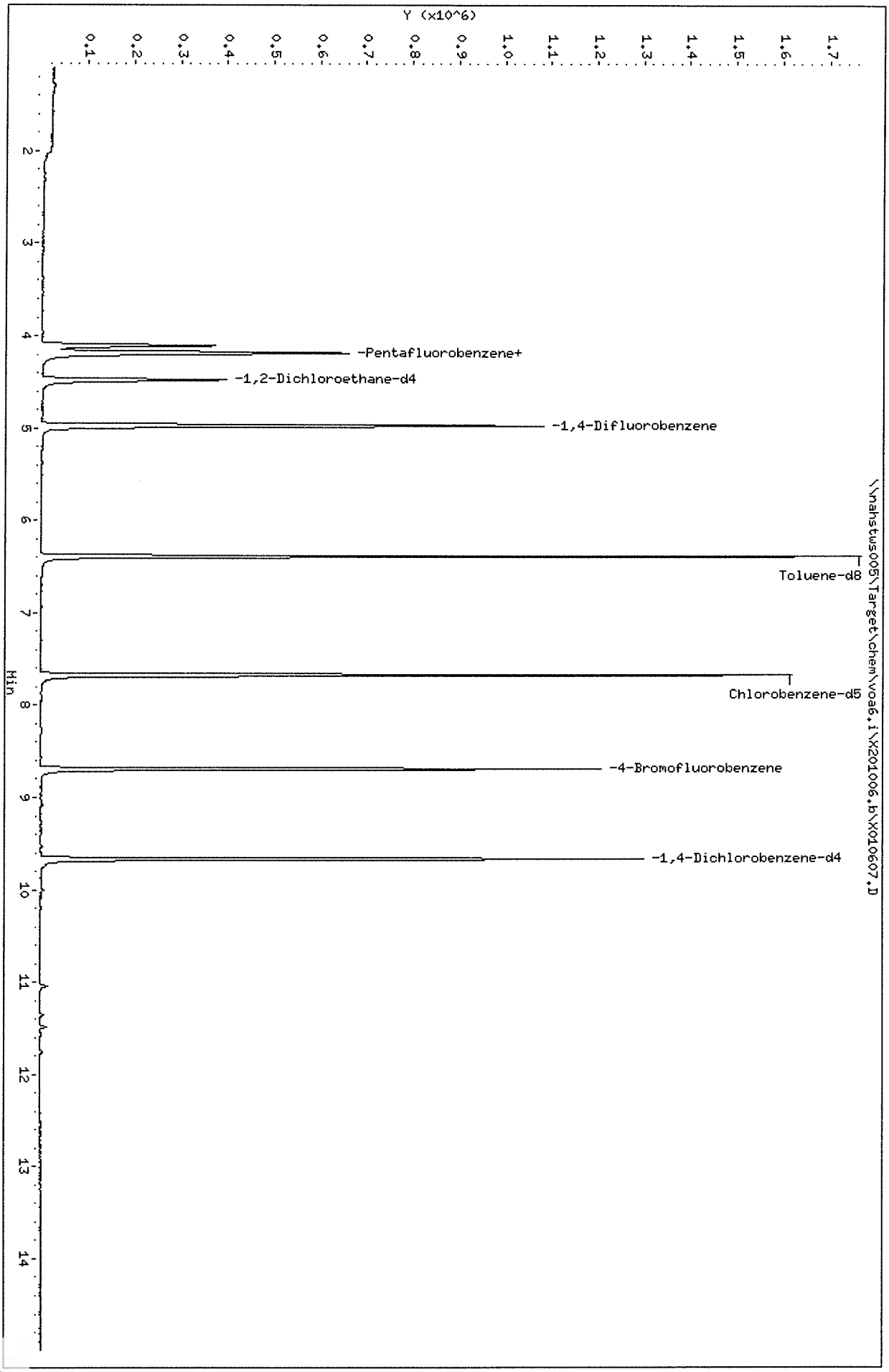
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	562362	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	269537	46.6432	46.64
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	286456	45.3136	45.31
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	894334	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	790092	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1044495	50.2835	50.28
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	368016	53.5010	53.50
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	331940	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010607.D
Date : 06-OCT-2020 13:49
Client ID: VBLKW-200106
Sample Info: VBLKW-200106;VBLKW-200106;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010612.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010612.D
Lab Smp Id: HS20100074-01 Client Smp ID: HS20100074-01
Inj Date : 06-OCT-2020 15:49
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-01;HS20100074-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

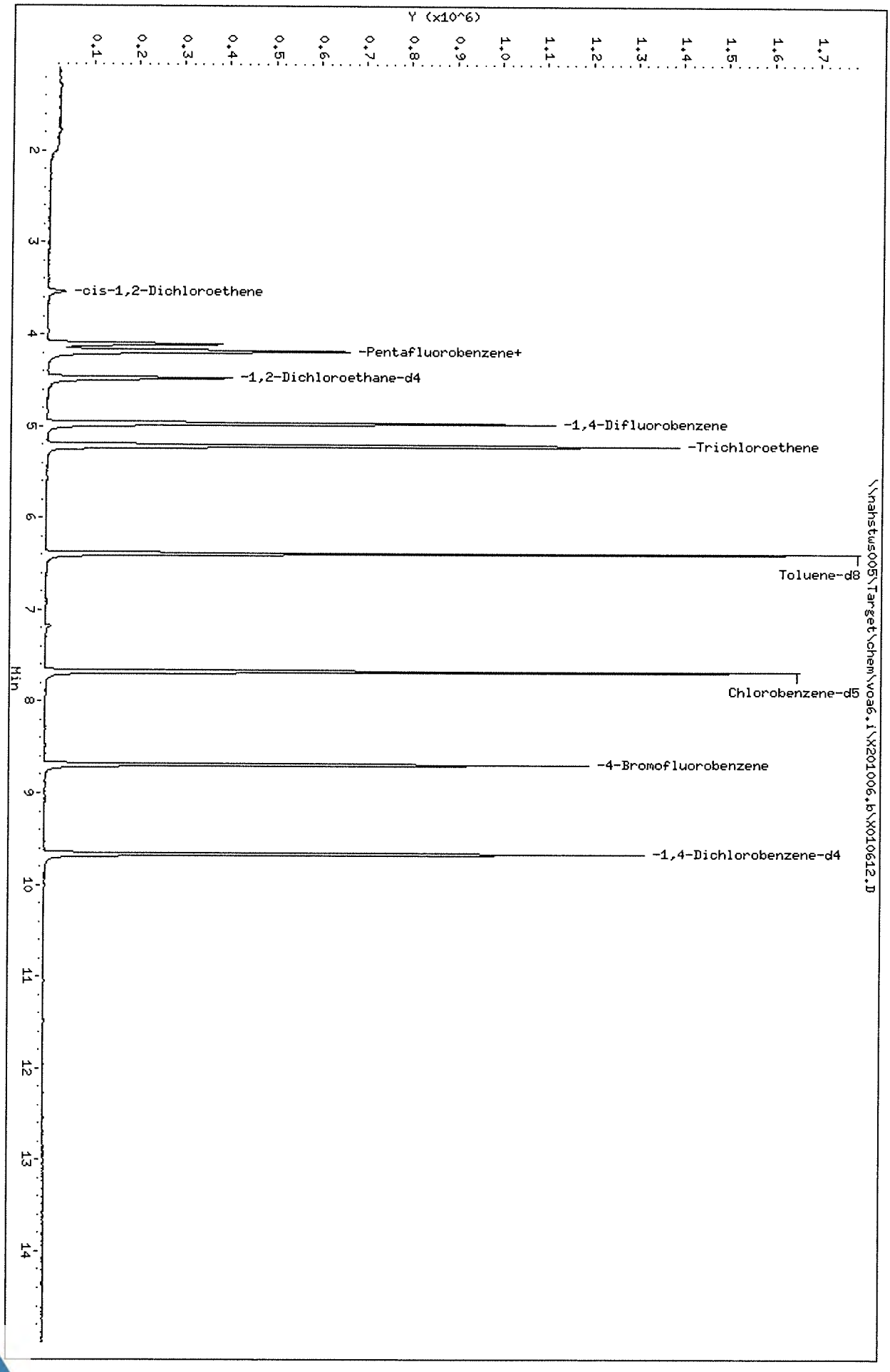
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	564739	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	275161	47.4161	47.41
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	292840	46.1285	46.12
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	905056	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	809011	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1043842	49.0769	49.07
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	376101	53.3962	53.39
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	336340	50.0000	
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	20278	2.93087	2.93(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	478519	73.9194	73.91

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010612.D
Date : 06-OCT-2020 15:49
Client ID: HS20100074-01
Sample Info: HS20100074-01;HS20100074-01;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010612.D

Date : 06-OCT-2020 15:49

Client ID: HS20100074-01

Instrument: voa6.i

Sample Info: HS20100074-01;HS20100074-01;;;

Purge Volume: 5.0

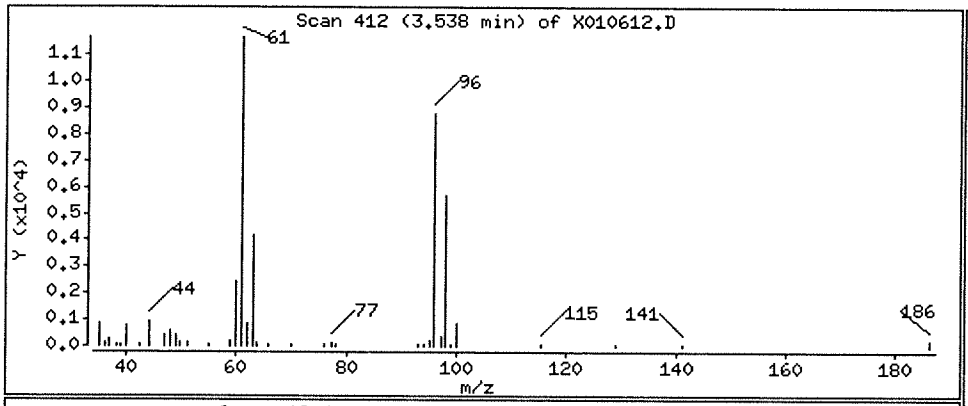
Operator: PC

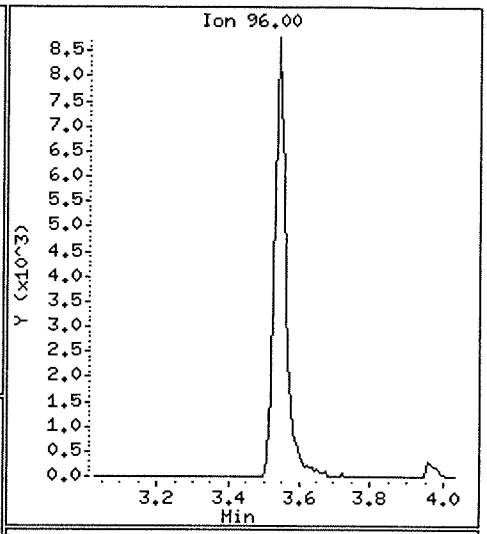
Column phase: DB624

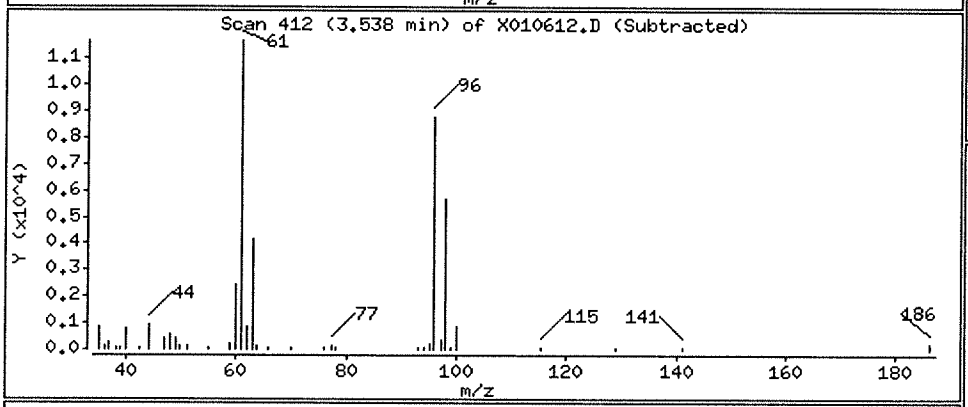
Column diameter: 0.18

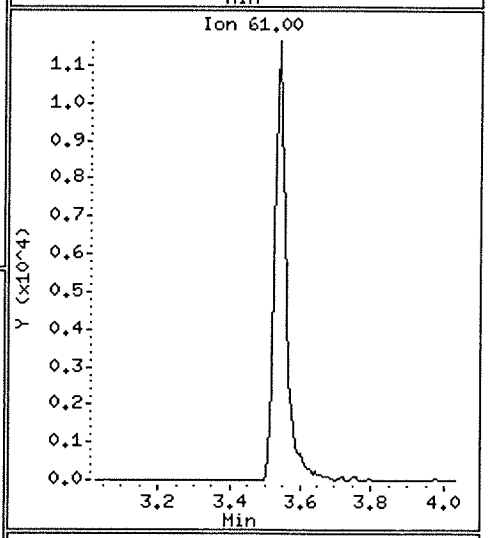
27 cis-1,2-Dichloroethene

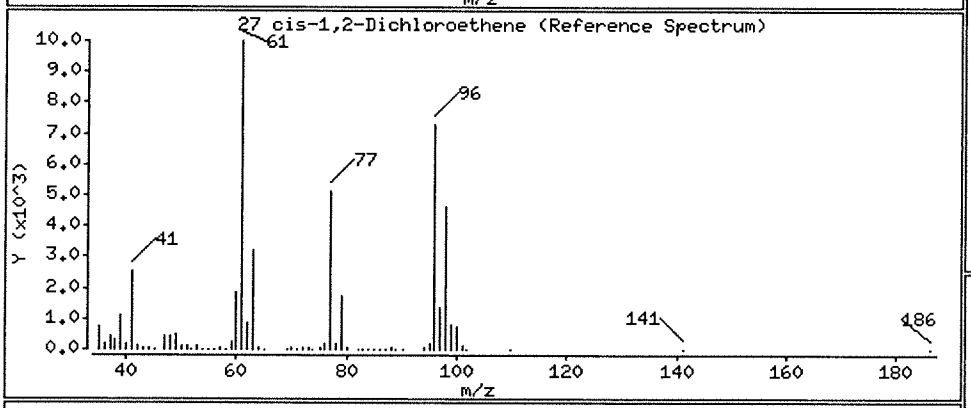
Concentration: 2.93 ug/l

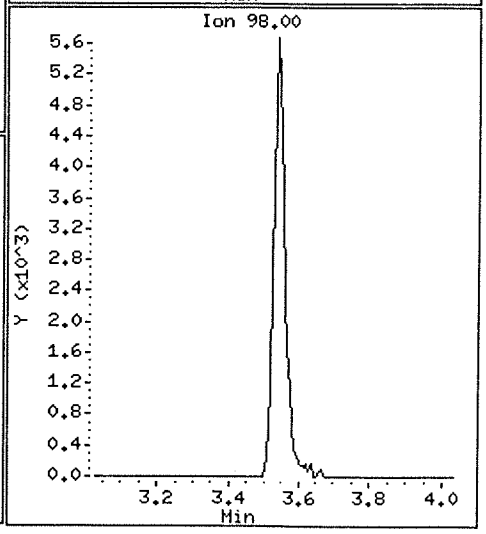


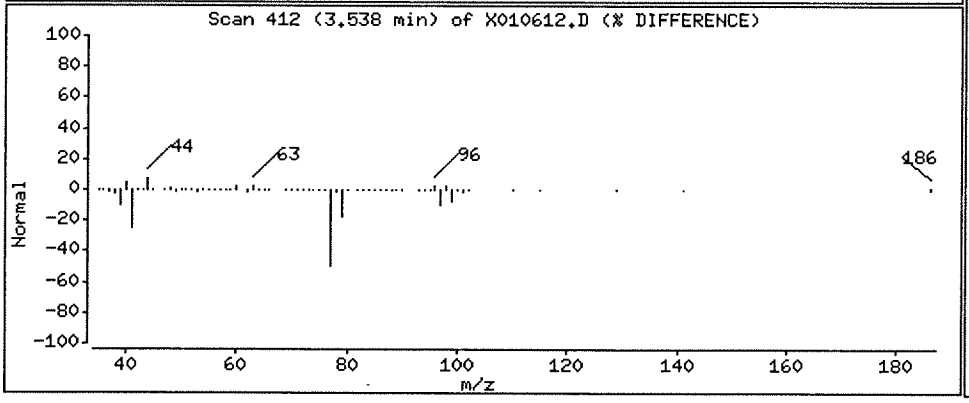












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010612.D

Date : 06-OCT-2020 15:49

Client ID: HS20100074-01

Instrument: voa6.i

Sample Info: HS20100074-01;HS20100074-01;;;

Purge Volume: 5.0

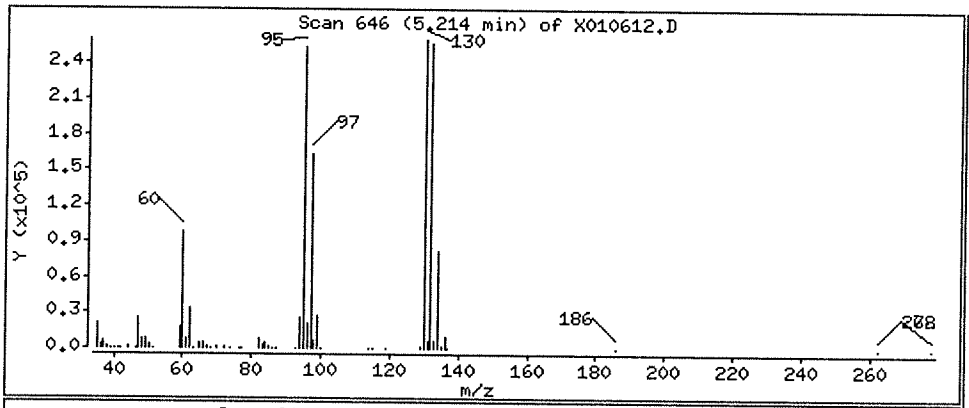
Operator: PC

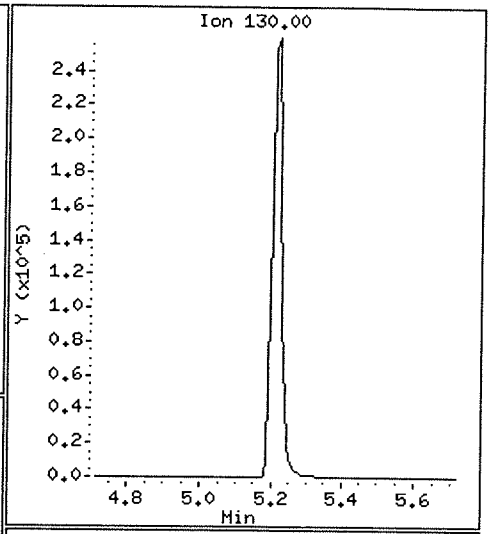
Column phase: DB624

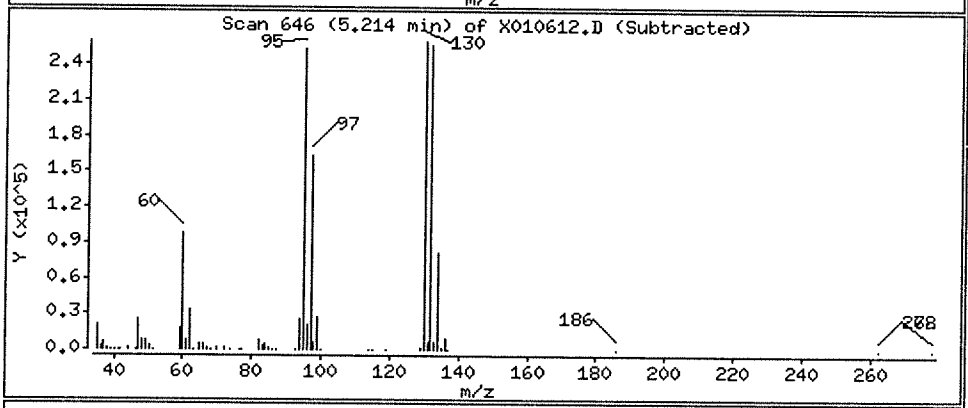
Column diameter: 0.18

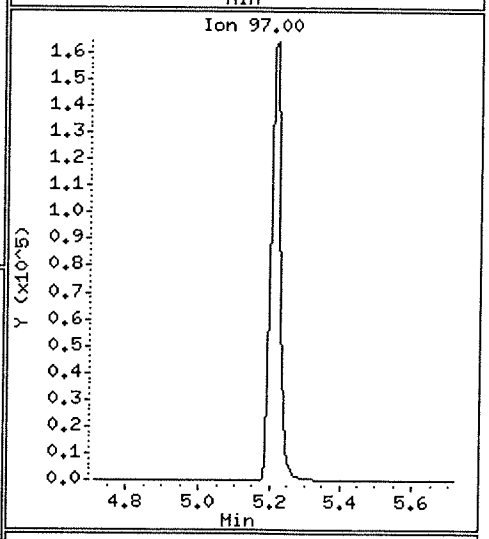
38 Trichloroethene

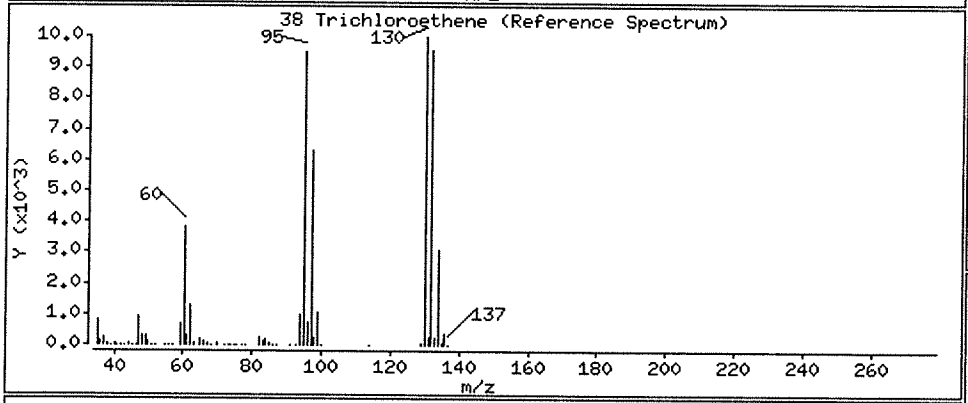
Concentration: 73.91 ug/l

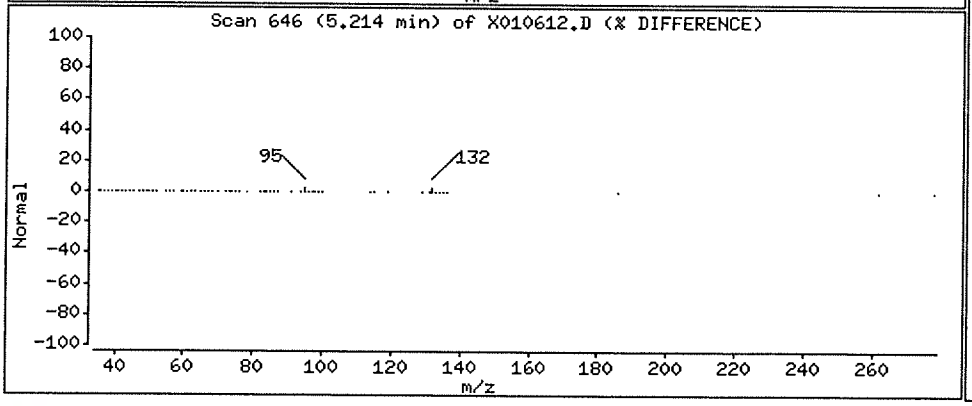


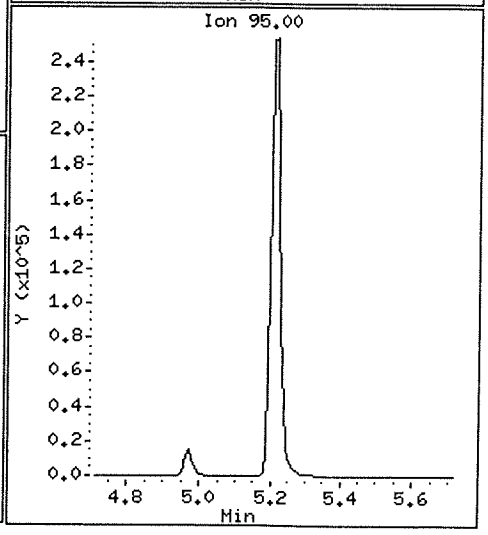












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D
Lab Smp Id: HS20100074-03 Client Smp ID: HS20100074-03
Inj Date : 06-OCT-2020 16:13
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-03;HS20100074-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

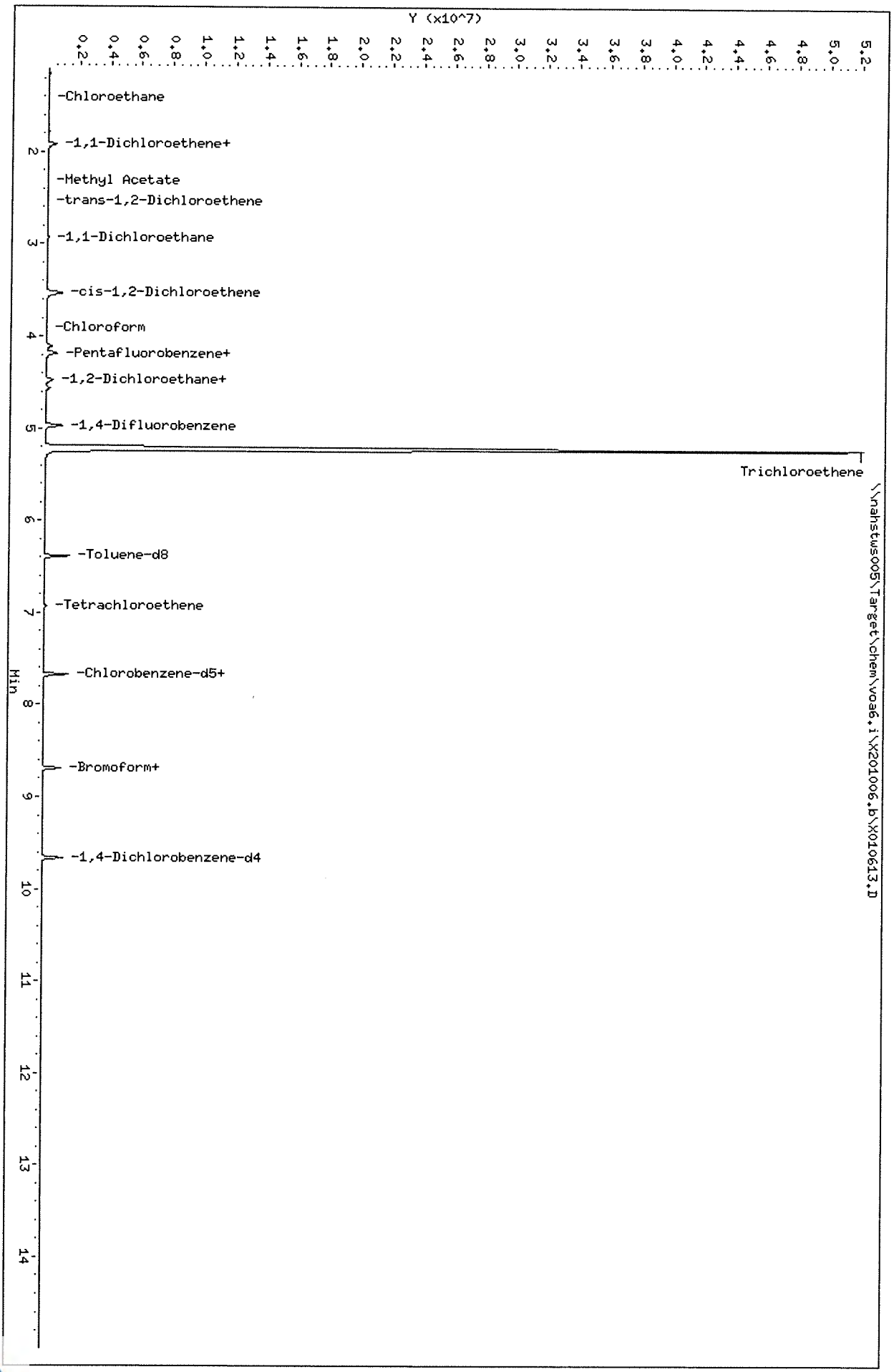
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	557192	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	272950	47.6721	47.67
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	286632	45.7621	45.76
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	893444	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	731819	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	930660	48.3709	48.37
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	343223	53.8756	53.87
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	316803	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	24428	3.39397	3.39(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	172964	34.5250	34.52
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	507454	74.3381	74.33
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	201021	26.0950	26.09
38 Trichloroethene	130	5.214	5.214	(1.049)	17898438	2800.80	2800.80(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	31311	6.77219	6.77

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D
Date : 06-OCT-2020 16:13
Client ID: HS20100074-03
Sample Info: HS20100074-03;HS20100074-03;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

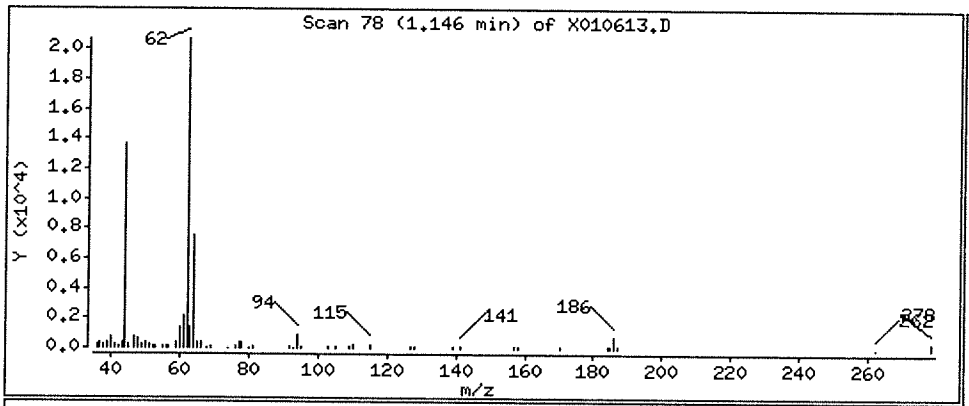
Operator: PC

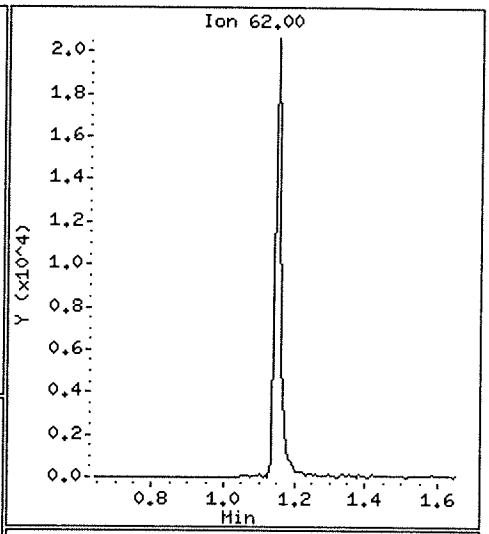
Column phase: DB624

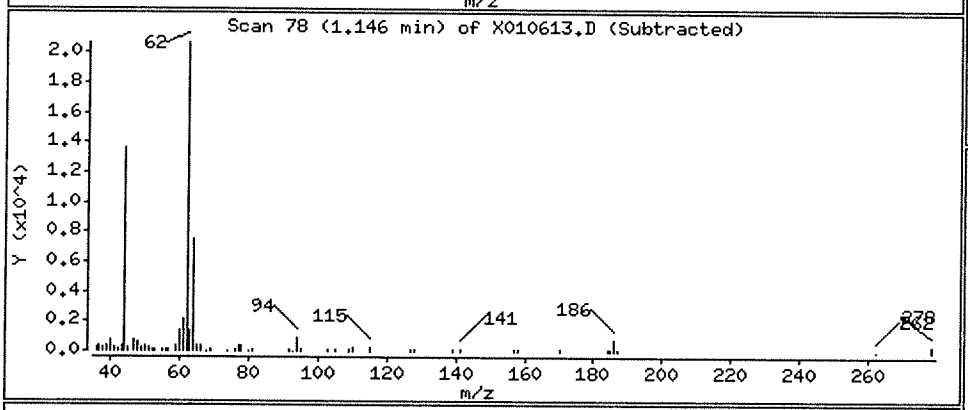
Column diameter: 0.18

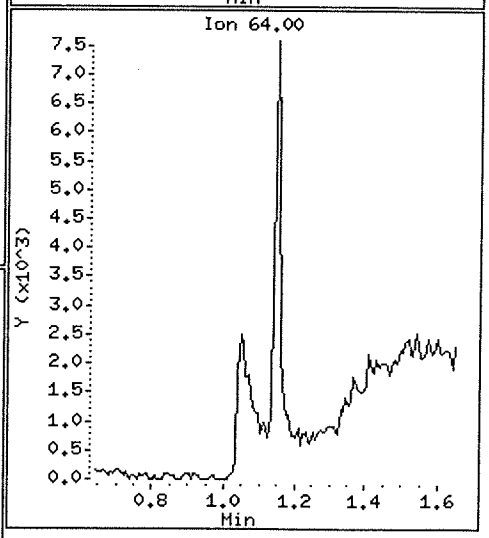
5 Vinyl Chloride

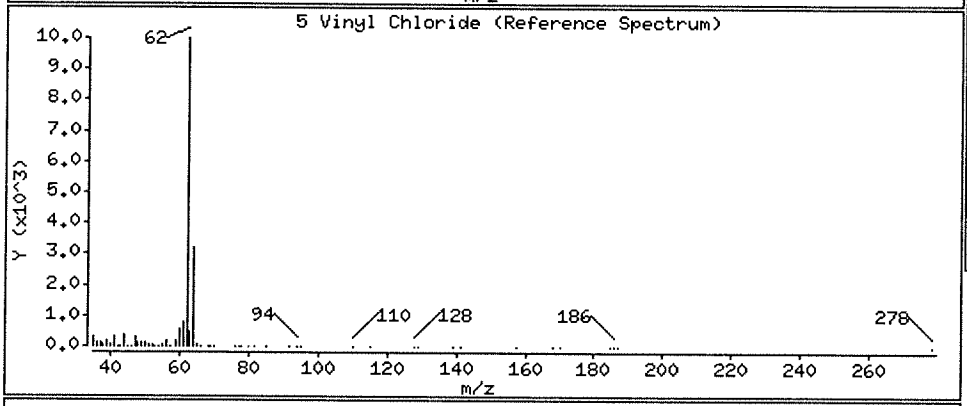
Concentration: 3.39 ug/l

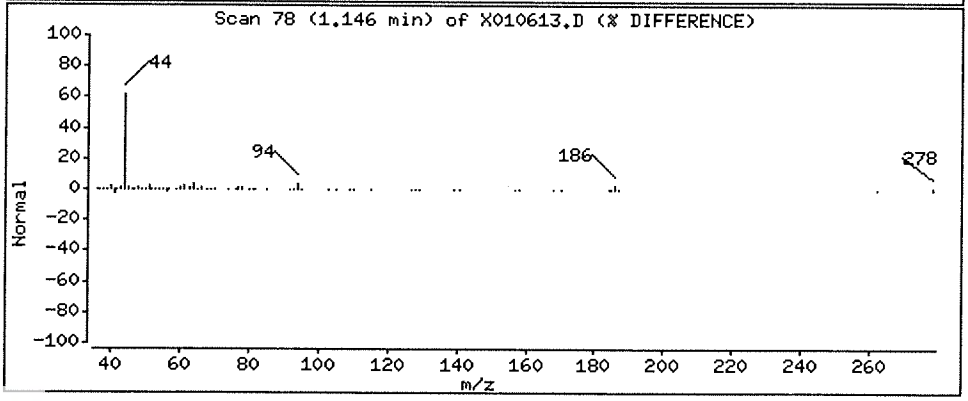












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

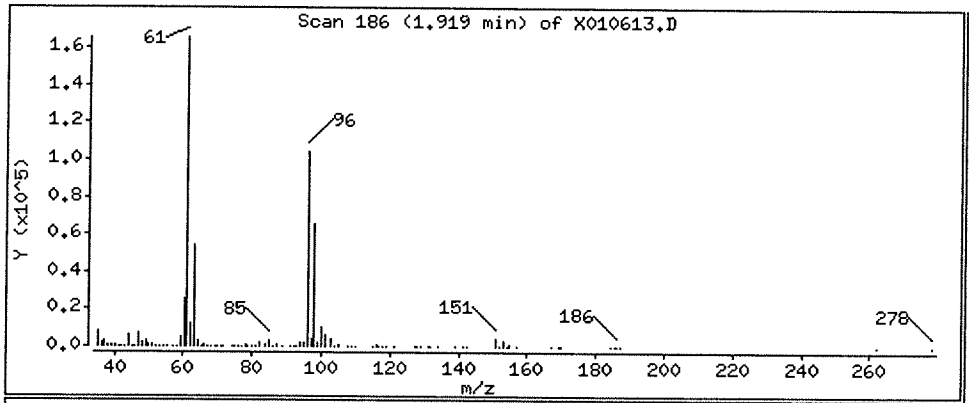
Operator: PC

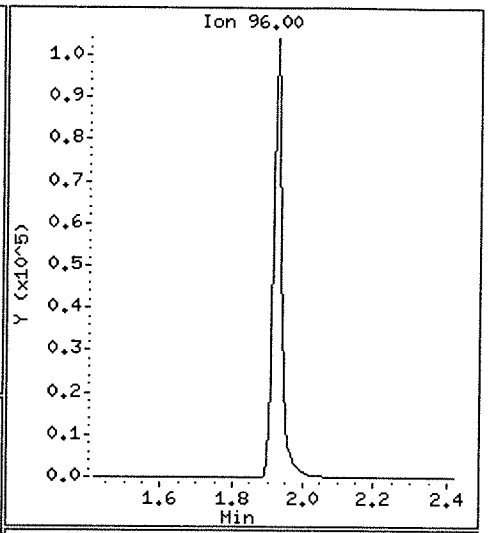
Column phase: DB624

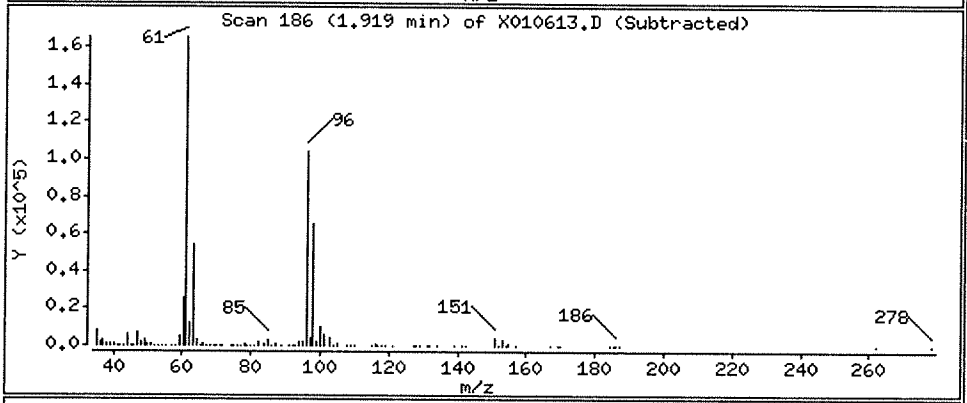
Column diameter: 0.18

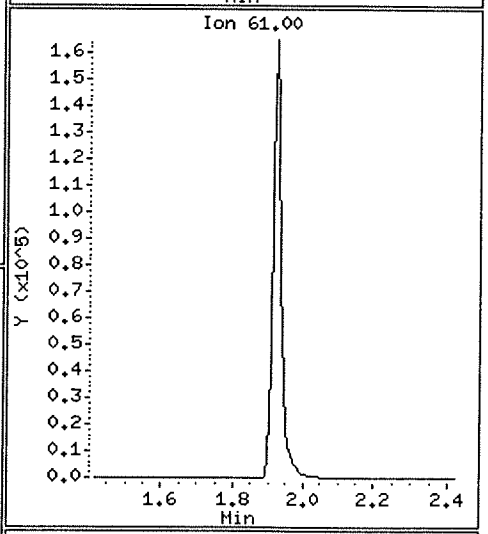
11 1,1-Dichloroethene

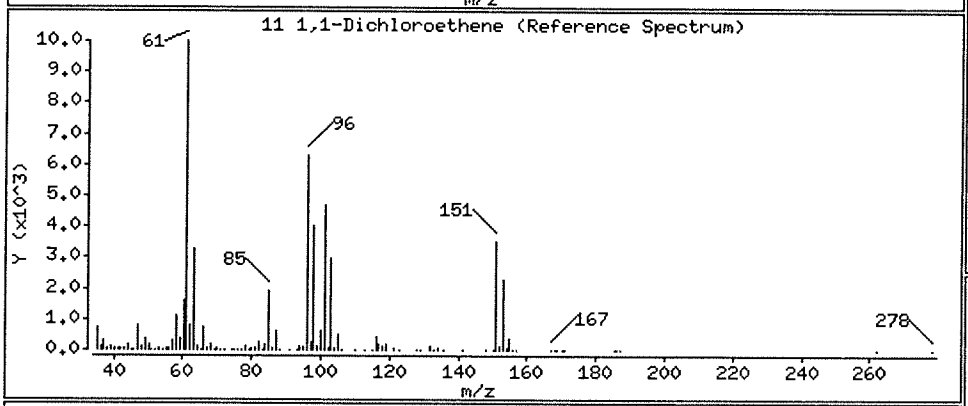
Concentration: 34.52 ug/l

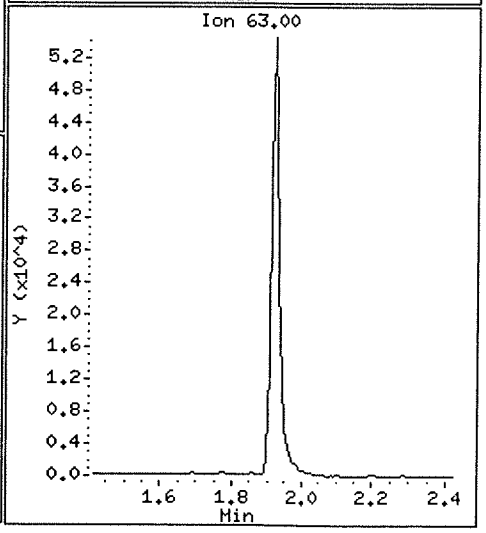


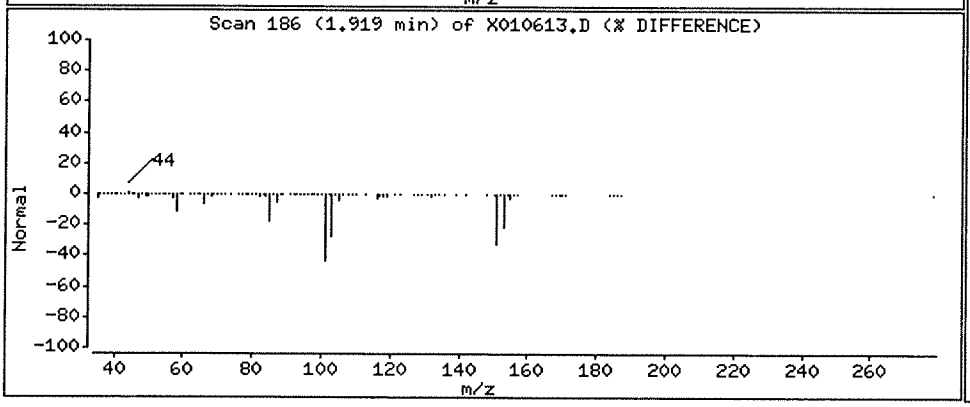












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

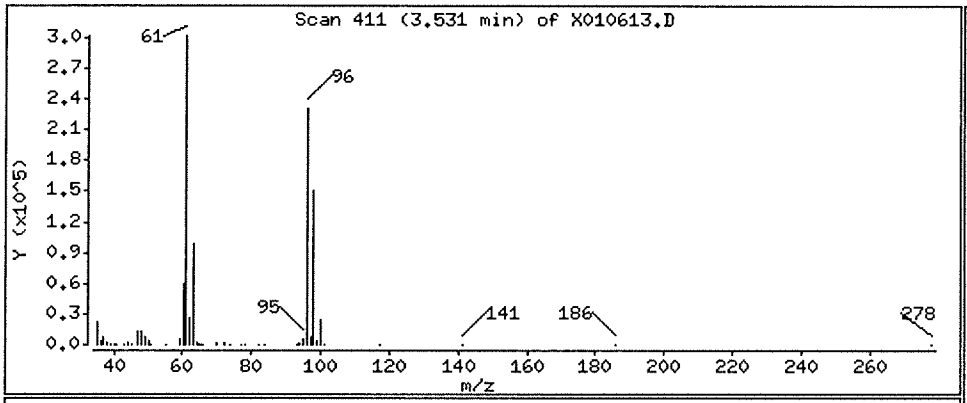
Operator: PC

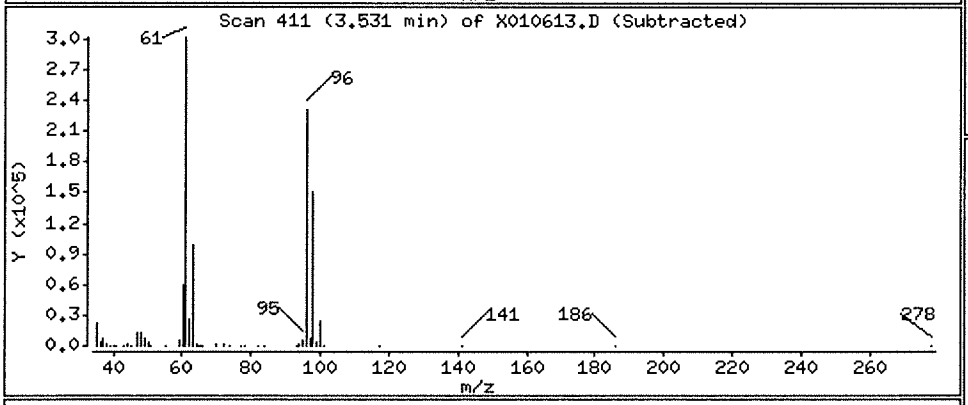
Column phase: DB624

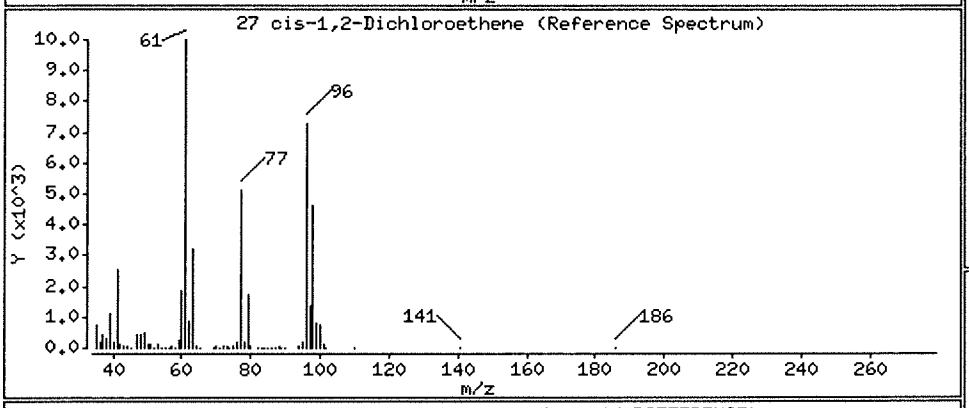
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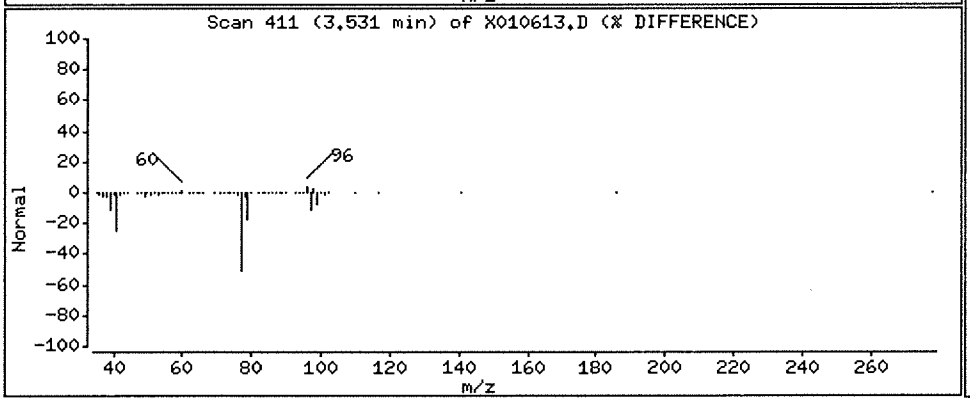
27 cis-1,2-Dichloroethene

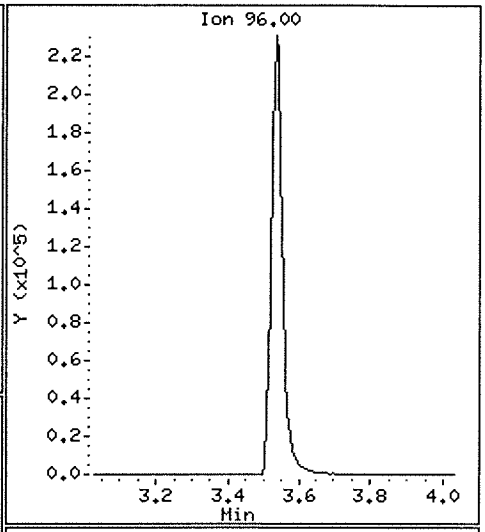
Concentration: 74.33 ug/l

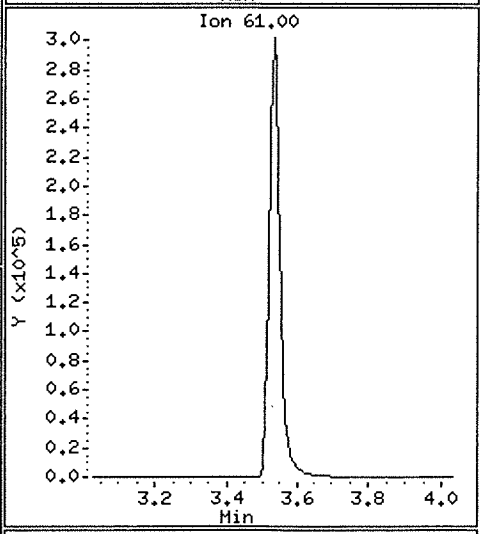


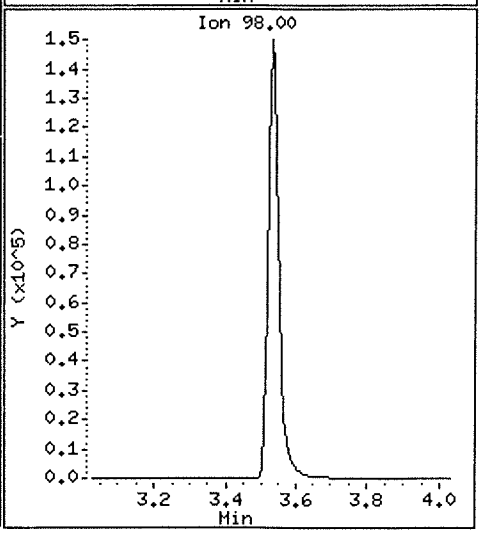












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

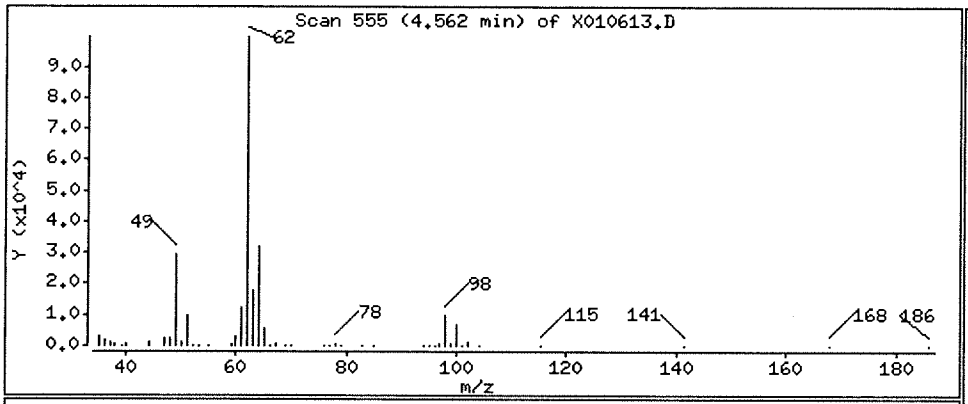
Operator: PC

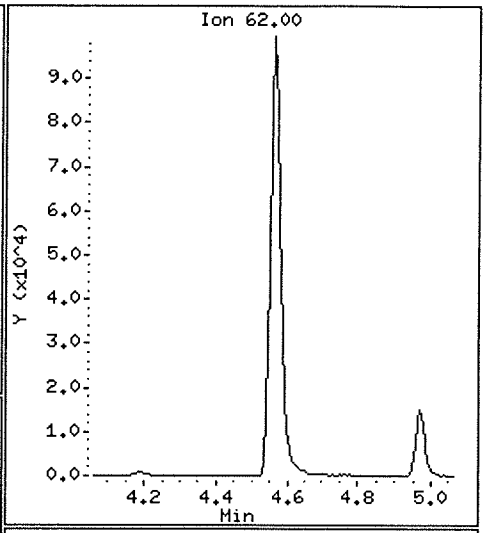
Column phase: DB624

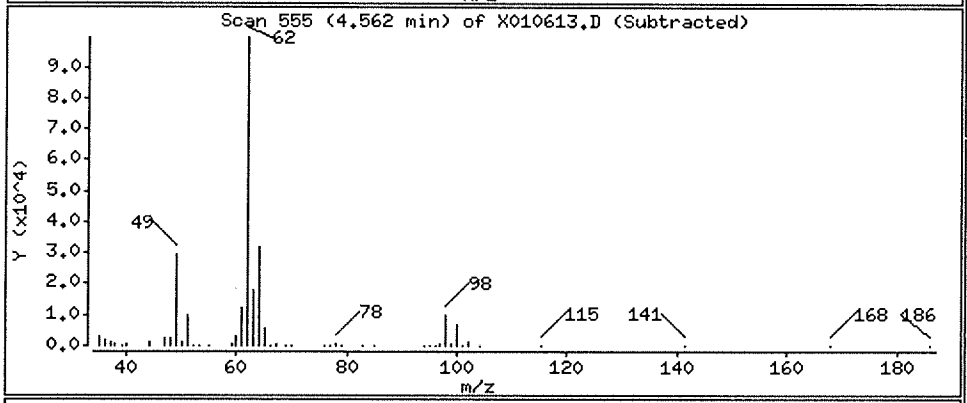
Column diameter: 0.18

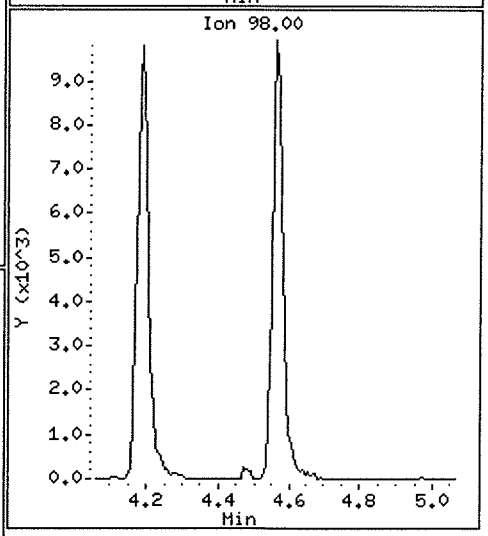
33 1,2-Dichloroethane

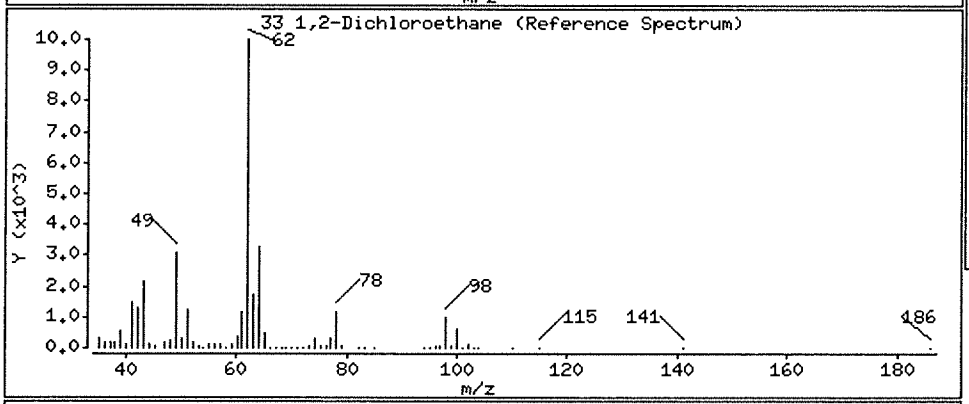
Concentration: 26.09 ug/l

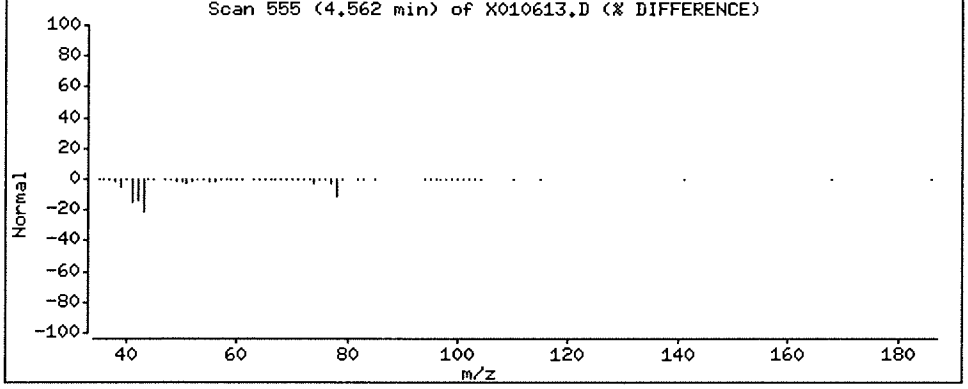












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

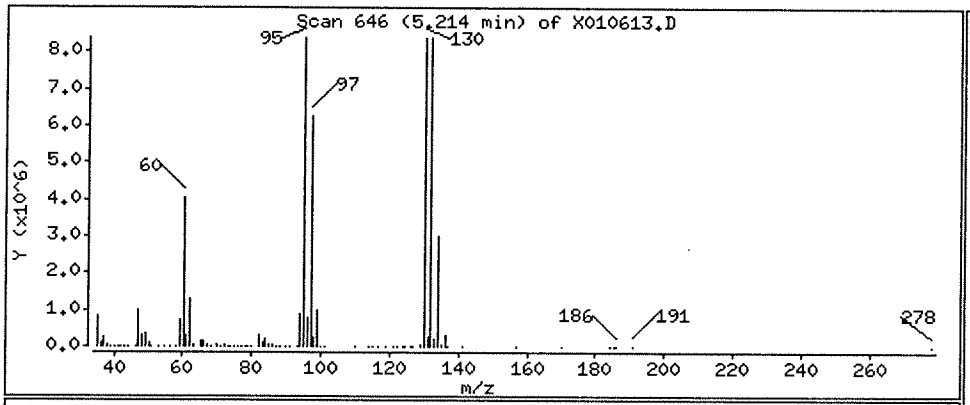
Operator: PC

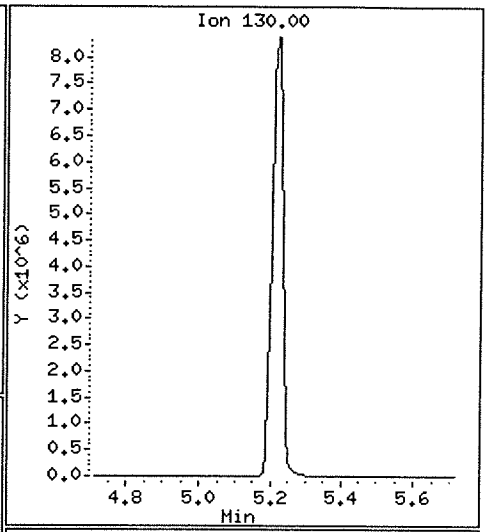
Column phase: DB624

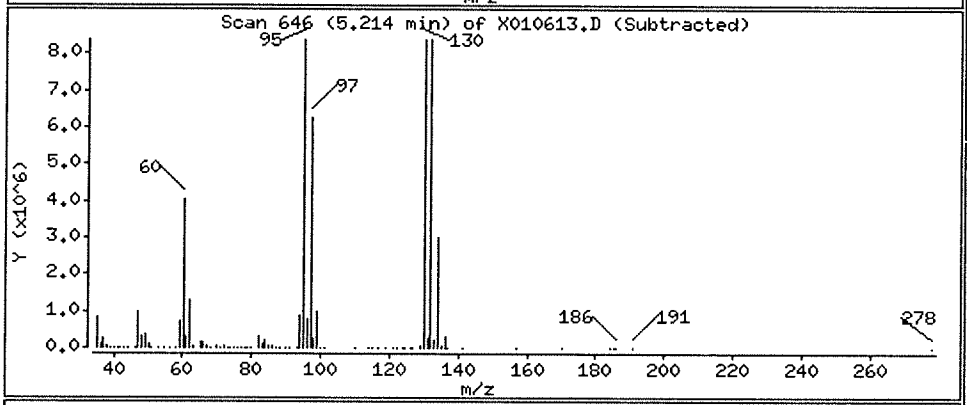
Column diameter: 0.18

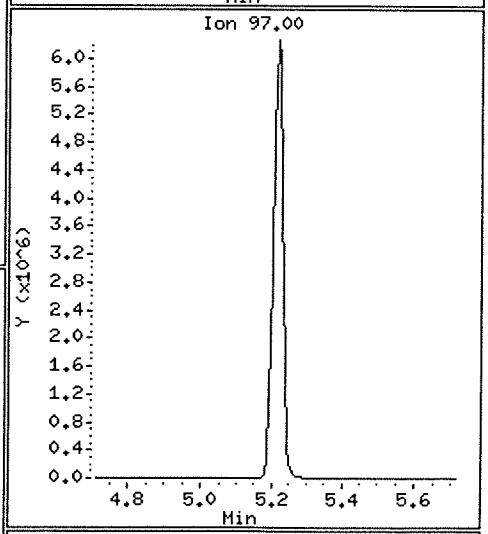
38 Trichloroethene

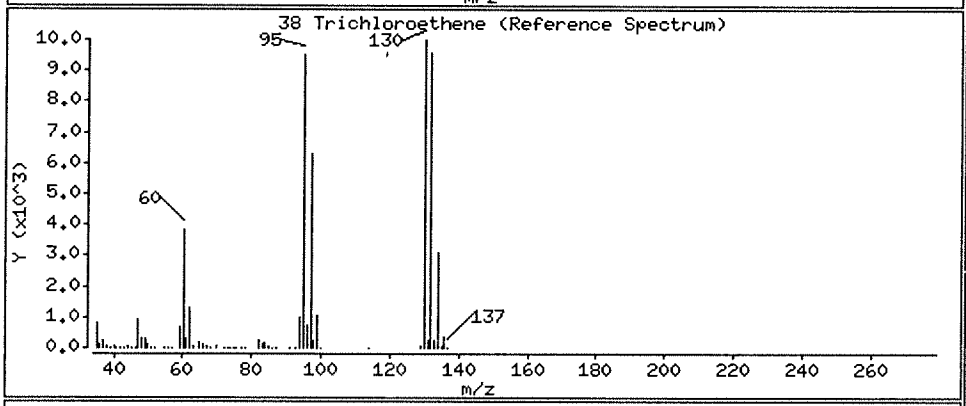
Concentration: 2800.80 ug/l

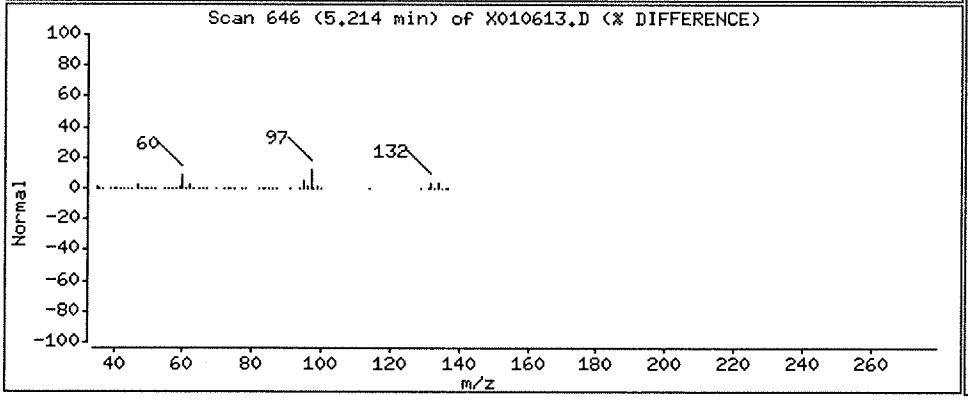


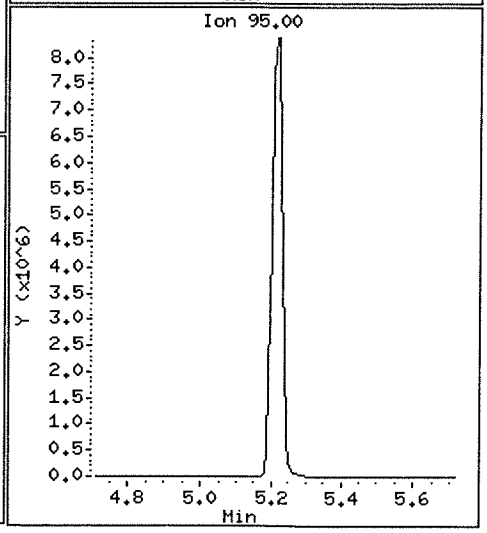












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010613.D

Date : 06-OCT-2020 16:13

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

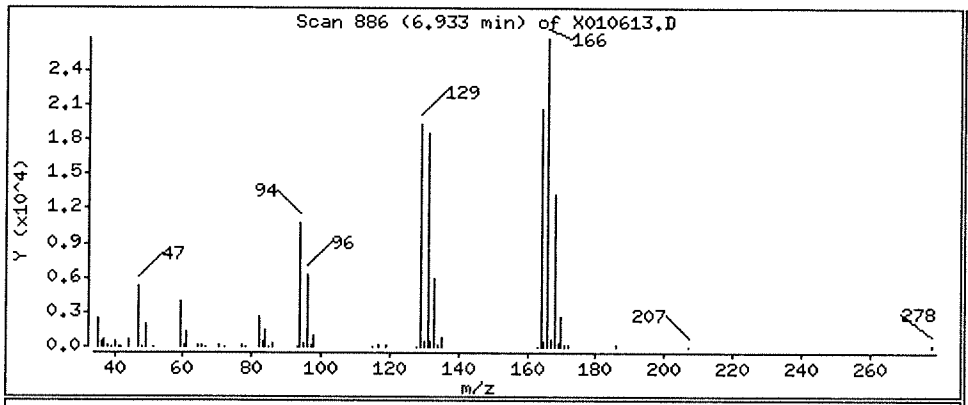
Operator: PC

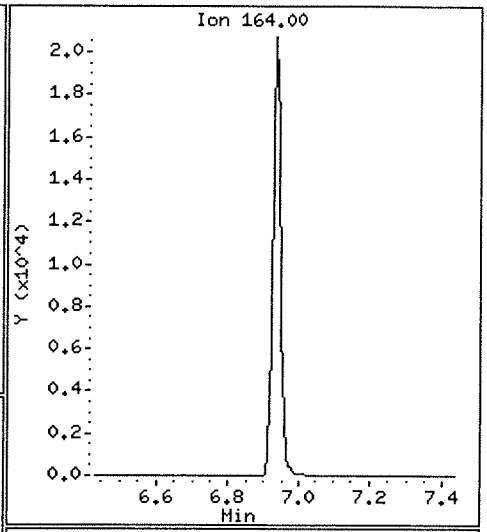
Column phase: DB624

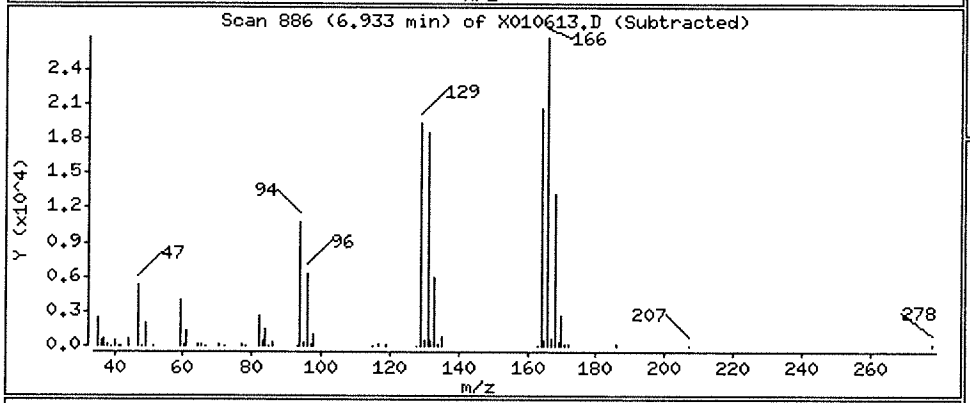
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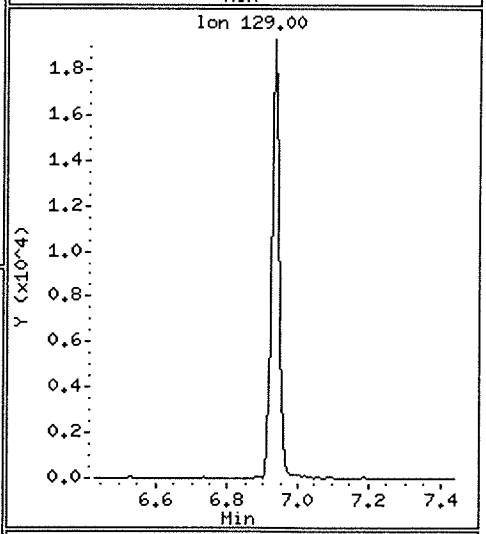
56 Tetrachloroethene

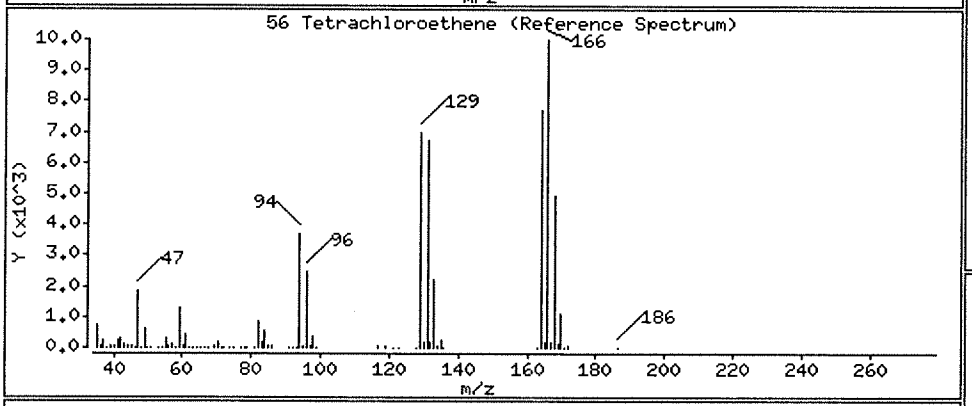
Concentration: 6.77 ug/l

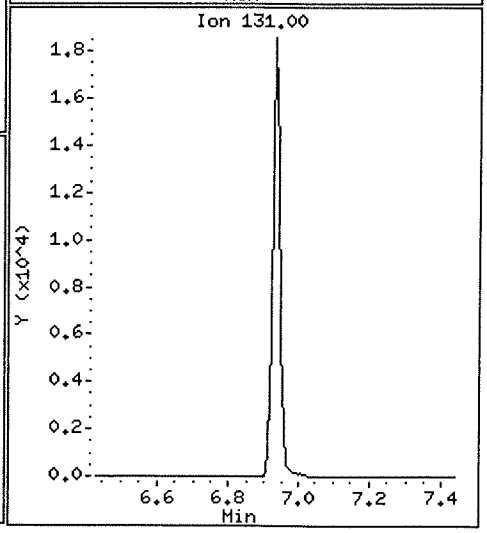


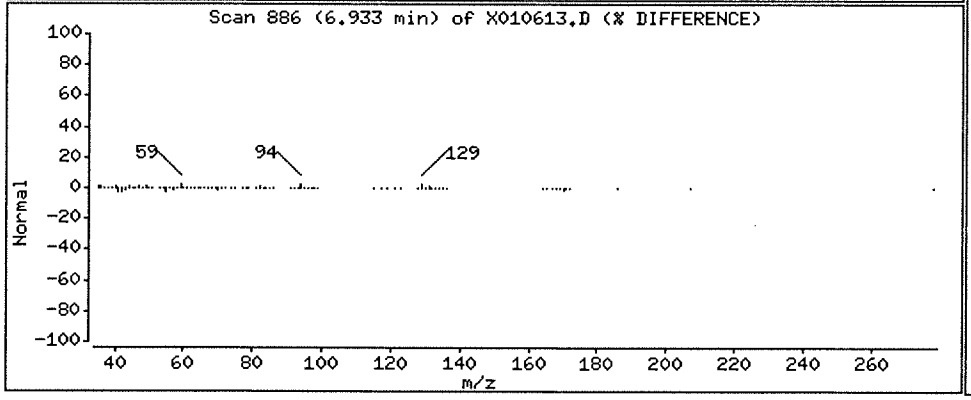












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D
Lab Smp Id: HS20100074-04 Client Smp ID: HS20100074-04
Inj Date : 06-OCT-2020 16:37
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-04;HS20100074-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

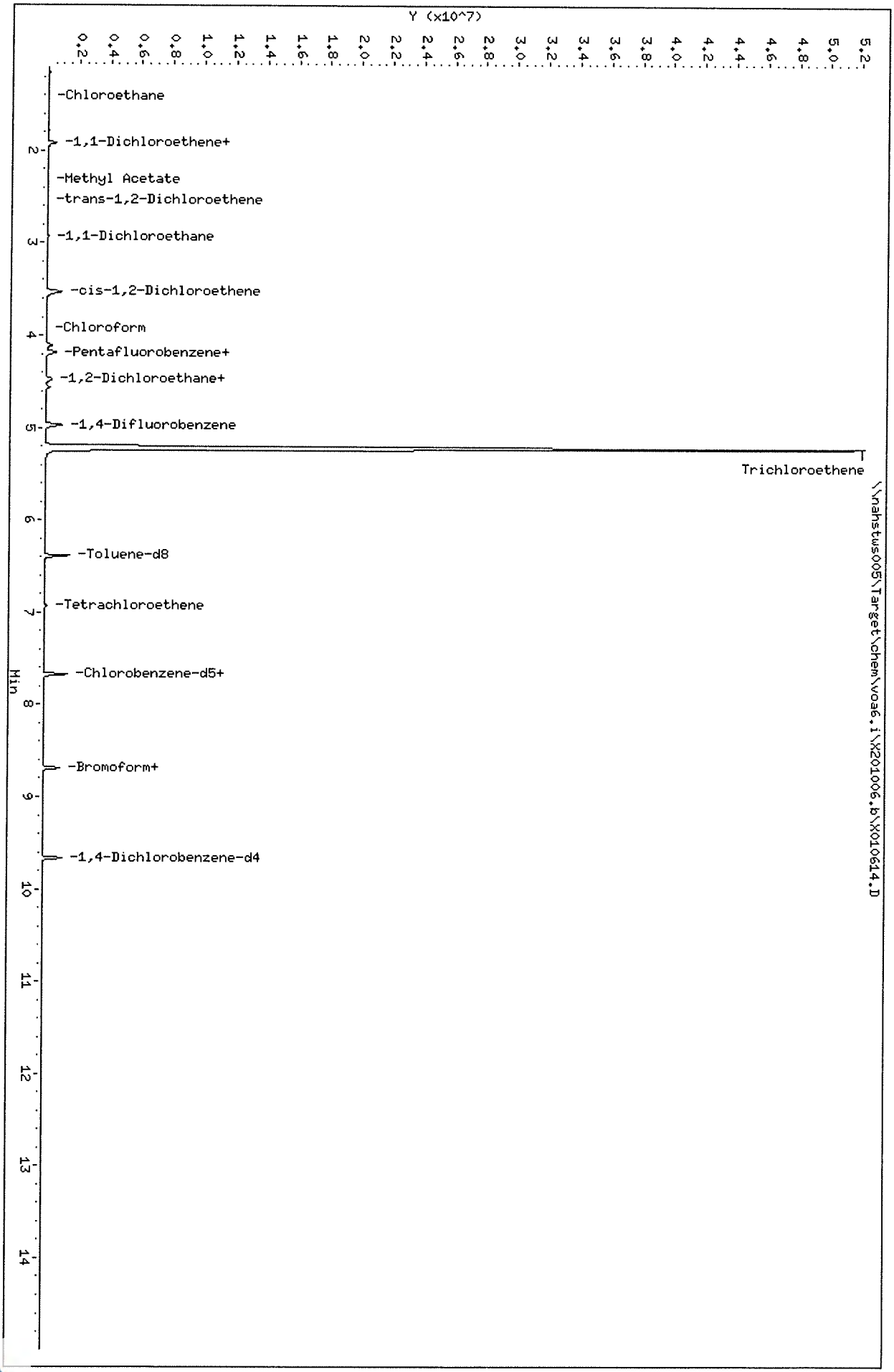
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	551546	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	264454	46.6611	46.66
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	281234	45.3600	45.35
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	875772	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	733584	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	921395	47.7741	47.77
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	335818	52.5666	52.56
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	304483	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	24930	3.49917	3.49(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	167099	33.6957	33.69
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	499122	73.8660	73.86
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	192134	25.4447	25.44
38 Trichloroethene	130	5.214	5.214	(1.049)	17819842	2844.77	2844.77(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	32895	7.09767	7.09

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D
Date : 06-OCT-2020 16:37
Client ID: HS20100074-04
Sample Info: HS20100074-04;HS20100074-04;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

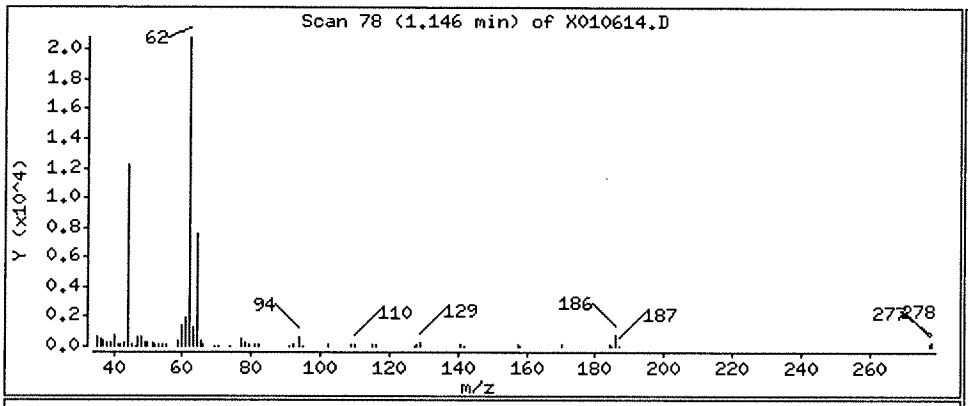
Operator: PC

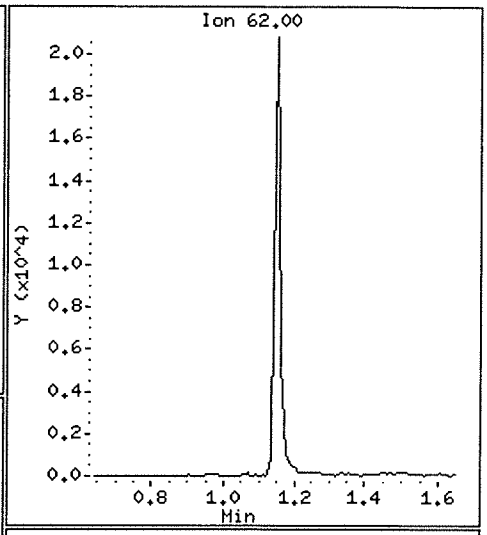
Column phase: DB624

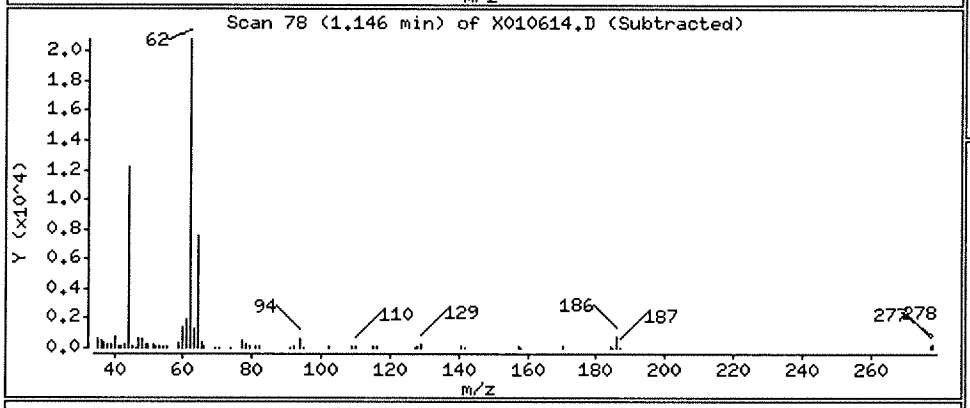
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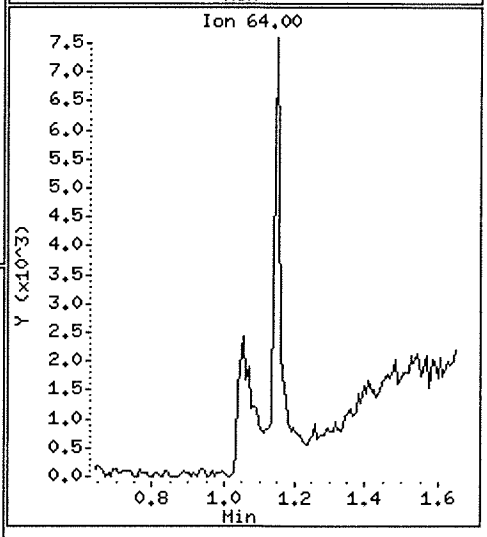
5 Vinyl Chloride

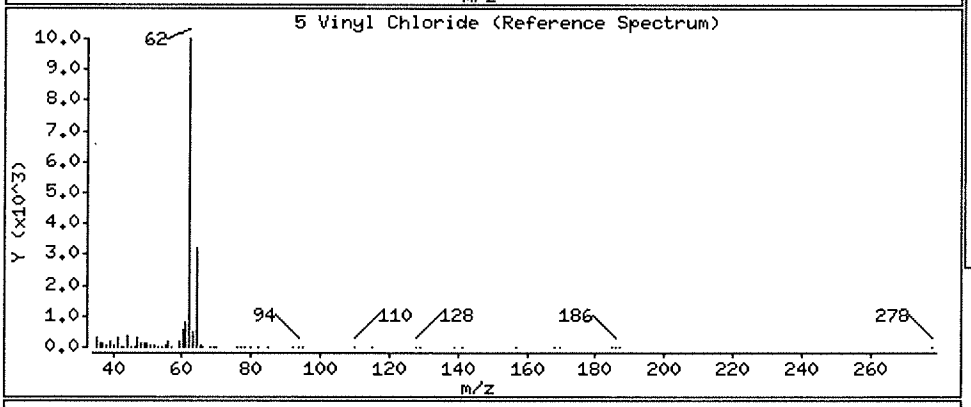
Concentration: 3.49 ug/l

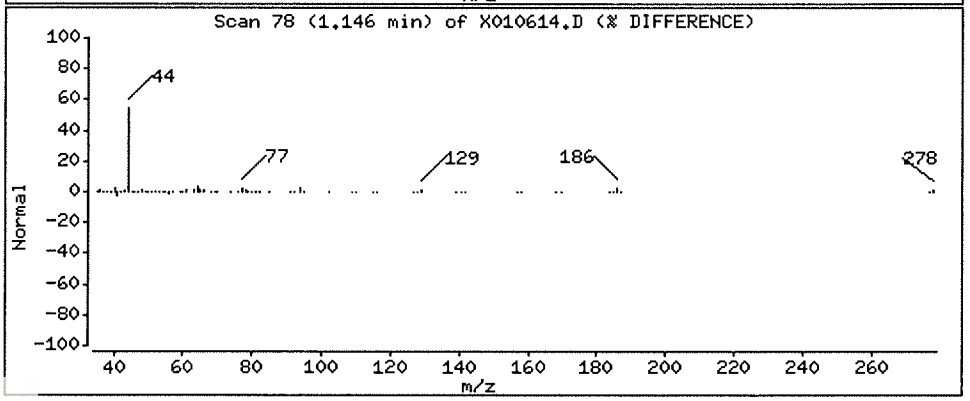












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

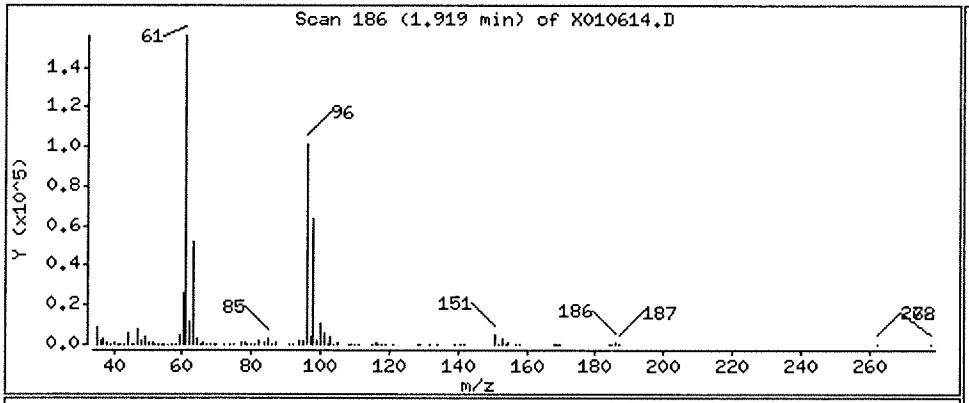
Operator: PC

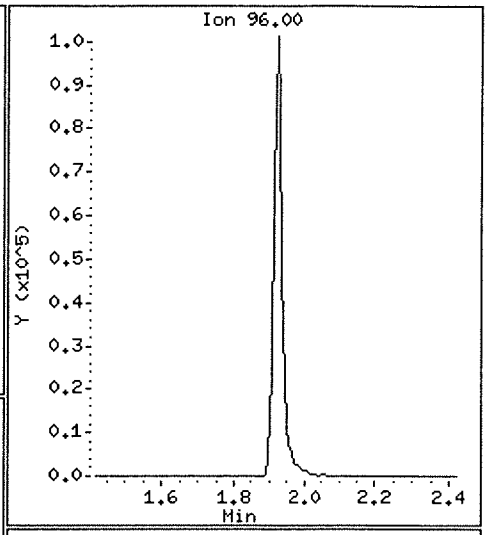
Column phase: DB624

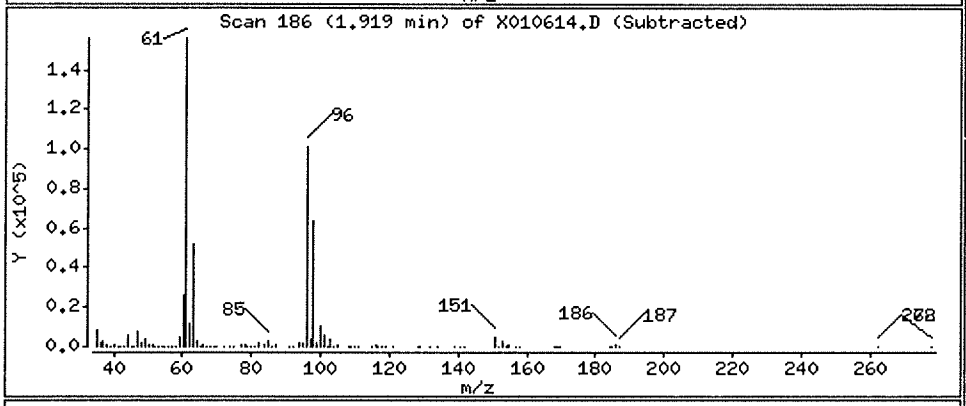
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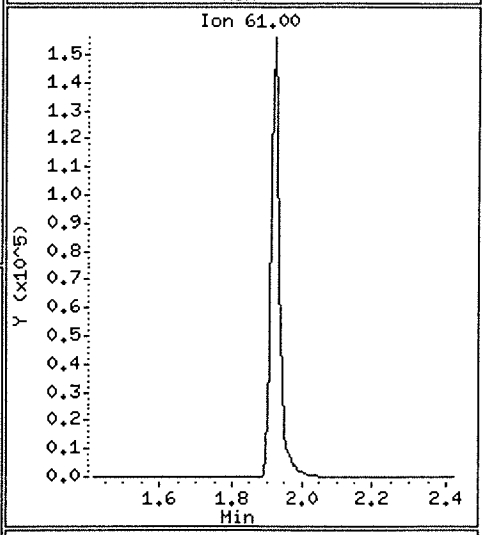
11 1,1-Dichloroethene

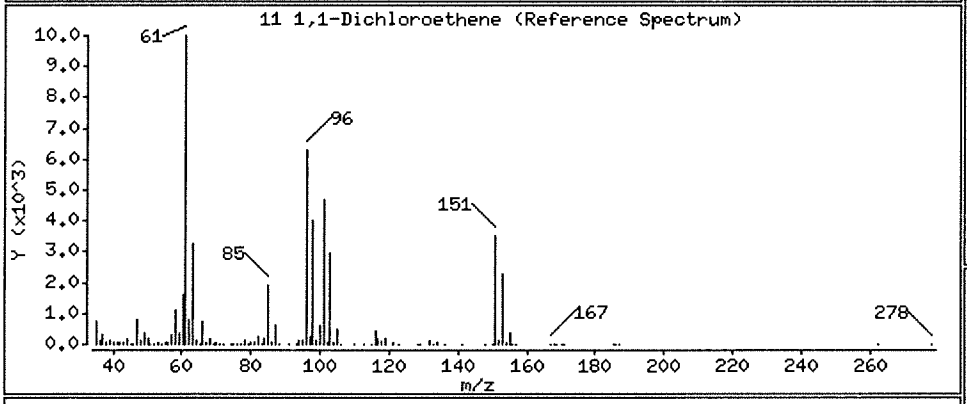
Concentration: 33.69 ug/l

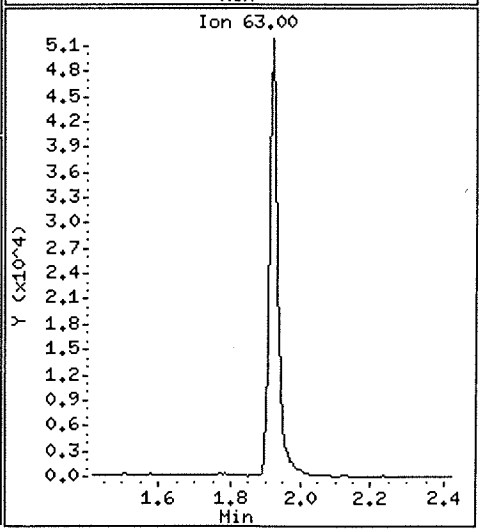


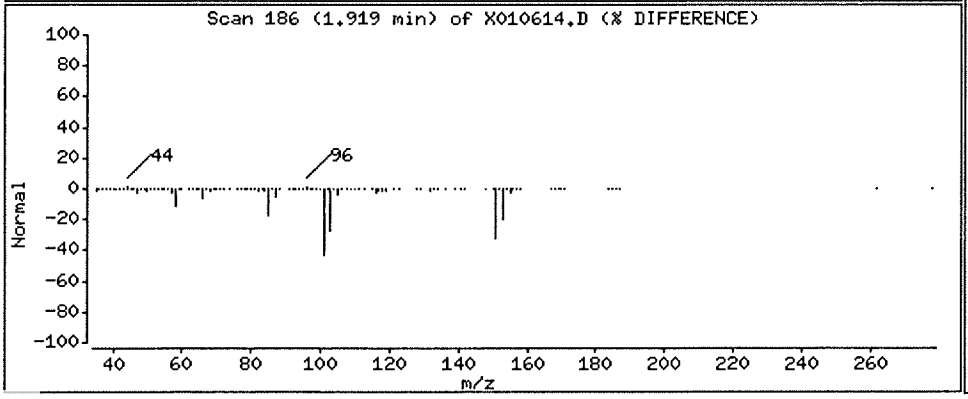












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

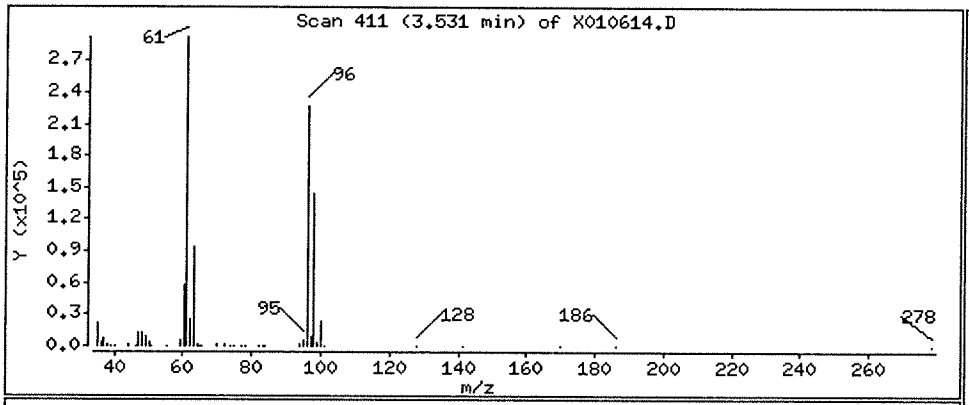
Operator: PC

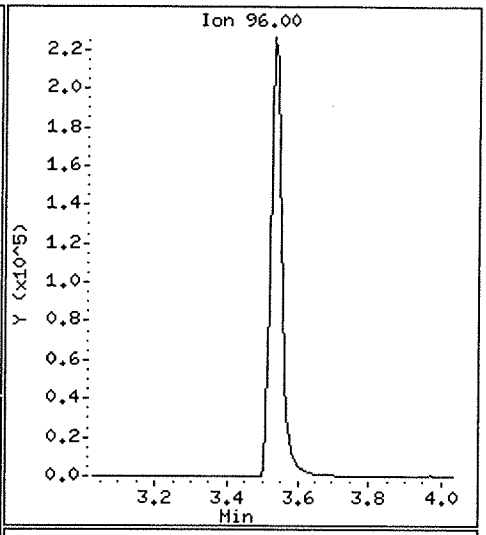
Column phase: DB624

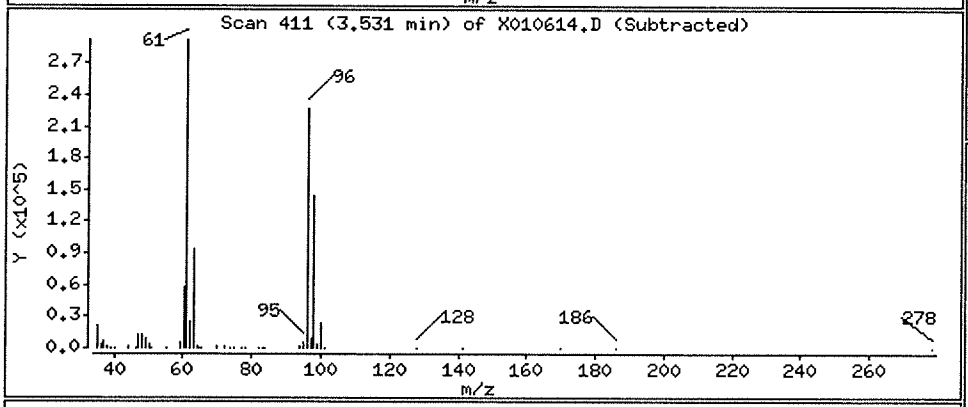
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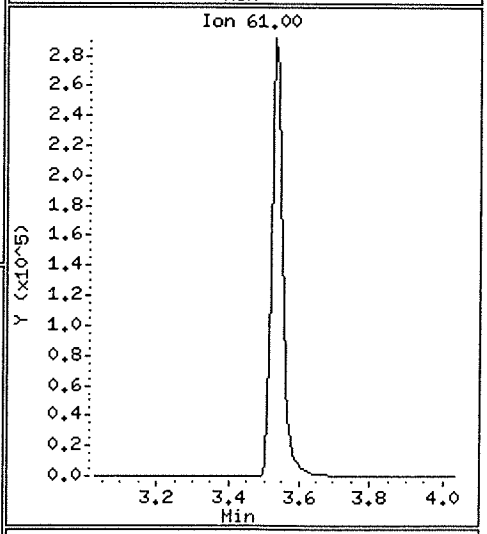
27 cis-1,2-Dichloroethene

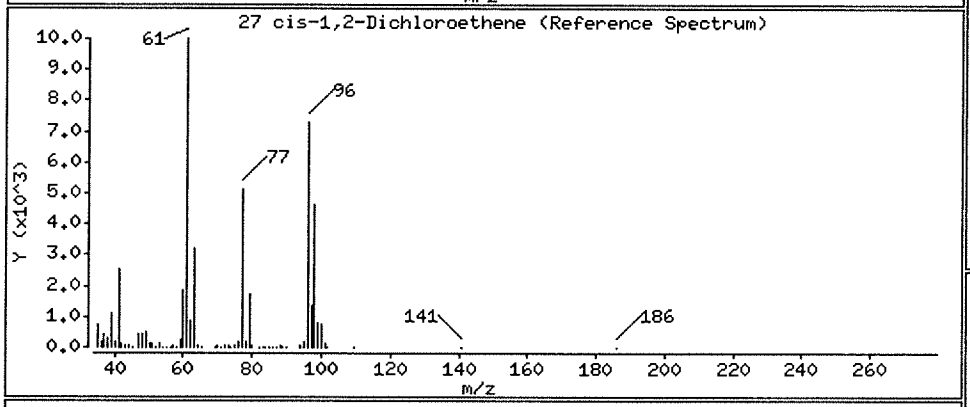
Concentration: 73.86 ug/l

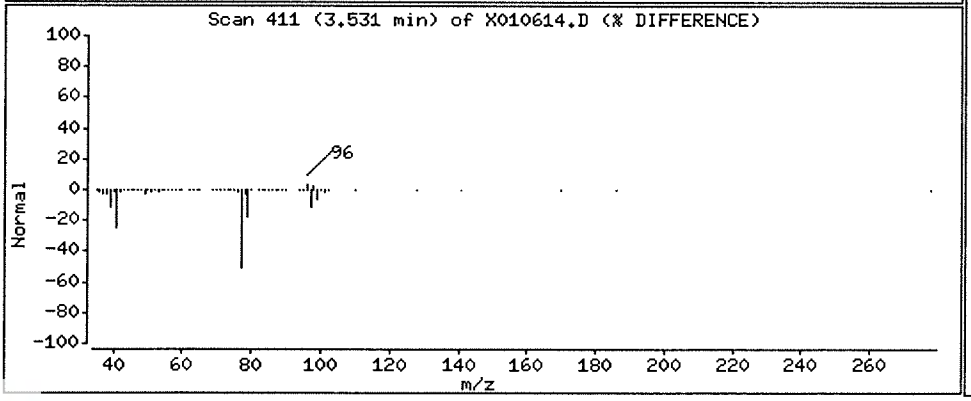


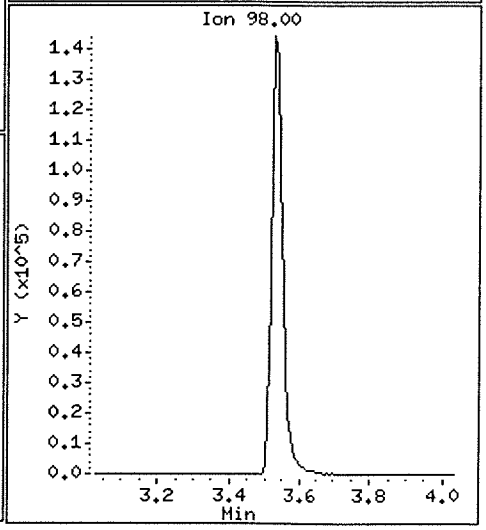












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

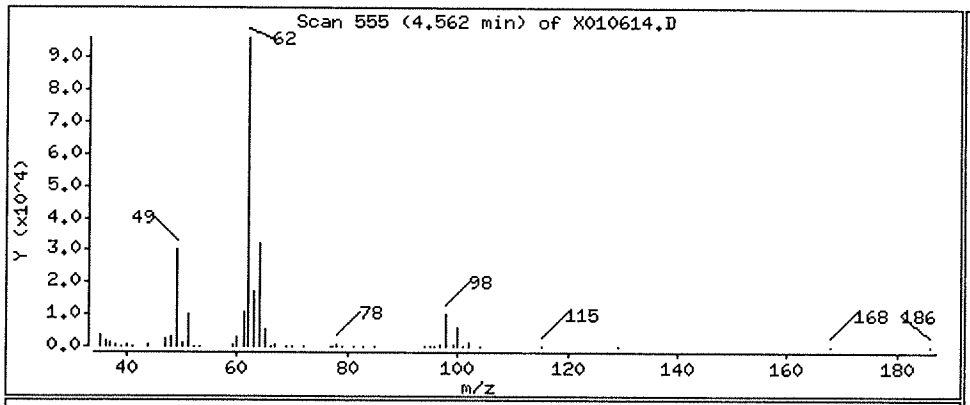
Operator: PC

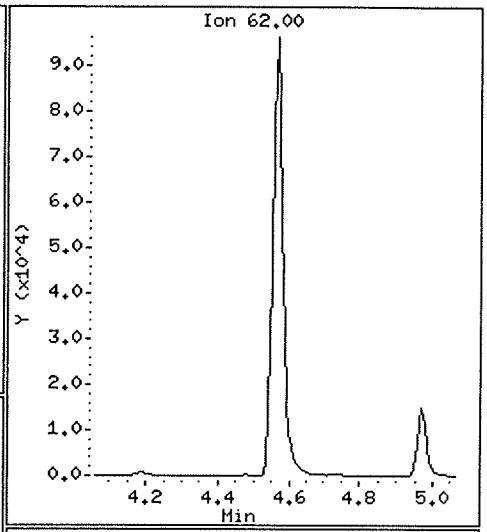
Column phase: DB624

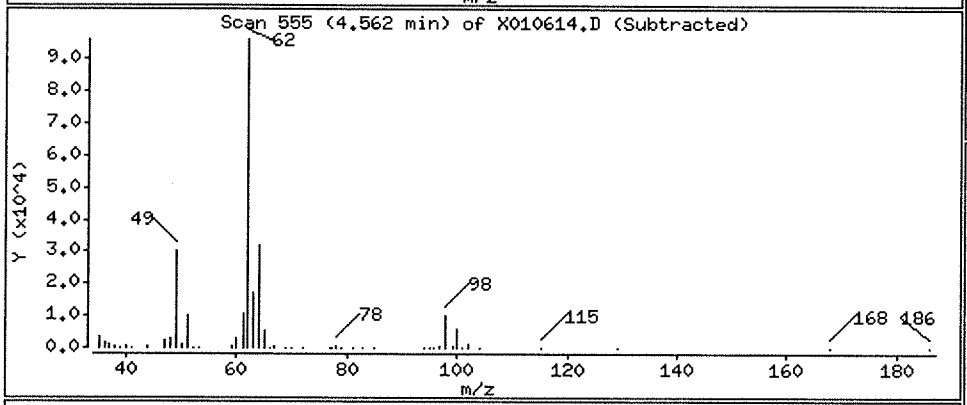
Column diameter: 0.18

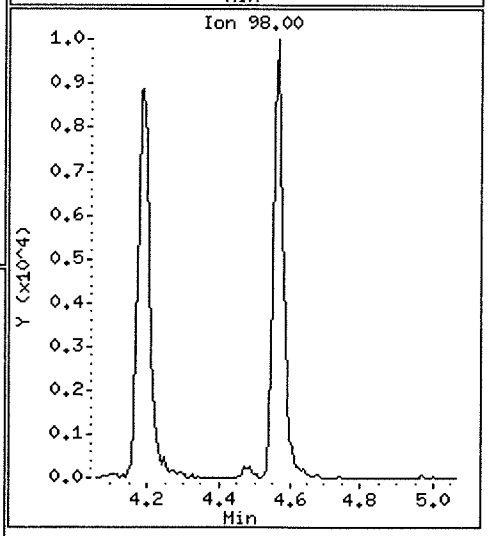
33 1,2-Dichloroethane

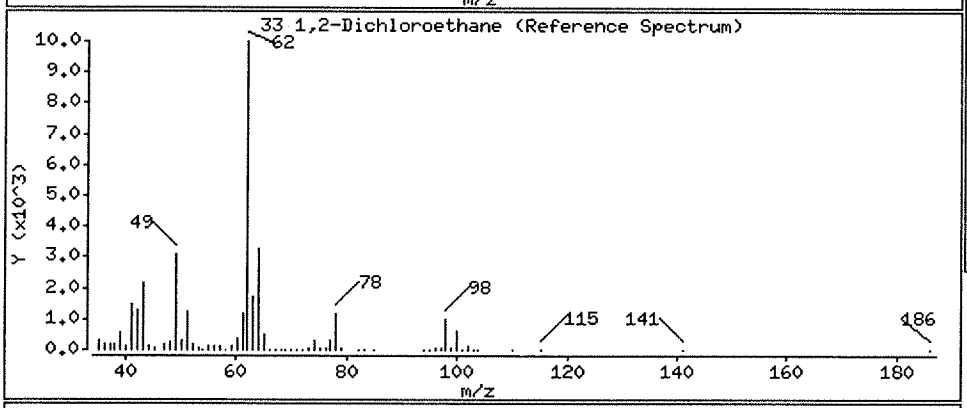
Concentration: 25.44 ug/l

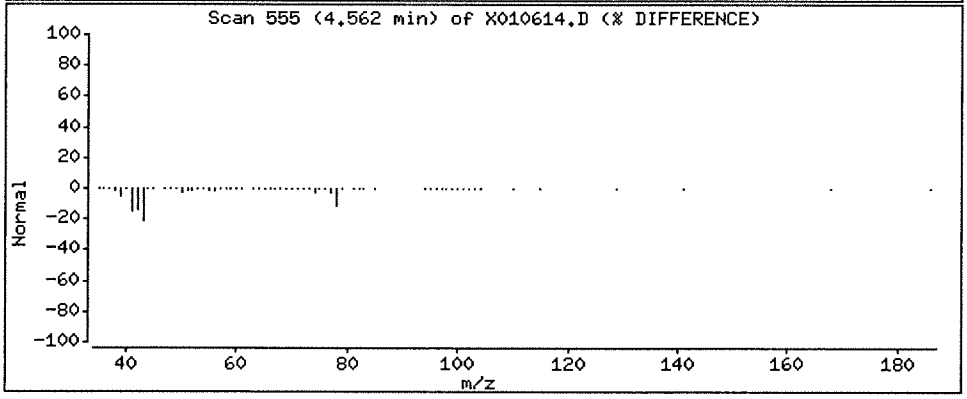












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

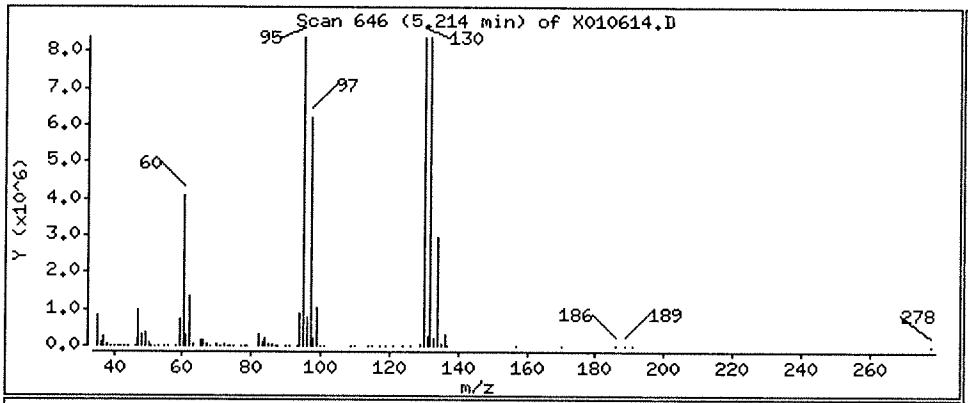
Operator: PC

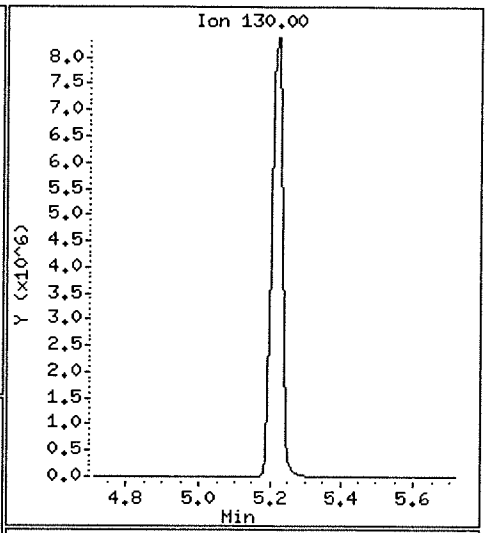
Column phase: DB624

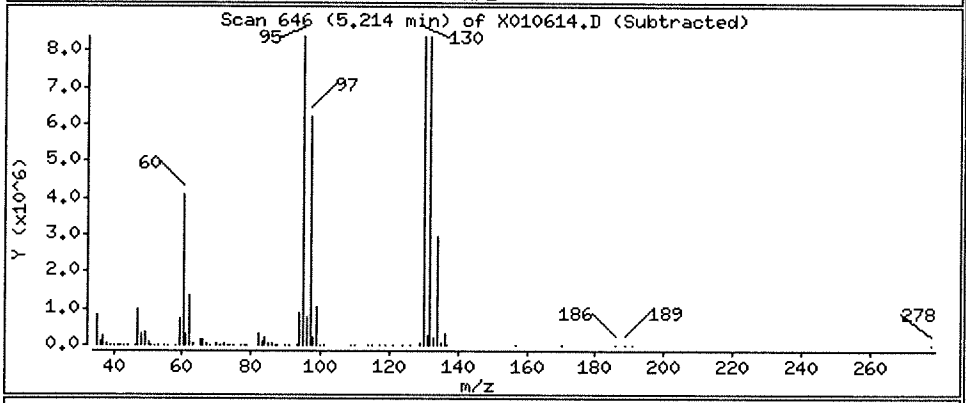
Column diameter: 0.18

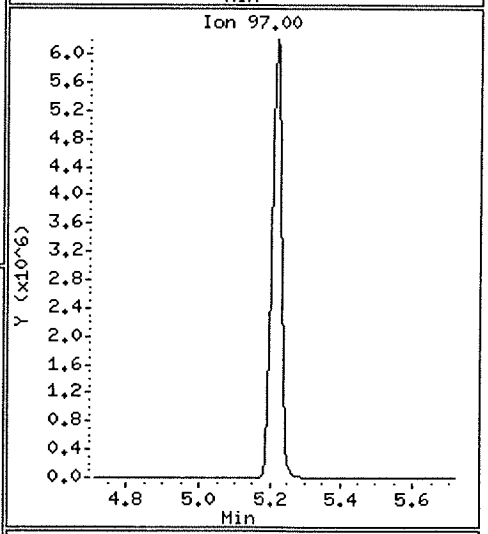
38 Trichloroethene

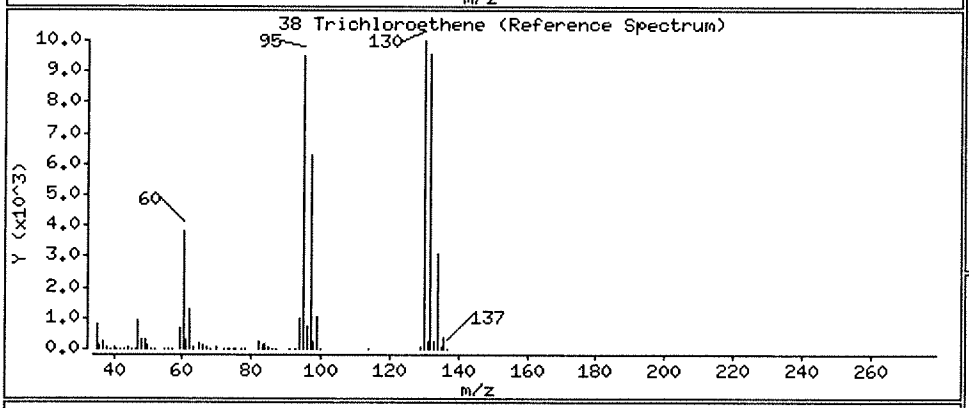
Concentration: 2844.77 ug/l

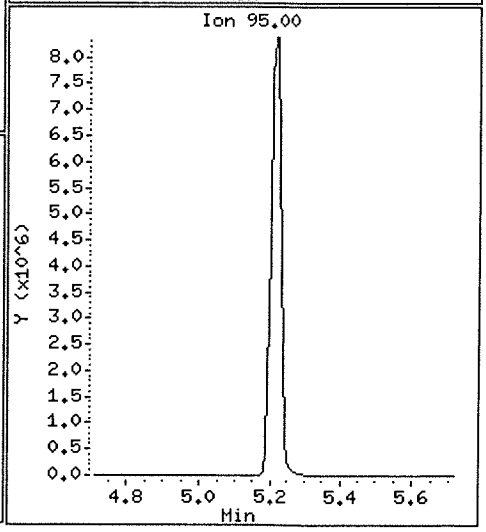


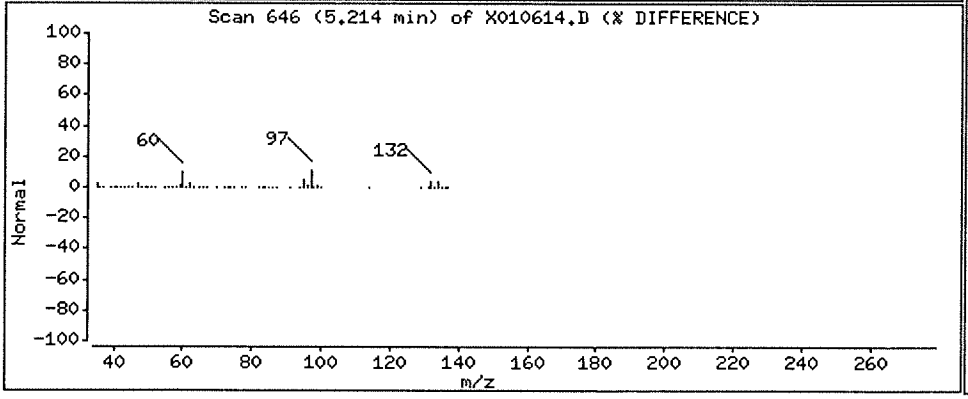












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010614.D

Date : 06-OCT-2020 16:37

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

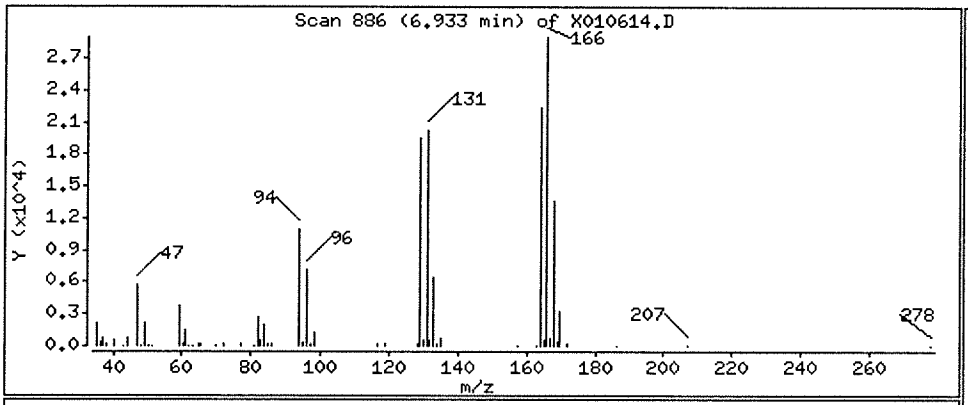
Operator: PC

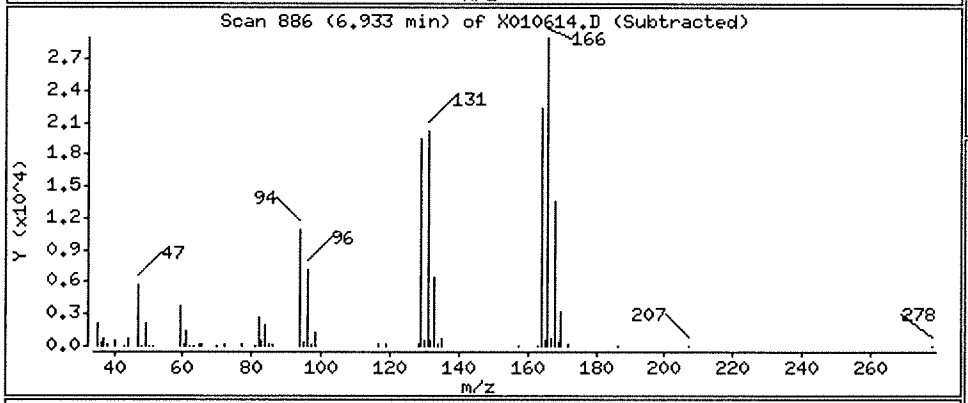
Column phase: DB624

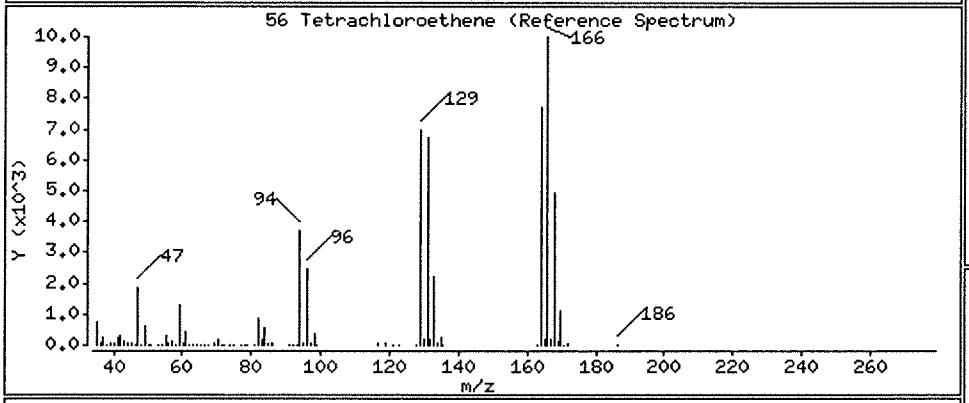
Column diameter: 0.18

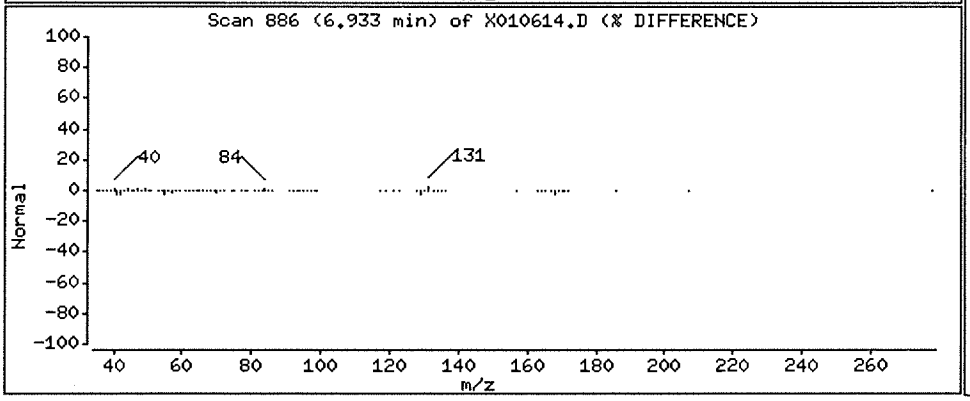
56 Tetrachloroethene

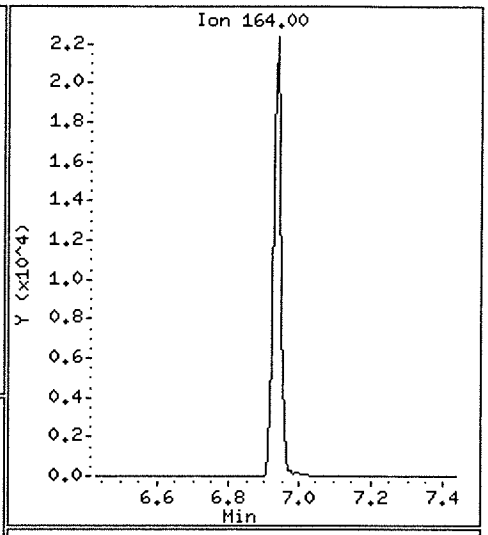
Concentration: 7.09 ug/l

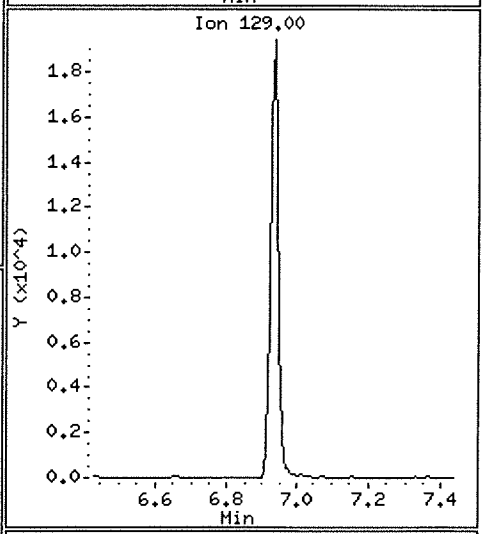


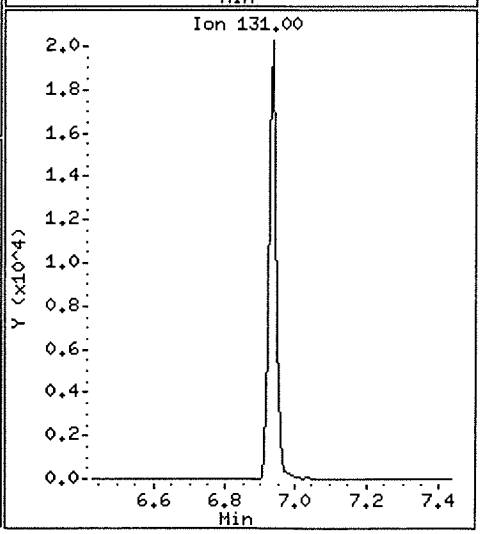












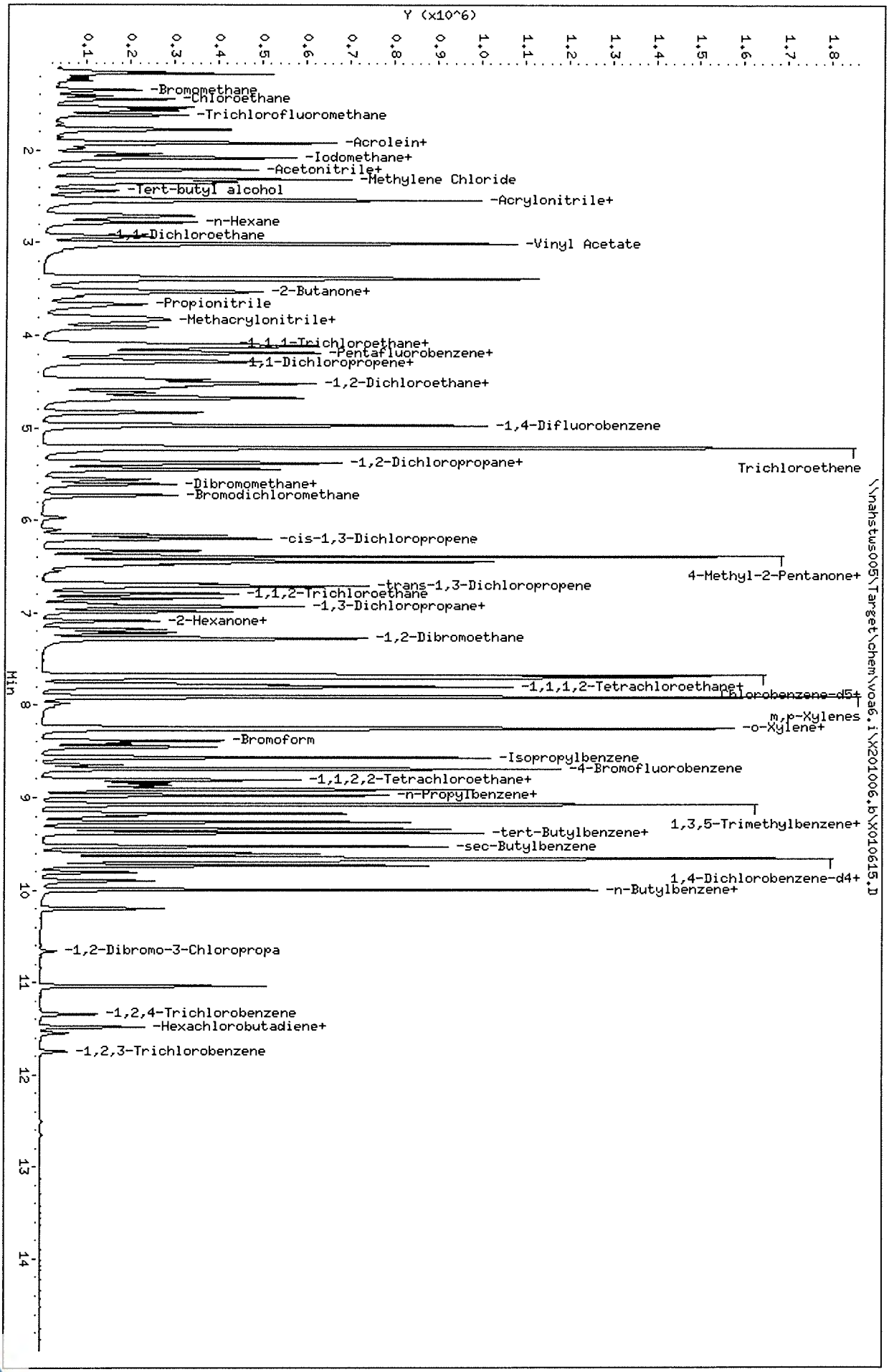
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010615.D
Lab Smp Id: HS20100074-01MS Client Smp ID: HS20100074-01MS
Inj Date : 06-OCT-2020 17:01
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-01MS;HS20100074-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	518455	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	253824	47.6440	47.64
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	267931	45.9725	45.97
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	835770	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	765854	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	982327	48.7873	48.78
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	347082	52.0322	52.03
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	322259	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	165571	24.7228	24.72
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	120688	25.8902	25.89
17 Methylene Chloride	84	2.313	2.305	(0.552)	144591	25.1350	25.13
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	171801	27.0479	27.04
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	166595	23.1184	23.11
38 Trichloroethene	130	5.214	5.214	(1.049)	624710	104.502	104.50
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	100353	22.2488	22.24
56 Tetrachloroethene	164	6.933	6.933	(0.904)	116260	24.0281	24.02



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010615.D
Date : 06-OCT-2020 17:01
Client ID: HS20100074-01MS
Sample Info: HS20100074-01MS;HS20100074-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010616.D Page 1
Report Date: 26-Oct-2020 09:37

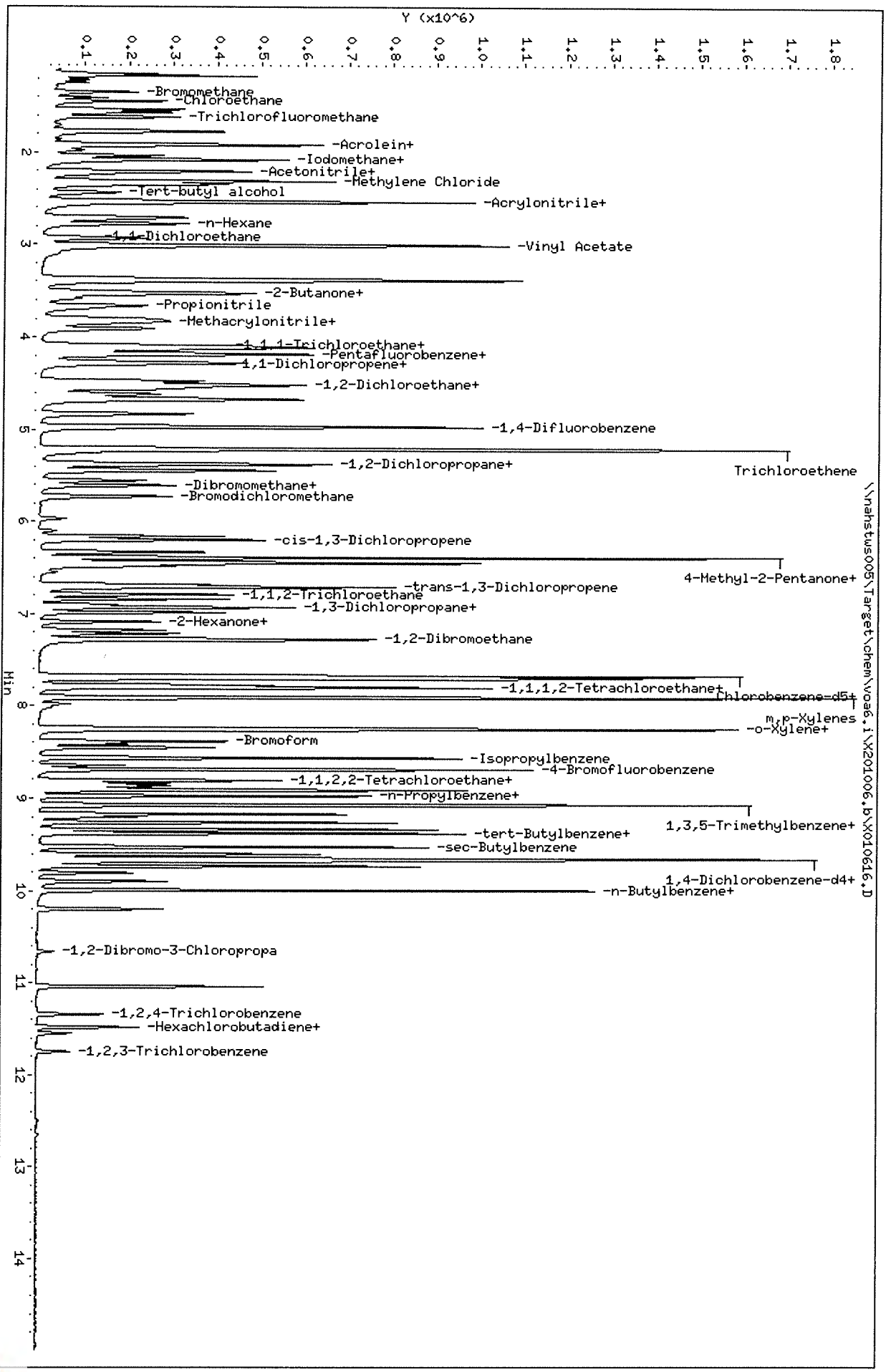
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010616.D
Lab Smp Id: HS20100074-01MSD Client Smp ID: HS20100074-01MSD
Inj Date : 06-OCT-2020 17:25
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-01MSD;HS20100074-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	512375	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	248554	47.2084	47.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	262711	45.6118	45.61
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	819291	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	747092	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	959390	48.8447	48.84
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	336848	51.7620	51.76
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	311528	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	156689	23.6742	23.67
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	115938	25.1664	25.16
17 Methylene Chloride	84	2.313	2.305	(0.552)	141030	24.7976	24.79
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	166209	26.4781	26.47
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	164486	23.2849	23.28
38 Trichloroethene	130	5.214	5.214	(1.049)	584400	99.7256	99.72
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	101128	22.9836	22.98
56 Tetrachloroethene	164	6.933	6.933	(0.904)	111620	23.6485	23.64



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010616.D
Date : 06-OCT-2020 17:25
Client ID: HS20100074-01HSD
Sample Info: HS20100074-01HSD;HS20100074-01HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D
Lab Smp Id: HS20100074-03 Client Smp ID: HS20100074-03
Inj Date : 06-OCT-2020 17:49
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-03;HS20100074-03;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 16
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	50.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

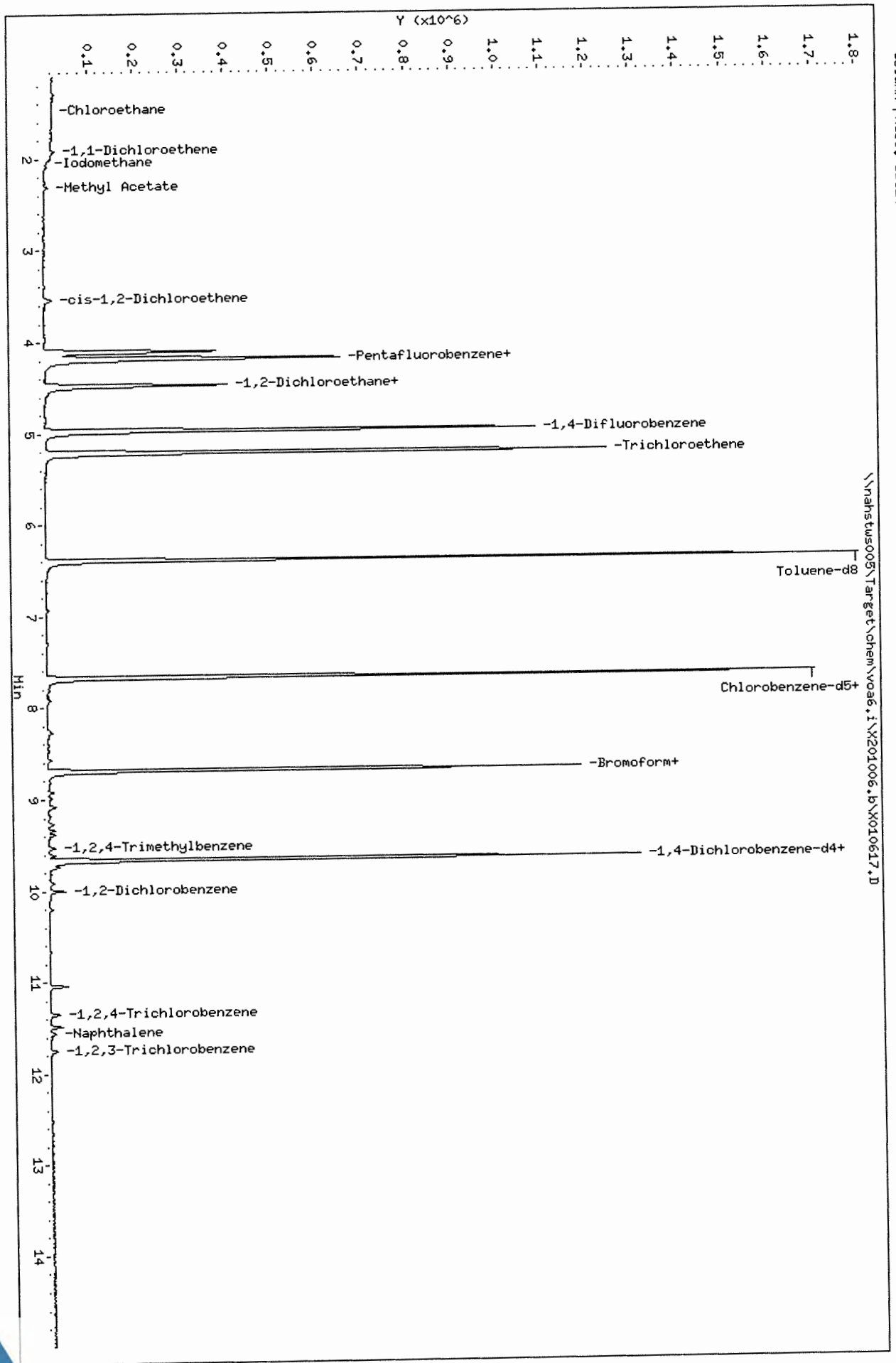
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	558735	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	273938	47.7126	47.71
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	287462	45.7679	45.76
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	891359	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	803822	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1043333	49.3696	49.36
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	368910	52.7028	52.70
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	323548	50.0000	
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2771	0.55159	27.57(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	10135	1.48060	74.02(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	4585	0.59658	29.82(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	425784	66.7838	3339.19

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D
Date : 06-OCT-2020 17:49
Client ID: HS20100074-03
Sample Info: HS20100074-03;HS20100074-03;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D

Date : 06-OCT-2020 17:49

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

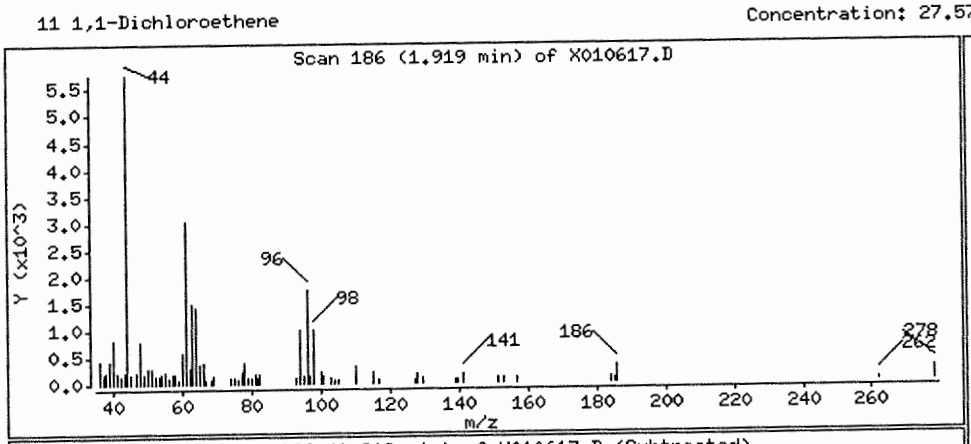
Operator: PC

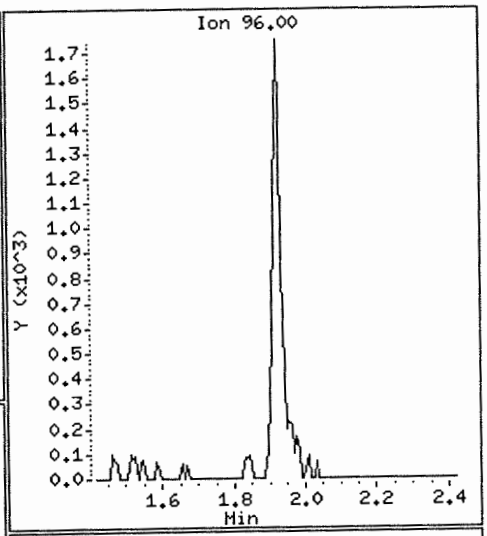
Column phase: DB624

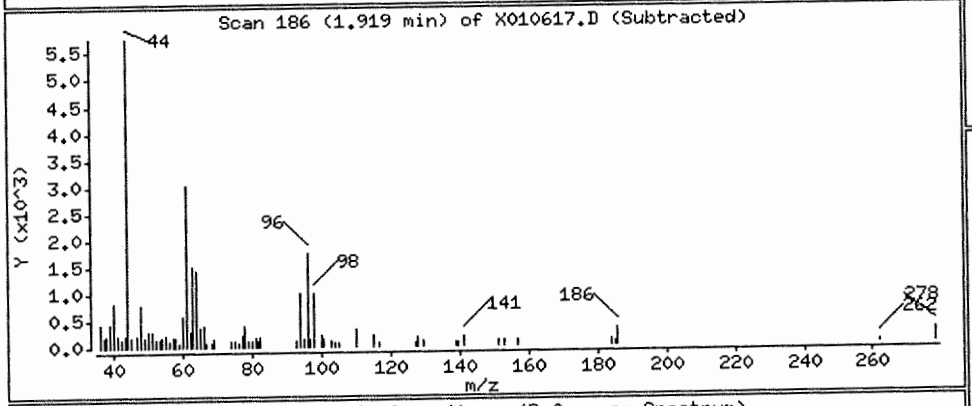
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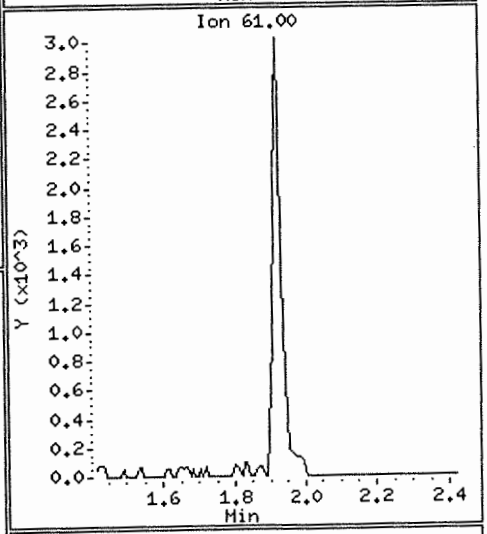
11 1,1-Dichloroethene

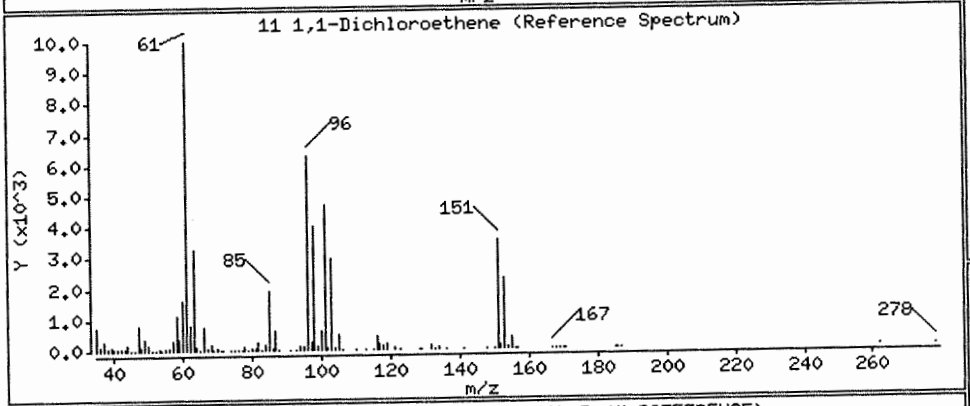
Concentration: 27.57 ug/l

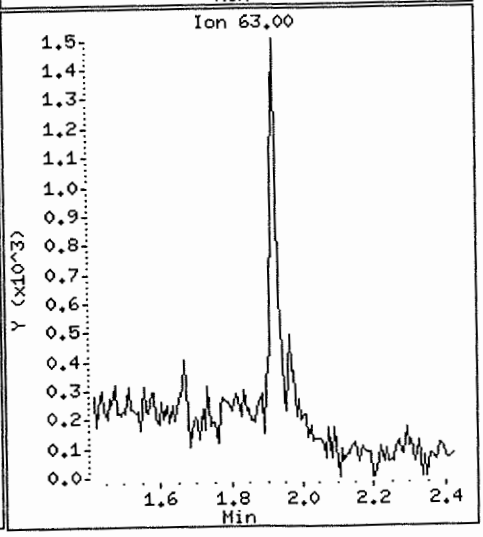


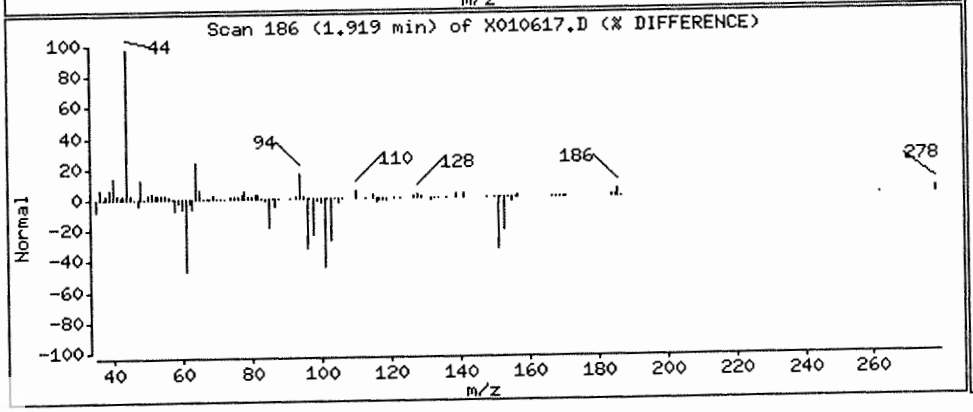












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D

Date : 06-OCT-2020 17:49

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

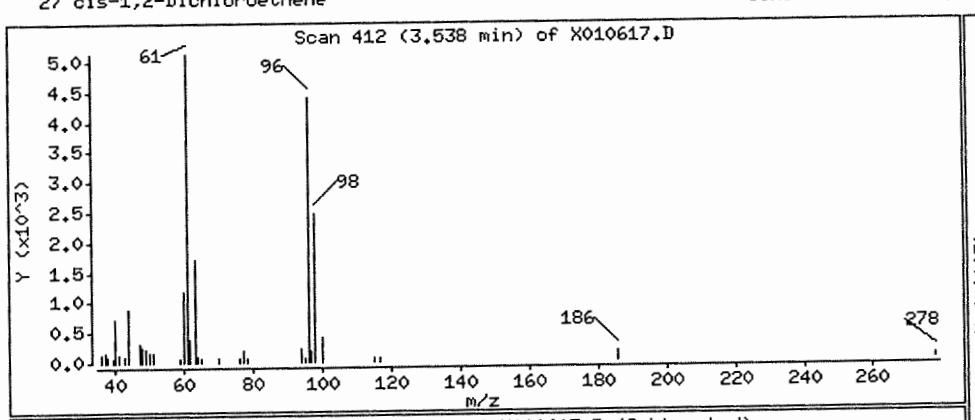
Operator: PC

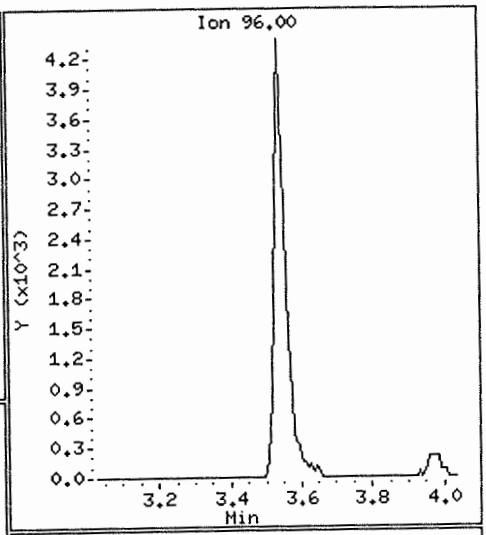
Column phase: DB624

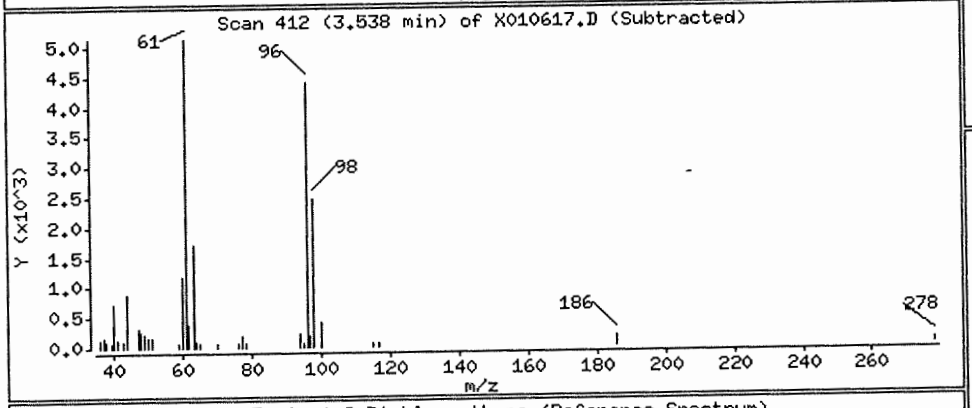
Column diameter: 0.18

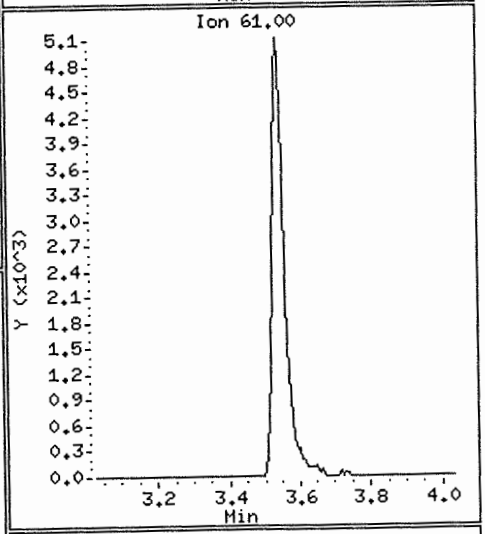
27 cis-1,2-Dichloroethene

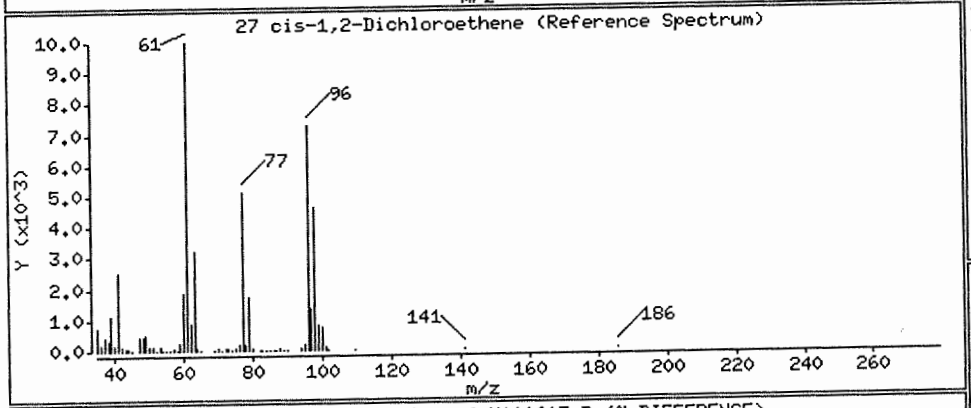
Concentration: 74.02 ug/l

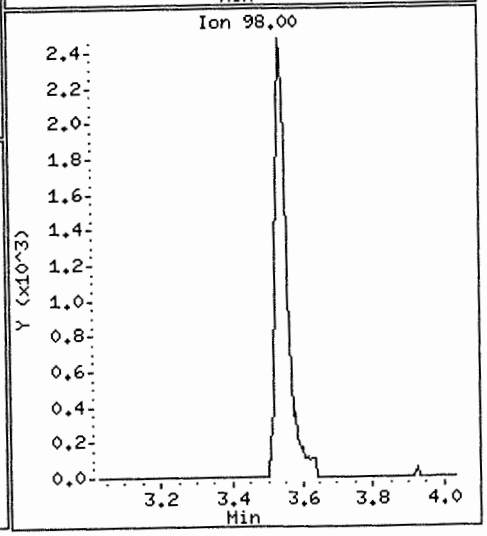


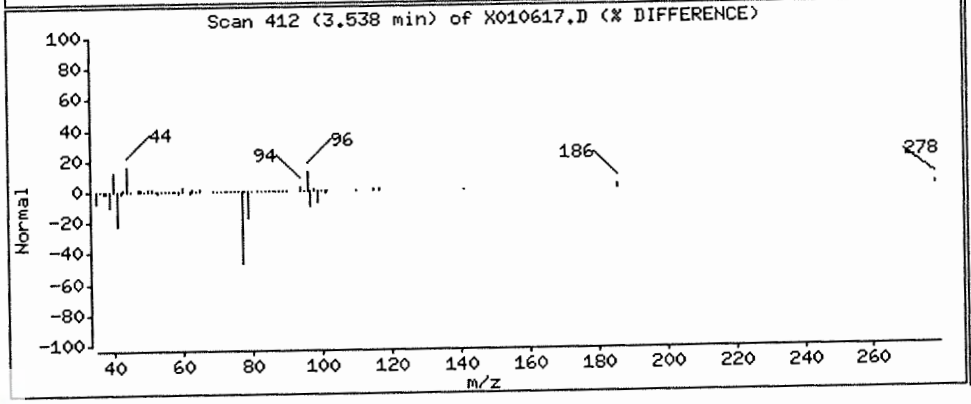












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D

Date : 06-OCT-2020 17:49

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

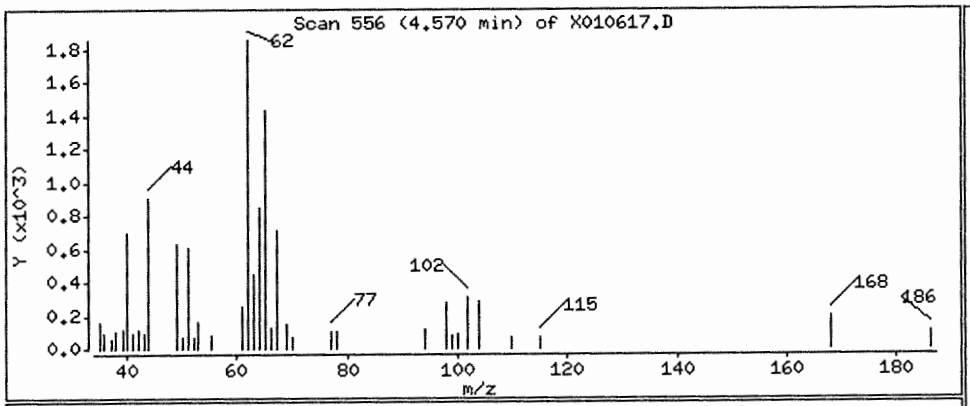
Operator: PC

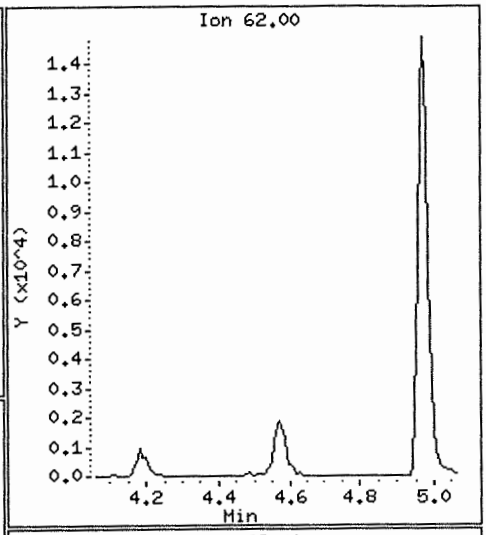
Column phase: DB624

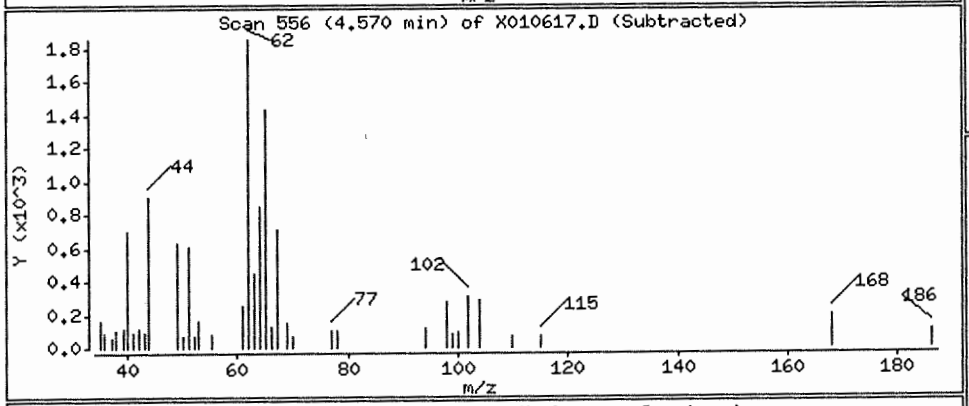
Column diameter: 0.18

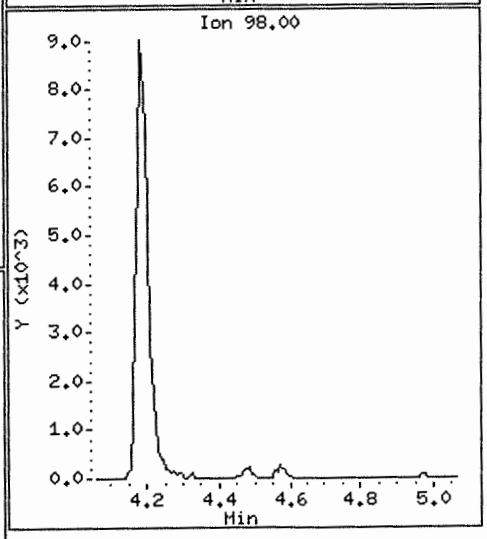
33 1,2-Dichloroethane

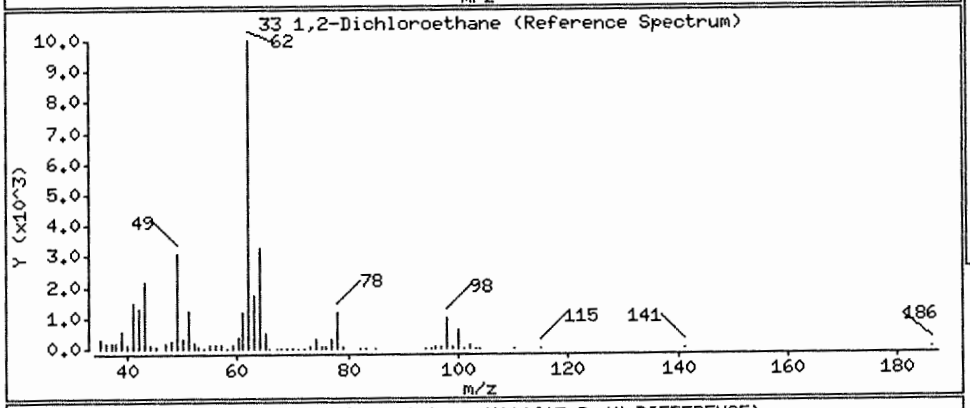
Concentration: 29.82 ug/l

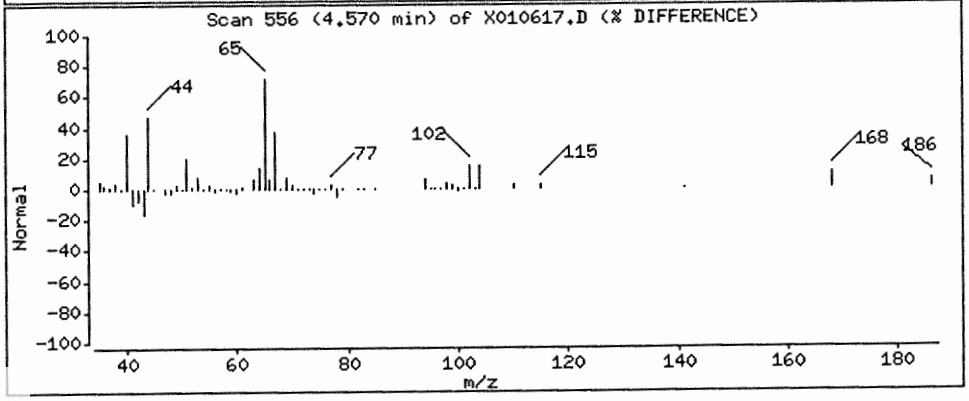












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010617.D

Date : 06-OCT-2020 17:49

Client ID: HS20100074-03

Instrument: voa6.i

Sample Info: HS20100074-03;HS20100074-03;;;

Purge Volume: 5.0

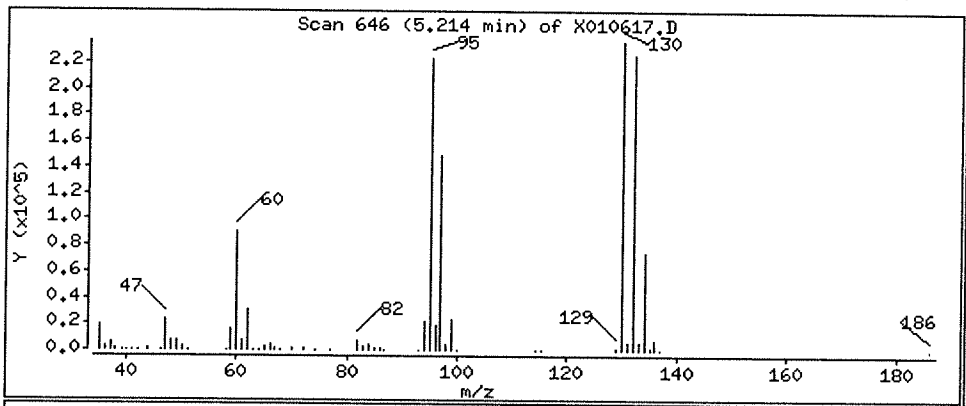
Operator: PC

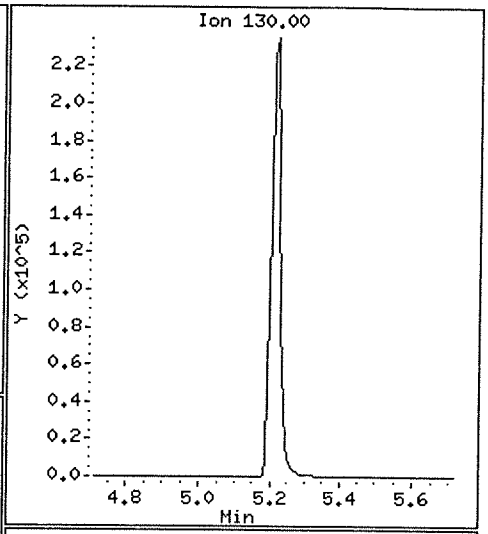
Column phase: DB624

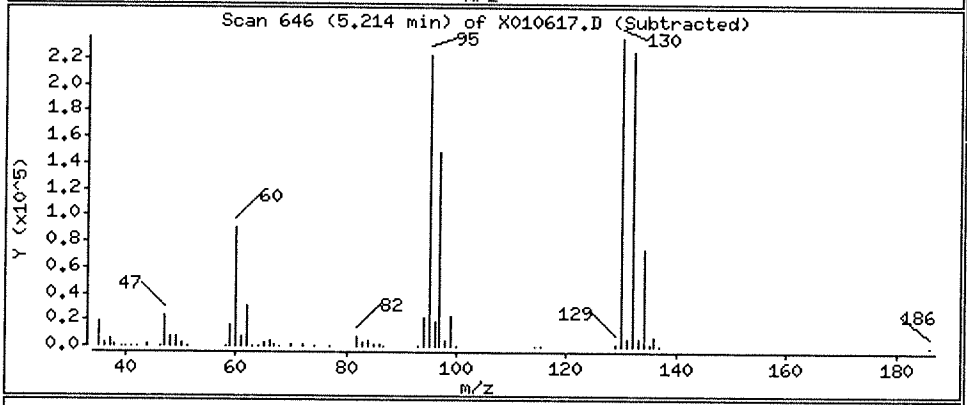
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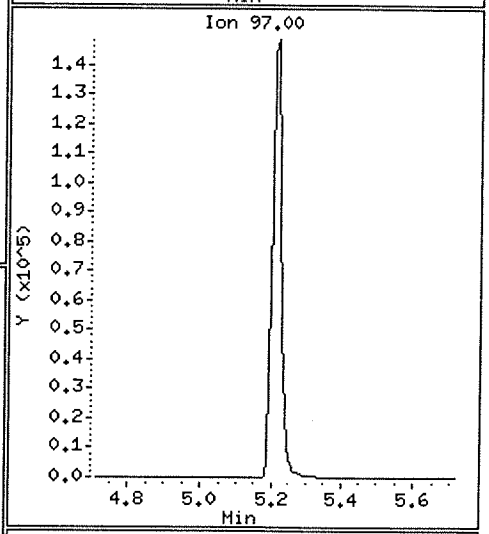
38 Trichloroethene

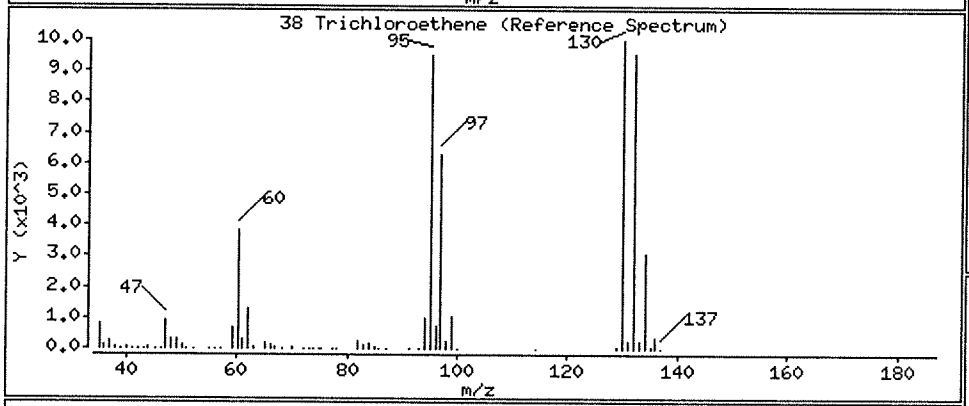
Concentration: 3339.19 ug/l

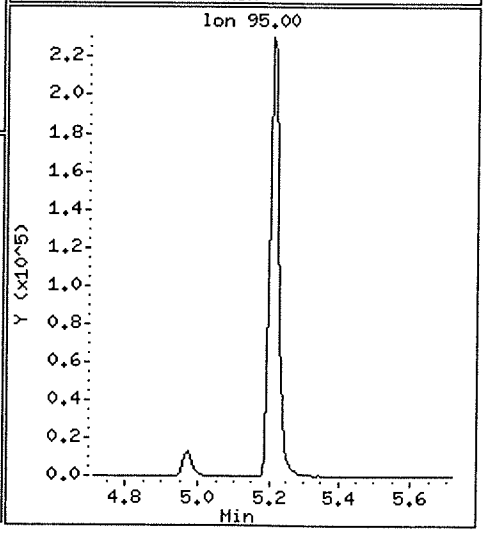


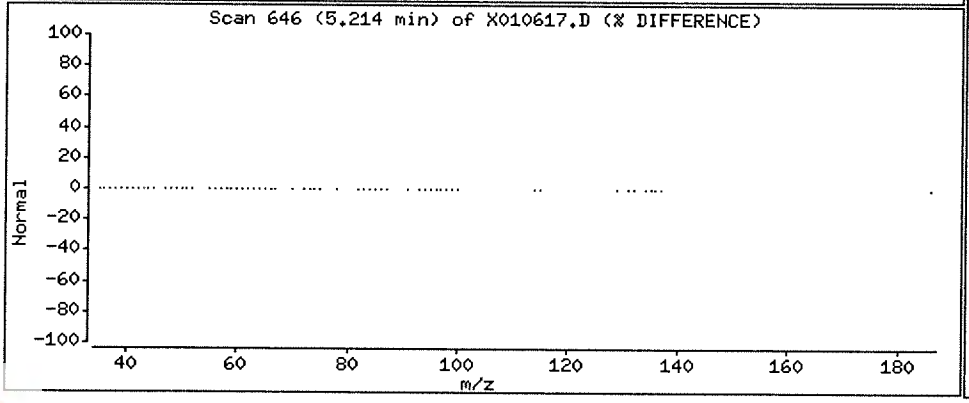












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D
Lab Smp Id: HS20100074-04 Client Smp ID: HS20100074-04
Inj Date : 06-OCT-2020 18:13
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-04;HS20100074-04;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 17
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

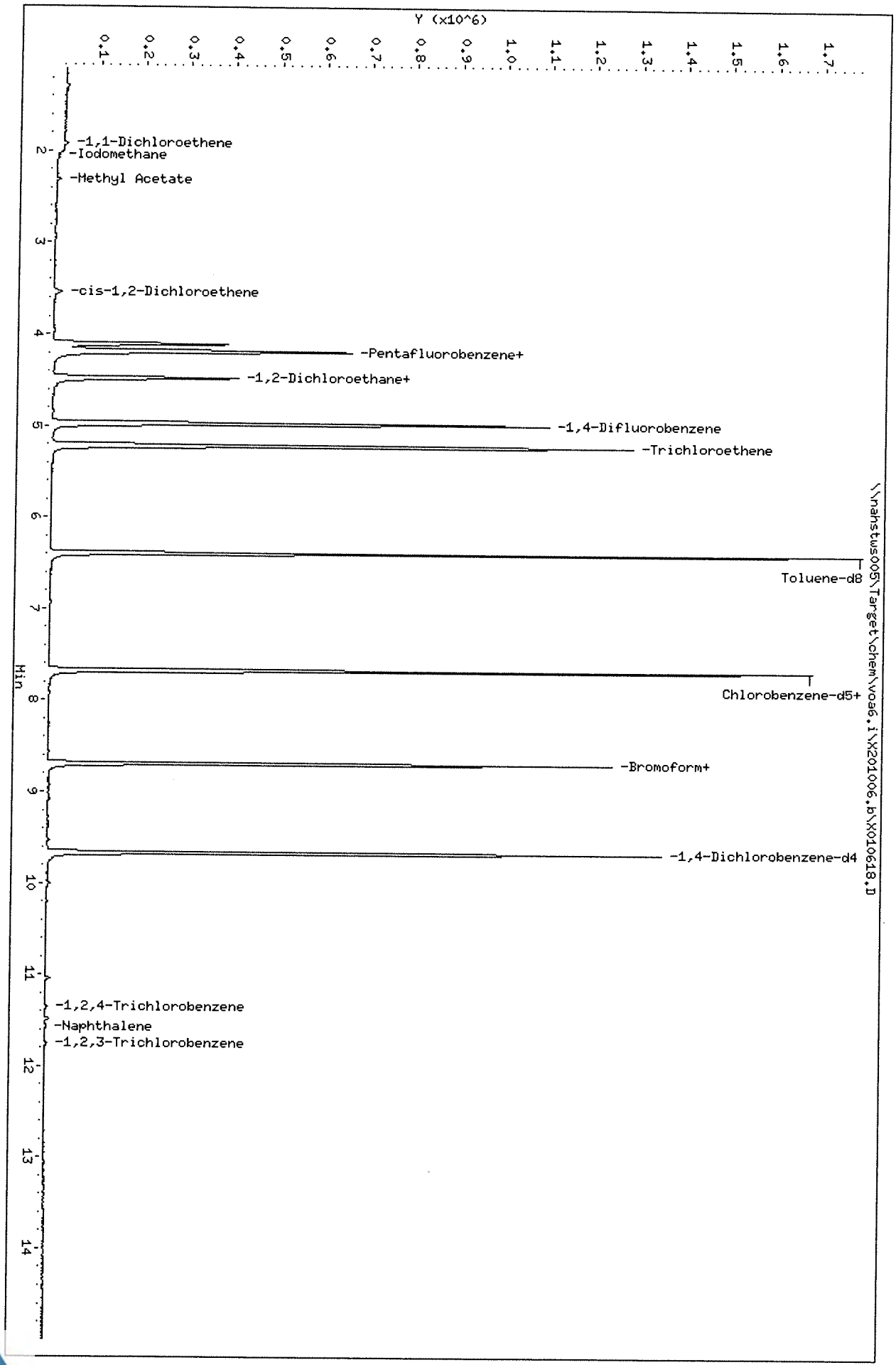
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	50.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	567356	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	273985	46.9956	46.99
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	294660	46.2011	46.20
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	901752	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	811980	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1051999	49.2795	49.27
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	372730	52.7137	52.71
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	347464	50.0000	
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	3218	0.63083	31.54(a)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	10287	1.47997	73.99(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	4591	0.59048	29.52(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	447575	69.3926	3469.63

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D
Date : 06-OCT-2020 18:13
Client ID: HS20100074-04
Sample Info: HS20100074-04;HS20100074-04;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D

Date : 06-OCT-2020 18:13

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

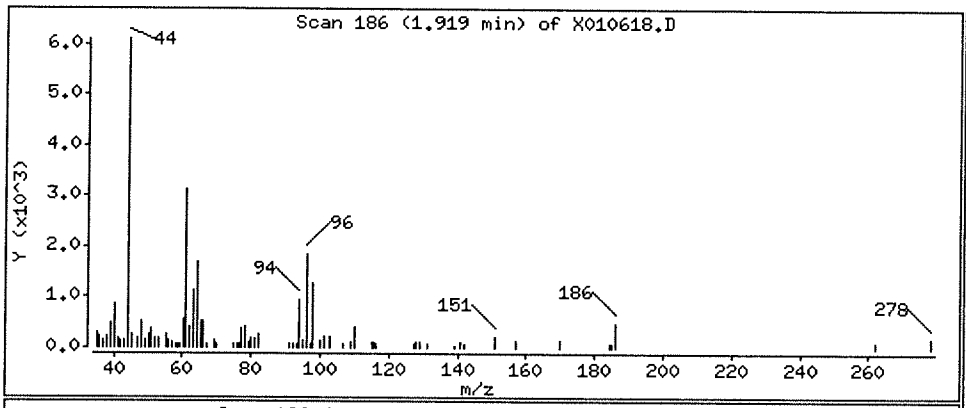
Operator: PC

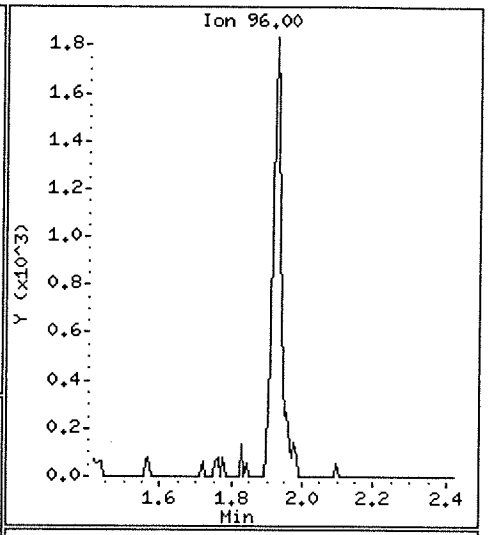
Column phase: DB624

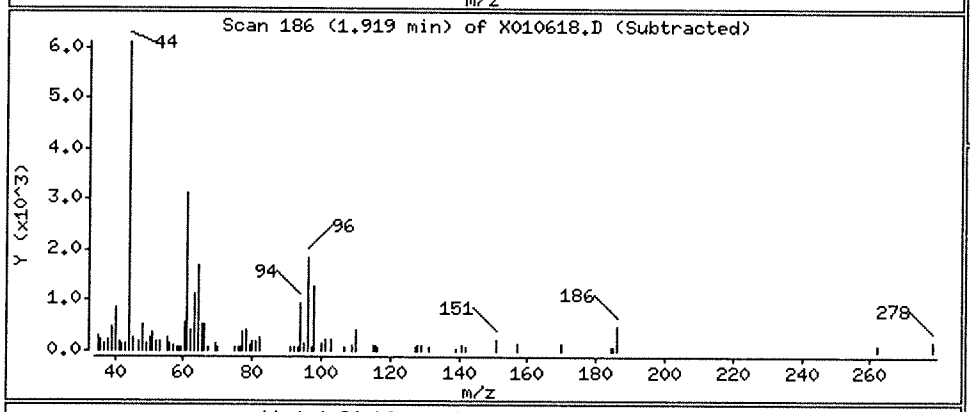
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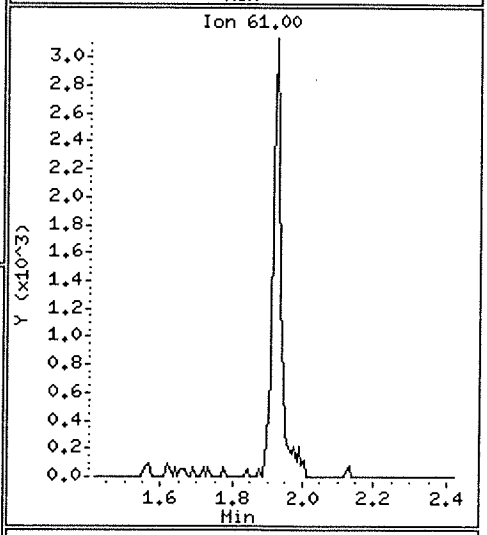
11 1,1-Dichloroethene

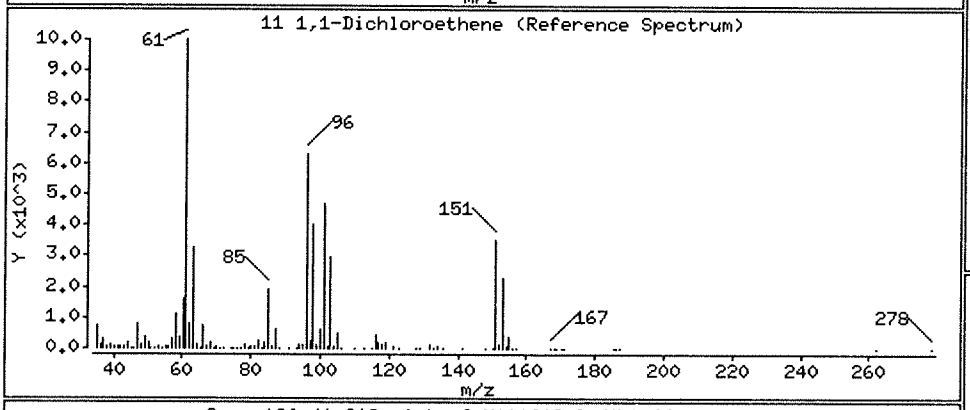
Concentration: 31.54 ug/l

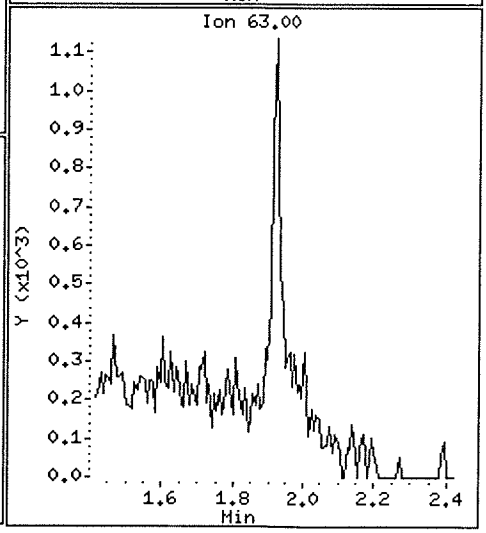


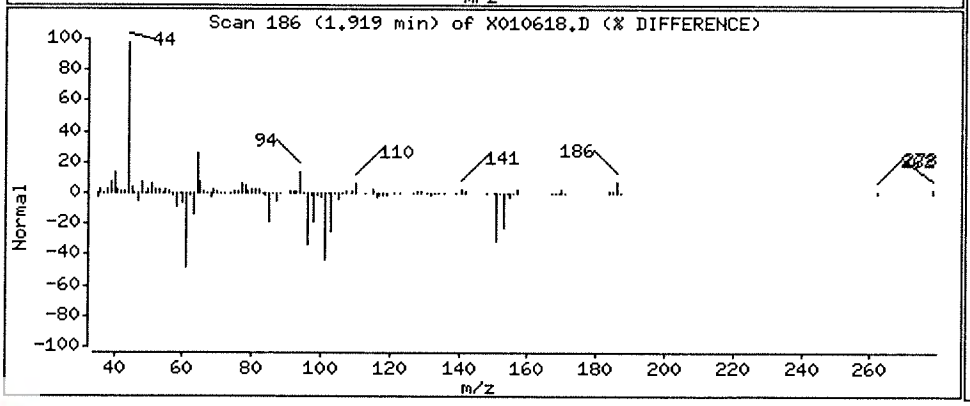












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D

Date : 06-OCT-2020 18:13

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

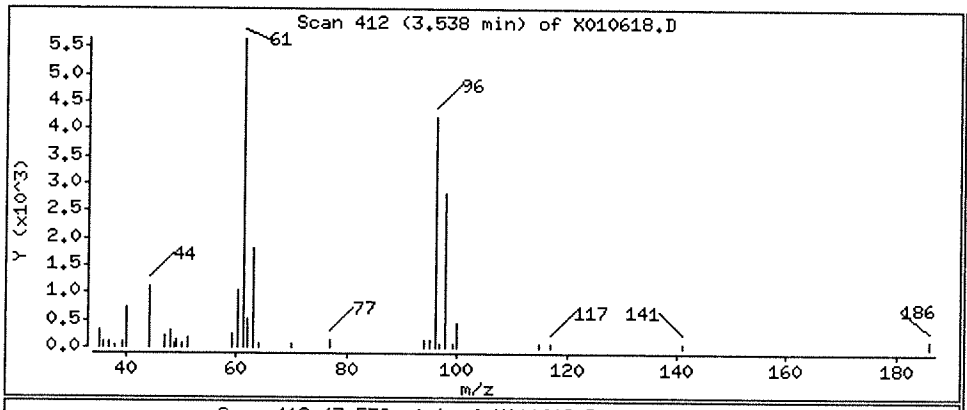
Operator: PC

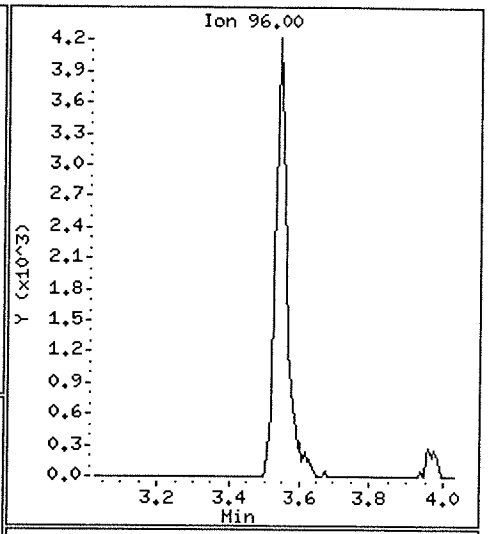
Column phase: DB624

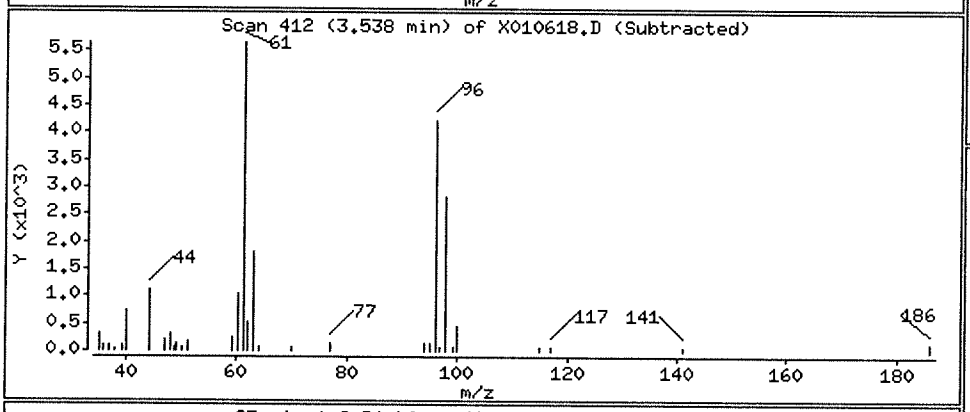
Column diameter: 0.18

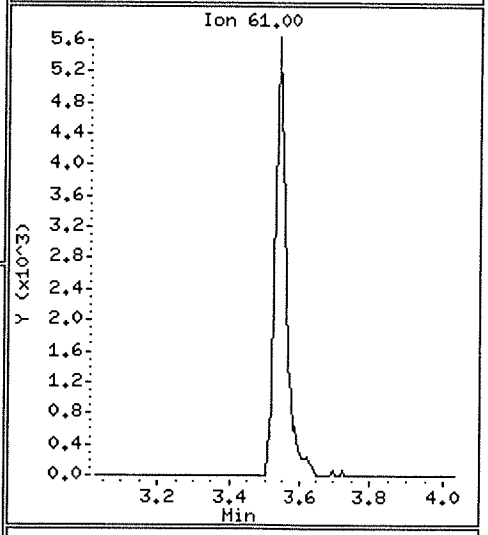
27 cis-1,2-Dichloroethene

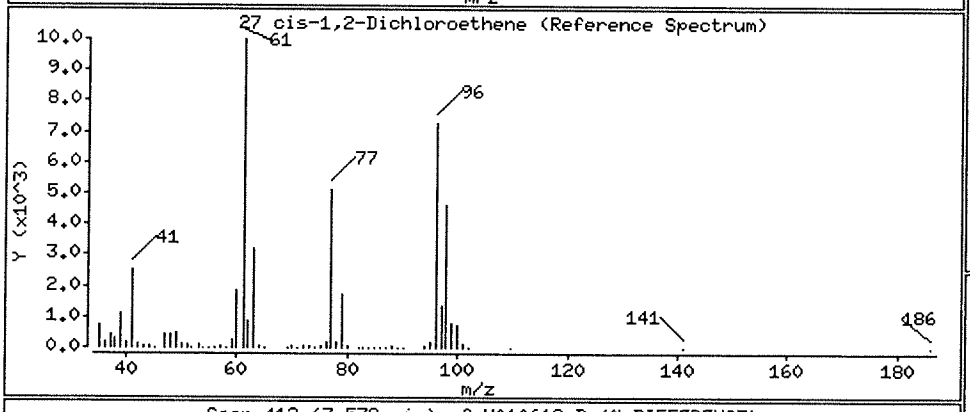
Concentration: 73.99 ug/l

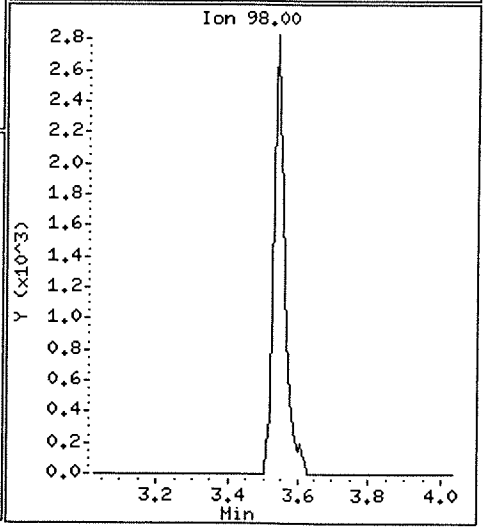


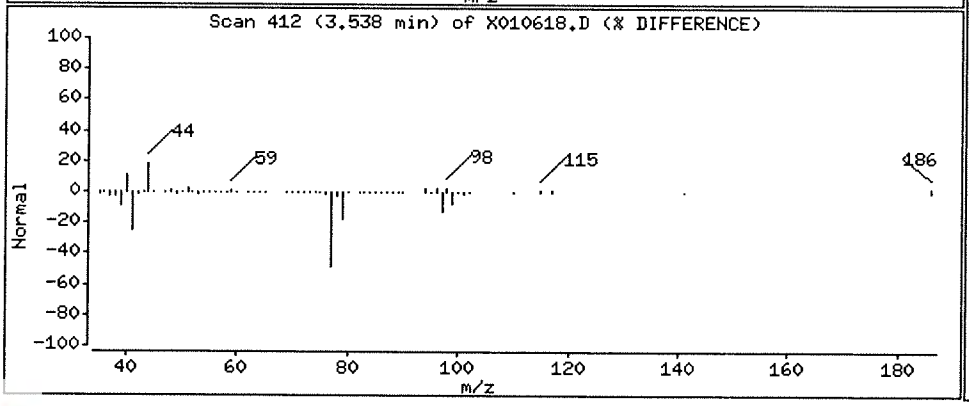












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D

Date : 06-OCT-2020 18:13

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

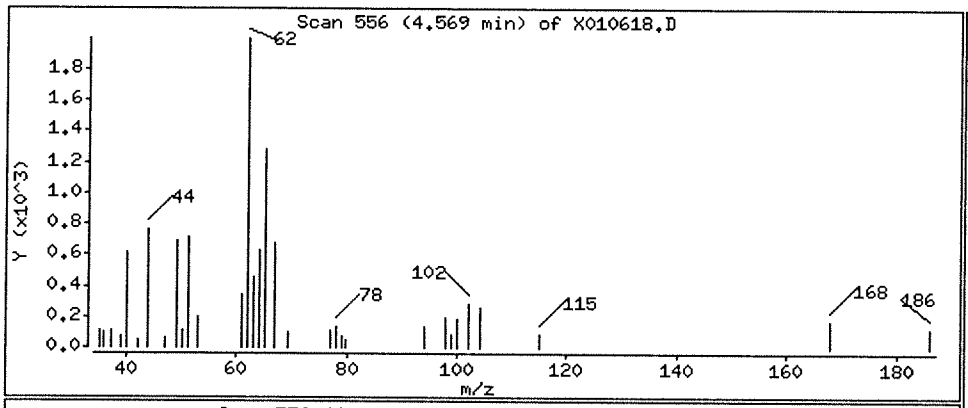
Operator: PC

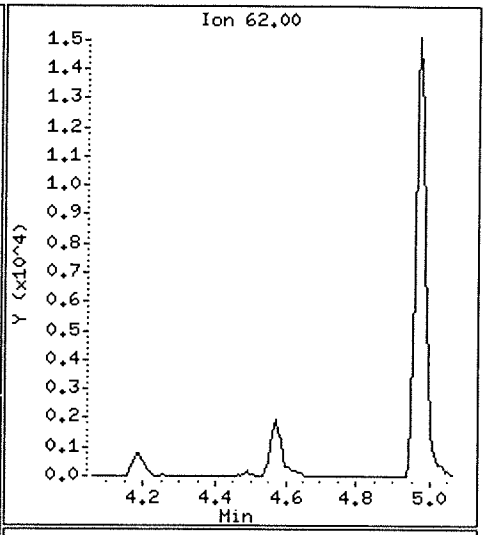
Column phase: DB624

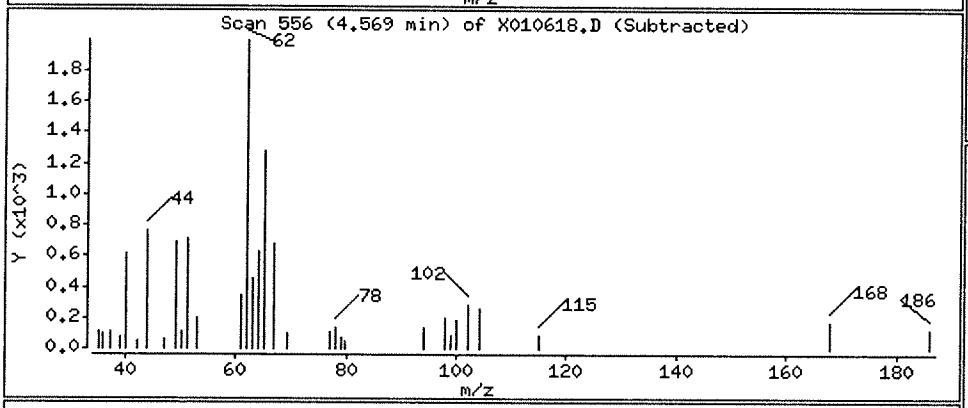
Column diameter: 0.18

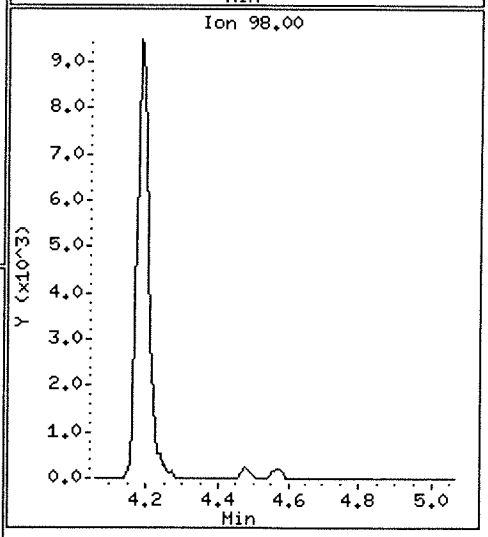
33 1,2-Dichloroethane

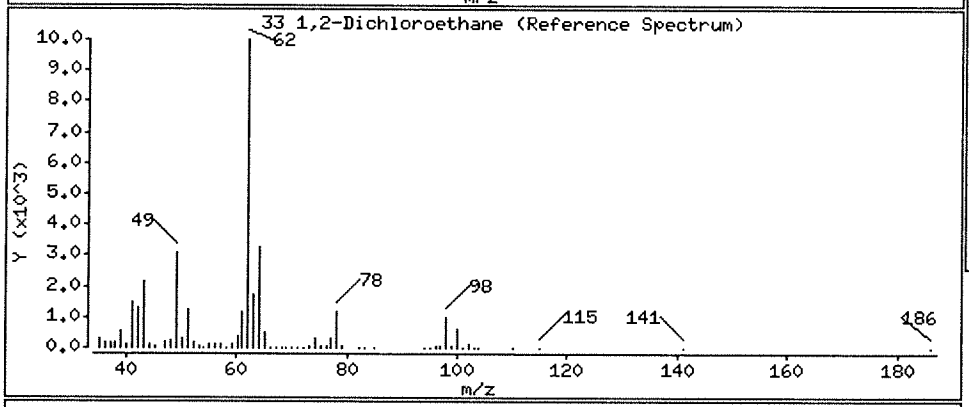
Concentration: 29.52 ug/l

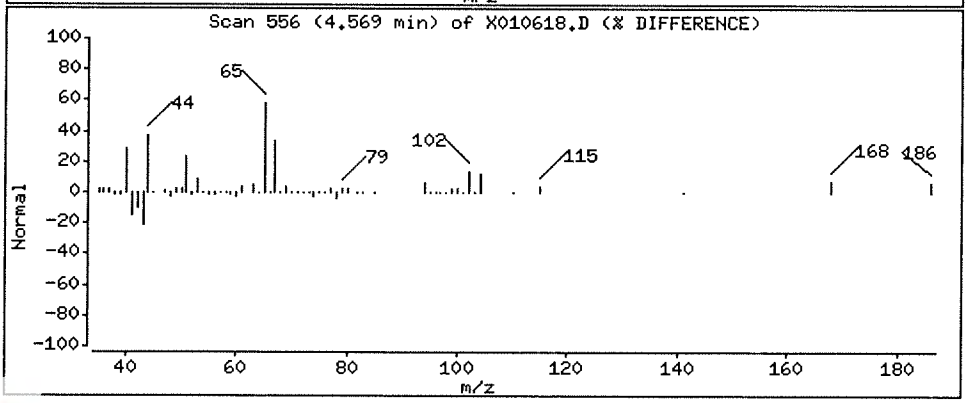












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010618.D

Date : 06-OCT-2020 18:13

Client ID: HS20100074-04

Instrument: voa6.i

Sample Info: HS20100074-04;HS20100074-04;;;

Purge Volume: 5.0

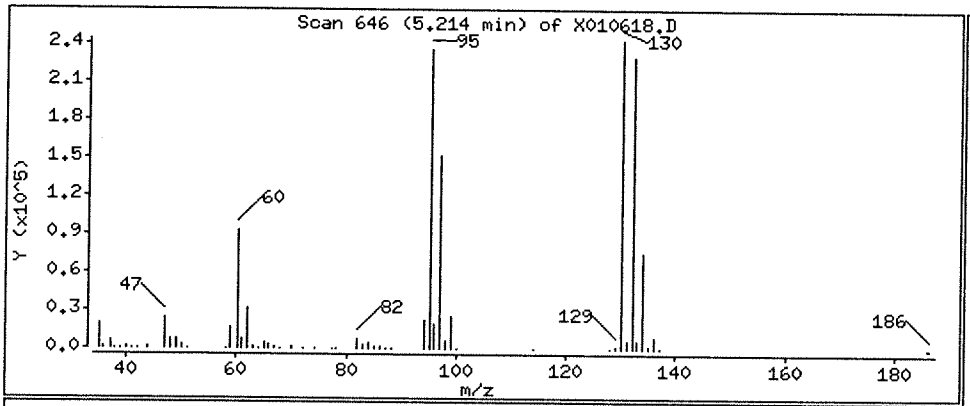
Operator: PC

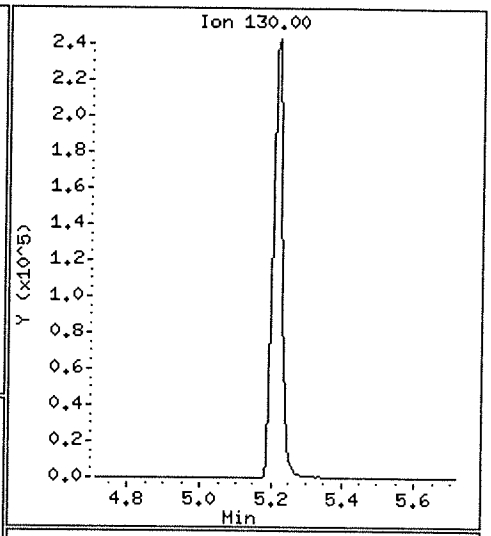
Column phase: DB624

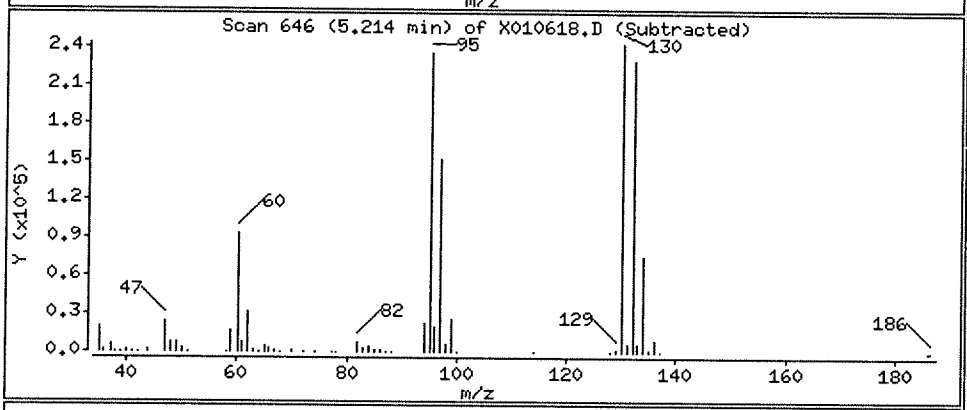
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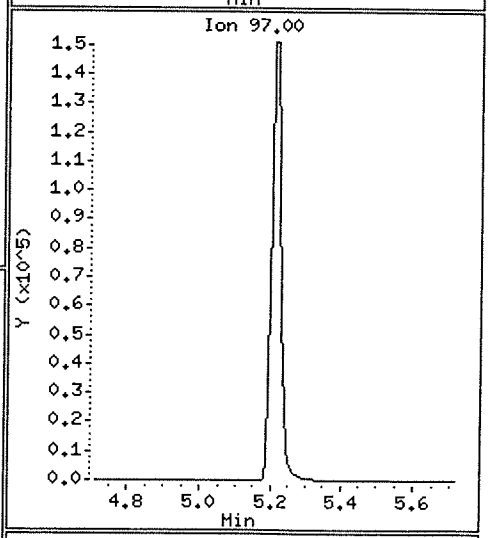
38 Trichloroethene

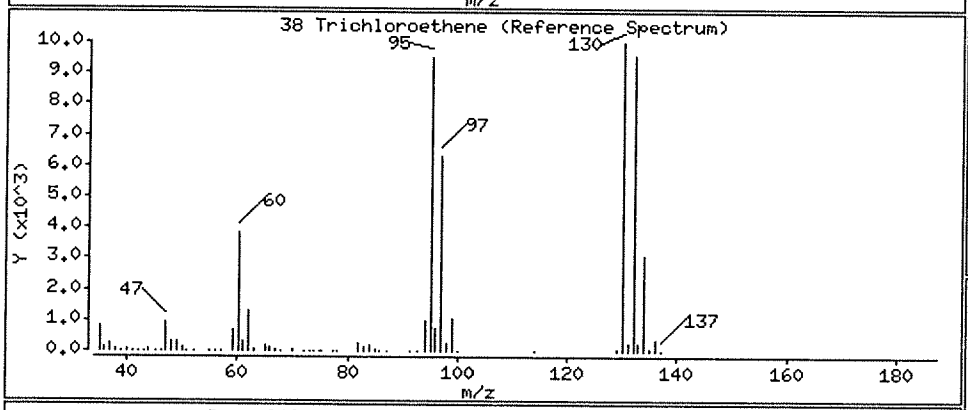
Concentration: 3469.63 ug/l

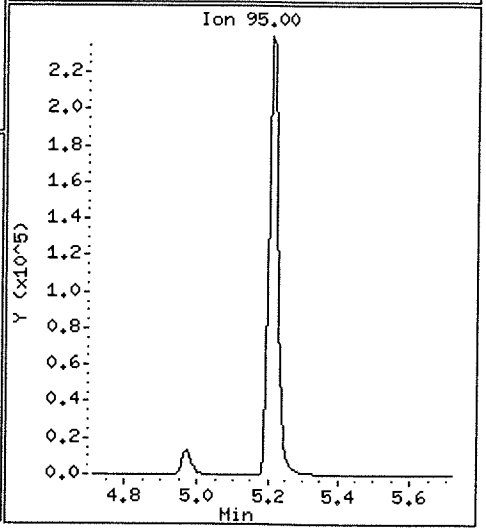


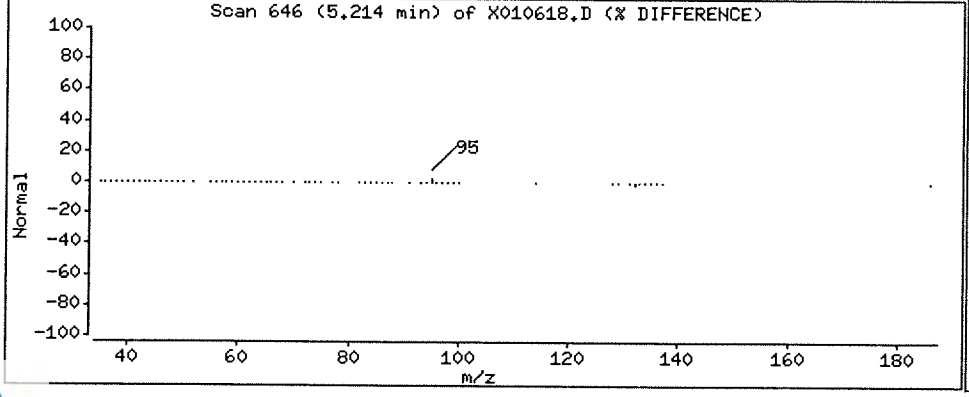












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010627.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010627.D
Lab Smp Id: HS20100074-05 Client Smp ID: HS20100074-05
Inj Date : 06-OCT-2020 21:50
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-05;HS20100074-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

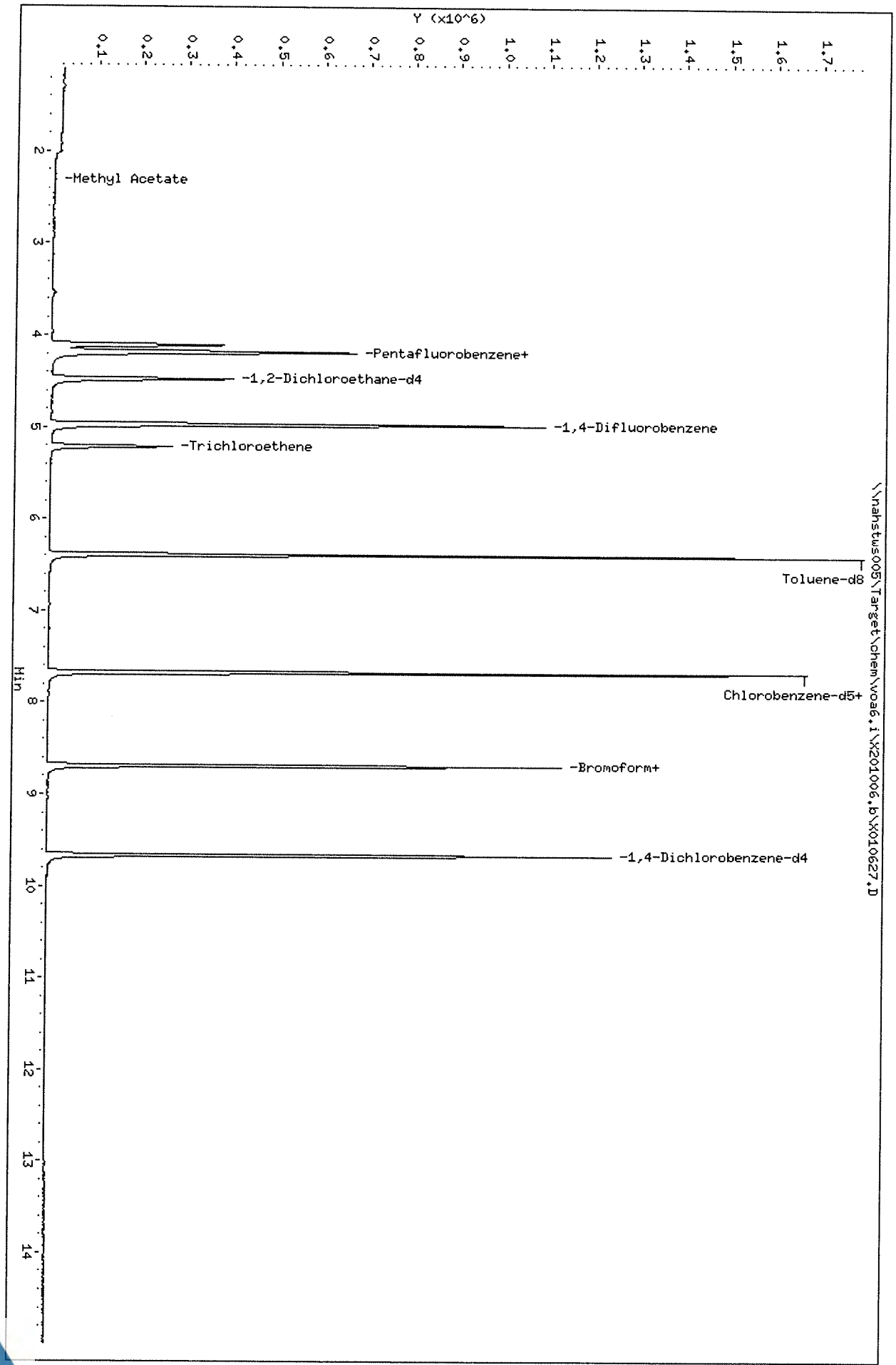
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	570466	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	274881	46.8923	46.89
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	288458	44.9821	44.98
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	909409	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	792730	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1057098	50.7208	50.72
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	358031	51.8511	51.85
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	314638	50.0000	
38 Trichloroethene	130	5.214	5.214	(1.049)	91538	14.0727	14.07

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010627.D
Date : 06-OCT-2020 21:50
Client ID: HS20100074-05
Sample Info: HS20100074-05;HS20100074-05;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010627.D

Date : 06-OCT-2020 21:50

Client ID: HS20100074-05

Instrument: voa6.i

Sample Info: HS20100074-05;HS20100074-05;;;

Purge Volume: 5.0

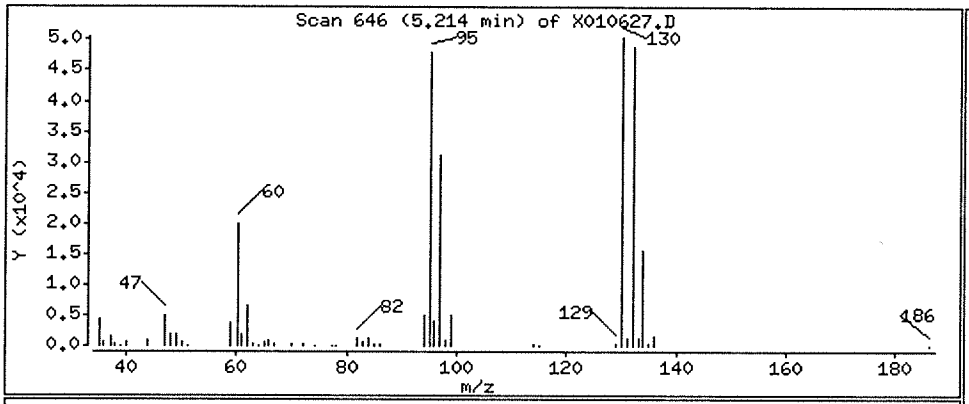
Operator: PC

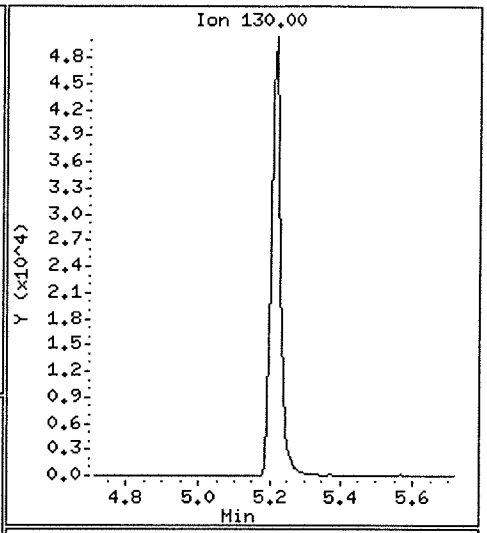
Column phase: DB624

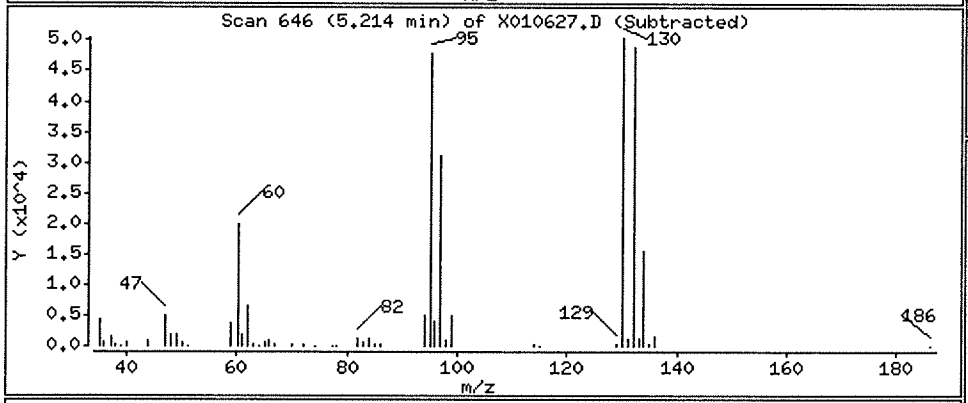
Column diameter: 0.18

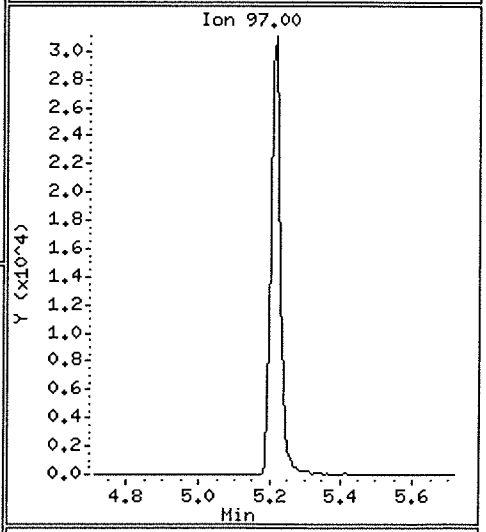
38 Trichloroethene

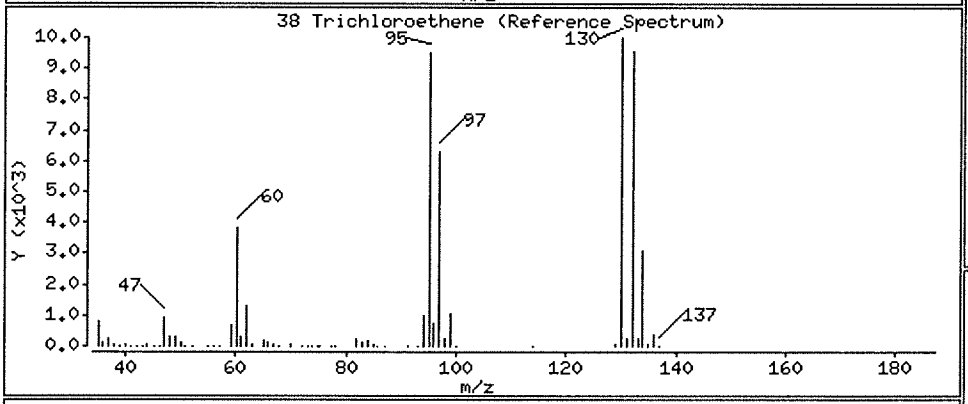
Concentration: 14.07 ug/l

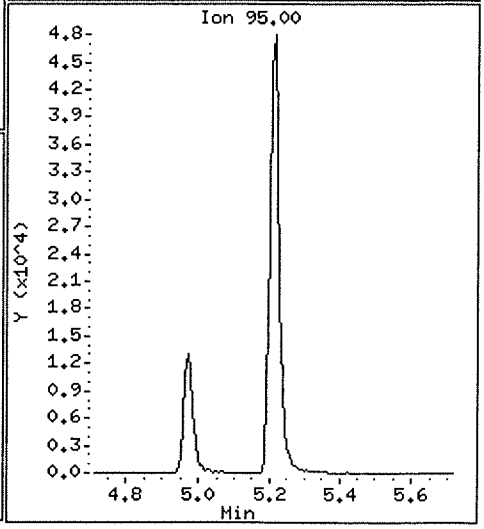


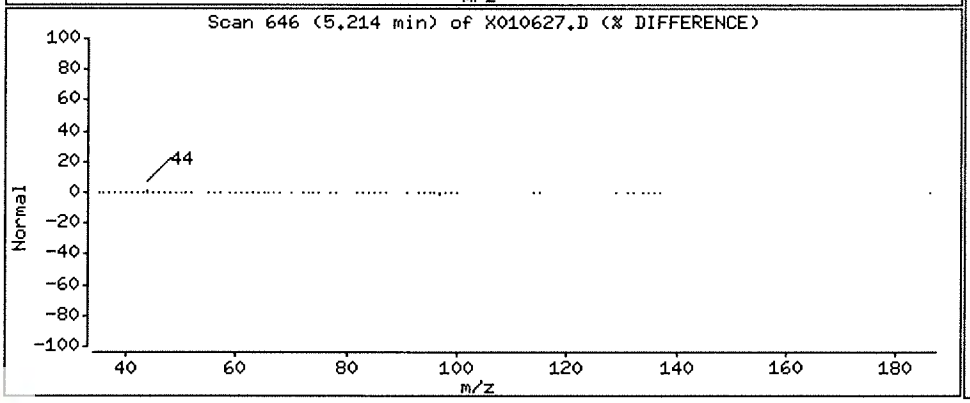












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D
Lab Smp Id: HS20100074-06 Client Smp ID: HS20100074-06
Inj Date : 06-OCT-2020 22:14
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-06;HS20100074-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

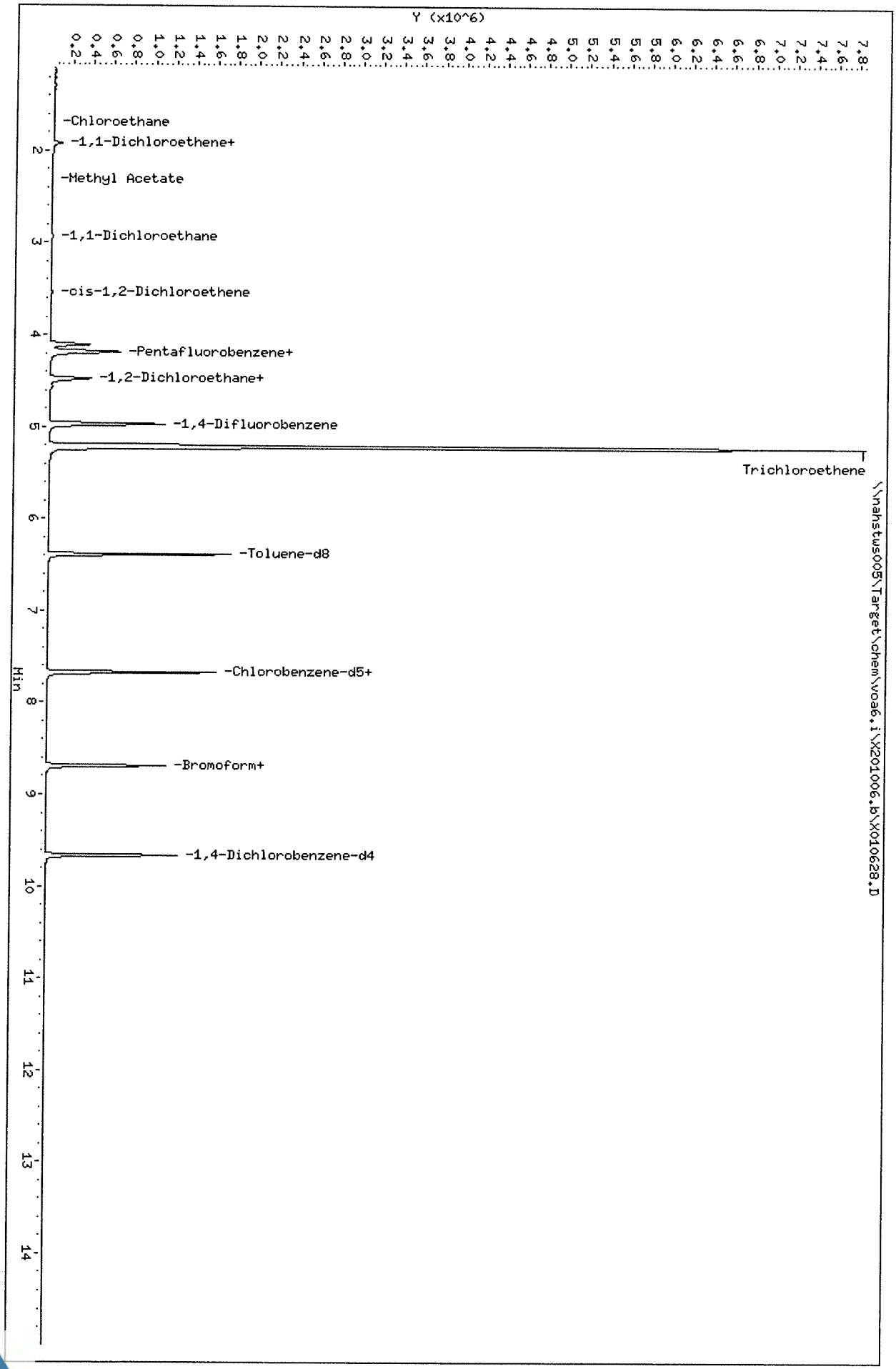
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	576014	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	276781	46.7616	46.76
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	292745	45.2109	45.21
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	908846	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	782750	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1022779	49.6999	49.69
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	357744	52.4800	52.47
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	323714	50.0000	
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	27011	5.21543	5.21
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	6137	0.86965	0.86(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	23272	2.96980	2.96(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	2687215	413.377	413.37(A)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D
Date : 06-OCT-2020 22:14
Client ID: HS20100074-06
Sample Info: HS20100074-06;HS20100074-06;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D

Date : 06-OCT-2020 22:14

Client ID: HS20100074-06

Instrument: voa6.i

Sample Info: HS20100074-06;HS20100074-06;;;

Purge Volume: 5.0

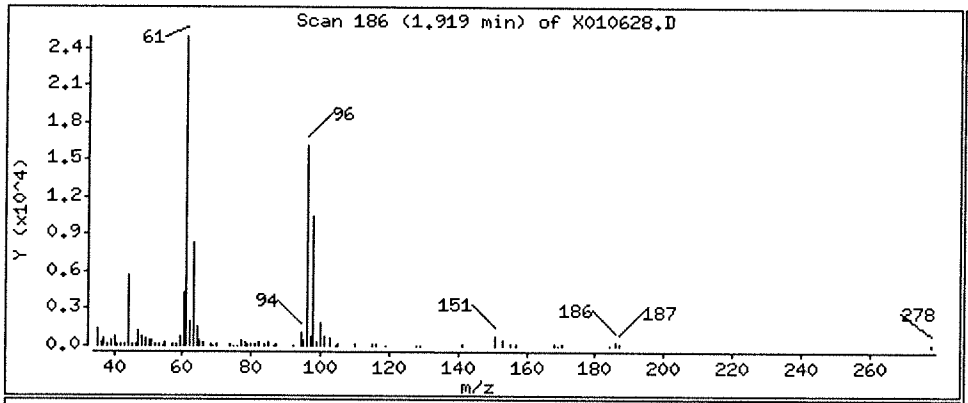
Operator: PC

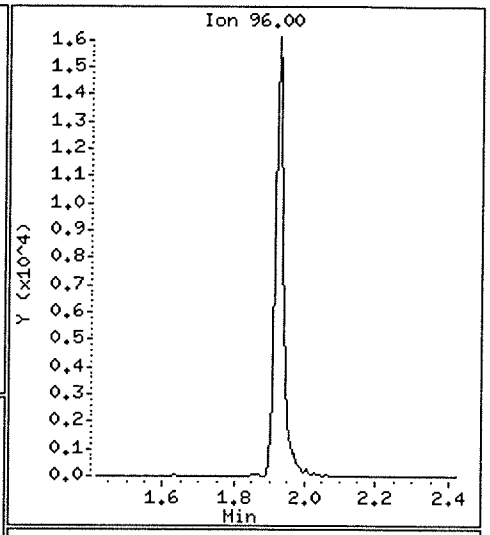
Column phase: DB624

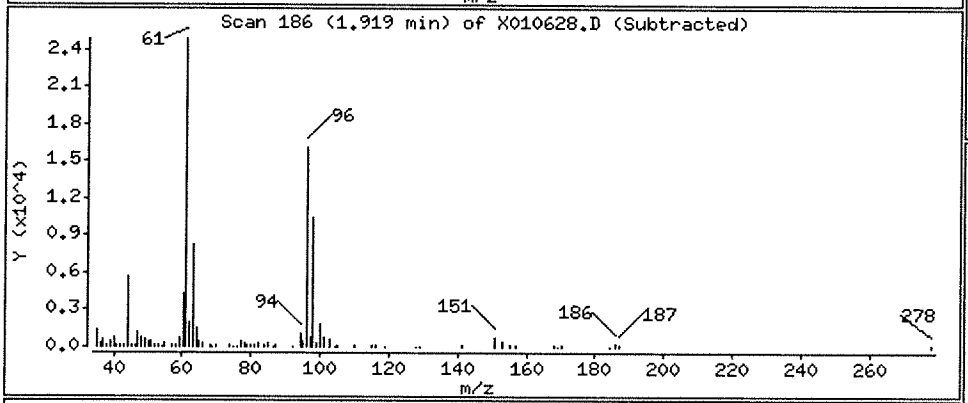
Column diameter: 0.18

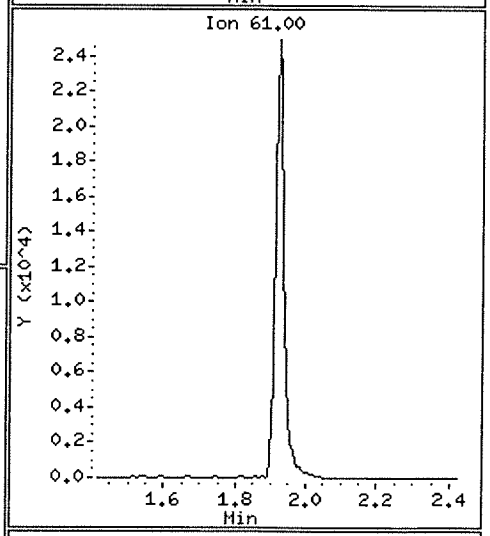
11 1,1-Dichloroethene

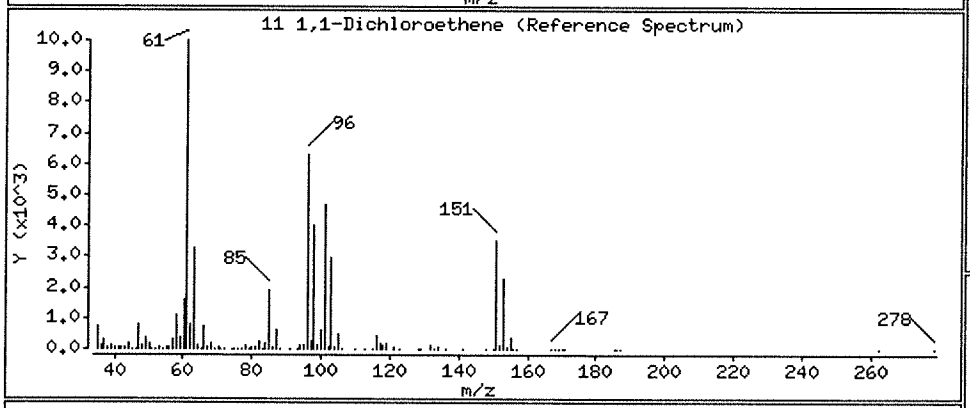
Concentration: 5.21 ug/l

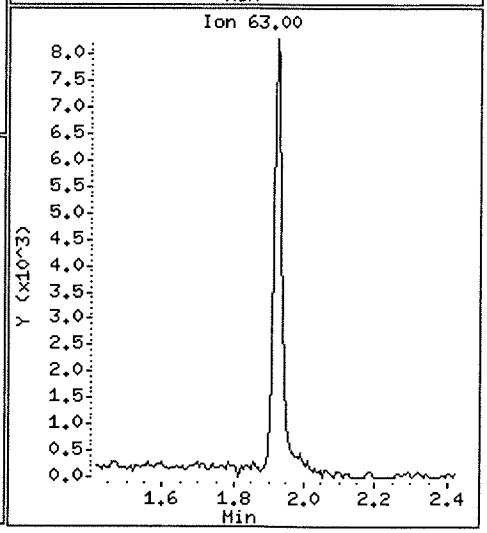


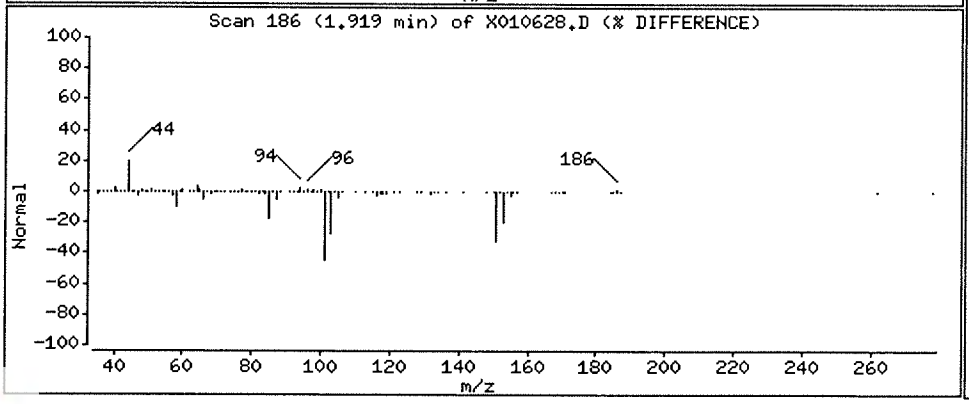












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D

Date : 06-OCT-2020 22:14

Client ID: HS20100074-06

Instrument: voa6.i

Sample Info: HS20100074-06;HS20100074-06;;;

Purge Volume: 5.0

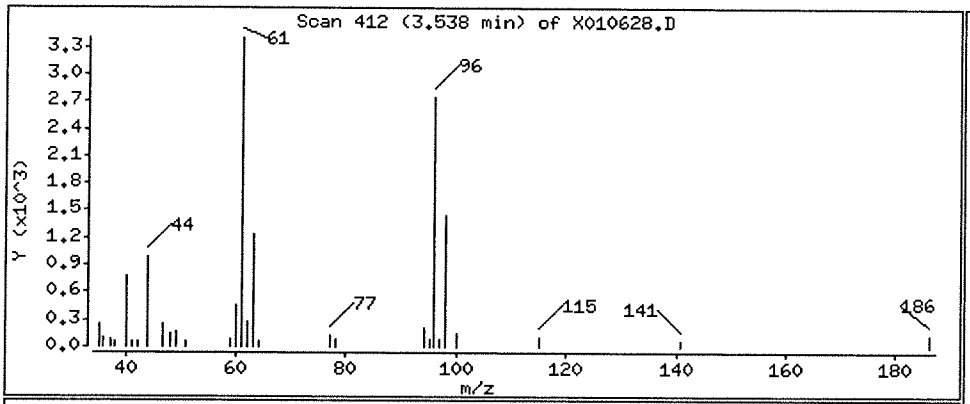
Operator: PC

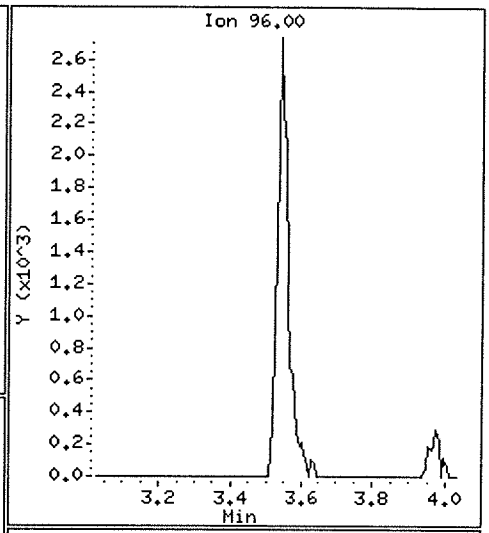
Column phase: DB624

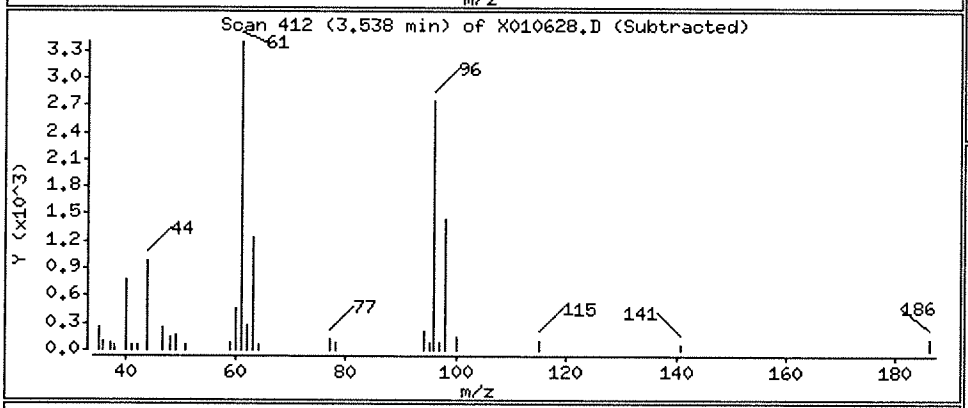
Column diameter: 0.18

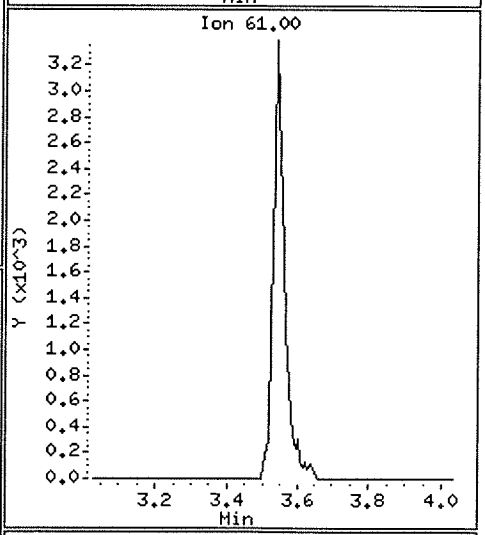
27 cis-1,2-Dichloroethene

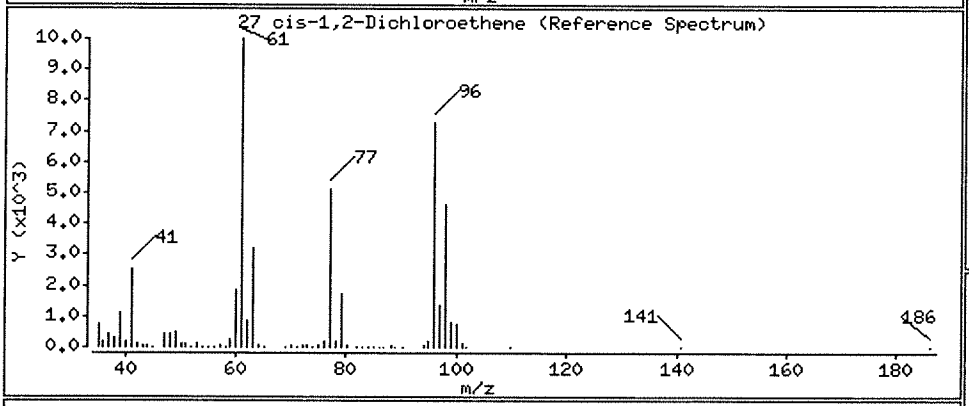
Concentration: 0.86 ug/l

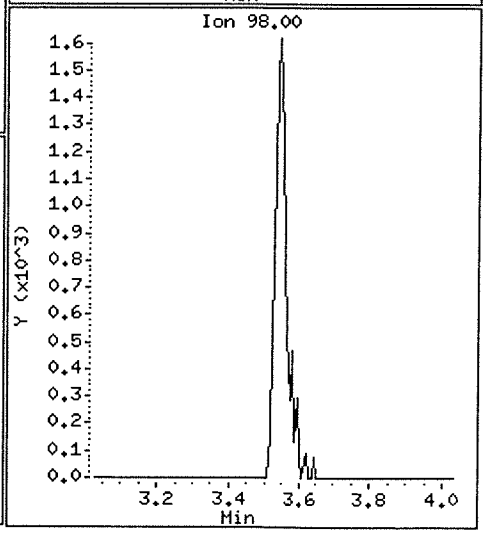


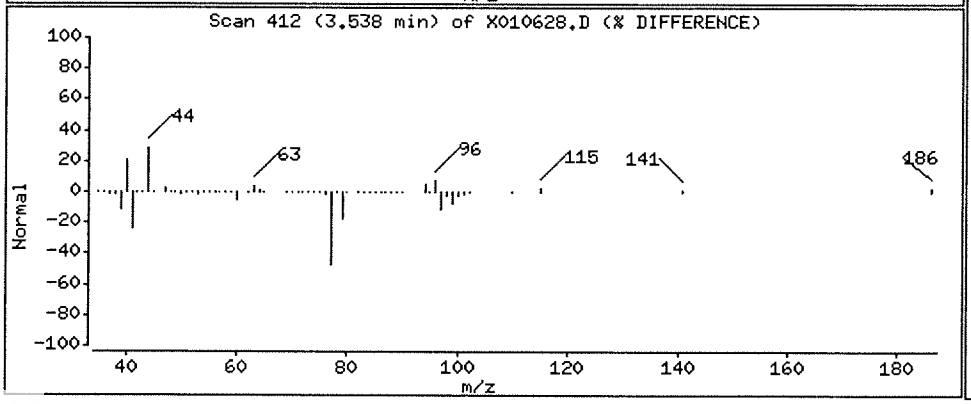












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D

Date : 06-OCT-2020 22:14

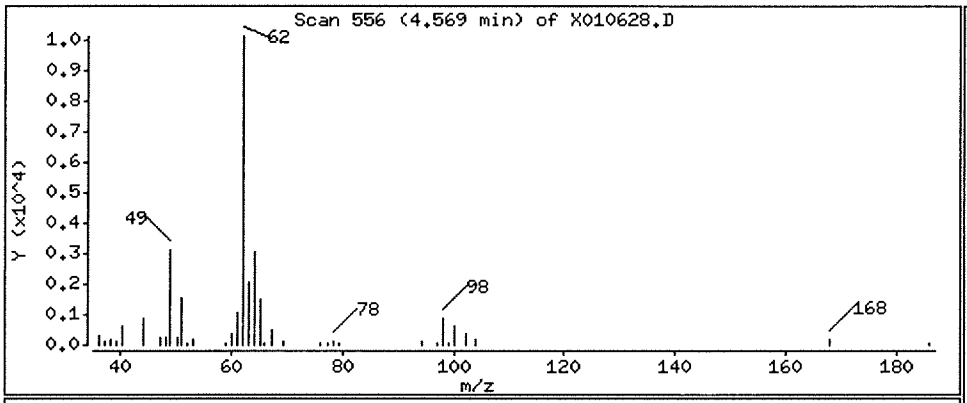
Client ID: HS20100074-06 Instrument: voa6.i

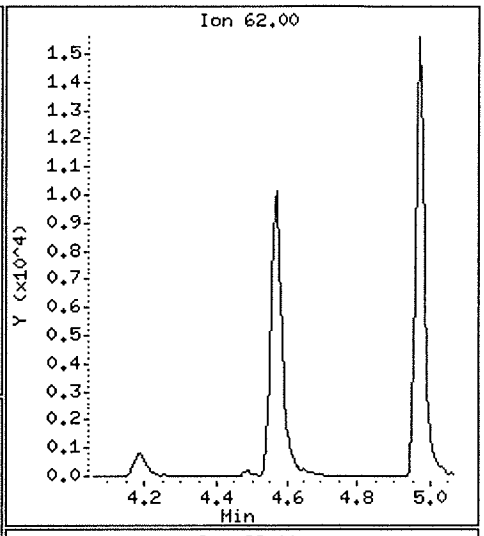
Sample Info: HS20100074-06;HS20100074-06;;;

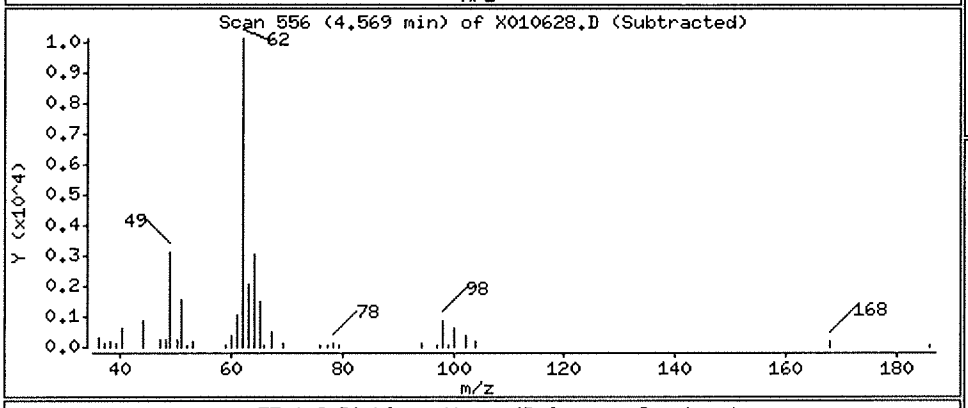
Purge Volume: 5.0 Operator: PC

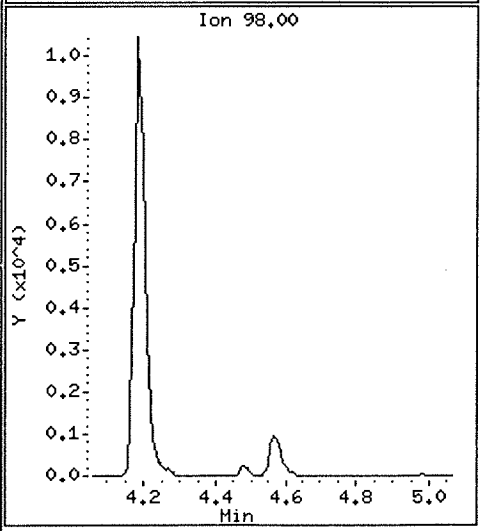
Column phase: DB624 Column diameter: 0.18

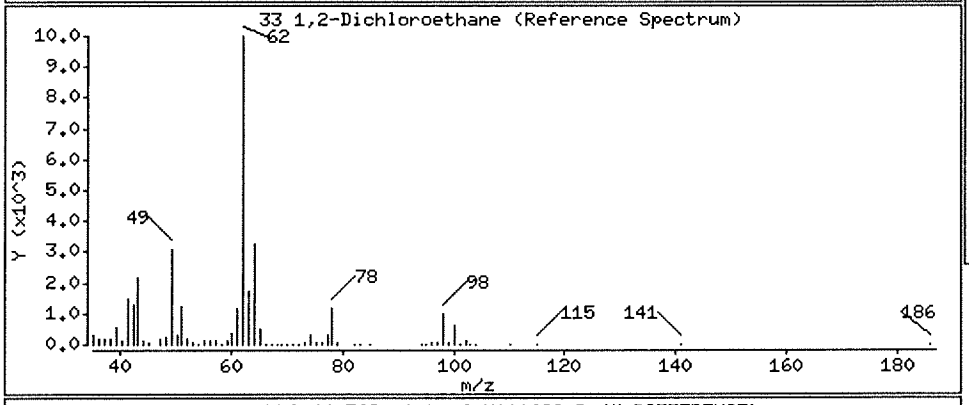
33 1,2-Dichloroethane Concentration: 2.96 ug/l

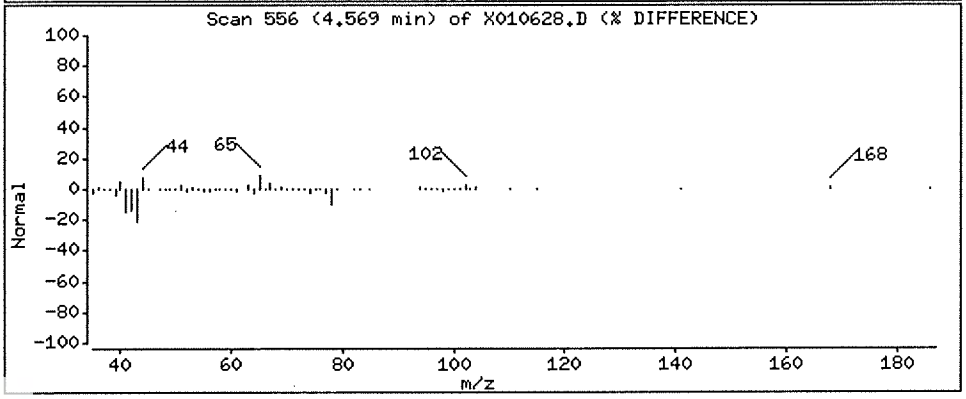












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010628.D

Date : 06-OCT-2020 22:14

Client ID: HS20100074-06

Instrument: voa6.i

Sample Info: HS20100074-06;HS20100074-06;;;

Purge Volume: 5.0

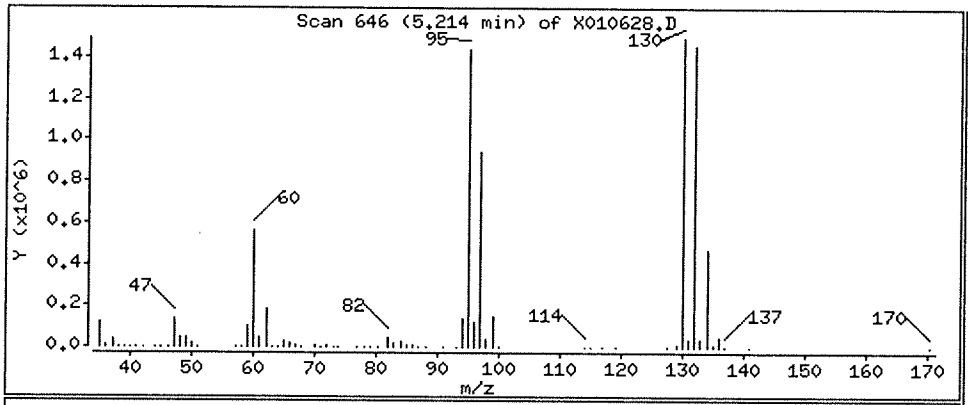
Operator: PC

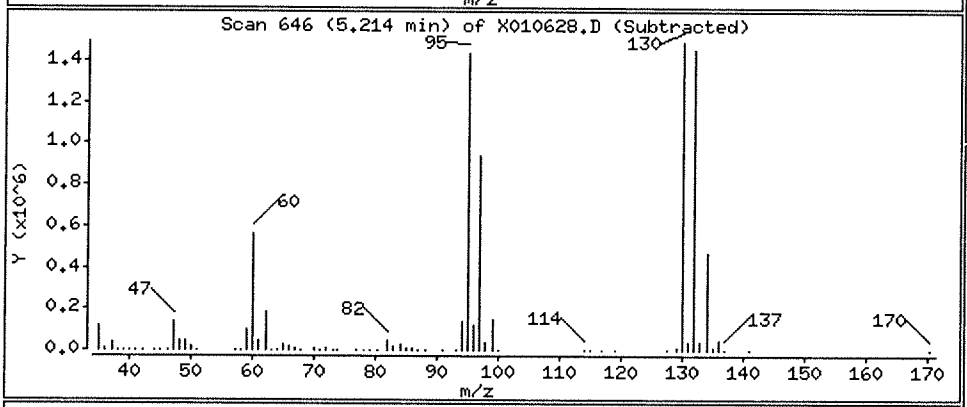
Column phase: DB624

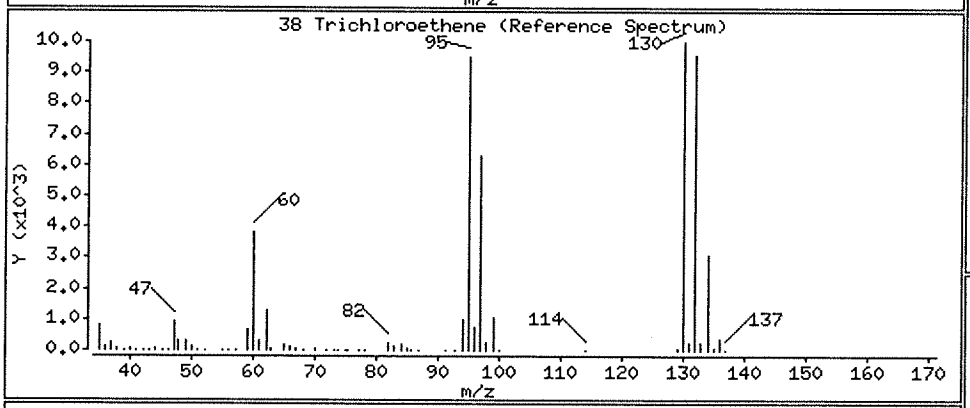
Column diameter: 0.18

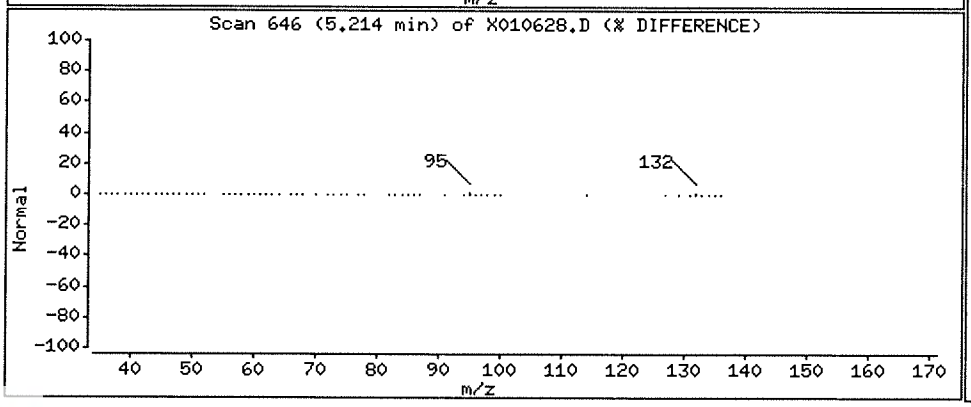
38 Trichloroethene

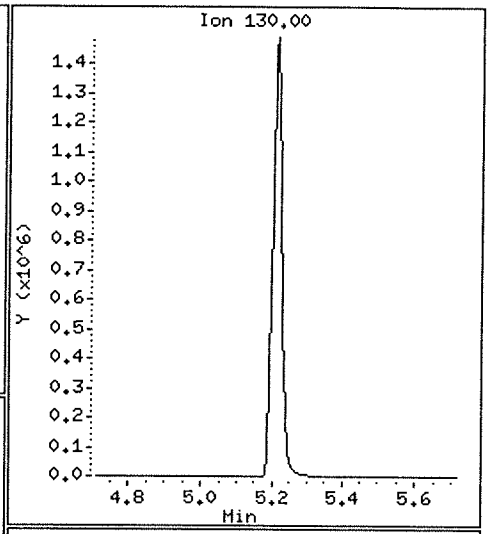
Concentration: 413.37 ug/l

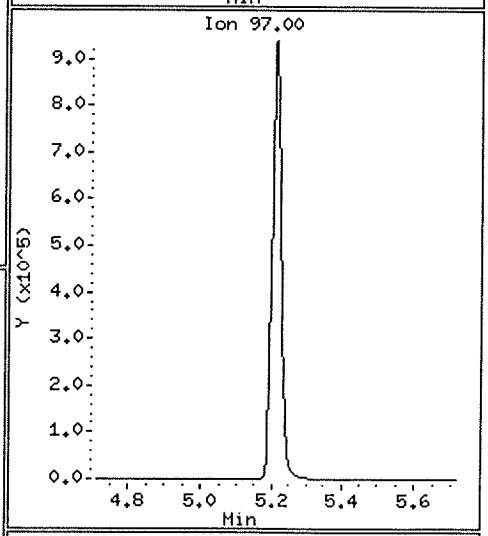


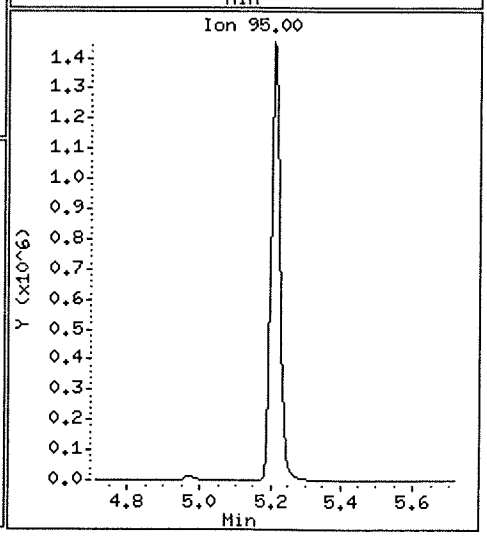












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D
Lab Smp Id: HS20100074-02 Client Smp ID: HS20100074-02
Inj Date : 06-OCT-2020 22:38
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-02;HS20100074-02;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 28
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

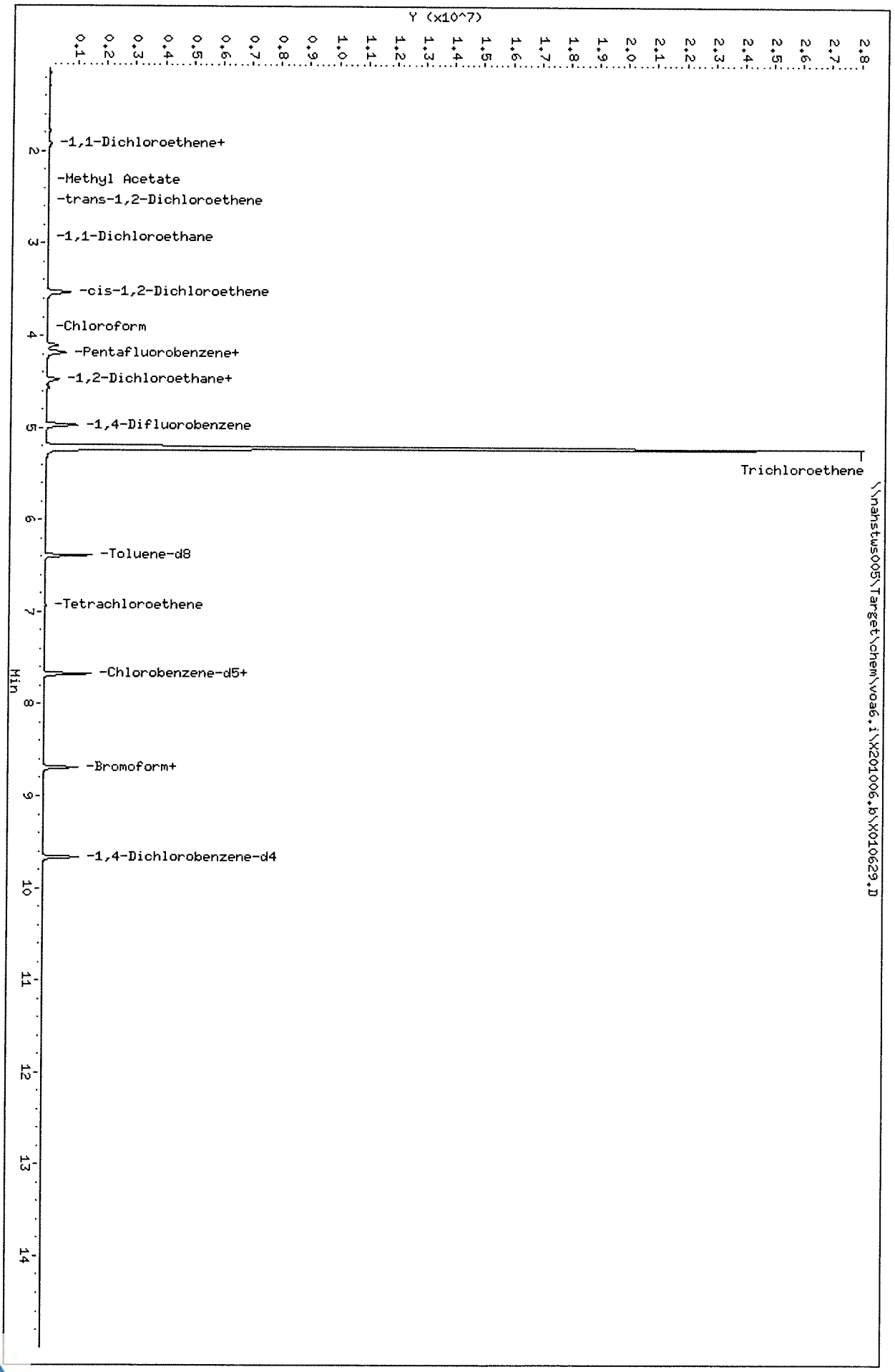
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	562700	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	276672	47.8492	47.84
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	295533	46.7214	46.72
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	901996	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	761731	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	969287	48.4002	48.40
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	345128	52.0191	52.01
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	321193	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	4820	0.66312	3.31(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	17511	3.46112	17.30(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	417278	60.5296	302.64
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	73182	9.40986	47.04
38 Trichloroethene	130	5.214	5.214	(1.049)	9279048	1438.25	7191.23(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	8243	1.71285	8.56(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D
Date : 06-OCT-2020 22:38
Client ID: HS20100074-02
Sample Info: HS20100074-02;HS20100074-02;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

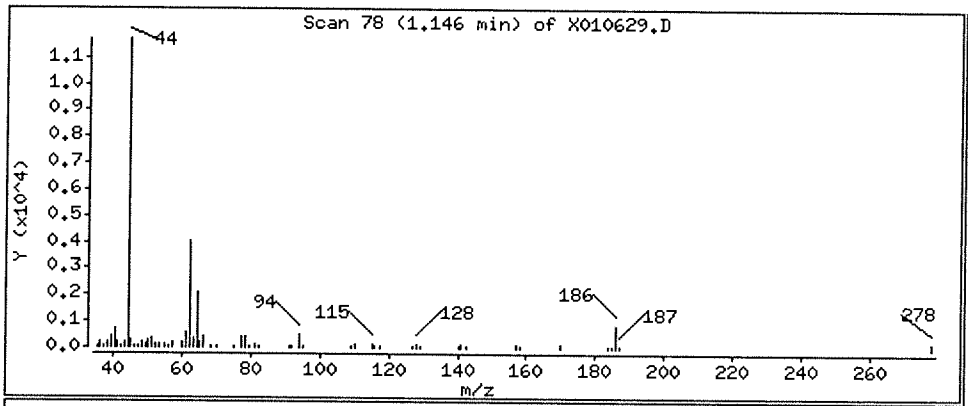
Operator: PC

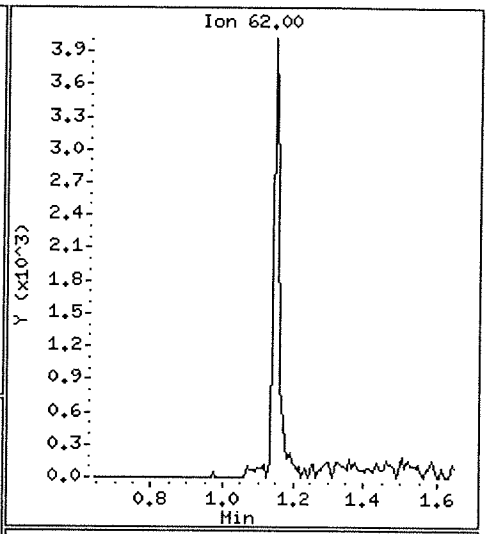
Column phase: DB624

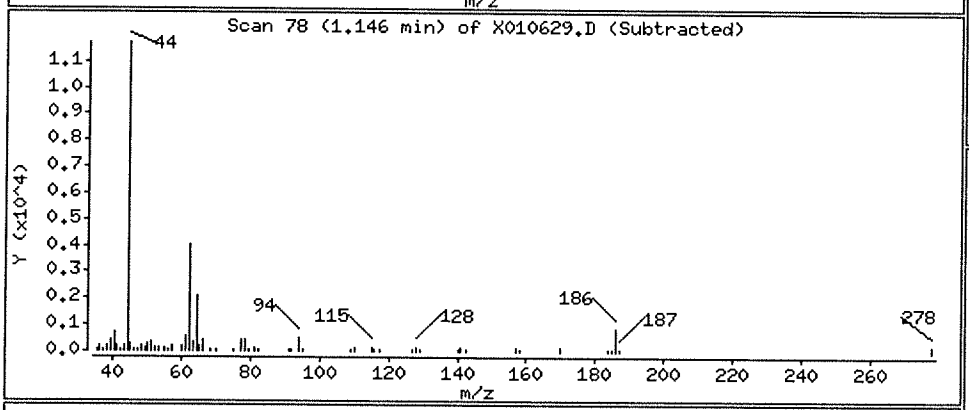
Column diameter: 0.18

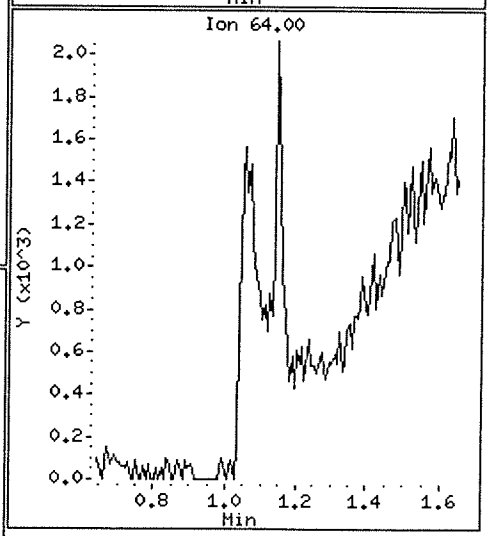
5 Vinyl Chloride

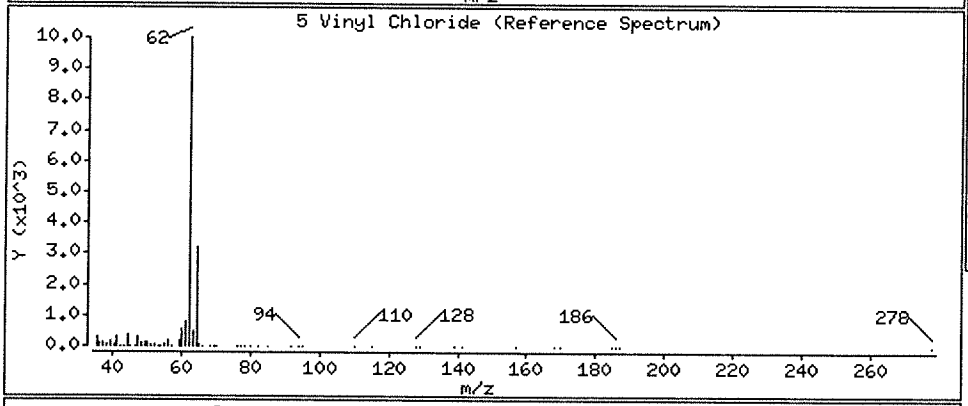
Concentration: 3.31 ug/l

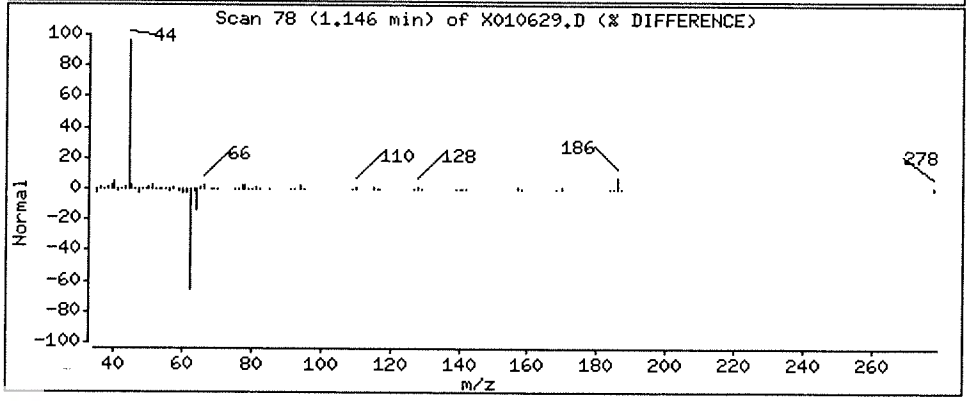












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

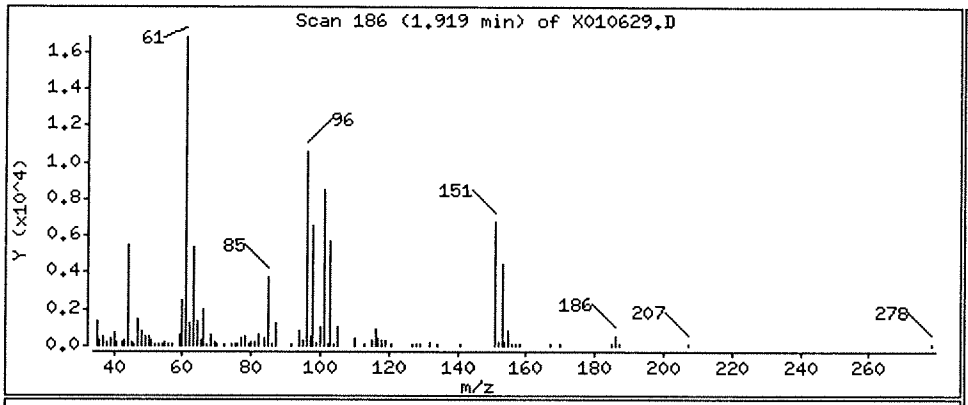
Operator: PC

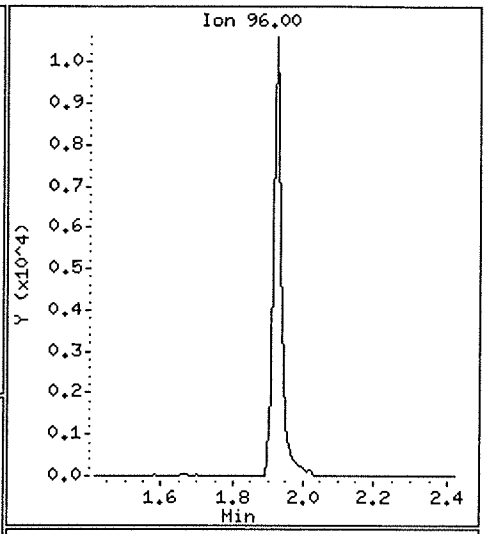
Column phase: DB624

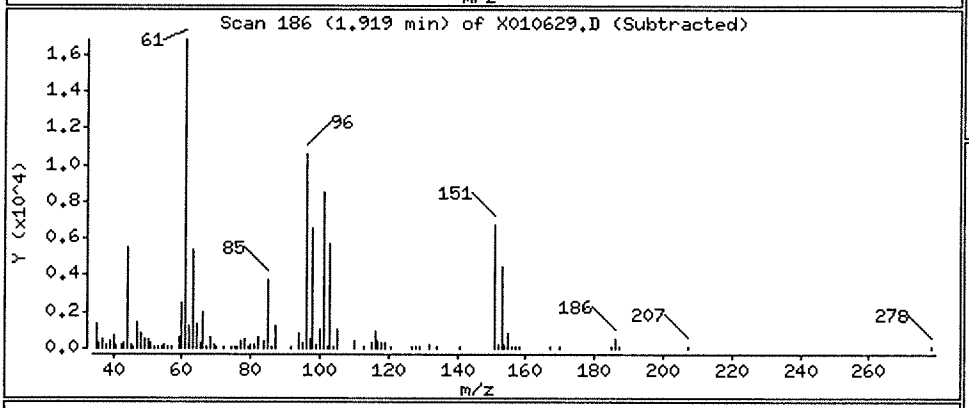
Column diameter: 0.18

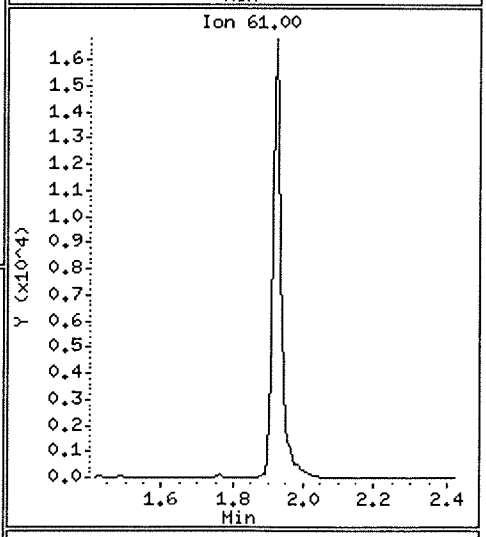
11 1,1-Dichloroethene

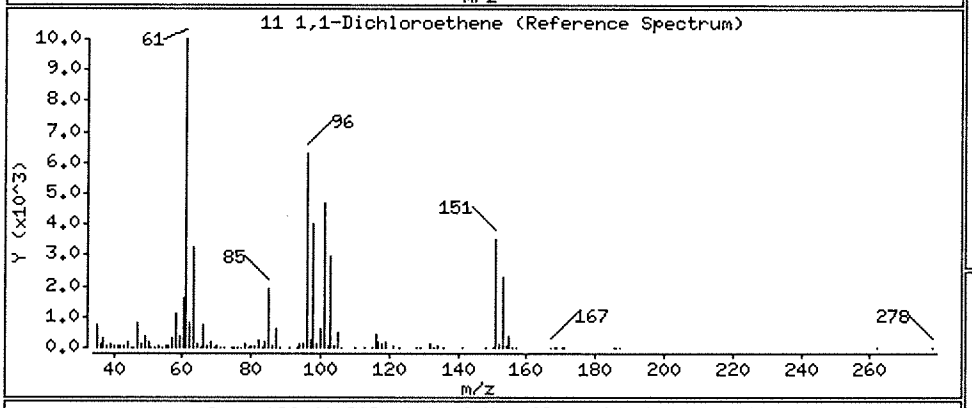
Concentration: 17.30 ug/l

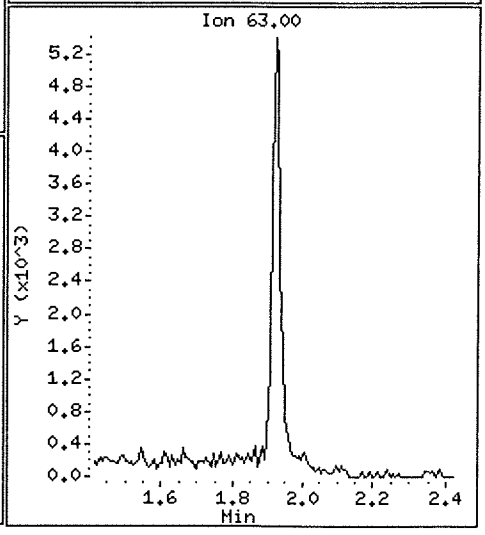


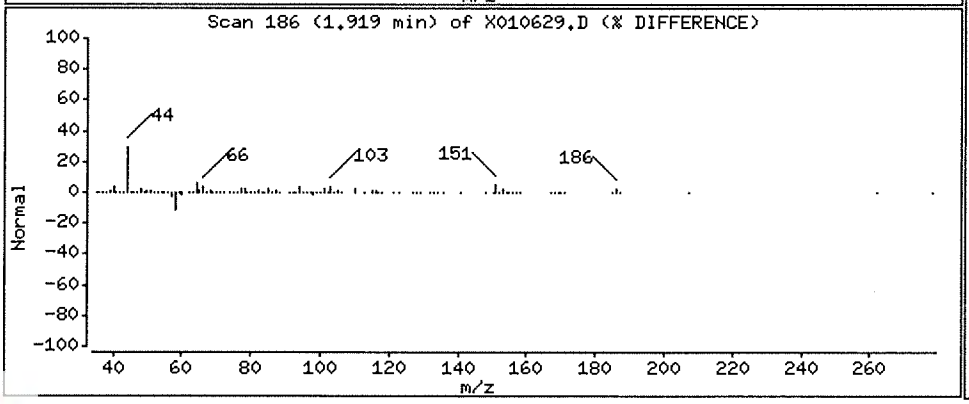












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

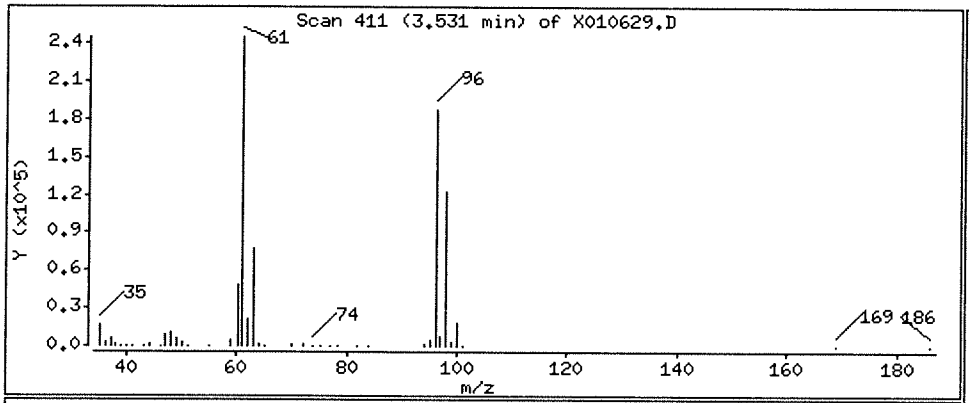
Operator: PC

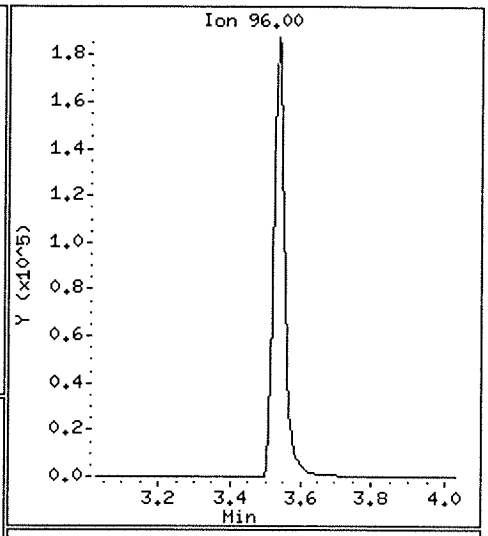
Column phase: DB624

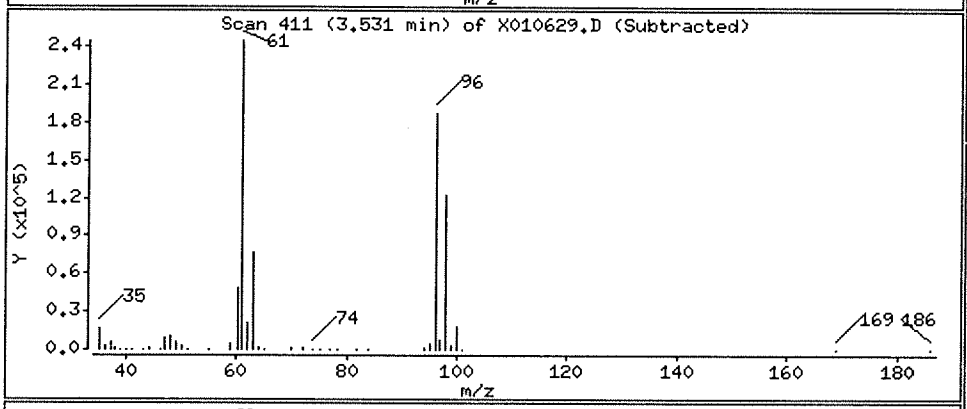
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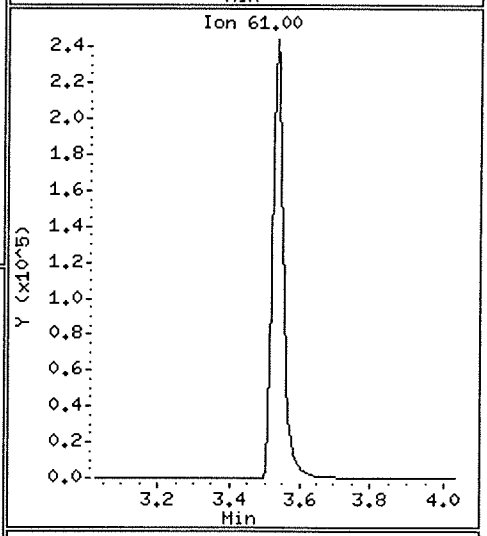
27 cis-1,2-Dichloroethene

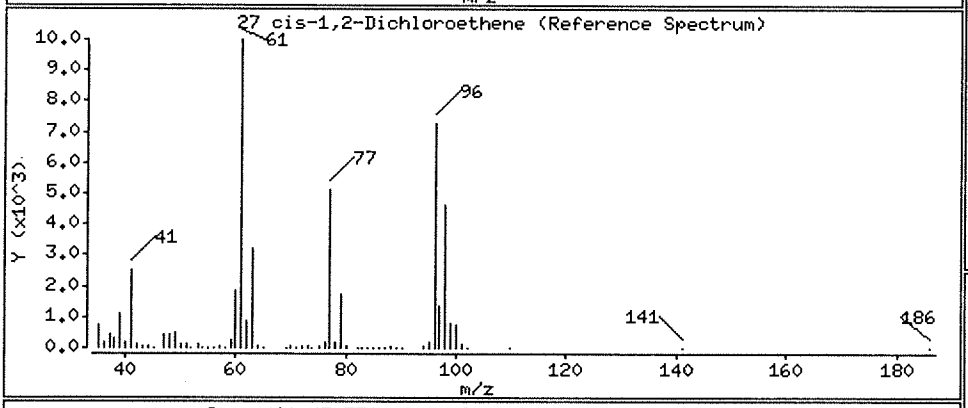
Concentration: 302.64 ug/l

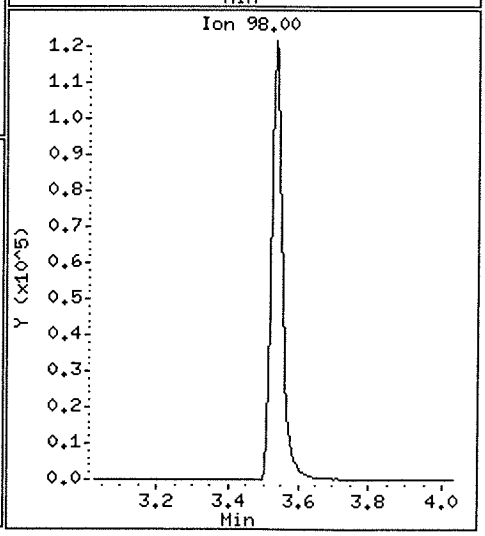


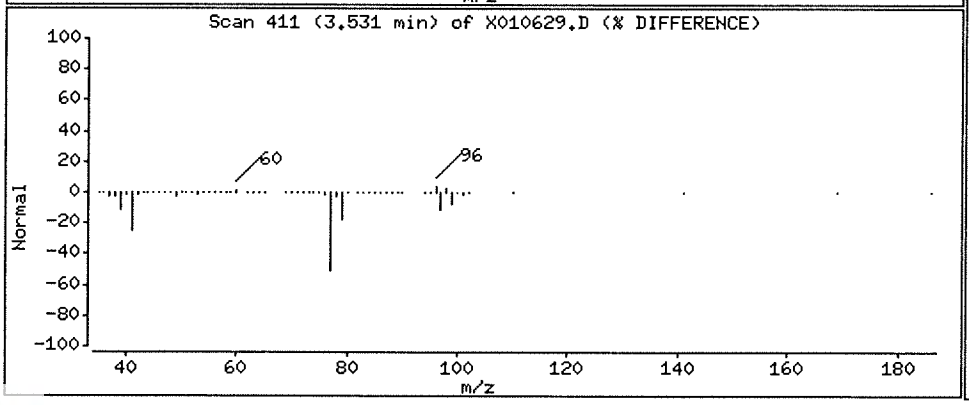












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

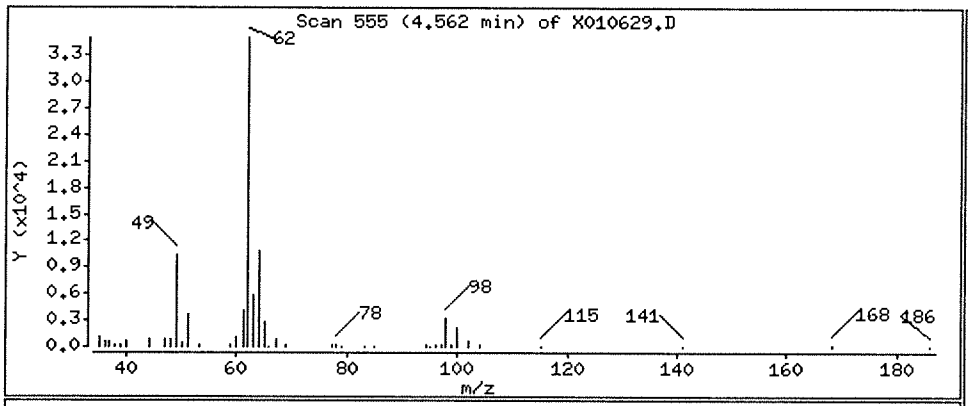
Operator: PC

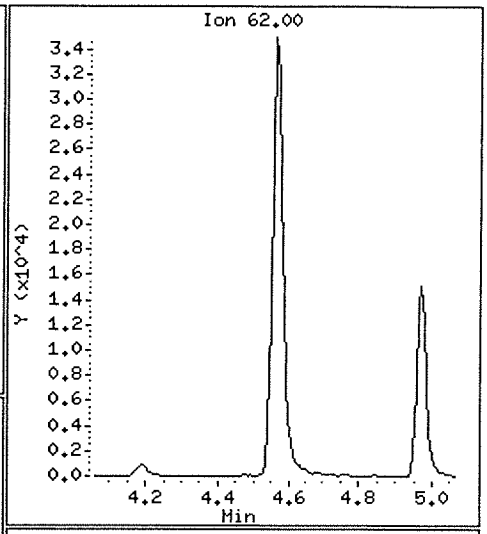
Column phase: DB624

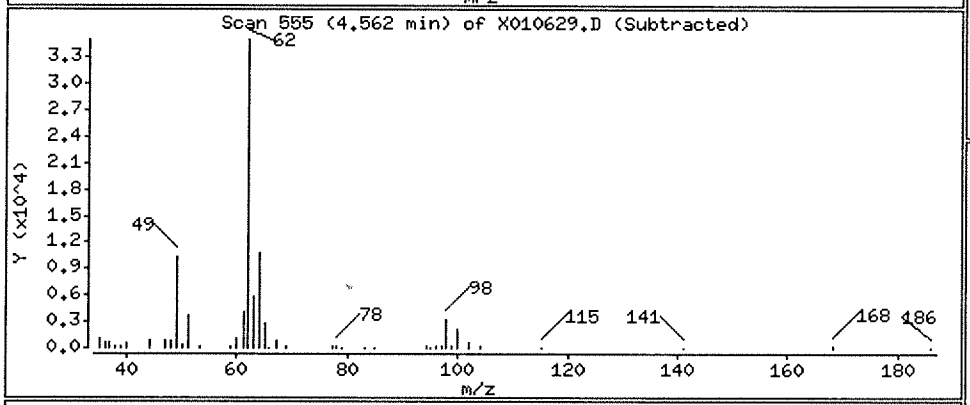
Column diameter: 0.18

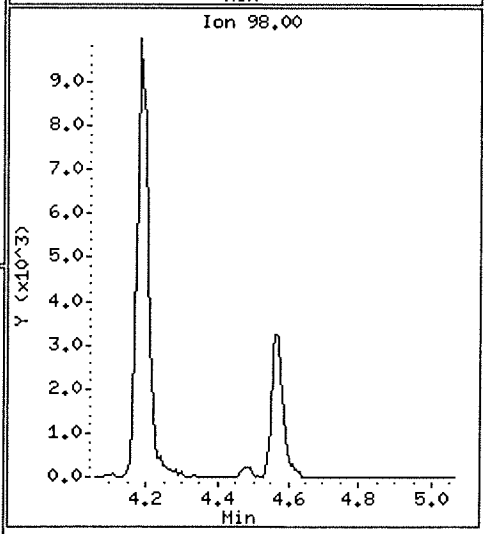
33 1,2-Dichloroethane

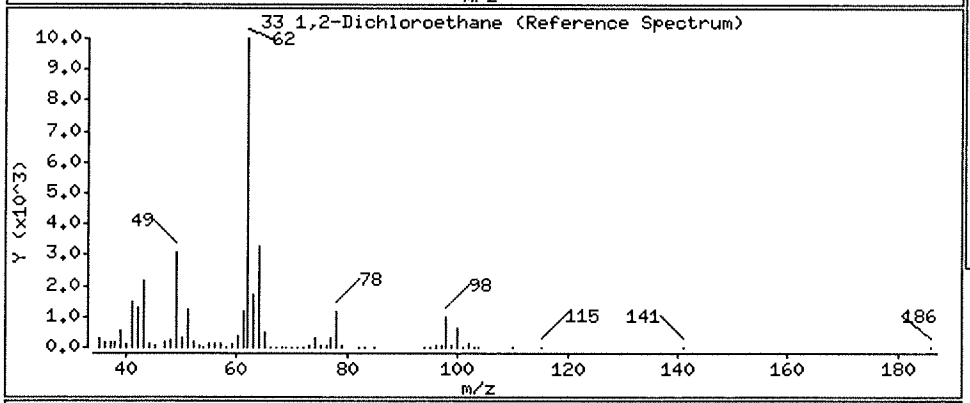
Concentration: 47.04 ug/l

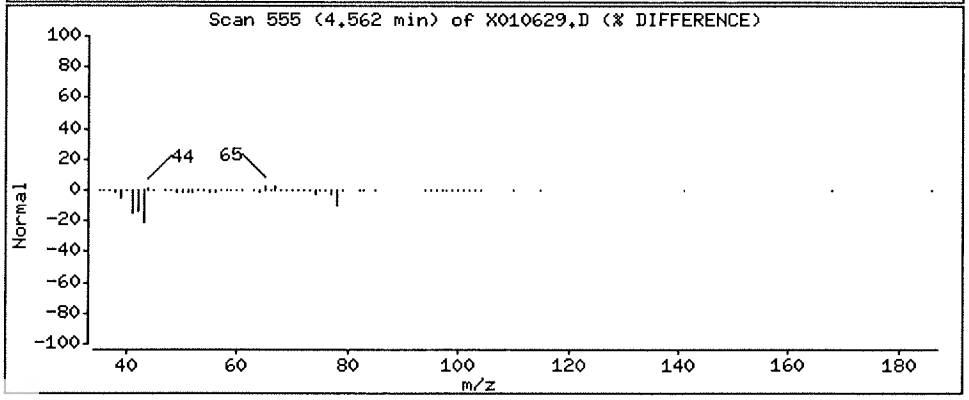












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

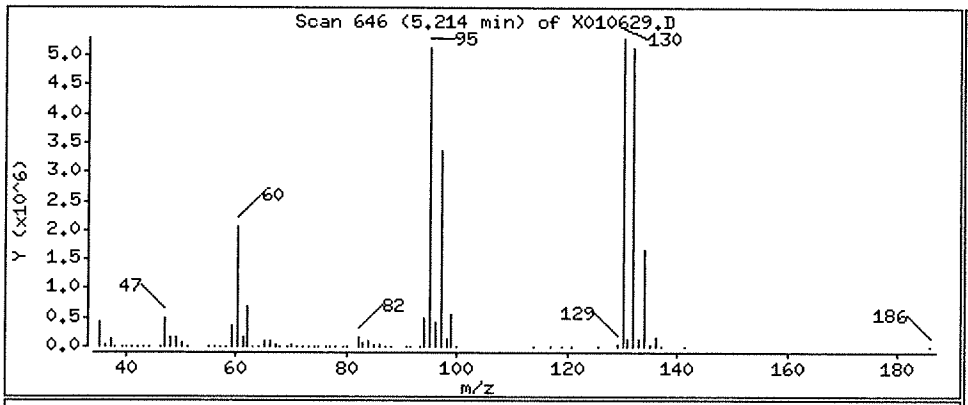
Operator: PC

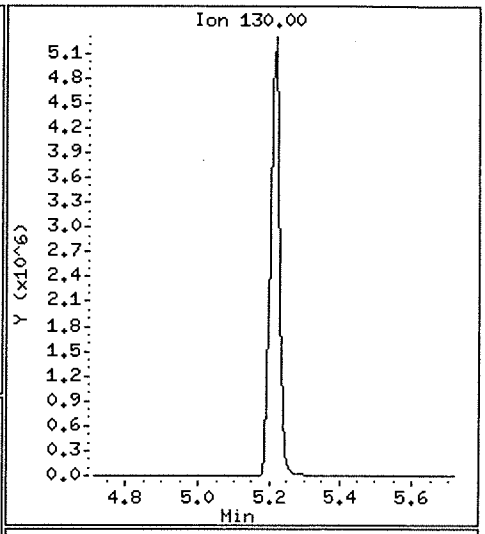
Column phase: DB624

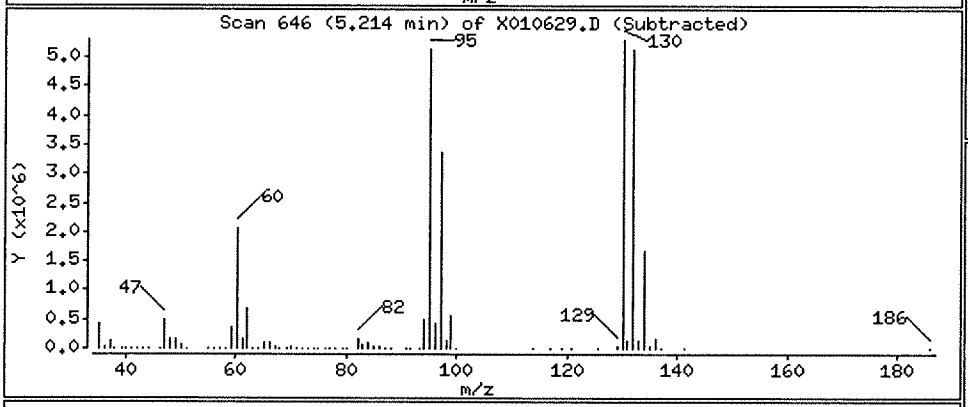
Column diameter: 0.18

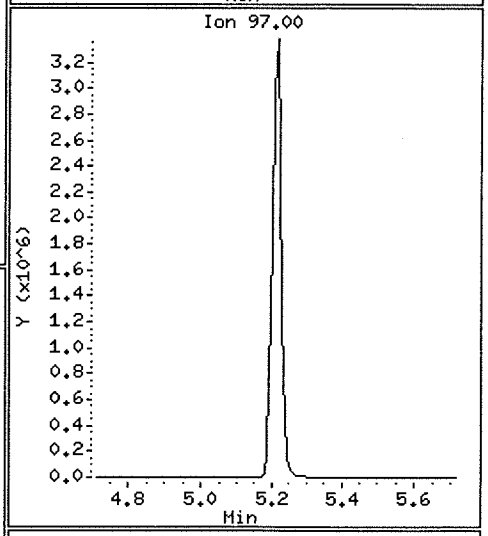
38 Trichloroethene

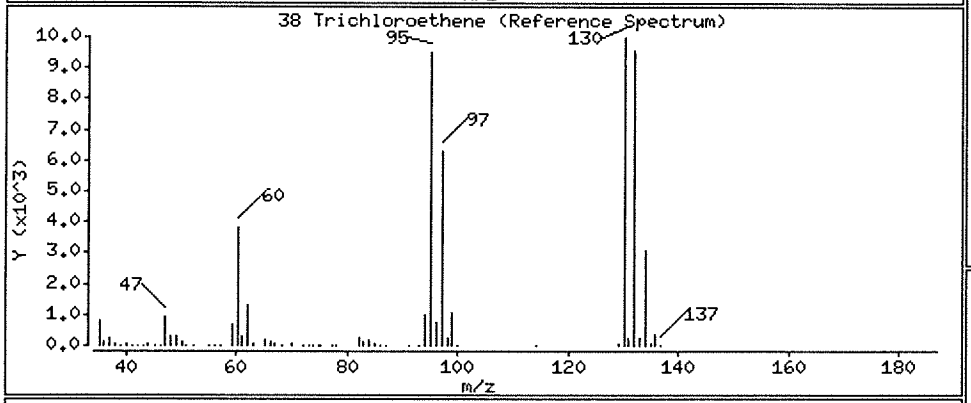
Concentration: 7191.23 ug/l

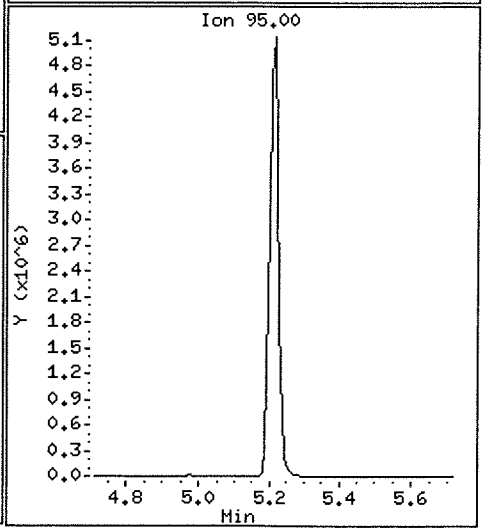


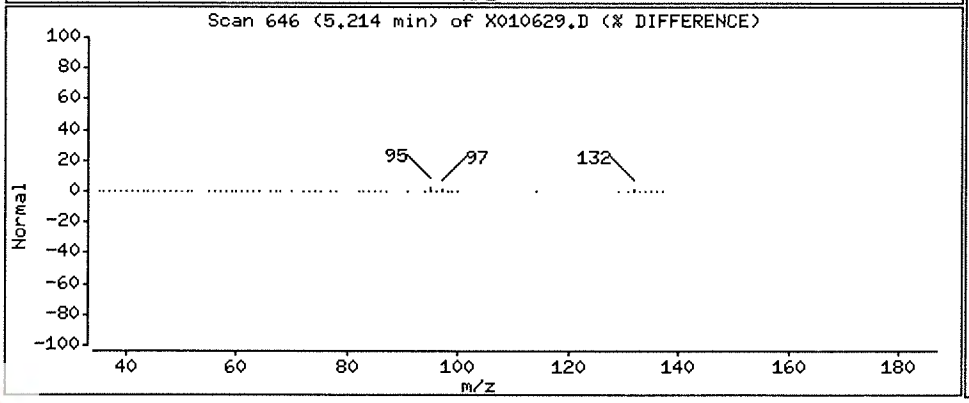












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010629.D

Date : 06-OCT-2020 22:38

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

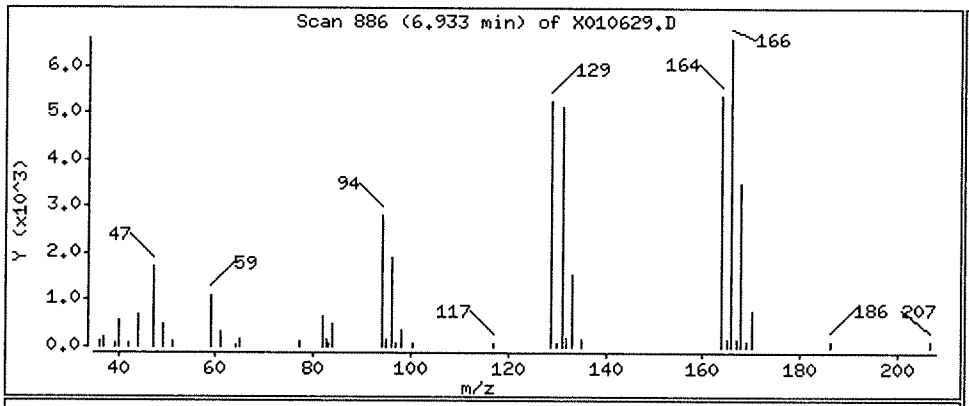
Operator: PC

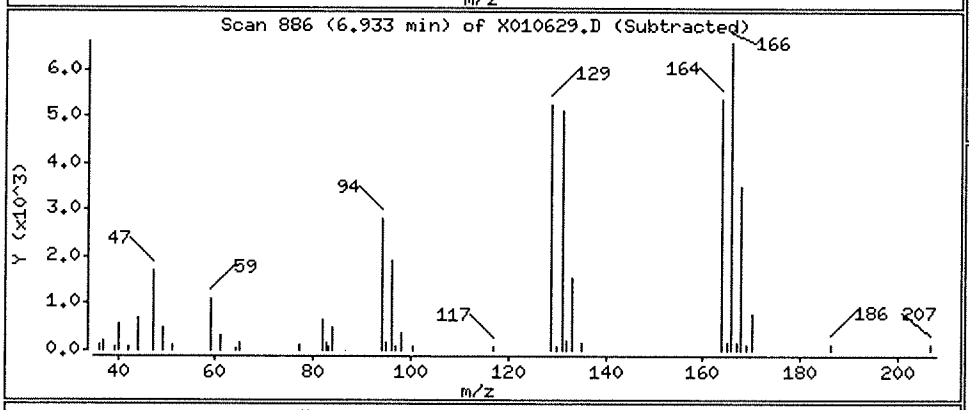
Column phase: DB624

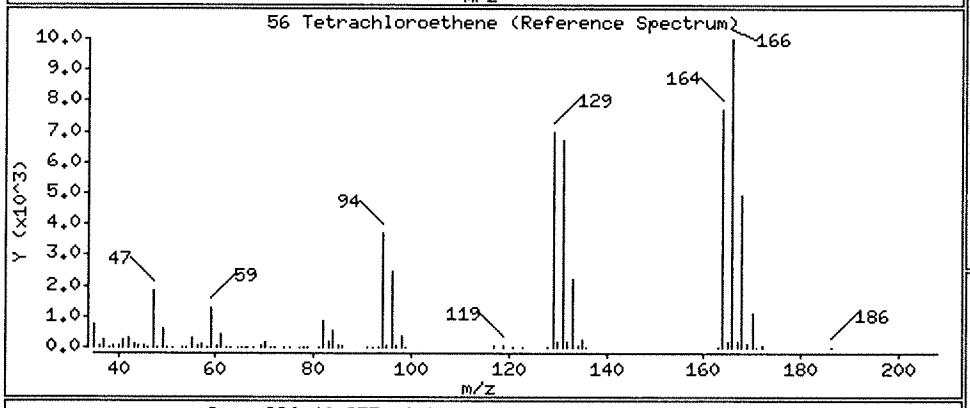
Column diameter: 0.18

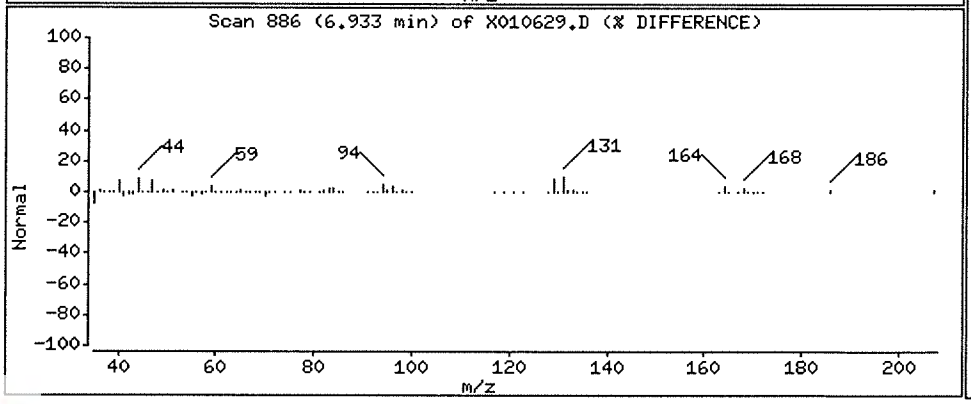
56 Tetrachloroethene

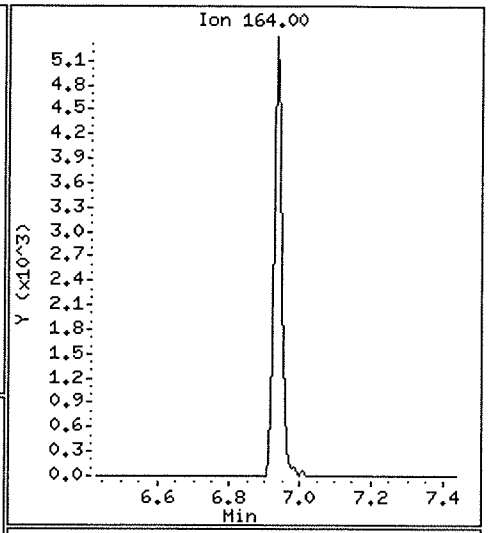
Concentration: 8.56 ug/l

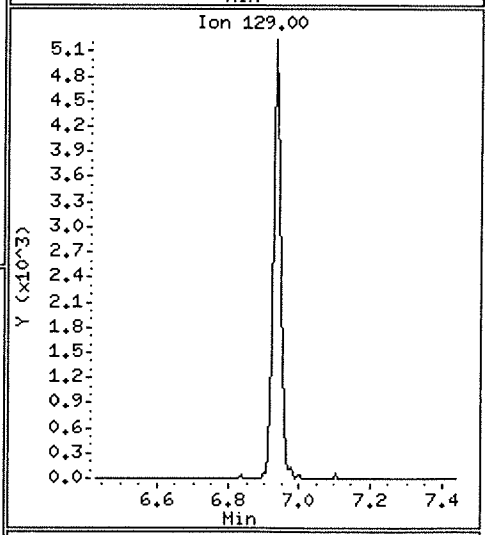


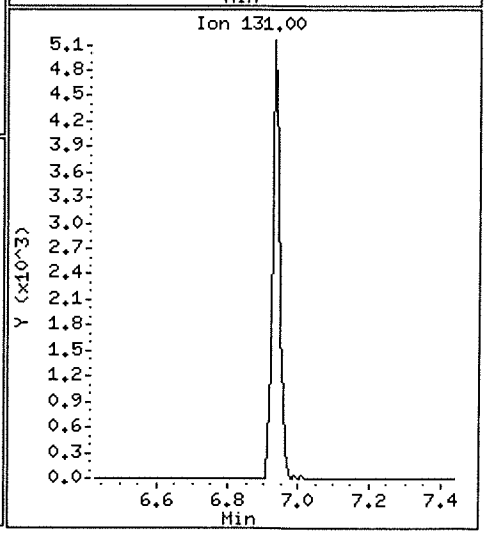












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D Page 1
Report Date: 26-Oct-2020 09:33

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D
Lab Smp Id: HS20100074-02 Client Smp ID: HS20100074-02
Inj Date : 06-OCT-2020 23:02
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-02;HS20100074-02;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:29 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 29
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	50.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

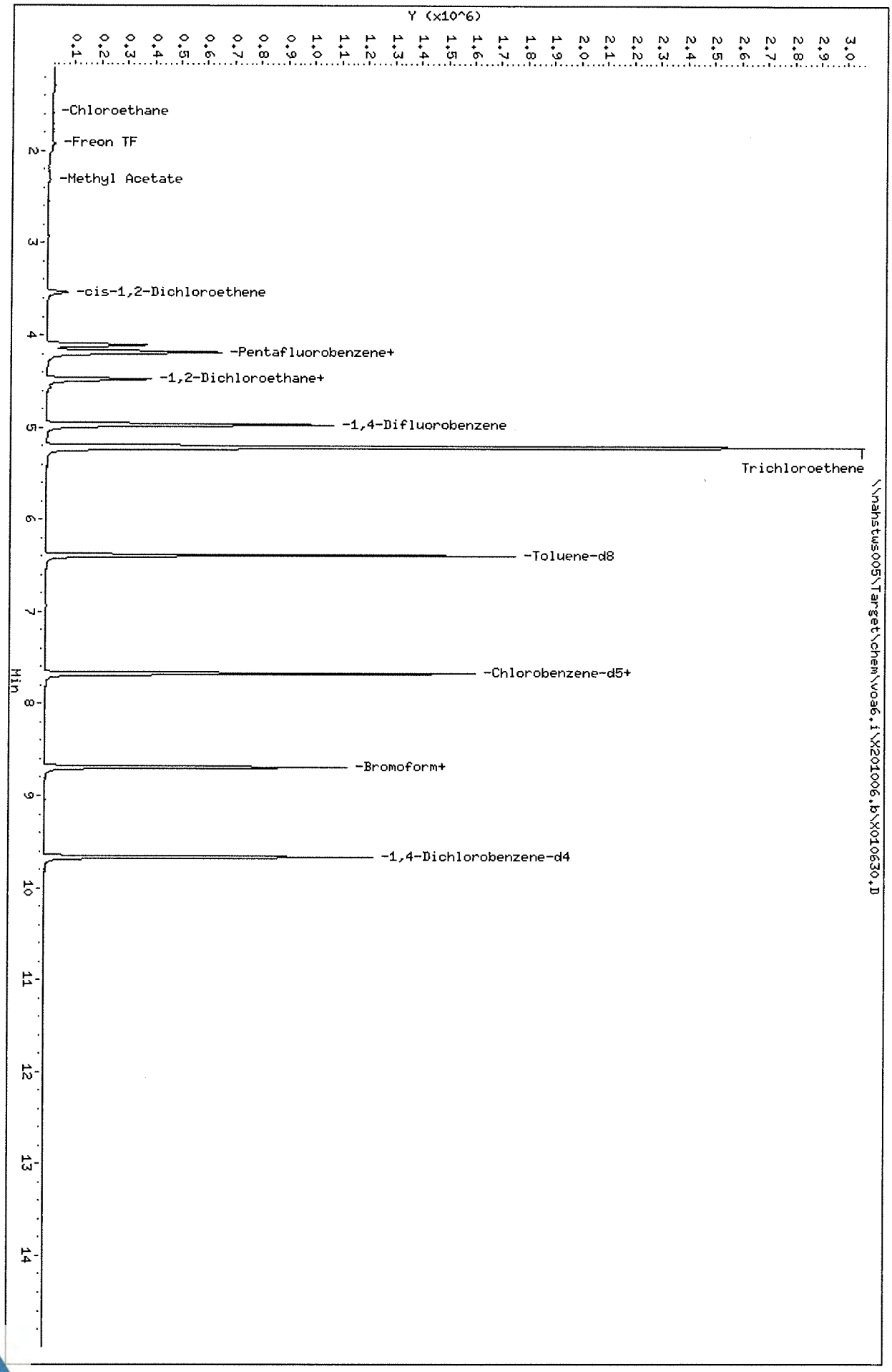
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	559349	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.979)	268356	46.6890	46.68
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	283101	45.0241	45.02
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	894647	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	774725	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1022493	50.2006	50.20
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	349016	51.7181	51.71
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	311466	50.0000	
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	42460	6.19608	309.80
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	8280	1.07340	53.67(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1062258	166.002	8300.09

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D
Date : 06-OCT-2020 23:02
Client ID: HS20100074-02
Sample Info: HS20100074-02;HS20100074-02;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D

Date : 06-OCT-2020 23:02

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

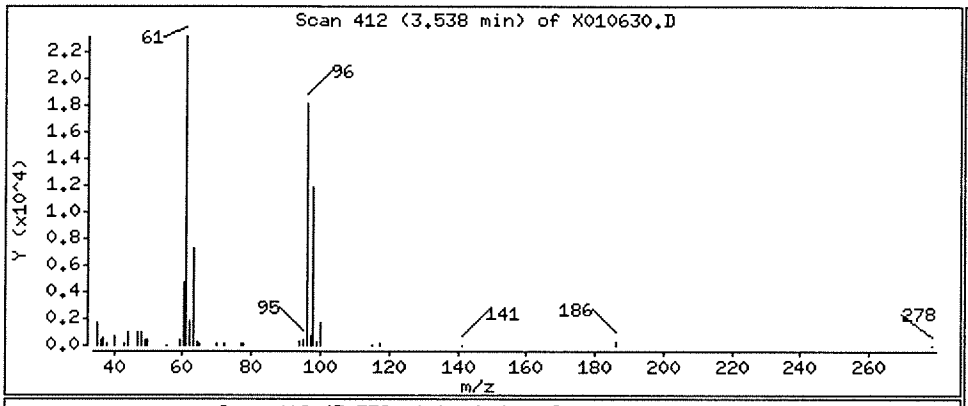
Operator: PC

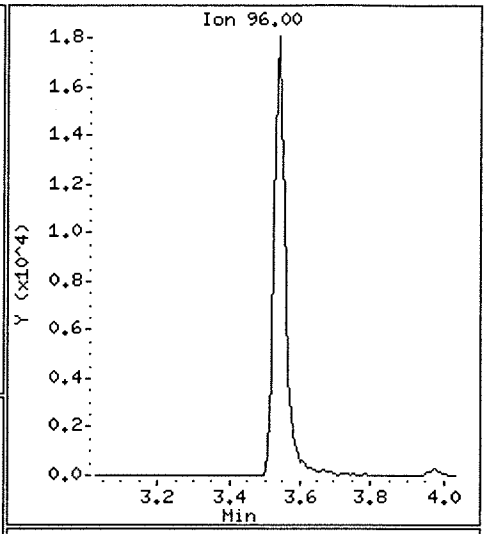
Column phase: DB624

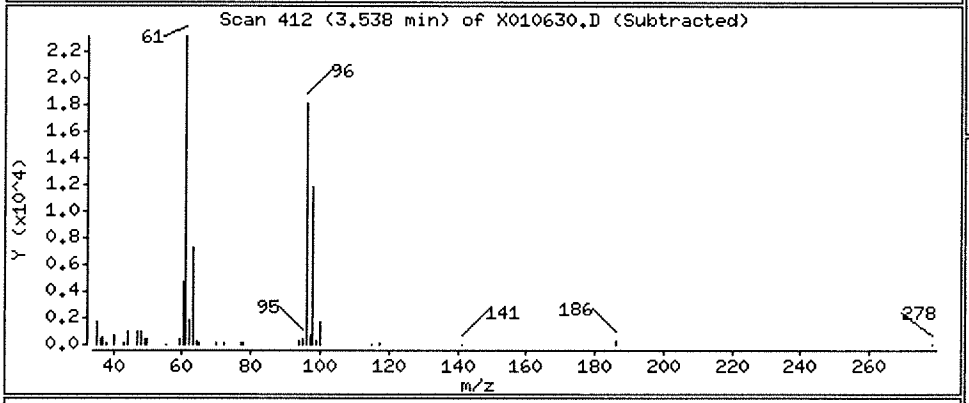
Column diameter: 0.18

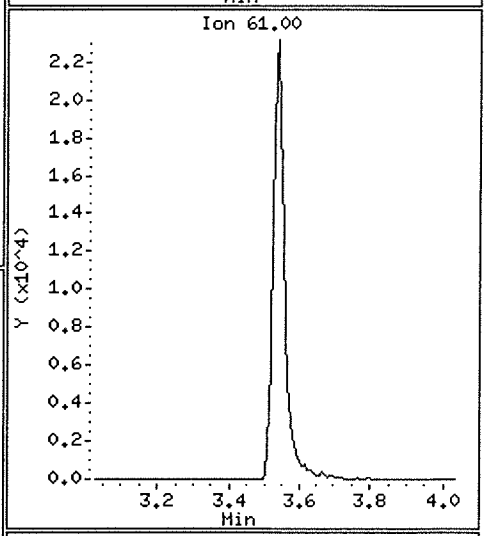
27 cis-1,2-Dichloroethene

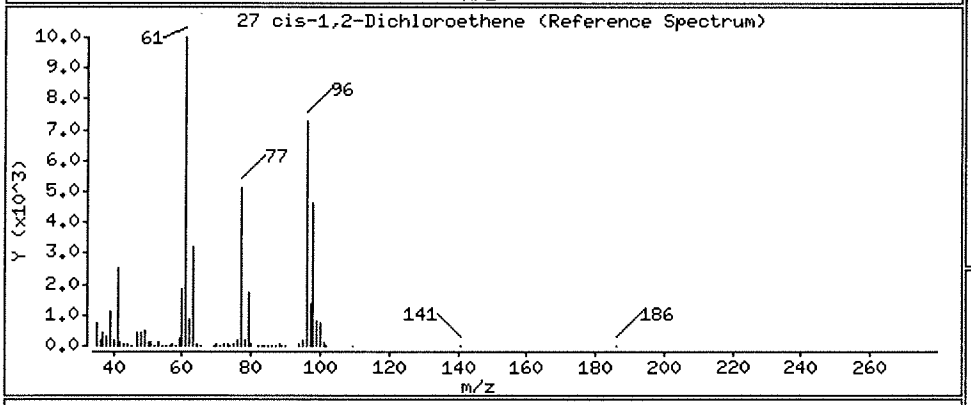
Concentration: 309.80 ug/l

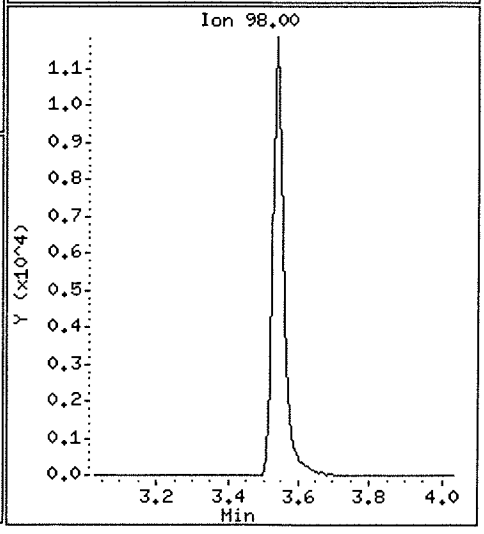


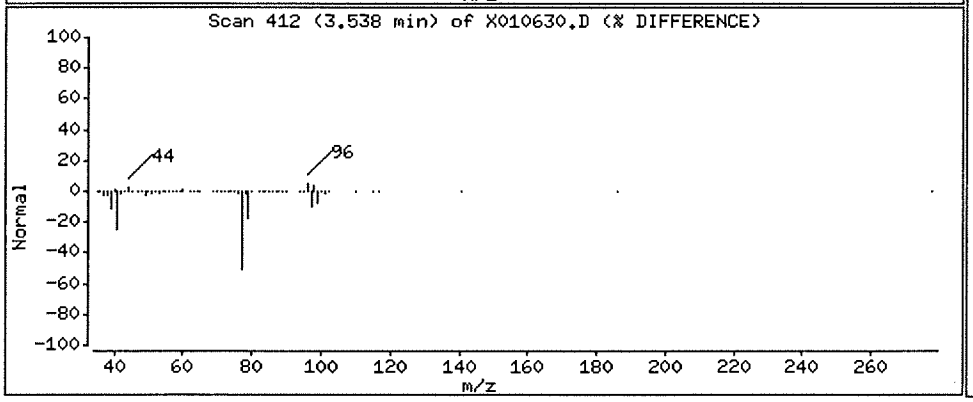












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D

Date : 06-OCT-2020 23:02

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

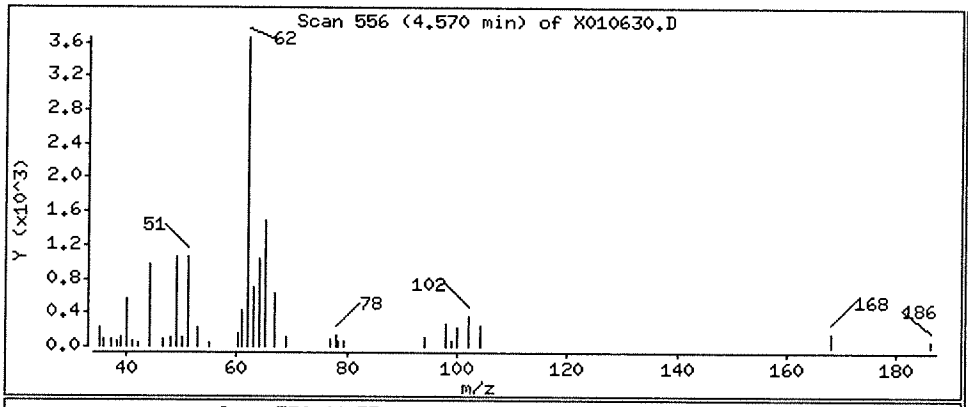
Operator: PC

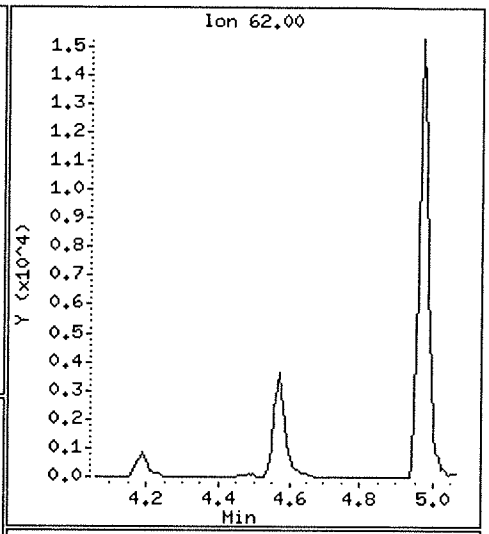
Column phase: DB624

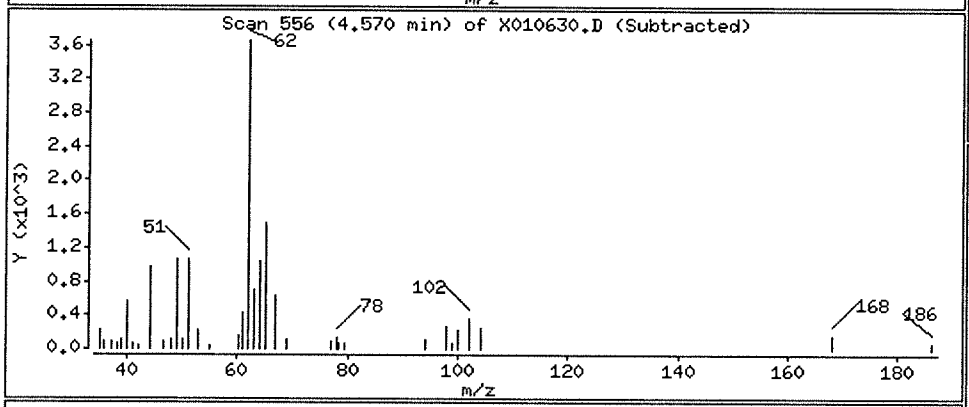
Column diameter: 0.18

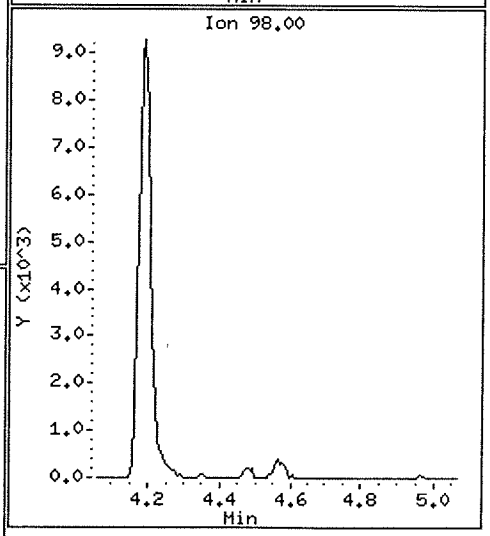
33 1,2-Dichloroethane

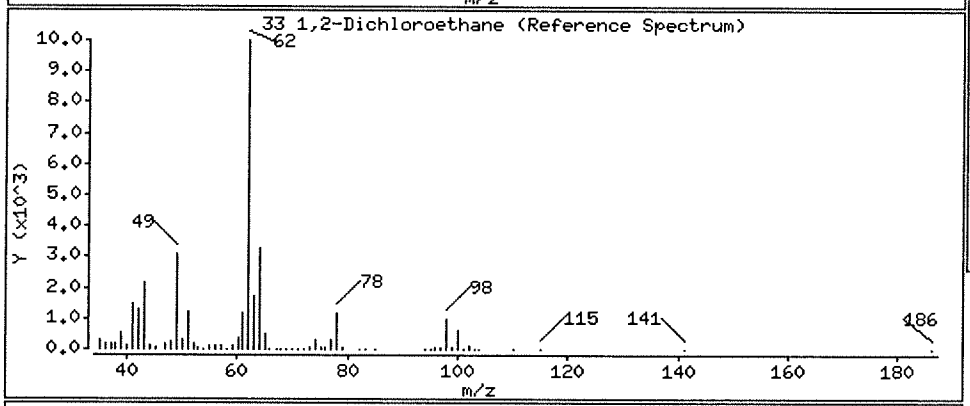
Concentration: 53.67 ug/l

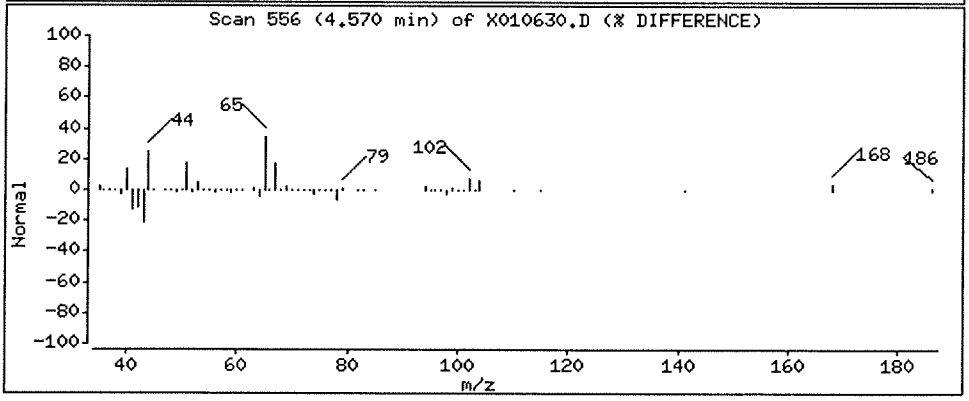












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010630.D

Date : 06-OCT-2020 23:02

Client ID: HS20100074-02

Instrument: voa6.i

Sample Info: HS20100074-02;HS20100074-02;;;

Purge Volume: 5.0

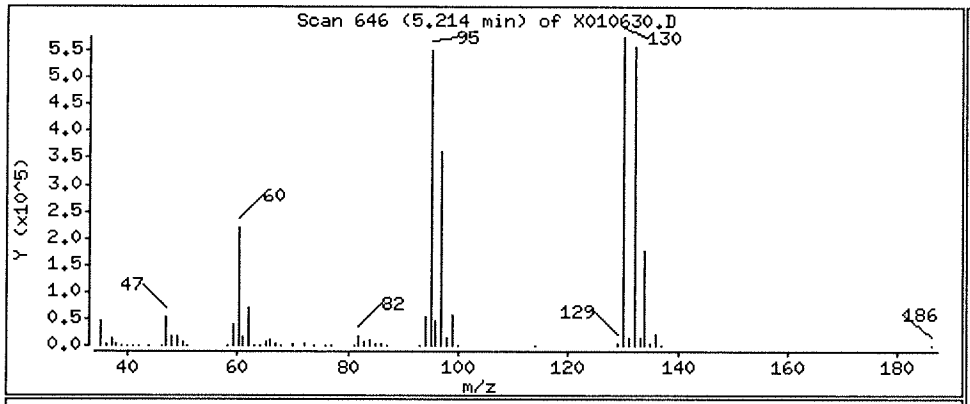
Operator: PC

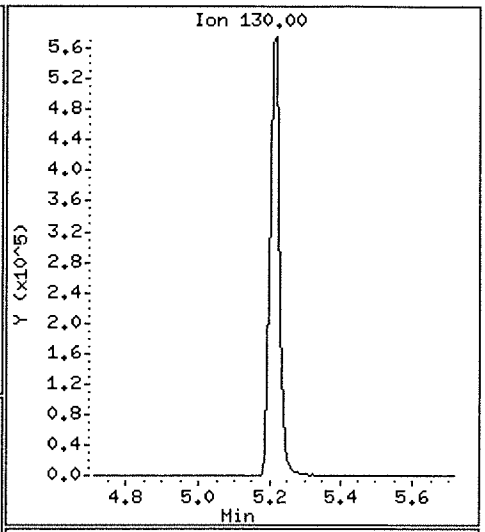
Column phase: DB624

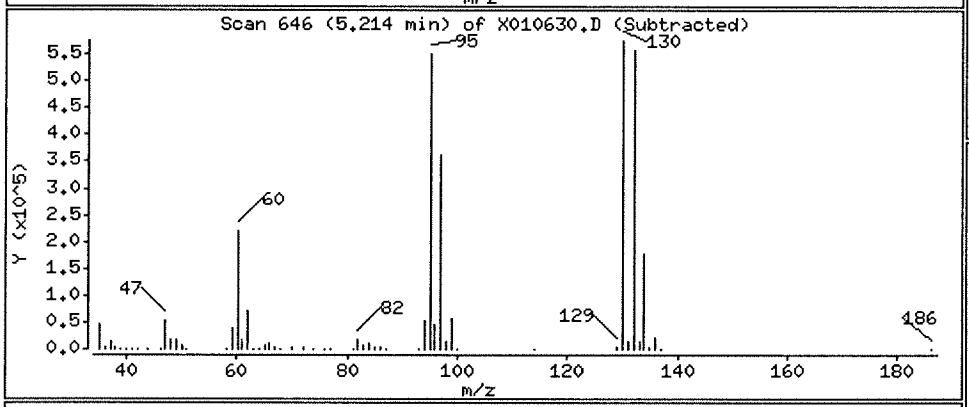
Column diameter: 0.18

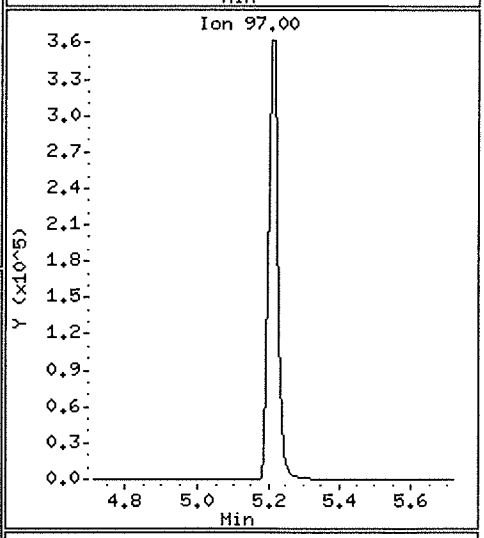
38 Trichloroethene

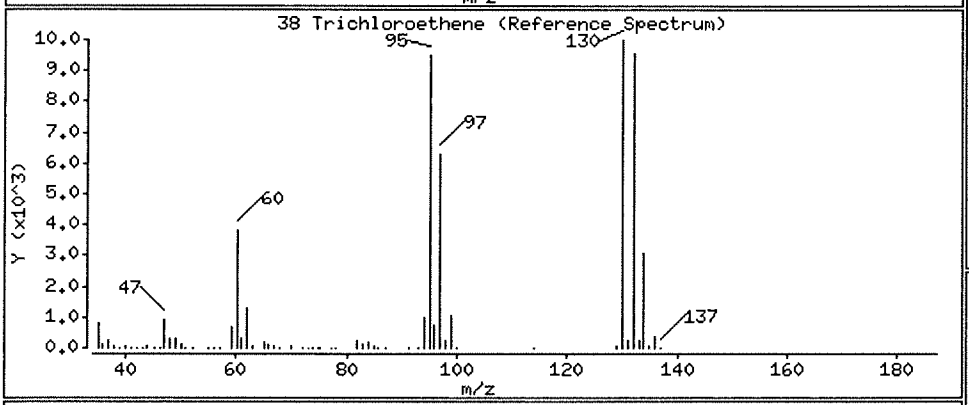
Concentration: 8300.09 ug/l

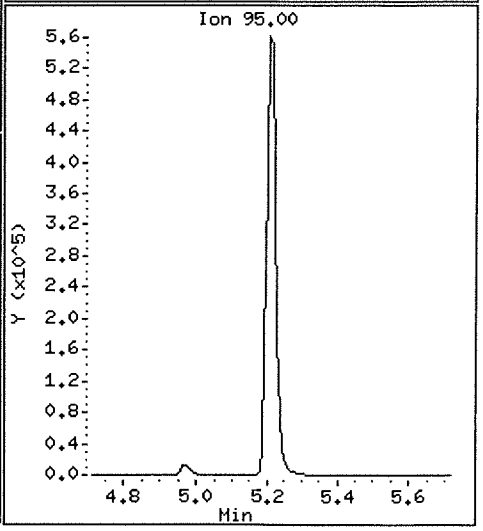


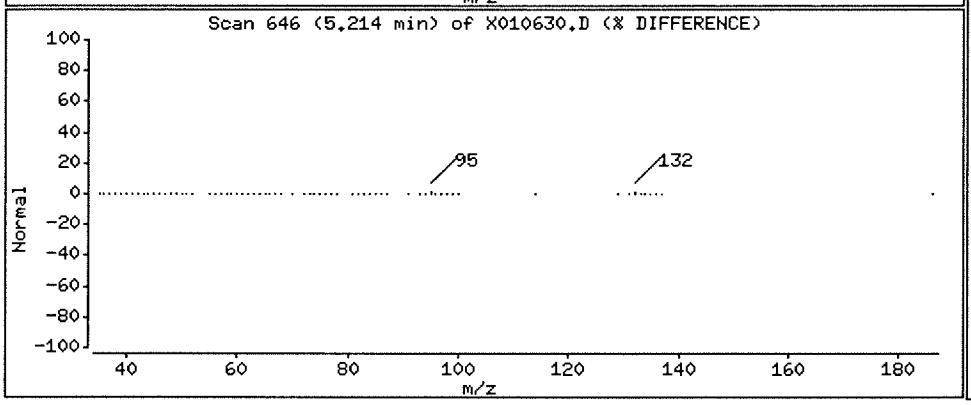












Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010631.D Page 1
Report Date: 26-Oct-2020 09:37

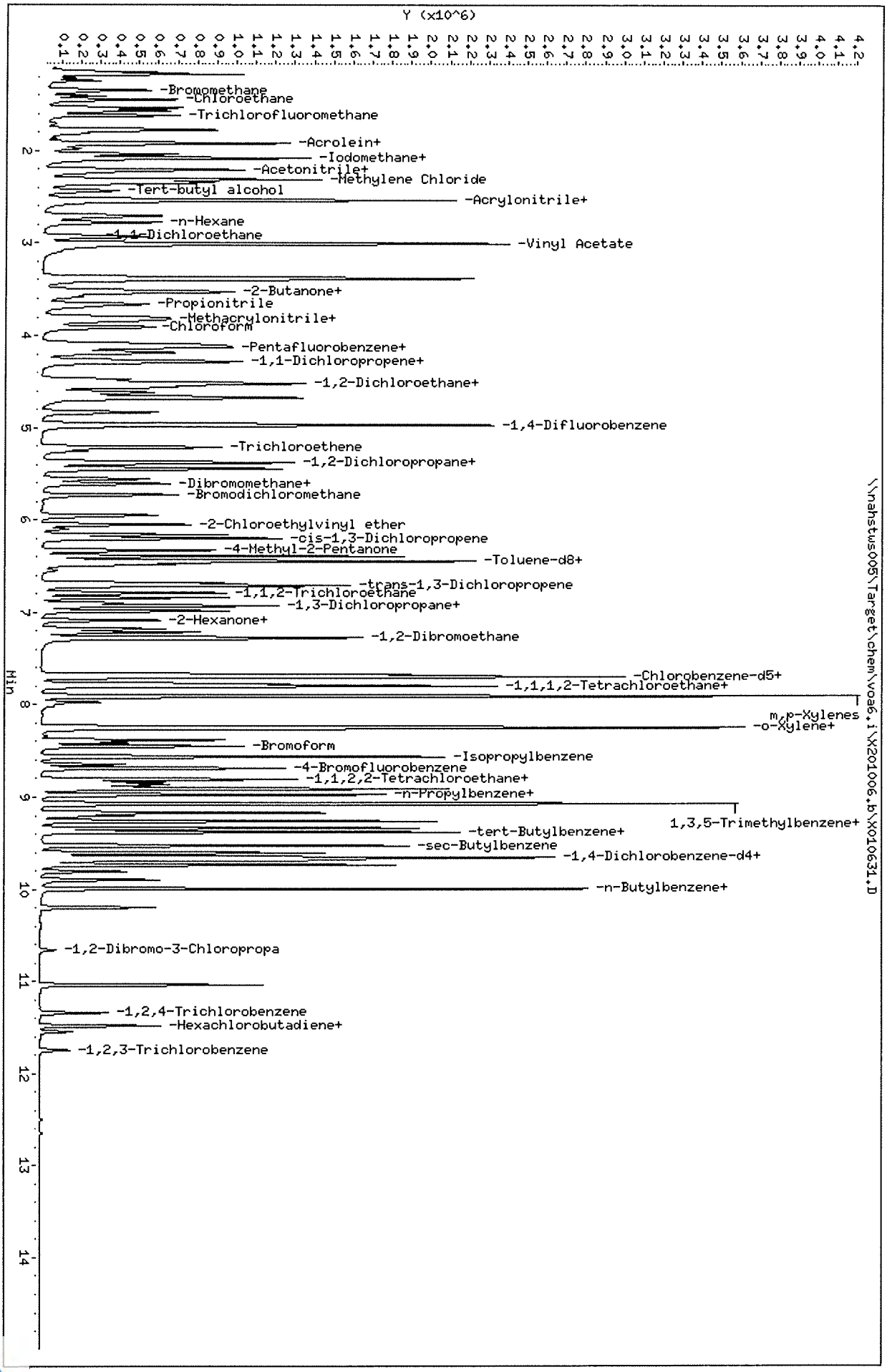
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201006.b\X010631.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 06-OCT-2020 23:26
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X201006.b\8260W.m
Meth Date : 26-Oct-2020 09:37 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	557952	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	287181	50.0000	50.08
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	317265	50.0000	50.58
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	918288	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	833121	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1052989	50.0000	48.07
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	375126	50.0000	51.69
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	338940	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	367834	50.0000	51.03
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	254654	50.0000	50.76
17 Methylene Chloride	84	2.313	2.313	(0.552)	326024	50.0000	53.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	337312	50.0000	49.34
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	370707	50.0000	46.82
38 Trichloroethene	130	5.214	5.214	(1.049)	315598	50.0000	48.04
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	230135	50.0000	46.90
56 Tetrachloroethene	164	6.933	6.933	(0.904)	240530	50.0000	45.69



Data File: \\nahstws005\Target\chem\voa6.i\X201006.b\X010631.D
Date : 06-OCT-2020 23:26
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 42003 **Analyst:** Presenta Cabascango

Date: 10-07-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	10-07-2020 10:47 am	1.00	50 mL	50 mL	X010701.D	Liquid	Y	NA
	Auto find/ purged									
2	CCV	CCV	10-07-2020 11:11 am	1.00	50 mL	50 mL	X010702a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	CCV	CCV	10-07-2020 11:35 am	1.00	50 mL	50 mL	X010703.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	10-07-2020 11:59 am	1.00	50 mL	50 mL	X010704.D	Liquid	Y	NA
5	VLCSW-200107	LCS	10-07-2020 12:23 pm	1.00	50 mL	50 mL	X010705.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLK	SAMP	10-07-2020 12:47 pm	1.00	50 mL	50 mL	X010706.D	Liquid	Y	NA
7	VBLKW-200107	MBLK	10-07-2020 01:11 pm	1.00	50 mL	50 mL	X010707.D	Liquid	Y	NA
8	HS20100081-25	SAMP	10-07-2020 01:35 pm	1.00	50 mL	50 mL	X010708.D	Liquid	Y	<2
9	HS20100081-26	SAMP	10-07-2020 01:59 pm	1.00	50 mL	50 mL	X010709.D	Liquid	Y	<2
10	HS20100081-27	SAMP	10-07-2020 02:23 pm	1.00	50 mL	50 mL	X010710.D	Liquid	Y	<2
11	HS20100081-28	SAMP	10-07-2020 02:47 pm	1.00	50 mL	50 mL	X010711.D	Liquid	Y	<2
12	HS20100081-29	SAMP	10-07-2020 03:11 pm	1.00	50 mL	50 mL	X010712.D	Liquid	Y	<2
13	HS20100133-07	SAMP	10-07-2020 03:35 pm	1.00	50 mL	50 mL	X010713.D	Liquid	Y	<2
14	HS20100133-01	SAMP	10-07-2020 03:59 pm	1.00	50 mL	50 mL	X010714.D	Liquid	Y	<2
15	HS20100133-02	SAMP	10-07-2020 04:24 pm	1.00	50 mL	50 mL	X010715.D	Liquid	Y	<2
16	HS20100133-03	SAMP	10-07-2020 04:48 pm	1.00	50 mL	50 mL	X010716.D	Liquid	Y	<2
17	HS20100133-04	SAMP	10-07-2020 05:12 pm	1.00	50 mL	50 mL	X010717.D	Liquid	Y	<2
18	HS20100133-05	SAMP	10-07-2020 05:36 pm	1.00	50 mL	50 mL	X010718.D	Liquid	Y	<2
19	HS20100133-06	SAMP	10-07-2020 06:00 pm	1.00	50 mL	50 mL	X010719.D	Liquid	Y	<2
20	HS20100133-08	SAMP	10-07-2020 06:24 pm	1.00	50 mL	50 mL	X010720.D	Liquid	Y	<2
21	HS20100133-06MS	MS	10-07-2020 06:48 pm	1.00	50 mL	50 mL	X010721.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
22	HS20100133-06MSD	MSD	10-07-2020 07:12 pm	1.00	50 mL	50 mL	X010722.D	Liquid	Y	<2
	3.5 uL cal std/40 mL amp									
23	HS20100074-06	SAMP	10-07-2020 07:36 pm	10.00	5 mL	50 mL	X010723.D	Liquid	Y	<2
24	HS20100216-01	SAMP	10-07-2020 08:00 pm	1.00	50 mL	50 mL	X010724.D	Liquid	Y	Na
	neat									
25	HS20100265-03	SAMP	10-07-2020 08:24 pm	1.00	50 mL	50 mL	X010725.D	Liquid	Y	<2
26	HS20100265-01	SAMP	10-07-2020 08:48 pm	1.00	50 mL	50 mL	X010726.D	Liquid	Y	<2
27	HS20100265-02	SAMP	10-07-2020 09:12 pm	1.00	50 mL	50 mL	X010727.D	Liquid	Y	<2
28	HS20100265-04	SAMP	10-07-2020 09:36 pm	1.00	50 mL	50 mL	X010728.D	Liquid	Y	<2
29	HS20100279-01	SAMP	10-07-2020 10:00 pm	1.00	50 mL	50 mL	X010729.D	Liquid	Y	Na
	neat									
30	CCV-END	CCV	10-07-2020 10:24 pm	1.00	50 mL	50 mL	X010730.D	Liquid	Y	Na
	10 uL cal std/50 mL DI									

Chemical	Value
SURR SPK ID	31106-47-06
IS ID	31106-47-06
CAL STD ID	31106-50-01/02
BFB ID	31106-47-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-200107	99	99	100	106	0
02	VBLKW-200107	94	92	99	108	0
03	HS20100133-06	97	96	96	105	0
04	HS20100133-06	94	93	97	105	0
05	HS20100074-06	93	91	98	105	0
06						
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27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(70-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(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 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200107

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID: X010707 Lab Sample ID: VBLKW-200107

Date Analyzed: 10/07/20 Time Analyzed: 1311

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200107	VLCSW-200107	X010705	1223
02	HS20100133-0	HS20100133-06M	X010721	1848
03	HS20100133-0	HS20100133-06M	X010722	1912
04	HS20100074-0	HS20100074-06	X010723	1936
05				
06				
07				
08				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID: X010701 BFB Injection Date: 10/07/20

Instrument ID: VOA6 BFB Injection Time: 1047

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	17.4
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	7.2
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	77.2
175	5.0 - 9.0% of mass 174	5.9 (7.7)1
176	95.0 - 101.0% of mass 174	74.0 (95.9)1
177	5.0 - 9.0% of mass 176	5.2 (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	X010703	10/07/20	1135
02	VLCSW-200107	VLCSW-200107	X010705	10/07/20	1223
03	VBLKW-200107	VBLKW-200107	X010707	10/07/20	1311
04	HS20100133-0	HS20100133-06M	X010721	10/07/20	1848
05	HS20100133-0	HS20100133-06M	X010722	10/07/20	1912
06	HS20100074-0	HS20100074-06	X010723	10/07/20	1936
07	CCV-END	CCV-END	X010730	10/07/20	2224
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Instrument ID: VOA6 Calibration Date: 10/07/20 Time: 1135

Lab File ID: X010703 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6332593	0.6332593	0.1	1.97	20.00	AVRG
Methylene Chloride	51.754275	50.000000	0.5661588	0.1	-3.51	20.00	LINR
1,1-Dichloroethene	0.4490000	0.4473772	0.4473772	0.1	0.36	20.00	AVRG
1,2-Dichloroethane	0.4310000	0.4196883	0.4196883	0.1	2.62	20.00	AVRG
Trichloroethene	0.3580000	0.3499654	0.3499654	0.2	2.24	20.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2832591	0.2832591	0.1	3.65	20.00	AVRG
Tetrachloroethene	0.3160000	0.2976007	0.2976007	0.2	5.82	20.00	AVRG
Dibromofluoromethane	0.5140000	0.4906090	0.4906090	0.1	4.55	20.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5317596	0.5317596	0.1	5.38	20.00	AVRG
Toluene-d8	1.3140000	1.2385576	1.2385576	0.1	5.74	20.00	AVRG
4-Bromofluorobenzene	50.750526	50.000000	0.4422073	0.1	-1.50	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Instrument ID: VOA6 Calibration Date: 10/07/20 Time: 2224

Lab File ID: X010730 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6975031	0.6975031	0.1	-7.97	50.00	AVRG
Methylene Chloride	55.061874	50.000000	0.6018538	0.1	-10.12	50.00	LINR
1,1-Dichloroethene	0.4490000	0.4809146	0.4809146	0.1	-7.11	50.00	AVRG
1,2-Dichloroethane	0.4310000	0.4175318	0.4175318	0.1	3.12	50.00	AVRG
Trichloroethene	0.3580000	0.3453323	0.3453323	0.2	3.54	50.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2760029	0.2760029	0.1	6.12	50.00	AVRG
Tetrachloroethene	0.3160000	0.2963496	0.2963496	0.2	6.22	50.00	AVRG
Dibromofluoromethane	0.5140000	0.5258825	0.5258825	0.1	-2.31	50.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5755149	0.5755149	0.1	-2.40	50.00	AVRG
Toluene-d8	1.3140000	1.2655430	1.2655430	0.1	3.69	50.00	AVRG
4-Bromofluorobenzene	51.814234	50.000000	0.4513271	0.1	-3.63	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID (Standard): X010703 Date Analyzed: 10/07/20

Instrument ID: VOA6 Time Analyzed: 1135

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	571292	4.19	901612	4.97	828496	7.67
	UPPER LIMIT	1142584	4.69	1803224	5.47	1656992	8.17
	LOWER LIMIT	285646	3.69	450806	4.47	414248	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200107	591419	4.19	936443	4.97	849243	7.67
02	VBLKW-200107	564672	4.19	903174	4.97	815527	7.67
03	HS20100133-06	508269	4.19	821024	4.97	750115	7.67
04	HS20100133-06	509422	4.19	814948	4.97	749120	7.67
05	HS20100074-06	562132	4.19	889325	4.97	803716	7.67
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

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

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

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

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100074

Lab File ID (Standard): X010703 Date Analyzed: 10/07/20

Instrument ID: VOA6 Time Analyzed: 1135

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

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	341956	9.66				
	UPPER LIMIT	683912	10.16				
	LOWER LIMIT	170978	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-200107	354418	9.66				
02	VBLKW-200107	354336	9.67				
03	HS20100133-06	319700	9.66				
04	HS20100133-06	311719	9.67				
05	HS20100074-06	338647	9.66				
06							
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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010701.D

Date : 07-OCT-2020 10:47

Client ID: BFB

Instrument: voa6.i

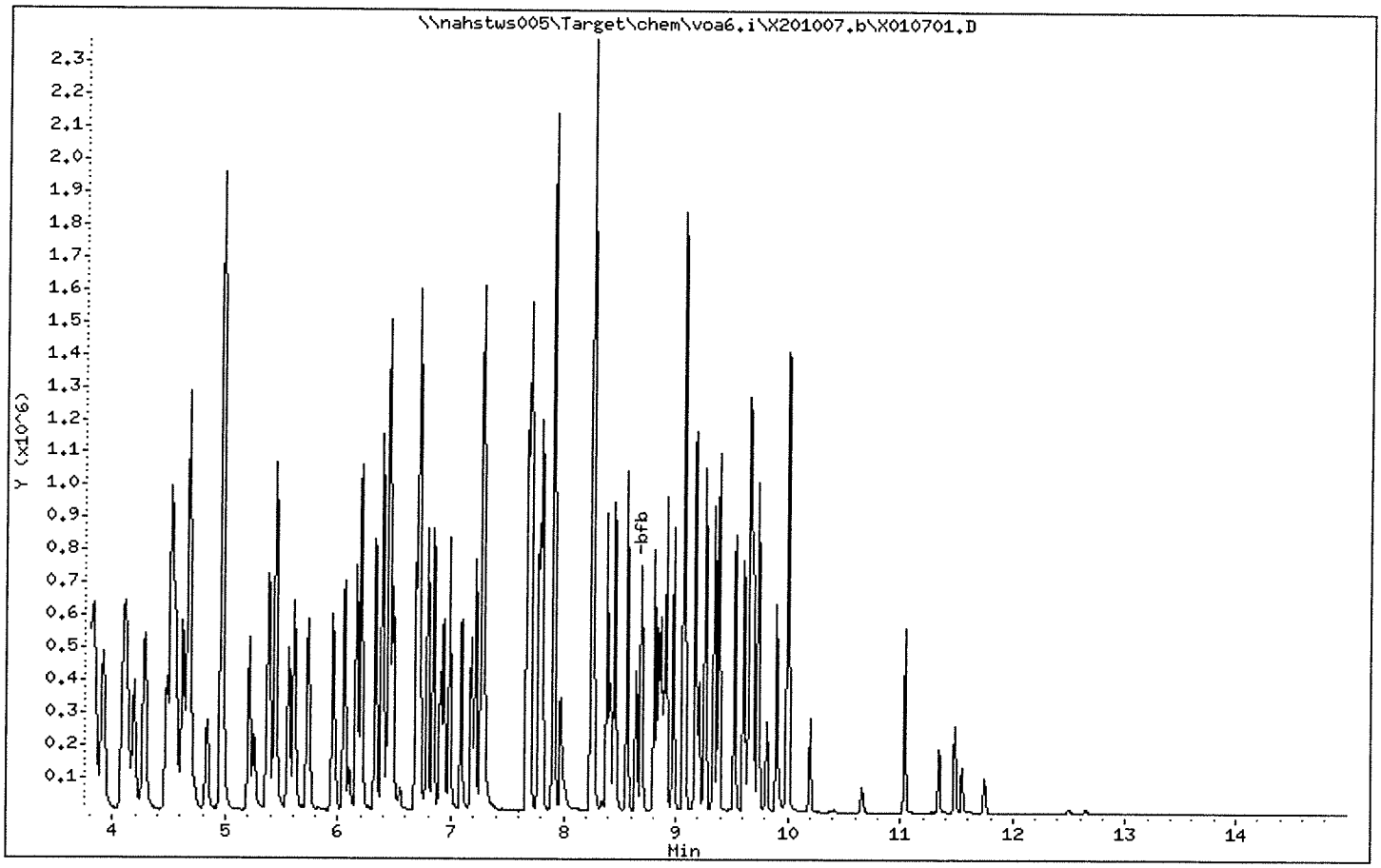
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010701.D

Date : 07-OCT-2020 10:47

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: X010701.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.10
Number of points: 112

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1483	65.10	177	96.10	11343	143.00	912
37.10	6896	65.90	85	97.10	328	144.10	80
38.10	6015	67.10	548	98.20	554	144.90	87
39.10	2817	68.10	14415	99.20	73	145.90	192
40.10	731	69.10	14573	103.00	135	148.00	323
41.20	719	70.20	1282	104.00	567	148.90	122
42.10	885	71.00	197	105.00	362	149.90	154
43.00	870	72.10	663	106.00	466	153.00	67
44.10	1422	73.10	6152	106.90	309	153.90	164
45.10	1389	74.10	22232	108.90	143	155.00	356
45.90	54	75.10	71576	109.90	81	157.00	289
47.10	2099	76.10	6524	110.90	101	159.00	148
48.00	901	77.00	1413	112.80	78	161.00	105
49.10	5635	78.00	874	115.10	181	170.10	105
50.10	27176	79.00	2976	116.00	525	171.10	50
51.10	8833	80.00	1142	117.10	812	171.60	60
52.10	390	81.00	3613	118.00	341	173.00	983
52.90	119	82.00	729	118.90	614	174.00	120728
54.00	121	83.10	235	126.00	65	175.00	9260
55.10	1741	84.20	58	127.00	161	176.00	115720
56.10	2118	85.10	159	127.80	519	177.00	8158
57.10	3681	85.90	207	129.00	338	178.00	283
58.20	275	87.00	6913	129.90	442	186.00	152
59.00	288	88.00	7273	130.90	219	233.90	66
60.10	1091	91.10	454	134.90	187	278.30	71
61.10	6197	92.10	3542	136.90	242		
62.10	5940	93.10	6074	140.10	166		
63.10	4740	94.10	15770	141.00	1138		
64.10	551	95.10	156480	141.90	149		

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010703.D Page 1
Report Date: 26-Oct-2020 09:20

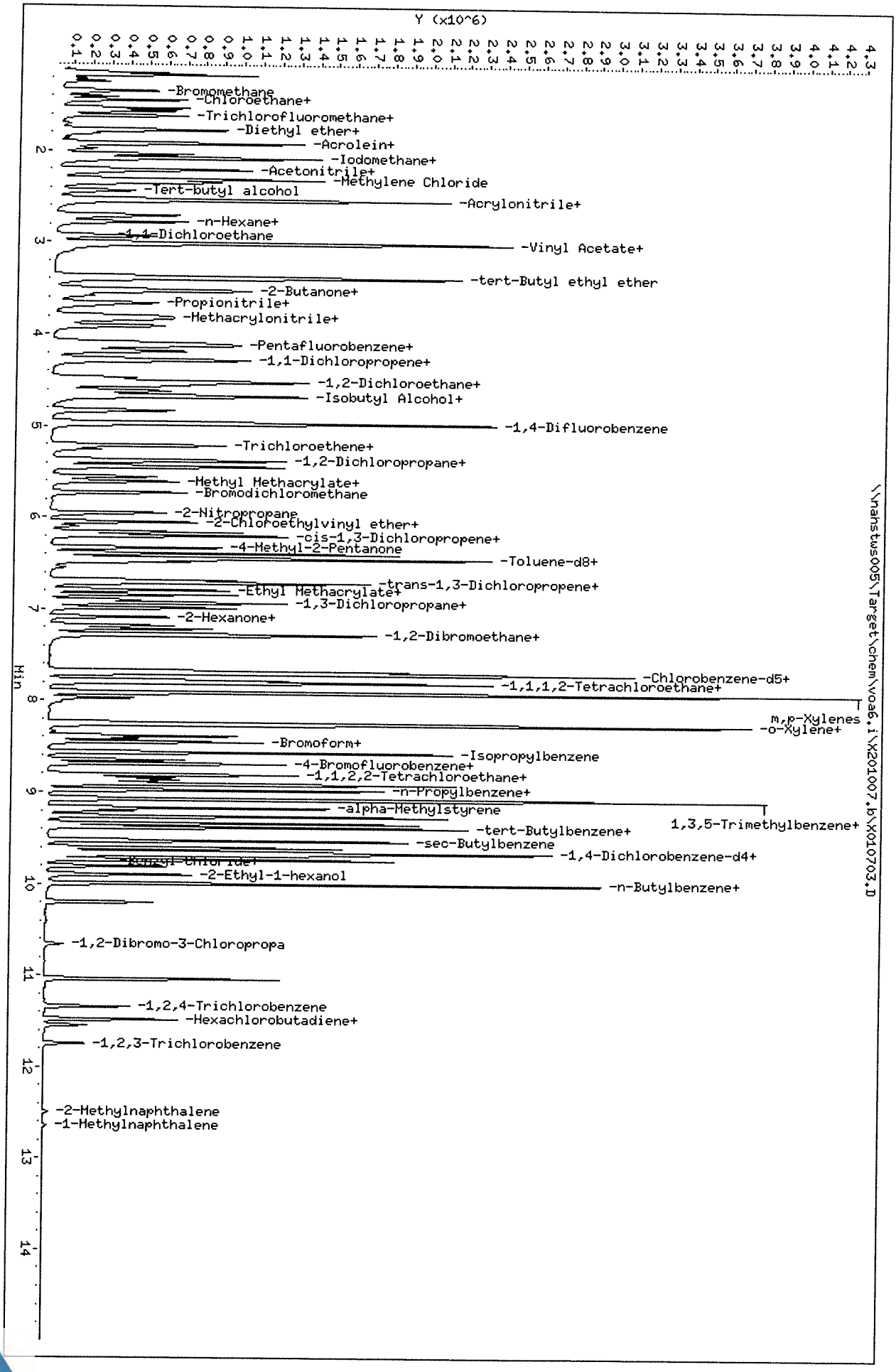
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010703.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 07-OCT-2020 11:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	571292	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	280281	50.0000	47.74
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	303790	50.0000	47.30
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	901612	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	828496	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1026140	50.0000	47.10
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	366367	50.0000	50.75
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	341956	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	361776	50.0000	49.02
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	255583	50.0000	49.75
17 Methylene Chloride	84	2.305	2.305	(0.550)	323442	50.0000	51.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	340711	50.0000	48.67
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	378396	50.0000	48.67
38 Trichloroethene	130	5.214	5.214	(1.049)	315533	50.0000	48.92
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	234679	50.0000	48.09
56 Tetrachloroethene	164	6.933	6.933	(0.904)	246561	50.0000	47.10



Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010703.D
Date : 07-OCT-2020 11:35
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010705.D Page 1
Report Date: 26-Oct-2020 09:20

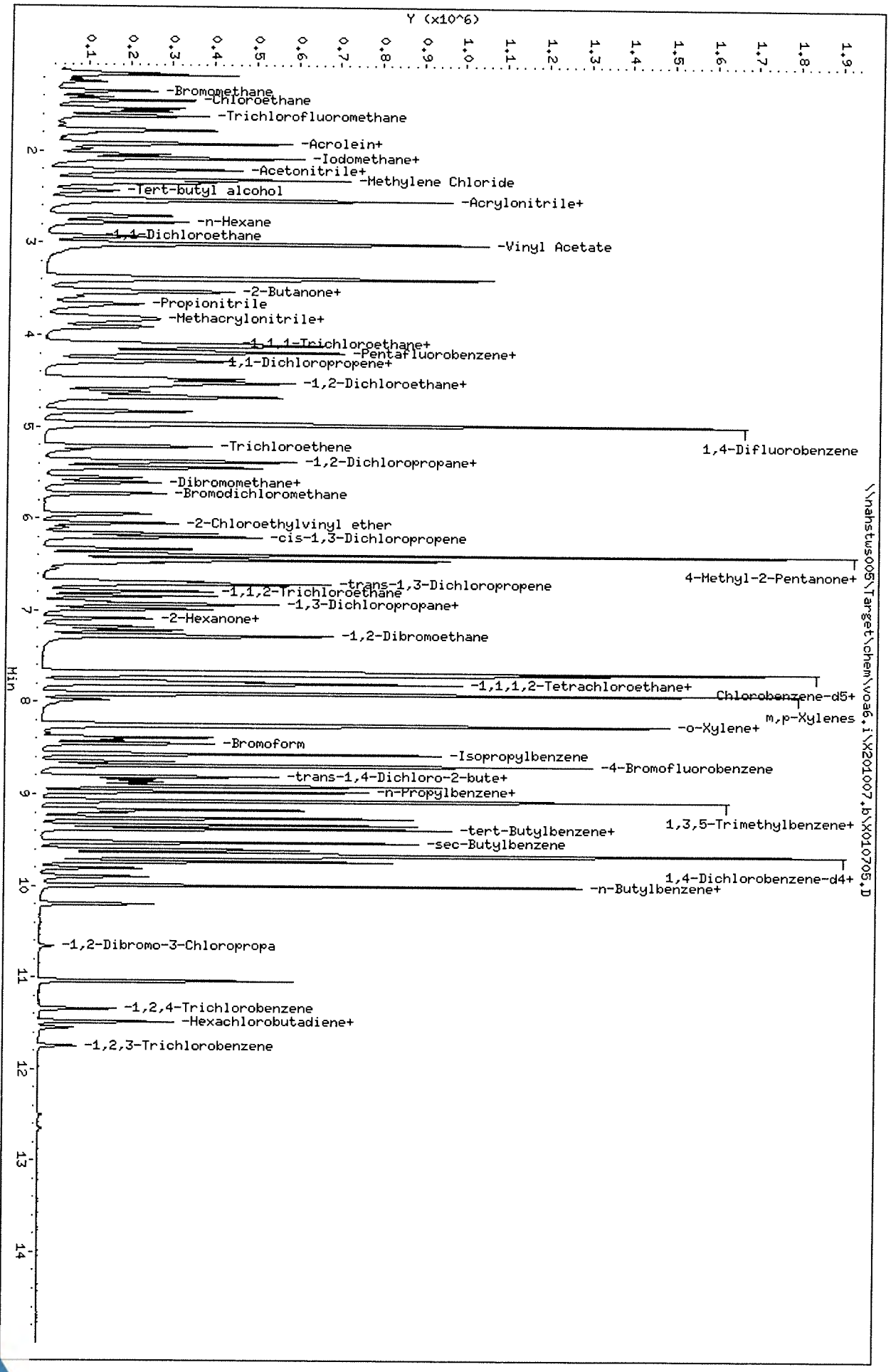
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010705.D
Lab Smp Id: VLCSW-200107 Client Smp ID: VLCSW-200107
Inj Date : 07-OCT-2020 12:23
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200107;VLCSW-200107;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	591419	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	301452	49.6032	49.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	330225	49.6708	49.67
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	936443	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	849243	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1112677	49.8349	49.83
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	392351	53.0592	53.05
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	354418	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	156060	20.4278	20.42
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	110579	20.7951	20.79
17 Methylene Chloride	84	2.313	2.305	(0.552)	140853	21.3611	21.36
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	145380	20.0645	20.06
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	158657	19.6499	19.64
38 Trichloroethene	130	5.214	5.214	(1.049)	136808	20.4251	20.42
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	96209	19.2356	19.23
56 Tetrachloroethene	164	6.933	6.933	(0.904)	109881	20.4798	20.47



Data File: \\nahstus005\Target\chem\voa6.i\X201007.b\X010705.D
Date : 07-OCT-2020 12:23
Client ID: VLCSW-200107
Sample Info: VLCSW-200107;VLCSW-200107;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010707.D Page 1
Report Date: 26-Oct-2020 09:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010707.D
Lab Smp Id: VBLKW-200107 Client Smp ID: VBLKW-200107
Inj Date : 07-OCT-2020 13:11
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200107;VBLKW-200107;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

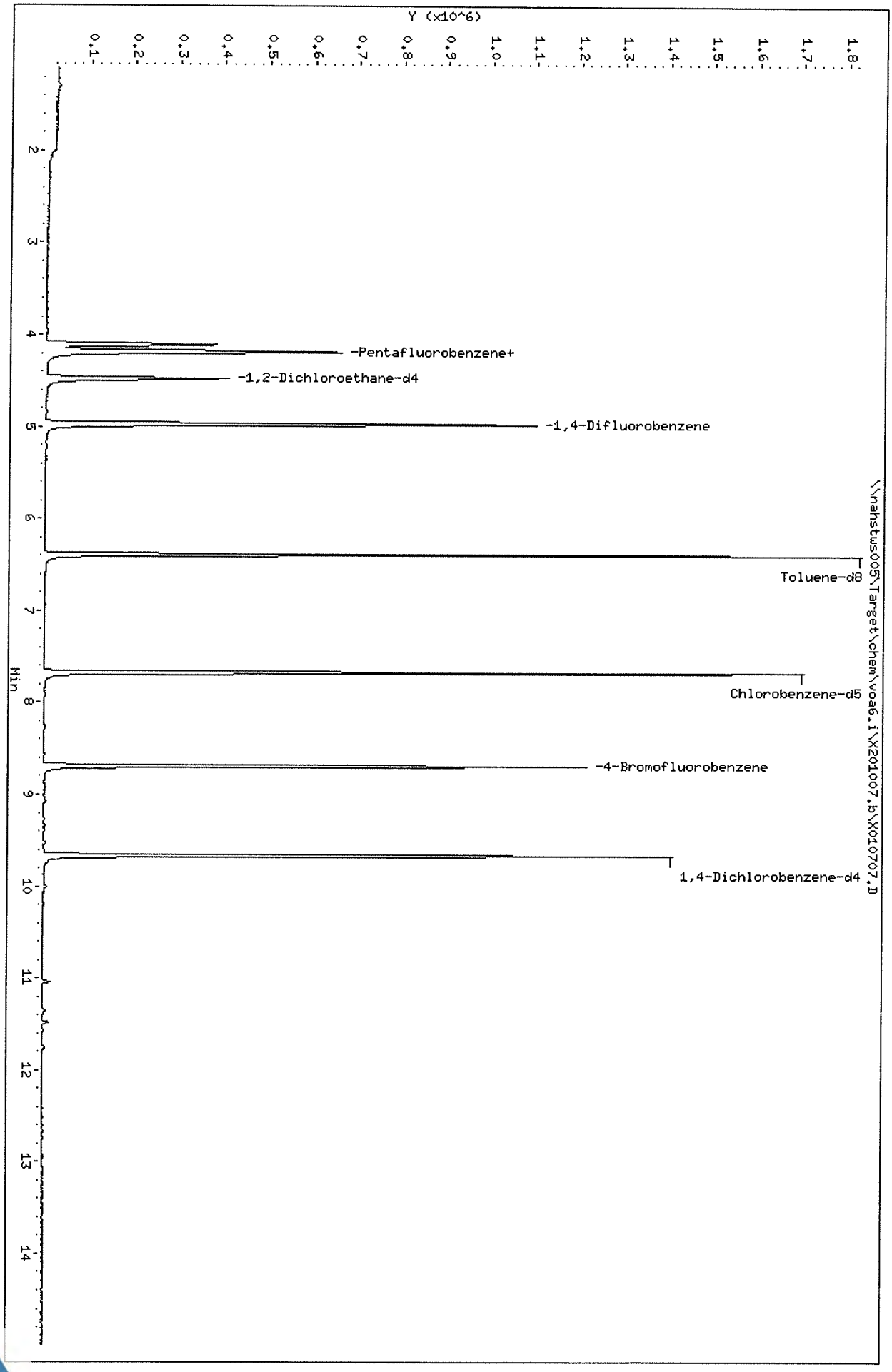
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	564672	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	274301	47.2735	47.27
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	291881	45.9829	45.98
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	903174	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	815527	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1062359	49.5484	49.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	383894	54.0775	54.07
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	354336	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010707.D
Date : 07-OCT-2020 13:11
Client ID: VBLKW-200107
Sample Info: VBLKW-200107;VBLKW-200107;3;;BLANK
Purge Volume: 5.0
Column phase: IB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010721.D Page 1
Report Date: 26-Oct-2020 09:20

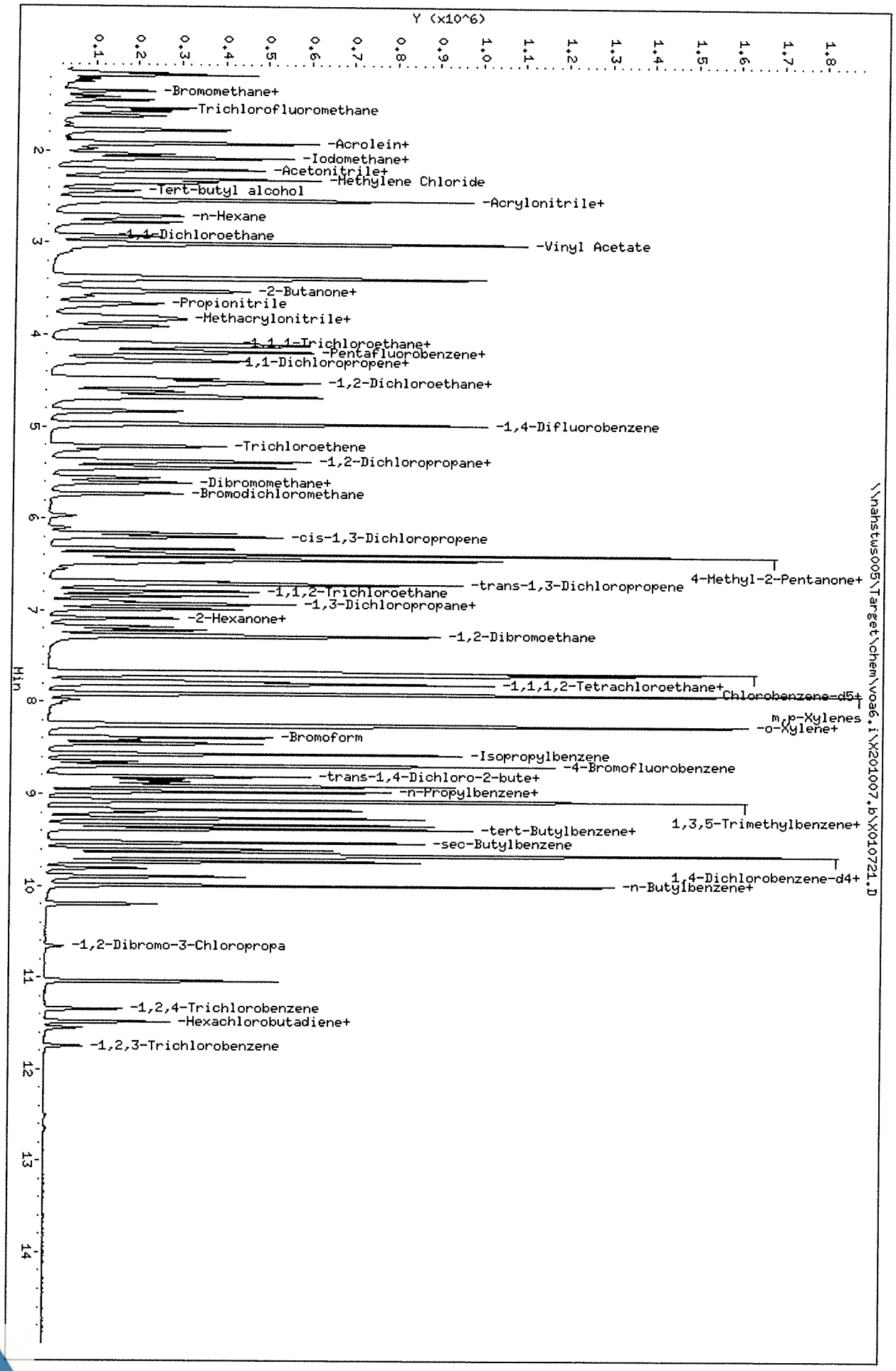
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010721.D
Lab Smp Id: HS20100133-06MS Client Smp ID: HS20100133-06MS
Inj Date : 07-OCT-2020 18:48
Operator : PC Inst ID: voa6.i
Smp Info : HS20100133-06MS;HS20100133-06MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 21 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	508269	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	253588	48.5536	48.55
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	275253	48.1754	48.17
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	821024	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	750115	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	951718	48.2588	48.25
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	343527	52.5886	52.58
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	319700	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	159487	24.2916	24.29
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	114560	25.0681	25.06
17 Methylene Chloride	84	2.306	2.305	(0.550)	148218	26.3141	26.31
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	152126	24.4303	24.43
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	171736	24.2599	24.25
38 Trichloroethene	130	5.214	5.214	(1.049)	140077	23.8531	23.85
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	105276	23.8299	23.82
56 Tetrachloroethene	164	6.933	6.933	(0.904)	112814	23.8052	23.80



Data File: \\nahstus005\Target\chem\voa6.i\X201007.b\X010721.D
Date : 07-OCT-2020 18:48
Client ID: HS20100133-06MS
Sample Info: HS20100133-06MS,HS20100133-06MS,3,,MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010722.D Page 1
Report Date: 26-Oct-2020 09:20

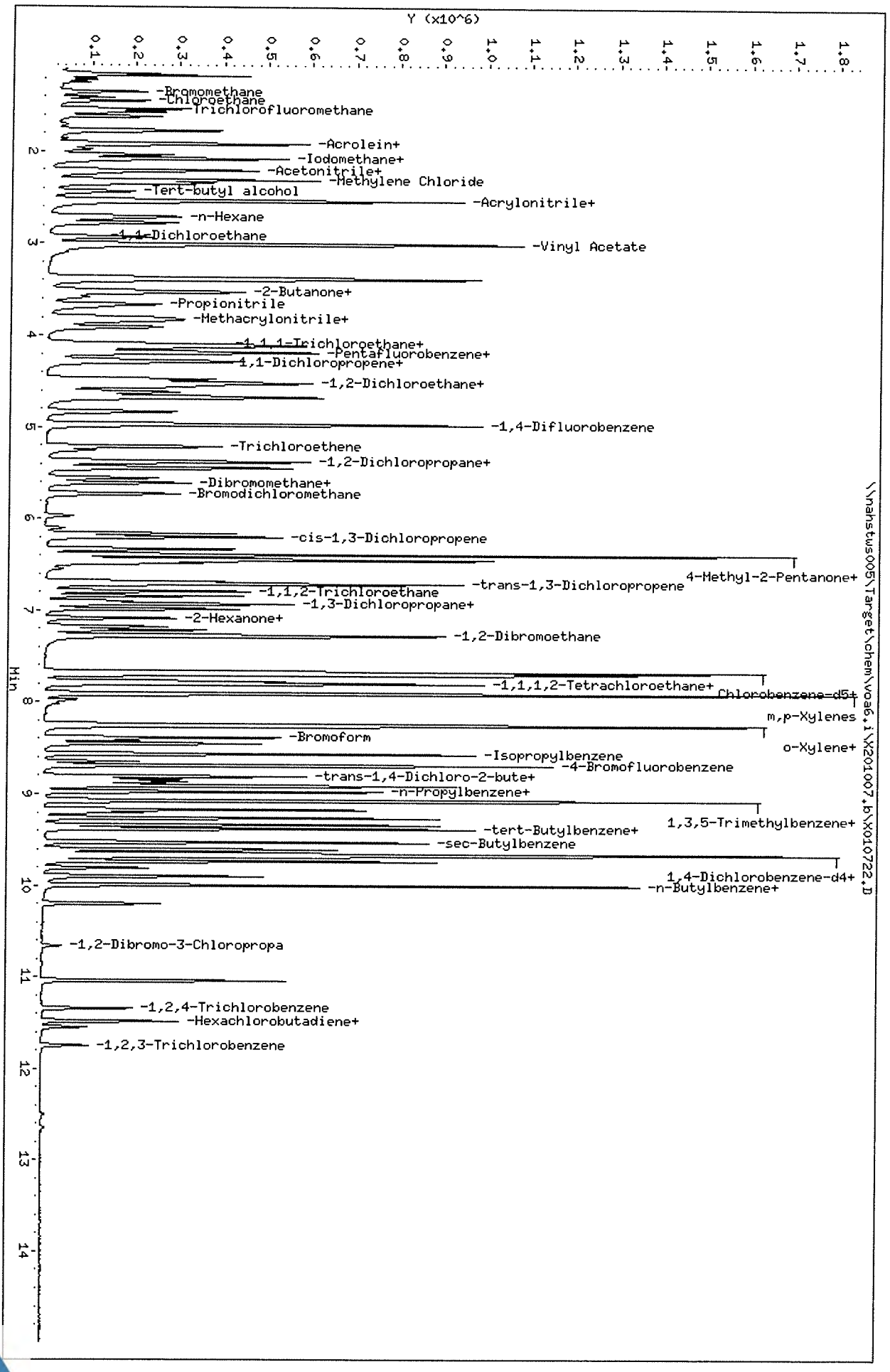
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010722.D
Lab Smp Id: HS20100133-06MSD Client Smp ID: HS20100133-06MSD
Inj Date : 07-OCT-2020 19:12
Operator : PC Inst ID: voa6.i
Smp Info : HS20100133-06MSD;HS20100133-06MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 21 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	509422	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	246152	47.0232	47.02
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	267425	46.6993	46.69
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	814948	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	749120	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	956973	48.5898	48.58
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	341260	52.3065	52.30
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	311719	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	152036	23.1043	23.10
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	109331	23.8698	23.86
17 Methylene Chloride	84	2.313	2.305	(0.552)	143518	25.3980	25.39
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	152921	24.5024	24.50
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	168604	23.9950	23.99
38 Trichloroethene	130	5.214	5.214	(1.049)	138348	23.7344	23.73
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	104841	23.7630	23.76
56 Tetrachloroethene	164	6.933	6.933	(0.904)	110049	23.2526	23.25



Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010722.D
Date : 07-OCT-2020 19:12
Client ID: HS201001133-06MSD
Sample Info: HS201001133-06MSD;HS201001133-06MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010723.D Page 1
Report Date: 26-Oct-2020 09:17

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010723.D
Lab Smp Id: HS20100074-06 Client Smp ID: HS20100074-06
Inj Date : 07-OCT-2020 19:36
Operator : PC Inst ID: voa6.i
Smp Info : HS20100074-06;HS20100074-06;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:16 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 22
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

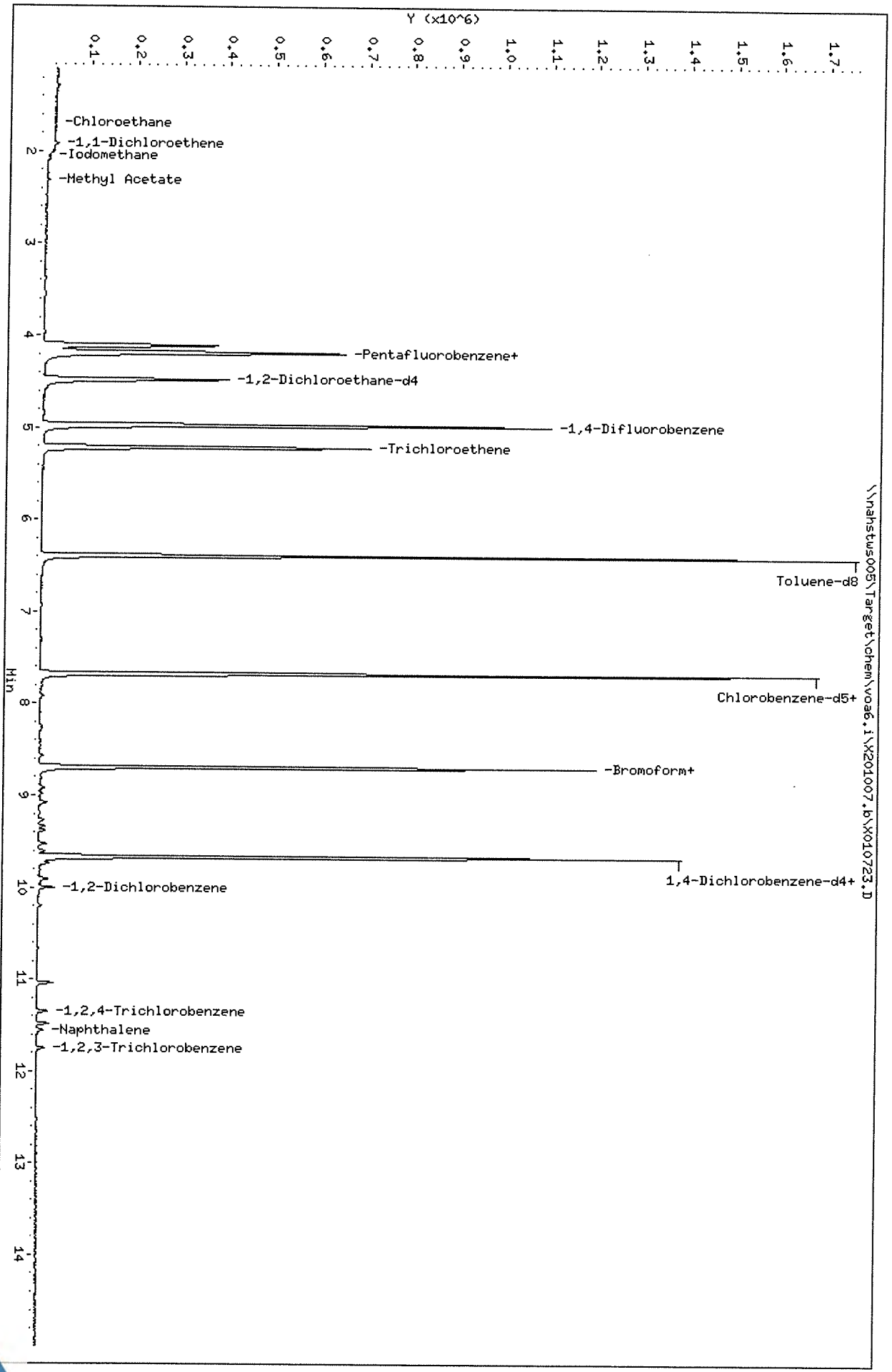
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	562132	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	268176	46.4267	46.42
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	286384	45.3207	45.32
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	889325	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	803716	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1038290	49.1374	49.13
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	368304	52.6219	52.62
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	338647	50.0000	
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2899	0.57358	5.73(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	242314	38.0936	380.93

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010723.D
Date : 07-OCT-2020 19:36
Client ID: HS20100074-06
Sample Info: HS20100074-06;HS20100074-06;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010723.D

Date : 07-OCT-2020 19:36

Client ID: HS20100074-06

Instrument: voa6.i

Sample Info: HS20100074-06;HS20100074-06;;;

Purge Volume: 5.0

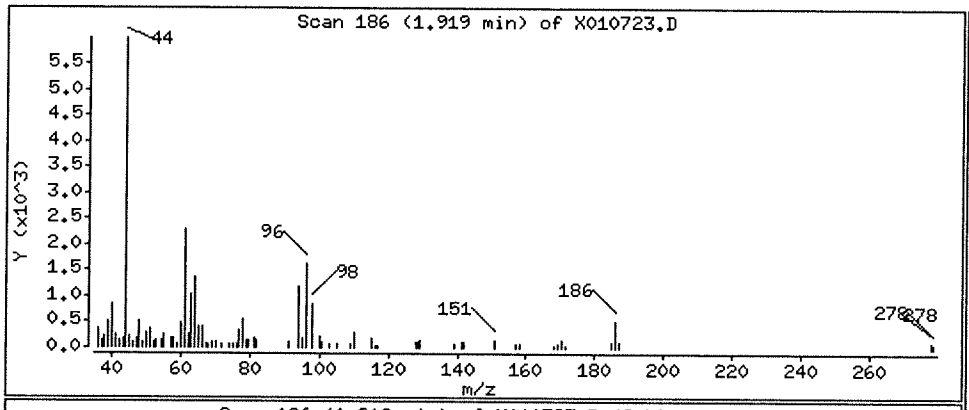
Operator: PC

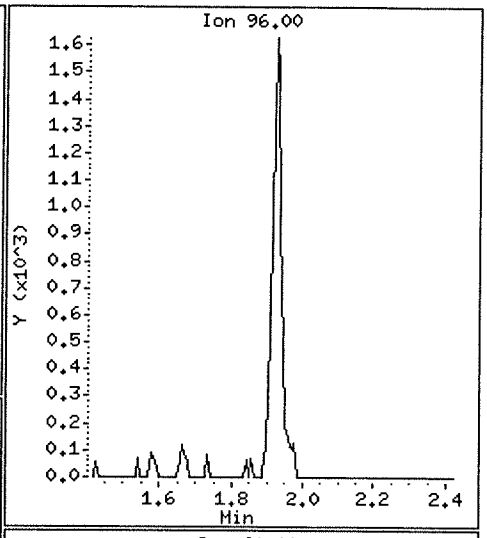
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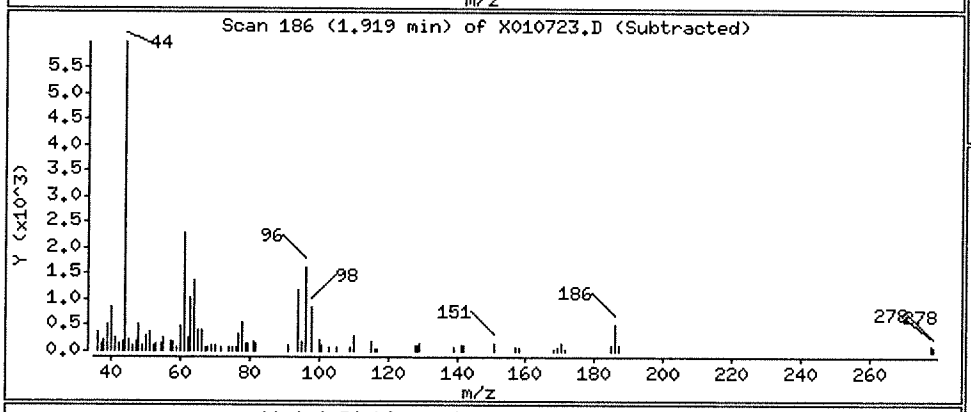
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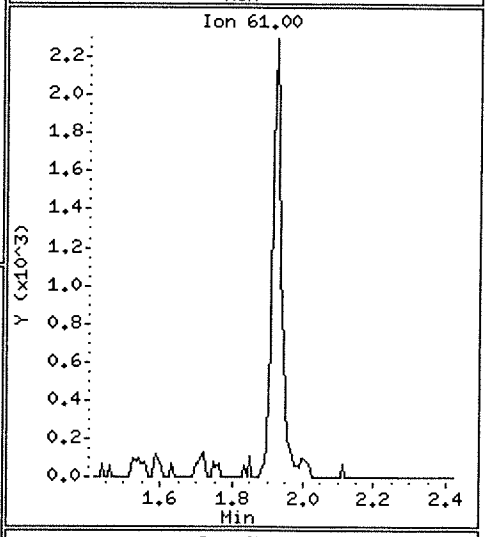
11 1,1-Dichloroethene

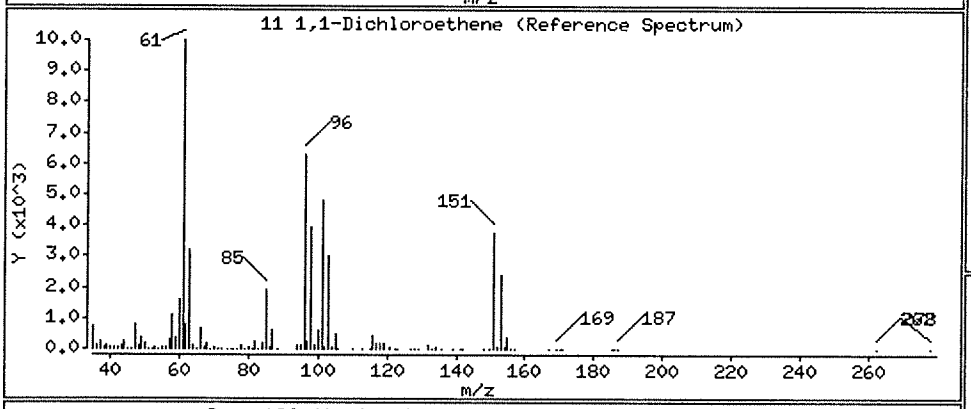
Concentration: 5.73 ug/l

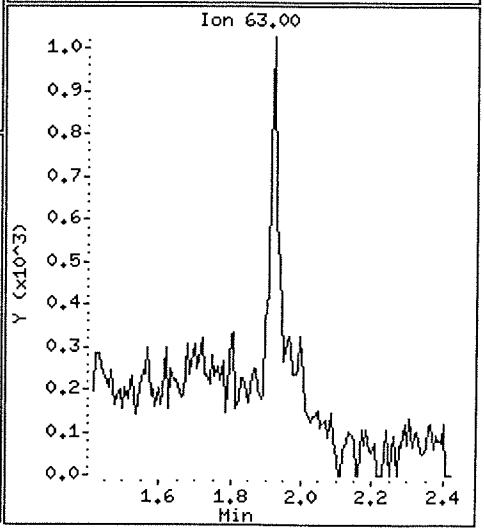


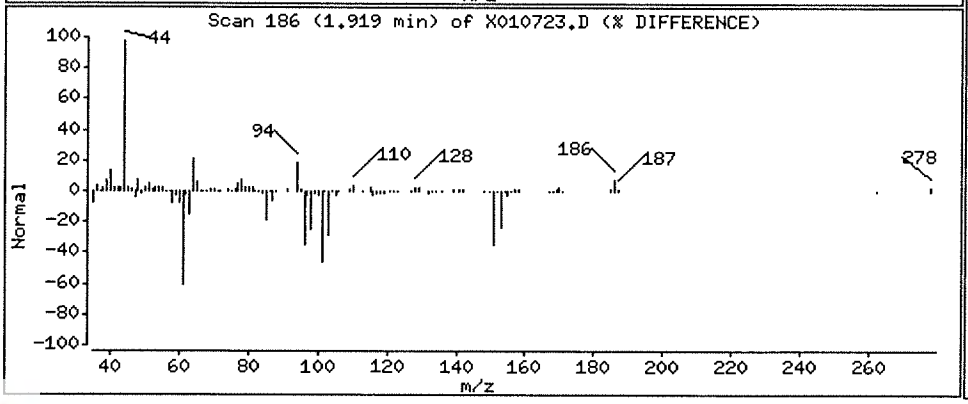












Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010723.D

Date : 07-OCT-2020 19:36

Client ID: HS20100074-06

Instrument: voa6.i

Sample Info: HS20100074-06;HS20100074-06;;;

Purge Volume: 5.0

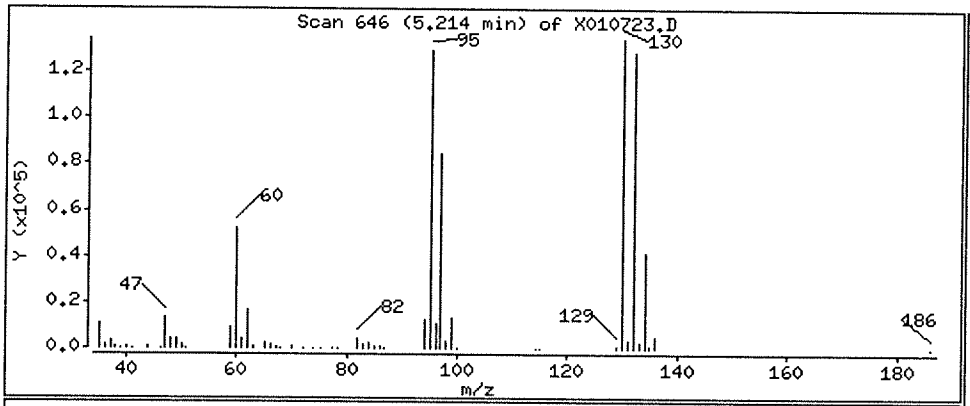
Operator: PC

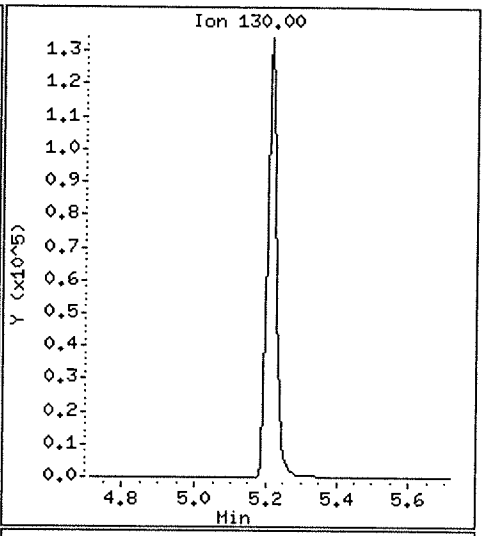
Column phase: DB624

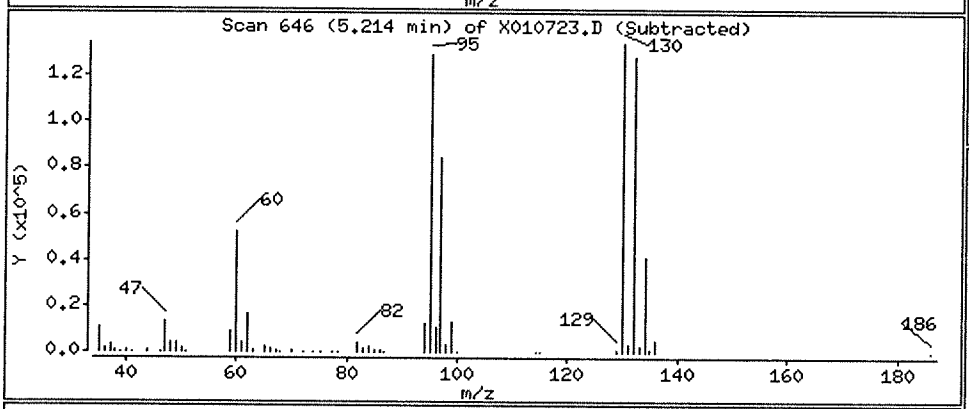
Column diameter: 0.18

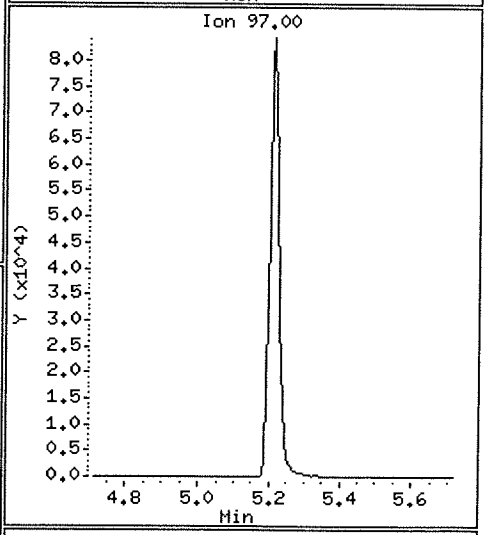
38 Trichloroethene

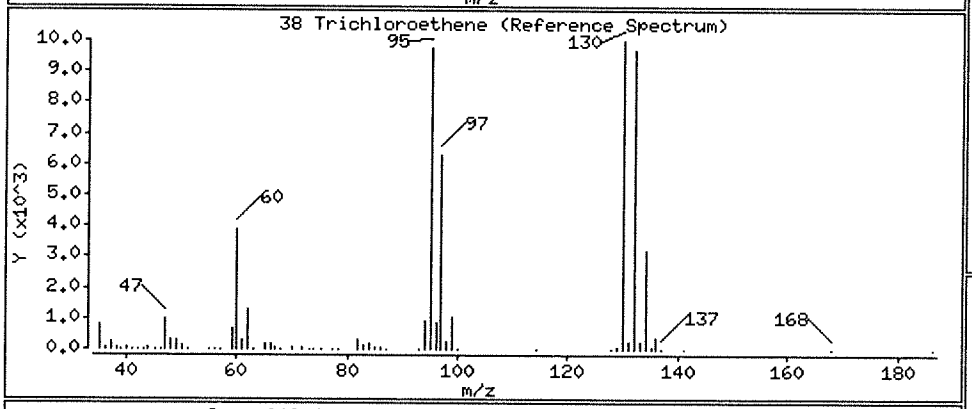
Concentration: 380.93 ug/l

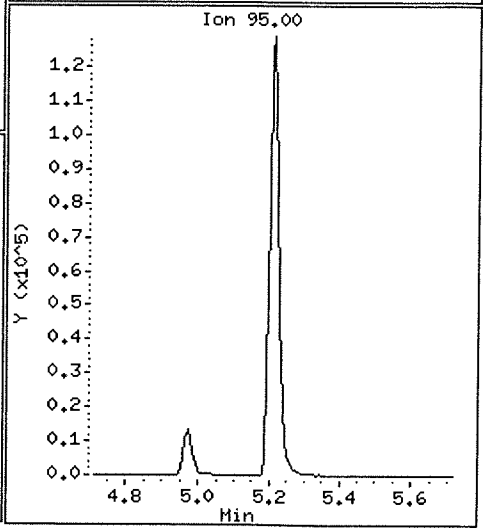


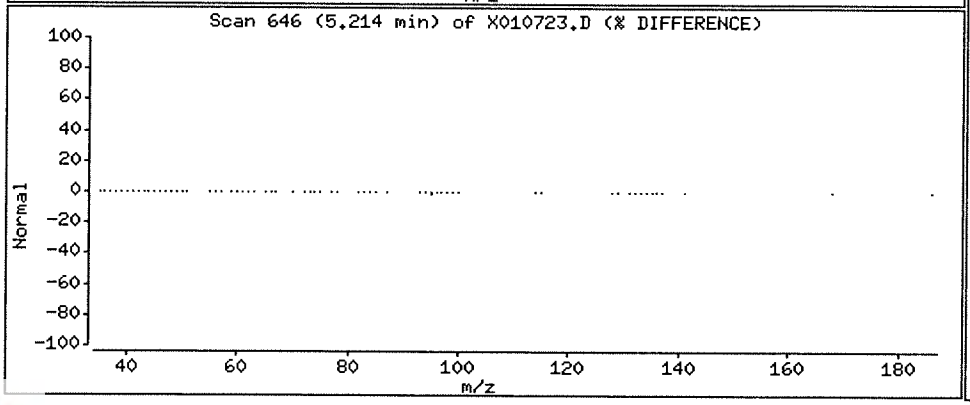












Data File: \\nahstws005\Target\chem\voa6.i\X201007.b\X010730.D Page 1
Report Date: 26-Oct-2020 09:20

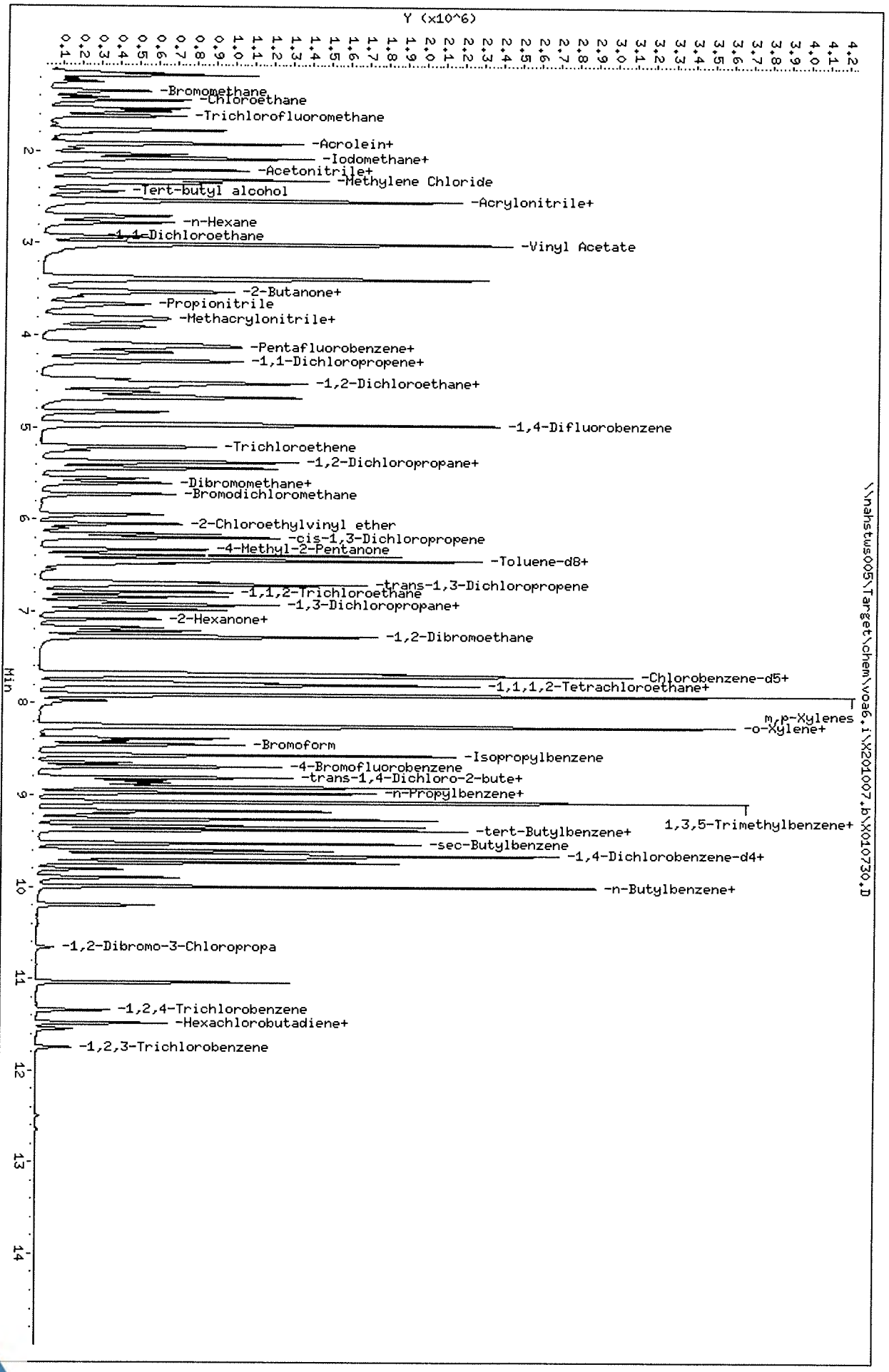
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201007.b\X010730.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 07-OCT-2020 22:24
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201007.b\8260W.m
Meth Date : 26-Oct-2020 09:20 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	550971	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.104	(0.979)	289746	50.0000	51.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	317092	50.0000	51.19
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	904106	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	832321	50.0000	
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	1053338	50.0000	48.13
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	375649	50.0000	51.81
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	342517	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	384304	50.0000	53.99
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	264970	50.0000	53.48
17 Methylene Chloride	84	2.306	2.306	(0.550)	331604	50.0000	55.06
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	345452	50.0000	51.17
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	377493	50.0000	48.42
38 Trichloroethene	130	5.214	5.214	(1.049)	312217	50.0000	48.28
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	229723	50.0000	46.86
56 Tetrachloroethene	164	6.933	6.933	(0.904)	246658	50.0000	46.90



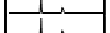
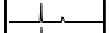
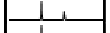
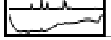
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Date : 07-OCT-2020 22:24
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

HS20100074 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS20100074

Sequence: 100220
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	me	Status
	STD1		Calibration	BD1	1.00	1	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	STD2		Calibration	BD2	1.00	2	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	STD3		Calibration	BD3	1.00	3	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	STD4		Calibration	BD4	1.00	4	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	STD5		Calibration	BD5	1.00	5	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	STD6		Calibration	BD6	1.00	6	Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	ICV		Unknown	BD7	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	ICB		Unknown	BD8	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCV		Unknown	BA2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCB		Unknown	BA3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	MBLK-100220		Unknown	BB1	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	LCS-100220		Unknown	BB2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCV1		Unknown	BA4	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCB		Unknown	BA5	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCV		Unknown	BA2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCB		Unknown	BA3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100055-04MS	300 W	Unknown	RE2	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100055-04MSD	300 W	Unknown	RE3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-01	9056 W	Unknown	RE5	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-02	9056 W	Unknown	RE6	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-03	9056 W	Unknown	RE7	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCV1		Unknown	BA4	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	CCB		Unknown	BA5	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-04	9056 W	Unknown	RE8	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-05	9056 W	Unknown	GA1	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
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	HS20100074-01MS	9056 W	Unknown	GA3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-01MSD	9056 W	Unknown	GA4	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-01DF20	9056 W	Unknown	GA5	20.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-02DF20	9056 W	Unknown	GA6	20.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-03DF20	9056 W	Unknown	GA7	20.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-04DF20	9056 W	Unknown	GA8	20.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20100074-06DF100	9056 W	Unknown	GB1	100.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
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	CCB		Unknown	BA3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished

Sequence: 100220
Last Update Operator: alshs.nouser

Inject Time
8/11/2020 10:46:45 AM -05:00
8/11/2020 11:04:45 AM -05:00
8/11/2020 11:22:45 AM -05:00
8/11/2020 11:40:48 AM -05:00
8/11/2020 11:58:48 AM -05:00
8/11/2020 12:16:48 PM -05:00
8/11/2020 12:34:48 PM -05:00
8/11/2020 12:52:50 PM -05:00
10/2/2020 9:32:40 AM -05:00
10/2/2020 9:50:46 AM -05:00
10/2/2020 10:44:49 AM -05:00
10/2/2020 11:02:57 AM -05:00
10/2/2020 11:20:58 AM -05:00
10/2/2020 11:38:58 AM -05:00
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10/2/2020 3:15:26 PM -05:00
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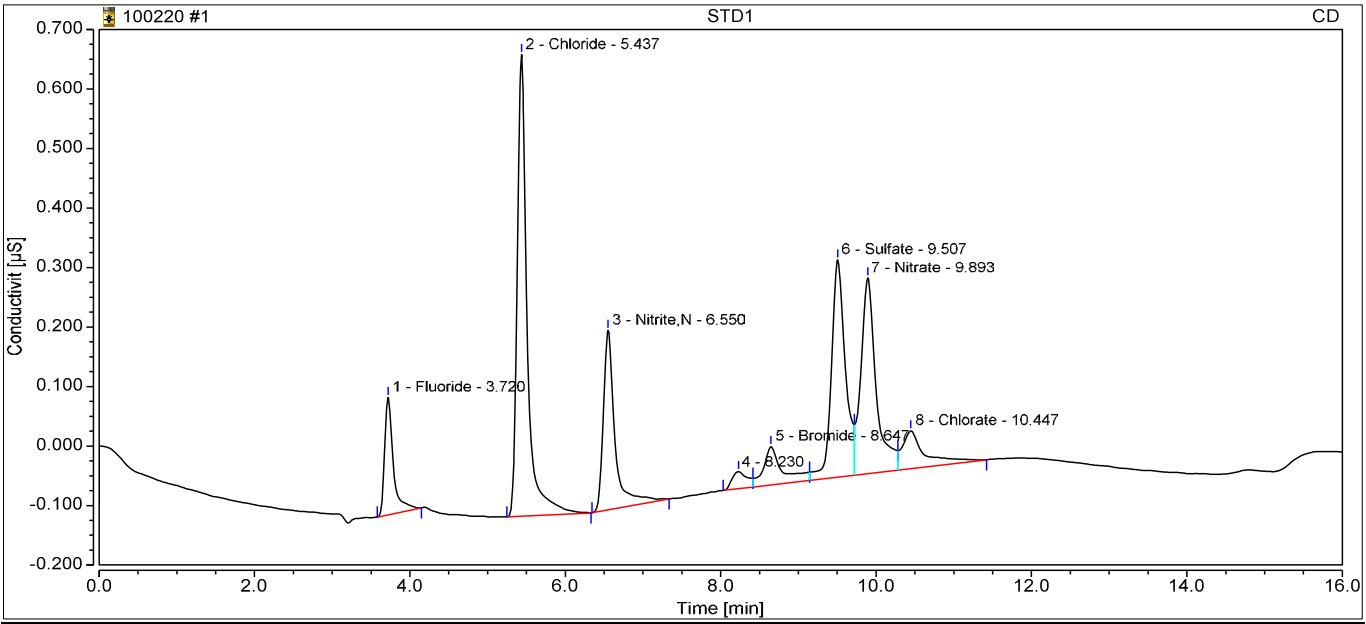
Sequence: 100220
Injection #6: STD6

Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*17.3553*	*0.99849*	*-0.0040*	*0.3537*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	5.4804	0.99983	0.0129	0.2289	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	26.1376	0.99573	0.0186	0.4711	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	0.9346	0.99999	0.0083	0.1008	0.0000
6	Sulfate	Lin, WithOffset, 1/	Area	6	5.2843	0.99985	-0.0019	0.1602	0.0000
7	Nitrate	Lin, WithOffset, 1/	Area	6	4.5248	0.99988	0.0144	0.6154	0.0000
8	Chlorate	Lin, WithOffset, 1/	Area	6	13.4374	0.99837	0.0139	0.1019	0.0000
10	Phosphate	Lin, WithOffset, 1/	Area	5	18.5357	0.99714	-0.0737	0.1942	0.0000
Maximum					**26.1376**	0.99999			
Minimum					0.9346	**0.99573**			

1 STD1			
Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**BD1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 10:46**	*Sample Weight:*	**1.0000**

Run Time:



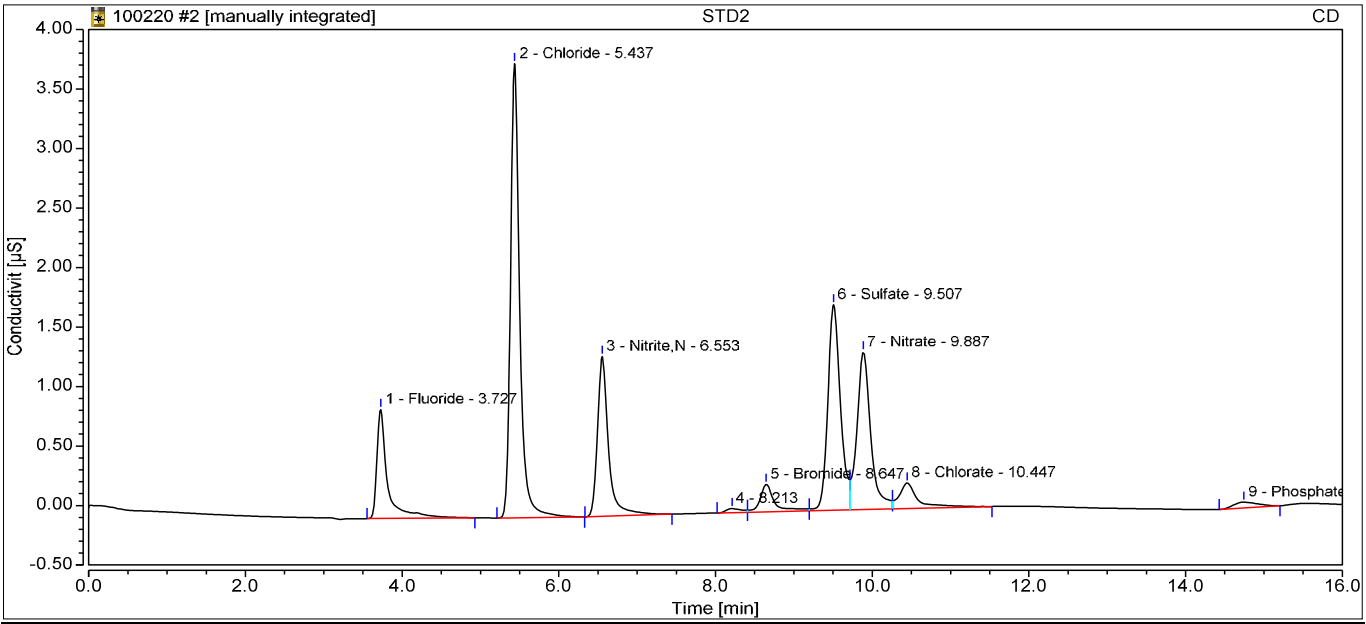
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.025	0.0833	0.0833	1.0000
2	5.44	Chloride	BMB	0.116	0.4487	0.4487	1.0000
3	6.55	Nitrite,N	BMB	0.052	0.0715	0.0715	1.0000
5	8.65	Bromide	M	0.018	0.0997	0.0997	1.0000
6	9.51	Sulfate	M	0.076	0.4861	0.4861	1.0000
7	9.89	Nitrate	M	0.075	0.0985	0.0985	1.0000
8	10.45	Chlorate	MB	0.021	0.0734	0.0734	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.384**		**1.36**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**BD2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:04**	*Sample Weight:*	**1.0000**

Run Time:

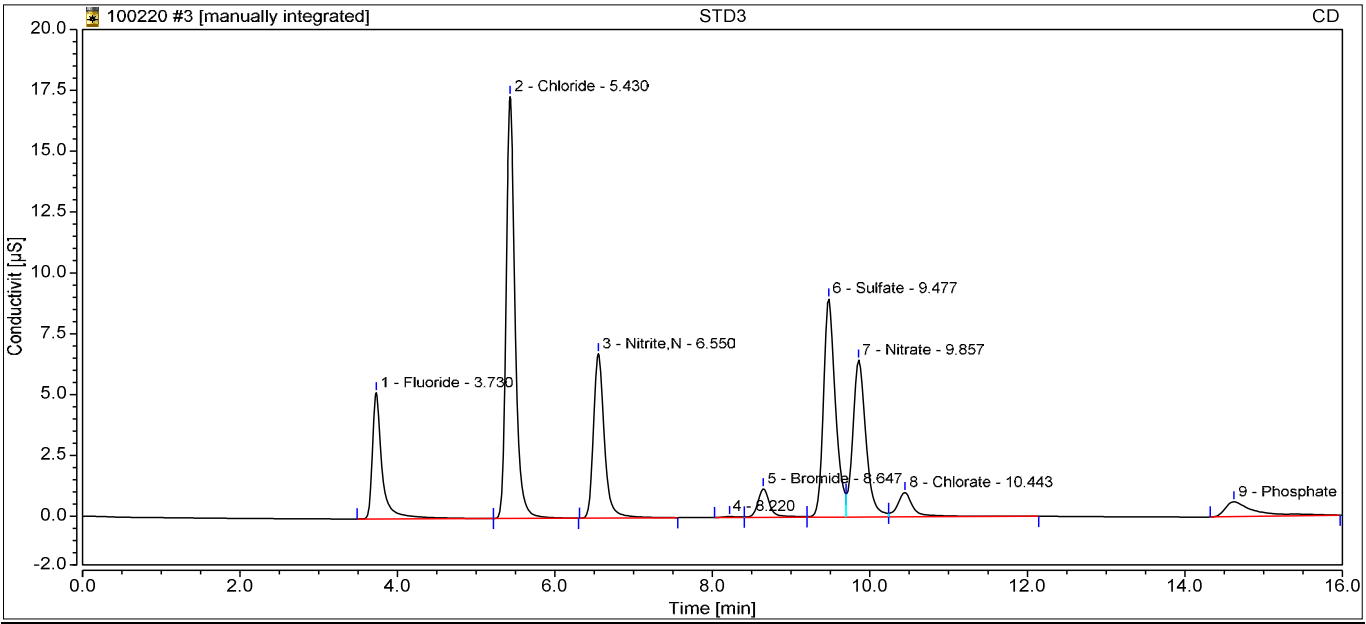


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.145	0.4204	0.4204	1.0000
2	5.44	Chloride	BMB	0.518	2.2084	2.2084	1.0000
3	6.55	Nitrite,N	BMB	0.221	0.4294	0.4294	1.0000
5	8.65	Bromide	M	0.049	0.4041	0.4041	1.0000
6	9.51	Sulfate	M	0.321	2.0151	2.0151	1.0000
7	9.89	Nitrate	M	0.270	0.4147	0.4147	1.0000
8	10.45	Chlorate	MB	0.060	0.4536	0.4536	1.0000
9	14.74	Phosphate	BMB	0.018	0.4703	0.4703	1.0000
Total:			**0.000**	**1.601**		**6.82**	

3 STD3			
Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**BD3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:22**	*Sample Weight:*	**1.0000**

Run Time:



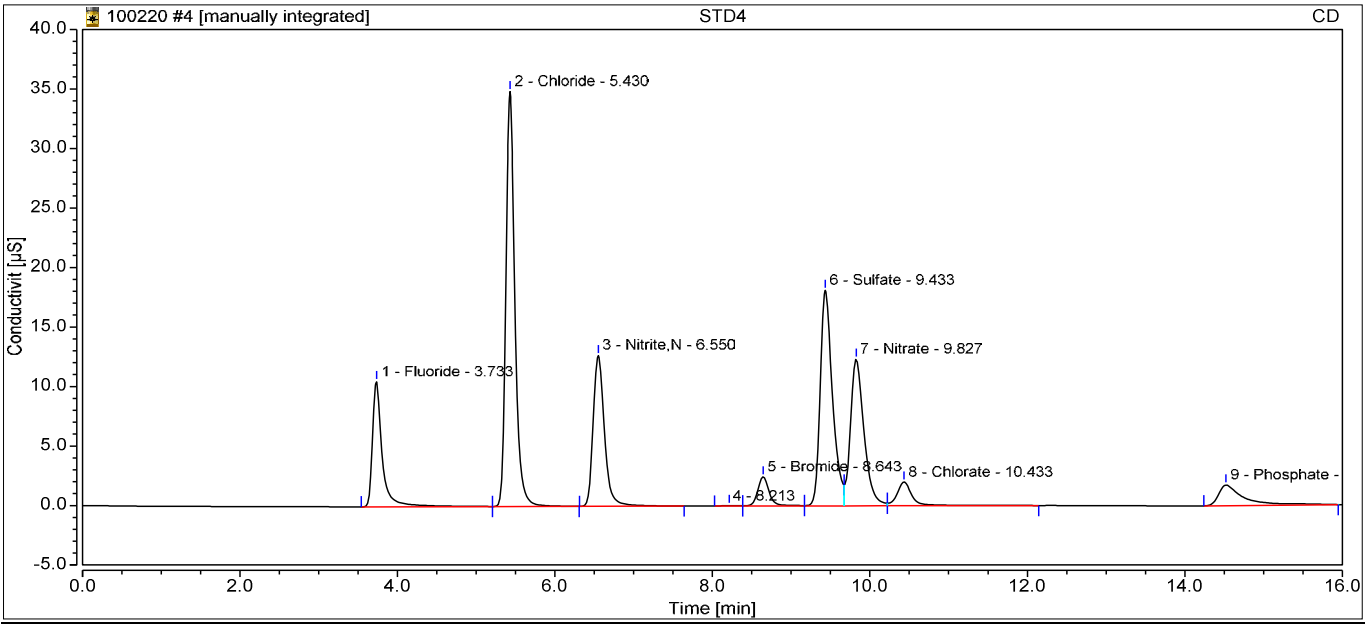
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.745	2.1166	2.1166	1.0000
2	5.43	Chloride	BMB	2.291	9.9533	9.9533	1.0000
3	6.55	Nitrite,N	BMB	1.077	2.2460	2.2460	1.0000
5	8.65	Bromide	M	0.209	1.9882	1.9882	1.0000
6	9.48	Sulfate	M	1.595	9.9688	9.9688	1.0000
7	9.86	Nitrate	M	1.238	1.9883	1.9883	1.0000
8	10.44	Chlorate	MB	0.239	2.2038	2.2038	1.0000
9	14.62	Phosphate	BM *	0.269	1.7634	1.7634	1.0000
Total:			**0.000**	**7.661**		**32.23**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**BD4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:40**	*Sample Weight:*	**1.0000**

Run Time:

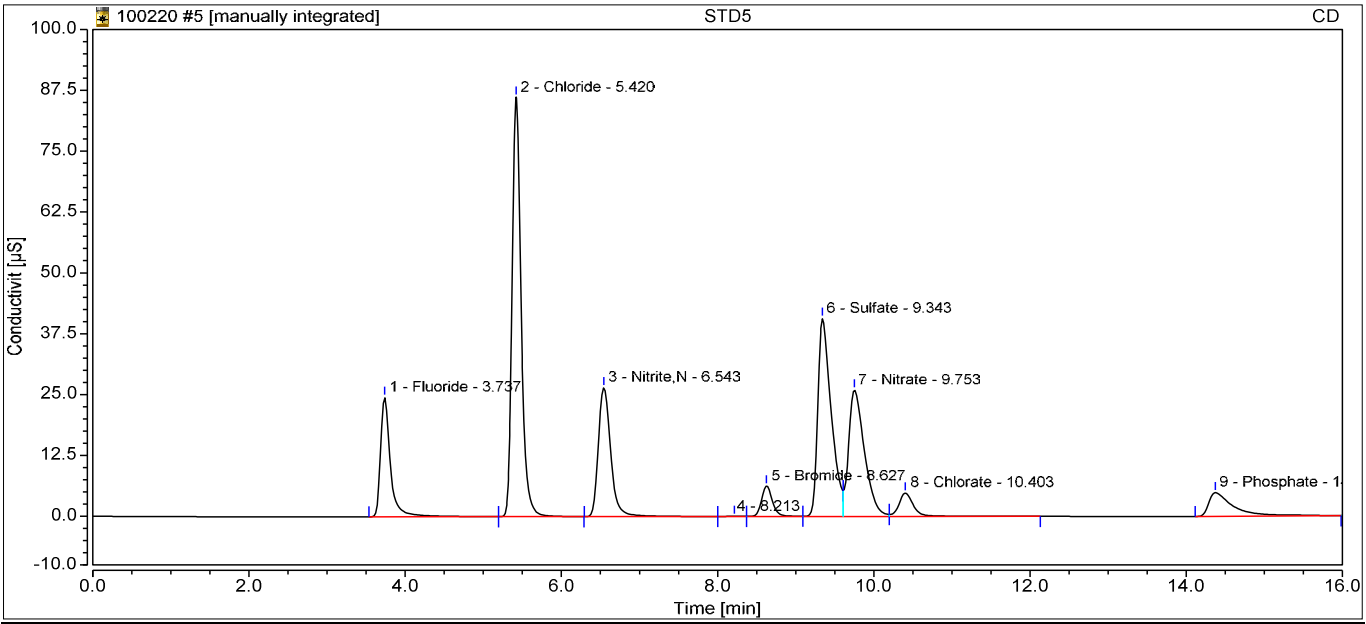


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.504	4.2630	4.2630	1.0000
2	5.43	Chloride	BMB	4.613	20.0986	20.0986	1.0000
3	6.55	Nitrite,N	BMB*	2.104	4.4276	4.4276	1.0000
5	8.64	Bromide	M	0.411	3.9946	3.9946	1.0000
6	9.43	Sulfate	M	3.273	20.4465	20.4465	1.0000
7	9.83	Nitrate	M	2.444	3.9482	3.9482	1.0000
8	10.43	Chlorate	MB	0.443	4.2079	4.2079	1.0000
9	14.52	Phosphate	BM *	0.648	3.7157	3.7157	1.0000
Total:			**0.000**	**15.439**		**65.10**	

5 STD5			
Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**BD5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 11:58**	*Sample Weight:*	**1.0000**

Run Time:



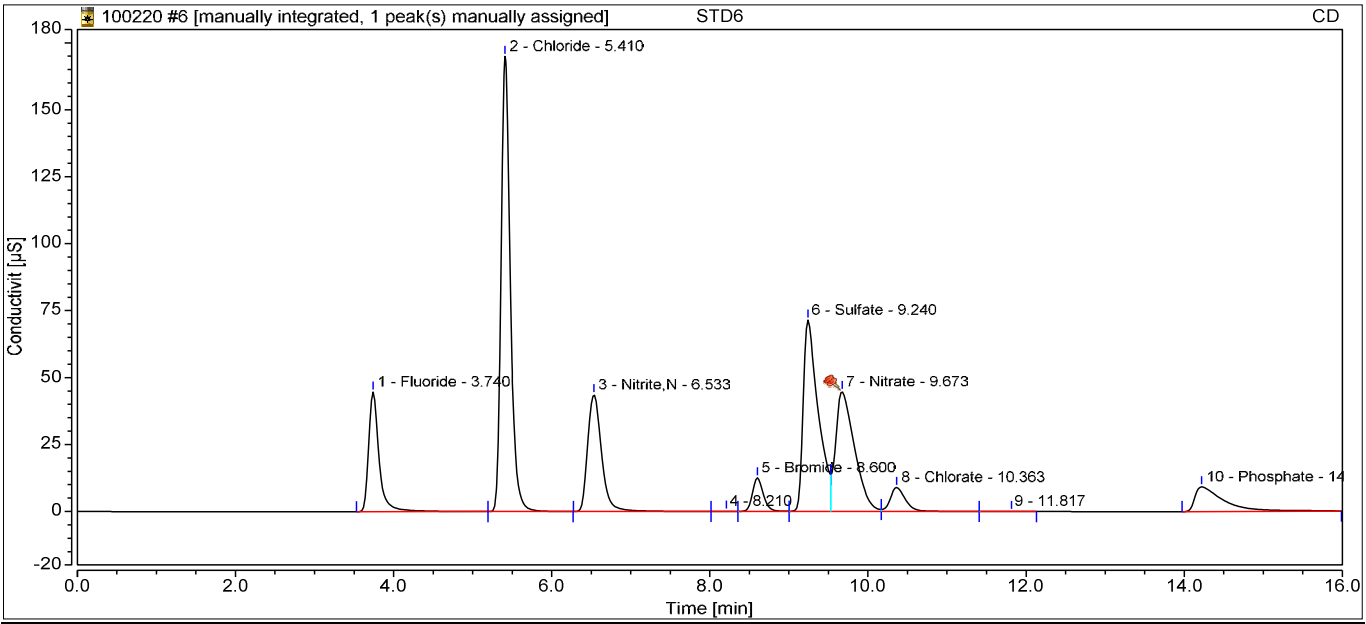
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.611	10.2228	10.2228	1.0000
2	5.42	Chloride	BMB	11.462	50.0272	50.0272	1.0000
3	6.54	Nitrite,N	BMB	4.877	10.3135	10.3135	1.0000
5	8.63	Bromide	M	1.014	9.9796	9.9796	1.0000
6	9.34	Sulfate	M	8.089	50.5200	50.5200	1.0000
7	9.75	Nitrate	M	6.097	9.8832	9.8832	1.0000
8	10.40	Chlorate	MB	1.032	9.9918	9.9918	1.0000
9	14.37	Phosphate	BM *	1.834	9.8223	9.8223	1.0000
Total:			**0.000**	**38.017**		**160.76**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**BD6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:16**	*Sample Weight:*	**1.0000**

Run Time:



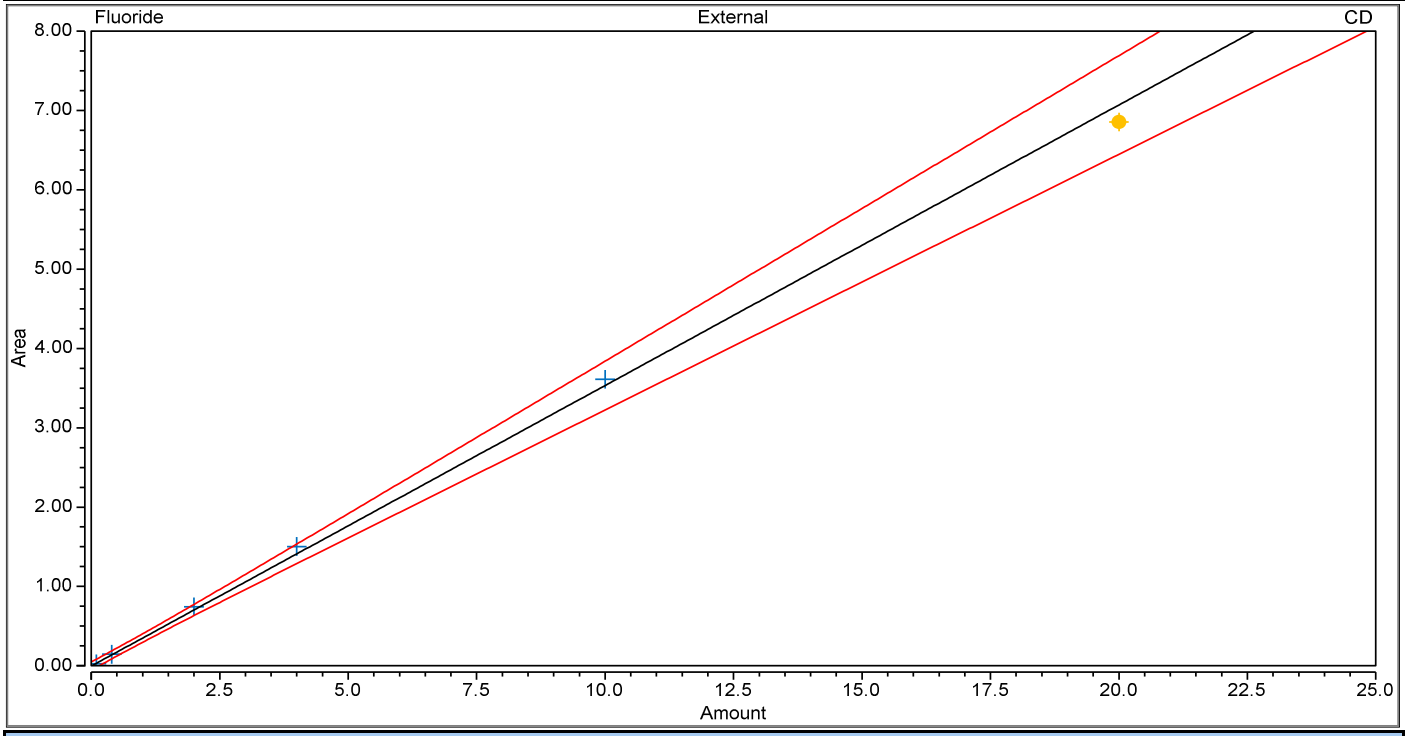
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	6.855	19.3940	19.3940	1.0000
2	5.41	Chloride	BMB	22.844	99.7639	99.7639	1.0000
3	6.53	Nitrite,N	BMB	8.975	19.0121	19.0121	1.0000
5	8.60	Bromide	M	2.028	20.0338	20.0338	1.0000
6	9.24	Sulfate	M	15.864	99.0635	99.0635	1.0000
7	9.67	Nitrate	M ^	12.426	20.1671	20.1671	1.0000
8	10.36	Chlorate	M	2.009	19.5694	19.5694	1.0000
10	14.22	Phosphate	BM *	3.933	20.6283	20.6283	1.0000
Total:			**0.000**	**74.933**		**317.63**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0040
Evaluation Type	Area	*Slope (C1)*	0.3537
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9985

Calibration Plot **Fluoride**



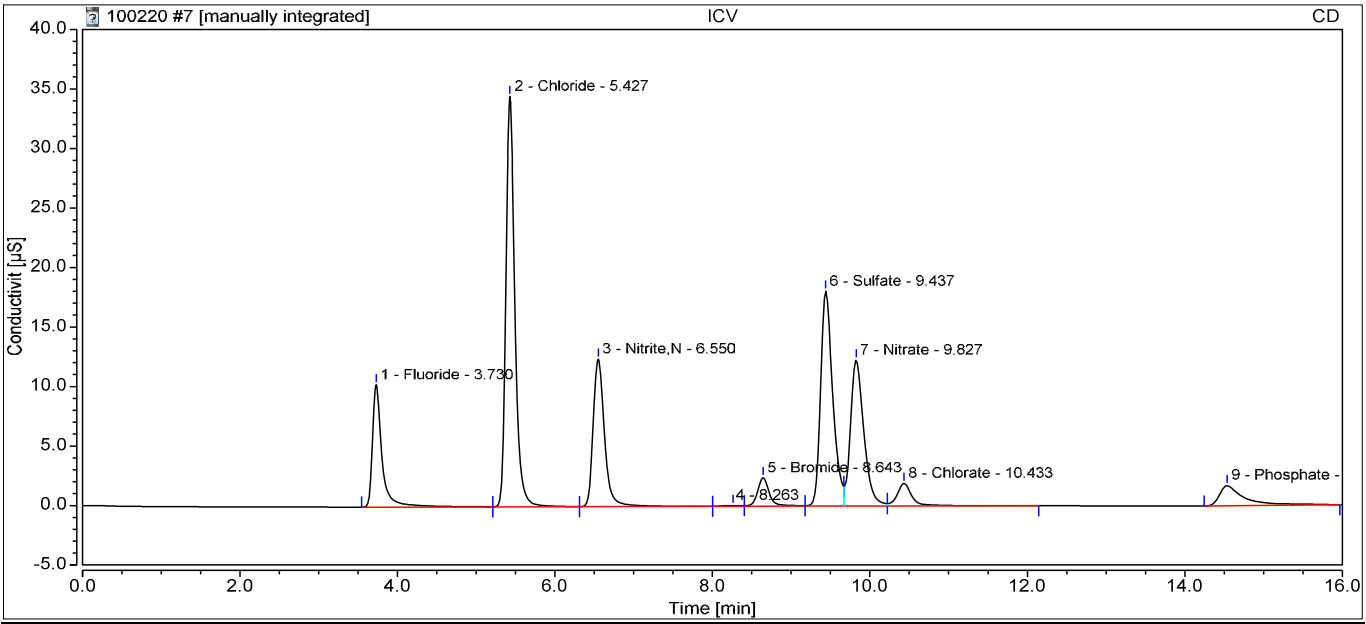
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0254	0.0254	0.025	0.197
2	STD2	2	0.4000	0.1446	0.1446	0.145	0.916
3	STD3	3	2.0000	0.7445	0.7445	0.745	5.182
4	STD4	4	4.0000	1.5036	1.5036	1.504	10.507
5	STD5	5	10.0000	3.6113	3.6113	3.611	24.538
6	STD6	6	20.0000	6.8547	6.8547	6.855	44.677

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**BD7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:34**	*Sample Weight:*	**1.0000**

Run Time:



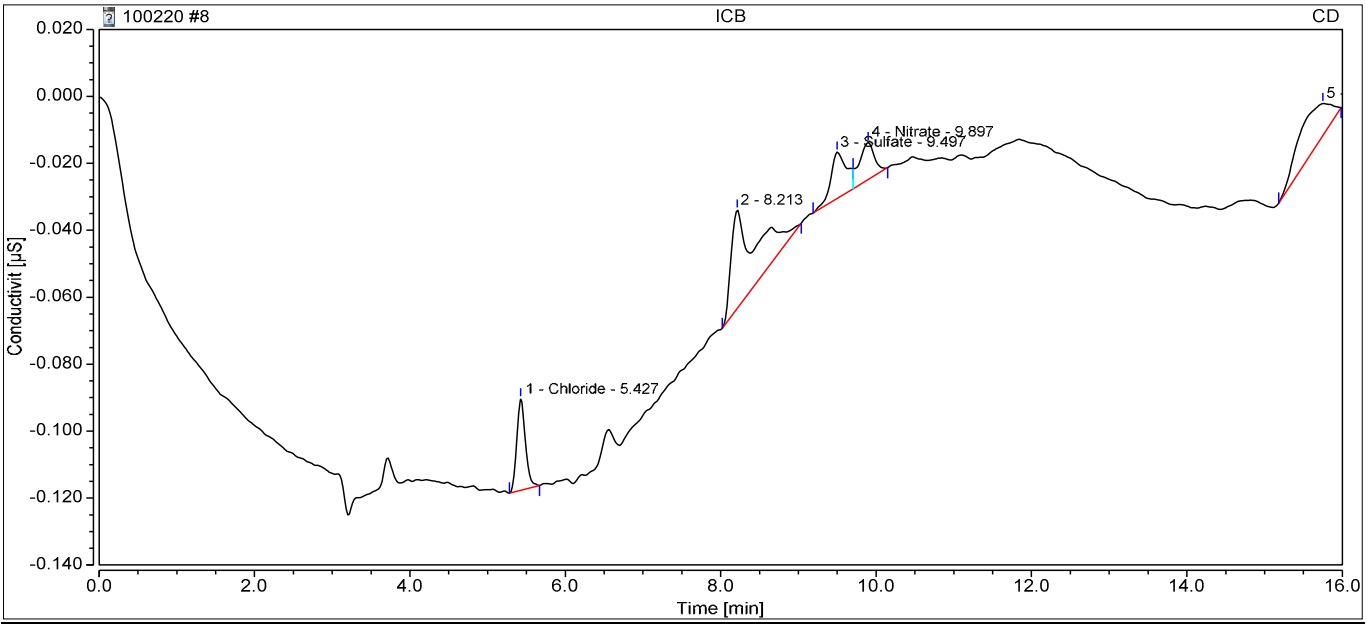
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.447	4.1020	4.1020	1.0000
2	5.43	Chloride	BMB	4.553	19.8399	19.8399	1.0000
3	6.55	Nitrite,N	BMB	2.061	4.3359	4.3359	1.0000
5	8.64	Bromide	M	0.413	4.0106	4.0106	1.0000
6	9.44	Sulfate	M	3.227	20.1622	20.1622	1.0000
7	9.83	Nitrate	M	2.405	3.8850	3.8850	1.0000
8	10.43	Chlorate	MB	0.422	4.0019	4.0019	1.0000
9	14.54	Phosphate	BM *	0.631	3.6292	3.6292	1.0000
Total:			**0.000**	**15.159**		**63.97**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**BD8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**08/11/2020 12:52**	*Sample Weight:*	**1.0000**

Run Time:



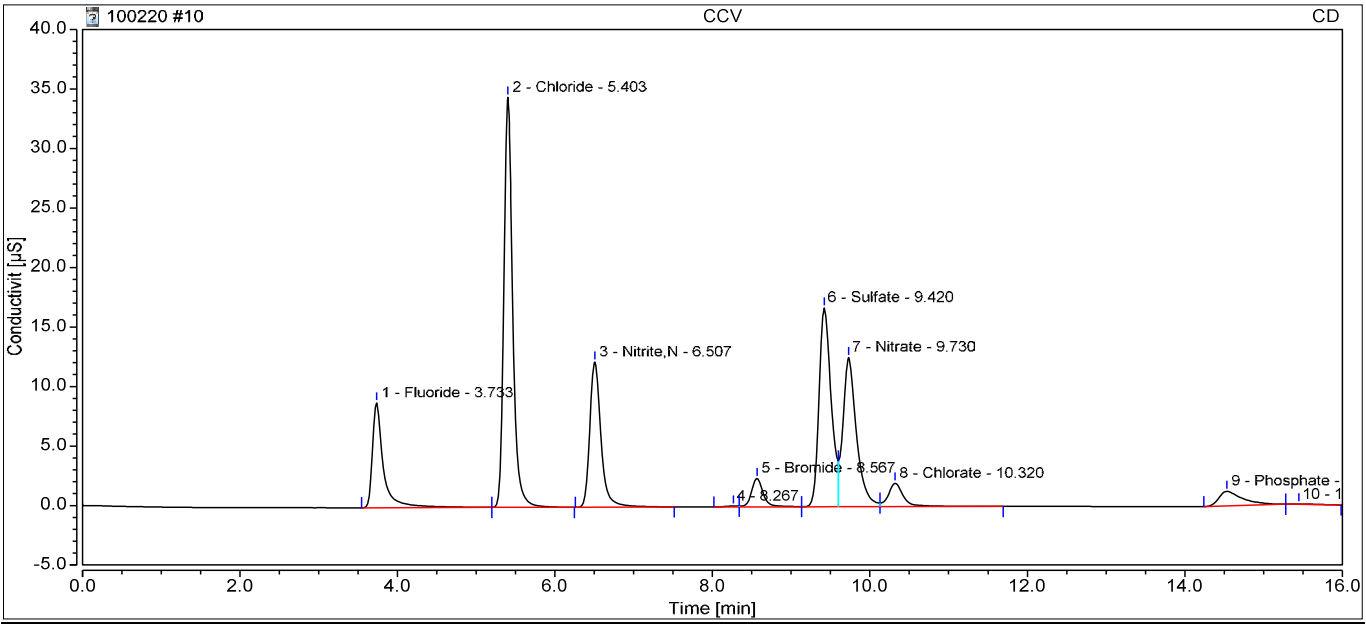
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.43	Chloride	BMB	0.004	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
3	9.50	Sulfate	BM	0.003	0.0318	0.0318	1.0000
4	9.90	Nitrate	MB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.009**		**0.03**	

10 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 09:32**	*Sample Weight:*	**1.0000**

Run Time:



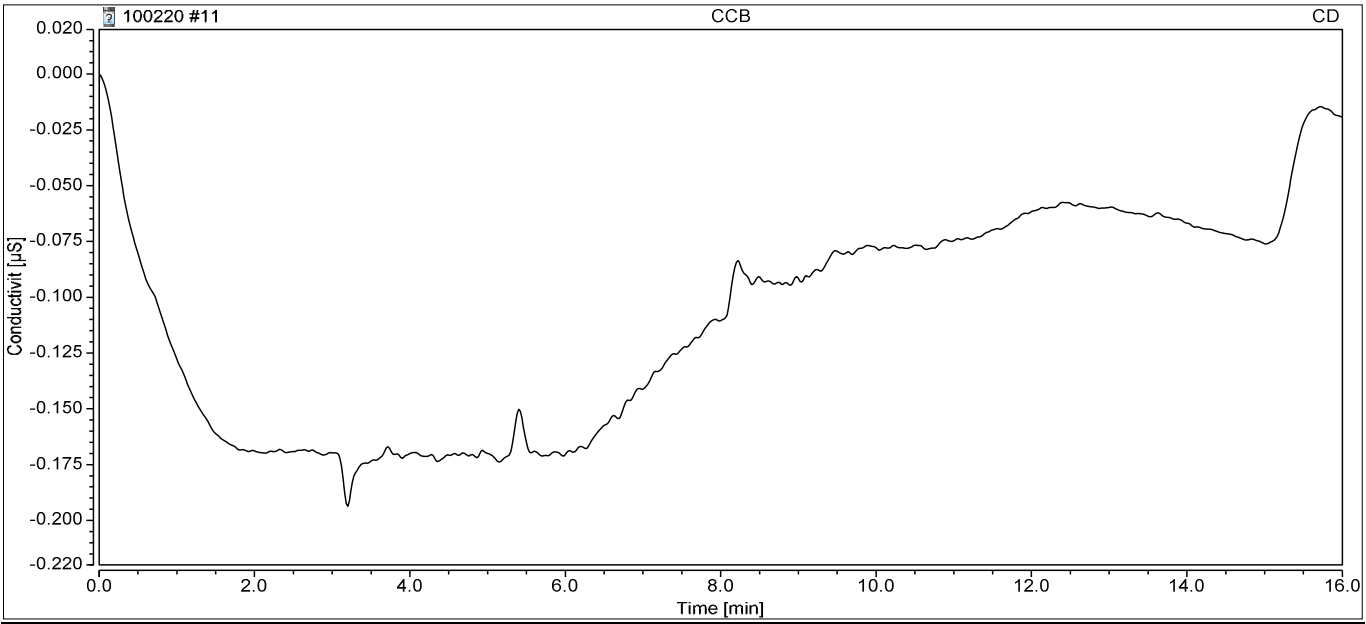
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.422	4.0333	4.0333	1.0000
2	5.40	Chloride	BMB	4.501	19.6093	19.6093	1.0000
3	6.51	Nitrite,N	BMB	2.024	4.2581	4.2581	1.0000
5	8.57	Bromide	M	0.418	4.0591	4.0591	1.0000
6	9.42	Sulfate	M	2.982	18.6334	18.6334	1.0000
7	9.73	Nitrate	M	2.524	4.0783	4.0783	1.0000
8	10.32	Chlorate	MB	0.441	4.1936	4.1936	1.0000
9	14.53	Phosphate	BMB	0.428	2.5855	2.5855	1.0000
Total:			**0.000**	**14.741**		**61.45**	

11 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 09:50**	*Sample Weight:*	**1.0000**

Run Time:



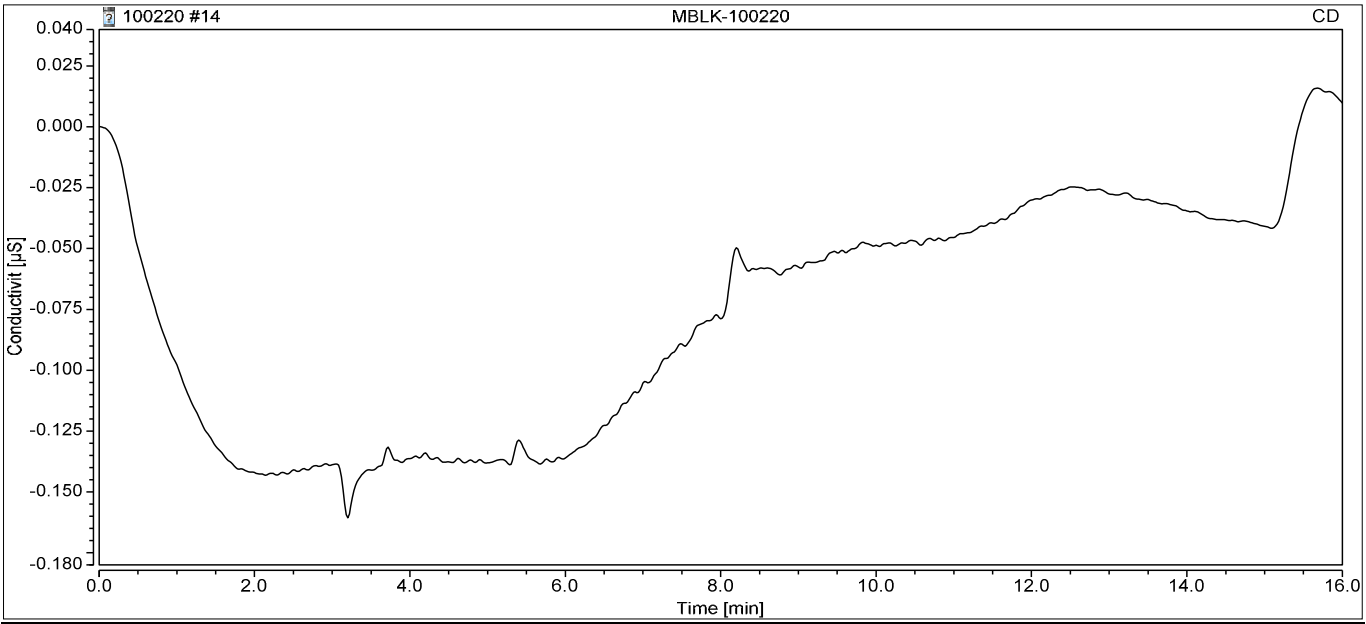
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

14 MBLK-100220

Sample Name:	**MBLK-100220**	*Injection Volume:*	**5.00**
Vial Number:	**BB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 10:44**	*Sample Weight:*	**1.0000**

Run Time:



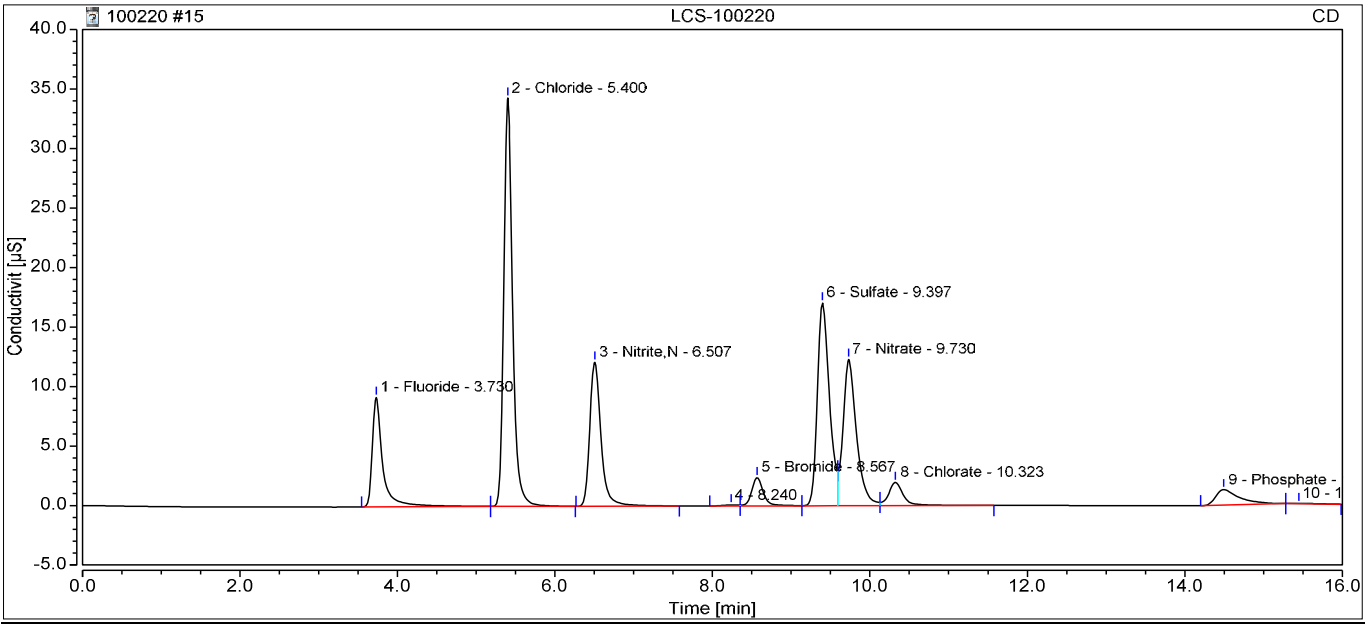
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

15 LCS-100220

Sample Name:	**LCS-100220**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 11:02**	*Sample Weight:*	**1.0000**

Run Time:



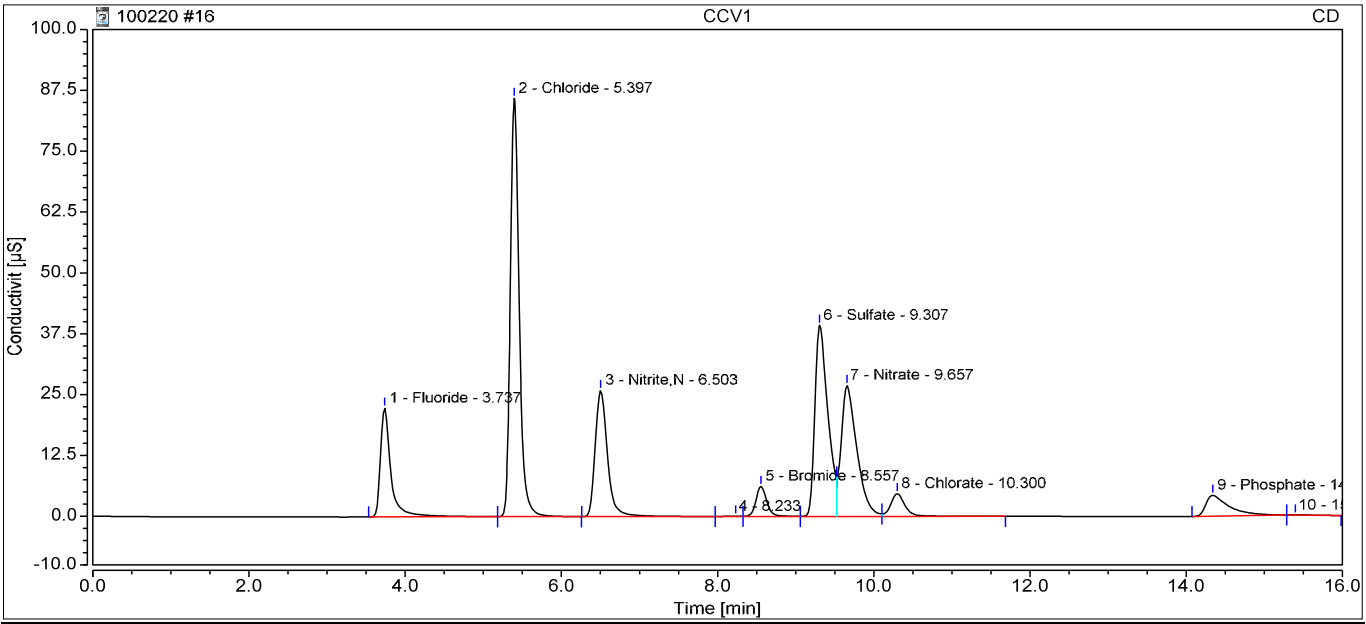
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.414	4.0101	4.0101	1.0000
2	5.40	Chloride	BMB	4.478	19.5115	19.5115	1.0000
3	6.51	Nitrite,N	BMB	2.021	4.2508	4.2508	1.0000
5	8.57	Bromide	M	0.407	3.9587	3.9587	1.0000
6	9.40	Sulfate	M	3.016	18.8445	18.8445	1.0000
7	9.73	Nitrate	M	2.447	3.9529	3.9529	1.0000
8	10.32	Chlorate	MB	0.432	4.0995	4.0995	1.0000
9	14.49	Phosphate	BMB	0.453	2.7130	2.7130	1.0000
Total:			**0.000**	**14.669**		**61.34**	

16 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 11:20**	*Sample Weight:*	**1.0000**

Run Time:



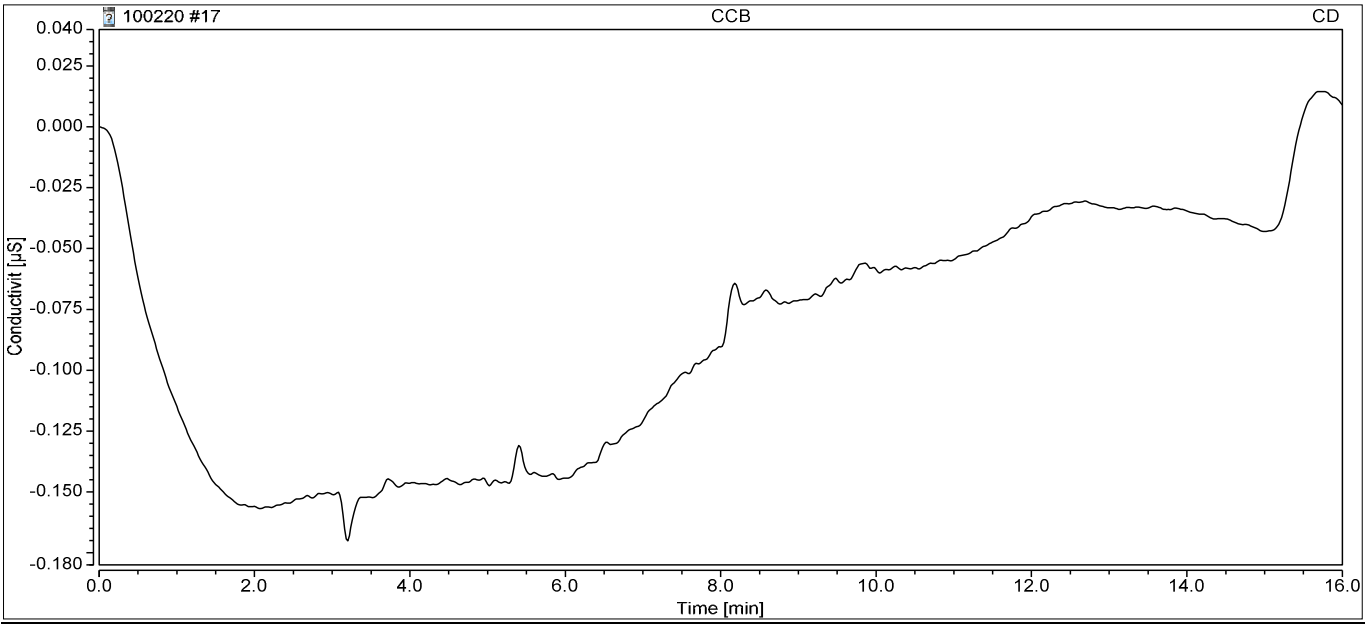
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.471	9.8270	9.8270	1.0000
2	5.40	Chloride	BMB	11.243	49.0690	49.0690	1.0000
3	6.50	Nitrite,N	BMB	4.745	10.0326	10.0326	1.0000
5	8.56	Bromide	M	1.000	9.8397	9.8397	1.0000
6	9.31	Sulfate	M	7.576	47.3139	47.3139	1.0000
7	9.66	Nitrate	M	6.253	10.1364	10.1364	1.0000
8	10.30	Chlorate	MB	1.006	9.7350	9.7350	1.0000
9	14.34	Phosphate	BMB	1.478	7.9901	7.9901	1.0000
Total:			**0.000**	**36.772**		**153.94**	

17 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 11:38**	*Sample Weight:*	**1.0000**

Run Time:



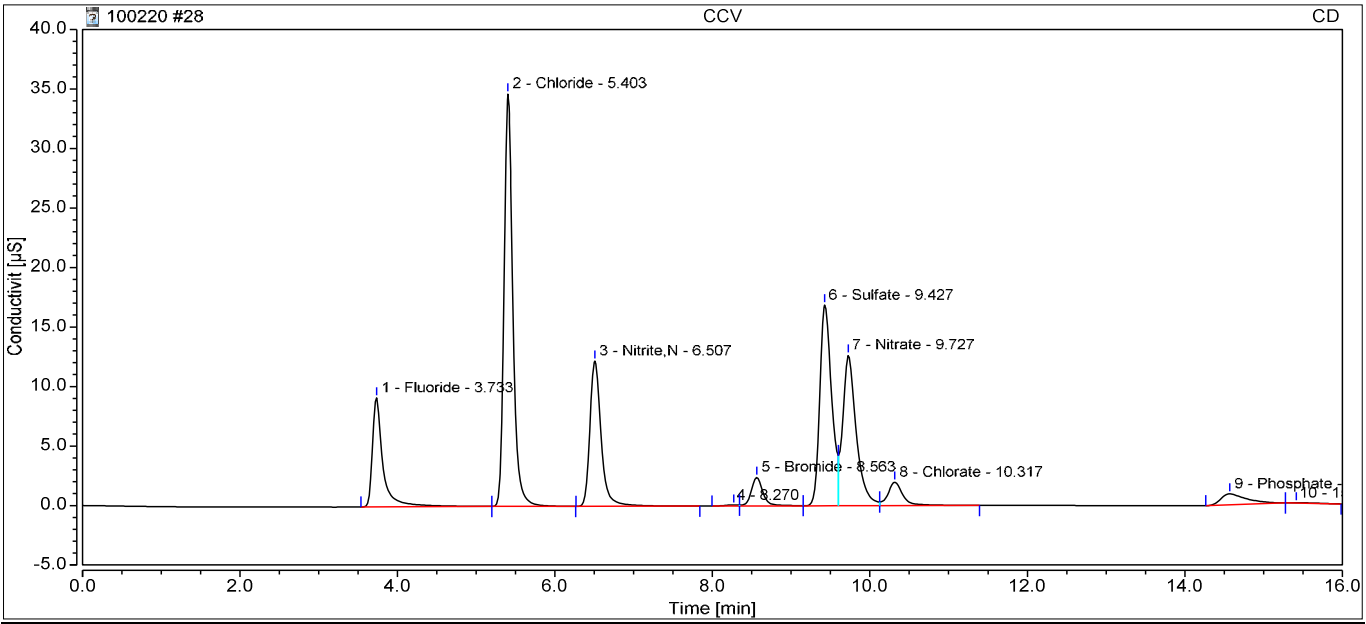
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

28 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 14:57**	*Sample Weight:*	**1.0000**

Run Time:



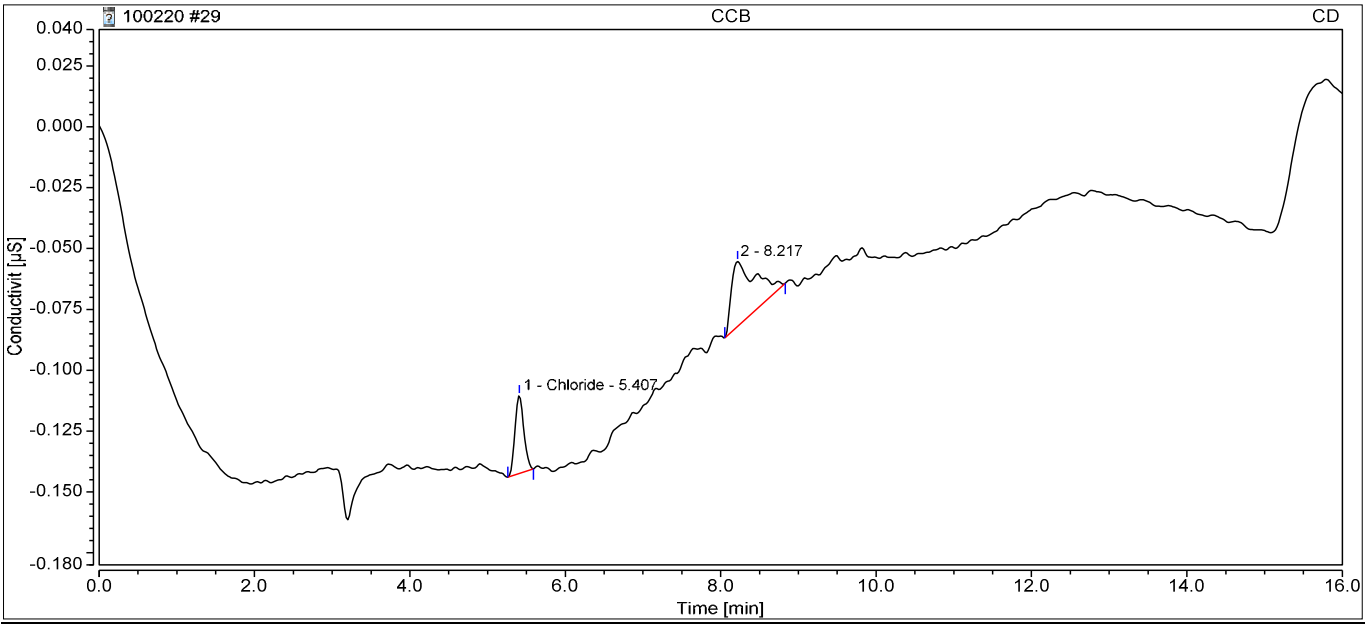
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.423	4.0364	4.0364	1.0000
2	5.40	Chloride	BMB	4.516	19.6765	19.6765	1.0000
3	6.51	Nitrite,N	BMB	2.032	4.2751	4.2751	1.0000
5	8.56	Bromide	M	0.415	4.0295	4.0295	1.0000
6	9.43	Sulfate	M	2.950	18.4332	18.4332	1.0000
7	9.73	Nitrate	M	2.550	4.1201	4.1201	1.0000
8	10.32	Chlorate	MB	0.438	4.1634	4.1634	1.0000
9	14.57	Phosphate	BMB	0.350	2.1837	2.1837	1.0000
Total:			**0.000**	**14.676**		**60.92**	

29 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 15:15**	*Sample Weight:*	**1.0000**

Run Time:



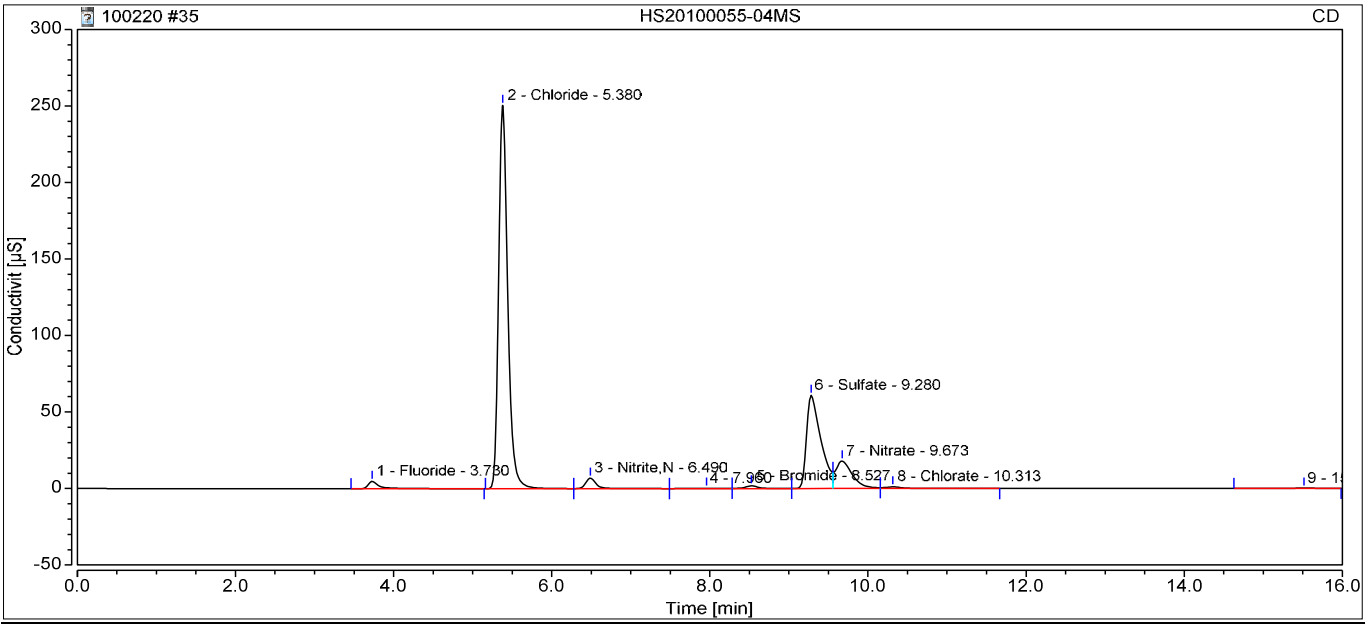
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.41	Chloride	BMB	0.004	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.004**		**0.00**	

35 HS20100055-04MS

Sample Name:	**HS20100055-04MS**	*Injection Volume:*	**5.00**
Vial Number:	**RE2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 17:03**	*Sample Weight:*	**1.0000**

Run Time:



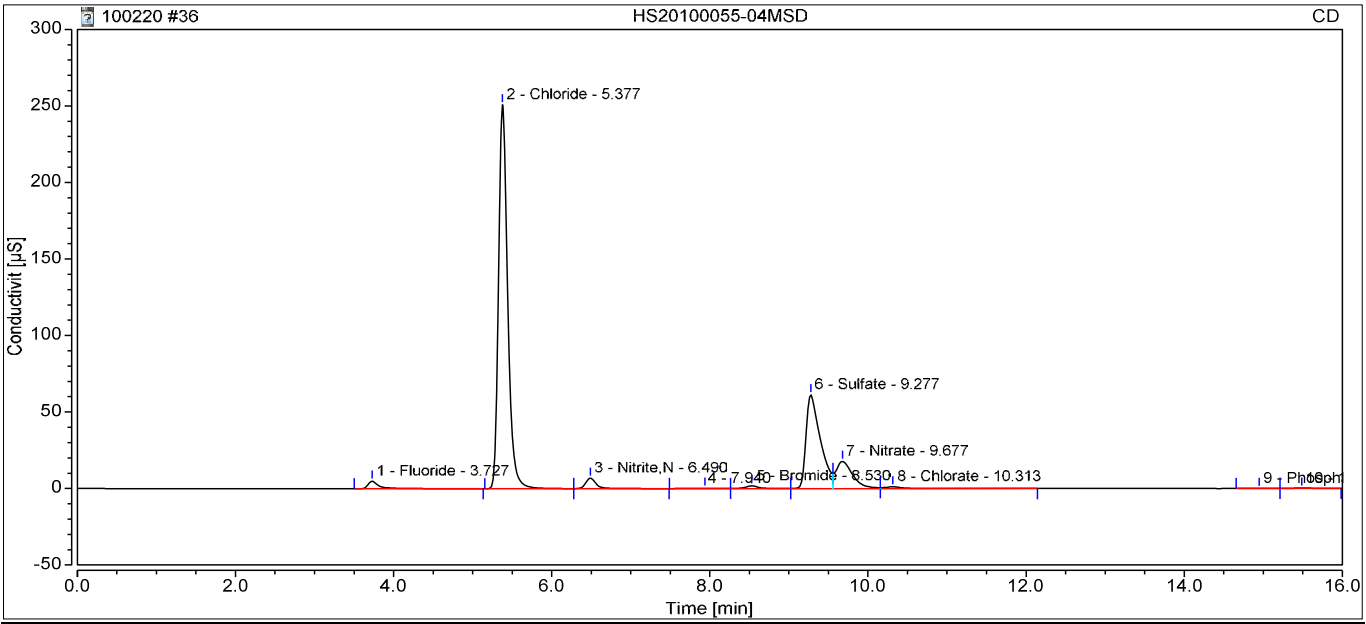
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.799	2.2695	2.2695	1.0000
2	5.38	Chloride	BMB	33.025	144.2488	144.2488	1.0000
3	6.49	Nitrite,N	BMB	1.052	2.1937	2.1937	1.0000
5	8.53	Bromide	M	0.371	3.6025	3.6025	1.0000
6	9.28	Sulfate	M	12.873	80.3883	80.3883	1.0000
7	9.67	Nitrate	M	4.430	7.1754	7.1754	1.0000
8	10.31	Chlorate	MB	0.299	2.8008	2.8008	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**52.850**		**242.68**	

36 HS20100055-04MSD

Sample Name:	**HS20100055-04MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RE3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 17:21**	*Sample Weight:*	**1.0000**

Run Time:



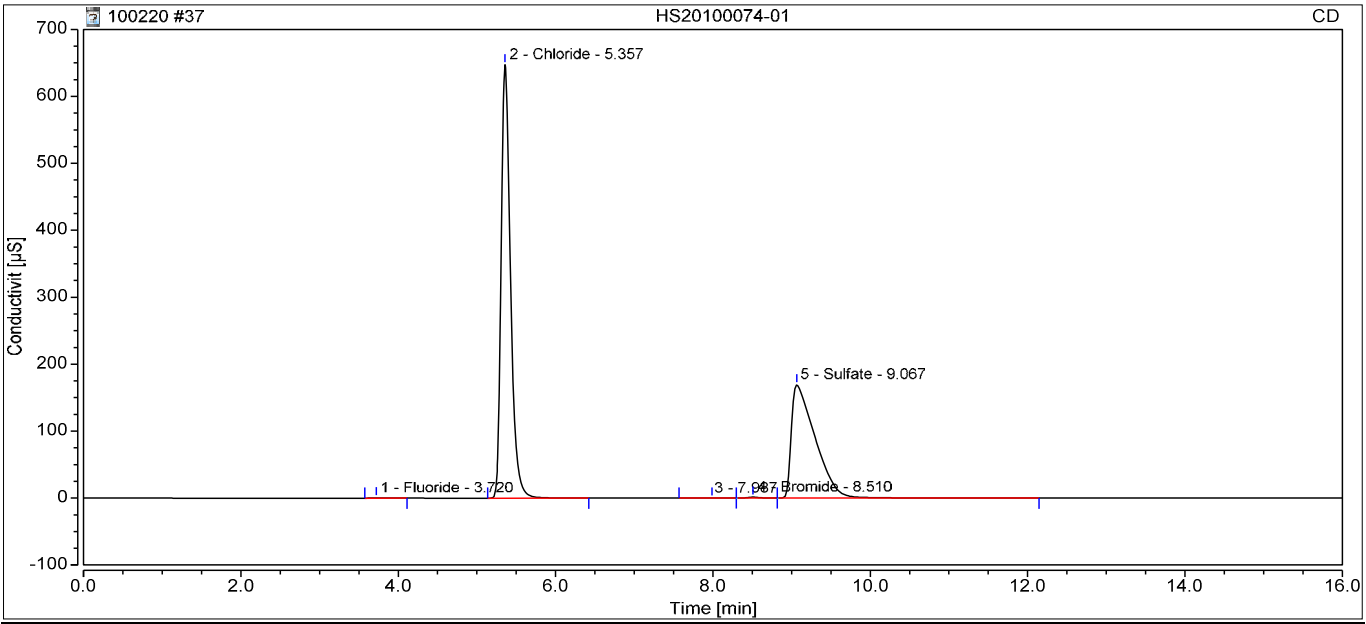
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.815	2.3155	2.3155	1.0000
2	5.38	Chloride	BMB	33.087	144.5170	144.5170	1.0000
3	6.49	Nitrite,N	BMB	1.054	2.1970	2.1970	1.0000
5	8.53	Bromide	M	0.377	3.6616	3.6616	1.0000
6	9.28	Sulfate	M	12.975	81.0232	81.0232	1.0000
7	9.68	Nitrate	M	4.389	7.1074	7.1074	1.0000
8	10.31	Chlorate	MB	0.330	3.1005	3.1005	1.0000
9	14.95	Phosphate	BMB	0.012	0.4434	0.4434	1.0000
Total:			**0.000**	**53.038**		**244.37**	

37 HS20100074-01

Sample Name:	**HS20100074-01**	*Injection Volume:*	**5.00**
Vial Number:	**RE5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 17:39**	*Sample Weight:*	**1.0000**

Run Time:



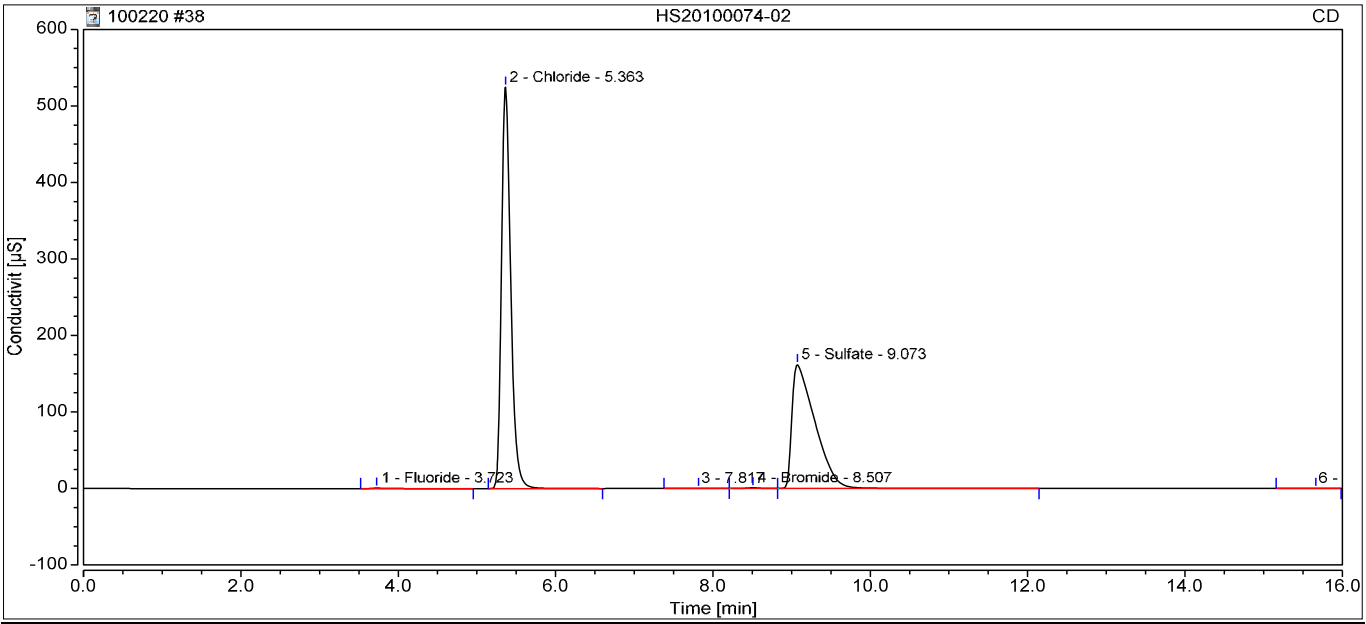
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.050	0.1538	0.1538	1.0000
2	5.36	Chloride	BMB	88.943	388.5858	388.5858	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.51	Bromide	M	0.272	2.6145	2.6145	1.0000
5	9.07	Sulfate	MB	59.157	369.3783	369.3783	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**148.422**		**760.73**	

38 HS20100074-02

Sample Name:	**HS20100074-02**	*Injection Volume:*	**5.00**
Vial Number:	**RE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 17:57**	*Sample Weight:*	**1.0000**

Run Time:



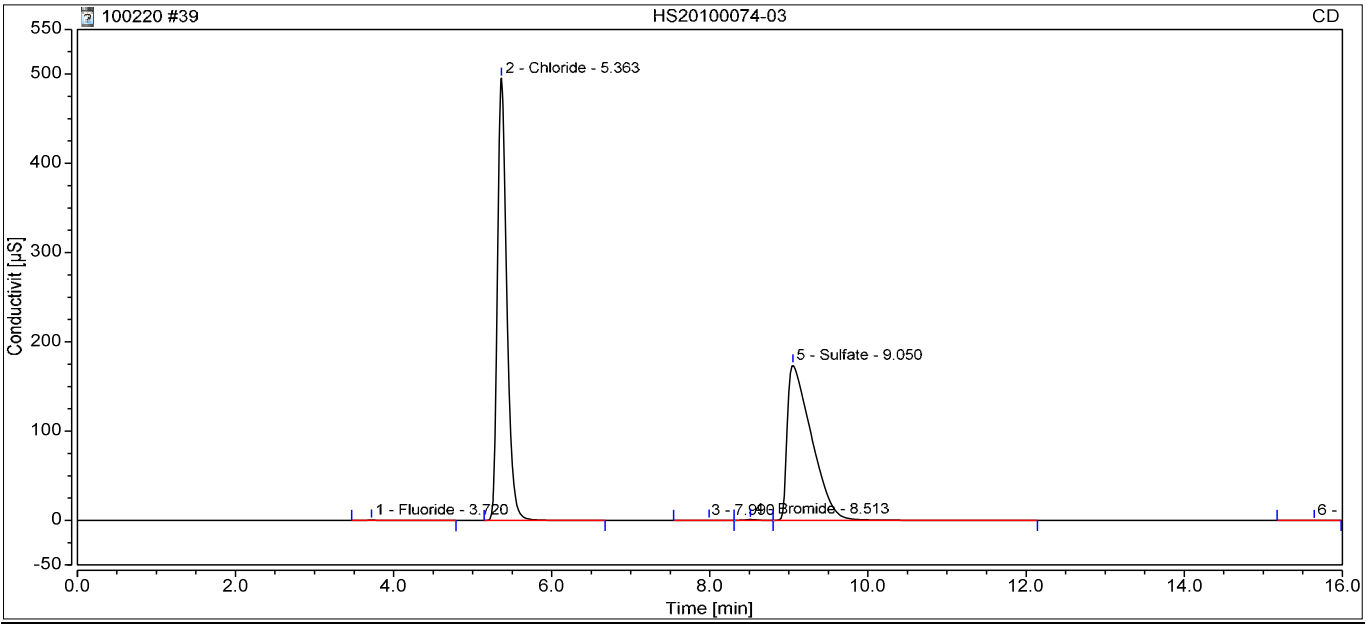
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.131	0.3815	0.3815	1.0000
2	5.36	Chloride	BMB	71.085	310.5536	310.5536	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.51	Bromide	M	0.225	2.1505	2.1505	1.0000
5	9.07	Sulfate	MB	54.961	343.1777	343.1777	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**126.402**		**656.26**	

39 HS20100074-03

Sample Name:	**HS20100074-03**	*Injection Volume:*	**5.00**
Vial Number:	**RE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 18:15**	*Sample Weight:*	**1.0000**

Run Time:



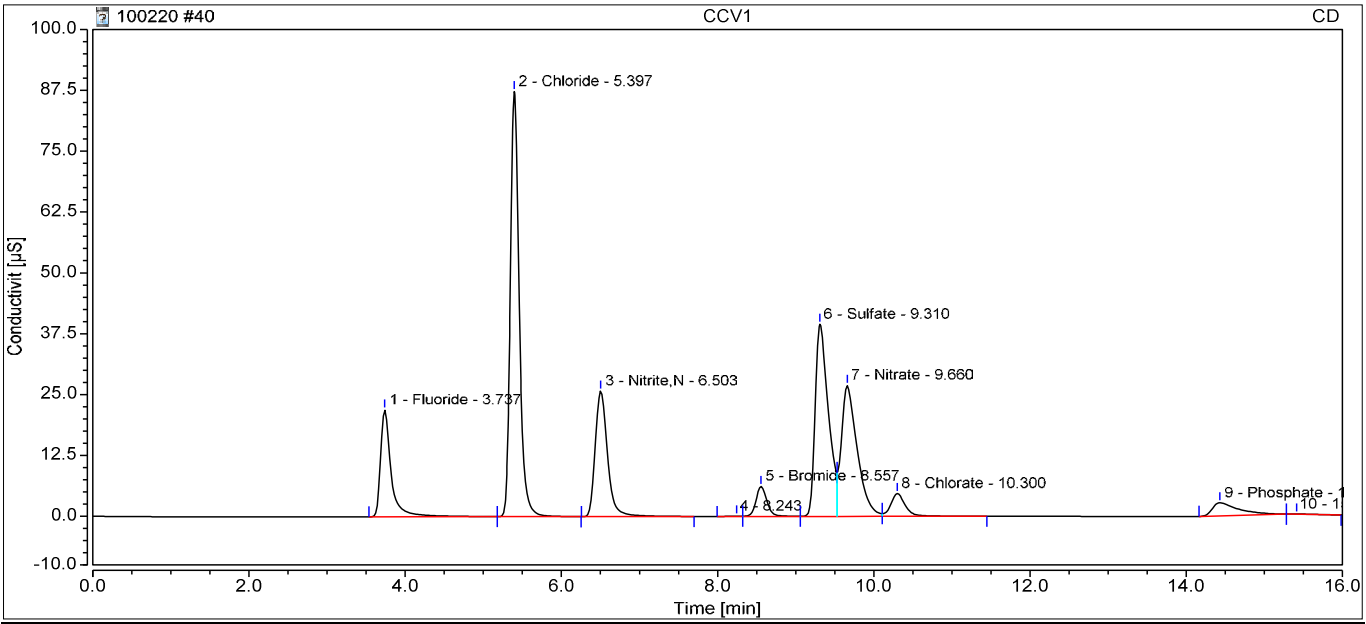
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.098	0.2872	0.2872	1.0000
2	5.36	Chloride	BMB	67.468	294.7505	294.7505	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.51	Bromide	M	0.204	1.9410	1.9410	1.0000
5	9.05	Sulfate	MB	61.572	384.4583	384.4583	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**129.342**		**681.44**	

40 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**BA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 18:33**	*Sample Weight:*	**1.0000**

Run Time:



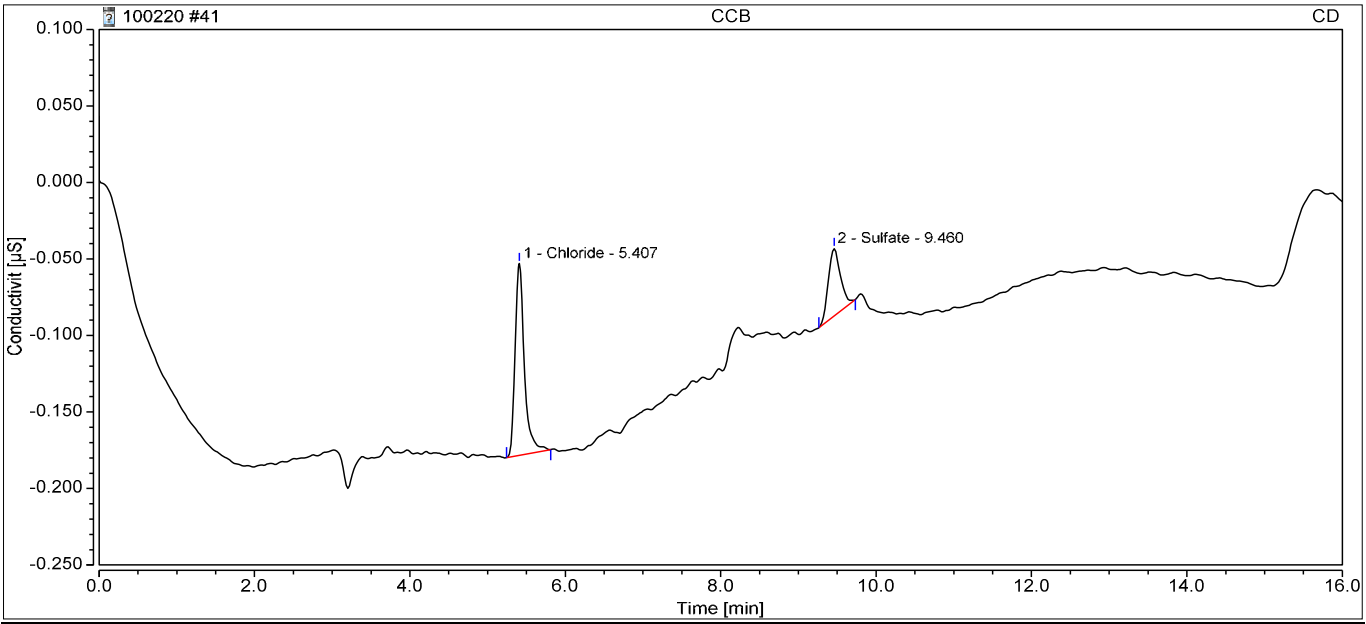
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.464	9.8065	9.8065	1.0000
2	5.40	Chloride	BMB	11.453	49.9865	49.9865	1.0000
3	6.50	Nitrite,N	BMB	4.731	10.0036	10.0036	1.0000
5	8.56	Bromide	M	1.005	9.8904	9.8904	1.0000
6	9.31	Sulfate	M	7.717	48.1969	48.1969	1.0000
7	9.66	Nitrate	M	6.363	10.3147	10.3147	1.0000
8	10.30	Chlorate	MB	1.010	9.7669	9.7669	1.0000
9	14.43	Phosphate	BMB	1.045	5.7592	5.7592	1.0000
Total:			**0.000**	**36.787**		**153.72**	

41 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 18:51**	*Sample Weight:*	**1.0000**

Run Time:

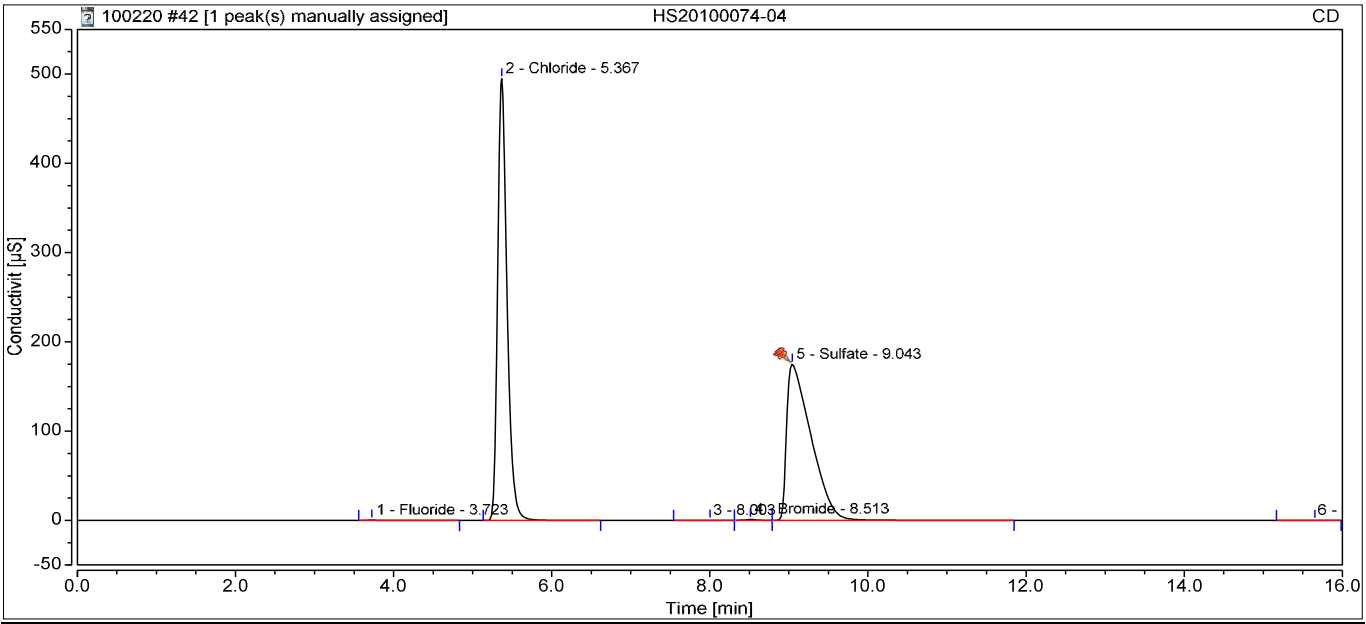


Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.41	Chloride	BMB	0.017	0.0194	0.0194	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
2	9.46	Sulfate	BMB	0.008	0.0617	0.0617	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.025**		**0.08**	

42 HS20100074-04			
Sample Name:	**HS20100074-04**	*Injection Volume:*	**5.00**
Vial Number:	**RE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 19:09**	*Sample Weight:*	**1.0000**

Run Time:



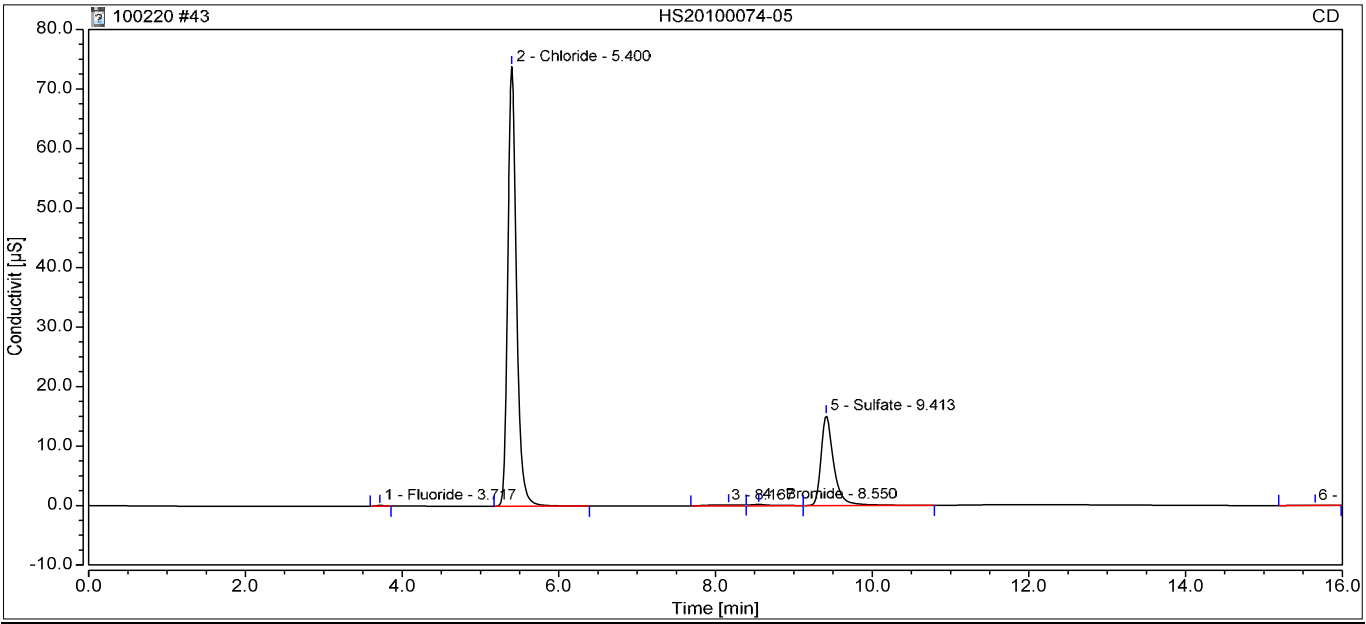
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.096	0.2822	0.2822	1.0000
2	5.37	Chloride	BMB	67.406	294.4760	294.4760	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.51	Bromide	M	0.201	1.9158	1.9158	1.0000
5	9.04	Sulfate	MB^	62.079	387.6233	387.6233	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**129.782**		**684.30**	

43 HS20100074-05

Sample Name:	**HS20100074-05**	*Injection Volume:*	**5.00**
Vial Number:	**GA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 19:28**	*Sample Weight:*	**1.0000**

Run Time:



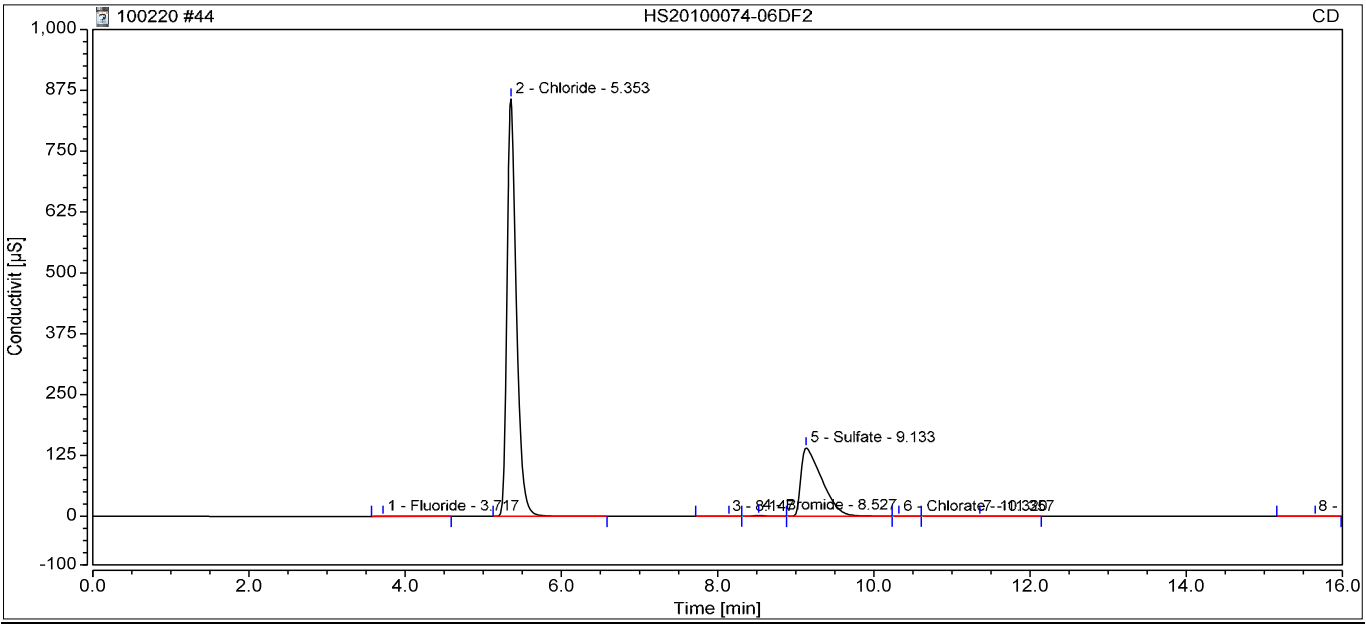
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.014	0.0502	0.0502	1.0000
2	5.40	Chloride	BMB	9.570	41.7598	41.7598	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
4	8.55	Bromide	M	0.083	0.7457	0.7457	1.0000
5	9.41	Sulfate	MB	2.866	17.9078	17.9078	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**12.533**		**60.46**	

44 HS20100074-06DF2

Sample Name:	**HS20100074-06DF2**	*Injection Volume:*	**5.00**
Vial Number:	**GA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**2.0000**
Recording Time:	**10/02/2020 19:46**	*Sample Weight:*	**1.0000**

Run Time:



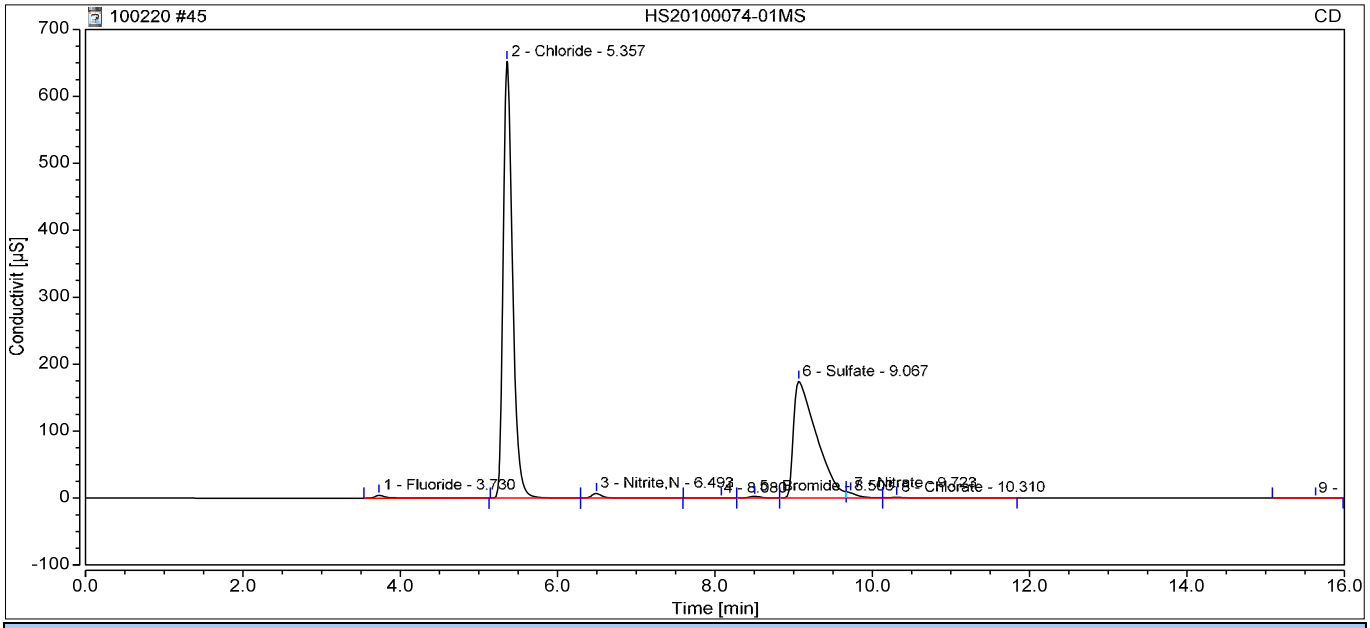
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.045	0.1397	0.2793	2.0000
2	5.35	Chloride	BMB	119.930	523.9836	1047.9672	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
4	8.53	Bromide	M	0.307	2.9589	5.9179	2.0000
5	9.13	Sulfate	M	43.655	272.5841	545.1682	2.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	2.0000
6	10.32	Chlorate	M	0.039	0.2480	0.4960	2.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	2.0000
Total:			**0.000**	**163.976**		**1599.83**	

45 HS20100074-01MS

Sample Name:	**HS20100074-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**GA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 20:04**	*Sample Weight:*	**1.0000**

Run Time:



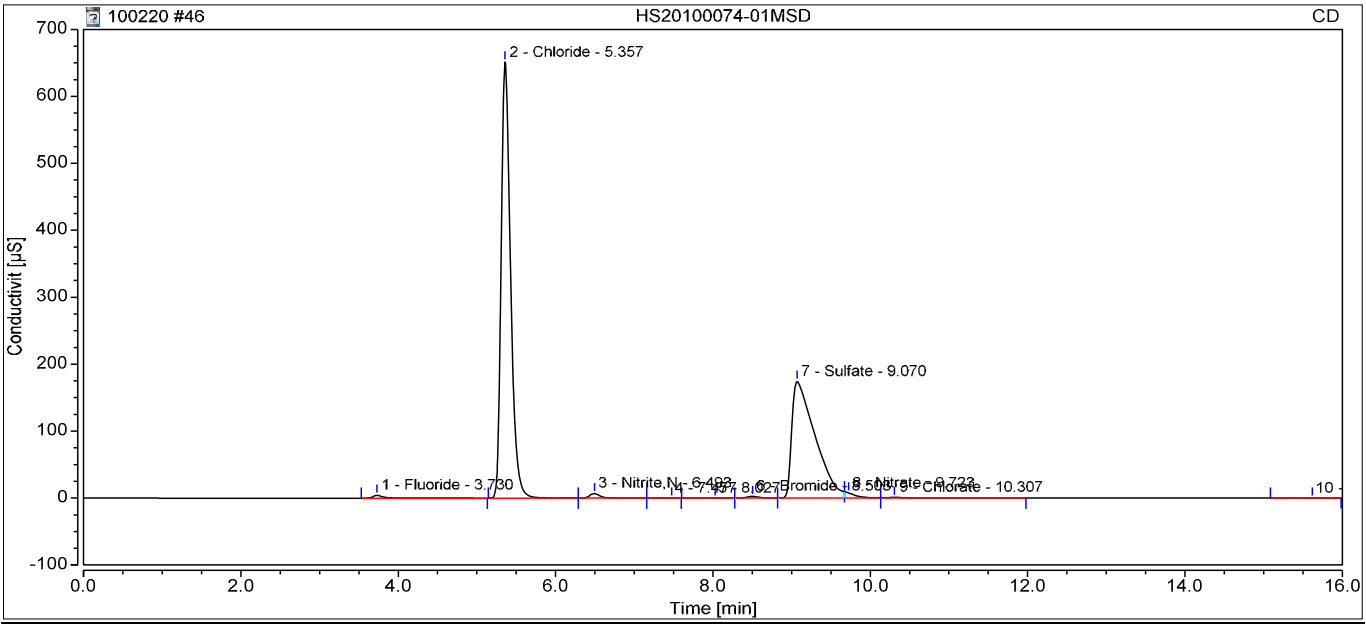
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.734	2.0868	2.0868	1.0000
2	5.36	Chloride	BMB	89.804	392.3475	392.3475	1.0000
3	6.49	Nitrite,N	BMB	1.072	2.2357	2.2357	1.0000
5	8.50	Bromide	M	0.468	4.5615	4.5615	1.0000
6	9.07	Sulfate	M	59.427	371.0644	371.0644	1.0000
7	9.72	Nitrate	M	1.448	2.3291	2.3291	1.0000
8	10.31	Chlorate	MB	0.313	2.9371	2.9371	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**153.266**		**777.56**	

46 HS20100074-01MSD

Sample Name:	**HS20100074-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**GA4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 20:22**	*Sample Weight:*	**1.0000**

Run Time:



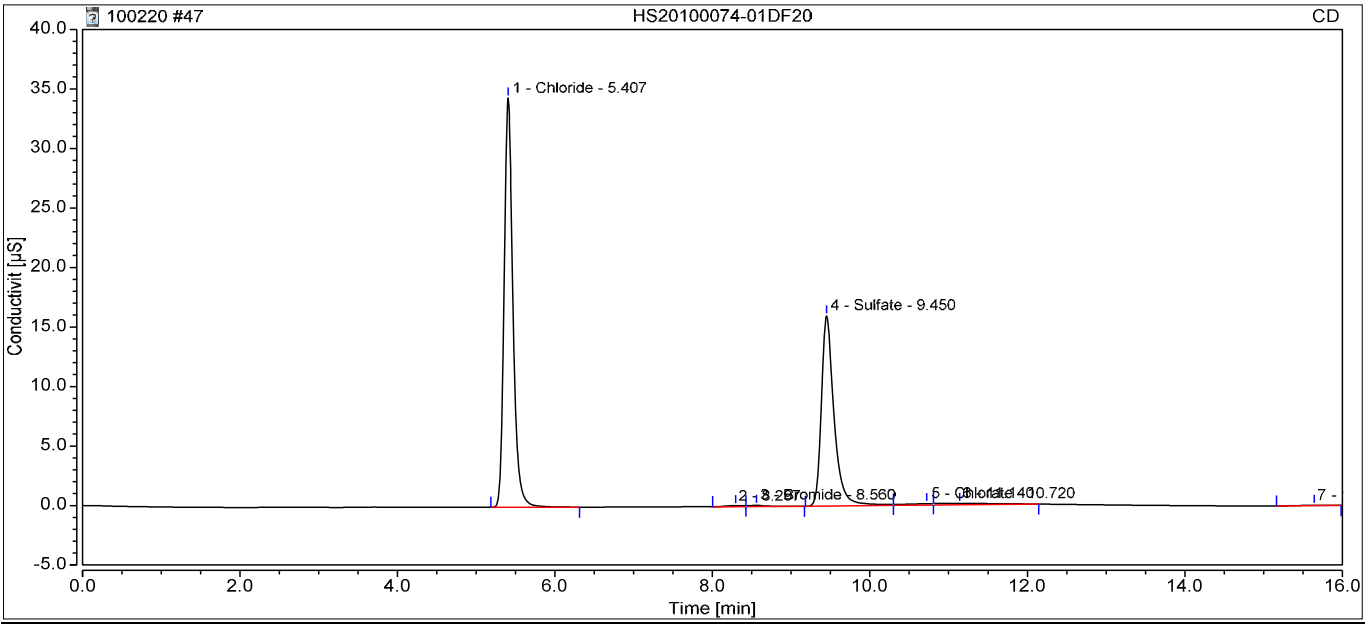
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.732	2.0808	2.0808	1.0000
2	5.36	Chloride	BMB	89.761	392.1596	392.1596	1.0000
3	6.49	Nitrite,N	BMB	1.026	2.1391	2.1391	1.0000
6	8.50	Bromide	M	0.467	4.5470	4.5470	1.0000
7	9.07	Sulfate	M	59.573	371.9791	371.9791	1.0000
8	9.72	Nitrate	M	1.359	2.1849	2.1849	1.0000
9	10.31	Chlorate	MB	0.318	2.9814	2.9814	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**153.236**		**778.07**	

47 HS20100074-01DF20

Sample Name:	**HS20100074-01DF20**	*Injection Volume:*	**5.00**
Vial Number:	**GA5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**10/02/2020 20:40**	*Sample Weight:*	**1.0000**

Run Time:



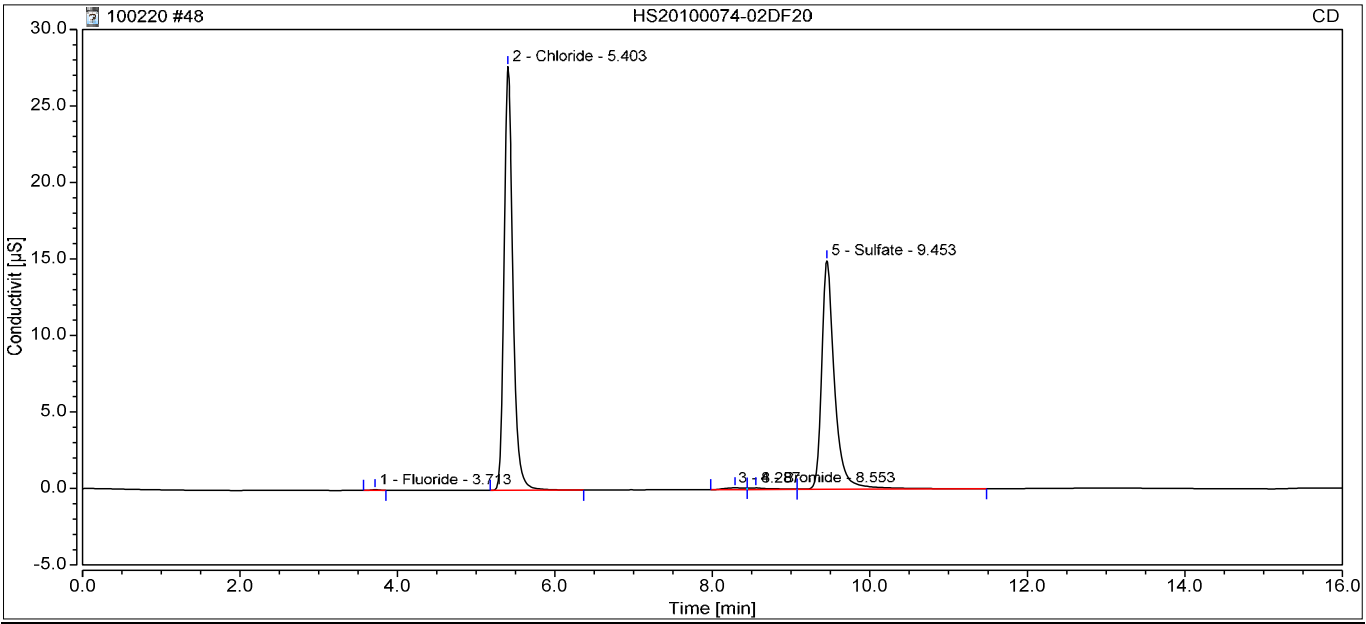
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	20.0000
1	5.41	Chloride	BMB	4.511	19.6568	393.1370	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
3	8.56	Bromide	MB	0.028	0.1935	3.8697	20.0000
4	9.45	Sulfate	BM	3.004	18.7709	375.4175	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
5	10.72	Chlorate	M	0.055	0.4004	8.0088	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**7.598**		**780.43**	

48 HS20100074-02DF20

Sample Name:	**HS20100074-02DF20**	*Injection Volume:*	**5.00**
Vial Number:	**GA6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**10/02/2020 20:58**	*Sample Weight:*	**1.0000**

Run Time:



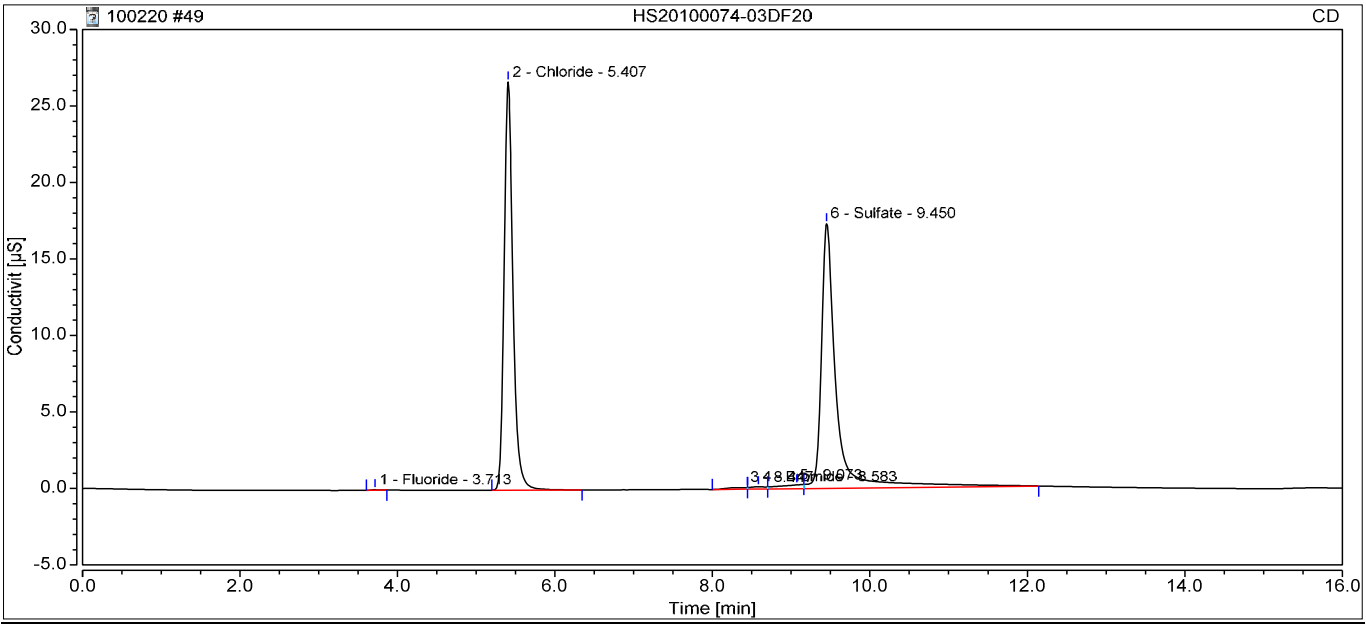
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.004	0.0231	0.4615	20.0000
2	5.40	Chloride	BMB	3.630	15.8072	316.1437	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
4	8.55	Bromide	M	0.036	0.2698	5.3958	20.0000
5	9.45	Sulfate	MB	2.848	17.7970	355.9391	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**6.518**		**677.94**	

49 HS20100074-03DF20

Sample Name:	**HS20100074-03DF20**	*Injection Volume:*	**5.00**
Vial Number:	**GA7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**10/02/2020 21:16**	*Sample Weight:*	**1.0000**

Run Time:



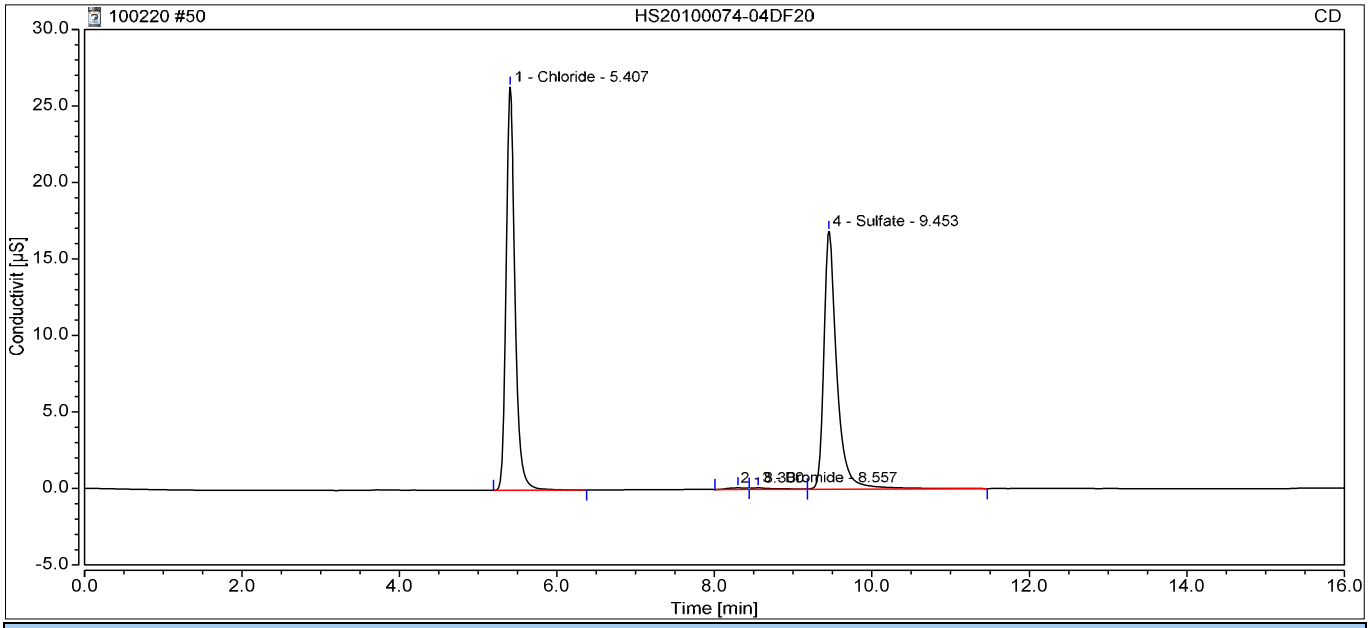
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.003	0.0198	0.3961	20.0000
2	5.41	Chloride	BMB	3.501	15.2404	304.8089	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
4	8.58	Bromide	M	0.034	0.2543	5.0858	20.0000
6	9.45	Sulfate	MB	3.802	23.7528	475.0558	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**7.340**		**785.35**	

50 HS20100074-04DF20

Sample Name:	**HS20100074-04DF20**	*Injection Volume:*	**5.00**
Vial Number:	**GA8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**10/02/2020 21:34**	*Sample Weight:*	**1.0000**

Run Time:



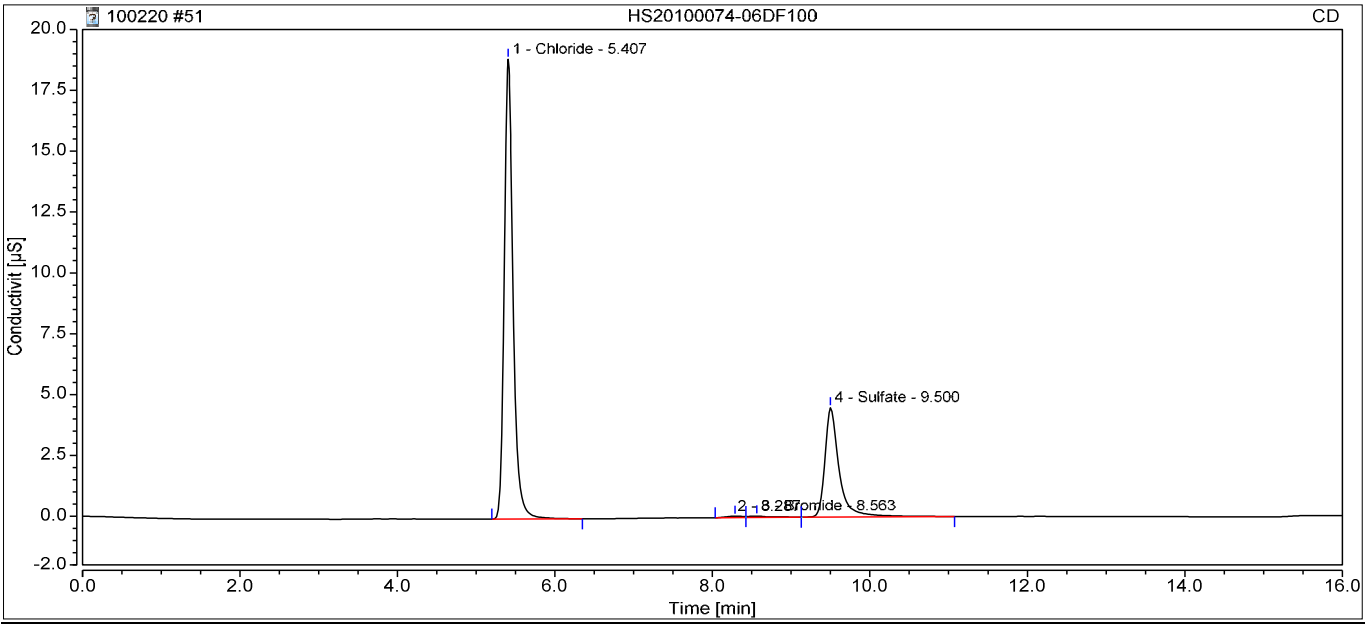
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	20.0000
1	5.41	Chloride	BMB	3.458	15.0556	301.1126	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
3	8.56	Bromide	M	0.036	0.2742	5.4838	20.0000
4	9.45	Sulfate	MB	3.228	20.1643	403.2862	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**6.722**		**709.88**	

51 HS20100074-06DF100

Sample Name:	**HS20100074-06DF100**	*Injection Volume:*	**5.00**
Vial Number:	**GB1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**100.0000**
Recording Time:	**10/02/2020 21:52**	*Sample Weight:*	**1.0000**

Run Time:



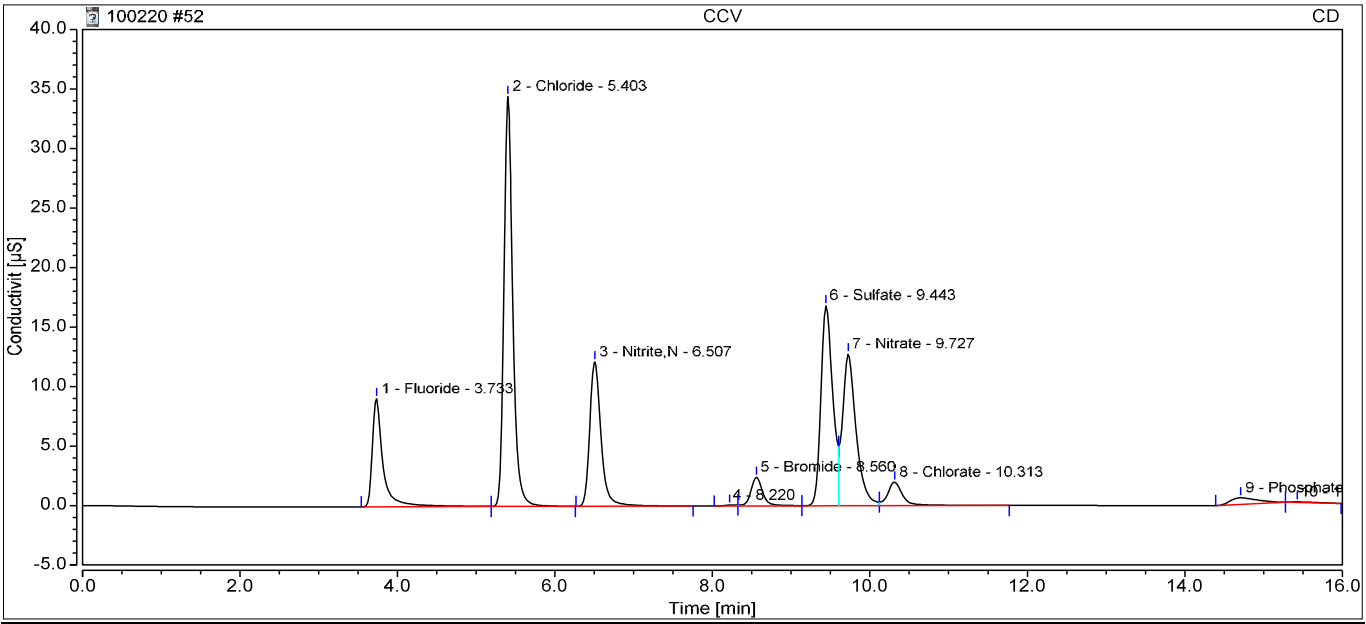
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	100.0000
1	5.41	Chloride	BMB	2.482	10.7899	1078.9894	100.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	100.0000
3	8.56	Bromide	M	0.021	0.1261	12.6096	100.0000
4	9.50	Sulfate	MB	0.951	5.9479	594.7905	100.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	100.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	100.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	100.0000
Total:			**0.000**	**3.454**		**1686.39**	

52 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**BA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 22:10**	*Sample Weight:*	**1.0000**

Run Time:



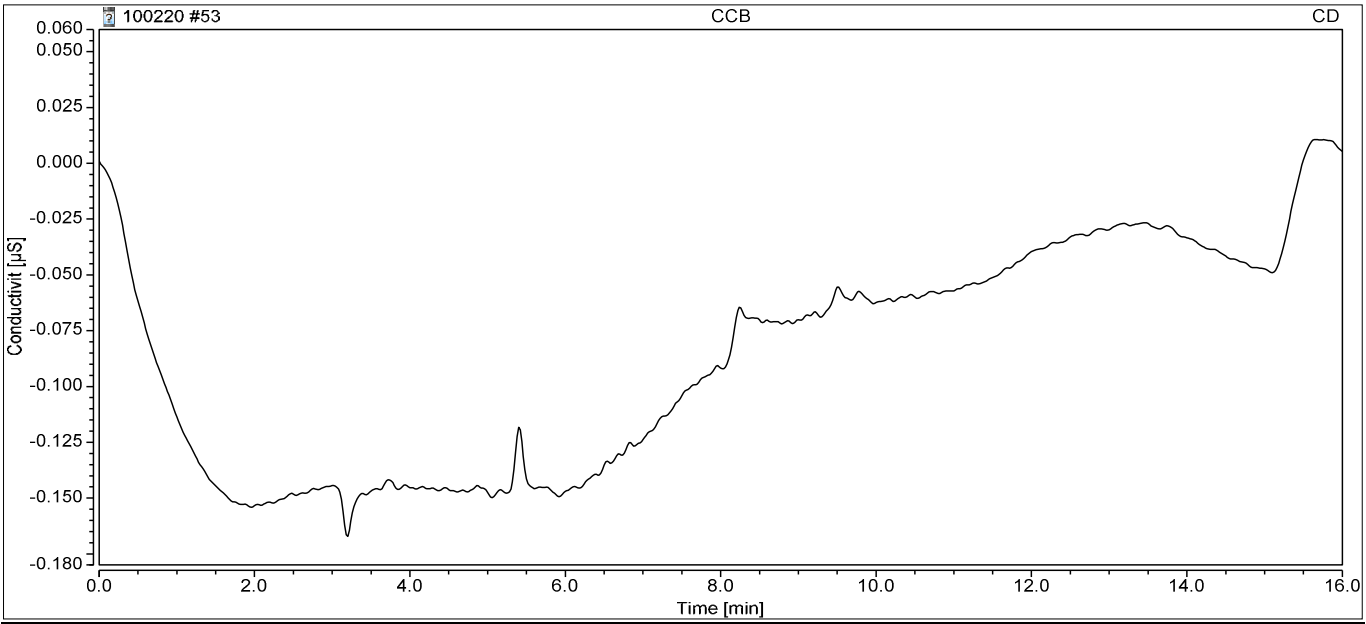
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	1.429	4.0512	4.0512	1.0000
2	5.40	Chloride	BMB	4.515	19.6704	19.6704	1.0000
3	6.51	Nitrite,N	BMB	2.032	4.2737	4.2737	1.0000
5	8.56	Bromide	M	0.420	4.0832	4.0832	1.0000
6	9.44	Sulfate	M	2.938	18.3594	18.3594	1.0000
7	9.73	Nitrate	M	2.582	4.1719	4.1719	1.0000
8	10.31	Chlorate	MB	0.444	4.2190	4.2190	1.0000
9	14.71	Phosphate	BMB	0.217	1.4959	1.4959	1.0000
Total:			**0.000**	**14.576**		**60.32**	

53 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**BA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**10/02/2020 22:28**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chloride	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.000**		**0.00**	

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WorkOrder: HS20100342

LHAAP50 October 2020

Aptim Environmental & Infrastucture, Inc.

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

5-Nov-2020

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HS20100342 LHAAP50 October 2020 Final REV01

ALS WO# HS20100342

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November 05, 2020

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

Work Order: **HS20100342**

Laboratory Results for: **LHAAP50 October 2020**

Dear Susan Huang,

ALS Environmental received 9 sample(s) on Oct 06, 2020 for the analysis presented in the following report.

This is a REVISED REPORT. Please see the Case Narrative for discussion concerning this revision.

Regards,

Generated By: RJ.MODASHIA
RJ Modashia
Project Manager

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
Work Order: HS20100342

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20100342-01	50 ww09-201005	Groundwater		05-Oct-2020 08:00	06-Oct-2020 14:30	☐
HS20100342-02	50 ww08-201005	Groundwater		05-Oct-2020 08:45	06-Oct-2020 14:30	☐
HS20100342-03	50 ww22-201005	Groundwater		05-Oct-2020 09:35	06-Oct-2020 14:30	☐
HS20100342-04	50 ww23-201005	Groundwater		05-Oct-2020 10:20	06-Oct-2020 14:30	☐
HS20100342-05	50 ww15-201005	Groundwater		05-Oct-2020 11:05	06-Oct-2020 14:30	☐
HS20100342-06	50 ww16-201005	Groundwater		05-Oct-2020 11:50	06-Oct-2020 14:30	☐
HS20100342-07	50 ww18-201005	Groundwater		05-Oct-2020 12:45	06-Oct-2020 14:30	☐
HS20100342-08	50 ww18-201005-FD	Groundwater		05-Oct-2020 12:45	06-Oct-2020 14:30	☐
HS20100342-09	Trip Blank-201005	Water		05-Oct-2020 00:00	06-Oct-2020 14:30	☐

Revision:1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP50 October 2020
Work Order: HS20100342

Work Order Comments

- REV01: Revised to update the sample ID for HS20100342-08 to 50WW18-201005-FD
- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

Work Order Comments

- Analysis of Perchlorate was performed by ALS Houston TX, High Resolution. Laboratory. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R370245

Sample ID: HS20100352-03MS

- MS and MSD were performed on unrelated sample

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
Sample ID: 50 ww09-201005
Collection Date: 05-Oct-2020 08:00

ANALYTICAL REPORT
WorkOrder:HS20100342
Lab ID:HS20100342-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:46
cis-1,2-Dichloroethene	**2.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 13:46
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Oct-2020 13:46
Trichloroethene	**21**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 13:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:46
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 13:46*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 13:46*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 13:46*
Surr: Toluene-d8	*98.5*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 13:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww08-201005 Lab ID:HS20100342-02
Collection Date: 05-Oct-2020 08:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 17:22
1,2-Dichloroethane	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 17:22
cis-1,2-Dichloroethene	**57**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 17:22
Tetrachloroethene	**1.4**		**0.30**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 17:22
Trichloroethene	**500**		**2.0**	**5.0**	**10**	**UG/L**	10	09-Oct-2020 21:23
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 17:22
Surr: 1,2-Dichloroethane-d4	*93.5*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 17:22*
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*10*	*09-Oct-2020 21:23*
Surr: 4-Bromofluorobenzene	*109*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 17:22*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*10*	*09-Oct-2020 21:23*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 17:22*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*10*	*09-Oct-2020 21:23*
Surr: Toluene-d8	*98.9*			**0**	*89-112*	*%REC*	*10*	*09-Oct-2020 21:23*
Surr: Toluene-d8	*97.3*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 17:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww22-201005 Lab ID:HS20100342-03
Collection Date: 05-Oct-2020 09:35 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:10
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	09-Oct-2020 14:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:10
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 14:10*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 14:10*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 14:10*
Surr: Toluene-d8	*97.7*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 14:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww23-201005 Lab ID:HS20100342-04
Collection Date: 05-Oct-2020 10:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:34
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:34
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:34
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Oct-2020 14:34
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:34
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:34
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 14:34*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 14:34*
Surr: Dibromofluoromethane	*94.9*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 14:34*
Surr: Toluene-d8	*99.2*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 14:34*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww15-201005 Lab ID:HS20100342-05
Collection Date: 05-Oct-2020 11:05 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:58
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 14:58
cis-1,2-Dichloroethene	**5.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 14:58
Tetrachloroethene	**1.8**		**0.30**	**1.0**	**1.0**	**UG/L**	1	09-Oct-2020 14:58
Trichloroethene	**8.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 14:58
Vinyl chloride	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 14:58
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 14:58*
Surr: 4-Bromofluorobenzene	*106*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 14:58*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 14:58*
Surr: Toluene-d8	*98.3*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 14:58*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww16-201005 Lab ID:HS20100342-06
Collection Date: 05-Oct-2020 11:50 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:22
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Oct-2020 15:22
Trichloroethene	**0.62**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	09-Oct-2020 15:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:22
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 15:22*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 15:22*
Surr: Dibromofluoromethane	*95.9*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 15:22*
Surr: Toluene-d8	*99.3*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 15:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
Sample ID: 50 ww18-201005
Collection Date: 05-Oct-2020 12:45

ANALYTICAL REPORT
WorkOrder:HS20100342
Lab ID:HS20100342-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:46
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:46
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:46
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	09-Oct-2020 15:46
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:46
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 15:46
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 15:46*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 15:46*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 15:46*
Surr: Toluene-d8	*98.9*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 15:46*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: 50 ww18-201005-FD Lab ID:HS20100342-08
Collection Date: 05-Oct-2020 12:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 16:10
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 16:10
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 16:10
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Oct-2020 16:10
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 16:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 16:10
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 16:10*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 16:10*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 16:10*
Surr: Toluene-d8	*98.2*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 16:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	20-Oct-2020 16:12

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP50 October 2020 WorkOrder:HS20100342
Sample ID: Trip Blank-201005 Lab ID:HS20100342-09
Collection Date: 05-Oct-2020 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:22
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	09-Oct-2020 13:22
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	09-Oct-2020 13:22
Surr: 1,2-Dichloroethane-d4	*93.1*			**0**	*81-118*	*%REC*	*1*	*09-Oct-2020 13:22*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*09-Oct-2020 13:22*
Surr: Dibromofluoromethane	*95.2*			**0**	*80-119*	*%REC*	*1*	*09-Oct-2020 13:22*
Surr: Toluene-d8	*98.1*			**0**	*89-112*	*%REC*	*1*	*09-Oct-2020 13:22*

Note: See Qualifiers Page for a list of qualifiers and their explanation. **Revision:** 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
WorkOrder: HS20100342

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R370245 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20100342-09	Trip Blank-201005	05 Oct 2020 00:00			09 Oct 2020 13:22	1
Batch ID: R370245 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS20100342-01	50 ww09-201005	05 Oct 2020 08:00			09 Oct 2020 13:46	1
HS20100342-02	50 ww08-201005	05 Oct 2020 08:45			09 Oct 2020 21:23	10
HS20100342-02	50 ww08-201005	05 Oct 2020 08:45			09 Oct 2020 17:22	1
HS20100342-03	50 ww22-201005	05 Oct 2020 09:35			09 Oct 2020 14:10	1
HS20100342-04	50 ww23-201005	05 Oct 2020 10:20			09 Oct 2020 14:34	1
HS20100342-05	50 ww15-201005	05 Oct 2020 11:05			09 Oct 2020 14:58	1
HS20100342-06	50 ww16-201005	05 Oct 2020 11:50			09 Oct 2020 15:22	1
HS20100342-07	50 ww18-201005	05 Oct 2020 12:45			09 Oct 2020 15:46	1
HS20100342-08	50 ww18-201005-FD	05 Oct 2020 12:45			09 Oct 2020 16:10	1
Batch ID: R370903 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS20100342-01	50 ww09-201005	05 Oct 2020 08:00			20 Oct 2020 16:12	1
HS20100342-02	50 ww08-201005	05 Oct 2020 08:45			20 Oct 2020 16:12	1
HS20100342-03	50 ww22-201005	05 Oct 2020 09:35			20 Oct 2020 16:12	1
HS20100342-04	50 ww23-201005	05 Oct 2020 10:20			20 Oct 2020 16:12	1
HS20100342-05	50 ww15-201005	05 Oct 2020 11:05			20 Oct 2020 16:12	1
HS20100342-06	50 ww16-201005	05 Oct 2020 11:50			20 Oct 2020 16:12	1
HS20100342-07	50 ww18-201005	05 Oct 2020 12:45			20 Oct 2020 16:12	1
HS20100342-08	50 ww18-201005-FD	05 Oct 2020 12:45			20 Oct 2020 16:12	1

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
WorkOrder: HS20100342

QC BATCH REPORT

Batch ID: R370245 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200109** Units: **UG/L** Analysis Date: **09-Oct-2020 12:58**
Client ID: Run ID: **VOA6_370245** SeqNo: **5775445** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.89*	*1.0*	*50*	*0*	*91.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.54*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.29*	*1.0*	*50*	*0*	*94.6*	*80 - 119*				
Surr: Toluene-d8	*49.61*	*1.0*	*50*	*0*	*99.2*	*89 - 112*				

LCS Sample ID: **VLCSW-200109** Units: **UG/L** Analysis Date: **09-Oct-2020 12:10**
Client ID: Run ID: **VOA6_370245** SeqNo: **5775444** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.56	1.0	20	0	97.8	71 - 131				
1,2-Dichloroethane	18.74	1.0	20	0	93.7	73 - 128				
cis-1,2-Dichloroethene	19.24	1.0	20	0	96.2	78 - 123				
Tetrachloroethene	18.86	1.0	20	0	94.3	74 - 129				
Trichloroethene	19.14	1.0	20	0	95.7	79 - 123				
Vinyl chloride	18.51	1.0	20	0	92.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.53*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.59*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*48.27*	*1.0*	*50*	*0*	*96.5*	*80 - 119*				
Surr: Toluene-d8	*48.64*	*1.0*	*50*	*0*	*97.3*	*89 - 112*				

Revision: 1

RIGHT SOLUTIONS | RIGHT PARTNER

ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
WorkOrder: HS20100342

QC BATCH REPORT

Batch ID: R370245 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20100352-03MS** Units: **UG/L** Analysis Date: **09-Oct-2020 17:46**
Client ID: Run ID: **VOA6_370245** SeqNo: **5775457** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	26.09	1.0	20	0	130	71 - 131				
1,2-Dichloroethane	23.39	1.0	20	0	117	73 - 128				
cis-1,2-Dichloroethene	24.27	1.0	20	0	121	78 - 123				
Tetrachloroethene	24.94	1.0	20	0	125	74 - 129				
Trichloroethene	32.59	1.0	20	7.341	126	79 - 123				S
Vinyl chloride	23.24	1.0	20	0	116	58 - 137				
Surr: 1,2-Dichloroethane-d4	*46.17*	*1.0*	*50*	*0*	*92.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.57*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.6*	*1.0*	*50*	*0*	*95.2*	*80 - 119*				
Surr: Toluene-d8	*48.46*	*1.0*	*50*	*0*	*96.9*	*89 - 112*				

MSD Sample ID: **HS20100352-03MSD** Units: **UG/L** Analysis Date: **09-Oct-2020 18:10**
Client ID: Run ID: **VOA6_370245** SeqNo: **5775458** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	25.39	1.0	20	0	127	71 - 131	26.09	2.73	20	
1,2-Dichloroethane	23	1.0	20	0	115	73 - 128	23.39	1.66	20	
cis-1,2-Dichloroethene	23.77	1.0	20	0	119	78 - 123	24.27	2.08	20	
Tetrachloroethene	24.24	1.0	20	0	121	74 - 129	24.94	2.82	20	
Trichloroethene	31.35	1.0	20	7.341	120	79 - 123	32.59	3.87	20	
Vinyl chloride	22.26	1.0	20	0	111	58 - 137	23.24	4.33	20	
Surr: 1,2-Dichloroethane-d4	*46.18*	*1.0*	*50*	*0*	*92.4*	*81 - 118*	*46.17*	*0.0107*	*20*	
Surr: 4-Bromofluorobenzene	*52.64*	*1.0*	*50*	*0*	*105*	*85 - 114*	*52.57*	*0.137*	*20*	
Surr: Dibromofluoromethane	*47.54*	*1.0*	*50*	*0*	*95.1*	*80 - 119*	*47.6*	*0.107*	*20*	
Surr: Toluene-d8	*48*	*1.0*	*50*	*0*	*96.0*	*89 - 112*	*48.46*	*0.956*	*20*	

The following samples were analyzed in this batch:

HS20100342-01	HS20100342-02	HS20100342-03	HS20100342-04
HS20100342-05	HS20100342-06	HS20100342-07	HS20100342-08
HS20100342-09			

Revision: 1

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ALS Houston, US Date: 05-Nov-20

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 October 2020
WorkOrder: **HS20100342**

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

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CERTIFICATIONS,ACCREDITATIONS & LICENSES

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

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ALS Houston, US Date: 05-Nov-20

Sample Receipt Checklist

Work Order ID: HS20100342 **Date/Time Received:** 06-Oct-2020 14:30

Client Name: CBI-Houston **Received by:** Jared R. Makan

Completed By:	/S/ Nilesh D. Ranchod	08-Oct-2020 12:00	**Reviewed by:**	/S/ RJ Modashia	08-Oct-2020 19:56
	eSignature	Date/Time		eSignature	Date/Time

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.5C UC/C	IR # 31
Cooler(s)/Kit(s):	45424	
Date/Time sample(s) sent to storage:	10/07/2020 18:00	

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

Login Notes: Sample Label times differ 50ww16-201005 COC= 11:50 Labels Vials 2of 3 and 3of 3 11:05

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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CHAIN OF CUSTODY

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

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

Project No. 501032

Job: **LHAAP50 October 2020**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
SDww09-201005	WG	10/5/20/0800		4	X					X		
SDww08-201005	WG	10/5/20/0845		4	X					X		
SDww22-201005	WG	10/5/20/0935		4	X					X		
SDww23-201005	WG	10/5/20/1020		4	X					X		
SDww15-201005	WG	10/5/20/1105		4	X					X		
SDww16-201005	WG	10/5/20/1150		4	X					X		
SDww18-201005	WG	10/5/20/1245		4	X					X		
SDww18-20105-FD	WG	105/20/1245		4	X					X		

HS20100342
Aptim Environmental & Infrastucture, Inc.
LHAAP50 October 2020

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

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	10/6/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Insean	10/7/20	09:20							

Remarks: Cooler 45424 Temp 1.5°C IR31 4PO

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

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CHAIN OF CUSTODY

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

Page 1 of 1

Project: APTIM ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS LONGHORN	Project No. 501032
Job: **LHAAP50 October 2020**	
Prepared By: Scott Beesinger	P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
TRIPBLANK-201005	GW	10/5/20		2	X							

HS20100342

Aptim Environmental & Infrastucture, Inc.

LHAAP50 October 2020

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

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	10/6/20	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Mussett	10/7/20	09:20							

Remarks:

(Word) S:\1-ces\Forms\Chain of Custody - BiWeekly

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

45424

CUSTODY SEAL

Date: 10/6/20 Time: 1430
Name: Scott Beesinger
Comp any: BAATZ

Seal Broken By:
Date: 10/07/20

45424 OCT 0 7 2020



Must Deliver Next Business Day
Time and Tempature Sensitive!

45424

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

SHIP DATE: 21SEP20
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-50-BO 73885-RJ

RMA:

FedEx Express

FedEx
TRK# 0221 1891 8880 4944

WED - 07 OCT 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH

#475872 10/06 56BJ2/A27E/B766

Part # 159469-434 RITZ EXP 04/21
Part # 159297-435 RRDB EXP 07/21

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November 5, 2020 Service Request No:E2000964

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

Laboratory Results for: HS20100342

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory October 09, 2020
For your reference, these analyses have been assigned our service request number **E2000964.**

Revision I - This report was revised to correct sample ID E2000964-008 to reflex the chain of custody (50WW18-201005-FD).

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

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

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2000964
Project:	HS20100342	**Date Received:**	10/09/20
Sample Matrix:	W		

CASE NARRATIVE

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

Sample Receipt

Eight samples were received for analysis at ALS Environmental in Houston on 10/09/20.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2000497: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The MS/MSD was performed on an unrelated sample. The LCS and DLCS recoveries are within QC limits.

Detection Limits

Lowest practical dilution performed on samples E2000964-001/003/004/005/007/008 due to sample matrix.

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

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

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

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which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

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Client: ALS Environmental - US **Service Request:**E2000964
Project: HS20100342

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000964-001	50WW09-201005	10/5/2020	0800
E2000964-002	50WW08-201005	10/5/2020	0845
E2000964-003	50WW22-201005	10/5/2020	0935
E2000964-004	50WW23-201005	10/5/2020	1020
E2000964-005	50WW15-201005	10/5/2020	1105
E2000964-006	50WW16-201005	10/5/2020	1150
E2000964-007	50WW18-201005	10/5/2020	1150
E2000964-008	50WW18-201005-FD	10/5/2020	1245

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Service Request Summary

Folder #: **E2000964**
Client Name: ALS Environmental - US
Project Name: HS20100342
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 10/09/20
Internal Due Date: 10/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20100342
EDD: No EDD Specified

8 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 2D
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000964-001	50WW09-201005	Ground Water	10/05/20 0800	**IV**
E2000964-002	50WW08-201005	Ground Water	10/05/20 0845	**IV**
E2000964-003	50WW22-201005	Ground Water	10/05/20 0935	**IV**
E2000964-004	50WW23-201005	Ground Water	10/05/20 1020	**IV**
E2000964-005	50WW15-201005	Ground Water	10/05/20 1105	**IV**
E2000964-006	50WW16-201005	Ground Water	10/05/20 1150	**IV**
E2000964-007	50WW18-201005	Ground Water	10/05/20 1150	**IV**
E2000964-008	50WW18-201005-FD	Ground Water	10/05/20 1245	**IV**

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Service Request Summary

Folder #: **E2000964**
Client Name: ALS Environmental - US
Project Name: HS20100342
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
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Logged By: CGRANDITS
Date Received: 10/09/20
Internal Due Date: 10/20/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS20100342
EDD: No EDD Specified

8 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 2D
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	8	Level II due 10/20,level IV 10/27

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Data Qualifiers

Lab Standard

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

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Data Qualifiers

Lab Standard

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

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Acronyms

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

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10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arizona Department of Health Services	AZ0793-2020	5/27/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
California Department of Health Services	2919-2020	4/30/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-2020	6/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2020	6/30/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
Maryland Department of the Environment	343-2020	6/30/2021
Michigan Depratment of Environmental Quality	9971-2020	4/30/2021
Minnesota Department of Health	1785988	12/31/2020
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	TX008	6/30/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	014	6/30/2021
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022
Washington Department of Health	C819	11/14/2020

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Chain of Custody

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

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

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14880**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20100342
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20100342-01**	**50 ww09-201005**	**Groundwater**	**05 Oct 2020 08:00**
	SUB_Perch-6850			16 Oct 2020
2.	**HS20100342-02**	**50 ww08-201005**	**Groundwater**	**05 Oct 2020 08:45**
	SUB_Perch-6850			16 Oct 2020
3.	**HS20100342-03**	**50 ww22-201005**	**Groundwater**	**05 Oct 2020 09:35**
	SUB_Perch-6850			16 Oct 2020
4.	**HS20100342-04**	**50 ww23-201005**	**Groundwater**	**05 Oct 2020 10:20**
	SUB_Perch-6850			16 Oct 2020
5.	**HS20100342-05**	**50 ww15-201005**	**Groundwater**	**05 Oct 2020 11:05**
	SUB_Perch-6850			16 Oct 2020
6.	**HS20100342-06**	**50 ww16-201005**	**Groundwater**	**05 Oct 2020 11:50**
	SUB_Perch-6850			16 Oct 2020
7.	**HS20100342-07**	**50 ww18-201005**	**Groundwater**	**05 Oct 2020 12:45**
	SUB_Perch-6850			16 Oct 2020
8.	**HS20100342-08**	**50 ww1-201005-FD**	**Groundwater**	**05 Oct 2020 12:45**
	SUB_Perch-6850			16 Oct 2020

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14880**

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

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Mayerson	Date/Time:	
Received By:	[illegible]	Date/Time:	10/19/20 0900
Cooler ID(s):		Temperature(s):	

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01079216

Cooler Receipt Form

ALS Environmental

Project Chemist CH

Client/Project ALS-H

Thermometer ID 1231

Date/Time Received: 10/9/20 Initials: CH

Date/Time Logged in: 10/9/20 Initials CH

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

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

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

If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

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

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
–		10/9/20	0800	CH	0.8	☒
						☐
						☐
						☐

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

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

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

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

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

Notes, Discrepancies, & Resolutions:

Service request Label:

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SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

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Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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Preparation Information Benchsheet

Prep Run#: 367345 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/KBROWN **Prep Method:** Method **Prep Date/Time:** 10/9/20 11:34

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000943-001	50WW29-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2000943-002	50WW05-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2000944-001	50WW14-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2000944-002	50WW13-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2000944-003	50WW11-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2000944-004	50WW11-201001-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2000944-005	50WW06-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2000944-006	50WW12-201001	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2000949-001	LH18/24-SP650_100620-AIX	.01	6850/ClO4 DOD			Water	10mL	
10	E2000949-002	LH18/24-SP650_100620-BIX	.01	6850/ClO4 DOD			Water	10mL	
11	E2000964-001	50WW09-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2000964-002	50WW08-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2000964-003	50WW22-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
14	E2000964-004	50WW23-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
15	E2000964-005	50WW15-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
16	E2000964-006	50WW16-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
17	E2000964-007	50WW18-201005	.01	6850/ClO4 DOD			Ground Water	10mL	
18	E2000964-008	50WW18-201005-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
19	EQ2000497-01	MB		6850/ClO4 DOD			Liquid	10mL	
20	EQ2000497-02	LCS		6850/ClO4 DOD			Liquid	10mL	
21	EQ2000497-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
22	EQ2000497-04	50WW14-201001 MS	.02	6850/ClO4 DOD			Liquid	10mL	
23	EQ2000497-05	50WW14-201001 DMS	.03	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 209764 Logbook Ref: Perchlorate Int. Stock1 51820 Expires On: 11/18/2020

EQ2000497-02	1.00µL	EQ2000497-03	1.00µL	EQ2000497-04	1.00µL	EQ2000497-05	1.00µL

Name: Sodium Perchlorate 1 ug/mL (IS) (18-O) as CLO4 Inventory ID 212340 Logbook Ref: Sodium Perchlorate Expires On: 07/13/2022

E2000943-001	100.00µL	E2000943-002	100.00µL	E2000944-001	100.00µL	E2000944-002	100.00µL	E2000944-003	100.00µL	E2000944-004	100.00µL
E2000944-005	100.00µL	E2000944-006	100.00µL	E2000949-001	100.00µL	E2000949-002	100.00µL	E2000964-001	100.00µL	E2000964-002	100.00µL
E2000964-003	100.00µL	E2000964-004	100.00µL	E2000964-005	100.00µL	E2000964-006	100.00µL	E2000964-007	100.00µL	E2000964-008	100.00µL
EQ2000497-01	100.00µL	EQ2000497-02	100.00µL	EQ2000497-03	100.00µL	EQ2000497-04	100.00µL	EQ2000497-05	100.00µL		

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Preparation Information Benchsheet

Prep Run#: 367345
Team: Semivoa GCMS/KBROWN

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 10/9/20 11:34

Preparation Steps

Step: Preparation
Started: 10/9/20 11:34
Finished: 10/9/20 13:30
By: KBROWN
Comments

Comments: _____

Reviewed By: KB Date: 10/09/2020

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 0800
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW09-201005	**Units:**	µg/L
Lab Code:	E2000964-001	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 15:26	367345	699988	

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 0845
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW08-201005	**Units:**	µg/L
Lab Code:	E2000964-002	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**172**		1.00	0.500	0.250	10	10/ 9/20	10/19/20 15:34	367345	699988	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 0935
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW22-201005	**Units:**	µg/L
Lab Code:	E2000964-003	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 15:42	367345	699988	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 1020
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW23-201005	**Units:**	µg/L
Lab Code:	E2000964-004	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 15:50	367345	699988	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 1105
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW15-201005	**Units:**	µg/L
Lab Code:	E2000964-005	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 15:58	367345	699988	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 1150
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW16-201005	**Units:**	µg/L
Lab Code:	E2000964-006	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0701**	J	0.100	0.0500	0.0250	1	10/ 9/20	10/19/20 16:06	367345	699988	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 1150
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW18-201005	**Units:**	µg/L
Lab Code:	E2000964-007	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 16:42	367345	699988	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	10/ 5/20 1245
Sample Matrix:	Ground Water	**Date Received:**	10/ 9/20
Sample Name:	50WW18-201005-FD	**Units:**	µg/L
Lab Code:	E2000964-008	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	10/ 9/20	10/19/20 16:50	367345	699988	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000497-01	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	10/ 9/20	10/9/20 15:24	367345	698929	

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Accuracy & Precision

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/ 9/20
Sample Matrix:	Ground Water		

Lab Control Sample Summary

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

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
		Extraction Lot:	367345

	Lab Control Sample EQ2000497-02			Duplicate Lab Control Sample EQ2000497-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0996	0.100	100	0.111	0.100	111	84 - 119	11	15

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

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

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000497-02	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0996**	J	0.100	0.0500	0.0250	1	10/ 9/20	10/9/20 15:32	367345	698929	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000497-03	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.111**		0.100	0.0500	0.0250	1	10/ 9/20	10/9/20 15:40	367345	698929	

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QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	10/16/20

Matrix Spike Summary

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

Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	E2000944-001	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000497-04			Batch QCDMS **Duplicate Matrix Spike** EQ2000497-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	1.37	1.46	0.100	94	1.47	0.100	101	84 - 119	<1	15

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

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

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

Wapreve
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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000497-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**1.46**		1.00	0.500	0.250	10	10/ 9/20	10/16/20 12:25	367345	699559	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000497-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**1.47**		1.00	0.500	0.250	10	10/ 9/20	10/16/20 12:09	367345	699559	

Walgreens
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Initial Calibration

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20200915

ALS Environmental

ICAL Date: 9/15/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000032**

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20200915_044	Perchlorate6850b.lcm	1x	☒	3100806-05	9/15/2020 17:55
2	PERCHLORATE2		20200915_024	Perchlorate6850b.lcm	1x	☒	3100806-06	9/15/2020 15:10
3	PERCHLORATE3		20200915_046	Perchlorate6850b.lcm	1x	☒	3100806-07	9/15/2020 18:13
4	PERCHLORATE4		20200915_047	Perchlorate6850b.lcm	1x	☒	3100807-01	9/15/2020 18:21
5	PERCHLORATE5		20200915_048	Perchlorate6850b.lcm	1x	☒	3100807-02	9/15/2020 18:29
6	PERCHLORATE6		20200915_049	Perchlorate6850b.lcm	1x	☒	3100807-03	9/15/2020 18:37
7	PERCHLORATE7		20200915_029	Perchlorate6850b.lcm	1x	☒	3100807-04	9/15/2020 15:49
8	PERCHLORATE8		20200915_051	Perchlorate6850b.lcm	1x	☒	3100807-05	9/15/2020 18:52
9	PERCHLORATE9		20200915_052	Perchlorate6850b.lcm	1x	☒	3100807-06	9/15/2020 19:00
10	PERCHLORATE10		20200915_053	Perchlorate6850b.lcm	1x	☒	3100807-07	9/15/2020 19:08
11	PERCHLORATE ICV		20200915_054	Perchlorate6850b.lcm	1x	☒	3100807-08	9/15/2020 19:16
12	LODV		20200915_055	Perchlorate6850b.lcm	1x	☒		9/15/2020 19:24
13	E2000817-001		20200915_056	Perchlorate6850b.lcm	1x	☒		9/15/2020 19:40
14	E2000817-001x10		20200915_057	Perchlorate6850b.lcm	1x	☒		9/15/2020 19:48
15	PERCHLORATE7		20200915_058	Perchlorate6850b.lcm	1x	☒	3100807-04	9/15/2020 19:56
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36								

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Initial Calibration - Detailed Report

Calibration ID: EC2000032 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2000032-01	PERCHLORATE2	20200915_024	09/15/2020 15:10
02	EC2000032-02	PERCHLORATE7	20200915_029	09/15/2020 15:49
03	EC2000032-03	PERCHLORATE1	20200915_044	09/15/2020 17:55
04	EC2000032-04	PERCHLORATE3	20200915_046	09/15/2020 18:13
05	EC2000032-05	PERCHLORATE4	20200915_047	09/15/2020 18:21
06	EC2000032-06	PERCHLORATE5	20200915_048	09/15/2020 18:29
07	EC2000032-07	PERCHLORATE6	20200915_049	09/15/2020 18:37
08	EC2000032-08	PERCHLORATE8	20200915_051	09/15/2020 18:52
09	EC2000032-09	PERCHLORATE9	20200915_052	09/15/2020 19:00
10	EC2000032-10	PERCHLORATE10	20200915_053	09/15/2020 19:08

Analyte **Curve Fit** **Weighting**

Perchlorate **Quadratic** **Equal** **COD = 0.9998** **Y= -9.474E-05 X² + 0.1066 X + 0.00148**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.5000	0.1319	02	10.0000	0.1001	03	0.1000	0.1399	04	0.7000	0.1079
05	1.0000	0.1089	06	2.0000	0.1096	07	5.0000	0.1086	08	20.0000	0.1062
09	30.0000	0.104	10	50.0000	0.1018						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.5000	0.605	21.0	02	10.0000	9.45	-5.5	03	0.1000	0.117	17.3
04	0.7000	0.695	-0.8	05	1.0000	1.01	0.8	06	2.0000	2.05	2.3
07	5.0000	5.10	2.0	08	20.0000	20.3	1.3	09	30.0000	30.1	0.2
10	50.0000	50.0	-0.1								

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Initial Calibration Verification Summary Report

Calibration ID:	EC2000032	**Instrument ID:**	E-LCMS-01
Datafile ID:	20200915_054	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2000032-11	T	Quadratic	10	9.462	ng/mL	-5.4	<= 15

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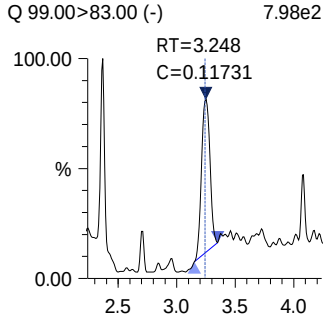
PERCHLORATE1

Date acquired: 9/15/2020 5:55:29 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_044.lcd
Vial: 5 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	9/15/2020 5:55:29 PM	2833	0.11731	20200915_044	3.248	25.0000	1.0000	5
Sodium Perchlorate-18O4_IS	PERCHLORATE1	9/15/2020 5:55:29 PM	202512	1.00000	20200915_044	3.237	25.0000	1.0000	5

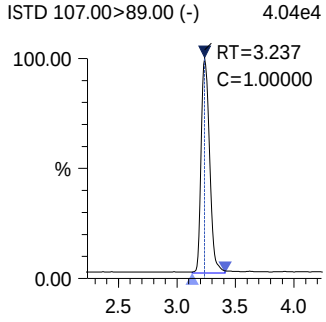
Perchlorate

Conc 0.11731
Area 2833



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 202512



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PERCHLORATE2

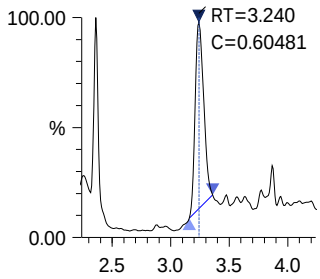
Date acquired: 9/15/2020 3:10:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_024.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	9/15/2020 3:10:04 PM	11634	0.60481	20200915_024	3.240	25.0000	1.0000	6
Sodium Perchlorate-18O4_IS	PERCHLORATE2	9/15/2020 3:10:04 PM	176422	1.00000	20200915_024	3.240	25.0000	1.0000	6

Perchlorate

Conc 0.60481
Area 11634

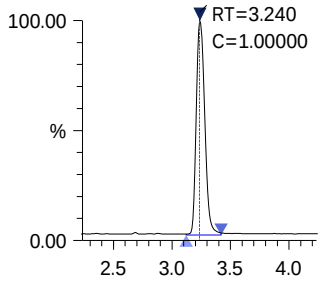
Q 99.00>83.00 (-) 2.66e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 176422

ISTD 107.00>89.00 (-) 3.50e4



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PERCHLORATE3

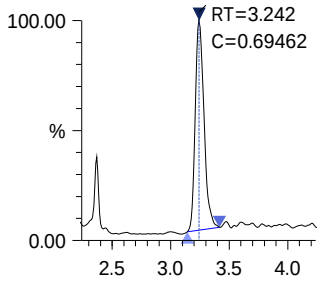
Date acquired: 9/15/2020 6:13:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	9/15/2020 6:13:20 PM	14722	0.69462	20200915_046	3.242	25.0000	1.0000	7
Sodium Perchlorate-18O4_IS	PERCHLORATE3	9/15/2020 6:13:20 PM	194971	1.00000	20200915_046	3.239	25.0000	1.0000	7

Perchlorate

Conc 0.69462
Area 14722

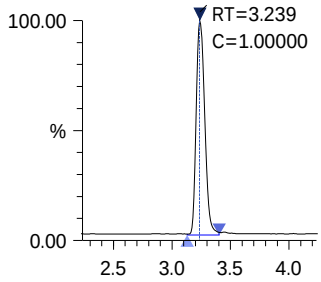
Q 99.00>83.00 (-) 2.91e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 194971

ISTD 107.00>89.00 (-) 3.85e4



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PERCHLORATE4

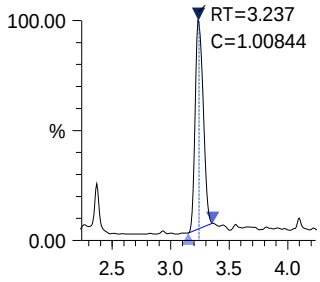
Date acquired: 9/15/2020 6:21:15 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_047.lcd
Vial: 8 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	9/15/2020 6:21:15 PM	19524	1.00844	20200915_047	3.237	25.0000	1.0000	8
Sodium Perchlorate-18O4_IS	PERCHLORATE4	9/15/2020 6:21:15 PM	179246	1.00000	20200915_047	3.240	25.0000	1.0000	8

Perchlorate

Conc 1.00844
Area 19524

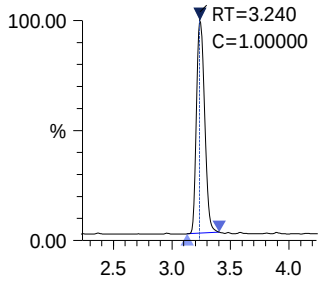
Q 99.00>83.00 (-) 4.23e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 179246

ISTD 107.00>89.00 (-) 3.75e4



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PERCHLORATE5

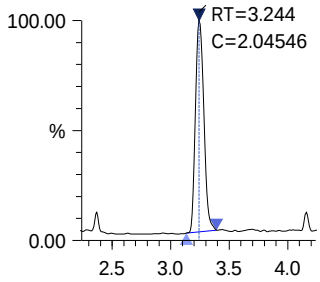
Date acquired: 9/15/2020 6:29:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_048.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	9/15/2020 6:29:08 PM	38522	2.04546	20200915_048	3.244	25.0000	1.0000	9
Sodium Perchlorate-18O4_IS	PERCHLORATE5	9/15/2020 6:29:08 PM	175734	1.00000	20200915_048	3.240	25.0000	1.0000	9

Perchlorate

Conc 2.04546
Area 38522

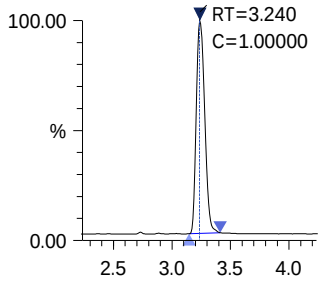
Q 99.00>83.00 (-) 7.92e3



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 175734

ISTD 107.00>89.00 (-) 3.56e4



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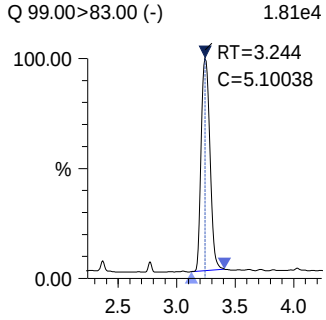
PERCHLORATE6

Date acquired: 9/15/2020 6:37:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_049.lcd
Vial: 10 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	9/15/2020 6:37:05 PM	92162	5.10038	20200915_049	3.244	25.0000	1.0000	10
Sodium Perchlorate-18O4_IS	PERCHLORATE6	9/15/2020 6:37:05 PM	169754	1.00000	20200915_049	3.239	25.0000	1.0000	10

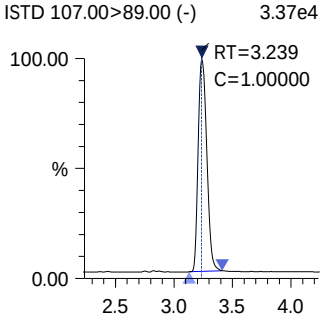
Perchlorate

Conc 5.10038
Area 92162



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 169754



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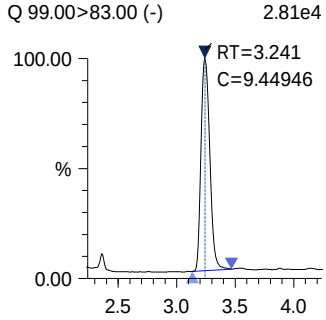
PERCHLORATE7

Date acquired: 9/15/2020 3:49:35 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_029.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	9/15/2020 3:49:35 PM	144012	9.44946	20200915_029	3.241	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	9/15/2020 3:49:35 PM	143911	1.00000	20200915_029	3.238	25.0000	1.0000	4

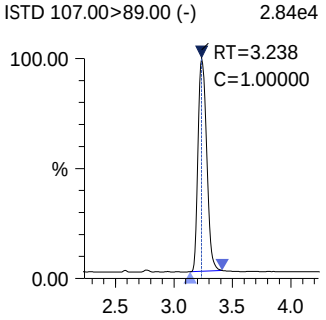
Perchlorate

Conc 9.44946
Area 144012



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 143911



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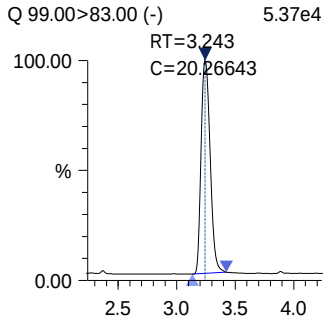
PERCHLORATE8

Date acquired: 9/15/2020 6:52:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_051.lcd
Vial: 11 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	9/15/2020 6:52:54 PM	284308	20.26643	20200915_051	3.243	25.0000	1.0000	11
Sodium Perchlorate-18O4_IS	PERCHLORATE8	9/15/2020 6:52:54 PM	133870	1.00000	20200915_051	3.240	25.0000	1.0000	11

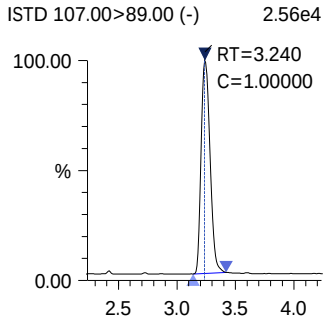
Perchlorate

Conc 20.26643
Area 284308



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 133870



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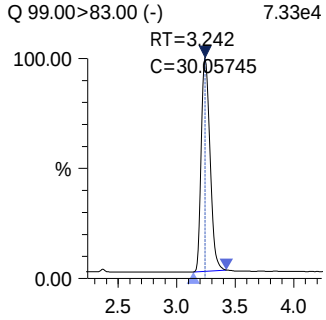
PERCHLORATE9

Date acquired: 9/15/2020 7:00:50 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_052.lcd
Vial: 12 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	9/15/2020 7:00:50 PM	377183	30.05745	20200915_052	3.242	25.0000	1.0000	12
Sodium Perchlorate-18O4_IS	PERCHLORATE9	9/15/2020 7:00:50 PM	120846	1.00000	20200915_052	3.240	25.0000	1.0000	12

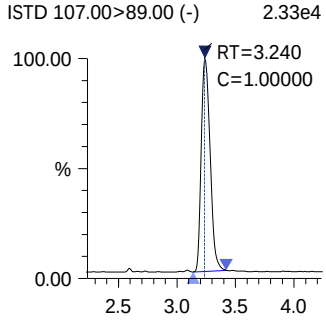
Perchlorate

Conc 30.05745
Area 377183



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 120846



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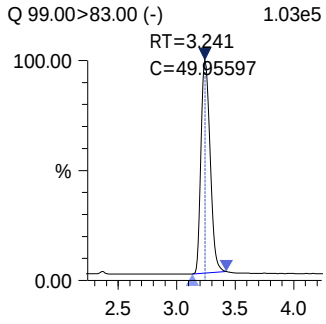
PERCHLORATE10

Date acquired: 9/15/2020 7:08:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_053.lcd
Vial: 13 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	9/15/2020 7:08:43 PM	553330	49.95597	20200915_053	3.241	25.0000	1.0000	13
Sodium Perchlorate-18O4_IS	PERCHLORATE10	9/15/2020 7:08:43 PM	108660	1.00000	20200915_053	3.240	25.0000	1.0000	13

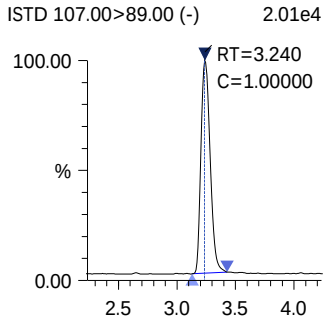
Perchlorate

Conc 49.95597
Area 553330



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 108660



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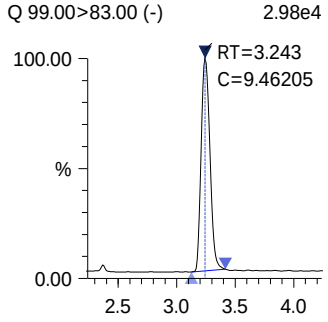
PERCHLORATEICV

Date acquired: 9/15/2020 7:16:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_054.lcd
Vial: 14 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	9/15/2020 7:16:39 PM	152650	9.46205	20200915_054	3.243	25.0000	1.0000	14
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	9/15/2020 7:16:39 PM	152342	1.00000	20200915_054	3.241	25.0000	1.0000	14

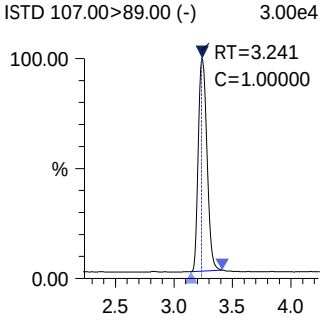
Perchlorate

Conc 9.46205
Area 152650



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 152342



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Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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20201009

ALS Environmental

ICAL Date: 9/15/2020
Cal. Std. xp: 11/18/2020
ICAL ID: **EC2000032**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20201009_001	Perchlorate6850b.lcm	1x	☒		10/9/2020 13:57
2	null		20201009_002	Perchlorate6850b.lcm	1x	☒		10/9/2020 14:02
3	IB		20201009_003	Perchlorate6850b.lcm	1x	☒		10/9/2020 14:52
4	LODV		20201009_004	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:00
5	PERCHLORATE7		20201009_005	Perchlorate6850b.lcm	1x	☒	3100807-04	10/9/2020 15:08
6	ICS		20201009_006	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:16
7	EQ2000497-01		20201009_007	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:24
8	EQ2000497-02		20201009_008	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:32
9	EQ2000497-03		20201009_009	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:40
10	EQ2000497-04		20201009_010	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:48
11	EQ2000497-05		20201009_011	Perchlorate6850b.lcm	1x	☒		10/9/2020 15:55
12	E2000943-001		20201009_012	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:03
13	E2000943-002		20201009_013	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:11
14	E2000944-001		20201009_014	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:19
15	E2000944-002		20201009_015	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:27
16	E2000944-003		20201009_016	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:35
17	PERCHLORATE7		20201009_017	Perchlorate6850b.lcm	1x	☒	3100807-04	10/9/2020 16:43
18	E2000944-004		20201009_018	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:51
19	E2000944-005		20201009_019	Perchlorate6850b.lcm	1x	☒		10/9/2020 16:58
20	E2000944-006		20201009_020	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:06
21	E2000949-001		20201009_021	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:14
22	E2000949-002		20201009_022	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:22
23	E2000964-001		20201009_023	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:30
24	E2000964-002		20201009_024	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:38
25	E2000964-003		20201009_025	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:46
26	E2000964-004		20201009_026	Perchlorate6850b.lcm	1x	☒		10/9/2020 17:54
27	E2000964-005		20201009_027	Perchlorate6850b.lcm	1x	☒		10/9/2020 18:02
28	PERCHLORATE7		20201009_028	Perchlorate6850b.lcm	1x	☒	3100807-04	10/9/2020 18:10
29	E2000964-006		20201009_029	Perchlorate6850b.lcm	1x	☒		10/9/2020 18:17
30	E2000964-007		20201009_030	Perchlorate6850b.lcm	1x	☒		10/9/2020 18:25
31	E2000964-008		20201009_031	Perchlorate6850b.lcm	1x	☒		10/9/2020 18:33
32	PERCHLORATE7		20201009_032	Perchlorate6850b.lcm	1x	☒	3100807-04	10/9/2020 18:41
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20201016

ALS Environmental

ICAL Date: 9/15/2020
Cal. Std. xp: 11/18/2020
ICAL ID: EC2000032

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

		File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null	20201016_001	Perchlorate6850b.lcm	1x	☒		10/16/2020 8:39
2	null	20201016_002	Perchlorate6850b.lcm	1x	☒		10/16/2020 8:44
3	IB	20201016_003	Perchlorate6850b.lcm	1x	☒		10/16/2020 8:49
4	IB	20201016_004	Perchlorate6850b.lcm	1x	☒		10/16/2020 8:57
5	LODV	20201016_005	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:05
6	ICS	20201016_006	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:13
7	PERCHLORATE7	20201016_007	Perchlorate6850b.lcm	1x	☒	3100807-04	10/16/2020 9:21
8	E2000943-001	20201016_008	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:33
9	E2000943-002	20201016_009	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:41
10	E2000944-001	20201016_010	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:49
11	E2000944-002	20201016_011	Perchlorate6850b.lcm	1x	☒		10/16/2020 9:57
12	E2000944-003	20201016_012	Perchlorate6850b.lcm	1x	☒		10/16/2020 10:04
13	E2000944-004	20201016_013	Perchlorate6850b.lcm	1x	☒		10/16/2020 10:12
14	E2000944-005	20201016_014	Perchlorate6850b.lcm	1x	☒		10/16/2020 10:20
15	E2000944-006	20201016_015	Perchlorate6850b.lcm	1x	☒		10/16/2020 10:28
16	PERCHLORATE7	20201016_018	Perchlorate6850b.lcm	1x	☒	3100807-04	10/16/2020 10:52
17	E2000943-001X2	20201016_019	Perchlorate6850b.lcm	2x	☒		10/16/2020 11:06
18	E2000944-001X10	20201016_020	Perchlorate6850b.lcm	10x	☒		10/16/2020 11:14
19	E2000944-002X200	20201016_021	Perchlorate6850b.lcm	200x	☒		10/16/2020 11:22
20	E2000944-003X200	20201016_022	Perchlorate6850b.lcm	200x	☒		10/16/2020 11:30
21	E2000944-004X200	20201016_023	Perchlorate6850b.lcm	200x	☒		10/16/2020 11:38
22	E2000944-005X100	20201016_024	Perchlorate6850b.lcm	100x	☒		10/16/2020 11:46
23	E2000944-006X1000	20201016_025	Perchlorate6850b.lcm	1000x	☒		10/16/2020 11:54
24	EQ2000497-05	20201016_027	Perchlorate6850b.lcm	10x	☒		10/16/2020 12:09
25	PERCHLORATE7	20201016_028	Perchlorate6850b.lcm	1x	☒	3100807-04	10/16/2020 12:17
26	EQ2000497-04	20201016_029	Perchlorate6850b.lcm	10x	☒		10/16/2020 12:25
27	PERCHLORATE7	20201016_030	Perchlorate6850b.lcm	1x	☒	3100807-04	10/16/2020 12:36
28	EQ2000507-01	20201016_031	Perchlorate6850b.lcm	1x	☒		10/16/2020 12:44
29	EQ2000507-02	20201016_032	Perchlorate6850b.lcm	1x	☒		10/16/2020 12:52
30	EQ2000507-03	20201016_033	Perchlorate6850b.lcm	1x	☒		10/16/2020 12:59
31	E2000942-001	20201016_034	Perchlorate6850b.lcm	1x	☒		10/16/2020 13:07
32	E2000942-002	20201016_035	Perchlorate6850b.lcm	1x	☒		10/16/2020 13:15
33	E2000942-003	20201016_036	Perchlorate6850b.lcm	1x	☒		10/16/2020 13:23
34	E2000942-004	20201016_037	Perchlorate6850b.lcm	1x	☒		10/16/2020 13:31
35	E2000942-003X2	20201016_038	Perchlorate6850b.lcm	2X	☒		10/16/2020 13:39
36	E2000942-004X2	20201016_039	Perchlorate6850b.lcm	2X	☒		10/16/2020 13:47
37	PERCHLORATE7	20201016_040	Perchlorate6850b.lcm	1x	☒	3100807-04	10/16/2020 13:55
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/16/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	9/15/20
File ID:	I:\LCMS01\DATA\20201016\20201016_007	**Calibration ID:**	EC2000032
		Analysis Lot:	699559
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.82	NA	NA	NA	-1.8	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20100342

Service Request: E2000964
Date Analyzed: 10/16/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20201016\20201016_018

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 699559
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.4	NA	NA	NA	4.3	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20100342

Service Request: E2000964
Date Analyzed: 10/16/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20201016\20201016_028

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 699559
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	1.8	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20100342

Service Request: E2000964
Date Analyzed: 10/16/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20201016\20201016_030

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 699559
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.2	± 15 %	Quadratic

Walgreens
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20100342

Service Request: E2000964
Date Analyzed: 10/19/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20201019\20201019_007

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 699988
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.3	NA	NA	NA	2.7	± 15 %	Quadratic

Valprep
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20100342

Service Request: E2000964
Date Analyzed: 10/19/20

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20201019\20201019_016

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 699988
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.4	NA	NA	NA	4.1	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/16/20 09:21

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201016\20201016_007	**Lab Code:**	EQ2000509-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699559
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000509-01	140,874	3.09

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

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/16/20 10:52

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201016\20201016_018	**Lab Code:**	EQ2000509-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699559
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000509-02	134,004	3.10
Batch QC	E2000944-001	127,843	3.09
Batch QCDMS	EQ2000497-05	124,382	3.09

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

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/16/20 12:17

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201016\20201016_028	**Lab Code:**	EQ2000509-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699559
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000509-03	137,447	3.09
Batch QCMS	EQ2000497-04	138,818	3.06

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

Walgreen

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/16/20 12:36

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201016\20201016_030	**Lab Code:**	EQ2000509-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699559
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000509-04	140,968	3.05

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

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/19/20 15:18

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201019\20201019_007	**Lab Code:**	EQ2000516-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699988
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000516-01	118,652	3.07
50WW09-201005	E2000964-001	124,284	3.07
50WW08-201005	E2000964-002	100,707	3.06
50WW22-201005	E2000964-003	108,432	3.06
50WW23-201005	E2000964-004	83,410	3.07
50WW15-201005	E2000964-005	131,728	3.07
50WW16-201005	E2000964-006	139,423	3.07
50WW18-201005	E2000964-007	126,127	3.02
50WW18-201005-FD	E2000964-008	119,581	3.07

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

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000964
Project:	HS20100342	**Date Analyzed:**	10/19/20 16:58

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201019\20201019_016	**Lab Code:**	EQ2000516-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	699988
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	160,593	3.24
	Upper Limit ==>	240,890	5.24
	Lower Limit ==>	80,297	1.24
Associated Analyses			
Continuing Calibration Verification	EQ2000516-02	94,962	3.08

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

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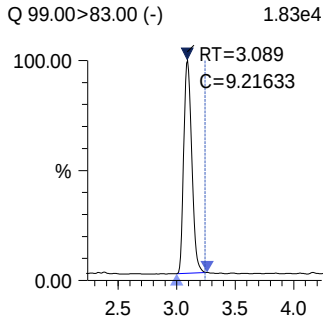
PERCHLORATE7

Date acquired: 10/9/2020 3:08:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201009\20201009_005.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	10/9/2020 3:08:25 PM	86435	9.21633	20201009_005	3.089	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/9/2020 3:08:25 PM	88538	1.00000	20201009_005	3.087	25.0000	1.0000	4

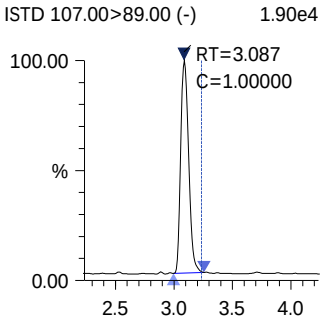
Perchlorate

Conc 9.21633
Area 86435



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 88538



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ALS Group Houston

EQ2000497-01

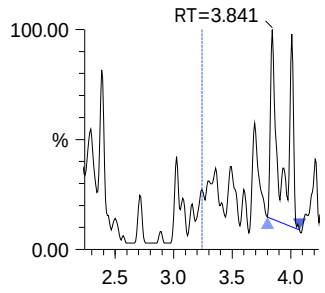
Date acquired: 10/9/2020 3:24:21 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201009\20201009_007.lcd
Vial: 16 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000497-01	10/9/2020 3:24:21 PM	----	----	20201009_007	----	25.0000	1.0000	16
Sodium Perchlorate-18O4_IS	EQ2000497-01	10/9/2020 3:24:21 PM	96808	1.00000	20201009_007	3.098	25.0000	1.0000	16

Perchlorate

Conc ----
Area ----

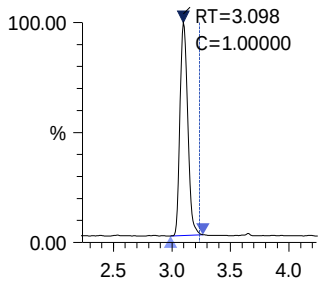
Q 99.00>83.00 (-) 1.48e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 96808

ISTD 107.00>89.00 (-) 2.12e4



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ALS Group Houston

EQ2000497-02

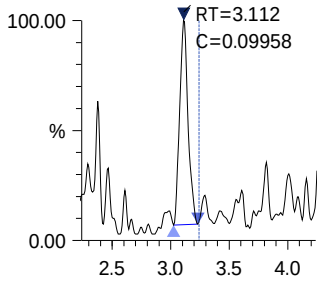
Date acquired: 10/9/2020 3:32:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201009\20201009_008.lcd
Vial: 17 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000497-02	10/9/2020 3:32:16 PM	1240	0.09958	20201009_008	3.112	25.0000	1.0000	17
Sodium Perchlorate-18O4_IS	EQ2000497-02	10/9/2020 3:32:16 PM	102528	1.00000	20201009_008	3.102	25.0000	1.0000	17

Perchlorate

Conc 0.09958
Area 1240

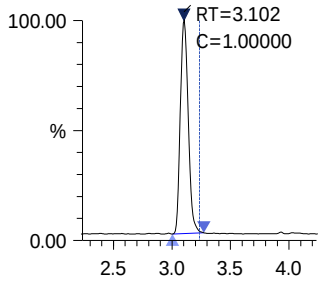
Q 99.00>83.00 (-) 2.59e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 102528

ISTD 107.00>89.00 (-) 2.19e4



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ALS Group Houston

EQ2000497-03

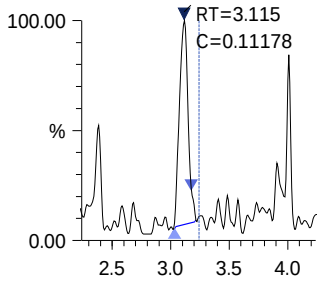
Date acquired: 10/9/2020 3:40:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201009\20201009_009.lcd
Vial: 18 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000497-03	10/9/2020 3:40:10 PM	1391	0.11178	20201009_009	3.115	25.0000	1.0000	18
Sodium Perchlorate-18O4_IS	EQ2000497-03	10/9/2020 3:40:10 PM	103828	1.00000	20201009_009	3.100	25.0000	1.0000	18

Perchlorate

Conc 0.11178
Area 1391

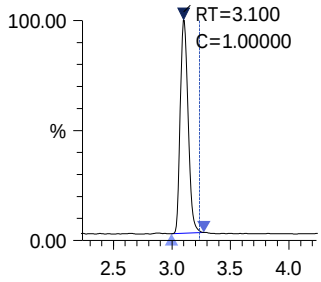
Q 99.00>83.00 (-) 3.62e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 103828

ISTD 107.00>89.00 (-) 2.24e4



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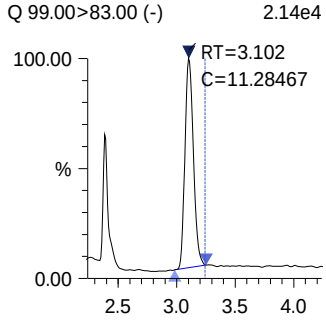
PERCHLORATE7

Date acquired: 10/9/2020 4:43:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201009\20201009_017.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	10/9/2020 4:43:14 PM	105826	11.28467	20201009_017	3.102	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/9/2020 4:43:14 PM	88721	1.00000	20201009_017	3.101	25.0000	1.0000	4

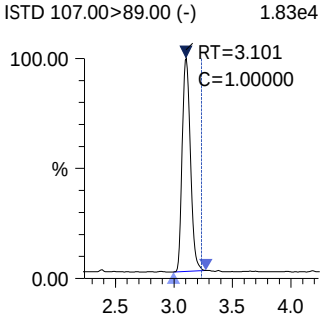
Perchlorate

Conc 11.28467
Area 105826



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 88721



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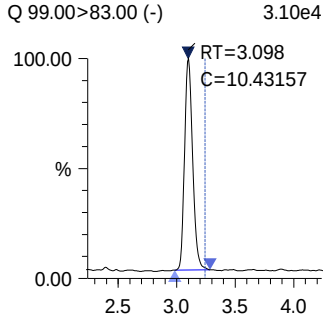
PERCHLORATE7

Date acquired: 10/16/2020 10:52:27 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201016\20201016_018.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	10/16/2020 10:52:27 AM	147880	10.43157	20201016_018	3.098	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/16/2020 10:52:27 AM	134004	1.00000	20201016_018	3.096	25.0000	1.0000	4

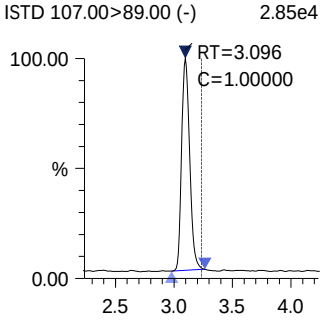
Perchlorate

Conc 10.43157
Area 147880



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 134004



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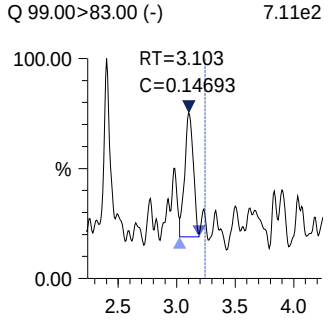
EQ2000497-05X10

Date acquired: 10/16/2020 12:09:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201016\20201016_027.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000497-05X10	10/16/2020 12:09:51 PM	2121	0.14693	20201016_027	3.103	25.0000	1.0000	28
Sodium Perchlorate-18O4_IS	EQ2000497-05X10	10/16/2020 12:09:51 PM	124382	1.00000	20201016_027	3.089	25.0000	1.0000	28

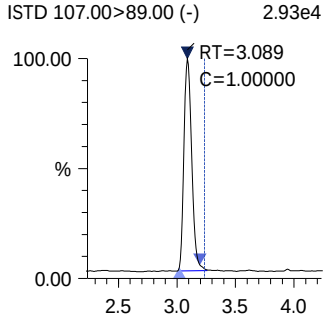
Perchlorate

Conc 0.14693
Area 2121



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 124382



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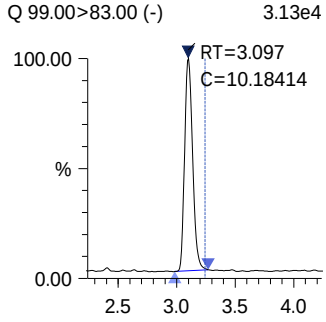
PERCHLORATE7

Date acquired: 10/16/2020 12:17:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201016\20201016_028.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	10/16/2020 12:17:43 PM	148120	10.18414	20201016_028	3.097	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/16/2020 12:17:43 PM	137447	1.00000	20201016_028	3.094	25.0000	1.0000	4

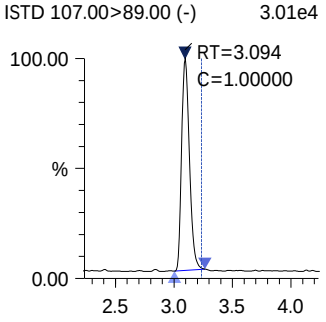
Perchlorate

Conc 10.18414
Area 148120



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 137447



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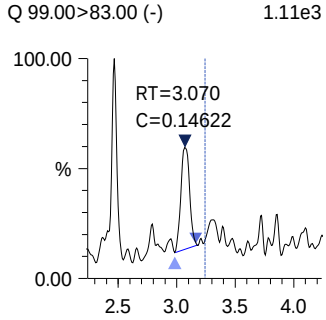
EQ2000497-04X10

Date acquired: 10/16/2020 12:25:41 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201016\20201016_029.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000497-04X10	10/16/2020 12:25:41 PM	2356	0.14622	20201016_029	3.070	25.0000	1.0000	27
Sodium Perchlorate-18O4_IS	EQ2000497-04X10	10/16/2020 12:25:41 PM	138818	1.00000	20201016_029	3.062	25.0000	1.0000	27

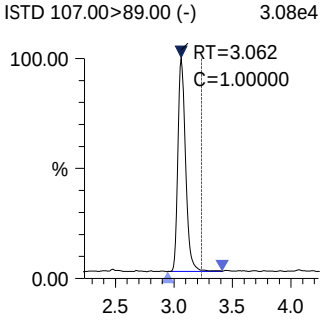
Perchlorate

Conc 0.14622
Area 2356



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 138818



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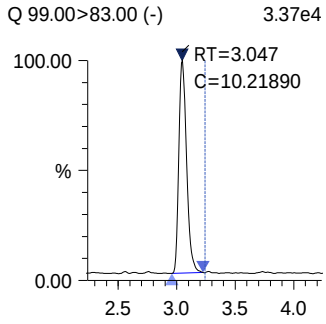
PERCHLORATE7

Date acquired: 10/16/2020 12:36:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201016\20201016_030.lcd
Vial: 4 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	10/16/2020 12:36:13 PM	152426	10.21890	20201016_030	3.047	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/16/2020 12:36:13 PM	140968	1.00000	20201016_030	3.045	25.0000	1.0000	4

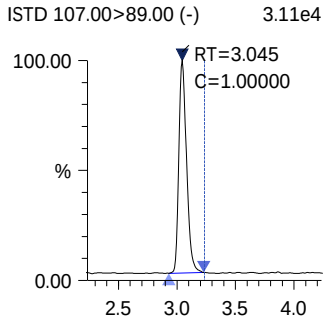
Perchlorate

Conc 10.21890
Area 152426



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 140968



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HS20100342 8260_W_DOD Raw Data

ALS WO# HS20100342

MSVOA06 -Logbook

Batch: 41874 **Analyst:** Presenta Cabascango

Date: 09-24-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	09-24-2020 11:10 am	1.00	50 mL	50 mL	X092401.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	09-24-2020 11:34 am	1.00	50 mL	50 mL	X092402.D	Liquid	Y	NA
	0.10 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	09-24-2020 11:58 am	1.00	50 mL	50 mL	X092403.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	09-24-2020 12:46 pm	1.00	50 mL	50 mL	X092404.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	09-24-2020 01:10 pm	1.00	50 mL	50 mL	X092405.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	09-24-2020 01:33 pm	1.00	50 mL	50 mL	X092406.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	09-24-2020 01:57 pm	1.00	50 mL	50 mL	X092407.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	09-24-2020 02:21 pm	1.00	50 mL	50 mL	X092408.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	09-24-2020 02:45 pm	1.00	50 mL	50 mL	X092409.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	09-24-2020 03:09 pm	1.00	50 mL	50 mL	X092410.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	09-24-2020 03:33 pm	1.00	50 mL	50 mL	X092411.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	09-24-2020 03:57 pm	1.00	50 mL	50 mL	X092412.D	Liquid	Y	NA
13	BLANK	SAMP	09-24-2020 04:21 pm	1.00	50 mL	50 mL	X092413.D	Liquid	Y	NA
14	VSTD050	ICV	09-24-2020 04:45 pm	1.00	50 mL	50 mL	X092414.D	Liquid	Y	NA
	10 uL ical std/50 mL DI									
15	CCB	SAMP	09-24-2020 05:09 pm	1.00	50 mL	50 mL	X092415.D	Liquid	Y	NA
16	VLCSW-200924	LCS	09-24-2020 05:33 pm	1.00	50 mL	50 mL	X092416.D	Liquid	Y	na
	4.0 uL cal std/50 mL DI									
17	BLK	SAMP	09-24-2020 05:57 pm	1.00	50 mL	50 mL	X092417.D	Liquid	Y	na
18	BLK	SAMP	09-24-2020 06:21 pm	1.00	50 mL	50 mL	X092418.D	Liquid	Y	na
19	VBLKW-200924	MBLK	09-24-2020 06:45 pm	1.00	50 mL	50 mL	X092419.D	Liquid	Y	na
20	HS20090748-03	SAMP	09-24-2020 07:09 pm	1.00	50 mL	50 mL	X092420.D	Liquid	Y	<2
21	HS20091030-02	SAMP	09-24-2020 07:33 pm	1.00	50 mL	50 mL	X092421.D	Liquid	Y	<2
22	HS20090748-01	SAMP	09-24-2020 07:58 pm	1.00	50 mL	50 mL	X092422.D	Liquid	Y	<2
23	HS20091030-01	SAMP	09-24-2020 08:22 pm	1.00	50 mL	50 mL	X092423.D	Liquid	Y	<2
24	HS20090796-01	SAMP	09-24-2020 08:46 pm	1.00	50 mL	50 mL	X092424.D	Liquid	Y	<2
25	HS20090748-01MS	MS	09-24-2020 09:10 pm	1.00	50 mL	50 mL	X092425.D	Liquid	Y	<2
	3.5 uL cal std/40 mL amp									
26	HS20090748-01MSD	MSD	09-24-2020 09:34 pm	1.00	50 mL	50 mL	X092426.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
27	CCV-END	CCV	09-24-2020 09:58 pm	1.00	50 mL	50 mL	X092427.D	Liquid	Y	na
	10 uL cal std/50 mL DI									

Chemical	Value
SURR SPK ID	31106-47-06
IS ID	31106-47-06
CAL STD ID	31106-48-01/02
BFB ID	31106-47-06
pH Paper	634-64-10

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

ab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,2-Dichloroethene	50.00	44.88	90	80-120
Vinyl Chloride	50.00	43.77	88	80-120
Methylene Chloride	50.00	48.15	96	80-120
1,1-Dichloroethene	50.00	43.02	86	80-120
1,2-Dichloroethane	50.00	45.12	90	80-120
Trichloroethene	50.00	44.33	89	80-120
1,1,2-Trichloroethane	50.00	44.55	89	80-120
Tetrachloroethene	50.00	41.29	82	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Lab File ID: X092401 BFB Injection Date: 09/24/20

Instrument ID: VOA6 BFB Injection Time: 1110

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.0
75	30.0 - 60.0% of mass 95	50.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.5
173	Less than 2.0% of mass 174	0.5 (0.9)1
174	Greater than 50.0% of mass 95	61.7
175	5.0 - 9.0% of mass 174	4.5 (7.4)1
176	95.0 - 101.0% of mass 174	59.2 (95.9)1
177	5.0 - 9.0% of mass 176	4.1 (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	VSTD000.25	VSTD000.25	X092402	09/24/20	1134
02	VSTD000.5	VSTD000.5	X092403	09/24/20	1158
03	VSTD001	VSTD001	X092404	09/24/20	1246
04	VSTD002	VSTD002	X092405	09/24/20	1310
05	VSTD005	VSTD005	X092406	09/24/20	1333
06	VSTD020	VSTD020	X092407	09/24/20	1357
07	VSTD050	VSTD050	X092408	09/24/20	1421
08	VSTD100	VSTD100	X092409	09/24/20	1445
09	VSTD150	VSTD150	X092410	09/24/20	1509
10	VSTD200	VSTD200	X092411	09/24/20	1533
11	ICV	ICV	X092414	09/24/20	1645
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Instrument ID: VOA6 Calibration Date(s): 09/24/20 09/24/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF0.25: X092402 RF0.5: X092403 RF1: X092404
RF2: X092405 RF5: X092406 RF20: X092407

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Vinyl Chloride		0.636	0.723	0.606	0.632	0.612
Methylene Chloride		5505	9684	16648	39690	137362
1,1-Dichloroethene		0.476	0.539	0.431	0.448	0.435
1,2-Dichloroethane		0.464	0.540	0.412	0.472	0.402
Trichloroethene		0.372	0.414	0.359	0.376	0.338
1,1,2-Trichloroethane		0.329	0.353	0.304	0.315	0.282
Tetrachloroethene		0.330	0.385	0.342	0.326	0.303
Dibromofluoromethane		0.609	0.515	0.484	0.562	0.504
1,2-Dichloroethane-d4		0.637	0.580	0.541	0.589	0.547
Toluene-d8		1.586	1.355	1.300	1.446	1.276
4-Bromofluorobenzene		6772	10018	18232	43900	154353

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2010034

Instrument ID: VOA6 Calibration Date(s): 09/24/20 09/24/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

LAB FILE ID: RF50: X092408 RF100: X092409 RF150: X092410
RF200: X092411

COMPOUND	RF50	RF100	RF150	RF200
Vinyl Chloride	0.579	0.668	0.670	0.686
Methylene Chloride	303593	605902	861961	1112263
1,1-Dichloroethene	0.402	0.438	0.438	0.436
1,2-Dichloroethane	0.392	0.397	0.401	0.401
Trichloroethene	0.312	0.346	0.350	0.351
1,1,2-Trichloroethane	0.267	0.267	0.269	0.265
Tetrachloroethene	0.253	0.302	0.303	0.299
Dibromofluoromethane	0.491	0.491	0.483	0.485
1,2-Dichloroethane-d4	0.545	0.544	0.536	0.539
Toluene-d8	1.241	1.226	1.208	1.191
4-Bromofluorobenzene	368645	706326	1011330	1311827

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2010034

Instrument ID: VOA6 Calibration Date(s): 09/24/20 09/24/20

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1134 1533

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
Vinyl Chloride	AVRG		0.64586993	6.955	15.000
Methylene Chloride	LINR	-1.42e-002	1.85325576	0.9998633	0.9900000
1,1-Dichloroethene	AVRG		0.44955963	8.570	15.000
1,2-Dichloroethane	AVRG		0.43110842	11.681	15.000
Trichloroethene	AVRG		0.35763128	7.969	15.000
1,1,2-Trichloroethane	AVRG		0.29447500	10.989	15.000
Tetrachloroethene	AVRG		0.31588869	11.507	15.000
Dibromofluoromethane	AVRG		0.51378762	8.475	15.000
1,2-Dichloroethane-d4	AVRG		0.56206107	6.062	15.000
Toluene-d8	AVRG		1.31453904	9.856	15.000
4-Bromofluorobenzene	LINR	-1.66e-002	2.33275892	0.9999120	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092401.D

Date : 24-SEP-2020 11:10

Client ID: BFB

Instrument: voa6.i

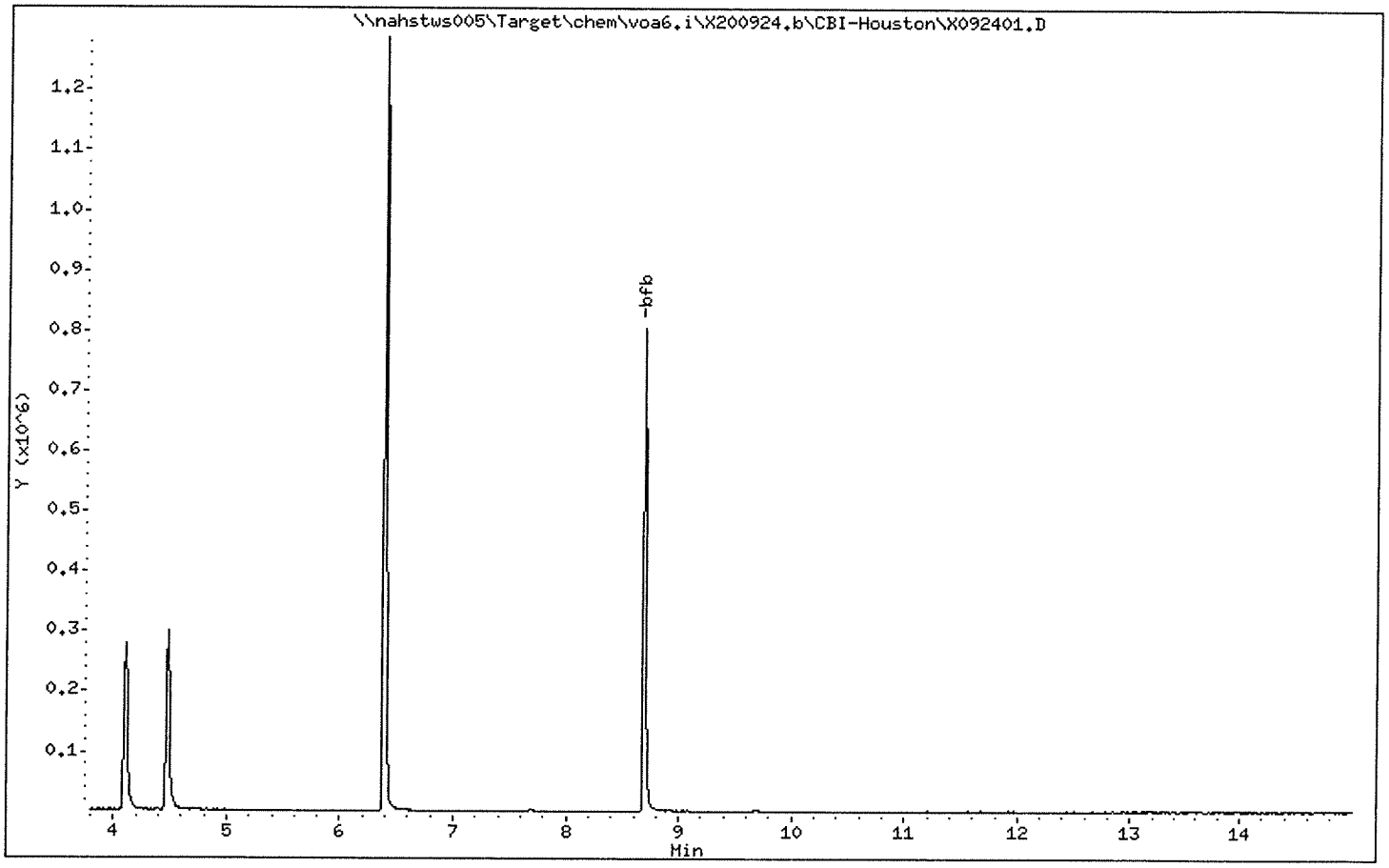
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092401.D

Date : 24-SEP-2020 11:10

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

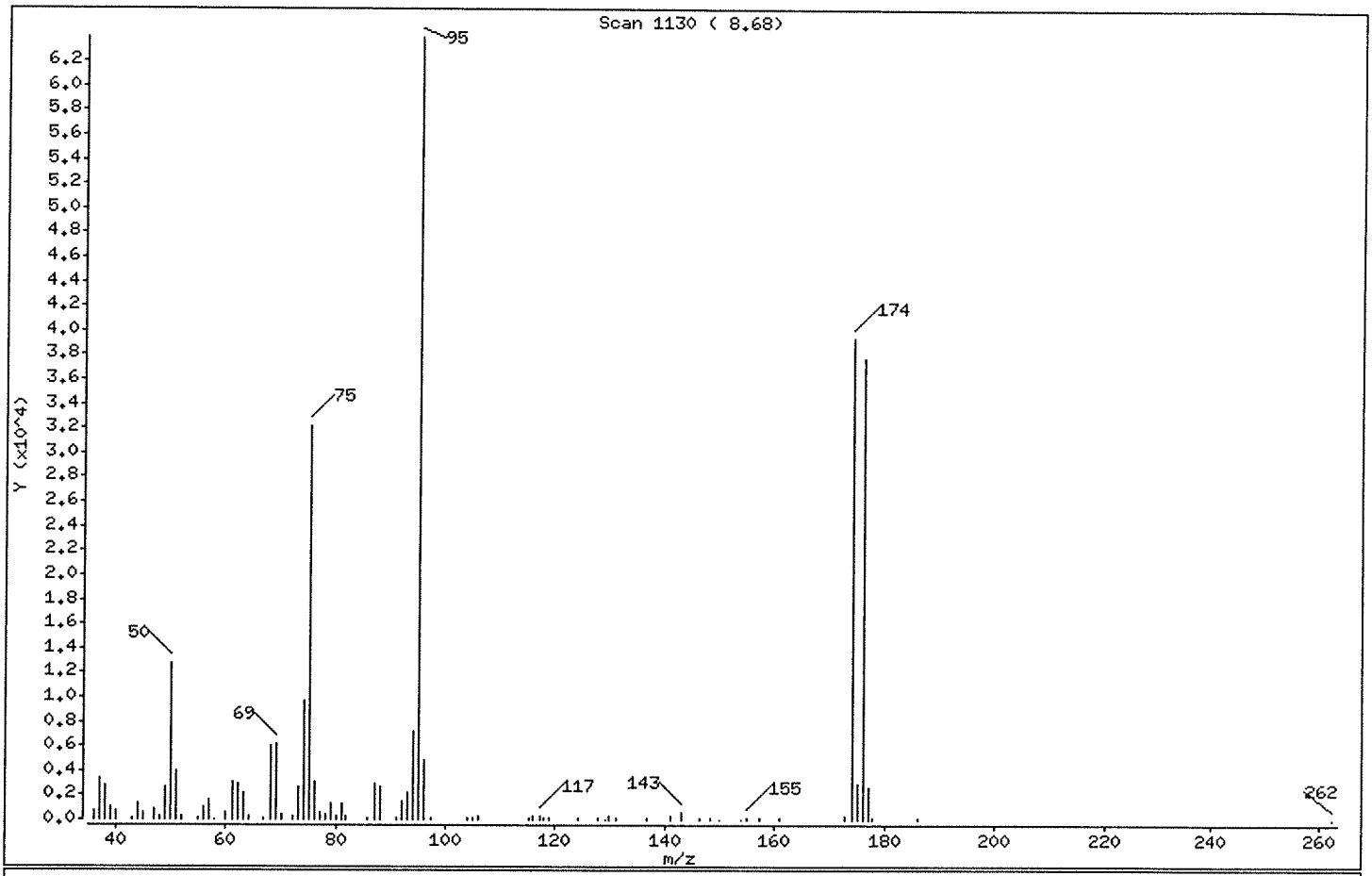
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	19.97
75	30.00 - 60.00% of mass 95	50.32
96	5.00 - 9.00% of mass 95	7.53
173	Less than 2.00% of mass 174	0.54 (0.87)
174	Greater than 50.00% of mass 95	61.71
175	5.00 - 9.00% of mass 174	4.54 (7.36)
176	95.00 - 101.00% of mass 174	59.18 (95.90)
177	5.00 - 9.00% of mass 176	4.14 (6.99)

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092401.D

Date : 24-SEP-2020 11:10

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X092401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.10
Number of points: 79

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	680	62.10	2916	88.00	2589	131.00	177
37.10	3328	63.10	2146	90.90	197	136.90	95
38.10	2848	64.20	251	92.10	1499	141.00	363
39.10	1092	67.00	144	93.10	2228	143.00	535
40.10	702	68.10	6060	94.10	7204	146.20	84
43.20	90	69.10	6113	95.10	63928	148.20	88
44.10	1373	70.10	387	96.10	4811	149.90	62
45.10	600	72.10	357	97.20	145	153.90	52
47.10	929	73.10	2682	104.00	204	155.00	162
48.00	358	74.10	9632	105.00	136	157.10	128
49.10	2668	75.10	32168	105.80	273	160.80	100
50.10	12768	76.10	3061	115.20	130	172.90	344
51.10	4025	77.00	582	116.00	238	174.00	39448
52.10	271	78.10	388	117.10	274	175.10	2905
55.00	135	79.00	1342	117.90	175	176.00	37832
56.10	1094	80.00	329	119.00	202	177.00	2644
57.10	1650	81.10	1363	124.00	76	177.90	81
58.10	54	81.90	267	127.90	200	186.10	193
60.00	635	85.90	78	129.00	73	262.20	52
61.10	3138	87.10	3005	129.90	222		

Data File: X092402.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092402.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 24-SEP-2020 11:34
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

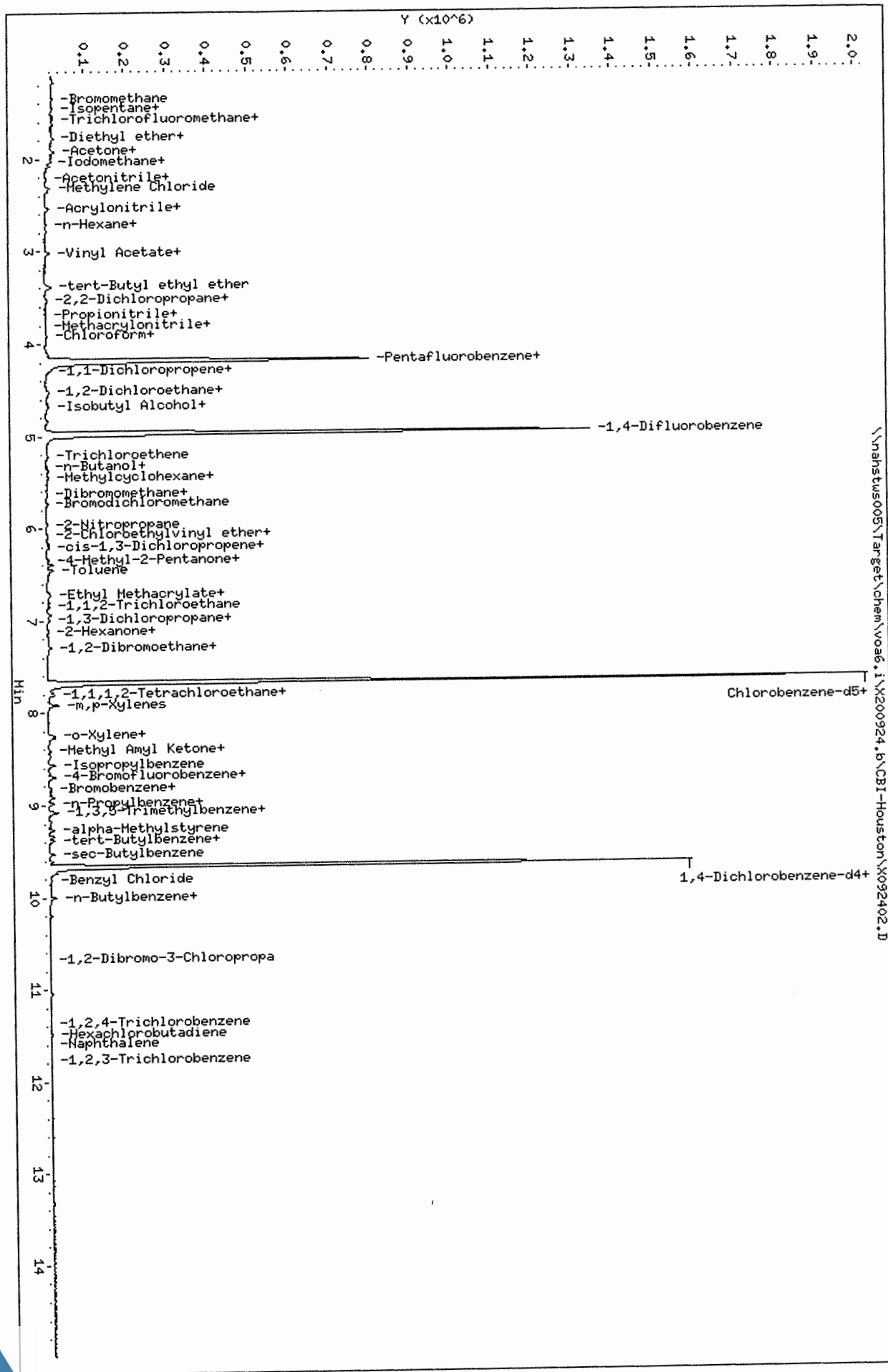
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	689255	50.0000	
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.981)	2163	0.25000	0.30(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	3033	0.25000	0.39(Ta)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1110772	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	970158	50.0000	
$ 48 Toluene-d8	98	6.395	6.395	(0.834)	9651	0.25000	0.37(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	5599	0.25000	(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	403723	50.0000	
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1901	0.25000	0.31(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092402.D
Date : 24-SEP-2020 11:34
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092403.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092403.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 24-SEP-2020 11:58
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 11:34 Cal File: X092402.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

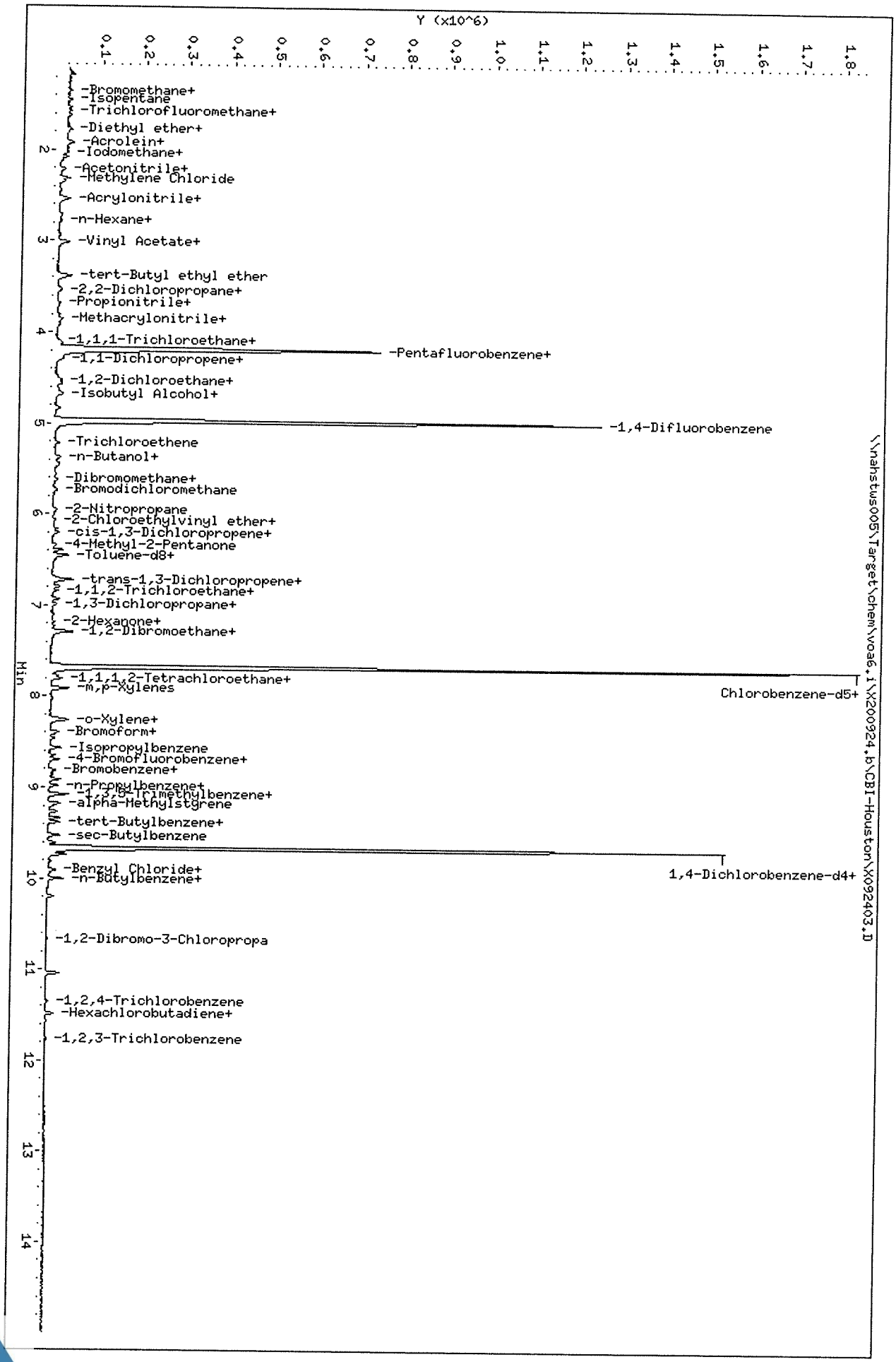
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	642784	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	3913	0.50000	0.59(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	4097	0.50000	0.56(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1019136	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	901245	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	14296	0.50000	0.60(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6772	0.50000	0.04(aM)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	392686	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	4088	0.50000	0.49(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	3062	0.50000	0.52(a)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	4012	0.50000	0.50(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	4729	0.50000	0.53(aM)
38 Trichloroethene	130	5.221	5.221	(1.050)	3796	0.50000	0.52(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2965	0.50000	0.55(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2972	0.50000	0.52(a)

QC Flag Legend

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

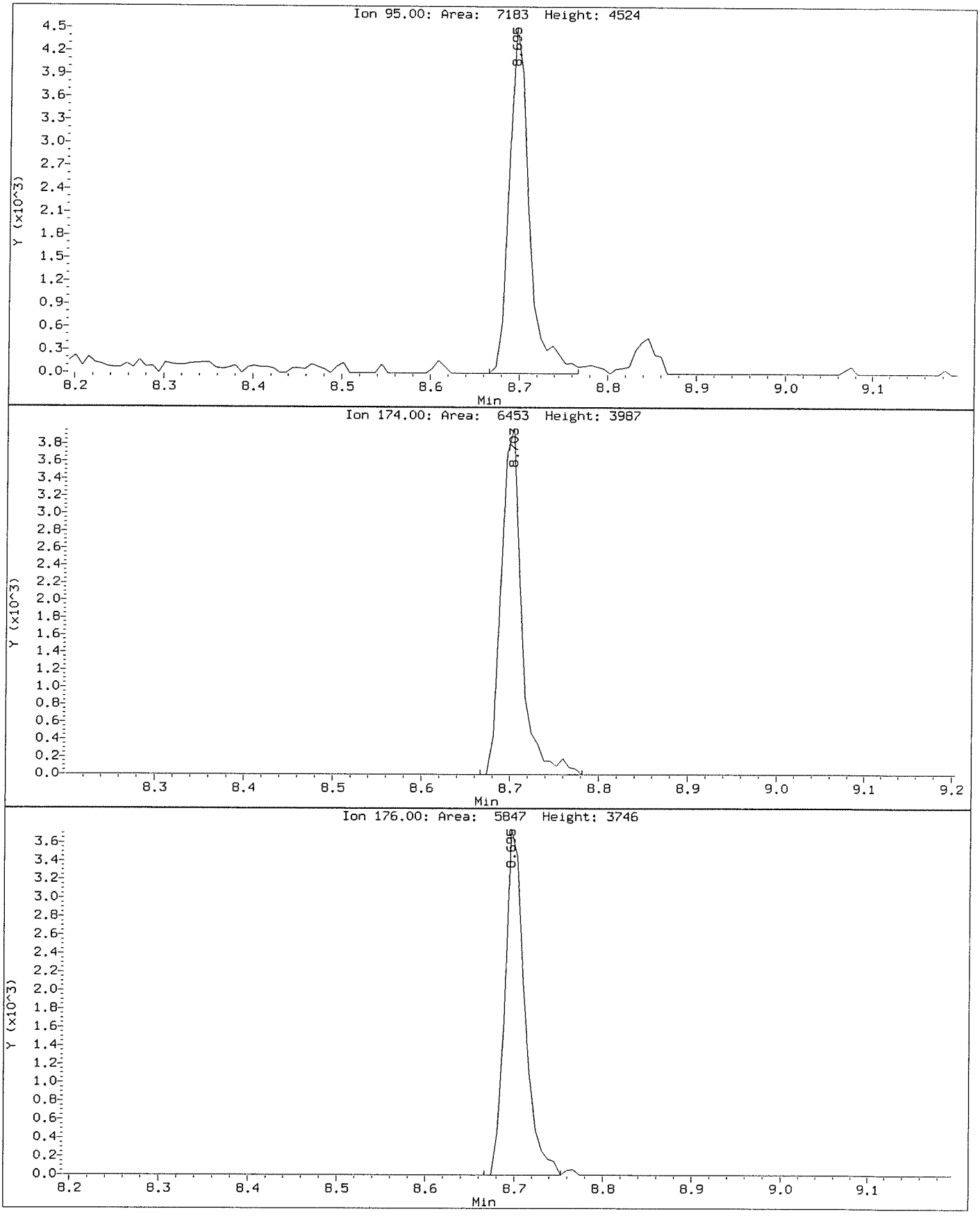


Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092403.D
Date : 24-SEP-2020 11:58
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

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

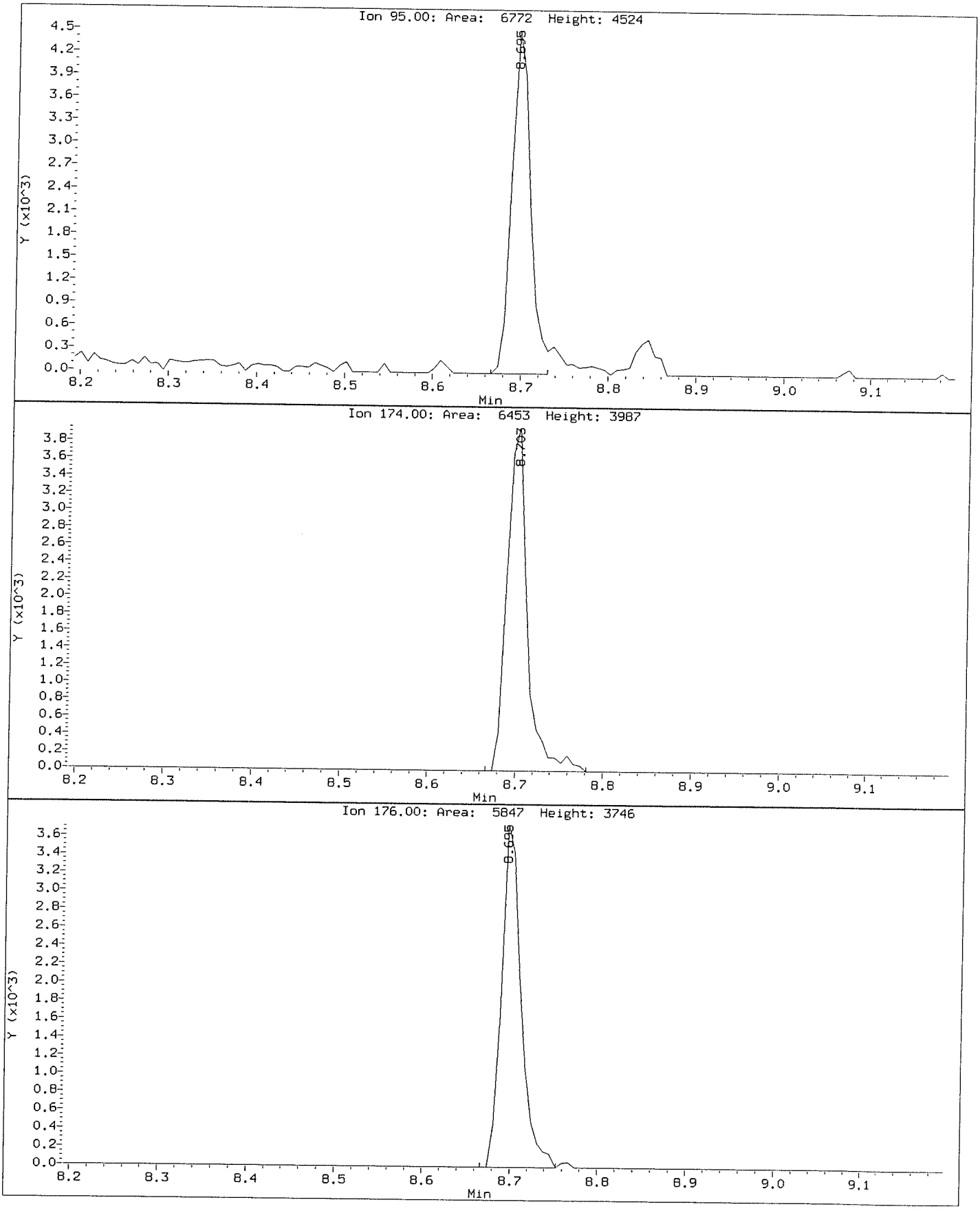
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\Before\X092403.D
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



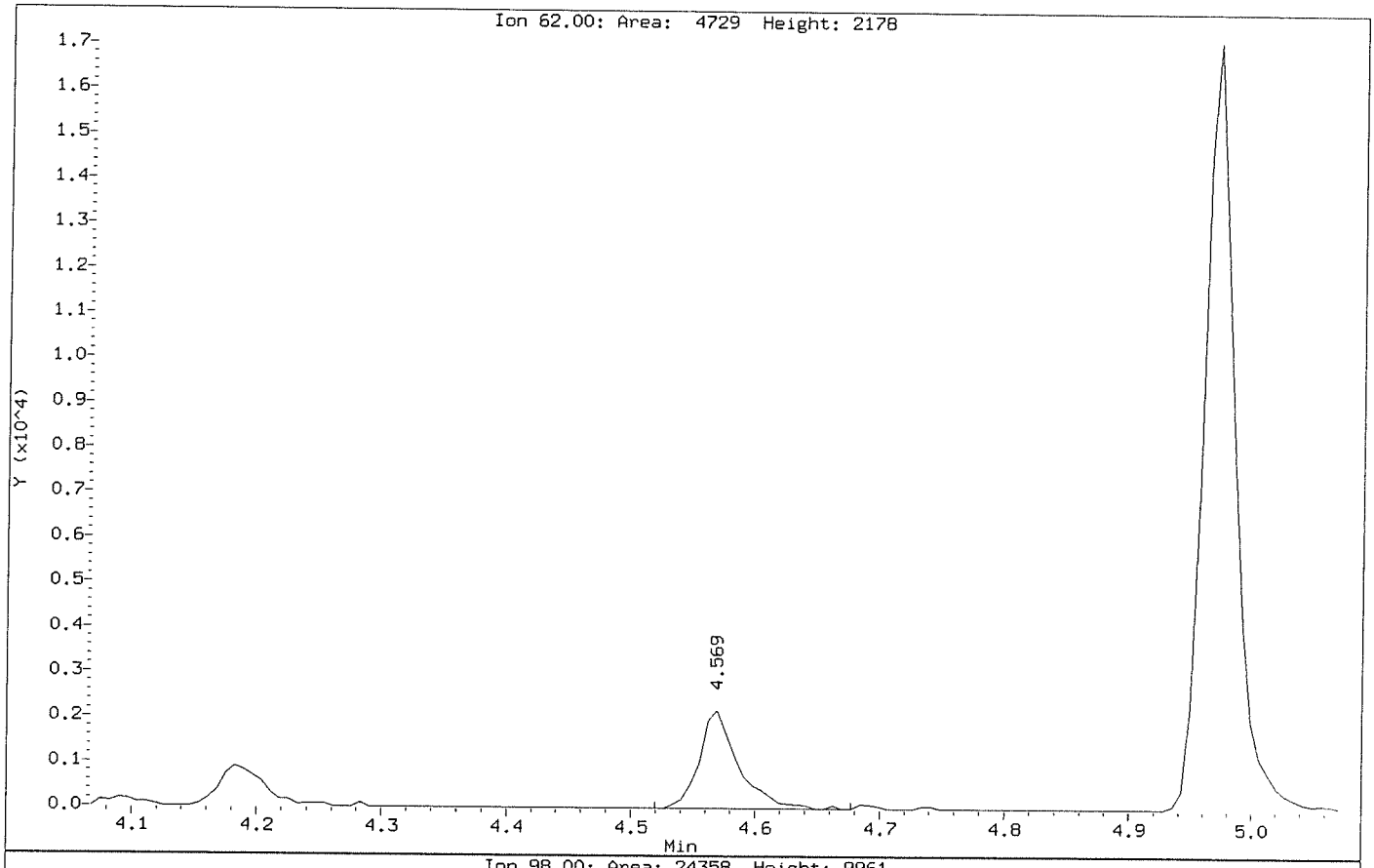
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092403.D
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

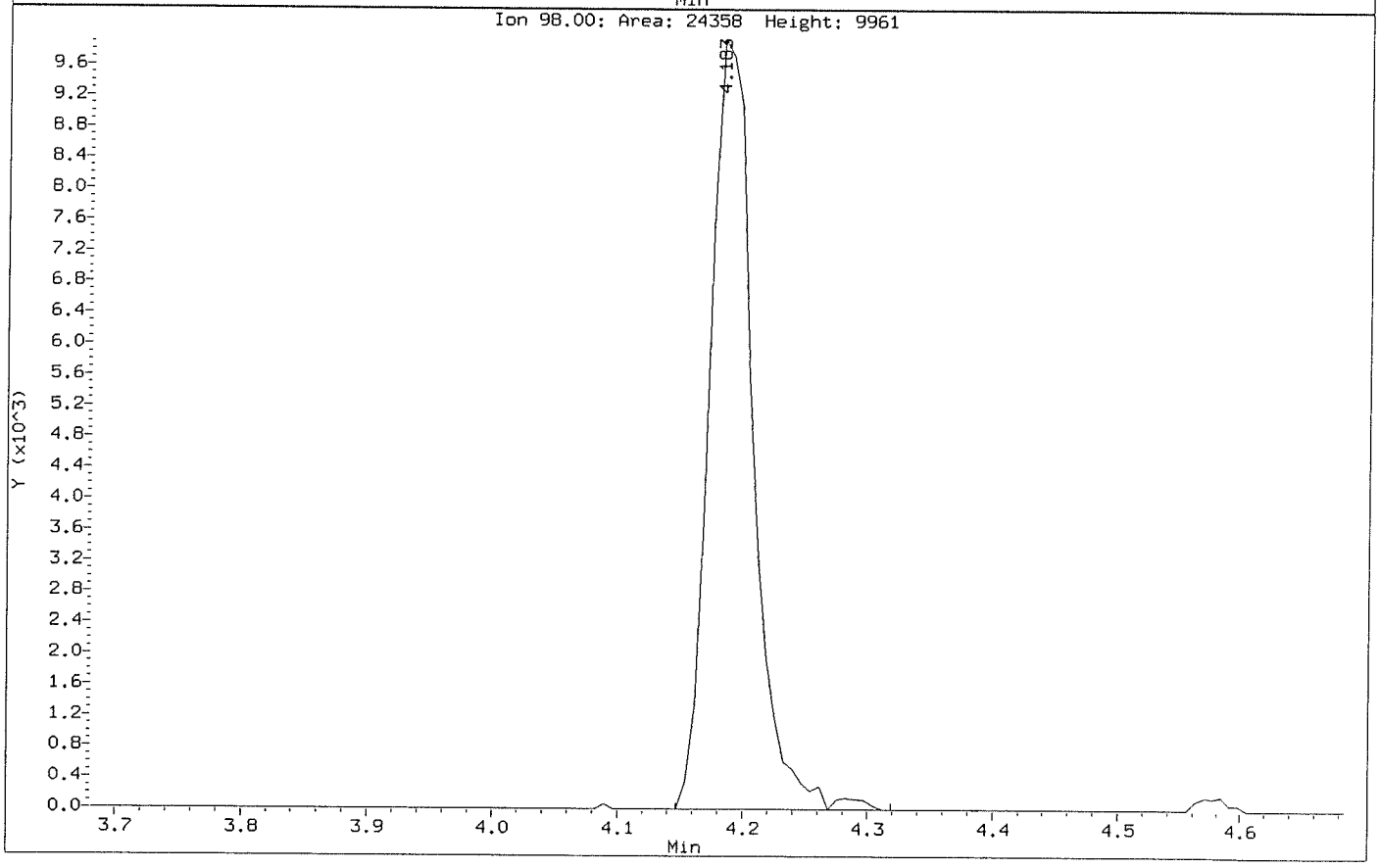
Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\Before\X092403.D
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

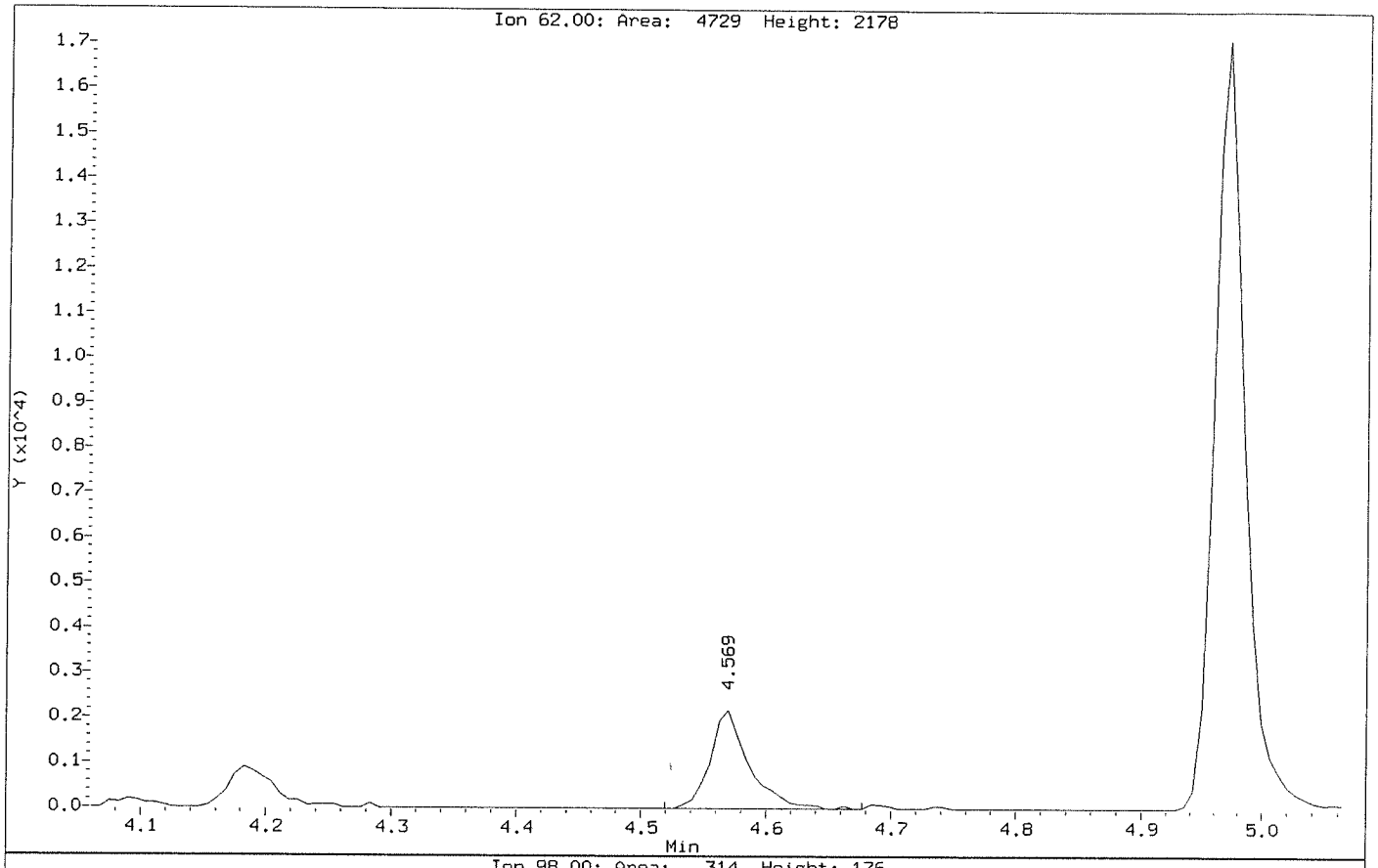
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

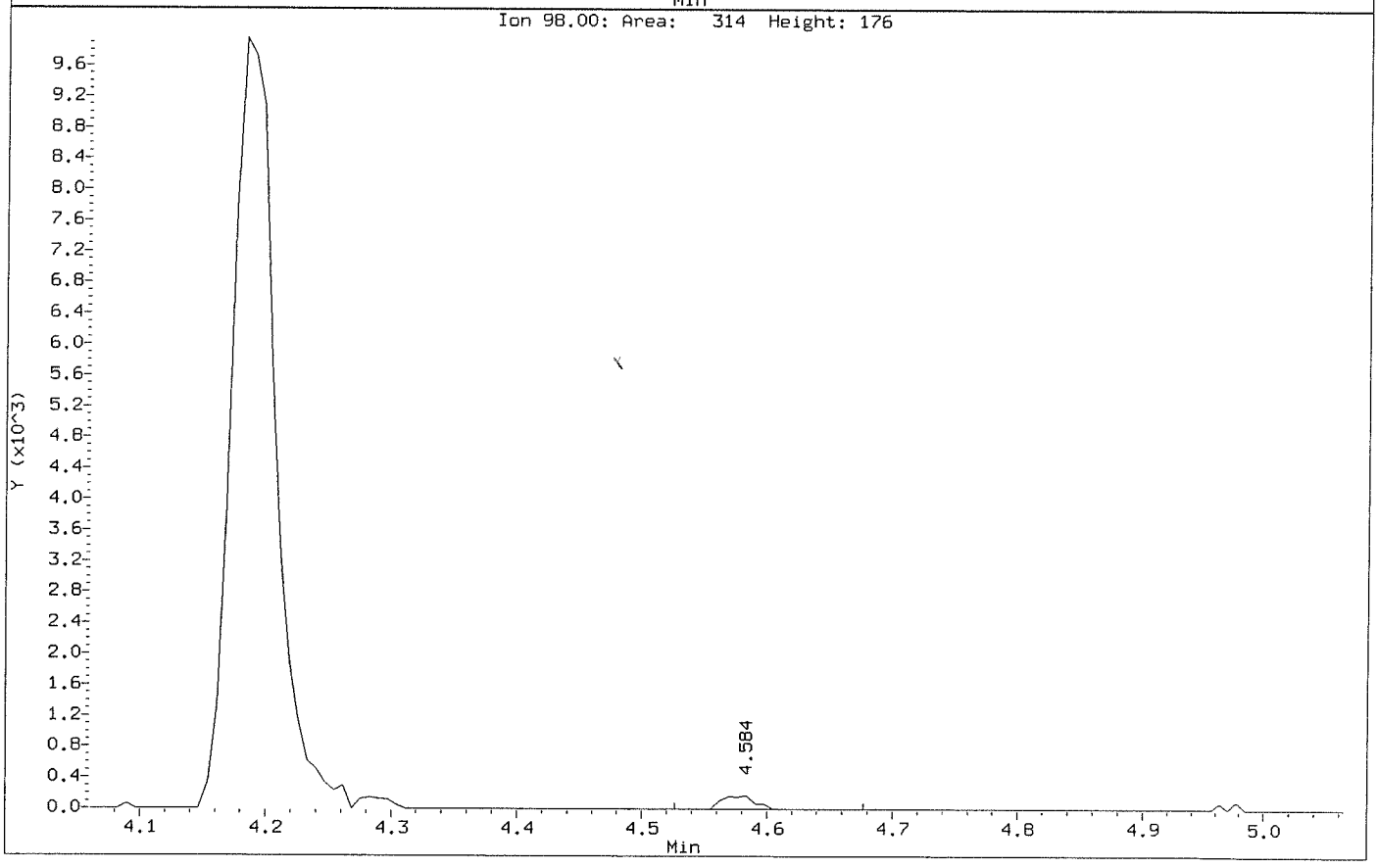




Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092403.D
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





Data File: X092404.D
Report Date: 26-Oct-2020 07:27

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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092404.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 24-SEP-2020 12:46
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 11:58 Cal File: X092403.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

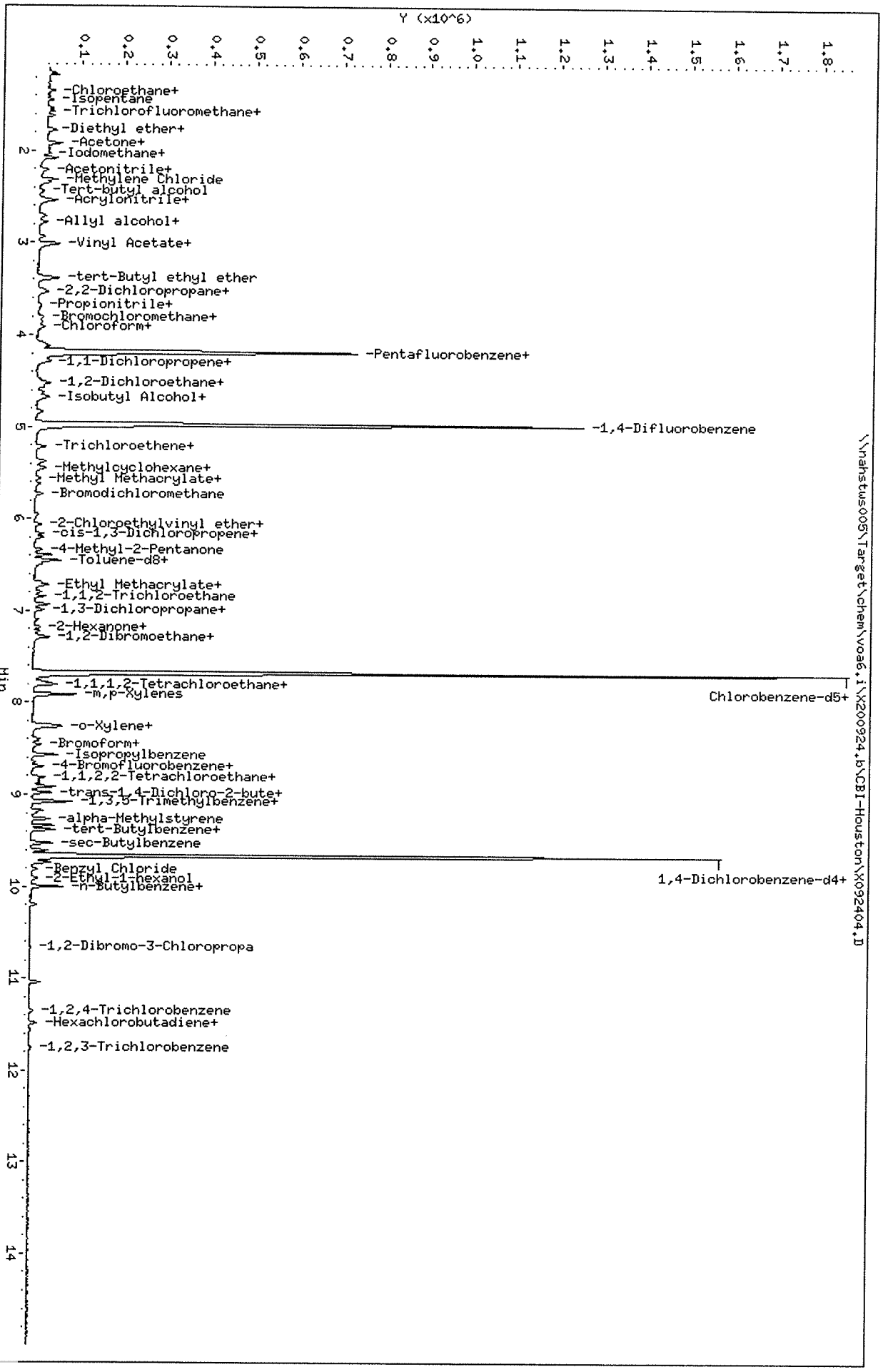
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	632214	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	6507	1.00000	1.00(a)
$ 35 1,2-Dichloroethane-d4	65	4.490	4.490	(1.072)	7341	1.00000	1.03(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1010972	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	898139	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	24343	1.00000	1.03(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	10018	1.00000	0.47(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	383057	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	9143	1.00000	1.11(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	6814	1.00000	1.19(a)
17 Methylene Chloride	84	2.313	2.313	(0.552)	9684	1.00000	0.71(a)
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	9071	1.00000	1.17(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	10910	1.00000	1.25(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	8381	1.00000	1.15(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	6343	1.00000	1.19(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	6913	1.00000	1.21(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092404.D
Date : 24-SEP-2020 12:46
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092405.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092405.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 24-SEP-2020 13:10
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 12:46 Cal File: X092404.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

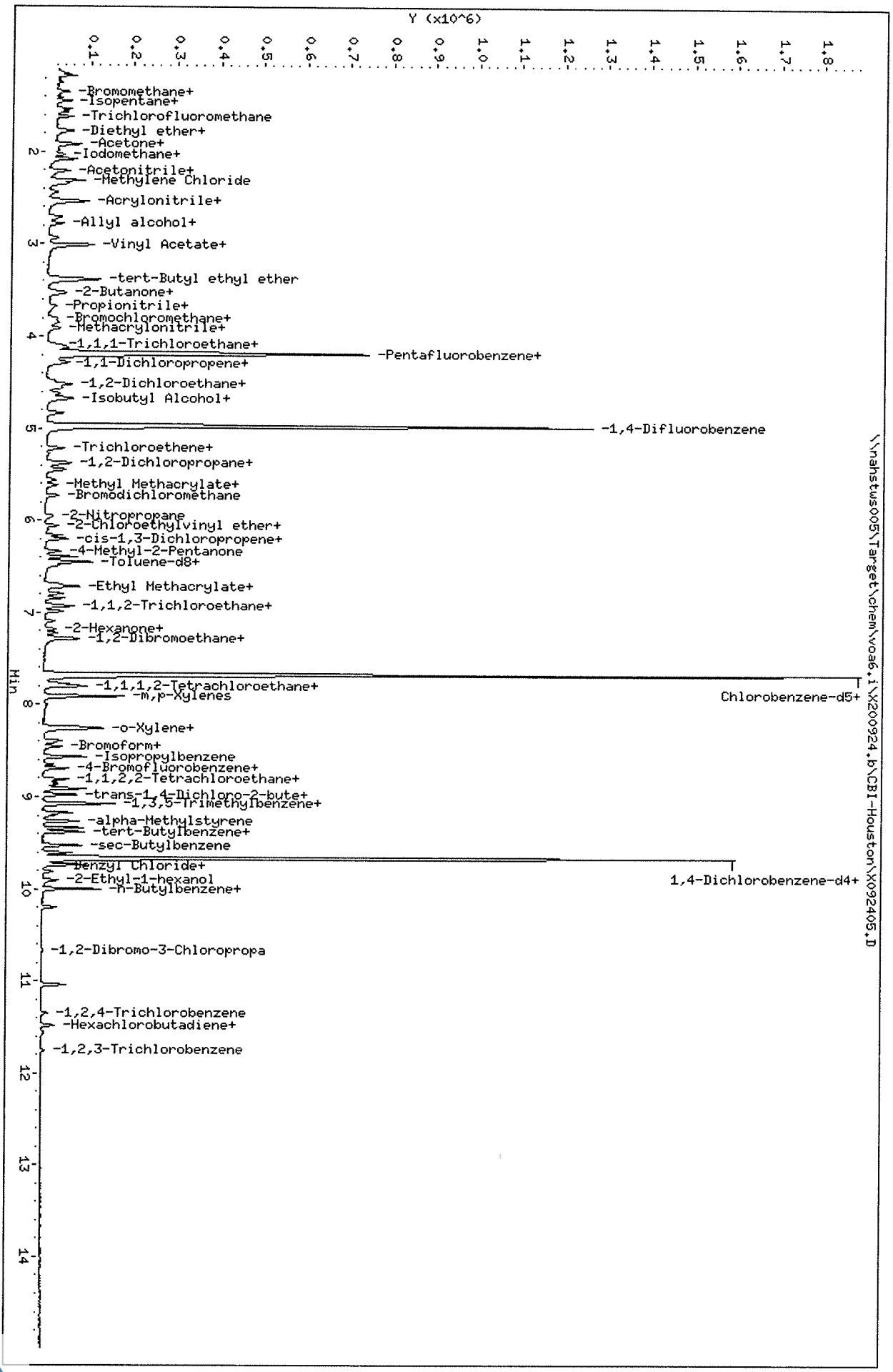
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	644357	50.0000	
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	12469	2.00000	1.88(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	13937	2.00000	1.92(a)
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1019524	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	903632	50.0000	
$ 48 Toluene-d8	98	6.396	6.396	(0.834)	46992	2.00000	1.97(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	18232	2.00000	1.52(a)
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	382631	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	15623	2.00000	1.87(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11109	2.00000	1.91(a)
17 Methylene Chloride	84	2.313	2.313	(0.552)	16648	2.00000	1.68(a)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	15564	2.00000	1.97(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.919)	16818	2.00000	1.91(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	14627	2.00000	2.00(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10973	2.00000	2.06(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	12381	2.00000	2.16(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092405.D
Date : 24-SEP-2020 13:10
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092406.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092406.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 24-SEP-2020 13:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:10 Cal File: X092405.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

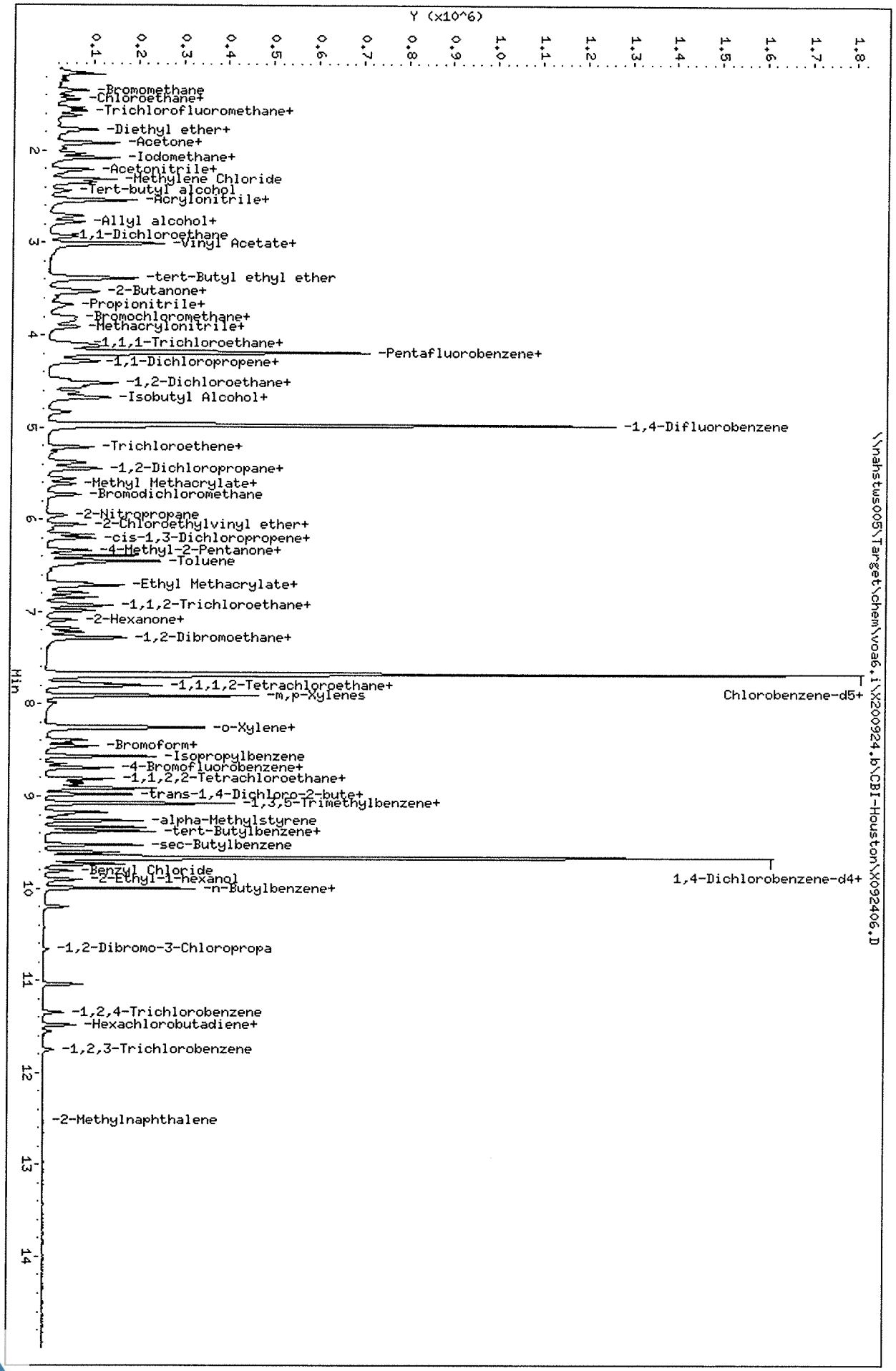
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	604947	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	34017	5.00000	5.47
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.070)	35655	5.00000	5.24
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	968132	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	862629	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	124776	5.00000	5.50
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	43900	5.00000	5.10
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	366206	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	38248	5.00000	4.89(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	27129	5.00000	4.98(a)
17 Methylene Chloride	84	2.313	2.313	(0.552)	39690	5.00000	5.37
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	40006	5.00000	5.39
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	45690	5.00000	5.47
38 Trichloroethene	130	5.214	5.214	(1.049)	36421	5.00000	5.25
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	27209	5.00000	5.35
56 Tetrachloroethene	164	6.933	6.933	(0.904)	28143	5.00000	5.16

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6,i\X200924,b\CBI-Houston\X092406,D
Date : 24-SEP-2020 13:33
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: X092407.D
Report Date: 26-Oct-2020 07:27

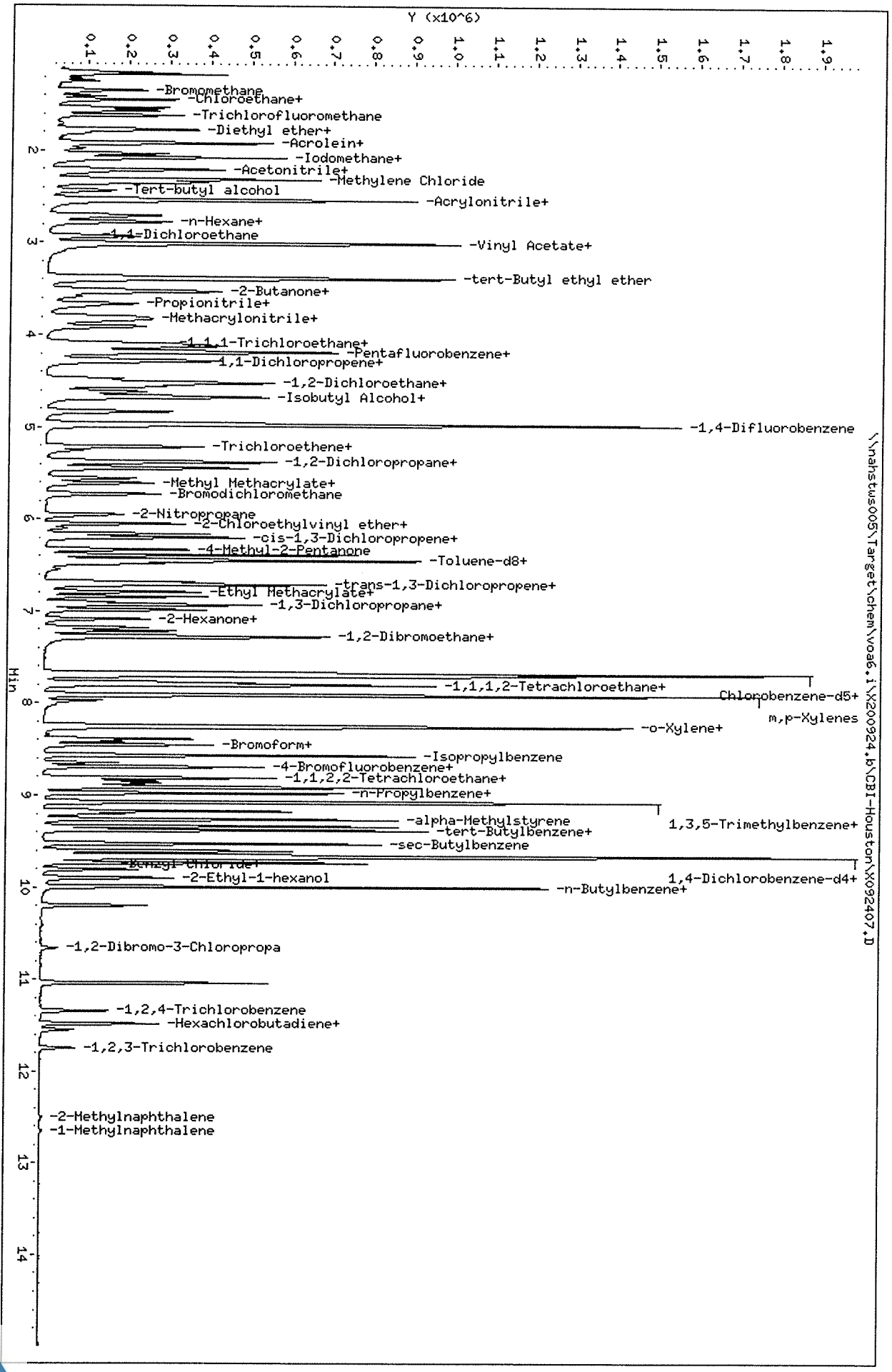
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092407.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 24-SEP-2020 13:57
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:33 Cal File: X092406.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	597686	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	120544	20.0000	19.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	130718	20.0000	19.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	958262	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	861110	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	439641	20.0000	19.41
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	154353	20.0000	20.07
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	364939	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	146437	20.0000	18.96
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	104067	20.0000	19.36
17 Methylene Chloride	84	2.305	2.305	(0.550)	137362	20.0000	20.58
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	142521	20.0000	19.46
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	153916	20.0000	18.62
38 Trichloroethene	130	5.214	5.214	(1.049)	129379	20.0000	18.87
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	97092	20.0000	19.14
56 Tetrachloroethene	164	6.933	6.933	(0.904)	104308	20.0000	19.17



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092407.D
Date : 24-SEP-2020 13:57
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: X092408.D
Report Date: 26-Oct-2020 07:27

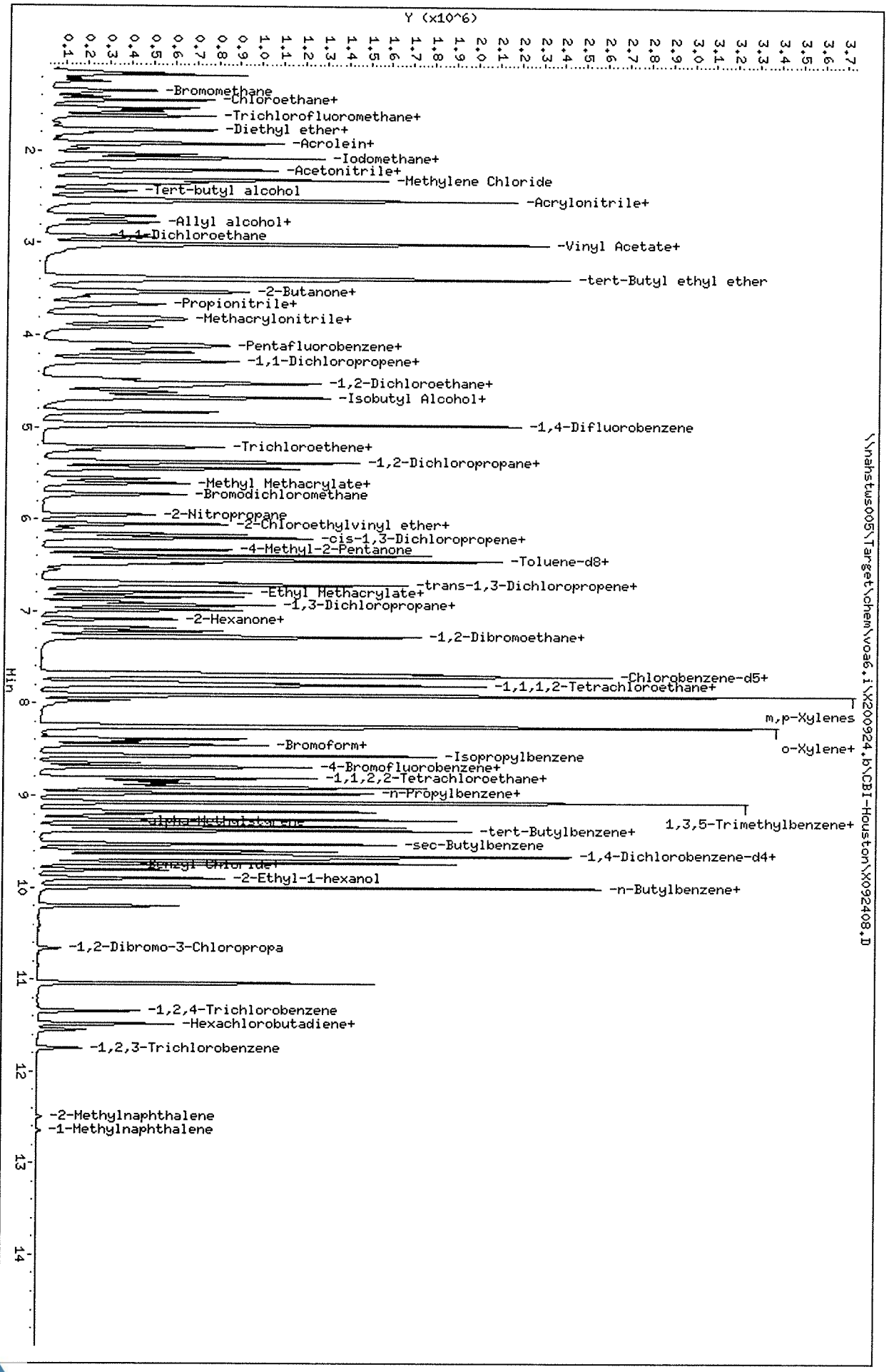
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092408.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 24-SEP-2020 14:21
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 13:57 Cal File: X092407.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	565166	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	277712	50.0000	47.81
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	307872	50.0000	48.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	910705	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	829935	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1029825	50.0000	47.19
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	368645	50.0000	50.98
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	353927	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	327079	50.0000	44.80
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	227518	50.0000	44.77
17 Methylene Chloride	84	2.305	2.305	(0.550)	303593	50.0000	49.06
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	318945	50.0000	46.06
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	356652	50.0000	45.42
38 Trichloroethene	130	5.214	5.214	(1.049)	284429	50.0000	43.66
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	221270	50.0000	45.26
56 Tetrachloroethene	164	6.933	6.933	(0.904)	209713	50.0000	39.99



Data File: \\nahstus005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092408.D
Date : 24-SEP-2020 14:21
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: X092409.D
Report Date: 26-Oct-2020 07:27

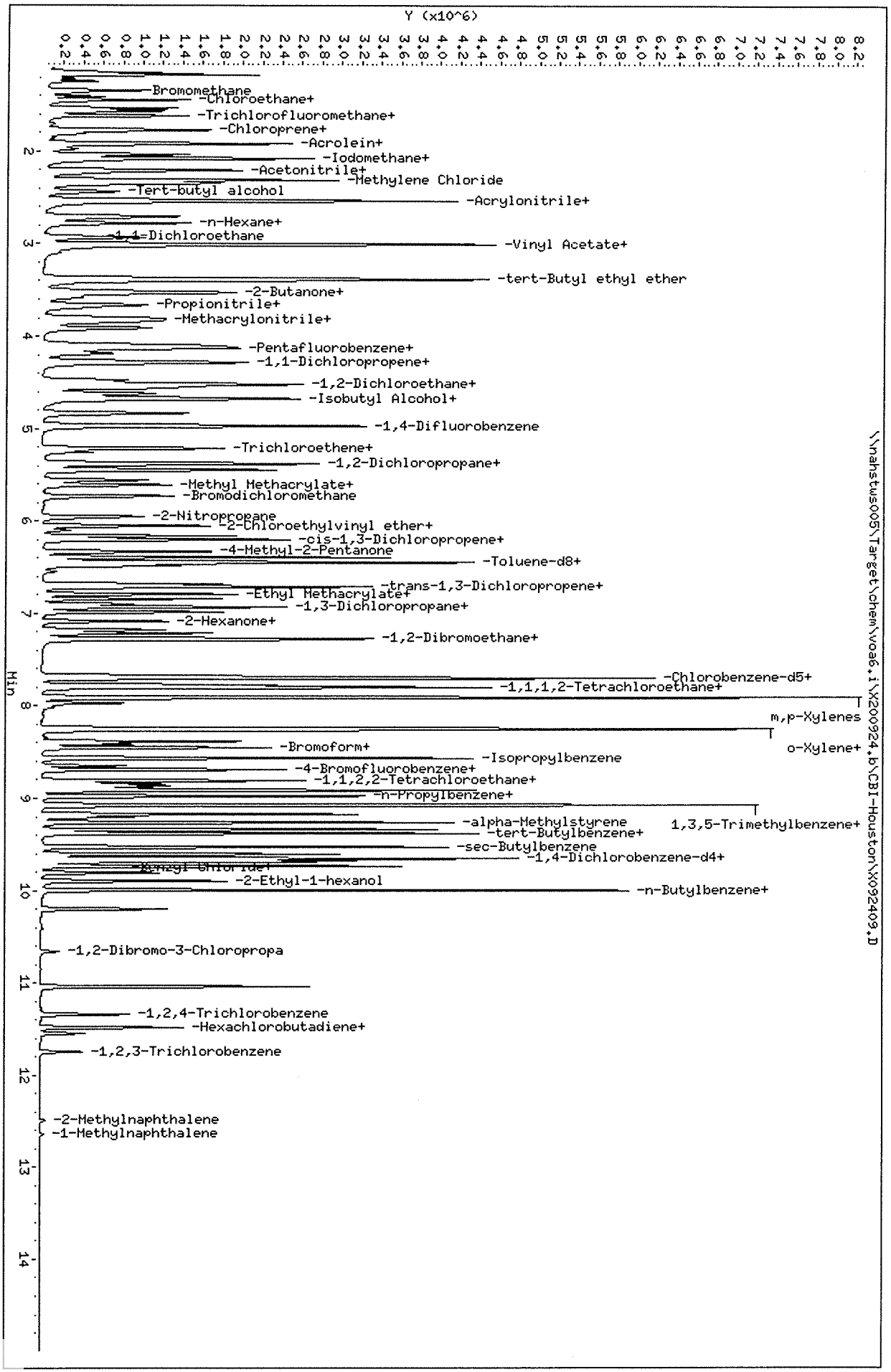
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092409.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 24-SEP-2020 14:45
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	546812	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	537287	100.000	95.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	594732	100.000	96.75
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	873571	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	810573	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1988260	100.000	93.29
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	706326	100.000	100.80
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	336603	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	730234	100.000	103.38
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	479537	100.000	97.53
17 Methylene Chloride	84	2.306	2.306	(0.550)	605902	100.000	101.96
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	637736	100.000	95.19
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	692994	100.000	92.00
38 Trichloroethene	130	5.214	5.214	(1.049)	604179	100.000	96.69
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	433386	100.000	90.78
56 Tetrachloroethene	164	6.933	6.933	(0.904)	489193	100.000	95.52



Data File: \\nahstus005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092409.D
Date : 24-SEP-2020 14:45
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: X092410.D
Report Date: 26-Oct-2020 07:27

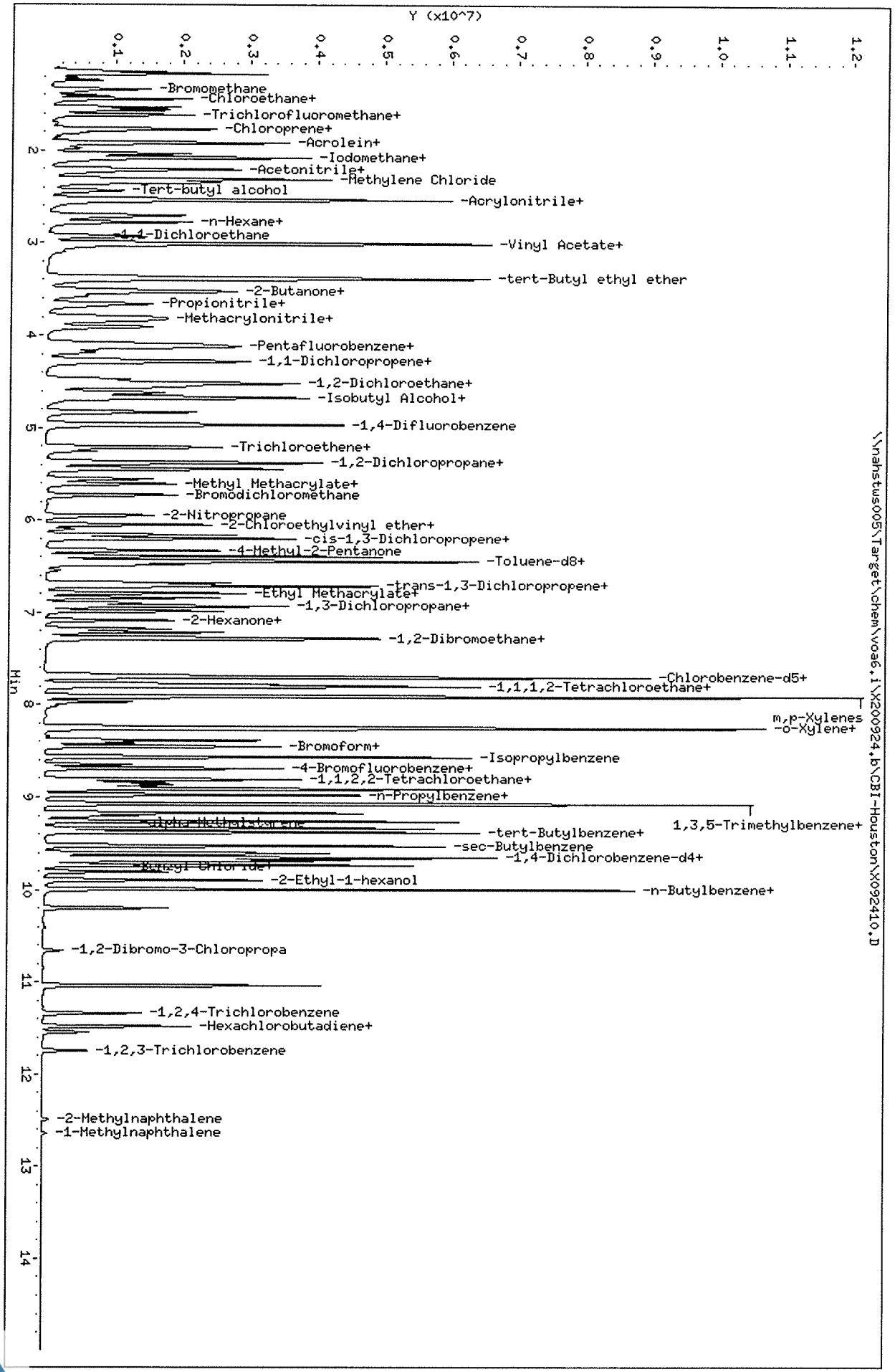
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092410.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 24-SEP-2020 15:09
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:45 Cal File: X092409.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	531920	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	770629	150.000	140.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	856168	150.000	143.18
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	840978	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	779079	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2823072	150.000	137.82
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1011330	150.000	150.58
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	329958	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1069212	150.000	155.61
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	699764	150.000	146.31
17 Methylene Chloride	84	2.305	2.305	(0.550)	861961	150.000	149.44
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	926983	150.000	142.24
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1012585	150.000	139.64
38 Trichloroethene	130	5.207	5.207	(1.048)	882316	150.000	146.68
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	627933	150.000	136.85
56 Tetrachloroethene	164	6.933	6.933	(0.904)	708095	150.000	143.86



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092410.D
Date : 24-SEP-2020 15:09
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: X092411.D
Report Date: 26-Oct-2020 07:27

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092411.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 24-SEP-2020 15:33
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:09 Cal File: X092410.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

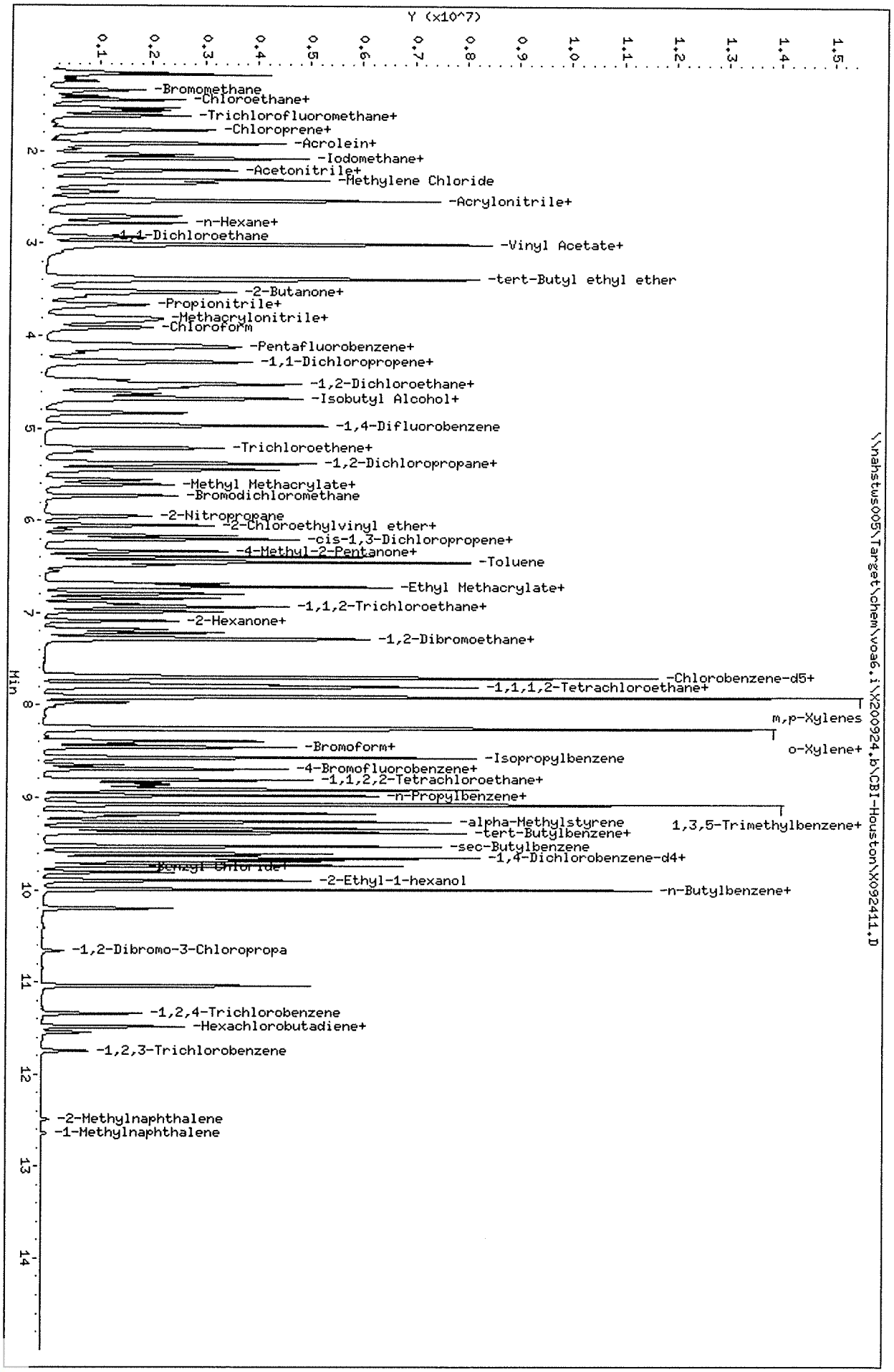
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	514617	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	997974	200.000	188.72
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	1108704	200.000	191.65
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	818151	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	766117	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	3650737	200.000	181.25
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	1311827	200.000	198.89
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319805	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1412833	200.000	212.53(A)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	898417	200.000	194.16
17 Methylene Chloride	84	2.305	2.305	(0.550)	1112263	200.000	199.56
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	1197643	200.000	189.96
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1311886	200.000	185.97
38 Trichloroethene	130	5.214	5.214	(1.049)	1150173	200.000	196.54
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	811095	200.000	179.76
56 Tetrachloroethene	164	6.933	6.933	(0.904)	917390	200.000	189.53

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092411.D
Date : 24-SEP-2020 15:33
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

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

Data File: X092414.D
Report Date: 26-Oct-2020 07:27

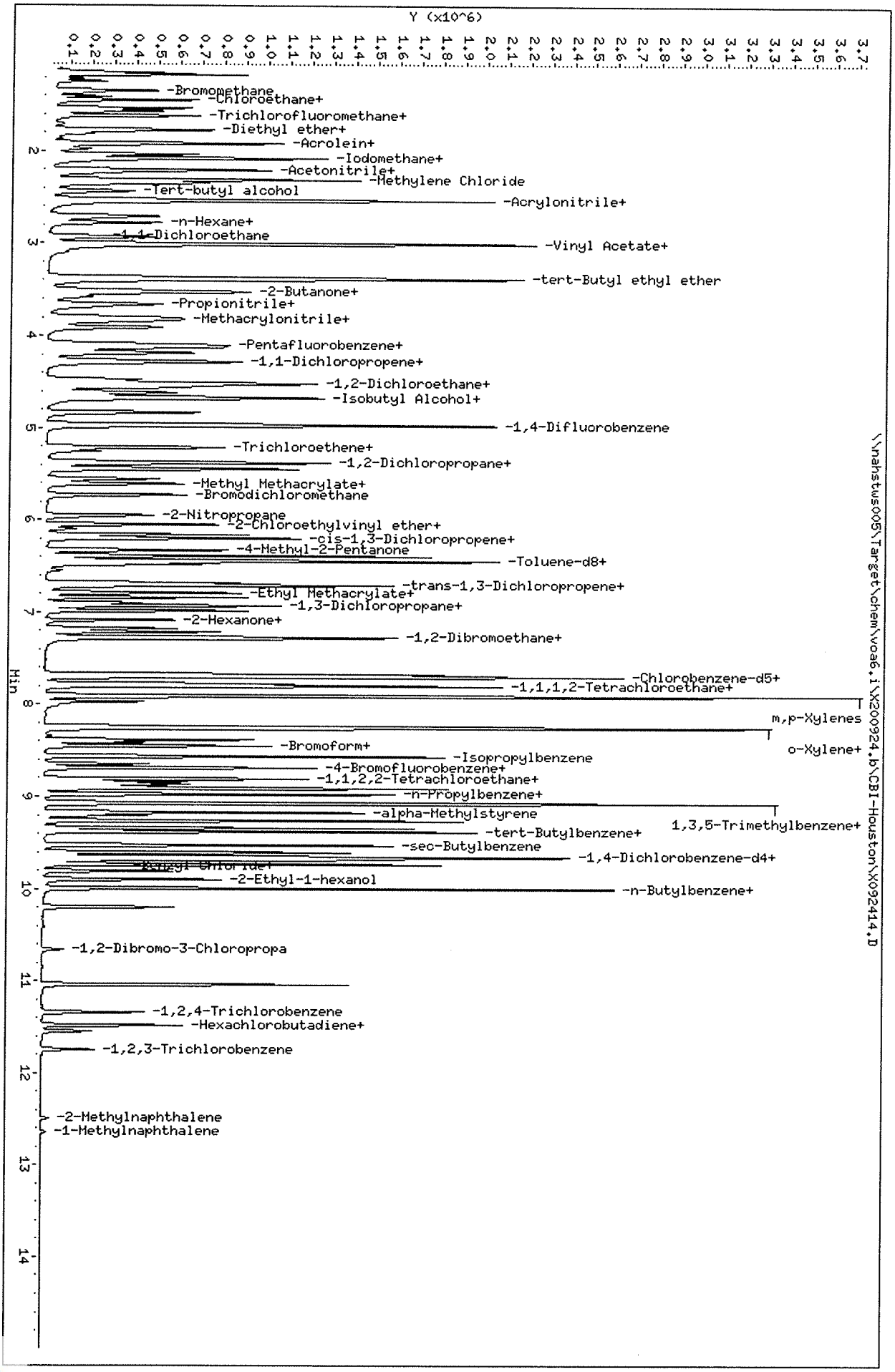
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092414.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 24-SEP-2020 16:45
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\8260W.m
Meth Date : 26-Oct-2020 07:27 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	555853	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	270370	47.3353	47.33
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	292397	46.7950	46.79
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	880879	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	809143	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	992617	46.6609	46.66
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	357664	50.7296	50.72
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	340955	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	314294	43.7725	43.77
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	215034	43.0259	43.02
17 Methylene Chloride	84	2.306	2.305	(0.550)	293086	48.1510	48.15
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	305678	44.8873	44.88
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	342758	45.1289	45.12
38 Trichloroethene	130	5.214	5.214	(1.049)	279338	44.3352	44.33
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	212341	44.5585	44.55
56 Tetrachloroethene	164	6.933	6.933	(0.904)	211119	41.2989	41.29



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\CBI-Houston\X092414.D
Date : 24-SEP-2020 16:45
Client ID: ICV
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 42006 **Analyst:** Presenta Cabascango

Date: 10-09-2020 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	10-09-2020 10:34 am	1.00	50 mL	50 mL	X010901.D	Liquid	Y	NA
	Auto find/ purged									
2	CCV	CCV	10-09-2020 10:58 am	1.00	50 mL	50 mL	X010902a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	CCV	CCV	10-09-2020 11:22 am	1.00	50 mL	50 mL	X010903.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	10-09-2020 11:46 am	1.00	50 mL	50 mL	X010904.D	Liquid	Y	NA
5	VLCSW-200109	LCS	10-09-2020 12:10 pm	1.00	50 mL	50 mL	X010905.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
6	BLK	SAMP	10-09-2020 12:34 pm	1.00	50 mL	50 mL	X010906.D	Liquid	Y	NA
7	VBLKW-200109	MBLK	10-09-2020 12:58 pm	1.00	50 mL	50 mL	X010907.D	Liquid	Y	NA
8	HS20100342-09	SAMP	10-09-2020 01:22 pm	1.00	50 mL	50 mL	X010908.D	Liquid	Y	<2
9	HS20100342-01	SAMP	10-09-2020 01:46 pm	1.00	50 mL	50 mL	X010909.D	Liquid	Y	<2
10	HS20100342-03	SAMP	10-09-2020 02:10 pm	1.00	50 mL	50 mL	X010910.D	Liquid	Y	<2
11	HS20100342-04	SAMP	10-09-2020 02:34 pm	1.00	50 mL	50 mL	X010911.D	Liquid	Y	<2
12	HS20100342-05	SAMP	10-09-2020 02:58 pm	1.00	50 mL	50 mL	X010912.D	Liquid	Y	<2
13	HS20100342-06	SAMP	10-09-2020 03:22 pm	1.00	50 mL	50 mL	X010913.D	Liquid	Y	<2
14	HS20100342-07	SAMP	10-09-2020 03:46 pm	1.00	50 mL	50 mL	X010914.D	Liquid	Y	<2
15	HS20100342-08	SAMP	10-09-2020 04:10 pm	1.00	50 mL	50 mL	X010915.D	Liquid	Y	<2
16	HS20100352-03	SAMP	10-09-2020 04:34 pm	1.00	50 mL	50 mL	X010916.D	Liquid	Y	<2
17	HS20100352-04	SAMP	10-09-2020 04:58 pm	1.00	50 mL	50 mL	X010917.D	Liquid	Y	<2
18	HS20100342-02	SAMP	10-09-2020 05:22 pm	1.00	50 mL	50 mL	X010918.D	Liquid	Y	<2
19	HS20100352-03MS	MS	10-09-2020 05:46 pm	1.00	50 mL	50 mL	X010919.D	Liquid	Y	<2
	3.5 uL cal std/40 mL samp									
20	HS20100352-03MSD	MSD	10-09-2020 06:10 pm	1.00	50 mL	50 mL	X010920.D	Liquid	Y	<2
	3.5 uL cal std/40 mL amp									
21	HS20100361-01	SAMP	10-09-2020 06:34 pm	5.00	10 mL	50 mL	X010921.D	Liquid	Y	<2
22	HS20100361-02	SAMP	10-09-2020 06:58 pm	5.00	10 mL	50 mL	X010922.D	Liquid	Y	<2
23	HS20100352-07	SAMP	10-09-2020 07:22 pm	1.00	50 mL	50 mL	X010923.D	Liquid	Y	<2
24	HS20100352-01	SAMP	10-09-2020 07:47 pm	1.00	50 mL	50 mL	X010924.D	Liquid	Y	<2
25	HS20100352-02	SAMP	10-09-2020 08:11 pm	1.00	50 mL	50 mL	X010925.D	Liquid	Y	<2
26	HS20100352-05	SAMP	10-09-2020 08:35 pm	1.00	50 mL	50 mL	X010926.D	Liquid	Y	<2
27	HS20100352-06	SAMP	10-09-2020 08:59 pm	1.00	50 mL	50 mL	X010927.D	Liquid	Y	<2
28	HS20100342-02	SAMP	10-09-2020 09:23 pm	10.00	5 mL	50 mL	X010928.D	Liquid	Y	<2
29	CCV-END	CCV	10-09-2020 09:47 pm	1.00	50 mL	50 mL	X010929.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
30	HS20100429-01	SAMP	10-09-2020 10:11 pm	1.00	50 mL	50 mL	X010930.D	Liquid	Y	NA
31	BFB	TUNE	10-09-2020 10:35 pm	1.00	50 mL	50 mL	Y010901.D	Liquid	Y	NA
	Auto find/ purged									
32	CCV	CCV	10-09-2020 10:59 pm	1.00	50 mL	50 mL	Y010902a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
33	CCV	CCV	10-09-2020 11:22 pm	1.00	50 mL	50 mL	Y010903.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
34	CCB	SAMP	10-09-2020 11:47 pm	1.00	50 mL	50 mL	Y010904.D	Liquid	Y	NA
35	VLCSW-200109	LCS	10-10-2020 12:10 am	1.00	50 mL	50 mL	Y010905.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	BLK	SAMP	10-10-2020 12:35 am	1.00	50 mL	50 mL	Y010906.D	Liquid	Y	NA
37	VBLKW-200109	MBLK	10-10-2020 12:59 am	1.00	50 mL	50 mL	Y010907.D	Liquid	Y	NA
38	HS20100319-08	SAMP	10-10-2020 01:23 am	1.00	50 mL	50 mL	Y010908.D	Liquid	Y	NA
	neat samples									
39	HS20100319-03	SAMP	10-10-2020 01:47 am	1.00	50 mL	50 mL	Y010909.D	Liquid	Y	NA
40	HS20100319-03MS	MS	10-10-2020 02:11 am	1.00	50 mL	50 mL	Y010910.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
41	HS20100319-03MSD	MSD	10-10-2020 02:35 am	1.00	50 mL	50 mL	Y010911.D	Liquid	Y	NA
	3.5 uL cal std/40 mL samp									
42	HS20100479-12	SAMP	10-10-2020 02:59 am	1.00	50 mL	50 mL	Y010912.D	Liquid	Y	NA
	Neat samples									
43	HS20100479-13	SAMP	10-10-2020 03:23 am	1.00	50 mL	50 mL	Y010913.D	Liquid	Y	NA
44	HS20100479-14	SAMP	10-10-2020 03:47 am	1.00	50 mL	50 mL	Y010914.D	Liquid	Y	NA
45	HS20100479-01	SAMP	10-10-2020 04:11 am	1.00	50 mL	50 mL	Y010915.D	Liquid	Y	NA
46	HS20100479-02	SAMP	10-10-2020 04:35 am	1.00	50 mL	50 mL	Y010916.D	Liquid	Y	NA
47	HS20100479-03	SAMP	10-10-2020 04:59 am	1.00	50 mL	50 mL	Y010917.D	Liquid	Y	NA
48	HS20100479-04	SAMP	10-10-2020 05:23 am	1.00	50 mL	50 mL	Y010918.D	Liquid	Y	NA
49	HS20100479-05	SAMP	10-10-2020 05:47 am	1.00	50 mL	50 mL	Y010919.D	Liquid	Y	NA
50	HS20100479-06	SAMP	10-10-2020 06:11 am	1.00	50 mL	50 mL	Y010920.D	Liquid	Y	NA
51	HS20100479-07	SAMP	10-10-2020 06:35 am	1.00	50 mL	50 mL	Y010921.D	Liquid	Y	NA
52	HS20100319-01	SAMP	10-10-2020 07:00 am	1.00	50 mL	50 mL	Y010922.D	Liquid	Y	NA
53	HS20100479-08	SAMP	10-10-2020 07:24 am	1.00	50 mL	50 mL	Y010923.D	Liquid	Y	NA
54	HS20100319-02	SAMP	10-10-2020 07:48 am	1.00	50 mL	50 mL	Y010924.D	Liquid	Y	NA
55	HS20100479-09	SAMP	10-10-2020 08:12 am	1.00	50 mL	50 mL	Y010925.D	Liquid	Y	NA
56	HS20100319-04	SAMP	10-10-2020 08:36 am	1.00	50 mL	50 mL	Y010926.D	Liquid	Y	NA
57	HS20100479-10	SAMP	10-10-2020 09:00 am	1.00	50 mL	50 mL	Y010927.D	Liquid	Y	NA
58	HS20100319-05	SAMP	10-10-2020 09:24 am	1.00	50 mL	50 mL	Y010928.D	Liquid	Y	NA
59	HS20100479-11	SAMP	10-10-2020 09:48 am	1.00	50 mL	50 mL	Y010929.D	Liquid	Y	NA

Chemical	Value
SURR SPK ID	31106-47-06
IS ID	31106-47-06
CAL STD ID	31106-50-01/02
BFB ID	31106-47-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-200109	96	97	97	103	0
02	VBLKW-200109	94	92	99	105	0
03	HS20100342-09	95	93	98	107	0
04	HS20100342-01	93	91	98	104	0
05	HS20100342-03	95	92	98	107	0
06	HS20100342-04	95	92	99	106	0
07	HS20100342-05	94	92	98	106	0
08	HS20100342-06	96	92	99	107	0
09	HS20100342-07	94	92	99	105	0
10	HS20100342-08	93	91	98	107	0
11	HS20100342-02	95	94	97	108	0
12	HS20100352-03	95	92	97	105	0
13	HS20100352-03	95	92	96	105	0
14	HS20100342-02	95	91	99	106	0
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(70-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(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 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200109

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Lab File ID: X010907 Lab Sample ID: VBLKW-200109

Date Analyzed: 10/09/20 Time Analyzed: 1258

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-200109	VLCSW-200109	X010905	1210
02	HS20100342-0	HS20100342-09	X010908	1322
03	HS20100342-0	HS20100342-01	X010909	1346
04	HS20100342-0	HS20100342-03	X010910	1410
05	HS20100342-0	HS20100342-04	X010911	1434
06	HS20100342-0	HS20100342-05	X010912	1458
07	HS20100342-0	HS20100342-06	X010913	1522
08	HS20100342-0	HS20100342-07	X010914	1546
09	HS20100342-0	HS20100342-08	X010915	1610
10	HS20100342-0	HS20100342-02	X010918	1722
11	HS20100352-0	HS20100352-03M	X010919	1746
12	HS20100352-0	HS20100352-03M	X010920	1810
13	HS20100342-0	HS20100342-02	X010928	2123
14				
15				
16				
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26				
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29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Lab File ID: X010901 BFB Injection Date: 10/09/20

Instrument ID: VOA6 BFB Injection Time: 1034

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.1
75	30.0 - 60.0% of mass 95	50.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.8
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	67.0
175	5.0 - 9.0% of mass 174	5.5 (8.3)1
176	95.0 - 101.0% of mass 174	64.3 (95.9)1
177	5.0 - 9.0% of mass 176	4.8 (7.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X010903	10/09/20	1122
02	VLCSW-200109	VLCSW-200109	X010905	10/09/20	1210
03	VBLKW-200109	VBLKW-200109	X010907	10/09/20	1258
04	HS20100342-0	HS20100342-09	X010908	10/09/20	1322
05	HS20100342-0	HS20100342-01	X010909	10/09/20	1346
06	HS20100342-0	HS20100342-03	X010910	10/09/20	1410
07	HS20100342-0	HS20100342-04	X010911	10/09/20	1434
08	HS20100342-0	HS20100342-05	X010912	10/09/20	1458
09	HS20100342-0	HS20100342-06	X010913	10/09/20	1522
10	HS20100342-0	HS20100342-07	X010914	10/09/20	1546
11	HS20100342-0	HS20100342-08	X010915	10/09/20	1610
12	HS20100342-0	HS20100342-02	X010918	10/09/20	1722
13	HS20100352-0	HS20100352-03M	X010919	10/09/20	1746
14	HS20100352-0	HS20100352-03M	X010920	10/09/20	1810
15	HS20100342-0	HS20100342-02	X010928	10/09/20	2123
16	CCV-END	CCV-END	X010929	10/09/20	2147
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Instrument ID: VOA6 Calibration Date: 10/09/20 Time: 1122

Lab File ID: X010903 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6411433	0.6411433	0.1	0.75	20.00	AVRG
Methylene Chloride	50.612934	50.000000	0.5538417	0.1	-1.22	20.00	LINR
1,1-Dichloroethene	0.4490000	0.4493974	0.4493974	0.1	-0.09	20.00	AVRG
1,2-Dichloroethane	0.4310000	0.4087795	0.4087795	0.1	5.16	20.00	AVRG
Trichloroethene	0.3580000	0.3492937	0.3492937	0.2	2.43	20.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2784025	0.2784025	0.1	5.30	20.00	AVRG
Tetrachloroethene	0.3160000	0.3085447	0.3085447	0.2	2.36	20.00	AVRG
Dibromofluoromethane	0.5140000	0.4789274	0.4789274	0.1	6.82	20.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5289132	0.5289132	0.1	5.89	20.00	AVRG
Toluene-d8	1.3140000	1.2160546	1.2160546	0.1	7.45	20.00	AVRG
4-Bromofluorobenzene	50.003294	50.000000	0.4358009	0.1	-0.01	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Instrument ID: VOA6 Calibration Date: 10/09/20 Time: 2147

Lab File ID: X010929 Init. Calib. Date(s): 09/24/20 09/24/20

Init. Calib. Times: 1134 1533

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.6460000	0.6524562	0.6524562	0.1	-1.00	50.00	AVRG
Methylene Chloride	51.826909	50.000000	0.5669427	0.1	-3.65	50.00	LINR
1,1-Dichloroethene	0.4490000	0.4569685	0.4569685	0.1	-1.77	50.00	AVRG
1,2-Dichloroethane	0.4310000	0.4053891	0.4053891	0.1	5.94	50.00	AVRG
Trichloroethene	0.3580000	0.3500410	0.3500410	0.2	2.22	50.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2679623	0.2679623	0.1	8.86	50.00	AVRG
Tetrachloroethene	0.3160000	0.2895871	0.2895871	0.2	8.36	50.00	AVRG
Dibromofluoromethane	0.5140000	0.4986520	0.4986520	0.1	2.98	50.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5569468	0.5569468	0.1	0.90	50.00	AVRG
Toluene-d8	1.3140000	1.2628645	1.2628645	0.1	3.89	50.00	AVRG
4-Bromofluorobenzene	51.403781	50.000000	0.4478080	0.1	-2.81	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Lab File ID (Standard): X010903 Date Analyzed: 10/09/20

Instrument ID: VOA6 Time Analyzed: 1122

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	565900	4.19	896701	4.97	820510	7.67
	UPPER LIMIT	1131800	4.69	1793402	5.47	1641020	8.17
	LOWER LIMIT	282950	3.69	448351	4.47	410255	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-200109	584125	4.19	923980	4.97	831957	7.67
02	VBLKW-200109	547208	4.19	873251	4.97	777925	7.67
03	HS20100342-09	560065	4.19	893573	4.97	808611	7.67
04	HS20100342-01	552363	4.19	881221	4.97	788069	7.67
05	HS20100342-03	549666	4.19	878547	4.97	799861	7.67
06	HS20100342-04	555343	4.19	883186	4.97	800096	7.67
07	HS20100342-05	563288	4.19	892219	4.97	810590	7.67
08	HS20100342-06	554739	4.19	890510	4.97	800058	7.67
09	HS20100342-07	556185	4.19	889715	4.97	797181	7.67
10	HS20100342-08	561685	4.19	884244	4.97	799590	7.67
11	HS20100342-02	559133	4.19	899848	4.97	789000	7.67
12	HS20100352-03	526836	4.19	838709	4.97	771530	7.67
13	HS20100352-03	512092	4.19	824741	4.97	759986	7.67
14	HS20100342-02	575709	4.19	916469	4.97	822028	7.67
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 VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20100342

Lab File ID (Standard): X010903 Date Analyzed: 10/09/20

Instrument ID: VOA6 Time Analyzed: 1122

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

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	340475	9.67				
	UPPER LIMIT	680950	10.17				
	LOWER LIMIT	170238	9.17				
	CLIENT SAMPLE NO.						
01	VLCSW-200109	353578	9.66				
02	VBLKW-200109	326002	9.67				
03	HS20100342-09	354385	9.66				
04	HS20100342-01	326088	9.66				
05	HS20100342-03	347153	9.66				
06	HS20100342-04	342032	9.67				
07	HS20100342-05	348074	9.66				
08	HS20100342-06	337233	9.67				
09	HS20100342-07	334836	9.67				
10	HS20100342-08	343627	9.67				
11	HS20100342-02	354252	9.67				
12	HS20100352-03	328728	9.66				
13	HS20100352-03	326063	9.66				
14	HS20100342-02	347036	9.67				
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.

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010901.D

Date : 09-OCT-2020 10:34

Client ID: BFB

Instrument: voa6.i

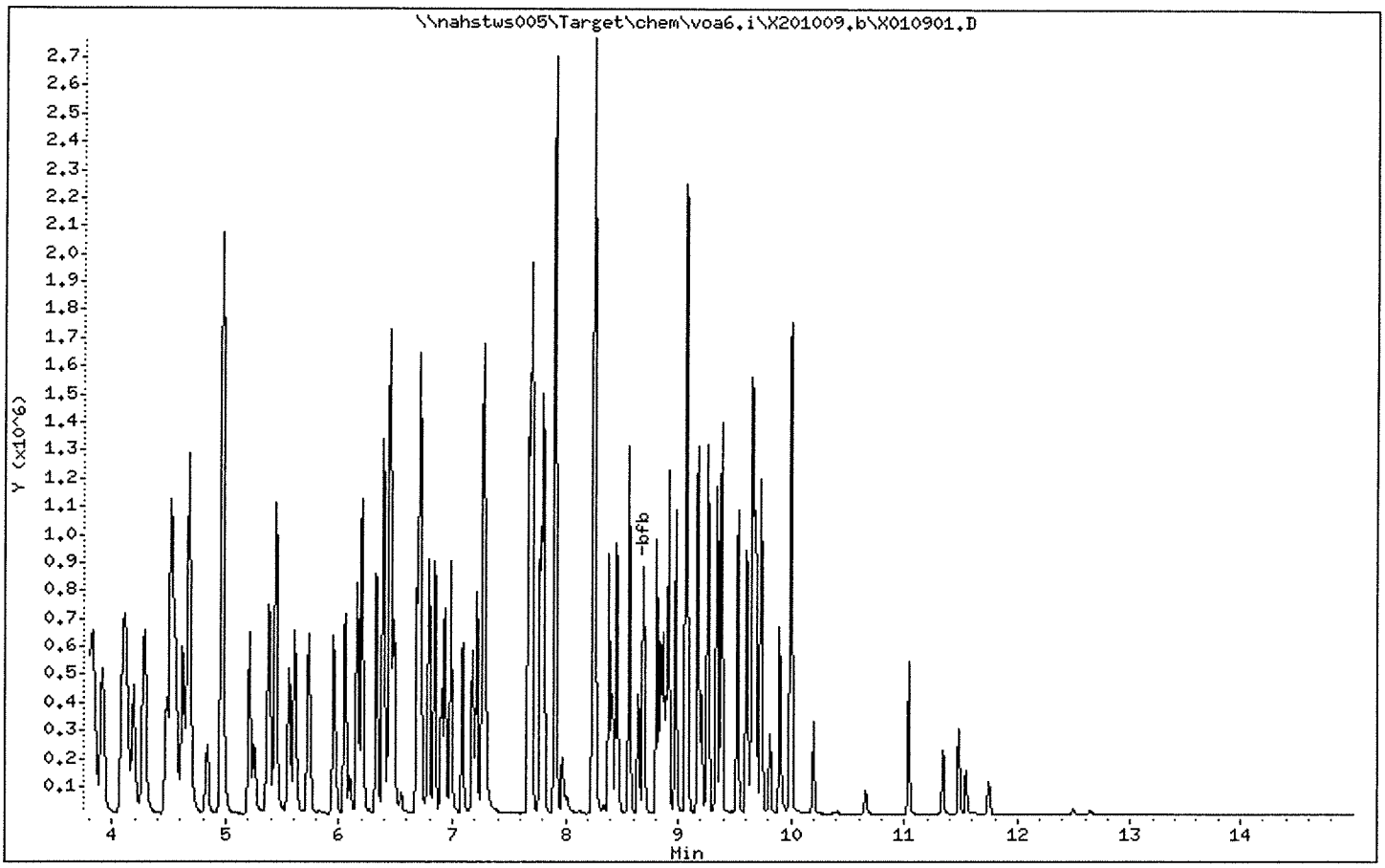
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010901.D

Date : 09-OCT-2020 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

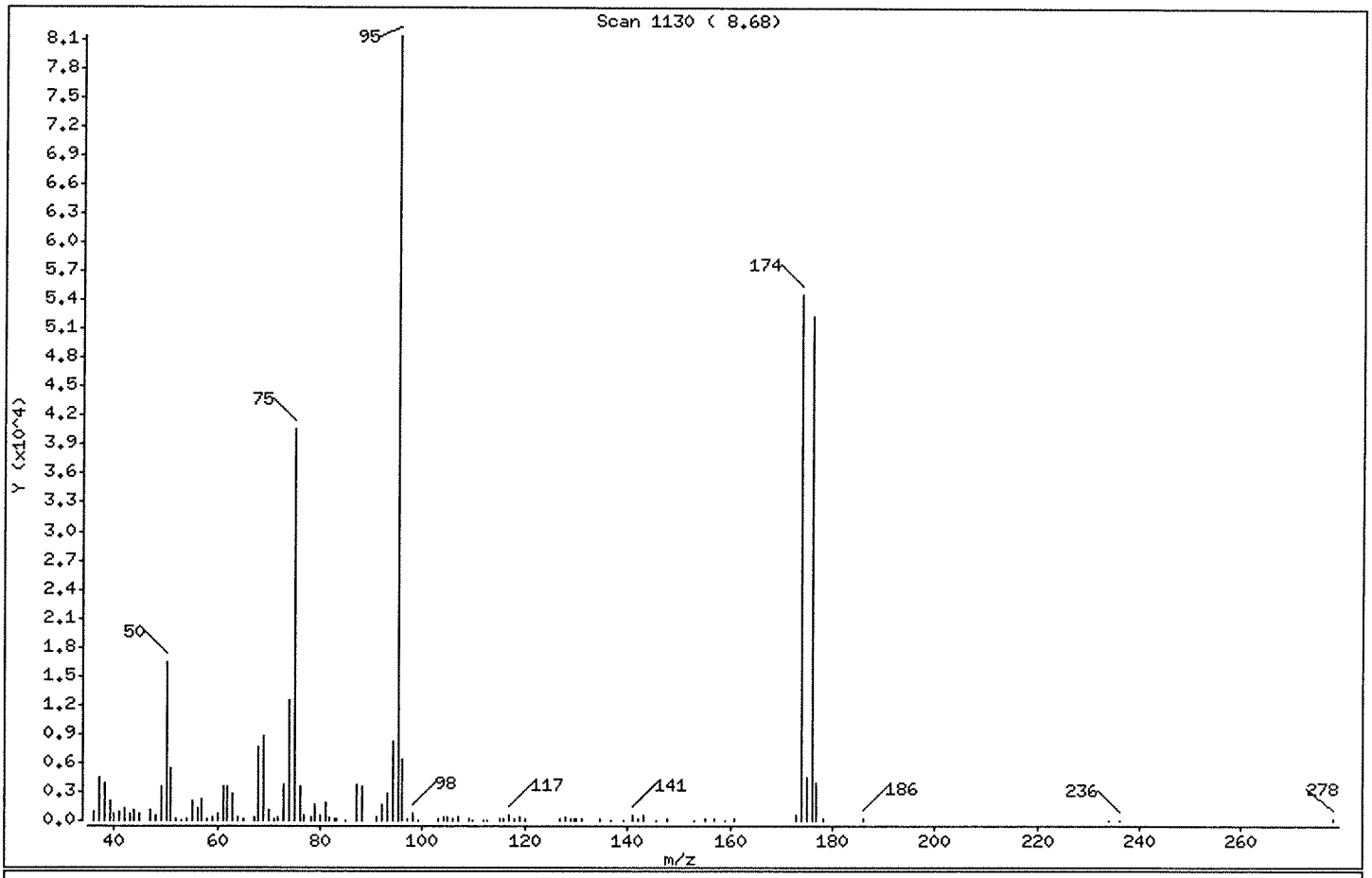
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	20.15
75	30.00 - 60.00% of mass 95	49.97
96	5.00 - 9.00% of mass 95	7.75
173	Less than 2.00% of mass 174	0.69 (1.03)
174	Greater than 50.00% of mass 95	67.02
175	5.00 - 9.00% of mass 174	5.53 (8.25)
176	95.00 - 101.00% of mass 174	64.26 (95.87)
177	5.00 - 9.00% of mass 176	4.81 (7.49)

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010901.D

Date : 09-OCT-2020 10:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X010901.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.10
Number of points: 103

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	848	63.10	2854	93.00	2877	130.10	213
37.10	4530	64.10	293	94.10	8228	131.00	120
38.10	3844	65.10	120	95.10	81312	134.70	113
39.20	2097	67.10	369	96.10	6304	136.70	50
40.10	773	68.10	7664	97.20	248	139.20	74
41.10	888	69.10	8777	98.10	804	141.00	642
42.10	1396	70.10	1155	99.10	92	142.10	176
43.10	714	71.10	150	103.10	97	143.00	554
44.00	1106	72.00	383	104.00	287	145.80	53
45.10	778	73.10	3673	105.00	289	147.90	185
47.10	1174	74.10	12591	105.90	248	152.90	61
48.00	553	75.10	40632	106.90	341	155.10	170
49.10	3618	76.10	3584	109.00	230	157.10	176
50.10	16384	77.00	635	109.80	93	159.10	53
51.10	5366	78.10	401	111.80	53	160.90	97
52.10	235	79.00	1701	112.70	51	173.10	562
53.00	68	80.10	580	115.00	177	174.00	54496
54.10	217	81.00	1891	115.90	221	175.00	4497
55.10	2096	81.90	392	117.00	567	176.00	52248
56.10	1384	83.00	214	118.00	242	177.00	3914
57.10	2241	83.20	213	118.90	378	178.10	144
58.20	192	85.00	64	120.10	114	186.00	170
59.20	286	87.00	3670	126.80	132	234.00	56
60.10	701	88.10	3529	128.00	347	235.90	57
61.10	3622	91.10	320	129.00	203	278.30	169
62.10	3616	92.10	1723	129.70	185		

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010903.D Page 1
Report Date: 26-Oct-2020 08:25

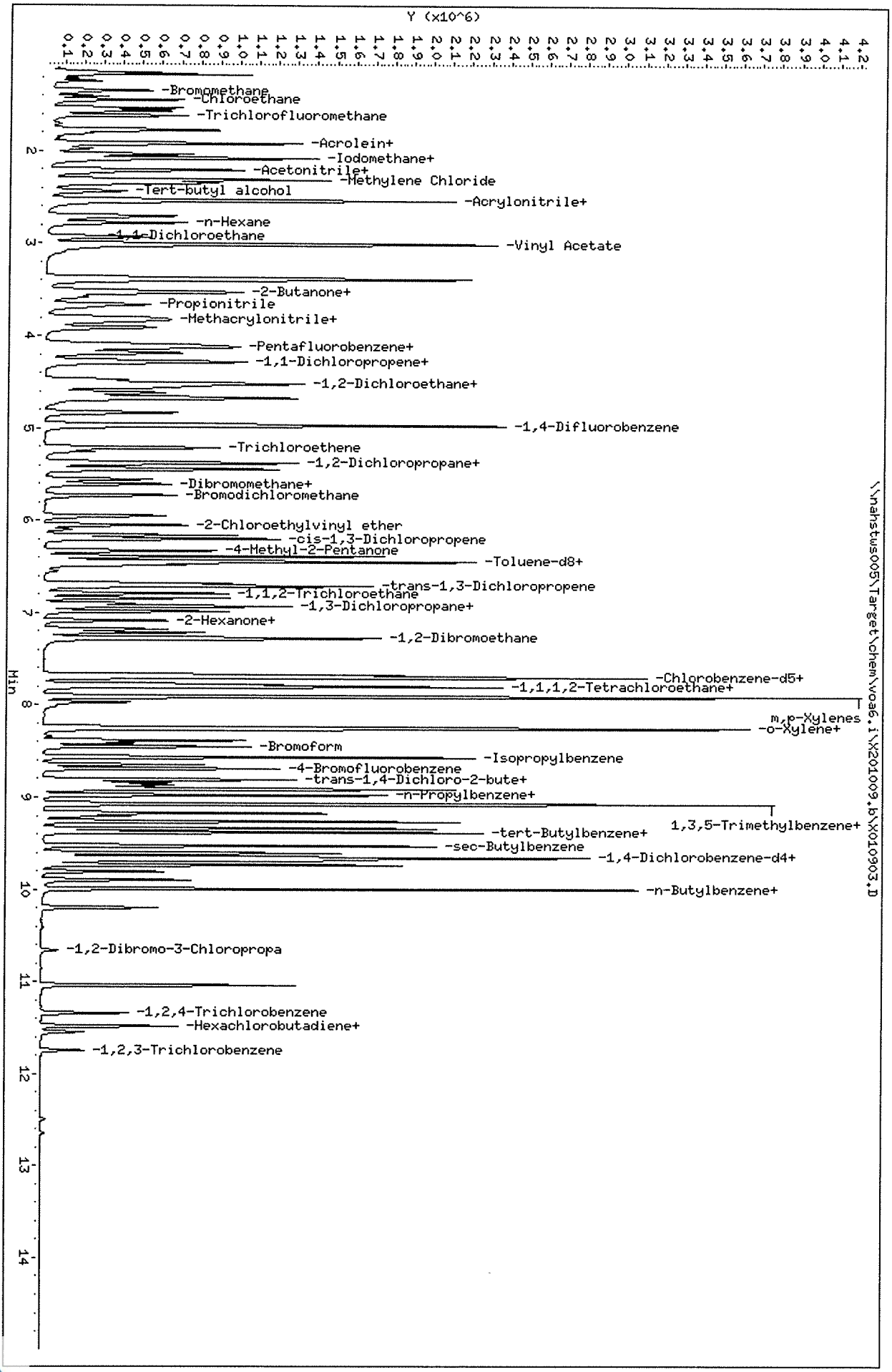
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010903.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 09-OCT-2020 11:22
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:25 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	565900	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	271025	50.0000	46.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	299312	50.0000	47.05
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	896701	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	820510	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	997785	50.0000	46.25
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	357579	50.0000	50.00
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	340475	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	362823	50.0000	49.63
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	254314	50.0000	49.98
17 Methylene Chloride	84	2.305	2.305	(0.550)	313419	50.0000	50.61
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	330734	50.0000	47.70
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	366553	50.0000	47.41
38 Trichloroethene	130	5.214	5.214	(1.049)	313212	50.0000	48.83
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	228432	50.0000	47.27
56 Tetrachloroethene	164	6.933	6.933	(0.904)	253164	50.0000	48.83



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010903.D
Date : 09-OCT-2020 11:22
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

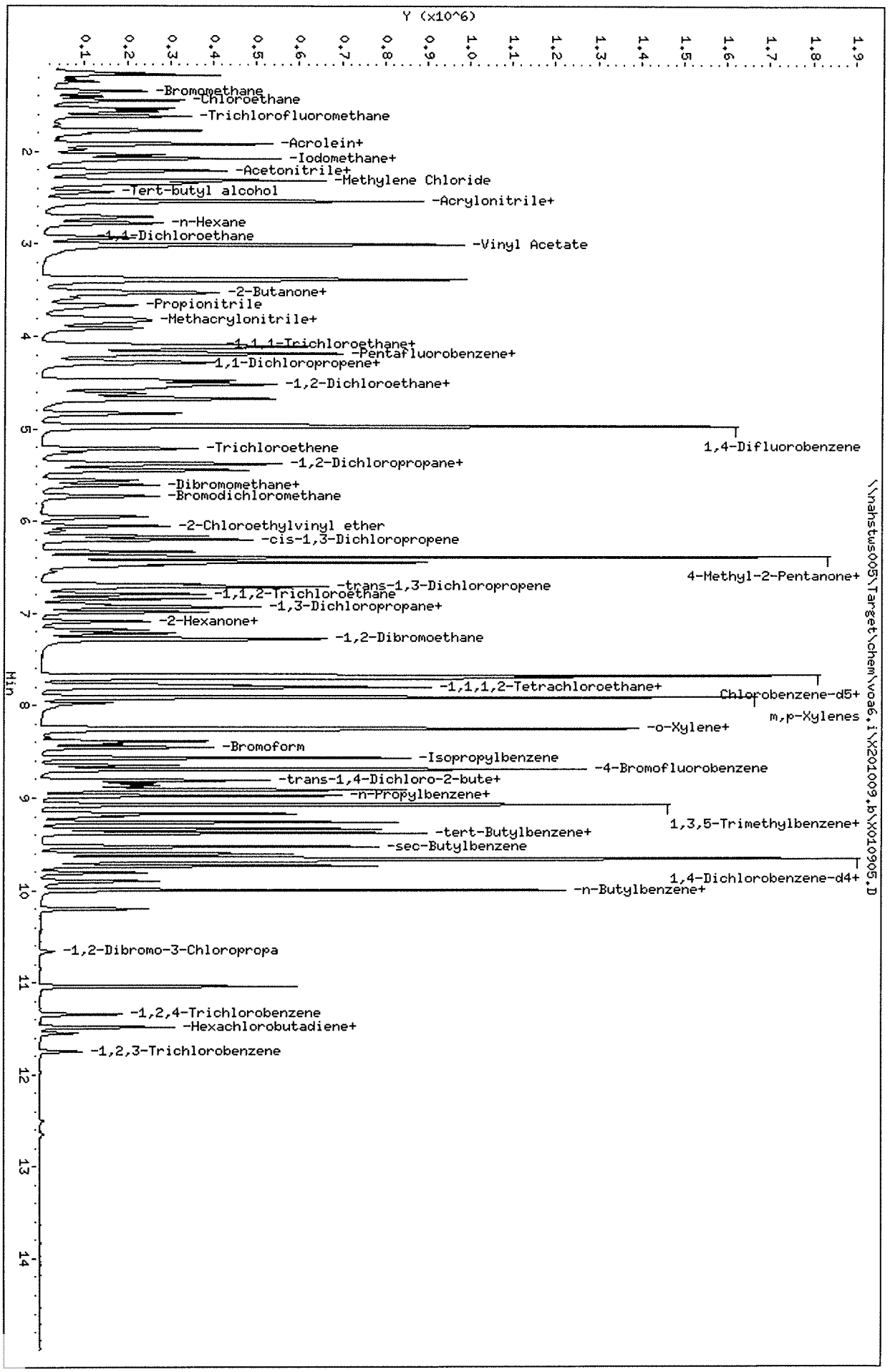
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010905.D
Lab Smp Id: VLCSW-200109 Client Smp ID: VLCSW-200109
Inj Date : 09-OCT-2020 12:10
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200109;VLCSW-200109;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:25 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	584125	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	289716	48.2673	48.26
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	318656	48.5292	48.52
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	923980	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	831957	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1063890	48.6399	48.63
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	373893	51.5911	51.59
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	353578	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	139700	18.5147	18.51
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	102738	19.5618	19.56
17 Methylene Chloride	84	2.312	2.305	(0.552)	131865	20.2109	20.21
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	137710	19.2433	19.24
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	149271	18.7368	18.73
38 Trichloroethene	130	5.214	5.214	(1.049)	126490	19.1394	19.13
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	93771	19.1377	19.13
56 Tetrachloroethene	164	6.933	6.933	(0.904)	99133	18.8605	18.86



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010905.D
Date : 09-OCT-2020 12:10
Client ID: VLCSW-200109
Sample Info: VLCSW-200109;VLCSW-200109;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010907.D Page 1
Report Date: 26-Oct-2020 08:25

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010907.D
Lab Smp Id: VBLKW-200109 Client Smp ID: VBLKW-200109
Inj Date : 09-OCT-2020 12:58
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200109;VBLKW-200109;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:25 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

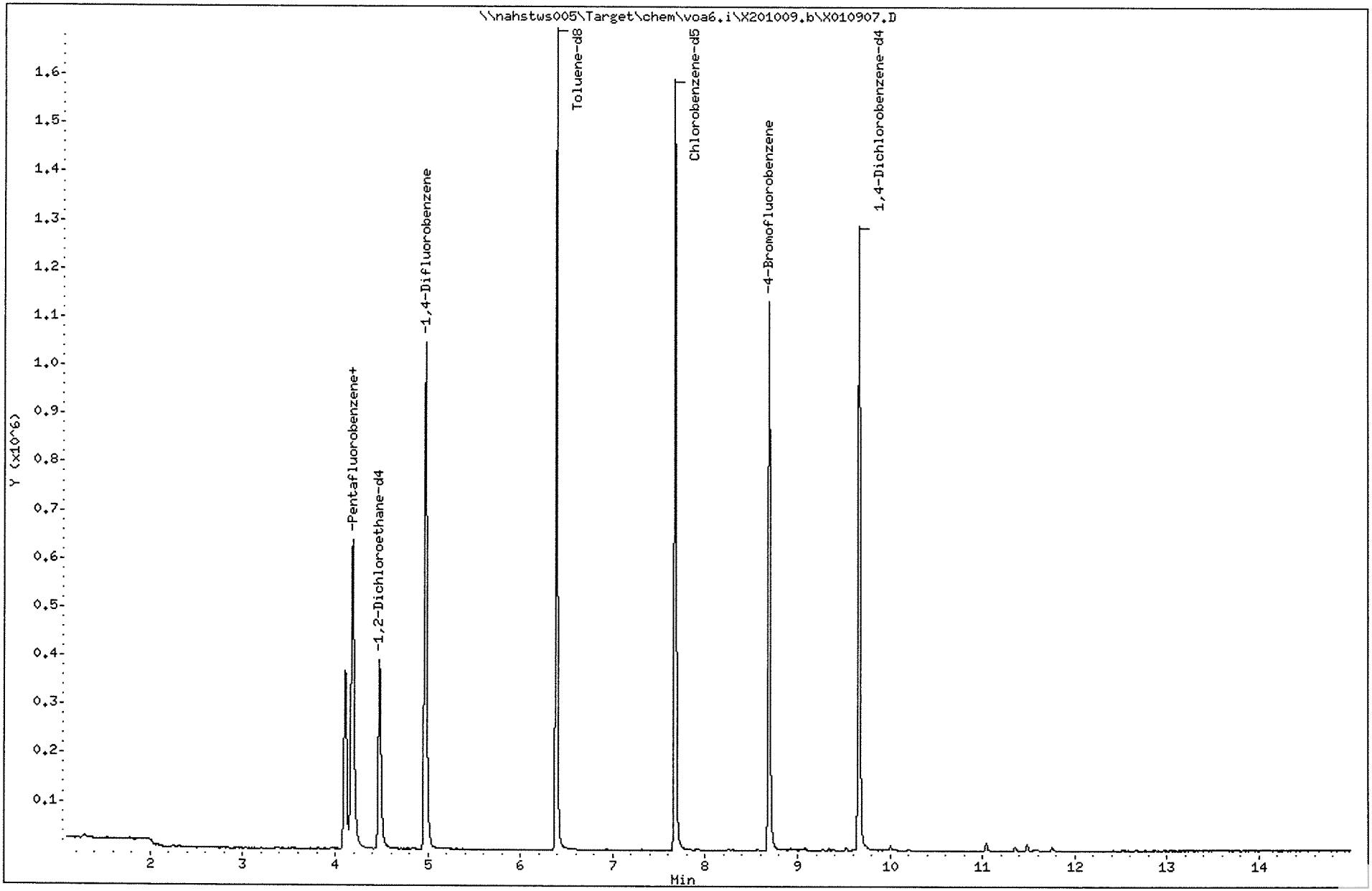
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	547208	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	265935	47.2944	47.29
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	282275	45.8888	45.88
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	873251	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	777925	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1014616	49.6090	49.60
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	355919	52.5370	52.53
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	326002	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010907.D
Date : 09-OCT-2020 12:58
Client ID: VBLKW-200109
Sample Info: VBLKW-200109;VBLKW-200109;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010908.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010908.D
Lab Smp Id: HS20100342-09 Client Smp ID: HS20100342-09
Inj Date : 09-OCT-2020 13:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-09;HS20100342-09;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

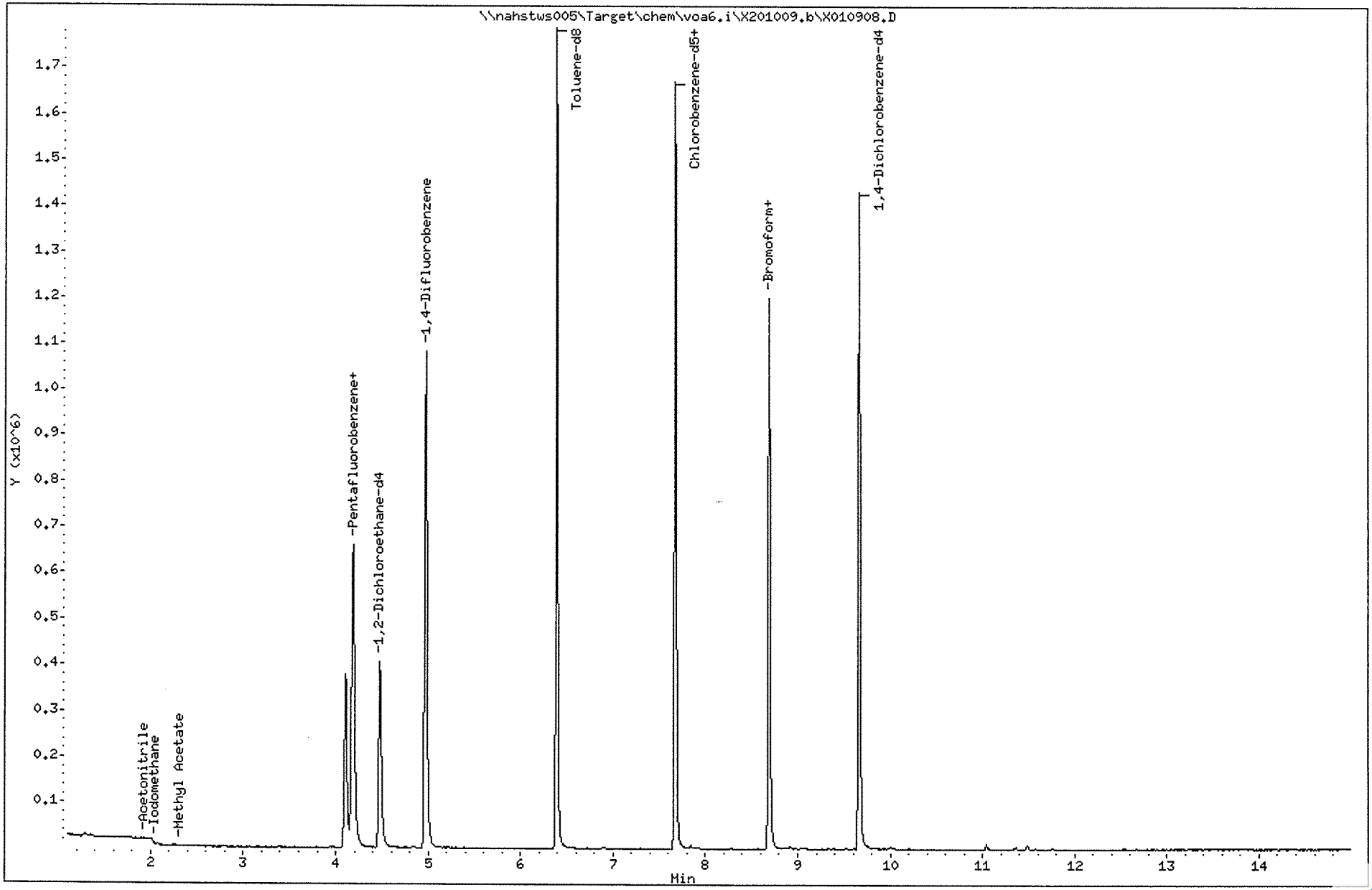
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	560065	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	273916	47.5954	47.59
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	293001	46.5390	46.53
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	893573	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	808611	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1042929	49.0582	49.05
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	375471	53.3321	53.33
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	354385	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010908.D
Date : 09-OCT-2020 13:22
Client ID: HS20100342-09
Sample Info: HS20100342-09;HS20100342-09;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010909.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010909.D
Lab Smp Id: HS20100342-01 Client Smp ID: HS20100342-01
Inj Date : 09-OCT-2020 13:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-01;HS20100342-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

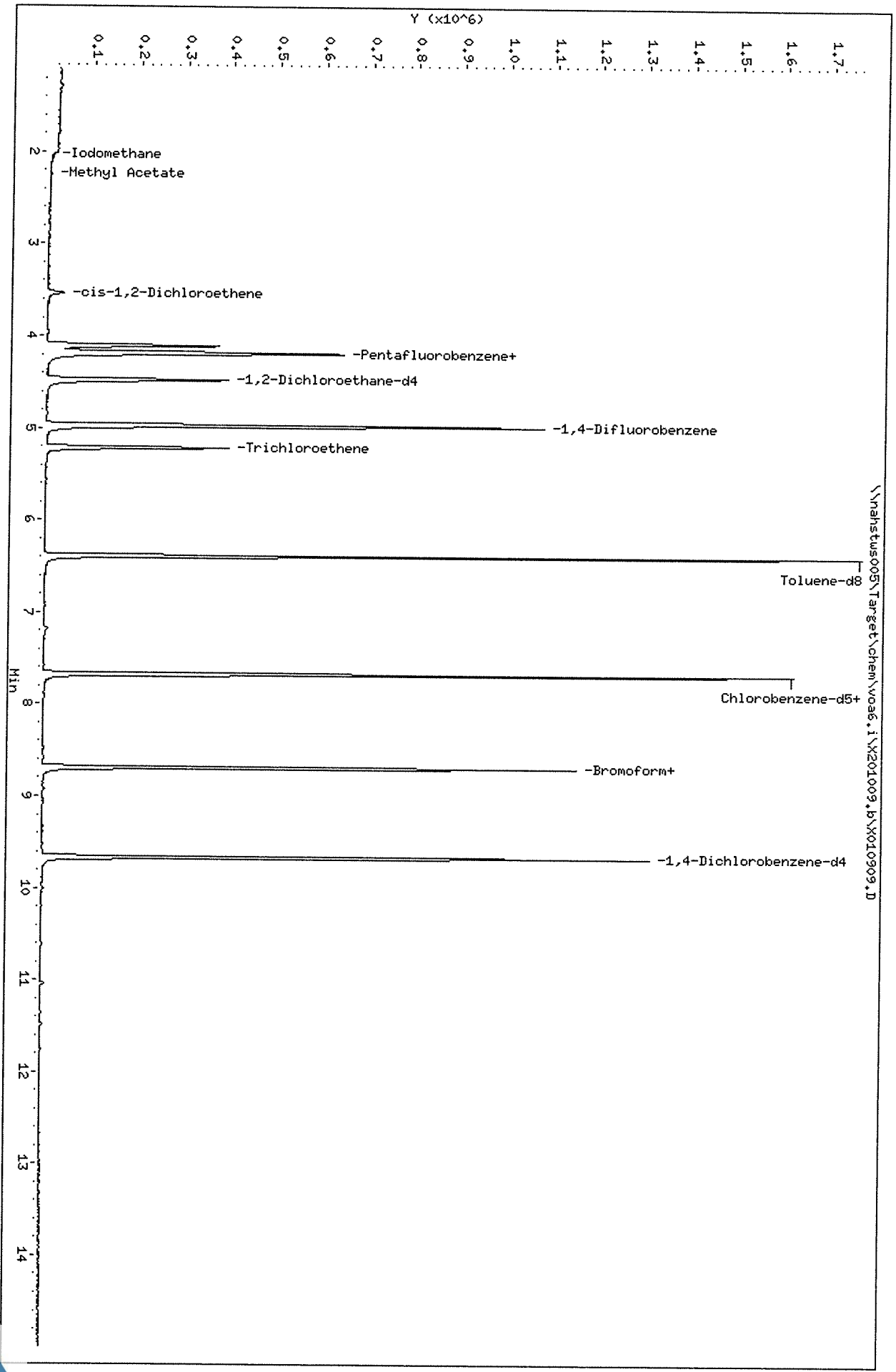
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	552363	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	265062	46.6992	46.69
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	282263	45.4586	45.45
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	881221	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	788069	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1020142	49.2371	49.23
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	357901	52.1434	52.14
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	326088	50.0000	
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	18781	2.77532	2.77(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	133045	21.1081	21.10

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010909.D
Date : 09-OCT-2020 13:46
Client ID: HS20100342-01
Sample Info: HS20100342-01;HS20100342-01;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010909.D

Date : 09-OCT-2020 13:46

Client ID: HS20100342-01

Instrument: voa6.i

Sample Info: HS20100342-01;HS20100342-01;;;

Purge Volume: 5.0

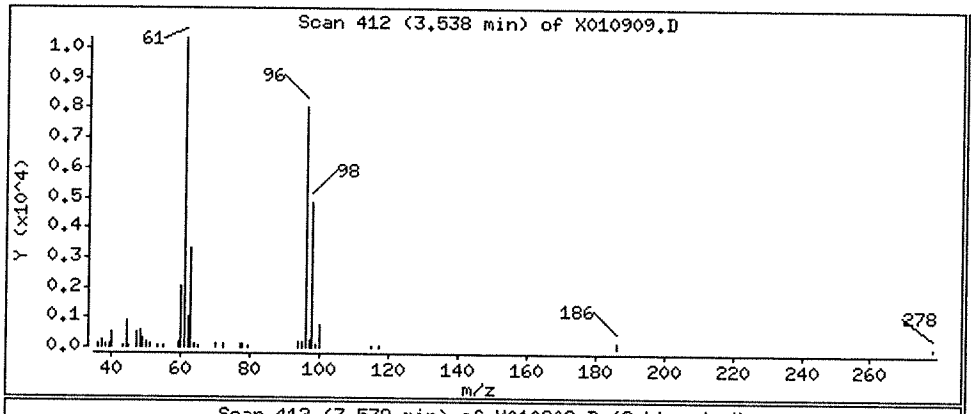
Operator: PC

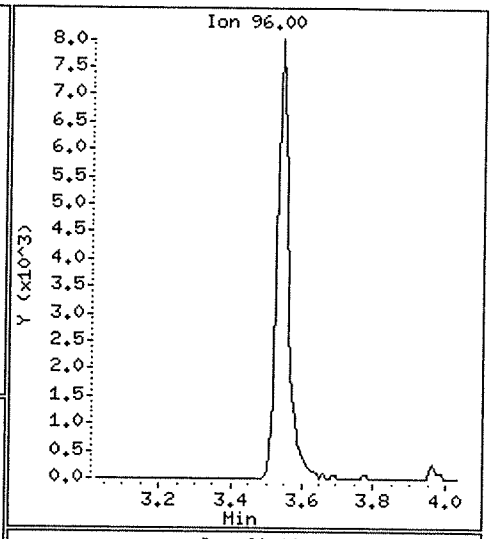
Column phase: DB624

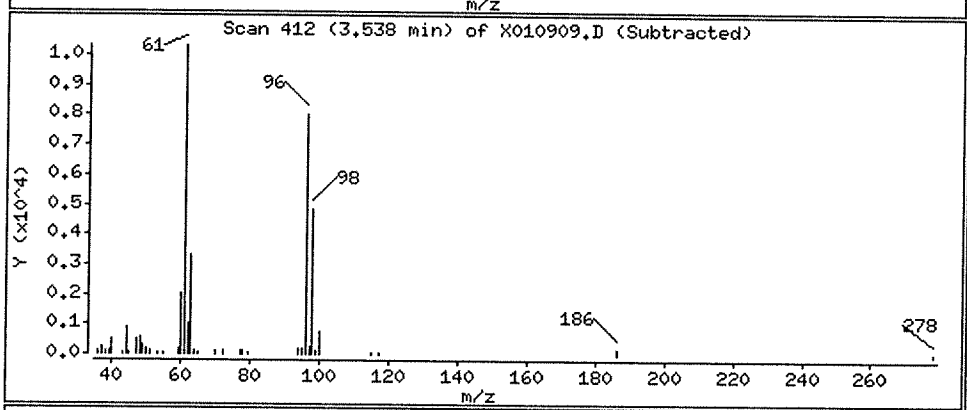
Column diameter: 0.18

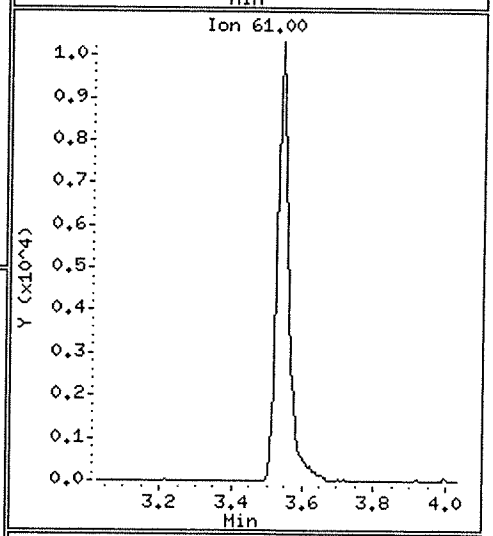
27 cis-1,2-Dichloroethene

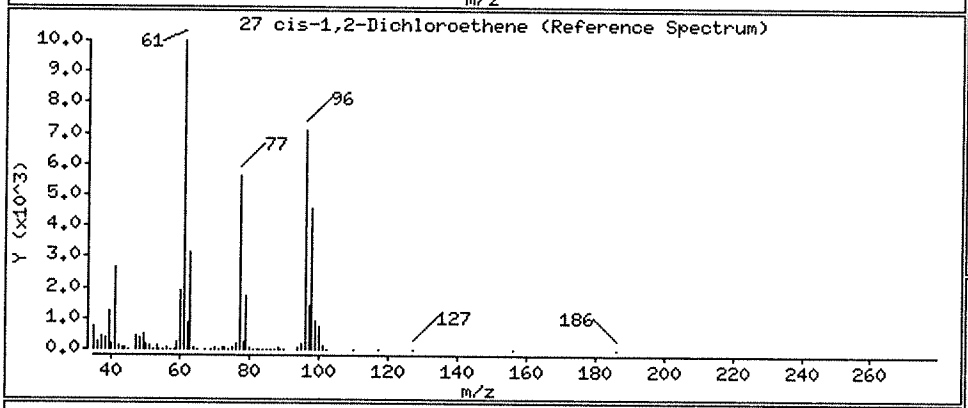
Concentration: 2.77 ug/l

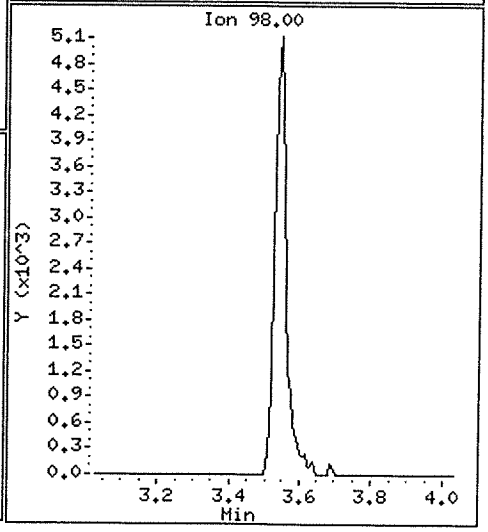


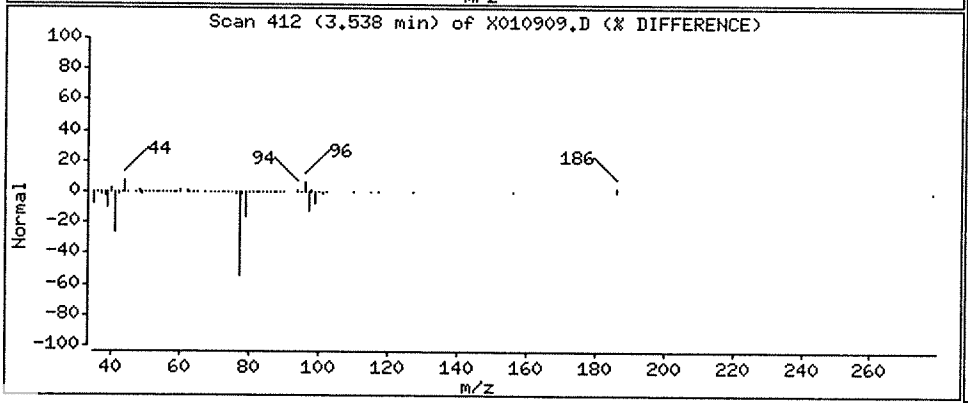












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010909.D

Date : 09-OCT-2020 13:46

Client ID: HS20100342-01

Instrument: voa6.i

Sample Info: HS20100342-01;HS20100342-01;;;

Purge Volume: 5.0

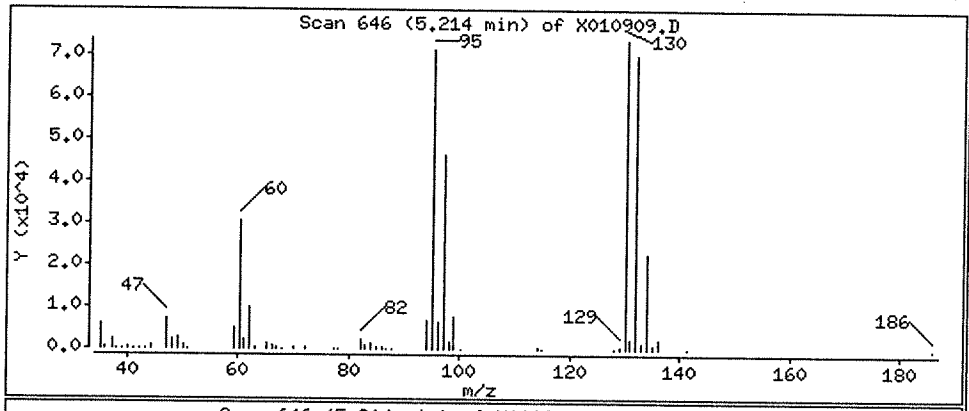
Operator: PC

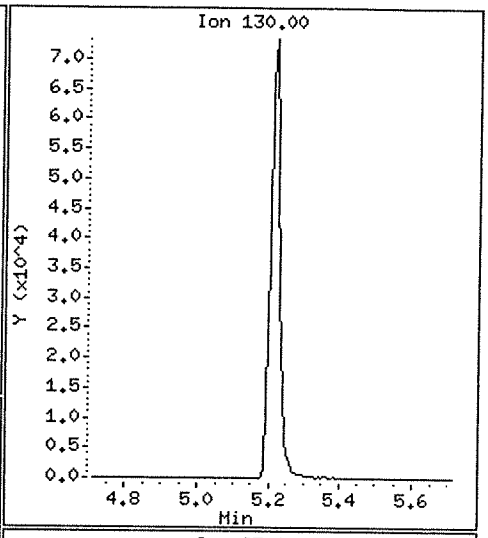
Column phase: DB624

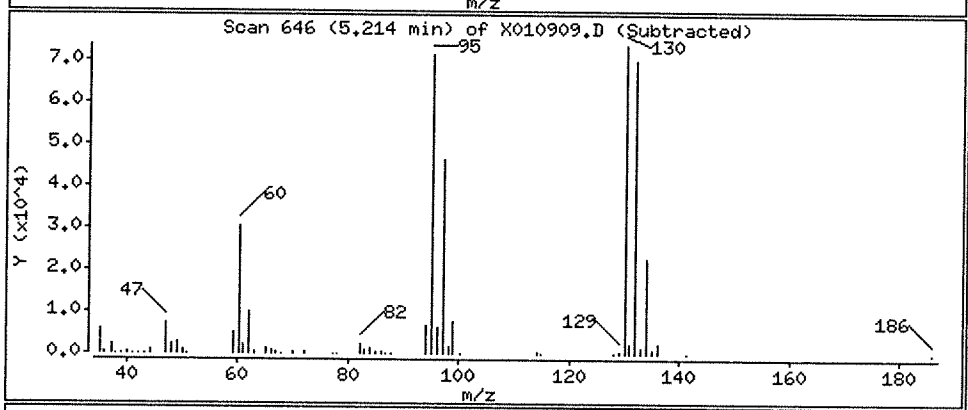
Column diameter: 0.18

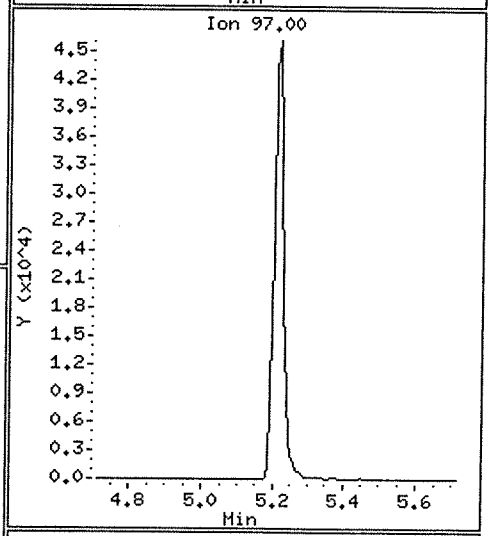
38 Trichloroethene

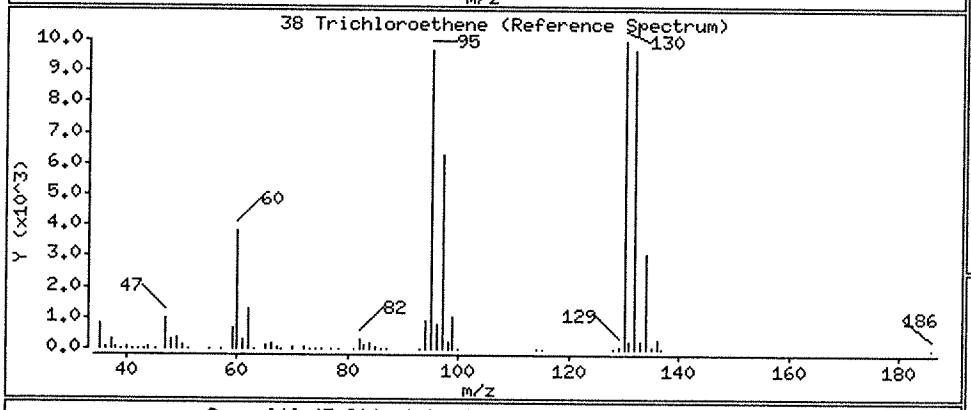
Concentration: 21.10 ug/l

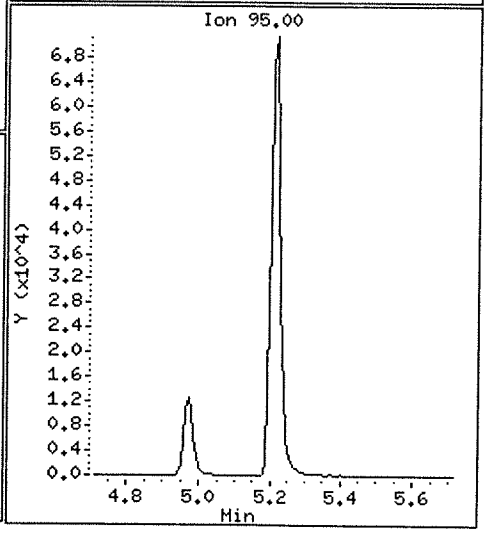


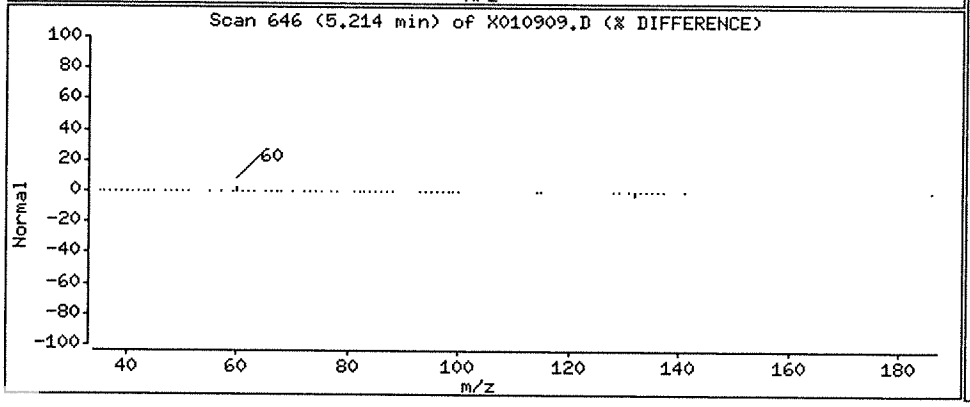












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010910.D Page 1
Report Date: 26-Oct-2020 08:20

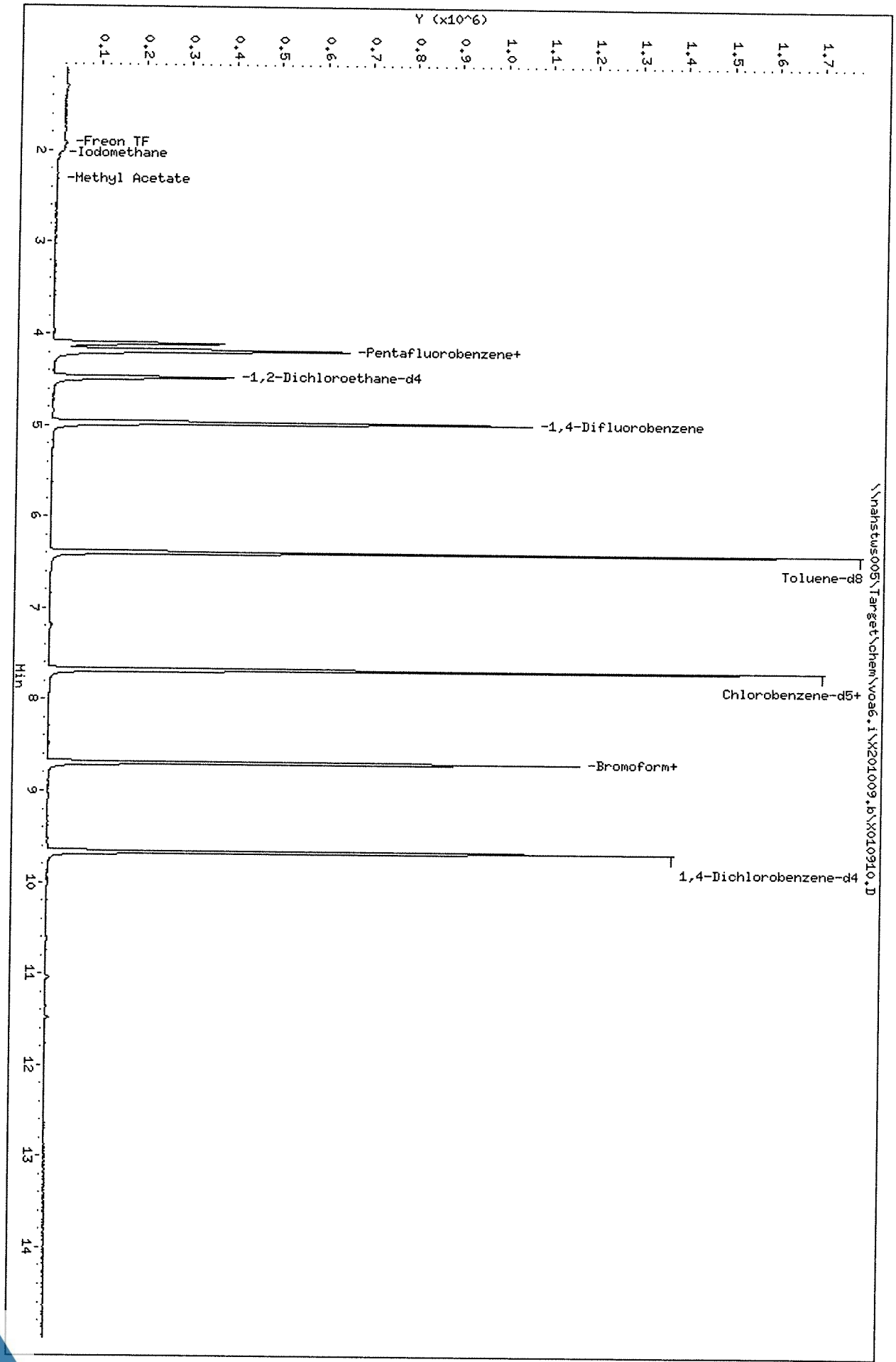
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010910.D
Lab Smp Id: HS20100342-03 Client Smp ID: HS20100342-03
Inj Date : 09-OCT-2020 14:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-03;HS20100342-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	549666	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	267981	47.4451	47.44
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	283496	45.8812	45.88
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	878547	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	799861	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1026836	48.8296	48.82
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	372212	53.4494	53.44
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	347153	50.0000	



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010910.D
Date : 09-OCT-2020 14:10
Client ID: HS20100342-03
Sample Info: HS20100342-03;HS20100342-03;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010911.D Page 1
Report Date: 26-Oct-2020 08:20

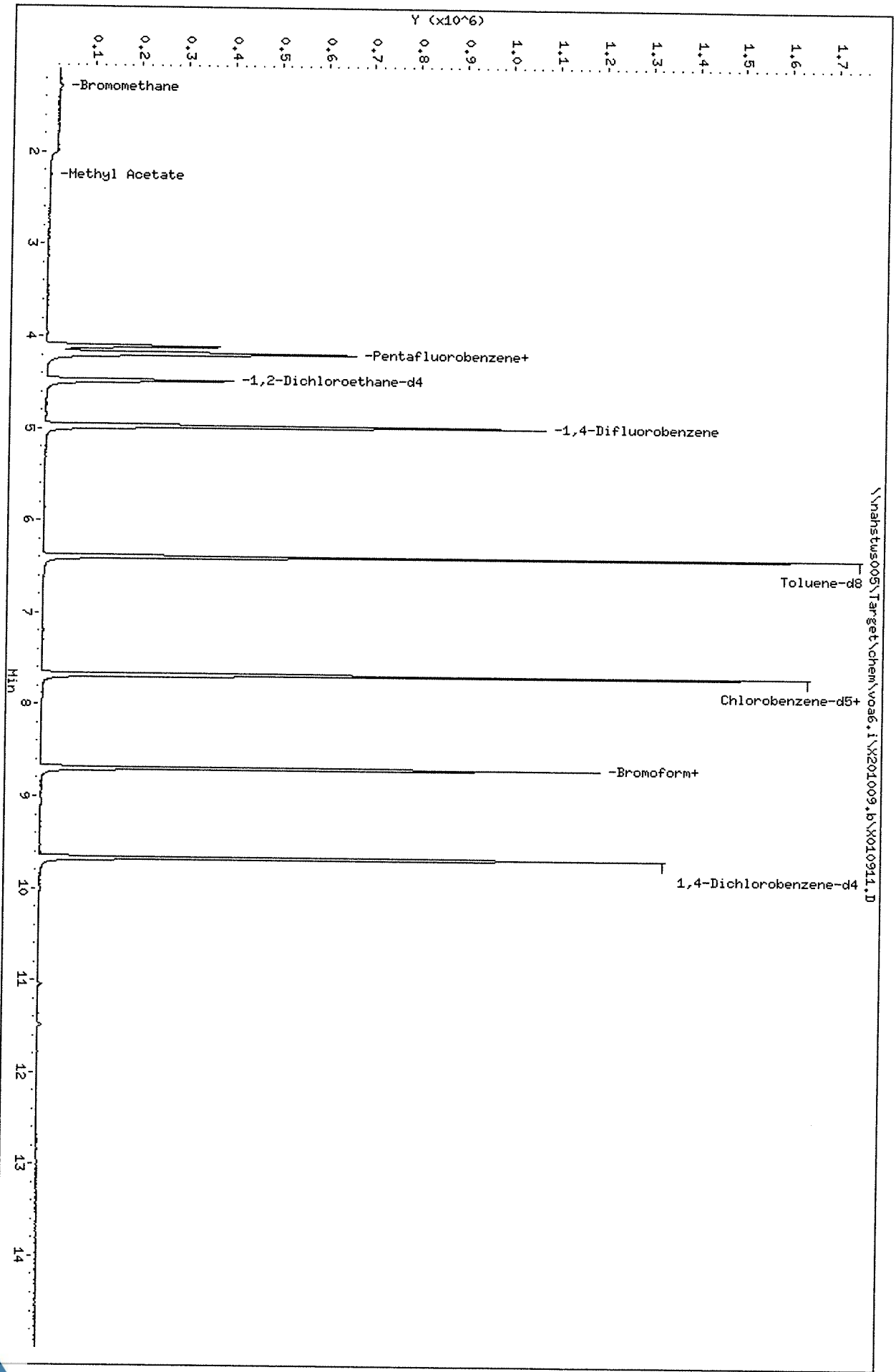
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010911.D
Lab Smp Id: HS20100342-04 Client Smp ID: HS20100342-04
Inj Date : 09-OCT-2020 14:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-04;HS20100342-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	555343	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	270726	47.4411	47.44
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	286660	45.9190	45.91
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	883186	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	800096	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1043059	49.5865	49.58
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	369938	53.1019	53.10
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	342032	50.0000	



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010911.D
Date : 09-OCT-2020 14:34
Client ID: HS20100342-04
Sample Info: HS20100342-04;HS20100342-04;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D
Lab Smp Id: HS20100342-05 Client Smp ID: HS20100342-05
Inj Date : 09-OCT-2020 14:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-05;HS20100342-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

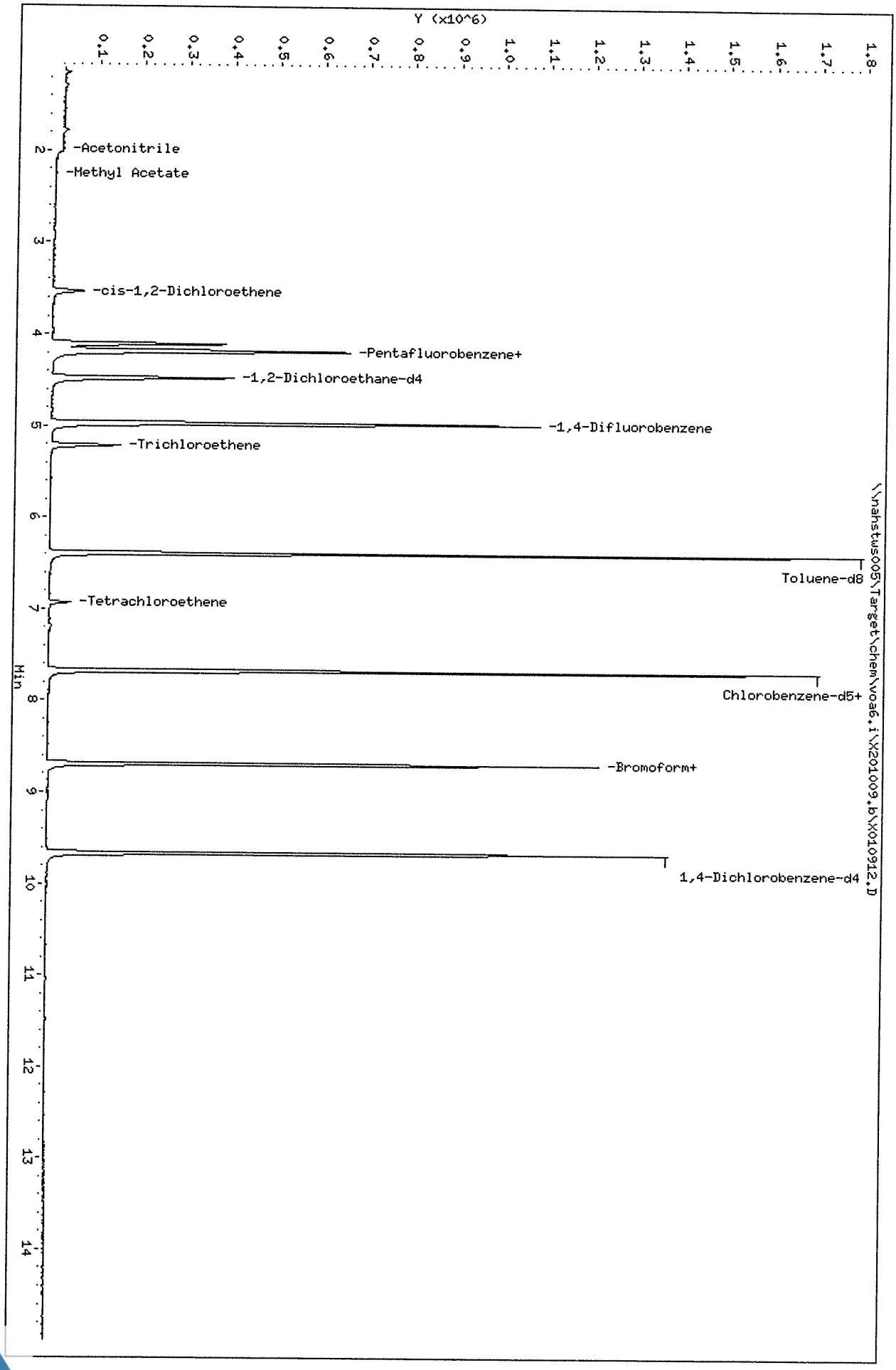
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	563288	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	272463	47.0721	47.07
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	290890	45.9393	45.93
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	892219	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	810590	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1047018	49.1303	49.13
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	374532	53.0648	53.06
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	348074	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	8193	1.12600	1.12(a)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	37360	5.41372	5.41
38 Trichloroethene	130	5.214	5.214	(1.049)	53367	8.36249	8.36
56 Tetrachloroethene	164	6.933	6.933	(0.904)	9408	1.83710	1.83(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D
Date : 09-OCT-2020 14:58
Client ID: HS20100342-05
Sample Info: HS20100342-05;HS20100342-05;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D

Date : 09-OCT-2020 14:58

Client ID: HS20100342-05

Instrument: voa6.i

Sample Info: HS20100342-05;HS20100342-05;;;

Purge Volume: 5.0

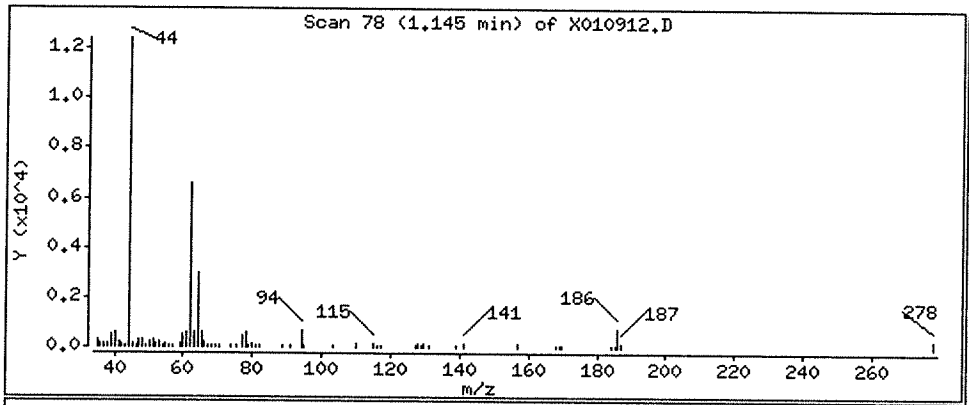
Operator: PC

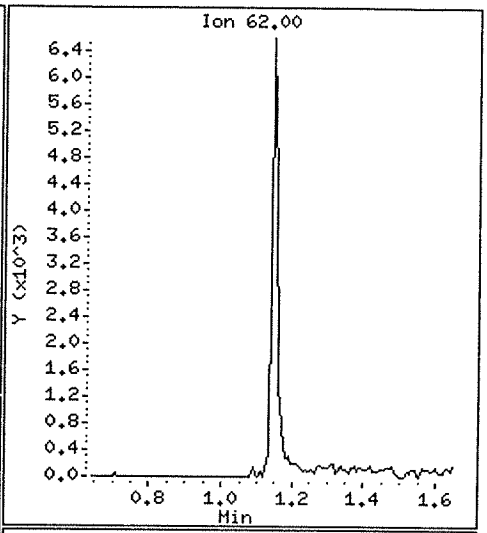
Column phase: DB624

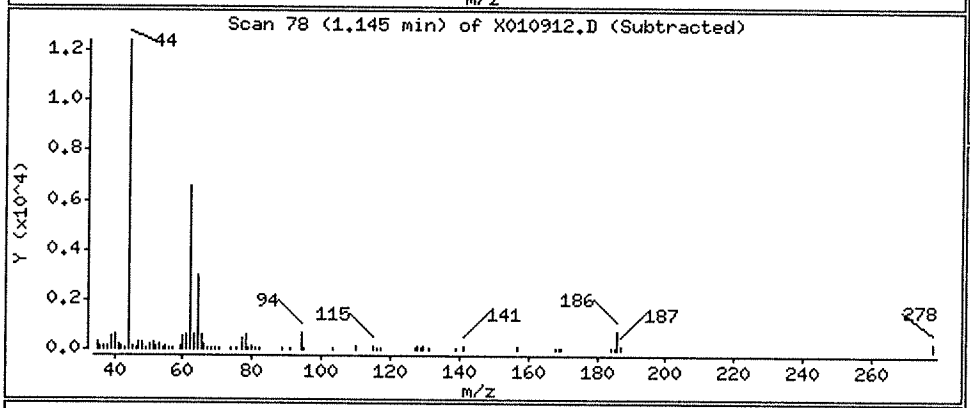
Column diameter: 0.18

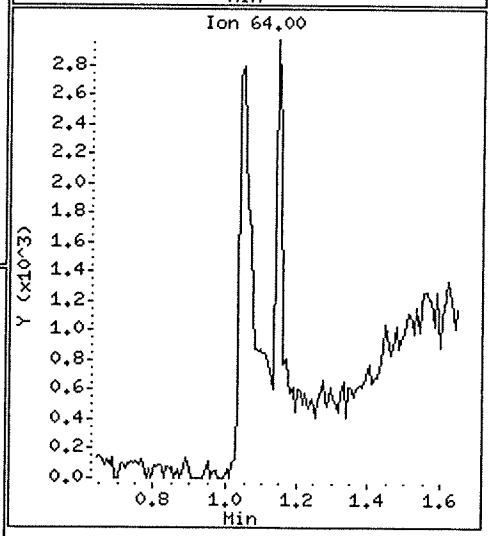
5 Vinyl Chloride

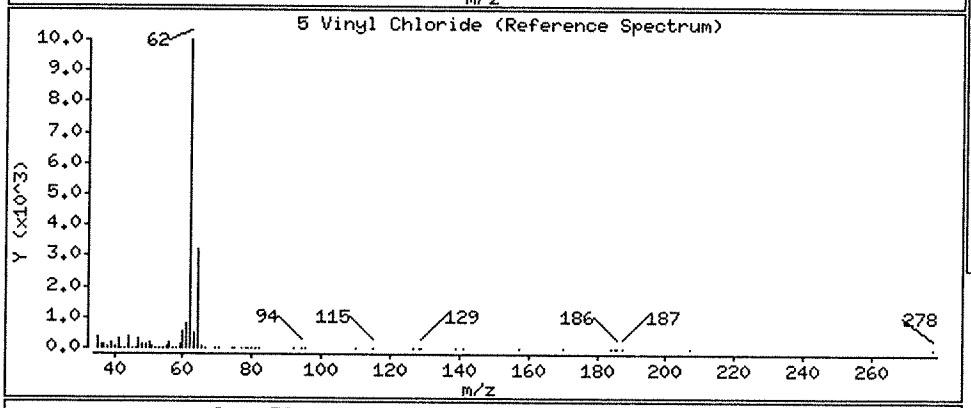
Concentration: 1.12 ug/l

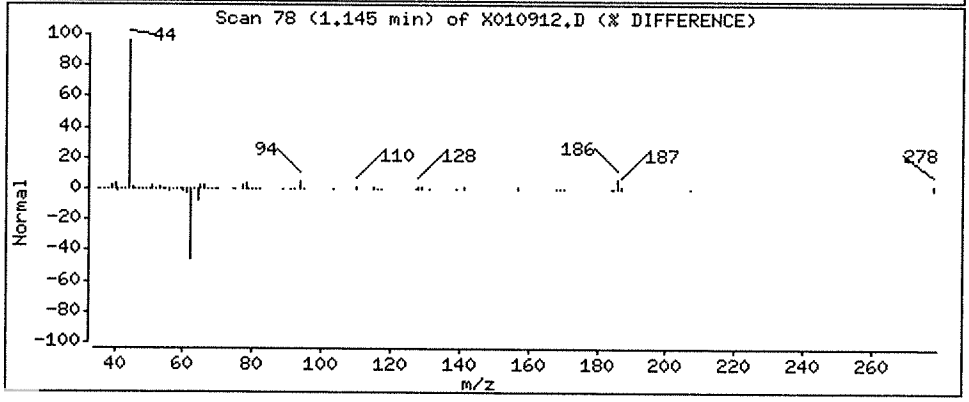












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D

Date : 09-OCT-2020 14:58

Client ID: HS20100342-05

Instrument: voa6.i

Sample Info: HS20100342-05;HS20100342-05;;;

Purge Volume: 5.0

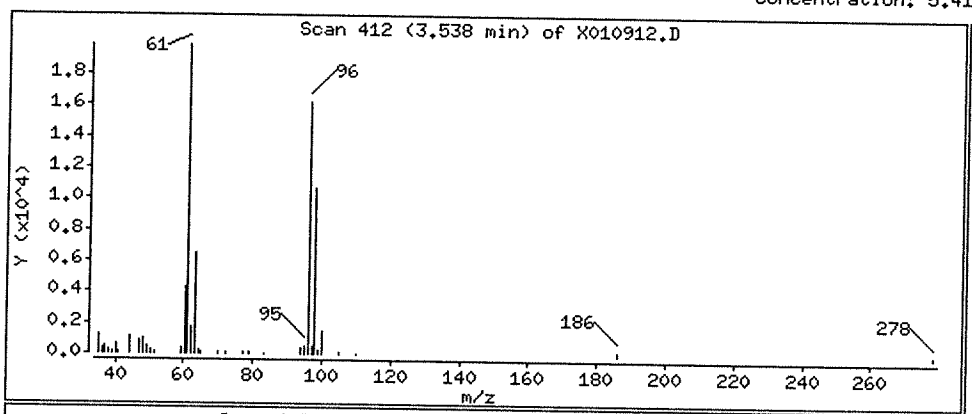
Operator: PC

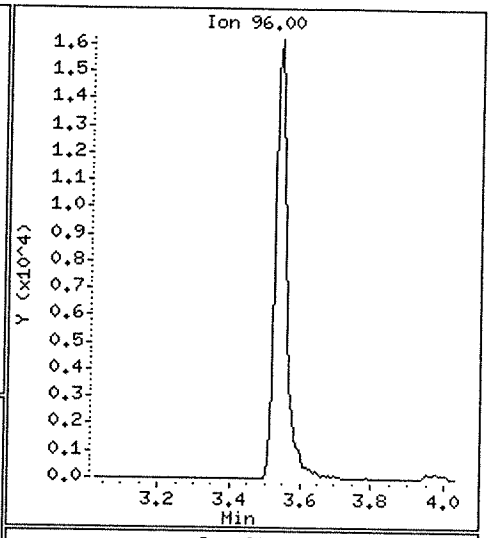
Column phase: DB624

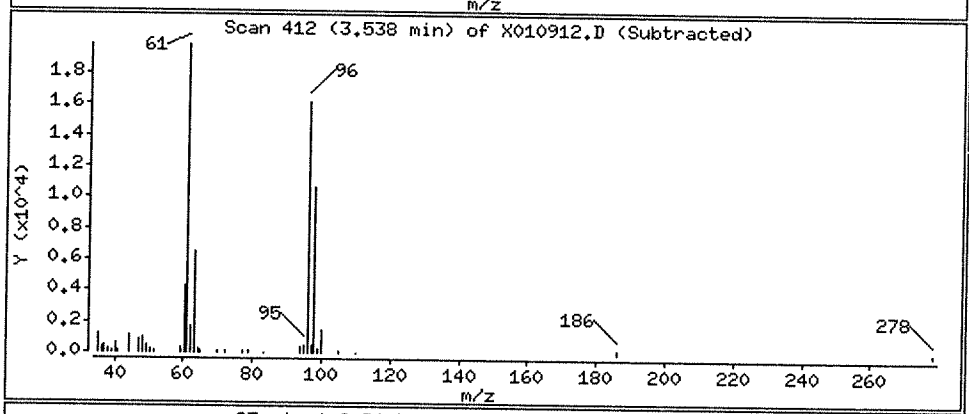
Column diameter: 0.18

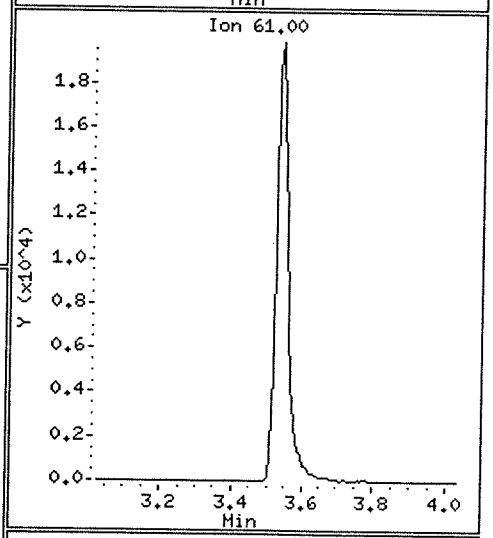
27 cis-1,2-Dichloroethene

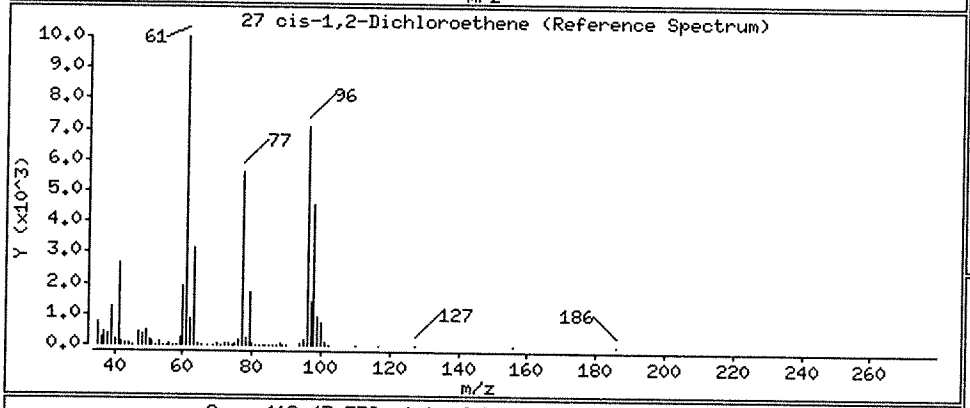
Concentration: 5.41 ug/l

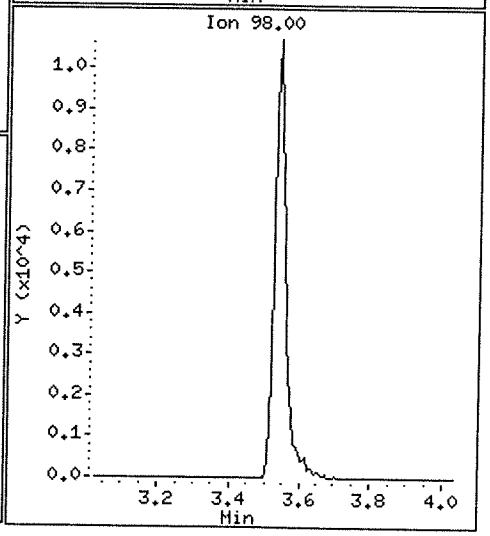


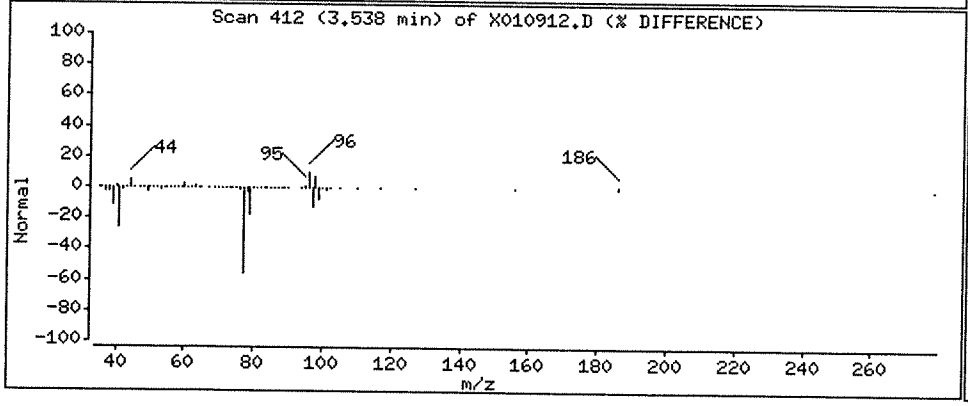












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D

Date : 09-OCT-2020 14:58

Client ID: HS20100342-05

Instrument: voa6.i

Sample Info: HS20100342-05;HS20100342-05;;;

Purge Volume: 5.0

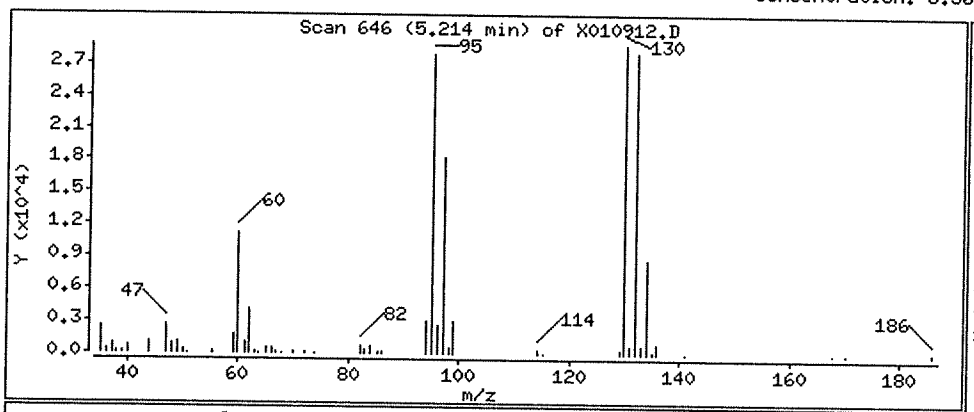
Operator: PC

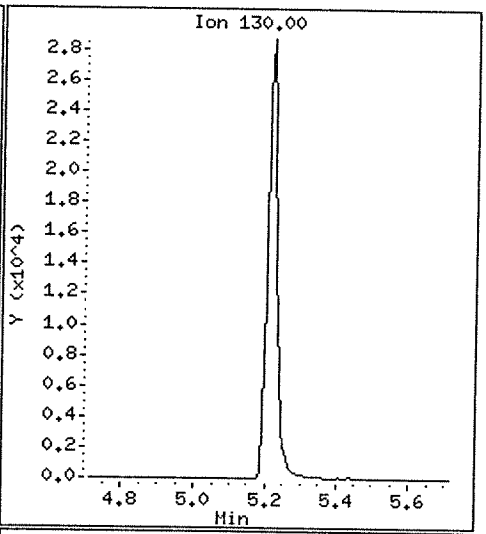
Column phase: DB624

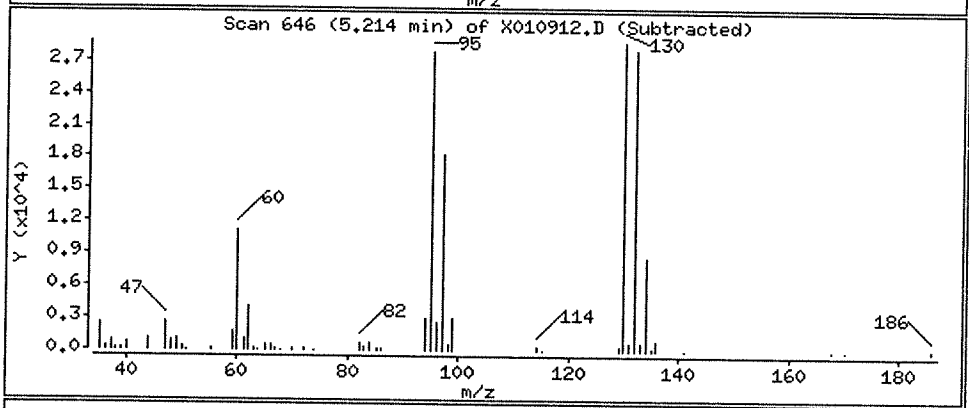
Column diameter: 0.18

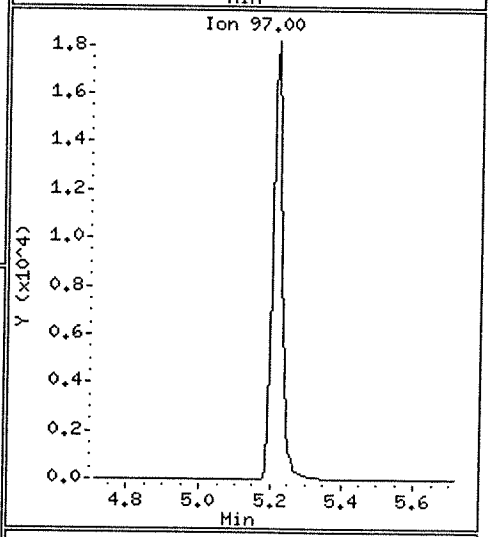
38 Trichloroethene

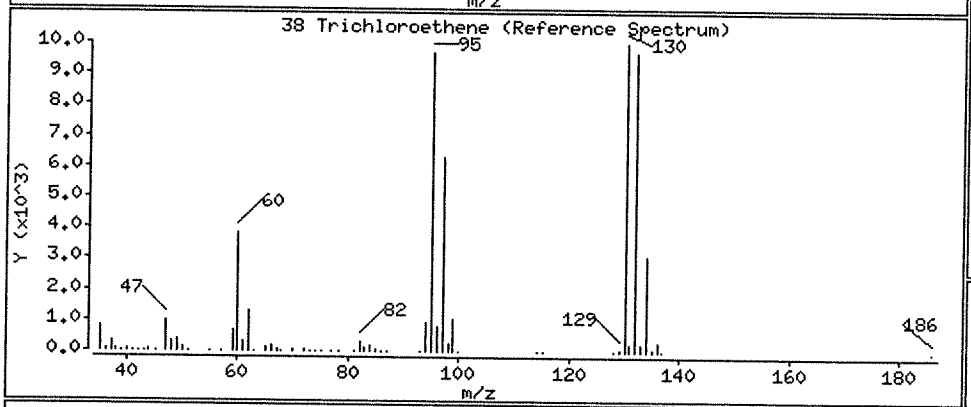
Concentration: 8.36 ug/l

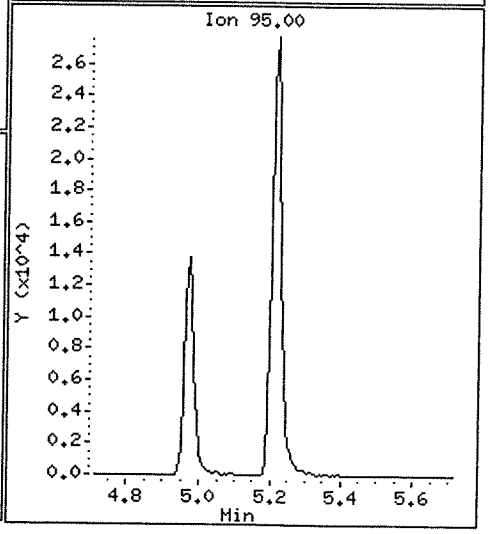


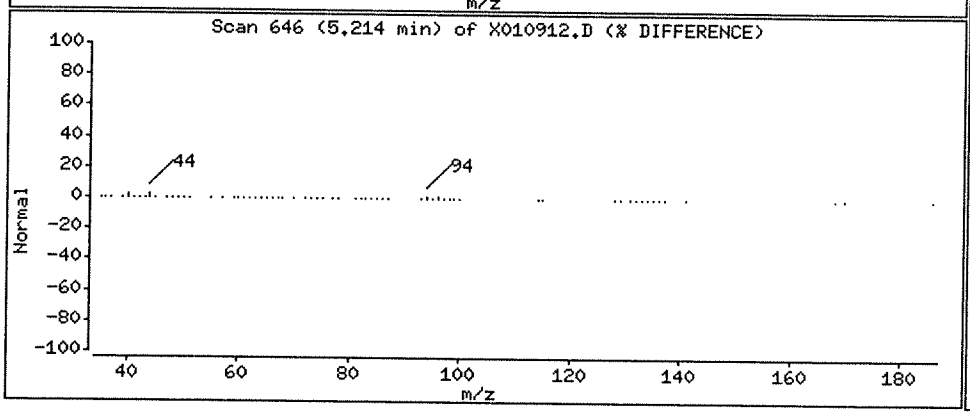












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010912.D

Date : 09-OCT-2020 14:58

Client ID: HS20100342-05

Instrument: voa6.i

Sample Info: HS20100342-05;HS20100342-05;;;

Purge Volume: 5.0

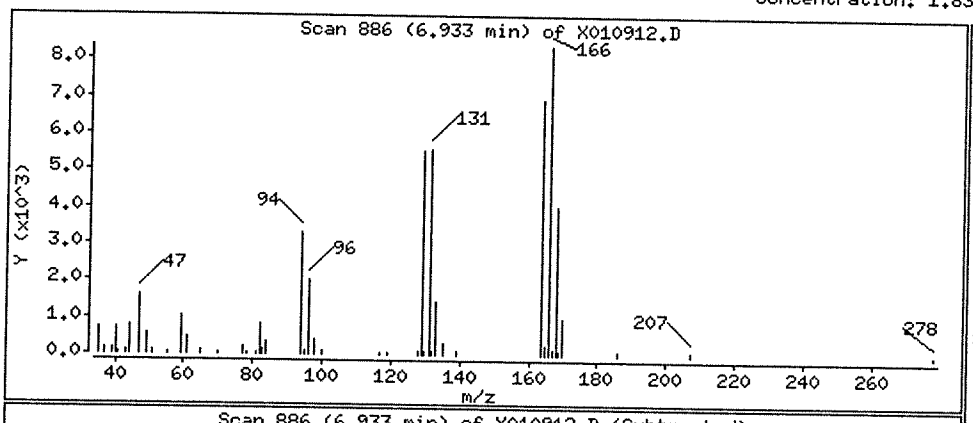
Operator: PC

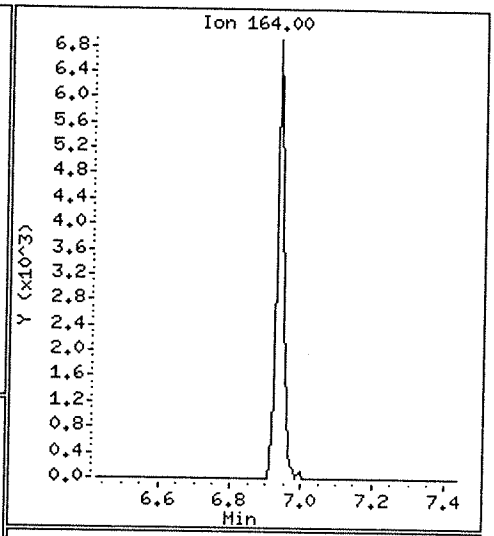
Column phase: DB624

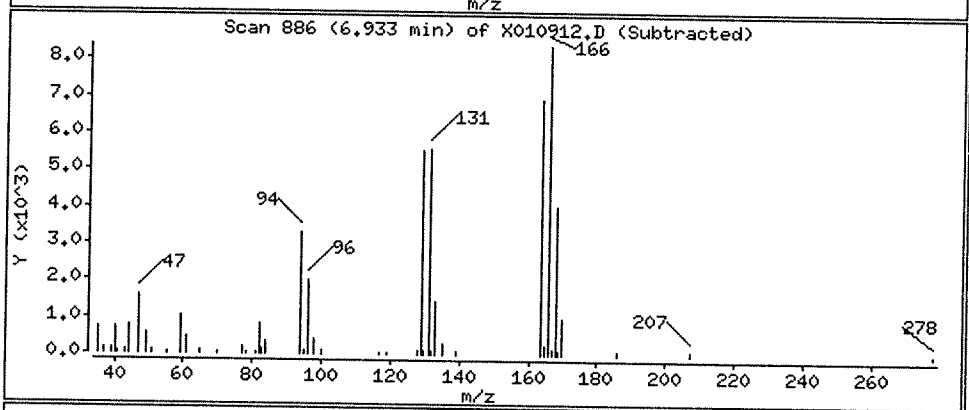
Column diameter: 0.18

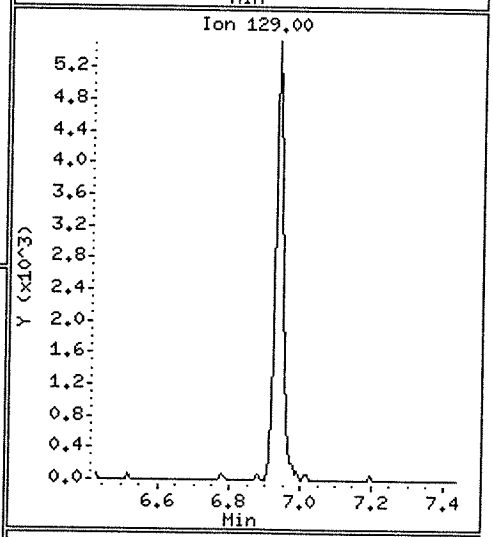
56 Tetrachloroethene

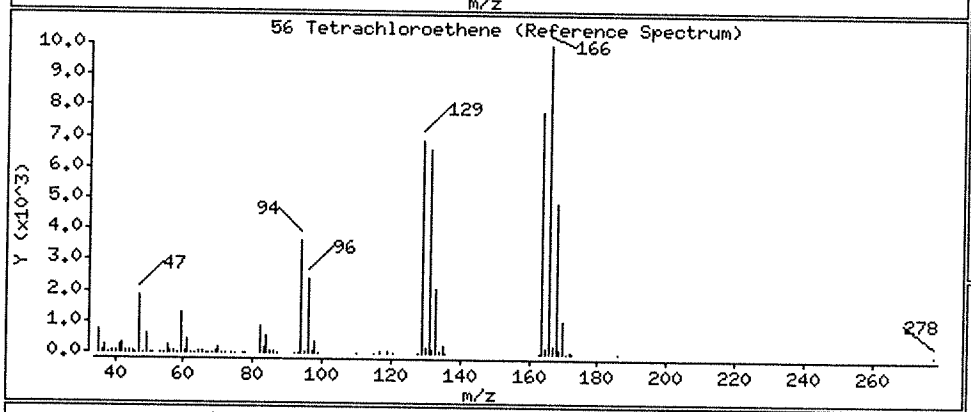
Concentration: 1.83 ug/l

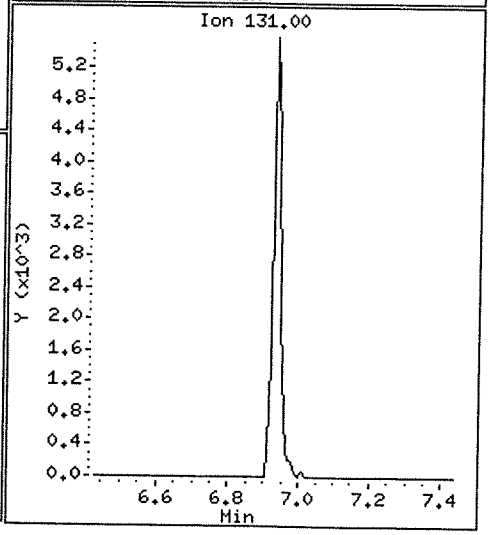


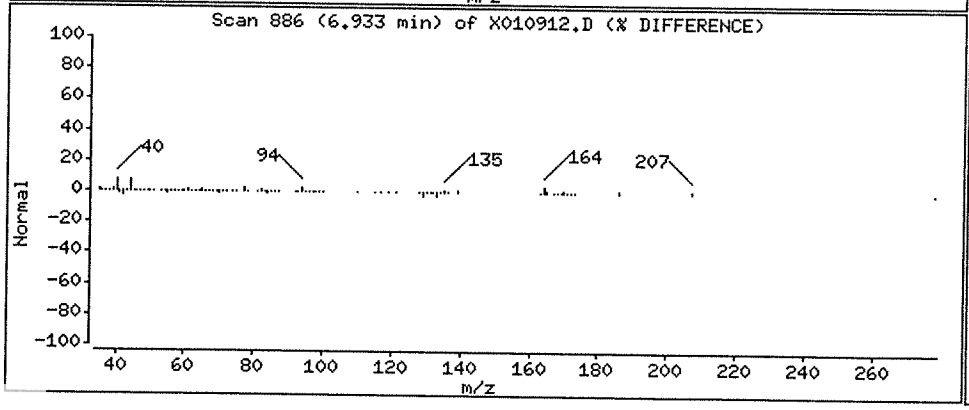












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010913.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010913.D
Lab Smp Id: HS20100342-06 Client Smp ID: HS20100342-06
Inj Date : 09-OCT-2020 15:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-06;HS20100342-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

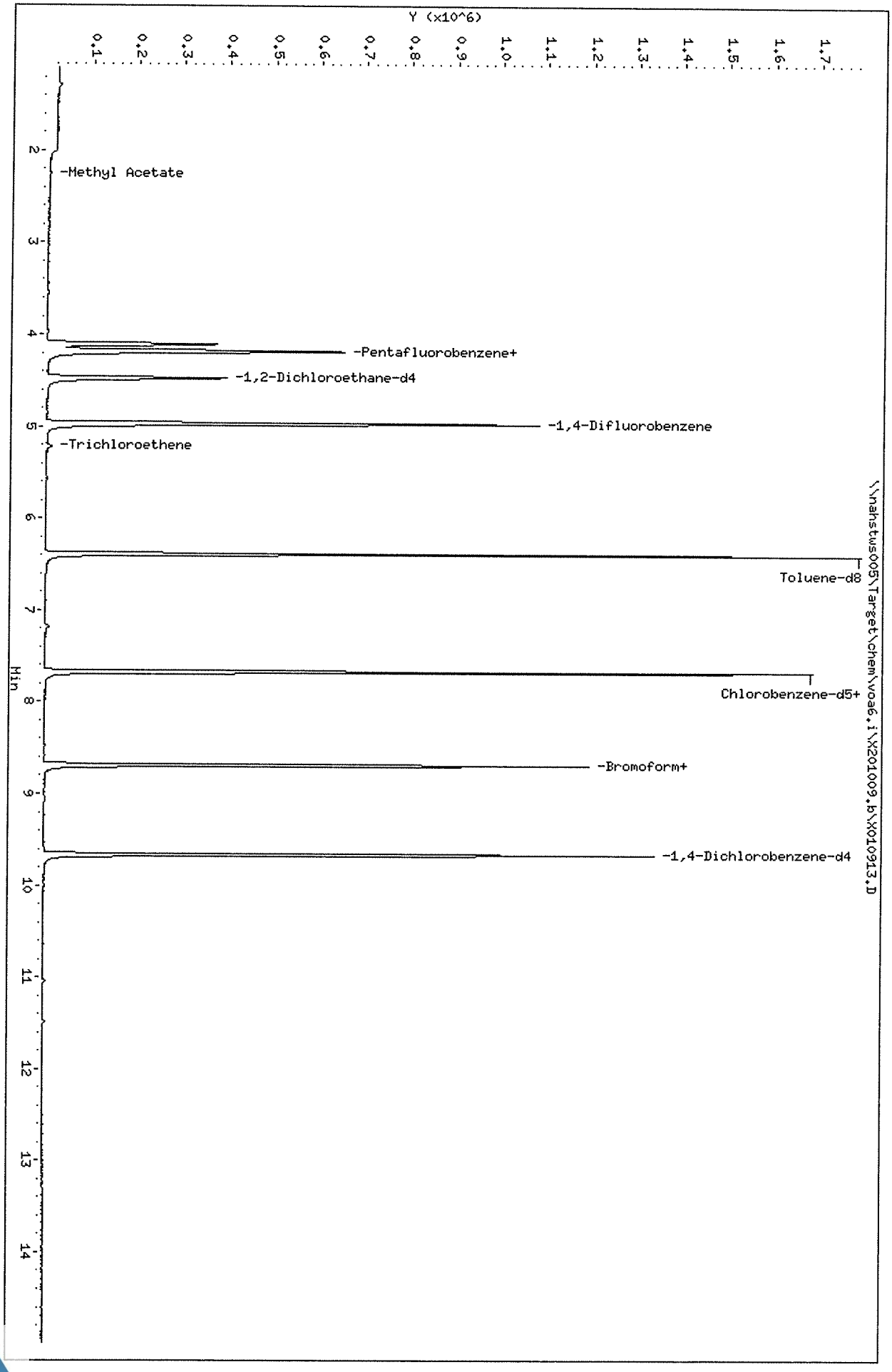
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	554739	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	273366	47.9559	47.95
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	287864	46.1621	46.16
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	890510	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	800058	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1044253	49.6456	49.64
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	372347	53.4557	53.45
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	337233	50.0000	
38 Trichloroethene	130	5.221	5.214	(1.050)	3950	0.62014	0.62(a)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010913.D
Date : 09-OCT-2020 15:22
Client ID: HS201000342-06
Sample Info: HS201000342-06;HS201000342-06;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010913.D

Date : 09-OCT-2020 15:22

Client ID: HS20100342-06

Instrument: voa6.i

Sample Info: HS20100342-06;HS20100342-06;;;

Purge Volume: 5.0

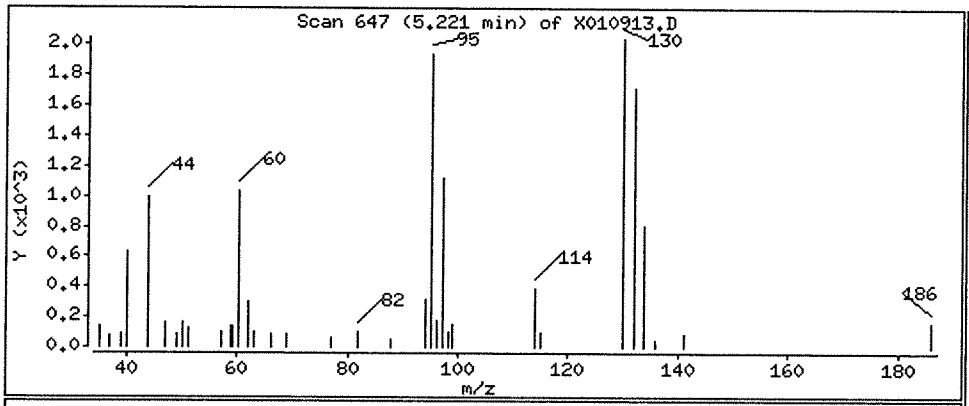
Operator: PC

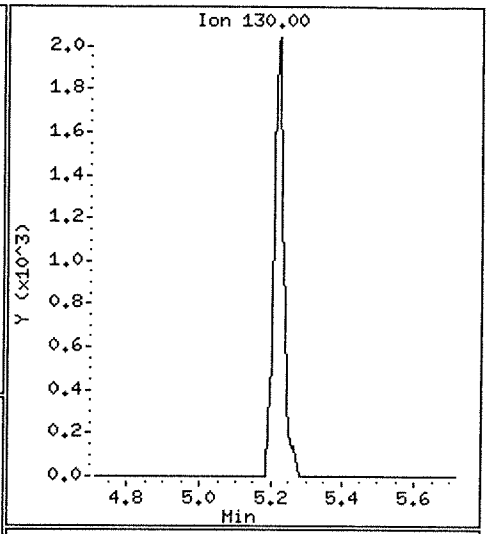
Column phase: DB624

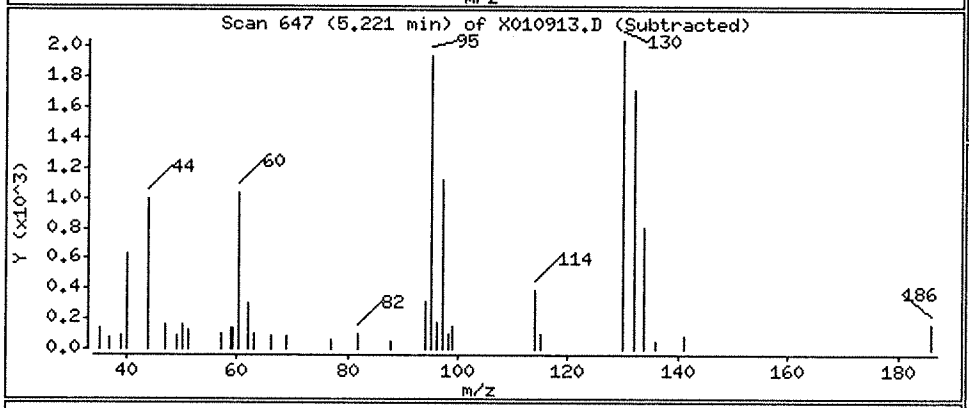
Column diameter: 0.18

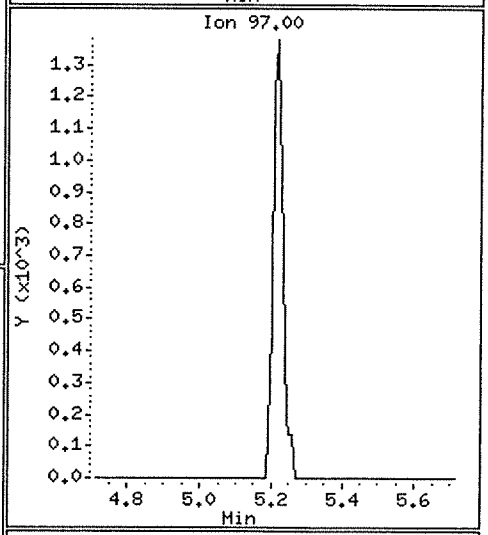
38 Trichloroethene

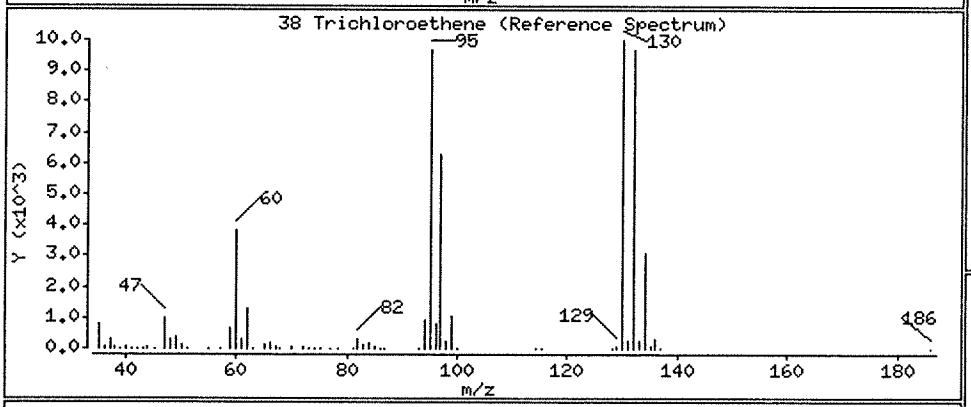
Concentration: 0.62 ug/l

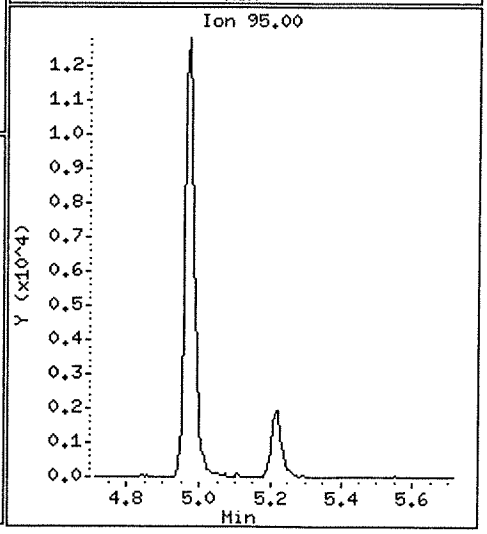


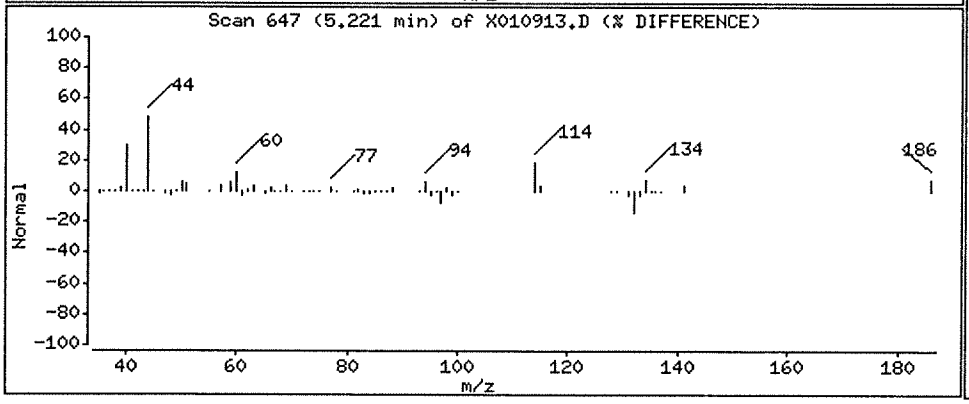












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010914.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010914.D
Lab Smp Id: HS20100342-07 Client Smp ID: HS20100342-07
Inj Date : 09-OCT-2020 15:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-07;HS20100342-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

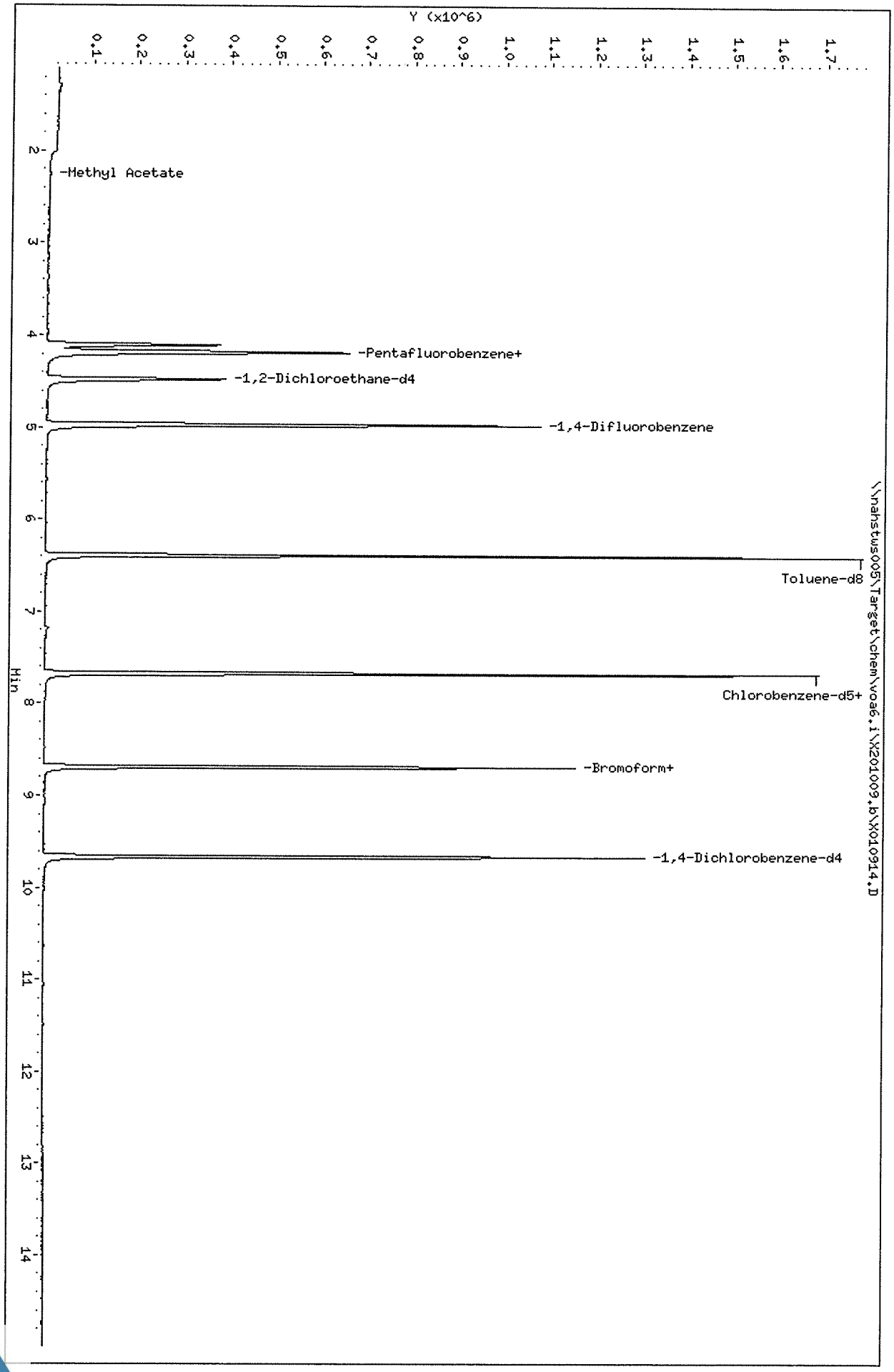
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	556185	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	269724	47.1940	47.19
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	288426	46.1319	46.13
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	889715	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	797181	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1036546	49.4570	49.45
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	365190	52.6044	52.60
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	334836	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010914.D
Date : 09-OCT-2020 15:46
Client ID: HS20100342-07
Sample Info: HS20100342-07;HS20100342-07;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010915.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010915.D
Lab Smp Id: HS20100342-08 Client Smp ID: HS20100342-08
Inj Date : 09-OCT-2020 16:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-08;HS20100342-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

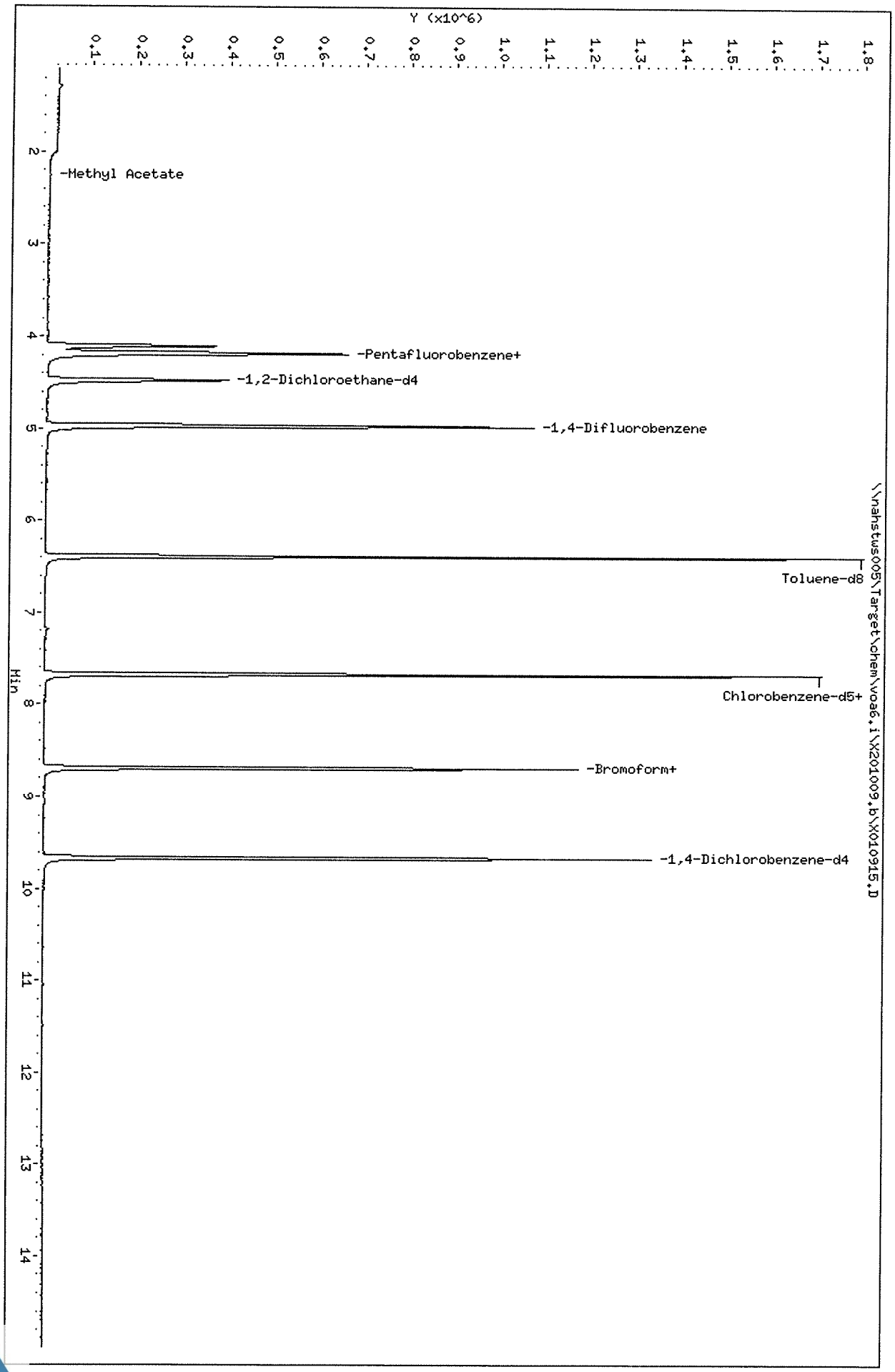
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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	4.189	4.189	(1.000)	561685	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	269398	46.6754	46.67
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	286850	45.4306	45.43
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	884244	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	799590	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1032479	49.1146	49.11
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	371752	53.4007	53.40
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	343627	50.0000	

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010915.D
Date : 09-OCT-2020 16:10
Client ID: HS20100342-08
Sample Info: HS20100342-08;HS20100342-08;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D Page 1
Report Date: 26-Oct-2020 08:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D
Lab Smp Id: HS20100342-02 Client Smp ID: HS20100342-02
Inj Date : 09-OCT-2020 17:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-02;HS20100342-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 18
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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

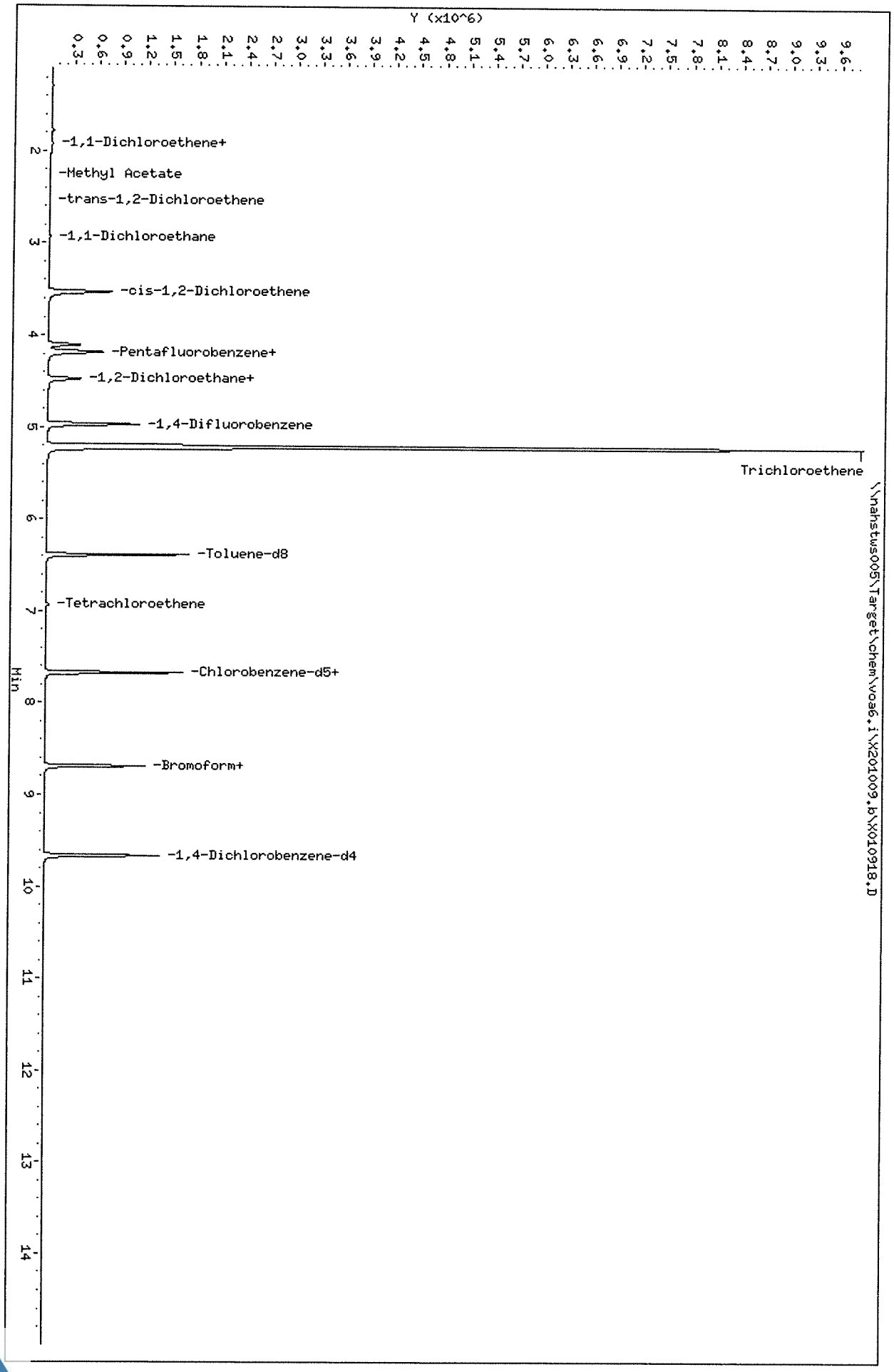
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	559133	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	272773	47.4758	47.47
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	293887	46.7575	46.75
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	899848	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	789000	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1009131	48.6482	48.64
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	372773	54.2794	54.27
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	354252	50.0000	
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	5054	1.00532	1.00(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	391574	57.1634	57.16
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	17036	2.19575	2.19(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	3371195	523.780	523.78(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	7033	1.41091	1.41(a)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D
Date : 09-OCT-2020 17:22
Client ID: HS20100342-02
Sample Info: HS20100342-02;HS20100342-02;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D

Date : 09-OCT-2020 17:22

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

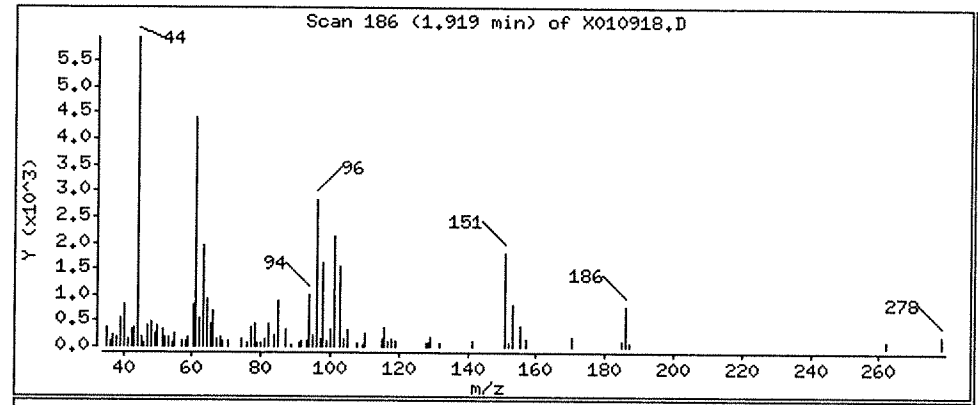
Operator: PC

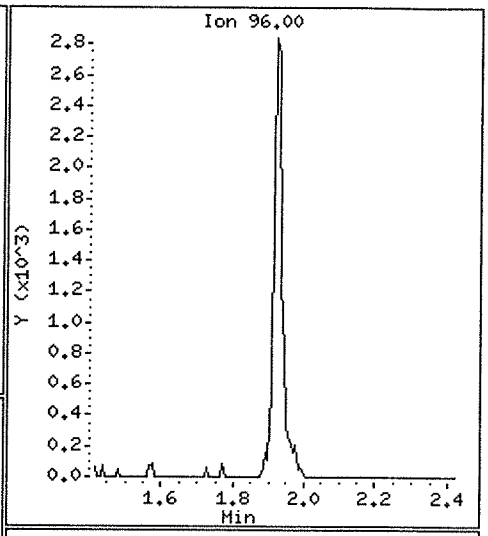
Column phase: DB624

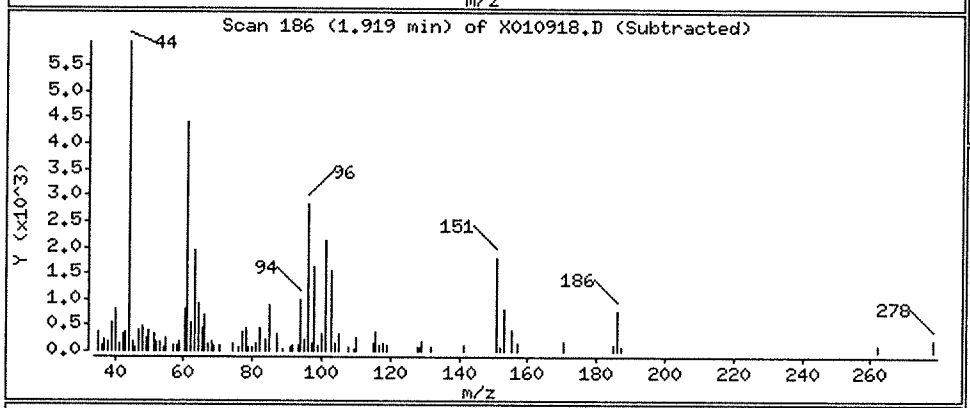
Column diameter: 0.18

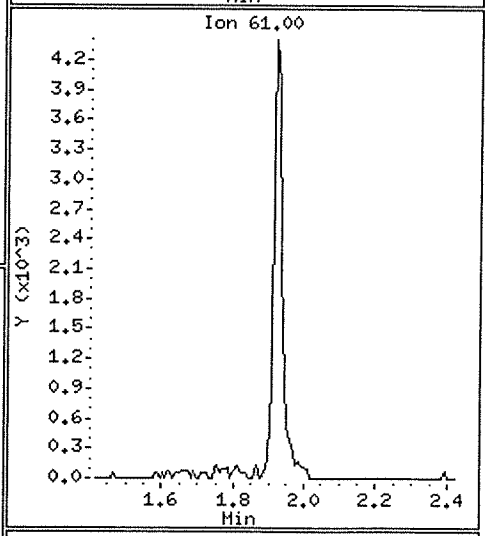
11 1,1-Dichloroethene

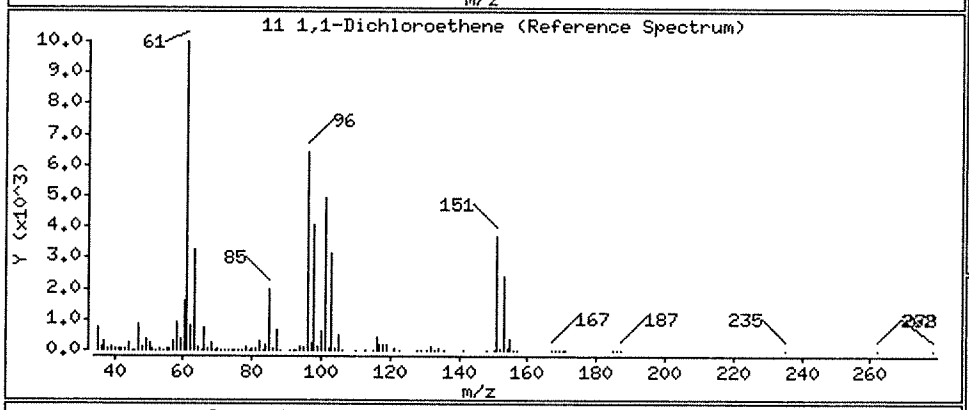
Concentration: 1.00 ug/l

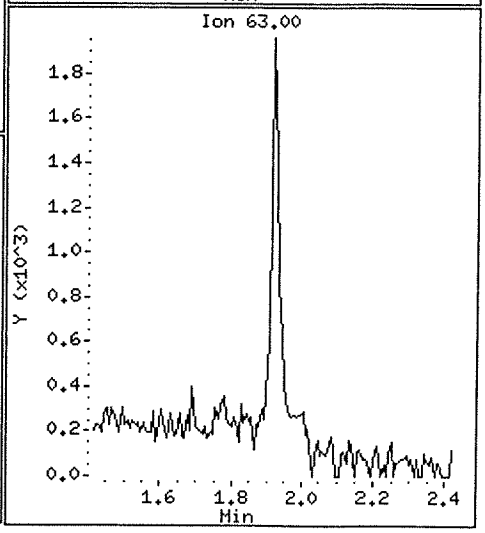


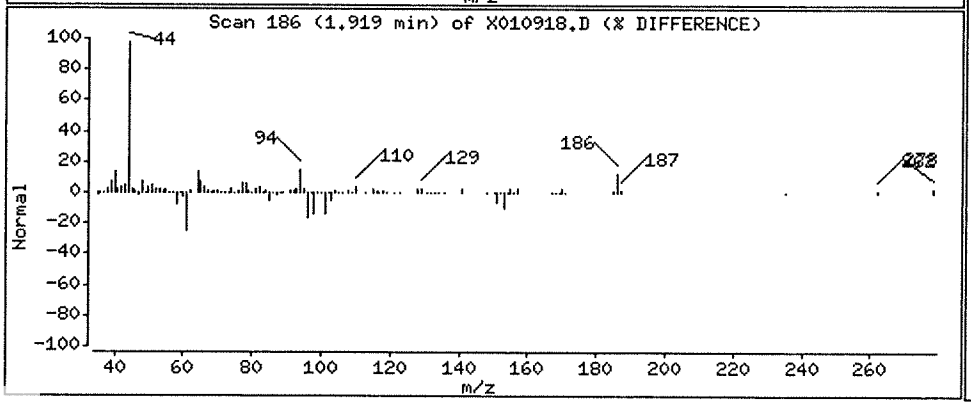












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D

Date : 09-OCT-2020 17:22

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

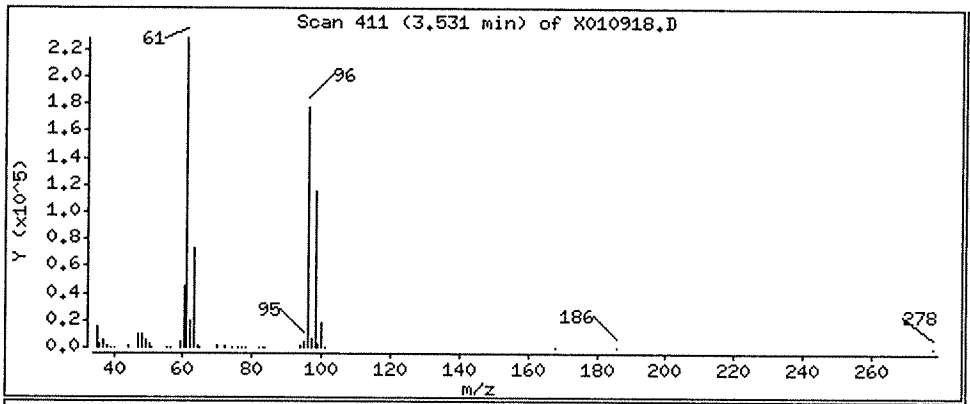
Operator: PC

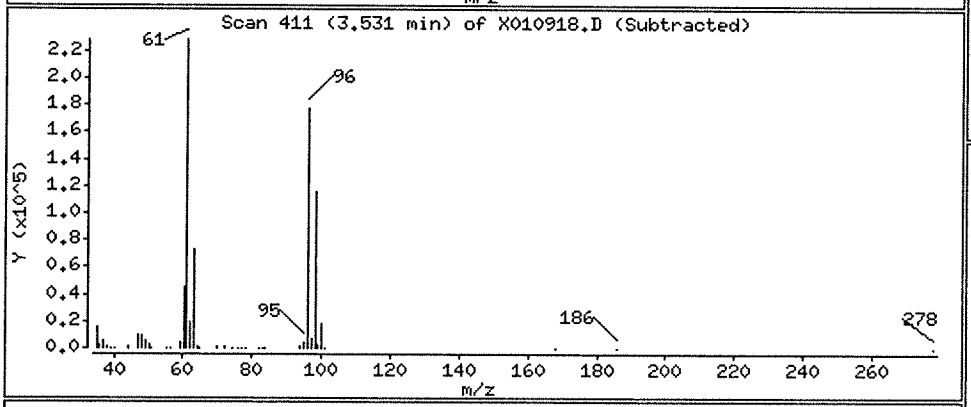
Column phase: DB624

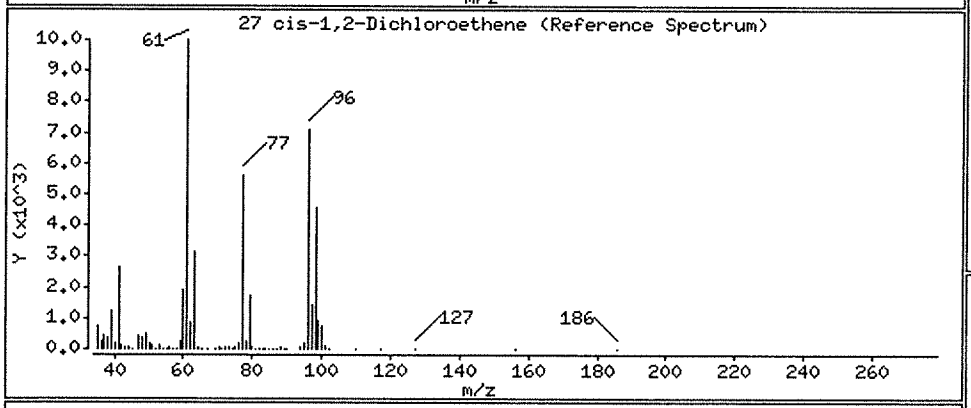
Column diameter: 0.18

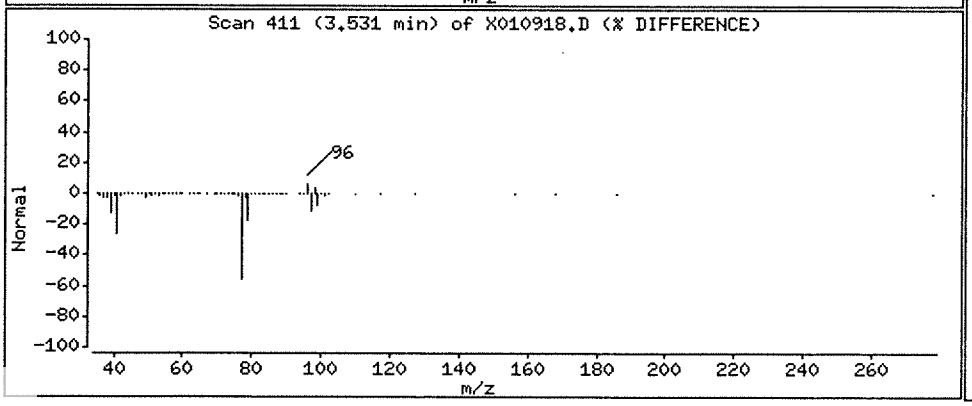
27 cis-1,2-Dichloroethene

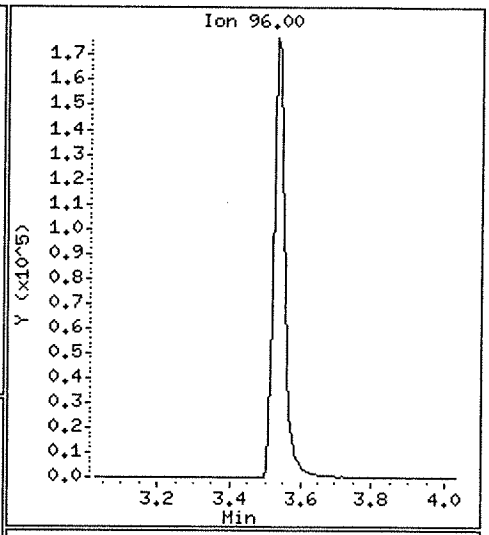
Concentration: 57.16 ug/l

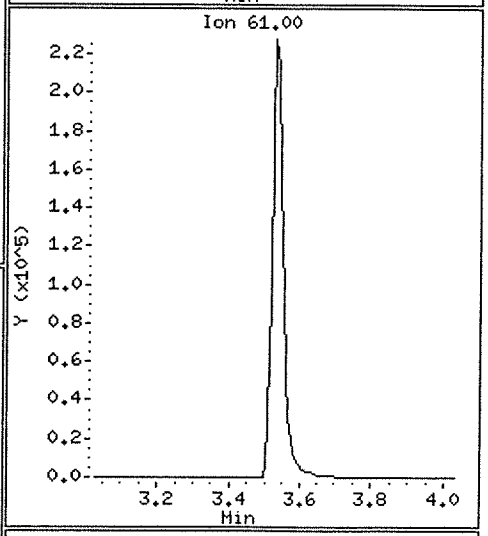


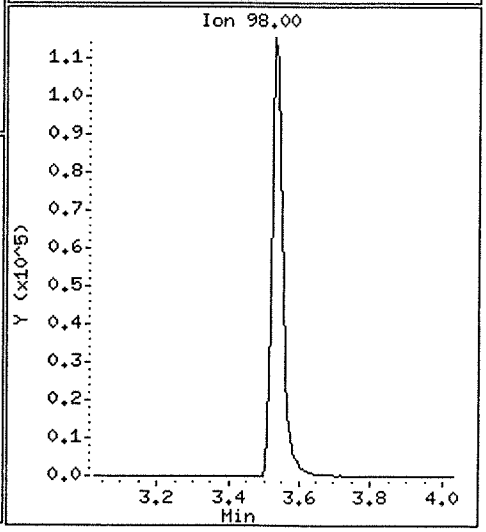












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D

Date : 09-OCT-2020 17:22

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

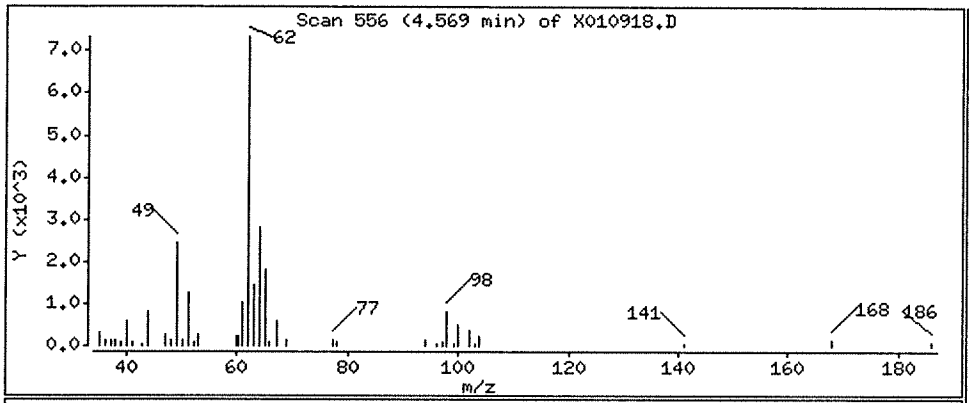
Operator: PC

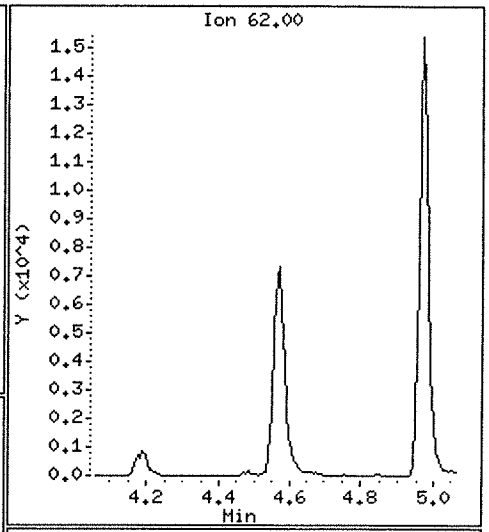
Column phase: DB624

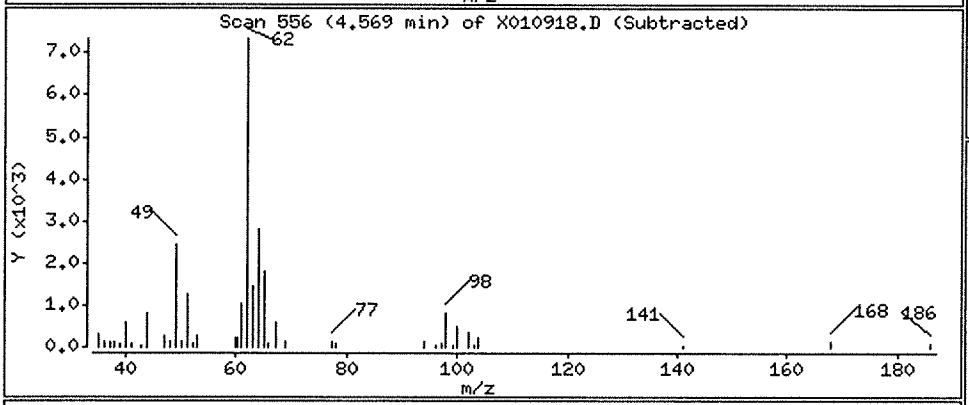
Column diameter: 0.18

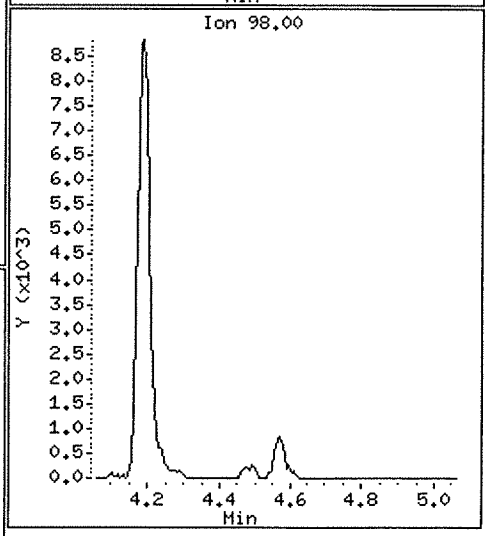
33 1,2-Dichloroethane

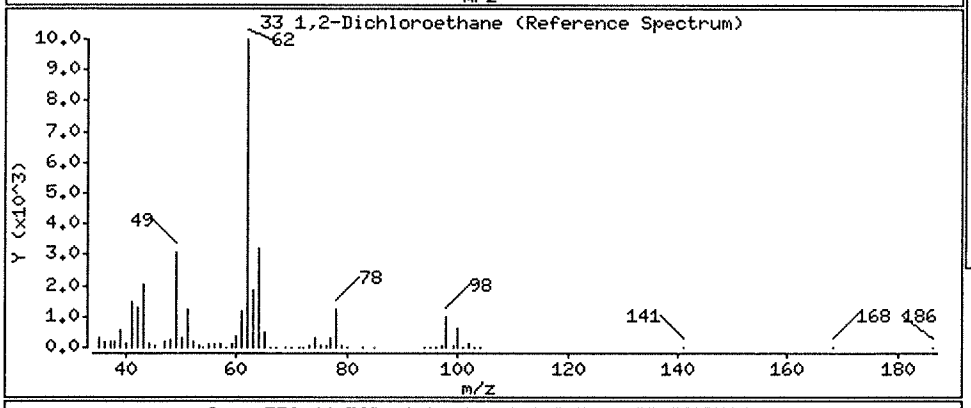
Concentration: 2.19 ug/l

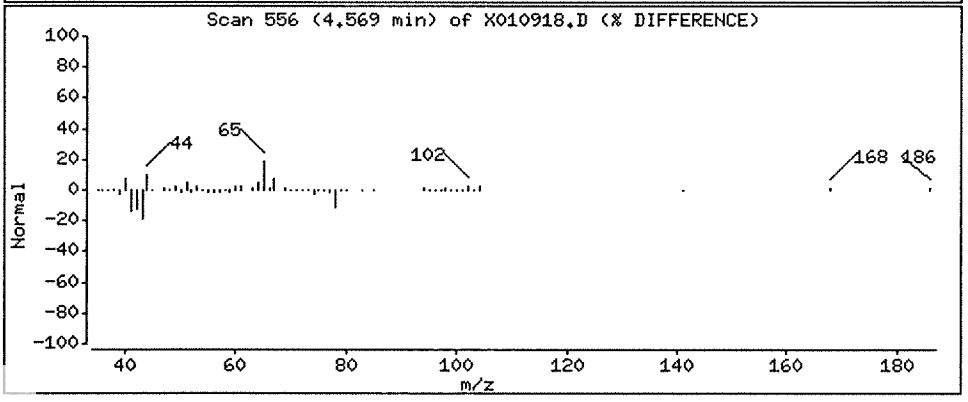












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D

Date : 09-OCT-2020 17:22

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

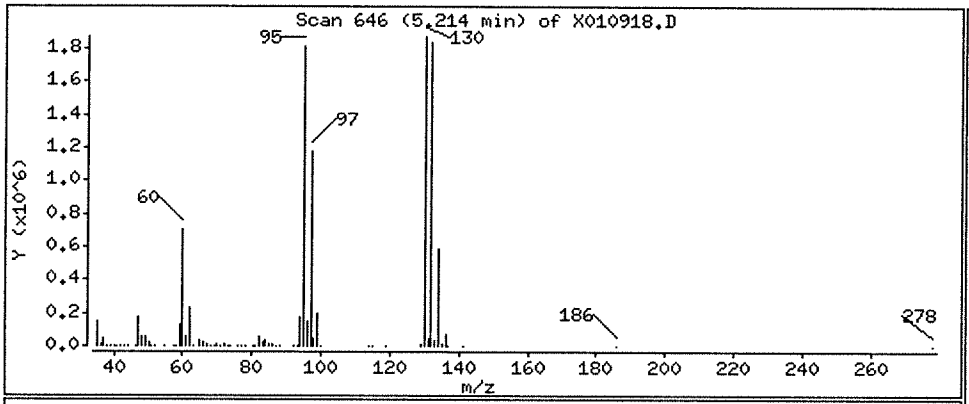
Operator: PC

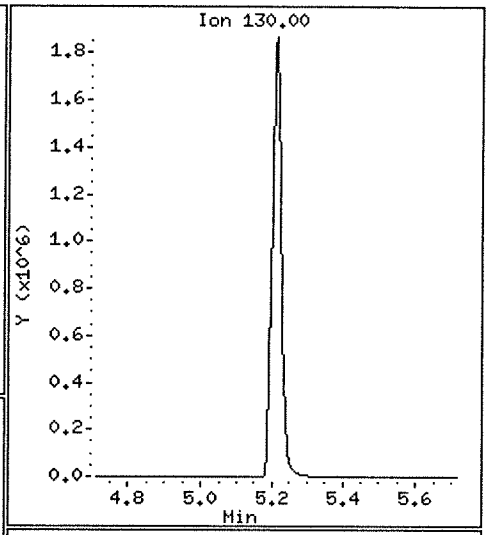
Column phase: DB624

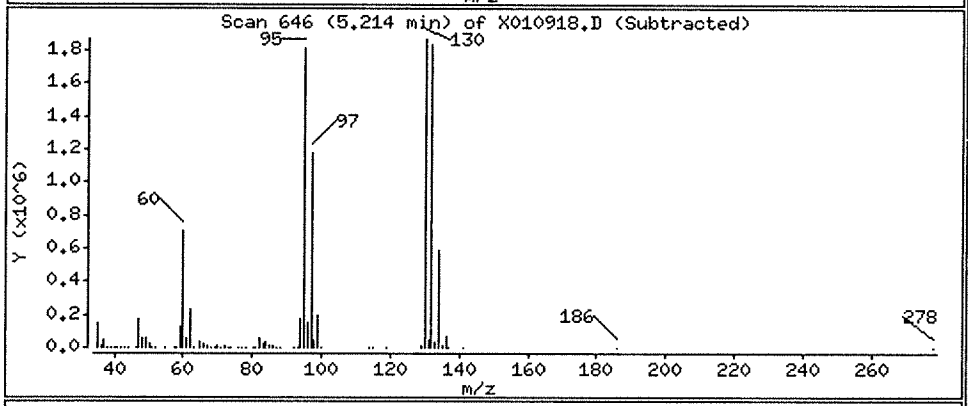
Column diameter: 0.18

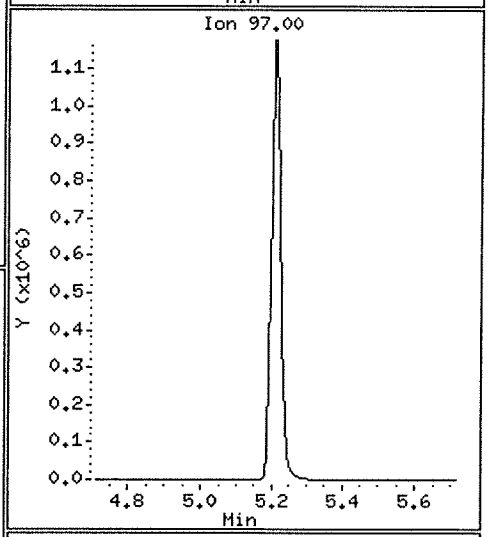
38 Trichloroethene

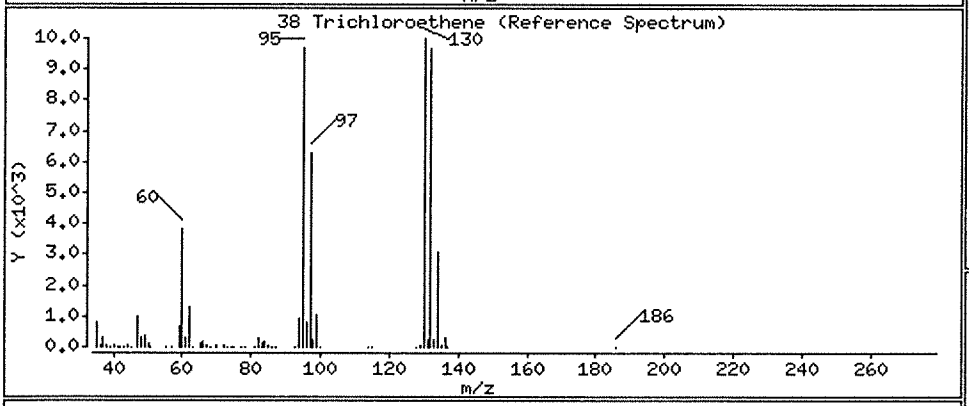
Concentration: 523.78 ug/l

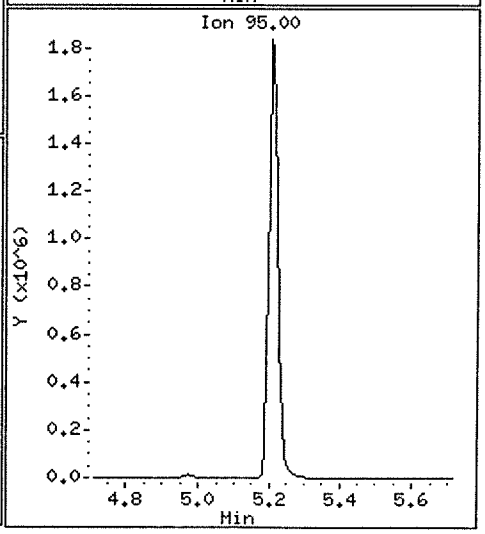


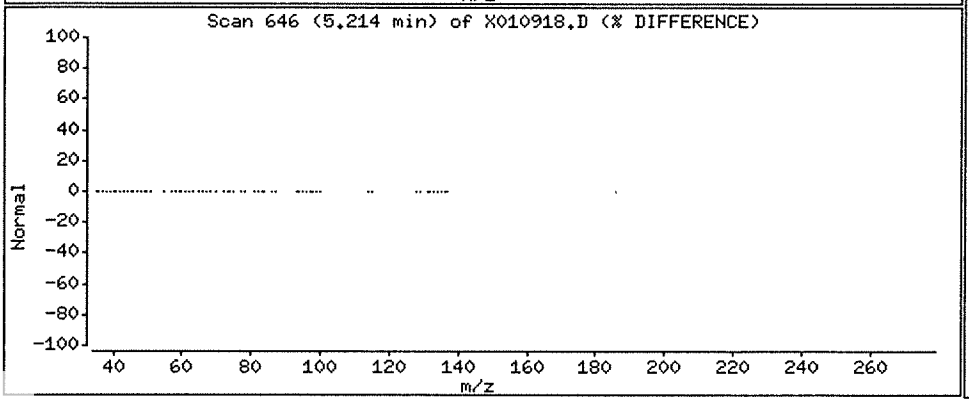












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010918.D

Date : 09-OCT-2020 17:22

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

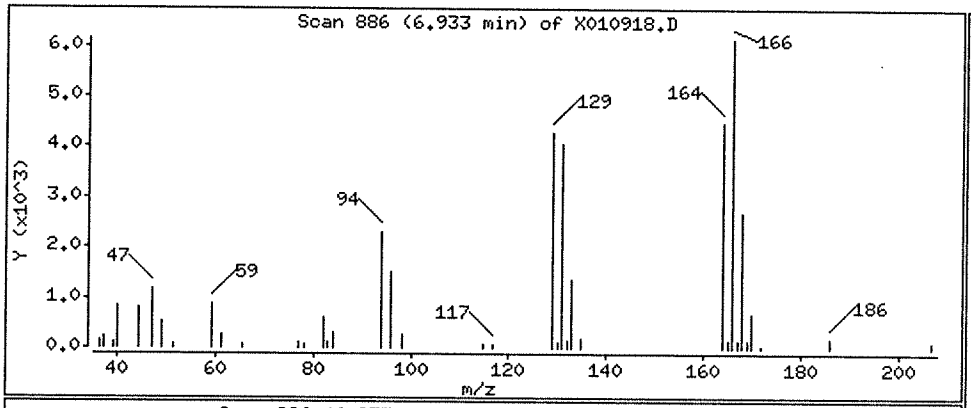
Operator: PC

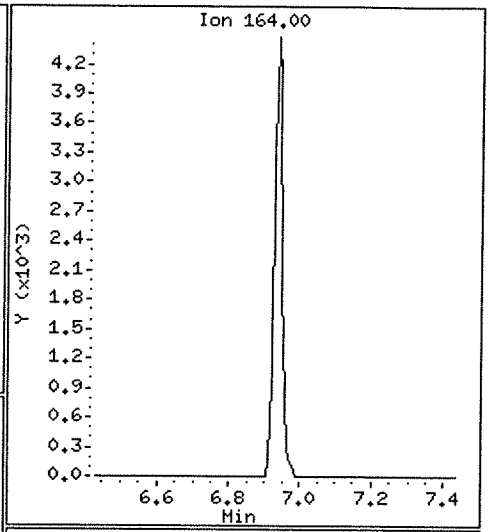
Column phase: DB624

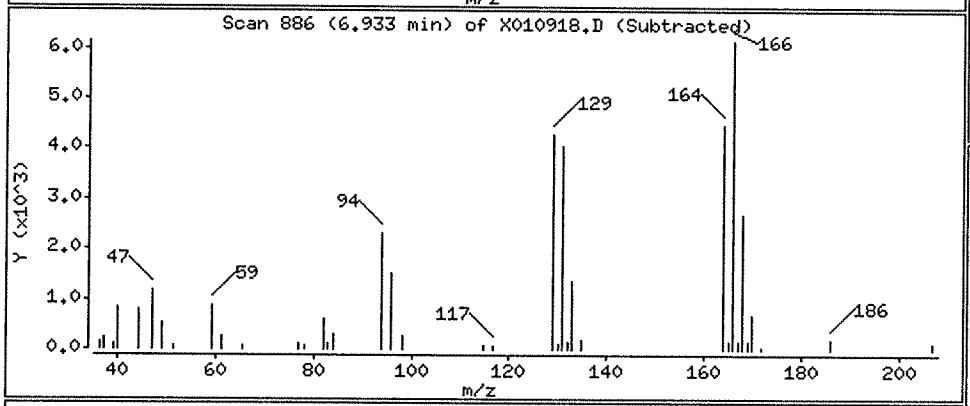
Column diameter: 0.18

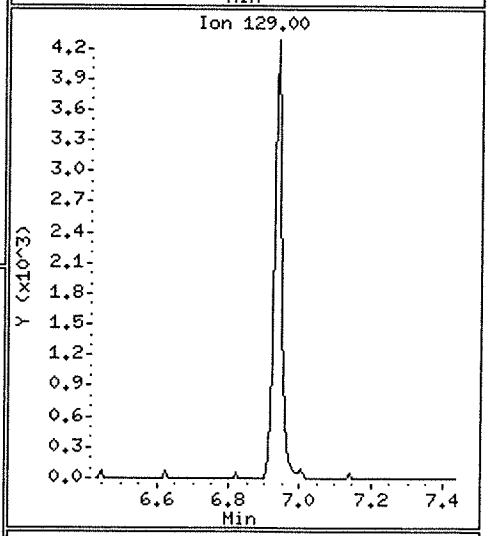
56 Tetrachloroethene

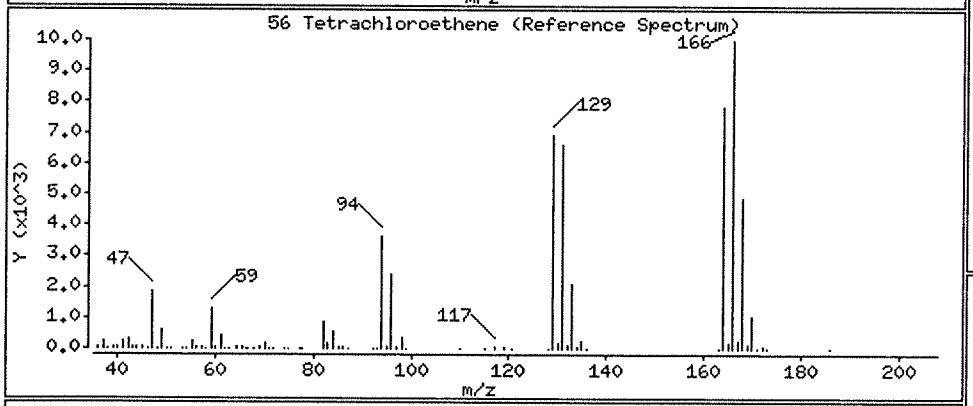
Concentration: 1.41 ug/l

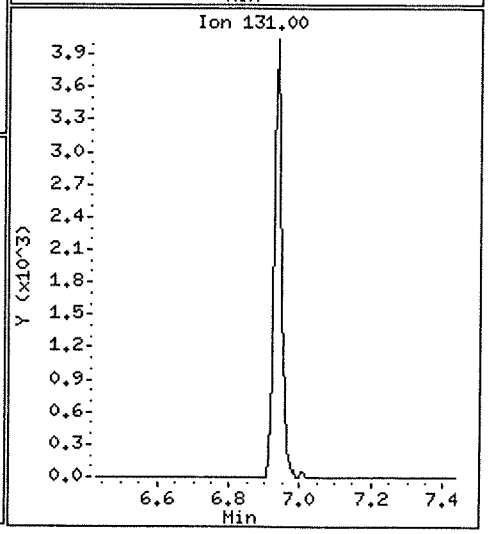


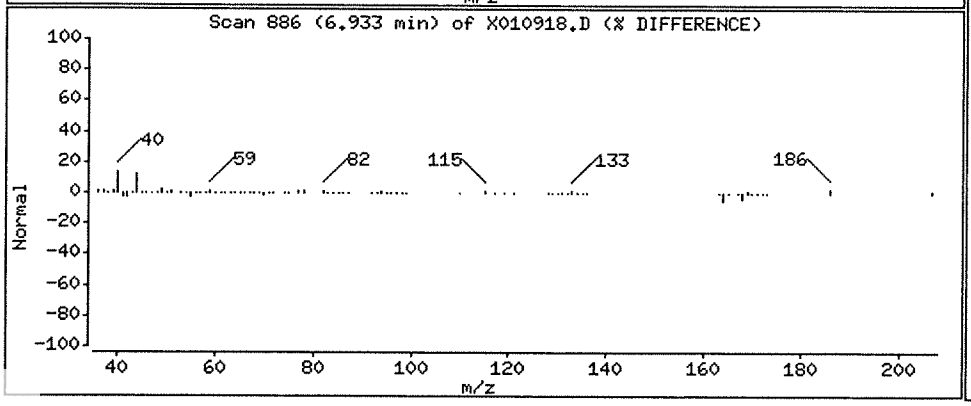












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010919.D Page 1
Report Date: 26-Oct-2020 08:26

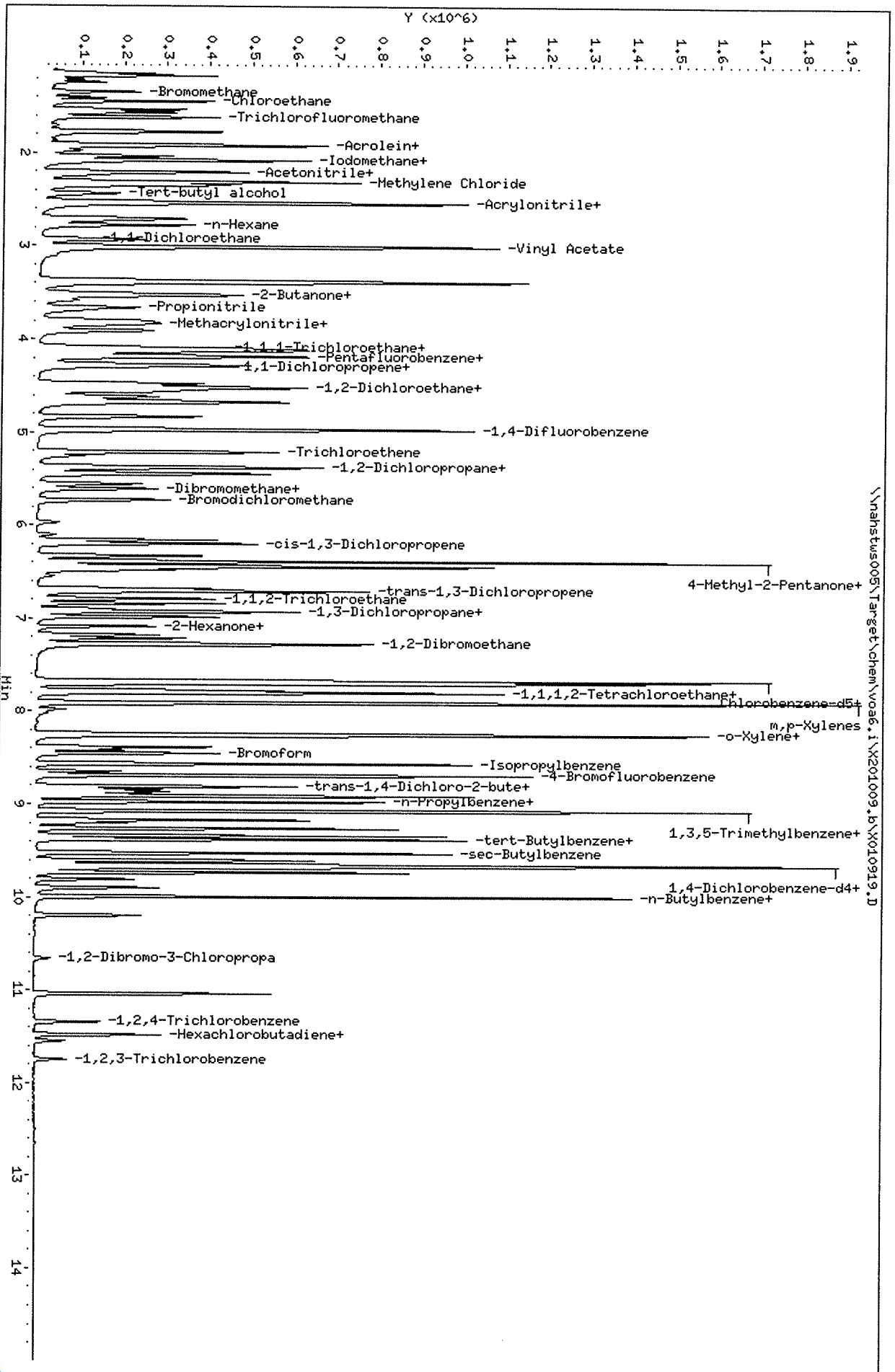
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010919.D
Lab Smp Id: HS20100352-03MS Client Smp ID: HS20100352-03MS
Inj Date : 09-OCT-2020 17:46
Operator : PC Inst ID: voa6.i
Smp Info : HS20100352-03MS;HS20100352-03MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:25 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 19 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	526836	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.979)	257665	47.5956	47.59
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	273439	46.1712	46.17
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	838709	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	771530	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	982920	48.4576	48.45
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	353231	52.5729	52.57
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	328728	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	158165	23.2413	23.24
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	123607	26.0946	26.09
17 Methylene Chloride	84	2.313	2.305	(0.552)	147788	25.2862	25.28
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	156656	24.2712	24.27
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	169124	23.3872	23.38
38 Trichloroethene	130	5.214	5.214	(1.049)	195520	32.5923	32.59
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	104164	22.9238	22.92
56 Tetrachloroethene	164	6.933	6.933	(0.904)	121548	24.9362	24.93



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010919.D
Date : 09-OCT-2020 17:46
Client ID: HS20100352-03MS
Sample Info: HS20100352-03MS;HS20100352-03MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

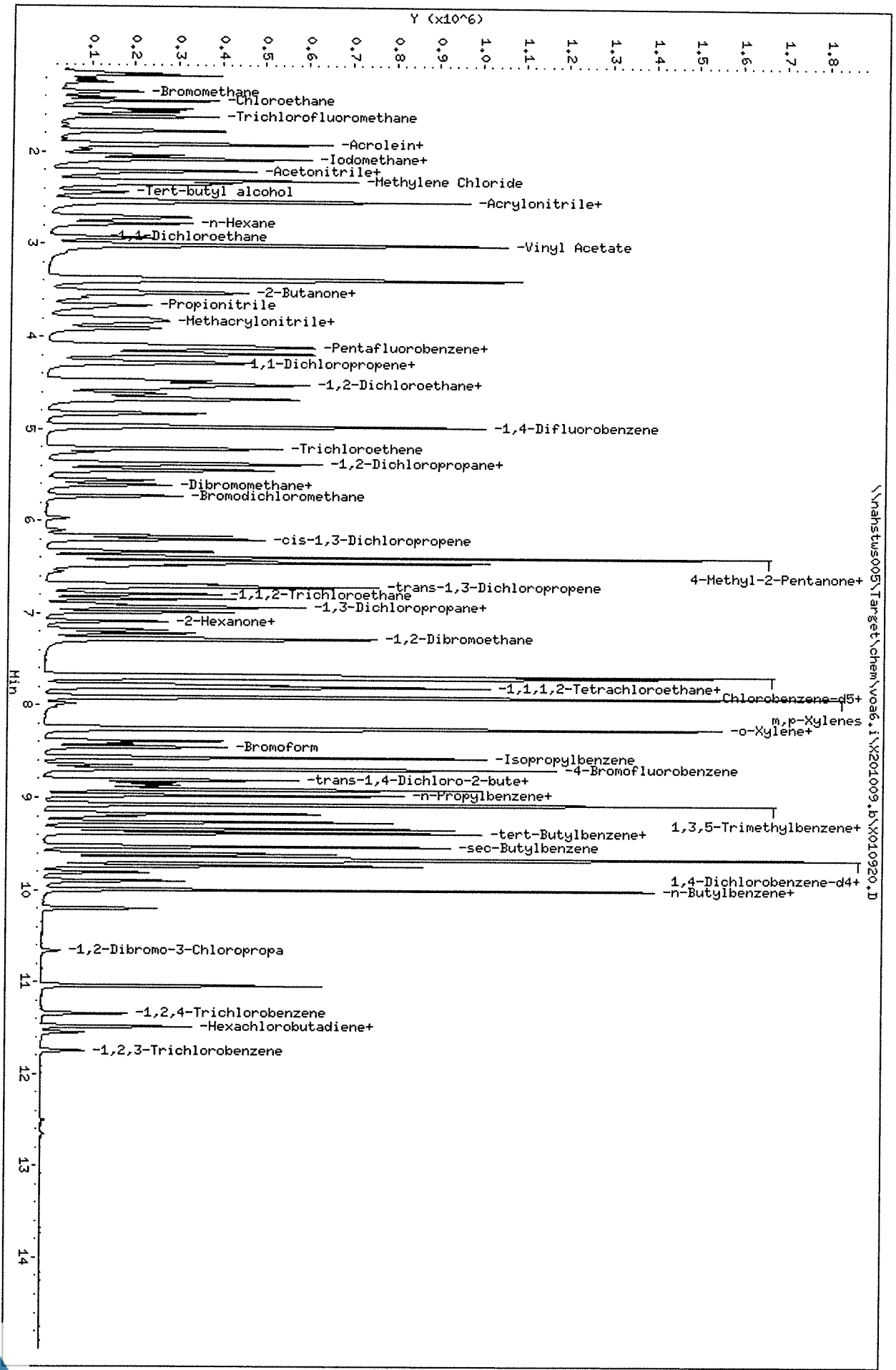
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010920.D
Lab Smp Id: HS20100352-03MSD Client Smp ID: HS20100352-03MSD
Inj Date : 09-OCT-2020 18:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20100352-03MSD;HS20100352-03MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:25 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 19 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.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	4.189	4.189	(1.000)	512092	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	250187	47.5448	47.54
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	265815	46.1762	46.17
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	824741	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	759986	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	958998	47.9964	47.99
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	348415	52.6449	52.64
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	326063	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	147224	22.2564	22.25
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	116911	25.3916	25.39
17 Methylene Chloride	84	2.313	2.305	(0.552)	141264	24.8541	24.85
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	149136	23.7714	23.77
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	163563	23.0012	23.00
38 Trichloroethene	130	5.214	5.214	(1.049)	184956	31.3535	31.35
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	102401	22.8781	22.87
56 Tetrachloroethene	164	6.933	6.933	(0.904)	116400	24.2428	24.24



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010920.D
Date : 09-OCT-2020 18:10
Client ID: HS20100352-03MSD
Sample Info: HS20100352-03MSD;HS20100352-03MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010928.D Page 1
Report Date: 26-Oct-2020 08:20

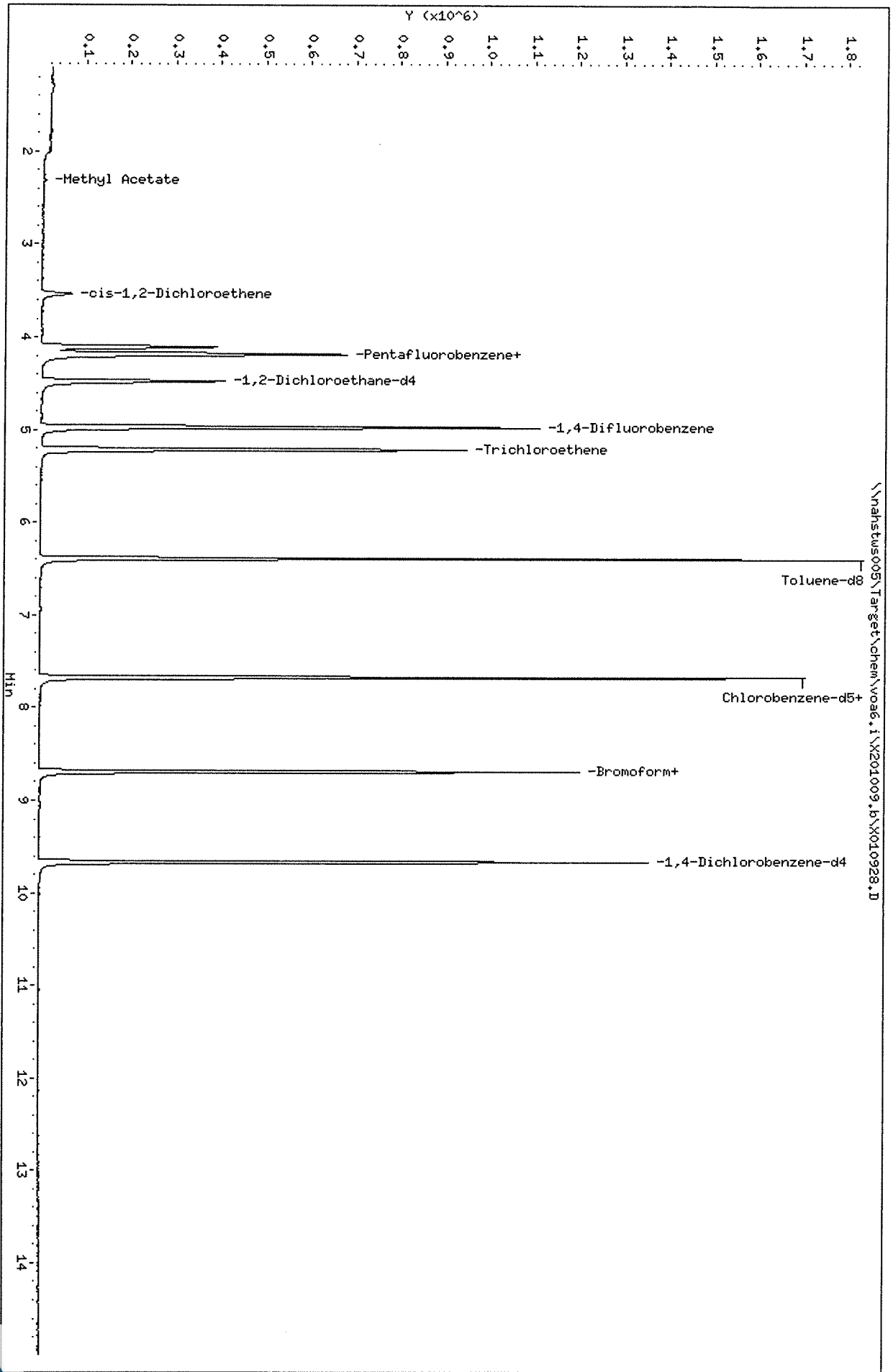
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010928.D
Lab Smp Id: HS20100342-02 Client Smp ID: HS20100342-02
Inj Date : 09-OCT-2020 21:23
Operator : PC Inst ID: voa6.i
Smp Info : HS20100342-02;HS20100342-02;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:17 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 27
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	575709	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.979)	280769	47.4605	47.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	294125	45.4481	45.44
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	916469	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	822028	50.0000	
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1068828	49.4559	49.45
$ 69 4-Bromofluorobenzene	95	8.695	8.688	(1.134)	377919	52.7955	52.79
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	347036	50.0000	
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	38000	5.38766	53.87
38 Trichloroethene	130	5.214	5.214	(1.049)	325931	49.7213	497.21



Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010928.D
Date : 09-OCT-2020 21:23
Client ID: HS20100342-02
Sample Info: HS20100342-02;HS20100342-02;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010928.D

Date : 09-OCT-2020 21:23

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

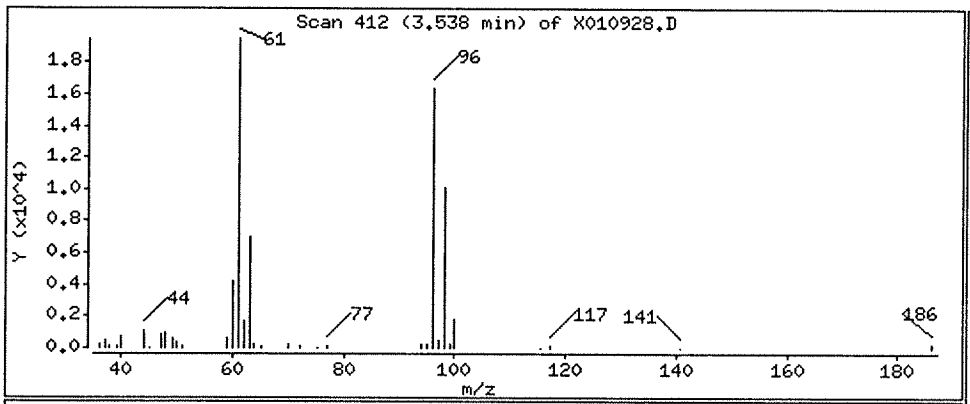
Operator: PC

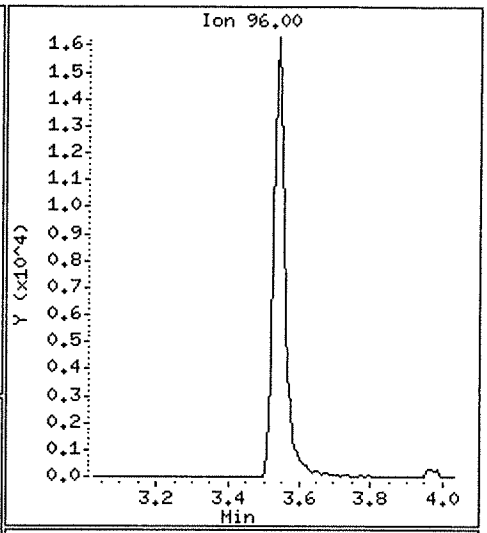
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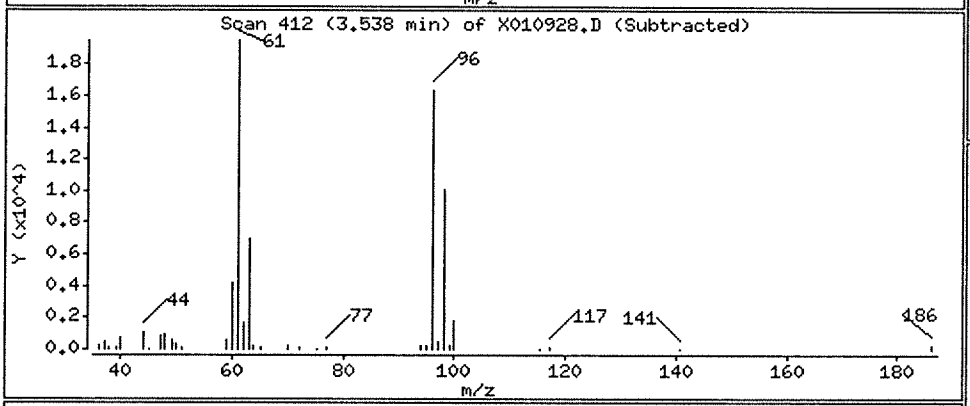
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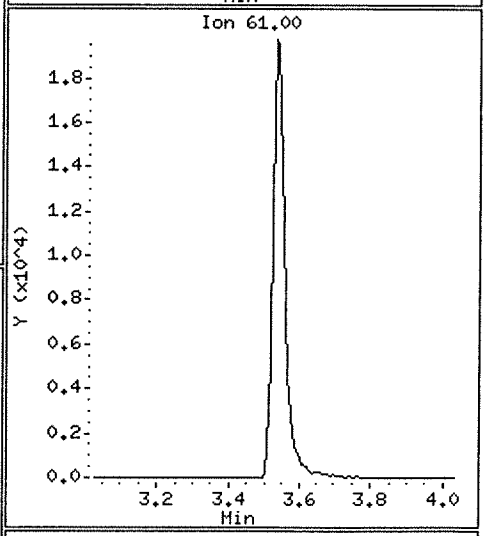
27 cis-1,2-Dichloroethene

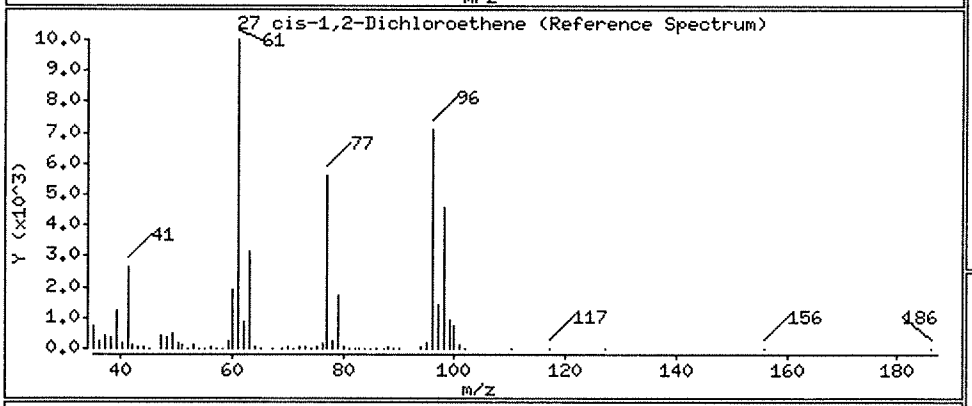
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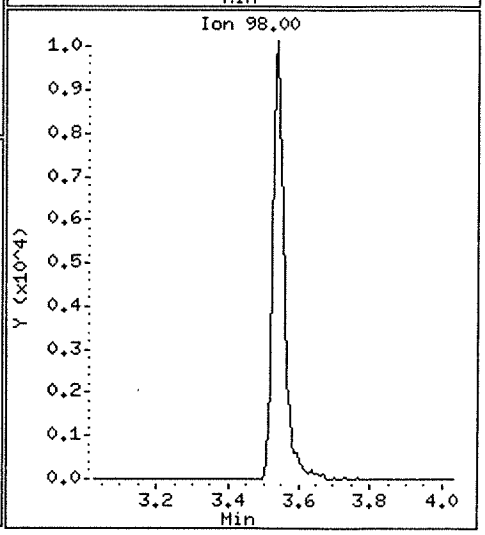


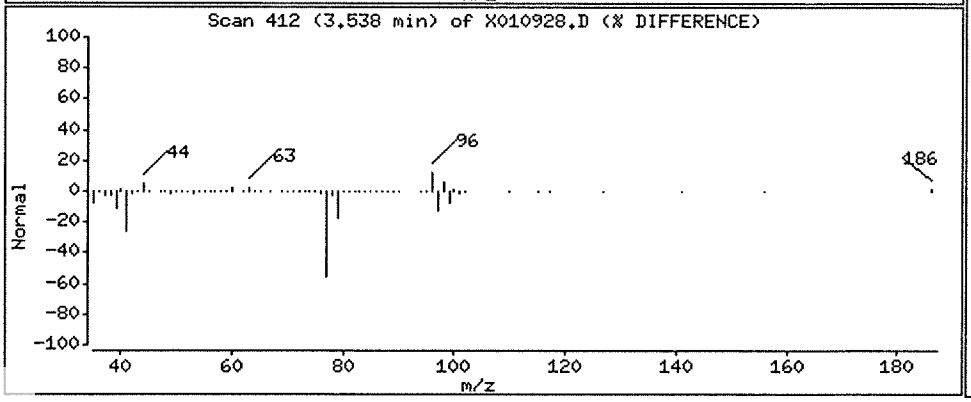












Data File: \\nahstws005\Target\chem\voa6.i\X201009.b\X010928.D

Date : 09-OCT-2020 21:23

Client ID: HS20100342-02

Instrument: voa6.i

Sample Info: HS20100342-02;HS20100342-02;;;

Purge Volume: 5.0

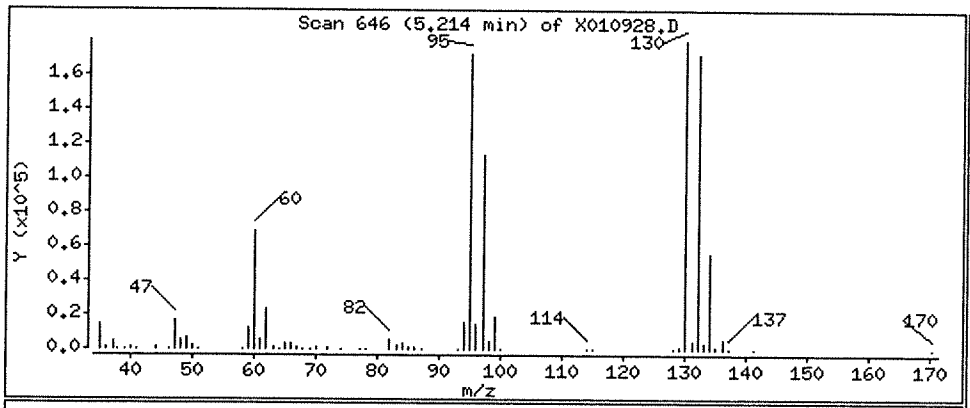
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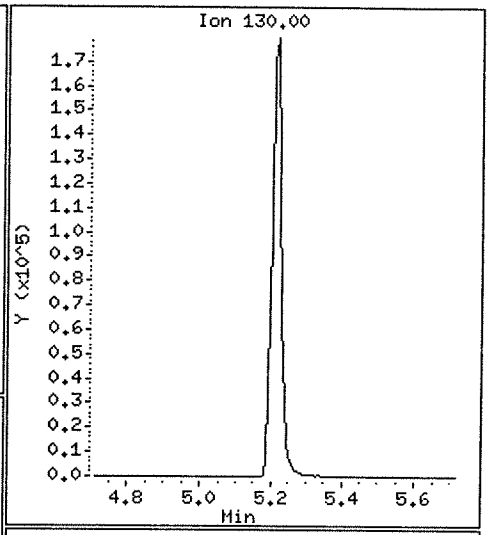
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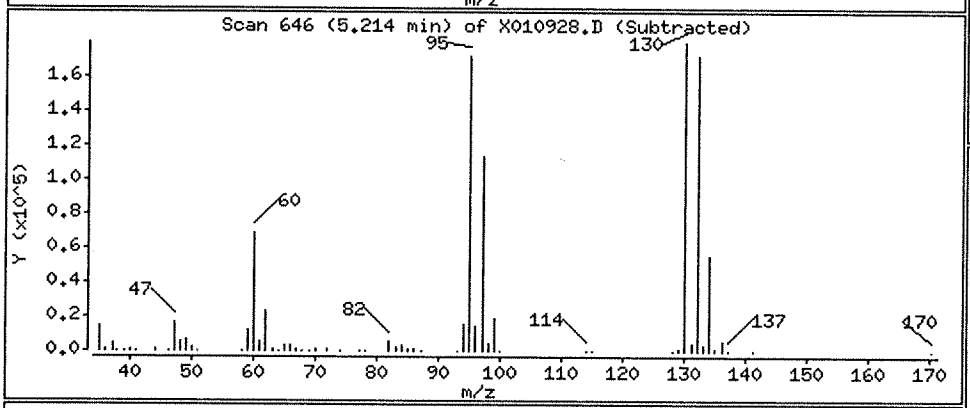
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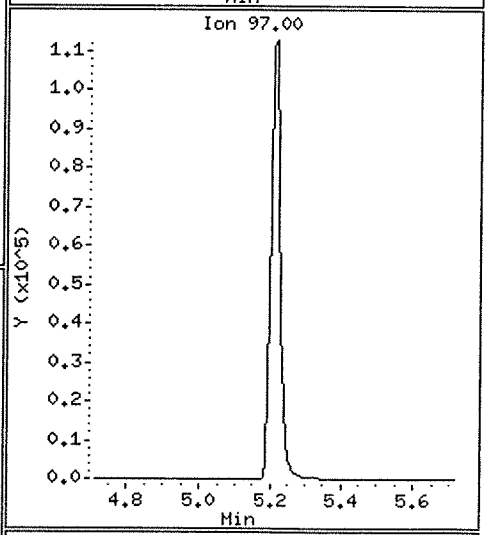
38 Trichloroethene

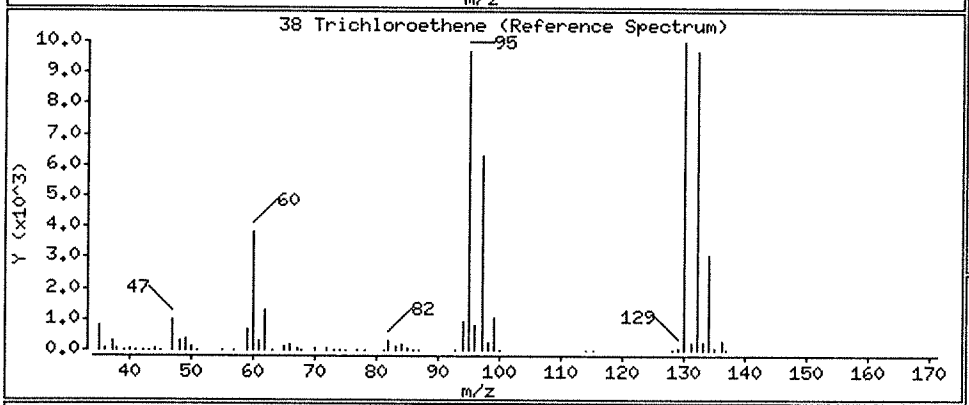
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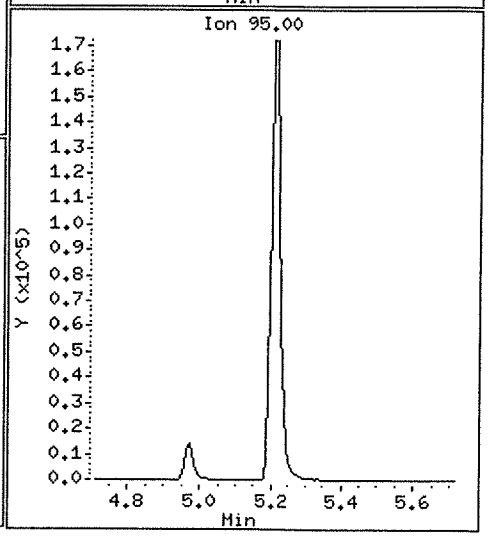


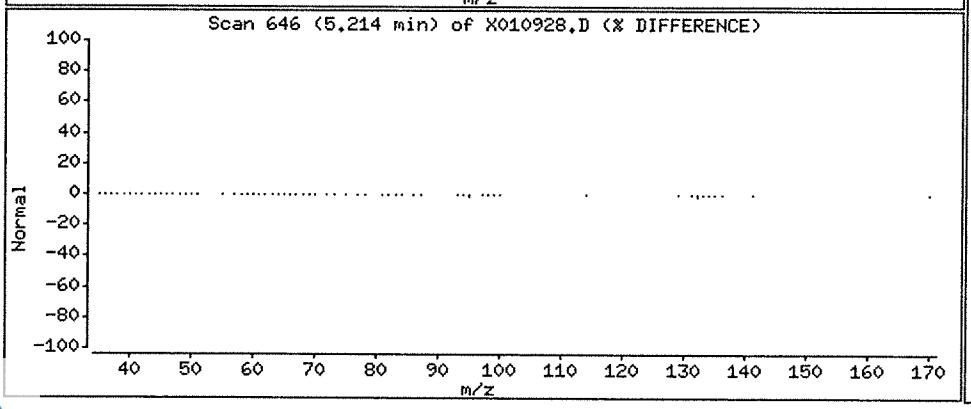












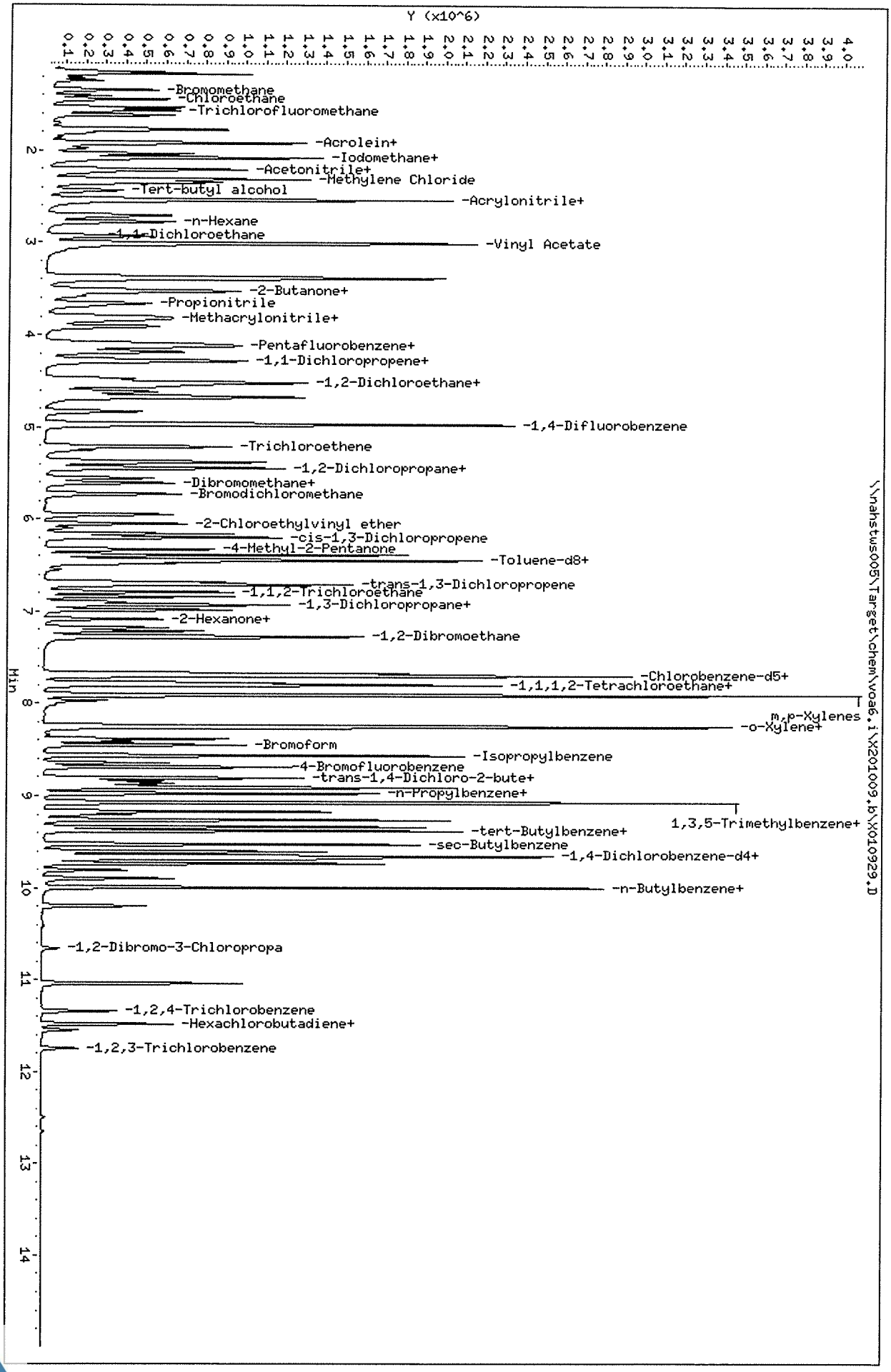
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X201009.b\X010929.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 09-OCT-2020 21:47
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X201009.b\8260W.m
Meth Date : 26-Oct-2020 08:26 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 14:21 Cal File: X092408.D
Als bottle: 28 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-HOUSTON.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	562332	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	280408	50.0000	48.52
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	313189	50.0000	49.54
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	903157	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	824284	50.0000	
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1040959	50.0000	48.03
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	369121	50.0000	51.40
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	341305	50.0000	
5 Vinyl Chloride	62	1.145	1.145	(0.273)	366897	50.0000	50.50
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	256968	50.0000	50.82
17 Methylene Chloride	84	2.313	2.313	(0.552)	318810	50.0000	51.82
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	330845	50.0000	48.02
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	366130	50.0000	47.01
38 Trichloroethene	130	5.214	5.214	(1.049)	316142	50.0000	48.93
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	220877	50.0000	45.49
56 Tetrachloroethene	164	6.933	6.933	(0.904)	238702	50.0000	45.83



Data File: \\nahstus005\Target\chem\voa6.i\X201009.b\X010929.D
Date : 09-OCT-2020 21:47
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

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WorkOrder: HS21011122

LHAAP50 January 2021

Aptim Environmental & Infrastucture, Inc.

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

02-Mar-2021

ALS Environmental
ALS Group USA, Corp
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Chromatogram

HS21011122 LHAAP50 January 2021 Final

ALS WO# HS21011122

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February 04, 2021

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

Work Order: **HS21011122**

Laboratory Results for: **LHAAP50 January 2021**

Dear Susan Huang,

ALS Environmental received 4 sample(s) on Jan 27, 2021 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Work Order: HS21011122

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21011122-01	50WW08-210125	Groundwater		25-Jan-2021 12:45	27-Jan-2021 10:05	☐
HS21011122-02	50WW05-210125	Groundwater		25-Jan-2021 13:30	27-Jan-2021 10:05	☐
HS21011122-03	50WW29-210125	Groundwater		25-Jan-2021 14:15	27-Jan-2021 10:05	☐
HS21011122-04	Trip Blank-210125	Water	CG 121520 -128	25-Jan-2021 00:00	27-Jan-2021 10:05	☐

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Work Order: HS21011122

CASE NARRATIVE

Work Order Comments

• Analysis of Perchlorate was performed by ALS Houston TX, High Resolution. Laboratory. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R377396

Sample ID: HS21011103-06MSD

• MSD is for an unrelated sample

Batch ID: R377394

Sample ID: HS21011223-12MSD

• MSD is for an unrelated sample

Batch ID: R377477

Sample ID: HS21011077-02MSD

• MSD is for an unrelated sample

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Sample ID: 50WW08-210125
Collection Date: 25-Jan-2021 12:45

ANALYTICAL REPORT
WorkOrder:HS21011122
Lab ID:HS21011122-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**0.82**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	03-Feb-2021 02:11
1,2-Dichloroethane	**2.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	03-Feb-2021 02:11
cis-1,2-Dichloroethene	**55**		**0.20**	**0.50**	**1.0**	**ug/L**	1	03-Feb-2021 02:11
Tetrachloroethene	**1.4**		**0.30**	**1.0**	**1.0**	**ug/L**	1	03-Feb-2021 02:11
Trichloroethene	**550**		**2.0**	**5.0**	**10**	**ug/L**	10	03-Feb-2021 03:15
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	03-Feb-2021 02:11
Surr: 1,2-Dichloroethane-d4	*95.9*			**0**	*81-118*	*%REC*	*1*	*03-Feb-2021 02:11*
Surr: 1,2-Dichloroethane-d4	*91.1*			**0**	*81-118*	*%REC*	*10*	*03-Feb-2021 03:15*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*03-Feb-2021 02:11*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*10*	*03-Feb-2021 03:15*
Surr: Dibromofluoromethane	*95.8*			**0**	*80-119*	*%REC*	*1*	*03-Feb-2021 02:11*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*10*	*03-Feb-2021 03:15*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*03-Feb-2021 02:11*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*03-Feb-2021 03:15*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02

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

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Sample ID: 50WW05-210125
Collection Date: 25-Jan-2021 13:30

ANALYTICAL REPORT
WorkOrder:HS21011122
Lab ID:HS21011122-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**4.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	02-Feb-2021 20:14
1,2-Dichloroethane	**2.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	02-Feb-2021 20:14
cis-1,2-Dichloroethene	**160**		**0.20**	**0.50**	**1.0**	**ug/L**	1	02-Feb-2021 20:14
Tetrachloroethene	**0.86**	J	**0.30**	**1.0**	**1.0**	**ug/L**	1	02-Feb-2021 20:14
Trichloroethene	**270**		**1.0**	**2.5**	**5.0**	**ug/L**	5	04-Feb-2021 03:55
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 20:14
Surr: 1,2-Dichloroethane-d4	*95.2*			**0**	*81-118*	*%REC*	*1*	*02-Feb-2021 20:14*
Surr: 1,2-Dichloroethane-d4	*96.8*			**0**	*81-118*	*%REC*	*5*	*04-Feb-2021 03:55*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*02-Feb-2021 20:14*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*5*	*04-Feb-2021 03:55*
Surr: Dibromofluoromethane	*97.0*			**0**	*80-119*	*%REC*	*1*	*02-Feb-2021 20:14*
Surr: Dibromofluoromethane	*96.8*			**0**	*80-119*	*%REC*	*5*	*04-Feb-2021 03:55*
Surr: Toluene-d8	*99.2*			**0**	*89-112*	*%REC*	*1*	*02-Feb-2021 20:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*5*	*04-Feb-2021 03:55*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02

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

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Sample ID: 50WW29-210125
Collection Date: 25-Jan-2021 14:15

ANALYTICAL REPORT
WorkOrder:HS21011122
Lab ID:HS21011122-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:53
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	02-Feb-2021 19:53
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:53
Surr: 1,2-Dichloroethane-d4	*95.9*			**0**	*81-118*	*%REC*	*1*	*02-Feb-2021 19:53*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*02-Feb-2021 19:53*
Surr: Dibromofluoromethane	*96.1*			**0**	*80-119*	*%REC*	*1*	*02-Feb-2021 19:53*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*02-Feb-2021 19:53*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02

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

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
Sample ID: Trip Blank-210125
Collection Date: 25-Jan-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21011122
Lab ID:HS21011122-04
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:32
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:32
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:32
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	02-Feb-2021 19:32
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	02-Feb-2021 19:32
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*1*	*02-Feb-2021 19:32*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*02-Feb-2021 19:32*
Surr: Dibromofluoromethane	*95.0*			**0**	*80-119*	*%REC*	*1*	*02-Feb-2021 19:32*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*02-Feb-2021 19:32*

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

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R377381 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21011122-01	50WW08-210125	25 Jan 2021 12:45			02 Feb 2021 19:02	1
HS21011122-02	50WW05-210125	25 Jan 2021 13:30			02 Feb 2021 19:02	1
HS21011122-03	50WW29-210125	25 Jan 2021 14:15			02 Feb 2021 19:02	1
Batch ID: R377394 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21011122-04	Trip Blank-210125	25 Jan 2021 00:00			02 Feb 2021 19:32	1
Batch ID: R377394 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21011122-02	50WW05-210125	25 Jan 2021 13:30			02 Feb 2021 20:14	1
HS21011122-03	50WW29-210125	25 Jan 2021 14:15			02 Feb 2021 19:53	1
Batch ID: R377396 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21011122-01	50WW08-210125	25 Jan 2021 12:45			03 Feb 2021 03:15	10
HS21011122-01	50WW08-210125	25 Jan 2021 12:45			03 Feb 2021 02:11	1
Batch ID: R377477 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21011122-02	50WW05-210125	25 Jan 2021 13:30			04 Feb 2021 03:55	5

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377394 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210202** Units: **ug/L** Analysis Date: **02-Feb-2021 11:48**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941638** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.53*	*1.0*	*50*	*0*	*93.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.42*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*47.34*	*1.0*	*50*	*0*	*94.7*	*80 - 119*				
Surr: Toluene-d8	*51.06*	*1.0*	*50*	*0*	*102*	*89 - 112*				

LCS Sample ID: **VLCSW-210202** Units: **ug/L** Analysis Date: **02-Feb-2021 11:06**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941637** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	16.9	1.0	20	0	84.5	71 - 131				
1,2-Dichloroethane	18.29	1.0	20	0	91.4	73 - 128				
cis-1,2-Dichloroethene	18.93	1.0	20	0	94.7	78 - 123				
Tetrachloroethene	19.3	1.0	20	0	96.5	74 - 129				
Trichloroethene	19.92	1.0	20	0	99.6	79 - 123				
Vinyl chloride	16.97	1.0	20	0	84.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.09*	*1.0*	*50*	*0*	*96.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.17*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*49.56*	*1.0*	*50*	*0*	*99.1*	*80 - 119*				
Surr: Toluene-d8	*48.39*	*1.0*	*50*	*0*	*96.8*	*89 - 112*				

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377394 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21011223-12MS** Units: **ug/L** Analysis Date: **02-Feb-2021 15:40**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941649** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	17.53	1.0	20	0	87.7	71 - 131				
1,2-Dichloroethane	18.29	1.0	20	0	91.5	73 - 128				
cis-1,2-Dichloroethene	18.2	1.0	20	0	91.0	78 - 123				
Tetrachloroethene	22.19	1.0	20	0.7256	107	74 - 129				
Trichloroethene	20.63	1.0	20	0	103	79 - 123				
Vinyl chloride	12.56	1.0	20	0	62.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.05*	*1.0*	*50*	*0*	*94.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.77*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*48.25*	*1.0*	*50*	*0*	*96.5*	*80 - 119*				
Surr: Toluene-d8	*49.57*	*1.0*	*50*	*0*	*99.1*	*89 - 112*				

MS Sample ID: **HS21011223-11MS** Units: **ug/L** Analysis Date: **02-Feb-2021 14:58**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941647** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	1622	100	2000	0	81.1	71 - 131				
1,2-Dichloroethane	1657	100	2000	0	82.8	73 - 128				
cis-1,2-Dichloroethene	2175	100	2000	460.4	85.7	78 - 123				
Tetrachloroethene	3041	100	2000	958.2	104	74 - 129				
Trichloroethene	9206	100	2000	7264	97.1	79 - 123				
Vinyl chloride	1226	100	2000	0	61.3	58 - 137				
Surr: 1,2-Dichloroethane-d4	*4683*	*100*	*5000*	*0*	*93.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*5106*	*100*	*5000*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*4723*	*100*	*5000*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*4843*	*100*	*5000*	*0*	*96.9*	*89 - 112*				

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377394 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21011223-12MSD** Units: **ug/L** Analysis Date: **02-Feb-2021 16:01**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941650** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	16.98	1.0	20	0	84.9	71 - 131	17.53	3.2	20	
1,2-Dichloroethane	18.09	1.0	20	0	90.5	73 - 128	18.29	1.1	20	
cis-1,2-Dichloroethene	18.76	1.0	20	0	93.8	78 - 123	18.2	3.02	20	
Tetrachloroethene	22.05	1.0	20	0.7256	107	74 - 129	22.19	0.657	20	
Trichloroethene	20.48	1.0	20	0	102	79 - 123	20.63	0.757	20	
Vinyl chloride	12.04	1.0	20	0	60.2	58 - 137	12.56	4.22	20	
Surr: 1,2-Dichloroethane-d4	*45.59*	*1.0*	*50*	*0*	*91.2*	*81 - 118*	*47.05*	*3.14*	*20*	
Surr: 4-Bromofluorobenzene	*51.46*	*1.0*	*50*	*0*	*103*	*85 - 114*	*51.77*	*0.598*	*20*	
Surr: Dibromofluoromethane	*47.75*	*1.0*	*50*	*0*	*95.5*	*80 - 119*	*48.25*	*1.05*	*20*	
Surr: Toluene-d8	*49.87*	*1.0*	*50*	*0*	*99.7*	*89 - 112*	*49.57*	*0.6*	*20*	

MSD Sample ID: **HS21011223-11MSD** Units: **ug/L** Analysis Date: **02-Feb-2021 15:19**
Client ID: Run ID: **VOA6_377394** SeqNo: **5941648** PrepDate: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	1559	100	2000	0	77.9	71 - 131	1622	4	20	
1,2-Dichloroethane	1662	100	2000	0	83.1	73 - 128	1657	0.317	20	
cis-1,2-Dichloroethene	2104	100	2000	460.4	82.2	78 - 123	2175	3.31	20	
Tetrachloroethene	2903	100	2000	958.2	97.2	74 - 129	3041	4.65	20	
Trichloroethene	8735	100	2000	7264	73.5	79 - 123	9206	5.26	20	S
Vinyl chloride	1186	100	2000	0	59.3	58 - 137	1226	3.33	20	
Surr: 1,2-Dichloroethane-d4	*4585*	*100*	*5000*	*0*	*91.7*	*81 - 118*	*4683*	*2.11*	*20*	
Surr: 4-Bromofluorobenzene	*5182*	*100*	*5000*	*0*	*104*	*85 - 114*	*5106*	*1.49*	*20*	
Surr: Dibromofluoromethane	*4754*	*100*	*5000*	*0*	*95.1*	*80 - 119*	*4723*	*0.655*	*20*	
Surr: Toluene-d8	*4981*	*100*	*5000*	*0*	*99.6*	*89 - 112*	*4843*	*2.81*	*20*	

The following samples were analyzed in this batch: HS21011122-02 HS21011122-03 HS21011122-04

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377396 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210202** Units: **ug/L** Analysis Date: **02-Feb-2021 23:02**
Client ID: Run ID: **VOA6_377396** SeqNo: **5941674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*46.35*	*1.0*	*50*	*0*	*92.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.5*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*47.71*	*1.0*	*50*	*0*	*95.4*	*80 - 119*				
Surr: Toluene-d8	*49.97*	*1.0*	*50*	*0*	*99.9*	*89 - 112*				

LCS Sample ID: **VLCSW-210202** Units: **ug/L** Analysis Date: **02-Feb-2021 22:20**
Client ID: Run ID: **VOA6_377396** SeqNo: **5941673** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.58	1.0	20	0	97.9	71 - 131				
1,2-Dichloroethane	19.57	1.0	20	0	97.8	73 - 128				
cis-1,2-Dichloroethene	21.25	1.0	20	0	106	78 - 123				
Tetrachloroethene	20.78	1.0	20	0	104	74 - 129				
Trichloroethene	21.72	1.0	20	0	109	79 - 123				
Vinyl chloride	19.77	1.0	20	0	98.9	58 - 137				
Surr: 1,2-Dichloroethane-d4	*50.38*	*1.0*	*50*	*0*	*101*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.08*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*51.31*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*48.93*	*1.0*	*50*	*0*	*97.9*	*89 - 112*				

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377396 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21011103-06MS** Units: **ug/L** Analysis Date: **03-Feb-2021 02:33**
Client ID: Run ID: **VOA6_377396** SeqNo: **5941684** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	17.17	1.0	20	0	85.8	71 - 131				
1,2-Dichloroethane	18.2	1.0	20	0	91.0	73 - 128				
cis-1,2-Dichloroethene	18.16	1.0	20	0	90.8	78 - 123				
Tetrachloroethene	21.11	1.0	20	0	106	74 - 129				
Trichloroethene	20.8	1.0	20	0	104	79 - 123				
Vinyl chloride	12.73	1.0	20	0	63.7	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.41*	*1.0*	*50*	*0*	*90.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.6*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*47.33*	*1.0*	*50*	*0*	*94.7*	*80 - 119*				
Surr: Toluene-d8	*49.06*	*1.0*	*50*	*0*	*98.1*	*89 - 112*				

MSD Sample ID: **HS21011103-06MSD** Units: **ug/L** Analysis Date: **03-Feb-2021 02:54**
Client ID: Run ID: **VOA6_377396** SeqNo: **5941685** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	15.57	1.0	20	0	77.8	71 - 131	17.17	9.77	20	
1,2-Dichloroethane	16.82	1.0	20	0	84.1	73 - 128	18.2	7.9	20	
cis-1,2-Dichloroethene	16.87	1.0	20	0	84.3	78 - 123	18.16	7.36	20	
Tetrachloroethene	18.71	1.0	20	0	93.5	74 - 129	21.11	12.1	20	
Trichloroethene	18.68	1.0	20	0	93.4	79 - 123	20.8	10.8	20	
Vinyl chloride	11.37	1.0	20	0	56.9	58 - 137	12.73	11.3	20	S
Surr: 1,2-Dichloroethane-d4	*45.5*	*1.0*	*50*	*0*	*91.0*	*81 - 118*	*45.41*	*0.197*	*20*	
Surr: 4-Bromofluorobenzene	*51.2*	*1.0*	*50*	*0*	*102*	*85 - 114*	*52.6*	*2.69*	*20*	
Surr: Dibromofluoromethane	*47.25*	*1.0*	*50*	*0*	*94.5*	*80 - 119*	*47.33*	*0.159*	*20*	
Surr: Toluene-d8	*49.04*	*1.0*	*50*	*0*	*98.1*	*89 - 112*	*49.06*	*0.0295*	*20*	

The following samples were analyzed in this batch: HS21011122-01

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377477 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210203** Units: **ug/L** Analysis Date: **03-Feb-2021 23:00**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943426** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.08*	*1.0*	*50*	*0*	*94.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.89*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.52*	*1.0*	*50*	*0*	*97.0*	*80 - 119*				
Surr: Toluene-d8	*49.43*	*1.0*	*50*	*0*	*98.9*	*89 - 112*				

LCS Sample ID: **VLCSW-210203** Units: **ug/L** Analysis Date: **03-Feb-2021 22:18**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943425** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.55	1.0	20	0	103	79 - 123				
Surr: 1,2-Dichloroethane-d4	*50.2*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.13*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*51.7*	*1.0*	*50*	*0*	*103*	*80 - 119*				
Surr: Toluene-d8	*47.46*	*1.0*	*50*	*0*	*94.9*	*89 - 112*				

MS Sample ID: **HS21011077-06MS** Units: **ug/L** Analysis Date: **04-Feb-2021 02:10**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943435** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	32.33	1.0	20	13.06	96.4	79 - 123				
Surr: 1,2-Dichloroethane-d4	*44.65*	*1.0*	*50*	*0*	*89.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.85*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.61*	*1.0*	*50*	*0*	*93.2*	*80 - 119*				
Surr: Toluene-d8	*48.45*	*1.0*	*50*	*0*	*96.9*	*89 - 112*				

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: HS21011122

QC BATCH REPORT

Batch ID: R377477 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21011077-02MS** Units: **ug/L** Analysis Date: **04-Feb-2021 02:52**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943437** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	86.16	1.0	20	65.04	106	79 - 123				
Surr: 1,2-Dichloroethane-d4	*45.67*	*1.0*	*50*	*0*	*91.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.3*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*47.51*	*1.0*	*50*	*0*	*95.0*	*80 - 119*				
Surr: Toluene-d8	*49.54*	*1.0*	*50*	*0*	*99.1*	*89 - 112*				

MSD Sample ID: **HS21011077-06MSD** Units: **ug/L** Analysis Date: **04-Feb-2021 02:31**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943436** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	31.18	1.0	20	13.06	90.6	79 - 123	32.33	3.64	20	
Surr: 1,2-Dichloroethane-d4	*46.1*	*1.0*	*50*	*0*	*92.2*	*81 - 118*	*44.65*	*3.2*	*20*	
Surr: 4-Bromofluorobenzene	*51.36*	*1.0*	*50*	*0*	*103*	*85 - 114*	*52.85*	*2.86*	*20*	
Surr: Dibromofluoromethane	*46.68*	*1.0*	*50*	*0*	*93.4*	*80 - 119*	*46.61*	*0.154*	*20*	
Surr: Toluene-d8	*48.71*	*1.0*	*50*	*0*	*97.4*	*89 - 112*	*48.45*	*0.536*	*20*	

MSD Sample ID: **HS21011077-02MSD** Units: **ug/L** Analysis Date: **04-Feb-2021 03:13**
Client ID: Run ID: **VOA6_377477** SeqNo: **5943438** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	80.4	1.0	20	65.04	76.8	79 - 123	86.16	6.92	20	S
Surr: 1,2-Dichloroethane-d4	*44.69*	*1.0*	*50*	*0*	*89.4*	*81 - 118*	*45.67*	*2.16*	*20*	
Surr: 4-Bromofluorobenzene	*50.05*	*1.0*	*50*	*0*	*100*	*85 - 114*	*51.3*	*2.47*	*20*	
Surr: Dibromofluoromethane	*47.11*	*1.0*	*50*	*0*	*94.2*	*80 - 119*	*47.51*	*0.827*	*20*	
Surr: Toluene-d8	*48.54*	*1.0*	*50*	*0*	*97.1*	*89 - 112*	*49.54*	*2.05*	*20*	

The following samples were analyzed in this batch: HS21011122-02

ALS Houston, US Date: 04-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP50 January 2021
WorkOrder: **HS21011122**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

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

ALS Houston, US Date: 04-Feb-21

Sample Receipt Checklist

Work Order ID: HS21011122 **Date/Time Received:** 27-Jan-2021 10:05

Client Name: CBI-Houston **Received by:** Jared R. Makan

Completed By:	/S/ Jared R. Makan	28-Jan-2021 21:49	**Reviewed by:**	/S/ Corey Grandits	29-Jan-2021 10:37
	eSignature	Date/Time		eSignature	Date/Time

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.8°C UC/C	IR31
Cooler(s)/Kit(s):	Blue	
Date/Time sample(s) sent to storage:	01/28/2021 18:00	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

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

Page 1 of 1

Project: APTIM LONGHORN ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS	Project No. 501032
Job: **LHAAP50 January 2021**	
Prepared By: Scott Deesinger	P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
50WW08-210125	WG	1/25/21 1245		4	X					X		
50WW05-210125	WG	1/25/21 1330		4	X					X		
50WW29-210125	WG	1/25/21 1415		4	X					X		
TRIP BLANK-210125	W	1/25/21		2	X							

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

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Deesinger	1/26/21	1430	GM	1/27/2021	10:05						

For Lab Use Only

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

Remarks:

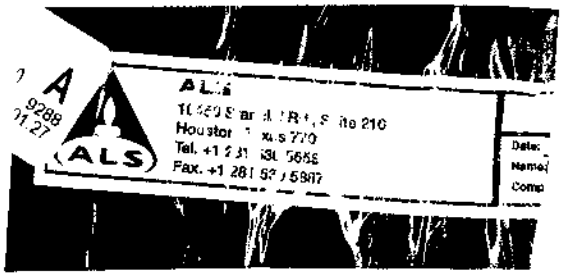
HS21011122

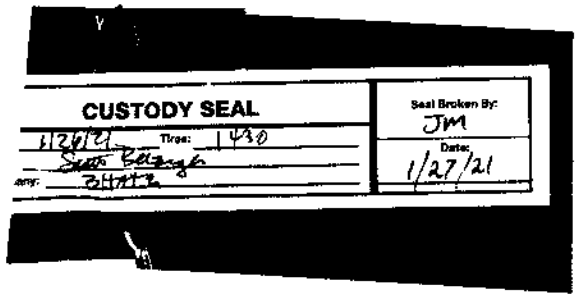
Aptim Environmental & Infrastucture, Inc.

LHAAP50 January 2021

Blue UIC. 0.80. #31

(Word) S:\Users\Forms\Chain of Custody - BiWeekly CIF 0.6


ALS
Houston
Tel. +1
Fax. +1
Date:
Name:
Comp


CUSTODY SEAL
Time:
Seal Broken By:
JM
Date:
1/27/21


FedEx.
TRK#
9473 0838 9288
WED - 27 JA
PRIORITY OVERN
77
AB SGRA

February 02, 2021 Service Request No:E2100118

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

Laboratory Results for: HS21011122

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory January 29, 2021
For your reference, these analyses have been assigned our service request number **E2100118.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

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

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100118
Project:	HS21011122	**Date Received:**	01/29/21
Sample Matrix:	W		

CASE NARRATIVE

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

Sample Receipt

Three samples were received for analysis at ALS Environmental in Houston on 01/29/21.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100046: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits. MS/MSD performed on an unrelated sample/

Samples E2100118-003 lowest practical dilution performed due to matrix interference.

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

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

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

Client: ALS Environmental - US **Service Request:**E2100118
Project: HS21011122

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100118-001	50WW08-210125	1/25/2021	1245
E2100118-002	50WW05-210125	1/25/2021	1330
E2100118-003	50WW29-210125	1/25/2021	1415

Service Request Summary

Folder #: **E2100118**
Client Name: ALS Environmental - US
Project Name: HS21011122
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/10/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011122
EDD: No EDD Specified

3 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100118-001	50WW08-210125	Ground Water	01/25/21 1245	**IV**
E2100118-002	50WW05-210125	Ground Water	01/25/21 1330	**IV**
E2100118-003	50WW29-210125	Ground Water	01/25/21 1415	**IV**

Service Request Summary

Folder #: **E2100118**
Client Name: ALS Environmental - US
Project Name: HS21011122
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/10/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011122
EDD: No EDD Specified

3 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	3	II Due 2/10,IV due 2/17

Data Qualifiers

Lab Standard

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

Data Qualifiers

Lab Standard

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

ALS Laboratory Group

Acronyms

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

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ALS Environmental

State Certifications, Accreditations, and Licenses

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

ALS

Chain of Custody

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

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

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15564**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21011122
TSR:	Sonja West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011122-01**	**50WW08-210125**	**Groundwater**	**25 Jan 2021 12:45**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021
2.	**HS21011122-02**	**50WW05-210125**	**Groundwater**	**25 Jan 2021 13:30**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021
3.	**HS21011122-03**	**50WW29-210125**	**Groundwater**	**25 Jan 2021 14:15**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Mackay Date/Time:

Received By: Date/Time: 1/24/21 1704

Cooler ID(s): Temperature(s):

ALS Environmental

Cooler Receipt Form

Project Chemist CA

Client/Project ALS-H

Thermometer ID 1231

Date/Time Received: 11/29/21 Initials: CA Date/Time Logged in: 11/29/21 Initials CA

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

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

3. Were custody seals on coolers? ○ Yes ✓ No If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

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

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		11/29/21	1204	CA	0.3	X
						☐
						☐
						☐

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

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

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

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

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

Notes, Discrepancies, & Resolutions:

Service request Label:

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 373567 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/JRODRIGUEZ **Prep Method:** Method **Prep Date/Time:** 2/1/21 09:04

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100117-001	50WW14-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2100117-002	50WW14-210128-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2100117-003	50WW13-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2100117-004	50WW11-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100117-005	50WW06-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100117-006	50WW12-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100118-001	50WW08-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100118-002	50WW05-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100118-003	50WW29-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
10	EQ2100046-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2100046-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2100046-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100046-04	50WW12-210128 MS	.02	6850/ClO4 DOD			Liquid	10mL	
14	EQ2100046-05	50WW12-210128 DMS	.03	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

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

EQ2100046-02	1.00µL	EQ2100046-03	1.00µL	EQ2100046-04	1.00µL	EQ2100046-05	1.00µL

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

E2100117-001	100.00µL	E2100117-002	100.00µL	E2100117-003	100.00µL	E2100117-004	100.00µL	E2100117-005	100.00µL	E2100117-006	100.00µL
E2100117-006.R	100.00µL	E2100118-001	100.00µL	E2100118-002	100.00µL	E2100118-003	100.00µL	EQ2100046-01	100.00µL	EQ2100046-02	100.00µL
EQ2100046-03	100.00µL	EQ2100046-04	100.00µL	EQ2100046-05	100.00µL						

Preparation Steps

Step: Preparation
Started: 2/1/21 09:04
Finished: 2/1/21 09:29
By: GRIVERA
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 373567
Team: Semivoa GCMS/JRODRIGUEZ

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 2/1/21 09:04

Reviewed By: GR Date: 2/1/21

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1245
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW08-210125	**Units:**	µg/L
Lab Code:	E2100118-001	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**126**		1.00	0.500	0.250	10	2/ 1/21	2/2/21 14:02	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1330
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW05-210125	**Units:**	µg/L
Lab Code:	E2100118-002	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:51	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1415
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW29-210125	**Units:**	µg/L
Lab Code:	E2100118-003	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	2/ 1/21	2/2/21 14:28	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100046-01	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:28	373567	711866	

Accuracy & Precision

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122
Sample Matrix: Ground Water

Service Request: E2100118
Date Analyzed: 2/ 2/21

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

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 373567

	Lab Control Sample EQ2100046-02			Duplicate Lab Control Sample EQ2100046-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0908	0.100	91	0.101	0.100	101	84 - 119	11	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-02	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0908**	J	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 14:36	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-03	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:35	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	2/ 1/21

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

Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS Matrix Spike EQ2100046-04			Batch QCDMS Duplicate Matrix Spike EQ2100046-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	83800	60800	0.100	-2300760#	60700	0.100	-2309488#	84 - 119	<1	15

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

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2100046-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60800**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:36	373567	711817	*

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2100046-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60700**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:44	373567	711817	*

HS21011122 8260_W_DOD Raw Data

ALS WO# HS21011122

MSVOA06 -Logbook

Batch: 43252 **Analyst:** Qin Xu

Date: 01-26-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	01-26-2021 11:11 am	1.00	0.00 mL	0.00 mL	X012601.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	01-26-2021 11:32 am	1.00	5.00 mL	0.00 mL	X012602.D	Liquid	Y	NA
	0.10 ul cal std/ 100 ml DI									
3	VSTD000.5	ICAL2	01-26-2021 11:53 am	1.00	5.00 mL	0.00 mL	X012603.D	Liquid	Y	NA
	0.10 ul cal std/ 50 ml DI									
4	VSTD001	ICAL3	01-26-2021 12:35 pm	1.00	5.00 mL	0.00 mL	X012604.D	Liquid	Y	NA
	0.20 ul cal std/ 50 ml DI									
5	VSTD002	ICAL4	01-26-2021 12:56 pm	1.00	5.00 mL	0.00 mL	X012605.D	Liquid	Y	NA
	0.40 ul cal std/ 50 ml DI									
6	VSTD005	ICAL5	01-26-2021 01:17 pm	1.00	5.00 mL	0.00 mL	X012606.D	Liquid	Y	NA
	1.0 ul cal std/ 50 ml DI									
7	VSTD020	ICAL6	01-26-2021 01:38 pm	1.00	5.00 mL	0.00 mL	X012607.D	Liquid	Y	NA
	4.0 ul cal std/ 50 ml DI									
8	VSTD050	ICAL7	01-26-2021 01:59 pm	1.00	5.00 mL	0.00 mL	X012608.D	Liquid	Y	NA
	10 ul cal std/ 50 ml DI									
9	VSTD100	ICAL8	01-26-2021 02:20 pm	1.00	5.00 mL	0.00 mL	X012609.D	Liquid	Y	NA
	20 ul cal std/ 50 ml DI									
10	VSTD150	ICAL9	01-26-2021 02:41 pm	1.00	5.00 mL	0.00 mL	X012610.D	Liquid	Y	NA
	30 ul cal std/ 50 ml DI									
11	VSTD200	ICAL	01-26-2021 03:02 pm	1.00	5.00 mL	0.00 mL	X012611.D	Liquid	Y	NA
	40 ul cal std/ 50 ml DI									
12	BLANK	SAMP	01-26-2021 03:23 pm	1.00	5.00 mL	0.00 mL	X012612.D	Liquid	Y	NA
	cleanup									
13	CCV	CCV	01-26-2021 03:44 pm	1.00	5.00 mL	0.00 mL	X012613.D	Liquid	Y	NA
	10 ul icv std/50 ml DI									
14	BLANK	SAMP	01-26-2021 04:04 pm	1.00	5.00 mL	0.00 mL	X012614.D	Liquid	Y	NA
	cleanup									
15	BLANK	SAMP	01-26-2021 04:26 pm	1.00	5.00 mL	0.00 mL	X012615.D	Liquid	Y	NA
	cleanup									
16	VLCSW-210126	LCS	01-26-2021 04:46 pm	1.00	5.00 mL	0.00 mL	X012616.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
17	BLANK	SAMP	01-26-2021 05:08 pm	1.00	5.00 mL	0.00 mL	X012617.D	Liquid	Y	NA
	cleanup									
18	VBLKW-210126	MBLK	01-26-2021 05:29 pm	1.00	5.00 mL	0.00 mL	X012618.D	Liquid	Y	NA
19	HS21010454-13	SAMP	01-26-2021 05:50 pm	1.00	5.00 mL	0.00 mL	X012619.D	Liquid	Y	NA
20	HS21010454-14	SAMP	01-26-2021 06:10 pm	1.00	5.00 mL	0.00 mL	X012620.D	Liquid	Y	NA
21	HS21010454-15	SAMP	01-26-2021 06:31 pm	1.00	5.00 mL	0.00 mL	X012621.D	Liquid	Y	NA
22	HS21010454-16	SAMP	01-26-2021 06:52 pm	1.00	5.00 mL	0.00 mL	X012622.D	Liquid	Y	NA
23	HS21010977-01	SAMP	01-26-2021 07:13 pm	100.0(	5.00 mL	0.00 mL	X012623.D	Liquid	Y	NA
24	HS21010864-01n/r	SAMP	01-26-2021 07:35 pm	1.00	5.00 mL	0.00 mL	X012624.D	Liquid	Y	NA
25	HS21010864-02	SAMP	01-26-2021 07:56 pm	1.00	5.00 mL	0.00 mL	X012625.D	Liquid	Y	NA
26	HS21010864-04	SAMP	01-26-2021 08:17 pm	1.00	5.00 mL	0.00 mL	X012626.D	Liquid	Y	NA
27	HS21010864-05	SAMP	01-26-2021 08:38 pm	1.00	5.00 mL	0.00 mL	X012627.D	Liquid	Y	NA
28	HS21010864-02MS	MS	01-26-2021 08:59 pm	1.00	5.00 mL	0.00 mL	X012628.D	Liquid	Y	NA
	3.2 ul cal std / 40 ml sample									
29	HS21010864-02MSD	MSD	01-26-2021 09:20 pm	1.00	5.00 mL	0.00 mL	X012629.D	Liquid	Y	NA
	3.2 ul cal std / 40 ml sample									
30	CCV-END	CCV	01-26-2021 09:41 pm	1.00	5.00 mL	0.00 mL	X012630.D	Liquid	Y	NA

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-63-06
IS ID	31106-63-06
ICV STD ID	31106-66-05
LCS/MS ID	31106-66-05
CAL STD ID	31106-66-01/02
BFB ID	31106-63-06
pH Paper	634-64-10

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.00	44.57	89	80-120
1,2-Dichloroethane	50.00	44.86	90	80-120
Tetrachloroethene	50.00	49.05	98	80-120
cis-1,2-Dichloroethene	50.00	46.70	93	80-120
Vinyl Chloride	50.00	44.27	88	80-120
Trichloroethene	50.00	51.21	102	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: X012601 BFB Injection Date: 01/26/21

Instrument ID: VOA6 BFB Injection Time: 1111

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	17.4
75	30.0 - 60.0% of mass 95	47.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.9 (1.3)1
174	Greater than 50.0% of mass 95	73.0
175	5.0 - 9.0% of mass 174	5.0 (6.9)1
176	95.0 - 101.0% of mass 174	71.6 (98.1)1
177	5.0 - 9.0% of mass 176	4.6 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X012602	01/26/21	1132
02	VSTD000.5	VSTD000.5	X012603	01/26/21	1153
03	VSTD001	VSTD001	X012604	01/26/21	1235
04	VSTD002	VSTD002	X012605	01/26/21	1256
05	VSTD005	VSTD005	X012606	01/26/21	1317
06	VSTD020	VSTD020	X012607	01/26/21	1338
07	VSTD050	VSTD050	X012608	01/26/21	1359
08	VSTD100	VSTD100	X012609	01/26/21	1420
09	VSTD150	VSTD150	X012610	01/26/21	1441
10	VSTD200	VSTD200	X012611	01/26/21	1502
11	ICV	ICV	X012613	01/26/21	1544
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

LAB FILE ID: RF0.25: X012602 RF0.5: X012603 RF1: X012604
RF2: X012605 RF5: X012606 RF20: X012607

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
1,1-Dichloroethene		0.599	0.705	0.664	0.550	0.643
1,2-Dichloroethane		0.395	0.502	0.492	0.474	0.466
Tetrachloroethene		0.213	0.271	0.275	0.275	0.290
cis-1,2-Dichloroethene		0.451	0.658	0.692	0.699	0.662
Vinyl Chloride		0.634	0.742	0.739	0.655	0.725
Trichloroethene		0.250	0.337	0.336	0.333	0.356
1,2-Dichloroethane-d4		3863	6482	11687	29956	112243
Dibromofluoromethane		3618	4870	10668	27072	101900
4-Bromofluorobenzene		6791	13963	13350	35925	133136
Toluene-d8		1.741	1.327	1.361	1.339	1.231

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2101112

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

LAB FILE ID: RF50: X012608 RF100: X012609 RF150: X012610
RF200: X012611

COMPOUND	RF50	RF100	RF150	RF200
1,1-Dichloroethene	0.628	0.646	0.636	0.626
1,2-Dichloroethane	0.444	0.419	0.412	0.397
Tetrachloroethene	0.281	0.290	0.282	0.277
cis-1,2-Dichloroethene	0.644	0.664	0.656	0.638
Vinyl Chloride	0.713	0.742	0.738	0.737
Trichloroethene	0.344	0.350	0.350	0.351
1,2-Dichloroethane-d4	254660	530907	746091	998263
Dibromofluoromethane	235983	507211	719853	990894
4-Bromofluorobenzene	295052	606464	879527	1192191
Toluene-d8	1.138	1.242	1.202	1.192

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2101112

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
1,1-Dichloroethene	AVRG		0.63304683	6.716	15.000
1,2-Dichloroethane	AVRG		0.44461300	9.173	15.000
Tetrachloroethene	AVRG		0.27278297	8.582	15.000
cis-1,2-Dichloroethene	AVRG		0.64035279	11.512	15.000
Vinyl Chloride	AVRG		0.71388382	5.718	15.000
Trichloroethene	AVRG		0.33413260	9.724	15.000
1,2-Dichloroethane-d4	LINR	-2.93e-002	1.65138702	0.9991592	0.9900000
Dibromofluoromethane	LINR	-7.59e-003	1.67934396	0.9997742	0.9900000
4-Bromofluorobenzene	LINR	-3.04e-002	2.32707698	0.9993089	0.9900000
Toluene-d8	AVRG		1.30804298	13.683	15.000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

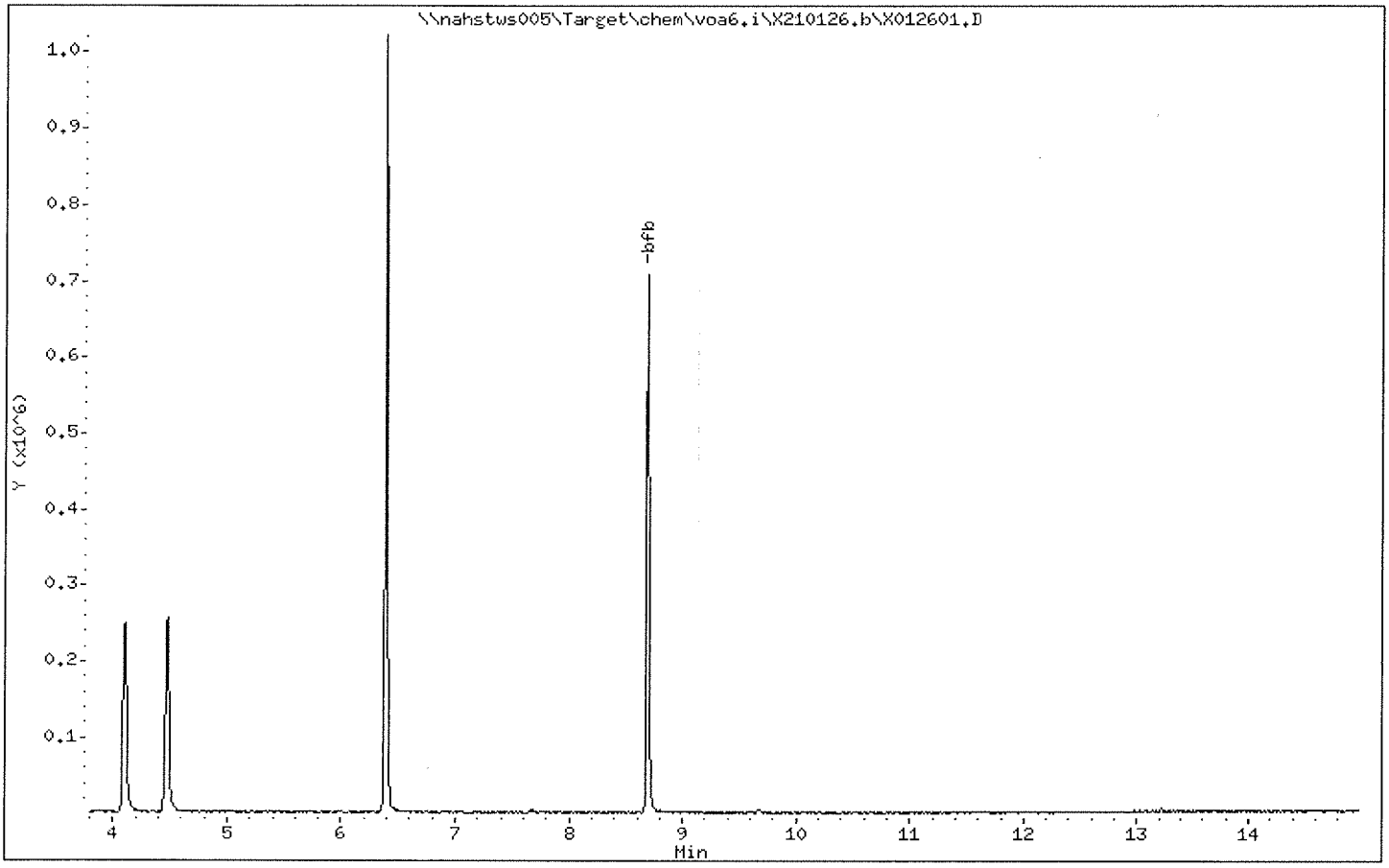
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

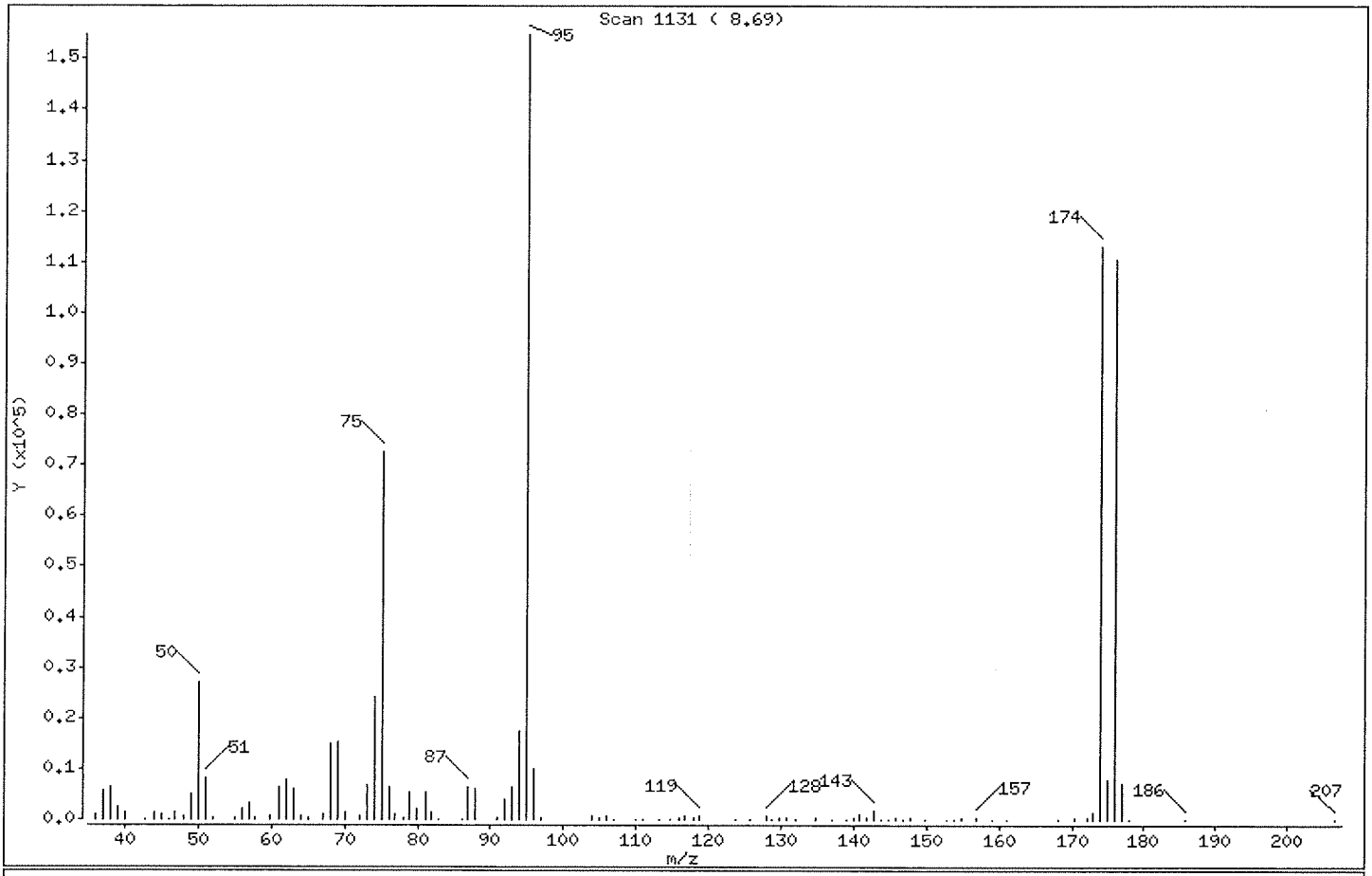
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.44
75	30.00 - 60.00% of mass 95	47.01
96	5.00 - 9.00% of mass 95	6.42
173	Less than 2.00% of mass 174	0.95 (1.30)
174	Greater than 50.00% of mass 95	72.99
175	5.00 - 9.00% of mass 174	5.00 (6.86)
176	95.00 - 101.00% of mass 174	71.57 (98.05)
177	5.00 - 9.00% of mass 176	4.64 (6.48)

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X012601.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 100

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1150	68.00	14838	104.90	213	144.80	148
37.00	5815	69.00	15207	105.90	796	145.80	205
38.00	6326	70.00	1302	106.90	140	146.90	80
39.00	2441	72.00	835	109.90	106	147.80	356
40.00	1326	73.10	6935	110.90	150	149.80	138
42.80	66	74.00	24216	113.10	88	152.70	70
44.00	1265	75.00	72744	114.80	153	153.90	88
45.00	984	76.00	6569	116.00	458	154.90	299
46.00	133	76.90	1064	116.80	801	156.70	318
46.90	1305	78.00	524	117.90	523	159.00	108
48.00	887	78.90	5279	118.80	885	161.00	111
49.00	5107	79.90	1960	123.70	169	168.00	62
50.00	26984	81.00	5229	125.80	97	170.30	247
51.00	8275	81.90	1267	127.90	614	172.20	426
52.00	293	82.80	139	128.70	79	172.90	1468
55.00	378	86.10	157	129.80	358	173.90	112960
56.00	2003	86.90	6360	130.80	199	174.90	7745
57.00	3071	87.90	5977	132.00	88	175.90	110760
57.90	193	90.90	523	134.80	294	176.90	7181
59.90	871	92.00	3852	136.90	167	177.80	158
61.00	6564	93.00	6478	138.90	113	185.90	116
62.00	7983	94.00	17584	139.90	241	206.70	89
63.00	6078	95.00	154752	140.80	1076		
64.00	612	96.00	9941	141.80	206		
65.00	262	96.90	391	142.90	1783		
67.00	1038	104.00	621	143.80	108		

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012602.D Page 1
Report Date: 01-Mar-2021 12:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012602.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 26-JAN-2021 11:32
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 15:02 Cal File: X012611.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

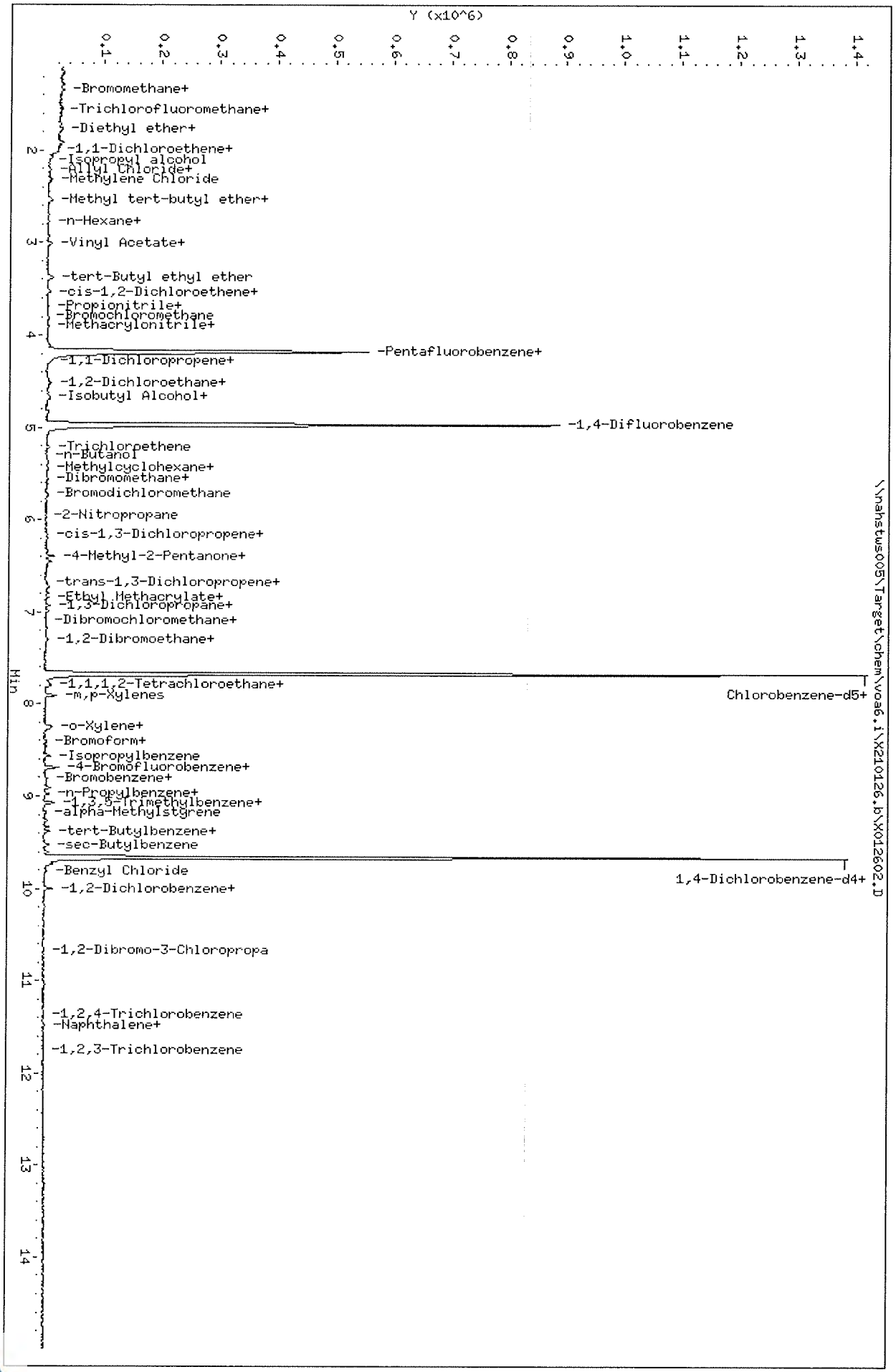
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	425592	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	761285	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	679973	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	301945	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	2456	0.25000	0.10(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	3113	0.25000	(a)
$	48 Toluene-d8	98	6.389	6.389	(0.833)	9620	0.25000	0.54(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	7307	0.25000	(aM)
	11 1,1-Dichloroethene	96	1.926	1.926	(0.461)	1974	0.25000	0.36(a)
	33 1,2-Dichloroethane	62	4.569	4.569	(0.921)	2401	0.25000	0.35(a)
	27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.846)	1612	0.25000	0.29(a)
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	1174	0.25000	0.31(a)
	38 Trichloroethene	130	5.207	5.207	(1.049)	1638	0.25000	0.32(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	2204	0.25000	0.36(aM)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012602.D
Date : 26-JAN-2021 11:32
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 26-JAN-2021 11:53
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 11:32 Cal File: X012602.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

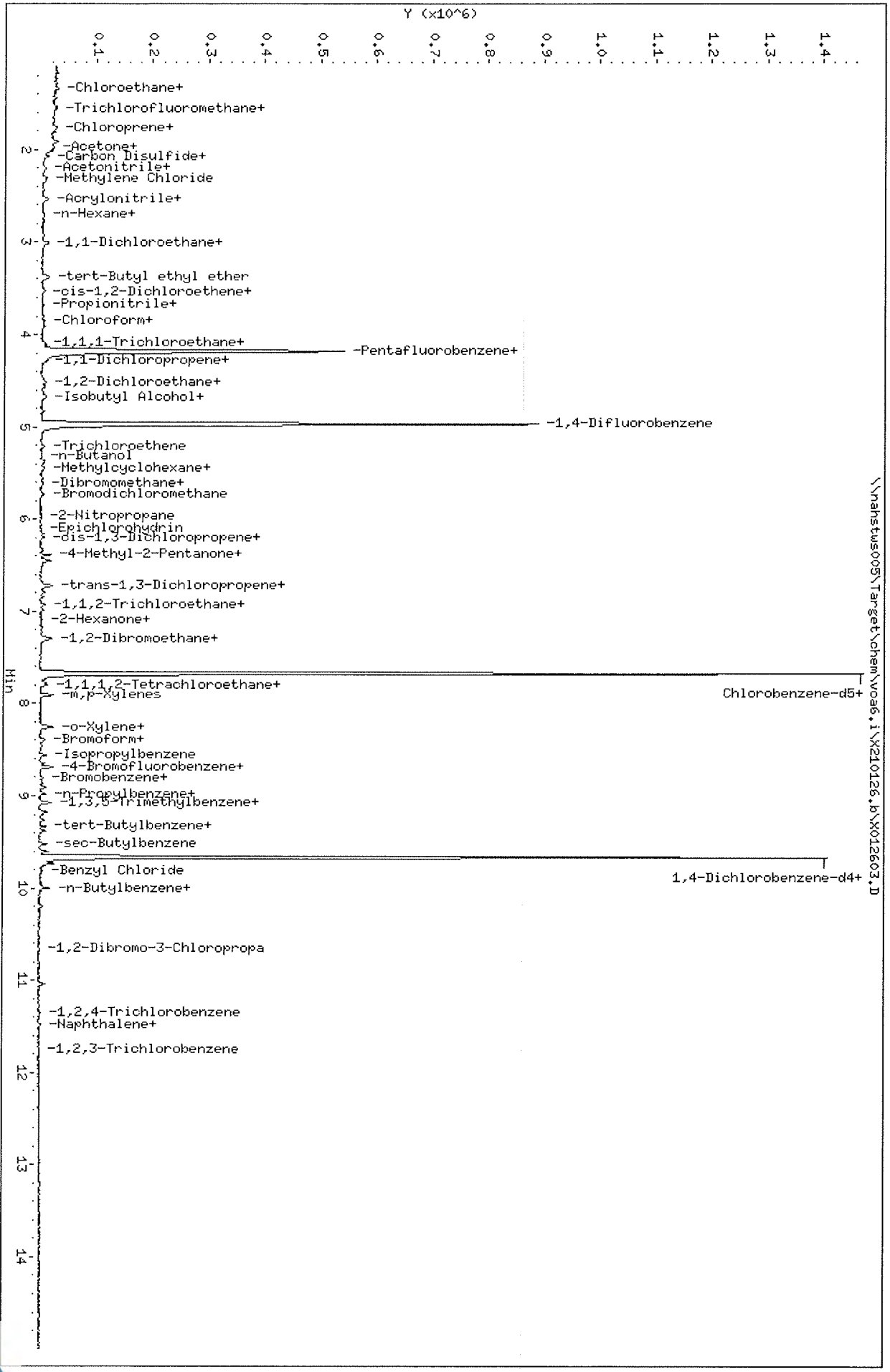
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	424677	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	755329	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	685366	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	301979	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.983)	3618	0.50000	0.33(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	3863	0.50000	(aM)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	11935	0.50000	0.66(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6791	0.50000	(aM)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	2544	0.50000	0.47(a)
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	2982	0.50000	0.44(a)
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	1916	0.50000	0.35(a)
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	1459	0.50000	0.39(a)
	38 Trichloroethene	130	5.214	5.214	(1.051)	1888	0.50000	0.37(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	2693	0.50000	0.44(a)

QC Flag Legend

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

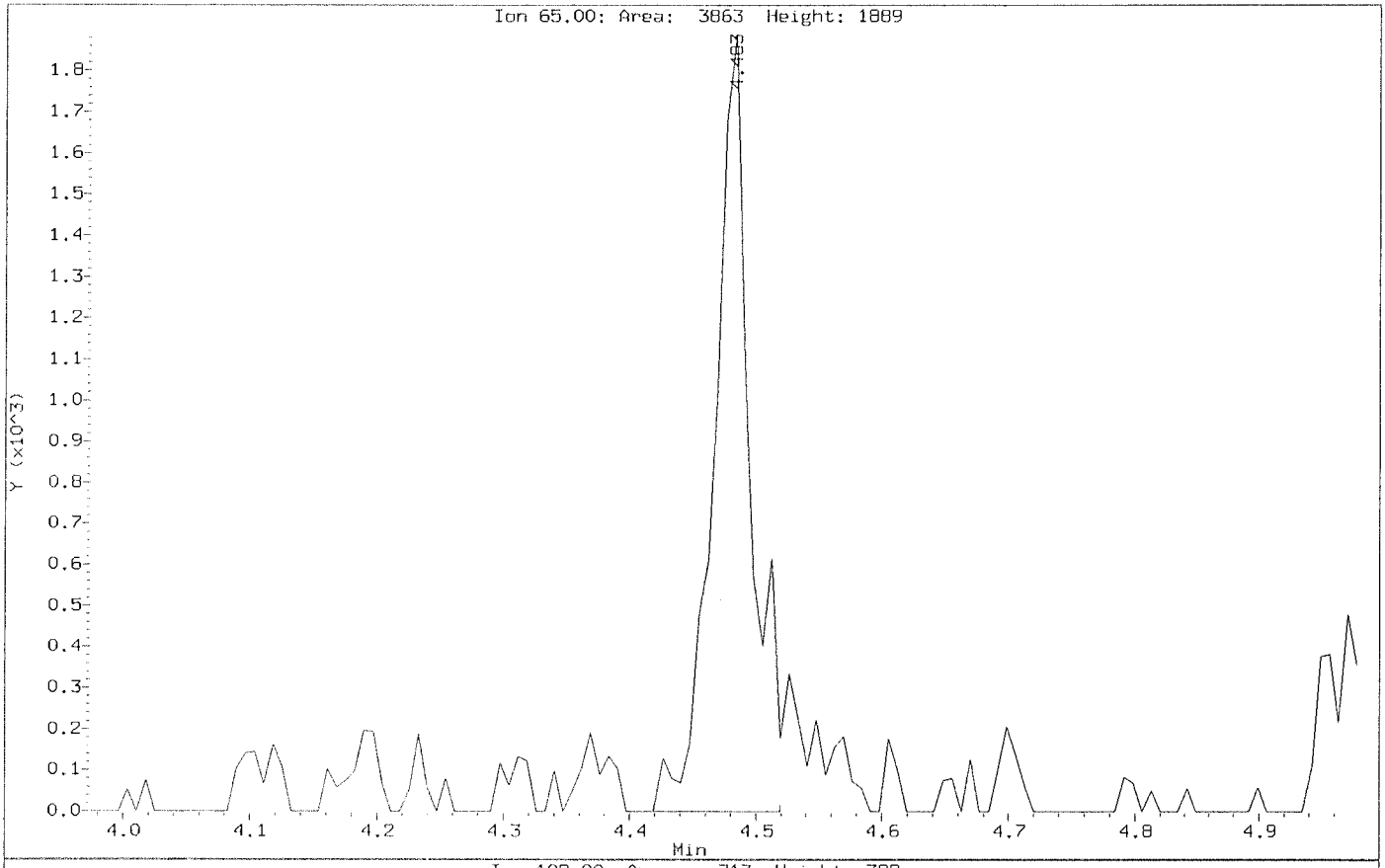


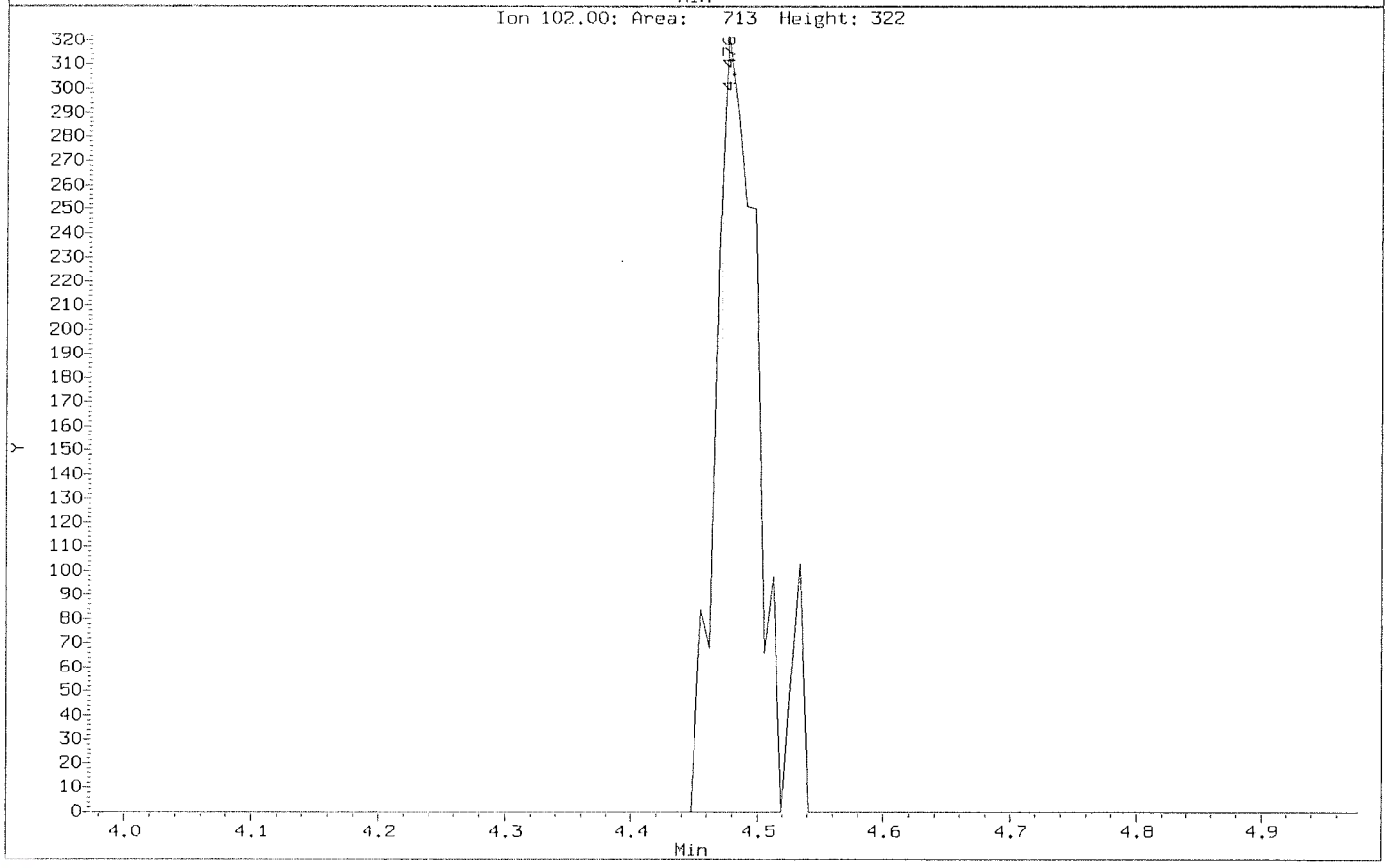
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Date : 26-JAN-2021 11:53
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

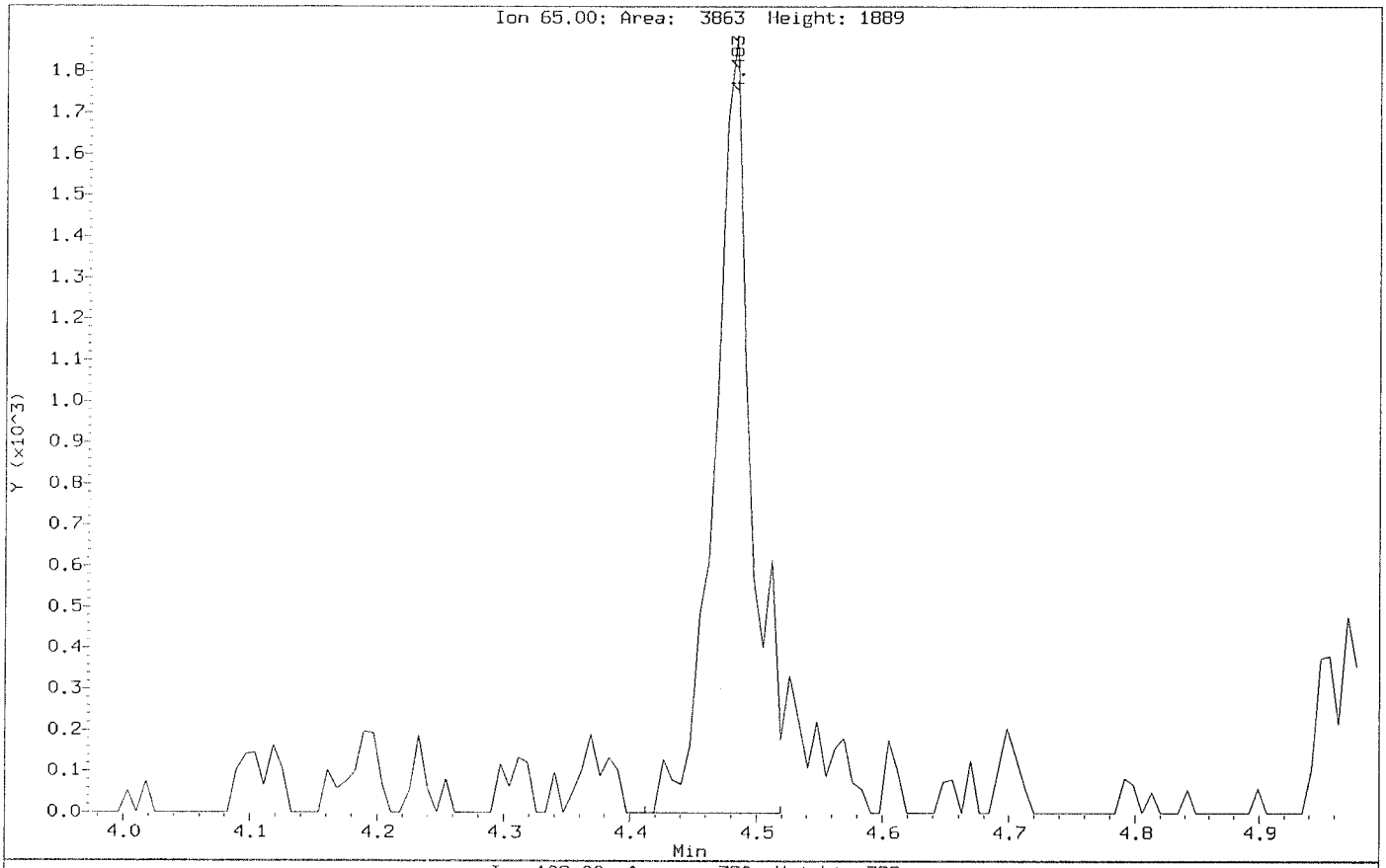
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

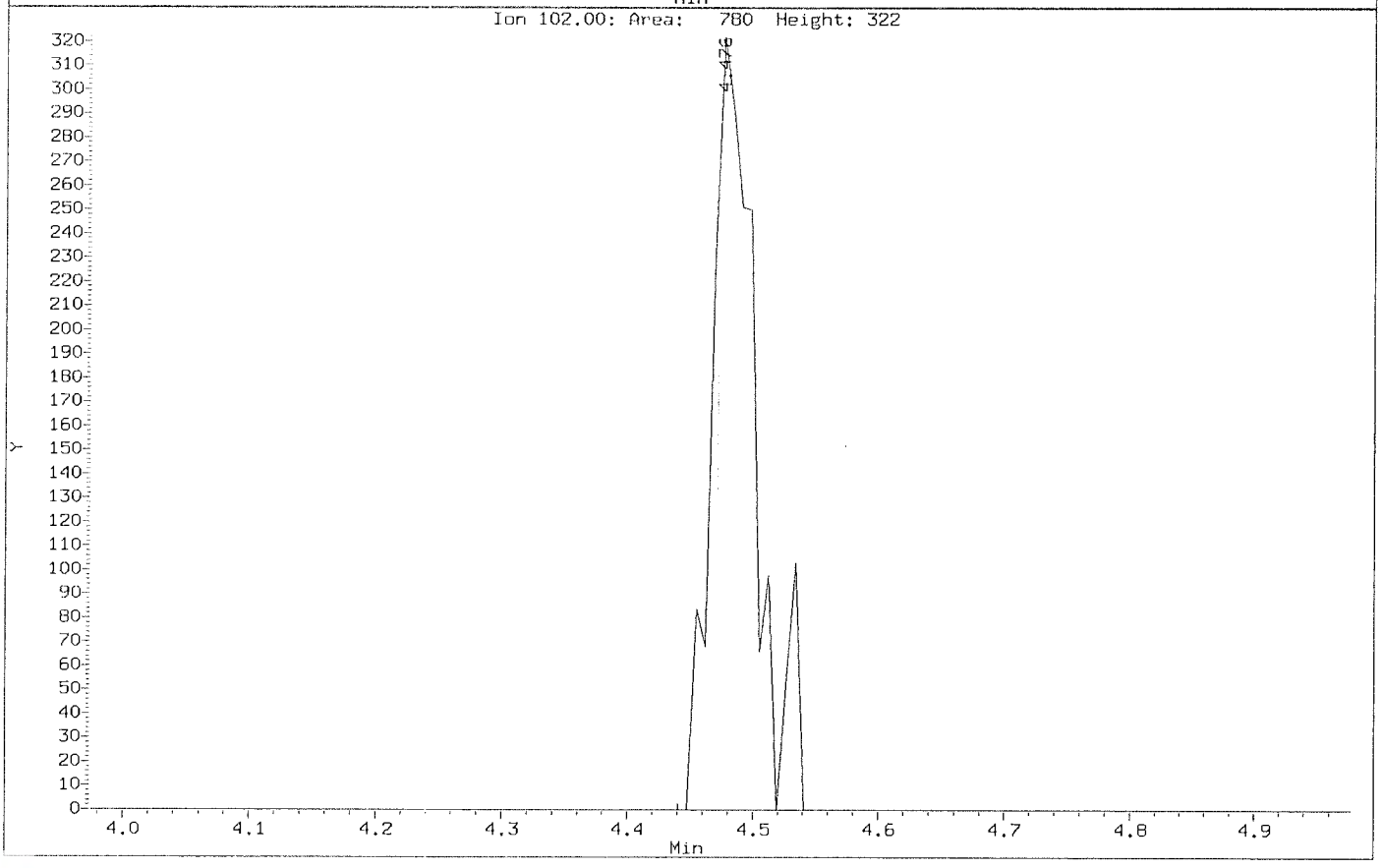




Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

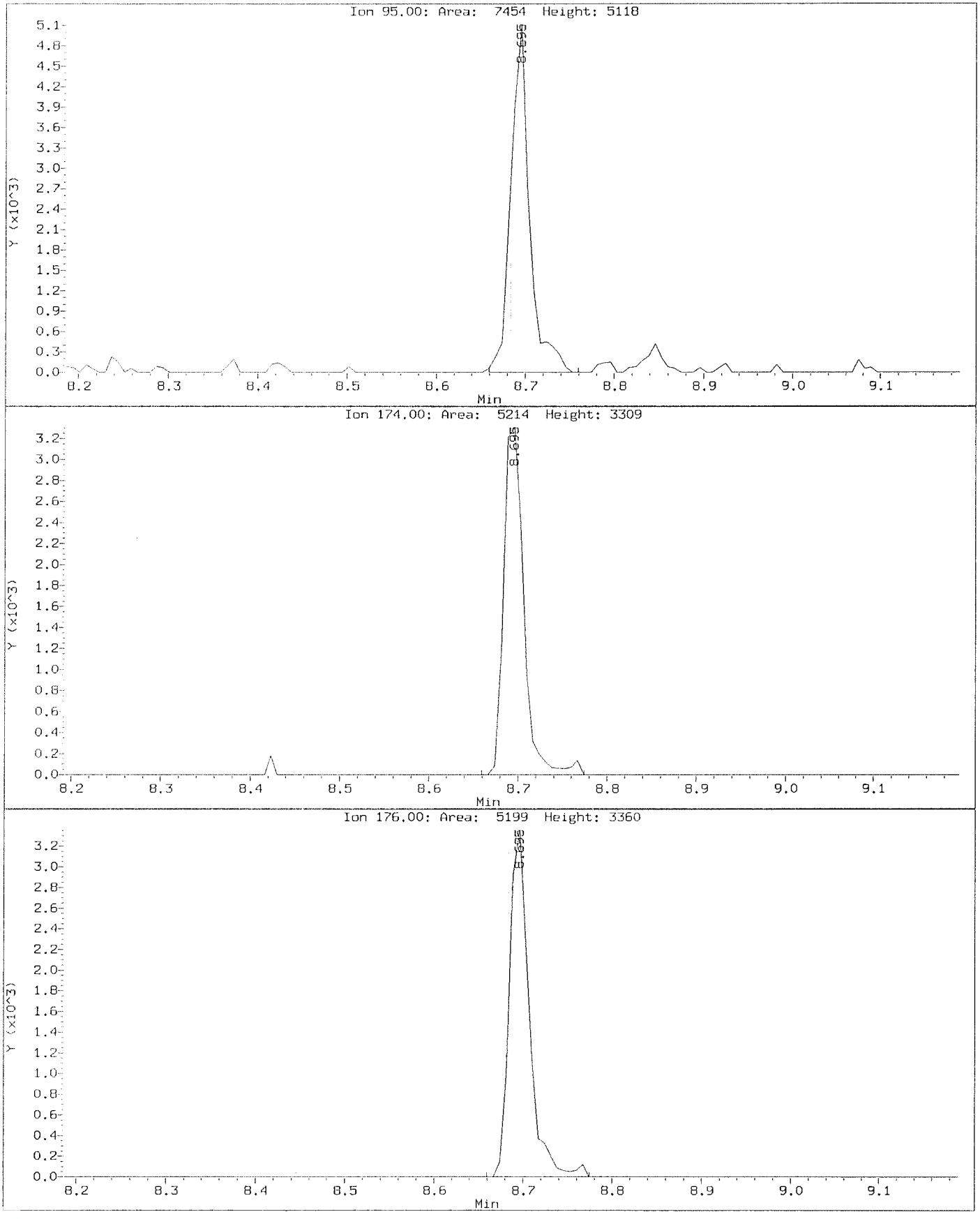
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





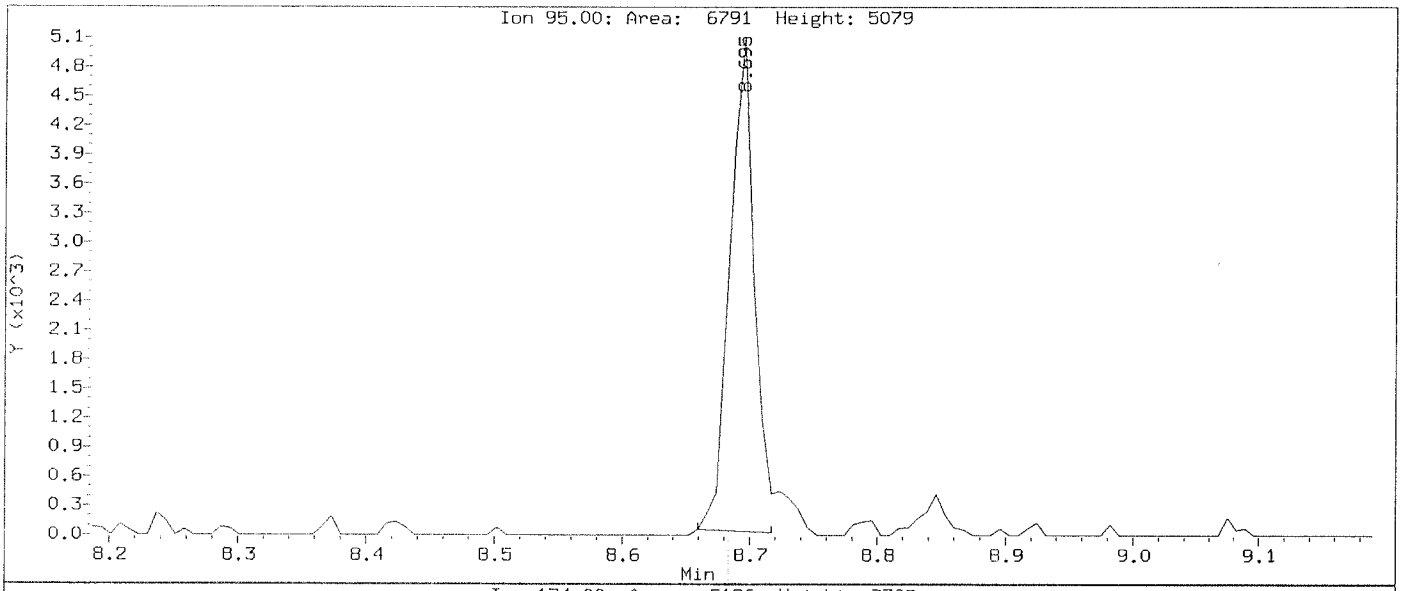
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

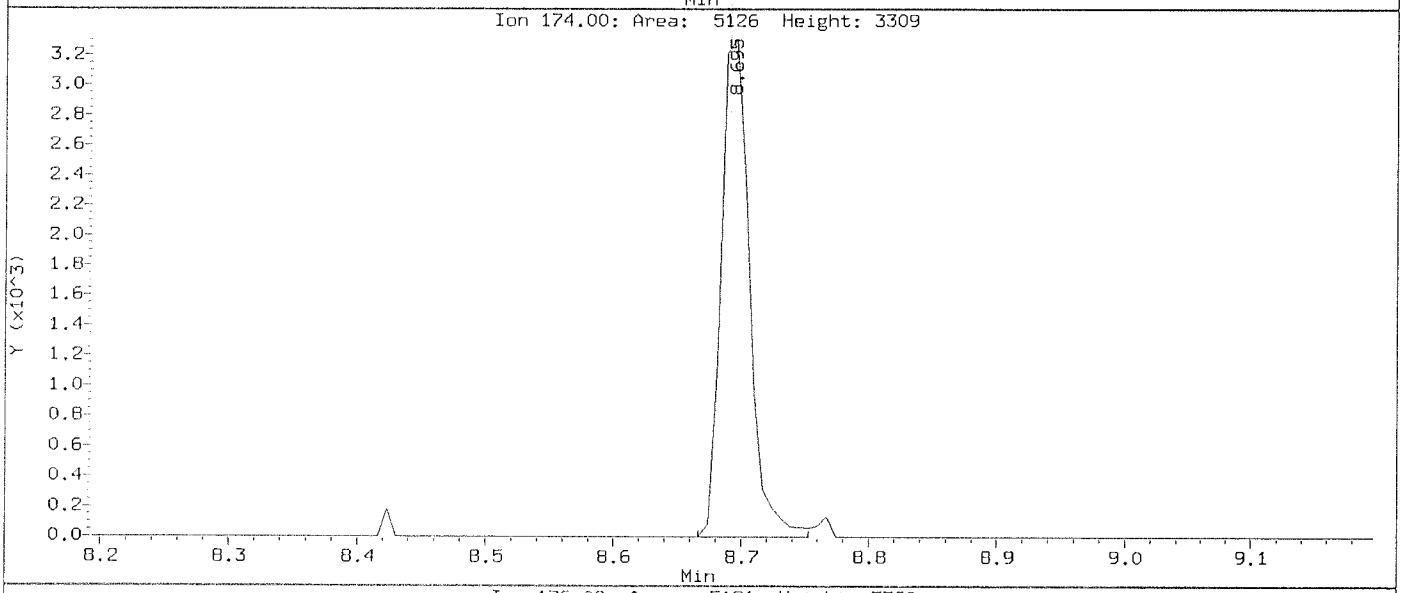
Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4

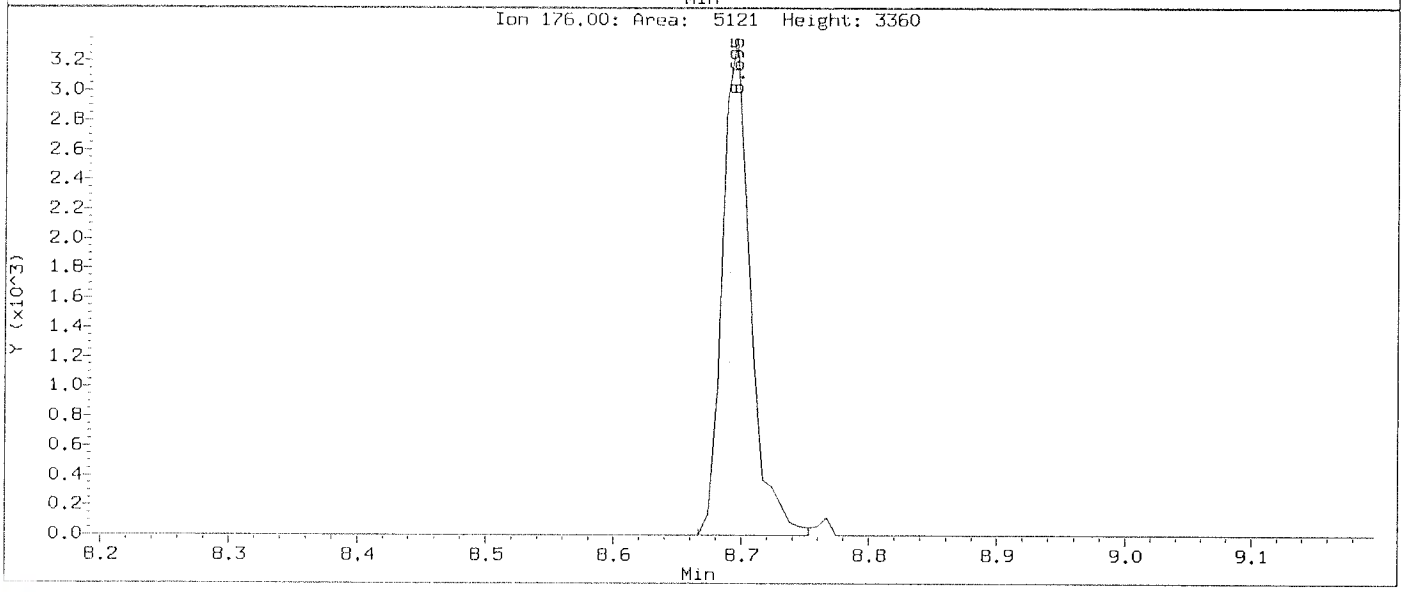


Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4







Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D Page 1
Report Date: 01-Mar-2021 12:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 26-JAN-2021 12:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 11:53 Cal File: X012603.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

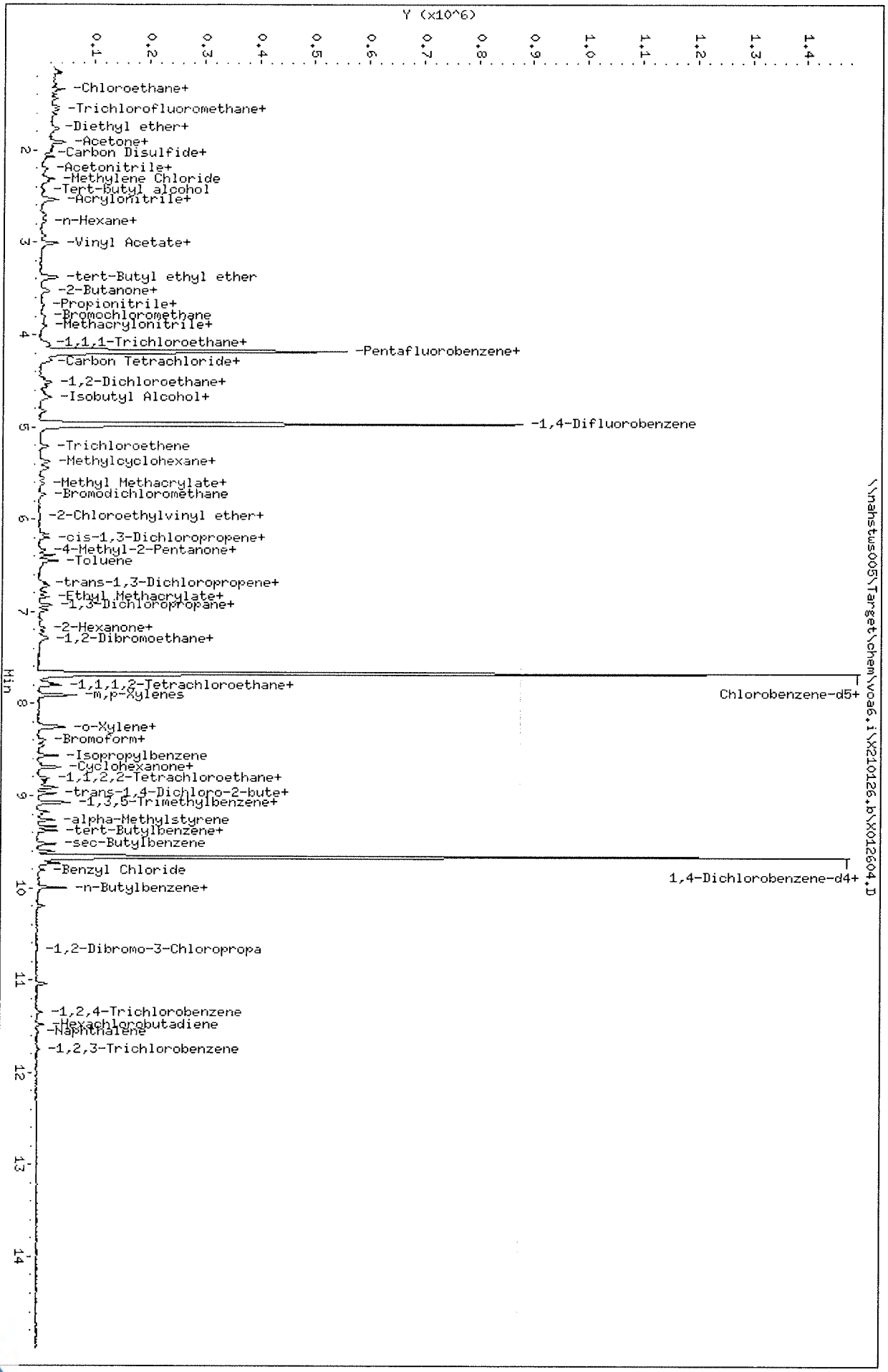
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	418145	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	749653	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	687970	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	305417	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	4870	1.00000	0.59(a)
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	6482	1.00000	(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	18260	1.00000	1.01(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	13963	1.00000	0.84(aM)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	5895	1.00000	1.11(a)
	33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	7528	1.00000	1.12(a)
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5501	1.00000	1.02(a)
	56 Tetrachloroethene	164	6.925	6.925	(0.903)	3729	1.00000	0.99(a)
	38 Trichloroethene	130	5.206	5.206	(1.049)	5053	1.00000	1.00(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	6204	1.00000	1.03(a)

QC Flag Legend

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



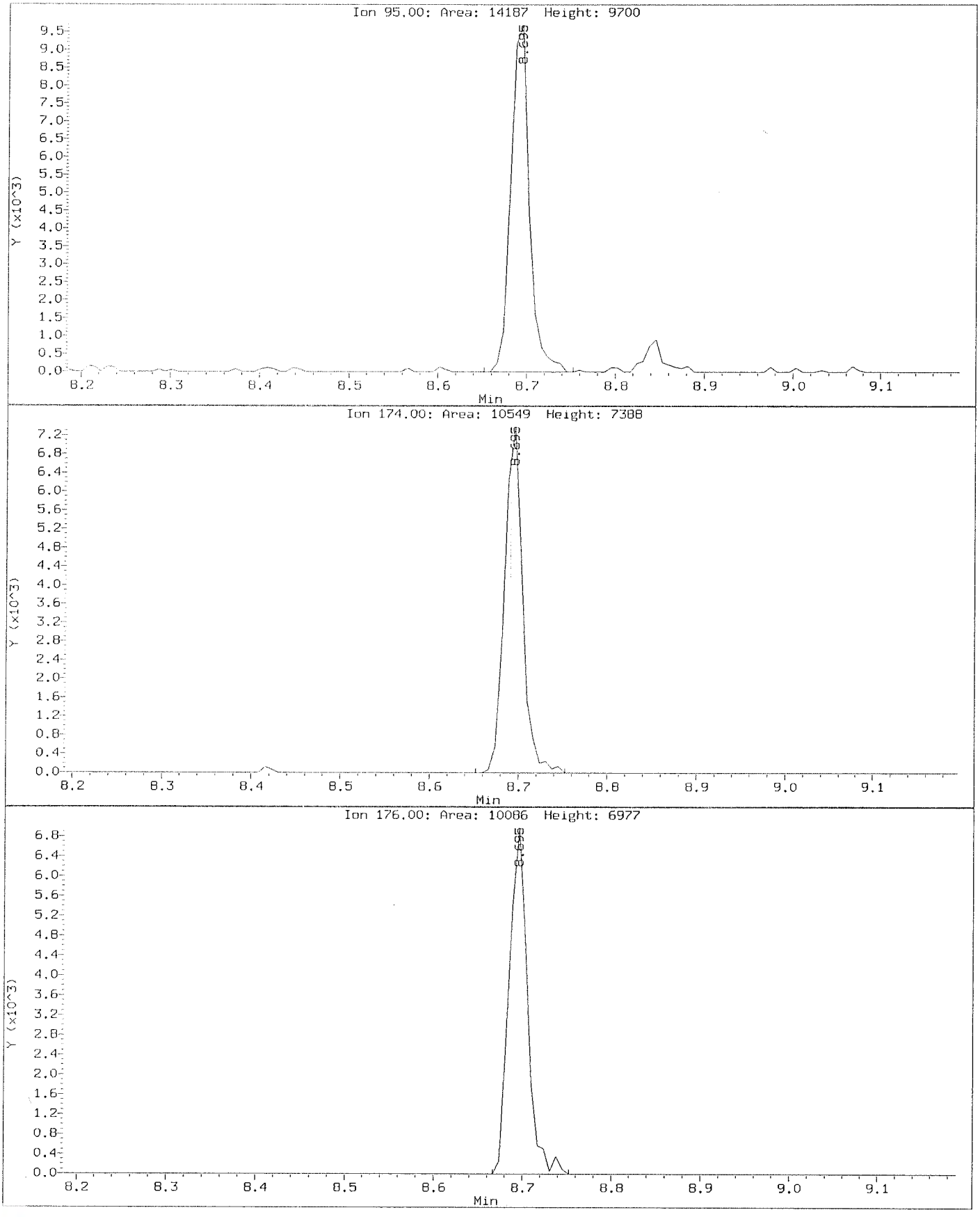
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Date : 26-JAN-2021 12:35
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;;
Purge Volume: 5.0
Column phase: DB624

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

\\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D

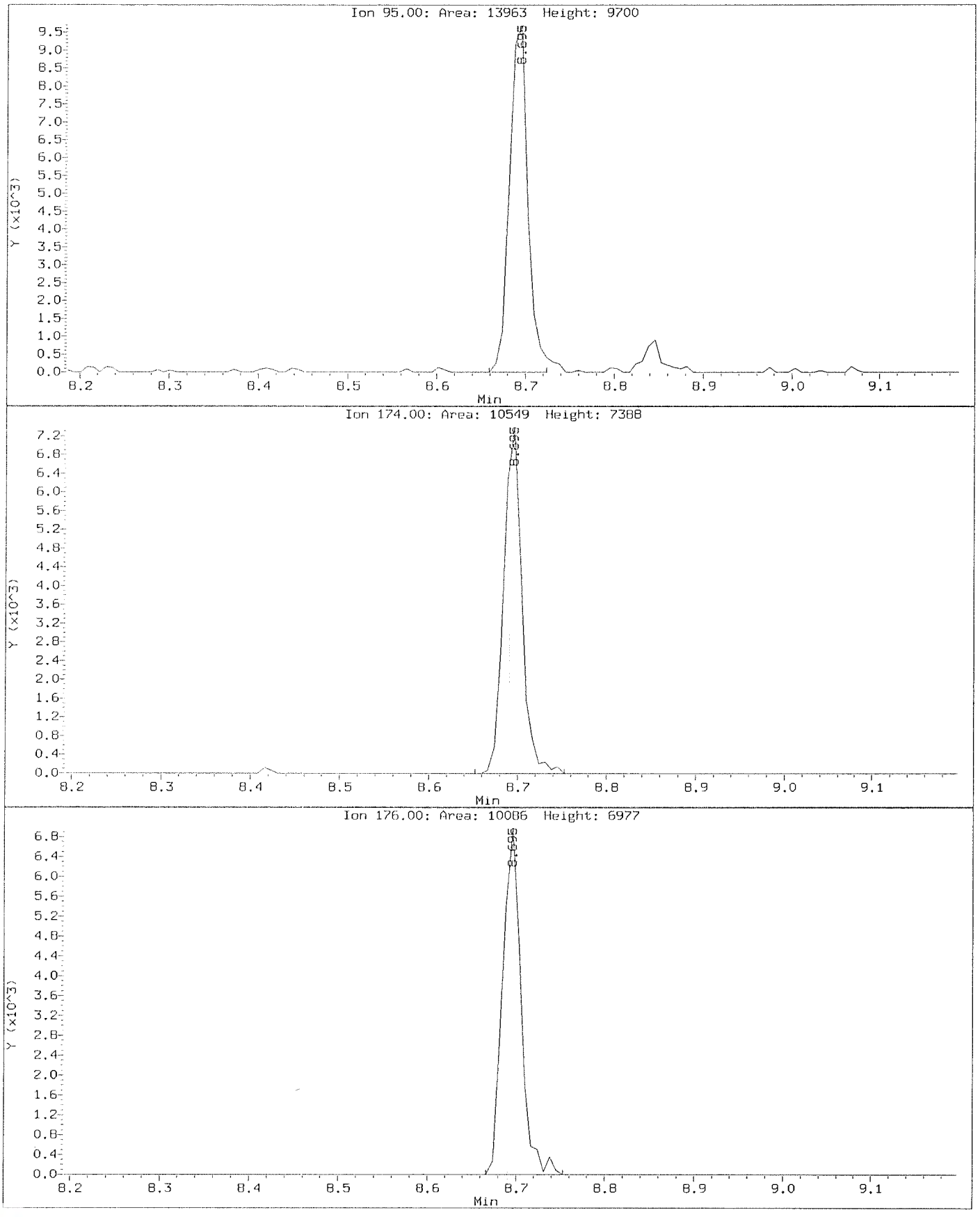
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012604.D
Injection Date: 26-JAN-2021 12:35
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Injection Date: 26-JAN-2021 12:35
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D Page 1
Report Date: 01-Mar-2021 12:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 26-JAN-2021 12:56
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 12:35 Cal File: X012604.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

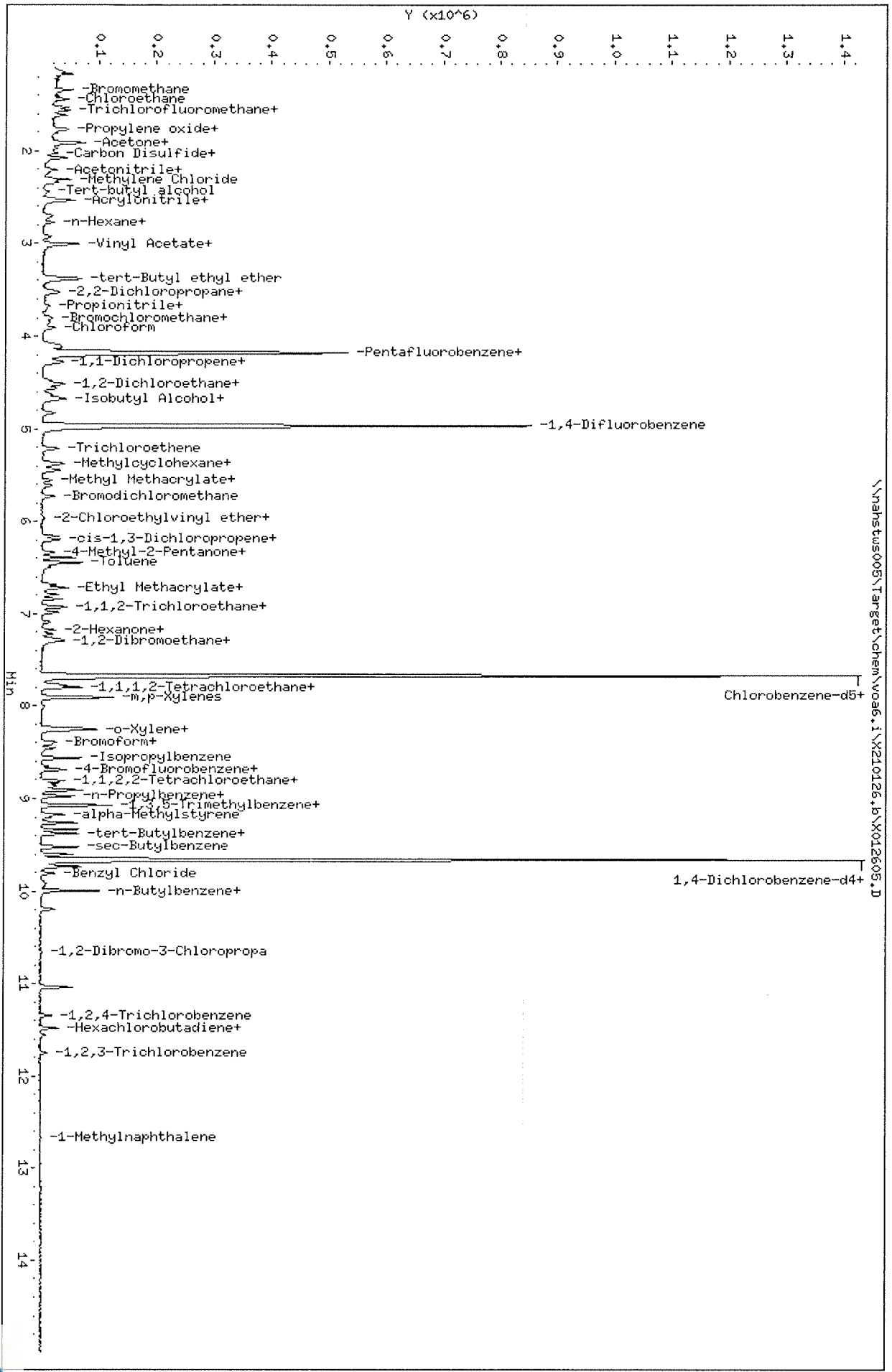
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	398863	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	721193	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	654202	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	299221	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	10668	2.00000	1.86(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	11687	2.00000	0.95(aM)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	35627	2.00000	2.08(a)
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	13350	2.00000	0.85(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	10602	2.00000	2.09(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	14183	2.00000	2.21(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	11037	2.00000	2.16(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	7206	2.00000	2.01(a)
38 Trichloroethene	130	5.199	5.199	(1.046)	9708	2.00000	2.01(a)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	11791	2.00000	2.07(a)

QC Flag Legend

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

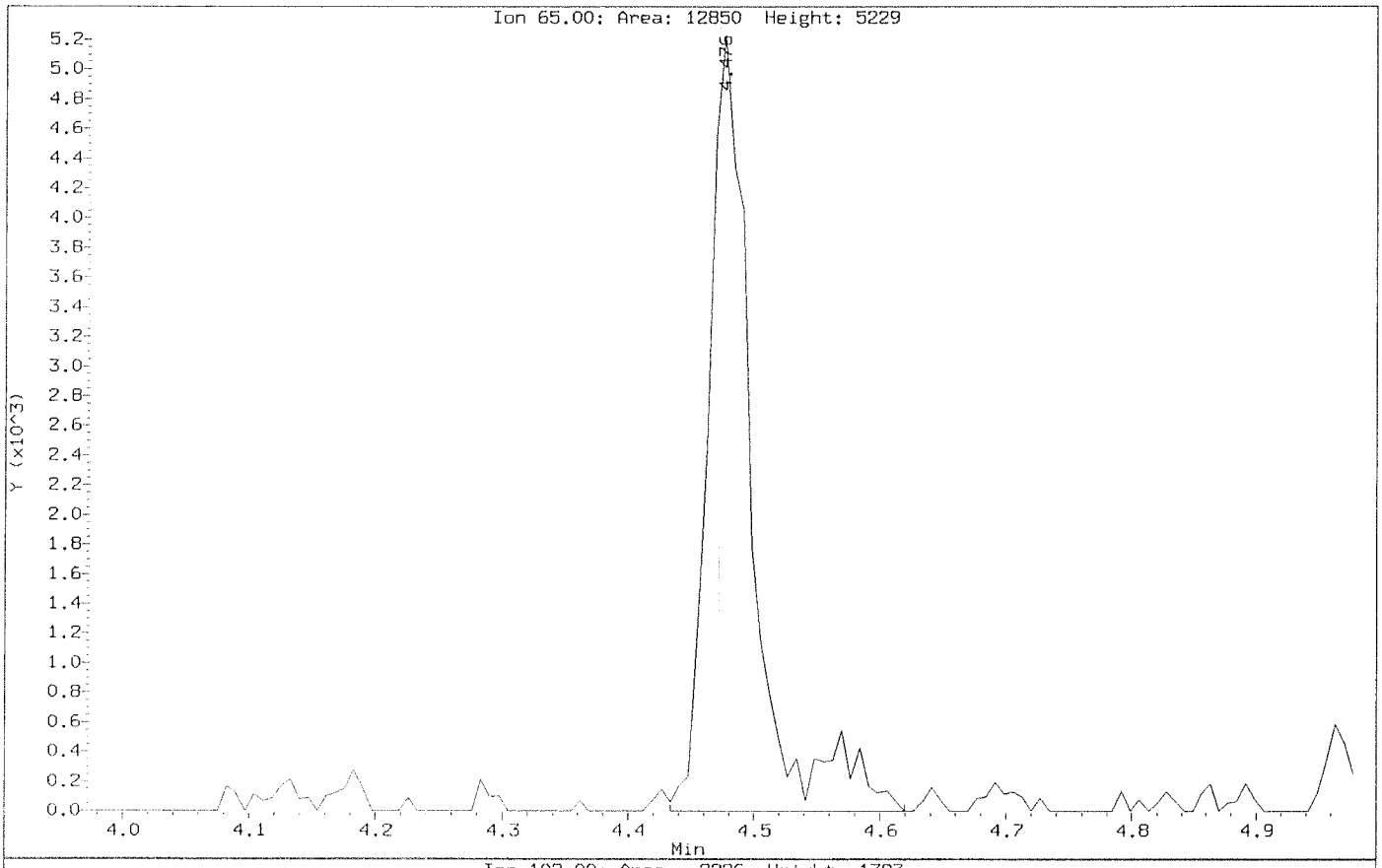


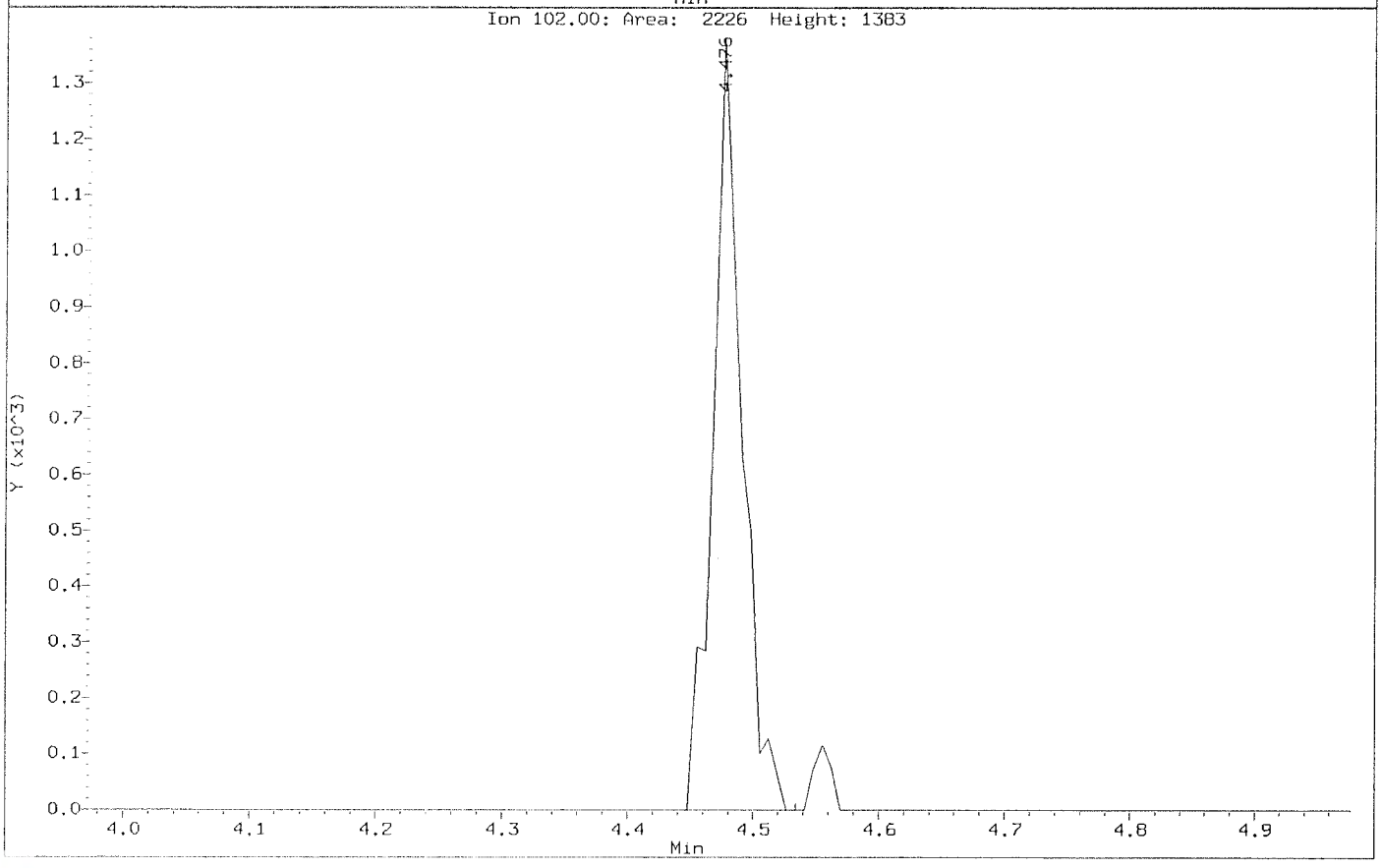
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Date : 26-JAN-2021 12:56
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012605.D
Injection Date: 26-JAN-2021 12:56
Instrument: voa6.i
Client Sample ID: VSTD002

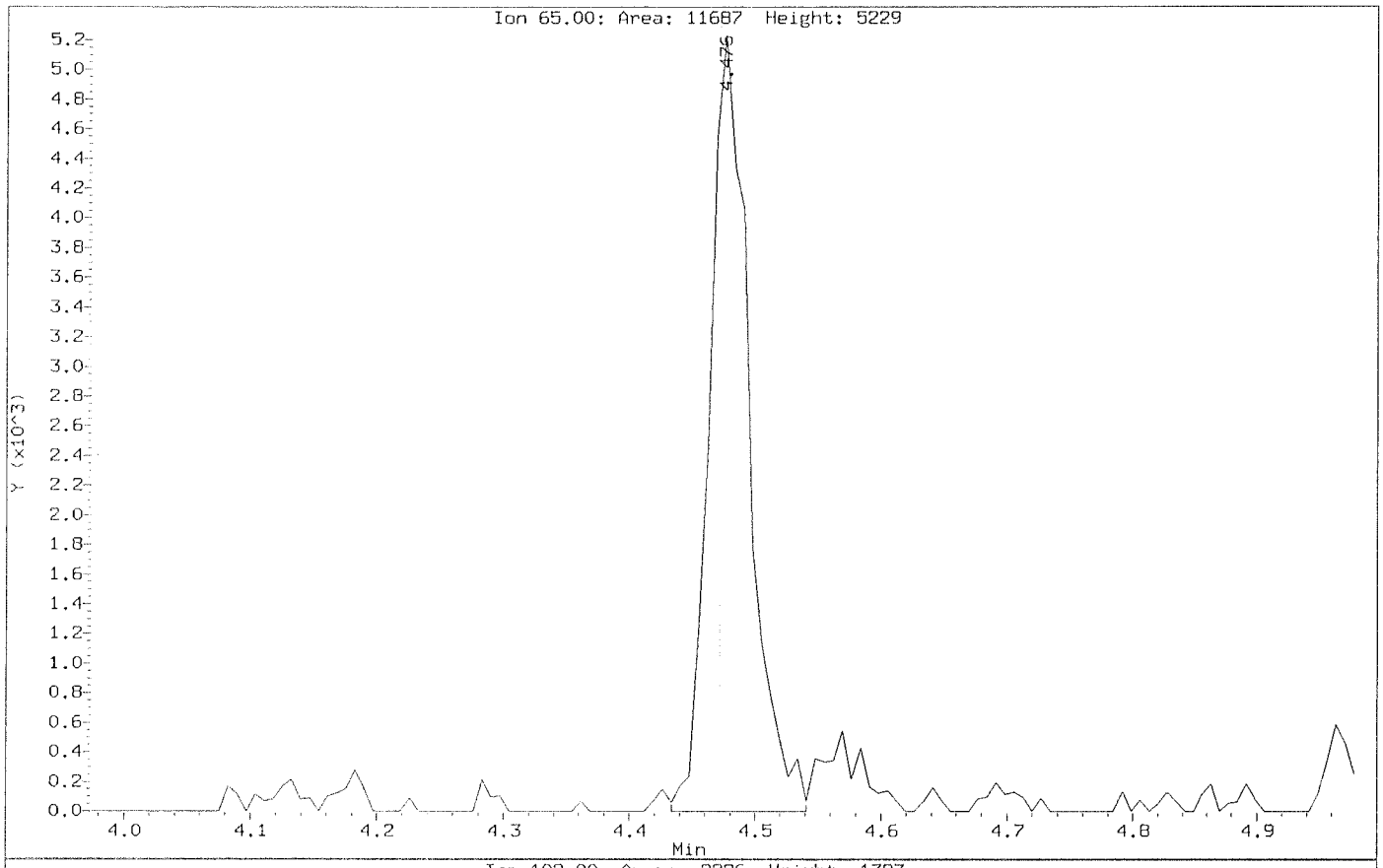
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

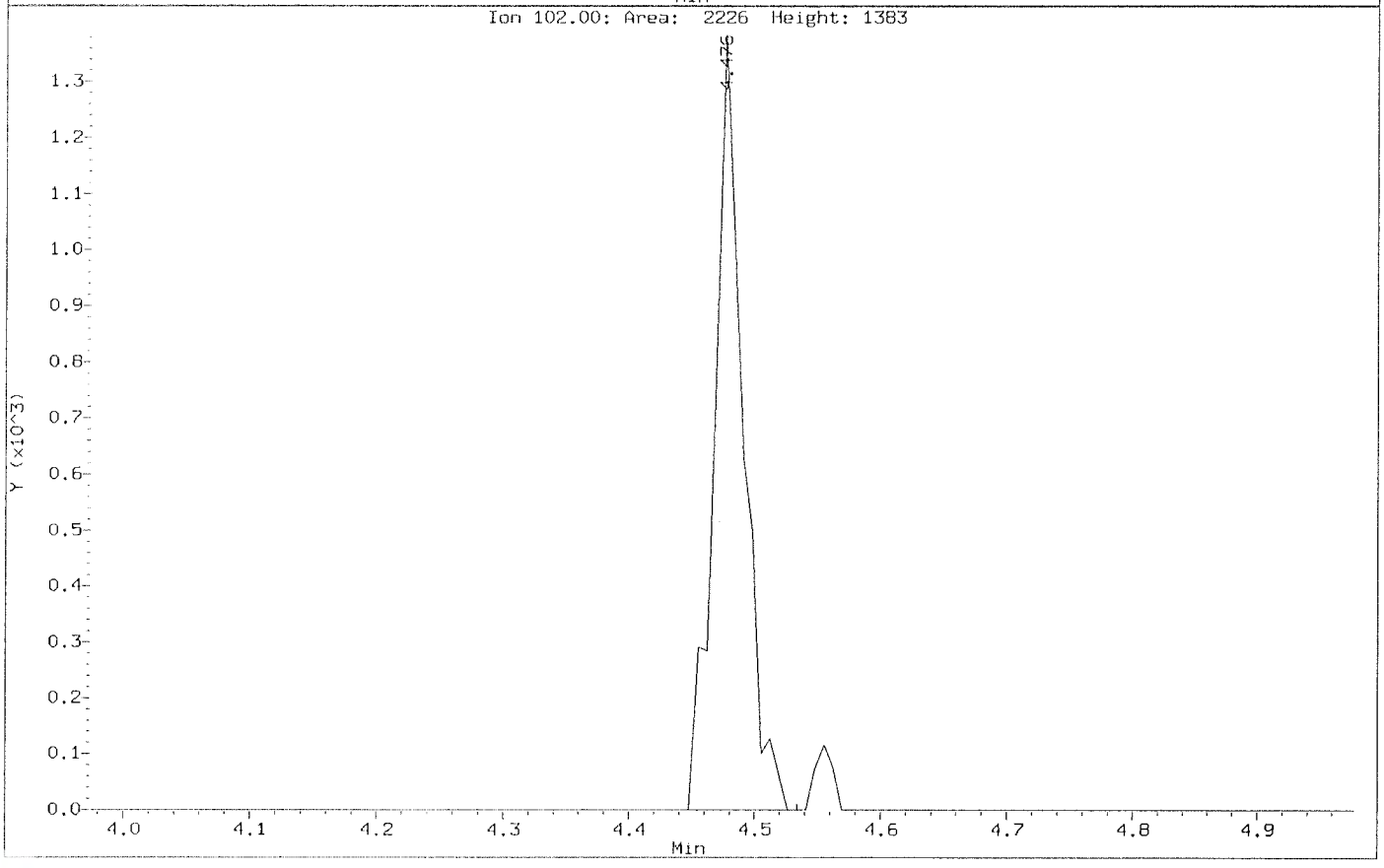




Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Injection Date: 26-JAN-2021 12:56
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012606.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 26-JAN-2021 13:17
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 12:56 Cal File: X012605.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

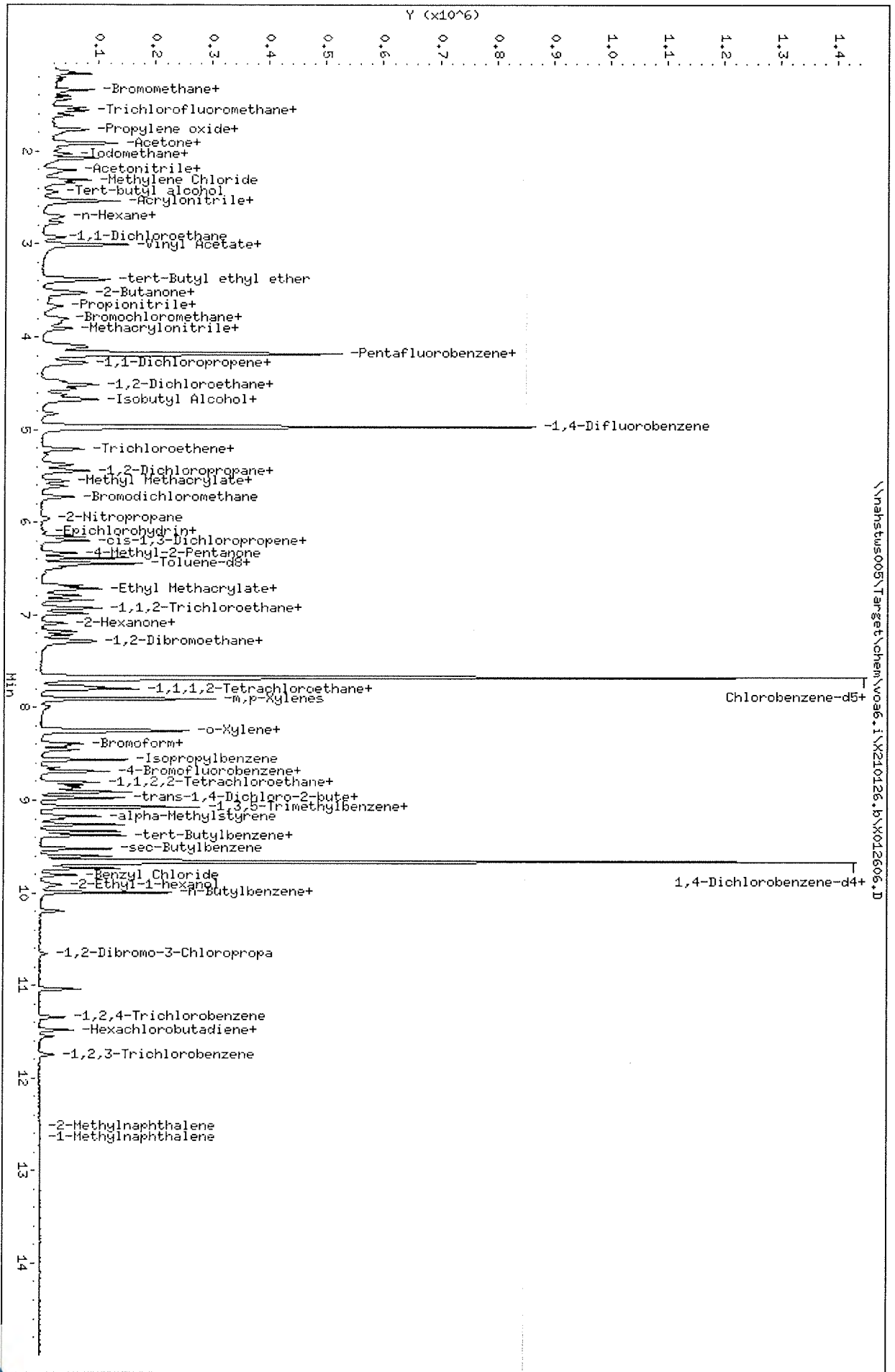
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	398798	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	710553	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	664086	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	290340	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	27072	5.00000	5.32
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	29956	5.00000	4.73(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	88932	5.00000	5.11
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	35925	5.00000	4.77(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	21952	5.00000	4.34(a)
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	33717	5.00000	5.33
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	27876	5.00000	5.45
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	18274	5.00000	5.04
	38 Trichloroethene	130	5.206	5.206	(1.048)	23685	5.00000	4.98(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	26107	5.00000	4.58(a)

QC Flag Legend

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



Data File: \\nahstus005\Target\chem\voa6.i\X210126.b\X012606.D
Date : 26-JAN-2021 13:17
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

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

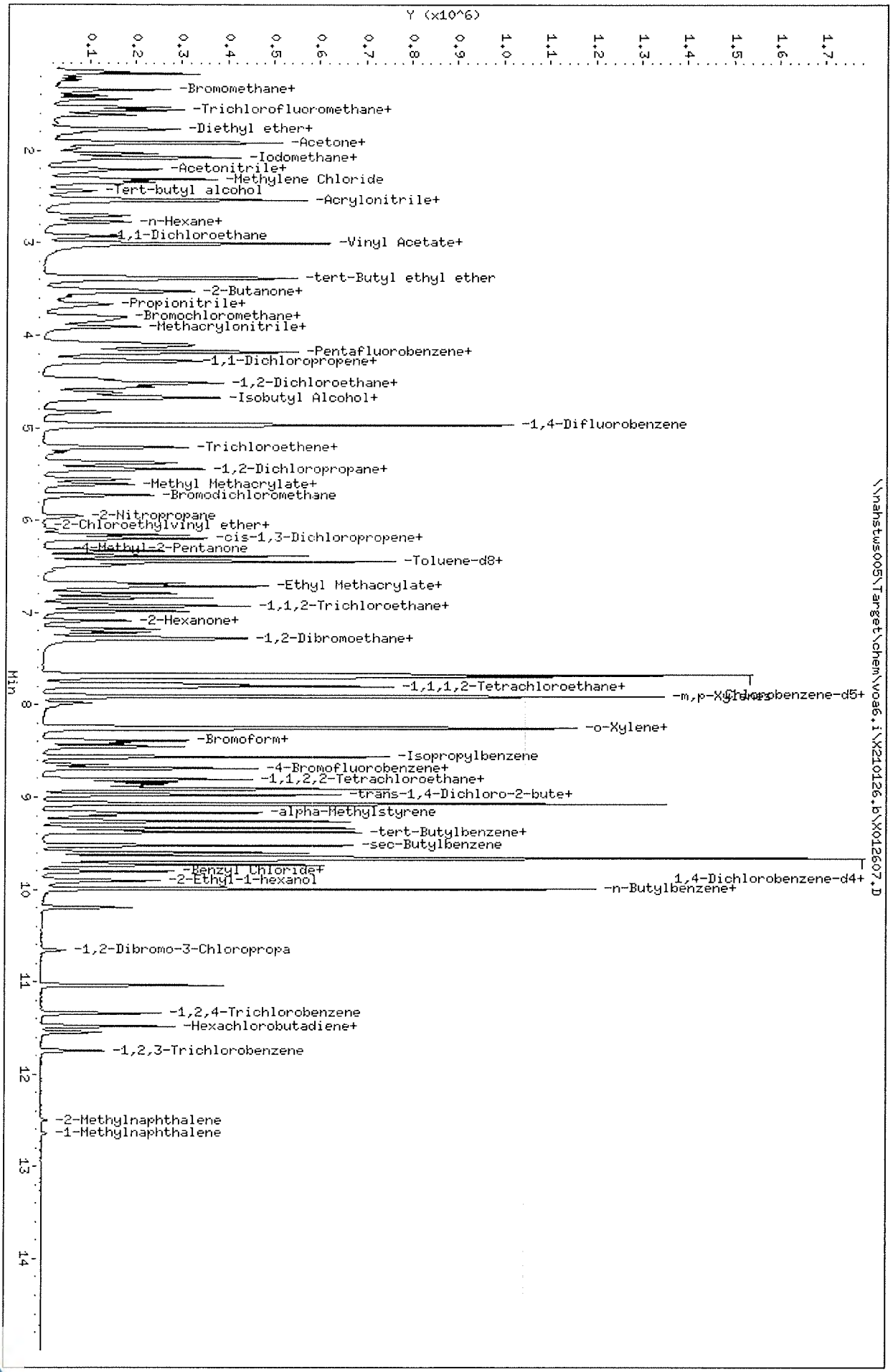
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012607.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 26-JAN-2021 13:38
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:17 Cal File: X012606.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	407341	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	724949	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	683450	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	315139	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	101900	20.0000	20.62
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	112243	20.0000	21.28
$	48 Toluene-d8	98	6.388	6.388	(0.833)	336426	20.0000	18.81
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	133136	20.0000	21.14
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	104712	20.0000	20.30
	33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	135037	20.0000	20.94
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	107931	20.0000	20.68
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	79419	20.0000	21.29
	38 Trichloroethene	130	5.206	5.206	(1.049)	103195	20.0000	21.30
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	118129	20.0000	20.31



Data File: \\nahstws005\Target\chem\voa6,i\X210126,b\X012607,D
Date : 26-JAN-2021 13:38
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012608.D Page 1
Report Date: 01-Mar-2021 12:20

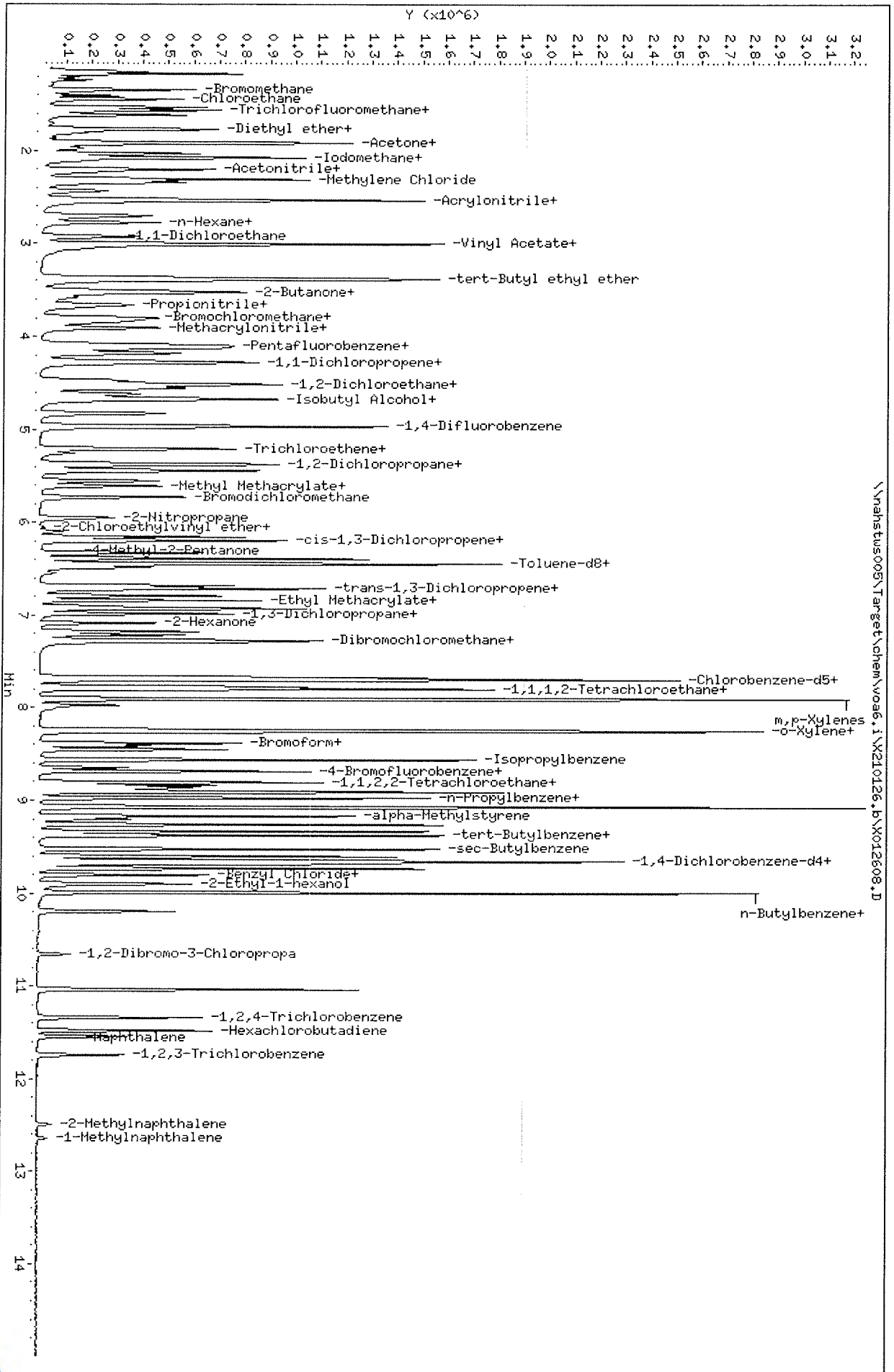
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012608.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 26-JAN-2021 13:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:38 Cal File: X012607.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	405921	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	716985	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	666545	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	295483	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	235983	50.0000	48.43
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	254660	50.0000	50.33
$	48 Toluene-d8	98	6.388	6.388	(0.833)	758394	50.0000	43.49
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	295052	50.0000	49.98
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	255035	50.0000	49.62
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	318748	50.0000	49.99
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	261348	50.0000	50.27
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	187127	50.0000	51.45
	38 Trichloroethene	130	5.207	5.207	(1.048)	246429	50.0000	51.43
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	289419	50.0000	49.93



Data File: \\nahstus005\Target\chem\voa6.i\X210126.b\X012608.D
Date : 26-JAN-2021 13:59
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D Page 1
Report Date: 01-Mar-2021 12:20

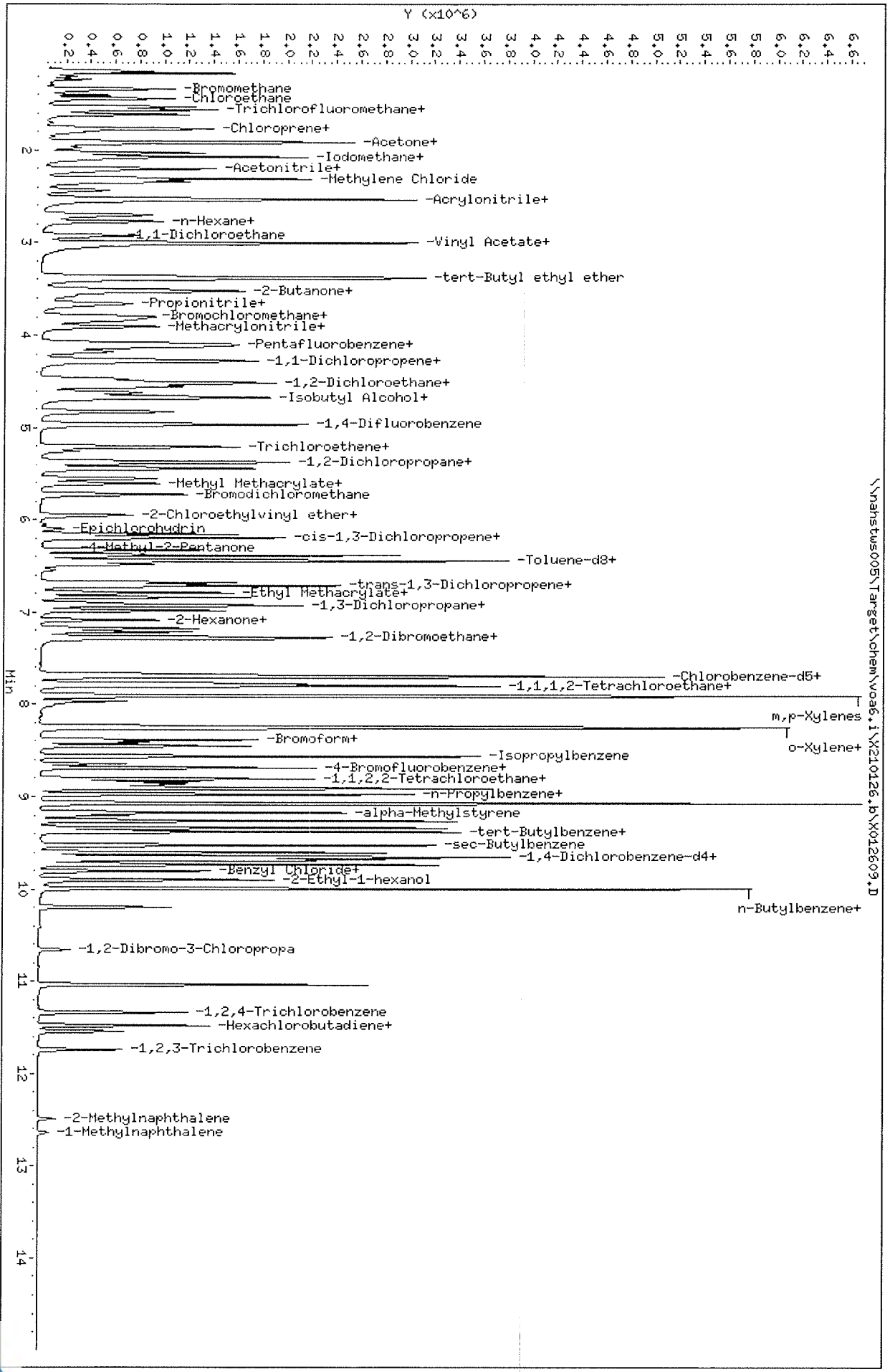
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 26-JAN-2021 14:20
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	414071	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	742609	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	686988	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	288650	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	507211	100.000	102.47
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	530907	100.000	104.40
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1706125	100.000	94.93
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	606464	100.000	101.19
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	534791	100.000	102.01
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	622844	100.000	94.32
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	549846	100.000	103.68
56 Tetrachloroethene	164	6.926	6.926	(0.903)	398180	100.000	106.23
38 Trichloroethene	130	5.206	5.206	(1.048)	519514	100.000	104.68
5 Vinyl Chloride	62	1.138	1.138	(0.272)	614439	100.000	103.93



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D
Date : 26-JAN-2021 14:20
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

\\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D

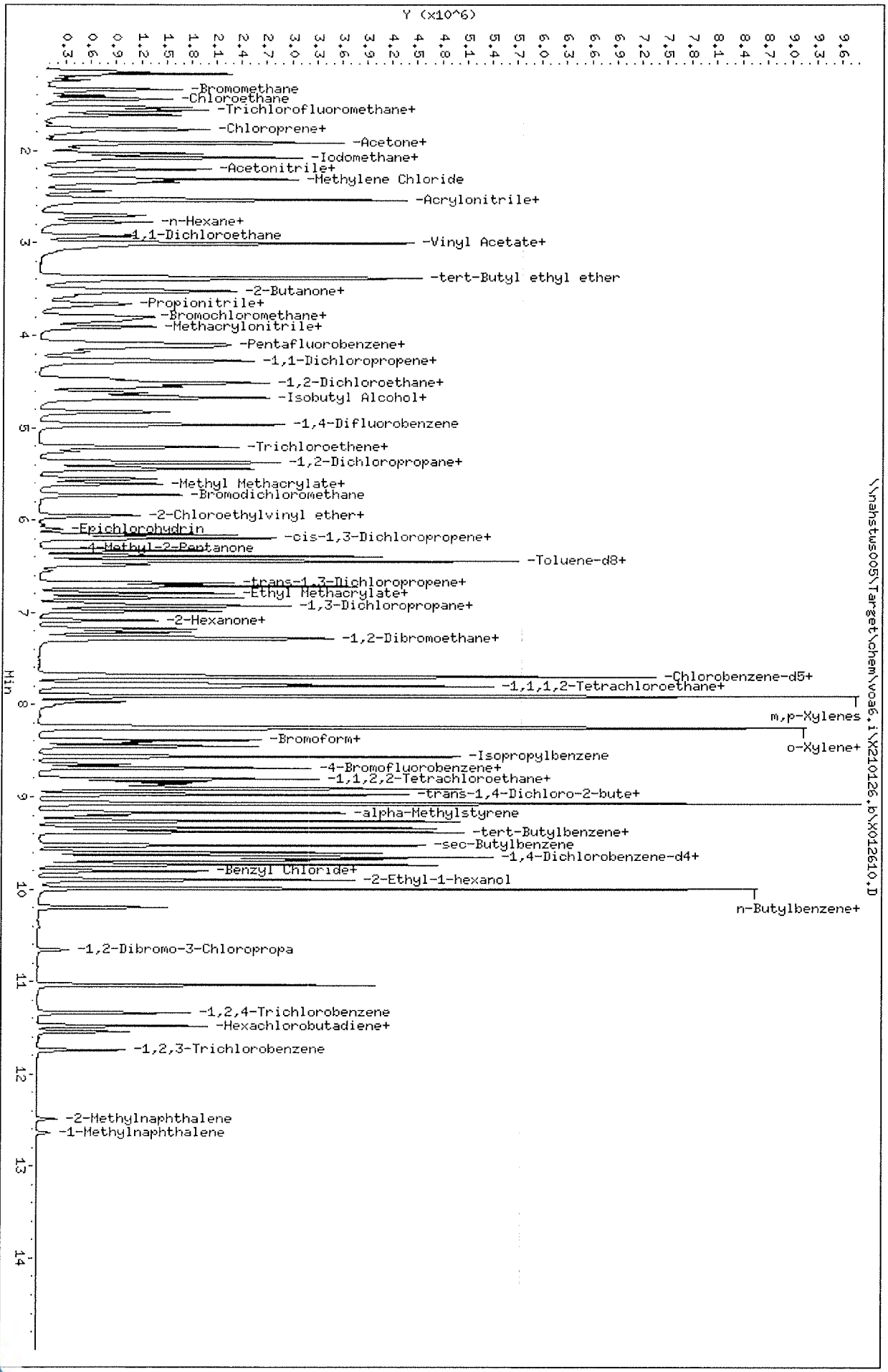
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012610.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 26-JAN-2021 14:41
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 14:20 Cal File: X012609.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	404028	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	723213	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	659631	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	293481	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	719853	150.000	149.22
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	746091	150.000	151.01
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2377816	150.000	137.79
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	879527	150.000	153.62
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	770334	150.000	150.59
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	893028	150.000	138.86
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	794651	150.000	153.57
56 Tetrachloroethene	164	6.933	6.933	(0.904)	559141	150.000	155.37
38 Trichloroethene	130	5.207	5.207	(1.048)	760135	150.000	157.28
5 Vinyl Chloride	62	1.138	1.138	(0.272)	894964	150.000	155.14



Data File: \\nahstws005\Target\chem\voa6,i\X210126,b\X012610.D
Date : 26-JAN-2021 14:41
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;;
Purge Volume: 5.0
Column phase: DB624

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

\\nahstws005\Target\chem\voa6,i\X210126,b\X012610.D

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012611.D Page 1
Report Date: 01-Mar-2021 12:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012611.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 26-JAN-2021 15:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 14:41 Cal File: X012610.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

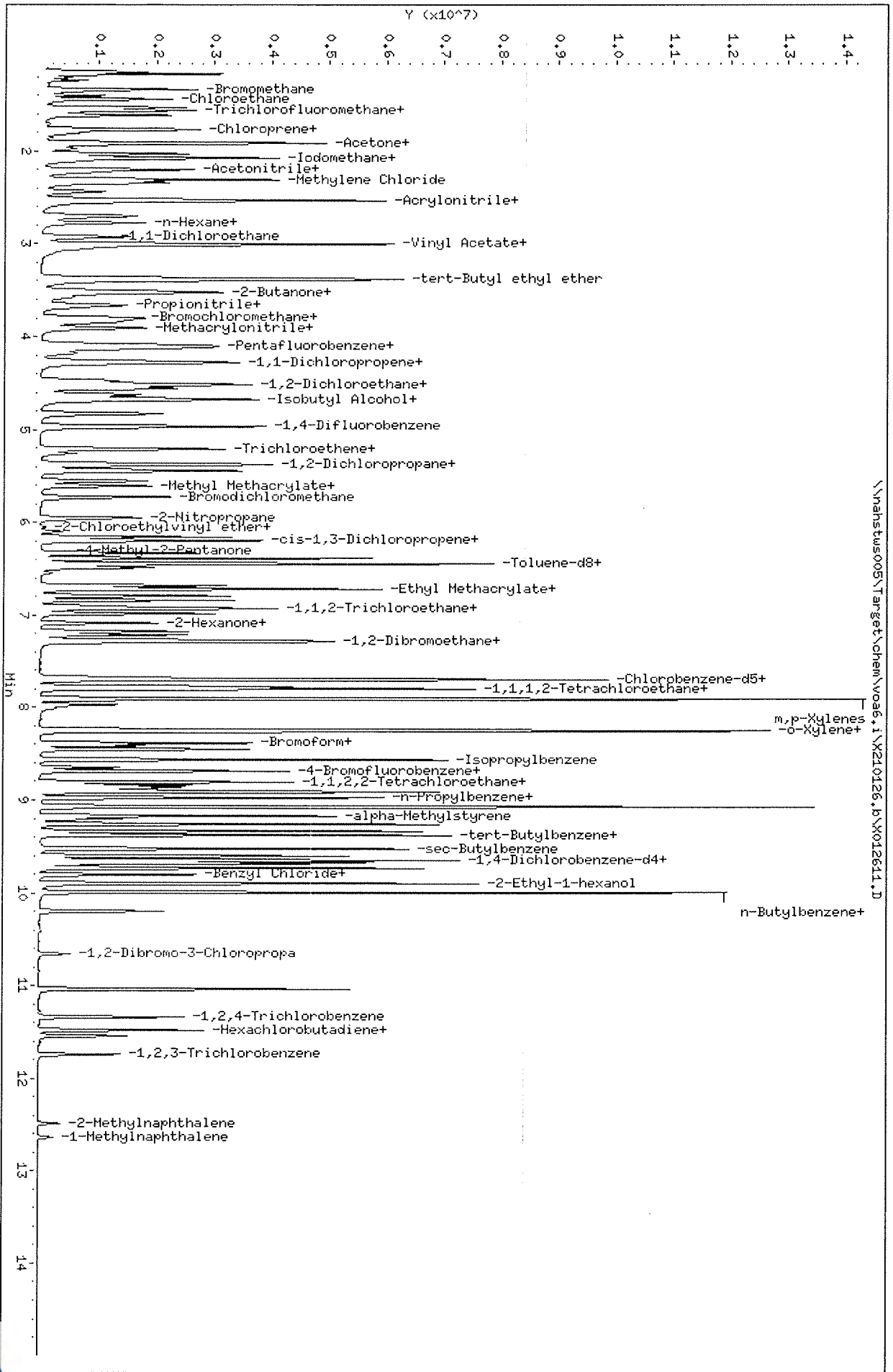
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416017	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	738927	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	700732	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	306937	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	990894	200.000	199.61
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	998263	200.000	196.66
$	48 Toluene-d8	98	6.388	6.388	(0.833)	3339716	200.000	182.18
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	1192191	200.000	196.43
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	1042124	200.000	197.85
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	1174143	200.000	178.69
	27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	1061065	200.000	199.15
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	776414	200.000	203.09(A)
	38 Trichloroethene	130	5.207	5.207	(1.048)	1036400	200.000	209.88(A)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	1226395	200.000	206.47(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012611.D
Date : 26-JAN-2021 15:02
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D Page 1
Report Date: 01-Mar-2021 12:20

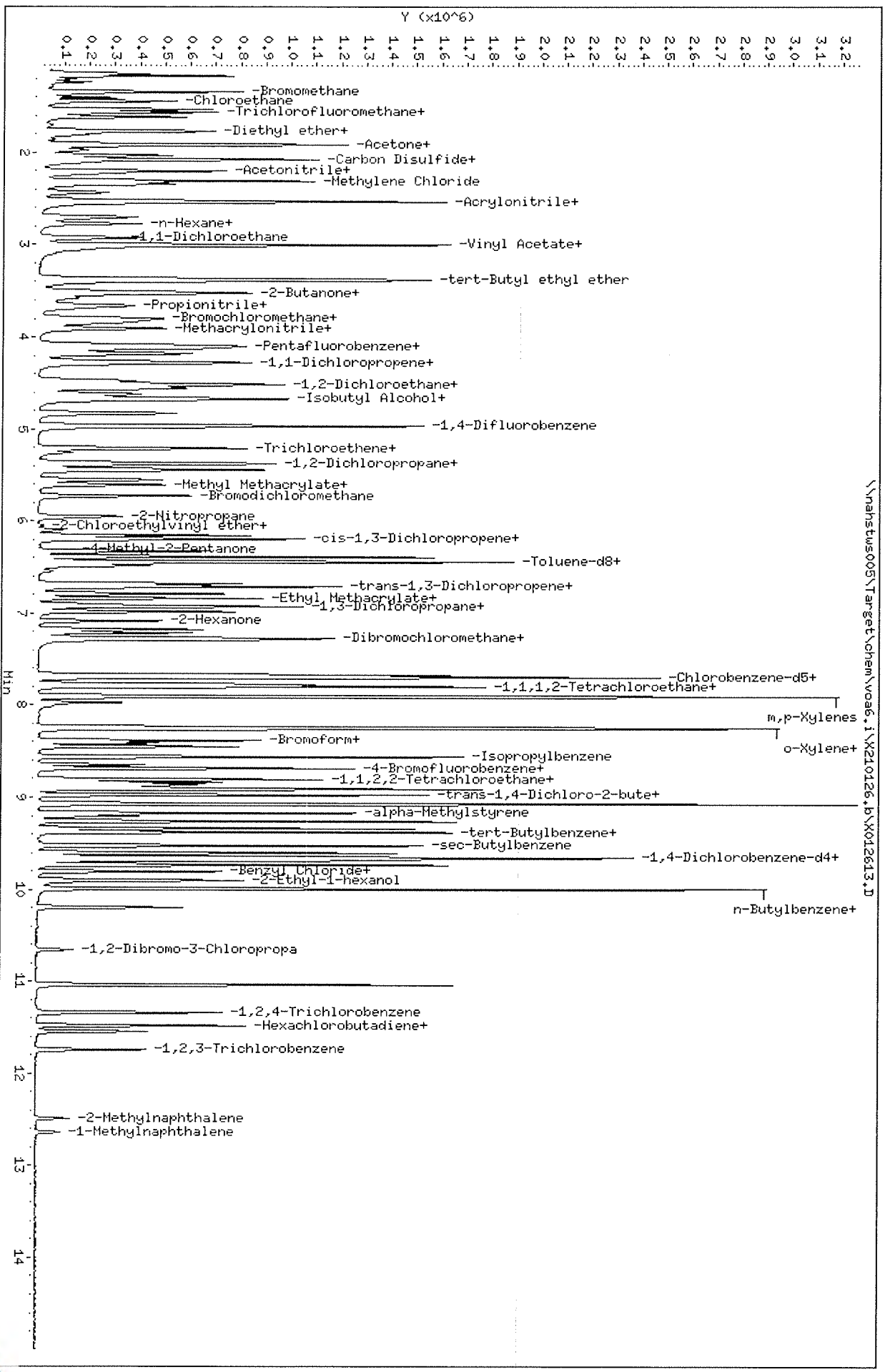
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 26-JAN-2021 15:44
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 15:02 Cal File: X012611.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	469188	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	793026	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	727010	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	320823	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	280867	49.8853	49.88
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	280863	47.9629	47.96
$	48 Toluene-d8	98	6.388	6.388	(0.833)	933533	49.0837	49.08
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	342403	53.2808	53.28
	11 1,1-Dichloroethene	96	1.919	1.912	(0.459)	264798	44.5761	44.57
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	316364	44.8629	44.86
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	280663	46.7078	46.70
	56 Tetrachloroethene	164	6.926	6.933	(0.903)	194552	49.0510	49.05
	38 Trichloroethene	130	5.207	5.207	(1.049)	271402	51.2126	51.21
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	296624	44.2794	44.27



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D
Date : 26-JAN-2021 15:44
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 43159 **Analyst:** Presenta Cabascango

Date: 02-02-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	02-02-2021 09:42 am	1.00	50 mL	50 mL	X020201.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	02-02-2021 10:03 am	1.00	50 mL	50 mL	X020202a.D	Liquid	N	NA
	10 ul cal std/50ml DI									
3	CCV	CCV	02-02-2021 10:24 am	1.00	50 mL	50 mL	X020203.D	Liquid	Y	NA
	10 ul cal std/50ml DI									
4	CCB	SAMP	02-02-2021 10:45 am	1.00	50 mL	50 mL	X020204.D	Liquid	Y	NA
	ccb									
5	VLCSW-210202	LCS	02-02-2021 11:06 am	1.00	50 mL	50 mL	X020205.D	Liquid	Y	NA
	4 ul lcs std/50ml DI									
6	BLANK	SAMP	02-02-2021 11:27 am	1.00	50 mL	50 mL	X020206.D	Liquid	Y	NA
	cleanup									
7	VBLKW-210202	MBLK	02-02-2021 11:48 am	1.00	50 mL	50 mL	X020207.D	Liquid	Y	NA
8	HS21011223-17	SAMP	02-02-2021 12:09 pm	1.00	50 mL	50 mL	X020208.D	Liquid	Y	NA
9	HS21011223-15	SAMP	02-02-2021 12:30 pm	1.00	50 mL	50 mL	X020209.D	Liquid	Y	NA
10	HS21011223-16	SAMP	02-02-2021 12:52 pm	1.00	50 mL	50 mL	X020210.D	Liquid	Y	NA
11	HS21011223-12	SAMP	02-02-2021 01:13 pm	1.00	50 mL	50 mL	X020211.D	Liquid	Y	NA
12	HS21011223-13	SAMP	02-02-2021 01:34 pm	1.00	50 mL	50 mL	X020212.D	Liquid	Y	NA
13	HS21011223-14	SAMP	02-02-2021 01:55 pm	1.00	50 mL	50 mL	X020213.D	Liquid	Y	NA
14	HS21011223-11	SAMP	02-02-2021 02:16 pm	100.0(	500 µL	50 mL	X020214.D	Liquid	Y	NA
15	HS21011223-11	SAMP	02-02-2021 02:37 pm	10.00	5 mL	50 mL	X020215.D	Liquid	Y	NA
16	HS21011223-11MS	MS	02-02-2021 02:58 pm	100.0(	500 µL	50 mL	X020216.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
17	HS21011223-11MSD	MSD	02-02-2021 03:19 pm	100.0(	500 µL	50 mL	X020217.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
18	HS21011223-12MS	MS	02-02-2021 03:40 pm	1.00	50 mL	50 mL	X020218.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
19	HS21011223-12MSD	MSD	02-02-2021 04:01 pm	1.00	50 mL	50 mL	X020219.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
20	HS21011222-16	SAMP	02-02-2021 04:22 pm	10.00	5 mL	50 mL	X020220.D	Liquid	Y	NA
21	HS21011222-15	SAMP	02-02-2021 04:43 pm	20.00	2.5 mL	50 mL	X020221.D	Liquid	Y	NA
22	HS21011223-06	SAMP	02-02-2021 05:04 pm	10.00	5 mL	50 mL	X020222.D	Liquid	Y	NA
23	HS21020050-14	SAMP	02-02-2021 05:25 pm	1.00	50 mL	50 mL	X020223.D	Liquid	Y	NA
24	HS21020050-15	SAMP	02-02-2021 05:46 pm	1.00	50 mL	50 mL	X020224.D	Liquid	Y	NA
25	HS21020050-21	SAMP	02-02-2021 06:08 pm	1.00	50 mL	50 mL	X020225.D	Liquid	Y	NA
26	HS21020050-22	SAMP	02-02-2021 06:29 pm	1.00	50 mL	50 mL	X020226.D	Liquid	Y	NA
27	HS21020050-23	SAMP	02-02-2021 06:50 pm	1.00	50 mL	50 mL	X020227.D	Liquid	Y	NA
28	HS21020050-24	SAMP	02-02-2021 07:11 pm	1.00	50 mL	50 mL	X020228.D	Liquid	Y	NA
29	HS21011122-04	SAMP	02-02-2021 07:32 pm	1.00	50 mL	50 mL	X020229.D	Liquid	Y	NA
30	HS21011122-03	SAMP	02-02-2021 07:53 pm	1.00	50 mL	50 mL	X020230.D	Liquid	Y	NA
31	HS21011122-02	SAMP	02-02-2021 08:14 pm	1.00	50 mL	50 mL	X020231.D	Liquid	Y	NA
32	CCV-END	CCV	02-02-2021 08:35 pm	1.00	50 mL	50 mL	X020232.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
33	BFB	TUNE	02-02-2021 08:56 pm	1.00	50 mL	50 mL	Y020201.D	Liquid	Y	NA
	Auto find/purged									
34	CCV	CCV	02-02-2021 09:38 pm	1.00	50 mL	50 mL	Y020203.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
35	CCB	SAMP	02-02-2021 09:59 pm	1.00	50 mL	50 mL	Y020204.D	Liquid	Y	NA
	ccb									
36	VLCSW-210202	LCS	02-02-2021 10:20 pm	1.00	50 mL	50 mL	Y020205.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
37	BLANK	SAMP	02-02-2021 10:41 pm	1.00	50 mL	50 mL	Y020206.D	Liquid	Y	NA
	cleanup									
38	VBLKW-210202	MBLK	02-02-2021 11:02 pm	1.00	50 mL	50 mL	Y020207.D	Liquid	Y	NA
39	HS21011103-01	SAMP	02-02-2021 11:23 pm	1.00	50 mL	50 mL	Y020208.D	Liquid	Y	NA
40	HS21011103-02	SAMP	02-02-2021 11:44 pm	1.00	50 mL	50 mL	Y020209.D	Liquid	Y	NA
41	HS21011103-03	SAMP	02-03-2021 12:05 am	1.00	50 mL	50 mL	Y020210.D	Liquid	Y	NA
42	HS21011103-04	SAMP	02-03-2021 12:26 am	1.00	50 mL	50 mL	Y020211.D	Liquid	Y	NA
43	HS21011103-05	SAMP	02-03-2021 12:47 am	1.00	50 mL	50 mL	Y020212.D	Liquid	Y	NA
44	HS21011103-06	SAMP	02-03-2021 01:08 am	1.00	50 mL	50 mL	Y020213.D	Liquid	Y	NA
45	HS21011103-07	SAMP	02-03-2021 01:29 am	1.00	50 mL	50 mL	Y020214.D	Liquid	Y	NA
46	HS21011103-08	SAMP	02-03-2021 01:50 am	1.00	50 mL	50 mL	Y020215.D	Liquid	Y	NA
47	HS21011122-01	SAMP	02-03-2021 02:11 am	1.00	50 mL	50 mL	Y020216.D	Liquid	Y	NA
48	HS21011103-06MS	MS	02-03-2021 02:33 am	1.00	50 mL	50 mL	Y020217.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
49	HS21011103-06MSD	MSD	02-03-2021 02:54 am	1.00	50 mL	50 mL	Y020218.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
50	HS21011122-01	SAMP	02-03-2021 03:15 am	10.00	5 mL	50 mL	Y020219.D	Liquid	Y	NA
51	HS21011042-01	SAMP	02-03-2021 03:36 am	1.00	50 mL	50 mL	Y020220.D	Liquid	Y	NA
52	HS21011042-05	SAMP	02-03-2021 03:57 am	1.00	50 mL	50 mL	Y020221.D	Liquid	Y	NA
53	HS21011042-06	SAMP	02-03-2021 04:18 am	1.00	50 mL	50 mL	Y020222.D	Liquid	Y	NA
54	HS21011042-07	SAMP	02-03-2021 04:39 am	1.00	50 mL	50 mL	Y020223.D	Liquid	Y	NA
55	HS21011042-03	SAMP	02-03-2021 05:00 am	10.00	5 mL	50 mL	Y020224.D	Liquid	Y	NA
56	HS21011042-03	SAMP	02-03-2021 05:21 am	100.0(	500 µL	50 mL	Y020225.D	Liquid	Y	NA
57	HS21011042-04	SAMP	02-03-2021 05:42 am	10.00	5 mL	50 mL	Y020226.D	Liquid	Y	NA
58	HS21011042-04	SAMP	02-03-2021 06:03 am	100.0(	500 µL	50 mL	Y020227.D	Liquid	Y	NA
59	HS21011042-02	SAMP	02-03-2021 06:24 am	25.00	2 mL	50 mL	Y020228.D	Liquid	Y	NA
60	HS21011042-02	SAMP	02-03-2021 06:45 am	250.0(	200 µL	50 mL	Y020229.D	Liquid	Y	NA
61	CCV-END	CCV	02-03-2021 07:06 am	1.00	50 mL	50 mL	Y020230.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

Chemical	Value
SURR SPK ID	31106-67-06
IS ID	31106-67-06
LCS/MS ID	31106-67-05
CAL STD ID	31106-67-01/02
BFB ID	31106-67-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 #	OTHER (TOL)#	TOT OUT
01	VLCSW-210202	96	99	104	97	0
02	VBLKW-210202	93	95	103	102	0
03	HS21011223-11MS	94	94	102	97	0
04	HS21011223-11MSD	92	95	104	100	0
05	HS21011223-12MS	94	96	104	99	0
06	HS21011223-12MSD	91	95	103	100	0
07	HS21011122-04	92	95	101	101	0
08	HS21011122-03	96	96	102	100	0
09	HS21011122-02	95	97	102	99	0
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28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210202

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: X020207 Lab Sample ID: VBLKW-210202

Date Analyzed: 02/02/21 Time Analyzed: 1148

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210202	VLCSW-210202	X020205	1106
02	HS21011223-11MS	HS21011223-11MS	X020216	1458
03	HS21011223-11MSD	HS21011223-11MSD	X020217	1519
04	HS21011223-12MS	HS21011223-12MS	X020218	1540
05	HS21011223-12MSD	HS21011223-12MSD	X020219	1601
06	HS21011122-04	HS21011122-04	X020229	1932
07	HS21011122-03	HS21011122-03	X020230	1953
08	HS21011122-02	HS21011122-02	X020231	2014
09				
10				
11				
12				
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: X020201 BFB Injection Date: 02/02/21

Instrument ID: VOA6 BFB Injection Time: 0942

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	15.3
75	30.0 - 60.0% of mass 95	44.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.8 (1.0)1
174	Greater than 50.0% of mass 95	80.6
175	5.0 - 9.0% of mass 174	5.9 (7.4)1
176	95.0 - 101.0% of mass 174	77.5 (96.2)1
177	5.0 - 9.0% of mass 176	5.1 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X020203	02/02/21	1024
02	VLCSW-210202	VLCSW-210202	X020205	02/02/21	1106
03	VBLKW-210202	VBLKW-210202	X020207	02/02/21	1148
04	HS21011223-11MS	HS21011223-11MS	X020216	02/02/21	1458
05	HS21011223-11MSD	HS21011223-11MSD	X020217	02/02/21	1519
06	HS21011223-12MS	HS21011223-12MS	X020218	02/02/21	1540
07	HS21011223-12MSD	HS21011223-12MSD	X020219	02/02/21	1601
08	HS21011122-04	HS21011122-04	X020229	02/02/21	1932
09	HS21011122-03	HS21011122-03	X020230	02/02/21	1953
10	HS21011122-02	HS21011122-02	X020231	02/02/21	2014
11	CCV-END	CCV-END	X020232	02/02/21	2035
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/02/21 Time: 1024

Lab File ID: X020203 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5768308	0.5768308	0.1	8.87	20.00	AVRG
1,2-Dichloroethane	0.4440000	0.4041872	0.4041872	0.1	8.97	20.00	AVRG
Tetrachloroethene	0.2730000	0.2643209	0.2643209	0.2	3.18	20.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6284957	0.6284957	0.1	1.80	20.00	AVRG
Vinyl Chloride	0.7140000	0.6556369	0.6556369	0.1	8.17	20.00	AVRG
Trichloroethene	0.3340000	0.3487599	0.3487599	0.2	-4.42	20.00	AVRG
1,2-Dichloroethane-d4	48.143931	50.000000	0.6008079	0.1	3.71	20.00	LINR
Dibromofluoromethane	50.417978	50.000000	0.6049674	0.1	-0.84	20.00	LINR
4-Bromofluorobenzene	50.415698	50.000000	0.4463505	0.1	-0.83	20.00	LINR
Toluene-d8	1.3080000	1.2417158	1.2417158	0.1	5.07	20.00	AVRG

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/02/21 Time: 2035

Lab File ID: X020232 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.6235686	0.6235686	0.1	1.49	50.00	AVRG
1,2-Dichloroethane	0.4440000	0.4345198	0.4345198	0.1	2.14	50.00	AVRG
Tetrachloroethene	0.2730000	0.2837348	0.2837348	0.2	-3.93	50.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6680082	0.6680082	0.1	-4.38	50.00	AVRG
Vinyl Chloride	0.7140000	0.7152459	0.7152459	0.1	-0.17	50.00	AVRG
Trichloroethene	0.3340000	0.3584199	0.3584199	0.2	-7.31	50.00	AVRG
1,2-Dichloroethane-d4	51.718310	50.000000	0.6440973	0.1	-3.44	50.00	LINR
Dibromofluoromethane	53.484649	50.000000	0.6414896	0.1	-6.97	50.00	LINR
4-Bromofluorobenzene	52.771201	50.000000	0.4665948	0.1	-5.54	50.00	LINR
Toluene-d8	1.3080000	1.2792848	1.2792848	0.1	2.20	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): X020203 Date Analyzed: 02/02/21

Instrument ID: VOA6 Time Analyzed: 1024

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

		IS1(DCB) AREA	#	RT	#	IS2(DFB) AREA	#	RT	#	IS3(CBZ) AREA	#	RT	#
	12 HOUR STD	307945		9.66		784342		4.96		721256		7.67	
	UPPER LIMIT	615890		10.16		1568684		5.46		1442512		8.17	
	LOWER LIMIT	153973		9.16		392171		4.46		360628		7.17	
	CLIENT SAMPLE NO.												
01	VLCSW-210202	313901		9.66		753815		4.96		688620		7.67	
02	VBLKW-210202	361917		9.66		925793		4.96		819991		7.67	
03	HS21011223-11MS	353323		9.66		849033		4.96		765579		7.67	
04	HS21011223-11MSD	349384		9.66		879574		4.96		772042		7.67	
05	HS21011223-12MS	352546		9.66		876784		4.96		791721		7.67	
06	HS21011223-12MSD	345303		9.66		881194		4.96		782562		7.67	
07	HS21011122-04	326356		9.66		889031		4.96		788889		7.67	
08	HS21011122-03	344691		9.66		875418		4.96		791642		7.67	
09	HS21011122-02	333413		9.66		902111		4.96		780179		7.67	
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): X020203 Date Analyzed: 02/02/21

Instrument ID: VOA6 Time Analyzed: 1024

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	450054	4.18				
	UPPER LIMIT	900108	4.68				
	LOWER LIMIT	225027	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-210202	439849	4.18				
02	VBLKW-210202	553736	4.18				
03	HS21011223-11MS	499145	4.18				
04	HS21011223-11MSD	512778	4.18				
05	HS21011223-12MS	514871	4.18				
06	HS21011223-12MSD	519411	4.18				
07	HS21011122-04	529809	4.18				
08	HS21011122-03	513615	4.18				
09	HS21011122-02	527094	4.18				
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020201.D

Date : 02-FEB-2021 09:42

Client ID: BFB

Instrument: voa6.i

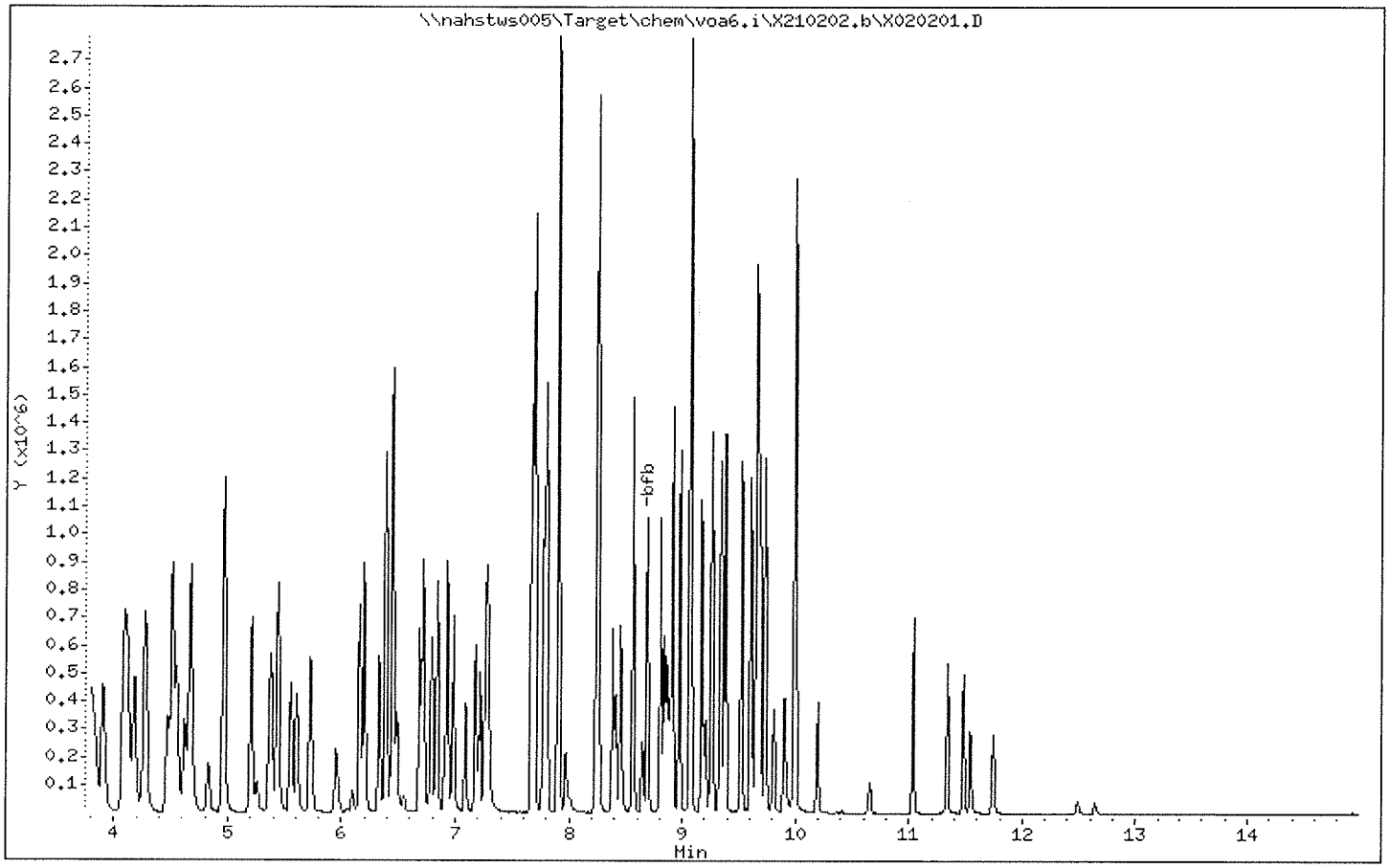
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020201.D

Date : 02-FEB-2021 09:42

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

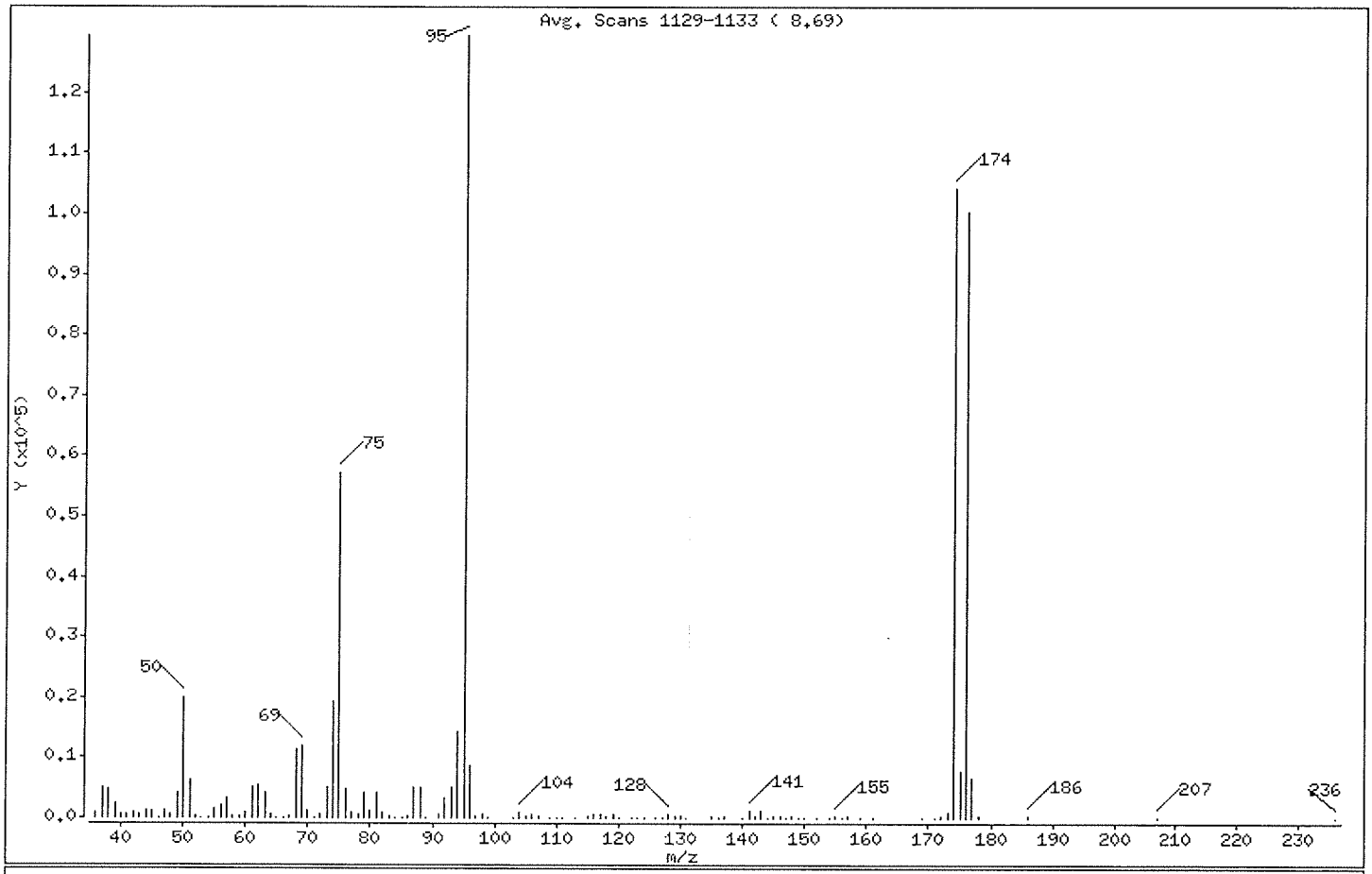
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	15.30
75	30.00 - 60.00% of mass 95	44.11
96	5.00 - 9.00% of mass 95	6.76
173	Less than 2.00% of mass 174	0.77 (0.96)
174	Greater than 50.00% of mass 95	80.56
175	5.00 - 9.00% of mass 174	5.95 (7.38)
176	95.00 - 101.00% of mass 174	77.48 (96.18)
177	5.00 - 9.00% of mass 176	5.07 (6.55)

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020201.D

Date : 02-FEB-2021 09:42

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X020201.D
Spectrum: Avg. Scans 1129-1133 (8.69)
Location of Maximum: 95.00
Number of points: 120

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1001	67.00	358	99.00	13	143.00	1154
37.00	4919	68.00	11267	103.00	126	144.00	33
38.00	4721	69.00	11756	104.00	752	145.00	166
39.00	2233	70.00	1268	105.00	341	146.00	150
40.00	639	71.00	89	106.00	564	147.00	37
41.00	634	72.00	613	107.00	265	148.00	256
42.00	827	73.00	5012	109.00	61	149.00	91
43.00	550	74.00	19256	110.00	109	150.00	83
44.00	1232	75.00	57088	111.00	72	152.00	26
45.00	1259	76.00	4826	113.00	125	154.00	60
46.00	65	77.00	827	115.00	178	155.00	254
47.00	1098	78.00	523	116.00	534	156.00	52
48.00	664	79.00	4277	117.00	695	157.00	248
49.00	4284	80.00	1132	118.00	437	159.00	130
50.00	19808	81.00	4273	119.00	696	161.00	131
51.00	6155	82.00	987	120.00	55	169.00	33
52.00	322	83.00	282	122.00	11	171.00	114
53.00	98	84.00	58	123.00	12	172.00	429
54.00	144	85.00	89	124.00	31	173.00	998
55.00	1426	86.00	160	126.00	55	174.00	104264
56.00	1967	87.00	5118	127.00	115	175.00	7696
57.00	3402	88.00	4941	128.00	458	176.00	100280
58.00	304	89.00	21	129.00	198	177.00	6565
59.00	374	91.00	578	130.00	443	178.00	177
60.00	1016	92.00	3278	131.00	126	186.00	159
61.00	4939	93.00	4979	135.00	302	207.00	46
62.00	5325	94.00	14277	136.00	28	236.00	18
63.00	4050	95.00	129432	137.00	236		
64.00	488	96.00	8749	140.00	106		
65.00	132	97.00	353	141.00	1338		
66.00	38	98.00	563	142.00	227		

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020203.D Page 1
Report Date: 01-Mar-2021 14:28

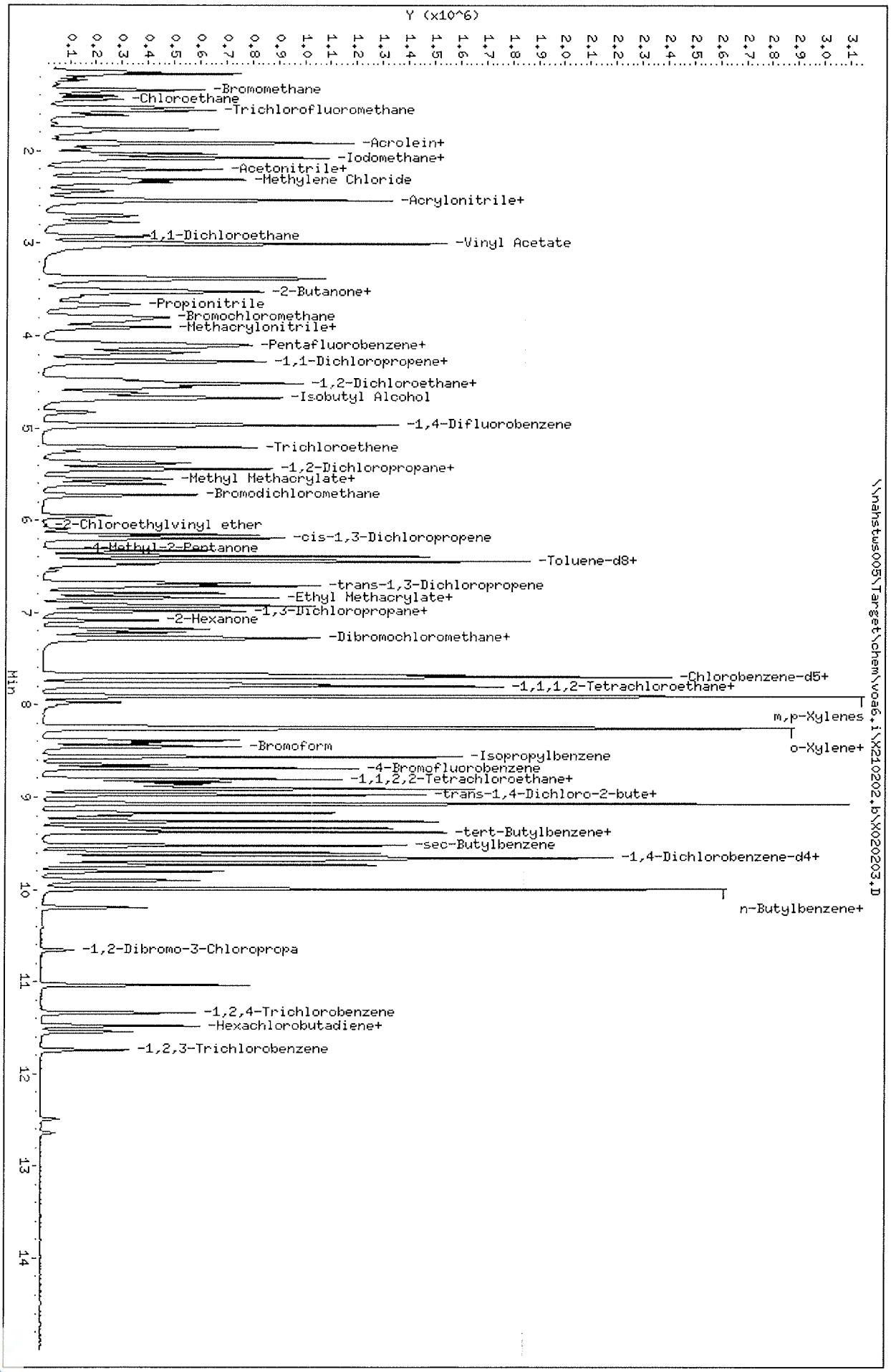
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020203.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 02-FEB-2021 10:24
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	450054	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	784342	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	721256	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	307945	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	272268	50.0000	50.41
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	270396	50.0000	48.14
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	895595	50.0000	47.46
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	321933	50.0000	50.41
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	259605	50.0000	45.55
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	317021	50.0000	45.45
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	282857	50.0000	49.07
56 Tetrachloroethene	164	6.926	6.926	(0.903)	190643	50.0000	48.44
38 Trichloroethene	130	5.207	5.207	(1.049)	273547	50.0000	52.18
5 Vinyl Chloride	62	1.138	1.138	(0.272)	295072	50.0000	45.92



Data File: \\nahstus005\Target\chem\voa6.i\X210202.b\X020203.D
Date : 02-FEB-2021 10:24
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020205.D Page 1
Report Date: 01-Mar-2021 14:28

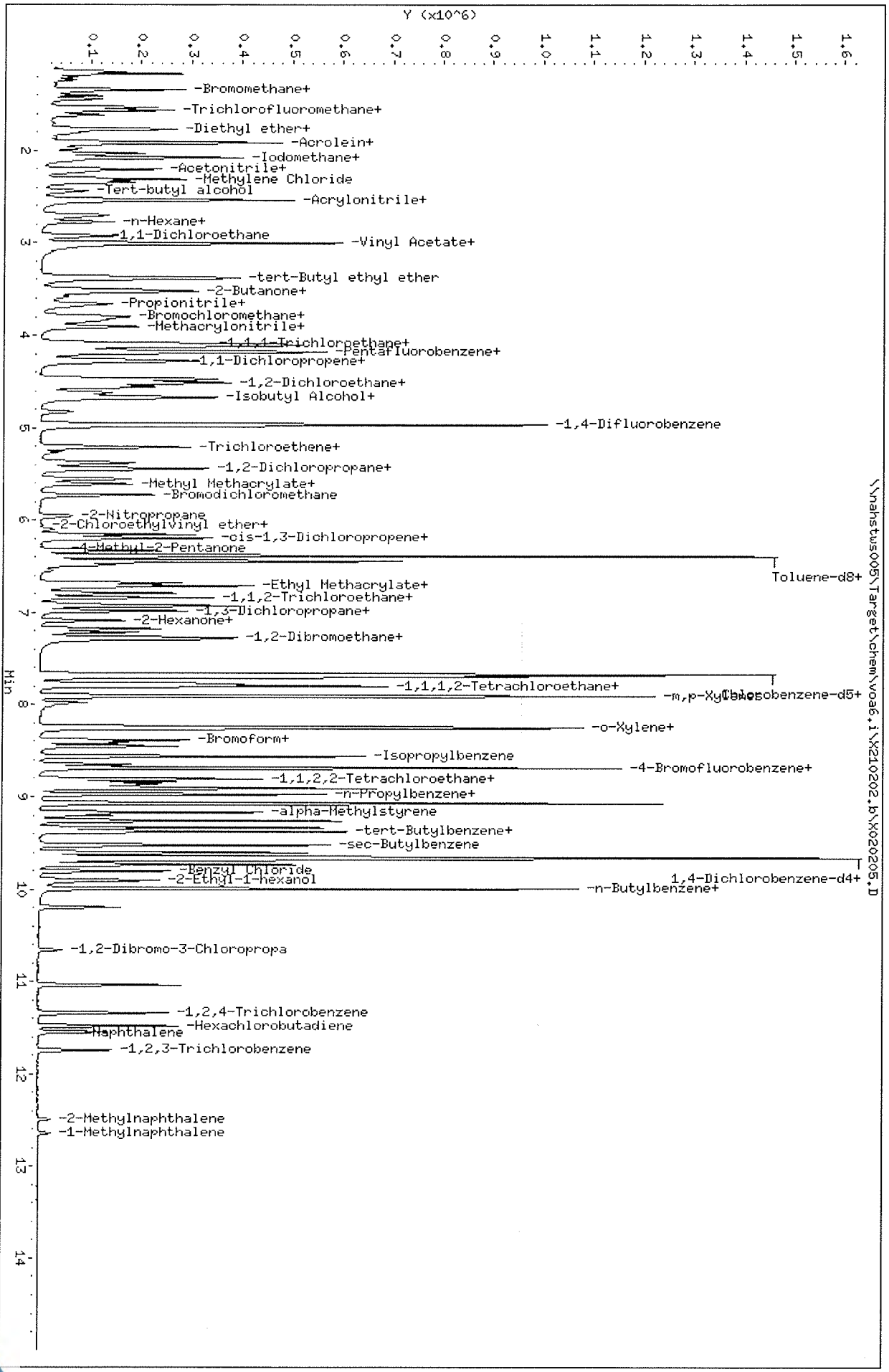
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020205.D
Lab Smp Id: VLCSW-210202 Client Smp ID: VLCSW-210202
Inj Date : 02-FEB-2021 11:06
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210202;VLCSW-210202;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	439849	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	753815	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	688620	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	313901	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	261601	49.5602	49.56
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	263982	48.0909	48.09
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	871708	48.3882	48.38
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	317767	52.1731	52.17
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	94094	16.8963	16.89
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	122587	18.2881	18.28
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	106660	18.9343	18.93
56 Tetrachloroethene	164	6.926	6.926	(0.903)	72497	19.2971	19.29
38 Trichloroethene	130	5.207	5.207	(1.049)	100339	19.9185	19.91
5 Vinyl Chloride	62	1.138	1.138	(0.272)	106586	16.9722	16.97



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020205.D
Date : 02-FEB-2021 11:06
Client ID: VLCSW-210202
Sample Info: VLCSW-210202;VLCSW-210202;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020207.D Page 1
Report Date: 01-Mar-2021 14:28

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020207.D
Lab Smp Id: VBLKW-210202 Client Smp ID: VBLKW-210202
Inj Date : 02-FEB-2021 11:48
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210202;VBLKW-210202;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

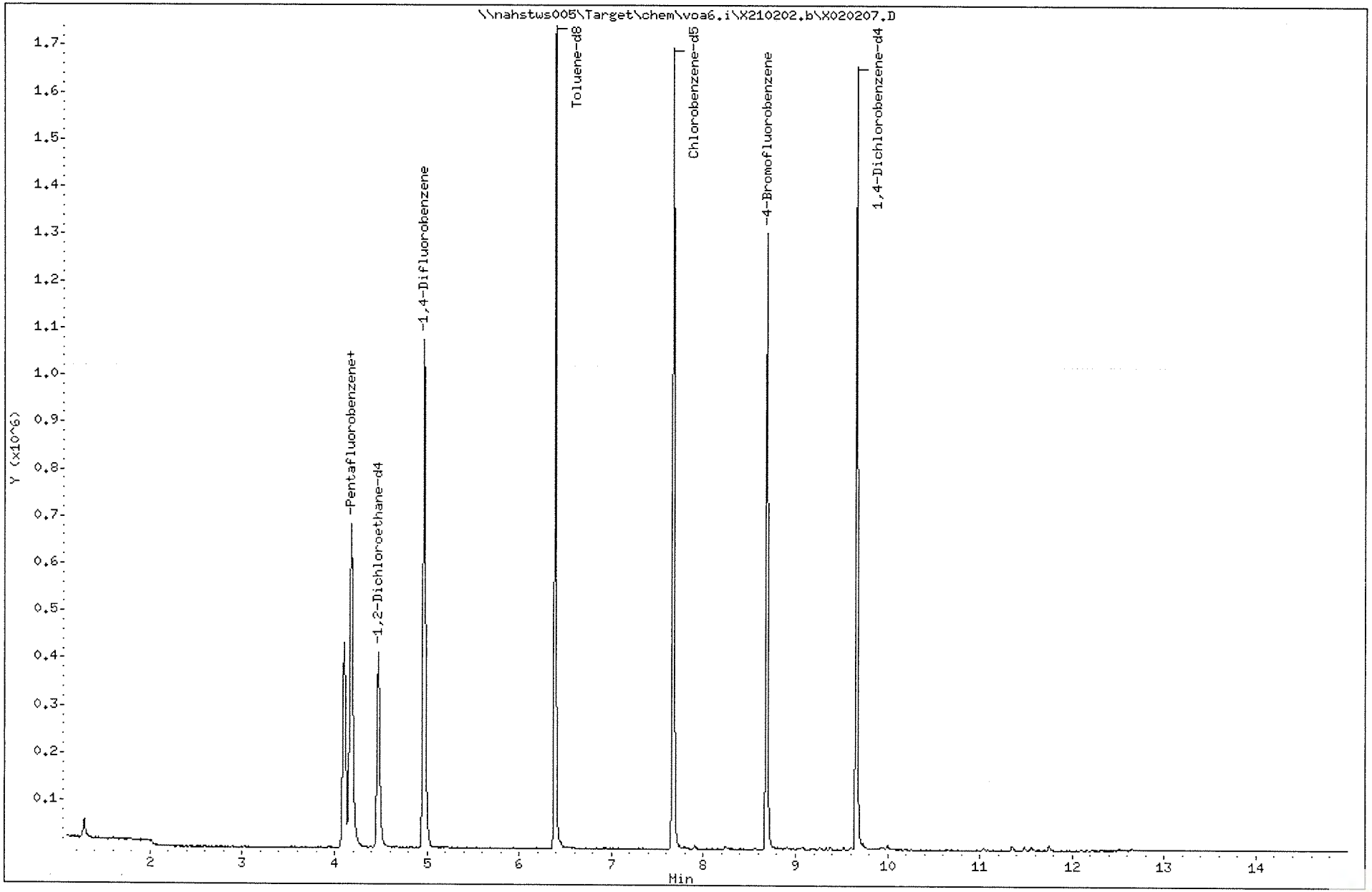
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	553736	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	925793	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	819991	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	361917	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	314666	47.3358	47.33
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	321836	46.5256	46.52
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1095225	51.0555	51.05
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	373074	51.4190	51.41

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020207.D
Date : 02-FEB-2021 11:48
Client ID: VBLKW-210202
Sample Info: VBLKW-210202;VBLKW-210202;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020216.D Page 1
Report Date: 01-Mar-2021 14:28

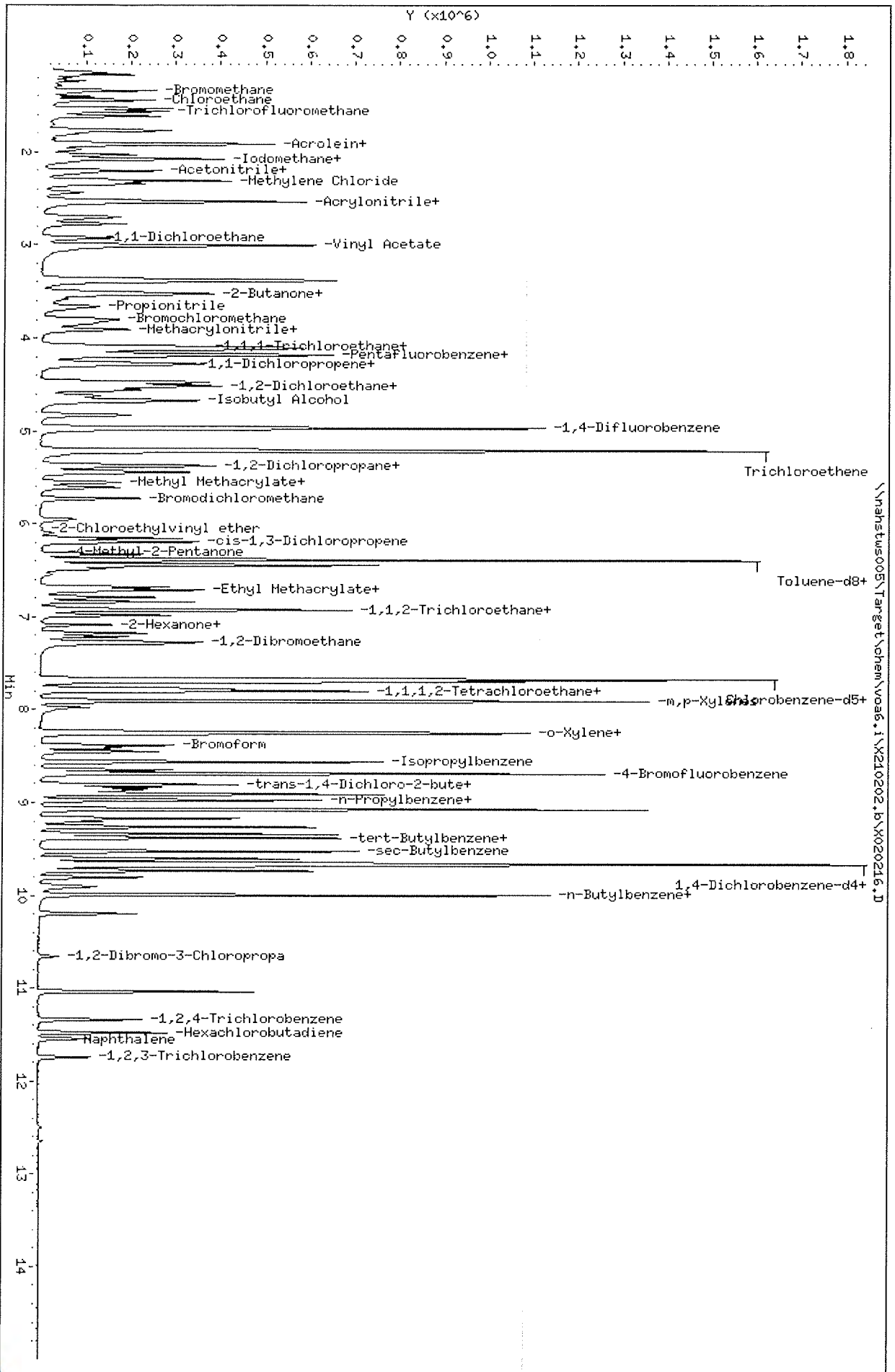
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020216.D
Lab Smp Id: HS21011223-11MS Client Smp ID: HS21011223-11MS
Inj Date : 02-FEB-2021 14:58
Operator : PC Inst ID: voa6.i
Smp Info : HS21011223-11MS;HS21011223-11MS;3;;MS
Misc Info : HS18090001;WATER;0;100;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 16 QC Sample: MS
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	100.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	499145	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	849033	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	765579	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	353323	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	283006	47.2284	47.22
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	291955	46.8313	46.83
$	48 Toluene-d8	98	6.388	6.388	(0.833)	970065	48.4349	48.43
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	345929	51.0559	51.05
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	102524	16.2231	1622.30
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	125098	16.5697	1656.96
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	139054	21.7524	2175.24
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	127011	30.4091	3040.91
	38 Trichloroethene	130	5.207	5.207	(1.049)	522344	92.0626	9206.25
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	87379	12.2609	1226.09



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020216.D
Date : 02-FEB-2021 14:58
Client ID: HS21011223-11MS
Sample Info: HS21011223-11MS;HS21011223-11MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

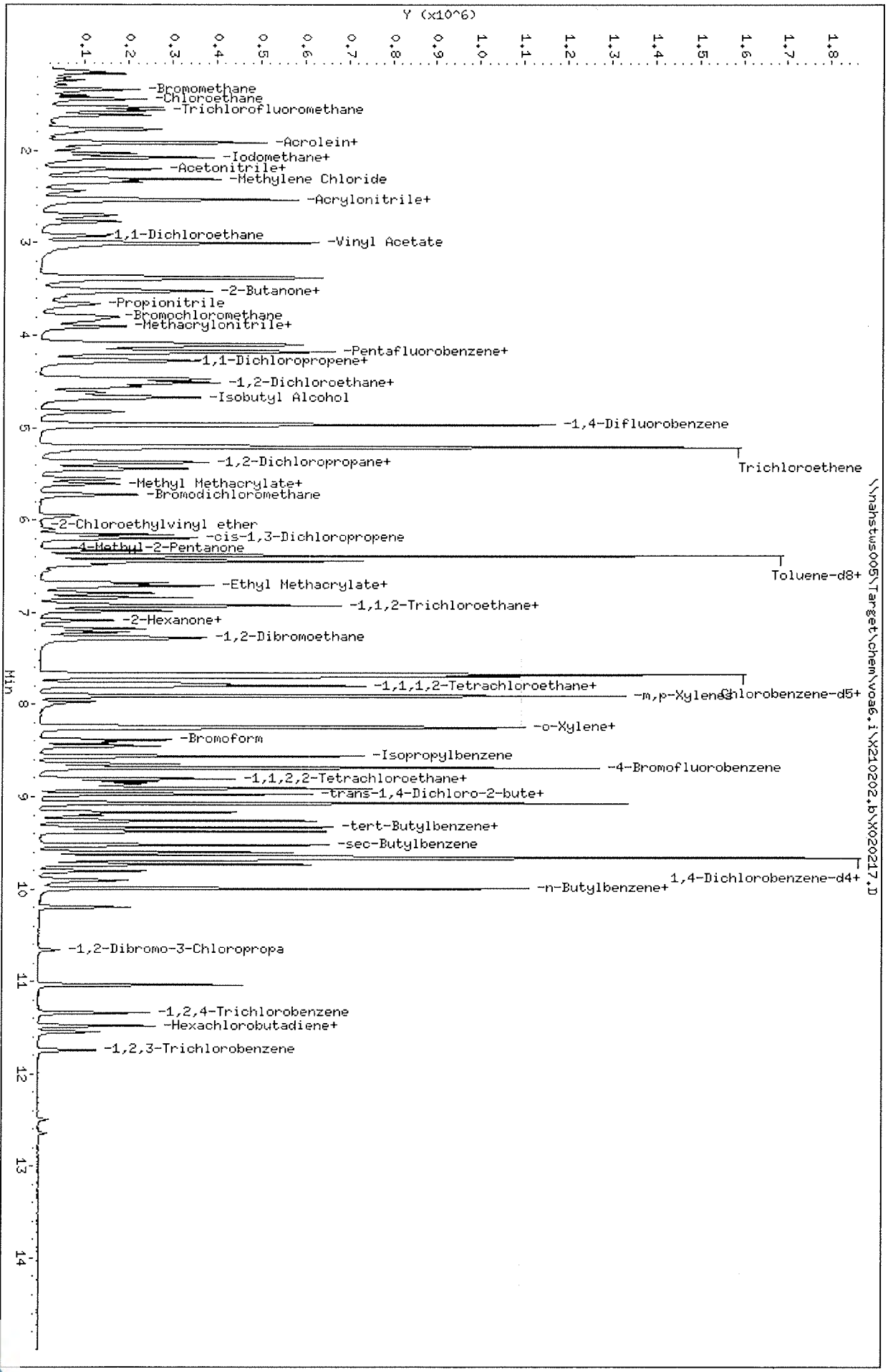
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020217.D
Lab Smp Id: HS21011223-11MSD Client Smp ID: HS21011223-11MSD
Inj Date : 02-FEB-2021 15:19
Operator : PC Inst ID: voa6.i
Smp Info : HS21011223-11MSD;HS21011223-11MSD;3;;MSD
Misc Info : HS18090001;WATER;0;100;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 16 QC Sample: MSD
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	100.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	512778	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	879574	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	772042	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	349384	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	292632	47.5389	47.53
$	35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	293846	45.8517	45.85
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1006123	49.8148	49.81
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	353924	51.8207	51.82
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	101193	15.5867	1558.67
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	130009	16.6222	1662.22
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	138199	21.0439	2104.38
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	122260	29.0266	2902.66
	38 Trichloroethene	130	5.206	5.207	(1.049)	513405	87.3452	8734.51
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	86829	11.8598	1185.98



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020217.D
Date : 02-FEB-2021 15:19
Client ID: HS21011223-11HSD
Sample Info: HS21011223-11HSD;HS21011223-11HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

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

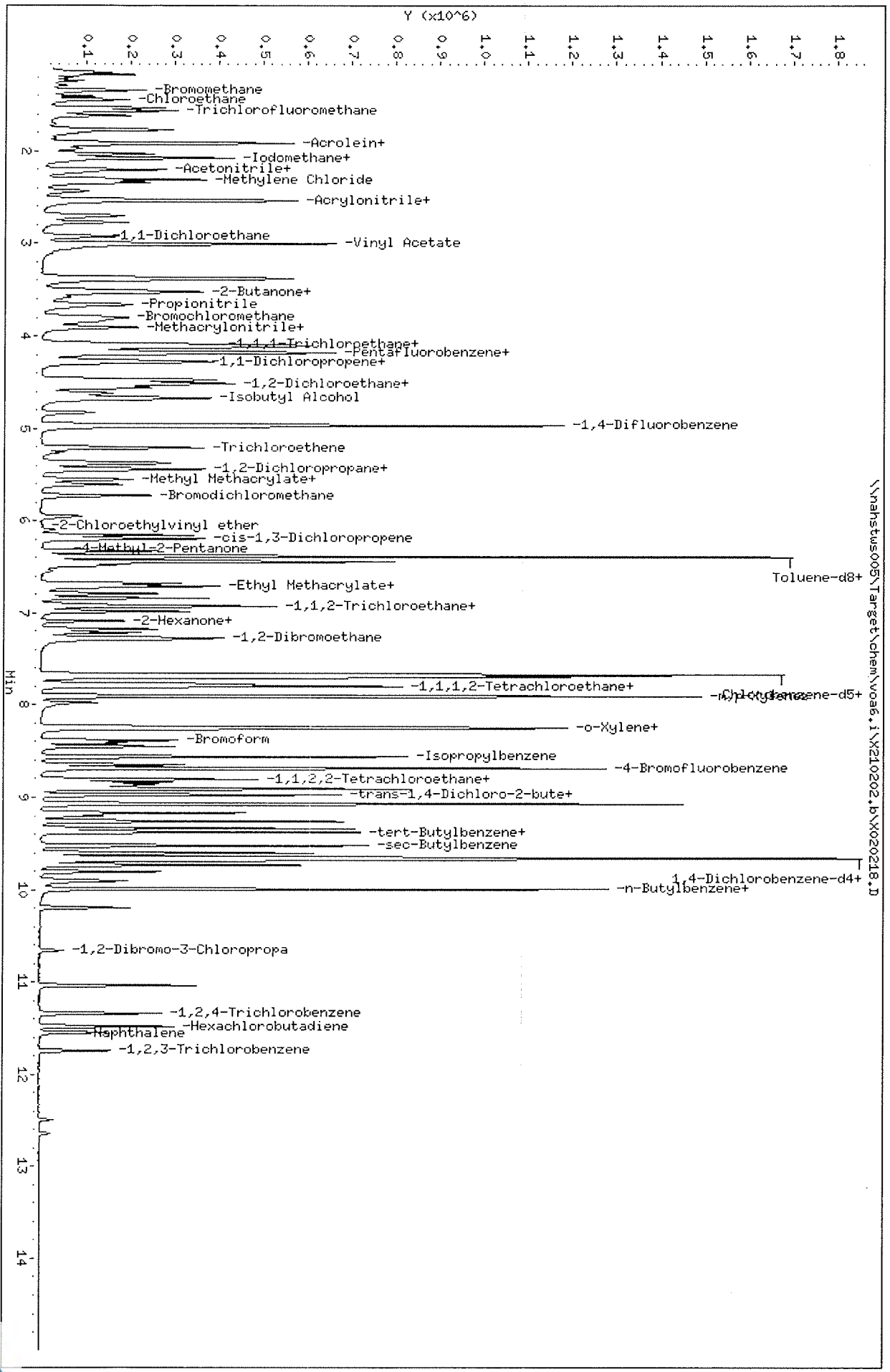
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020218.D
Lab Smp Id: HS21011223-12MS Client Smp ID: HS21011223-12MS
Inj Date : 02-FEB-2021 15:40
Operator : PC Inst ID: voa6.i
Smp Info : HS21011223-12MS;HS21011223-12MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 17 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	514871	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	876784	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	791721	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	352546	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	298194	48.2512	48.25
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	302494	47.0463	47.04
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1026703	49.5702	49.57
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	362623	51.7733	51.77
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	114295	17.5333	17.53
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	142610	18.2913	18.29
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	120025	18.2022	18.20
56 Tetrachloroethene	164	6.926	6.926	(0.903)	95860	22.1931	22.19
38 Trichloroethene	130	5.207	5.207	(1.049)	120892	20.6327	20.63
5 Vinyl Chloride	62	1.138	1.138	(0.272)	92355	12.5633	12.56



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020218.D
Date : 02-FEB-2021 15:40
Client ID: HS21011223-12MS
Sample Info: HS21011223-12MS;HS21011223-12MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

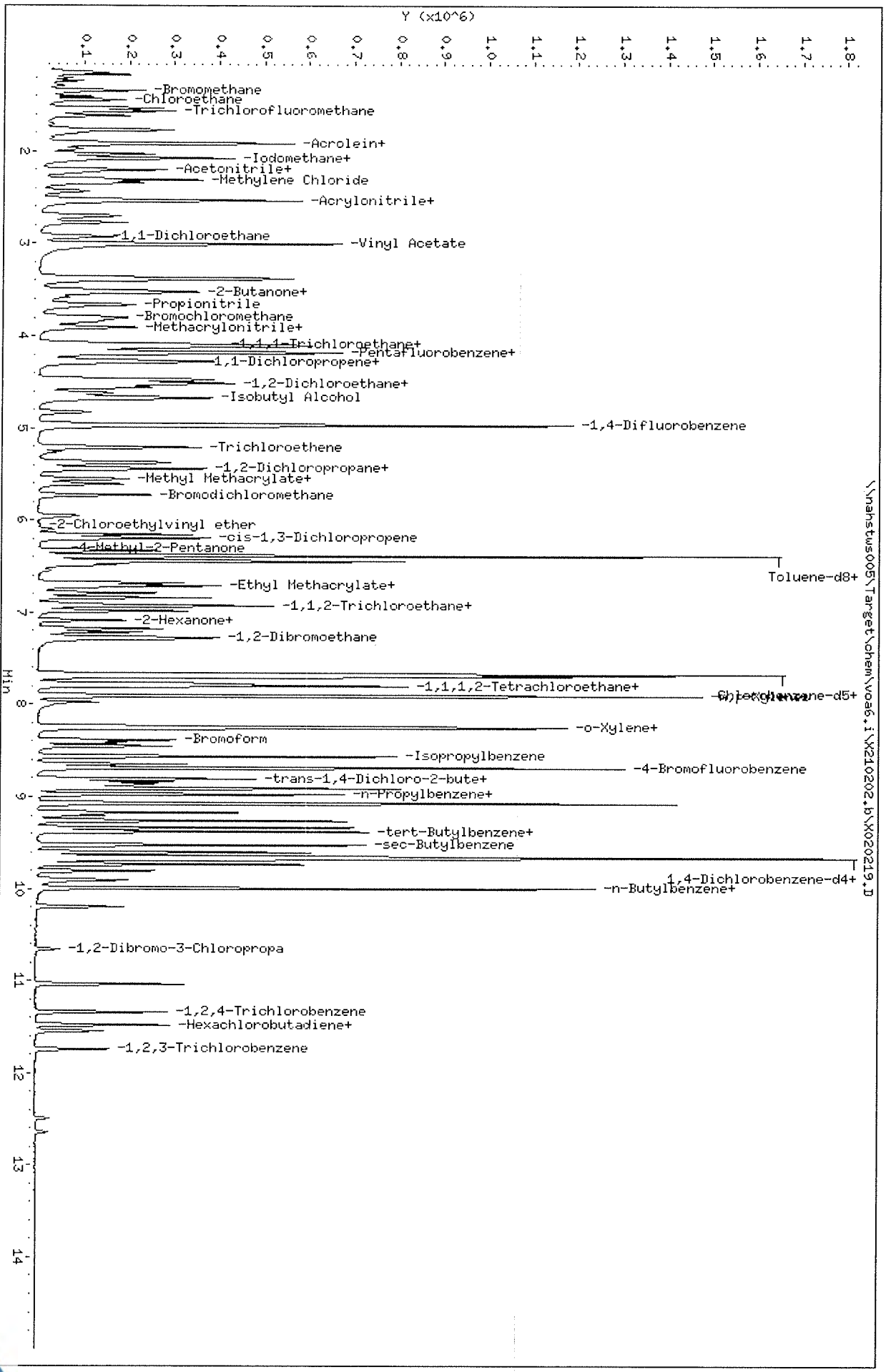
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020219.D
Lab Smp Id: HS21011223-12MSD Client Smp ID: HS21011223-12MSD
Inj Date : 02-FEB-2021 16:01
Operator : PC Inst ID: voa6.i
Smp Info : HS21011223-12MSD;HS21011223-12MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 17 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	519411	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	881194	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	782562	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	345303	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	297709	47.7477	47.74
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	296007	45.5910	45.59
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1020933	49.8685	49.86
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	356351	51.4645	51.46
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	111666	16.9802	16.98
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	141766	18.0921	18.09
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	124799	18.7608	18.76
	56 Tetrachloroethene	164	6.933	6.926	(0.904)	94131	22.0479	22.04
	38 Trichloroethene	130	5.206	5.207	(1.049)	120584	20.4771	20.47
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	89323	12.0447	12.04



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020219.D
Date : 02-FEB-2021 16:01
Client ID: HS21011223-12HSD
Sample Info: HS21011223-12HSD;HS21011223-12HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020229.D Page 1
Report Date: 01-Mar-2021 14:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020229.D
Lab Smp Id: HS21011122-04 Client Smp ID: HS21011122-04
Inj Date : 02-FEB-2021 19:32
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-04;HS21011122-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:15 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

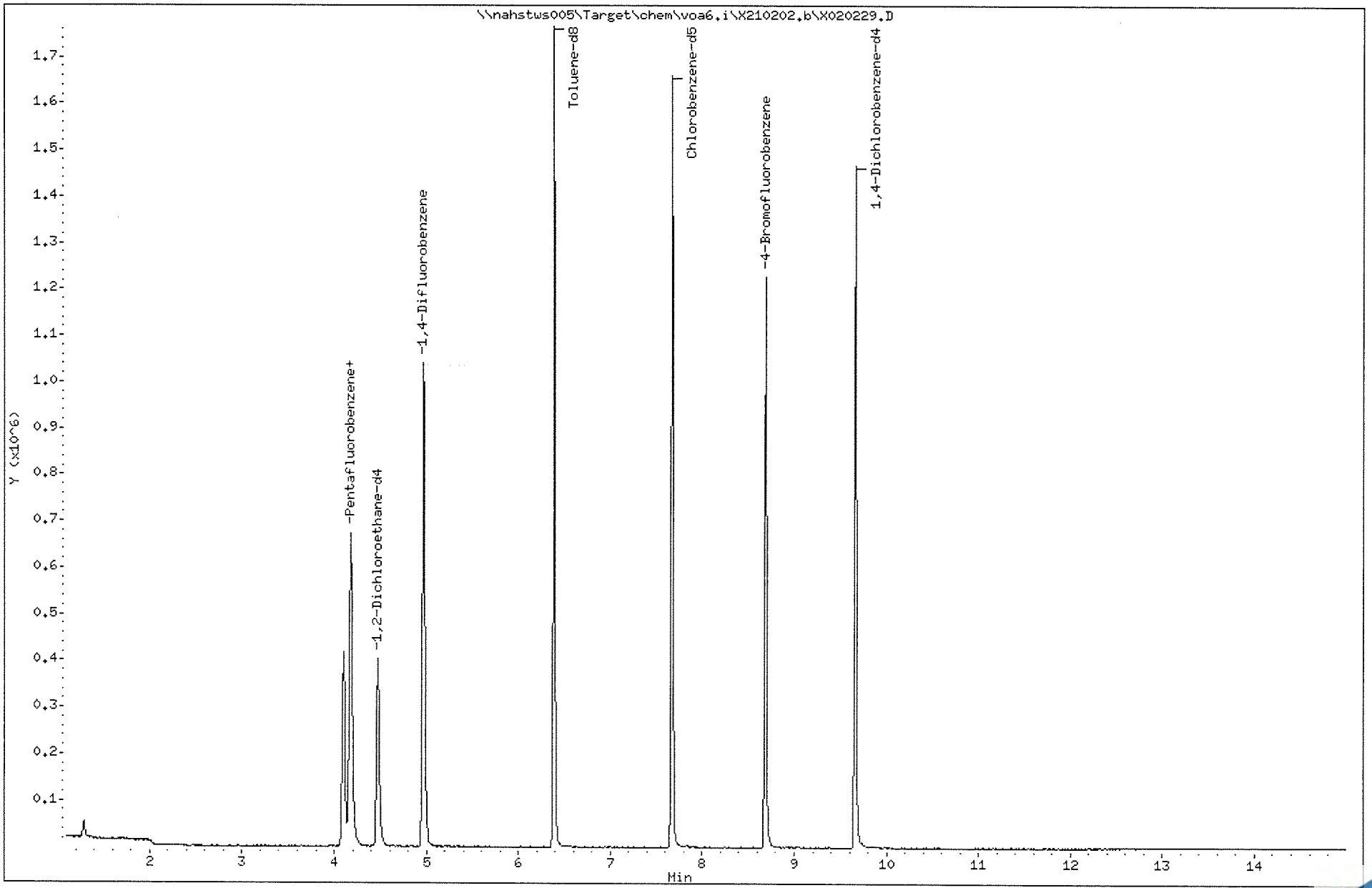
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	529809	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	889031	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	788889	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	326356	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	302190	47.5134	47.51
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	305847	46.2011	46.20
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	1044529	50.6119	50.61
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	352783	50.5133	50.51

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020229.D
Date : 02-FEB-2021 19:32
Client ID: HS21011122-04
Sample Info: HS21011122-04;HS21011122-04;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020230.D Page 1
Report Date: 01-Mar-2021 14:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020230.D
Lab Smp Id: HS21011122-03 Client Smp ID: HS21011122-03
Inj Date : 02-FEB-2021 19:53
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-03;HS21011122-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:15 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 28
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

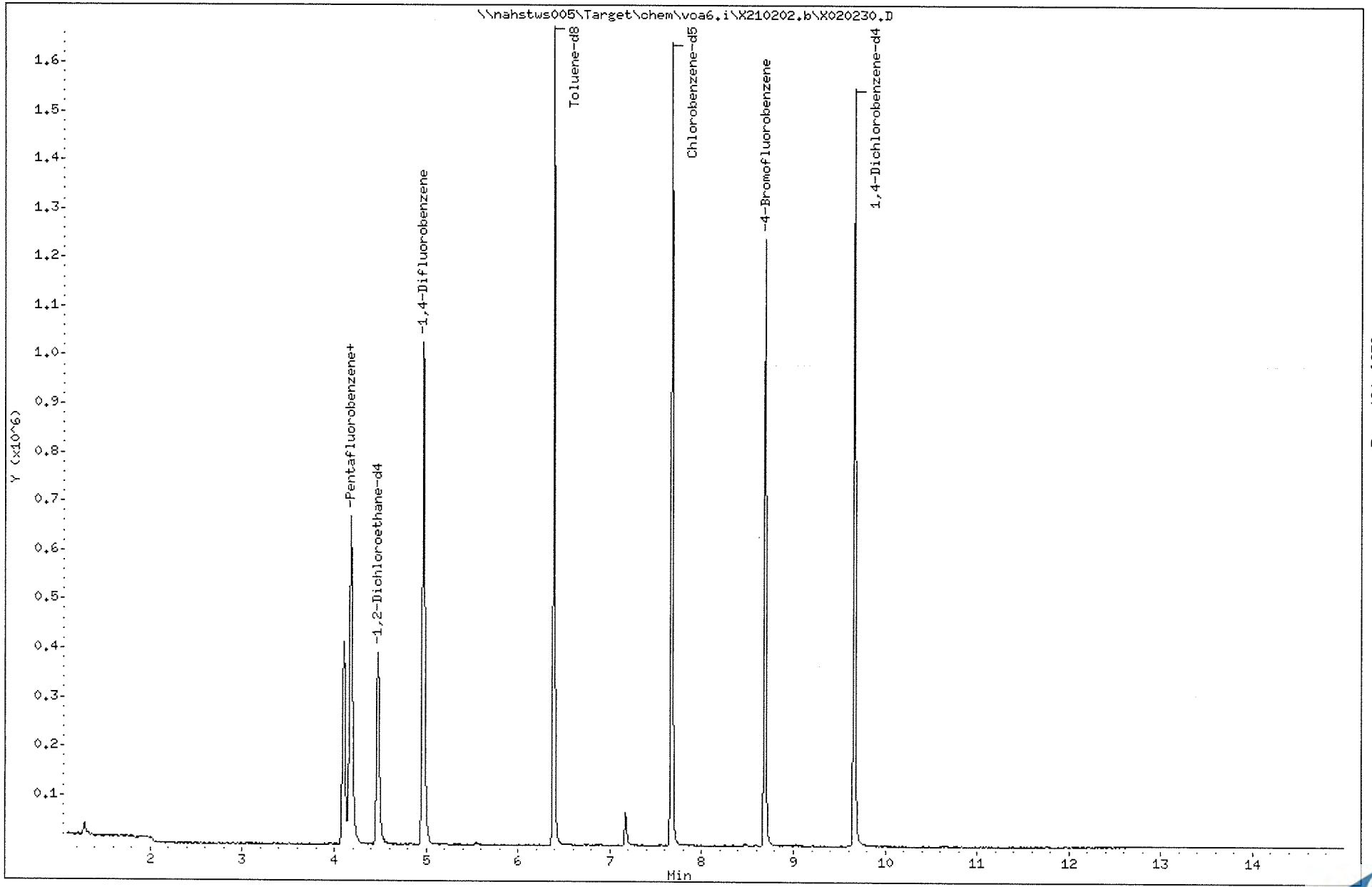
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	513615	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	875418	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	791642	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	344691	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	296289	48.0587	48.05
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	307356	47.9465	47.94
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	1037415	50.0924	50.09
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	358037	51.1046	51.10

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020230.D
Date : 02-FEB-2021 19:53
Client ID: HS21011122-03
Sample Info: HS21011122-03;HS21011122-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D Page 1
Report Date: 01-Mar-2021 14:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D
Lab Smp Id: HS21011122-02 Client Smp ID: HS21011122-02
Inj Date : 02-FEB-2021 20:14
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-02;HS21011122-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:15 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 29
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

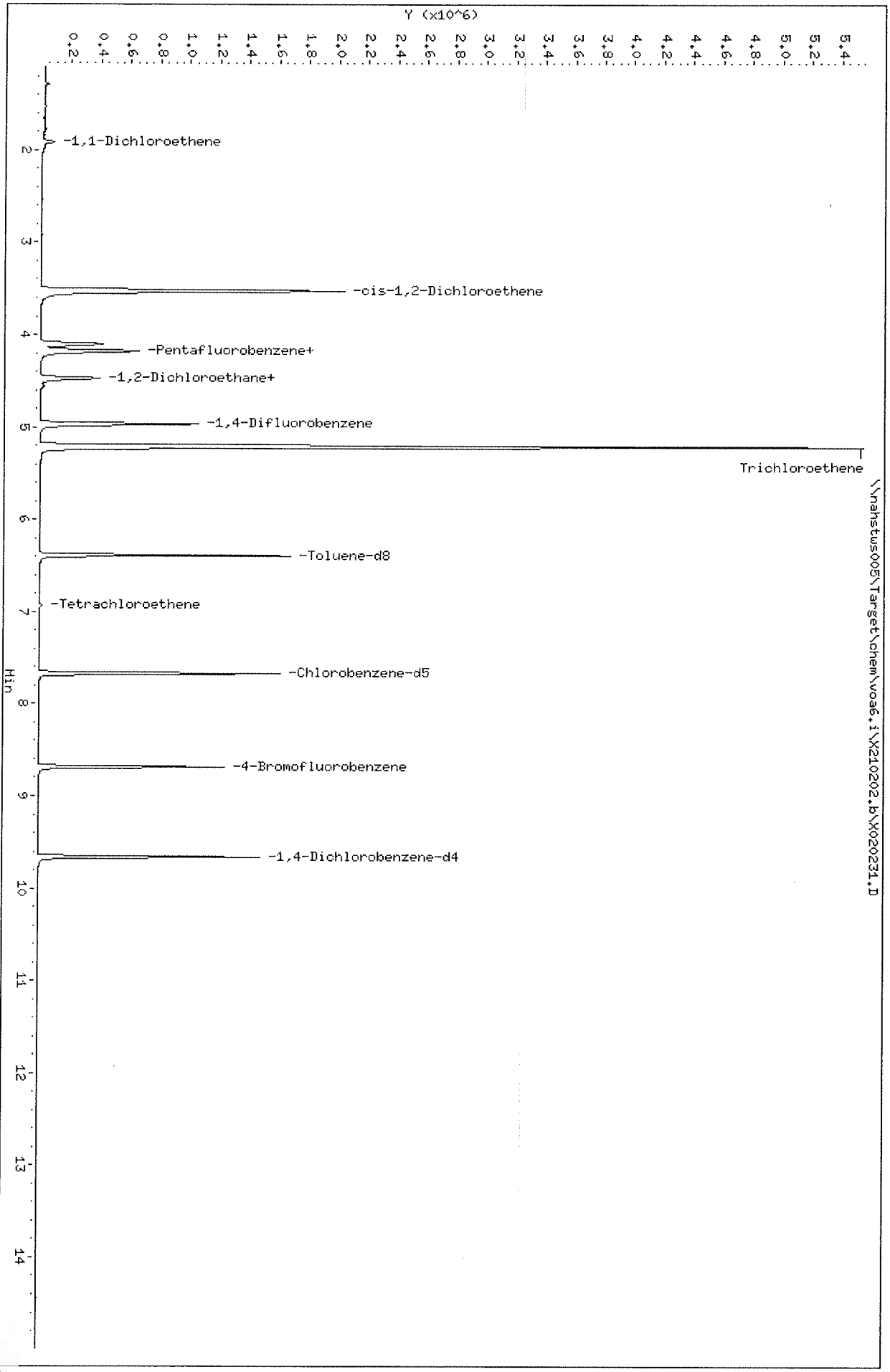
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	527094	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	902111	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	780179	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	333413	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	306963	48.5204	48.52
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.068)	313283	47.6114	47.61
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	1012718	49.6183	49.61
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	351593	50.9168	50.91
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	29230	4.38001	4.38(a)
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	16016	1.99656	1.99(a)
27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	1090433	161.533	161.53
56 Tetrachloroethene	164	6.926	6.926	(0.903)	3660	0.85988	0.85(a)
38 Trichloroethene	130	5.207	5.207	(1.049)	1804598	299.345	299.34(A)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D
Date : 02-FEB-2021 20:14
Client ID: HS21011122-02
Sample Info: HS21011122-02;HS21011122-02;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D

Date : 02-FEB-2021 20:14

Client ID: HS21011122-02

Instrument: voa6.i

Sample Info: HS21011122-02;HS21011122-02;;;

Purge Volume: 5.0

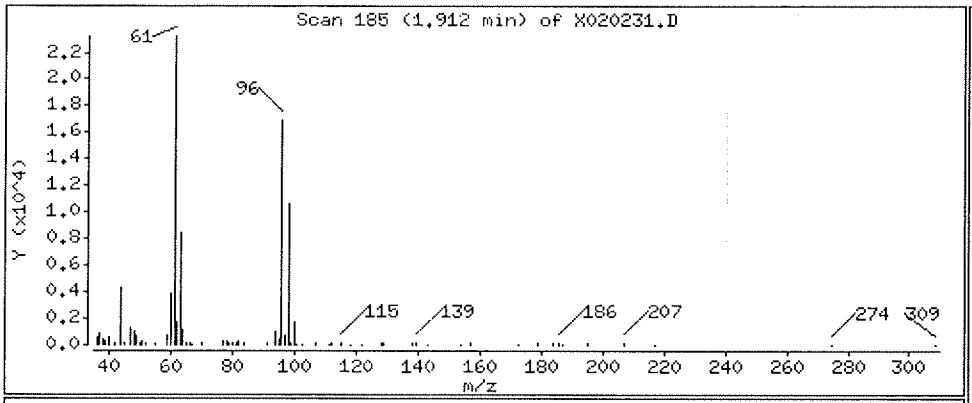
Operator: PC

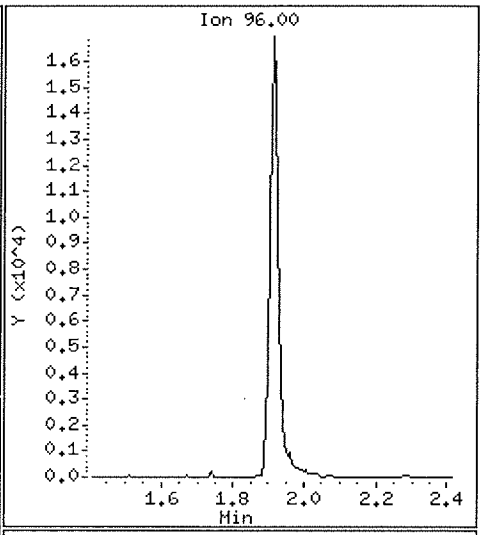
Column phase: DB624

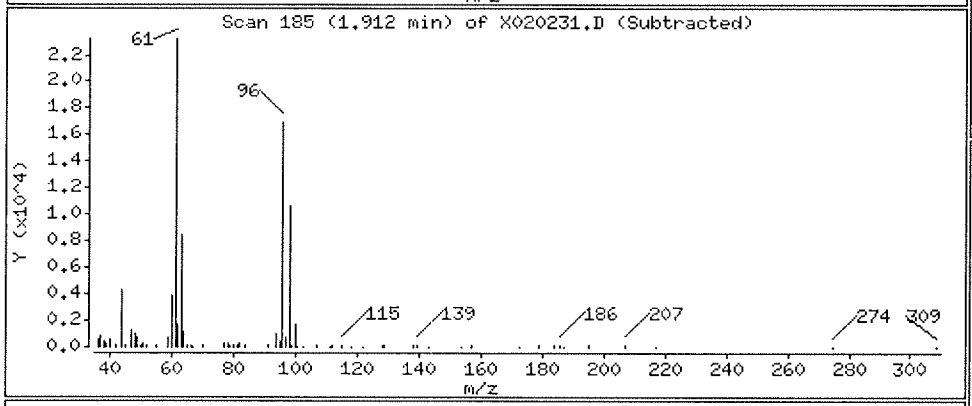
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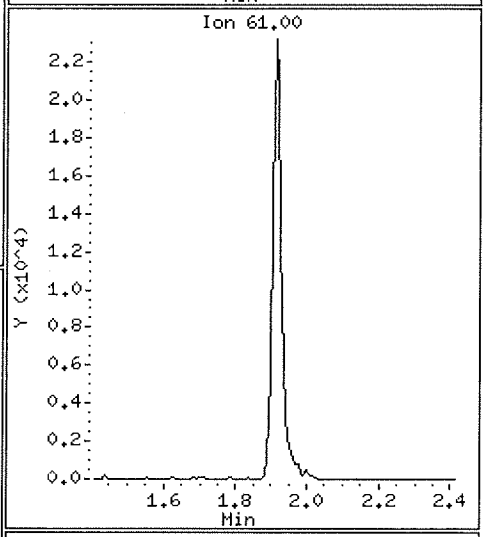
11 1,1-Dichloroethene

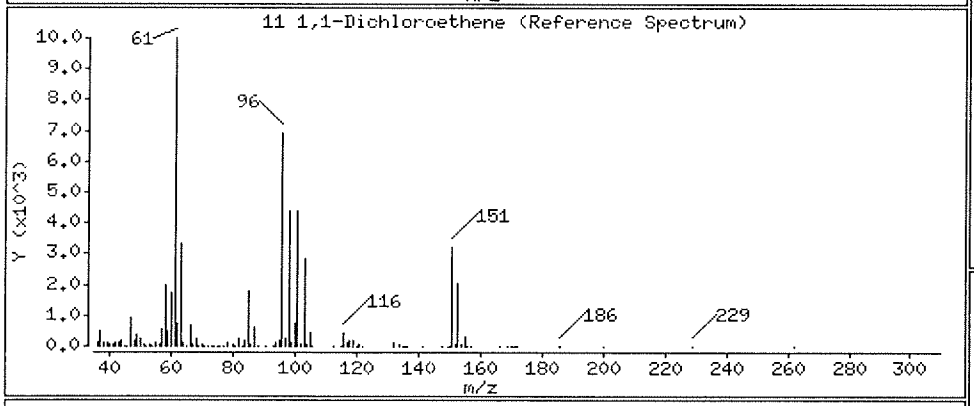
Concentration: 4.38 ug/l

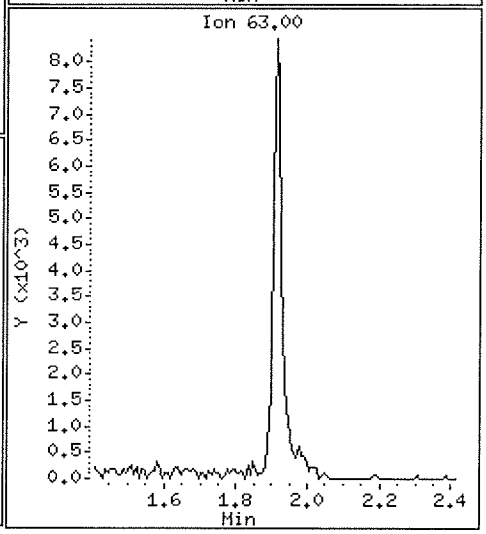


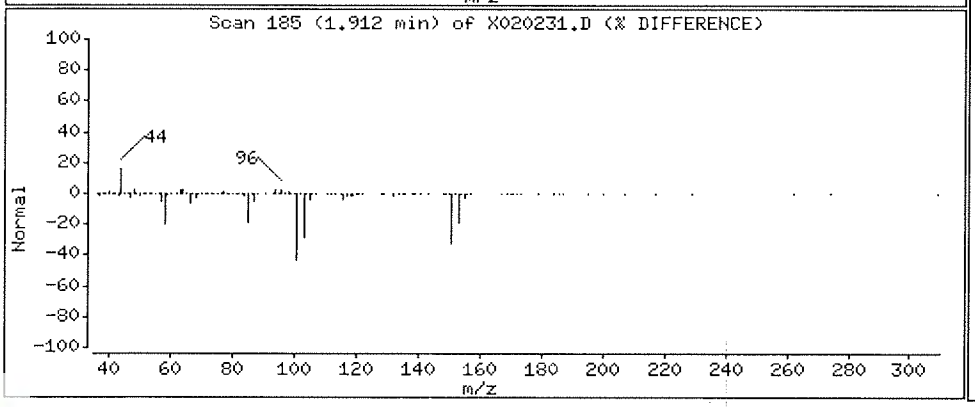












Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D

Date : 02-FEB-2021 20:14

Client ID: HS21011122-02

Instrument: voa6.i

Sample Info: HS21011122-02;HS21011122-02;;;

Purge Volume: 5.0

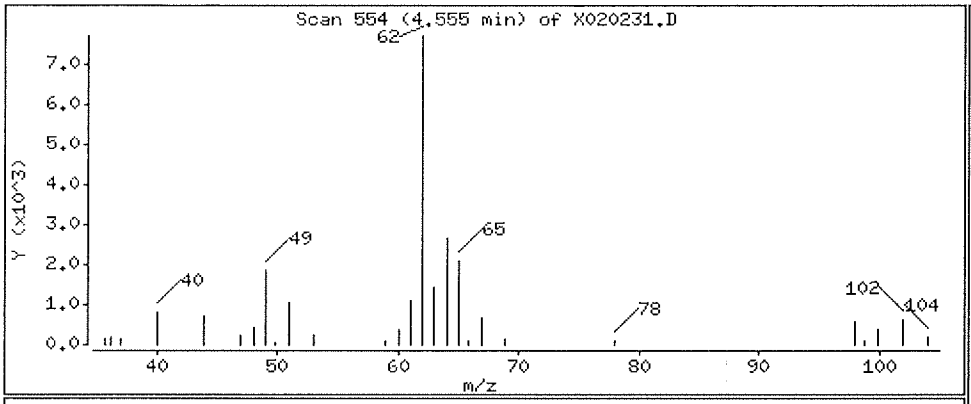
Operator: PC

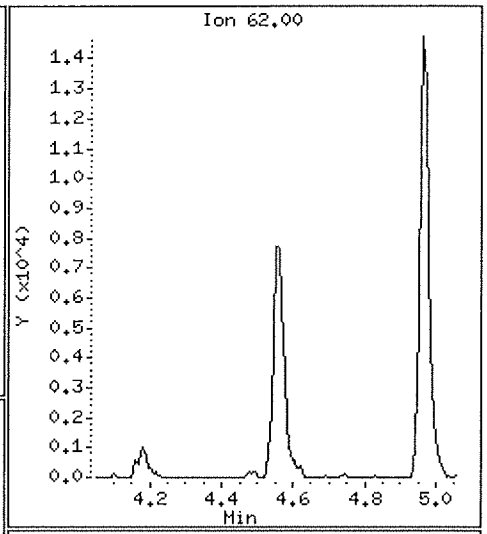
Column phase: DB624

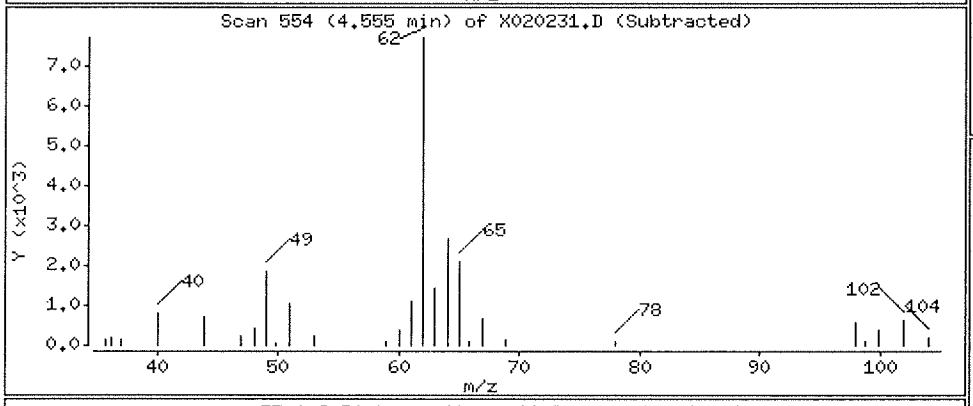
Column diameter: 0.18

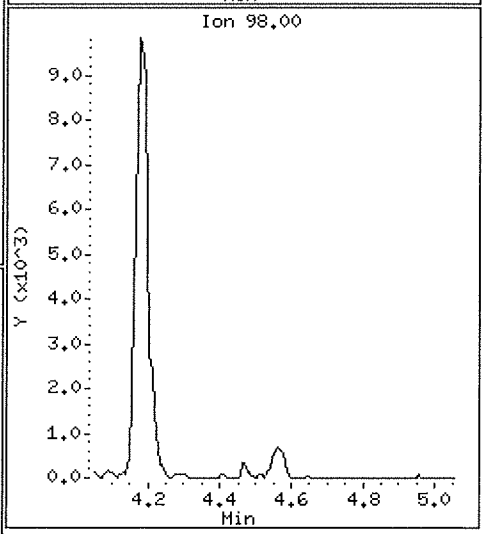
33 1,2-Dichloroethane

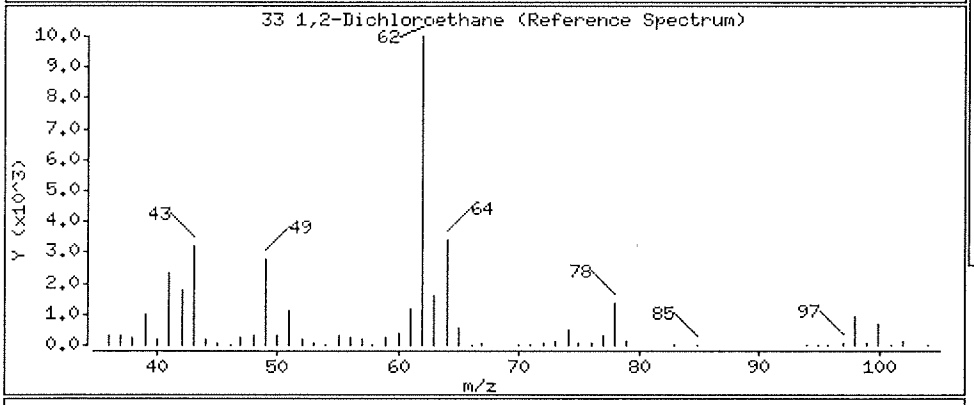
Concentration: 1.99 ug/l

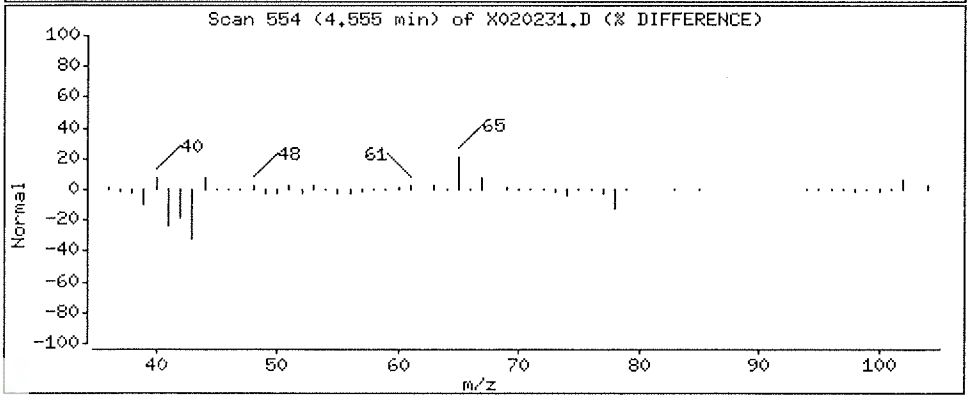












Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D Page 5

Date : 02-FEB-2021 20:14

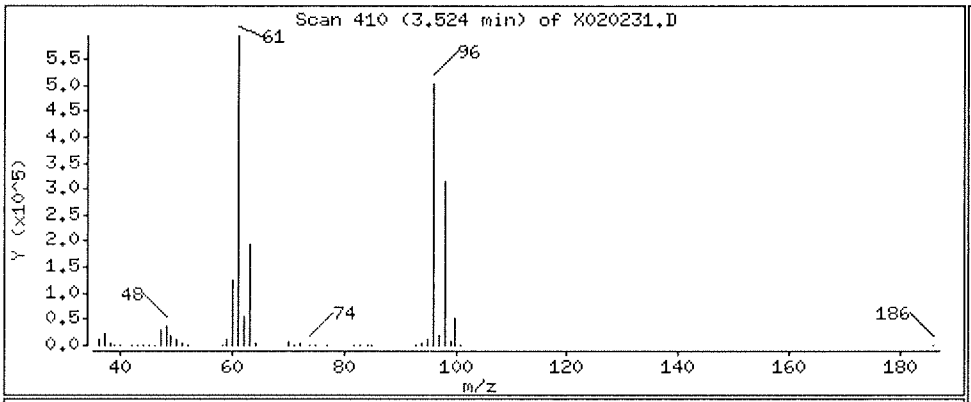
Client ID: HS21011122-02 Instrument: voa6.i

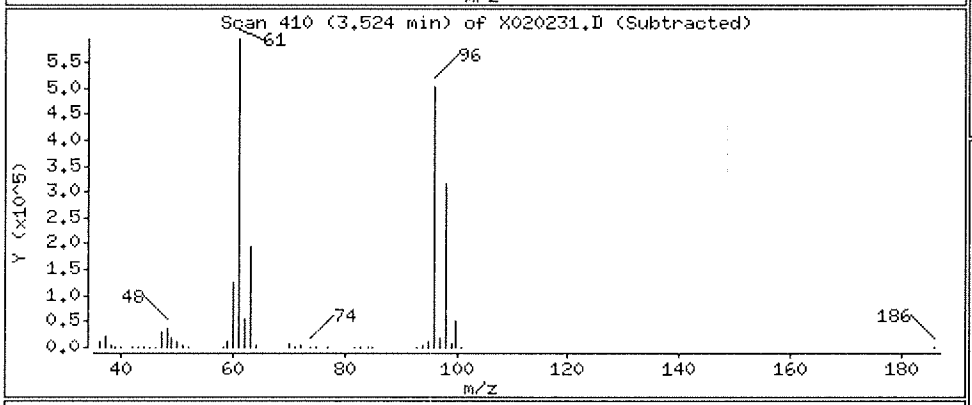
Sample Info: HS21011122-02;HS21011122-02;;;

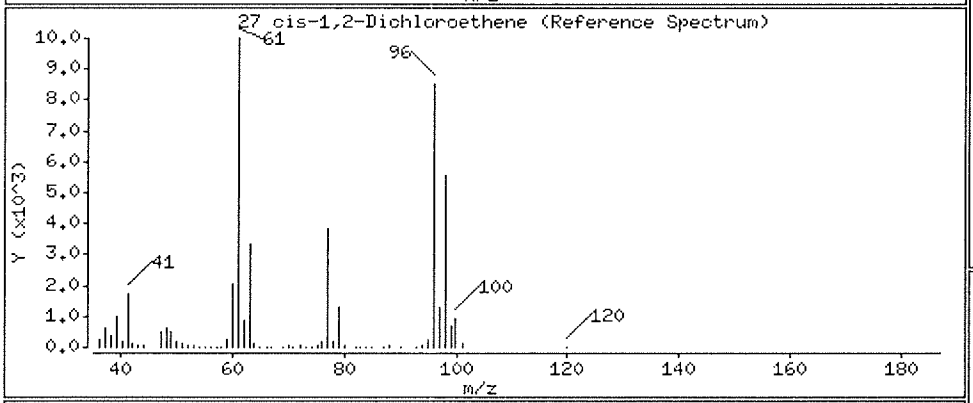
Purge Volume: 5.0 Operator: PC

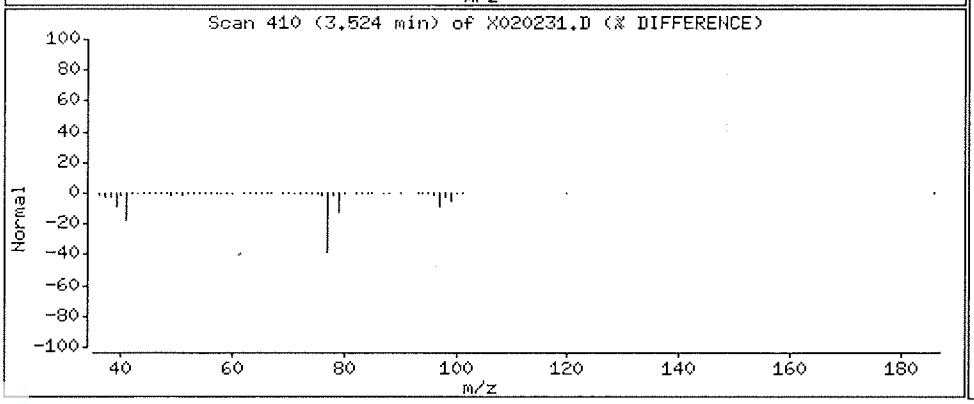
Column phase: DB624 Column diameter: 0.18

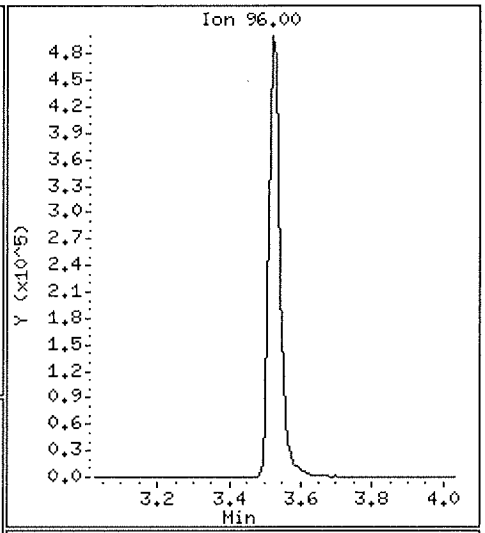
27 cis-1,2-Dichloroethene Concentration: 161.53 ug/l

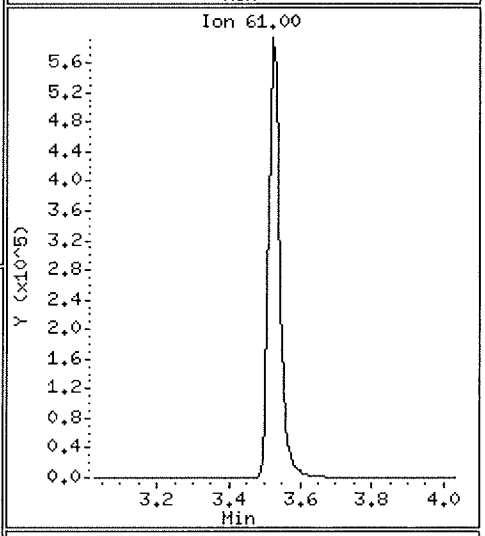


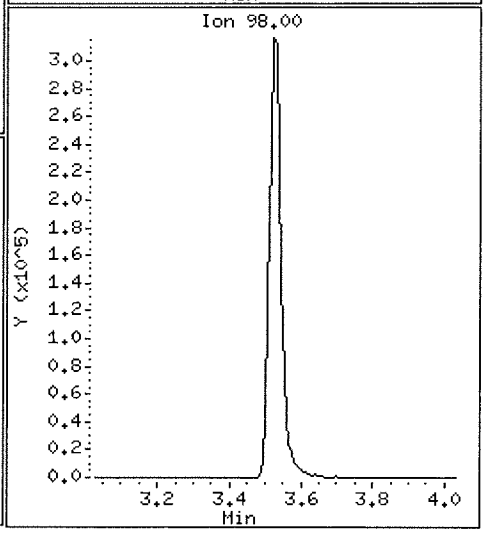












Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D Page 6

Date : 02-FEB-2021 20:14

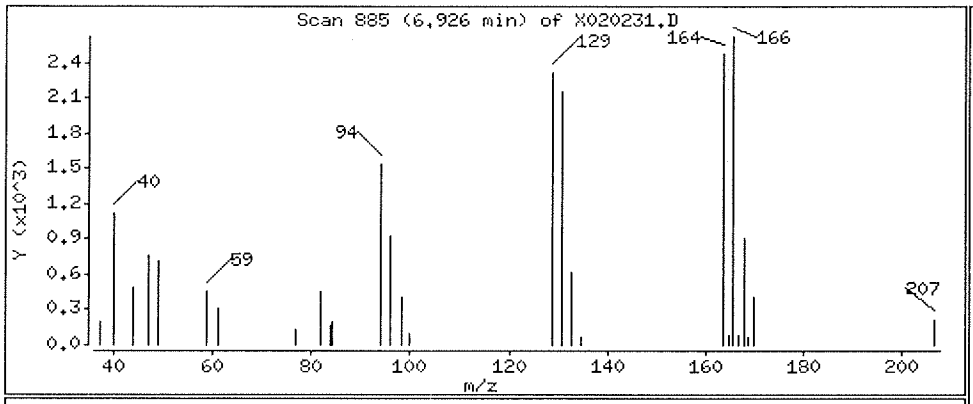
Client ID: HS21011122-02 Instrument: voa6.i

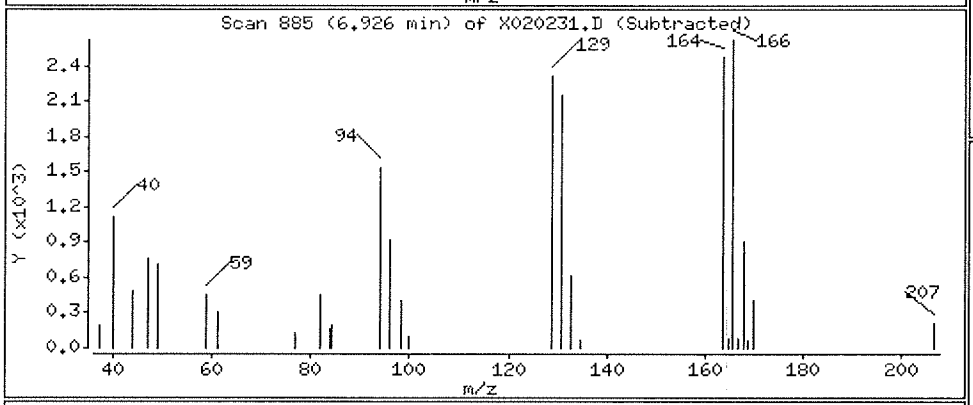
Sample Info: HS21011122-02;HS21011122-02;;;

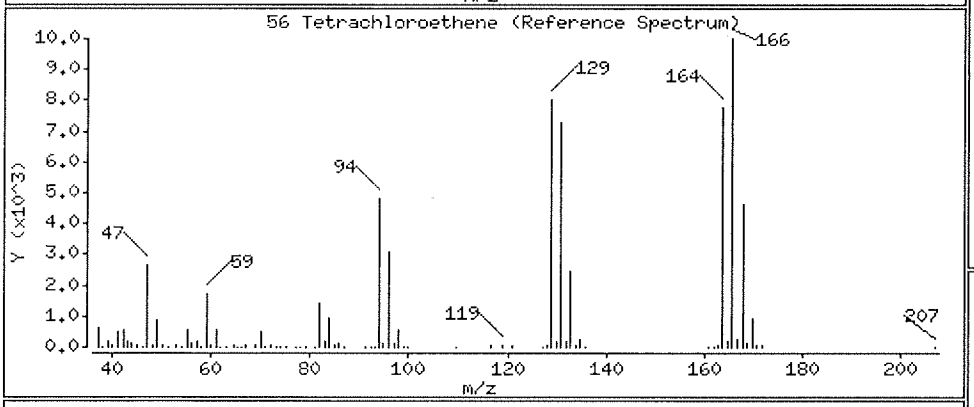
Purge Volume: 5.0 Operator: PC

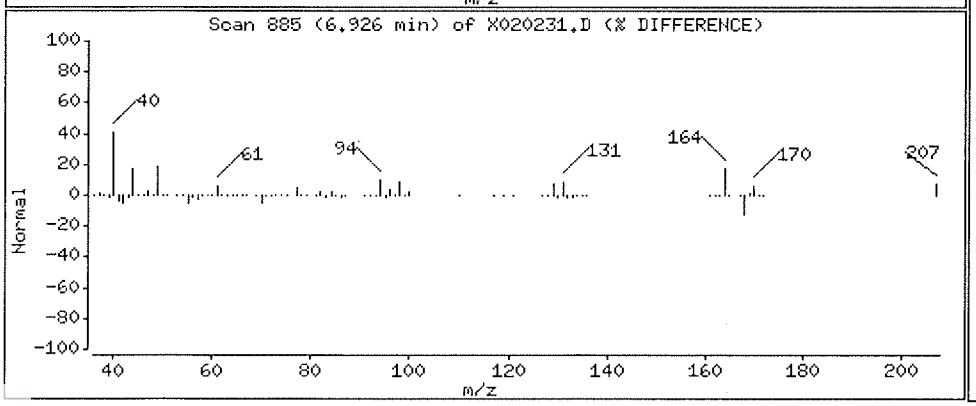
Column phase: DB624 Column diameter: 0.18

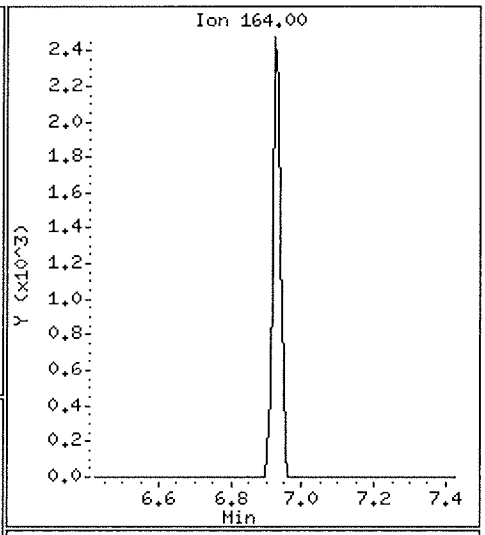
56 Tetrachloroethene Concentration: 0.85 ug/l

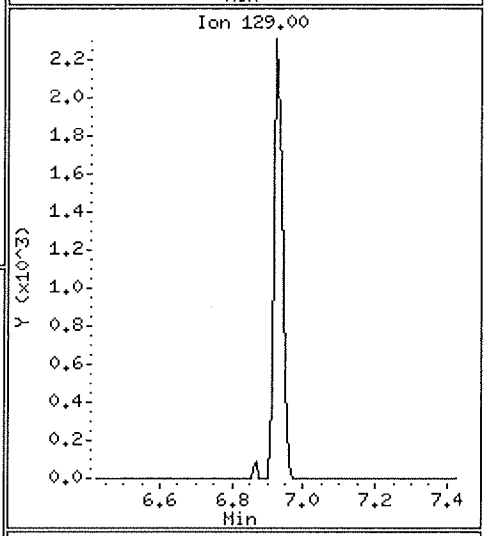


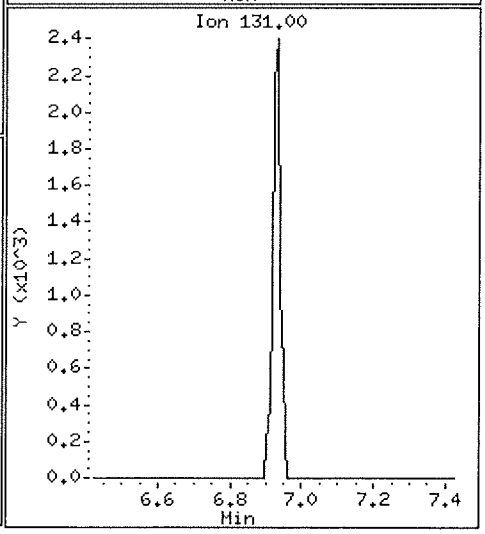












Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\X020231.D Page 7

Date : 02-FEB-2021 20:14

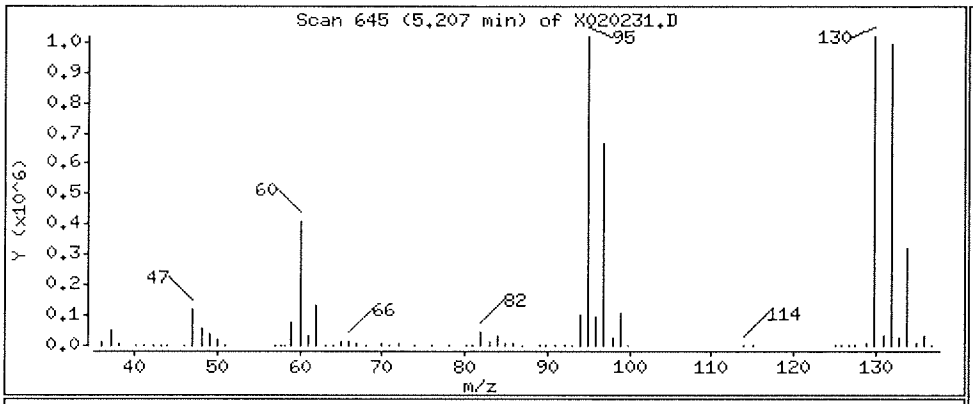
Client ID: HS21011122-02 Instrument: voa6.i

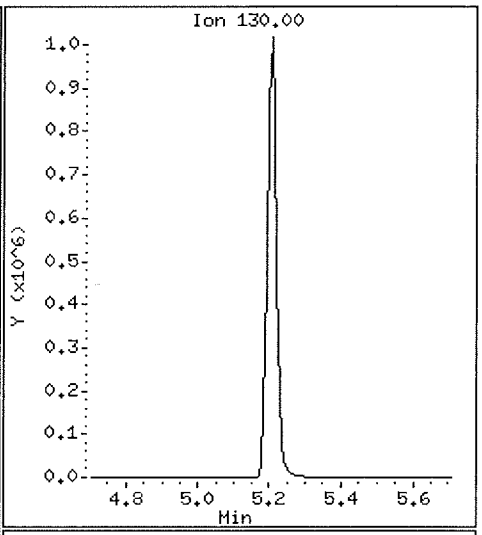
Sample Info: HS21011122-02;HS21011122-02;;;

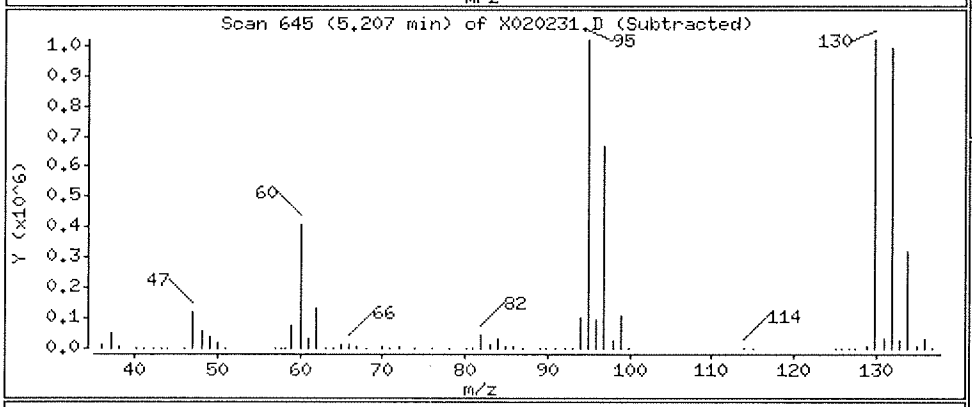
Purge Volume: 5.0 Operator: PC

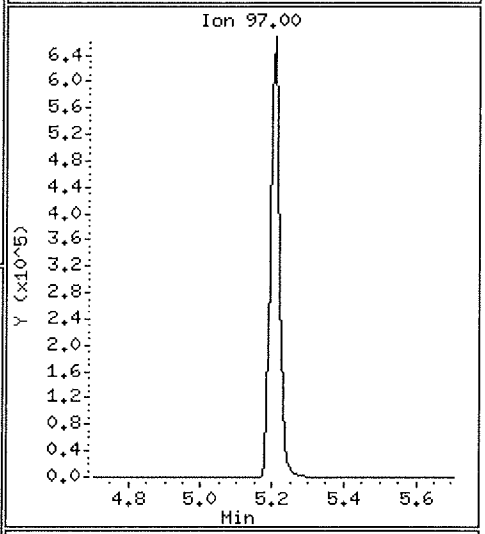
Column phase: DB624 Column diameter: 0.18

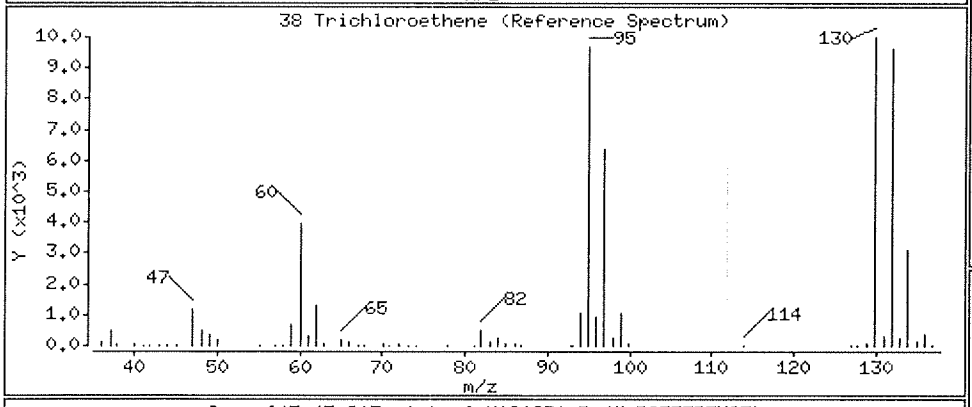
38 Trichloroethene Concentration: 299.34 ug/l

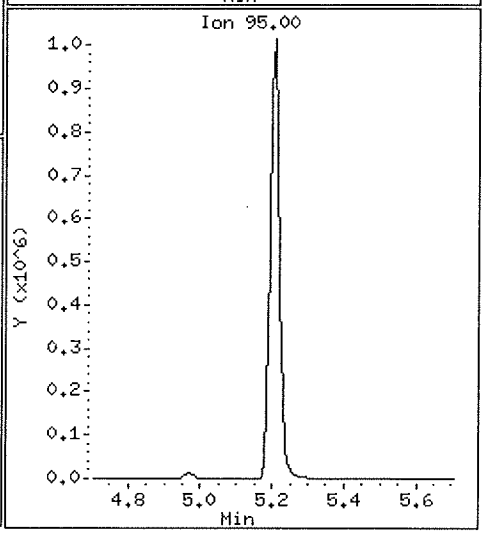


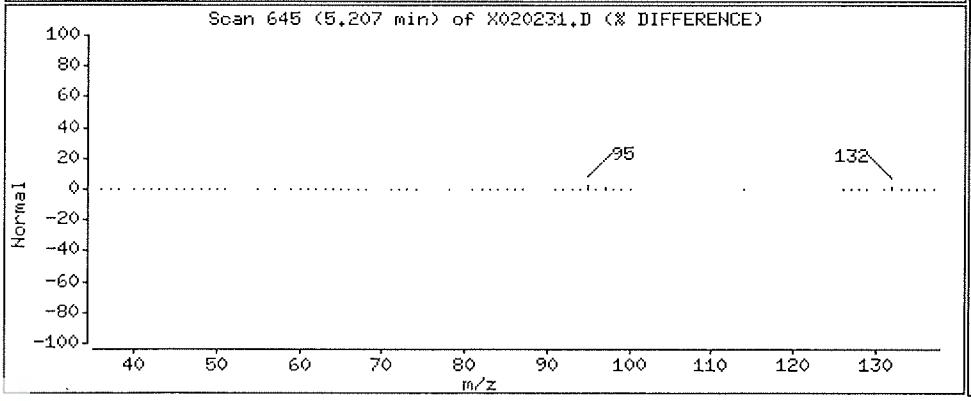












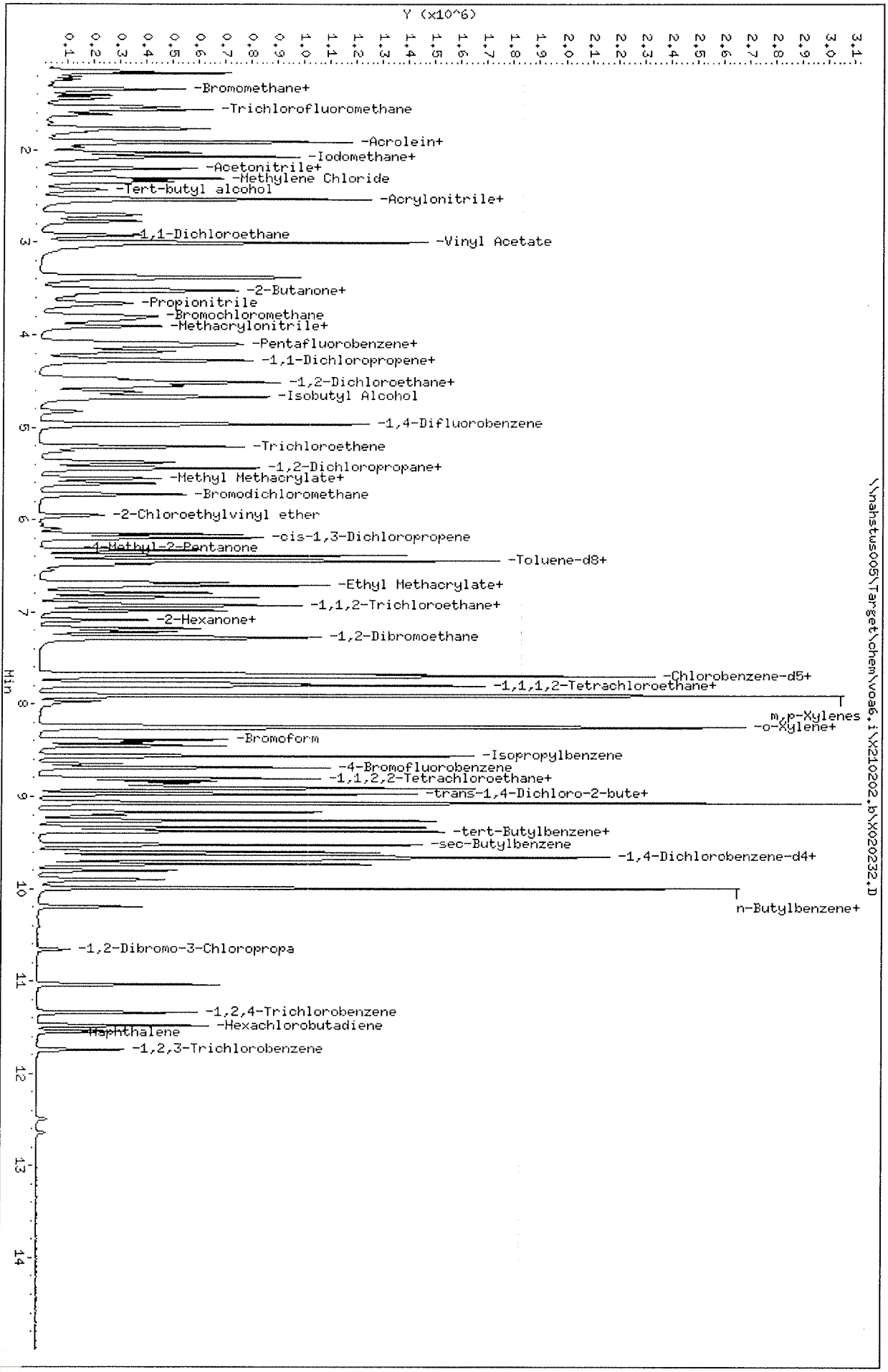
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\X020232.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 02-FEB-2021 20:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	393838	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	708122	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	655288	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	301374	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	252643	50.0000	53.48
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	253670	50.0000	51.71
$	48 Toluene-d8	98	6.388	6.388	(0.833)	838300	50.0000	48.90
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	305754	50.0000	52.77
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	245585	50.0000	49.25
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	307693	50.0000	48.86
	27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	263087	50.0000	52.15
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	185928	50.0000	52.00
	38 Trichloroethene	130	5.206	5.206	(1.049)	253805	50.0000	53.63
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	281691	50.0000	50.09



Data File: \\nahstus005\Target\chem\voa6.i\X210202.b\X020232.D
Date : 02-FEB-2021 20:35
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 43159 **Analyst:** Presenta Cabascango

Date: 02-02-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	02-02-2021 09:42 am	1.00	50 mL	50 mL	X020201.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	02-02-2021 10:03 am	1.00	50 mL	50 mL	X020202a.D	Liquid	N	NA
	10 ul cal std/50ml DI									
3	CCV	CCV	02-02-2021 10:24 am	1.00	50 mL	50 mL	X020203.D	Liquid	Y	NA
	10 ul cal std/50ml DI									
4	CCB	SAMP	02-02-2021 10:45 am	1.00	50 mL	50 mL	X020204.D	Liquid	Y	NA
	ccb									
5	VLCSW-210202	LCS	02-02-2021 11:06 am	1.00	50 mL	50 mL	X020205.D	Liquid	Y	NA
	4 ul lcs std/50ml DI									
6	BLANK	SAMP	02-02-2021 11:27 am	1.00	50 mL	50 mL	X020206.D	Liquid	Y	NA
	cleanup									
7	VBLKW-210202	MBLK	02-02-2021 11:48 am	1.00	50 mL	50 mL	X020207.D	Liquid	Y	NA
8	HS21011223-17	SAMP	02-02-2021 12:09 pm	1.00	50 mL	50 mL	X020208.D	Liquid	Y	NA
9	HS21011223-15	SAMP	02-02-2021 12:30 pm	1.00	50 mL	50 mL	X020209.D	Liquid	Y	NA
10	HS21011223-16	SAMP	02-02-2021 12:52 pm	1.00	50 mL	50 mL	X020210.D	Liquid	Y	NA
11	HS21011223-12	SAMP	02-02-2021 01:13 pm	1.00	50 mL	50 mL	X020211.D	Liquid	Y	NA
12	HS21011223-13	SAMP	02-02-2021 01:34 pm	1.00	50 mL	50 mL	X020212.D	Liquid	Y	NA
13	HS21011223-14	SAMP	02-02-2021 01:55 pm	1.00	50 mL	50 mL	X020213.D	Liquid	Y	NA
14	HS21011223-11	SAMP	02-02-2021 02:16 pm	100.0(	500 µL	50 mL	X020214.D	Liquid	Y	NA
15	HS21011223-11	SAMP	02-02-2021 02:37 pm	10.00	5 mL	50 mL	X020215.D	Liquid	Y	NA
16	HS21011223-11MS	MS	02-02-2021 02:58 pm	100.0(	500 µL	50 mL	X020216.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
17	HS21011223-11MSD	MSD	02-02-2021 03:19 pm	100.0(	500 µL	50 mL	X020217.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
18	HS21011223-12MS	MS	02-02-2021 03:40 pm	1.00	50 mL	50 mL	X020218.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
19	HS21011223-12MSD	MSD	02-02-2021 04:01 pm	1.00	50 mL	50 mL	X020219.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
20	HS21011222-16	SAMP	02-02-2021 04:22 pm	10.00	5 mL	50 mL	X020220.D	Liquid	Y	NA
21	HS21011222-15	SAMP	02-02-2021 04:43 pm	20.00	2.5 mL	50 mL	X020221.D	Liquid	Y	NA
22	HS21011223-06	SAMP	02-02-2021 05:04 pm	10.00	5 mL	50 mL	X020222.D	Liquid	Y	NA
23	HS21020050-14	SAMP	02-02-2021 05:25 pm	1.00	50 mL	50 mL	X020223.D	Liquid	Y	NA
24	HS21020050-15	SAMP	02-02-2021 05:46 pm	1.00	50 mL	50 mL	X020224.D	Liquid	Y	NA
25	HS21020050-21	SAMP	02-02-2021 06:08 pm	1.00	50 mL	50 mL	X020225.D	Liquid	Y	NA
26	HS21020050-22	SAMP	02-02-2021 06:29 pm	1.00	50 mL	50 mL	X020226.D	Liquid	Y	NA
27	HS21020050-23	SAMP	02-02-2021 06:50 pm	1.00	50 mL	50 mL	X020227.D	Liquid	Y	NA
28	HS21020050-24	SAMP	02-02-2021 07:11 pm	1.00	50 mL	50 mL	X020228.D	Liquid	Y	NA
29	HS21011122-04	SAMP	02-02-2021 07:32 pm	1.00	50 mL	50 mL	X020229.D	Liquid	Y	NA
30	HS21011122-03	SAMP	02-02-2021 07:53 pm	1.00	50 mL	50 mL	X020230.D	Liquid	Y	NA
31	HS21011122-02	SAMP	02-02-2021 08:14 pm	1.00	50 mL	50 mL	X020231.D	Liquid	Y	NA
32	CCV-END	CCV	02-02-2021 08:35 pm	1.00	50 mL	50 mL	X020232.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
33	BFB	TUNE	02-02-2021 08:56 pm	1.00	50 mL	50 mL	Y020201.D	Liquid	Y	NA
	Auto find/purged									
34	CCV	CCV	02-02-2021 09:38 pm	1.00	50 mL	50 mL	Y020203.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
35	CCB	SAMP	02-02-2021 09:59 pm	1.00	50 mL	50 mL	Y020204.D	Liquid	Y	NA
	ccb									
36	VLCSW-210202	LCS	02-02-2021 10:20 pm	1.00	50 mL	50 mL	Y020205.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
37	BLANK	SAMP	02-02-2021 10:41 pm	1.00	50 mL	50 mL	Y020206.D	Liquid	Y	NA
	cleanup									
38	VBLKW-210202	MBLK	02-02-2021 11:02 pm	1.00	50 mL	50 mL	Y020207.D	Liquid	Y	NA
39	HS21011103-01	SAMP	02-02-2021 11:23 pm	1.00	50 mL	50 mL	Y020208.D	Liquid	Y	NA
40	HS21011103-02	SAMP	02-02-2021 11:44 pm	1.00	50 mL	50 mL	Y020209.D	Liquid	Y	NA
41	HS21011103-03	SAMP	02-03-2021 12:05 am	1.00	50 mL	50 mL	Y020210.D	Liquid	Y	NA
42	HS21011103-04	SAMP	02-03-2021 12:26 am	1.00	50 mL	50 mL	Y020211.D	Liquid	Y	NA
43	HS21011103-05	SAMP	02-03-2021 12:47 am	1.00	50 mL	50 mL	Y020212.D	Liquid	Y	NA
44	HS21011103-06	SAMP	02-03-2021 01:08 am	1.00	50 mL	50 mL	Y020213.D	Liquid	Y	NA
45	HS21011103-07	SAMP	02-03-2021 01:29 am	1.00	50 mL	50 mL	Y020214.D	Liquid	Y	NA
46	HS21011103-08	SAMP	02-03-2021 01:50 am	1.00	50 mL	50 mL	Y020215.D	Liquid	Y	NA
47	HS21011122-01	SAMP	02-03-2021 02:11 am	1.00	50 mL	50 mL	Y020216.D	Liquid	Y	NA
48	HS21011103-06MS	MS	02-03-2021 02:33 am	1.00	50 mL	50 mL	Y020217.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
49	HS21011103-06MSD	MSD	02-03-2021 02:54 am	1.00	50 mL	50 mL	Y020218.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
50	HS21011122-01	SAMP	02-03-2021 03:15 am	10.00	5 mL	50 mL	Y020219.D	Liquid	Y	NA
51	HS21011042-01	SAMP	02-03-2021 03:36 am	1.00	50 mL	50 mL	Y020220.D	Liquid	Y	NA
52	HS21011042-05	SAMP	02-03-2021 03:57 am	1.00	50 mL	50 mL	Y020221.D	Liquid	Y	NA
53	HS21011042-06	SAMP	02-03-2021 04:18 am	1.00	50 mL	50 mL	Y020222.D	Liquid	Y	NA
54	HS21011042-07	SAMP	02-03-2021 04:39 am	1.00	50 mL	50 mL	Y020223.D	Liquid	Y	NA
55	HS21011042-03	SAMP	02-03-2021 05:00 am	10.00	5 mL	50 mL	Y020224.D	Liquid	Y	NA
56	HS21011042-03	SAMP	02-03-2021 05:21 am	100.0(	500 µL	50 mL	Y020225.D	Liquid	Y	NA
57	HS21011042-04	SAMP	02-03-2021 05:42 am	10.00	5 mL	50 mL	Y020226.D	Liquid	Y	NA
58	HS21011042-04	SAMP	02-03-2021 06:03 am	100.0(	500 µL	50 mL	Y020227.D	Liquid	Y	NA
59	HS21011042-02	SAMP	02-03-2021 06:24 am	25.00	2 mL	50 mL	Y020228.D	Liquid	Y	NA
60	HS21011042-02	SAMP	02-03-2021 06:45 am	250.0(	200 µL	50 mL	Y020229.D	Liquid	Y	NA
61	CCV-END	CCV	02-03-2021 07:06 am	1.00	50 mL	50 mL	Y020230.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

Chemical	Value
SURR SPK ID	31106-67-06
IS ID	31106-67-06
LCS/MS ID	31106-67-05
CAL STD ID	31106-67-01/02
BFB ID	31106-67-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 #	OTHER (TOL)#	TOT OUT
01	VLCSW-210202	101	103	106	98	0
02	VBLKW-210202	93	95	101	100	0
03	HS21011122-01	96	96	103	100	0
04	HS21011103-06MS	91	95	105	98	0
05	HS21011103-06MSD	91	94	102	98	0
06	HS21011122-01	91	94	100	101	0
07						
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27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210202

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: Y020207 Lab Sample ID: VBLKW-210202

Date Analyzed: 02/02/21 Time Analyzed: 2302

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210202	VLCSW-210202	Y020205	2220
02	HS21011122-01	HS21011122-01	Y020216	0211
03	HS21011103-06MS	HS21011103-06MS	Y020217	0233
04	HS21011103-06MSD	HS21011103-06MSD	Y020218	0254
05	HS21011122-01	HS21011122-01	Y020219	0315
06				
07				
08				
09				
10				
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12				
13				
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29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: Y020201 BFB Injection Date: 02/02/21

Instrument ID: VOA6 BFB Injection Time: 2056

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	16.5
75	30.0 - 60.0% of mass 95	46.4
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.8 (1.3)1
174	Greater than 50.0% of mass 95	64.7
175	5.0 - 9.0% of mass 174	4.9 (7.5)1
176	95.0 - 101.0% of mass 174	63.0 (97.4)1
177	5.0 - 9.0% of mass 176	3.9 (6.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	Y020203	02/02/21	2138
02	VLCSW-210202	VLCSW-210202	Y020205	02/02/21	2220
03	VBLKW-210202	VBLKW-210202	Y020207	02/02/21	2302
04	HS21011122-01	HS21011122-01	Y020216	02/03/21	0211
05	HS21011103-06MS	HS21011103-06MS	Y020217	02/03/21	0233
06	HS21011103-06MSD	HS21011103-06MSD	Y020218	02/03/21	0254
07	HS21011122-01	HS21011122-01	Y020219	02/03/21	0315
08	CCV-END	CCV-END	Y020230	02/03/21	0706
09					
10					
11					
12					
13					
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15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/02/21 Time: 2138

Lab File ID: Y020203 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5496559	0.5496559	0.1	13.17	20.00	AVRG
1,2-Dichloroethane	0.4440000	0.4257919	0.4257919	0.1	4.10	20.00	AVRG
Tetrachloroethene	0.2730000	0.2496213	0.2496213	0.2	8.56	20.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6398275	0.6398275	0.1	0.03	20.00	AVRG
Vinyl Chloride	0.7140000	0.6013217	0.6013217	0.1	15.78	20.00	AVRG
Trichloroethene	0.3340000	0.3374286	0.3374286	0.2	-1.03	20.00	AVRG
1,2-Dichloroethane-d4	51.368743	50.000000	0.6398637	0.1	-2.74	20.00	LINR
Dibromofluoromethane	52.956577	50.000000	0.6352006	0.1	-5.91	20.00	LINR
4-Bromofluorobenzene	51.215478	50.000000	0.4532242	0.1	-2.43	20.00	LINR
Toluene-d8	1.3080000	1.2708220	1.2708220	0.1	2.84	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/03/21 Time: 0706

Lab File ID: Y020230 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5842160	0.5842160	0.1	7.71	50.00	AVRG
1,2-Dichloroethane	0.4440000	0.4170958	0.4170958	0.1	6.06	50.00	AVRG
Tetrachloroethene	0.2730000	0.2499347	0.2499347	0.2	8.45	50.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6713899	0.6713899	0.1	-4.90	50.00	AVRG
Vinyl Chloride	0.7140000	0.6720830	0.6720830	0.1	5.87	50.00	AVRG
Trichloroethene	0.3340000	0.3454866	0.3454866	0.2	-3.44	50.00	AVRG
1,2-Dichloroethane-d4	50.814497	50.000000	0.6331512	0.1	-1.63	50.00	LINR
Dibromofluoromethane	51.409869	50.000000	0.6167802	0.1	-2.82	50.00	LINR
4-Bromofluorobenzene	50.102133	50.000000	0.4436556	0.1	-0.20	50.00	LINR
Toluene-d8	1.3080000	1.2268748	1.2268748	0.1	6.20	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): Y020203 Date Analyzed: 02/02/21

Instrument ID: VOA6 Time Analyzed: 2138

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

		IS1(DCB) AREA	#	RT	#	IS2(DFB) AREA	#	RT	#	IS3(CBZ) AREA	#	RT	#
	12 HOUR STD	281351		9.66		685511		4.96		633704		7.67	
	UPPER LIMIT	562702		10.16		1371022		5.46		1267408		8.17	
	LOWER LIMIT	140676		9.16		342756		4.46		316852		7.17	
	CLIENT SAMPLE NO.												
01	VLCSW-210202	322333		9.66		752325		4.96		694686		7.67	
02	VBLKW-210202	357845		9.66		920739		4.96		828827		7.67	
03	HS21011122-01	314800		9.66		895946		4.96		758419		7.67	
04	HS21011103-06MS	355472		9.66		874297		4.96		792801		7.67	
05	HS21011103-06MSD	372188		9.66		907527		4.96		835020		7.67	
06	HS21011122-01	329624		9.66		893212		4.96		797515		7.67	
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): Y020203 Date Analyzed: 02/02/21

Instrument ID: VOA6 Time Analyzed: 2138

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	387084	4.18				
	UPPER LIMIT	774168	4.68				
	LOWER LIMIT	193542	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-210202	428201	4.18				
02	VBLKW-210202	552747	4.18				
03	HS21011122-01	527221	4.18				
04	HS21011103-06MS	519951	4.18				
05	HS21011103-06MSD	542467	4.18				
06	HS21011122-01	538271	4.18				
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020201.D

Date : 02-FEB-2021 20:56

Client ID: BFB

Instrument: voa6.i

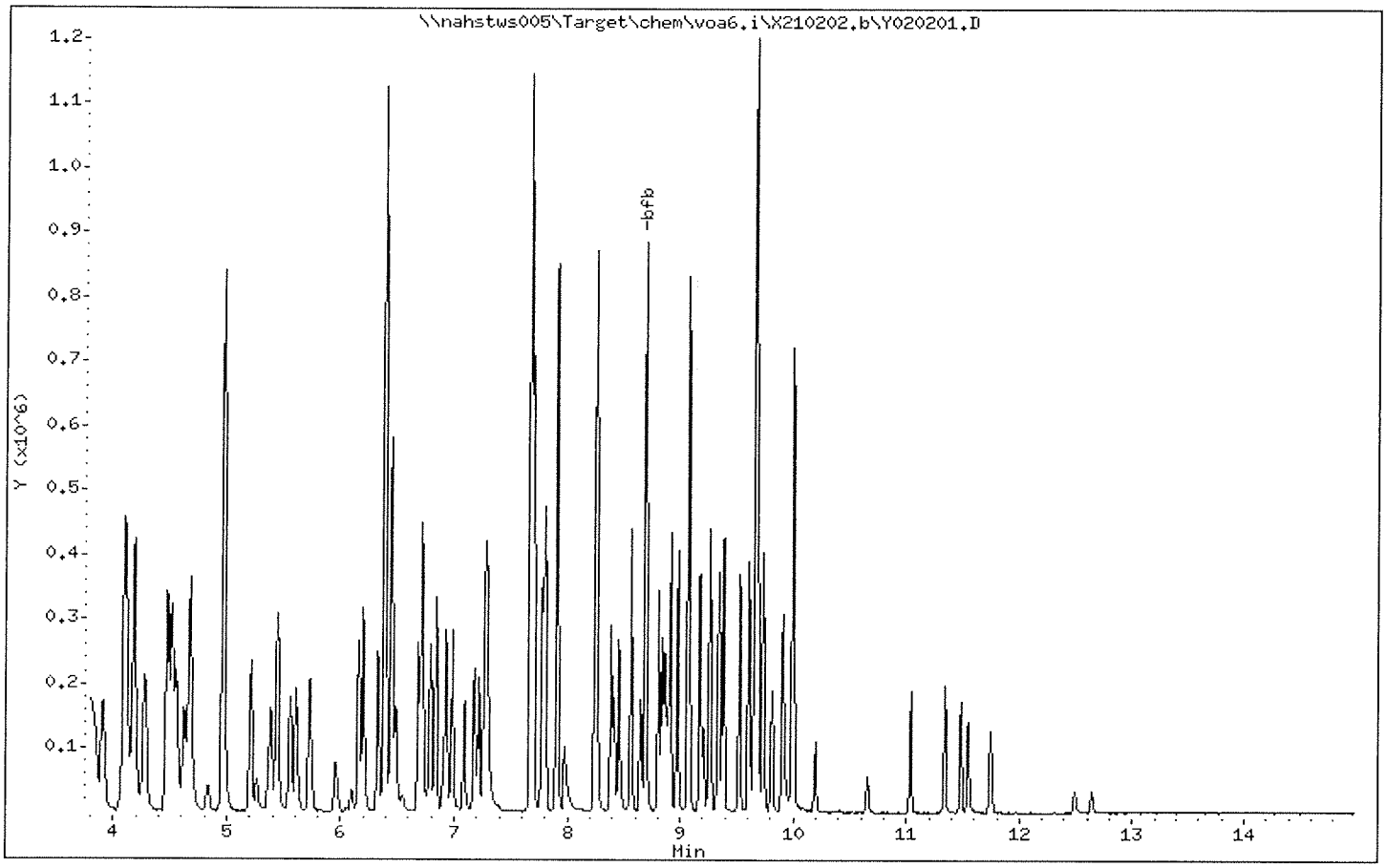
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020201.D

Date : 02-FEB-2021 20:56

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

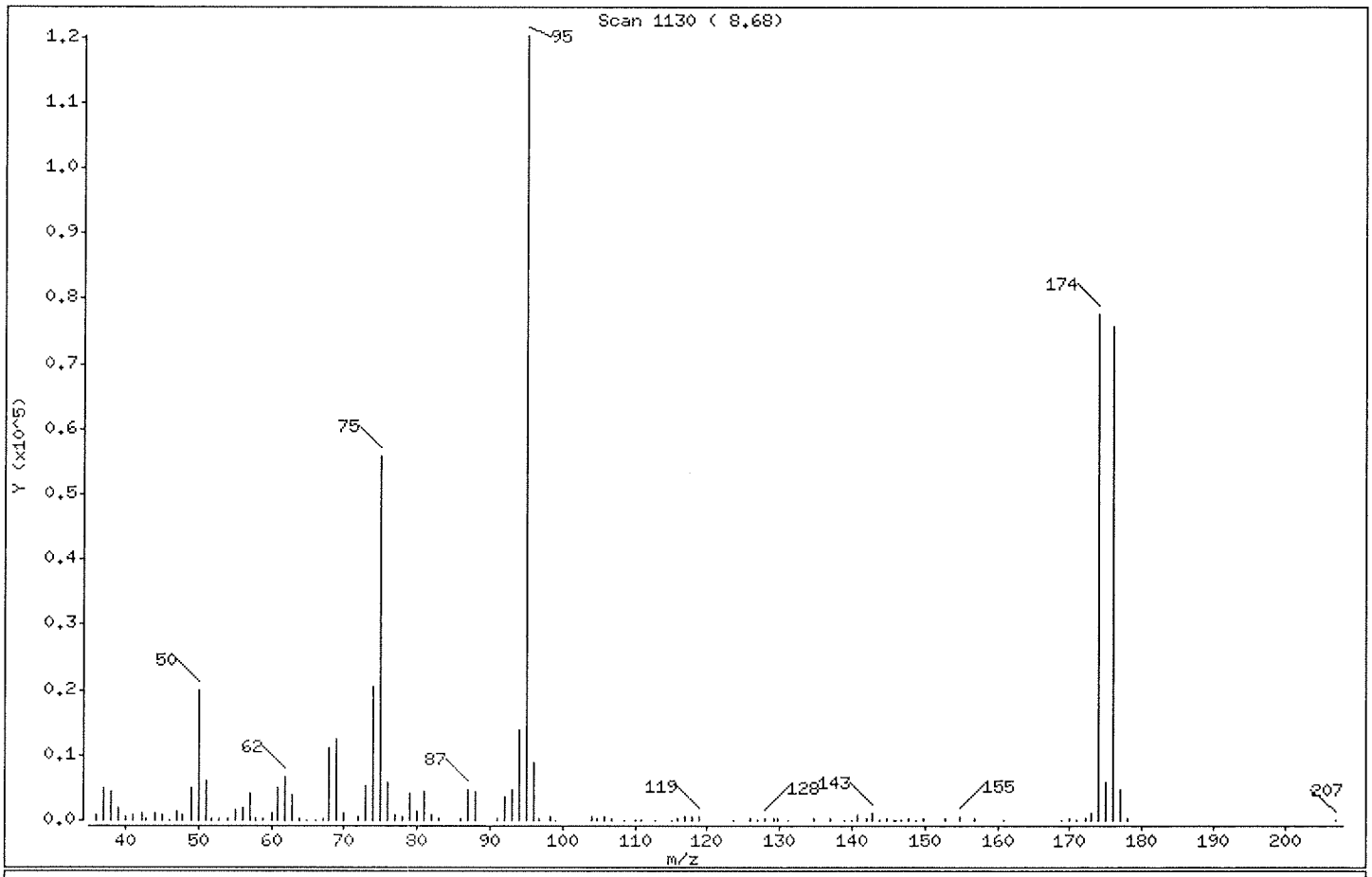
Volume Injected (uL): 2.0

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	16.50
75	30.00 - 60.00% of mass 95	46.44
96	5.00 - 9.00% of mass 95	7.40
173	Less than 2.00% of mass 174	0.81 (1.26)
174	Greater than 50.00% of mass 95	64.71
175	5.00 - 9.00% of mass 174	4.86 (7.51)
176	95.00 - 101.00% of mass 174	63.05 (97.44)
177	5.00 - 9.00% of mass 176	3.88 (6.16)

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020201.D

Date : 02-FEB-2021 20:56

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: Y020201.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 109

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	758	64.00	341	96.90	210	141.90	163
37.00	4902	64.80	54	98.20	626	142.90	1078
38.10	4296	66.20	92	99.00	59	143.70	73
39.10	1942	67.20	281	104.00	437	144.80	206
40.00	681	68.00	11157	104.90	219	145.70	122
41.00	746	69.00	12559	105.90	634	146.10	123
42.20	968	70.00	1241	106.90	187	146.80	66
42.90	376	71.90	624	108.70	86	147.90	281
44.00	1243	73.00	5184	110.00	95	148.90	90
45.10	900	74.00	20432	110.90	137	149.90	251
46.00	76	75.00	55800	112.80	82	152.80	172
47.00	1310	76.00	5791	115.10	114	154.80	515
47.70	775	77.00	691	115.90	395	156.90	189
49.00	5005	78.00	679	116.90	606	160.80	121
50.00	19824	78.90	4172	118.00	470	168.90	50
51.00	6190	79.90	1280	119.00	610	169.80	140
51.90	188	80.90	4505	123.80	91	171.00	112
52.90	142	82.00	911	126.00	149	172.20	247
54.10	256	82.90	329	126.90	131	172.90	979
55.00	1610	86.00	156	127.90	414	173.90	77752
56.00	1939	86.90	4828	129.10	142	174.90	5838
57.00	4035	87.90	4347	129.80	277	175.90	75760
57.90	352	91.00	318	131.10	77	176.90	4664
58.90	155	92.00	3557	134.70	199	177.90	163
60.00	1241	93.00	4641	136.90	205	207.10	74
61.00	4929	94.00	13900	139.00	58		
62.00	6560	95.00	120160	140.00	138		
63.00	3747	96.00	8887	140.80	860		

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020203.D Page 1
Report Date: 01-Mar-2021 14:28

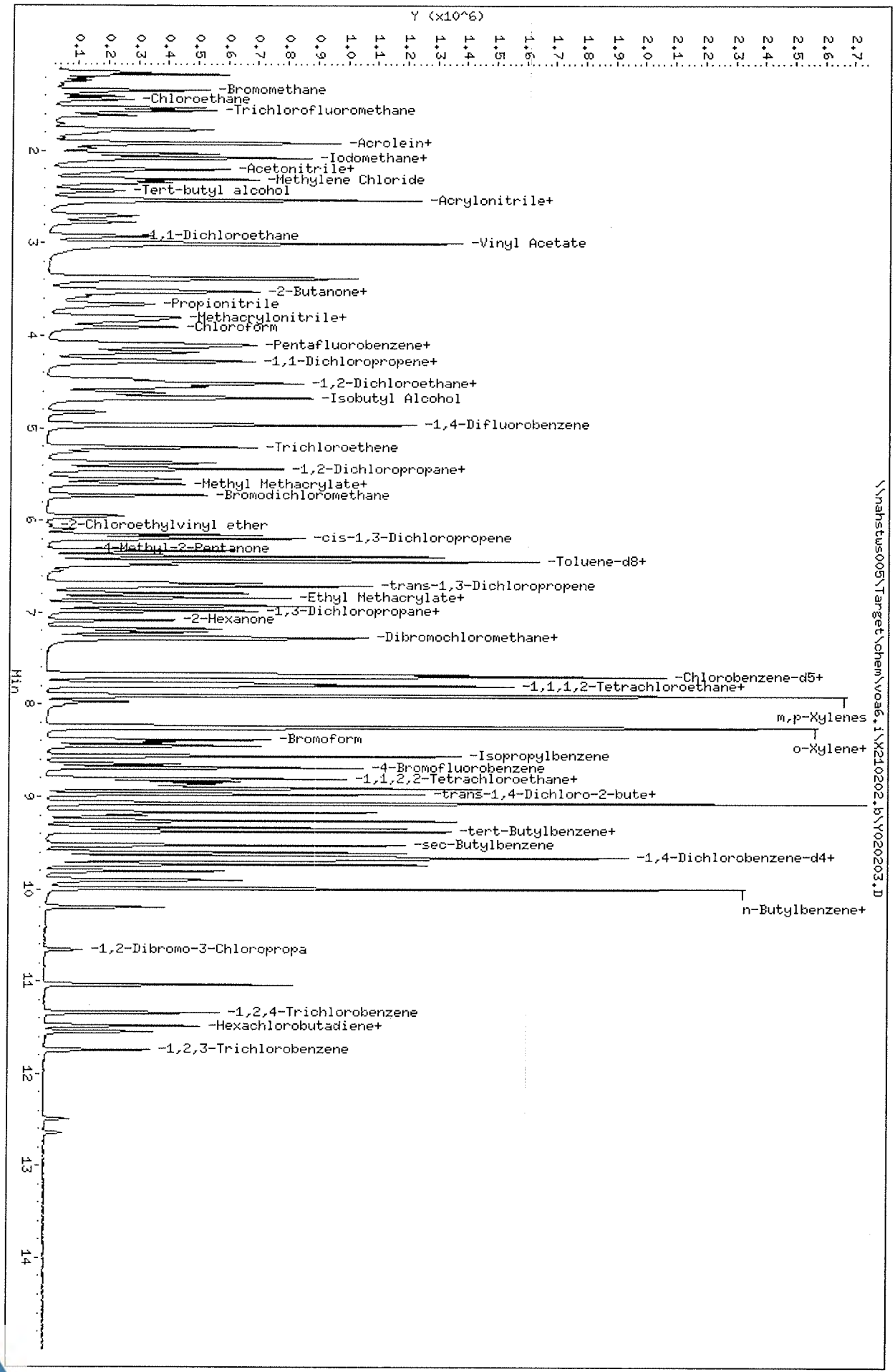
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020203.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 02-FEB-2021 21:38
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 32 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	387084	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	685511	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	633704	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	281351	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	245876	50.0000	52.95
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	247681	50.0000	51.36
$	48 Toluene-d8	98	6.389	6.389	(0.833)	805325	50.0000	48.57
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	287210	50.0000	51.21
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	212763	50.0000	43.41
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	291885	50.0000	47.88
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	247667	50.0000	49.95
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	158186	50.0000	45.75
	38 Trichloroethene	130	5.207	5.207	(1.049)	231311	50.0000	50.49
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	232762	50.0000	42.11



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020203.D
Date : 02-FEB-2021 21:38
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020205.D Page 1
Report Date: 01-Mar-2021 14:28

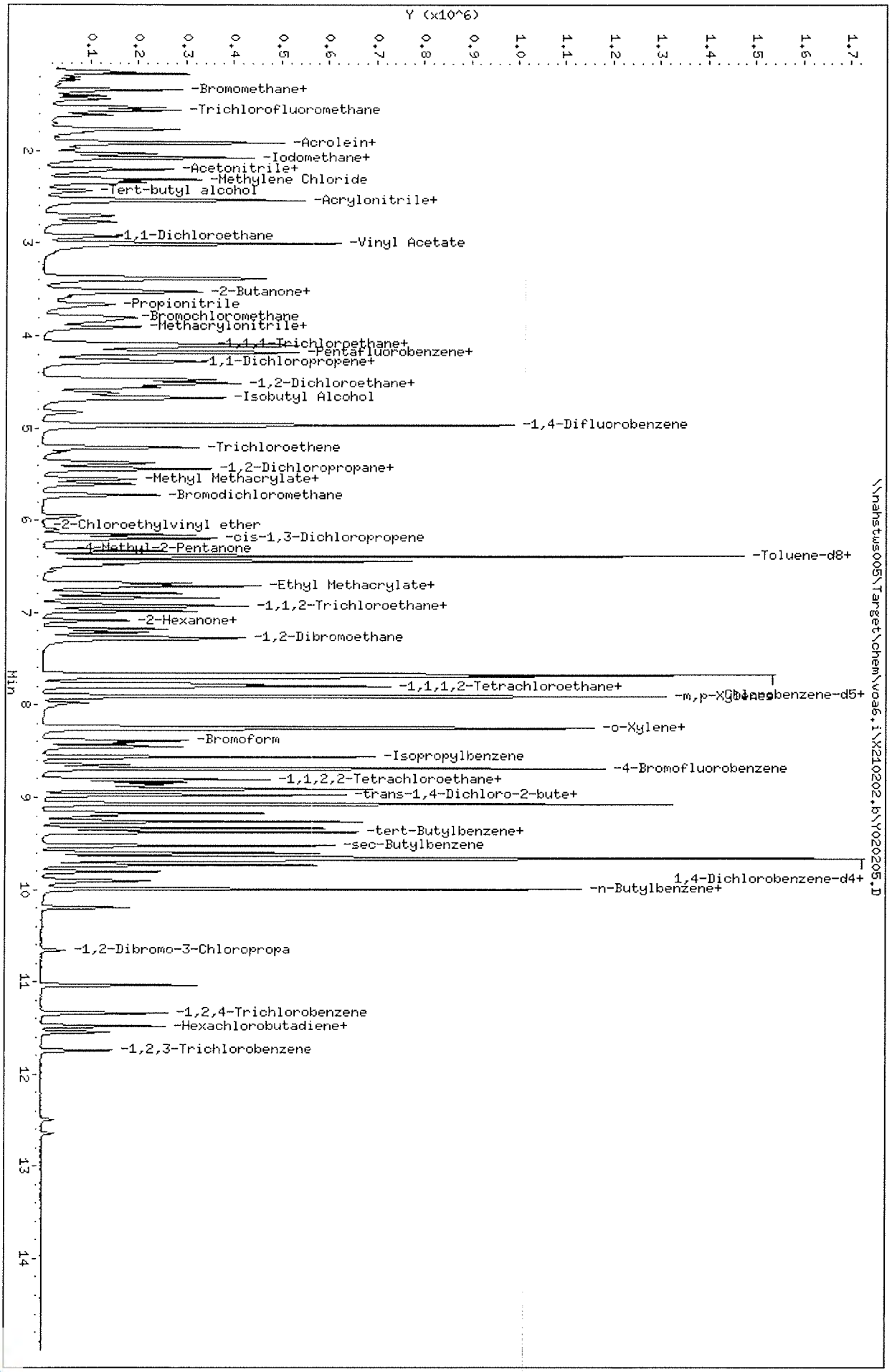
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020205.D
Lab Smp Id: VLCSW-210202 Client Smp ID: VLCSW-210202
Inj Date : 02-FEB-2021 22:20
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210202;VLCSW-210202;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 34 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	428201	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	752325	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	694686	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	322333	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	263576	51.3060	51.30
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	268864	50.3803	50.38
$	48 Toluene-d8	98	6.388	6.389	(0.833)	889172	48.9266	48.92
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	325991	53.0817	53.08
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	106136	19.5771	19.57
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	130897	19.5665	19.56
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	116524	21.2480	21.24
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	78748	20.7780	20.77
	38 Trichloroethene	130	5.206	5.207	(1.049)	109194	21.7192	21.71
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	120898	19.7749	19.77



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020205.D
Date : 02-FEB-2021 22:20
Client ID: VLCSW-210202
Sample Info: VLCSW-210202;VLCSW-210202;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020207.D Page 1
Report Date: 01-Mar-2021 14:28

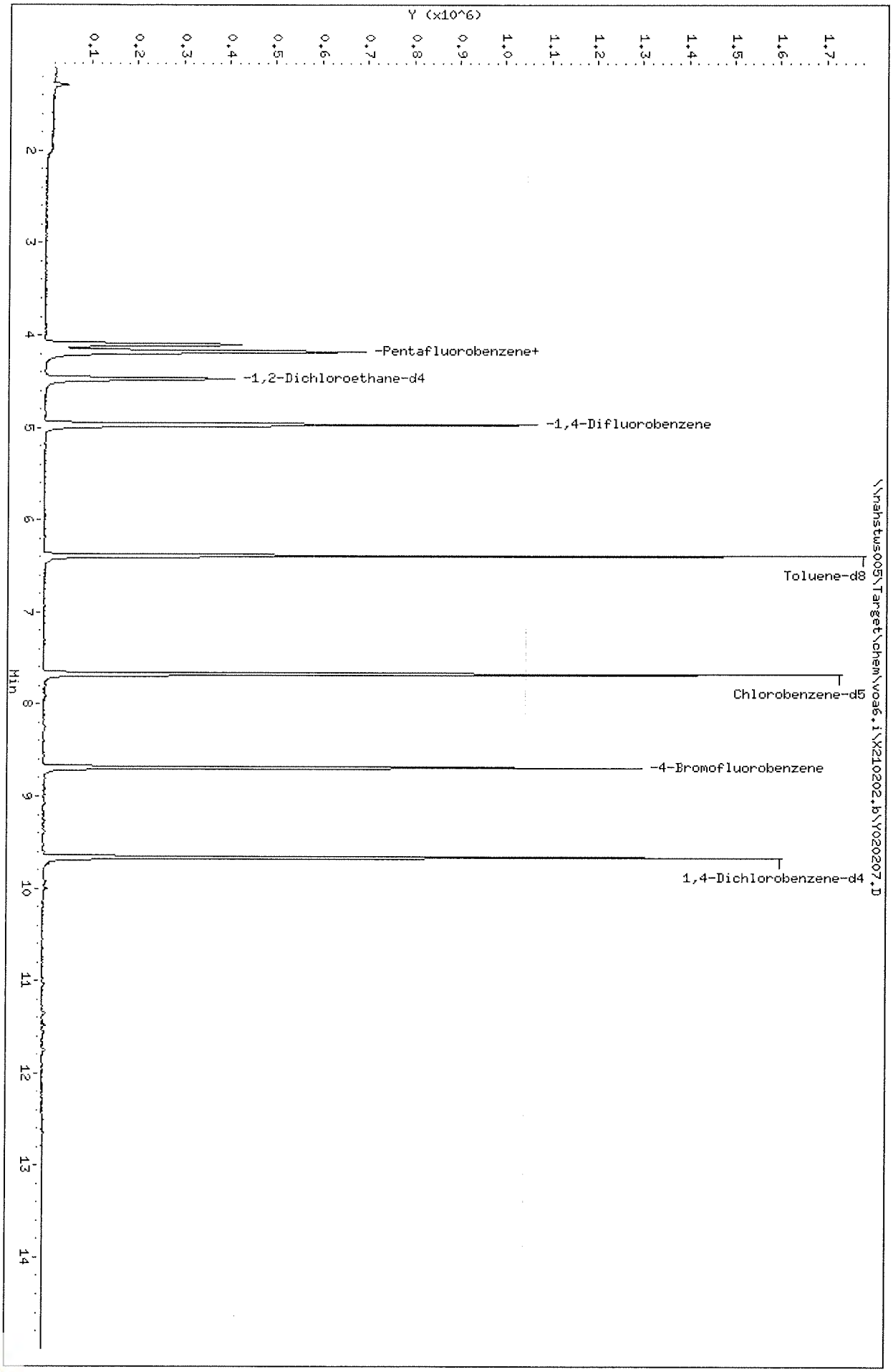
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020207.D
Lab Smp Id: VBLKW-210202 Client Smp ID: VBLKW-210202
Inj Date : 02-FEB-2021 23:02
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210202;VBLKW-210202;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 36 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	552747	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	920739	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	828827	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	357845	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	316557	47.7084	47.70
$	35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	320090	46.3507	46.35
$	48 Toluene-d8	98	6.388	6.389	(0.833)	1083500	49.9704	49.97
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	370524	50.4966	50.49



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020207.D
Date : 02-FEB-2021 23:02
Client ID: VBLKW-210202
Sample Info: VBLKW-210202;VBLKW-210202;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020216.D
Lab Smp Id: HS21011122-01 Client Smp ID: HS21011122-01
Inj Date : 03-FEB-2021 02:11
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-01;HS21011122-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 45
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

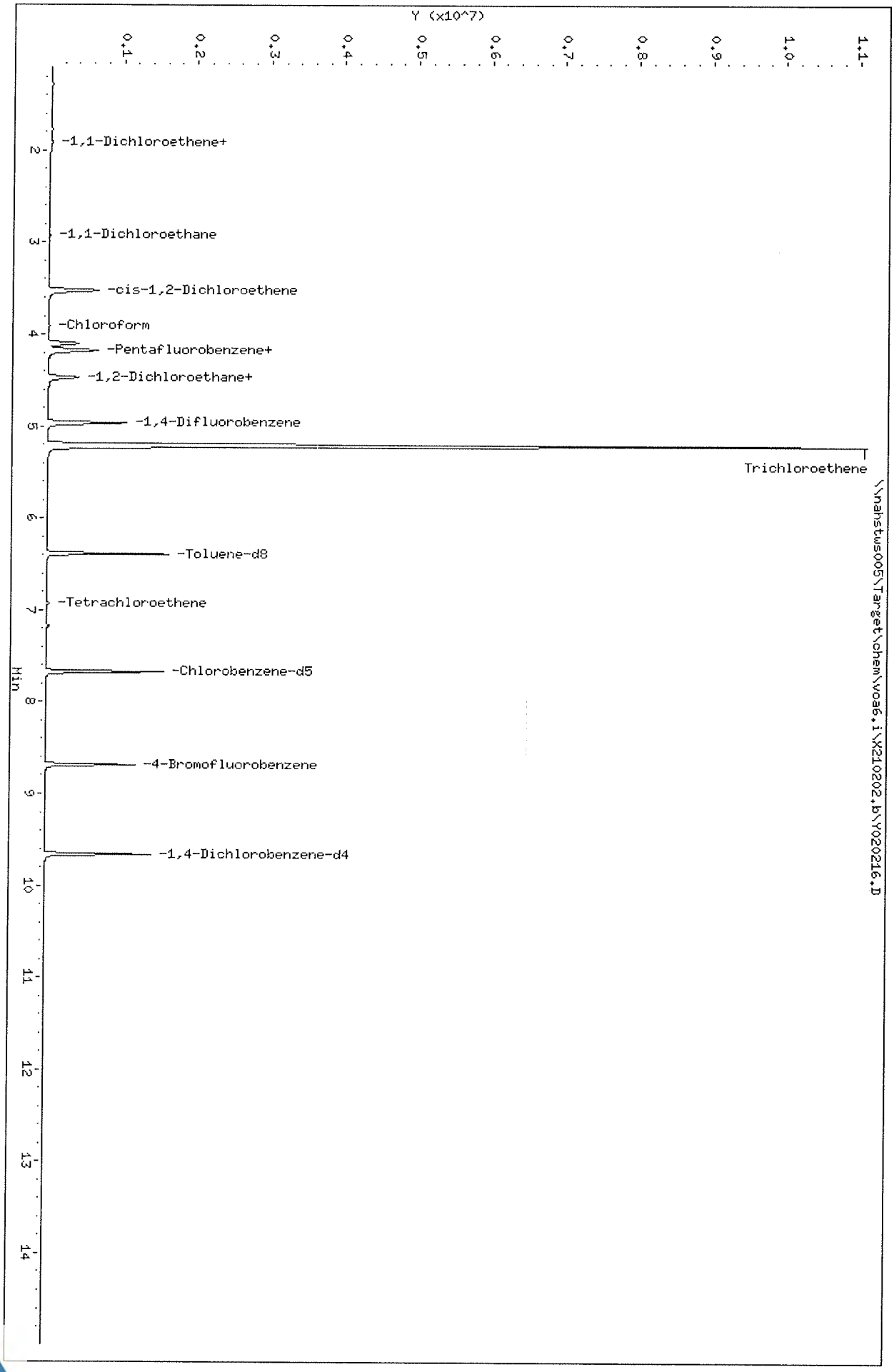
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	527221	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	895946	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	758419	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	314800	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.096	(0.981)	303011	47.8792	47.87
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	315438	47.9371	47.93
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	994953	50.1466	50.14
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	345532	51.4913	51.49
11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	5444	0.81557	0.81(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	18694	2.34643	2.34(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	372619	55.1852	55.18
56 Tetrachloroethene	164	6.926	6.926	(0.903)	5783	1.39764	1.39(a)
38 Trichloroethene	130	5.207	5.206	(1.049)	3536693	590.700	590.69(A)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020216.D
Date : 03-FEB-2021 02:11
Client ID: HS21011122-01
Sample Info: HS21011122-01,HS21011122-01;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020217.D Page 1
Report Date: 01-Mar-2021 14:28

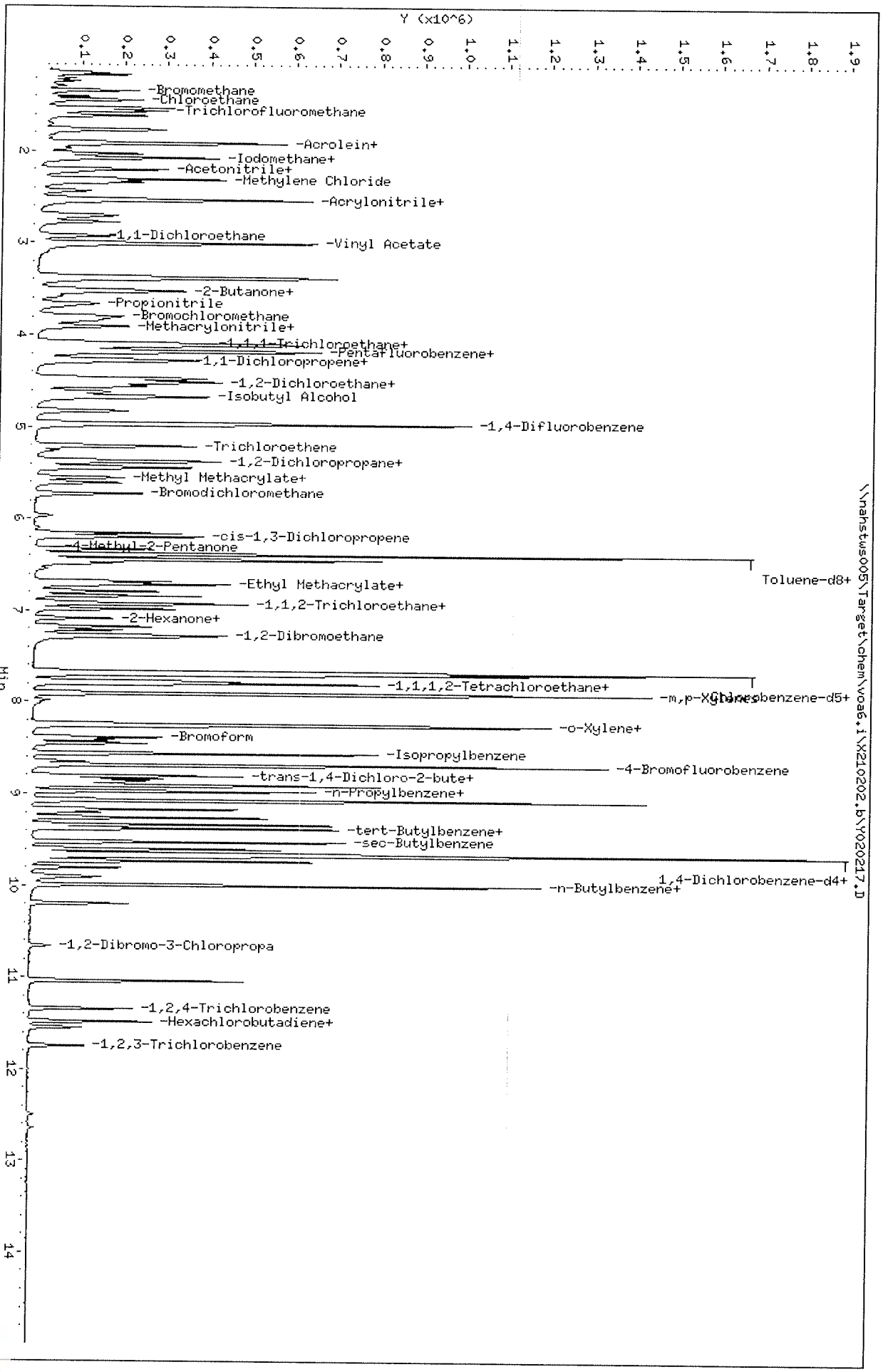
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020217.D
Lab Smp Id: HS21011103-06MS Client Smp ID: HS21011103-06MS
Inj Date : 03-FEB-2021 02:33
Operator : PC Inst ID: voa6.i
Smp Info : HS21011103-06MS;HS21011103-06MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 46 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	519951	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	874297	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	792801	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	355472	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	295418	47.3278	47.32
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	295151	45.4062	45.40
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	1017484	49.0582	49.05
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	368746	52.5994	52.59
11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	113000	17.1653	17.16
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	141523	18.2035	18.20
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	120898	18.1555	18.15
56 Tetrachloroethene	164	6.926	6.926	(0.903)	91312	21.1114	21.11
38 Trichloroethene	130	5.206	5.207	(1.049)	121546	20.8033	20.80
5 Vinyl Chloride	62	1.138	1.138	(0.272)	94513	12.7313	12.73



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020217.D
Date : 03-FEB-2021 02:33
Client ID: HS21011103-06HS
Sample Info: HS21011103-06HS;HS21011103-06HS;3;;HS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020218.D Page 1
Report Date: 01-Mar-2021 14:28

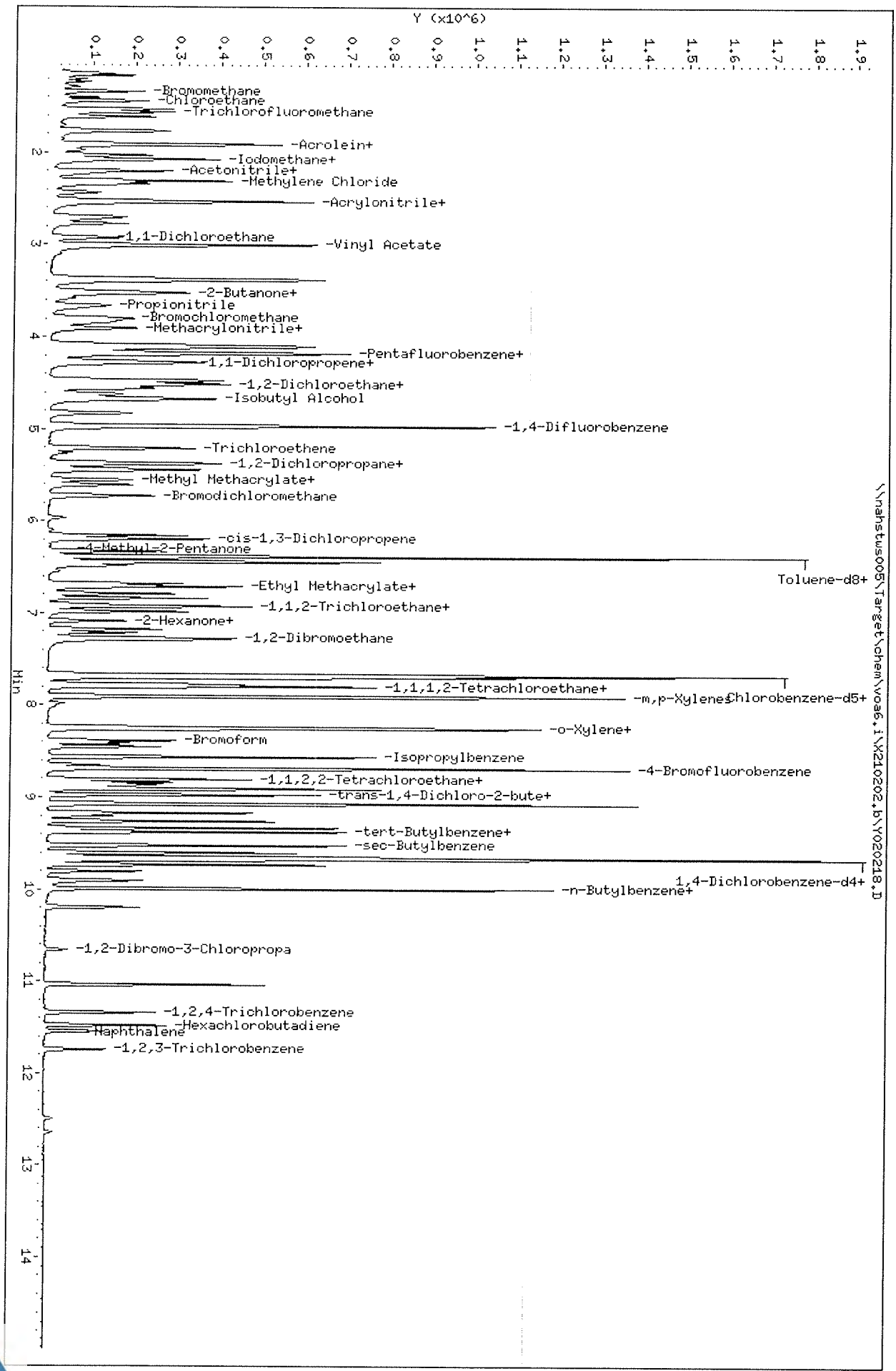
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020218.D
Lab Smp Id: HS21011103-06MSD Client Smp ID: HS21011103-06MSD
Inj Date : 03-FEB-2021 02:54
Operator : PC Inst ID: voa6.i
Smp Info : HS21011103-06MSD;HS21011103-06MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 46 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	542467	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	907527	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	835020	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	372188	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	307725	47.2526	47.25
$	35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	308519	45.4955	45.49
$	48 Toluene-d8	98	6.388	6.389	(0.833)	1071352	49.0437	49.04
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	378376	51.2050	51.20
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	106912	15.5664	15.56
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	135742	16.8206	16.82
	27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	117185	16.8674	16.86
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	85230	18.7089	18.70
	38 Trichloroethene	130	5.206	5.207	(1.049)	113279	18.6785	18.67
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	88101	11.3750	11.37



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020218.D
Date : 03-FEB-2021 02:54
Client ID: HS21011103-06MSD
Sample Info: HS21011103-06MSD;HS21011103-06MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020219.D Page 1
Report Date: 01-Mar-2021 14:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020219.D
Lab Smp Id: HS21011122-01 Client Smp ID: HS21011122-01
Inj Date : 03-FEB-2021 03:15
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-01;HS21011122-01;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:15 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 47
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

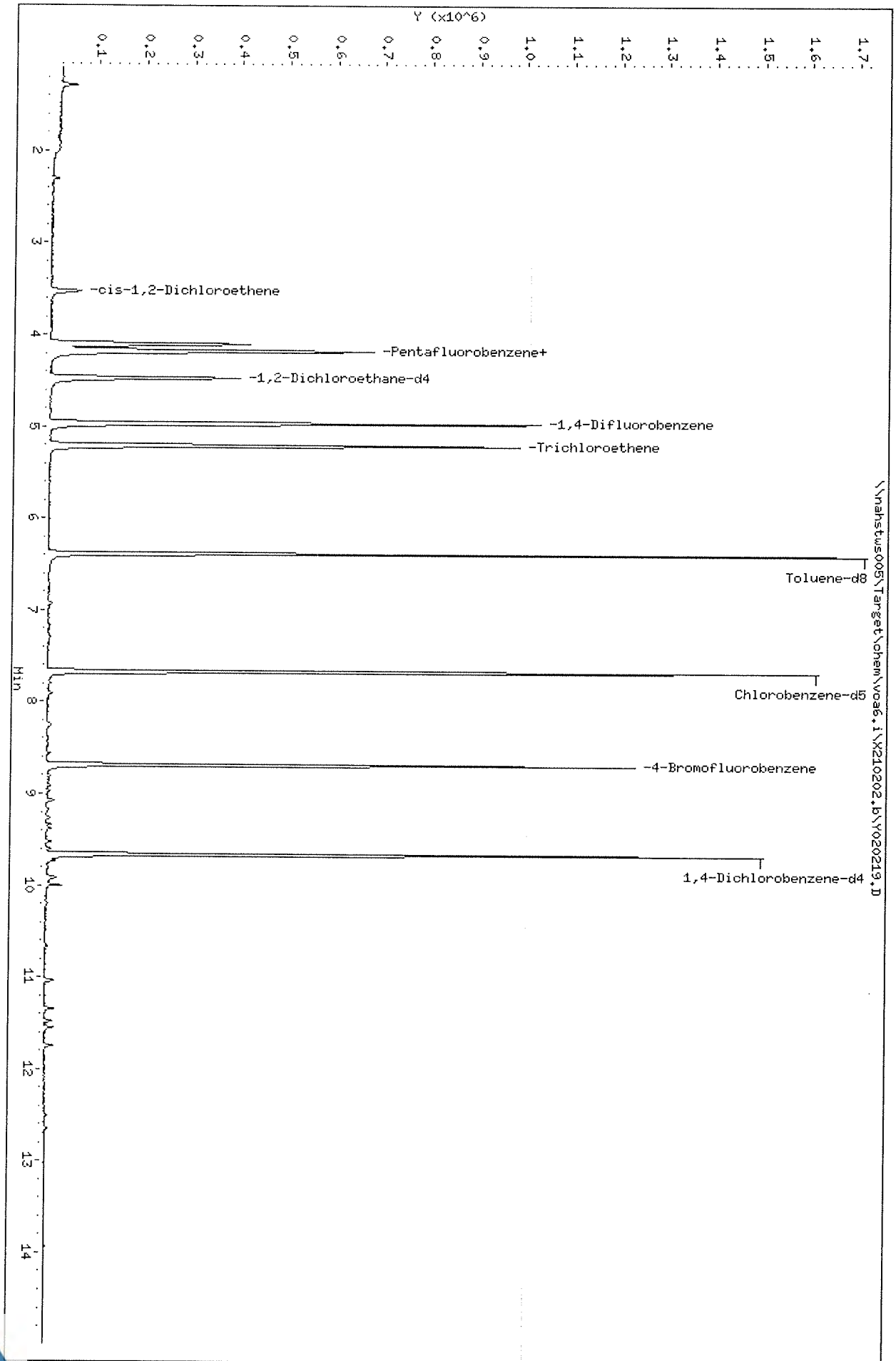
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	538271	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	893212	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	797515	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	329624	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	304205	47.0748	47.07
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.068)	306484	45.5494	45.54
$ 48 Toluene-d8	98	6.388	6.389	(0.833)	1050454	50.3485	50.34
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	353148	50.0038	50.00
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	35662	5.17315	51.73
38 Trichloroethene	130	5.207	5.207	(1.049)	326527	54.7036	547.03

Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020219.D
Date : 03-FEB-2021 03:15
Client ID: HS21011122-01
Sample Info: HS21011122-01;HS21011122-01;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020219.D

Date : 03-FEB-2021 03:15

Client ID: HS21011122-01

Instrument: voa6.i

Sample Info: HS21011122-01;HS21011122-01;;;

Purge Volume: 5.0

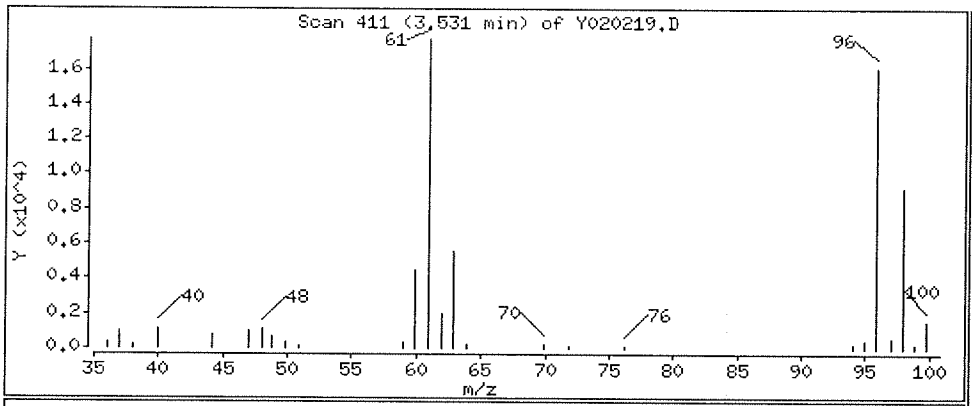
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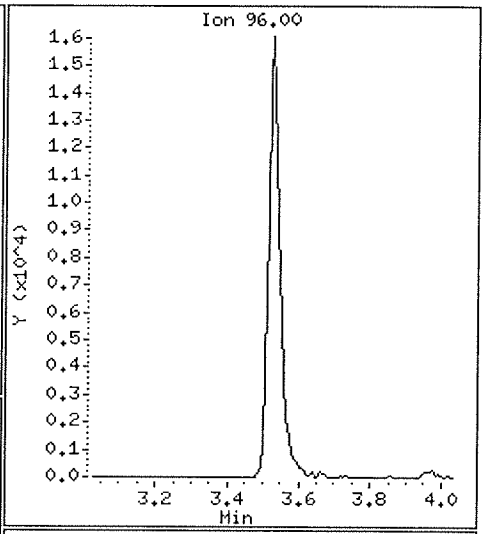
Column phase: DB624

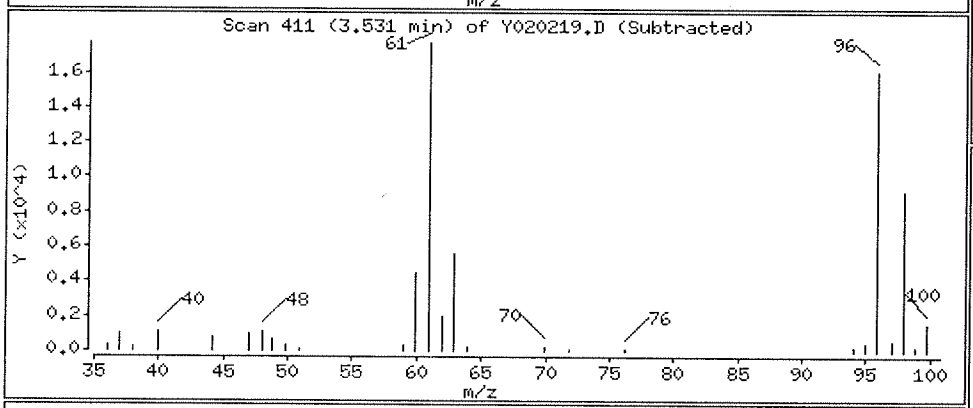
Column diameter: 0.18

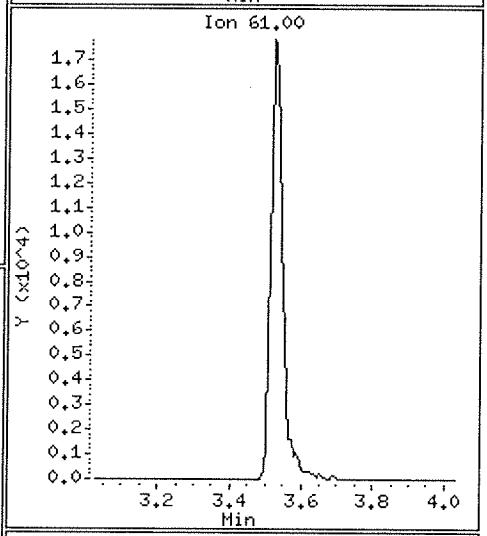
27 cis-1,2-Dichloroethene

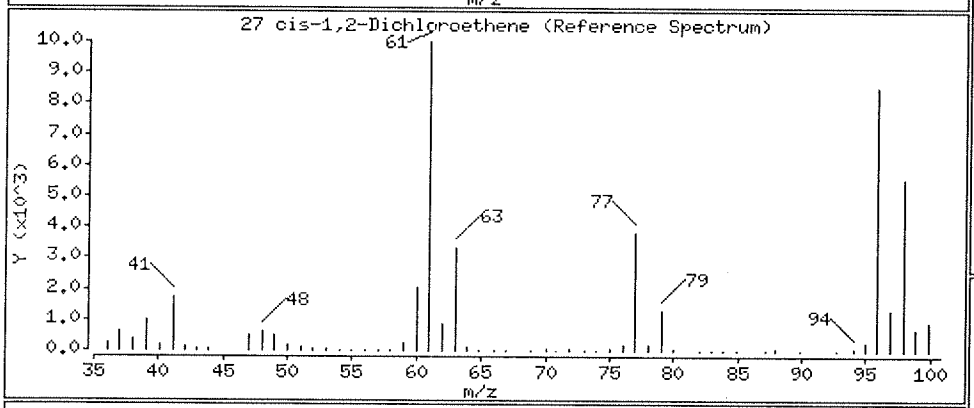
Concentration: 51.73 ug/l

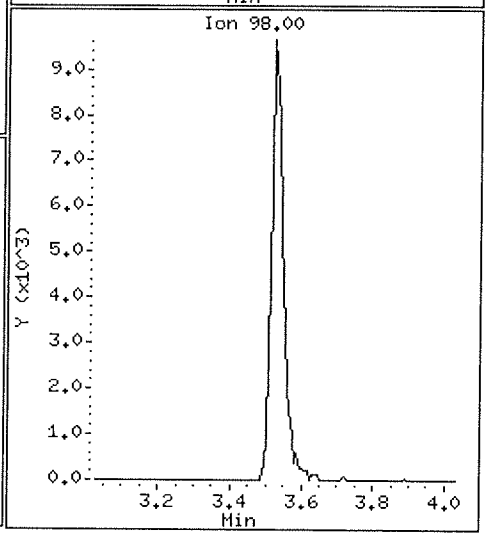


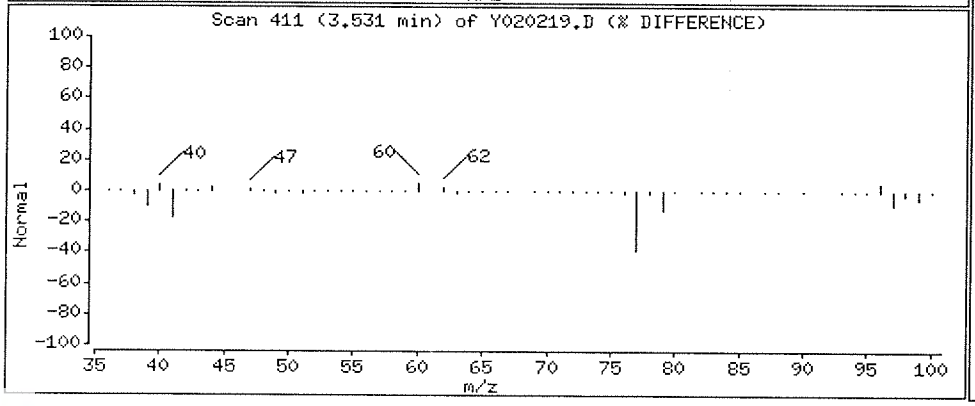












Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020219.D

Date : 03-FEB-2021 03:15

Client ID: HS21011122-01

Instrument: voa6.i

Sample Info: HS21011122-01;HS21011122-01;;;

Purge Volume: 5.0

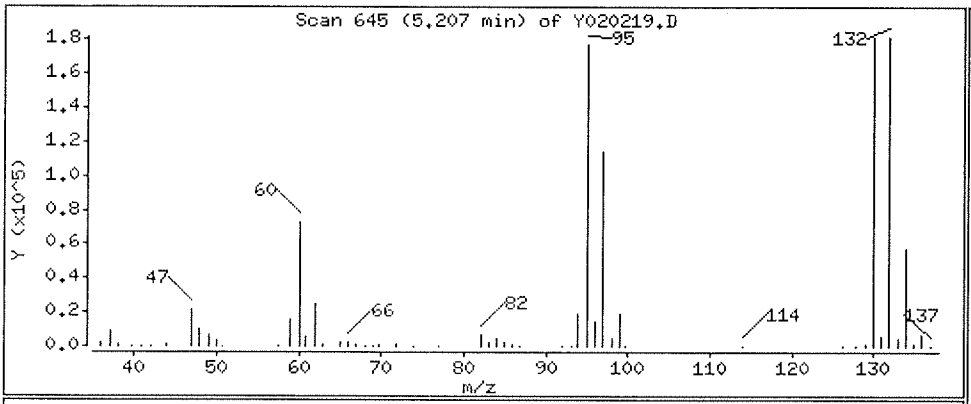
Operator: PC

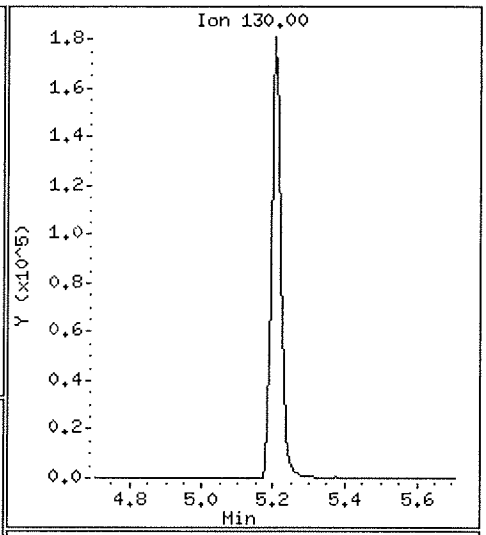
Column phase: DB624

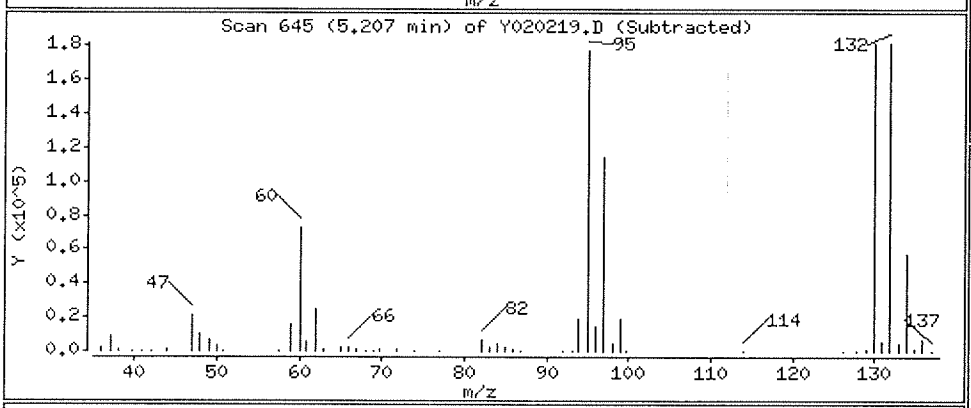
Column diameter: 0.18

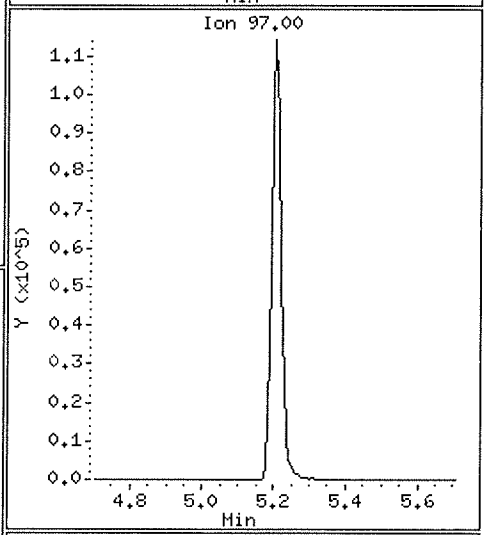
38 Trichloroethene

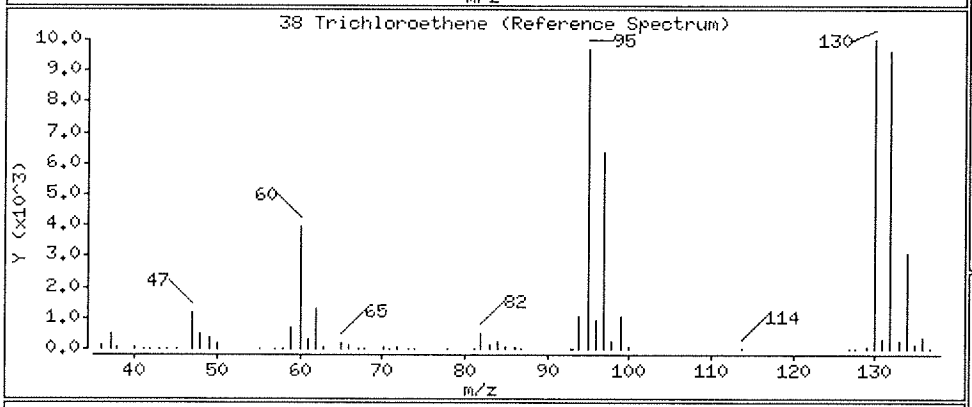
Concentration: 547.03 ug/l

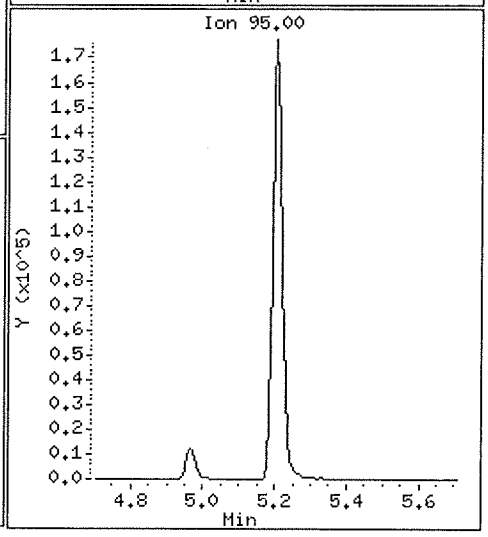


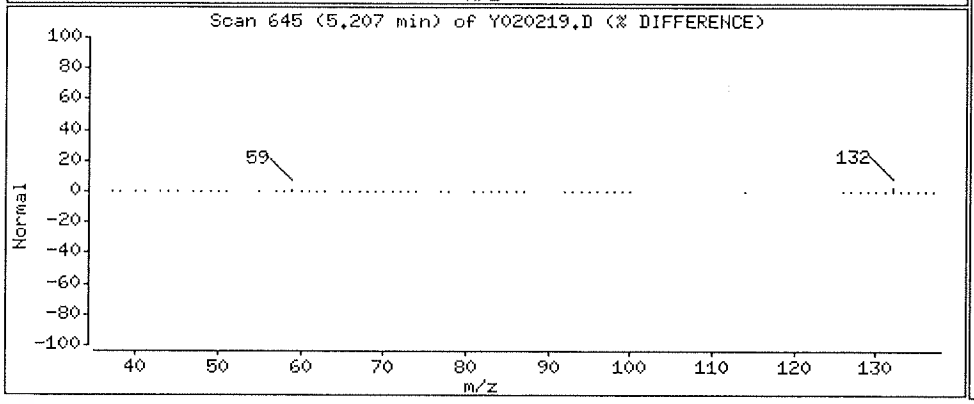












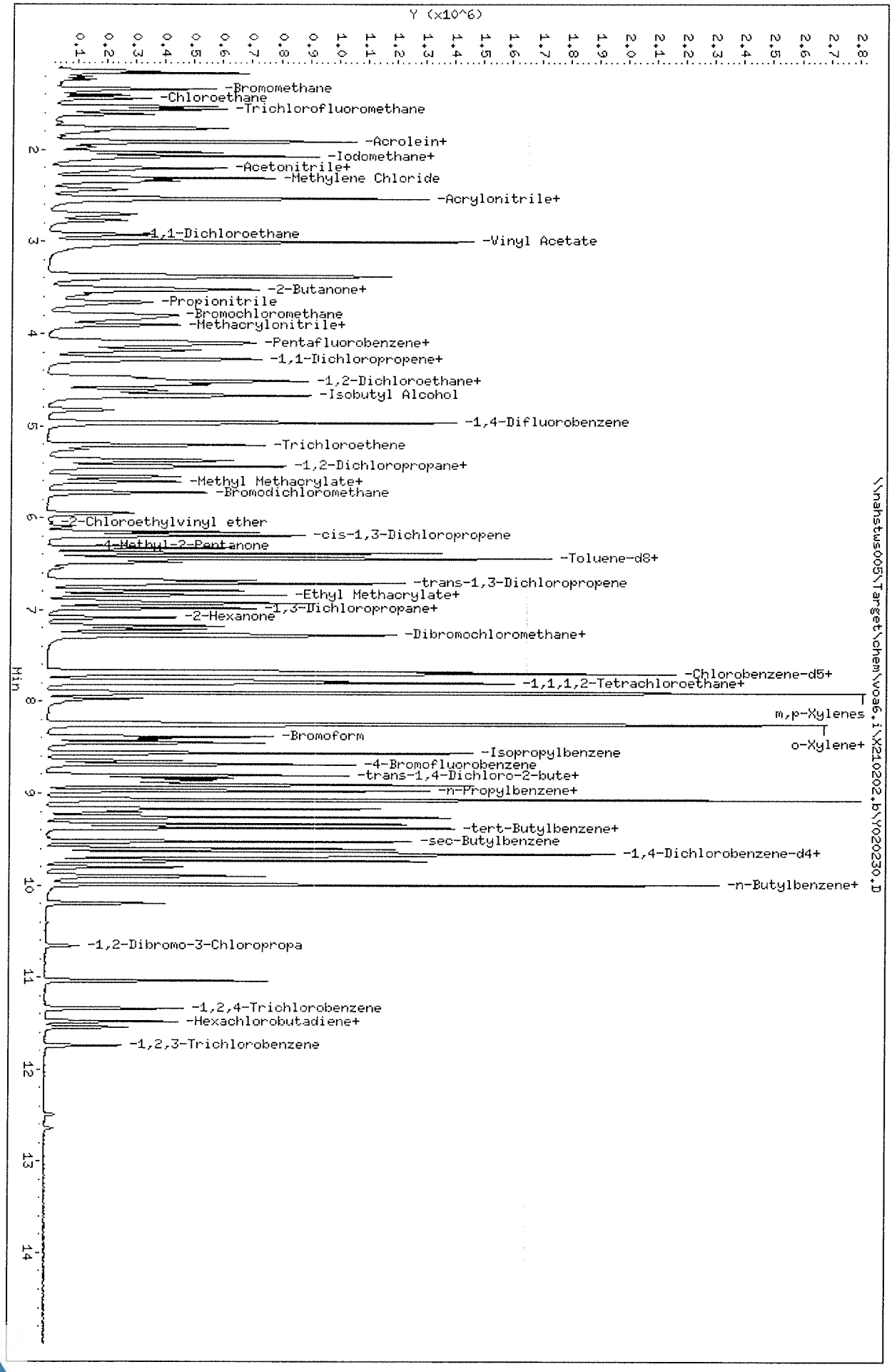
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210202.b\Y020230.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 03-FEB-2021 07:06
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210202.b\8260W.m
Meth Date : 01-Mar-2021 14:28 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 58 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	393868	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	715718	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	662577	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	297564	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	242930	50.0000	51.40
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	249378	50.0000	50.81
$	48 Toluene-d8	98	6.388	6.388	(0.833)	812899	50.0000	46.89
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	293956	50.0000	50.10
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	230104	50.0000	46.14
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	298523	50.0000	46.90
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	264439	50.0000	52.42
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	165601	50.0000	45.81
	38 Trichloroethene	130	5.206	5.206	(1.049)	247271	50.0000	51.69
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	264712	50.0000	47.07



Data File: \\nahstws005\Target\chem\voa6.i\X210202.b\Y020230.D
Date : 03-FEB-2021 07:06
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 43199 **Analyst:** Presenta Cabascango

Date: 02-03-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	02-03-2021 10:02 am	1.00	50 mL	50 mL	X020301.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	02-03-2021 10:23 am	1.00	50 mL	50 mL	X020302a.D	Liquid	N	NA
	10 ul cal std/50 ml DI									
3	CCV	CCV	02-03-2021 10:44 am	1.00	50 mL	50 mL	X020303.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
4	CCB	SAMP	02-03-2021 11:05 am	1.00	50 mL	50 mL	X020304.D	Liquid	Y	NA
	ccb									
5	VLCSW-210203	LCS	02-03-2021 11:26 am	1.00	50 mL	50 mL	X020305.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
6	BLANK	SAMP	02-03-2021 11:47 am	1.00	50 mL	50 mL	X020306.D	Liquid	Y	NA
	cleanup									
7	VBLKW-210203	MBLK	02-03-2021 12:08 pm	1.00	50 mL	50 mL	X020307.D	Liquid	Y	NA
8	HS21020050-04	SAMP	02-03-2021 12:29 pm	1.00	50 mL	50 mL	X020308.D	Liquid	Y	NA
9	HS21020050-01	SAMP	02-03-2021 12:50 pm	1.00	50 mL	50 mL	X020309.D	Liquid	Y	NA
10	HS21020050-06	SAMP	02-03-2021 01:11 pm	1.00	50 mL	50 mL	X020310.D	Liquid	Y	NA
11	HS21020050-07	SAMP	02-03-2021 01:32 pm	1.00	50 mL	50 mL	X020311.D	Liquid	Y	NA
12	HS21020050-09	SAMP	02-03-2021 01:53 pm	1.00	50 mL	50 mL	X020312.D	Liquid	Y	NA
13	HS21020050-10	SAMP	02-03-2021 02:14 pm	1.00	50 mL	50 mL	X020313.D	Liquid	Y	NA
14	HS21020050-02	SAMP	02-03-2021 02:35 pm	10.00	5 mL	50 mL	X020314.D	Liquid	Y	NA
15	HS21020050-03	SAMP	02-03-2021 02:56 pm	10.00	5 mL	50 mL	X020315.D	Liquid	Y	NA
16	HS21020050-06MS	MS	02-03-2021 03:17 pm	1.00	50 mL	50 mL	X020316.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
17	HS21020050-06MSD	MSD	02-03-2021 03:38 pm	1.00	50 mL	50 mL	X020317.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
18	HS21020050-02	SAMP	02-03-2021 04:00 pm	100.0(	500 µL	50 mL	X020318.D	Liquid	Y	NA
19	HS21020050-03	SAMP	02-03-2021 04:21 pm	100.0(	500 µL	50 mL	X020319.D	Liquid	Y	NA
20	HS21020050-11	SAMP	02-03-2021 04:42 pm	1.00	50 mL	50 mL	X020320.D	Liquid	Y	NA
21	HS21020050-12	SAMP	02-03-2021 05:03 pm	1.00	50 mL	50 mL	X020321.D	Liquid	Y	NA
22	HS21020050-13	SAMP	02-03-2021 05:24 pm	1.00	50 mL	50 mL	X020322.D	Liquid	Y	NA
23	HS21020050-16	SAMP	02-03-2021 05:45 pm	1.00	50 mL	50 mL	X020323.D	Liquid	Y	NA
24	HS21020050-17	SAMP	02-03-2021 06:06 pm	1.00	50 mL	50 mL	X020324.D	Liquid	Y	NA
25	HS21020050-18	SAMP	02-03-2021 06:27 pm	1.00	50 mL	50 mL	X020325.D	Liquid	Y	NA
26	HS21020050-08	SAMP	02-03-2021 06:48 pm	10.00	5 mL	50 mL	X020326.D	Liquid	Y	NA
27	HS21020050-08	SAMP	02-03-2021 07:09 pm	100.0(	500 µL	50 mL	X020327.D	Liquid	Y	NA
28	HS21020050-05	SAMP	02-03-2021 07:30 pm	25.00	2 mL	50 mL	X020328.D	Liquid	Y	NA
29	HS21020050-05	SAMP	02-03-2021 07:51 pm	250.0(	200 µL	50 mL	X020329.D	Liquid	Y	NA
30	CCV-END	CCV	02-03-2021 08:12 pm	1.00	50 mL	50 mL	X020330.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
31	BFB	TUNE	02-03-2021 08:54 pm	1.00	50 mL	50 mL	Y020301.D	Liquid	Y	NA
	Auto find/purged									
32	CCV	CCV	02-03-2021 09:15 pm	1.00	50 mL	50 mL	Y020302a.D	Liquid	N	NA
	10 ul cal std/50 ml DI									
33	CCV	CCV	02-03-2021 09:36 pm	1.00	50 mL	50 mL	Y020303.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
34	CCB	SAMP	02-03-2021 09:57 pm	1.00	50 mL	50 mL	Y020304.D	Liquid	Y	NA
	ccb									

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
35	VLCSW-210203	LCS	02-03-2021 10:18 pm	1.00	50 mL	50 mL	Y020305.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
36	BLANK	SAMP	02-03-2021 10:39 pm	1.00	50 mL	50 mL	Y020306.D	Liquid	Y	NA
	cleanup									
37	VBLKW-210203	MBLK	02-03-2021 11:00 pm	1.00	50 mL	50 mL	Y020307.D	Liquid	Y	NA
38	HS21011077-01	SAMP	02-03-2021 11:21 pm	1.00	50 mL	50 mL	Y020308.D	Liquid	Y	NA
39	HS21020018-01	SAMP	02-03-2021 11:42 pm	1.00	50 mL	50 mL	Y020309.D	Liquid	Y	NA
40	HS21011077-03	SAMP	02-04-2021 12:03 am	1.00	50 mL	50 mL	Y020310.D	Liquid	Y	NA
41	HS21011077-04	SAMP	02-04-2021 12:24 am	1.00	50 mL	50 mL	Y020311.D	Liquid	Y	NA
42	HS21011077-07	SAMP	02-04-2021 12:45 am	1.00	50 mL	50 mL	Y020312.D	Liquid	Y	NA
43	HS21011077-06	SAMP	02-04-2021 01:06 am	1.00	50 mL	50 mL	Y020313.D	Liquid	Y	NA
44	HS21011077-02	SAMP	02-04-2021 01:28 am	1.00	50 mL	50 mL	Y020314.D	Liquid	Y	NA
45	HS21011077-05	SAMP	02-04-2021 01:49 am	5.00	10 mL	50 mL	Y020315.D	Liquid	Y	NA
46	HS21011077-06MS	MS	02-04-2021 02:10 am	1.00	50 mL	50 mL	Y020316.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
47	HS21011077-06MSD	MSD	02-04-2021 02:31 am	1.00	50 mL	50 mL	Y020317.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
48	HS21011077-02MS	MS	02-04-2021 02:52 am	1.00	50 mL	50 mL	Y020318.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
49	HS21011077-02MSD	MSD	02-04-2021 03:13 am	1.00	50 mL	50 mL	Y020319.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
50	HS21011077-05	SAMP	02-04-2021 03:34 am	25.00	2 mL	50 mL	Y020320.D	Liquid	Y	NA
51	HS21011122-02	SAMP	02-04-2021 03:55 am	5.00	10 mL	50 mL	Y020321.D	Liquid	Y	NA
52	HS21020018-02	SAMP	02-04-2021 04:16 am	1.00	50 mL	50 mL	Y020322.D	Liquid	Y	NA
53	HS21020018-03	SAMP	02-04-2021 04:37 am	1.00	50 mL	50 mL	Y020323.D	Liquid	Y	NA
54	HS21020018-04	SAMP	02-04-2021 04:58 am	1.00	50 mL	50 mL	Y020324.D	Liquid	Y	NA
55	HS21020018-05	SAMP	02-04-2021 05:19 am	1.00	50 mL	50 mL	Y020325.D	Liquid	Y	NA
56	HS21020018-06	SAMP	02-04-2021 05:40 am	1.00	50 mL	50 mL	Y020326.D	Liquid	Y	NA
57	HS21020018-08	SAMP	02-04-2021 06:02 am	1.00	50 mL	50 mL	Y020327.D	Liquid	Y	NA
58	HS21020018-10	SAMP	02-04-2021 06:23 am	1.00	50 mL	50 mL	Y020328.D	Liquid	Y	NA
59	HS21020018-09	SAMP	02-04-2021 06:44 am	1.00	50 mL	50 mL	Y020329.D	Liquid	Y	NA
60	HS21020018-07	SAMP	02-04-2021 07:05 am	10.00	5 mL	50 mL	Y020330.D	Liquid	Y	NA
61	HS21020018-07	SAMP	02-04-2021 07:26 am	100.0(	500 µL	50 mL	Y020331.D	Liquid	Y	NA
62	CCV-END	CCV	02-04-2021 07:47 am	1.00	50 mL	50 mL	Y020332.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

Chemical	Value
SURR SPK ID	31106-67-06
IS ID	31106-67-06
LCS/MS ID	31106-67-05
CAL STD ID	31106-67-01/02
BFB ID	31106-67-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 #	SMC3 #	OTHER (TOL) #	TOT OUT
01	VLCSW-210203	100	103	102	95	0
02	VBLKW-210203	94	97	102	99	0
03	HS21011077-06MS	89	93	106	97	0
04	HS21011077-06MSD	92	93	103	97	0
05	HS21011077-02MS	91	95	102	99	0
06	HS21011077-02MSD	89	94	100	97	0
07	HS21011122-02	97	97	101	101	0
08						
09						
10						
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28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210203

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: Y020307 Lab Sample ID: VBLKW-210203

Date Analyzed: 02/03/21 Time Analyzed: 2300

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210203	VLCSW-210203	Y020305	2218
02	HS21011077-06MS	HS21011077-06MS	Y020316	0210
03	HS21011077-06MSD	HS21011077-06MSD	Y020317	0231
04	HS21011077-02MS	HS21011077-02MS	Y020318	0252
05	HS21011077-02MSD	HS21011077-02MSD	Y020319	0313
06	HS21011122-02	HS21011122-02	Y020321	0355
07				
08				
09				
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COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID: Y020301 BFB Injection Date: 02/03/21

Instrument ID: VOA6 BFB Injection Time: 2054

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	43.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.7 (1.0)1
174	Greater than 50.0% of mass 95	77.4
175	5.0 - 9.0% of mass 174	5.6 (7.2)1
176	95.0 - 101.0% of mass 174	75.4 (97.4)1
177	5.0 - 9.0% of mass 176	6.0 (7.9)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	Y020303	02/03/21	2136
02	VLCSW-210203	VLCSW-210203	Y020305	02/03/21	2218
03	VBLKW-210203	VBLKW-210203	Y020307	02/03/21	2300
04	HS21011077-06MS	HS21011077-06MS	Y020316	02/04/21	0210
05	HS21011077-06MSD	HS21011077-06MSD	Y020317	02/04/21	0231
06	HS21011077-02MS	HS21011077-02MS	Y020318	02/04/21	0252
07	HS21011077-02MSD	HS21011077-02MSD	Y020319	02/04/21	0313
08	HS21011122-02	HS21011122-02	Y020321	02/04/21	0355
09	CCV-END	CCV-END	Y020332	02/04/21	0747
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/03/21 Time: 2136

Lab File ID: Y020303 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5291667	0.5291667	0.1	16.40	20.00	AVRG
1,2-Dichloroethane	0.4440000	0.4073302	0.4073302	0.1	8.26	20.00	AVRG
Tetrachloroethene	0.2730000	0.2581445	0.2581445	0.2	5.44	20.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6402342	0.6402342	0.1	-0.04	20.00	AVRG
Vinyl Chloride	0.7140000	0.5764097	0.5764097	0.1	19.27	20.00	AVRG
Trichloroethene	0.3340000	0.3382357	0.3382357	0.2	-1.27	20.00	AVRG
1,2-Dichloroethane-d4	49.184755	50.000000	0.6134134	0.1	1.63	20.00	LINR
Dibromofluoromethane	52.111102	50.000000	0.6251315	0.1	-4.22	20.00	LINR
4-Bromofluorobenzene	51.043746	50.000000	0.4517483	0.1	-2.09	20.00	LINR
Toluene-d8	1.3080000	1.2698877	1.2698877	0.1	2.91	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Instrument ID: VOA6 Calibration Date: 02/04/21 Time: 0747

Lab File ID: Y020332 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.4777372	0.4777372	0.1	24.53	50.00	AVRG
1,2-Dichloroethane	0.4440000	0.4243547	0.4243547	0.1	4.42	50.00	AVRG
Tetrachloroethene	0.2730000	0.2466839	0.2466839	0.2	9.64	50.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6748170	0.6748170	0.1	-5.44	50.00	AVRG
Vinyl Chloride	0.7140000	0.5735647	0.5735647	0.1	19.67	50.00	AVRG
Trichloroethene	0.3340000	0.3445722	0.3445722	0.2	-3.16	50.00	AVRG
1,2-Dichloroethane-d4	53.963341	50.000000	0.6712870	0.1	-7.93	50.00	LINR
Dibromofluoromethane	53.870977	50.000000	0.6460906	0.1	-7.74	50.00	LINR
4-Bromofluorobenzene	51.602078	50.000000	0.4565468	0.1	-3.20	50.00	LINR
Toluene-d8	1.3080000	1.2420481	1.2420481	0.1	5.04	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): Y020303 Date Analyzed: 02/03/21

Instrument ID: VOA6 Time Analyzed: 2136

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

		IS1(DCB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	286403	9.66	726585	4.96	658422	7.67
	UPPER LIMIT	572806	10.16	1453170	5.46	1316844	8.17
	LOWER LIMIT	143202	9.16	363293	4.46	329211	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-210203	328102	9.66	779770	4.96	722294	7.67
02	VBLKW-210203	359931	9.66	916631	4.96	829711	7.67
03	HS21011077-06MS	374971	9.66	868817	4.96	803696	7.67
04	HS21011077-06MSD	337929	9.66	855844	4.96	776425	7.67
05	HS21011077-02MS	341145	9.66	871933	4.96	776984	7.67
06	HS21011077-02MSD	346833	9.66	872112	4.96	782081	7.67
07	HS21011122-02	328217	9.66	893747	4.96	785648	7.67
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011122

Lab File ID (Standard): Y020303 Date Analyzed: 02/03/21

Instrument ID: VOA6 Time Analyzed: 2136

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	407743	4.18				
	UPPER LIMIT	815486	4.68				
	LOWER LIMIT	203872	3.68				
	CLIENT SAMPLE NO.						
01	VLCSW-210203	433408	4.18				
02	VBLKW-210203	532356	4.18				
03	HS21011077-06MS	519426	4.18				
04	HS21011077-06MSD	507843	4.18				
05	HS21011077-02MS	516058	4.18				
06	HS21011077-02MSD	515233	4.18				
07	HS21011122-02	520156	4.18				
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020301.D

Date : 03-FEB-2021 20:54

Client ID: BFB

Instrument: voa6.i

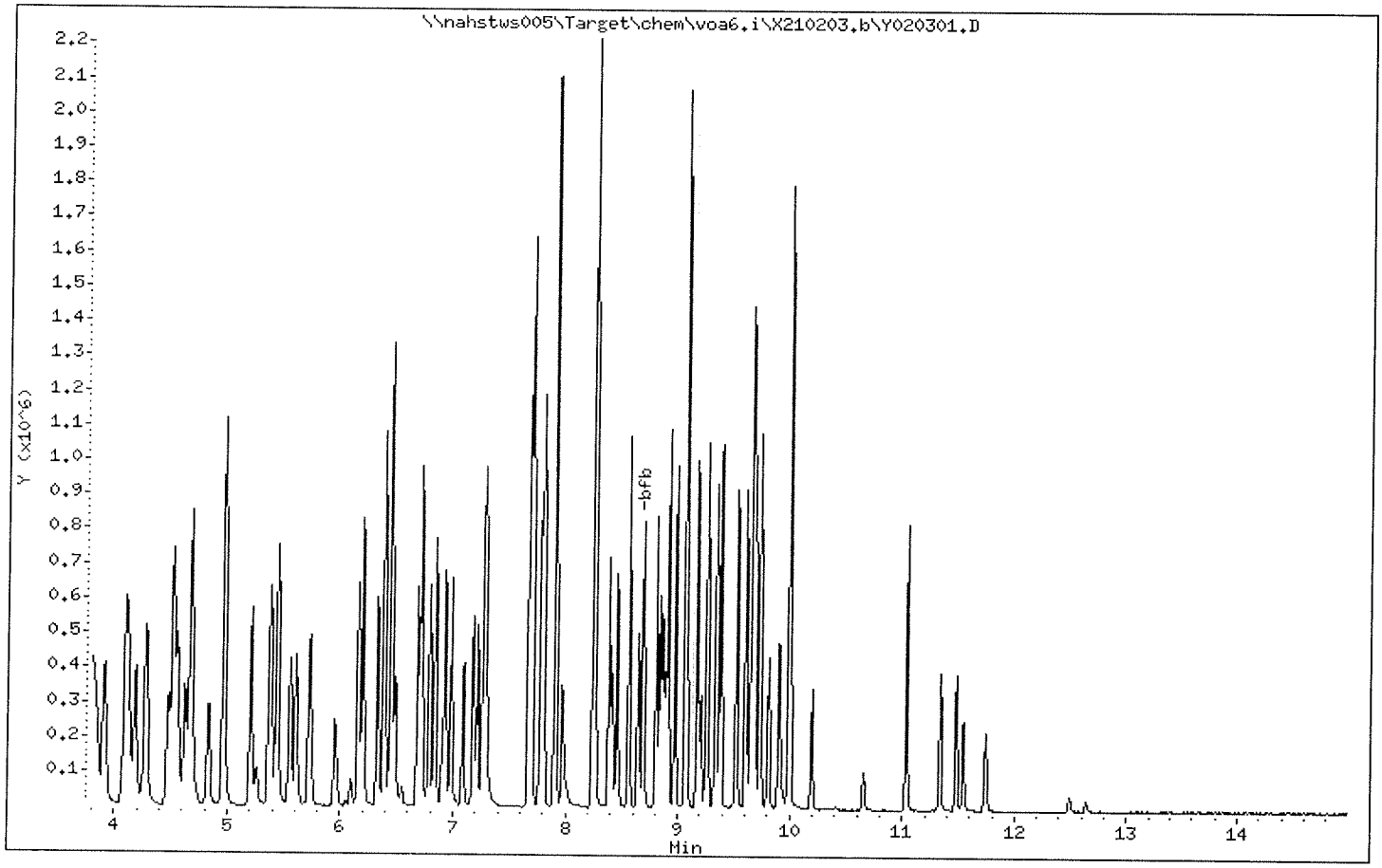
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020301.D

Date : 03-FEB-2021 20:54

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

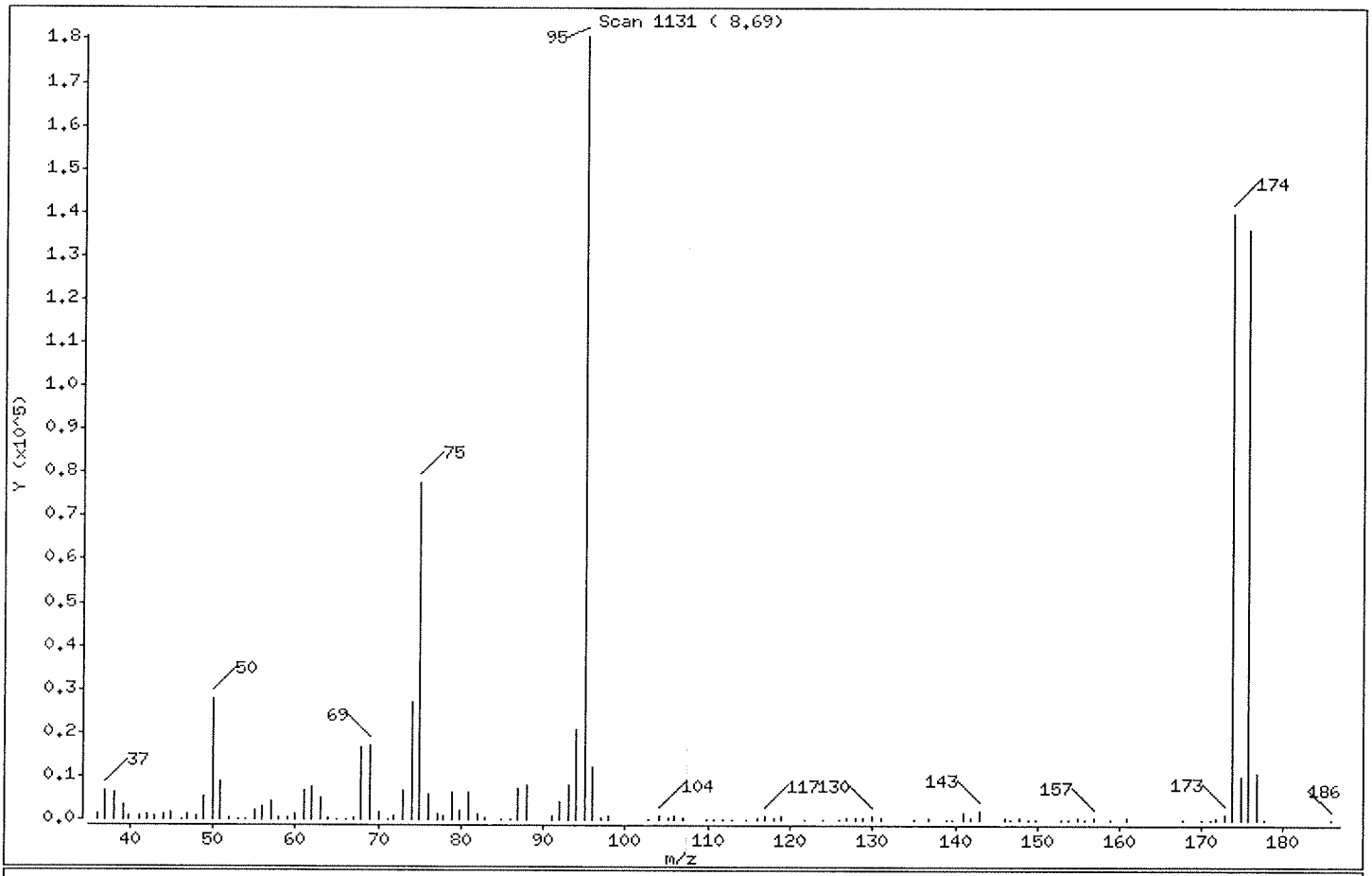
Volume Injected (uL): 2.0

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	15.47
75	30.00 - 60.00% of mass 95	43.06
96	5.00 - 9.00% of mass 95	6.74
173	Less than 2.00% of mass 174	0.74 (0.96)
174	Greater than 50.00% of mass 95	77.39
175	5.00 - 9.00% of mass 174	5.58 (7.22)
176	95.00 - 101.00% of mass 174	75.41 (97.44)
177	5.00 - 9.00% of mass 176	5.99 (7.95)

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020301.D

Date : 03-FEB-2021 20:54

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: Y020301.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 112

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1420	65.10	105	97.10	591	141.90	256
37.00	6580	66.20	147	98.00	786	143.00	1980
38.00	6362	67.00	357	102.80	60	146.00	235
39.10	3210	68.00	16568	104.00	849	146.80	67
39.90	658	69.00	17064	105.10	307	147.70	226
41.10	776	70.00	1515	105.80	794	148.90	78
42.00	1155	71.20	68	106.90	351	149.90	161
43.00	697	71.90	854	109.90	148	152.90	140
44.10	1272	73.00	6605	110.80	164	153.70	78
45.00	1704	74.00	26936	111.90	94	154.90	389
46.20	121	75.00	77776	113.00	134	155.80	91
47.00	1383	76.00	5990	114.80	180	156.90	471
48.00	794	77.10	1050	116.00	527	158.90	119
49.00	5348	77.90	841	116.90	908	160.80	208
50.00	27944	78.90	6217	117.90	489	167.90	60
51.00	8541	79.90	1878	118.90	893	170.00	157
52.00	414	80.90	6031	121.80	119	171.10	124
53.00	66	82.00	1417	124.00	105	171.80	229
54.00	86	82.90	213	125.90	108	172.90	1341
55.00	1870	84.90	69	126.90	227	173.90	139776
56.00	2916	85.90	96	127.90	510	174.90	10086
57.00	4316	86.90	6916	128.80	303	175.90	136192
58.00	365	88.00	7705	129.90	880	176.90	10826
59.00	439	91.00	925	131.00	310	177.80	189
59.90	1129	92.00	4251	134.90	195	186.10	125
61.00	6718	93.00	8086	136.70	252		
62.00	7617	94.00	20712	139.00	163		
63.00	5112	95.00	180608	139.70	106		
63.90	262	96.00	12175	140.90	1707		

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020303.D Page 1
Report Date: 01-Mar-2021 15:43

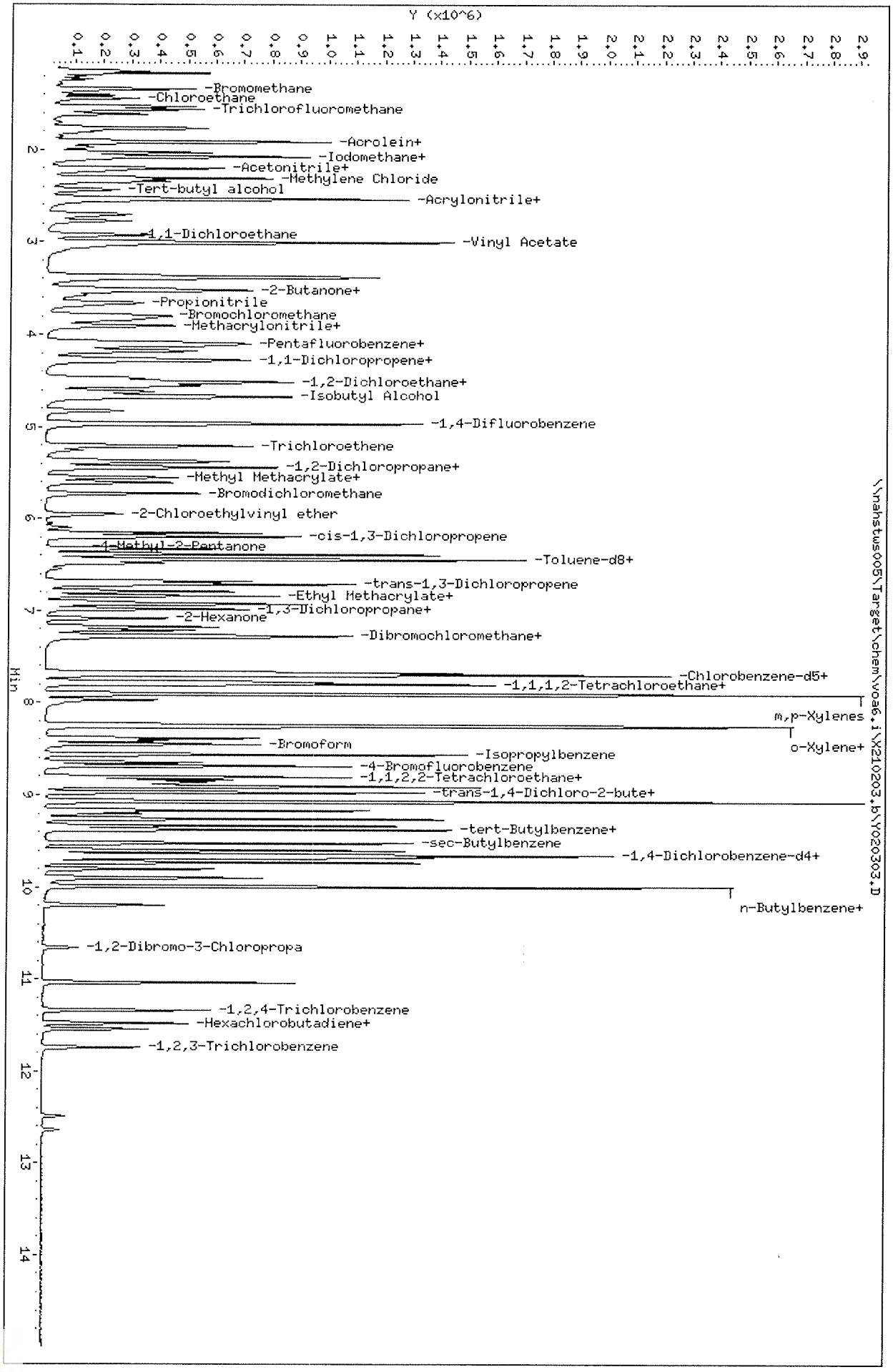
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020303.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 03-FEB-2021 21:36
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 32 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	407743	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	726585	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	658422	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	286403	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	254893	50.0000	52.11
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	250115	50.0000	49.18
$	48 Toluene-d8	98	6.388	6.388	(0.833)	836122	50.0000	48.54
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	297441	50.0000	51.04
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	215764	50.0000	41.79
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	295960	50.0000	45.80
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	261051	50.0000	49.99
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	169968	50.0000	47.31
	38 Trichloroethene	130	5.207	5.207	(1.049)	245757	50.0000	50.61
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	235027	50.0000	40.37



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020303.D
Date : 03-FEB-2021 21:36
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020305.D Page 1
Report Date: 01-Mar-2021 15:43

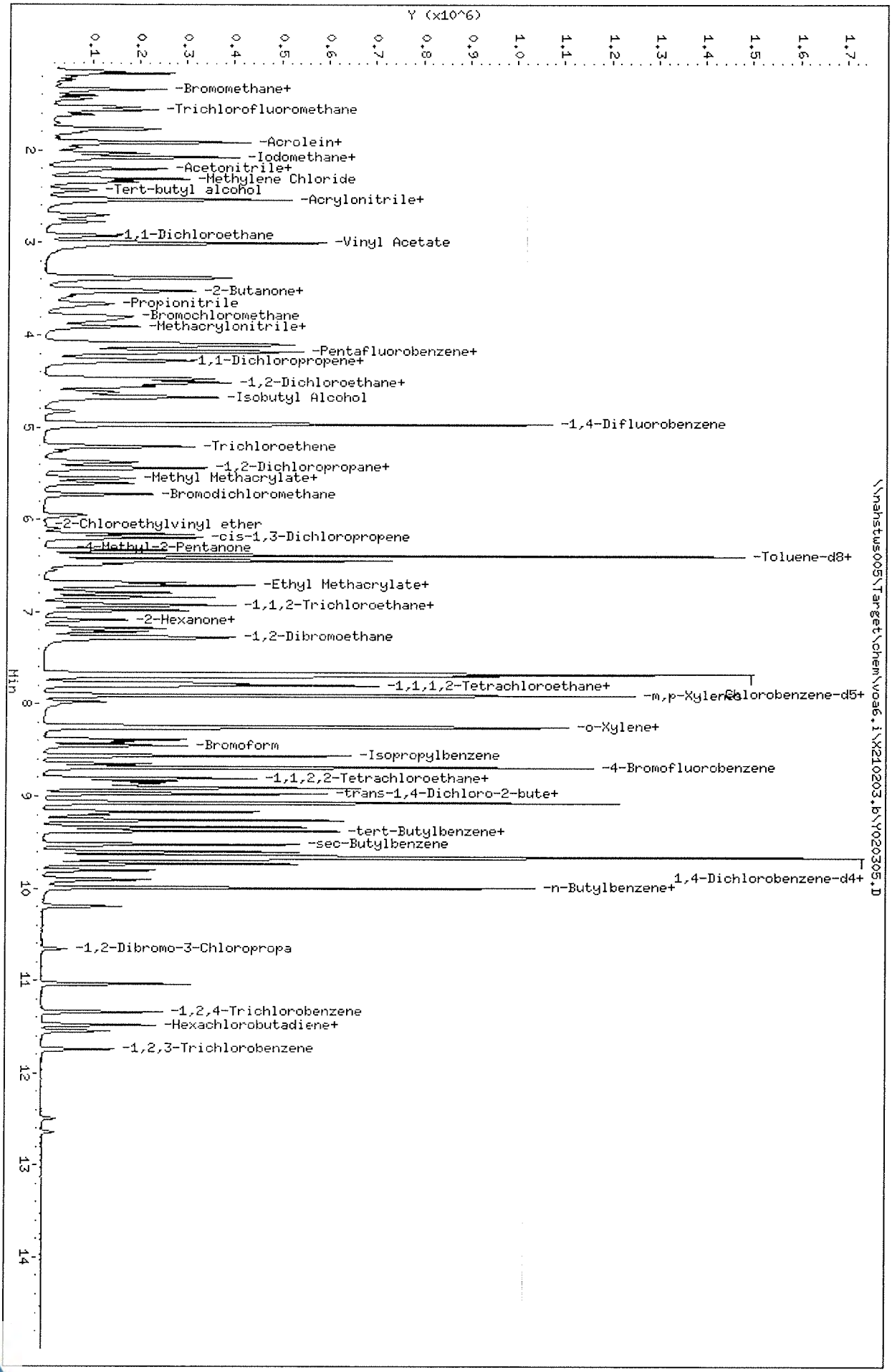
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020305.D
Lab Smp Id: VLCSW-210203 Client Smp ID: VLCSW-210203
Inj Date : 03-FEB-2021 22:18
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210203;VLCSW-210203;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 34 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	433408	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	779770	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	722294	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	328102	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	268790	51.6951	51.69
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	271183	50.1992	50.19
$	48 Toluene-d8	98	6.388	6.388	(0.833)	896841	47.4624	47.46
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	326859	51.1346	51.13
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	90418	16.4775	16.47
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	133757	19.2902	19.29
	27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	115231	20.7598	20.75
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	72159	18.3117	18.31
	38 Trichloroethene	130	5.207	5.207	(1.049)	107098	20.5526	20.55
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	102458	16.5574	16.55



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020305.D
Date : 03-FEB-2021 22:18
Client ID: VLCSW-210203
Sample Info: VLCSW-210203;VLCSW-210203;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020307.D
Lab Smp Id: VBLKW-210203 Client Smp ID: VBLKW-210203
Inj Date : 03-FEB-2021 23:00
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210203;VBLKW-210203;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 36 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

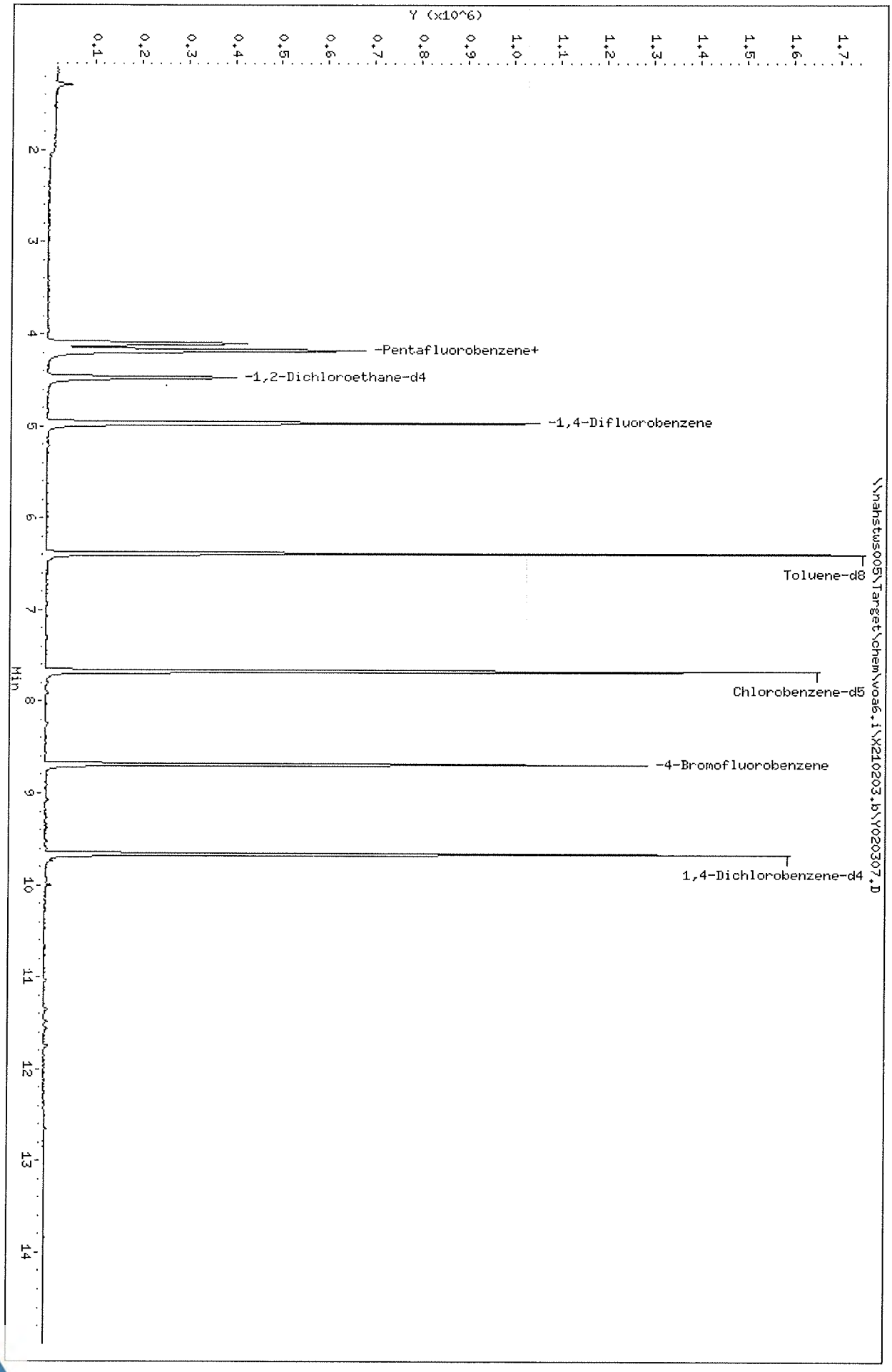
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	532356	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	916631	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	829711	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	359931	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	310050	48.5240	48.52
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	312972	47.0781	47.07
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1072856	49.4268	49.42
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	373734	50.8914	50.89

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020307.D
Date : 03-FEB-2021 23:00
Client ID: VBLKW-210203
Sample Info: VBLKW-210203;VBLKW-210203;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020316.D Page 1
Report Date: 01-Mar-2021 15:43

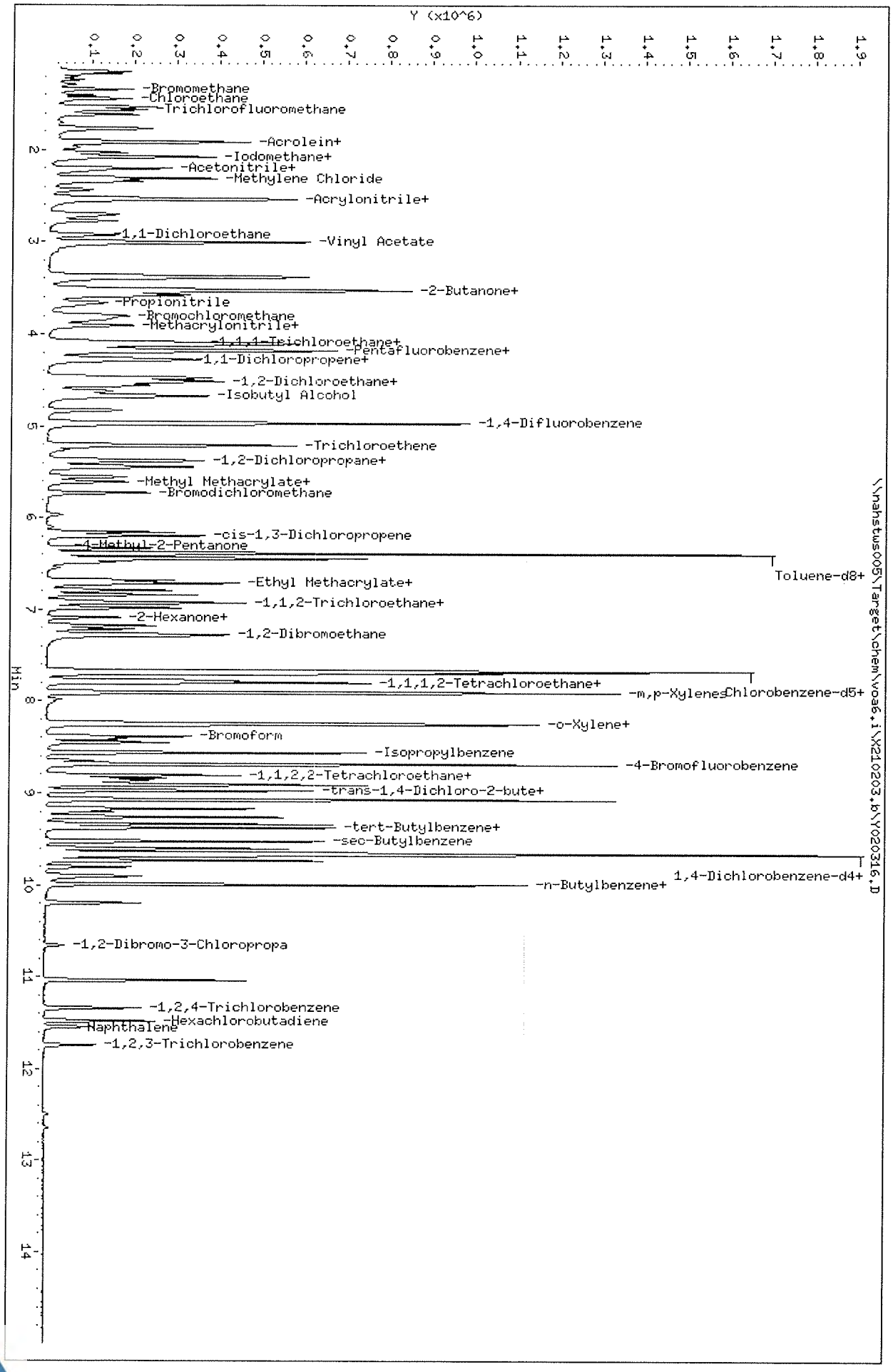
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020316.D
Lab Smp Id: HS21011077-06MS Client Smp ID: HS21011077-06MS
Inj Date : 04-FEB-2021 02:10
Operator : PC Inst ID: voa6.i
Smp Info : HS21011077-06MS;HS21011077-06MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 45 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	519426	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	868817	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	803696	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	374971	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	290696	46.6127	46.61
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	290069	44.6458	44.64
$	48 Toluene-d8	98	6.389	6.388	(0.833)	1018604	48.4464	48.44
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	375572	52.8540	52.85
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	91990	13.9879	13.98
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	133125	17.2313	17.23
	27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	400675	60.2309	60.23
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	84297	19.2253	19.22
	38 Trichloroethene	130	5.207	5.207	(1.049)	187729	32.3336	32.33
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	122634	16.5360	16.53



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020316.D
Date : 04-FEB-2021 02:10
Client ID: HS21011077-06MS
Sample Info: HS21011077-06MS;HS21011077-06MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020317.D Page 1
Report Date: 01-Mar-2021 15:43

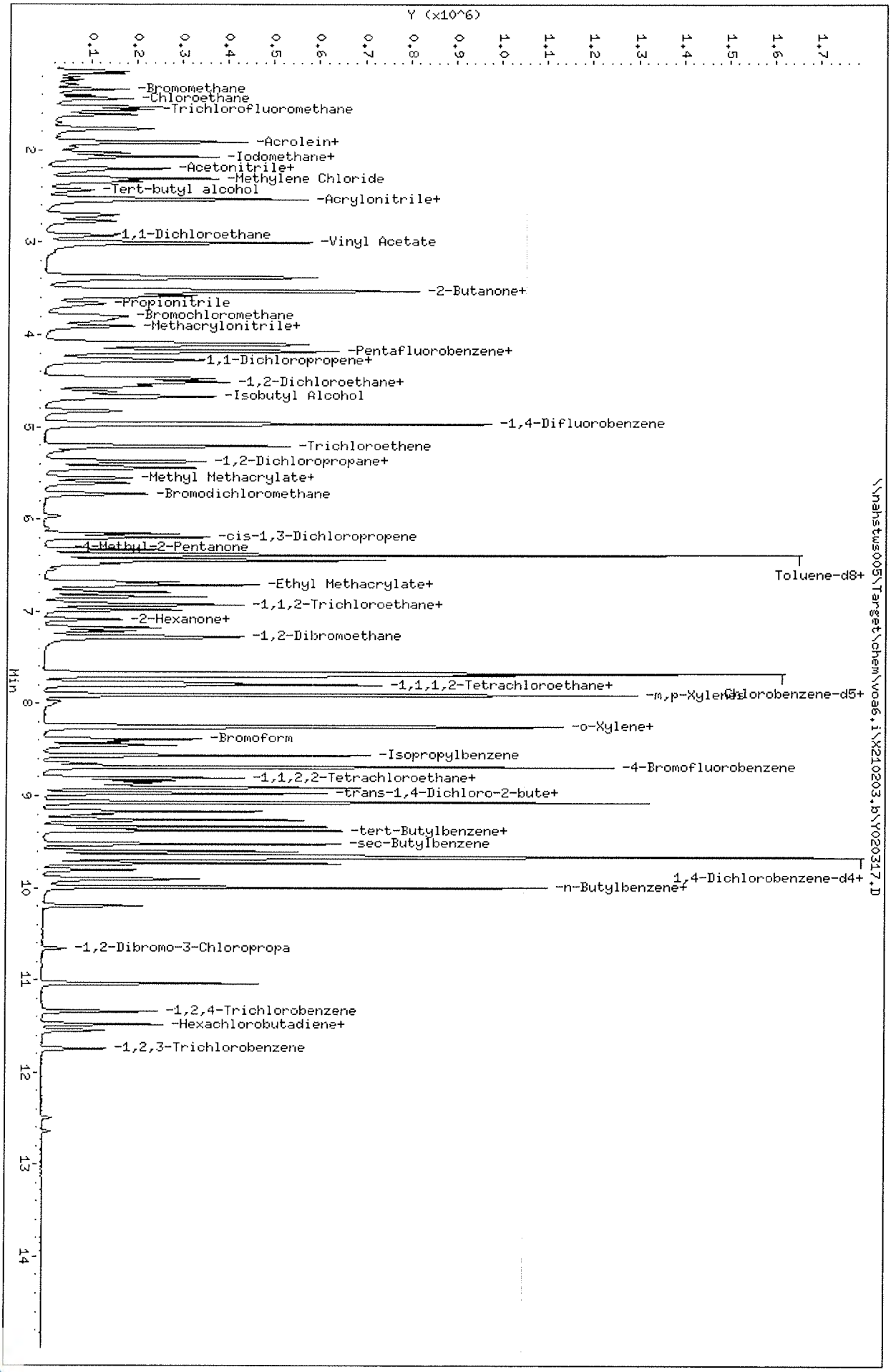
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020317.D
Lab Smp Id: HS21011077-06MSD Client Smp ID: HS21011077-06MSD
Inj Date : 04-FEB-2021 02:31
Operator : PC Inst ID: voa6.i
Smp Info : HS21011077-06MSD;HS21011077-06MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 45 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	507843	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	855844	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	776425	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	337929	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	284647	46.6843	46.68
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	292541	46.0994	46.09
$	48 Toluene-d8	98	6.388	6.388	(0.833)	989332	48.7069	48.70
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	352885	51.3639	51.36
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	83716	13.0201	13.02
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	132920	17.4656	17.46
	27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	389602	59.9021	59.90
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	80103	18.9105	18.91
	38 Trichloroethene	130	5.206	5.207	(1.049)	178308	31.1765	31.17
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	116462	16.0619	16.06



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020317.D
Date : 04-FEB-2021 02:31
Client ID: HS21011077-06HSD
Sample Info: HS21011077-06HSD;HS21011077-06HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020318.D Page 1
Report Date: 01-Mar-2021 15:43

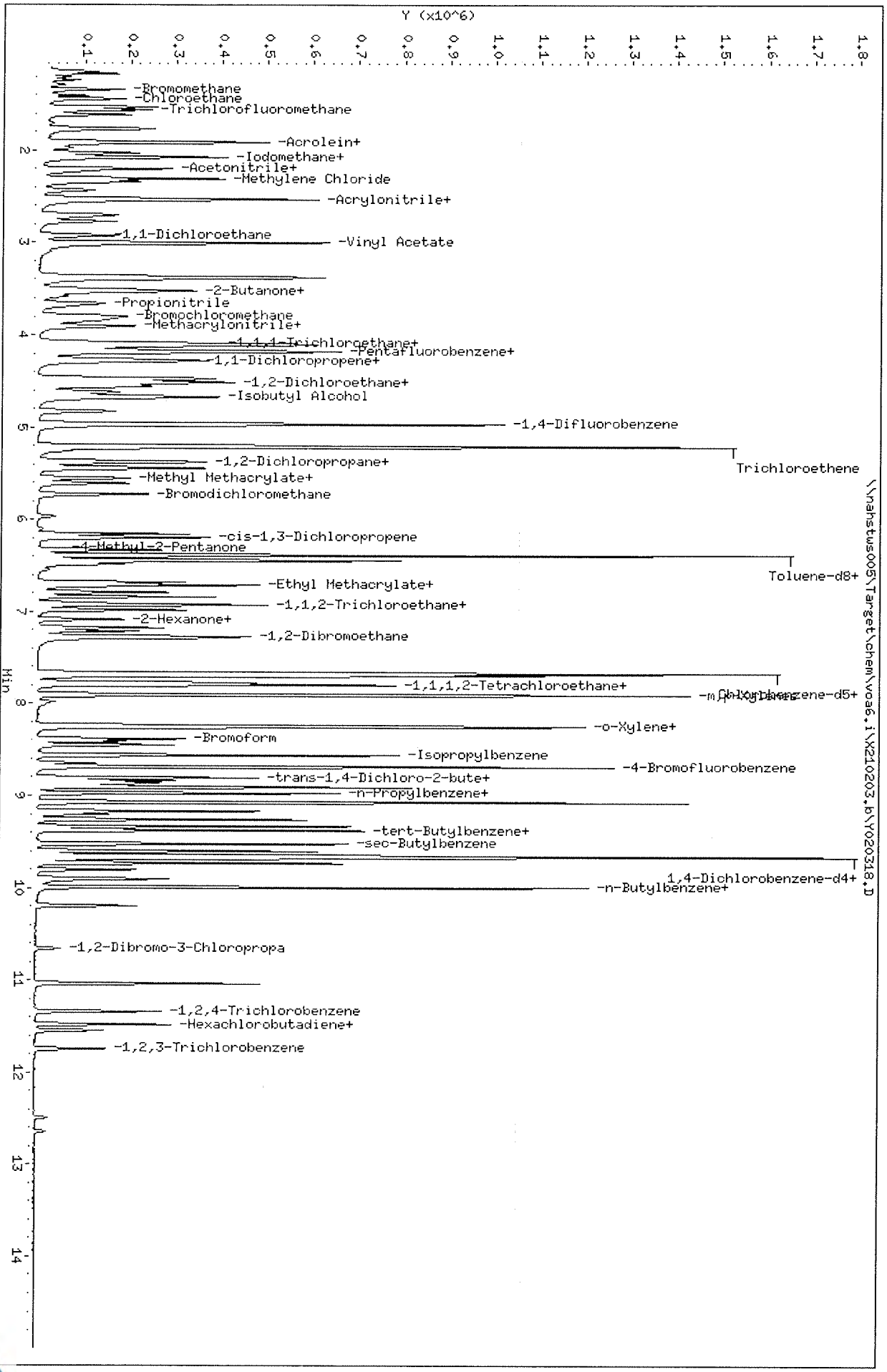
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020318.D
Lab Smp Id: HS21011077-02MS Client Smp ID: HS21011077-02MS
Inj Date : 04-FEB-2021 02:52
Operator : PC Inst ID: voa6.i
Smp Info : HS21011077-02MS;HS21011077-02MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 46 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	516058	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	871933	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	776984	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	341145	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	294301	47.5059	47.50
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	294593	45.6705	45.67
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1007003	49.5412	49.54
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	352706	51.2990	51.29
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	100885	15.4405	15.44
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	137369	17.7171	17.71
	27 cis-1,2-Dichloroethene	96	3.523	3.530	(0.842)	123780	18.7285	18.72
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	89076	21.0136	21.01
	38 Trichloroethene	130	5.207	5.207	(1.049)	502018	86.1564	86.15
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	76751	10.4166	10.41



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020318.D
Date : 04-FEB-2021 02:52
Client ID: HS21011077-02MS
Sample Info: HS21011077-02MS;HS21011077-02MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020319.D Page 1
Report Date: 01-Mar-2021 15:43

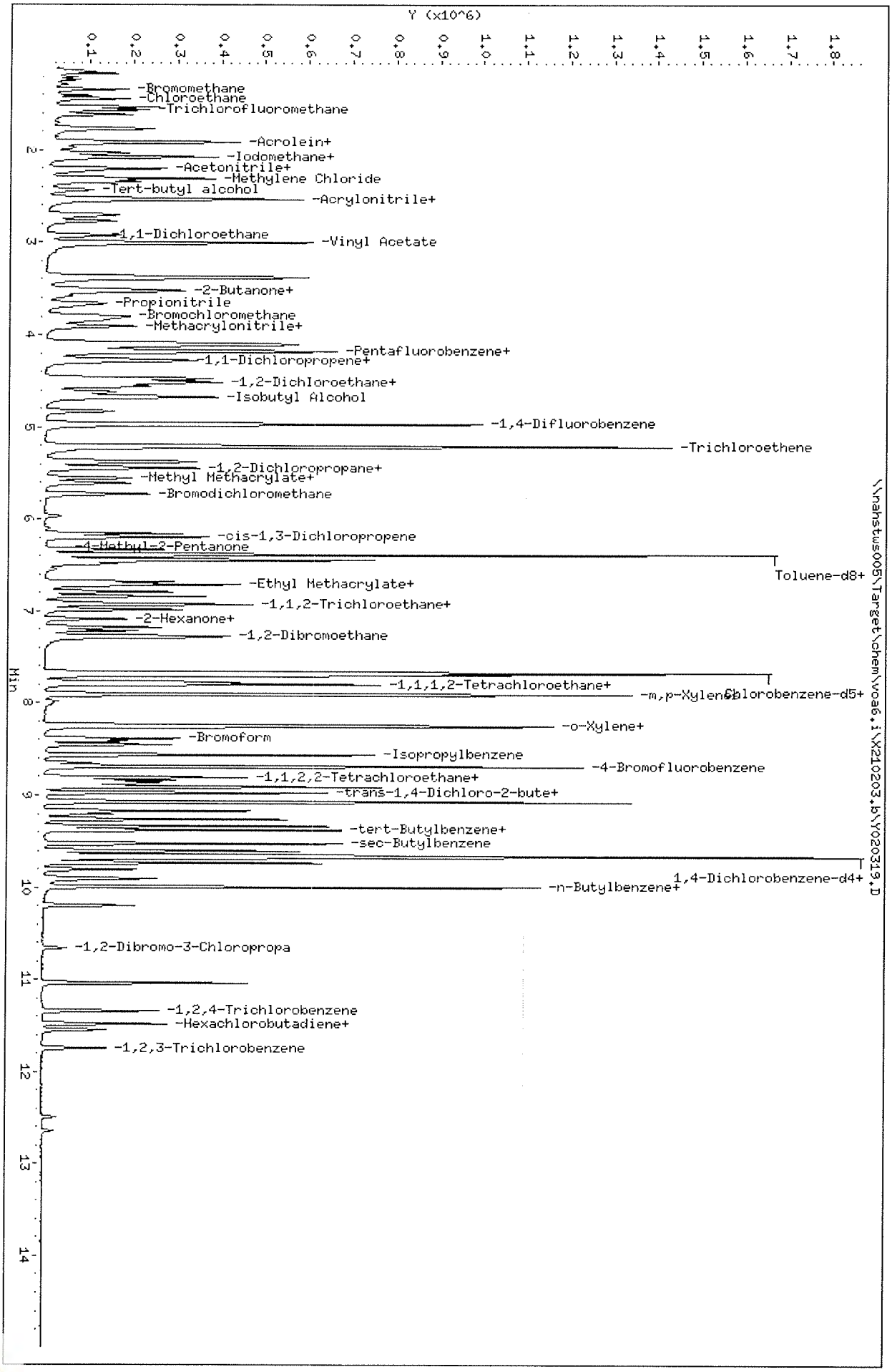
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020319.D
Lab Smp Id: HS21011077-02MSD Client Smp ID: HS21011077-02MSD
Inj Date : 04-FEB-2021 03:13
Operator : PC Inst ID: voa6.i
Smp Info : HS21011077-02MSD;HS21011077-02MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 46 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	515233	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	872112	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	782081	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	346833	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	291431	47.1149	47.11
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	288025	44.6934	44.69
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	993034	48.5356	48.53
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	346596	50.0458	50.04
11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	88061	13.4994	13.49
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	131599	16.9695	16.96
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	115146	17.4500	17.45
56 Tetrachloroethene	164	6.926	6.926	(0.903)	86283	20.2221	20.22
38 Trichloroethene	130	5.206	5.207	(1.049)	468549	80.3959	80.39
5 Vinyl Chloride	62	1.138	1.138	(0.272)	69081	9.39069	9.39



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020319.D
Date : 04-FEB-2021 03:13
Client ID: HS21011077-02MSD
Sample Info: HS21011077-02MSD;HS21011077-02MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020321.D
Lab Smp Id: HS21011122-02 Client Smp ID: HS21011122-02
Inj Date : 04-FEB-2021 03:55
Operator : PC Inst ID: voa6.i
Smp Info : HS21011122-02;HS21011122-02;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:07 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 48
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

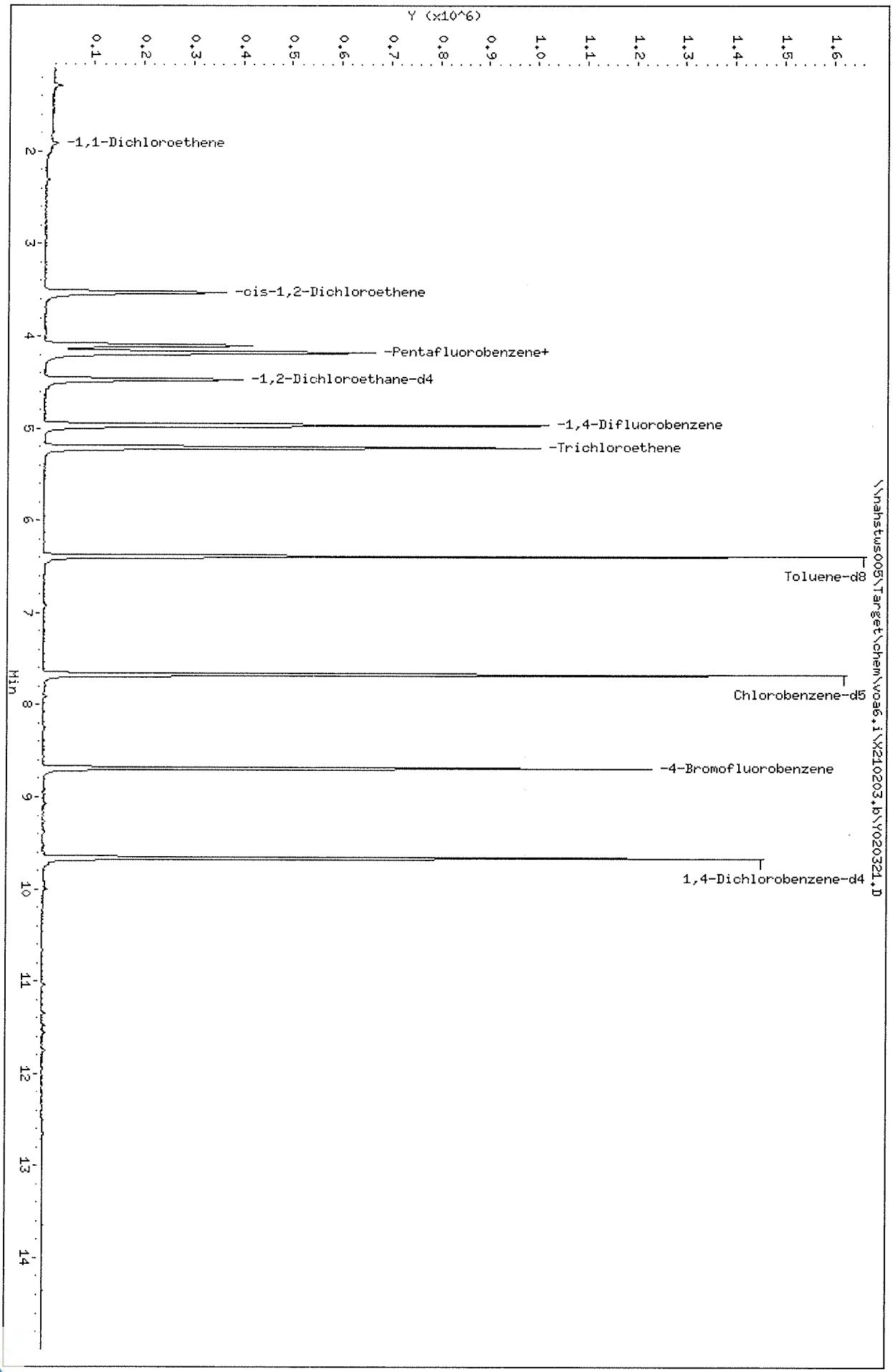
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	520156	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	893747	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	785648	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	328217	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	302120	48.3909	48.39
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	314200	48.4116	48.41
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1039927	50.5968	50.59
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	350557	50.3983	50.39
11 1,1-Dichloroethene	96	1.919	1.912	(0.459)	4254	0.64595	3.22(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	202012	30.3245	151.62
38 Trichloroethene	130	5.206	5.207	(1.049)	325353	54.4743	272.37

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020321.D
Date : 04-FEB-2021 03:55
Client ID: HS21011122-02
Sample Info: HS21011122-02;HS21011122-02;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020321.D

Date : 04-FEB-2021 03:55

Client ID: HS21011122-02

Instrument: voa6.i

Sample Info: HS21011122-02;HS21011122-02;;;

Purge Volume: 5.0

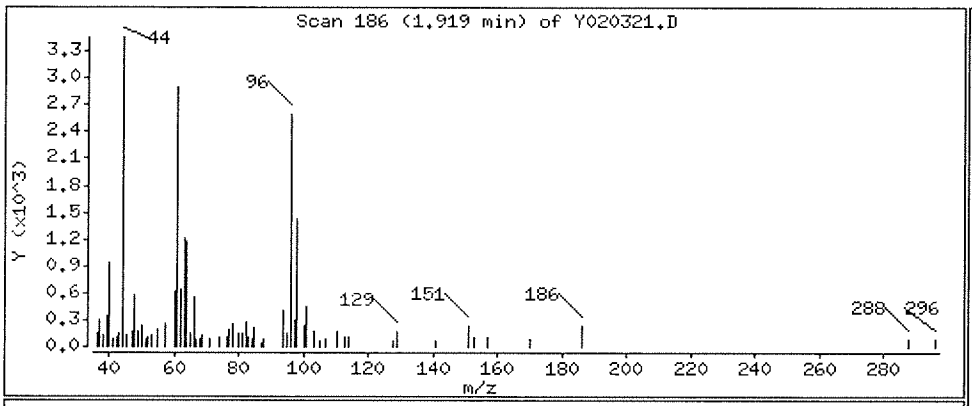
Operator: PC

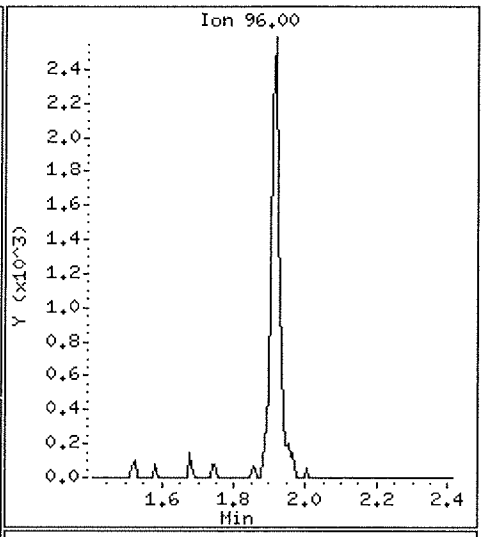
Column phase: DB624

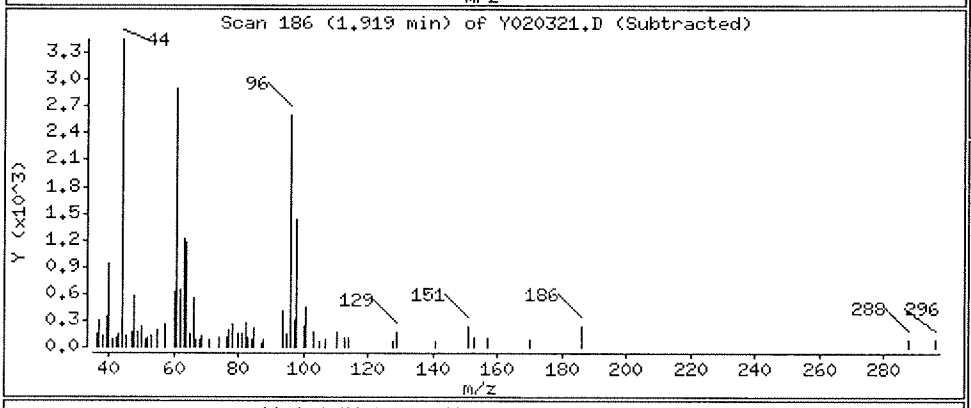
Column diameter: 0.18

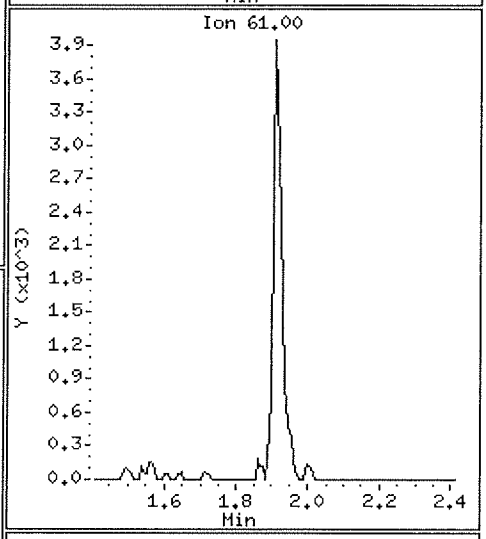
11 1,1-Dichloroethene

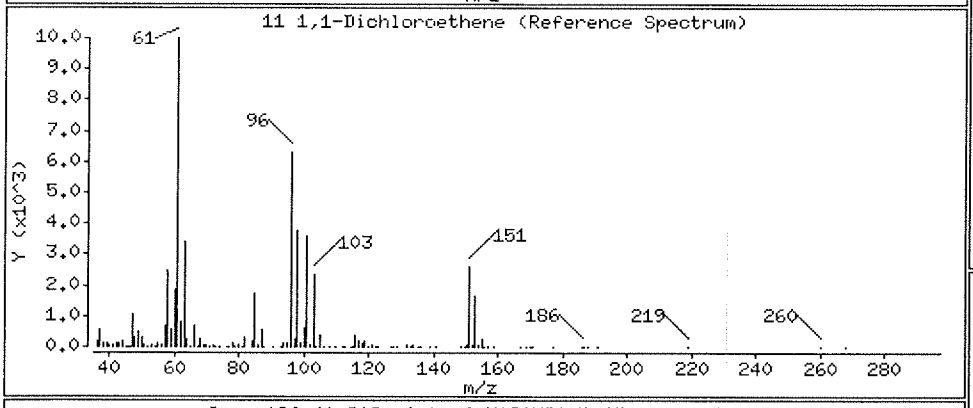
Concentration: 3.22 ug/l

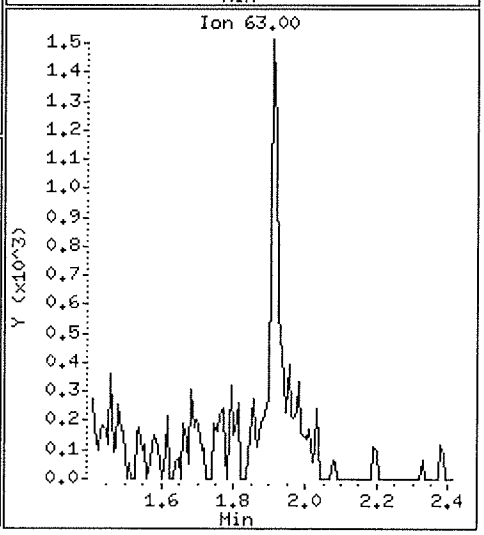


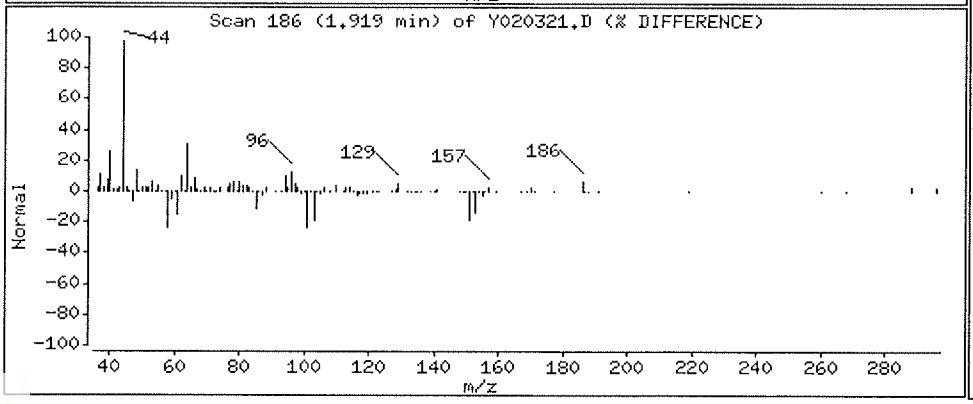












Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020321.D Page 4

Date : 04-FEB-2021 03:55

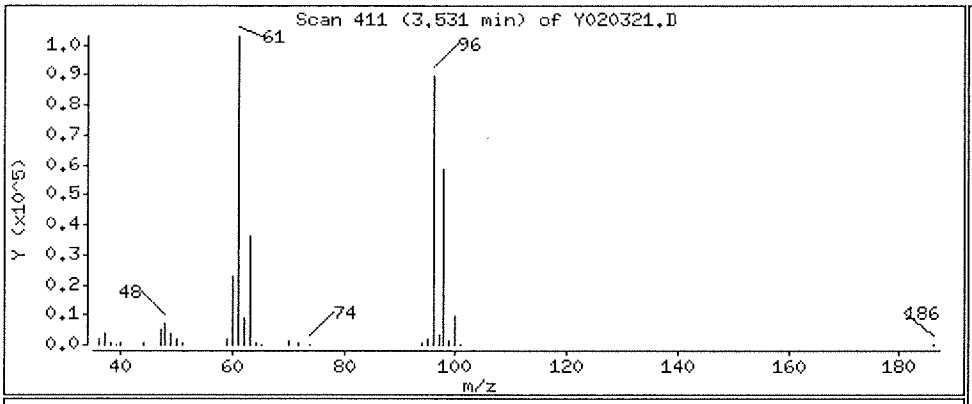
Client ID: HS21011122-02 Instrument: voa6.i

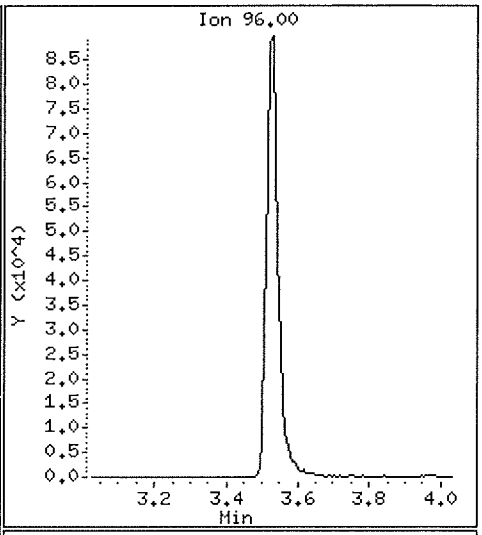
Sample Info: HS21011122-02;HS21011122-02;;;

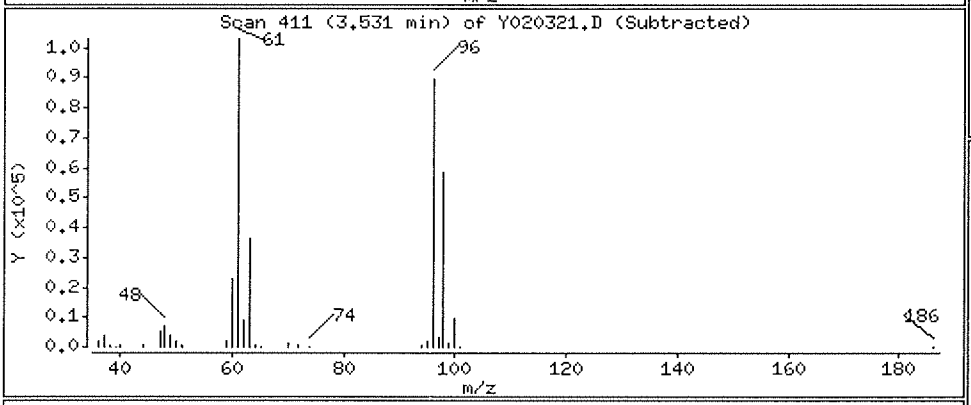
Purge Volume: 5.0 Operator: PC

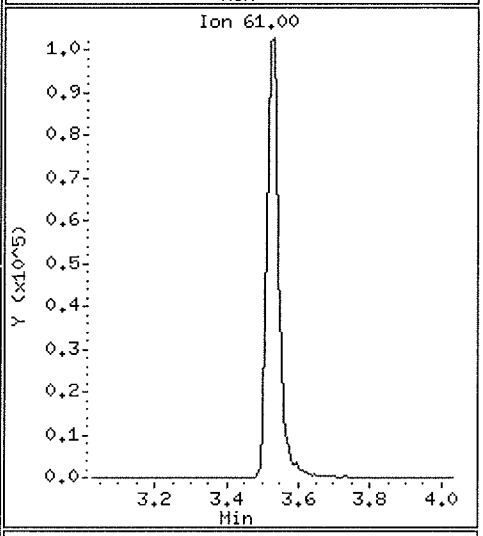
Column phase: DB624 Column diameter: 0.18

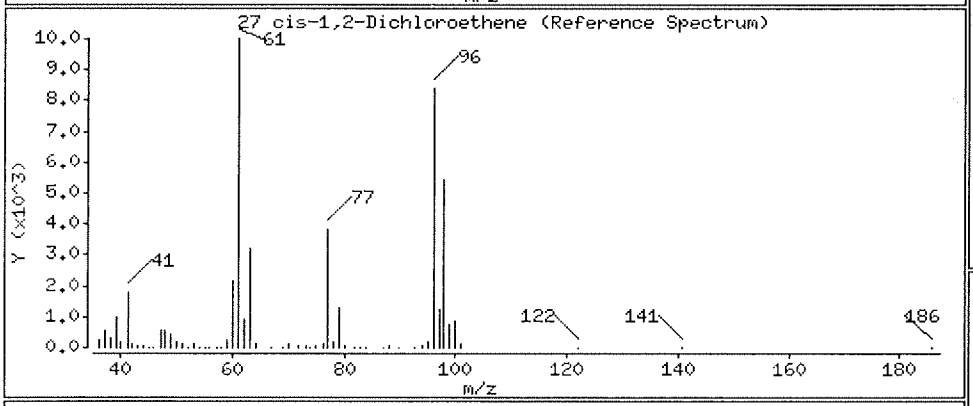
27 cis-1,2-Dichloroethene Concentration: 151.62 ug/l

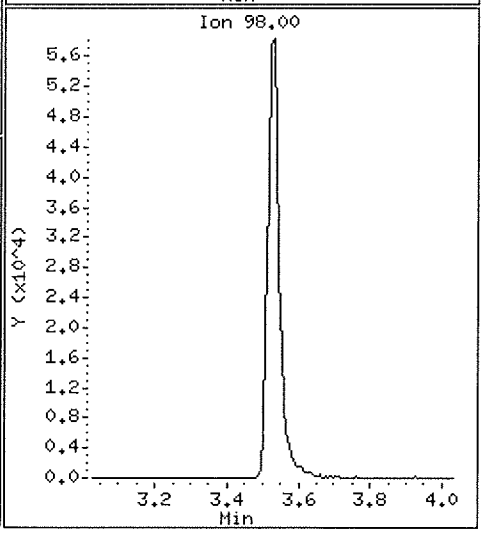


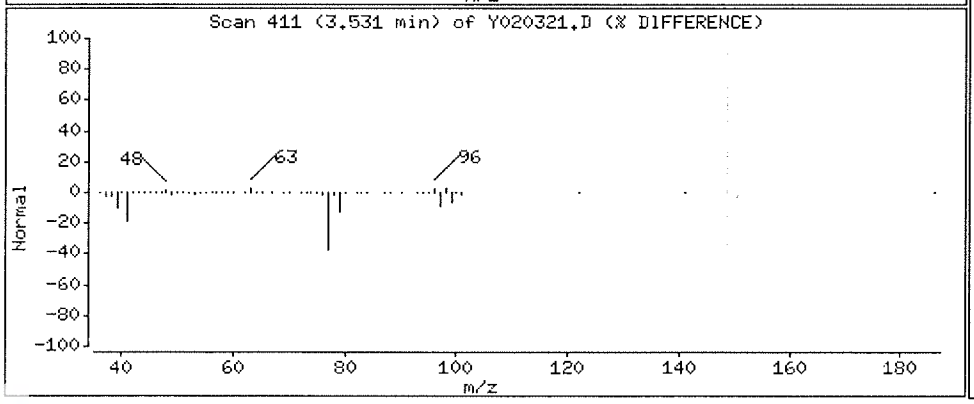












Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020321.D Page 5

Date : 04-FEB-2021 03:55

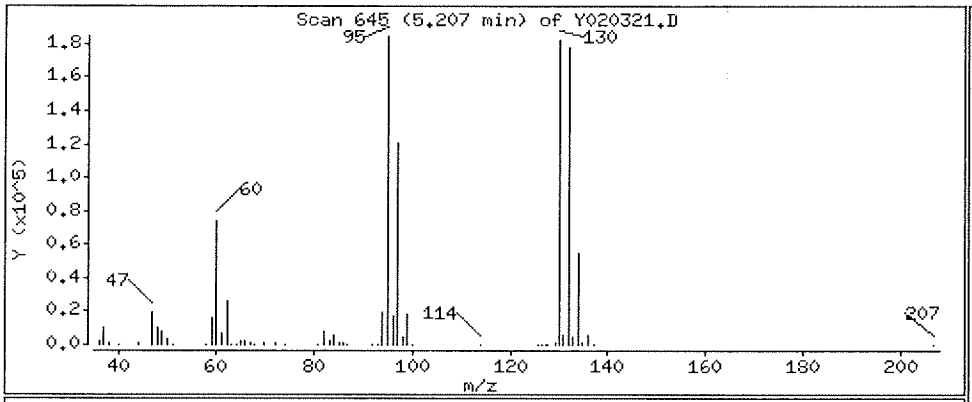
Client ID: HS21011122-02 Instrument: voa6.i

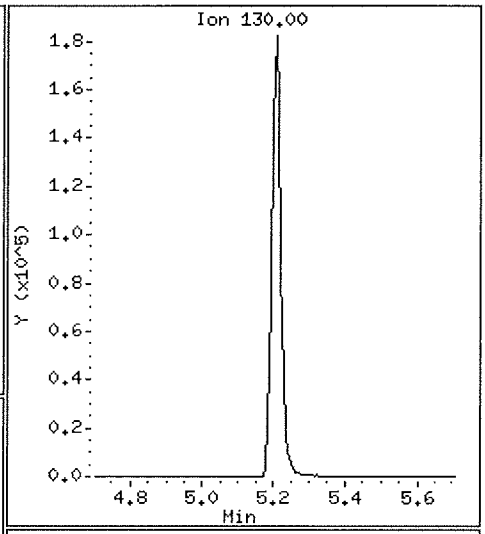
Sample Info: HS21011122-02;HS21011122-02;;;

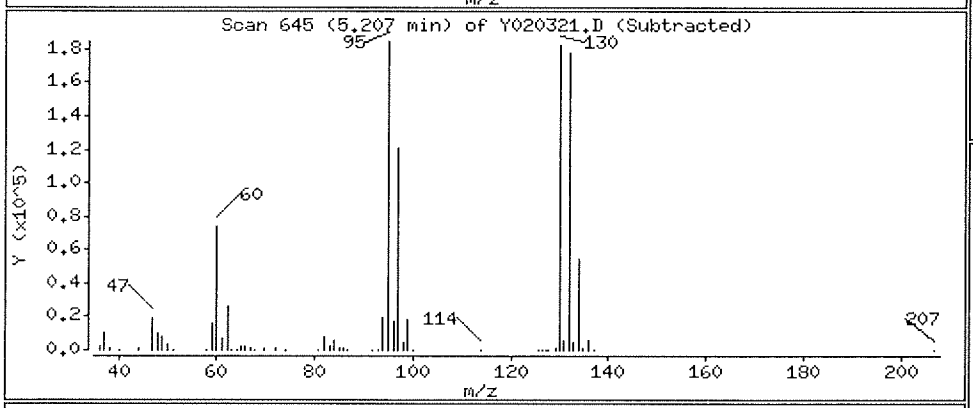
Purge Volume: 5.0 Operator: PC

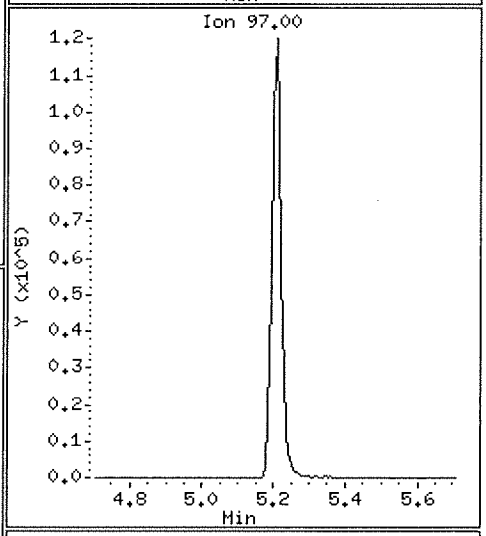
Column phase: DB624 Column diameter: 0.18

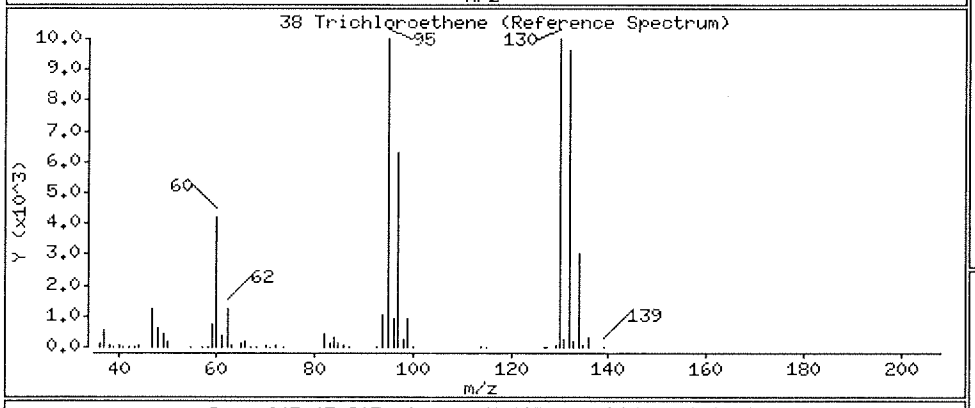
38 Trichloroethene Concentration: 272.37 ug/l

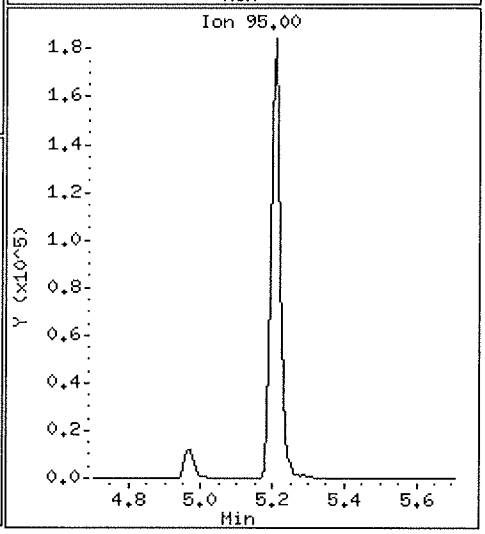


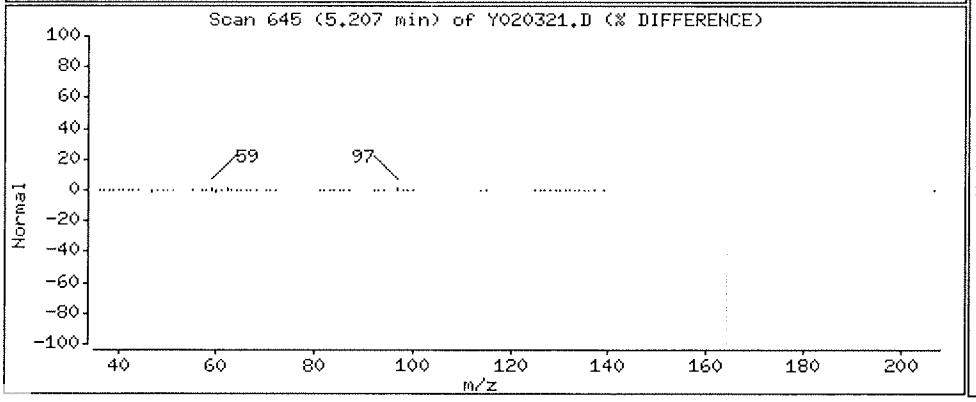












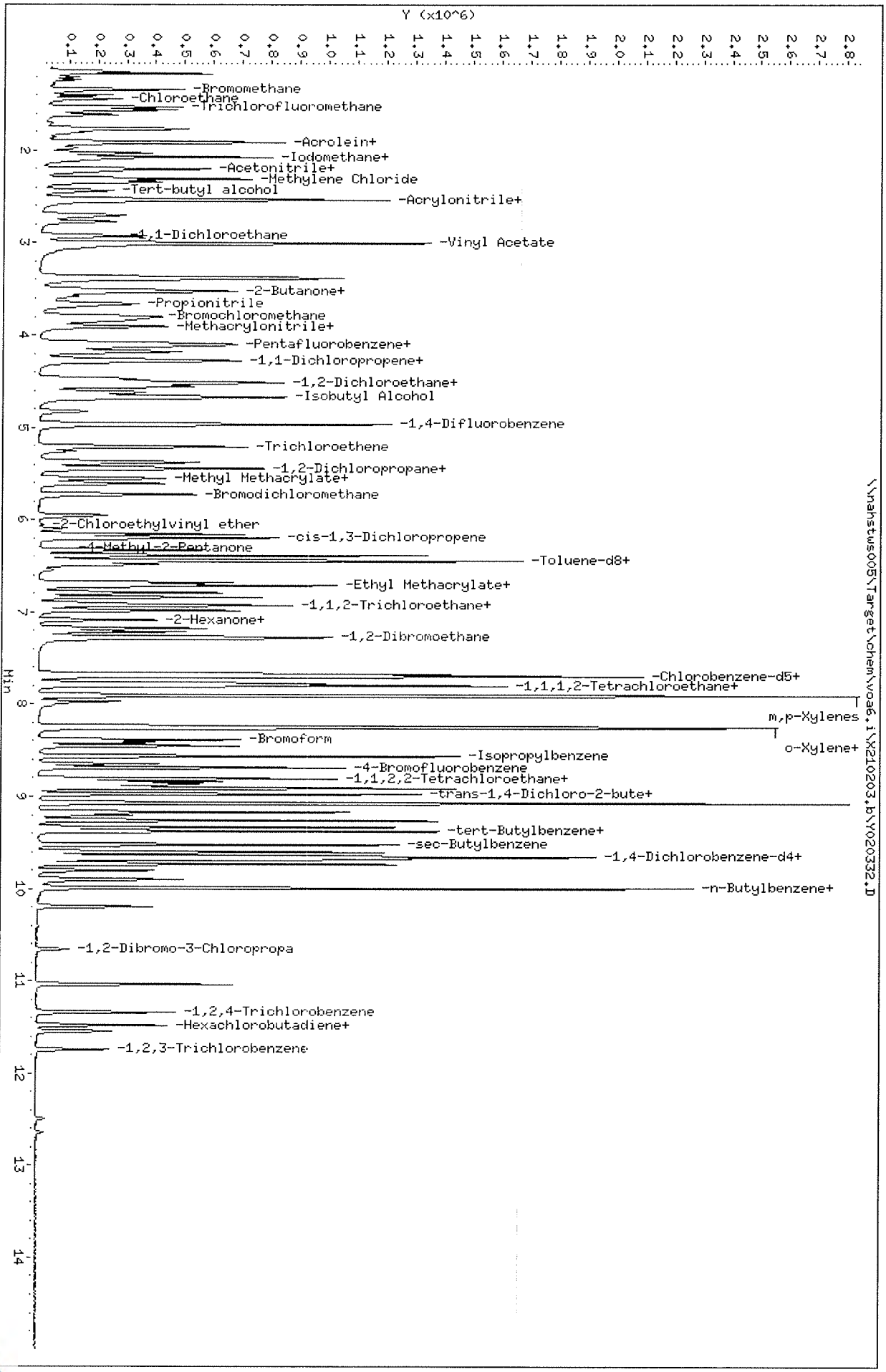
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210203.b\Y020332.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 04-FEB-2021 07:47
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210203.b\8260W.m
Meth Date : 01-Mar-2021 15:43 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 59 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	366283	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	668693	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	635696	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	282100	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	236652	50.0000	53.87
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	245881	50.0000	53.96
$	48 Toluene-d8	98	6.388	6.388	(0.833)	789565	50.0000	47.47
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	290225	50.0000	51.60
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	174987	50.0000	37.73
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	283763	50.0000	47.72
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	247174	50.0000	52.69
	56 Tetrachloroethene	164	6.925	6.925	(0.903)	156816	50.0000	45.21
	38 Trichloroethene	130	5.206	5.206	(1.049)	230413	50.0000	51.56
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	210087	50.0000	40.17



Data File: \\nahstws005\Target\chem\voa6.i\X210203.b\Y020332.D
Date : 04-FEB-2021 07:47
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

HS21011122 - Sub Perch IV (E2100118)

ALS WO# HS21011122

February 02, 2021 Service Request No:E2100118

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

Laboratory Results for: HS21011122

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory January 29, 2021
For your reference, these analyses have been assigned our service request number **E2100118.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental



Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

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

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100118
Project:	HS21011122	**Date Received:**	01/29/21
Sample Matrix:	W		

CASE NARRATIVE

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

Sample Receipt

Three samples were received for analysis at ALS Environmental in Houston on 01/29/21.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100046: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits. MS/MSD performed on an unrelated sample/

Samples E2100118-003 lowest practical dilution performed due to matrix interference.

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

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

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

Client: ALS Environmental - US **Service Request:**E2100118
Project: HS21011122

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100118-001	50WW08-210125	1/25/2021	1245
E2100118-002	50WW05-210125	1/25/2021	1330
E2100118-003	50WW29-210125	1/25/2021	1415

Service Request Summary

Folder #: **E2100118**
Client Name: ALS Environmental - US
Project Name: HS21011122
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/10/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011122
EDD: No EDD Specified

3 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100118-001	50WW08-210125	Ground Water	01/25/21 1245	**IV**
E2100118-002	50WW05-210125	Ground Water	01/25/21 1330	**IV**
E2100118-003	50WW29-210125	Ground Water	01/25/21 1415	**IV**

Service Request Summary

Folder #: **E2100118**
Client Name: ALS Environmental - US
Project Name: HS21011122
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/10/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011122
EDD: No EDD Specified

3 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	3	II Due 2/10,IV due 2/17

Data Qualifiers

Lab Standard

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

Data Qualifiers

Lab Standard

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

ALS Laboratory Group

Acronyms

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

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ALS Environmental

State Certifications, Accreditations, and Licenses

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

ALS

Chain of Custody

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www.alsglobal.com

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Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15564**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21011122
TSR:	Sonja West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011122-01**	**50WW08-210125**	**Groundwater**	**25 Jan 2021 12:45**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021
2.	**HS21011122-02**	**50WW05-210125**	**Groundwater**	**25 Jan 2021 13:30**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021
3.	**HS21011122-03**	**50WW29-210125**	**Groundwater**	**25 Jan 2021 14:15**
	Provide Level II and Level IV reports on a seperate pdf.			05 Feb 2021

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Lawal Date/Time:

Received By: Date/Time: 1/24/21 1704

Cooler ID(s): Temperature(s):

Cooler Receipt Form

ALS Environmental

Project Chemist CA

Client/Project ALS-KI

Thermometer ID IR31

Date/Time Received: 112912I Initials: CA

Date/Time Logged in: 112912I Initials CA

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

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

3. Were custody seals on coolers? ○ Yes ✓ No
   Were they intact? ○ Yes ○ No ✓ N/A
   Were they signed and dated? ○ Yes ○ No ✓ N/A
   If yes, how many and where?

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		112912I	1204	CA	0.3	☒
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No
10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

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Houston, TX 77099
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F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
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Preparation Information Benchsheet

Prep Run#: 373567 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/JRODRIGUEZ **Prep Method:** Method **Prep Date/Time:** 2/1/21 09:04

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100117-001	50WW14-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2100117-002	50WW14-210128-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2100117-003	50WW13-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2100117-004	50WW11-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100117-005	50WW06-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100117-006	50WW12-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100118-001	50WW08-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100118-002	50WW05-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100118-003	50WW29-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
10	EQ2100046-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2100046-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2100046-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100046-04	50WW12-210128 MS	.02	6850/ClO4 DOD			Liquid	10mL	
14	EQ2100046-05	50WW12-210128 DMS	.03	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

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

EQ2100046-02	1.00µL	EQ2100046-03	1.00µL	EQ2100046-04	1.00µL	EQ2100046-05	1.00µL

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

E2100117-001	100.00µL	E2100117-002	100.00µL	E2100117-003	100.00µL	E2100117-004	100.00µL	E2100117-005	100.00µL	E2100117-006	100.00µL
E2100117-006.R	100.00µL	E2100118-001	100.00µL	E2100118-002	100.00µL	E2100118-003	100.00µL	EQ2100046-01	100.00µL	EQ2100046-02	100.00µL
EQ2100046-03	100.00µL	EQ2100046-04	100.00µL	EQ2100046-05	100.00µL						

Preparation Steps

Step: Preparation
Started: 2/1/21 09:04
Finished: 2/1/21 09:29
By: GRIVERA
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 373567
Team: Semivoa GCMS/JRODRIGUEZ

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 2/1/21 09:04

Reviewed By: GR Date: 2/1/21

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1245
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW08-210125	**Units:**	µg/L
Lab Code:	E2100118-001	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**126**		1.00	0.500	0.250	10	2/ 1/21	2/2/21 14:02	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1330
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW05-210125	**Units:**	µg/L
Lab Code:	E2100118-002	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:51	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	1/25/21 1415
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW29-210125	**Units:**	µg/L
Lab Code:	E2100118-003	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	1.00	0.500	0.250	10	2/ 1/21	2/2/21 14:28	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100046-01	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:28	373567	711866	

Accuracy & Precision

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www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122
Sample Matrix: Ground Water

Service Request: E2100118
Date Analyzed: 2/ 2/21

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

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 373567

	Lab Control Sample EQ2100046-02			Duplicate Lab Control Sample EQ2100046-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0908	0.100	91	0.101	0.100	101	84 - 119	11	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-02	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0908**	J	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 14:36	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-03	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:35	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
		Date Analyzed:	2/ 1/21

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

Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS Matrix Spike EQ2100046-04				Batch QCDMS Duplicate Matrix Spike EQ2100046-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	83800	60800	0.100	-2300760#	60700	0.100	-2309488#	84 - 119	<1	15

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

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2100046-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60800**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:36	373567	711817	*

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2100046-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60700**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:44	373567	711817	*

Initial Calibration

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

20210201

ALS Environmental

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210201_010	Perchlorate6850b.lcm	1x	☒	3100808-05	2/1/2021 12:31
2	PERCHLORATE2		20210201_011	Perchlorate6850b.lcm	1x	☒	3100808-06	2/1/2021 12:39
3	PERCHLORATE3		20210201_012	Perchlorate6850b.lcm	1x	☒	3100808-07	2/1/2021 12:47
4	PERCHLORATE4		20210201_013	Perchlorate6850b.lcm	1x	☒	3100808-08	2/1/2021 12:54
5	PERCHLORATE5		20210201_014	Perchlorate6850b.lcm	1x	☒	3100808-09	2/1/2021 13:02
6	PERCHLORATE6		20210201_015	Perchlorate6850b.lcm	1x	☒	3100809-01	2/1/2021 13:10
7	PERCHLORATE7		20210201_016	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 13:18
8	PERCHLORATE8		20210201_017	Perchlorate6850b.lcm	1x	☒	3100809-03	2/1/2021 13:26
9	PERCHLORATE9		20210201_018	Perchlorate6850b.lcm	1x	☒	3100809-04	2/1/2021 13:34
10	PERCHLORATE10		20210201_019	Perchlorate6850b.lcm	1x	☒	3100809-05	2/1/2021 13:42
11	ICS		20210201_020	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:50
12	LODV		20210201_021	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:58
13	PERCHLORATEICV		20210201_022	Perchlorate6850b.lcm	1x	☒	3100809-06	2/1/2021 14:06
14	EQ2100045-01		20210201_023	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:14
15	EQ2100045-02		20210201_024	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:21
16	EQ2100045-03		20210201_025	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:29
17	EQ2100045-04		20210201_026	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:37
18	EQ2100045-05		20210201_027	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:45
19	EQ2100045-06		20210201_028	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:53
20	EQ2100045-07		20210201_029	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:01
21	E2100103-001		20210201_030	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:09
22	E2100103-002		20210201_031	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:17
23	E2100103-003		20210201_032	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:25
24	PERCHLORATE7		20210201_033	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 15:32
25	E2100103-004		20210201_034	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:40
26	E2100103-005		20210201_035	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:48
27	E2100103-006		20210201_036	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:56
28	E2100105-001		20210201_037	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:04
29	E2100106-001		20210201_038	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:12
30	E2100106-002		20210201_039	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:20
31	E2100106-003		20210201_040	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:46
32	E2100106-004		20210201_041	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:54
33	E2100106-005		20210201_042	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:02
34	E2100106-006		20210201_043	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:10
35	PERCHLORATE7		20210201_044	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:17
36	E2100107-001		20210201_045	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:25
37	PERCHLORATE7		20210201_046	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:33
38	10um filter test_MB		20210201_047	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:41
39	10um filter test_LCS		20210201_048	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:49
40	E2100107-002-10um		20210201_049	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:57
41	PERCHLORATE7		20210201_050	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 18:05
42	EQ2100046-01		20210201_051	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:13
43	EQ2100046-02		20210201_052	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:20
44	EQ2100046-03		20210201_053	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:28
45	EQ2100046-04		20210201_054	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:36
46	EQ2100046-05		20210201_055	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:44
47	E2100117-001		20210201_056	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:52
48	E2100117-002		20210201_057	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:00
49	E2100117-003		20210201_058	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:08
50	E2100117-004		20210201_059	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:16
51	E2100117-005		20210201_060	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:24
52	PERCHLORATE7		20210201_061	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 19:31
53	E2100117-006		20210201_062	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:39
54	E2100118-001		20210201_063	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:47
55	E2100118-002		20210201_064	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:55
56	E2100118-003		20210201_065	Perchlorate6850b.lcm	1x	☒		2/1/2021 20:03
57	PERCHLORATE7		20210201_066	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 20:11
58								
59								
60								

Initial Calibration - Detailed Report

Calibration ID: EC2100003 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2100003-01	PERCHLORATE1	20210201_010	02/01/2021 12:31
02	EC2100003-02	PERCHLORATE2	20210201_011	02/01/2021 12:39
03	EC2100003-03	PERCHLORATE3	20210201_012	02/01/2021 12:47
04	EC2100003-04	PERCHLORATE4	20210201_013	02/01/2021 12:54
05	EC2100003-05	PERCHLORATE5	20210201_014	02/01/2021 13:02
06	EC2100003-06	PERCHLORATE6	20210201_015	02/01/2021 13:10
07	EC2100003-07	PERCHLORATE7	20210201_016	02/01/2021 13:18
08	EC2100003-08	PERCHLORATE8	20210201_017	02/01/2021 13:26
09	EC2100003-09	PERCHLORATE9	20210201_018	02/01/2021 13:34
10	EC2100003-10	PERCHLORATE10	20210201_019	02/01/2021 13:42

Analyte	Curve Fit	Weighting		
Perchlorate	**Linear**	**Equal**	**R2 = 0.9998013640904140**	**Y=0.1191 X+0.02779**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1437	02	0.5000	0.1378	03	0.7000	0.1352	04	1.0000	0.1308
05	2.0000	0.1376	06	5.0000	0.1256	07	10.0000	0.1256	08	20.0000	0.122
09	30.0000	0.1213	10	50.0000	0.1188						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	-0.113	**-212.7**	02	0.5000	0.345	**-31.0**	03	0.7000	0.561	-19.8
04	1.0000	0.865	-13.5	05	2.0000	2.08	3.9	06	5.0000	5.04	0.7
07	10.0000	10.3	3.1	08	20.0000	20.3	1.3	09	30.0000	30.3	1.0
10	50.0000	49.6	-0.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2100003	**Instrument ID:**	E-LCMS-01
Datafile ID:	20210201_022	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2100003-11	T	Linear	10	9.837	ng/mL	-1.6	<= 15

ALS Group Houston

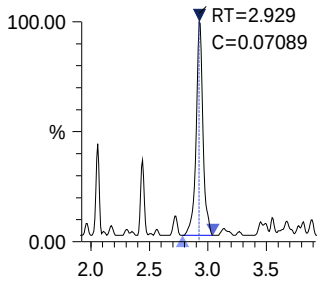
PERCHLORATE1

Sample ID: PERCHLORATE1
Date acquired: 2/1/2021 12:31:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_010.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	2/1/2021 12:31:14 PM	1187	0.07089	20210201_010	2.929	25.0000	1.0000	22
Sodium Perchlorate-18O4_IS	PERCHLORATE1	2/1/2021 12:31:14 PM	82617	1.00000	20210201_010	2.924	25.0000	1.0000	22

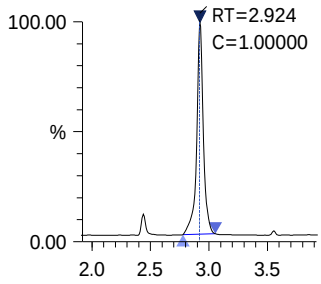
Perchlorate

Conc 0.07089
Area 1187
Q 99.00>83.00 (-) 2.89e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 82617
ISTD 107.00>89.00 (-) 2.10e4



ALS Group Houston

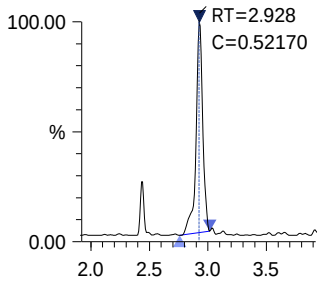
PERCHLORATE2

Sample ID: PERCHLORATE2
Date acquired: 2/1/2021 12:39:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_011.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	2/1/2021 12:39:09 PM	5955	0.52170	20210201_011	2.928	25.0000	1.0000	23
Sodium Perchlorate-18O4_IS	PERCHLORATE2	2/1/2021 12:39:09 PM	86423	1.00000	20210201_011	2.924	25.0000	1.0000	23

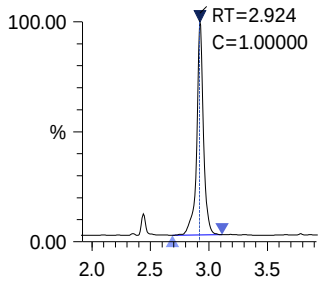
Perchlorate

Conc 0.52170
Area 5955
Q 99.00>83.00 (-) 1.49e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 86423
ISTD 107.00>89.00 (-) 2.15e4



ALS Group Houston

PERCHLORATE3

Sample ID: PERCHLORATE3
Date acquired: 2/1/2021 12:47:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_012.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

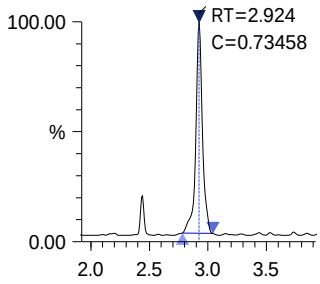
Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	2/1/2021 12:47:03 PM	8132	0.73458	20210201_012	2.924	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	PERCHLORATE3	2/1/2021 12:47:03 PM	85914	1.00000	20210201_012	2.923	25.0000	1.0000	24

Perchlorate

Conc 0.73458

Area 8132

Q 99.00>83.00 (-) 2.06e3

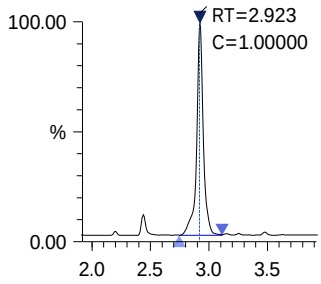


Sodium Perchlorate-18O4_IS

Conc 1.00000

Area 85914

ISTD 107.00>89.00 (-) 2.16e4



ALS Group Houston

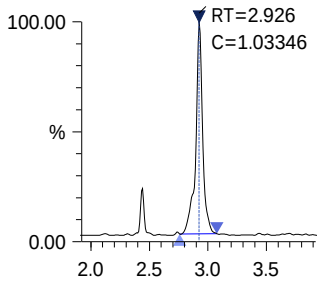
PERCHLORATE4

Sample ID: PERCHLORATE4
Date acquired: 2/1/2021 12:54:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_013.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	2/1/2021 12:54:57 PM	10926	1.03346	20210201_013	2.926	25.0000	1.0000	25
Sodium Perchlorate-18O4_IS	PERCHLORATE4	2/1/2021 12:54:57 PM	83522	1.00000	20210201_013	2.925	25.0000	1.0000	25

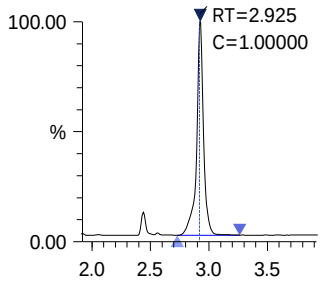
Perchlorate

Conc 1.03346
Area 10926
Q 99.00>83.00 (-) 2.67e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 83522
ISTD 107.00>89.00 (-) 2.02e4



ALS Group Houston

PERCHLORATE5

Sample ID: PERCHLORATE5
Date acquired: 2/1/2021 1:02:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_014.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

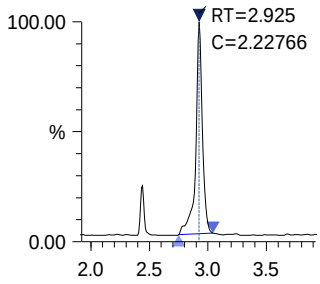
Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	2/1/2021 1:02:54 PM	22093	2.22766	20210201_014	2.925	25.0000	1.0000	26
Sodium Perchlorate-18O4_IS	PERCHLORATE5	2/1/2021 1:02:54 PM	80254	1.00000	20210201_014	2.924	25.0000	1.0000	26

Perchlorate

Conc 2.22766

Area 22093

Q 99.00>83.00 (-) 5.61e3

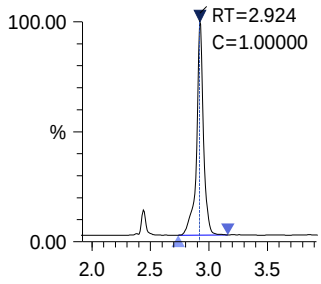


Sodium Perchlorate-18O4_IS

Conc 1.00000

Area 80254

ISTD 107.00>89.00 (-) 1.96e4



ALS Group Houston

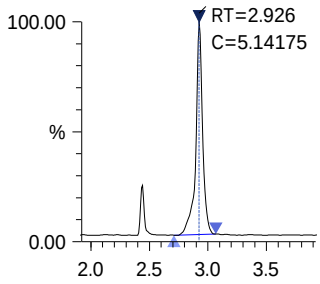
PERCHLORATE6

Sample ID: PERCHLORATE6
Date acquired: 2/1/2021 1:10:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_015.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	2/1/2021 1:10:49 PM	48547	5.14175	20210201_015	2.926	25.0000	1.0000	27
Sodium Perchlorate-18O4_IS	PERCHLORATE6	2/1/2021 1:10:49 PM	77326	1.00000	20210201_015	2.925	25.0000	1.0000	27

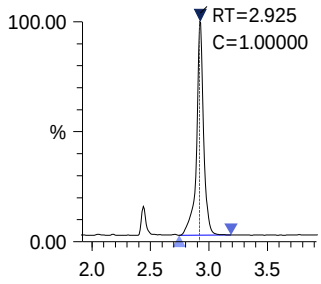
Perchlorate

Conc 5.14175
Area 48547
Q 99.00>83.00 (-) 1.20e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 77326
ISTD 107.00>89.00 (-) 1.84e4



ALS Group Houston

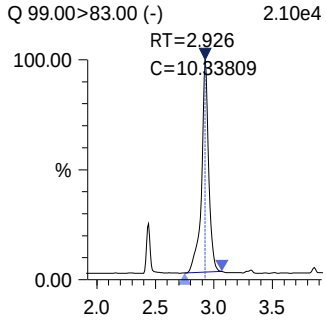
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 1:18:41 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_016.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 1:18:41 PM	88831	10.33809	20210201_016	2.926	25.0000	1.0000	21
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 1:18:41 PM	70700	1.00000	20210201_016	2.924	25.0000	1.0000	21

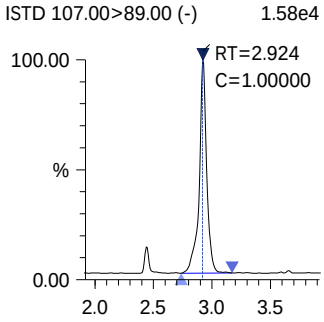
Perchlorate

Conc 10.33809
Area 88831



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 70700



ALS Group Houston

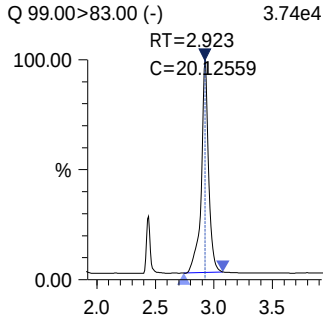
PERCHLORATE8

Sample ID: PERCHLORATE8
Date acquired: 2/1/2021 1:26:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_017.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	2/1/2021 1:26:37 PM	161822	20.12559	20210201_017	2.923	25.0000	1.0000	28
Sodium Perchlorate-18O4_IS	PERCHLORATE8	2/1/2021 1:26:37 PM	66306	1.00000	20210201_017	2.923	25.0000	1.0000	28

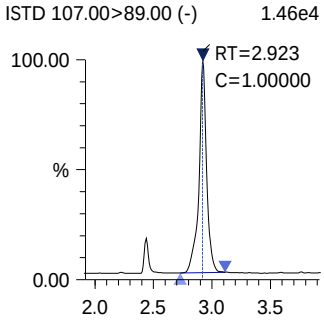
Perchlorate

Conc 20.12559
Area 161822



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 66306



ALS Group Houston

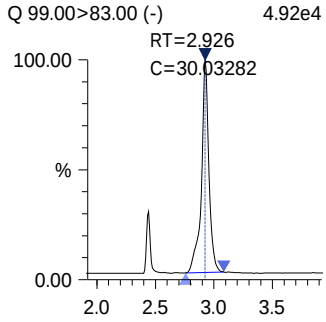
PERCHLORATE9

Sample ID: PERCHLORATE9
Date acquired: 2/1/2021 1:34:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_018.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	2/1/2021 1:34:33 PM	219142	30.03282	20210201_018	2.926	25.0000	1.0000	29
Sodium Perchlorate-18O4_IS	PERCHLORATE9	2/1/2021 1:34:33 PM	60219	1.00000	20210201_018	2.925	25.0000	1.0000	29

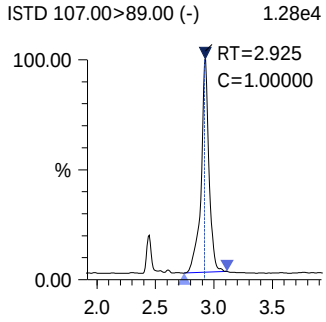
Perchlorate

Conc 30.03282
Area 219142



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 60219



ALS Group Houston

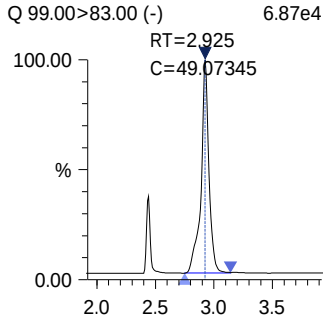
PERCHLORATE10

Sample ID: PERCHLORATE10
Date acquired: 2/1/2021 1:42:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_019.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	2/1/2021 1:42:25 PM	323140	49.07345	20210201_019	2.925	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	PERCHLORATE10	2/1/2021 1:42:25 PM	54378	1.00000	20210201_019	2.923	25.0000	1.0000	30

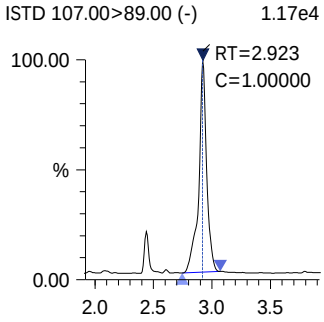
Perchlorate

Conc 49.07345
Area 323140



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 54378



ALS Group Houston

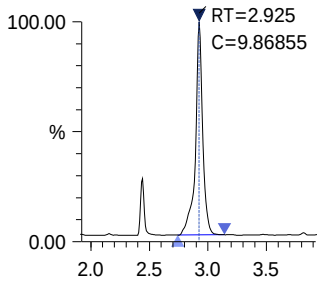
PERCHLORATEICV

Sample ID: PERCHLORATEICV
Date acquired: 2/1/2021 2:06:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_022.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	2/1/2021 2:06:09 PM	91977	9.86855	20210201_022	2.925	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	2/1/2021 2:06:09 PM	76670	1.00000	20210201_022	2.924	25.0000	1.0000	31

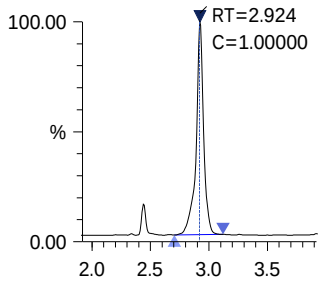
Perchlorate

Conc 9.86855
Area 91977
Q 99.00>83.00 (-) 2.13e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 76670
ISTD 107.00>89.00 (-) 1.71e4



Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20210201

ALS Environmental

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210201_010	Perchlorate6850b.lcm	1x	☒	3100808-05	2/1/2021 12:31
2	PERCHLORATE2		20210201_011	Perchlorate6850b.lcm	1x	☒	3100808-06	2/1/2021 12:39
3	PERCHLORATE3		20210201_012	Perchlorate6850b.lcm	1x	☒	3100808-07	2/1/2021 12:47
4	PERCHLORATE4		20210201_013	Perchlorate6850b.lcm	1x	☒	3100808-08	2/1/2021 12:54
5	PERCHLORATE5		20210201_014	Perchlorate6850b.lcm	1x	☒	3100808-09	2/1/2021 13:02
6	PERCHLORATE6		20210201_015	Perchlorate6850b.lcm	1x	☒	3100809-01	2/1/2021 13:10
7	PERCHLORATE7		20210201_016	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 13:18
8	PERCHLORATE8		20210201_017	Perchlorate6850b.lcm	1x	☒	3100809-03	2/1/2021 13:26
9	PERCHLORATE9		20210201_018	Perchlorate6850b.lcm	1x	☒	3100809-04	2/1/2021 13:34
10	PERCHLORATE10		20210201_019	Perchlorate6850b.lcm	1x	☒	3100809-05	2/1/2021 13:42
11	ICS		20210201_020	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:50
12	LODV		20210201_021	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:58
13	PERCHLORATEICV		20210201_022	Perchlorate6850b.lcm	1x	☒	3100809-06	2/1/2021 14:06
14	EQ2100045-01		20210201_023	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:14
15	EQ2100045-02		20210201_024	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:21
16	EQ2100045-03		20210201_025	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:29
17	EQ2100045-04		20210201_026	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:37
18	EQ2100045-05		20210201_027	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:45
19	EQ2100045-06		20210201_028	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:53
20	EQ2100045-07		20210201_029	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:01
21	E2100103-001		20210201_030	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:09
22	E2100103-002		20210201_031	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:17
23	E2100103-003		20210201_032	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:25
24	PERCHLORATE7		20210201_033	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 15:32
25	E2100103-004		20210201_034	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:40
26	E2100103-005		20210201_035	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:48
27	E2100103-006		20210201_036	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:56
28	E2100105-001		20210201_037	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:04
29	E2100106-001		20210201_038	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:12
30	E2100106-002		20210201_039	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:20
31	E2100106-003		20210201_040	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:46
32	E2100106-004		20210201_041	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:54
33	E2100106-005		20210201_042	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:02
34	E2100106-006		20210201_043	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:10
35	PERCHLORATE7		20210201_044	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:17
36	E2100107-001		20210201_045	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:25
37	PERCHLORATE7		20210201_046	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:33
38	10um filter test_MB		20210201_047	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:41
39	10um filter test_LCS		20210201_048	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:49
40	E2100107-002-10um		20210201_049	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:57
41	PERCHLORATE7		20210201_050	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 18:05
42	EQ2100046-01		20210201_051	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:13
43	EQ2100046-02		20210201_052	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:20
44	EQ2100046-03		20210201_053	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:28
45	EQ2100046-04		20210201_054	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:36
46	EQ2100046-05		20210201_055	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:44
47	E2100117-001		20210201_056	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:52
48	E2100117-002		20210201_057	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:00
49	E2100117-003		20210201_058	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:08
50	E2100117-004		20210201_059	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:16
51	E2100117-005		20210201_060	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:24
52	PERCHLORATE7		20210201_061	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 19:31
53	E2100117-006		20210201_062	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:39
54	E2100118-001		20210201_063	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:47
55	E2100118-002		20210201_064	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:55
56	E2100118-003		20210201_065	Perchlorate6850b.lcm	1x	☒		2/1/2021 20:03
57	PERCHLORATE7		20210201_066	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 20:11
58								
59								
60								

20210202

ALS Environmental

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20210202_001	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:17
2	null		20210202_002	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:22
3	IB		20210202_003	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:27
4	IB		20210202_004	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:35
5	ICS		20210202_005	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:43
6	LODV		20210202_006	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:51
7	PERCHLORATE7		20210202_007	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 9:59
8	EQ2100045-04X10		20210202_008	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:21
9	EQ2100045-05X10		20210202_009	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:29
10	EQ2100045-06X10		20210202_010	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:37
11	EQ2100045-07X10		20210202_011	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:45
12	E2100103-001X10		20210202_012	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:53
13	E2100103-002X10		20210202_013	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:01
14	E2100103-003X10		20210202_014	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:08
15	E2100103-004X10		20210202_015	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:16
16	E2100103-005X10		20210202_016	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:24
17	E2100103-006X5		20210202_017	Perchlorate6850b.lcm	5X	☒		2/2/2021 11:32
18	PERCHLORATE7		20210202_018	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 11:40
19	E2100105-001X5		20210202_019	Perchlorate6850b.lcm	5X	☒		2/2/2021 11:48
20	E2100106-001X10		20210202_020	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:56
21	E2100106-004X5		20210202_021	Perchlorate6850b.lcm	5X	☒		2/2/2021 12:04
22	E2100106-005X10		20210202_022	Perchlorate6850b.lcm	10X	☒		2/2/2021 12:12
23	PERCHLORATE7		20210202_023	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 12:20
24	EQ2100046-01		20210202_024	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:28
25	EQ2100046-03		20210202_025	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:35
26	E2100117-005		20210202_026	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:43
27	E2100118-002		20210202_027	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:51
28	EQ2100046-04X2000		20210202_028	Perchlorate6850b.lcm	2000X	☒		2/2/2021 12:59
29	EQ2100046-05X2000		20210202_029	Perchlorate6850b.lcm	2000X	☒		2/2/2021 13:07
30	E2100117-001X5		20210202_030	Perchlorate6850b.lcm	5X	☒		2/2/2021 13:15
31	E2100117-002X5		20210202_031	Perchlorate6850b.lcm	5X	☒		2/2/2021 13:23
32	E2100117-003X10		20210202_032	Perchlorate6850b.lcm	10X	☒		2/2/2021 13:31
33	E2100117-004X20		20210202_033	Perchlorate6850b.lcm	20X	☒		2/2/2021 13:38
34	PERCHLORATE7		20210202_034	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 13:46
35	E2100117-006X2000		20210202_035	Perchlorate6850b.lcm	2000X	☒		2/2/2021 13:54
36	E2100118-001X10		20210202_036	Perchlorate6850b.lcm	10X	☒		2/2/2021 14:02
37	E2100118-003X10		20210202_037	Perchlorate6850b.lcm	10X	☒		2/2/2021 14:28
38	EQ2100046-02		20210202_038	Perchlorate6850b.lcm	1x	☒		2/2/2021 14:36
39	PERCHLORATE7		20210202_040	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 14:51
40								

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_022

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.87	NA	NA	NA	-1.3	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_033

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.0	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_044

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.4	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	2/1/21
File ID:	I:\LCMS01\DATA\20210201\20210201_046	**Calibration ID:**	EC2100003
		Analysis Lot:	711817
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.1	NA	NA	NA	1.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_050

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.0	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_061

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.1	NA	NA	NA	1.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_066

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.4	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_007

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	1.5	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_018

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_023

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_034

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.5	NA	NA	NA	4.9	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_040

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.8	NA	NA	NA	7.9	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 14:06

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20210201\20210201_022	**Lab Code:**	EQ2100050-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-01	76,670	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 15:32

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20210201\20210201_033	**Lab Code:**	EQ2100050-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-02	84,606	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 17:17

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_044	**Lab Code:**	EQ2100050-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-03	96,176	2.91

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 17:33

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_046	**Lab Code:**	EQ2100050-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-04	93,090	2.91

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 18:05

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_050	**Lab Code:**	EQ2100050-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-05	91,090	2.91
Batch QCMS	EQ2100046-04	3,421*	2.90
Batch QCDMS	EQ2100046-05	3,602*	2.90

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 19:31

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_061	**Lab Code:**	EQ2100050-06
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-06	89,502	2.91

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/1/21 20:11

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_066	**Lab Code:**	EQ2100050-07
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-07	87,785	2.91

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/2/21 09:59

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_007	**Lab Code:**	EQ2100053-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-01	79,418	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/2/21 11:40

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20210202\20210202_018	**Lab Code:**	EQ2100053-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-02	90,764	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011122

Service Request: E2100118
Date Analyzed: 2/2/21 12:20

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20210202\20210202_023
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2100053-03
Analysis Lot: 711866
Signal ID: 1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-03	88,929	2.92
Method Blank	EQ2100046-01	96,543	2.90
Duplicate Lab Control Sample	EQ2100046-03	101,522	2.92
50WW05-210125	E2100118-002	39,053	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/2/21 13:46

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_034	**Lab Code:**	EQ2100053-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-04	85,208	2.92
Batch QC	E2100117-006	64,024	2.92
50WW08-210125	E2100118-001	66,984	2.92
50WW29-210125	E2100118-003	64,680	2.92
Lab Control Sample	EQ2100046-02	92,949	2.92

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100118
Project:	HS21011122	**Date Analyzed:**	2/2/21 14:51

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20210202\20210202_040	**Lab Code:**	EQ2100053-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-05	79,995	2.92

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

ALS Group Houston

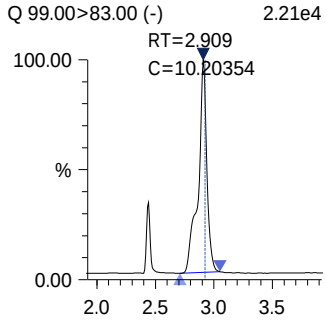
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 6:05:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_050.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 6:05:11 PM	112968	10.20354	20210201_050	2.909	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 6:05:11 PM	91090	1.00000	20210201_050	2.907	25.0000	1.0000	31

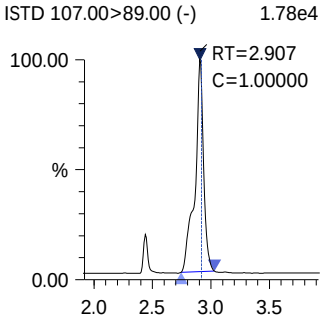
Perchlorate

Conc 10.20354
Area 112968



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 91090



ALS Group Houston

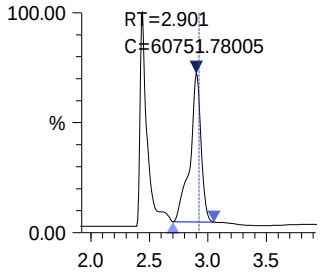
EQ2100046-04

Sample ID: EQ2100046-04
Date acquired: 2/1/2021 6:36:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_054.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-04	2/1/2021 6:36:40 PM	25142811	60751.78005	20210201_054	2.901	25.0000	1.0000	32
Sodium Perchlorate-18O4_IS	EQ2100046-04	2/1/2021 6:36:40 PM	3421	1.00000	20210201_054	2.896	25.0000	1.0000	32

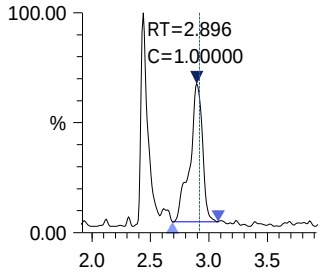
Perchlorate

Conc 60751.78005
Area 25142811
Q 99.00>83.00 (-) 5.46e6



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 3421
ISTD 107.00>89.00 (-) 7.04e2



ALS Group Houston

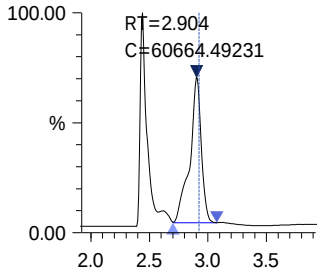
EQ2100046-05

Sample ID: EQ2100046-05
Date acquired: 2/1/2021 6:44:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_055.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-05	2/1/2021 6:44:32 PM	26438712	60664.49231	20210201_055	2.904	25.0000	1.0000	33
Sodium Perchlorate-18O4_IS	EQ2100046-05	2/1/2021 6:44:32 PM	3602	1.00000	20210201_055	2.900	25.0000	1.0000	33

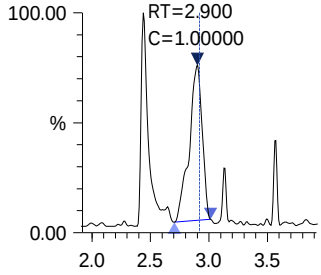
Perchlorate

Conc 60664.49231
Area 26438712
Q 99.00>83.00 (-) 5.65e6



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 3602
ISTD 107.00>89.00 (-) 6.39e2



ALS Group Houston

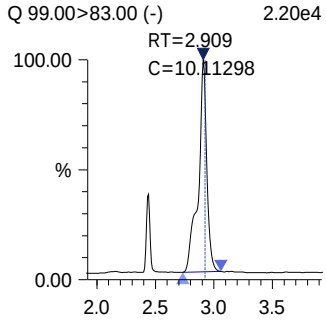
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 7:31:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_061.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 7:31:57 PM	110018	10.11298	20210201_061	2.909	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 7:31:57 PM	89502	1.00000	20210201_061	2.907	25.0000	1.0000	31

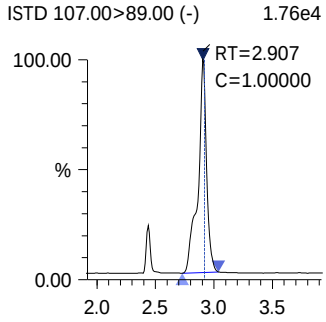
Perchlorate

Conc 10.11298
Area 110018



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 89502



ALS Group Houston

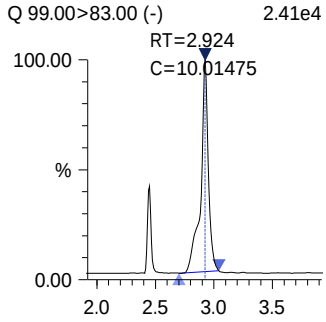
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 12:20:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_023.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 12:20:04 PM	108257	10.01475	20210202_023	2.924	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 12:20:04 PM	88929	1.00000	20210202_023	2.922	25.0000	1.0000	31

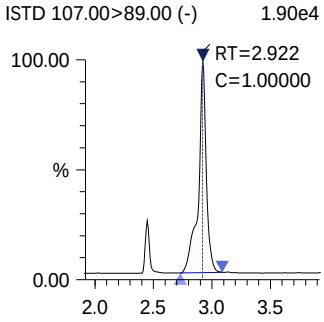
Perchlorate

Conc 10.01475
Area 108257



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 88929



ALS Group Houston

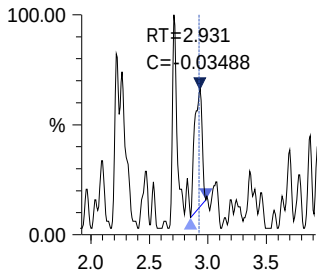
EQ2100046-01

Sample ID: EQ2100046-01
Date acquired: 2/2/2021 12:28:01 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_024.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-01	2/2/2021 12:28:01 PM	152	-0.03488	20210202_024	2.931	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	EQ2100046-01	2/2/2021 12:28:01 PM	96543	1.00000	20210202_024	2.899	25.0000	1.0000	30

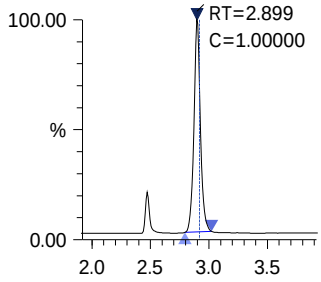
Perchlorate

Conc -0.03488
Area 152
Q 99.00>83.00 (-) 6.00e1



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 96543
ISTD 107.00>89.00 (-) 2.50e4



ALS Group Houston

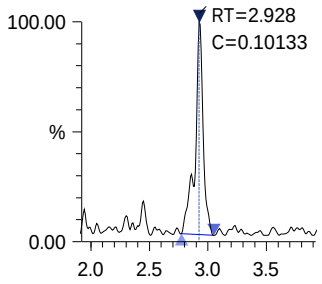
EQ2100046-03

Sample ID: EQ2100046-03
Date acquired: 2/2/2021 12:35:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_025.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-03	2/2/2021 12:35:55 PM	1832	0.10133	20210202_025	2.928	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	EQ2100046-03	2/2/2021 12:35:55 PM	101522	1.00000	20210202_025	2.923	25.0000	1.0000	31

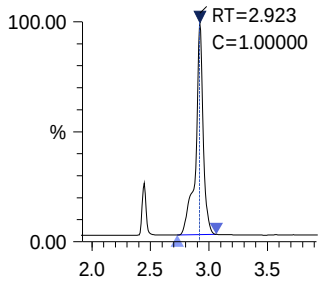
Perchlorate

Conc 0.10133
Area 1832
Q 99.00>83.00 (-) 3.80e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 101522
ISTD 107.00>89.00 (-) 2.29e4



ALS Group Houston

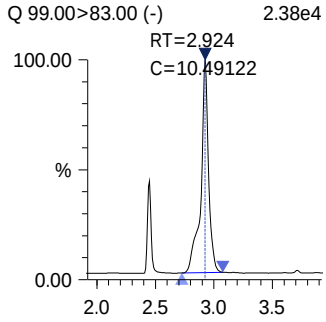
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 1:46:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_034.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 1:46:48 PM	108640	10.49122	20210202_034	2.924	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 1:46:48 PM	85208	1.00000	20210202_034	2.923	25.0000	1.0000	31

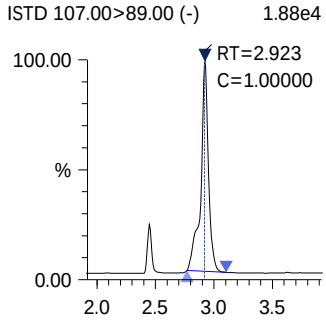
Perchlorate

Conc 10.49122
Area 108640



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 85208



ALS Group Houston

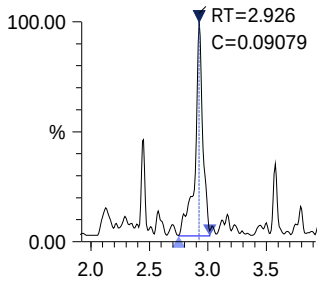
EQ2100046-02

Sample ID: EQ2100046-02
Date acquired: 2/2/2021 2:36:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_038.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-02	2/2/2021 2:36:10 PM	1559	0.09079	20210202_038	2.926	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	EQ2100046-02	2/2/2021 2:36:10 PM	92949	1.00000	20210202_038	2.924	25.0000	1.0000	30

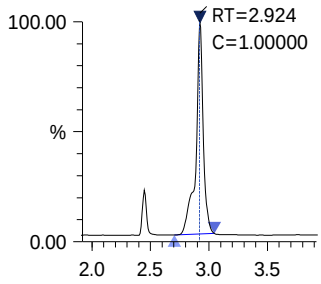
Perchlorate

Conc 0.09079
Area 1559
Q 99.00>83.00 (-) 3.41e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 92949
ISTD 107.00>89.00 (-) 2.13e4



ALS Group Houston

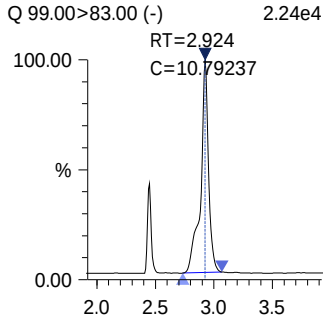
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 2:51:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_040.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 2:51:59 PM	104907	10.79237	20210202_040	2.924	25.0000	1.0000	19
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 2:51:59 PM	79995	1.00000	20210202_040	2.923	25.0000	1.0000	19

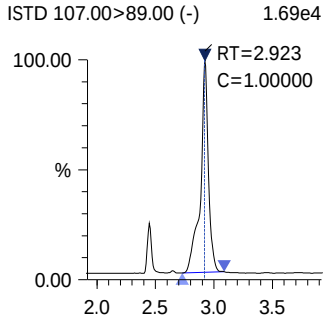
Perchlorate

Conc 10.79237
Area 104907



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 79995



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WorkOrder: HS21011150

LHAAP 50 January 2021

Aptim Environmental & Infrastucture, Inc.

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

05-Mar-2021

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HS21011150 LHAAP 50 January 2021 Final

ALS WO# HS21011150

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February 12, 2021

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

Work Order: **HS21011150**

Laboratory Results for: **LHAAP 50 January 2021**

Dear Susan Huang,

ALS Environmental received 7 sample(s) on Jan 29, 2021 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Work Order: HS21011150

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21011150-01	50WW14-210128	Groundwater		28-Jan-2021 07:50	29-Jan-2021 10:10	☐
HS21011150-02	50WW14-210128-FD	Groundwater		28-Jan-2021 07:50	29-Jan-2021 10:10	☐
HS21011150-03	50WW13-210128	Groundwater		28-Jan-2021 08:50	29-Jan-2021 10:10	☐
HS21011150-04	50WW11-210128	Groundwater		28-Jan-2021 09:45	29-Jan-2021 10:10	☐
HS21011150-05	50WW06-210128	Groundwater		28-Jan-2021 10:35	29-Jan-2021 10:10	☐
HS21011150-06	50WW12-210128	Groundwater		28-Jan-2021 11:30	29-Jan-2021 10:10	☐
HS21011150-07	Trip Blank-210128	Water	CG-092320-85	28-Jan-2021 00:00	29-Jan-2021 10:10	☐

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP 50 January 2021
Work Order: HS21011150

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Houston specialty lab. Final report attached.

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

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

GCMS Volatiles by Method SW8260

Batch ID: R377575

Sample ID: 50WW11-210128 (HS21011150-04)

- 1,2_Dichloroethane-d4 (SURR) failure due to matrix.

Sample ID: 50WW12-210128 (HS21011150-06MS)

- MS/MSD QC and RPD failures due sample matrix.

Batch ID: R377691

Sample ID: HS21020249-04MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SW9056

Batch ID: R377508

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

Batch ID: R377255

Sample ID: 50WW12-210128 (HS21011150-06MS)

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW14-210128
Collection Date: 28-Jan-2021 07:50

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:11
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:11
cis-1,2-Dichloroethene	**4.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:11
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	04-Feb-2021 22:11
Trichloroethene	**46**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:11
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:11
Surr: 1,2-Dichloroethane-d4	*102*			**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 22:11*
Surr: 4-Bromofluorobenzene	*98.5*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 22:11*
Surr: Dibromofluoromethane	*99.6*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 22:11*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 22:11*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**385**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 22:39
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	29-Jan-2021 18:14
Sulfate	**316**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 22:39
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW14-210128-FD
Collection Date: 28-Jan-2021 07:50

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:32
1,2-Dichloroethane	**0.54**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:32
cis-1,2-Dichloroethene	**4.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:32
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	04-Feb-2021 22:32
Trichloroethene	**46**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:32
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:32
Surr: 1,2-Dichloroethane-d4	*117*			**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 22:32*
Surr: 4-Bromofluorobenzene	*107*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 22:32*
Surr: Dibromofluoromethane	*96.5*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 22:32*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 22:32*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**387**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 22:58
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	29-Jan-2021 18:32
Sulfate	**322**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 22:58
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW13-210128
Collection Date: 28-Jan-2021 08:50

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:56
1,2-Dichloroethane	**2.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:56
cis-1,2-Dichloroethene	**26**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:56
Tetrachloroethene	**2.4**		**0.30**	**1.0**	**1.0**	**ug/L**	1	04-Feb-2021 23:56
Trichloroethene	**690**		**2.0**	**5.0**	**10**	**ug/L**	10	05-Feb-2021 00:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 23:56
Surr: 1,2-Dichloroethane-d4	*114*			**0**	*81-118*	*%REC*	*10*	*05-Feb-2021 00:17*
Surr: 1,2-Dichloroethane-d4	*113*			**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 23:56*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 23:56*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*10*	*05-Feb-2021 00:17*
Surr: Dibromofluoromethane	*97.7*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 23:56*
Surr: Dibromofluoromethane	*97.3*			**0**	*80-119*	*%REC*	*10*	*05-Feb-2021 00:17*
Surr: Toluene-d8	*91.3*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 23:56*
Surr: Toluene-d8	*89.1*			**0**	*89-112*	*%REC*	*10*	*05-Feb-2021 00:17*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**387**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 23:16
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	29-Jan-2021 19:44
Sulfate	**302**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 23:16
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW11-210128
Collection Date: 28-Jan-2021 09:45

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**2.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:14
1,2-Dichloroethane	**2.4**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:14
cis-1,2-Dichloroethene	**6.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 23:14
Tetrachloroethene	**0.87**	J	**0.30**	**1.0**	**1.0**	**ug/L**	1	04-Feb-2021 23:14
Trichloroethene	**250**		**1.0**	**2.5**	**5.0**	**ug/L**	5	04-Feb-2021 23:35
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 23:14
Surr: 1,2-Dichloroethane-d4	*121*	*S*		**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 23:14*
Surr: 1,2-Dichloroethane-d4	*118*			**0**	*81-118*	*%REC*	*5*	*04-Feb-2021 23:35*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 23:14*
Surr: 4-Bromofluorobenzene	*109*			**0**	*85-114*	*%REC*	*5*	*04-Feb-2021 23:35*
Surr: Dibromofluoromethane	*97.1*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 23:14*
Surr: Dibromofluoromethane	*101*			**0**	*80-119*	*%REC*	*5*	*04-Feb-2021 23:35*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 23:14*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*5*	*04-Feb-2021 23:35*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**295**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 23:34
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	29-Jan-2021 20:03
Sulfate	**261**		**2.00**	**5.00**	**5.00**	**mg/L**	10	03-Feb-2021 23:34
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW06-210128
Collection Date: 28-Jan-2021 10:35

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:53
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	04-Feb-2021 22:53
Trichloroethene	**4.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 22:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 22:53
Surr: 1,2-Dichloroethane-d4	*118*			**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 22:53*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 22:53*
Surr: Dibromofluoromethane	*99.9*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 22:53*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 22:53*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**3.06**		**0.200**	**0.500**	**0.500**	**mg/L**	1	29-Jan-2021 20:21
Nitrogen, Nitrate (As N)	**0.212**		**0.0300**	**0.100**	**0.100**	**mg/L**	1	29-Jan-2021 20:21
Sulfate	**8.29**		**0.200**	**0.500**	**0.500**	**mg/L**	1	03-Feb-2021 23:52
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: 50WW12-210128
Collection Date: 28-Jan-2021 11:30

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**5.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 20:46
1,2-Dichloroethane	**5.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 20:46
cis-1,2-Dichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	04-Feb-2021 20:46
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	04-Feb-2021 20:46
Trichloroethene	**690**		**1.0**	**2.5**	**5.0**	**ug/L**	5	04-Feb-2021 21:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	04-Feb-2021 20:46
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*1*	*04-Feb-2021 20:46*
Surr: 1,2-Dichloroethane-d4	*116*			**0**	*81-118*	*%REC*	*5*	*04-Feb-2021 21:49*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*04-Feb-2021 20:46*
Surr: 4-Bromofluorobenzene	*108*			**0**	*85-114*	*%REC*	*5*	*04-Feb-2021 21:49*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*1*	*04-Feb-2021 20:46*
Surr: Dibromofluoromethane	*98.7*			**0**	*80-119*	*%REC*	*5*	*04-Feb-2021 21:49*
Surr: Toluene-d8	*98.3*			**0**	*89-112*	*%REC*	*1*	*04-Feb-2021 20:46*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*5*	*04-Feb-2021 21:49*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**1,020**		**4.00**	**10.0**	**10.0**	**mg/L**	20	04-Feb-2021 00:10
Nitrogen, Nitrate (As N)	**0.110**	J	**0.0600**	**0.200**	**0.200**	**mg/L**	2	29-Jan-2021 20:39
Sulfate	**499**		**4.00**	**10.0**	**10.0**	**mg/L**	20	04-Feb-2021 00:10
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	02-Feb-2021 19:02
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	12-Feb-2021 16:36

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
Sample ID: Trip Blank-210128
Collection Date: 28-Jan-2021 00:00

ANALYTICAL REPORT
WorkOrder:HS21011150
Lab ID:HS21011150-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 15:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 15:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 15:41
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	07-Feb-2021 15:41
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 15:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	07-Feb-2021 15:41
Surr: 1,2-Dichloroethane-d4	*107*			**0**	*81-118*	*%REC*	*1*	*07-Feb-2021 15:41*
Surr: 4-Bromofluorobenzene	*90.2*			**0**	*85-114*	*%REC*	*1*	*07-Feb-2021 15:41*
Surr: Dibromofluoromethane	*98.6*			**0**	*80-119*	*%REC*	*1*	*07-Feb-2021 15:41*
Surr: Toluene-d8	*92.2*			**0**	*89-112*	*%REC*	*1*	*07-Feb-2021 15:41*

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

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R377255 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			29 Jan 2021 18:14	1
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			29 Jan 2021 18:32	1
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			29 Jan 2021 19:44	1
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			29 Jan 2021 20:03	1
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			29 Jan 2021 20:21	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			29 Jan 2021 20:39	2
Batch ID: R377381 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			02 Feb 2021 19:02	1
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			02 Feb 2021 19:02	1
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			02 Feb 2021 19:02	1
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			02 Feb 2021 19:02	1
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			02 Feb 2021 19:02	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			02 Feb 2021 19:02	1
Batch ID: R377508 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			03 Feb 2021 22:39	10
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			03 Feb 2021 22:58	10
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			03 Feb 2021 23:16	10
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			03 Feb 2021 23:34	10
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			03 Feb 2021 23:52	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			04 Feb 2021 00:10	20
Batch ID: R377575 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			04 Feb 2021 22:11	1
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			04 Feb 2021 22:32	1
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			05 Feb 2021 00:17	10
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			04 Feb 2021 23:56	1
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			04 Feb 2021 23:35	5
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			04 Feb 2021 23:14	1
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			04 Feb 2021 22:53	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			04 Feb 2021 21:49	5
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			04 Feb 2021 20:46	1
Batch ID: R377691 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21011150-07	Trip Blank-210128	28 Jan 2021 00:00			07 Feb 2021 15:41	1

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R378070 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			12 Feb 2021 16:36	1
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			12 Feb 2021 16:36	1
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			12 Feb 2021 16:36	1
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			12 Feb 2021 16:36	1
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			12 Feb 2021 16:36	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			12 Feb 2021 16:36	1
Batch ID: R378072 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS21011150-01	50WW14-210128	28 Jan 2021 07:50			12 Feb 2021 16:42	1
HS21011150-02	50WW14-210128-FD	28 Jan 2021 07:50			12 Feb 2021 16:42	1
HS21011150-03	50WW13-210128	28 Jan 2021 08:50			12 Feb 2021 16:42	1
HS21011150-04	50WW11-210128	28 Jan 2021 09:45			12 Feb 2021 16:42	1
HS21011150-05	50WW06-210128	28 Jan 2021 10:35			12 Feb 2021 16:42	1
HS21011150-06	50WW12-210128	28 Jan 2021 11:30			12 Feb 2021 16:42	1

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

Batch ID: R377575 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-210204** Units: **ug/L** Analysis Date: **04-Feb-2021 17:37**
Client ID: Run ID: **VOA6_377575** SeqNo: **5945452** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*42.31*	*1.0*	*50*	*0*	*84.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.68*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*45.63*	*1.0*	*50*	*0*	*91.3*	*80 - 119*				
Surr: Toluene-d8	*48.94*	*1.0*	*50*	*0*	*97.9*	*89 - 112*				

LCS Sample ID: **VLCSW-210204** Units: **ug/L** Analysis Date: **04-Feb-2021 17:58**
Client ID: Run ID: **VOA6_377575** SeqNo: **5945453** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	14.21	1.0	20	0	71.1	71 - 131				
1,2-Dichloroethane	19.85	1.0	20	0	99.2	73 - 128				
cis-1,2-Dichloroethene	20.72	1.0	20	0	104	78 - 123				
Tetrachloroethene	20.36	1.0	20	0	102	74 - 129				
Trichloroethene	21.57	1.0	20	0	108	79 - 123				
Vinyl chloride	15.72	1.0	20	0	78.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.85*	*1.0*	*50*	*0*	*97.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.67*	*1.0*	*50*	*0*	*105*	*85 - 114*				
Surr: Dibromofluoromethane	*50*	*1.0*	*50*	*0*	*100.0*	*80 - 119*				
Surr: Toluene-d8	*48.1*	*1.0*	*50*	*0*	*96.2*	*89 - 112*				

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

Batch ID: R377575 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21011150-06MS** Units: **ug/L** Analysis Date: **04-Feb-2021 21:07**
Client ID: **50WW12-210128** Run ID: **VOA6_377575** SeqNo: **5945462** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.06	1.0	20	5.861	66.0	71 - 131				S
1,2-Dichloroethane	27	1.0	20	5.76	106	73 - 128				
cis-1,2-Dichloroethene	19.32	1.0	20	1.34	89.9	78 - 123				
Tetrachloroethene	20.43	1.0	20	0	102	74 - 129				
Trichloroethene	707.7	1.0	20	763.7	-280	79 - 123				SEO
Vinyl chloride	8.879	1.0	20	0	44.4	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*45.24*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*56.59*	*1.0*	*50*	*0*	*113*	*85 - 114*				
Surr: Dibromofluoromethane	*47.37*	*1.0*	*50*	*0*	*94.7*	*80 - 119*				
Surr: Toluene-d8	*50.76*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS21011150-06MSD** Units: **ug/L** Analysis Date: **04-Feb-2021 21:28**
Client ID: **50WW12-210128** Run ID: **VOA6_377575** SeqNo: **5945463** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	23.16	1.0	20	5.861	86.5	71 - 131	19.06	19.4	20	
1,2-Dichloroethane	27.4	1.0	20	5.76	108	73 - 128	27	1.45	20	
cis-1,2-Dichloroethene	18.59	1.0	20	1.34	86.2	78 - 123	19.32	3.86	20	
Tetrachloroethene	20.2	1.0	20	0	101	74 - 129	20.43	1.13	20	
Trichloroethene	812	1.0	20	763.7	242	79 - 123	707.7	13.7	20	SEO
Vinyl chloride	12.58	1.0	20	0	62.9	58 - 137	8.879	34.5	20	R
Surr: 1,2-Dichloroethane-d4	*58.23*	*1.0*	*50*	*0*	*116*	*81 - 118*	*45.24*	*25.1*	*20*	R
Surr: 4-Bromofluorobenzene	*58.88*	*1.0*	*50*	*0*	*118*	*85 - 114*	*56.59*	*3.97*	*20*	S
Surr: Dibromofluoromethane	*49.62*	*1.0*	*50*	*0*	*99.2*	*80 - 119*	*47.37*	*4.64*	*20*	
Surr: Toluene-d8	*49.63*	*1.0*	*50*	*0*	*99.3*	*89 - 112*	*50.76*	*2.26*	*20*	

The following samples were analyzed in this batch: HS21011150-01 HS21011150-02 HS21011150-03 HS21011150-04 HS21011150-05 HS21011150-06

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

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

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

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

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

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.36	1.0	20	0	91.8	71 - 131				
1,2-Dichloroethane	23.69	1.0	20	0	118	73 - 128				
cis-1,2-Dichloroethene	18.78	1.0	20	0	93.9	78 - 123				
Tetrachloroethene	17.41	1.0	20	0	87.1	74 - 129				
Trichloroethene	18.71	1.0	20	0	93.5	79 - 123				
Vinyl chloride	18.63	1.0	20	0	93.1	58 - 137				
Surr: 1,2-Dichloroethane-d4	*57.29*	*1.0*	*50*	*0*	*115*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.67*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.9*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*45.02*	*1.0*	*50*	*0*	*90.0*	*89 - 112*				

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

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

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

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	14.55	1.0	20	0	72.7	71 - 131				
1,2-Dichloroethane	19.19	1.0	20	0	96.0	73 - 128				
cis-1,2-Dichloroethene	14.83	1.0	20	0	74.2	78 - 123				S
Tetrachloroethene	22.89	1.0	20	0	114	74 - 129				
Trichloroethene	26.98	1.0	20	5.071	110	79 - 123				
Vinyl chloride	10.05	1.0	20	0	50.2	58 - 137				S
Surr: 1,2-Dichloroethane-d4	*54.54*	*1.0*	*50*	*0*	*109*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*56.8*	*1.0*	*50*	*0*	*114*	*85 - 114*				
Surr: Dibromofluoromethane	*49.4*	*1.0*	*50*	*0*	*98.8*	*80 - 119*				
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

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

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	10.99	1.0	20	0	54.9	71 - 131	14.55	27.9	20	SR
1,2-Dichloroethane	24.35	1.0	20	0	122	73 - 128	19.19	23.7	20	R
cis-1,2-Dichloroethene	16.47	1.0	20	0	82.4	78 - 123	14.83	10.5	20	
Tetrachloroethene	21.22	1.0	20	0	106	74 - 129	22.89	7.57	20	
Trichloroethene	28.2	1.0	20	5.071	116	79 - 123	26.98	4.45	20	
Vinyl chloride	8.067	1.0	20	0	40.3	58 - 137	10.05	21.9	20	SR
Surr: 1,2-Dichloroethane-d4	*51.91*	*1.0*	*50*	*0*	*104*	*81 - 118*	*54.54*	*4.94*	*20*	
Surr: 4-Bromofluorobenzene	*57.54*	*1.0*	*50*	*0*	*115*	*85 - 114*	*56.8*	*1.31*	*20*	S
Surr: Dibromofluoromethane	*47.11*	*1.0*	*50*	*0*	*94.2*	*80 - 119*	*49.4*	*4.75*	*20*	
Surr: Toluene-d8	*48.14*	*1.0*	*50*	*0*	*96.3*	*89 - 112*	*50.03*	*3.86*	*20*	

The following samples were analyzed in this batch: HS21011150-07

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

Batch ID: R377255 (0) **Instrument:** ICS2100 **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **30-Jan-2021 03:17**
Client ID: Run ID: **ICS2100_377255** SeqNo: **5938397** PrepDate: DF: **1**

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

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **30-Jan-2021 03:35**
Client ID: Run ID: **ICS2100_377255** SeqNo: **5938398** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.9	0.500	20	0	94.5	80 - 120				
Nitrogen, Nitrate (As N)	3.788	0.100	4	0	94.7	80 - 120				

MS Sample ID: **HS21011150-06MS** Units: **mg/L** Analysis Date: **29-Jan-2021 20:57**
Client ID: **50WW12-210128** Run ID: **ICS2100_377255** SeqNo: **5938388** PrepDate: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1002	1.00	20	1009	-39.3	80 - 120				SEO
Nitrogen, Nitrate (As N)	3.804	0.200	4	0.1102	92.4	80 - 120				

MSD Sample ID: **HS21011150-06MSD** Units: **mg/L** Analysis Date: **29-Jan-2021 21:15**
Client ID: **50WW12-210128** Run ID: **ICS2100_377255** SeqNo: **5938389** PrepDate: DF: **2**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1003	1.00	20	1009	-32.6	80 - 120	1002	0.135	20	SEO
Nitrogen, Nitrate (As N)	3.801	0.200	4	0.1102	92.3	80 - 120	3.804	0.0947	20	

The following samples were analyzed in this batch: HS21011150-01 HS21011150-02 HS21011150-03 HS21011150-04 HS21011150-05 HS21011150-06

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: HS21011150

QC BATCH REPORT

Batch ID: R377508 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **04-Feb-2021 05:21**
Client ID: Run ID: **ICS2100_377508** SeqNo: **5943858** PrepDate: DF: **1**

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

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **04-Feb-2021 05:37**
Client ID: Run ID: **ICS2100_377508** SeqNo: **5943859** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.49	0.500	20	0	97.5	80 - 120				
Sulfate	19.66	0.500	20	0	98.3	80 - 120				

MS Sample ID: **HS21011075-02MS** Units: **mg/L** Analysis Date: **04-Feb-2021 04:47**
Client ID: Run ID: **ICS2100_377508** SeqNo: **5943856** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	210	5.00	100	114.8	95.2	80 - 120				
Sulfate	200.1	5.00	100	103	97.1	80 - 120				

MSD Sample ID: **HS21011075-02MSD** Units: **mg/L** Analysis Date: **04-Feb-2021 05:04**
Client ID: Run ID: **ICS2100_377508** SeqNo: **5943857** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	213.3	5.00	100	114.8	98.5	80 - 120	210	1.54	20	
Sulfate	200.7	5.00	100	103	97.7	80 - 120	200.1	0.311	20	

The following samples were analyzed in this batch: HS21011150-01 HS21011150-02 HS21011150-03 HS21011150-04 HS21011150-05 HS21011150-06

ALS Houston, US Date: 12-Feb-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP 50 January 2021
WorkOrder: **HS21011150**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

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

ALS Houston, US Date: 12-Feb-21

Sample Receipt Checklist

Work Order ID: HS21011150 **Date/Time Received:** **29-Jan-2021 10:10**

Client Name: CBI-Houston **Received by:** **Jared R. Makan**

Completed By:	/S/ Paresh M. Giga	29-Jan-2021 16:33	**Reviewed by:**	/S/ Corey Grandits	29-Jan-2021 20:36
	eSignature	Date/Time		eSignature	Date/Time

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	2 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:None
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	0.6C U/c	IR31
Cooler(s)/Kit(s):	46810	
Date/Time sample(s) sent to storage:	1/29/2021 15:00	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

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

Page 1 of 1

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

Project No. 501032

Job: **LHAAP50 January 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)
50WW14-210128	WG	1/28/21/0750		13	X	X	X	X	X	X	
50WW14-210128-FD	WG	1/28/21/0750		13	X	X	X	X	X	X	
50WW13-210128	WG	1/28/21/0850		13	X	X	X	X	X	X	
50WW11-210128	WG	1/28/21/0945		13	X	X	X	X	X	X	
50WW06-210128	WG	1/28/21/1035		13	X	X	X	X	X	X	
50WW12-210128	WG	1/28/21/1130		13	X	X	X	X	X	X	
50WW12-210128-MS	WG	1/28/21/1130		13	X	X	X	X	X	X	
50WW12-210128-MSD	WG	1/28/21/1130		13	X	X	X	X	X	X	

Aptim Environmental & Infrastructure, Inc.
LHAAP 50 January 2021

HS21011150

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

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	1/28/21	1432		1/29/21	10:10						

For Lab Use Only

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

Remarks:

4.6 SIR 0.60.
#31
CIF-OC

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

CHAIN OF CUSTODY

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

Page 1 of _

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

Project No. 501032

Job: **LHAAP50 January 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850					Remarks (Preservatives, etc.)
TRIP BLANK-210128	W	1/28/21		2	X										

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

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	1/28/21	1430		1/28/2021	10:10						

For Lab Use Only

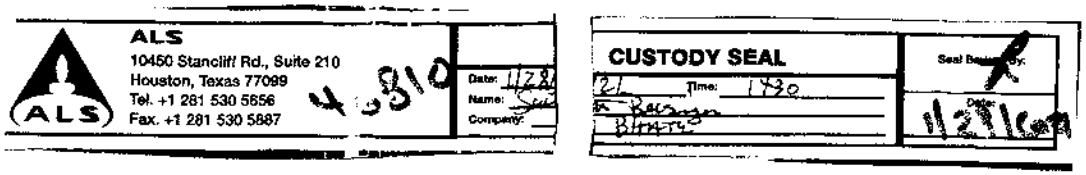
Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

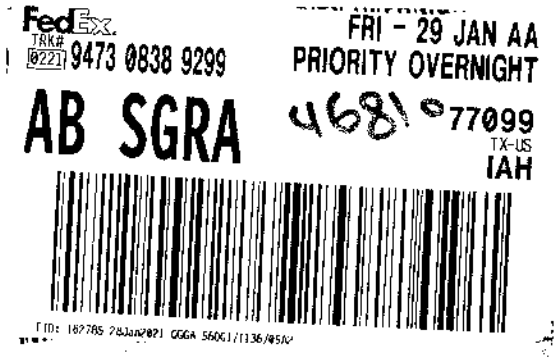
Remarks:

HS21011150

Aptim Environmental & Infrastructure, Inc.
LHAAP 50 January 202[illegible]

(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 5687
Date:
Name:
Company:
CUSTODY SEAL
Time:


FedEx
TRK#
9473 0838 9299
FRI - 29 JAN AA
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

February 02, 2021 Service Request No:E2100117

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

Laboratory Results for: HS21011150

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory January 29, 2021
For your reference, these analyses have been assigned our service request number **E2100117.**

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

Certificate of Analysis

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

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100117
Project:	HS21011150	**Date Received:**	01/29/21
Sample Matrix:	W		

CASE NARRATIVE

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

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 01/29/21.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100046: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits. MS/MSD recoveries outside QC limits; parent sample 83,800 ug/L.

Samples E2100117-001/002 lowest practical dilution performed due to matrix interference.

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

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

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

Client: ALS Environmental - US **Service Request:**E2100117
Project: HS21011150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100117-001	50WW14-210128	1/28/2021	0750
E2100117-002	50WW14-210128-FD	1/28/2021	0750
E2100117-003	50WW13-210128	1/28/2021	0850
E2100117-004	50WW11-210128	1/28/2021	0945
E2100117-005	50WW06-210128	1/28/2021	1035
E2100117-006	50WW12-210128	1/28/2021	1130

Service Request Summary

Folder #: **E2100117**
Client Name: ALS Environmental - US
Project Name: HS21011150
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011150
EDD: No EDD Specified

8 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100117-001	50WW14-210128	Ground Water	01/28/21 0750	**IV**
E2100117-002	50WW14-210128-FD	Ground Water	01/28/21 0750	**IV**
E2100117-003	50WW13-210128	Ground Water	01/28/21 0850	**IV**
E2100117-004	50WW11-210128	Ground Water	01/28/21 0945	**IV**
E2100117-005	50WW06-210128	Ground Water	01/28/21 1035	**IV**
E2100117-006	50WW12-210128	Ground Water	01/28/21 1130	**IV**

Service Request Summary

Folder #: **E2100117**
Client Name: ALS Environmental - US
Project Name: HS21011150
Project Number:

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

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011150
EDD: No EDD Specified

8 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	2	MS/MSD
Semivoa GCMS	ClO4 DOD/6850	5	II Due 2/12, IV due 2/19

Data Qualifiers

Lab Standard

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

Data Qualifiers

Lab Standard

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

ALS Laboratory Group

Acronyms

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

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

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

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
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Houston, TX 77099
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F: +1 281 530 5887
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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15568**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21011150
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15568**

Relinquished By: _____ Date/Time: 11/29/2021

Received By: _____ Date/Time: 11/29/21 1706

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

Cooler Receipt Form

ALS Environmental

Project Chemist CG

Client/Project ALS-HI

Thermometer ID IR31

Date/Time Received: 11/29/21 Initials: CG Date/Time Logged in: 11/29/21 Initials CG

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

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

3. Were custody seals on coolers? ○ Yes ✓ No If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

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

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

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

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		11/29/21	1204	CG	0.3	X
						☐
						☐
						☐

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

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

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

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

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

Notes, Discrepancies, & Resolutions:

Service request Label:

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

SAMPLE ACCEPTANCE POLICY

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

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

- ✓ Intact on outside of cooler, signed and dated

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

The following is required on each COC:

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

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

Sample Integrity (mandatory):

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

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

Temperature Requirement (varies by sample matrix):

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

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

Preparation Information Benchsheets

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

Preparation Information Benchsheet

Prep Run#: 373567 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/JRODRIGUEZ **Prep Method:** Method **Prep Date/Time:** 2/1/21 09:04

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100117-001	50WW14-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2100117-002	50WW14-210128-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2100117-003	50WW13-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2100117-004	50WW11-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100117-005	50WW06-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100117-006	50WW12-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100118-001	50WW08-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100118-002	50WW05-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100118-003	50WW29-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
10	EQ2100046-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2100046-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2100046-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100046-04	50WW12-210128 MS	.02	6850/ClO4 DOD			Liquid	10mL	
14	EQ2100046-05	50WW12-210128 DMS	.03	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

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

EQ2100046-02	1.00µL	EQ2100046-03	1.00µL	EQ2100046-04	1.00µL	EQ2100046-05	1.00µL

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

E2100117-001	100.00µL	E2100117-002	100.00µL	E2100117-003	100.00µL	E2100117-004	100.00µL	E2100117-005	100.00µL	E2100117-006	100.00µL
E2100117-006.R	100.00µL	E2100118-001	100.00µL	E2100118-002	100.00µL	E2100118-003	100.00µL	EQ2100046-01	100.00µL	EQ2100046-02	100.00µL
EQ2100046-03	100.00µL	EQ2100046-04	100.00µL	EQ2100046-05	100.00µL						

Preparation Steps

Step: Preparation
Started: 2/1/21 09:04
Finished: 2/1/21 09:29
By: GRIVERA
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 373567
Team: Semivoa GCMS/JRODRIGUEZ

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 2/1/21 09:04

Reviewed By: GR Date: 2/1/21

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
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Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0750
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW14-210128	**Units:**	µg/L
Lab Code:	E2100117-001	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	2/ 1/21	2/2/21 13:15	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0750
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW14-210128-FD	**Units:**	µg/L
Lab Code:	E2100117-002	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	2/ 1/21	2/2/21 13:23	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0850
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW13-210128	**Units:**	µg/L
Lab Code:	E2100117-003	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**155**		1.00	0.500	0.250	10	2/ 1/21	2/2/21 13:31	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0945
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW11-210128	**Units:**	µg/L
Lab Code:	E2100117-004	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**651**		2.00	1.00	0.500	20	2/ 1/21	2/2/21 13:38	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1035
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW06-210128	**Units:**	µg/L
Lab Code:	E2100117-005	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**2.78**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:43	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**83800**		200	100	50.0	2000	2/ 1/21	2/2/21 13:54	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100046-01	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:28	373567	711866	

Accuracy & Precision

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

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150
Sample Matrix: Ground Water

Service Request: E2100117
Date Analyzed: 2/ 2/21

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

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 373567

	Lab Control Sample EQ2100046-02			Duplicate Lab Control Sample EQ2100046-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0908	0.100	91	0.101	0.100	101	84 - 119	11	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-02	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0908**	J	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 14:36	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-03	**Basis:**	NA

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:35	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
		Date Analyzed:	2/ 1/21

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

Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		50WW12-210128MS				50WW12-210128DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2100046-04				EQ2100046-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	83800	60800	0.100	-23007600 #	60700	0.100	-23094888#	84 - 119	<1	15

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

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	EQ2100046-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60800**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:36	373567	711817	*

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	EQ2100046-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60700**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:44	373567	711817	*

LABORATORY REPORT

February 12, 2021

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

RE: HS21011150

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on February 2, 2021. For your reference, these analyses have been assigned our service request number P2100515.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 2:19 pm, Feb 12, 2021

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2100515
Project: HS21011150

CASE NARRATIVE

The samples were received intact under chain of custody on February 2, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2100515-001-006, 006MS, 006 MSD	Carbon Dioxide

The recovery matrix spike and matrix spike duplicate did not meet the DoD or laboratory recovery limit for carbon dioxide due to possible matrix interference. However all quality control parameters were met with laboratory control sample and its duplicate. The data has been flagged accordingly.

The lower control criterion was exceeded for carbon dioxide in the Laboratory Control Sample (LCS) analyzed on February 10, 2021. The error associated with the reduced recovery equates to a potential low bias. However, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed and verified that instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Since the sensitivity was verified and the samples were non-detect, the data quality is not significantly affected. No further corrective action was taken.

Client: ALS Laboratory Group Service Request No: P2100515
Project: HS21011150

Methane, Ethene and Ethane Analysis

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

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2100515-001,004,006, 006MS	Methane

The recovery for the matrix spike and its duplicate were outside of the DOD control limits for ethane. However, spike recoveries were within laboratory generated limits. In addition all quality control parameters were met with the laboratory control sample and its duplicate. The data has been flagged accordingly.

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

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

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS21011150

Service Request: P2100515

Date Received: 2/2/2021
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW14-210128	P2100515-001	Water	1/28/2021	07:50	X	X
50WW14-210128-FD	P2100515-002	Water	1/28/2021	07:50	X	X
50WW13-210128	P2100515-003	Water	1/28/2021	08:50	X	X
50WW11-210128	P2100515-004	Water	1/28/2021	09:45	X	X
50WW06-210128	P2100515-005	Water	1/28/2021	10:35	X	X
50WW12-210128	P2100515-006	Water	1/28/2021	11:30	X	X

RJ100515

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

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15569**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21011150
TSR: Sonia West

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD
3 x Neat Vials & 3 x HCL Vials

RIGHT SOLUTIONS | RIGHT PARTNER

P2 100515

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15569**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Mercer	**Date/Time:**	02/01/21 18:00
Received By:		**Date/Time:**	2-2-21 1000
Cooler ID(s):		**Temperature(s):**	2° cor

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2100515

Project: HS21011150

Sample(s) received on: 2/2/21 Date opened: 2/2/21 by: ADAVID

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

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

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2100515-001.01	40mL VOA NP				A	
P2100515-001.02	40mL VOA NP		6		A	
P2100515-001.03	40mL VOA NP				A	
P2100515-001.04	40ml VOA HCL				A	
P2100515-001.05	40ml VOA HCL		1		A	
P2100515-001.06	40ml VOA HCL				A	
P2100515-002.01	40mL VOA NP				A	
P2100515-002.02	40mL VOA NP		6		A	
P2100515-002.03	40mL VOA NP				A	
P2100515-002.04	40ml VOA HCL				A	
P2100515-002.05	40ml VOA HCL		1		A	
P2100515-002.06	40ml VOA HCL				A	
P2100515-003.01	40mL VOA NP				A	
P2100515-003.02	40mL VOA NP		6		A	
P2100515-003.03	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2100515

Project: HS21011150

Sample(s) received on: 2/2/21 Date opened: 2/2/21 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2100515-003.04	40ml VOA HCL				A	
P2100515-003.05	40ml VOA HCL		1		A	
P2100515-003.06	40ml VOA HCL				A	
P2100515-004.01	40mL VOA NP				A	
P2100515-004.02	40mL VOA NP		6		A	
P2100515-004.03	40mL VOA NP				A	
P2100515-004.04	40ml VOA HCL				A	
P2100515-004.05	40ml VOA HCL		1		A	
P2100515-004.06	40ml VOA HCL				A	
P2100515-005.01	40mL VOA NP				A	
P2100515-005.02	40mL VOA NP		5		A	
P2100515-005.03	40mL VOA NP				A	
P2100515-005.04	40ml VOA HCL				A	
P2100515-005.05	40ml VOA HCL		1		A	
P2100515-005.06	40ml VOA HCL				A	
P2100515-006.01	40mL VOA NP				A	
P2100515-006.02	40mL VOA NP				A	
P2100515-006.03	40mL VOA NP				A	
P2100515-006.04	40ml VOA HCL		1		A	
P2100515-006.05	40ml VOA HCL		1		A	
P2100515-006.06	40ml VOA HCL		1		A	
P2100515-006.07	40mL VOA NP				A	
P2100515-006.08	40mL VOA NP		6		A	
P2100515-006.09	40mL VOA NP		6		A	
P2100515-006.10	40mL VOA NP				A	
P2100515-006.11	40mL VOA NP				A	
P2100515-006.12	40mL VOA NP				A	
P2100515-006.13	40ml VOA HCL		6		A	
P2100515-006.14	40ml VOA HCL				A	
P2100515-006.15	40ml VOA HCL				A	
P2100515-006.16	40ml VOA HCL				A	
P2100515-006.17	40ml VOA HCL				A	
P2100515-006.18	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS21011150** ALS Project ID: P2100515

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date(s) Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/9 - 2/10/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW14-210128	P2100515-001	0.050	**380,000**	2,000	1,700	740	**L**
50WW14-210128-FD	P2100515-002	0.050	**340,000**	2,000	1,700	740	**L**
50WW13-210128	P2100515-003	0.050	**260,000**	2,000	1,700	740	**L**
50WW11-210128	P2100515-004	0.050	**380,000**	2,000	1,700	740	**L**
50WW06-210128	P2100515-005	0.050	**45,000**	2,000	1,700	740	**L**
50WW12-210128	P2100515-006	0.050	**420,000**	2,000	1,700	740	
Method Control Sample	P210209-MB	0.10	860	1,000	860	370	**U**
Method Control Sample	P210210-MB	0.10	860	1,000	860	370	**U, L**

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

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006MS
P2100515-006DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/9/21
Volume(s) Analyzed: 0.050 ml(s)

CAS #	Compound	Spike Amount MS / DMS ug/L	Sample Amount ug/L	Result MS ug/L	Result DMS ug/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	21,000	425,000	433,000	433,000	**38**	**38**	80-122	0	30	**N**

N = The matrix spike sample recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2100515
Client Project ID: **HS21011150** ALS Sample ID: P210209-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 2/09/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	21,000	16,900	16,800	**80**	**80**	80-122	0	12	

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2100515
Client Project ID: **HS21011150** ALS Sample ID: P210210-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 2/10/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,000	18,000	**79**	**79**	80-122	0	12	**L**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW14-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.8**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW14-210128-FD**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.5**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW13-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.3**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW11-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.4**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW06-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**0.61**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P210203-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 2/03/21
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006MS
P2100515-006DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	0.607	2.28	2.63	**66**	**80**	73-125	19	30	**N**
74-85-1	Ethene	4.40	ND	3.29	3.22	**75**	**73**	72-133	3	30	
74-84-0	Ethane	4.72	ND	3.23	3.11	**68**	**66**	74-131	3	30	**N**

N = The matrix spike recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P210203-LCS
P210203-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 2/03/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.35	2.31	**93**	**92**	73-125	1	26	
74-85-1	Ethene	4.40	4.72	4.81	**107**	**109**	72-133	2	11	
74-84-0	Ethane	4.72	4.73	4.77	**100**	**101**	74-131	1	10	

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

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February 08, 2021 **Analytical Report for Service Request No:** K2100950

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

RE: HS21011150

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 02, 2021
For your reference, these analyses have been assigned our service request number **K2100950.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

ALS Environmental—Kelso Laboratory
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Client: ALS Environmental - US
Project: HS21011150
Sample Matrix: Ground Water

Service Request: K2100950
Date Received: 02/02/2021

CASE NARRATIVE

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

Sample Receipt:

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

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Noe D. Davis Date 02/08/2021

Chain of Custody

ALS Environmental—Kelso Laboratory
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K2100950

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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15567**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21011150
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Rec by NPedersen ALS 2/2/21 1000

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15567**

Relinquished By: J. [illegible] Date/Time: 02/01/21 18:00

Received By: [illegible] Date/Time: 2/2/21 1000

Cooler ID(s): Temperature(s):

PM KL

Cooler Receipt and Preservation Form

Client AB Houston Service Request K21 00950

Received: 2/2/21 Opened: 2/2/21 By: AP Unloaded: 2/2/21 By: AP

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

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

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
4.4	—	1802	15567	—	—	9473 0839 9727	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, Resolutions: _____

General Chemistry

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/2/21
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
50WW14-210128	K2100950-001	**1.86**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW14-210128-FD	K2100950-002	**1.88**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW13-210128	K2100950-003	**1.64**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW11-210128	K2100950-004	**1.98**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW06-210128	K2100950-005	**1.55**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW12-210128	K2100950-006	**1.85**	0.50	0.20	0.07	1	02/04/21 18:00	
Method Blank	K2100950-MB	ND U	0.50	0.20	0.07	1	02/04/21 18:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/04/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2100950-006DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	1.85	2.00	1.92	8	10

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/4/21
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Carbon, Total Organic

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K2100950-006MS			K2100950-006DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic	1.85	24.3	25.0	90	24.3	25.0	90	83-117	<1	10

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

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Analyzed:**	02/04/21
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	712206

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2100950-LCS	25.4	25.0	101	83-117

HS21011150 8260_W_DOD Raw Data

ALS WO# HS21011150

MSVOA06 -Logbook

Batch: 43252 **Analyst:** Qin Xu

Date: 01-26-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	01-26-2021 11:11 am	1.00	0.00 mL	0.00 mL	X012601.D	Liquid	Y	NA
	Auto find/ purged									
2	VSTD000.25	ICAL1	01-26-2021 11:32 am	1.00	5.00 mL	0.00 mL	X012602.D	Liquid	Y	NA
	0.10 ul cal std/ 100 ml DI									
3	VSTD000.5	ICAL2	01-26-2021 11:53 am	1.00	5.00 mL	0.00 mL	X012603.D	Liquid	Y	NA
	0.10 ul cal std/ 50 ml DI									
4	VSTD001	ICAL3	01-26-2021 12:35 pm	1.00	5.00 mL	0.00 mL	X012604.D	Liquid	Y	NA
	0.20 ul cal std/ 50 ml DI									
5	VSTD002	ICAL4	01-26-2021 12:56 pm	1.00	5.00 mL	0.00 mL	X012605.D	Liquid	Y	NA
	0.40 ul cal std/ 50 ml DI									
6	VSTD005	ICAL5	01-26-2021 01:17 pm	1.00	5.00 mL	0.00 mL	X012606.D	Liquid	Y	NA
	1.0 ul cal std/ 50 ml DI									
7	VSTD020	ICAL6	01-26-2021 01:38 pm	1.00	5.00 mL	0.00 mL	X012607.D	Liquid	Y	NA
	4.0 ul cal std/ 50 ml DI									
8	VSTD050	ICAL7	01-26-2021 01:59 pm	1.00	5.00 mL	0.00 mL	X012608.D	Liquid	Y	NA
	10 ul cal std/ 50 ml DI									
9	VSTD100	ICAL8	01-26-2021 02:20 pm	1.00	5.00 mL	0.00 mL	X012609.D	Liquid	Y	NA
	20 ul cal std/ 50 ml DI									
10	VSTD150	ICAL9	01-26-2021 02:41 pm	1.00	5.00 mL	0.00 mL	X012610.D	Liquid	Y	NA
	30 ul cal std/ 50 ml DI									
11	VSTD200	ICAL	01-26-2021 03:02 pm	1.00	5.00 mL	0.00 mL	X012611.D	Liquid	Y	NA
	40 ul cal std/ 50 ml DI									
12	BLANK	SAMP	01-26-2021 03:23 pm	1.00	5.00 mL	0.00 mL	X012612.D	Liquid	Y	NA
	cleanup									
13	CCV	CCV	01-26-2021 03:44 pm	1.00	5.00 mL	0.00 mL	X012613.D	Liquid	Y	NA
	10 ul icv std/50 ml DI									
14	BLANK	SAMP	01-26-2021 04:04 pm	1.00	5.00 mL	0.00 mL	X012614.D	Liquid	Y	NA
	cleanup									
15	BLANK	SAMP	01-26-2021 04:26 pm	1.00	5.00 mL	0.00 mL	X012615.D	Liquid	Y	NA
	cleanup									
16	VLCSW-210126	LCS	01-26-2021 04:46 pm	1.00	5.00 mL	0.00 mL	X012616.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
17	BLANK	SAMP	01-26-2021 05:08 pm	1.00	5.00 mL	0.00 mL	X012617.D	Liquid	Y	NA
	cleanup									
18	VBLKW-210126	MBLK	01-26-2021 05:29 pm	1.00	5.00 mL	0.00 mL	X012618.D	Liquid	Y	NA
19	HS21010454-13	SAMP	01-26-2021 05:50 pm	1.00	5.00 mL	0.00 mL	X012619.D	Liquid	Y	NA
20	HS21010454-14	SAMP	01-26-2021 06:10 pm	1.00	5.00 mL	0.00 mL	X012620.D	Liquid	Y	NA
21	HS21010454-15	SAMP	01-26-2021 06:31 pm	1.00	5.00 mL	0.00 mL	X012621.D	Liquid	Y	NA
22	HS21010454-16	SAMP	01-26-2021 06:52 pm	1.00	5.00 mL	0.00 mL	X012622.D	Liquid	Y	NA
23	HS21010977-01	SAMP	01-26-2021 07:13 pm	100.0(	5.00 mL	0.00 mL	X012623.D	Liquid	Y	NA
24	HS21010864-01n/r	SAMP	01-26-2021 07:35 pm	1.00	5.00 mL	0.00 mL	X012624.D	Liquid	Y	NA
25	HS21010864-02	SAMP	01-26-2021 07:56 pm	1.00	5.00 mL	0.00 mL	X012625.D	Liquid	Y	NA
26	HS21010864-04	SAMP	01-26-2021 08:17 pm	1.00	5.00 mL	0.00 mL	X012626.D	Liquid	Y	NA
27	HS21010864-05	SAMP	01-26-2021 08:38 pm	1.00	5.00 mL	0.00 mL	X012627.D	Liquid	Y	NA
28	HS21010864-02MS	MS	01-26-2021 08:59 pm	1.00	5.00 mL	0.00 mL	X012628.D	Liquid	Y	NA
	3.2 ul cal std / 40 ml sample									
29	HS21010864-02MSD	MSD	01-26-2021 09:20 pm	1.00	5.00 mL	0.00 mL	X012629.D	Liquid	Y	NA
	3.2 ul cal std / 40 ml sample									
30	CCV-END	CCV	01-26-2021 09:41 pm	1.00	5.00 mL	0.00 mL	X012630.D	Liquid	Y	NA

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-63-06
IS ID	31106-63-06
ICV STD ID	31106-66-05
LCS/MS ID	31106-66-05
CAL STD ID	31106-66-01/02
BFB ID	31106-63-06
pH Paper	634-64-10

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
1,1-Dichloroethene	50.00	44.57	89	80-120
1,2-Dichloroethane	50.00	44.86	90	80-120
Tetrachloroethene	50.00	49.05	98	80-120
cis-1,2-Dichloroethene	50.00	46.70	93	80-120
Vinyl Chloride	50.00	44.27	88	80-120
Trichloroethene	50.00	51.21	102	80-120

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

* Values outside of QC limits

COMMENTS: _____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID: X012601 BFB Injection Date: 01/26/21

Instrument ID: VOA6 BFB Injection Time: 1111

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	17.4
75	30.0 - 60.0% of mass 95	47.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than 2.0% of mass 174	0.9 (1.3)1
174	Greater than 50.0% of mass 95	73.0
175	5.0 - 9.0% of mass 174	5.0 (6.9)1
176	95.0 - 101.0% of mass 174	71.6 (98.1)1
177	5.0 - 9.0% of mass 176	4.6 (6.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X012602	01/26/21	1132
02	VSTD000.5	VSTD000.5	X012603	01/26/21	1153
03	VSTD001	VSTD001	X012604	01/26/21	1235
04	VSTD002	VSTD002	X012605	01/26/21	1256
05	VSTD005	VSTD005	X012606	01/26/21	1317
06	VSTD020	VSTD020	X012607	01/26/21	1338
07	VSTD050	VSTD050	X012608	01/26/21	1359
08	VSTD100	VSTD100	X012609	01/26/21	1420
09	VSTD150	VSTD150	X012610	01/26/21	1441
10	VSTD200	VSTD200	X012611	01/26/21	1502
11	ICV	ICV	X012613	01/26/21	1544
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

LAB FILE ID: RF0.25: X012602 RF0.5: X012603 RF1: X012604
RF2: X012605 RF5: X012606 RF20: X012607

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
1,1-Dichloroethene		0.599	0.705	0.664	0.550	0.643
1,2-Dichloroethane		0.395	0.502	0.492	0.474	0.466
Tetrachloroethene		0.213	0.271	0.275	0.275	0.290
cis-1,2-Dichloroethene		0.451	0.658	0.692	0.699	0.662
Vinyl Chloride		0.634	0.742	0.739	0.655	0.725
Trichloroethene		0.250	0.337	0.336	0.333	0.356
1,2-Dichloroethane-d4		3863	6482	11687	29956	112243
Dibromofluoromethane		3618	4870	10668	27072	101900
4-Bromofluorobenzene		6791	13963	13350	35925	133136
Toluene-d8		1.741	1.327	1.361	1.339	1.231

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2101115

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

LAB FILE ID: RF50: X012608 RF100: X012609 RF150: X012610
RF200: X012611

COMPOUND	RF50	RF100	RF150	RF200
1,1-Dichloroethene	0.628	0.646	0.636	0.626
1,2-Dichloroethane	0.444	0.419	0.412	0.397
Tetrachloroethene	0.281	0.290	0.282	0.277
cis-1,2-Dichloroethene	0.644	0.664	0.656	0.638
Vinyl Chloride	0.713	0.742	0.738	0.737
Trichloroethene	0.344	0.350	0.350	0.351
1,2-Dichloroethane-d4	254660	530907	746091	998263
Dibromofluoromethane	235983	507211	719853	990894
4-Bromofluorobenzene	295052	606464	879527	1192191
Toluene-d8	1.138	1.242	1.202	1.192

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2101115

Instrument ID: VOA6 Calibration Date(s): 01/26/21 01/26/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1132 1502

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
1,1-Dichloroethene	AVRG		0.63304683	6.716	15.000
1,2-Dichloroethane	AVRG		0.44461300	9.173	15.000
Tetrachloroethene	AVRG		0.27278297	8.582	15.000
cis-1,2-Dichloroethene	AVRG		0.64035279	11.512	15.000
Vinyl Chloride	AVRG		0.71388382	5.718	15.000
Trichloroethene	AVRG		0.33413260	9.724	15.000
1,2-Dichloroethane-d4	LINR	-2.93e-002	1.65138702	0.9991592	0.9900000
Dibromofluoromethane	LINR	-7.59e-003	1.67934396	0.9997742	0.9900000
4-Bromofluorobenzene	LINR	-3.04e-002	2.32707698	0.9993089	0.9900000
Toluene-d8	AVRG		1.30804298	13.683	15.000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

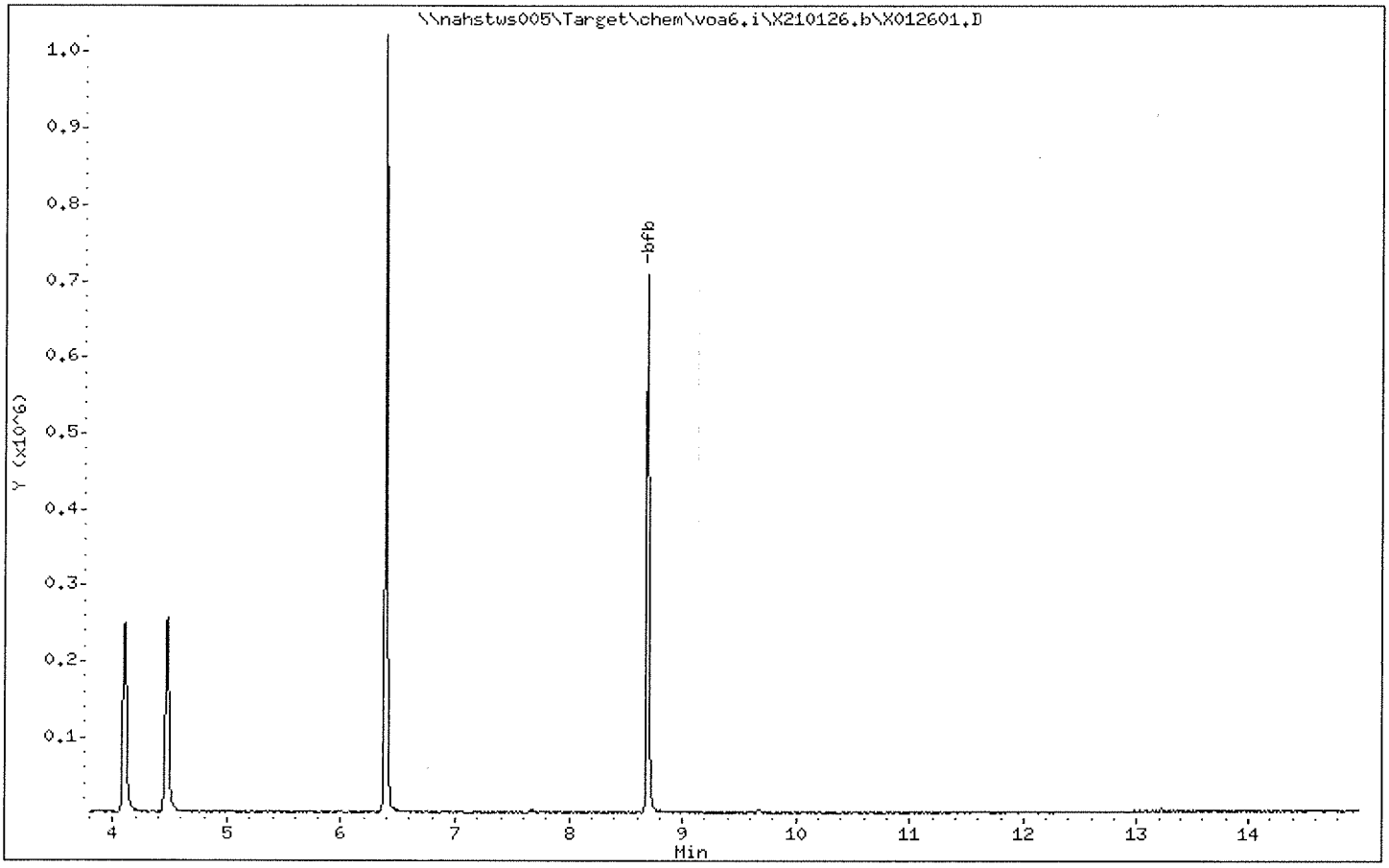
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

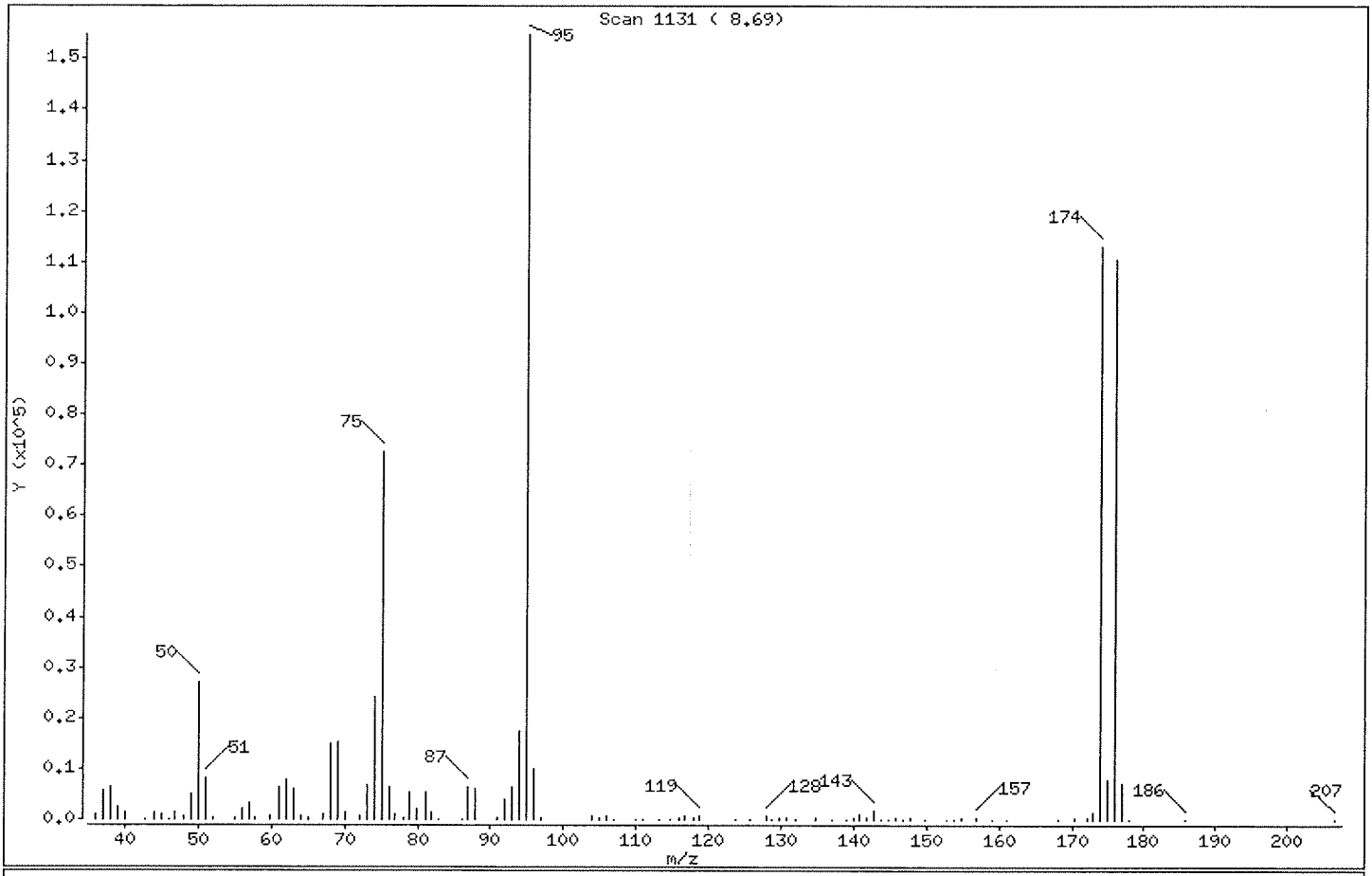
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.44
75	30.00 - 60.00% of mass 95	47.01
96	5.00 - 9.00% of mass 95	6.42
173	Less than 2.00% of mass 174	0.95 (1.30)
174	Greater than 50.00% of mass 95	72.99
175	5.00 - 9.00% of mass 174	5.00 (6.86)
176	95.00 - 101.00% of mass 174	71.57 (98.05)
177	5.00 - 9.00% of mass 176	4.64 (6.48)

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012601.D

Date : 26-JAN-2021 11:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X012601.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 100

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1150	68.00	14838	104.90	213	144.80	148
37.00	5815	69.00	15207	105.90	796	145.80	205
38.00	6326	70.00	1302	106.90	140	146.90	80
39.00	2441	72.00	835	109.90	106	147.80	356
40.00	1326	73.10	6935	110.90	150	149.80	138
42.80	66	74.00	24216	113.10	88	152.70	70
44.00	1265	75.00	72744	114.80	153	153.90	88
45.00	984	76.00	6569	116.00	458	154.90	299
46.00	133	76.90	1064	116.80	801	156.70	318
46.90	1305	78.00	524	117.90	523	159.00	108
48.00	887	78.90	5279	118.80	885	161.00	111
49.00	5107	79.90	1960	123.70	169	168.00	62
50.00	26984	81.00	5229	125.80	97	170.30	247
51.00	8275	81.90	1267	127.90	614	172.20	426
52.00	293	82.80	139	128.70	79	172.90	1468
55.00	378	86.10	157	129.80	358	173.90	112960
56.00	2003	86.90	6360	130.80	199	174.90	7745
57.00	3071	87.90	5977	132.00	88	175.90	110760
57.90	193	90.90	523	134.80	294	176.90	7181
59.90	871	92.00	3852	136.90	167	177.80	158
61.00	6564	93.00	6478	138.90	113	185.90	116
62.00	7983	94.00	17584	139.90	241	206.70	89
63.00	6078	95.00	154752	140.80	1076		
64.00	612	96.00	9941	141.80	206		
65.00	262	96.90	391	142.90	1783		
67.00	1038	104.00	621	143.80	108		

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012602.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 26-JAN-2021 11:32
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 15:02 Cal File: X012611.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

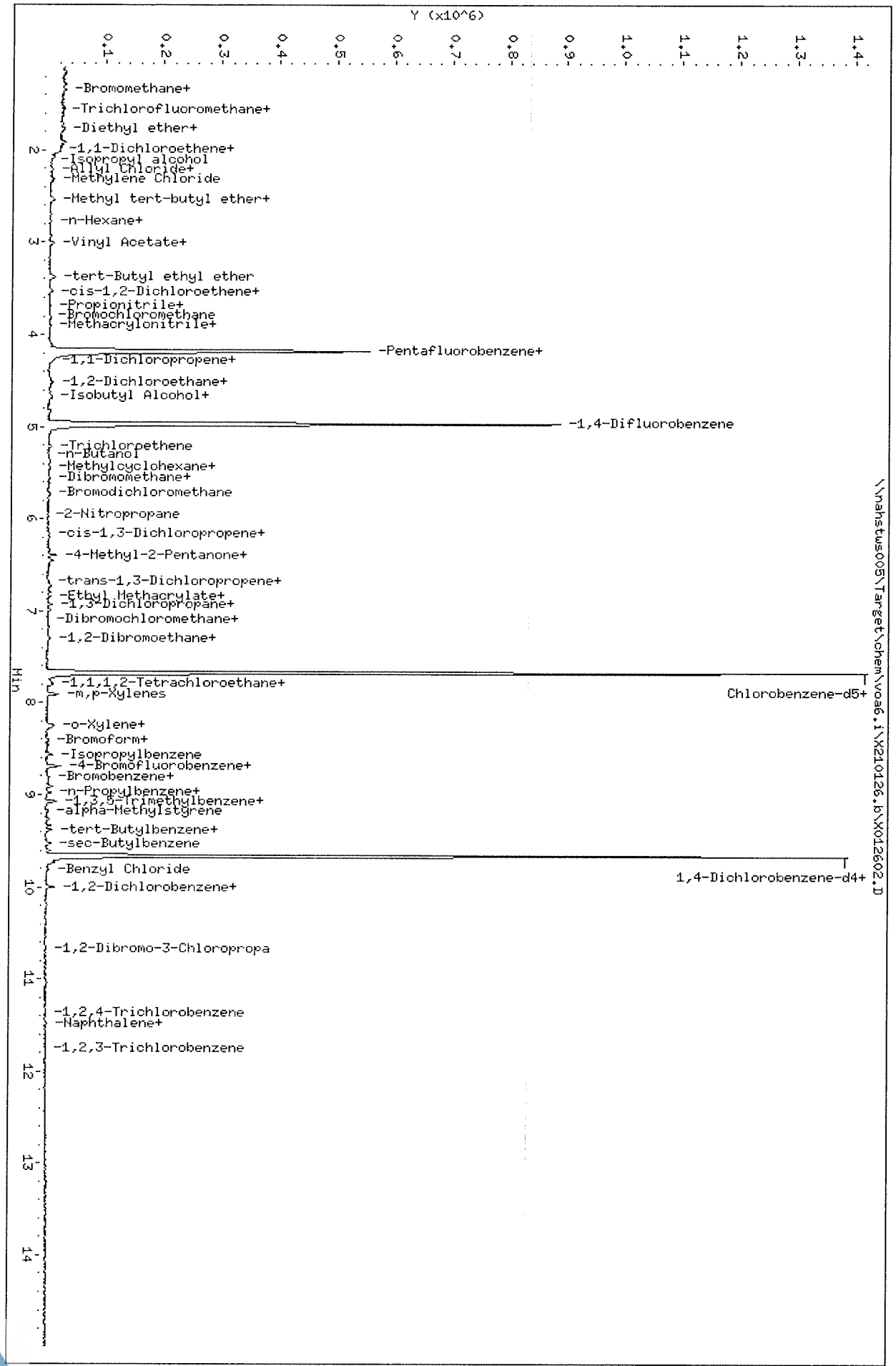
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	425592	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	761285	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	679973	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	301945	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	2456	0.25000	0.10(a)
$ 35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	3113	0.25000	(a)
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	9620	0.25000	0.54(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	7307	0.25000	(aM)
11 1,1-Dichloroethene	96	1.926	1.926	(0.461)	1974	0.25000	0.36(a)
33 1,2-Dichloroethane	62	4.569	4.569	(0.921)	2401	0.25000	0.35(a)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.846)	1612	0.25000	0.29(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1174	0.25000	0.31(a)
38 Trichloroethene	130	5.207	5.207	(1.049)	1638	0.25000	0.32(a)
5 Vinyl Chloride	62	1.138	1.138	(0.272)	2204	0.25000	0.36(aM)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012602.D
Date : 26-JAN-2021 11:32
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 26-JAN-2021 11:53
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 11:32 Cal File: X012602.D
Als bottle: 3 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

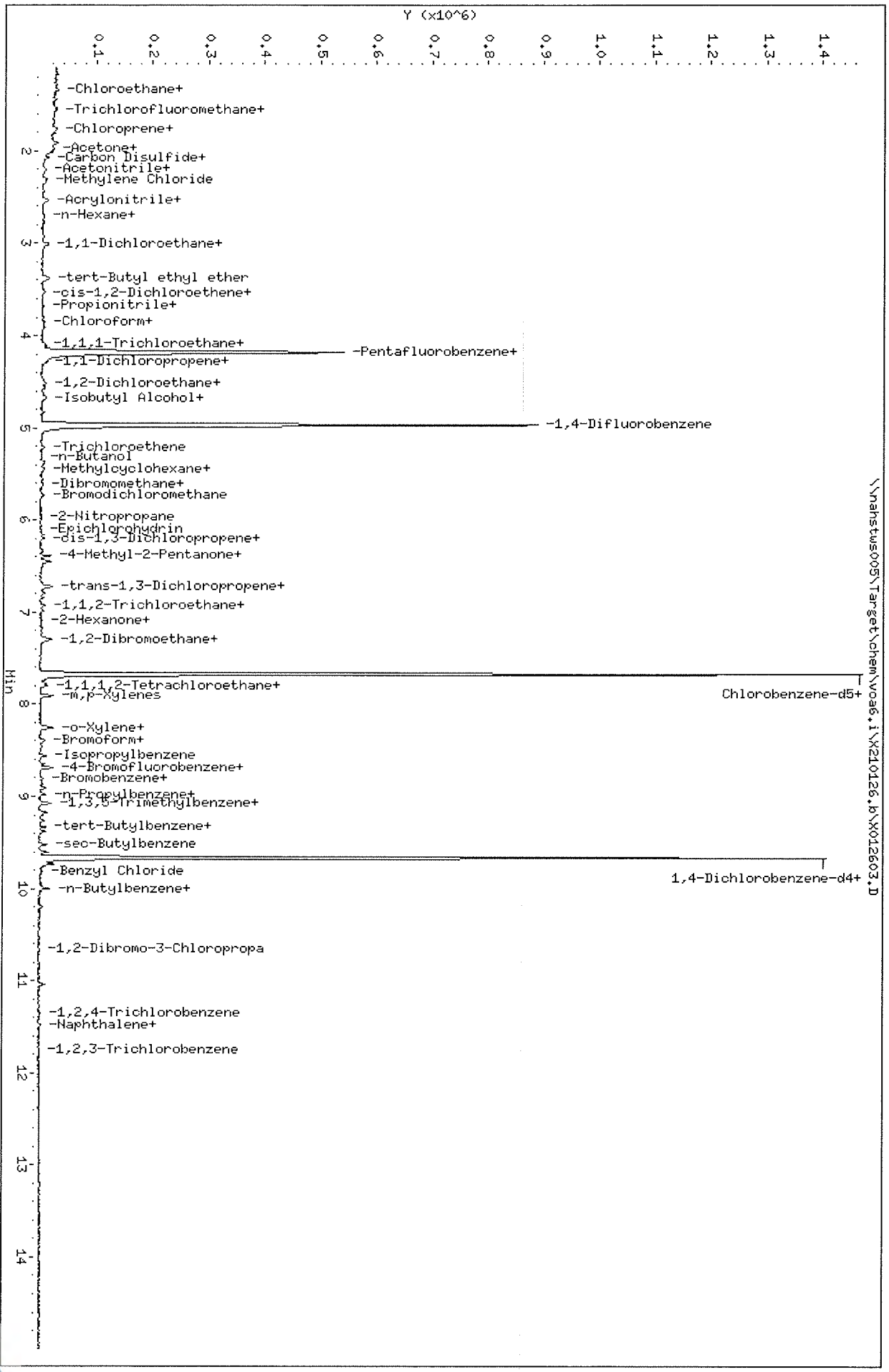
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	424677	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	755329	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	685366	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	301979	50.0000	
$	30 Dibromofluoromethane	113	4.111	4.111	(0.983)	3618	0.50000	0.33(a)
$	35 1,2-Dichloroethane-d4	65	4.483	4.483	(1.072)	3863	0.50000	(aM)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	11935	0.50000	0.66(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	6791	0.50000	(aM)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	2544	0.50000	0.47(a)
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	2982	0.50000	0.44(a)
	27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.846)	1916	0.50000	0.35(a)
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	1459	0.50000	0.39(a)
	38 Trichloroethene	130	5.214	5.214	(1.051)	1888	0.50000	0.37(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	2693	0.50000	0.44(a)

QC Flag Legend

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

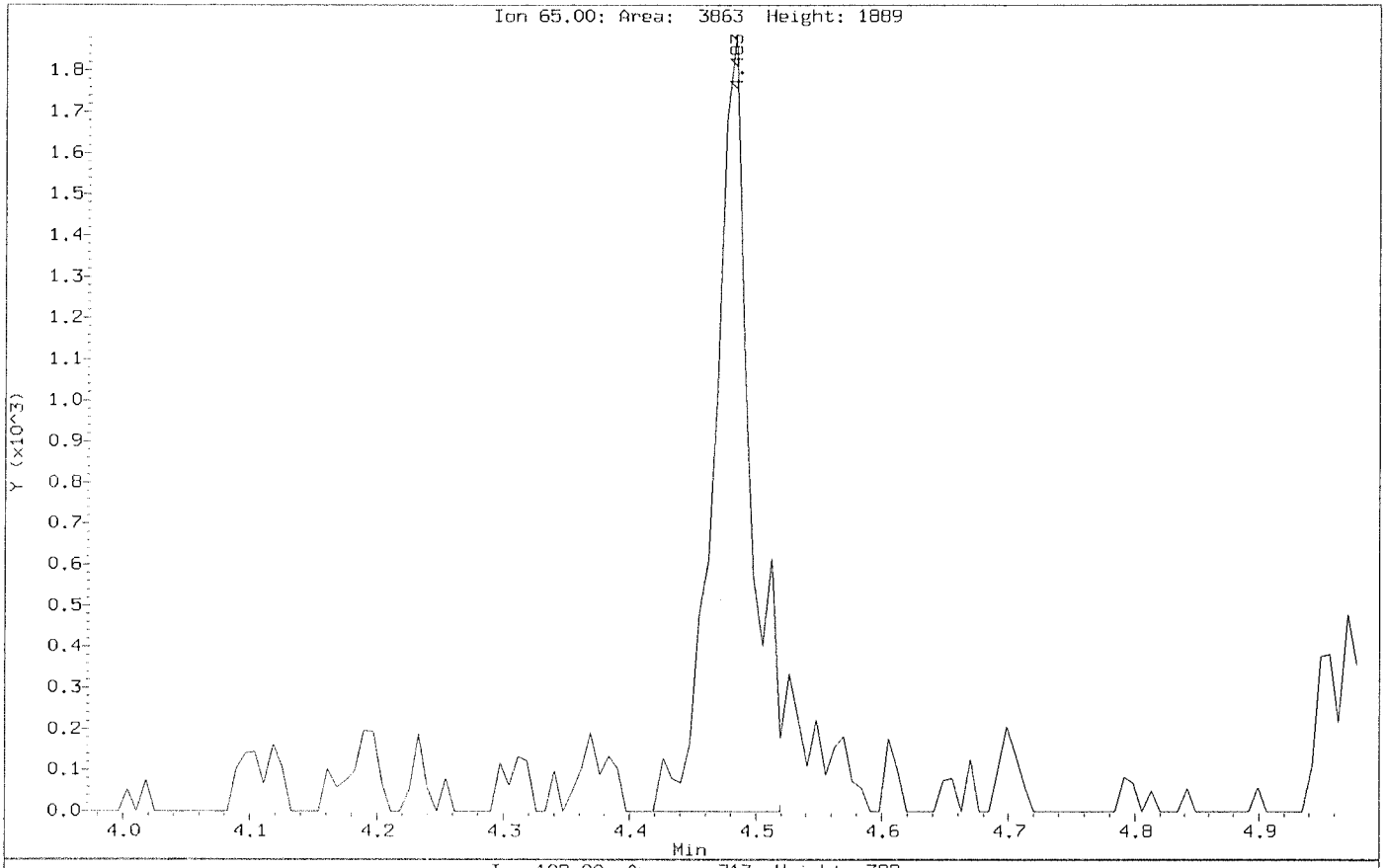


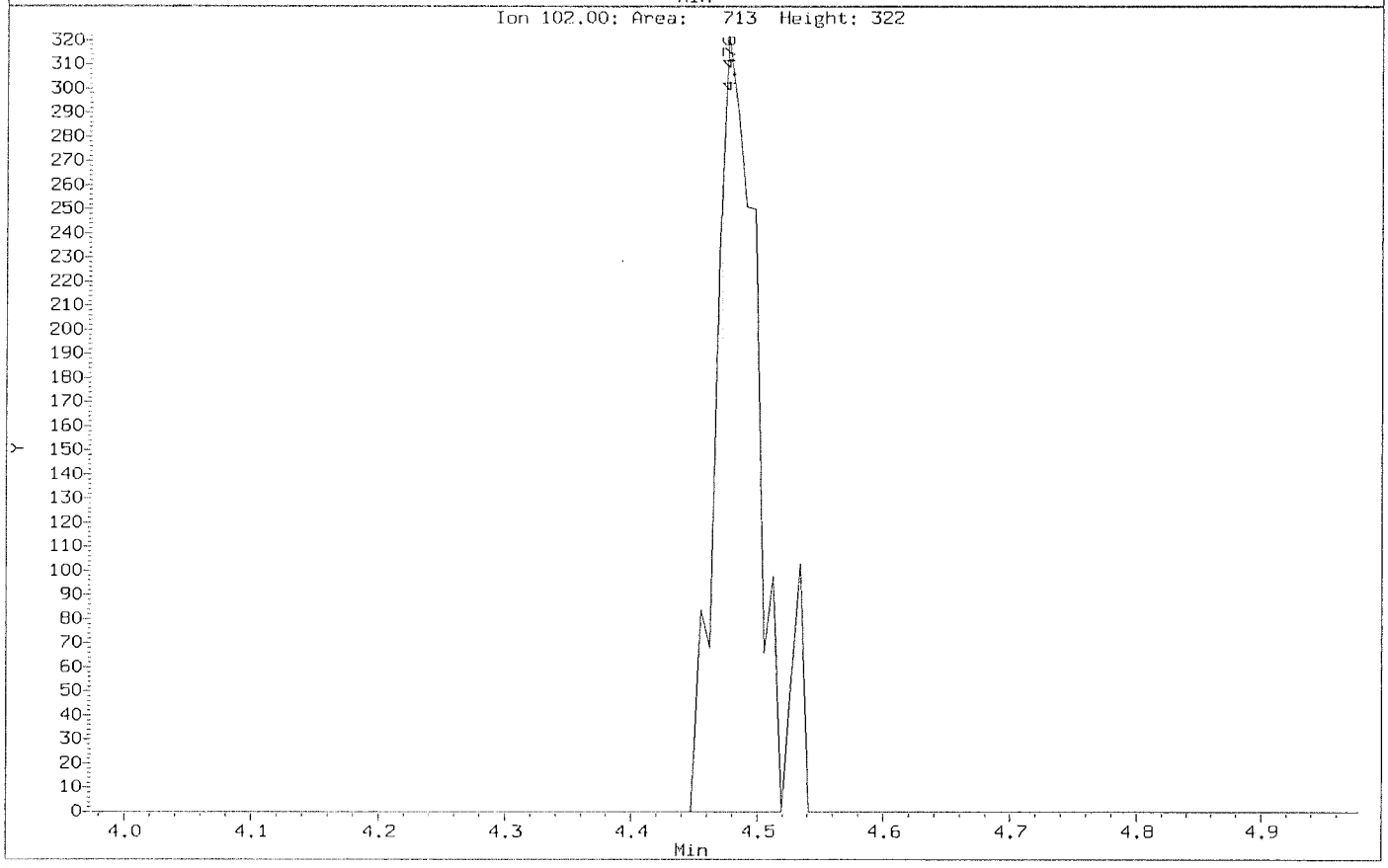
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Date : 26-JAN-2021 11:53
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

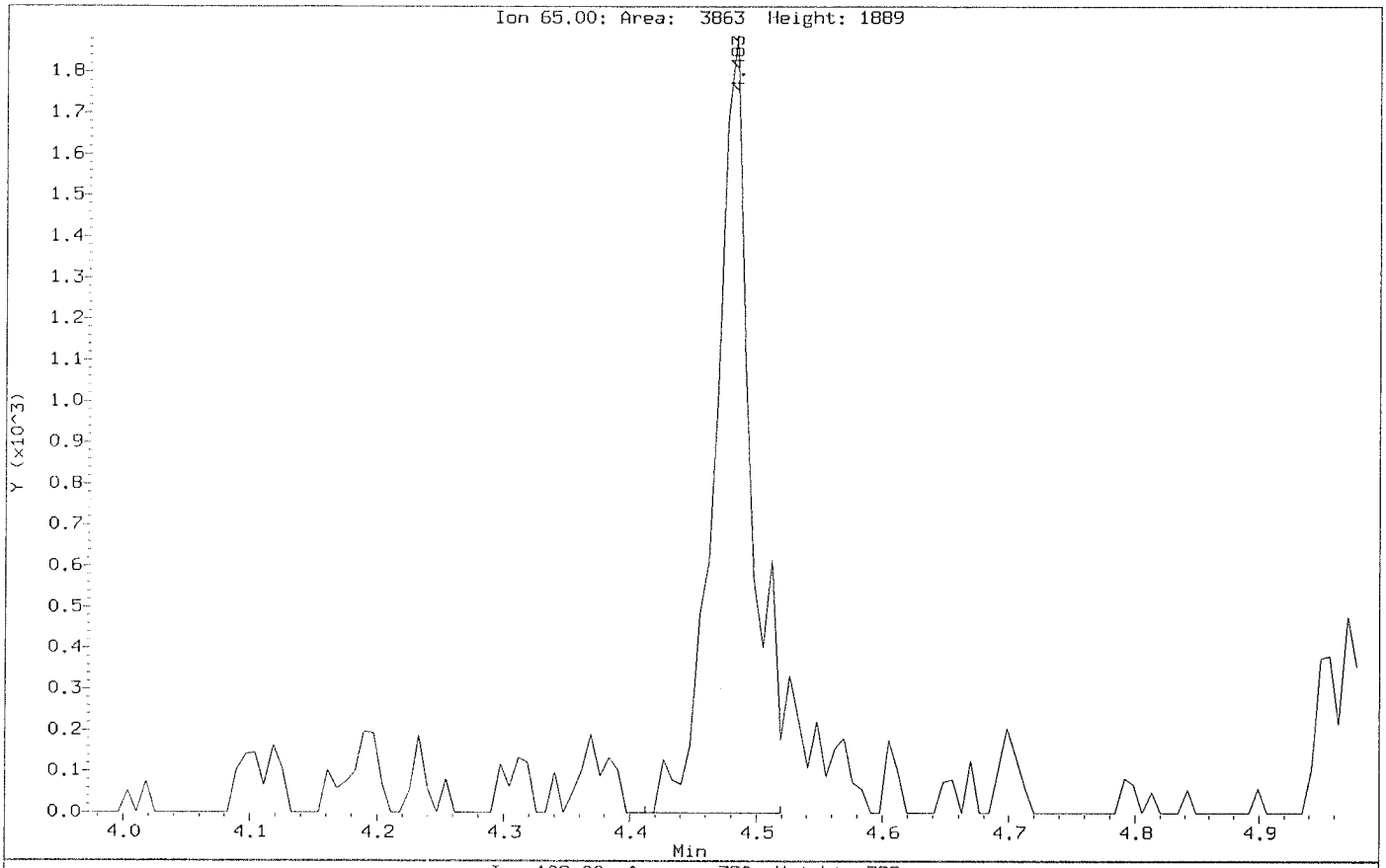
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

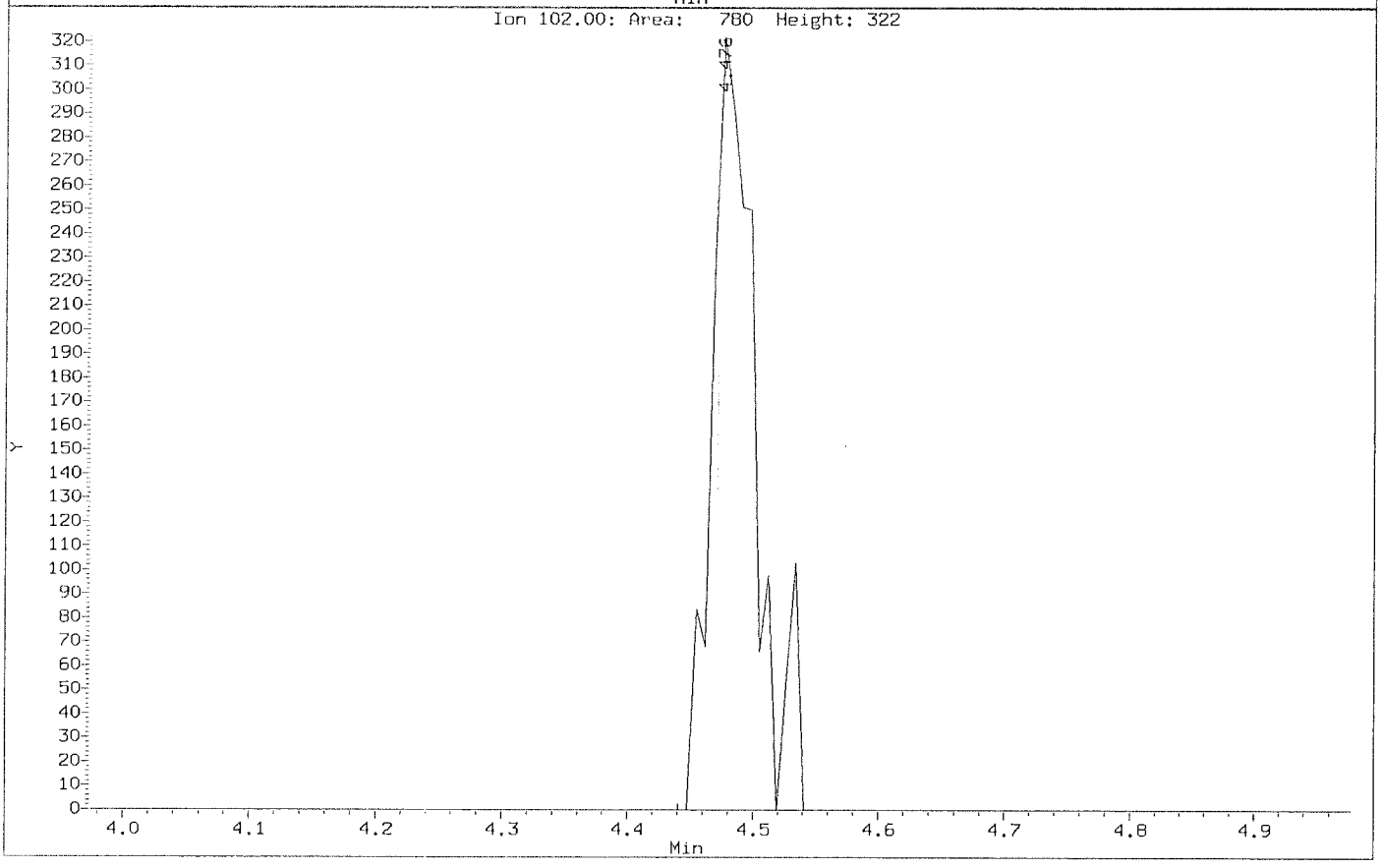




Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

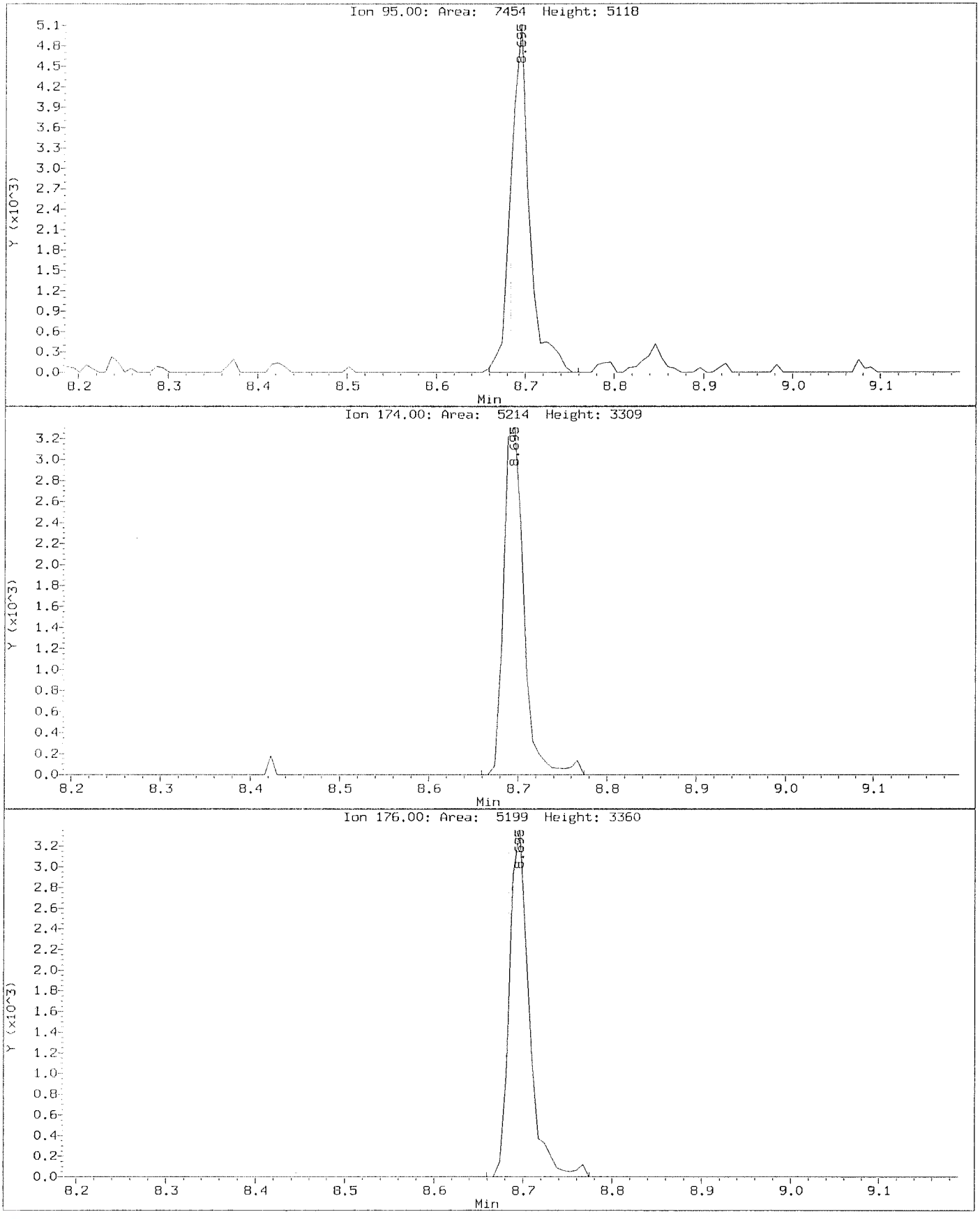
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





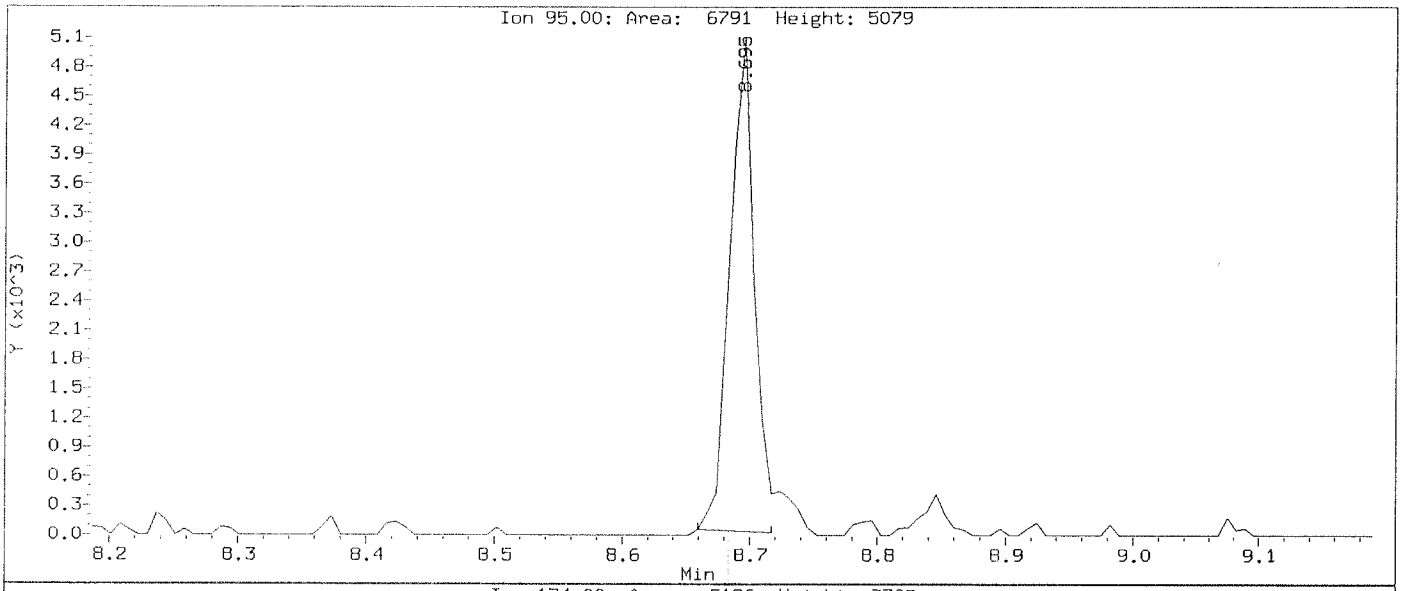
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Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

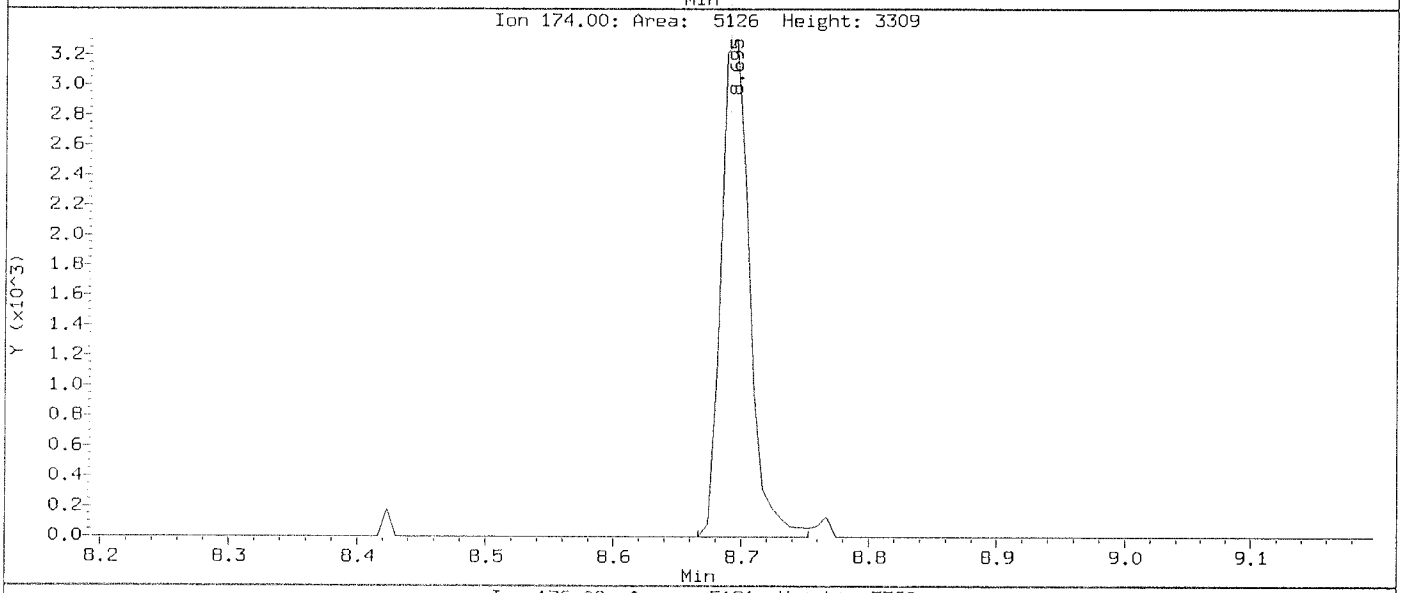
Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4

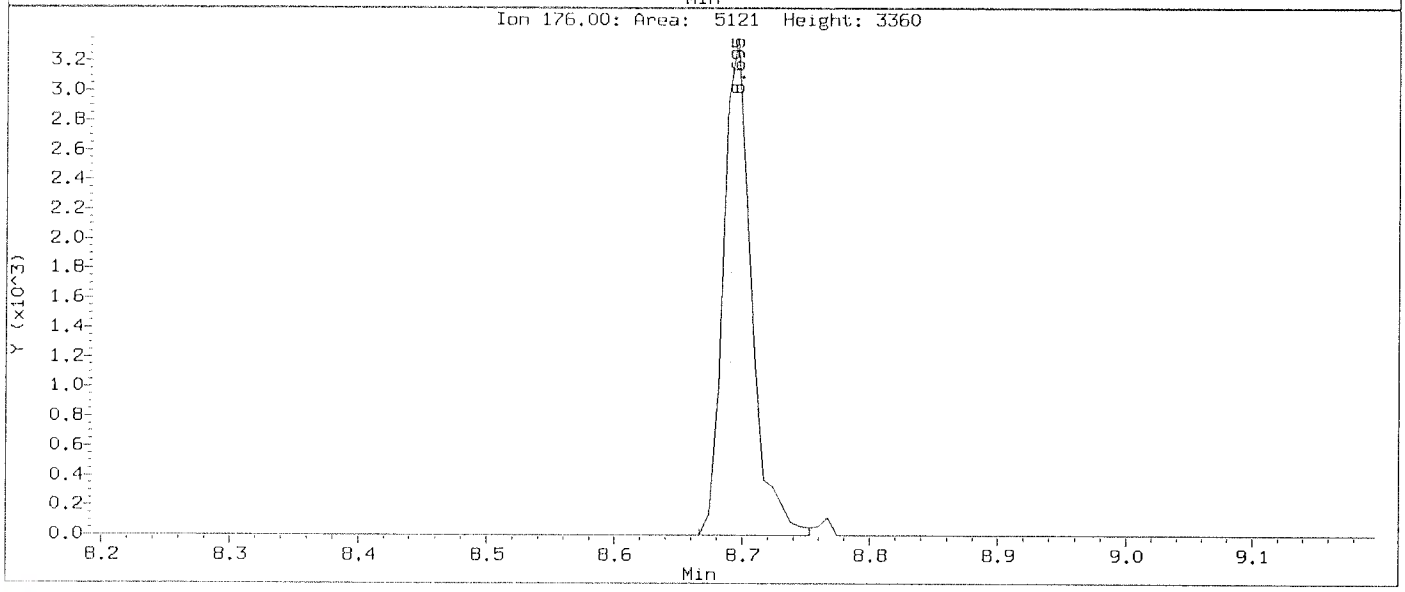


Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012603.D
Injection Date: 26-JAN-2021 11:53
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4







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Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 26-JAN-2021 12:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 11:53 Cal File: X012603.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

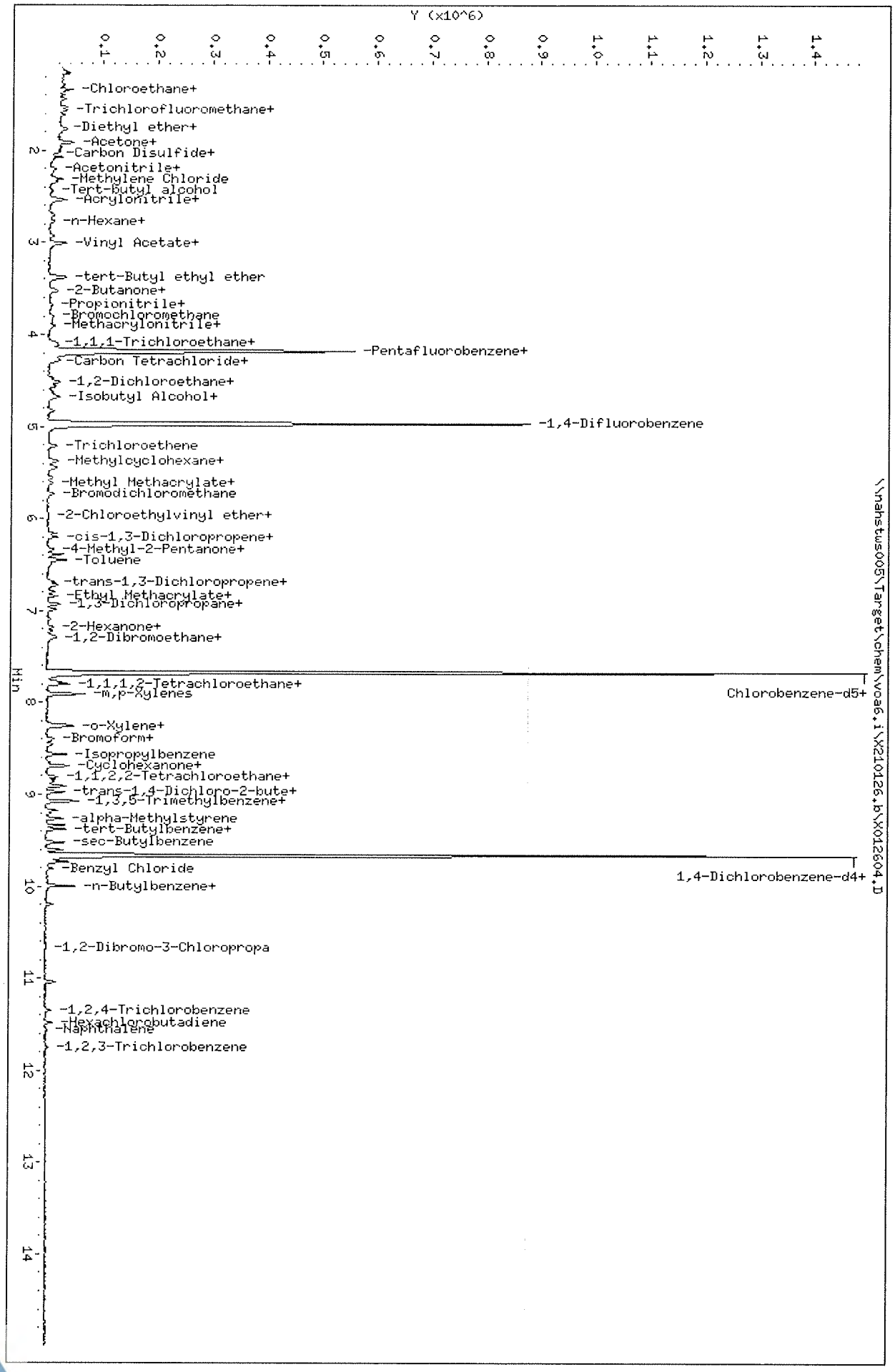
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	418145	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	749653	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	687970	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	305417	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	4870	1.00000	0.59(a)
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	6482	1.00000	(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	18260	1.00000	1.01(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	13963	1.00000	0.84(aM)
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	5895	1.00000	1.11(a)
	33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	7528	1.00000	1.12(a)
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5501	1.00000	1.02(a)
	56 Tetrachloroethene	164	6.925	6.925	(0.903)	3729	1.00000	0.99(a)
	38 Trichloroethene	130	5.206	5.206	(1.049)	5053	1.00000	1.00(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	6204	1.00000	1.03(a)

QC Flag Legend

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

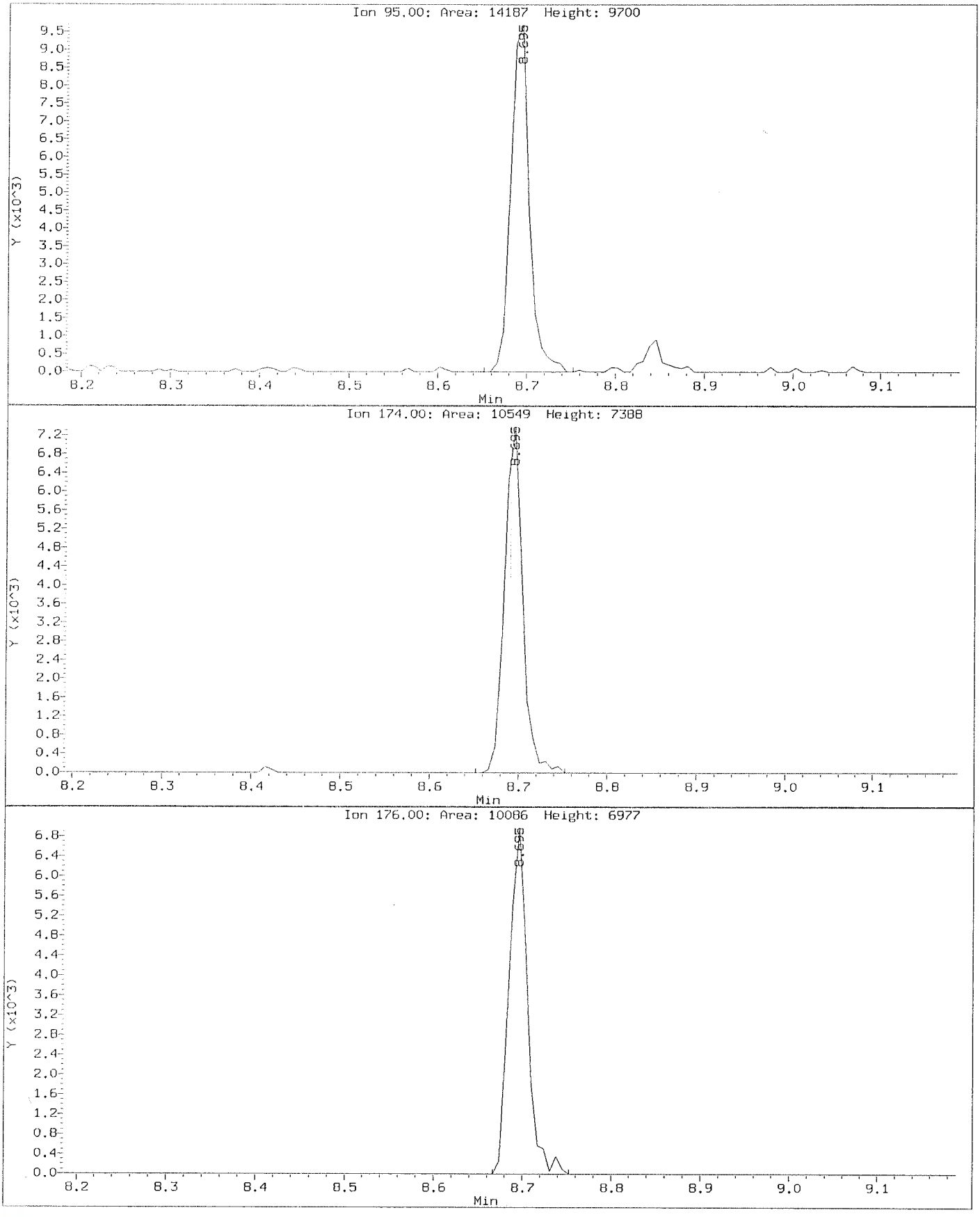


Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Date : 26-JAN-2021 12:35
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;;
Purge Volume: 5.0
Column phase: DB624

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

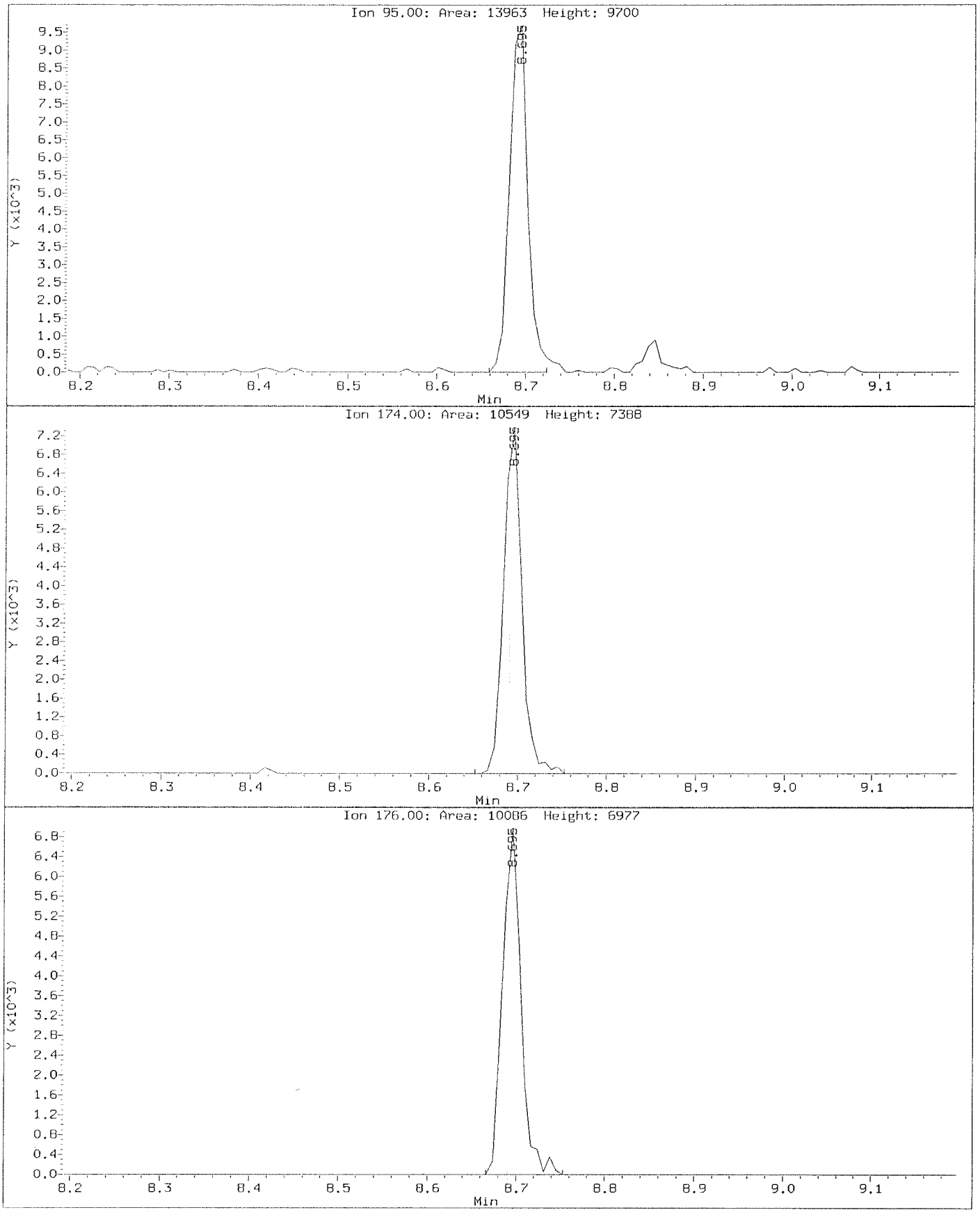
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012604.D
Injection Date: 26-JAN-2021 12:35
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012604.D
Injection Date: 26-JAN-2021 12:35
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 4-Bromofluorobenzene
CAS Number: 460-00-4



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D Page 1
Report Date: 01-Mar-2021 12:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 26-JAN-2021 12:56
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 12:35 Cal File: X012604.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

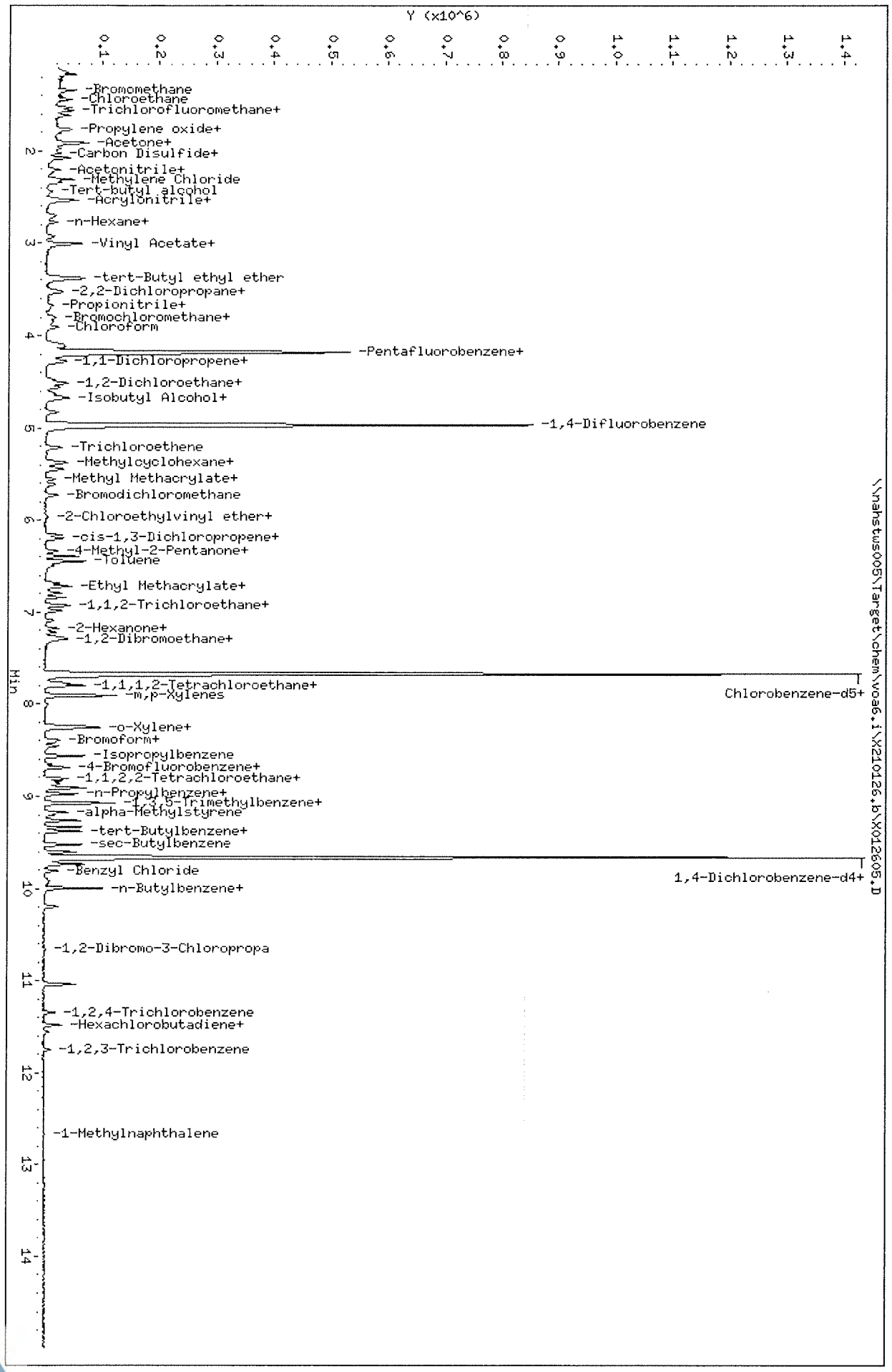
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	398863	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	721193	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	654202	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	299221	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	10668	2.00000	1.86(a)
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	11687	2.00000	0.95(aM)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	35627	2.00000	2.08(a)
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	13350	2.00000	0.85(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	10602	2.00000	2.09(a)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	14183	2.00000	2.21(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	11037	2.00000	2.16(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	7206	2.00000	2.01(a)
38 Trichloroethene	130	5.199	5.199	(1.046)	9708	2.00000	2.01(a)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	11791	2.00000	2.07(a)

QC Flag Legend

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

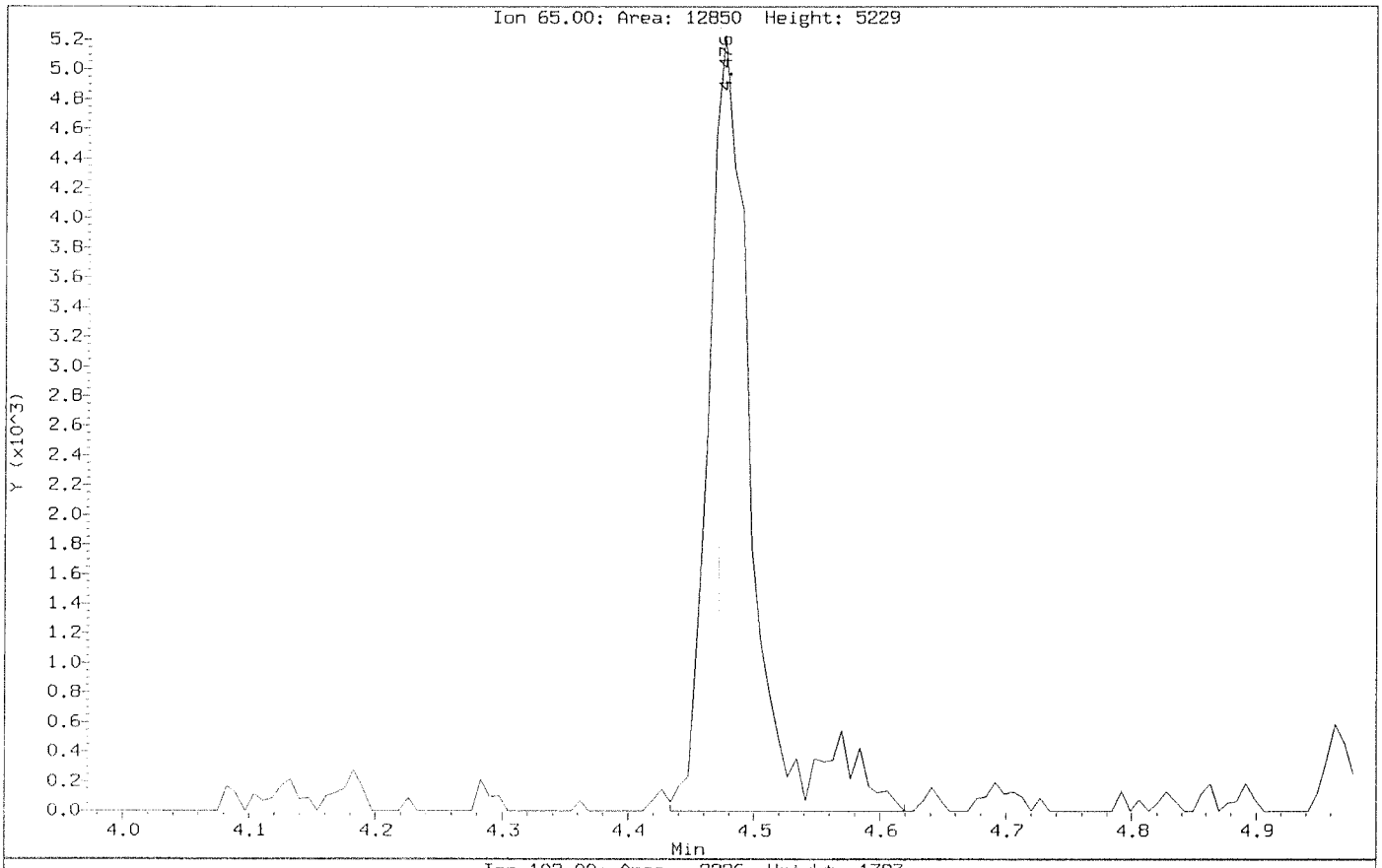


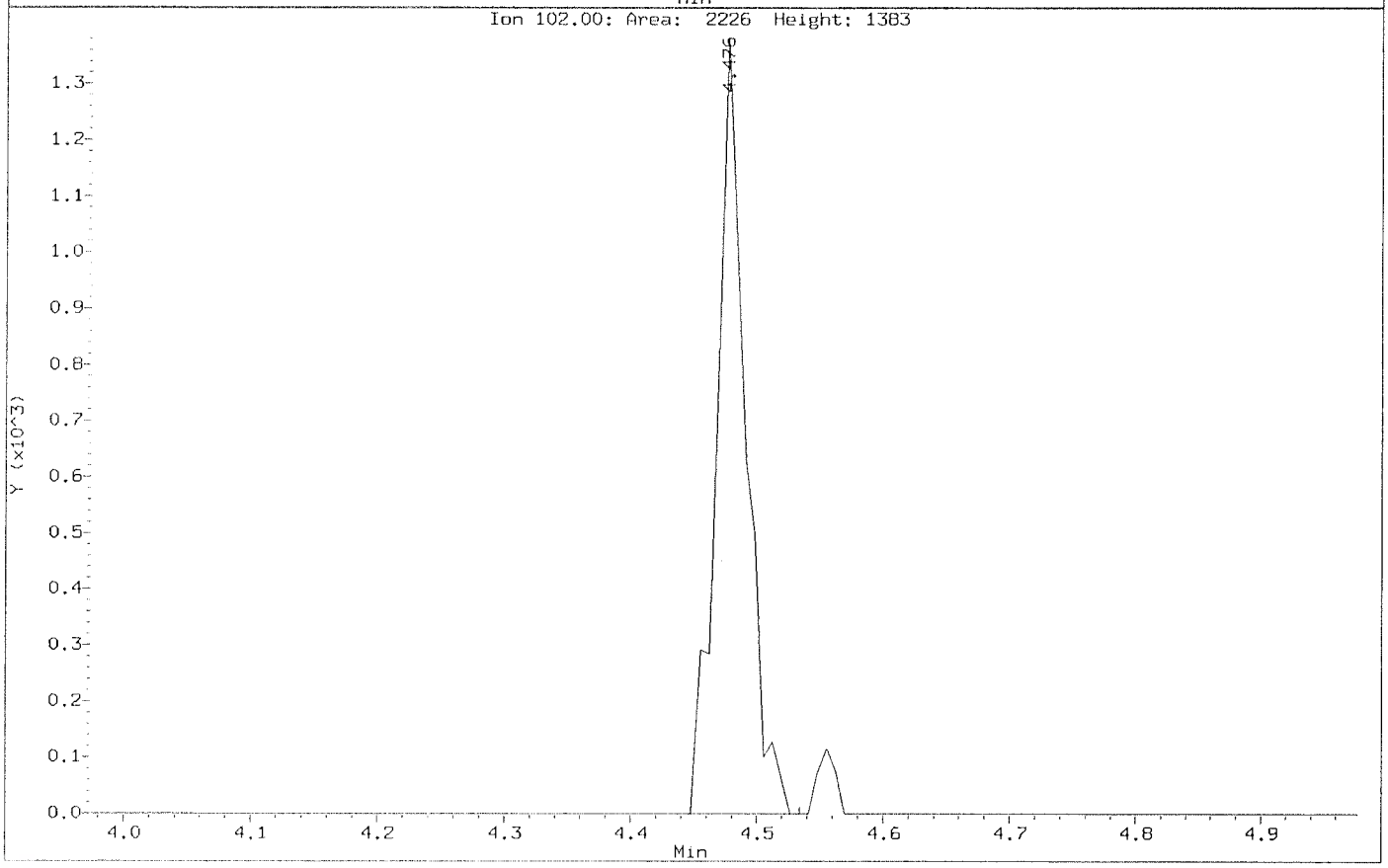
Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Date : 26-JAN-2021 12:56
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\Before\X012605.D
Injection Date: 26-JAN-2021 12:56
Instrument: voa6.i
Client Sample ID: VSTD002

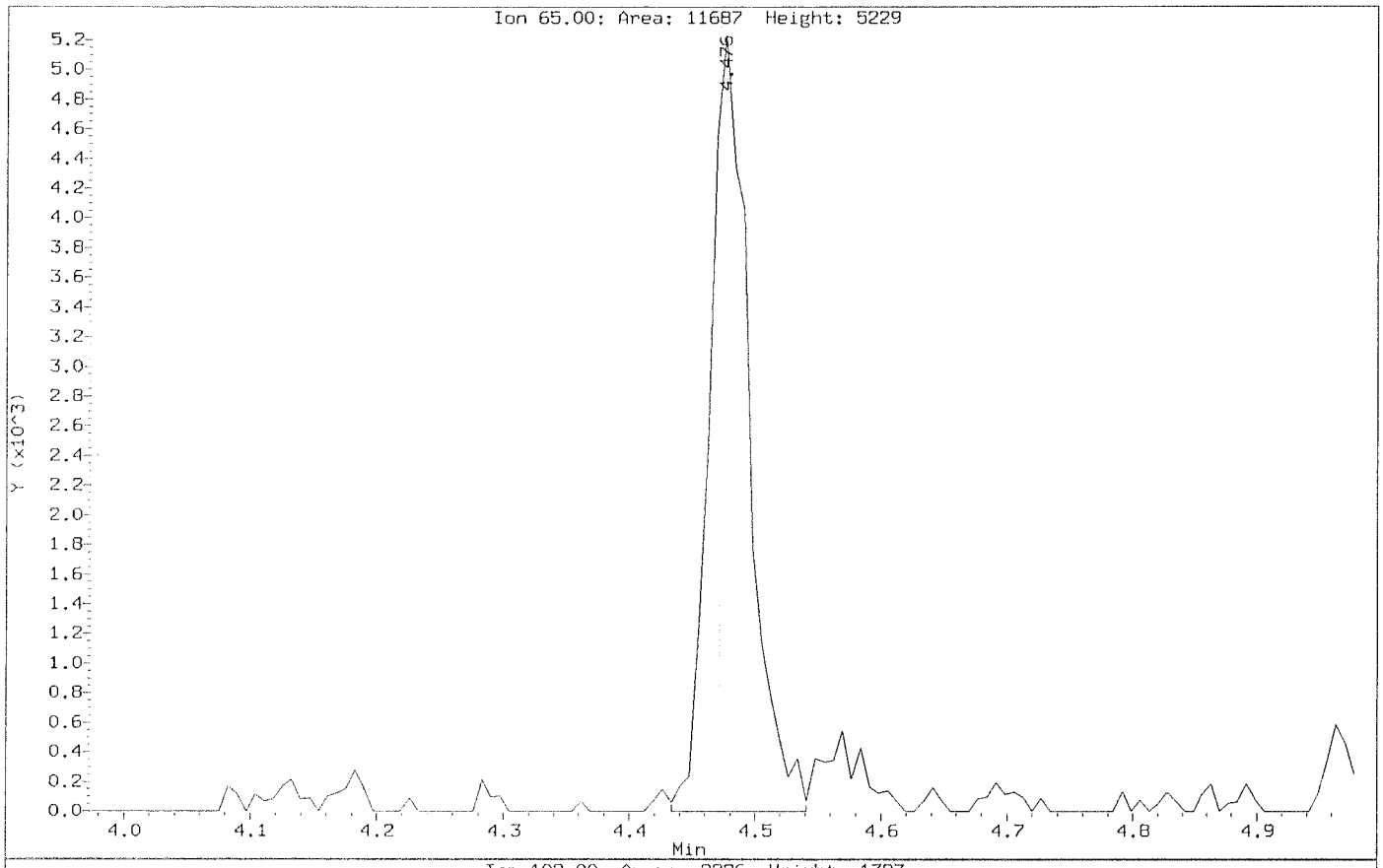
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

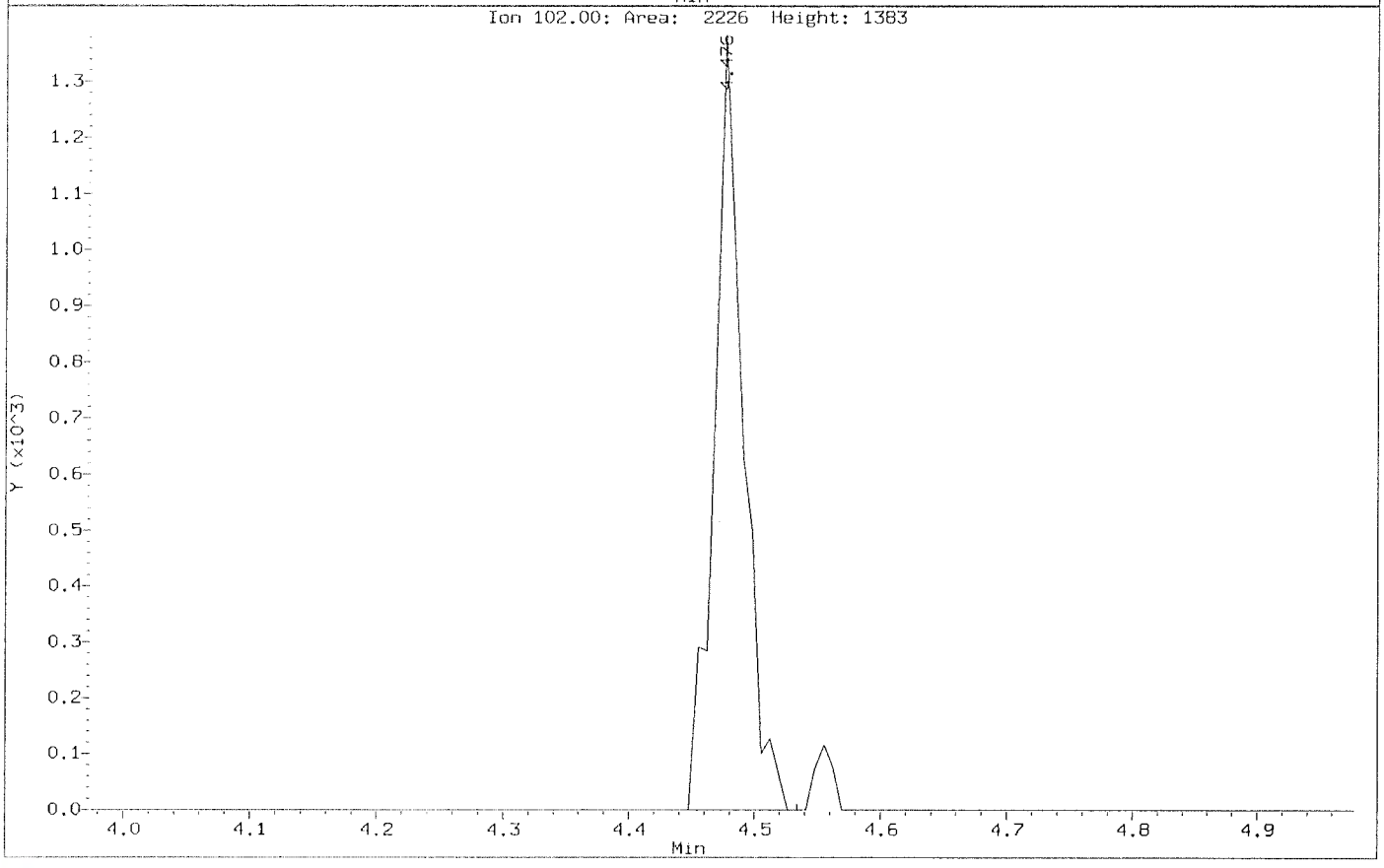




Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012605.D
Injection Date: 26-JAN-2021 12:56
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012606.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 26-JAN-2021 13:17
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 12:56 Cal File: X012605.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

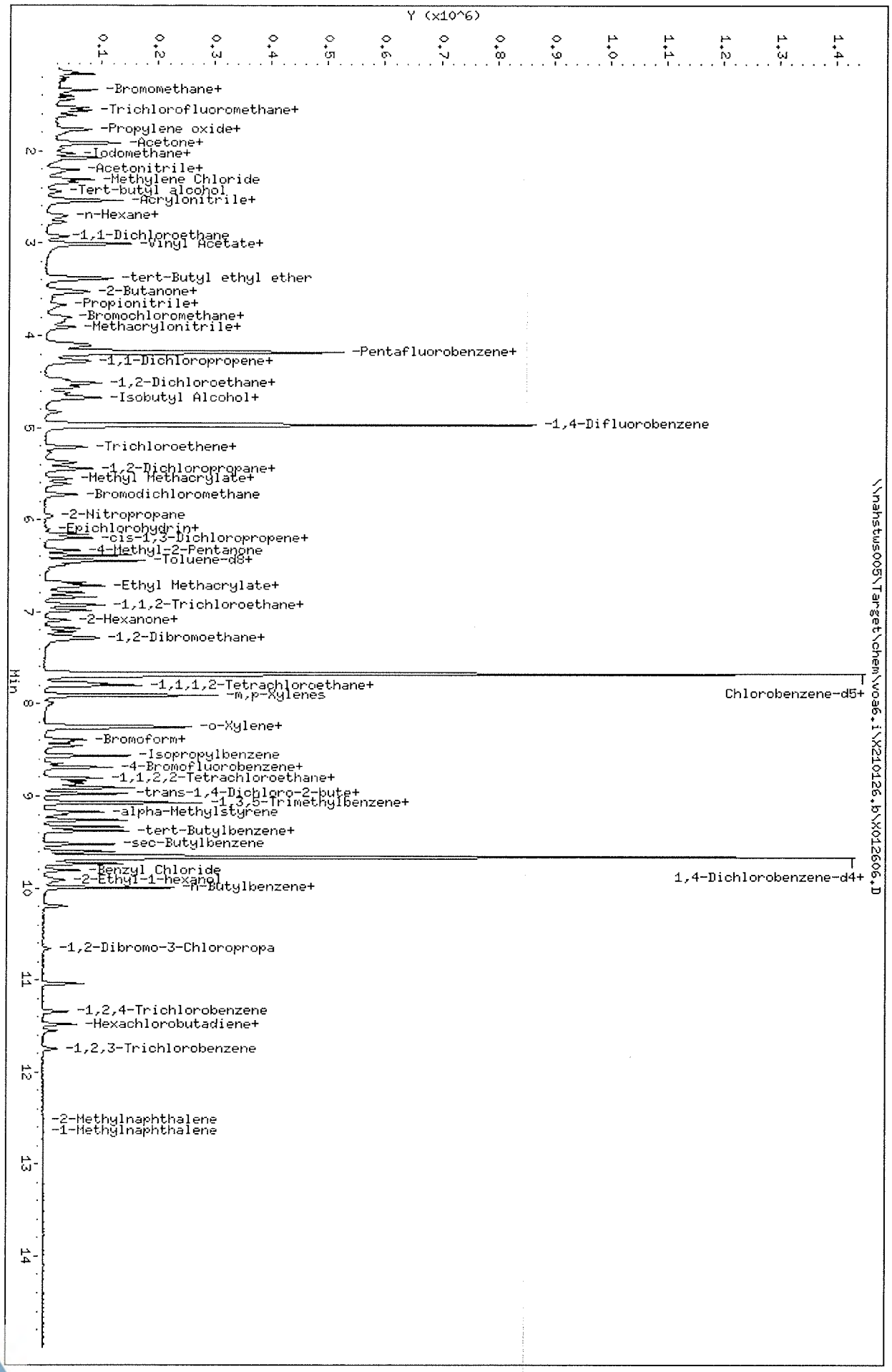
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	398798	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	710553	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	664086	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	290340	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	27072	5.00000	5.32
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	29956	5.00000	4.73(a)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	88932	5.00000	5.11
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	35925	5.00000	4.77(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	21952	5.00000	4.34(a)
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	33717	5.00000	5.33
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	27876	5.00000	5.45
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	18274	5.00000	5.04
	38 Trichloroethene	130	5.206	5.206	(1.048)	23685	5.00000	4.98(a)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	26107	5.00000	4.58(a)

QC Flag Legend

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



Data File: \\nahstus005\Target\chem\voa6.i\X210126.b\X012606.D
Date : 26-JAN-2021 13:17
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

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

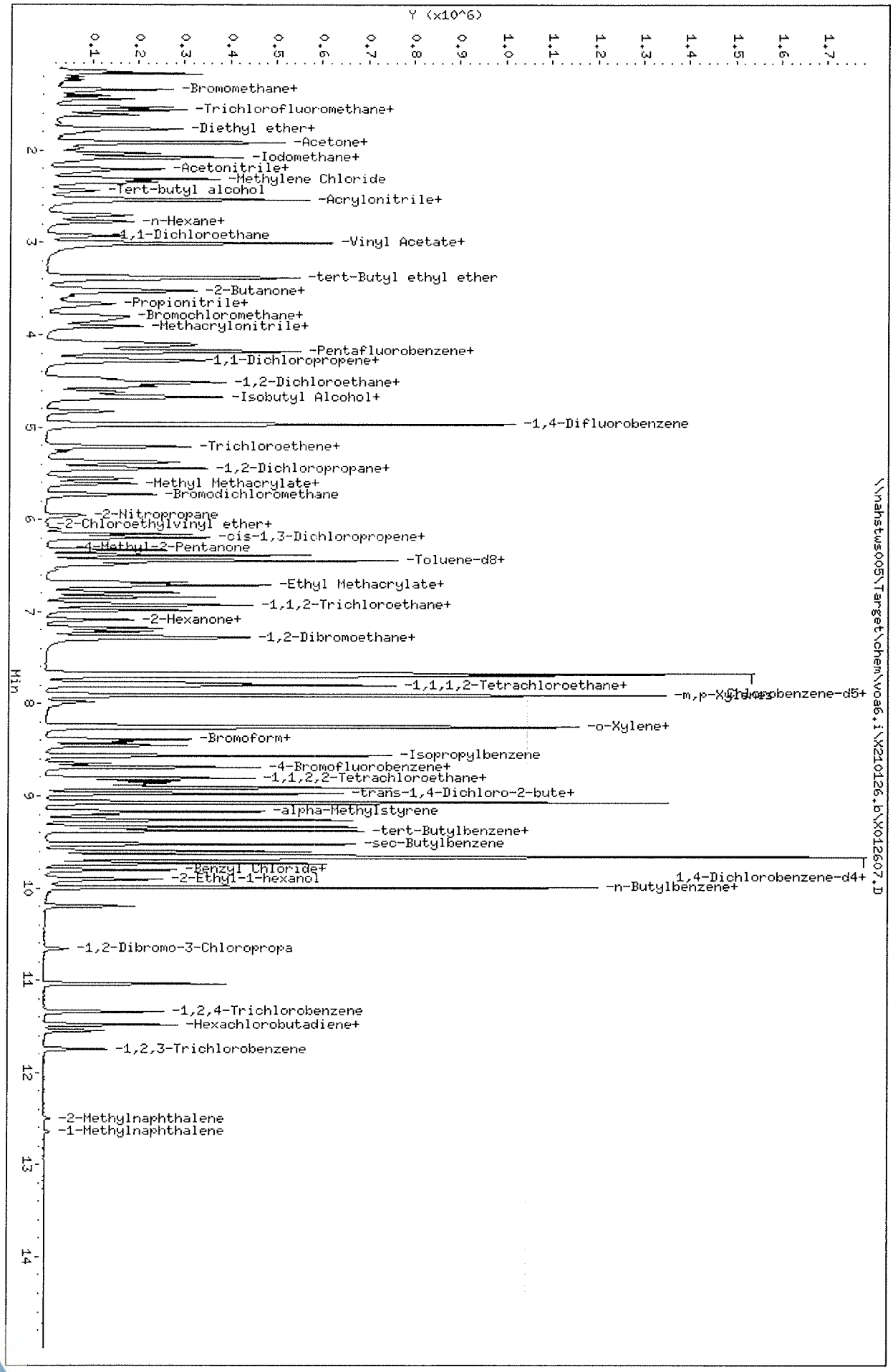
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012607.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 26-JAN-2021 13:38
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:17 Cal File: X012606.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	407341	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	724949	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	683450	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	315139	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	101900	20.0000	20.62
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	112243	20.0000	21.28
$	48 Toluene-d8	98	6.388	6.388	(0.833)	336426	20.0000	18.81
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	133136	20.0000	21.14
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	104712	20.0000	20.30
	33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	135037	20.0000	20.94
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	107931	20.0000	20.68
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	79419	20.0000	21.29
	38 Trichloroethene	130	5.206	5.206	(1.049)	103195	20.0000	21.30
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	118129	20.0000	20.31



Data File: \\nahstws005\Target\chem\voa6,i\X210126,b\X012607,D
Date : 26-JAN-2021 13:38
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012608.D Page 1
Report Date: 01-Mar-2021 12:20

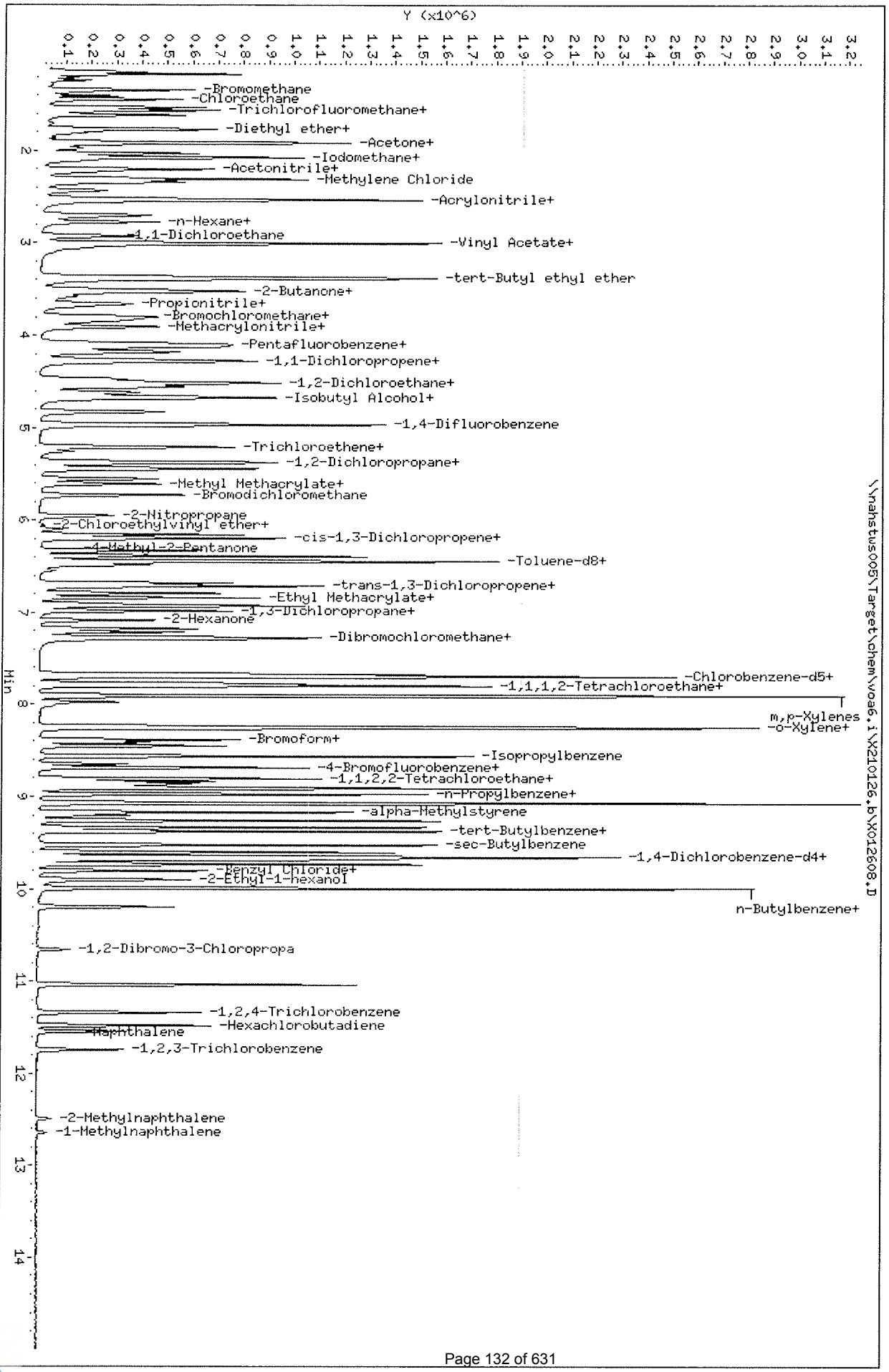
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012608.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 26-JAN-2021 13:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:38 Cal File: X012607.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	405921	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	716985	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	666545	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	295483	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	235983	50.0000	48.43
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	254660	50.0000	50.33
$	48 Toluene-d8	98	6.388	6.388	(0.833)	758394	50.0000	43.49
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	295052	50.0000	49.98
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	255035	50.0000	49.62
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	318748	50.0000	49.99
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	261348	50.0000	50.27
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	187127	50.0000	51.45
	38 Trichloroethene	130	5.207	5.207	(1.048)	246429	50.0000	51.43
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	289419	50.0000	49.93



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012608.D
Date : 26-JAN-2021 13:59
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;;
Purge Volume: 5.0
Column phase: DB624

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

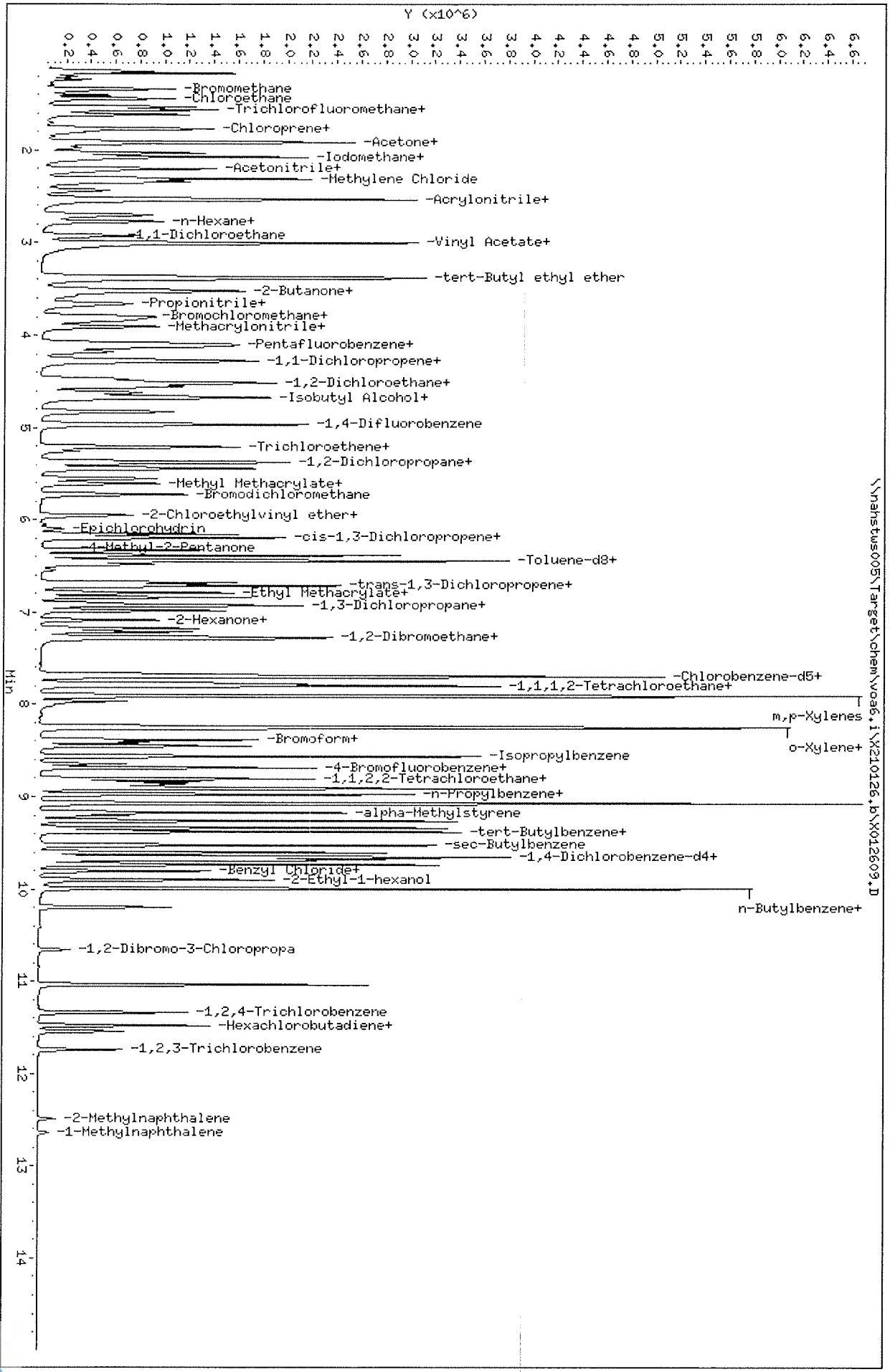
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 26-JAN-2021 14:20
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	414071	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	742609	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	686988	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	288650	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	507211	100.000	102.47
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	530907	100.000	104.40
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1706125	100.000	94.93
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	606464	100.000	101.19
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	534791	100.000	102.01
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	622844	100.000	94.32
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	549846	100.000	103.68
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	398180	100.000	106.23
	38 Trichloroethene	130	5.206	5.206	(1.048)	519514	100.000	104.68
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	614439	100.000	103.93



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012609.D
Date : 26-JAN-2021 14:20
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012610.D Page 1
Report Date: 01-Mar-2021 12:20

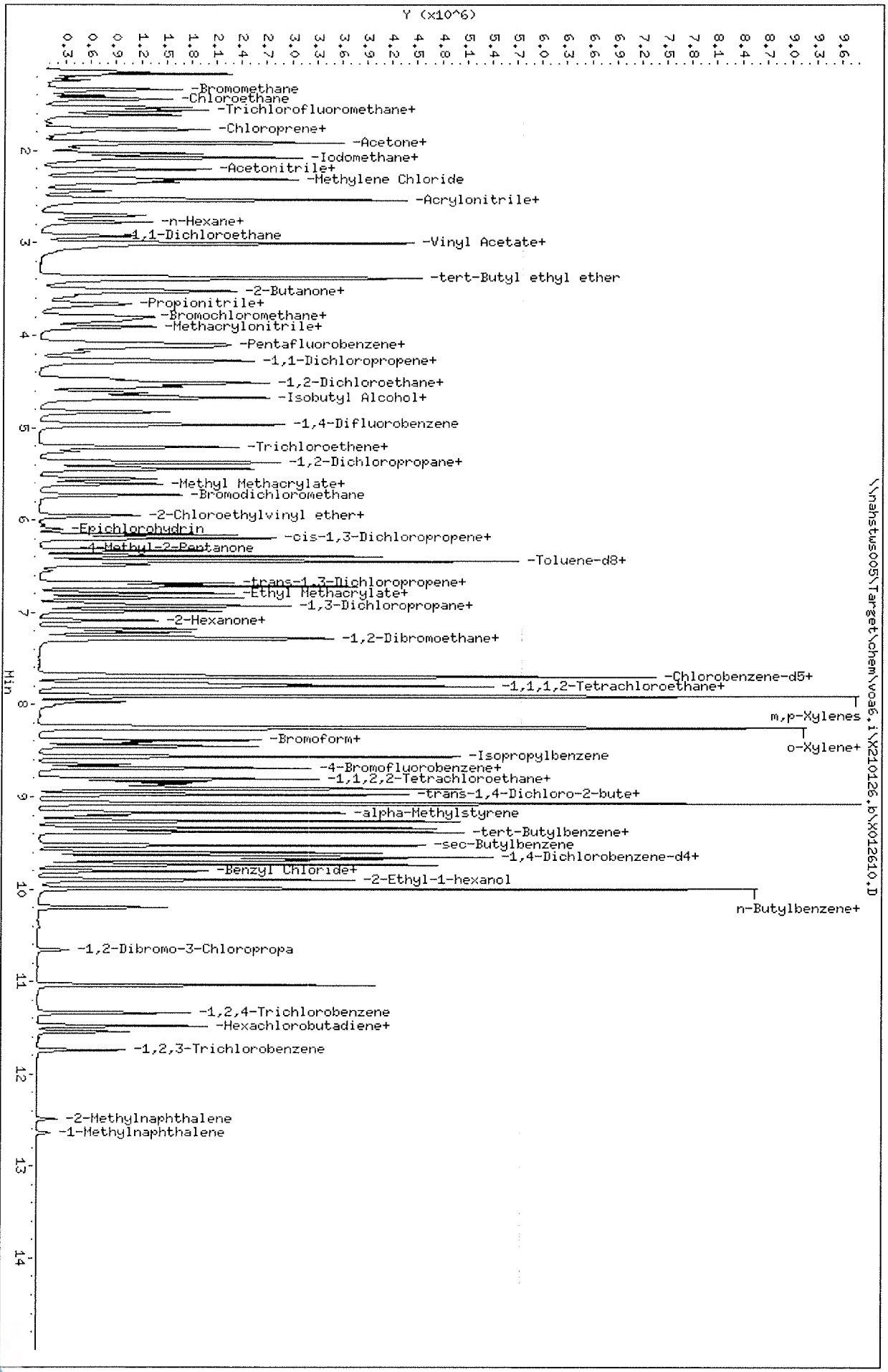
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012610.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 26-JAN-2021 14:41
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 14:20 Cal File: X012609.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	404028	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	723213	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	659631	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	293481	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	719853	150.000	149.22
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	746091	150.000	151.01
$	48 Toluene-d8	98	6.388	6.388	(0.833)	2377816	150.000	137.79
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	879527	150.000	153.62
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	770334	150.000	150.59
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	893028	150.000	138.86
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	794651	150.000	153.57
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	559141	150.000	155.37
	38 Trichloroethene	130	5.207	5.207	(1.048)	760135	150.000	157.28
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	894964	150.000	155.14



Data File: \\nahstws005\Target\chem\voa6,i\X210126,b\X012610,D
Date : 26-JAN-2021 14:41
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;;
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012611.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 26-JAN-2021 15:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 14:41 Cal File: X012610.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

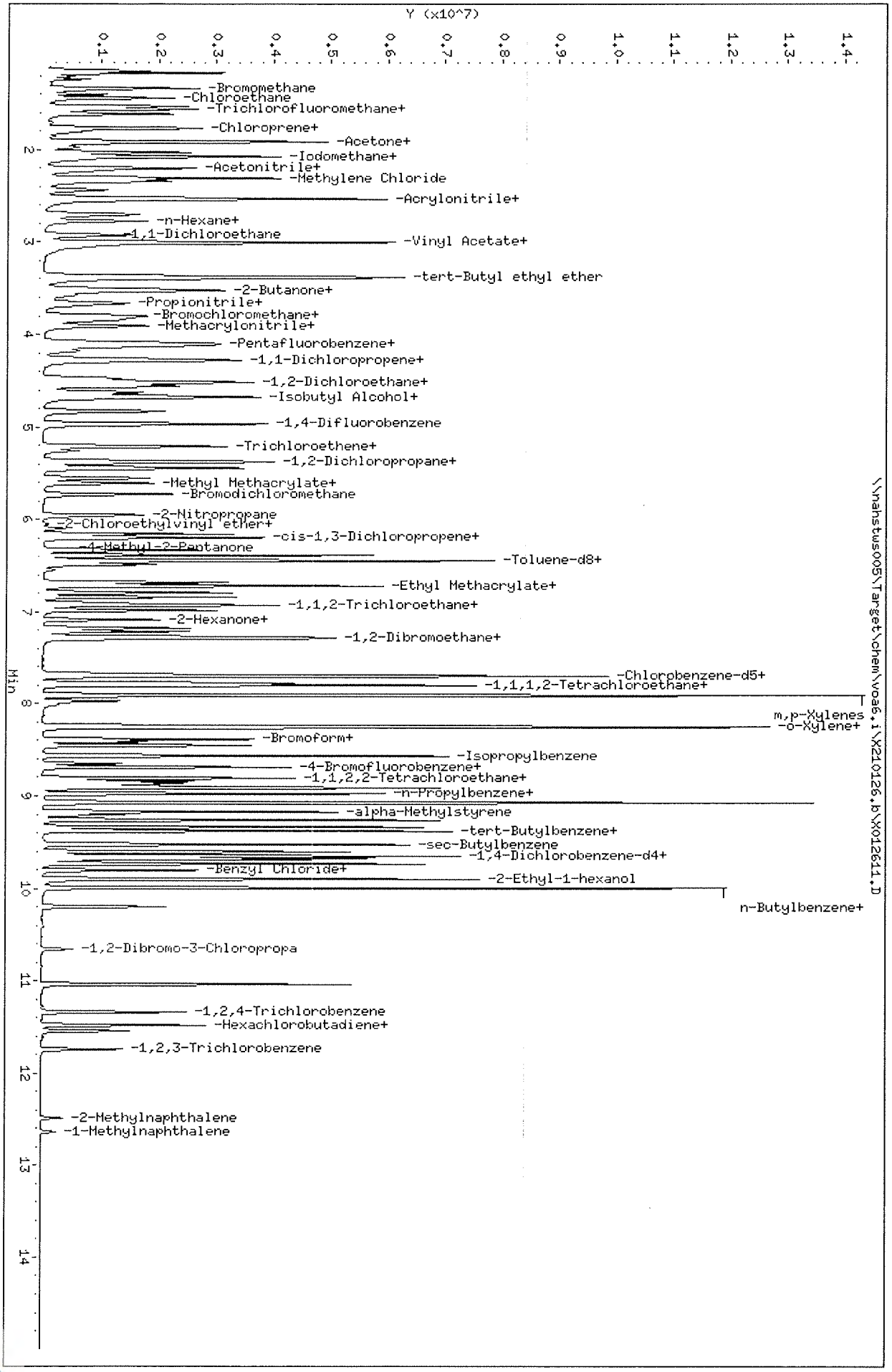
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	416017	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	738927	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	700732	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	306937	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	990894	200.000	199.61
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	998263	200.000	196.66
$	48 Toluene-d8	98	6.388	6.388	(0.833)	3339716	200.000	182.18
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	1192191	200.000	196.43
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	1042124	200.000	197.85
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	1174143	200.000	178.69
	27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	1061065	200.000	199.15
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	776414	200.000	203.09(A)
	38 Trichloroethene	130	5.207	5.207	(1.048)	1036400	200.000	209.88(A)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	1226395	200.000	206.47(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012611.D
Date : 26-JAN-2021 15:02
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D Page 1
Report Date: 01-Mar-2021 12:20

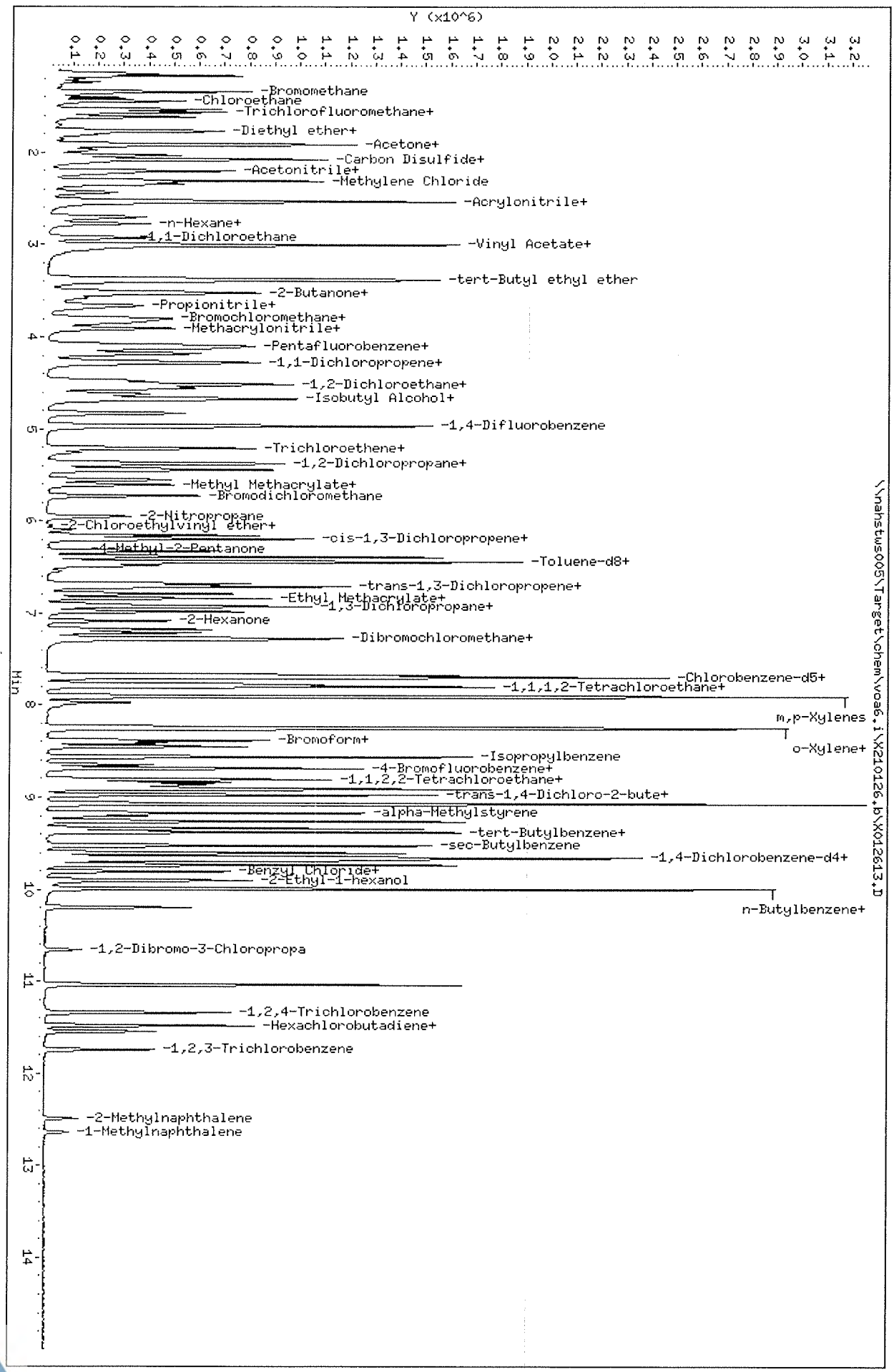
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 26-JAN-2021 15:44
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210126.b\8260W.m
Meth Date : 01-Mar-2021 12:20 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 15:02 Cal File: X012611.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	469188	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	793026	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	727010	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	320823	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	280867	49.8853	49.88
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	280863	47.9629	47.96
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	933533	49.0837	49.08
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	342403	53.2808	53.28
11 1,1-Dichloroethene	96	1.919	1.912	(0.459)	264798	44.5761	44.57
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	316364	44.8629	44.86
27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	280663	46.7078	46.70
56 Tetrachloroethene	164	6.926	6.933	(0.903)	194552	49.0510	49.05
38 Trichloroethene	130	5.207	5.207	(1.049)	271402	51.2126	51.21
5 Vinyl Chloride	62	1.138	1.138	(0.272)	296624	44.2794	44.27



Data File: \\nahstws005\Target\chem\voa6.i\X210126.b\X012613.D
Date : 26-JAN-2021 15:44
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 43229 **Analyst:** Presenta Cabascango

Date: 02-04-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	02-04-2021 03:22 pm	1.00	50 mL	50 mL	X020401.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	02-04-2021 03:43 pm	1.00	50 mL	50 mL	X020402a.D	Liquid	N	NA
	10 ul cal std/ 50 ml DI									
3	CCV	CCV	02-04-2021 04:04 pm	1.00	50 mL	50 mL	X020403.D	Liquid	Y	NA
	10 ul cal std/ 50 ml DI									
4	CCB	SAMP	02-04-2021 04:34 pm	1.00	50 mL	50 mL	X020404.D	Liquid	Y	NA
	ccb									
5	BLANK	SAMP	02-04-2021 04:55 pm	1.00	50 mL	50 mL	X020405.D	Liquid	Y	NA
	cleanup									
6	BLANK	SAMP	02-04-2021 05:16 pm	1.00	50 mL	50 mL	X020406.D	Liquid	Y	NA
	cleanup									
7	VBLKW-210204	MBLK	02-04-2021 05:37 pm	1.00	50 mL	50 mL	X020407.D	Liquid	Y	NA
8	VLCSW-210204	LCS	02-04-2021 05:58 pm	1.00	50 mL	50 mL	X020408.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
9	HS21020018-09	SAMP	02-04-2021 06:19 pm	25.00	2 mL	50 mL	X020409.D	Liquid	Y	NA
10	HS21020050-19	SAMP	02-04-2021 06:40 pm	1.00	50 mL	50 mL	X020410.D	Liquid	Y	NA
11	HS21020050-20	SAMP	02-04-2021 07:01 pm	1.00	50 mL	50 mL	X020411.D	Liquid	Y	NA
12	HS21020050-26	SAMP	02-04-2021 07:22 pm	1.00	50 mL	50 mL	X020412.D	Liquid	Y	NA
13	HS21020050-26	SAMP	02-04-2021 07:43 pm	10.00	5 mL	50 mL	X020413.D	Liquid	Y	NA
14	HS21020050-25	SAMP	02-04-2021 08:04 pm	1.00	50 mL	50 mL	X020414.D	Liquid	Y	NA
15	HS21020050-25	SAMP	02-04-2021 08:25 pm	5.00	10 mL	50 mL	X020415.D	Liquid	Y	NA
16	HS21011150-06	SAMP	02-04-2021 08:46 pm	1.00	50 mL	50 mL	X020416.D	Liquid	Y	NA
17	HS21011150-06MS	MS	02-04-2021 09:07 pm	1.00	50 mL	50 mL	X020417.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
18	HS21011150-06MSD	MSD	02-04-2021 09:28 pm	1.00	50 mL	50 mL	X020418.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
19	HS21011150-06	SAMP	02-04-2021 09:49 pm	5.00	10 mL	50 mL	X020419.D	Liquid	Y	NA
20	HS21011150-01	SAMP	02-04-2021 10:11 pm	1.00	50 mL	50 mL	X020420.D	Liquid	Y	NA
21	HS21011150-02	SAMP	02-04-2021 10:32 pm	1.00	50 mL	50 mL	X020421.D	Liquid	Y	NA
22	HS21011150-05	SAMP	02-04-2021 10:53 pm	1.00	50 mL	50 mL	X020422.D	Liquid	Y	NA
23	HS21011150-04	SAMP	02-04-2021 11:14 pm	1.00	50 mL	50 mL	X020423.D	Liquid	Y	NA
24	HS21011150-04	SAMP	02-04-2021 11:35 pm	5.00	10 mL	50 mL	X020424.D	Liquid	Y	NA
25	HS21011150-03	SAMP	02-04-2021 11:56 pm	1.00	50 mL	50 mL	X020425.D	Liquid	Y	NA
26	HS21011150-03	SAMP	02-05-2021 12:17 am	10.00	5 mL	50 mL	X020426.D	Liquid	Y	NA
27	HS21020193-01	SAMP	02-05-2021 12:38 am	10.00	5 mL	50 mL	X020427.D	Liquid	Y	NA
28	HS21020193-01	SAMP	02-05-2021 12:59 am	100.0(	500 µL	50 mL	X020428.D	Liquid	Y	NA
29	HS21020193-02	SAMP	02-05-2021 01:20 am	25.00	2 mL	50 mL	X020429.D	Liquid	Y	NA
30	HS21020193-02	SAMP	02-05-2021 01:41 am	250.0(	200 µL	50 mL	X020430.D	Liquid	Y	NA
31	CCV-END	CCV	02-05-2021 02:02 am	1.00	50 mL	50 mL	X020431.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

Chemical	Value
SURR SPK ID	31106-67-06
IS ID	31106-67-06
LCS/MS ID	31106-67-05
CAL STD ID	31106-67-01/02
BFB Ion 95 Response	31106-67-06
BFB ID	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 #	OTHER (TOL)#	TOT OUT
01	VBLKW-210204	85	91	101	98	0
02	VLCSW-210204	98	100	105	96	0
03	HS21011150-06	90	93	101	98	0
04	HS21011150-06MS	90	95	113	102	0
05	HS21011150-06MSD	116	99	118	99	0
06	HS21011150-06	116	99	108	103	0
07	HS21011150-01	102	100	98	101	0
08	HS21011150-02	116	96	106	104	0
09	HS21011150-05	118	100	102	102	0
10	HS21011150-04	120	97	105	103	0
11	HS21011150-04	118	101	109	102	0
12	HS21011150-03	113	98	98	91	0
13	HS21011150-03	114	97	105	89	0
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210204

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID: X020407 Lab Sample ID: VBLKW-210204

Date Analyzed: 02/04/21 Time Analyzed: 1737

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210204	VLCSW-210204	X020408	1758
02	HS21011150-06	HS21011150-06	X020416	2046
03	HS21011150-06MS	HS21011150-06MS	X020417	2107
04	HS21011150-06MSD	HS21011150-06MSD	X020418	2128
05	HS21011150-06	HS21011150-06	X020419	2149
06	HS21011150-01	HS21011150-01	X020420	2211
07	HS21011150-02	HS21011150-02	X020421	2232
08	HS21011150-05	HS21011150-05	X020422	2253
09	HS21011150-04	HS21011150-04	X020423	2314
10	HS21011150-04	HS21011150-04	X020424	2335
11	HS21011150-03	HS21011150-03	X020425	2356
12	HS21011150-03	HS21011150-03	X020426	0017
13				
14				
15				
16				
17				
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23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID: X020401 BFB Injection Date: 02/04/21

Instrument ID: VOA6 BFB Injection Time: 1522

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	17.5
75	30.0 - 60.0% of mass 95	45.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.8 (1.2)1
174	Greater than 50.0% of mass 95	64.9
175	5.0 - 9.0% of mass 174	5.3 (8.2)1
176	95.0 - 101.0% of mass 174	63.2 (97.5)1
177	5.0 - 9.0% of mass 176	5.0 (7.8)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	X020403	02/04/21	1604
02	VBLKW-210204	VBLKW-210204	X020407	02/04/21	1737
03	VLCSW-210204	VLCSW-210204	X020408	02/04/21	1758
04	HS21011150-06	HS21011150-06	X020416	02/04/21	2046
05	HS21011150-06MS	HS21011150-06MS	X020417	02/04/21	2107
06	HS21011150-06MSD	HS21011150-06MSD	X020418	02/04/21	2128
07	HS21011150-06	HS21011150-06	X020419	02/04/21	2149
08	HS21011150-01	HS21011150-01	X020420	02/04/21	2211
09	HS21011150-02	HS21011150-02	X020421	02/04/21	2232
10	HS21011150-05	HS21011150-05	X020422	02/04/21	2253
11	HS21011150-04	HS21011150-04	X020423	02/04/21	2314
12	HS21011150-04	HS21011150-04	X020424	02/04/21	2335
13	HS21011150-03	HS21011150-03	X020425	02/04/21	2356
14	HS21011150-03	HS21011150-03	X020426	02/05/21	0017
15	CCV-END	CCV-END	X020431	02/05/21	0202
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Instrument ID: VOA6 Calibration Date: 02/04/21 Time: 1604

Lab File ID: X020403 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5318554	0.5318554	0.1	15.98	20.00	AVRG
1,2-Dichloroethane	0.4440000	0.4284988	0.4284988	0.1	3.49	20.00	AVRG
Tetrachloroethene	0.2730000	0.2890116	0.2890116	0.2	-5.86	20.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.7102846	0.7102846	0.1	-10.98	20.00	AVRG
Vinyl Chloride	0.7140000	0.6393891	0.6393891	0.1	10.45	20.00	AVRG
Trichloroethene	0.3340000	0.3764956	0.3764956	0.2	-12.72	20.00	AVRG
1,2-Dichloroethane-d4	47.422977	50.000000	0.5920764	0.1	5.15	20.00	LINR
Dibromofluoromethane	49.150423	50.000000	0.5898716	0.1	1.70	20.00	LINR
4-Bromofluorobenzene	48.698605	50.000000	0.4315930	0.1	2.60	20.00	LINR
Toluene-d8	1.3080000	1.2060660	1.2060660	0.1	7.79	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Instrument ID: VOA6 Calibration Date: 02/05/21 Time: 0202

Lab File ID: X020431 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5950886	0.5950886	0.1	5.99	50.00	AVRG
1,2-Dichloroethane	0.4440000	0.4692831	0.4692831	0.1	-5.69	50.00	AVRG
Tetrachloroethene	0.2730000	0.2241033	0.2241033	0.2	17.91	50.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.7051273	0.7051273	0.1	-10.18	50.00	AVRG
Vinyl Chloride	0.7140000	0.6400182	0.6400182	0.1	10.36	50.00	AVRG
Trichloroethene	0.3340000	0.3232047	0.3232047	0.2	3.23	50.00	AVRG
1,2-Dichloroethane-d4	64.134125	50.000000	0.7944656	0.1	-28.27	50.00	LINR
Dibromofluoromethane	53.136912	50.000000	0.6373483	0.1	-6.27	50.00	LINR
4-Bromofluorobenzene	54.589745	50.000000	0.4822243	0.1	-9.18	50.00	LINR
Toluene-d8	1.3080000	1.2376871	1.2376871	0.1	5.38	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID (Standard): X020403 Date Analyzed: 02/04/21

Instrument ID: VOA6 Time Analyzed: 1604

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

		IS1(DCB) AREA	#	RT	#	IS2(DFB) AREA	#	RT	#	IS3(CBZ) AREA	#	RT	#
	12 HOUR STD	305395		9.66		796259		4.96		743126		7.67	
	UPPER LIMIT	610790		10.16		1592518		5.46		1486252		8.17	
	LOWER LIMIT	152698		9.16		398130		4.46		371563		7.17	
	CLIENT SAMPLE NO.												
01	VBLKW-210204	388374		9.66		989038		4.96		885448		7.67	
02	VLCSW-210204	327304		9.66		785647		4.96		721609		7.67	
03	HS21011150-06	322745		9.66		924393		4.97		772252		7.67	
04	HS21011150-06MS	261634		9.66		752469		4.97		562019		7.67	
05	HS21011150-06MSD	364526		9.66		636923		4.96		578753		7.67	
06	HS21011150-06	251855		9.66		647192		4.96		589110		7.67	
07	HS21011150-01	361110		9.66		746300		4.97		694467		7.67	
08	HS21011150-02	240119		9.66		568853		4.96		563703		7.67	
09	HS21011150-05	296140		9.66		704674		4.96		699720		7.67	
10	HS21011150-04	205744		9.66		528745		4.97		475816		7.67	
11	HS21011150-04	283000		9.66		649772		4.96		616932		7.67	
12	HS21011150-03	255814		9.66		615418		4.96		581266		7.67	
13	HS21011150-03	256960		9.66		602361		4.96		649964		7.67	
14													
15													
16													
17													
18													
19													
20													

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID (Standard): X020403 Date Analyzed: 02/04/21

Instrument ID: VOA6 Time Analyzed: 1604

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	449013	4.18				
	UPPER LIMIT	898026	4.68				
	LOWER LIMIT	224507	3.68				
	CLIENT SAMPLE NO.						
01	VBLKW-210204	612963	4.18				
02	VLCSW-210204	461889	4.18				
03	HS21011150-06	555000	4.18				
04	HS21011150-06MS	535481	4.18				
05	HS21011150-06MSD	359862	4.18				
06	HS21011150-06	370729	4.18				
07	HS21011150-01	420886	4.18				
08	HS21011150-02	333263	4.18				
09	HS21011150-05	359105	4.18				
10	HS21011150-04	308631	4.18				
11	HS21011150-04	367494	4.18				
12	HS21011150-03	378349	4.18				
13	HS21011150-03	404188	4.18				
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020401.D

Date : 04-FEB-2021 15:22

Client ID: BFB

Instrument: voa6.i

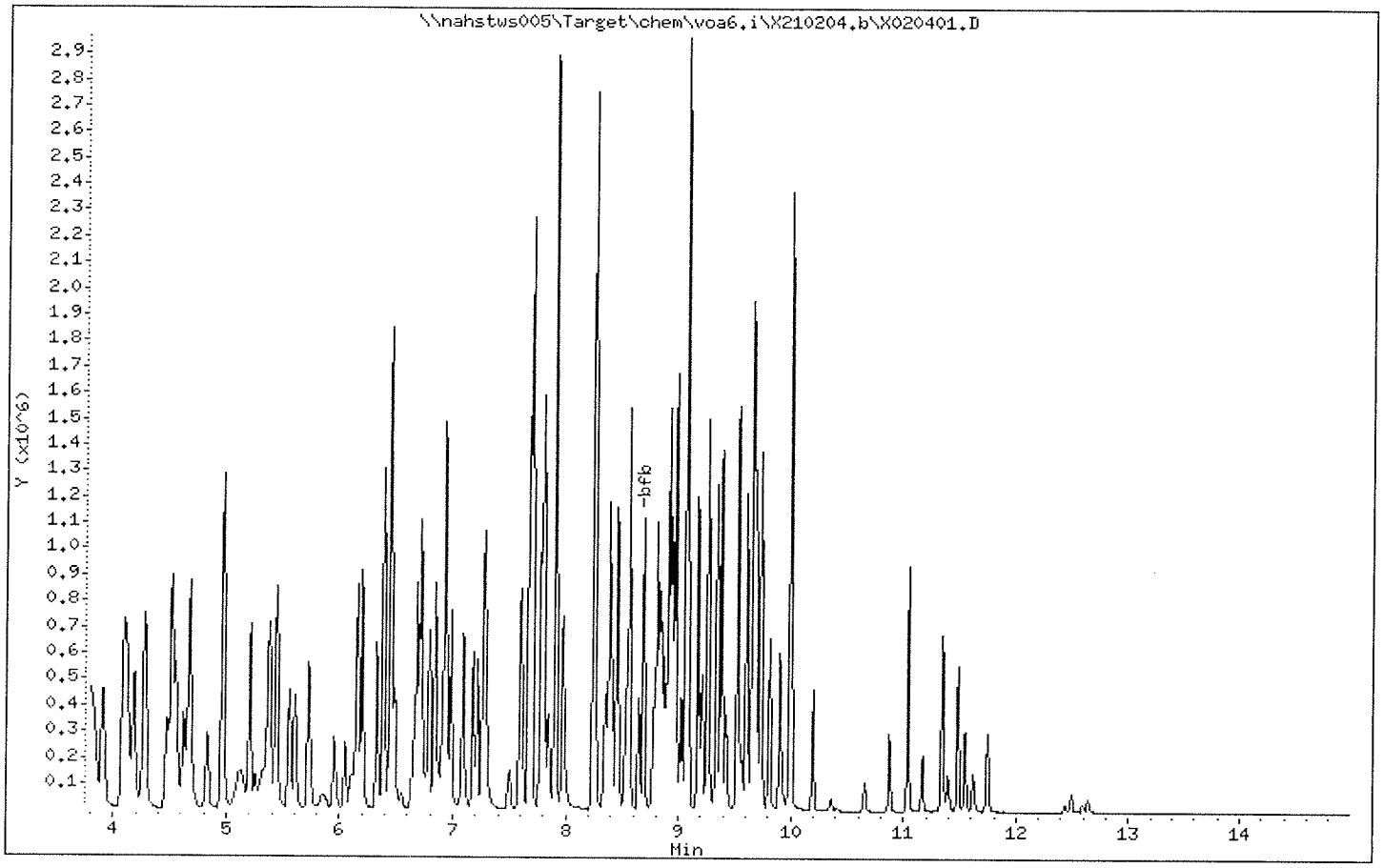
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020401.D

Date : 04-FEB-2021 15:22

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

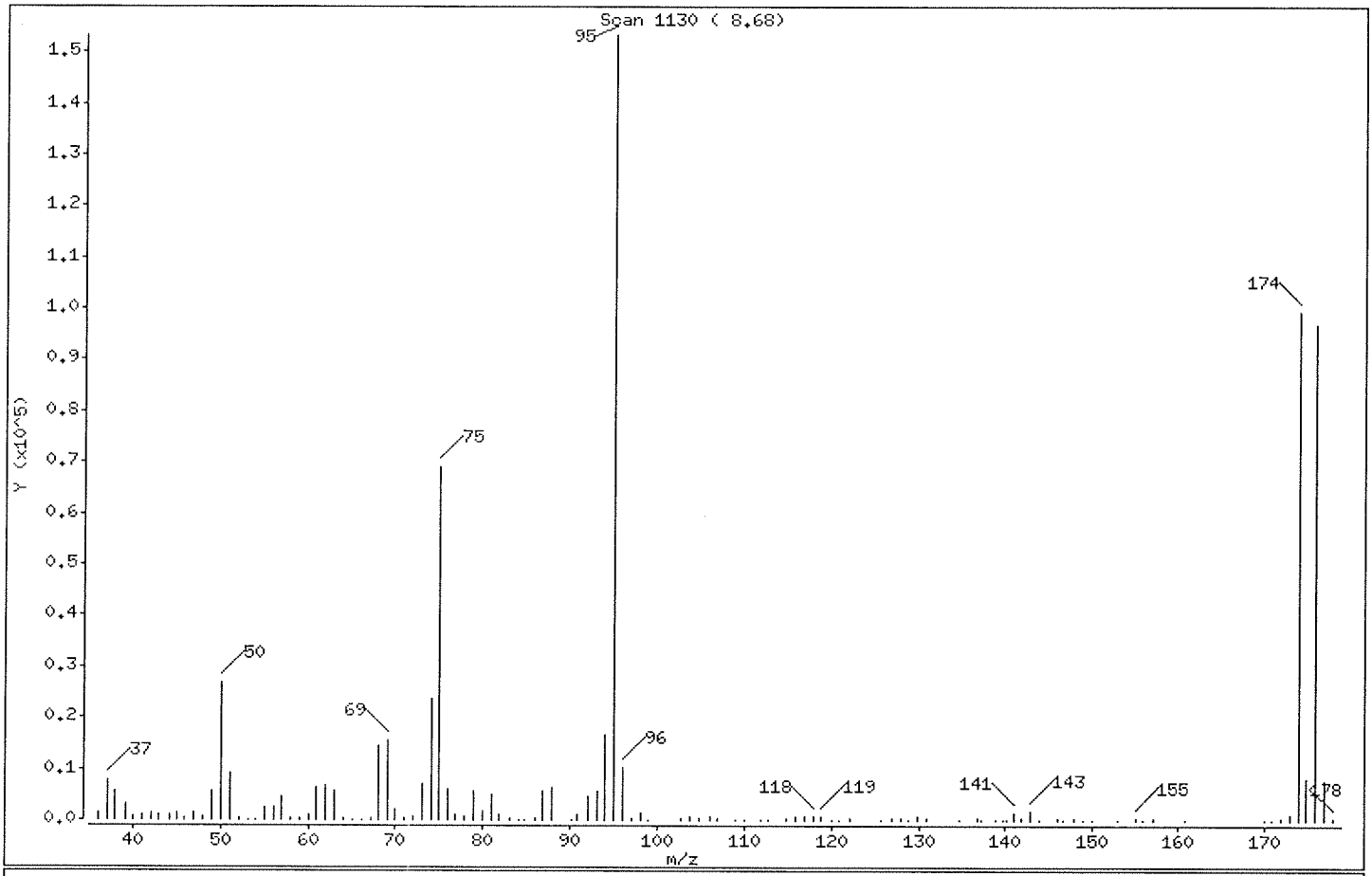
Volume Injected (uL): 2.0

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	17.48
75	30.00 - 60.00% of mass 95	44.96
96	5.00 - 9.00% of mass 95	6.77
173	Less than 2.00% of mass 174	0.79 (1.21)
174	Greater than 50.00% of mass 95	64.87
175	5.00 - 9.00% of mass 174	5.30 (8.17)
176	95.00 - 101.00% of mass 174	63.23 (97.47)
177	5.00 - 9.00% of mass 176	4.95 (7.83)

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020401.D

Date : 04-FEB-2021 15:22

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: X020401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 115

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1424	65.10	148	95.00	153216	136.70	250
37.00	7655	66.10	110	96.00	10377	137.20	94
38.00	5617	67.10	340	97.00	318	138.90	117
39.10	3184	68.00	14525	98.10	1405	139.70	52
40.00	627	69.00	15573	98.90	101	140.10	50
41.10	963	70.00	2056	102.80	303	140.90	1439
42.10	1260	71.00	265	103.80	577	141.80	401
43.00	1004	72.00	833	104.90	339	142.90	1796
44.10	1125	73.00	6943	106.00	644	143.80	75
45.00	1580	74.00	23440	106.80	199	145.90	228
45.90	248	75.00	68880	108.90	53	146.60	59
46.90	1248	76.00	6140	110.10	70	147.90	445
48.00	793	76.90	1116	111.90	81	148.90	97
49.00	5780	77.90	615	112.80	164	149.90	65
50.00	26784	78.90	5786	114.80	294	152.80	91
51.00	9028	79.90	1654	115.80	712	154.90	375
52.10	344	80.90	4783	116.90	697	155.70	126
53.20	176	81.90	1012	117.90	727	157.00	222
54.00	87	83.00	452	118.90	612	160.80	158
55.00	2626	84.10	114	120.10	89	170.00	97
56.10	2600	84.80	100	121.00	59	170.90	139
57.00	4676	86.10	255	122.20	190	171.80	216
58.00	210	86.90	5491	125.80	82	172.90	1205
59.10	310	87.90	6315	126.90	221	173.90	99384
60.00	1128	90.10	88	127.90	427	174.90	8120
61.00	6300	90.90	971	128.80	87	175.90	96872
62.00	6651	92.00	4412	129.90	610	176.90	7588
63.00	5556	93.00	5547	130.90	185	178.00	278
64.00	410	94.00	16688	134.70	91		

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020403.D Page 1
Report Date: 02-Mar-2021 09:53

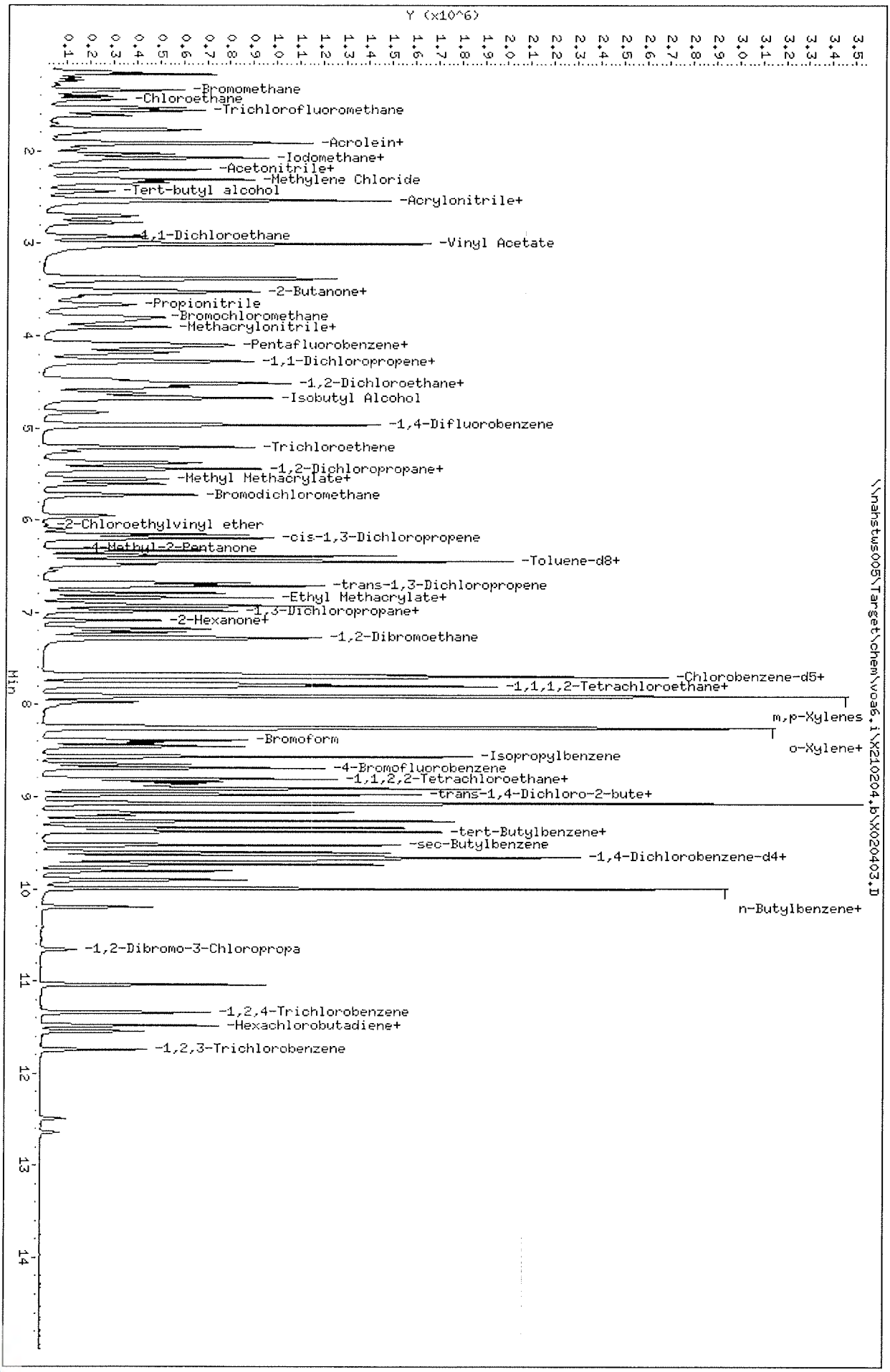
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020403.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 04-FEB-2021 16:04
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	449013	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	796259	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	743126	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	305395	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	264860	50.0000	49.15
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	265850	50.0000	47.42
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	896259	50.0000	46.10
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	320728	50.0000	48.69
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	238810	50.0000	42.00
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	341196	50.0000	48.18
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	318927	50.0000	55.46
56 Tetrachloroethene	164	6.926	6.926	(0.903)	214772	50.0000	52.97
38 Trichloroethene	130	5.206	5.206	(1.049)	299788	50.0000	56.33
5 Vinyl Chloride	62	1.138	1.138	(0.272)	287094	50.0000	44.78



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020403.D
Date : 04-FEB-2021 16:04
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020407.D Page 1
Report Date: 02-Mar-2021 09:53

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020407.D
Lab Smp Id: VBLKW-210204 Client Smp ID: VBLKW-210204
Inj Date : 04-FEB-2021 17:37
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210204;VBLKW-210204;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

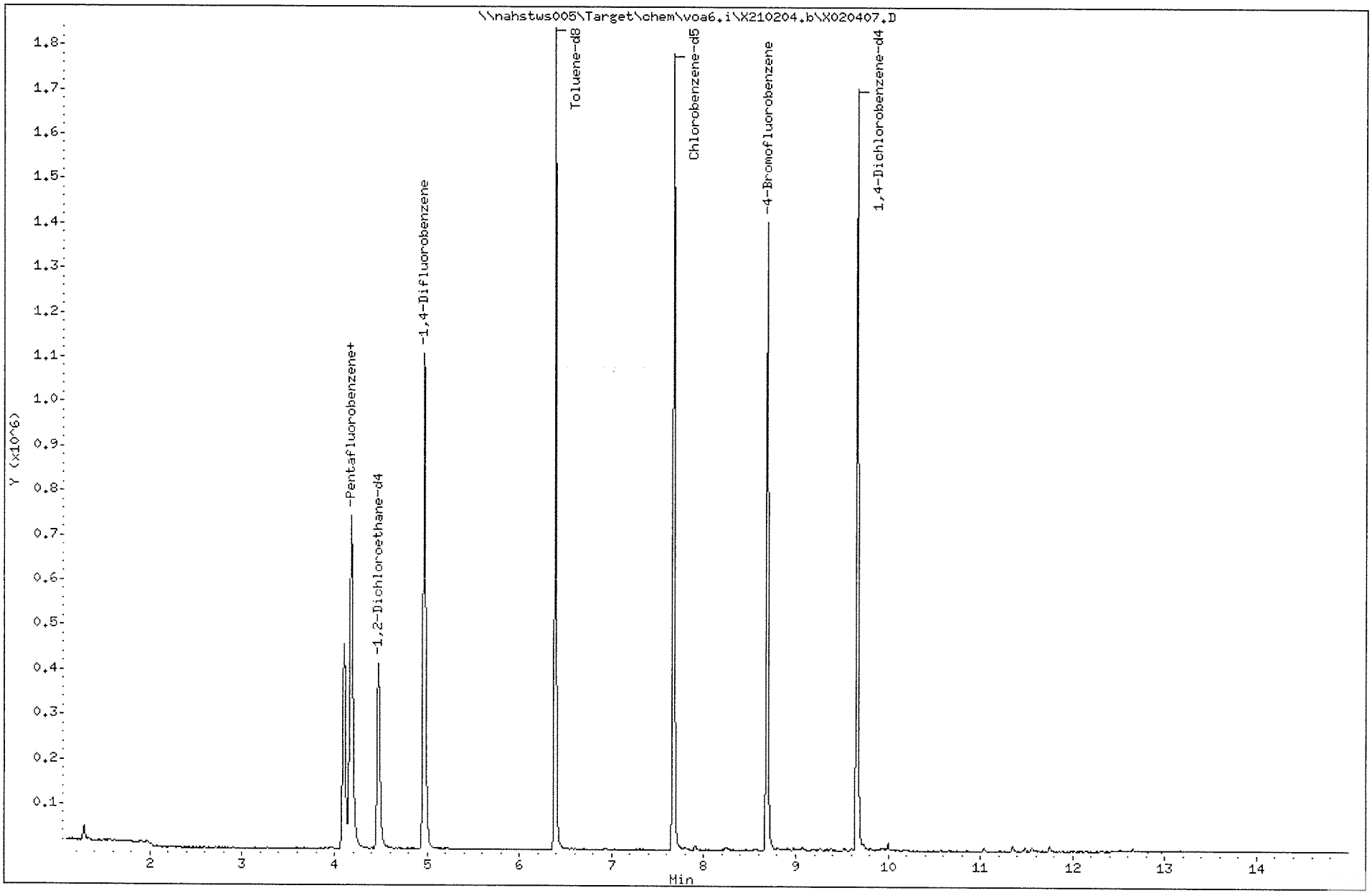
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	612963	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	989038	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	885448	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	388374	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	335839	45.6257	45.62
$	35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	324987	42.3131	42.31
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1133543	48.9354	48.93
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	397211	50.6773	50.67

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020407.D
Date : 04-FEB-2021 17:37
Client ID: VBLKW-210204
Sample Info: VBLKW-210204;VBLKW-210204;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

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



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020408.D
Lab Smp Id: VLCSW-210204 Client Smp ID: VLCSW-210204
Inj Date : 04-FEB-2021 17:58
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210204;VLCSW-210204;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 8 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

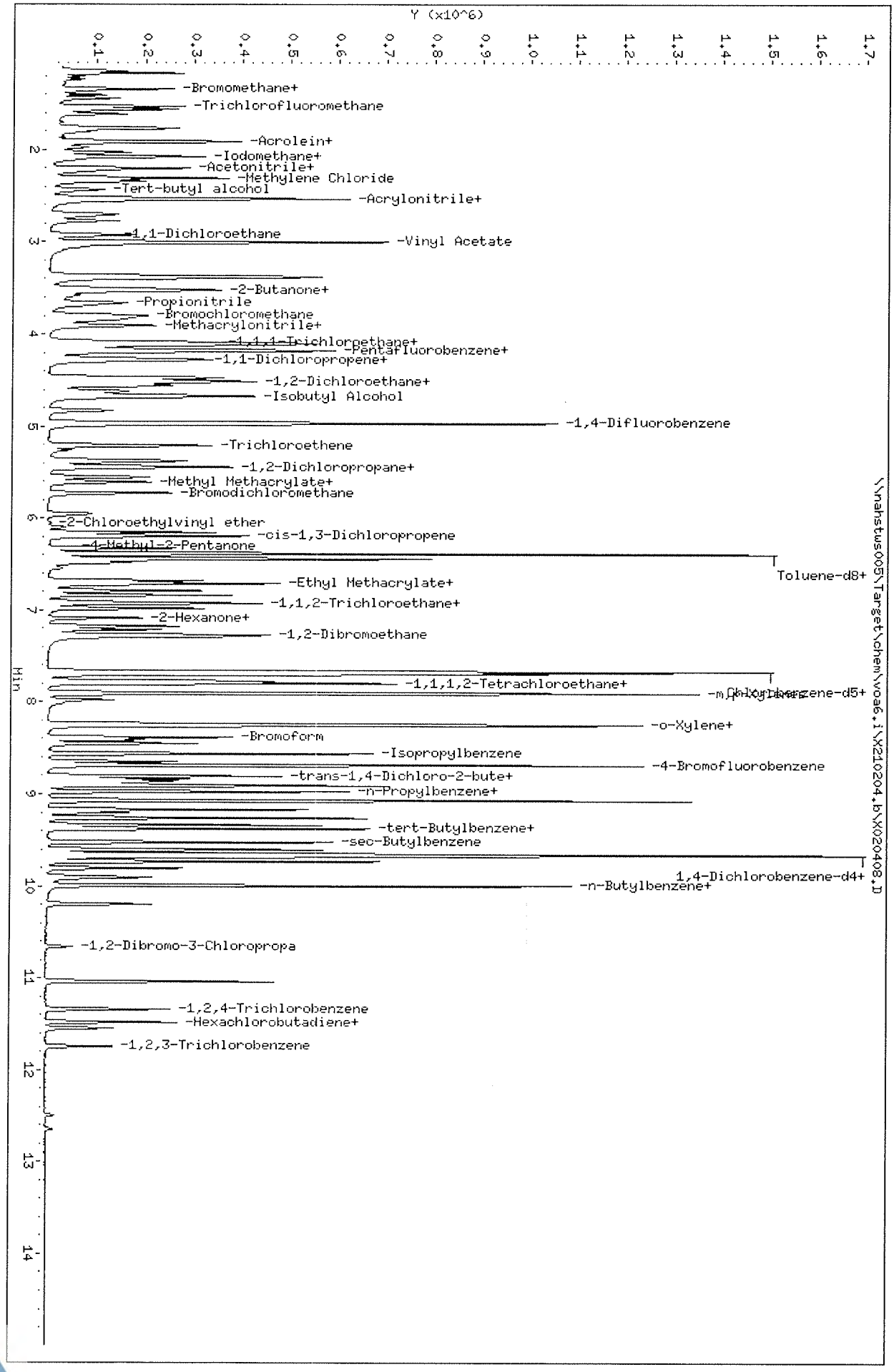
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	461889	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	785647	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	721609	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	327304	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	277113	49.9972	49.99
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	281481	48.8544	48.85
$	48 Toluene-d8	98	6.388	6.388	(0.833)	908111	48.1044	48.10
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	336093	52.6735	52.67
	11 1,1-Dichloroethene	96	1.912	1.911	(0.457)	83127	14.2147	14.21(M)
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	138643	19.8453	19.84
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	122582	20.7224	20.72
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	80149	20.3586	20.35
	38 Trichloroethene	130	5.207	5.206	(1.049)	113239	21.5685	21.56
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	103701	15.7249	15.72

QC Flag Legend

M - Compound response manually integrated.

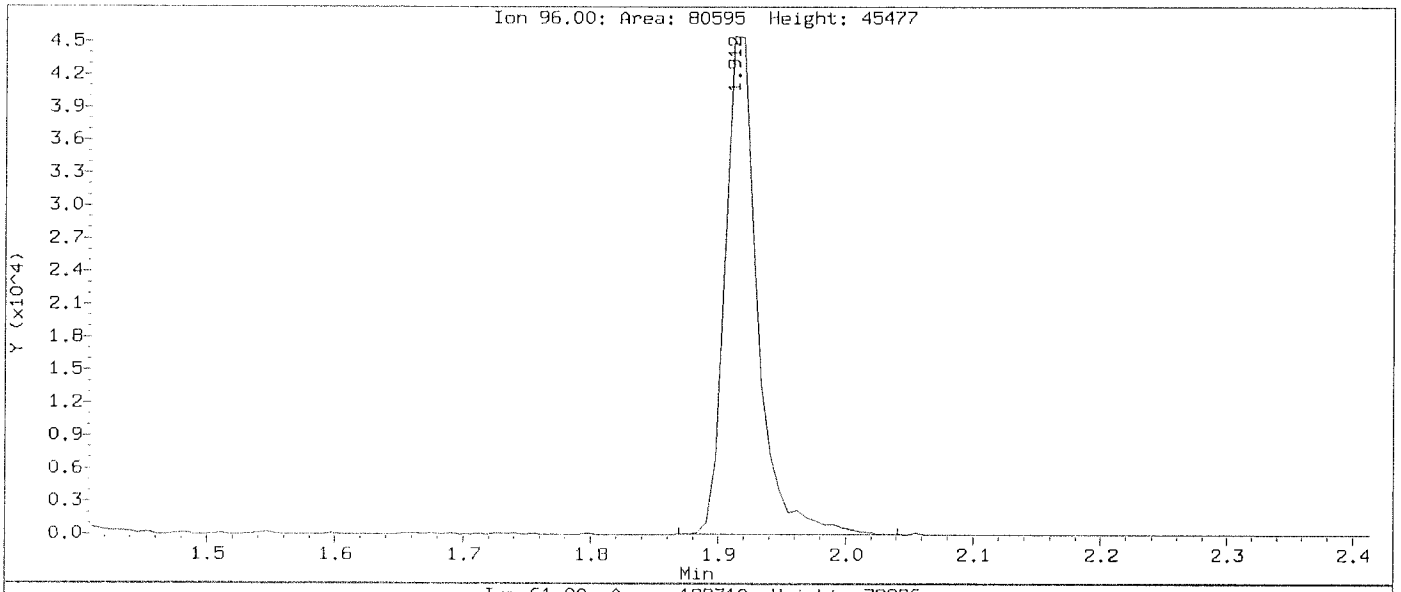


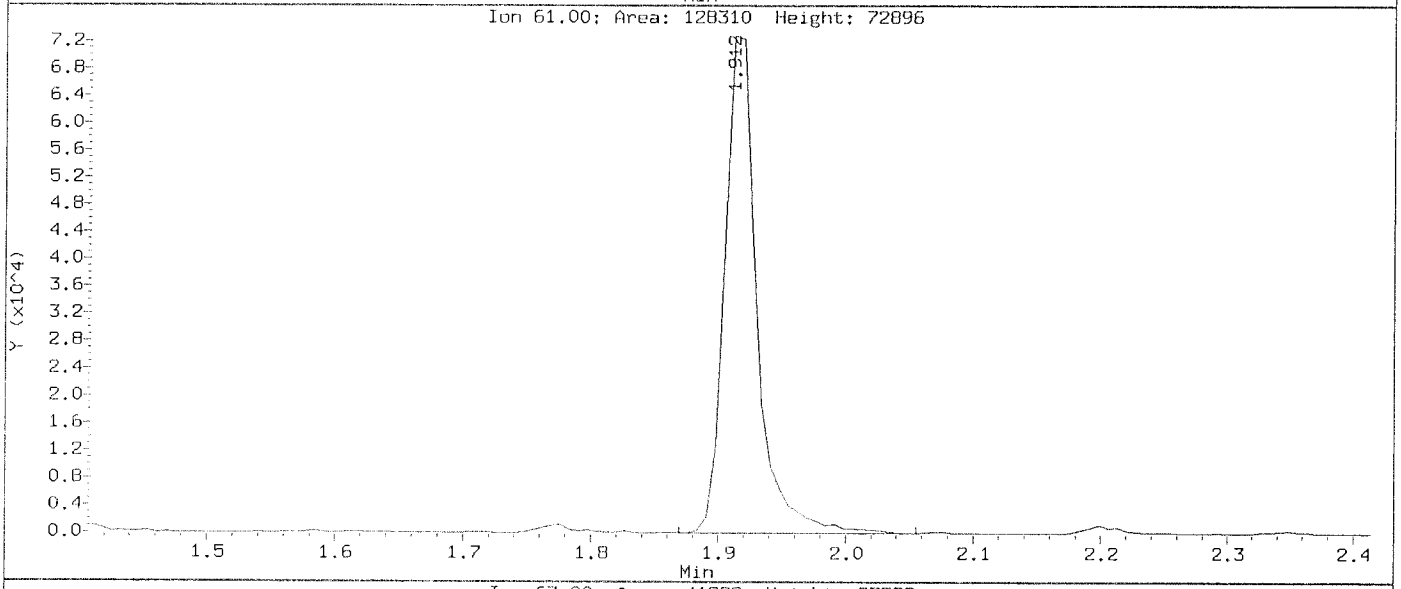
Data File: \\nahstws005\Target\chem\voa6,i\X210204,b\X020408,D
Date : 04-FEB-2021 17:58
Client ID: VLCSW-210204
Sample Info: VLCSW-210204;VLCSW-210204;3;;LCS
Purge Volume: 5.0
Column phase: DB624

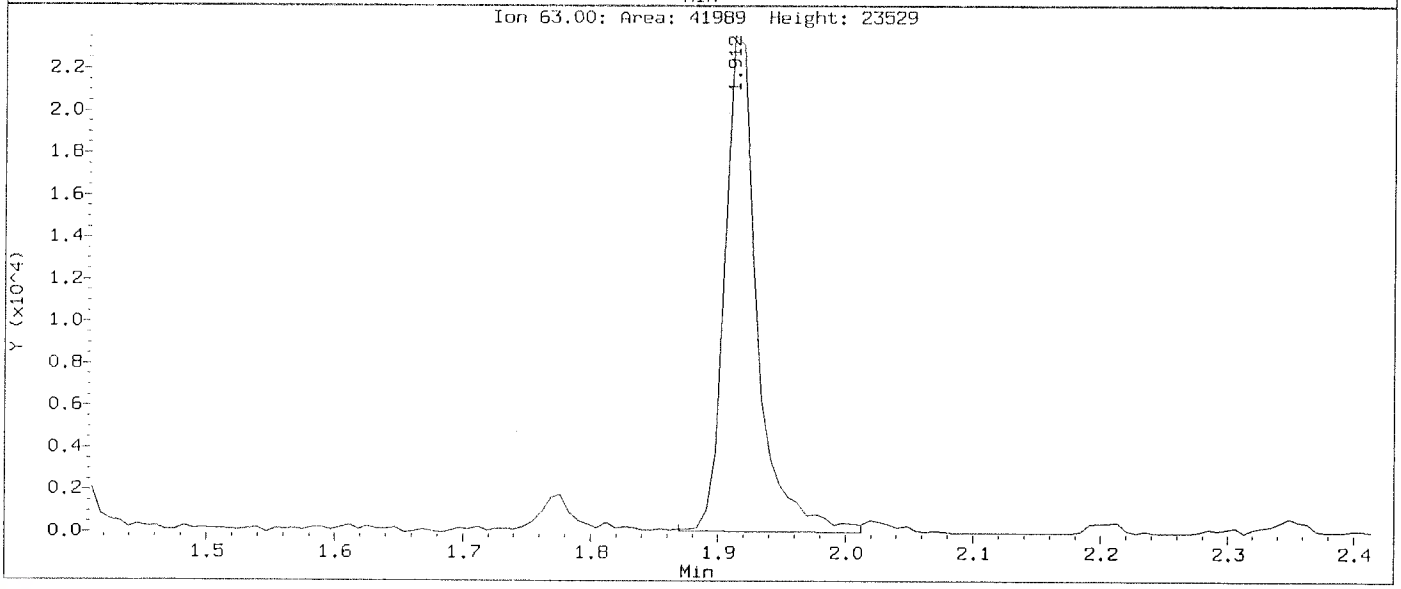
Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\Before\X020408.D
Injection Date: 04-FEB-2021 17:58
Instrument: voa6.i
Client Sample ID: VLCSW-210204

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

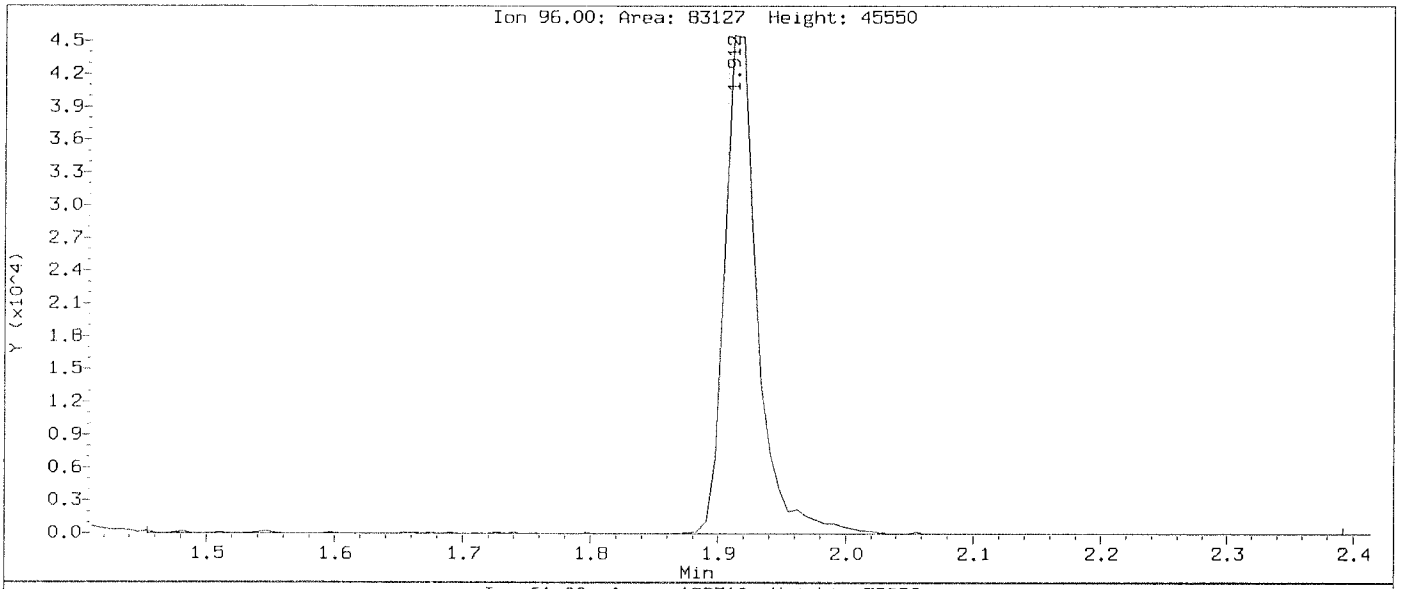


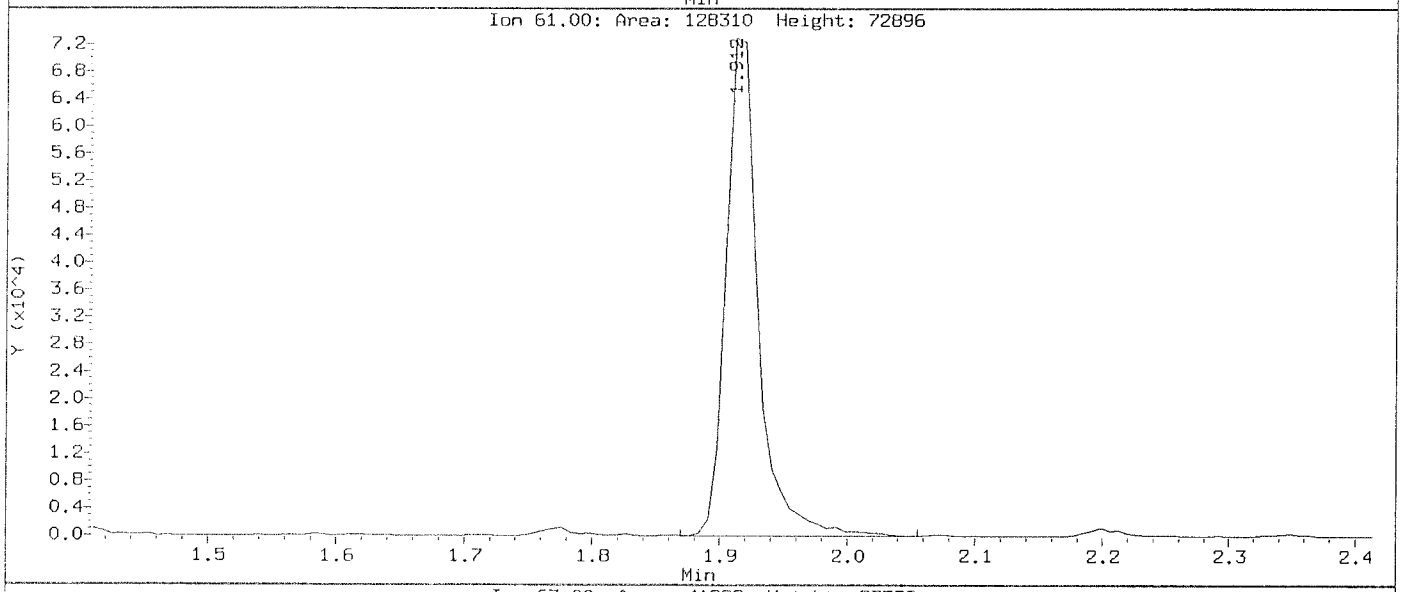


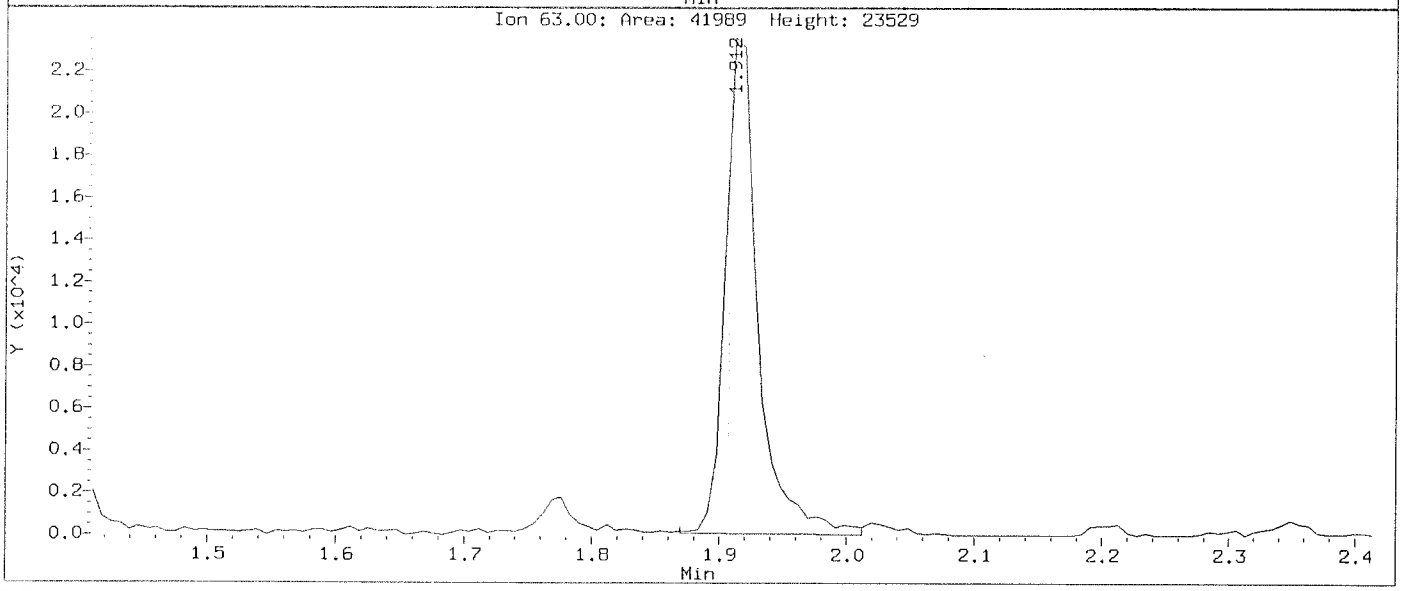


Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020408.D
Injection Date: 04-FEB-2021 17:58
Instrument: voa6.i
Client Sample ID: VLCSW-210204

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4







ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D
Lab Smp Id: HS21011150-06 Client Smp ID: HS21011150-06
Inj Date : 04-FEB-2021 20:46
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-06;HS21011150-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

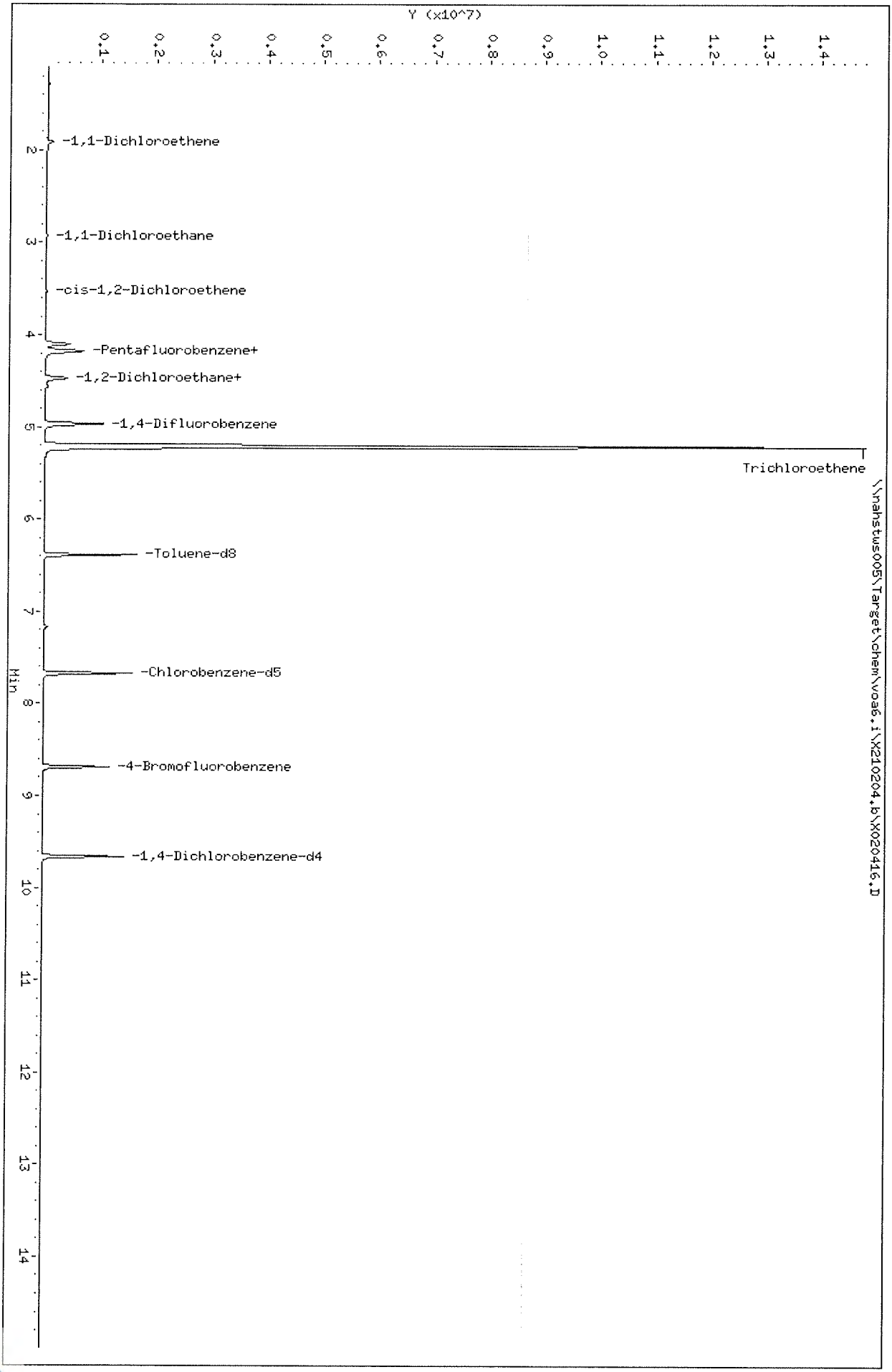
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	555000	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	924393	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	772252	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	322745	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	311401	46.7331	46.73
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	313898	45.2353	45.23
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	992800	49.1418	49.14
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	345291	50.5055	50.50
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	41183	5.86083	5.86
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	47345	5.75977	5.75
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	9528	1.34048	1.34(a)
38 Trichloroethene	130	5.206	5.206	(1.048)	4717391	763.654	763.65(A)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D
Date : 04-FEB-2021 20:46
Client ID: HS21011150-06
Sample Info: HS21011150-06;HS21011150-06;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D

Date : 04-FEB-2021 20:46

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

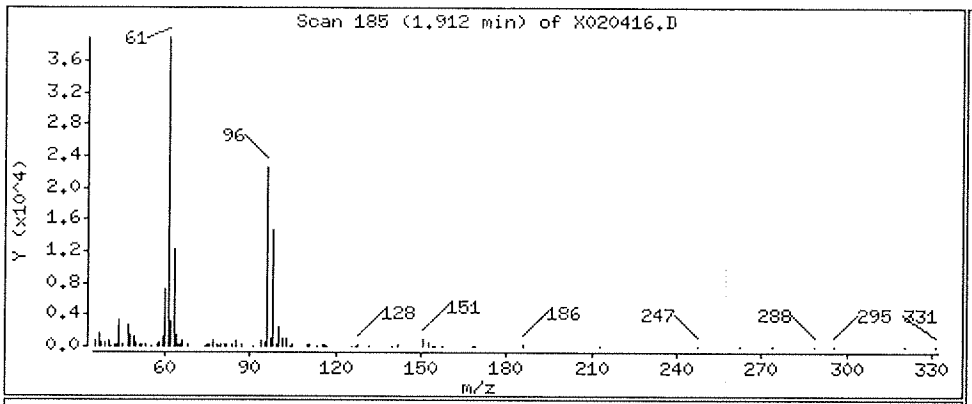
Operator: PC

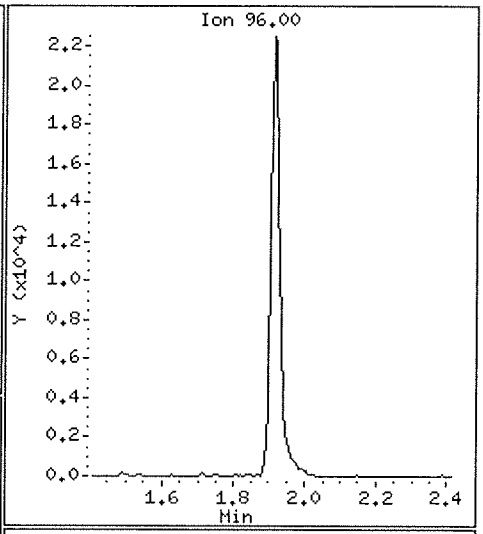
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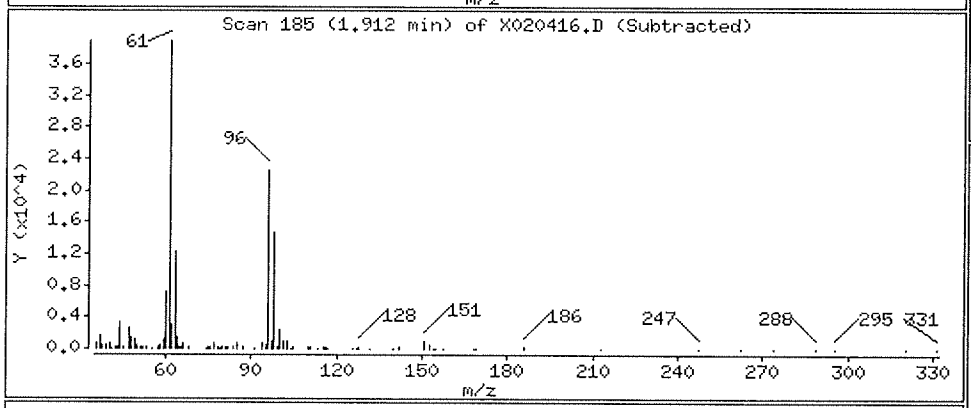
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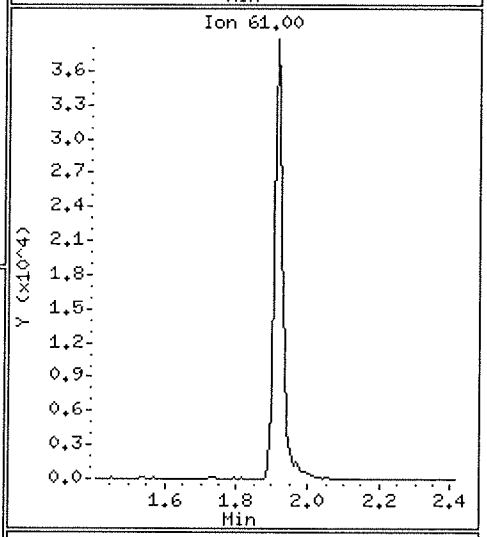
11 1,1-Dichloroethene

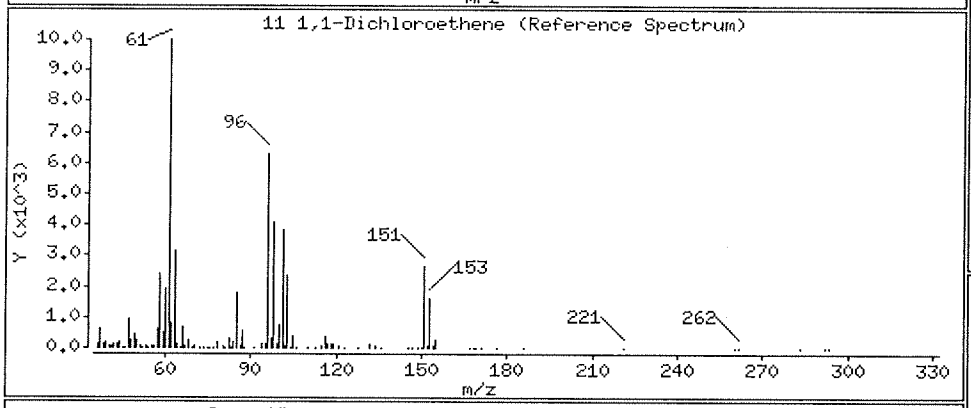
Concentration: 5.86 ug/l

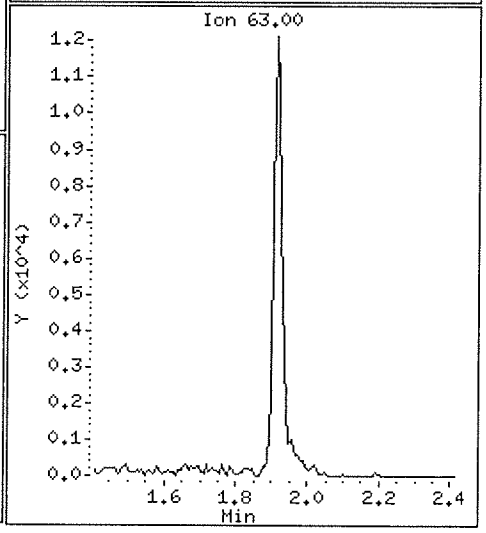


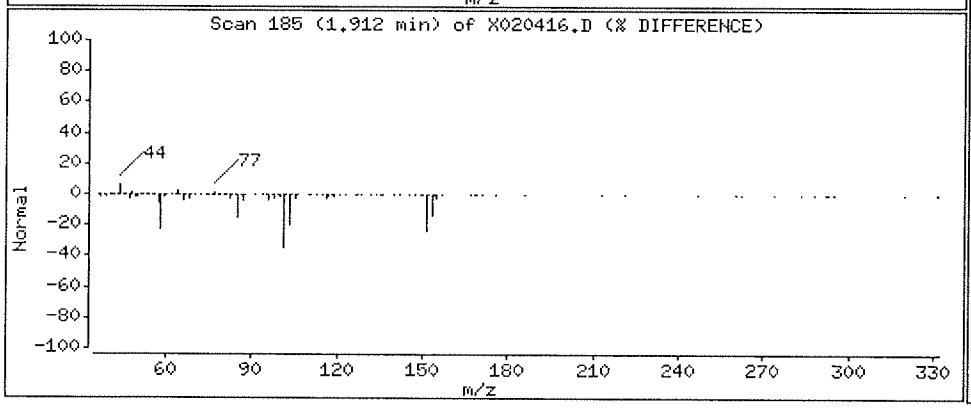












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D

Date : 04-FEB-2021 20:46

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

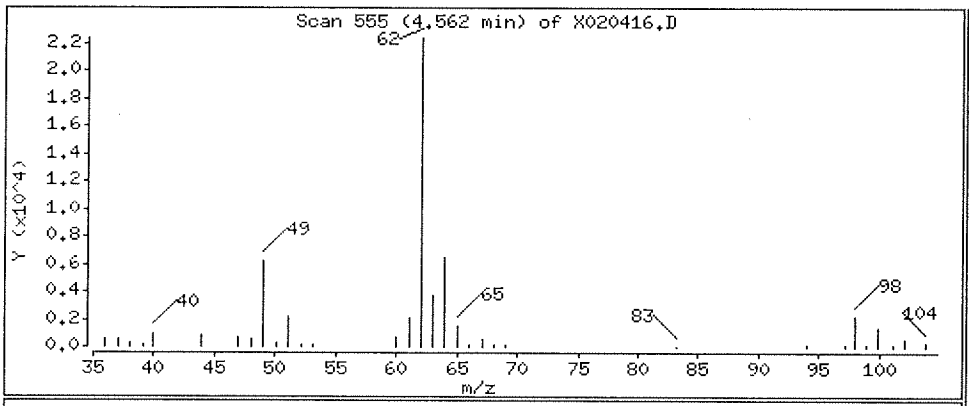
Operator: PC

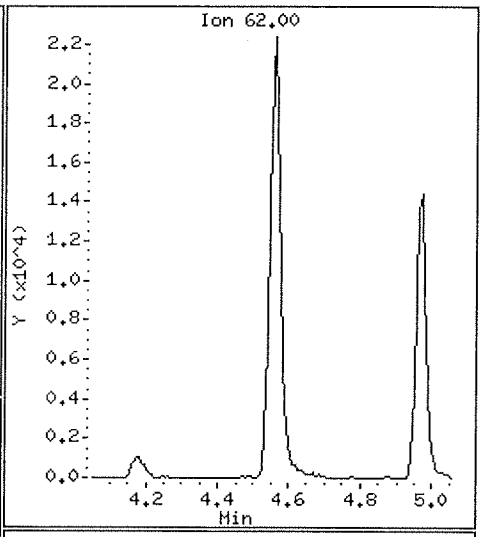
Column phase: DB624

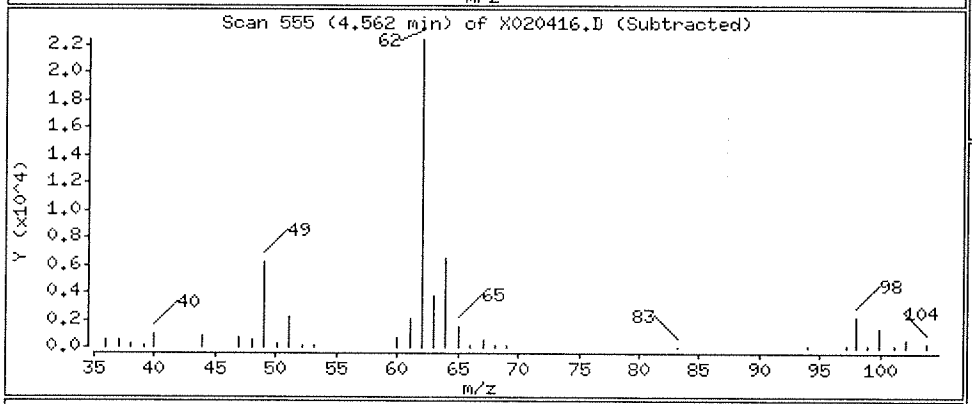
Column diameter: 0.18

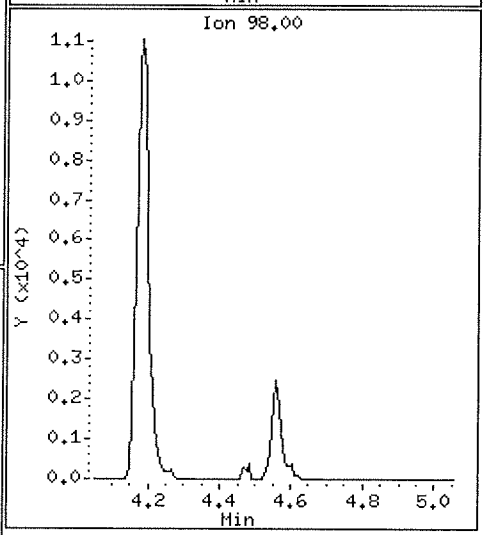
33 1,2-Dichloroethane

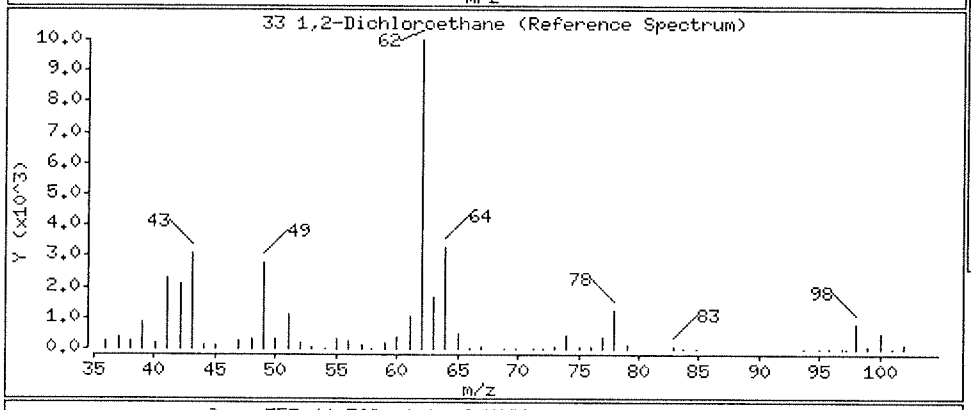
Concentration: 5.75 ug/l

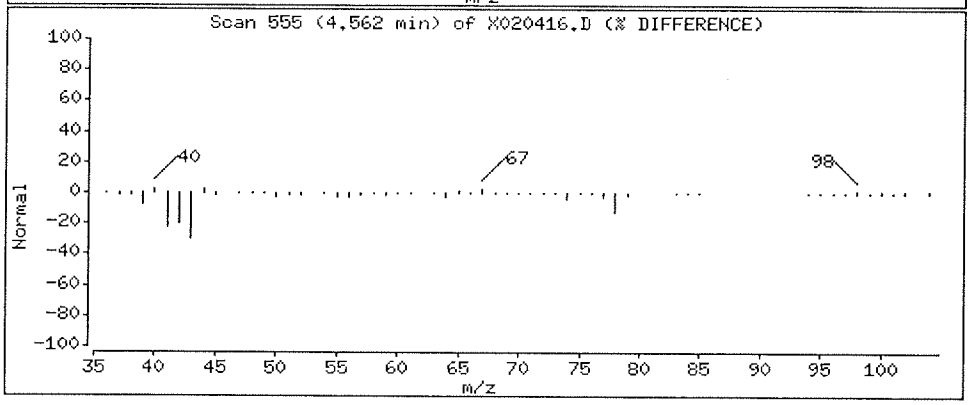












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D

Date : 04-FEB-2021 20:46

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

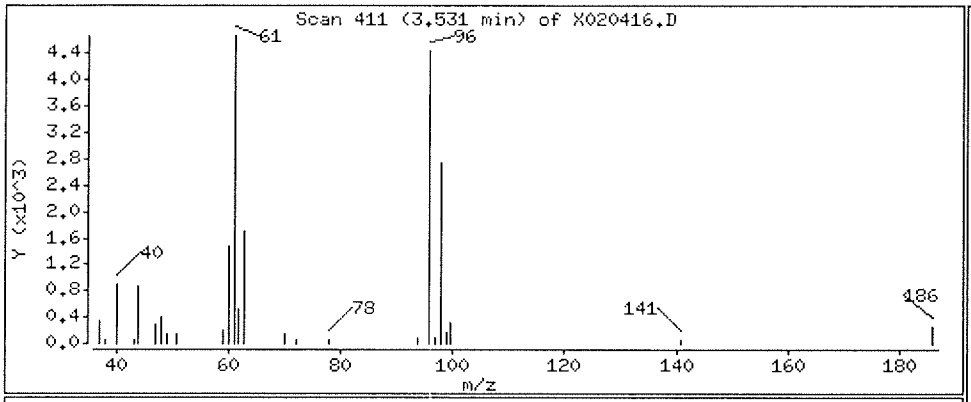
Operator: PC

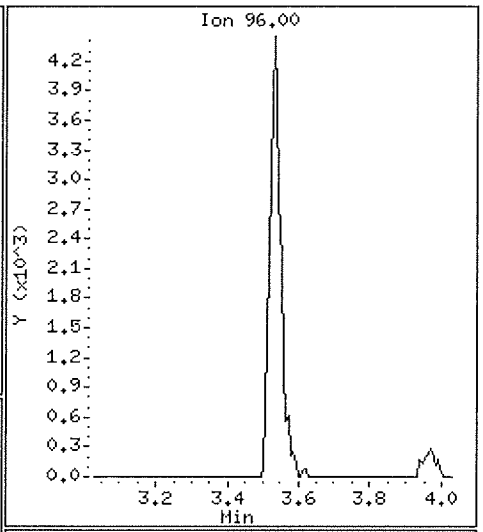
Column phase: DB624

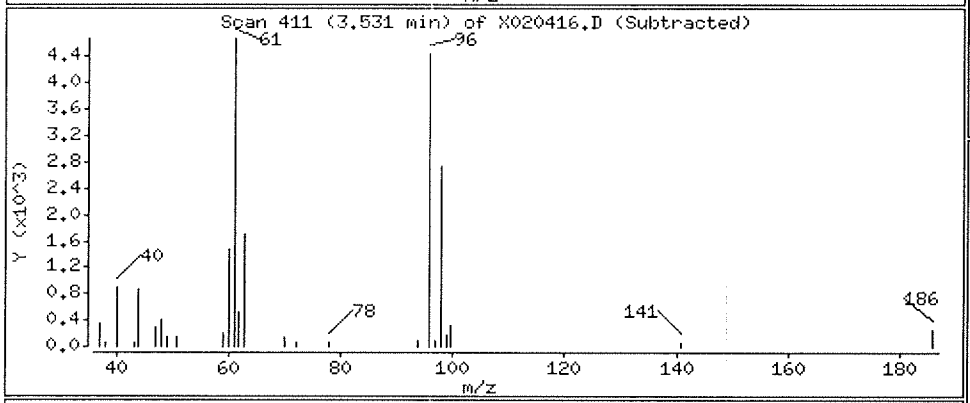
Column diameter: 0.18

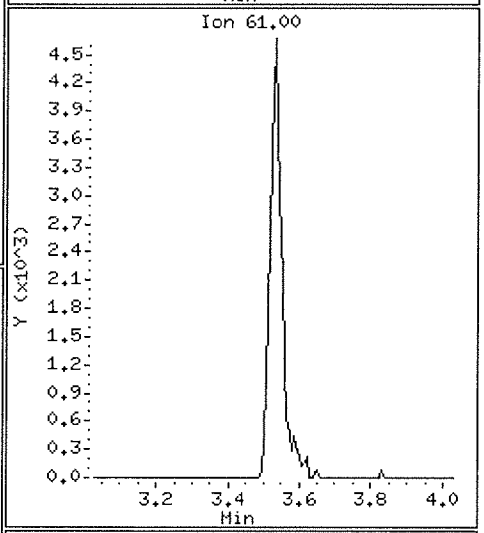
27 cis-1,2-Dichloroethene

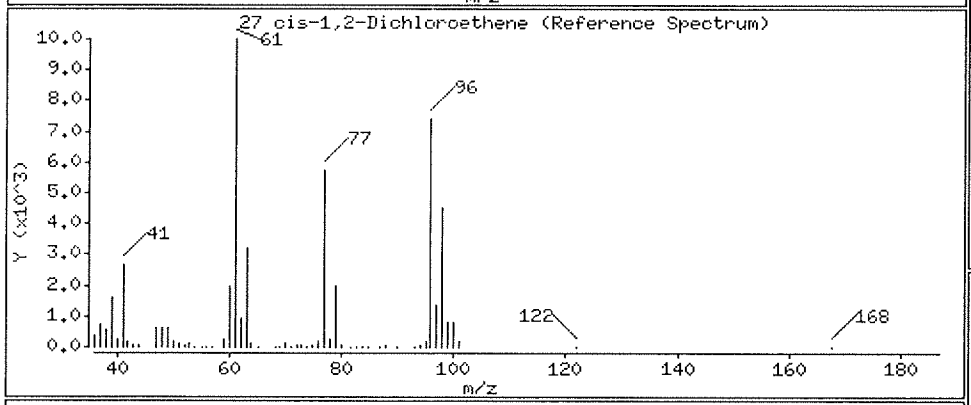
Concentration: 1.34 ug/l

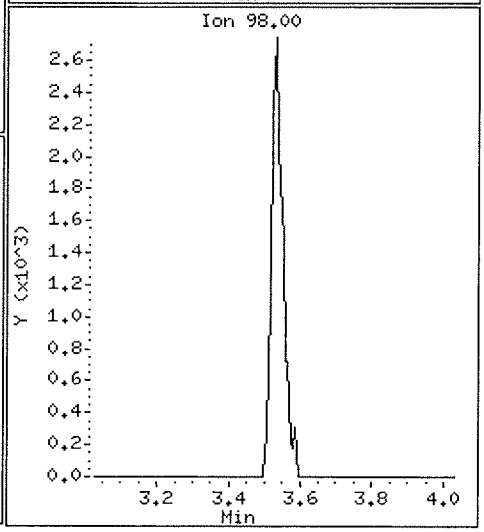


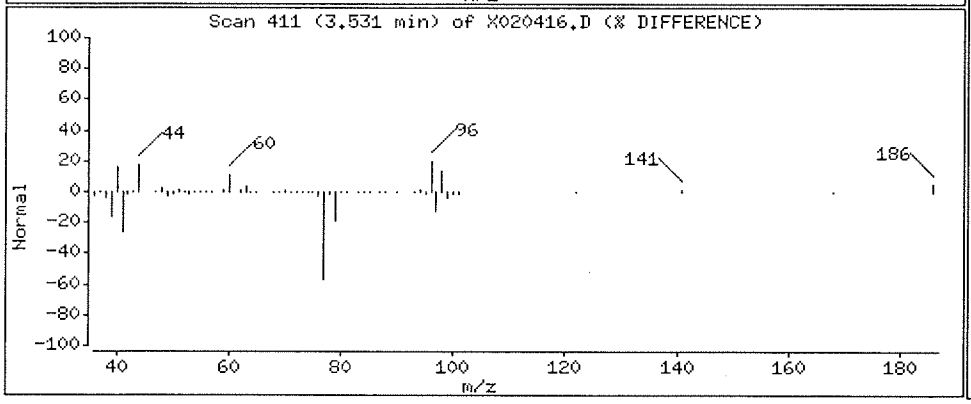












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020416.D

Date : 04-FEB-2021 20:46

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

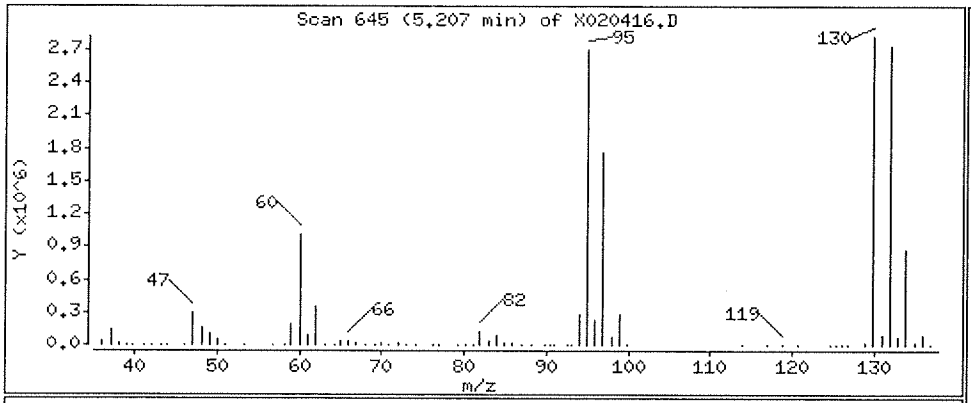
Operator: PC

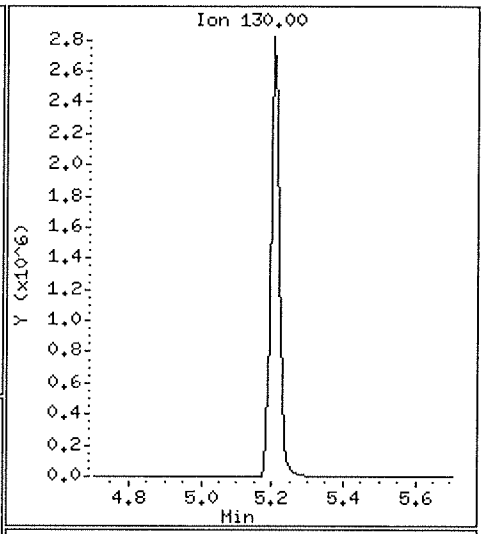
Column phase: DB624

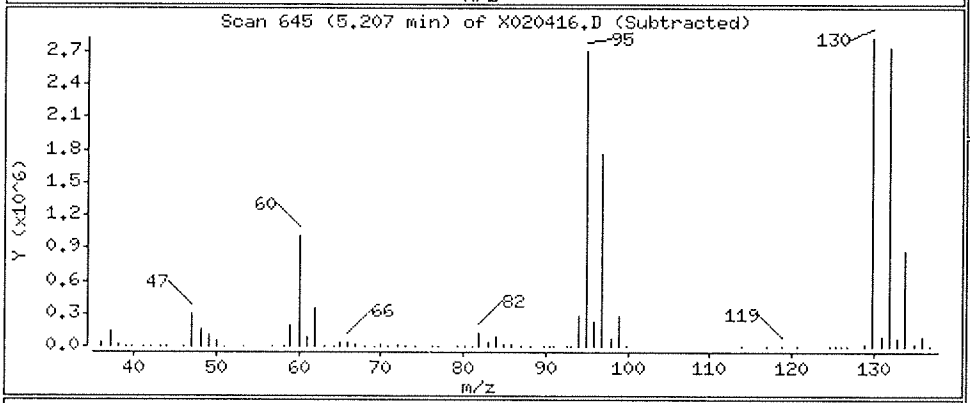
Column diameter: 0.18

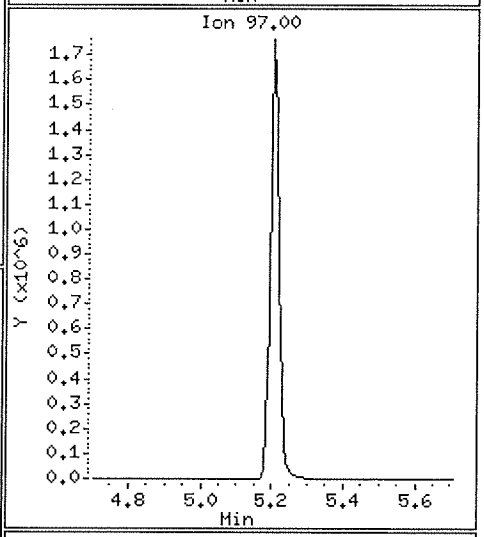
38 Trichloroethene

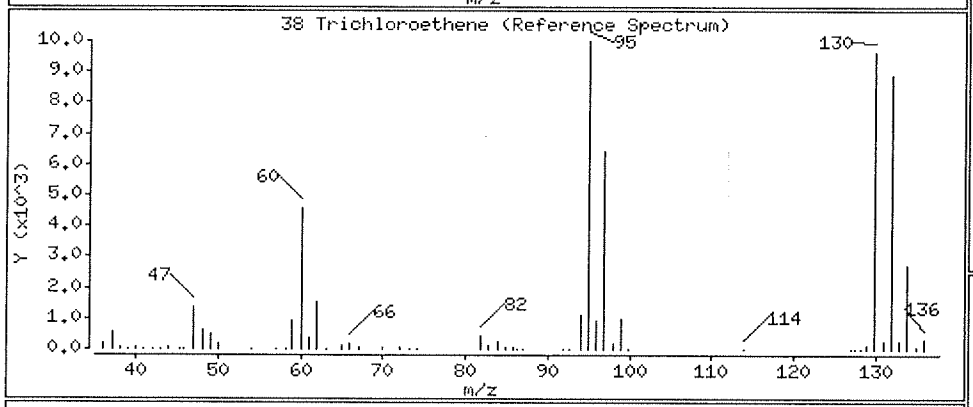
Concentration: 763.65 ug/l

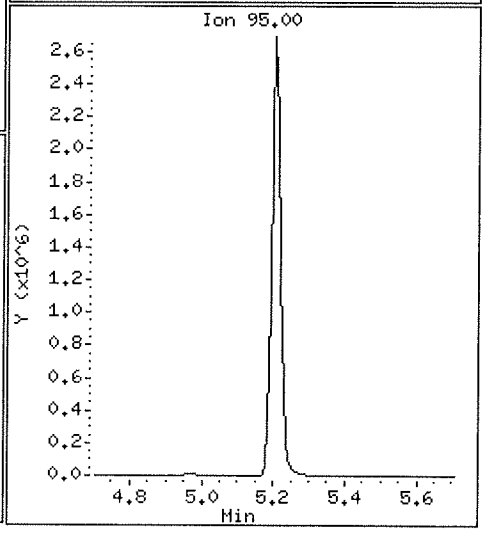


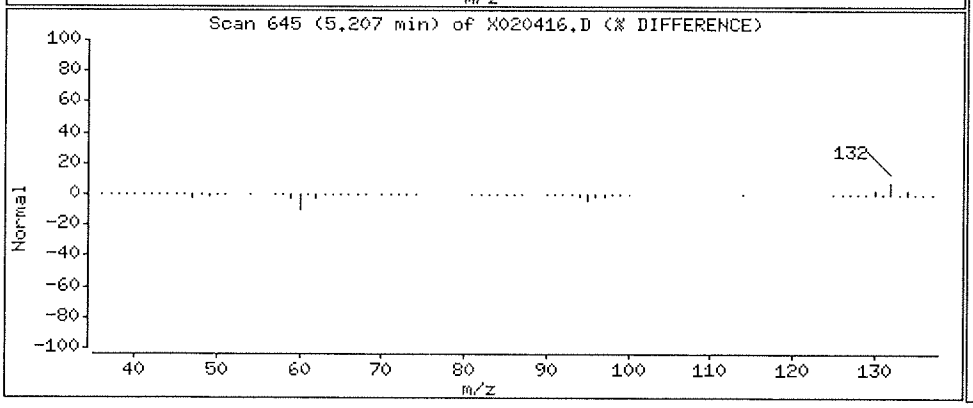












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020417.D Page 1
Report Date: 02-Mar-2021 09:53

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020417.D
Lab Smp Id: HS21011150-06MS Client Smp ID: HS21011150-06MS
Inj Date : 04-FEB-2021 21:07
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-06MS;HS21011150-06MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 17 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

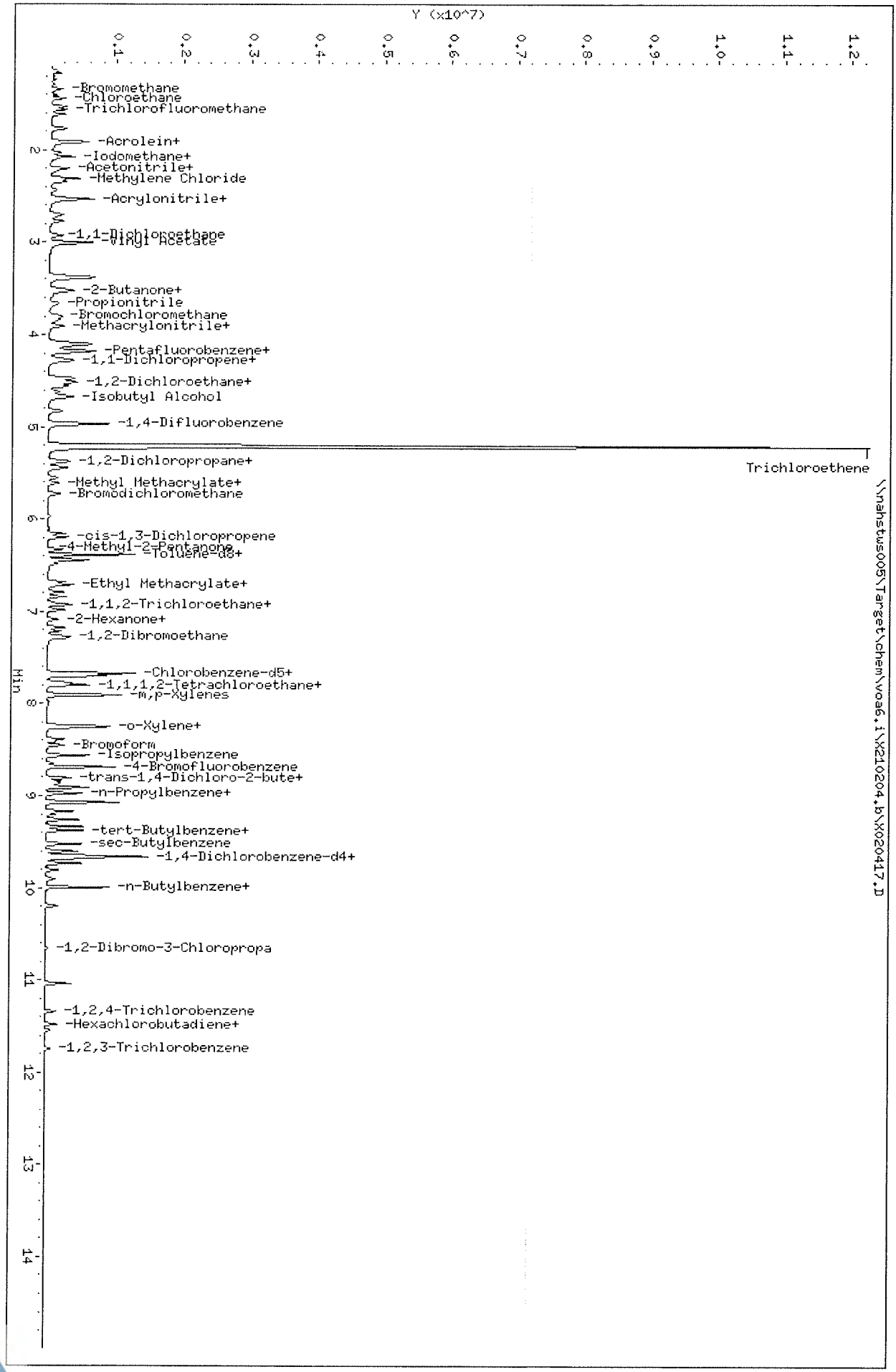
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	535481	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	752469	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	562019	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	261634	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	304516	47.3708	47.37
$	35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	302885	45.2395	45.23
$	48 Toluene-d8	98	6.388	6.388	(0.833)	746374	50.7637	50.76
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	280689	56.5917	56.59
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	129241	19.0630	19.06
	33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	180688	27.0040	27.00
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	132495	19.3200	19.31
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	62638	20.4286	20.42
	38 Trichloroethene	130	5.206	5.206	(1.048)	3558525	707.673	707.67(A)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	67882	8.87877	8.87

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020417.D
Date : 04-FEB-2021 21:07
Client ID: HS21011150-06MS
Sample Info: HS21011150-06MS;HS21011150-06MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020418.D Page 1
Report Date: 02-Mar-2021 09:53

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020418.D
Lab Smp Id: HS21011150-06MSD Client Smp ID: HS21011150-06MSD
Inj Date : 04-FEB-2021 21:28
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-06MSD;HS21011150-06MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 17 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

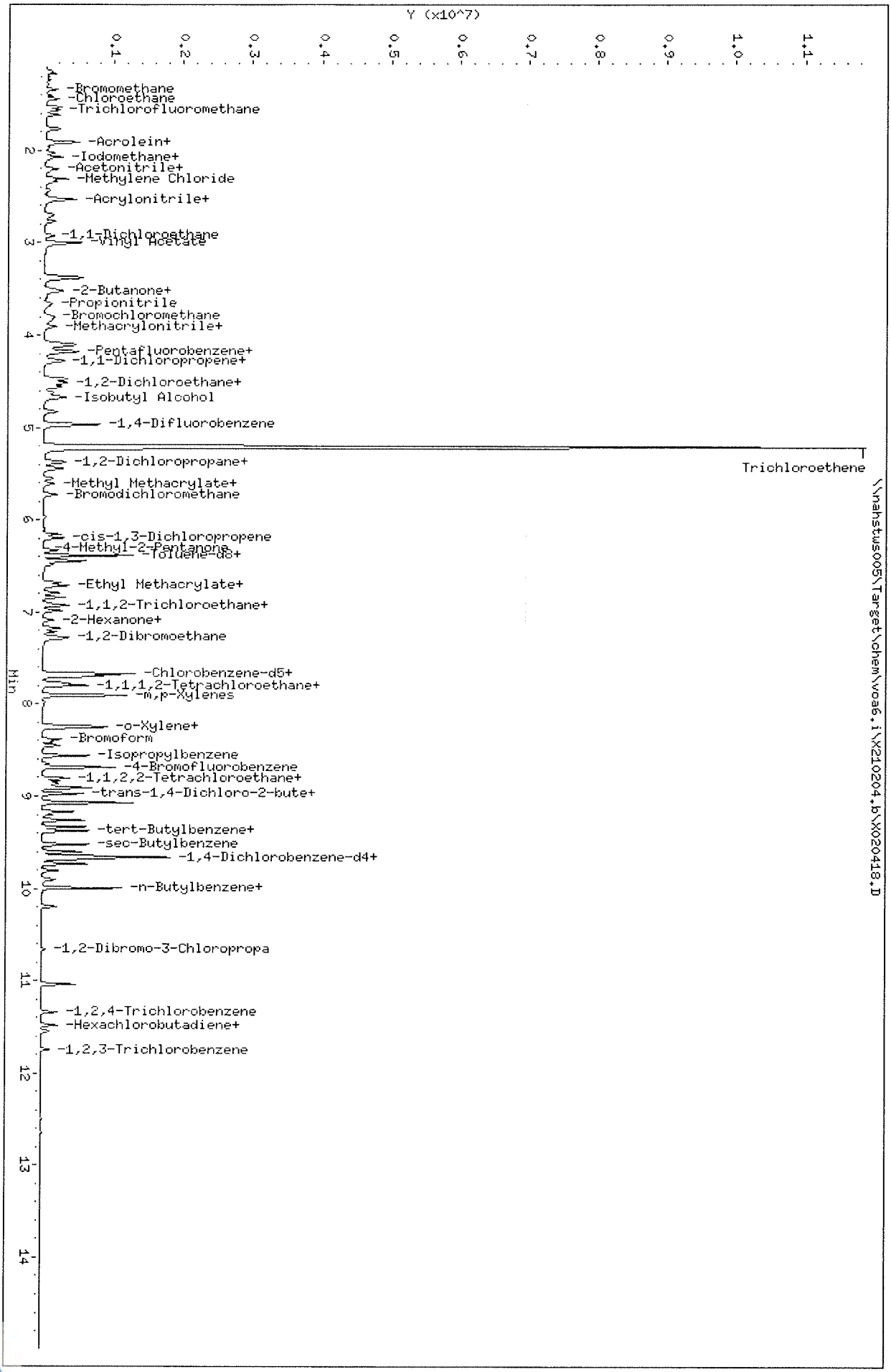
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	359862	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	636923	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	578753	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	364526	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	214299	49.6233	49.62
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	260156	58.2277	58.22
$	48 Toluene-d8	98	6.388	6.388	(0.833)	751440	49.6305	49.63
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	300442	58.8827	58.88
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	105531	23.1621	23.16
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	155171	27.3975	27.39
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	85672	18.5889	18.58
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	63781	20.2000	20.19
	38 Trichloroethene	130	5.206	5.206	(1.049)	3456019	811.971	811.97(A)
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	64656	12.5839	12.58

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020418.D
Date : 04-FEB-2021 21:28
Client ID: HS21011150-06MSD
Sample Info: HS21011150-06MSD;HS21011150-06MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D Page 1
Report Date: 02-Mar-2021 09:48

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D
Lab Smp Id: HS21011150-06 Client Smp ID: HS21011150-06
Inj Date : 04-FEB-2021 21:49
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-06;HS21011150-06;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 18
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

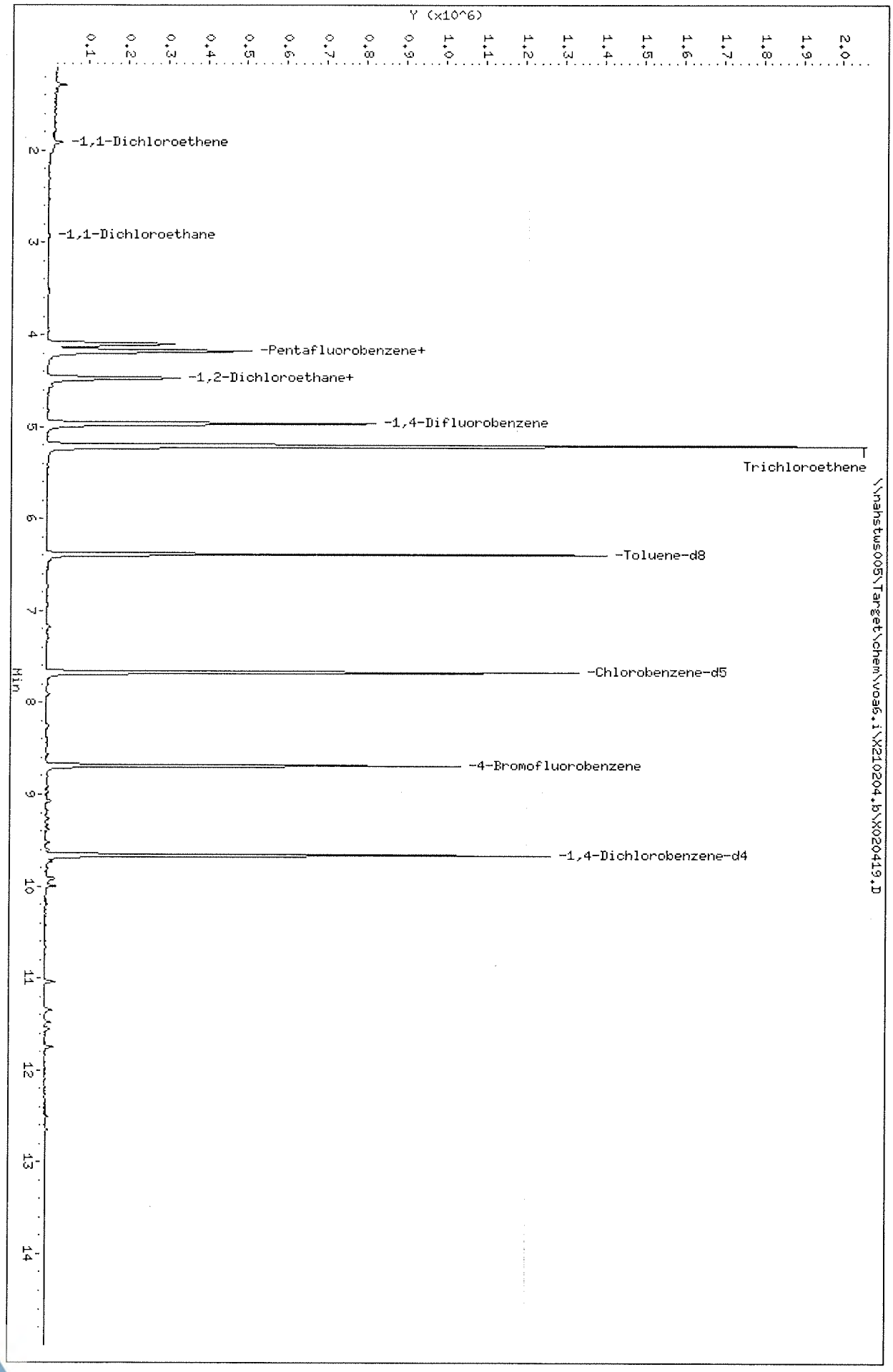
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	370729	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	647192	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	589110	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	251855	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	219514	49.3388	49.33
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	266205	57.8252	57.82
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	797165	51.7249	51.72
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	281405	54.0608	54.06
11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	6666	1.42018	7.10(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	8960	1.55691	7.78(a)
38 Trichloroethene	130	5.207	5.206	(1.049)	600906	138.939	694.69

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D
Date : 04-FEB-2021 21:49
Client ID: HS21011150-06
Sample Info: HS21011150-06;HS21011150-06;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D

Date : 04-FEB-2021 21:49

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

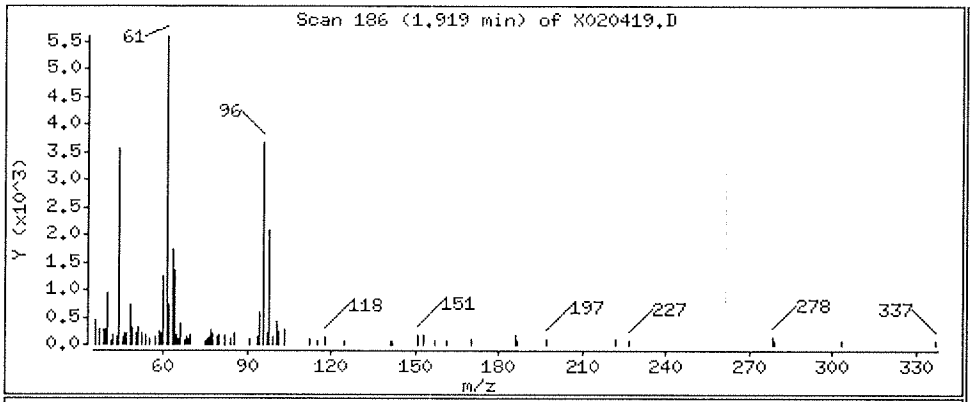
Operator: PC

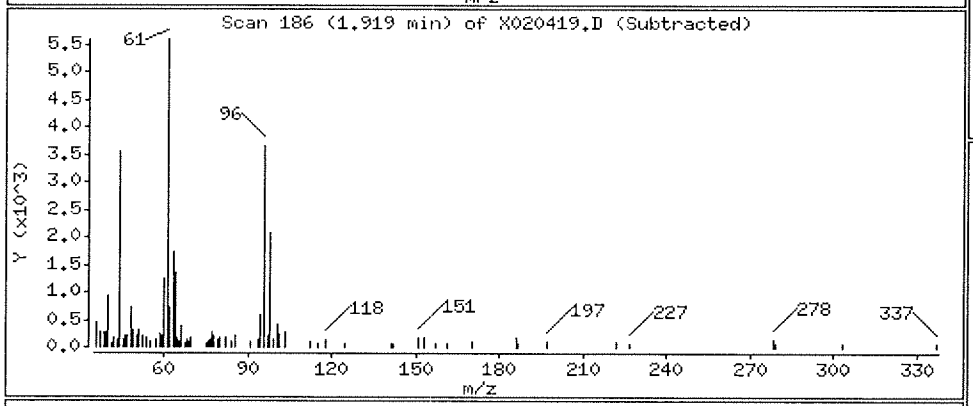
Column phase: DB624

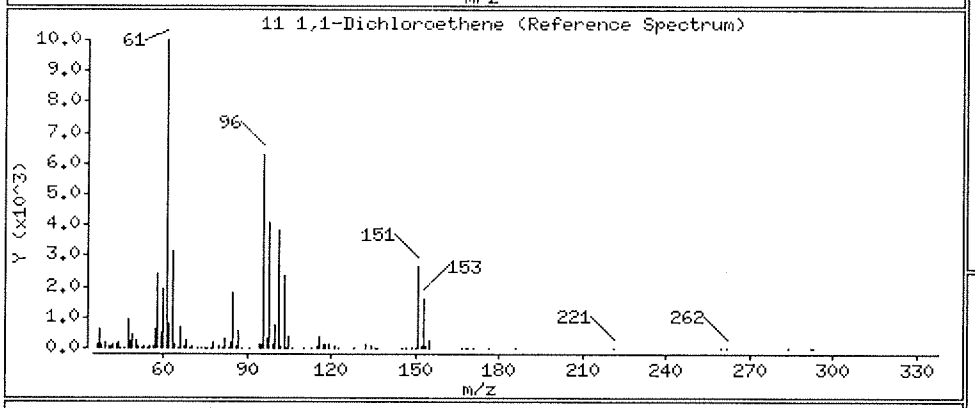
Column diameter: 0.18

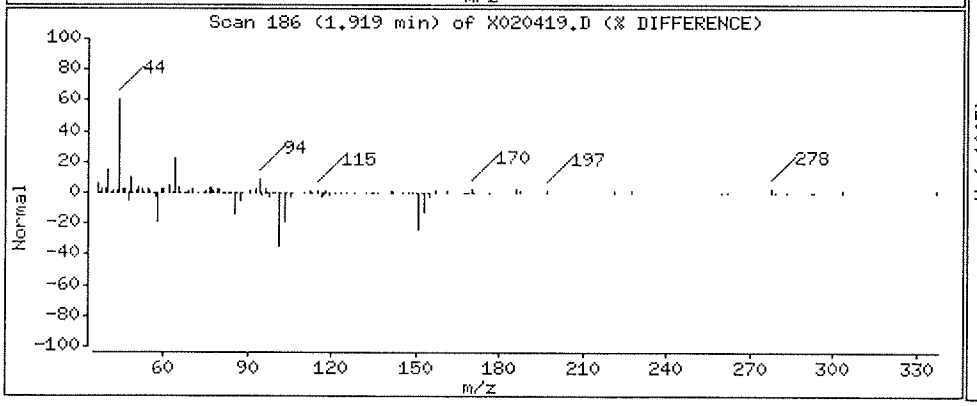
11 1,1-Dichloroethene

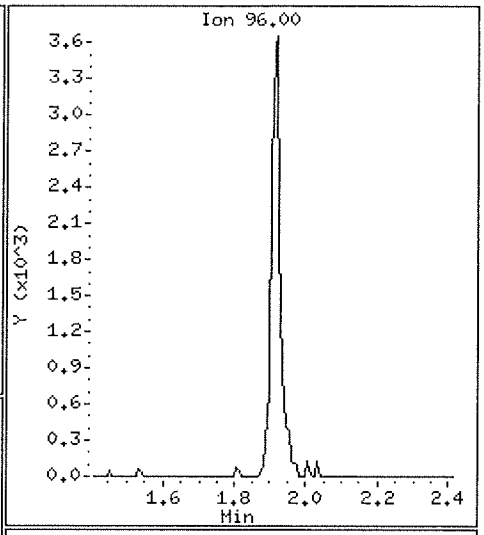
Concentration: 7.10 ug/l

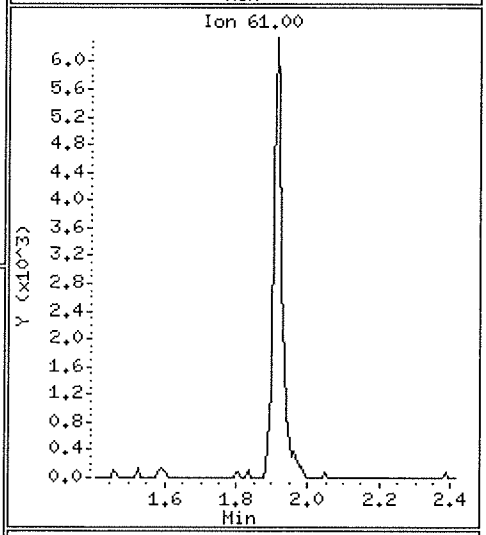


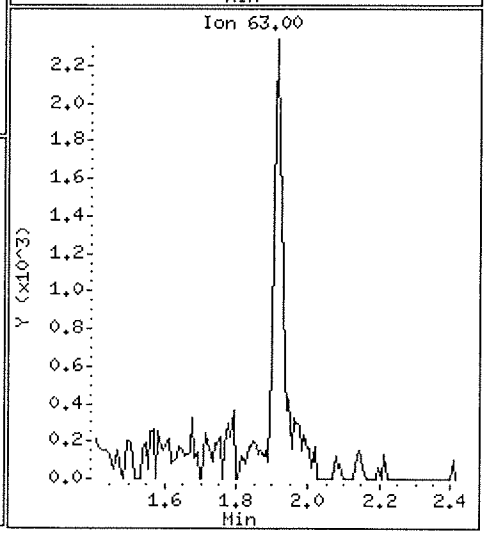












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D

Date : 04-FEB-2021 21:49

Client ID: HS21011150-06

Instrument: voa6.i

Sample Info: HS21011150-06;HS21011150-06;;;

Purge Volume: 5.0

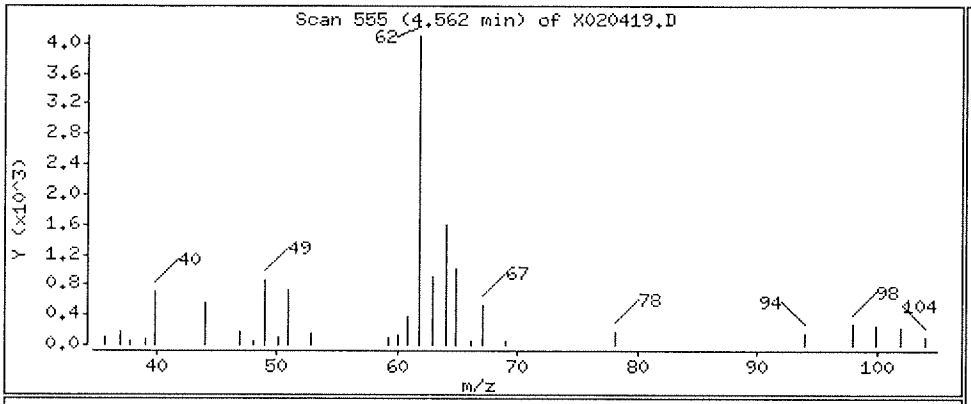
Operator: PC

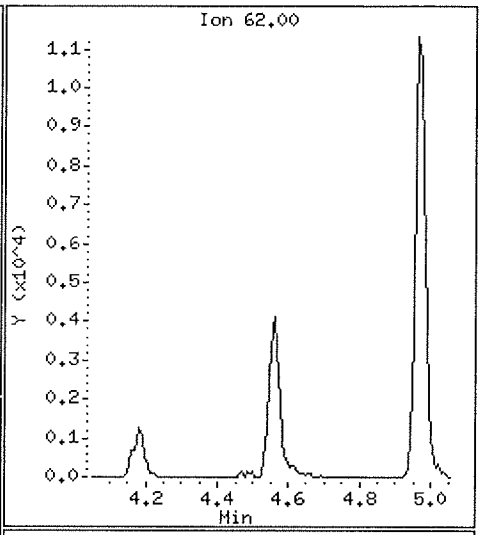
Column phase: DB624

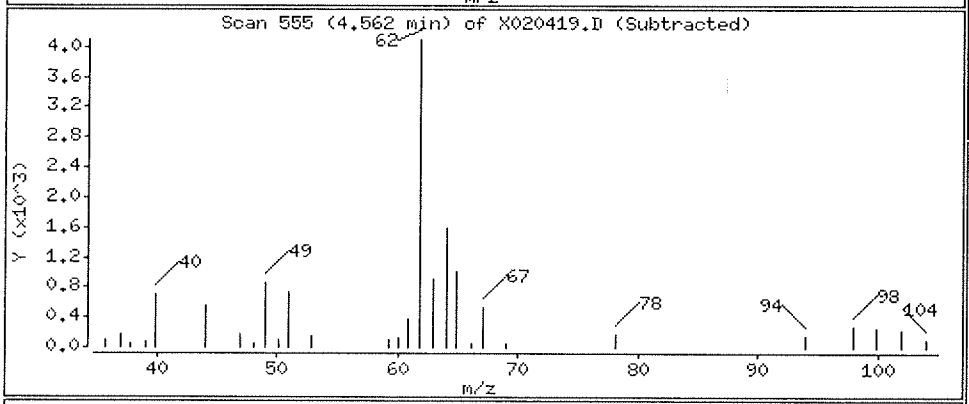
Column diameter: 0.18

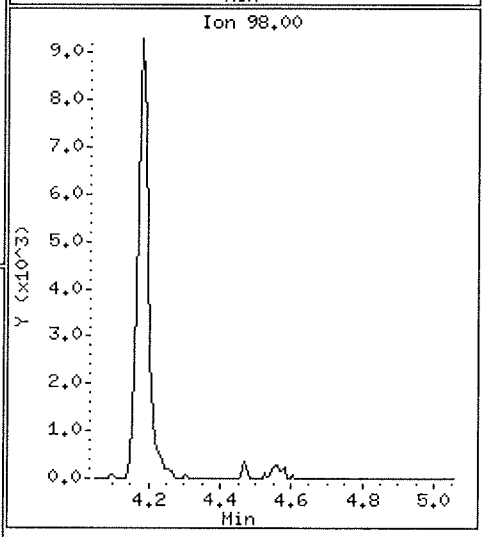
33 1,2-Dichloroethane

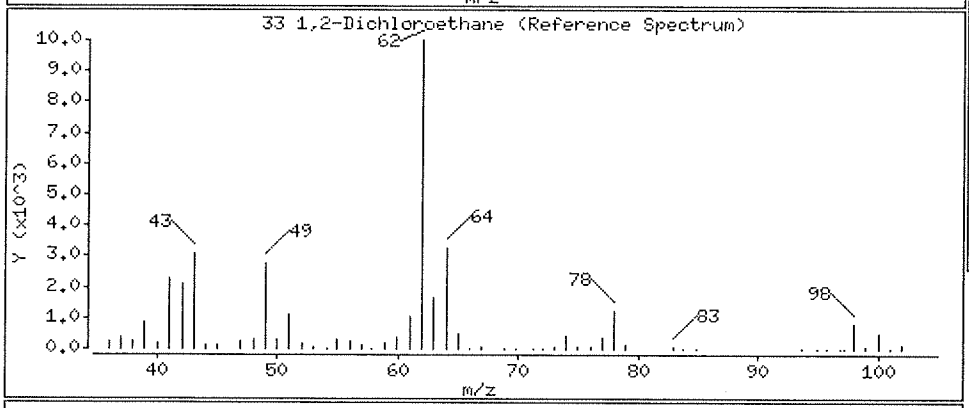
Concentration: 7.78 ug/l

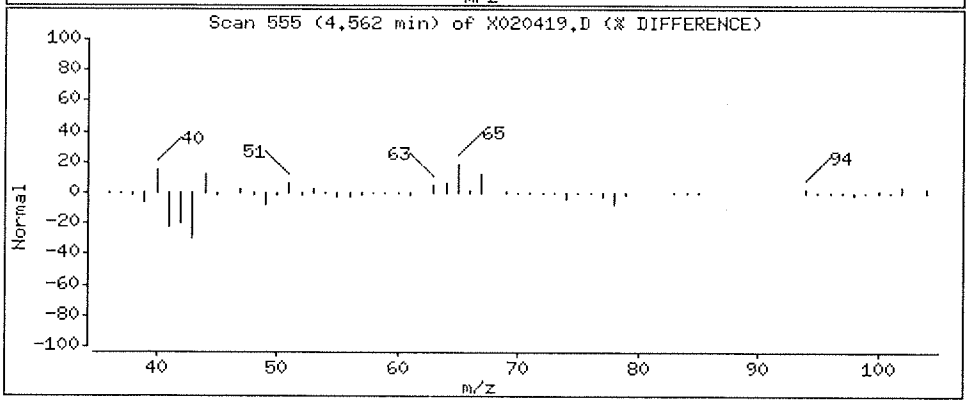












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020419.D Page 5

Date : 04-FEB-2021 21:49

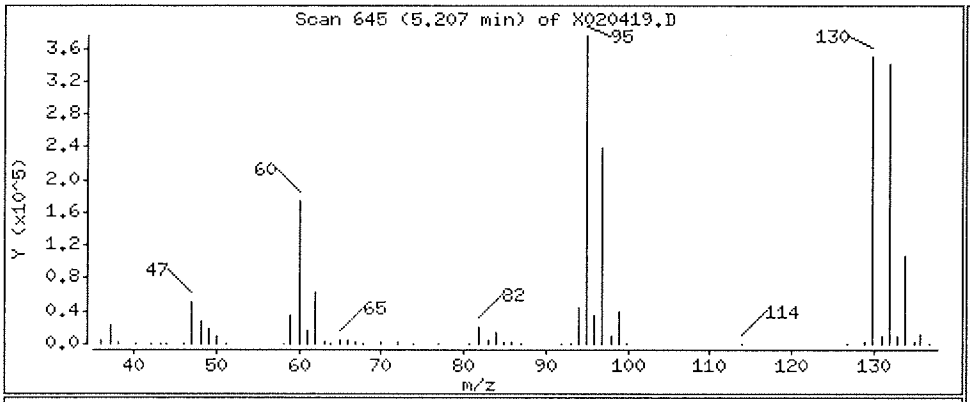
Client ID: HS21011150-06 Instrument: voa6.i

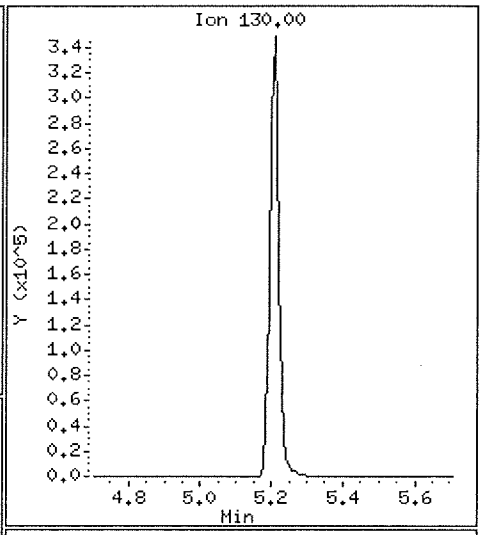
Sample Info: HS21011150-06;HS21011150-06;;;

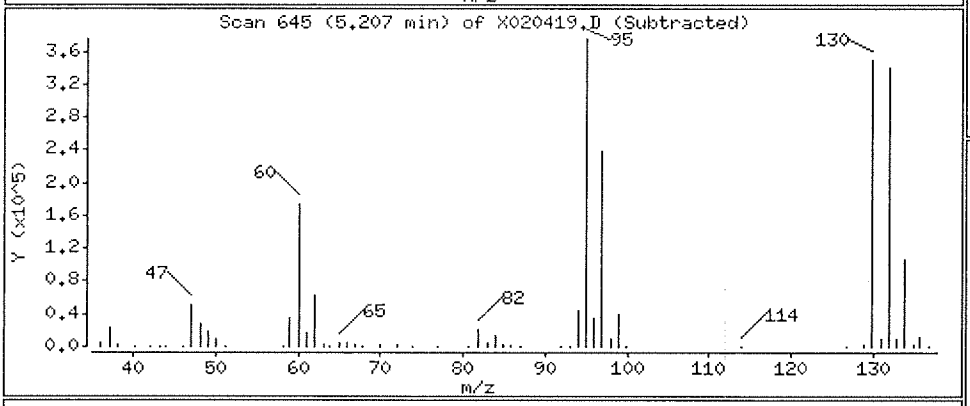
Purge Volume: 5.0 Operator: PC

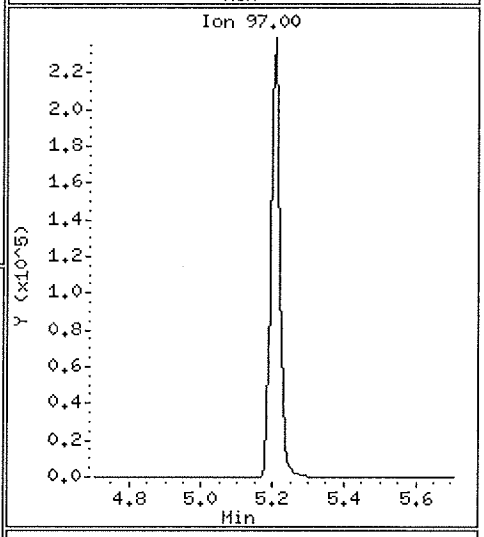
Column phase: DB624 Column diameter: 0.18

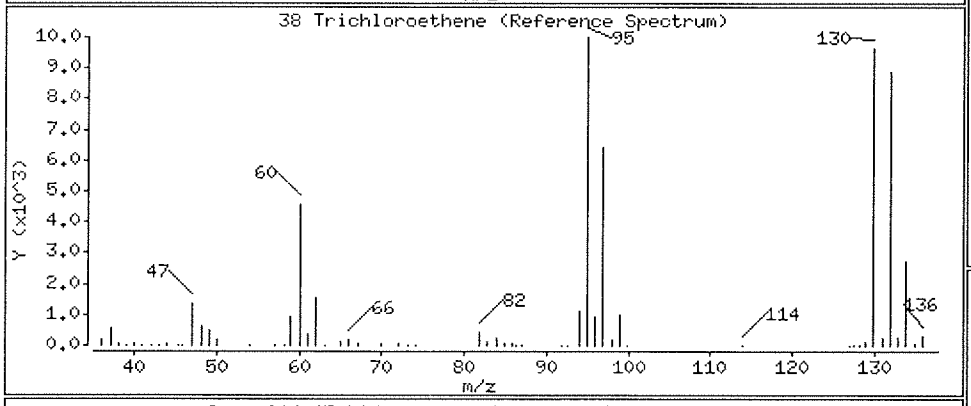
38 Trichloroethene Concentration: 694.69 ug/l

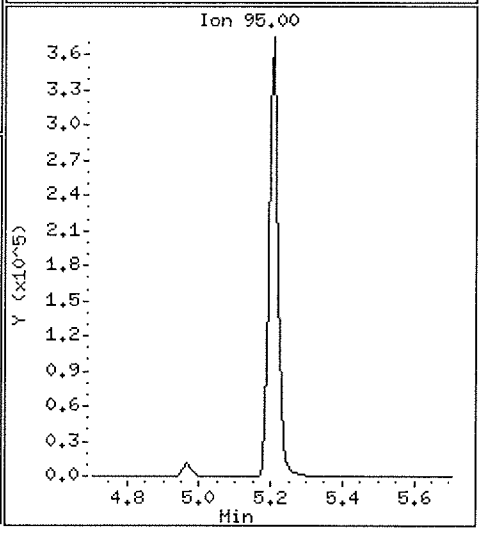


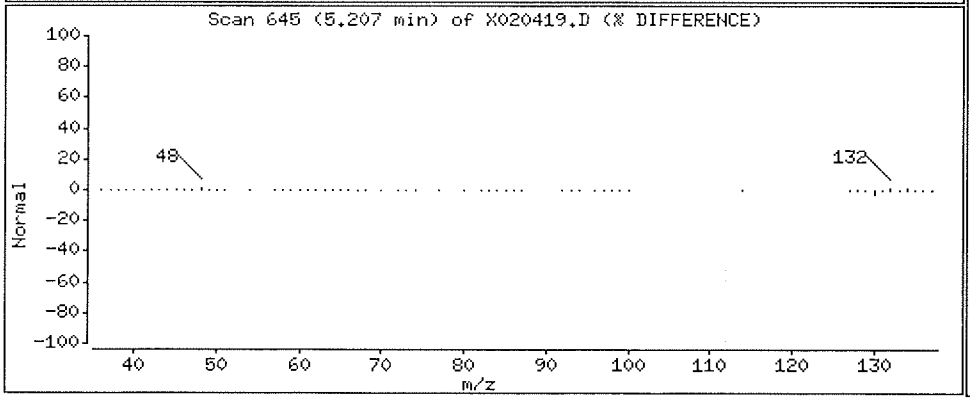












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Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020420.D
Lab Smp Id: HS21011150-01 Client Smp ID: HS21011150-01
Inj Date : 04-FEB-2021 22:11
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-01;HS21011150-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 19
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

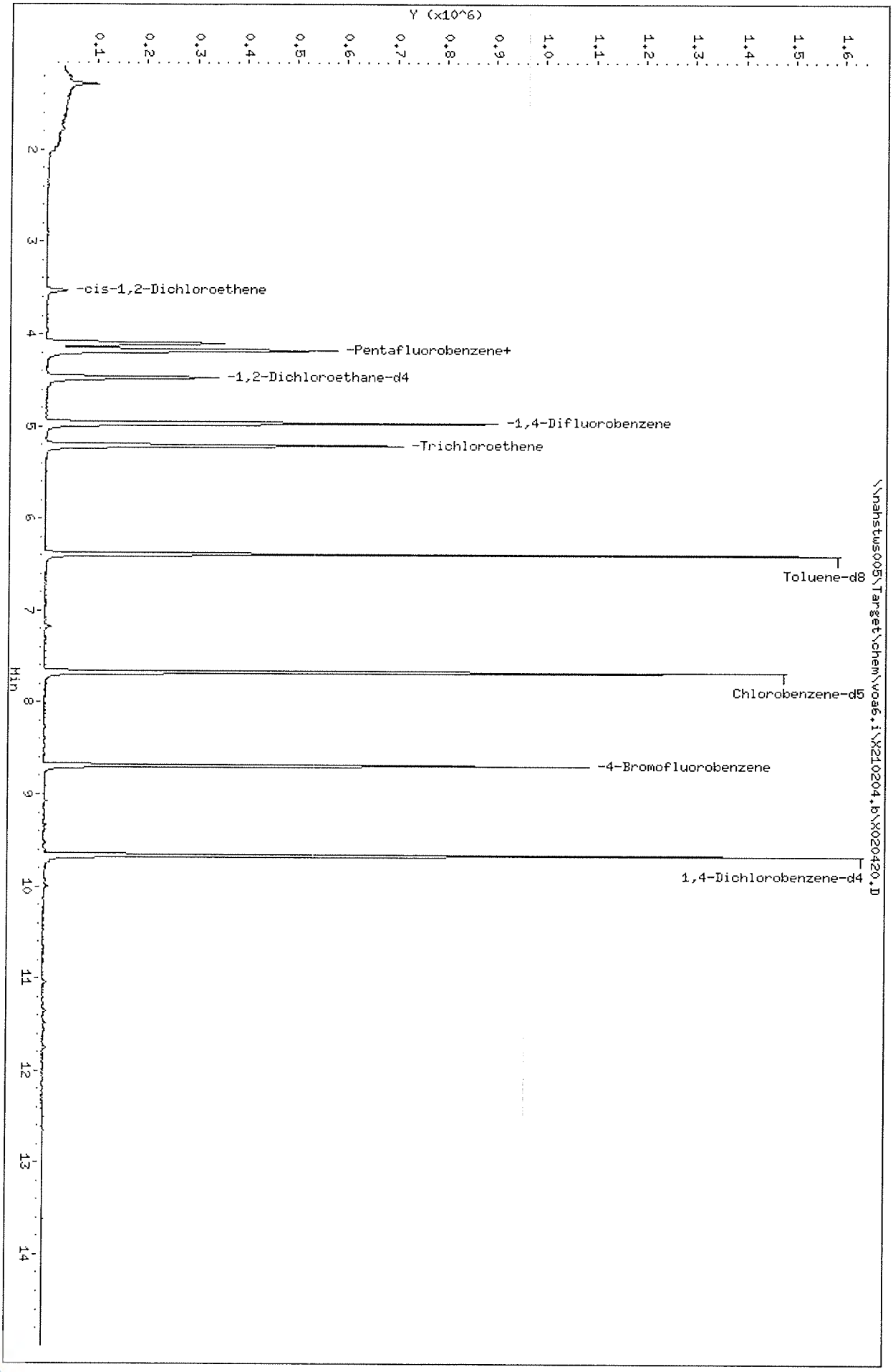
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	420886	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	746300	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	694467	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	361110	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	251403	49.7757	49.77
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	267455	51.0049	51.00
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	918395	50.5506	50.55
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	303050	49.2553	49.25
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	22071	4.09457	4.09(a)
38 Trichloroethene	130	5.207	5.206	(1.048)	231082	46.3344	46.33

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020420.D
Date : 04-FEB-2021 22:11
Client ID: HS21011150-01
Sample Info: HS21011150-01;HS21011150-01;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020420.D

Date : 04-FEB-2021 22:11

Client ID: HS21011150-01

Instrument: voa6.i

Sample Info: HS21011150-01;HS21011150-01;;;

Purge Volume: 5.0

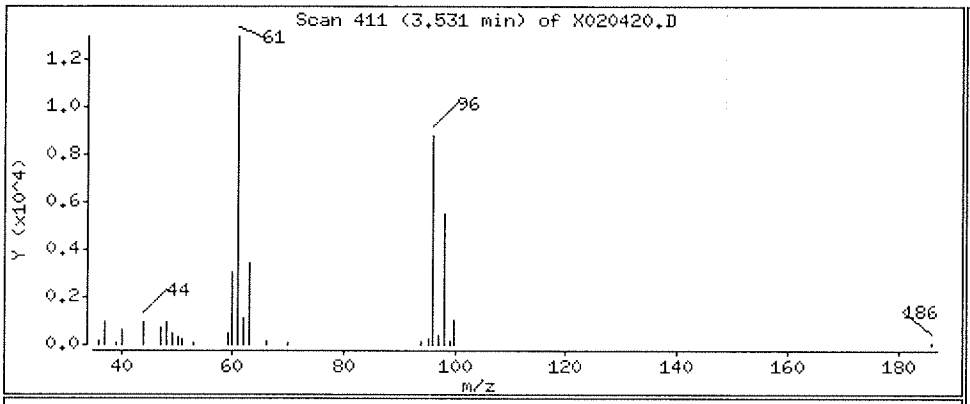
Operator: PC

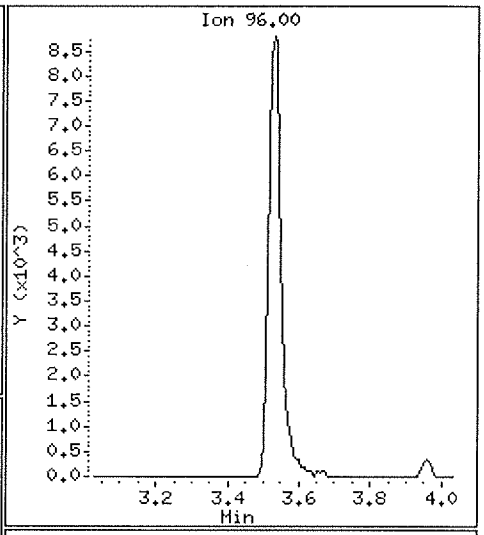
Column phase: DB624

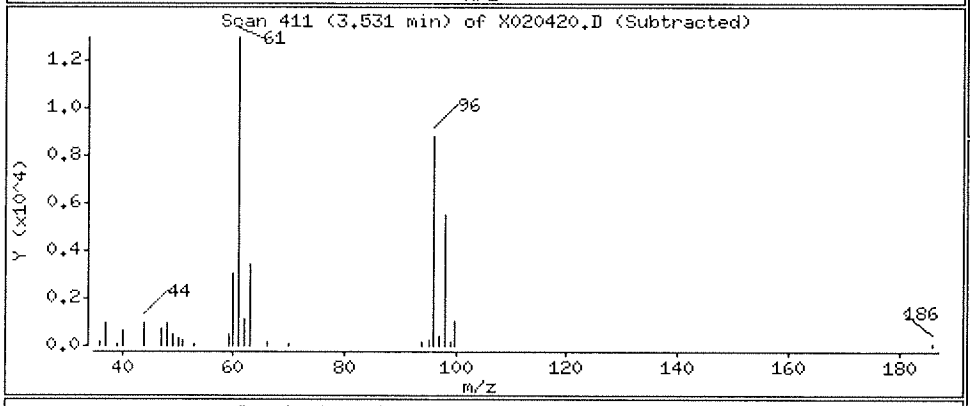
Column diameter: 0.18

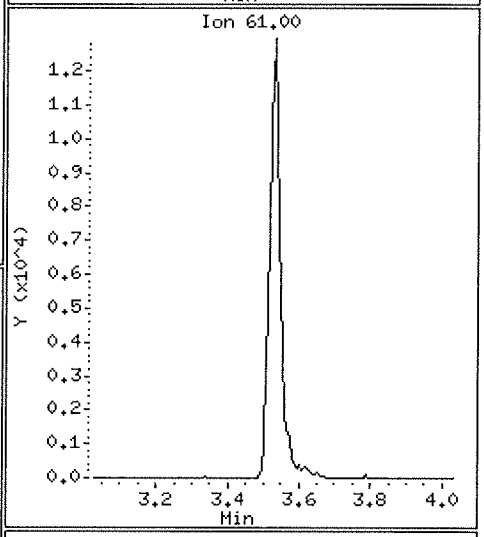
27 cis-1,2-Dichloroethene

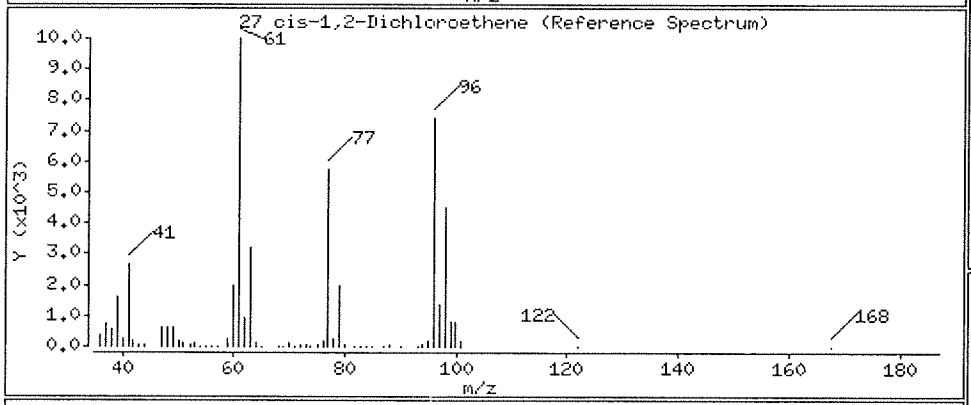
Concentration: 4.09 ug/l

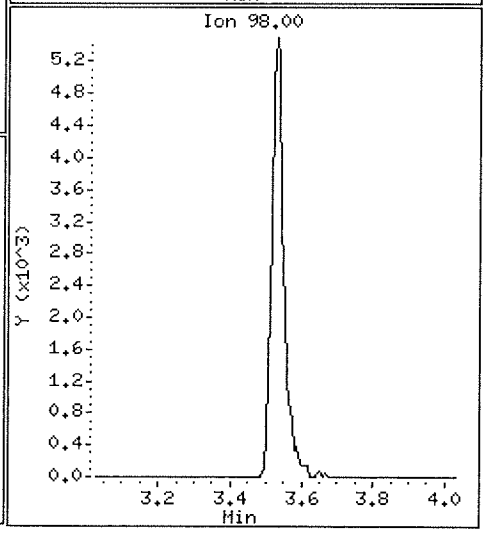


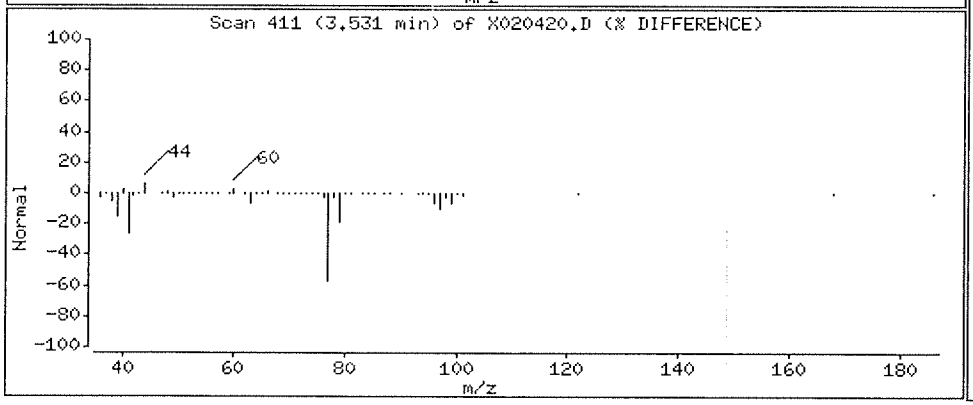












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020420.D

Date : 04-FEB-2021 22:11

Client ID: HS21011150-01

Instrument: voa6.i

Sample Info: HS21011150-01;HS21011150-01;;;

Purge Volume: 5.0

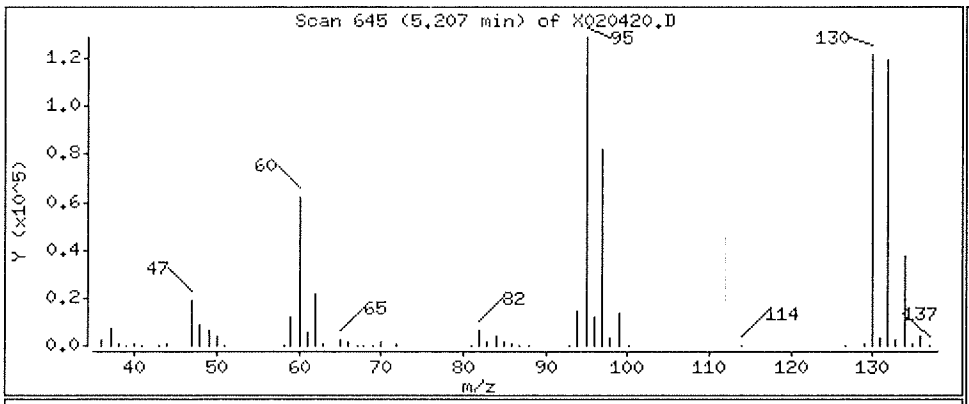
Operator: PC

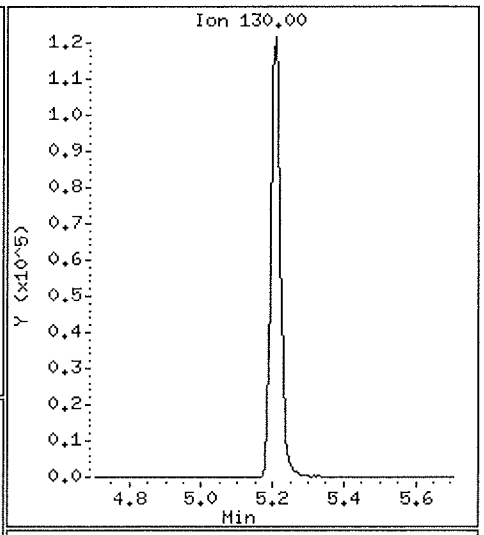
Column phase: DB624

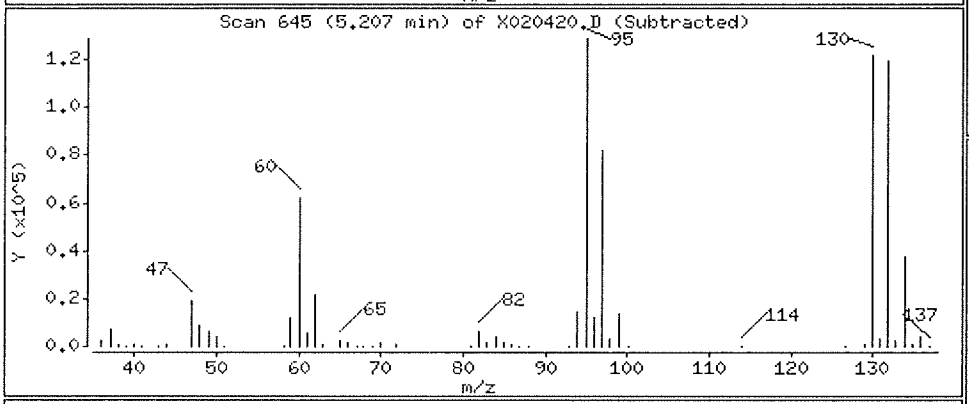
Column diameter: 0.18

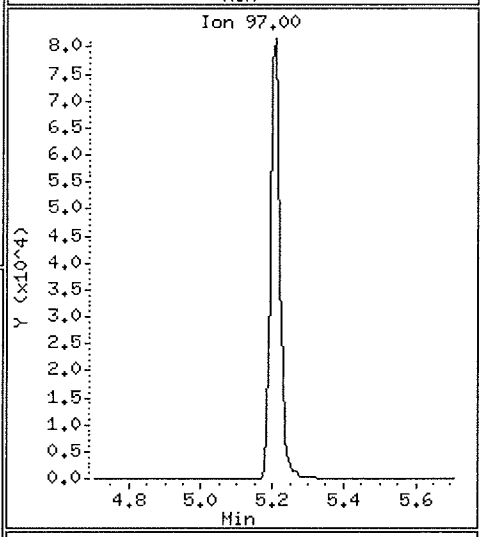
38 Trichloroethene

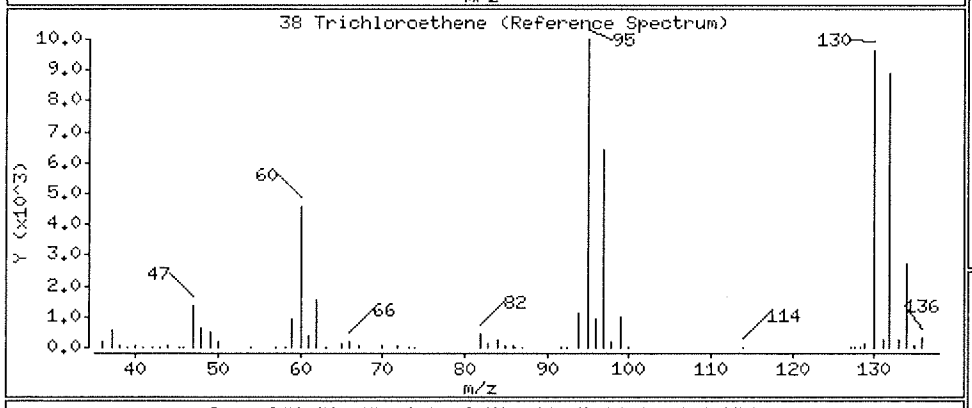
Concentration: 46.33 ug/l

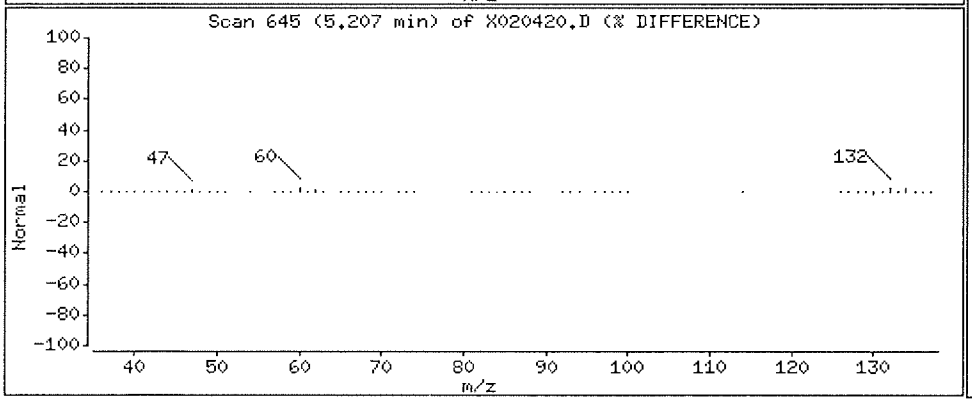


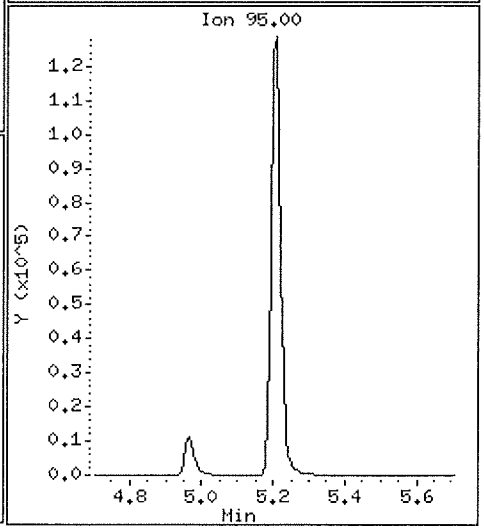












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D Page 1
Report Date: 02-Mar-2021 09:48

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D
Lab Smp Id: HS21011150-02 Client Smp ID: HS21011150-02
Inj Date : 04-FEB-2021 22:32
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-02;HS21011150-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

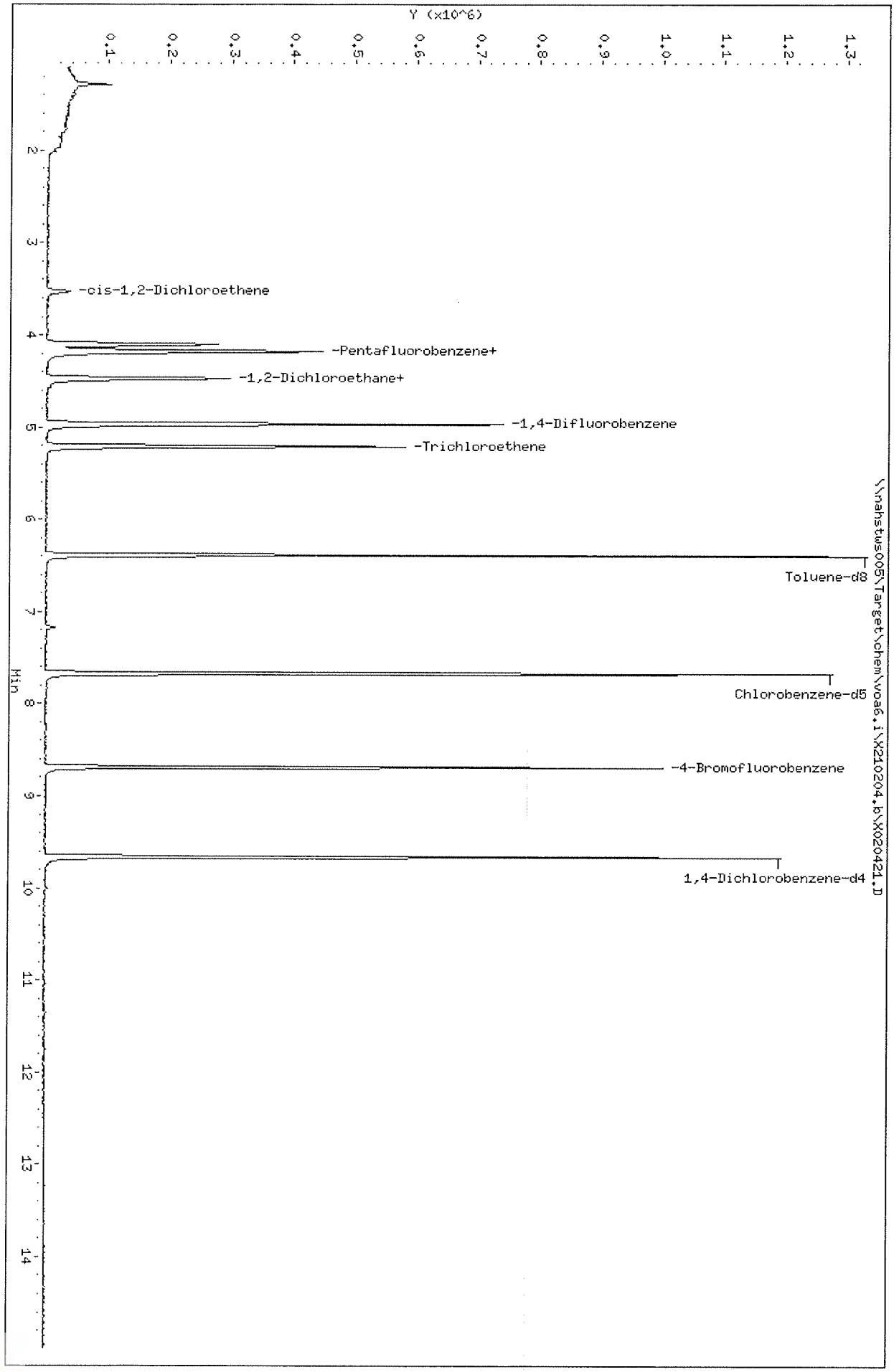
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	333263	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	568853	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	563703	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	240119	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	192994	48.2463	48.24
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	241058	58.2602	58.26
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	765485	51.9080	51.90
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	265562	53.2957	53.29
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	2748	0.54326	0.54(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	19260	4.51253	4.51(a)
38 Trichloroethene	130	5.207	5.206	(1.049)	173029	45.5166	45.51

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D
Date : 04-FEB-2021 22:32
Client ID: HS21011150-02
Sample Info: HS21011150-02;HS21011150-02;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D

Date : 04-FEB-2021 22:32

Client ID: HS21011150-02

Instrument: voa6.i

Sample Info: HS21011150-02;HS21011150-02;;;

Purge Volume: 5.0

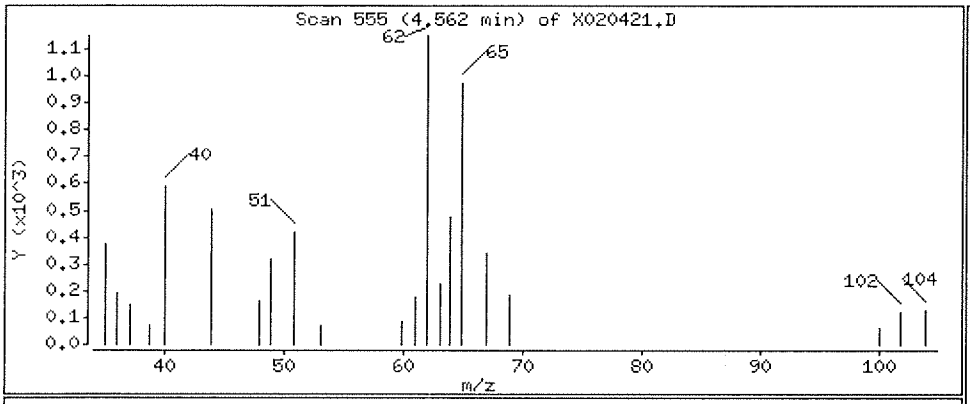
Operator: PC

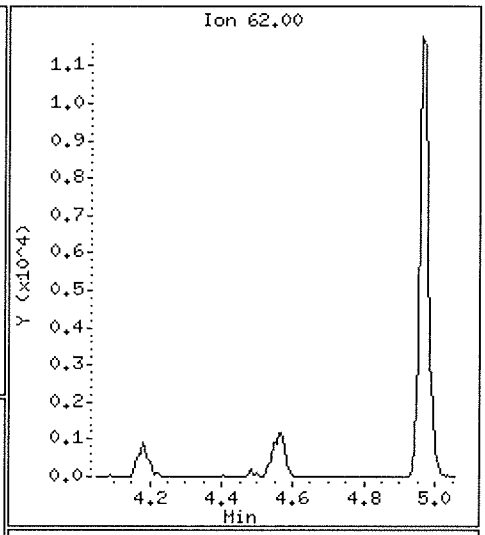
Column phase: DB624

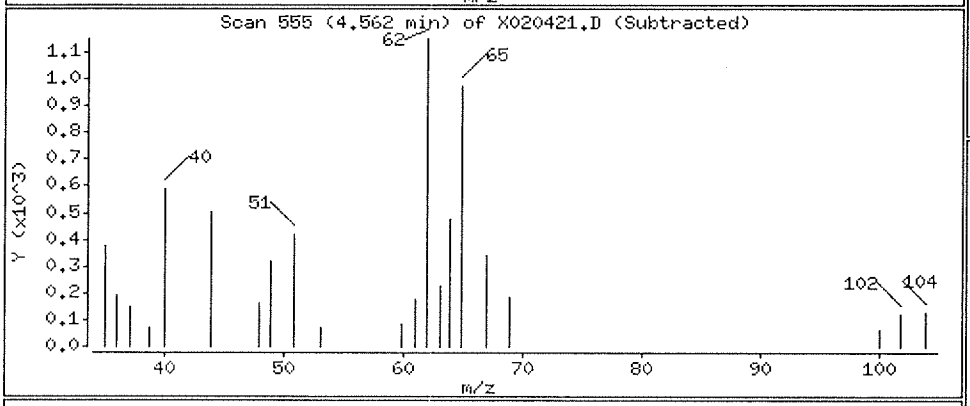
Column diameter: 0.18

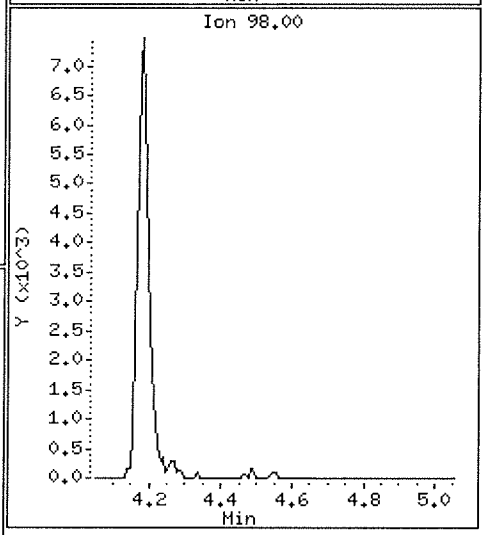
33 1,2-Dichloroethane

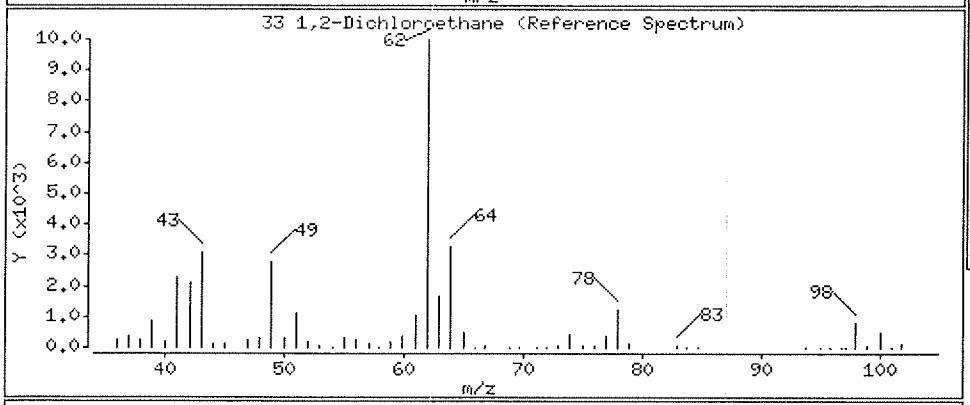
Concentration: 0.54 ug/l

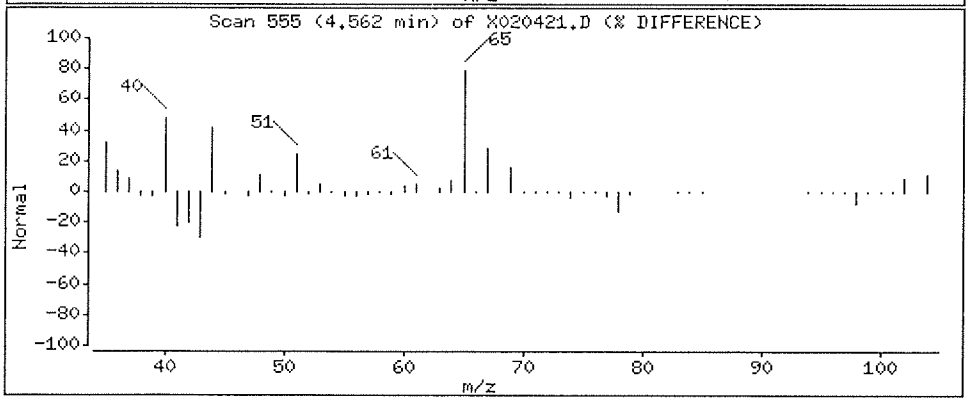












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D

Date : 04-FEB-2021 22:32

Client ID: HS21011150-02

Instrument: voa6.i

Sample Info: HS21011150-02;HS21011150-02;;;

Purge Volume: 5.0

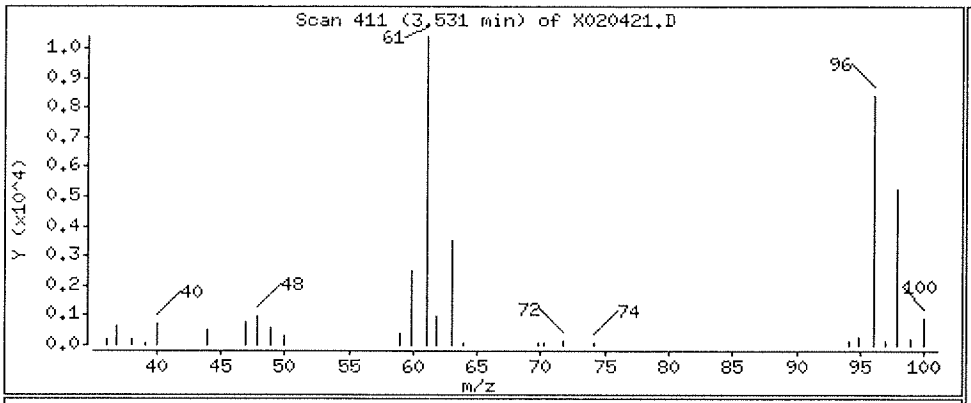
Operator: PC

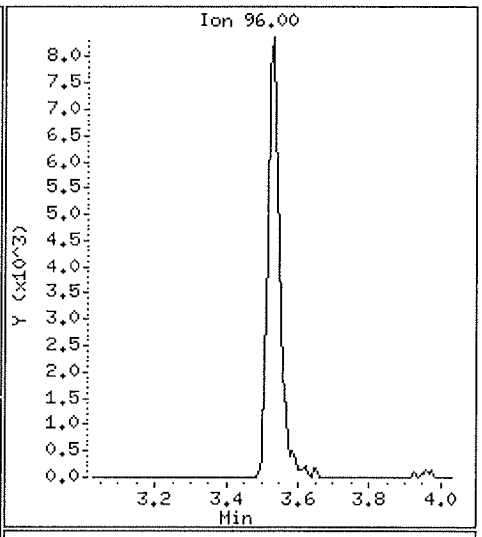
Column phase: DB624

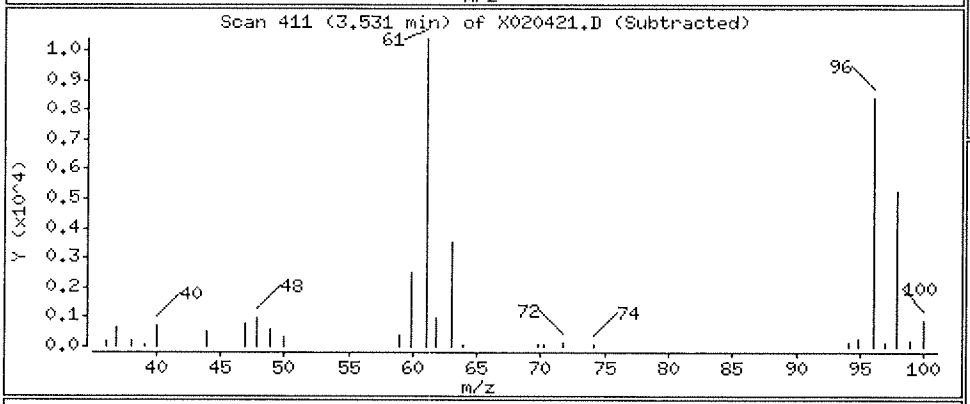
Column diameter: 0.18

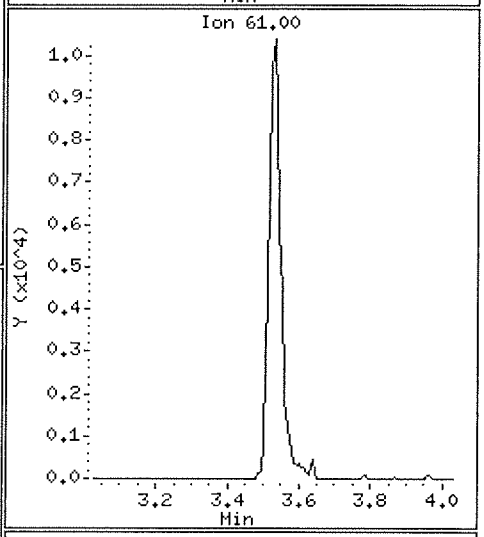
27 cis-1,2-Dichloroethene

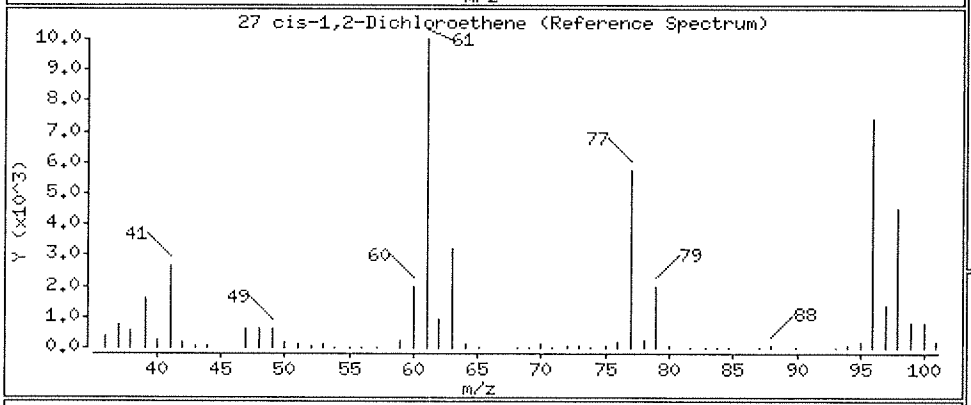
Concentration: 4.51 ug/l

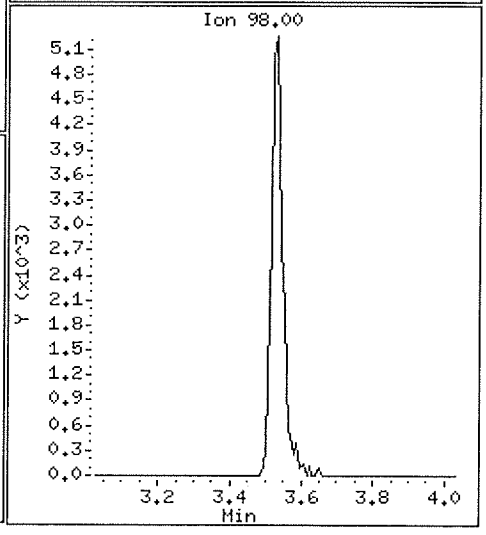


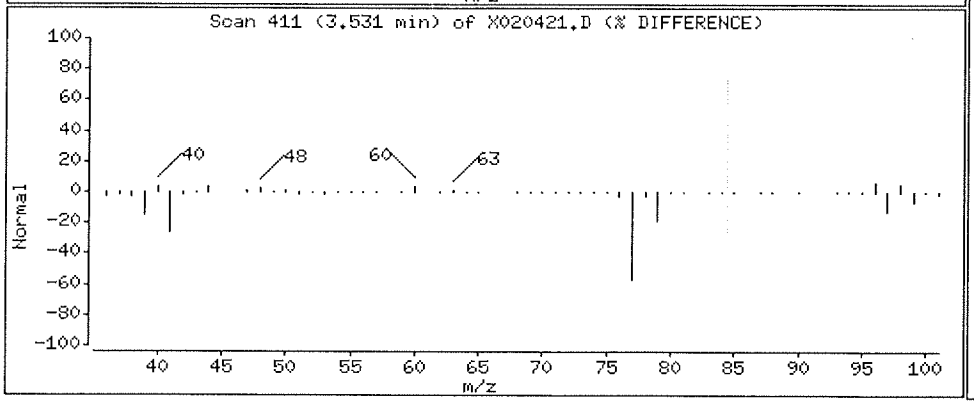












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020421.D Page 5

Date : 04-FEB-2021 22:32

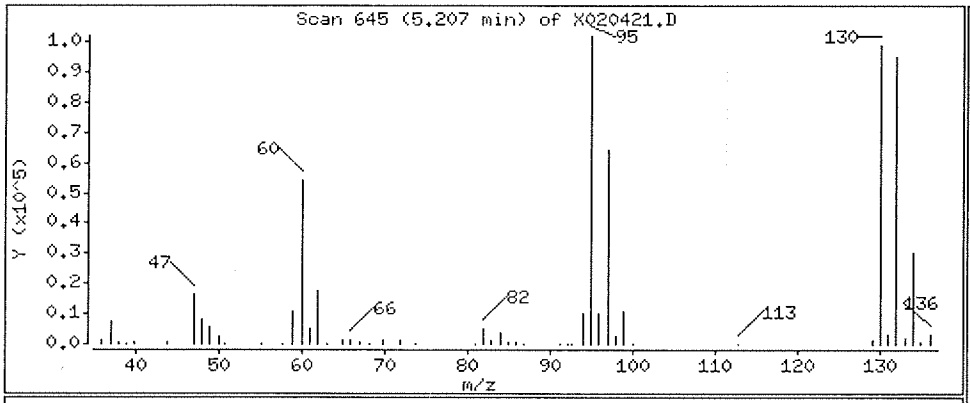
Client ID: HS21011150-02 Instrument: voa6.i

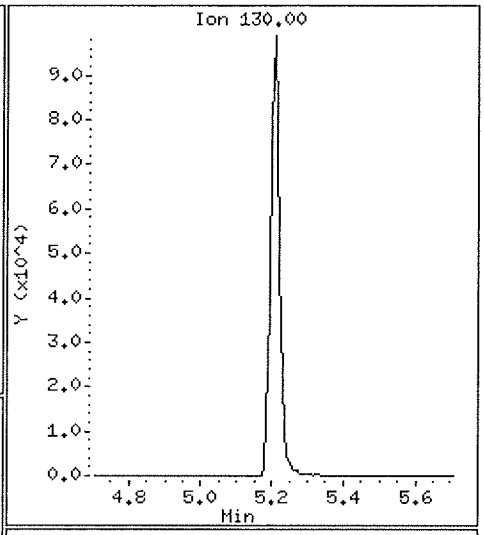
Sample Info: HS21011150-02;HS21011150-02;;;

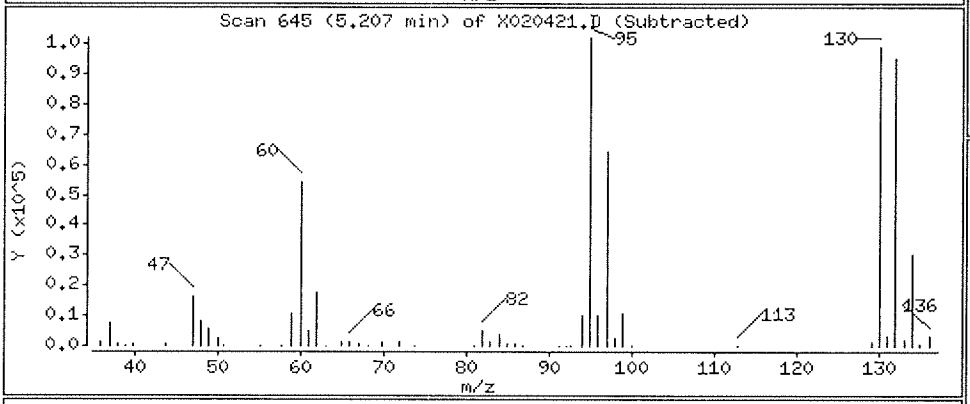
Purge Volume: 5.0 Operator: PC

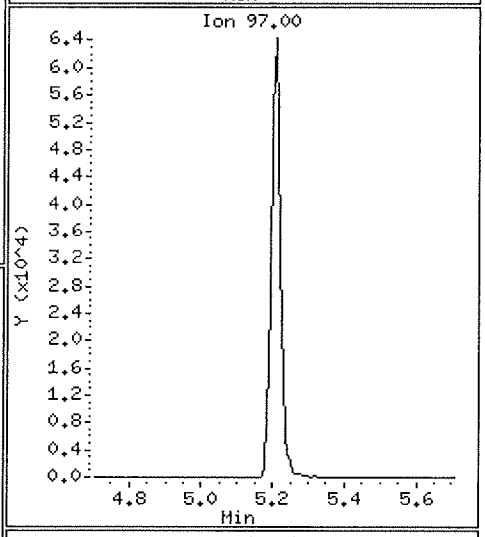
Column phase: DB624 Column diameter: 0.18

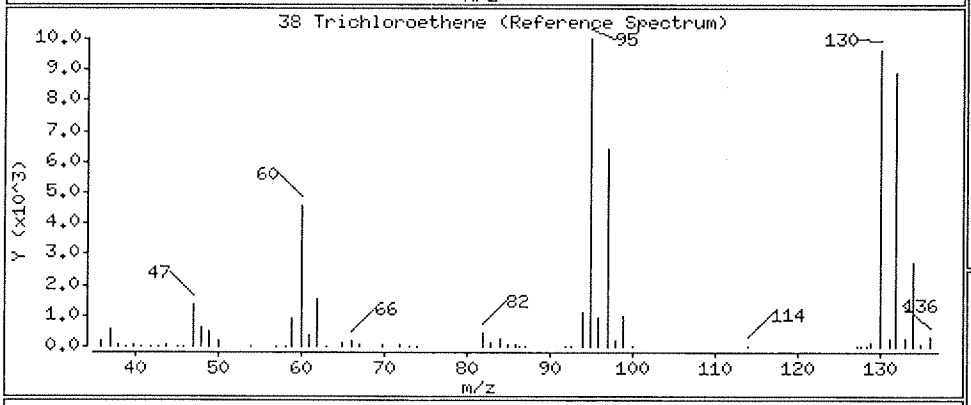
38 Trichloroethene Concentration: 45.51 ug/l

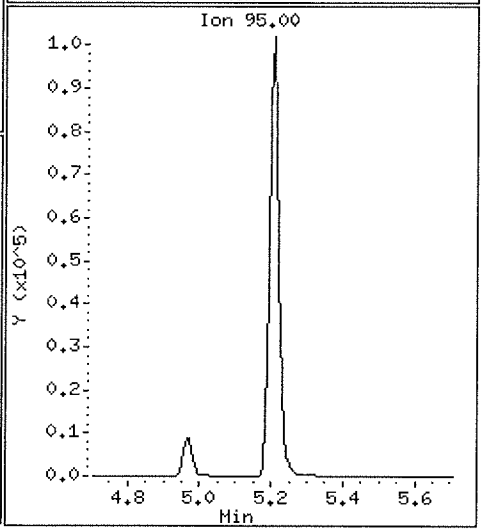


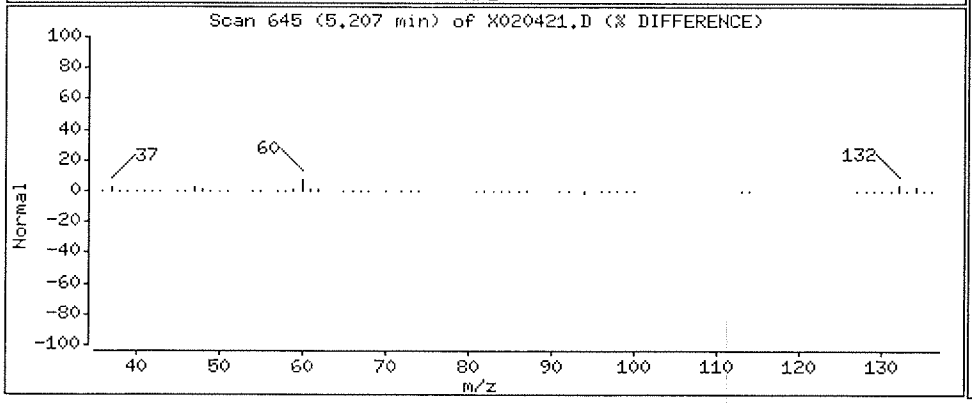












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020422.D
Lab Smp Id: HS21011150-05 Client Smp ID: HS21011150-05
Inj Date : 04-FEB-2021 22:53
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-05;HS21011150-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

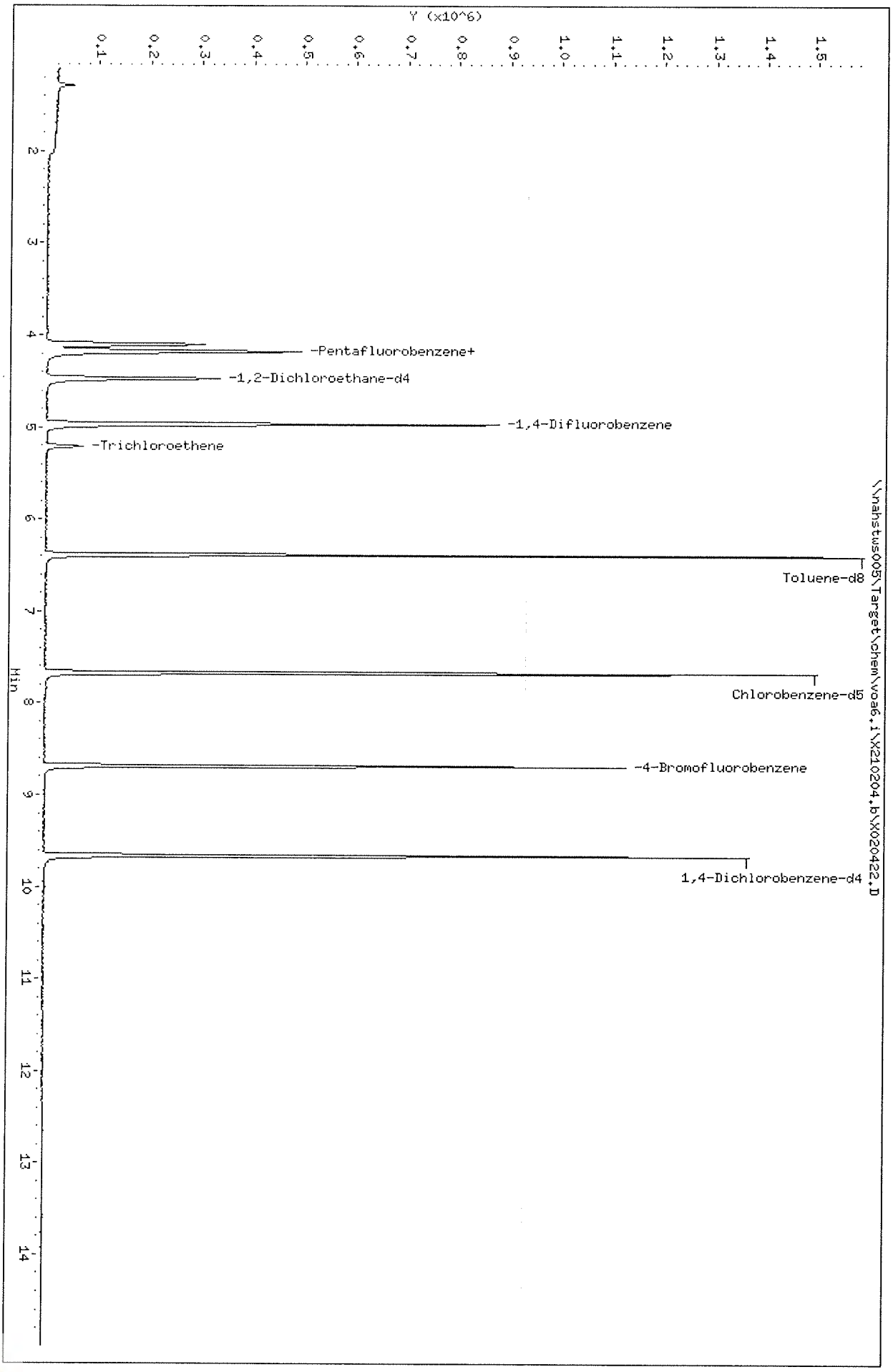
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	359105	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	704674	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	699720	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	296140	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	215237	49.9480	49.94
$	35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	262229	58.8302	58.83(M)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	935177	51.0878	51.08
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	316791	51.1591	51.15
	38 Trichloroethene	130	5.207	5.206	(1.049)	22377	4.75187	4.75(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6,i\X210204,b\X020422.D
Date : 04-FEB-2021 22:53
Client ID: HS21011150-05
Sample Info: HS21011150-05;HS21011150-05;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020422.D

Date : 04-FEB-2021 22:53

Client ID: HS21011150-05

Instrument: voa6.i

Sample Info: HS21011150-05;HS21011150-05;;;

Purge Volume: 5.0

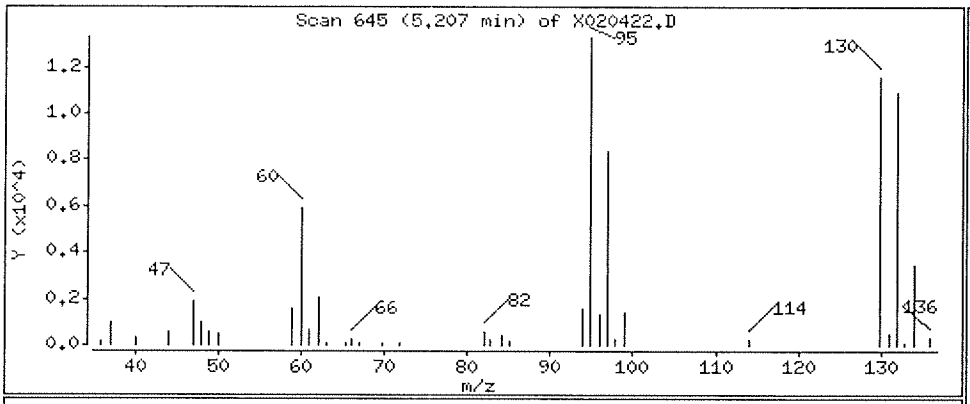
Operator: PC

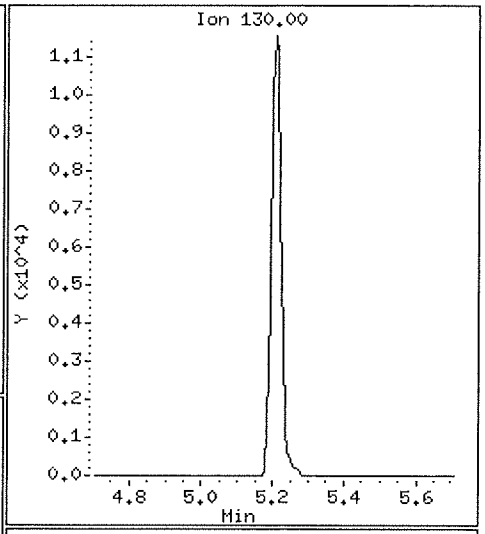
Column phase: DB624

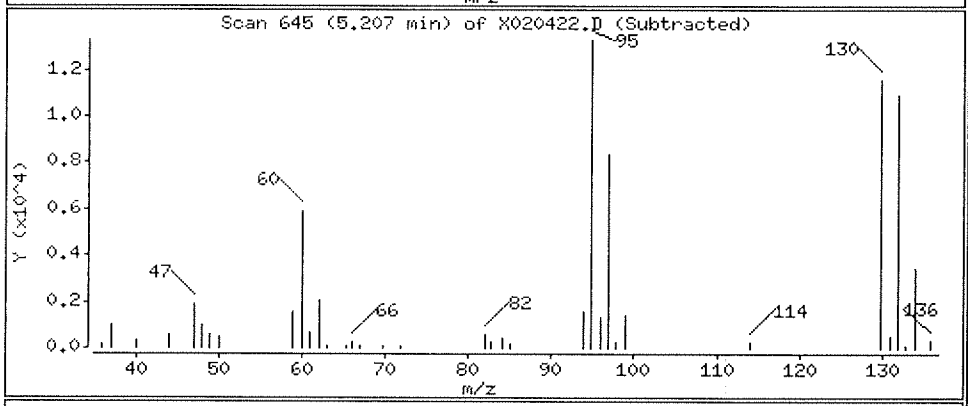
Column diameter: 0.18

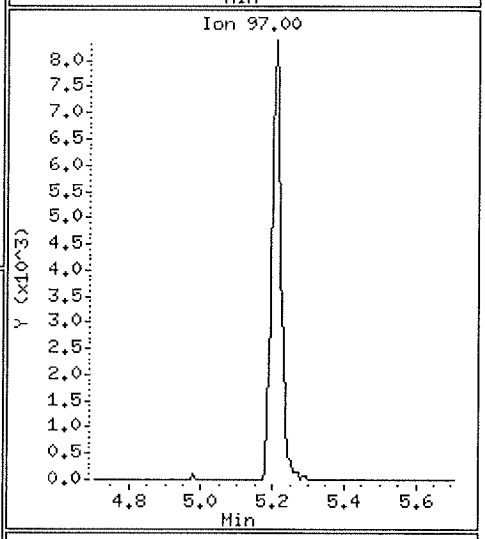
38 Trichloroethene

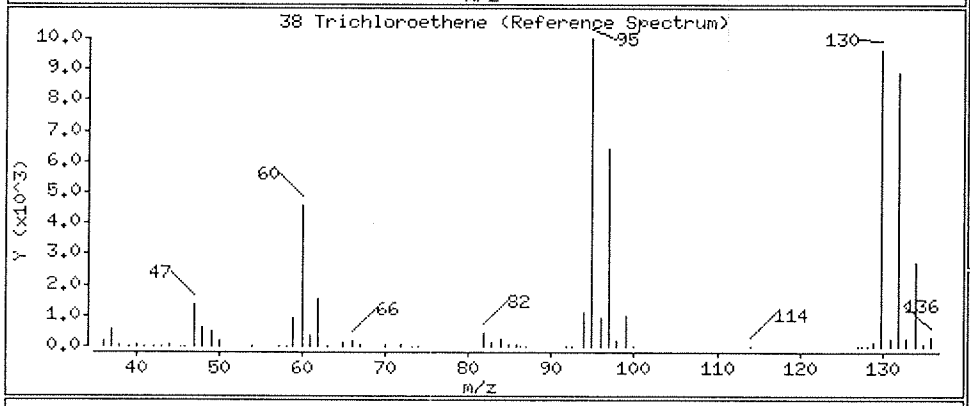
Concentration: 4.75 ug/l

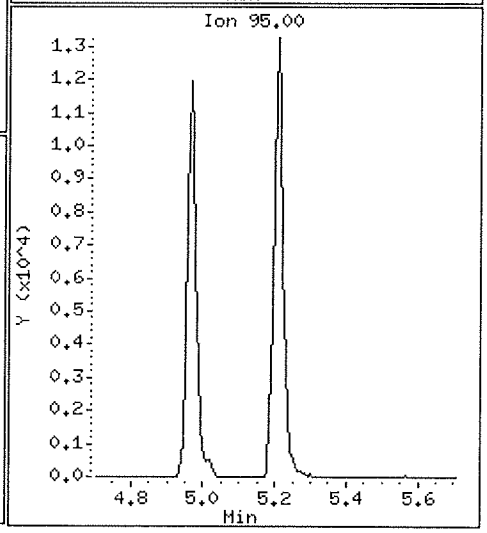


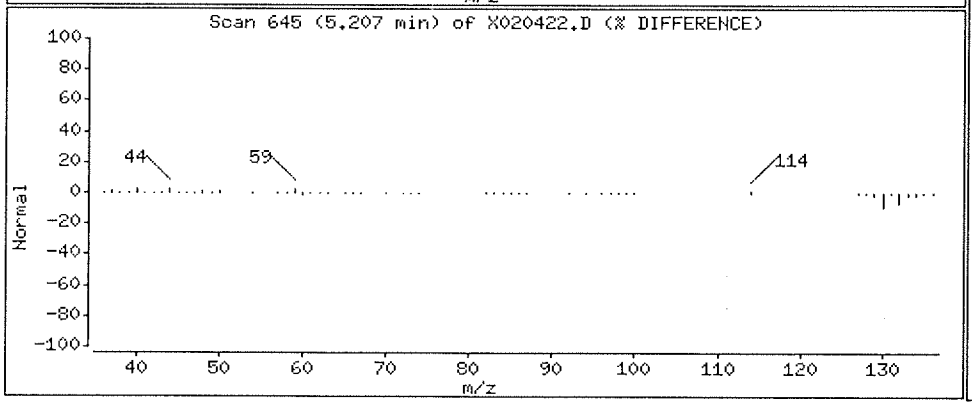






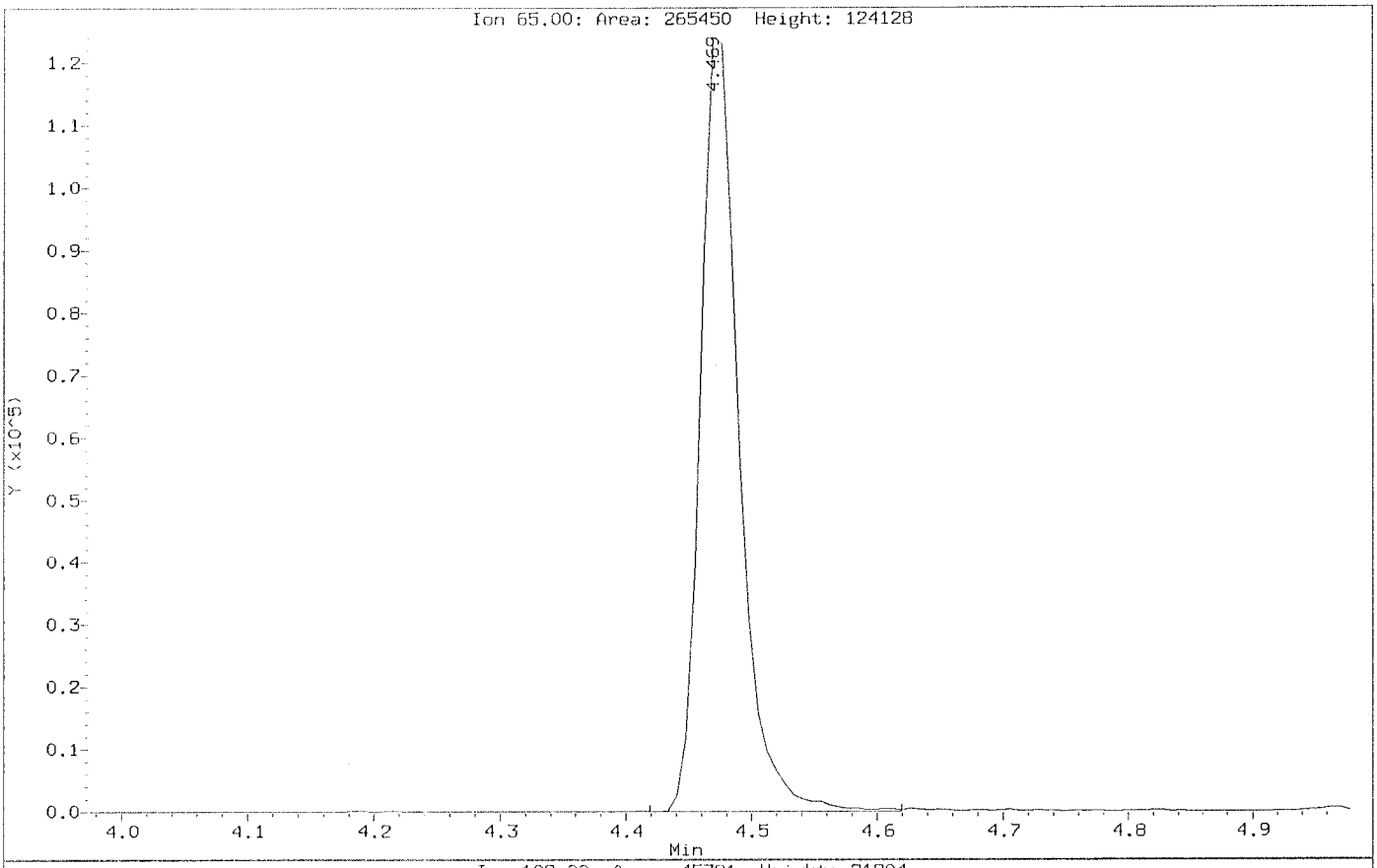


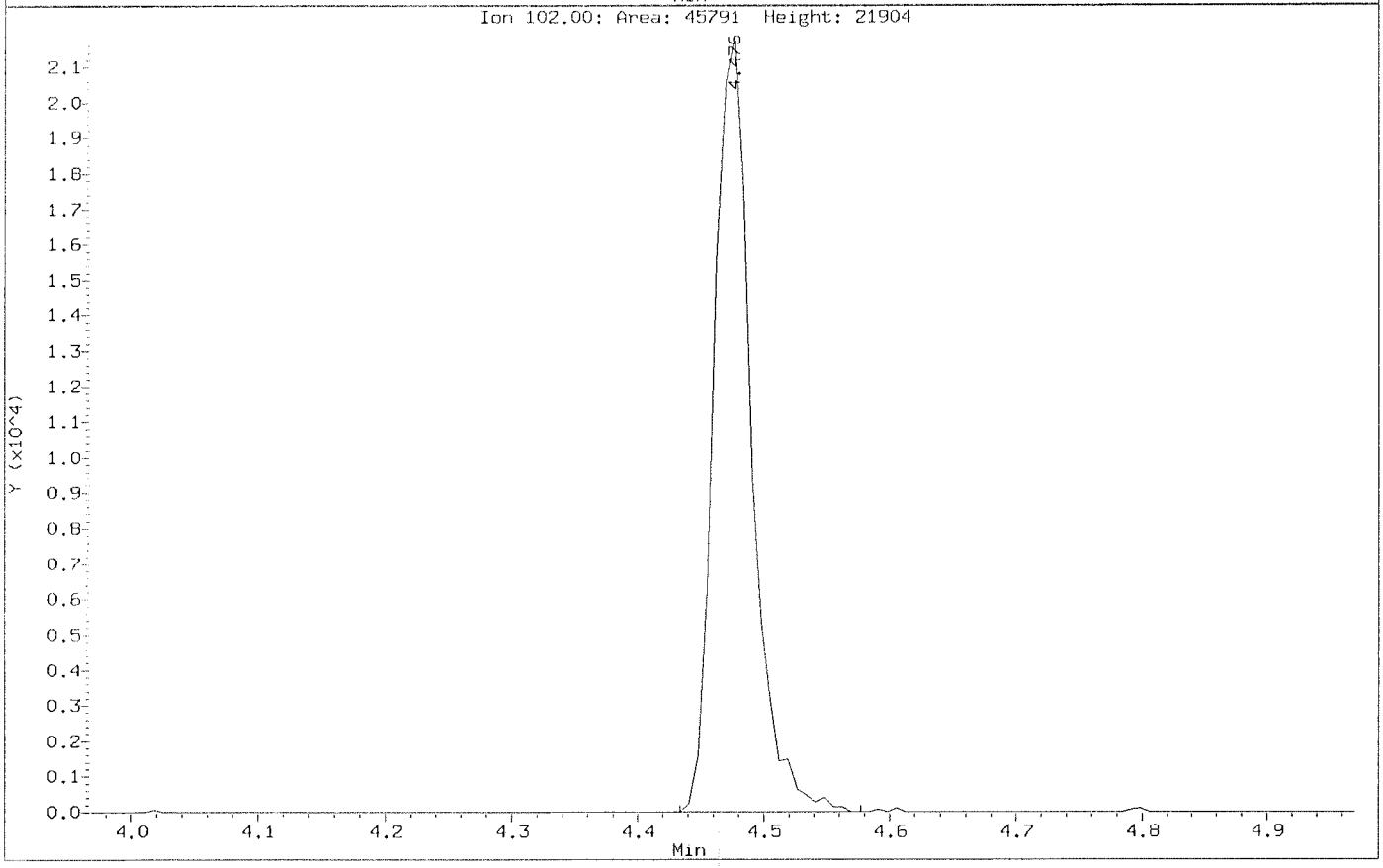




Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\Before\X020422.D
Injection Date: 04-FEB-2021 22:53
Instrument: voa6.i
Client Sample ID: HS21011150-05

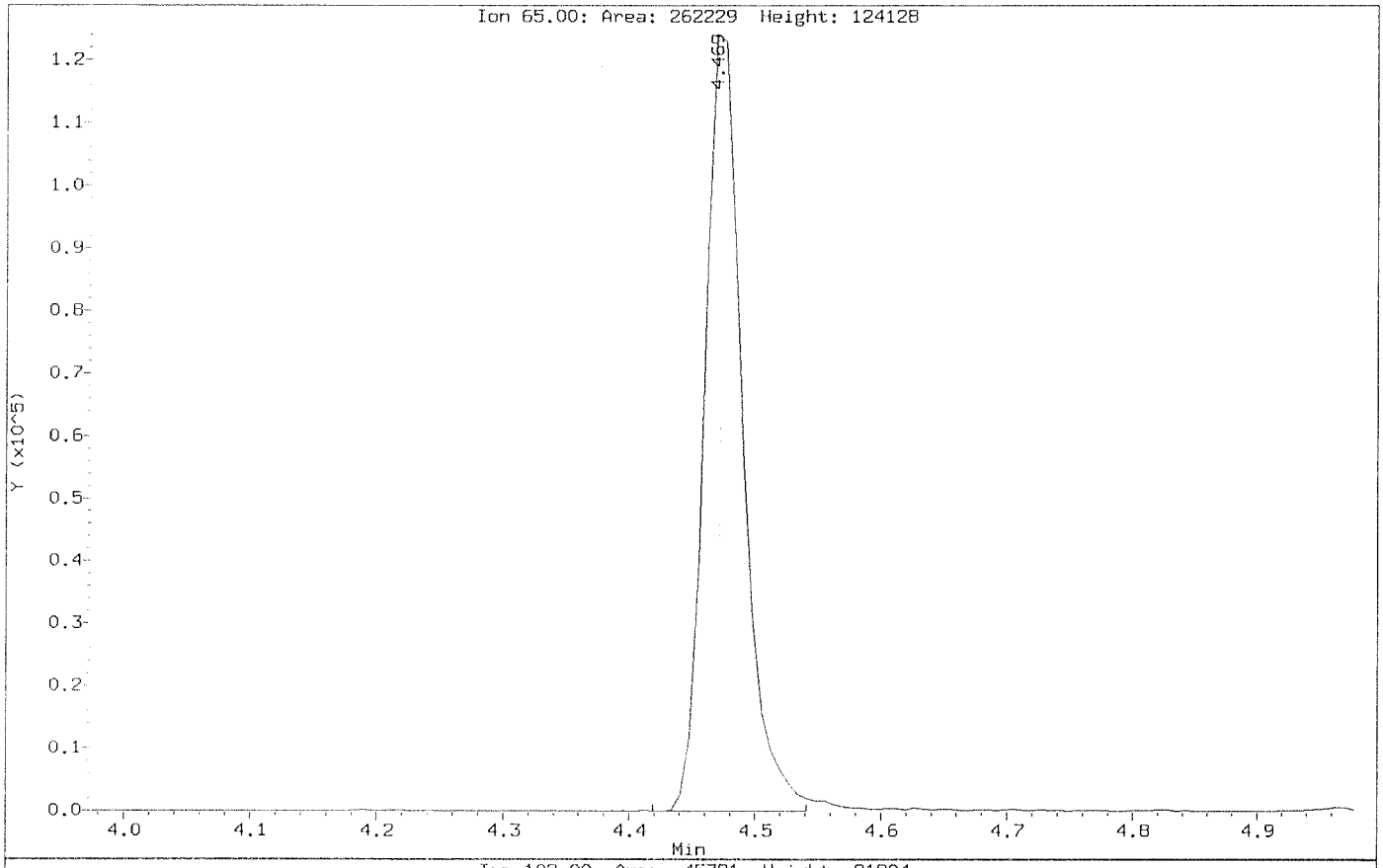
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

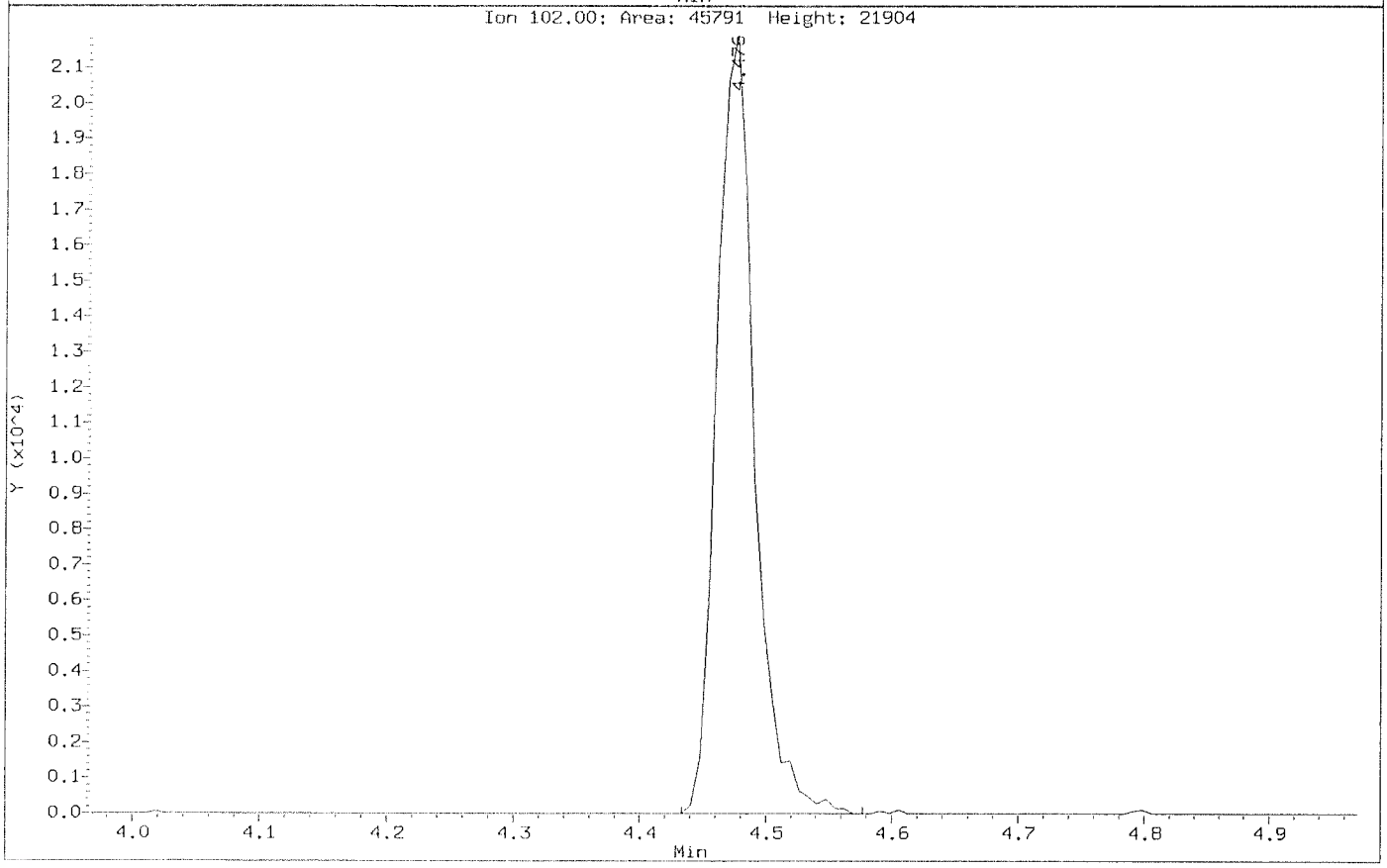




Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020422.D
Injection Date: 04-FEB-2021 22:53
Instrument: voa6.i
Client Sample ID: HS21011150-05

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D
Lab Smp Id: HS21011150-04 Client Smp ID: HS21011150-04
Inj Date : 04-FEB-2021 23:14
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-04;HS21011150-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

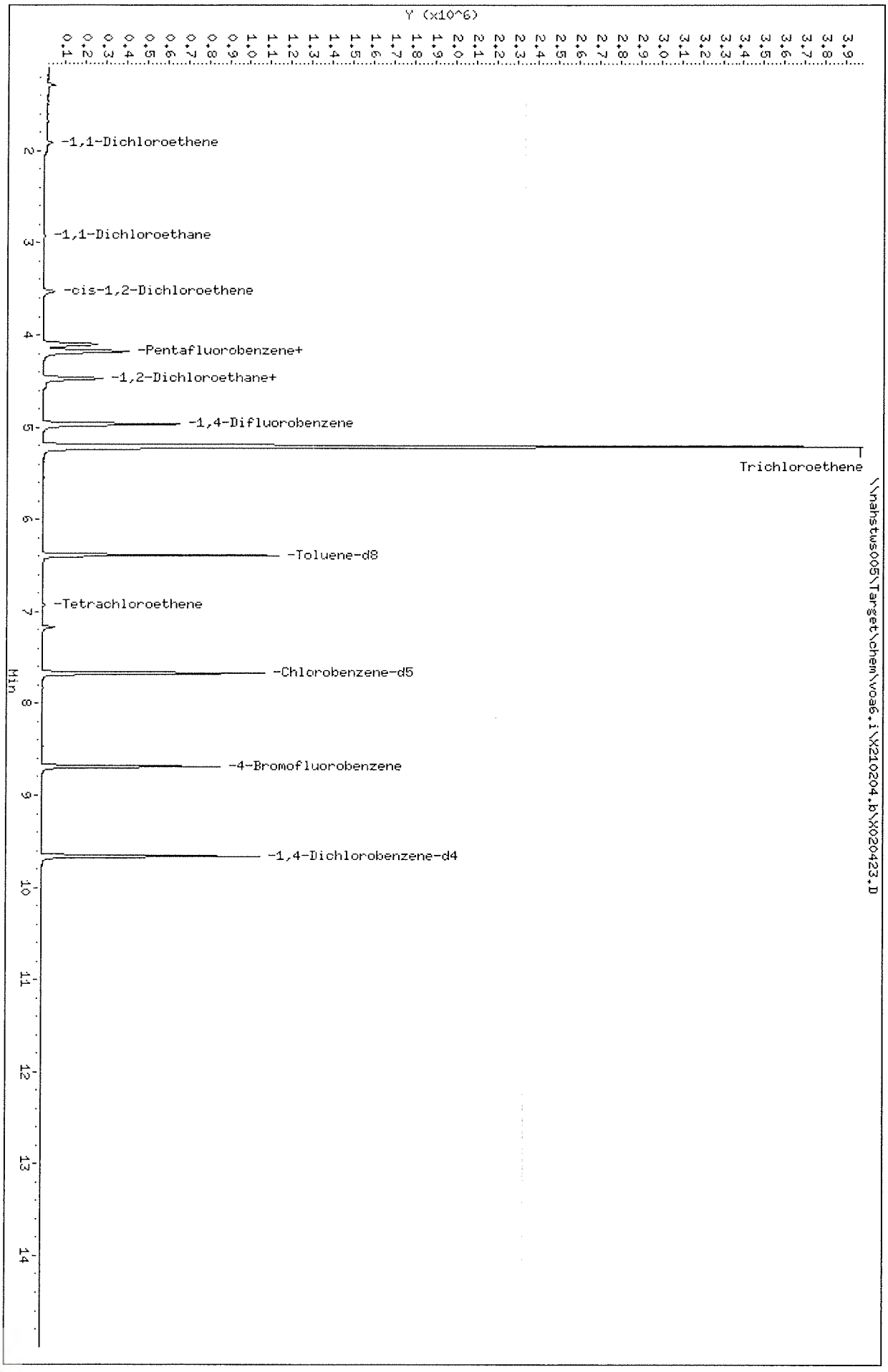
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	308631	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	528745	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	475816	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	205744	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.096	(0.979)	179934	48.5740	48.57
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	230764	60.2729	60.27
$	48 Toluene-d8	98	6.388	6.388	(0.833)	639532	51.3773	51.37
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	220954	52.5122	52.51
	11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	8251	2.11155	2.11(a)
	33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	11217	2.38571	2.38(a)
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	26567	6.72131	6.72
	56 Tetrachloroethene	164	6.933	6.926	(0.904)	2268	0.87369	0.87(a)
	38 Trichloroethene	130	5.207	5.206	(1.048)	1140008	322.636	322.63(A)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6,i\X210204,b\X020423.D
Date : 04-FEB-2021 23:14
Client ID: HS21011150-04
Sample Info: HS21011150-04;HS21011150-04;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D

Date : 04-FEB-2021 23:14

Client ID: HS21011150-04

Instrument: voa6.i

Sample Info: HS21011150-04;HS21011150-04;;;

Purge Volume: 5.0

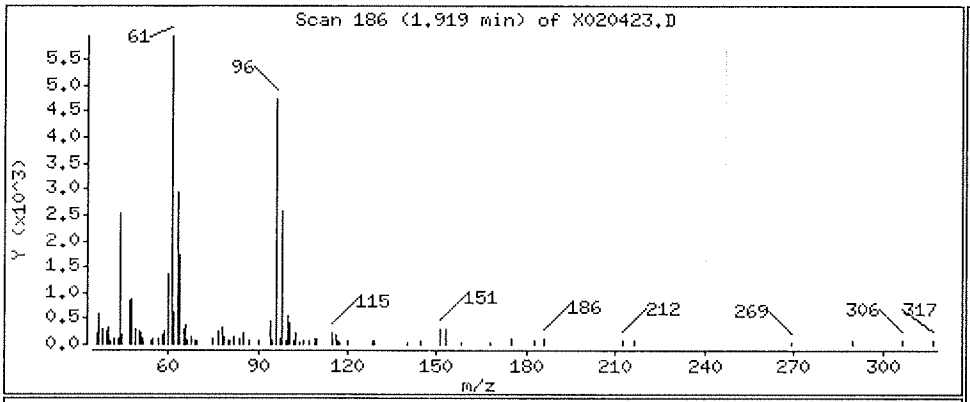
Operator: PC

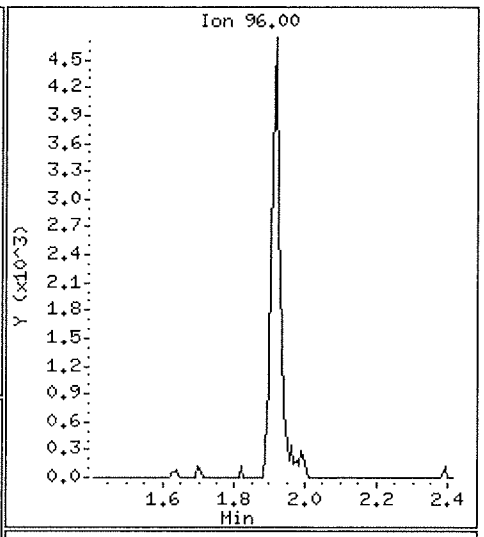
Column phase: DB624

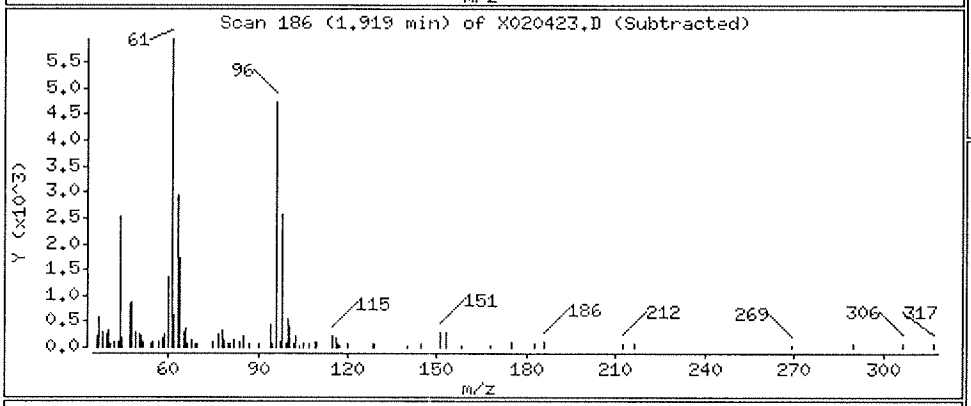
Column diameter: 0.18

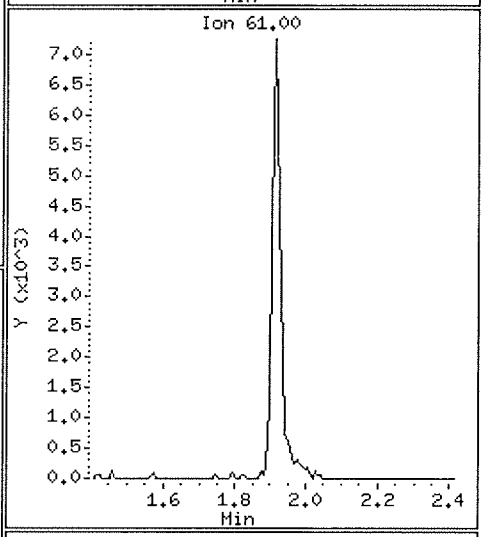
11 1,1-Dichloroethene

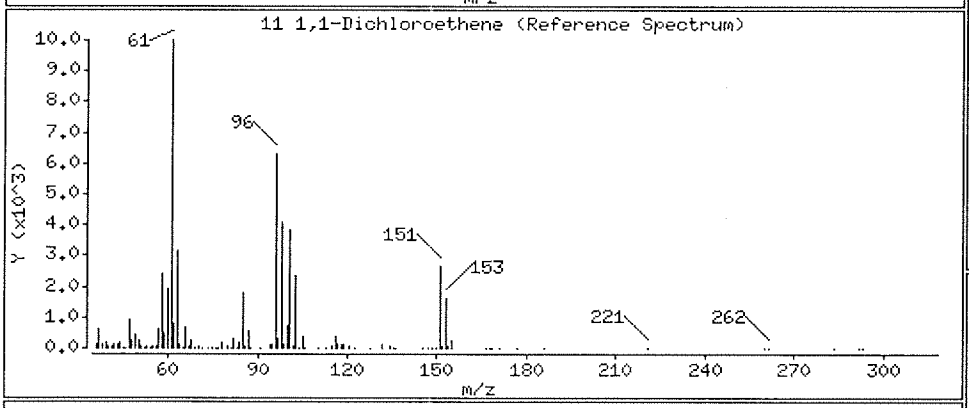
Concentration: 2.11 ug/l

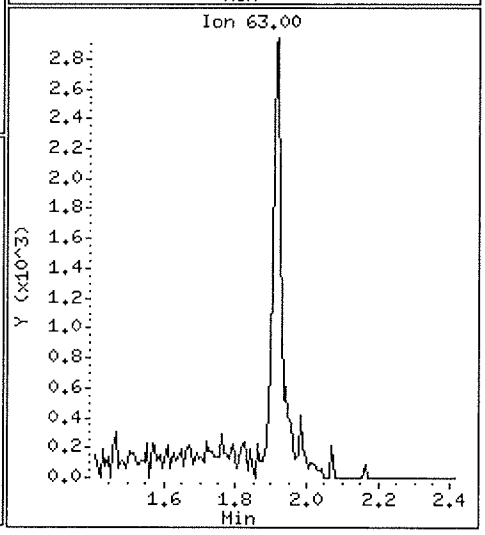


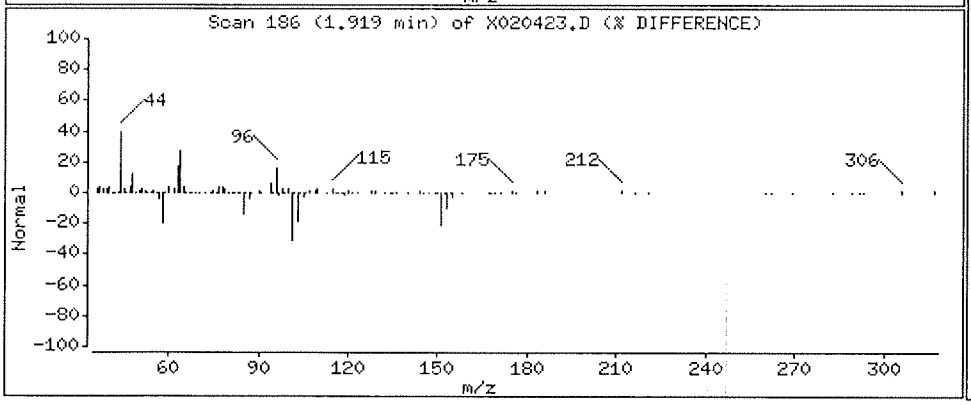












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D

Date : 04-FEB-2021 23:14

Client ID: HS21011150-04

Instrument: voa6.i

Sample Info: HS21011150-04;HS21011150-04;;;

Purge Volume: 5.0

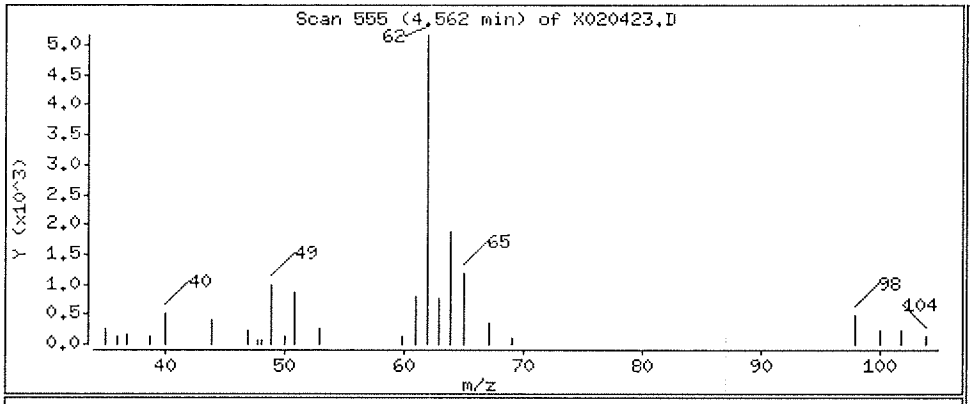
Operator: PC

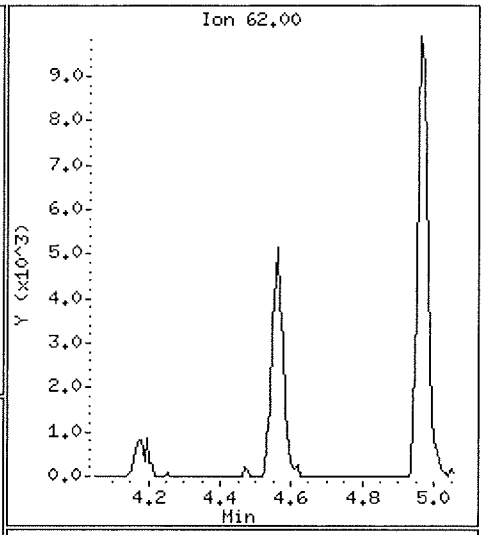
Column phase: DB624

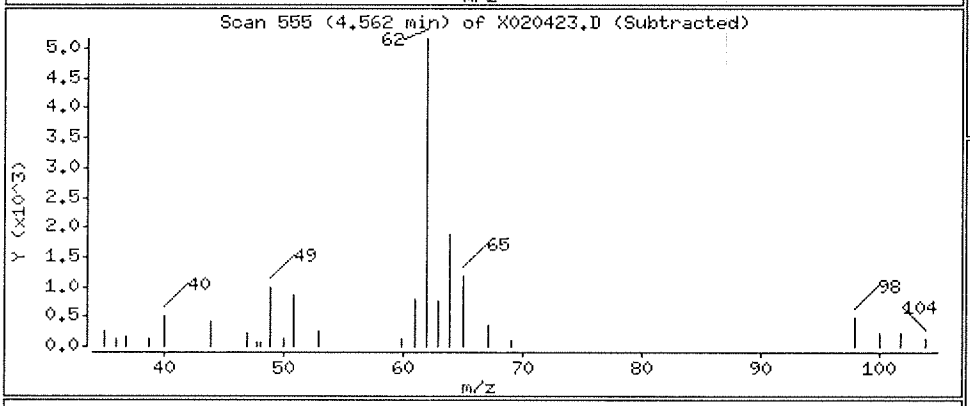
Column diameter: 0.18

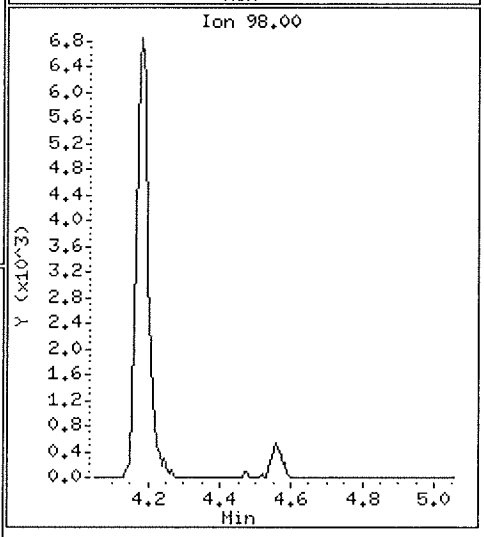
33 1,2-Dichloroethane

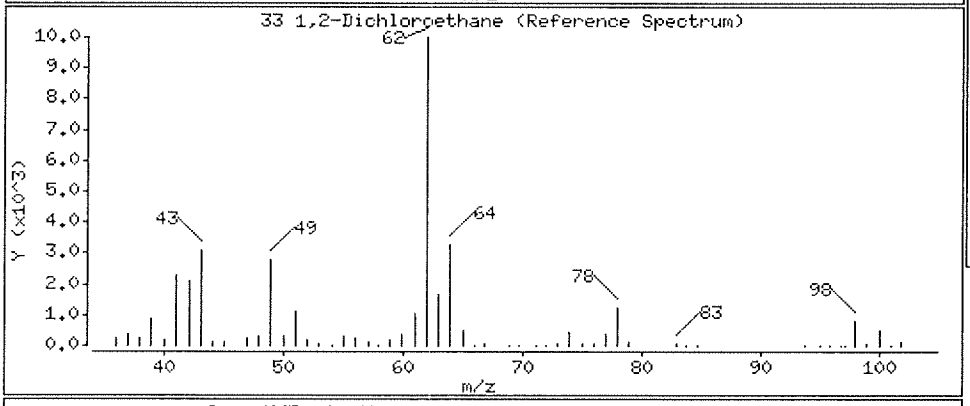
Concentration: 2.38 ug/l

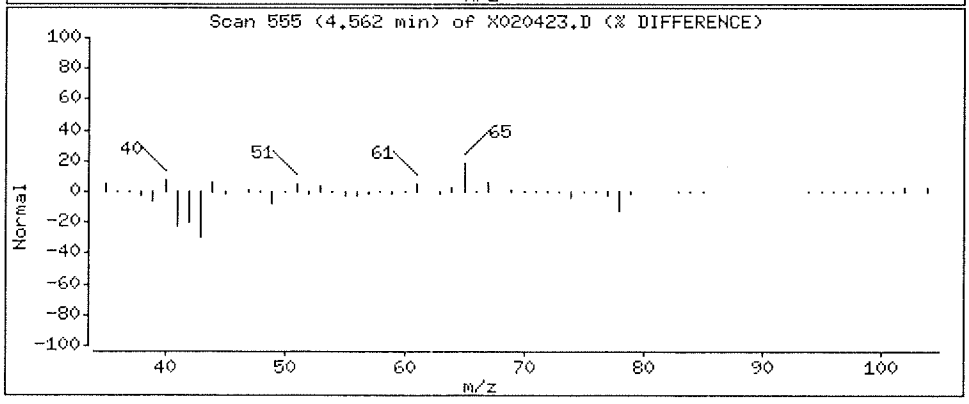












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D Page 5

Date : 04-FEB-2021 23:14

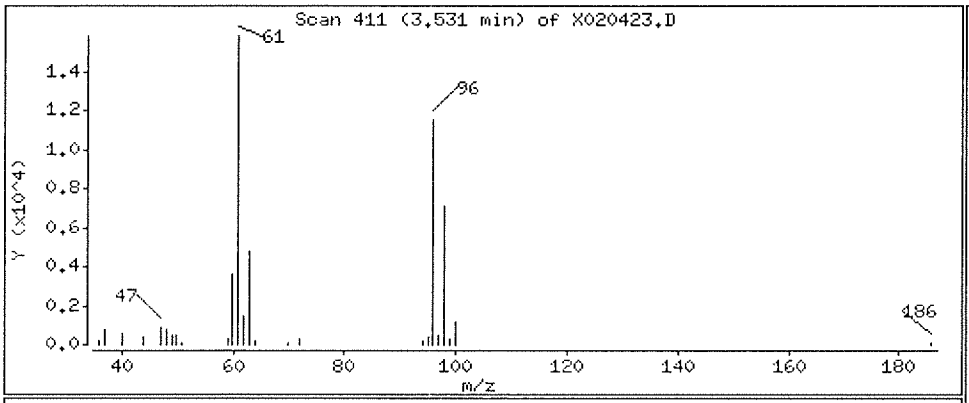
Client ID: HS21011150-04 Instrument: voa6.i

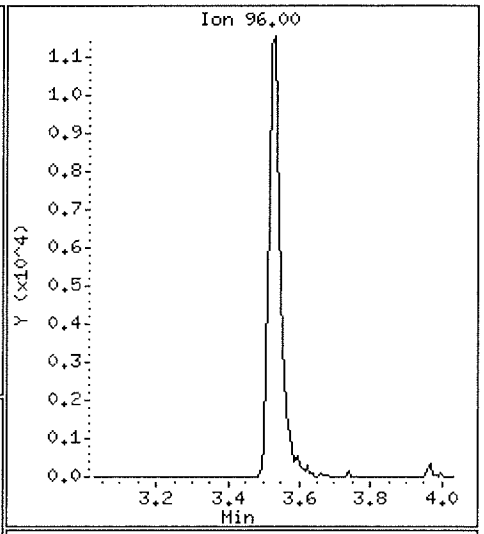
Sample Info: HS21011150-04;HS21011150-04;;;

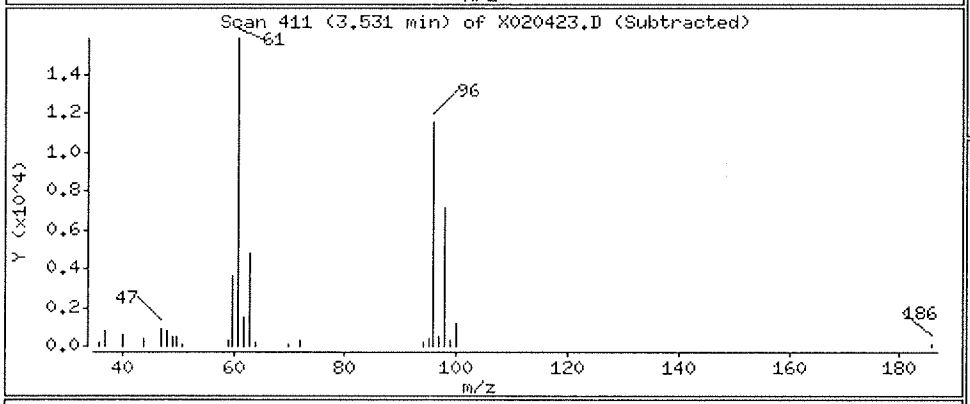
Purge Volume: 5.0 Operator: PC

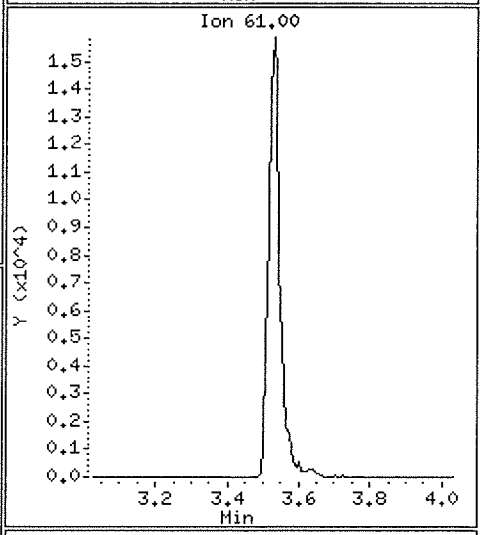
Column phase: DB624 Column diameter: 0.18

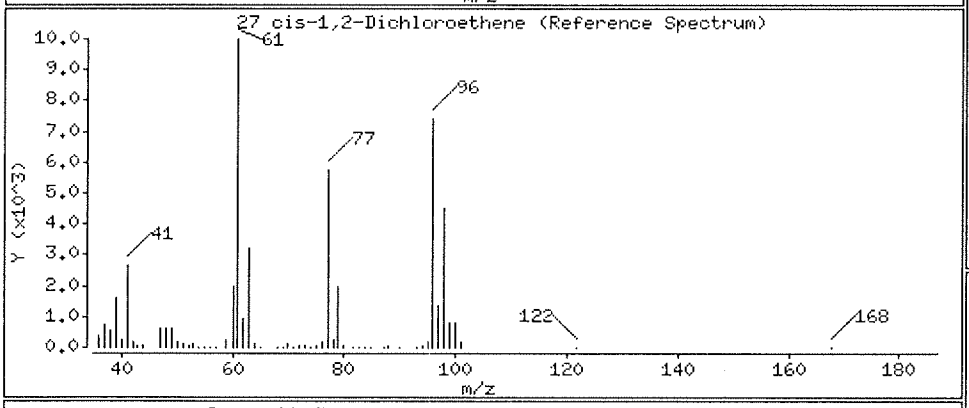
27 cis-1,2-Dichloroethene Concentration: 6.72 ug/l

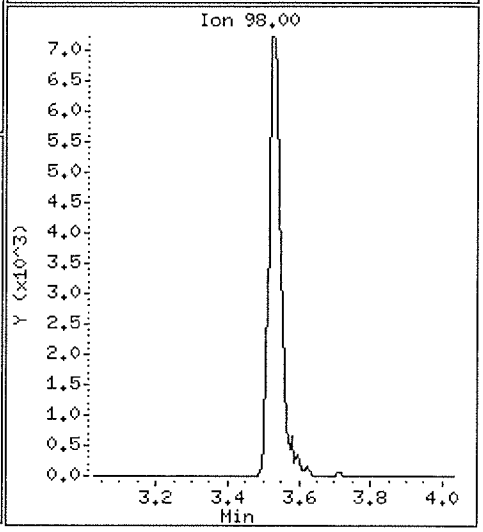


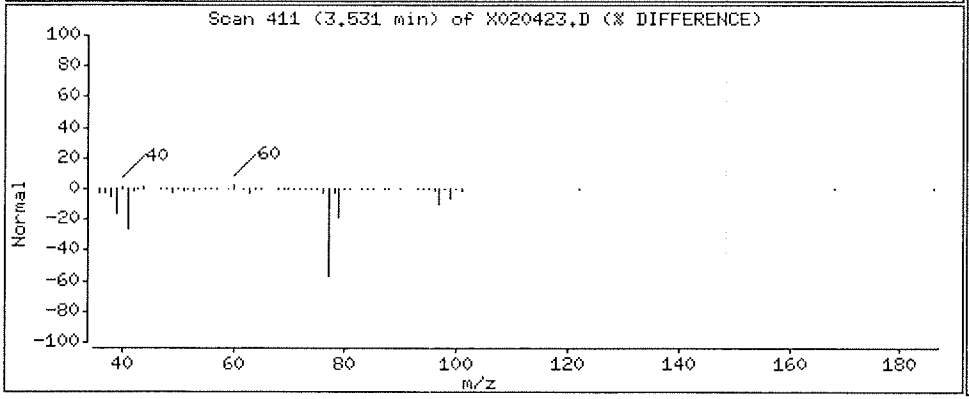












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D Page 6

Date : 04-FEB-2021 23:14

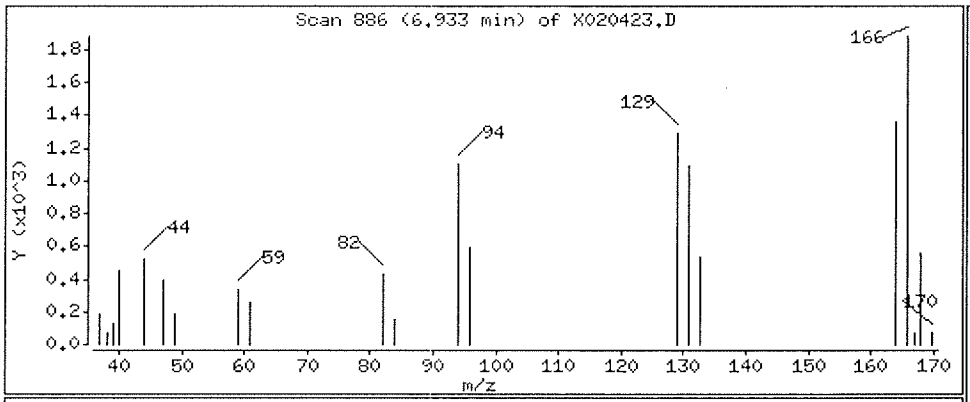
Client ID: HS21011150-04 Instrument: voa6.i

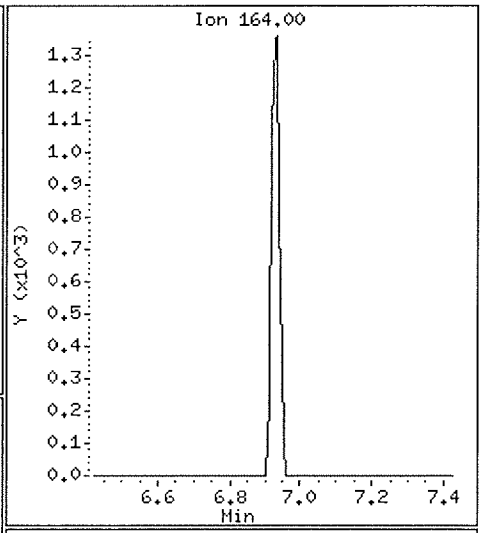
Sample Info: HS21011150-04;HS21011150-04;;;

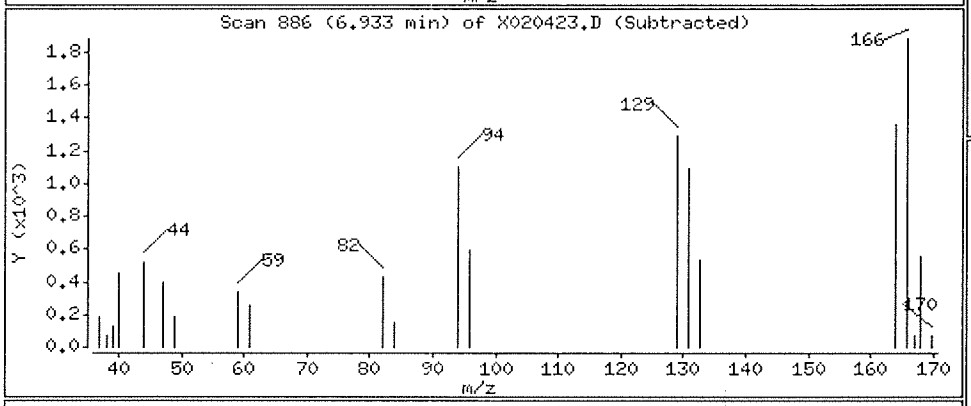
Purge Volume: 5.0 Operator: PC

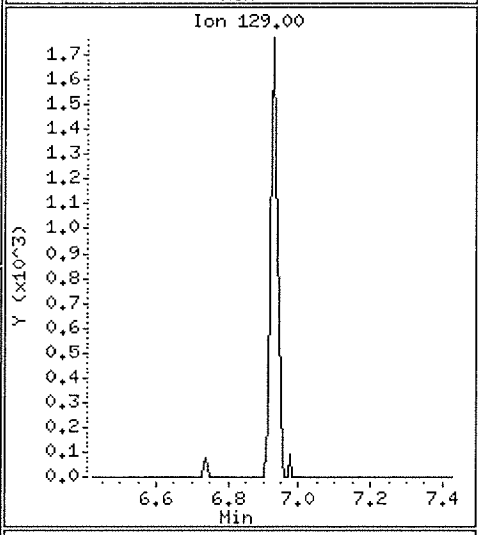
Column phase: DB624 Column diameter: 0.18

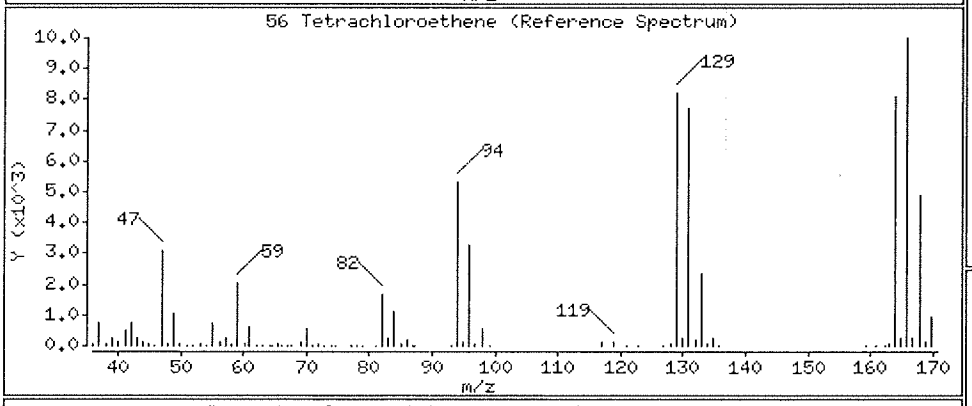
56 Tetrachloroethene Concentration: 0.87 ug/l

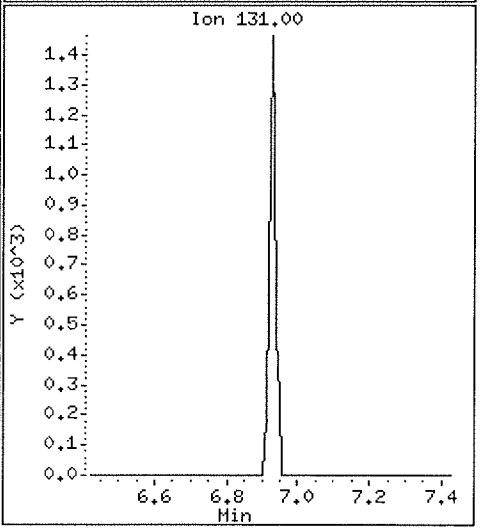


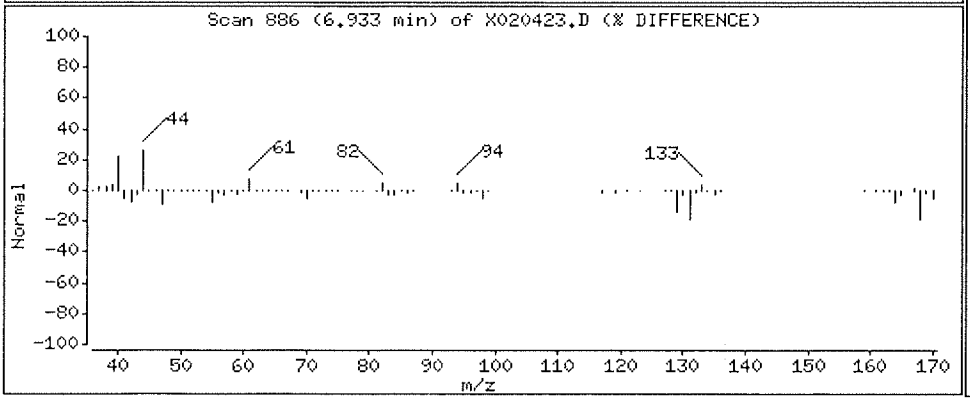












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020423.D

Date : 04-FEB-2021 23:14

Client ID: HS21011150-04

Instrument: voa6.i

Sample Info: HS21011150-04;HS21011150-04;;;

Purge Volume: 5.0

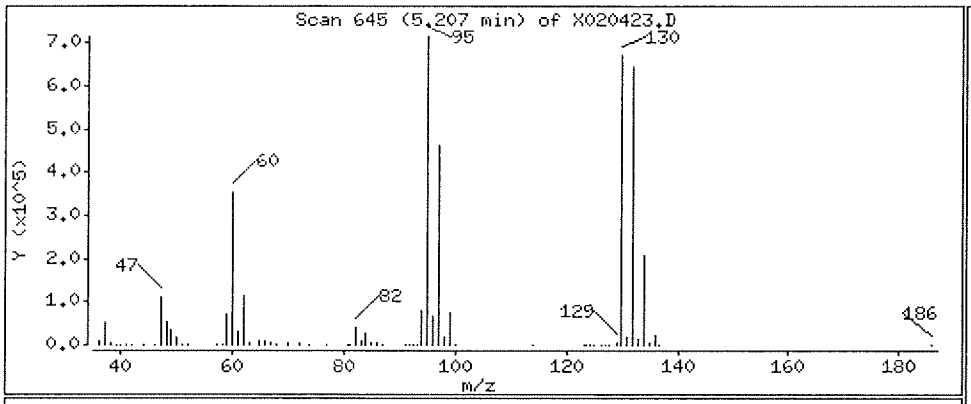
Operator: PC

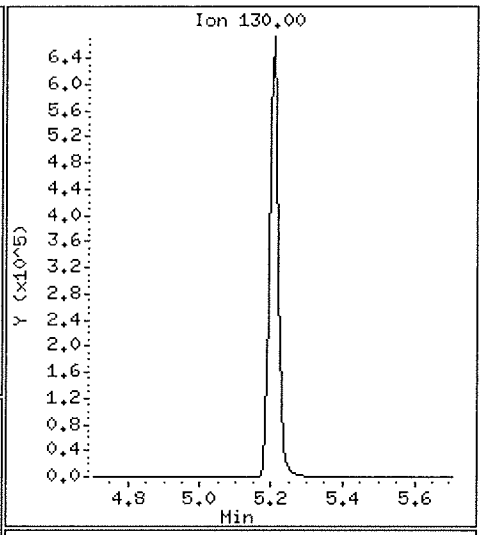
Column phase: DB624

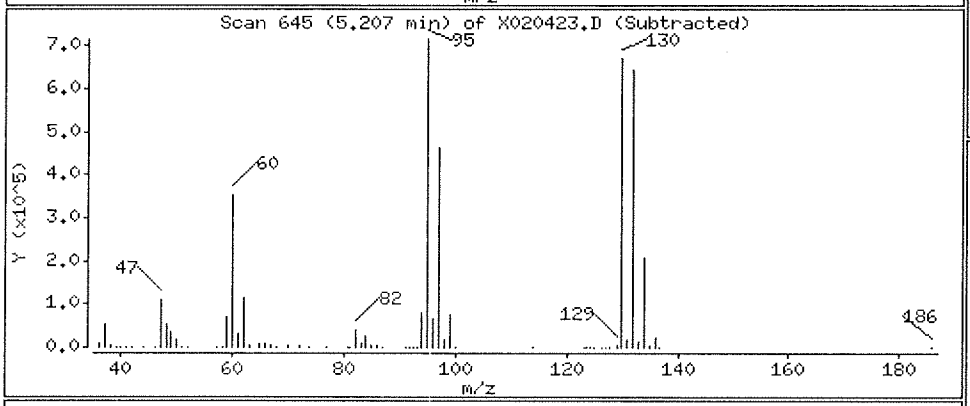
Column diameter: 0.18

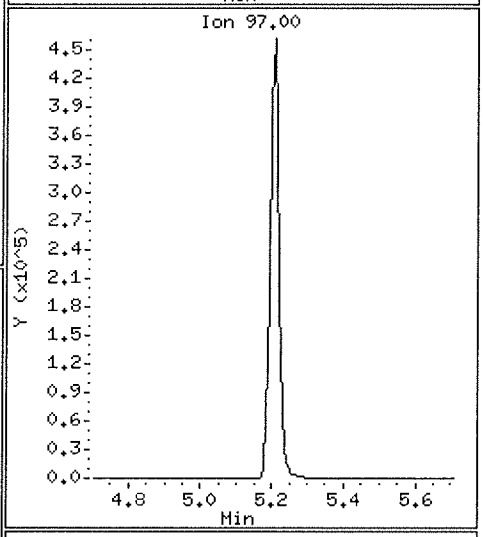
38 Trichloroethene

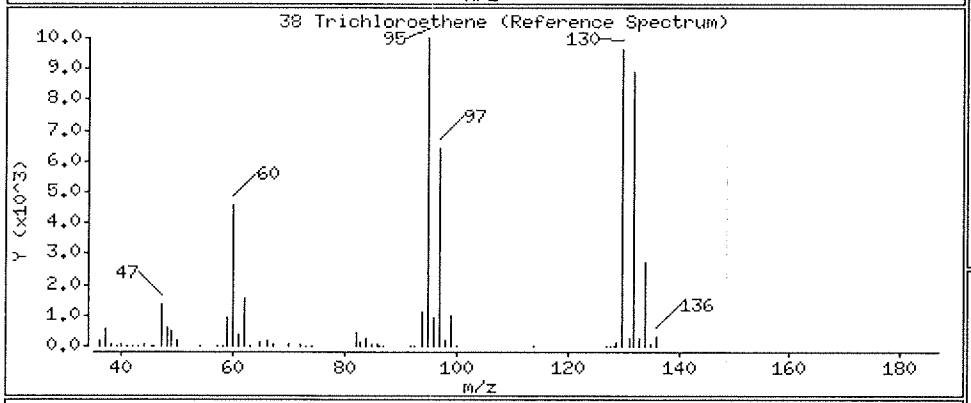
Concentration: 322.63 ug/l

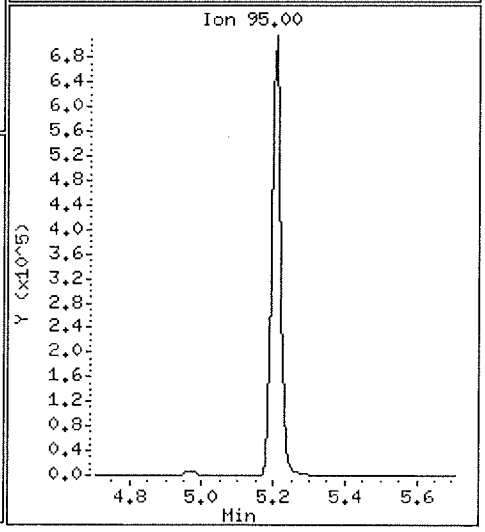


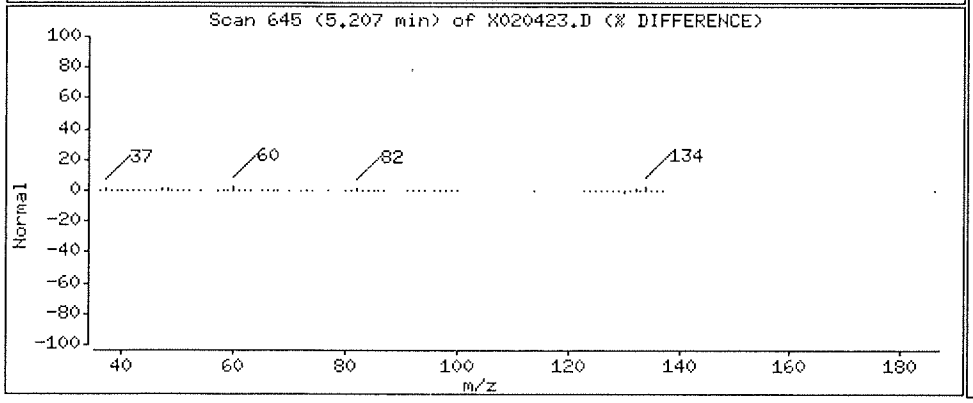












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D Page 1
Report Date: 02-Mar-2021 09:48

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D
Lab Smp Id: HS21011150-04 Client Smp ID: HS21011150-04
Inj Date : 04-FEB-2021 23:35
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-04;HS21011150-04;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 23
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

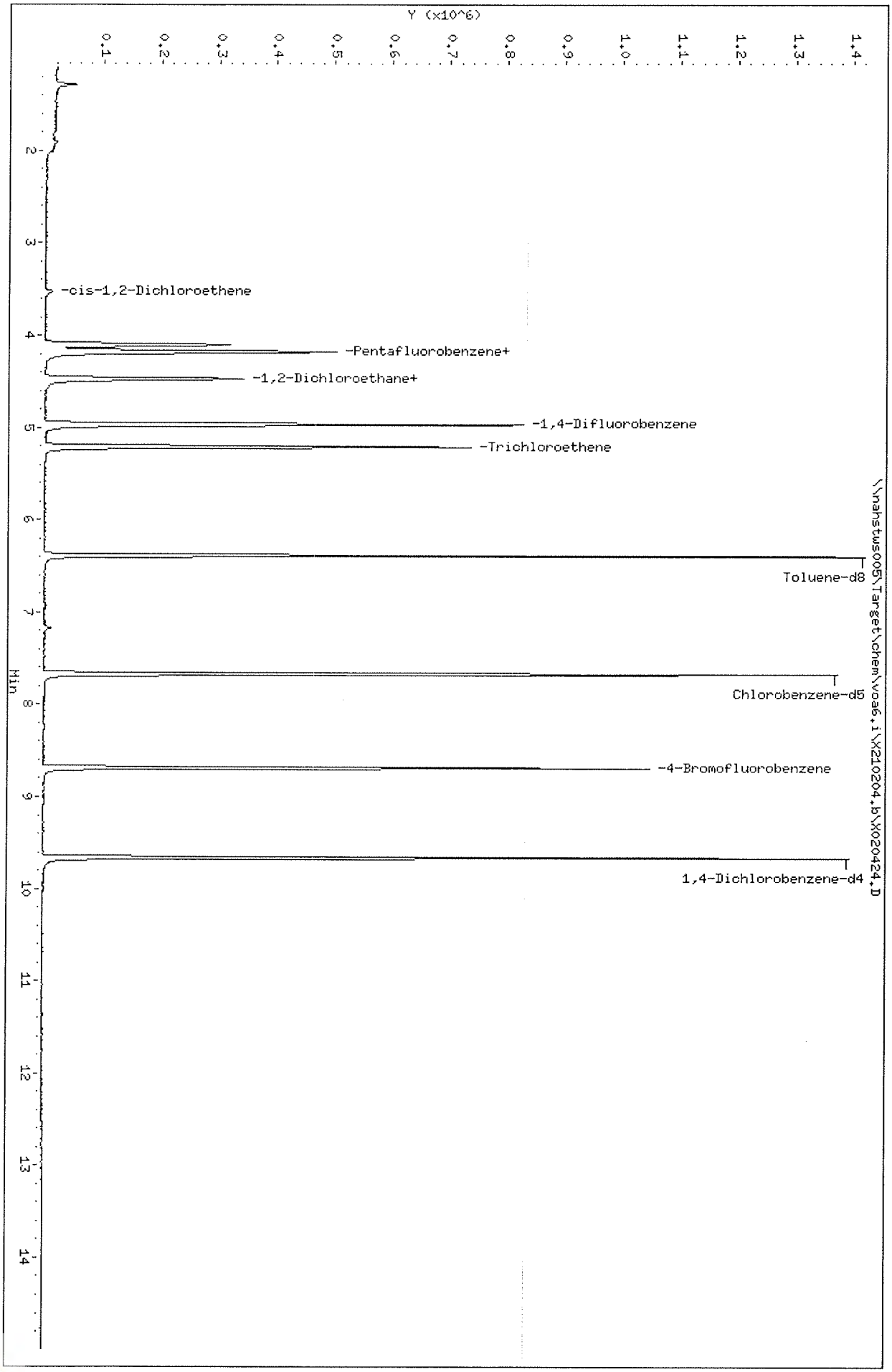
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	367494	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	649772	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	616932	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	283000	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.096	(0.981)	222141	50.3766	50.37
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.068)	268141	58.7821	58.78(M)
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	820633	50.8463	50.84
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	296761	54.4504	54.45
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	3043	0.52666	2.63(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5598	1.18941	5.94(a)
38 Trichloroethene	130	5.207	5.206	(1.049)	220408	50.7595	253.79

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D
Date : 04-FEB-2021 23:35
Client ID: HS21011150-04
Sample Info: HS21011150-04;HS21011150-04;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D

Date : 04-FEB-2021 23:35

Client ID: HS21011150-04

Instrument: voa6.i

Sample Info: HS21011150-04;HS21011150-04;;;

Purge Volume: 5.0

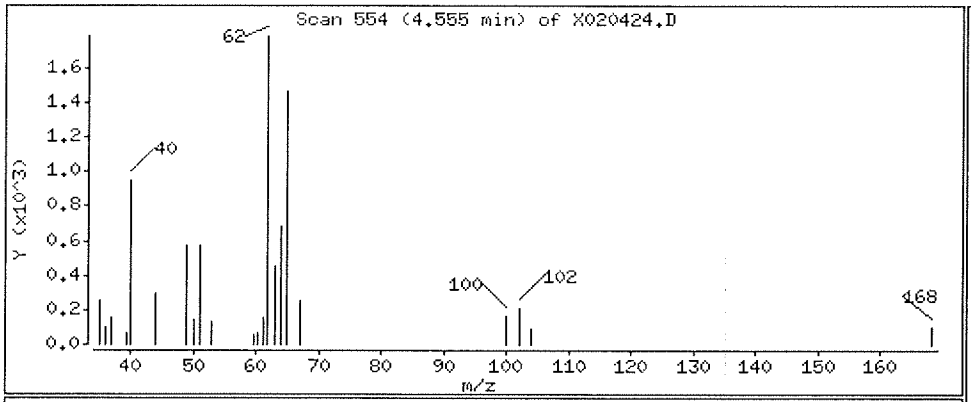
Operator: PC

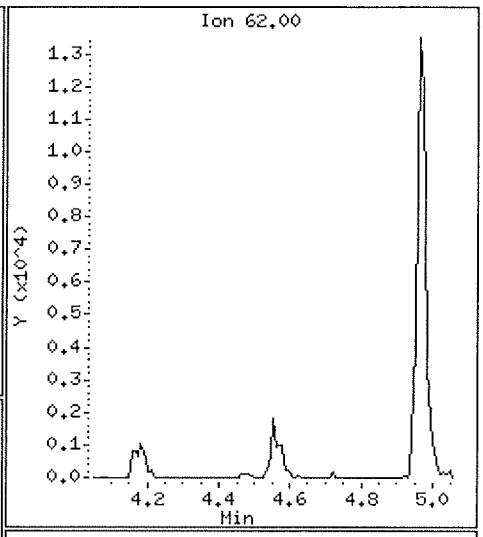
Column phase: DB624

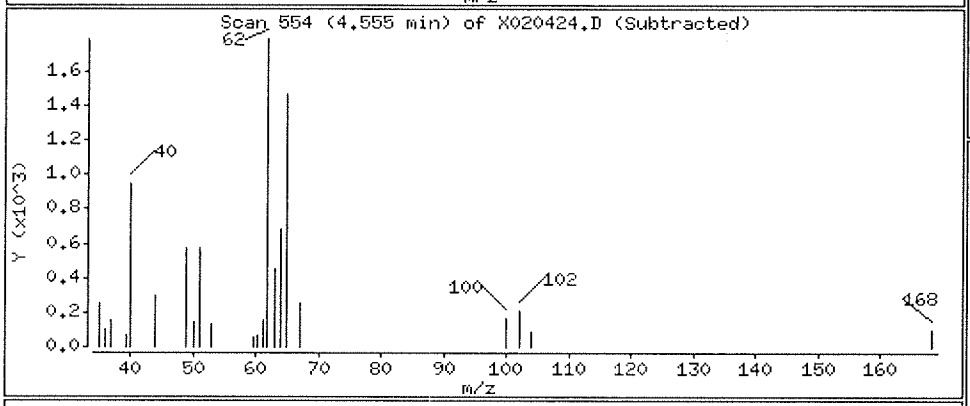
Column diameter: 0.18

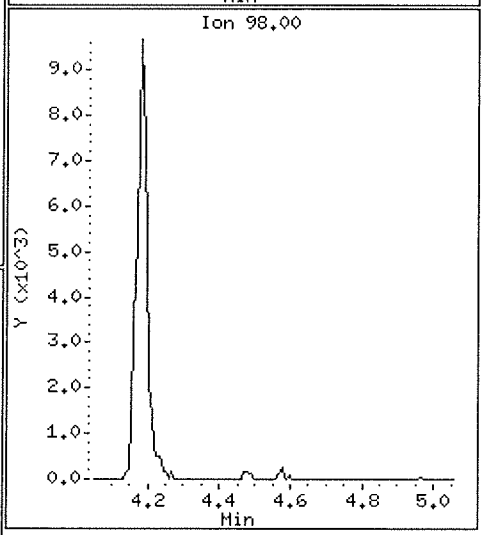
33 1,2-Dichloroethane

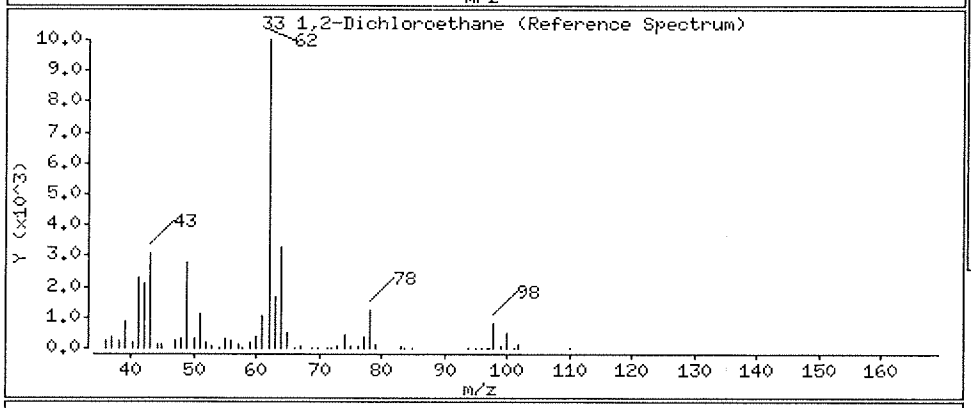
Concentration: 2.63 ug/l

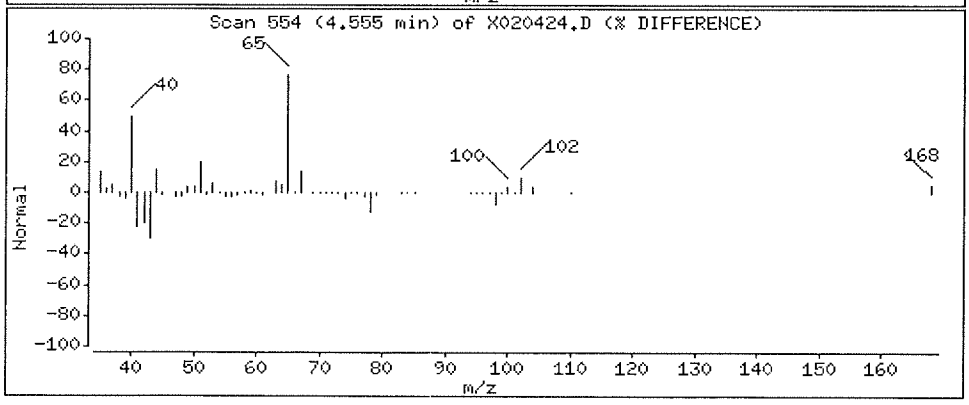












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D

Date : 04-FEB-2021 23:35

Client ID: HS21011150-04

Instrument: voa6.i

Sample Info: HS21011150-04;HS21011150-04;;;

Purge Volume: 5.0

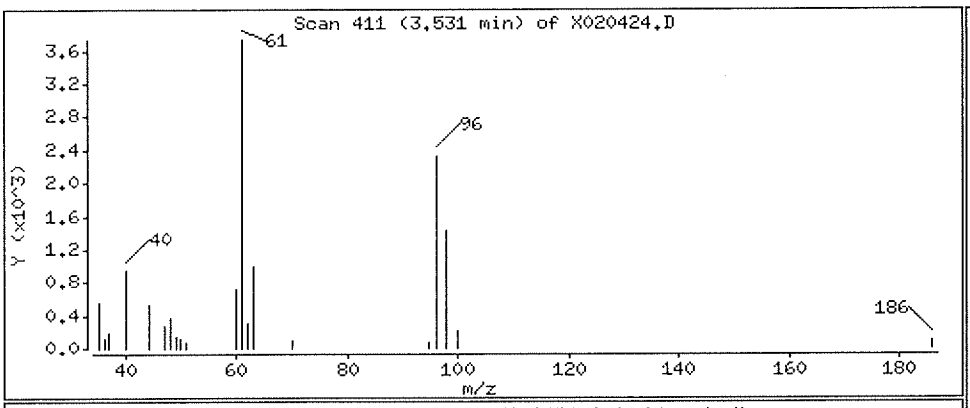
Operator: PC

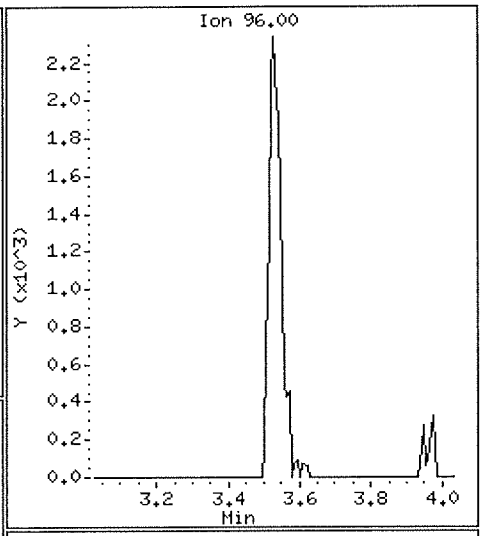
Column phase: DB624

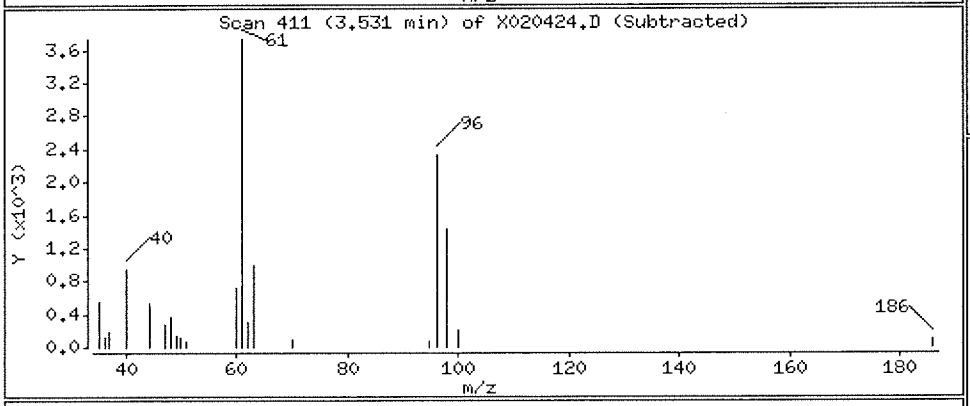
Column diameter: 0.18

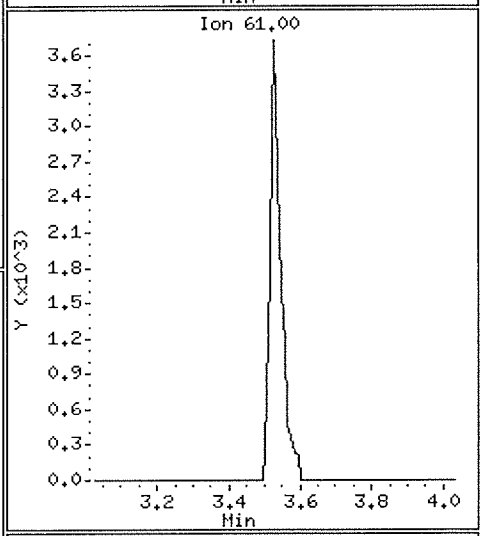
27 cis-1,2-Dichloroethene

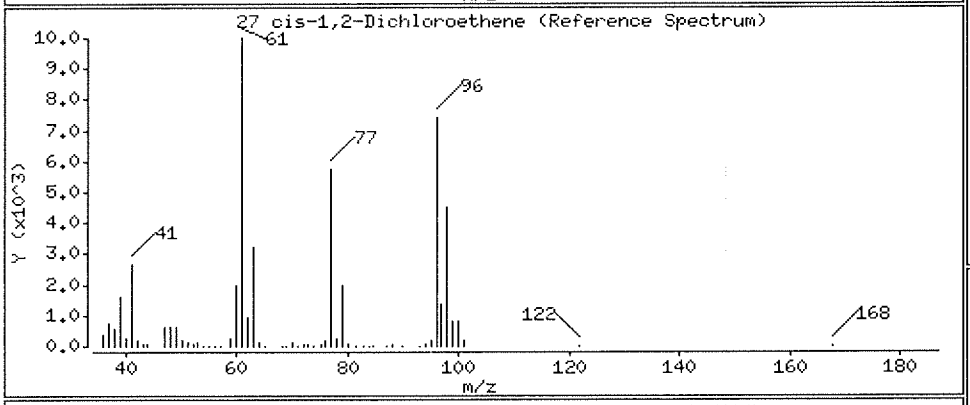
Concentration: 5.94 ug/l

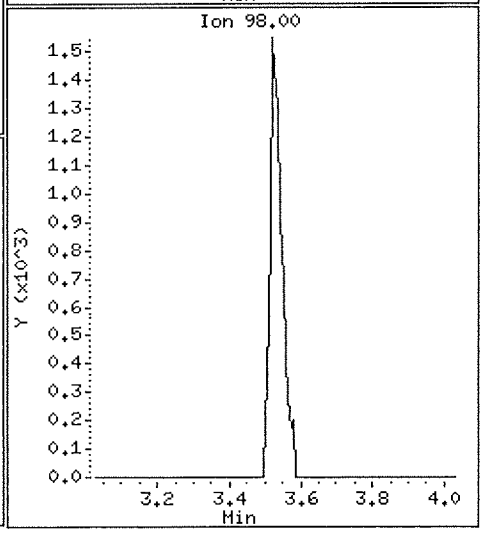


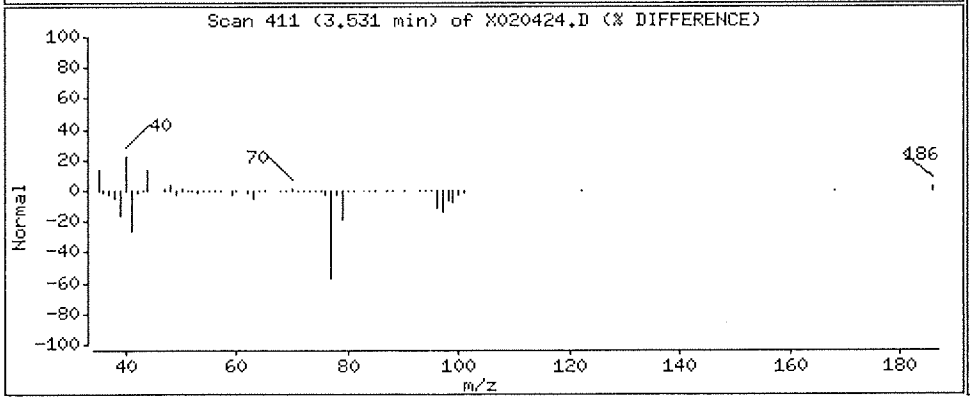












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D Page 5

Date : 04-FEB-2021 23:35

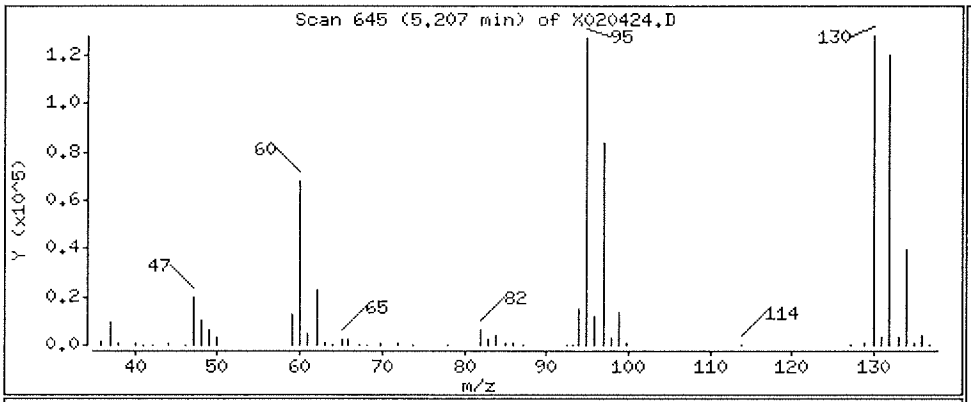
Client ID: HS21011150-04 Instrument: voa6.i

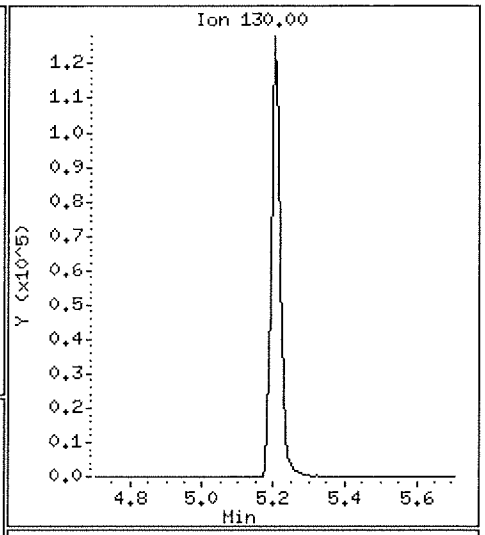
Sample Info: HS21011150-04;HS21011150-04;;;

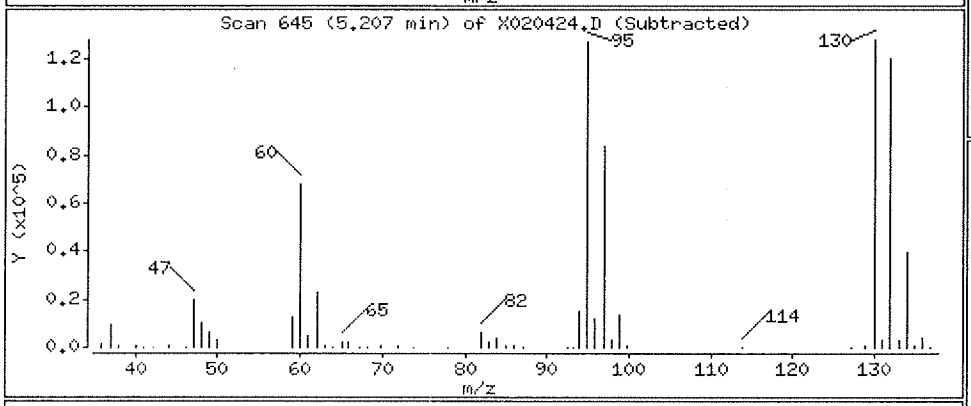
Purge Volume: 5.0 Operator: PC

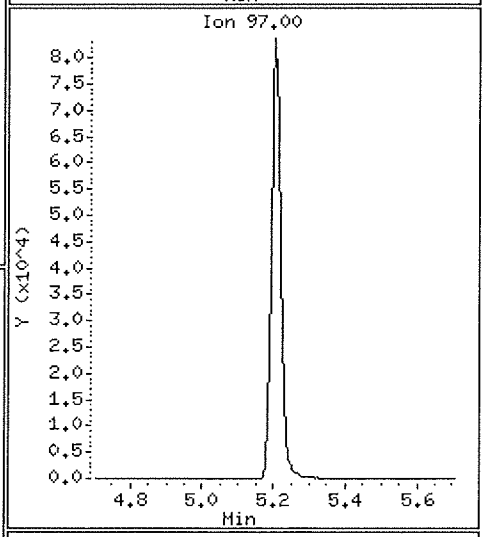
Column phase: DB624 Column diameter: 0.18

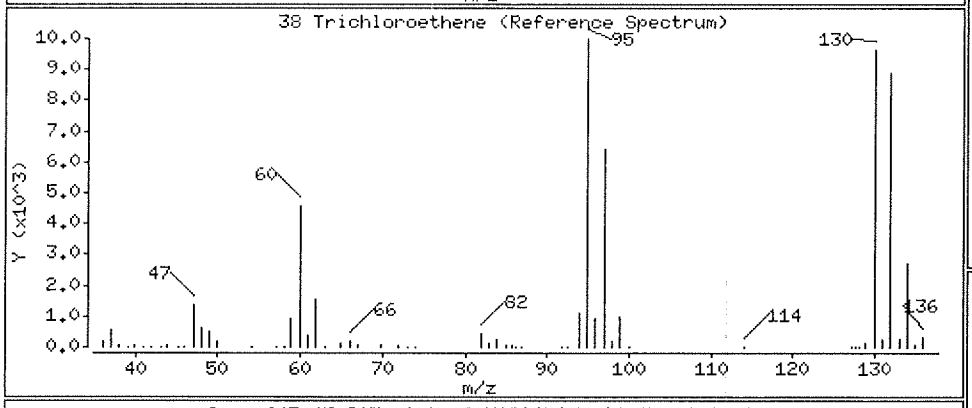
38 Trichloroethene Concentration: 253.79 ug/l

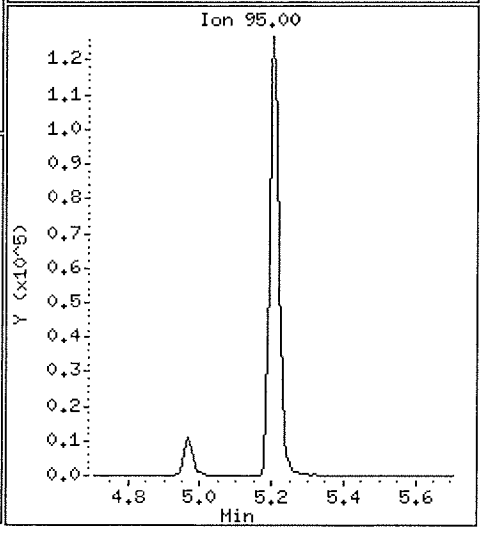


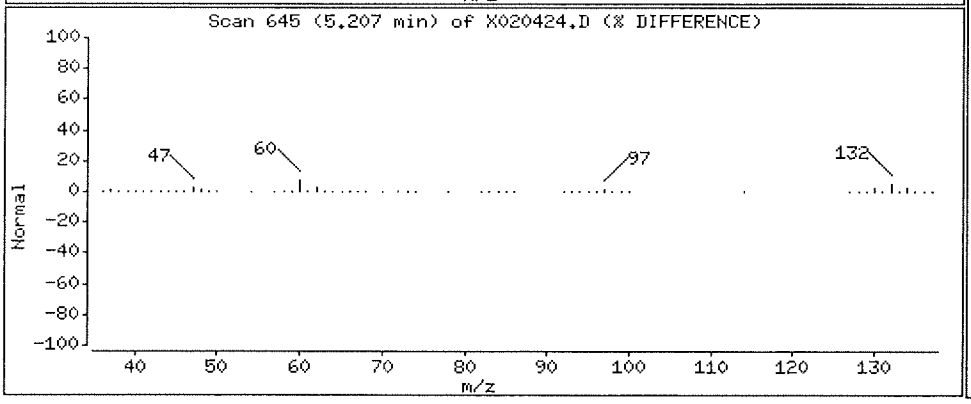






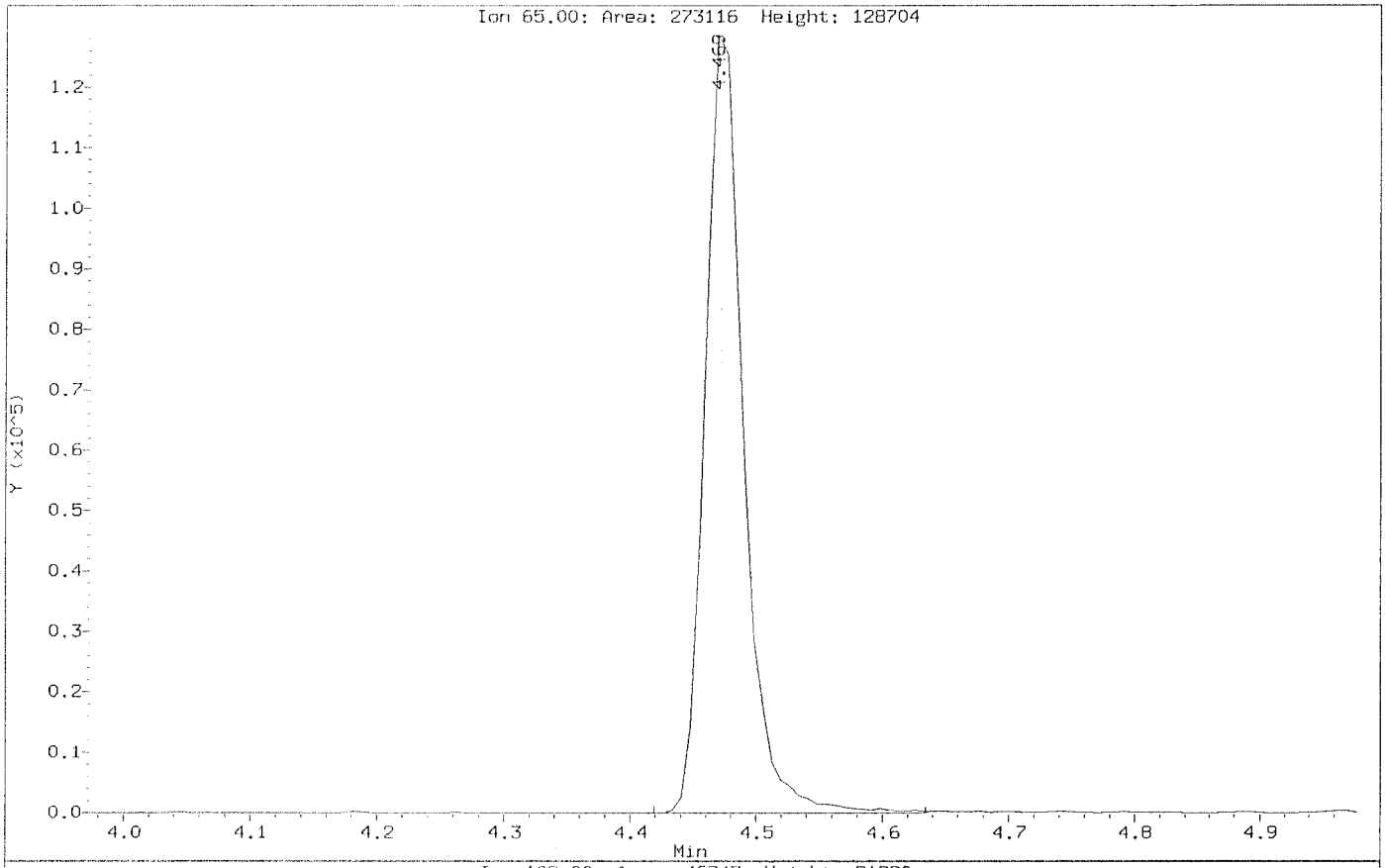


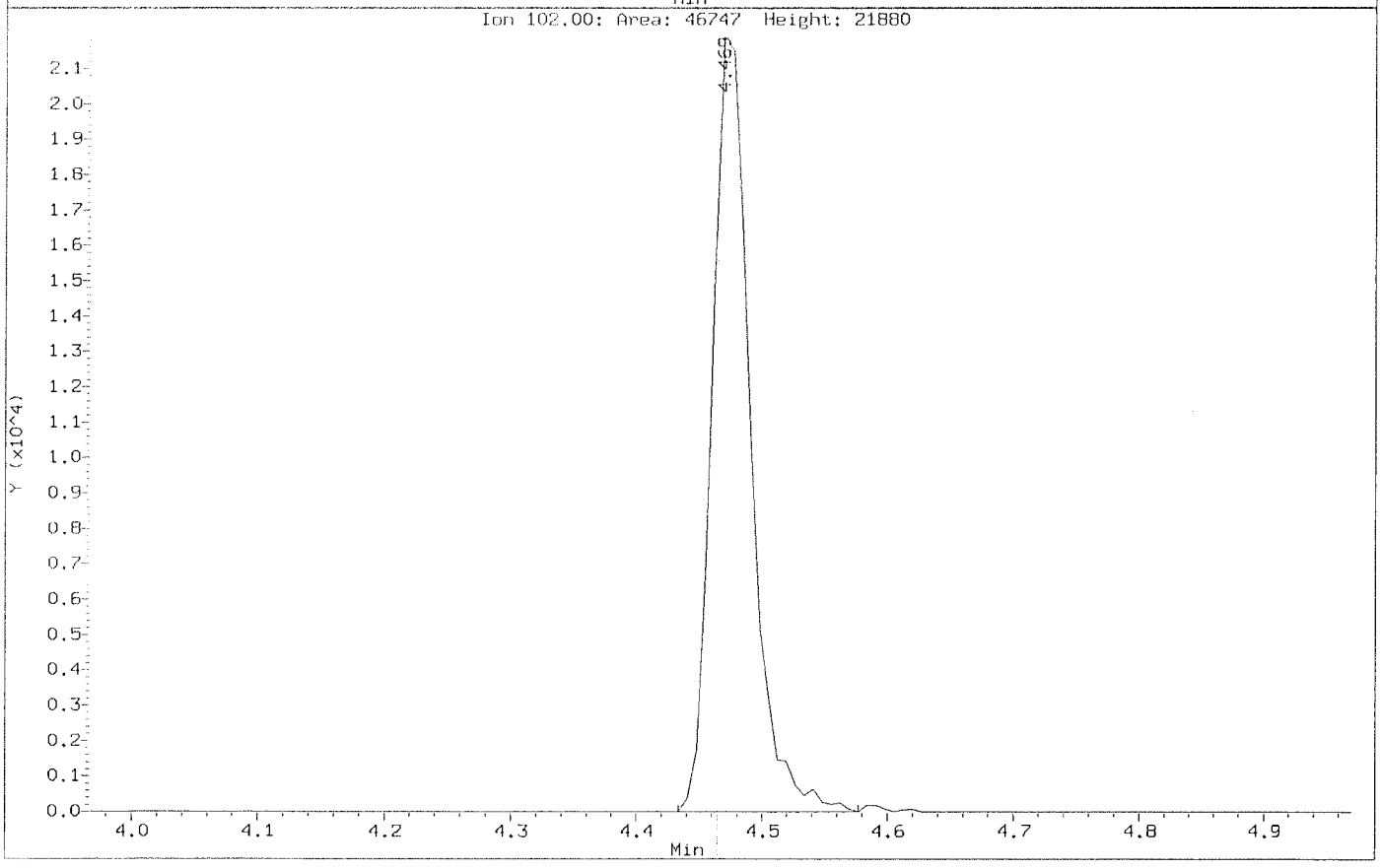




Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\Before\X020424.D
Injection Date: 04-FEB-2021 23:35
Instrument: voa6.i
Client Sample ID: HS21011150-04

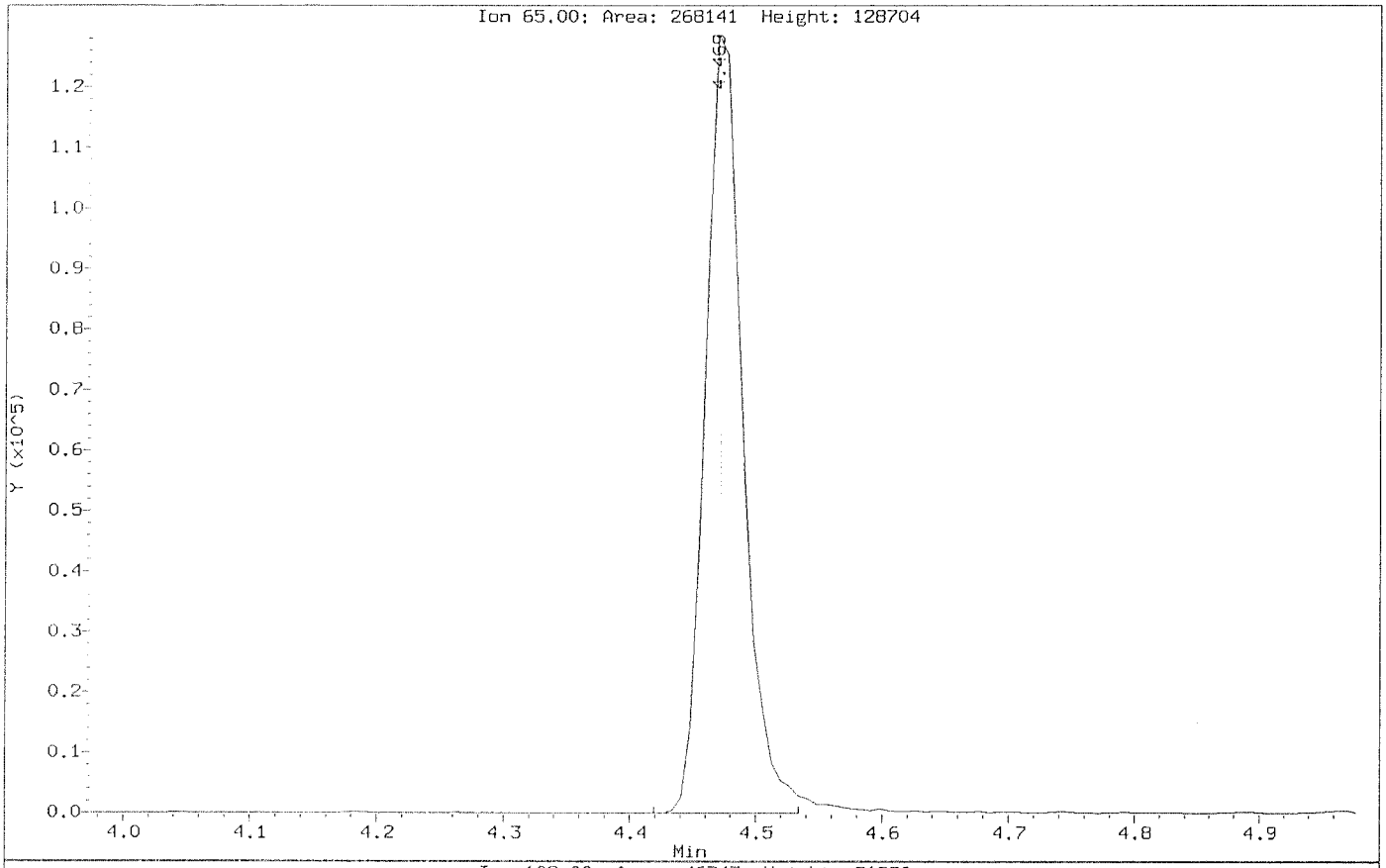
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

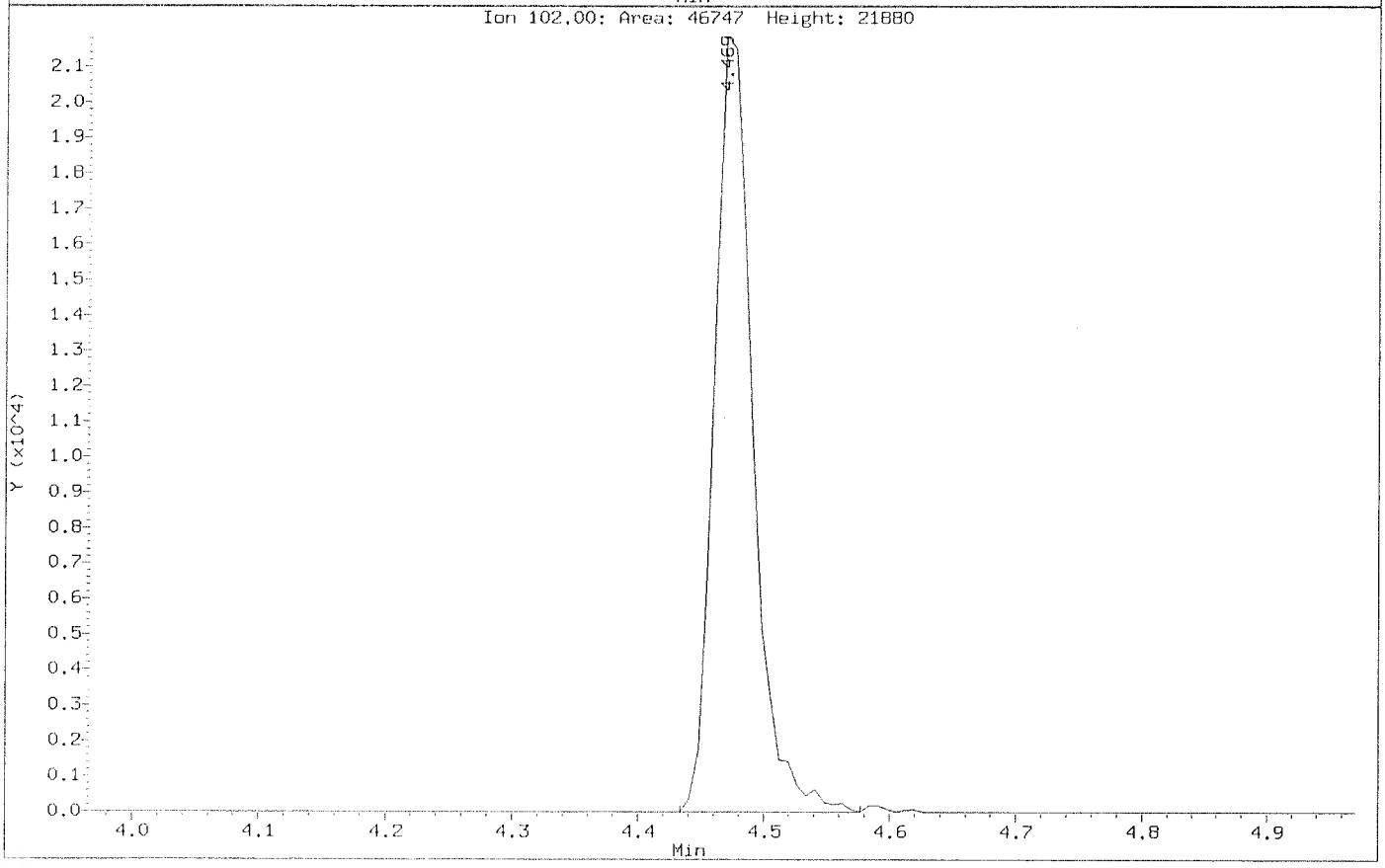




Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020424.D
Injection Date: 04-FEB-2021 23:35
Instrument: voa6.i
Client Sample ID: HS21011150-04

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D
Lab Smp Id: HS21011150-03 Client Smp ID: HS21011150-03
Inj Date : 04-FEB-2021 23:56
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-03;HS21011150-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

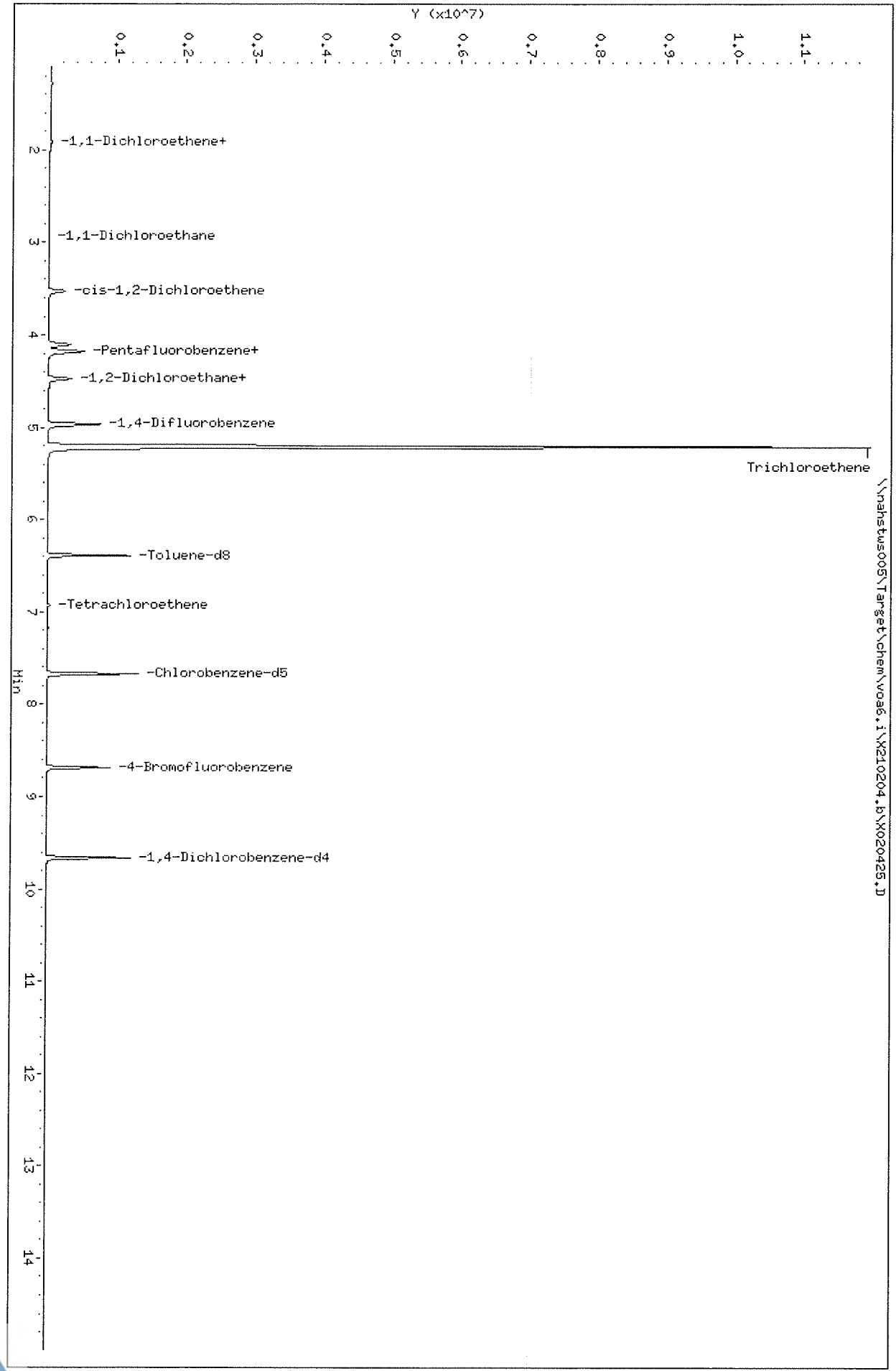
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	378349	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	615418	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	581266	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	255814	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	221849	48.8556	48.85
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	265927	56.5704	56.57
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	694134	45.6474	45.64
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	252824	49.0897	49.08
11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	4885	1.01978	1.01(a)
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	15243	2.78540	2.78(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	124205	25.6329	25.63
56 Tetrachloroethene	164	6.926	6.926	(0.903)	7688	2.42433	2.42(a)
38 Trichloroethene	130	5.207	5.206	(1.049)	3369861	819.394	819.39(A)

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D
Date : 04-FEB-2021 23:56
Client ID: HS21011150-03
Sample Info: HS21011150-03;HS21011150-03;;;
Purge Volume: 5.0
Column phase: DB624

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



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D Page 3

Date : 04-FEB-2021 23:56

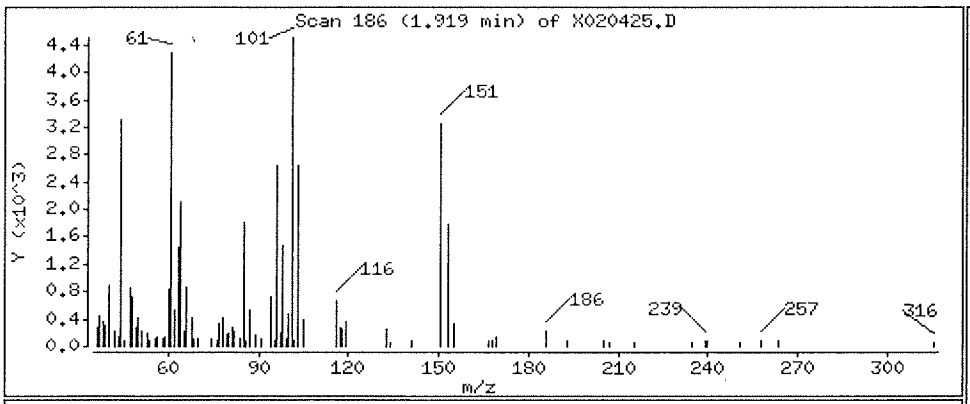
Client ID: HS21011150-03 Instrument: voa6.i

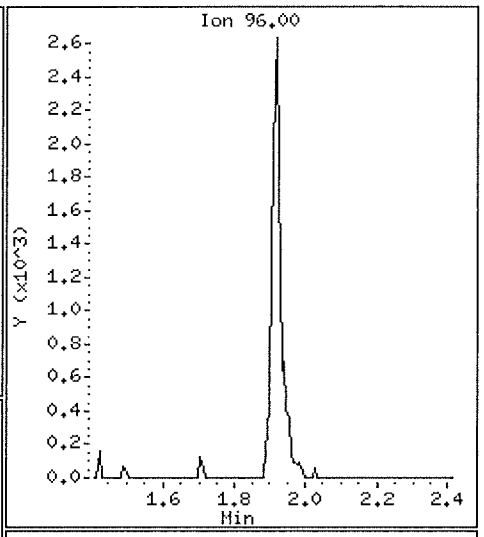
Sample Info: HS21011150-03;HS21011150-03;;;

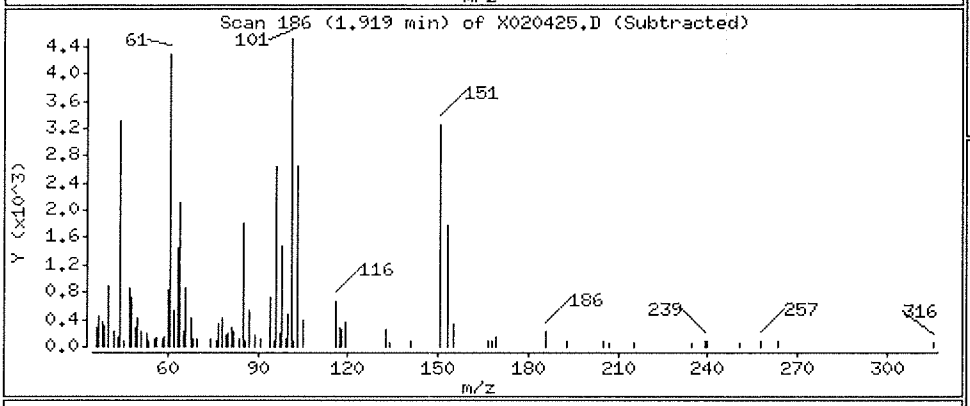
Purge Volume: 5.0 Operator: PC

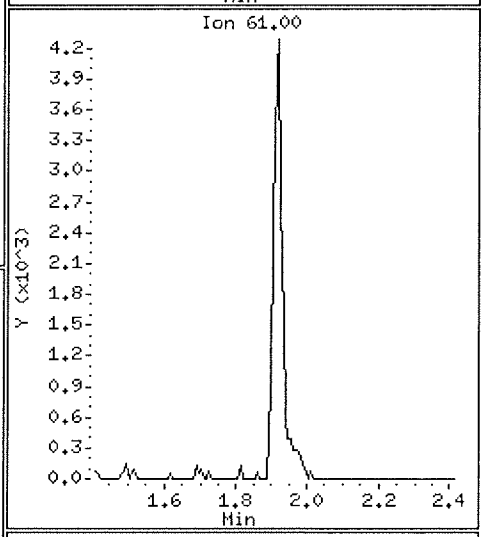
Column phase: DB624 Column diameter: 0.18

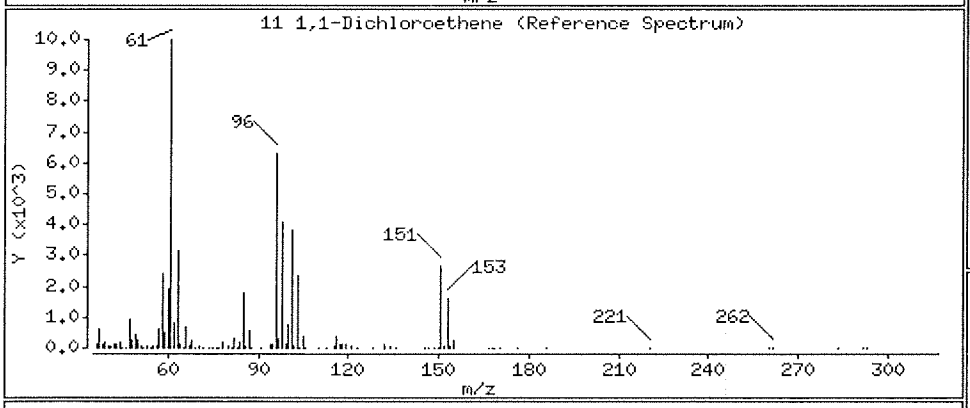
11 1,1-Dichloroethene Concentration: 1.01 ug/l

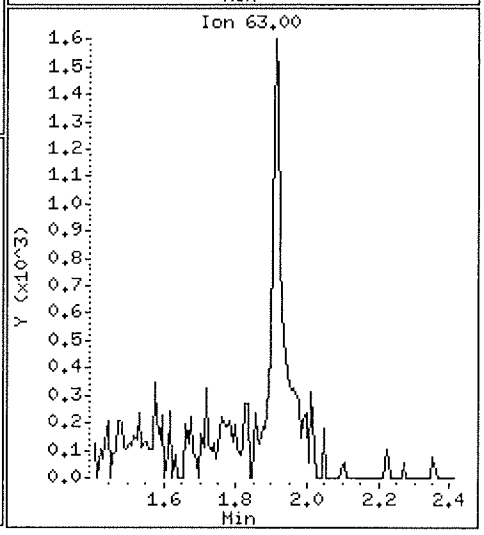


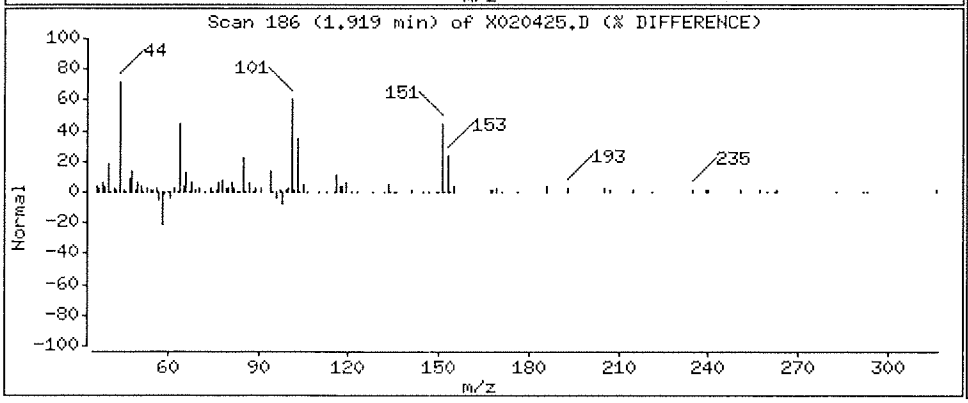












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D

Date : 04-FEB-2021 23:56

Client ID: HS21011150-03

Instrument: voa6.i

Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

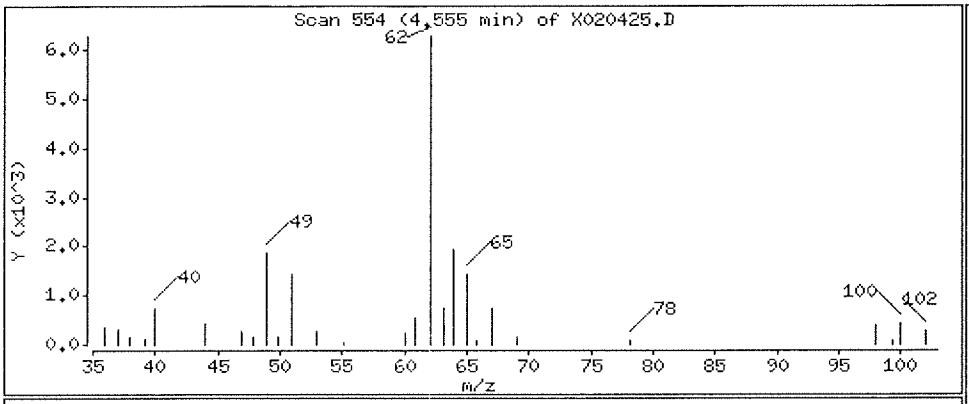
Operator: PC

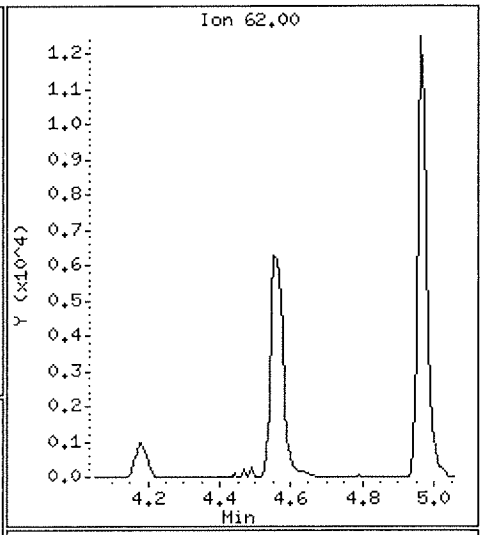
Column phase: DB624

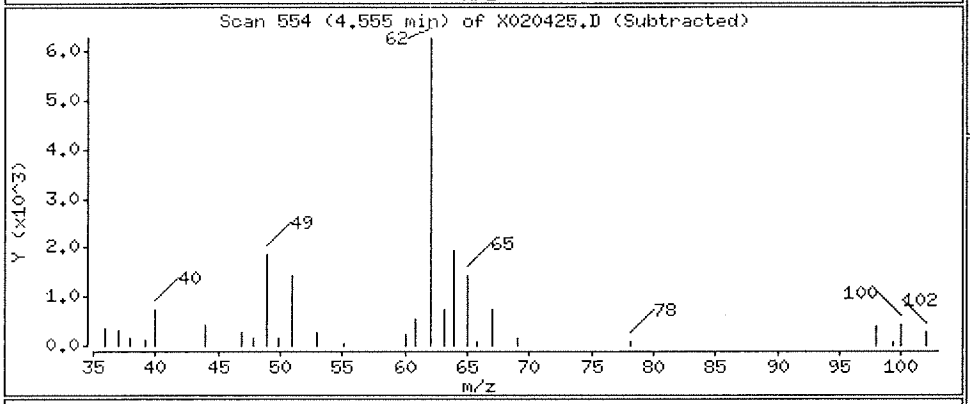
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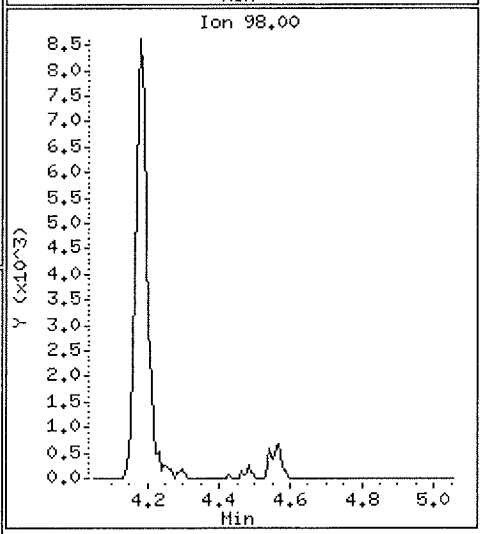
33 1,2-Dichloroethane

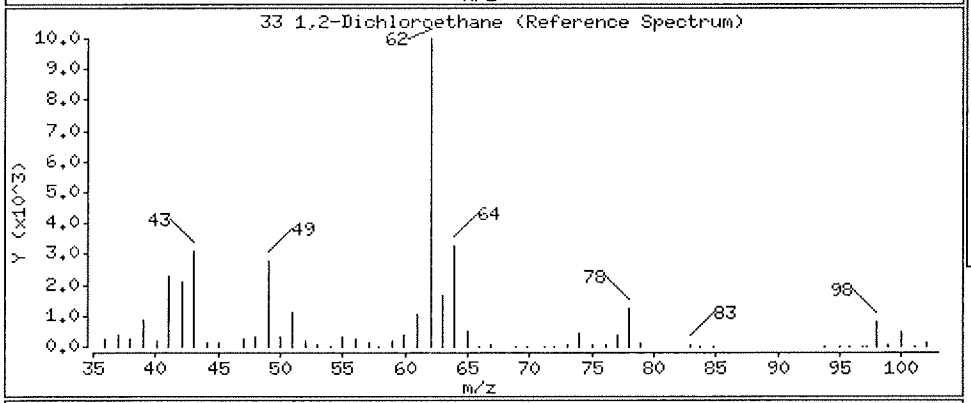
Concentration: 2.78 ug/l

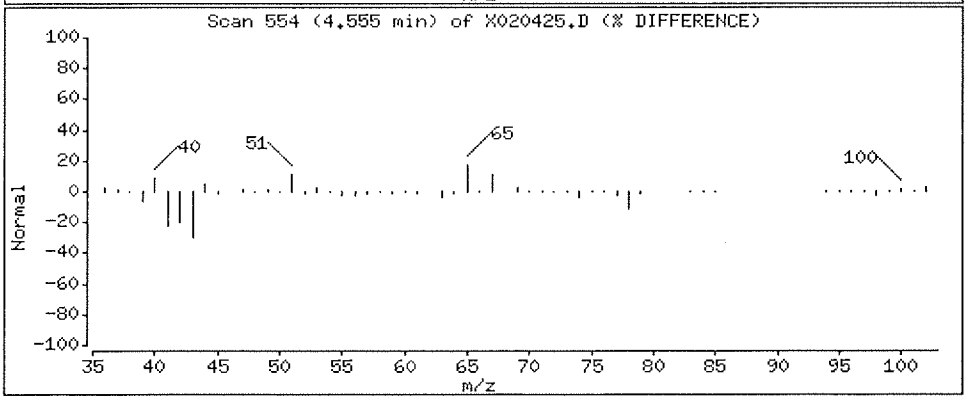












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D Page 5

Date : 04-FEB-2021 23:56

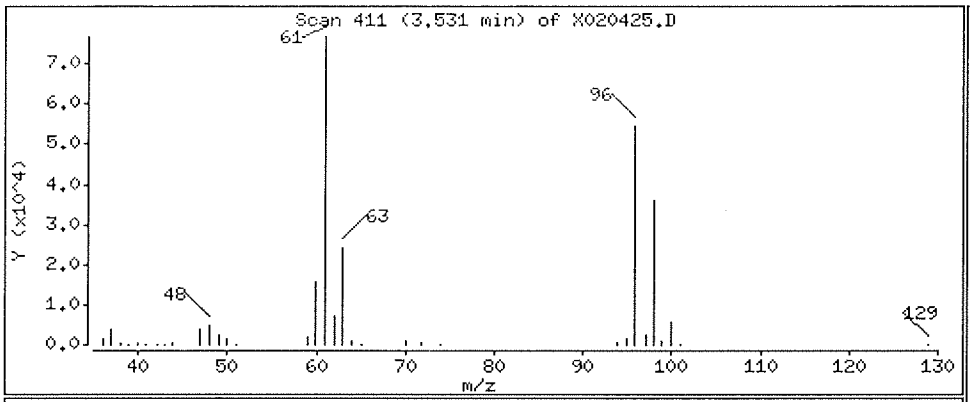
Client ID: HS21011150-03 Instrument: voa6.i

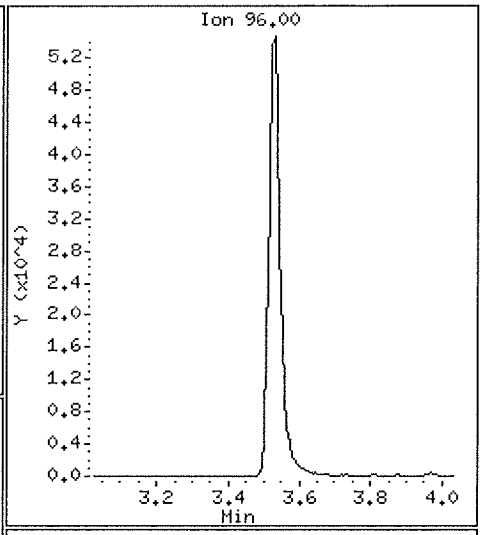
Sample Info: HS21011150-03;HS21011150-03;;;

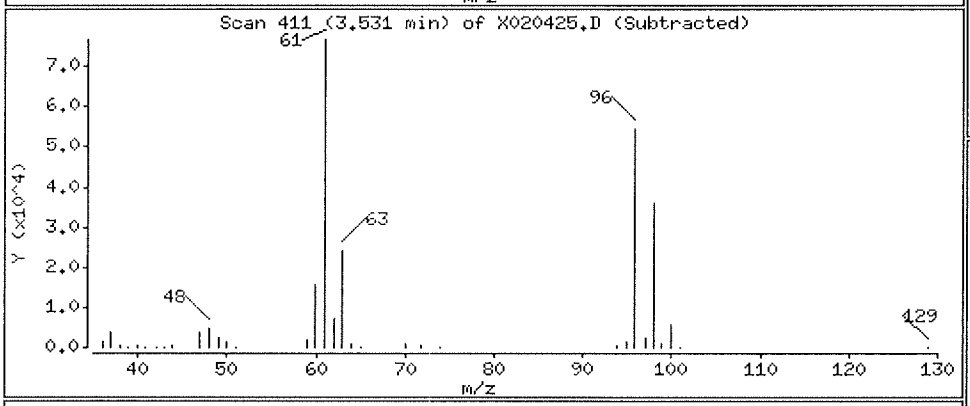
Purge Volume: 5.0 Operator: PC

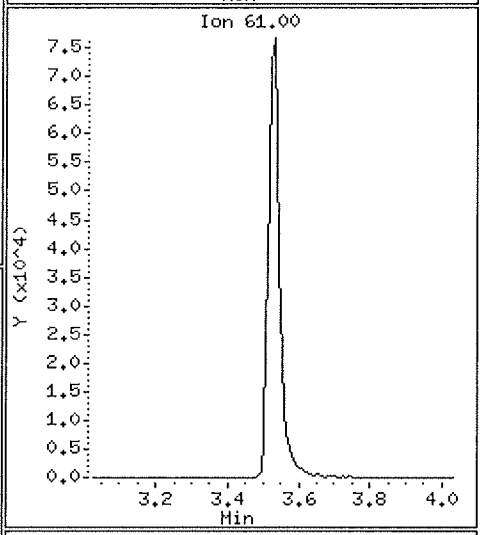
Column phase: DB624 Column diameter: 0.18

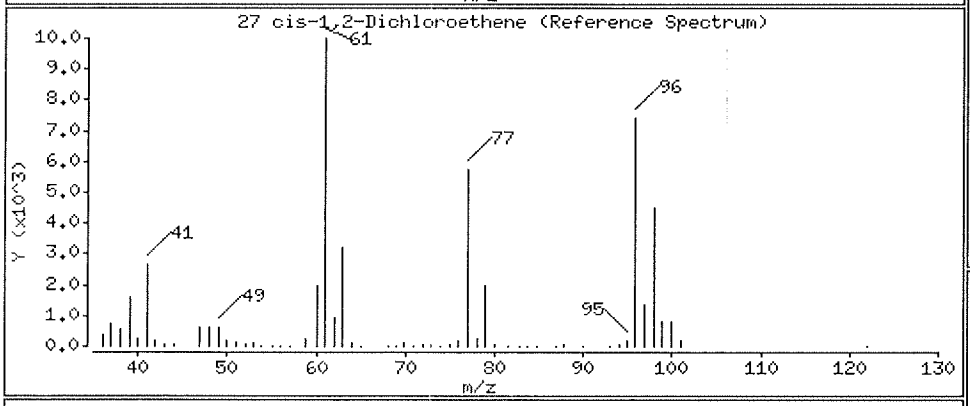
27 cis-1,2-Dichloroethene Concentration: 25.63 ug/l

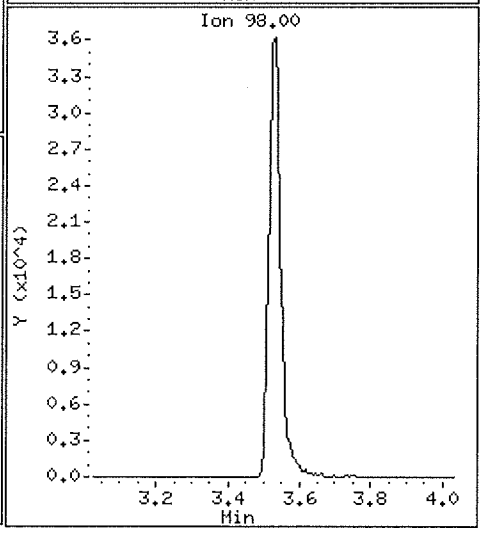


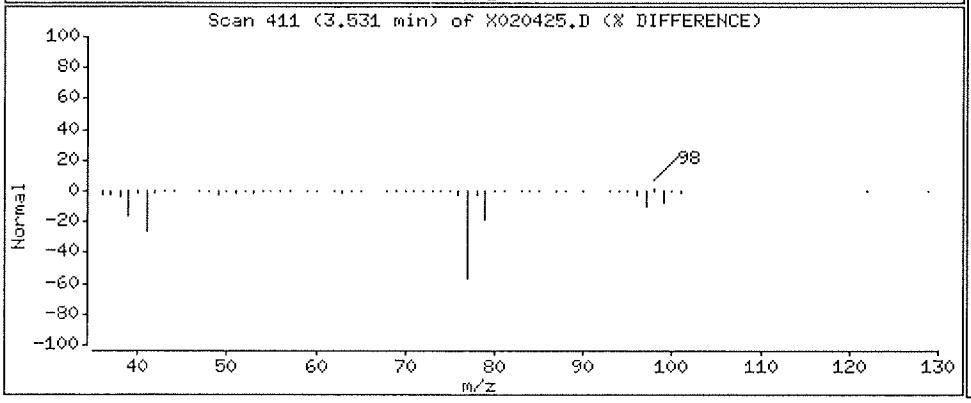












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D

Date : 04-FEB-2021 23:56

Client ID: HS21011150-03

Instrument: voa6.i

Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

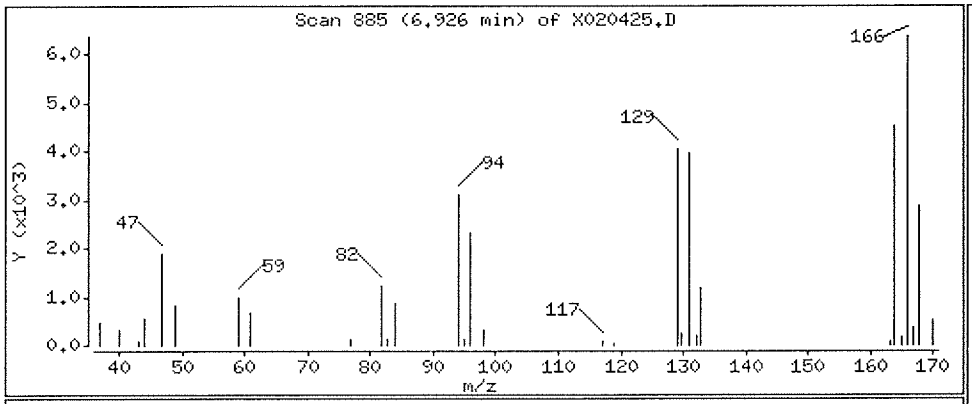
Operator: PC

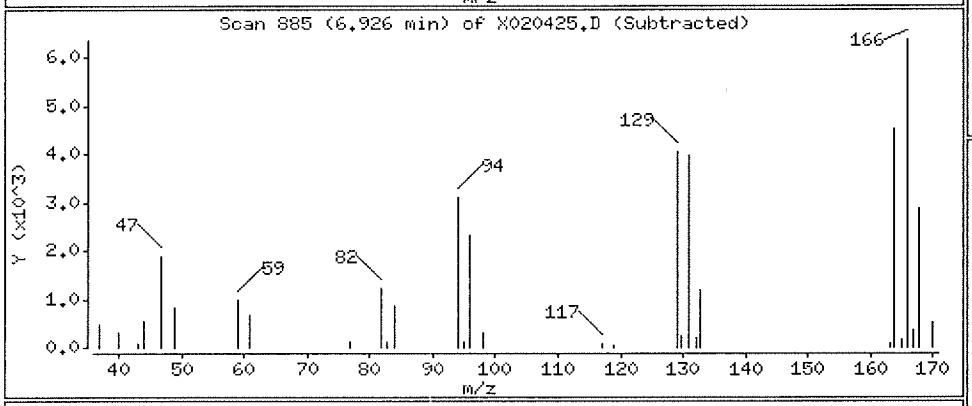
Column phase: DB624

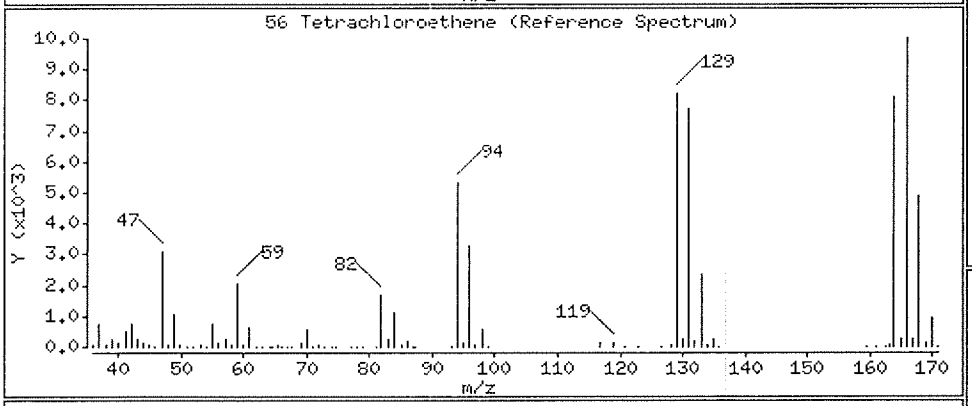
Column diameter: 0.18

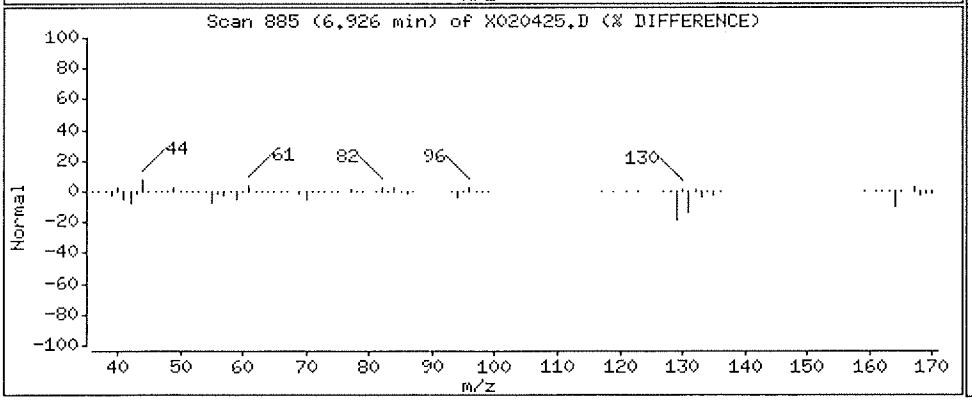
56 Tetrachloroethene

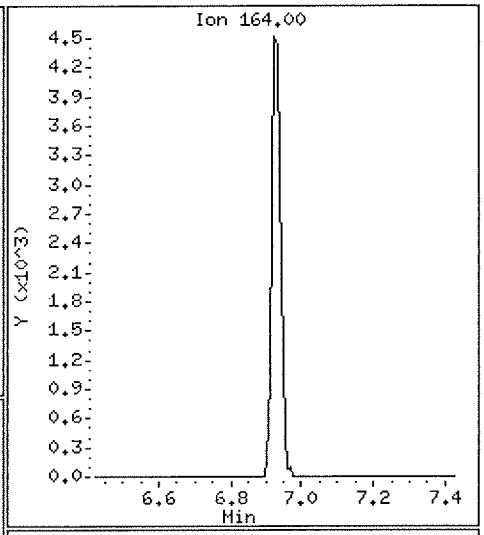
Concentration: 2.42 ug/l

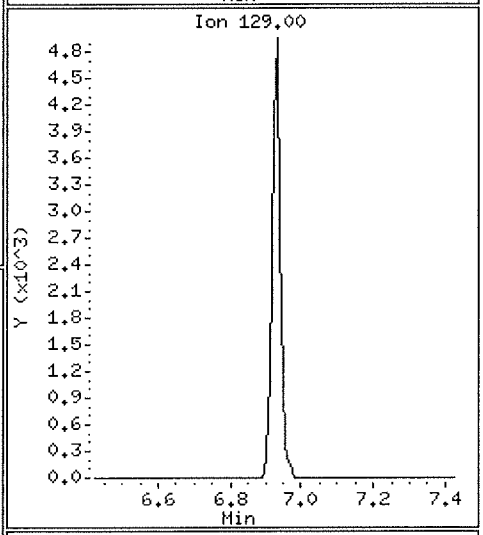


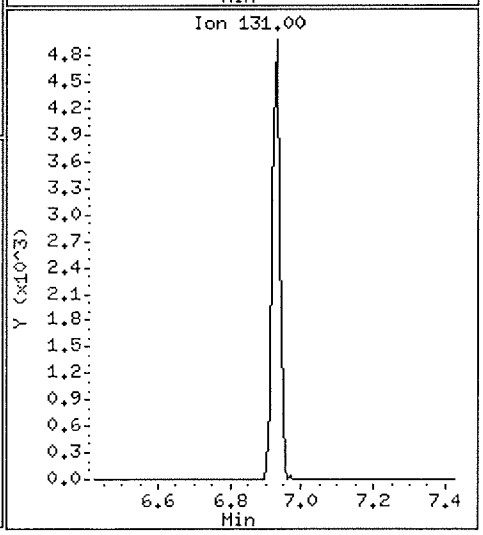












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020425.D

Date : 04-FEB-2021 23:56

Client ID: HS21011150-03

Instrument: voa6.i

Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

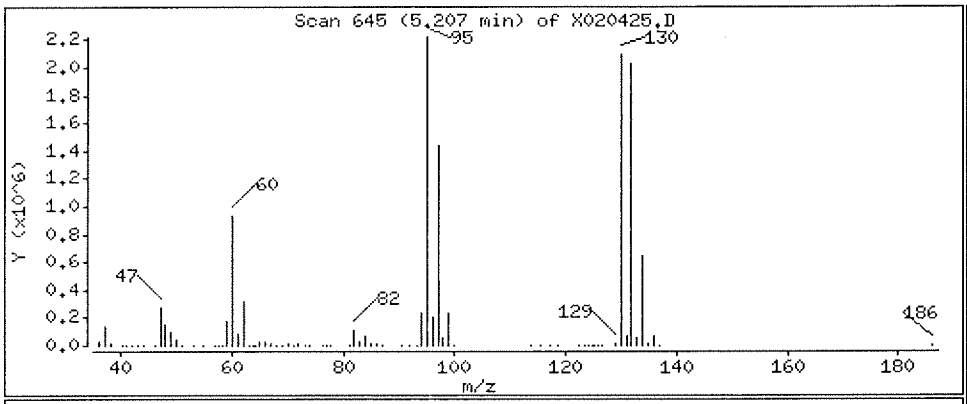
Operator: PC

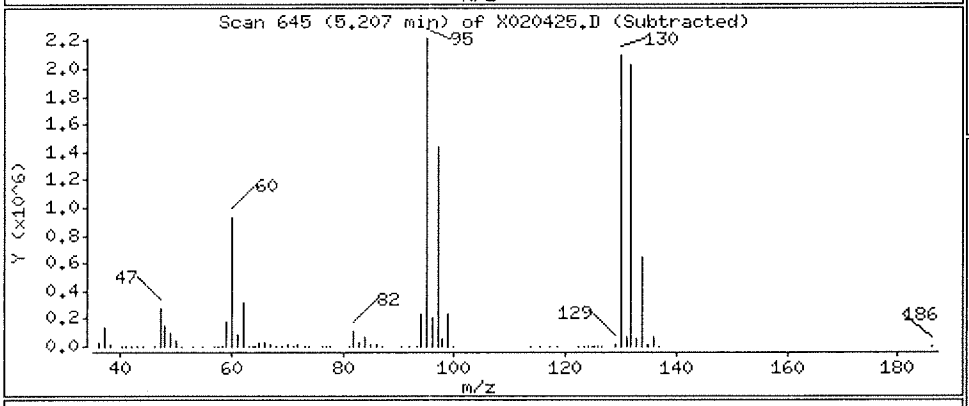
Column phase: DB624

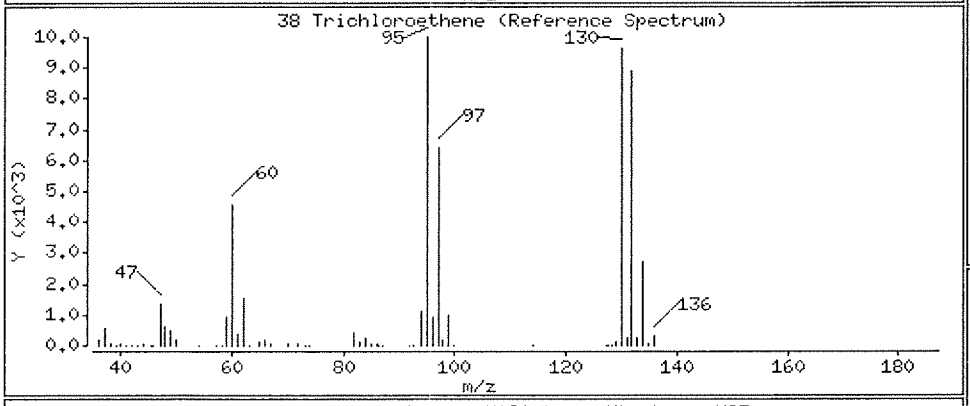
Column diameter: 0.18

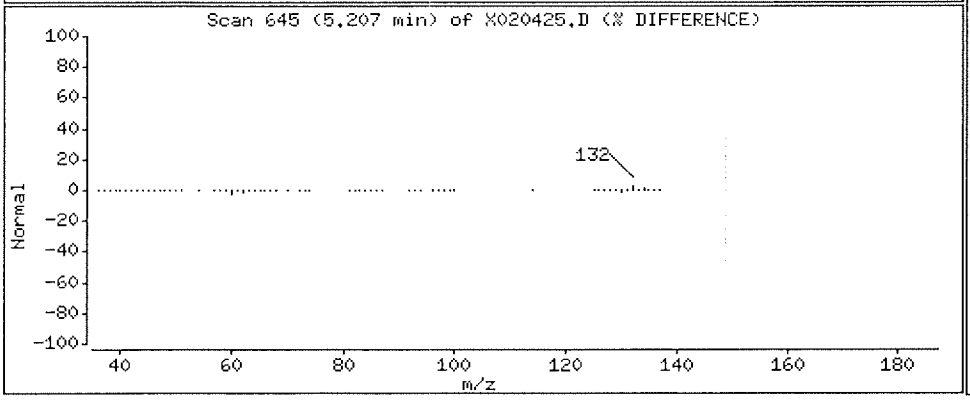
38 Trichloroethene

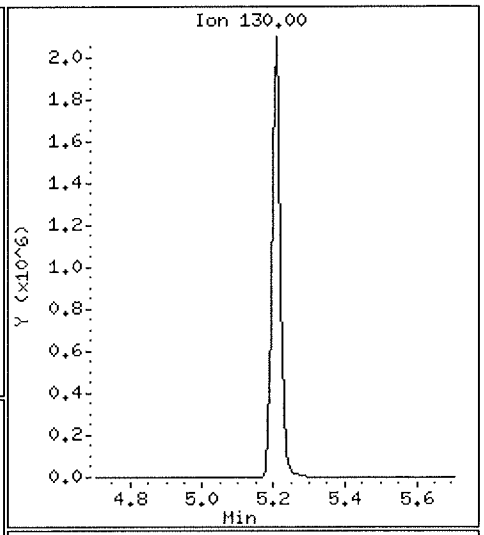
Concentration: 819.39 ug/l

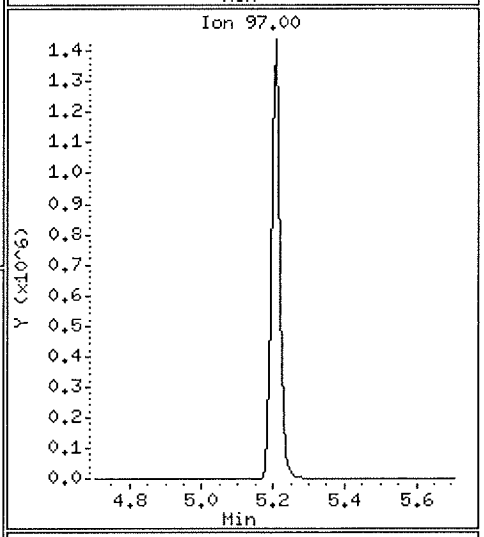


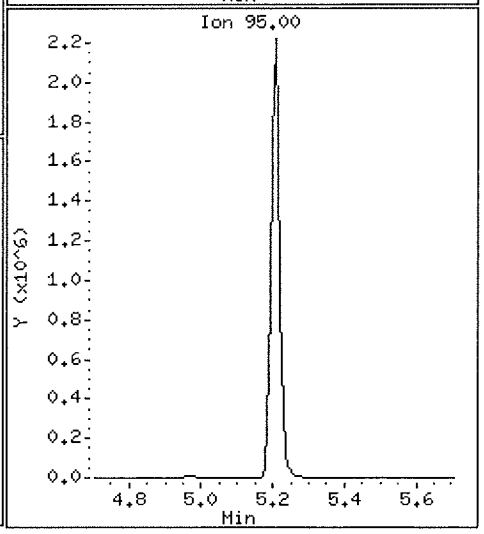












ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020426.D
Lab Smp Id: HS21011150-03 Client Smp ID: HS21011150-03
Inj Date : 05-FEB-2021 00:17
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-03;HS21011150-03;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:45 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 25
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	404188	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	602361	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	649964	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	256960	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	235915	48.6302	48.63
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	287190	57.2041	57.20
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	757681	44.5600	44.55
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	301512	52.4565	52.45
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	12323	2.38059	23.80(a)
38 Trichloroethene	130	5.206	5.206	(1.049)	278664	69.2269	692.26

QC Flag Legend

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

Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020426.D

Date : 05-FEB-2021 00:17

Client ID: HS21011150-03

Instrument: voa6.i

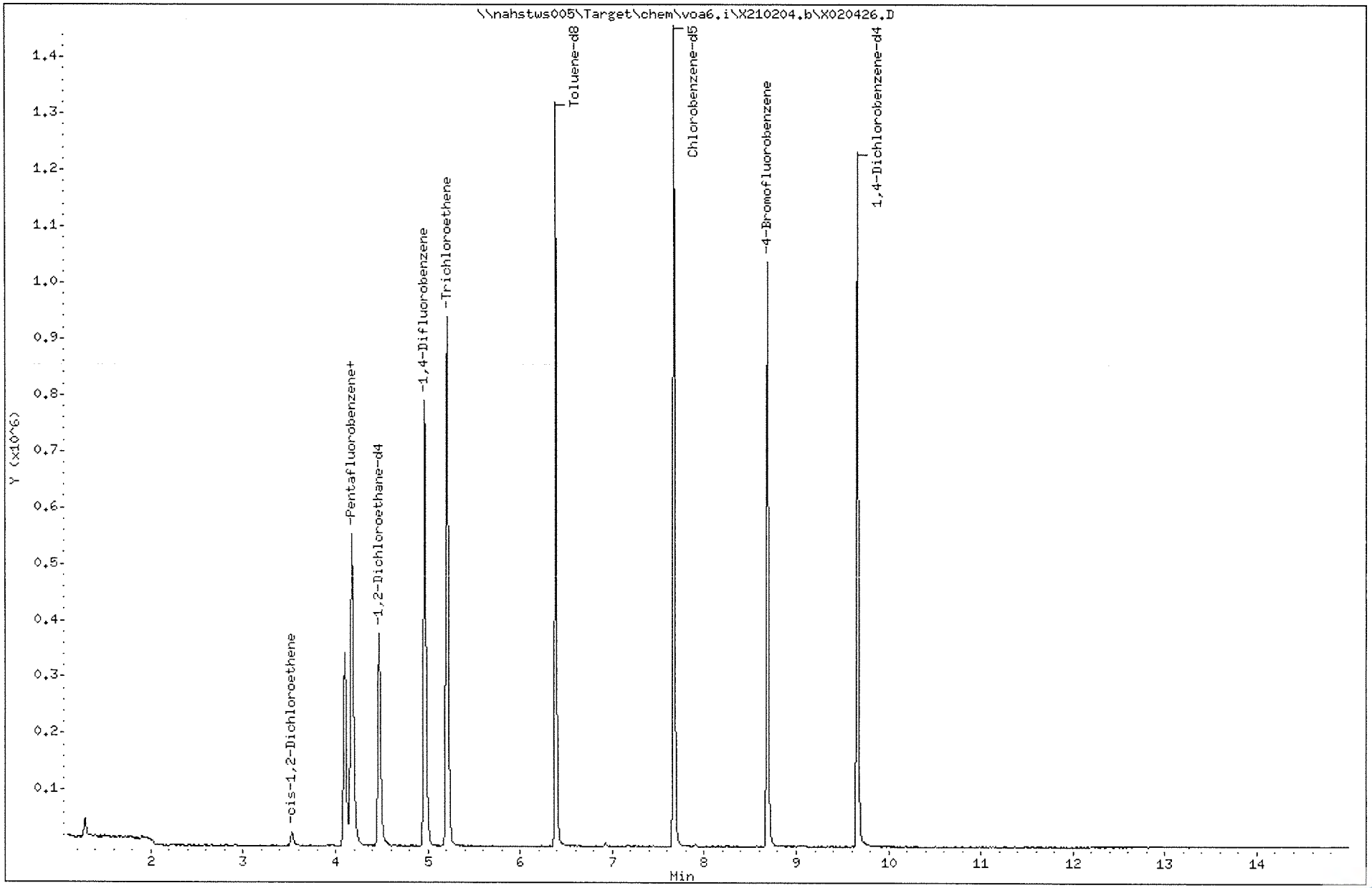
Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020426.D

Date : 05-FEB-2021 00:17

Client ID: HS21011150-03

Instrument: voa6.i

Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

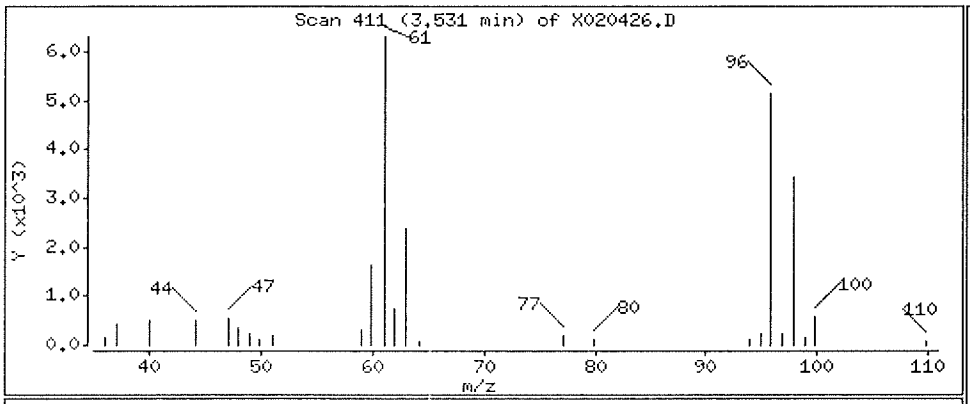
Operator: PC

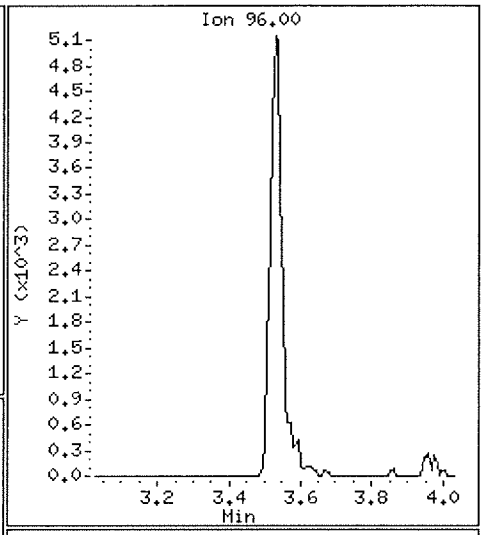
Column phase: DB624

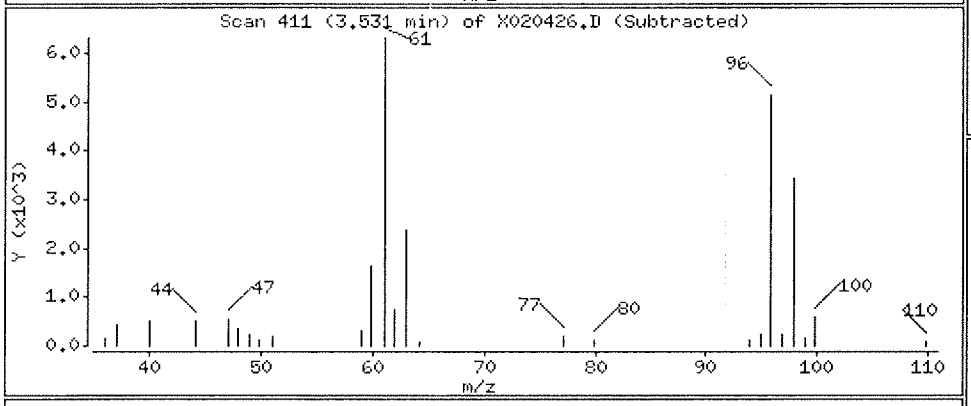
Column diameter: 0.18

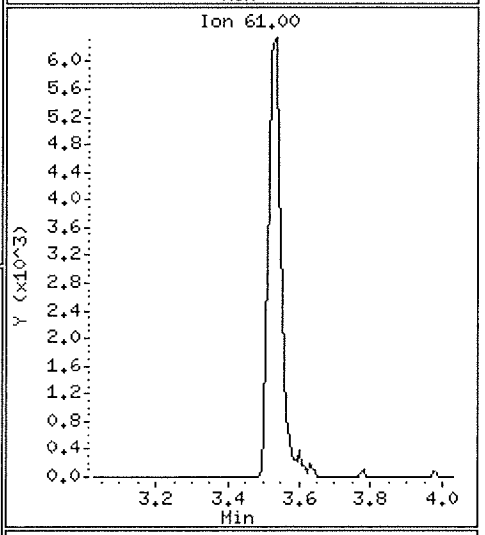
27 cis-1,2-Dichloroethene

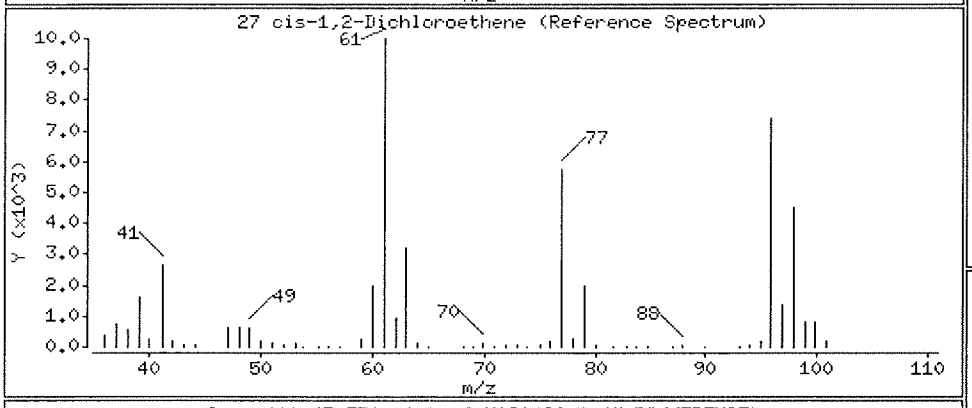
Concentration: 23.80 ug/l

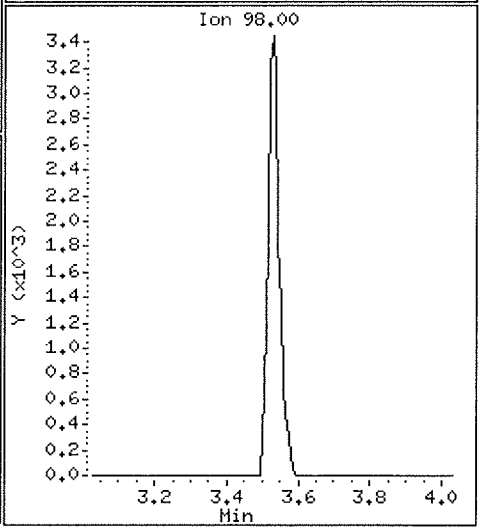


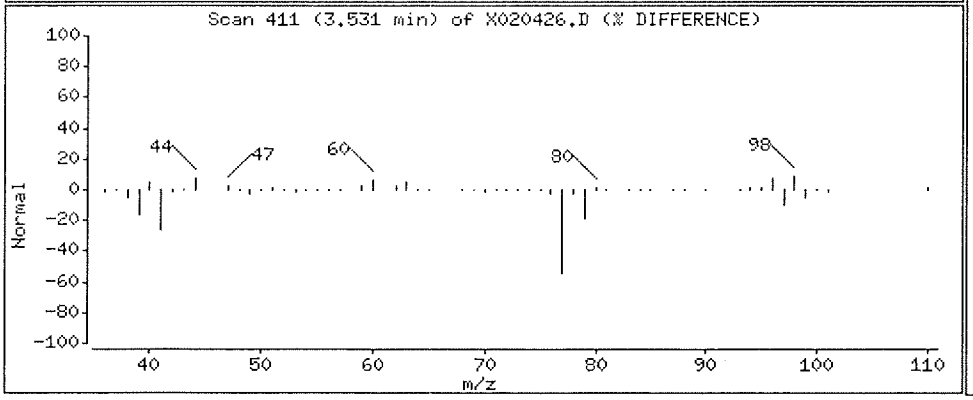












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020426.D

Date : 05-FEB-2021 00:17

Client ID: HS21011150-03

Instrument: voa6.i

Sample Info: HS21011150-03;HS21011150-03;;;

Purge Volume: 5.0

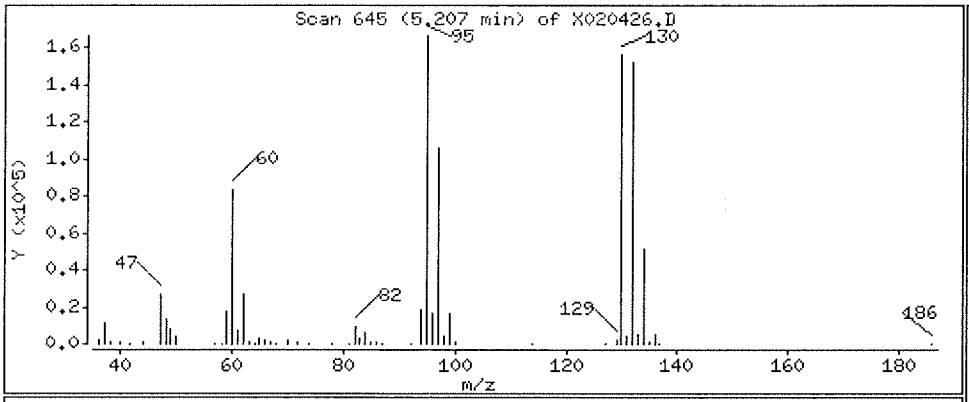
Operator: PC

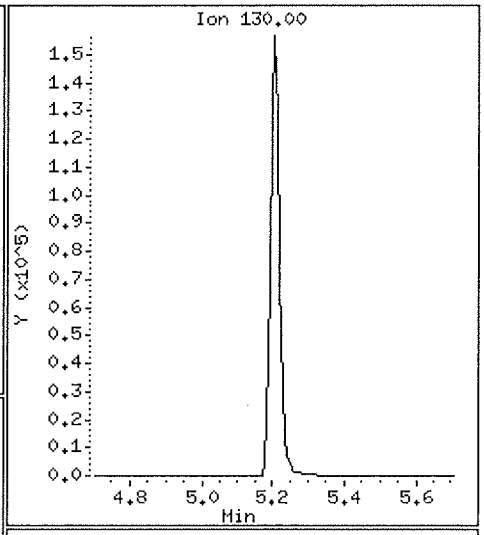
Column phase: DB624

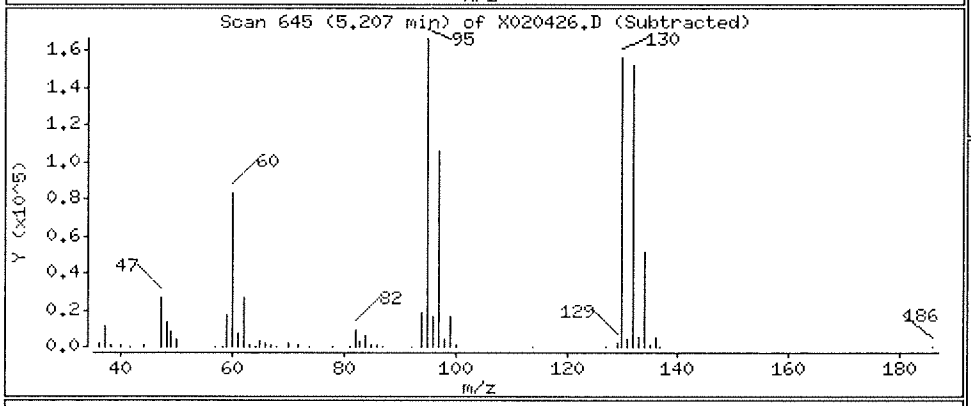
Column diameter: 0.18

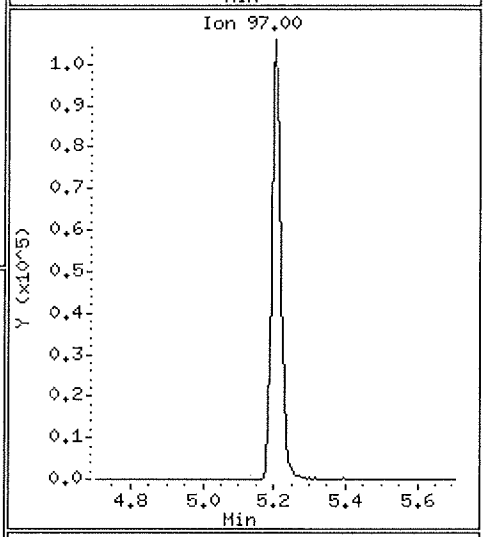
38 Trichloroethene

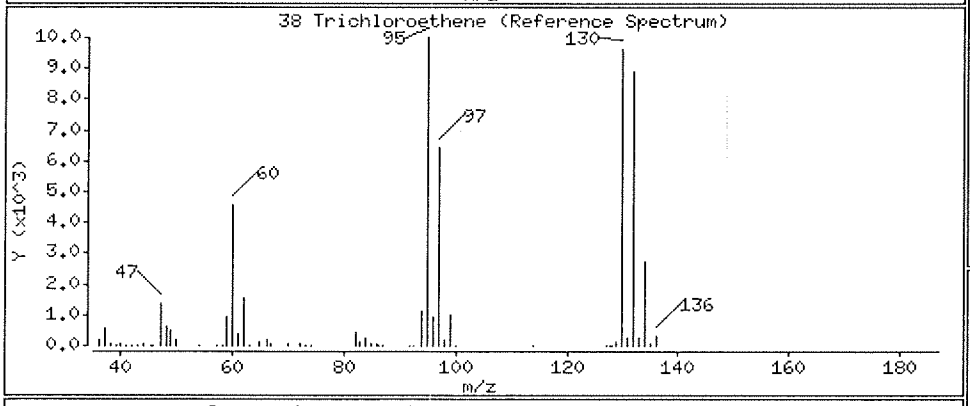
Concentration: 692.26 ug/l

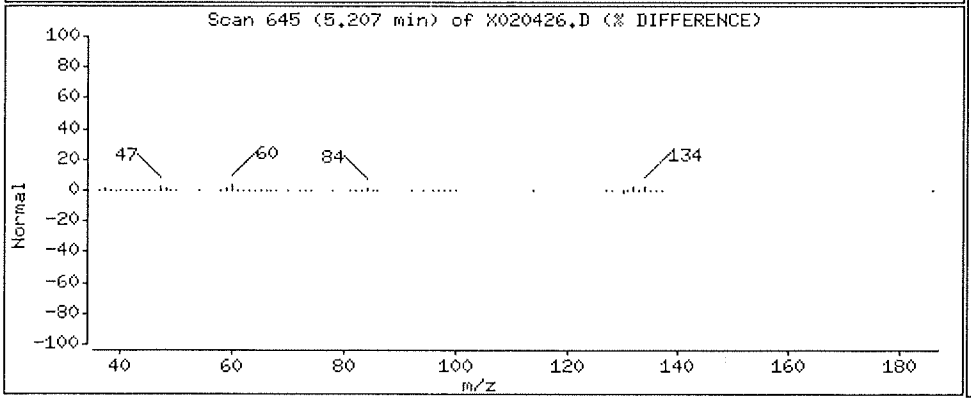


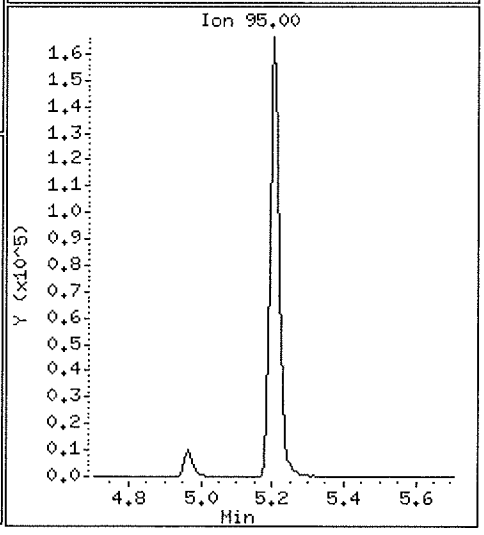












Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020431.D Page 1
Report Date: 02-Mar-2021 09:53

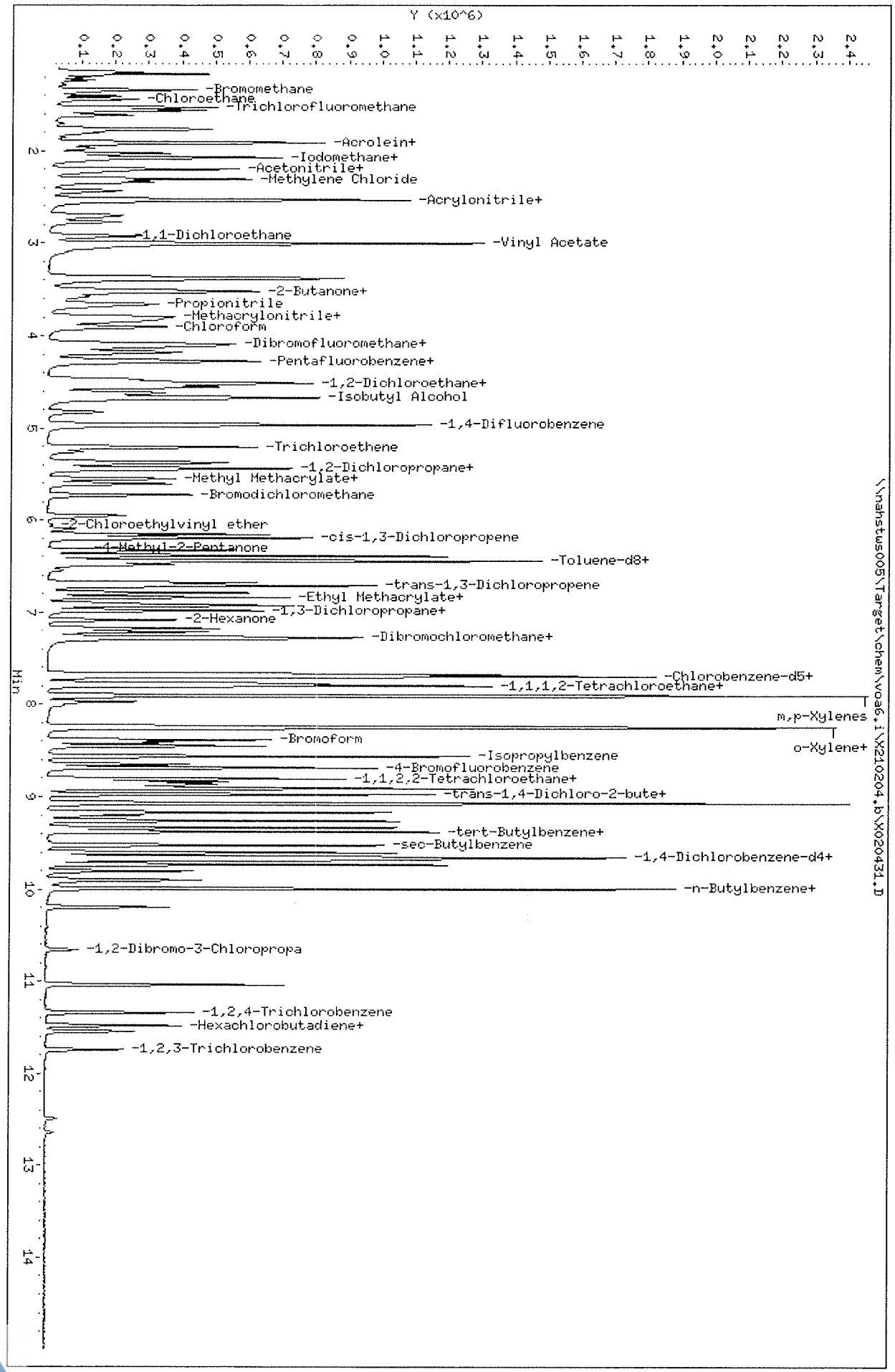
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210204.b\X020431.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 05-FEB-2021 02:02
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210204.b\8260W.m
Meth Date : 02-Mar-2021 09:53 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	289898	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	596919	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	567881	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	254228	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	184766	50.0000	53.13
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	230314	50.0000	64.13
$	48 Toluene-d8	98	6.388	6.388	(0.833)	702859	50.0000	47.31
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	273846	50.0000	54.58
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	172515	50.0000	47.00
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	280124	50.0000	52.77
	27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	204415	50.0000	55.05
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	127264	50.0000	41.07
	38 Trichloroethene	130	5.207	5.207	(1.049)	192927	50.0000	48.36
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	185540	50.0000	44.82



Data File: \\nahstws005\Target\chem\voa6.i\X210204.b\X020431.D
Date : 05-FEB-2021 02:02
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 43277 **Analyst:** Qin Xu

Date: 02-07-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	BFB	02-07-2021 10:46 am	1.00	0.00 mL	0.00 mL	X020701.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	02-07-2021 11:07 am	1.00	5.00 mL	0.00 mL	X020702.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									
3	BLANK	SAMP	02-07-2021 11:28 am	1.00	5.00 mL	0.00 mL	X020703.D	Liquid	Y	NA
	cleanup									
4	CCB	SAMP	02-07-2021 11:49 am	1.00	5.00 mL	0.00 mL	X020704.D	Liquid	Y	NA
	ccb									
5	VLCSW-210207	LCS	02-07-2021 12:10 pm	1.00	5.00 mL	0.00 mL	X020705.D	Liquid	Y	NA
	4 ul lcs std/50 ml DI									
6	BLANK	SAMP	02-07-2021 12:31 pm	1.00	5.00 mL	0.00 mL	X020706.D	Liquid	Y	NA
	cleanup									
7	VBLKW-210207	MBLK	02-07-2021 12:52 pm	1.00	5.00 mL	0.00 mL	X020707.D	Liquid	Y	NA
8	VBLKW-210207	MBLK	02-07-2021 01:13 pm	1.00	5.00 mL	0.00 mL	X020708.D	Liquid	Y	NA
9	HS21020245-12	SAMP	02-07-2021 01:34 pm	1.00	5.00 mL	0.00 mL	X020709.D	Liquid	Y	NA
10	HS21020135-01n/r	SAMP	02-07-2021 01:55 pm	1.00	5.00 mL	0.00 mL	X020710.D	Liquid	Y	NA
11	HS21020135-03	SAMP	02-07-2021 02:16 pm	1.00	5.00 mL	0.00 mL	X020711.D	Liquid	Y	NA
12	HS21020249-04	SAMP	02-07-2021 02:37 pm	1.00	5.00 mL	0.00 mL	X020712.D	Liquid	Y	NA
13	HS21020249-04MS	MS	02-07-2021 02:58 pm	1.00	5.00 mL	0.00 mL	X020713.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
14	HS21020249-04MSD	MSD	02-07-2021 03:19 pm	1.00	5.00 mL	0.00 mL	X020714.D	Liquid	Y	NA
	3.2 ul cal std/40 ml sample									
15	HS21011150-07	SAMP	02-07-2021 03:41 pm	1.00	5.00 mL	0.00 mL	X020715.D	Liquid	Y	NA
16	HS21020245-09	SAMP	02-07-2021 04:02 pm	1.00	5.00 mL	0.00 mL	X020716.D	Liquid	Y	NA
17	HS21020245-20	SAMP	02-07-2021 04:23 pm	1.00	5.00 mL	0.00 mL	X020717.D	Liquid	Y	NA
18	HS21020245-24	SAMP	02-07-2021 04:44 pm	1.00	5.00 mL	0.00 mL	X020718.D	Liquid	Y	NA
19	HS21020245-21	SAMP	02-07-2021 05:05 pm	1.00	5.00 mL	0.00 mL	X020719.D	Liquid	Y	NA
20	HS21020245-22	SAMP	02-07-2021 05:26 pm	1.00	5.00 mL	0.00 mL	X020720.D	Liquid	Y	NA
21	HS21020245-23	SAMP	02-07-2021 05:47 pm	1.00	5.00 mL	0.00 mL	X020721.D	Liquid	Y	NA
22	HS21020249-01	SAMP	02-07-2021 06:08 pm	1.00	5.00 mL	0.00 mL	X020722.D	Liquid	Y	NA
23	HS21020249-02n/r	SAMP	02-07-2021 06:29 pm	1.00	5.00 mL	0.00 mL	X020723.D	Liquid	N	NA
24	HS21020249-03	SAMP	02-07-2021 06:50 pm	1.00	5.00 mL	0.00 mL	X020724.D	Liquid	Y	NA
25	HS21020249-05n/r	SAMP	02-07-2021 07:11 pm	1.00	5.00 mL	0.00 mL	X020725.D	Liquid	N	NA
26	HS21020249-06n/r	SAMP	02-07-2021 07:32 pm	1.00	5.00 mL	0.00 mL	X020726.D	Liquid	N	NA
27	HS21020249-07	SAMP	02-07-2021 07:53 pm	1.00	5.00 mL	0.00 mL	X020727.D	Liquid	Y	NA
28	HS21020268-01	SAMP	02-07-2021 08:14 pm	1.00	5.00 mL	0.00 mL	X020728.D	Liquid	Y	NA
29	HS21020268-06	SAMP	02-07-2021 08:35 pm	1.00	5.00 mL	0.00 mL	X020729.D	Liquid	Y	NA
30	HS21020268-07	SAMP	02-07-2021 08:56 pm	1.00	5.00 mL	0.00 mL	X020730.D	Liquid	Y	NA
31	CCV-END	CCV	02-07-2021 09:17 pm	1.00	5.00 mL	0.00 mL	X020731.D	Liquid	Y	NA
	10 ul cal std/50 ml DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	31106-67-06
IS ID	31106-67-06
LCS/MS ID	31106-67-05
CAL STD ID	31106-67-01/02
BFB ID	31106-67-06
pH Paper	634-64-10

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 #	OTHER (TOL)#	TOT OUT
01	VLCSW-210207	114	94	101	90	0
02	VBLKW-210207	116	96	100	103	0
03	HS21020249-04MS	109	99	114	100	0
04	HS21020249-04MSD	104	94	115	96	0
05	HS21011150-07	107	98	90	92	0
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28						

		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(0-130)
SMC3	= 4-Bromofluorobenzene	(0-130)
OTHER(TOL)	= Toluene-d8	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210207

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID: X020708 Lab Sample ID: VBLKW-210207

Date Analyzed: 02/07/21 Time Analyzed: 1313

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

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210207	VLCSW-210207	X020705	1210
02	HS21020249-04MS	HS21020249-04MS	X020713	1458
03	HS21020249-04MSD	HS21020249-04MSD	X020714	1519
04	HS21011150-07	HS21011150-07	X020715	1541
05				
06				
07				
08				
09				
10				
11				
12				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID: X020701 BFB Injection Date: 02/07/21

Instrument ID: VOA6 BFB Injection Time: 1046

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.6
75	30.0 - 60.0% of mass 95	55.9
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	1.3 (1.7)1
174	Greater than 50.0% of mass 95	77.1
175	5.0 - 9.0% of mass 174	6.2 (8.1)1
176	95.0 - 101.0% of mass 174	75.0 (97.3)1
177	5.0 - 9.0% of mass 176	5.5 (7.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X020702	02/07/21	1107
02	VLCSW-210207	VLCSW-210207	X020705	02/07/21	1210
03	VBLKW-210207	VBLKW-210207	X020708	02/07/21	1313
04	HS21020249-04MS	HS21020249-04MS	X020713	02/07/21	1458
05	HS21020249-04MSD	HS21020249-04MSD	X020714	02/07/21	1519
06	HS21011150-07	HS21011150-07	X020715	02/07/21	1541
07	CCV-END	CCV-END	X020731	02/07/21	2117
08					
09					
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16					
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18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Instrument ID: VOA6 Calibration Date: 02/07/21 Time: 1107

Lab File ID: X020702 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.5719313	0.5719313	0.1	9.65	20.00	AVRG
1,2-Dichloroethane	0.4440000	0.5127064	0.5127064	0.1	-15.47	20.00	AVRG
Tetrachloroethene	0.2730000	0.2426952	0.2426952	0.2	11.10	20.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.5898671	0.5898671	0.1	7.83	20.00	AVRG
Vinyl Chloride	0.7140000	0.6654538	0.6654538	0.1	6.80	20.00	AVRG
Trichloroethene	0.3340000	0.3166299	0.3166299	0.2	5.20	20.00	AVRG
1,2-Dichloroethane-d4	59.952791	50.000000	0.7438254	0.1	-19.90	20.00	LINR
Dibromofluoromethane	51.849670	50.000000	0.6220180	0.1	-3.70	20.00	LINR
4-Bromofluorobenzene	56.867993	50.000000	0.5018046	0.1	-13.74	20.00	LINR
Toluene-d8	1.3080000	1.3242594	1.3242594	0.1	-1.24	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Instrument ID: VOA6 Calibration Date: 02/07/21 Time: 2117

Lab File ID: X020731 Init. Calib. Date(s): 01/26/21 01/26/21

Init. Calib. Times: 1132 1502

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-Dichloroethene	0.6330000	0.6190433	0.6190433	0.1	2.20	50.00	AVRG
1,2-Dichloroethane	0.4440000	0.5260677	0.5260677	0.1	-18.48	50.00	AVRG
Tetrachloroethene	0.2730000	0.2596969	0.2596969	0.2	4.87	50.00	AVRG
cis-1,2-Dichloroethene	0.6400000	0.6204616	0.6204616	0.1	3.05	50.00	AVRG
Vinyl Chloride	0.7140000	0.6991824	0.6991824	0.1	2.08	50.00	AVRG
Trichloroethene	0.3340000	0.3264469	0.3264469	0.2	2.26	50.00	AVRG
1,2-Dichloroethane-d4	60.475120	50.000000	0.7501513	0.1	-20.95	50.00	LINR
Dibromofluoromethane	51.873728	50.000000	0.6223045	0.1	-3.75	50.00	LINR
4-Bromofluorobenzene	52.566410	50.000000	0.4648348	0.1	-5.13	50.00	LINR
Toluene-d8	1.3080000	1.2227667	1.2227667	0.1	6.52	50.00	AVRG

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID (Standard): X020702 Date Analyzed: 02/07/21

Instrument ID: VOA6 Time Analyzed: 1107

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

		IS1(DCB) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	204434	9.66	475192	4.96	445526	7.67
	UPPER LIMIT	408868	10.16	950384	5.46	891052	8.17
	LOWER LIMIT	102217	9.16	237596	4.46	222763	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-210207	225568	9.66	488140	4.96	471944	7.67
02	VBLKW-210207	204457	9.66	523711	4.96	480712	7.67
03	HS21020249-04MS	290568	9.66	757337	4.97	654778	7.67
04	HS21020249-04MSD	334007	9.66	606837	4.96	701240	7.67
05	HS21011150-07	280301	9.66	804811	4.96	728342	7.67
06							
07							
08							
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10							
11							
12							
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16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS21011150

Lab File ID (Standard): X020702 Date Analyzed: 02/07/21

Instrument ID: VOA6 Time Analyzed: 1107

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

	CLIENT SAMPLE NO.	IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	268235	4.18				
	UPPER LIMIT	536470	4.68				
	LOWER LIMIT	134118	3.68				
01	VLCSW-210207	281981	4.18				
02	VBLKW-210207	310685	4.18				
03	HS21020249-04MS	428279	4.18				
04	HS21020249-04MSD	474352	4.18				
05	HS21011150-07	447215	4.18				
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

FORM VIII VOA

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020701.D Page 1

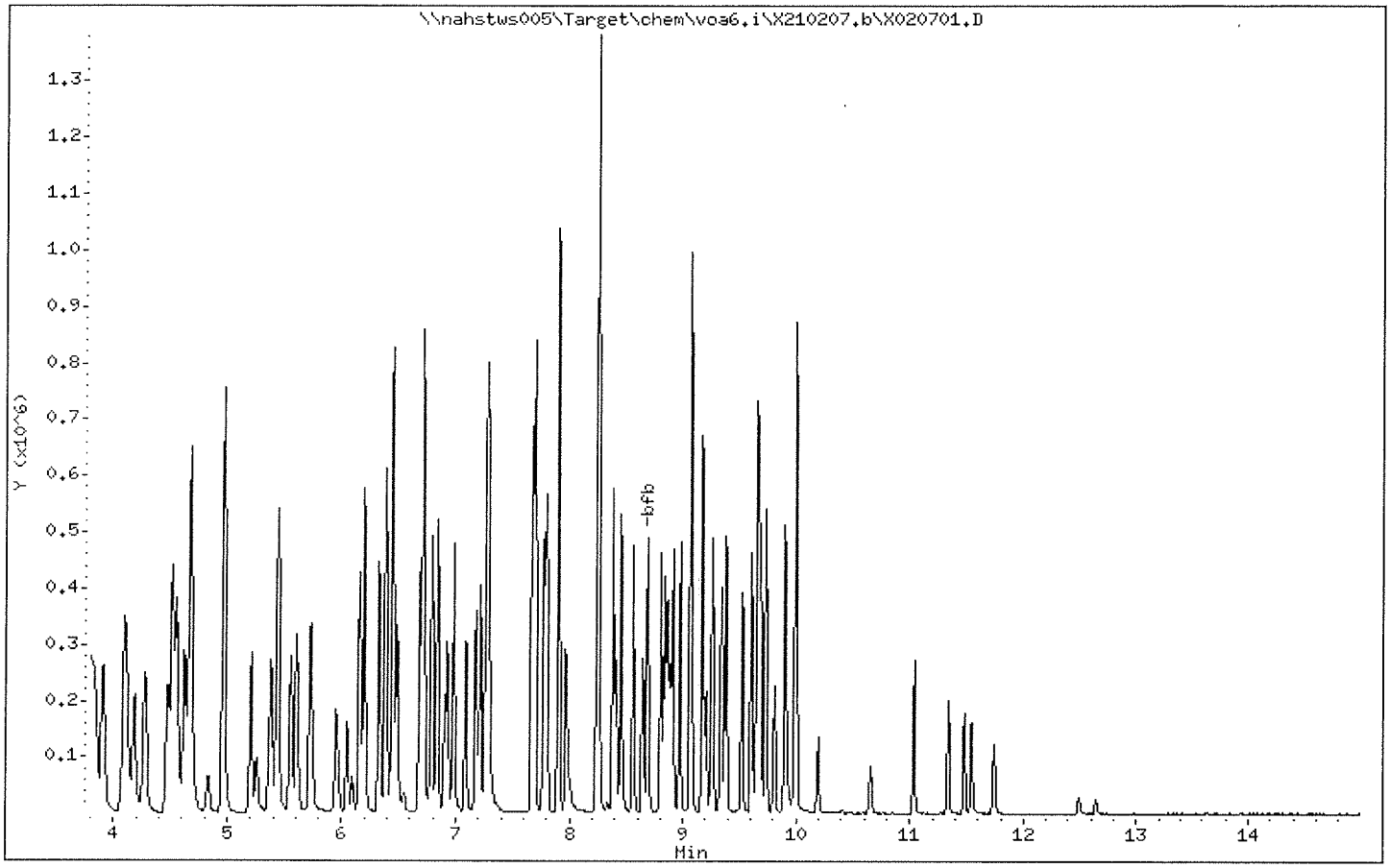
Date : 07-FEB-2021 10:46

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020701.D

Date : 07-FEB-2021 10:46

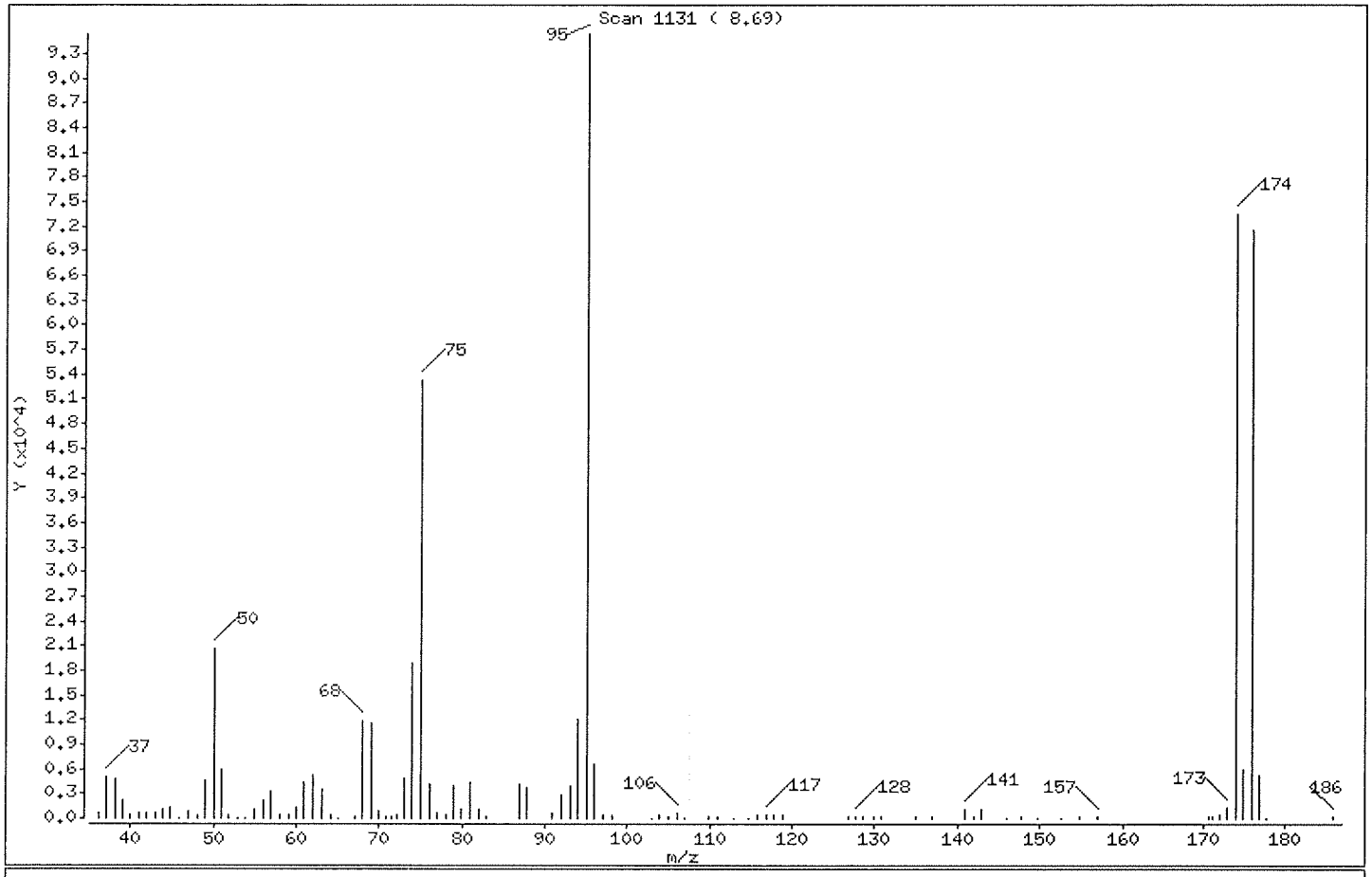
Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	21.57
75	30.00 - 60.00% of mass 95	55.87
96	5.00 - 9.00% of mass 95	6.92
173	Less than 2.00% of mass 174	1.31 (1.70)
174	Greater than 50.00% of mass 95	77.08
175	5.00 - 9.00% of mass 174	6.24 (8.09)
176	95.00 - 101.00% of mass 174	74.97 (97.27)
177	5.00 - 9.00% of mass 176	5.52 (7.37)

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020701.D

Date : 07-FEB-2021 10:46

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: X020701.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 97

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	657	61.00	4413	90.90	608	130.80	157
37.00	5070	62.00	5319	92.00	2774	135.00	258
38.10	4845	63.00	3584	93.00	4007	136.90	192
39.00	2243	64.10	387	94.00	11986	141.00	1189
39.90	446	65.10	78	95.00	95416	142.00	214
41.10	567	67.00	241	96.00	6607	142.90	1180
41.90	656	68.00	11835	97.00	350	146.00	77
43.00	740	69.00	11521	98.10	380	147.80	232
44.00	1079	70.00	986	102.90	65	149.70	54
44.90	1325	70.90	207	103.90	480	152.70	50
45.90	82	71.40	226	104.90	321	154.90	220
47.00	866	72.10	472	106.00	570	157.00	291
48.00	498	73.00	4777	106.90	107	170.60	113
49.00	4686	74.00	18856	109.90	110	171.20	145
50.00	20584	75.00	53312	110.90	135	172.00	426
51.00	5819	76.00	4200	112.90	57	172.80	1248
51.90	403	77.00	549	114.70	89	173.90	73544
52.90	104	78.10	491	115.90	446	174.90	5951
53.80	89	78.90	4040	117.00	508	175.90	71536
54.90	1163	79.90	1187	117.80	482	176.90	5271
56.00	2222	80.90	4297	118.80	478	177.80	75
57.00	3241	82.00	1055	126.80	247	186.00	132
58.00	425	82.90	303	127.80	328		
59.10	427	86.90	4071	128.60	121		
60.00	1366	87.90	3749	129.90	308		

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020702.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 07-FEB-2021 11:07
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

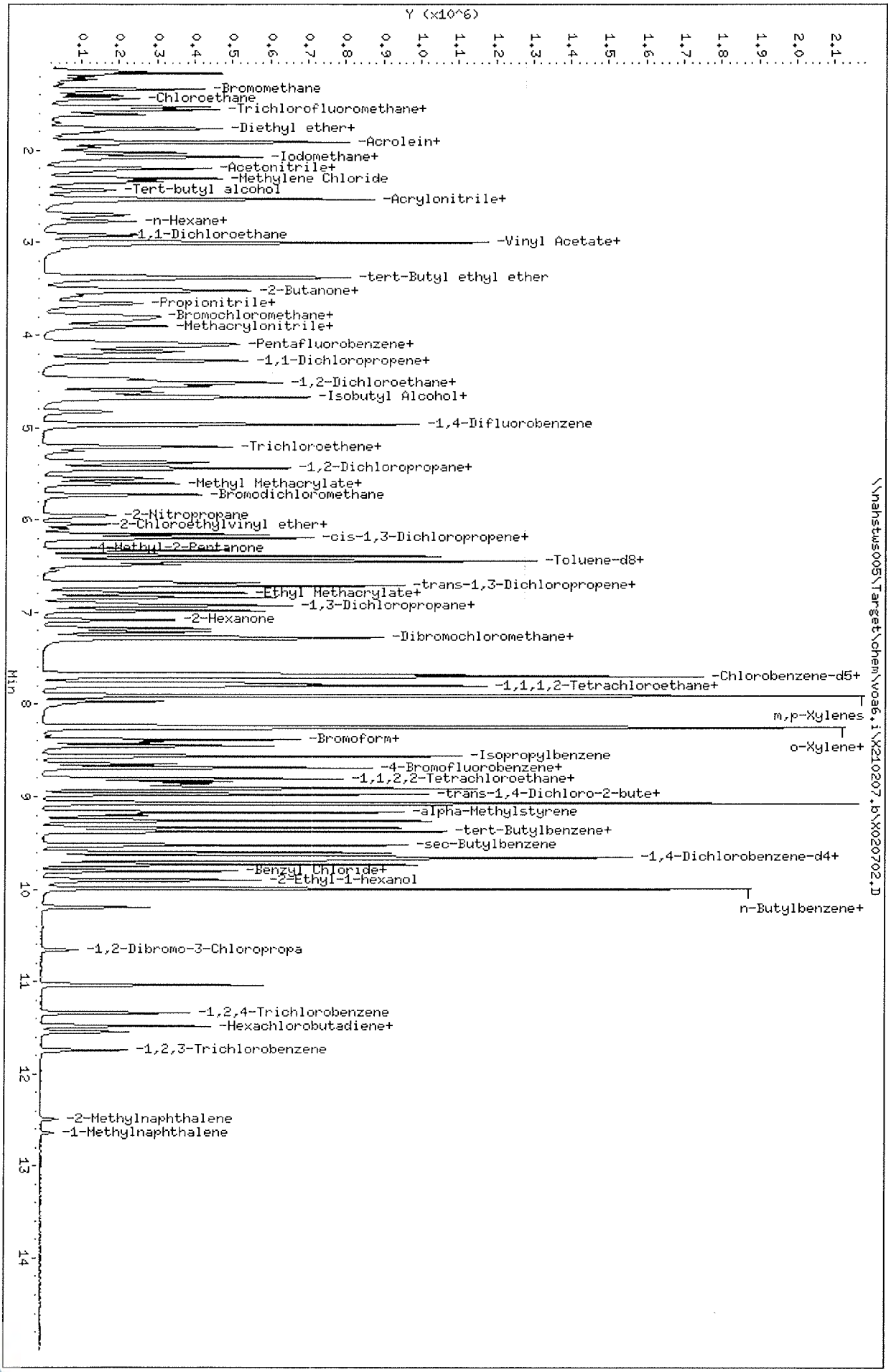
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	268235	50.0000	
* 36	1,4-Difluorobenzene	114	4.963	4.963	(1.000)	475192	50.0000	
* 47	Chlorobenzene-d5	117	7.671	7.671	(1.000)	445526	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	204434	50.0000	
$ 30	Dibromofluoromethane	113	4.103	4.103	(0.981)	166847	50.0000	51.84
$ 35	1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	199520	50.0000	59.95(M)
$ 48	Toluene-d8	98	6.388	6.388	(0.833)	589992	50.0000	50.61
$ 69	4-Bromofluorobenzene	95	8.688	8.688	(1.133)	223567	50.0000	56.86
11	1,1-Dichloroethene	96	1.912	1.912	(0.457)	153412	50.0000	45.17
33	1,2-Dichloroethane	62	4.555	4.555	(0.918)	243634	50.0000	57.65
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	158223	50.0000	46.05
56	Tetrachloroethene	164	6.926	6.926	(0.903)	108127	50.0000	44.48
38	Trichloroethene	130	5.207	5.207	(1.049)	150460	50.0000	47.38
5	Vinyl Chloride	62	1.138	1.138	(0.272)	178498	50.0000	46.60

QC Flag Legend

M - Compound response manually integrated.

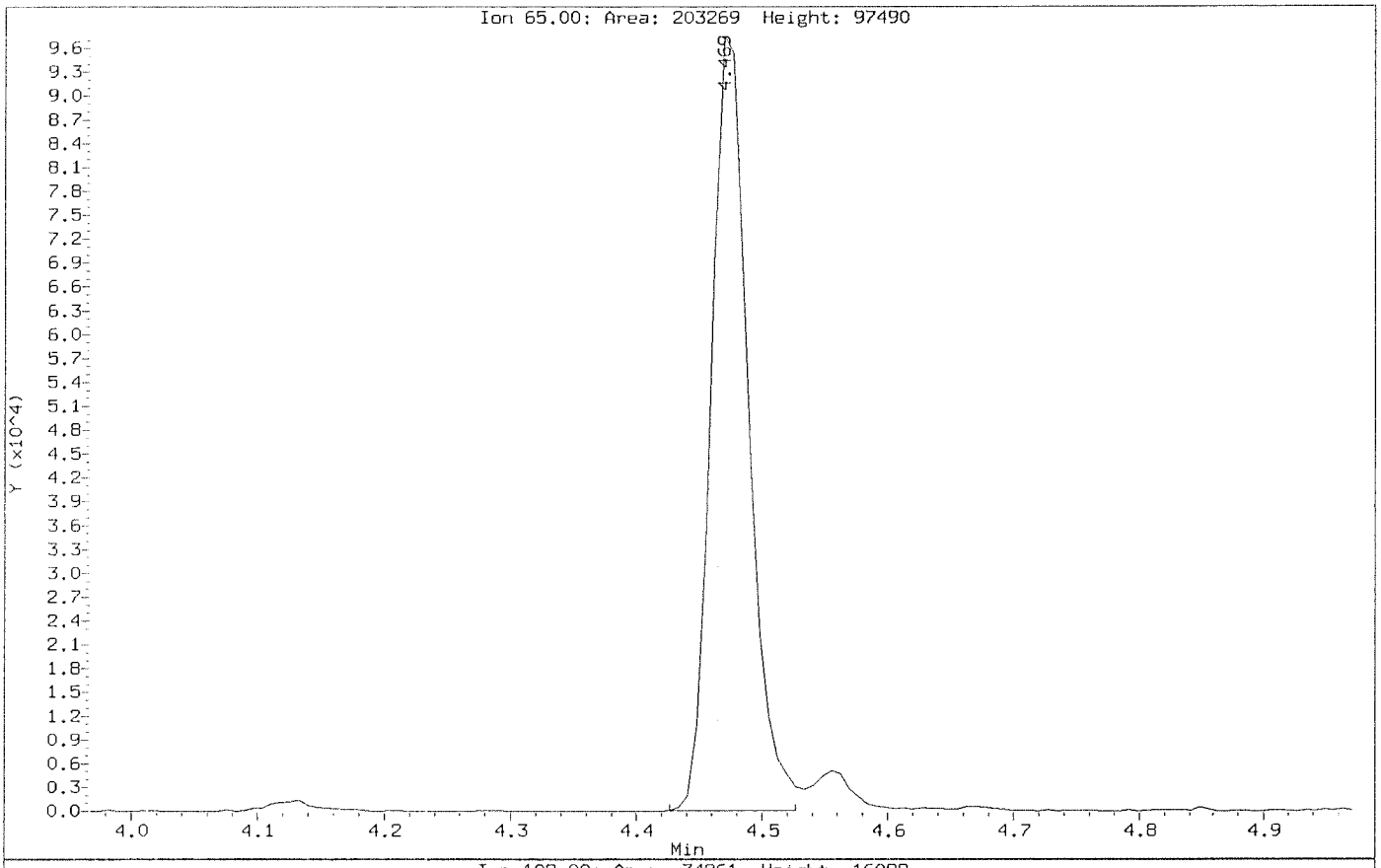


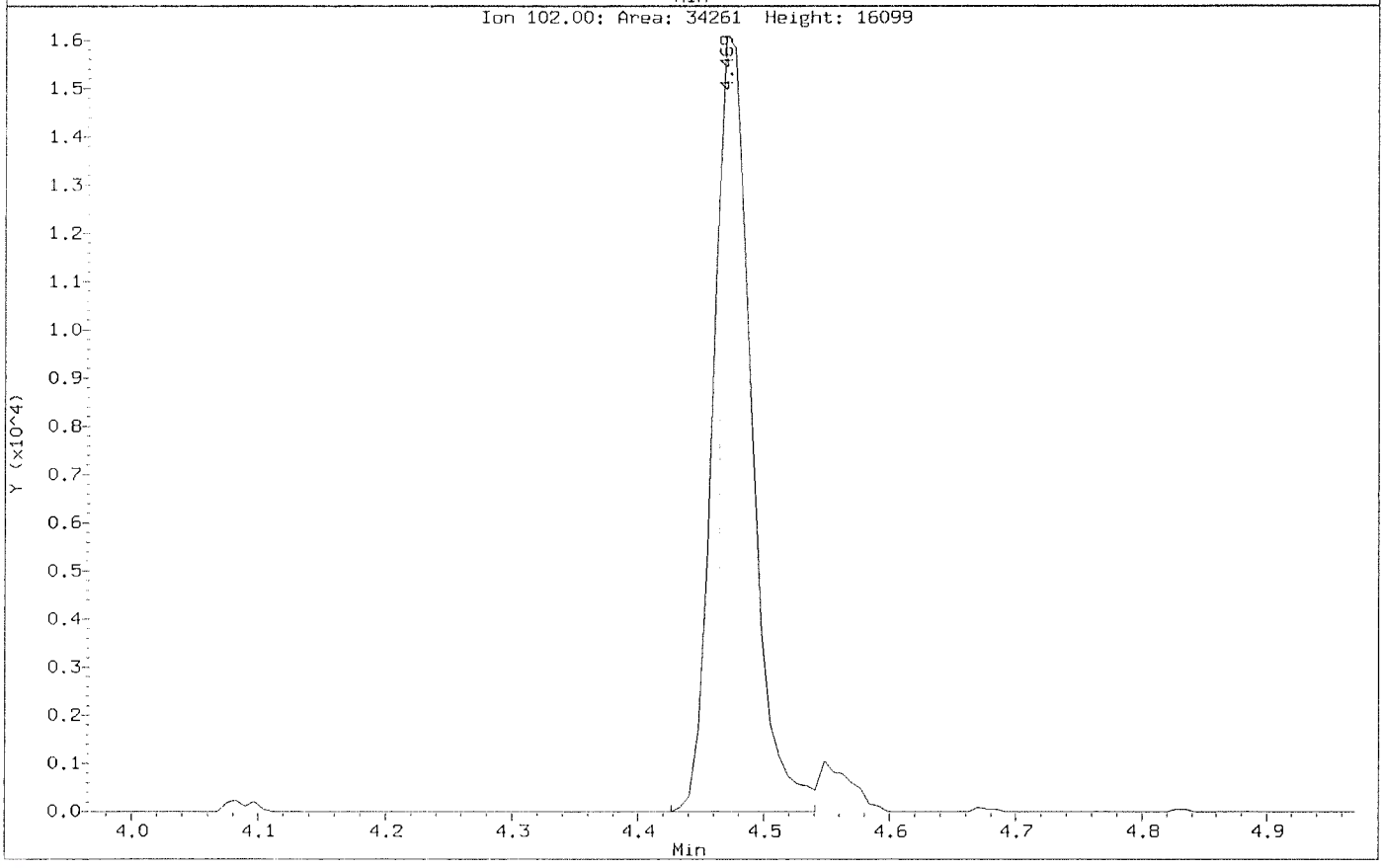
Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020702.D
Date : 07-FEB-2021 11:07
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\Before\X020702.D
Injection Date: 07-FEB-2021 11:07
Instrument: voa6.i
Client Sample ID: CCV

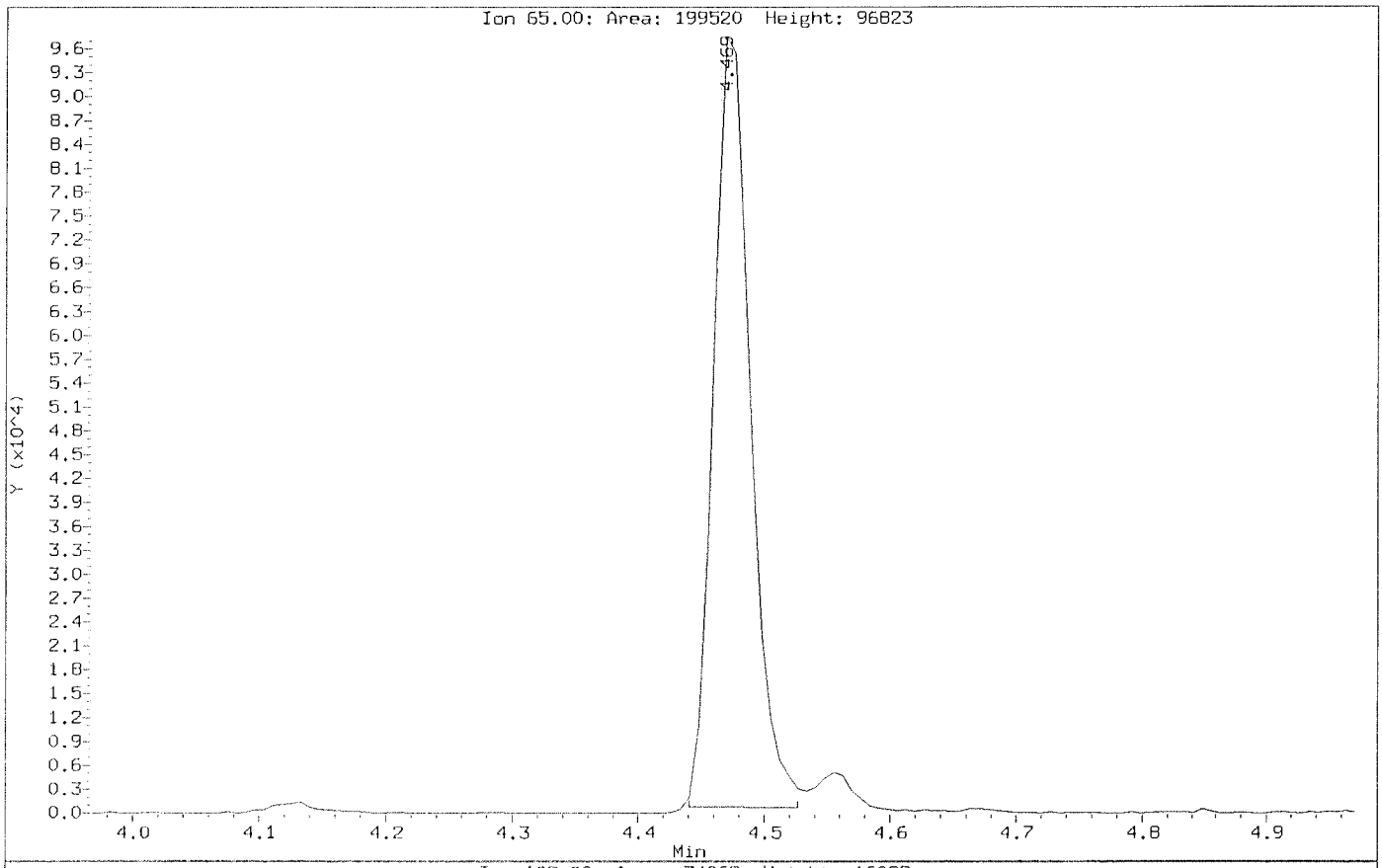
Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0

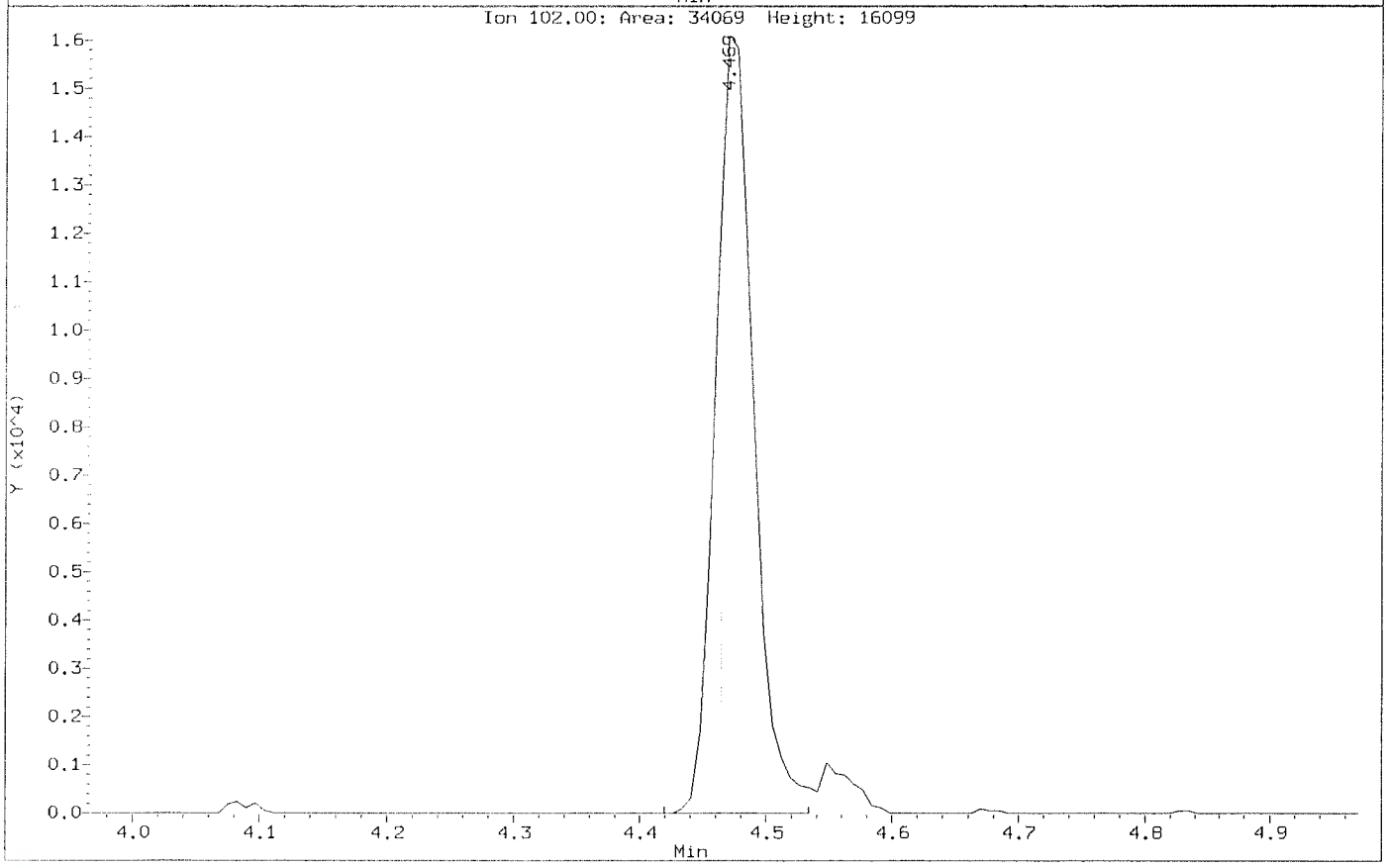




Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020702.D
Injection Date: 07-FEB-2021 11:07
Instrument: voa6.i
Client Sample ID: CCV

Compound: 1,2-Dichloroethane-d4
CAS Number: 17060-07-0





Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020705.D Page 1
Report Date: 02-Mar-2021 09:59

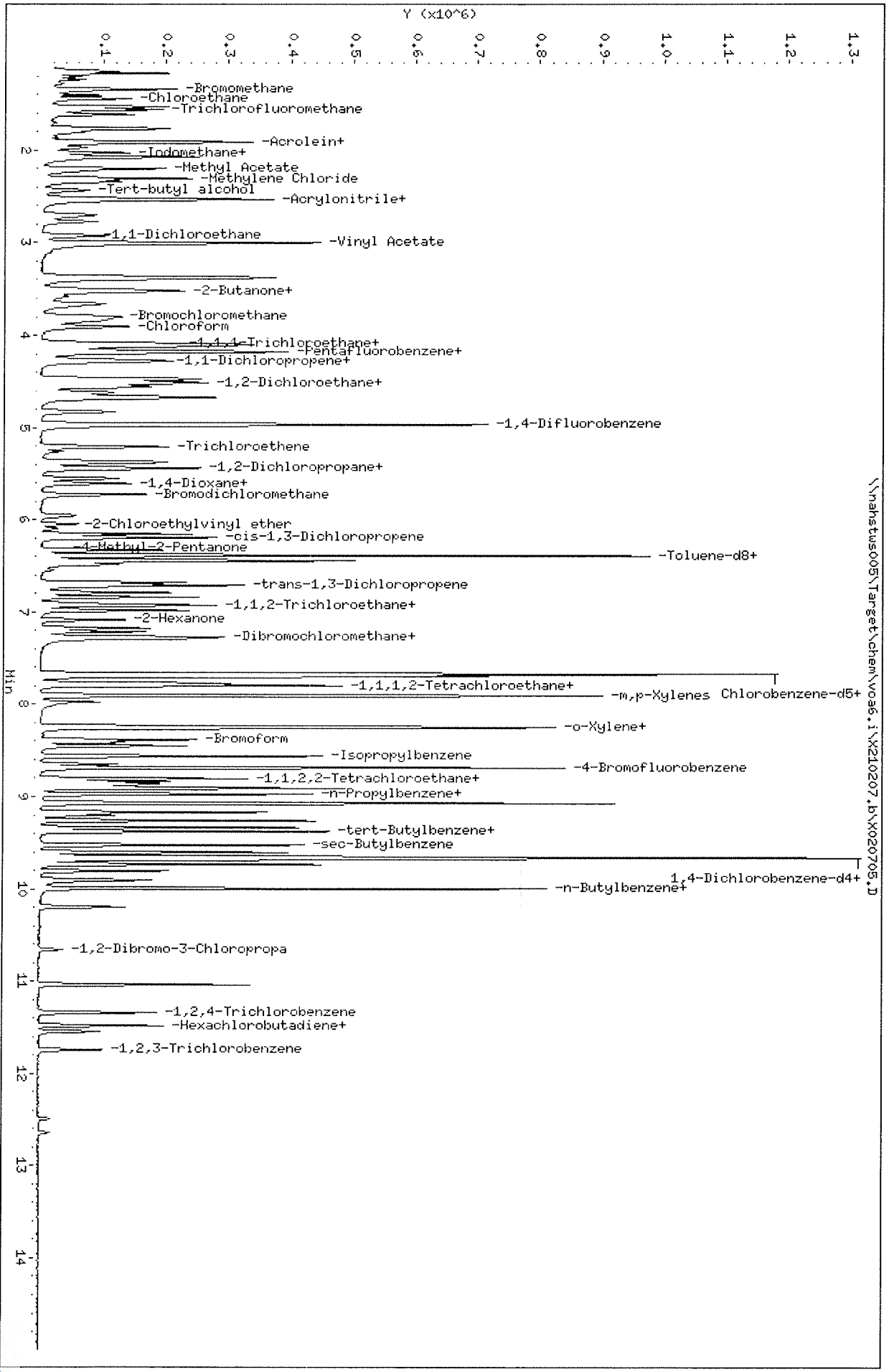
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020705.D
Lab Smp Id: VLCSW-210207 Client Smp ID: VLCSW-210207
Inj Date : 07-FEB-2021 12:10
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210207;VLCSW-210207;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	281981	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	488140	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	471944	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	225568	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	158770	46.8985	46.89
$	35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	200637	57.2859	57.28
$	48 Toluene-d8	98	6.388	6.388	(0.833)	555876	45.0231	45.02
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	211678	50.6685	50.66
	11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	65543	18.3586	18.35
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	102810	23.6853	23.68
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	67818	18.7791	18.77
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	44834	17.4128	17.41
	38 Trichloroethene	130	5.207	5.207	(1.049)	61026	18.7078	18.70
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	75001	18.6290	18.62



Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020705.D
Date : 07-FEB-2021 12:10
Client ID: VLCSW-210207
Sample Info: VLCSW-210207;VLCSW-210207;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020708.D Page 1
Report Date: 02-Mar-2021 09:59

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020708.D
Lab Smp Id: VBLKW-210207 Client Smp ID: VBLKW-210207
Inj Date : 07-FEB-2021 13:13
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210207;VBLKW-210207;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 8 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	310685	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	523711	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	480712	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	204457	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	178335	47.8182	47.81
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	224772	58.2723	58.27
$	48 Toluene-d8	98	6.388	6.388	(0.833)	645225	51.3067	51.30
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	213684	50.2022	50.20

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020708.D

Date : 07-FEB-2021 13:13

Client ID: VBLKW-210207

Instrument: voa6.i

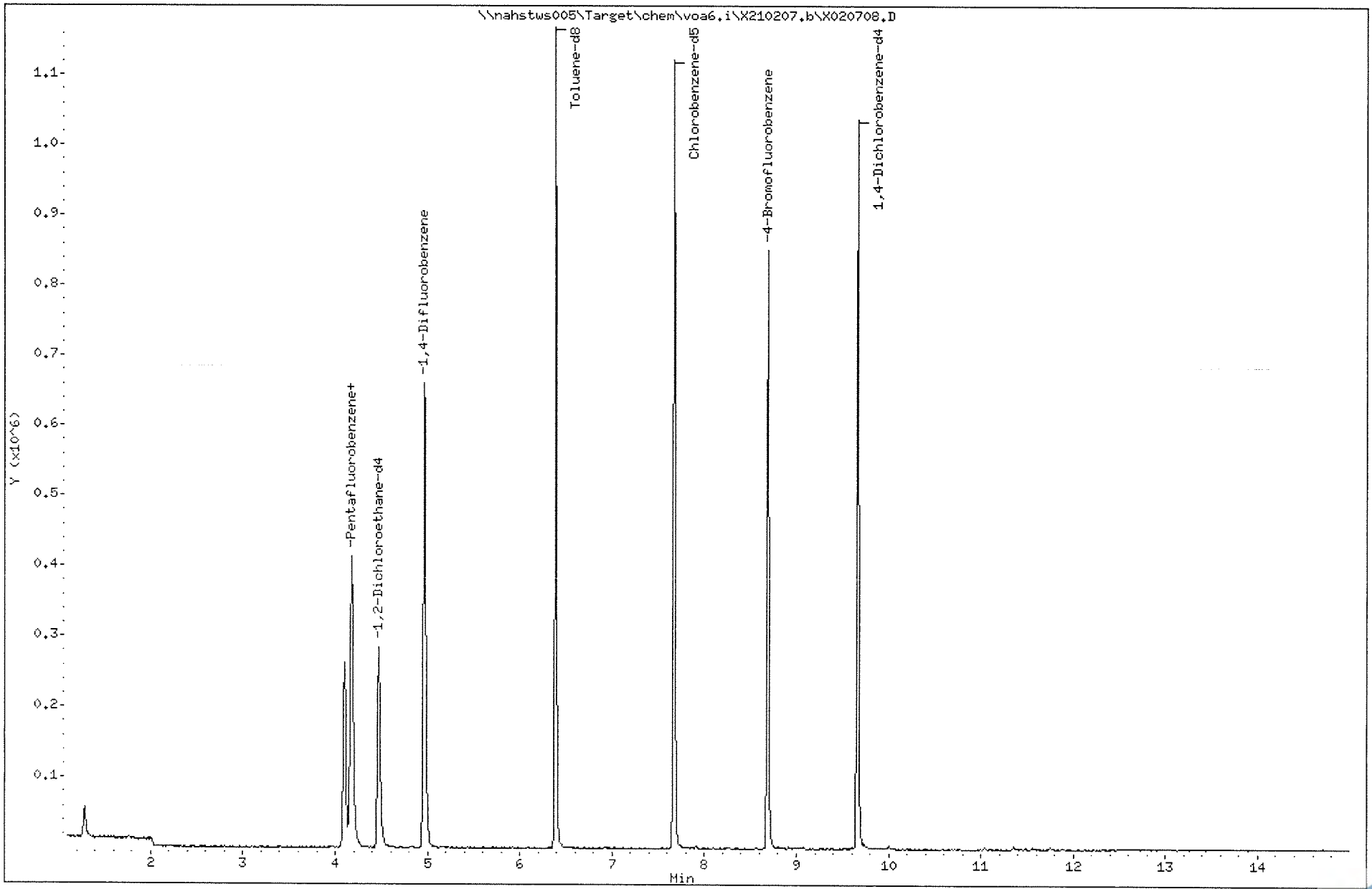
Sample Info: VBLKW-210207;VBLKW-210207;3;;BLANK

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020713.D Page 1
Report Date: 02-Mar-2021 09:59

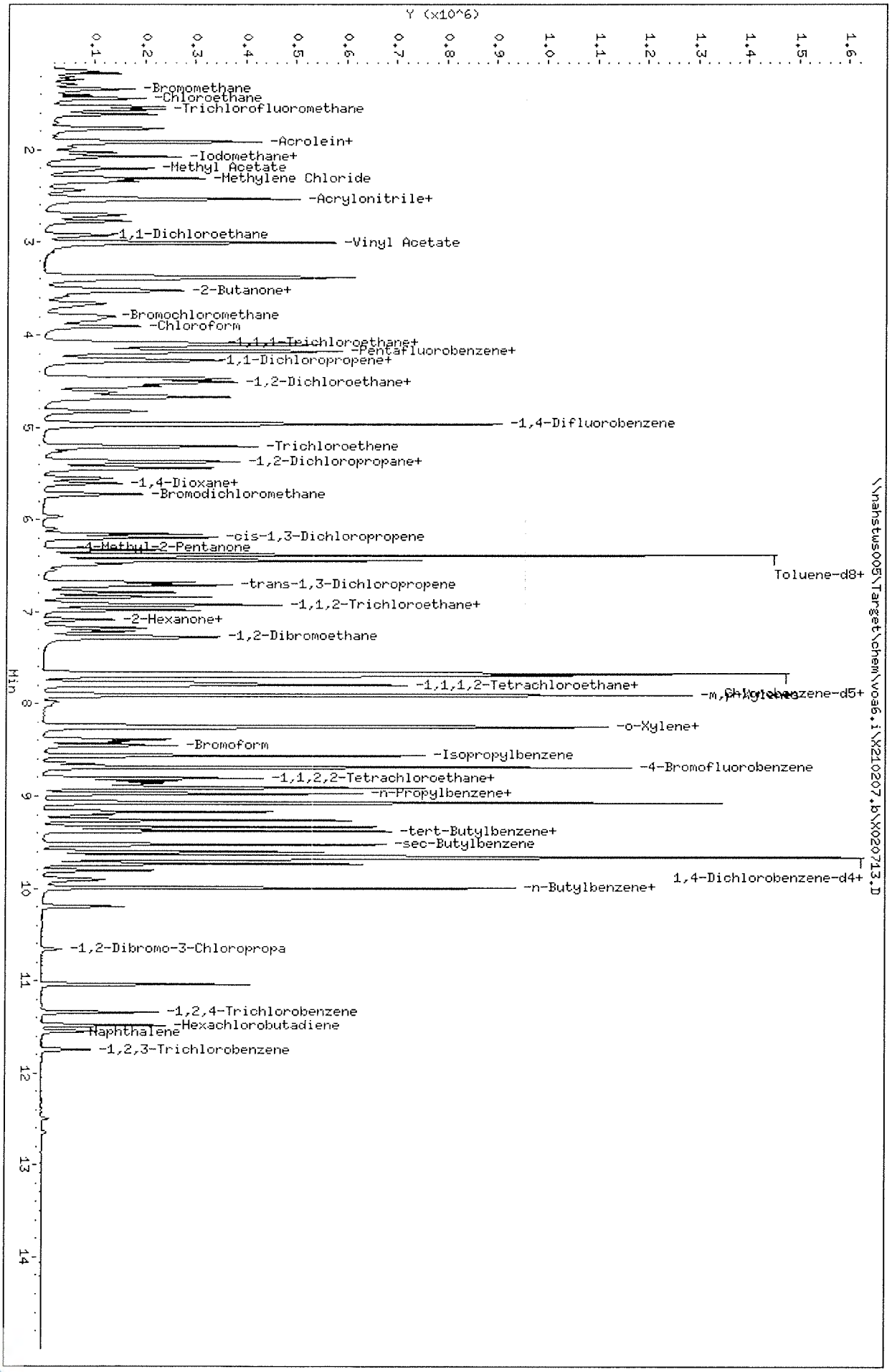
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020713.D
Lab Smp Id: HS21020249-04MS Client Smp ID: HS21020249-04MS
Inj Date : 07-FEB-2021 14:58
Operator : PC Inst ID: voa6.i
Smp Info : HS21020249-04MS;HS21020249-04MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 13 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	428279	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	757337	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	654778	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	290568	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	253886	49.3967	49.39
$	35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	290496	54.5413	54.54
$	48 Toluene-d8	98	6.388	6.388	(0.833)	857047	50.0332	50.03
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	328160	56.7950	56.79
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	78884	14.5478	14.54
	33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	129239	19.1908	19.19
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	81368	14.8347	14.83
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	81778	22.8926	22.89
	38 Trichloroethene	130	5.206	5.207	(1.048)	136529	26.9766	26.97
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	61446	10.0487	10.04



Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020713.D
Date : 07-FEB-2021 14:58
Client ID: HS21020249-04MS
Sample Info: HS21020249-04MS;HS21020249-04MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

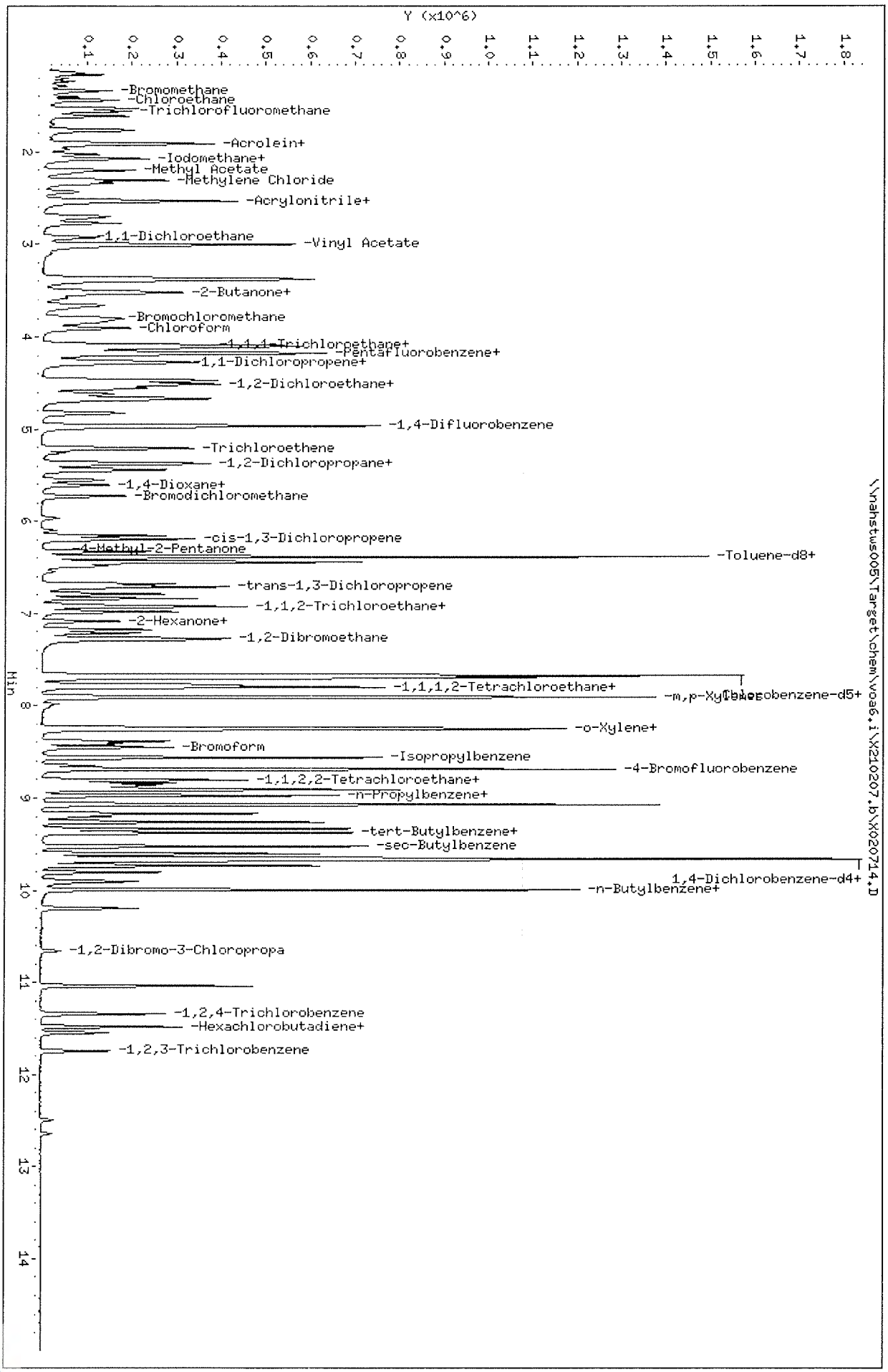
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020714.D
Lab Smp Id: HS21020249-04MSD Client Smp ID: HS21020249-04MSD
Inj Date : 07-FEB-2021 15:19
Operator : PC Inst ID: voa6.i
Smp Info : HS21020249-04MSD;HS21020249-04MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 13 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	474352	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	606837	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	701240	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	334007	50.0000	
$	30 Dibromofluoromethane	113	4.096	4.103	(0.979)	268255	47.1056	47.10
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	306631	51.9102	51.91
$	48 Toluene-d8	98	6.388	6.388	(0.833)	883081	48.1373	48.13
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	355954	57.5431	57.54
	11 1,1-Dichloroethene	96	1.911	1.912	(0.457)	65997	10.9890	10.98
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	131377	24.3464	24.34
	27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	100069	16.4721	16.47
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	81190	21.2221	21.22
	38 Trichloroethene	130	5.206	5.207	(1.049)	114377	28.2045	28.20
	5 Vinyl Chloride	62	1.138	1.138	(0.272)	54632	8.06657	8.06



Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020714.D
Date : 07-FEB-2021 15:19
Client ID: HS21020249-04HSD
Sample Info: HS21020249-04HSD;HS21020249-04HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X210207.b\X020715.D
Lab Smp Id: HS21011150-07 Client Smp ID: HS21011150-07
Inj Date : 07-FEB-2021 15:41
Operator : PC Inst ID: voa6.i
Smp Info : HS21011150-07;HS21011150-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X210207.b\8260W.m
Meth Date : 02-Mar-2021 09:56 devak.giga Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	447215	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	804811	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	728342	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	280301	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	264532	49.2880	49.28
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	298226	53.5971	53.59
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	878380	46.0994	46.09
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	291738	45.0867	45.08

Data File: \\nahstws005\Target\chem\voa6.i\X210207.b\X020715.D

Date : 07-FEB-2021 15:41

Client ID: HS21011150-07

Instrument: voa6.i

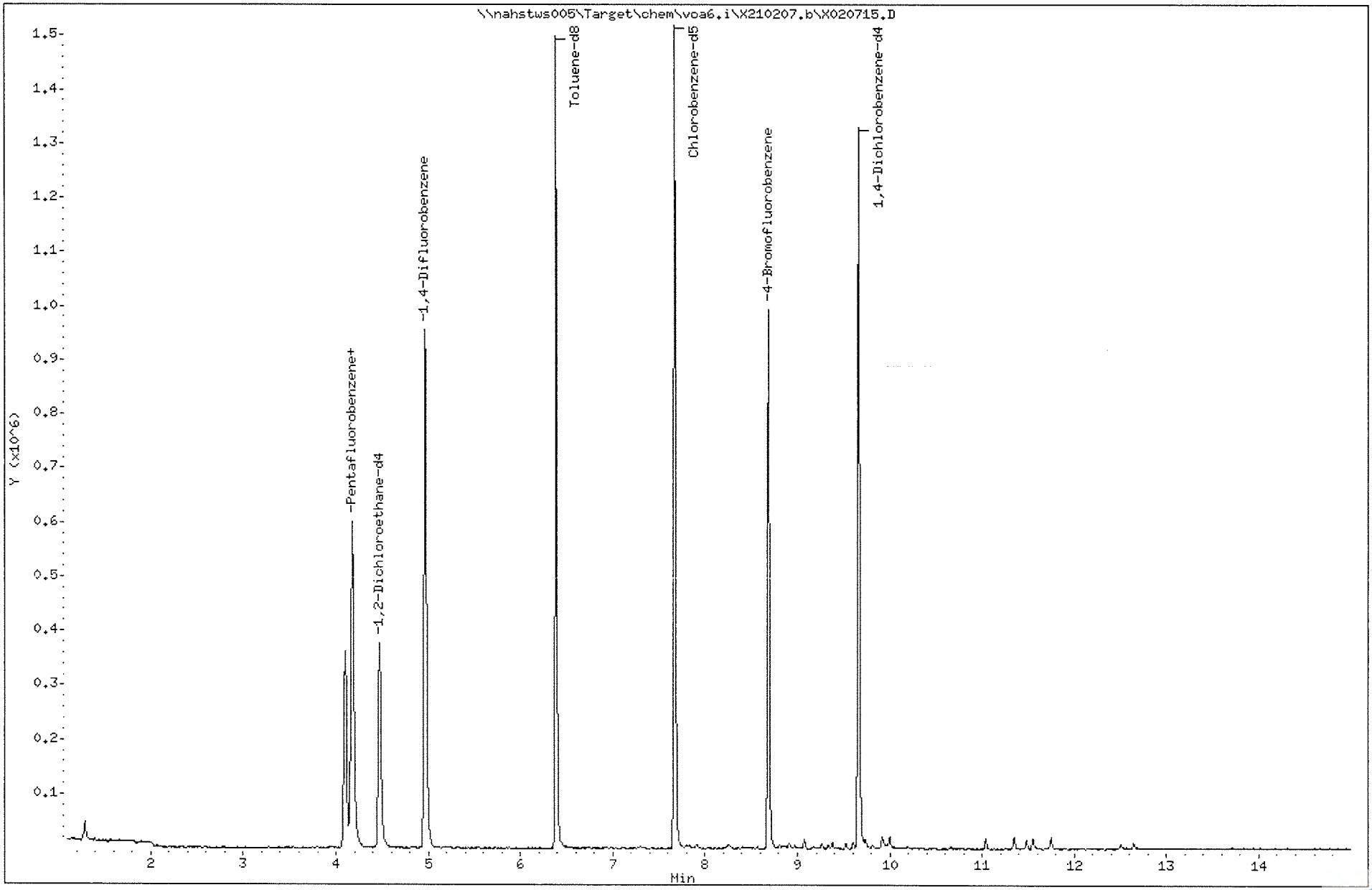
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Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



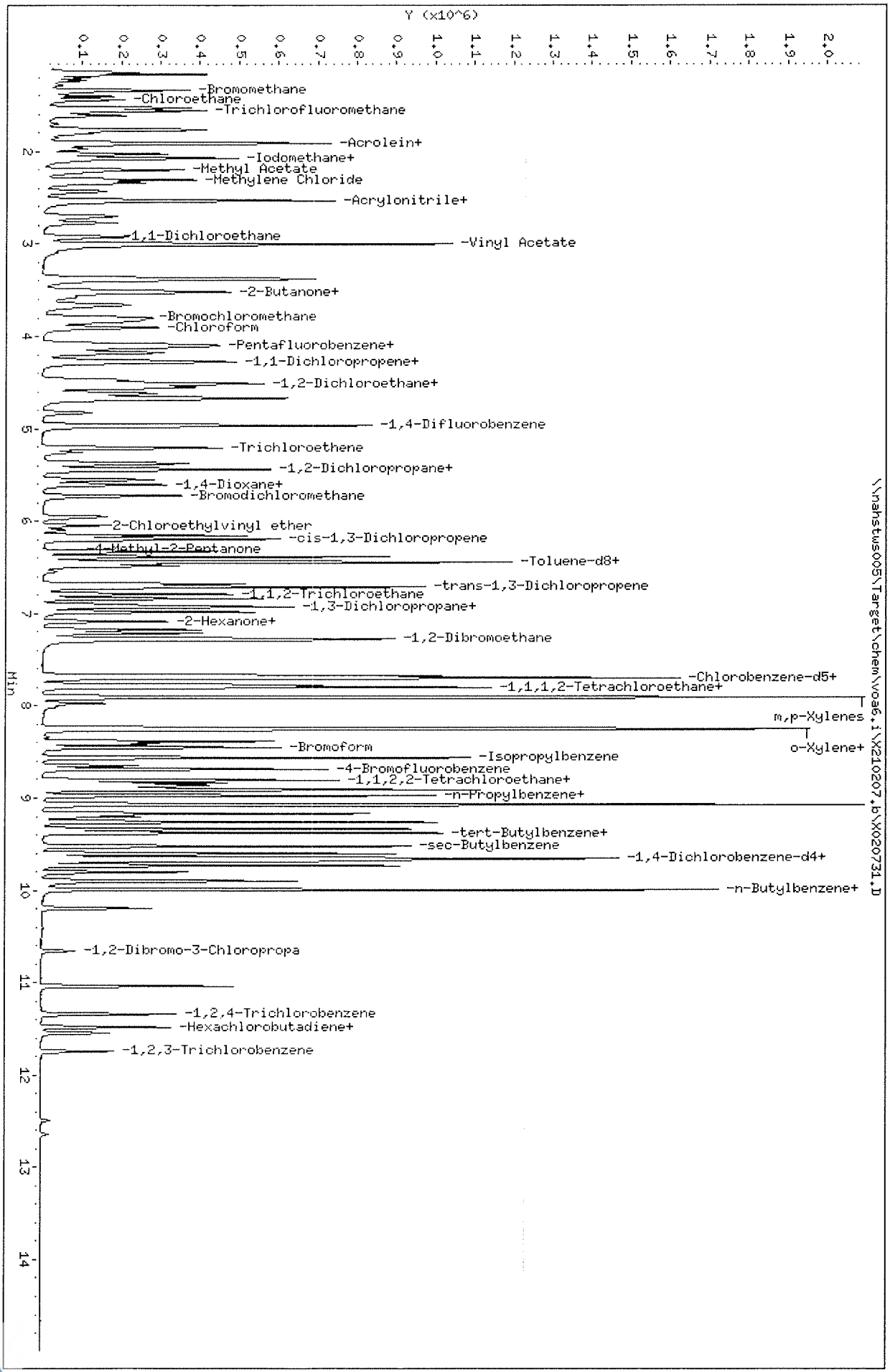
ALS Laboratory Group

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Inj Date : 07-FEB-2021 21:17
Operator : PC Inst ID: voa6.i
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Comment :
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Meth Date : 02-Mar-2021 09:59 voa6.i Quant Type: ISTD
Cal Date : 26-JAN-2021 13:59 Cal File: X012608.D
Als bottle: 30 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI-H-SL.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	221390	50.0000	
* 36	1,4-Difluorobenzene	114	4.963	4.963	(1.000)	411390	50.0000	
* 47	Chlorobenzene-d5	117	7.671	7.671	(1.000)	394637	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	182829	50.0000	
$ 30	Dibromofluoromethane	113	4.103	4.103	(0.981)	137772	50.0000	51.87
$ 35	1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	166076	50.0000	60.47
$ 48	Toluene-d8	98	6.388	6.388	(0.833)	482549	50.0000	46.74
$ 69	4-Bromofluorobenzene	95	8.688	8.688	(1.133)	183441	50.0000	52.56
11	1,1-Dichloroethene	96	1.912	1.912	(0.457)	137050	50.0000	48.89
33	1,2-Dichloroethane	62	4.555	4.555	(0.918)	216419	50.0000	59.16
27	cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	137364	50.0000	48.44
56	Tetrachloroethene	164	6.926	6.926	(0.903)	102486	50.0000	47.60
38	Trichloroethene	130	5.207	5.207	(1.049)	134297	50.0000	48.84
5	Vinyl Chloride	62	1.138	1.138	(0.272)	154792	50.0000	48.97



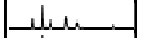
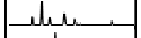
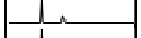
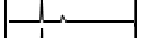
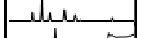
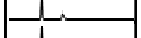
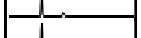
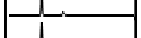
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Date : 07-FEB-2021 21:17
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

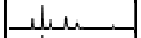
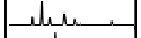
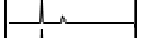
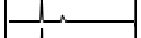
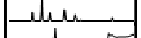
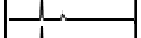
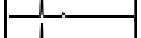
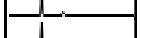
HS21011150 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS21011150

Sequence: 012921
Last Update Operator: alshs.nouser

ECD_1	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume [µl]
	STD1		Calibration	BE1	1.00	01	ICS2100	Anion Processing Method 091720	10.0
	STD2		Calibration	BE2	1.00	02	ICS2100	Anion Processing Method 091720	10.0
	STD3		Calibration	BE3	1.00	03	ICS2100	Anion Processing Method 091720	10.0
	STD4		Calibration	BE4	1.00	04	ICS2100	Anion Processing Method 091720	10.0
	STD5		Calibration	BE5	1.00	05	ICS2100	Anion Processing Method 091720	10.0
	STD6		Calibration	BE6	1.00	06	ICS2100	Anion Processing Method 091720	10.0
	ICV		Unknown	BE7	1.00		ICS2100	Anion Processing Method 091720	10.0
	ICB		Unknown	BE8	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV1		Unknown	G3	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G6	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-01		Unknown	GD1	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-02		Unknown	GD2	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV		Unknown	G1	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G4	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-03		Unknown	GD3	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-04		Unknown	GD4	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-05		Unknown	GD5	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-06DF2		Unknown	GD6	2.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-06MSDF2		Unknown	GD7	2.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-06MSDDF2		Unknown	GD8	2.00		ICS2100	Anion Processing Method 091720	10.0
	CCV1		Unknown	G3	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G6	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV		Unknown	G1	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G4	1.00		ICS2100	Anion Processing Method 091720	10.0
	MBLK-		Unknown	G5	1.00		ICS2100	Anion Processing Method 091720	10.0
	LCS-		Unknown	G2	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV1		Unknown	G3	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G6	1.00		ICS2100	Anion Processing Method 091720	10.0

Sequence: 012921
Last Update Operator: alshs.nouser

ECD_1	Name	Status	Inject Time
	STD1	Finished	12/19/2020 1:00:54 PM -06:00
	STD2	Finished	12/19/2020 1:17:43 PM -06:00
	STD3	Finished	12/19/2020 1:34:53 PM -06:00
	STD4	Finished	12/19/2020 1:53:02 PM -06:00
	STD5	Finished	12/19/2020 2:11:08 PM -06:00
	STD6	Finished	12/19/2020 2:29:15 PM -06:00
	ICV	Finished	12/19/2020 2:47:20 PM -06:00
	ICB	Finished	12/19/2020 3:05:27 PM -06:00
	CCV1	Finished	1/29/2021 2:54:53 PM -06:00
	CCB	Finished	1/29/2021 3:12:57 PM -06:00
	HS21011150-01	Finished	1/29/2021 6:14:19 PM -06:00
	HS21011150-02	Finished	1/29/2021 6:32:26 PM -06:00
	CCV	Finished	1/29/2021 6:50:33 PM -06:00
	CCB	Finished	1/29/2021 7:08:40 PM -06:00
	HS21011150-03	Finished	1/29/2021 7:44:55 PM -06:00
	HS21011150-04	Finished	1/29/2021 8:03:00 PM -06:00
	HS21011150-05	Finished	1/29/2021 8:21:06 PM -06:00
	HS21011150-06DF2	Finished	1/29/2021 8:39:15 PM -06:00
	HS21011150-06MSDF2	Finished	1/29/2021 8:57:20 PM -06:00
	HS21011150-06MSDDF2	Finished	1/29/2021 9:15:27 PM -06:00
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	CCB	Finished	1/29/2021 11:22:22 PM -06:00
	CCV	Finished	1/30/2021 2:23:25 AM -06:00
	CCB	Finished	1/30/2021 2:41:36 AM -06:00
	MBLK-	Finished	1/30/2021 3:17:50 AM -06:00
	LCS-	Finished	1/30/2021 3:35:56 AM -06:00
	CCV1	Finished	1/30/2021 5:42:52 AM -06:00
	CCB	Finished	1/30/2021 6:00:59 AM -06:00

Sequence: 020521
Injection #6: STD6

Calibration

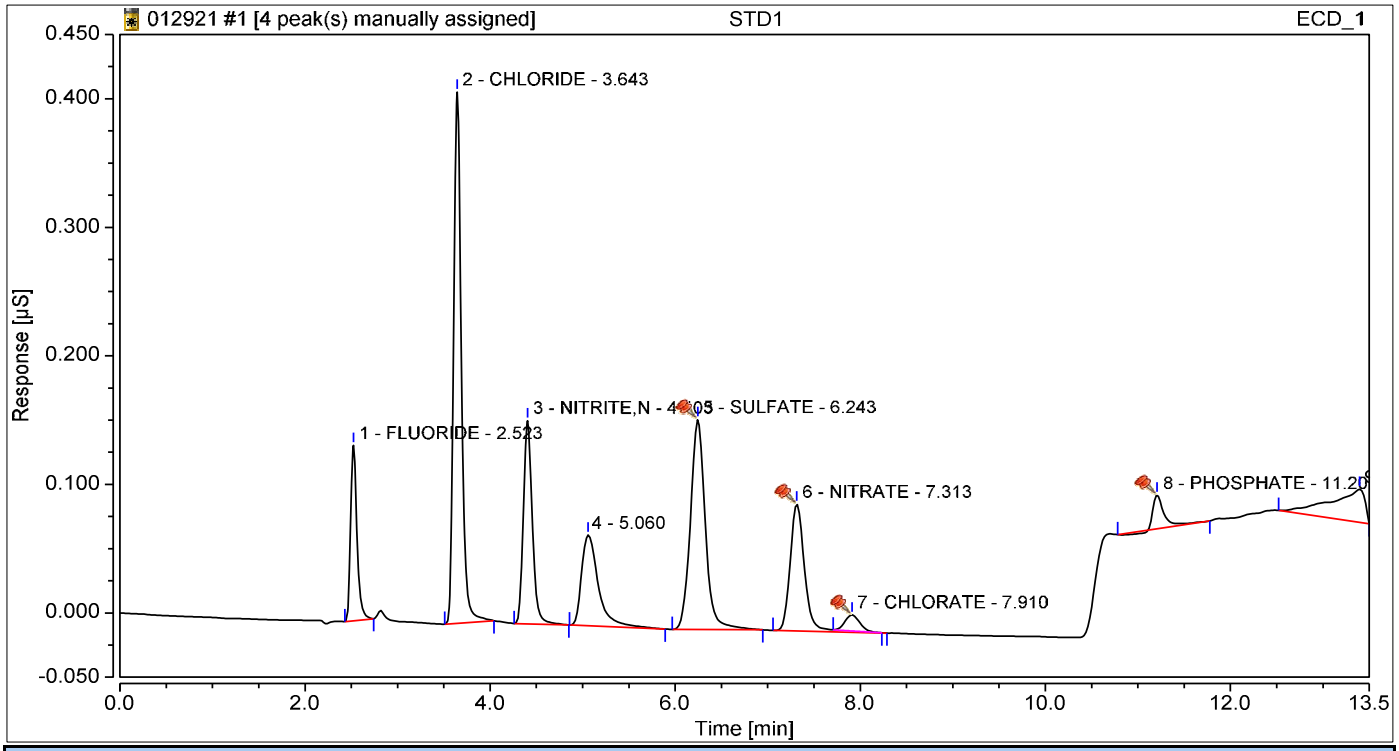
Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*FLUORIDE*	*Lin, WithOffset, 1/*	*Area*	*6*	*16.6332*	*0.99866*	*-0.0030*	*0.1545*	*0.0000*
2	CHLORIDE	Lin, WithOffset, 1/	Area	6	2.0730	0.99998	-0.0081	0.0947	0.0000
3	NITRITE,N	Lin, WithOffset, 1/	Area	6	23.9051	0.99676	0.0031	0.1912	0.0000
5	SULFATE	Lin, WithOffset, 1/	Area	3	2.7059	0.99999	-0.0086	0.0784	0.0000
n.a.	BROMIDE	Lin, WithOffset, 1/	Area	3	0.2089	1.00000	-0.0055	0.3870	0.0000
6	NITRATE	Lin, WithOffset, 1/	Area	6	4.0775	0.99992	-0.0066	0.2377	0.0000
7	CHLORATE	Lin, WithOffset, 1/	Area	6	18.3441	0.99864	-0.0020	0.0353	0.0000
9	PHOSPHATE	Lin, WithOffset, 1/	Area	6	20.0725	0.99859	-0.0075	0.0897	0.0000
Maximum					**23.9051**	1.00000			
Minimum					0.2089	**0.99676**			

Chromatogram and Results

Injection Details

Injection Name:	**STD1**	***Run Time (min):***	**13.50**
Vial Number:	**BE1**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**01**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:00**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

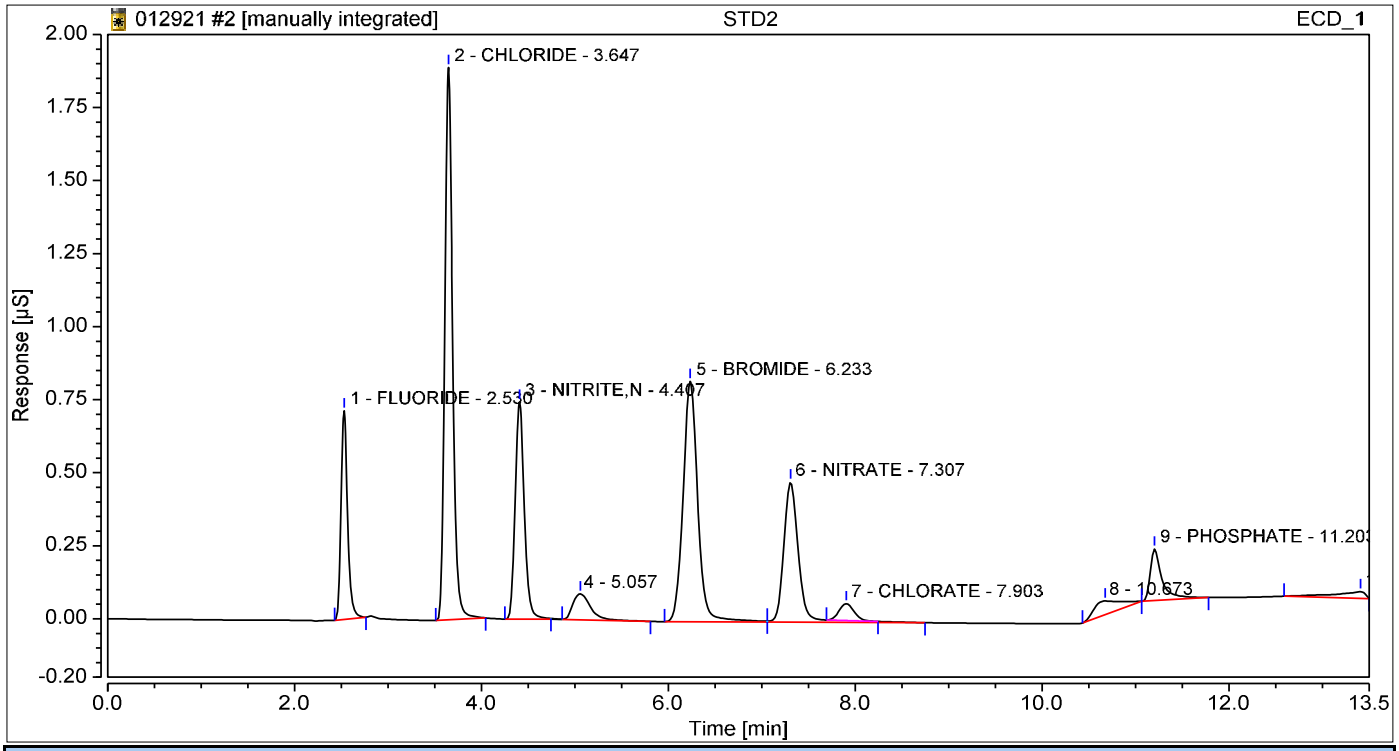
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.523	0.011	0.136	7.37	12.35	0.0899
2	CHLORIDE	3.643	0.040	0.413	26.94	37.41	0.5060
3	NITRITE,N	4.403	0.018	0.158	11.95	14.30	0.0759
4		5.060	0.015	0.071	10.06	6.38	n.a.
5	SULFATE	6.243	0.031	0.163	20.66	14.78	0.4991
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.313	0.018	0.099	12.10	8.94	0.1029
7	CHLORATE	7.910	0.002	0.013	1.56	1.13	0.1221
8	PHOSPHATE	11.207	0.003	0.026	2.15	2.37	0.1195
9		13.397	0.011	0.026	7.22	2.33	n.a.
Total:			**0.148**	**1.105**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2**	***Run Time (min):***	**13.50**
Vial Number:	**BE2**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**02**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:17**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

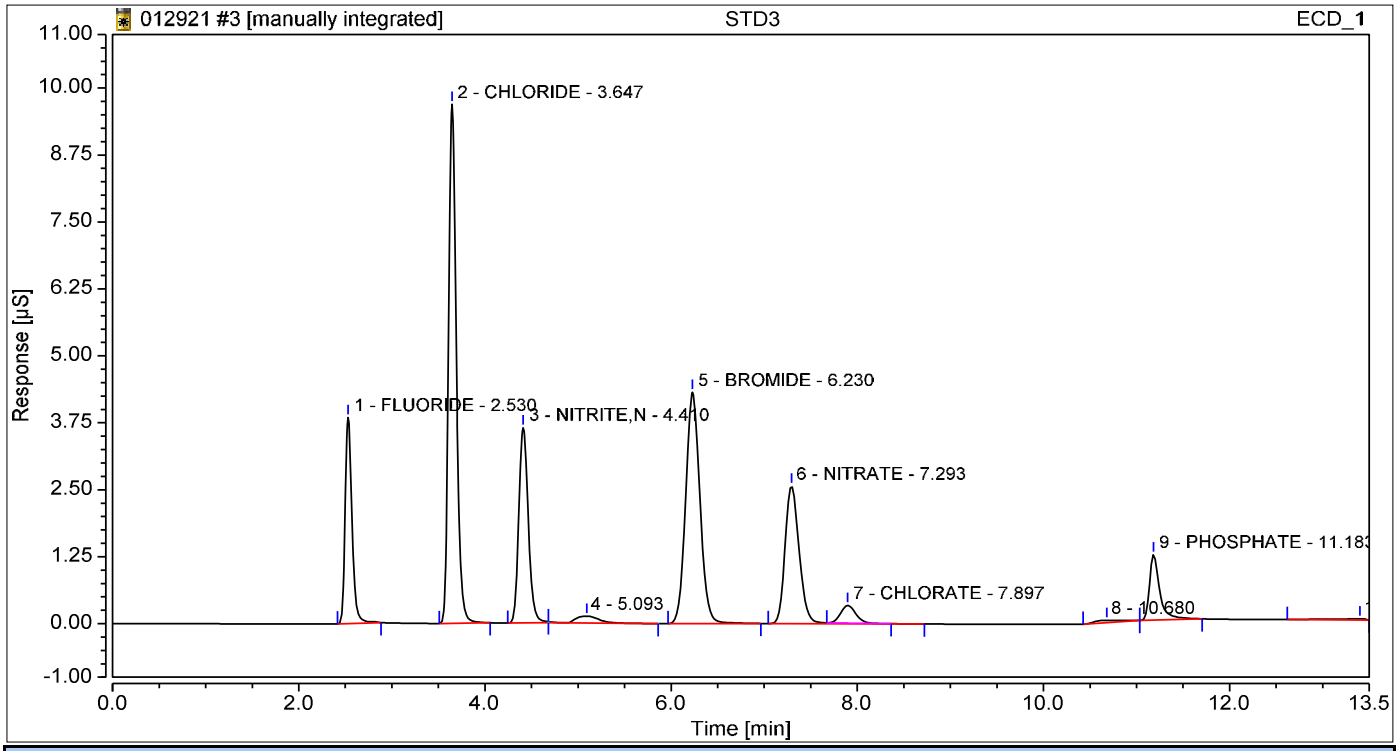
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.530	0.058	0.714	9.04	14.16	0.3957
2	CHLORIDE	3.647	0.182	1.891	28.23	37.49	2.0019
3	NITRITE,N	4.407	0.084	0.743	13.05	14.73	0.4225
4		5.057	0.020	0.089	3.08	1.76	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.233	0.149	0.822	23.24	16.30	0.4003
6	NITRATE	7.307	0.089	0.480	13.80	9.52	0.4010
7	CHLORATE	7.903	0.011	0.058	1.67	1.15	0.3616
8		10.673	0.016	0.047	2.45	0.93	n.a.
9	PHOSPHATE	11.203	0.026	0.177	4.05	3.51	0.3745
10		13.407	0.009	0.023	1.39	0.45	n.a.
Total:			**0.643**	**5.045**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3**	***Run Time (min):***	**13.50**
Vial Number:	**BE3**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**03**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:34**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

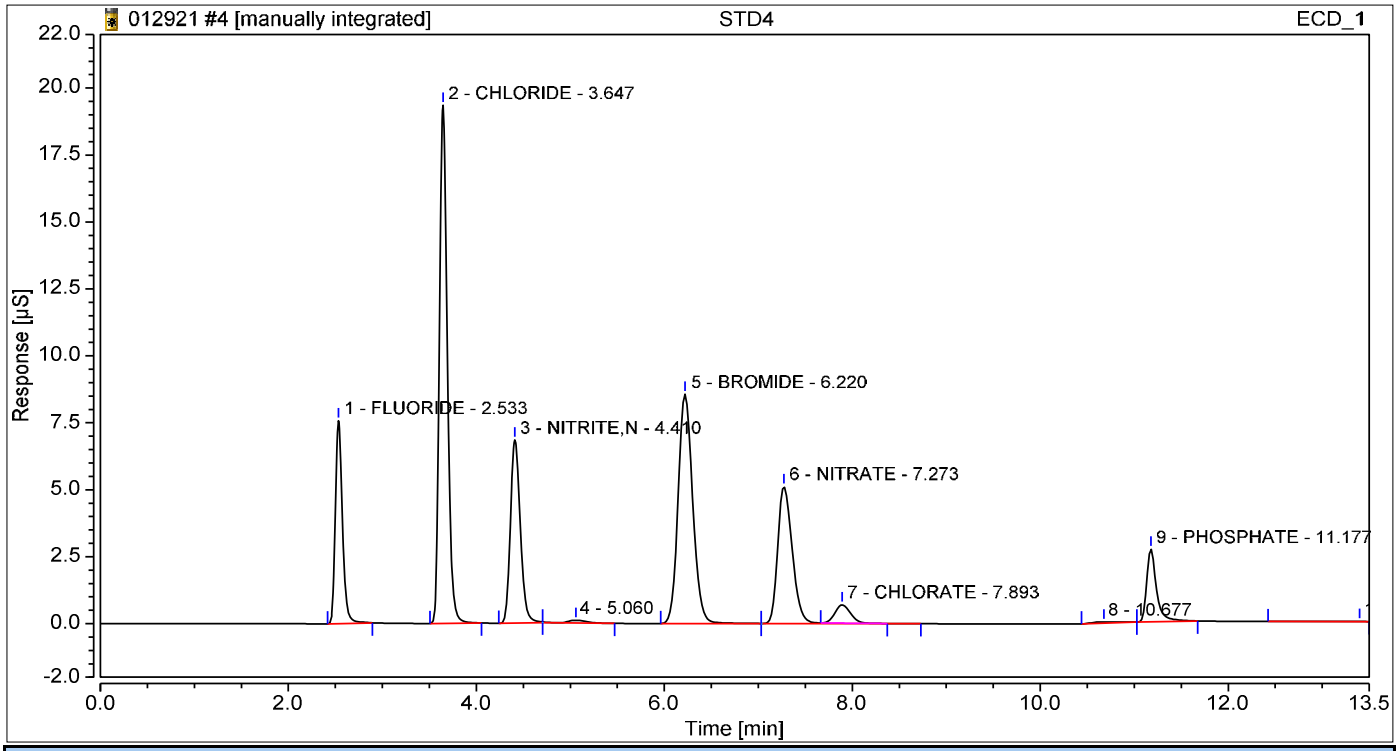
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.530	0.324	3.848	10.18	14.90	2.1184
2	CHLORIDE	3.647	0.931	9.689	29.22	37.52	9.9169
3	NITRITE,N	4.410	0.428	3.646	13.43	14.12	2.2218
4		5.093	0.037	0.127	1.16	0.49	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.230	0.768	4.321	24.09	16.73	1.9977
6	NITRATE	7.293	0.456	2.571	14.31	9.96	1.9463
7	CHLORATE	7.897	0.062	0.329	1.95	1.27	1.8182
8		10.680	0.015	0.045	0.47	0.17	n.a.
9	PHOSPHATE	11.183	0.156	1.220	4.89	4.72	1.8214
10		13.400	0.009	0.024	0.29	0.09	n.a.
Total:			**3.186**	**25.820**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4**	***Run Time (min):***	**13.50**
Vial Number:	**BE4**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**04**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:53**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

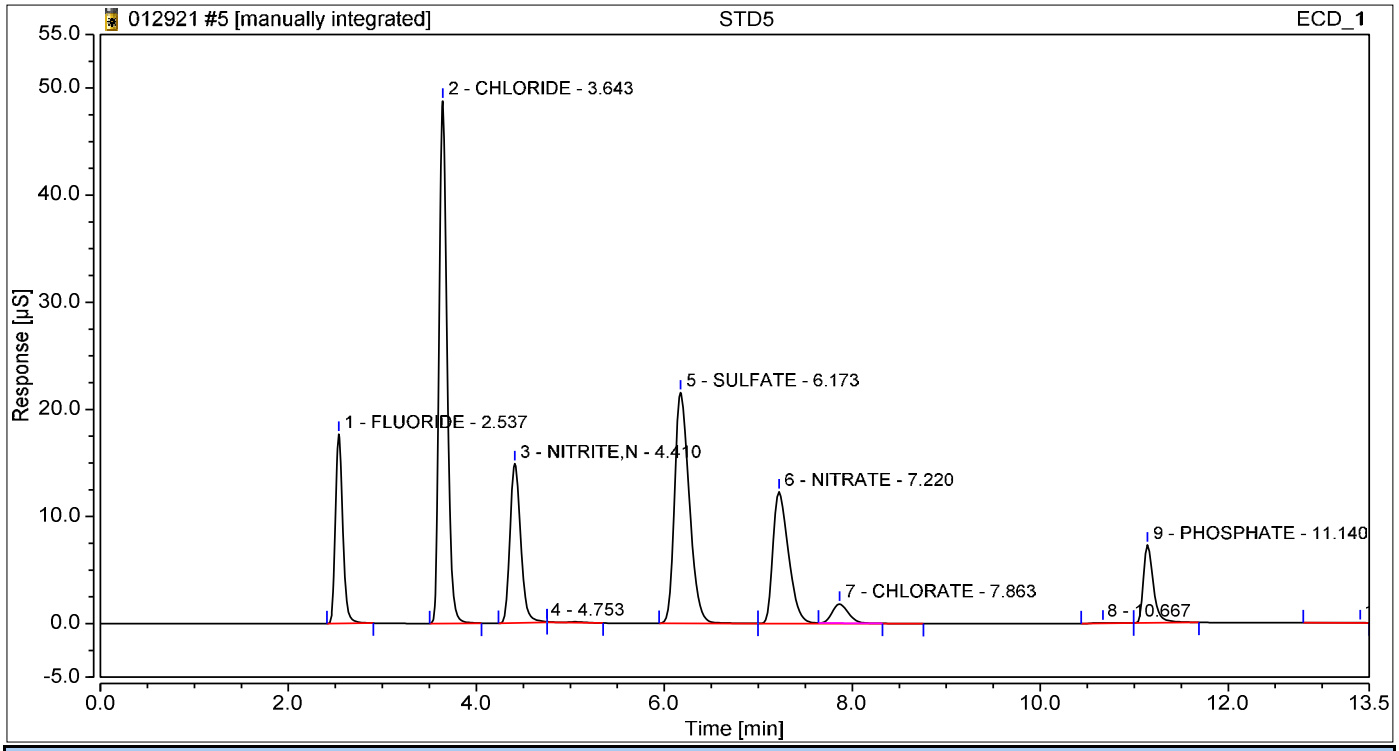
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.533	0.649	7.577	10.24	14.85	4.2191
2	CHLORIDE	3.647	1.868	19.345	29.50	37.93	19.8116
3	NITRITE,N	4.410	0.833	6.836	13.16	13.40	4.3429
4		5.060	0.025	0.100	0.40	0.20	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.220	1.543	8.569	24.37	16.80	4.0021
6	NITRATE	7.273	0.932	5.121	14.71	10.04	3.9479
7	CHLORATE	7.893	0.131	0.682	2.07	1.34	3.7714
8		10.677	0.014	0.044	0.22	0.09	n.a.
9	PHOSPHATE	11.177	0.328	2.711	5.18	5.32	3.7381
10		13.397	0.010	0.021	0.16	0.04	n.a.
Total:			**6.334**	**51.008**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5**	***Run Time (min):***	**13.50**
Vial Number:	**BE5**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**05**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:11**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

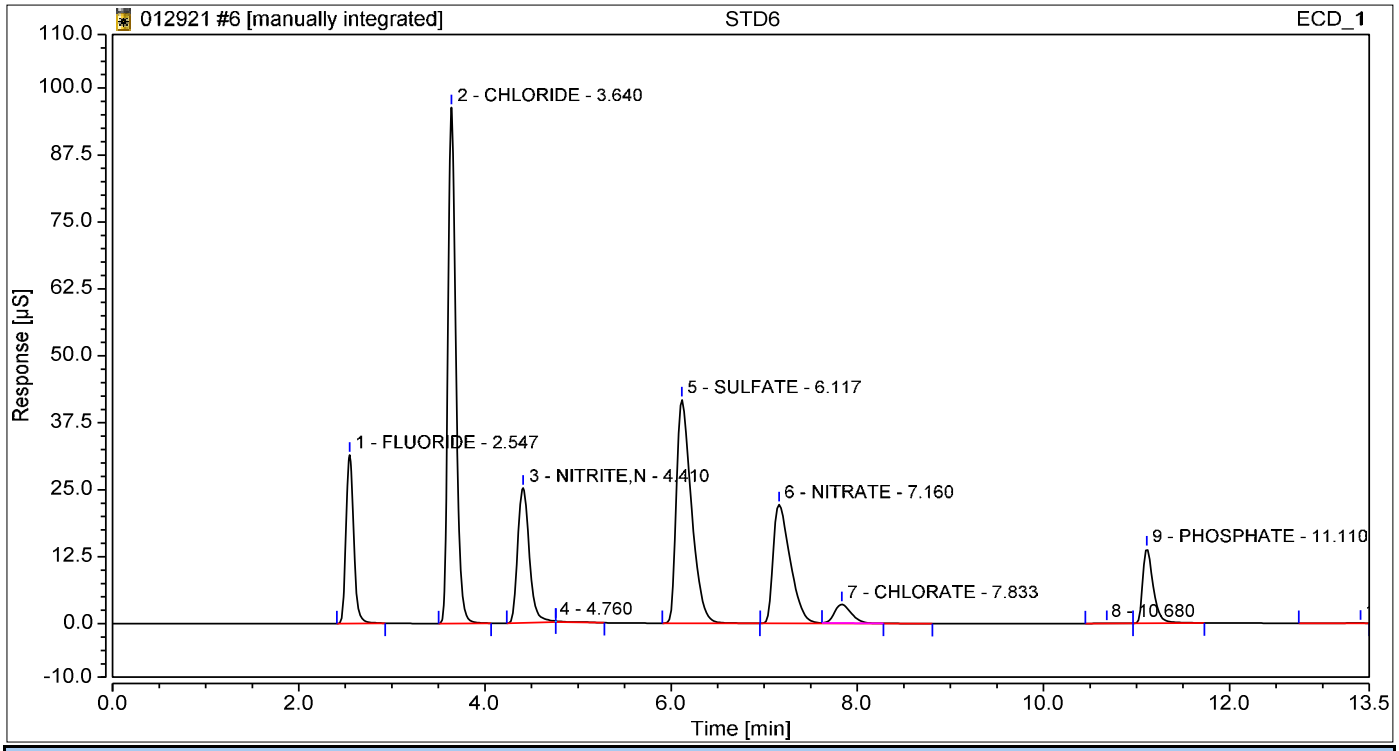
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.537	1.584	17.679	9.96	14.22	10.2736
2	CHLORIDE	3.643	4.749	48.765	29.85	39.23	50.2245
3	NITRITE,N	4.410	1.976	14.875	12.42	11.97	10.3182
4		4.753	0.024	0.068	0.15	0.05	n.a.
5	SULFATE	6.173	3.928	21.534	24.69	17.32	50.1760
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.220	2.384	12.286	14.99	9.88	10.0552
7	CHLORATE	7.863	0.352	1.780	2.21	1.43	10.0333
8		10.667	0.013	0.042	0.08	0.03	n.a.
9	PHOSPHATE	11.140	0.892	7.269	5.60	5.85	10.0223
10		13.403	0.007	0.021	0.04	0.02	n.a.
Total:			**15.906**	**124.319**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6**	***Run Time (min):***	**13.50**
Vial Number:	**BE6**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**06**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:29**	***Sample Weight:***	**1.0000**

Chromatogram



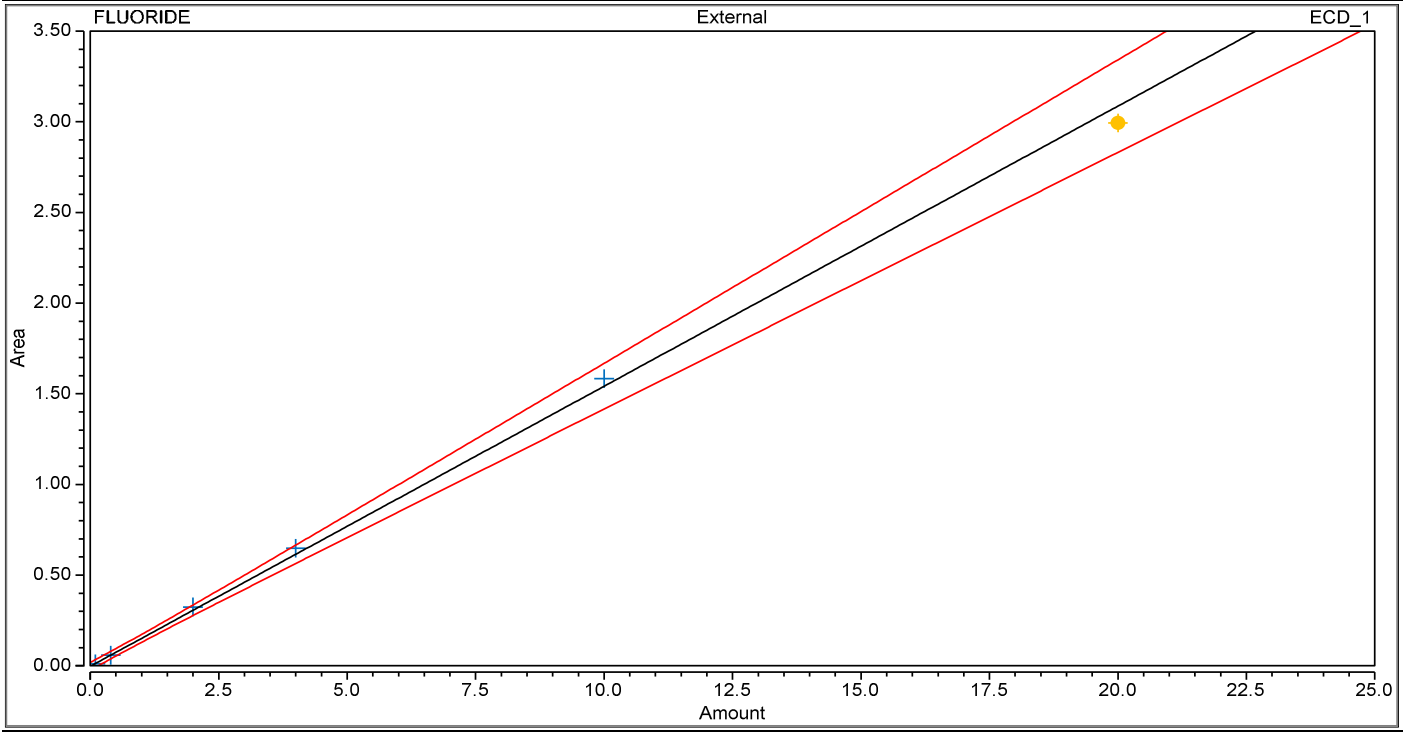
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.547	2.994	31.484	9.57	13.42	19.4033
2	CHLORIDE	3.640	9.467	96.327	30.25	41.06	100.0392
3	NITRITE,N	4.410	3.658	25.190	11.69	10.74	19.1186
4		4.760	0.033	0.182	0.10	0.08	n.a.
5	SULFATE	6.117	7.823	41.775	25.00	17.81	99.8249
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.160	4.759	22.197	15.21	9.46	20.0466
7	CHLORATE	7.833	0.717	3.467	2.29	1.48	20.3933
8		10.680	0.012	0.038	0.04	0.02	n.a.
9	PHOSPHATE	11.110	1.825	13.919	5.83	5.93	20.4242
10		13.407	0.006	0.020	0.02	0.01	n.a.
Total:			**31.292**	**234.598**	**100.00**	**100.00**	

Calibration

Calibration Details	FLUORIDE		
Calibration Type	Lin, WithOffset, 1/A	***Offset (C0)***	-0.0030
Evaluation Type	Area	***Slope (C1)***	0.1545
Number of Calibration Points	6	***Curve (C2)***	0.0000
Number of disabled Calibration Points	0	***R-Square***	0.9987

Calibration Plot **FLUORIDE**



Calibration Results **FLUORIDE**

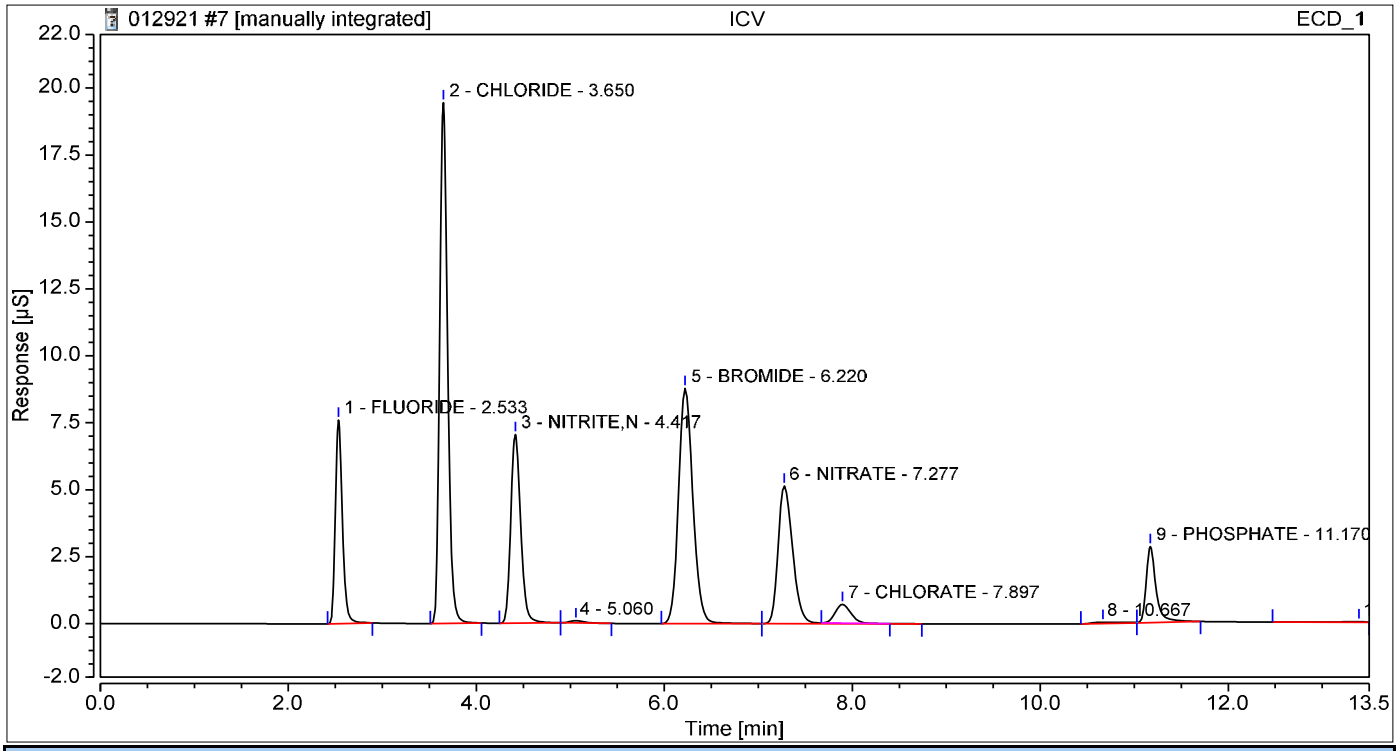
No.	Injection Name	Calibration Level	X Value ECD_1 FLUORIDE	Y Value ECD_1 FLUORIDE	Y Value ECD_1 FLUORIDE	Area µS*min ECD_1 FLUORIDE	Height µS ECD_1 FLUORIDE
1	STD1	01	0.1000	0.0109	0.0109	0.011	0.136
2	STD2	02	0.4000	0.0581	0.0581	0.058	0.714
3	STD3	03	2.0000	0.3242	0.3242	0.324	3.848
4	STD4	04	4.0000	0.6487	0.6487	0.649	7.577
5	STD5	05	10.0000	1.5839	1.5839	1.584	17.679
6	STD6	06	20.0000	2.9940	2.9940	2.994	31.484

Chromatogram and Results

Injection Details

Injection Name:	**ICV**	***Run Time (min):***	**13.50**
Vial Number:	**BE7**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:47**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

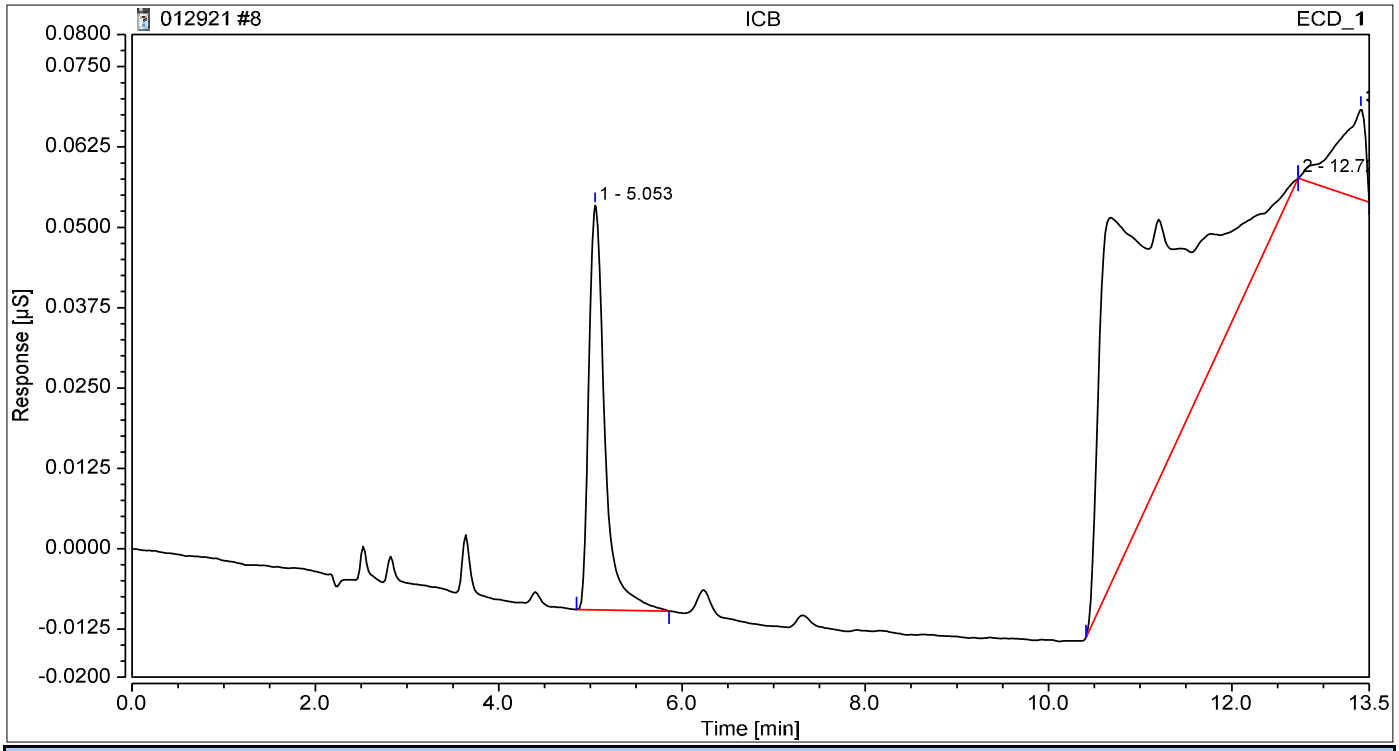
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.533	0.648	7.601	10.11	14.70	4.2121
2	CHLORIDE	3.650	1.878	19.444	29.32	37.59	19.9125
3	NITRITE,N	4.417	0.860	7.043	13.44	13.62	4.4840
4		5.060	0.016	0.082	0.25	0.16	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.220	1.557	8.789	24.32	16.99	4.0384
6	NITRATE	7.277	0.938	5.148	14.65	9.95	3.9736
7	CHLORATE	7.897	0.135	0.702	2.10	1.36	3.8740
8		10.667	0.020	0.049	0.31	0.10	n.a.
9	PHOSPHATE	11.170	0.344	2.845	5.37	5.50	3.9206
10		13.390	0.008	0.017	0.12	0.03	n.a.
Total:			**6.403**	**51.721**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB**	***Run Time (min):***	**13.50**
Vial Number:	**BE8**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 15:05**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

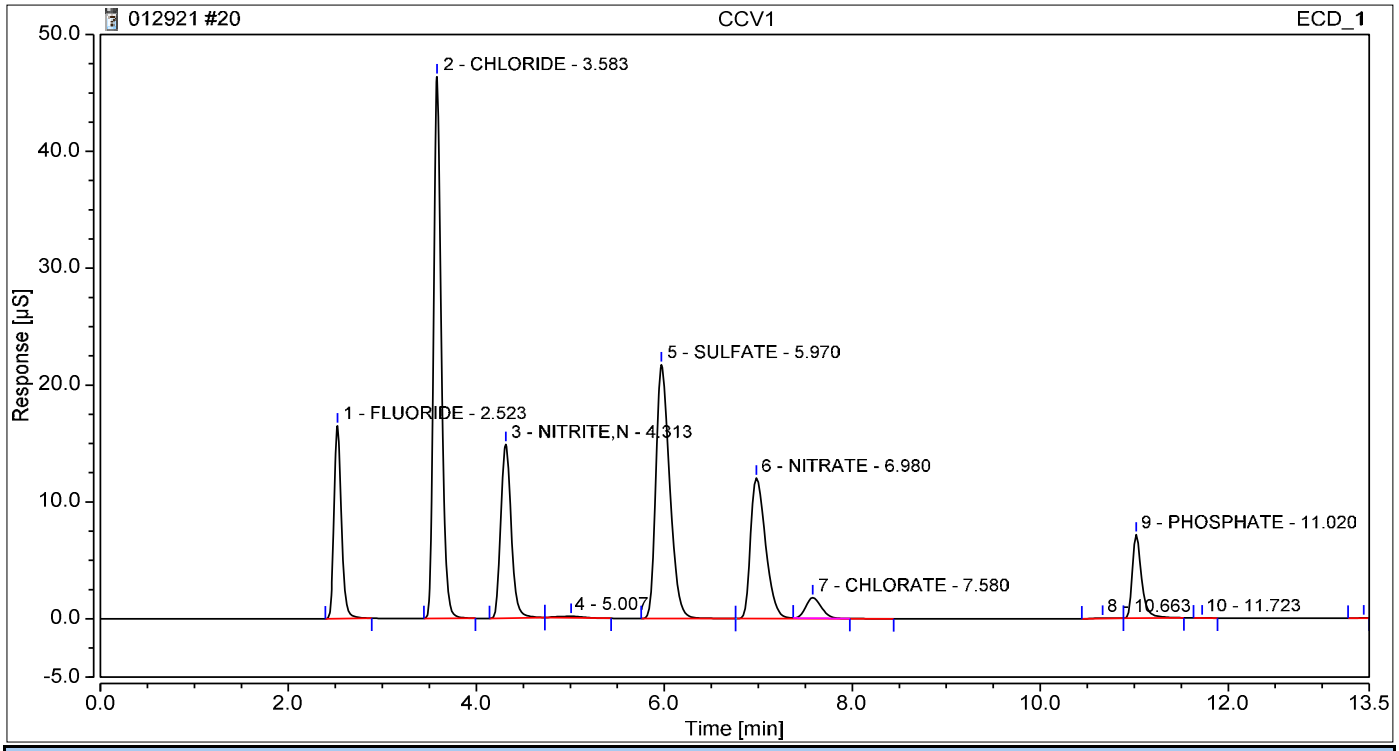
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.053	0.013	0.063	16.93	81.73	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		12.723	0.057	0.000	76.38	0.00	n.a.
3		13.410	0.005	0.014	6.69	18.27	n.a.
Total:			**0.075**	**0.077**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1**	***Run Time (min):***	**13.50**
Vial Number:	**G3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 14:54**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

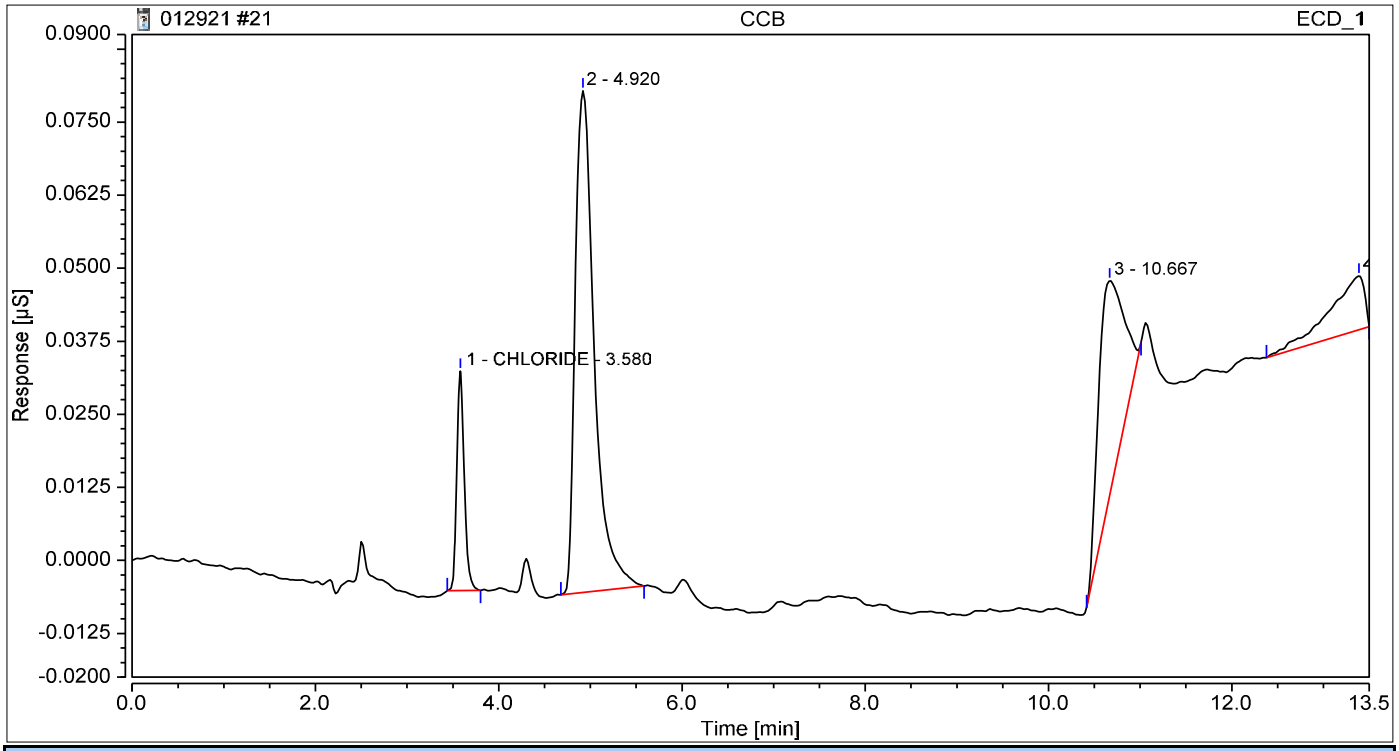
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.523	1.494	16.511	9.92	13.69	9.6896
2	CHLORIDE	3.583	4.474	46.367	29.72	38.45	47.3297
3	NITRITE,N	4.313	1.914	14.866	12.71	12.33	9.9945
4		5.007	0.043	0.135	0.28	0.11	n.a.
5	SULFATE	5.970	3.706	21.729	24.62	18.02	47.3540
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	6.980	2.256	12.038	14.98	9.98	9.5188
7	CHLORATE	7.580	0.332	1.745	2.21	1.45	9.4764
8		10.663	0.008	0.031	0.05	0.03	n.a.
9	PHOSPHATE	11.020	0.826	7.135	5.49	5.92	9.2902
10		11.723	0.002	0.016	0.01	0.01	n.a.
11		13.440	0.001	0.010	0.01	0.01	n.a.
Total:			**15.056**	**120.584**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 15:12**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

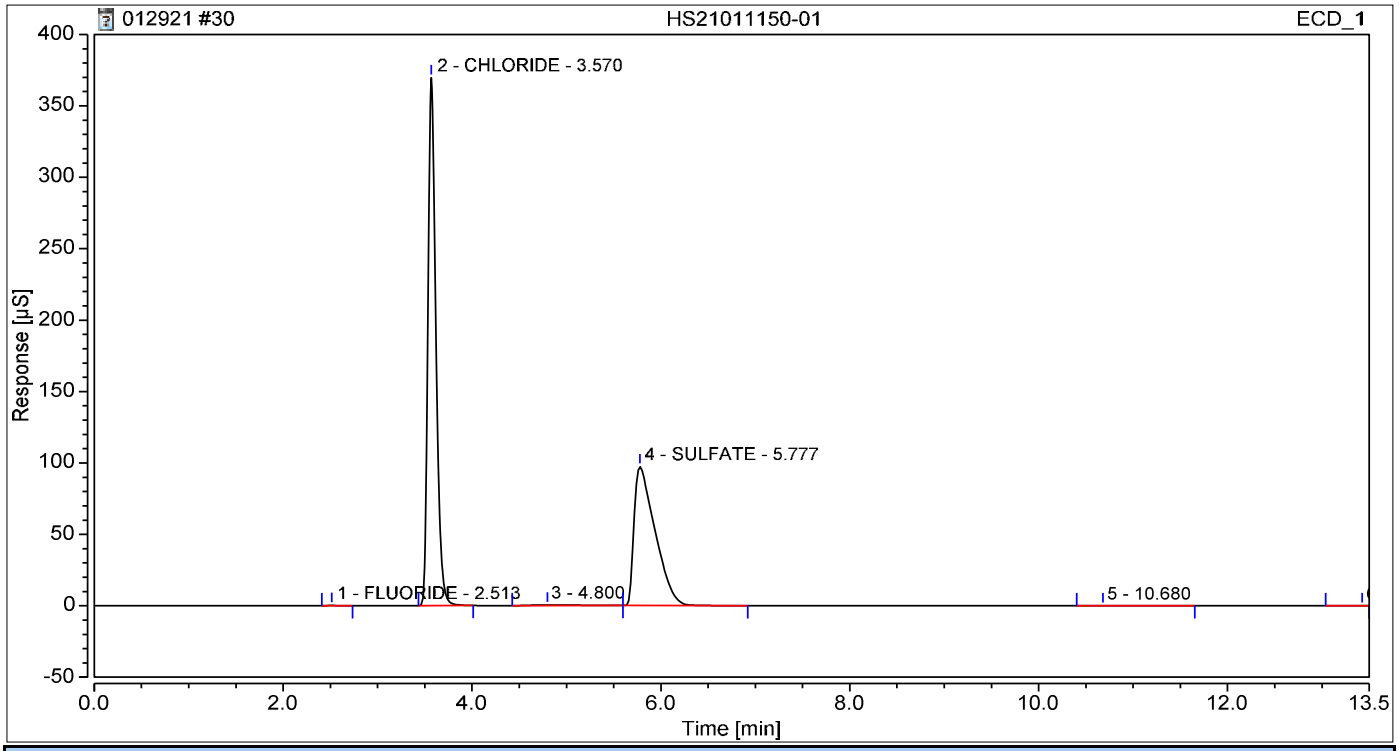
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1	CHLORIDE	3.580	0.004	0.038	8.89	22.16	0.1229
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		4.920	0.021	0.086	51.94	50.67	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		10.667	0.011	0.037	28.68	21.74	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		13.387	0.004	0.009	10.49	5.43	n.a.
Total:			**0.040**	**0.169**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-01**	***Run Time (min):***	**13.50**
Vial Number:	**GD1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 18:14**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

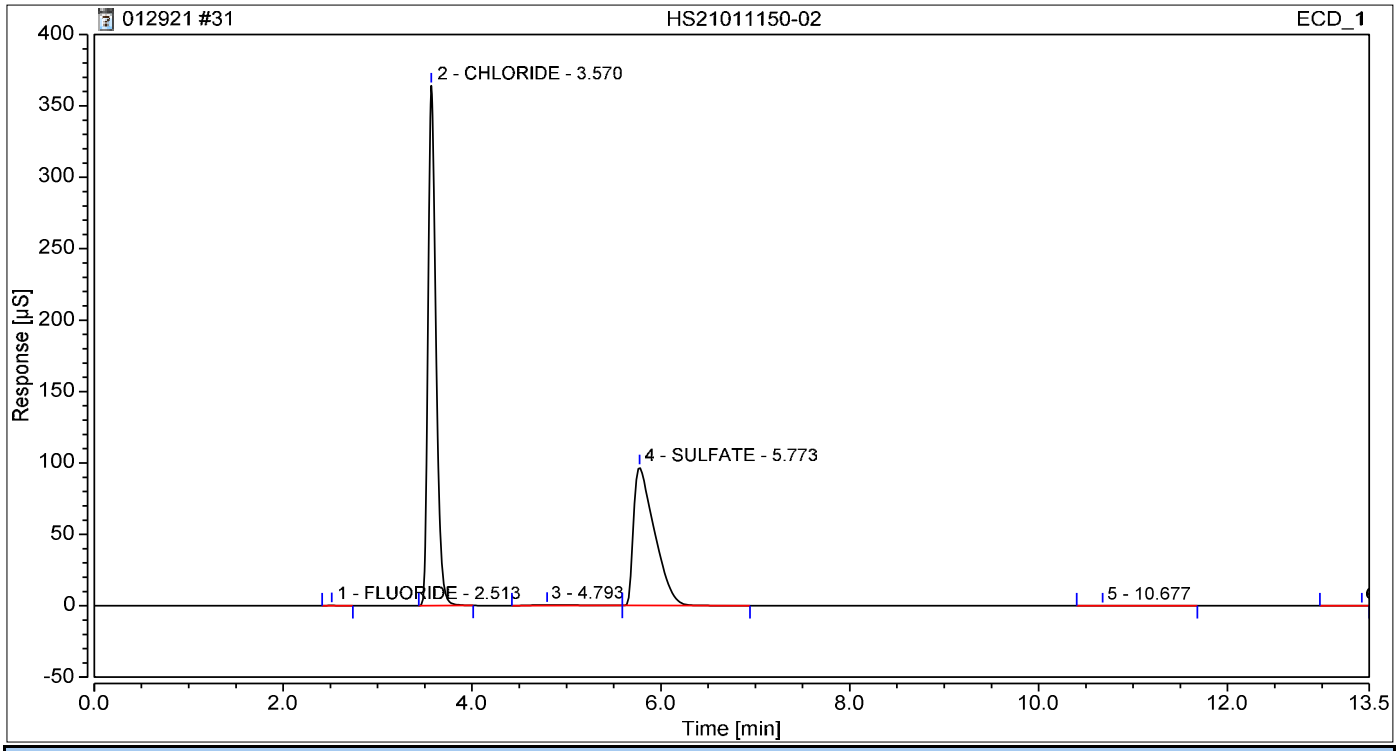
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.513	0.035	0.385	0.06	0.08	0.2468
2	CHLORIDE	3.570	36.711	369.601	59.15	79.01	387.7054
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.800	0.290	0.508	0.47	0.11	n.a.
4	SULFATE	5.777	24.986	97.232	40.26	20.78	318.6063
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.680	0.045	0.074	0.07	0.02	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		13.423	0.002	0.009	0.00	0.00	n.a.
Total:			**62.069**	**467.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-02**	***Run Time (min):***	**13.50**
Vial Number:	**GD2**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 18:32**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

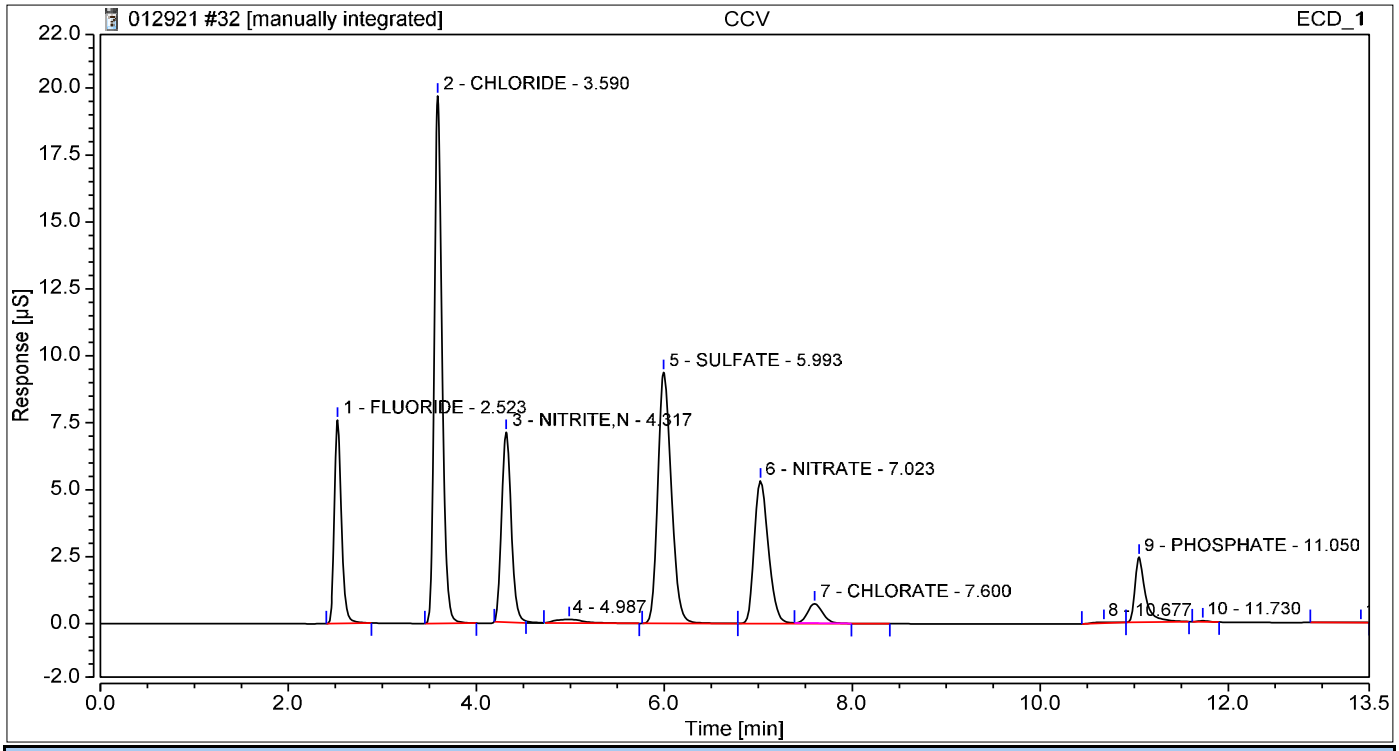
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.513	0.032	0.352	0.05	0.08	0.2271
2	CHLORIDE	3.570	36.057	364.026	58.93	78.86	380.8014
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.793	0.289	0.509	0.47	0.11	n.a.
4	SULFATE	5.773	24.766	96.669	40.47	20.94	315.7955
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.677	0.043	0.071	0.07	0.02	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		13.420	0.002	0.009	0.00	0.00	n.a.
Total:			**61.190**	**461.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV**	***Run Time (min):***	**13.50**
Vial Number:	**G1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 18:50**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

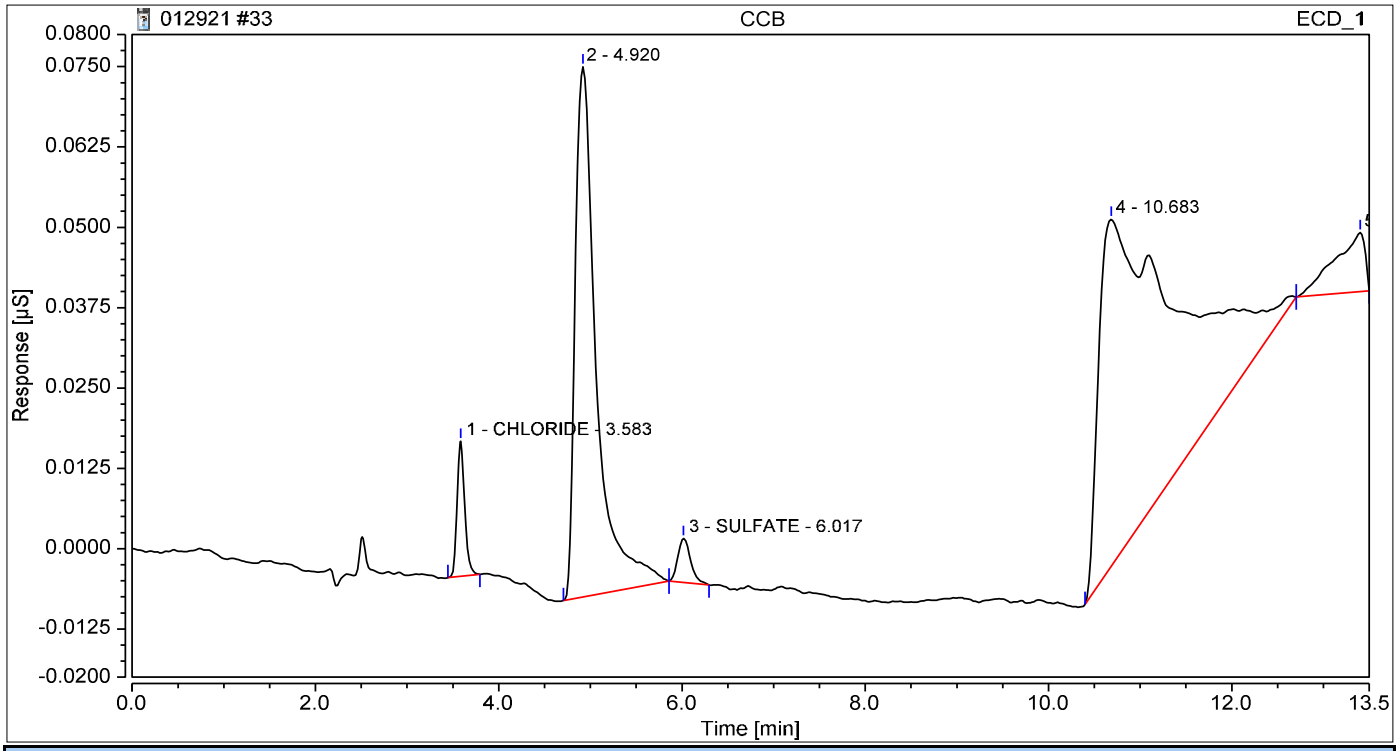
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.523	0.658	7.599	10.26	14.48	4.2783
2	CHLORIDE	3.590	1.889	19.695	29.47	37.53	20.0352
3	NITRITE,N	4.317	0.841	7.096	13.12	13.52	4.3847
4		4.987	0.050	0.139	0.77	0.26	n.a.
5	SULFATE	5.993	1.565	9.375	24.41	17.87	20.0579
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.023	0.943	5.327	14.71	10.15	3.9954
7	CHLORATE	7.600	0.133	0.722	2.08	1.38	3.8290
8		10.677	0.009	0.034	0.15	0.06	n.a.
9	PHOSPHATE	11.050	0.315	2.434	4.92	4.64	3.6005
10		11.730	0.005	0.041	0.08	0.08	n.a.
11		13.410	0.002	0.010	0.04	0.02	n.a.
Total:			**6.412**	**52.471**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 19:08**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

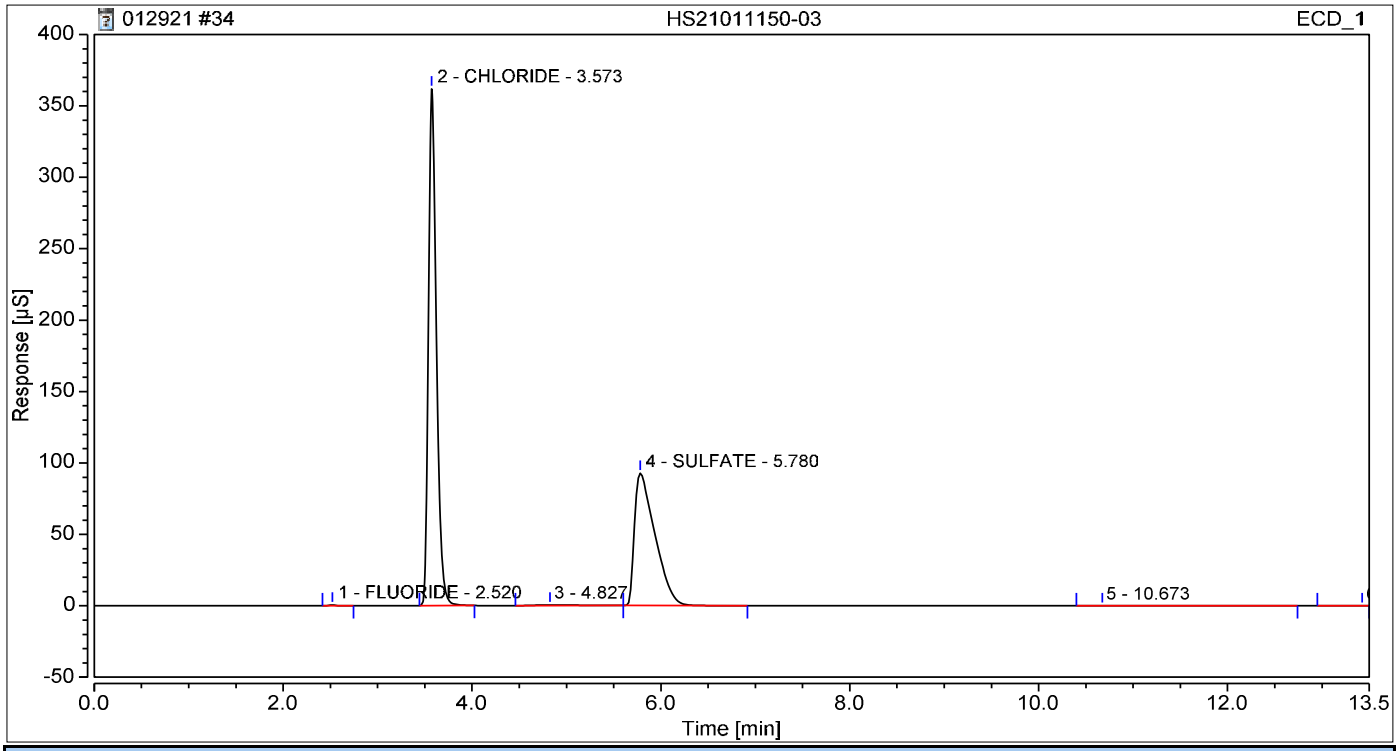
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1	CHLORIDE	3.583	0.002	0.021	2.52	12.12	0.1067
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		4.920	0.022	0.082	27.73	47.51	n.a.
3	SULFATE	6.017	0.001	0.007	1.39	3.95	0.1240
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		10.683	0.051	0.054	63.89	31.12	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		13.400	0.004	0.009	4.46	5.30	n.a.
Total:			**0.080**	**0.174**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-03**	***Run Time (min):***	**13.50**
Vial Number:	**GD3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 19:44**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

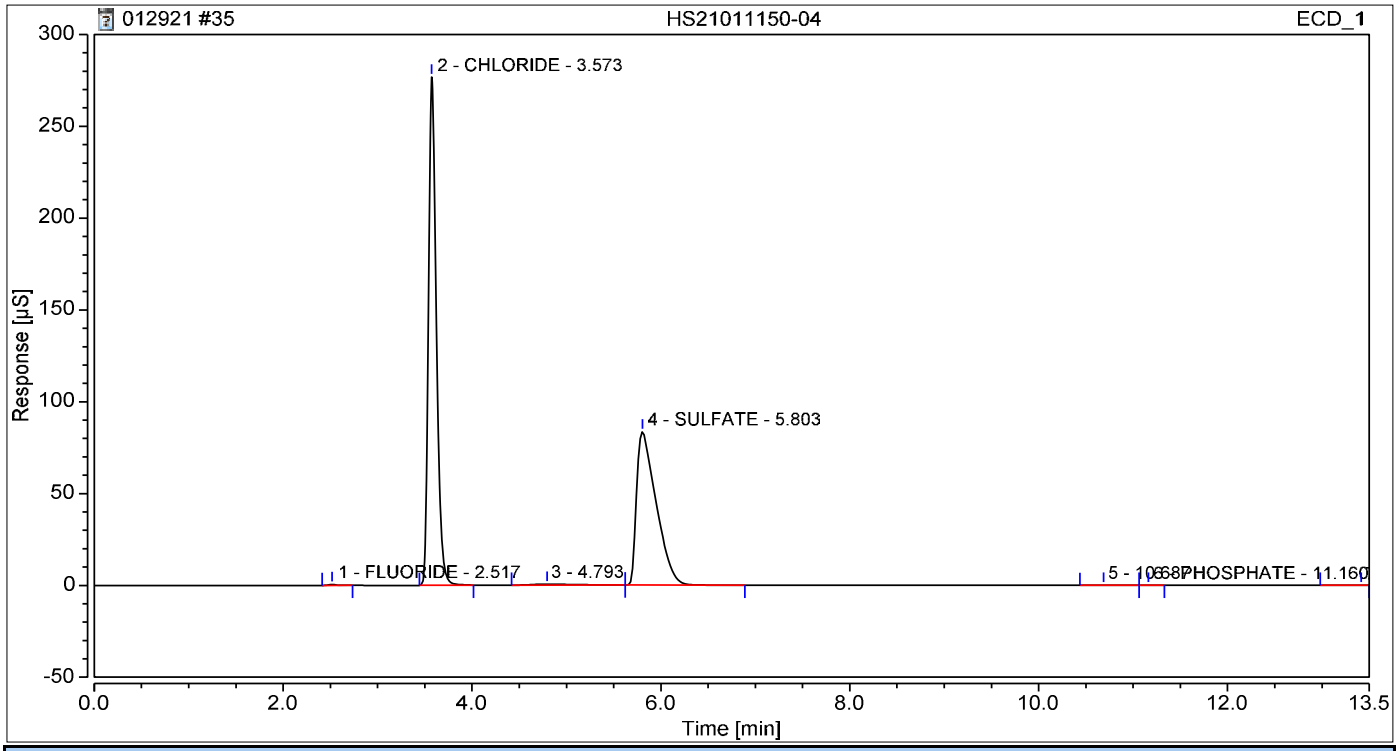
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.520	0.052	0.592	0.09	0.13	0.3575
2	CHLORIDE	3.573	35.966	361.860	60.38	79.40	379.8346
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.827	0.274	0.492	0.46	0.11	n.a.
4	SULFATE	5.780	23.213	92.737	38.97	20.35	296.0065
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.673	0.055	0.067	0.09	0.01	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		13.423	0.002	0.010	0.00	0.00	n.a.
Total:			**59.562**	**455.757**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-04**	***Run Time (min):***	**13.50**
Vial Number:	**GD4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 20:03**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

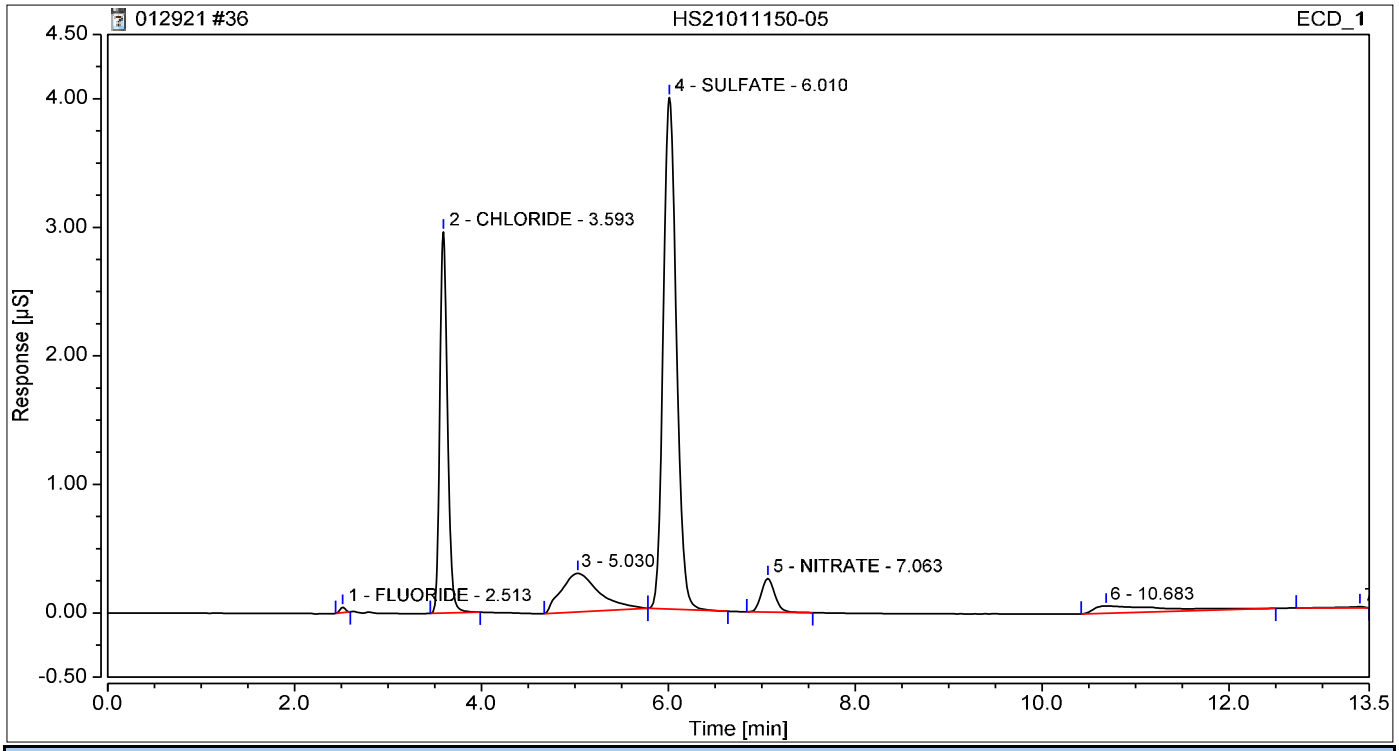
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.517	0.042	0.477	0.09	0.13	0.2908
2	CHLORIDE	3.573	27.185	276.734	57.14	76.62	287.1158
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.793	0.311	0.532	0.65	0.15	n.a.
4	SULFATE	5.803	20.017	83.373	42.08	23.08	255.2706
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.687	0.017	0.052	0.04	0.01	n.a.
6	PHOSPHATE	11.160	0.001	0.009	0.00	0.00	0.0975
7		13.413	0.002	0.009	0.00	0.00	n.a.
Total:			**47.575**	**361.185**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-05**	***Run Time (min):***	**13.50**
Vial Number:	**GD5**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 20:21**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

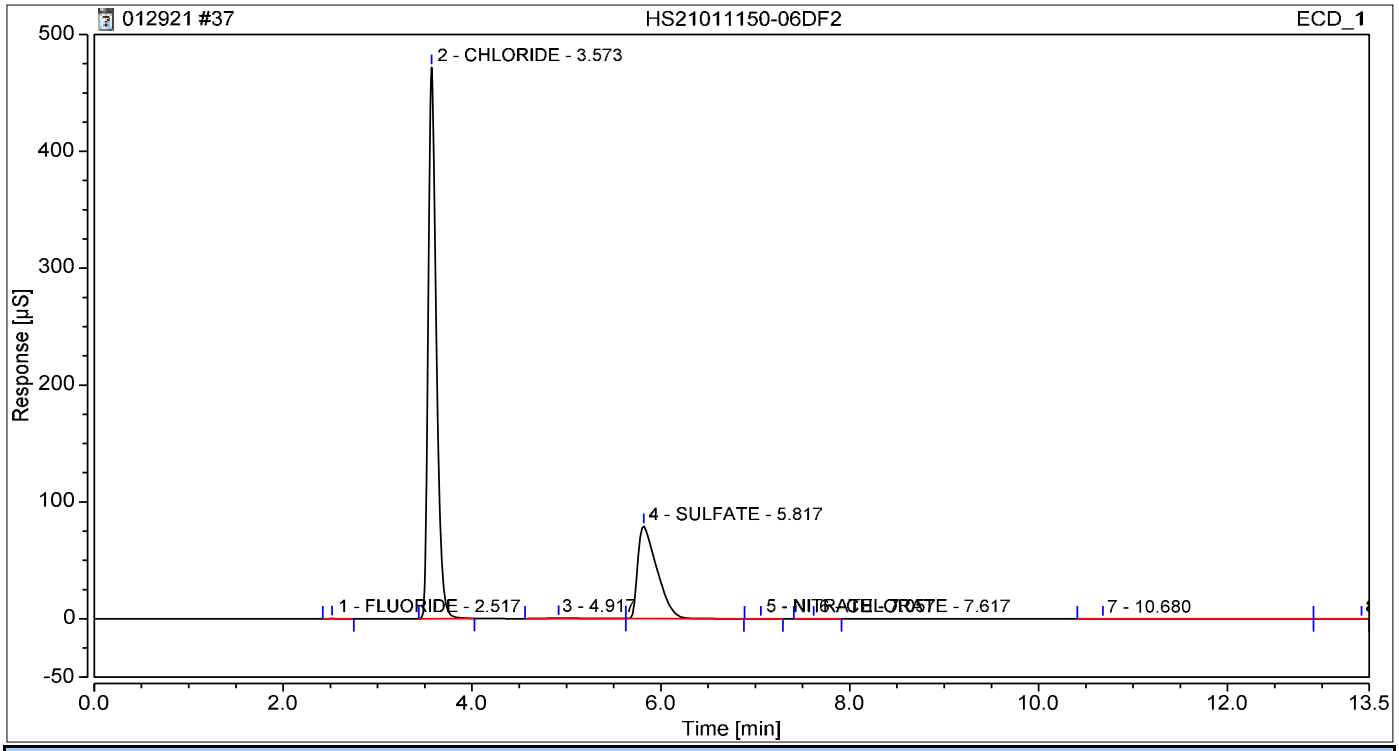
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.513	0.003	0.042	0.25	0.56	0.0380
2	CHLORIDE	3.593	0.282	2.966	24.13	38.93	3.0611
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		5.030	0.140	0.300	12.02	3.94	n.a.
4	SULFATE	6.010	0.649	3.979	55.58	52.24	8.3835
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	NITRATE	7.063	0.044	0.263	3.75	3.45	0.2121
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		10.683	0.046	0.057	3.97	0.75	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		13.400	0.003	0.010	0.29	0.13	n.a.
Total:			**1.168**	**7.618**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-06DF2**	***Run Time (min):***	**13.50**
Vial Number:	**GD6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**2.0000**
Injection Date/Time:	**29/Jan/21 20:39**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

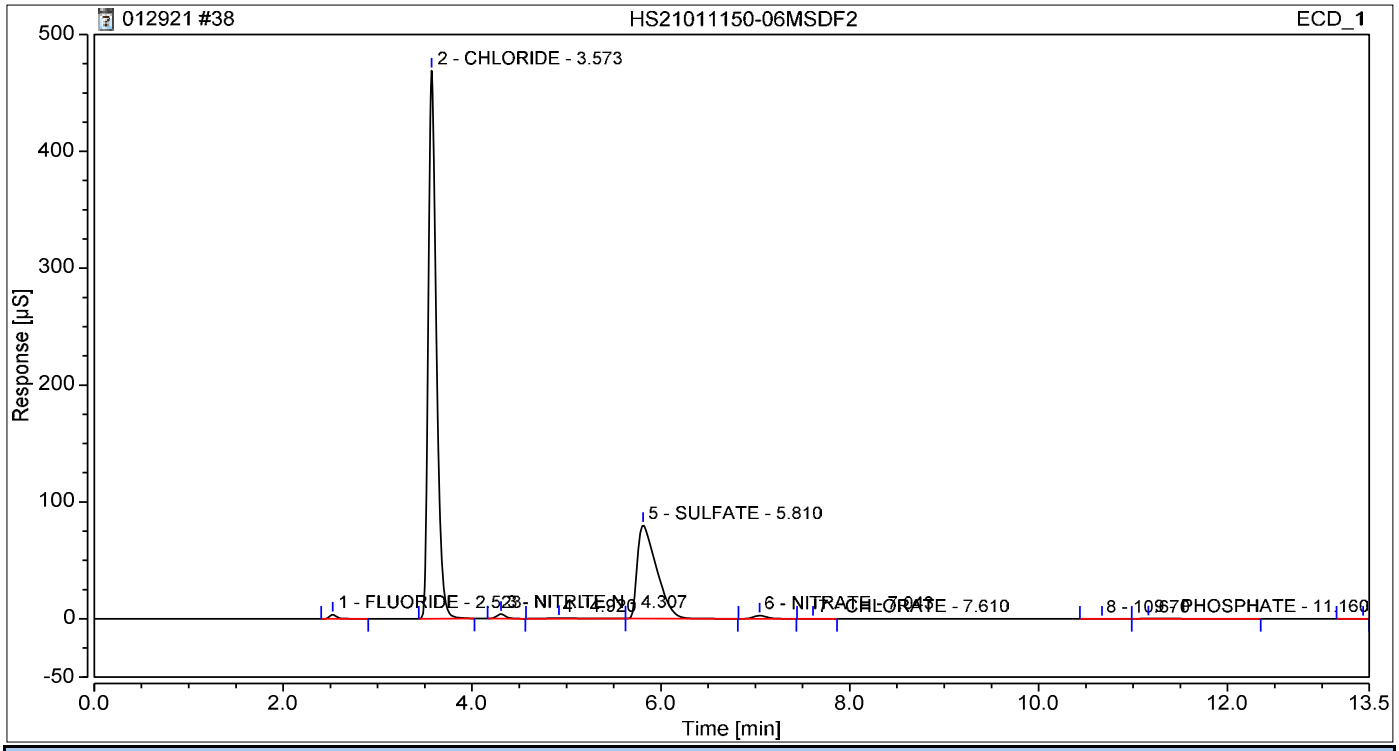
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.517	0.013	0.148	0.02	0.03	0.2111
2	CHLORIDE	3.573	47.794	471.776	71.67	85.53	1009.4388
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.917	0.214	0.415	0.32	0.08	n.a.
4	SULFATE	5.817	18.594	79.086	27.88	14.34	474.2611
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	NITRATE	7.057	0.007	0.041	0.01	0.01	0.1102
6	CHLORATE	7.617	0.007	0.040	0.01	0.01	0.5265
7		10.680	0.055	0.064	0.08	0.01	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8		13.417	0.002	0.009	0.00	0.00	n.a.
Total:			**66.686**	**551.581**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-06MSDF2**	***Run Time (min):***	**13.50**
Vial Number:	**GD7**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**2.0000**
Injection Date/Time:	**29/Jan/21 20:57**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

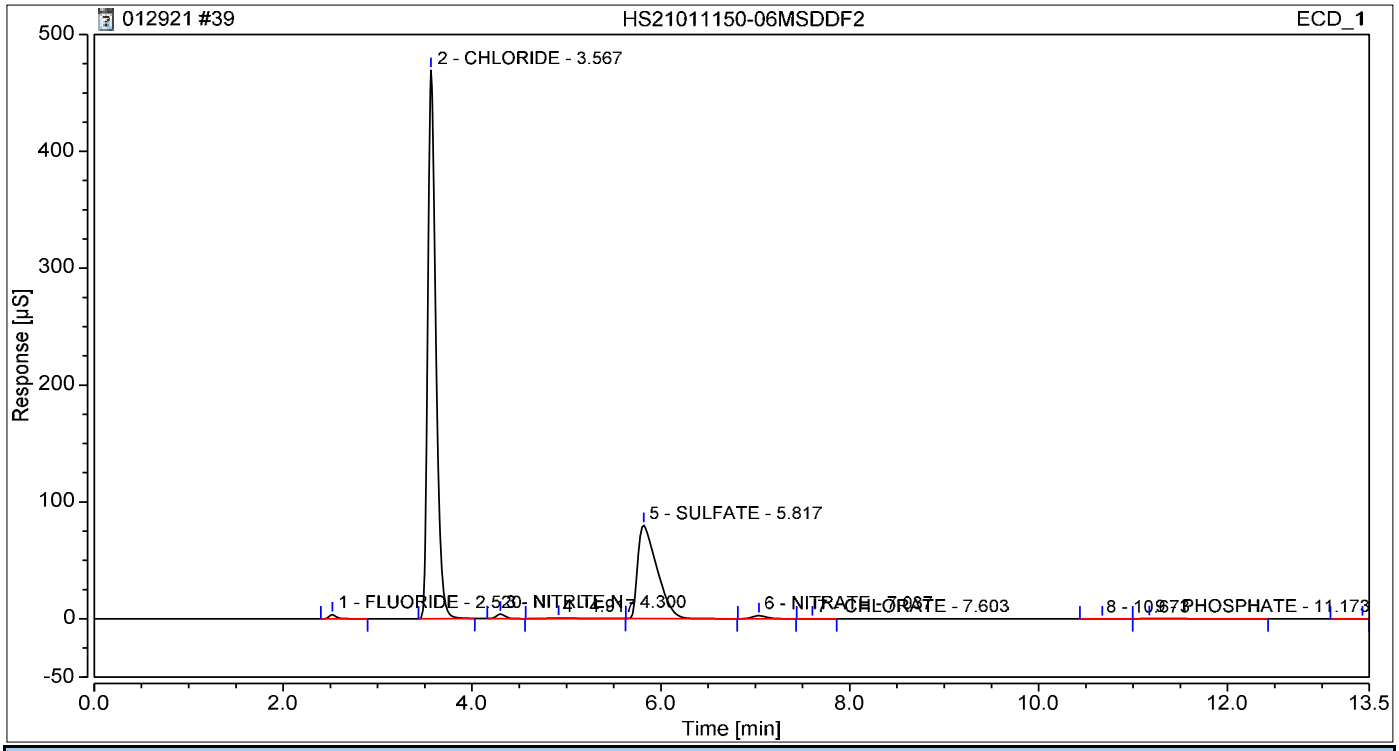
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.523	0.333	3.637	0.49	0.65	4.3461
2	CHLORIDE	3.573	47.421	468.868	69.92	83.76	1001.5727
3	NITRITE,N	4.307	0.423	3.837	0.62	0.69	4.3951
4		4.920	0.197	0.393	0.29	0.07	n.a.
5	SULFATE	5.810	18.890	80.006	27.85	14.29	481.8069
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.043	0.446	2.635	0.66	0.47	3.8044
7	CHLORATE	7.610	0.006	0.037	0.01	0.01	0.4734
8		10.670	0.013	0.043	0.02	0.01	n.a.
9	PHOSPHATE	11.160	0.089	0.308	0.13	0.06	2.1436
10		13.437	0.001	0.008	0.00	0.00	n.a.
Total:			**67.819**	**559.773**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-06MSDDF2**	***Run Time (min):***	**13.50**
Vial Number:	**GD8**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**2.0000**
Injection Date/Time:	**29/Jan/21 21:15**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

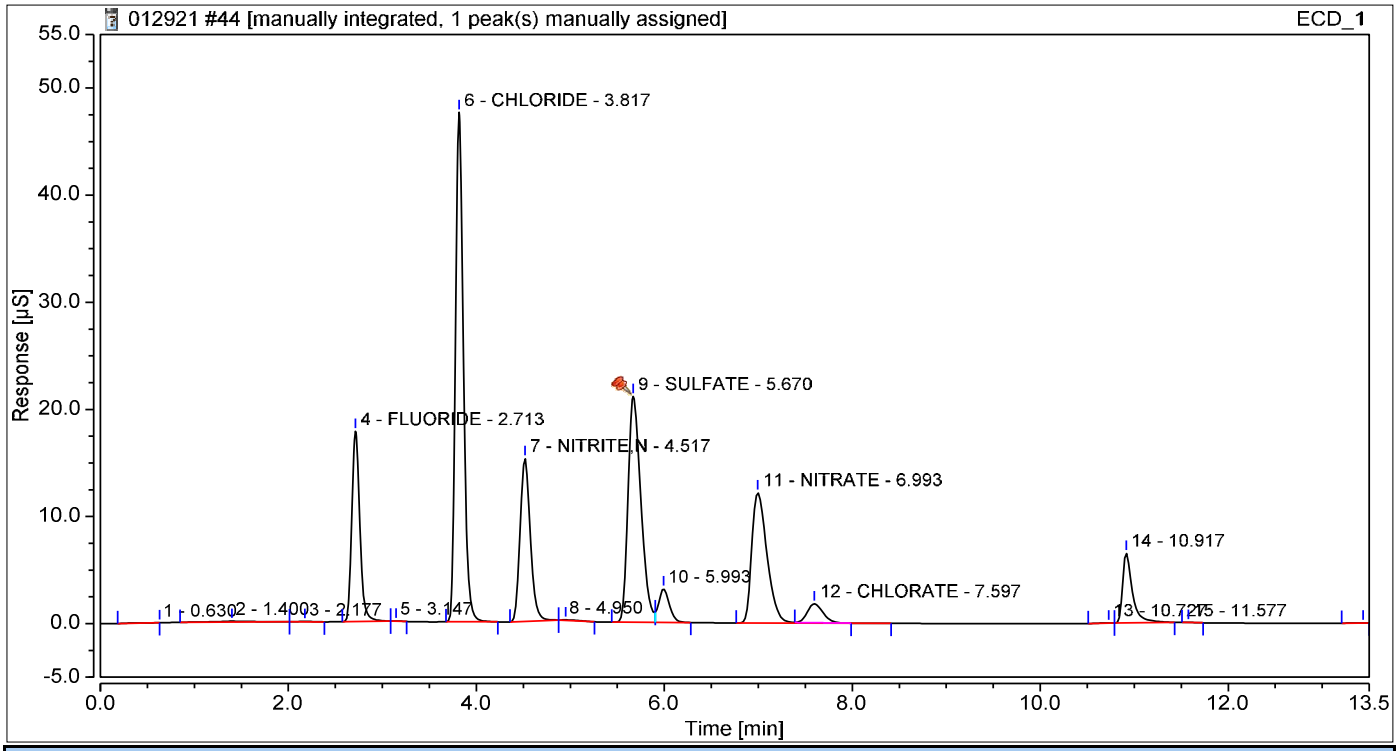
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.520	0.333	3.650	0.49	0.65	4.3517
2	CHLORIDE	3.567	47.485	469.324	69.98	83.78	1002.9272
3	NITRITE,N	4.300	0.423	3.836	0.62	0.68	4.3971
4		4.917	0.200	0.395	0.29	0.07	n.a.
5	SULFATE	5.817	18.854	79.921	27.79	14.27	480.8927
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.037	0.445	2.633	0.66	0.47	3.8009
7	CHLORATE	7.603	0.006	0.037	0.01	0.01	0.4734
8		10.673	0.013	0.044	0.02	0.01	n.a.
9	PHOSPHATE	11.173	0.095	0.315	0.14	0.06	2.2885
10		13.427	0.001	0.007	0.00	0.00	n.a.
Total:			**67.857**	**560.162**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1**	***Run Time (min):***	**13.50**
Vial Number:	**G3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 22:46**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

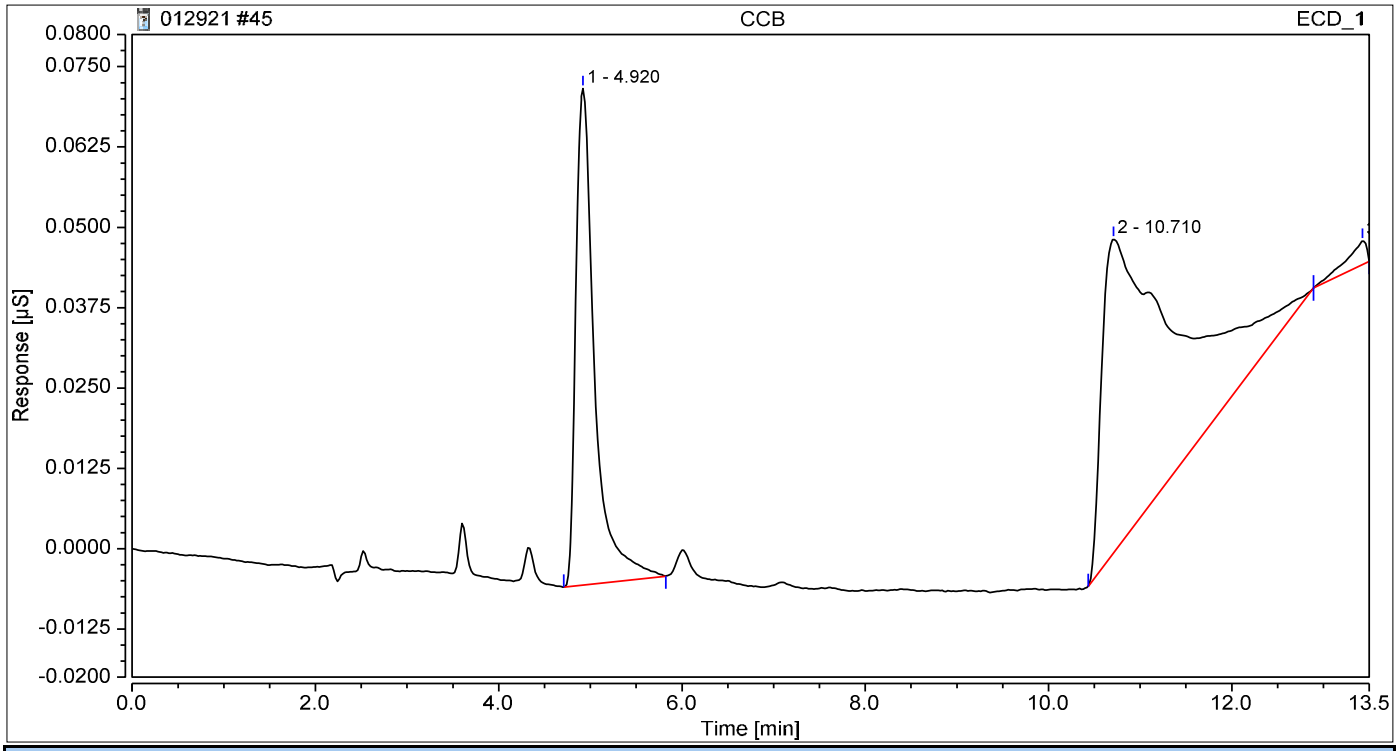
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1		0.630	0.003	0.000	0.02	0.00	n.a.
2		1.400	0.034	0.075	0.22	0.06	n.a.
3		2.177	0.007	0.027	0.04	0.02	n.a.
4	FLUORIDE	2.713	1.729	17.761	11.14	14.17	11.2155
5		3.147	0.002	0.024	0.01	0.02	n.a.
6	CHLORIDE	3.817	4.602	47.538	29.64	37.93	48.6775
7	NITRITE,N	4.517	1.929	15.209	12.43	12.13	10.0756
8		4.950	0.010	0.037	0.07	0.03	n.a.
9	SULFATE	5.670	3.355	21.073	21.61	16.81	42.8704
10		5.993	0.412	3.127	2.65	2.49	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	NITRATE	6.993	2.304	12.163	14.84	9.70	9.7198
12	CHLORATE	7.597	0.340	1.760	2.19	1.40	9.6926
13		10.727	0.003	0.014	0.02	0.01	n.a.
14		10.917	0.790	6.502	5.09	5.19	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
15		11.577	0.002	0.016	0.01	0.01	n.a.
16		13.433	0.002	0.016	0.01	0.01	n.a.
Total:			**15.524**	**125.341**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**29/Jan/21 23:22**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

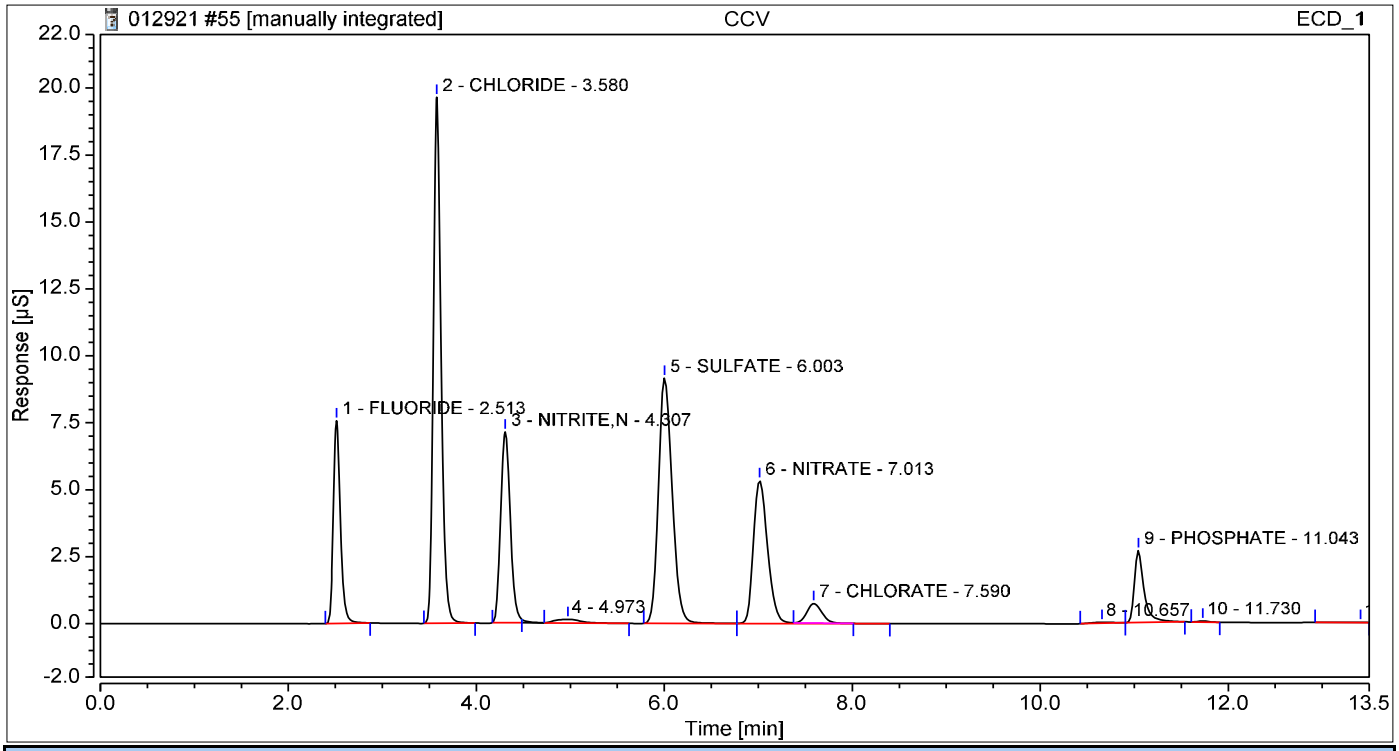
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.920	0.018	0.077	28.99	59.56	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.710	0.044	0.049	69.43	37.63	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		13.427	0.001	0.004	1.58	2.81	n.a.
Total:			**0.063**	**0.130**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV**	***Run Time (min):***	**13.50**
Vial Number:	**G1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 02:23**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

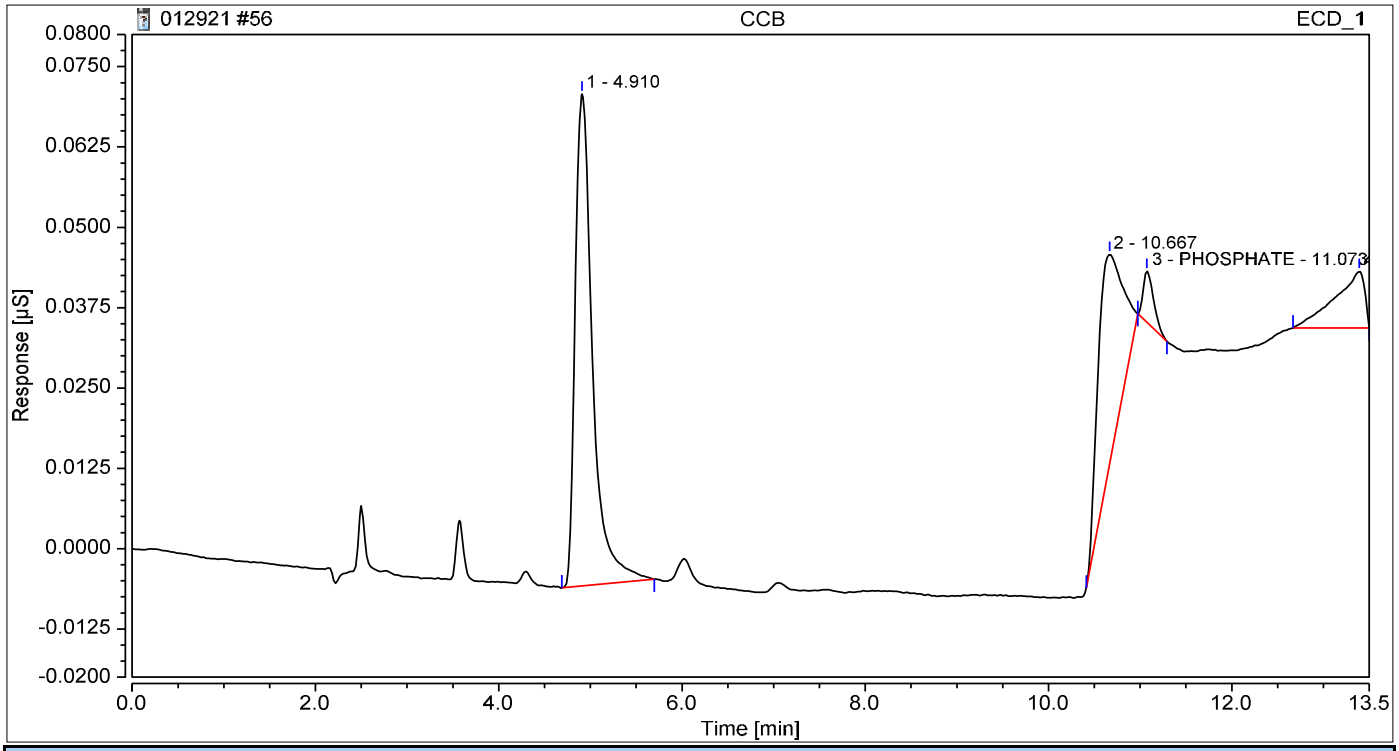
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.513	0.653	7.579	10.22	14.44	4.2464
2	CHLORIDE	3.580	1.882	19.651	29.45	37.45	19.9551
3	NITRITE,N	4.307	0.843	7.125	13.19	13.58	4.3947
4		4.973	0.045	0.139	0.70	0.27	n.a.
5	SULFATE	6.003	1.554	9.158	24.31	17.45	19.9154
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.013	0.941	5.335	14.72	10.17	3.9861
7	CHLORATE	7.590	0.134	0.728	2.10	1.39	3.8685
8		10.657	0.008	0.031	0.13	0.06	n.a.
9	PHOSPHATE	11.043	0.323	2.679	5.05	5.10	3.6839
10		11.730	0.005	0.043	0.08	0.08	n.a.
11		13.407	0.002	0.009	0.03	0.02	n.a.
Total:			**6.391**	**52.478**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 02:41**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

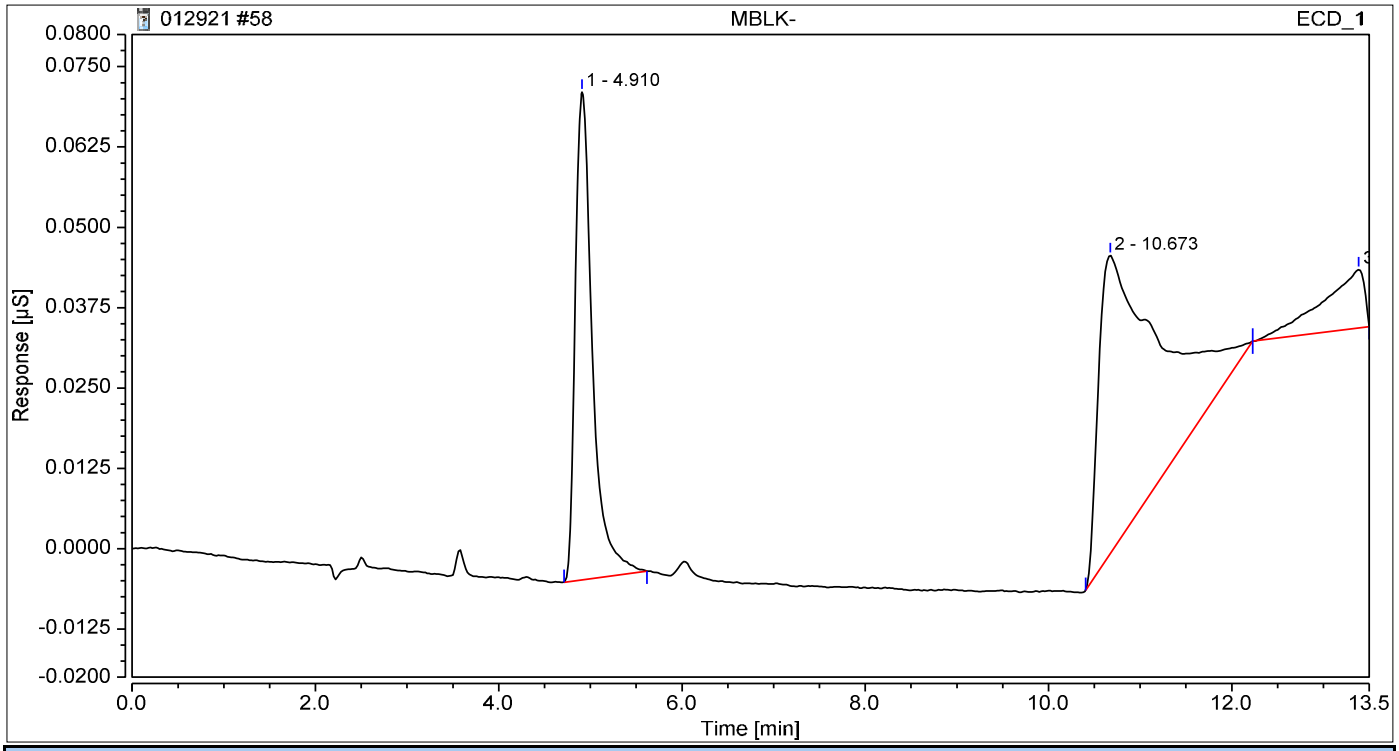
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.910	0.017	0.077	53.75	60.81	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.667	0.010	0.033	32.18	25.88	n.a.
3	PHOSPHATE	11.073	0.001	0.008	3.39	6.31	0.0960
4		13.390	0.003	0.009	10.68	6.99	n.a.
Total:			**0.031**	**0.126**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MBLK-**	***Run Time (min):***	**13.50**
Vial Number:	**G5**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 03:17**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

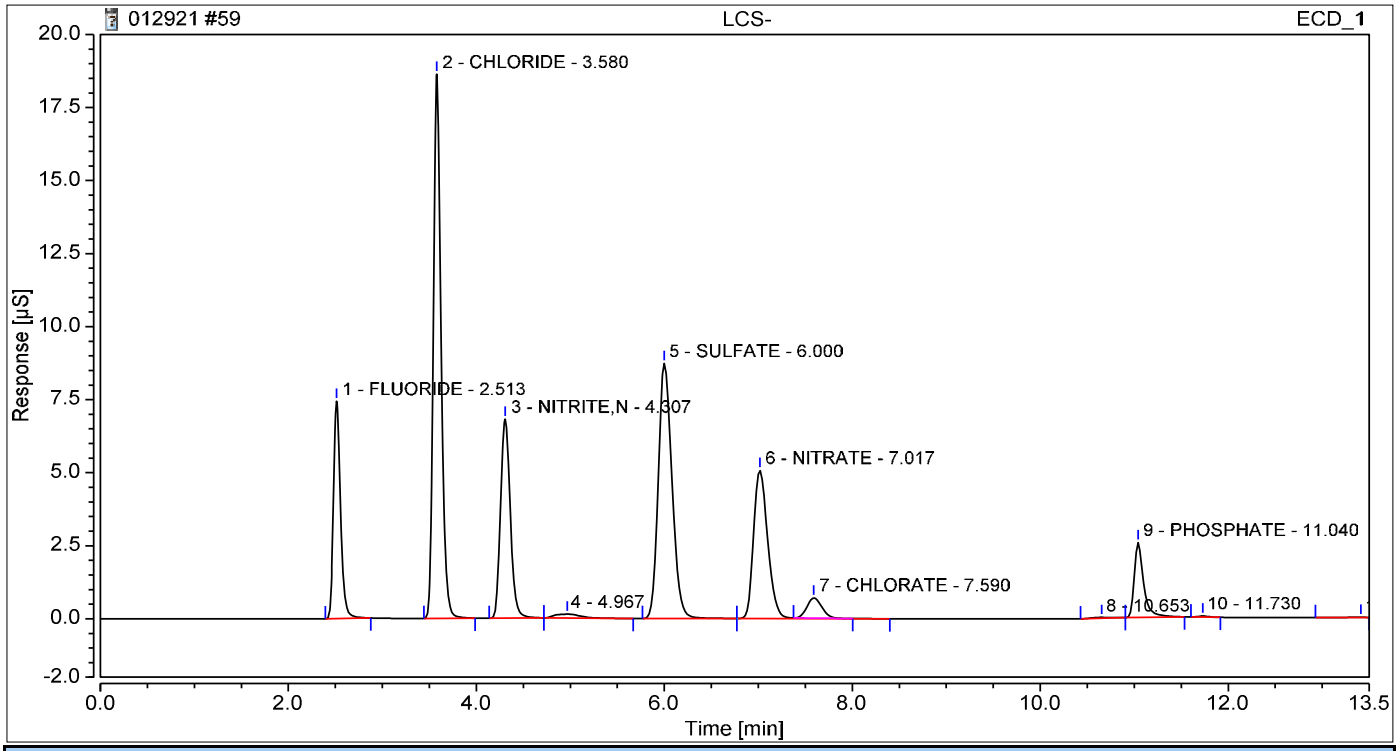
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.910	0.017	0.076	29.67	57.75	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.673	0.034	0.046	61.43	35.32	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		13.383	0.005	0.009	8.90	6.93	n.a.
Total:			**0.056**	**0.131**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-**	***Run Time (min):***	**13.50**
Vial Number:	**G2**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 03:35**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

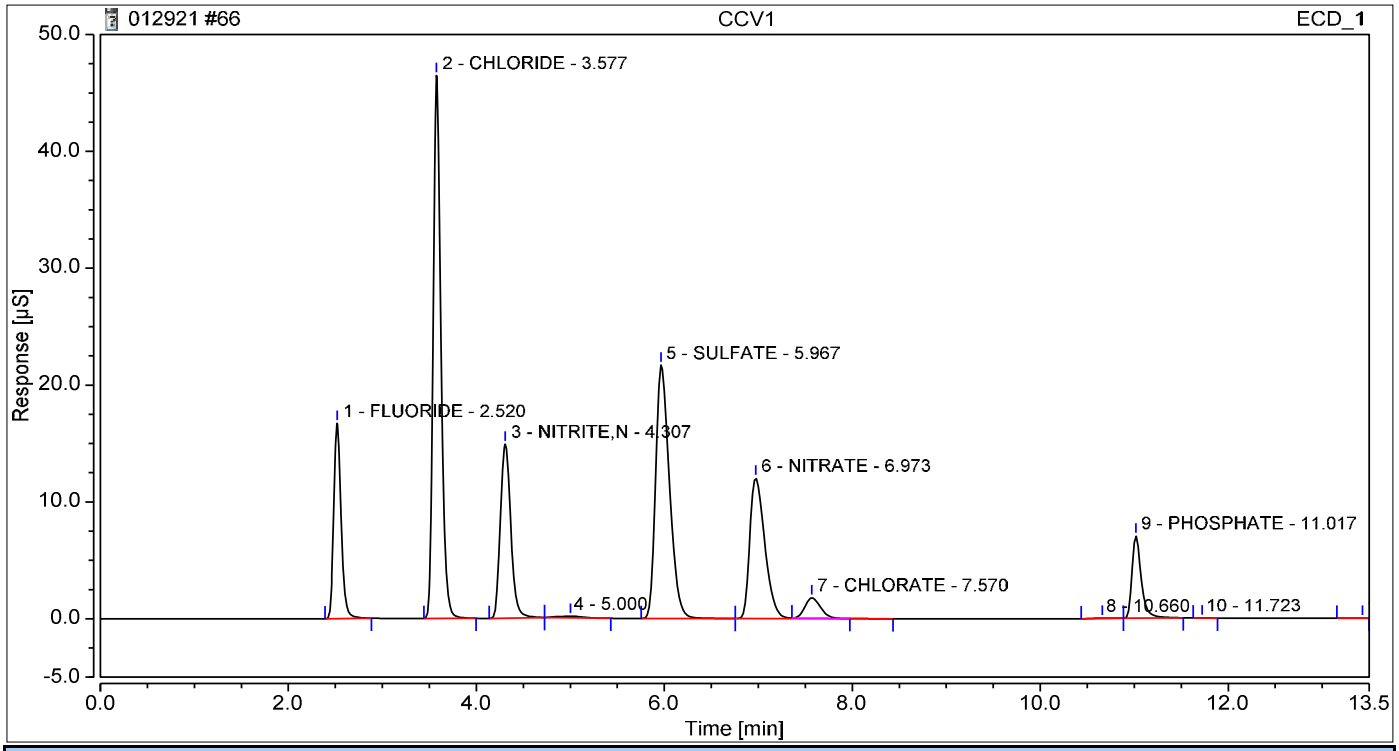
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.513	0.641	7.441	10.52	14.84	4.1717
2	CHLORIDE	3.580	1.782	18.632	29.24	37.15	18.8992
3	NITRITE,N	4.307	0.815	6.812	13.38	13.58	4.2481
4		4.967	0.042	0.133	0.69	0.27	n.a.
5	SULFATE	6.000	1.477	8.731	24.24	17.41	18.9434
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.017	0.894	5.071	14.67	10.11	3.7884
7	CHLORATE	7.590	0.127	0.689	2.08	1.37	3.6541
8		10.653	0.008	0.031	0.14	0.06	n.a.
9	PHOSPHATE	11.040	0.300	2.561	4.92	5.11	3.4252
10		11.730	0.005	0.041	0.08	0.08	n.a.
11		13.410	0.002	0.009	0.03	0.02	n.a.
Total:			**6.094**	**50.152**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1**	***Run Time (min):***	**13.50**
Vial Number:	**G3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 05:42**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

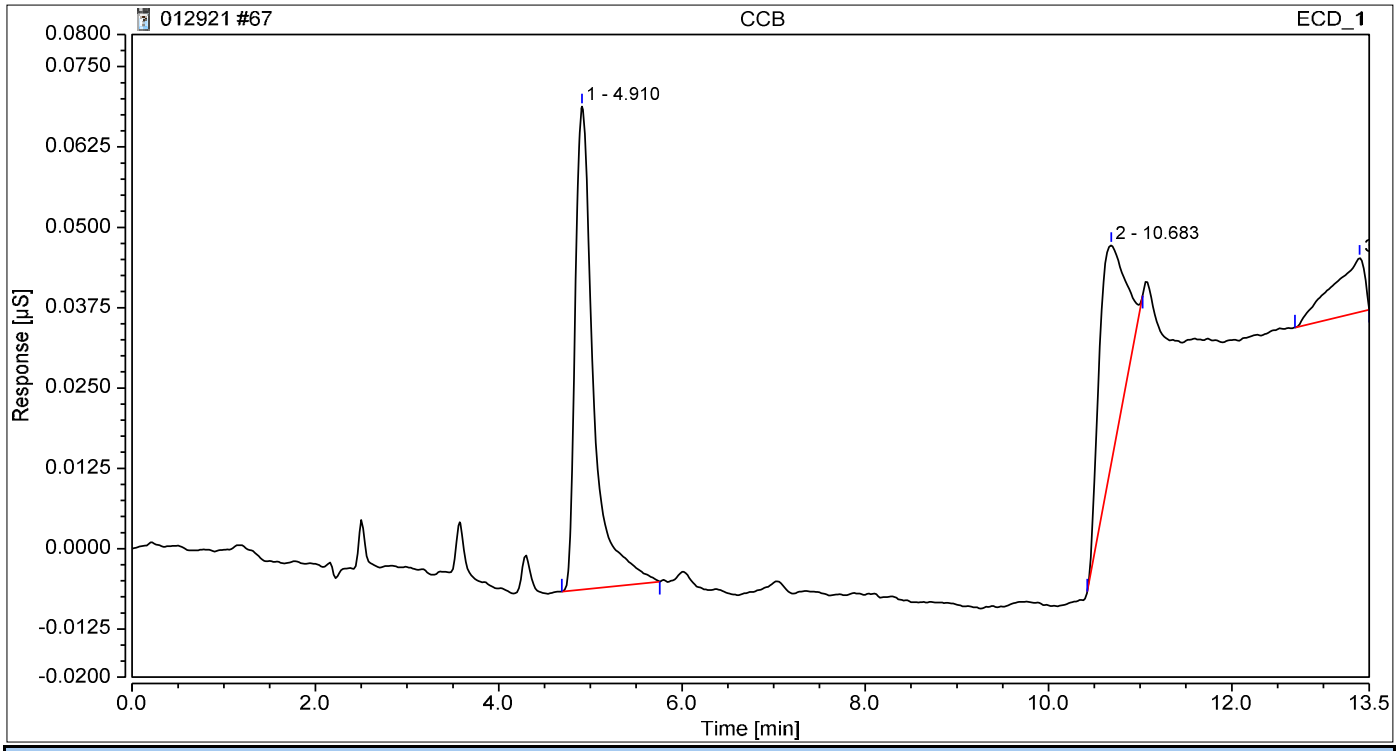
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.520	1.507	16.708	10.01	13.83	9.7752
2	CHLORIDE	3.577	4.483	46.467	29.78	38.47	47.4157
3	NITRITE,N	4.307	1.912	14.905	12.70	12.34	9.9856
4		5.000	0.045	0.141	0.30	0.12	n.a.
5	SULFATE	5.967	3.704	21.681	24.61	17.95	47.3264
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	6.973	2.250	12.038	14.95	9.97	9.4949
7	CHLORATE	7.570	0.332	1.746	2.21	1.45	9.4797
8		10.660	0.008	0.030	0.05	0.02	n.a.
9	PHOSPHATE	11.017	0.809	7.047	5.38	5.83	9.1068
10		11.723	0.002	0.018	0.01	0.01	n.a.
11		13.427	0.001	0.008	0.01	0.01	n.a.
Total:			**15.053**	**120.790**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**30/Jan/21 06:00**	***Sample Weight:***	**1.0000**

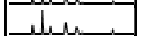
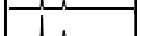
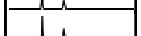
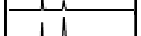
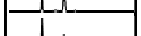
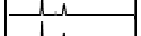
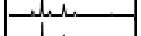
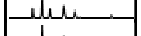
Chromatogram



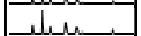
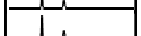
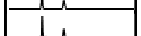
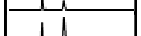
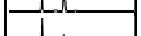
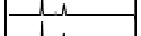
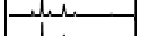
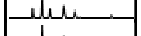
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.910	0.018	0.075	54.63	63.88	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.683	0.011	0.034	34.18	28.96	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		13.393	0.004	0.008	11.19	7.16	n.a.
Total:			**0.032**	**0.118**	**100.00**	**100.00**	

Sequence: 020321
Last Update Operator: alshs.nouser

ECD_1	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method	Volume [µl]
	STD1		Calibration	BE1	1.00	01	ICS2100	Anion Processing Method 091720	10.0
	STD2		Calibration	BE2	1.00	02	ICS2100	Anion Processing Method 091720	10.0
	STD3		Calibration	BE3	1.00	03	ICS2100	Anion Processing Method 091720	10.0
	STD4		Calibration	BE4	1.00	04	ICS2100	Anion Processing Method 091720	10.0
	STD5		Calibration	BE5	1.00	05	ICS2100	Anion Processing Method 091720	10.0
	STD6		Calibration	BE6	1.00	06	ICS2100	Anion Processing Method 091720	10.0
	ICV		Unknown	BE7	1.00		ICS2100	Anion Processing Method 091720	10.0
	ICB		Unknown	BE8	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV1		Unknown	G3	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G6	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-01DF10		Unknown	GD6	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-02DF10		Unknown	GD7	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-03DF10		Unknown	GD8	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-04DF10		Unknown	GE1	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-05		Unknown	GE2	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011150-06DF20		Unknown	GE3	20.00		ICS2100	Anion Processing Method 091720	10.0
	CCV		Unknown	G1	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G4	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV1		Unknown	G3	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G6	1.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011075-02DF10		Unknown	GA4	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011075-02MSDF10		Unknown	GA5	10.00		ICS2100	Anion Processing Method 091720	10.0
	HS21011075-02MSDDF10		Unknown	GA6	10.00		ICS2100	Anion Processing Method 091720	10.0
	MBLK-		Unknown	G5	1.00		ICS2100	Anion Processing Method 091720	10.0
	LCS-		Unknown	G2	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCV		Unknown	G1	1.00		ICS2100	Anion Processing Method 091720	10.0
	CCB		Unknown	G4	1.00		ICS2100	Anion Processing Method 091720	10.0

Sequence: 020321
Last Update Operator: alshs.nouser

ECD_1	Name	Status	Inject Time
	STD1	Finished	12/19/2020 1:00:54 PM -06:00
	STD2	Finished	12/19/2020 1:17:43 PM -06:00
	STD3	Finished	12/19/2020 1:34:53 PM -06:00
	STD4	Finished	12/19/2020 1:53:02 PM -06:00
	STD5	Finished	12/19/2020 2:11:08 PM -06:00
	STD6	Finished	12/19/2020 2:29:15 PM -06:00
	ICV	Finished	12/19/2020 2:47:20 PM -06:00
	ICB	Finished	12/19/2020 3:05:27 PM -06:00
	CCV1	Finished	2/3/2021 9:09:18 PM -06:00
	CCB	Finished	2/3/2021 9:27:24 PM -06:00
	HS21011150-01DF10	Finished	2/3/2021 10:39:55 PM -06:00
	HS21011150-02DF10	Finished	2/3/2021 10:58:03 PM -06:00
	HS21011150-03DF10	Finished	2/3/2021 11:16:09 PM -06:00
	HS21011150-04DF10	Finished	2/3/2021 11:34:12 PM -06:00
	HS21011150-05	Finished	2/3/2021 11:52:22 PM -06:00
	HS21011150-06DF20	Finished	2/4/2021 12:10:32 AM -06:00
	CCV	Finished	2/4/2021 12:46:47 AM -06:00
	CCB	Finished	2/4/2021 1:04:53 AM -06:00
	CCV1	Finished	2/4/2021 3:56:59 AM -06:00
	CCB	Finished	2/4/2021 4:13:48 AM -06:00
	HS21011075-02DF10	Finished	2/4/2021 4:30:37 AM -06:00
	HS21011075-02MSDF10	Finished	2/4/2021 4:47:26 AM -06:00
	HS21011075-02MSDDF10	Finished	2/4/2021 5:04:16 AM -06:00
	MBLK-	Finished	2/4/2021 5:21:06 AM -06:00
	LCS-	Finished	2/4/2021 5:37:55 AM -06:00
	CCV	Finished	2/4/2021 7:02:00 AM -06:00
	CCB	Finished	2/4/2021 7:18:49 AM -06:00

Sequence: 020521
Injection #6: STD6

Calibration

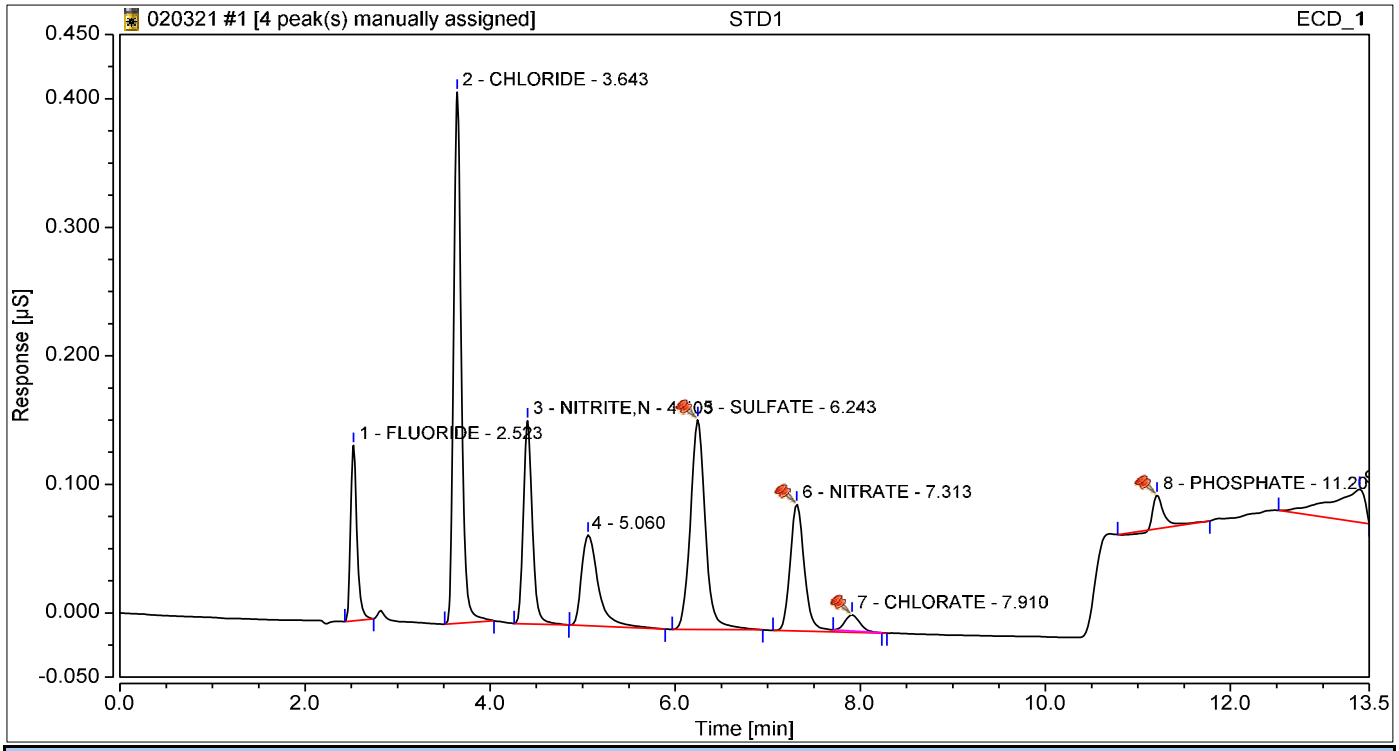
Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*FLUORIDE*	*Lin, WithOffset, 1/*	*Area*	*6*	*16.6332*	*0.99866*	*-0.0030*	*0.1545*	*0.0000*
2	CHLORIDE	Lin, WithOffset, 1/	Area	6	2.0730	0.99998	-0.0081	0.0947	0.0000
3	NITRITE,N	Lin, WithOffset, 1/	Area	6	23.9051	0.99676	0.0031	0.1912	0.0000
5	SULFATE	Lin, WithOffset, 1/	Area	3	2.7059	0.99999	-0.0086	0.0784	0.0000
n.a.	BROMIDE	Lin, WithOffset, 1/	Area	3	0.2089	1.00000	-0.0055	0.3870	0.0000
6	NITRATE	Lin, WithOffset, 1/	Area	6	4.0775	0.99992	-0.0066	0.2377	0.0000
7	CHLORATE	Lin, WithOffset, 1/	Area	6	18.3441	0.99864	-0.0020	0.0353	0.0000
9	PHOSPHATE	Lin, WithOffset, 1/	Area	6	20.0725	0.99859	-0.0075	0.0897	0.0000
Maximum					**23.9051**	1.00000			
Minimum					0.2089	**0.99676**			

Chromatogram and Results

Injection Details

Injection Name:	**STD1**	***Run Time (min):***	**13.50**
Vial Number:	**BE1**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**01**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:00**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

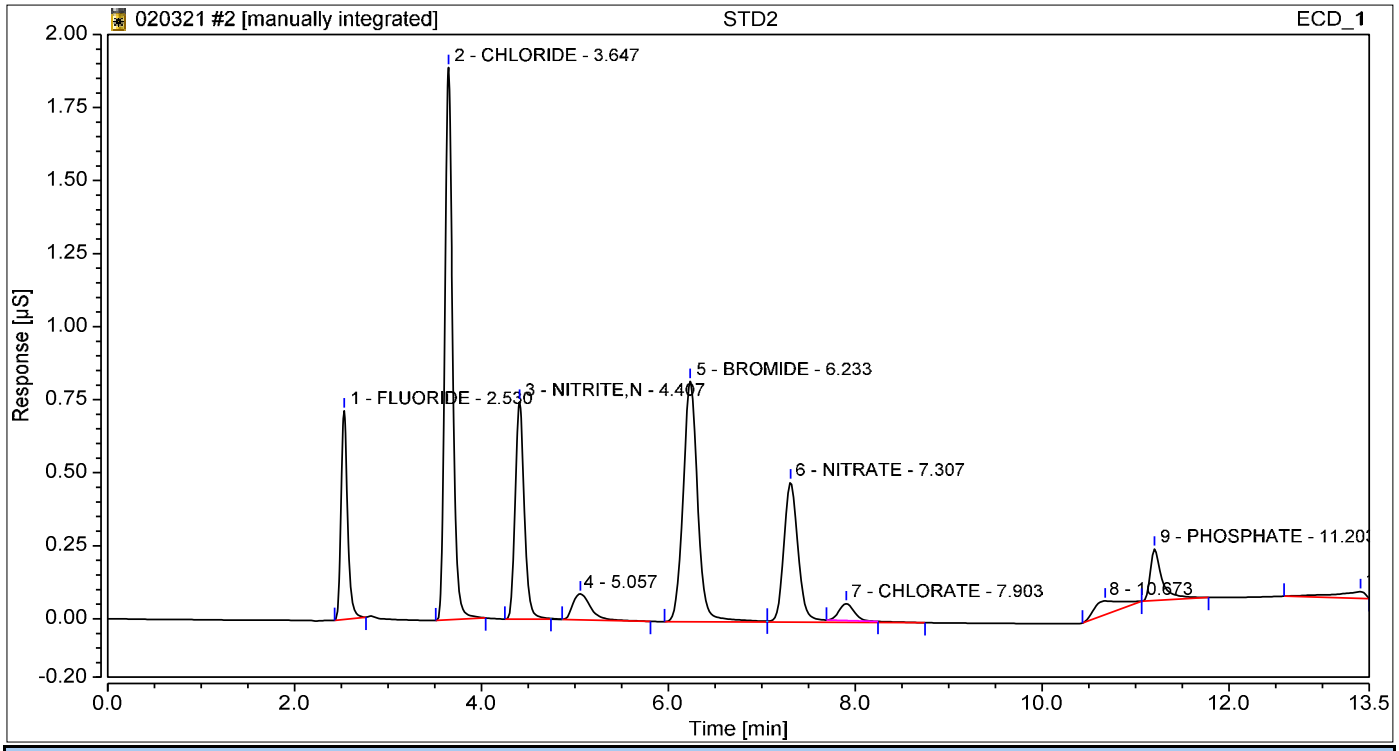
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.523	0.011	0.136	7.37	12.35	0.0899
2	CHLORIDE	3.643	0.040	0.413	26.94	37.41	0.5060
3	NITRITE,N	4.403	0.018	0.158	11.95	14.30	0.0759
4		5.060	0.015	0.071	10.06	6.38	n.a.
5	SULFATE	6.243	0.031	0.163	20.66	14.78	0.4991
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.313	0.018	0.099	12.10	8.94	0.1029
7	CHLORATE	7.910	0.002	0.013	1.56	1.13	0.1221
8	PHOSPHATE	11.207	0.003	0.026	2.15	2.37	0.1195
9		13.397	0.011	0.026	7.22	2.33	n.a.
Total:			**0.148**	**1.105**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2**	***Run Time (min):***	**13.50**
Vial Number:	**BE2**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**02**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:17**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

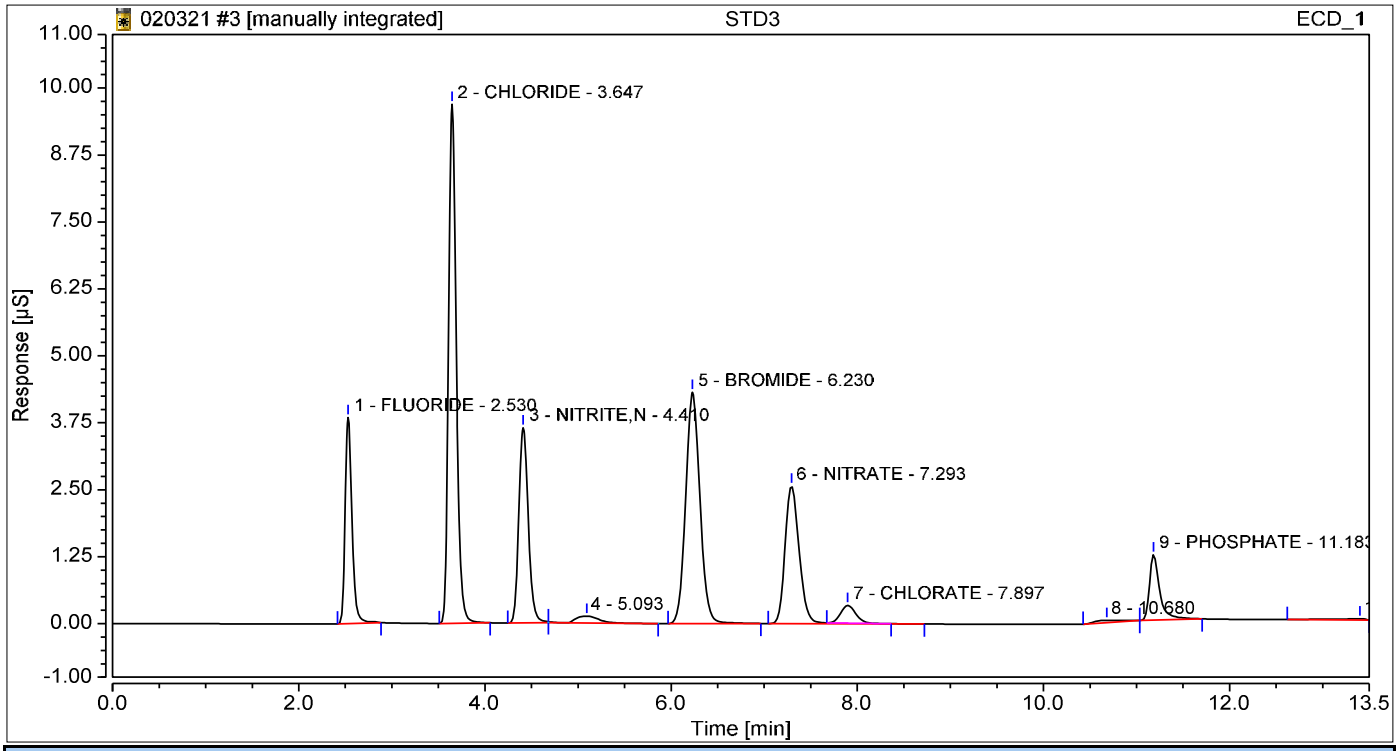
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.530	0.058	0.714	9.04	14.16	0.3957
2	CHLORIDE	3.647	0.182	1.891	28.23	37.49	2.0019
3	NITRITE,N	4.407	0.084	0.743	13.05	14.73	0.4225
4		5.057	0.020	0.089	3.08	1.76	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.233	0.149	0.822	23.24	16.30	0.4003
6	NITRATE	7.307	0.089	0.480	13.80	9.52	0.4010
7	CHLORATE	7.903	0.011	0.058	1.67	1.15	0.3616
8		10.673	0.016	0.047	2.45	0.93	n.a.
9	PHOSPHATE	11.203	0.026	0.177	4.05	3.51	0.3745
10		13.407	0.009	0.023	1.39	0.45	n.a.
Total:			**0.643**	**5.045**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3**	***Run Time (min):***	**13.50**
Vial Number:	**BE3**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**03**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:34**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

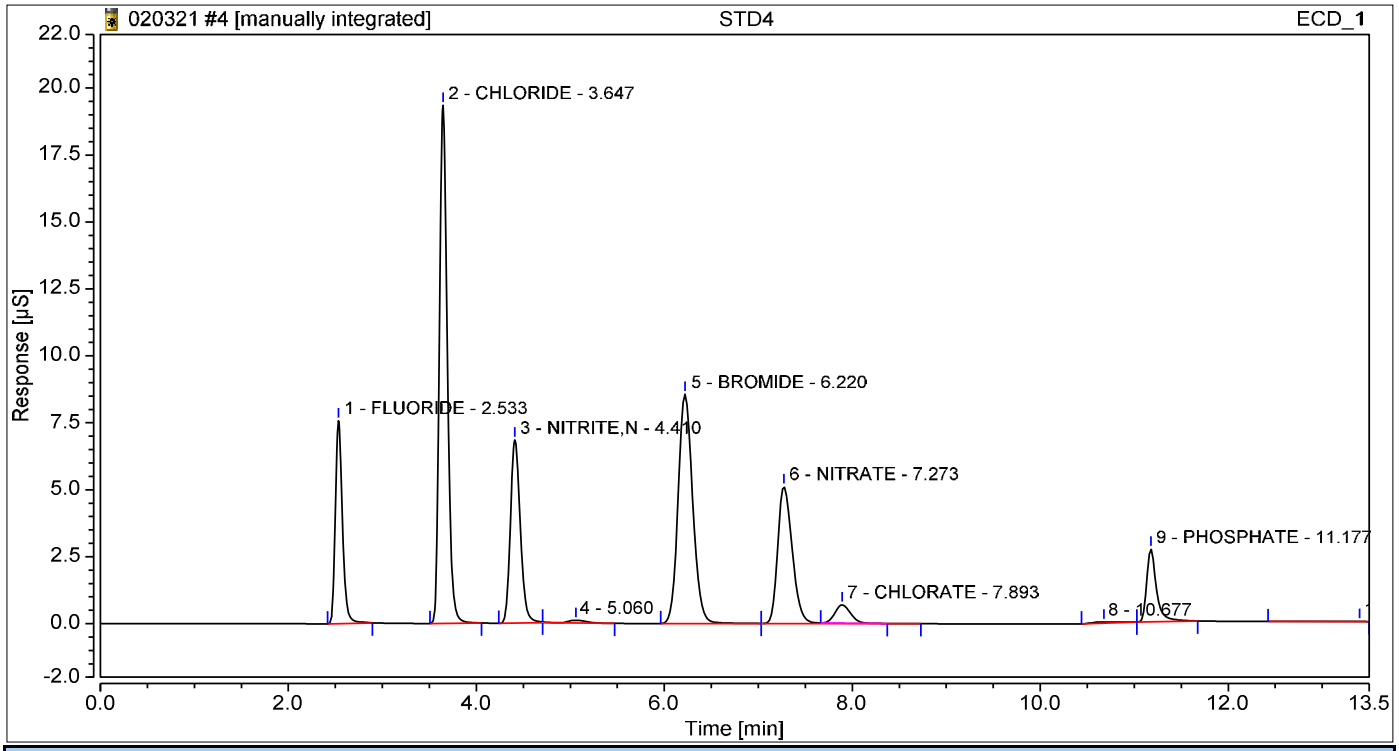
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.530	0.324	3.848	10.18	14.90	2.1184
2	CHLORIDE	3.647	0.931	9.689	29.22	37.52	9.9169
3	NITRITE,N	4.410	0.428	3.646	13.43	14.12	2.2218
4		5.093	0.037	0.127	1.16	0.49	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.230	0.768	4.321	24.09	16.73	1.9977
6	NITRATE	7.293	0.456	2.571	14.31	9.96	1.9463
7	CHLORATE	7.897	0.062	0.329	1.95	1.27	1.8182
8		10.680	0.015	0.045	0.47	0.17	n.a.
9	PHOSPHATE	11.183	0.156	1.220	4.89	4.72	1.8214
10		13.400	0.009	0.024	0.29	0.09	n.a.
Total:			**3.186**	**25.820**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4**	***Run Time (min):***	**13.50**
Vial Number:	**BE4**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**04**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 13:53**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

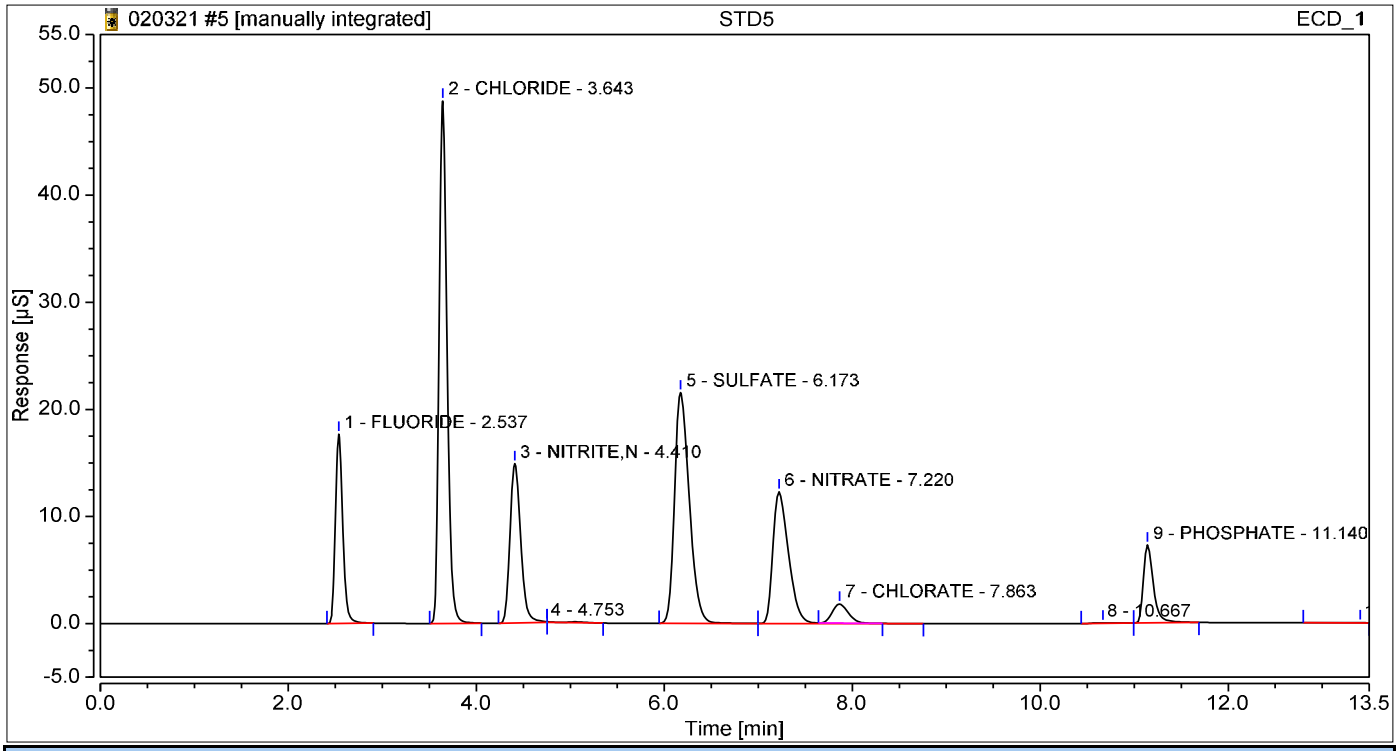
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.533	0.649	7.577	10.24	14.85	4.2191
2	CHLORIDE	3.647	1.868	19.345	29.50	37.93	19.8116
3	NITRITE,N	4.410	0.833	6.836	13.16	13.40	4.3429
4		5.060	0.025	0.100	0.40	0.20	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.220	1.543	8.569	24.37	16.80	4.0021
6	NITRATE	7.273	0.932	5.121	14.71	10.04	3.9479
7	CHLORATE	7.893	0.131	0.682	2.07	1.34	3.7714
8		10.677	0.014	0.044	0.22	0.09	n.a.
9	PHOSPHATE	11.177	0.328	2.711	5.18	5.32	3.7381
10		13.397	0.010	0.021	0.16	0.04	n.a.
Total:			**6.334**	**51.008**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5**	***Run Time (min):***	**13.50**
Vial Number:	**BE5**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**05**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:11**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

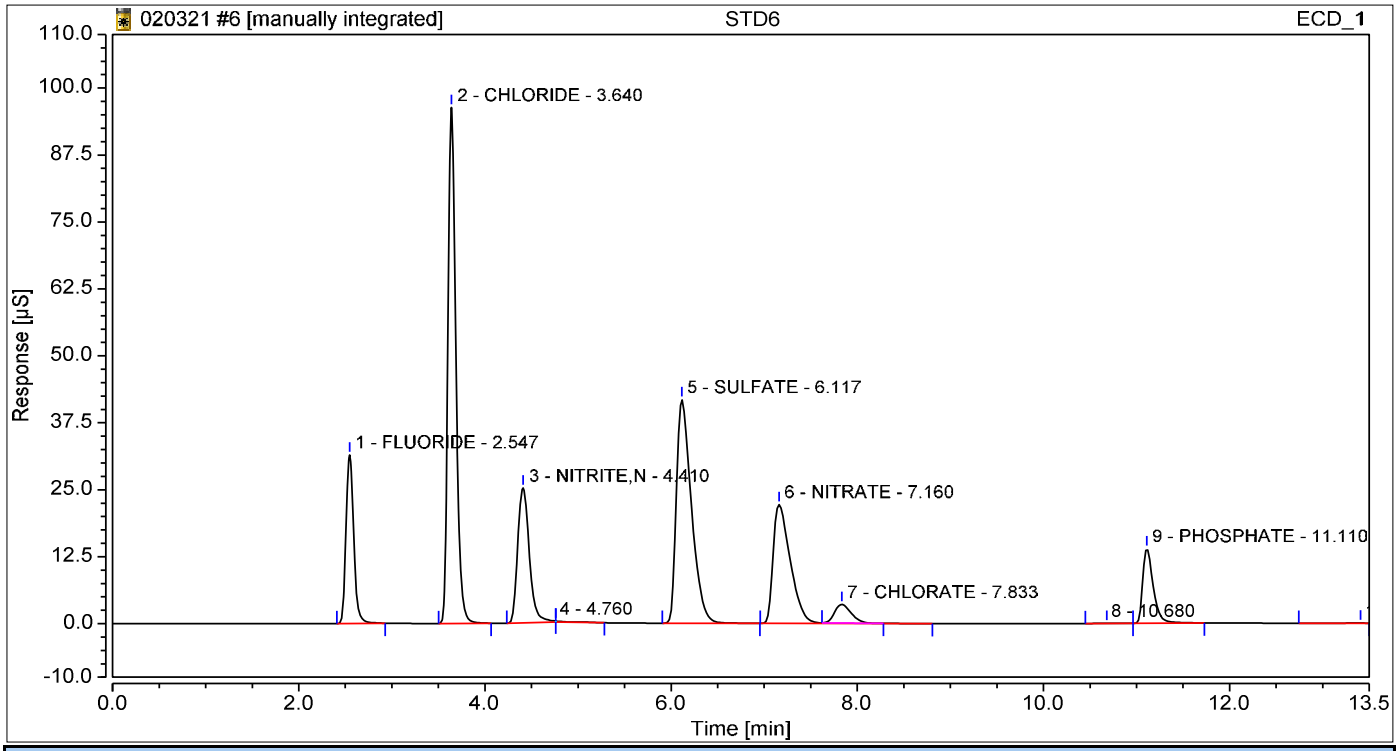
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.537	1.584	17.679	9.96	14.22	10.2736
2	CHLORIDE	3.643	4.749	48.765	29.85	39.23	50.2245
3	NITRITE,N	4.410	1.976	14.875	12.42	11.97	10.3182
4		4.753	0.024	0.068	0.15	0.05	n.a.
5	SULFATE	6.173	3.928	21.534	24.69	17.32	50.1760
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.220	2.384	12.286	14.99	9.88	10.0552
7	CHLORATE	7.863	0.352	1.780	2.21	1.43	10.0333
8		10.667	0.013	0.042	0.08	0.03	n.a.
9	PHOSPHATE	11.140	0.892	7.269	5.60	5.85	10.0223
10		13.403	0.007	0.021	0.04	0.02	n.a.
Total:			**15.906**	**124.319**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6**	***Run Time (min):***	**13.50**
Vial Number:	**BE6**	***Injection Volume:***	**10.00**
Injection Type:	**Calibration Standard**	***Channel:***	**ECD_1**
Calibration Level:	**06**	***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:29**	***Sample Weight:***	**1.0000**

Chromatogram



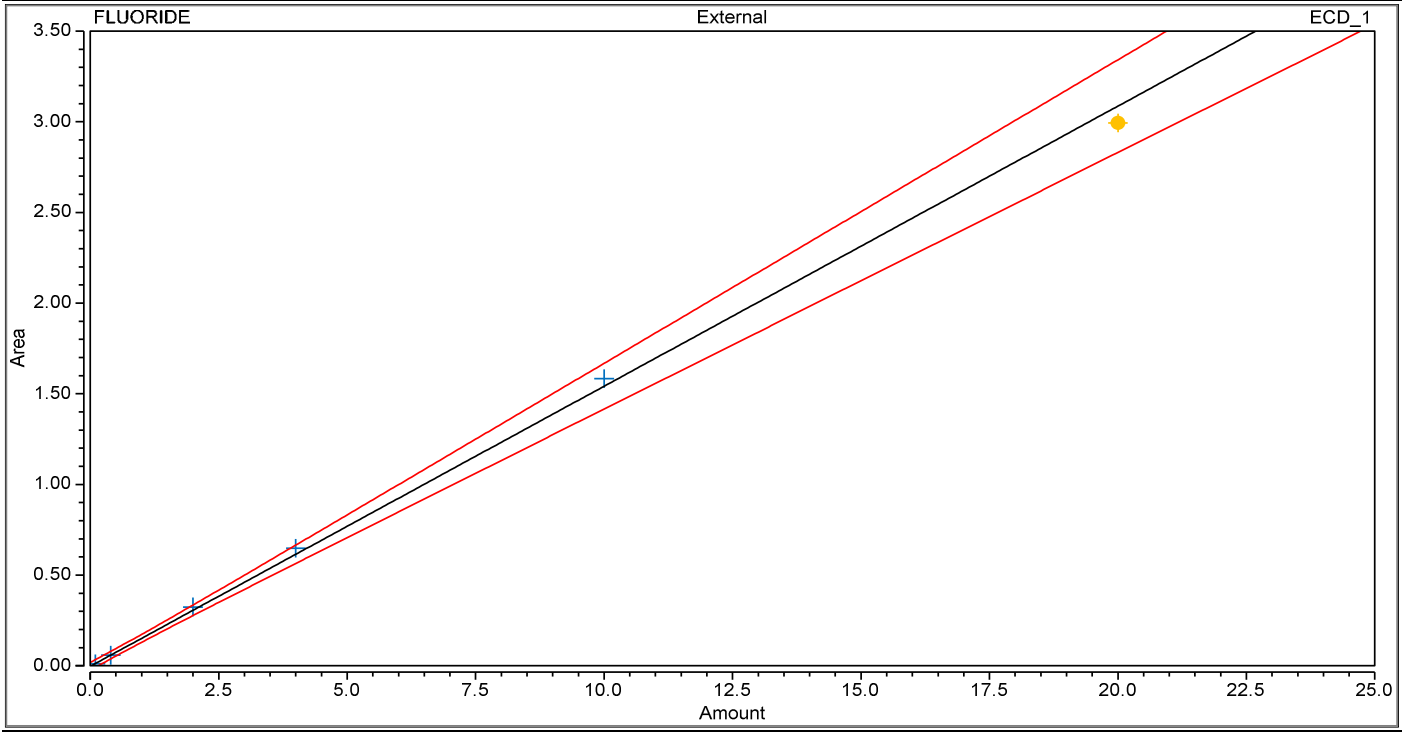
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.547	2.994	31.484	9.57	13.42	19.4033
2	CHLORIDE	3.640	9.467	96.327	30.25	41.06	100.0392
3	NITRITE,N	4.410	3.658	25.190	11.69	10.74	19.1186
4		4.760	0.033	0.182	0.10	0.08	n.a.
5	SULFATE	6.117	7.823	41.775	25.00	17.81	99.8249
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.160	4.759	22.197	15.21	9.46	20.0466
7	CHLORATE	7.833	0.717	3.467	2.29	1.48	20.3933
8		10.680	0.012	0.038	0.04	0.02	n.a.
9	PHOSPHATE	11.110	1.825	13.919	5.83	5.93	20.4242
10		13.407	0.006	0.020	0.02	0.01	n.a.
Total:			**31.292**	**234.598**	**100.00**	**100.00**	

Calibration

Calibration Details	FLUORIDE		
Calibration Type	Lin, WithOffset, 1/A	***Offset (C0)***	-0.0030
Evaluation Type	Area	***Slope (C1)***	0.1545
Number of Calibration Points	6	***Curve (C2)***	0.0000
Number of disabled Calibration Points	0	***R-Square***	0.9987

Calibration Plot **FLUORIDE**



Calibration Results **FLUORIDE**

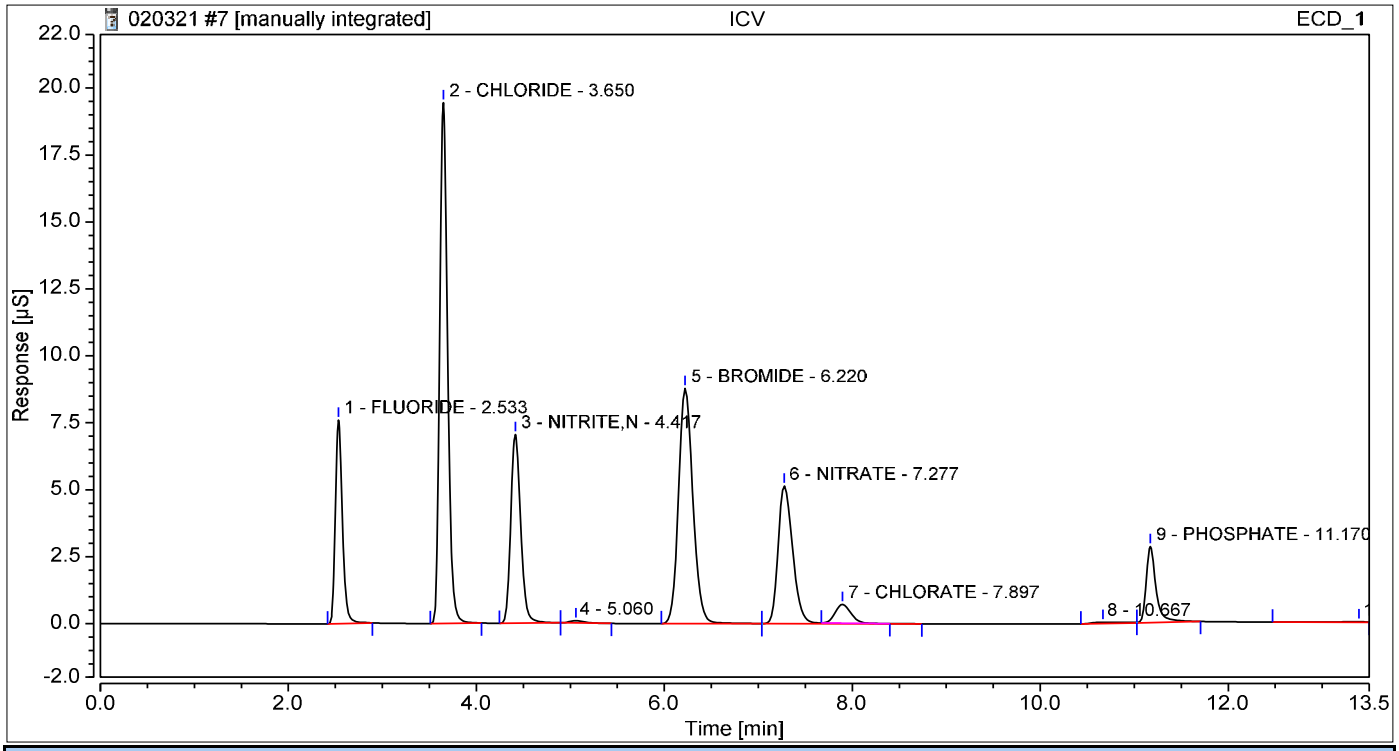
No.	Injection Name	Calibration Level	X Value ECD_1 FLUORIDE	Y Value ECD_1 FLUORIDE	Y Value ECD_1 FLUORIDE	Area µS*min ECD_1 FLUORIDE	Height µS ECD_1 FLUORIDE
1	STD1	01	0.1000	0.0109	0.0109	0.011	0.136
2	STD2	02	0.4000	0.0581	0.0581	0.058	0.714
3	STD3	03	2.0000	0.3242	0.3242	0.324	3.848
4	STD4	04	4.0000	0.6487	0.6487	0.649	7.577
5	STD5	05	10.0000	1.5839	1.5839	1.584	17.679
6	STD6	06	20.0000	2.9940	2.9940	2.994	31.484

Chromatogram and Results

Injection Details

Injection Name:	**ICV**	***Run Time (min):***	**13.50**
Vial Number:	**BE7**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 14:47**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

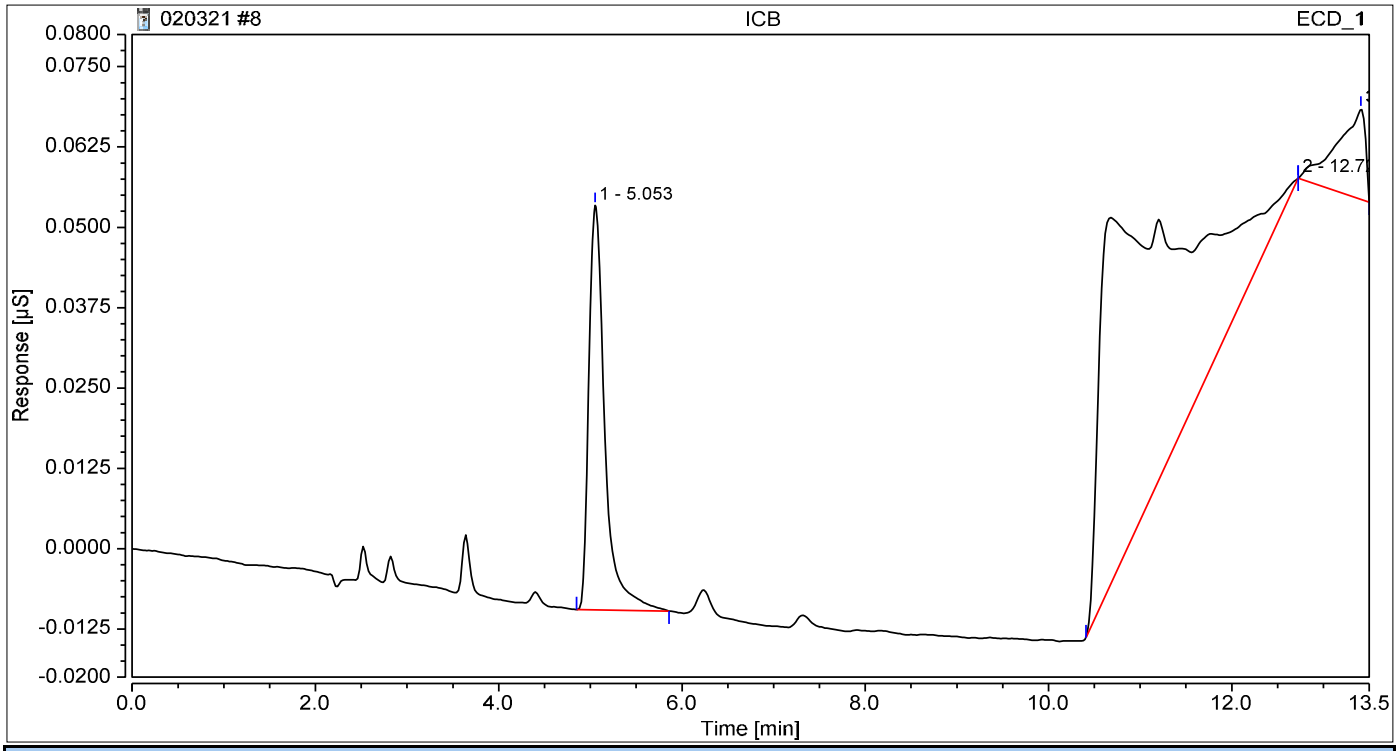
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.533	0.648	7.601	10.11	14.70	4.2121
2	CHLORIDE	3.650	1.878	19.444	29.32	37.59	19.9125
3	NITRITE,N	4.417	0.860	7.043	13.44	13.62	4.4840
4		5.060	0.016	0.082	0.25	0.16	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	BROMIDE	6.220	1.557	8.789	24.32	16.99	4.0384
6	NITRATE	7.277	0.938	5.148	14.65	9.95	3.9736
7	CHLORATE	7.897	0.135	0.702	2.10	1.36	3.8740
8		10.667	0.020	0.049	0.31	0.10	n.a.
9	PHOSPHATE	11.170	0.344	2.845	5.37	5.50	3.9206
10		13.390	0.008	0.017	0.12	0.03	n.a.
Total:			**6.403**	**51.721**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB**	***Run Time (min):***	**13.50**
Vial Number:	**BE8**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**19/Dec/20 15:05**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

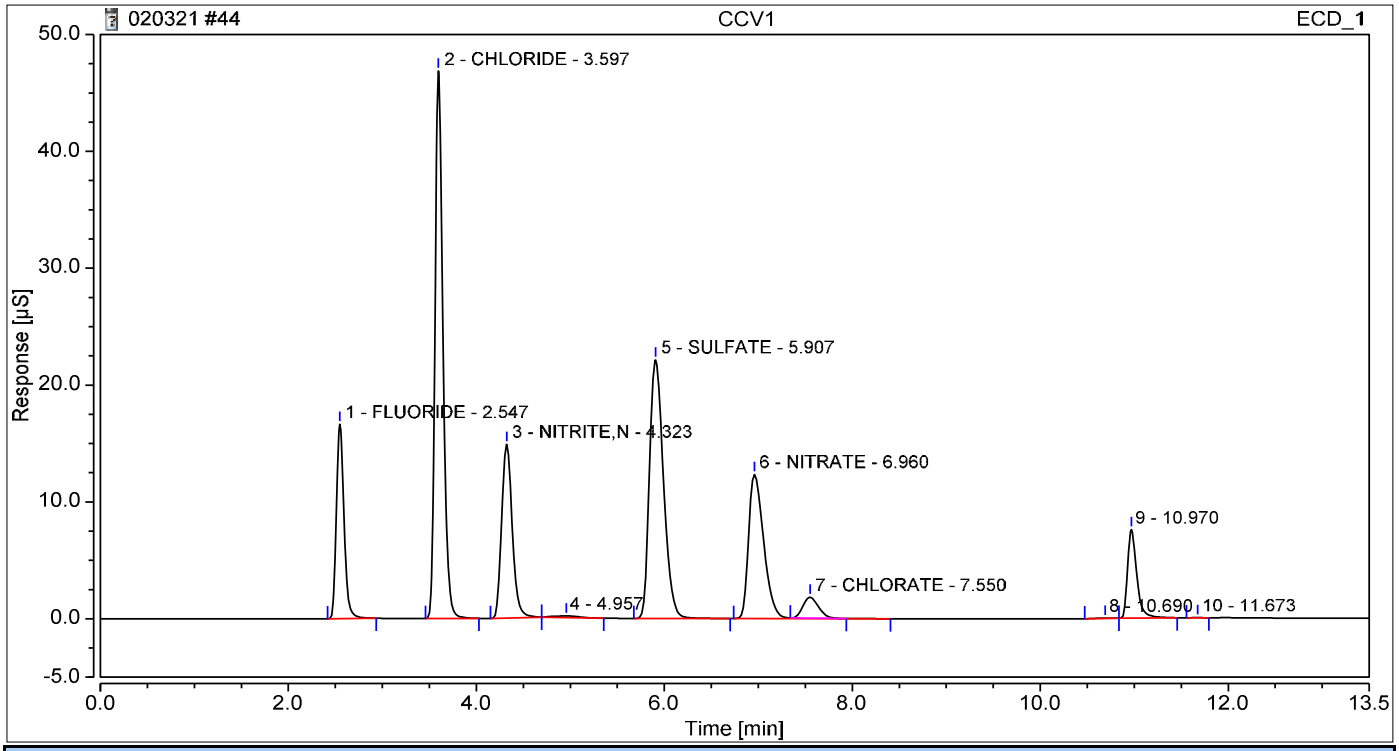
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		5.053	0.013	0.063	16.93	81.73	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		12.723	0.057	0.000	76.38	0.00	n.a.
3		13.410	0.005	0.014	6.69	18.27	n.a.
Total:			**0.075**	**0.077**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1**	***Run Time (min):***	**13.50**
Vial Number:	**G3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**03/Feb/21 21:09**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

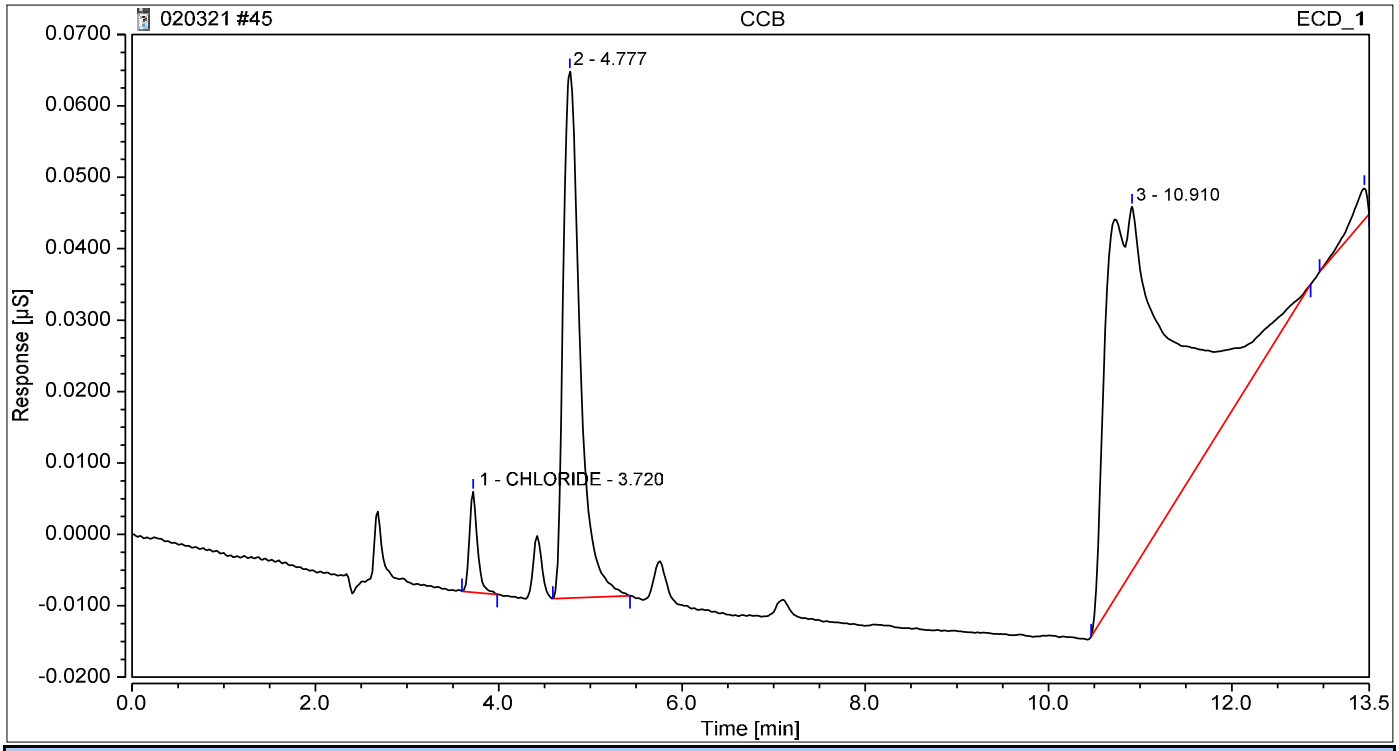
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.547	1.541	16.634	9.96	13.59	9.9943
2	CHLORIDE	3.597	4.599	46.853	29.74	38.28	48.6481
3	NITRITE,N	4.323	1.942	14.872	12.56	12.15	10.1439
4		4.957	0.044	0.144	0.28	0.12	n.a.
5	SULFATE	5.907	3.823	22.134	24.72	18.08	48.8383
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	6.960	2.310	12.335	14.94	10.08	9.7476
7	CHLORATE	7.550	0.343	1.796	2.22	1.47	9.7721
8		10.690	0.006	0.027	0.04	0.02	n.a.
9		10.970	0.853	7.569	5.52	6.18	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10		11.673	0.003	0.027	0.02	0.02	n.a.
Total:			**15.465**	**122.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**03/Feb/21 21:27**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

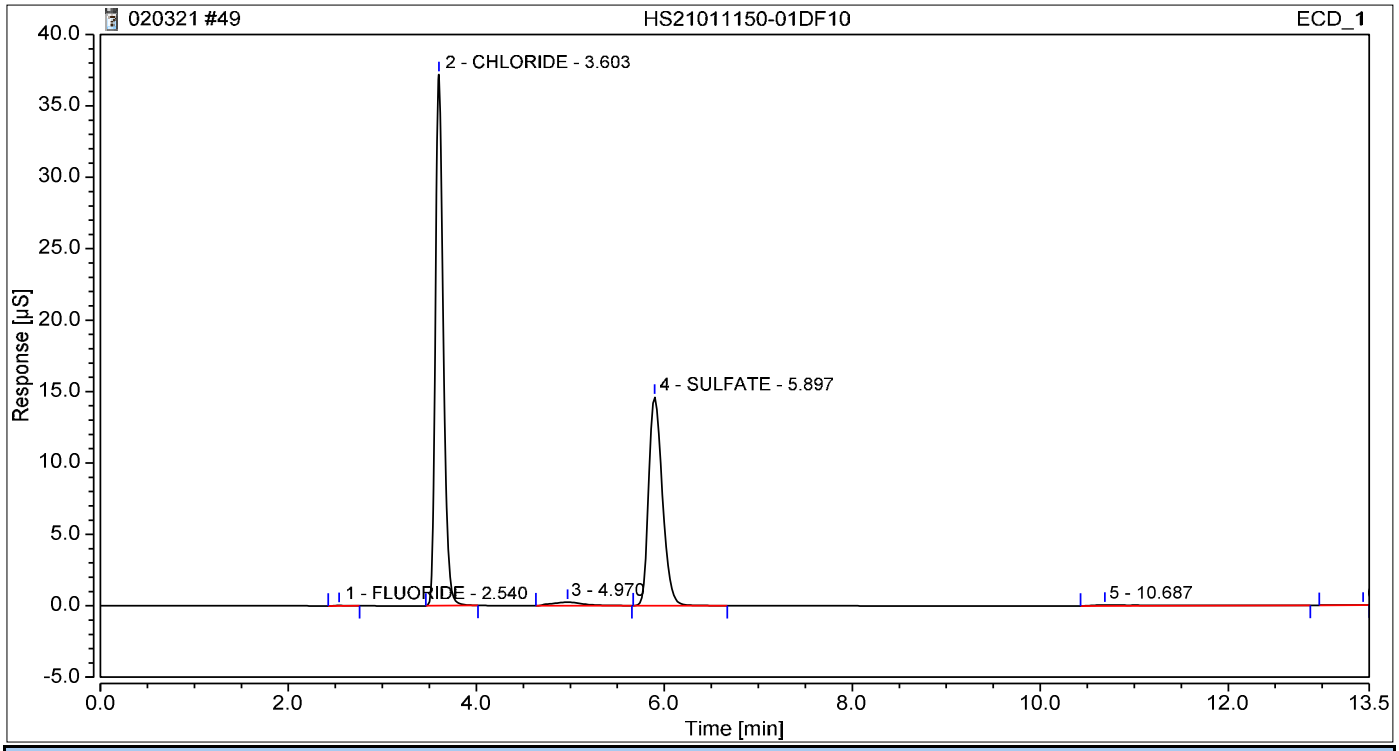
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1	CHLORIDE	3.720	0.001	0.014	2.28	9.82	0.1004
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		4.777	0.016	0.074	25.27	51.49	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		10.910	0.044	0.051	70.95	35.61	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		13.447	0.001	0.004	1.50	3.08	n.a.
Total:			**0.063**	**0.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-01DF10**	***Run Time (min):***	**13.50**
Vial Number:	**GD6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**03/Feb/21 22:39**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

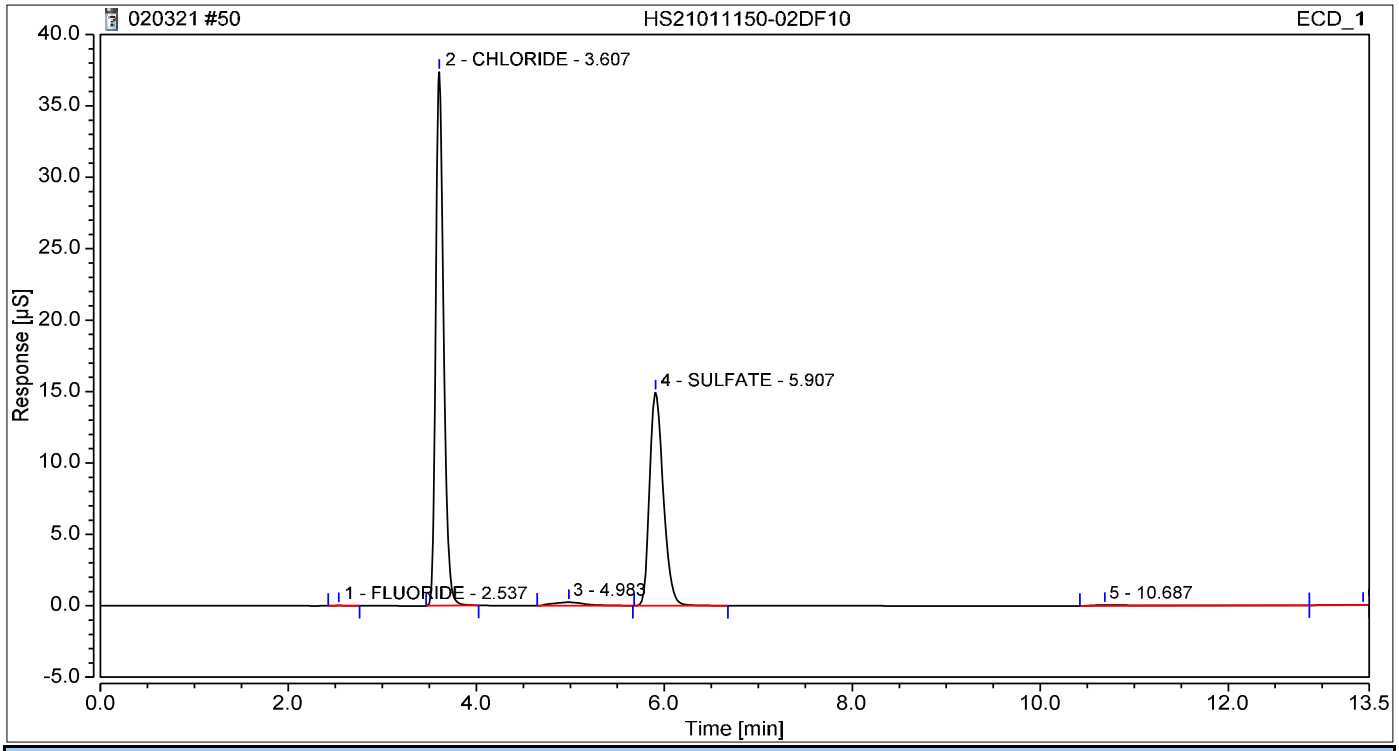
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.540	0.003	0.039	0.05	0.07	0.4089
2	CHLORIDE	3.603	3.635	37.199	58.12	71.34	384.6925
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.970	0.096	0.244	1.54	0.47	n.a.
4	SULFATE	5.897	2.474	14.604	39.56	28.01	316.4823
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.687	0.045	0.053	0.71	0.10	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		13.433	0.001	0.005	0.02	0.01	n.a.
Total:			**6.255**	**52.144**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-02DF10**	***Run Time (min):***	**13.50**
Vial Number:	**GD7**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**03/Feb/21 22:58**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

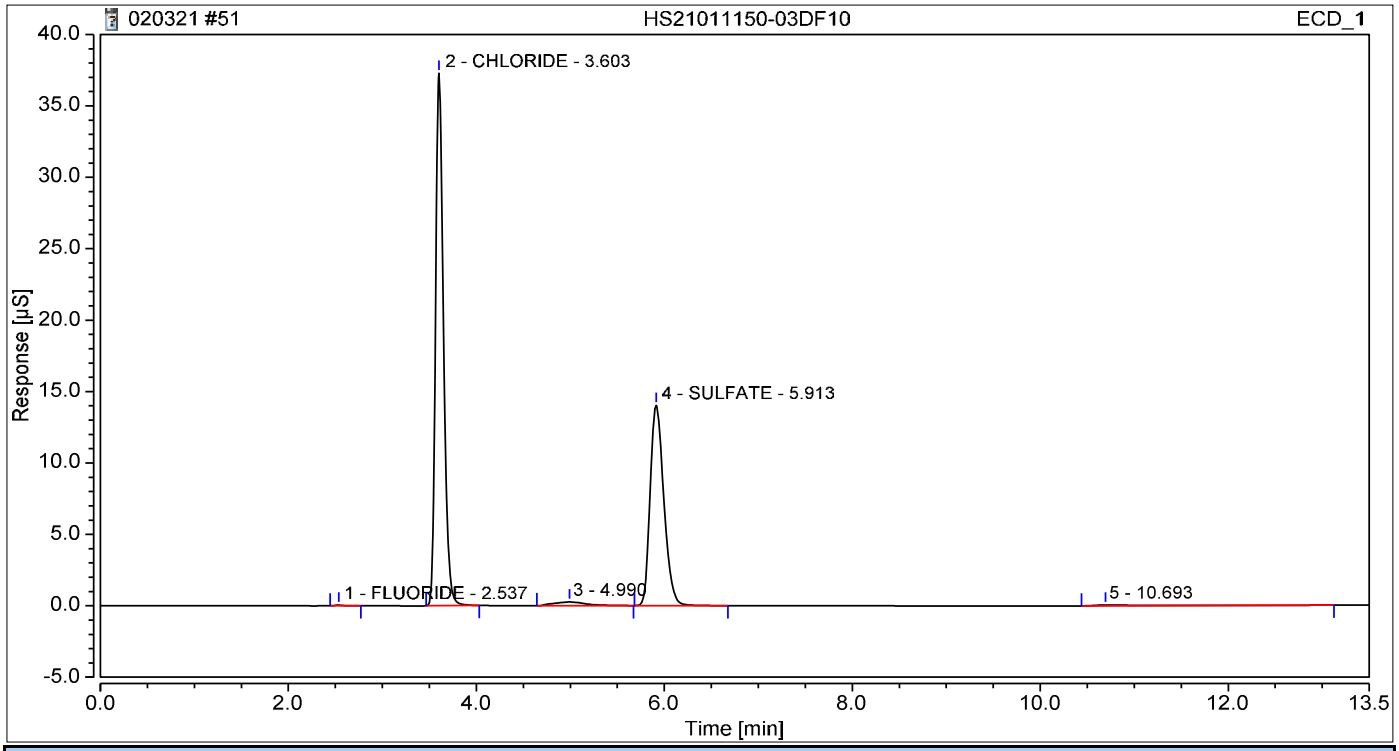
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.537	0.003	0.033	0.05	0.06	0.3811
2	CHLORIDE	3.607	3.657	37.377	57.87	71.01	387.0145
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.983	0.095	0.242	1.51	0.46	n.a.
4	SULFATE	5.907	2.519	14.926	39.85	28.36	322.1364
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.687	0.044	0.054	0.70	0.10	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		13.433	0.002	0.006	0.03	0.01	n.a.
Total:			**6.320**	**52.638**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-03DF10**	***Run Time (min):***	**13.50**
Vial Number:	**GD8**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**03/Feb/21 23:16**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

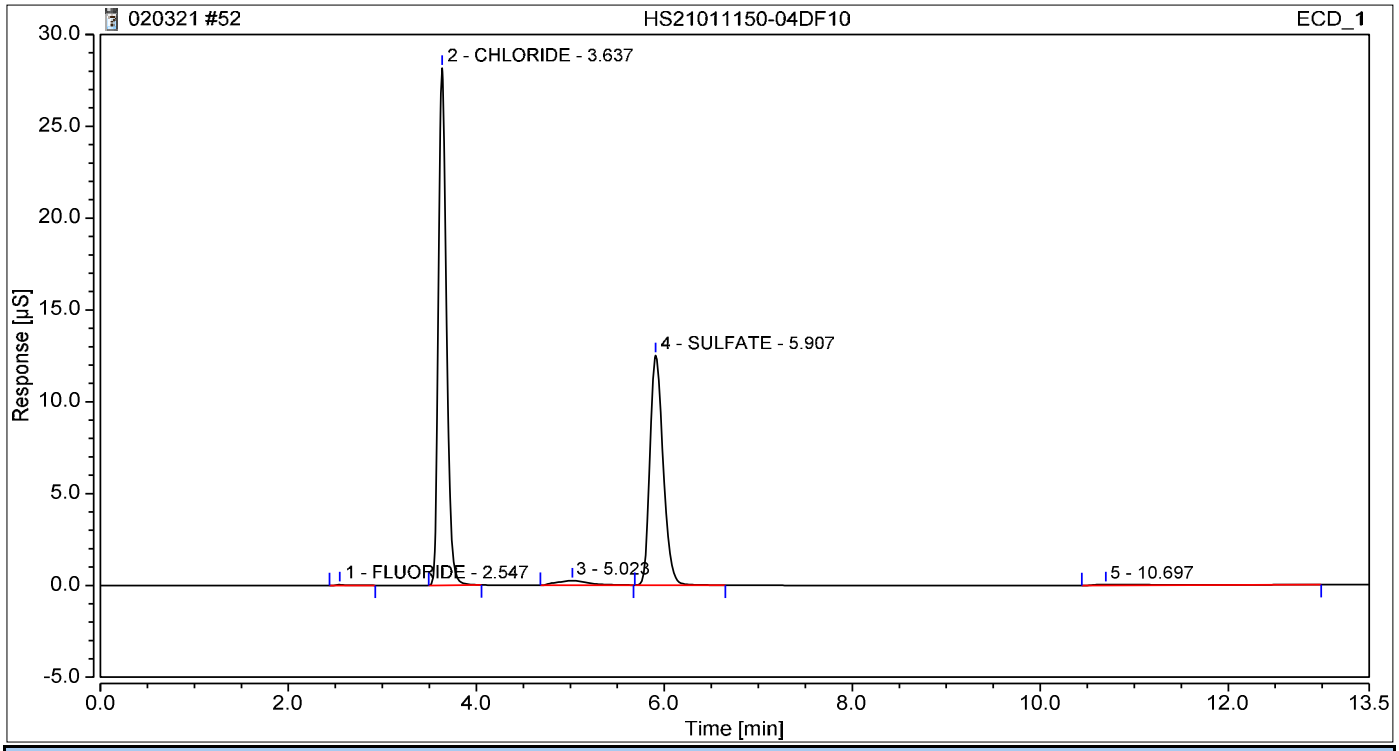
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.537	0.004	0.051	0.07	0.10	0.4718
2	CHLORIDE	3.603	3.654	37.273	59.21	72.15	386.6123
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.990	0.105	0.259	1.70	0.50	n.a.
4	SULFATE	5.913	2.363	14.025	38.29	27.15	302.2947
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.693	0.045	0.054	0.73	0.10	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**6.171**	**51.663**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-04DF10**	***Run Time (min):***	**13.50**
Vial Number:	**GE1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**03/Feb/21 23:34**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

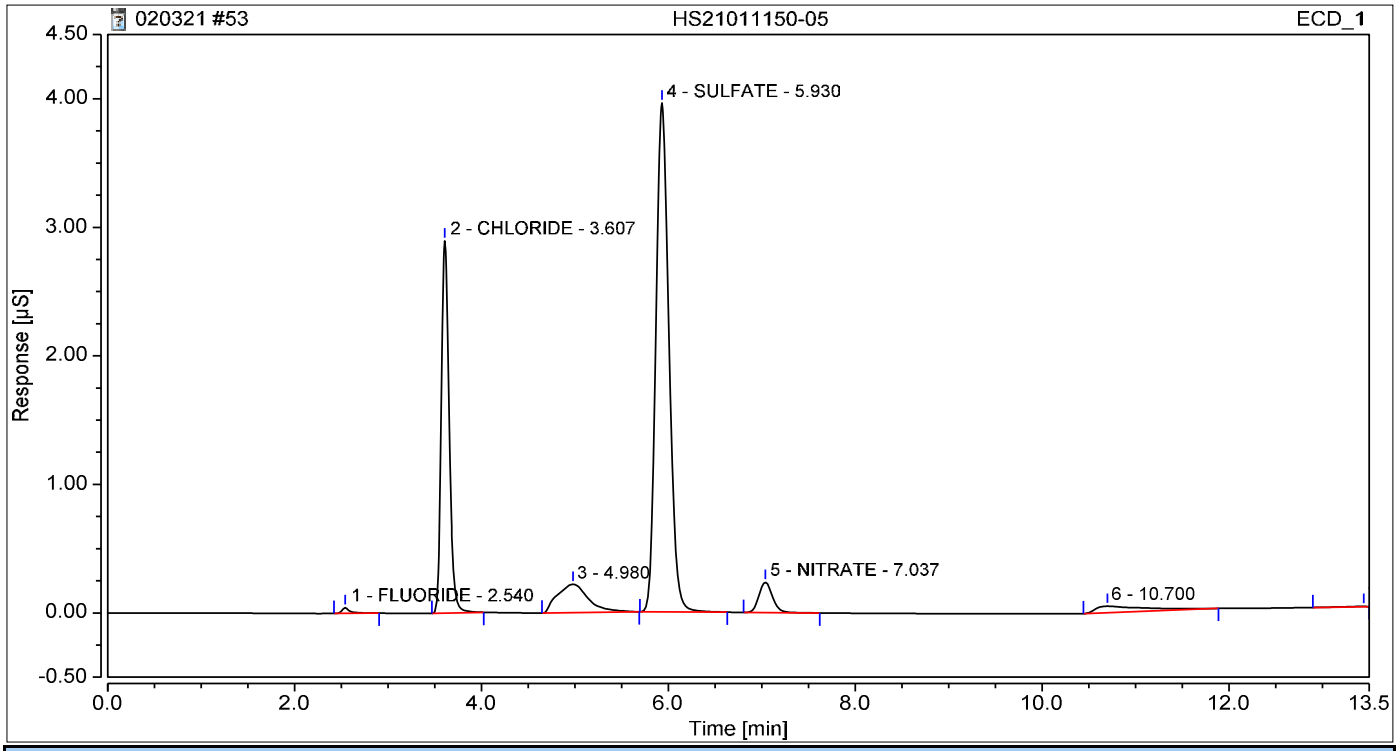
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.547	0.004	0.040	0.08	0.10	0.4580
2	CHLORIDE	3.637	2.786	28.168	56.04	68.67	295.0624
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		5.023	0.100	0.251	2.01	0.61	n.a.
4	SULFATE	5.907	2.037	12.504	40.98	30.49	260.7950
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.697	0.044	0.054	0.89	0.13	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**4.972**	**41.017**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-05**	***Run Time (min):***	**13.50**
Vial Number:	**GE2**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**03/Feb/21 23:52**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

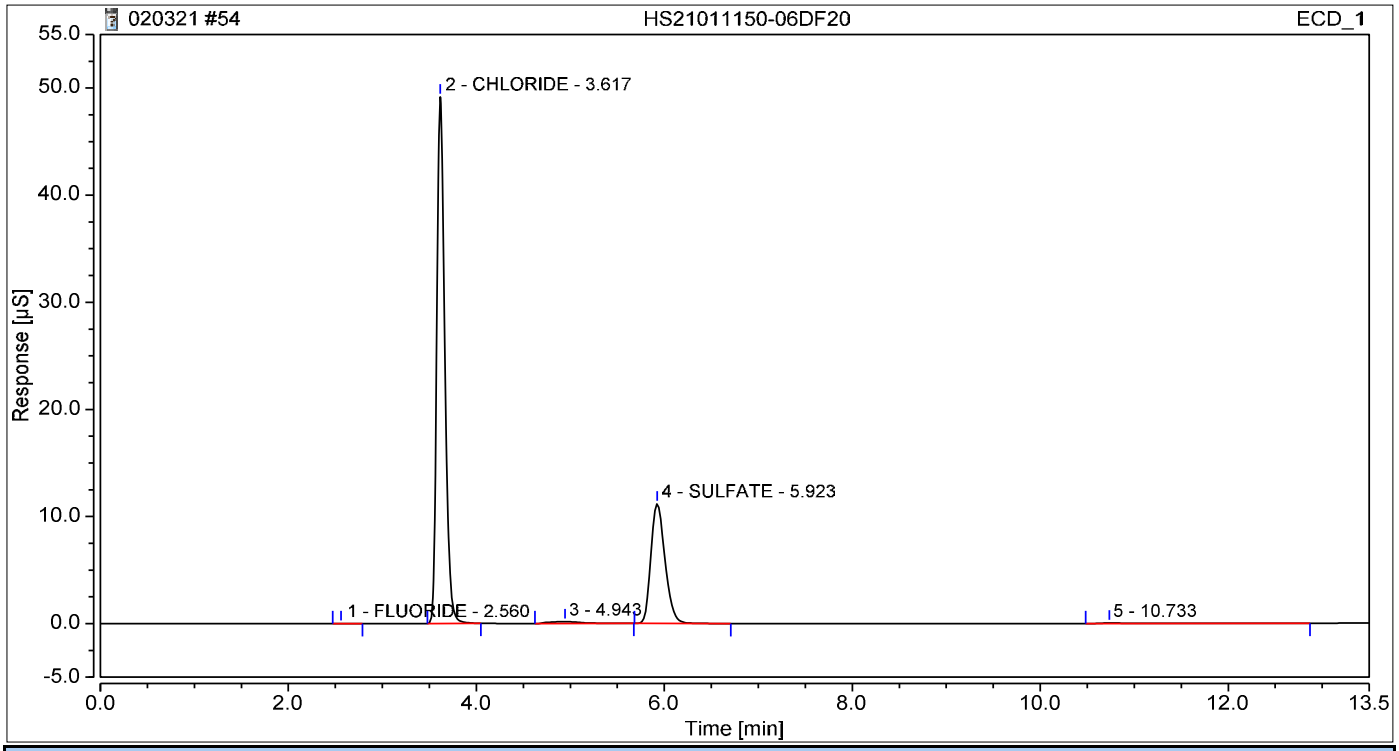
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.540	0.004	0.044	0.39	0.59	0.0470
2	CHLORIDE	3.607	0.280	2.896	25.86	39.08	3.0414
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.980	0.085	0.221	7.84	2.98	n.a.
4	SULFATE	5.930	0.642	3.958	59.27	53.40	8.2896
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	NITRATE	7.037	0.040	0.237	3.69	3.19	0.1958
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		10.700	0.031	0.051	2.83	0.69	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		13.440	0.001	0.005	0.12	0.06	n.a.
Total:			**1.083**	**7.411**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011150-06DF20**	***Run Time (min):***	**13.50**
Vial Number:	**GE3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**20.0000**
Injection Date/Time:	**04/Feb/21 00:10**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

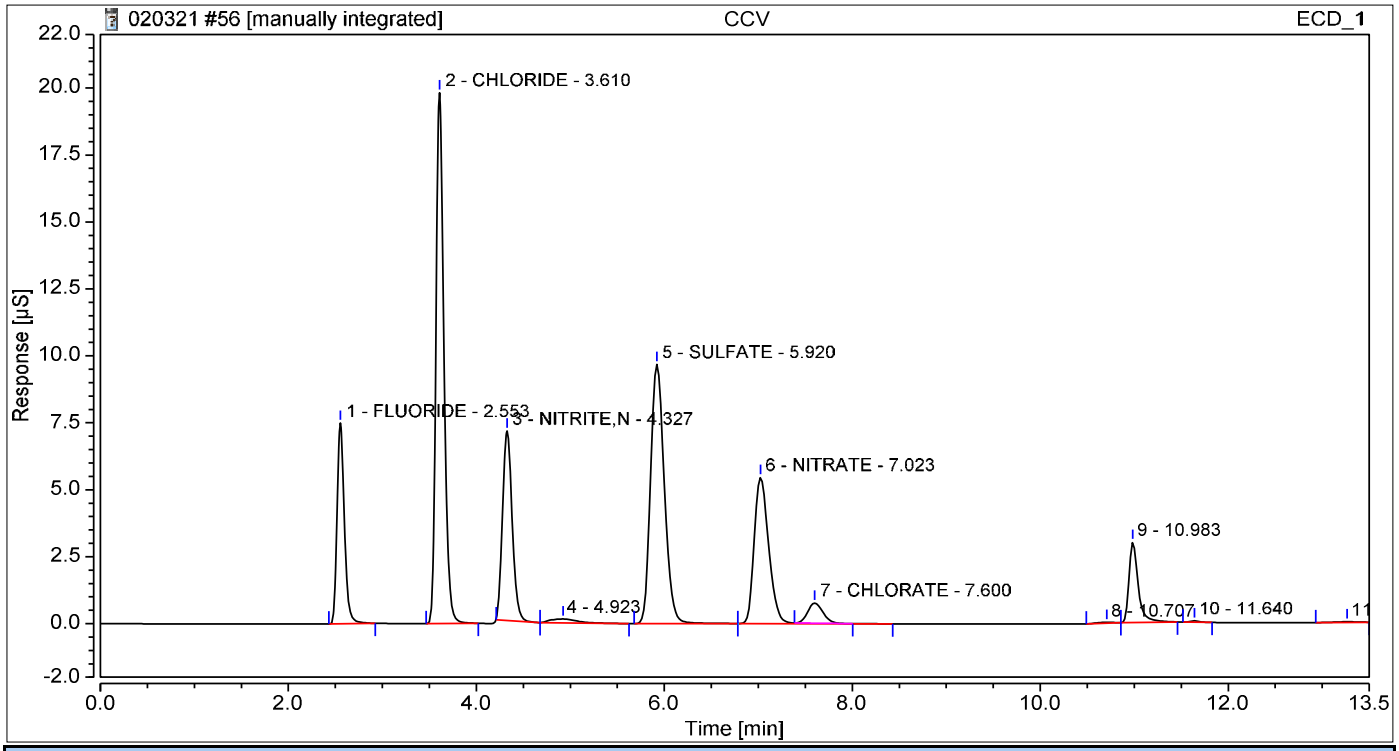
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.560	0.002	0.020	0.03	0.03	0.6207
2	CHLORIDE	3.617	4.836	49.176	70.04	81.14	1023.0303
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.943	0.074	0.182	1.07	0.30	n.a.
4	SULFATE	5.923	1.949	11.174	28.23	18.44	499.1381
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.733	0.044	0.056	0.64	0.09	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**6.906**	**60.608**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV**	***Run Time (min):***	**13.50**
Vial Number:	**G1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 00:46**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

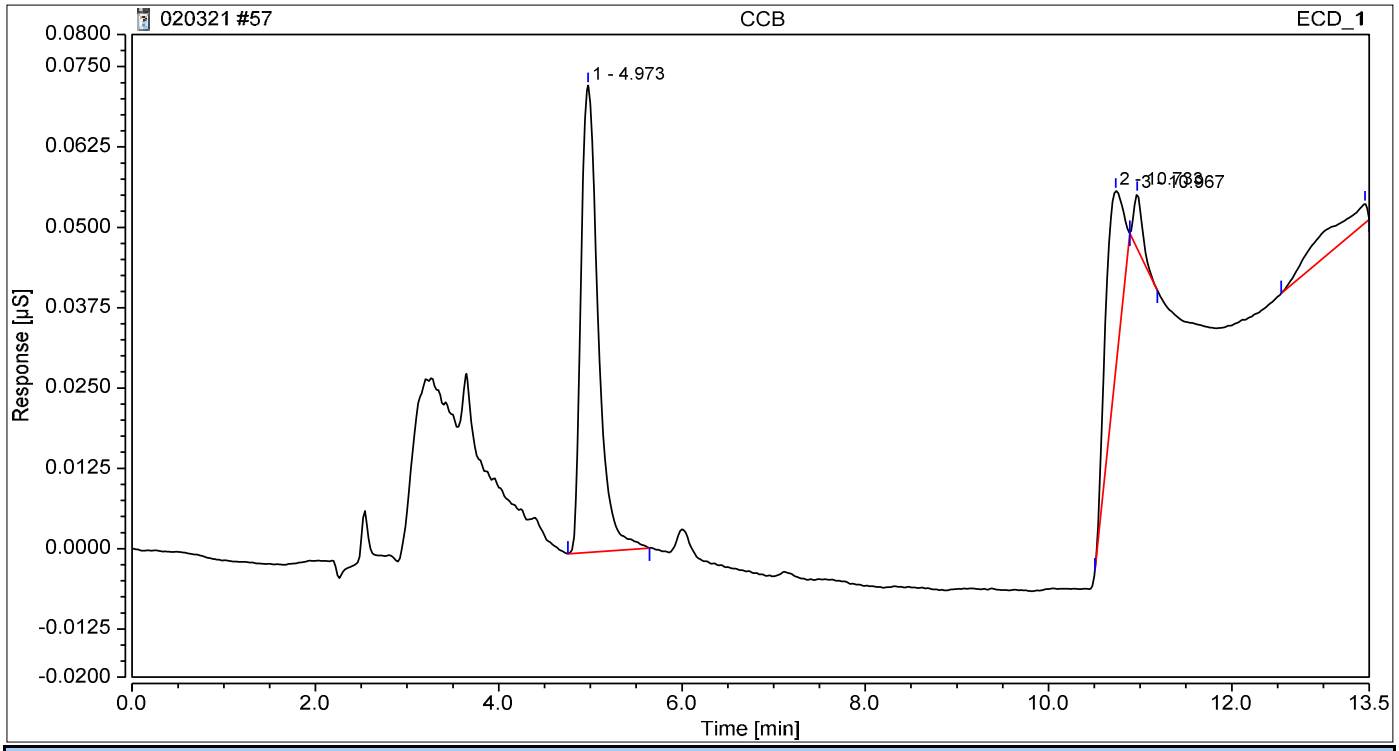
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.553	0.663	7.493	10.01	14.00	4.3144
2	CHLORIDE	3.610	1.938	19.826	29.26	37.04	20.5514
3	NITRITE,N	4.327	0.839	7.069	12.66	13.21	4.3711
4		4.923	0.047	0.146	0.72	0.27	n.a.
5	SULFATE	5.920	1.651	9.680	24.93	18.08	21.1601
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.023	0.988	5.463	14.91	10.21	4.1830
7	CHLORATE	7.600	0.141	0.751	2.12	1.40	4.0457
8		10.707	0.006	0.028	0.10	0.05	n.a.
9		10.983	0.338	2.998	5.10	5.60	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10		11.640	0.006	0.052	0.09	0.10	n.a.
11		13.263	0.006	0.023	0.09	0.04	n.a.
Total:			**6.624**	**53.529**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 01:04**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

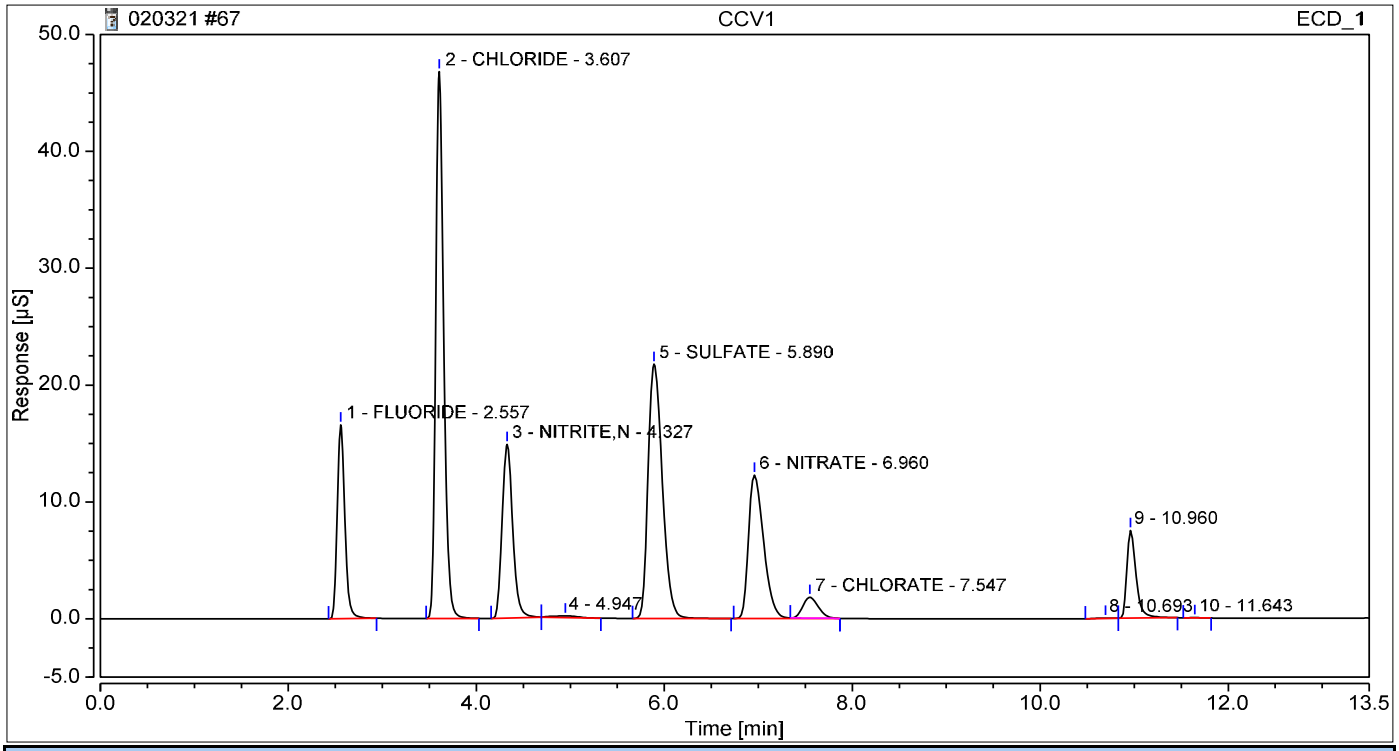
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.973	0.016	0.073	61.59	64.96	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.733	0.006	0.028	24.95	24.83	n.a.
3		10.967	0.001	0.008	3.58	7.56	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		13.453	0.003	0.003	9.89	2.65	n.a.
Total:			**0.026**	**0.112**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV1**	***Run Time (min):***	**13.50**
Vial Number:	**G3**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 03:56**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

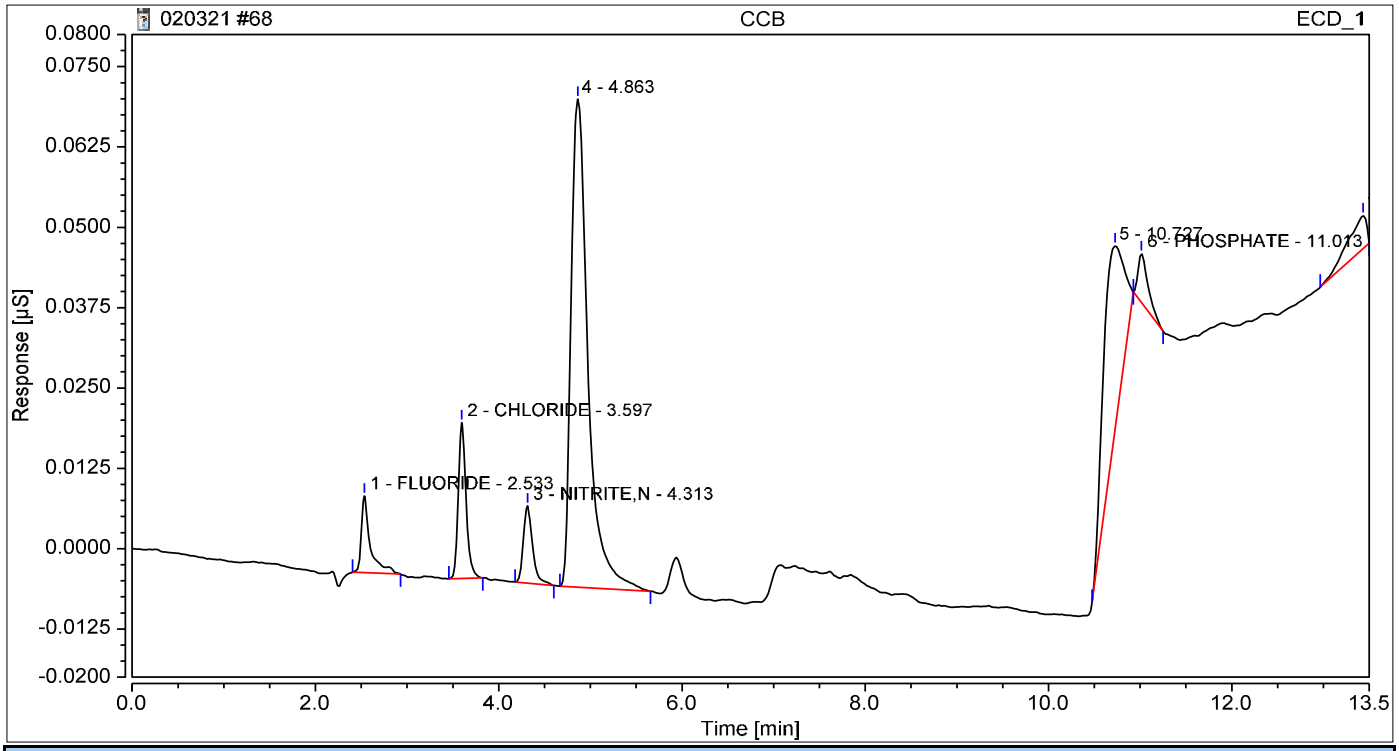
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.557	1.537	16.594	9.97	13.63	9.9681
2	CHLORIDE	3.607	4.601	46.790	29.84	38.43	48.6612
3	NITRITE,N	4.327	1.939	14.854	12.57	12.20	10.1244
4		4.947	0.043	0.141	0.28	0.12	n.a.
5	SULFATE	5.890	3.810	21.753	24.71	17.87	48.6806
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	6.960	2.293	12.275	14.87	10.08	9.6724
7	CHLORATE	7.547	0.341	1.788	2.21	1.47	9.7133
8		10.693	0.006	0.024	0.04	0.02	n.a.
9		10.960	0.847	7.498	5.49	6.16	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10		11.643	0.004	0.033	0.02	0.03	n.a.
Total:			**15.419**	**121.752**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 04:13**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

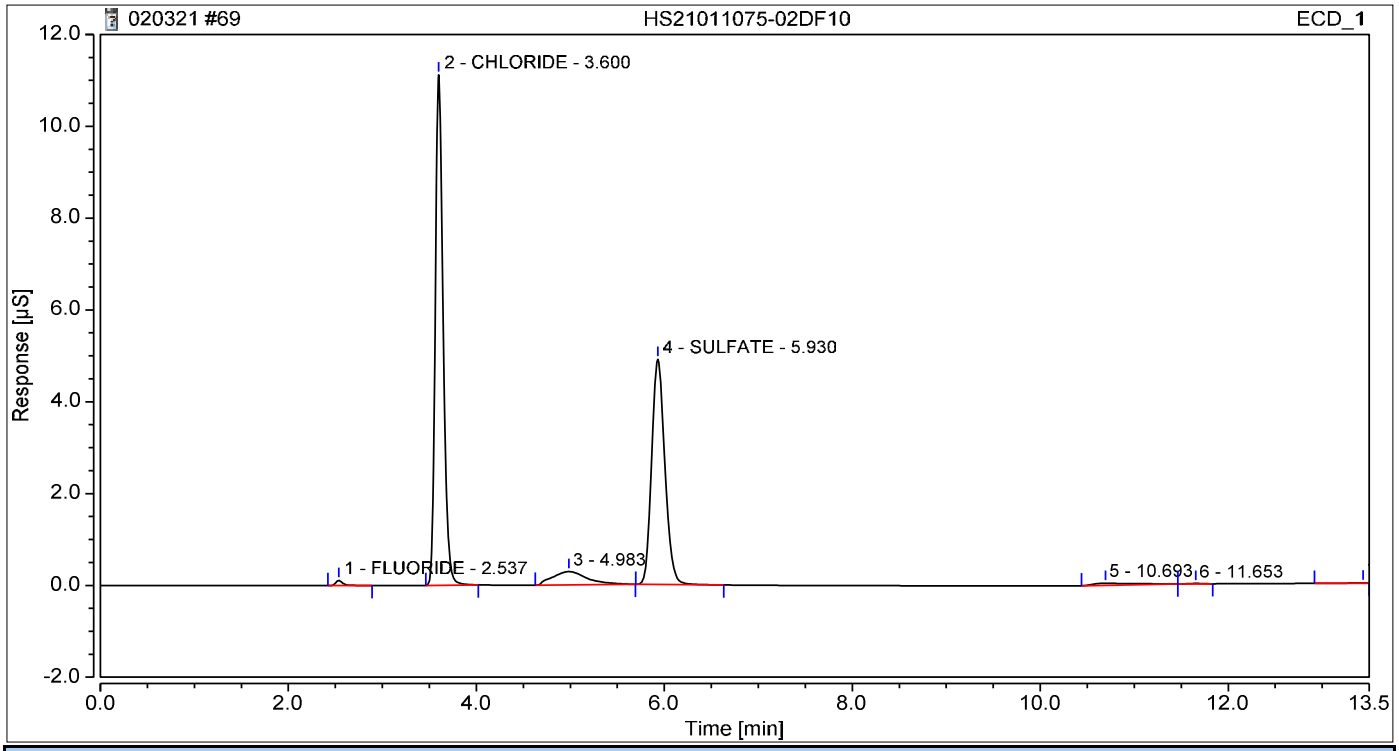
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.533	0.001	0.012	4.32	7.22	0.0282
2	CHLORIDE	3.597	0.002	0.024	7.55	14.66	0.1105
3	NITRITE,N	4.313	0.001	0.012	4.46	7.25	n.a.
4		4.863	0.016	0.076	51.74	45.90	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.727	0.008	0.029	24.65	17.30	n.a.
6	PHOSPHATE	11.013	0.001	0.008	3.11	4.58	0.0951
7		13.433	0.001	0.005	4.16	3.09	n.a.
Total:			**0.032**	**0.165**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011075-02DF10**	***Run Time (min):***	**13.50**
Vial Number:	**GA4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**04/Feb/21 04:30**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

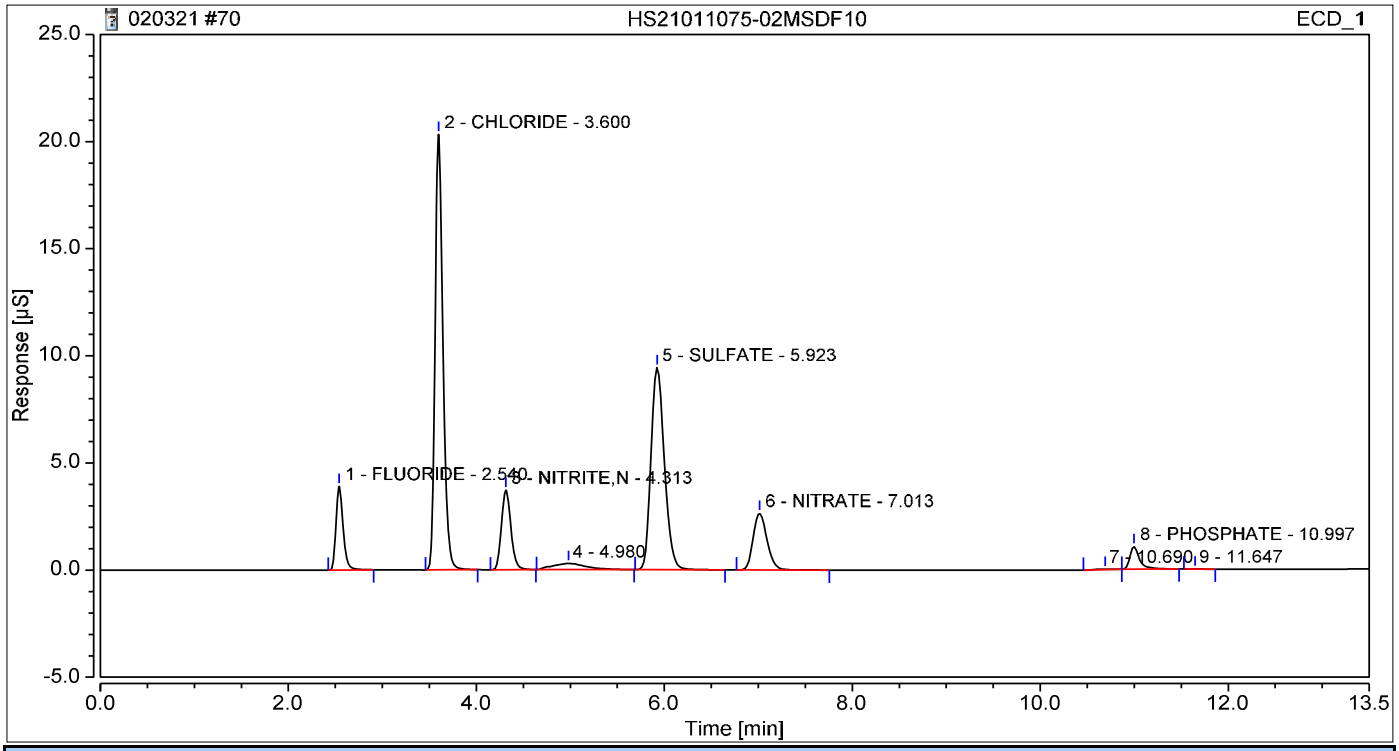
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.537	0.010	0.112	0.48	0.68	0.8247
2	CHLORIDE	3.600	1.079	11.119	52.92	67.45	114.7491
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.983	0.127	0.292	6.21	1.77	n.a.
4	SULFATE	5.930	0.799	4.902	39.22	29.74	103.0088
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		10.693	0.022	0.044	1.06	0.27	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		11.653	0.001	0.009	0.06	0.06	n.a.
7		13.433	0.001	0.005	0.06	0.03	n.a.
Total:			**2.038**	**16.484**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011075-02MSDF10**	***Run Time (min):***	**13.50**
Vial Number:	**GA5**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**04/Feb/21 04:47**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

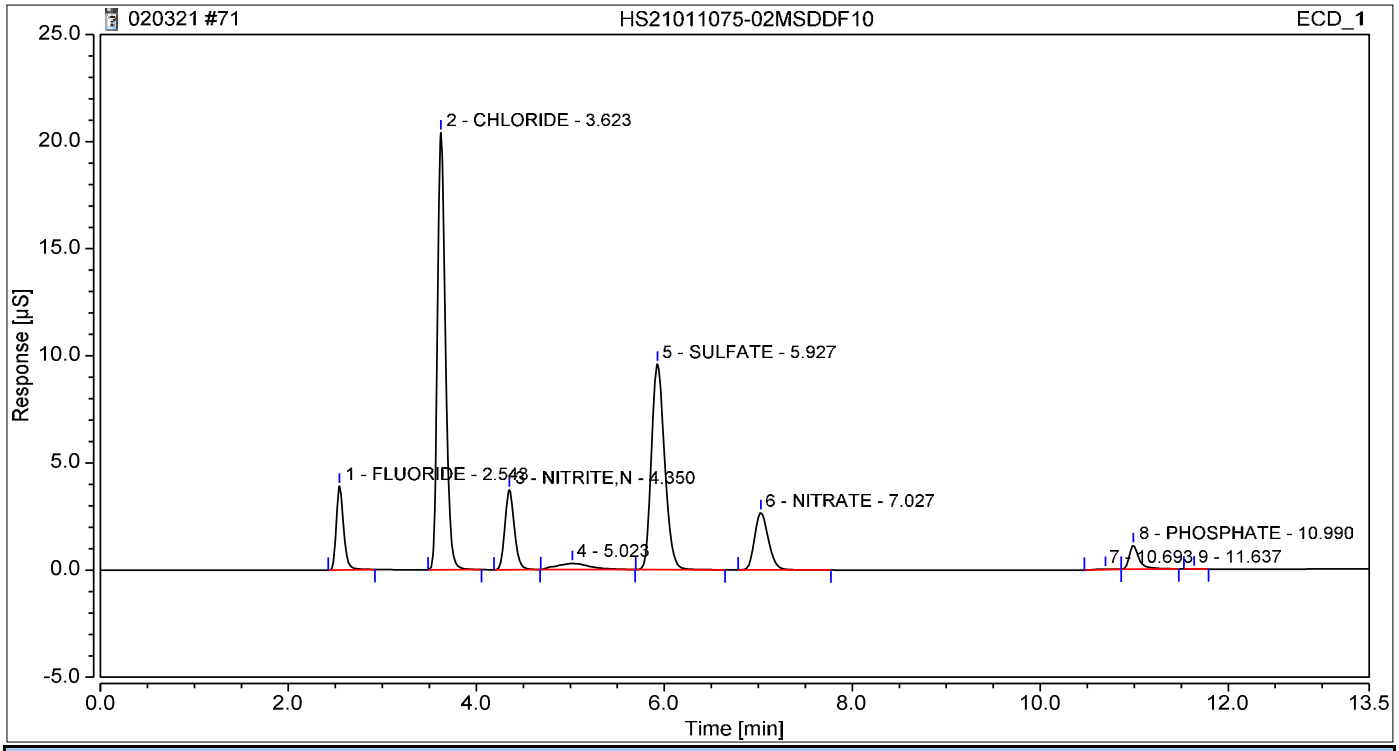
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.540	0.339	3.907	6.75	9.44	22.1145
2	CHLORIDE	3.600	1.981	20.325	39.48	49.09	210.0038
3	NITRITE,N	4.313	0.432	3.716	8.60	8.98	22.4074
4		4.980	0.119	0.284	2.38	0.69	n.a.
5	SULFATE	5.923	1.561	9.437	31.11	22.79	200.0862
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.013	0.453	2.642	9.02	6.38	19.3200
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		10.690	0.007	0.027	0.13	0.06	n.a.
8	PHOSPHATE	10.997	0.126	1.053	2.51	2.54	14.8633
9		11.647	0.001	0.010	0.02	0.02	n.a.
Total:			**5.018**	**41.403**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**HS21011075-02MSDDF10**	***Run Time (min):***	**13.50**
Vial Number:	**GA6**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**10.0000**
Injection Date/Time:	**04/Feb/21 05:04**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

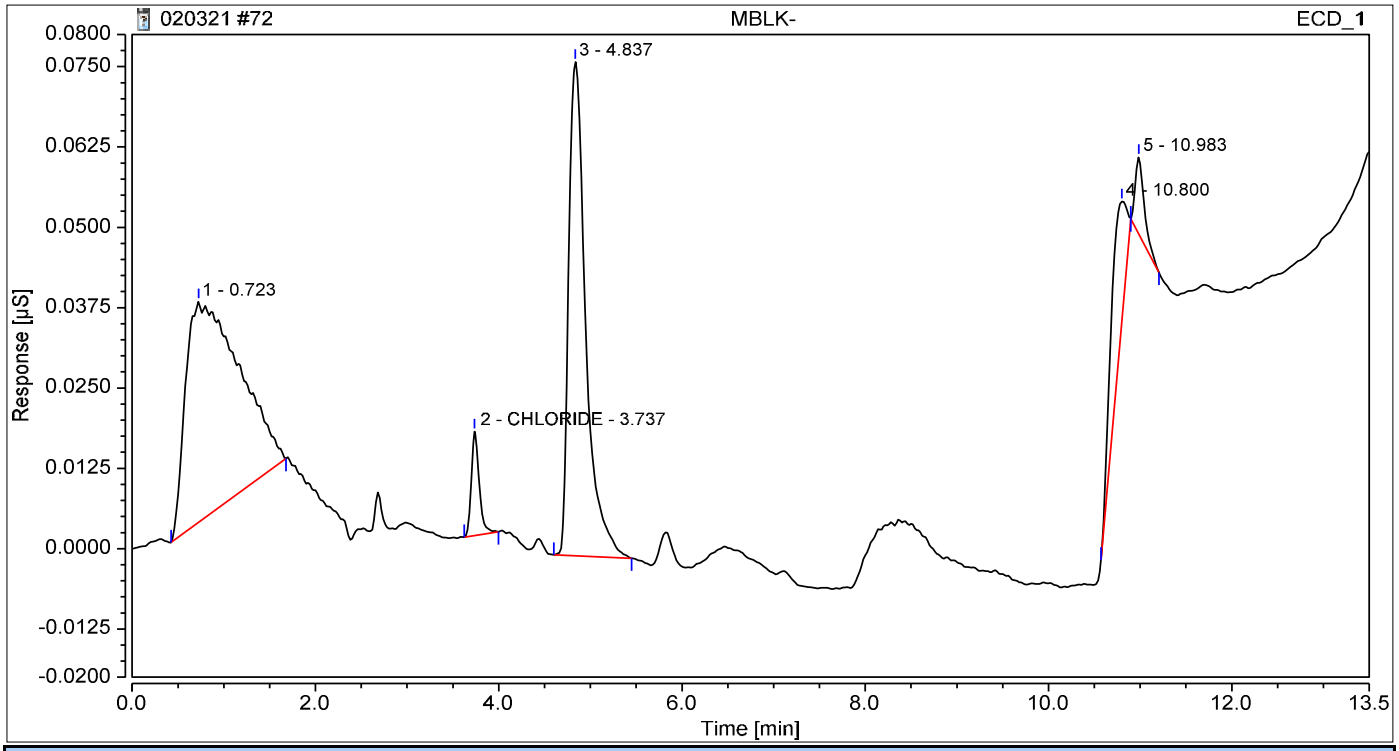
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.543	0.347	3.911	6.83	9.37	22.6315
2	CHLORIDE	3.623	2.012	20.408	39.65	48.91	213.2605
3	NITRITE,N	4.350	0.437	3.722	8.61	8.92	22.6963
4		5.023	0.118	0.284	2.32	0.68	n.a.
5	SULFATE	5.927	1.566	9.587	30.86	22.98	200.7105
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.027	0.455	2.671	8.96	6.40	19.3986
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		10.693	0.006	0.026	0.12	0.06	n.a.
8	PHOSPHATE	10.990	0.133	1.107	2.62	2.65	15.6712
9		11.637	0.001	0.010	0.02	0.02	n.a.
Total:			**5.074**	**41.725**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MBLK-**	***Run Time (min):***	**13.50**
Vial Number:	**G5**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 05:21**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

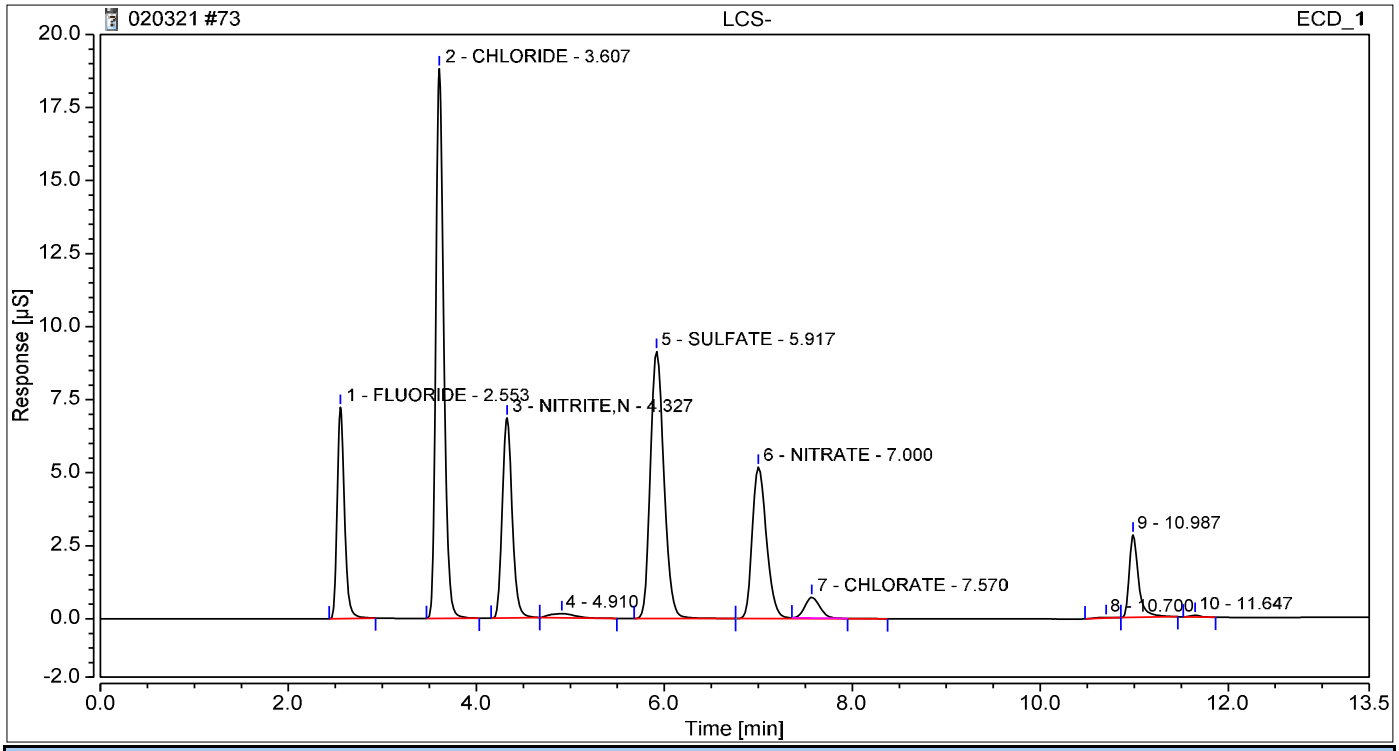
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1		0.723	0.023	0.034	48.85	21.77	n.a.
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	CHLORIDE	3.737	0.002	0.016	3.43	10.24	0.1023
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		4.837	0.017	0.077	35.48	48.67	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		10.800	0.004	0.019	9.31	11.76	n.a.
5		10.983	0.001	0.012	2.94	7.56	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.047**	**0.158**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-**	***Run Time (min):***	**13.50**
Vial Number:	**G2**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 05:37**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

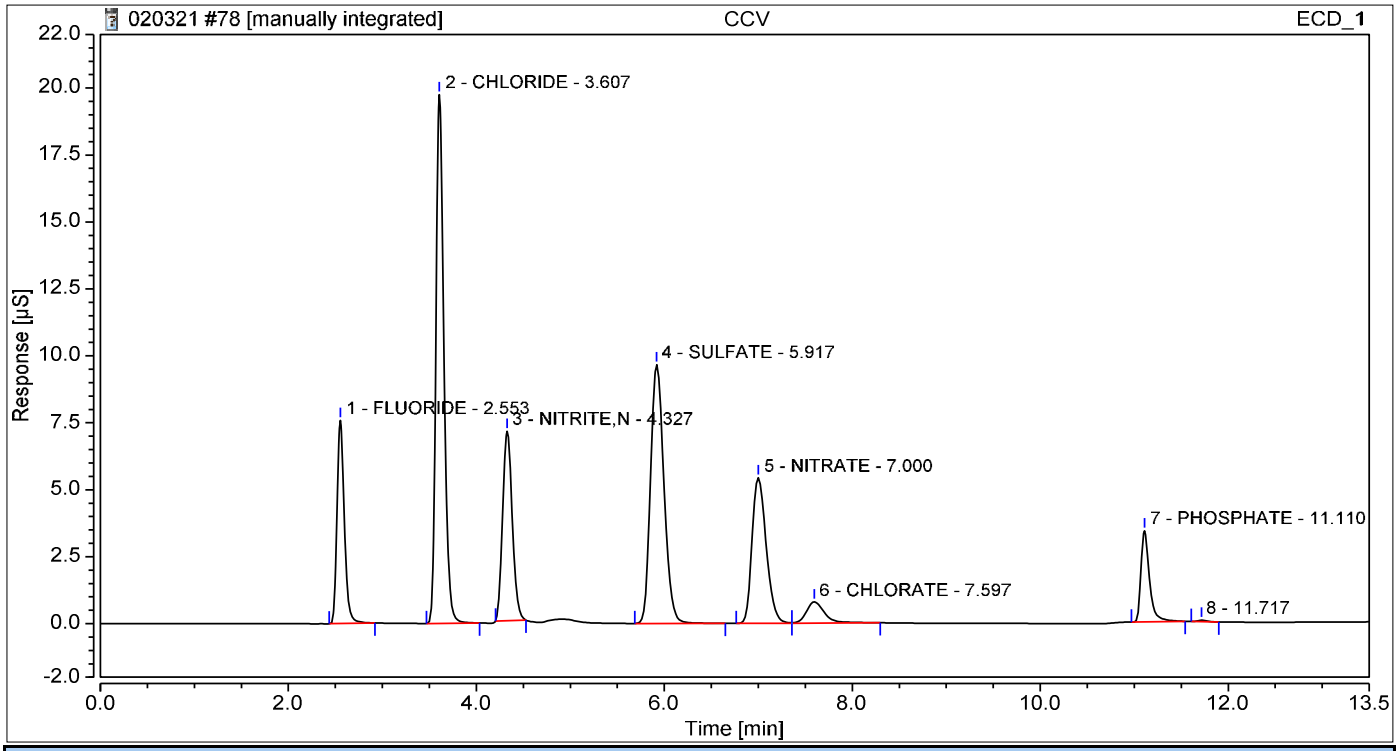
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.553	0.640	7.236	10.20	14.19	4.1627
2	CHLORIDE	3.607	1.838	18.812	29.31	36.90	19.4935
3	NITRITE,N	4.327	0.833	6.851	13.29	13.44	4.3426
4		4.910	0.042	0.137	0.66	0.27	n.a.
5	SULFATE	5.917	1.534	9.147	24.45	17.94	19.6591
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	NITRATE	7.000	0.922	5.190	14.69	10.18	3.9044
7	CHLORATE	7.570	0.131	0.709	2.09	1.39	3.7654
8		10.700	0.006	0.025	0.09	0.05	n.a.
9		10.987	0.320	2.823	5.11	5.54	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10		11.647	0.007	0.054	0.10	0.11	n.a.
Total:			**6.272**	**50.983**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV**	***Run Time (min):***	**13.50**
Vial Number:	**G1**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 07:02**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

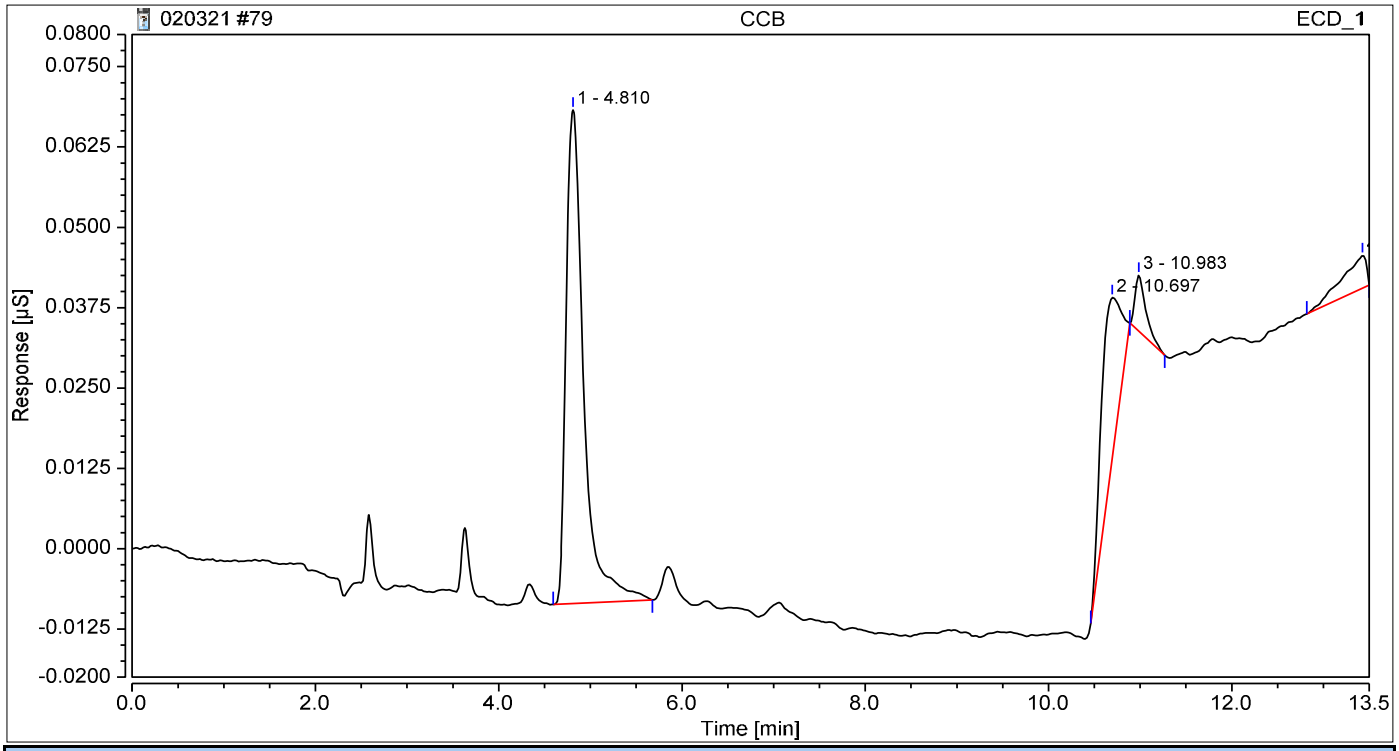
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
1	FLUORIDE	2.553	0.672	7.583	10.27	14.11	4.3685
2	CHLORIDE	3.607	1.934	19.747	29.58	36.74	20.5074
3	NITRITE,N	4.327	0.841	7.072	12.86	13.16	4.3836
4	SULFATE	5.917	1.602	9.660	24.50	17.97	20.5293
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	NITRATE	7.000	0.950	5.437	14.53	10.11	4.0240
6	CHLORATE	7.597	0.177	0.790	2.71	1.47	5.0718
7	PHOSPHATE	11.110	0.358	3.406	5.47	6.34	4.0705
8		11.717	0.006	0.057	0.10	0.11	n.a.
Total:			**6.540**	**53.752**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB**	***Run Time (min):***	**13.50**
Vial Number:	**G4**	***Injection Volume:***	**10.00**
Injection Type:	**Unknown**	***Channel:***	**ECD_1**
Calibration Level:		***Wavelength:***	**n.a.**
Instrument Method:	**ICS2100**	***Bandwidth:***	**n.a.**
Processing Method:	**Anion Processing Method 091720**	***Dilution Factor:***	**1.0000**
Injection Date/Time:	**04/Feb/21 07:18**	***Sample Weight:***	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount
n.a.	FLUORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRITE,N	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		4.810	0.017	0.077	64.80	66.62	n.a.
n.a.	SULFATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	BROMIDE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	NITRATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	CHLORATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.697	0.006	0.025	24.28	21.45	n.a.
3		10.983	0.001	0.009	4.56	7.55	n.a.
n.a.	PHOSPHATE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		13.427	0.002	0.005	6.36	4.38	n.a.
Total:			**0.026**	**0.115**	**100.00**	**100.00**	

HS21011150 ALS Kelso WA SUB Data_K2100950_Tier IV

ALS WO# HS21011150

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February 08, 2021

Analytical Report for Service Request No: K2100950

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS21011150

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory February 02, 2021
For your reference, these analyses have been assigned our service request number **K2100950.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: ALS Environmental - US
Project: HS21011150
Sample Matrix: Ground Water

Service Request: K2100950
Date Received: 02/02/2021

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Six ground water samples were received for analysis at ALS Environmental on 02/02/2021. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Noe D. Diaz Date 02/08/2021

Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

K21009950

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15567**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21011150
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	TOC: Provide Level II & DOD Level IV/EQuIS APTIM EDD			12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Rec by NPedersen ALS 2/2/21 1000

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15567**

Relinquished By: J. Mussenden Date/Time: 02/01/21 18:00

Received By: A Rodriguez Date/Time: 2/2/21 1000

Cooler ID(s): Temperature(s):

PM KL

Cooler Receipt and Preservation Form

Client AIS Houston Service Request K21 2009150

Received: 2/2/21 Opened: 2/2/21 By: AP Unloaded: 2/2/21 By: AP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N
4. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column below:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
4.4	—	IR02	15567	—	—	9473 0839 9727	

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

General Chemistry

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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/2/21
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
50WW14-210128	K2100950-001	**1.86**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW14-210128-FD	K2100950-002	**1.88**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW13-210128	K2100950-003	**1.64**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW11-210128	K2100950-004	**1.98**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW06-210128	K2100950-005	**1.55**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW12-210128	K2100950-006	**1.85**	0.50	0.20	0.07	1	02/04/21 18:00	
Method Blank	K2100950-MB	ND U	0.50	0.20	0.07	1	02/04/21 18:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/04/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2100950-006DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	1.85	2.00	1.92	8	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/4/21
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Carbon, Total Organic

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

		Matrix Spike K2100950-006MS			**Duplicate Matrix Spike** K2100950-006DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic	1.85	24.3	25.0	90	24.3	25.0	90	83-117	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Analyzed:**	02/04/21
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	712206

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2100950-LCS	25.4	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2100950
Project: HS21011150

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic

Analysis Method: SM 5310 C **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	712206	KQ2101675-01	02/04/21 18:00	25.0	25.7	103	90-110
CCV2	712206	KQ2101675-02	02/04/21 18:00	25.0	25.5	102	90-110
CCV3	712206	KQ2101675-03	02/04/21 18:00	25.0	25.3	101	90-110
CCV4	712206	KQ2101675-04	02/04/21 18:00	25.0	26.0	104	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2100950
Project: HS21011150

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic

Analysis Method: SM 5310 C **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	712206	KQ2101675-05	02/04/21 18:00	0.50	0.20	0.07	ND	U
CCB2	712206	KQ2101675-06	02/04/21 18:00	0.50	0.20	0.07	ND	U
CCB3	712206	KQ2101675-07	02/04/21 18:00	0.50	0.20	0.07	ND	U
CCB4	712206	KQ2101675-08	02/04/21 18:00	0.50	0.20	0.07	ND	U

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/2/21
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
50WW14-210128	K2100950-001	**1.86**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW14-210128-FD	K2100950-002	**1.88**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW13-210128	K2100950-003	**1.64**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW11-210128	K2100950-004	**1.98**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW06-210128	K2100950-005	**1.55**	0.50	0.20	0.07	1	02/04/21 18:00	
50WW12-210128	K2100950-006	**1.85**	0.50	0.20	0.07	1	02/04/21 18:00	
Method Blank	K2100950-MB	ND U	0.50	0.20	0.07	1	02/04/21 18:00	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/04/21

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K2100950-006DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	1.85	2.00	1.92	8	10

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Collected:**	01/28/21
Sample Matrix:	Ground Water	**Date Received:**	02/02/21
		Date Analyzed:	02/4/21
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Carbon, Total Organic

Sample Name:	50WW12-210128	**Units:**	mg/L
Lab Code:	K2100950-006	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

		Matrix Spike			Duplicate Matrix Spike					
		K2100950-006MS			K2100950-006DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic	1.85	24.3	25.0	90	24.3	25.0	90	83-117	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2100950
Project:	HS21011150	**Date Analyzed:**	02/04/21
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	712206

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2100950-LCS	25.4	25.0	101	83-117

Raw Data

ALS Environmental—Kelso Laboratory
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General Chemistry

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Work Request # Original ( ) K2100880, 0927, 0949, 0950, 0960

Tier: II I IV IV I

Date Analyzed: 2.4.21

Analyst: MAS Run # 112206

Analysis: SM 5310C/TOC T

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the benchsheet crossed out?	yes/no/NA
17.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

Phenova included in run

Final Approved by: _____ Date: 2/5/21

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** MSPECHT **Analysis Lot:** 712206 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2100880-001	Carbon, Total Organic	N/A		Water	1.12 mg/L	10 mL	1.12 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	II
K2100880-002	Carbon, Total Organic	N/A		Water	21.07 mg/L	10 mL	21.1 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	II
K2100880-003	Carbon, Total Organic	N/A		Water	1.04 mg/L	10 mL	1.04 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	II
K2100880-004	Carbon, Total Organic	N/A		Water	1.76 mg/L	10 mL	1.76 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	II
K2100880-005	Carbon, Total Organic	N/A		Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	II
K2100922-001	Carbon, Total Organic	N/A		Water	47.68 mg/L	10 mL	47.7 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	I
K2100949-001	Carbon, Total Organic	N/A		Ground Water	2.12 mg/L	10 mL	2.12 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100949-002	Carbon, Total Organic	N/A		Ground Water	2.84 mg/L	10 mL	2.84 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100949-003	Carbon, Total Organic	N/A		Ground Water	34.75 mg/L	10 mL	34.8 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100949-004	Carbon, Total Organic	N/A		Ground Water	3.90 mg/L	10 mL	3.90 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100949-005	Carbon, Total Organic	N/A		Ground Water	3.81 mg/L	10 mL	3.81 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-001	Carbon, Total Organic	N/A		Ground Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-002	Carbon, Total Organic	N/A		Ground Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-003	Carbon, Total Organic	N/A		Ground Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-004	Carbon, Total Organic	N/A		Ground Water	1.98 mg/L	10 mL	1.98 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-005	Carbon, Total Organic	N/A		Ground Water	1.55 mg/L	10 mL	1.55 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	IV
K2100950-006	Carbon, Total Organic	N/A		Ground Water	1.85 mg/L	10 mL	1.85 mg/L	1	0.07	0.50			2/4/21 18:00:00	Y	IV
K2100960-007	Carbon, Total Organic	N/A		Drinking Water	8.58 mg/L	10 mL	8.58 mg/L	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-01	Carbon, Total Organic	CCV		Water	25.74 mg/L	10 mL	25.7 mg/L	1					2/4/21 18:00:00	N	I
KQ2101675-02	Carbon, Total Organic	CCV		Water	25.54 mg/L	10 mL	25.5 mg/L	1					2/4/21 18:00:00	N	I
KQ2101675-03	Carbon, Total Organic	CCV		Water	25.35 mg/L	10 mL	25.3 mg/L	1					2/4/21 18:00:00	N	I
KQ2101675-04	Carbon, Total Organic	CCV		Water	26.03 mg/L	10 mL	26.0 mg/L	1					2/4/21 18:00:00	N	I
KQ2101675-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-09	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			2/4/21 18:00:00	N	I
KQ2101675-10	Carbon, Total Organic	LCS		Water	25.37 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	101		2/4/21 18:00:00	N	I
KQ2101675-11	Carbon, Total Organic	MS	K2100950-006	Ground Water	24.33 mg/L	10 mL	24.3 mg/L	1	0.07	0.50	90		2/4/21 18:00:00	N	IV

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** MSPECHT **Analysis Lot:** 712206 **Method/Testcode:** SM 5310 C/TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2101675-12	Carbon, Total Organic	DMS	K2100950-006	Ground Water	24.30 mg/L	10 mL	24.3 mg/L	1	0.07	0.50	90	<1	2/4/21 18:00:00	N	IV
KQ2101675-13	Carbon, Total Organic	DUP	K2100950-006	Ground Water	2.00 mg/L	10 mL	2.00 mg/L	1	0.07	0.50		8	2/4/21 18:00:00	N	IV

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Schedule: 02042021

Version: 1
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2021/02/04 18:00 - Thursday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
A	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
A	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2100922-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2100960-007	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K2100950-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K2100950-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2100950-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2100950-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2100950-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
A	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K2100950-006	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2100950-006 DUP	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2100950-006 MS .006	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2100950-007 MSD . 006	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2100880-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2100880-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2100880-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K2100880-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2100880-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2100949-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
A	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K2100949-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K2100949-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2100949-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2100949-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
26	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
27	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
28	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
29	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
30	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
31	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
32	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
A	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
33	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
34	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
35	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
36	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
37	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
38	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
39	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready

MS 2-5-21

Printed on: February 5, 2021 10:16:45

Schedule: 02042021

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
40	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
41	Sample		CAS_salt_010711 (CAS_salt_010711)	2	False	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	False	Ready
A	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	False	Ready
					False	

Fusion Report - 02042021
Thursday, February 04, 2021 06:02 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2021/02/05 10:16 - Friday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	02042021	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v1)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2021/02/04 18:02

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	14.39	27.89	13.51	49.60	05:25
2	TC Clean	9.97	23.11	13.14	50.35	04:03
3	TC Clean	2.46	15.94	13.48	50.64	03:57
4	TC Clean	2.69	16.03	13.35	50.38	03:56

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2021/02/04 18:24

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.43	12.97	13.41	49.65	05:22
2	TC Clean	5.54	18.68	13.14	50.41	04:03
3	TC Clean	1.55	14.70	13.15	50.15	03:47
4	TC Clean	1.64	14.63	12.99	50.72	03:49

Sample Type: Clean From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2021/02/04 18:46

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.06	12.81	12.87	49.24	05:11
2	TC Clean	4.57	17.55	12.97	50.40	04:03
3	TC Clean	1.40	14.72	13.32	50.60	03:55
4	TC Clean	1.17	14.36	13.19	50.95	03:55

Sample Type: Blank (Creating v1521) From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2021/02/04 19:08

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.05	12.98	13.03	49.50	05:22
2	TC Clean	4.12	17.29	13.18	50.67	04:02
3	TC Clean	1.46	14.37	12.91	50.12	03:47
4	TC Clean	1.22	14.13	12.92	50.58	03:56
5	Reagent Blank	5.06	18.06	13.00	50.36	05:05
6	Acid Blank	0.23	13.12	12.89	49.33	05:27

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	A	TOC	RB	0.2534 ppm	0.0000 ppm	0.0000%	2021/02/04 19:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2534	2.5336	8.70	21.81	13.11	60.00	09:54

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.7406 ppm (PASS)	0.0000 ppm	0%	2021/02/04 19:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.7406	257.4063	195.41	208.60	13.19	60.37	10:00

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	A	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2021/02/04 20:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
A	TOC	0 ppm	1	0.0000	0.0000	6.45	19.75	13.30	60.34	09:59

Completion State	Success Action	Method	Calibration	STD Conc - Pos A
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	0 ppmC

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	ICS	0.1690 ppm	0.0000 ppm	0.0000%	2021/02/04 20:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1690	1.6896	8.09	21.07	12.98	60.22	10:01

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	2	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2021/02/04 20:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.91	18.82	12.91	60.38	09:59

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> LCS From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.3697 ppm (PASS)	0.0000 ppm	0%	2021/02/04 20:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.3697	253.6965	192.70	205.74	13.04	60.32	10:00

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	25 ppmC

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	3	TOC	K2100922-001	47.6794 ppm	0.2951 ppm	0.6200%	2021/02/04 21:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	47.8881	478.8809	356.94	369.95	13.02	60.42	09:59
2	TOC	47.4707	474.7074	353.88	367.02	13.14	60.01	09:54

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	4	TOC	K2100960-007	8.5776 ppm	0.0685 ppm	0.8000%	2021/02/04 21:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.6260	86.2601	69.91	83.11	13.20	60.23	09:56
2	TOC	8.5292	85.2917	69.20	82.63	13.43	60.10	09:56

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	K2100950-001	1.8628 ppm	0.0117 ppm	0.6300%	2021/02/04 22:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8545	18.5449	20.41	33.95	13.54	60.39	09:56
2	TOC	1.8710	18.7104	20.53	33.93	13.40	60.46	09:58

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K2100950-002	1.8788 ppm	0.0242 ppm	1.2900%	2021/02/04 22:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8959	18.9594	20.71	33.95	13.24	60.47	10:00
2	TOC	1.8617	18.6174	20.46	33.71	13.25	60.40	09:57

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K2100950-003	1.6434 ppm	0.0497 ppm	3.0300%	2021/02/04 22:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6786	16.7858	19.12	32.33	13.21	60.28	09:56
2	TOC	1.6083	16.0827	18.61	31.98	13.37	60.19	09:56

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K2100950-004	1.9805 ppm	0.0057 ppm	0.2900%	2021/02/04 23:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9846	19.8458	21.36	34.62	13.26	60.43	09:59
2	TOC	1.9765	19.7650	21.30	34.51	13.21	60.47	09:56

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K2100950-005	1.5521 ppm	0.0407 ppm	2.6200%	2021/02/04 23:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5809	15.8091	18.41	31.65	13.24	60.50	09:55
2	TOC	1.5233	15.2332	17.99	31.37	13.38	60.24	09:52

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.5412 ppm	0.0000 ppm	0%	2021/02/05 00:15

						(PASS)				

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.5412	255.4119	193.96	207.20	13.25	60.50	10:02

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	A	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2021/02/05 00:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
A	TOC	0 ppm	1	0.0000	0.0000	5.95	19.48	13.53	60.24	10:00

Completion State	Success Action	Method	Calibration	STD Conc - Pos A
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	0 ppmC

Sample Type: Sample From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K2100950-006	1.8474 ppm	0.0060 ppm	0.3200%	2021/02/05 00:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8516	18.5162	20.39	33.78	13.40	60.49	09:55
2	TOC	1.8431	18.4313	20.33	33.75	13.42	60.52	09:57

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K2100950-006 DUP	1.9950 ppm	0.1059 ppm	5.3100%	2021/02/05 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0699	20.6993	21.98	35.43	13.44	60.30	10:00
2	TOC	1.9201	19.2015	20.89	34.28	13.39	60.17	09:54

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis	Sample ID	Result (ppmC)	Std. Dev.	RSD	Start Time

		Type			(ppmC)		
◈	12	TOC	K2100950-001 MS	24.3252 ppm	0.0229 ppm	0.0900%	2021/02/05 01:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.3090	243.0901	184.56	197.90	13.33	60.39	09:58
2	TOC	24.3414	243.4143	184.80	198.05	13.25	60.41	09:56

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K2100950-001 MSD	24.3021 ppm	0.0473 ppm	0.1900%	2021/02/05 02:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.3355	243.3555	184.76	198.20	13.45	60.05	09:56
2	TOC	24.2687	242.6866	184.27	197.51	13.24	60.24	09:53

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K2100880-001	1.1205 ppm	0.0483 ppm	4.3100%	2021/02/05 02:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1547	11.5467	15.29	28.76	13.47	60.31	09:57
2	TOC	1.0864	10.8641	14.79	27.96	13.17	60.37	09:55

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K2100880-002	21.0680 ppm	0.1585 ppm	0.7500%	2021/02/05 02:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	21.1801	211.8007	161.69	175.07	13.39	60.02	09:58
2	TOC	20.9559	209.5587	160.05	173.54	13.50	60.44	09:55

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K2100880-003	1.0403 ppm	0.0133 ppm	1.2800%	2021/02/05 03:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0498	10.4975	14.52	27.89	13.37	60.17	10:01
2	TOC	1.0309	10.3087	14.39	27.74	13.36	60.22	09:59

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2100880-004	1.7559 ppm	0.0244 ppm	1.3900%	2021/02/05 03:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7731	17.7310	19.81	33.02	13.20	60.30	09:58
2	TOC	1.7386	17.3863	19.56	32.91	13.34	60.47	09:57

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2100880-005	1.8160 ppm	0.0239 ppm	1.3200%	2021/02/05 04:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7991	17.9909	20.00	33.33	13.32	60.30	09:58
2	TOC	1.8329	18.3288	20.25	33.46	13.21	60.34	10:00

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2100949-001	2.1164 ppm	0.0832 ppm	3.9300%	2021/02/05 04:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0576	20.5762	21.89	35.29	13.40	60.18	09:58
2	TOC	2.1753	21.7526	22.75	36.22	13.47	60.23	09:57

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.3457 ppm (PASS)	0.0000 ppm	0%	2021/02/05 05:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.3457	253.4571	192.53	205.94	13.41	60.03	09:57

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v39)

Sample Type: Check Standard --> CCB — From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	A	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2021/02/05 05:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
A	TOC	0 ppm	1	0.0000	0.0000	5.82	19.29	13.47	60.10	10:01

Completion State	Success Action	Method	Calibration	STD Conc - Pos A
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	0 ppmC

Sample Type: Sample — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2021/02/05 05:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.66	18.94	13.28	60.03	09:57

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> LCS — From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.1463 ppm (PASS)	0.0000 ppm	0%	2021/02/05 06:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1463	251.4627	191.07	204.42	13.36	60.49	10:02

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	25 ppmC

Sample Type: Sample — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	21	TOC	K2100949-002	2.8407 ppm	0.0695 ppm	2.4500%	2021/02/05 06:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8899	28.8985	27.98	41.09	13.12	60.41	09:59
2	TOC	2.7915	27.9150	27.26	40.61	13.35	60.04	09:52

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K2100949-003	34.7509 ppm	0.1213 ppm	0.3500%	2021/02/05 06:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	34.8367	348.3666	261.52	274.96	13.44	60.42	09:58
2	TOC	34.6651	346.6513	260.27	273.62	13.35	60.02	09:53

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K2100949-004	3.8957 ppm	0.4152 ppm	10.6600%	2021/02/05 07:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1894	41.8936	37.48	50.90	13.43	59.99	09:56
2	TOC	3.6021	36.0212	33.18	46.38	13.20	60.14	09:52

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K2100949-005	3.8120 ppm	0.0342 ppm	0.9000%	2021/02/05 07:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.8362	38.3617	34.89	48.30	13.40	60.03	09:58
2	TOC	3.7877	37.8774	34.54	47.99	13.45	60.09	09:58

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 6.8508 (IC) (v1521)	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.0332 ppm (PASS)	0.0000 ppm	0%	2021/02/05 08:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.0332	260.3322	197.55	210.92	13.37	60.48	10:01

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 1

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◉	A	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2021/02/05 08:17

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
A	TOC	0 ppm	1	0.0000	0.0000	6.55	20.00	13.45	60.51	10:03

Completion State	Success Action	Method	Calibration	STD Conc - Pos A
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v39)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1520	1.9123	0.3790	0.0000	0.0000	0.0000	2021/02/03 12:44	Fusion1 (Fusion1)
v1521	1.6873	0.2320	0.0000	0.0000	0.0000	2021/02/04 19:41	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v39	Calibration curve formula:	TOC: y = 7.311x + 7.237
Ver Creation:	2021/01/12 21:34	r^2 value:	TOC: r^2 = 0.99967
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time

DI Water	6.9340	0.0000		2021/01/12 20:07
0.500 ppm	10.4210	0.5000		2021/01/12 20:22
1.0 ppm	13.6490	1.0000		2021/01/12 20:36
5.0 ppm	45.2350	5.0000		2021/01/12 20:50
10 ppm	77.7880	10.0000		2021/01/12 21:04
25 ppm	194.7830	25.0000		2021/01/12 21:18
50 ppm	370.7570	50.0000		2021/01/12 21:33

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report				

Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2021/02/05 08:32

ALS Environmental

StarLIMS Run: 712206

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 19-GEN-8-68F 50 ppm LCS: 19-GEN-8-68G 25.0 ppm

ICAL Date: 1/12/21

ICAL ID: 19-GEN-8-66D

ICS ID: 19-GEN-8-58F

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-55I 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-69A

21 % H3PO4: 19-GEN-08-65K

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: MAS	Date Analyzed: 2/4/2021
Reviewed By: CK	Date Reviewed: 2/5/21

HS21011150 ALS Simi Valley SUB Data_P2100515 Tier IV

ALS WO# HS21011150

LABORATORY REPORT

February 12, 2021

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS21011150

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on February 2, 2021. For your reference, these analyses have been assigned our service request number P2100515.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 2:22 pm, Feb 12, 2021

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2100515
Project: HS21011150

CASE NARRATIVE

The samples were received intact under chain of custody on February 2, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2100515-001-006, 006MS, 006 MSD	Carbon Dioxide

The recovery matrix spike and matrix spike duplicate did not meet the DoD or laboratory recovery limit for carbon dioxide due to possible matrix interference. However all quality control parameters were met with laboratory control sample and its duplicate. The data has been flagged accordingly.

The lower control criterion was exceeded for carbon dioxide in the Laboratory Control Sample (LCS) analyzed on February 10, 2021. The error associated with the reduced recovery equates to a potential low bias. However, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed and verified that instrument sensitivity was adequate to detect the analyte at the MRL on the day of analysis. Since the sensitivity was verified and the samples were non-detect, the data quality is not significantly affected. No further corrective action was taken.

Client: ALS Laboratory Group Service Request No: P2100515
Project: HS21011150

Methane, Ethene and Ethane Analysis

The samples were also analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

Manual integrations were performed on the following sample(s) and analyte(s). Refer to the raw data for additional information.

Sample Identification(s)	Analyte(s)
P2100515-001,004,006, 006MS	Methane

The recovery for the matrix spike and its duplicate were outside of the DOD control limits for ethane. However, spike recoveries were within laboratory generated limits. In addition all quality control parameters were met with the laboratory control sample and its duplicate. The data has been flagged accordingly.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-007
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS21011150

Service Request: P2100515

Date Received: 2/2/2021
Time Received: 10:00

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW14-210128	P2100515-001	Water	1/28/2021	07:50	X	X
50WW14-210128-FD	P2100515-002	Water	1/28/2021	07:50	X	X
50WW13-210128	P2100515-003	Water	1/28/2021	08:50	X	X
50WW11-210128	P2100515-004	Water	1/28/2021	09:45	X	X
50WW06-210128	P2100515-005	Water	1/28/2021	10:35	X	X
50WW12-210128	P2100515-006	Water	1/28/2021	11:30	X	X

RJ100515

10450 Stancliff Rd, Ste 210
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F: +1 281 530 5887
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Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15569**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
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Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21011150
TSR: Sonia West

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD
3 x Neat Vials & 3 x HCL Vials

RIGHT SOLUTIONS | RIGHT PARTNER

P2 100515

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15569**

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Mercer	**Date/Time:**	02/01/21 18:00
Received By:		**Date/Time:**	2-2-21 1000 2° cor
Cooler ID(s):		**Temperature(s):**	

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2100515

Project: HS21011150

Sample(s) received on: 2/2/21 Date opened: 2/2/21 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 2° C	Wet Ic		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2100515-001.01	40mL VOA NP				A	
P2100515-001.02	40mL VOA NP		6		A	
P2100515-001.03	40mL VOA NP				A	
P2100515-001.04	40ml VOA HCL				A	
P2100515-001.05	40ml VOA HCL		1		A	
P2100515-001.06	40ml VOA HCL				A	
P2100515-002.01	40mL VOA NP				A	
P2100515-002.02	40mL VOA NP		6		A	
P2100515-002.03	40mL VOA NP				A	
P2100515-002.04	40ml VOA HCL				A	
P2100515-002.05	40ml VOA HCL		1		A	
P2100515-002.06	40ml VOA HCL				A	
P2100515-003.01	40mL VOA NP				A	
P2100515-003.02	40mL VOA NP		6		A	
P2100515-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2100515

Project: HS21011150

Sample(s) received on: 2/2/21 Date opened: 2/2/21 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2100515-003.04	40ml VOA HCL				A	
P2100515-003.05	40ml VOA HCL		1		A	
P2100515-003.06	40ml VOA HCL				A	
P2100515-004.01	40mL VOA NP				A	
P2100515-004.02	40mL VOA NP		6		A	
P2100515-004.03	40mL VOA NP				A	
P2100515-004.04	40ml VOA HCL				A	
P2100515-004.05	40ml VOA HCL		1		A	
P2100515-004.06	40ml VOA HCL				A	
P2100515-005.01	40mL VOA NP				A	
P2100515-005.02	40mL VOA NP		5		A	
P2100515-005.03	40mL VOA NP				A	
P2100515-005.04	40ml VOA HCL				A	
P2100515-005.05	40ml VOA HCL		1		A	
P2100515-005.06	40ml VOA HCL				A	
P2100515-006.01	40mL VOA NP				A	
P2100515-006.02	40mL VOA NP				A	
P2100515-006.03	40mL VOA NP				A	
P2100515-006.04	40ml VOA HCL		1		A	
P2100515-006.05	40ml VOA HCL		1		A	
P2100515-006.06	40ml VOA HCL		1		A	
P2100515-006.07	40mL VOA NP				A	
P2100515-006.08	40mL VOA NP		6		A	
P2100515-006.09	40mL VOA NP		6		A	
P2100515-006.10	40mL VOA NP				A	
P2100515-006.11	40mL VOA NP				A	
P2100515-006.12	40mL VOA NP				A	
P2100515-006.13	40ml VOA HCL		6		A	
P2100515-006.14	40ml VOA HCL				A	
P2100515-006.15	40ml VOA HCL				A	
P2100515-006.16	40ml VOA HCL				A	
P2100515-006.17	40ml VOA HCL				A	
P2100515-006.18	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS21011150** ALS Project ID: P2100515

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date(s) Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/9 - 2/10/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW14-210128	P2100515-001	0.050	**380,000**	2,000	1,700	740	**L**
50WW14-210128-FD	P2100515-002	0.050	**340,000**	2,000	1,700	740	**L**
50WW13-210128	P2100515-003	0.050	**260,000**	2,000	1,700	740	**L**
50WW11-210128	P2100515-004	0.050	**380,000**	2,000	1,700	740	**L**
50WW06-210128	P2100515-005	0.050	**45,000**	2,000	1,700	740	**L**
50WW12-210128	P2100515-006	0.050	**420,000**	2,000	1,700	740	
Method Control Sample	P210209-MB	0.10	860	1,000	860	370	**U**
Method Control Sample	P210210-MB	0.10	860	1,000	860	370	**U, L**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006MS
P2100515-006DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/9/21
Volume(s) Analyzed: 0.050 ml(s)

CAS #	Compound	Spike Amount MS / DMS ug/L	Sample Amount ug/L	Result MS ug/L	Result DMS ug/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	21,000	425,000	433,000	433,000	**38**	**38**	80-122	0	30	**N**

N = The matrix spike sample recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2100515
Client Project ID: **HS21011150** ALS Sample ID: P210209-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 2/09/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	21,000	16,900	16,800	**80**	**80**	80-122	0	12	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2100515
Client Project ID: **HS21011150** ALS Sample ID: P210210-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 2/10/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	18,000	18,000	**79**	**79**	80-122	0	12	**L**

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW14-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.8**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW14-210128-FD**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.5**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW13-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.3**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW11-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**4.4**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW06-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**0.61**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P210203-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 2/03/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210128**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P2100515-006MS
P2100515-006DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 1/28/21
Date Received: 2/2/21
Date Analyzed: 2/3/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	0.607	2.28	2.63	**66**	**80**	73-125	19	30	**N**
74-85-1	Ethene	4.40	ND	3.29	3.22	**75**	**73**	72-133	3	30	
74-84-0	Ethane	4.72	ND	3.23	3.11	**68**	**66**	74-131	3	30	**N**

N = The matrix spike recovery is not within control limits. See case narrative.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS21011150**

ALS Project ID: P2100515
ALS Sample ID: P210203-LCS
P210203-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 2/03/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.35	2.31	**93**	**92**	73-125	1	26	
74-85-1	Ethene	4.40	4.72	4.81	**107**	**109**	72-133	2	11	
74-84-0	Ethane	4.72	4.73	4.77	**100**	**101**	74-131	1	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:05
Operator : CB
Sample : P2100515-001 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

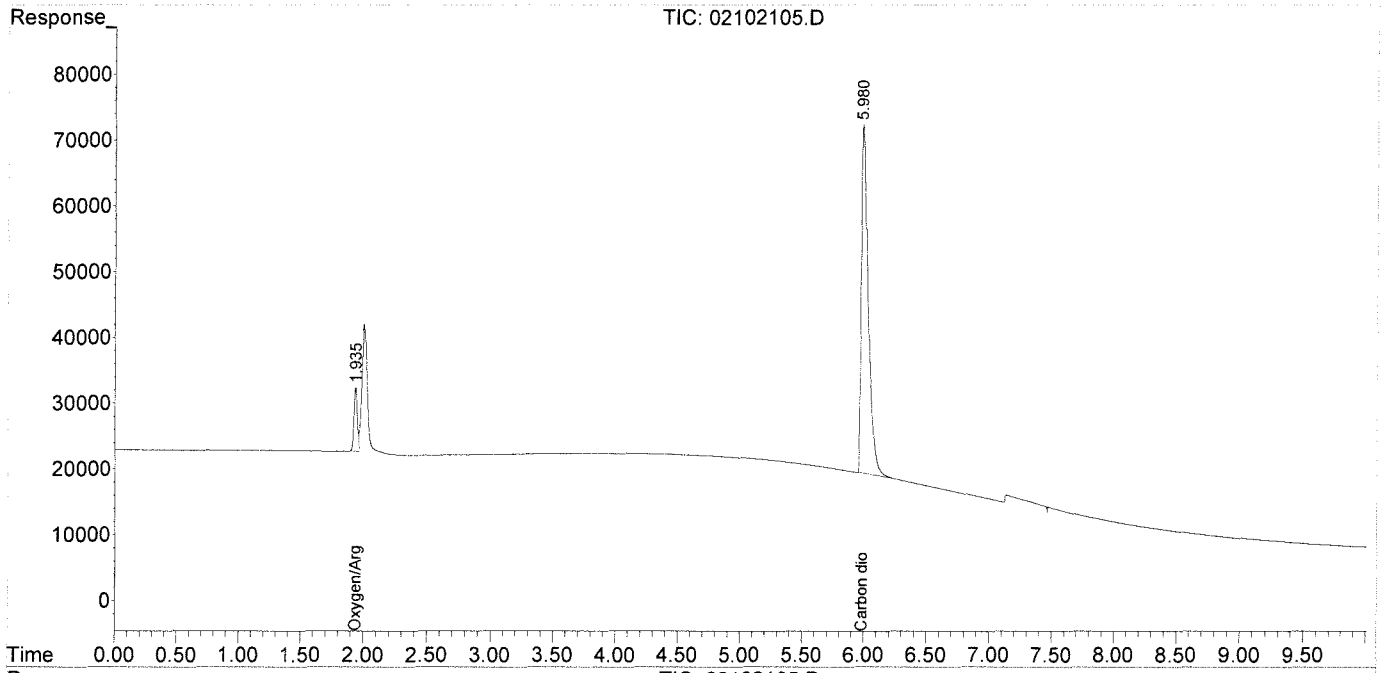
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.935f	175218	0.037	ppm	
2)	Carbon monoxide	1.935f	175218	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.980	2038345	8683.814	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

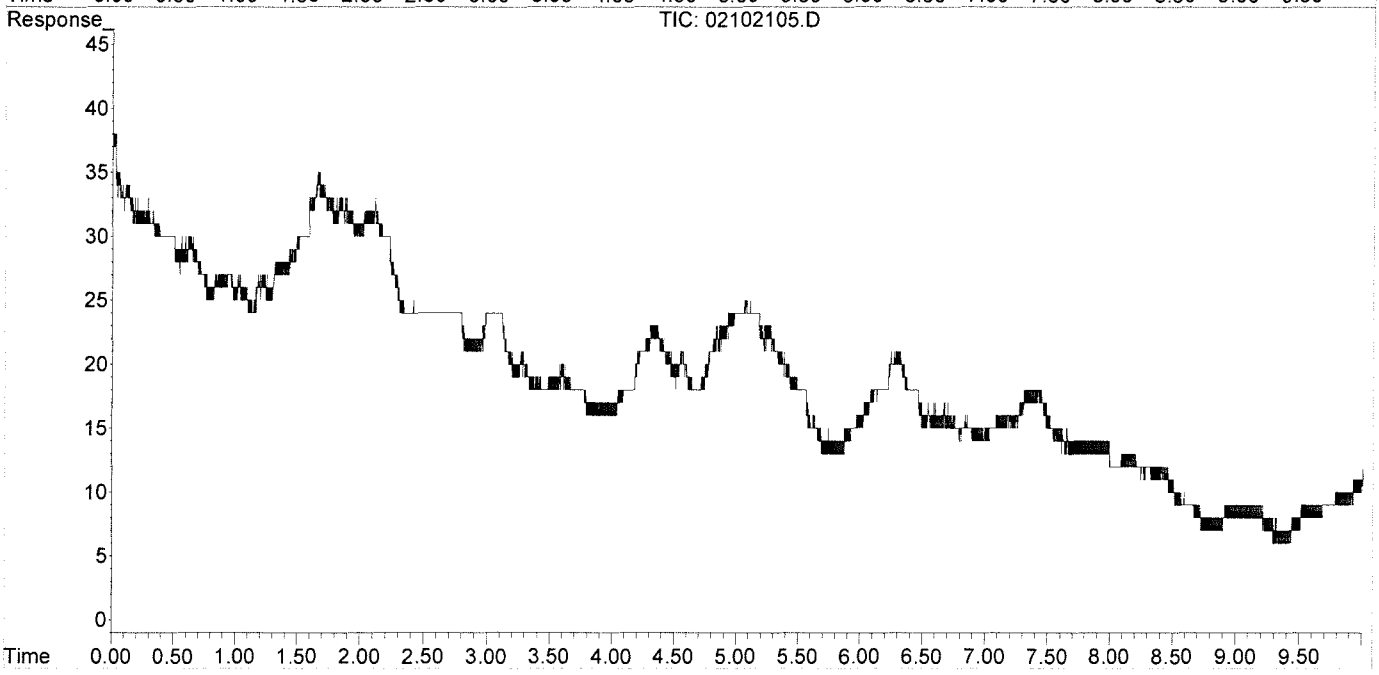
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:05
Operator : CB
Sample : P2100515-001 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

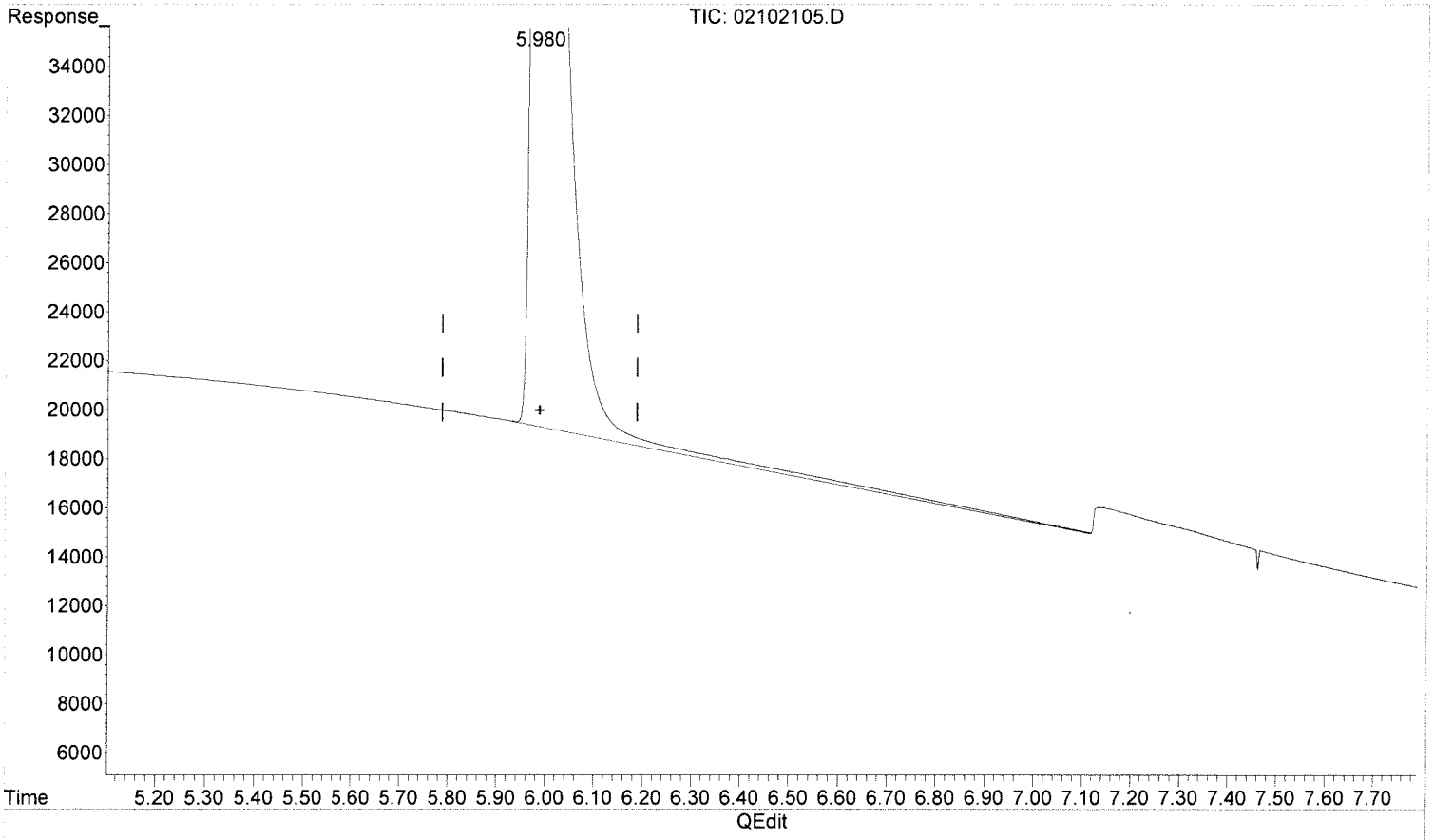




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:05
Operator : CB
Sample : P2100515-001 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.981min 9036.152 ppm

response 2121049

Manual Integration:

Before

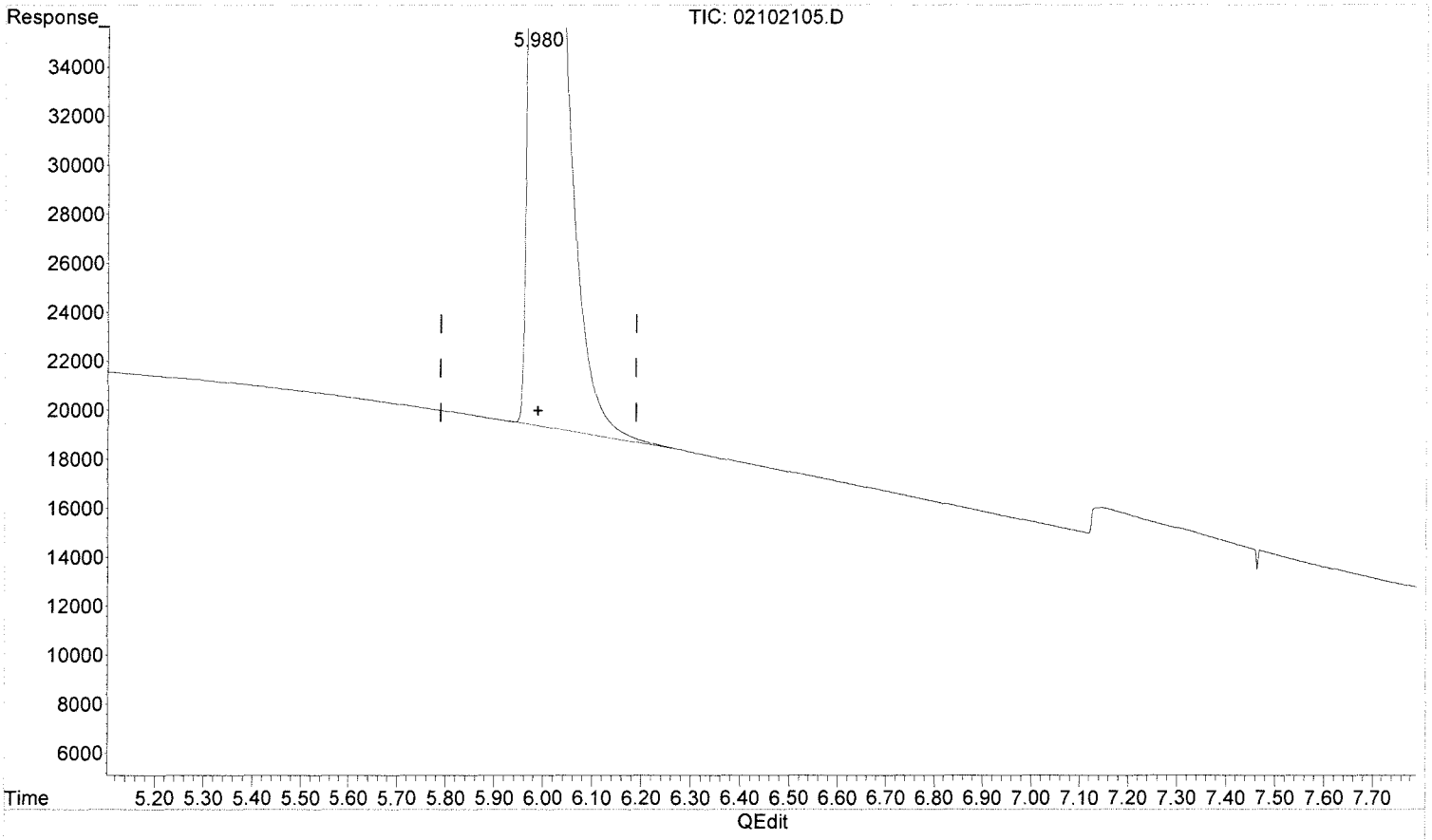
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:05
Operator : CB
Sample : P2100515-001 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.980min 8683.814 ppm m

response 2038345

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:25
Operator : CB
Sample : P2100515-002 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:23 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

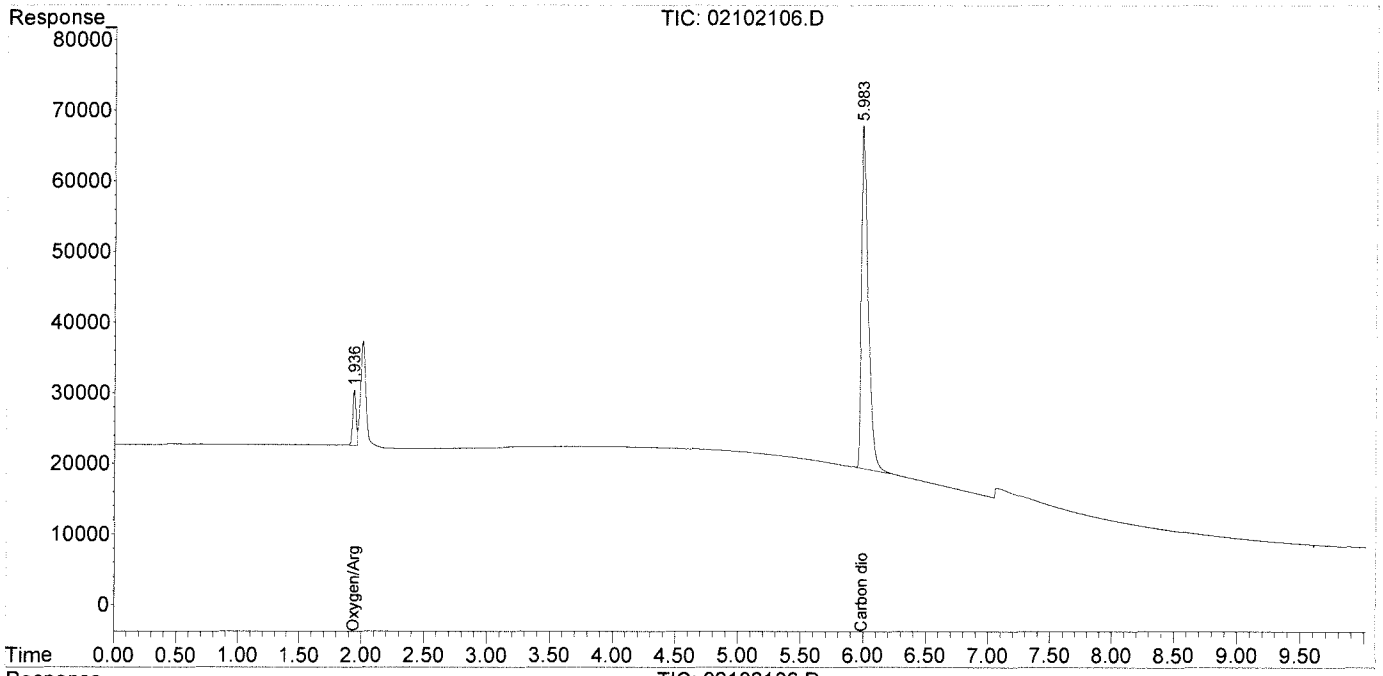
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.937f	143901	0.030	ppm	
2)	Carbon monoxide	1.937f	143901	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.983	1827257	7784.533	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

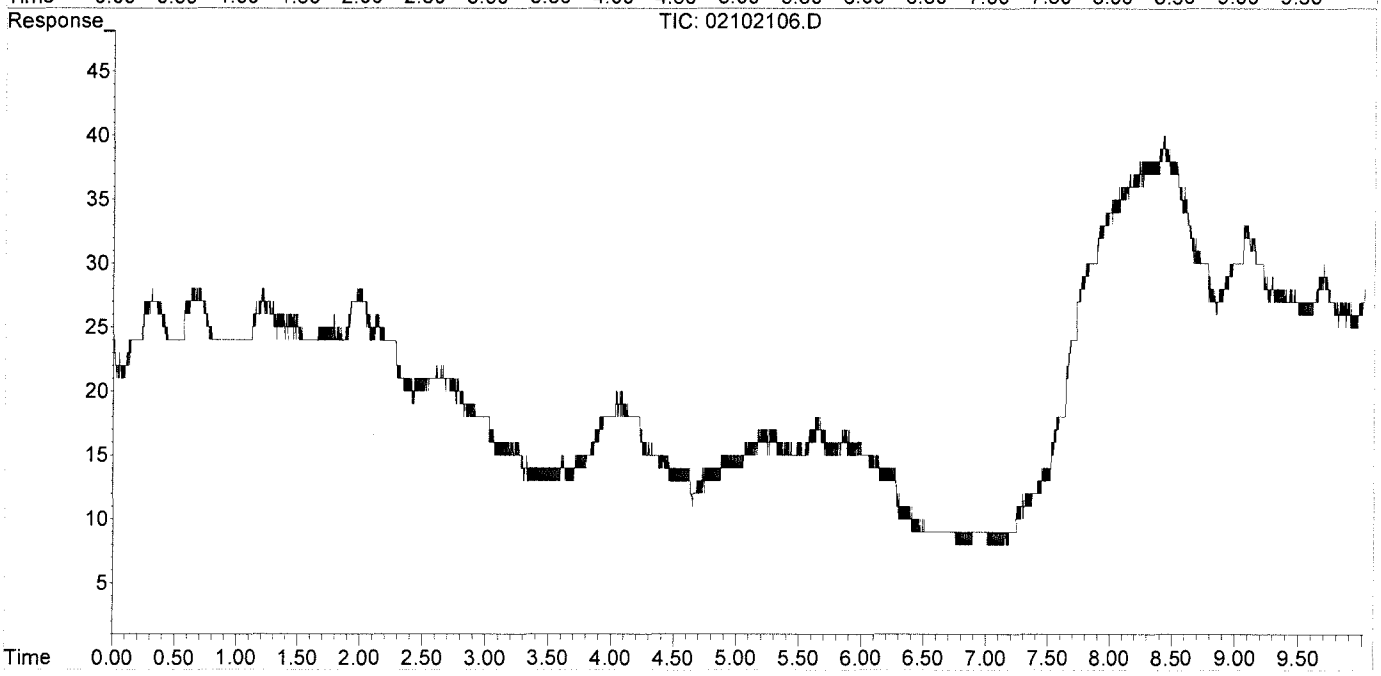
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:25
Operator : CB
Sample : P2100515-002 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:23 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

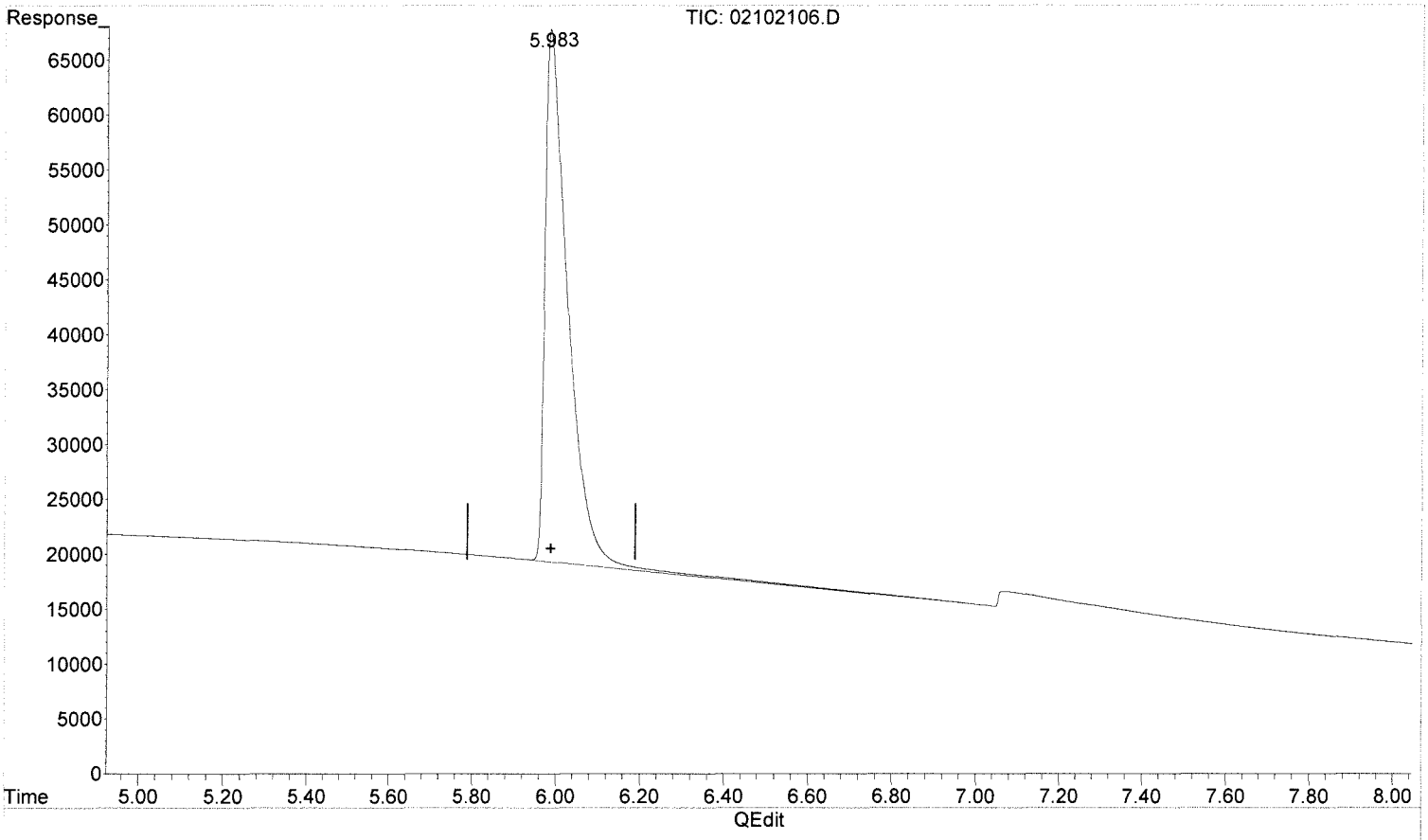




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:25
Operator : CB
Sample : P2100515-002 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:23 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.984min 7983.841 ppm

response 1874040

Manual Integration:

Before

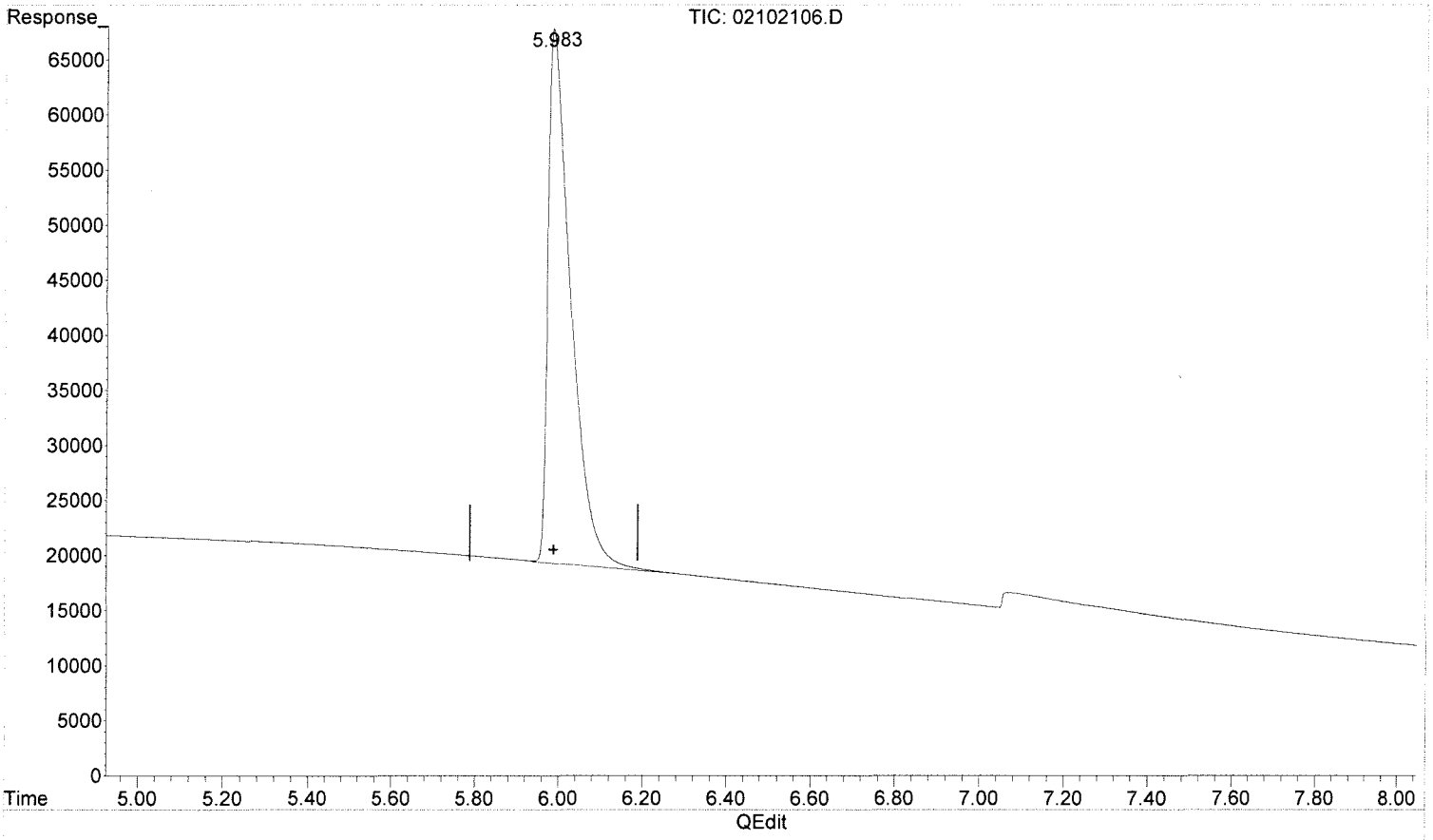
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:25
Operator : CB
Sample : P2100515-002 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:23 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.983min 7784.533 ppm m

response 1827257

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:44
Operator : CB
Sample : P2100515-003 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

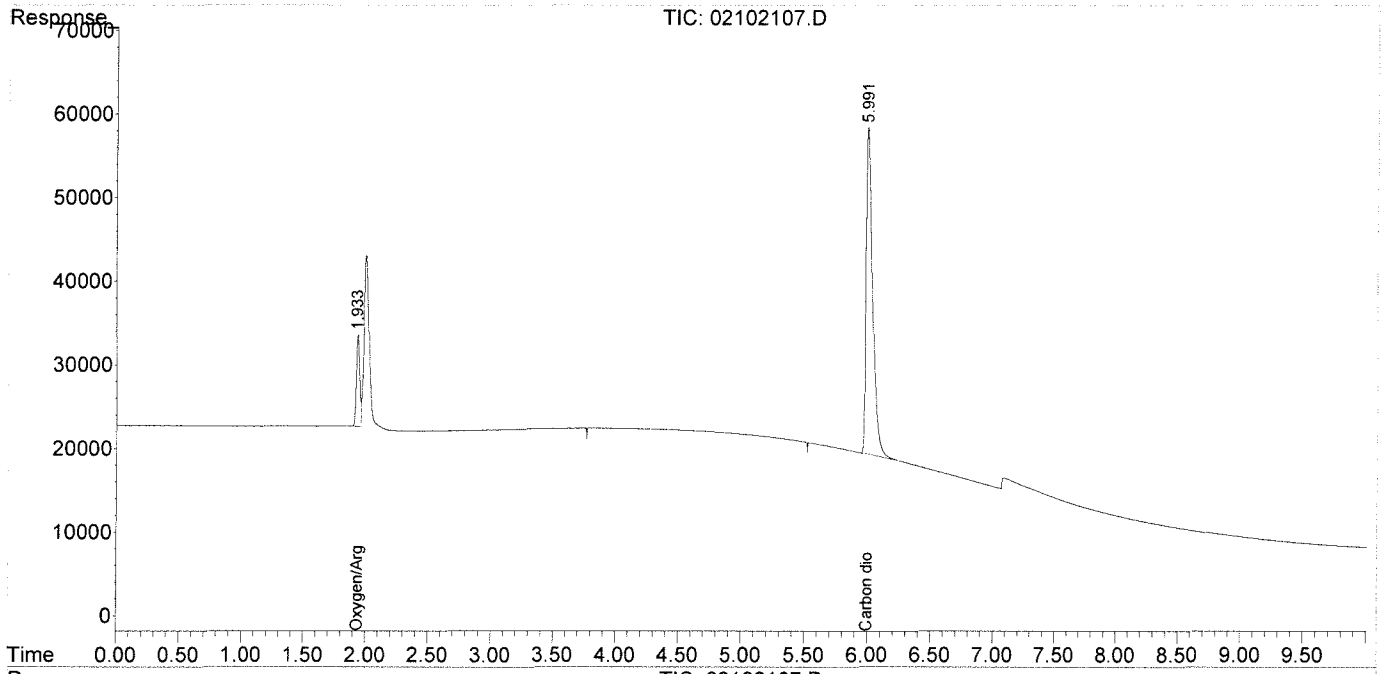
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.934f	199544	0.042	ppm	
2)	Carbon monoxide	1.934f	199544	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.991	1404292	5982.604	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

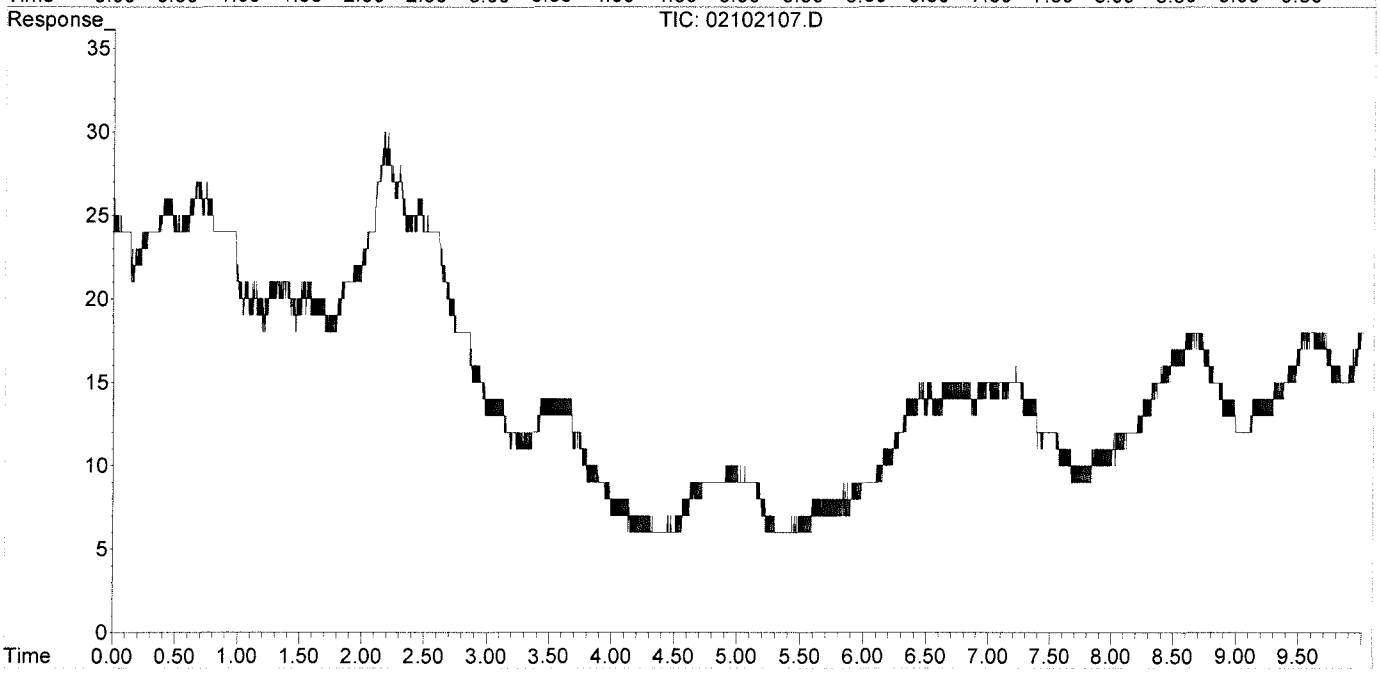
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:44
Operator : CB
Sample : P2100515-003 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

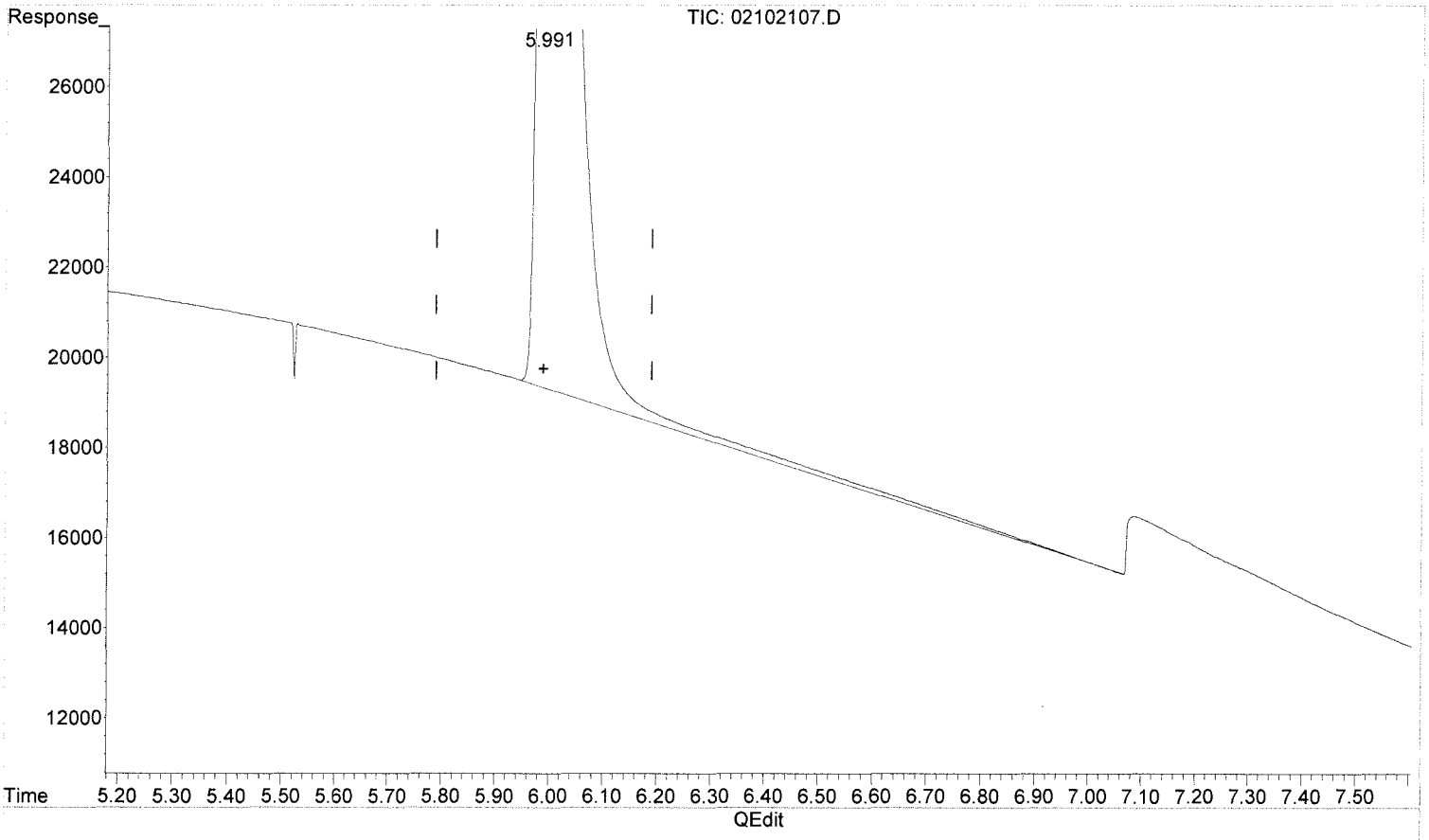




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:44
Operator : CB
Sample : P2100515-003 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.991min 6215.097 ppm

response 1458865

Manual Integration:

Before

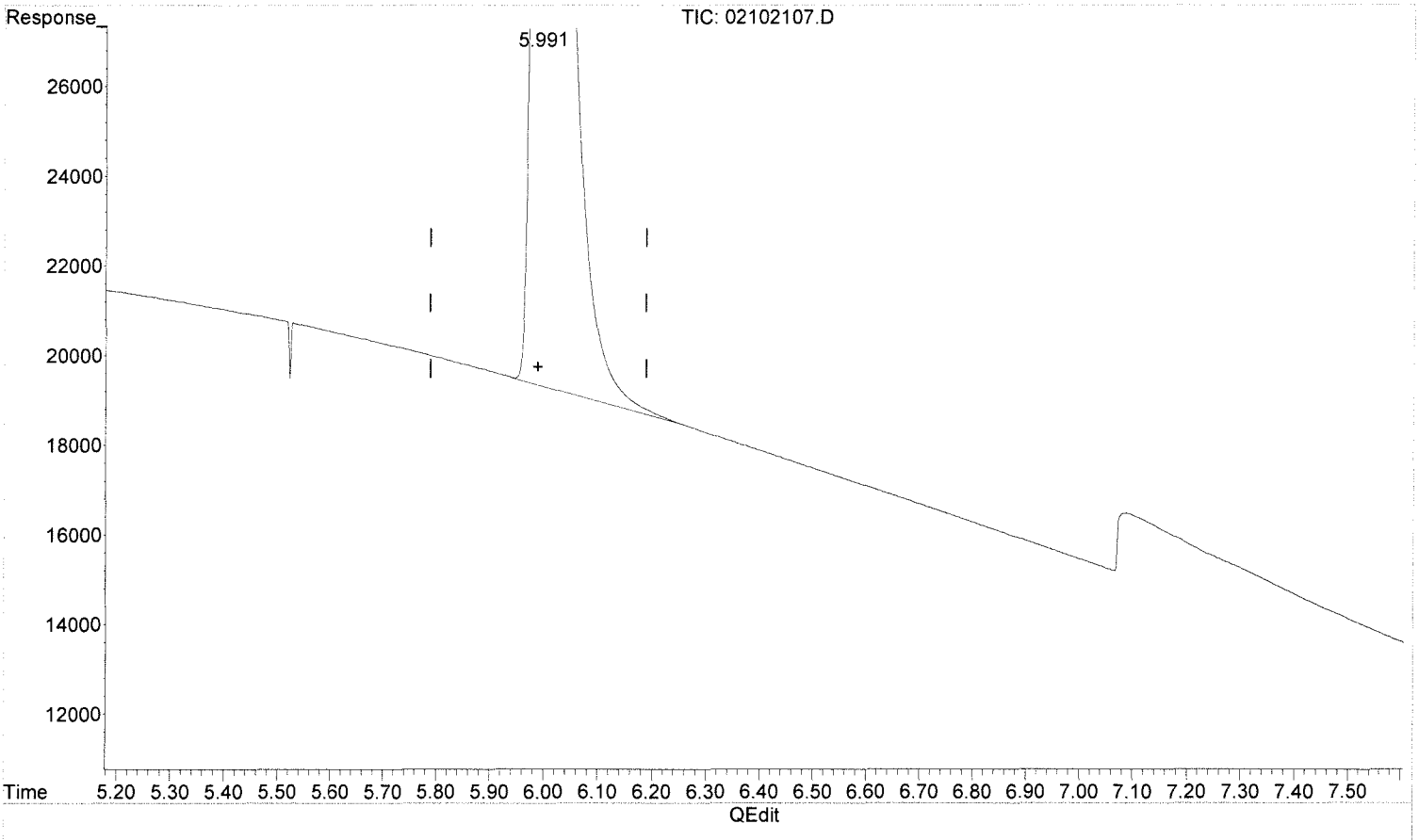
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:44
Operator : CB
Sample : P2100515-003 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:55:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.991min 5982.604 ppm m

response 1404292

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:57
Operator : CB
Sample : P2100515-004 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:48 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

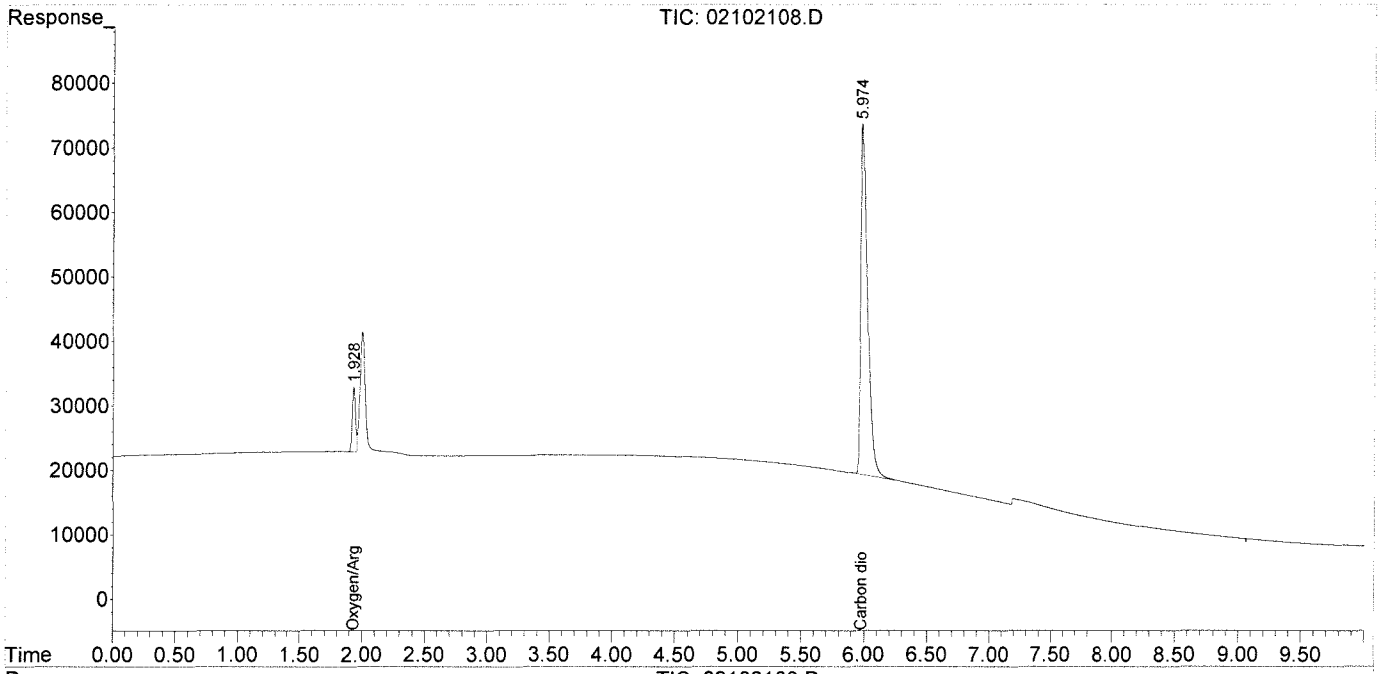
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.929f	180029	0.038	ppm	
2)	Carbon monoxide	1.929f	180029	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.974	2052251	8743.057	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

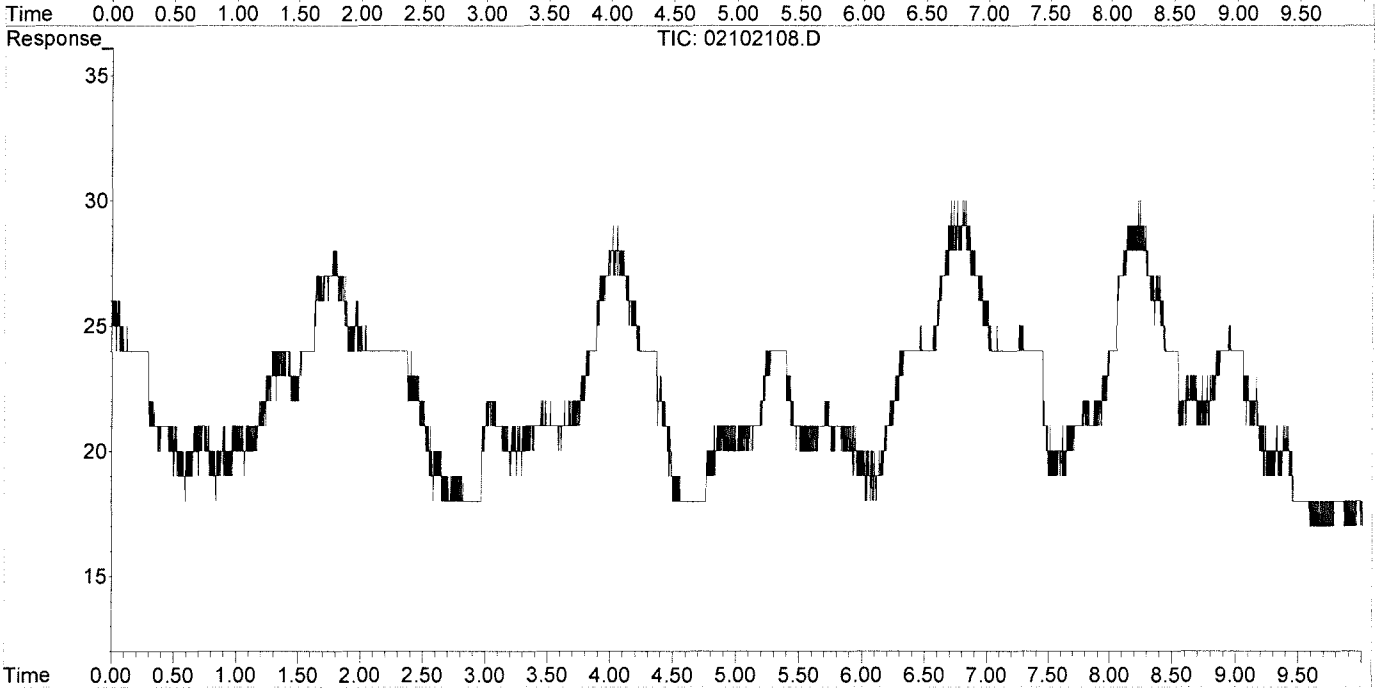
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:57
Operator : CB
Sample : P2100515-004 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:48 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

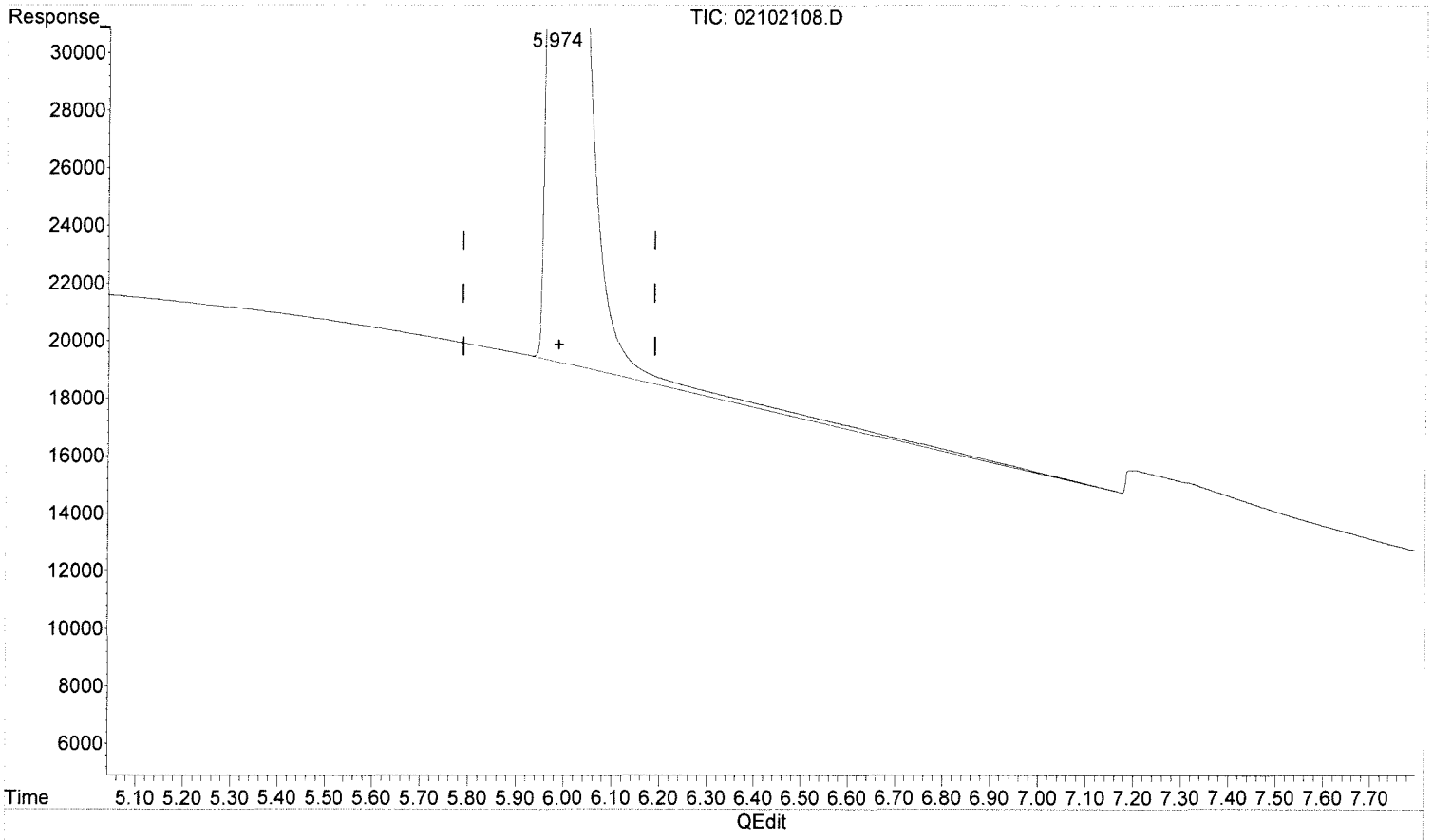




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:57
Operator : CB
Sample : P2100515-004 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:48 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.975min 9059.531 ppm

response 2126536

Manual Integration:

Before

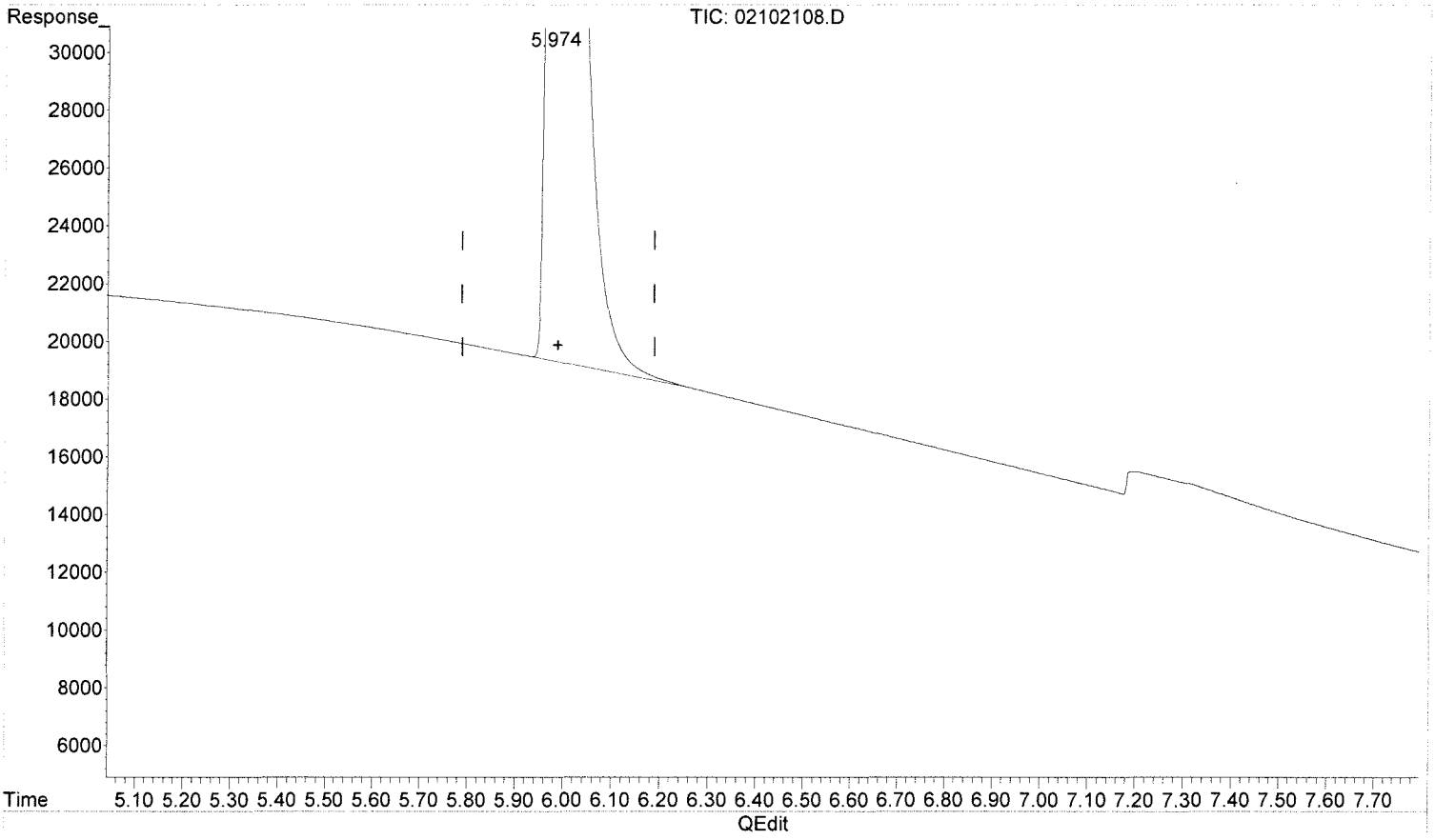
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 15:57
Operator : CB
Sample : P2100515-004 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:48 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.974min 8743.057 ppm m
response 2052251

Manual Integration:
After
BLC
02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:13
Operator : CB
Sample : P2100515-005 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:56 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

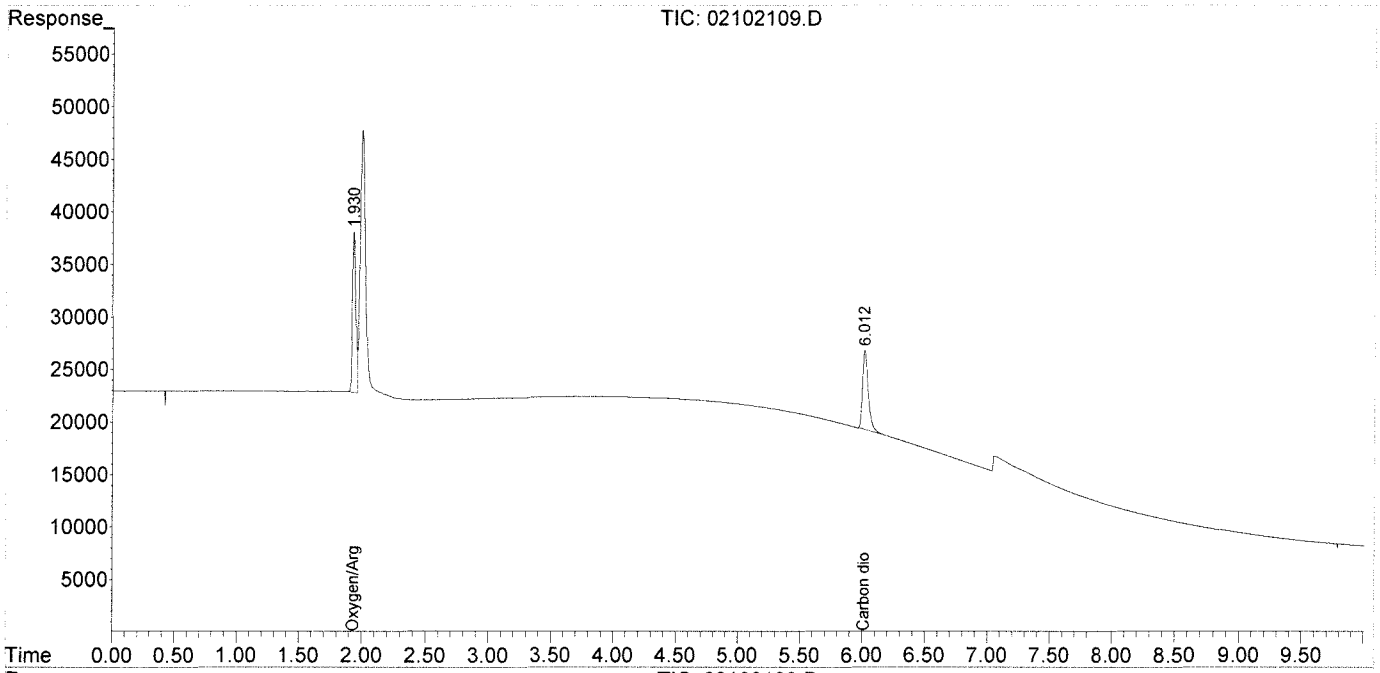
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.931f	276373	0.058	ppm	
2)	Carbon monoxide	1.931f	276373	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.012	239663	1021.021	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

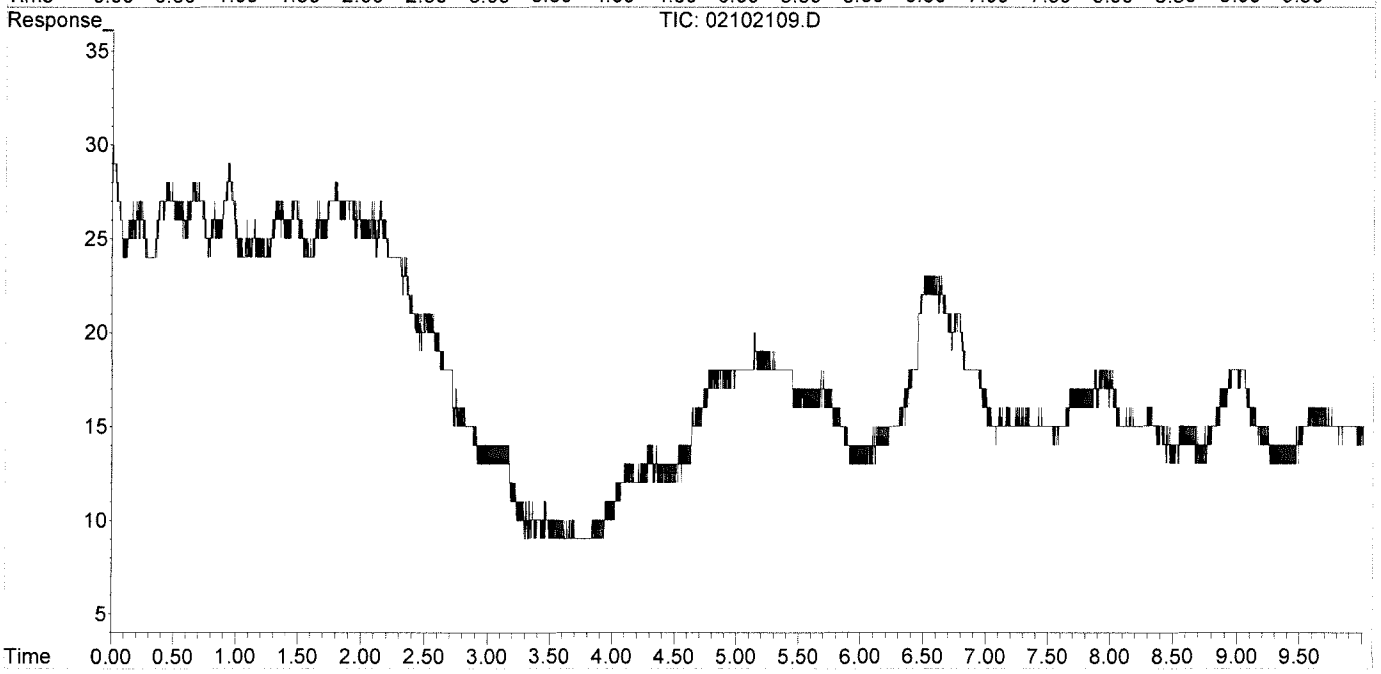
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:13
Operator : CB
Sample : P2100515-005 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:56 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

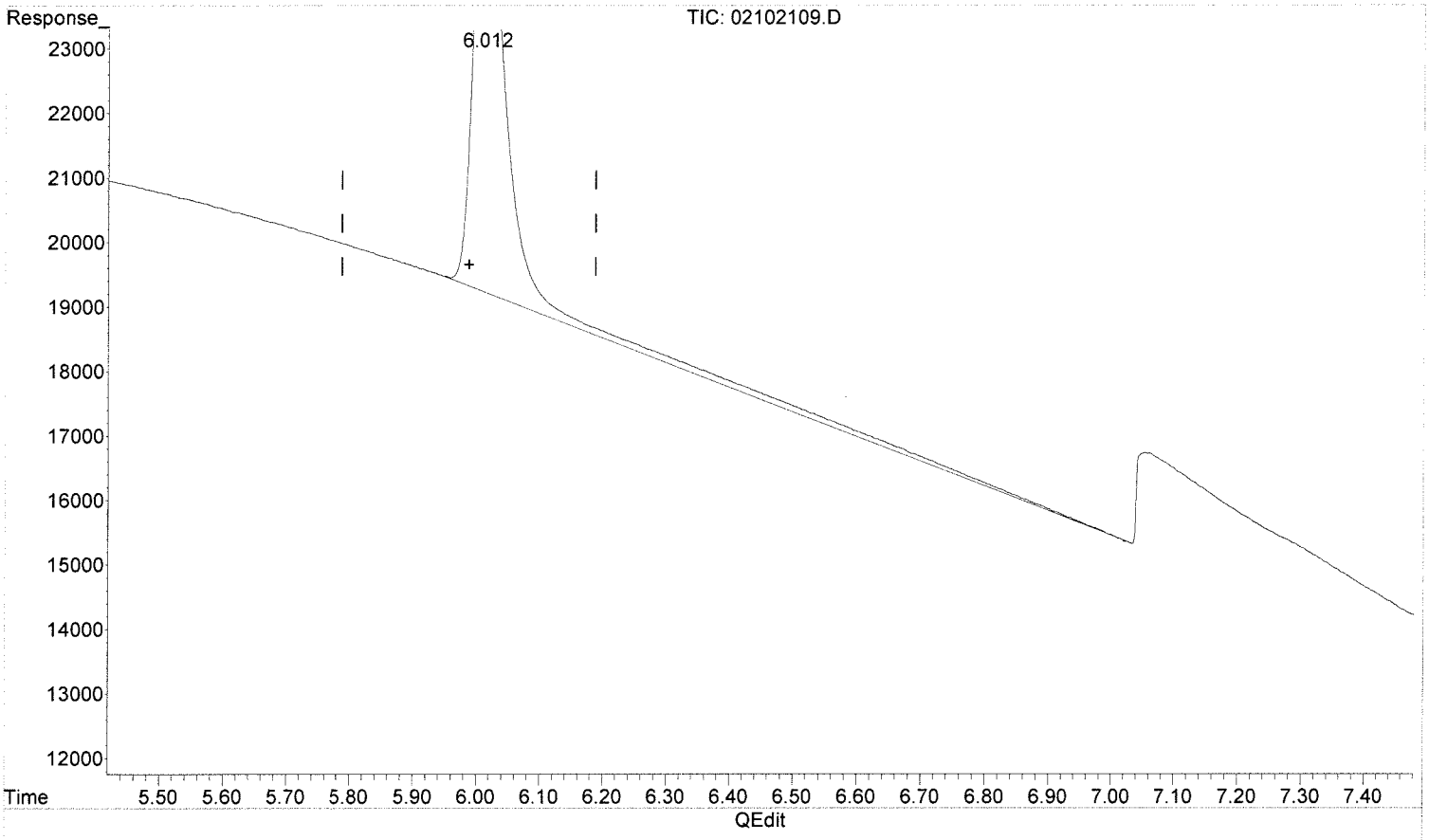




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:13
Operator : CB
Sample : P2100515-005 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:56 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.013min 1210.607 ppm

response 284165

Manual Integration:

Before

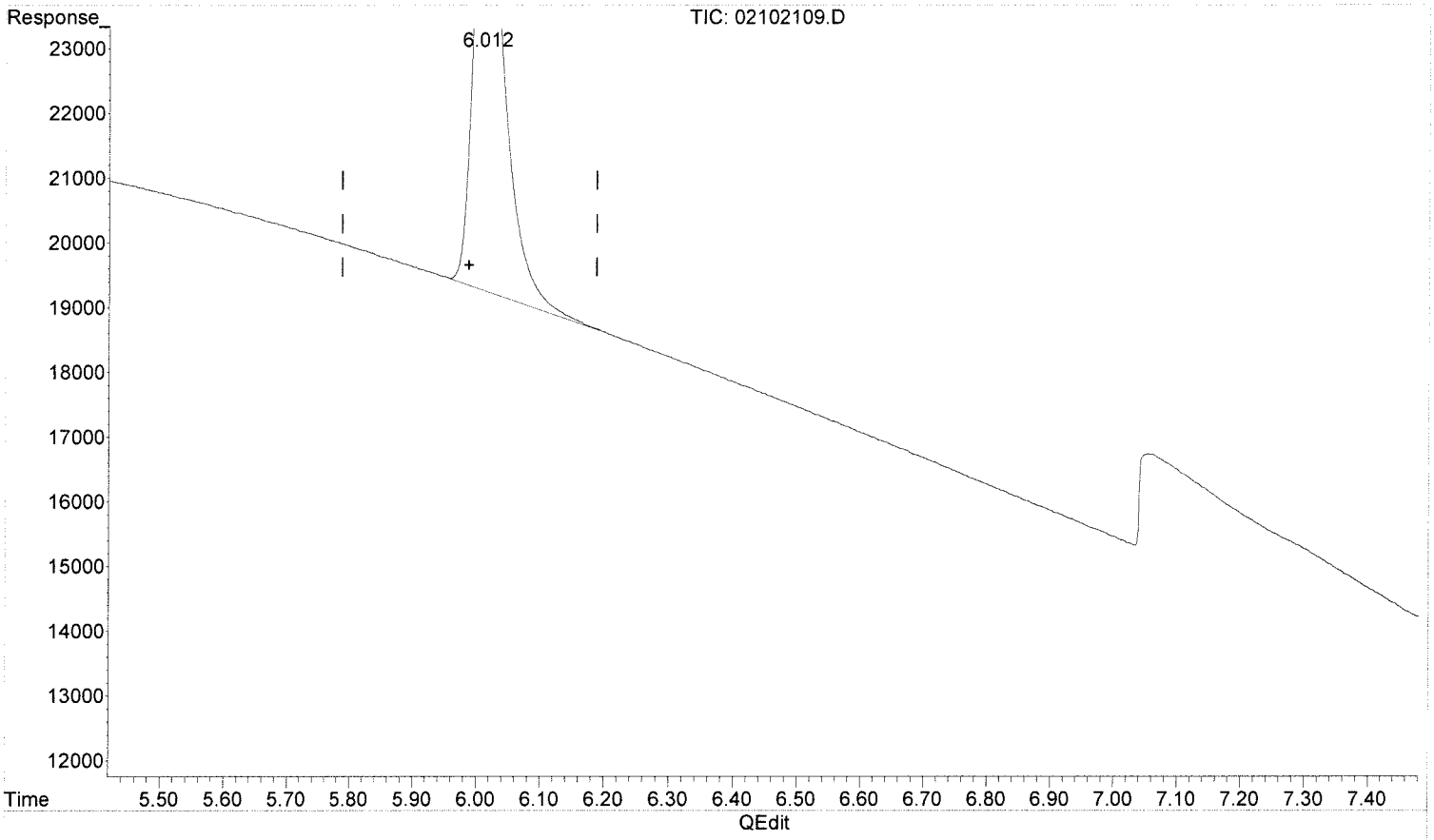
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:13
Operator : CB
Sample : P2100515-005 .05
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:29:56 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.012min 1021.021 ppm m

response 239663

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:05
Operator : CB
Sample : P2100515-006 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 14:49:53 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

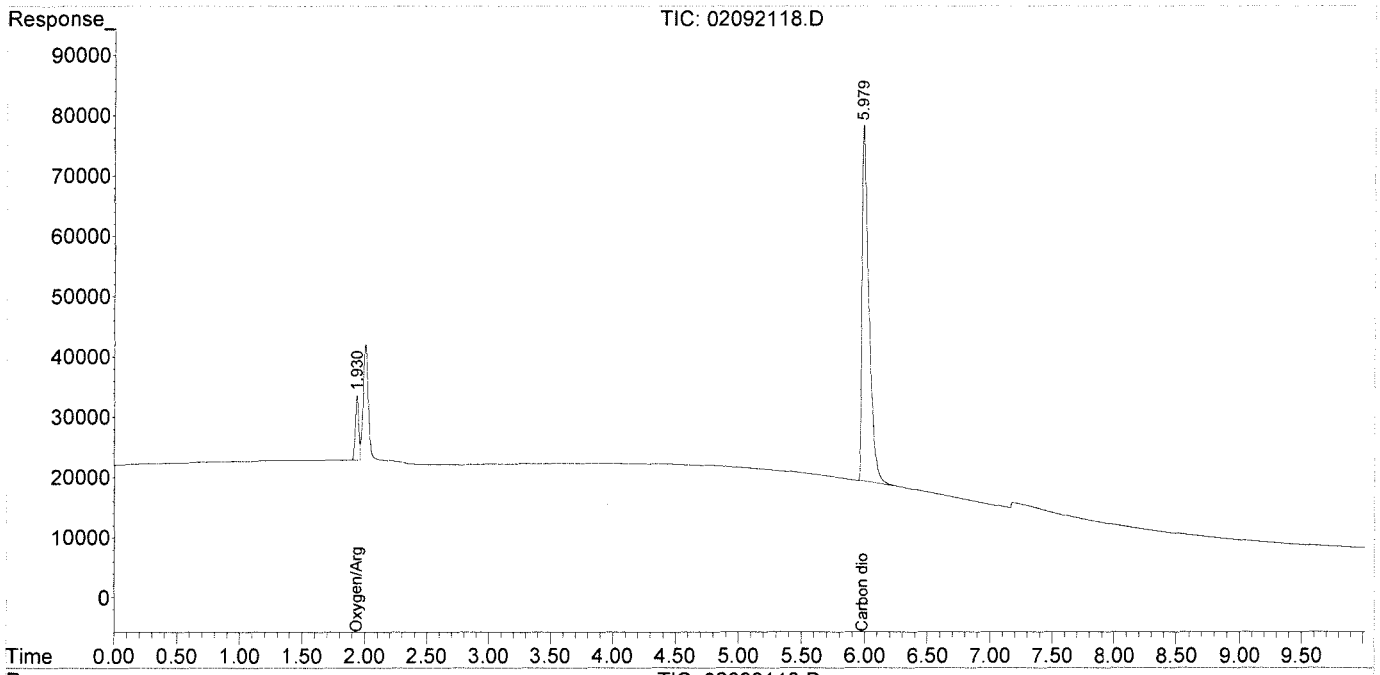
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.931f	194629	0.041	ppm	
2)	Carbon monoxide	1.931f	194629	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.979	2284312	9731.689	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

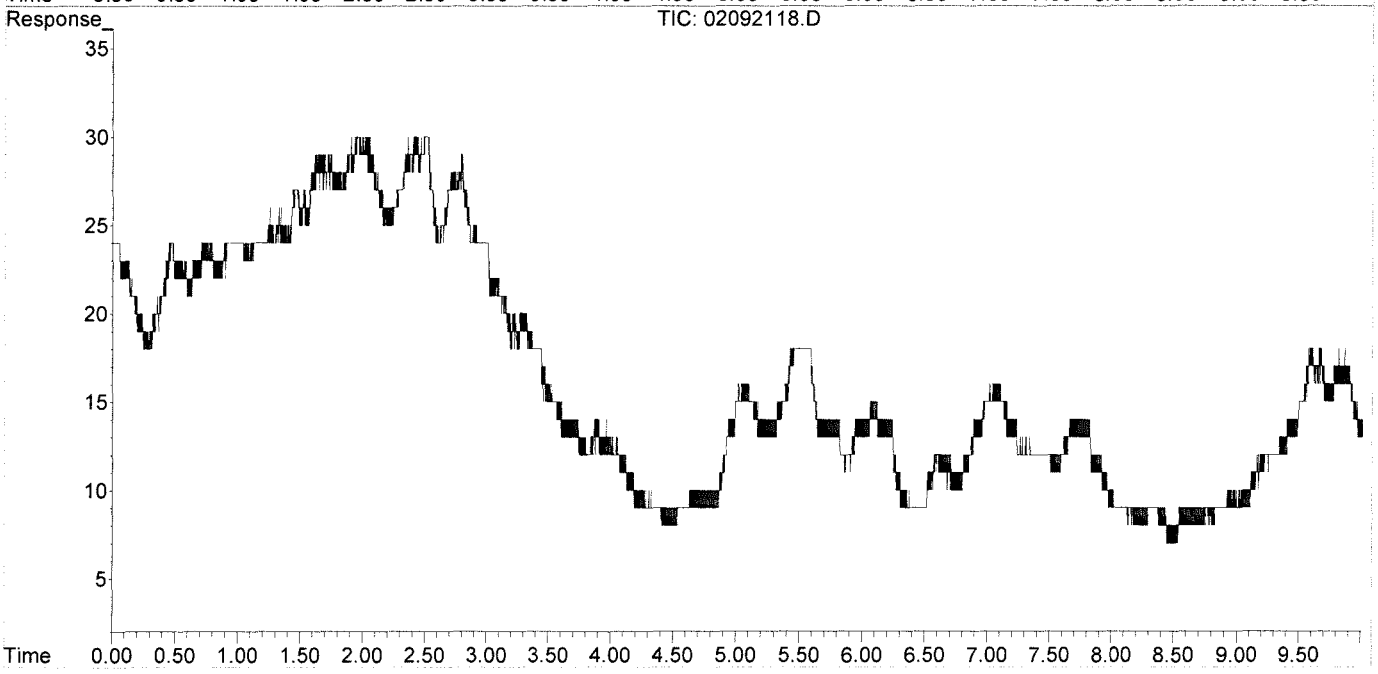
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:05
Operator : CB
Sample : P2100515-006 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 14:49:53 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

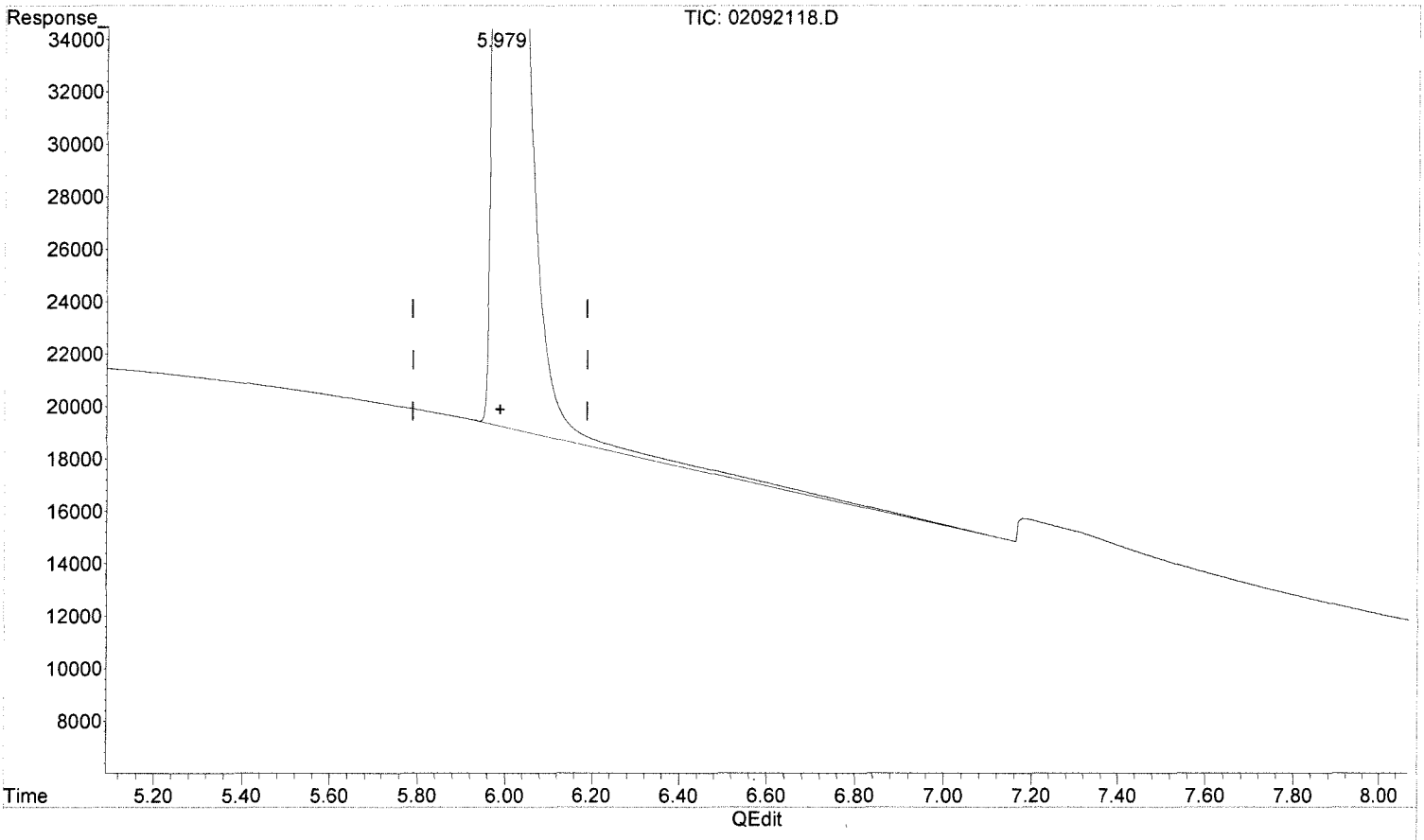




Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:05
Operator : CB
Sample : P2100515-006 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 14:49:53 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.980min 10032.010 ppm

response 2354806

Manual Integration:

Before

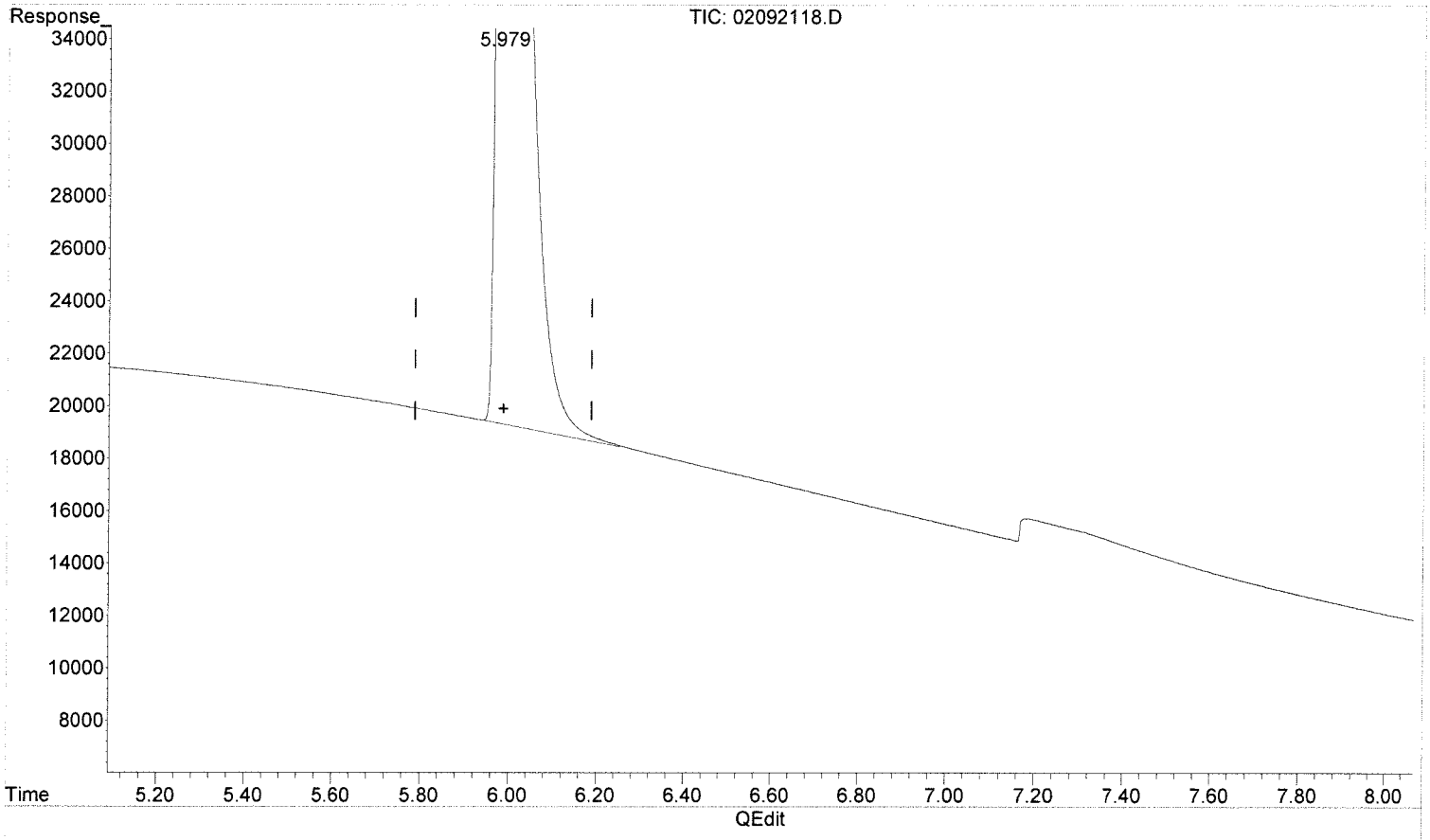
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:05
Operator : CB
Sample : P2100515-006 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 14:49:53 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.979min 9731.689 ppm m

response 2284312

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092119.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:20
Operator : CB
Sample : P2100515-006 MS 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 19:51:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

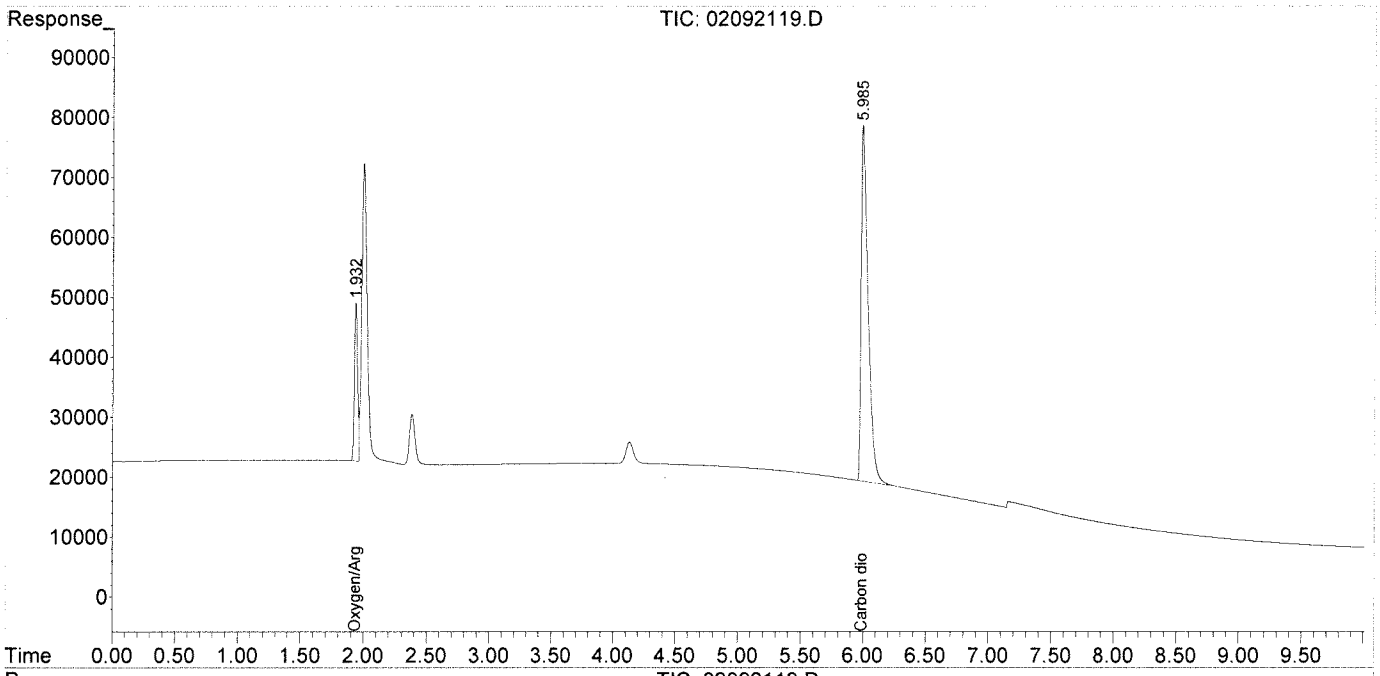
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.933f	456679	0.096	ppm	
2)	Carbon monoxide	1.933f	456679	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.985	2328732	9920.930	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

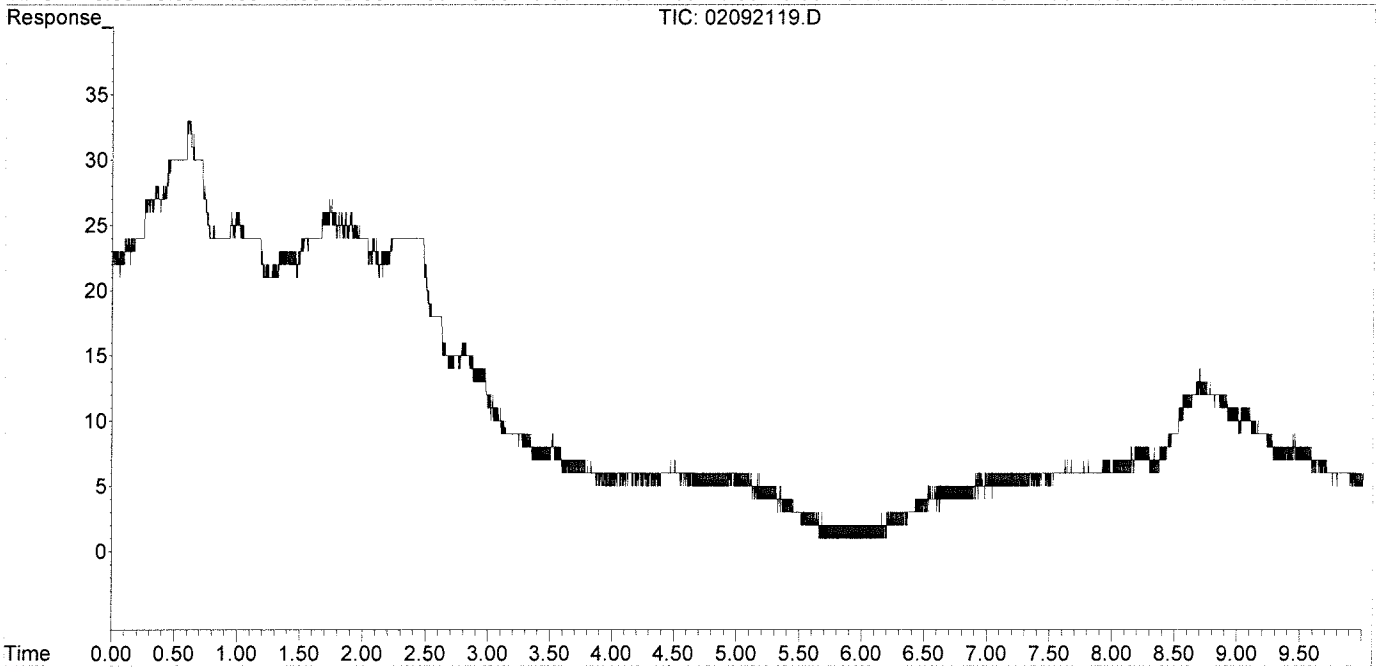
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092119.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:20
Operator : CB
Sample : P2100515-006 MS 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 19:51:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

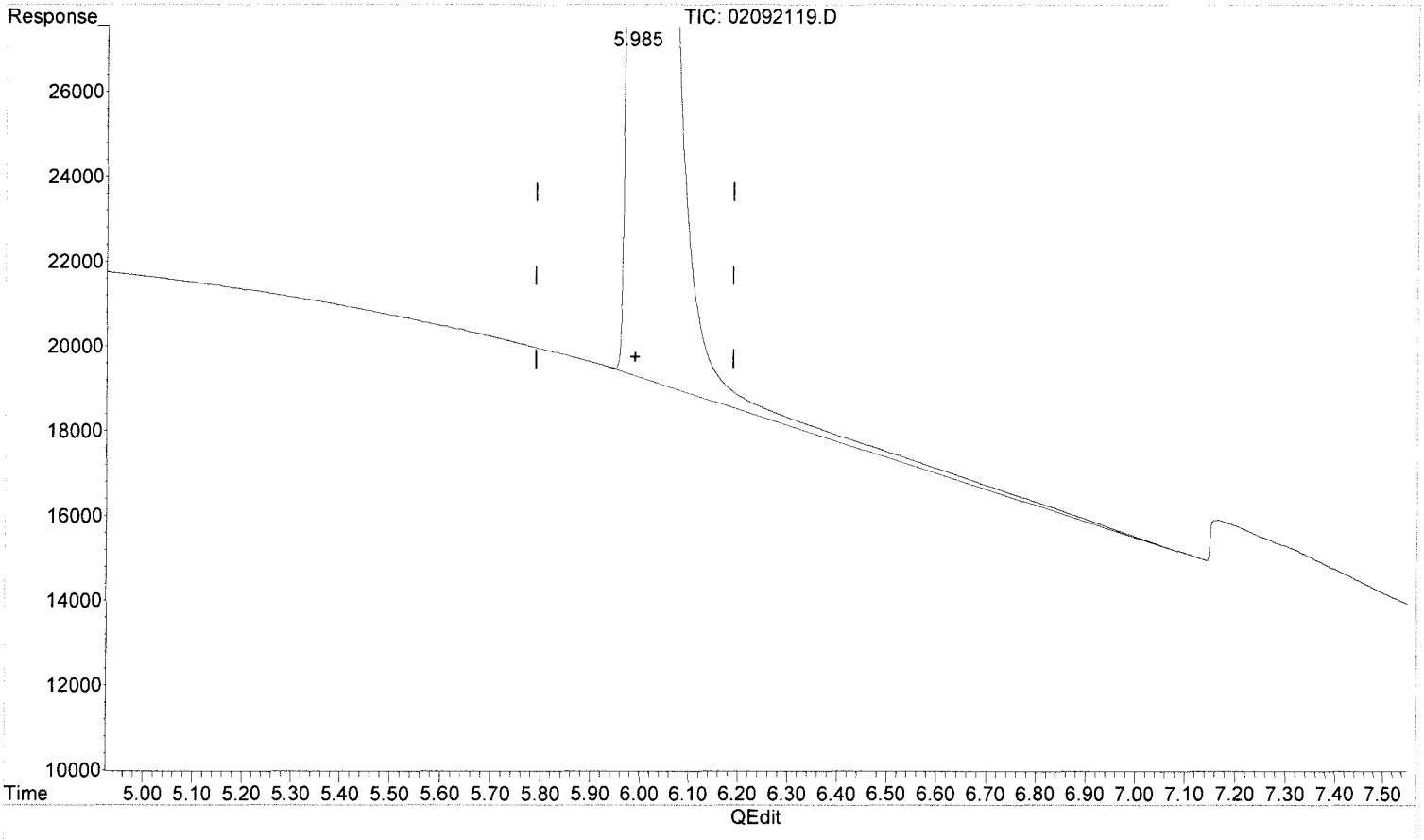




Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092119.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:20
Operator : CB
Sample : P2100515-006 MS 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 19:51:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
5.986min 10225.375 ppm
response 2400194

Manual Integration:
Before

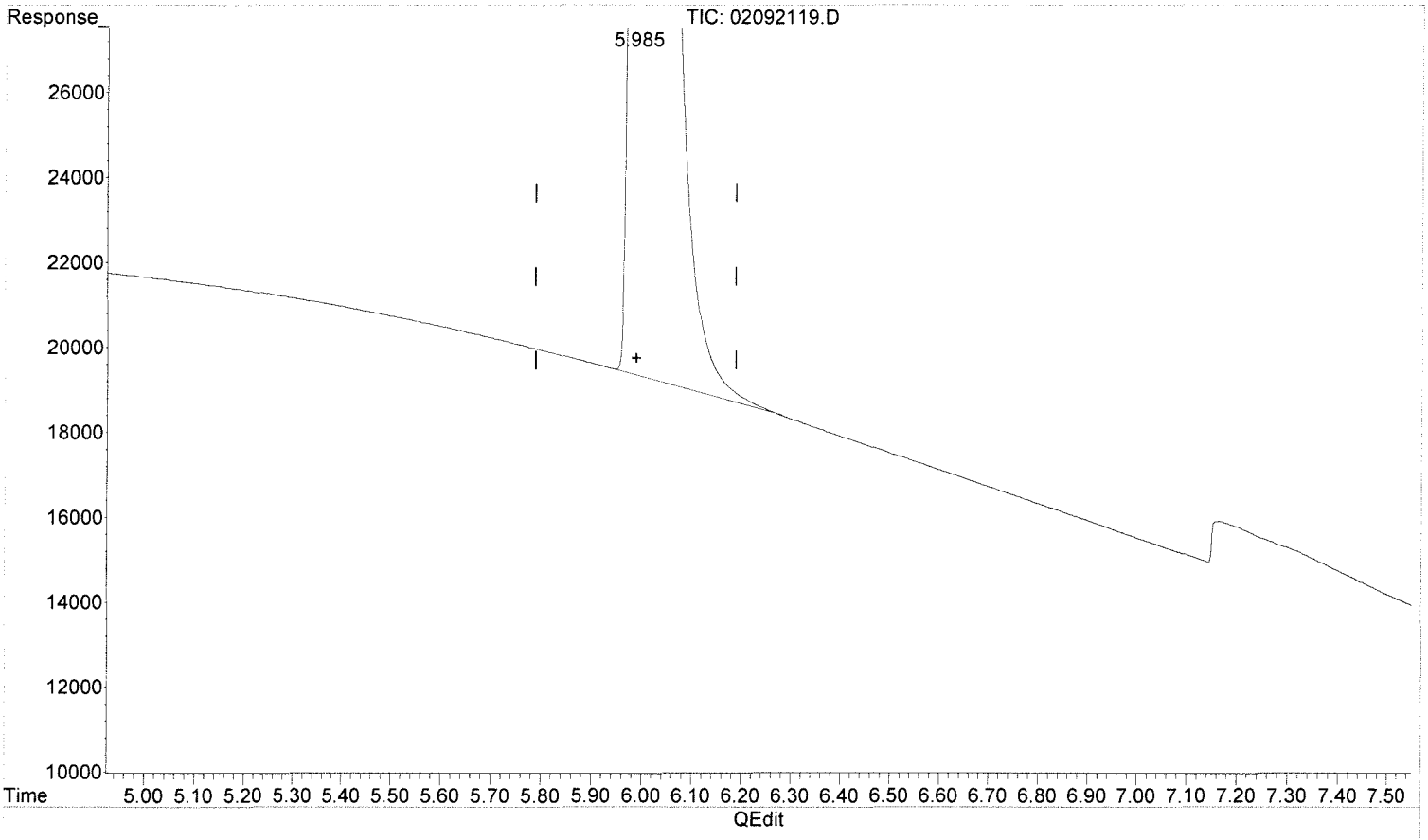
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092119.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:20
Operator : CB
Sample : P2100515-006 MS 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 19:51:14 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.985min 9920.930 ppm m

response 2328732

Manual Integration:

After

BLC CB

02/11/21

2/12/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092122.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:52
Operator : CB
Sample : 2100515-006 MSD 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:07:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

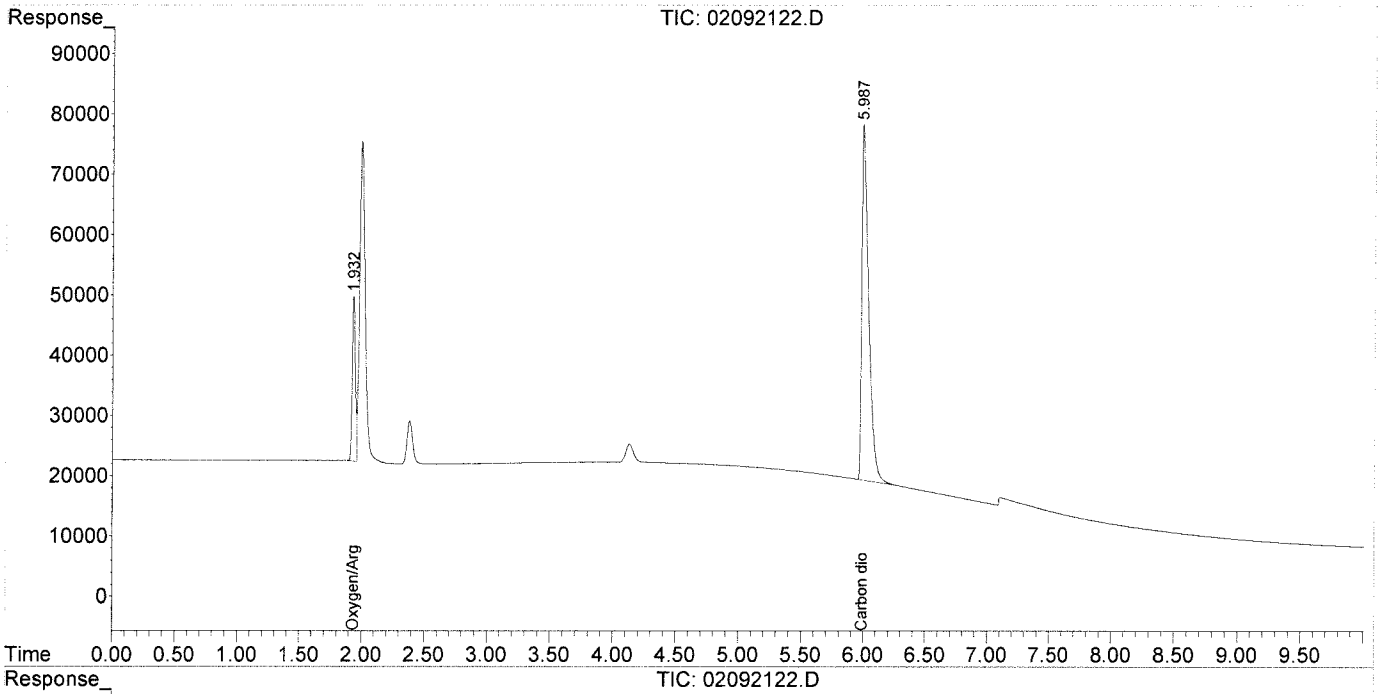
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.933f	473141	0.099	ppm	
2)	Carbon monoxide	1.933f	473141	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.987	2329495	9924.180	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

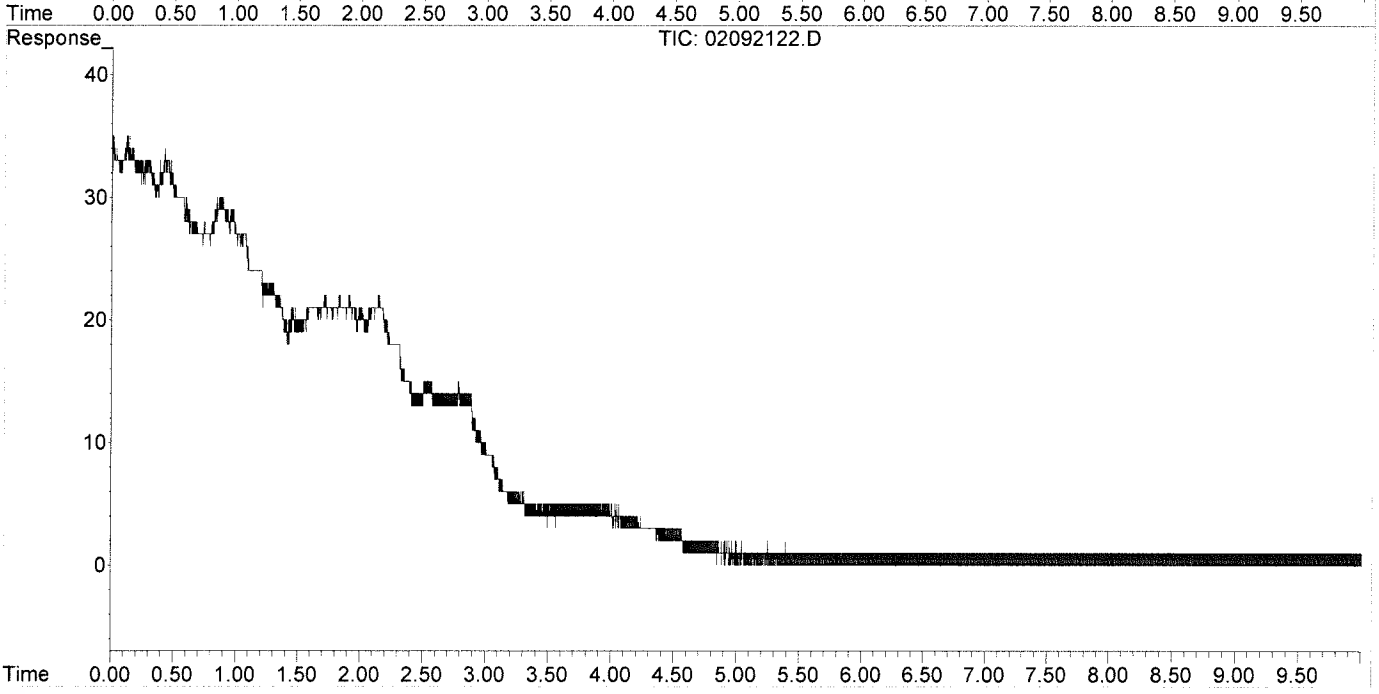
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092122.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:52
Operator : CB
Sample : 2100515-006 MSD 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:07:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

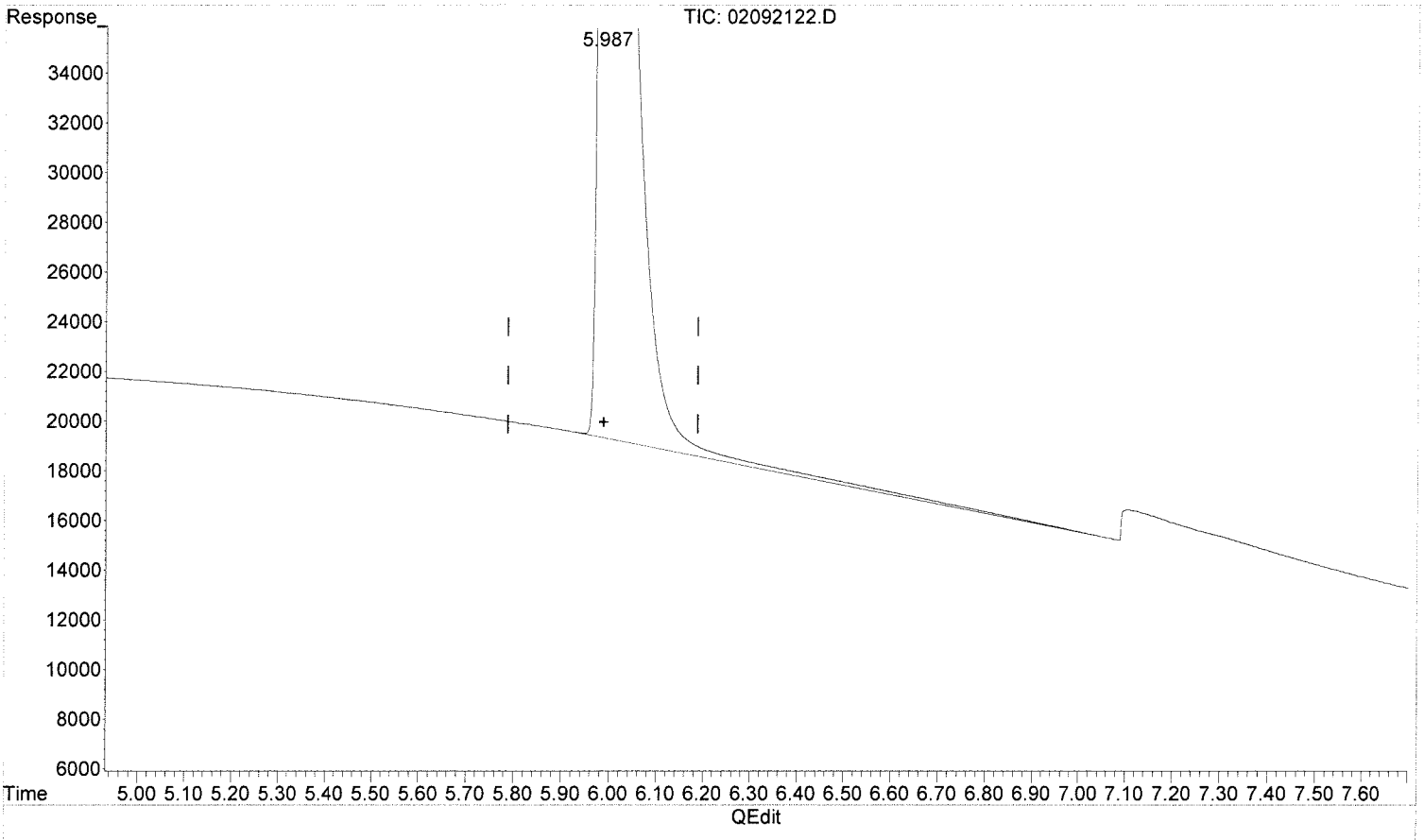




Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092122.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:52
Operator : CB
Sample : 2100515-006 MSD 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:07:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.988min 10206.088 ppm

response 2395667

Manual Integration:

Before

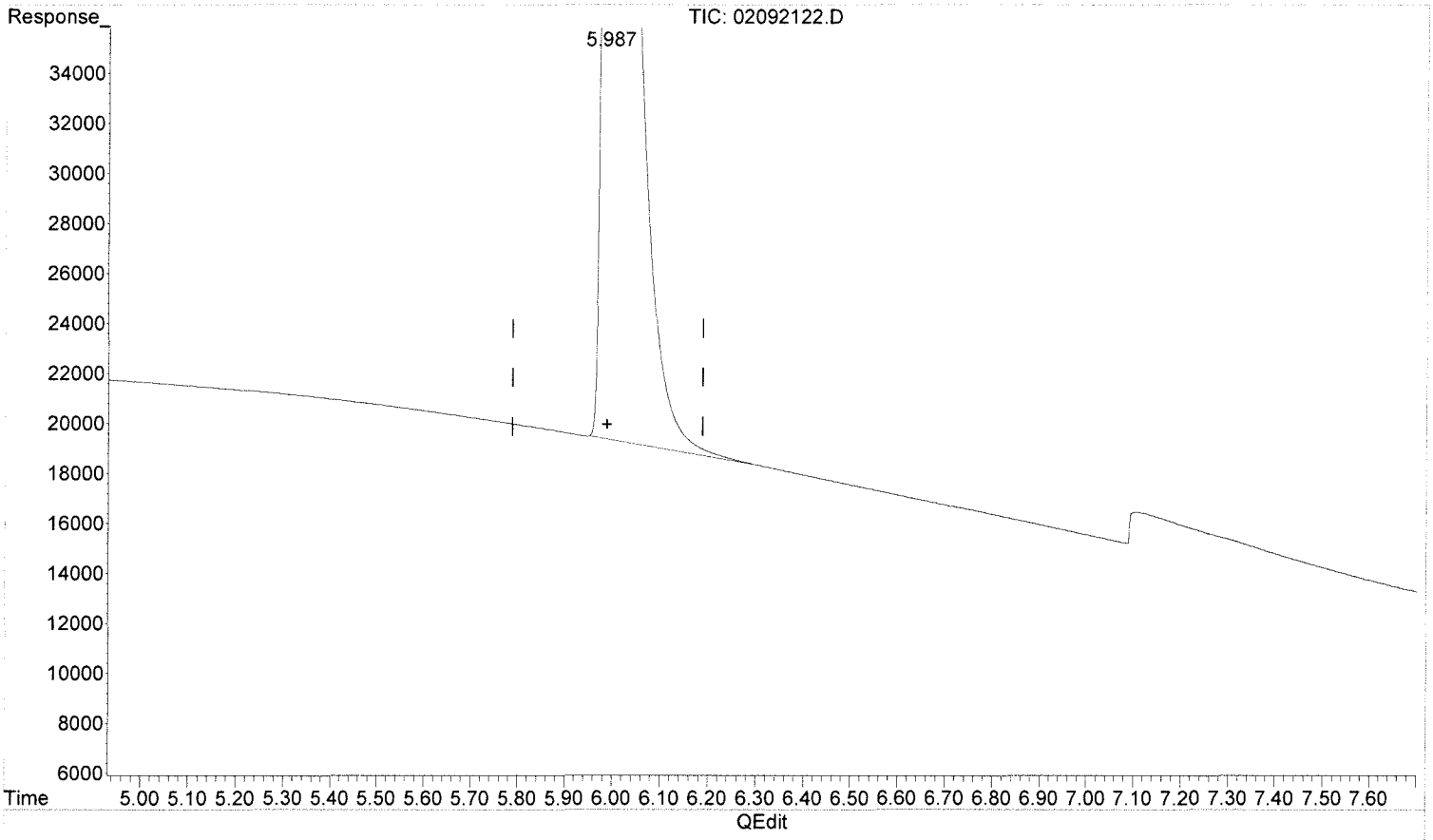
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092122.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 19:52
Operator : CB
Sample : 2100515-006 MSD 0.05mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:07:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.987min 9924.180 ppm m

response 2329495

Manual Integration:

After

BLC CB

02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:03
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:38:33 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

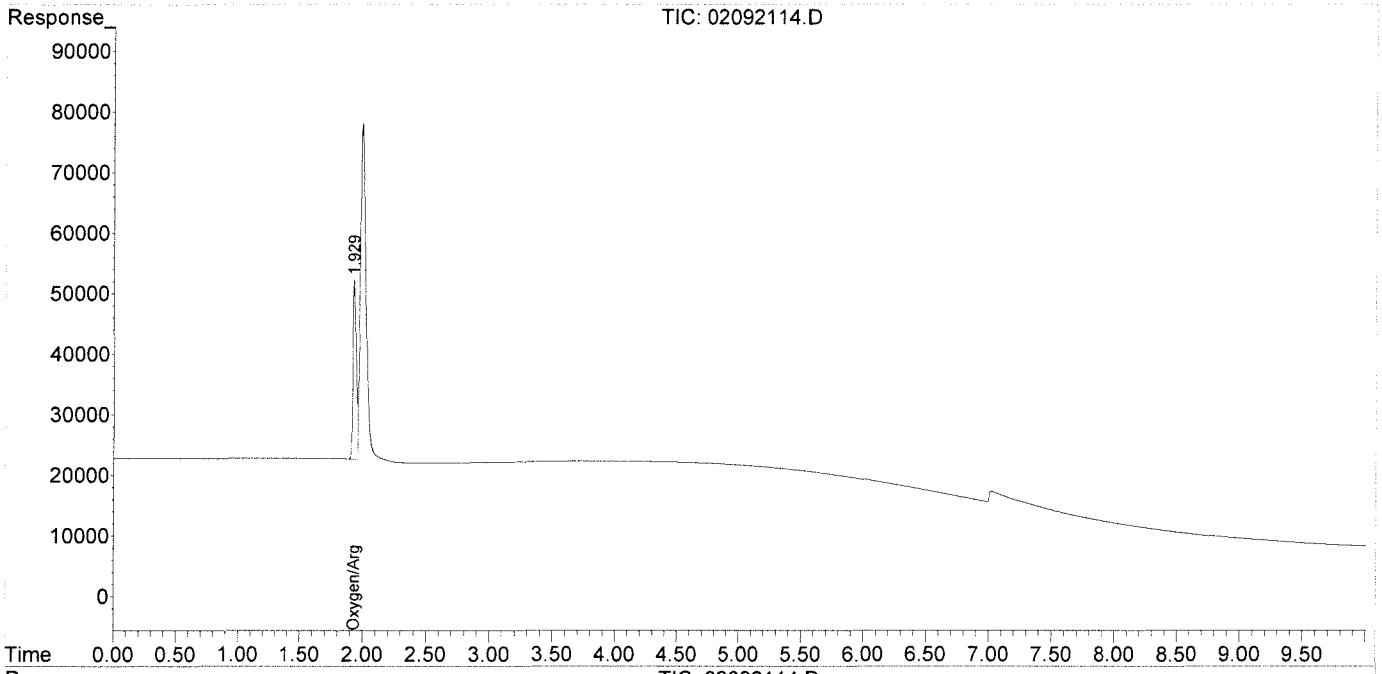
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	522198	0.110	ppm
2)	Carbon monoxide	1.929f	522198	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

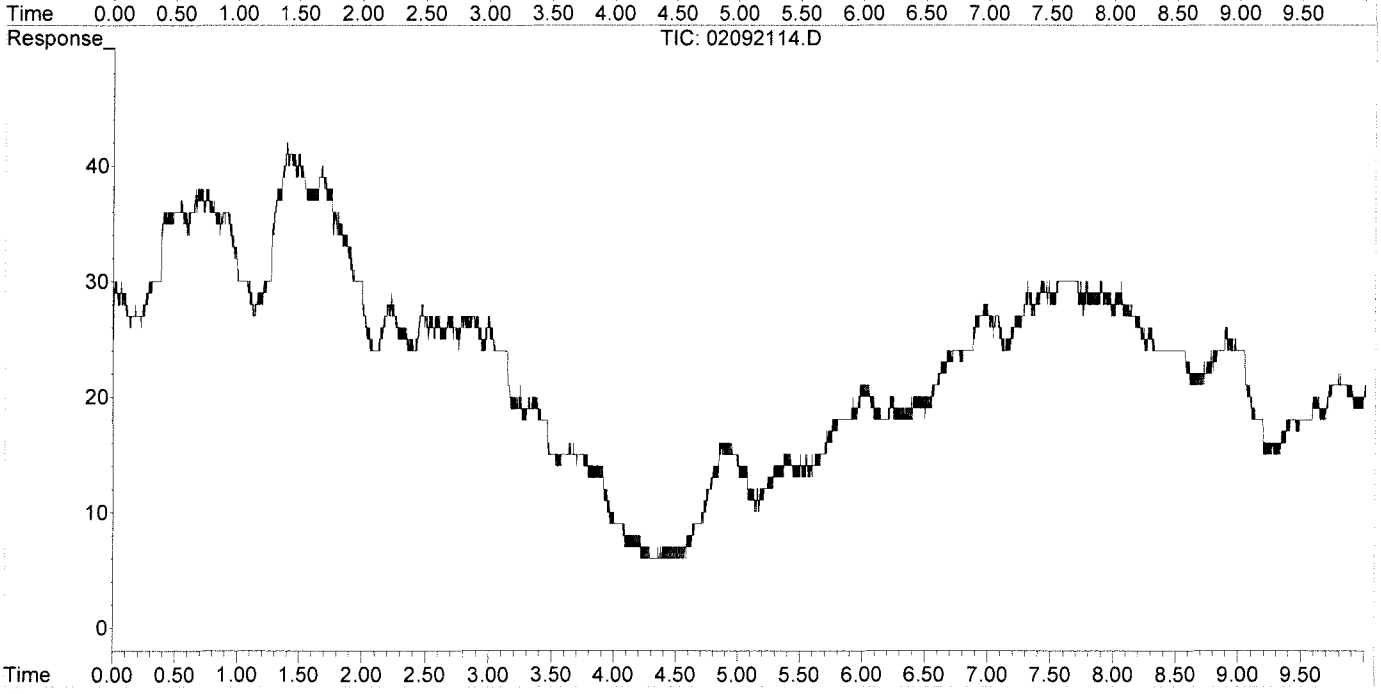
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:03
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:38:33 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102102.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:10
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 14:23:36 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

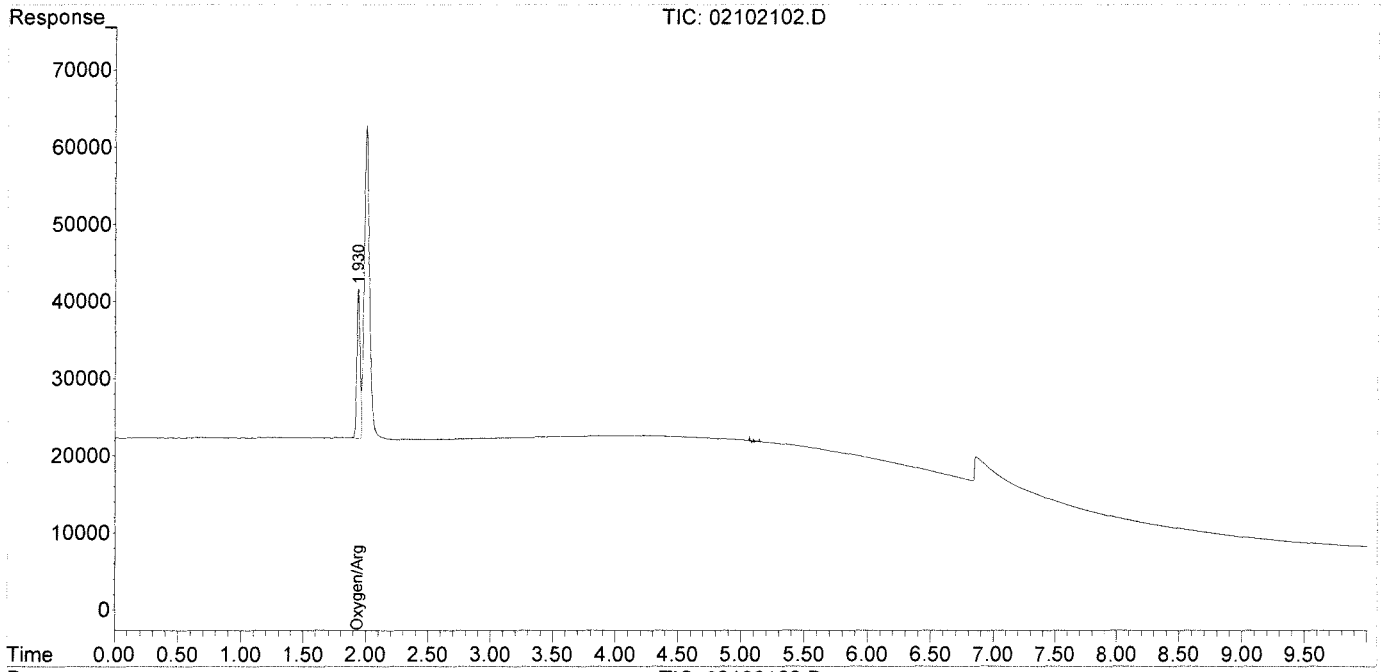
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.931f	348028	0.073	ppm
2)	Carbon monoxide	1.931f	348028	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

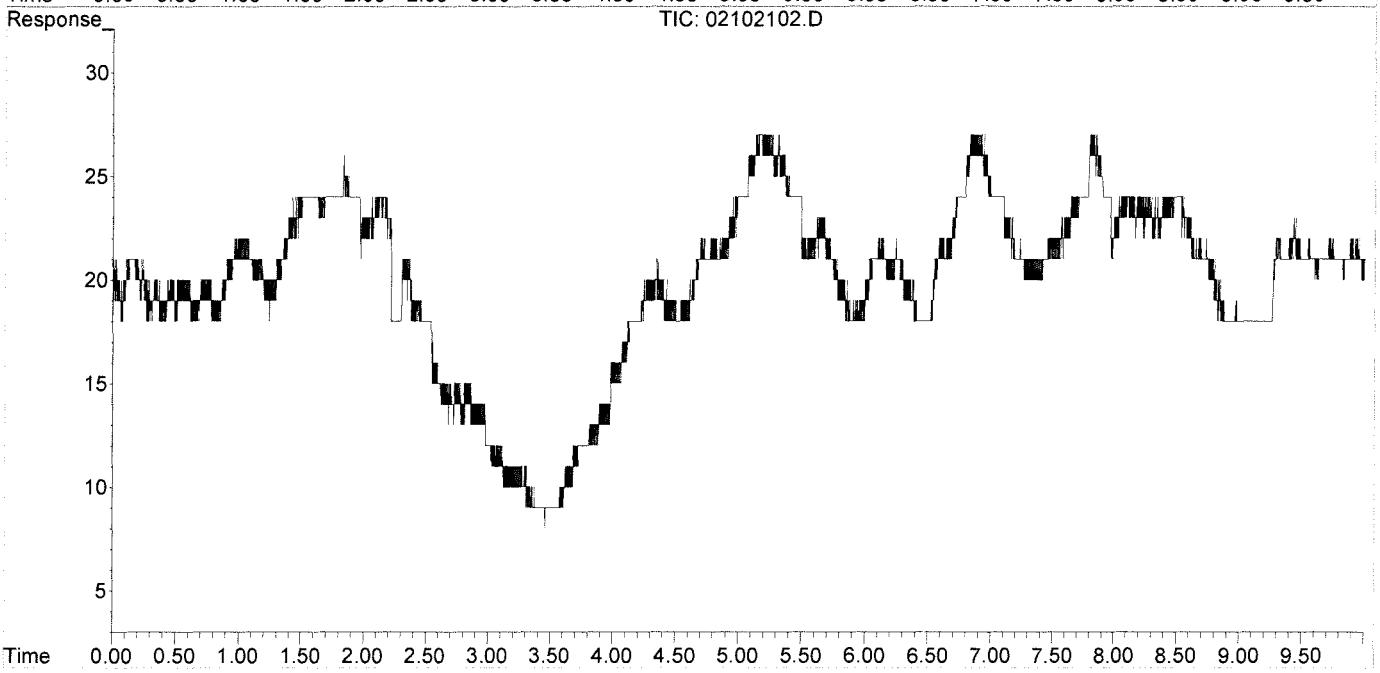
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102102.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:10
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 14:23:36 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:21:15
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:39:05 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

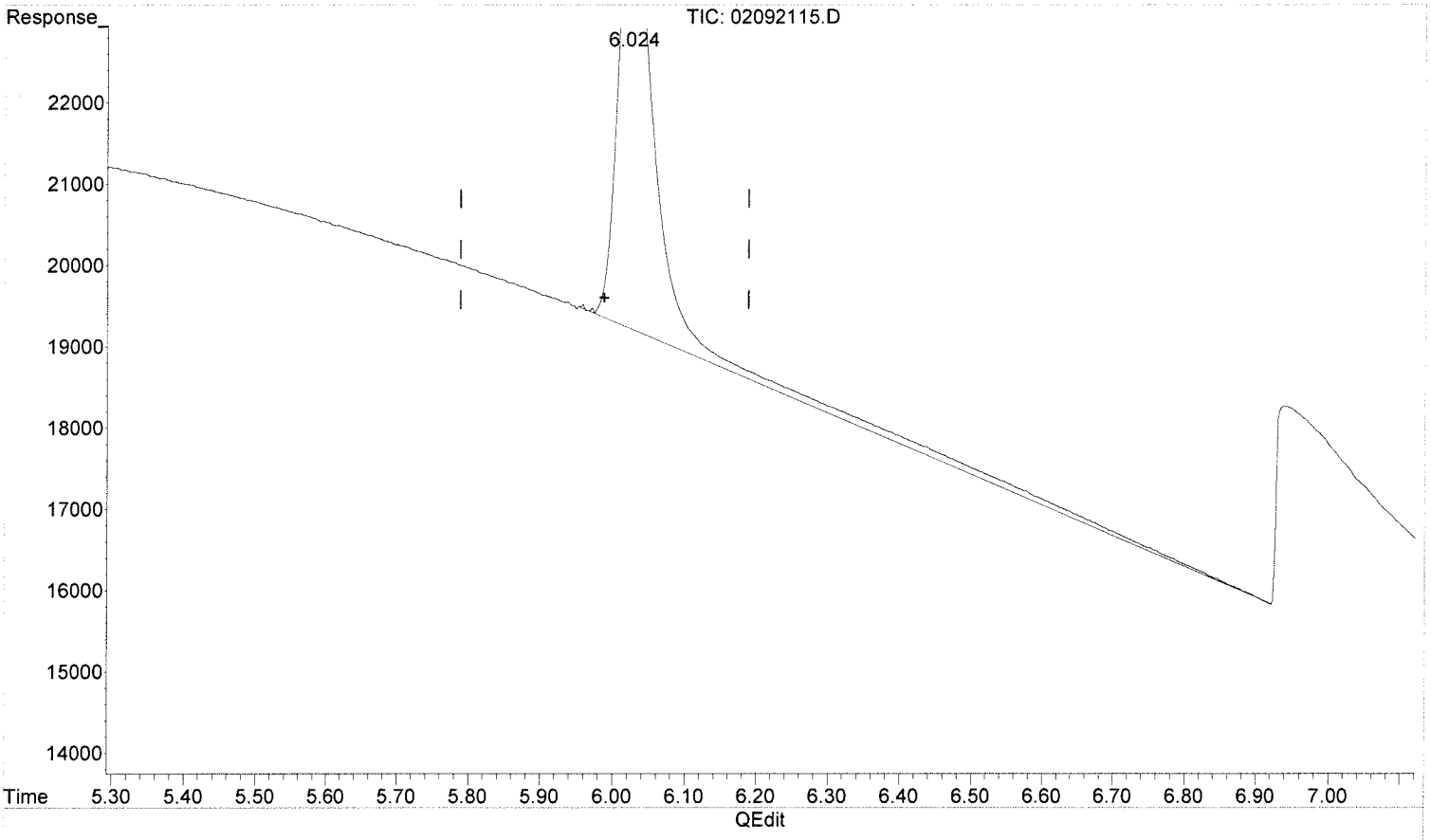
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.917f	1076071	0.226	ppm	
2)	Carbon monoxide	1.917f	1076071	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.024	181347	772.578	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:21
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:39:05 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
6.025min 919.866 ppm
response 215919

Manual Integration:
Before

02/09/21

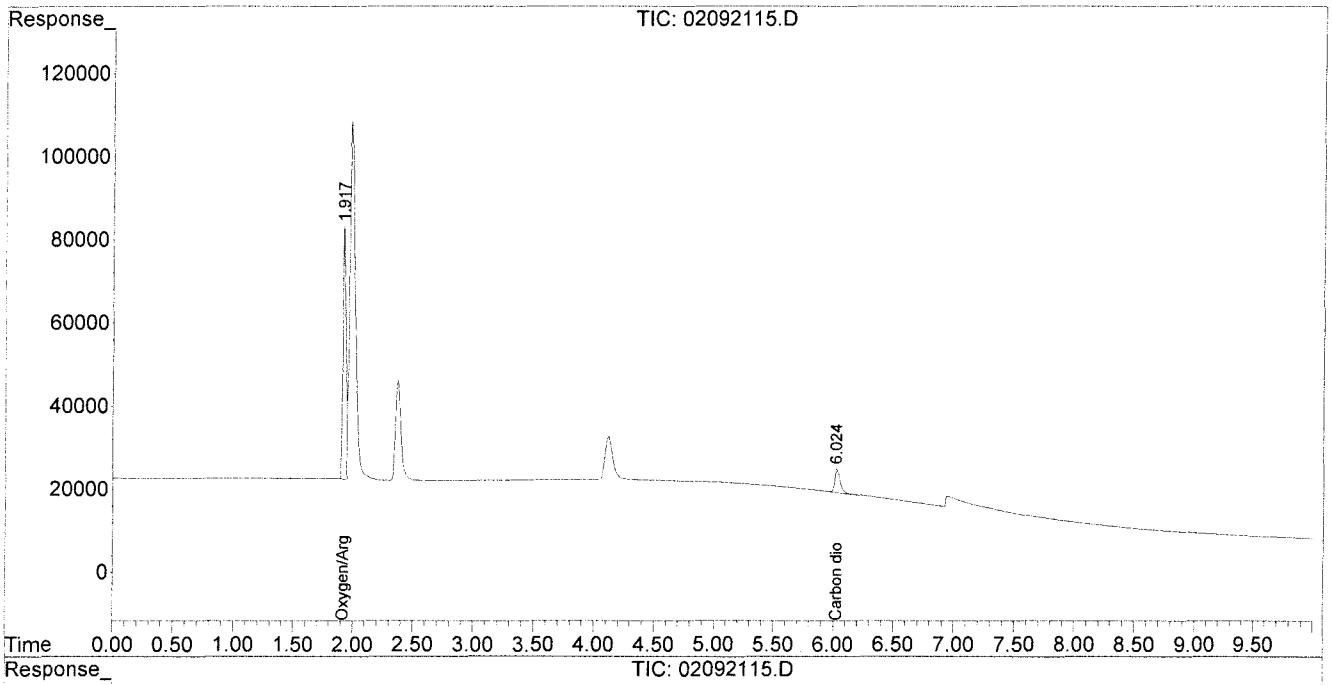
(+) = Expected Retention Time

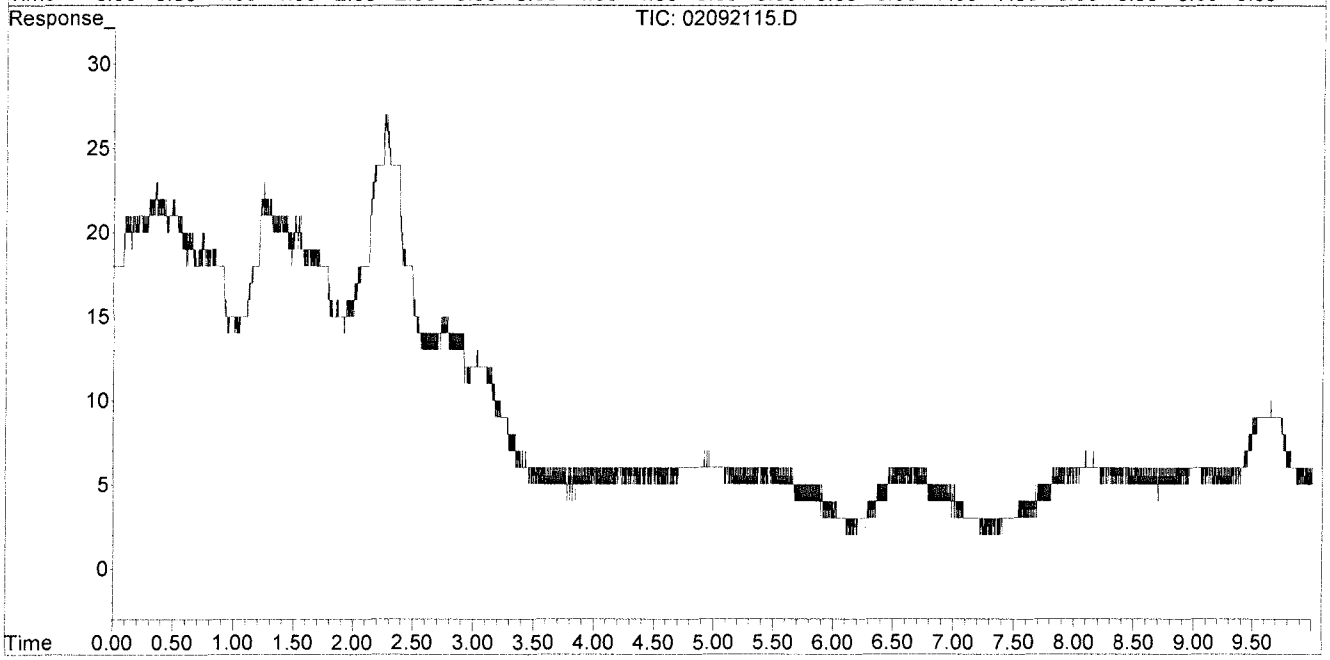
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:21:15
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:39:05 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



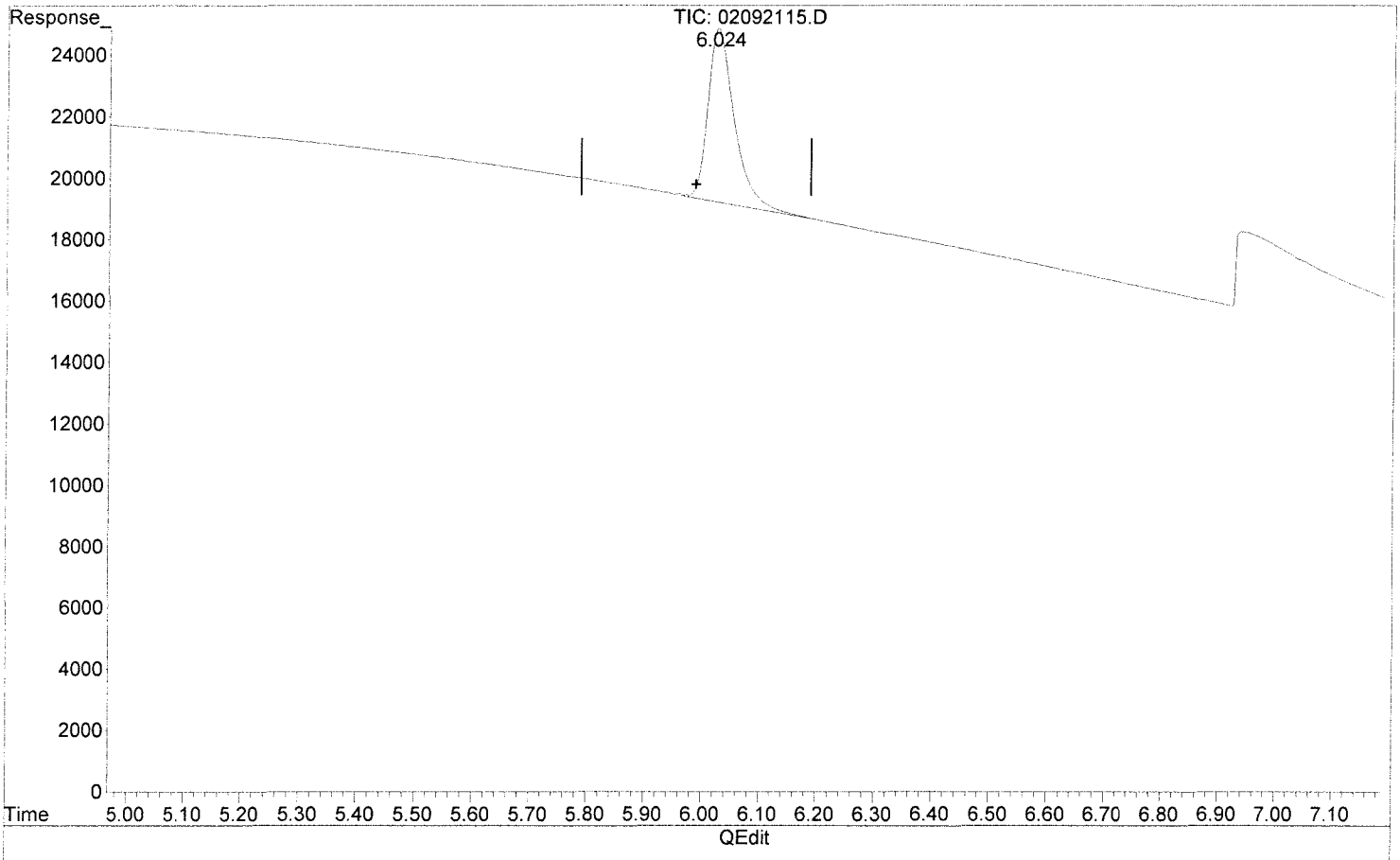


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:21:15
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:39:05 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.024min 772.578 ppm m

response 181347

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:34:40
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:44:58 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

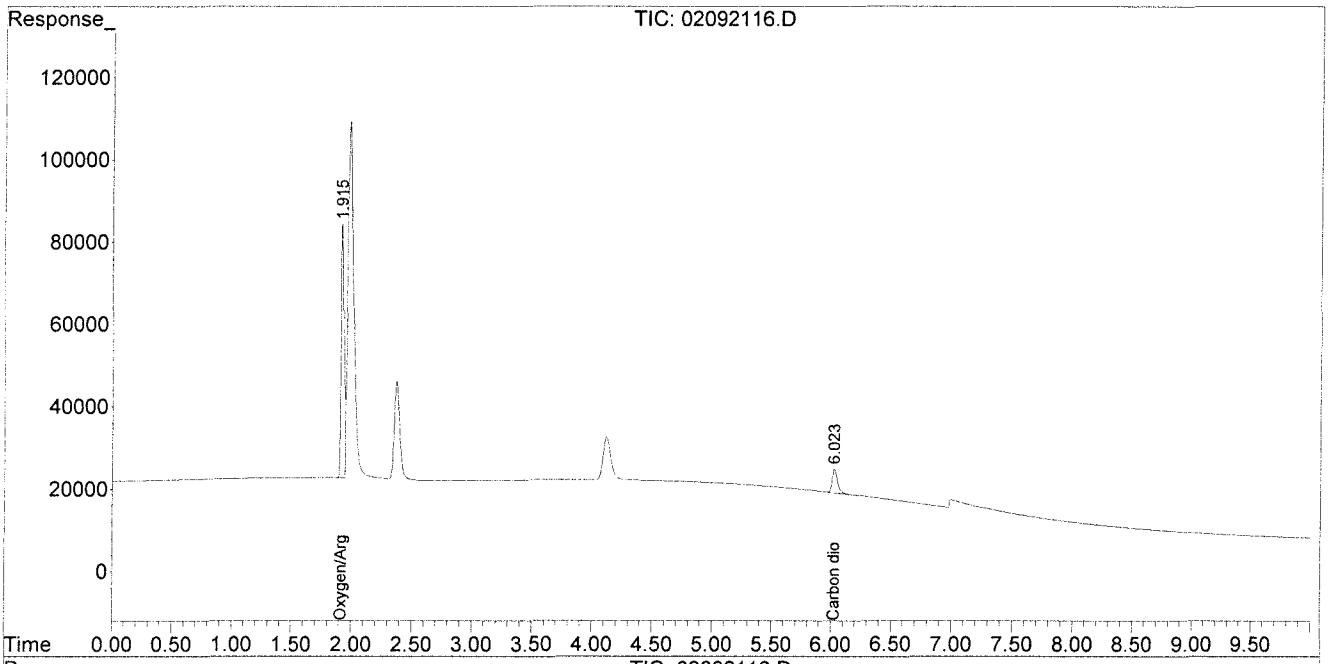
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.916f	1095008	0.230	ppm	
2)	Carbon monoxide	1.916f	1095008	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.023	180878	770.581	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

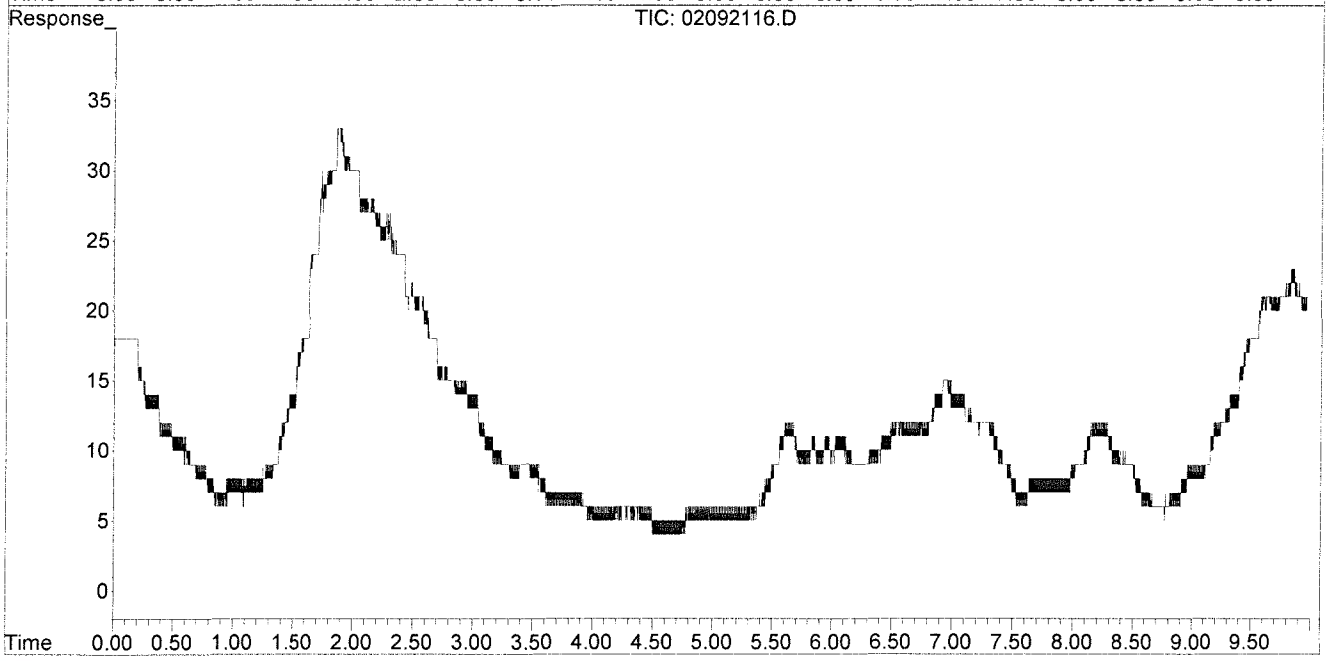
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:34:40
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:44:58 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

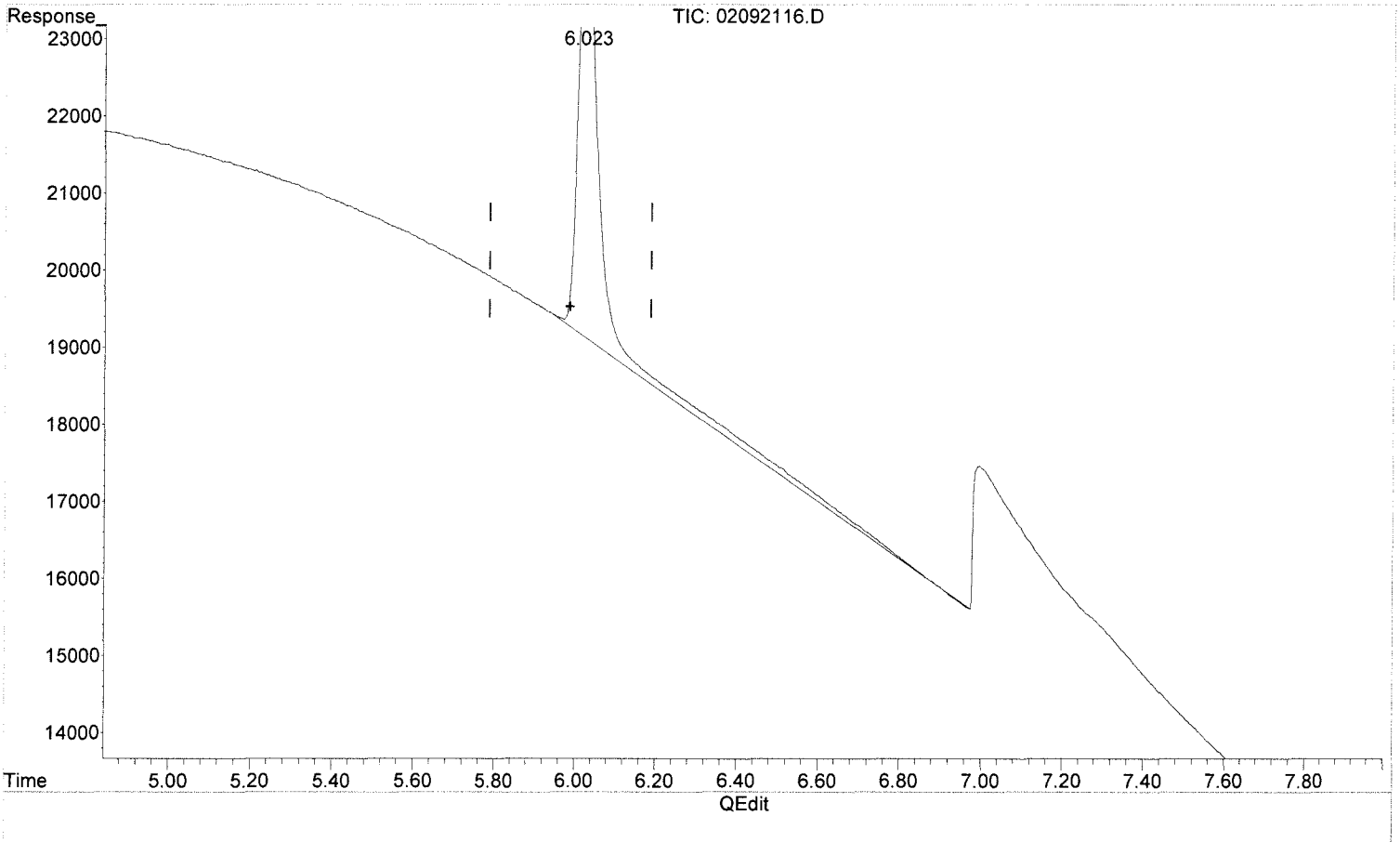




Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:34
Operator : CB
Sample : LCSDS32-11212001
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:44:58 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
6.024min 932.461 ppm
response 218876

Manual Integration:
Before

02/09/21

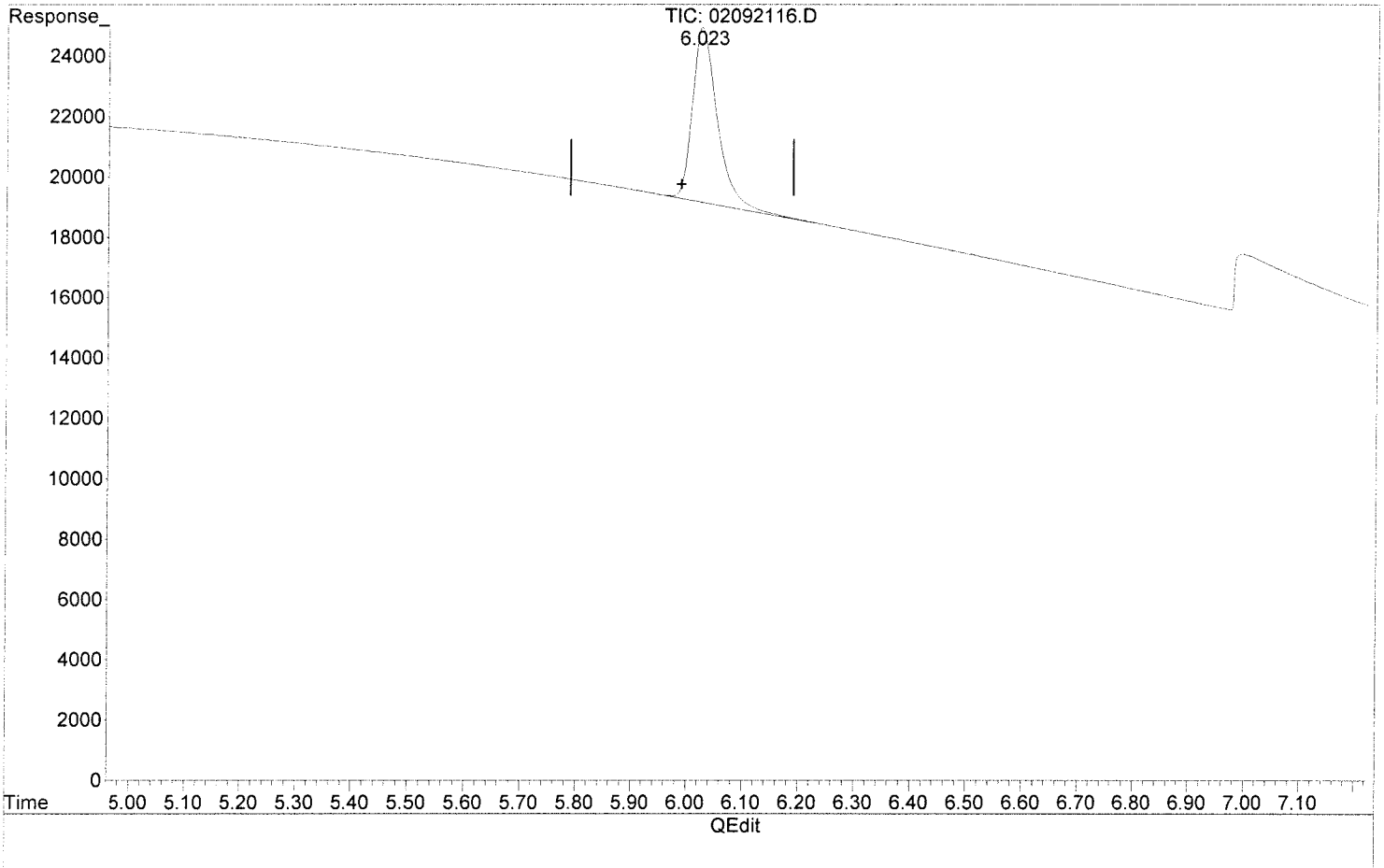
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 18:34:40
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 18:44:58 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.023min 770.581 ppm m

response 180878

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:26
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

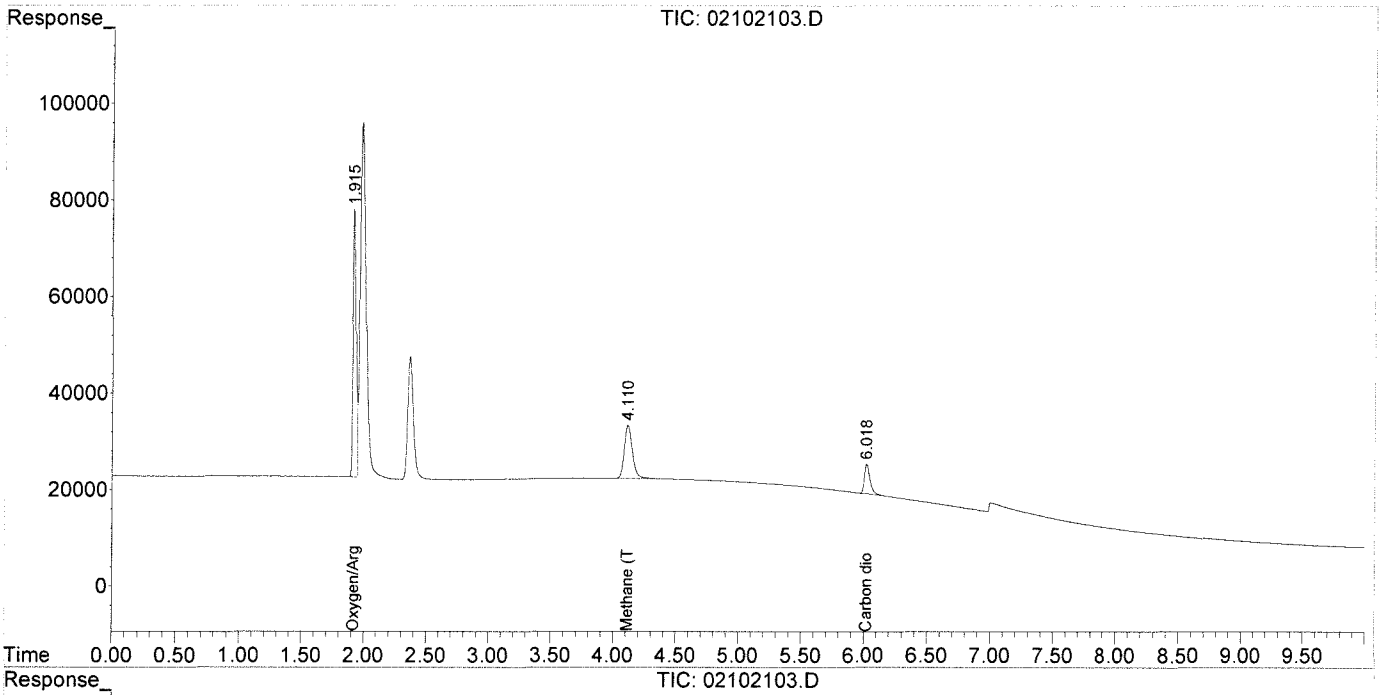
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.916f	989535	0.208	ppm	
2)	Carbon monoxide	1.916f	989535	N.D.	ppm	
3)	Methane (TCD)	4.111f	498522	52712.683	ppm	
4)	Carbon dioxide	6.018	193633	824.921	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

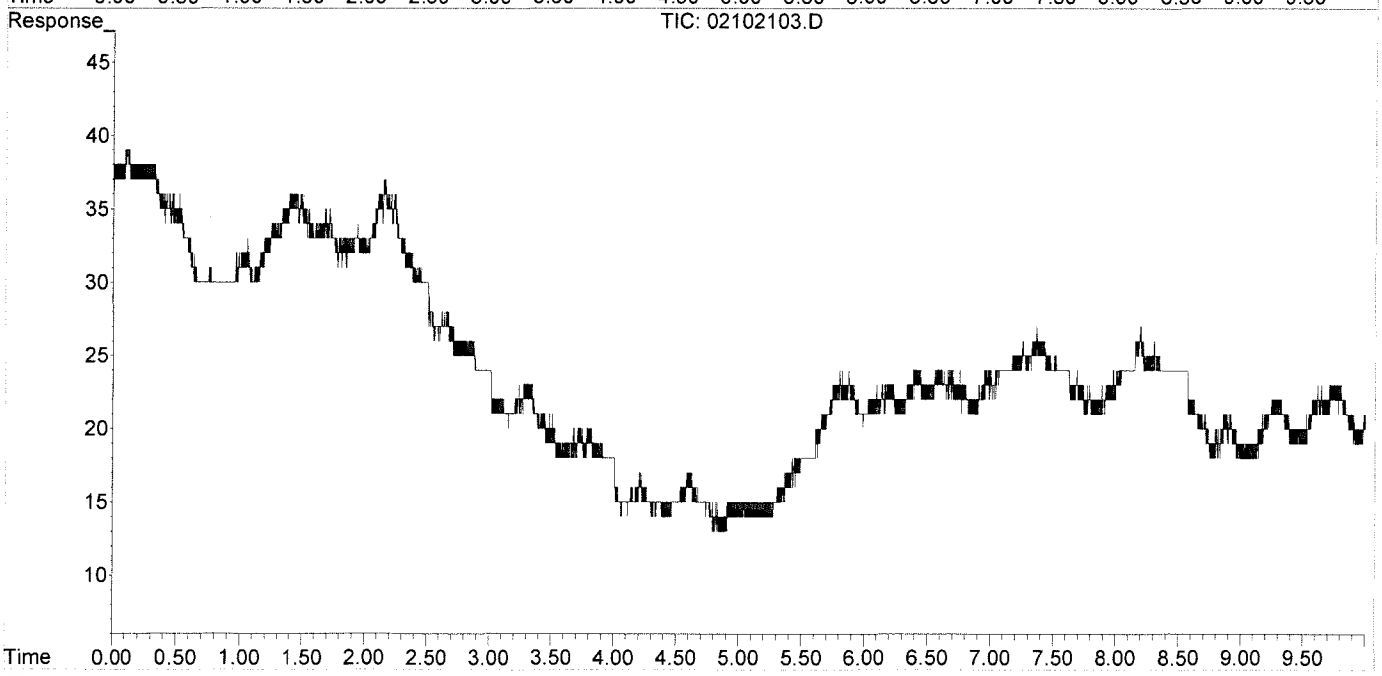
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:26
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

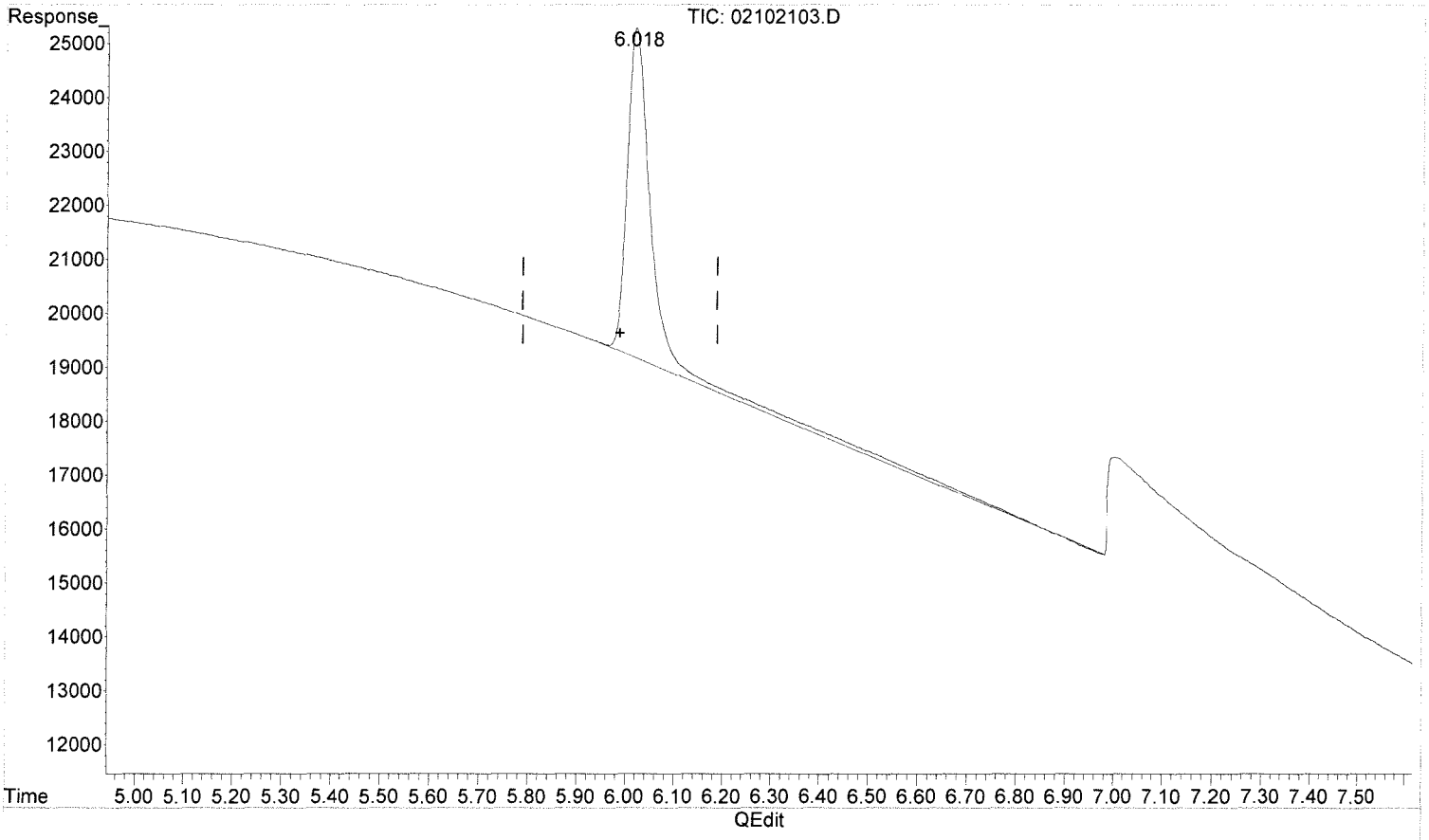




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:26
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.019min 962.419 ppm

response 225908

Manual Integration:

Before

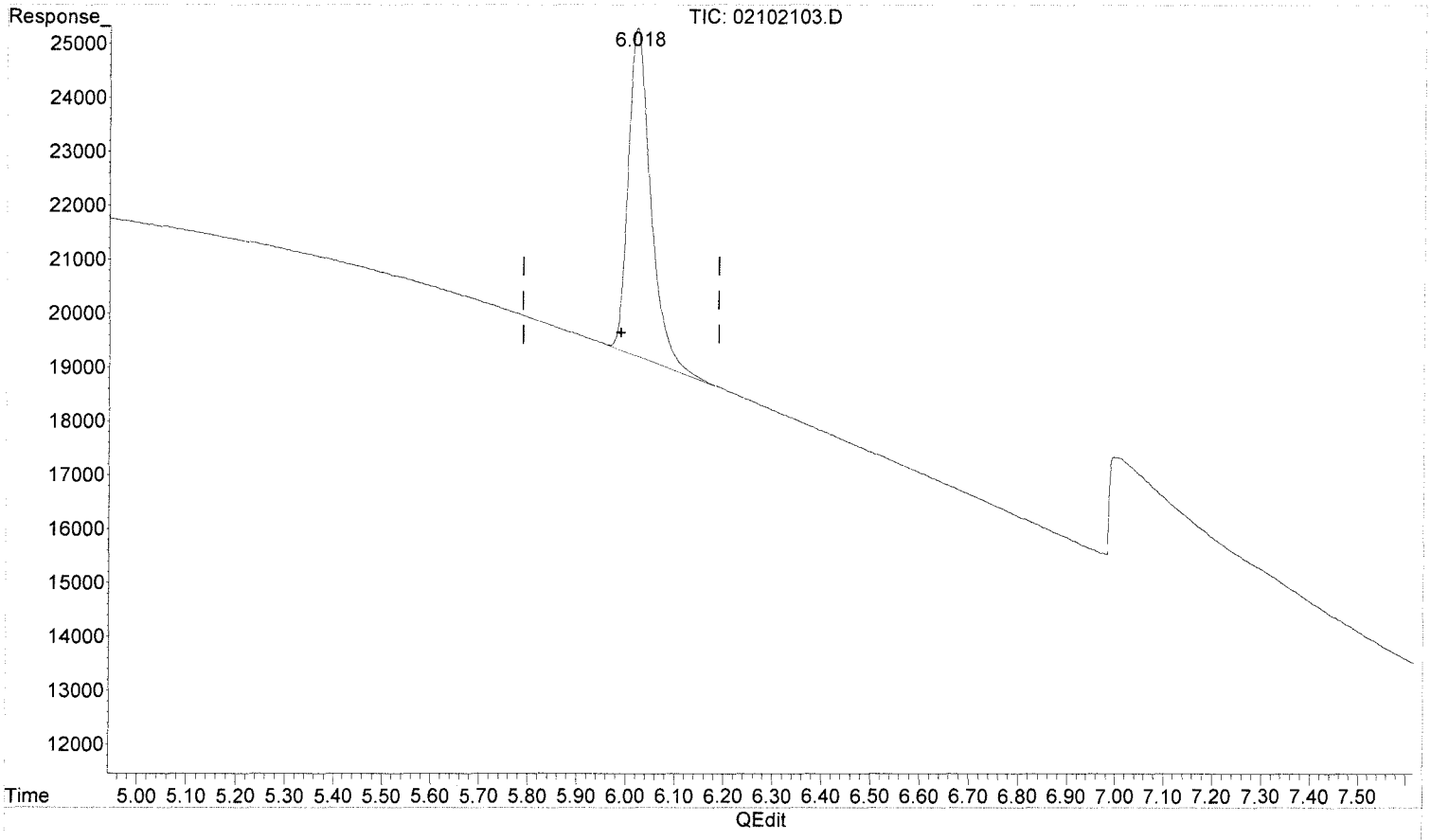
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:26
Operator : CB
Sample : LCS S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:32 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
6.018min 824.921 ppm m
response 193633

Manual Integration:
After
BLC CB
02/11/21

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:48
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

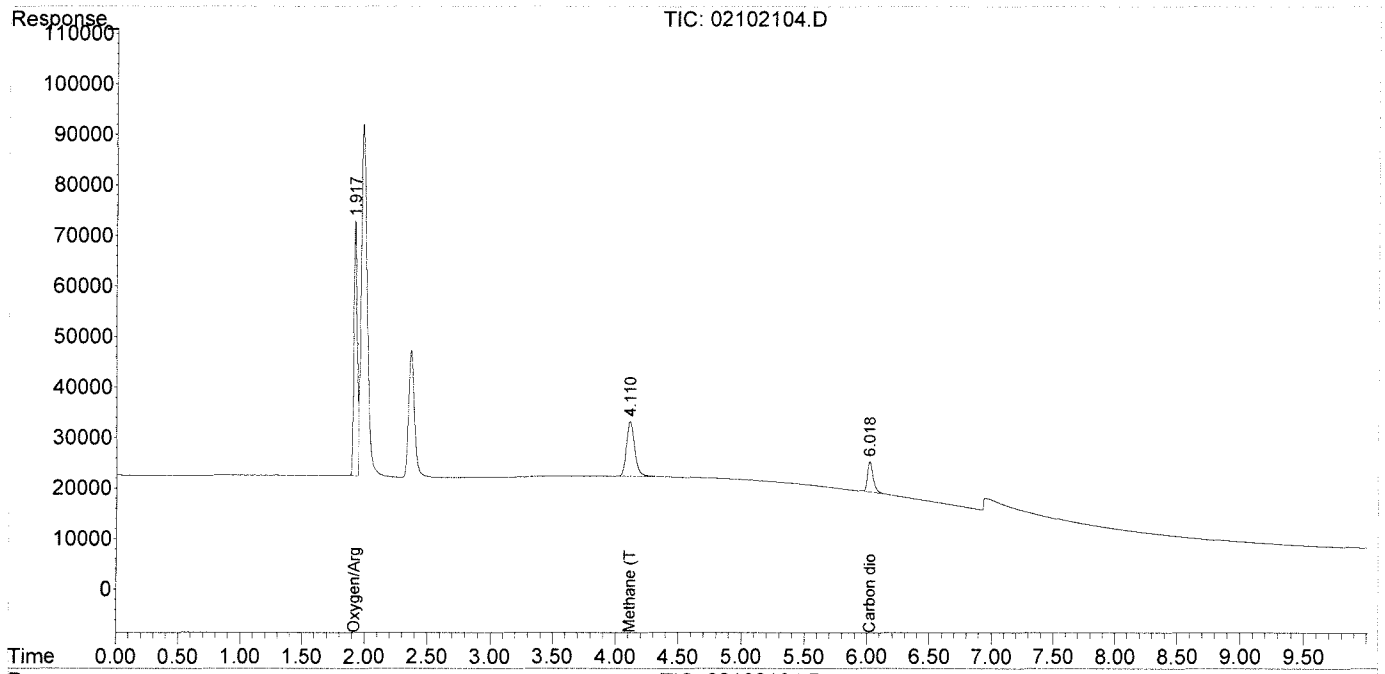
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.918f	898226	0.189	ppm	
2)	Carbon monoxide	1.918f	898226	N.D.	ppm	
3)	Methane (TCD)	4.111f	493423	52173.480	ppm	
4)	Carbon dioxide	6.018	193887	826.004	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

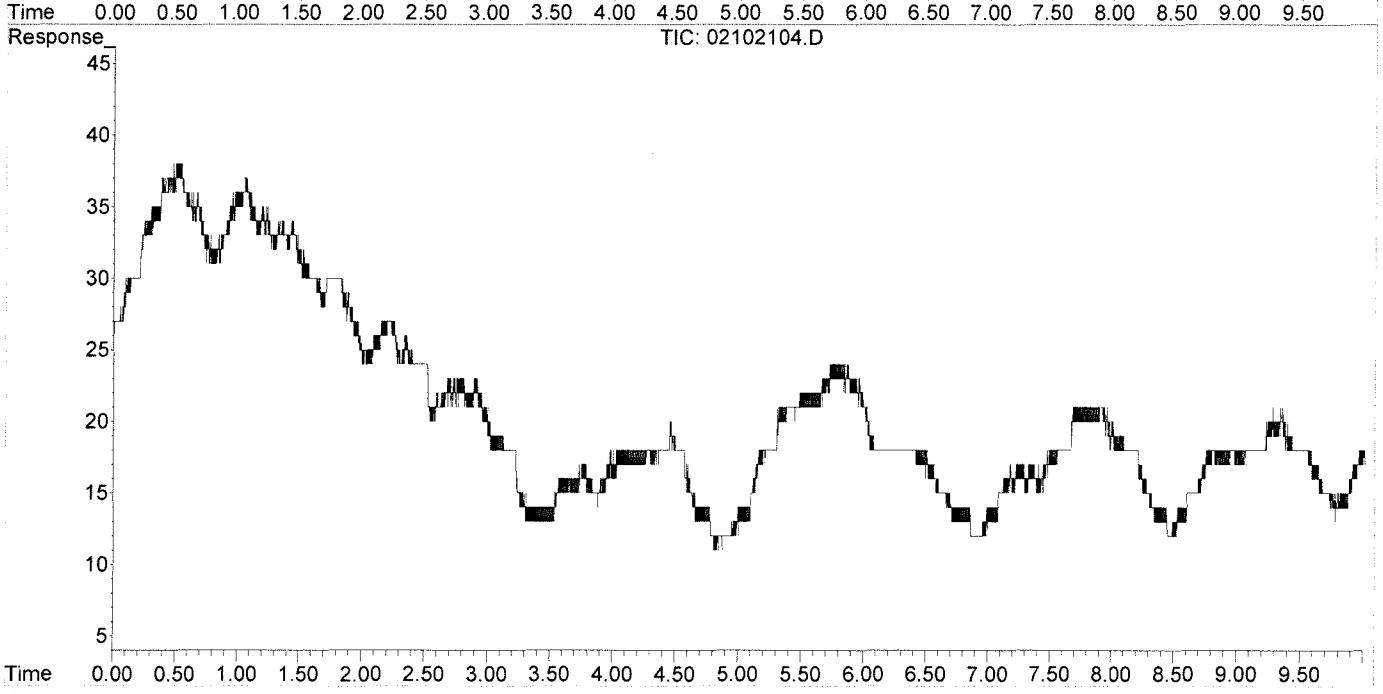
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:48
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

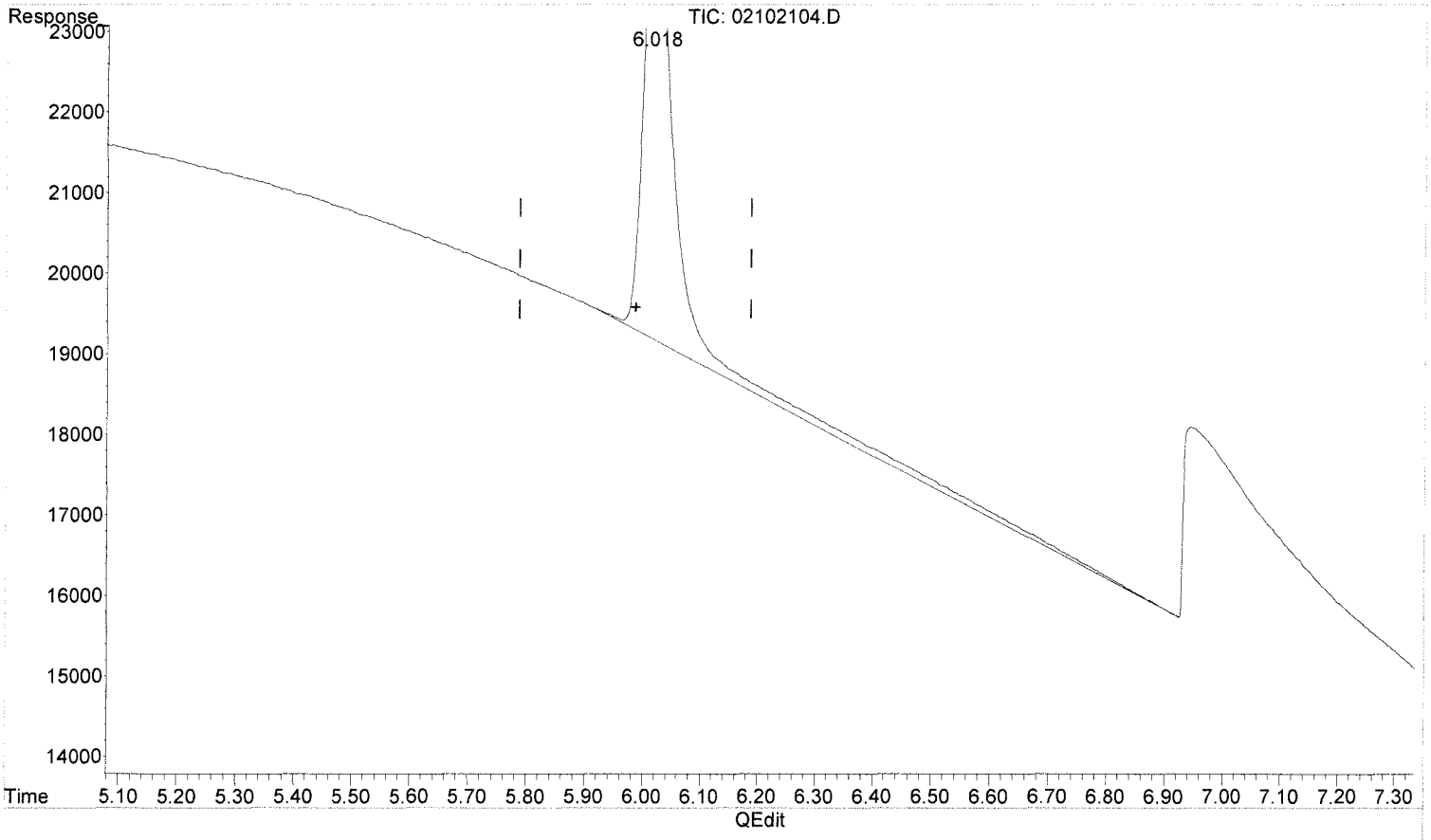




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:48
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.018min 1001.363 ppm

response 235049

Manual Integration:

Before

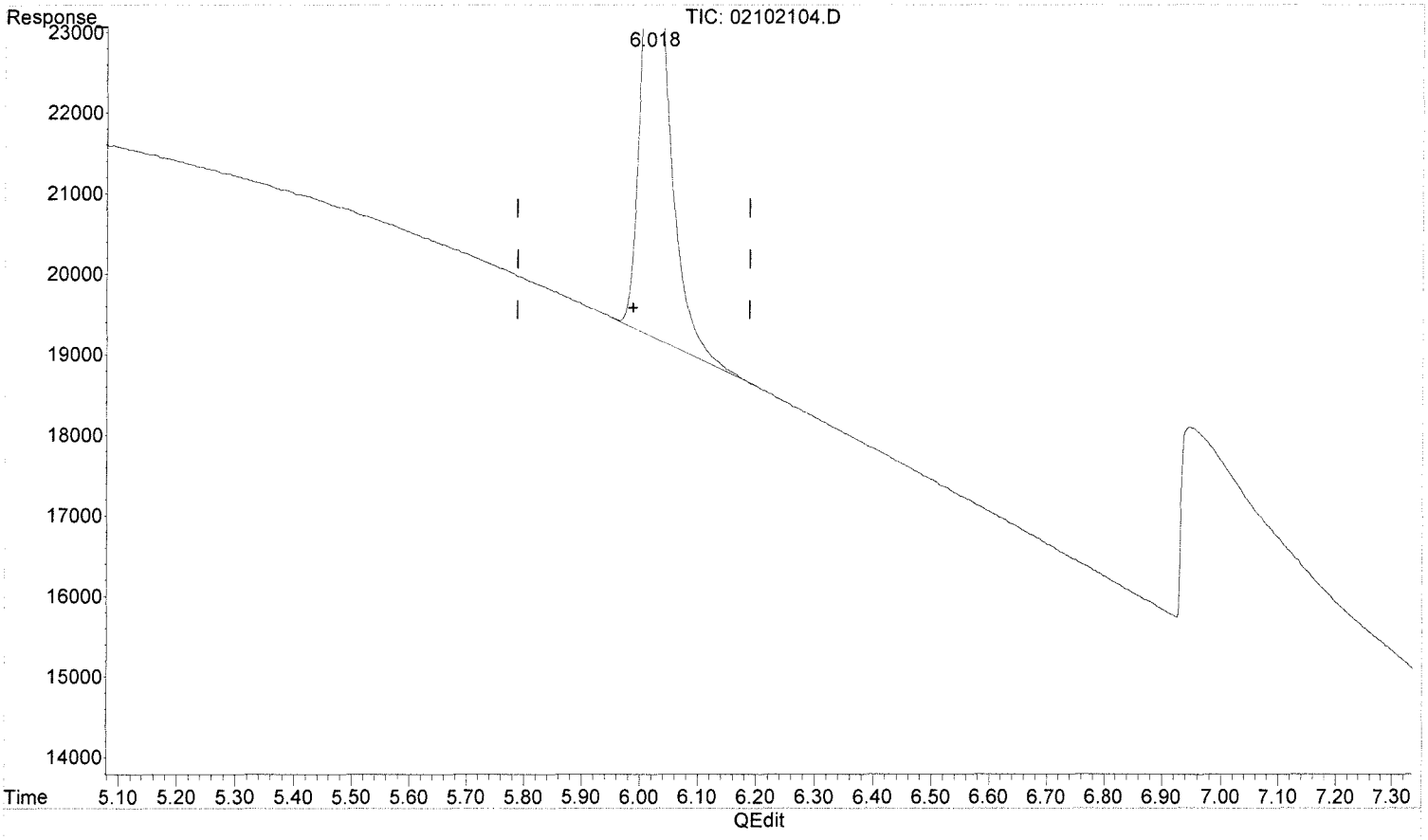
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 14:48
Operator : CB
Sample : LCSD S32-11212001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 15:16:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
6.018min 826.004 ppm m
response 193887

Manual Integration:
After
BLC
02/11/21

(+) = Expected Retention Time

Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

dit Compounds -- Compound #4 -- Carbon dioxide

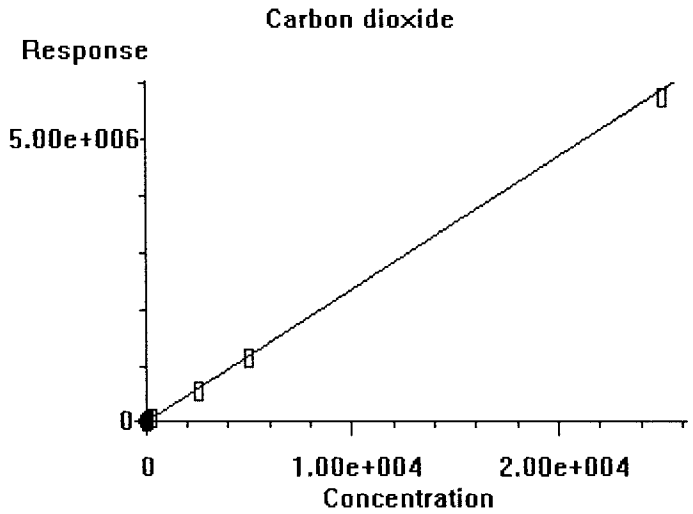
Search by: Ret Time Name Index Find Compound

Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

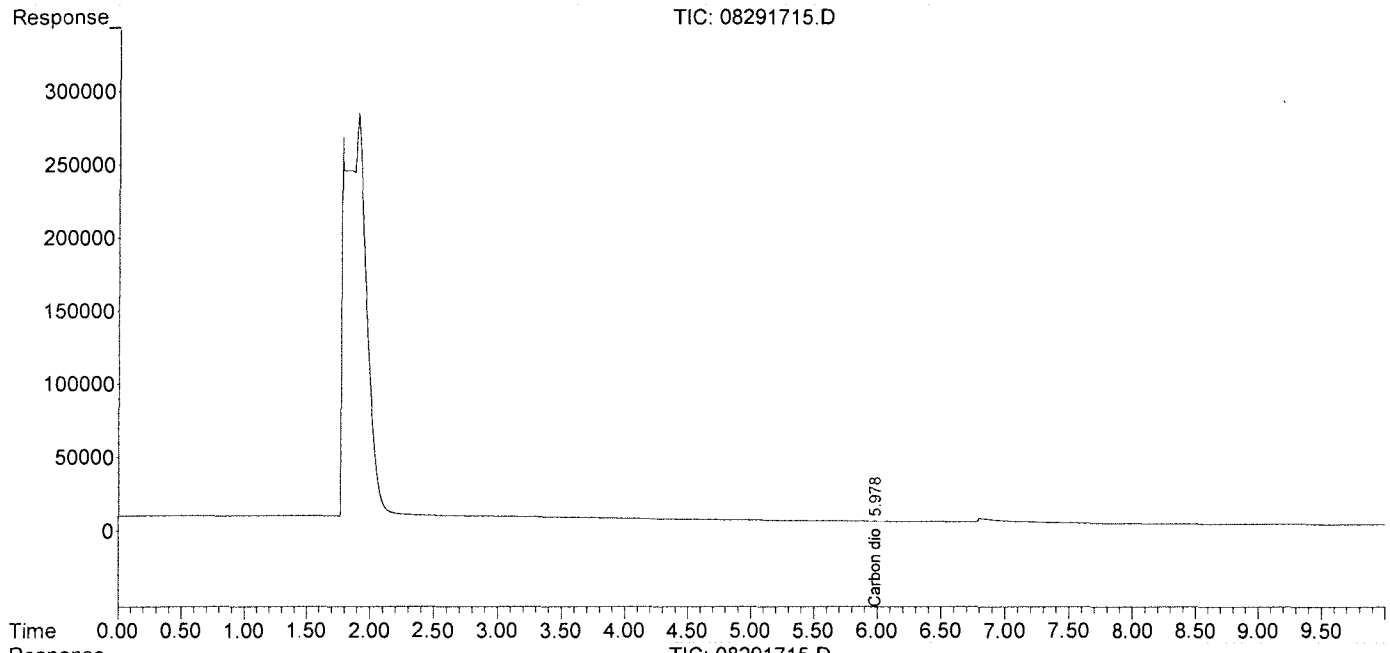
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

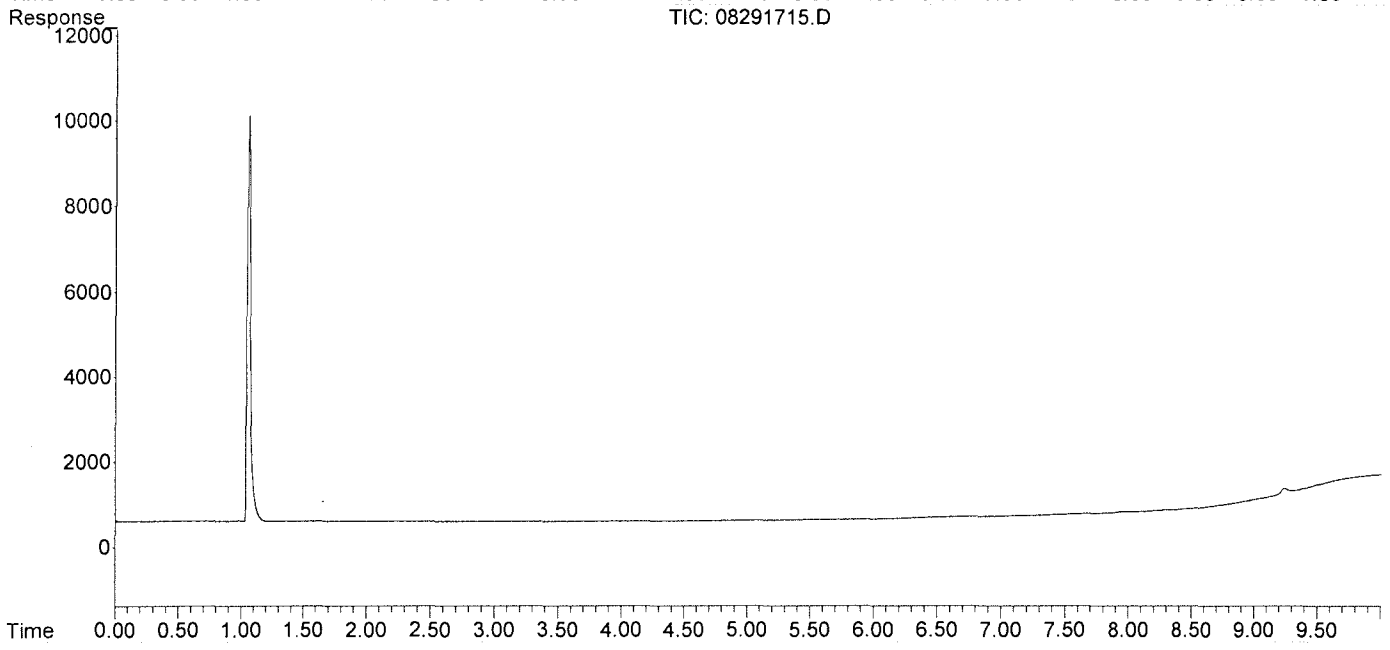
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

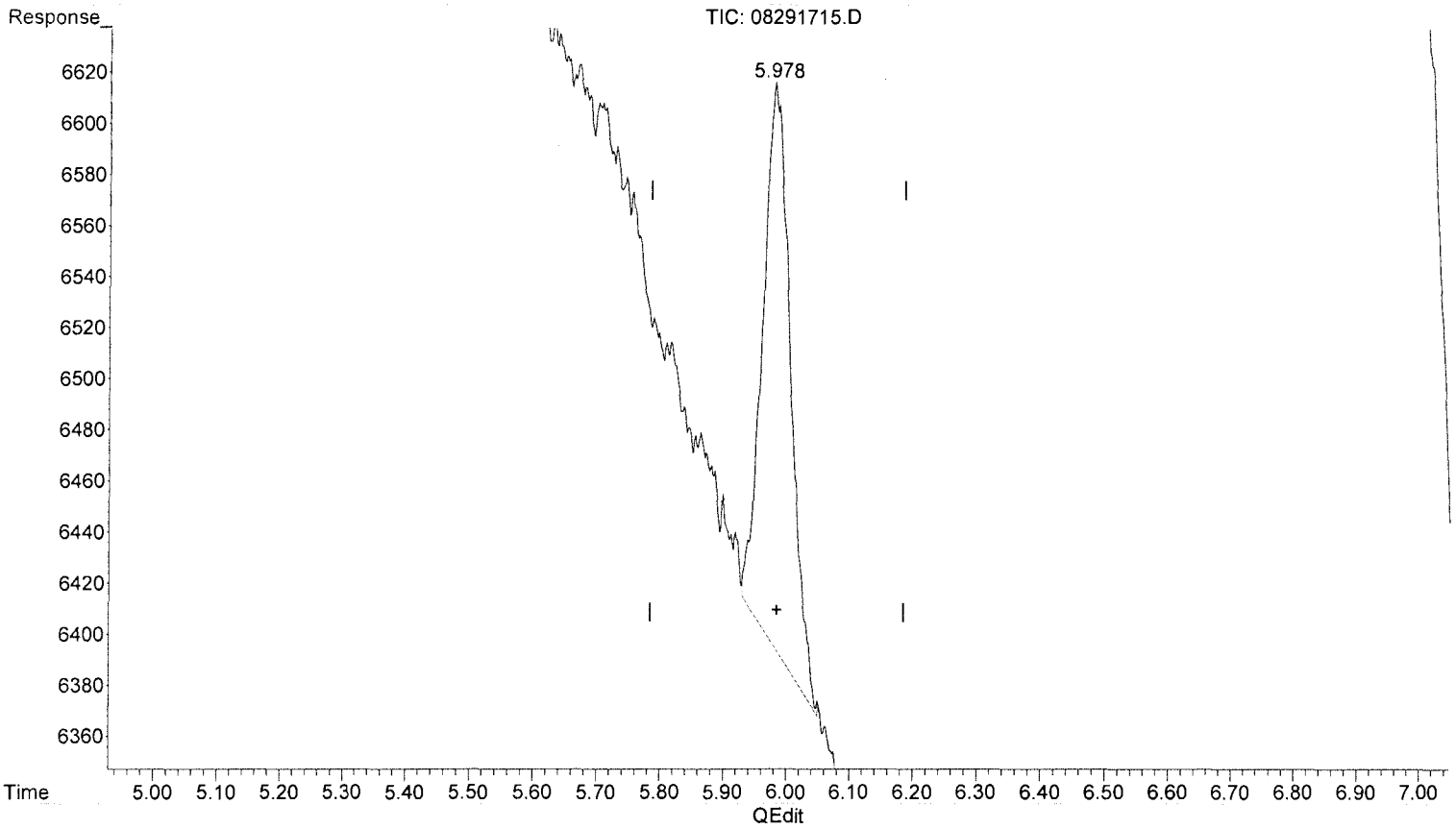




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

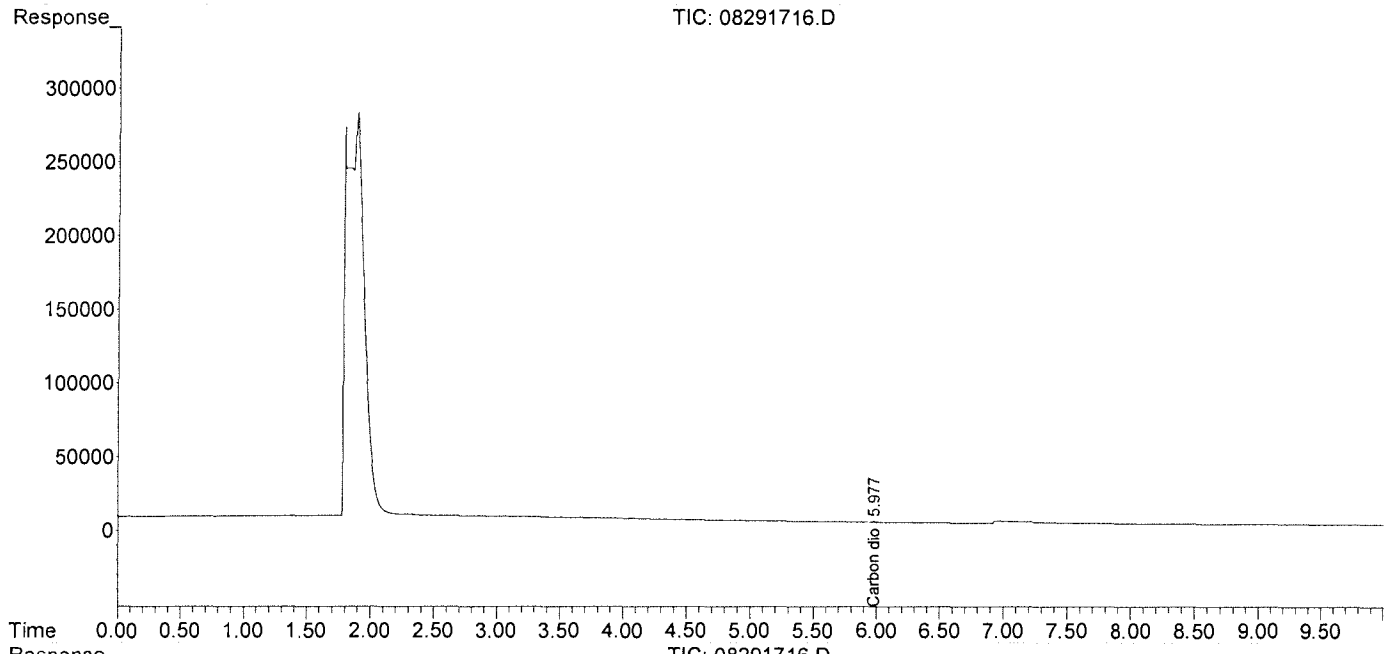
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

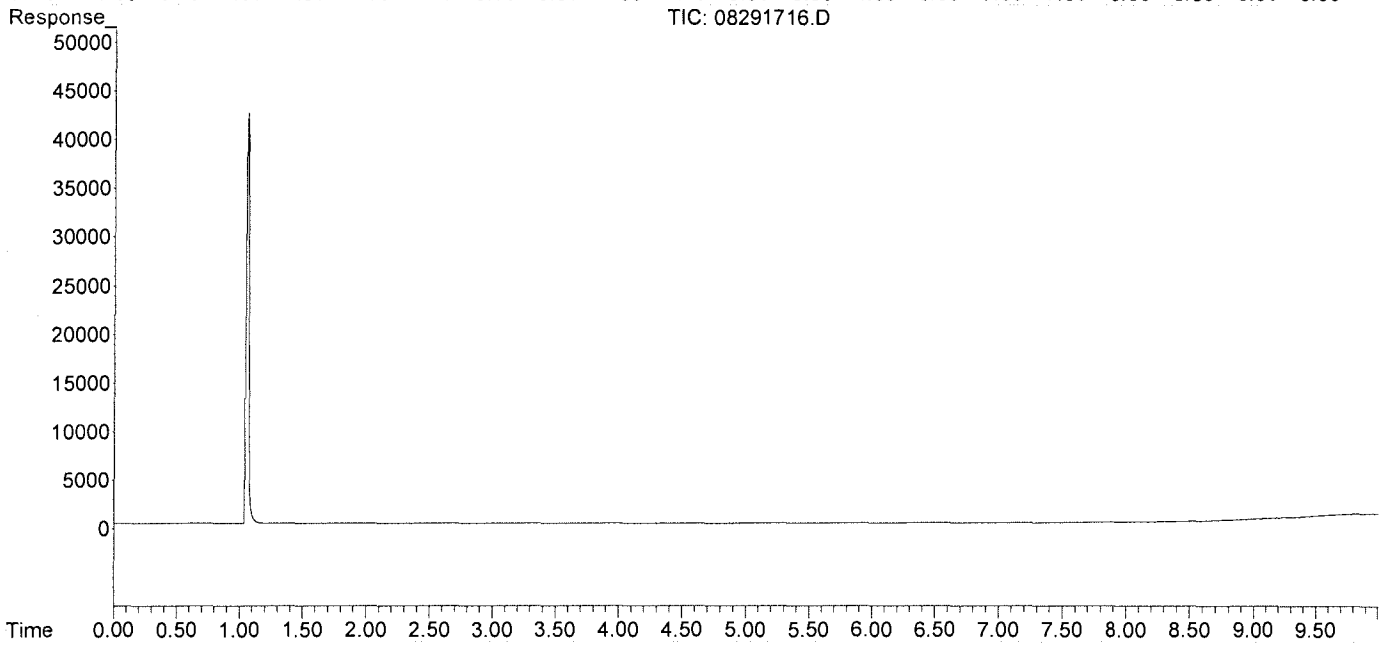
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

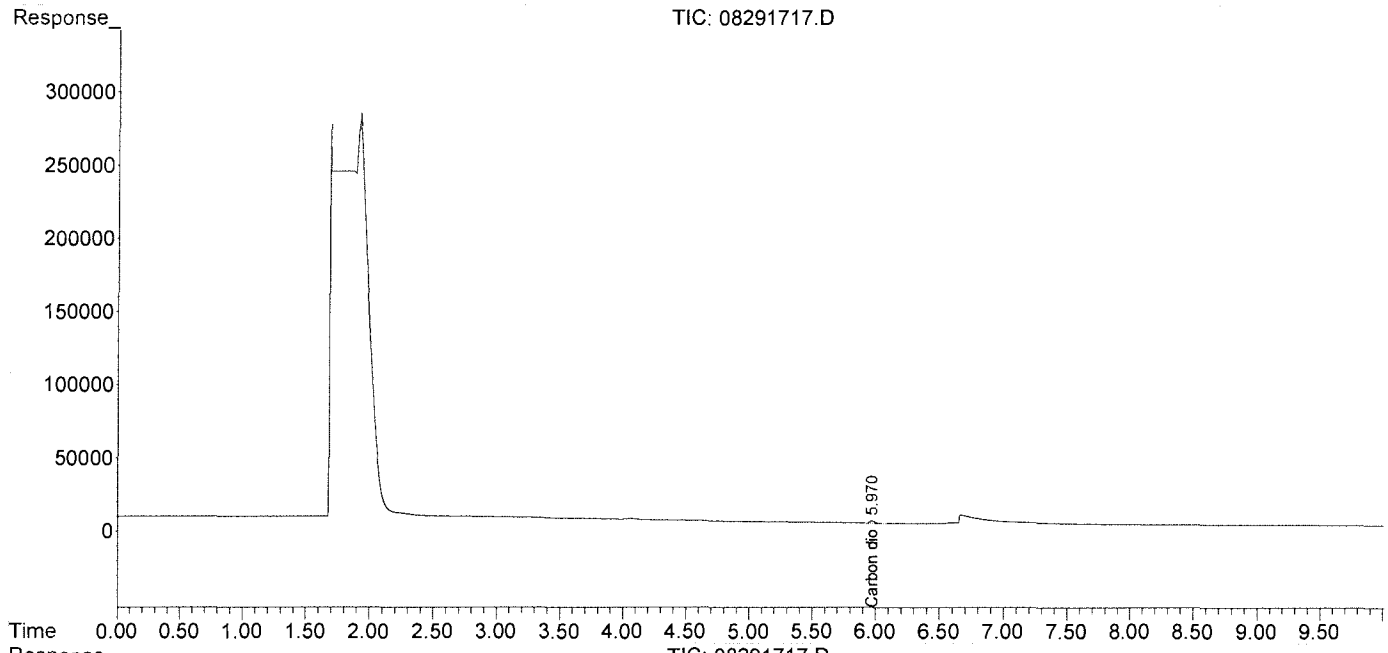
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

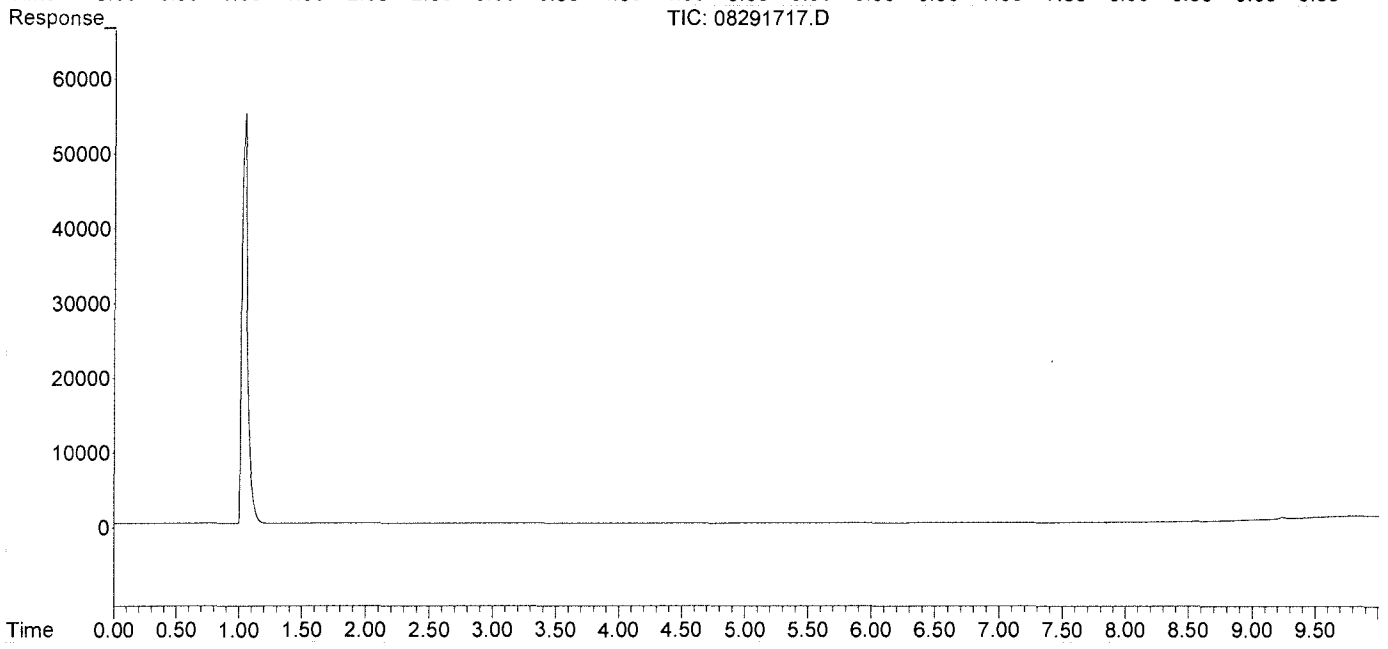
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

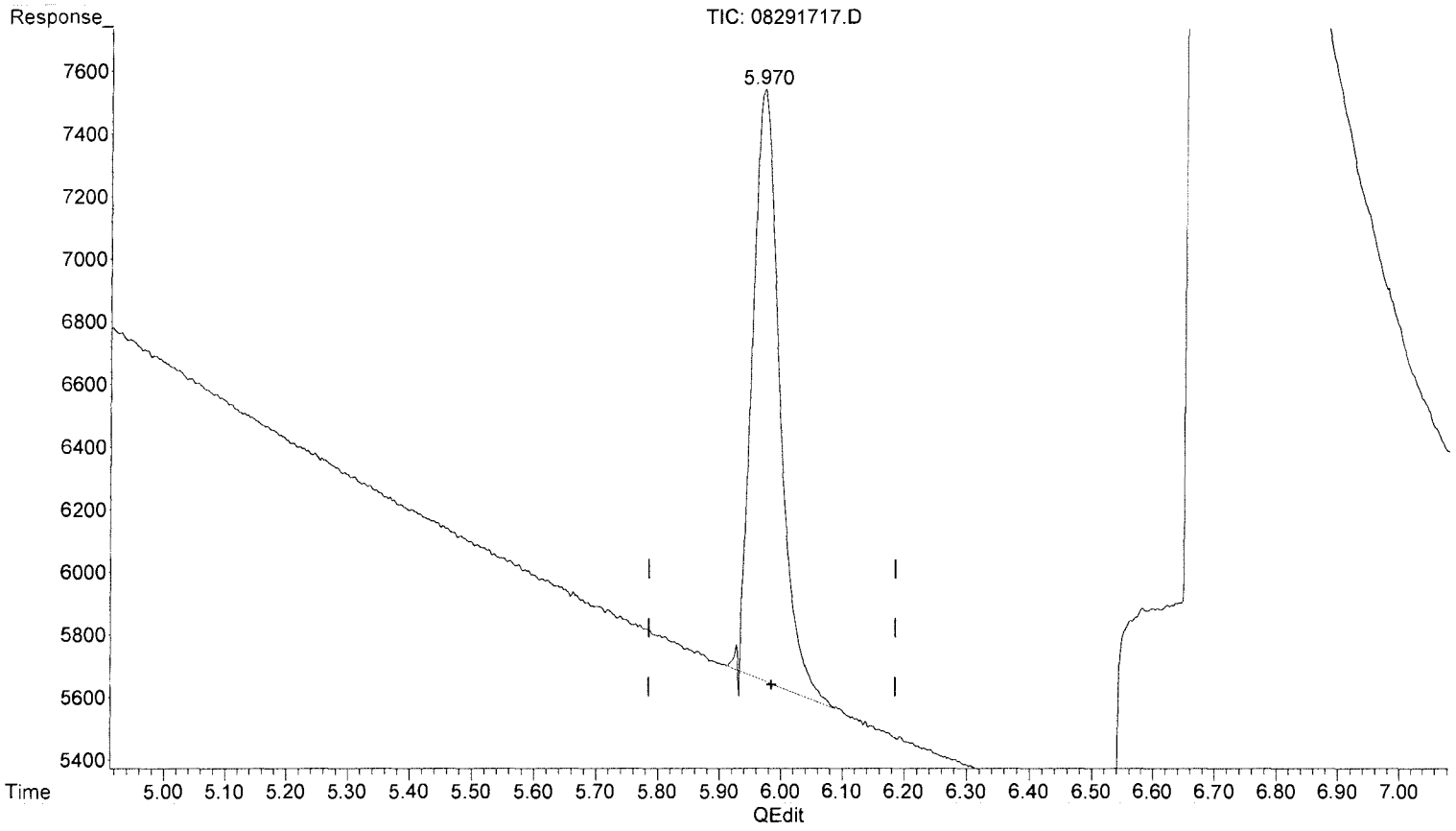




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

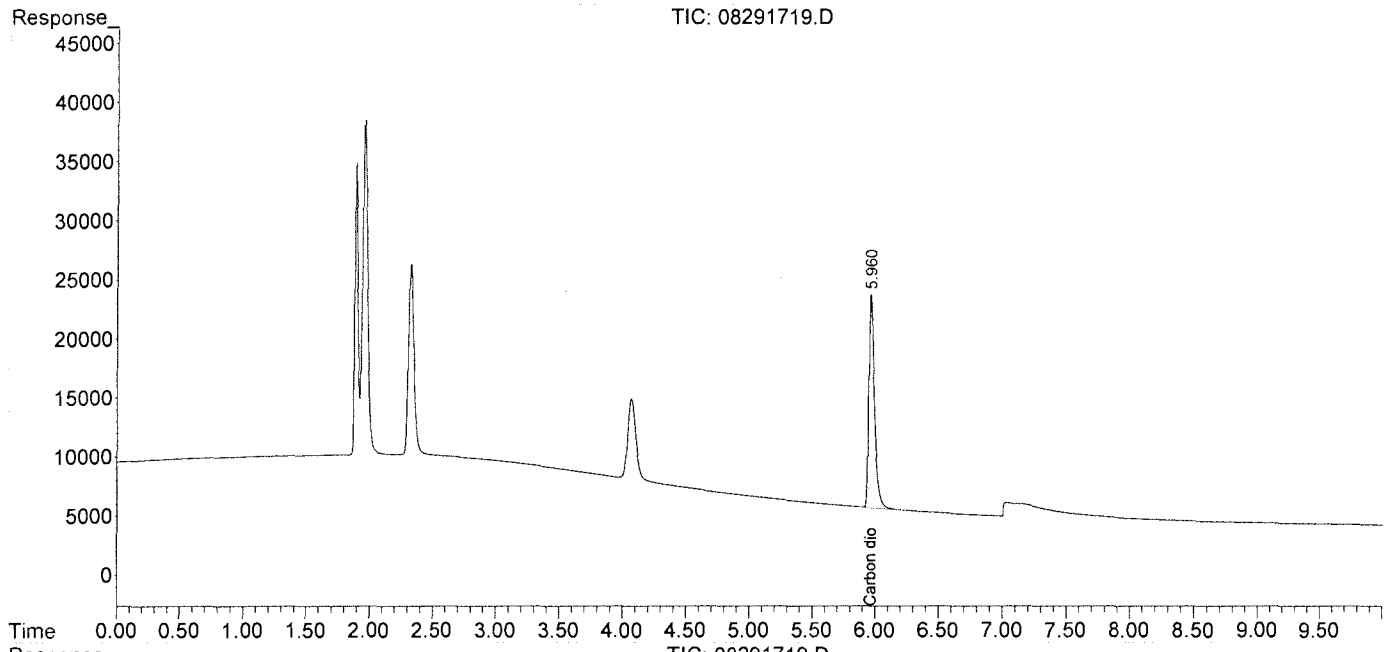
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

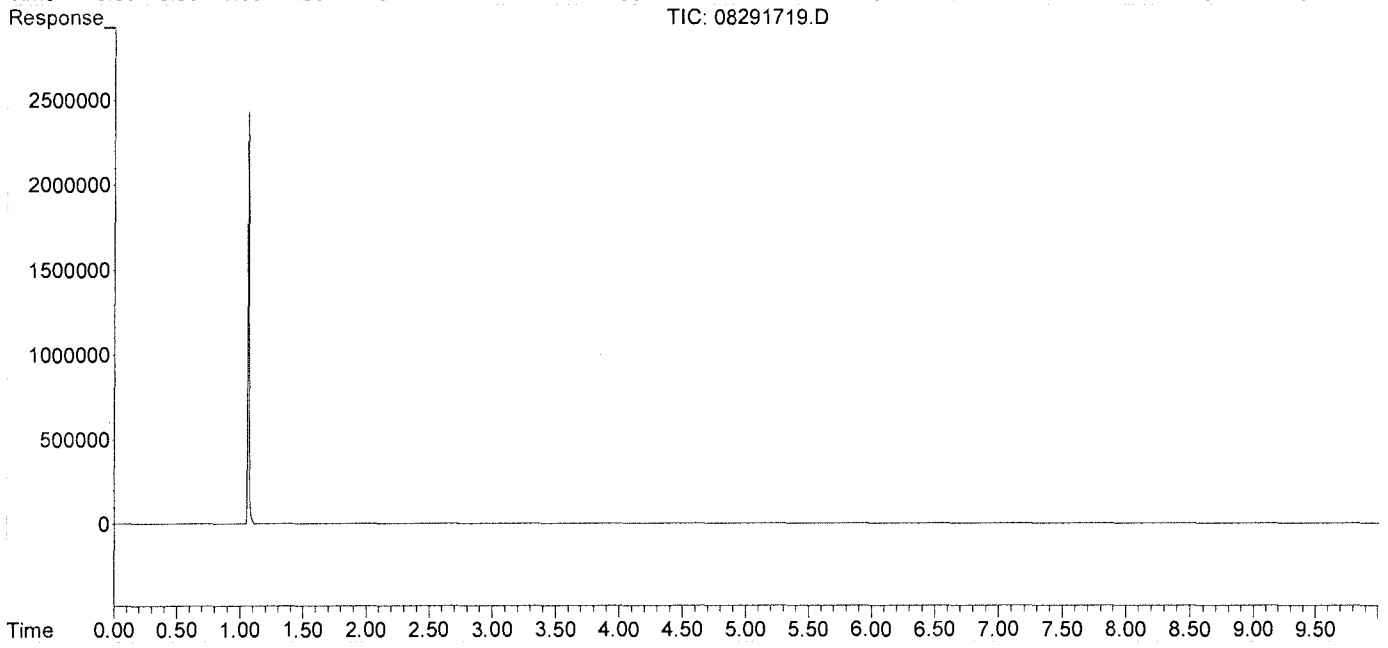
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

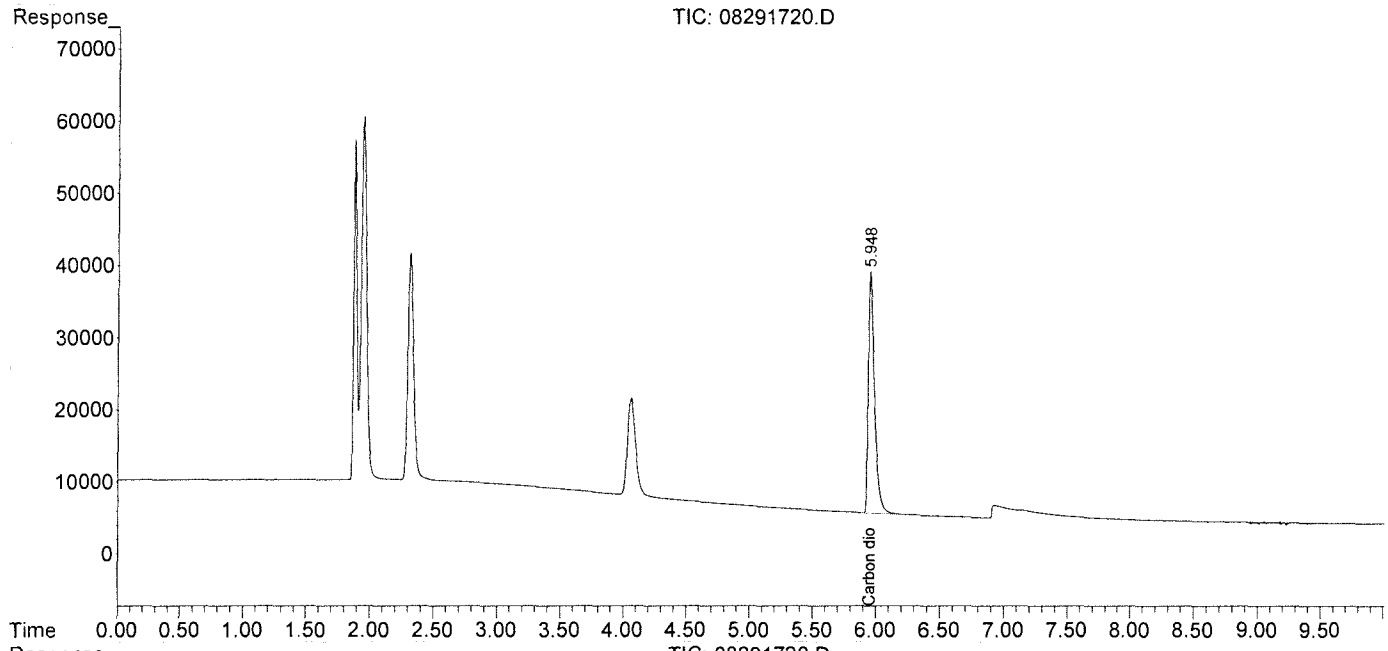
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

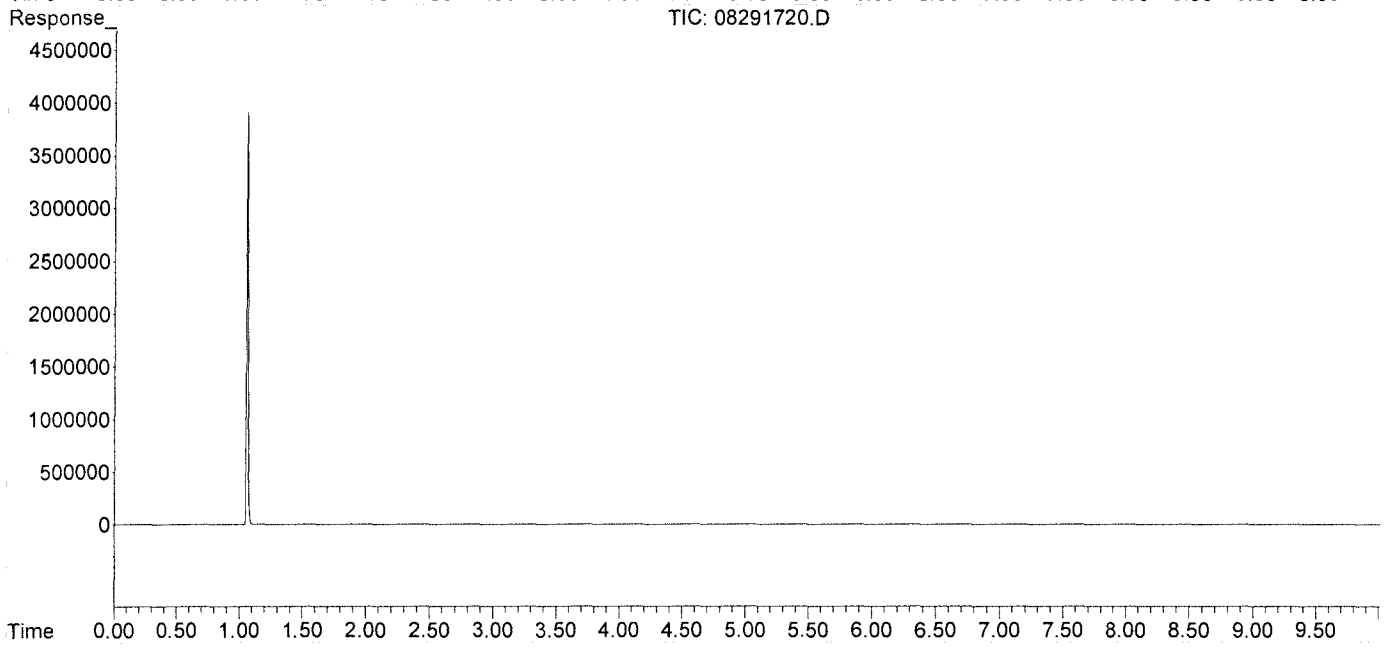
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

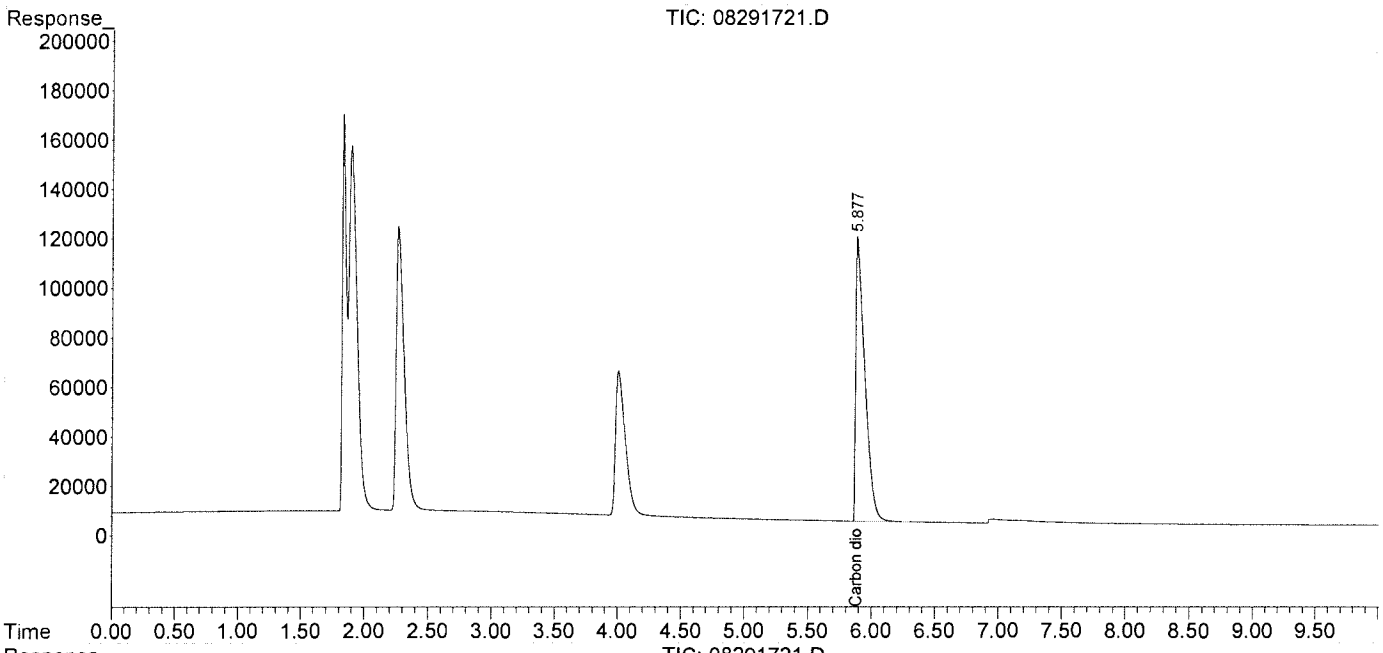
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

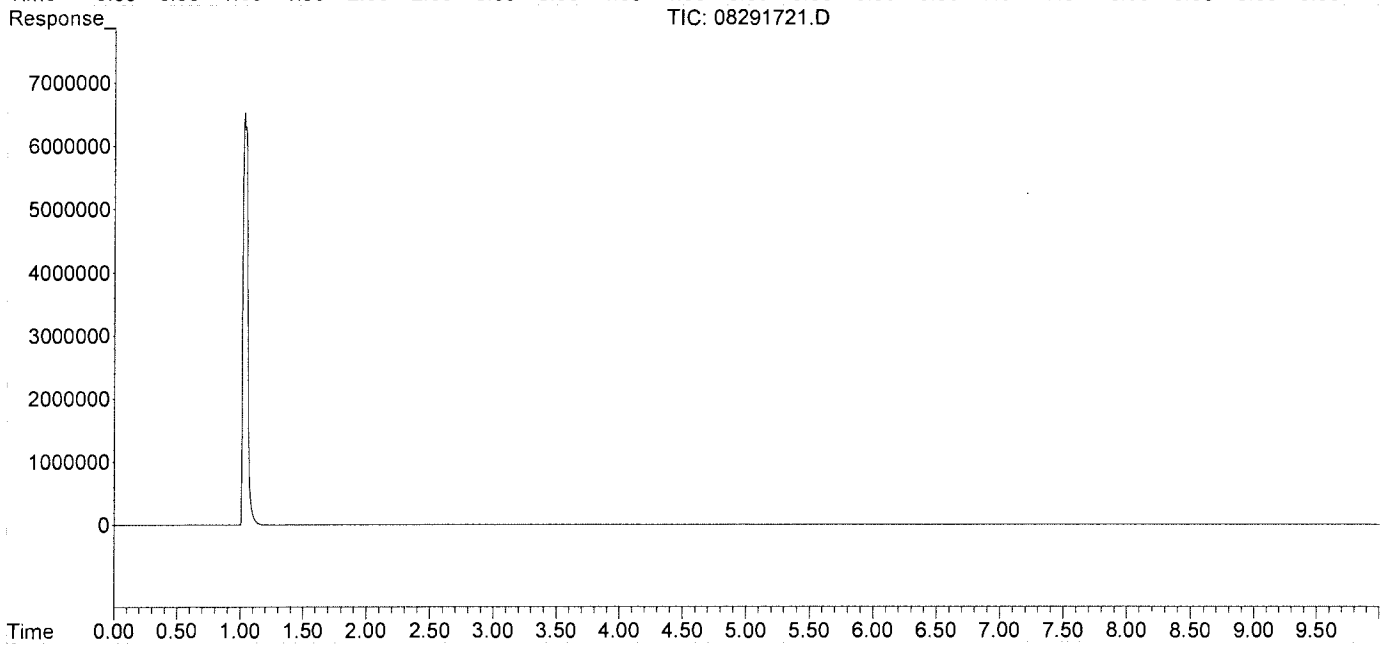
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	536422	0.113	ppm
2)	Carbon monoxide	1.886	536422	N.D.	ppm
3)	Methane (TCD)	4.059f	626500	66244.710	ppm
4)	Carbon dioxide	5.947	1163775	4957.948	ppm
6)	Methane (FID)	1.062	37290742	3947.023	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

actual %D
5000 99.16

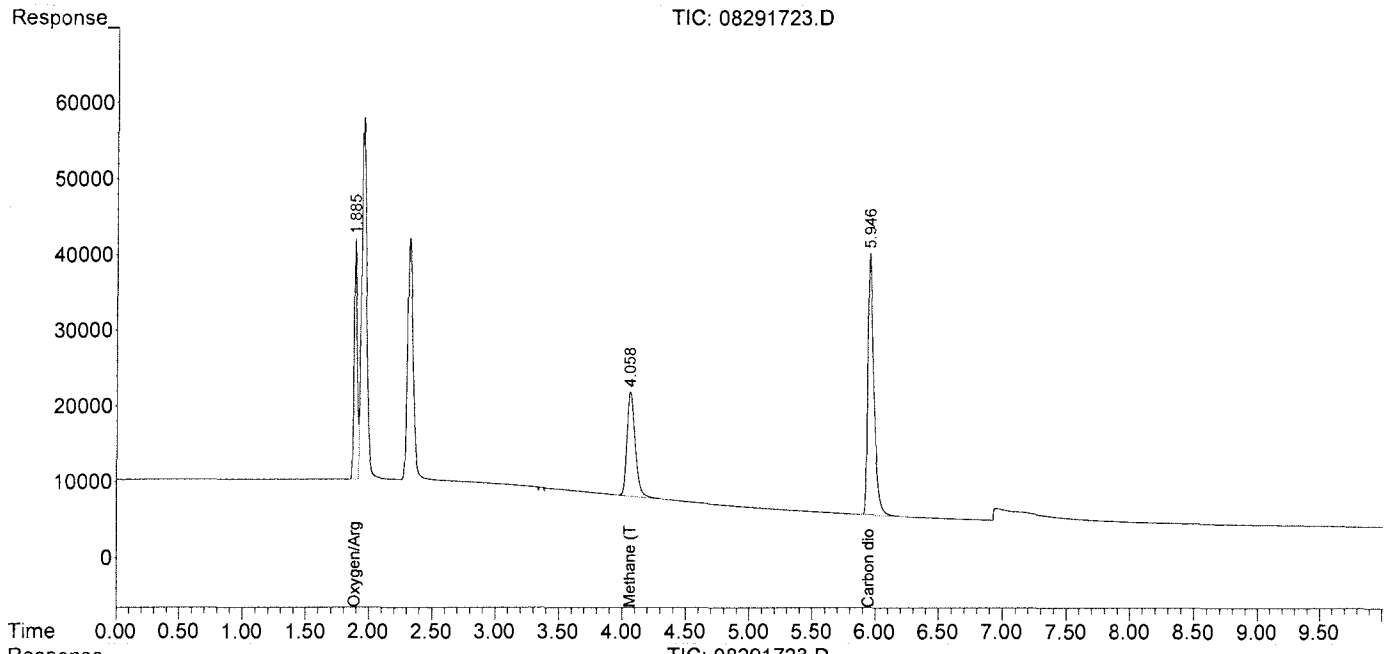
(f)=RT Delta > 1/2 Window (m)=manual int.

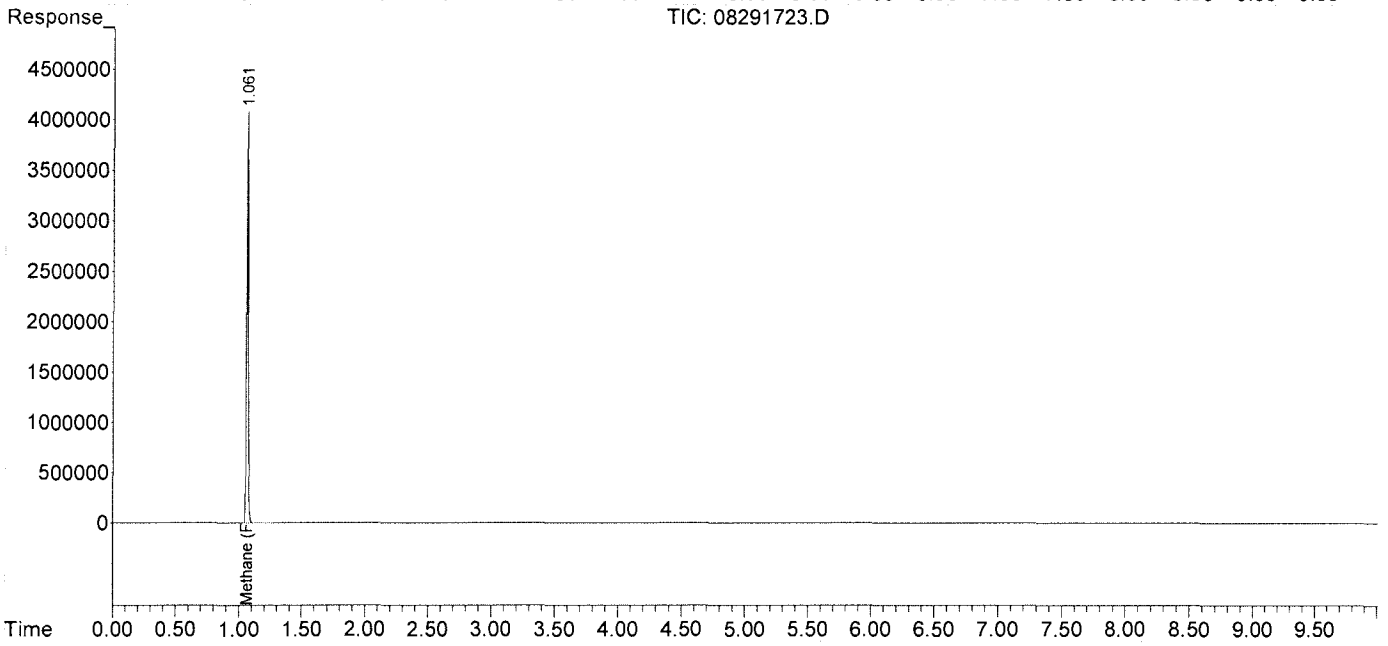
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : CB | Instrument : GC#10
Service Request: P2100515 | Date Analysis : 02/09/21 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-02092101 0.1ml	0.100	4576.390
ACTUAL		5000.00
%Difference		8.5%
MCS 0.1mL	0.100	0.000
RB 0.1mL	0.100	0.000
LCS S32-11212001 0.1ml	0.100	772.578
LCSD S32-11212001 0.1r	0.100	770.581
P2100515-006 0.05mL	0.050	9731.689
P2100515-006 MS 0.05ml	0.050	9920.930
P2100515-006 MSD 0.05r	0.050	9924.180
STD S32-02092101 0.1mL		4521.441
ACTUAL		5000.00
%Difference		9.6%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1mL	0.000
LCS S32-11212001 0.1mL	7725.780
LCSD S32-11212001 0.1mL	7705.810
P2100515-006 0.05mL	194633.78
P2100515-006 MS 0.05mL	198418.6
P2100515-006 MSD 0.05mL	198483.6

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 17:33
Operator : CB 532-02092101 0.1mL
Sample : STD ~~NEW 0.1mL~~ CB
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 17:42:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

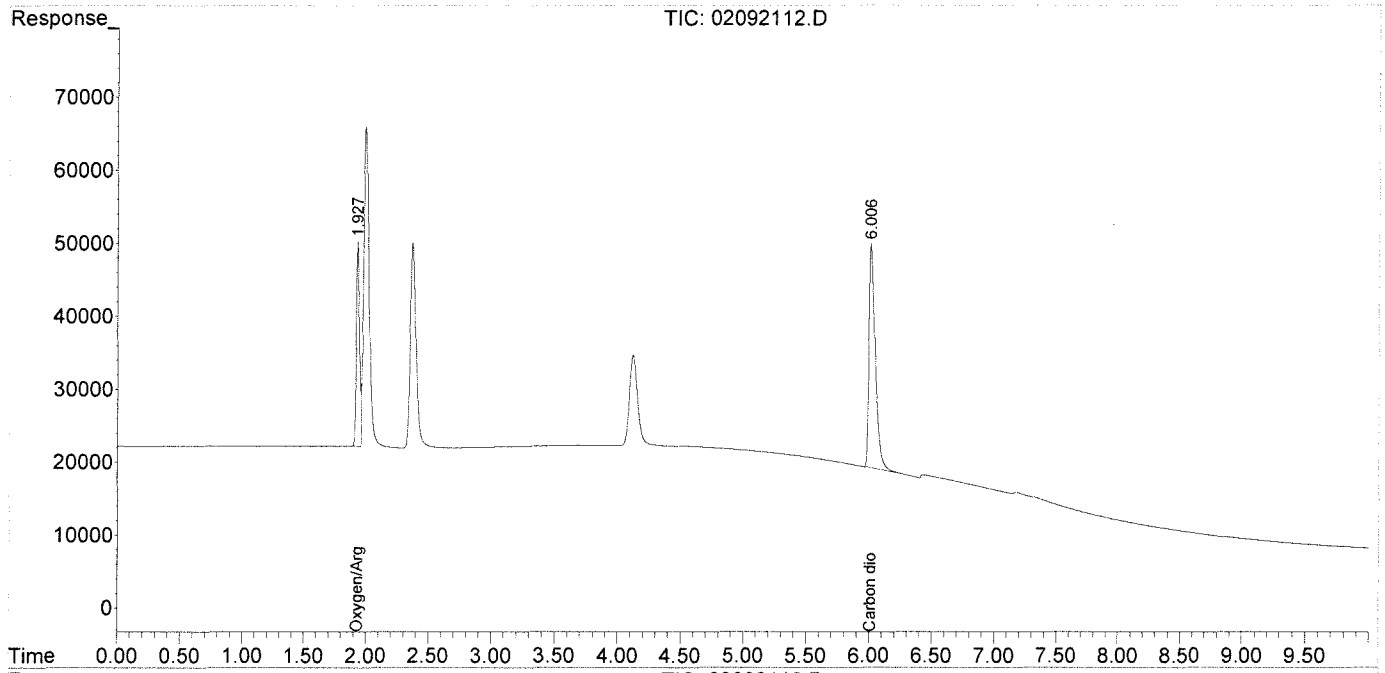
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.929f	500871	0.105	ppm	
2)	Carbon monoxide	1.929f	500871	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.006	1074212	4576.390	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

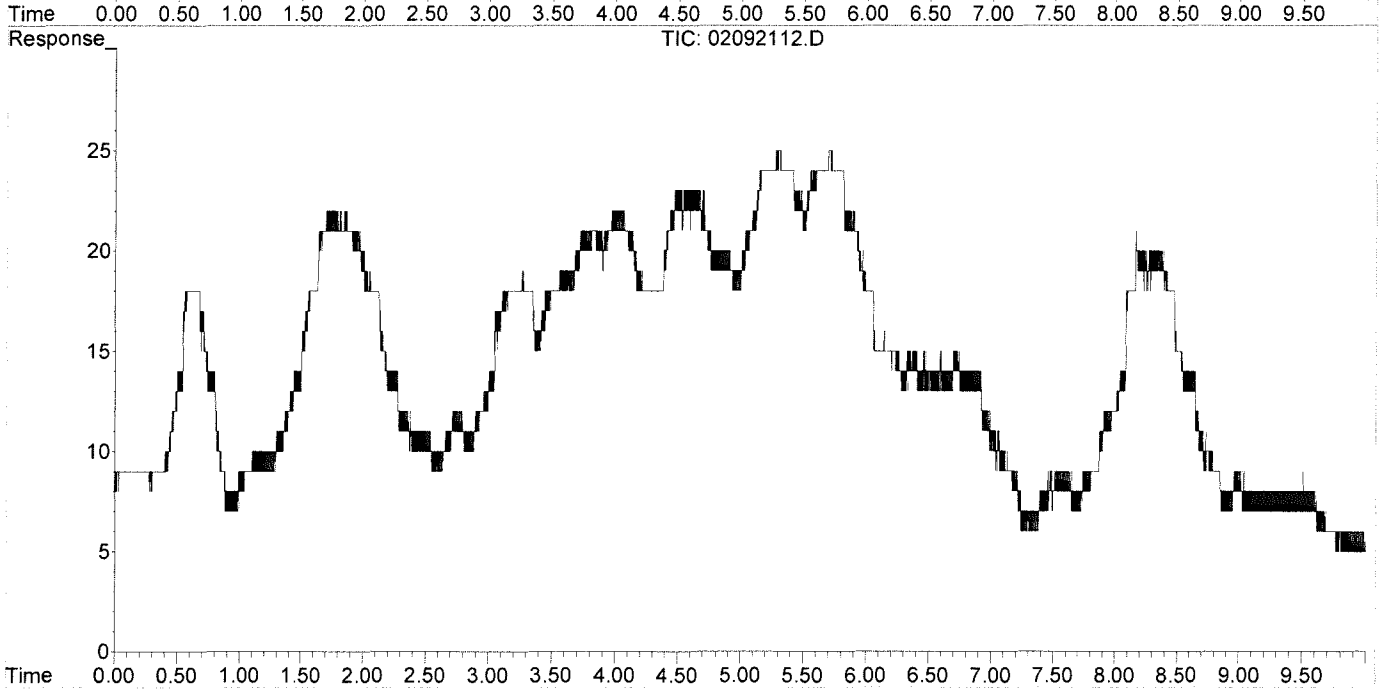
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 17:33
Operator : CB 532-02092101 0.1mL
Sample : STD ~~NEW 0.1mL~~ CB
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 17:42:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

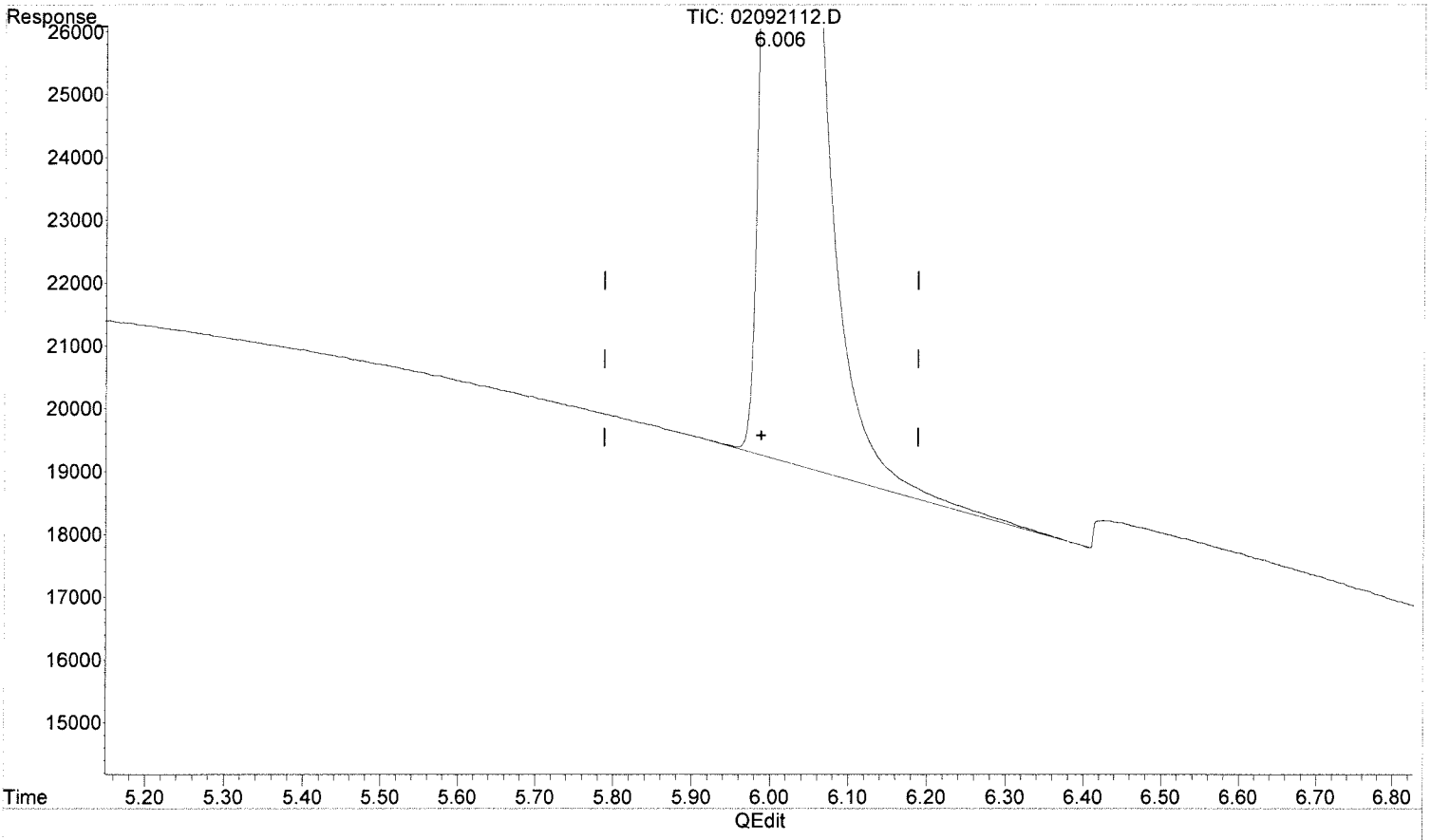




Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 17:33
Operator : CB S32-02098101 0.1mL
Sample : STD ~~NEW 0.1mL~~ CB
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 17:42:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.007min 4624.749 ppm

response 1085564

Manual Integration:

Before

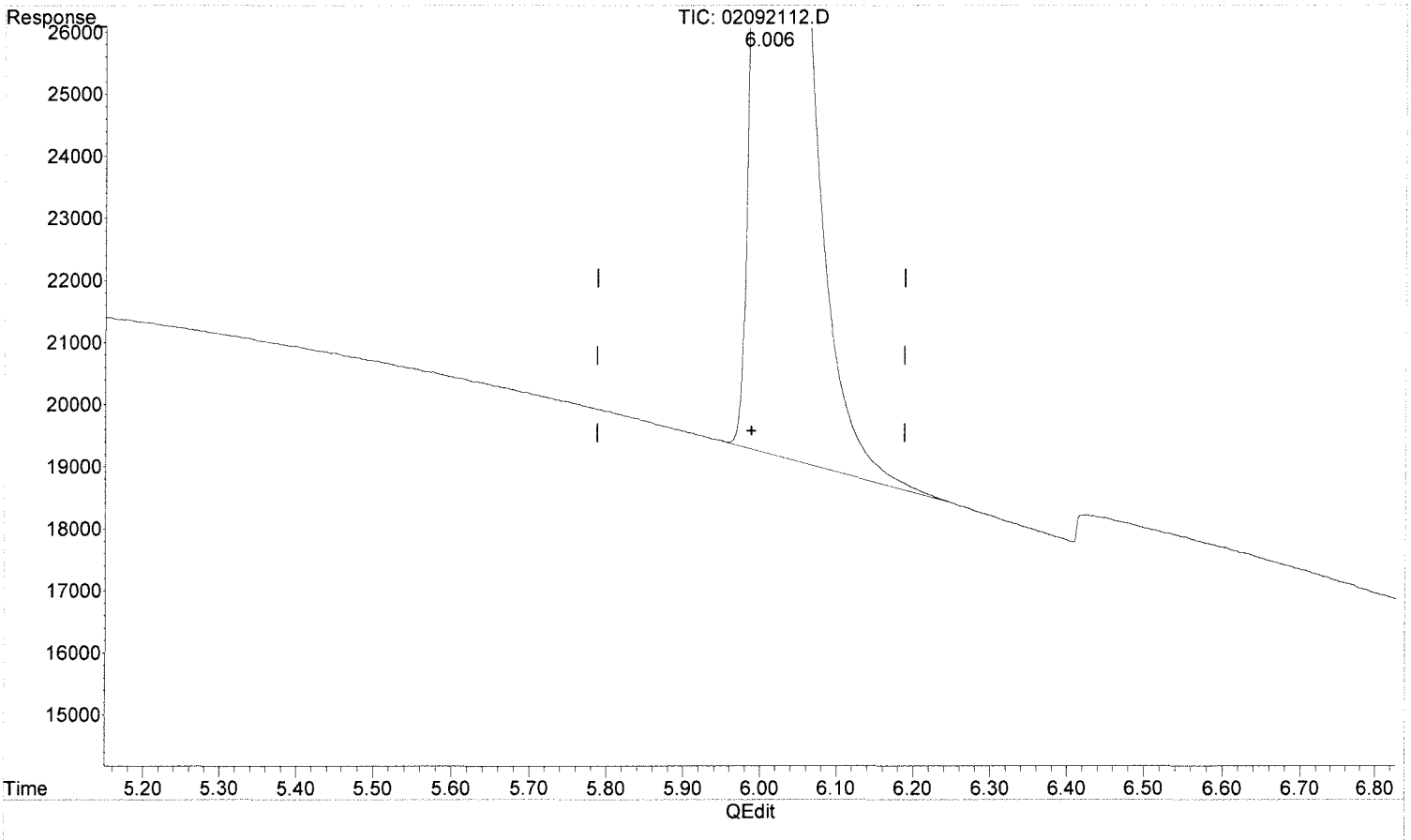
02/09/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\9\
Data File : 02092112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 17:33
Operator : CB 532-02092101 0.1mL
Sample : STD ~~NEW 0.1mL~~
Misc : CB
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 17:42:18 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide
6.006min 4576.390 ppm m
response 1074212

Manual Integration:
After
BLC
02/09/21
CB

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092123.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 20:09
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:18:40 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

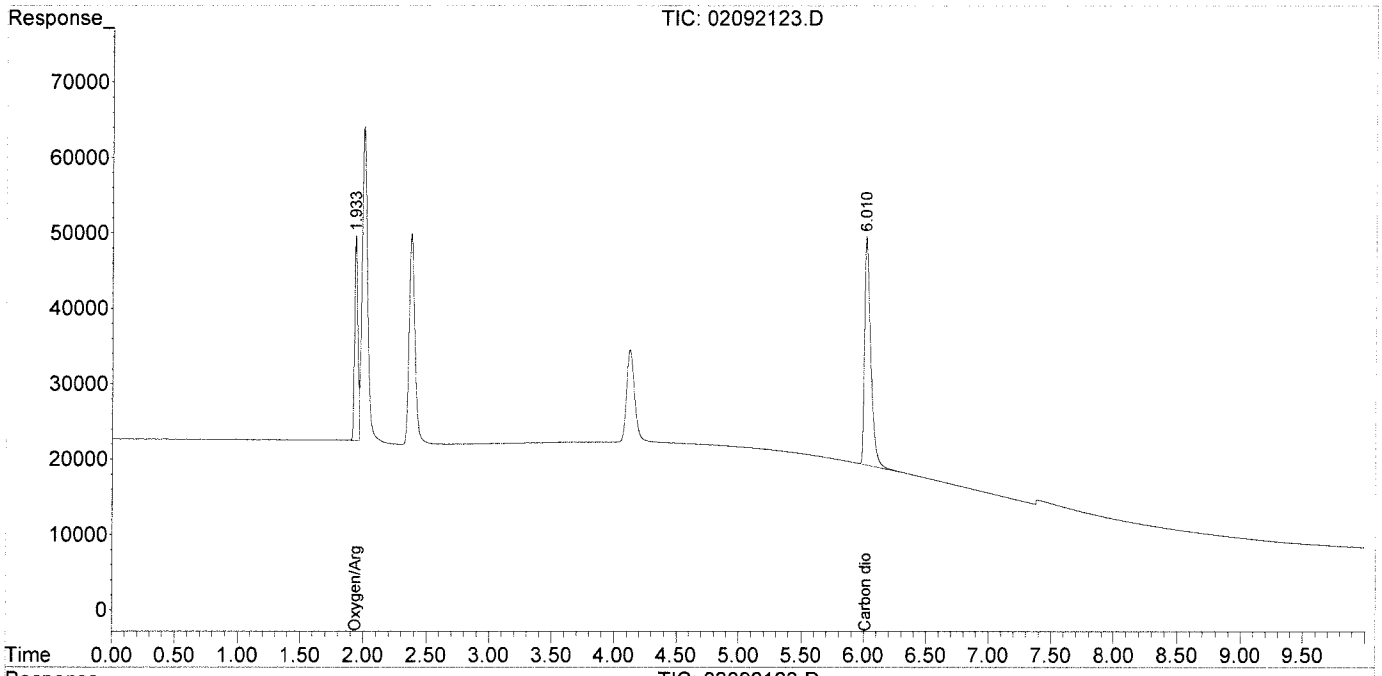
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.933f	483512	0.102	ppm	
2)	Carbon monoxide	1.933f	483512	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.010	1061314	4521.441	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

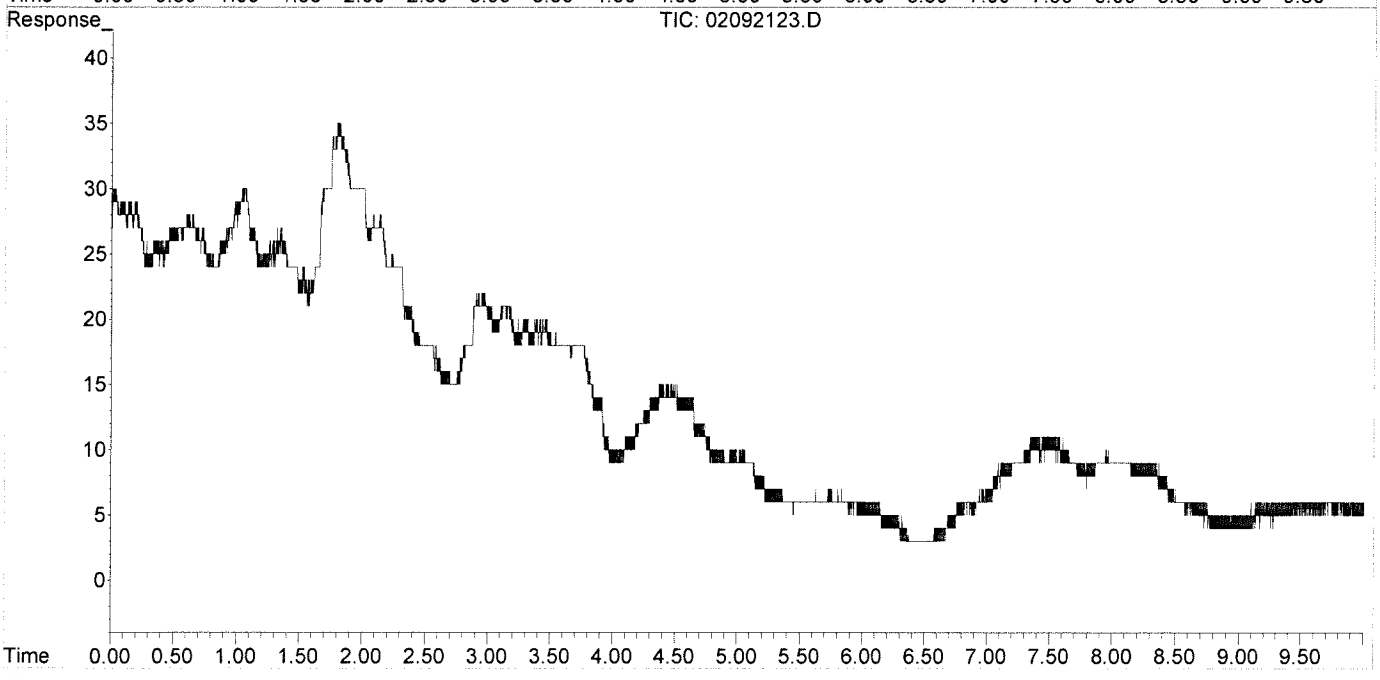
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092123.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 20:09
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:18:40 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

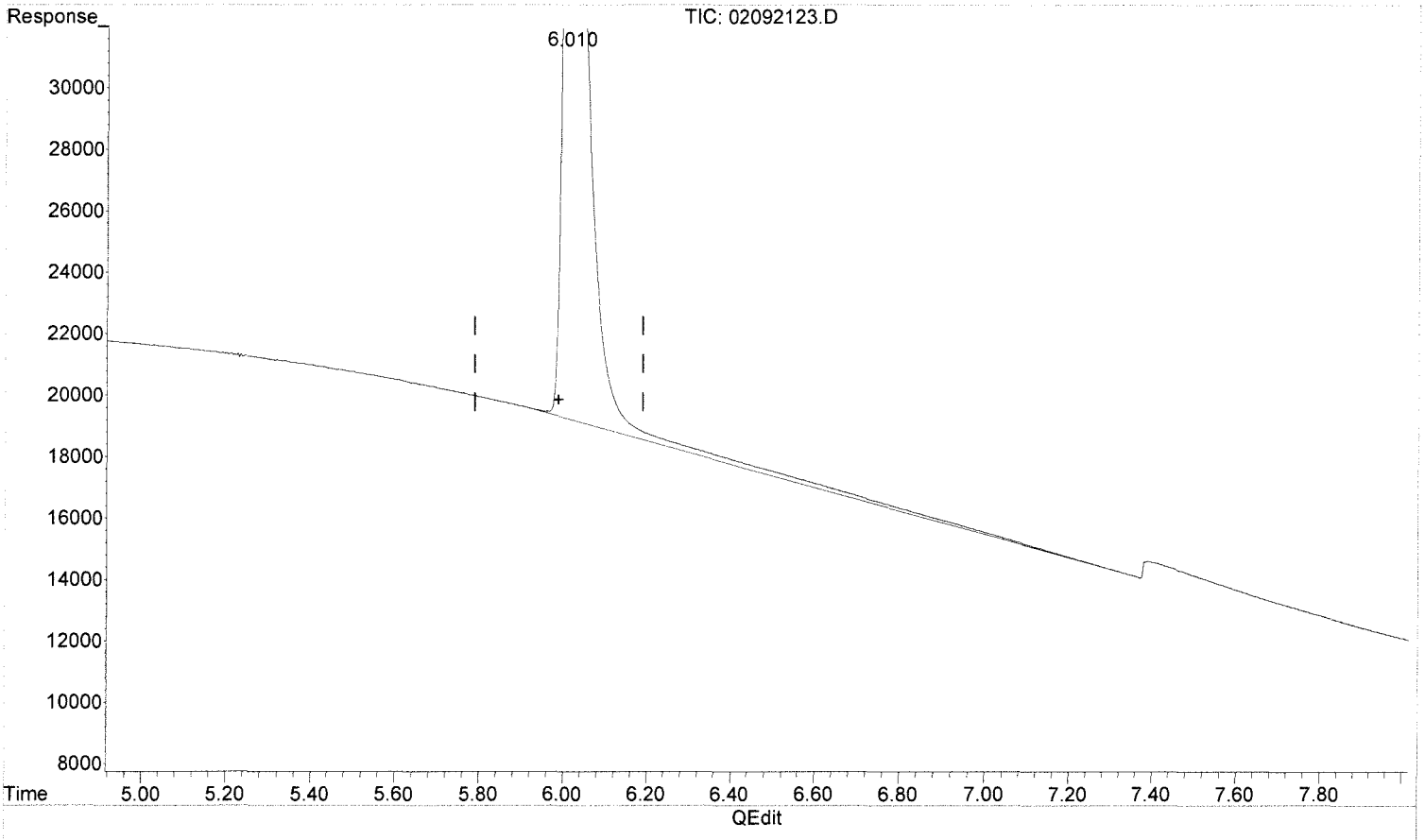




Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092123.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 20:09
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:18:40 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.011min 4862.422 ppm

response 1141352

Manual Integration:

Before

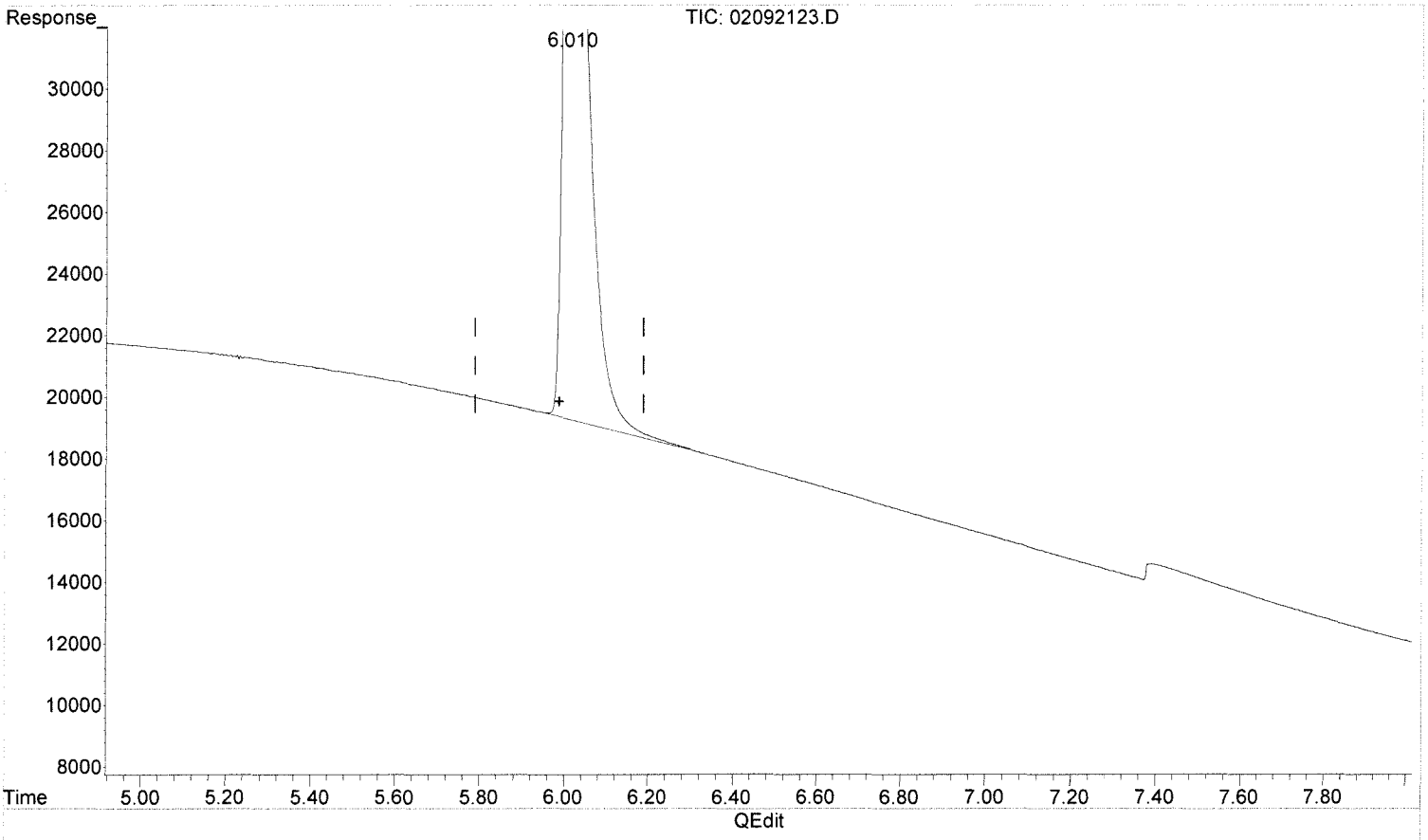
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\09\
Data File : 02092123.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 09-Feb-2021, 20:09
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 09 20:18:40 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

6.010min 4521.441 ppm m

response 1061314

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Dissolved Gases by RSK175

CB
2/11/21

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : CB | Instrument : GC#10
Service Request: P2100515 | Date Analysis : 02/10/21 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
STD S32-02062101 0.1m	0.100	4454.112
ACTUAL		5000.00
%Difference		10.9%
MCS 0.1mL	0.100	0.000
RB 0.1mL	0.100	0.000
LCS S32-11212001 0.1m	0.100	824.921
LCSD S32-11212001 0.1	0.100	826.004
P2100515-001 0.05mL	0.050	8683.814
P2100515-002 0.05mL	0.050	7784.533
P2100515-003 0.05mL	0.050	5982.604
P2100515-004 0.05mL	0.050	8743.057
P2100515-005 0.05mL	0.050	1021.021
STD S32-02092101 0.1mL		4756.233
ACTUAL		5000.00
%Difference		4.9%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1mL	0.000
LCS S32-11212001 0.1mL	8249.210
LCSD S32-11212001 0.1mL	8260.040
P2100515-001 0.05mL	173676.28
P2100515-002 0.05mL	155690.66
P2100515-003 0.05mL	119652.08
P2100515-004 0.05mL	174861.14
P2100515-005 0.05mL	20420.420

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102100.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 11:35
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 15:16:10 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

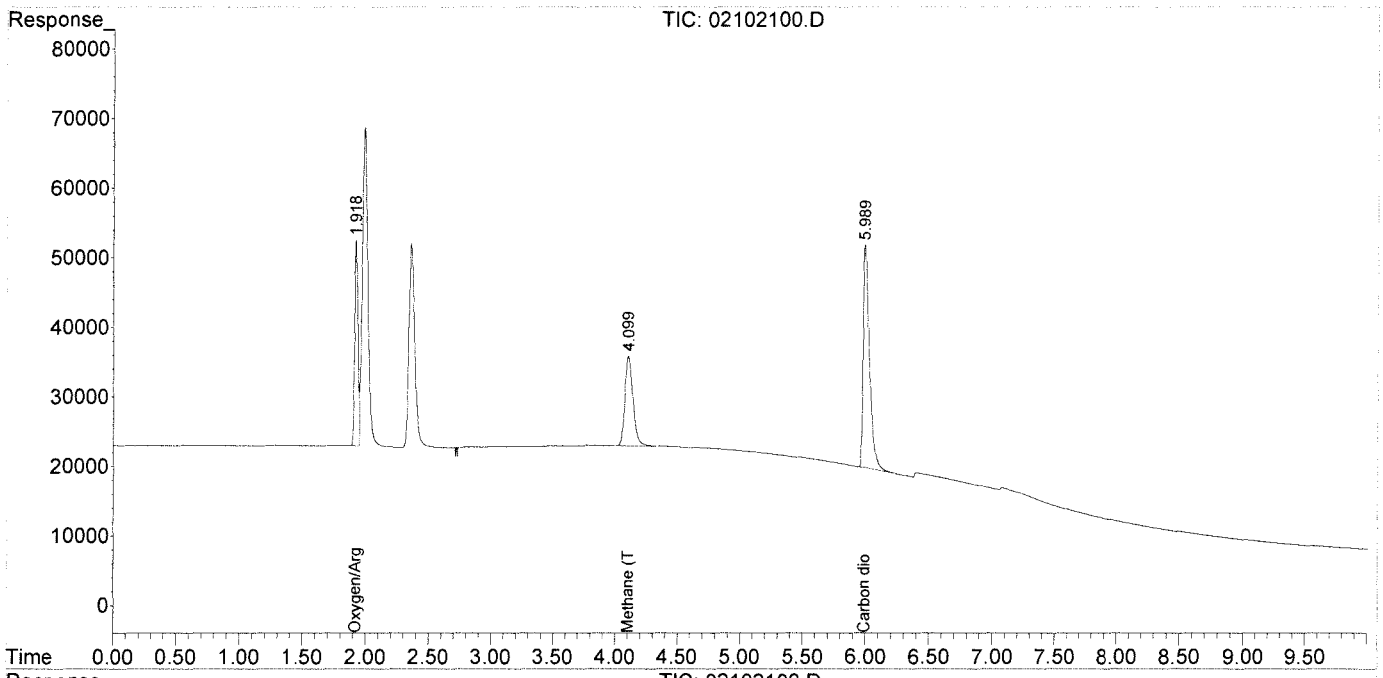
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.919f	520549	0.109	ppm	
2)	Carbon monoxide	1.919f	520549	N.D.	ppm	
3)	Methane (TCD)	4.100f	589034	62283.177	ppm	
4)	Carbon dioxide	5.989	1116427	4756.233	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

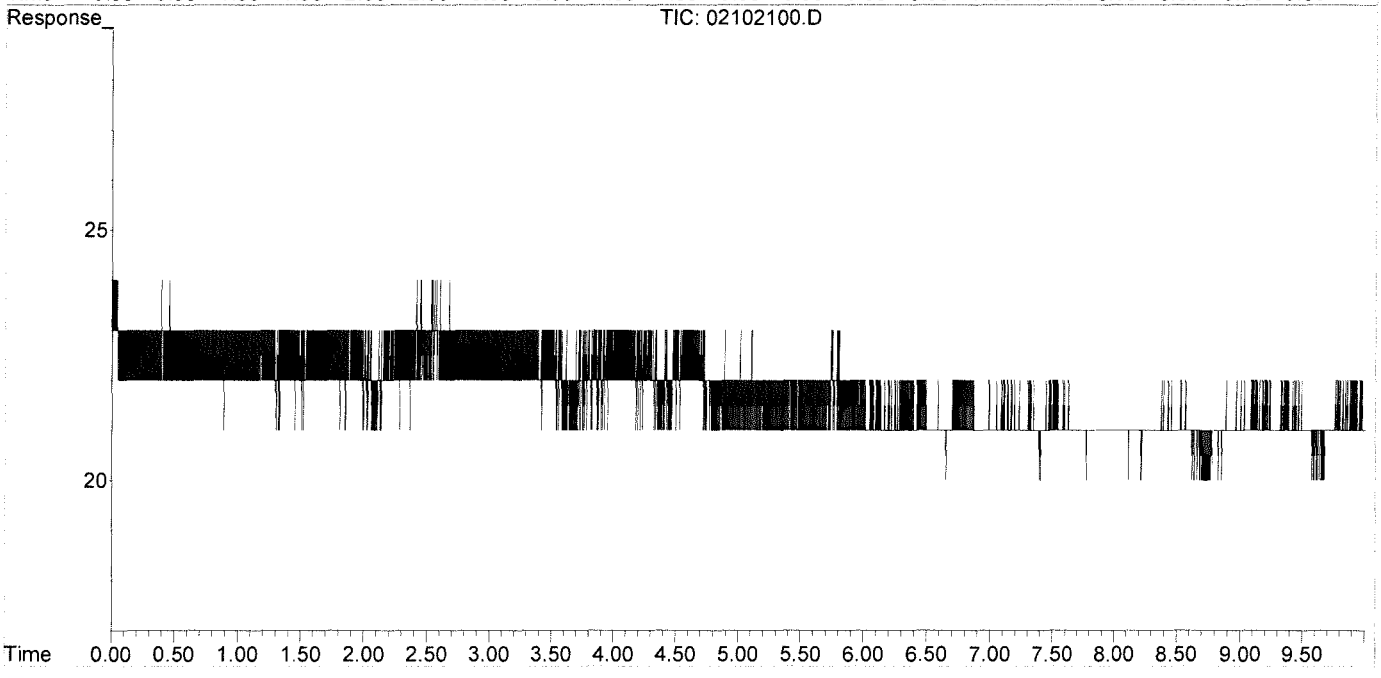
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102100.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 11:35
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 15:16:10 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

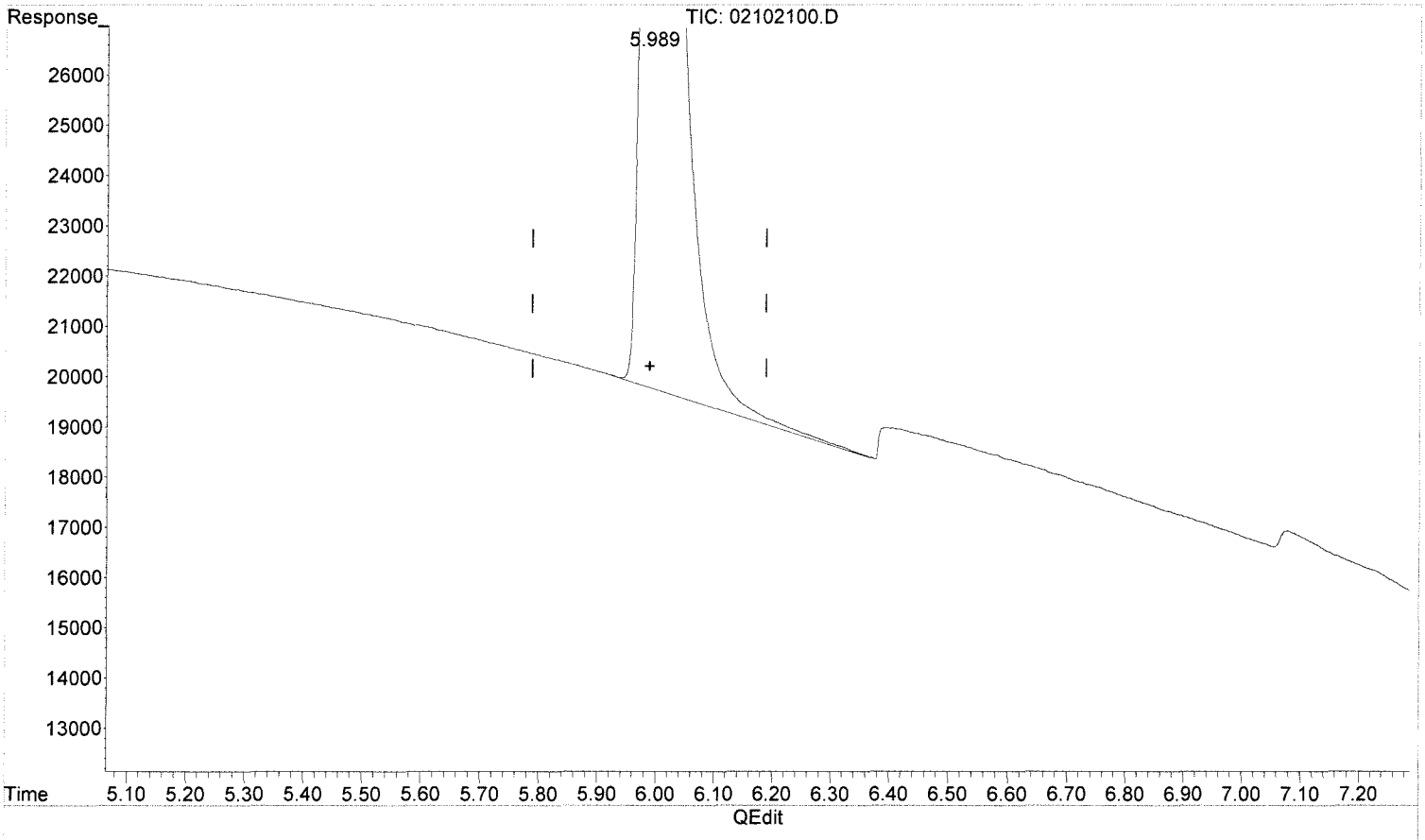




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102100.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 11:35
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 15:16:10 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.990min 4818.558 ppm

response 1131056

Manual Integration:

Before

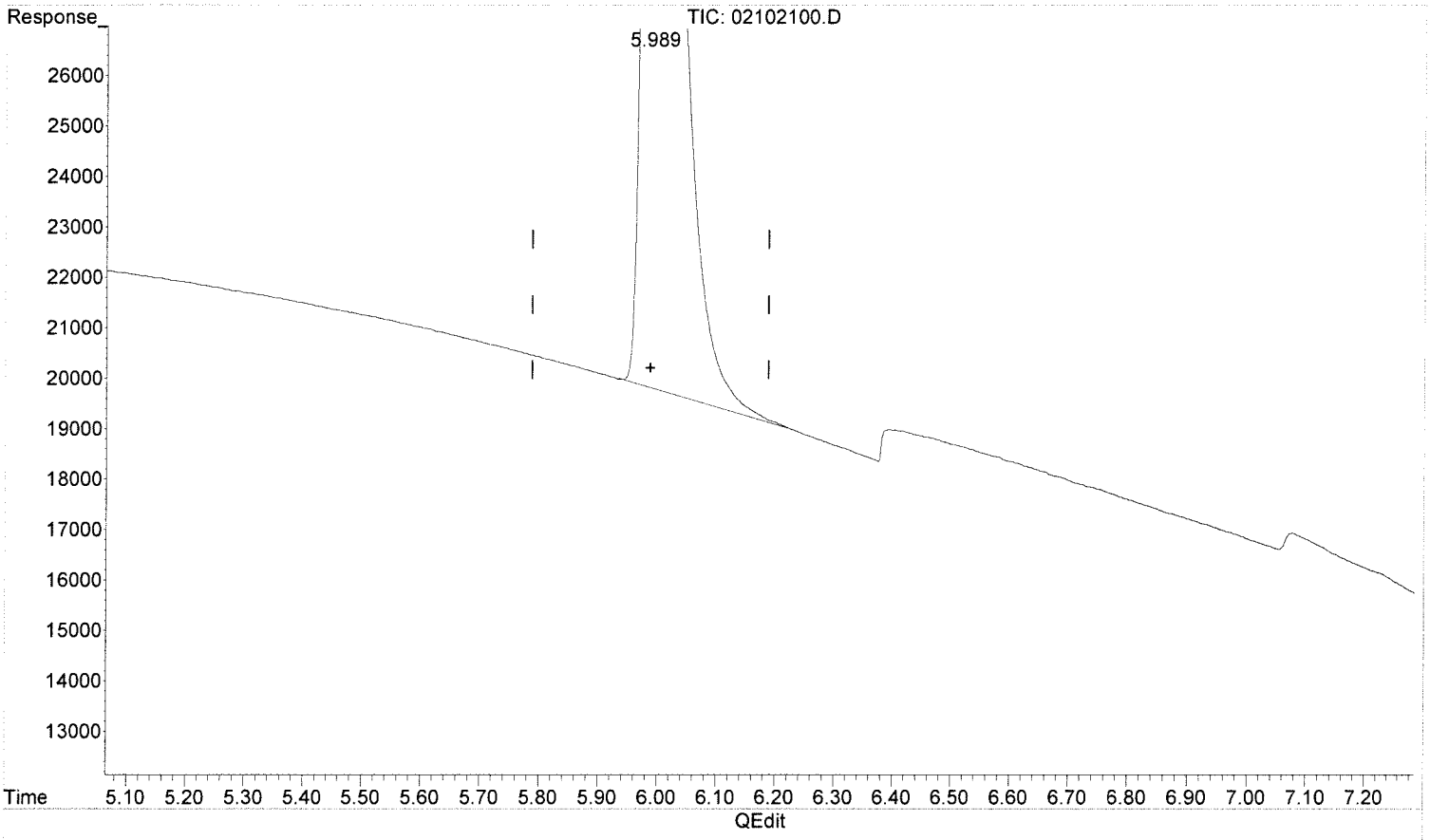
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102100.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 11:35
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 11 15:16:10 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.989min 4756.233 ppm m

response 1116427

Manual Integration:

After

BLC

02/11/21 CB

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:28
Operator : CB
Sample : STD S32-02062101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:39:35 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

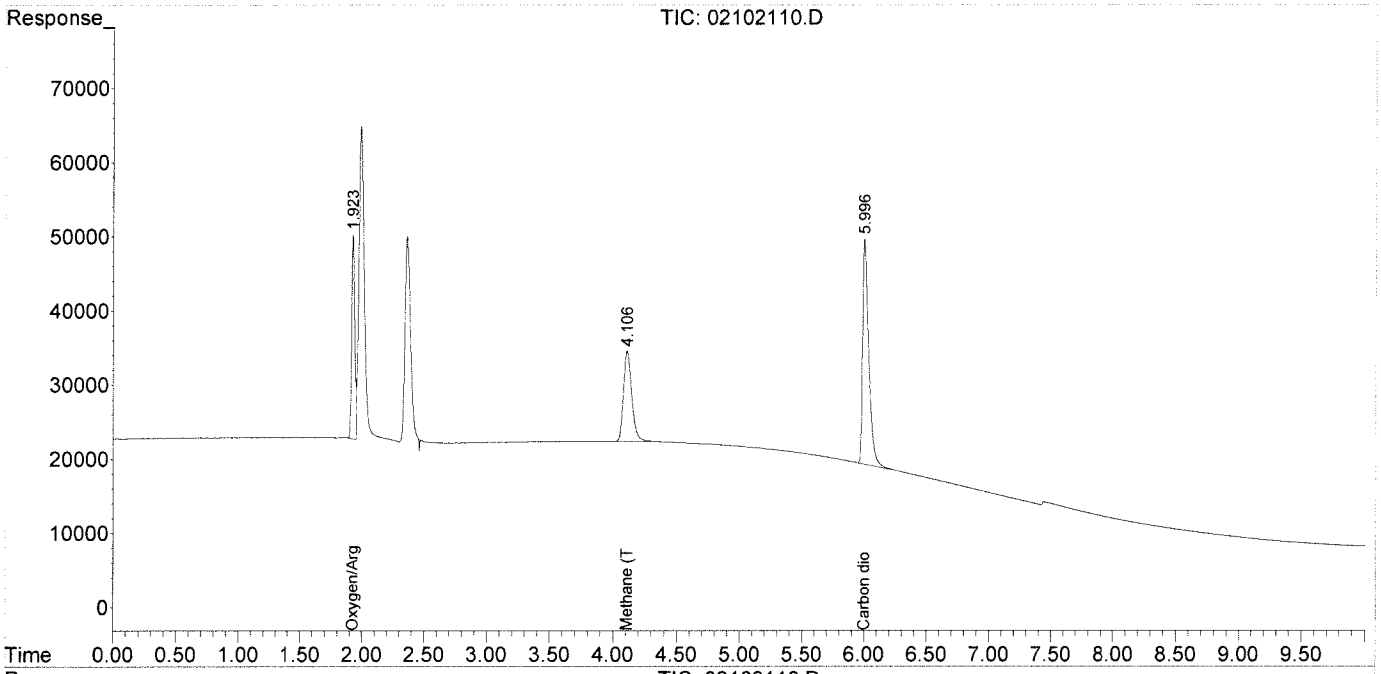
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.924f	486632	0.102	ppm	
2)	Carbon monoxide	1.924f	486632	N.D.	ppm	
3)	Methane (TCD)	4.107f	552837	58455.755	ppm	
4)	Carbon dioxide	5.996	1045510	4454.112	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

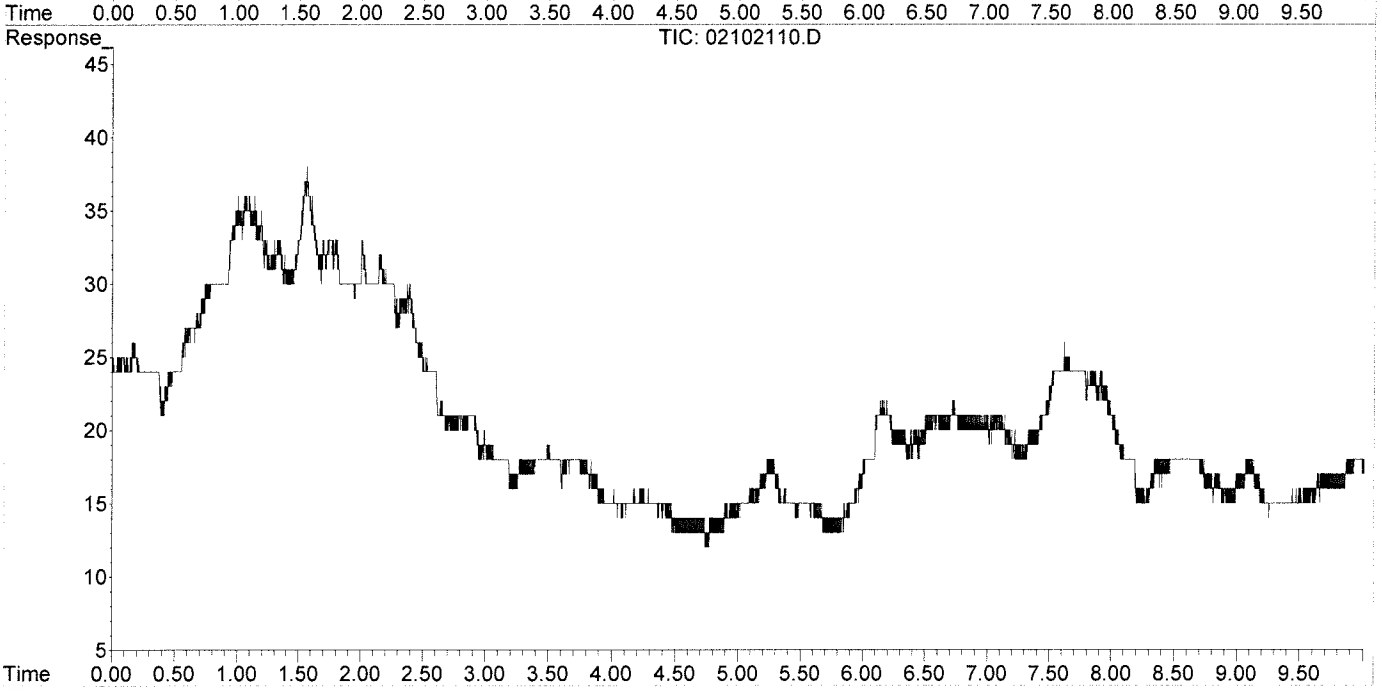
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:28
Operator : CB
Sample : STD S32-02062101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:39:35 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

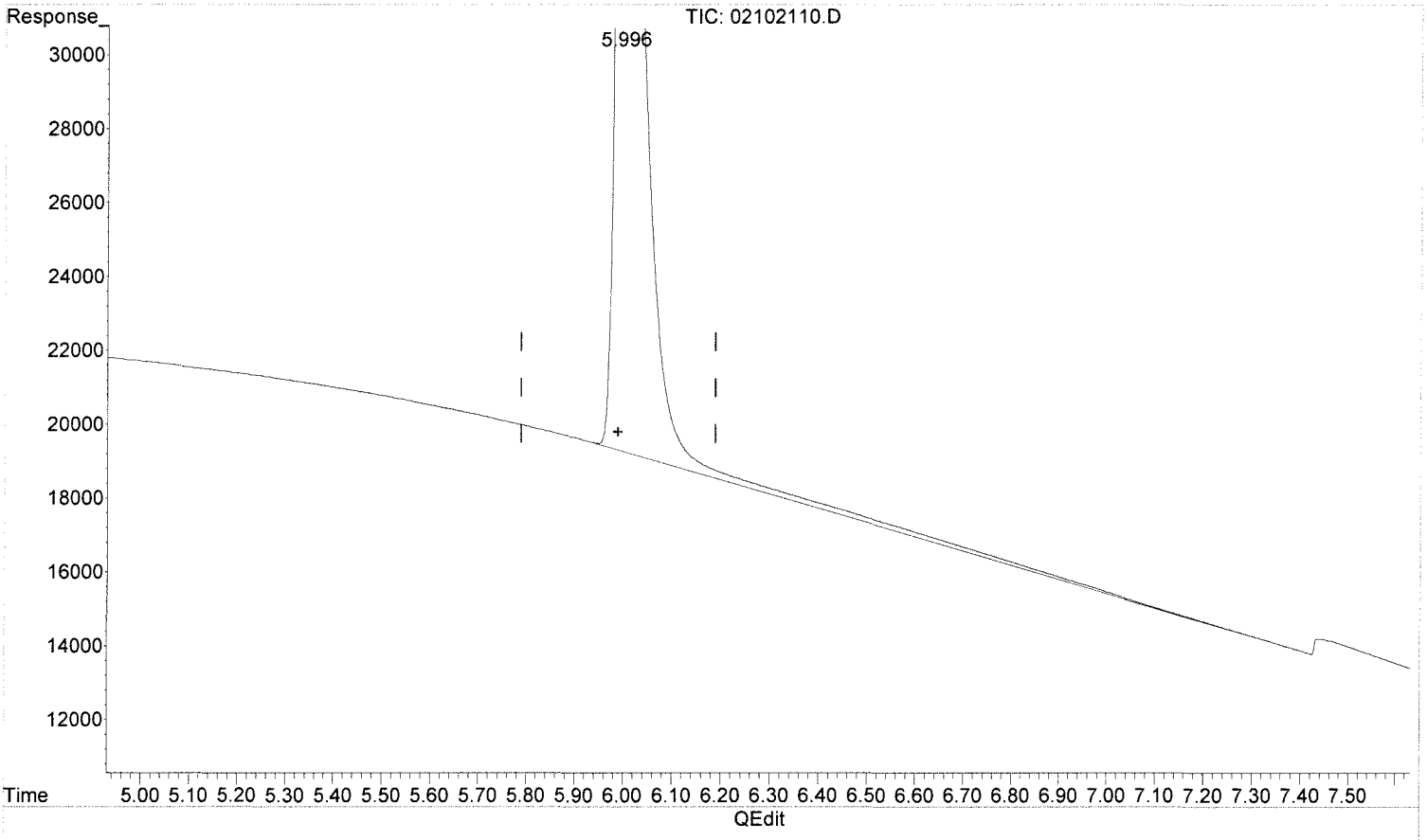




Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:28
Operator : CB
Sample : STD S32-02062101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:39:35 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.997min 4765.421 ppm

response 1118583

Manual Integration:

Before

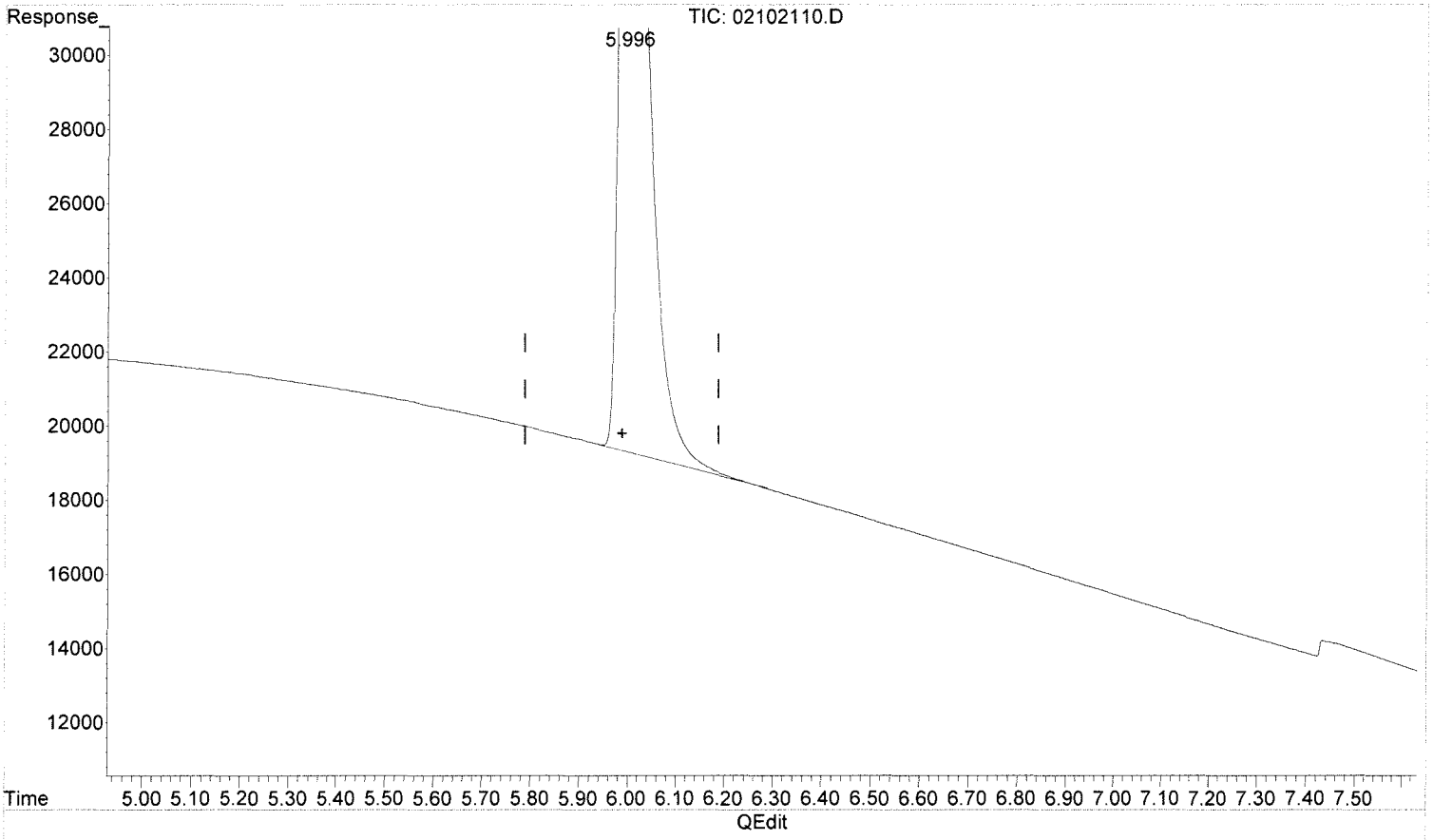
02/11/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\10\
Data File : 02102110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 10-Feb-2021, 16:28
Operator : CB
Sample : STD S32-02062101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 10 16:39:35 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.996min 4454.112 ppm m

response 1045510

Manual Integration:

After

BLC

02/11/21

(+) = Expected Retention Time

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mis inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	icv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2021_02\09\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	09-Feb-21, 09:48:03	02092100.D	Purge		CB	RSKBOTH.M	MEE (Do Not use)
2	09-Feb-21, 12:21:52	02092101.D	STD S32-05221901		CB	RSKBOTH.M	MEE (Do Not use)
3	09-Feb-21, 12:45:34	02092102.D	RB 0.1mL		CB	RSKBOTH.M	MEE (Do Not use)
4	09-Feb-21, 13:10:47	02092103.D	MCS 0.1mL		CB	RSKBOTH.M	MEE (Do Not use)
5	09-Feb-21, 14:04:51	02092104.D	LCS S32-07231801		CB	RSKBOTH.M	MEE (Do Not use)
6	09-Feb-21, 14:24:38	02092105.D	LCSDS32-07231801		CB	RSKBOTH.M	MEE (Do Not use)
7	09-Feb-21, 15:05:39	02092106.D	P2100515-006 0.1		CB	RSKBOTH.M	MEE (Do Not use)
8	09-Feb-21, 15:24:18	02092107.D	P2100515-006 MS		CB	RSKBOTH.M	MEE (Do Not use)
9	09-Feb-21, 15:40:34	02092108.D	P2100515-006 MSD		CB	RSKBOTH.M	MEE (Do Not use)
10	09-Feb-21, 15:57:10	02092109.D	STD S32-05221901		CB	RSKBOTH.M	MEE (Do Not use)
11	09-Feb-21, 16:14:22	02092110.D	STD S32-11102001		CB	RSKBOTH.M	MEE (Do Not use)
12	09-Feb-21, 16:50:14	02092111.D	STD S32-11102001		CB	RSKBOTH.M	MEE (Do Not use)
13	09-Feb-21, 17:33:02	02092112.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass
14	09-Feb-21, 17:48:35	02092113.D	RB 0.1mL		CB	RSKBOTH.M	Pass
15	09-Feb-21, 18:03:43	02092114.D	MCS 0.1mL		CB	RSKBOTH.M	Pass
16	09-Feb-21, 18:21:15	02092115.D	LCS S32-11212001 0.1mL		CB	RSKBOTH.M	Pass
17	09-Feb-21, 18:34:40	02092116.D	LCSD S32-11212001 0.1mL		CB	RSKBOTH.M	Pass
18	09-Feb-21, 18:51:49	02092117.D	P2100515-006 0.1		CB	RSKBOTH.M	
19	09-Feb-21, 19:05:23	02092118.D	P2100515-006 0.05mL		CB	RSKBOTH.M	
20	09-Feb-21, 19:20:00	02092119.D	P2100515-006 MS 0.05mL		CB	RSKBOTH.M	
21	09-Feb-21, 19:35:26	02092120.D	P2100515-006 MSD 0.1mL		CB	RSKBOTH.M	
22	09-Feb-21, 19:52:46	02092122.D	P2100515-006 MSD 0.05mL		CB	RSKBOTH.M	
23	09-Feb-21, 20:09:33	02092123.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2021_02\10\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	10-Feb-21, 11:35:15	02102100.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass
2	10-Feb-21, 11:54:13	02102101.D	RB 0.1mL		CB	RSKBOTH.M	Pass
3	10-Feb-21, 14:10:16	02102102.D	MCS 0.1mL		CB	RSKBOTH.M	Pass
4	10-Feb-21, 14:26:10	02102103.D	LCS S32-11212001 0.1mL		CB	RSKBOTH.M	Pass
5	10-Feb-21, 14:48:55	02102104.D	LCSD S32-11212001 0.1mL		CB	RSKBOTH.M	Pass
6	10-Feb-21, 15:05:18	02102105.D	P2100515-001 0.05mL		CB	RSKBOTH.M	
7	10-Feb-21, 15:25:20	02102106.D	P2100515-002 0.05mL		CB	RSKBOTH.M	
8	10-Feb-21, 15:44:04	02102107.D	P2100515-003 0.05mL		CB	RSKBOTH.M	
9	10-Feb-21, 15:57:42	02102108.D	P2100515-004 0.05mL		CB	RSKBOTH.M	
10	10-Feb-21, 16:13:36	02102109.D	P2100515-005 0.05mL		CB	RSKBOTH.M	
11	10-Feb-21, 16:28:29	02102110.D	STD S32-02062101 0.1mL		CB	RSKBOTH.M	Pass

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:40
Operator : CB
Sample : P2100515-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

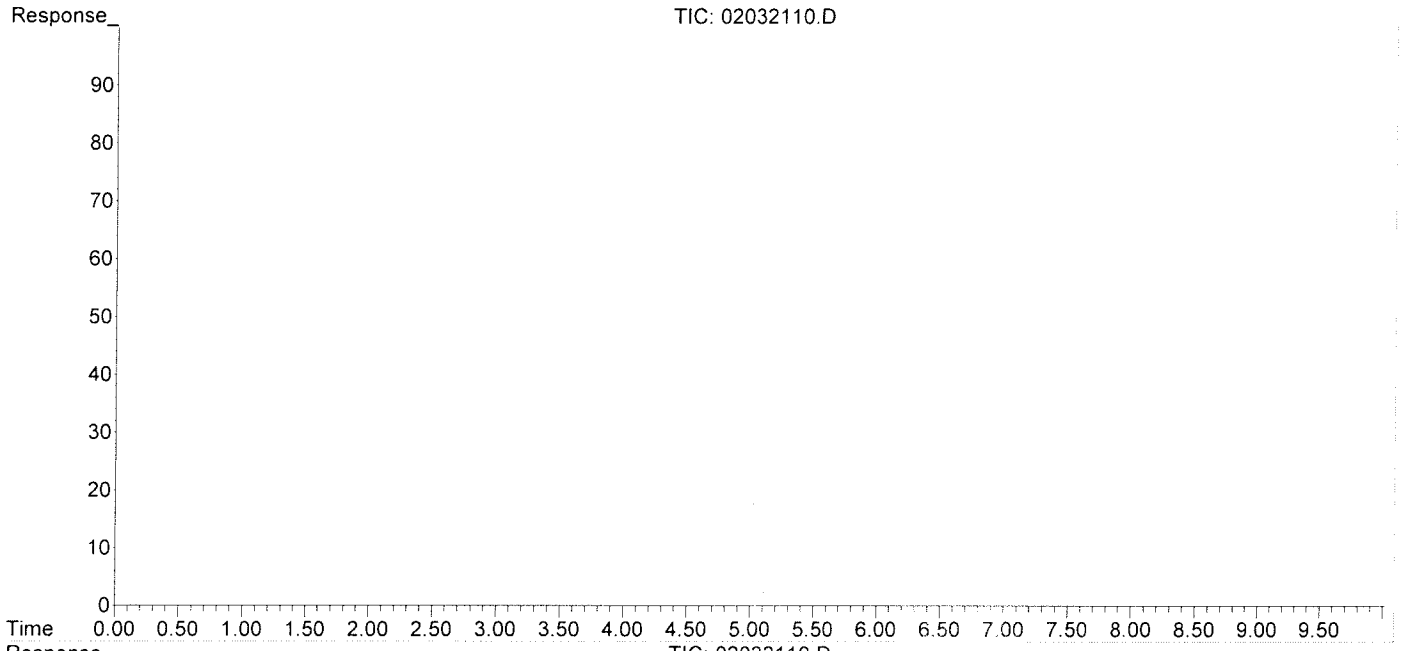
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.126	8422	0.929	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

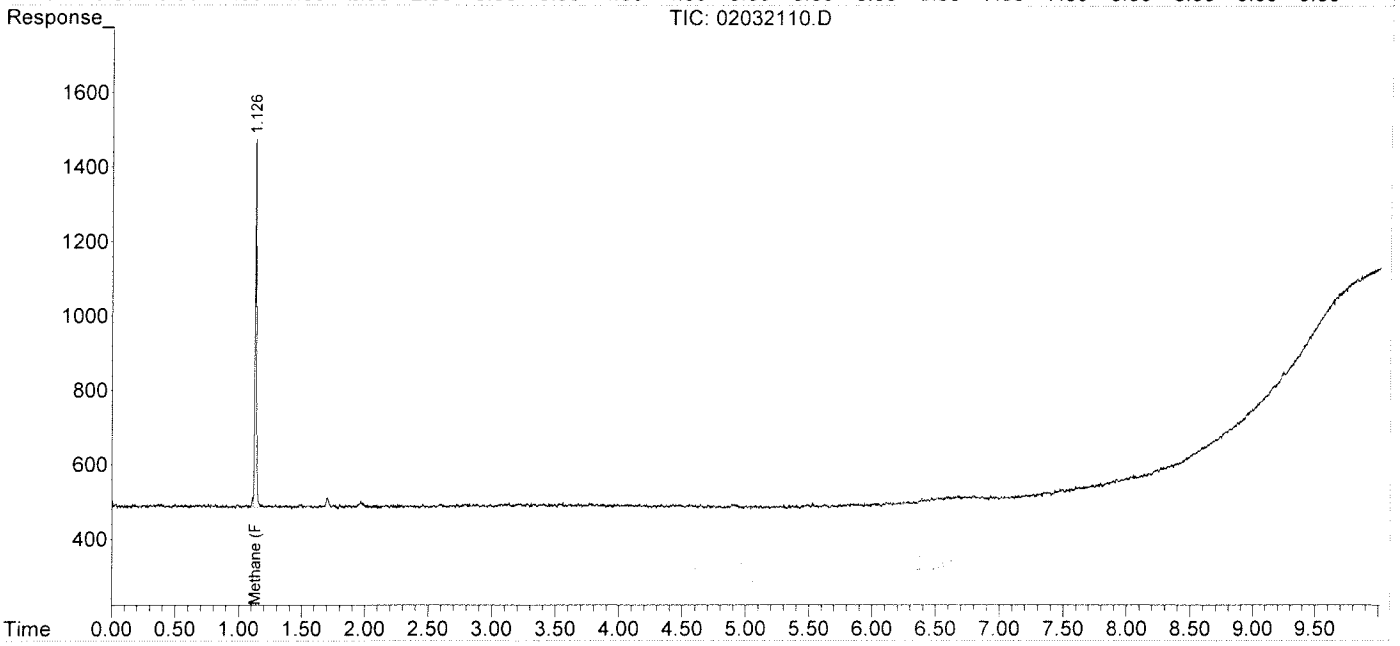
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:40
Operator : CB
Sample : P2100515-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

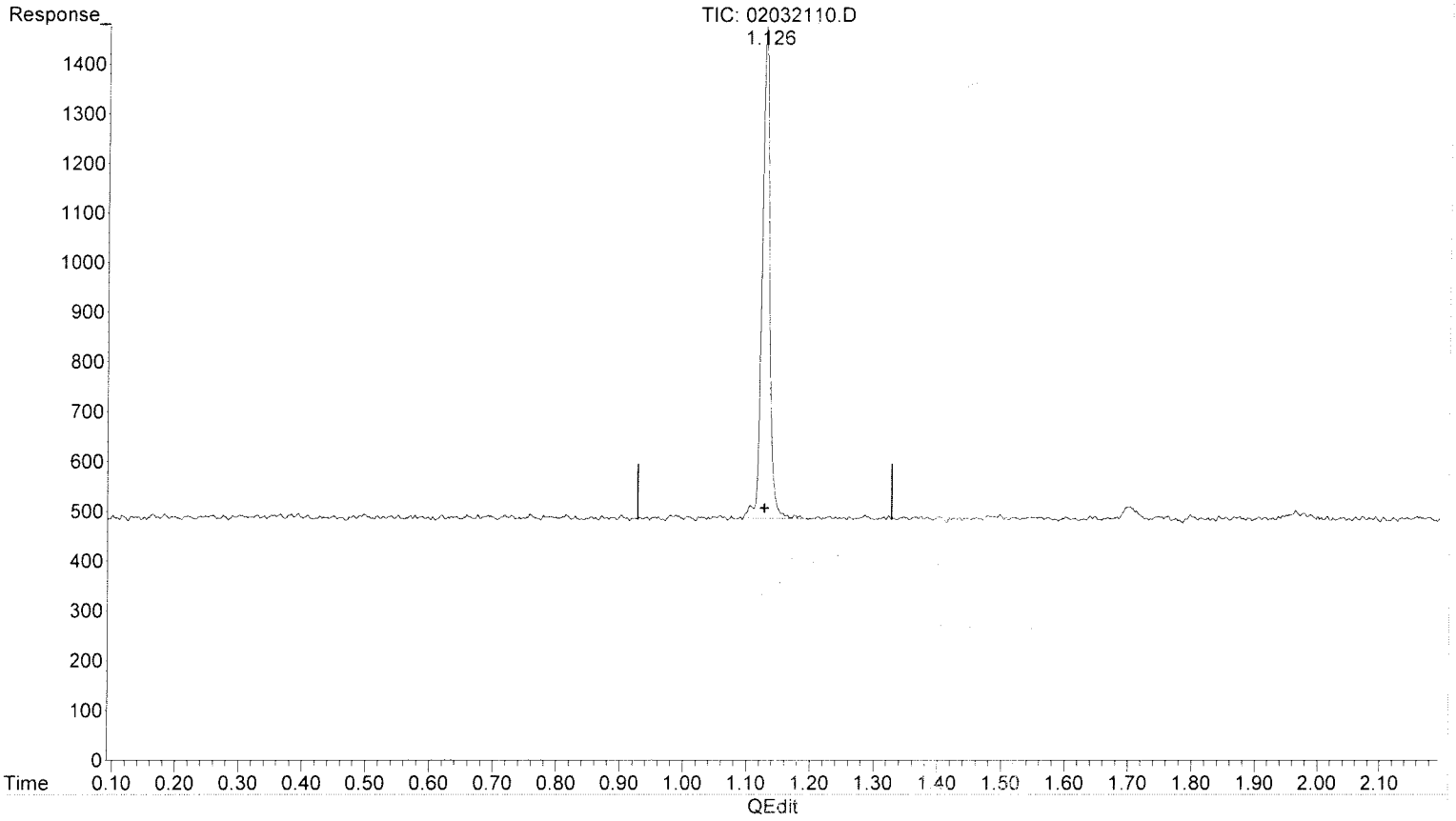




Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:40
Operator : CB
Sample : P2100515-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)
1.127min 0.940 ppm
response 8530

Manual Integration:
Before

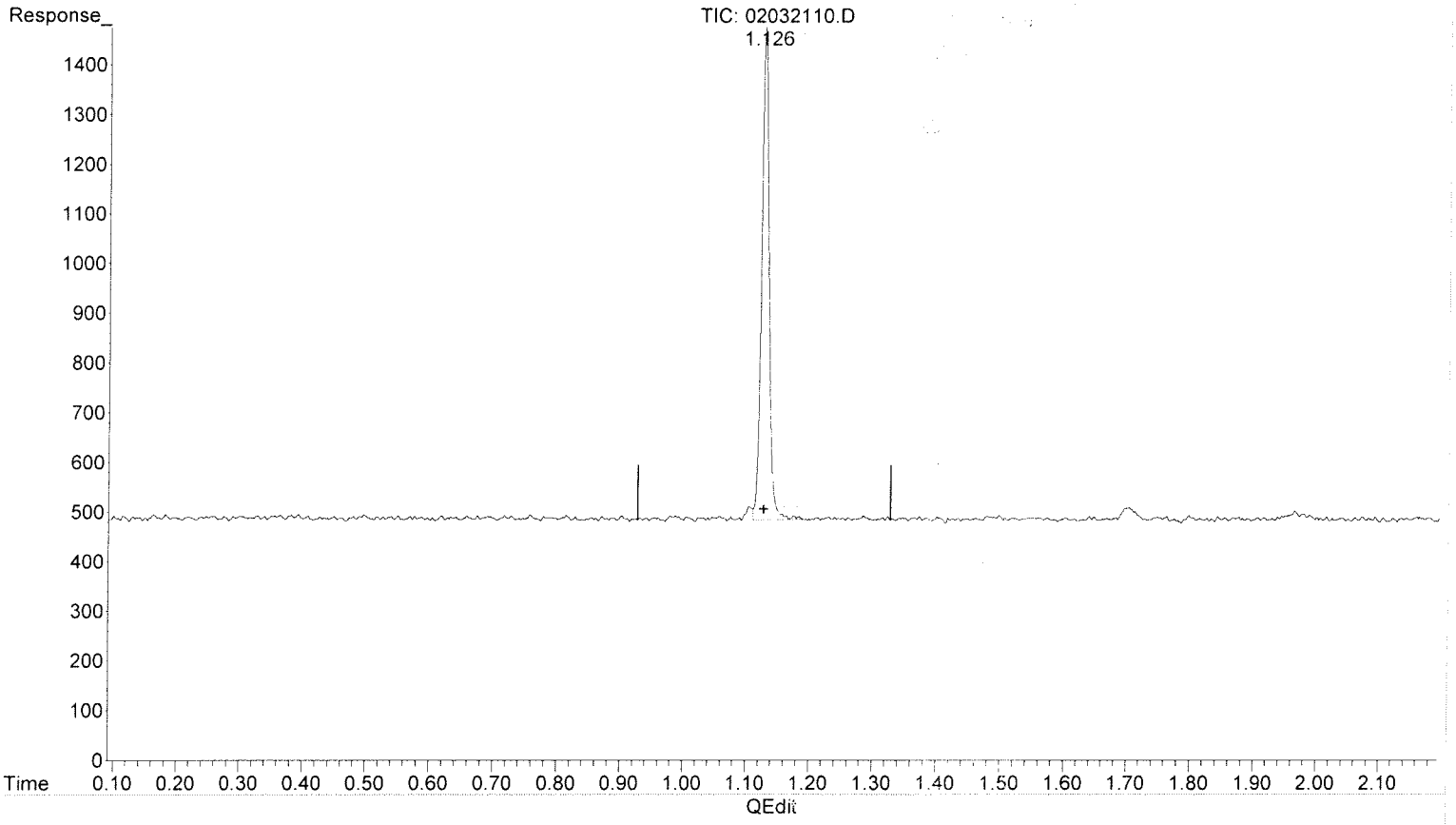
02/05/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:40
Operator : CB
Sample : P2100515-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)
1.126min 0.929 ppm m
response 8422

Manual Integration:
After
BLC
02/05/21

(+) = Expected Retention Time
RS091217_R.M Fri Feb 05 17:25:32 2021

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:05
Operator : CB
Sample : P2100515-002 0.1
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

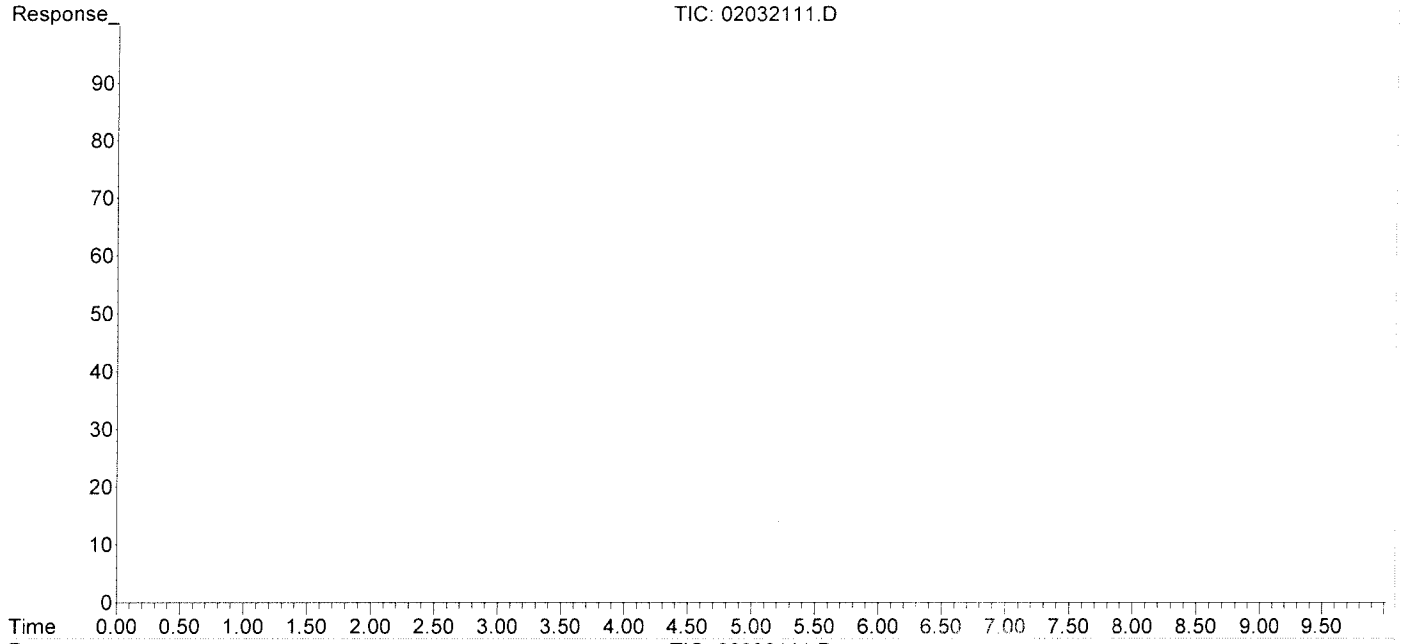
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.128	7006	0.772	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

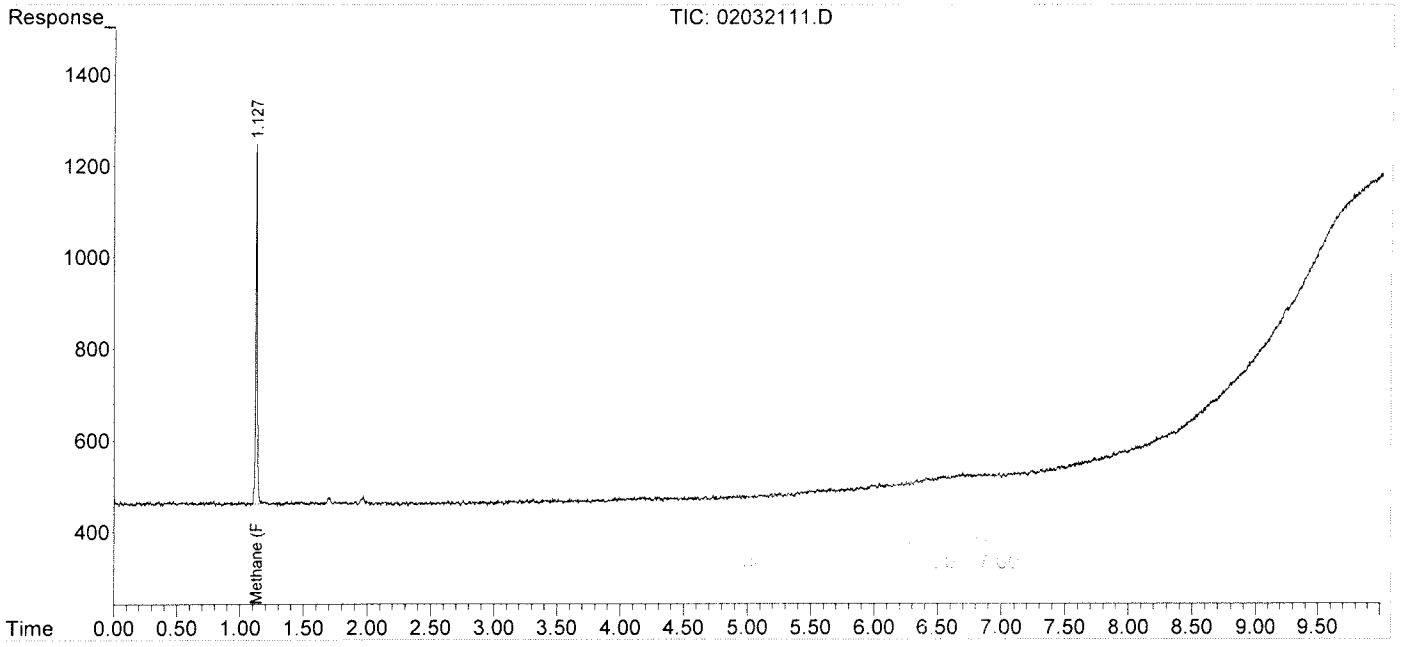
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:05
Operator : CB
Sample : P2100515-002 0.1
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:25:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:21
Operator : CB
Sample : P2100515-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:18 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

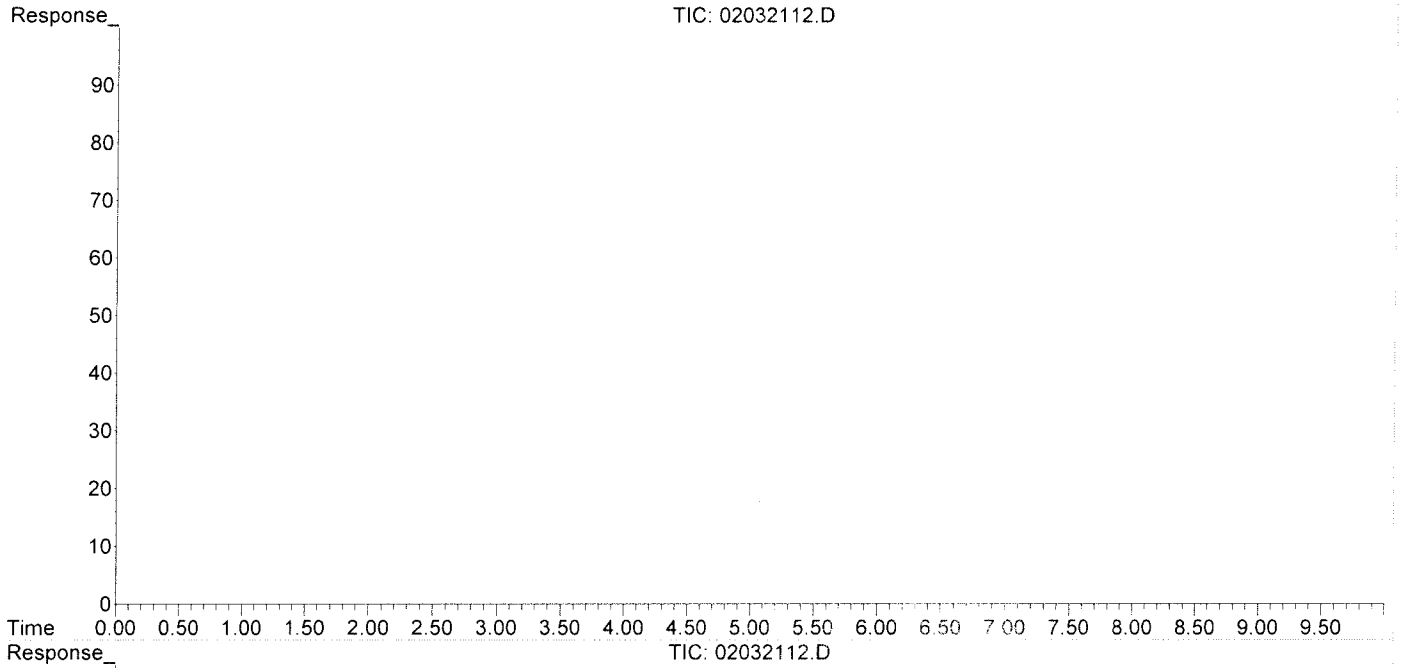
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.126	20384	2.247	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

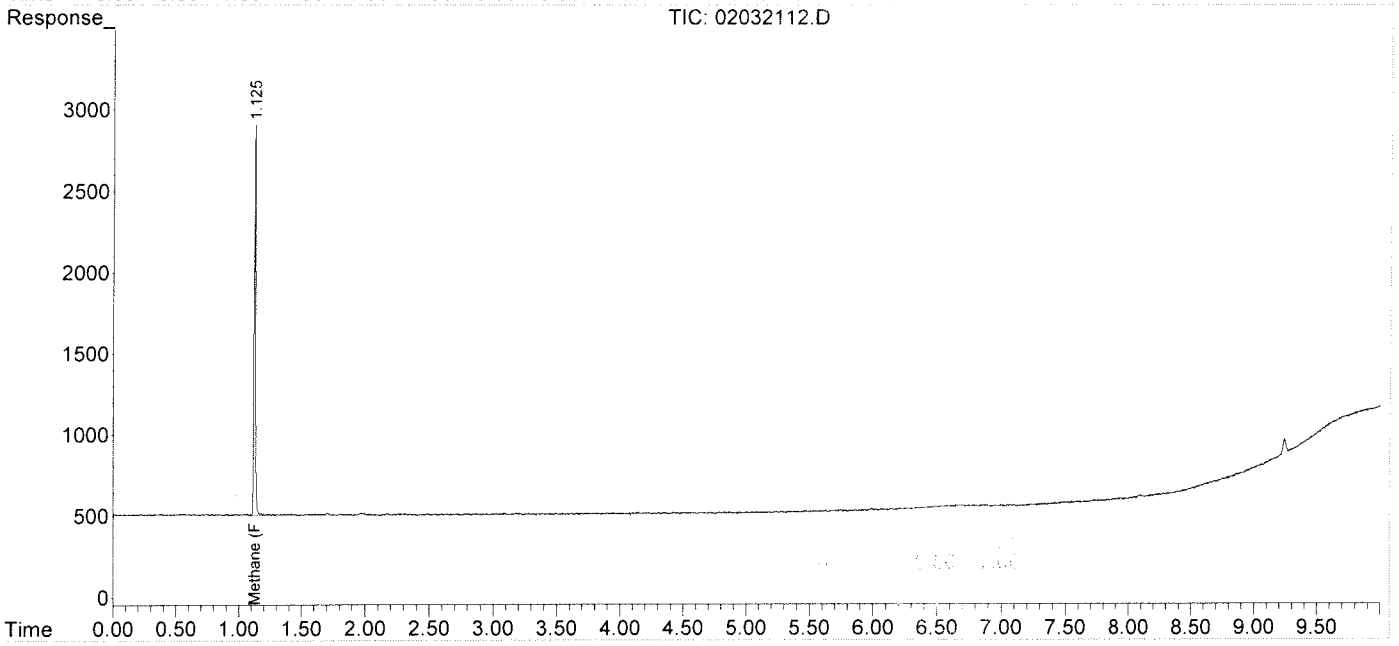
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:21
Operator : CB
Sample : P2100515-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:18 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:35
Operator : CB
Sample : P2100515-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

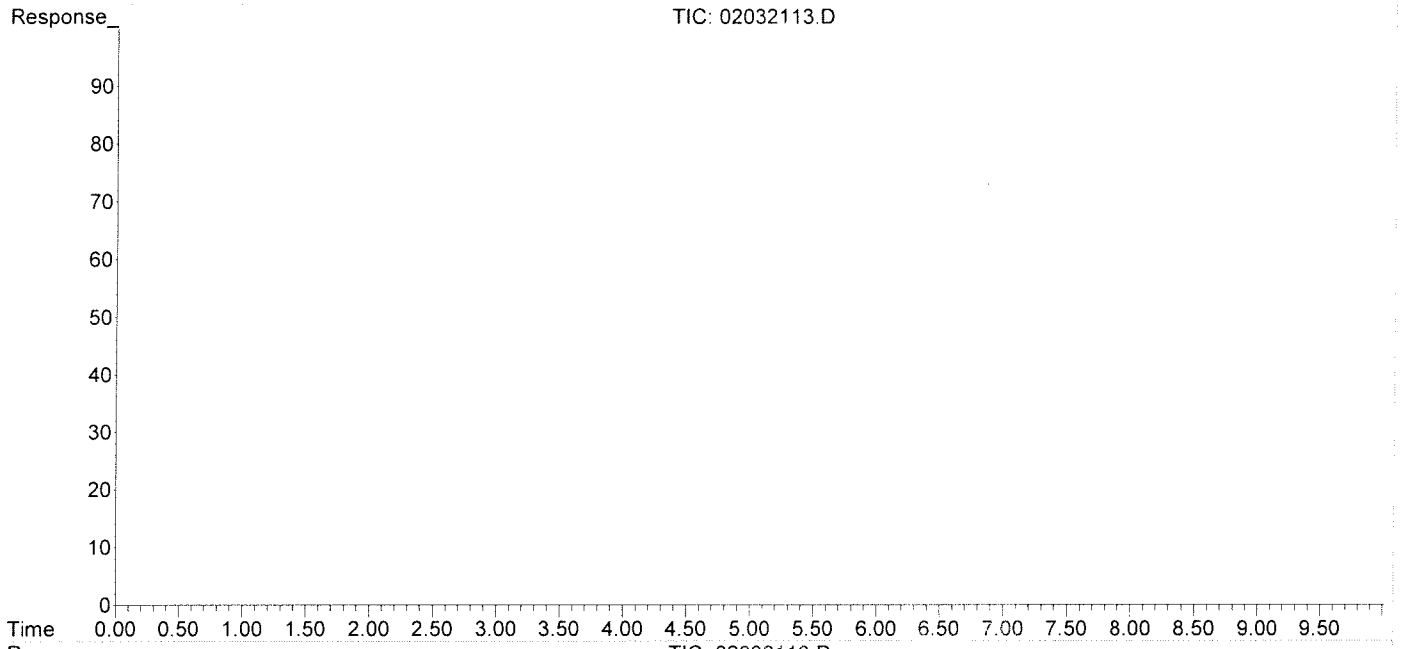
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.124	21056	2.321	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

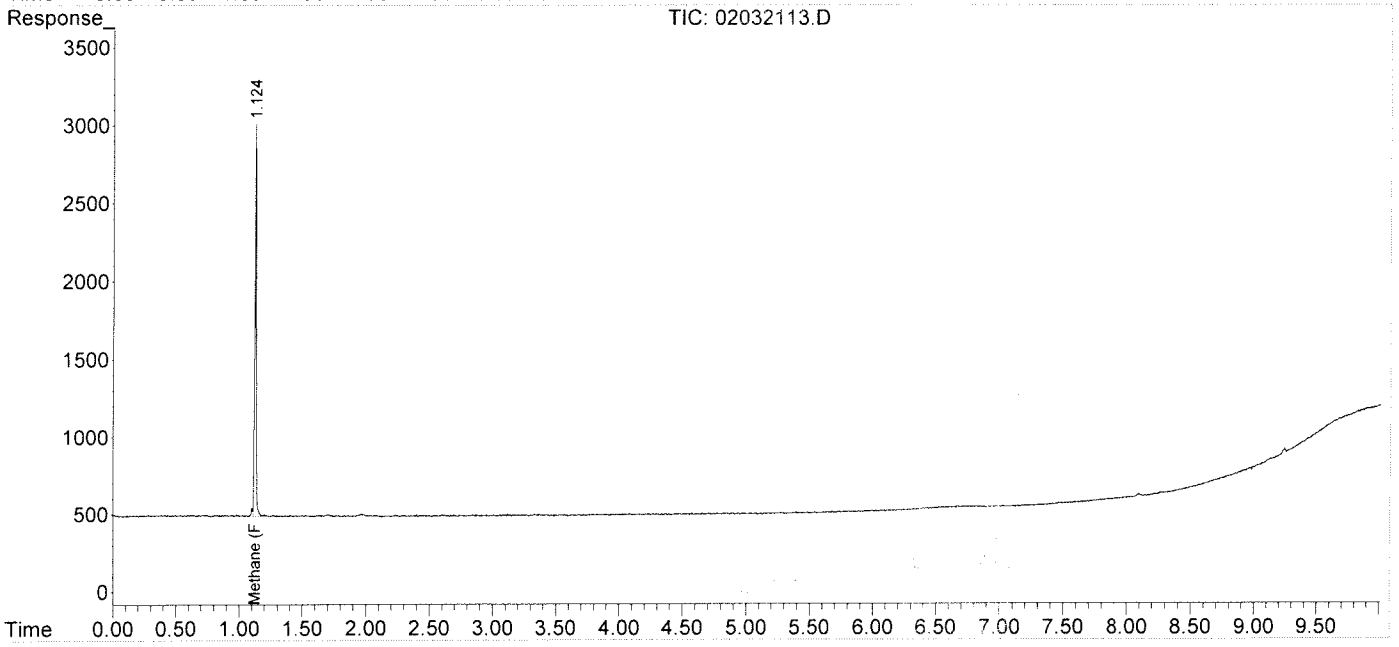
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:35
Operator : CB
Sample : P2100515-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

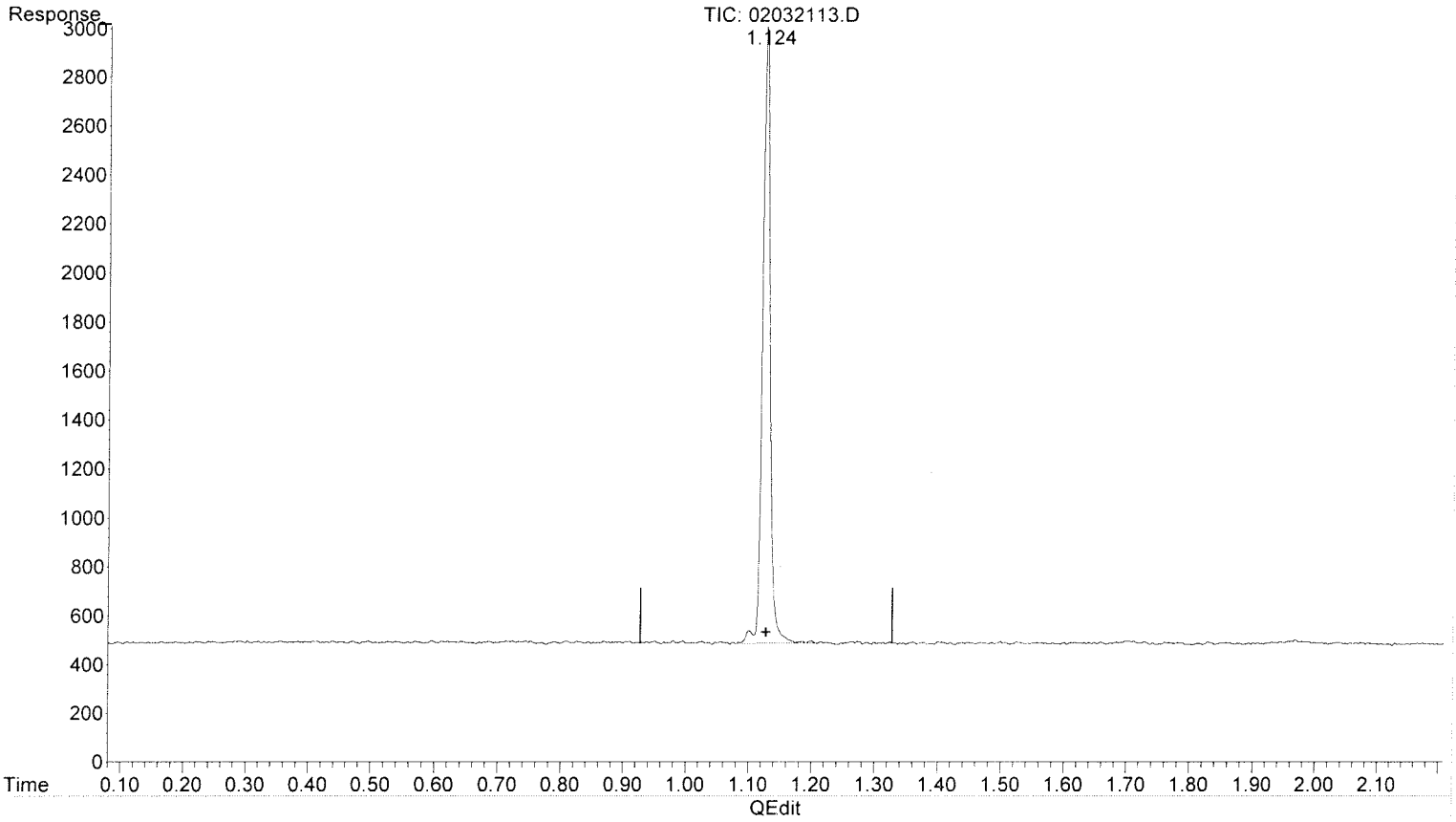




Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:35
Operator : CB
Sample : P2100515-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.125min 2.372 ppm

response 21518

Manual Integration:

Before

02/05/21

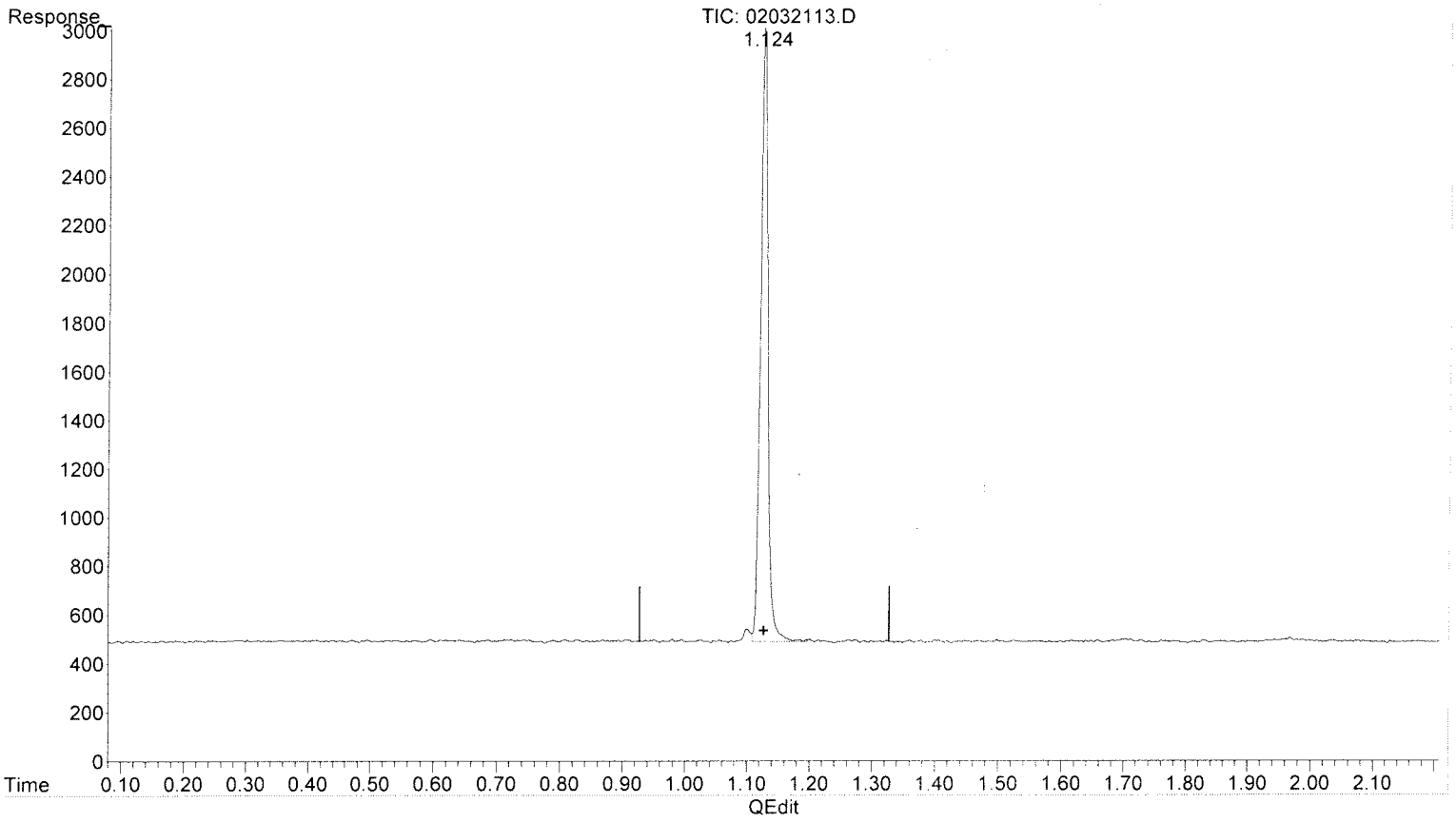
(+) = Expected Retention Time

Quantitation Report (Qedit)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:35
Operator : CB
Sample : P2100515-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:26:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.124min 2.321 ppm m

response 21056

Manual Integration:

After

BLC

02/05/21

CB

2/11/21

(+) = Expected Retention Time

RS091217_R.M Fri Feb 05 17:26:54 2021

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:52
Operator : CB
Sample : P2100515-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:28:41 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

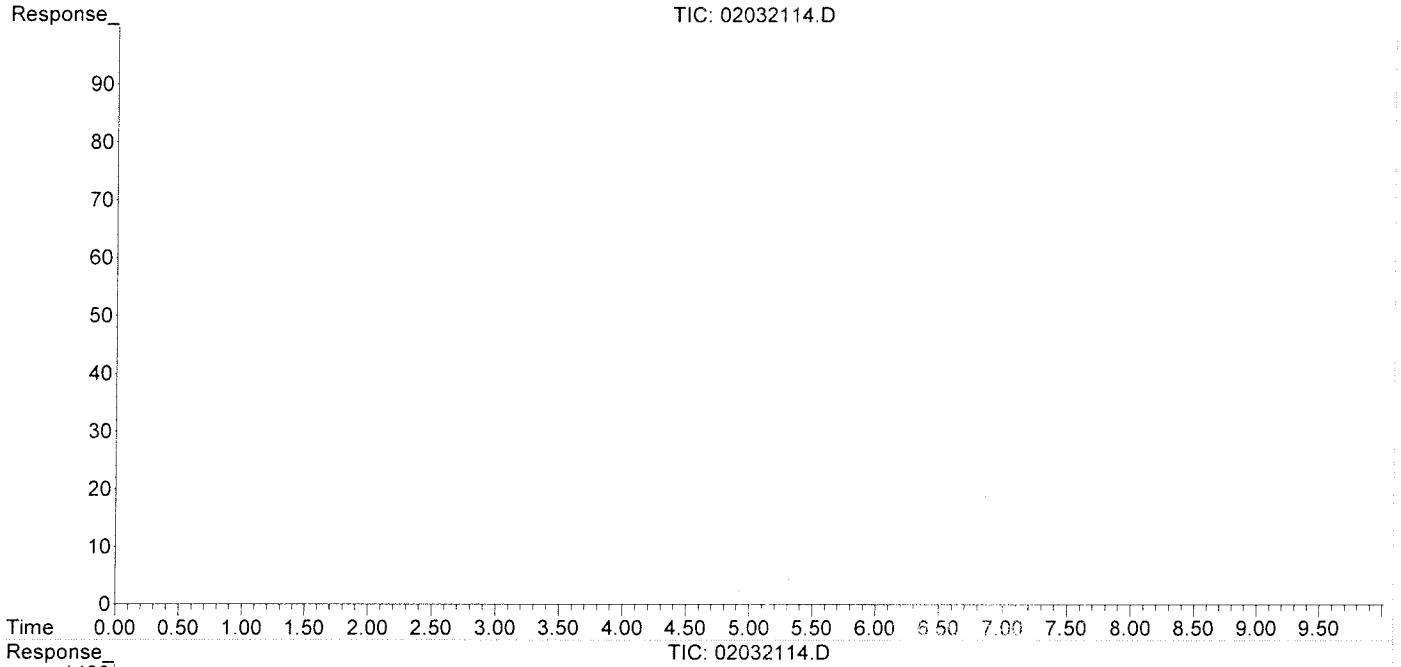
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	1634	0.180	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

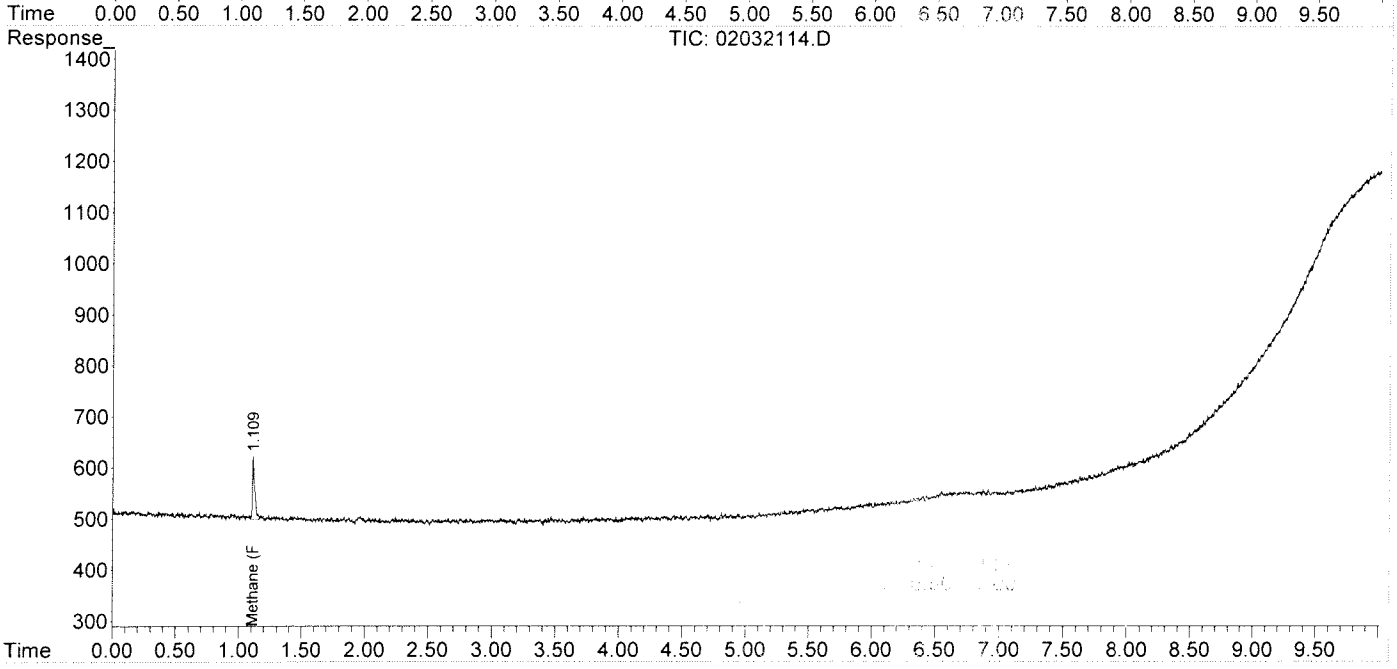
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 16:52
Operator : CB
Sample : P2100515-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:28:41 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:07
Operator : CB
Sample : P2100515-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:07 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

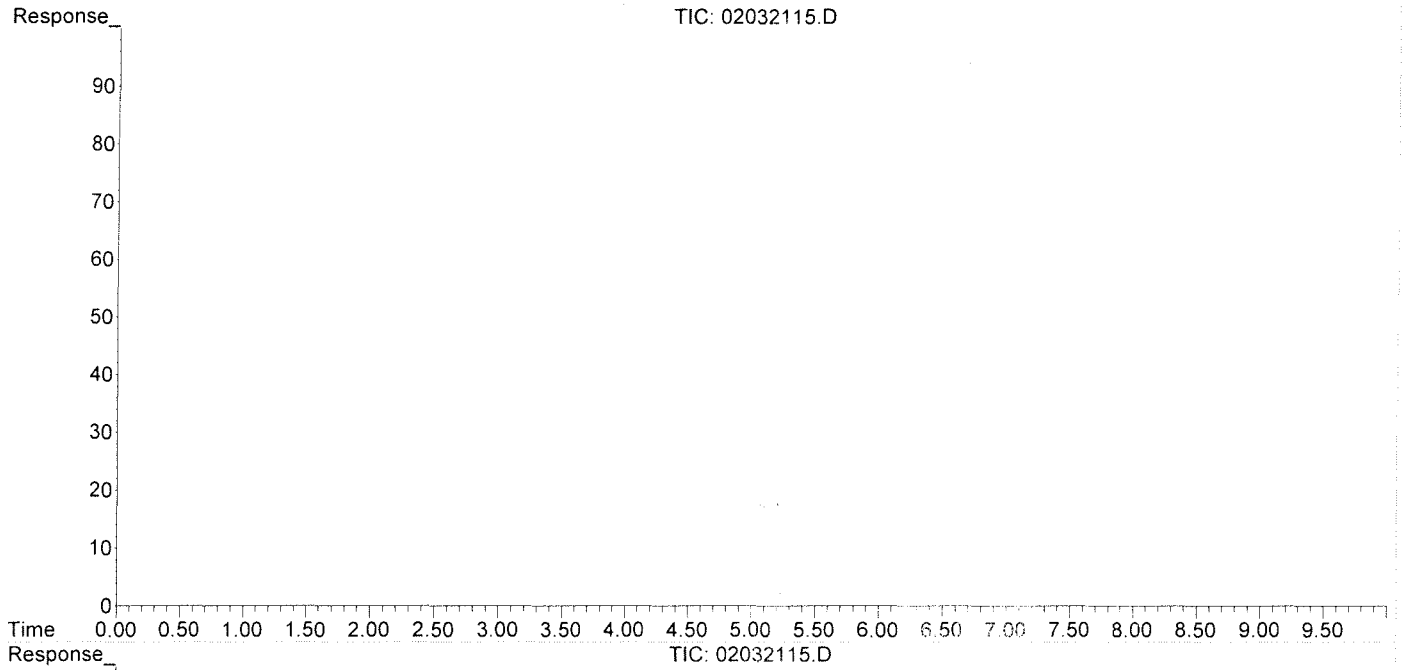
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.121	2890	0.319	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

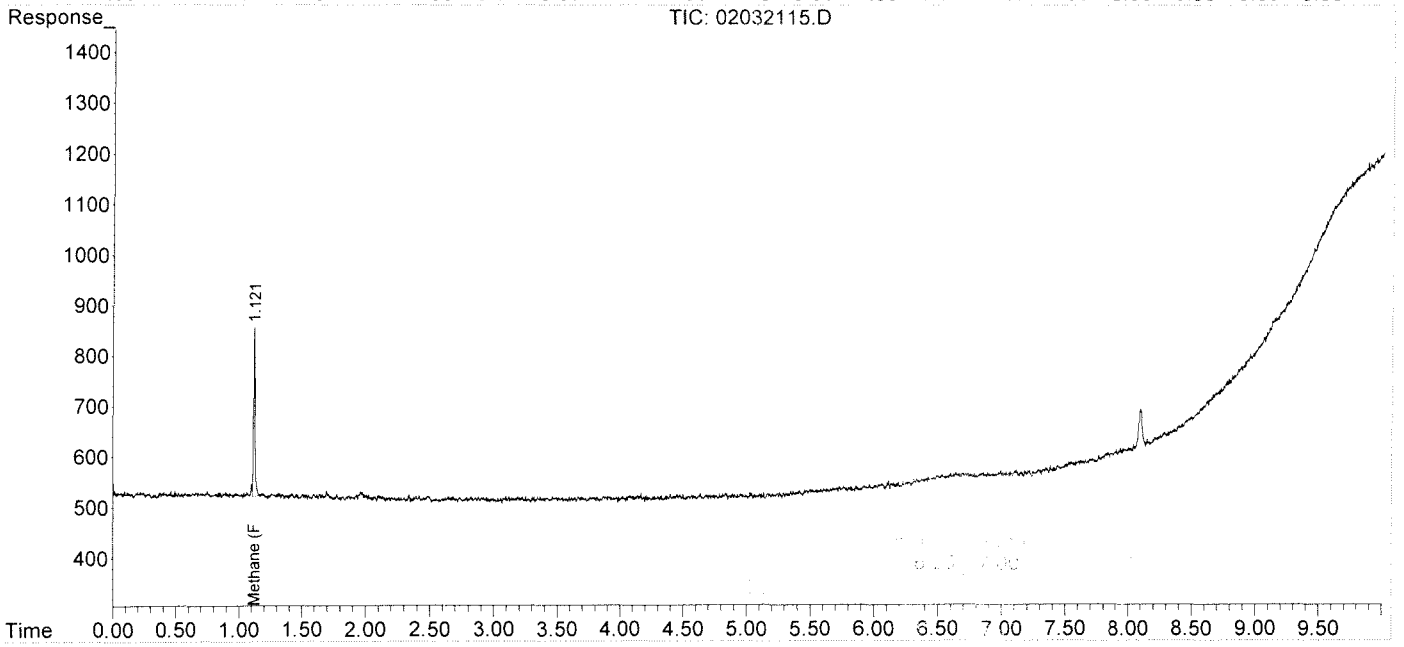
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:07
Operator : CB
Sample : P2100515-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:07 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

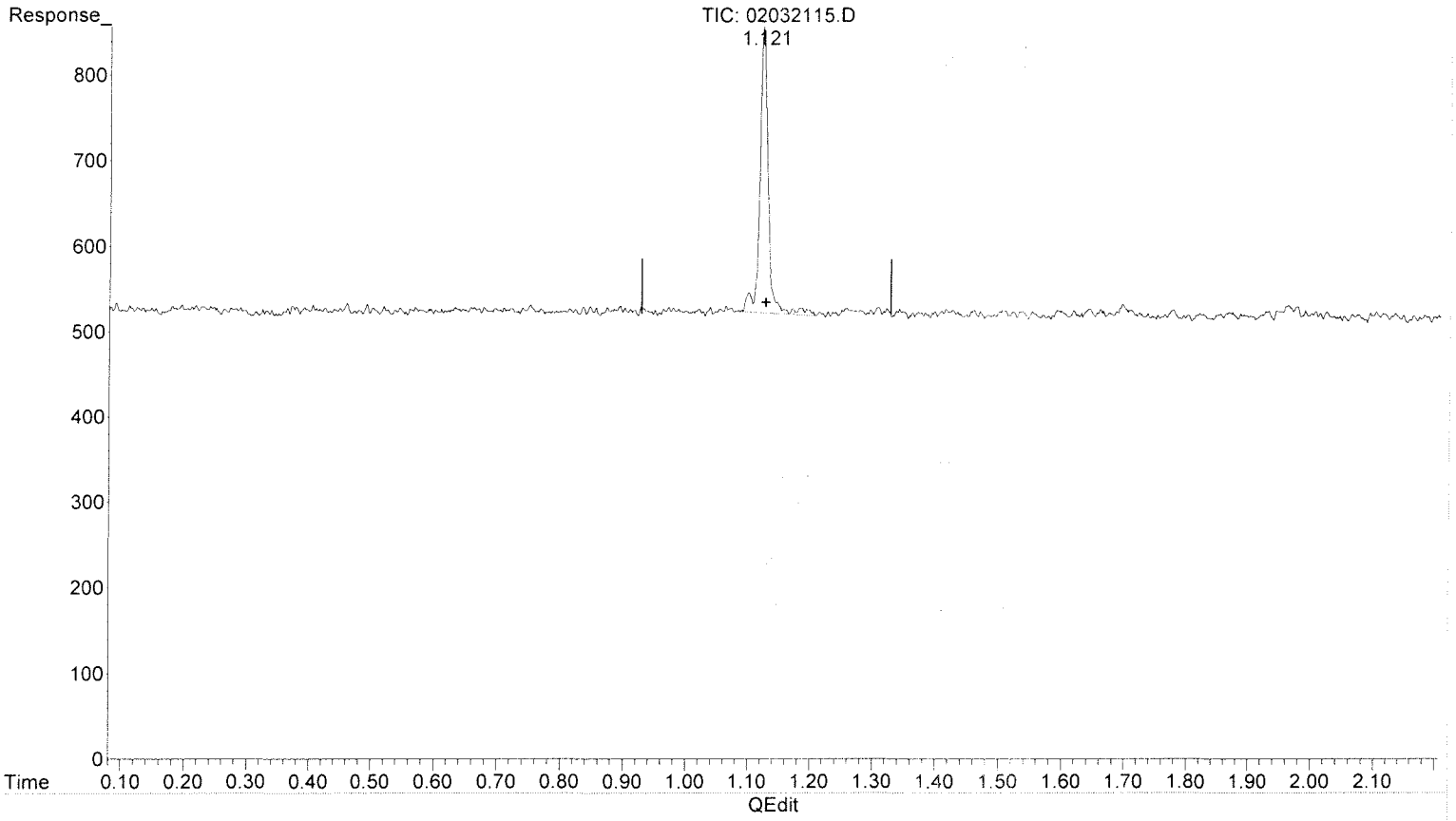




Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:07
Operator : CB
Sample : P2100515-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:07 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.122min 0.351 ppm

response 3186

Manual Integration:

Before

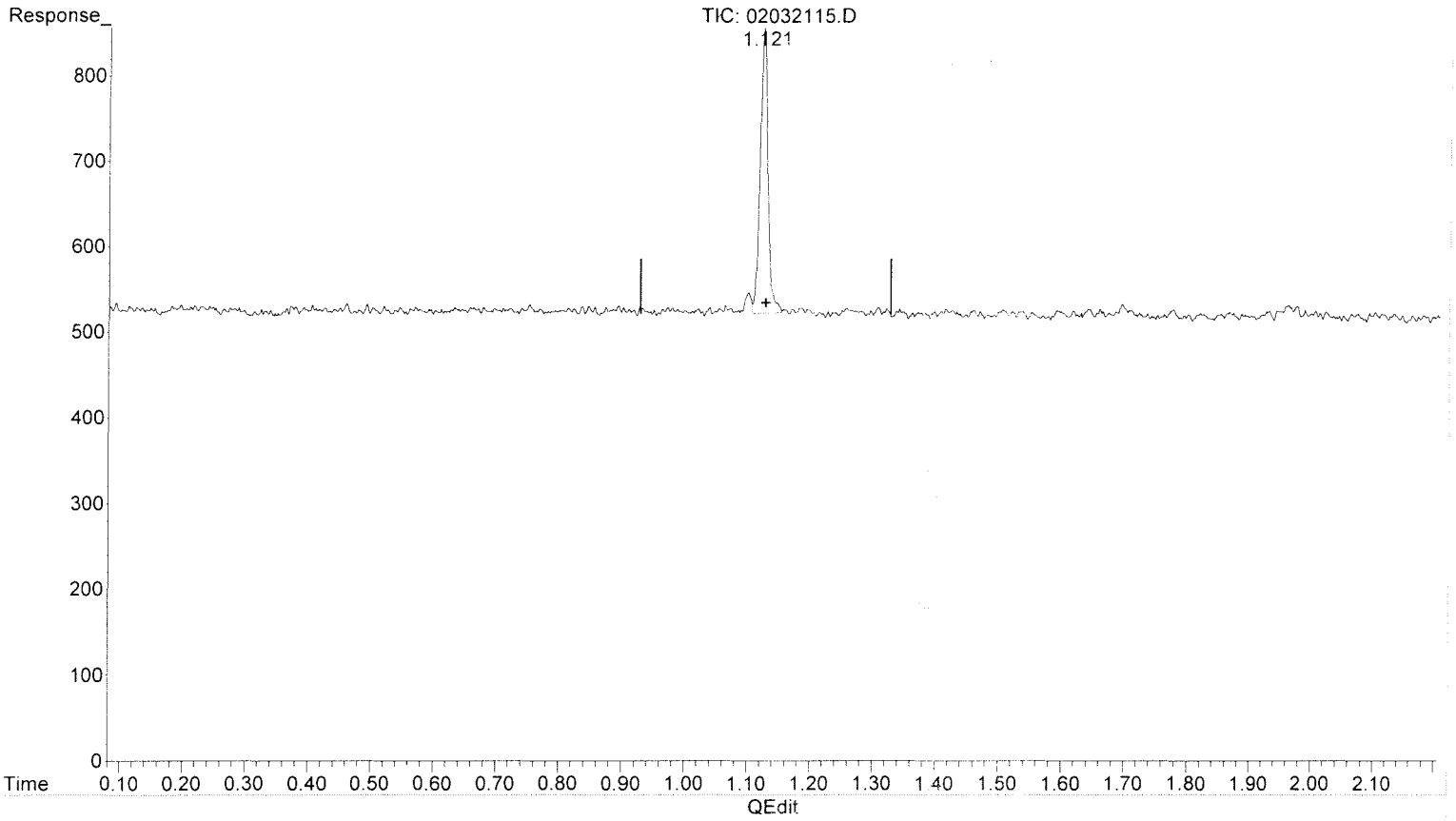
02/05/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032115.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:07
Operator : CB
Sample : P2100515-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:07 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)
1.121min 0.319 ppm m
response 2890

Manual Integration:
After
BLC
02/05/21

2/11/21

(+) = Expected Retention Time
RS091217_R.M Fri Feb 05 17:29:21 2021 Page: 1

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:20
Operator : CB
Sample : P2100515-006 MS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

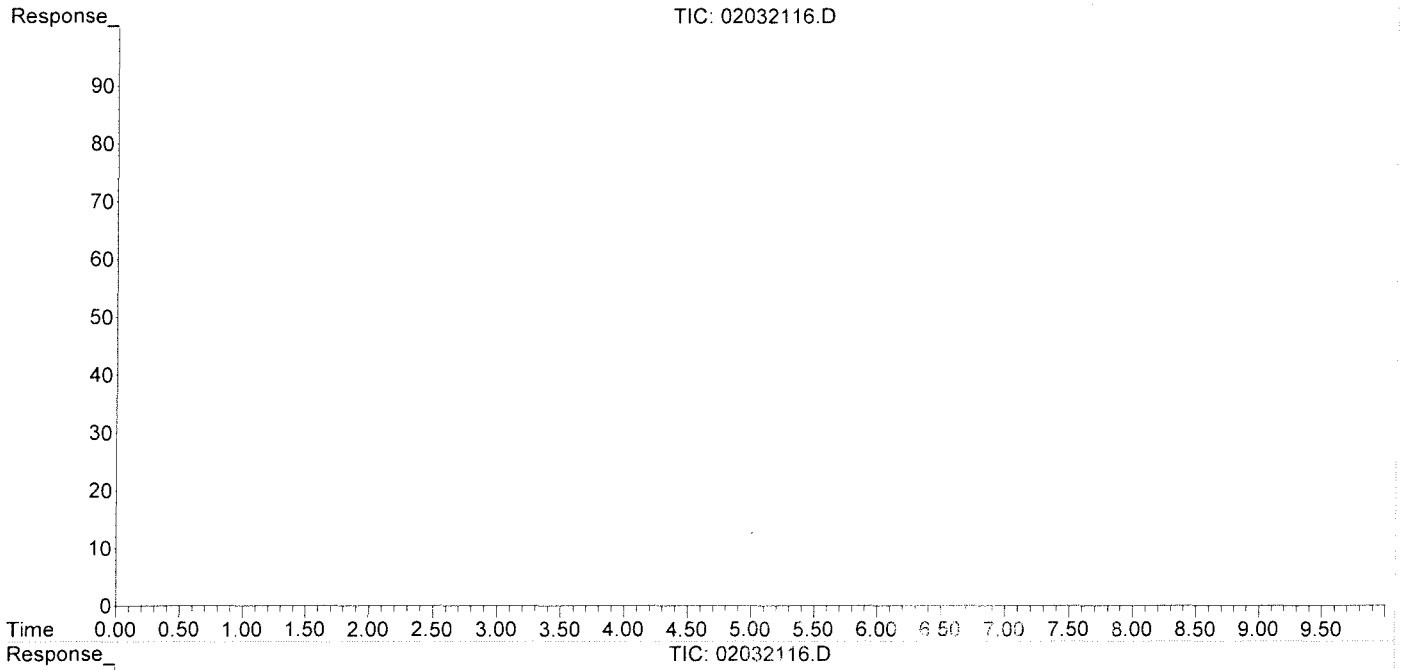
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.125	10866	1.198	ppm	m
7)	Ethylene	1.698	12400	0.741	ppm	
8)	Ethane	1.966	14543	0.858	ppm	
9)	Propylene	4.349	17379	0.742	ppm	
10)	Propane	4.469	21660	0.871	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.676	29334	1.102	ppm	
13)	n-Butane	6.676	29334	1.102	ppm	

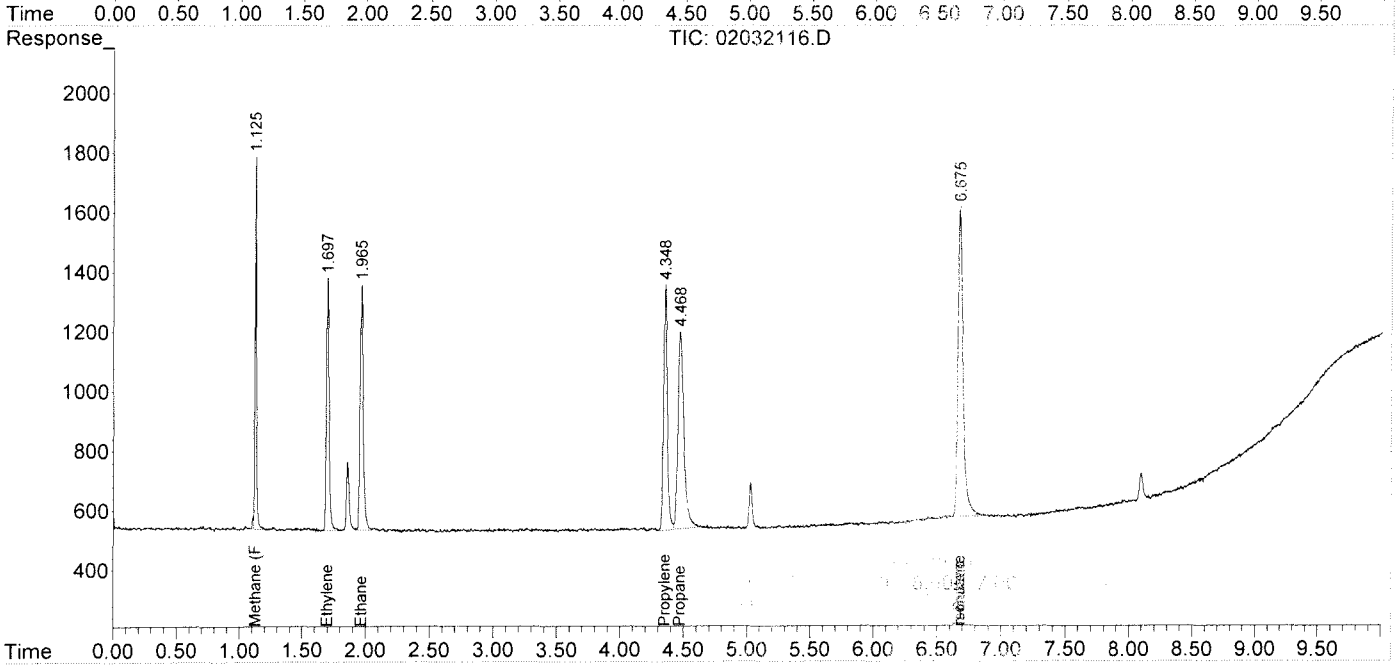
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:20
Operator : CB
Sample : P2100515-006 MS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

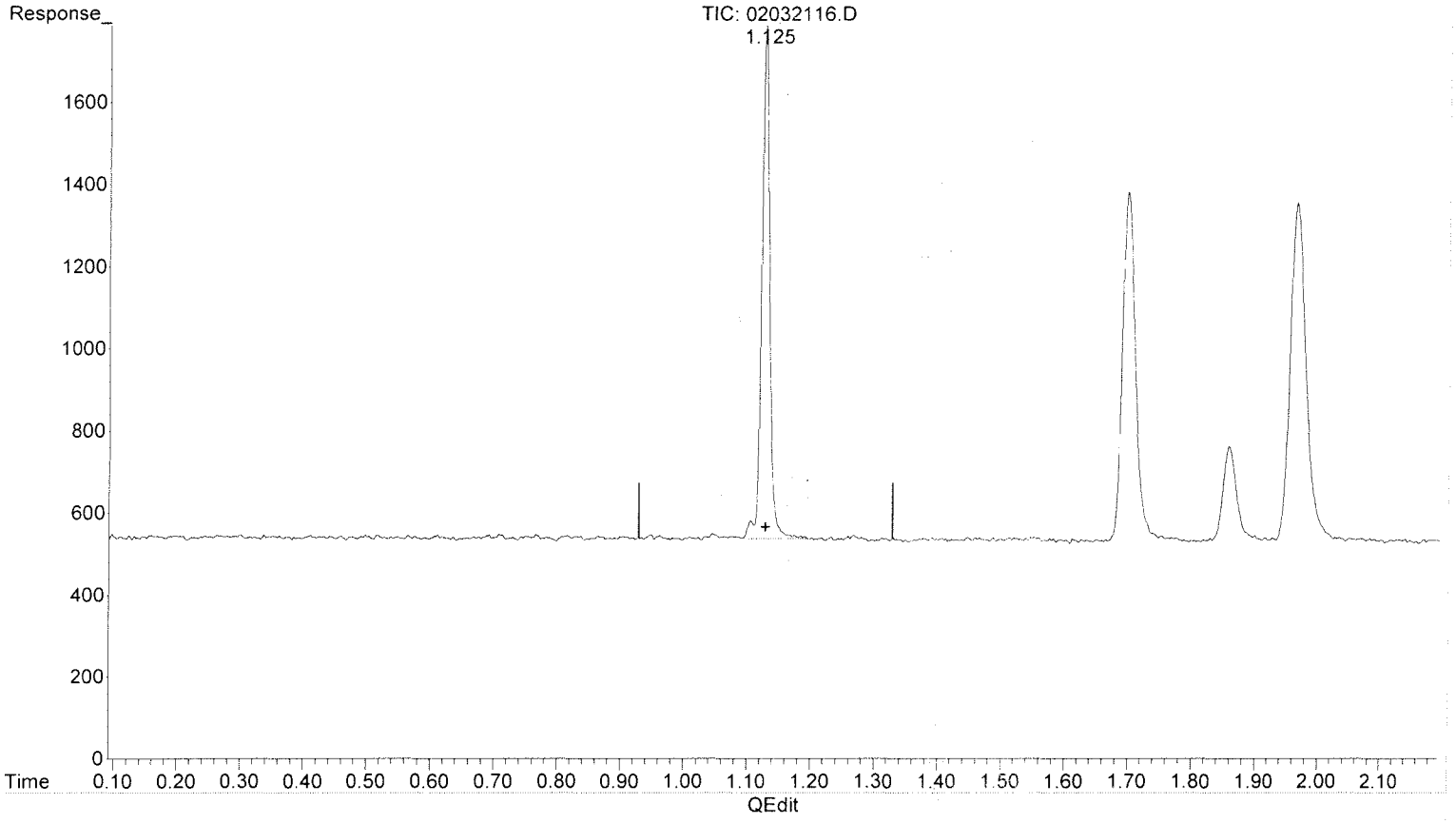




Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:20
Operator : CB
Sample : P2100515-006 MS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.126min 1.230 ppm

response 11154

Manual Integration:

Before

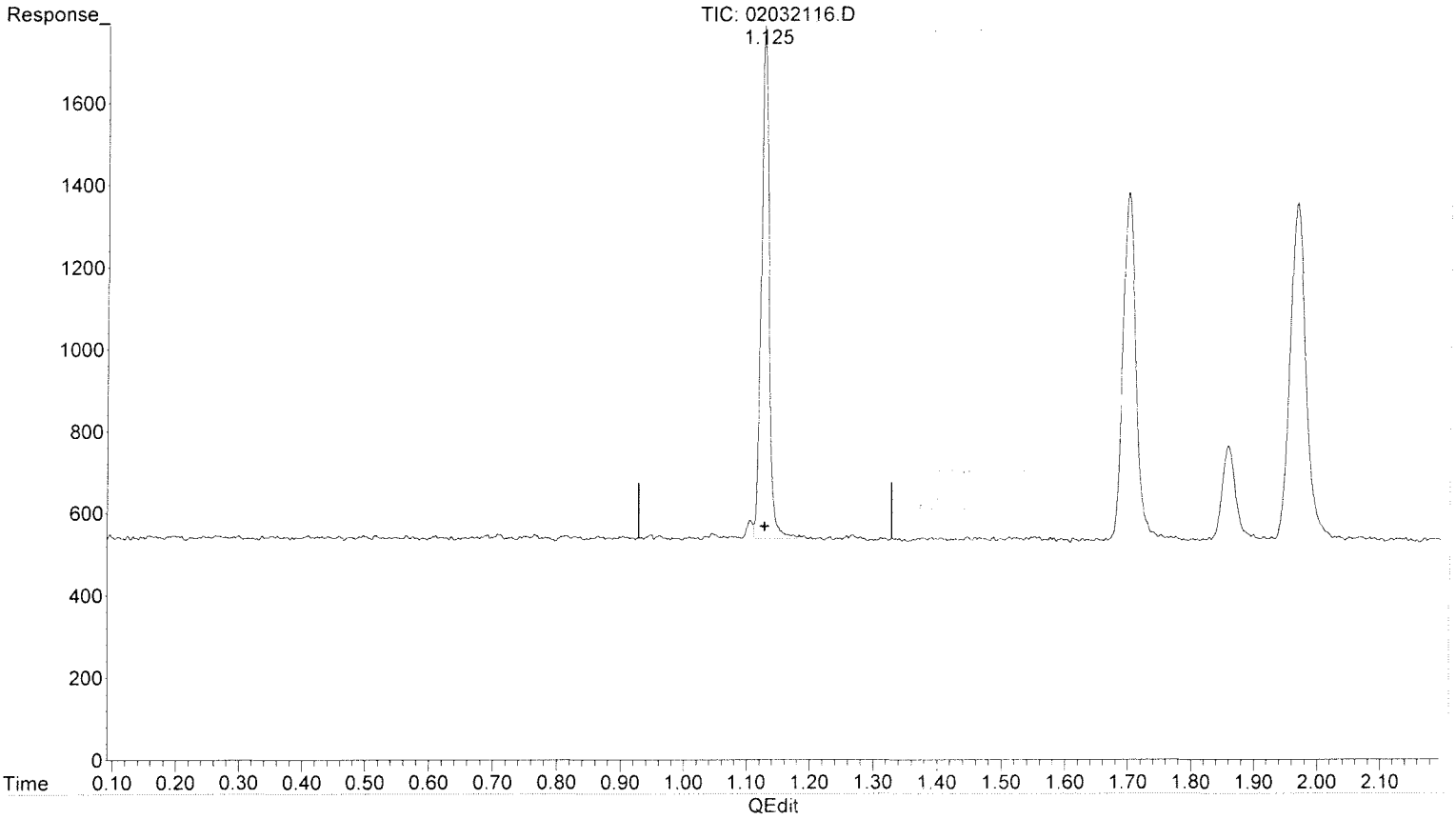
02/05/21

(+) = Expected Retention Time

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:20
Operator : CB
Sample : P2100515-006 MS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:29:50 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)
1.125min 1.198 ppm m
response 10866

Manual Integration:
After
BLC
02/05/21

(+) = Expected Retention Time
RS091217_R.M Fri Feb 05 17:30:04 2021

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032117.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:35
Operator : CB
Sample : P2100515-006 MSD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:30:24 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

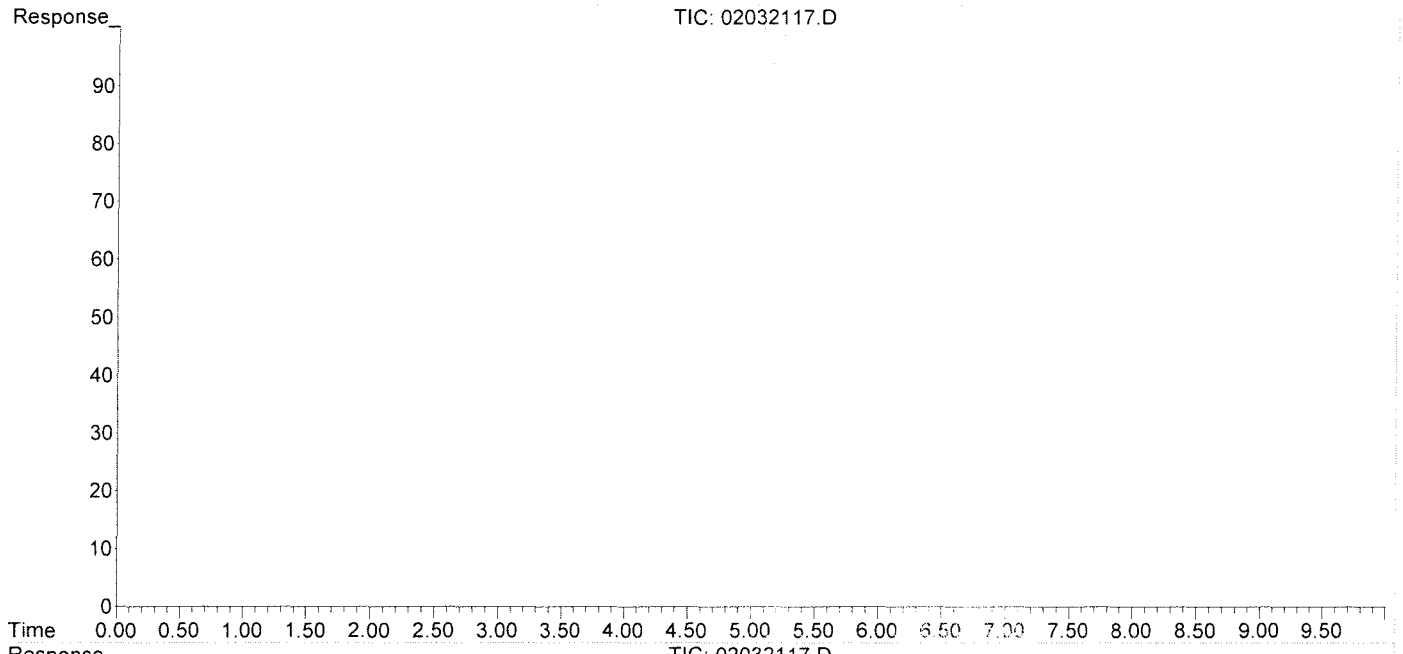
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.126	12543	1.383	ppm
7)	Ethylene	1.700	12124	0.725	ppm
8)	Ethane	1.967	14003	0.826	ppm
9)	Propylene	4.351	16843	0.719	ppm
10)	Propane	4.472	20523	0.825	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.676	28404	1.067	ppm
13)	n-Butane	6.676	28404	1.067	ppm

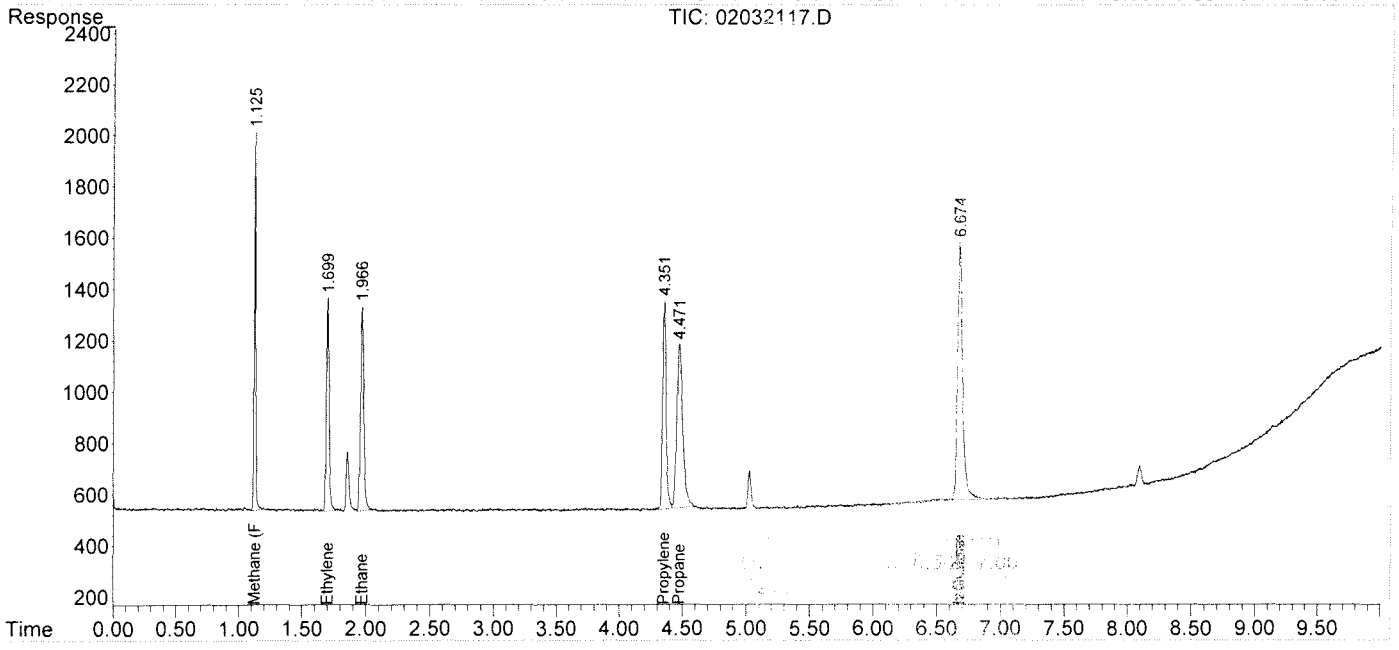
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032117.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:35
Operator : CB
Sample : P2100515-006 MSD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 05 17:30:24 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:24
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:25 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

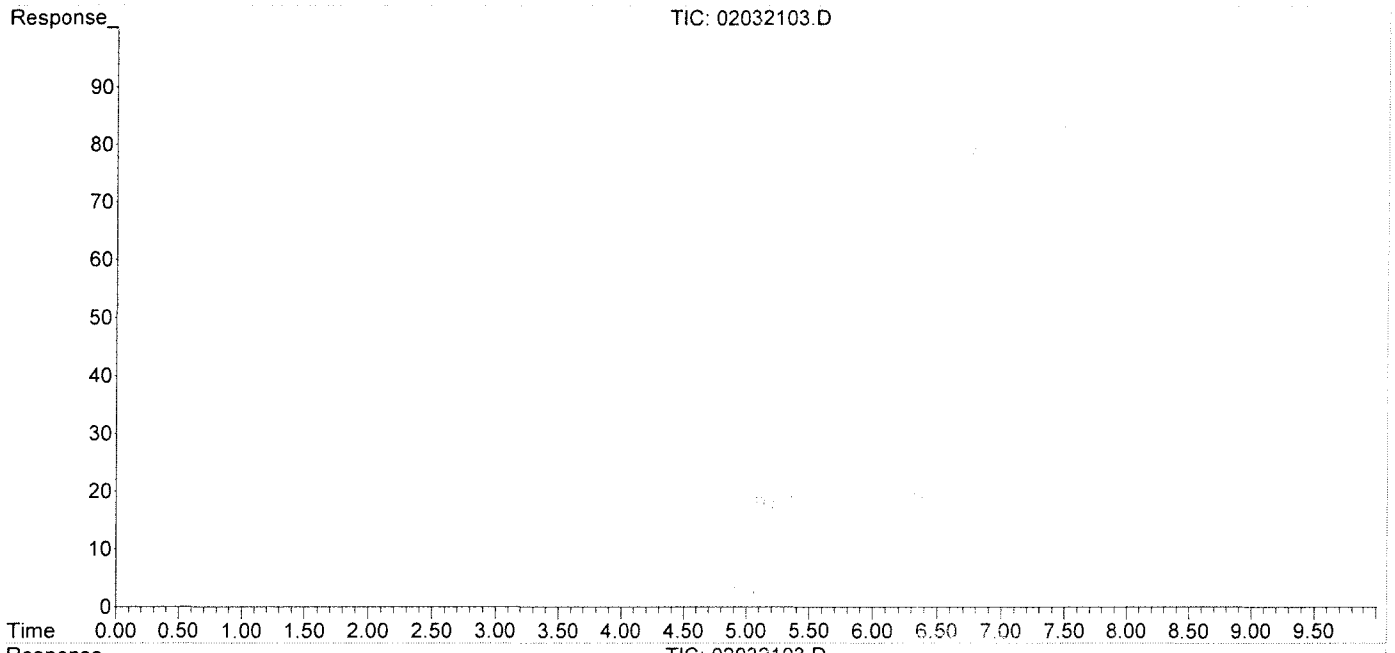
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.129	882	0.097	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

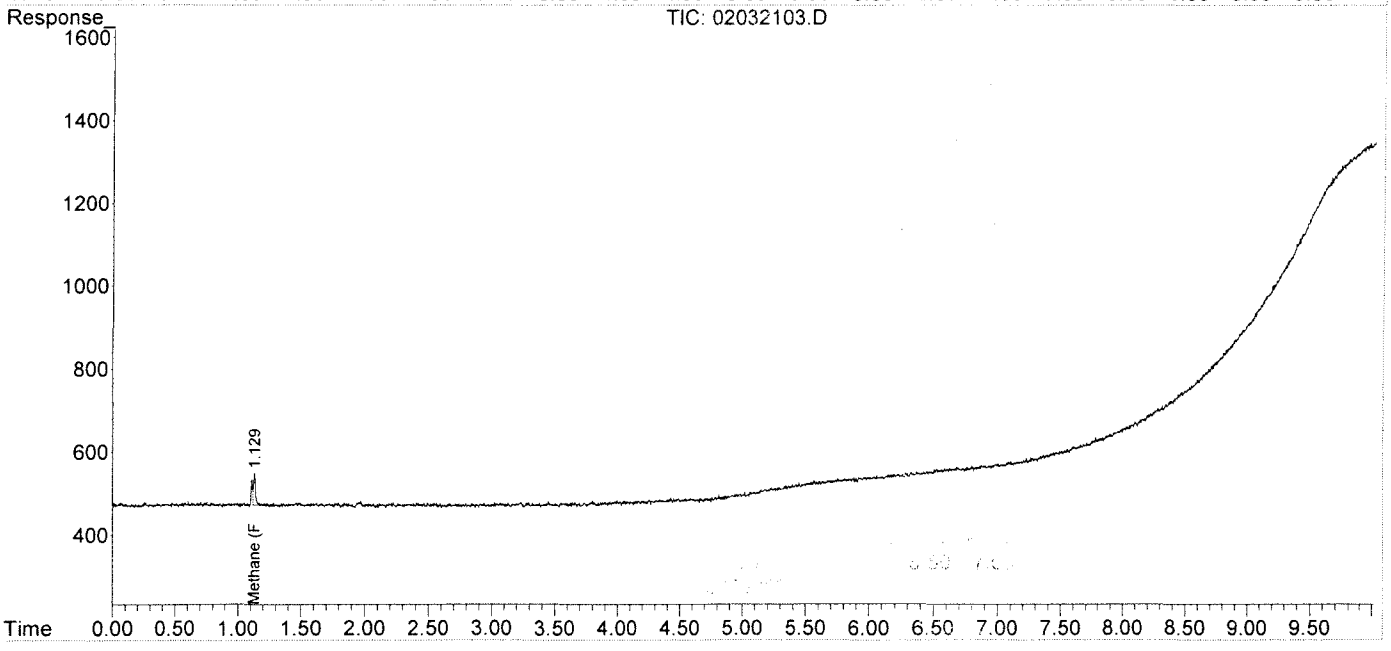
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:24
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:25 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:52
Operator : CB
Sample : LCS S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

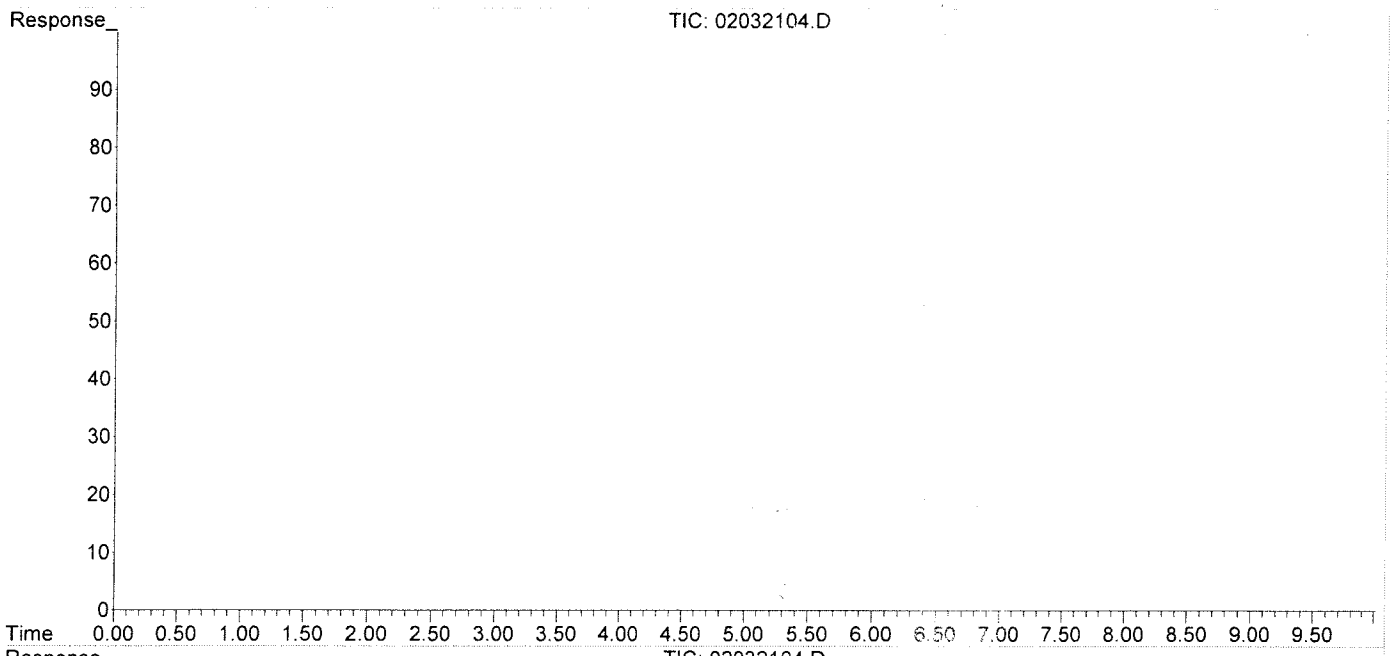
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.128	12063	1.330	ppm	m
7)	Ethylene	1.702	17780	1.062	ppm	m
8)	Ethane	1.970	21303	1.257	ppm	
9)	Propylene	4.348	25032	1.068	ppm	
10)	Propane	4.469	31502	1.266	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.675	43006	1.616	ppm	
13)	n-Butane	6.675	43006	1.616	ppm	

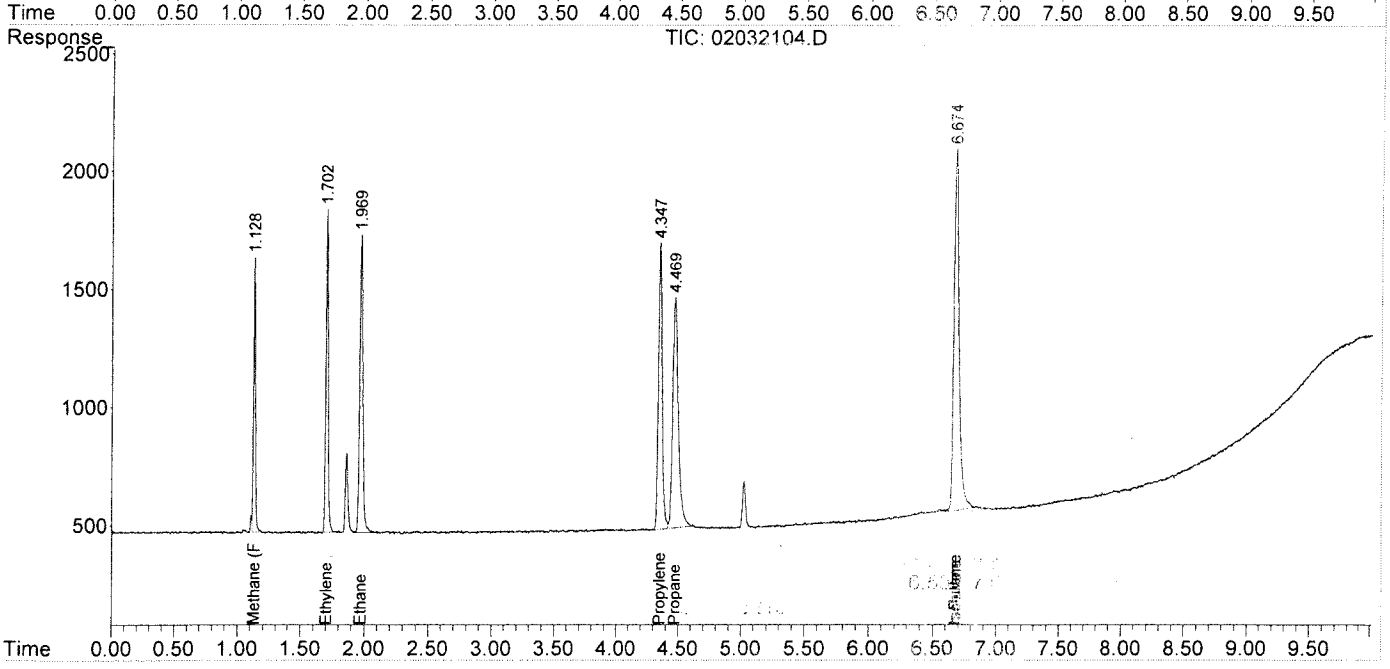
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:52
Operator : CB
Sample : LCS S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

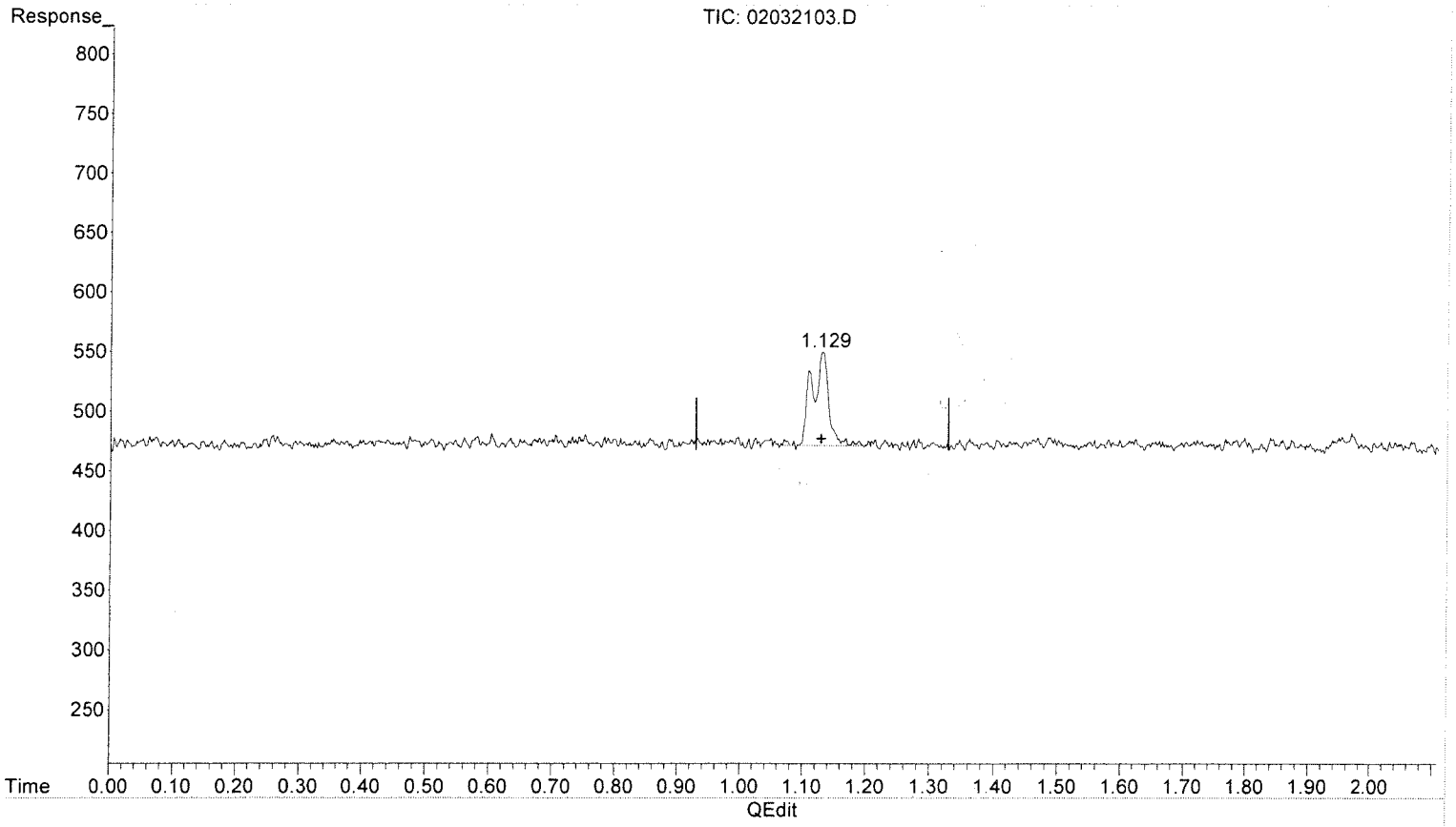




Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:24
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:25 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.130min 0.164 ppm

response 1484

Manual Integration:

Before

02/05/21

(+) = Expected Retention Time

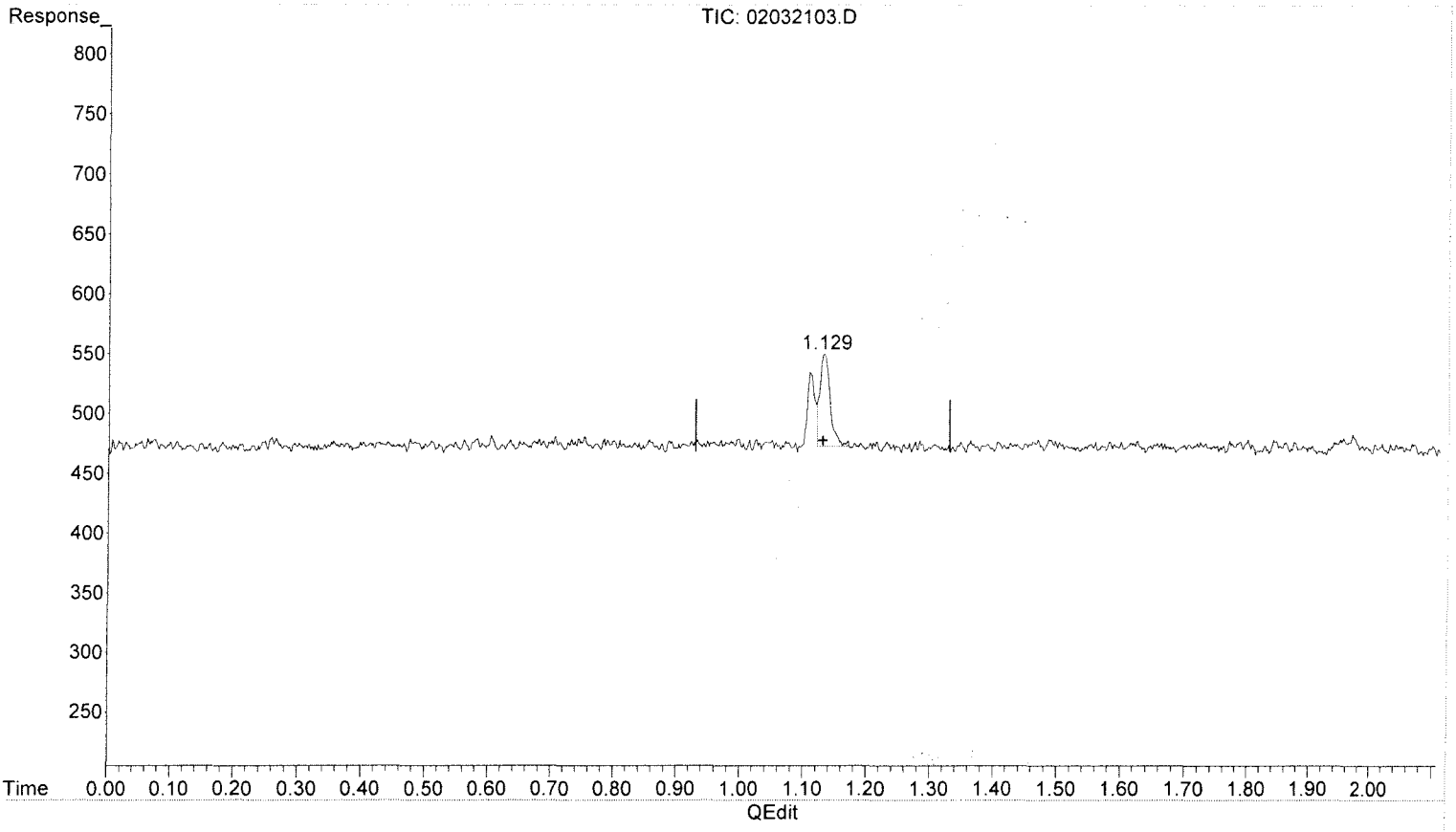
RS091217_R.M Fri Feb 05 14:58:43 2021

01080147

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:24
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:25 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.129min 0.097 ppm m

response 882

Manual Integration:

After

BLC

02/05/21

(+) = Expected Retention Time

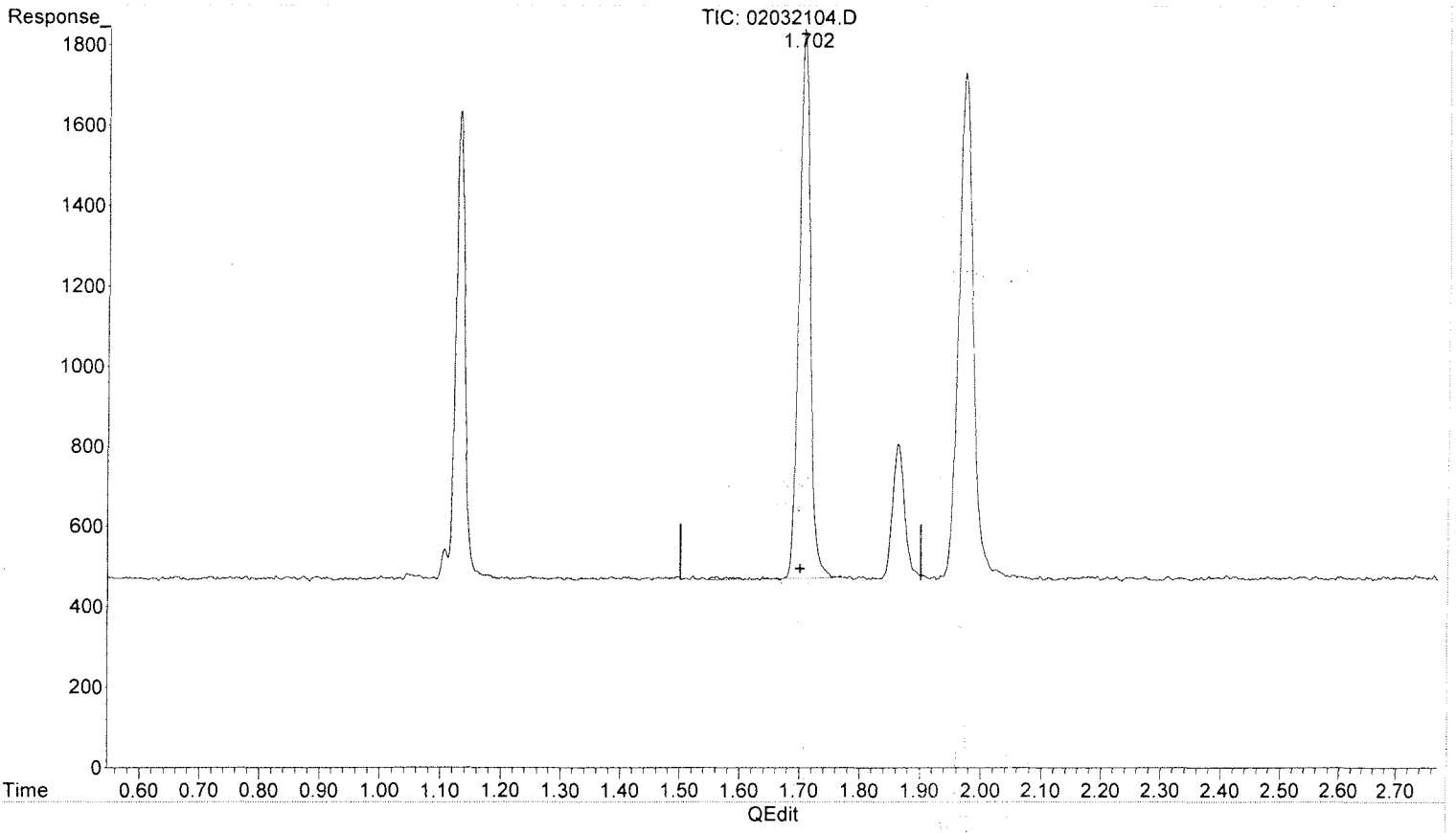
RS091217_R.M Fri Feb 05 14:58:52 2021

01080148

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:52
Operator : CB
Sample : LCS S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(7) Ethylene
1.703min 1.069 ppm
response 17896

Manual Integration:
Before

02/05/21

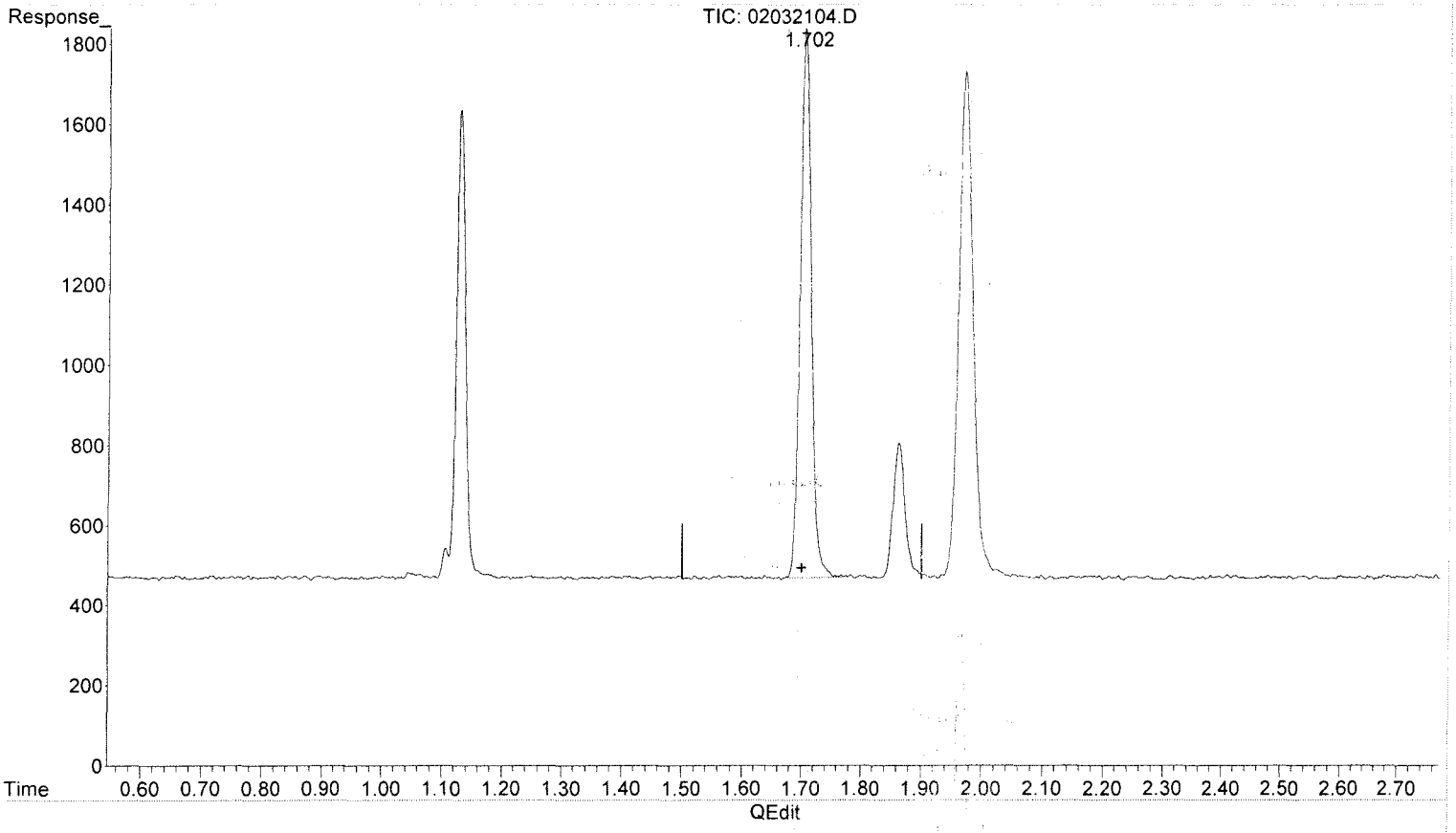
(+) = Expected Retention Time
RS091217_R.M Fri Feb 05 14:59:07 2021

01080149

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 13:52
Operator : CB
Sample : LCS S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:27:36 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(7) Ethylene
1.702min 1.062 ppm m
response 17780

Manual Integration:
After
BLC
02/05/21

(+) = Expected Retention Time
RS091217_R.M Fri Feb 05 14:59:13 2021

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 14:11
Operator : CB
Sample : LCSD S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:28:00 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

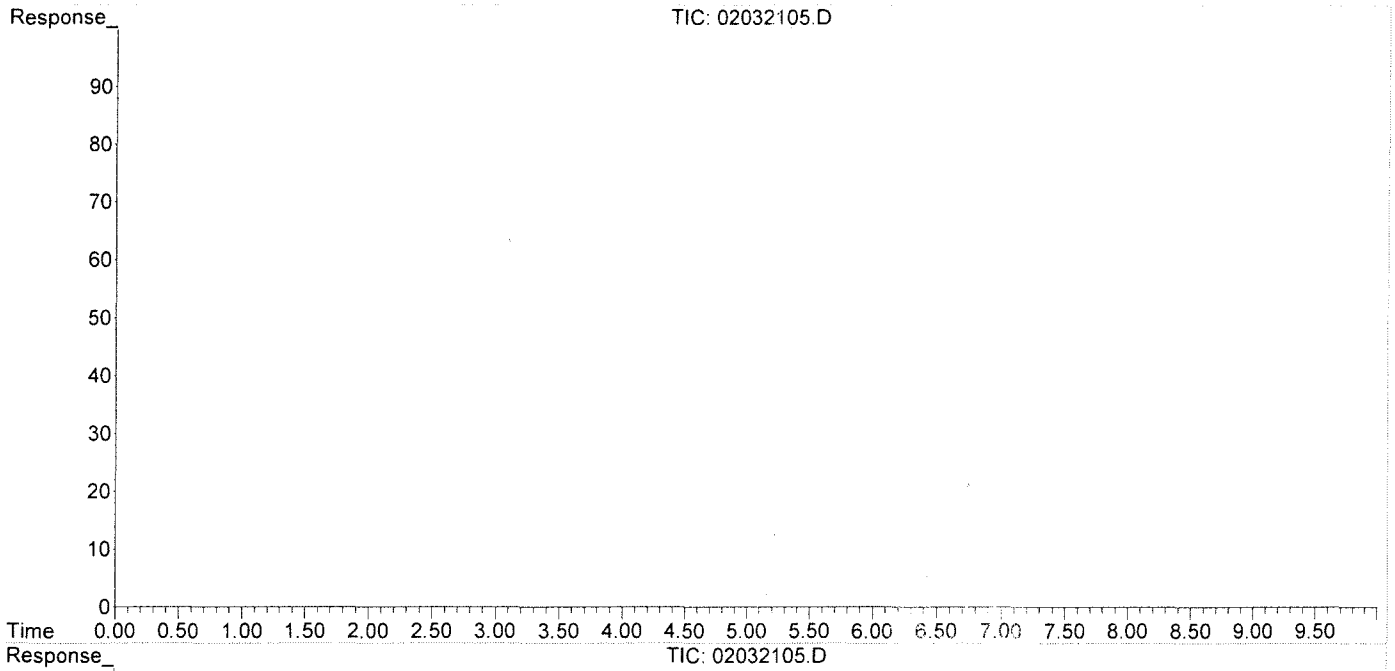
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.129	11869	1.309	ppm
7)	Ethylene	1.705	18138	1.084	ppm
8)	Ethane	1.972	21497	1.268	ppm
9)	Propylene	4.351	25328	1.081	ppm
10)	Propane	4.471	31853	1.280	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.676	46504	1.747	ppm
13)	n-Butane	6.676	46504	1.747	ppm

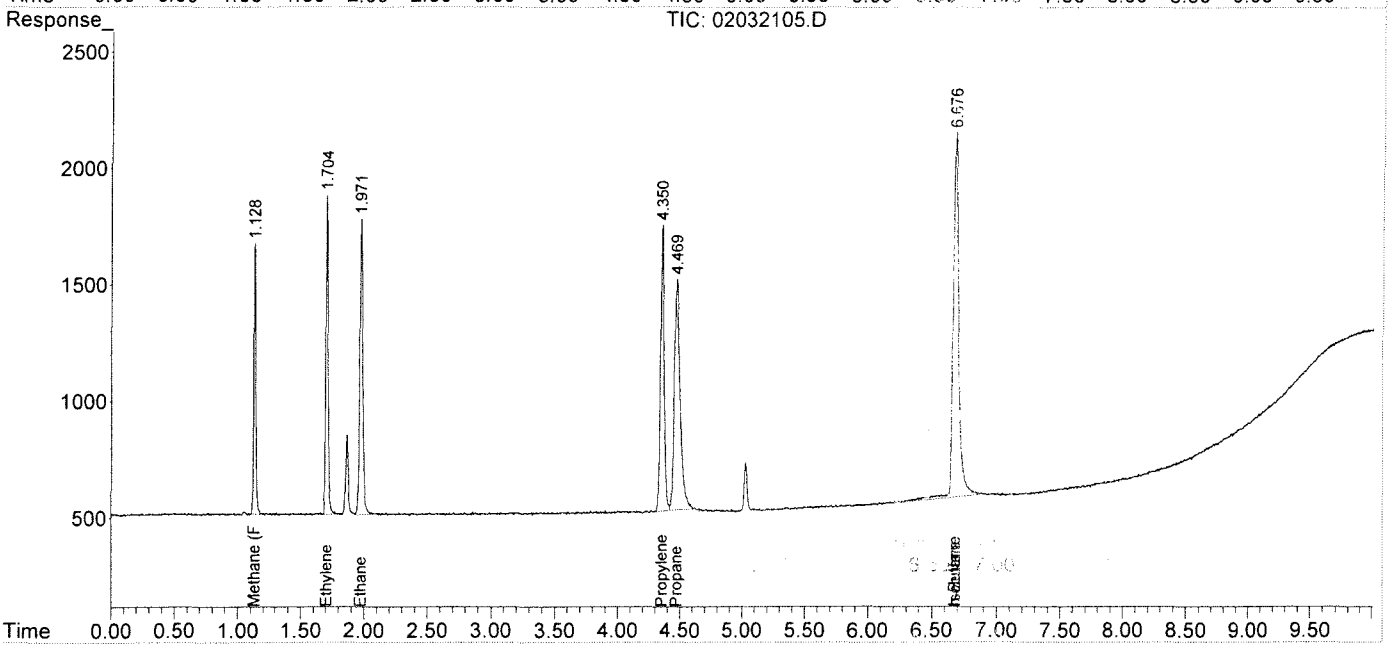
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 14:11
Operator : CB
Sample : LCSD S32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 14:28:00 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793 E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594 E6	221.92
3)	Methane (TCD)						2.161	0.951 E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438 E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg	%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907 E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673 E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695 E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343 E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488 E4	4.20
11)	Isobutylene							0.652 E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662 E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

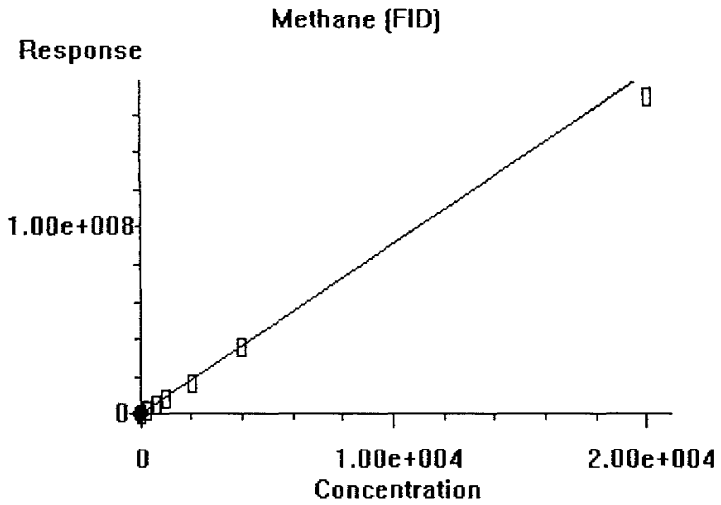
Edit Compounds -- Compound #6 -- Methane (FID)

Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	0.151000		11	20000.000000	169009160.49199
2	0.302000	3564.400000			
3	1.510000	14725.268625			
4	4.530000	41128.575000			
5	10.570000	91966.784531			
6	200.000000	1735997.497500			
7	600.000000	5189848.900000			
8	1000.000000	8598533.570000			
9	2000.000000	16098209.390000			
10	4000.000000	35776839.311362			



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

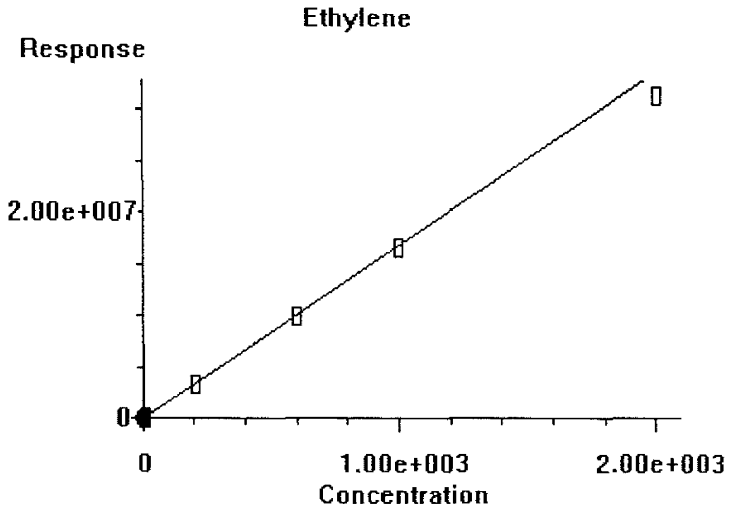
Search by: (•) Ret Time ( ) Name ( ) Index [ ] Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

[OK] [Cancel] [Help] [Print Calibration Curve] [Copy Calibration Curve]

Edit Compounds -- Compound #8 -- Ethane

Search by: Ret Time | Name | Index | Find Compound

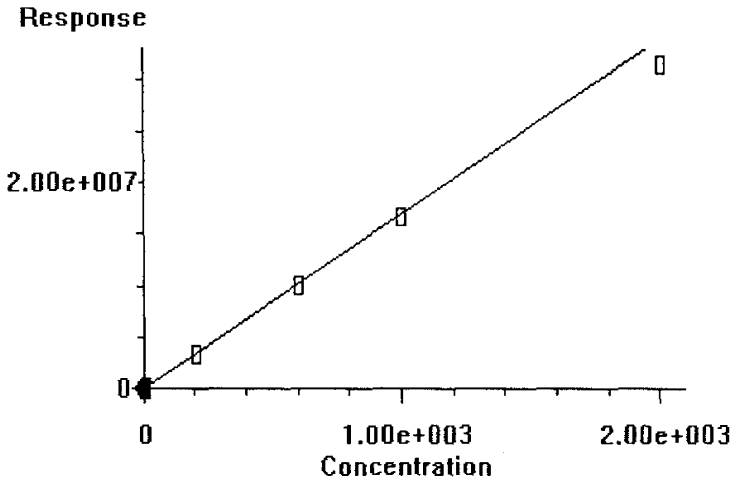
Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16709164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	

Ethane



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

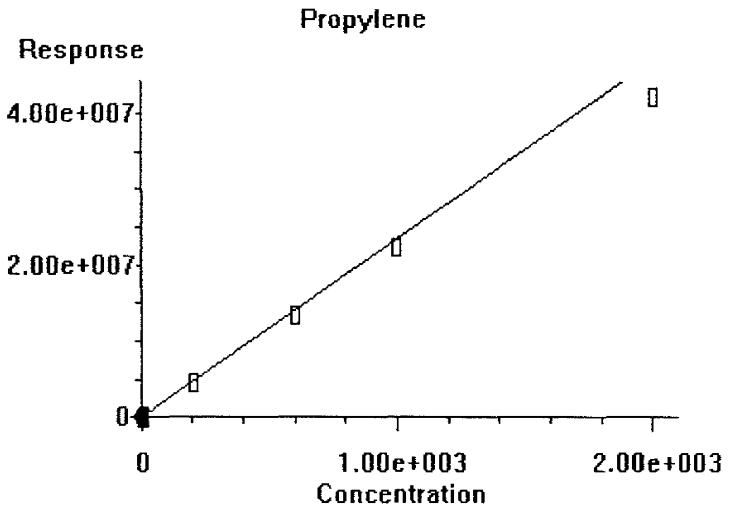
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

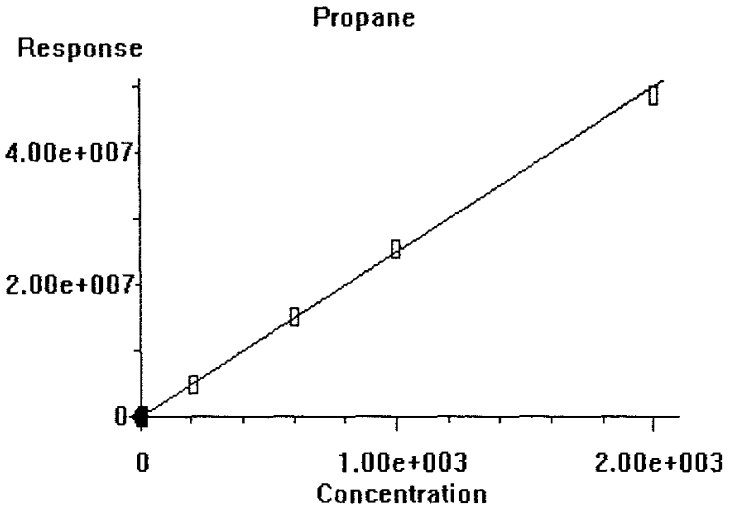
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

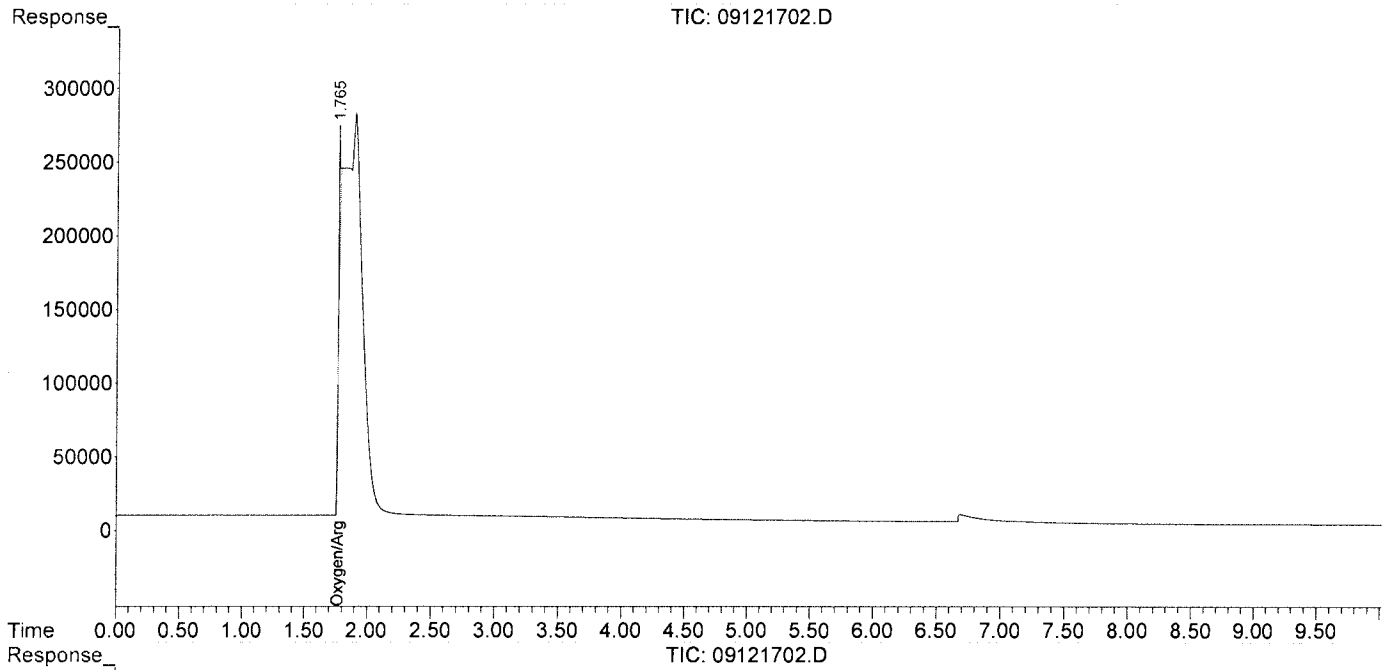
(f)=RT Delta > 1/2 Window (m)=manual int.

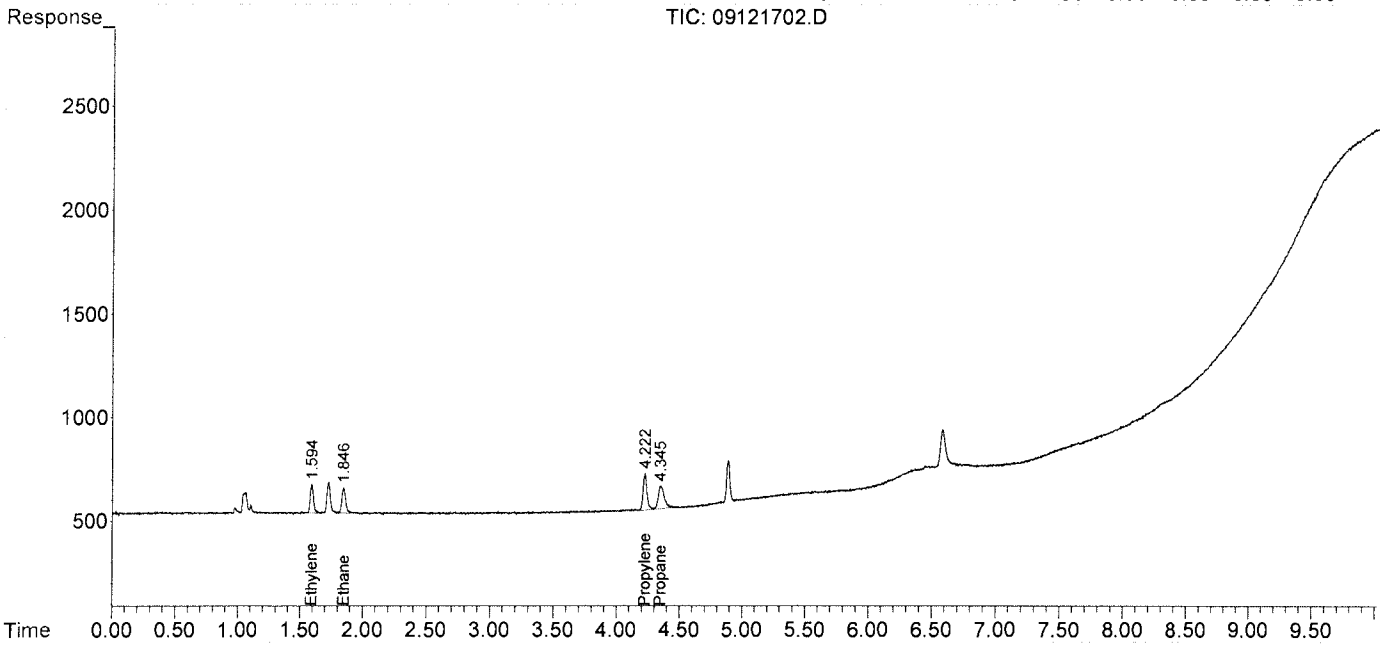
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

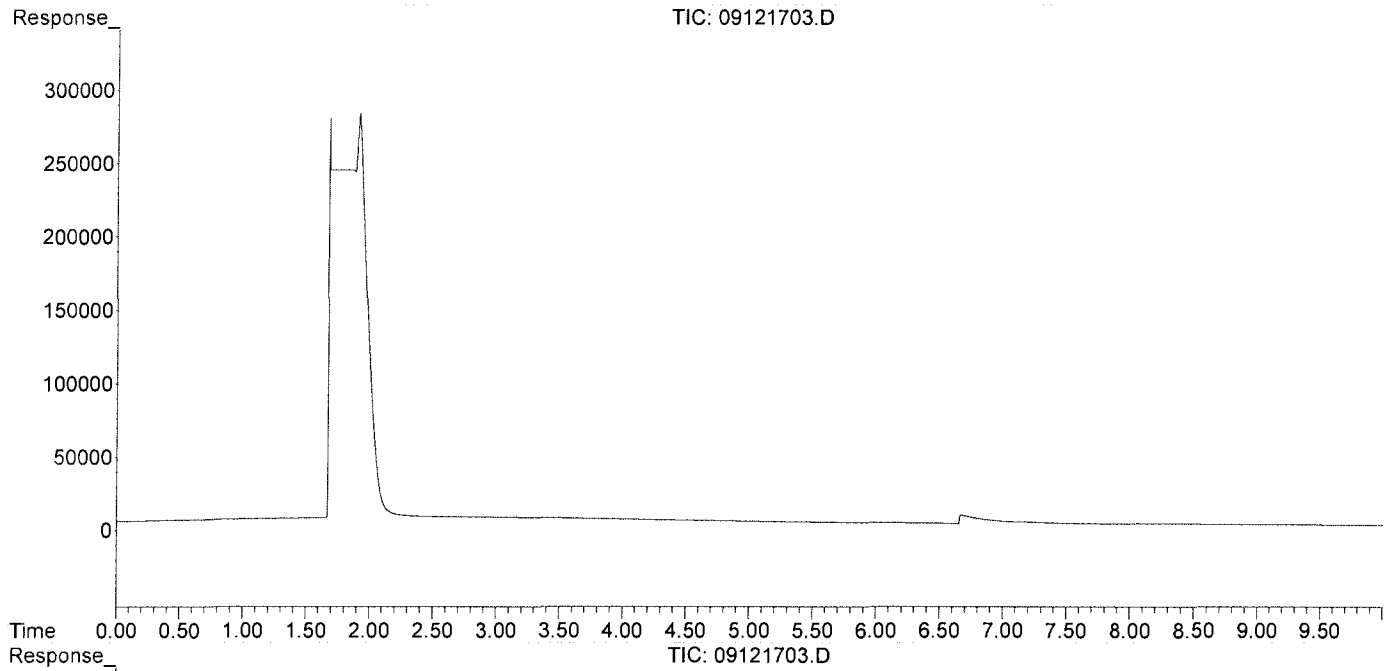
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

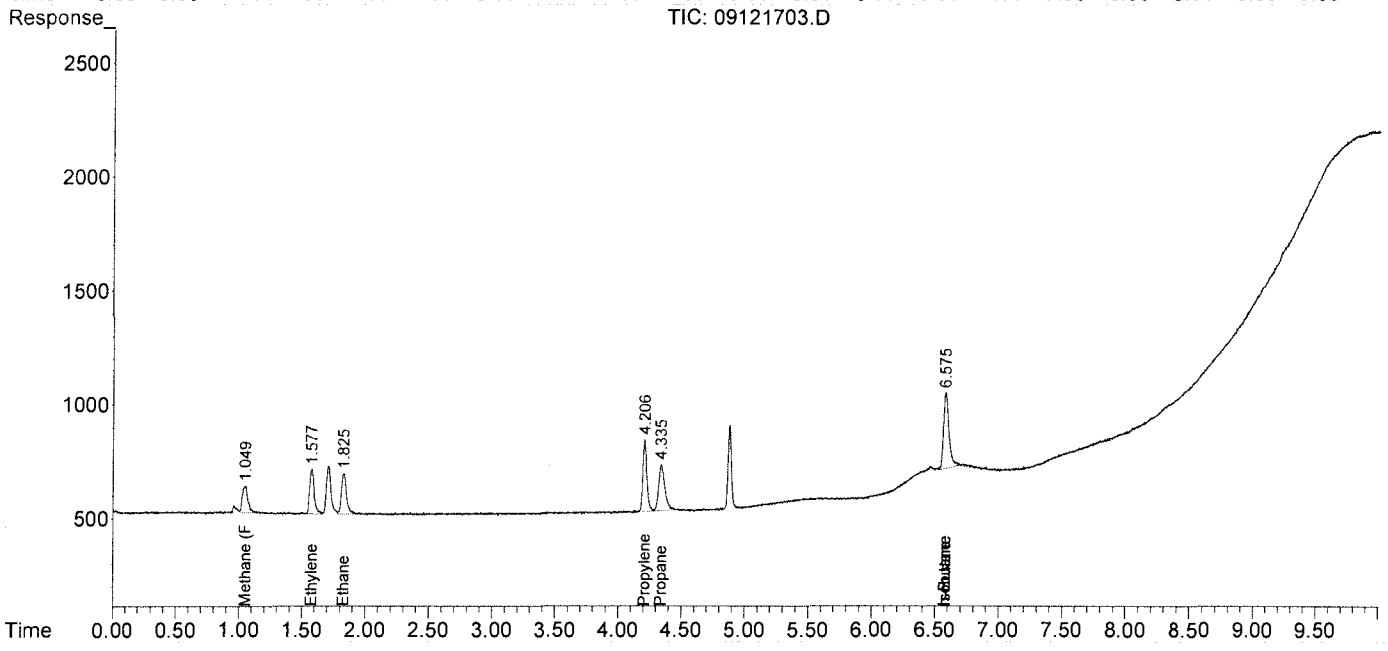
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

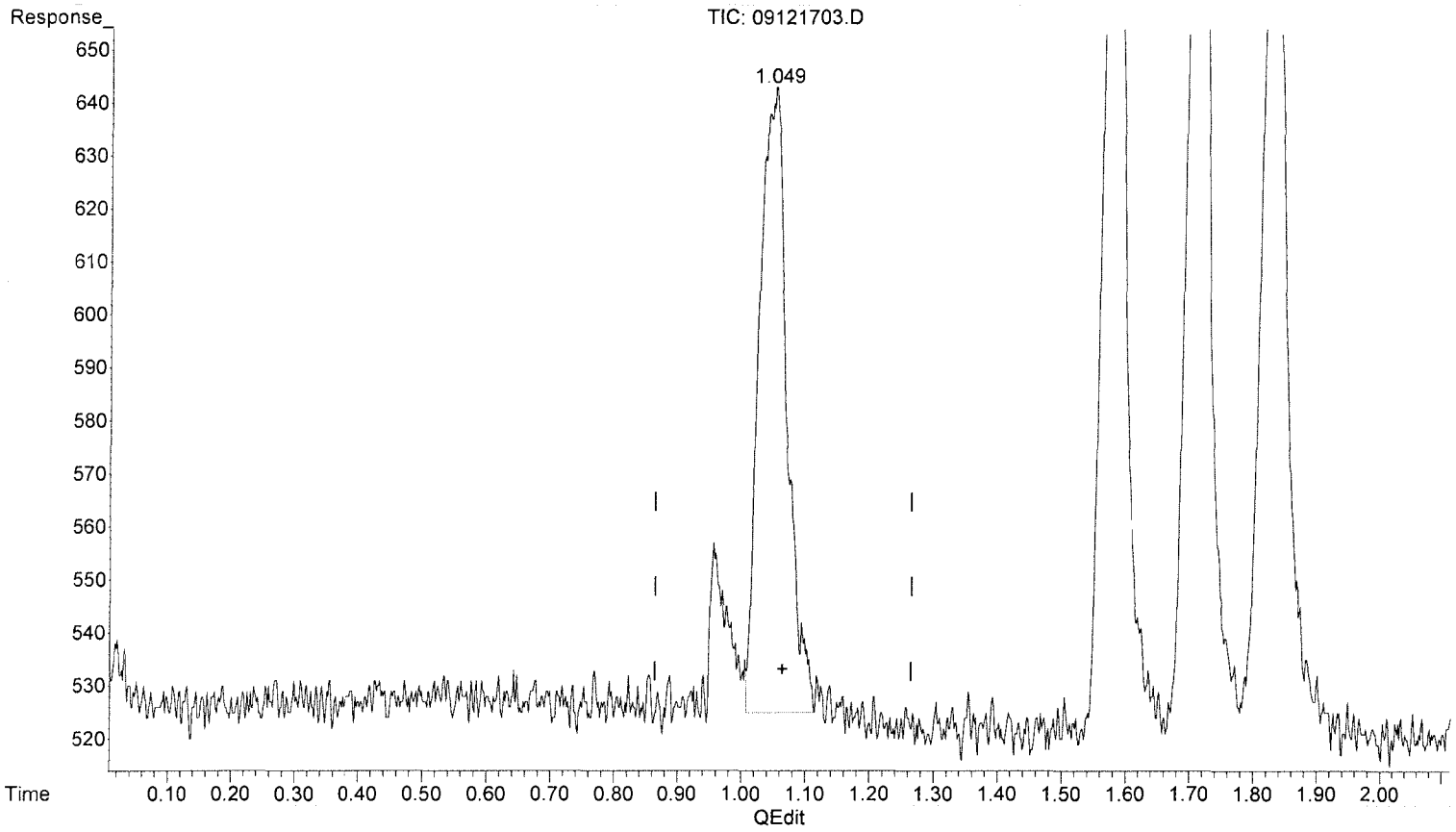




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

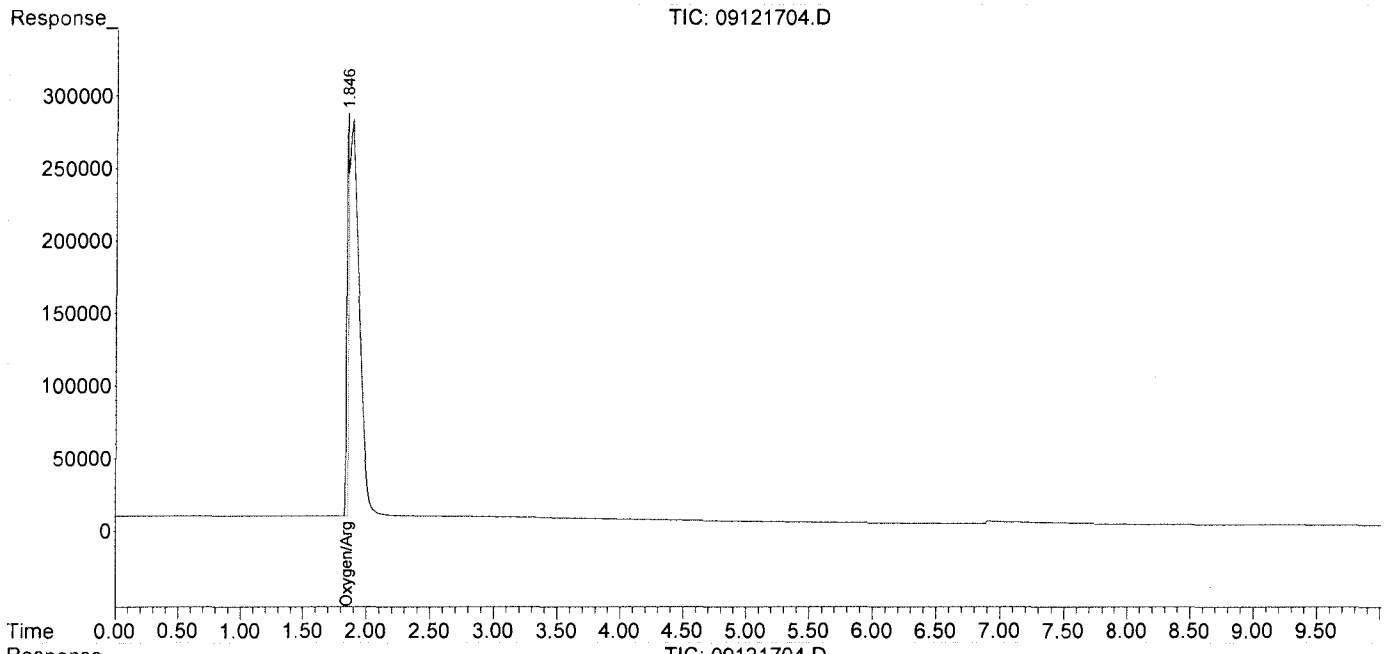
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

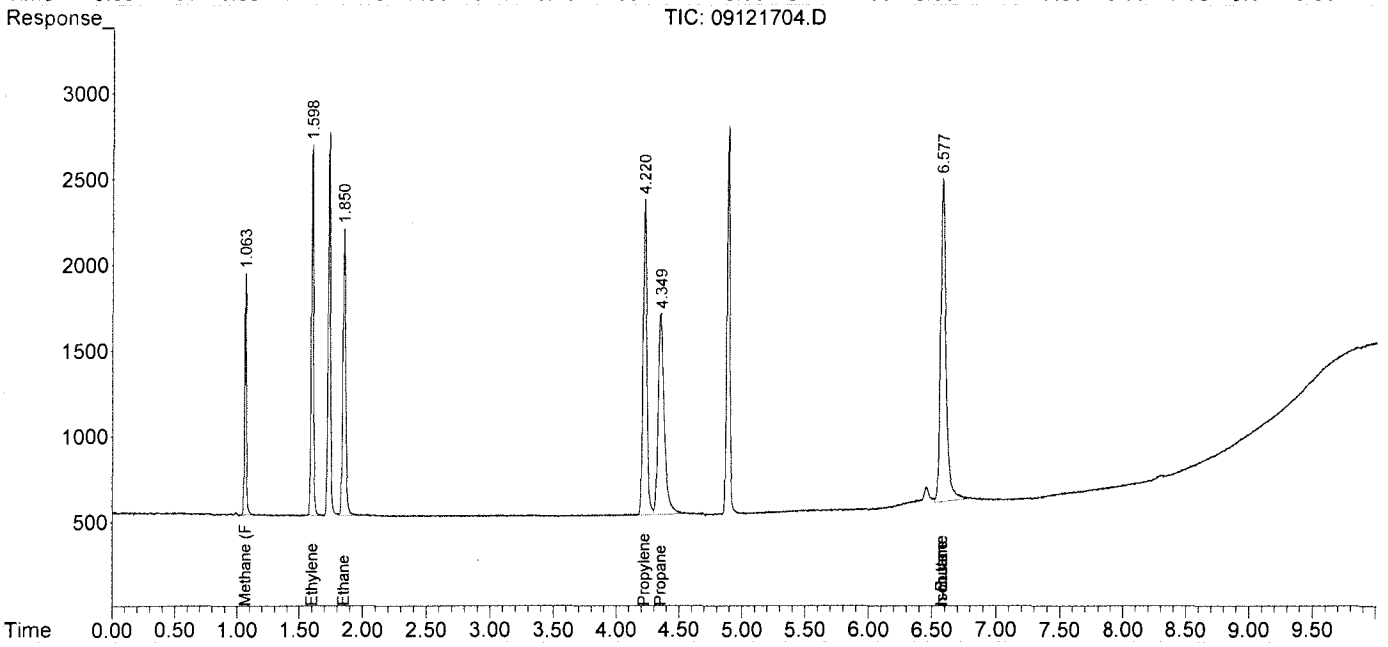
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

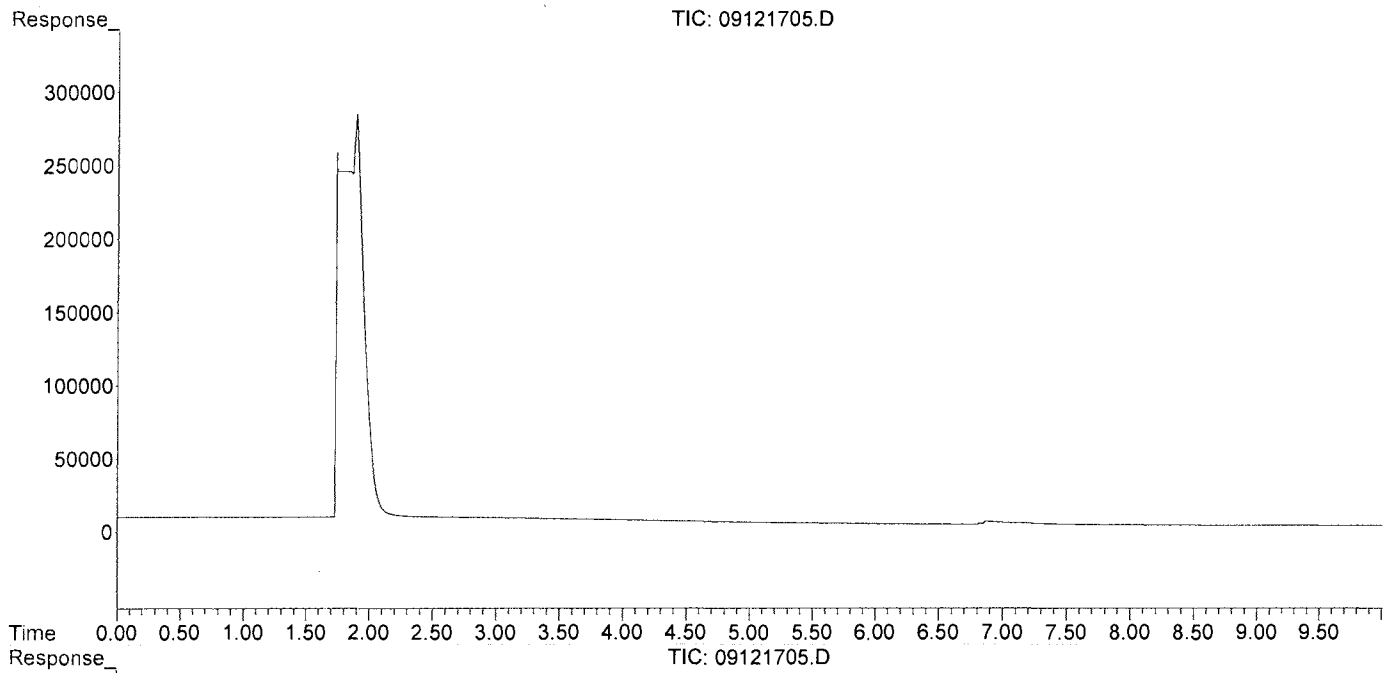
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

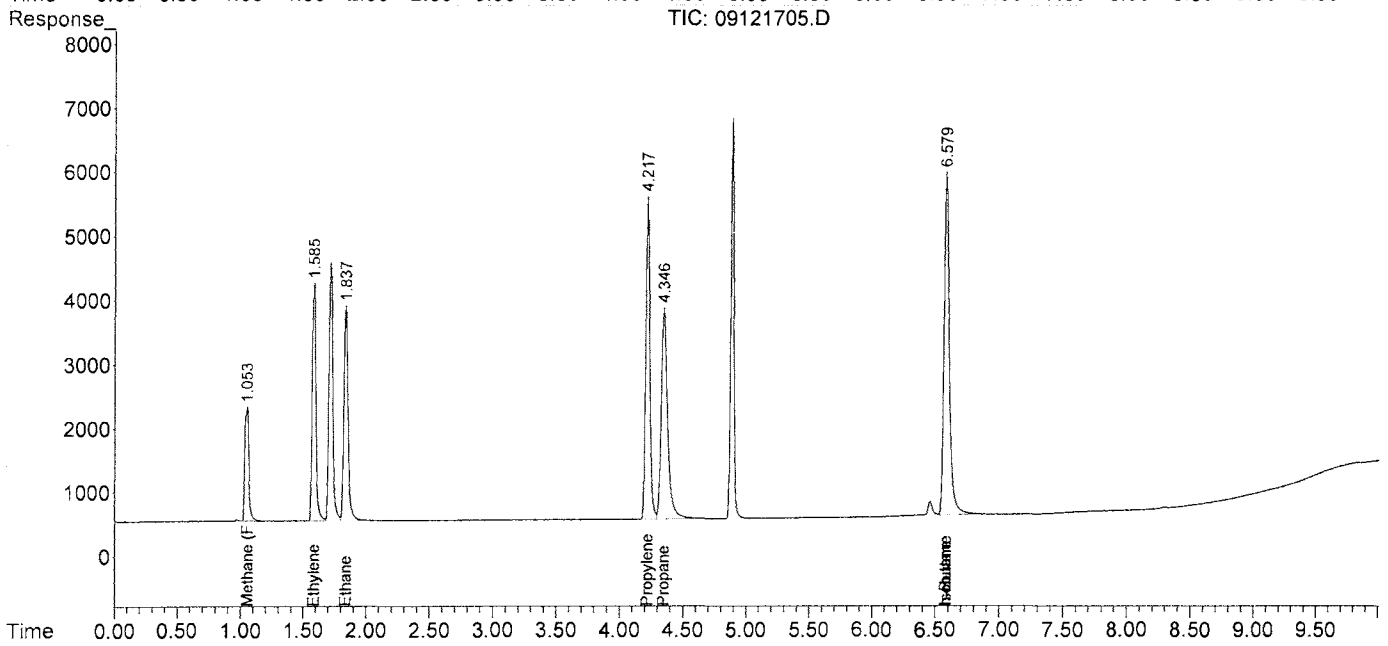
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

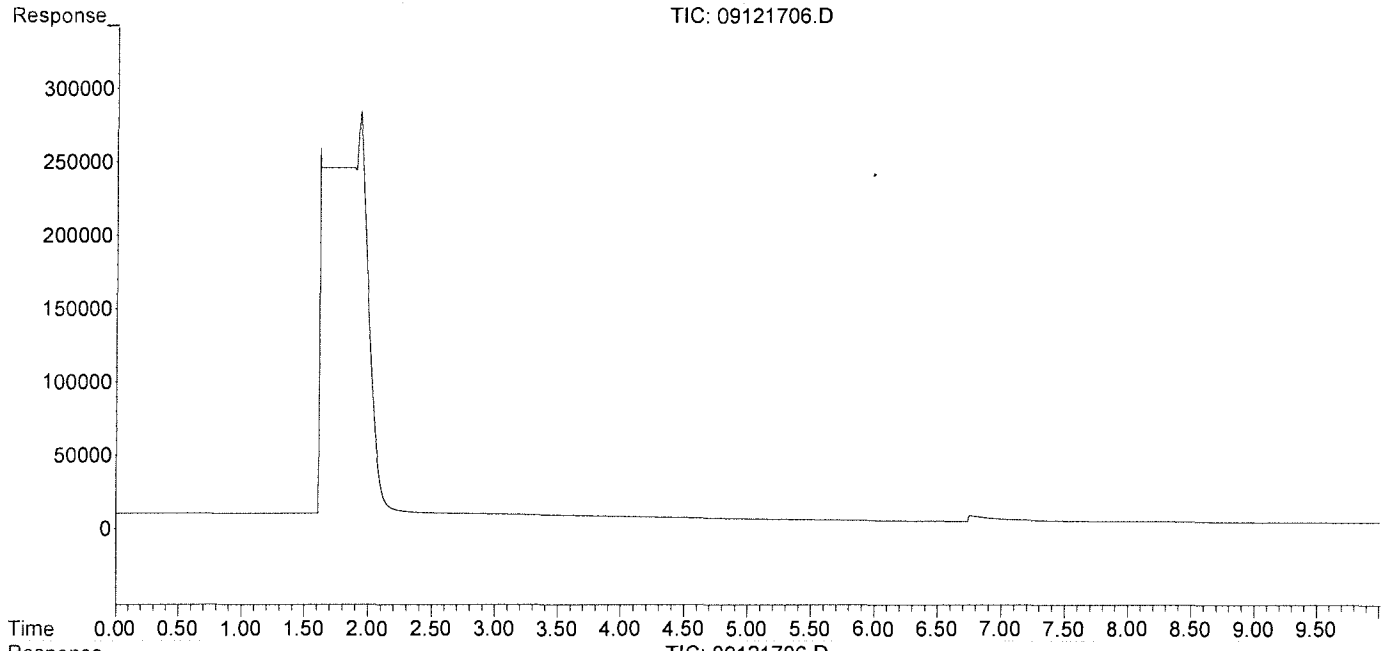
	Compound	R.T.	Response	Conc	Units
	Target Compounds				
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

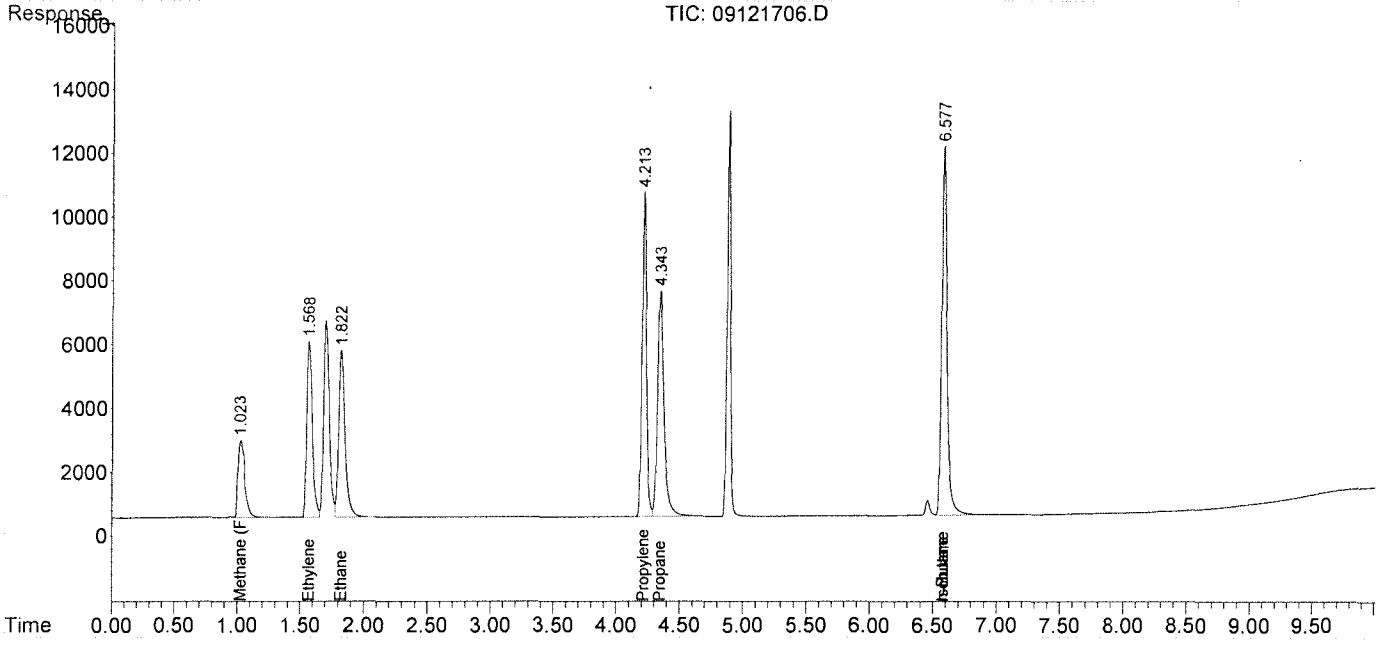
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

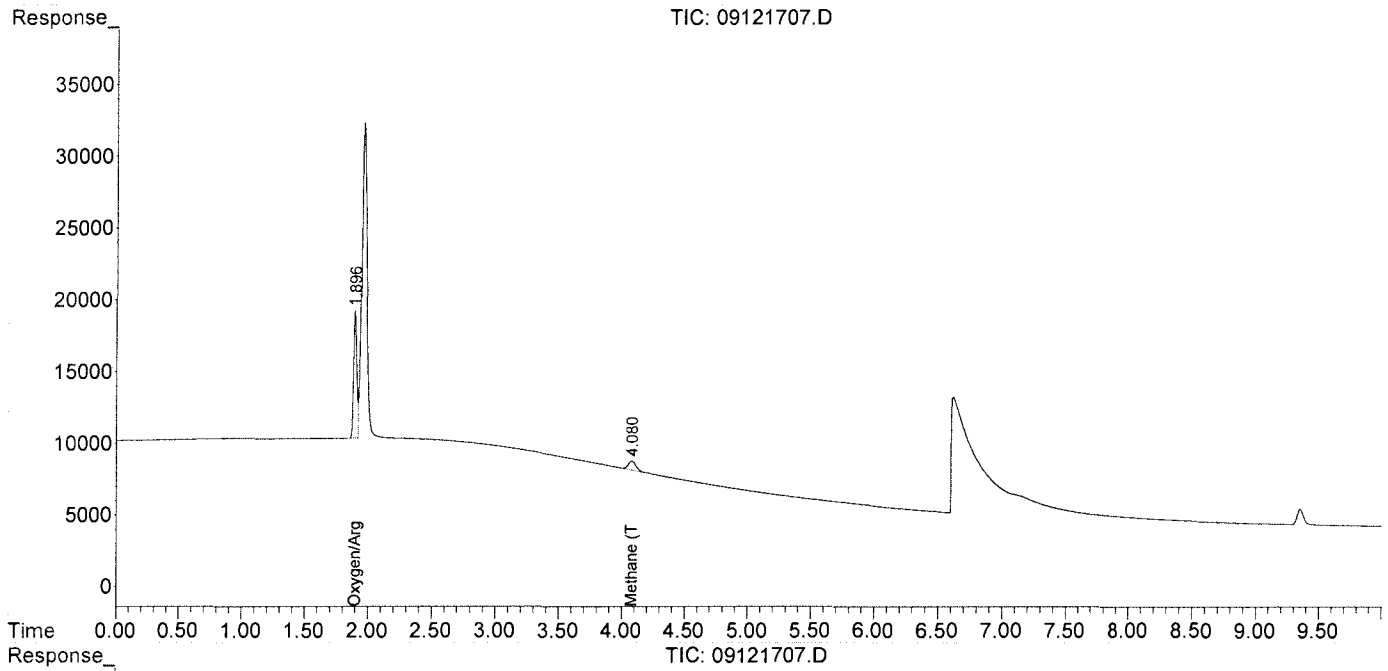
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

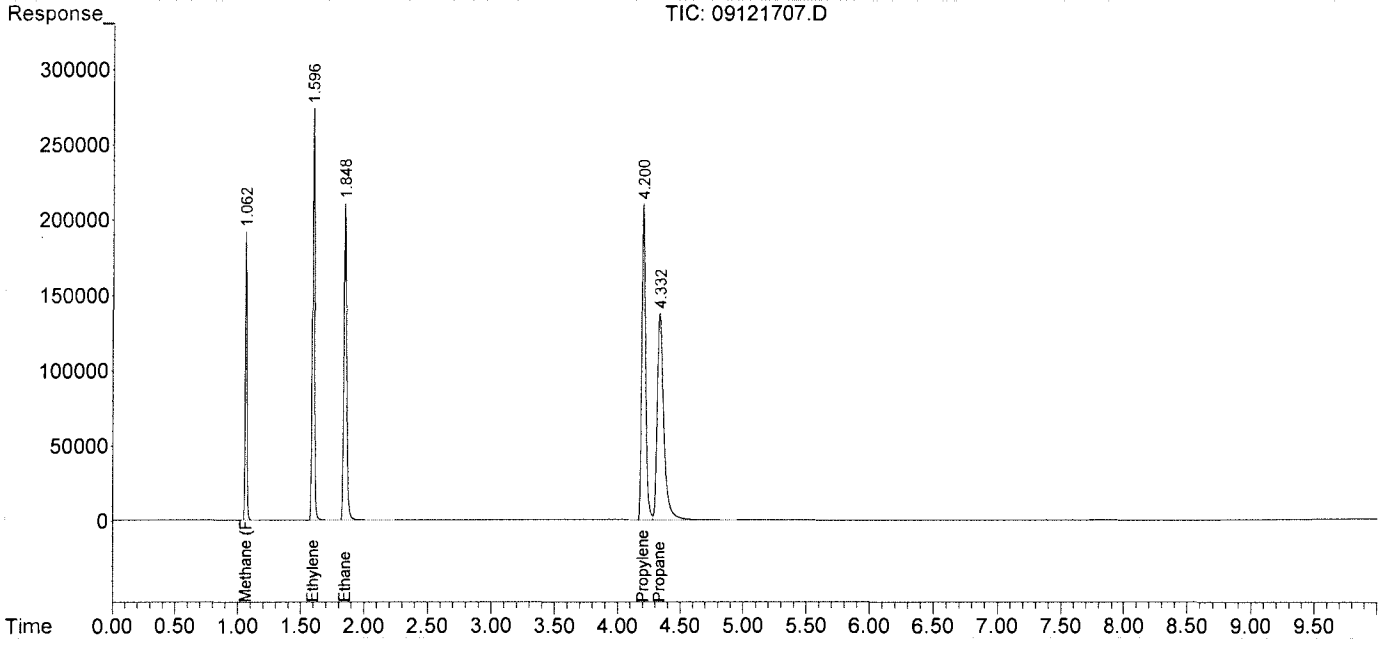
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

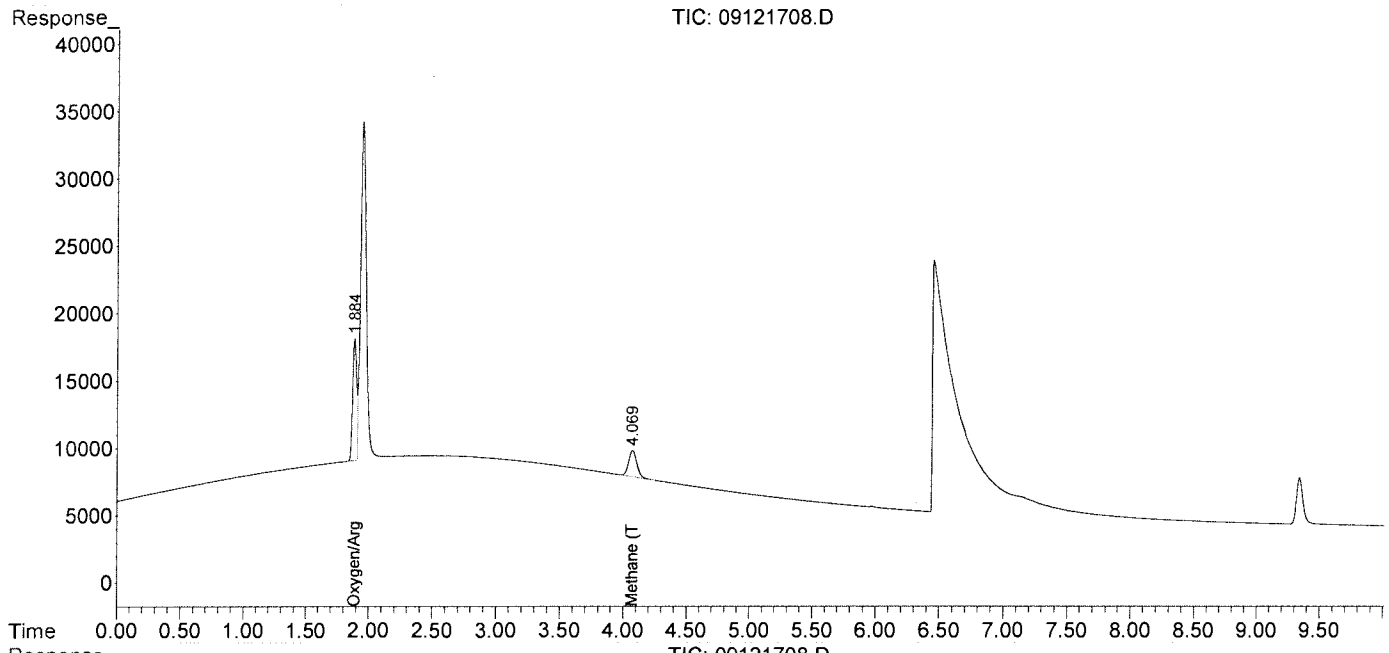
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

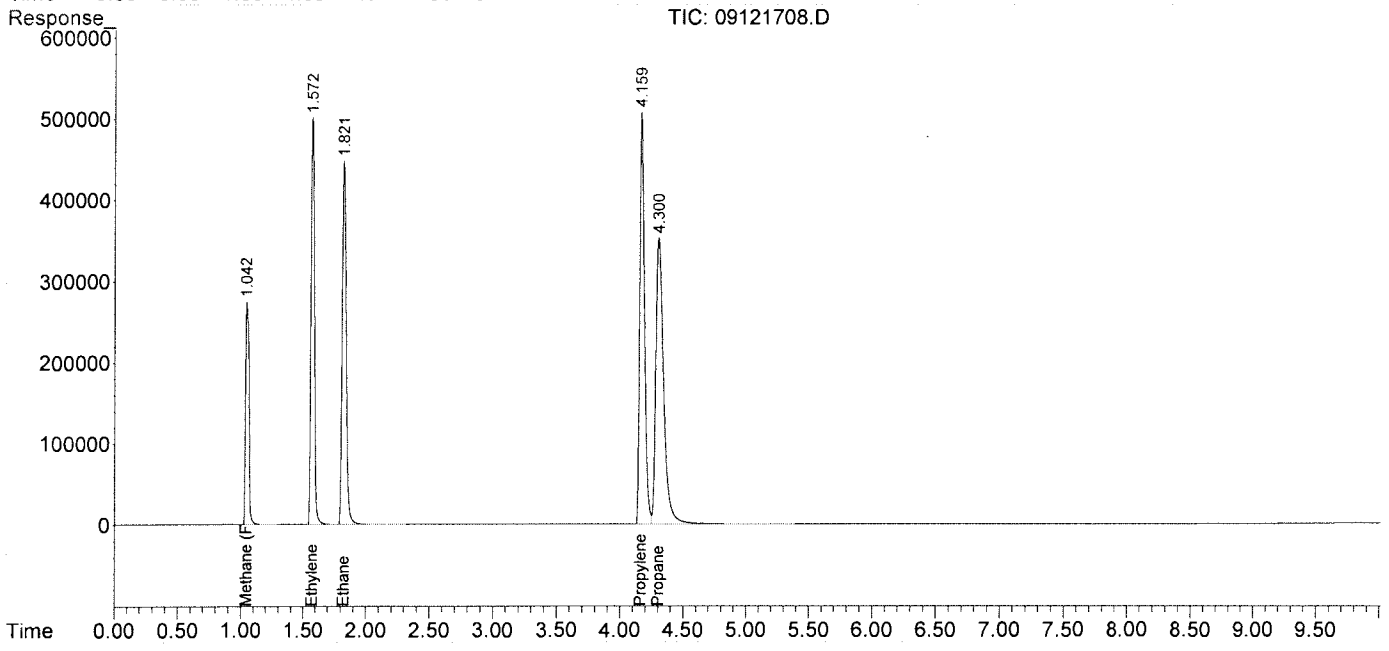
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

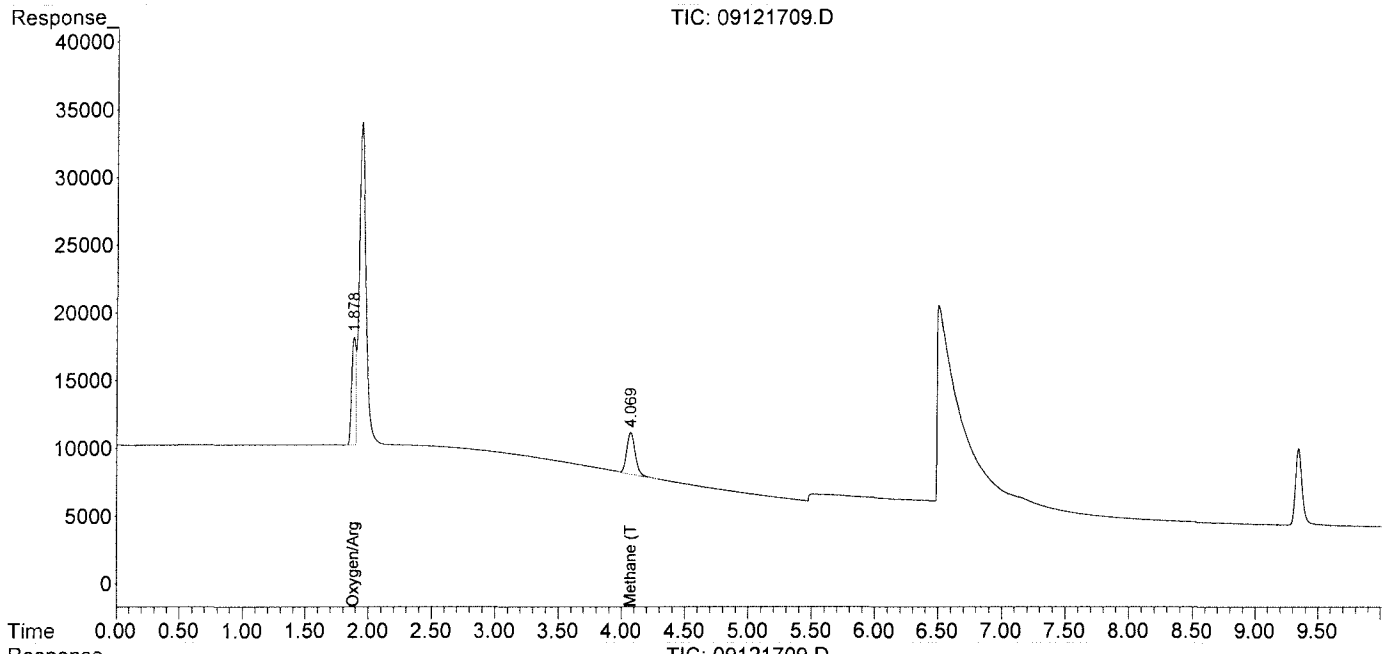
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

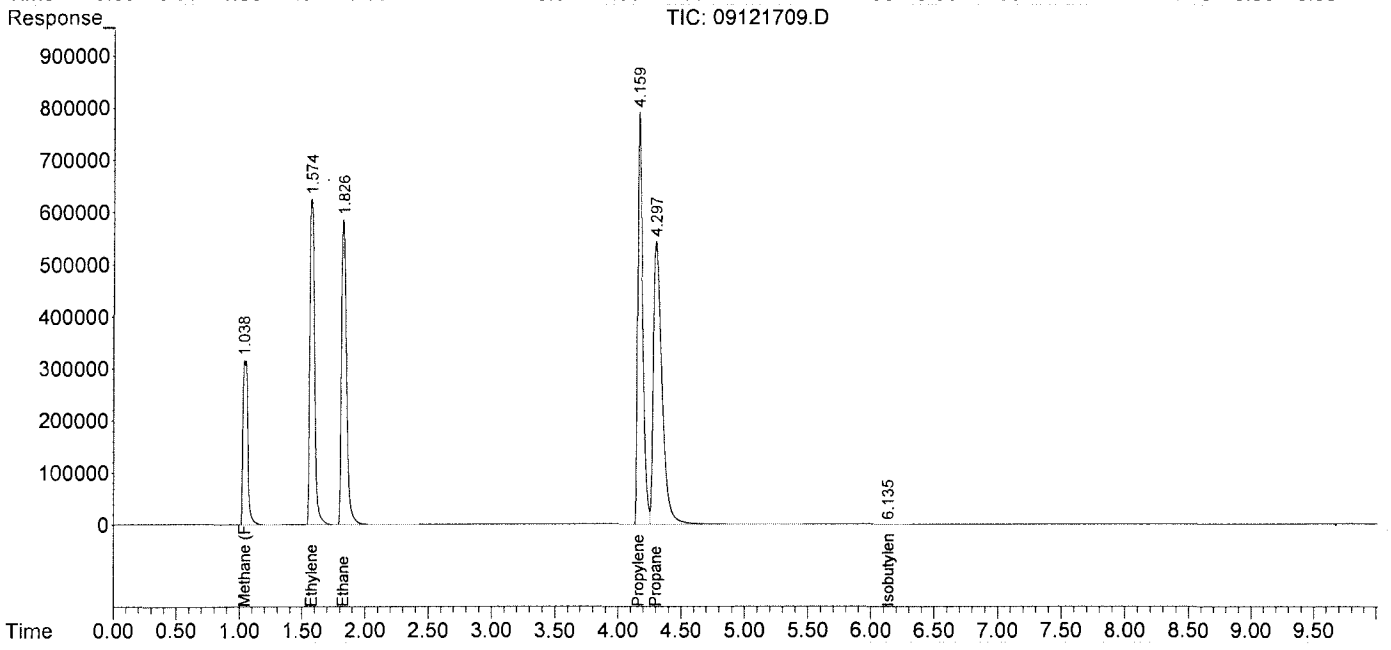
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

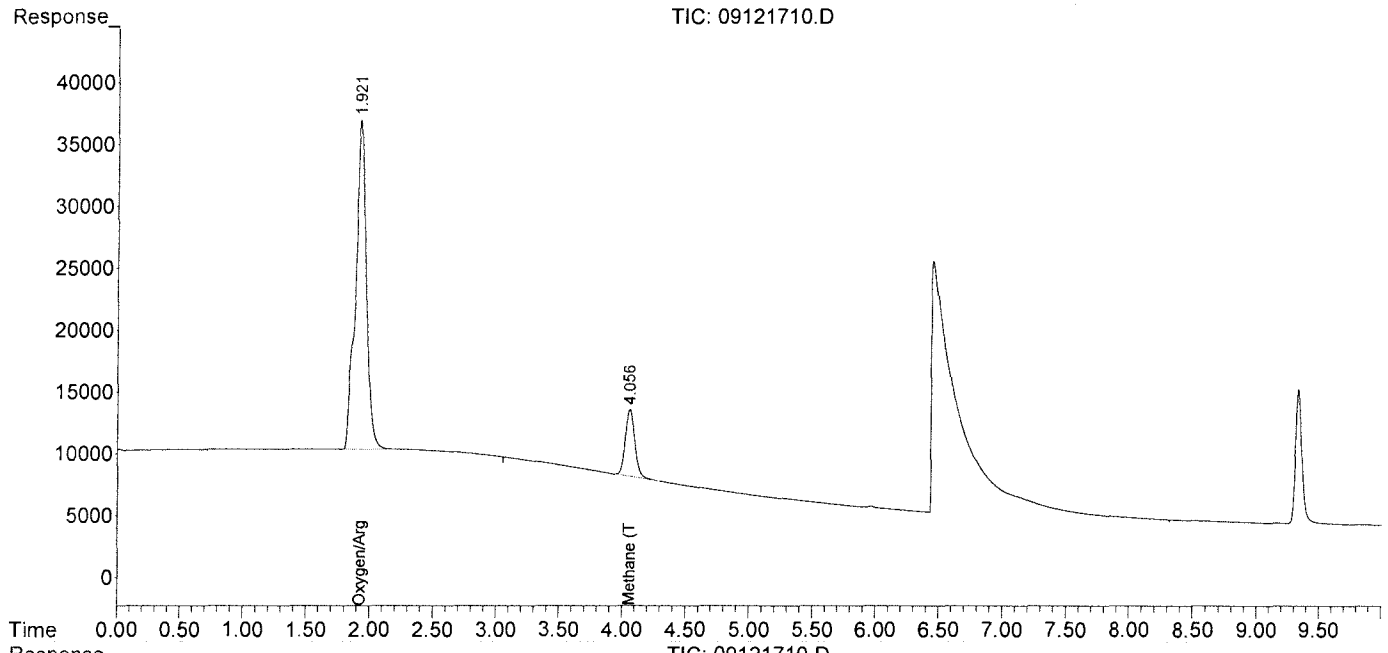
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

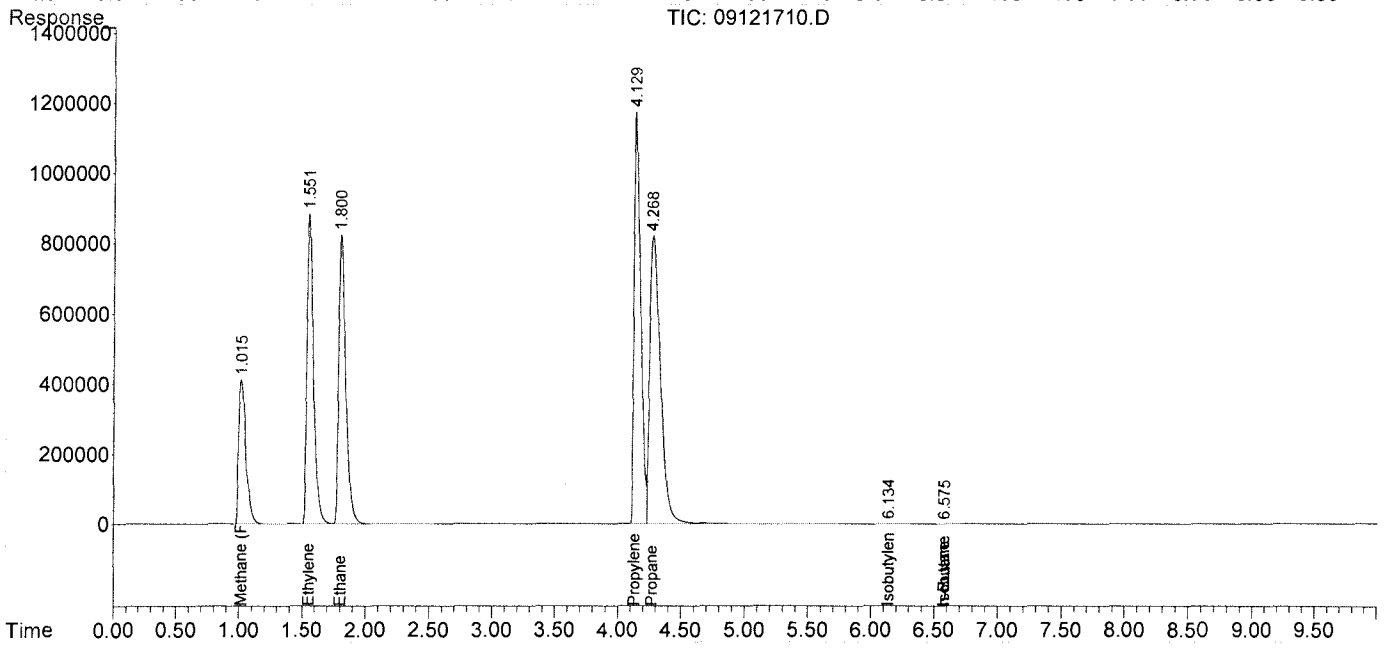
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

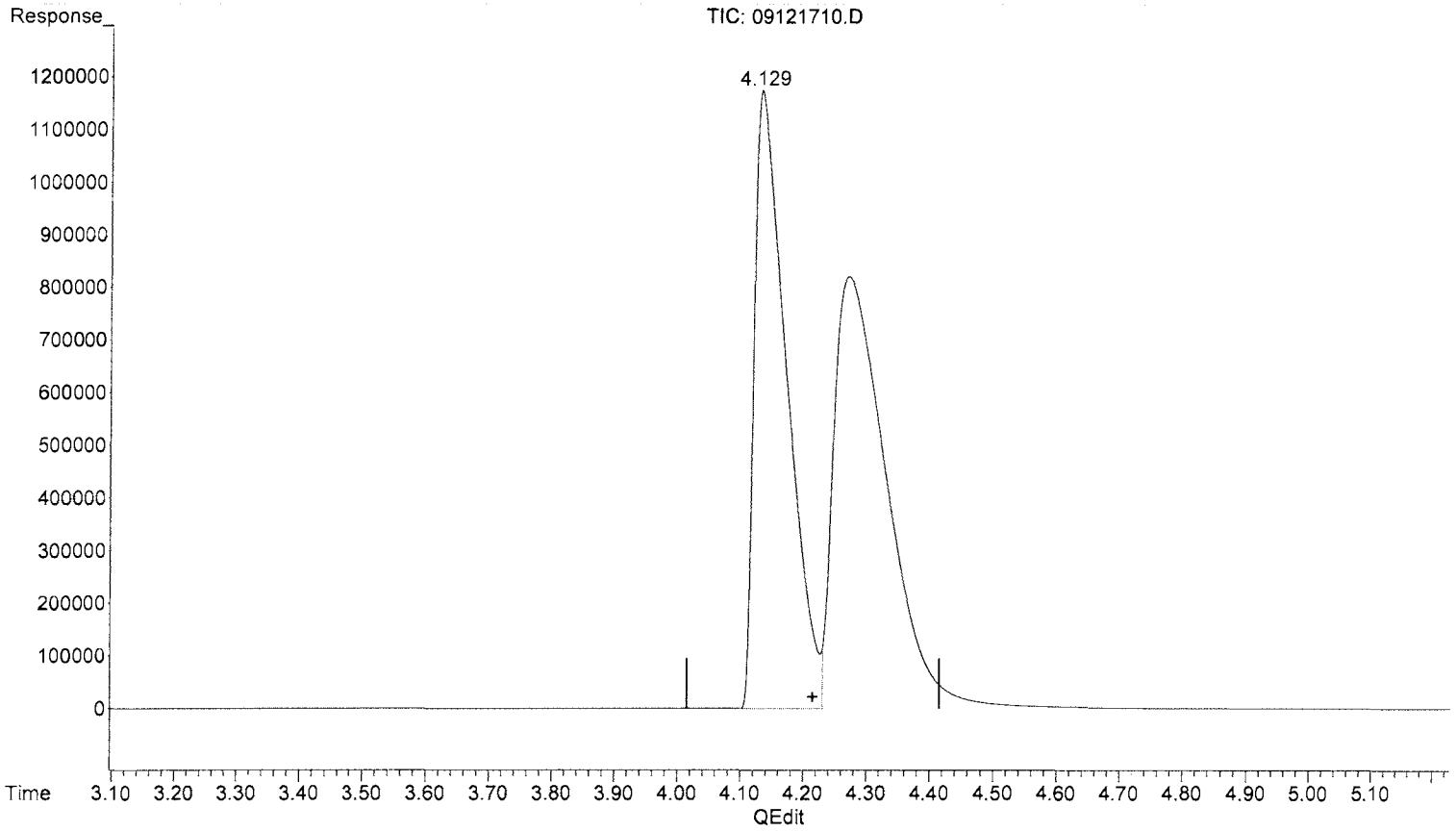




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time
RS091217_R.M Wed Sep 13 15:08:03 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

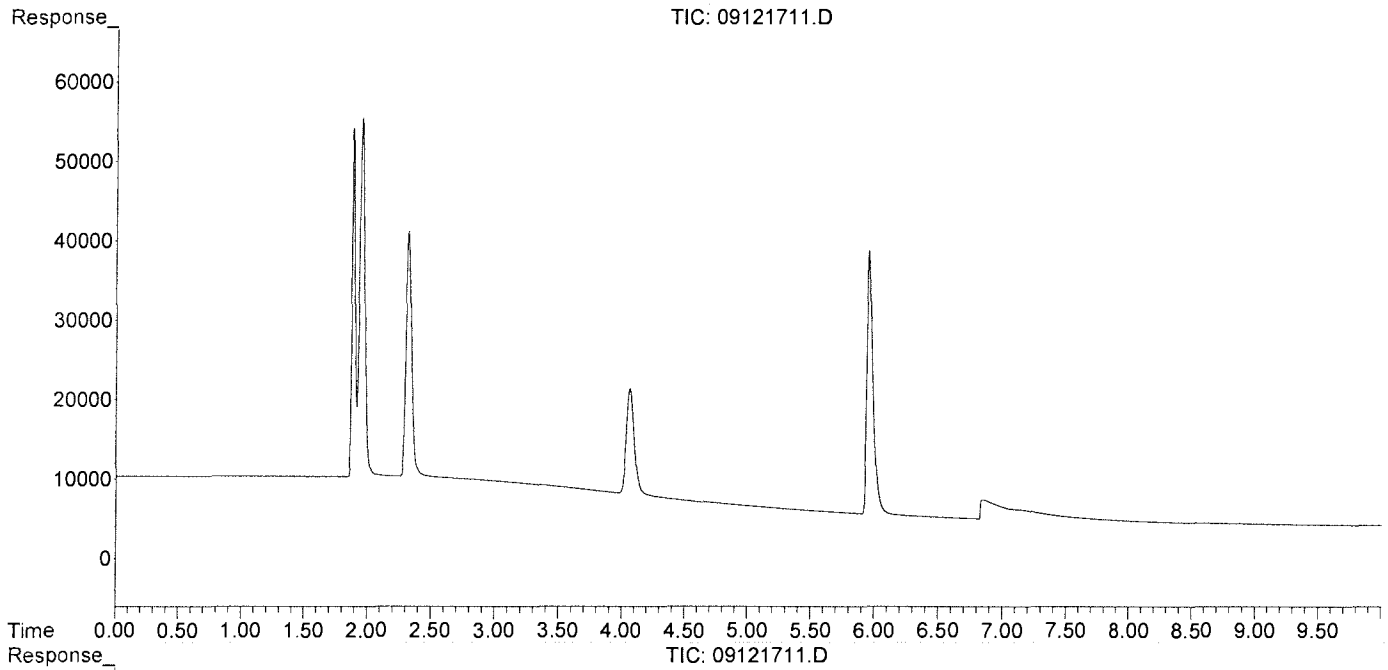
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

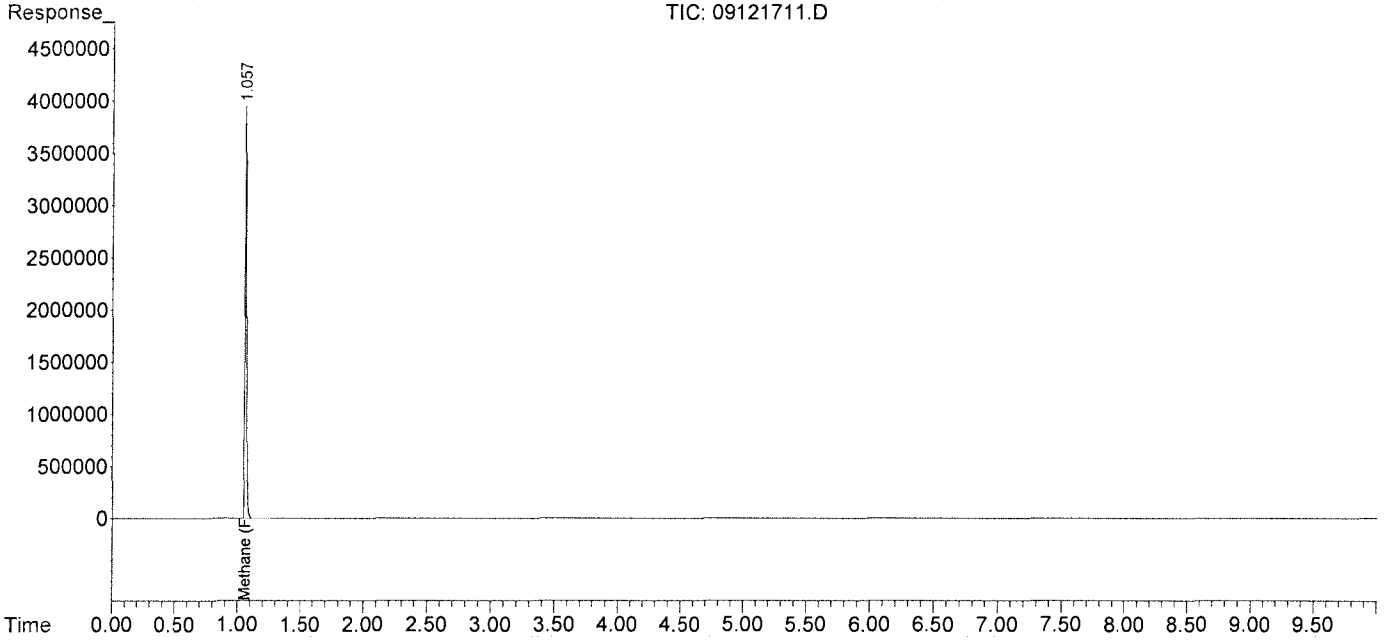
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

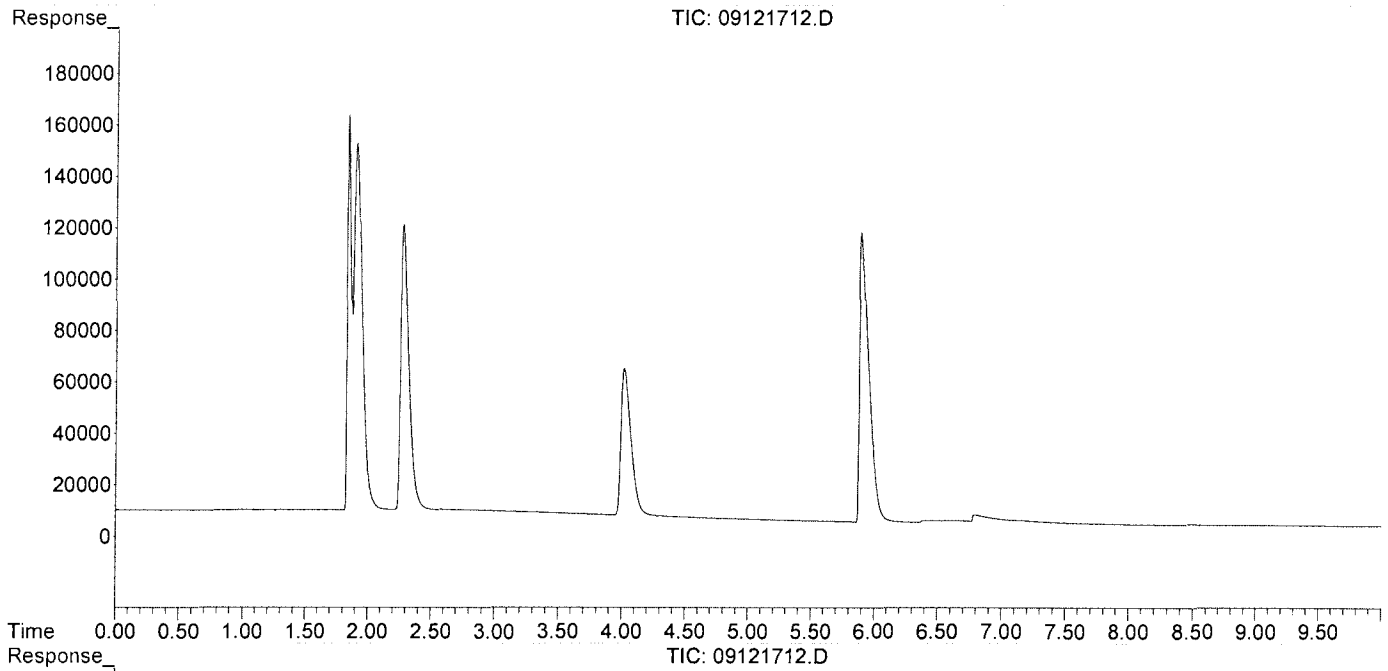
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

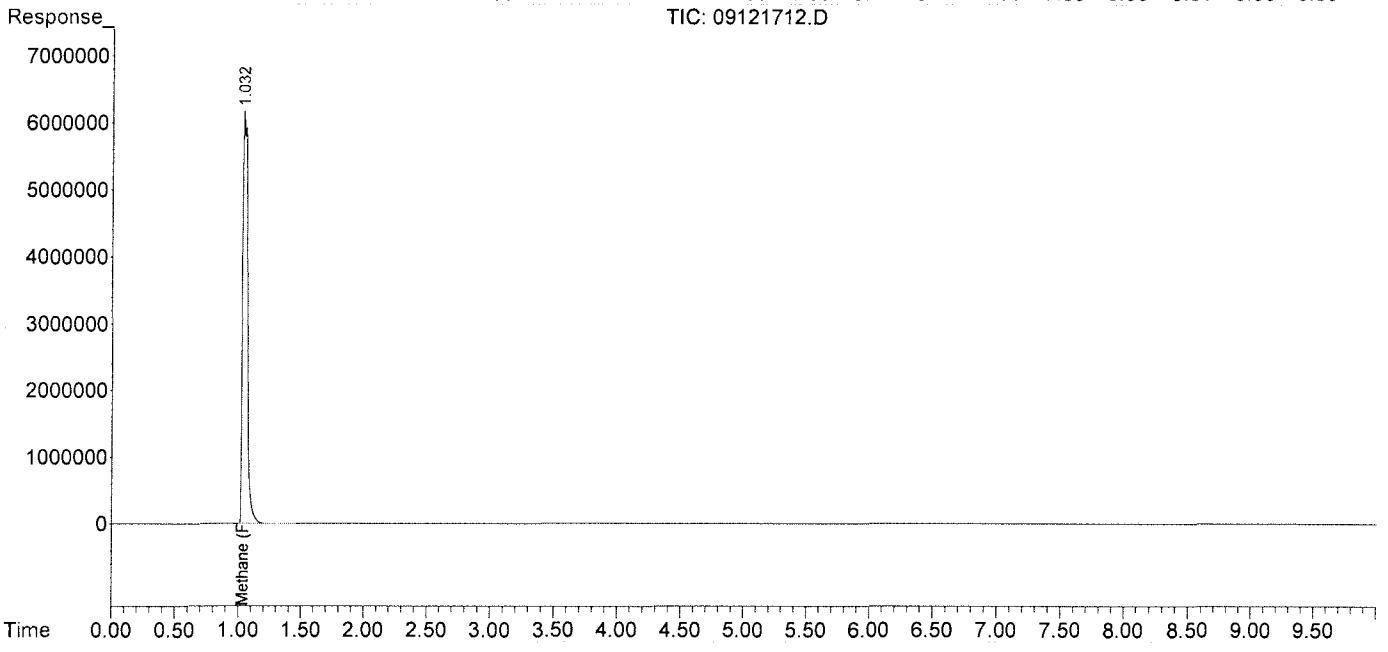
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
	Target Compounds					
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual 1.5
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	~~1.50~~ 1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	~~1.50~~ 1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	~~1.50~~ 1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	~~1.50~~ 1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	~~1.51~~ 1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/13/17
13)	n-Butane	6.579f	48019	1.804	ppm	

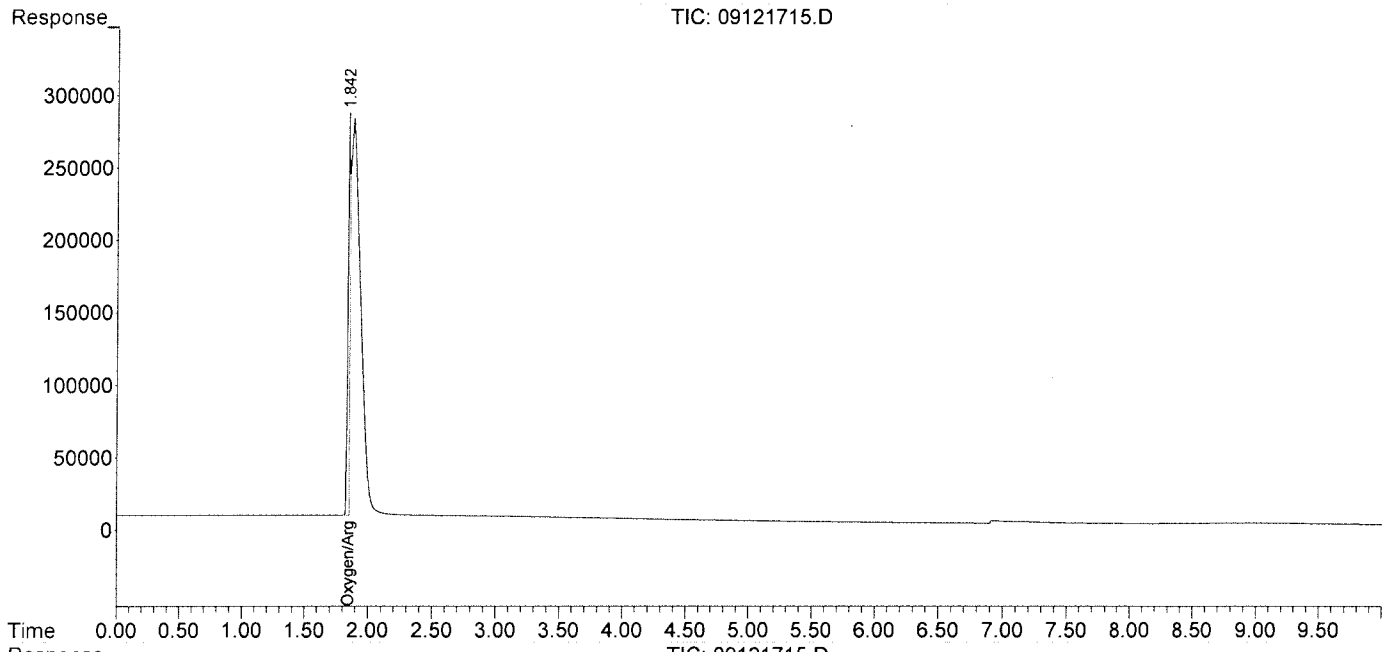
(f)=RT Delta > 1/2 Window (m)=manual int.

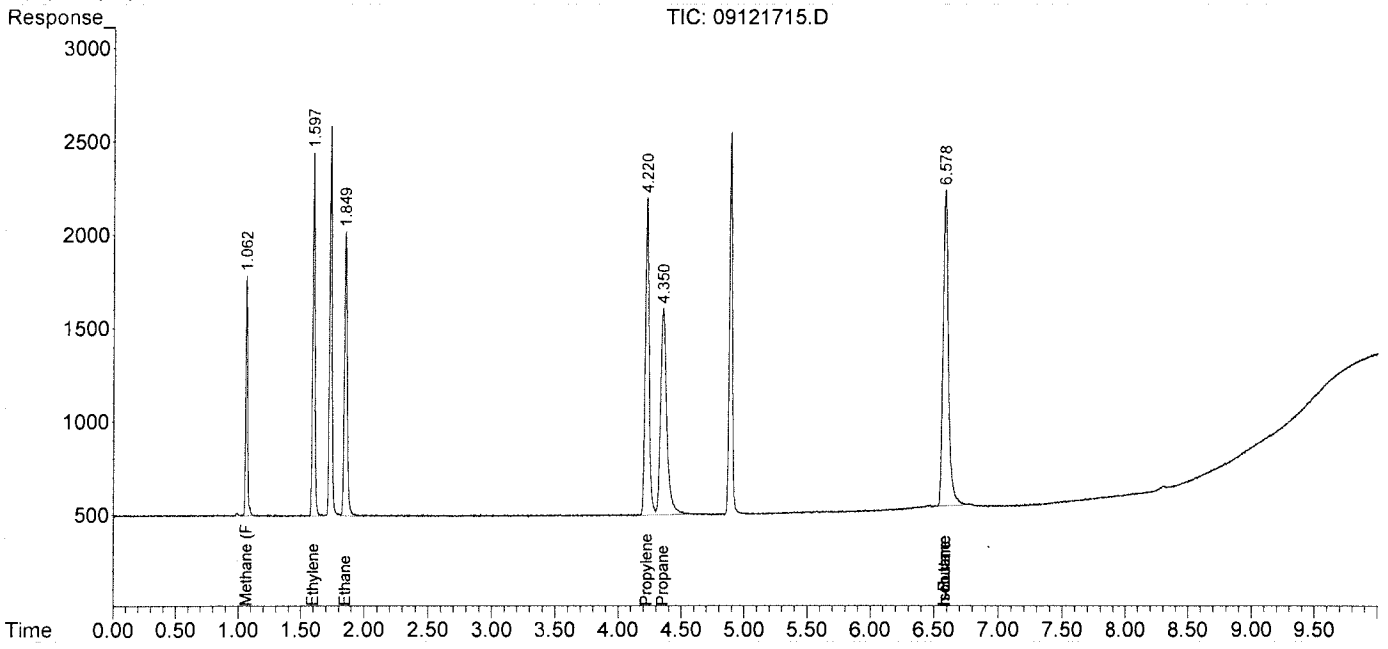
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

CB
2/10/21

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2100515
Sample Vol. (ml) : 32.00 ml
Analyst : CB
Date Analysis : 02/03/21
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901 0.1r	0.100	89.663	95.597	95.372
ACTUAL		101.50	100.90	101.40
%Difference		11.7%	5.3%	5.9%
MCS 0.1mL	0.100	0.097	0.000	0.000
RB 0.1mL	0.100	0.000	0.000	0.000
LCS S32-07231801	0.100	1.330	1.062	1.257
LCSD S32-07231801	0.100	1.309	1.084	1.268
P2100515-001 0.1mL	0.100	0.929	0.000	0.000
P2100515-002 0.1mL	0.100	0.772	0.000	0.000
P2100515-003 0.1mL	0.100	2.247	0.000	0.000
P2100515-004 0.1mL	0.100	2.321	0.000	0.000
P2100515-005 0.1mL	0.100	0.180	0.000	0.000
P2100515-006 0.1mL	0.100	0.319	0.000	0.000
P2100515-006 MS 0.1ml	0.100	1.198	0.741	0.858
P2100515-006 MSD 0.1r	0.100	1.383	0.725	0.826
STD S32-05221901 0.1mL		90.635	96.428	96.484
ACTUAL		101.50	100.90	101.40
%Difference		10.7%	4.4%	4.8%

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1mL	0.970	0.000	0.000
LCS S32-07231801	13.300	10.620	12.570
LCSD S32-07231801	13.090	10.840	12.680
P2100515-001 0.1mL	9.290	0.000	0.000
P2100515-002 0.1mL	7.720	0.000	0.000
P2100515-003 0.1mL	22.470	0.000	0.000
P2100515-004 0.1mL	23.210	0.000	0.000
P2100515-005 0.1mL	1.800	0.000	0.000
P2100515-006 0.1mL	3.190	0.000	0.000
P2100515-006 MS 0.1mL	11.980	7.410	8.580
P2100515-006 MSD 0.1mL	13.830	7.250	8.260
17:07	0.32	0.00	0.00

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 10:58
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 11:13:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

CB 2/5/21

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

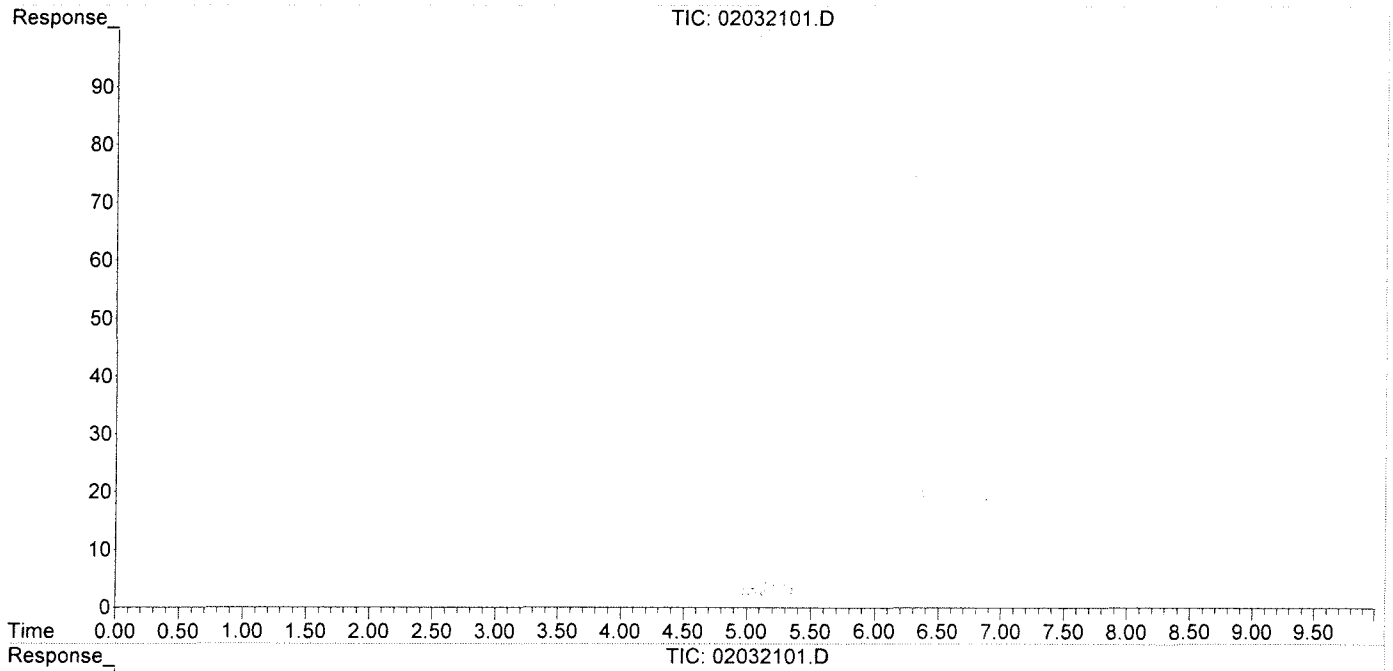
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.127	813299	89.663	ppm	m
7)	Ethylene	1.703	1599750	95.597	ppm	
8)	Ethane	1.970	1616570	95.372	ppm	
9)	Propylene	4.347	2358456	100.653	ppm	
10)	Propane	4.468	2425406	97.483	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

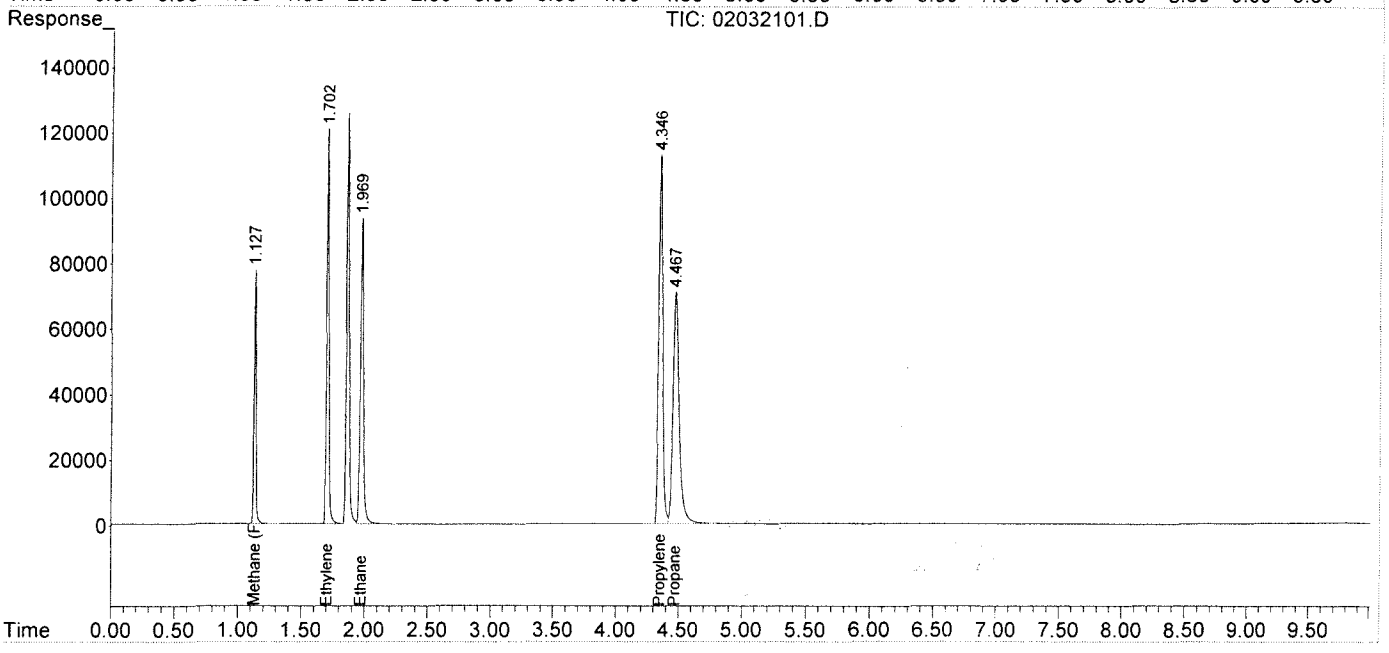
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 10:58
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 11:13:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



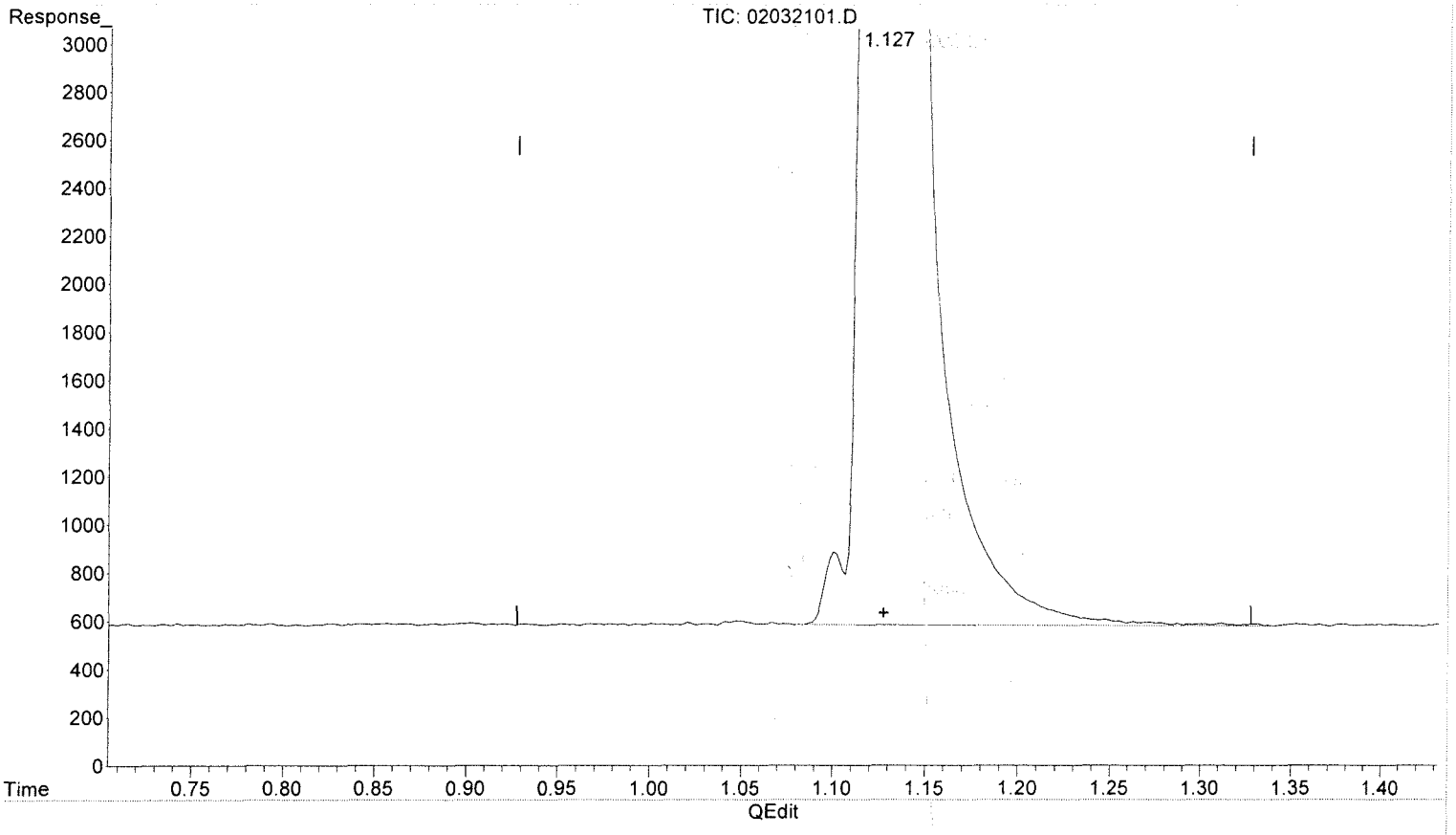


01080188

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 10:58
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 11:13:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.127min 89.870 ppm

response 815179

Manual Integration:

Before

02/05/21

(+) = Expected Retention Time

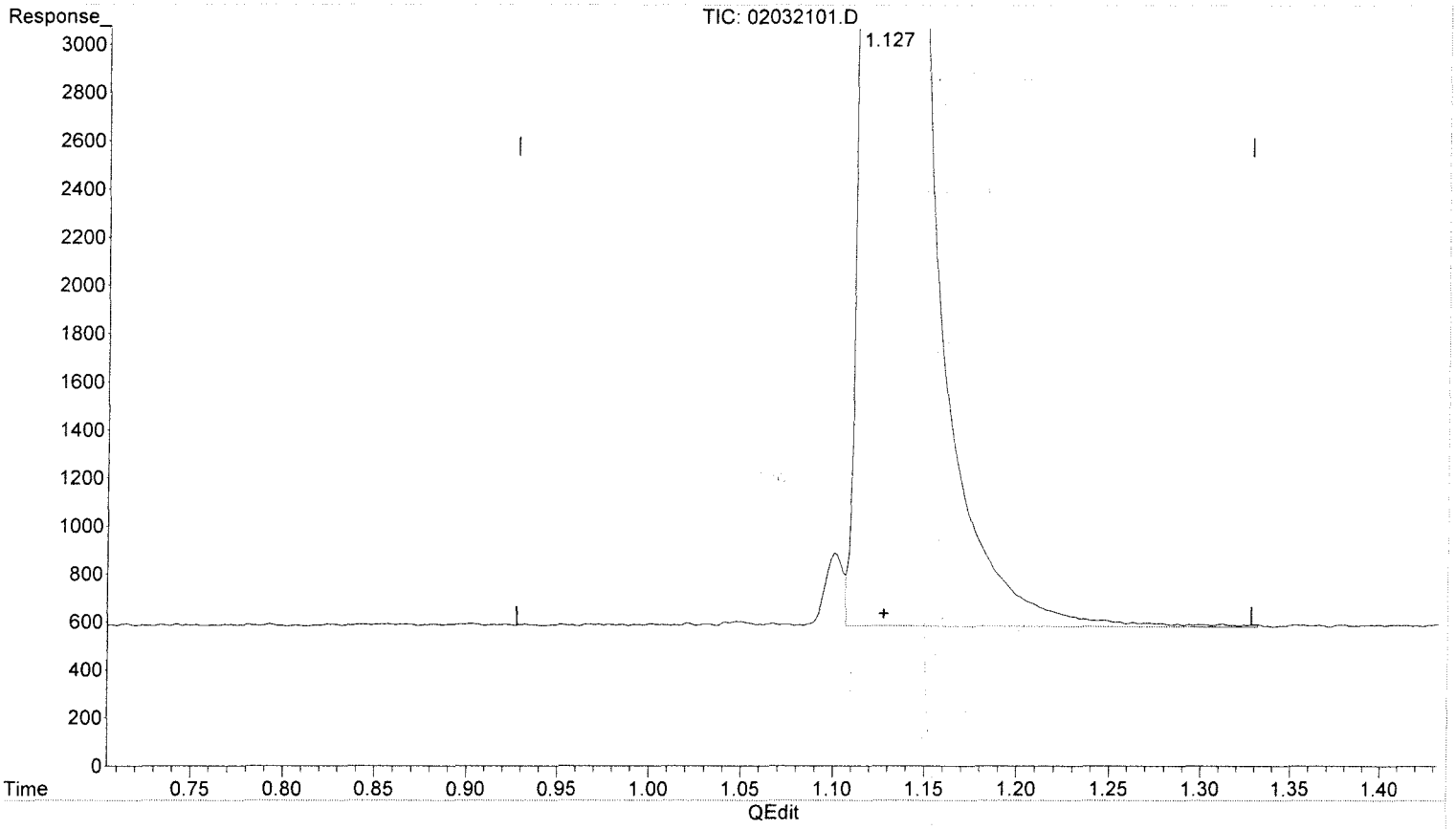
RS091217_R.M Fri Feb 05 14:56:57 2021

01080189

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 10:58
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 11:13:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.127min 89.663 ppm m

response 813299

Manual Integration:

After

BLC

02/05/21

(+) = Expected Retention Time

RS091217_R.M Fri Feb 05 14:57:15 2021

Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:24
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 15:38:55 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

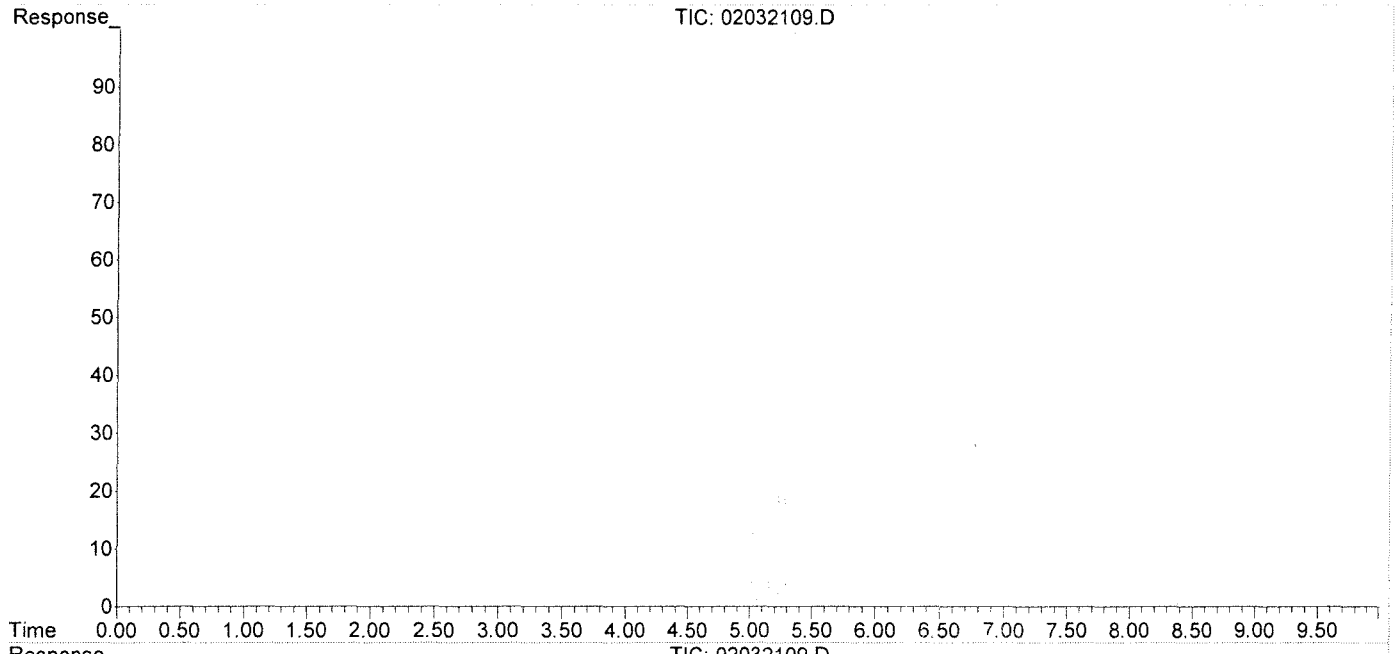
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.125	825456	91.003	ppm
7)	Ethylene	1.698	1620862	96.859	ppm
8)	Ethane	1.963	1637434	96.603	ppm
9)	Propylene	4.337	2380710	101.603	ppm
10)	Propane	4.458	2451143	98.518	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

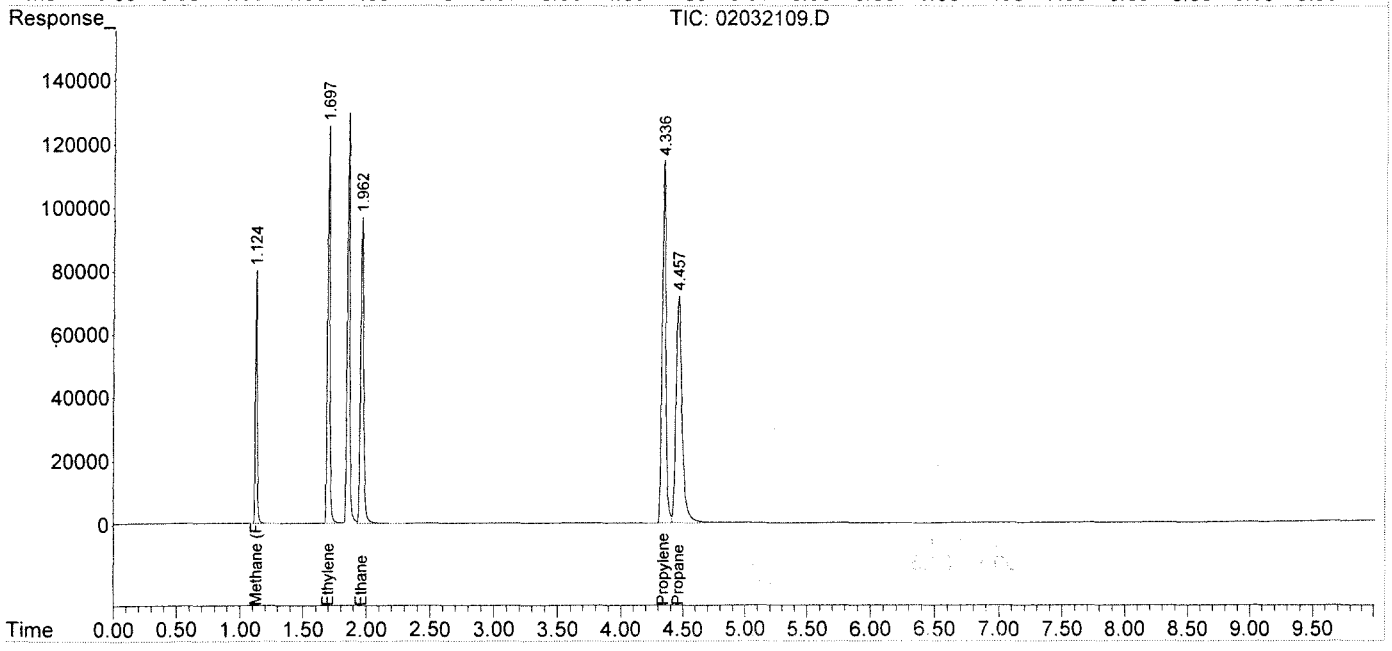
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 15:24
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 15:38:55 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:49
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 17:52:43 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

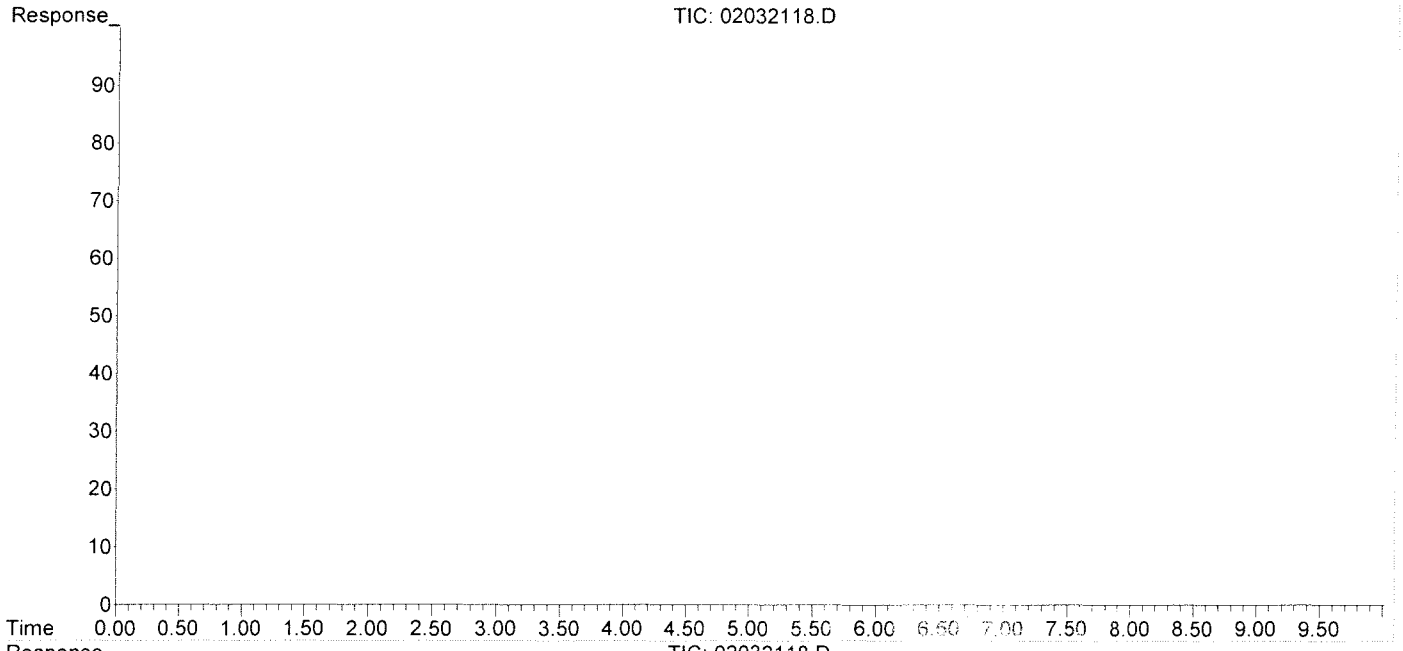
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.125	822113	90.635	ppm
7)	Ethylene	1.699	1613655	96.428	ppm
8)	Ethane	1.965	1635428	96.484	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

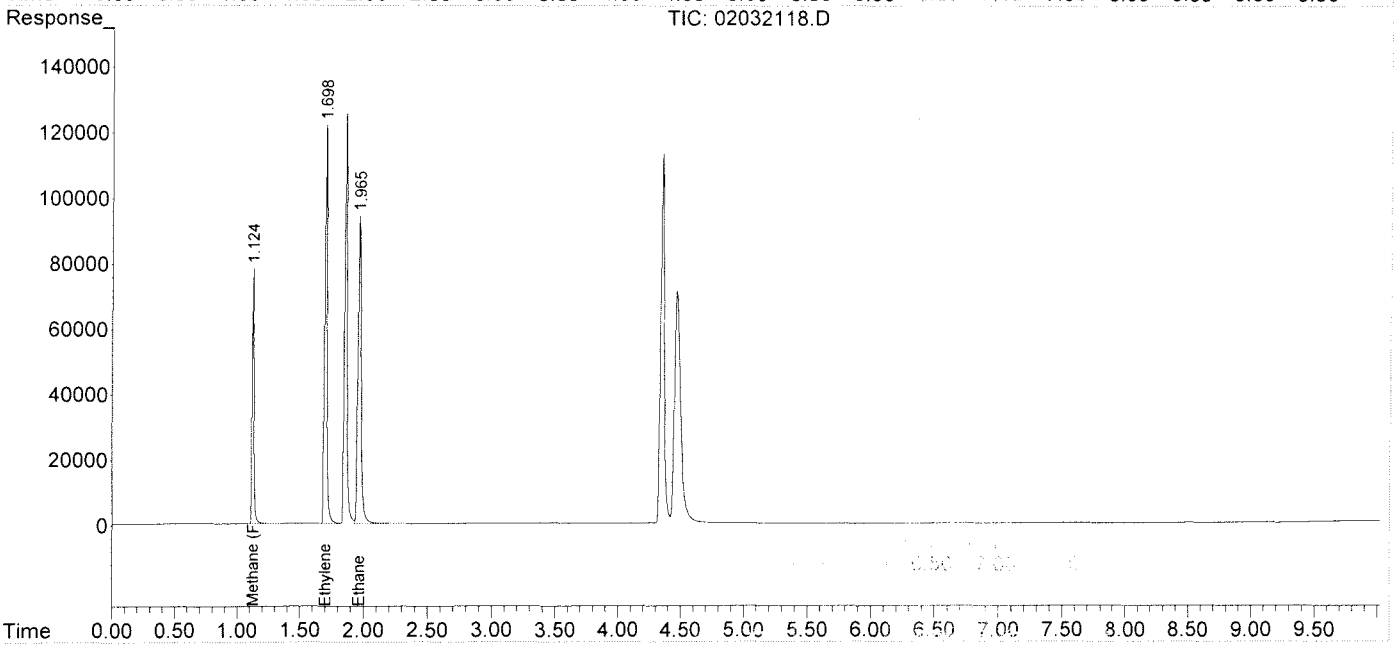
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : I:\GC10\DATA\RSK_FID\2021_02\3\
Data File : 02032118.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 03-Feb-2021, 17:49
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Feb 03 17:52:43 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2021_02\03\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	03-Feb-21, 10:58:24	02032101.D	STD S32-05221901 0.1mL		CB	RSKBOTH.M	Pass
2	03-Feb-21, 11:16:15	02032102.D	RB 0.1mL		CB	RSKBOTH.M	Pass
3	03-Feb-21, 13:24:51	02032103.D	MCS 0.1mL		CB	RSKBOTH.M	Pass
4	03-Feb-21, 13:52:41	02032104.D	LCS S32-07231801 0.1mL		CB	RSKBOTH.M	Pass
5	03-Feb-21, 14:11:31	02032105.D	LCSD S32-07231801 0.1mL		CB	RSKBOTH.M	Pass
6	03-Feb-21, 14:31:47	02032106.D	P2100482-001 0.1mL		CB	RSKBOTH.M	
7	03-Feb-21, 14:45:38	02032107.D	P2100482-002 0.1mL		CB	RSKBOTH.M	
8	03-Feb-21, 15:01:59	02032108.D	P2100482-003 0.1mL		CB	RSKBOTH.M	
9	03-Feb-21, 15:24:41	02032109.D	STD S32-05221901 0.1mL		CB	RSKBOTH.M	Pass
10	03-Feb-21, 15:40:23	02032110.D	P2100515-001 0.1mL		CB	RSKBOTH.M	
11	03-Feb-21, 16:05:23	02032111.D	P2100515-002 0.1mL		CB	RSKBOTH.M	
12	03-Feb-21, 16:21:21	02032112.D	P2100515-003 0.1mL		CB	RSKBOTH.M	
13	03-Feb-21, 16:35:30	02032113.D	P2100515-004 0.1mL		CB	RSKBOTH.M	
14	03-Feb-21, 16:52:12	02032114.D	P2100515-005 0.1mL		CB	RSKBOTH.M	
15	03-Feb-21, 17:07:12	02032115.D	P2100515-006 0.1mL		CB	RSKBOTH.M	
16	03-Feb-21, 17:20:56	02032116.D	P2100515-006 MS 0.1mL		CB	RSKBOTH.M	
17	03-Feb-21, 17:35:11	02032117.D	P2100515-006 MSD 0.1mL		CB	RSKBOTH.M	
18	03-Feb-21, 17:49:01	02032118.D	STD S32-05221901 0.1mL		CB	RSKBOTH.M	Pass

HS21011150 - Sub Perch IV (E2100117)

ALS WO# HS21011150

February 02, 2021 Service Request No:E2100117

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS21011150

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory January 29, 2021
For your reference, these analyses have been assigned our service request number **E2100117.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100117
Project:	HS21011150	**Date Received:**	01/29/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Six samples were received for analysis at ALS Environmental in Houston on 01/29/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100046: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS and DLCS recoveries are within QC limits. MS/MSD recoveries outside QC limits; parent sample 83,800 ug/L.

Samples E2100117-001/002 lowest practical dilution performed due to matrix interference.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2100117
Project: HS21011150

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100117-001	50WW14-210128	1/28/2021	0750
E2100117-002	50WW14-210128-FD	1/28/2021	0750
E2100117-003	50WW13-210128	1/28/2021	0850
E2100117-004	50WW11-210128	1/28/2021	0945
E2100117-005	50WW06-210128	1/28/2021	1035
E2100117-006	50WW12-210128	1/28/2021	1130

Service Request Summary

Folder #: **E2100117**
Client Name: ALS Environmental - US
Project Name: HS21011150
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011150
EDD: No EDD Specified

8 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100117-001	50WW14-210128	Ground Water	01/28/21 0750	**IV**
E2100117-002	50WW14-210128-FD	Ground Water	01/28/21 0750	**IV**
E2100117-003	50WW13-210128	Ground Water	01/28/21 0850	**IV**
E2100117-004	50WW11-210128	Ground Water	01/28/21 0945	**IV**
E2100117-005	50WW06-210128	Ground Water	01/28/21 1035	**IV**
E2100117-006	50WW12-210128	Ground Water	01/28/21 1130	**IV**

Service Request Summary

Folder #: **E2100117**
Client Name: ALS Environmental - US
Project Name: HS21011150
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 01/29/21
Internal Due Date: 2/12/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: HS21011150
EDD: No EDD Specified

8 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 4A
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	2	MS/MSD
Semivoa GCMS	ClO4 DOD/6850	5	II Due 2/12, IV due 2/19

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arizona Department of Health Services	AZ0793-2020	5/27/2021
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
California Department of Health Services	2919-2020	4/30/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-2020	6/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2020	6/30/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Maryland Department of the Environment	343-2020	6/30/2021
Michigan Depratment of Environmental Quality	9971-2020	4/30/2021
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	TX008	6/30/2021
New York Department of Health	11707	3/31/2021
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	014	6/30/2021
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022

ALS

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15568**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company: ALS Houston
Contact: RJ Modashia
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Email: RJ.Modashia@alsglobal.com
Alternate Contact:
Email:

INVOICE INFORMATION:

Company: ALS Houston
Contact: Accounts Payable
Address: 10450 Stancliff Rd, Ste 210
Phone: +1 281 530 5656
Reference: HS21011150
TSR: Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21011150-01**	**50WW14-210128**	**Groundwater**	**28 Jan 2021 07:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
2.	**HS21011150-02**	**50WW14-210128-FD**	**Groundwater**	**28 Jan 2021 07:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
3.	**HS21011150-03**	**50WW13-210128**	**Groundwater**	**28 Jan 2021 08:50**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
4.	**HS21011150-04**	**50WW11-210128**	**Groundwater**	**28 Jan 2021 09:45**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
5.	**HS21011150-05**	**50WW06-210128**	**Groundwater**	**28 Jan 2021 10:35**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021
6.	**HS21011150-06**	**50WW12-210128**	**Groundwater**	**28 Jan 2021 11:30**
	Provide Level II and Level IV reports on a seperate pdf.			12 Feb 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS2101150-06 = MS/MSD

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15568**

Relinquished By: _____ Date/Time: 11/29/2021

Received By: _____ Date/Time: 11/29/21 1700

Cooler ID(s): _____ Temperature(s): _____

Cooler Receipt Form

ALS Environmental

Project Chemist CG

Client/Project ALS-HOU

Thermometer ID IR41

Date/Time Received: 11/29/21 Initials: CG Date/Time Logged in: 11/29/21 Initials CG

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ✓ ALS Courier ○ Client

2. Samples received in: ✓ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ✓ No If yes, how many and where?

Were they intact? ○ Yes ○ No ✓ N/A

Were they signed and dated? ○ Yes ○ No ✓ N/A

4. Packing Material: ○ Inserts ✓ Baggies ○ Bubble Wrap ○ Gel Packs ✓ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ○ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
NA		11/29/21	1204	CG	0.3	X
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ✓ Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ✓ Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ✓ Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ✓ Yes ○ No

10. Did sample labels and tags agree with custody documents? ✓ Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

10450 Stancliff Rd., Suite 210
Houston, TX 77099
T: +1 713 266 1599
F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 373567 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/JRODRIGUEZ **Prep Method:** Method **Prep Date/Time:** 2/1/21 09:04

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100117-001	50WW14-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
2	E2100117-002	50WW14-210128-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
3	E2100117-003	50WW13-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
4	E2100117-004	50WW11-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100117-005	50WW06-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100117-006	50WW12-210128	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100118-001	50WW08-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100118-002	50WW05-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100118-003	50WW29-210125	.01	6850/ClO4 DOD			Ground Water	10mL	
10	EQ2100046-01	MB		6850/ClO4 DOD			Liquid	10mL	
11	EQ2100046-02	LCS		6850/ClO4 DOD			Liquid	10mL	
12	EQ2100046-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
13	EQ2100046-04	50WW12-210128 MS	.02	6850/ClO4 DOD			Liquid	10mL	
14	EQ2100046-05	50WW12-210128 DMS	.03	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 214035 Logbook Ref: Perchlorate Expires On: 05/23/2021

EQ2100046-02	1.00µL	EQ2100046-03	1.00µL	EQ2100046-04	1.00µL	EQ2100046-05	1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 214820 Logbook Ref: Perchlorate Internal Standard Expires On: 07/03/2021

E2100117-001	100.00µL	E2100117-002	100.00µL	E2100117-003	100.00µL	E2100117-004	100.00µL	E2100117-005	100.00µL	E2100117-006	100.00µL
E2100117-006.R	100.00µL	E2100118-001	100.00µL	E2100118-002	100.00µL	E2100118-003	100.00µL	EQ2100046-01	100.00µL	EQ2100046-02	100.00µL
EQ2100046-03	100.00µL	EQ2100046-04	100.00µL	EQ2100046-05	100.00µL						

Preparation Steps

Step: Preparation
Started: 2/1/21 09:04
Finished: 2/1/21 09:29
By: GRIVERA
Comments

Comments: _____

Preparation Information Benchsheet

Prep Run#: 373567
Team: Semivoa GCMS/JRODRIGUEZ

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 2/1/21 09:04

Reviewed By: GR Date: 2/1/21

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0750
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW14-210128	**Units:**	µg/L
Lab Code:	E2100117-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	2/ 1/21	2/2/21 13:15	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0750
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW14-210128-FD	**Units:**	µg/L
Lab Code:	E2100117-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.500	0.250	0.125	5	2/ 1/21	2/2/21 13:23	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0850
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW13-210128	**Units:**	µg/L
Lab Code:	E2100117-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**155**		1.00	0.500	0.250	10	2/ 1/21	2/2/21 13:31	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 0945
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW11-210128	**Units:**	µg/L
Lab Code:	E2100117-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**651**		2.00	1.00	0.500	20	2/ 1/21	2/2/21 13:38	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1035
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW06-210128	**Units:**	µg/L
Lab Code:	E2100117-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**2.78**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:43	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**83800**		200	100	50.0	2000	2/ 1/21	2/2/21 13:54	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100046-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:28	373567	711866	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150
Sample Matrix: Ground Water

Service Request: E2100117
Date Analyzed: 2/ 2/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 373567

	Lab Control Sample EQ2100046-02			Duplicate Lab Control Sample EQ2100046-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0908	0.100	91	0.101	0.100	101	84 - 119	11	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0908**	J	0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 14:36	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100046-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.101**		0.100	0.0500	0.0250	1	2/ 1/21	2/2/21 12:35	373567	711866	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
		Date Analyzed:	2/ 1/21

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	E2100117-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		50WW12-210128MS				50WW12-210128DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2100046-04				EQ2100046-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	83800	60800	0.100	-23007600 #	60700	0.100	-23094888#	84 - 119	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	EQ2100046-04	**Basis:**	NA
Run Type:	Matrix Spike		

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60800**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:36	373567	711817	*

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Collected:**	1/28/21 1130
Sample Matrix:	Ground Water	**Date Received:**	1/29/21
Sample Name:	50WW12-210128	**Units:**	µg/L
Lab Code:	EQ2100046-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**60700**	E	0.100	0.0500	0.0250	1	2/ 1/21	2/1/21 18:44	373567	711817	*

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
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www.alsglobal.com

20210201

ALS Environmental

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210201_010	Perchlorate6850b.lcm	1x	☒	3100808-05	2/1/2021 12:31
2	PERCHLORATE2		20210201_011	Perchlorate6850b.lcm	1x	☒	3100808-06	2/1/2021 12:39
3	PERCHLORATE3		20210201_012	Perchlorate6850b.lcm	1x	☒	3100808-07	2/1/2021 12:47
4	PERCHLORATE4		20210201_013	Perchlorate6850b.lcm	1x	☒	3100808-08	2/1/2021 12:54
5	PERCHLORATE5		20210201_014	Perchlorate6850b.lcm	1x	☒	3100808-09	2/1/2021 13:02
6	PERCHLORATE6		20210201_015	Perchlorate6850b.lcm	1x	☒	3100809-01	2/1/2021 13:10
7	PERCHLORATE7		20210201_016	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 13:18
8	PERCHLORATE8		20210201_017	Perchlorate6850b.lcm	1x	☒	3100809-03	2/1/2021 13:26
9	PERCHLORATE9		20210201_018	Perchlorate6850b.lcm	1x	☒	3100809-04	2/1/2021 13:34
10	PERCHLORATE10		20210201_019	Perchlorate6850b.lcm	1x	☒	3100809-05	2/1/2021 13:42
11	ICS		20210201_020	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:50
12	LODV		20210201_021	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:58
13	PERCHLORATEICV		20210201_022	Perchlorate6850b.lcm	1x	☒	3100809-06	2/1/2021 14:06
14	EQ2100045-01		20210201_023	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:14
15	EQ2100045-02		20210201_024	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:21
16	EQ2100045-03		20210201_025	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:29
17	EQ2100045-04		20210201_026	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:37
18	EQ2100045-05		20210201_027	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:45
19	EQ2100045-06		20210201_028	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:53
20	EQ2100045-07		20210201_029	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:01
21	E2100103-001		20210201_030	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:09
22	E2100103-002		20210201_031	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:17
23	E2100103-003		20210201_032	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:25
24	PERCHLORATE7		20210201_033	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 15:32
25	E2100103-004		20210201_034	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:40
26	E2100103-005		20210201_035	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:48
27	E2100103-006		20210201_036	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:56
28	E2100105-001		20210201_037	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:04
29	E2100106-001		20210201_038	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:12
30	E2100106-002		20210201_039	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:20
31	E2100106-003		20210201_040	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:46
32	E2100106-004		20210201_041	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:54
33	E2100106-005		20210201_042	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:02
34	E2100106-006		20210201_043	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:10
35	PERCHLORATE7		20210201_044	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:17
36	E2100107-001		20210201_045	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:25
37	PERCHLORATE7		20210201_046	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:33
38	10um filter test_MB		20210201_047	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:41
39	10um filter test_LCS		20210201_048	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:49
40	E2100107-002-10um		20210201_049	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:57
41	PERCHLORATE7		20210201_050	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 18:05
42	EQ2100046-01		20210201_051	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:13
43	EQ2100046-02		20210201_052	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:20
44	EQ2100046-03		20210201_053	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:28
45	EQ2100046-04		20210201_054	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:36
46	EQ2100046-05		20210201_055	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:44
47	E2100117-001		20210201_056	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:52
48	E2100117-002		20210201_057	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:00
49	E2100117-003		20210201_058	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:08
50	E2100117-004		20210201_059	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:16
51	E2100117-005		20210201_060	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:24
52	PERCHLORATE7		20210201_061	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 19:31
53	E2100117-006		20210201_062	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:39
54	E2100118-001		20210201_063	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:47
55	E2100118-002		20210201_064	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:55
56	E2100118-003		20210201_065	Perchlorate6850b.lcm	1x	☒		2/1/2021 20:03
57	PERCHLORATE7		20210201_066	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 20:11
58								
59								
60								

Initial Calibration - Detailed Report

Calibration ID: EC2100003 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2100003-01	PERCHLORATE1	20210201_010	02/01/2021 12:31
02	EC2100003-02	PERCHLORATE2	20210201_011	02/01/2021 12:39
03	EC2100003-03	PERCHLORATE3	20210201_012	02/01/2021 12:47
04	EC2100003-04	PERCHLORATE4	20210201_013	02/01/2021 12:54
05	EC2100003-05	PERCHLORATE5	20210201_014	02/01/2021 13:02
06	EC2100003-06	PERCHLORATE6	20210201_015	02/01/2021 13:10
07	EC2100003-07	PERCHLORATE7	20210201_016	02/01/2021 13:18
08	EC2100003-08	PERCHLORATE8	20210201_017	02/01/2021 13:26
09	EC2100003-09	PERCHLORATE9	20210201_018	02/01/2021 13:34
10	EC2100003-10	PERCHLORATE10	20210201_019	02/01/2021 13:42

Analyte	Curve Fit	Weighting		
Perchlorate	**Linear**	**Equal**	**R2 = 0.9998013640904140**	**Y=0.1191 X+0.02779**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.1437	02	0.5000	0.1378	03	0.7000	0.1352	04	1.0000	0.1308
05	2.0000	0.1376	06	5.0000	0.1256	07	10.0000	0.1256	08	20.0000	0.122
09	30.0000	0.1213	10	50.0000	0.1188						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	-0.113	**-212.7**	02	0.5000	0.345	**-31.0**	03	0.7000	0.561	-19.8
04	1.0000	0.865	-13.5	05	2.0000	2.08	3.9	06	5.0000	5.04	0.7
07	10.0000	10.3	3.1	08	20.0000	20.3	1.3	09	30.0000	30.3	1.0
10	50.0000	49.6	-0.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2100003	**Instrument ID:**	E-LCMS-01
Datafile ID:	20210201_022	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2100003-11	T	Linear	10	9.837	ng/mL	-1.6	<= 15

ALS Group Houston

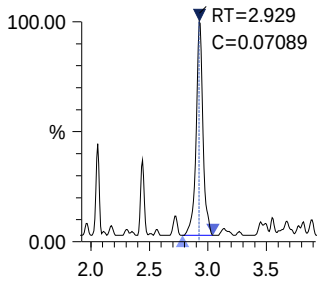
PERCHLORATE1

Sample ID: PERCHLORATE1
Date acquired: 2/1/2021 12:31:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_010.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE1	2/1/2021 12:31:14 PM	1187	0.07089	20210201_010	2.929	25.0000	1.0000	22
Sodium Perchlorate-18O4_IS	PERCHLORATE1	2/1/2021 12:31:14 PM	82617	1.00000	20210201_010	2.924	25.0000	1.0000	22

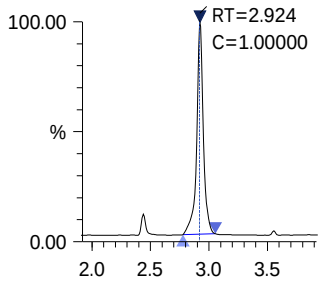
Perchlorate

Conc 0.07089
Area 1187
Q 99.00>83.00 (-) 2.89e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 82617
ISTD 107.00>89.00 (-) 2.10e4



ALS Group Houston

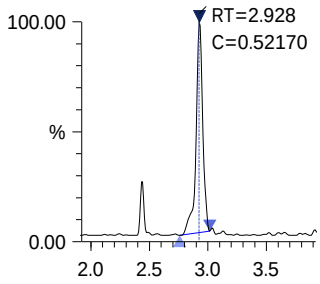
PERCHLORATE2

Sample ID: PERCHLORATE2
Date acquired: 2/1/2021 12:39:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_011.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE2	2/1/2021 12:39:09 PM	5955	0.52170	20210201_011	2.928	25.0000	1.0000	23
Sodium Perchlorate-18O4_IS	PERCHLORATE2	2/1/2021 12:39:09 PM	86423	1.00000	20210201_011	2.924	25.0000	1.0000	23

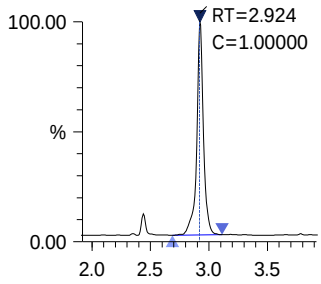
Perchlorate

Conc 0.52170
Area 5955
Q 99.00>83.00 (-) 1.49e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 86423
ISTD 107.00>89.00 (-) 2.15e4



ALS Group Houston

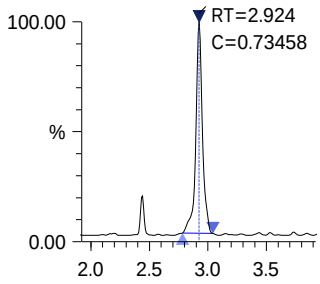
PERCHLORATE3

Sample ID: PERCHLORATE3
Date acquired: 2/1/2021 12:47:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_012.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE3	2/1/2021 12:47:03 PM	8132	0.73458	20210201_012	2.924	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	PERCHLORATE3	2/1/2021 12:47:03 PM	85914	1.00000	20210201_012	2.923	25.0000	1.0000	24

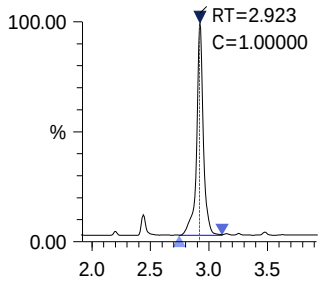
Perchlorate

Conc 0.73458
Area 8132
Q 99.00>83.00 (-) 2.06e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 85914
ISTD 107.00>89.00 (-) 2.16e4



ALS Group Houston

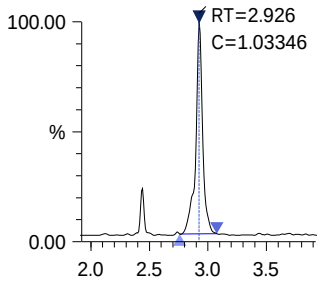
PERCHLORATE4

Sample ID: PERCHLORATE4
Date acquired: 2/1/2021 12:54:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_013.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE4	2/1/2021 12:54:57 PM	10926	1.03346	20210201_013	2.926	25.0000	1.0000	25
Sodium Perchlorate-18O4_IS	PERCHLORATE4	2/1/2021 12:54:57 PM	83522	1.00000	20210201_013	2.925	25.0000	1.0000	25

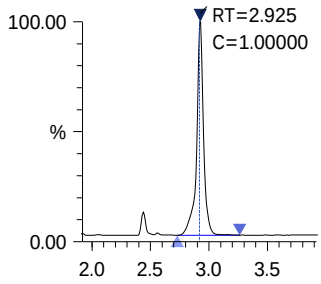
Perchlorate

Conc 1.03346
Area 10926
Q 99.00>83.00 (-) 2.67e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 83522
ISTD 107.00>89.00 (-) 2.02e4



ALS Group Houston

PERCHLORATE5

Sample ID: PERCHLORATE5
Date acquired: 2/1/2021 1:02:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_014.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

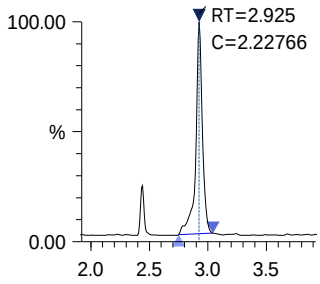
Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE5	2/1/2021 1:02:54 PM	22093	2.22766	20210201_014	2.925	25.0000	1.0000	26
Sodium Perchlorate-18O4_IS	PERCHLORATE5	2/1/2021 1:02:54 PM	80254	1.00000	20210201_014	2.924	25.0000	1.0000	26

Perchlorate

Conc 2.22766

Area 22093

Q 99.00>83.00 (-) 5.61e3

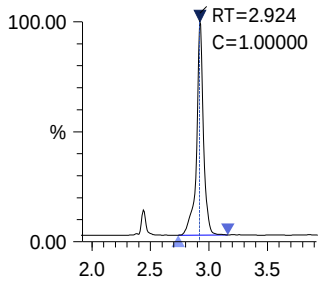


Sodium Perchlorate-18O4_IS

Conc 1.00000

Area 80254

ISTD 107.00>89.00 (-) 1.96e4



ALS Group Houston

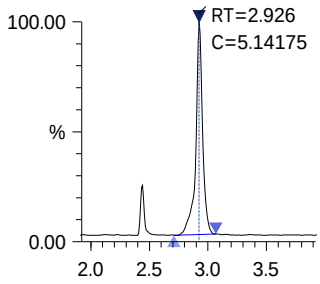
PERCHLORATE6

Sample ID: PERCHLORATE6
Date acquired: 2/1/2021 1:10:49 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_015.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE6	2/1/2021 1:10:49 PM	48547	5.14175	20210201_015	2.926	25.0000	1.0000	27
Sodium Perchlorate-18O4_IS	PERCHLORATE6	2/1/2021 1:10:49 PM	77326	1.00000	20210201_015	2.925	25.0000	1.0000	27

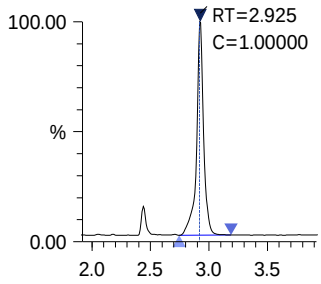
Perchlorate

Conc 5.14175
Area 48547
Q 99.00>83.00 (-) 1.20e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 77326
ISTD 107.00>89.00 (-) 1.84e4



ALS Group Houston

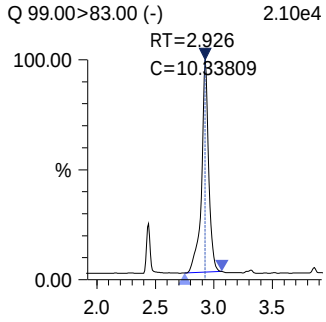
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 1:18:41 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_016.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 1:18:41 PM	88831	10.33809	20210201_016	2.926	25.0000	1.0000	21
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 1:18:41 PM	70700	1.00000	20210201_016	2.924	25.0000	1.0000	21

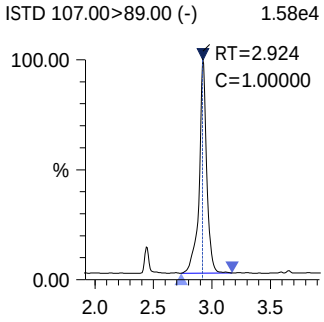
Perchlorate

Conc 10.33809
Area 88831



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 70700



ALS Group Houston

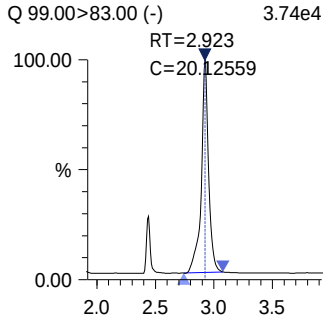
PERCHLORATE8

Sample ID: PERCHLORATE8
Date acquired: 2/1/2021 1:26:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_017.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE8	2/1/2021 1:26:37 PM	161822	20.12559	20210201_017	2.923	25.0000	1.0000	28
Sodium Perchlorate-18O4_IS	PERCHLORATE8	2/1/2021 1:26:37 PM	66306	1.00000	20210201_017	2.923	25.0000	1.0000	28

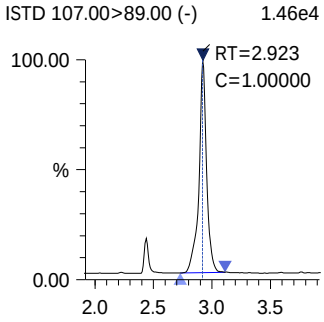
Perchlorate

Conc 20.12559
Area 161822



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 66306



ALS Group Houston

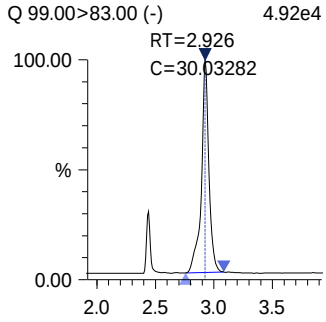
PERCHLORATE9

Sample ID: PERCHLORATE9
Date acquired: 2/1/2021 1:34:33 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_018.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE9	2/1/2021 1:34:33 PM	219142	30.03282	20210201_018	2.926	25.0000	1.0000	29
Sodium Perchlorate-18O4_IS	PERCHLORATE9	2/1/2021 1:34:33 PM	60219	1.00000	20210201_018	2.925	25.0000	1.0000	29

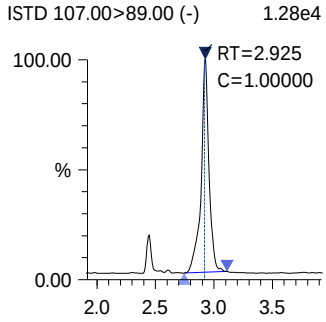
Perchlorate

Conc 30.03282
Area 219142



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 60219



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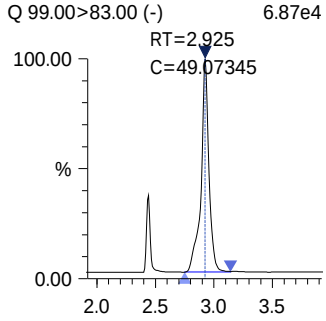
PERCHLORATE10

Sample ID: PERCHLORATE10
Date acquired: 2/1/2021 1:42:25 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_019.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE10	2/1/2021 1:42:25 PM	323140	49.07345	20210201_019	2.925	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	PERCHLORATE10	2/1/2021 1:42:25 PM	54378	1.00000	20210201_019	2.923	25.0000	1.0000	30

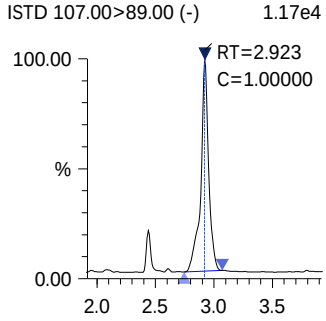
Perchlorate

Conc 49.07345
Area 323140



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 54378



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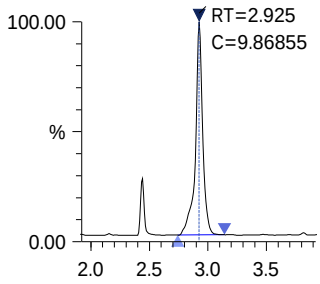
PERCHLORATEICV

Sample ID: PERCHLORATEICV
Date acquired: 2/1/2021 2:06:09 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_022.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATEICV	2/1/2021 2:06:09 PM	91977	9.86855	20210201_022	2.925	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATEICV	2/1/2021 2:06:09 PM	76670	1.00000	20210201_022	2.924	25.0000	1.0000	31

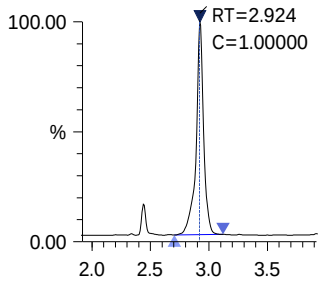
Perchlorate

Conc 9.86855
Area 91977
Q 99.00>83.00 (-) 2.13e4



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 76670
ISTD 107.00>89.00 (-) 1.71e4



Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20210201

ALS Environmental

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210201_010	Perchlorate6850b.lcm	1x	☒	3100808-05	2/1/2021 12:31
2	PERCHLORATE2		20210201_011	Perchlorate6850b.lcm	1x	☒	3100808-06	2/1/2021 12:39
3	PERCHLORATE3		20210201_012	Perchlorate6850b.lcm	1x	☒	3100808-07	2/1/2021 12:47
4	PERCHLORATE4		20210201_013	Perchlorate6850b.lcm	1x	☒	3100808-08	2/1/2021 12:54
5	PERCHLORATE5		20210201_014	Perchlorate6850b.lcm	1x	☒	3100808-09	2/1/2021 13:02
6	PERCHLORATE6		20210201_015	Perchlorate6850b.lcm	1x	☒	3100809-01	2/1/2021 13:10
7	PERCHLORATE7		20210201_016	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 13:18
8	PERCHLORATE8		20210201_017	Perchlorate6850b.lcm	1x	☒	3100809-03	2/1/2021 13:26
9	PERCHLORATE9		20210201_018	Perchlorate6850b.lcm	1x	☒	3100809-04	2/1/2021 13:34
10	PERCHLORATE10		20210201_019	Perchlorate6850b.lcm	1x	☒	3100809-05	2/1/2021 13:42
11	ICS		20210201_020	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:50
12	LODV		20210201_021	Perchlorate6850b.lcm	1x	☒		2/1/2021 13:58
13	PERCHLORATEICV		20210201_022	Perchlorate6850b.lcm	1x	☒	3100809-06	2/1/2021 14:06
14	EQ2100045-01		20210201_023	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:14
15	EQ2100045-02		20210201_024	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:21
16	EQ2100045-03		20210201_025	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:29
17	EQ2100045-04		20210201_026	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:37
18	EQ2100045-05		20210201_027	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:45
19	EQ2100045-06		20210201_028	Perchlorate6850b.lcm	1x	☒		2/1/2021 14:53
20	EQ2100045-07		20210201_029	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:01
21	E2100103-001		20210201_030	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:09
22	E2100103-002		20210201_031	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:17
23	E2100103-003		20210201_032	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:25
24	PERCHLORATE7		20210201_033	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 15:32
25	E2100103-004		20210201_034	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:40
26	E2100103-005		20210201_035	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:48
27	E2100103-006		20210201_036	Perchlorate6850b.lcm	1x	☒		2/1/2021 15:56
28	E2100105-001		20210201_037	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:04
29	E2100106-001		20210201_038	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:12
30	E2100106-002		20210201_039	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:20
31	E2100106-003		20210201_040	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:46
32	E2100106-004		20210201_041	Perchlorate6850b.lcm	1x	☒		2/1/2021 16:54
33	E2100106-005		20210201_042	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:02
34	E2100106-006		20210201_043	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:10
35	PERCHLORATE7		20210201_044	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:17
36	E2100107-001		20210201_045	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:25
37	PERCHLORATE7		20210201_046	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 17:33
38	10um filter test_MB		20210201_047	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:41
39	10um filter test_LCS		20210201_048	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:49
40	E2100107-002-10um		20210201_049	Perchlorate6850b.lcm	1x	☒		2/1/2021 17:57
41	PERCHLORATE7		20210201_050	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 18:05
42	EQ2100046-01		20210201_051	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:13
43	EQ2100046-02		20210201_052	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:20
44	EQ2100046-03		20210201_053	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:28
45	EQ2100046-04		20210201_054	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:36
46	EQ2100046-05		20210201_055	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:44
47	E2100117-001		20210201_056	Perchlorate6850b.lcm	1x	☒		2/1/2021 18:52
48	E2100117-002		20210201_057	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:00
49	E2100117-003		20210201_058	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:08
50	E2100117-004		20210201_059	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:16
51	E2100117-005		20210201_060	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:24
52	PERCHLORATE7		20210201_061	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 19:31
53	E2100117-006		20210201_062	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:39
54	E2100118-001		20210201_063	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:47
55	E2100118-002		20210201_064	Perchlorate6850b.lcm	1x	☒		2/1/2021 19:55
56	E2100118-003		20210201_065	Perchlorate6850b.lcm	1x	☒		2/1/2021 20:03
57	PERCHLORATE7		20210201_066	Perchlorate6850b.lcm	1x	☒	3100809-02	2/1/2021 20:11
58								
59								
60								

20210202

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 2/1/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100003**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20210202_001	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:17
2	null		20210202_002	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:22
3	IB		20210202_003	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:27
4	IB		20210202_004	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:35
5	ICS		20210202_005	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:43
6	LODV		20210202_006	Perchlorate6850b.lcm	1x	☒		2/2/2021 9:51
7	PERCHLORATE7		20210202_007	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 9:59
8	EQ2100045-04X10		20210202_008	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:21
9	EQ2100045-05X10		20210202_009	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:29
10	EQ2100045-06X10		20210202_010	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:37
11	EQ2100045-07X10		20210202_011	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:45
12	E2100103-001X10		20210202_012	Perchlorate6850b.lcm	10X	☒		2/2/2021 10:53
13	E2100103-002X10		20210202_013	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:01
14	E2100103-003X10		20210202_014	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:08
15	E2100103-004X10		20210202_015	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:16
16	E2100103-005X10		20210202_016	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:24
17	E2100103-006X5		20210202_017	Perchlorate6850b.lcm	5X	☒		2/2/2021 11:32
18	PERCHLORATE7		20210202_018	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 11:40
19	E2100105-001X5		20210202_019	Perchlorate6850b.lcm	5X	☒		2/2/2021 11:48
20	E2100106-001X10		20210202_020	Perchlorate6850b.lcm	10X	☒		2/2/2021 11:56
21	E2100106-004X5		20210202_021	Perchlorate6850b.lcm	5X	☒		2/2/2021 12:04
22	E2100106-005X10		20210202_022	Perchlorate6850b.lcm	10X	☒		2/2/2021 12:12
23	PERCHLORATE7		20210202_023	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 12:20
24	EQ2100046-01		20210202_024	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:28
25	EQ2100046-03		20210202_025	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:35
26	E2100117-005		20210202_026	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:43
27	E2100118-002		20210202_027	Perchlorate6850b.lcm	1x	☒		2/2/2021 12:51
28	EQ2100046-04X2000		20210202_028	Perchlorate6850b.lcm	2000X	☒		2/2/2021 12:59
29	EQ2100046-05X2000		20210202_029	Perchlorate6850b.lcm	2000X	☒		2/2/2021 13:07
30	E2100117-001X5		20210202_030	Perchlorate6850b.lcm	5X	☒		2/2/2021 13:15
31	E2100117-002X5		20210202_031	Perchlorate6850b.lcm	5X	☒		2/2/2021 13:23
32	E2100117-003X10		20210202_032	Perchlorate6850b.lcm	10X	☒		2/2/2021 13:31
33	E2100117-004X20		20210202_033	Perchlorate6850b.lcm	20X	☒		2/2/2021 13:38
34	PERCHLORATE7		20210202_034	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 13:46
35	E2100117-006X2000		20210202_035	Perchlorate6850b.lcm	2000X	☒		2/2/2021 13:54
36	E2100118-001X10		20210202_036	Perchlorate6850b.lcm	10X	☒		2/2/2021 14:02
37	E2100118-003X10		20210202_037	Perchlorate6850b.lcm	10X	☒		2/2/2021 14:28
38	EQ2100046-02		20210202_038	Perchlorate6850b.lcm	1x	☒		2/2/2021 14:36
39	PERCHLORATE7		20210202_040	Perchlorate6850b.lcm	1x	☒	3100809-02	2/2/2021 14:51
40								

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_022

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.87	NA	NA	NA	-1.3	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_033

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.0	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_044

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.4	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_046

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.1	NA	NA	NA	1.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_050

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.0	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_061

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.1	NA	NA	NA	1.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 1/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210201\20210201_066

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711817
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	2.4	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_007

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.2	NA	NA	NA	1.5	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_018

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_023

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.0	NA	NA	NA	0.1	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_034

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.5	NA	NA	NA	4.9	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21011150

Service Request: E2100117
Date Analyzed: 2/ 2/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210202\20210202_040

Calibration Date: 2/1/21
Calibration ID: EC2100003
Analysis Lot: 711866
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	10.8	NA	NA	NA	7.9	± 15 %	Linear

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 14:06

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_022	**Lab Code:**	EQ2100050-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-01	76,670	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 15:32

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_033	**Lab Code:**	EQ2100050-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-02	84,606	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 17:17

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_044	**Lab Code:**	EQ2100050-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-03	96,176	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 17:33

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_046	**Lab Code:**	EQ2100050-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-04	93,090	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 18:05

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_050	**Lab Code:**	EQ2100050-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-05	91,090	2.91
50WW12-210128MS	EQ2100046-04	3,421*	2.90
50WW12-210128DMS	EQ2100046-05	3,602*	2.90

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 19:31

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_061	**Lab Code:**	EQ2100050-06
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-06	89,502	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/1/21 20:11

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210201\20210201_066	**Lab Code:**	EQ2100050-07
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711817
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100050-07	87,785	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/2/21 09:59

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_007	**Lab Code:**	EQ2100053-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-01	79,418	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/2/21 11:40

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_018	**Lab Code:**	EQ2100053-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-02	90,764	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/2/21 12:20

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_023	**Lab Code:**	EQ2100053-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-03	88,929	2.92
Method Blank	EQ2100046-01	96,543	2.90
Duplicate Lab Control Sample	EQ2100046-03	101,522	2.92
50WW06-210128	E2100117-005	78,134	2.92
50WW14-210128	E2100117-001	61,825	2.92
50WW14-210128-FD	E2100117-002	62,972	2.93
50WW13-210128	E2100117-003	66,270	2.92
50WW11-210128	E2100117-004	63,132	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/2/21 13:46

Internal Standard Area and RT Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_034	**Lab Code:**	EQ2100053-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-04	85,208	2.92
50WW12-210128	E2100117-006	64,024	2.92
Lab Control Sample	EQ2100046-02	92,949	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100117
Project:	HS21011150	**Date Analyzed:**	2/2/21 14:51

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210202\20210202_040	**Lab Code:**	EQ2100053-05
Instrument ID:	E-LCMS-01	**Analysis Lot:**	711866
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	74,766	2.92
	Upper Limit ==>	112,149	4.92
	Lower Limit ==>	37,383	0.92
Associated Analyses			
Continuing Calibration Verification	EQ2100053-05	79,995	2.92

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group Houston

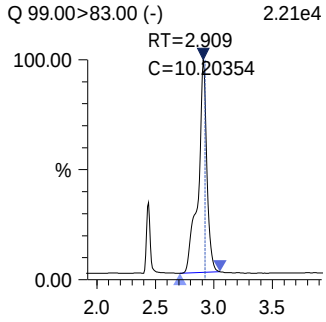
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 6:05:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_050.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 6:05:11 PM	112968	10.20354	20210201_050	2.909	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 6:05:11 PM	91090	1.00000	20210201_050	2.907	25.0000	1.0000	31

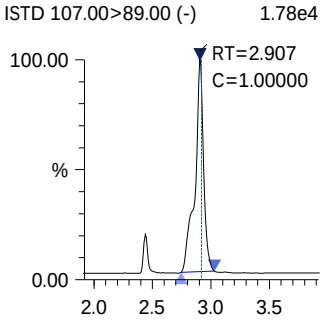
Perchlorate

Conc 10.20354
Area 112968



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 91090



ALS Group Houston

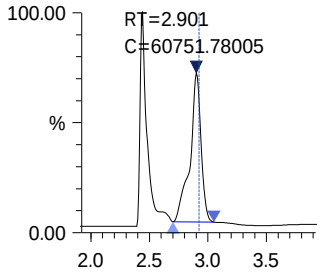
EQ2100046-04

Sample ID: EQ2100046-04
Date acquired: 2/1/2021 6:36:40 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_054.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-04	2/1/2021 6:36:40 PM	25142811	60751.78005	20210201_054	2.901	25.0000	1.0000	32
Sodium Perchlorate-18O4_IS	EQ2100046-04	2/1/2021 6:36:40 PM	3421	1.00000	20210201_054	2.896	25.0000	1.0000	32

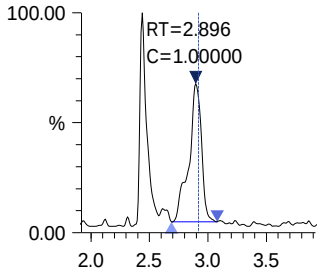
Perchlorate

Conc 60751.78005
Area 25142811
Q 99.00>83.00 (-) 5.46e6



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 3421
ISTD 107.00>89.00 (-) 7.04e2



ALS Group Houston

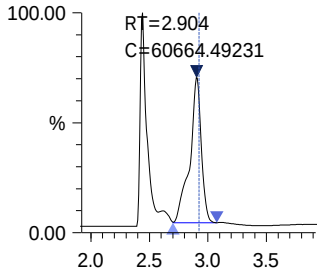
EQ2100046-05

Sample ID: EQ2100046-05
Date acquired: 2/1/2021 6:44:32 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_055.lcd
Vial: 33 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-05	2/1/2021 6:44:32 PM	26438712	60664.49231	20210201_055	2.904	25.0000	1.0000	33
Sodium Perchlorate-18O4_IS	EQ2100046-05	2/1/2021 6:44:32 PM	3602	1.00000	20210201_055	2.900	25.0000	1.0000	33

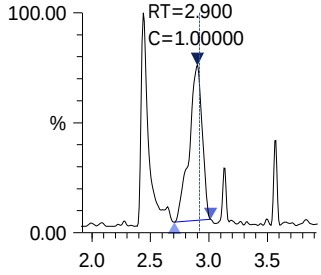
Perchlorate

Conc 60664.49231
Area 26438712
Q 99.00>83.00 (-) 5.65e6



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 3602
ISTD 107.00>89.00 (-) 6.39e2



ALS Group Houston

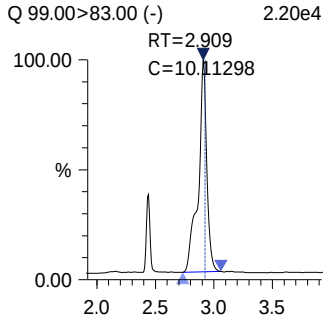
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/1/2021 7:31:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210201\20210201_061.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/1/2021 7:31:57 PM	110018	10.11298	20210201_061	2.909	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/1/2021 7:31:57 PM	89502	1.00000	20210201_061	2.907	25.0000	1.0000	31

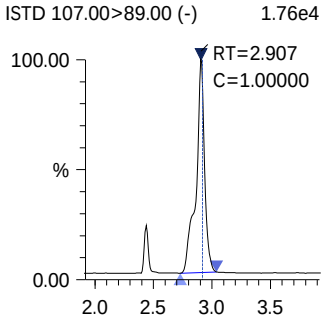
Perchlorate

Conc 10.11298
Area 110018



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 89502



ALS Group Houston

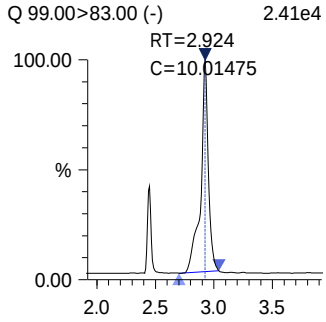
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 12:20:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_023.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 12:20:04 PM	108257	10.01475	20210202_023	2.924	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 12:20:04 PM	88929	1.00000	20210202_023	2.922	25.0000	1.0000	31

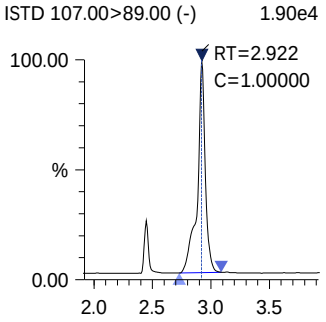
Perchlorate

Conc 10.01475
Area 108257



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 88929



ALS Group Houston

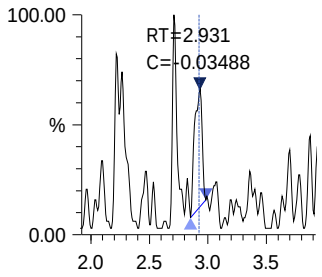
EQ2100046-01

Sample ID: EQ2100046-01
Date acquired: 2/2/2021 12:28:01 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_024.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-01	2/2/2021 12:28:01 PM	152	-0.03488	20210202_024	2.931	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	EQ2100046-01	2/2/2021 12:28:01 PM	96543	1.00000	20210202_024	2.899	25.0000	1.0000	30

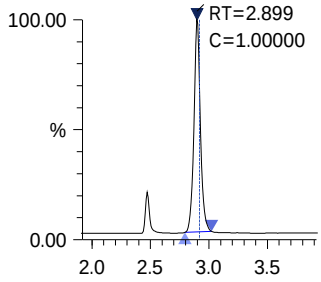
Perchlorate

Conc -0.03488
Area 152
Q 99.00>83.00 (-) 6.00e1



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 96543
ISTD 107.00>89.00 (-) 2.50e4



ALS Group Houston

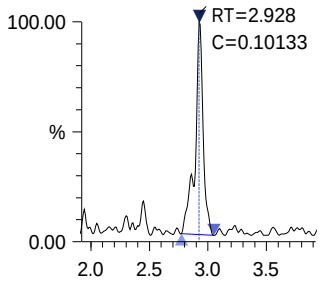
EQ2100046-03

Sample ID: EQ2100046-03
Date acquired: 2/2/2021 12:35:55 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_025.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-03	2/2/2021 12:35:55 PM	1832	0.10133	20210202_025	2.928	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	EQ2100046-03	2/2/2021 12:35:55 PM	101522	1.00000	20210202_025	2.923	25.0000	1.0000	31

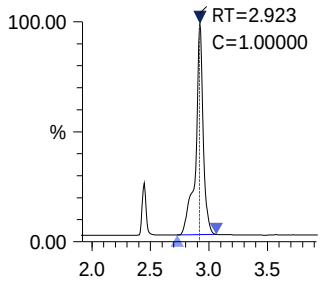
Perchlorate

Conc 0.10133
Area 1832
Q 99.00>83.00 (-) 3.80e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 101522
ISTD 107.00>89.00 (-) 2.29e4



ALS Group Houston

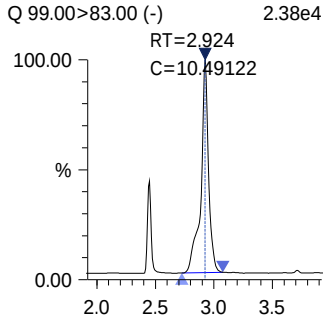
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 1:46:48 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_034.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 1:46:48 PM	108640	10.49122	20210202_034	2.924	25.0000	1.0000	31
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 1:46:48 PM	85208	1.00000	20210202_034	2.923	25.0000	1.0000	31

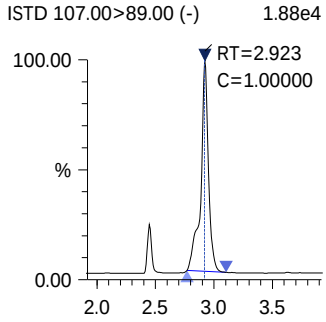
Perchlorate

Conc 10.49122
Area 108640



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 85208



ALS Group Houston

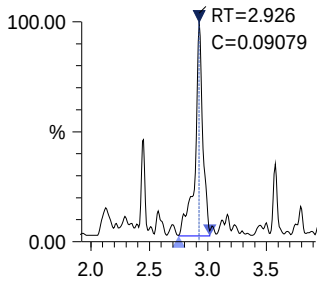
EQ2100046-02

Sample ID: EQ2100046-02
Date acquired: 2/2/2021 2:36:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_038.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 4

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2100046-02	2/2/2021 2:36:10 PM	1559	0.09079	20210202_038	2.926	25.0000	1.0000	30
Sodium Perchlorate-18O4_IS	EQ2100046-02	2/2/2021 2:36:10 PM	92949	1.00000	20210202_038	2.924	25.0000	1.0000	30

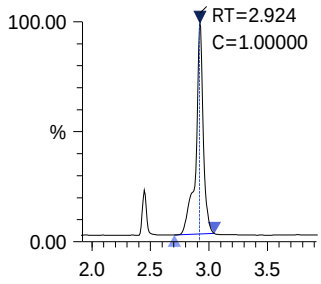
Perchlorate

Conc 0.09079
Area 1559
Q 99.00>83.00 (-) 3.41e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 92949
ISTD 107.00>89.00 (-) 2.13e4



ALS Group Houston

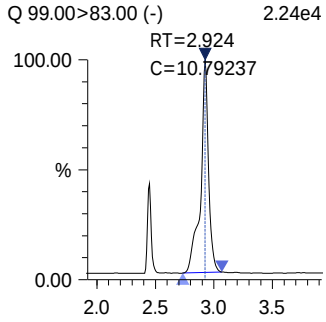
PERCHLORATE7

Sample ID: PERCHLORATE7
Date acquired: 2/2/2021 2:51:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210202\20210202_040.lcd
Vial: 19 | Inj. Volume: 25.0000uL | Tray: 1

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	PERCHLORATE7	2/2/2021 2:51:59 PM	104907	10.79237	20210202_040	2.924	25.0000	1.0000	19
Sodium Perchlorate-18O4_IS	PERCHLORATE7	2/2/2021 2:51:59 PM	79995	1.00000	20210202_040	2.923	25.0000	1.0000	19

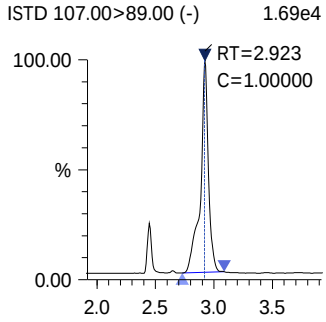
Perchlorate

Conc 10.79237
Area 104907



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 79995



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WorkOrder: HS21040286

Longhorn Army Ammunition Plant LHAAP50 April 2021

Aptim Environmental & Infrastucture, Inc.

Vicki Graves
2500 City West Blvd., Suite 1700
Houston TX 77042

30-Apr-2021

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HS21040286 Longhorn Army Ammunition Plant LHAAP50 April 2021 Final

ALS WO# HS21040286

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April 27, 2021

Vicki Graves
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS21040286**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP50 April 2021**

Dear Vicki Graves ,

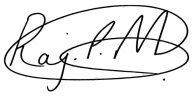
ALS Environmental received 10 sample(s) on Apr 07, 2021 for the analysis presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

If you have any questions regarding this report, please feel free to call me.

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
Work Order: HS21040286

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS21040286-01	50WW08-210405	Water		05-Apr-2021 08:45	07-Apr-2021 10:30	☐
HS21040286-02	50WW05-210405	Water		05-Apr-2021 09:30	07-Apr-2021 10:30	☐
HS21040286-03	50WW29-210405	Water		05-Apr-2021 10:20	07-Apr-2021 10:30	☐
HS21040286-04	50WW14-210406	Water		06-Apr-2021 07:40	07-Apr-2021 10:30	☐
HS21040286-05	50WW13-210406	Water		06-Apr-2021 08:30	07-Apr-2021 10:30	☐
HS21040286-06	50WW11-210406	Water		06-Apr-2021 09:20	07-Apr-2021 10:30	☐
HS21040286-07	50WW11-210406-FD	Water		06-Apr-2021 09:20	07-Apr-2021 10:30	☐
HS21040286-08	50WW06-210406	Water		06-Apr-2021 10:15	07-Apr-2021 10:30	☐
HS21040286-09	50WW12-210406	Water		06-Apr-2021 11:25	07-Apr-2021 10:30	☐
HS21040286-10	TRIP BLANK-210406	Water	CG-121520-1021	06-Apr-2021 00:00	07-Apr-2021 10:30	☐

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
Work Order: HS21040286

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- This data package was revised to remove the duplicate level II subcontract data that was submitted in the original data package.

Work Order Comments

- The analysis for Perchlorate was subcontracted our ALS Houston TX, High Resolution Lab. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R381625

Sample ID: CCV

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

Batch ID: R381632,R381740

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SW9056

Batch ID: R382075

Sample ID: 50WW12-210406 (HS21040286-09)

- Sample ran at 2X due to high concentration of Chloride

Batch ID: R382085

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

WetChemistry by Method SM5310B

Batch ID: R381942

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW08-210405 Lab ID:HS21040286-01
Collection Date: 05-Apr-2021 08:45 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**1.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:47
1,2-Dichloroethane	**1.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:47
cis-1,2-Dichloroethene	**58**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:47
Tetrachloroethene	**1.6**		**0.30**	**1.0**	**1.0**	**ug/L**	1	15-Apr-2021 01:47
Trichloroethene	**610**		**2.0**	**5.0**	**10**	**ug/L**	10	16-Apr-2021 00:49
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:47
Surr: 1,2-Dichloroethane-d4	*95.9*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 01:47*
Surr: 1,2-Dichloroethane-d4	*97.1*			**0**	*81-118*	*%REC*	*10*	*16-Apr-2021 00:49*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 01:47*
Surr: 4-Bromofluorobenzene	*94.7*			**0**	*85-114*	*%REC*	*10*	*16-Apr-2021 00:49*
Surr: Dibromofluoromethane	*93.3*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 01:47*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*10*	*16-Apr-2021 00:49*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 01:47*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*10*	*16-Apr-2021 00:49*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW05-210405 Lab ID:HS21040286-02
Collection Date: 05-Apr-2021 09:30 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**4.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:26
1,2-Dichloroethane	**1.6**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:26
cis-1,2-Dichloroethene	**140**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:26
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Apr-2021 01:26
Trichloroethene	**240**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Apr-2021 01:10
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:26
Surr: 1,2-Dichloroethane-d4	*96.4*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 01:26*
Surr: 1,2-Dichloroethane-d4	*98.2*			**0**	*81-118*	*%REC*	*5*	*16-Apr-2021 01:10*
Surr: 4-Bromofluorobenzene	*97.3*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 01:26*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*5*	*16-Apr-2021 01:10*
Surr: Dibromofluoromethane	*94.3*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 01:26*
Surr: Dibromofluoromethane	*91.2*			**0**	*80-119*	*%REC*	*5*	*16-Apr-2021 01:10*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 01:26*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*16-Apr-2021 01:10*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW29-210405 Lab ID:HS21040286-03
Collection Date: 05-Apr-2021 10:20 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:22
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:22
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Apr-2021 00:22
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:22
Surr: 1,2-Dichloroethane-d4	*95.4*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 00:22*
Surr: 4-Bromofluorobenzene	*96.1*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 00:22*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 00:22*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 00:22*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW14-210406 Lab ID:HS21040286-04
Collection Date: 06-Apr-2021 07:40 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:43
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:43
cis-1,2-Dichloroethene	**5.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 00:43
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Apr-2021 00:43
Trichloroethene	**23**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 00:43
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:43
Surr: 1,2-Dichloroethane-d4	*96.2*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 00:43*
Surr: 4-Bromofluorobenzene	*94.8*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 00:43*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 00:43*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 00:43*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.57**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 01:36
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**402**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 07:29
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	07-Apr-2021 23:47
Sulfate	**383**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 07:29
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW13-210406 Lab ID:HS21040286-05
Collection Date: 06-Apr-2021 08:30 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**0.95**	J	**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:52
1,2-Dichloroethane	**1.9**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:52
cis-1,2-Dichloroethene	**16**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:52
Tetrachloroethene	**1.7**		**0.30**	**1.0**	**1.0**	**ug/L**	1	14-Apr-2021 20:52
Trichloroethene	**410**		**2.0**	**5.0**	**10**	**ug/L**	10	16-Apr-2021 01:31
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Apr-2021 20:52
Surr: 1,2-Dichloroethane-d4	*94.6*			**0**	*81-118*	*%REC*	*1*	*14-Apr-2021 20:52*
Surr: 1,2-Dichloroethane-d4	*98.8*			**0**	*81-118*	*%REC*	*10*	*16-Apr-2021 01:31*
Surr: 4-Bromofluorobenzene	*97.4*			**0**	*85-114*	*%REC*	*1*	*14-Apr-2021 20:52*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*10*	*16-Apr-2021 01:31*
Surr: Dibromofluoromethane	*94.5*			**0**	*80-119*	*%REC*	*1*	*14-Apr-2021 20:52*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*10*	*16-Apr-2021 01:31*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*14-Apr-2021 20:52*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*10*	*16-Apr-2021 01:31*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.76**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 01:52
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**386**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 07:48
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-Apr-2021 00:43
Sulfate	**345**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 07:48
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW11-210406 Lab ID:HS21040286-06
Collection Date: 06-Apr-2021 09:20 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:10
1,2-Dichloroethane	**1.5**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:10
cis-1,2-Dichloroethene	**5.3**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:10
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Apr-2021 20:10
Trichloroethene	**200**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Apr-2021 01:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Apr-2021 20:10
Surr: 1,2-Dichloroethane-d4	*93.7*			**0**	*81-118*	*%REC*	*1*	*14-Apr-2021 20:10*
Surr: 1,2-Dichloroethane-d4	*98.3*			**0**	*81-118*	*%REC*	*5*	*16-Apr-2021 01:52*
Surr: 4-Bromofluorobenzene	*96.1*			**0**	*85-114*	*%REC*	*1*	*14-Apr-2021 20:10*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*5*	*16-Apr-2021 01:52*
Surr: Dibromofluoromethane	*91.7*			**0**	*80-119*	*%REC*	*1*	*14-Apr-2021 20:10*
Surr: Dibromofluoromethane	*91.7*			**0**	*80-119*	*%REC*	*5*	*16-Apr-2021 01:52*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-Apr-2021 20:10*
Surr: Toluene-d8	*108*			**0**	*89-112*	*%REC*	*5*	*16-Apr-2021 01:52*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.65**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 02:07
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**295**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 08:06
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-Apr-2021 01:01
Sulfate	**304**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 08:06
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW11-210406-FD Lab ID:HS21040286-07
Collection Date: 06-Apr-2021 09:20 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**2.0**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:31
1,2-Dichloroethane	**1.8**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:31
cis-1,2-Dichloroethene	**5.7**		**0.20**	**0.50**	**1.0**	**ug/L**	1	14-Apr-2021 20:31
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	14-Apr-2021 20:31
Trichloroethene	**230**		**1.0**	**2.5**	**5.0**	**ug/L**	5	16-Apr-2021 02:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	14-Apr-2021 20:31
Surr: 1,2-Dichloroethane-d4	*93.6*			**0**	*81-118*	*%REC*	*1*	*14-Apr-2021 20:31*
Surr: 1,2-Dichloroethane-d4	*98.5*			**0**	*81-118*	*%REC*	*5*	*16-Apr-2021 02:14*
Surr: 4-Bromofluorobenzene	*94.3*			**0**	*85-114*	*%REC*	*1*	*14-Apr-2021 20:31*
Surr: 4-Bromofluorobenzene	*93.9*			**0**	*85-114*	*%REC*	*5*	*16-Apr-2021 02:14*
Surr: Dibromofluoromethane	*91.4*			**0**	*80-119*	*%REC*	*1*	*14-Apr-2021 20:31*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*5*	*16-Apr-2021 02:14*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-Apr-2021 20:31*
Surr: Toluene-d8	*109*			**0**	*89-112*	*%REC*	*5*	*16-Apr-2021 02:14*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.62**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 02:23
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**283**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 08:24
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-Apr-2021 01:19
Sulfate	**294**		**2.00**	**5.00**	**5.00**	**mg/L**	10	21-Apr-2021 08:24
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW06-210406 Lab ID:HS21040286-08
Collection Date: 06-Apr-2021 10:15 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:04
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Apr-2021 01:04
Trichloroethene	**3.1**		**0.20**	**0.50**	**1.0**	**ug/L**	1	15-Apr-2021 01:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 01:04
Surr: 1,2-Dichloroethane-d4	*95.3*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 01:04*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 01:04*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 01:04*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 01:04*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.57**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 02:39
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**3.42**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-Apr-2021 01:38
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-Apr-2021 01:38
Sulfate	**10.9**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-Apr-2021 01:38
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: 50WW12-210406 Lab ID:HS21040286-09
Collection Date: 06-Apr-2021 11:25 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1-Dichloroethene	**17**		**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Apr-2021 02:08
1,2-Dichloroethane	**11**		**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Apr-2021 02:08
cis-1,2-Dichloroethene	**4.0**	J	**1.0**	**2.5**	**5.0**	**ug/L**	5	15-Apr-2021 02:08
Tetrachloroethene	5.0	U	1.5	5.0	5.0	ug/L	5	15-Apr-2021 02:08
Trichloroethene	**1,600**		**10**	**25**	**50**	**ug/L**	50	15-Apr-2021 02:29
Vinyl chloride	2.5	U	1.0	2.5	5.0	ug/L	5	15-Apr-2021 02:08
Surr: 1,2-Dichloroethane-d4	*97.2*			**0**	*81-118*	*%REC*	*5*	*15-Apr-2021 02:08*
Surr: 1,2-Dichloroethane-d4	*95.9*			**0**	*81-118*	*%REC*	*50*	*15-Apr-2021 02:29*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*5*	*15-Apr-2021 02:08*
Surr: 4-Bromofluorobenzene	*97.7*			**0**	*85-114*	*%REC*	*50*	*15-Apr-2021 02:29*
Surr: Dibromofluoromethane	*92.8*			**0**	*80-119*	*%REC*	*5*	*15-Apr-2021 02:08*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*50*	*15-Apr-2021 02:29*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*15-Apr-2021 02:08*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*50*	*15-Apr-2021 02:29*
TOTAL ORGANIC CARBON - SM5310B		**Method:SM5310B**						Analyst: MZD
Organic Carbon, Total	**1.73**		**0.500**	**0.500**	**1.00**	**mg/L**	1	20-Apr-2021 03:07
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**994**		**4.00**	**10.0**	**10.0**	**mg/L**	20	21-Apr-2021 08:43
Nitrogen, Nitrate (As N)	**0.226**		**0.0600**	**0.200**	**0.200**	**mg/L**	2	08-Apr-2021 02:33
Sulfate	**572**		**4.00**	**10.0**	**10.0**	**mg/L**	20	21-Apr-2021 08:43
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	14-Apr-2021 17:36
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	27-Apr-2021 09:11

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021 WorkOrder:HS21040286
Sample ID: TRIP BLANK-210406 Lab ID:HS21040286-10
Collection Date: 06-Apr-2021 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:01
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:01
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:01
Tetrachloroethene	1.0	U	0.30	1.0	1.0	ug/L	1	15-Apr-2021 00:01
Trichloroethene	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:01
Vinyl chloride	0.50	U	0.20	0.50	1.0	ug/L	1	15-Apr-2021 00:01
Surr: 1,2-Dichloroethane-d4	*95.1*			**0**	*81-118*	*%REC*	*1*	*15-Apr-2021 00:01*
Surr: 4-Bromofluorobenzene	*95.9*			**0**	*85-114*	*%REC*	*1*	*15-Apr-2021 00:01*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*15-Apr-2021 00:01*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*15-Apr-2021 00:01*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R381594 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS21040286-01	50WW08-210405	05 Apr 2021 08:45			14 Apr 2021 17:36	1
HS21040286-02	50WW05-210405	05 Apr 2021 09:30			14 Apr 2021 17:36	1
HS21040286-03	50WW29-210405	05 Apr 2021 10:20			14 Apr 2021 17:36	1
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			14 Apr 2021 17:36	1
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			14 Apr 2021 17:36	1
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			14 Apr 2021 17:36	1
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			14 Apr 2021 17:36	1
HS21040286-08	50WW06-210406	06 Apr 2021 10:15			14 Apr 2021 17:36	1
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			14 Apr 2021 17:36	1
Batch ID: R381625 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			14 Apr 2021 20:52	1
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			14 Apr 2021 20:10	1
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			14 Apr 2021 20:31	1
Batch ID: R381632 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21040286-01	50WW08-210405	05 Apr 2021 08:45			15 Apr 2021 01:47	1
HS21040286-02	50WW05-210405	05 Apr 2021 09:30			15 Apr 2021 01:26	1
HS21040286-03	50WW29-210405	05 Apr 2021 10:20			15 Apr 2021 00:22	1
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			15 Apr 2021 00:43	1
HS21040286-08	50WW06-210406	06 Apr 2021 10:15			15 Apr 2021 01:04	1
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			15 Apr 2021 02:29	50
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			15 Apr 2021 02:08	5
HS21040286-10	TRIP BLANK-210406	06 Apr 2021 00:00			15 Apr 2021 00:01	1
Batch ID: R381740 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS21040286-01	50WW08-210405	05 Apr 2021 08:45			16 Apr 2021 00:49	10
HS21040286-02	50WW05-210405	05 Apr 2021 09:30			16 Apr 2021 01:10	5
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			16 Apr 2021 01:31	10
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			16 Apr 2021 01:52	5
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			16 Apr 2021 02:14	5
Batch ID: R381942 (0)	**Test Name :** TOTAL ORGANIC CARBON - SM5310B				**Matrix:** Water	
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			20 Apr 2021 01:36	1
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			20 Apr 2021 01:52	1
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			20 Apr 2021 02:07	1
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			20 Apr 2021 02:23	1
HS21040286-08	50WW06-210406	06 Apr 2021 10:15			20 Apr 2021 02:39	1
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			20 Apr 2021 03:07	1

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R382075 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			07 Apr 2021 23:47	1
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			08 Apr 2021 00:43	1
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			08 Apr 2021 01:01	1
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			08 Apr 2021 01:19	1
HS21040286-08	50WW06-210406	06 Apr 2021 10:15			08 Apr 2021 01:38	1
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			08 Apr 2021 02:33	2
Batch ID: R382085 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			21 Apr 2021 07:29	10
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			21 Apr 2021 07:48	10
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			21 Apr 2021 08:06	10
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			21 Apr 2021 08:24	10
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			21 Apr 2021 08:43	20
Batch ID: R382406 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Water	
HS21040286-04	50WW14-210406	06 Apr 2021 07:40			27 Apr 2021 09:11	1
HS21040286-05	50WW13-210406	06 Apr 2021 08:30			27 Apr 2021 09:11	1
HS21040286-06	50WW11-210406	06 Apr 2021 09:20			27 Apr 2021 09:11	1
HS21040286-07	50WW11-210406-FD	06 Apr 2021 09:20			27 Apr 2021 09:11	1
HS21040286-08	50WW06-210406	06 Apr 2021 10:15			27 Apr 2021 09:11	1
HS21040286-09	50WW12-210406	06 Apr 2021 11:25			27 Apr 2021 09:11	1

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381625 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210414** Units: **ug/L** Analysis Date: **14-Apr-2021 13:09**
Client ID: Run ID: **VOA6_381625** SeqNo: **6042150** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.82*	*1.0*	*50*	*0*	*95.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.23*	*1.0*	*50*	*0*	*98.5*	*85 - 114*				
Surr: Dibromofluoromethane	*46.94*	*1.0*	*50*	*0*	*93.9*	*80 - 119*				
Surr: Toluene-d8	*53.29*	*1.0*	*50*	*0*	*107*	*89 - 112*				

LCS Sample ID: **VLCSW-210414** Units: **ug/L** Analysis Date: **14-Apr-2021 12:27**
Client ID: Run ID: **VOA6_381625** SeqNo: **6042149** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	20.84	1.0	20	0	104	71 - 131				
1,2-Dichloroethane	19.85	1.0	20	0	99.2	73 - 128				
cis-1,2-Dichloroethene	19.88	1.0	20	0	99.4	78 - 123				
Tetrachloroethene	18.26	1.0	20	0	91.3	74 - 129				
Vinyl chloride	23.3	1.0	20	0	117	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.5*	*1.0*	*50*	*0*	*103*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.69*	*1.0*	*50*	*0*	*99.4*	*85 - 114*				
Surr: Dibromofluoromethane	*48.17*	*1.0*	*50*	*0*	*96.3*	*80 - 119*				
Surr: Toluene-d8	*48.48*	*1.0*	*50*	*0*	*97.0*	*89 - 112*				

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381625 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS21040618-08MS** Units: **ug/L** Analysis Date: **14-Apr-2021 15:37**
Client ID: Run ID: **VOA6_381625** SeqNo: **6042157** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.84	1.0	20	0	99.2	71 - 131				
1,2-Dichloroethane	18.22	1.0	20	0	91.1	73 - 128				
cis-1,2-Dichloroethene	17.79	1.0	20	0	88.9	78 - 123				
Tetrachloroethene	19.64	1.0	20	0	98.2	74 - 129				
Vinyl chloride	21.16	1.0	20	0	106	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.55*	*1.0*	*50*	*0*	*97.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.86*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*47.84*	*1.0*	*50*	*0*	*95.7*	*80 - 119*				
Surr: Toluene-d8	*50.6*	*1.0*	*50*	*0*	*101*	*89 - 112*				

MSD Sample ID: **HS21040618-08MSD** Units: **ug/L** Analysis Date: **14-Apr-2021 15:58**
Client ID: Run ID: **VOA6_381625** SeqNo: **6042158** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.33	1.0	20	0	96.7	71 - 131	19.84	2.62	20	
1,2-Dichloroethane	18.23	1.0	20	0	91.1	73 - 128	18.22	0.0103	20	
cis-1,2-Dichloroethene	17.75	1.0	20	0	88.7	78 - 123	17.79	0.24	20	
Tetrachloroethene	19.4	1.0	20	0	97.0	74 - 129	19.64	1.21	20	
Vinyl chloride	20.42	1.0	20	0	102	58 - 137	21.16	3.56	20	
Surr: 1,2-Dichloroethane-d4	*50.06*	*1.0*	*50*	*0*	*100*	*81 - 118*	*48.55*	*3.05*	*20*	
Surr: 4-Bromofluorobenzene	*50.91*	*1.0*	*50*	*0*	*102*	*85 - 114*	*51.86*	*1.84*	*20*	
Surr: Dibromofluoromethane	*47.84*	*1.0*	*50*	*0*	*95.7*	*80 - 119*	*47.84*	*0.00205*	*20*	
Surr: Toluene-d8	*50.85*	*1.0*	*50*	*0*	*102*	*89 - 112*	*50.6*	*0.485*	*20*	

The following samples were analyzed in this batch: HS21040286-05 HS21040286-06 HS21040286-07

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381632 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210414** Units: **ug/L** Analysis Date: **14-Apr-2021 23:40**
Client ID: Run ID: **VOA6_381632** SeqNo: **6042311** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
Tetrachloroethene	1.0	1.0								U
Trichloroethene	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*47.37*	*1.0*	*50*	*0*	*94.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.9*	*1.0*	*50*	*0*	*95.8*	*85 - 114*				
Surr: Dibromofluoromethane	*47.07*	*1.0*	*50*	*0*	*94.1*	*80 - 119*				
Surr: Toluene-d8	*51.8*	*1.0*	*50*	*0*	*104*	*89 - 112*				

LCS Sample ID: **VLCSW-210414** Units: **ug/L** Analysis Date: **14-Apr-2021 22:58**
Client ID: Run ID: **VOA6_381632** SeqNo: **6042310** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	18.72	1.0	20	0	93.6	71 - 131				
1,2-Dichloroethane	19.8	1.0	20	0	99.0	73 - 128				
cis-1,2-Dichloroethene	20.53	1.0	20	0	103	78 - 123				
Tetrachloroethene	16.47	1.0	20	0	82.4	74 - 129				
Trichloroethene	19.56	1.0	20	0	97.8	79 - 123				
Vinyl chloride	21.37	1.0	20	0	107	58 - 137				
Surr: 1,2-Dichloroethane-d4	*55.74*	*1.0*	*50*	*0*	*111*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.4*	*1.0*	*50*	*0*	*96.8*	*85 - 114*				
Surr: Dibromofluoromethane	*51.88*	*1.0*	*50*	*0*	*104*	*80 - 119*				
Surr: Toluene-d8	*48.02*	*1.0*	*50*	*0*	*96.0*	*89 - 112*				

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381632 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS21040286-08MS** Units: **ug/L** Analysis Date: **15-Apr-2021 02:50**
Client ID: **50WW06-210406** Run ID: **VOA6_381632** SeqNo: **6042320** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	21.28	1.0	20	0	106	71 - 131				
1,2-Dichloroethane	19.02	1.0	20	0	95.1	73 - 128				
cis-1,2-Dichloroethene	19.16	1.0	20	0	95.8	78 - 123				
Tetrachloroethene	21.14	1.0	20	0	106	74 - 129				
Trichloroethene	23.92	1.0	20	3.137	104	79 - 123				
Vinyl chloride	21.97	1.0	20	0	110	58 - 137				
Surr: 1,2-Dichloroethane-d4	*51.12*	*1.0*	*50*	*0*	*102*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.42*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*49.33*	*1.0*	*50*	*0*	*98.7*	*80 - 119*				
Surr: Toluene-d8	*51.05*	*1.0*	*50*	*0*	*102*	*89 - 112*				

MSD Sample ID: **HS21040286-08MSD** Units: **ug/L** Analysis Date: **15-Apr-2021 03:11**
Client ID: **50WW06-210406** Run ID: **VOA6_381632** SeqNo: **6042321** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1-Dichloroethene	19.08	1.0	20	0	95.4	71 - 131	21.28	10.9	20	
1,2-Dichloroethane	19.83	1.0	20	0	99.1	73 - 128	19.02	4.17	20	
cis-1,2-Dichloroethene	19	1.0	20	0	95.0	78 - 123	19.16	0.837	20	
Tetrachloroethene	20.29	1.0	20	0	101	74 - 129	21.14	4.11	20	
Trichloroethene	23.47	1.0	20	3.137	102	79 - 123	23.92	1.88	20	
Vinyl chloride	20.17	1.0	20	0	101	58 - 137	21.97	8.54	20	
Surr: 1,2-Dichloroethane-d4	*50.84*	*1.0*	*50*	*0*	*102*	*81 - 118*	*51.12*	*0.554*	*20*	
Surr: 4-Bromofluorobenzene	*50.97*	*1.0*	*50*	*0*	*102*	*85 - 114*	*51.42*	*0.875*	*20*	
Surr: Dibromofluoromethane	*48.43*	*1.0*	*50*	*0*	*96.9*	*80 - 119*	*49.33*	*1.83*	*20*	
Surr: Toluene-d8	*51.37*	*1.0*	*50*	*0*	*103*	*89 - 112*	*51.05*	*0.62*	*20*	

The following samples were analyzed in this batch: HS21040286-01 HS21040286-02 HS21040286-03 HS21040286-04 HS21040286-08 HS21040286-09 HS21040286-10

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381740 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-210415** Units: **ug/L** Analysis Date: **15-Apr-2021 23:04**
Client ID: Run ID: **VOA6_381740** SeqNo: **6044795** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*50.13*	*1.0*	*50*	*0*	*100*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.78*	*1.0*	*50*	*0*	*97.6*	*85 - 114*				
Surr: Dibromofluoromethane	*47.28*	*1.0*	*50*	*0*	*94.6*	*80 - 119*				
Surr: Toluene-d8	*54.54*	*1.0*	*50*	*0*	*109*	*89 - 112*				

LCS Sample ID: **VLCSW-210415** Units: **ug/L** Analysis Date: **15-Apr-2021 22:22**
Client ID: Run ID: **VOA6_381740** SeqNo: **6044794** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	20.8	1.0	20	0	104	79 - 123				
Surr: 1,2-Dichloroethane-d4	*52.45*	*1.0*	*50*	*0*	*105*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.54*	*1.0*	*50*	*0*	*97.1*	*85 - 114*				
Surr: Dibromofluoromethane	*48*	*1.0*	*50*	*0*	*96.0*	*80 - 119*				
Surr: Toluene-d8	*47.54*	*1.0*	*50*	*0*	*95.1*	*89 - 112*				

MS Sample ID: **HS21040695-04MS** Units: **ug/L** Analysis Date: **16-Apr-2021 00:07**
Client ID: Run ID: **VOA6_381740** SeqNo: **6044798** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	40.1	1.0	20	16.8	116	79 - 123				
Surr: 1,2-Dichloroethane-d4	*49.68*	*1.0*	*50*	*0*	*99.4*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.47*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*46.31*	*1.0*	*50*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*50.88*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381740 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS21040695-04MSD** Units: **ug/L** Analysis Date: **16-Apr-2021 00:28**
Client ID: Run ID: **VOA6_381740** SeqNo: **6044799** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Trichloroethene	36.64	1.0	20	16.8	99.2	79 - 123	40.1	9.01	20	
Surr: 1,2-Dichloroethane-d4	*48.33*	*1.0*	*50*	*0*	*96.7*	*81 - 118*	*49.68*	*2.75*	*20*	
Surr: 4-Bromofluorobenzene	*51.38*	*1.0*	*50*	*0*	*103*	*85 - 114*	*50.47*	*1.8*	*20*	
Surr: Dibromofluoromethane	*46.96*	*1.0*	*50*	*0*	*93.9*	*80 - 119*	*46.31*	*1.4*	*20*	
Surr: Toluene-d8	*52.48*	*1.0*	*50*	*0*	*105*	*89 - 112*	*50.88*	*3.1*	*20*	

The following samples were analyzed in this batch: HS21040286-01 HS21040286-02 HS21040286-05 HS21040286-06 HS21040286-07

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R381942 (0) **Instrument: TOC_04** **Method: TOTAL ORGANIC CARBON - SM5310B**

MBLK Sample ID: **MBLK4-04192021** Units: **mg/L** Analysis Date: **20-Apr-2021 00:52**
Client ID: Run ID: **TOC_04_381942** SeqNo: **6050285** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	0.500	1.00								U

LCS Sample ID: **LCS4-04192021** Units: **mg/L** Analysis Date: **20-Apr-2021 01:07**
Client ID: Run ID: **TOC_04_381942** SeqNo: **6050286** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	10.33	1.00	10	0	103	85 - 115				

LCSD Sample ID: **LCSD4-04192021** Units: **mg/L** Analysis Date: **20-Apr-2021 01:23**
Client ID: Run ID: **TOC_04_381942** SeqNo: **6050287** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	9.882	1.00	10	0	98.8	85 - 115	10.33	4.43	20	

MS Sample ID: **HS21040286-08MS** Units: **mg/L** Analysis Date: **20-Apr-2021 02:54**
Client ID: **50WW06-210406** Run ID: **TOC_04_381942** SeqNo: **6050293** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Organic Carbon, Total	11.54	1.00	10	1.572	99.7	80 - 120				

The following samples were analyzed in this batch: HS21040286-04 HS21040286-05 HS21040286-06 HS21040286-07 HS21040286-08 HS21040286-09

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R382075 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **08-Apr-2021 04:42**
Client ID: Run ID: **ICS-Integrion_382075** SeqNo: **6053411** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Nitrogen, Nitrate (As N)	0.100	0.100								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **08-Apr-2021 05:00**
Client ID: Run ID: **ICS-Integrion_382075** SeqNo: **6053412** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.1	0.500	20	0	95.5	80 - 120				
Nitrogen, Nitrate (As N)	3.786	0.100	4	0	94.6	80 - 120				
Sulfate	19.29	0.500	20	0	96.5	80 - 120				

MS Sample ID: **HS21040286-08MS** Units: **mg/L** Analysis Date: **08-Apr-2021 01:56**
Client ID: **50WW06-210406** Run ID: **ICS-Integrion_382075** SeqNo: **6053406** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	13.05	0.500	10	3.422	96.3	80 - 120				
Nitrogen, Nitrate (As N)	2.003	0.100	2	0	100	80 - 120				
Sulfate	20.1	0.500	10	10.88	92.2	80 - 120				

MSD Sample ID: **HS21040286-08MSD** Units: **mg/L** Analysis Date: **08-Apr-2021 02:15**
Client ID: **50WW06-210406** Run ID: **ICS-Integrion_382075** SeqNo: **6053407** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	12.98	0.500	10	3.422	95.6	80 - 120	13.05	0.576	20	
Nitrogen, Nitrate (As N)	1.998	0.100	2	0	99.9	80 - 120	2.003	0.27	20	
Sulfate	19.99	0.500	10	10.88	91.1	80 - 120	20.1	0.549	20	

The following samples were analyzed in this batch: HS21040286-04 HS21040286-05 HS21040286-06 HS21040286-07 HS21040286-08 HS21040286-09

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: HS21040286

QC BATCH REPORT

Batch ID: R382085 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK-** Units: **mg/L** Analysis Date: **21-Apr-2021 06:52**
Client ID: Run ID: **ICS-Integrion_382085** SeqNo: **6053709** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.500	0.500								U
Sulfate	0.500	0.500								U

LCS Sample ID: **LCS-** Units: **mg/L** Analysis Date: **21-Apr-2021 07:11**
Client ID: Run ID: **ICS-Integrion_382085** SeqNo: **6053710** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.91	0.500	20	0	94.6	80 - 120				
Sulfate	18.85	0.500	20	0	94.3	80 - 120				

MS Sample ID: **HS21040321-01MS** Units: **mg/L** Analysis Date: **21-Apr-2021 13:15**
Client ID: Run ID: **ICS-Integrion_382085** SeqNo: **6053723** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	722.4	10.0	200	553.4	84.5	80 - 120				
Sulfate	218.8	10.0	200	28.13	95.3	80 - 120				

MSD Sample ID: **HS21040321-01MSD** Units: **mg/L** Analysis Date: **21-Apr-2021 13:34**
Client ID: Run ID: **ICS-Integrion_382085** SeqNo: **6053724** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	722.2	10.0	200	553.4	84.4	80 - 120	722.4	0.0249	20	
Sulfate	219.1	10.0	200	28.13	95.5	80 - 120	218.8	0.144	20	

The following samples were analyzed in this batch: HS21040286-04 HS21040286-05 HS21040286-06 HS21040286-07 HS21040286-09

ALS Houston, US Date: 27-Apr-21

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP50 April 2021
WorkOrder: **HS21040286**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL/SDL

Acronym	Description
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitaion Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	21-022-0	26-Mar-2022
California	2919, 2020-2021	30-Apr-2021
Dept of Defense	PJLA L20-507-R2	22-Dec-2021
Florida	E87611-30-07/01/2020	30-Jun-2021
Illinois	2000322020-4	09-May-2021
Kansas	E-10352 2020-2021	31-Jul-2021
Kentucky	123043, 2020-2021	30-Apr-2021
Louisiana	03087, 2020-2021	30-Jun-2021
North Carolina	624-2021	31-Dec-2021
North Dakota	R-193 2020-2021	30-Apr-2021
Oklahoma	2020-165	31-Aug-2021
Texas	T104704231-20-26	30-Apr-2021
Texas	T104704231-21-27	30-Apr-2022

ALS Houston, US Date: 27-Apr-21

Sample Receipt Checklist

Work Order ID: HS21040286 **Date/Time Received:** 07-Apr-2021 10:30

Client Name: CBI-Houston **Received by:** Jared R. Makan

Completed By:	/S/ Pablo Marinez	07-Apr-2021 14:48	**Reviewed by:**	/S/ RJ Modashia	07-Apr-2021 20:12
	eSignature	Date/Time		eSignature	Date/Time

Matrices: **WATER** Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:CLIENT
Samplers name present on COC?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	

Temperature(s)/Thermometer(s):	1.8°C UC/C	IR 31
Cooler(s)/Kit(s):	46755	
Date/Time sample(s) sent to storage:	4/7/21 14:55	

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:

REVISED 4/14/2021

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stanciff Rd, Suite 210 Houston, TX, 77099 (281) 530-5656 ATTN: RJ Modashia

Page 1 of 1

Project: APTIM LONGHORN
ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP50 April 2021**

Prepared By: Scott Beesinger

P.O. Number

HS21040286

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant LHAAP50 April 20

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
50ww08-210405	wG	4/5/21 / 0845		4	X					X		
50ww05-210405	wG	4/5/21 / 0930		4	X					X		
50ww29-210405	wG	4/5/21 / 1020		4	X					X		
50ww14-210406	wG	4/6/21 / 0740		13	X	X	X	X	X	X		
50ww13-210406	wG	4/6/21 / 0830		13	X	X	X	X	X	X		
50ww11-210406	wG	4/6/21 / 0920		13	X	X	X	X	X	X		
50ww11-210406-FD	wG	4/6/21 / 0920		13	X	X	X	X	X	X		
50ww06-210406	wG	4/6/21 / 1015		13	X	X	X	X	X	X		

Additional Remarks: **Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	4/6/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition

Remarks:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM ARMY AMMN. PLANT (LHAAP) GROUNDWATER TREATMENT PLANT (GWTP) KARNACK, TEXAS LONGHORN

Project No. 501032

Job: **LHAAP50 April 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
50WW08-210405	WG	4/5/21/0845		4	X					X		
50WW05-210405	WG	4/5/21/0930		4	X					X		
50WW29-210405	WG	4/5/21/1015		4	X					X		
50WW14-210406	WG	4/6/21/0740		13	X	X	X	X	X	X		
50WW13-210406	WG	4/6/21/0830		13	X	X	X	X	X	X		
50WW11-210406	WG	4/6/21/0920		13	X	X	X	X	X	X		
50WW11-210406-FD	WG	4/6/21/0920		13	X	X	X	X	X	X		
50WW06-210406	WG	4/6/21/1015		13	X	X	X	X	X	X		

HS21040286

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant LHAAP50 April 20

Additional Remarks: **Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	4/6/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Masenten	4/7/21	10:30							

Remarks: Cooler 46755 IR31
Temp 1.8°C CF0

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210 Houston, TX. 77099 (281) 530-5656 ATTN: R.J Modashia

Page 1 of 1

Project: APTIM LONGHORN
ARMY AMMN. PLANT (LHAAP)
GROUNDWATER TREATMENT PLANT (GWTP)
KARNACK, TEXAS

Project No. 501032

Job: **LHAAP50 April 2021**

Prepared By: Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	VOC by SW 8260B	TOC by SM5310C	MEE by RSK 175	Anions (chloride sulfate, nitrate) by SW9056	CO2 by RSK 175	Perchlorate by SW6850	Remarks (Preservatives, etc.)	Lab I.D.#
SOwwo6-210406-ms	WG	4/6/21/1015		13	X	X	X	X	X	X		
SOwwo6-210406-MSD	WG	4/6/21/1015		13	X	X	X	X	X	X		
SOww12-210406	WG	4/6/21/1125		13	X	X	X	X	X	X		
TRIPBLANK-210406	W	4/6/21		2	X							

HS21040286

Aptim Environmental & Infrastucture, Inc.
Longhorn Army Ammunition Plant LHAAP50 April 20

Additional Remarks: **Standard TAT on all parameters. Please email results to Vicki.Graves@aptim.com and invoices to fedinvoices@aptim.com**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	4/6/21	1430									

For Lab Use Only

Received At Lab By:	Date	Time	Airbill No.	Opened By:	Date	Time	Temp of Container	Seal No.	Condition
J. Lawson	4/7/21	10:30							

Remarks: Cooler 46755 1123
Temp 1.9°C CFO

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

46755

CUSTODY SEAL

Date: 4/6/21 Time: 1430
Name: Scott Beesinger
Company: BHMTS

Seal Broken By: SM
Date: 04107121

46755 APR 07 2021 APR 0 7 2021

Must Deliver Next Business Day
Time and Tempature Sensitive!

46755

ORIGIN ID:SGRA (903) 930-6199
SCOTT BEESINGER
APTIM ENVIRONMENTAL & INFRASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75671
UNITED STATES US

SHIP DATE: 24MAR21
ACTWGT: 1.00 LB MAN
CAD: 02/1247/CAFE3408
DIMS: 25.14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-50-BO77339-CG

RMA:

FedEx Express

FedEx
TRK# 9473 0841 5576
0221

WED - 07 APR AA
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

FID: 3923207 06Apr2021 GGGA 56062/5662/1923

April 14, 2021 Service Request No:E2100369

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

Laboratory Results for: HS21040286

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory April 08, 2021
For your reference, these analyses have been assigned our service request number **E2100369.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the complete final report. Results apply only to the items submitted to the laboratory, as received for analysis. In accordance with the current TNI Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Corey Grandits
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 281 530 5656 | FAX +1 281 530 5887
ALS Group USA, Corp.
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Environmental

Client:	ALS Houston	**Service Request No.:**	E2100369
Project:	HS21040286	**Date Received:**	04/08/21
Sample Matrix:	W		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Nine samples were received for analysis at ALS Environmental in Houston on 04/08/21.

The samples were received in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2100193: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in addition to a MS/MSD for this extraction batch. The LCS, DLCS, MS, & MSD recoveries are within QC limits.

DoD Certification is held for the method/matrix/analytes provided in this report.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: ALS Environmental - US **Service Request:**E2100369
Project: HS21040286

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2100369-001	50WW08-210405	4/5/2021	0845
E2100369-002	50WW05-210405	4/5/2021	0930
E2100369-003	50WW29-210405	4/5/2021	1020
E2100369-004	50WW14-210406	4/6/2021	0740
E2100369-005	50WW13-210406	4/6/2021	0830
E2100369-006	50WW11-210406	4/6/2021	0920
E2100369-007	50WW11-210406-FD	4/6/2021	0920
E2100369-008	50WW06-210406	4/6/2021	1015
E2100369-009	50WW12-210406	4/6/2021	1125

Service Request Summary

Folder #: **E2100369**
Client Name: ALS Environmental - US
Project Name: HS21040286
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 04/08/21
Internal Due Date: 4/21/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: hs21040286
EDD: No EDD Specified

11 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 10B
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2100369-001	50WW08-210405	Ground Water	04/05/21 0845	**IV**
E2100369-002	50WW05-210405	Ground Water	04/05/21 0930	**IV**
E2100369-003	50WW29-210405	Ground Water	04/05/21 1020	**IV**
E2100369-004	50WW14-210406	Ground Water	04/06/21 0740	**IV**
E2100369-005	50WW13-210406	Ground Water	04/06/21 0830	**IV**
E2100369-006	50WW11-210406	Ground Water	04/06/21 0920	**IV**
E2100369-007	50WW11-210406-FD	Ground Water	04/06/21 0920	**IV**
E2100369-008	50WW06-210406	Ground Water	04/06/21 1015	**IV**
E2100369-009	50WW12-210406	Ground Water	04/06/21 1125	**IV**

Service Request Summary

Folder #: **E2100369**
Client Name: ALS Environmental - US
Project Name: HS21040286
Project Number:

Report To: RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Houston, TX 77099-4338
USA
Phone Number: 281-530-5656
Cell Number:
Fax Number: 281-530-5887
E-mail: rj.modashia@alsglobal.com

Project Chemist: Corey Grandits
Originating Lab: HOUSTON
Logged By: CGRANDITS
Date Received: 04/08/21
Internal Due Date: 4/21/2021
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number: hs21040286
EDD: No EDD Specified

11 125 mL-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 10B
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	8	II Due 4/21,IV due 4/28
Semivoa GCMS	ClO4 DOD/6850	1	MS/MSD

Data Qualifiers

Lab Standard

+	Possible Tedlar bag artifact.
A	TIC is a suspected aldol-condensation product
B	Analyte found in the associated method blank as well as in the sample.
BC	Reported results are not blank corrected.
BH	The back section of the tube yielded higher results than the front.
BT	Results indicated possible breakthrough; back section >=10% front section.
C	Result identification confirmed.
D	Compound identified in an analysis at a secondary dilution factor
D	Spike was diluted out
DE	Reported results are corrected for desorption efficiency.
E	Estimated value. Concentration above calibration range
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
H1	Sample analysis performed past holding time. See case narrative.
H2	Initial analysis within holding time. Reanalysis for the required dilution was past holding time.
H3	Sample was received and analyzed past holding time.
H4	Sample was extracted past required extraction holding time, but analyzed within analysis holding time. See case narrative.
I	Internal standard not within the specified limits. See case narrative.
J	Estimated Value. Concentration found below MRL.
K	A deflection in the QC ion may indicate interference with the quantitation of this ion. The concentration of this analyte should be considered as an estimate.
K	Analyte was detected above the method reporting limit prior to normalization.
K	The reference ion ratio was outside acceptance criteria, which may indicate a potential bias to this result.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
L1	Laboratory control sample recovery outside the specified limits; results may be biased high.
L2	Laboratory control sample recovery outside the specified limits; results may be biased low.
L3	Laboratory control sample recovery outside the specified limits.
M	Matrix interference; results may be biased high.
M	The duplicate injection precision not met.
M1	Matrix interference due to coelution with a non-target compound; results may be biased high.
N	Presumptive evidence of a compound for TICs that have been identified based on a mass spectral library search.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.

Data Qualifiers

Lab Standard

O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
P	Indicates chlorodiphenyl ether interference present at the retention time of the target compound.
P	Pesticide/Aroclor target analyte > 40% difference for detected concentrations between GC columns
Q	Indicates as estimated value because the P and P + 2 theoretical abundance ratio does not meet method criteria.
R	Duplicate Precision not met.
R1	Duplicate precision not within the specified limits; however, the results are below the MRL and considered estimated.
S	Surrogate recovery not within specified limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
T	Analyte is a tentatively identified compound, result is estimated.
U	Compound was analyzed for, but was not detected (ND).
V1	The continuing calibration verification standard was outside (biased high) the specified limits for this compound.
V2	The continuing calibration verification standard was outside (biased low) the specified limits for this compound.
W	Result quantified, but the corresponding peak was detected outside the generated retention time window.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
X	See case narrative.
Y	Recovery outside limits
Y	The chromatogram resembles a petroleum product but does not match the calibration standard.
Z	The chromatogram does not resemble a petroleum product.
i	The MRL/MDL has been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

10450 Stancliff Rd, Houston, TX 77099 | 281-530-5656 | www.alsglobal.com

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01 2020	11/30/2021
Arizona Department of Health Services	AZ0793-2020	5/27/2021
California Department of Health Services	2919-2020	4/30/2021
Department of Defense	A2LA 2897.01	11/30/2021
Florida Department of Health	E87611-2020	6/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Kansas Department of Health and Environment	E-10352-2020	7/31/2021
Louisiana Department of Environmental Quality	03087-2020	6/30/2021
Louisiana Department of Health and Hospitals	LA028-2021	12/31/2021
Maine Department of Health and Human Services	2020016	6/5/2022
Maryland Department of the Environment	343-2020	6/30/2021
Michigan Depratment of Environmental Quality	9971-2020	4/30/2021
Nebraska Department of Health and Human Services	NE-OS-25-13 (2020)	4/30/2021
Nevada Department of Concervation and Natural Resources	TX026932021-1	7/31/2021
New Hampshire Environmental Laboratory Accreditation Program	209420	4/24/2021
New Jersey Department of Environmental Protection	TX008	6/30/2021
Oklahoma Department of Environmental Quality	2020-123	8/31/2021
Pennsylvania Department of Environmental Protection	014	6/30/2021
Tennessee Department of Environment and Concervation	04016-2020	4/30/2021
Texas Commision on Environmental Quality	T104704231-20-26	4/30/2021
United States Department of Agriculture	P330-19-00299	10/10/2022

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

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Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15888**

SUBCONTRACT TO:

ALS Environmental
10450 Stancliff RoadSuite 210
Houston, TX 77084

Phone: +1 281 530 5656

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21040286
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21040286-01**	**50WW08-210405**	**Water**	**05 Apr 2021 08:45**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
2.	**HS21040286-02**	**50WW05-210405**	**Water**	**05 Apr 2021 09:30**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
3.	**HS21040286-03**	**50WW29-210405**	**Water**	**05 Apr 2021 10:15**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
4.	**HS21040286-04**	**50WW14-210406**	**Water**	**06 Apr 2021 07:40**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
5.	**HS21040286-05**	**50WW13-210406**	**Water**	**06 Apr 2021 08:30**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
6.	**HS21040286-06**	**50WW11-210406**	**Water**	**06 Apr 2021 09:20**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
7.	**HS21040286-07**	**50WW11-210406-FD**	**Water**	**06 Apr 2021 09:20**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
8.	**HS21040286-08**	**50WW06-210406**	**Water**	**06 Apr 2021 10:15**
	Provide Level II and Level IV reports on a seperate pdf.			21 Apr 2021
9.	**HS21040286-09**	**50WW12-210406**	**Water**	**06 Apr 2021 11:25**

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID: 15888**

LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
ANALYSIS REQUESTED			DUE DATE
	Provide Level II and Level IV reports on a seperate pdf.		21 Apr 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

50 WW06-210406
has extra volume
for MS/MSD

Relinquished By: J. MEACHAM Date/Time: 4/8/21 09:40

Received By: _____ Date/Time: _____

Cooler ID(s): _____ Temperature(s): _____

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Houston, TX 77099
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F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 377110 **Prep WorkFlow:** GenExt28Day **Status:** Prepped
Team: Semivoa GCMS/GRIVERA **Prep Method:** Method **Prep Date/Time:** 4/8/21 10:30

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2100329-001	LH18/24-SP650_033021_BIX	.01	6850/ClO4 DOD			Water	10mL	
2	E2100330-001	LH18/24-SP140_033021	.01	6850/ClO4 DOD			Water	10mL	
3	E2100331-001	LH18/24-SP650_033021_BIX	.01	6850/ClO4 DOD			Water	10mL	
4	E2100368-001	LH18/24-SP650_040621_BIX	.01	6850/ClO4 DOD			Ground Water	10mL	
5	E2100369-001	50WW08-210405	.01	6850/ClO4 DOD			Ground Water	10mL	
6	E2100369-002	50WW05-210405	.01	6850/ClO4 DOD			Ground Water	10mL	
7	E2100369-003	50WW29-210405	.01	6850/ClO4 DOD			Ground Water	10mL	
8	E2100369-004	50WW14-210406	.01	6850/ClO4 DOD			Ground Water	10mL	
9	E2100369-005	50WW13-210406	.01	6850/ClO4 DOD			Ground Water	10mL	
10	E2100369-006	50WW11-210406	.01	6850/ClO4 DOD			Ground Water	10mL	
11	E2100369-007	50WW11-210406-FD	.01	6850/ClO4 DOD			Ground Water	10mL	
12	E2100369-008	50WW06-210406	.01	6850/ClO4 DOD			Ground Water	10mL	
13	E2100369-009	50WW12-210406	.01	6850/ClO4 DOD			Ground Water	10mL	
14	EQ2100193-01	MB		6850/ClO4 DOD			Liquid	10mL	
15	EQ2100193-02	LCS		6850/ClO4 DOD			Liquid	10mL	
16	EQ2100193-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
17	EQ2100193-04	50WW06-210406 MS	.01	6850/ClO4 DOD			Liquid	10mL	
18	EQ2100193-05	50WW06-210406 DMS	.01	6850/ClO4 DOD			Liquid	10mL	

Spiking Solutions

Name: Perchlorate Intermediate Stock1 Inventory ID 214035 Logbook Ref: Perchlorate Expires On: 05/23/2021

EQ2100193-02	1.00µL	EQ2100193-03	1.00µL	EQ2100193-04	1.00µL	EQ2100193-05	1.00µL

Name: Perchlorate Internal Standard 1ug/mL Inventory ID 214820 Logbook Ref: Perchlorate Internal Standard Expires On: 07/03/2021

E2100329-001	100.00µL	E2100330-001	100.00µL	E2100331-001	100.00µL	E2100368-001	100.00µL	E2100369-001	100.00µL	E2100369-002	100.00µL
E2100369-003	100.00µL	E2100369-004	100.00µL	E2100369-005	100.00µL	E2100369-006	100.00µL	E2100369-007	100.00µL	E2100369-008	100.00µL
E2100369-009	100.00µL	EQ2100193-01	100.00µL	EQ2100193-02	100.00µL	EQ2100193-03	100.00µL	EQ2100193-04	100.00µL	EQ2100193-05	100.00µL

Preparation Steps

Step: Preparation
Started: 4/8/21 10:30
Finished: 4/8/21 11:30
By: GRIVERA
Comments

Preparation Information Benchsheet

Prep Run#: 377110
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 4/8/21 10:30

Comments:

Reviewed By: GR Date: 4/8/21

Chain of Custody

Relinquished By: Date:

Received By: Date:

Extracts Examined
Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 5/21 0845
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW08-210405	**Units:**	µg/L
Lab Code:	E2100369-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**115**		1.00	0.500	0.250	10	4/ 8/21	4/13/21 15:34	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 5/21 0930
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW05-210405	**Units:**	µg/L
Lab Code:	E2100369-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 15:03	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 5/21 1020
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW29-210405	**Units:**	µg/L
Lab Code:	E2100369-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 15:11	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 0740
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW14-210406	**Units:**	µg/L
Lab Code:	E2100369-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 15:18	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 0830
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW13-210406	**Units:**	µg/L
Lab Code:	E2100369-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**122**		1.00	0.500	0.250	10	4/ 8/21	4/13/21 16:54	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 0920
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW11-210406	**Units:**	µg/L
Lab Code:	E2100369-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**421**		2.00	1.00	0.500	20	4/ 8/21	4/13/21 17:02	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 0920
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW11-210406-FD	**Units:**	µg/L
Lab Code:	E2100369-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**482**		2.00	1.00	0.500	20	4/ 8/21	4/13/21 17:10	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 1015
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW06-210406	**Units:**	µg/L
Lab Code:	E2100369-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0320**	J	0.100	0.0500	0.0250	1	4/ 8/21	4/14/21 11:08	377110	719704	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 1125
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW12-210406	**Units:**	µg/L
Lab Code:	E2100369-009	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**90000**		500	250	125	5000	4/ 8/21	4/13/21 17:17	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2100193-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	ND	U	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 17:25	377110	719570	

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21040286
Sample Matrix: Ground Water

Service Request: E2100369
Date Analyzed: 4/13/21

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 377110

	Lab Control Sample EQ2100193-02			Duplicate Lab Control Sample EQ2100193-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0958	0.100	96	0.0835	0.100	84	84 - 119	14	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100193-02	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0958**	J	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 12:55	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	NA
Sample Matrix:	Ground Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2100193-03	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.0835**	J	0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 13:27	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/6/21
Sample Matrix:	Ground Water	**Date Received:**	4/8/21
		Date Analyzed:	4/13/21

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	50WW06-210406	**Units:**	µg/L
Lab Code:	E2100369-008	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		50WW06-210406MS				50WW06-210406DMS					
		Matrix Spike				**Duplicate Matrix Spike**					
		EQ2100193-04				EQ2100193-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.0320	0.131	0.100	99		0.149	0.100	117	84 - 119	13	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 1015
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW06-210406	**Units:**	µg/L
Lab Code:	EQ2100193-04	**Basis:**	NA
Run Type:	Matrix Spike		

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.131**		0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 13:43	377110	719570	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Collected:**	4/ 6/21 1015
Sample Matrix:	Ground Water	**Date Received:**	4/ 8/21
Sample Name:	50WW06-210406	**Units:**	µg/L
Lab Code:	EQ2100193-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Analyte Name	Result	Q	LOQ	LOD	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Analysis Lot	Note
Perchlorate	**0.149**		0.100	0.0500	0.0250	1	4/ 8/21	4/13/21 13:51	377110	719570	

LABORATORY REPORT

April 26, 2021

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road Suite 210
Houston, TX 77099-4338

RE: HS21040286

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on April 8, 2021. For your reference, these analyses have been assigned our service request number P2101844.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental



By Hayden Akers at 6:16 pm, Apr 26, 2021

Hayden Akers
Project Manager

Client: ALS Laboratory Group Service Request No: P2101844
Project: HS21040286

CASE NARRATIVE

The samples were received intact under chain of custody on April 8, 2021 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

The samples were analyzed for carbon dioxide using a gas chromatograph equipped with a thermal conductivity detector (TCD). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least four hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (carbon dioxide) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175 as described in laboratory SOP VOA-DISGAS. This analyte is included on the laboratory's NELAP and DoD-ELAP scope of accreditation.

The percent recoveries for the Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS) analyzed on April 21, 2021 was outside the DOD specified lower control criterion. The error associated with the reduced recovery equates to a potential low bias. However, the spike recovery for the analyte in question was within the laboratory control criteria. Also, a Method Reporting Limit (MRL) check standard containing the analyte of concern was analyzed and verified that instrument sensitivity was adequate to detect the analyte at the LOQ on the day of analysis. Since the sensitivity was verified and the recovery met the lab criteria, the data quality has not been significantly affected. No further corrective action was taken.

Methane, Ethene and Ethane Analysis

The samples were analyzed for methane, ethene, and ethane using a gas chromatograph equipped with a flame ionization detector (FID). A known amount of liquid was displaced by injecting 8.0 milliliters of helium creating a headspace in the sample vial. Each sample vial was agitated using a sonic disrupter for fifteen minutes and then allowed to equilibrate for at least two hours. A volume of the headspace was withdrawn using a gas-tight syringe and analyzed using a manual injection technique. The amount of dissolved gases (methane, ethene and ethane) in the original sample was calculated using Henry's Law. This method was performed with guidance from RSK 175. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the laboratory's NELAP or DoD-ELAP accreditation.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1776326
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-008
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Service Request: P2101844
Project ID: HS21040286

Date Received: 4/8/2021
Time Received: 09:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW14-210406	P2101844-001	Water	4/6/2021	07:40	X	X
50WW13-210406	P2101844-002	Water	4/6/2021	08:30	X	X
50WW11-210406	P2101844-003	Water	4/6/2021	09:20	X	X
50WW11-210406-FD	P2101844-004	Water	4/6/2021	09:20	X	X
50WW06-210406	P2101844-005	Water	4/6/2021	10:15	X	X
50WW12-210406	P2101844-006	Water	4/6/2021	11:25	X	X

P210 844

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **15889**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065 **Phone:** +1 805 526 7161

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS21040286
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS21040286-04**	**50WW14-210406**	**Water**	**06 Apr 2021 07:40**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021
2.	**HS21040286-05**	**50WW13-210406**	**Water**	**06 Apr 2021 08:30**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021
3.	**HS21040286-06**	**50WW11-210406**	**Water**	**06 Apr 2021 09:20**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021
4.	**HS21040286-07**	**50WW11-210406-FD**	**Water**	**06 Apr 2021 09:20**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021
5.	**HS21040286-08**	**50WW06-210406**	**Water**	**06 Apr 2021 10:15**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021
6.	**HS21040286-09**	**50WW12-210406**	**Water**	**06 Apr 2021 11:25**
	MEE + CO2. Provide DOD LV II & IV pdf separate. EDD. EQuIS 5.0 - Longhorn		Equis	21 Apr 2021

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense**

COC ID: **15889**

Relinquished By: Patty Mauer

Date/Time: 4-7-21 1600

Received By:

Date/Time: 4-8-21 0930

Cooler ID(s):

Temperature(s): 5 wet

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2101844

Project: HS21040286

Sample(s) received on: 4/8/2021 Date opened: 4/8/2021 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 1° C	Wet Ice		
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Cooler lid. Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2101844-001.01	40mL VOA NP		6		A	CB 4/21/21
P2101844-001.02	40mL VOA NP				A	
P2101844-001.03	40mL VOA NP				A	
P2101844-001.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-001.05	40ml VOA HCL				A	
P2101844-001.06	40ml VOA HCL				A	
P2101844-002.01	40mL VOA NP		6		A	CB 4/21/21
P2101844-002.02	40mL VOA NP				A	
P2101844-002.03	40mL VOA NP				A	
P2101844-002.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-002.05	40ml VOA HCL				A	
P2101844-002.06	40ml VOA HCL				A	
P2101844-003.01	40mL VOA NP		6		A	CB 4/21/21
P2101844-003.02	40mL VOA NP				A	
P2101844-003.03	40mL VOA NP				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P2101844

Project: HS21040286

Sample(s) received on: 4/8/2021 Date opened: 4/8/2021 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2101844-003.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-003.05	40ml VOA HCL				A	
P2101844-003.06	40ml VOA HCL				A	
P2101844-004.01	40mL VOA NP		6		A	CB 4/21/21
P2101844-004.02	40mL VOA NP				A	
P2101844-004.03	40mL VOA NP				A	
P2101844-004.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-004.05	40ml VOA HCL				A	
P2101844-004.06	40ml VOA HCL				A	
P2101844-005.01	40mL VOA NP		5		A	CB 4/21/21
P2101844-005.02	40mL VOA NP				A	
P2101844-005.03	40mL VOA NP				A	
P2101844-005.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-005.05	40ml VOA HCL		1		A	CB 4/14/21
P2101844-005.06	40ml VOA HCL		1		A	CB 4/14/21
P2101844-005.07	40mL VOA NP				A	
P2101844-005.08	40mL VOA NP				A	
P2101844-005.09	40mL VOA NP				A	
P2101844-005.10	40mL VOA NP				A	
P2101844-005.11	40mL VOA NP				A	
P2101844-005.12	40mL VOA NP				A	
P2101844-005.13	40ml VOA HCL				A	
P2101844-005.14	40ml VOA HCL				A	
P2101844-005.15	40ml VOA HCL				A	
P2101844-005.16	40ml VOA HCL				A	
P2101844-005.17	40ml VOA HCL				A	
P2101844-005.18	40ml VOA HCL				A	
P2101844-006.01	40mL VOA NP		6		A	CB 4/21/21
P2101844-006.02	40mL VOA NP				A	
P2101844-006.03	40mL VOA NP				A	
P2101844-006.04	40ml VOA HCL		1		A	CB 4/14/21
P2101844-006.05	40ml VOA HCL				A	
P2101844-006.06	40ml VOA HCL				A	

Explain any discrepancies: (include lab sample ID numbers):

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS21040286** ALS Project ID: P2101844

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Connor Barrett
Matrix: Liquid
Test Notes:

Date(s) Collected: 4/6/21
Date Received: 4/8/21
Date Analyzed: 4/21/21

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW14-210406	P2101844-001	0.10	**98,000**	1,000	860	370	**L**
50WW13-210406	P2101844-002	0.10	**300,000**	1,000	860	370	**L**
50WW11-210406	P2101844-003	0.10	**310,000**	1,000	860	370	**L**
50WW11-210406-FD	P2101844-004	0.10	**300,000**	1,000	860	370	**L**
50WW06-210406	P2101844-005	0.10	**88,000**	1,000	860	370	**L**
50WW12-210406	P2101844-006	0.10	**130,000**	1,000	860	370	**L**
Method Control Sample	P210421-MB	0.10	860	1,000	860	370	**U, L**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P2101844
Client Project ID: **HS21040286** ALS Sample ID: P210421-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Connor Barrett Date Analyzed: 4/21/21
Matrix: Liquid Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	17,200	17,900	**75**	**78**	80-122	4	12	**L**

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.
L = Laboratory control sample recovery outside the specified limits, results may be biased low.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW14-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3.0**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW13-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.4**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW11-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.1**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW11-210406-FD**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.7**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW06-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.6**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 04/06/21
Date Received: 04/08/21
Date Analyzed: 04/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1.5**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P210414-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	1.0	1.3	1.0	0.51	**U**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

The Method Control Sample is laboratory water carried through the entire analytical process.
U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P210414-LCS
P210414-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.70	2.34	**107**	**93**	73-125	14	26	
74-85-1	Ethene	4.40	5.10	4.89	**116**	**111**	72-133	4	11	
74-84-0	Ethane	4.72	4.97	4.84	**105**	**103**	74-131	2	10	

$_1$ = The concentration shown includes a subtraction of the Method Control Sample value, even if the result is less than the MRL.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW06-210406**
Client Project ID: **HS21040286**

ALS Project ID: P2101844
ALS Sample ID: P2101844-005MS
P2101844-005DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Connor Barrett
Matrix: Water
Test Notes:

Date Collected: 4/6/21
Date Received: 4/8/21
Date Analyzed: 4/14/21
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	169	2.56	144	143	**84**	**83**	73-125	1	30	
74-85-1	Ethene	294	ND	292	292	**99**	**99**	72-133	0	30	
74-84-0	Ethane	317	ND	288	288	**91**	**91**	74-131	0	30	

HS21040286 8260_W_DOD Raw Data

ALS WO# HS21040286

MSVOA06 -Logbook

Batch: 44312 **Analyst:** Presenta Cabascango

Date: 04-02-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-02-2021 10:32 am	1.00	50 mL	50 mL	X040201.D	Liquid	Y	NA
2	VSTD000.25	ICAL1	04-02-2021 10:53 am	1.00	50 mL	50 mL	X040202.D	Liquid	Y	NA
3	VSTD000.5	ICAL2	04-02-2021 11:35 am	1.00	50 mL	50 mL	X040203.D	Liquid	Y	NA
4	VSTD001	ICAL3	04-02-2021 11:56 am	1.00	50 mL	50 mL	X040204.D	Liquid	Y	NA
5	VSTD002	ICAL4	04-02-2021 12:17 pm	1.00	50 mL	50 mL	X040205.D	Liquid	Y	NA
6	VSTD005	ICAL5	04-02-2021 12:38 pm	1.00	50 mL	50 mL	X040206.D	Liquid	Y	NA
7	VSTD020	ICAL6	04-02-2021 12:59 pm	1.00	50 mL	50 mL	X040207.D	Liquid	Y	NA
8	VSTD050	ICAL7	04-02-2021 01:20 pm	1.00	50 mL	50 mL	X040208.D	Liquid	Y	NA
9	VSTD100	ICAL8	04-02-2021 01:41 pm	1.00	50 mL	50 mL	X040209.D	Liquid	Y	NA
10	VSTD150	ICAL9	04-02-2021 02:02 pm	1.00	50 mL	50 mL	X040210.D	Liquid	Y	NA
11	VSTD200	ICAL	04-02-2021 02:23 pm	1.00	50 mL	50 mL	X040211.D	Liquid	Y	NA
12	BLANK	SAMP	04-02-2021 02:44 pm	1.00	50 mL	50 mL	X040212.D	Liquid	Y	NA
13	CCV	SAMP	04-02-2021 03:05 pm	1.00	50 mL	50 mL	X040213.D	Liquid	Y	NA
14	CCV	CCV	04-02-2021 03:26 pm	1.00	50 mL	50 mL	X040214.D	Liquid	Y	NA
15	CCB	SAMP	04-02-2021 03:47 pm	1.00	50 mL	50 mL	X040215.D	Liquid	Y	NA
16	VLCSW-210402	LCS	04-02-2021 04:08 pm	1.00	50 mL	50 mL	X040216.D	Liquid	Y	NA
17	BLANK	SAMP	04-02-2021 04:29 pm	1.00	50 mL	50 mL	X040217.D	Liquid	Y	NA
18	BLANK	SAMP	04-02-2021 04:50 pm	1.00	50 mL	50 mL	X040218.D	Liquid	Y	NA
19	VBLKW-210402	MBLK	04-02-2021 05:11 pm	1.00	50 mL	50 mL	X040219.D	Liquid	Y	NA
20	HS21031390-28	SAMP	04-02-2021 05:32 pm	1.00	50 mL	50 mL	X040220.D	Liquid	Y	NA
21	HS21031390-01	SAMP	04-02-2021 05:53 pm	1.00	50 mL	50 mL	X040221.D	Liquid	Y	NA
22	HS21031390-02	SAMP	04-02-2021 06:14 pm	1.00	50 mL	50 mL	X040222.D	Liquid	Y	NA
23	HS21031390-08	SAMP	04-02-2021 06:35 pm	1.00	50 mL	50 mL	X040223.D	Liquid	Y	NA
24	HS21031390-14	SAMP	04-02-2021 06:56 pm	1.00	50 mL	50 mL	X040224.D	Liquid	Y	NA
25	HS21031390-06	SAMP	04-02-2021 07:17 pm	10.00	5 mL	50 mL	X040225.D	Liquid	Y	NA
26	HS21031390-09	SAMP	04-02-2021 07:38 pm	5.00	10 mL	50 mL	X040226.D	Liquid	Y	NA
27	HS21031390-28MS	MS	04-02-2021 07:59 pm	1.00	50 mL	50 mL	X040227.D	Liquid	Y	NA
28	HS21031390-28MSD	MSD	04-02-2021 08:20 pm	1.00	50 mL	50 mL	X040228.D	Liquid	Y	NA
29	HS21031390-06	SAMP	04-02-2021 08:41 pm	100.0(	500 µL	50 mL	X040229.D	Liquid	Y	NA
30	HS21031390-09	SAMP	04-02-2021 09:03 pm	25.00	2 mL	50 mL	X040230.D	Liquid	Y	NA
31	HS21031318-29	SAMP	04-02-2021 09:24 pm	1.00	50 mL	50 mL	X040231.D	Liquid	Y	NA
32	HS21040032-03	SAMP	04-02-2021 09:45 pm	1.00	50 mL	50 mL	X040232.D	Liquid	Y	NA
33	BFB	TUNE	04-02-2021 10:06 pm	1.00	50 mL	50 mL	Y040201.D	Liquid	Y	NA
34	CCV	CCV	04-02-2021 10:27 pm	1.00	50 mL	50 mL	Y040202a.D	Liquid	Y	NA
35	CCV	CCV	04-02-2021 10:48 pm	1.00	50 mL	50 mL	Y040203.D	Liquid	Y	NA
36	CCB	SAMP	04-02-2021 11:09 pm	1.00	50 mL	50 mL	Y040204.D	Liquid	Y	NA
37	VLCSW-210402	LCS	04-02-2021 11:30 pm	1.00	50 mL	50 mL	Y040205.D	Liquid	Y	NA
38	BLANK	SAMP	04-02-2021 11:51 pm	1.00	50 mL	50 mL	Y040206.D	Liquid	Y	NA
39	VBLKW-210402	MBLK	04-03-2021 12:12 am	1.00	50 mL	50 mL	Y040207.D	Liquid	Y	NA
40	HS21031399-49	SAMP	04-03-2021 12:33 am	1.00	50 mL	50 mL	Y040208.D	Liquid	Y	NA
41	HS21031390-31	SAMP	04-03-2021 12:54 am	1.00	50 mL	50 mL	Y040209.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
42	HS21031390-33	SAMP	04-03-2021 01:15 am	1.00	50 mL	50 mL	Y040210.D	Liquid	Y	NA
43	HS21031390-31MS	MS	04-03-2021 01:36 am	1.00	50 mL	50 mL	Y040211.D	Liquid	Y	NA
44	HS21031390-31MSD	MSD	04-03-2021 01:57 am	1.00	50 mL	50 mL	Y040212.D	Liquid	Y	NA
45	BLANK	SAMP	04-03-2021 02:18 am	1.00	50 mL	50 mL	Y040213.D	Liquid	Y	NA
46	BLANK	SAMP	04-03-2021 02:39 am	1.00	50 mL	50 mL	Y040214.D	Liquid	Y	NA
47	HS21031399-38	SAMP	04-03-2021 03:00 am	1.00	50 mL	50 mL	Y040215.D	Liquid	Y	NA
48	HS21031399-39	SAMP	04-03-2021 03:21 am	1.00	50 mL	50 mL	Y040216.D	Liquid	Y	NA
49	HS21031399-41	SAMP	04-03-2021 03:43 am	1.00	50 mL	50 mL	Y040217.D	Liquid	Y	NA
50	HS21031399-42	SAMP	04-03-2021 04:04 am	1.00	50 mL	50 mL	Y040218.D	Liquid	Y	NA
51	HS21031399-43	SAMP	04-03-2021 04:25 am	1.00	50 mL	50 mL	Y040219.D	Liquid	Y	NA
52	HS21031399-44	SAMP	04-03-2021 04:46 am	1.00	50 mL	50 mL	Y040220.D	Liquid	Y	NA
53	HS21031399-45	SAMP	04-03-2021 05:07 am	1.00	50 mL	50 mL	Y040221.D	Liquid	Y	NA
54	HS21031399-46	SAMP	04-03-2021 05:28 am	1.00	50 mL	50 mL	Y040222.D	Liquid	Y	NA
55	HS21031565-01	SAMP	04-03-2021 05:49 am	1.00	50 mL	50 mL	Y040223.D	Liquid	Y	NA
56	HS21031565-05	SAMP	04-03-2021 06:10 am	1.00	50 mL	50 mL	Y040224.D	Liquid	Y	NA
57	HS21031565-06	SAMP	04-03-2021 06:31 am	1.00	50 mL	50 mL	Y040225.D	Liquid	Y	NA
58	HS21031565-07	SAMP	04-03-2021 06:52 am	1.00	50 mL	50 mL	Y040226.D	Liquid	Y	NA
59	HS21031565-08	SAMP	04-03-2021 07:13 am	1.00	50 mL	50 mL	Y040227.D	Liquid	Y	NA
60	HS21031565-11	SAMP	04-03-2021 07:35 am	1.00	50 mL	50 mL	Y040228.D	Liquid	Y	NA
61	HS21031565-14	SAMP	04-03-2021 07:56 am	1.00	50 mL	50 mL	Y040229.D	Liquid	Y	NA
62	HS21031565-15	SAMP	04-03-2021 08:17 am	1.00	50 mL	50 mL	Y040230.D	Liquid	Y	NA
63	HS21031390-32	SAMP	04-03-2021 08:38 am	1.00	50 mL	50 mL	Y040231.D	Liquid	Y	NA
64	BLANJ	SAMP	04-03-2021 08:59 am	1.00	50 mL	50 mL	Y040240.D	Liquid	Y	NA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Vinyl Chloride	50.00	46.17	92	80-120
1,1-Dichloroethene	50.00	46.21	92	80-120
1,2-Dichloroethane	50.00	47.48	95	80-120
cis-1,2-Dichloroethene	50.00	46.33	93	80-120
Tetrachloroethene	50.00	48.57	97	80-120
Trichloroethene	50.00	50.43	101	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: X040201 BFB Injection Date: 04/02/21

Instrument ID: VOA6 BFB Injection Time: 1032

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	22.5
75	30.0 - 60.0% of mass 95	53.3
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	1.1 (1.3)1
174	Greater than 50.0% of mass 95	83.8
175	5.0 - 9.0% of mass 174	6.3 (7.6)1
176	95.0 - 101.0% of mass 174	81.4 (97.1)1
177	5.0 - 9.0% of mass 176	4.4 (5.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X040202	04/02/21	1053
02	VSTD000.5	VSTD000.5	X040203	04/02/21	1135
03	VSTD001	VSTD001	X040204	04/02/21	1156
04	VSTD002	VSTD002	X040205	04/02/21	1217
05	VSTD005	VSTD005	X040206	04/02/21	1238
06	VSTD020	VSTD020	X040207	04/02/21	1259
07	VSTD050	VSTD050	X040208	04/02/21	1320
08	VSTD100	VSTD100	X040209	04/02/21	1341
09	VSTD150	VSTD150	X040210	04/02/21	1402
10	VSTD200	VSTD200	X040211	04/02/21	1423
11	ICV	ICV	X040214	04/02/21	1526
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date(s): 04/02/21 04/02/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1053 1423

LAB FILE ID: RF0.25: X040202 RF0.5: X040203 RF1: X040204
RF2: X040205 RF5: X040206 RF20: X040207

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Vinyl Chloride		0.844	0.943	0.758	0.756	0.736
1,1-Dichloroethene		0.748	0.754	0.752	0.776	0.659
1,2-Dichloroethane		0.560	0.634	0.506	0.530	0.475
cis-1,2-Dichloroethene		0.588	0.711	0.624	0.604	0.542
Tetrachloroethene		0.287	0.349	0.318	0.302	0.242
Trichloroethene		0.263	0.401	0.364	0.376	0.308
Dibromofluoromethane		1934	3862	6870	17824	68668
1,2-Dichloroethane-d4		2323	4438	7506	20809	80475
Toluene-d8		6330	12313	22274	56112	218999
4-Bromofluorobenzene		2889	4647	7732	19193	81621

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2104028

Instrument ID: VOA6 Calibration Date(s): 04/02/21 04/02/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1053 1423

LAB FILE ID: RF50: X040208 RF100: X040209 RF150: X040210
RF200: X040211

COMPOUND	RF50	RF100	RF150	RF200
Vinyl Chloride	0.712	0.681	0.664	0.652
1,1-Dichloroethene	0.668	0.684	0.663	0.702
1,2-Dichloroethane	0.517	0.525	0.513	0.503
cis-1,2-Dichloroethene	0.580	0.612	0.608	0.631
Tetrachloroethene	0.282	0.313	0.311	0.313
Trichloroethene	0.345	0.350	0.337	0.337
Dibromofluoromethane	201590	476731	758989	1061294
1,2-Dichloroethane-d4	243778	568806	919399	1266674
Toluene-d8	658700	1733824	2714142	3949224
4-Bromofluorobenzene	267013	624362	1011725	1473828

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS2104028

Instrument ID: VOA6 Calibration Date(s): 04/02/21 04/02/21

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1053 1423

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2	MAX %RSD OR R^2
Vinyl Chloride	AVRG		0.74959896	12.472	15.000
1,1-Dichloroethene	AVRG		0.71193342	6.418	15.000
1,2-Dichloroethane	AVRG		0.52923847	8.569	15.000
cis-1,2-Dichloroethene	AVRG		0.61120734	7.506	15.000
Tetrachloroethene	AVRG		0.30180986	9.756	15.000
Trichloroethene	AVRG		0.34228157	11.637	15.000
Dibromofluoromethane	LINR	8.656e-003	1.68407127	0.9996746	0.9900000
1,2-Dichloroethane-d4	LINR	9.666e-003	1.40410549	0.9998489	0.9900000
Toluene-d8	LINR	3.71e-002	0.74922718	0.9979532	0.9900000
4-Bromofluorobenzene	LINR	3.301e-002	2.01663185	0.9986184	0.9900000

FORM VI VOA

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040201.D

Date : 02-APR-2021 10:32

Client ID: BFB

Instrument: voa6.i

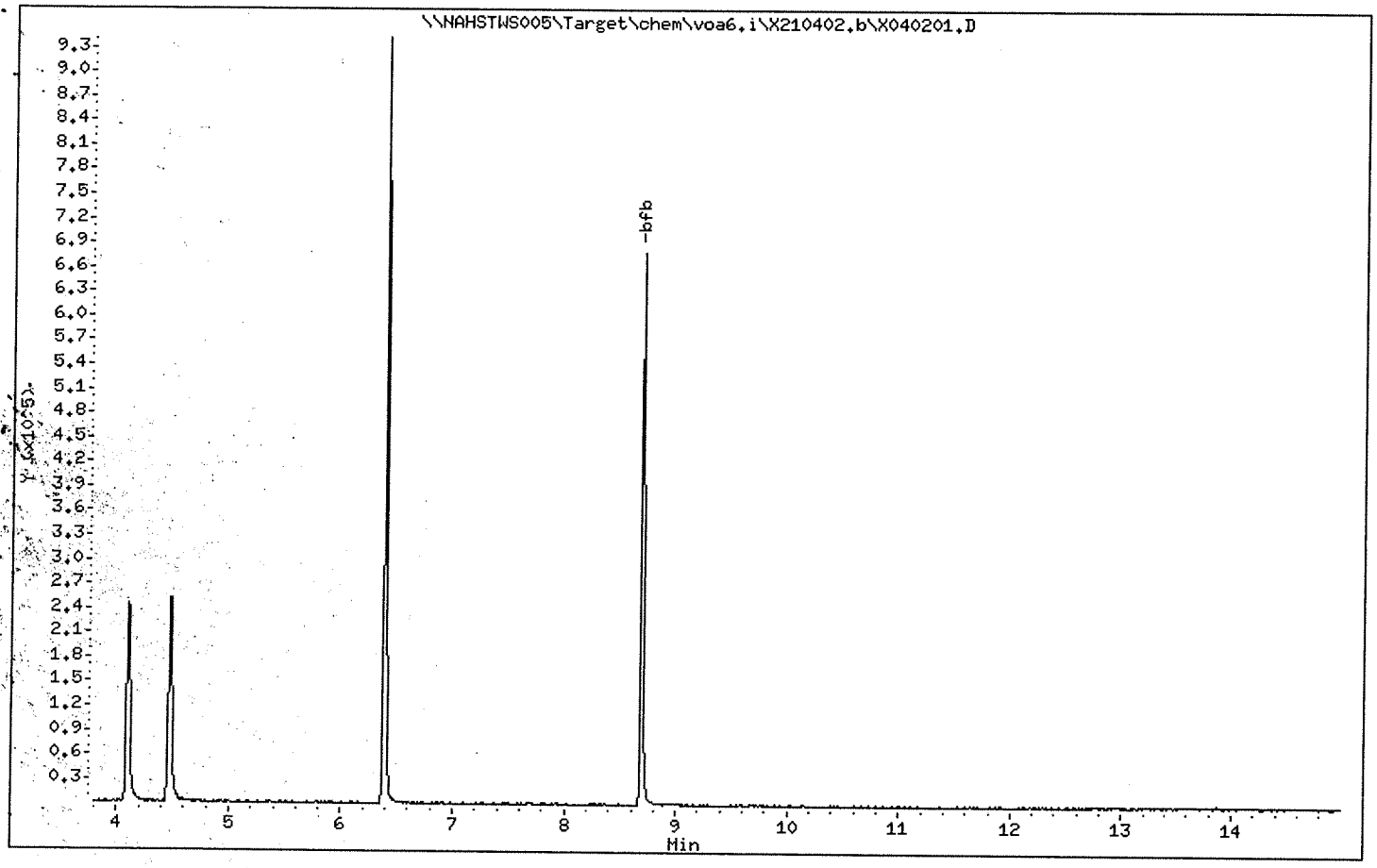
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040201.D

Date : 02-APR-2021 10:32

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

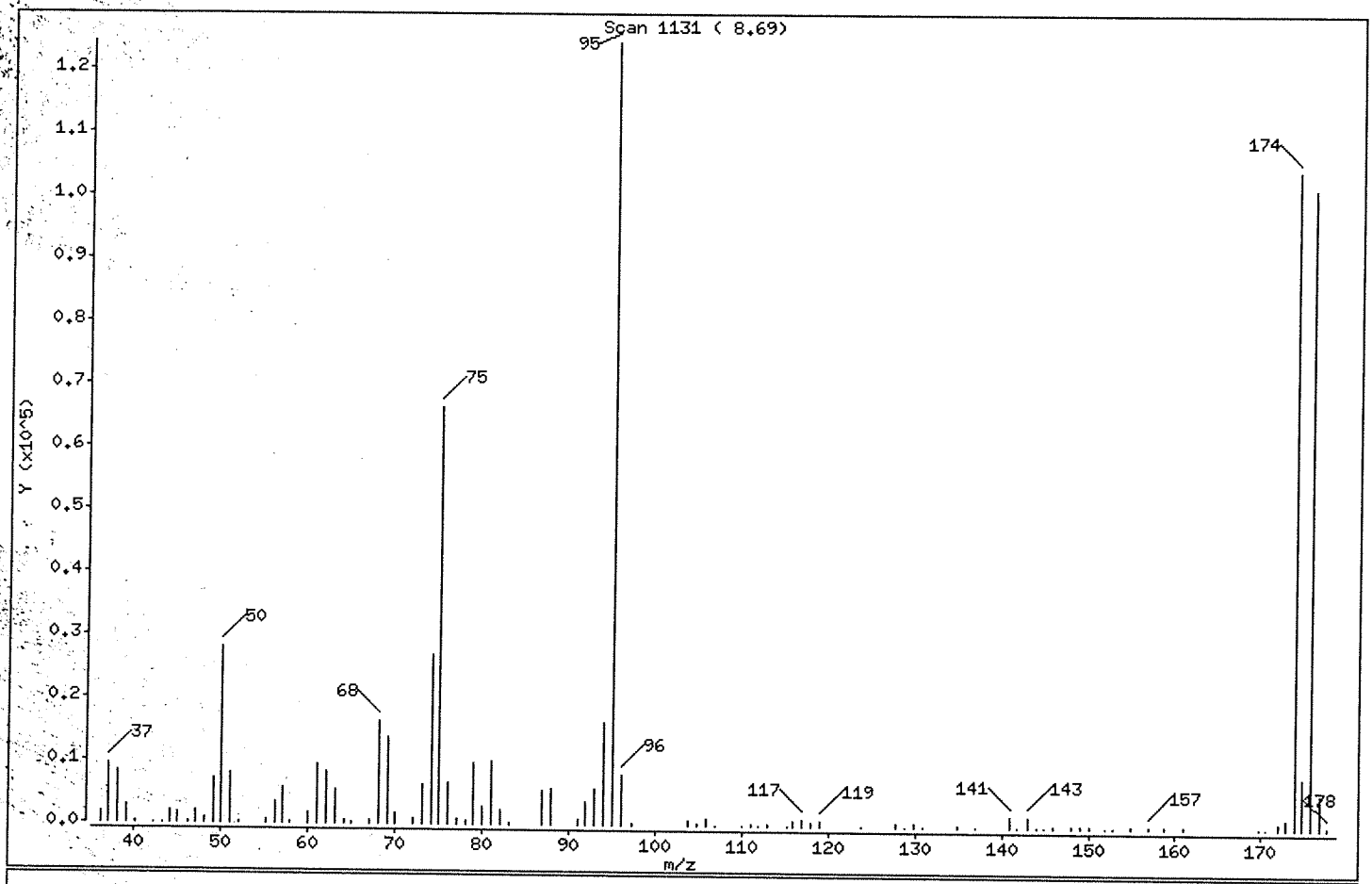
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1.bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.51
75	30.00 - 60.00% of mass 95	53.31
96	5.00 - 9.00% of mass 95	6.51
173	Less than 2.00% of mass 174	1.06 (1.26)
174	Greater than 50.00% of mass 95	83.79
175	5.00 - 9.00% of mass 174	6.34 (7.56)
176	95.00 - 101.00% of mass 174	81.37 (97.11)
177	5.00 - 9.00% of mass 176	4.40 (5.40)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040201.D

Date : 02-APR-2021 10:32

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: X040201.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 95.00
Number of points: 95

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1732	64.00	599	95.00	124200	141.70	84
37.00	9290	65.00	153	96.00	8090	142.90	1576
38.00	8308	67.00	500	97.20	217	143.90	75
39.00	2929	68.00	16384	103.70	740	144.80	94
40.10	424	69.00	13717	104.80	164	145.90	148
42.20	74	70.00	1785	105.80	1029	147.90	250
43.20	72	72.10	777	106.90	112	148.90	155
44.00	2050	73.00	6328	109.90	136	150.00	286
45.00	1795	74.00	26912	111.00	268	151.80	52
46.10	242	75.00	66216	111.90	85	152.70	124
47.00	1874	76.00	6620	112.90	237	154.80	284
48.00	988	77.10	800	115.10	59	156.80	312
49.00	7094	78.10	446	115.80	811	158.80	260
50.00	27952	78.90	9818	116.90	1154	161.00	258
51.00	7947	79.90	2794	117.80	635	169.80	139
51.90	391	80.90	10133	118.90	930	170.60	140
55.20	631	82.00	2269	123.70	57	172.20	893
56.10	3391	83.00	193	127.70	679	172.90	1311
57.00	5690	86.90	5298	128.70	113	173.90	104064
57.90	400	87.90	5776	129.70	519	174.90	7871
59.90	1604	90.90	805	130.80	68	175.90	101056
61.00	9323	91.90	3707	134.80	220	176.90	5459
62.00	8245	92.90	5610	136.80	123	177.80	373
63.00	5418	94.00	16192	140.90	1678		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040202.D Page 1
Report Date: 29-Apr-2021 12:02

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040202.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 02-APR-2021 10:53
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.25;VSTD000.25;1;1;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 14:23 Cal File: X040211.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

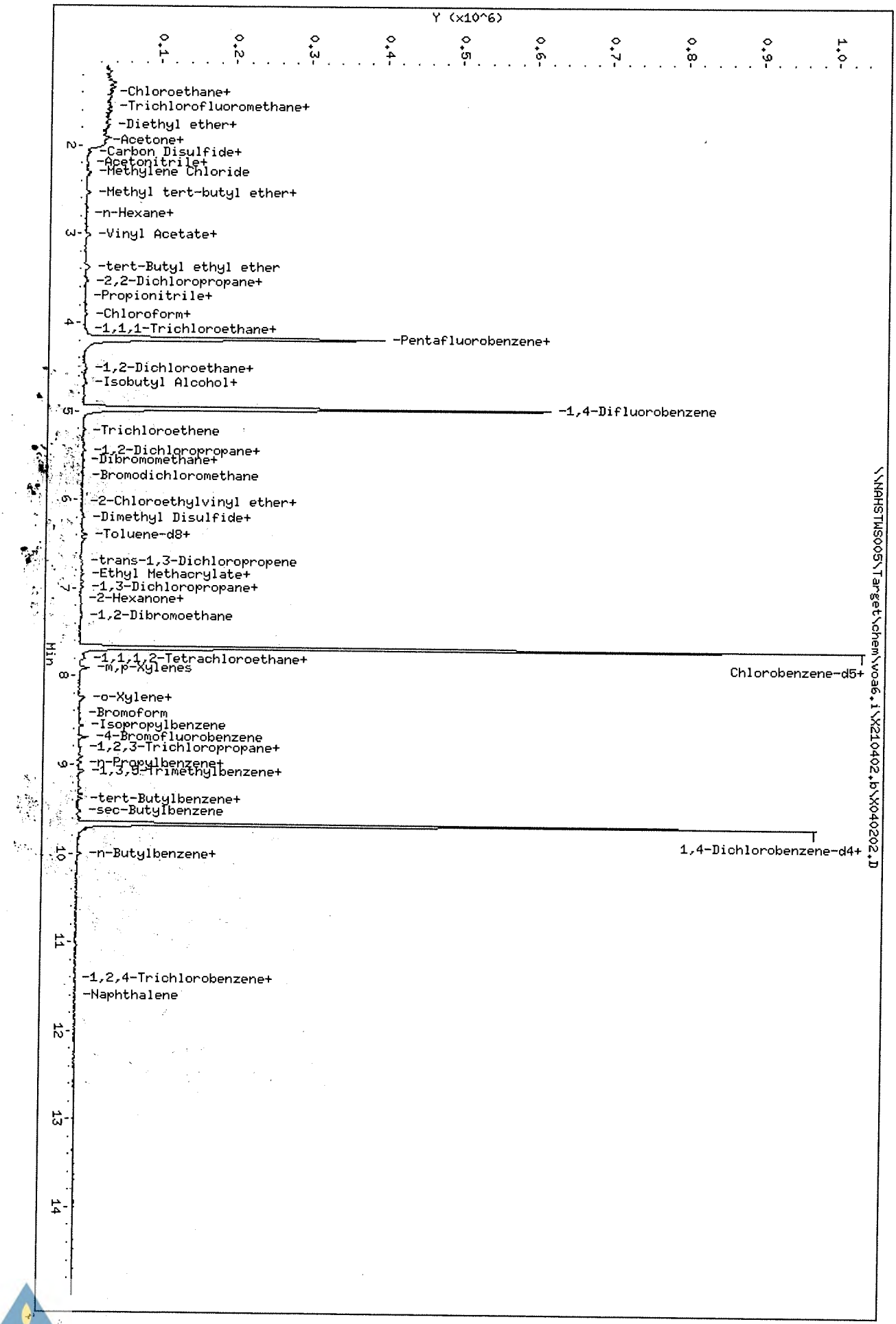
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	311555	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	505232	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	450629	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	197083	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	968	0.25000	0.69(M)
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	1238	0.25000	0.76(TM)
$	48 Toluene-d8	98	6.396	6.396	(0.834)	4819	0.25000	2.25
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3592	0.25000	2.45
	11 1,1-Dichloroethene	96	1.904	1.904	(0.455)	1567	0.25000	0.35(aM)
	33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	1597	0.25000	0.29(a)
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	893	0.25000	0.23(M)
	56 Tetrachloroethene	164	6.926	6.926	(0.903)	529	0.25000	0.19(aM)
	38 Trichloroethene	130	5.221	5.221	(1.052)	988	0.25000	0.28(M)
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	1614	0.25000	0.34(M)

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040202.D
Date : 02-APR-2021 10:53
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040203.D Page 1
Report Date: 29-Apr-2021 12:02

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040203.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 02-APR-2021 11:35
Operator : PC Inst ID: voa6.i
Smp Info : VSTD000.5;VSTD000.5;1;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 10:53 Cal File: X040202.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

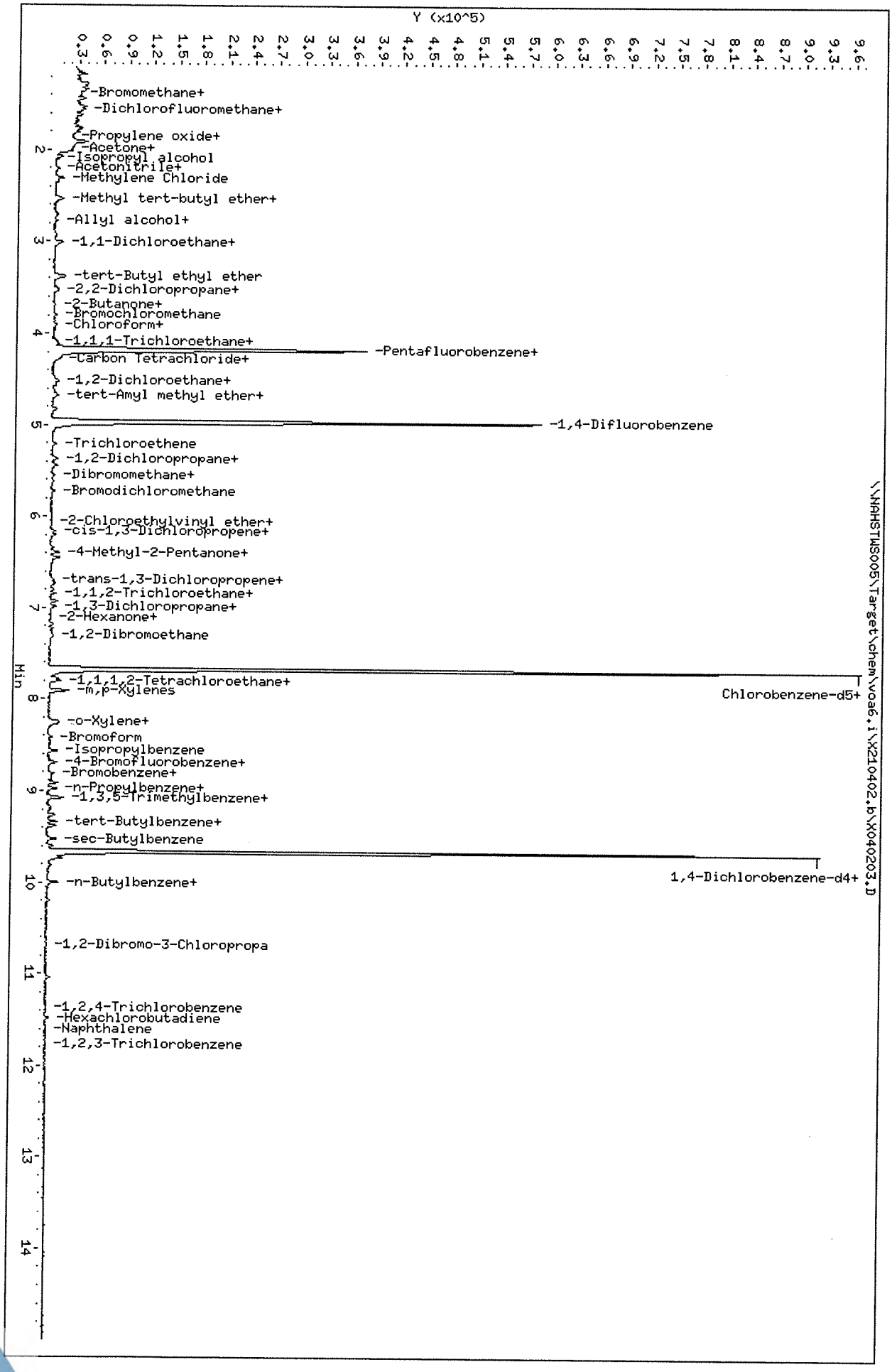
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	292480	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	476531	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	420545	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	191809	50.0000	
$ 30 Dibromofluoromethane	113	4.118	4.118	(0.985)	1934	0.50000	0.98
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	2323	0.50000	1.04(T)
$ 48 Toluene-d8	98	6.389	6.389	(0.833)	6330	0.50000	2.41(T)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	2889	0.50000	2.34
11 1,1-Dichloroethene	96	1.926	1.926	(0.461)	2188	0.50000	0.52(aM)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	2669	0.50000	0.52(aM)
27 cis-1,2-Dichloroethene	96	3.545	3.545	(0.848)	1721	0.50000	0.48
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1206	0.50000	0.47(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1254	0.50000	0.38
5 Vinyl Chloride	62	1.145	1.145	(0.274)	2470	0.50000	0.56

QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

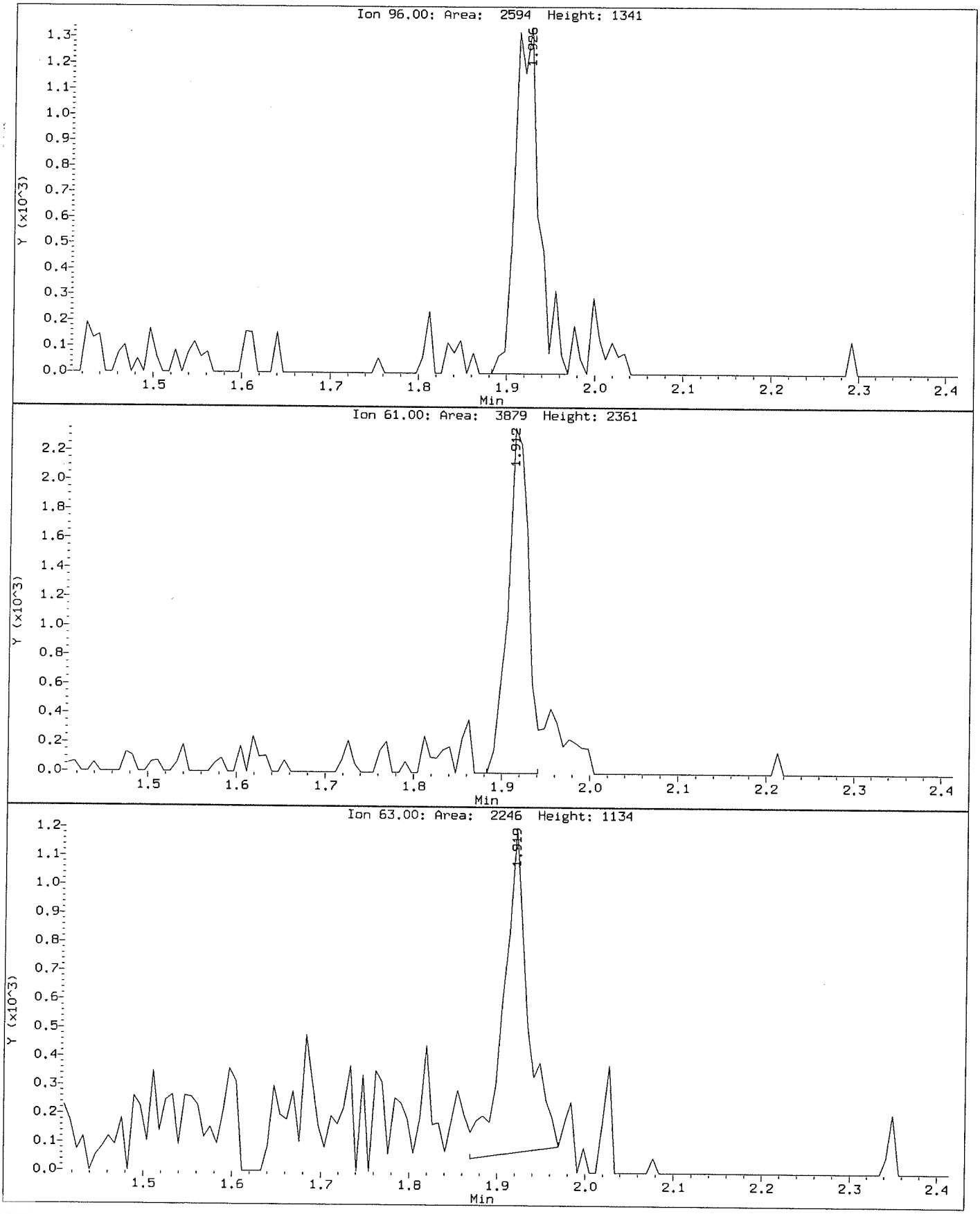


Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040203.D
Date : 02-APR-2021 11:35
Client ID: WSTD000.5
Sample Info: WSTD000.5;WSTD000.5;1;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

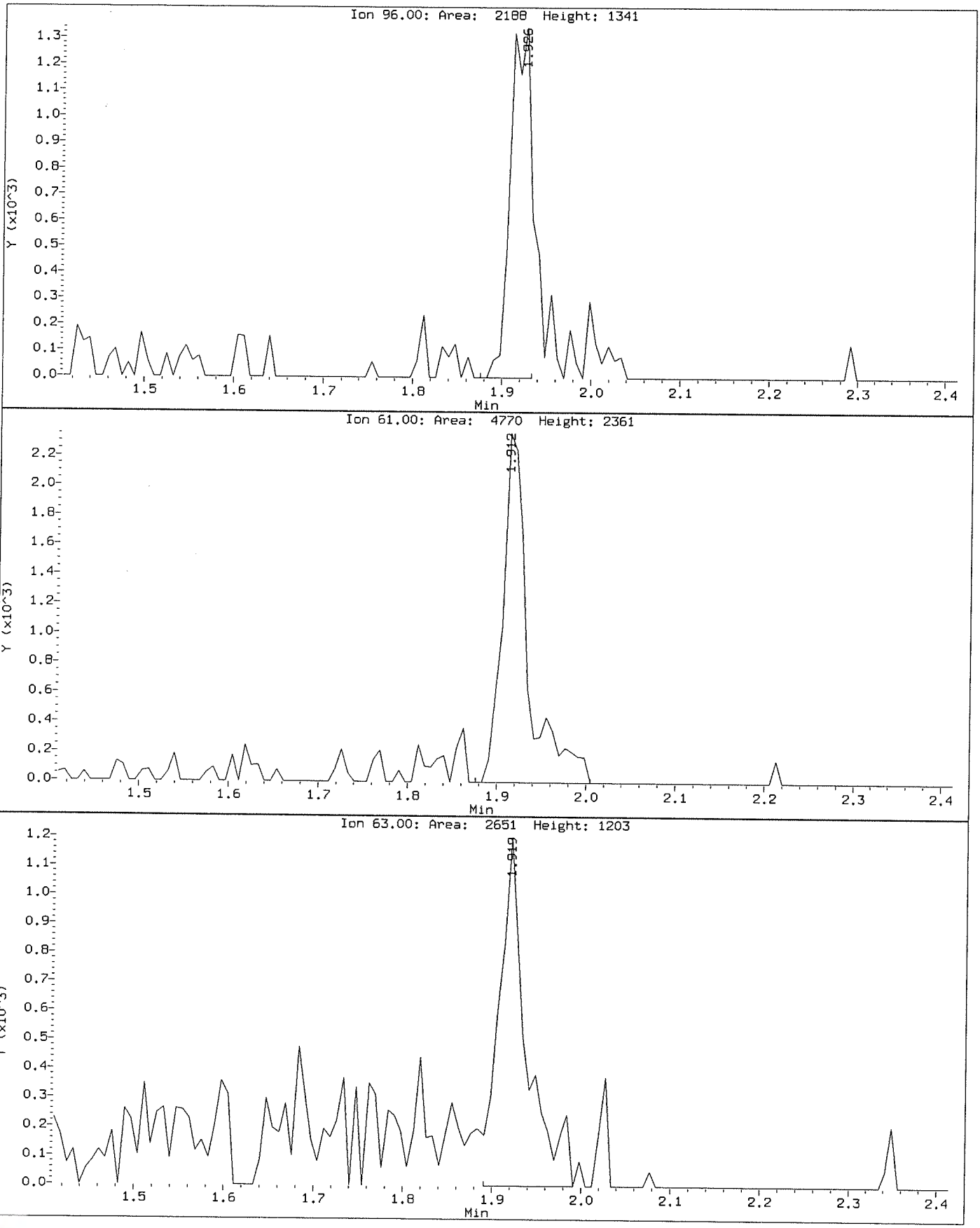
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040203.D
Injection Date: 02-APR-2021 11:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



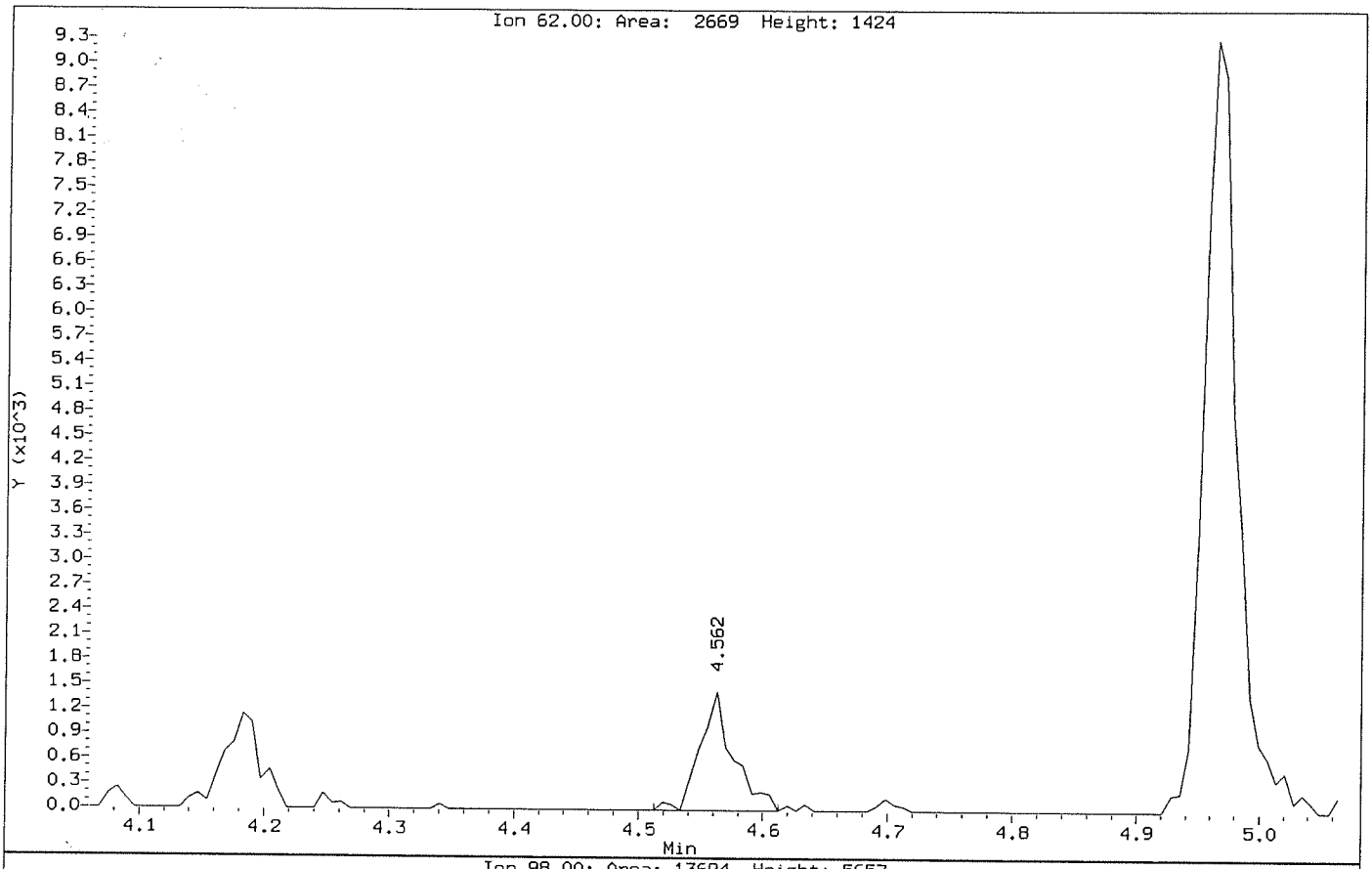
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Injection Date: 02-APR-2021 11:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

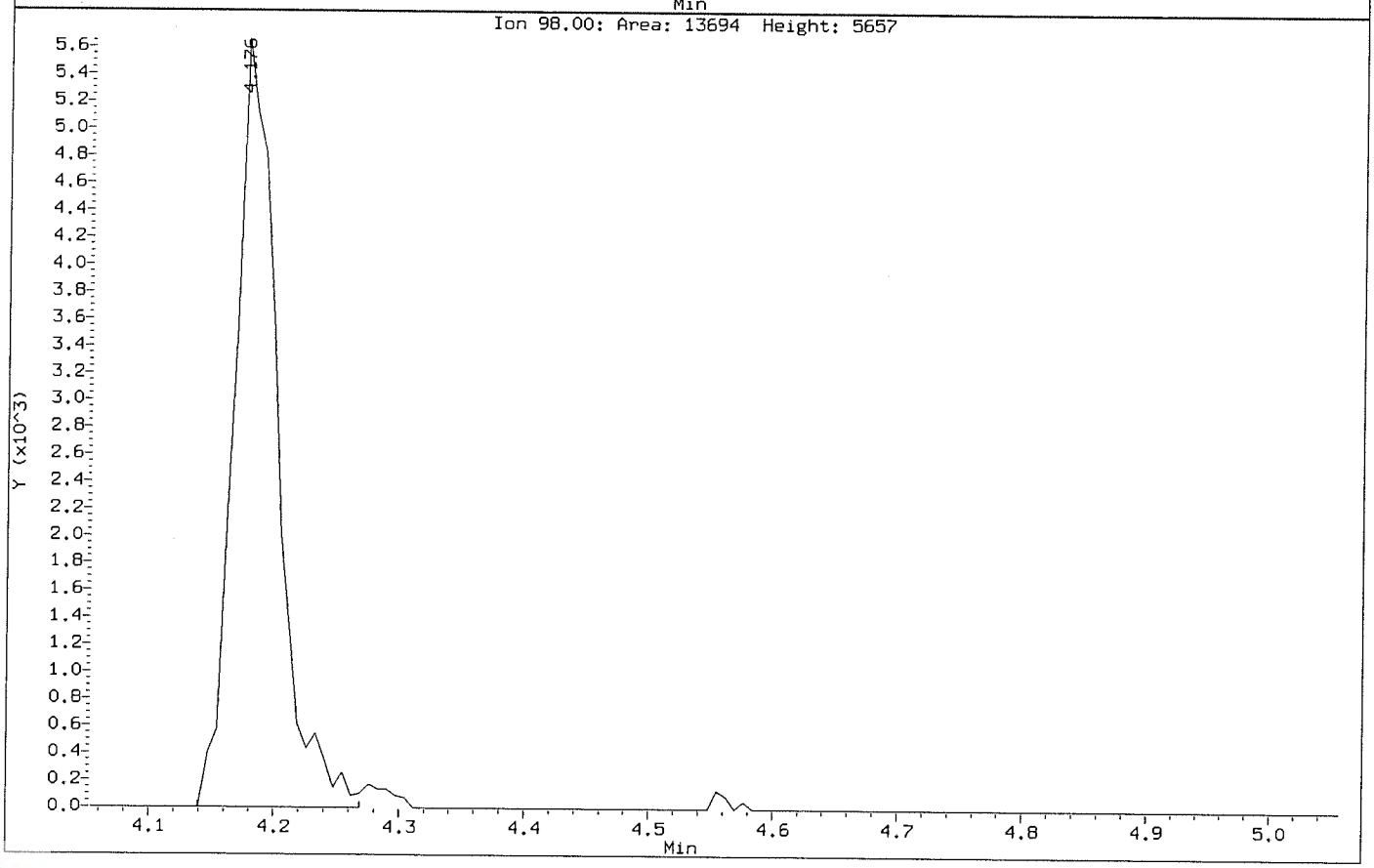
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040203.D
Injection Date: 02-APR-2021 11:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

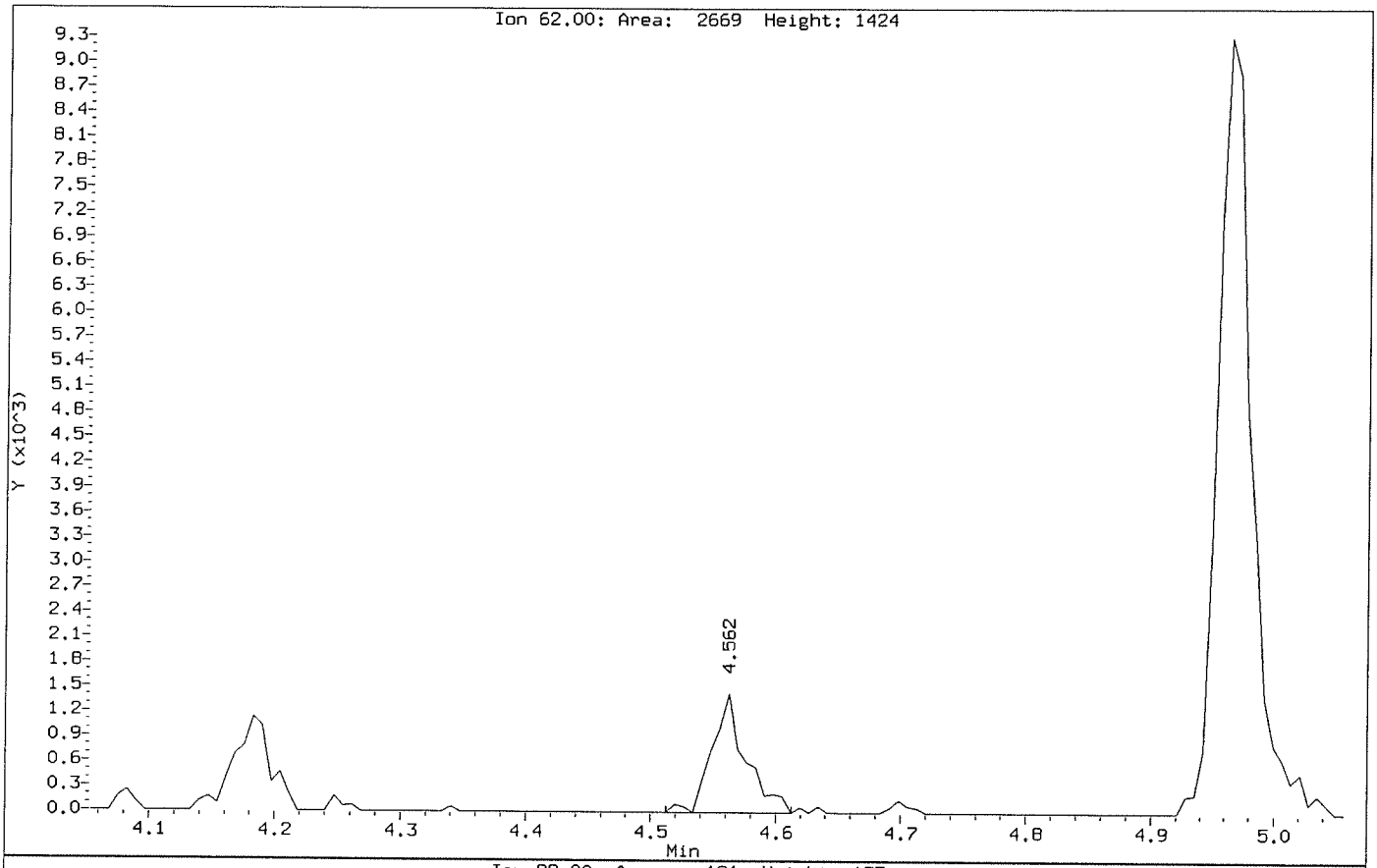
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

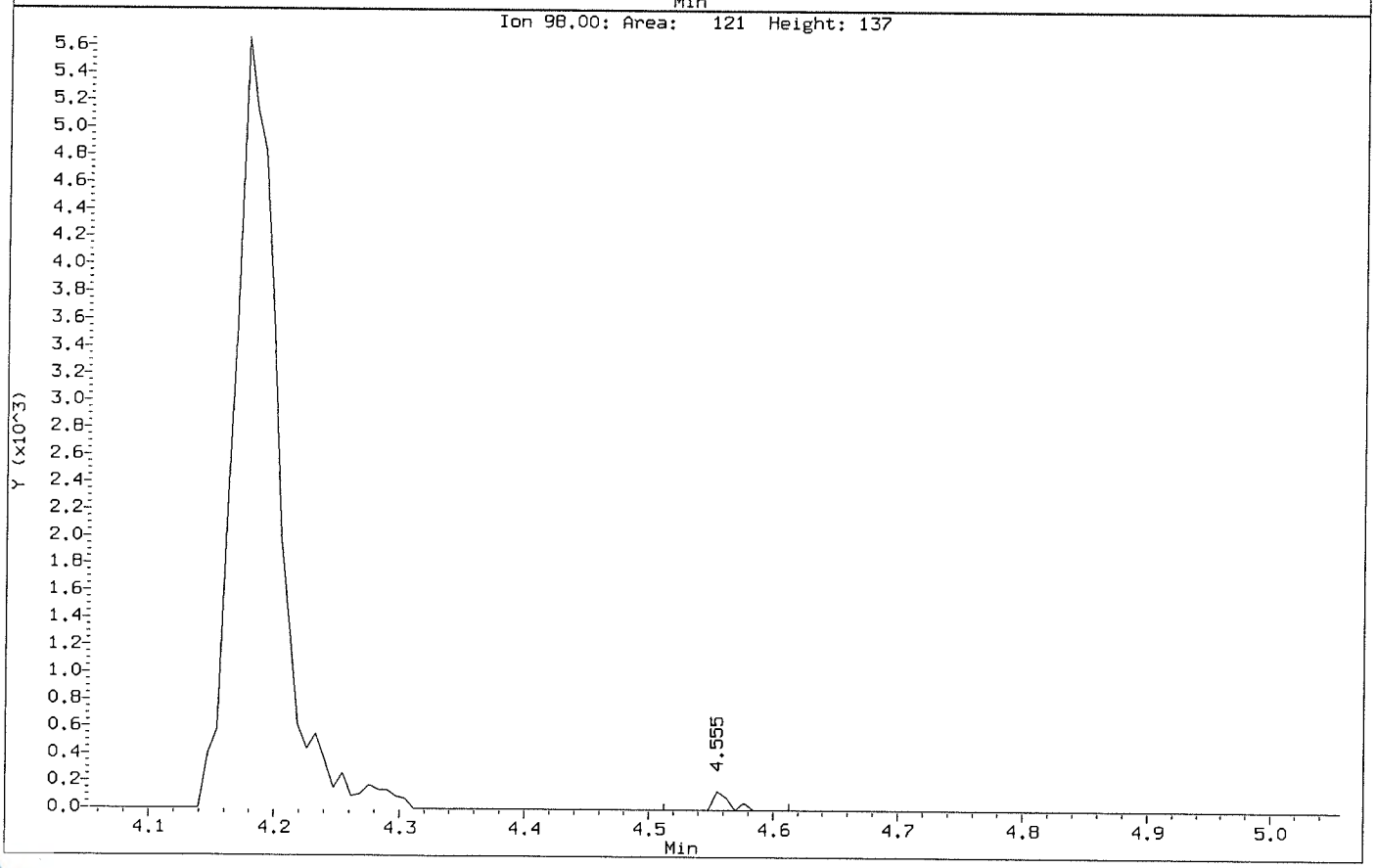




Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040203.D
Injection Date: 02-APR-2021 11:35
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D Page 1
Report Date: 29-Apr-2021 12:02

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 02-APR-2021 11:56
Operator : PC Inst ID: voa6.i
Smp Info : VSTD001;VSTD001;1;3;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 11:35 Cal File: X040203.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

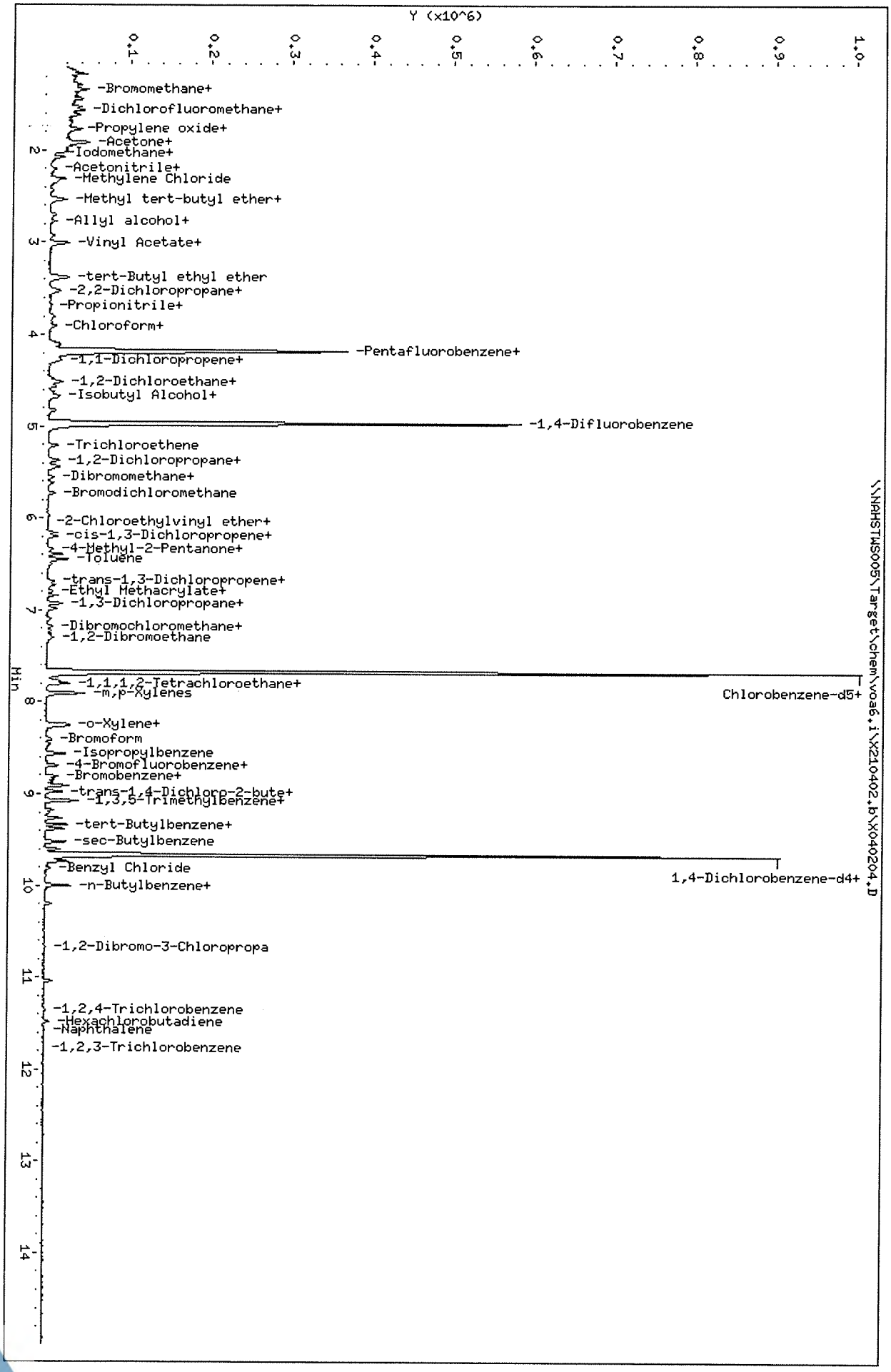
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	278422	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	467952	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	425730	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	185938	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	3862	1.00000	1.60
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	4438	1.00000	1.60
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	12313	1.00000	2.93
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	4647	1.00000	2.75
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	4199	1.00000	1.05(aM)
33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	5931	1.00000	1.19(aM)
27 cis-1,2-Dichloroethene	96	3.538	3.538	(0.846)	3959	1.00000	1.16
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2969	1.00000	1.15(a)
38 Trichloroethene	130	5.207	5.207	(1.049)	3757	1.00000	1.17(M)
5 Vinyl Chloride	62	1.145	1.145	(0.274)	5253	1.00000	1.25(M)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

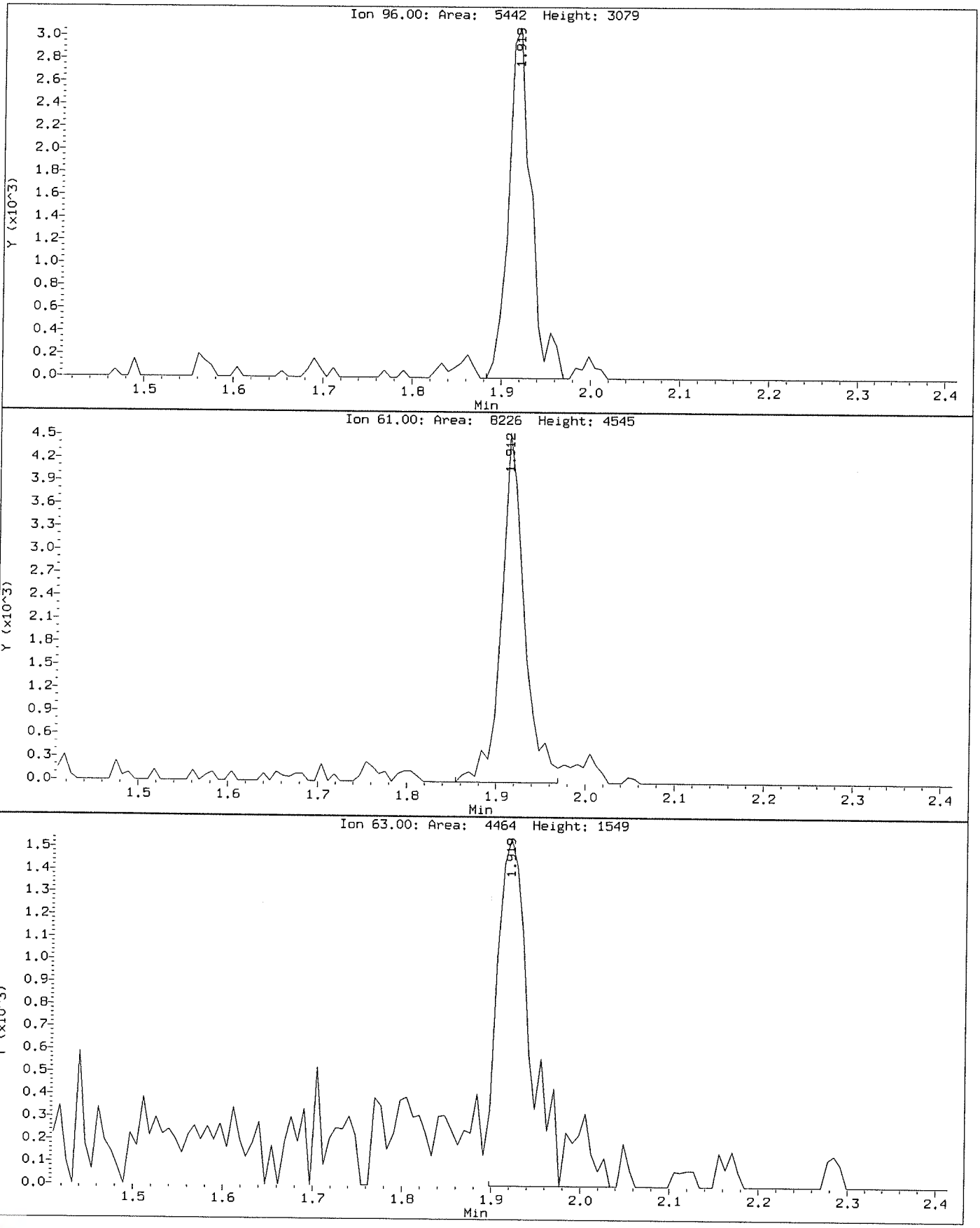


Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Date : 02-APR-2021 11:56
Client ID: VSTD001
Sample Info: VSTD001,VSTD001,1,3,,
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

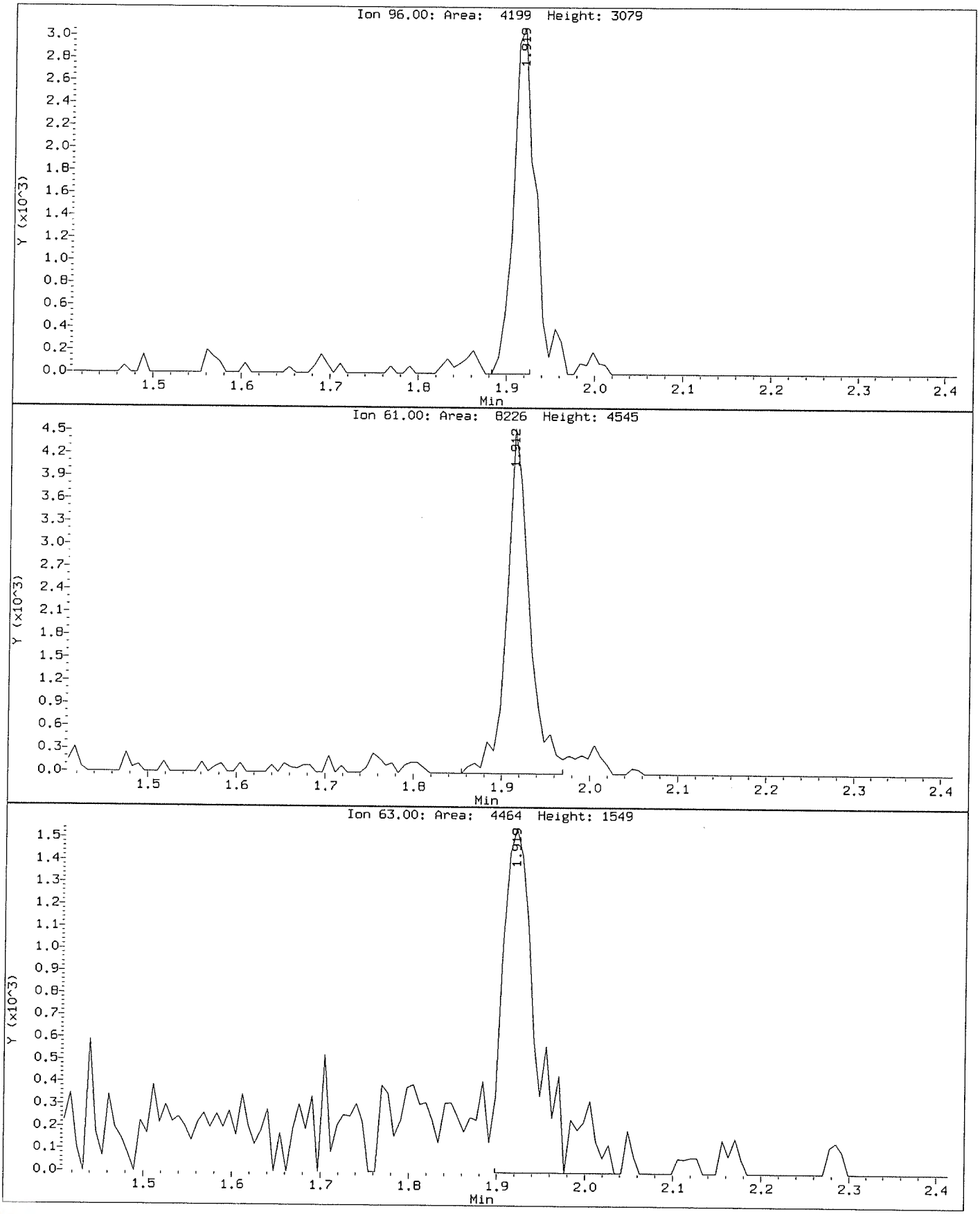
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



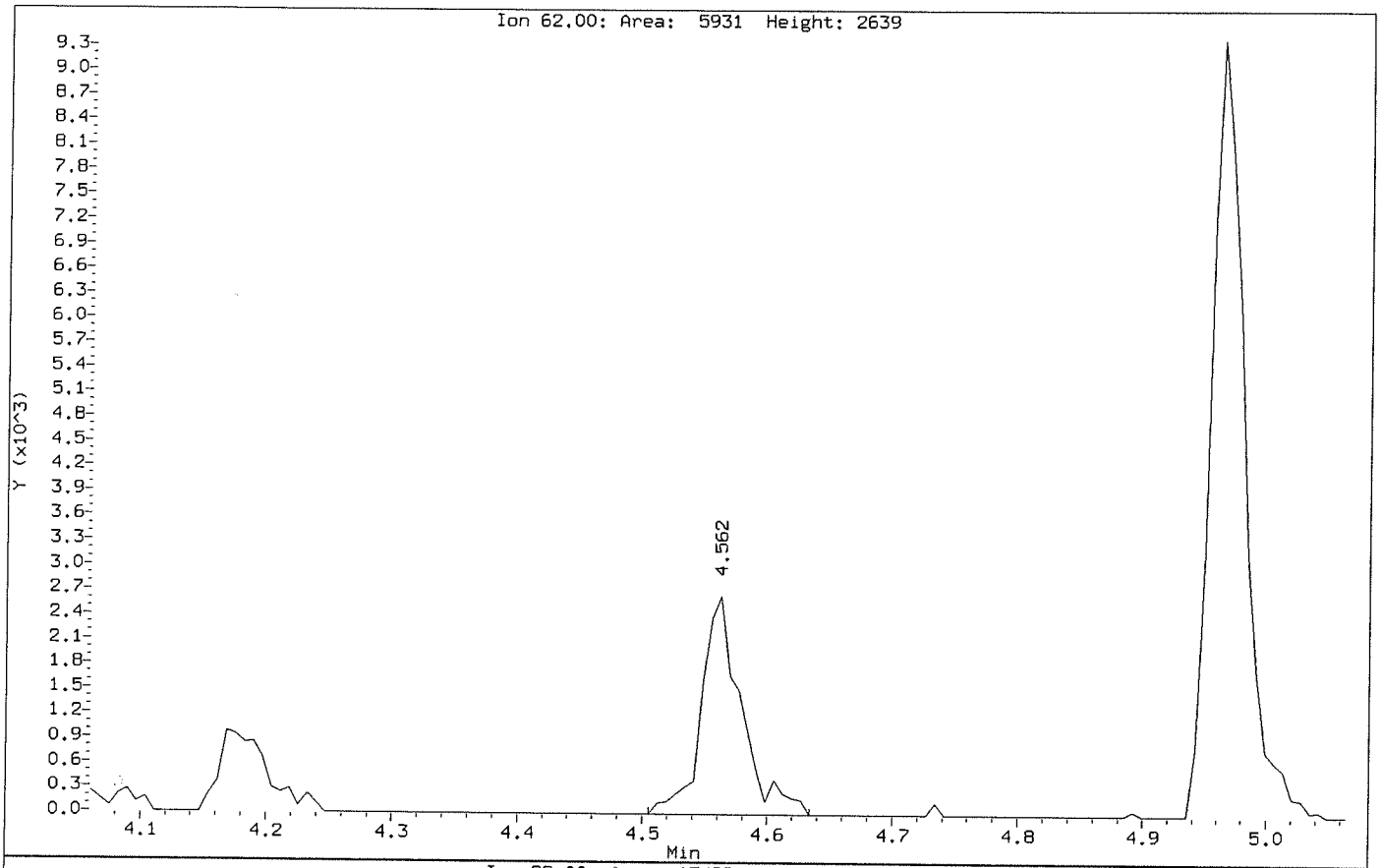
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

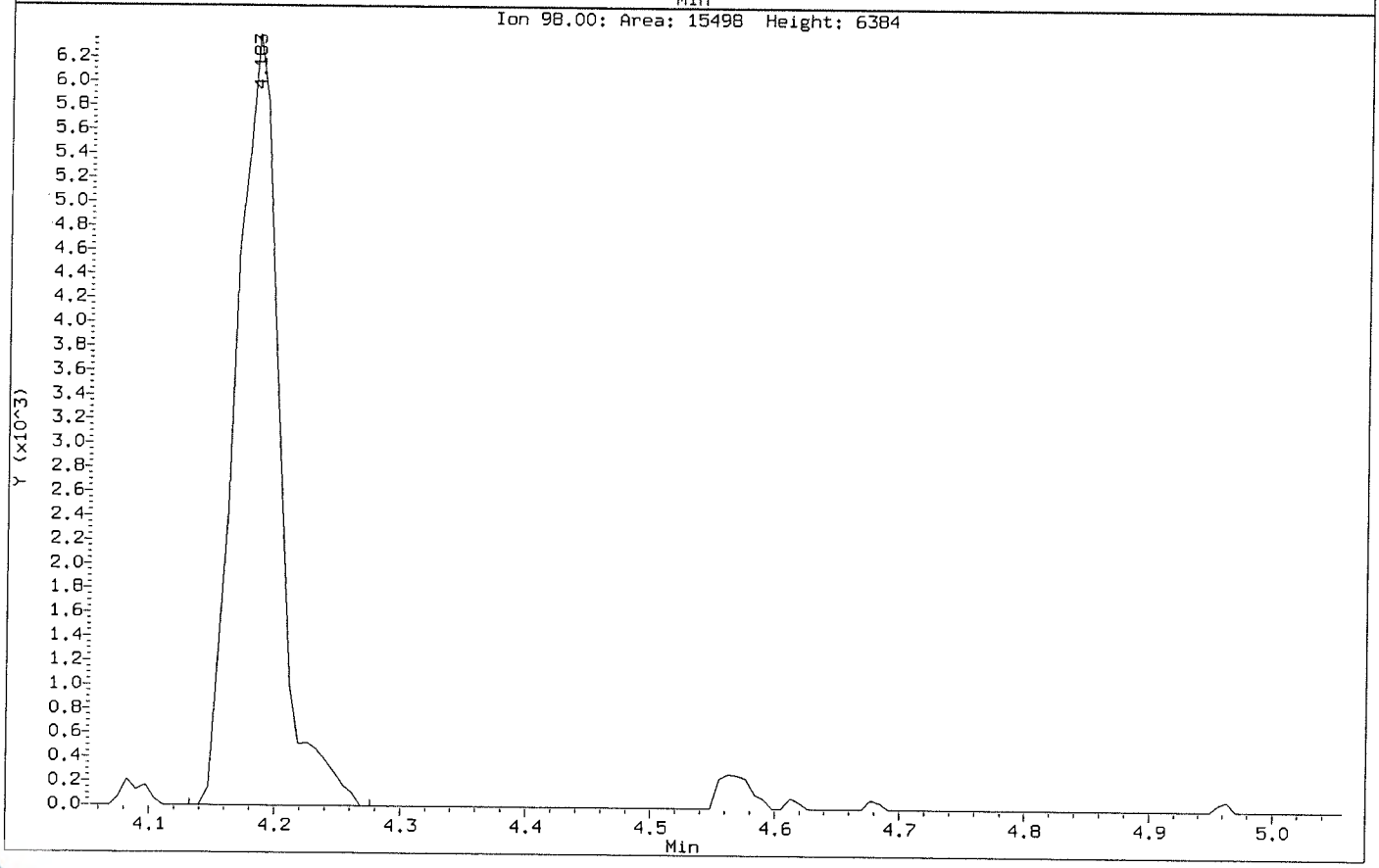
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

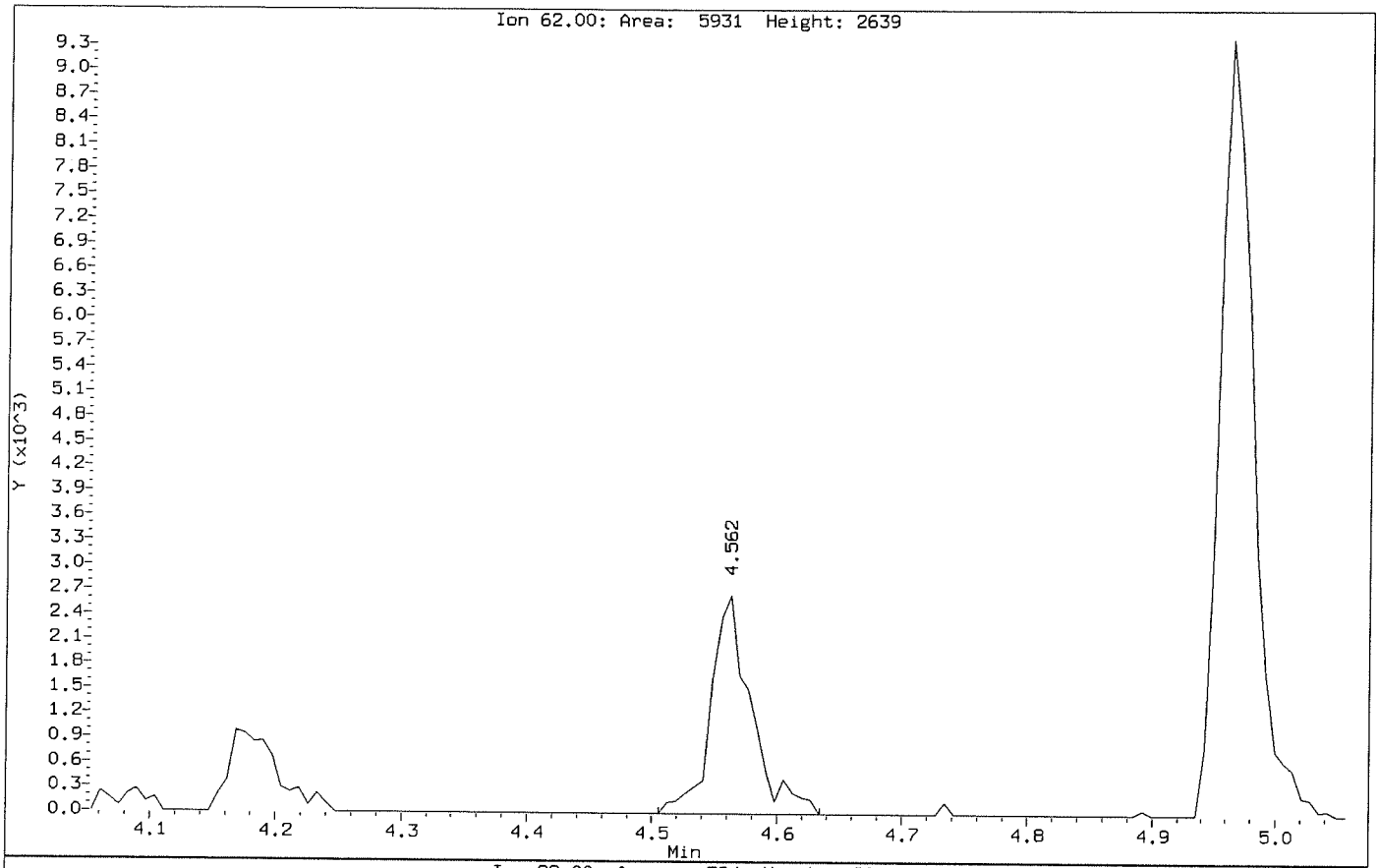
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

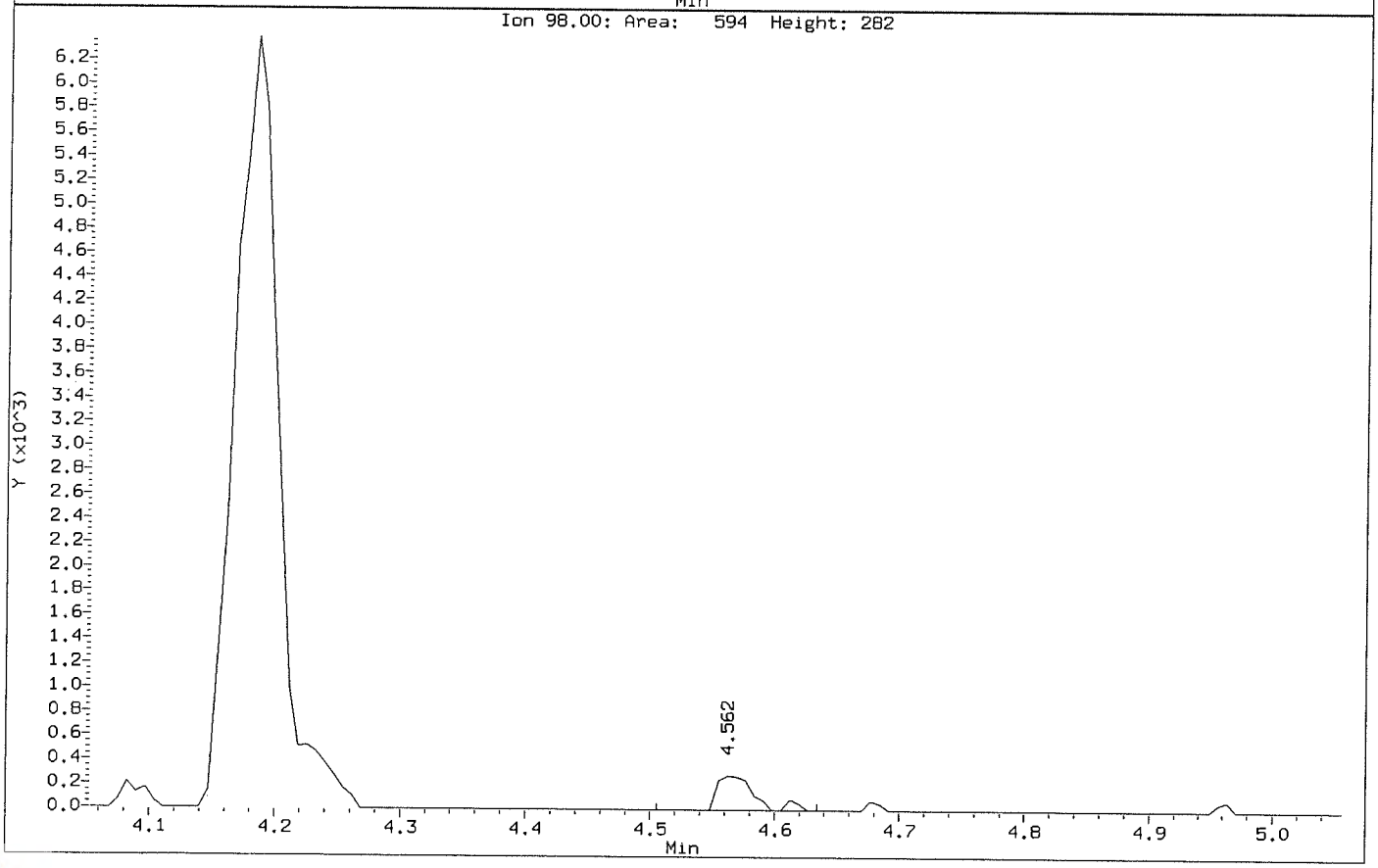




Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

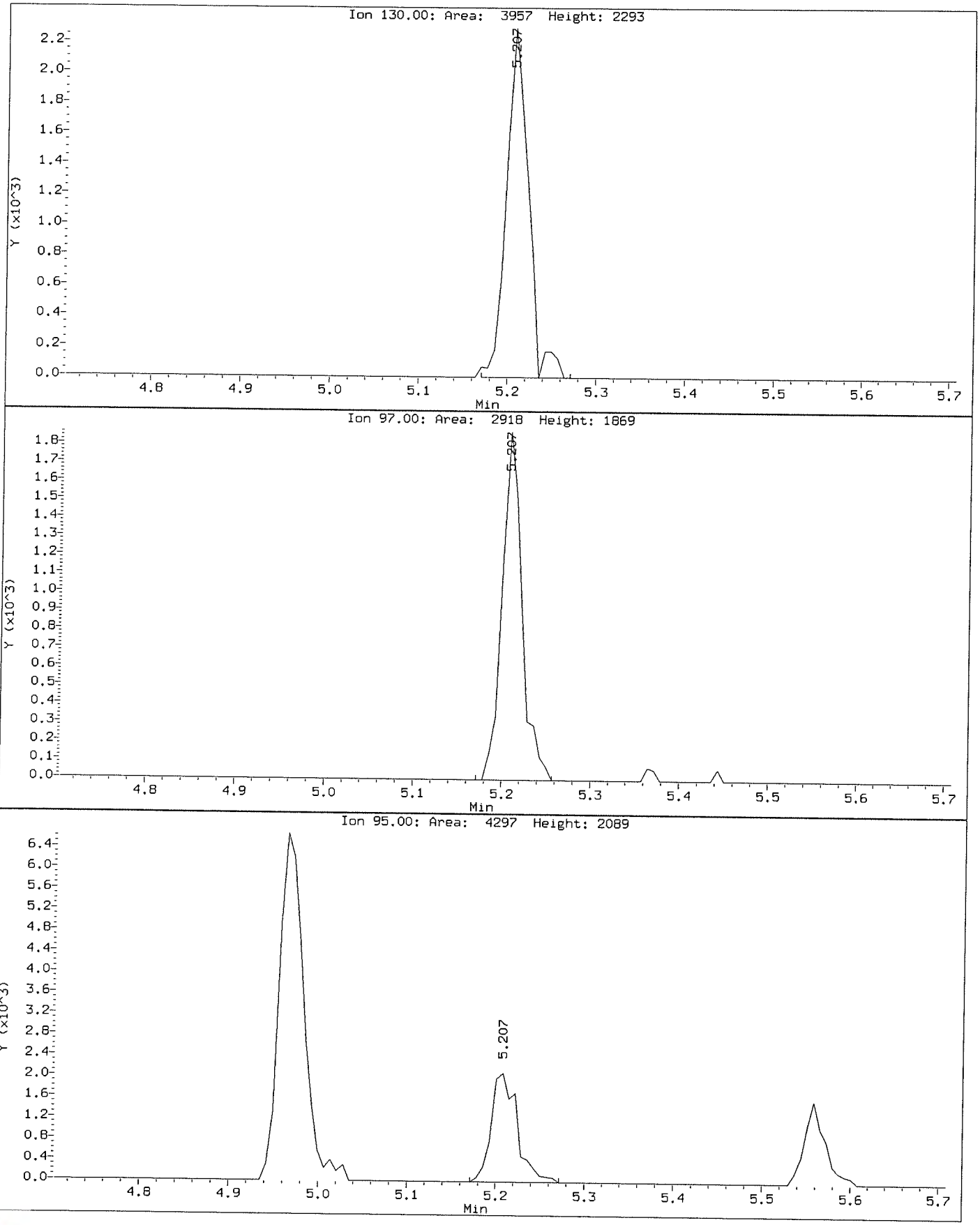
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





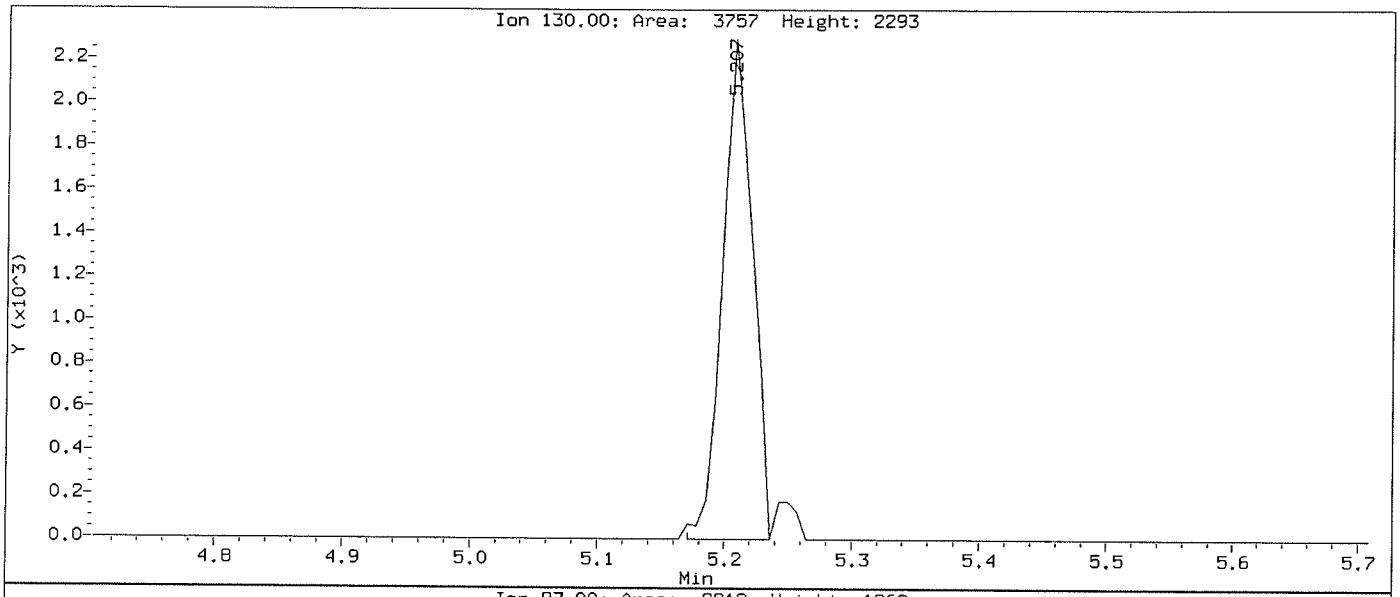
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

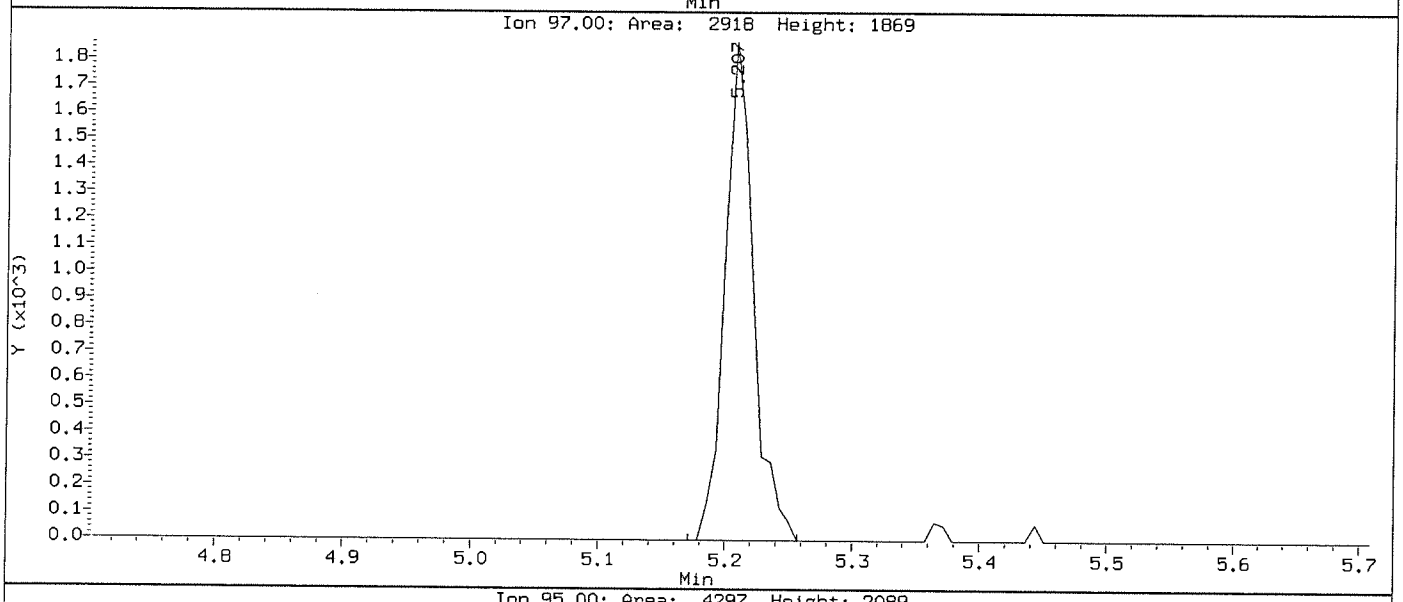
Compound: Trichloroethene
CAS Number: 79-01-6

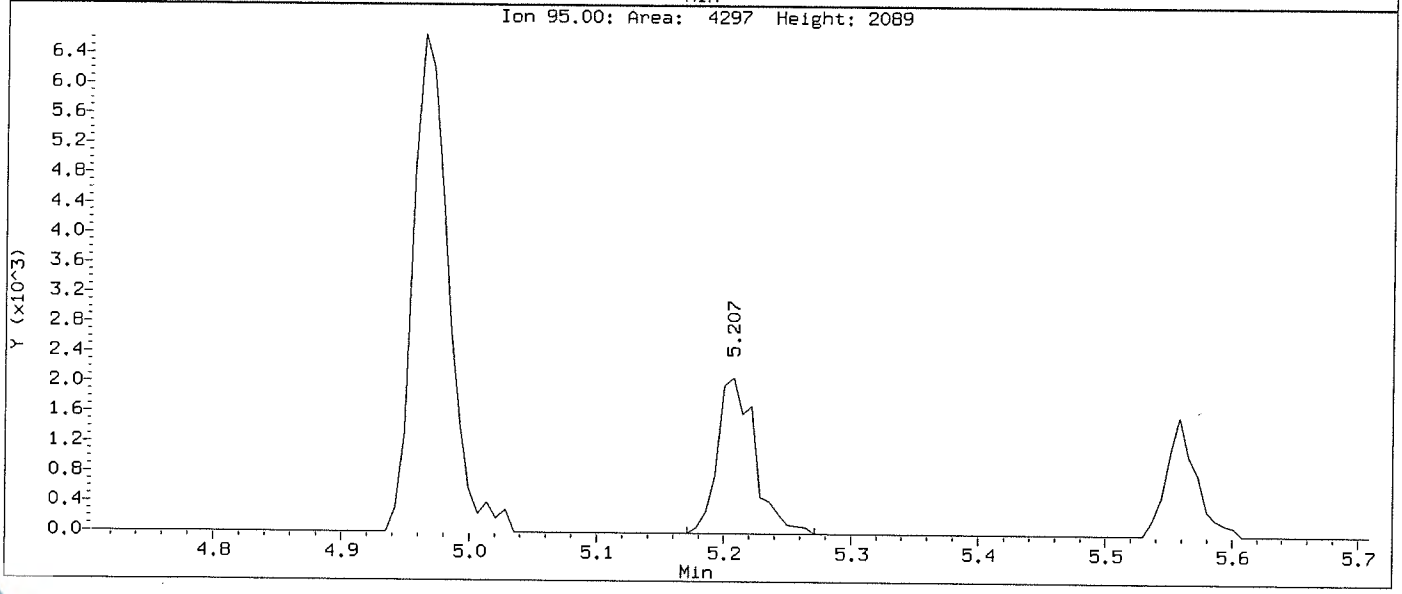


Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Trichloroethene
CAS Number: 79-01-6

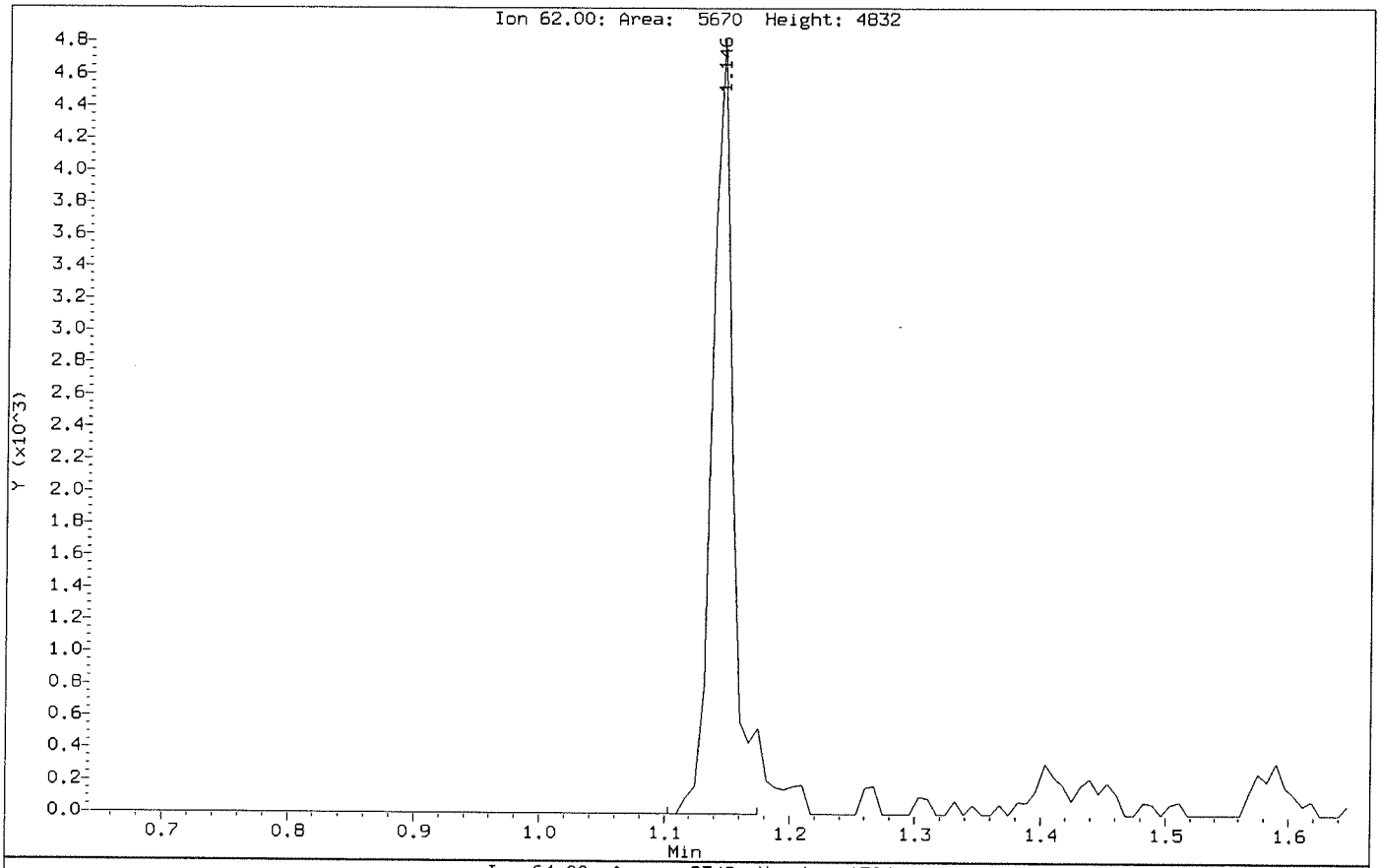


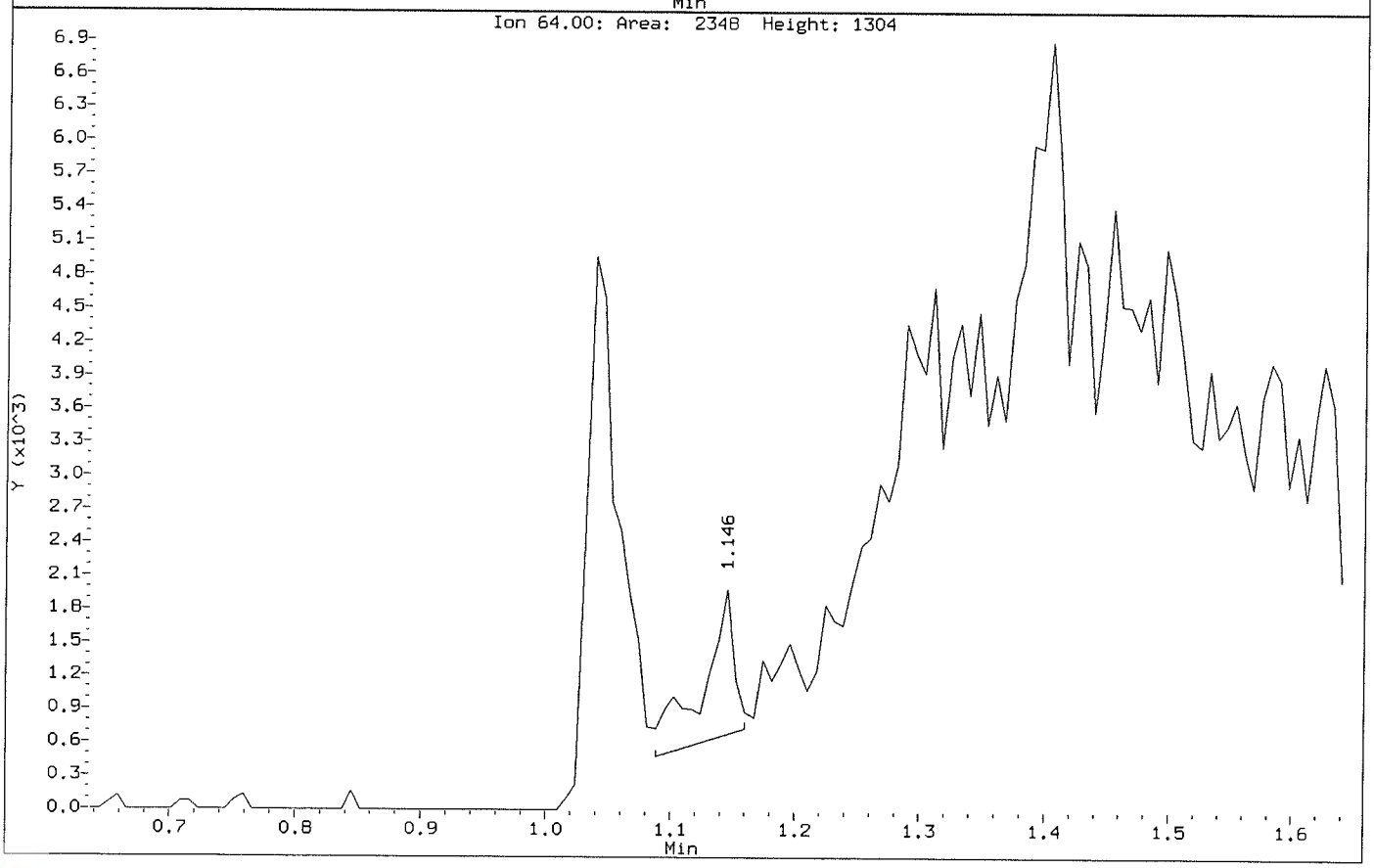




Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

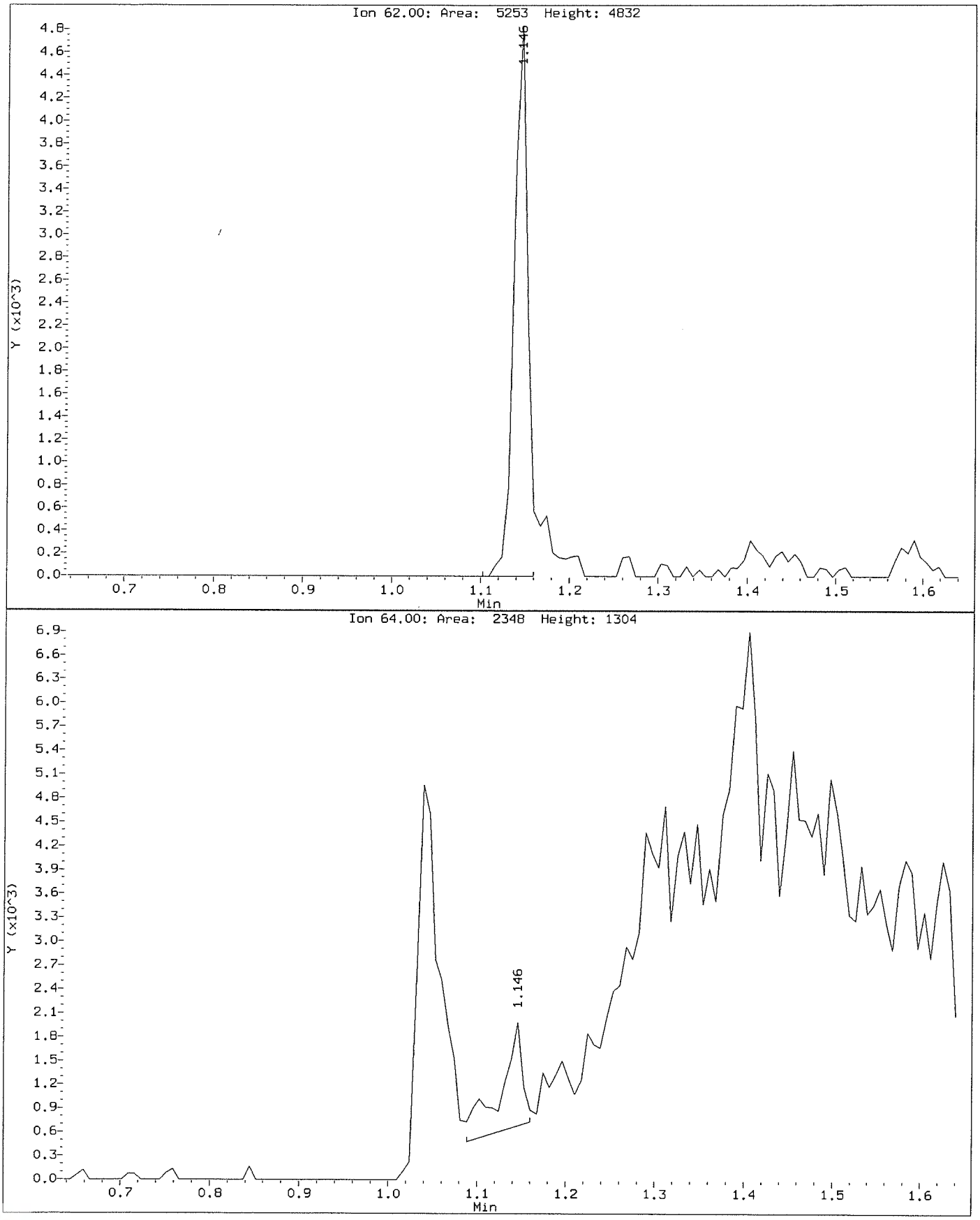
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040204.D
Injection Date: 02-APR-2021 11:56
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040205.D Page 1
Report Date: 29-Apr-2021 12:02

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040205.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 02-APR-2021 12:17
Operator : PC Inst ID: voa6.i
Smp Info : VSTD002;VSTD002;1;4;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 11:56 Cal File: X040204.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

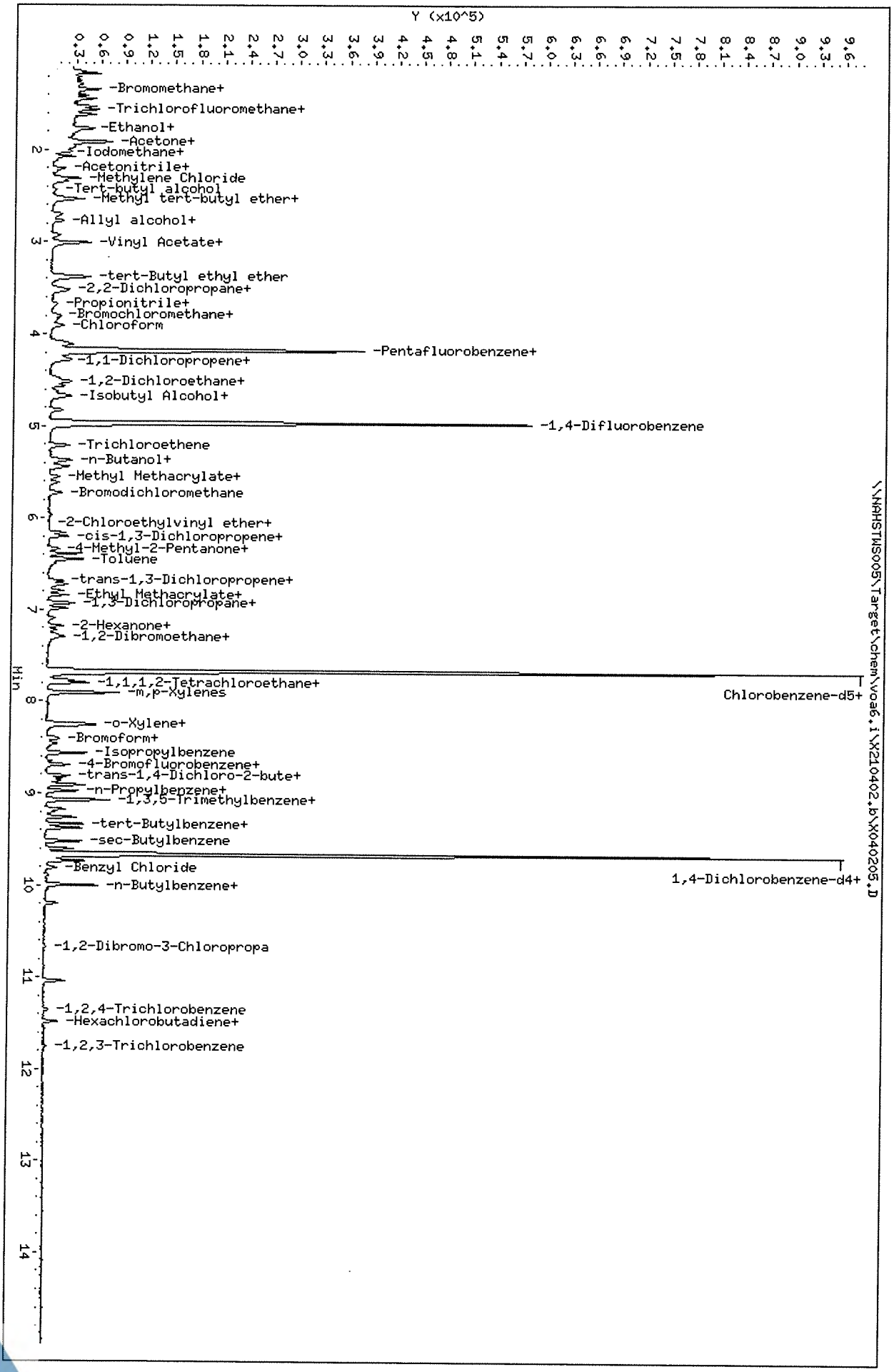
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	278535	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	469682	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	424642	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	187429	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	6870	2.00000	2.50
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	7506	2.00000	2.37
$	48 Toluene-d8	98	6.388	6.388	(0.833)	22274	2.00000	3.81
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	7732	2.00000	3.48
	11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	8383	2.00000	2.11(aM)
	33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	9508	2.00000	1.91(aM)
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	6948	2.00000	2.04
	56 Tetrachloroethene	164	6.933	6.933	(0.904)	5396	2.00000	2.10(a)
	38 Trichloroethene	130	5.206	5.206	(1.048)	6830	2.00000	2.12
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	8442	2.00000	2.02(M)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

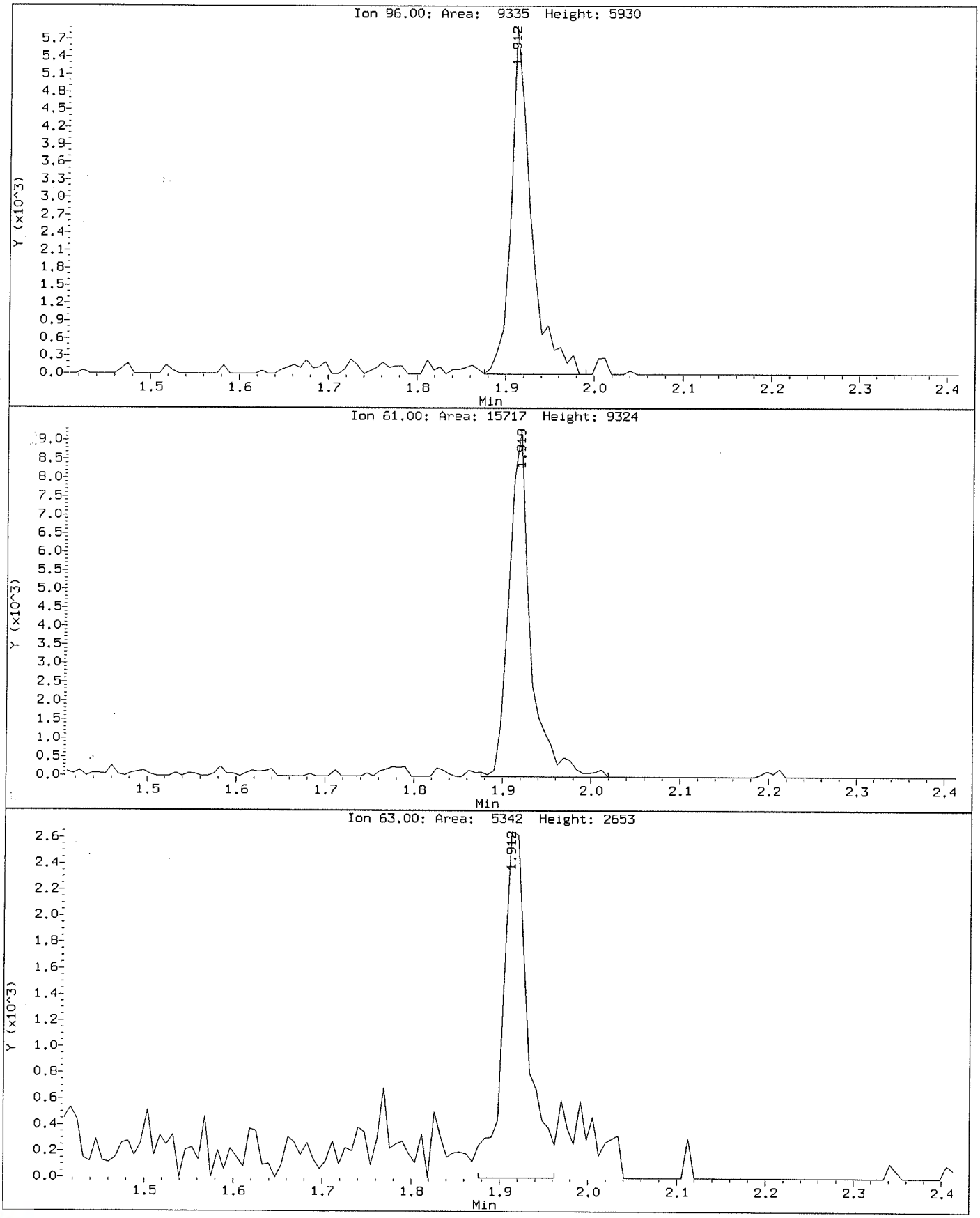


Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040205.D
Date : 02-APR-2021 12:17
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

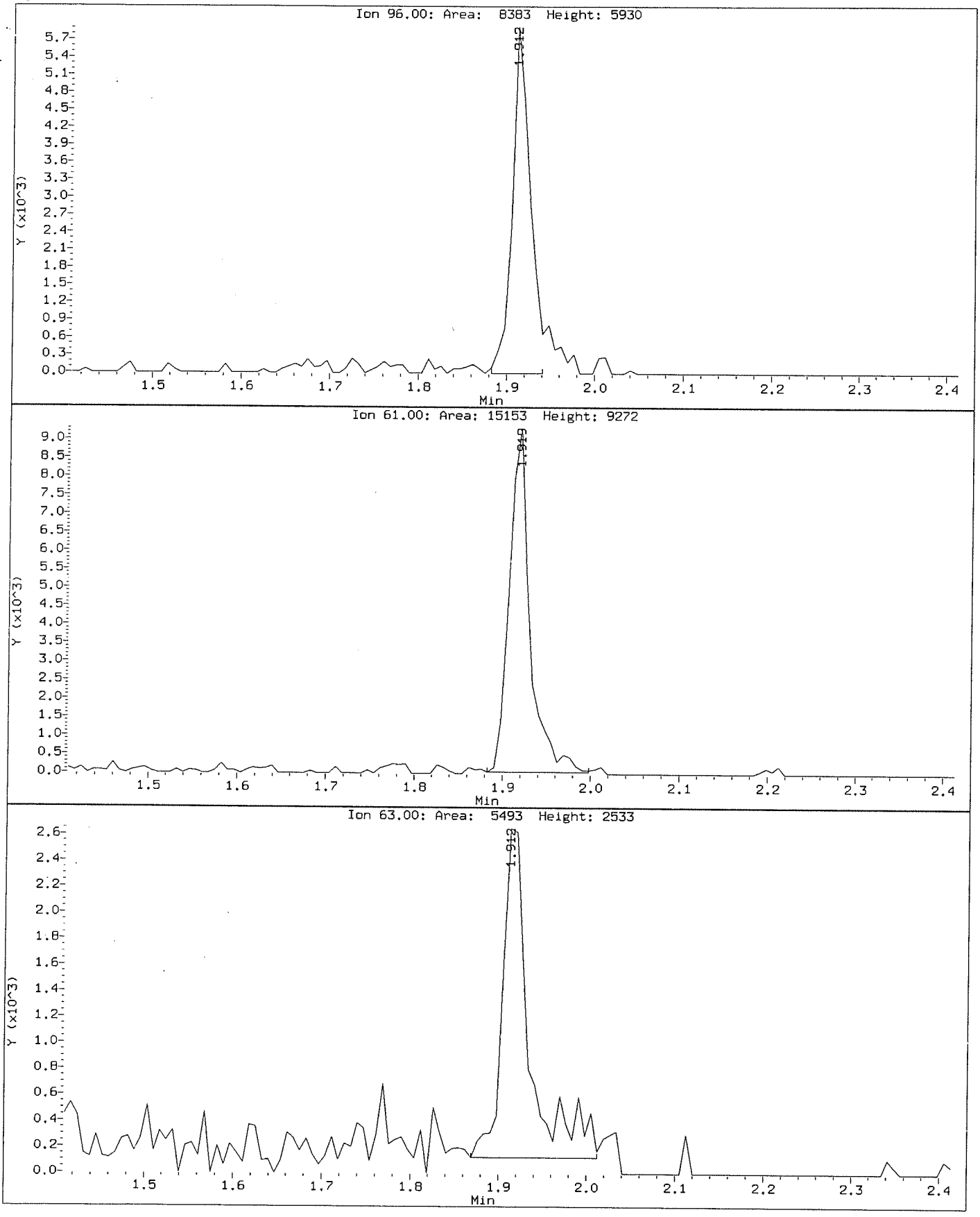
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040205.D
Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



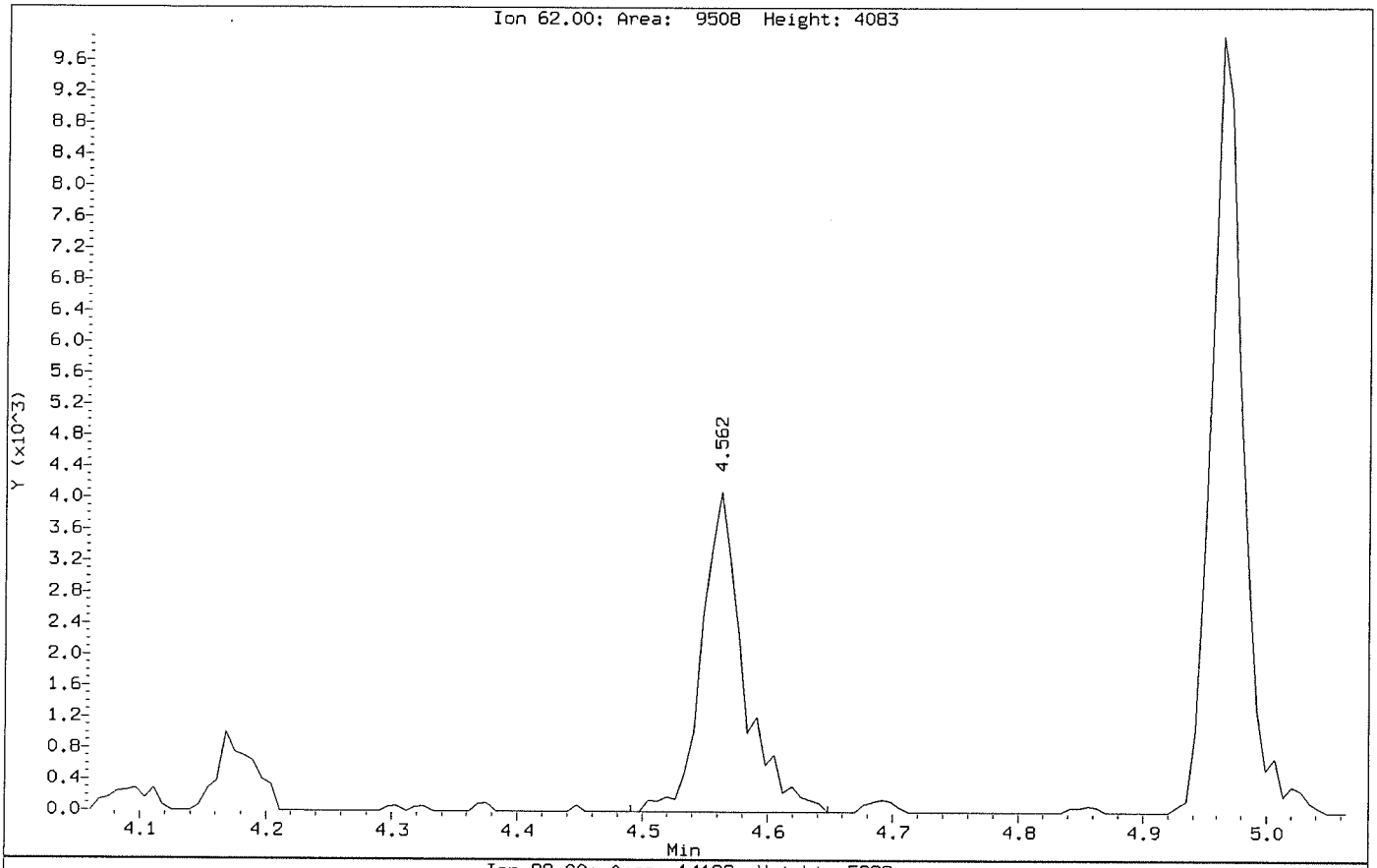
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Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

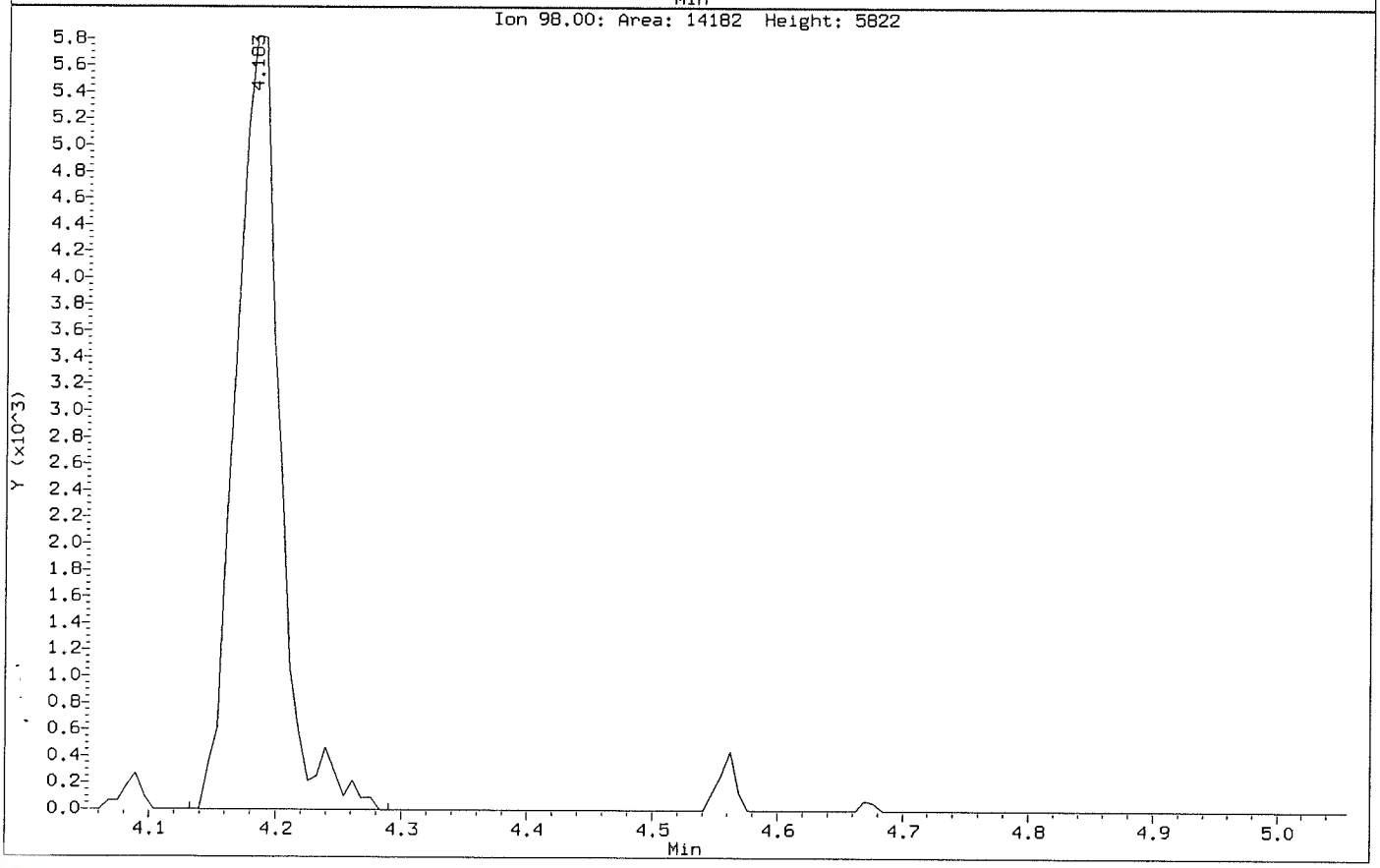
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040205.D
Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

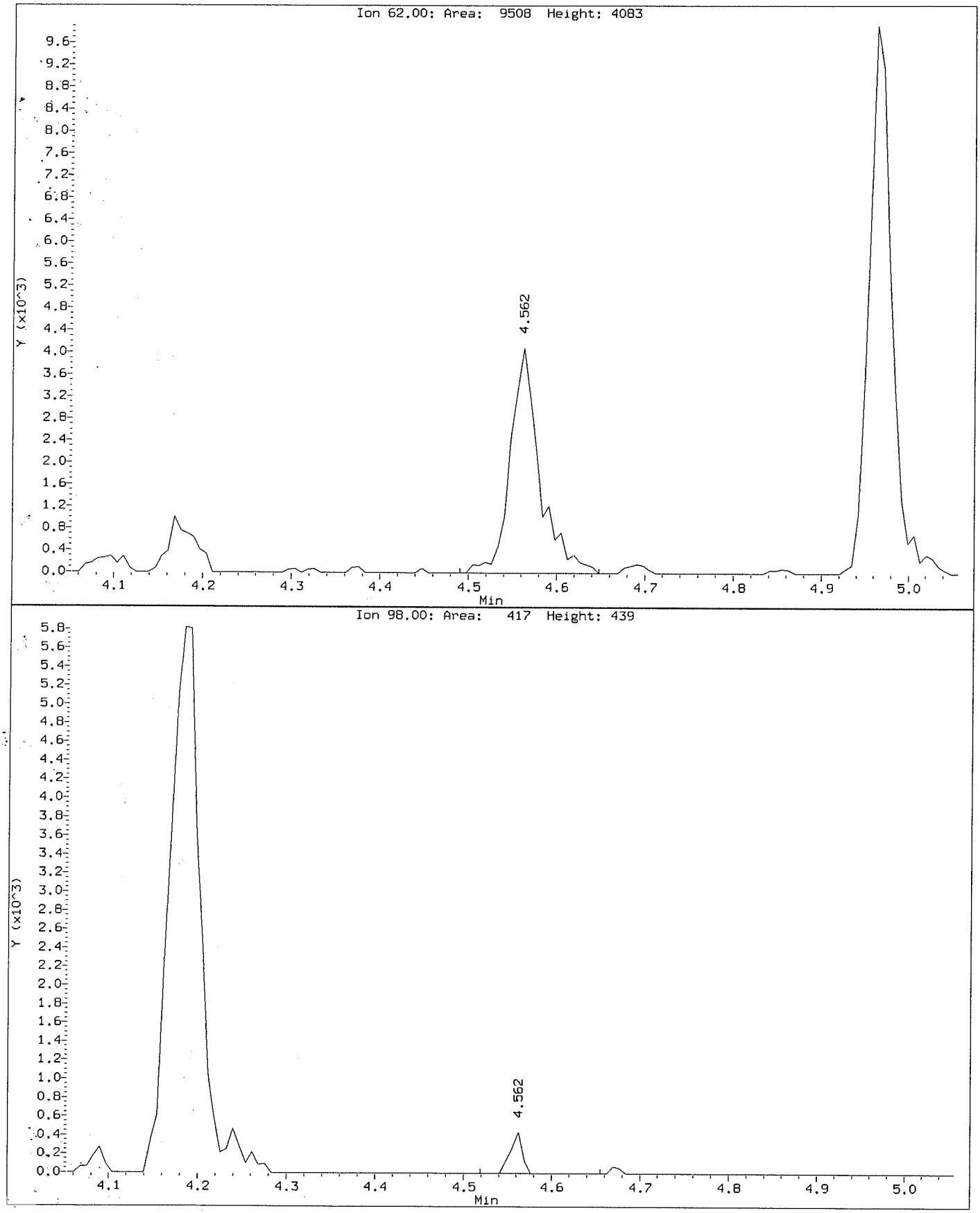
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





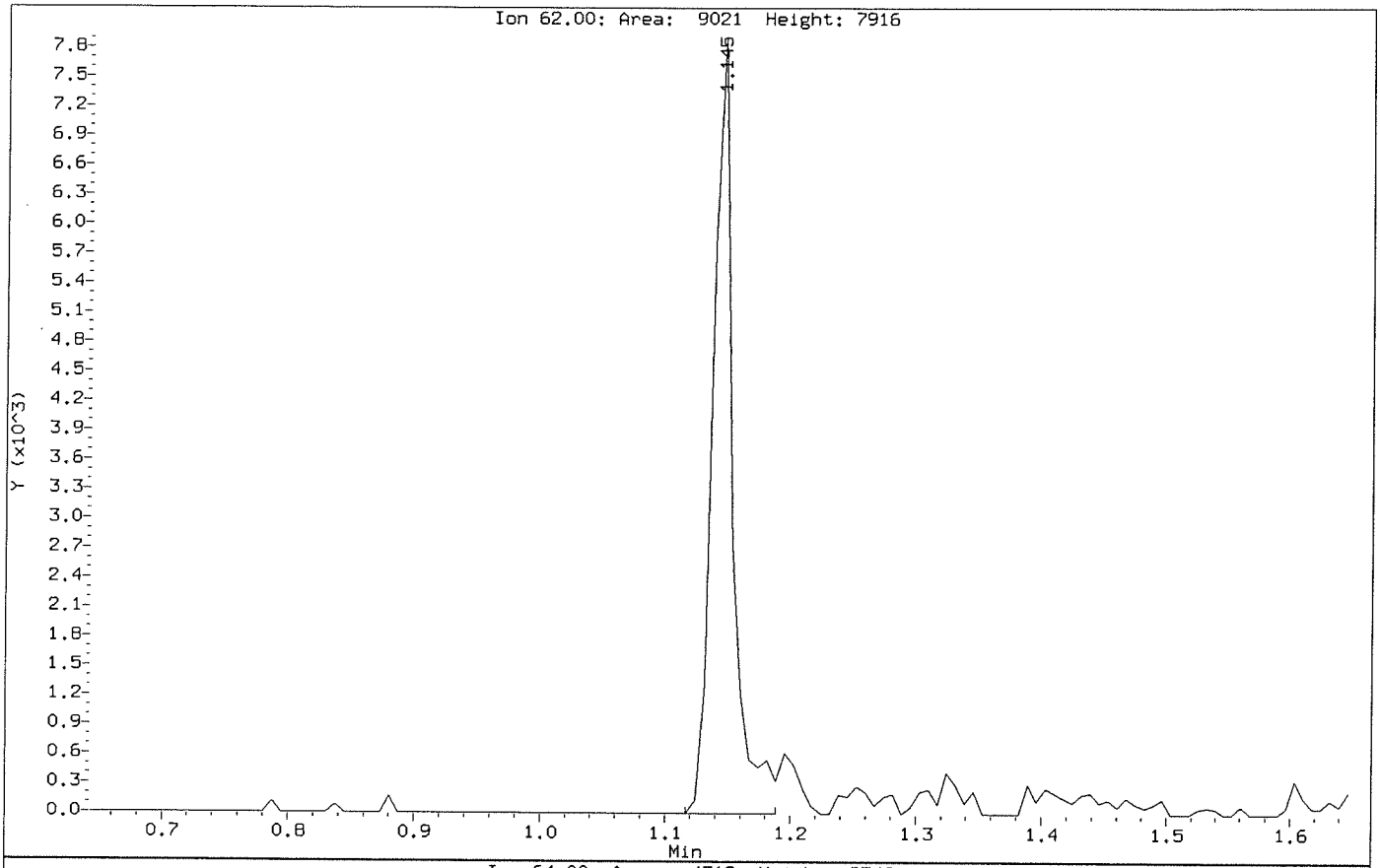
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040205.D
Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

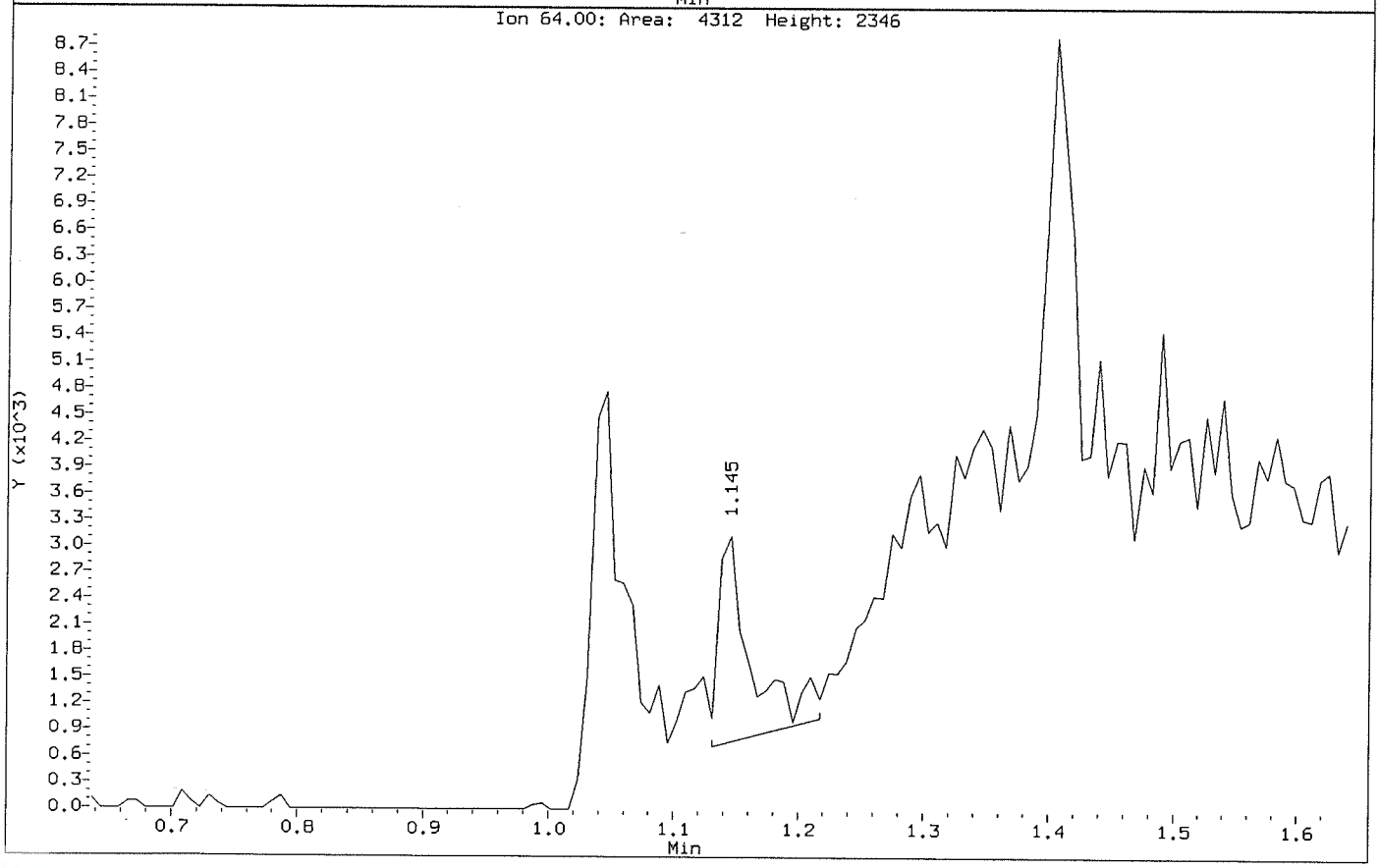
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040205.D
Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

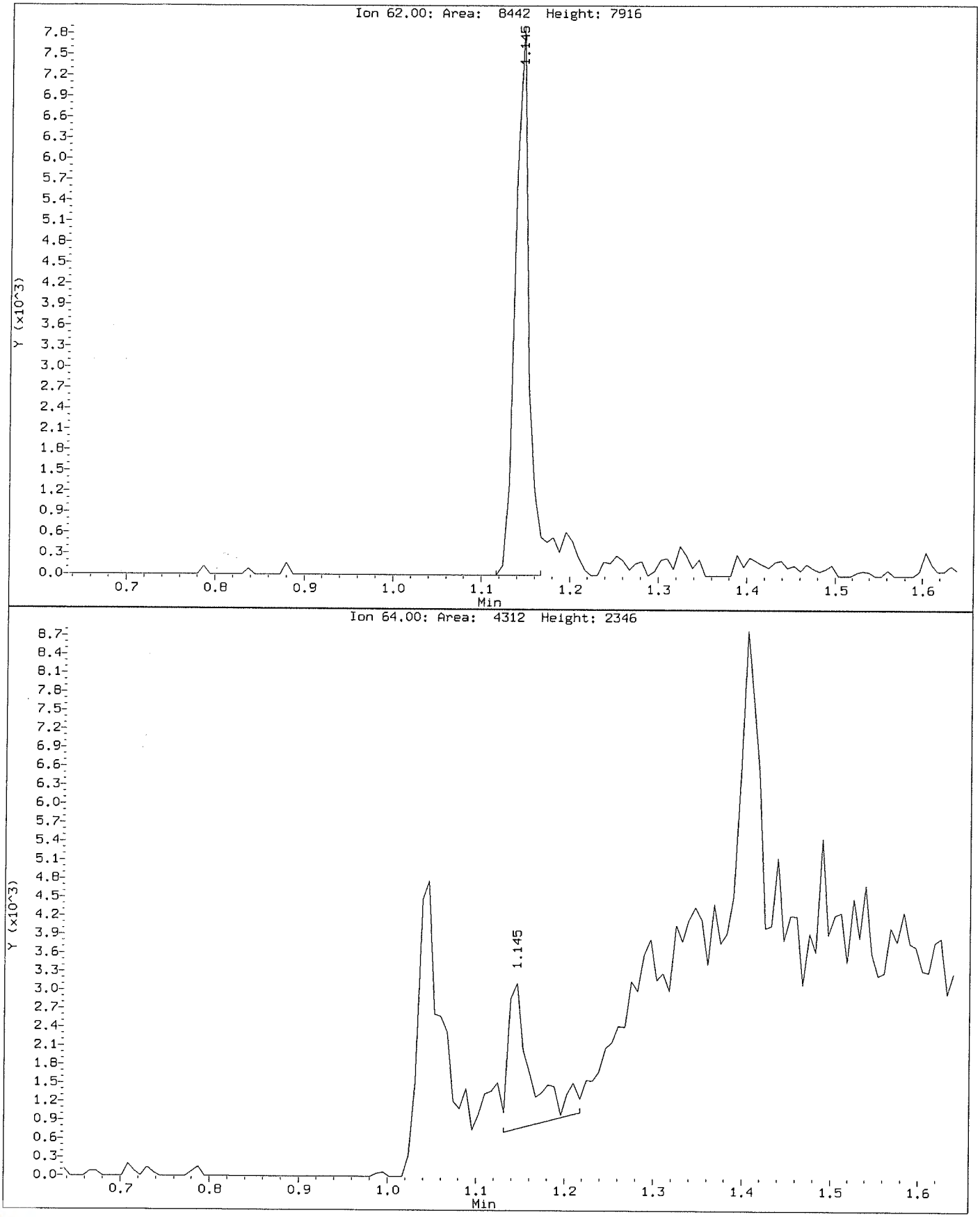
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040205.D
Injection Date: 02-APR-2021 12:17
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040206.D Page 1
Report Date: 29-Apr-2021 12:02

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040206.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 02-APR-2021 12:38
Operator : PC Inst ID: voa6.i
Smp Info : VSTD005;VSTD005;1;5;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 12:17 Cal File: X040205.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

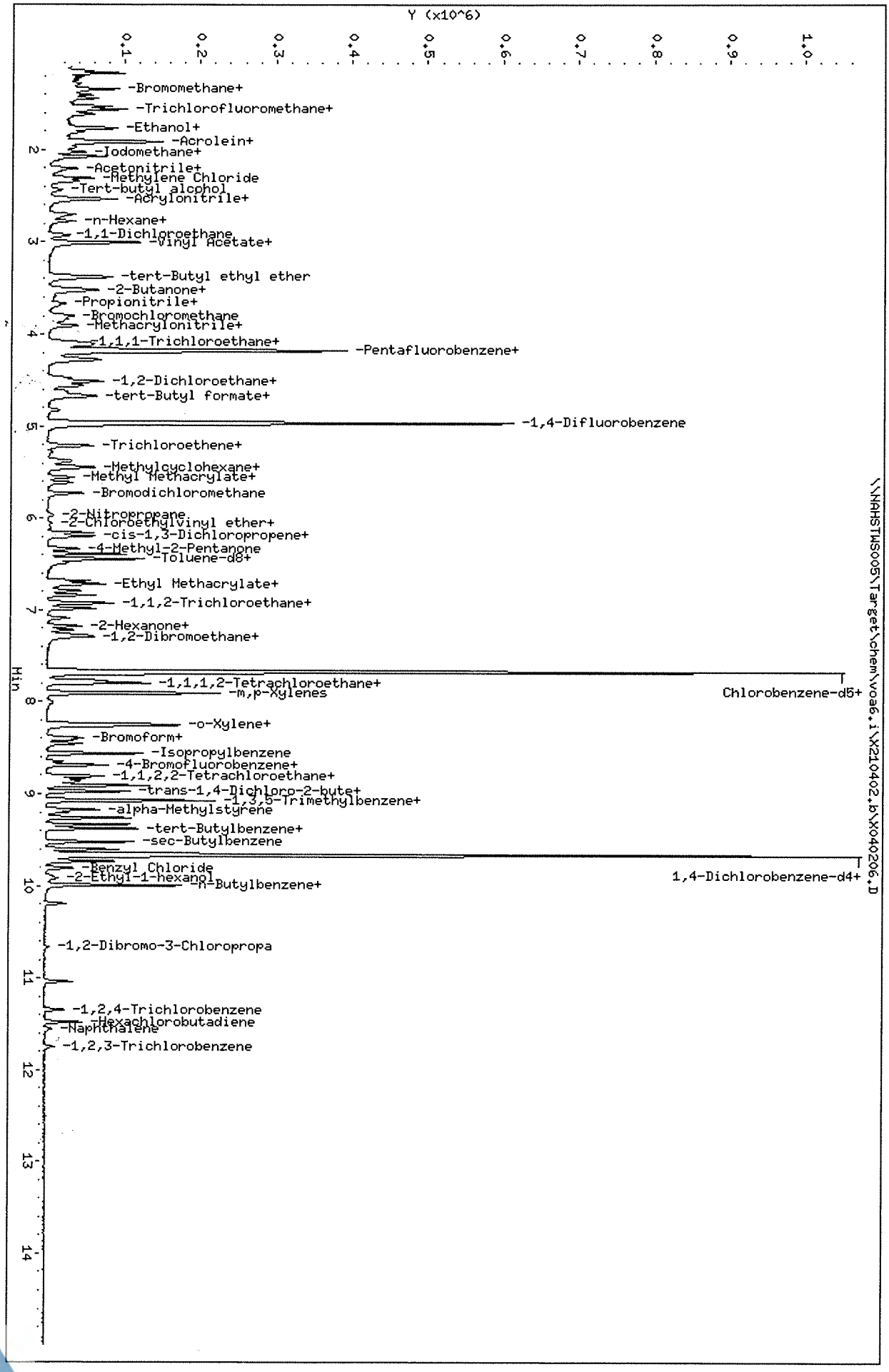
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	291823	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	482057	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	440939	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	205433	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	17824	5.00000	5.57
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	20809	5.00000	5.48
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	56112	5.00000	6.62
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	19193	5.00000	6.03
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	22632	5.00000	5.44
33 1,2-Dichloroethane	62	4.562	4.562	(0.919)	25538	5.00000	5.00
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	17639	5.00000	4.94
56 Tetrachloroethene	164	6.926	6.926	(0.903)	13320	5.00000	5.00
38 Trichloroethene	130	5.207	5.207	(1.049)	18140	5.00000	5.49
5 Vinyl Chloride	62	1.145	1.145	(0.274)	22066	5.00000	5.04(M)

QC Flag Legend

M - Compound response manually integrated.

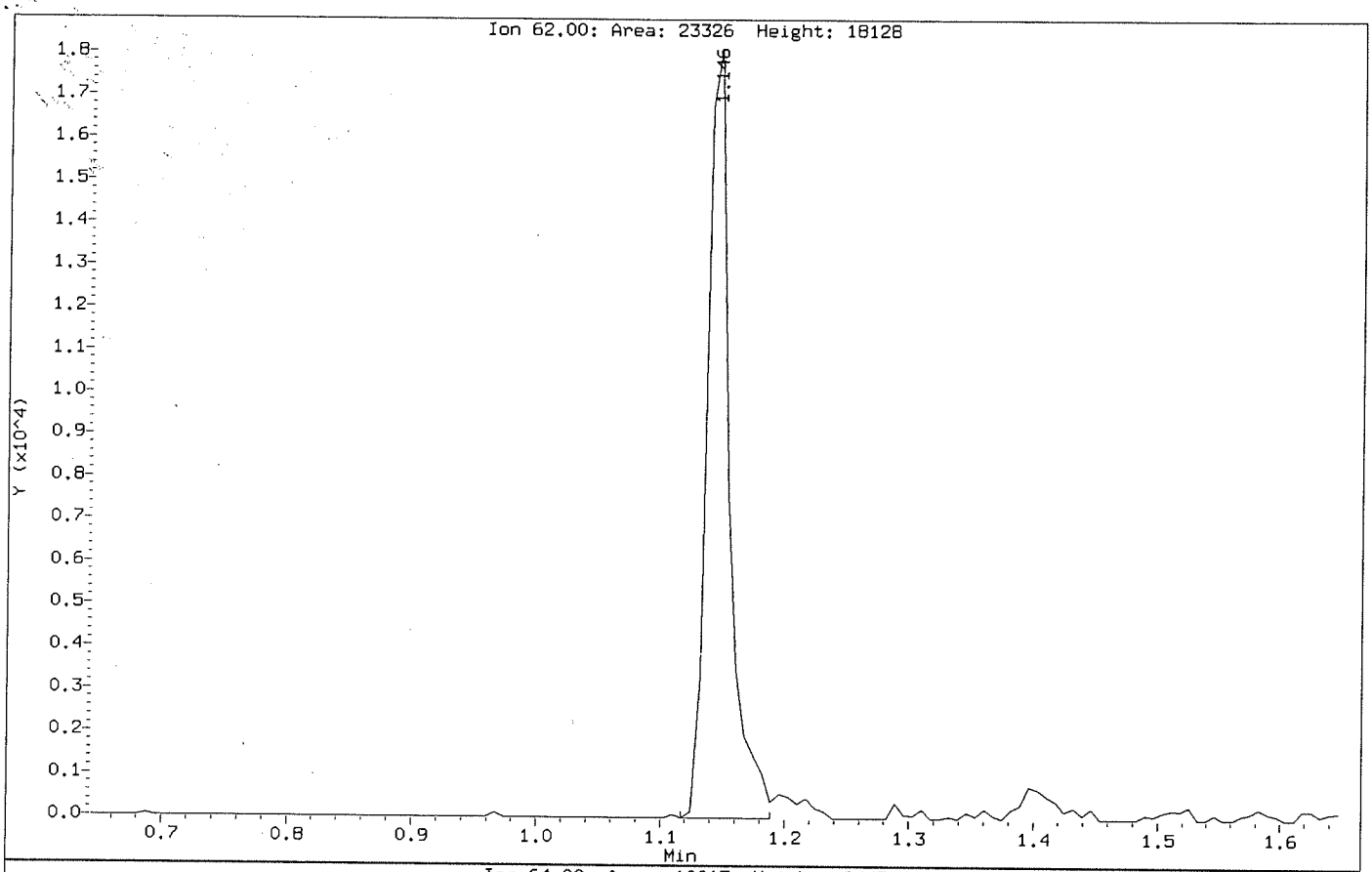


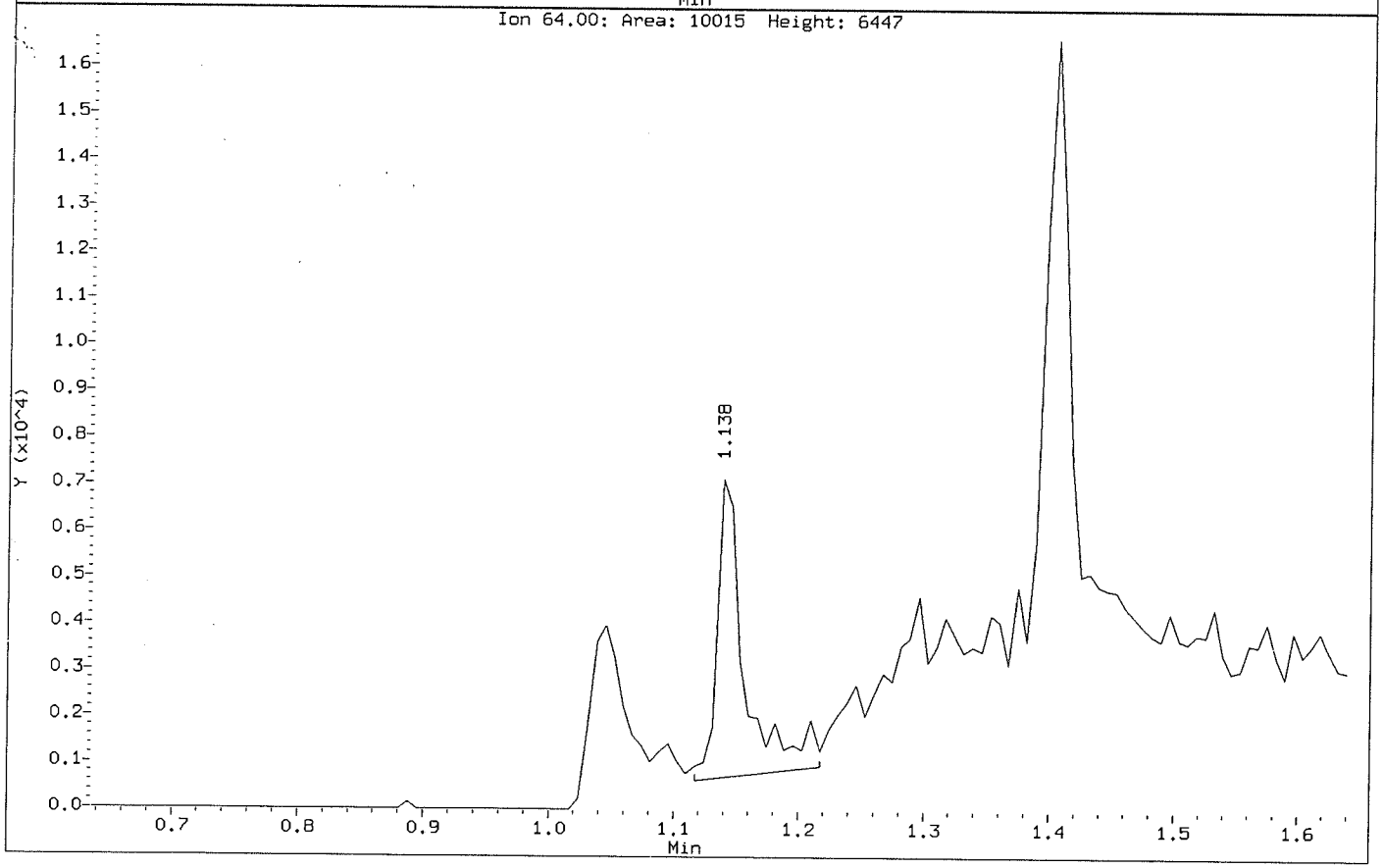
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Date : 02-APR-2021 12:38
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\Before4\X040206.D
Injection Date: 02-APR-2021 12:38
Instrument: voa6.i
Client Sample ID: VSTD005

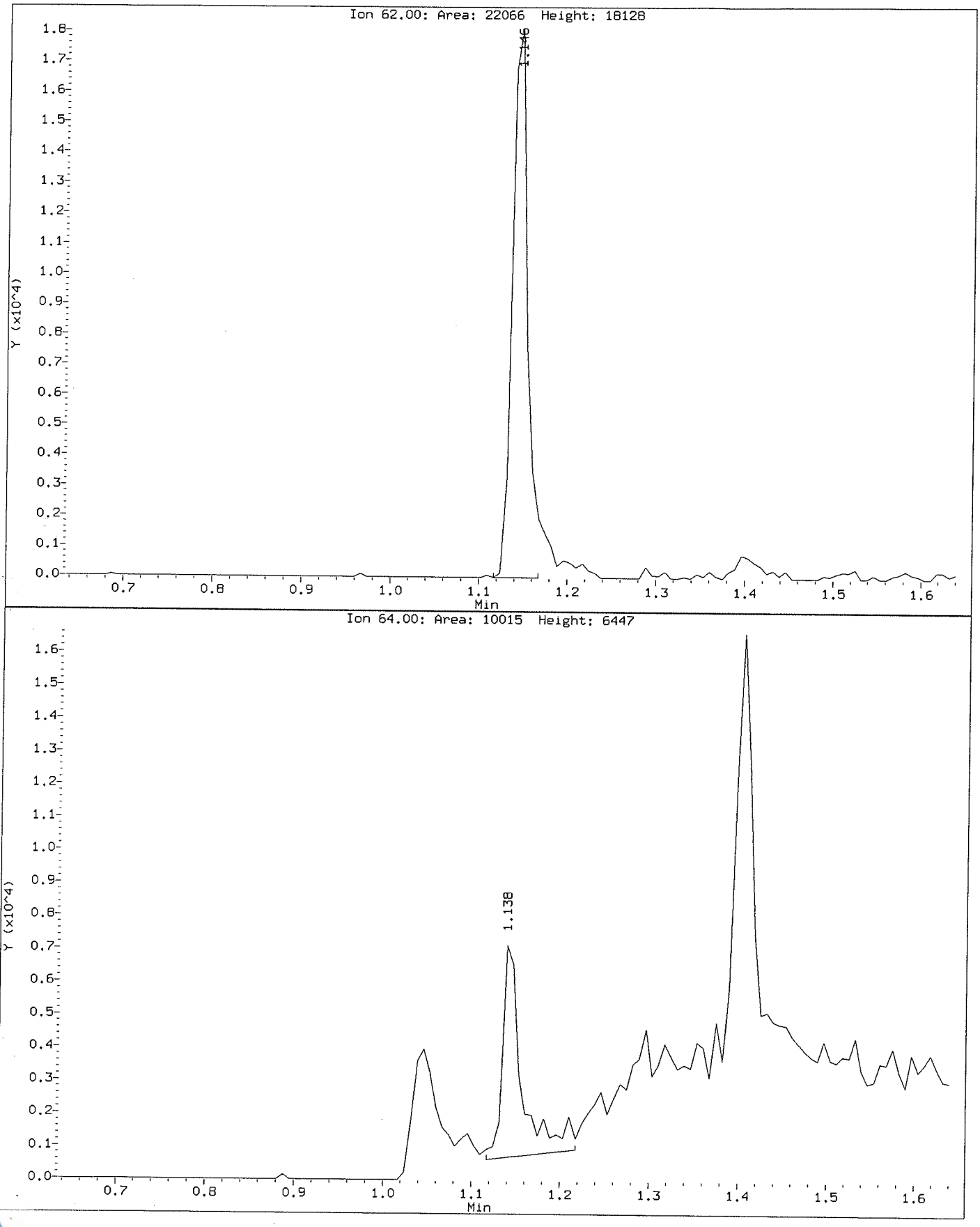
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040206.D
Injection Date: 02-APR-2021 12:38
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040207.D Page 1
Report Date: 29-Apr-2021 12:02

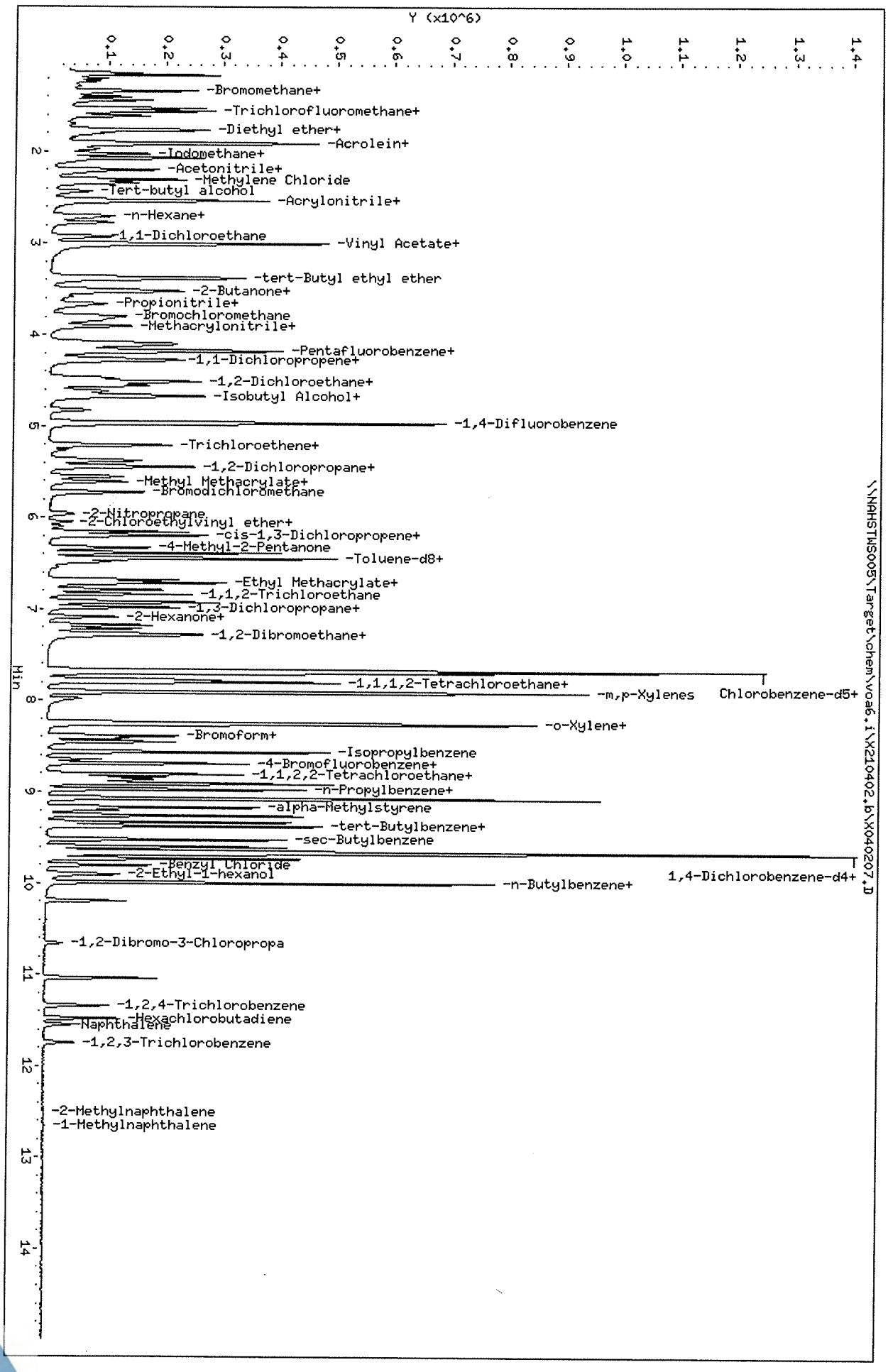
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040207.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 02-APR-2021 12:59
Operator : PC Inst ID: voa6.i
Smp Info : VSTD020;VSTD020;1;6;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 12:38 Cal File: X040206.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	303845	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	500849	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	505360	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	244406	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	68668	20.0000	19.46
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	80475	20.0000	19.07
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	218999	20.0000	18.08
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	81621	20.0000	17.93
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	80105	20.0000	18.51
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	95203	20.0000	17.95
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	65903	20.0000	17.74
56 Tetrachloroethene	164	6.926	6.926	(0.903)	48973	20.0000	16.05
38 Trichloroethene	130	5.206	5.206	(1.049)	61652	20.0000	17.98
5 Vinyl Chloride	62	1.145	1.145	(0.274)	89514	20.0000	19.65



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040207.D
Date : 02-APR-2021 12:59
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1.6;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040208.D Page 1
Report Date: 29-Apr-2021 12:02

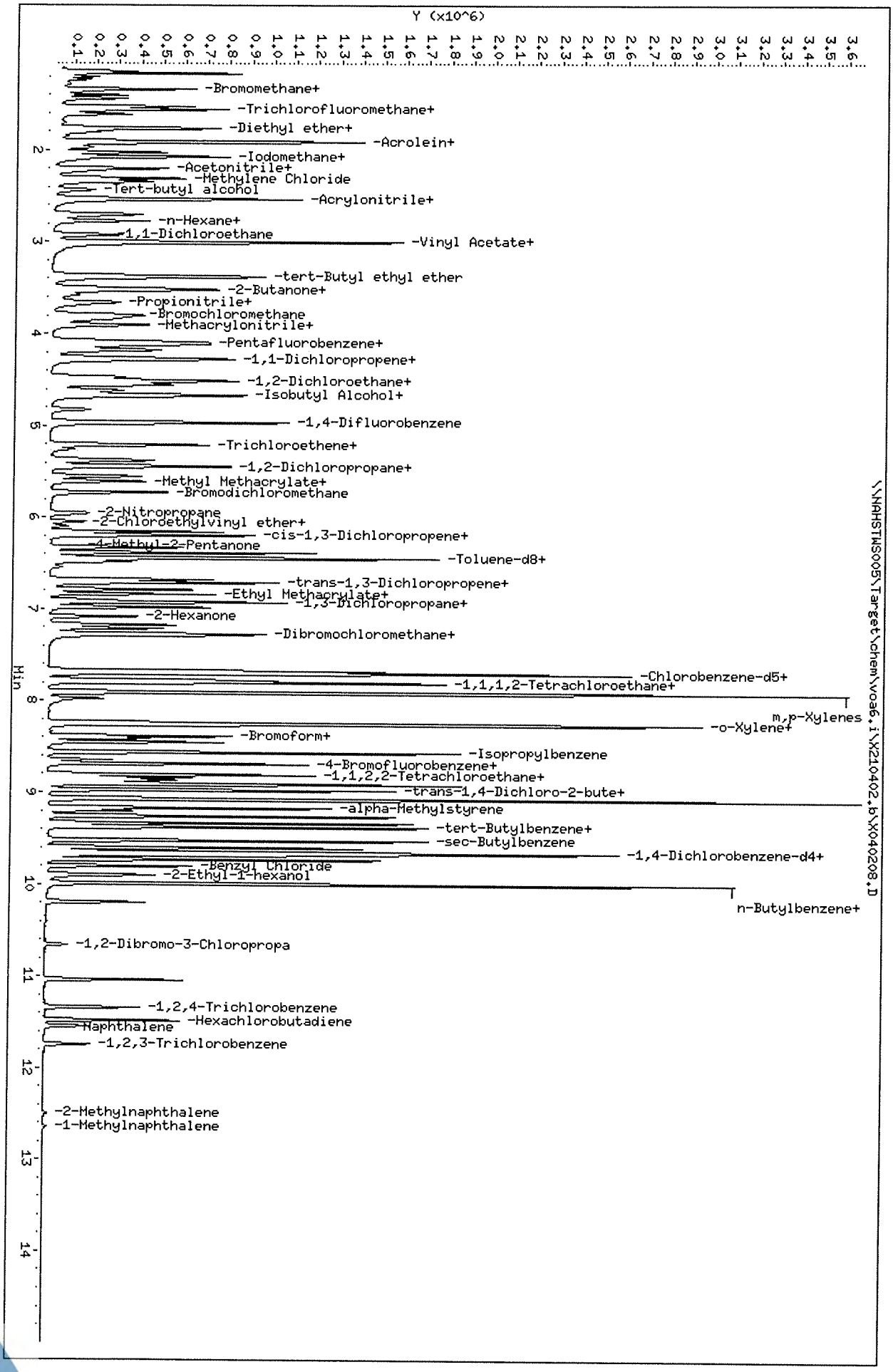
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040208.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 02-APR-2021 13:20
Operator : PC Inst ID: voa6.i
Smp Info : VSTD050;VSTD050;1;7;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 12:59 Cal File: X040207.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	359684	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	598485	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	588191	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	309539	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	201590	50.0000	47.62
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	243778	50.0000	48.06
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	658700	50.0000	43.80
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	267013	50.0000	47.42
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	240341	50.0000	46.92
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	309702	50.0000	48.88
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	208514	50.0000	47.42
56 Tetrachloroethene	164	6.926	6.926	(0.903)	165972	50.0000	46.74
38 Trichloroethene	130	5.206	5.206	(1.049)	206412	50.0000	50.38
5 Vinyl Chloride	62	1.145	1.145	(0.274)	256013	50.0000	47.47



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040208.D
Date : 02-APR-2021 13:20
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040209.D Page 1
Report Date: 29-Apr-2021 12:02

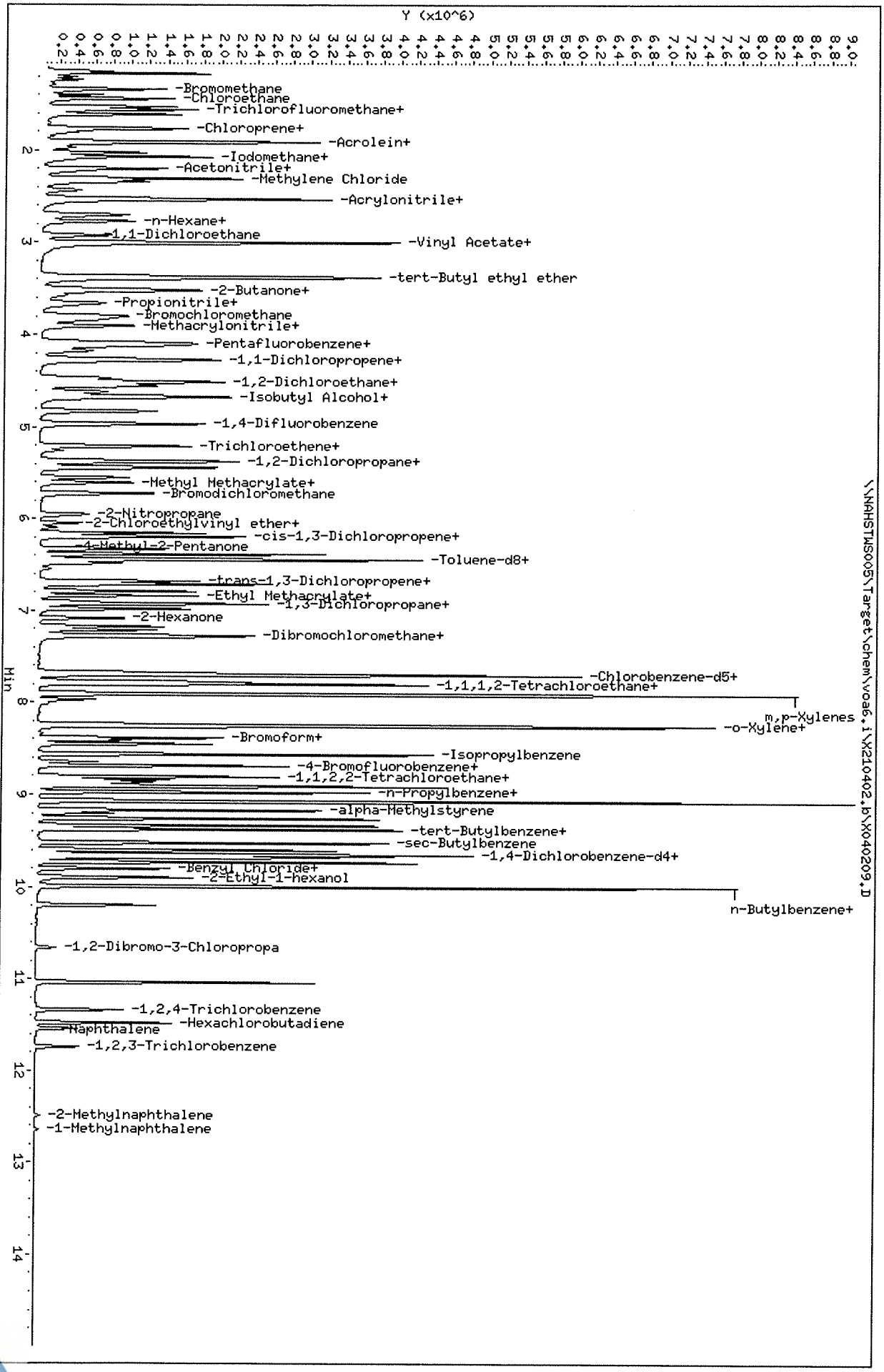
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Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040209.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 02-APR-2021 13:41
Operator : PC Inst ID: voa6.i
Smp Info : VSTD100;VSTD100;1;8;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	397825	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	683502	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	652649	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	339759	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	476731	100.000	101.33
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	568806	100.000	100.86
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1733824	100.000	101.37
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	624362	100.000	98.11
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	544587	100.000	96.14
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	718135	100.000	99.26
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	487101	100.000	100.16
56 Tetrachloroethene	164	6.925	6.925	(0.903)	408051	100.000	103.57
38 Trichloroethene	130	5.206	5.206	(1.049)	478548	100.000	102.27
5 Vinyl Chloride	62	1.145	1.145	(0.274)	541798	100.000	90.84



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040209.D
Date : 02-APR-2021 13:41
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040210.D Page 1
Report Date: 29-Apr-2021 12:02

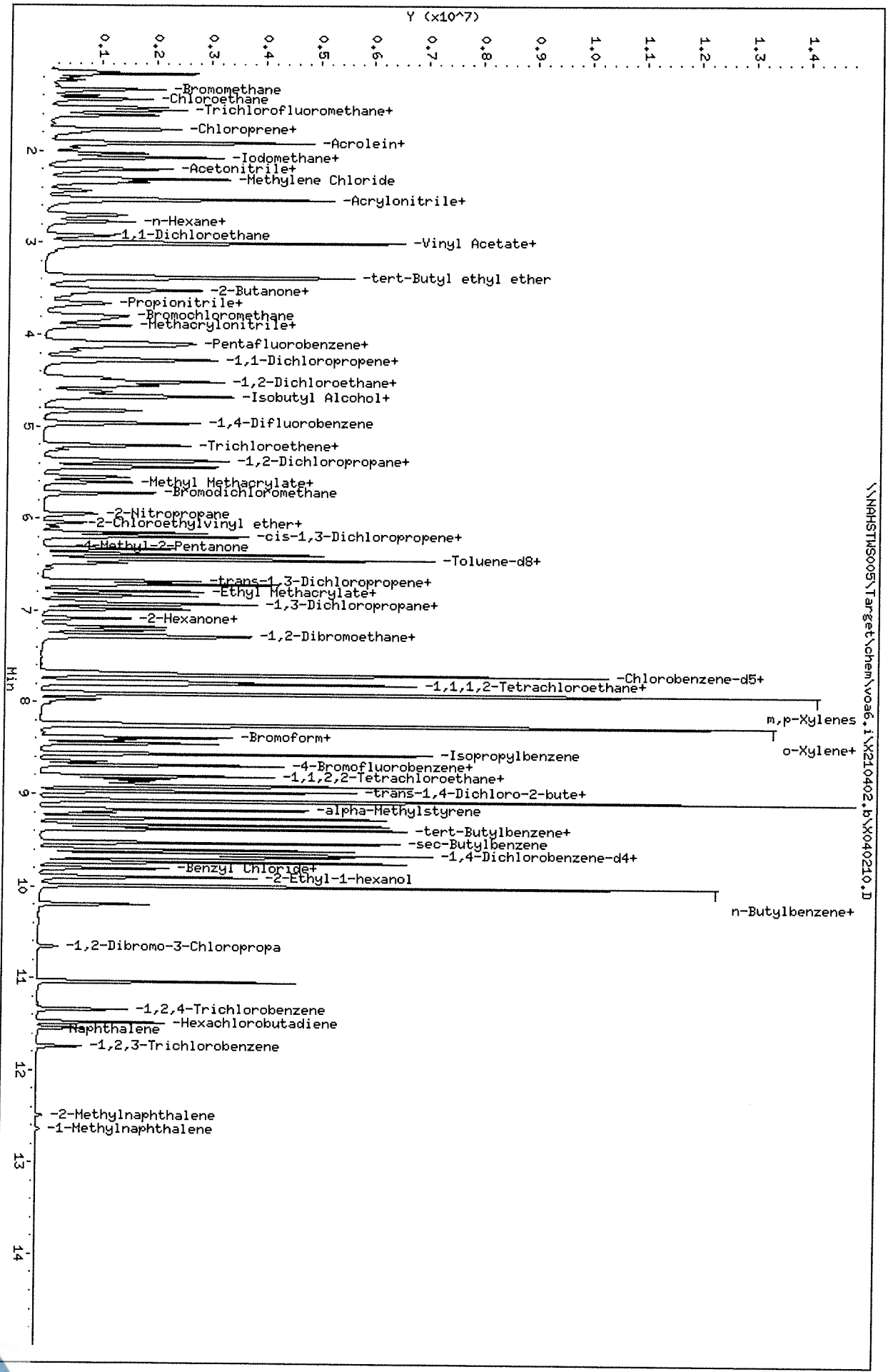
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Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040210.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 02-APR-2021 14:02
Operator : PC Inst ID: voa6.i
Smp Info : VSTD150;VSTD150;1;9;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:41 Cal File: X040209.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	432906	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	745206	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	707197	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	375287	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	758989	150.000	148.06
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	919399	150.000	149.58
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	2714142	150.000	145.62
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	1011725	150.000	145.90
11 1,1-Dichloroethene	96	1.912	1.912	(0.457)	861197	150.000	139.71
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	1146217	150.000	145.31
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	789545	150.000	149.19
56 Tetrachloroethene	164	6.926	6.926	(0.903)	659039	150.000	154.38
38 Trichloroethene	130	5.207	5.207	(1.049)	752757	150.000	147.55
5 Vinyl Chloride	62	1.138	1.138	(0.272)	862204	150.000	132.84



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040210.D
Date : 02-APR-2021 14:02
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040211.D Page 1
Report Date: 29-Apr-2021 12:02

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Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040211.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 02-APR-2021 14:23
Operator : PC Inst ID: voa6.i
Smp Info : VSTD200;VSTD200;1;10;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 14:02 Cal File: X040210.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

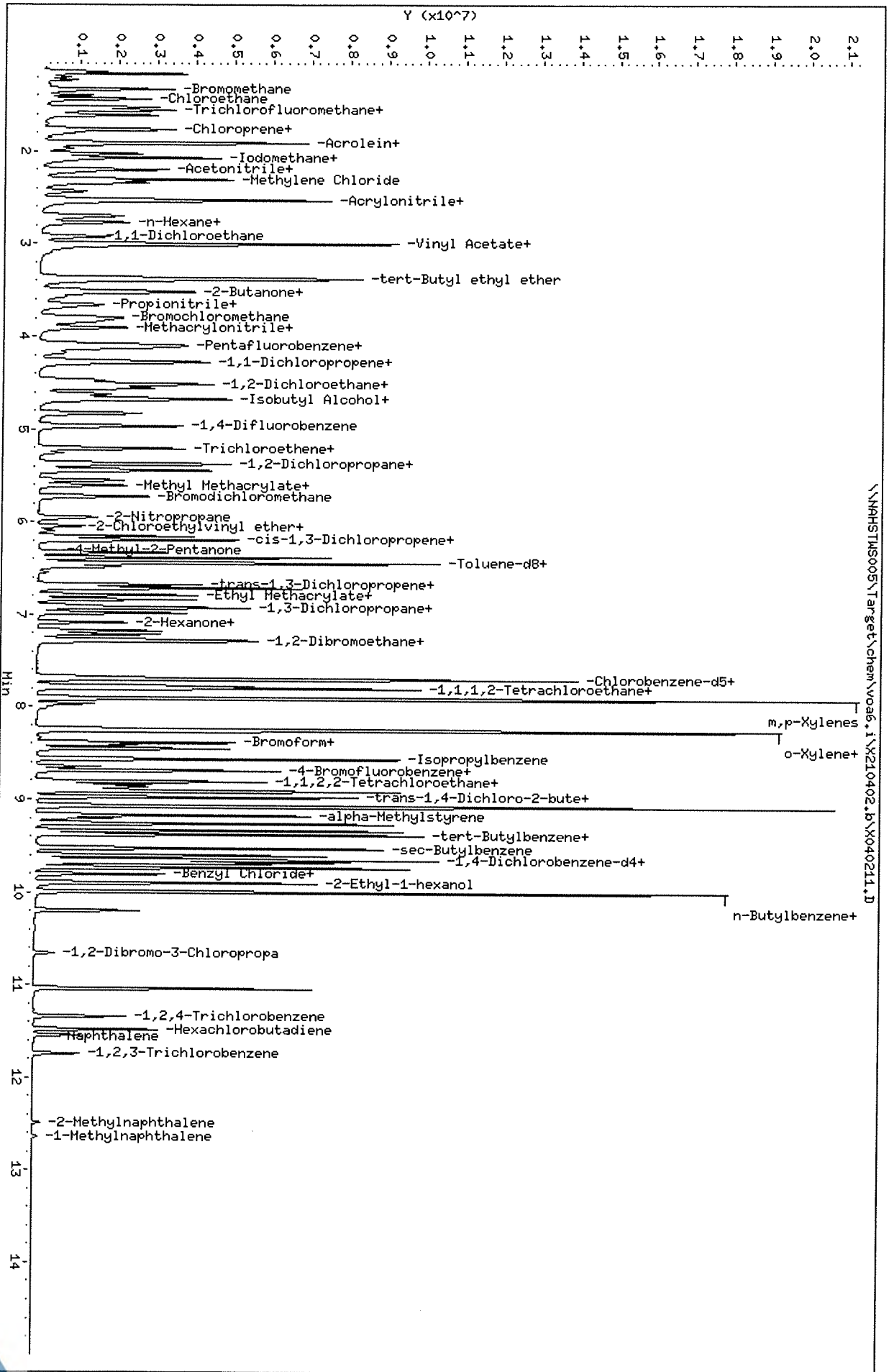
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	444815	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	788136	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	732576	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	399401	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	1061294	200.000	201.33(A)
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	1266674	200.000	200.40(A)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	3949224	200.000	203.80(A)
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	1473828	200.000	204.50(A)
11 1,1-Dichloroethene	96	1.911	1.911	(0.457)	1249794	200.000	197.32
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	1584950	200.000	189.99
27 cis-1,2-Dichloroethene	96	3.523	3.523	(0.842)	1123271	200.000	206.57(A)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	918280	200.000	207.66(A)
38 Trichloroethene	130	5.206	5.206	(1.048)	1061444	200.000	196.73
5 Vinyl Chloride	62	1.138	1.138	(0.272)	1159290	200.000	173.84

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040211.D
Date : 02-APR-2021 14:23
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040214.D Page 1
Report Date: 29-Apr-2021 12:02

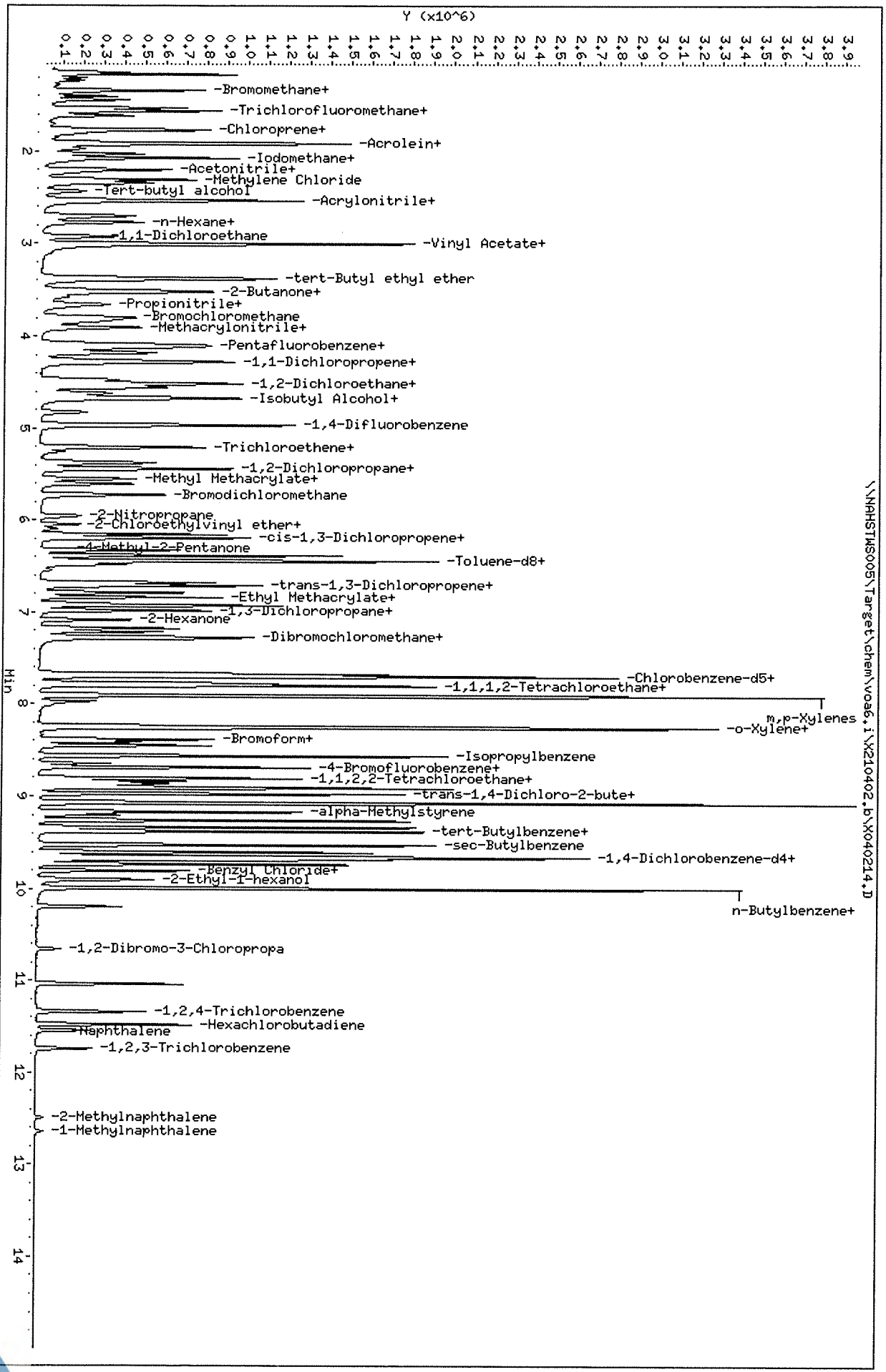
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040214.D
Lab Smp Id: ICV Client Smp ID: ICV
Inj Date : 02-APR-2021 15:26
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210402.b\8260W.m
Meth Date : 29-Apr-2021 12:02 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 14:23 Cal File: X040211.D
Als bottle: 15 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	403237	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	674704	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	639311	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	322985	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	233448	49.1812	49.18
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	278339	48.9433	48.94
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	812891	49.4873	49.48
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	292882	47.8435	47.84
11 1,1-Dichloroethene	96	1.919	1.911	(0.459)	265347	46.2152	46.21
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	339122	47.4855	47.48
27 cis-1,2-Dichloroethene	96	3.530	3.523	(0.844)	228412	46.3383	46.33
56 Tetrachloroethene	164	6.925	6.933	(0.903)	187444	48.5731	48.57
38 Trichloroethene	130	5.206	5.206	(1.049)	232943	50.4339	50.43
5 Vinyl Chloride	62	1.145	1.138	(0.274)	279152	46.1765	46.17



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210402.b\X040214.D
Date : 02-APR-2021 15:26
Client ID: ICV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 44419 **Analyst:** Presenta Cabascango

Date: 04-14-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-14-2021 11:03 am	1.00	50 mL	50 mL	X041401.D	Liquid	Y	NA
2	CCV	CCV	04-14-2021 11:24 am	1.00	50 mL	50 mL	X041402.D	Liquid	Y	NA
3	BLANK	SAMP	04-14-2021 11:45 am	1.00	50 mL	50 mL	X041403.D	Liquid	Y	NA
4	CCB	SAMP	04-14-2021 12:06 pm	1.00	50 mL	50 mL	X041404.D	Liquid	Y	NA
5	VLCSW-210414	LCS	04-14-2021 12:27 pm	1.00	50 mL	50 mL	X041405.D	Liquid	Y	NA
6	BLANK	SAMP	04-14-2021 12:48 pm	1.00	50 mL	50 mL	X041406.D	Liquid	Y	NA
7	VBLKW-210414	MBLK	04-14-2021 01:09 pm	1.00	50 mL	50 mL	X041407.D	Liquid	Y	NA
8	HS21040618-01	SAMP	04-14-2021 01:30 pm	1.00	50 mL	50 mL	X041408.D	Liquid	Y	NA
9	HS21040618-02	SAMP	04-14-2021 01:51 pm	1.00	50 mL	50 mL	X041409.D	Liquid	Y	NA
10	HS21040618-13	SAMP	04-14-2021 02:12 pm	1.00	50 mL	50 mL	X041410.D	Liquid	Y	NA
11	HS21040618-08	SAMP	04-14-2021 02:33 pm	1.00	50 mL	50 mL	X041411.D	Liquid	Y	NA
12	HS21040634-01	SAMP	04-14-2021 02:54 pm	10.00	5 mL	50 mL	X041412.D	Liquid	Y	NA
13	HS21040542-09	SAMP	04-14-2021 03:16 pm	20.00	2.5 mL	50 mL	X041413.D	Liquid	Y	NA
14	HS21040618-08MS	MS	04-14-2021 03:37 pm	1.00	50 mL	50 mL	X041414.D	Liquid	Y	NA
15	HS21040618-08MSD	MSD	04-14-2021 03:58 pm	1.00	50 mL	50 mL	X041415.D	Liquid	Y	NA
16	HS21040542-01	SAMP	04-14-2021 04:19 pm	5.00	10 mL	50 mL	X041416.D	Liquid	Y	NA
17	HS21040542-03	SAMP	04-14-2021 04:40 pm	5.00	10 mL	50 mL	X041417.D	Liquid	Y	NA
18	HS21040561-16	SAMP	04-14-2021 05:01 pm	25.00	2 mL	50 mL	X041418.D	Liquid	Y	NA
19	HS21040618-09	SAMP	04-14-2021 05:22 pm	1.00	50 mL	50 mL	X041419.D	Liquid	Y	NA
20	HS21040618-10	SAMP	04-14-2021 05:43 pm	1.00	50 mL	50 mL	X041420.D	Liquid	Y	NA
21	HS21040618-11	SAMP	04-14-2021 06:04 pm	1.00	50 mL	50 mL	X041421.D	Liquid	Y	NA
22	HS21040618-12	SAMP	04-14-2021 06:25 pm	1.00	50 mL	50 mL	X041422.D	Liquid	Y	NA
23	HS21040634-02	SAMP	04-14-2021 06:46 pm	1.00	50 mL	50 mL	X041423.D	Liquid	Y	NA
24	HS21040634-03	SAMP	04-14-2021 07:07 pm	1.00	50 mL	50 mL	X041424.D	Liquid	Y	NA
25	HS21040634-04	SAMP	04-14-2021 07:28 pm	1.00	50 mL	50 mL	X041425.D	Liquid	Y	NA
26	HS21040664-01	SAMP	04-14-2021 07:49 pm	1.00	50 mL	50 mL	X041426.D	Liquid	Y	NA
27	HS21040286-06	SAMP	04-14-2021 08:10 pm	1.00	50 mL	50 mL	X041427.D	Liquid	Y	NA
28	HS21040286-07	SAMP	04-14-2021 08:31 pm	1.00	50 mL	50 mL	X041428.D	Liquid	Y	NA
29	HS21040286-05	SAMP	04-14-2021 08:52 pm	1.00	50 mL	50 mL	X041429.D	Liquid	Y	NA
30	CCV-END	CCV	04-14-2021 09:13 pm	1.00	50 mL	50 mL	X041430.D	Liquid	Y	NA
31	BFB	TUNE	04-14-2021 09:34 pm	1.00	50 mL	50 mL	Y041401.D	Liquid	Y	NA
32	CCV	CCV	04-14-2021 09:55 pm	1.00	50 mL	50 mL	Y041402.D	Liquid	Y	NA
33	BLANK	SAMP	04-14-2021 10:16 pm	1.00	50 mL	50 mL	Y041403.D	Liquid	Y	NA
34	CCB	SAMP	04-14-2021 10:37 pm	1.00	50 mL	50 mL	Y041404.D	Liquid	Y	NA
35	VLCSW-210414	LCS	04-14-2021 10:58 pm	1.00	50 mL	50 mL	Y041405.D	Liquid	Y	NA
36	BLANK	SAMP	04-14-2021 11:19 pm	1.00	50 mL	50 mL	Y041406.D	Liquid	Y	NA
37	VBLKW-210414	MBLK	04-14-2021 11:40 pm	1.00	50 mL	50 mL	Y041407.D	Liquid	Y	NA
38	HS21040286-10	SAMP	04-15-2021 12:01 am	1.00	50 mL	50 mL	Y041408.D	Liquid	Y	NA
39	HS21040286-03	SAMP	04-15-2021 12:22 am	1.00	50 mL	50 mL	Y041409.D	Liquid	Y	NA
40	HS21040286-04	SAMP	04-15-2021 12:43 am	1.00	50 mL	50 mL	Y041410.D	Liquid	Y	NA
41	HS21040286-08	SAMP	04-15-2021 01:04 am	1.00	50 mL	50 mL	Y041411.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
42	HS21040286-02	SAMP	04-15-2021 01:26 am	1.00	50 mL	50 mL	Y041412.D	Liquid	Y	NA
43	HS21040286-01	SAMP	04-15-2021 01:47 am	1.00	50 mL	50 mL	Y041413.D	Liquid	Y	NA
44	HS21040286-09	SAMP	04-15-2021 02:08 am	5.00	10 mL	50 mL	Y041414.D	Liquid	Y	NA
45	HS21040286-09	SAMP	04-15-2021 02:29 am	50.00	1 mL	50 mL	Y041415.D	Liquid	Y	NA
46	HS21040286-08MS	MS	04-15-2021 02:50 am	1.00	50 mL	50 mL	Y041416.D	Liquid	Y	NA
47	HS21040286-08MSD	MSD	04-15-2021 03:11 am	1.00	50 mL	50 mL	Y041417.D	Liquid	Y	NA
48	CCV-END	CCV	04-15-2021 03:32 am	1.00	50 mL	50 mL	Y041418.D	Liquid	Y	NA
49	BLANK	SAMP	04-15-2021 03:53 am	1.00	50 mL	50 mL	Y041419.D	Liquid	Y	NA
50	HS21040560-01	SAMP	04-15-2021 04:14 am	1.00	50 mL	50 mL	Y041420.D	Liquid	Y	NA
51	HS21040560-02	SAMP	04-15-2021 04:35 am	1.00	50 mL	50 mL	Y041421.D	Liquid	Y	NA
52	HS21040560-03	SAMP	04-15-2021 04:56 am	1.00	50 mL	50 mL	Y041422.D	Liquid	Y	NA
53	HS21040560-04	SAMP	04-15-2021 05:17 am	1.00	50 mL	50 mL	Y041423.D	Liquid	Y	NA
54	HS21040642-01	SAMP	04-15-2021 05:38 am	1.00	50 mL	50 mL	Y041424.D	Liquid	Y	NA
55	HS21040642-02	SAMP	04-15-2021 06:00 am	1.00	50 mL	50 mL	Y041425.D	Liquid	Y	NA
56	HS21040642-03	SAMP	04-15-2021 06:21 am	1.00	50 mL	50 mL	Y041426.D	Liquid	Y	NA
57	HS21040642-04	SAMP	04-15-2021 06:42 am	1.00	50 mL	50 mL	Y041427.D	Liquid	Y	NA
58	HS21040643-01	SAMP	04-15-2021 07:03 am	1.00	50 mL	50 mL	Y041428.D	Liquid	Y	NA
59	HS21040643-02	SAMP	04-15-2021 07:24 am	1.00	50 mL	50 mL	Y041429.D	Liquid	Y	NA
60	HS21040643-03	SAMP	04-15-2021 07:45 am	1.00	50 mL	50 mL	Y041430.D	Liquid	Y	NA
61	HS21040643-04	SAMP	04-15-2021 08:06 am	1.00	50 mL	50 mL	Y041431.D	Liquid	Y	NA
62	BLANK	SAMP	04-15-2021 08:27 am	1.00	50 mL	50 mL	Y041440.D	Liquid	Y	NA

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-210414	96	103	97	99	0
02	VBLKW-210414	94	96	106	98	0
03	HS21040618-08MS	96	97	101	104	0
04	HS21040618-08MSD	96	100	102	102	0
05	HS21040286-06	92	94	104	96	0
06	HS21040286-07	91	94	104	94	0
07	HS21040286-05	94	94	103	97	0
08						
09						
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28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(0-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210414

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: X041407 Lab Sample ID: VBLKW-210414

Date Analyzed: 04/14/21 Time Analyzed: 1309

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210414	VLCSW-210414	X041405	1227
02	HS21040618-08MS	HS21040618-08MS	X041414	1537
03	HS21040618-08MSD	HS21040618-08MSD	X041415	1558
04	HS21040286-06	HS21040286-06	X041427	2010
05	HS21040286-07	HS21040286-07	X041428	2031
06	HS21040286-05	HS21040286-05	X041429	2052
07				
08				
09				
10				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: X041401 BFB Injection Date: 04/14/21

Instrument ID: VOA6 BFB Injection Time: 1103

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	21.9
75	30.0 - 60.0% of mass 95	57.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.6 (1.0)1
174	Greater than 50.0% of mass 95	58.2
175	5.0 - 9.0% of mass 174	4.9 (8.4)1
176	95.0 - 101.0% of mass 174	56.9 (97.8)1
177	5.0 - 9.0% of mass 176	3.5 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X041402	04/14/21	1124
02	VLCSW-210414	VLCSW-210414	X041405	04/14/21	1227
03	VBLKW-210414	VBLKW-210414	X041407	04/14/21	1309
04	HS21040618-08MS	HS21040618-08MS	X041414	04/14/21	1537
05	HS21040618-08MSD	HS21040618-08MSD	X041415	04/14/21	1558
06	HS21040286-06	HS21040286-06	X041427	04/14/21	2010
07	HS21040286-07	HS21040286-07	X041428	04/14/21	2031
08	HS21040286-05	HS21040286-05	X041429	04/14/21	2052
09	CCV-END	CCV-END	X041430	04/14/21	2113
10					
11					
12					
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18					
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20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/14/21 Time: 1124

Lab File ID: X041402 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.7216685	0.7216685	0.1	3.78	20.00	AVRG
1,1-Dichloroethene	0.7120000	0.6203902	0.6203902	0.1	12.87	20.00	AVRG
1,2-Dichloroethane	0.5290000	0.5176487	0.5176487	0.1	2.14	20.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.5968893	0.5968893	0.1	2.31	20.00	AVRG
Tetrachloroethene	0.3020000	0.2735047	0.2735047	0.2	9.44	20.00	AVRG
Trichloroethene	0.3420000	0.3362642	0.3362642	0.2	1.68	20.00	AVRG
Dibromofluoromethane	48.389890	50.000000	0.5695373	0.1	3.22	20.00	LINR
1,2-Dichloroethane-d4	51.515033	50.000000	0.7268929	0.1	-3.03	20.00	LINR
Toluene-d8	45.855748	50.000000	1.1745695	0.1	8.29	20.00	LINR
4-Bromofluorobenzene	50.497387	50.000000	0.4844413	0.1	-0.99	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/14/21 Time: 2113

Lab File ID: X041430 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.7101340	0.7101340	0.1	5.32	50.00	AVRG
1,1-Dichloroethene	0.7120000	0.6264772	0.6264772	0.1	12.01	50.00	AVRG
1,2-Dichloroethane	0.5290000	0.5276854	0.5276854	0.1	0.25	50.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.6196928	0.6196928	0.1	-1.42	50.00	AVRG
Tetrachloroethene	0.3020000	0.2538542	0.2538542	0.2	15.94	50.00	AVRG
Trichloroethene	0.3420000	0.3275120	0.3275120	0.2	4.24	50.00	AVRG
Dibromofluoromethane	51.293965	50.000000	0.6040260	0.1	-2.59	50.00	LINR
1,2-Dichloroethane-d4	53.682308	50.000000	0.7577634	0.1	-7.36	50.00	LINR
Toluene-d8	46.440413	50.000000	1.1901767	0.1	7.12	50.00	LINR
4-Bromofluorobenzene	52.915556	50.000000	0.5084235	0.1	-5.83	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): X041402 Date Analyzed: 04/14/21

Instrument ID: VOA6 Time Analyzed: 1124

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	460918	4.18	768610	4.96	759285	7.67
	UPPER LIMIT	921836	4.68	1537220	5.46	1518570	8.17
	LOWER LIMIT	230459	3.68	384305	4.46	379643	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-210414	422112	4.18	733792	4.97	702110	7.67
02	VBLKW-210414	443458	4.18	720305	4.97	678089	7.67
03	HS21040618-08MS	470425	4.18	809571	4.96	776916	7.67
04	HS21040618-08MSD	487348	4.18	835748	4.97	780692	7.67
05	HS21040286-06	415623	4.18	682994	4.96	665694	7.67
06	HS21040286-07	414616	4.18	669841	4.97	659098	7.67
07	HS21040286-05	411597	4.18	676776	4.97	659792	7.67
08							
09							
10							
11							
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16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): X041402 Date Analyzed: 04/14/21

Instrument ID: VOA6 Time Analyzed: 1124

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	381013	9.66				
	UPPER LIMIT	762026	10.16				
	LOWER LIMIT	190507	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-210414	331461	9.66				
02	VBLKW-210414	300770	9.66				
03	HS21040618-08MS	377809	9.66				
04	HS21040618-08MSD	384008	9.66				
05	HS21040286-06	282812	9.66				
06	HS21040286-07	287770	9.66				
07	HS21040286-05	286648	9.66				
08							
09							
10							
11							
12							
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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.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041401.D

Date : 14-APR-2021 11:03

Client ID: BFB

Instrument: voa6.i

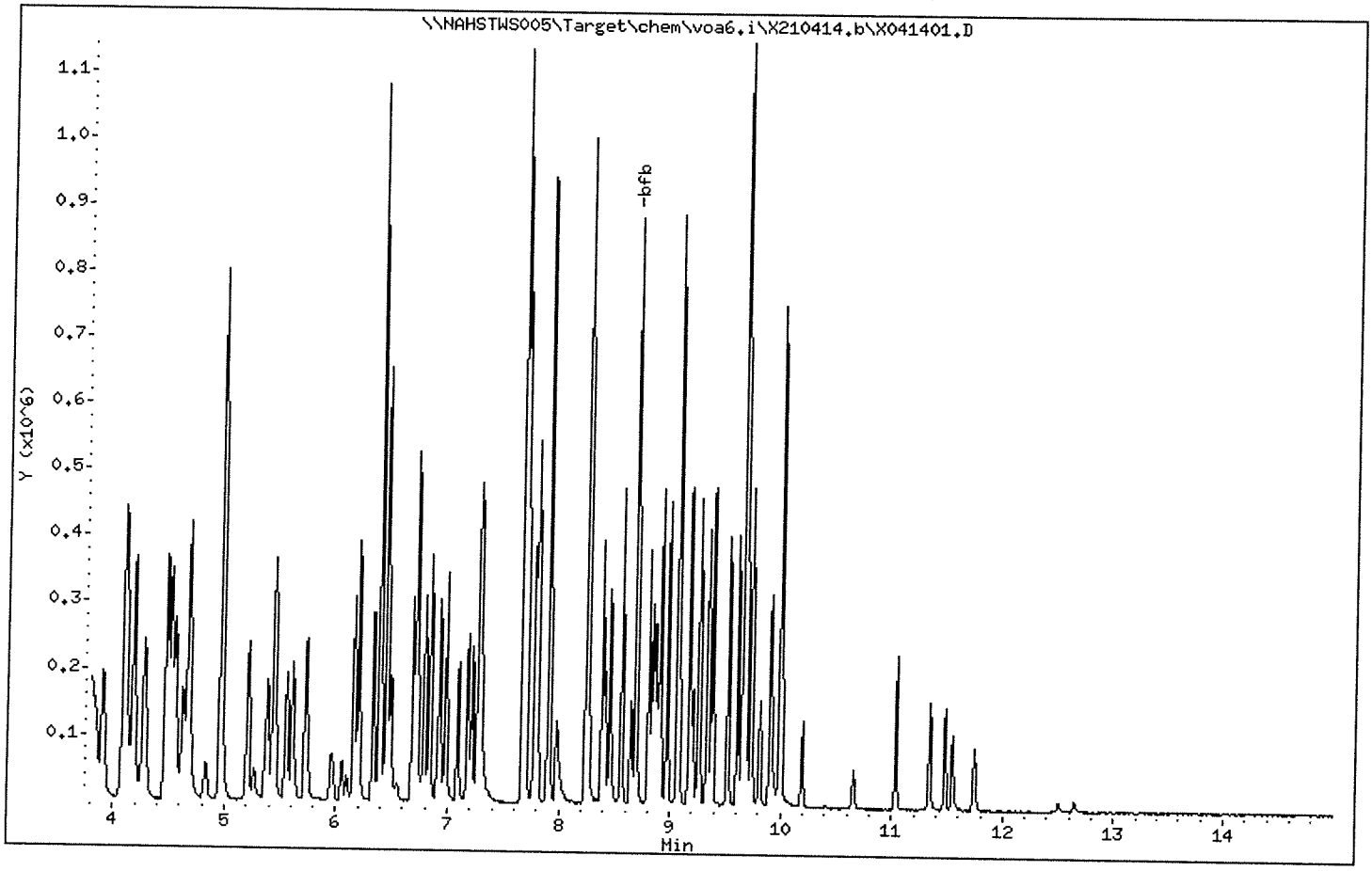
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041401.D

Date : 14-APR-2021 11:03

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

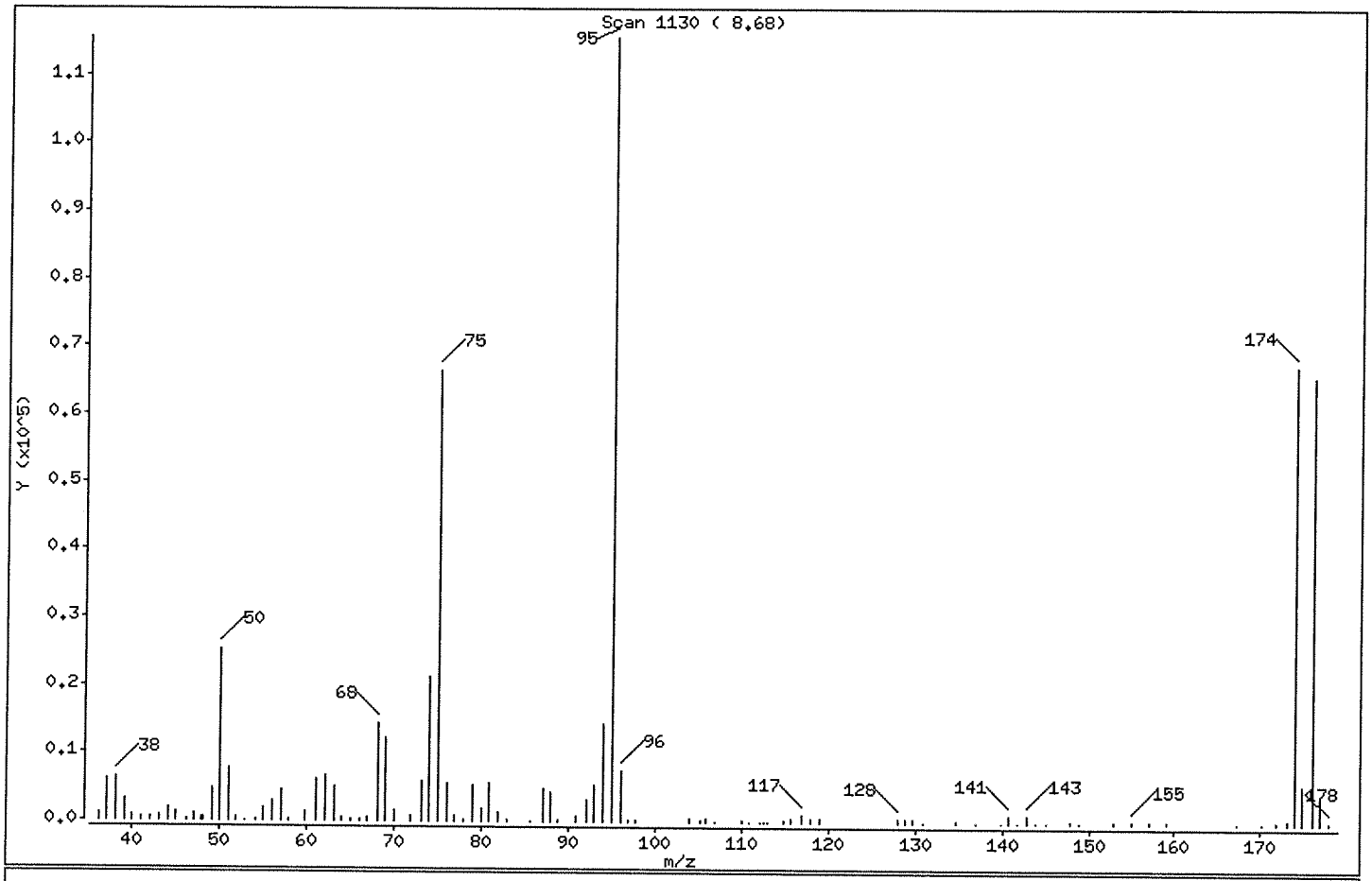
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	21.89
75	30.00 - 60.00% of mass 95	57.53
96	5.00 - 9.00% of mass 95	6.51
173	Less than 2.00% of mass 174	0.56 (0.96)
174	Greater than 50.00% of mass 95	58.15
175	5.00 - 9.00% of mass 174	4.87 (8.38)
176	95.00 - 101.00% of mass 174	56.89 (97.82)
177	5.00 - 9.00% of mass 176	3.54 (6.22)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041401.D

Date : 14-APR-2021 11:03

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: X041401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 100

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	1126	62.00	6601	92.00	3194	137.00	74
37.00	6217	63.00	5010	93.00	5215	139.80	71
38.00	6450	63.90	560	94.00	14313	140.80	998
39.10	3159	64.90	197	95.00	115488	141.80	91
39.90	706	65.90	222	96.00	7518	142.80	1083
41.00	610	66.90	582	96.90	322	143.90	98
42.00	636	68.00	14392	97.80	394	145.10	67
43.00	790	69.00	12201	103.90	583	147.70	184
44.00	1768	70.00	1634	105.20	135	148.80	103
45.00	1246	71.80	766	105.90	660	152.80	167
46.20	207	73.00	5911	106.90	87	154.90	360
47.10	1193	74.00	21176	110.00	147	157.00	159
47.80	453	75.00	66440	110.90	103	159.00	156
48.10	423	76.00	5639	112.10	114	167.30	132
49.00	4726	76.90	828	112.60	82	170.20	132
50.00	25280	77.80	327	113.00	51	171.70	290
51.00	7808	78.90	5263	114.80	208	173.00	642
51.90	412	80.00	1846	115.70	466	173.90	67160
52.80	73	80.90	5502	116.90	1027	174.80	5626
54.00	178	81.80	1216	117.90	443	175.90	65696
55.00	1745	82.90	281	118.90	533	176.90	4084
56.00	3020	85.70	59	127.90	546	177.90	163
57.00	4555	87.00	4673	128.90	483		
57.90	197	87.90	4368	129.70	414		
59.80	1217	88.70	192	130.90	107		
60.90	6144	90.80	695	134.70	182		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041402.D Page 1
Report Date: 29-Apr-2021 12:16

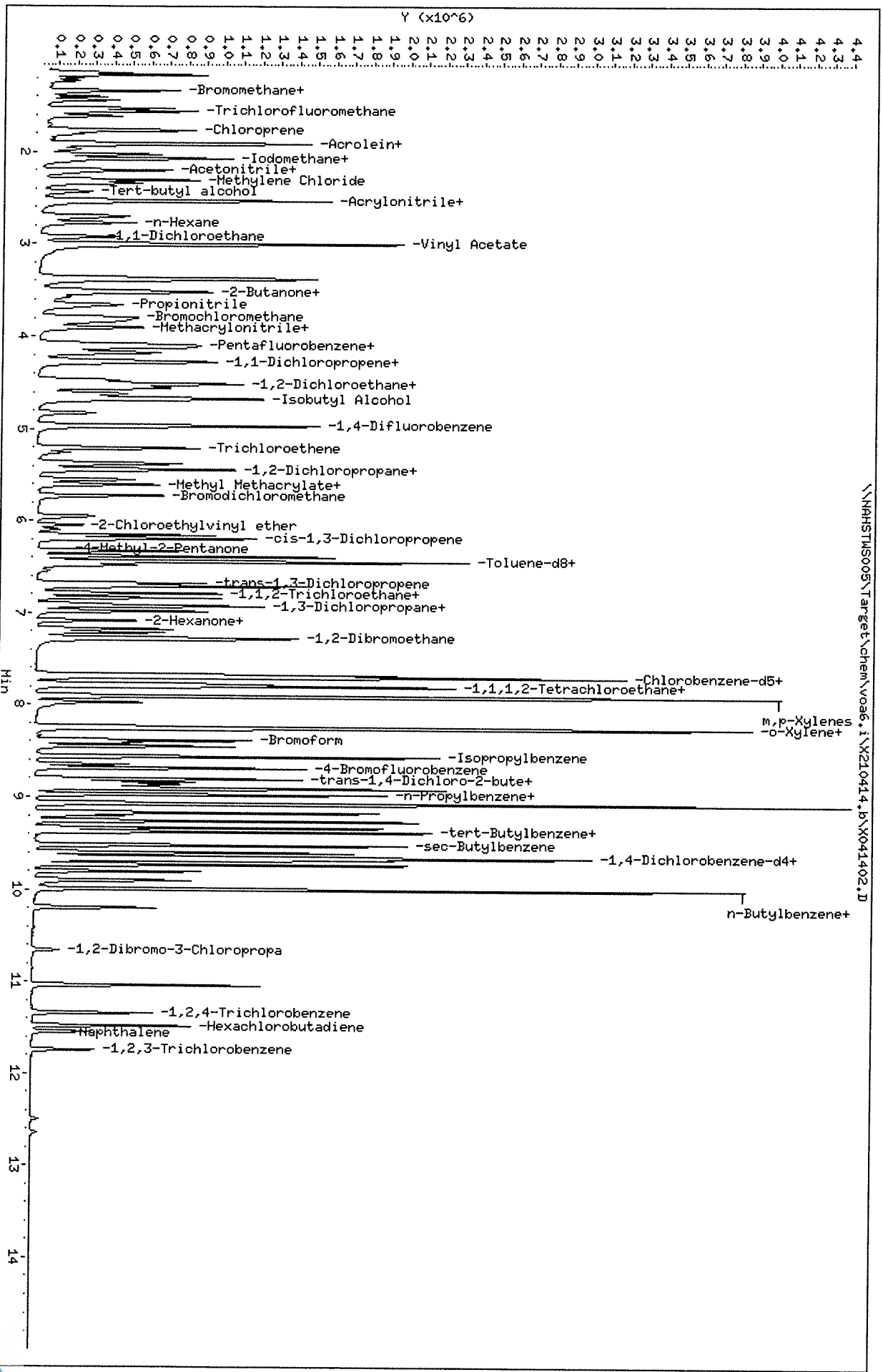
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041402.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 14-APR-2021 11:24
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	460918	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	768610	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	759285	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	381013	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	262510	50.0000	48.38
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	335038	50.0000	51.51
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	891833	50.0000	45.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	367829	50.0000	50.49
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	285949	50.0000	43.57
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	397870	50.0000	48.90
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	275117	50.0000	48.82
56 Tetrachloroethene	164	6.926	6.926	(0.903)	207668	50.0000	45.31
38 Trichloroethene	130	5.207	5.207	(1.049)	258456	50.0000	49.12
5 Vinyl Chloride	62	1.145	1.145	(0.274)	332630	50.0000	48.13



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041402.D
Date : 14-APR-2021 11:24
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041405.D Page 1
Report Date: 29-Apr-2021 12:16

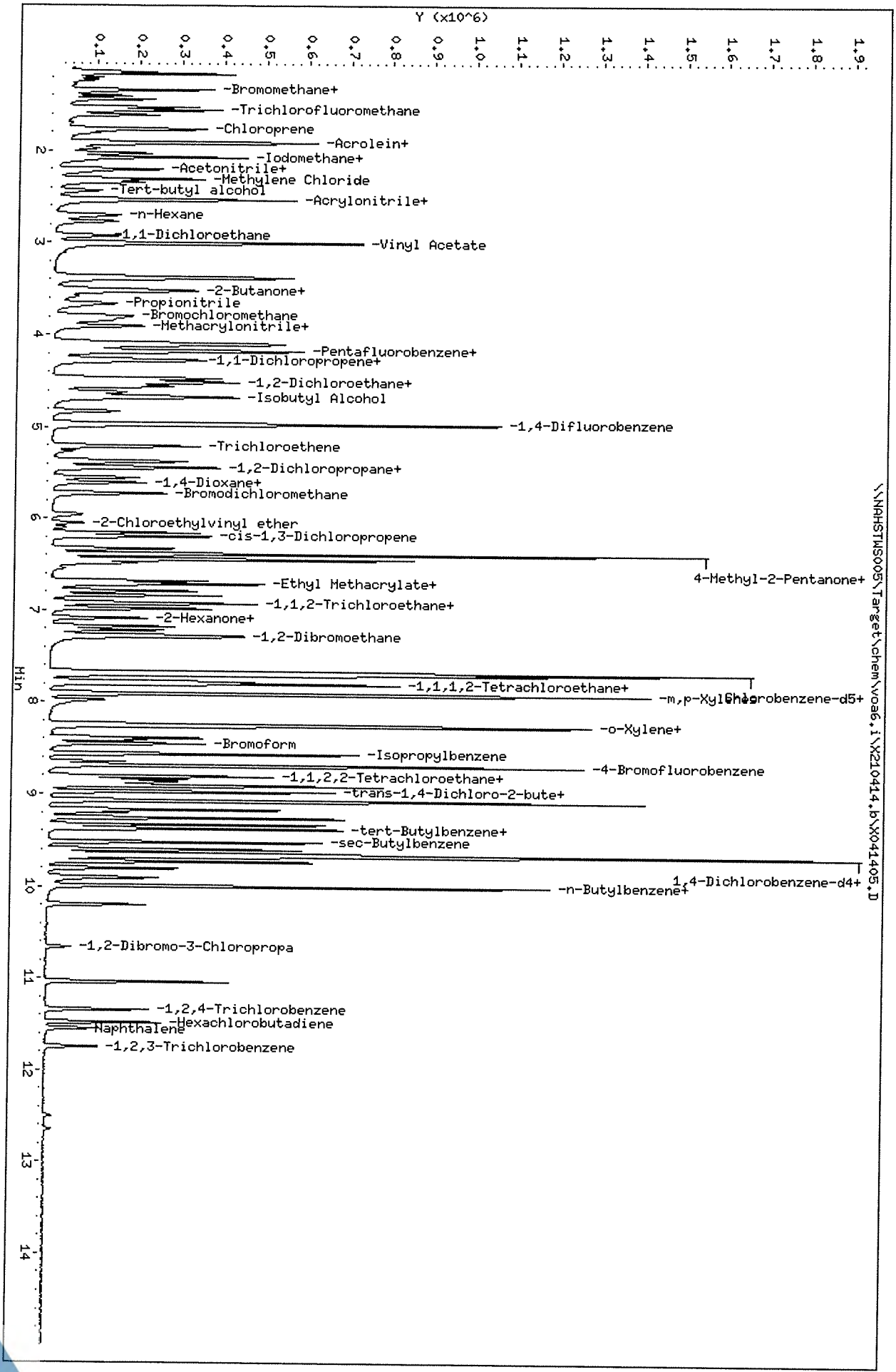
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041405.D
Lab Smp Id: VLCSW-210414 Client Smp ID: VLCSW-210414
Inj Date : 14-APR-2021 12:27
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210414;VLCSW-210414;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	422112	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	733792	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	702110	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	331461	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	239320	48.1727	48.17
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	306718	51.4964	51.49
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	873794	48.4764	48.47
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	334488	49.6870	49.68
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	125258	20.8405	20.84
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	154153	19.8471	19.84
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	102596	19.8831	19.88
56 Tetrachloroethene	164	6.926	6.926	(0.903)	77379	18.2581	18.25
38 Trichloroethene	130	5.206	5.207	(1.048)	102645	20.4339	20.43
5 Vinyl Chloride	62	1.145	1.145	(0.274)	147472	23.3036	23.30



Data File: \\NAHSTWS005\Target\chem\voa6,i\X210414,b\X041405.D
Date : 14-APR-2021 12:27
Client ID: VLCSW-210414
Sample Info: VLCSW-210414;VLCSW-210414;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6,i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041407.D Page 1
Report Date: 29-Apr-2021 12:16

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041407.D
Lab Smp Id: VBLKW-210414 Client Smp ID: VBLKW-210414
Inj Date : 14-APR-2021 13:09
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210414;VBLKW-210414;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

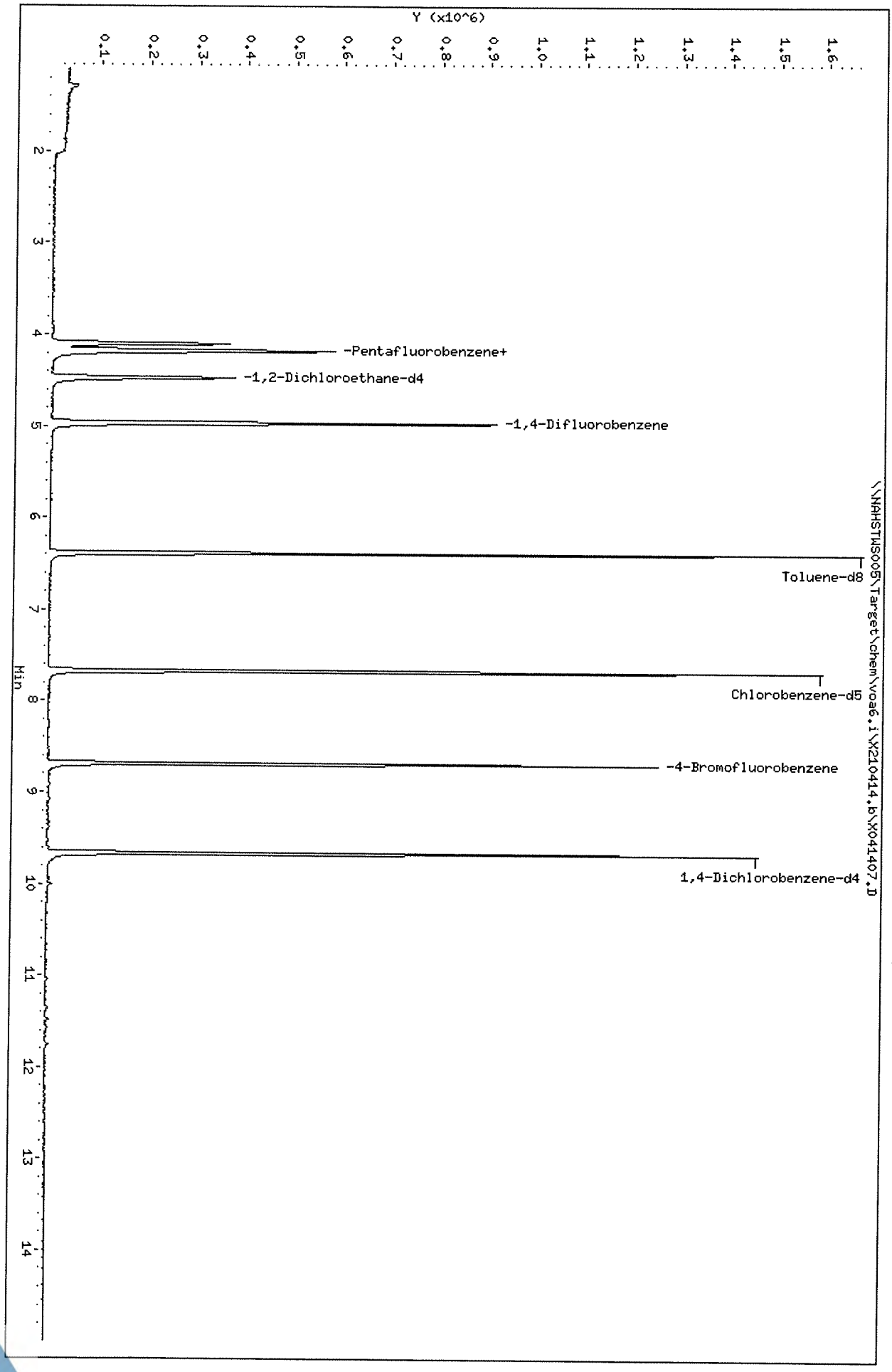
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	443458	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	720305	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	678089	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	300770	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	244927	46.9394	46.93
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	298982	47.8161	47.81
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	931098	53.2937	53.29
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	319980	49.2313	49.23

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041407.D
Date : 14-APR-2021 13:09
Client ID: VBLKW-210414
Sample Info: VBLKW-210414;VBLKW-210414;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041414.D Page 1
Report Date: 29-Apr-2021 12:16

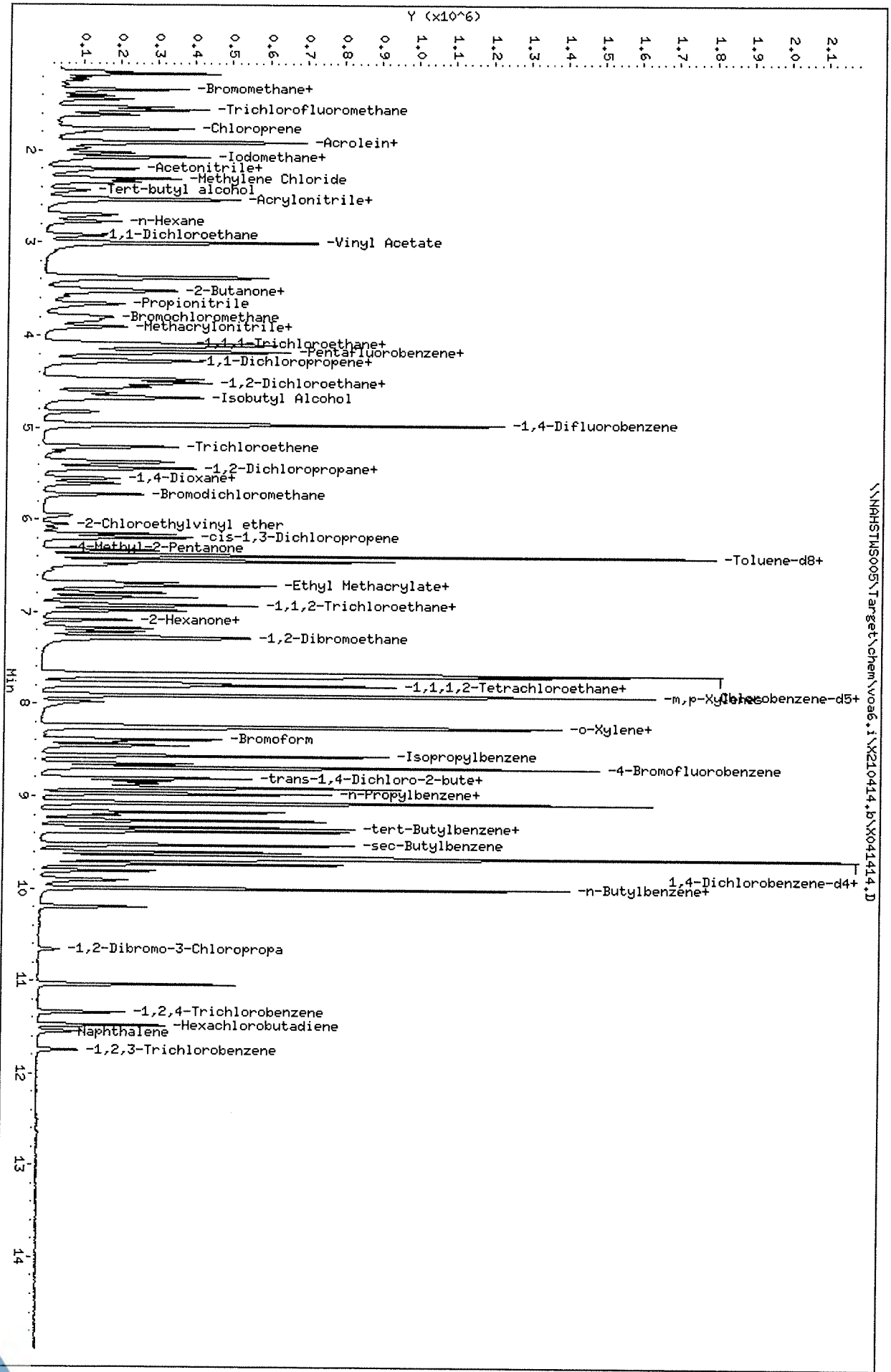
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041414.D
Lab Smp Id: HS21040618-08MS Client Smp ID: HS21040618-08MS
Inj Date : 14-APR-2021 15:37
Operator : PC Inst ID: voa6.i
Smp Info : HS21040618-08MS;HS21040618-08MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 14 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	470425	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.963	(1.000)	809571	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	776916	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	377809	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.096	(0.981)	264868	47.8428	47.84
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	322101	48.5530	48.55
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1011032	50.6047	50.60
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	386832	51.8552	51.85
11 1,1-Dichloroethene	96	1.912	1.919	(0.457)	132914	19.8432	19.84
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	156160	18.2236	18.22
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	102289	17.7877	17.78
56 Tetrachloroethene	164	6.926	6.926	(0.903)	92082	19.6353	19.63
38 Trichloroethene	130	5.207	5.207	(1.049)	105893	19.1073	19.10
5 Vinyl Chloride	62	1.145	1.145	(0.274)	149253	21.1628	21.16



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041414.D
Date : 14-APR-2021 15:37
Client ID: HS21040618-08MS
Sample Info: HS21040618-08MS;HS21040618-08MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041415.D Page 1
Report Date: 29-Apr-2021 12:16

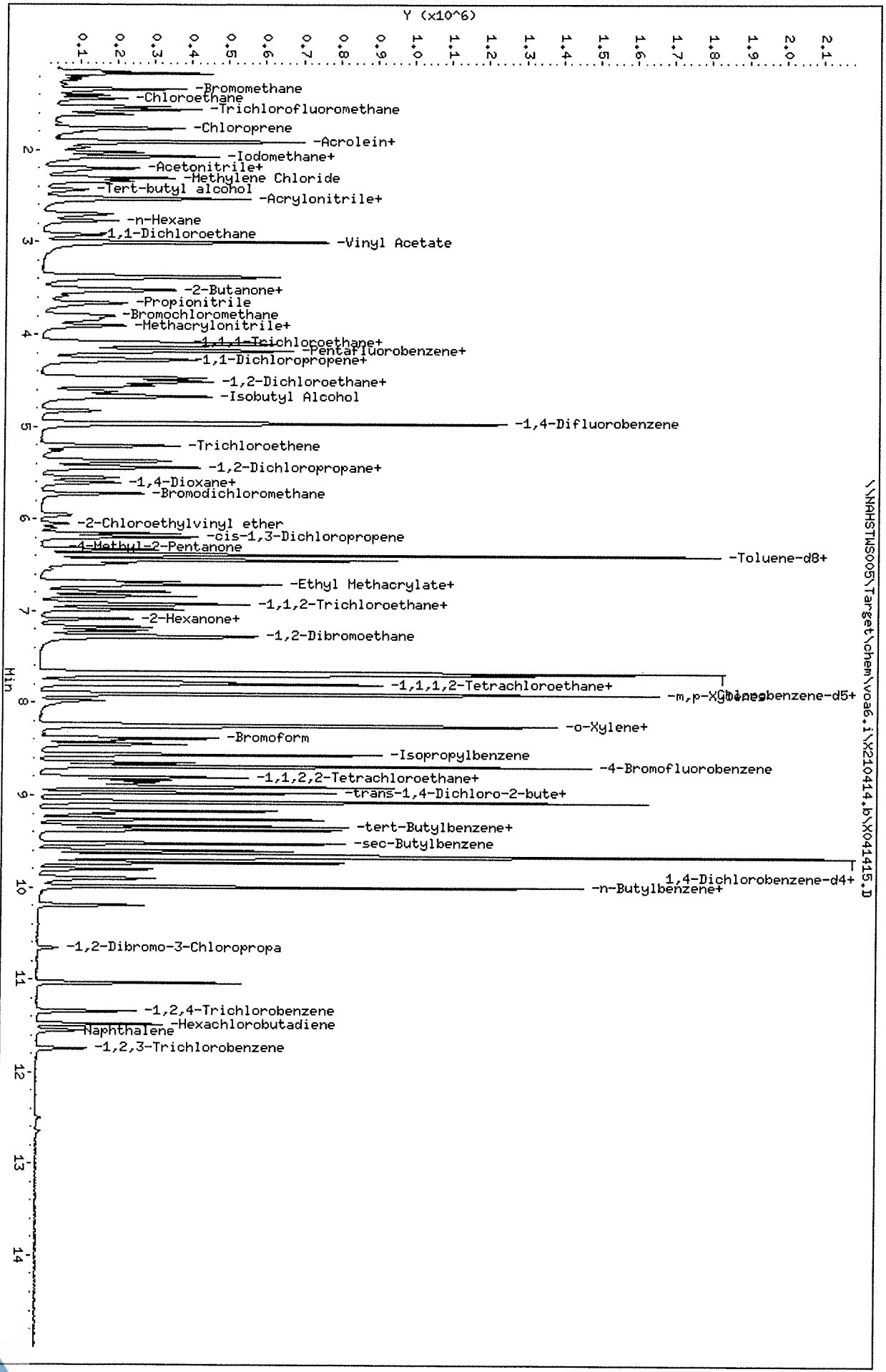
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041415.D
Lab Smp Id: HS21040618-08MSD Client Smp ID: HS21040618-08MSD
Inj Date : 14-APR-2021 15:58
Operator : PC Inst ID: voa6.i
Smp Info : HS21040618-08MSD;HS21040618-08MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	487348	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.963	(1.000)	835748	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	780692	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	384008	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	274402	47.8438	47.84
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	344131	50.0574	50.05
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	1021070	50.8506	50.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	381381	50.9083	50.90
11 1,1-Dichloroethene	96	1.912	1.919	(0.457)	134139	19.3307	19.33
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	161226	18.2255	18.22
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	105715	17.7451	17.74
56 Tetrachloroethene	164	6.926	6.926	(0.903)	91418	19.3994	19.39
38 Trichloroethene	130	5.207	5.207	(1.048)	106937	18.6913	18.69
5 Vinyl Chloride	62	1.145	1.145	(0.274)	149219	20.4233	20.42



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041415.D
Date : 14-APR-2021 15:58
Client ID: HS21040618-08MSD
Sample Info: HS21040618-08MSD;HS21040618-08MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D Page 1
Report Date: 29-Apr-2021 12:17

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D
Lab Smp Id: HS21040286-06 Client Smp ID: HS21040286-06
Inj Date : 14-APR-2021 20:10
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-06;HS21040286-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:17 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

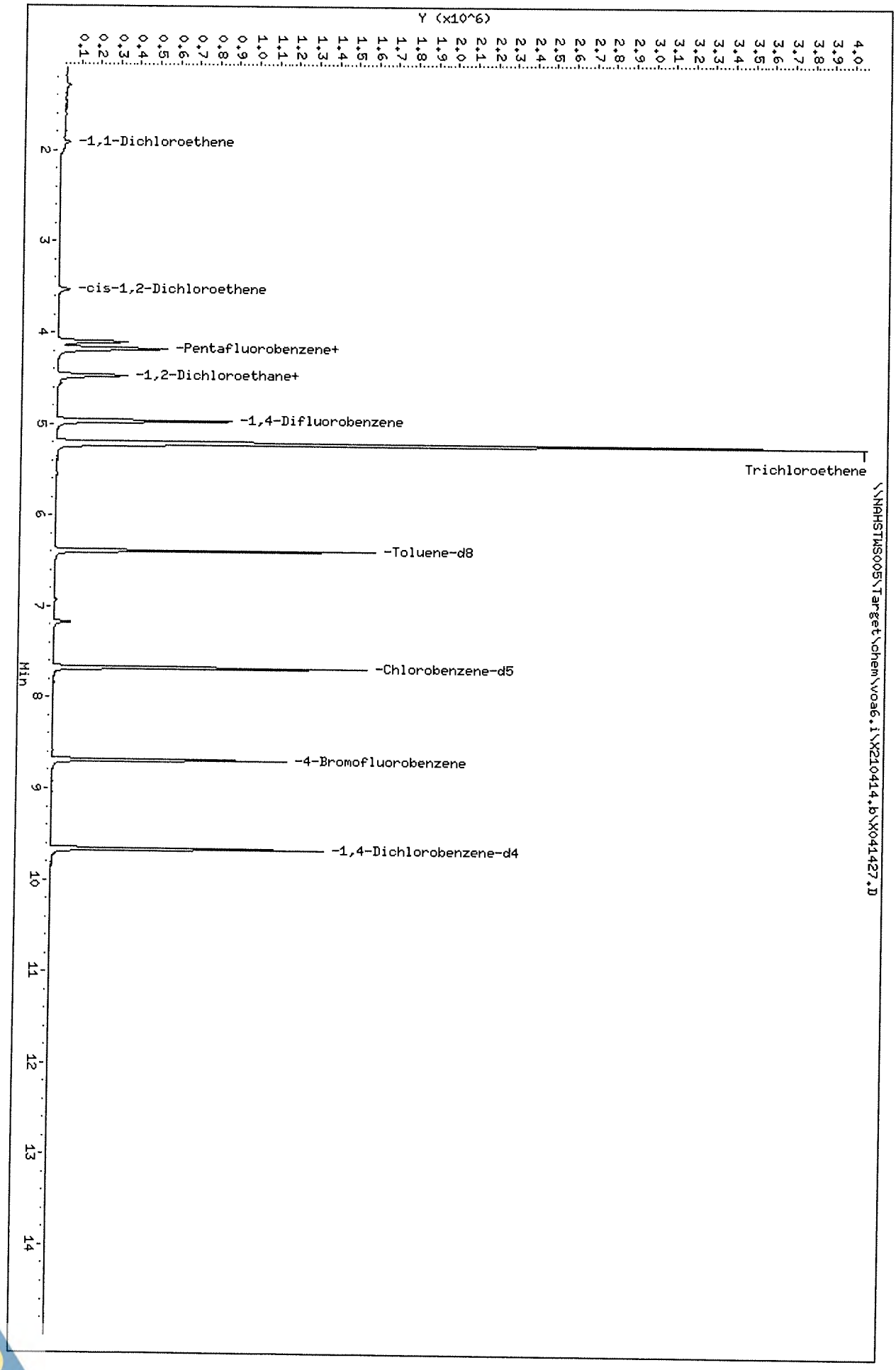
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	415623	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	682994	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	665694	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	282812	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	224179	45.8506	45.85
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	274379	46.8303	46.83
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	889682	51.9209	51.92
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	306467	48.0705	48.07
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	8584	1.45051	1.45(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	11044	1.52766	1.52(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	26798	5.27454	5.27
38 Trichloroethene	130	5.206	5.207	(1.049)	1135836	242.932	242.93(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D
Date : 14-APR-2021 20:10
Client ID: HS21040286-06
Sample Info: HS21040286-06;HS21040286-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D

Date : 14-APR-2021 20:10

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

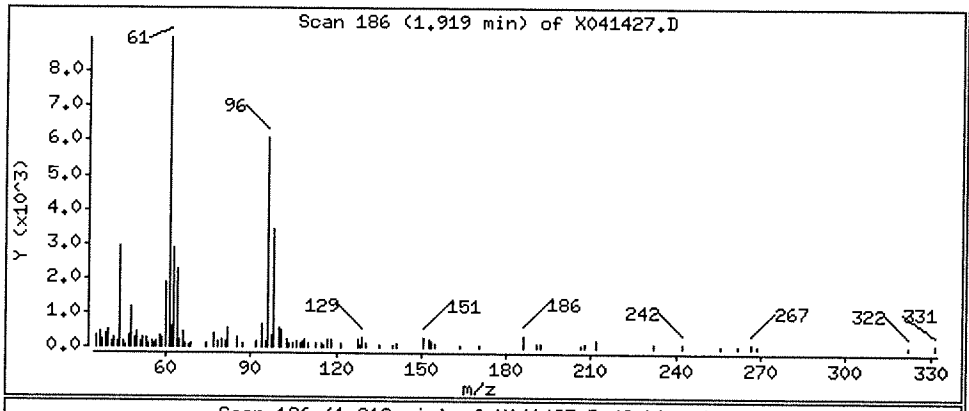
Operator: PC

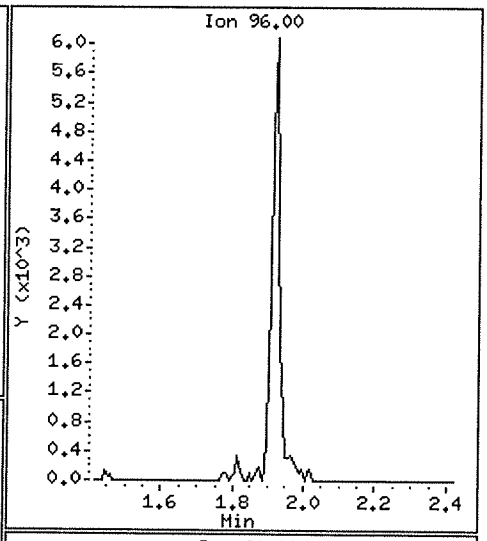
Column phase: DB624

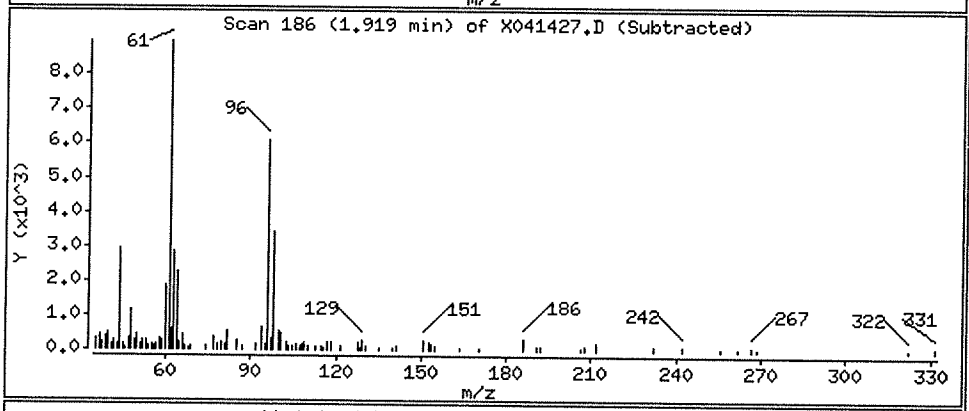
Column diameter: 0.18

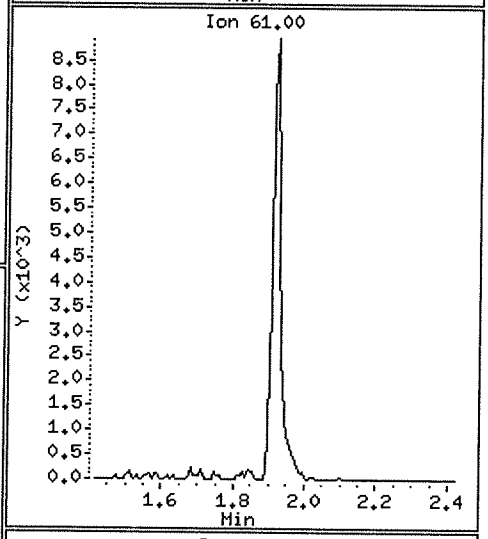
11 1,1-Dichloroethene

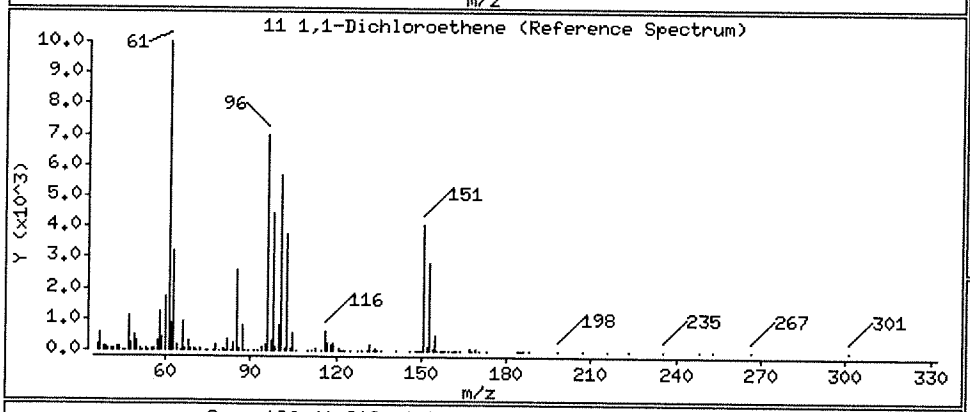
Concentration: 1.45 ug/l

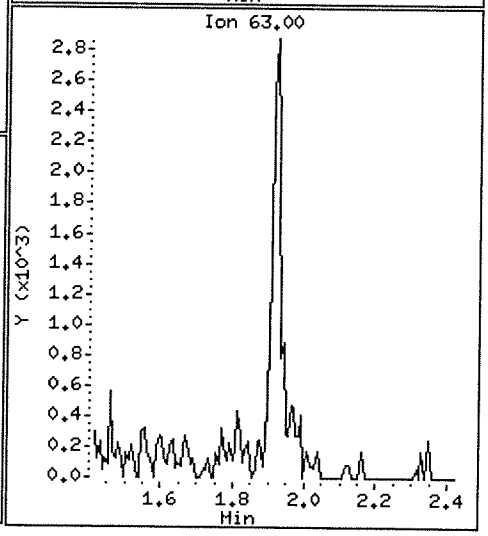


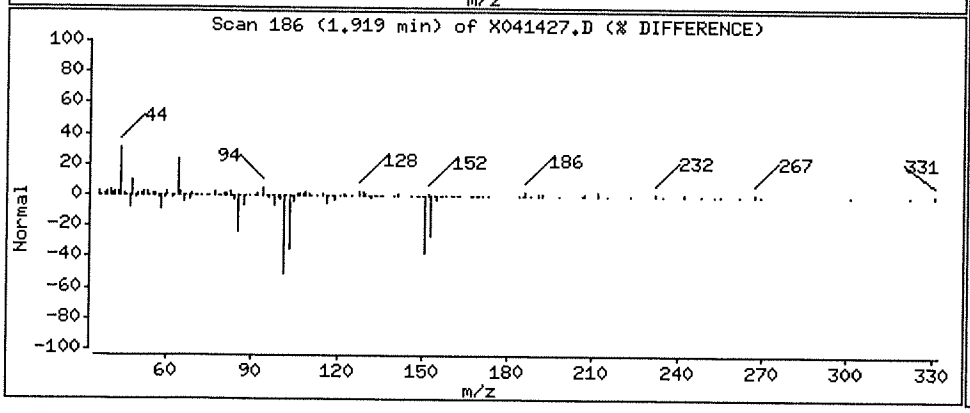












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D

Date : 14-APR-2021 20:10

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

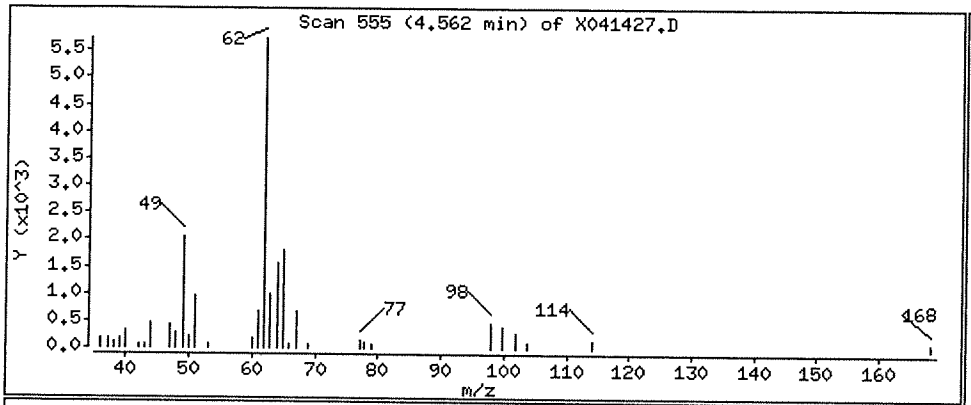
Operator: PC

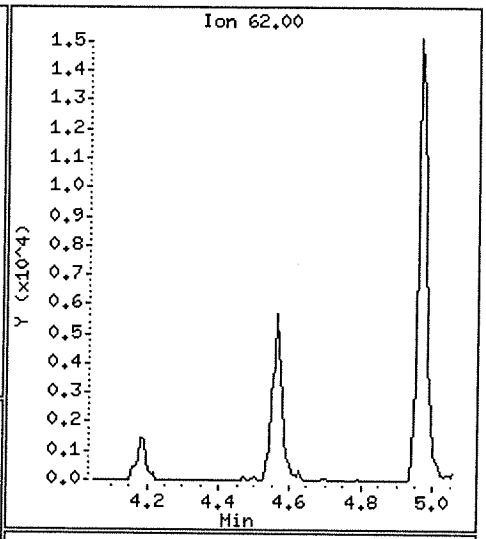
Column phase: DB624

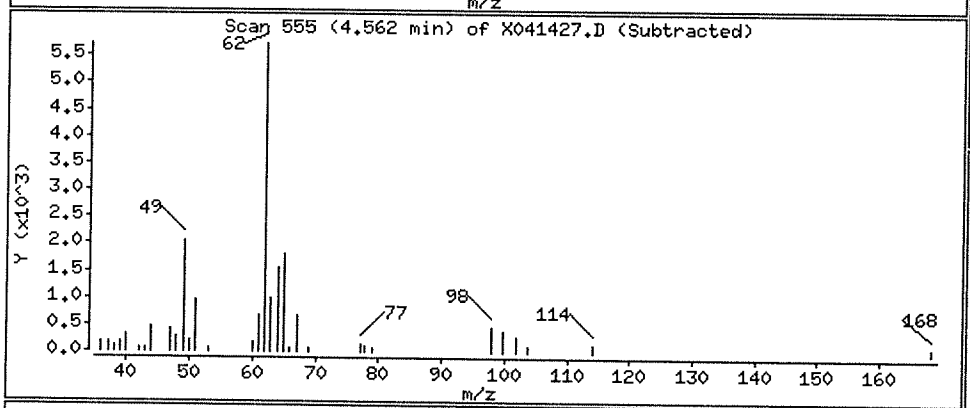
Column diameter: 0.18

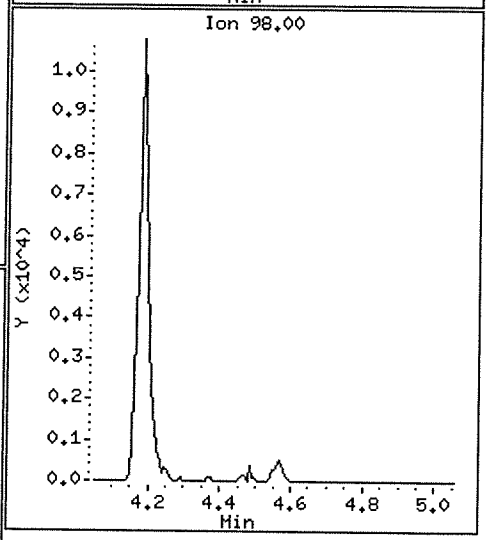
33 1,2-Dichloroethane

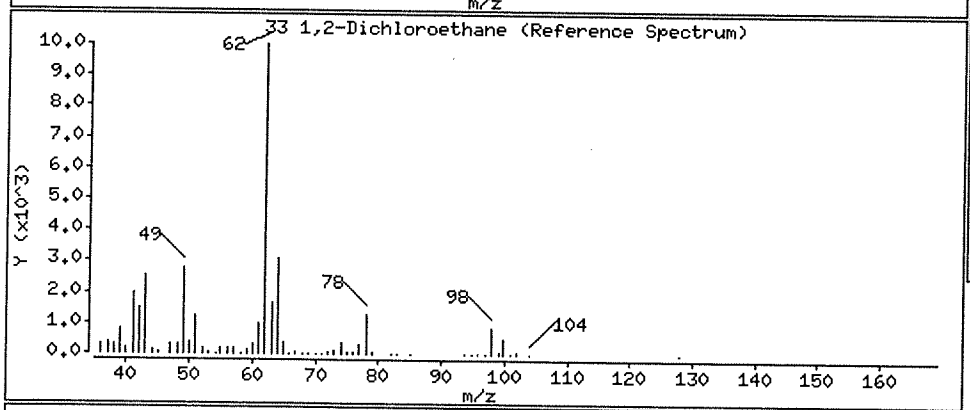
Concentration: 1.52 ug/l

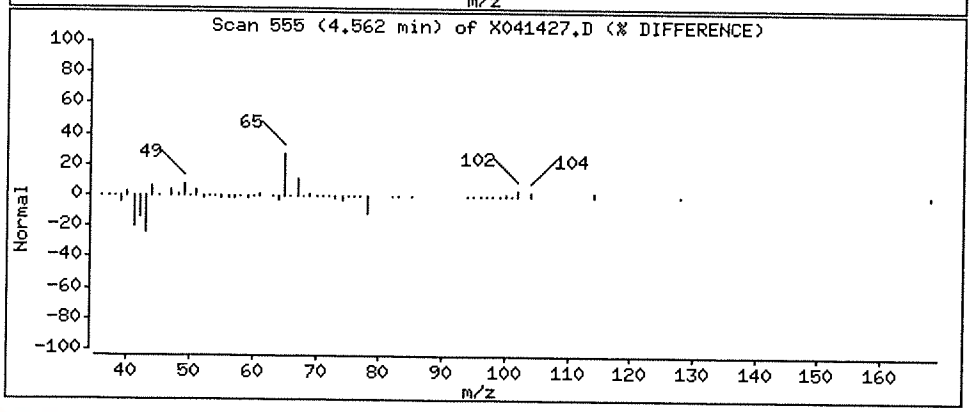












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D

Date : 14-APR-2021 20:10

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

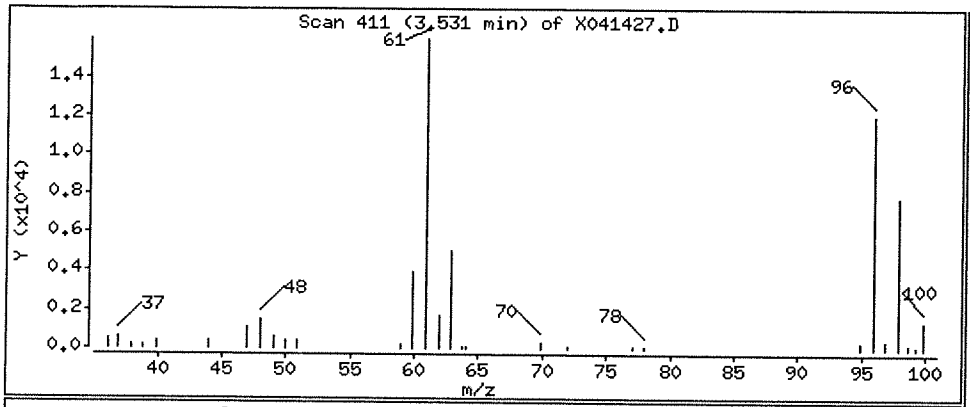
Operator: PC

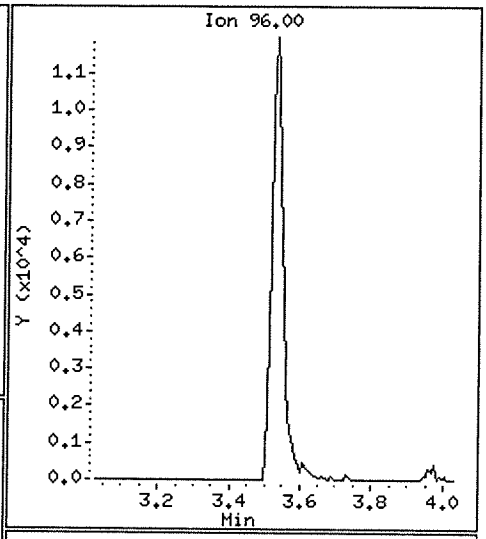
Column phase: DB624

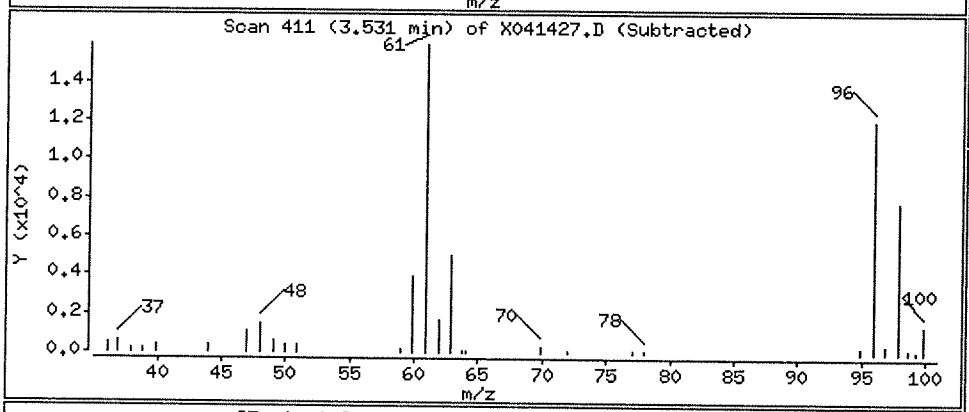
Column diameter: 0.18

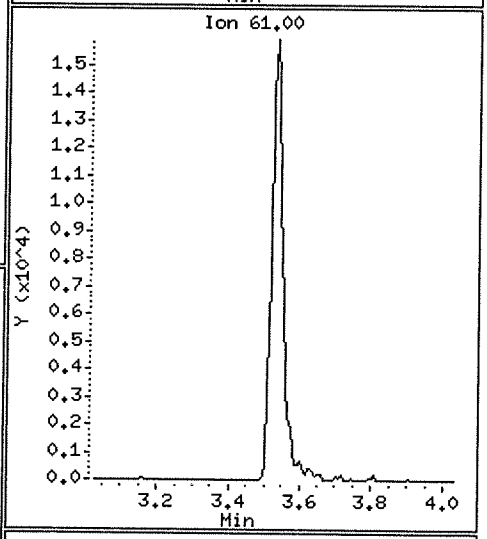
27 cis-1,2-Dichloroethene

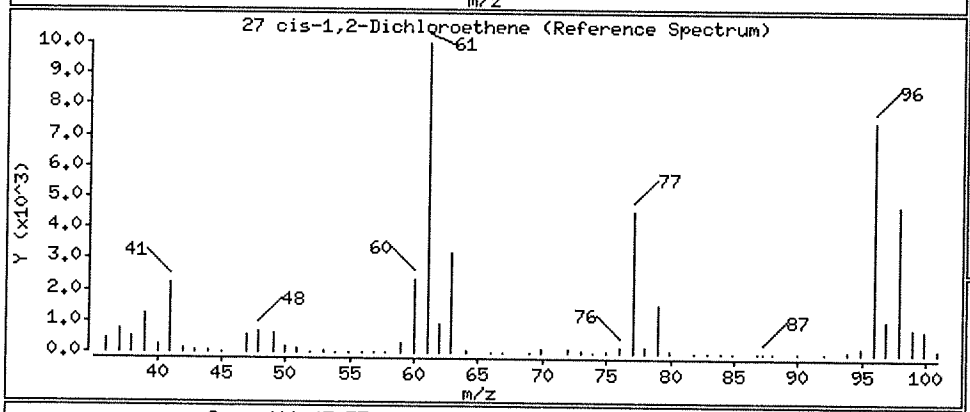
Concentration: 5.27 ug/l

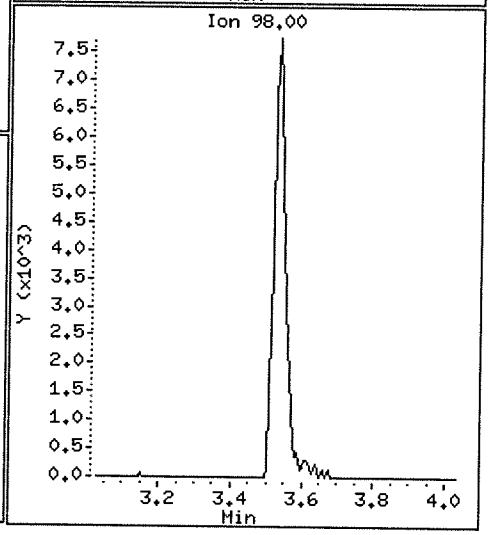


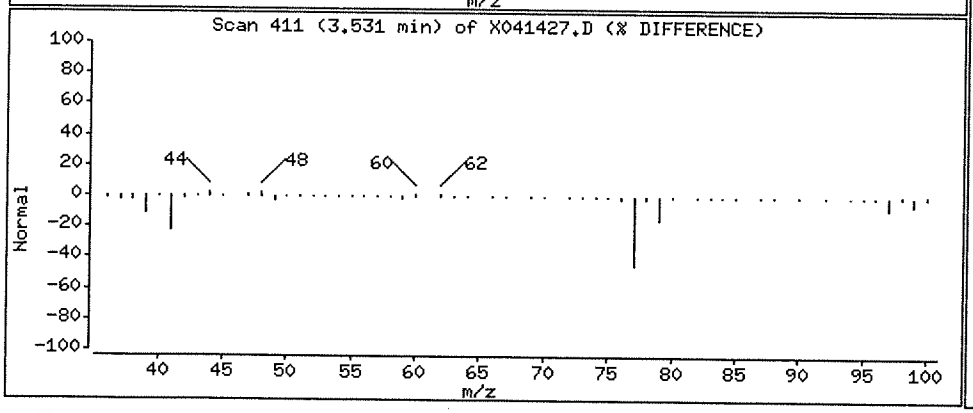












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041427.D

Date : 14-APR-2021 20:10

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

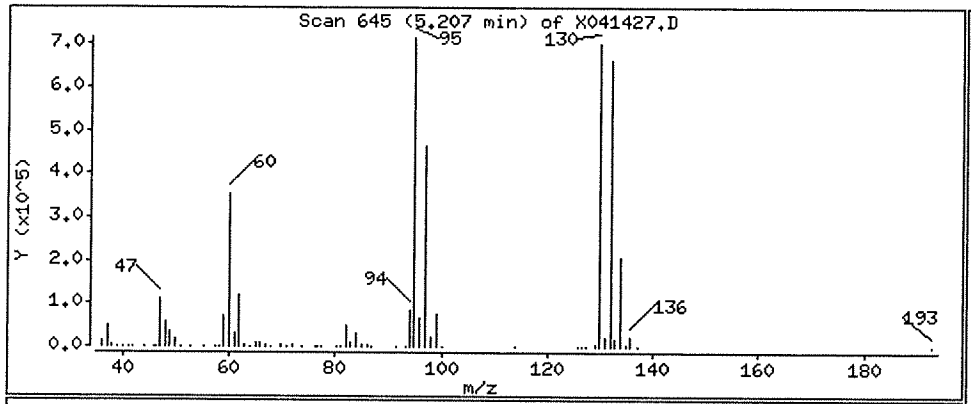
Operator: PC

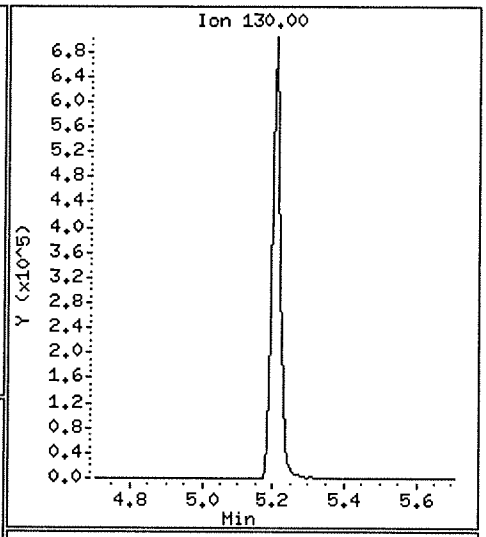
Column phase: DB624

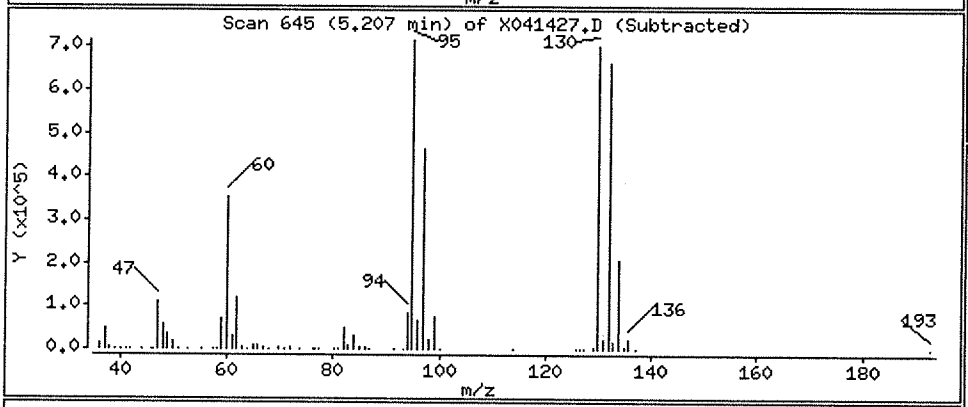
Column diameter: 0.18

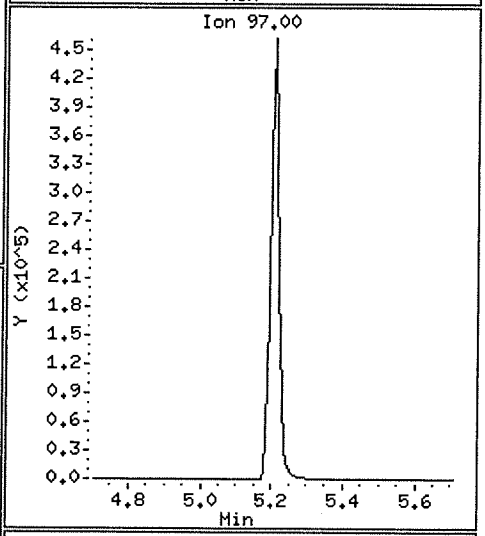
38 Trichloroethene

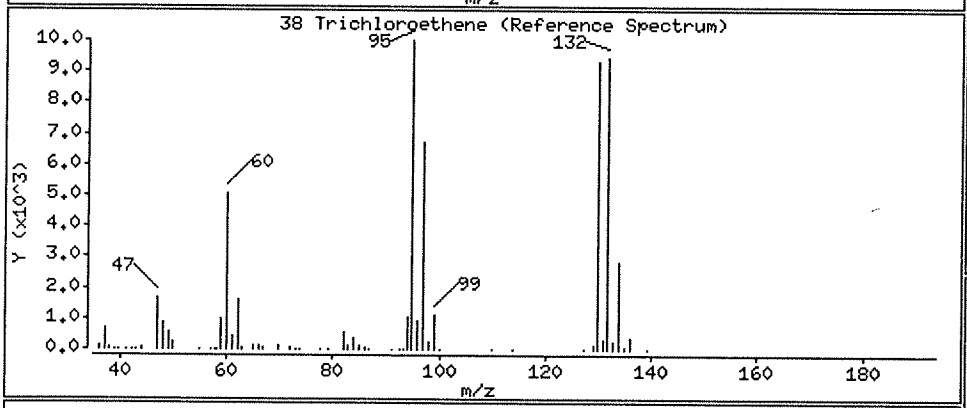
Concentration: 242.93 ug/l

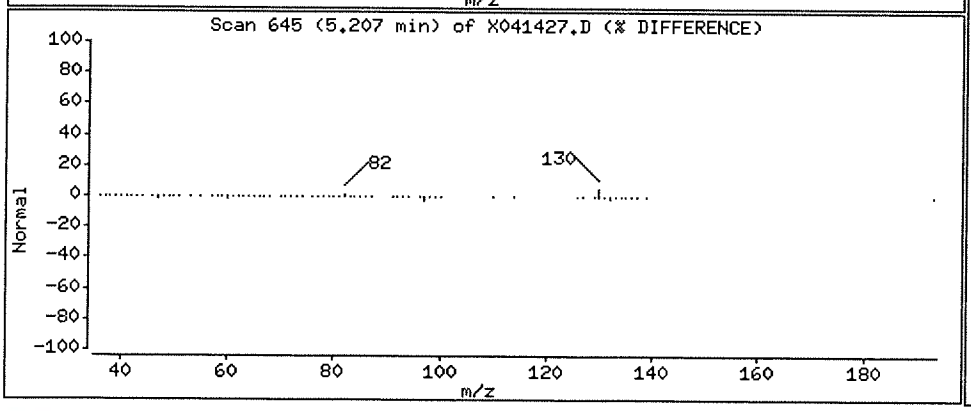


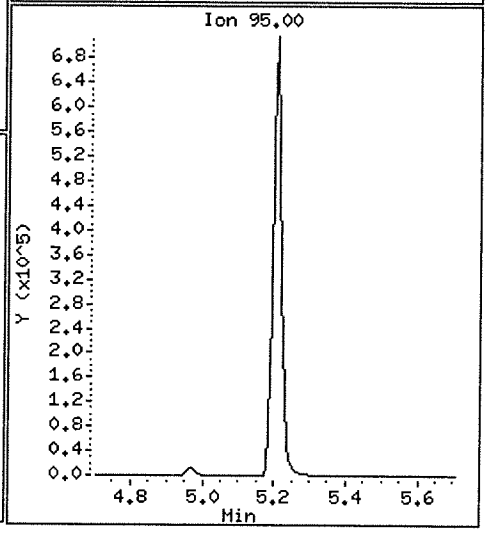












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D Page 1
Report Date: 29-Apr-2021 12:17

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D
Lab Smp Id: HS21040286-07 Client Smp ID: HS21040286-07
Inj Date : 14-APR-2021 20:31
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-07;HS21040286-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:17 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

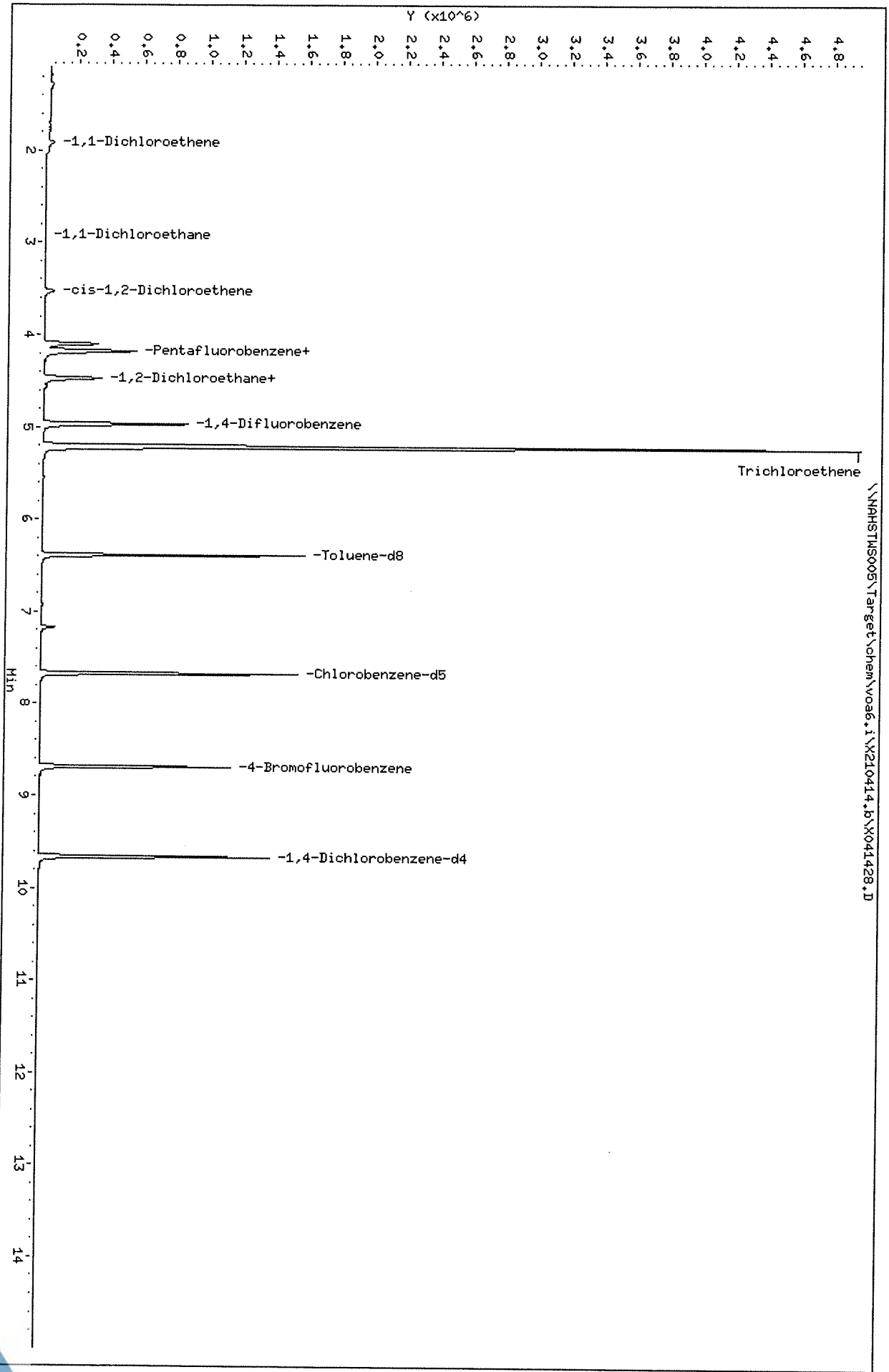
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	414616	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	669841	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	659098	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	287770	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	222971	45.7156	45.71
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	273509	46.7955	46.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	879728	51.8562	51.85
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	297402	47.1482	47.14
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	11974	2.02826	2.02(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	12862	1.81408	1.81(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	28904	5.70287	5.70
38 Trichloroethene	130	5.206	5.207	(1.048)	1358667	296.297	296.29(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X044428.D
Date : 14-APR-2021 20:31
Client ID: HS21040286-07
Sample Info: HS21040286-07;HS21040286-07;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D

Date : 14-APR-2021 20:31

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

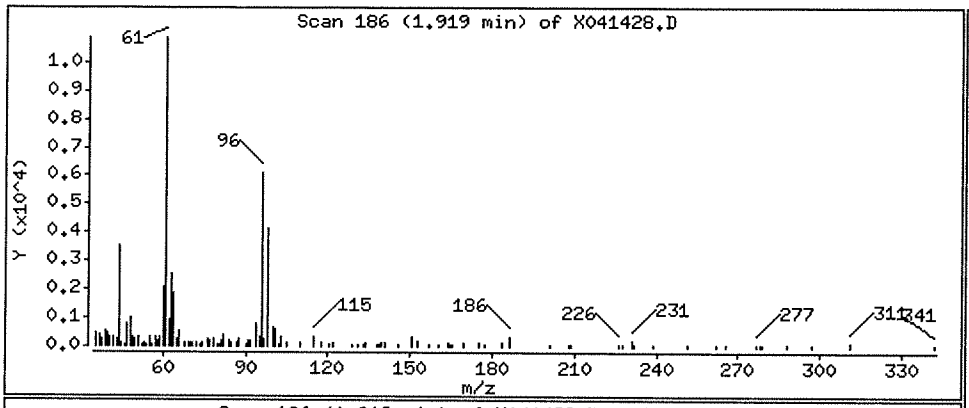
Operator: PC

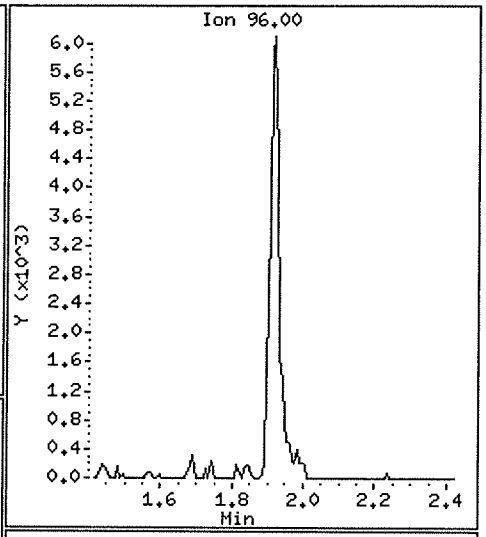
Column phase: DB624

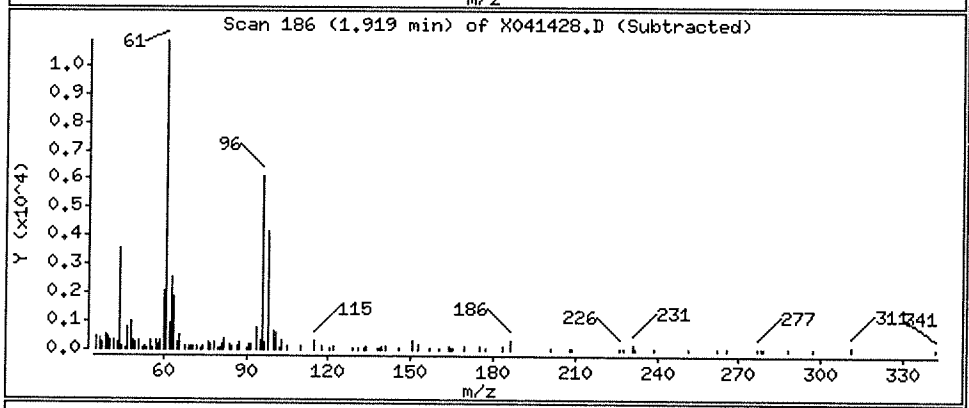
Column diameter: 0.18

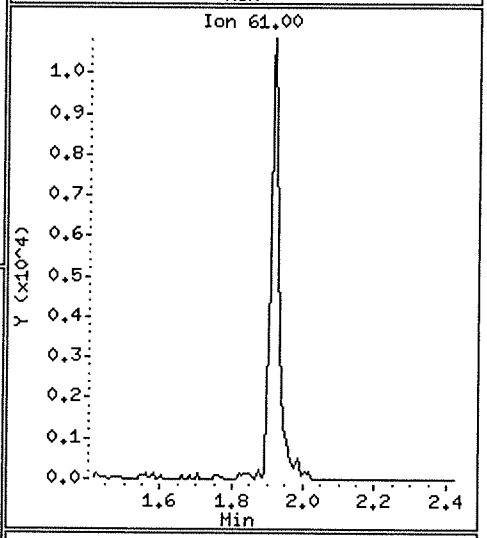
11 1,1-Dichloroethene

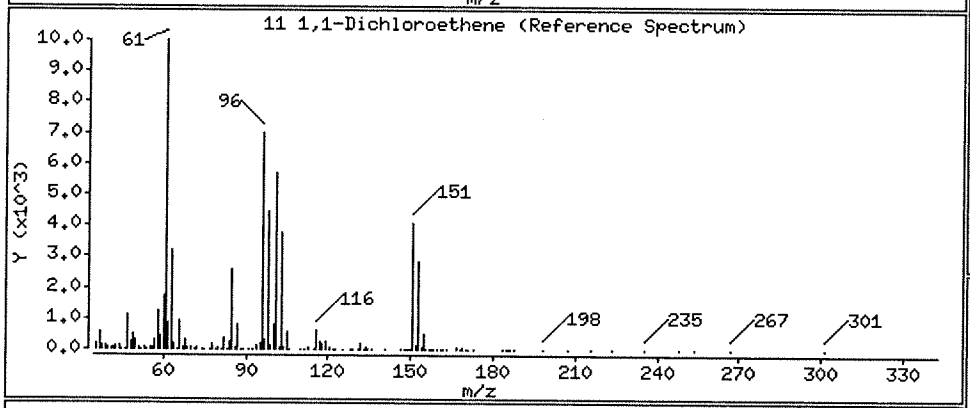
Concentration: 2.02 ug/l

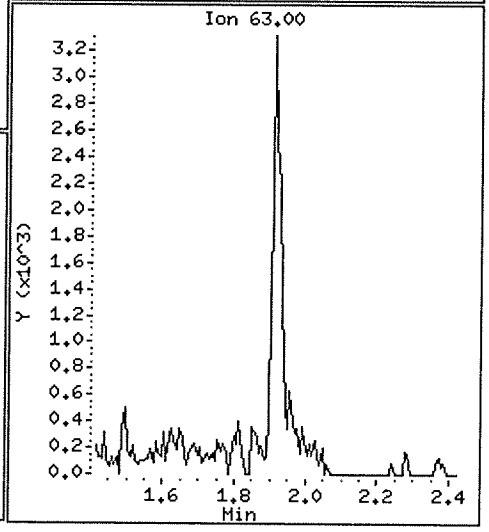


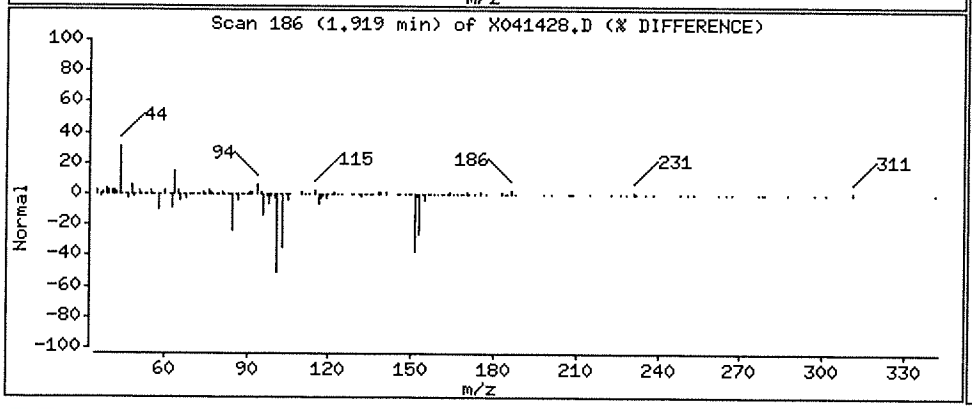












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D

Date : 14-APR-2021 20:31

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

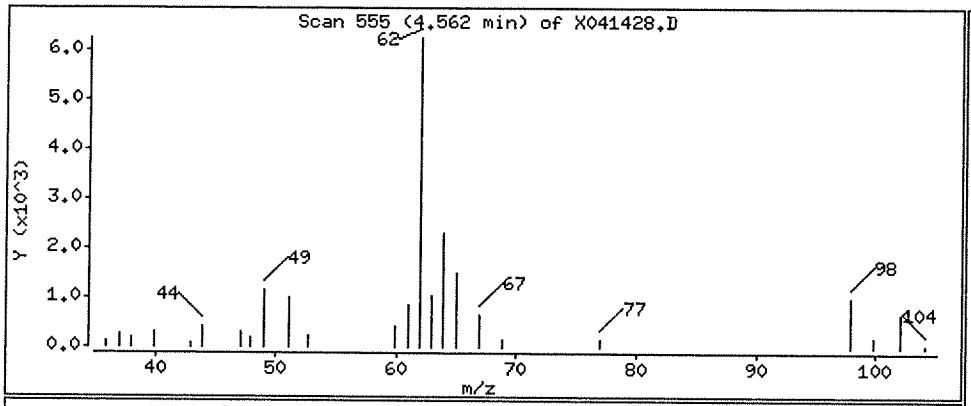
Operator: PC

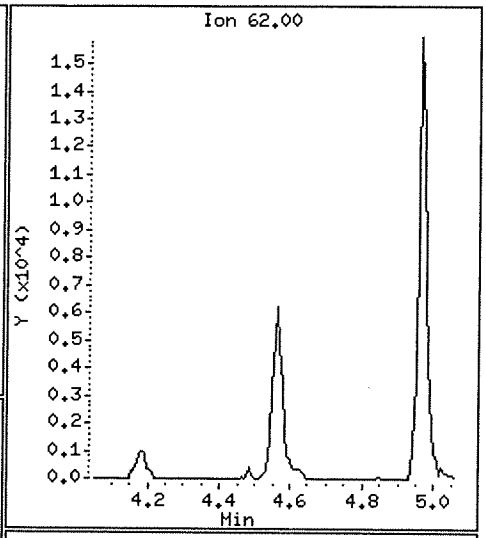
Column phase: DB624

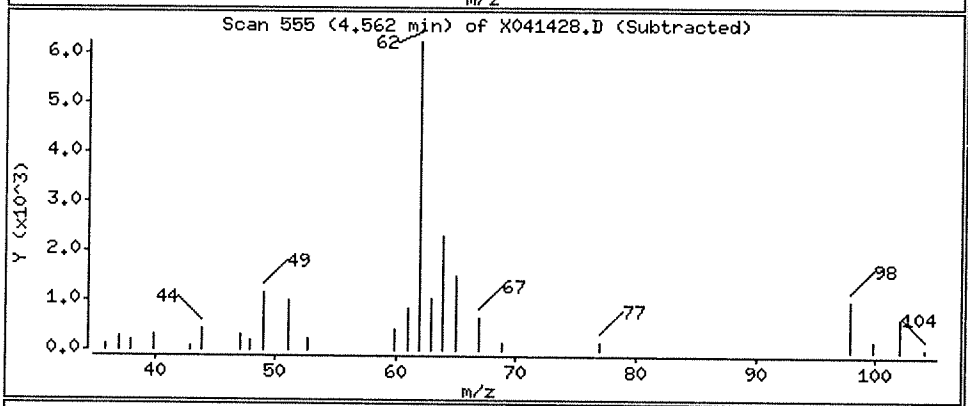
Column diameter: 0.18

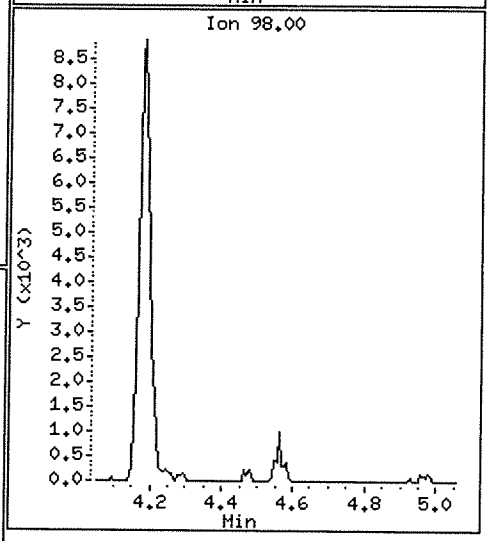
33 1,2-Dichloroethane

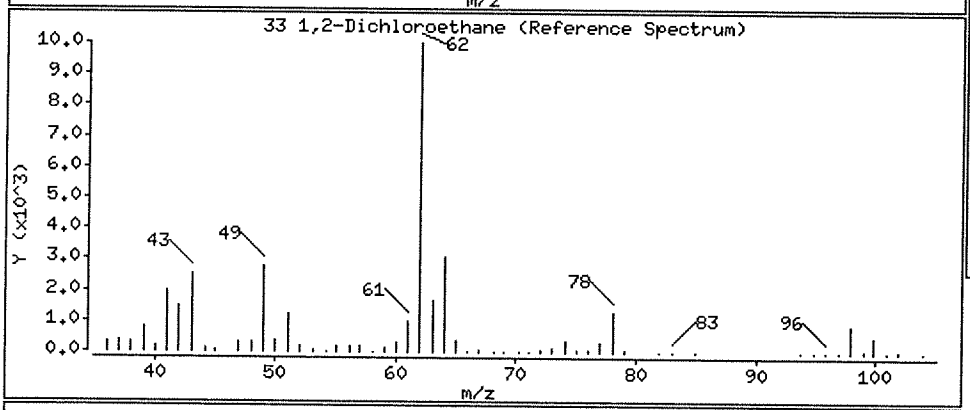
Concentration: 1.81 ug/l

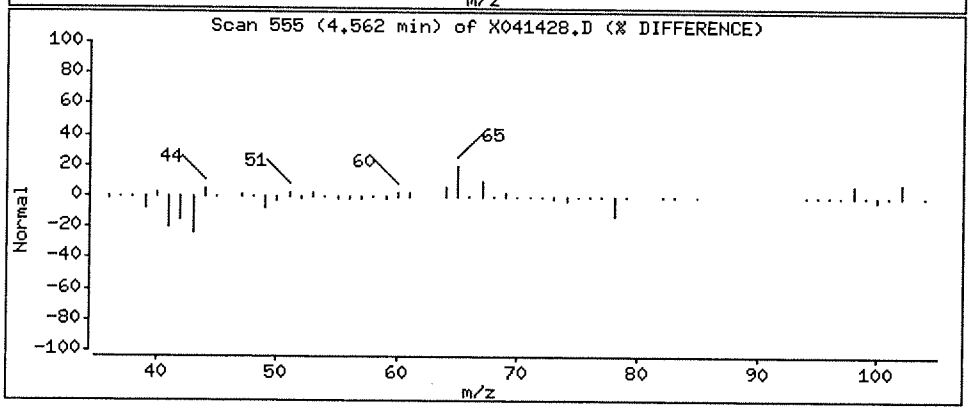












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D

Date : 14-APR-2021 20:31

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

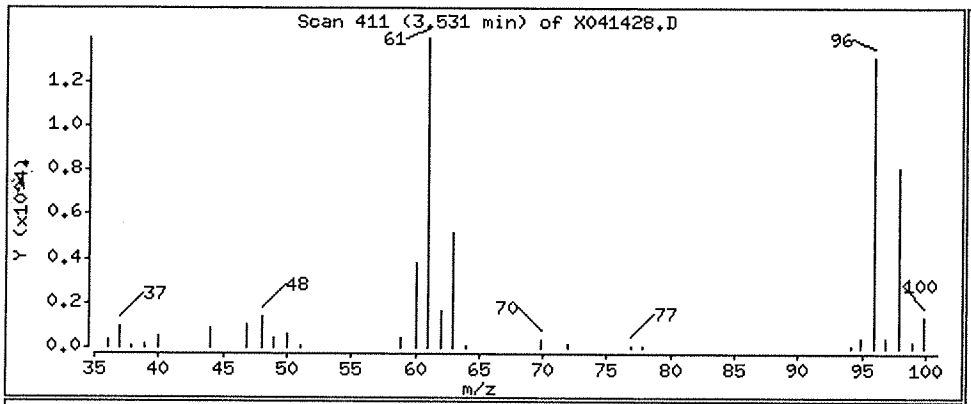
Operator: PC

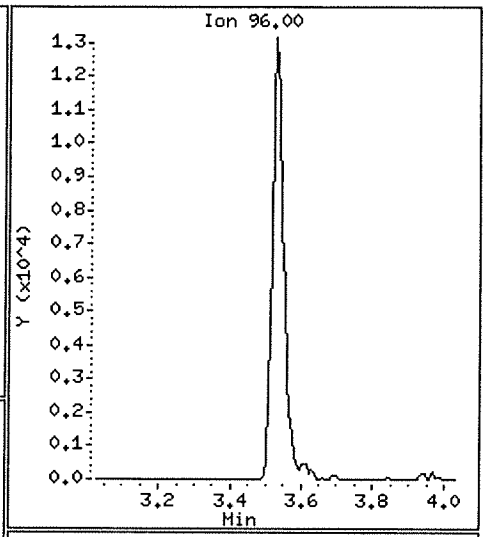
Column phase: DB624

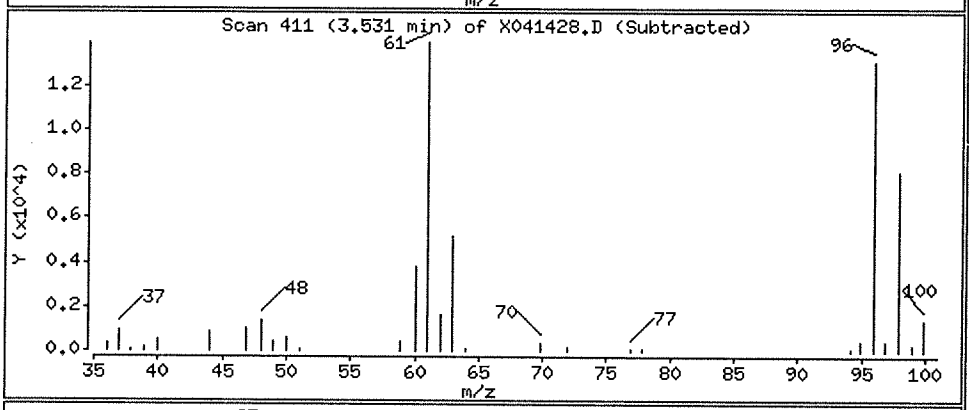
Column diameter: 0.18

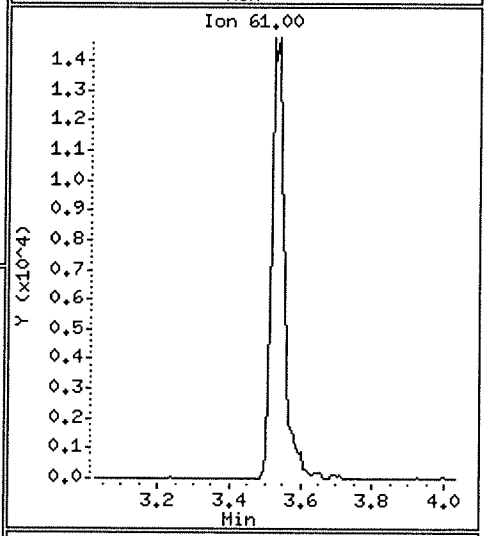
27 cis-1,2-Dichloroethene

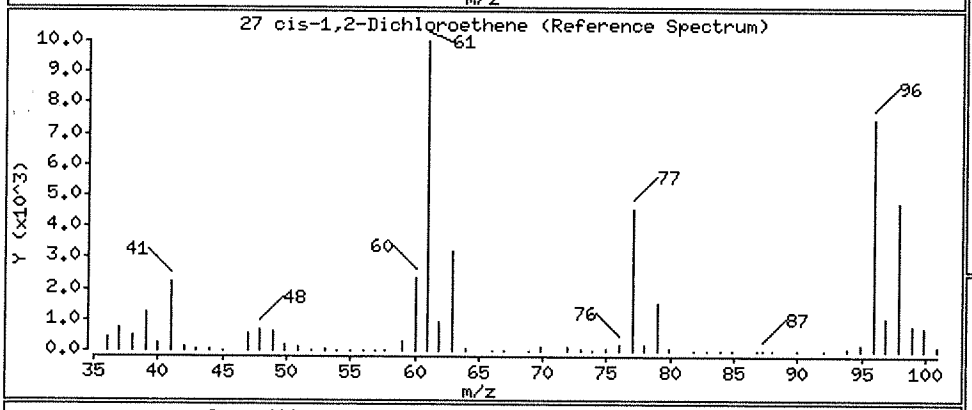
Concentration: 5.70 ug/l

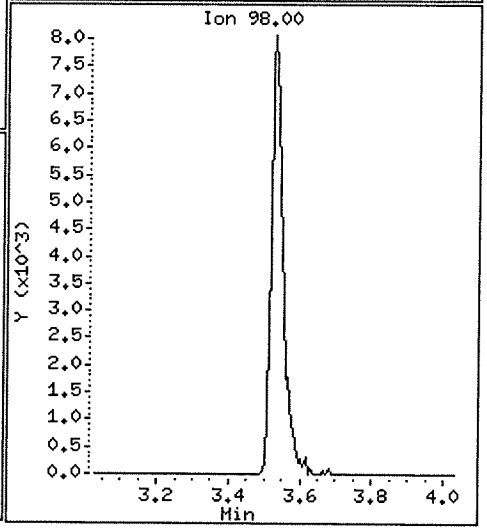


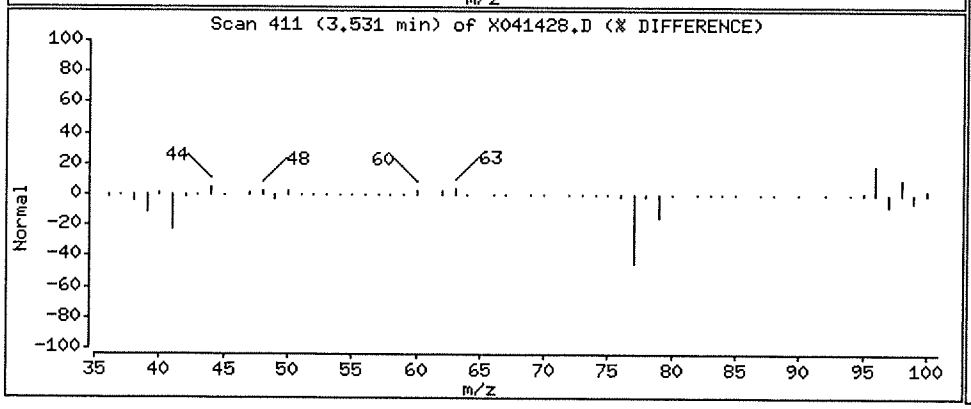












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041428.D

Date : 14-APR-2021 20:31

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

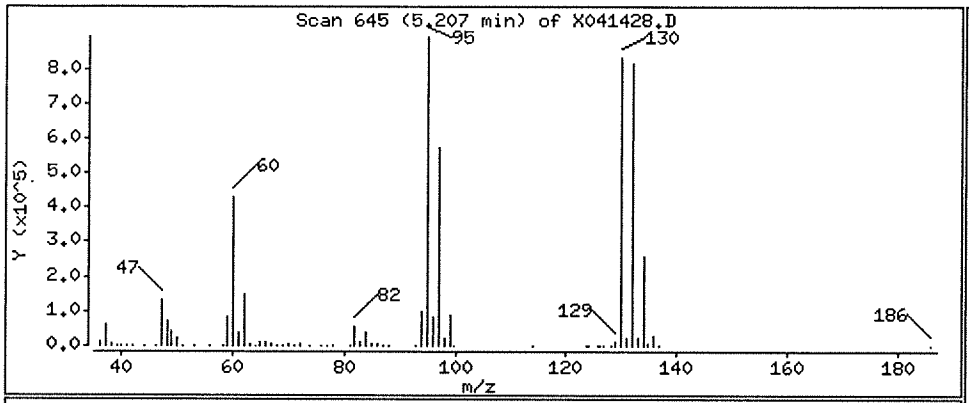
Operator: PC

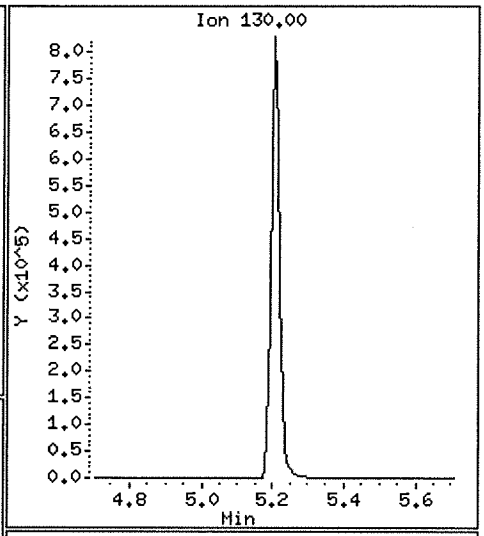
Column phase: DB624

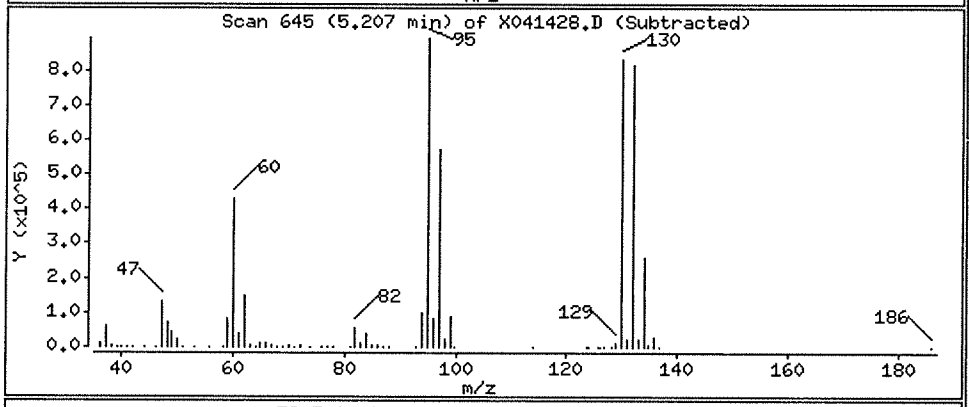
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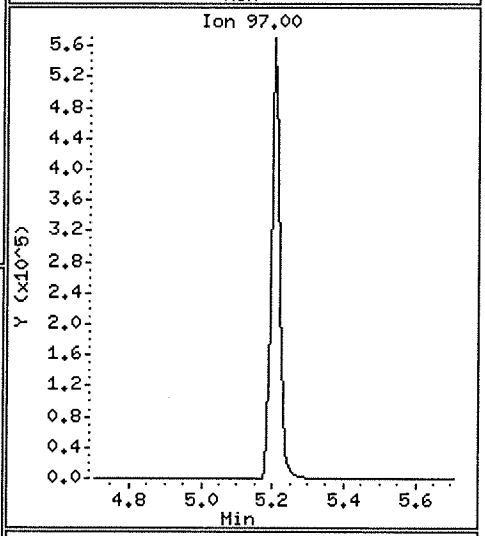
38 Trichloroethene

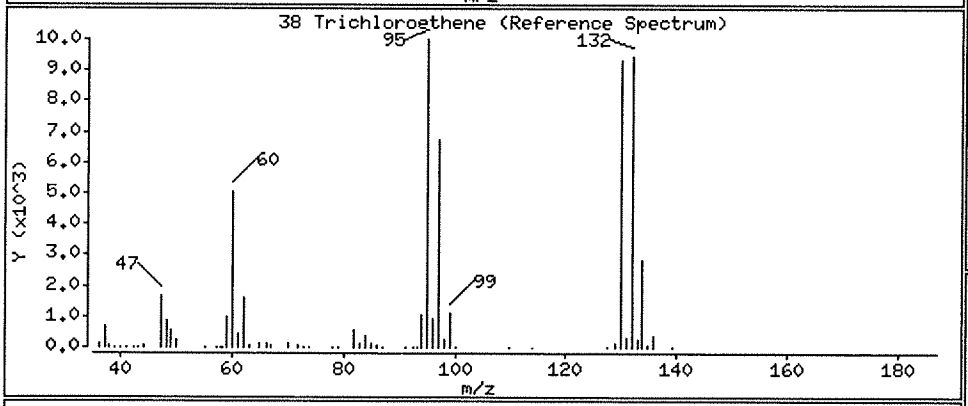
Concentration: 296.29 ug/l

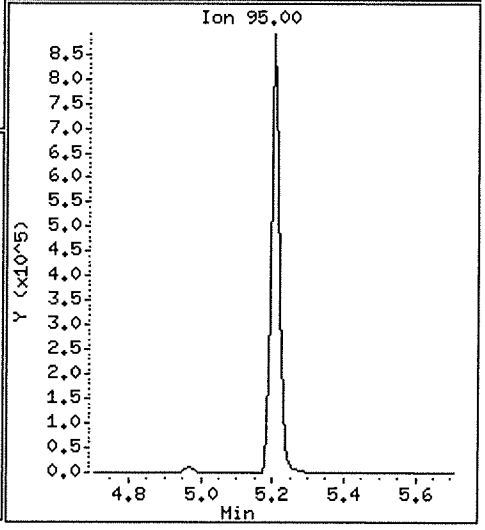


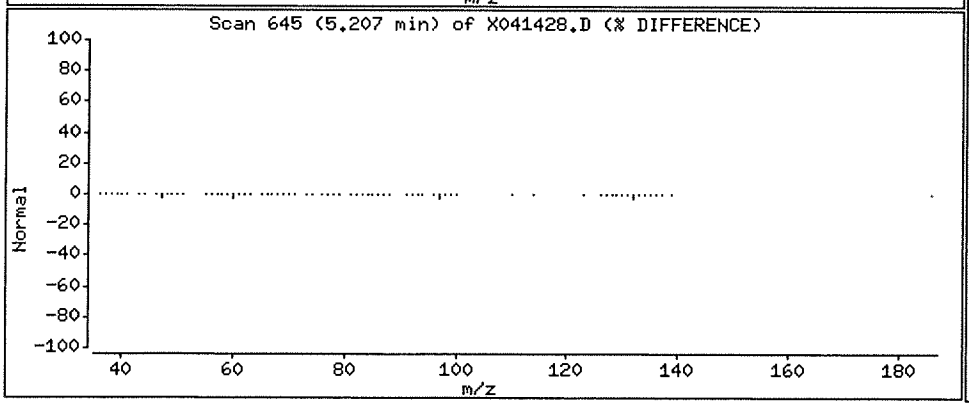












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D Page 1
Report Date: 29-Apr-2021 12:17

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D
Lab Smp Id: HS21040286-05 Client Smp ID: HS21040286-05
Inj Date : 14-APR-2021 20:52
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-05;HS21040286-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:17 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 28
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

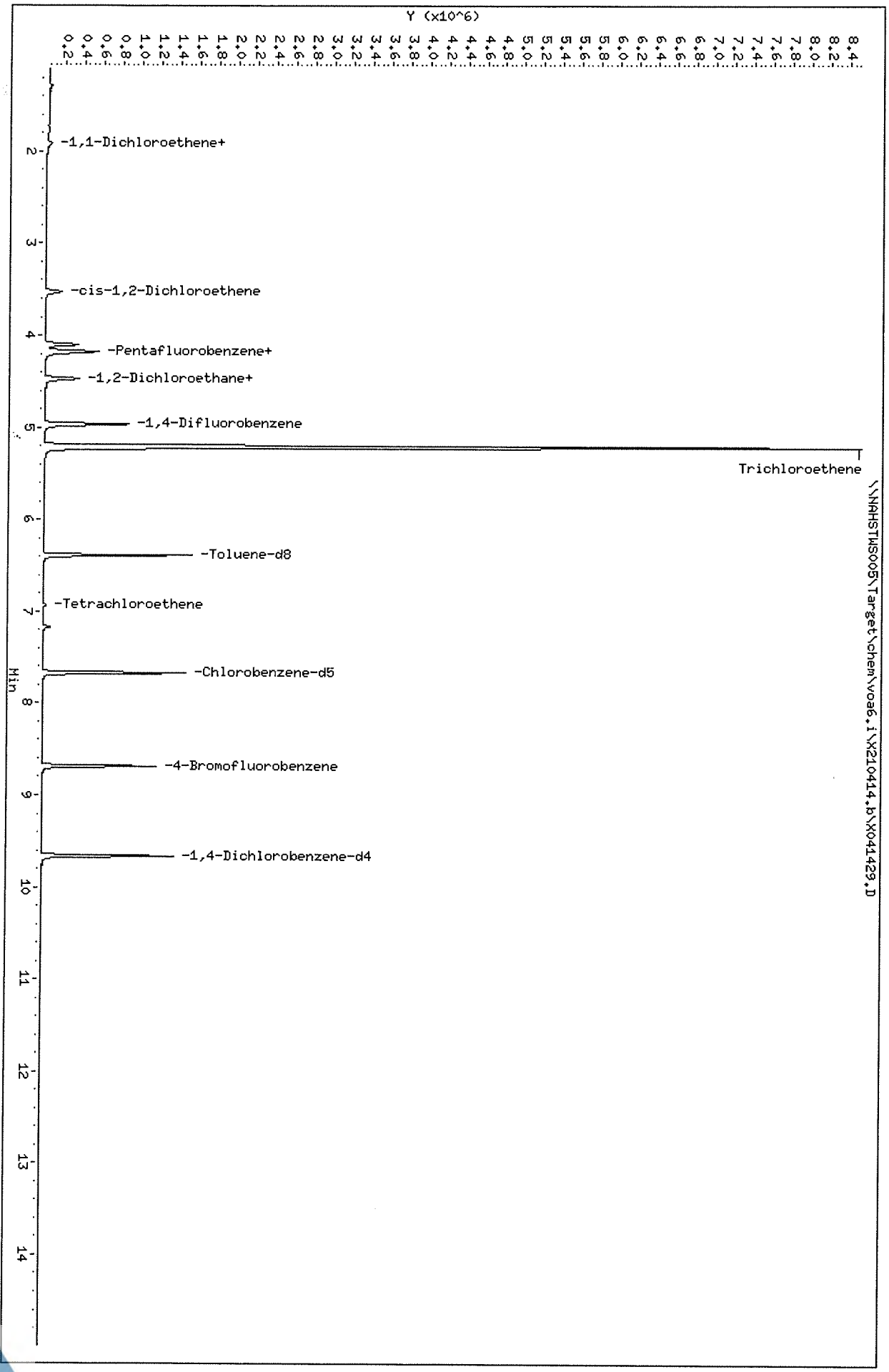
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411597	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	676776	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	659792	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	286648	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	228769	47.2339	47.23
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	274373	47.2826	47.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	876734	51.6336	51.63
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	307738	48.6799	48.67
11 1,1-Dichloroethene	96	1.911	1.919	(0.457)	5576	0.95144	0.95(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	13676	1.90912	1.90(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	82373	16.3717	16.37
56 Tetrachloroethene	164	6.933	6.926	(0.904)	6721	1.68758	1.68(a)
38 Trichloroethene	130	5.206	5.207	(1.048)	2376365	512.926	512.92(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D
Date : 14-APR-2021 20:52
Client ID: HS21040286-05
Sample Info: HS21040286-05;HS21040286-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D

Date : 14-APR-2021 20:52

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

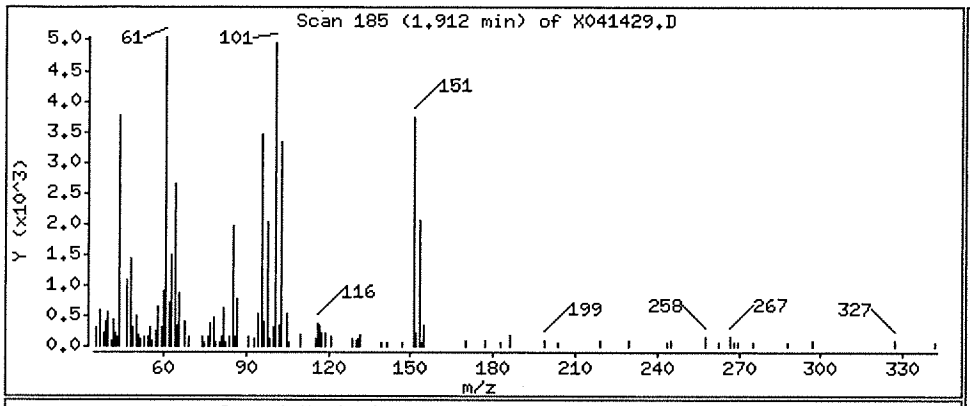
Operator: PC

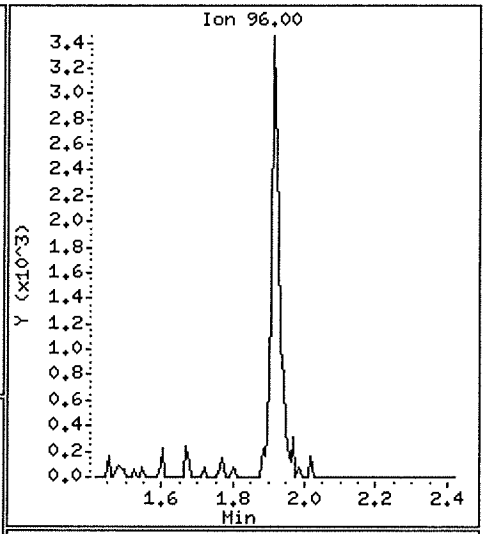
Column phase: DB624

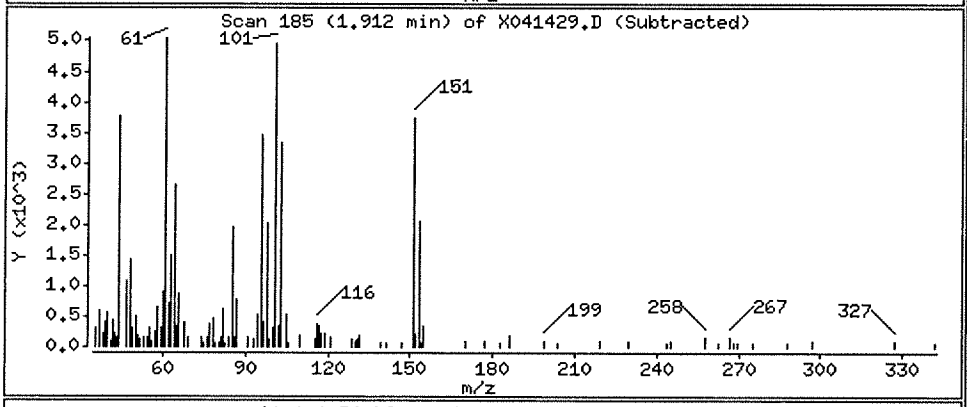
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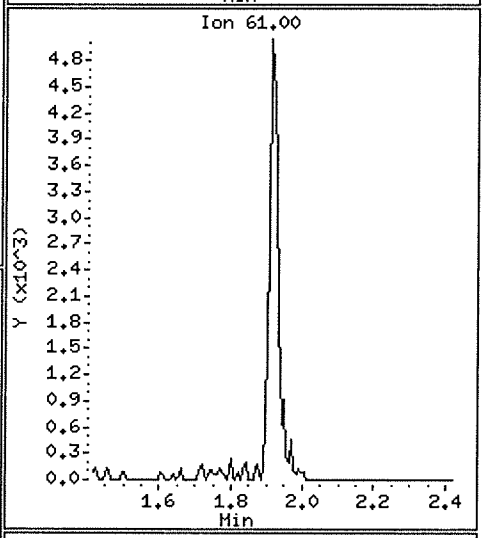
11 1,1-Dichloroethene

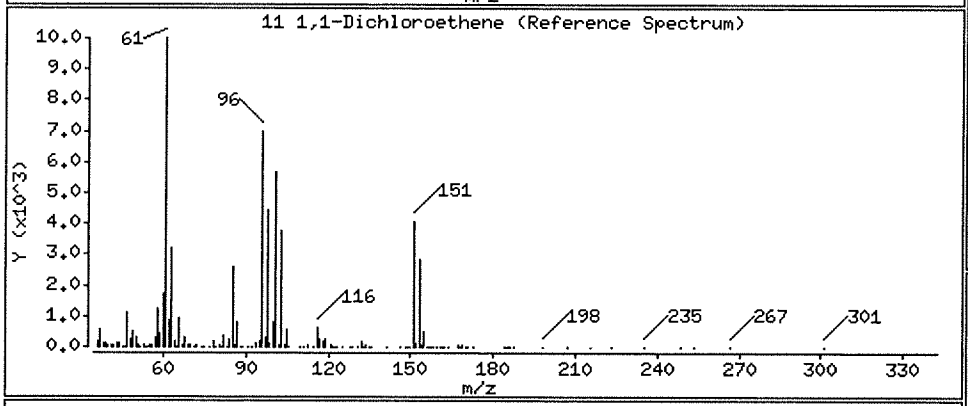
Concentration: 0.95 ug/l

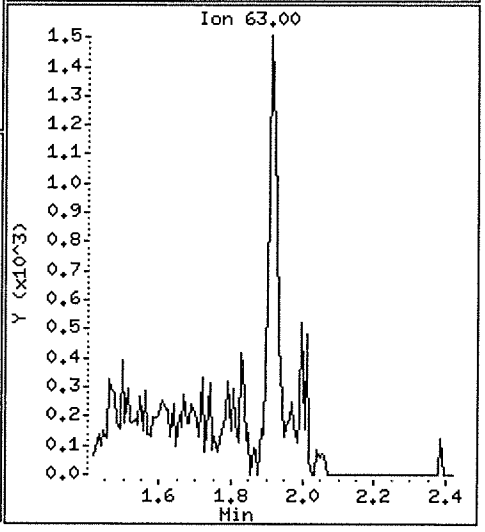


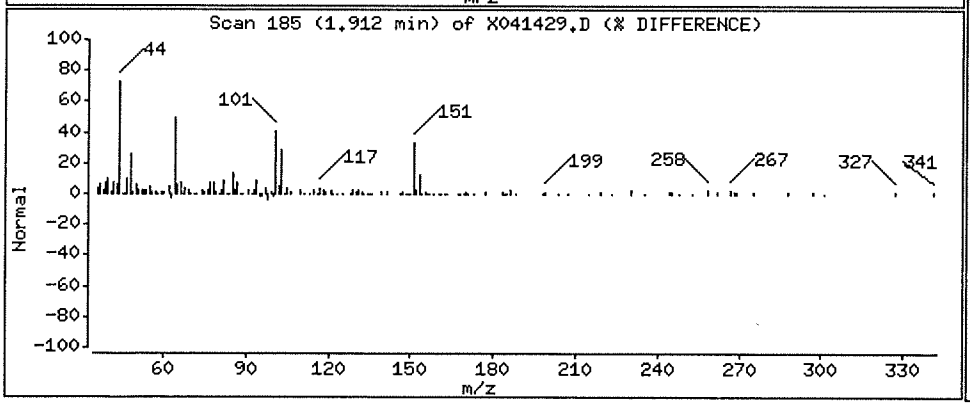












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D

Date : 14-APR-2021 20:52

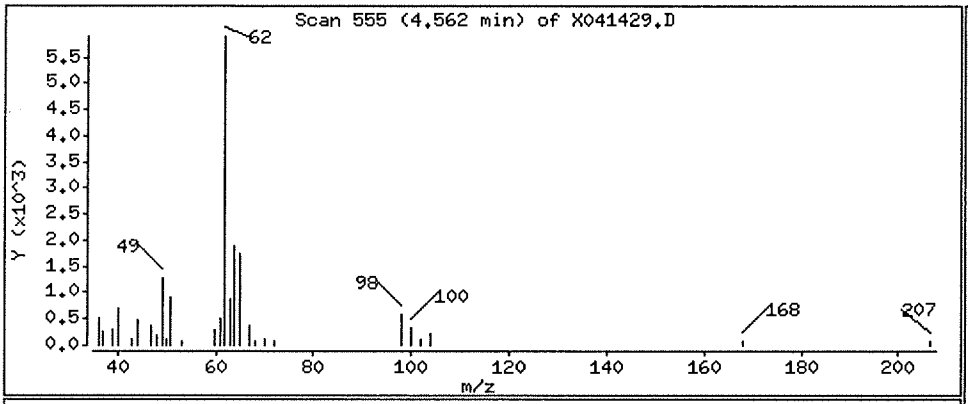
Client ID: HS21040286-05 Instrument: voa6.i

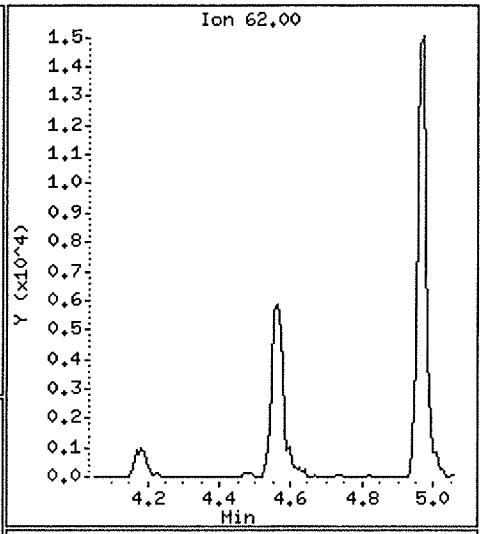
Sample Info: HS21040286-05;HS21040286-05;;;

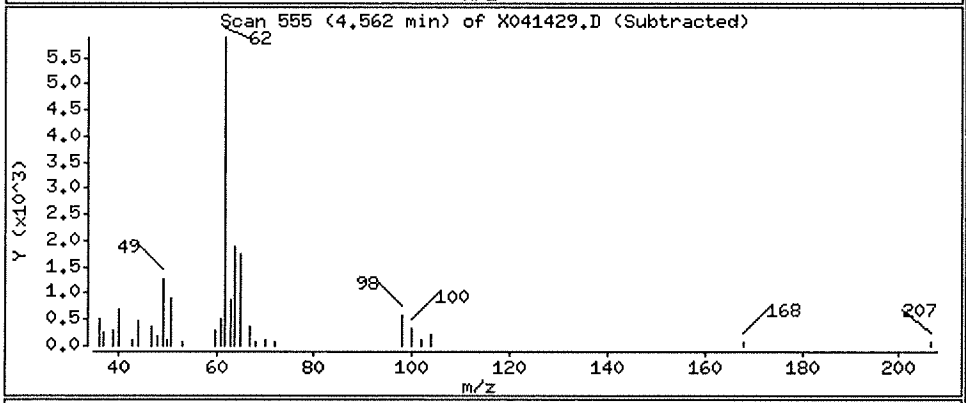
Purge Volume: 5.0 Operator: PC

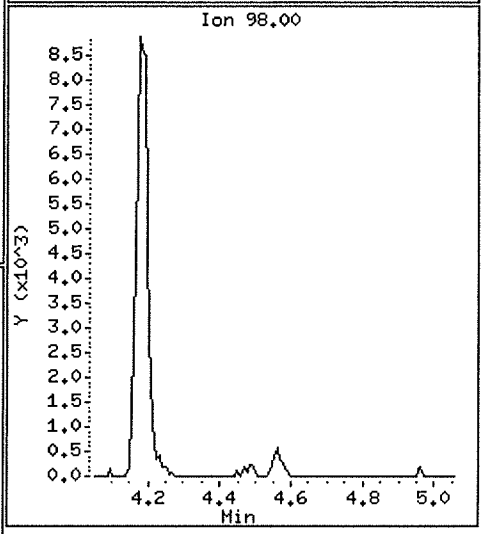
Column phase: DB624 Column diameter: 0.18

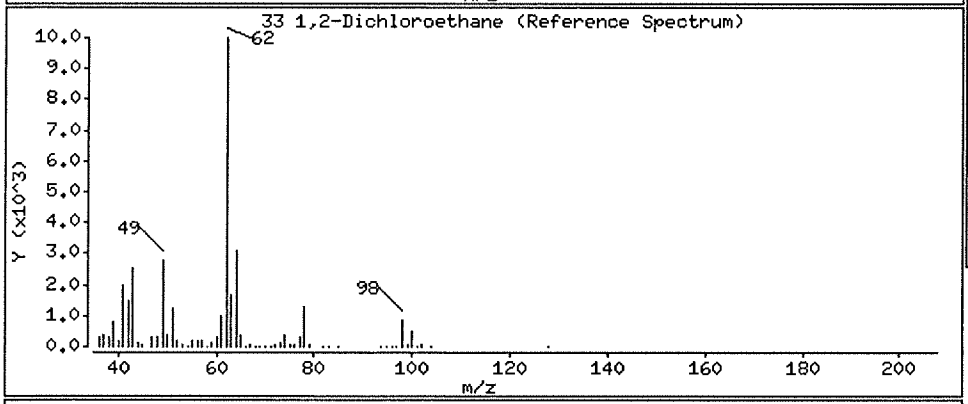
33 1,2-Dichloroethane Concentration: 1.90 ug/l

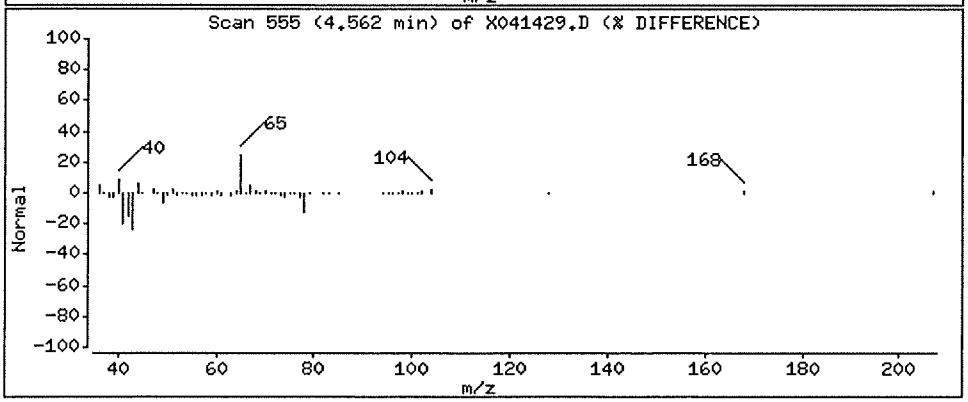












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D

Date : 14-APR-2021 20:52

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

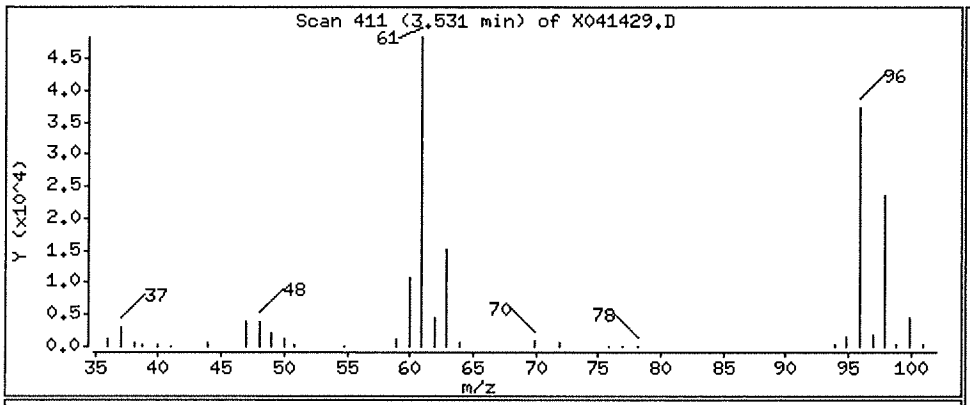
Operator: PC

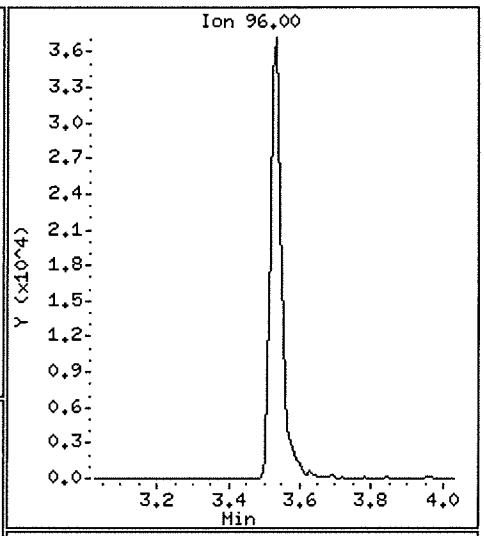
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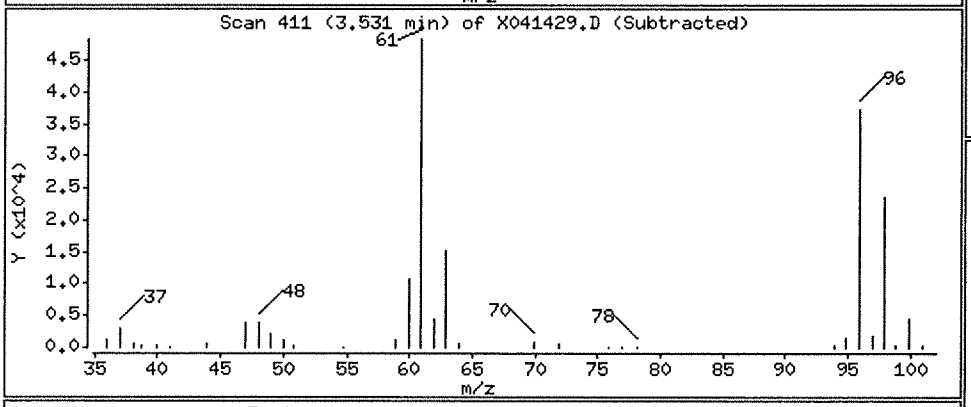
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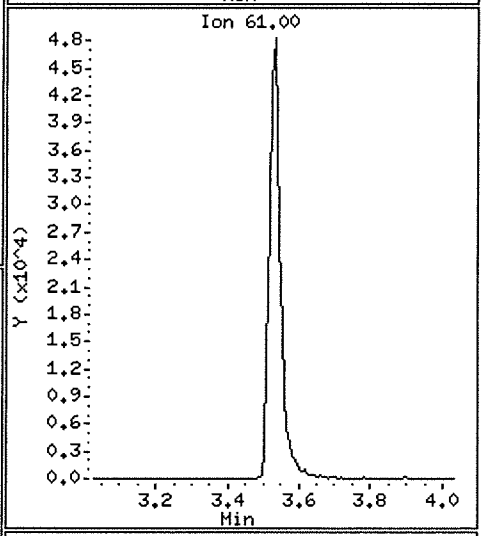
27 cis-1,2-Dichloroethene

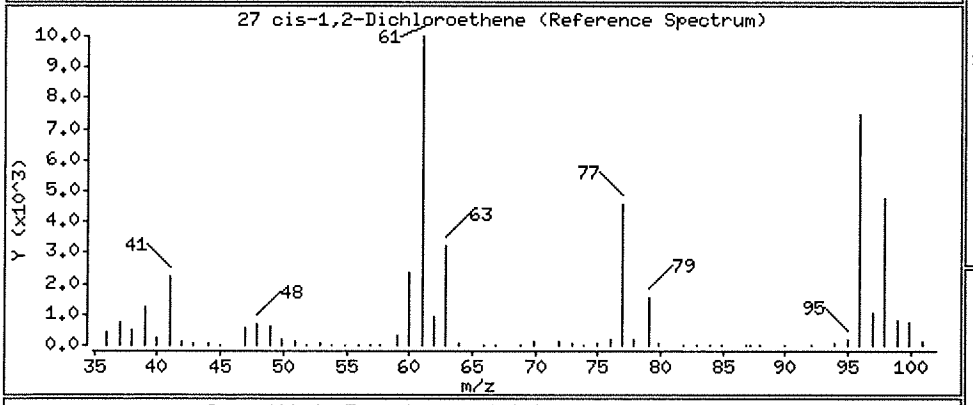
Concentration: 16.37 ug/l

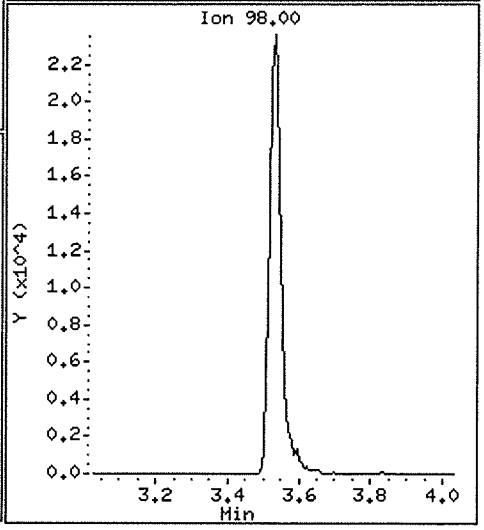


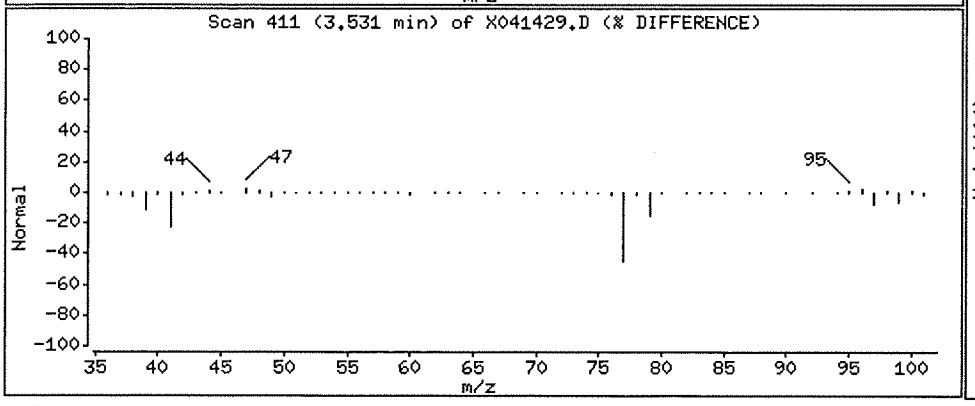












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D

Date : 14-APR-2021 20:52

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

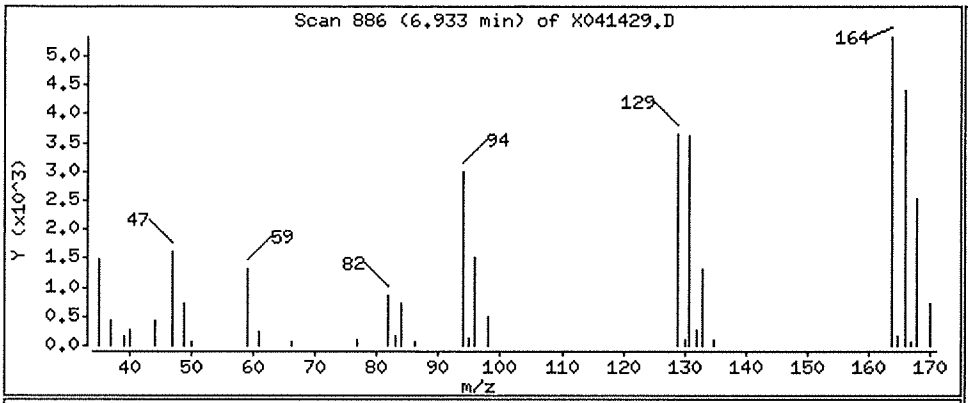
Operator: PC

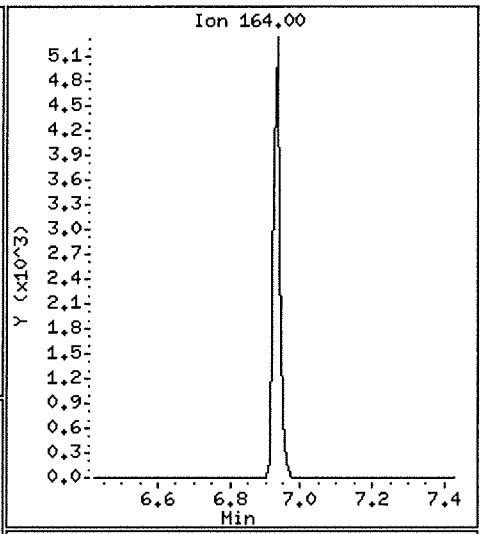
Column phase: DB624

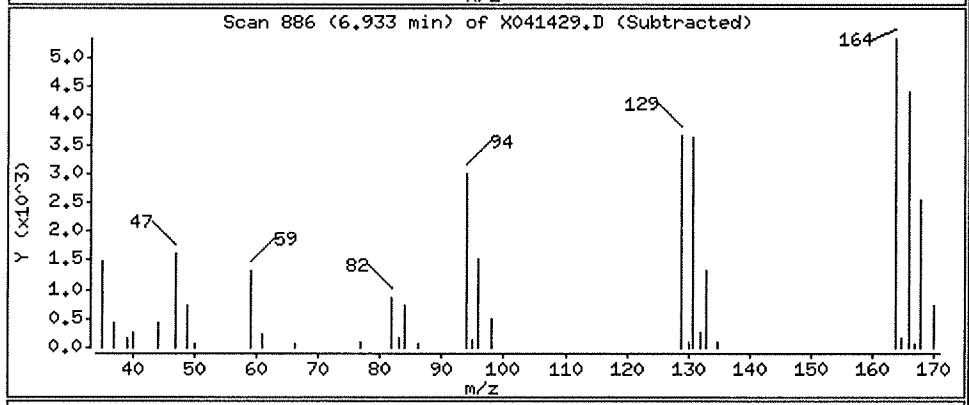
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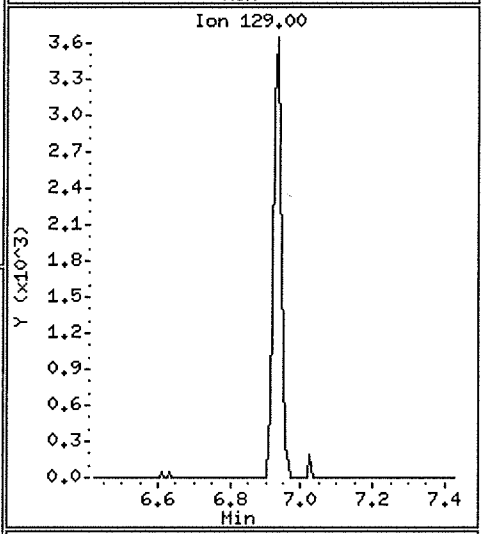
56 Tetrachloroethene

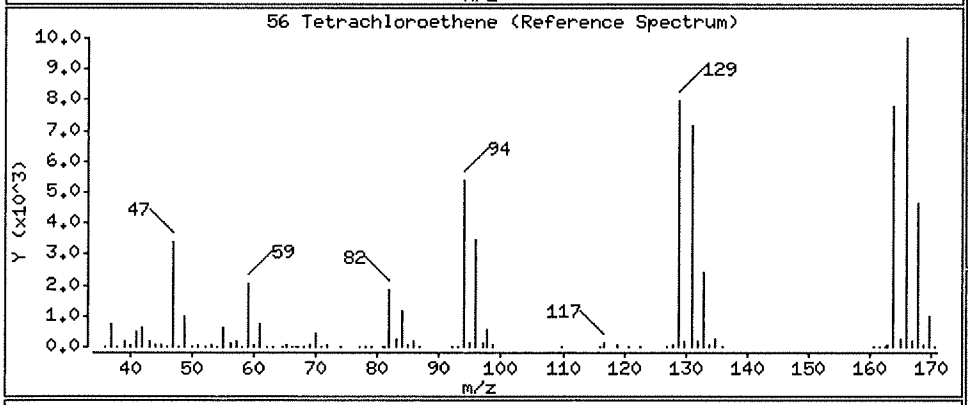
Concentration: 1.68 ug/l

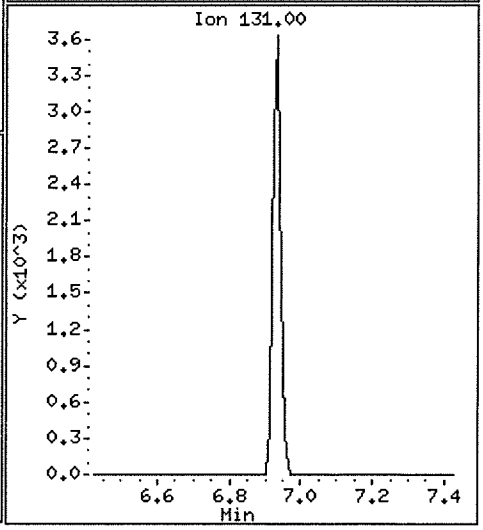


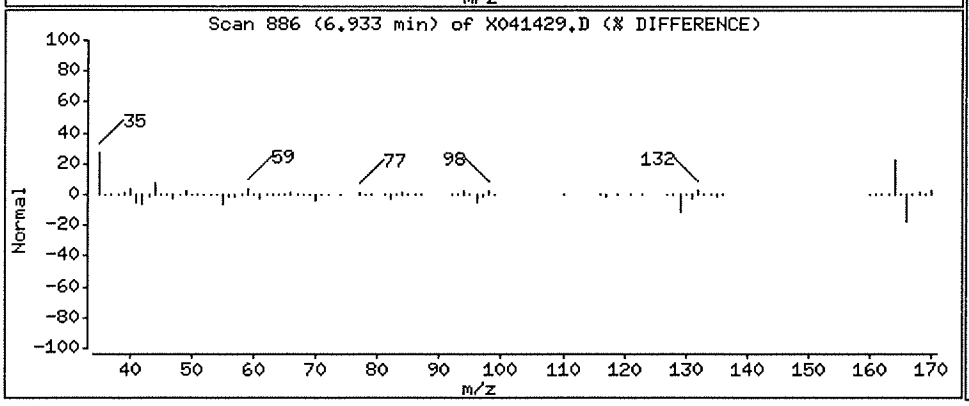












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041429.D

Date : 14-APR-2021 20:52

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

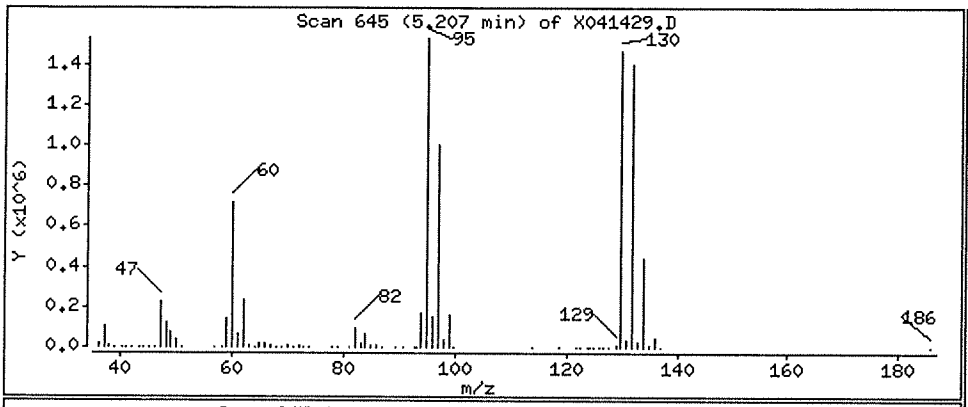
Operator: PC

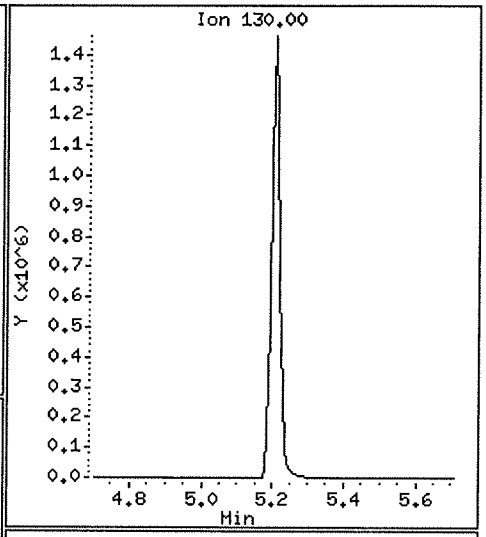
Column phase: DB624

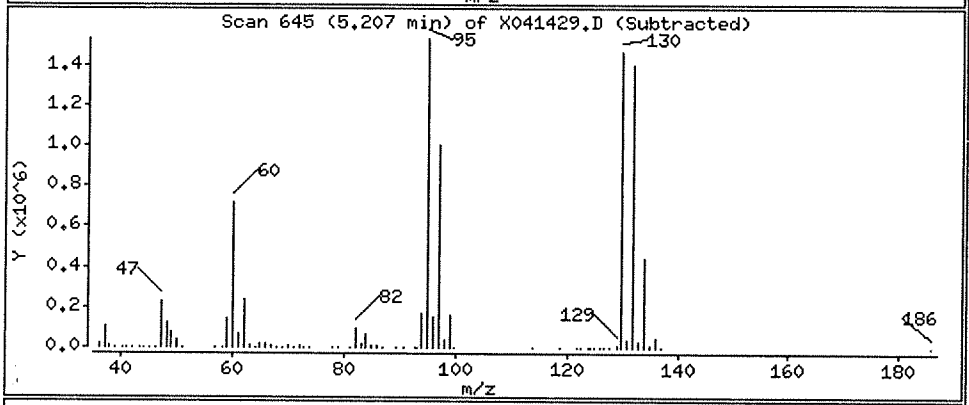
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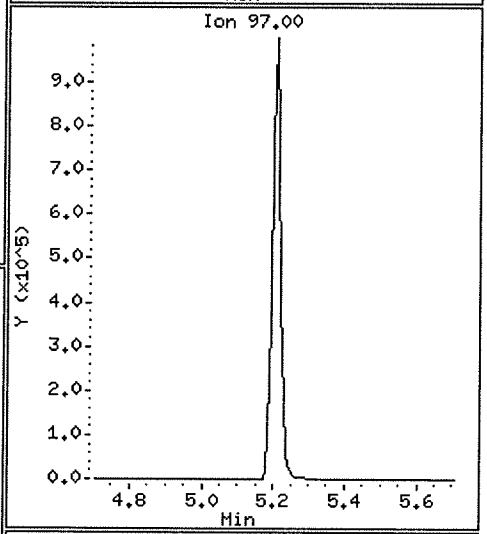
38 Trichloroethene

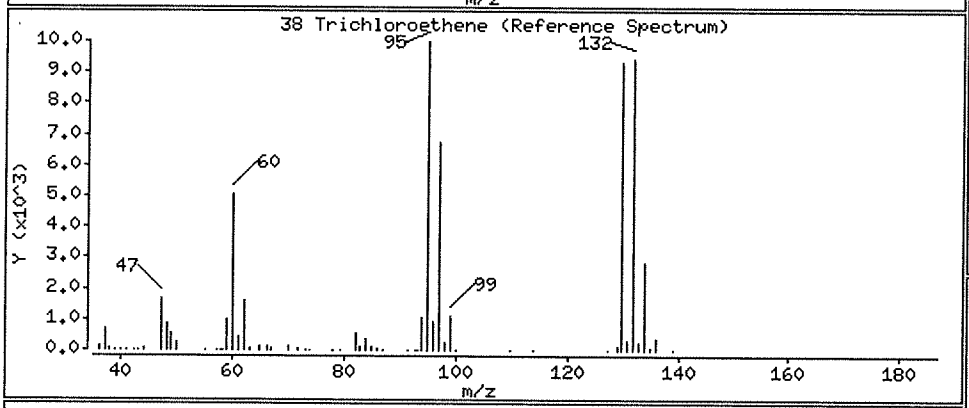
Concentration: 512.92 ug/l

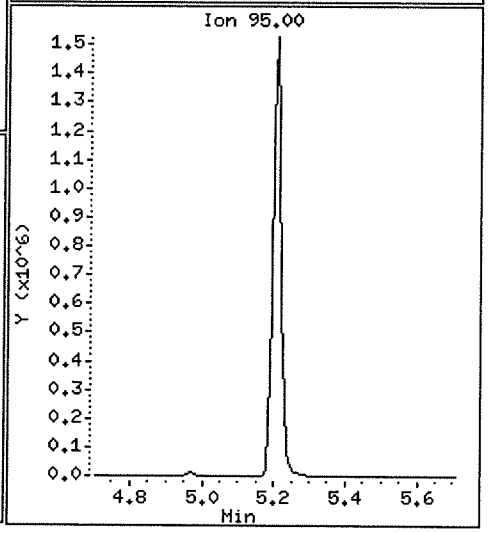


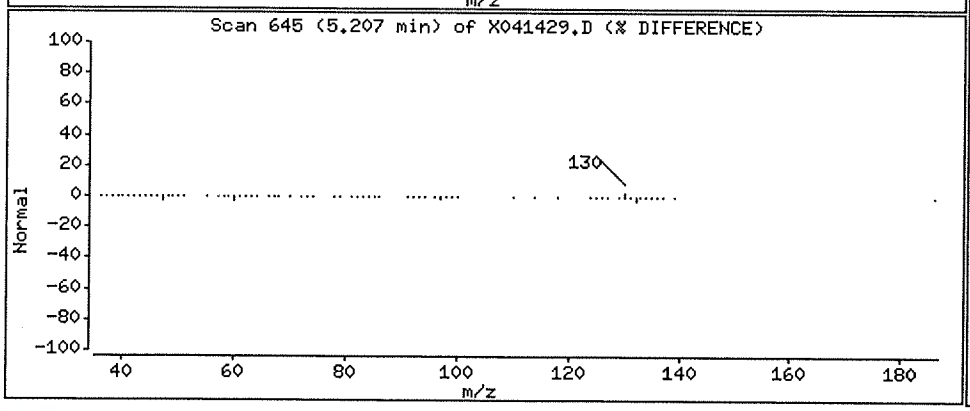












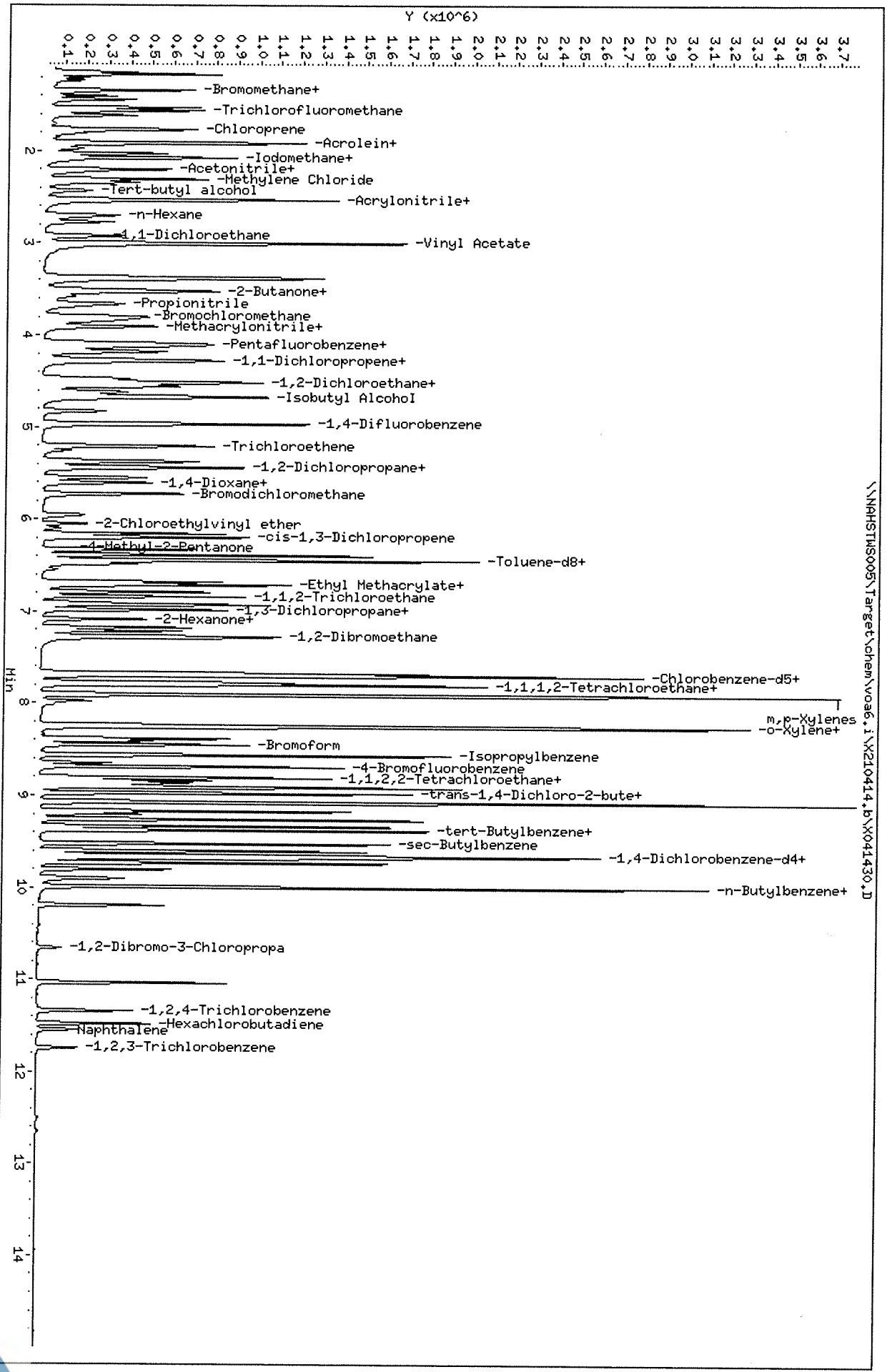
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041430.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 14-APR-2021 21:13
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:16 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	403721	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	709400	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	716029	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	347500	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	243858	50.0000	51.29
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	305925	50.0000	53.68
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	852201	50.0000	46.44
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	364046	50.0000	52.91
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	252922	50.0000	43.99
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	374340	50.0000	49.85
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	250183	50.0000	50.69
56 Tetrachloroethene	164	6.926	6.926	(0.903)	181767	50.0000	42.05
38 Trichloroethene	130	5.207	5.207	(1.048)	232337	50.0000	47.84
5 Vinyl Chloride	62	1.145	1.145	(0.274)	286696	50.0000	47.36



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\X041430.D
Date : 14-APR-2021 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

MSVOA06 -Logbook

Batch: 44419 **Analyst:** Presenta Cabascango

Date: 04-14-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-14-2021 11:03 am	1.00	50 mL	50 mL	X041401.D	Liquid	Y	NA
2	CCV	CCV	04-14-2021 11:24 am	1.00	50 mL	50 mL	X041402.D	Liquid	Y	NA
3	BLANK	SAMP	04-14-2021 11:45 am	1.00	50 mL	50 mL	X041403.D	Liquid	Y	NA
4	CCB	SAMP	04-14-2021 12:06 pm	1.00	50 mL	50 mL	X041404.D	Liquid	Y	NA
5	VLCSW-210414	LCS	04-14-2021 12:27 pm	1.00	50 mL	50 mL	X041405.D	Liquid	Y	NA
6	BLANK	SAMP	04-14-2021 12:48 pm	1.00	50 mL	50 mL	X041406.D	Liquid	Y	NA
7	VBLKW-210414	MBLK	04-14-2021 01:09 pm	1.00	50 mL	50 mL	X041407.D	Liquid	Y	NA
8	HS21040618-01	SAMP	04-14-2021 01:30 pm	1.00	50 mL	50 mL	X041408.D	Liquid	Y	NA
9	HS21040618-02	SAMP	04-14-2021 01:51 pm	1.00	50 mL	50 mL	X041409.D	Liquid	Y	NA
10	HS21040618-13	SAMP	04-14-2021 02:12 pm	1.00	50 mL	50 mL	X041410.D	Liquid	Y	NA
11	HS21040618-08	SAMP	04-14-2021 02:33 pm	1.00	50 mL	50 mL	X041411.D	Liquid	Y	NA
12	HS21040634-01	SAMP	04-14-2021 02:54 pm	10.00	5 mL	50 mL	X041412.D	Liquid	Y	NA
13	HS21040542-09	SAMP	04-14-2021 03:16 pm	20.00	2.5 mL	50 mL	X041413.D	Liquid	Y	NA
14	HS21040618-08MS	MS	04-14-2021 03:37 pm	1.00	50 mL	50 mL	X041414.D	Liquid	Y	NA
15	HS21040618-08MSD	MSD	04-14-2021 03:58 pm	1.00	50 mL	50 mL	X041415.D	Liquid	Y	NA
16	HS21040542-01	SAMP	04-14-2021 04:19 pm	5.00	10 mL	50 mL	X041416.D	Liquid	Y	NA
17	HS21040542-03	SAMP	04-14-2021 04:40 pm	5.00	10 mL	50 mL	X041417.D	Liquid	Y	NA
18	HS21040561-16	SAMP	04-14-2021 05:01 pm	25.00	2 mL	50 mL	X041418.D	Liquid	Y	NA
19	HS21040618-09	SAMP	04-14-2021 05:22 pm	1.00	50 mL	50 mL	X041419.D	Liquid	Y	NA
20	HS21040618-10	SAMP	04-14-2021 05:43 pm	1.00	50 mL	50 mL	X041420.D	Liquid	Y	NA
21	HS21040618-11	SAMP	04-14-2021 06:04 pm	1.00	50 mL	50 mL	X041421.D	Liquid	Y	NA
22	HS21040618-12	SAMP	04-14-2021 06:25 pm	1.00	50 mL	50 mL	X041422.D	Liquid	Y	NA
23	HS21040634-02	SAMP	04-14-2021 06:46 pm	1.00	50 mL	50 mL	X041423.D	Liquid	Y	NA
24	HS21040634-03	SAMP	04-14-2021 07:07 pm	1.00	50 mL	50 mL	X041424.D	Liquid	Y	NA
25	HS21040634-04	SAMP	04-14-2021 07:28 pm	1.00	50 mL	50 mL	X041425.D	Liquid	Y	NA
26	HS21040664-01	SAMP	04-14-2021 07:49 pm	1.00	50 mL	50 mL	X041426.D	Liquid	Y	NA
27	HS21040286-06	SAMP	04-14-2021 08:10 pm	1.00	50 mL	50 mL	X041427.D	Liquid	Y	NA
28	HS21040286-07	SAMP	04-14-2021 08:31 pm	1.00	50 mL	50 mL	X041428.D	Liquid	Y	NA
29	HS21040286-05	SAMP	04-14-2021 08:52 pm	1.00	50 mL	50 mL	X041429.D	Liquid	Y	NA
30	CCV-END	CCV	04-14-2021 09:13 pm	1.00	50 mL	50 mL	X041430.D	Liquid	Y	NA
31	BFB	TUNE	04-14-2021 09:34 pm	1.00	50 mL	50 mL	Y041401.D	Liquid	Y	NA
32	CCV	CCV	04-14-2021 09:55 pm	1.00	50 mL	50 mL	Y041402.D	Liquid	Y	NA
33	BLANK	SAMP	04-14-2021 10:16 pm	1.00	50 mL	50 mL	Y041403.D	Liquid	Y	NA
34	CCB	SAMP	04-14-2021 10:37 pm	1.00	50 mL	50 mL	Y041404.D	Liquid	Y	NA
35	VLCSW-210414	LCS	04-14-2021 10:58 pm	1.00	50 mL	50 mL	Y041405.D	Liquid	Y	NA
36	BLANK	SAMP	04-14-2021 11:19 pm	1.00	50 mL	50 mL	Y041406.D	Liquid	Y	NA
37	VBLKW-210414	MBLK	04-14-2021 11:40 pm	1.00	50 mL	50 mL	Y041407.D	Liquid	Y	NA
38	HS21040286-10	SAMP	04-15-2021 12:01 am	1.00	50 mL	50 mL	Y041408.D	Liquid	Y	NA
39	HS21040286-03	SAMP	04-15-2021 12:22 am	1.00	50 mL	50 mL	Y041409.D	Liquid	Y	NA
40	HS21040286-04	SAMP	04-15-2021 12:43 am	1.00	50 mL	50 mL	Y041410.D	Liquid	Y	NA
41	HS21040286-08	SAMP	04-15-2021 01:04 am	1.00	50 mL	50 mL	Y041411.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
42	HS21040286-02	SAMP	04-15-2021 01:26 am	1.00	50 mL	50 mL	Y041412.D	Liquid	Y	NA
43	HS21040286-01	SAMP	04-15-2021 01:47 am	1.00	50 mL	50 mL	Y041413.D	Liquid	Y	NA
44	HS21040286-09	SAMP	04-15-2021 02:08 am	5.00	10 mL	50 mL	Y041414.D	Liquid	Y	NA
45	HS21040286-09	SAMP	04-15-2021 02:29 am	50.00	1 mL	50 mL	Y041415.D	Liquid	Y	NA
46	HS21040286-08MS	MS	04-15-2021 02:50 am	1.00	50 mL	50 mL	Y041416.D	Liquid	Y	NA
47	HS21040286-08MSD	MSD	04-15-2021 03:11 am	1.00	50 mL	50 mL	Y041417.D	Liquid	Y	NA
48	CCV-END	CCV	04-15-2021 03:32 am	1.00	50 mL	50 mL	Y041418.D	Liquid	Y	NA
49	BLANK	SAMP	04-15-2021 03:53 am	1.00	50 mL	50 mL	Y041419.D	Liquid	Y	NA
50	HS21040560-01	SAMP	04-15-2021 04:14 am	1.00	50 mL	50 mL	Y041420.D	Liquid	Y	NA
51	HS21040560-02	SAMP	04-15-2021 04:35 am	1.00	50 mL	50 mL	Y041421.D	Liquid	Y	NA
52	HS21040560-03	SAMP	04-15-2021 04:56 am	1.00	50 mL	50 mL	Y041422.D	Liquid	Y	NA
53	HS21040560-04	SAMP	04-15-2021 05:17 am	1.00	50 mL	50 mL	Y041423.D	Liquid	Y	NA
54	HS21040642-01	SAMP	04-15-2021 05:38 am	1.00	50 mL	50 mL	Y041424.D	Liquid	Y	NA
55	HS21040642-02	SAMP	04-15-2021 06:00 am	1.00	50 mL	50 mL	Y041425.D	Liquid	Y	NA
56	HS21040642-03	SAMP	04-15-2021 06:21 am	1.00	50 mL	50 mL	Y041426.D	Liquid	Y	NA
57	HS21040642-04	SAMP	04-15-2021 06:42 am	1.00	50 mL	50 mL	Y041427.D	Liquid	Y	NA
58	HS21040643-01	SAMP	04-15-2021 07:03 am	1.00	50 mL	50 mL	Y041428.D	Liquid	Y	NA
59	HS21040643-02	SAMP	04-15-2021 07:24 am	1.00	50 mL	50 mL	Y041429.D	Liquid	Y	NA
60	HS21040643-03	SAMP	04-15-2021 07:45 am	1.00	50 mL	50 mL	Y041430.D	Liquid	Y	NA
61	HS21040643-04	SAMP	04-15-2021 08:06 am	1.00	50 mL	50 mL	Y041431.D	Liquid	Y	NA
62	BLANK	SAMP	04-15-2021 08:27 am	1.00	50 mL	50 mL	Y041440.D	Liquid	Y	NA

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-210414	104	111	96	97	0
02	VBLKW-210414	94	95	104	96	0
03	HS21040286-10	95	95	103	96	0
04	HS21040286-03	93	95	103	96	0
05	HS21040286-04	94	96	104	95	0
06	HS21040286-08	96	95	106	96	0
07	HS21040286-02	94	96	105	97	0
08	HS21040286-01	93	96	107	99	0
09	HS21040286-09	93	97	104	95	0
10	HS21040286-09	94	96	105	98	0
11	HS21040286-08MS	99	102	102	103	0
12	HS21040286-08MSD	97	102	103	102	0
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(0-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210414

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: Y041407 Lab Sample ID: VBLKW-210414

Date Analyzed: 04/14/21 Time Analyzed: 2340

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210414	VLCSW-210414	Y041405	2258
02	HS21040286-10	HS21040286-10	Y041408	0001
03	HS21040286-03	HS21040286-03	Y041409	0022
04	HS21040286-04	HS21040286-04	Y041410	0043
05	HS21040286-08	HS21040286-08	Y041411	0104
06	HS21040286-02	HS21040286-02	Y041412	0126
07	HS21040286-01	HS21040286-01	Y041413	0147
08	HS21040286-09	HS21040286-09	Y041414	0208
09	HS21040286-09	HS21040286-09	Y041415	0229
10	HS21040286-08MS	HS21040286-08MS	Y041416	0250
11	HS21040286-08MSD	HS21040286-08MSD	Y041417	0311
12				
13				
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30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: Y041401 BFB Injection Date: 04/14/21

Instrument ID: VOA6 BFB Injection Time: 2134

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	22.4
75	30.0 - 60.0% of mass 95	56.9
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 (0.9)1
174	Greater than 50.0% of mass 95	61.5
175	5.0 - 9.0% of mass 174	5.3 (8.6)1
176	95.0 - 101.0% of mass 174	59.8 (97.3)1
177	5.0 - 9.0% of mass 176	4.3 (7.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	Y041402	04/14/21	2155
02	VLCSW-210414	VLCSW-210414	Y041405	04/14/21	2258
03	VBLKW-210414	VBLKW-210414	Y041407	04/14/21	2340
04	HS21040286-10	HS21040286-10	Y041408	04/15/21	0001
05	HS21040286-03	HS21040286-03	Y041409	04/15/21	0022
06	HS21040286-04	HS21040286-04	Y041410	04/15/21	0043
07	HS21040286-08	HS21040286-08	Y041411	04/15/21	0104
08	HS21040286-02	HS21040286-02	Y041412	04/15/21	0126
09	HS21040286-01	HS21040286-01	Y041413	04/15/21	0147
10	HS21040286-09	HS21040286-09	Y041414	04/15/21	0208
11	HS21040286-09	HS21040286-09	Y041415	04/15/21	0229
12	HS21040286-08MS	HS21040286-08MS	Y041416	04/15/21	0250
13	HS21040286-08MSD	HS21040286-08MSD	Y041417	04/15/21	0311
14	CCV-END	CCV-END	Y041418	04/15/21	0332
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/14/21 Time: 2155

Lab File ID: Y041402 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.7563895	0.7563895	0.1	-0.85	20.00	AVRG
1,1-Dichloroethene	0.7120000	0.6317936	0.6317936	0.1	11.26	20.00	AVRG
1,2-Dichloroethane	0.5290000	0.5179182	0.5179182	0.1	2.09	20.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.6246569	0.6246569	0.1	-2.24	20.00	AVRG
Tetrachloroethene	0.3020000	0.2646277	0.2646277	0.2	12.37	20.00	AVRG
Trichloroethene	0.3420000	0.3307474	0.3307474	0.2	3.29	20.00	AVRG
Dibromofluoromethane	50.780061	50.000000	0.5979229	0.1	-1.56	20.00	LINR
1,2-Dichloroethane-d4	54.607656	50.000000	0.7709440	0.1	-9.22	20.00	LINR
Toluene-d8	48.014520	50.000000	1.2321961	0.1	3.97	20.00	LINR
4-Bromofluorobenzene	51.714037	50.000000	0.4965074	0.1	-3.43	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/15/21 Time: 0332

Lab File ID: Y041418 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.8526913	0.8526913	0.1	-13.69	50.00	AVRG
1,1-Dichloroethene	0.7120000	0.7270336	0.7270336	0.1	-2.11	50.00	AVRG
1,2-Dichloroethane	0.5290000	0.5232429	0.5232429	0.1	1.09	50.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.6706625	0.6706625	0.1	-9.76	50.00	AVRG
Tetrachloroethene	0.3020000	0.2934097	0.2934097	0.2	2.84	50.00	AVRG
Trichloroethene	0.3420000	0.3494079	0.3494079	0.2	-2.17	50.00	AVRG
Dibromofluoromethane	50.772926	50.000000	0.5978382	0.1	-1.54	50.00	LINR
1,2-Dichloroethane-d4	54.261041	50.000000	0.7660068	0.1	-8.52	50.00	LINR
Toluene-d8	46.143401	50.000000	1.1822481	0.1	7.71	50.00	LINR
4-Bromofluorobenzene	47.807700	50.000000	0.4577662	0.1	4.38	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): Y041402 Date Analyzed: 04/14/21

Instrument ID: VOA6 Time Analyzed: 2155

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	426948	4.18	739528	4.97	736567	7.67
	UPPER LIMIT	853896	4.68	1479056	5.47	1473134	8.17
	LOWER LIMIT	213474	3.68	369764	4.47	368284	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-210414	381971	4.18	687970	4.96	657229	7.67
02	VBLKW-210414	446478	4.18	748617	4.97	701632	7.67
03	HS21040286-10	434623	4.18	735382	4.96	701011	7.67
04	HS21040286-03	431331	4.18	716141	4.97	679430	7.67
05	HS21040286-04	427625	4.18	710755	4.96	671605	7.67
06	HS21040286-08	411632	4.18	679452	4.97	635776	7.67
07	HS21040286-02	437074	4.18	729223	4.97	689550	7.67
08	HS21040286-01	422855	4.18	702796	4.96	657168	7.67
09	HS21040286-09	420618	4.18	698504	4.97	656942	7.67
10	HS21040286-09	424673	4.18	705213	4.96	662503	7.67
11	HS21040286-08MS	461538	4.18	790220	4.97	732447	7.67
12	HS21040286-08MSD	483000	4.18	804633	4.97	743292	7.67
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): Y041402 Date Analyzed: 04/14/21

Instrument ID: VOA6 Time Analyzed: 2155

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	362291	9.66				
	UPPER LIMIT	724582	10.16				
	LOWER LIMIT	181146	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-210414	308392	9.66				
02	VBLKW-210414	306006	9.66				
03	HS21040286-10	309607	9.66				
04	HS21040286-03	296234	9.66				
05	HS21040286-04	287880	9.66				
06	HS21040286-08	277416	9.66				
07	HS21040286-02	315587	9.66				
08	HS21040286-01	281277	9.66				
09	HS21040286-09	271557	9.66				
10	HS21040286-09	292261	9.66				
11	HS21040286-08MS	373156	9.66				
12	HS21040286-08MSD	367253	9.66				
13							
14							
15							
16							
17							
18							
19							
20							

IS4 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041401.D

Date : 14-APR-2021 21:34

Client ID: BFB

Instrument: voa6.i

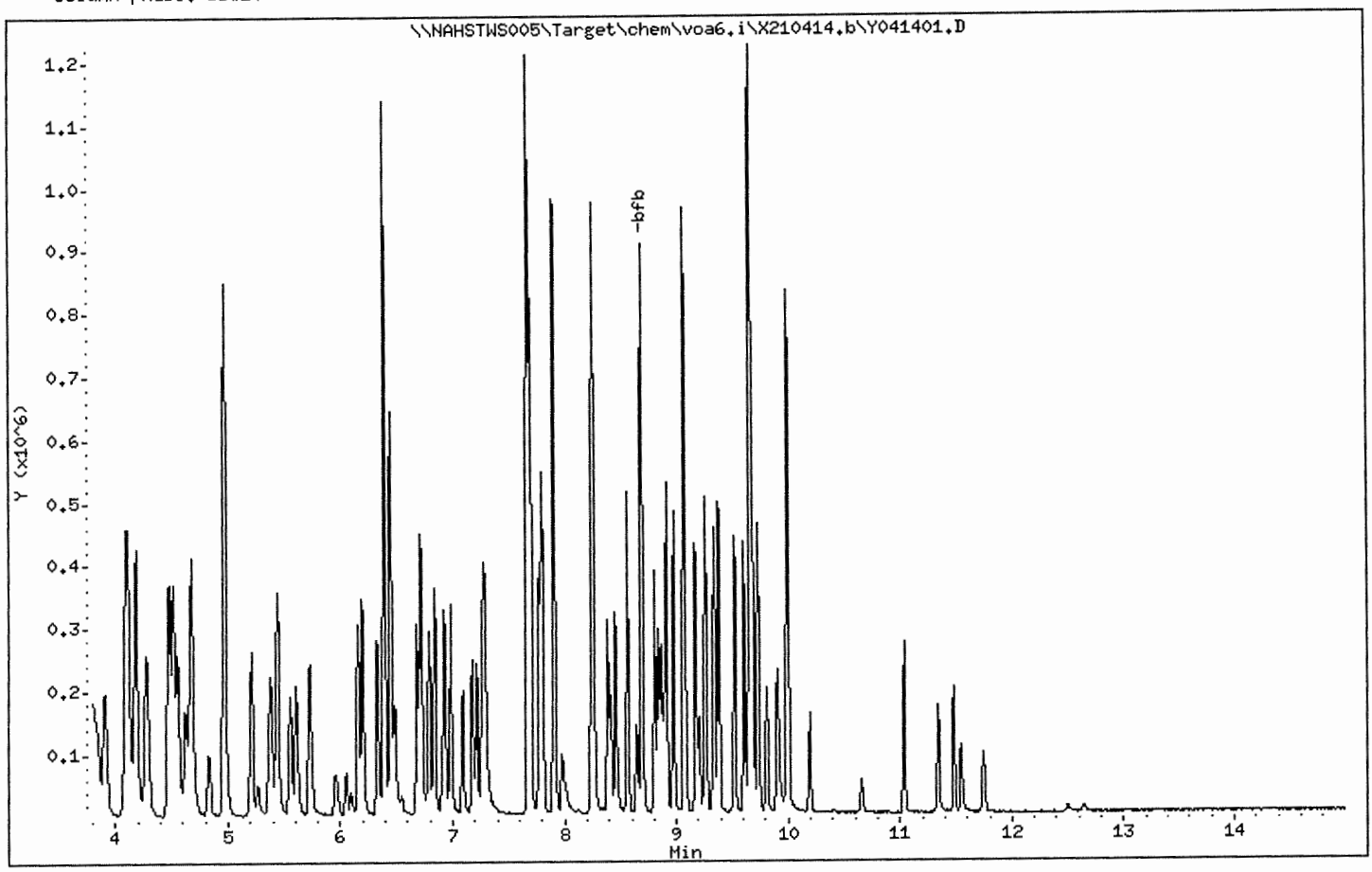
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041401.D

Date : 14-APR-2021 21:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

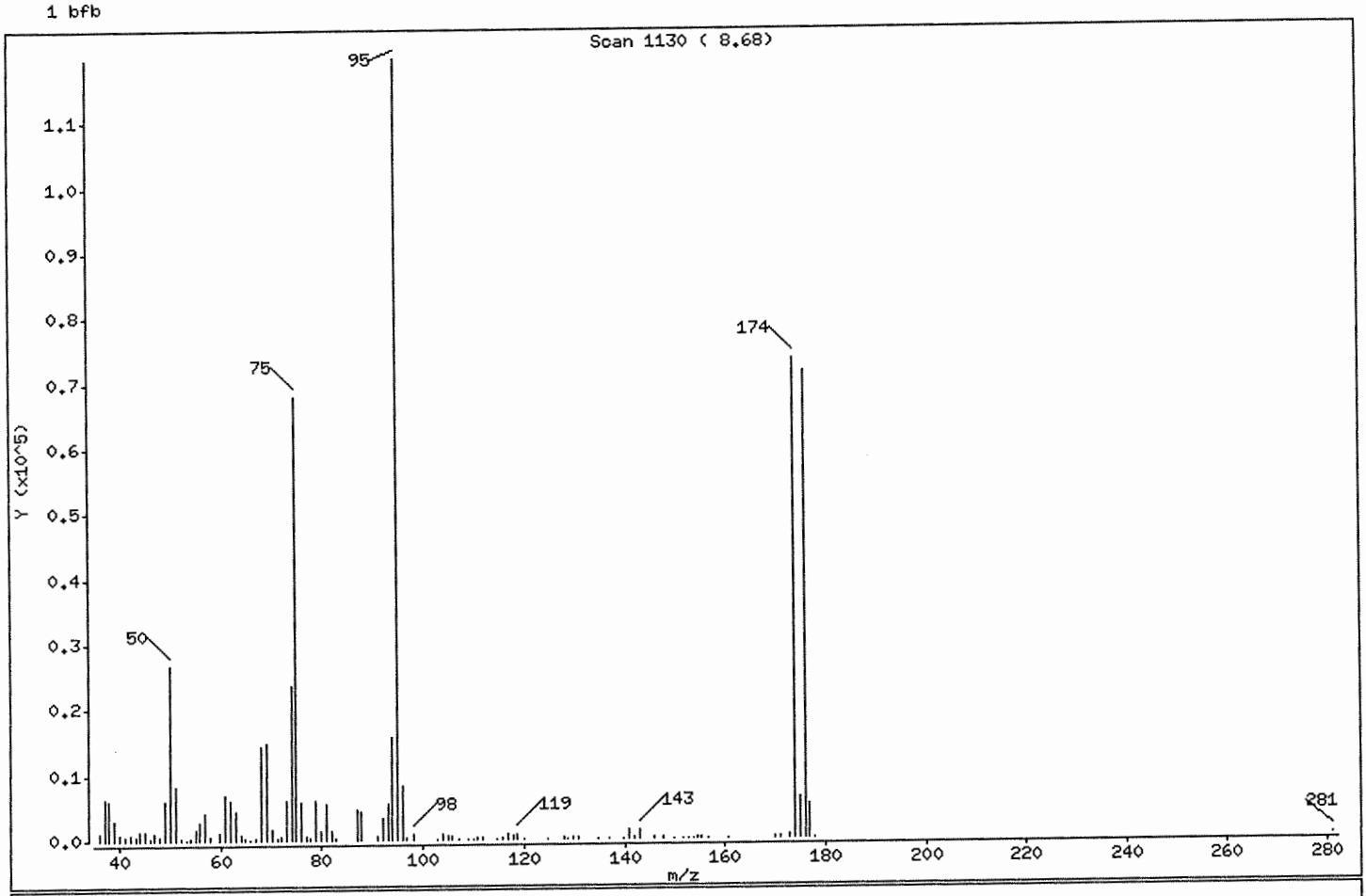
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	22.38
75	30.00 - 60.00% of mass 95	56.89
96	5.00 - 9.00% of mass 95	7.00
173	Less than 2.00% of mass 174	0.56 (0.90)
174	Greater than 50.00% of mass 95	61.47
175	5.00 - 9.00% of mass 174	5.31 (8.64)
176	95.00 - 101.00% of mass 174	59.80 (97.28)
177	5.00 - 9.00% of mass 176	4.30 (7.19)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041401.D

Date : 14-APR-2021 21:34

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: Y041401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 102

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1169	63.00	4536	94.00	15696	136.90	98
37.00	6350	63.90	728	95.00	119720	139.80	55
38.00	6072	64.80	138	96.00	8378	140.90	1281
39.10	3021	65.90	100	96.90	222	141.90	142
39.90	697	67.00	170	98.00	932	142.90	1472
41.00	612	68.00	14404	102.90	76	145.80	359
42.00	895	69.00	14885	103.80	862	147.80	321
43.10	570	70.00	1782	104.90	414	149.70	104
44.00	1345	71.20	147	105.80	435	151.80	110
45.00	1383	71.80	546	107.00	137	152.80	56
46.00	139	73.00	6104	108.90	69	153.80	92
46.90	1009	74.00	23656	109.90	88	154.60	255
47.90	631	75.00	68104	110.80	279	155.10	138
49.00	6066	76.00	5656	111.80	213	156.80	80
50.00	26792	77.00	514	114.60	101	160.60	85
51.00	8162	77.80	398	115.80	389	169.80	163
52.10	272	78.90	6097	116.80	887	171.20	168
53.30	117	79.90	1441	117.90	453	172.80	665
53.90	228	80.90	5509	118.80	700	173.90	73592
55.10	1609	81.90	1330	119.90	116	174.90	6356
55.90	2742	82.90	373	124.80	81	175.90	71592
57.00	4136	86.90	4663	127.80	392	176.90	5150
57.90	467	87.90	4304	128.80	125	177.90	51
59.90	1216	91.00	538	129.80	243	281.30	72
61.00	6972	91.90	3405	130.70	182		
62.00	5925	93.00	5465	134.90	107		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041402.D Page 1
Report Date: 29-Apr-2021 12:28

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041402.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 14-APR-2021 21:55
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 31 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	426948	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	739528	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	736567	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	362291	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	255282	50.0000	50.78
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	329153	50.0000	54.60
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	907595	50.0000	48.01
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	365711	50.0000	51.71
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	269743	50.0000	44.37
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	383015	50.0000	48.93
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	266696	50.0000	51.10
56 Tetrachloroethene	164	6.926	6.926	(0.903)	194916	50.0000	43.84
38 Trichloroethene	130	5.206	5.206	(1.048)	244597	50.0000	48.31
5 Vinyl Chloride	62	1.145	1.145	(0.274)	322939	50.0000	50.45

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041402.D Page 1
Report Date: 29-Apr-2021 12:28

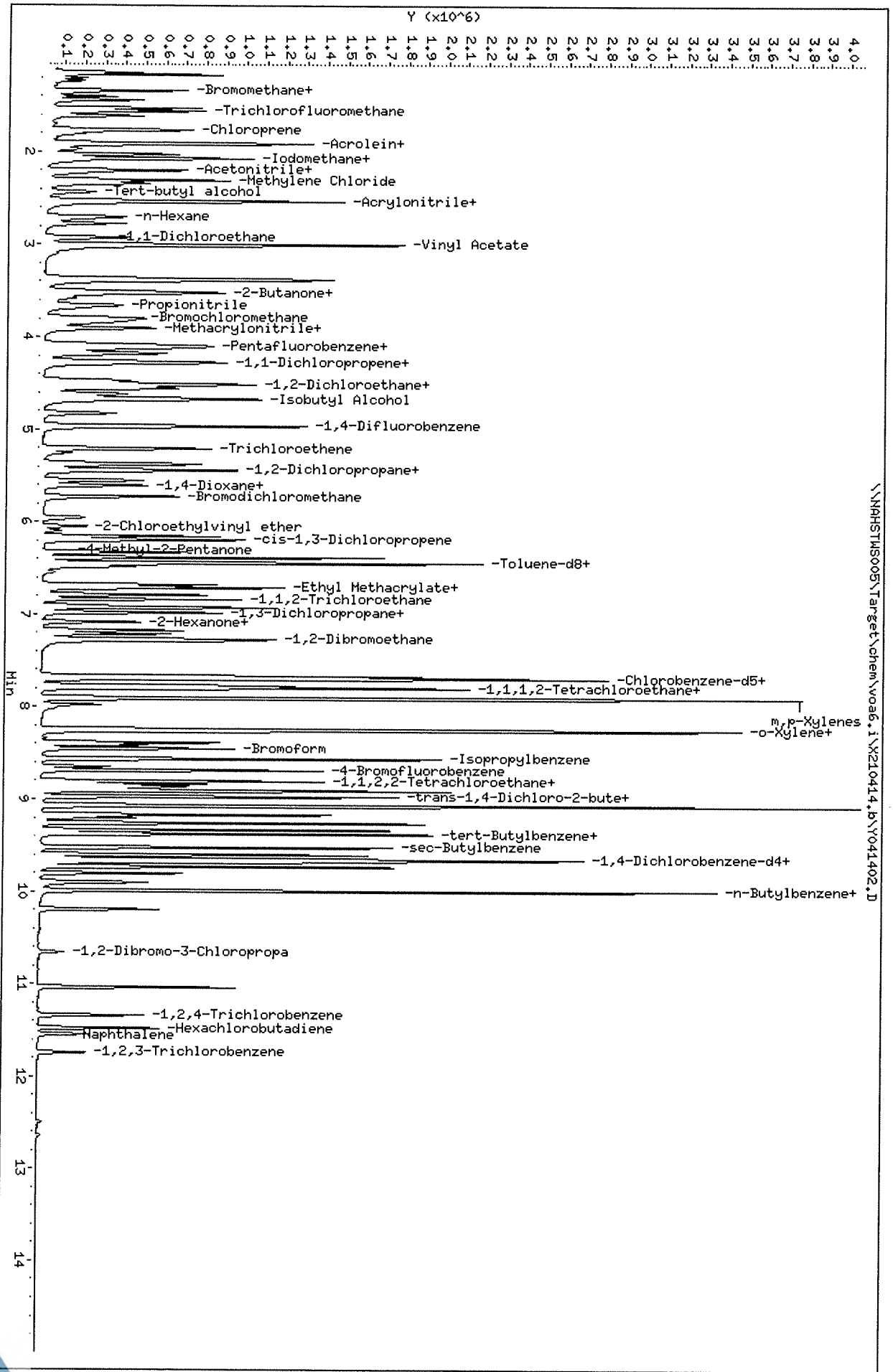
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041402.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 14-APR-2021 21:55
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 31 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	426948	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	739528	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	736567	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	362291	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	255282	50.0000	50.78
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	329153	50.0000	54.60
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	907595	50.0000	48.01
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	365711	50.0000	51.71
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	269743	50.0000	44.37
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	383015	50.0000	48.93
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	266696	50.0000	51.10
56 Tetrachloroethene	164	6.926	6.926	(0.903)	194916	50.0000	43.84
38 Trichloroethene	130	5.206	5.206	(1.048)	244597	50.0000	48.31
5 Vinyl Chloride	62	1.145	1.145	(0.274)	322939	50.0000	50.45



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041402.D
Date : 14-APR-2021 21:55
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041405.D Page 1
Report Date: 29-Apr-2021 12:28

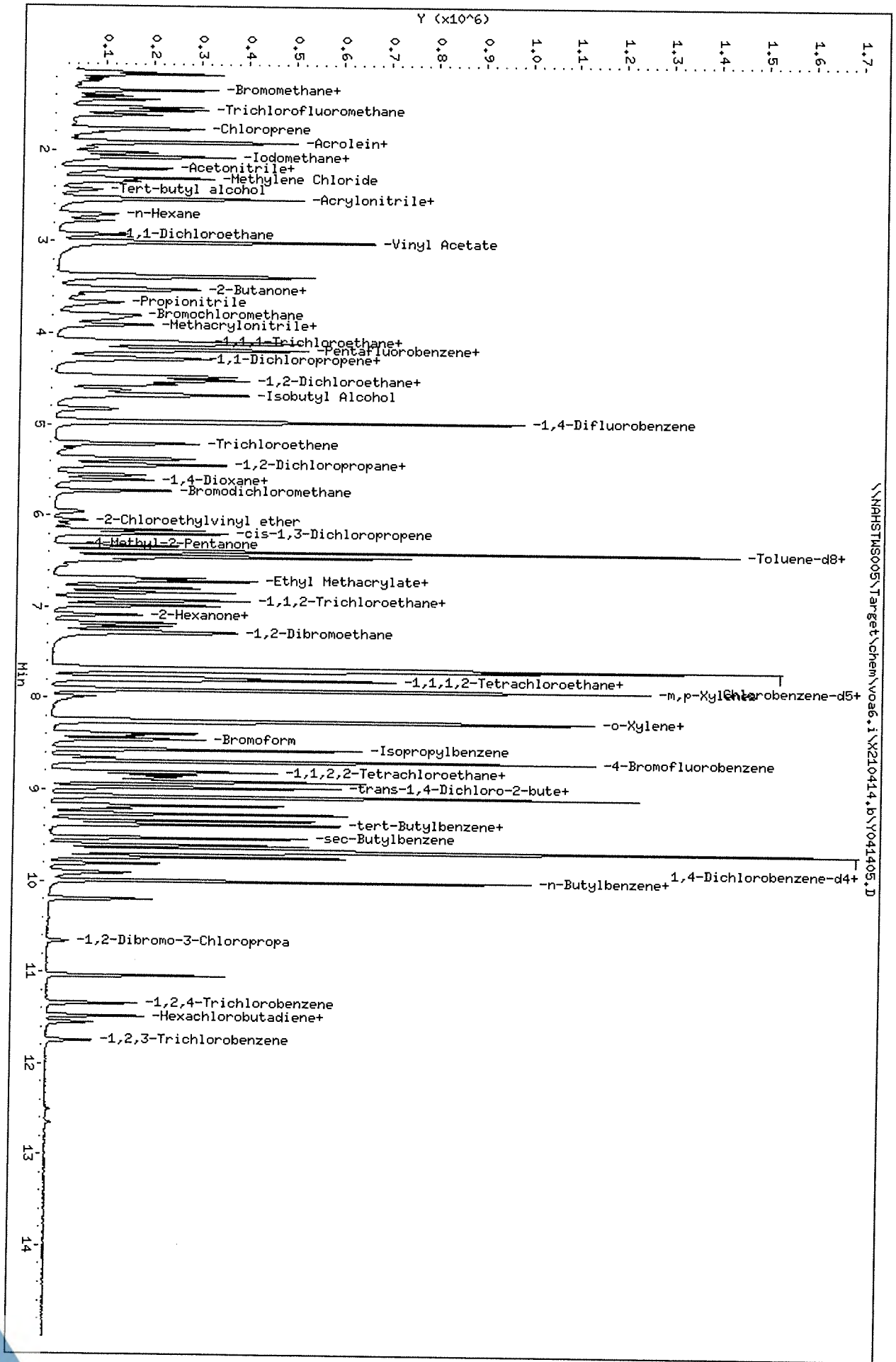
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041405.D
Lab Smp Id: VLCSW-210414 Client Smp ID: VLCSW-210414
Inj Date : 14-APR-2021 22:58
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210414;VLCSW-210414;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 34 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	381971	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	687970	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	657229	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	308392	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	233363	51.8765	51.87
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.068)	300650	55.7420	55.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	809879	48.0170	48.01
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	304742	48.4037	48.40
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	101807	18.7188	18.71
33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	144203	19.8027	19.80
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	95882	20.5347	20.53
56 Tetrachloroethene	164	6.926	6.926	(0.903)	65342	16.4707	16.47
38 Trichloroethene	130	5.207	5.206	(1.049)	92099	19.5556	19.55
5 Vinyl Chloride	62	1.145	1.145	(0.274)	122386	21.3719	21.37



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041405.D
Date : 14-APR-2021 22:58
Client ID: VLCSW-210414
Sample Info: VLCSW-210414;VLCSW-210414;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041407.D Page 1
Report Date: 29-Apr-2021 12:28

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041407.D
Lab Smp Id: VBLKW-210414 Client Smp ID: VBLKW-210414
Inj Date : 14-APR-2021 23:40
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210414;VBLKW-210414;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 36 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

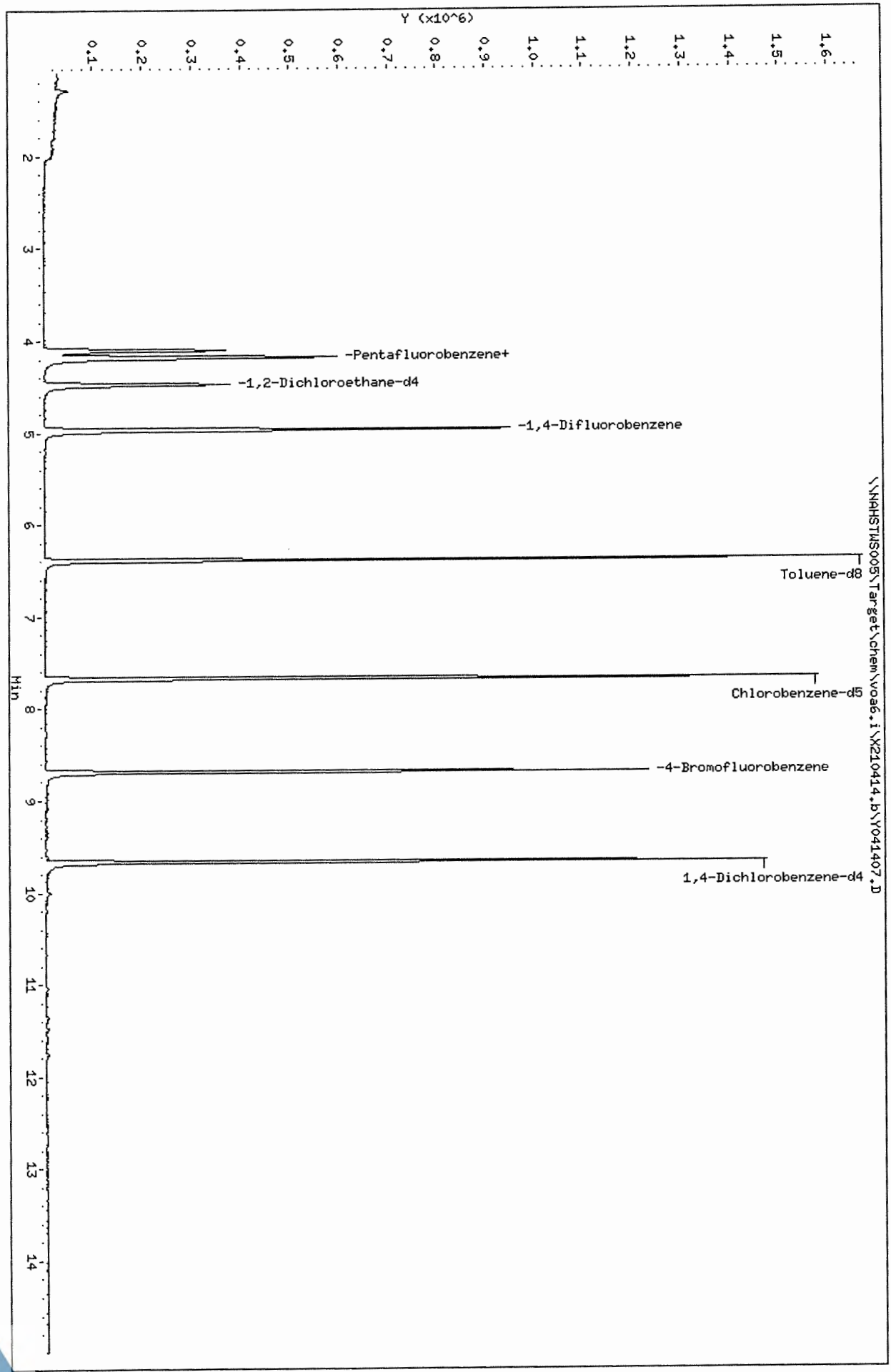
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	446478	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	748617	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	701632	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	306006	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	247287	47.0699	47.06
$ 35 1,2-Dichloroethane-d4	65	4.469	4.476	(1.069)	298156	47.3661	47.36
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	935453	51.8002	51.80
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	321850	47.9035	47.90

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041407.D
Date : 14-APR-2021 23:40
Client ID: VBLKW-210414
Sample Info: VBLKW-210414;VBLKW-210414;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041408.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041408.D
Lab Smp Id: HS21040286-10 Client Smp ID: HS21040286-10
Inj Date : 15-APR-2021 00:01
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-10;HS21040286-10;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 37
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

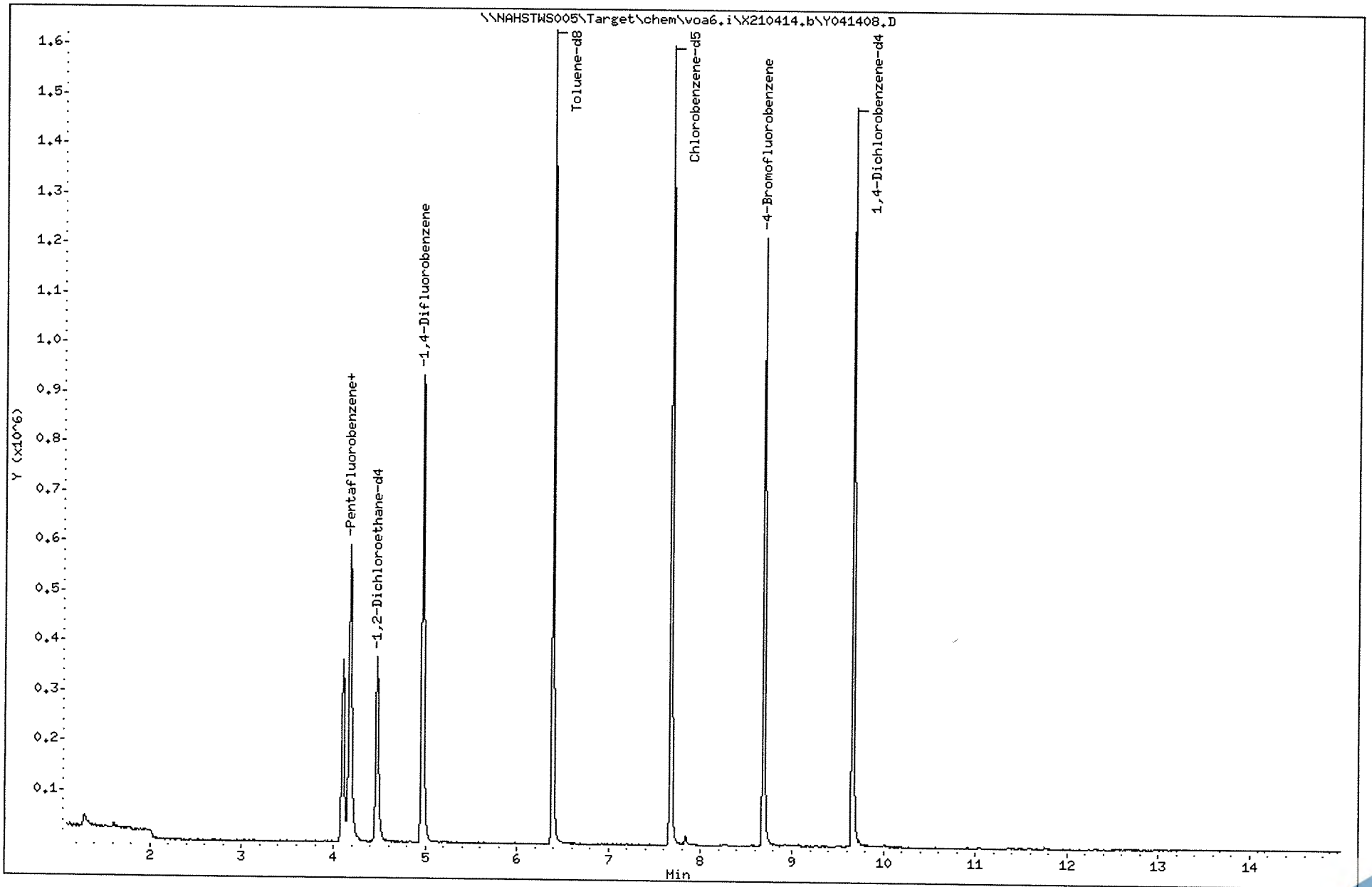
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	434623	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	735382	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	701011	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	309607	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	244193	47.7426	47.74
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	291501	47.5699	47.56
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	929337	51.5177	51.51
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	321890	47.9502	47.95

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041408.D
Date : 15-APR-2021 00:01
Client ID: HS21040286-10
Sample Info: HS21040286-10;HS21040286-10;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041409.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041409.D
Lab Smp Id: HS21040286-03 Client Smp ID: HS21040286-03
Inj Date : 15-APR-2021 00:22
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-03;HS21040286-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 38
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

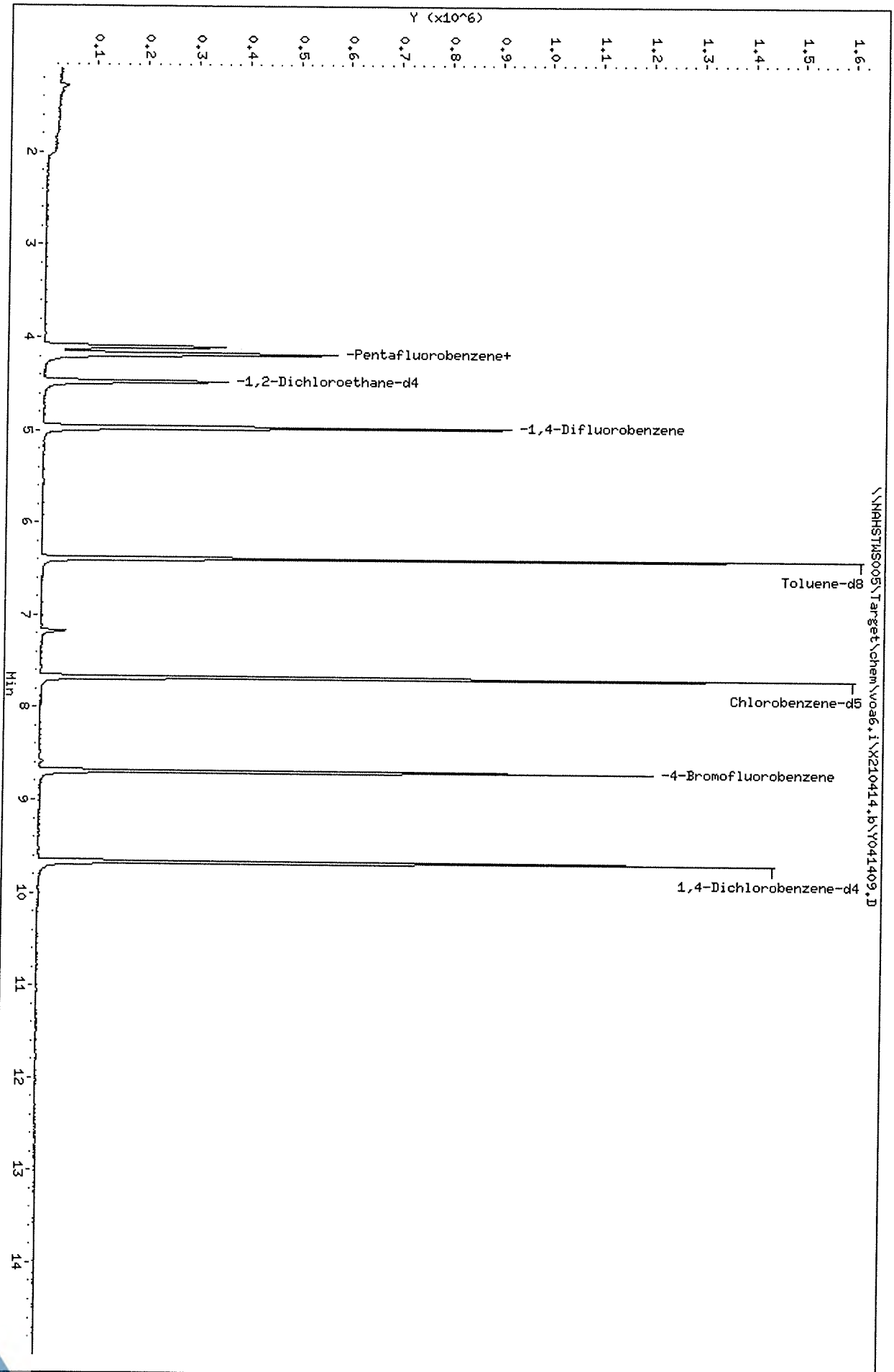
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	431331	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	716141	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	679430	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	296234	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	235181	46.3444	46.34
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	290008	47.6863	47.68
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	896782	51.3002	51.30
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	312647	48.0491	48.04

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041409.D
Date : 15-APR-2021 00:22
Client ID: HS2104O286-03
Sample Info: HS2104O286-03;HS2104O286-03;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041410.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041410.D
Lab Smp Id: HS21040286-04 Client Smp ID: HS21040286-04
Inj Date : 15-APR-2021 00:43
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-04;HS21040286-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 39
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

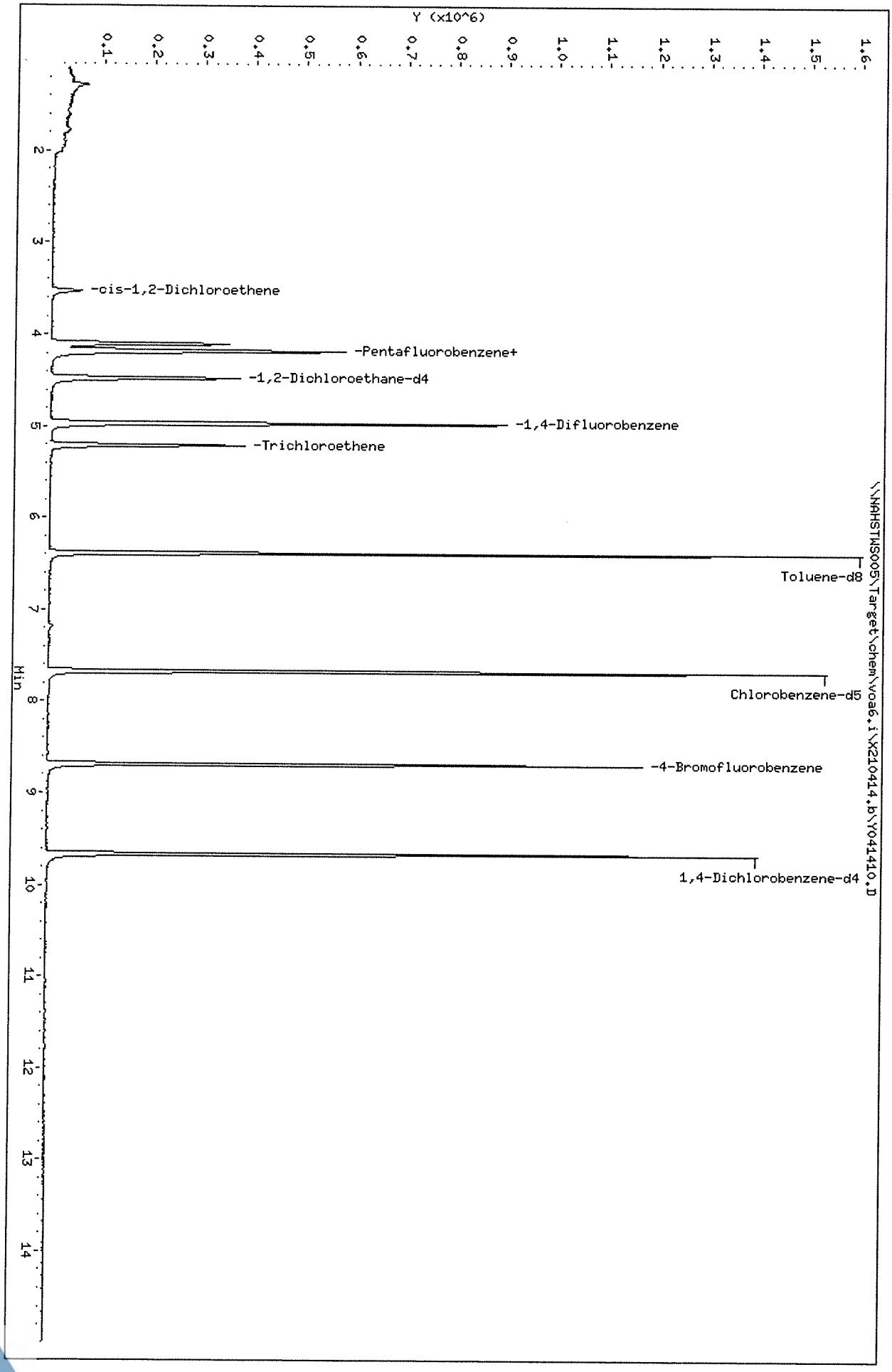
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	427625	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	710755	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	671605	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	287880	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	235779	46.8600	46.86
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	289895	48.0768	48.07
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	896195	51.8435	51.84
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	304600	47.3816	47.38
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	30700	5.87296	5.87
38 Trichloroethene	130	5.206	5.207	(1.049)	112801	23.1835	23.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041410.D
Date : 15-APR-2021 00:43
Client ID: HS21040286-04
Sample Info: HS21040286-04;HS21040286-04;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041410.D

Date : 15-APR-2021 00:43

Client ID: HS21040286-04

Instrument: voa6.i

Sample Info: HS21040286-04;HS21040286-04;;;

Purge Volume: 5.0

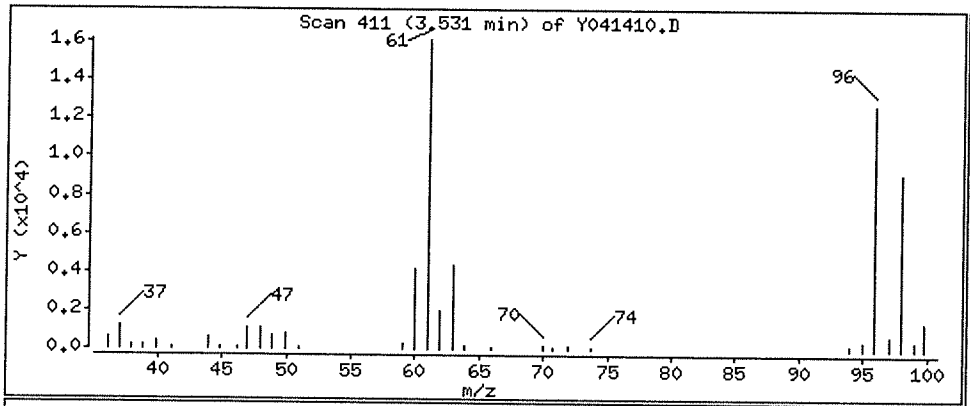
Operator: PC

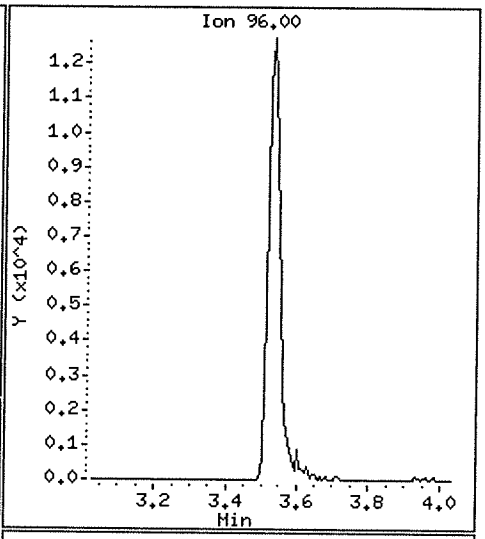
Column phase: DB624

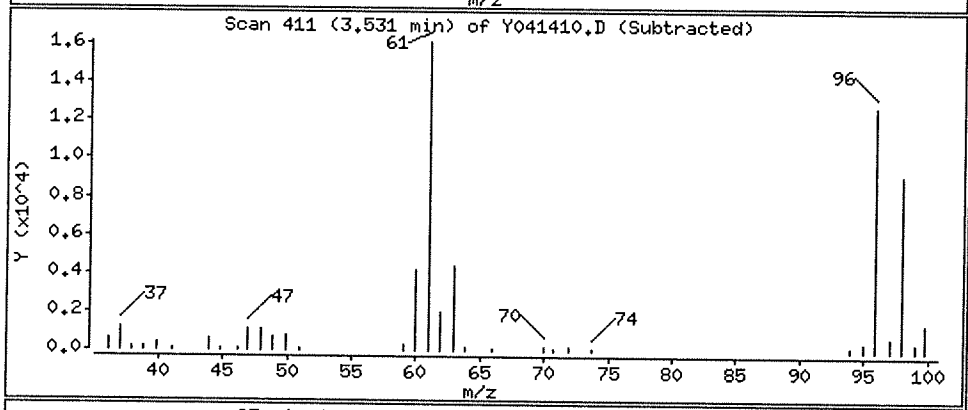
Column diameter: 0.18

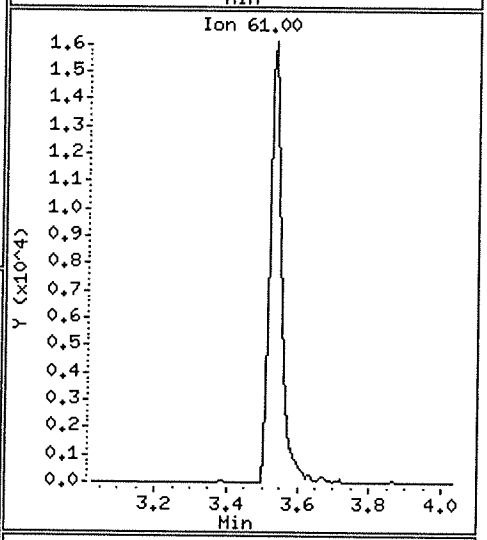
27 cis-1,2-Dichloroethene

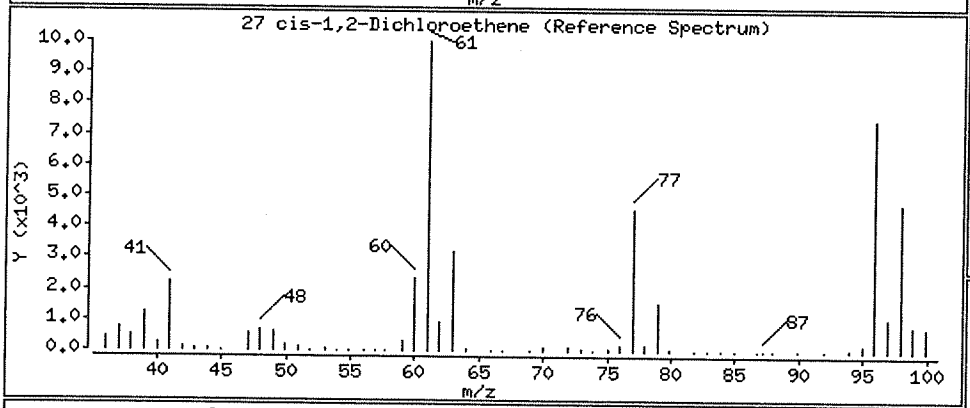
Concentration: 5.87 ug/l

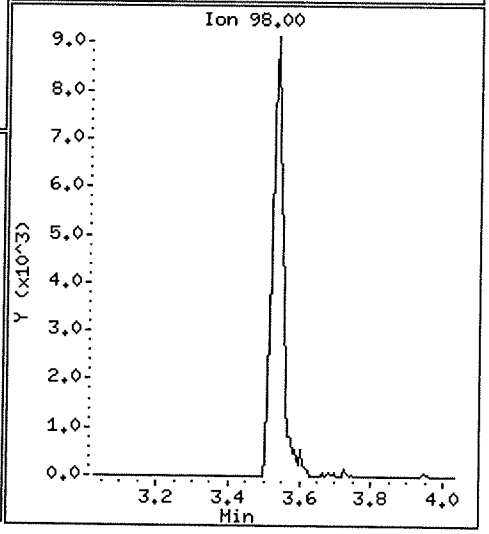


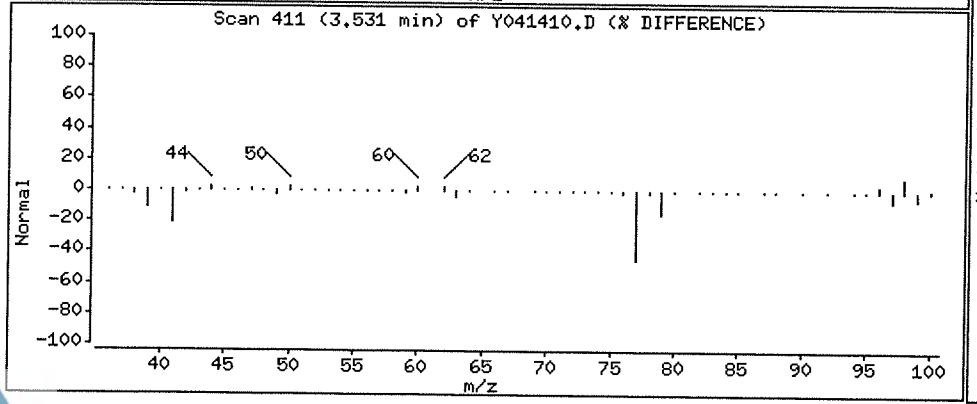












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041410.D

Date : 15-APR-2021 00:43

Client ID: HS21040286-04

Instrument: voa6.i

Sample Info: HS21040286-04;HS21040286-04;;;

Purge Volume: 5.0

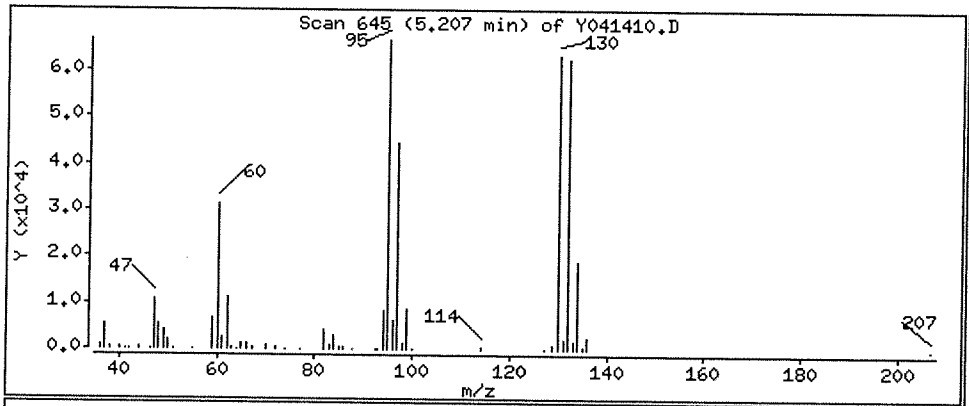
Operator: PC

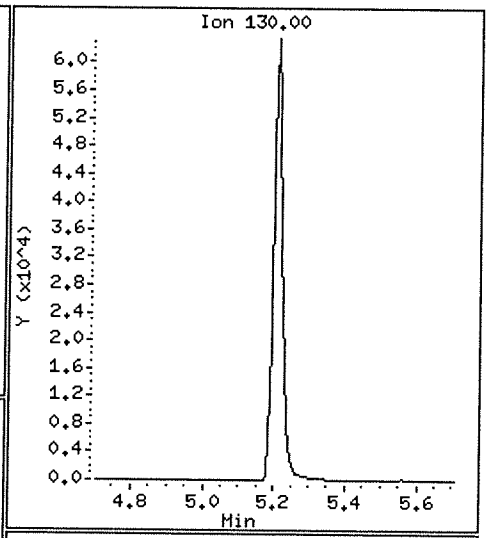
Column phase: DB624

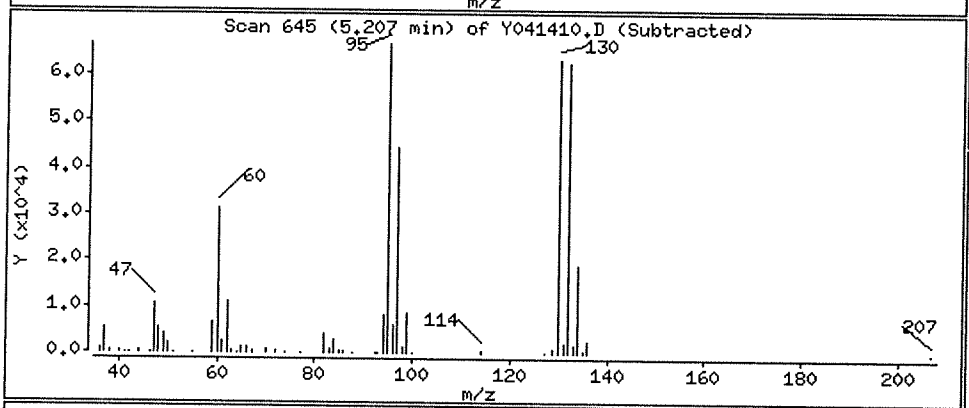
Column diameter: 0.18

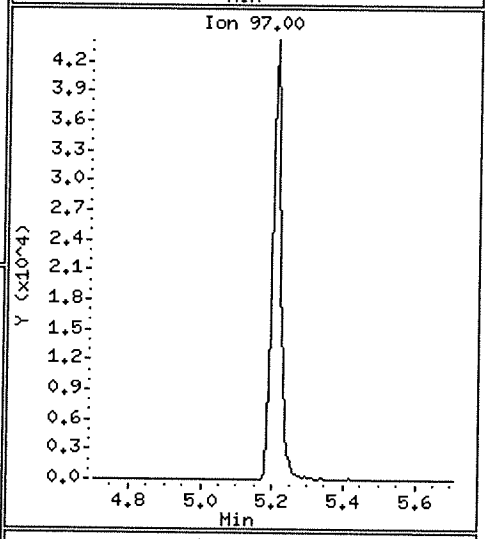
38 Trichloroethene

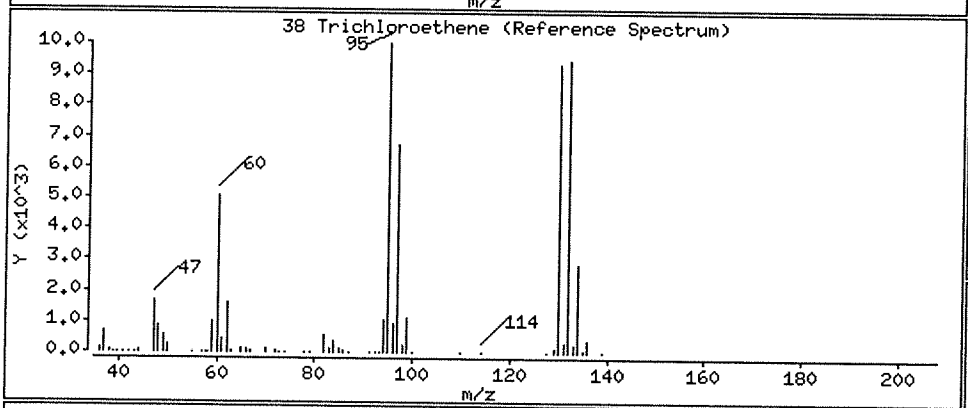
Concentration: 23.18 ug/l

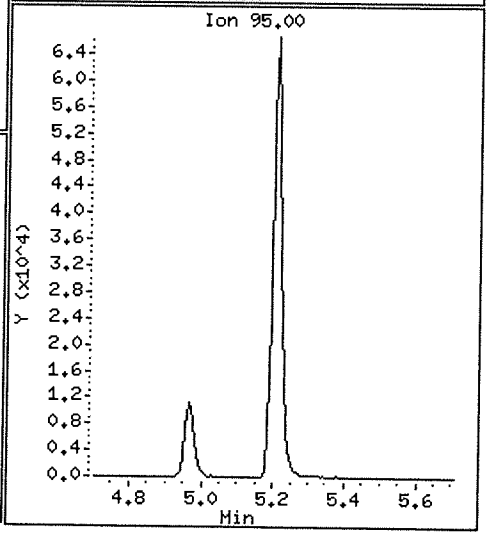


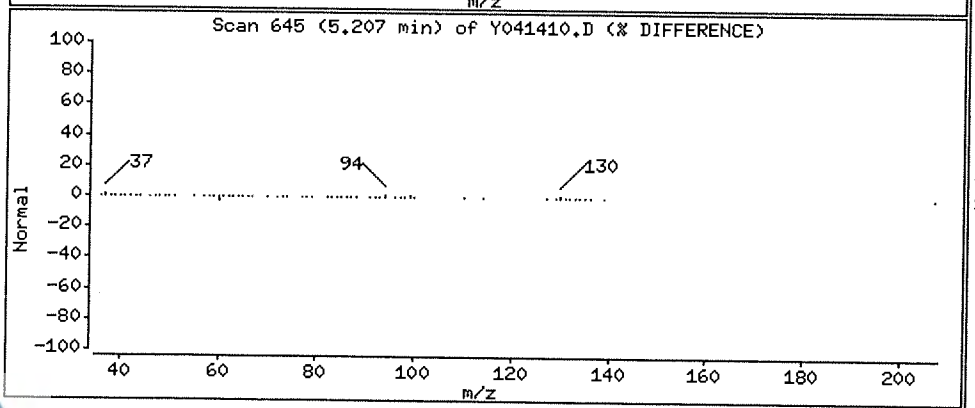












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041411.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041411.D
Lab Smp Id: HS21040286-08 Client Smp ID: HS21040286-08
Inj Date : 15-APR-2021 01:04
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-08;HS21040286-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 40
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

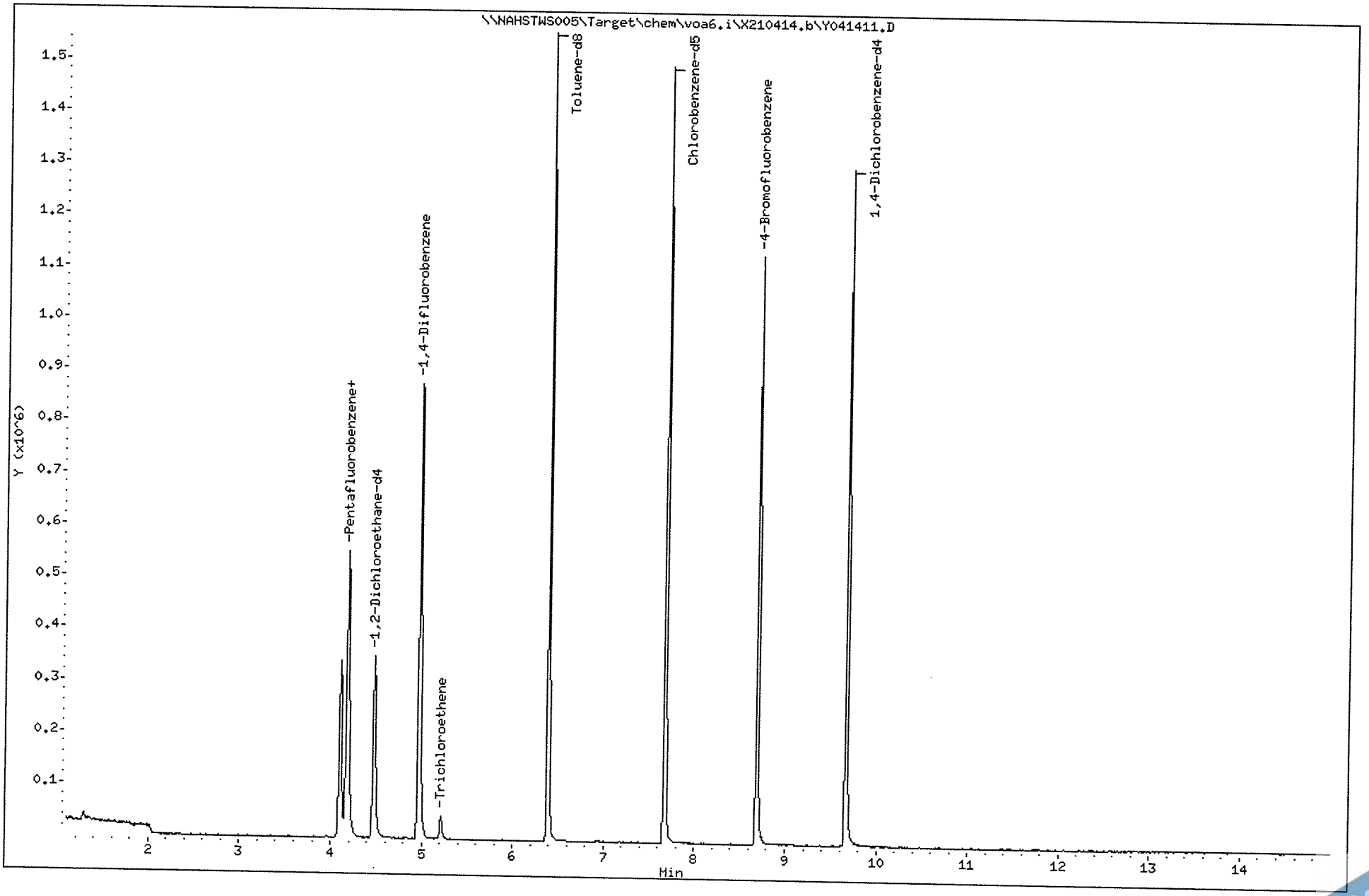
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	411632	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	679452	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	635776	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277416	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.096	(0.981)	231431	47.7744	47.77
$	35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	276646	47.6663	47.66
$	48 Toluene-d8	98	6.388	6.388	(0.833)	869156	53.0674	53.06
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	290972	47.7974	47.79
	38 Trichloroethene	130	5.206	5.207	(1.048)	14593	3.13742	3.13

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041411.D
Date : 15-APR-2021 01:04
Client ID: HS21040286-08
Sample Info: HS21040286-08;HS21040286-08;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041411.D

Date : 15-APR-2021 01:04

Client ID: HS21040286-08

Instrument: voa6.i

Sample Info: HS21040286-08;HS21040286-08;;;

Purge Volume: 5.0

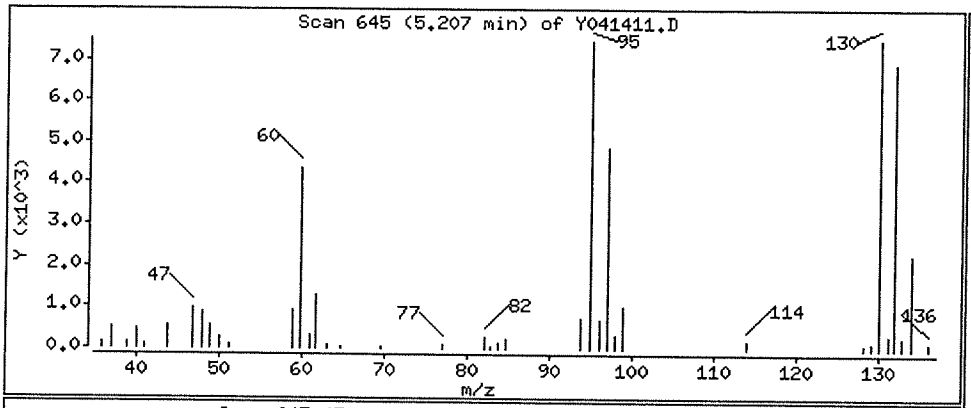
Operator: PC

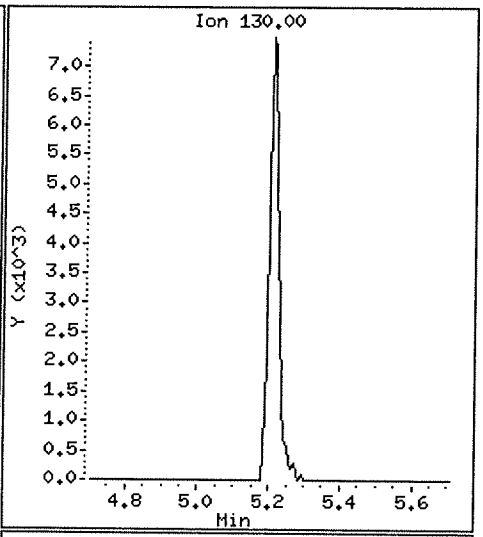
Column phase: DB624

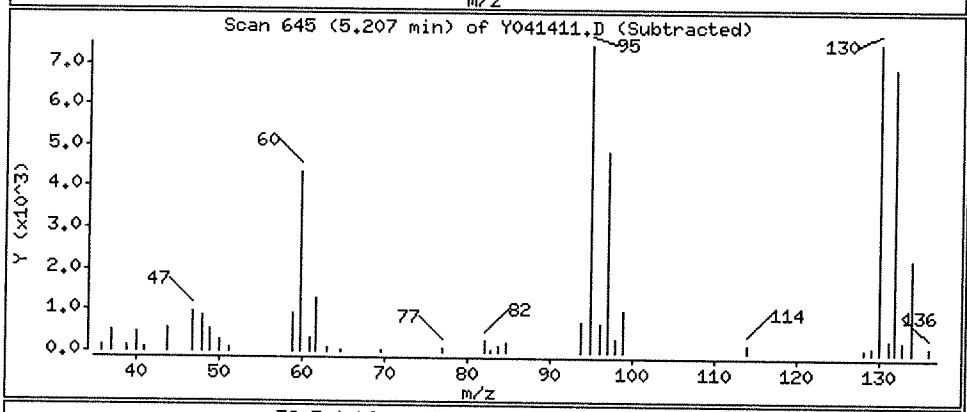
Column diameter: 0.18

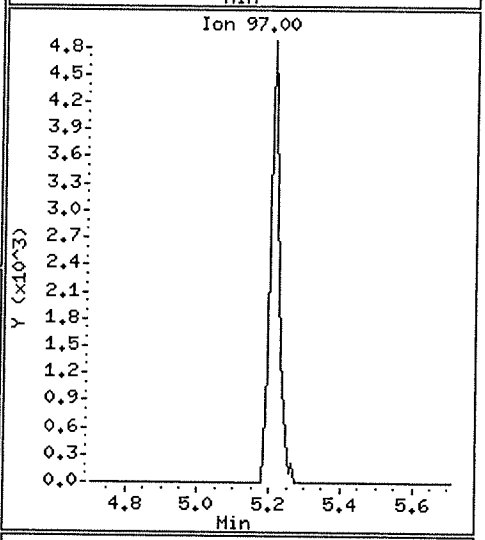
38 Trichloroethene

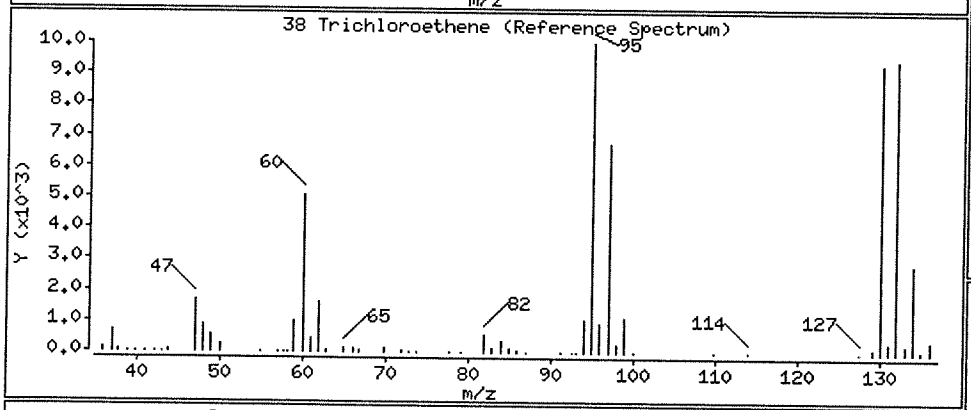
Concentration: 3.13 ug/l

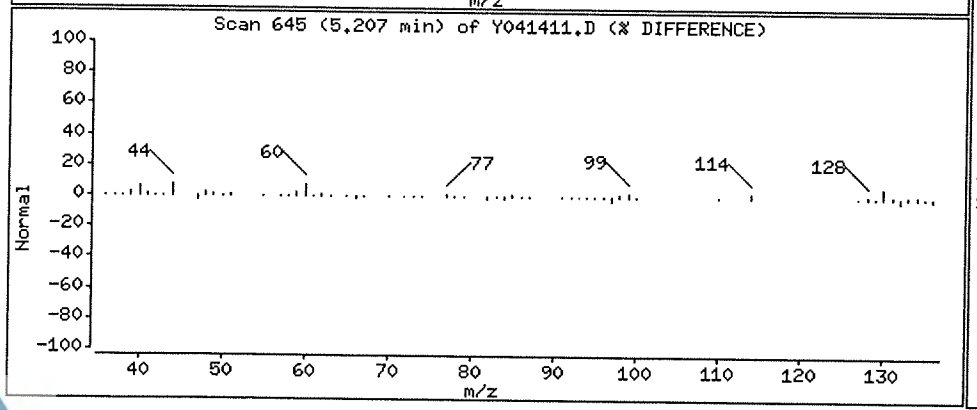


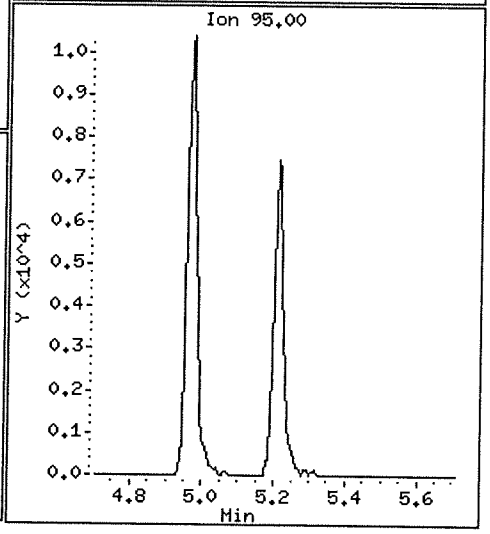












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D
Lab Smp Id: HS21040286-02 Client Smp ID: HS21040286-02
Inj Date : 15-APR-2021 01:26
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-02;HS21040286-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 41
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

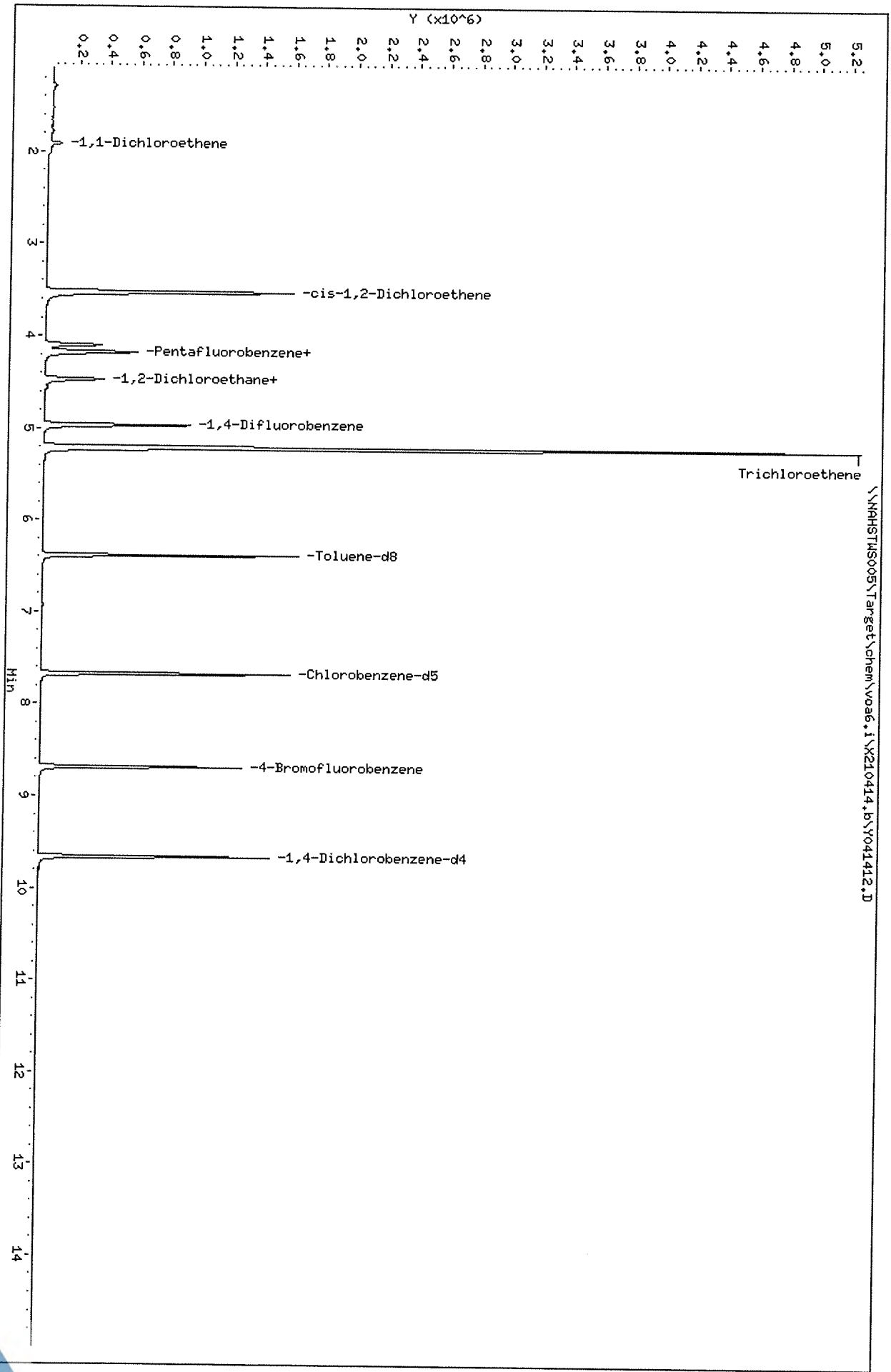
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	437074	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	729223	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	689550	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	315587	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	242531	47.1571	47.15
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	296931	48.1780	48.17
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	935367	52.6707	52.67
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	321389	48.6465	48.64
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	29094	4.67497	4.67(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	12732	1.64951	1.64(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	750801	140.524	140.52
38 Trichloroethene	130	5.206	5.207	(1.048)	1489091	298.296	298.29(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D
Date : 15-APR-2021 01:26
Client ID: HS21040286-02
Sample Info: HS21040286-02;HS21040286-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D

Date : 15-APR-2021 01:26

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

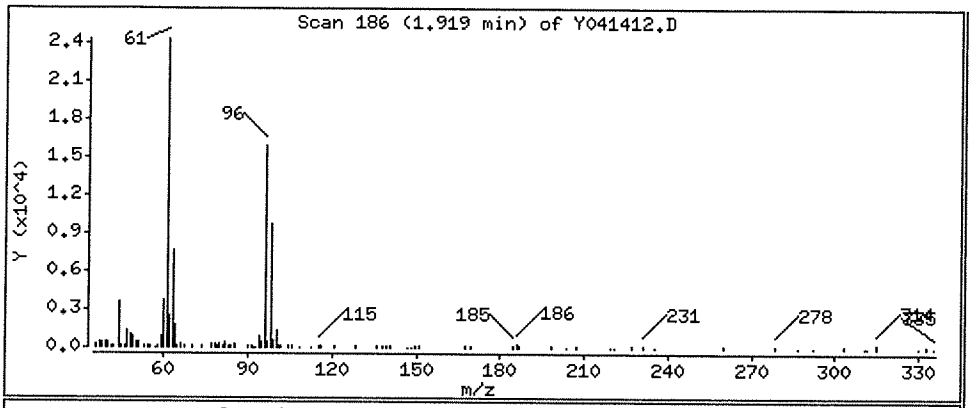
Operator: PC

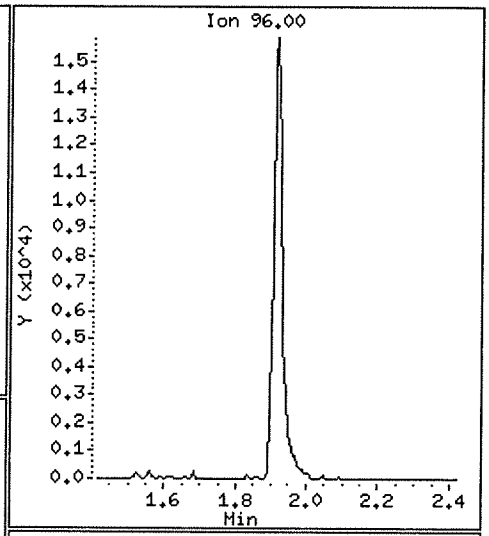
Column phase: DB624

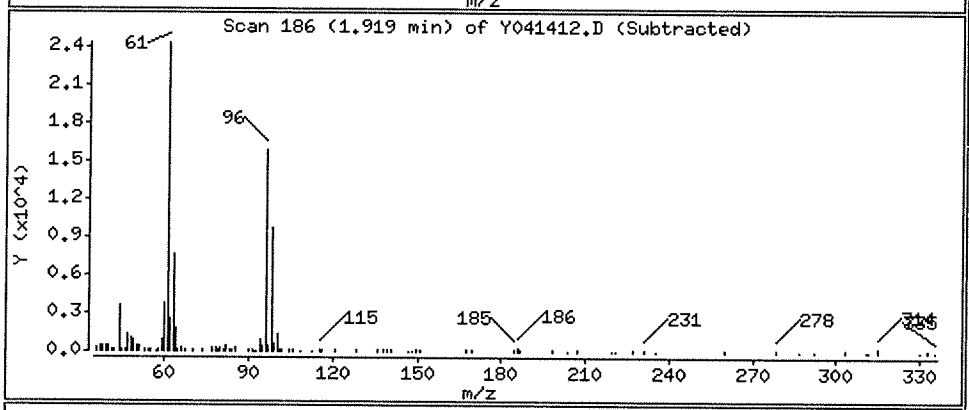
Column diameter: 0.18

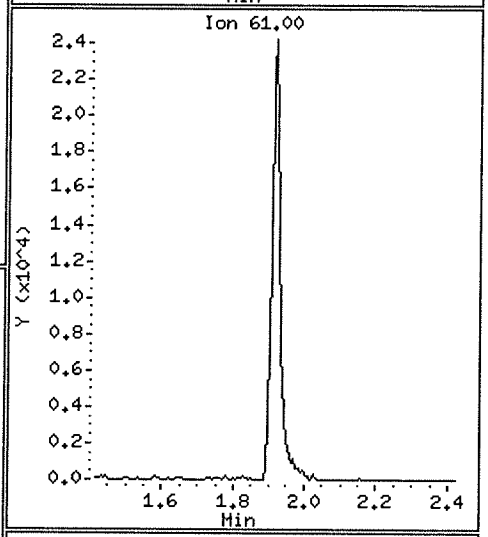
11 1,1-Dichloroethene

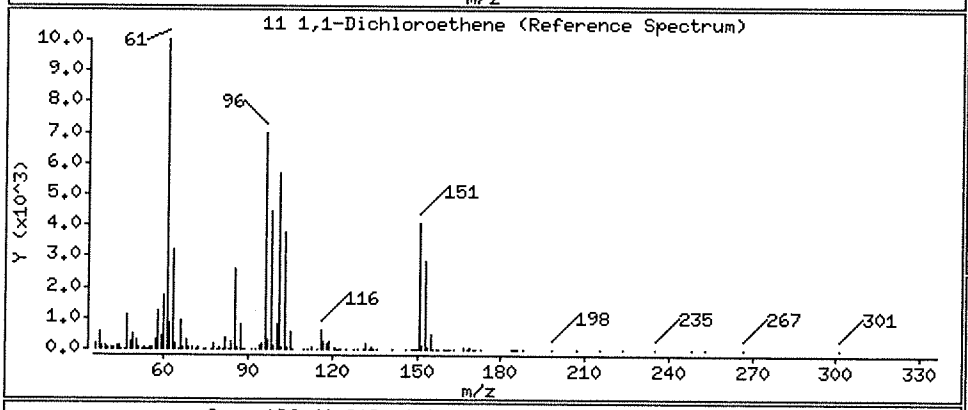
Concentration: 4.67 ug/l

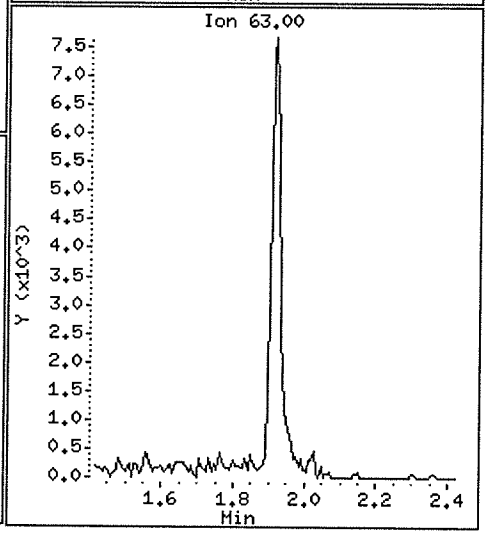


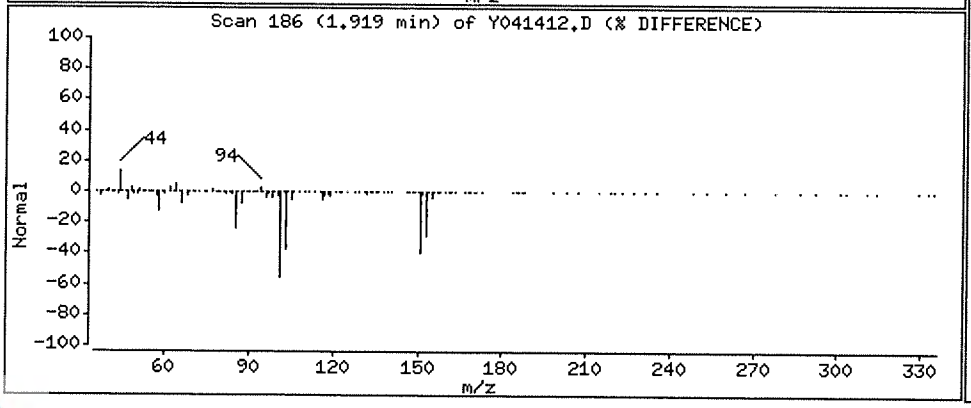












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D

Date : 15-APR-2021 01:26

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

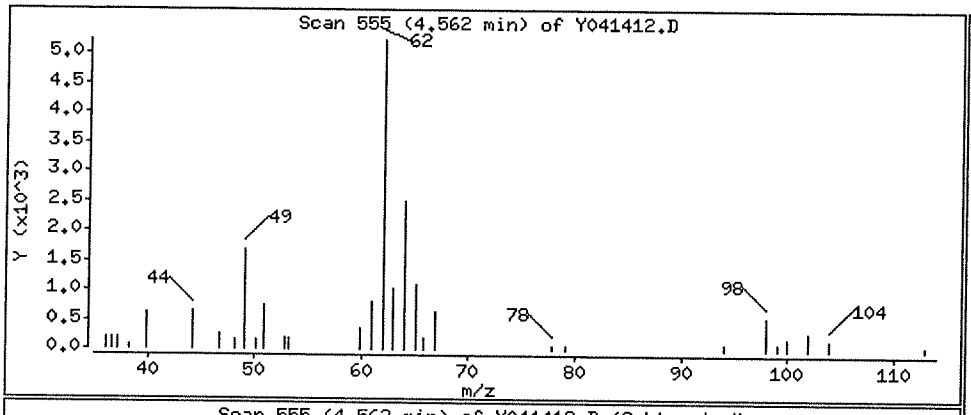
Operator: PC

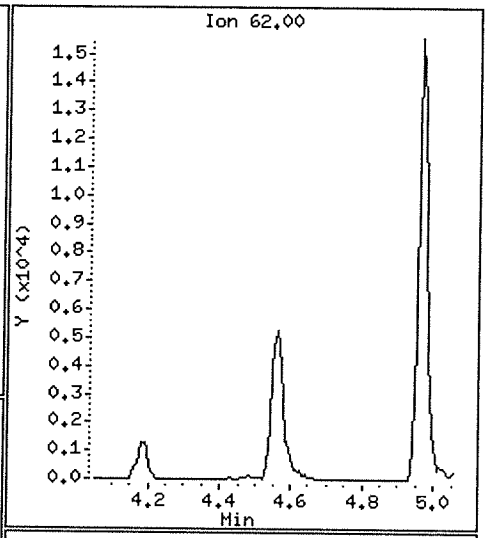
Column phase: DB624

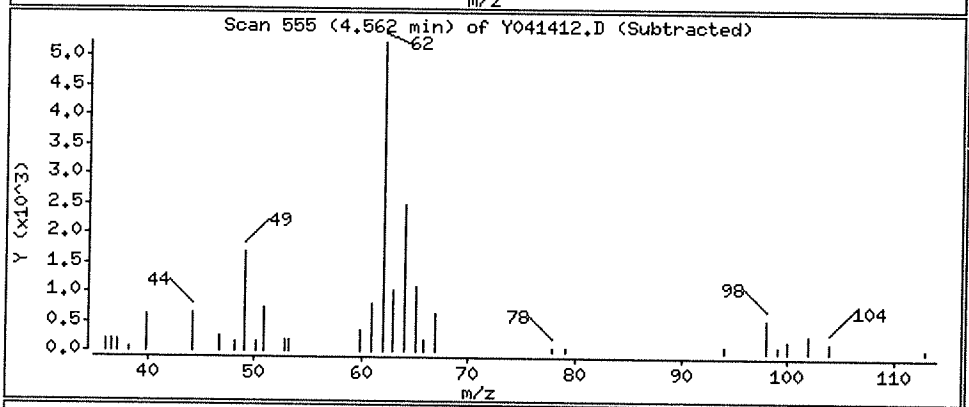
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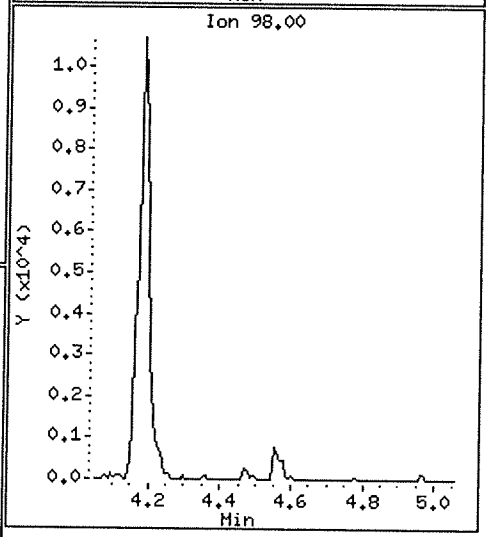
33 1,2-Dichloroethane

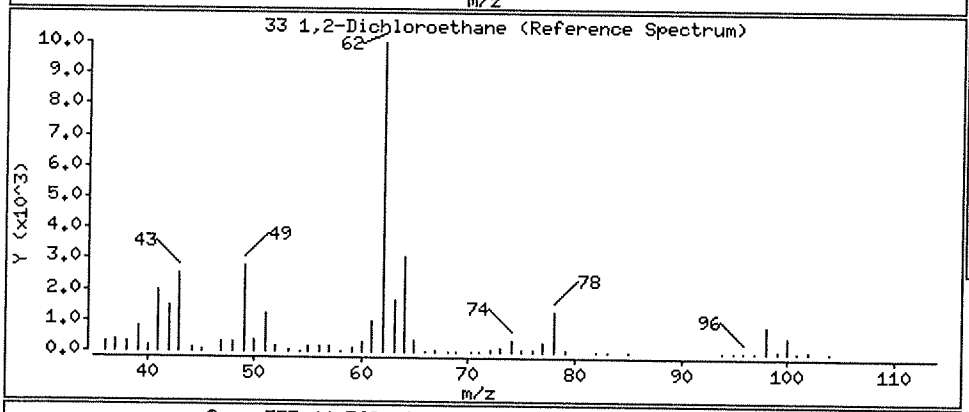
Concentration: 1.64 ug/l

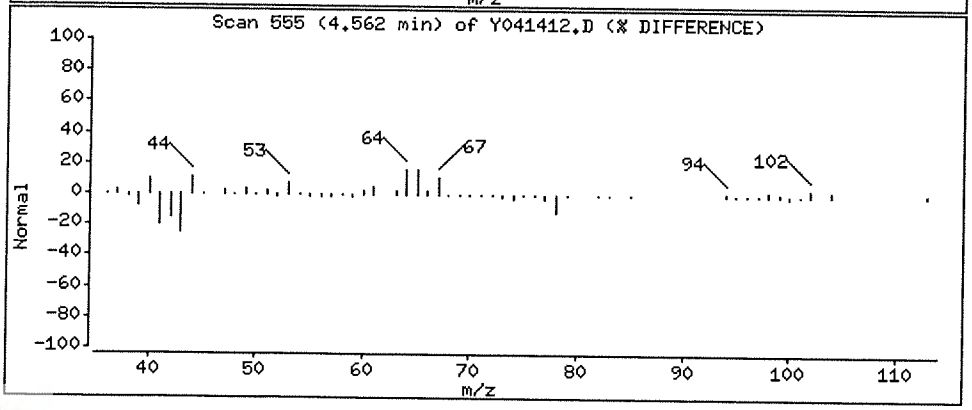












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D

Date : 15-APR-2021 01:26

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

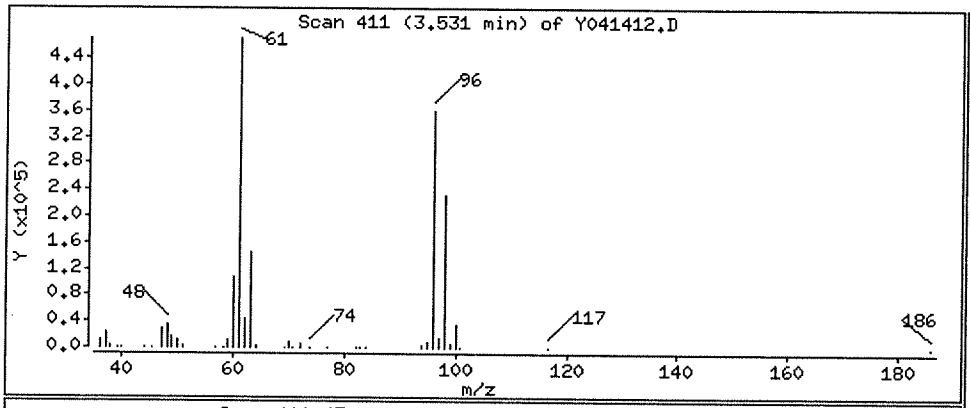
Operator: PC

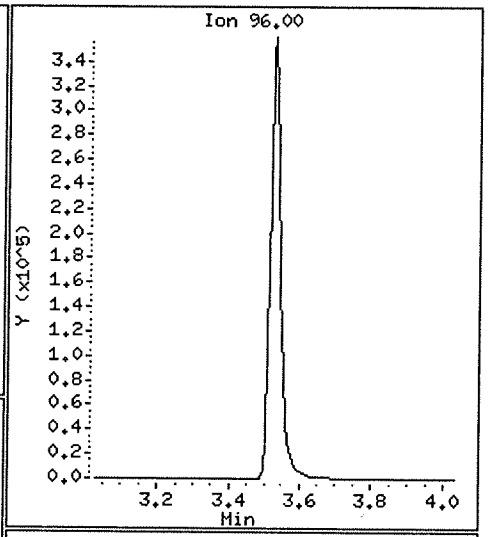
Column phase: DB624

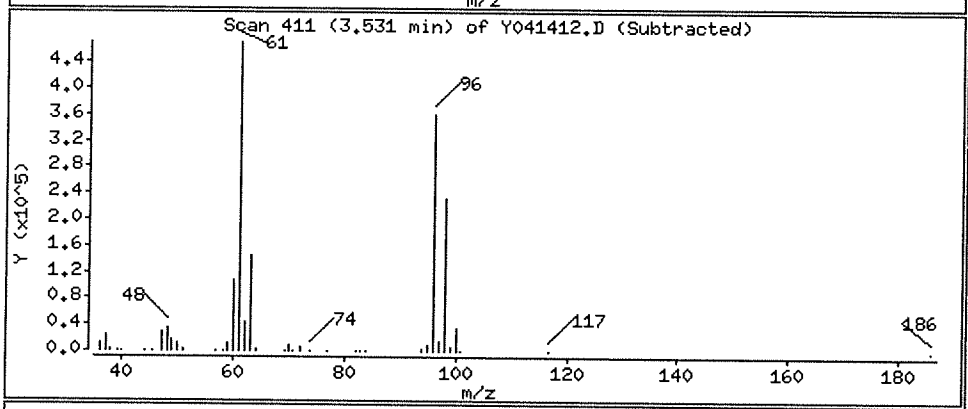
Column diameter: 0.18

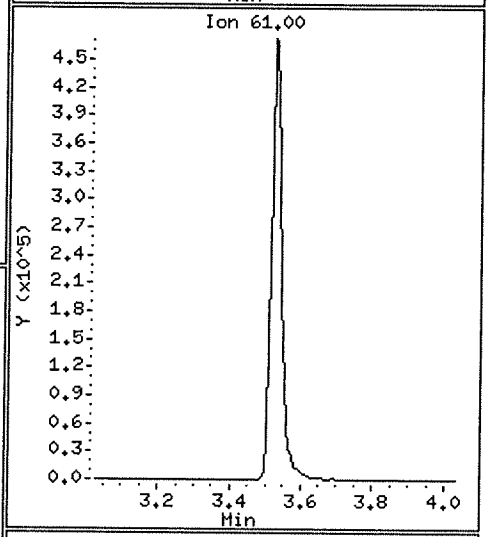
27 cis-1,2-Dichloroethene

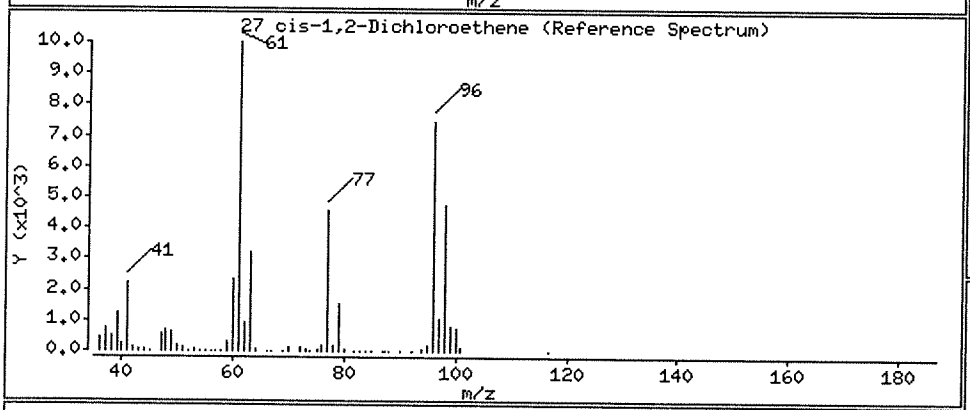
Concentration: 140.52 ug/l

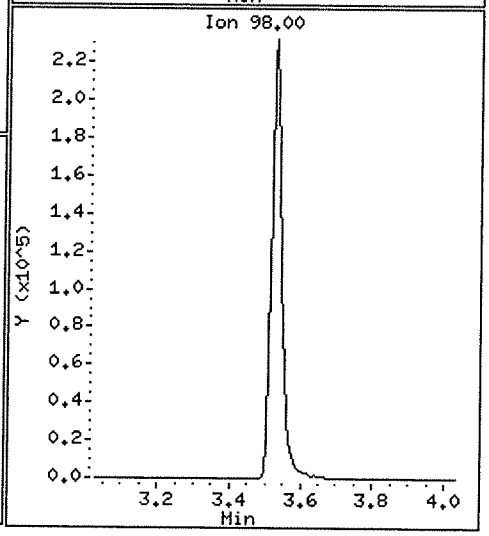


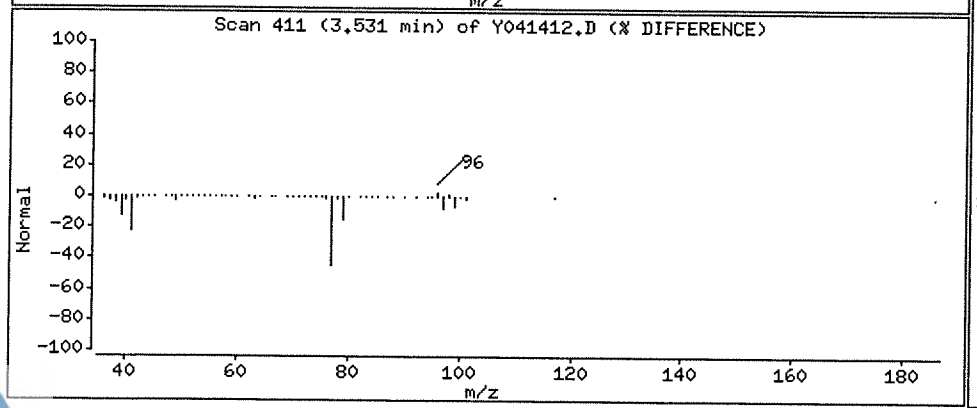












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041412.D

Date : 15-APR-2021 01:26

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

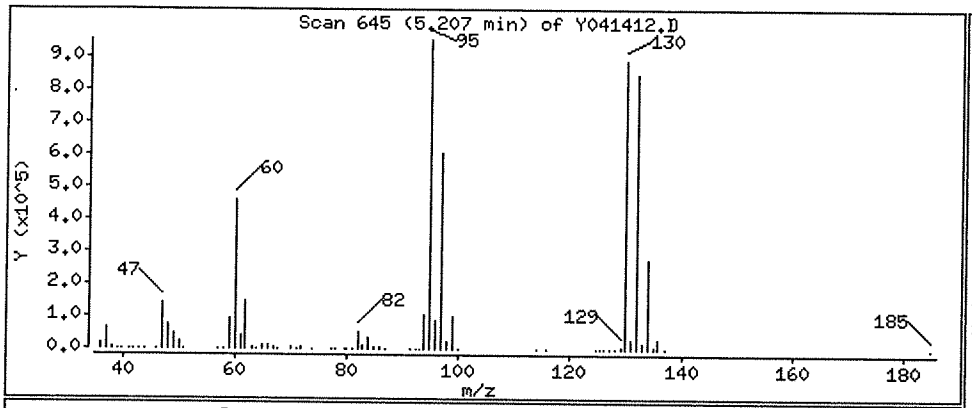
Operator: PC

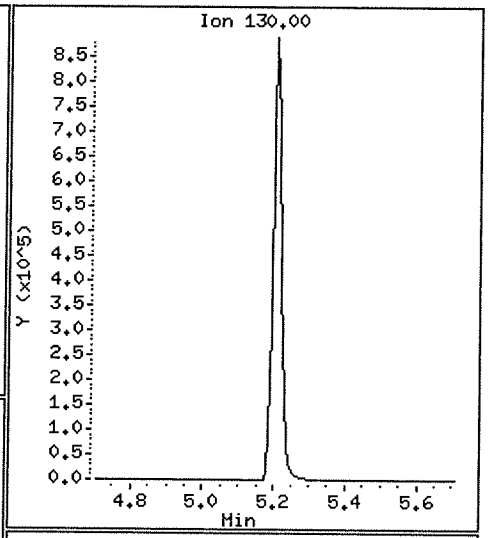
Column phase: DB624

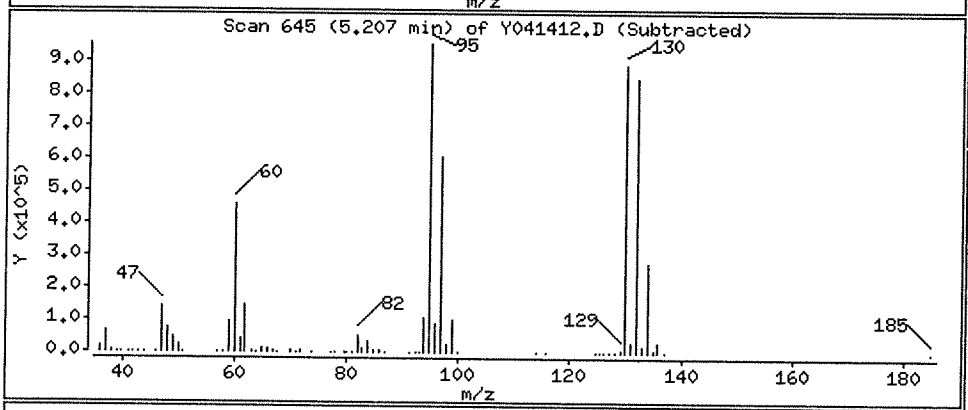
Column diameter: 0.18

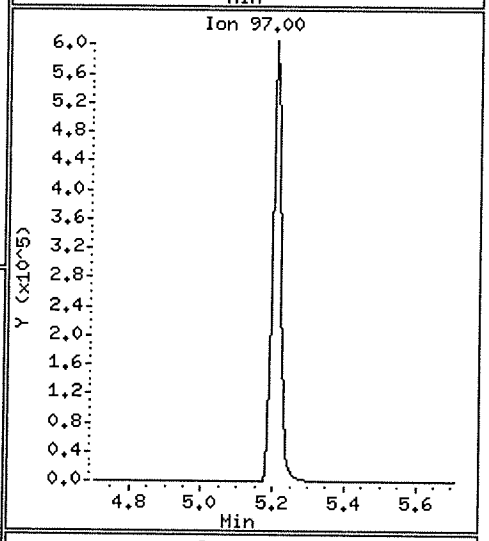
38 Trichloroethene

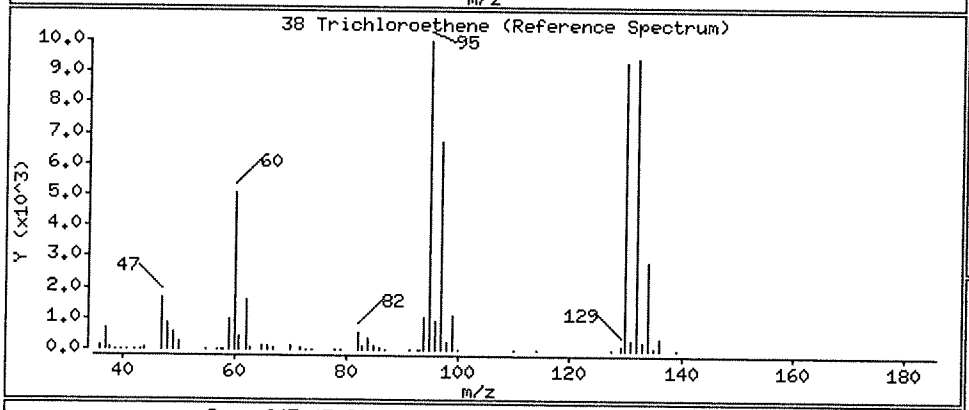
Concentration: 298.29 ug/l

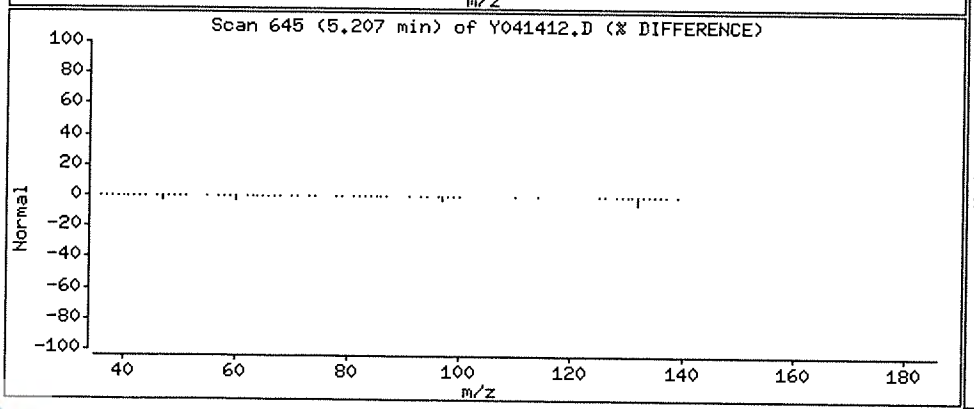


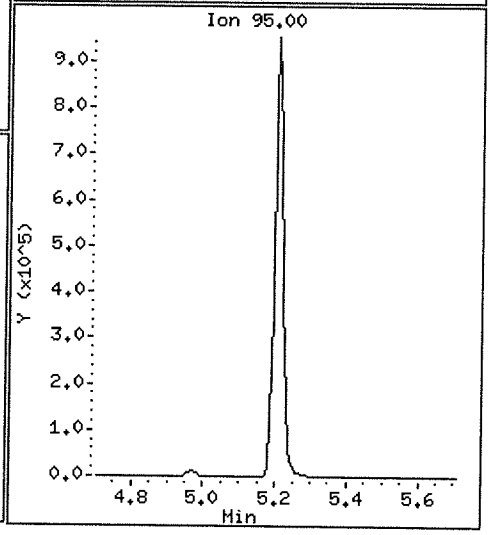












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D
Lab Smp Id: HS21040286-01 Client Smp ID: HS21040286-01
Inj Date : 15-APR-2021 01:47
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-01;HS21040286-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 42
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	422855	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	702796	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	657168	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	281277	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	232080	46.6472	46.64
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	285956	47.9597	47.95
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	909854	53.7203	53.72
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	311466	49.4397	49.43
11 1,1-Dichloroethene	96	1.911	1.919	(0.457)	7718	1.28187	1.28(a)
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	13225	1.77781	1.77(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	299470	57.9353	57.93
56 Tetrachloroethene	164	6.933	6.926	(0.904)	6492	1.63659	1.63(a)
38 Trichloroethene	130	5.206	5.207	(1.049)	4070887	846.148	846.14(A)

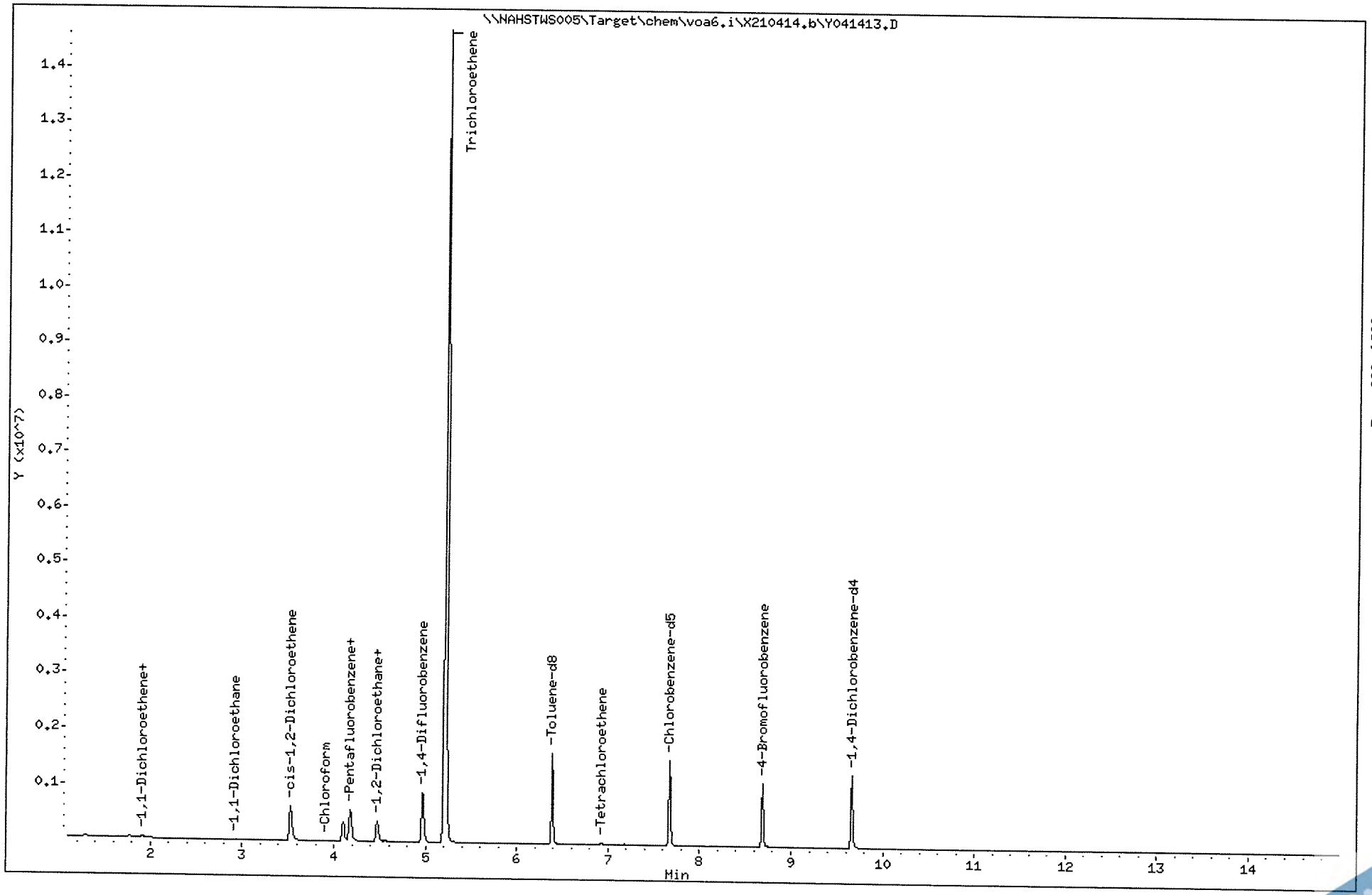
QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D
Date : 15-APR-2021 01:47
Client ID: HS21040286-01
Sample Info: HS21040286-01;HS21040286-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i

Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D

Date : 15-APR-2021 01:47

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

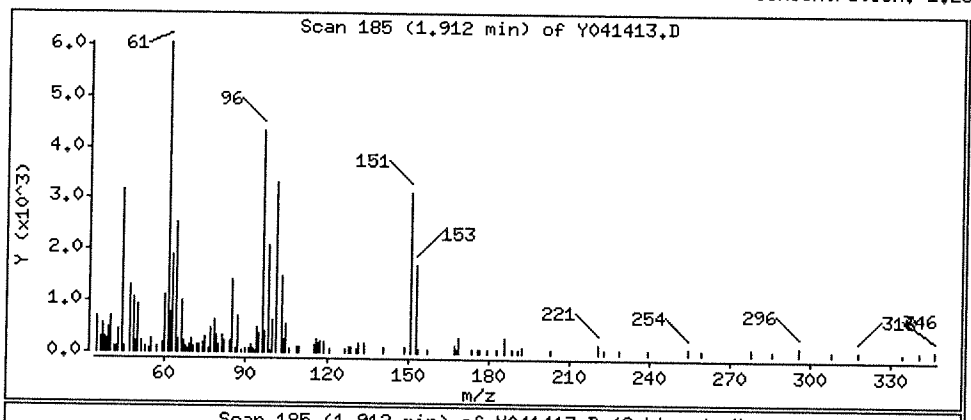
Operator: PC

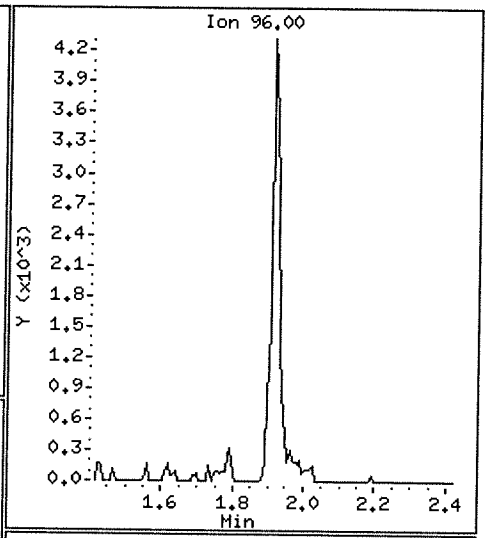
Column phase: DB624

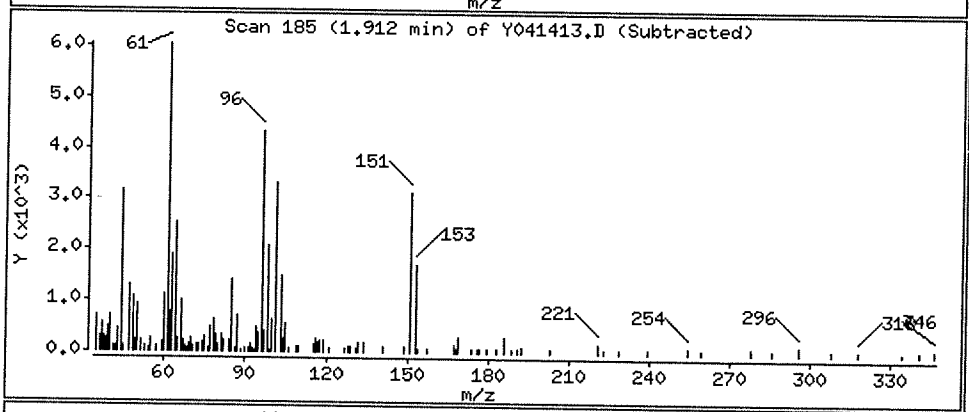
Column diameter: 0.18

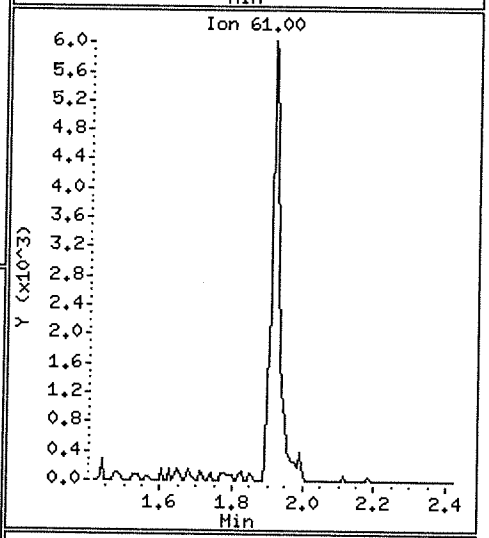
11 1,1-Dichloroethene

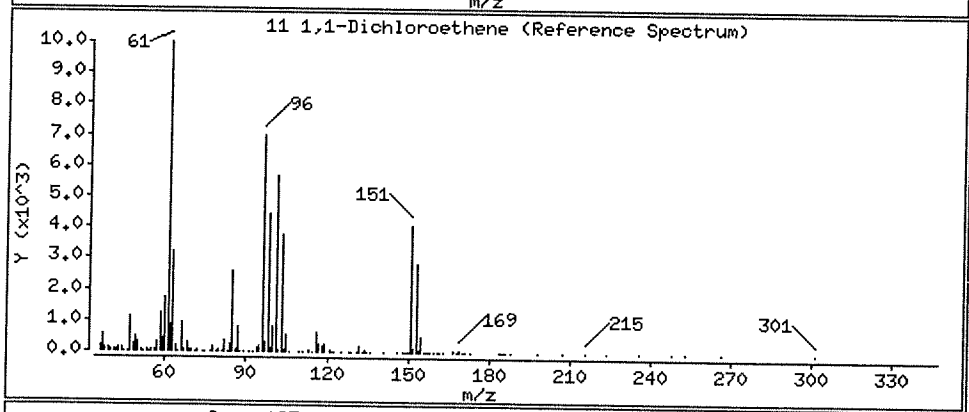
Concentration: 1.28 ug/l

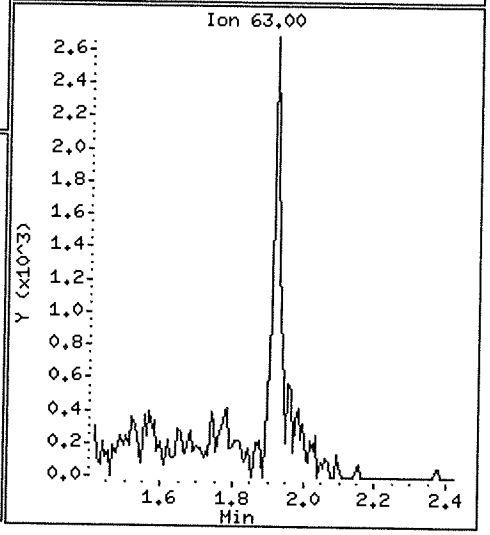


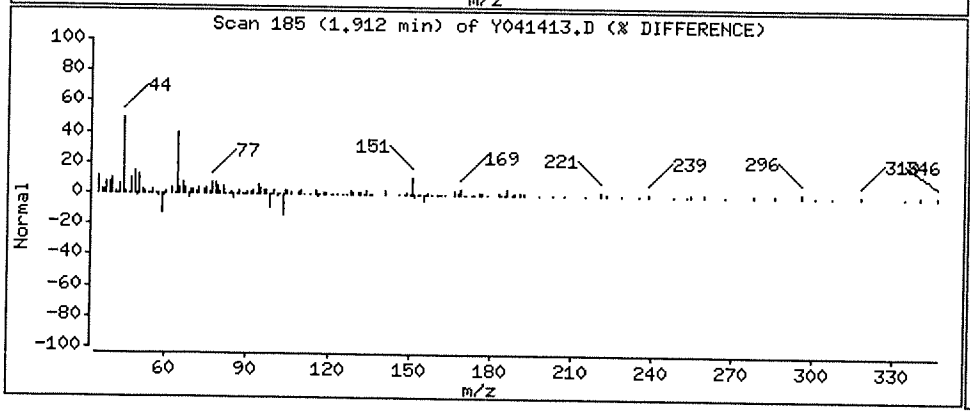












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D

Date : 15-APR-2021 01:47

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

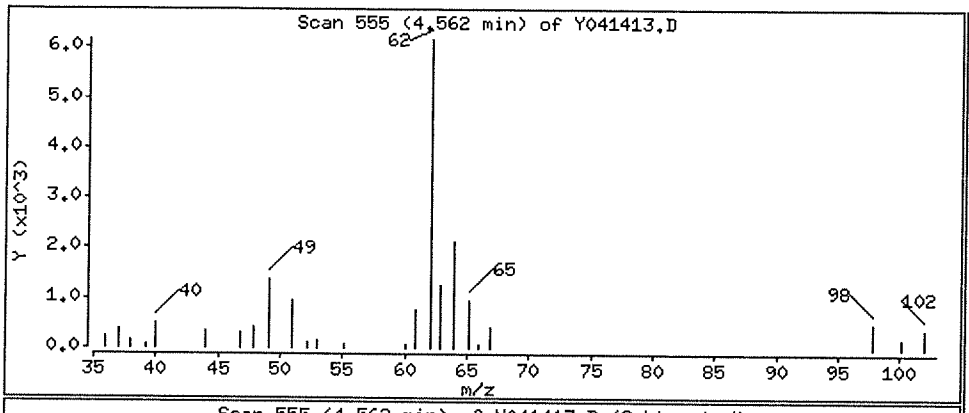
Operator: PC

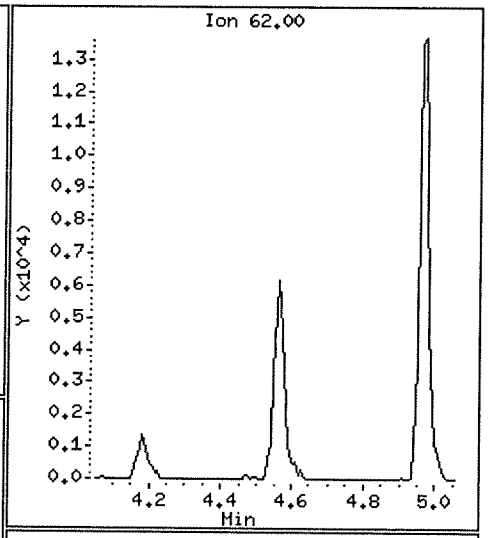
Column phase: DB624

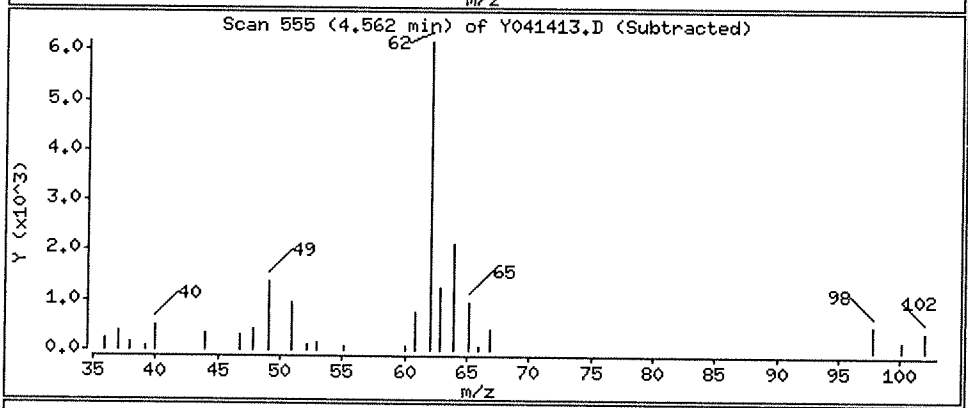
Column diameter: 0.18

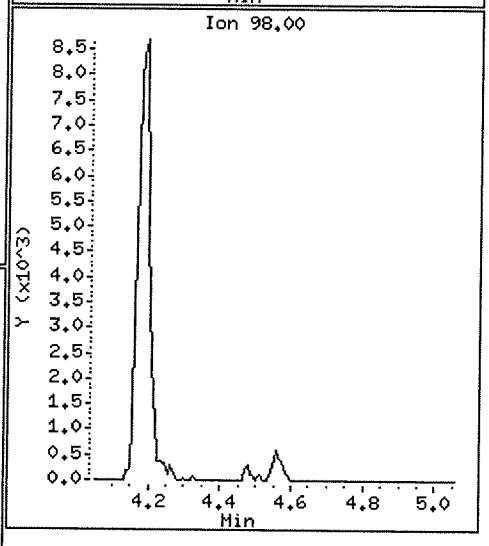
33 1,2-Dichloroethane

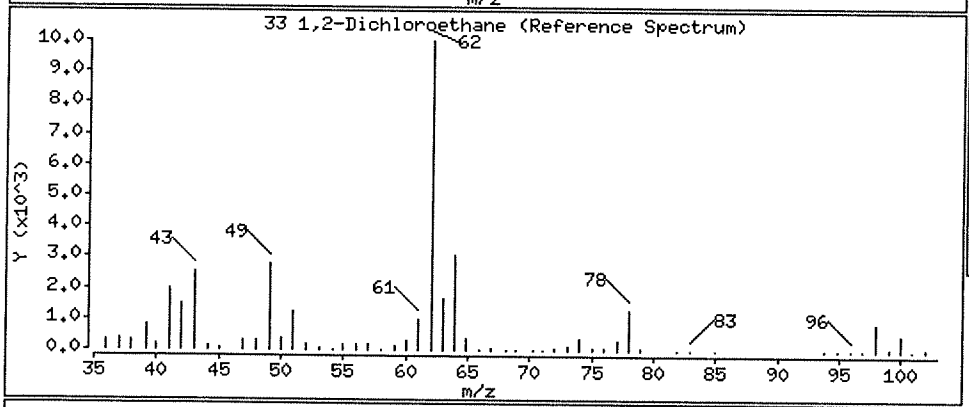
Concentration: 1.77 ug/l

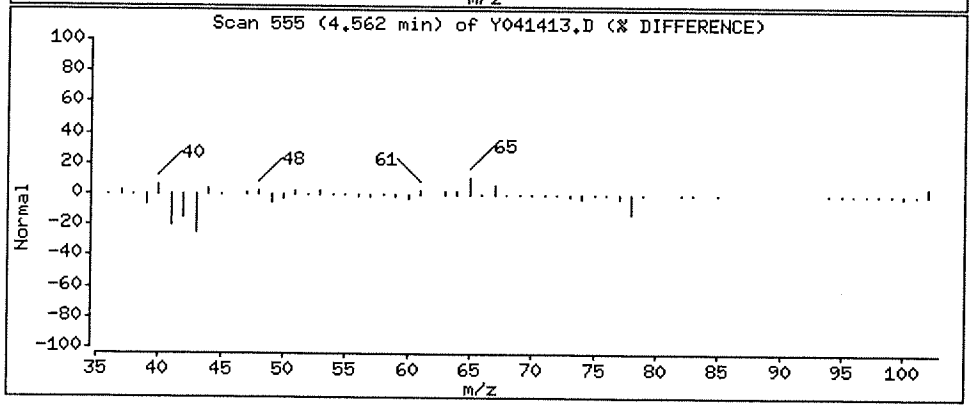












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D

Date : 15-APR-2021 01:47

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

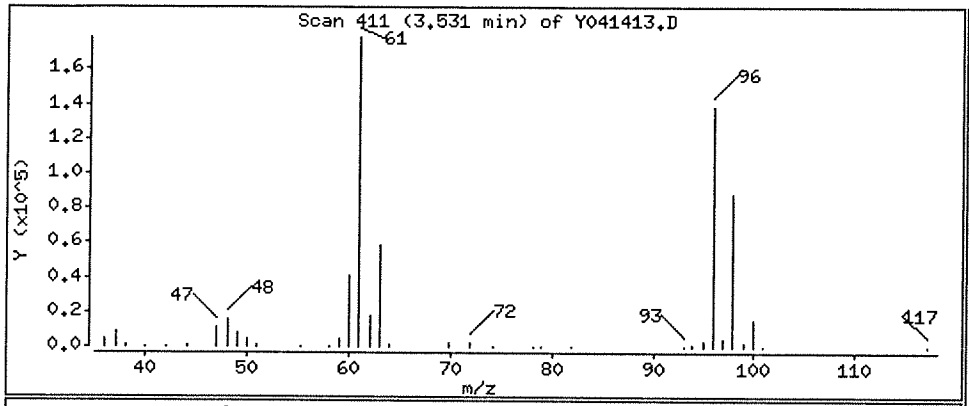
Operator: PC

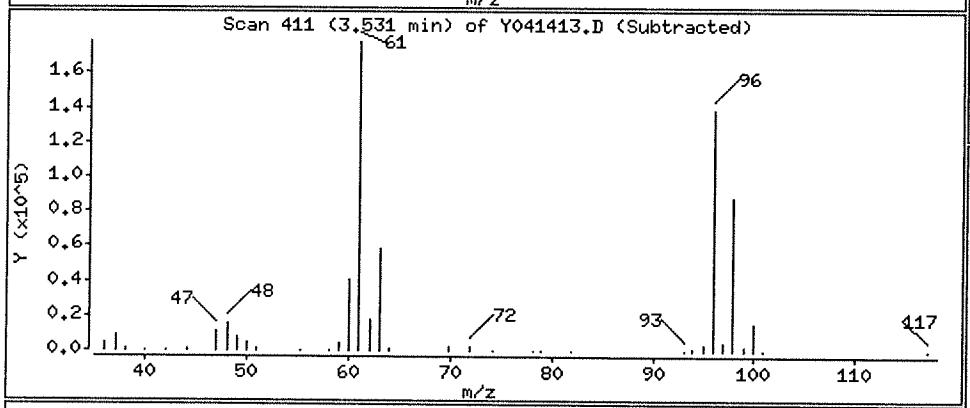
Column phase: DB624

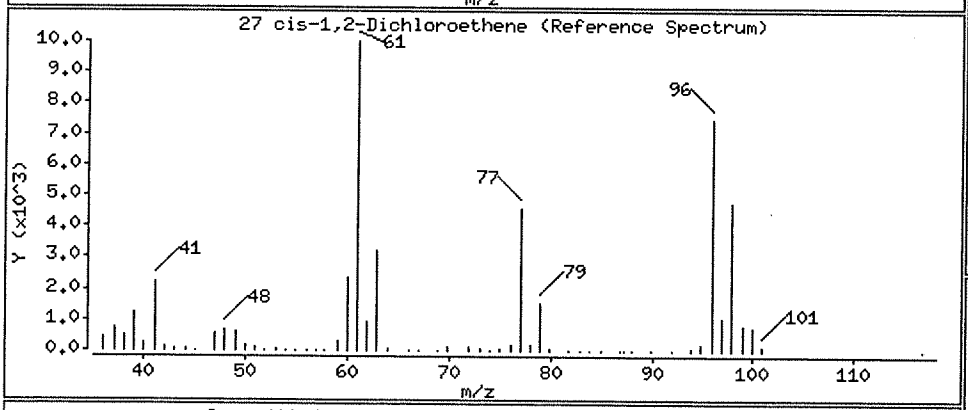
Column diameter: 0.18

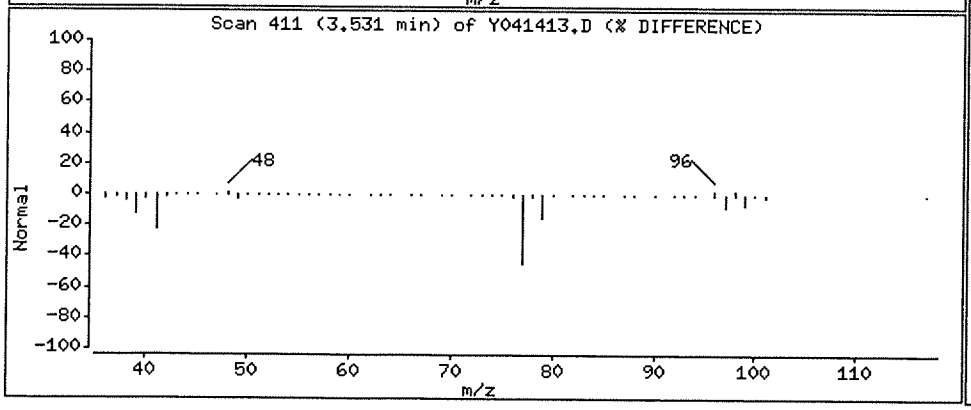
27 cis-1,2-Dichloroethene

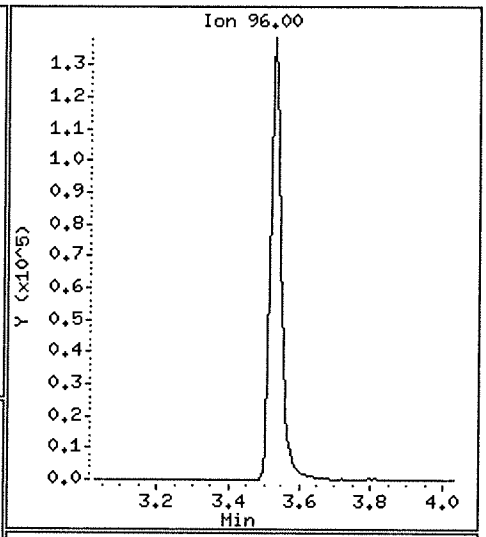
Concentration: 57.93 ug/l

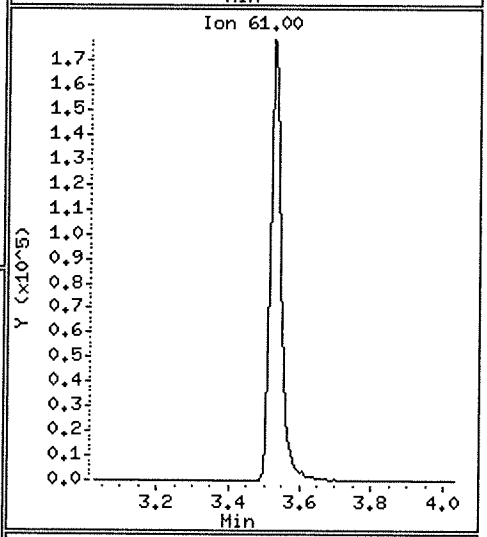


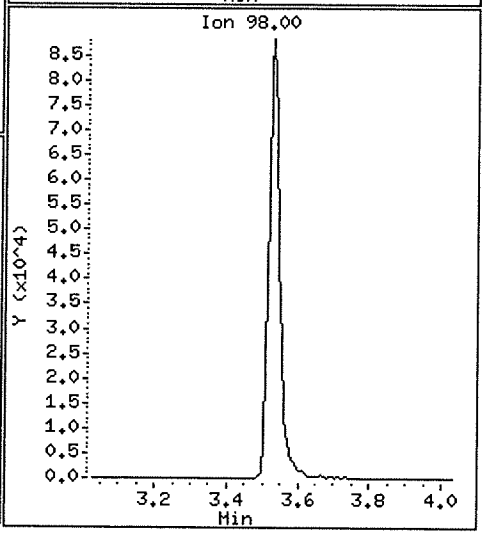












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D

Date : 15-APR-2021 01:47

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

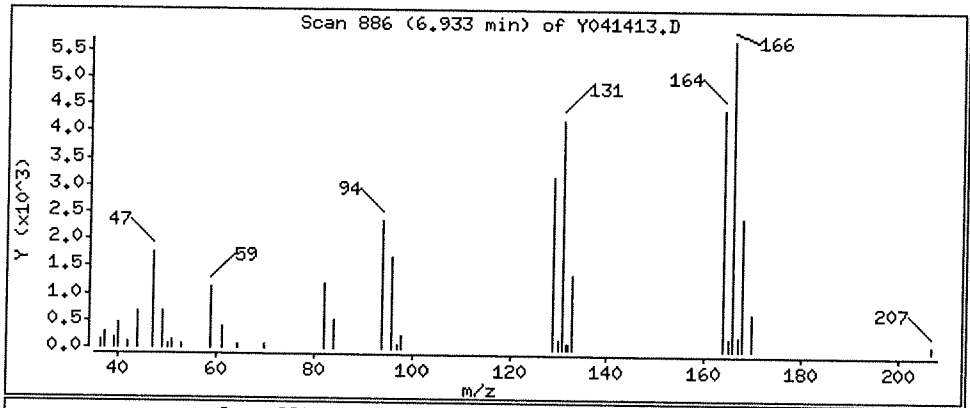
Operator: PC

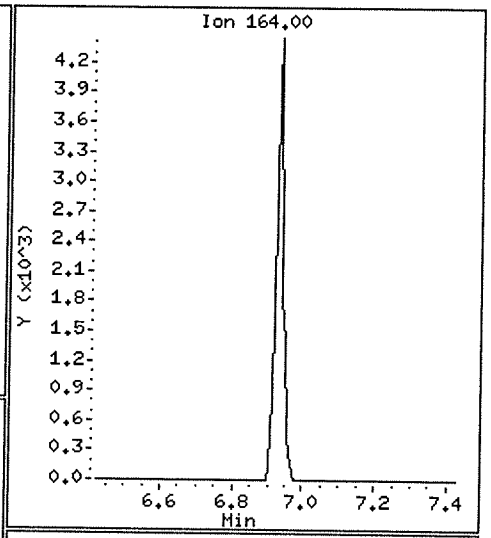
Column phase: DB624

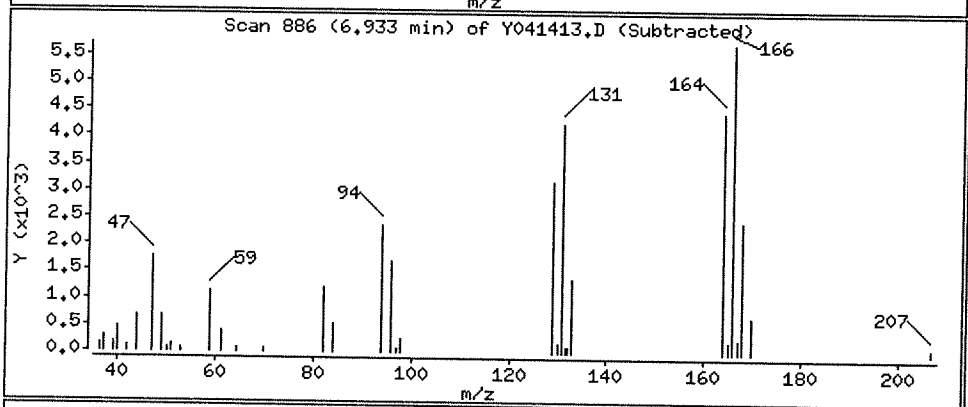
Column diameter: 0.18

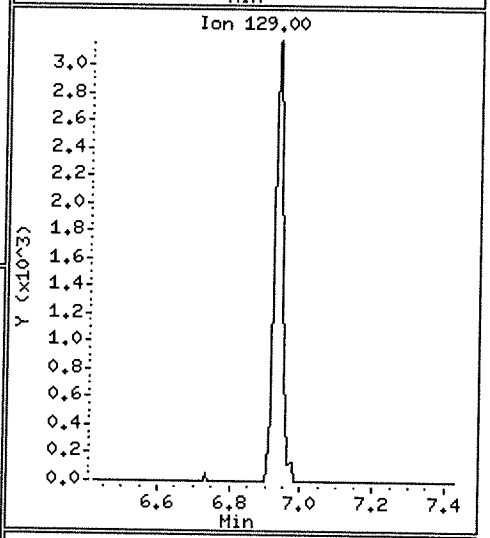
56 Tetrachloroethene

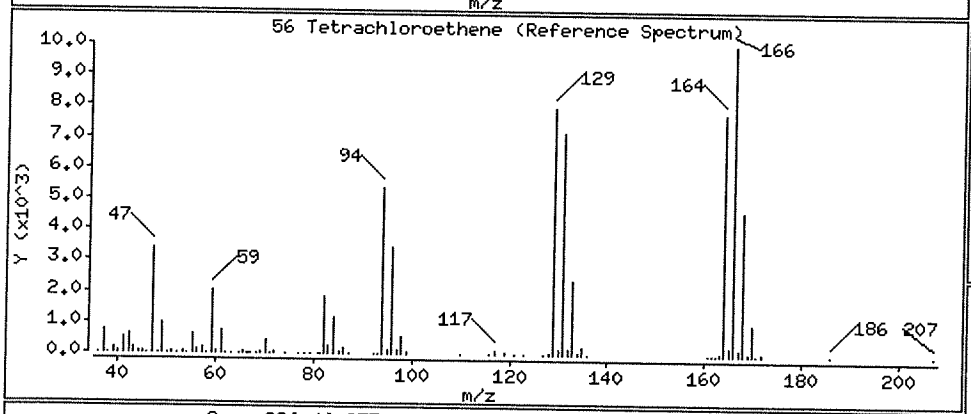
Concentration: 1.63 ug/l

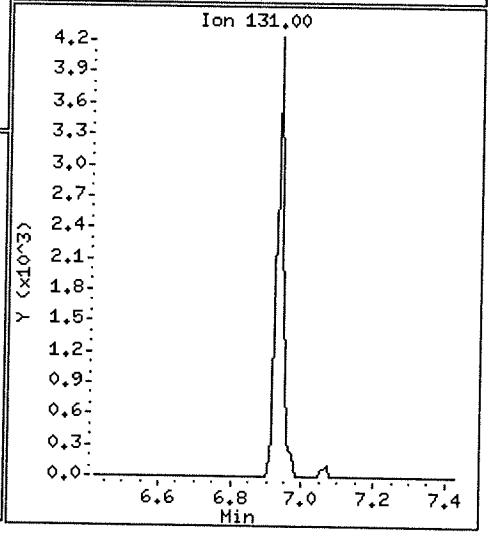


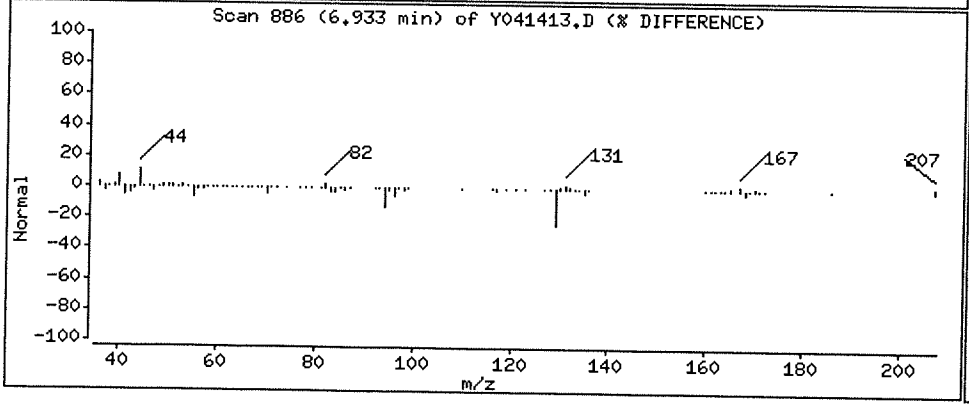












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041413.D

Date : 15-APR-2021 01:47

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

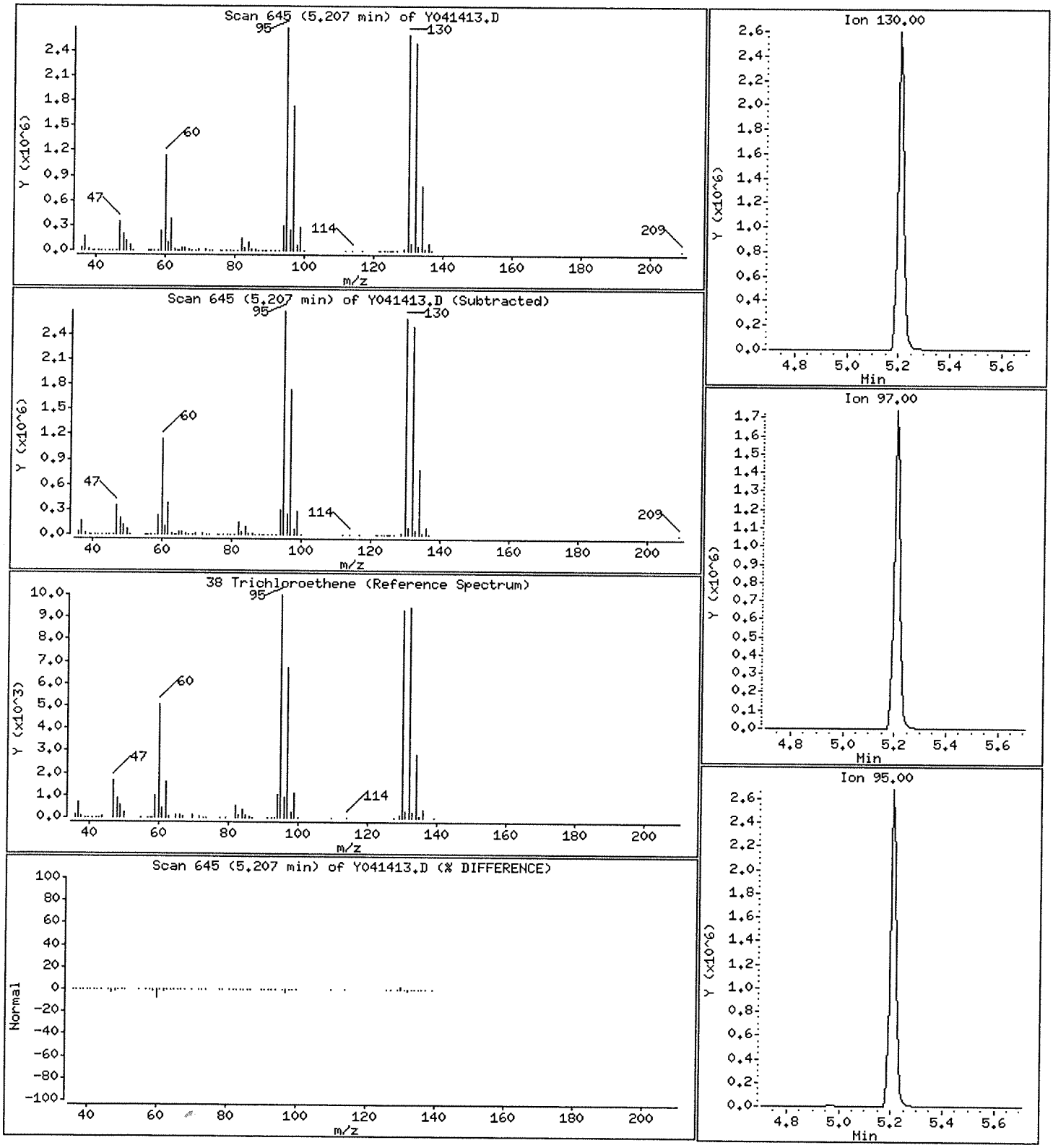
Operator: PC

Column phase: DB624

Column diameter: 0.18

38 Trichloroethene

Concentration: 846.14 ug/l



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D Page 1
Report Date: 29-Apr-2021 12:31

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D
Lab Smp Id: HS21040286-09 Client Smp ID: HS21040286-09
Inj Date : 15-APR-2021 02:08
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-09;HS21040286-09;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 43
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

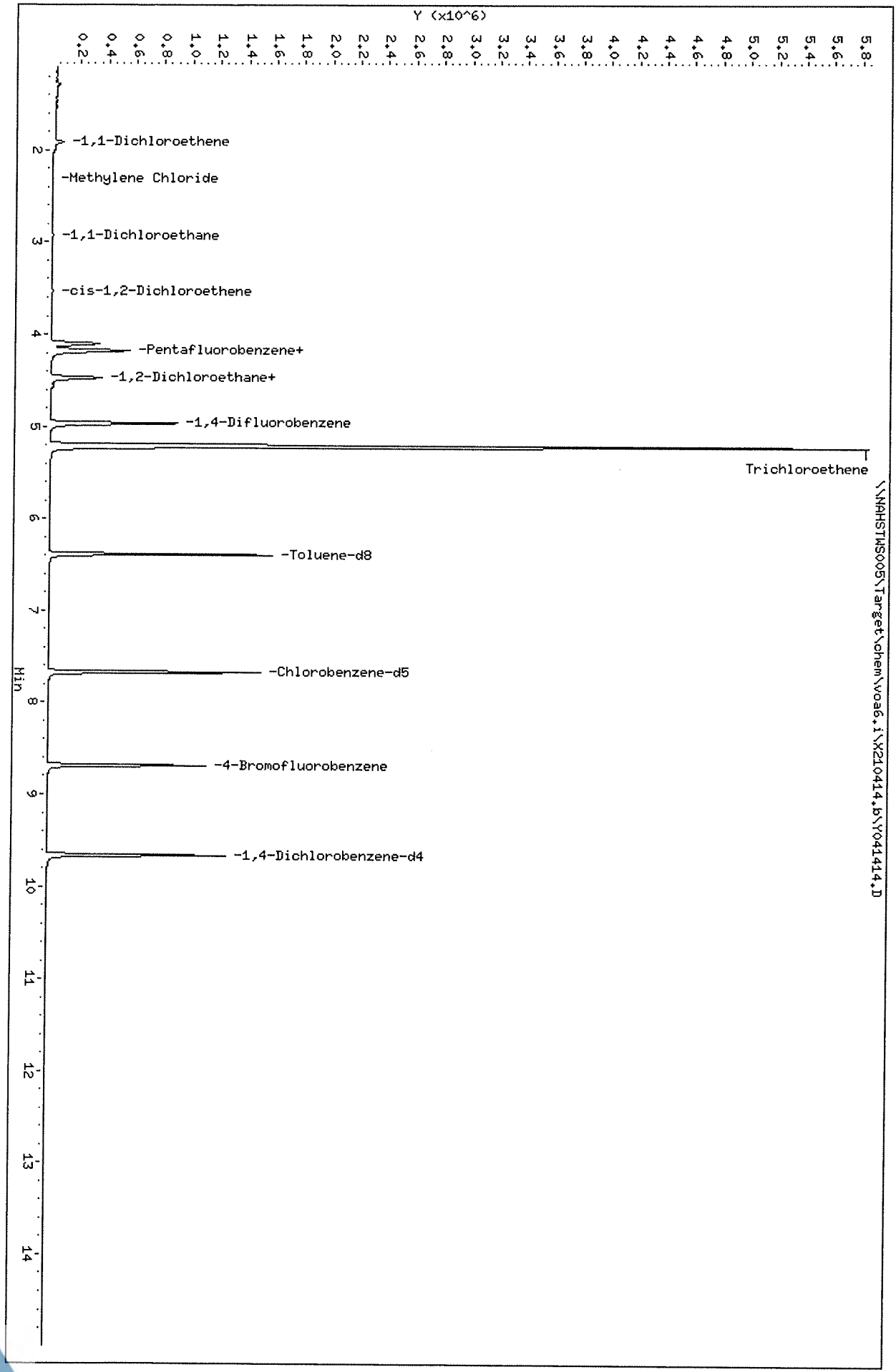
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	420618	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	698504	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	656942	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	271557	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	229558	46.3881	46.38
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	288165	48.5809	48.58
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	882695	52.1894	52.18
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	298969	47.5380	47.53
11 1,1-Dichloroethene	96	1.912	1.919	(0.457)	20571	3.43477	17.17(a)
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	16284	2.20247	11.01(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.846)	4124	0.80207	4.01
38 Trichloroethene	130	5.207	5.207	(1.048)	1679631	351.262	1756.31(A)

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D
Date : 15-APR-2021 02:08
Client ID: HS21040286-09
Sample Info: HS21040286-09;HS21040286-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D

Date : 15-APR-2021 02:08

Client ID: HS21040286-09

Instrument: voa6.i

Sample Info: HS21040286-09;HS21040286-09;;;

Purge Volume: 5.0

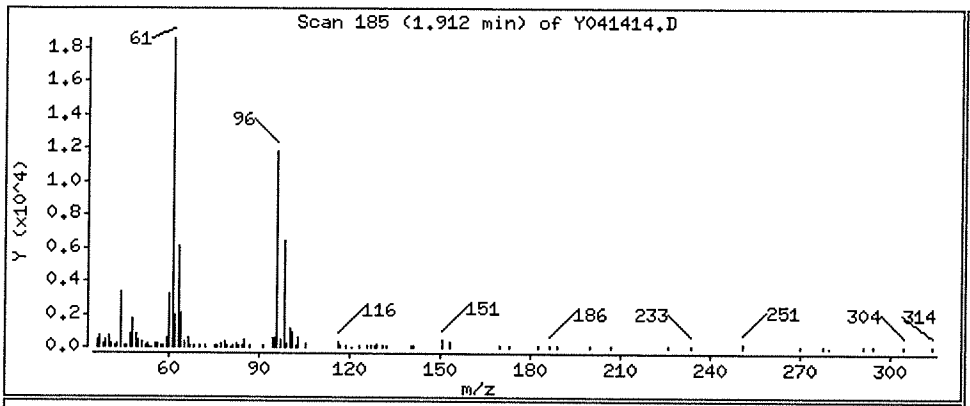
Operator: PC

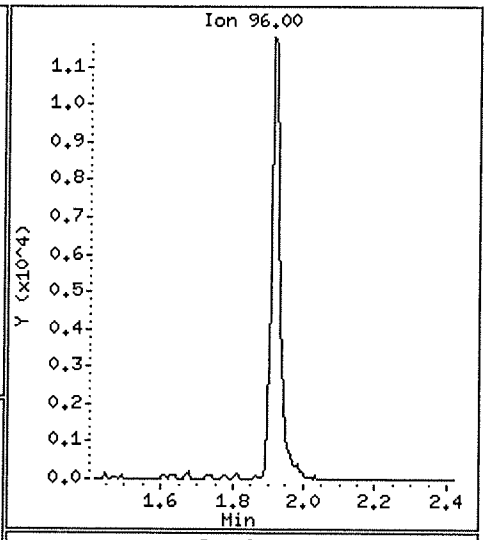
Column phase: DB624

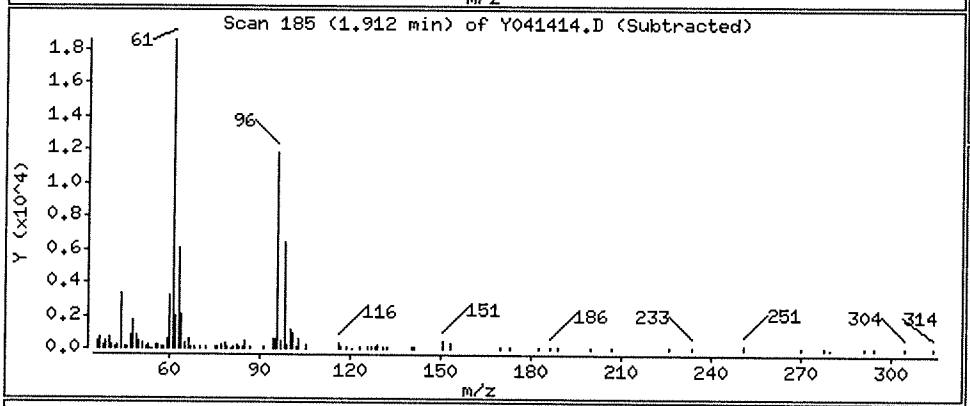
Column diameter: 0.18

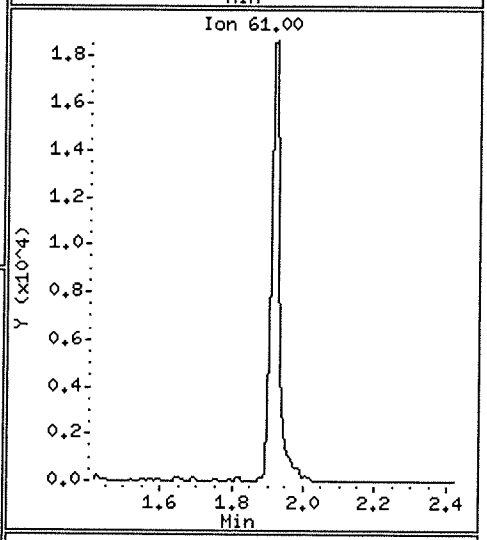
11 1,1-Dichloroethene

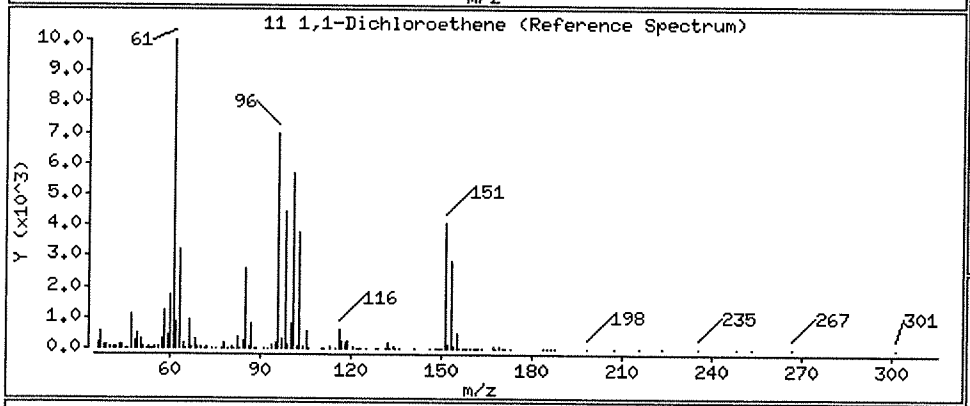
Concentration: 17.17 ug/l

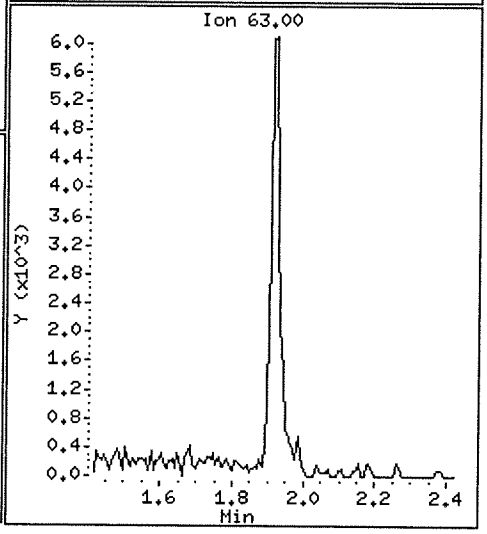


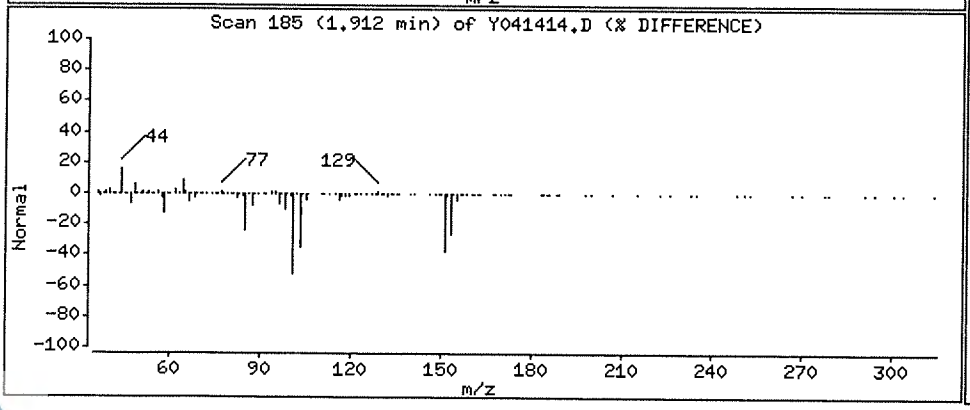












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D

Date : 15-APR-2021 02:08

Client ID: HS21040286-09

Instrument: voa6.i

Sample Info: HS21040286-09;HS21040286-09;;;

Purge Volume: 5.0

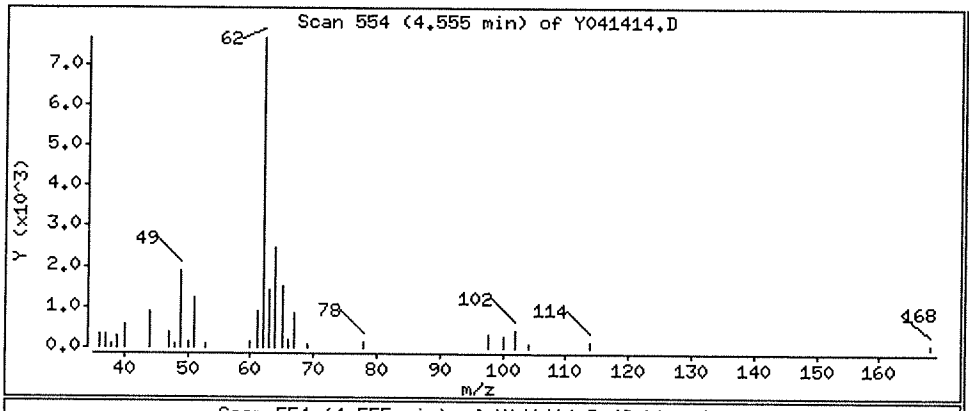
Operator: PC

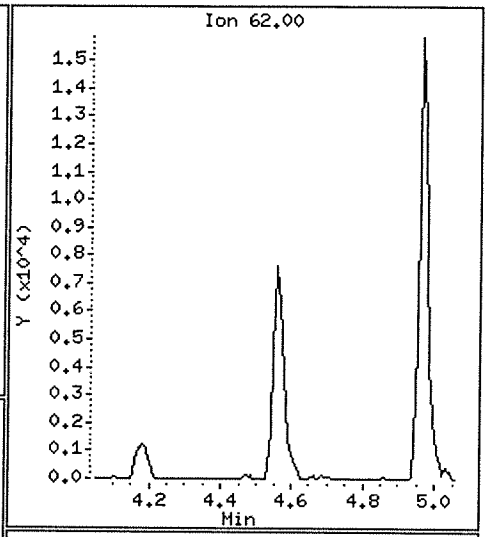
Column phase: DB624

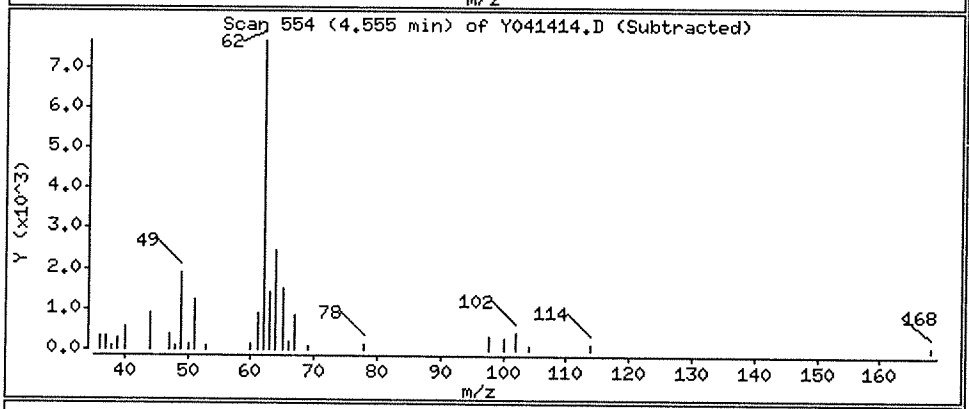
Column diameter: 0.18

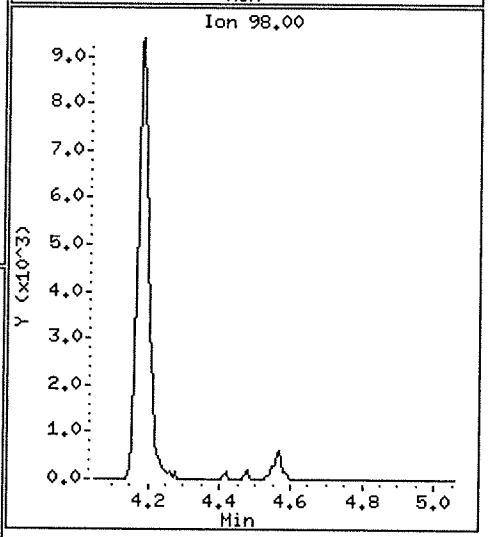
33 1,2-Dichloroethane

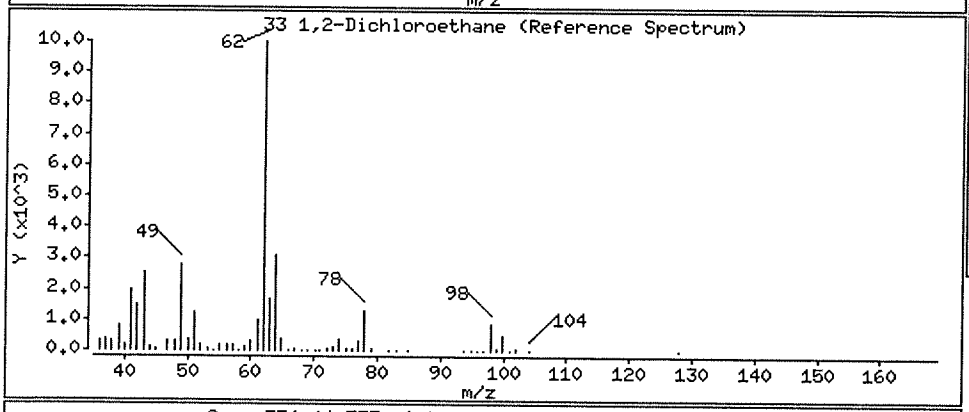
Concentration: 11.01 ug/l

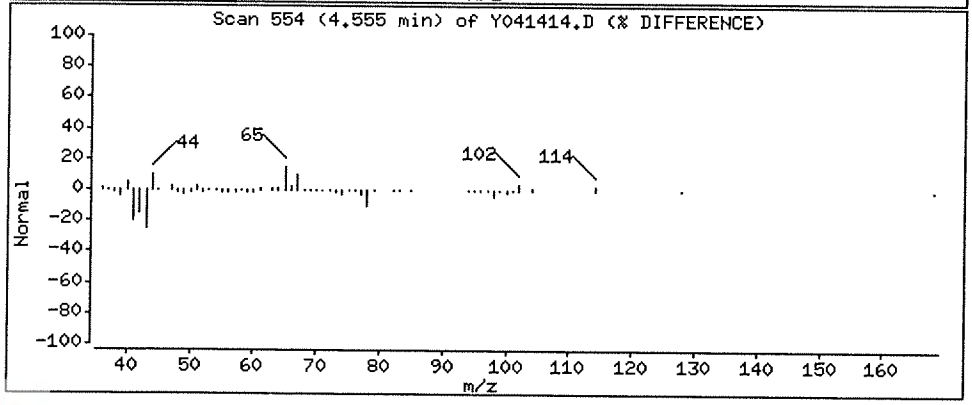












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D

Date : 15-APR-2021 02:08

Client ID: HS21040286-09

Instrument: voa6.i

Sample Info: HS21040286-09;HS21040286-09;;;

Purge Volume: 5.0

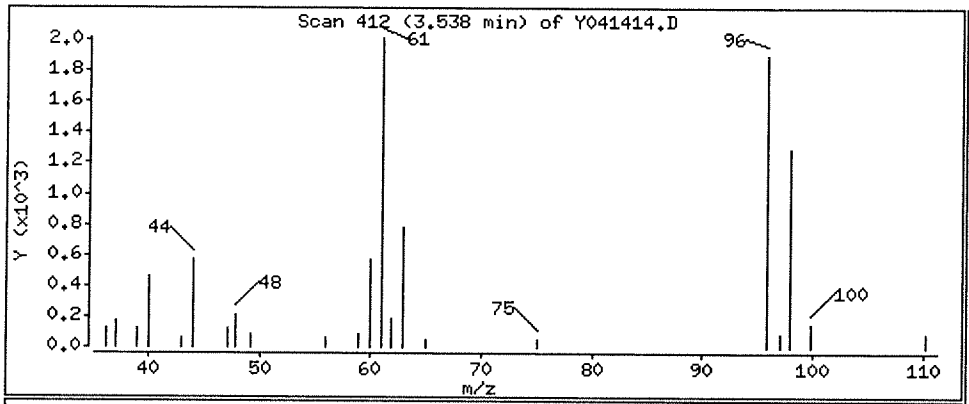
Operator: PC

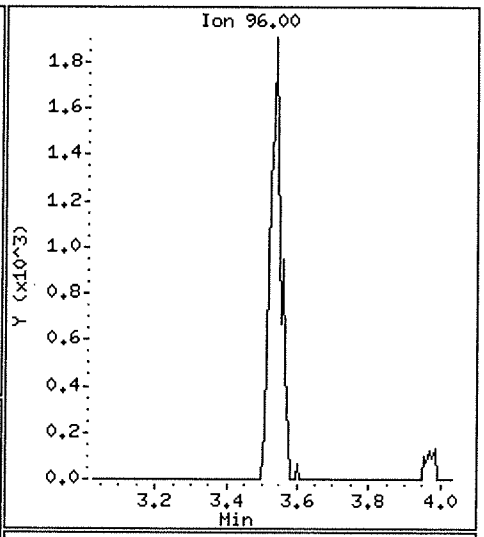
Column phase: DB624

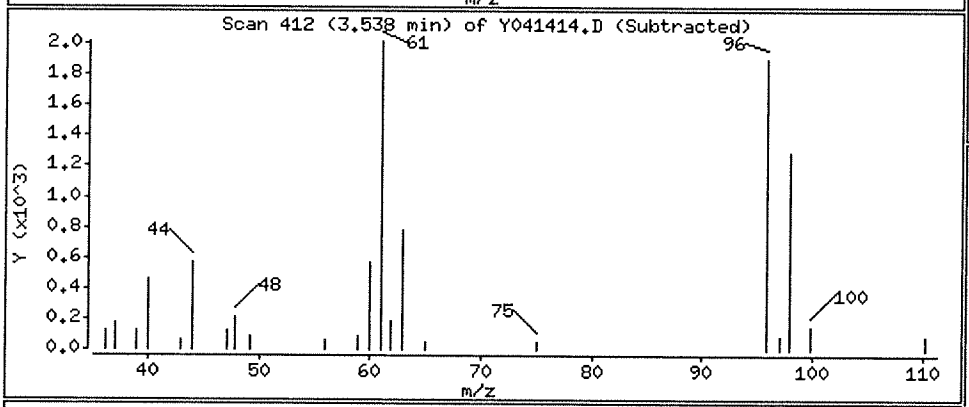
Column diameter: 0.18

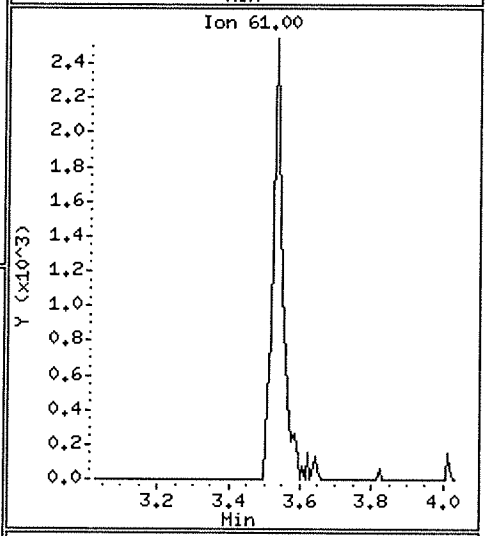
27 cis-1,2-Dichloroethene

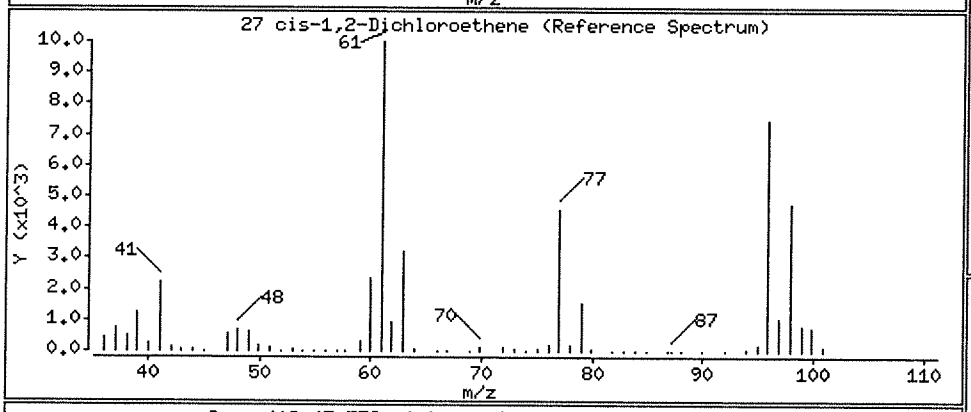
Concentration: 4.01 ug/l

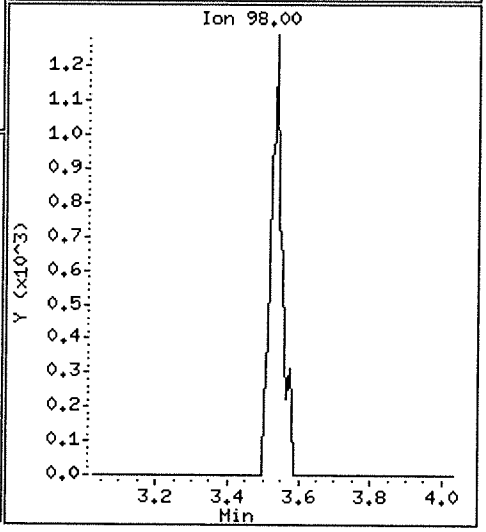


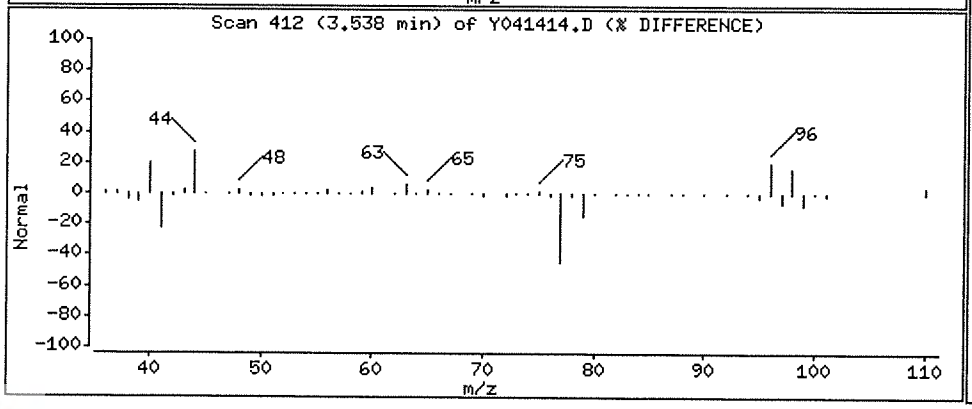












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041414.D

Date : 15-APR-2021 02:08

Client ID: HS21040286-09

Instrument: voa6.i

Sample Info: HS21040286-09;HS21040286-09;;;

Purge Volume: 5.0

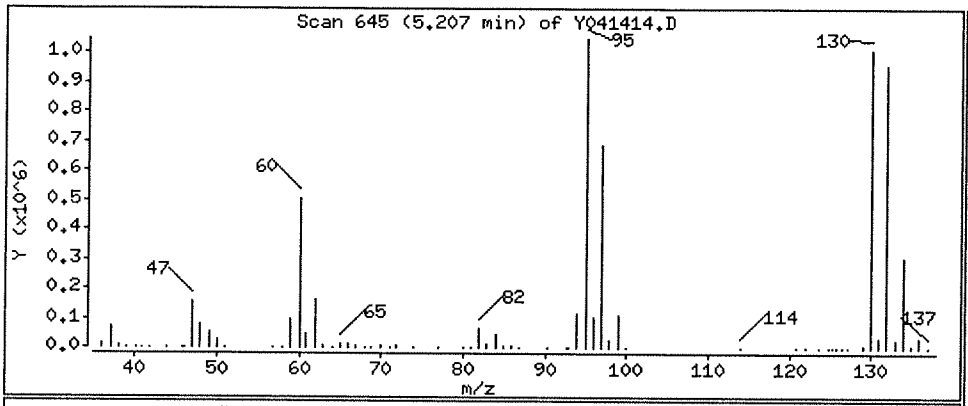
Operator: PC

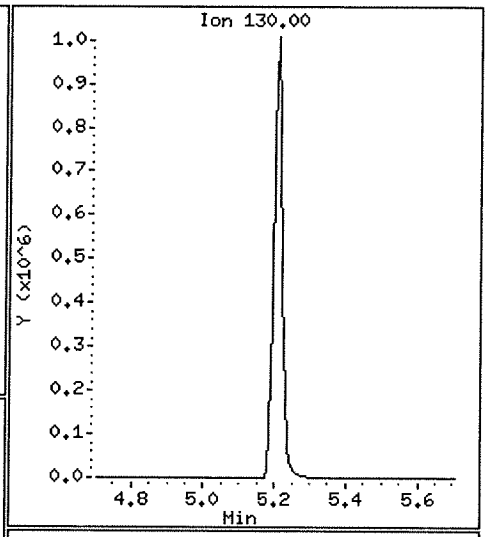
Column phase: DB624

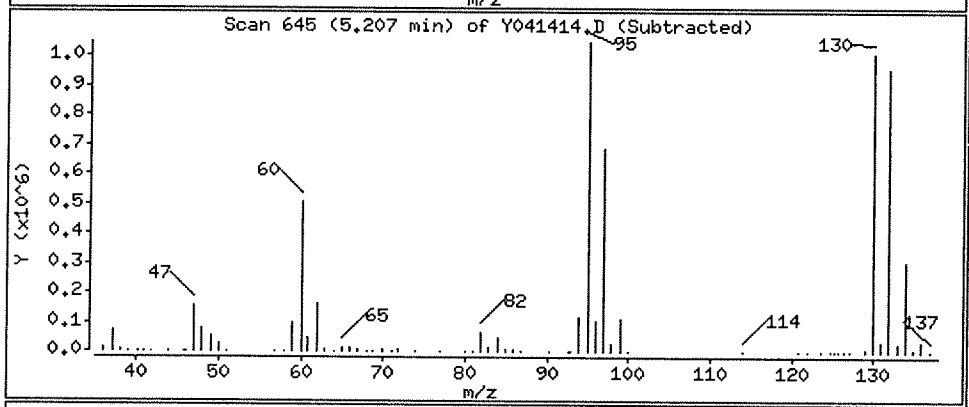
Column diameter: 0.18

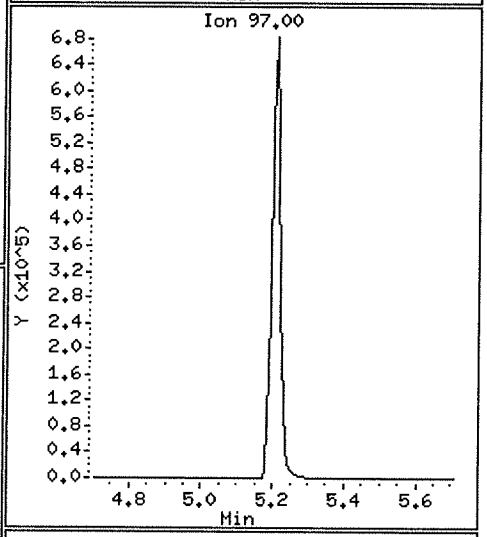
38 Trichloroethene

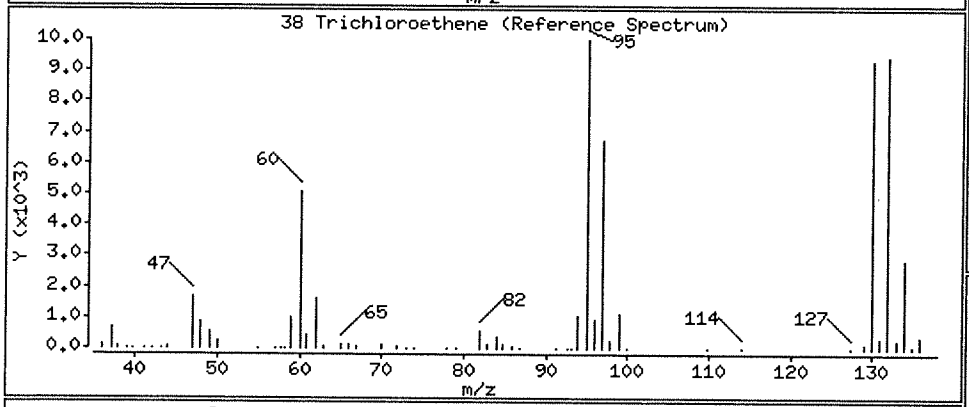
Concentration: 1756.31 ug/l

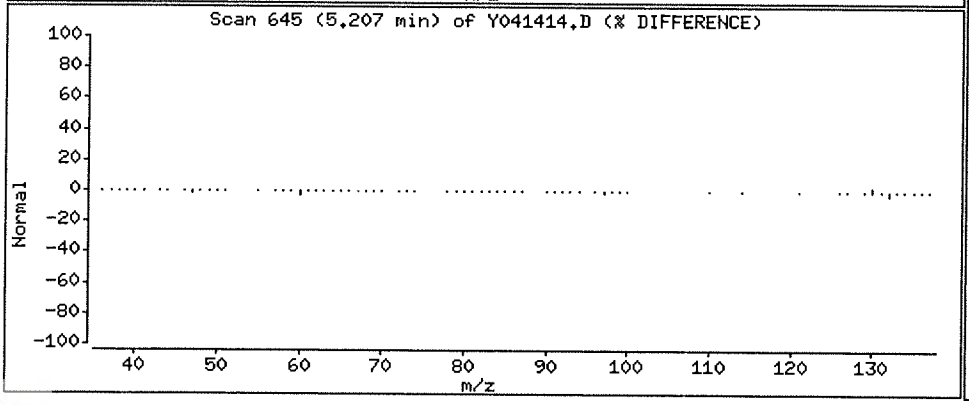


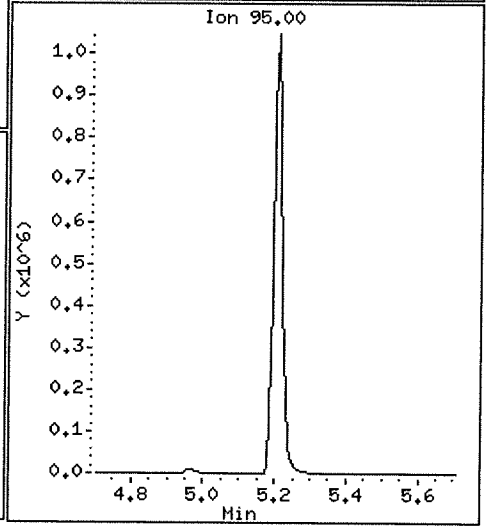












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041415.D Page 1
Report Date: 29-Apr-2021 12:31

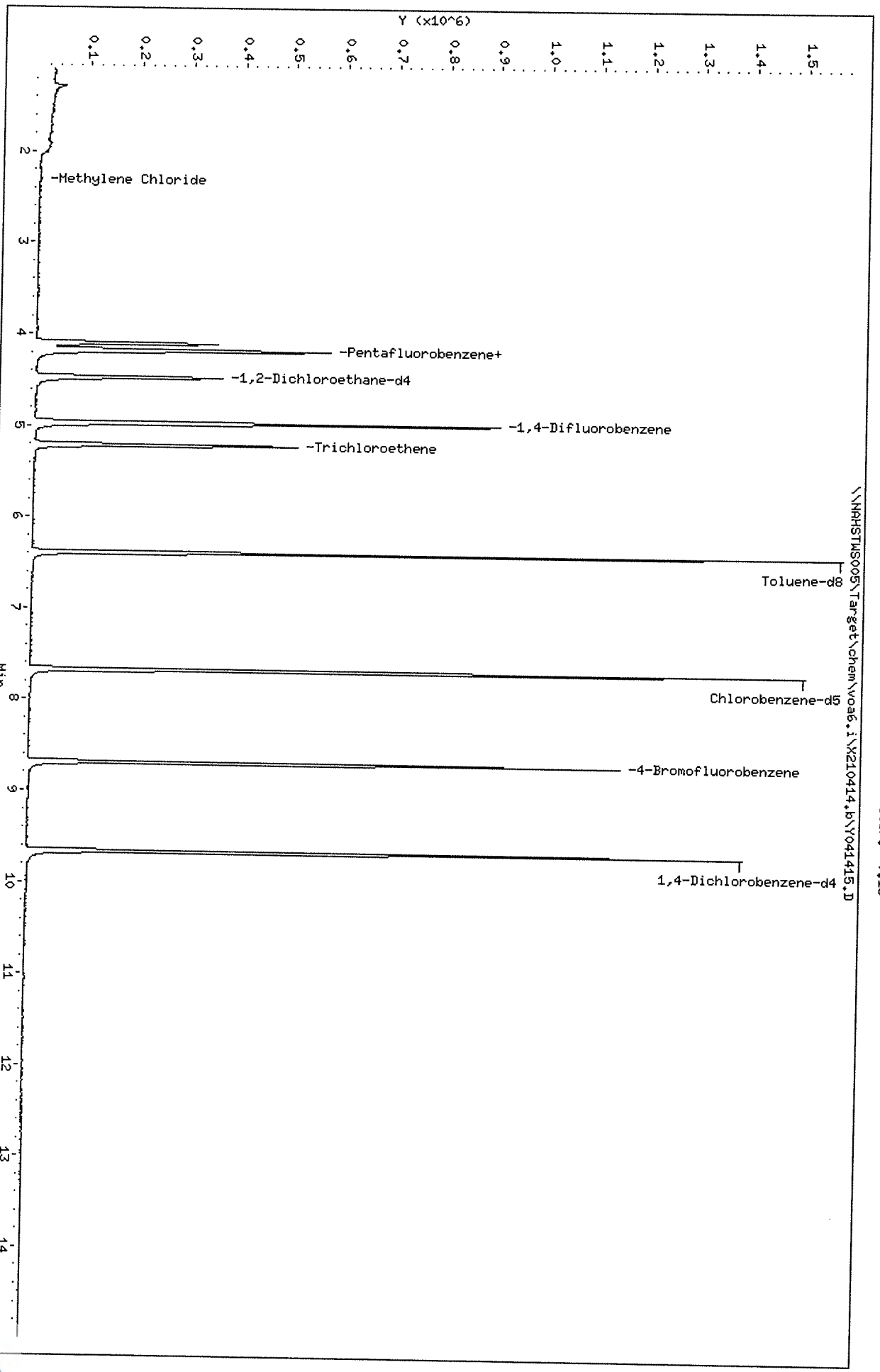
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041415.D
Lab Smp Id: HS21040286-09 Client Smp ID: HS21040286-09
Inj Date : 15-APR-2021 02:29
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-09;HS21040286-09;;;
Misc Info : HS18090001;WATER;0;50;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:30 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 44
Dil Factor: 50.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	50.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	424673	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	705213	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	662503	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	292261	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.096	(0.981)	235889	47.2046	47.20
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	287022	47.9327	47.93
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	896235	52.5326	52.53
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	310173	48.8581	48.85
38 Trichloroethene	130	5.206	5.207	(1.049)	152033	31.4923	1574.61



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041415.D
Date : 15-APR-2021 02:29
Client ID: HS21040286-09
Sample Info: HS21040286-09;HS21040286-09;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041415.D

Date : 15-APR-2021 02:29

Client ID: HS21040286-09

Instrument: voa6.i

Sample Info: HS21040286-09;HS21040286-09;;;

Purge Volume: 5.0

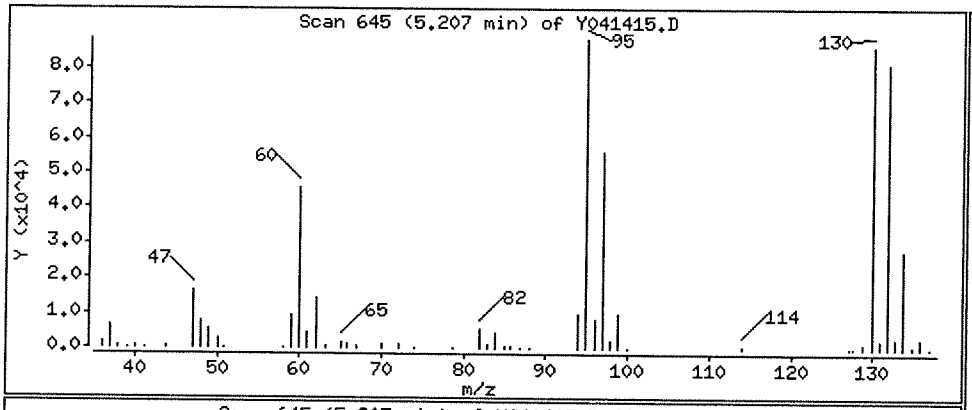
Operator: PC

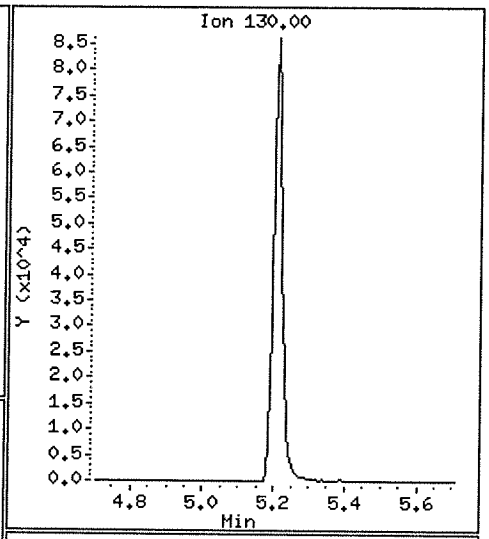
Column phase: DB624

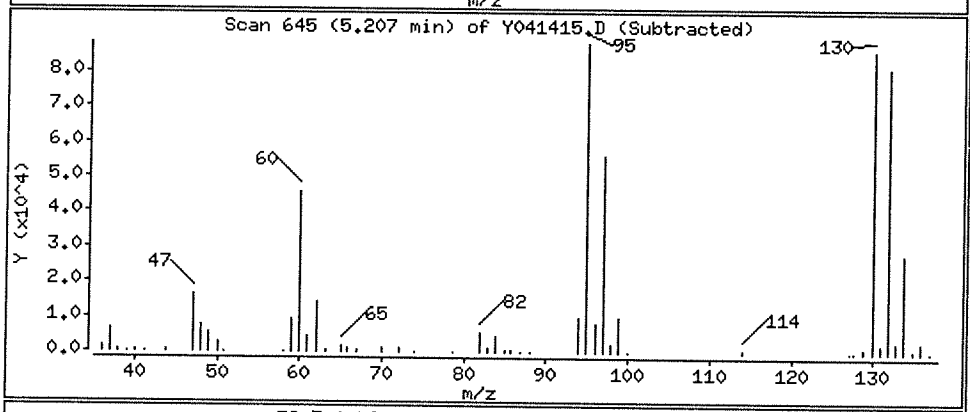
Column diameter: 0.18

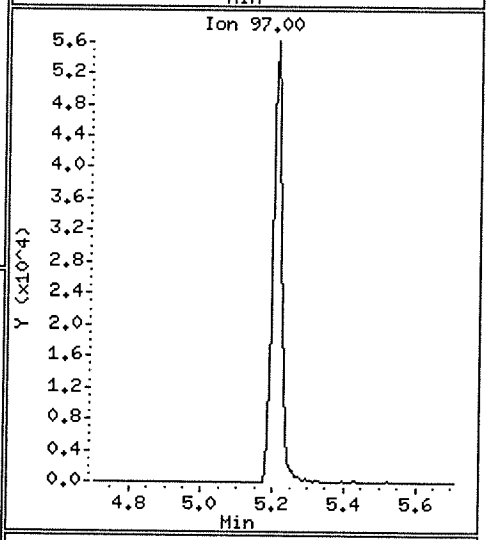
38 Trichloroethene

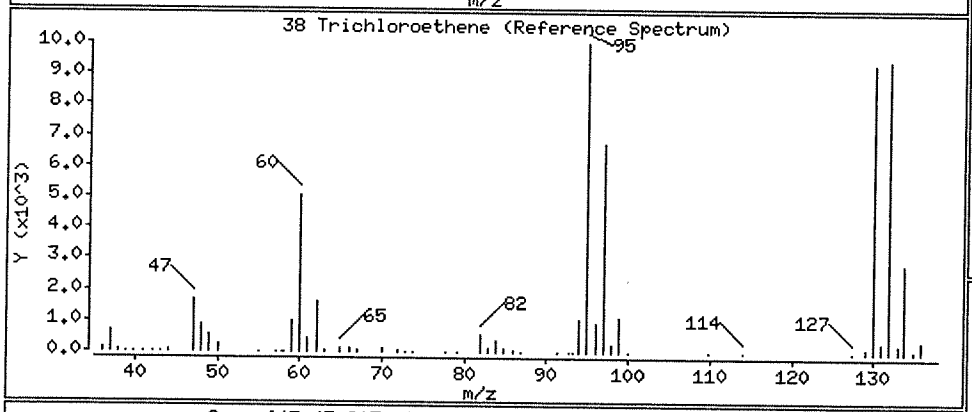
Concentration: 1574.61 ug/l

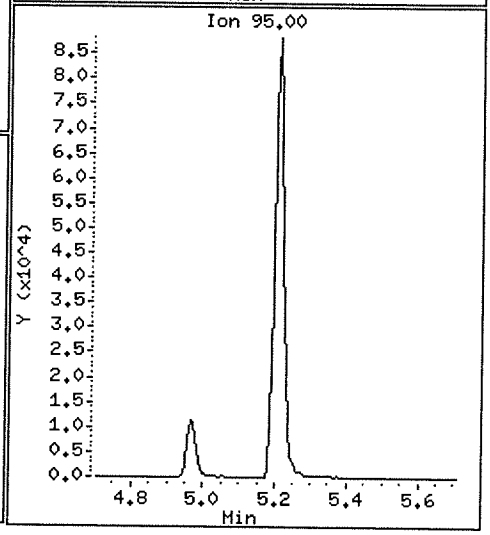


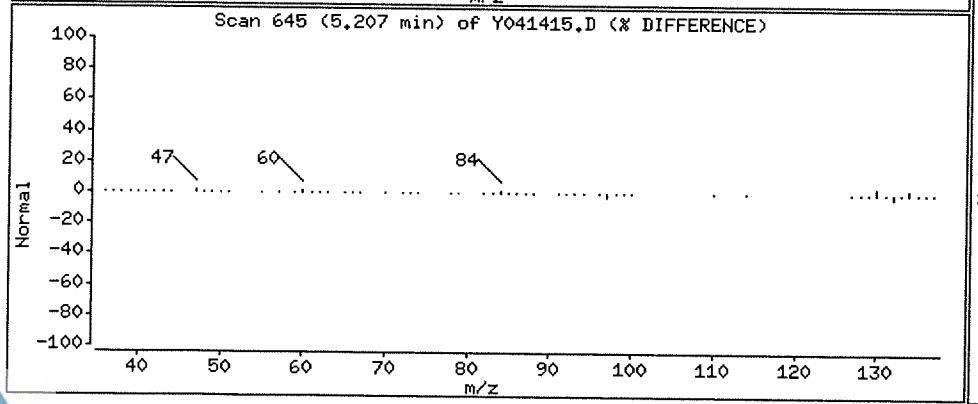












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041416.D Page 1
Report Date: 29-Apr-2021 12:28

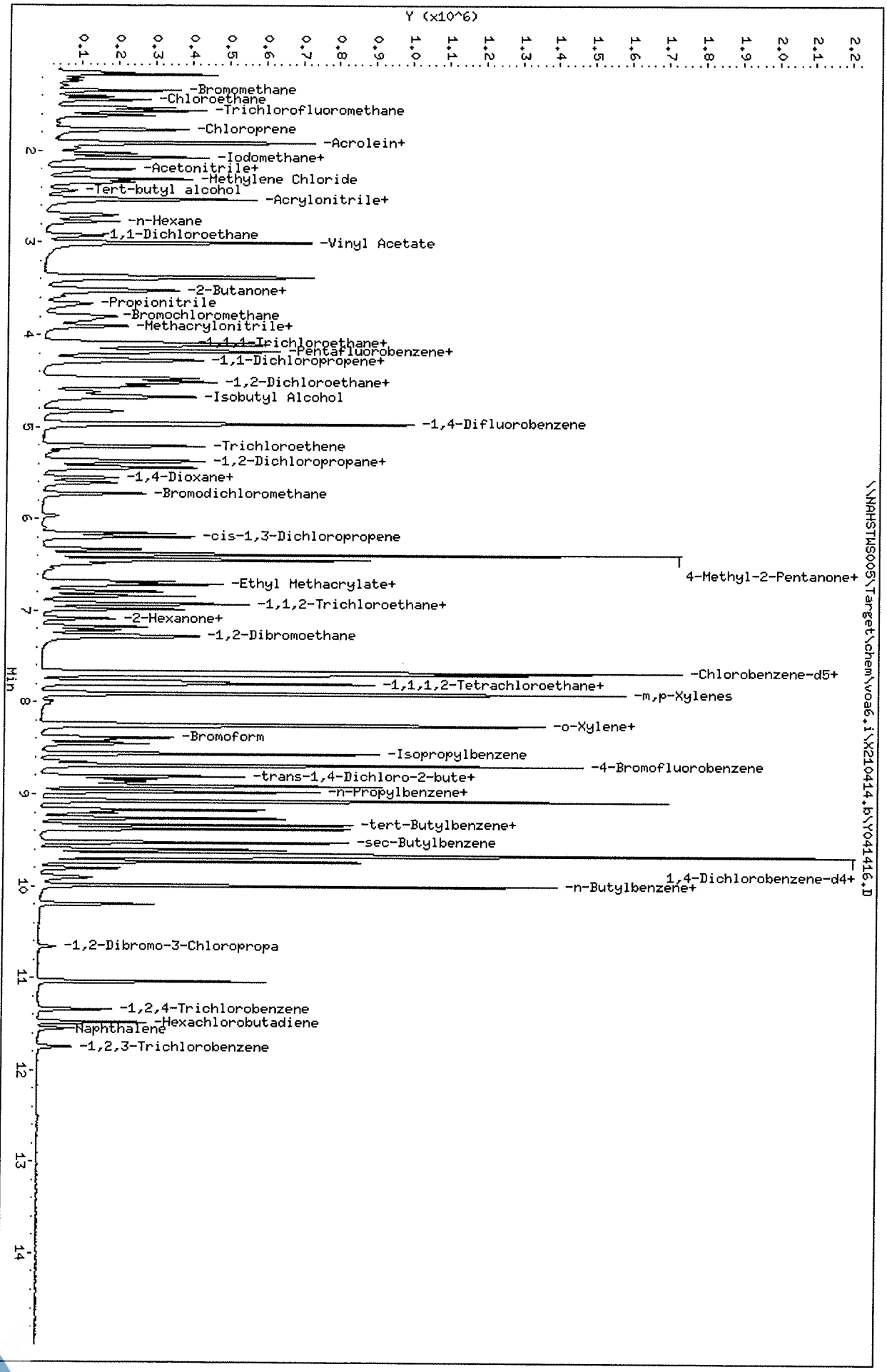
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041416.D
Lab Smp Id: HS21040286-08MS Client Smp ID: HS21040286-08MS
Inj Date : 15-APR-2021 02:50
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-08MS;HS21040286-08MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 45 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	461538	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	790220	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	732447	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	373156	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	267995	49.3262	49.32
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	332888	51.1194	51.11
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	961819	51.0475	51.04
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	361524	51.4192	51.41
11 1,1-Dichloroethene	96	1.911	1.919	(0.457)	139843	21.2796	21.27
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	159062	19.0168	19.01
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	108105	19.1611	19.16
56 Tetrachloroethene	164	6.926	6.926	(0.903)	93467	21.1407	21.14
38 Trichloroethene	130	5.206	5.206	(1.048)	129384	23.9177	23.91
5 Vinyl Chloride	62	1.145	1.145	(0.274)	151984	21.9650	21.96



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041416.D
Date : 15-APR-2021 02:50
Client ID: HS21040286-08MS
Sample Info: HS21040286-08MS;HS21040286-08MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041417.D Page 1
Report Date: 29-Apr-2021 12:28

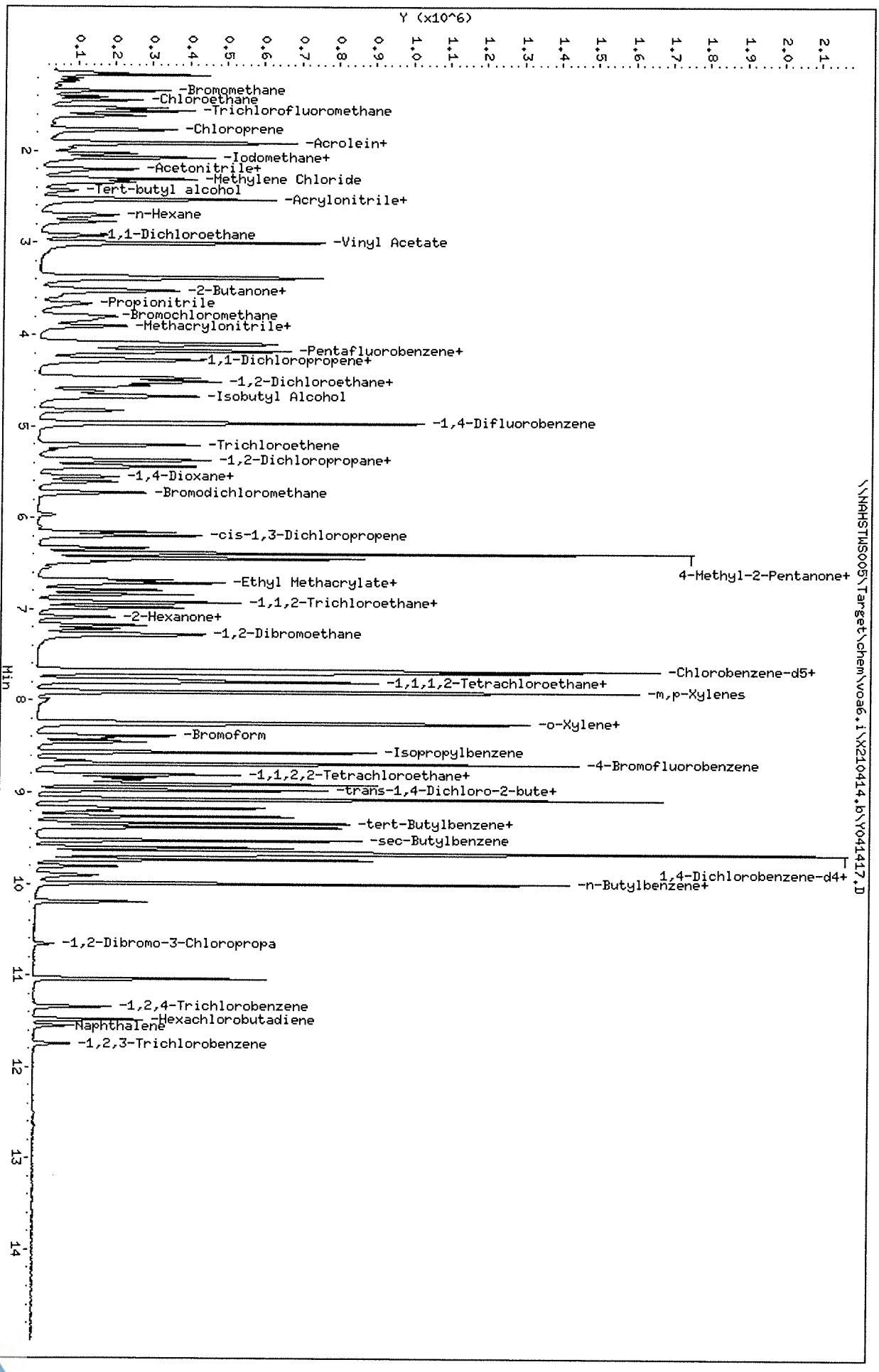
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041417.D
Lab Smp Id: HS21040286-08MSD Client Smp ID: HS21040286-08MSD
Inj Date : 15-APR-2021 03:11
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-08MSD;HS21040286-08MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 45 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	483000	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	804633	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	743292	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	367253	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.103	(0.979)	275339	48.4339	48.43
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.070)	346426	50.8372	50.83
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	982363	51.3651	51.36
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	363576	50.9715	50.97
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	131239	19.0830	19.08
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	168859	19.8265	19.82
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	112189	19.0014	19.00
56 Tetrachloroethene	164	6.926	6.926	(0.903)	91034	20.2899	20.28
38 Trichloroethene	130	5.206	5.206	(1.048)	129288	23.4718	23.47
5 Vinyl Chloride	62	1.145	1.145	(0.274)	146024	20.1659	20.16



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041417.D
Date : 15-APR-2021 03:11
Client ID: HS21040286-08HSD
Sample Info: HS21040286-08MSD;HS21040286-08MSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041418.D Page 1
Report Date: 29-Apr-2021 12:28

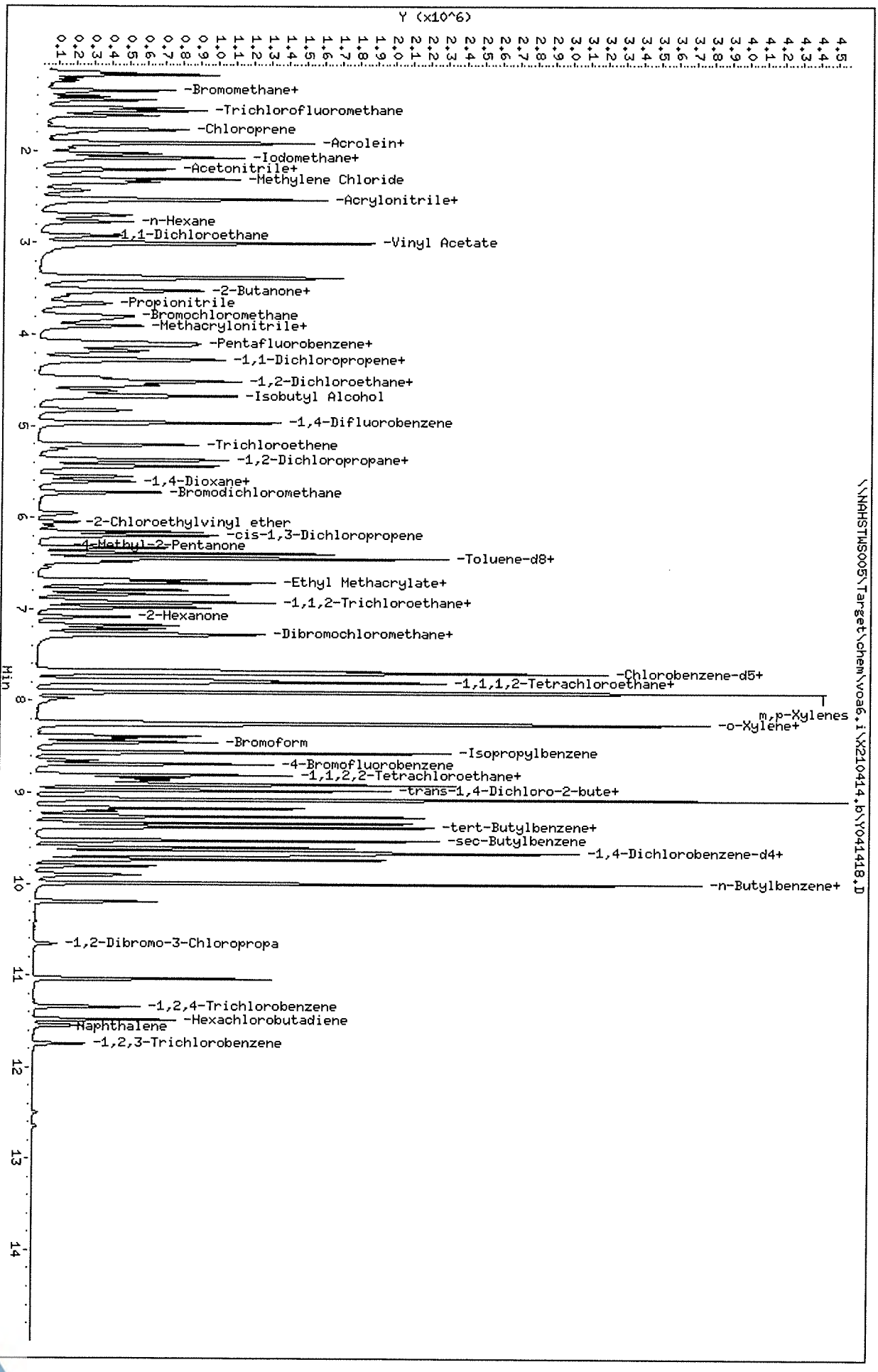
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041418.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 15-APR-2021 03:32
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210414.b\8260W.m
Meth Date : 29-Apr-2021 12:28 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 46 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	423444	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	771611	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	767289	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	374149	50.0000	
$ 30 Dibromofluoromethane	113	4.096	4.096	(0.979)	253151	50.0000	50.77
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	324361	50.0000	54.26
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	907126	50.0000	46.14
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	351239	50.0000	47.80
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	307858	50.0000	51.06
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	403740	50.0000	49.43
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	283988	50.0000	54.86
56 Tetrachloroethene	164	6.926	6.926	(0.903)	225130	50.0000	48.60
38 Trichloroethene	130	5.207	5.207	(1.048)	269607	50.0000	51.04
5 Vinyl Chloride	62	1.145	1.145	(0.274)	361067	50.0000	56.87



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210414.b\Y041418.D
Date : 15-APR-2021 03:32
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 44420 **Analyst:** Presenta Cabascango

Date: 04-15-2021 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments:

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	04-15-2021 10:22 am	1.00	50 mL	50 mL	X041501.D	Liquid	Y	NA
2	CCV	CCV	04-15-2021 10:43 am	1.00	50 mL	50 mL	X041502.D	Liquid	Y	NA
3	BLANK	SAMP	04-15-2021 11:04 am	1.00	50 mL	50 mL	X041503.D	Liquid	Y	NA
4	CCB	SAMP	04-15-2021 11:25 am	1.00	50 mL	50 mL	X041504.D	Liquid	Y	NA
5	VLCSW-210415	LCS	04-15-2021 11:46 am	1.00	50 mL	50 mL	X041505.D	Liquid	Y	NA
6	BLANK	SAMP	04-15-2021 12:12 pm	1.00	50 mL	50 mL	X041506.D	Liquid	Y	NA
7	VBLKW-210415	MBLK	04-15-2021 12:33 pm	1.00	50 mL	50 mL	X041507.D	Liquid	Y	NA
8	HS21040694-03	SAMP	04-15-2021 12:54 pm	1.00	50 mL	50 mL	X041508.D	Liquid	Y	NA
9	HS21040694-01	SAMP	04-15-2021 01:15 pm	1.00	50 mL	50 mL	X041509.D	Liquid	Y	NA
10	HS21040695-18	SAMP	04-15-2021 01:36 pm	1.00	50 mL	50 mL	X041510.D	Liquid	Y	NA
11	HS21040695-01	SAMP	04-15-2021 01:57 pm	1.00	50 mL	50 mL	X041511.D	Liquid	Y	NA
12	HS21040695-03	SAMP	04-15-2021 02:18 pm	1.00	50 mL	50 mL	X041512.D	Liquid	Y	NA
13	HS21040768-13	SAMP	04-15-2021 02:39 pm	1.00	50 mL	50 mL	X041513.D	Liquid	Y	NA
14	HS21040768-14	SAMP	04-15-2021 03:00 pm	1.00	50 mL	50 mL	X041514.D	Liquid	Y	NA
15	HS21040768-15	SAMP	04-15-2021 03:21 pm	1.00	50 mL	50 mL	X041515.D	Liquid	Y	NA
16	HS21040768-01	SAMP	04-15-2021 03:42 pm	20.00	2.5 mL	50 mL	X041516.D	Liquid	Y	NA
17	HS21040695-01MS	MS	04-15-2021 04:03 pm	1.00	50 mL	50 mL	X041517.D	Liquid	Y	NA
18	HS21040695-01MSD	MSD	04-15-2021 04:24 pm	1.00	50 mL	50 mL	X041518.D	Liquid	Y	NA
19	HS21040768-01	SAMP	04-15-2021 04:45 pm	250.0(	200 µL	50 mL	X041519.D	Liquid	Y	NA
20	HS21040768-16	SAMP	04-15-2021 05:06 pm	1.00	50 mL	50 mL	X041520.D	Liquid	Y	NA
21	HS21040768-17	SAMP	04-15-2021 05:27 pm	1.00	50 mL	50 mL	X041521.D	Liquid	Y	NA
22	HS21040768-18	SAMP	04-15-2021 05:49 pm	1.00	50 mL	50 mL	X041522.D	Liquid	Y	NA
23	HS21040768-19	SAMP	04-15-2021 06:10 pm	1.00	50 mL	50 mL	X041523.D	Liquid	Y	NA
24	HS21040768-02	SAMP	04-15-2021 06:31 pm	1.00	50 mL	50 mL	X041524.D	Liquid	Y	NA
25	HS21040768-03	SAMP	04-15-2021 06:52 pm	1.00	50 mL	50 mL	X041525.D	Liquid	Y	NA
26	HS21040768-04	SAMP	04-15-2021 07:13 pm	1.00	50 mL	50 mL	X041526.D	Liquid	Y	NA
27	HS21040768-06	SAMP	04-15-2021 07:34 pm	1.00	50 mL	50 mL	X041527.D	Liquid	Y	NA
28	HS21040768-07	SAMP	04-15-2021 07:55 pm	1.00	50 mL	50 mL	X041528.D	Liquid	Y	NA
29	HS21040768-08	SAMP	04-15-2021 08:16 pm	1.00	50 mL	50 mL	X041529.D	Liquid	Y	NA
30	CCV-END	CCV	04-15-2021 08:37 pm	1.00	50 mL	50 mL	X041530.D	Liquid	Y	NA
31	BFB	TUNE	04-15-2021 08:58 pm	1.00	50 mL	50 mL	Y041501.D	Liquid	Y	NA
32	CCV	CCV	04-15-2021 09:19 pm	1.00	50 mL	50 mL	Y041502.D	Liquid	Y	NA
33	BLANK	SAMP	04-15-2021 09:40 pm	1.00	50 mL	50 mL	Y041503.D	Liquid	Y	NA
34	CCB	SAMP	04-15-2021 10:01 pm	1.00	50 mL	50 mL	Y041504.D	Liquid	Y	NA
35	VLCSW-210415	LCS	04-15-2021 10:22 pm	1.00	50 mL	50 mL	Y041505.D	Liquid	Y	NA
36	BLANK	SAMP	04-15-2021 10:43 pm	1.00	50 mL	50 mL	Y041506.D	Liquid	Y	NA
37	VBLKW-210415	MBLK	04-15-2021 11:04 pm	1.00	50 mL	50 mL	Y041507.D	Liquid	Y	NA
38	HS21040695-04	SAMP	04-15-2021 11:25 pm	1.00	50 mL	50 mL	Y041508.D	Liquid	Y	NA
39	HS21040695-15	SAMP	04-15-2021 11:46 pm	1.00	50 mL	50 mL	Y041509.D	Liquid	Y	NA
40	HS21040695-04MS	MS	04-16-2021 12:07 am	1.00	50 mL	50 mL	Y041510.D	Liquid	Y	NA
41	HS21040695-04MSD	MSD	04-16-2021 12:28 am	1.00	50 mL	50 mL	Y041511.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
42	HS21040286-01	SAMP	04-16-2021 12:49 am	10.00	5 mL	50 mL	Y041512.D	Liquid	Y	NA
43	HS21040286-02	SAMP	04-16-2021 01:10 am	5.00	10 mL	50 mL	Y041513.D	Liquid	Y	NA
44	HS21040286-05	SAMP	04-16-2021 01:31 am	10.00	5 mL	50 mL	Y041514.D	Liquid	Y	NA
45	HS21040286-06	SAMP	04-16-2021 01:52 am	5.00	10 mL	50 mL	Y041515.D	Liquid	Y	NA
46	HS21040286-07	SAMP	04-16-2021 02:14 am	5.00	10 mL	50 mL	Y041516.D	Liquid	Y	NA
47	HS21040695-05	SAMP	04-16-2021 02:35 am	1.00	50 mL	50 mL	Y041517.D	Liquid	Y	NA
48	HS21040695-06	SAMP	04-16-2021 02:56 am	1.00	50 mL	50 mL	Y041518.D	Liquid	Y	NA
49	HS21040695-07	SAMP	04-16-2021 03:17 am	1.00	50 mL	50 mL	Y041519.D	Liquid	Y	NA
50	HS21040695-08	SAMP	04-16-2021 03:38 am	1.00	50 mL	50 mL	Y041520.D	Liquid	Y	NA
51	HS21040695-09	SAMP	04-16-2021 03:59 am	1.00	50 mL	50 mL	Y041521.D	Liquid	Y	NA
52	HS21040695-10	SAMP	04-16-2021 04:20 am	1.00	50 mL	50 mL	Y041522.D	Liquid	Y	NA
53	HS21040695-12	SAMP	04-16-2021 04:41 am	1.00	50 mL	50 mL	Y041523.D	Liquid	Y	NA
54	HS21040695-02	SAMP	04-16-2021 05:02 am	10.00	5 mL	50 mL	Y041524.D	Liquid	Y	NA
55	HS21040695-02	SAMP	04-16-2021 05:23 am	100.0(	500 µL	50 mL	Y041525.D	Liquid	Y	NA
56	HS21040695-13	SAMP	04-16-2021 05:44 am	10.00	5 mL	50 mL	Y041526.D	Liquid	Y	NA
57	HS21040695-13	SAMP	04-16-2021 06:05 am	100.0(	500 µL	50 mL	Y041527.D	Liquid	Y	NA
58	HS21040695-14	SAMP	04-16-2021 06:26 am	25.00	2 mL	50 mL	Y041528.D	Liquid	Y	NA
59	HS21040695-14	SAMP	04-16-2021 06:47 am	250.0(	200 µL	50 mL	Y041529.D	Liquid	Y	NA
60	CCV-END	CCV	04-16-2021 07:08 am	1.00	50 mL	50 mL	Y041530.D	Liquid	Y	NA
61	BLANK	SAMP	04-16-2021 07:29 am	1.00	50 mL	50 mL	Y041531.D	Liquid	Y	NA

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE) #	SMC3 (TOL) #	OTHER #	TOT OUT
01	VLCSW-210415	96	105	95	97	0
02	VBLKW-210415	94	100	109	98	0
03	HS21040695-04MS	93	99	102	101	0
04	HS21040695-04MSD	94	97	105	103	0
05	HS21040286-01	93	97	108	95	0
06	HS21040286-02	91	98	108	96	0
07	HS21040286-05	94	99	109	96	0
08	HS21040286-06	92	98	108	98	0
09	HS21040286-07	92	98	109	94	0
10						
11						
12						
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23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= Dibromofluoromethane	(0-130)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER	= 4-Bromofluorobenzene	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-210415

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: Y041507 Lab Sample ID: VBLKW-210415

Date Analyzed: 04/15/21 Time Analyzed: 2304

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

Instrument ID: VOA6

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	VLCSW-210415	VLCSW-210415	Y041505	2222
02	HS21040695-04MS	HS21040695-04MS	Y041510	0007
03	HS21040695-04MSD	HS21040695-04MSD	Y041511	0028
04	HS21040286-01	HS21040286-01	Y041512	0049
05	HS21040286-02	HS21040286-02	Y041513	0110
06	HS21040286-05	HS21040286-05	Y041514	0131
07	HS21040286-06	HS21040286-06	Y041515	0152
08	HS21040286-07	HS21040286-07	Y041516	0214
09				
10				
11				
12				
13				
14				
15				
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24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID: Y041501 BFB Injection Date: 04/15/21

Instrument ID: VOA6 BFB Injection Time: 2058

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	23.9
75	30.0 - 60.0% of mass 95	56.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.5 (0.7)1
174	Greater than 50.0% of mass 95	67.4
175	5.0 - 9.0% of mass 174	5.7 (8.4)1
176	95.0 - 101.0% of mass 174	64.4 (95.6)1
177	5.0 - 9.0% of mass 176	4.2 (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	CCV	CCV	Y041502	04/15/21	2119
02	VLCSW-210415	VLCSW-210415	Y041505	04/15/21	2222
03	VBLKW-210415	VBLKW-210415	Y041507	04/15/21	2304
04	HS21040695-04MS	HS21040695-04MS	Y041510	04/16/21	0007
05	HS21040695-04MSD	HS21040695-04MSD	Y041511	04/16/21	0028
06	HS21040286-01	HS21040286-01	Y041512	04/16/21	0049
07	HS21040286-02	HS21040286-02	Y041513	04/16/21	0110
08	HS21040286-05	HS21040286-05	Y041514	04/16/21	0131
09	HS21040286-06	HS21040286-06	Y041515	04/16/21	0152
10	HS21040286-07	HS21040286-07	Y041516	04/16/21	0214
11	CCV-END	CCV-END	Y041530	04/16/21	0708
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/15/21 Time: 2119

Lab File ID: Y041502 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.7506463	0.7506463	0.1	-0.09	20.00	AVRG
1,1-Dichloroethene	0.7120000	0.6676877	0.6676877	0.1	6.22	20.00	AVRG
1,2-Dichloroethane	0.5290000	0.5209370	0.5209370	0.1	1.52	20.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.6125641	0.6125641	0.1	-0.26	20.00	AVRG
Tetrachloroethene	0.3020000	0.2891478	0.2891478	0.2	4.26	20.00	AVRG
Trichloroethene	0.3420000	0.3404694	0.3404694	0.2	0.45	20.00	AVRG
Dibromofluoromethane	48.869922	50.000000	0.5752382	0.1	2.26	20.00	LINR
1,2-Dichloroethane-d4	49.891060	50.000000	0.7037611	0.1	0.22	20.00	LINR
Toluene-d8	47.231488	50.000000	1.2112937	0.1	5.54	20.00	LINR
4-Bromofluorobenzene	47.840962	50.000000	0.4580961	0.1	4.32	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Instrument ID: VOA6 Calibration Date: 04/16/21 Time: 0708

Lab File ID: Y041530 Init. Calib. Date(s): 04/02/21 04/02/21

Init. Calib. Times: 1053 1423

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Vinyl Chloride	0.7500000	0.7787878	0.7787878	0.1	-3.84	50.00	AVRG
1,1-Dichloroethene	0.7120000	0.6736986	0.6736986	0.1	5.38	50.00	AVRG
1,2-Dichloroethane	0.5290000	0.5041594	0.5041594	0.1	4.70	50.00	AVRG
cis-1,2-Dichloroethene	0.6110000	0.6264485	0.6264485	0.1	-2.53	50.00	AVRG
Tetrachloroethene	0.3020000	0.2745252	0.2745252	0.2	9.10	50.00	AVRG
Trichloroethene	0.3420000	0.3312467	0.3312467	0.2	3.14	50.00	AVRG
Dibromofluoromethane	50.395994	50.000000	0.5933618	0.1	-0.79	50.00	LINR
1,2-Dichloroethane-d4	49.350907	50.000000	0.6960672	0.1	1.30	50.00	LINR
Toluene-d8	47.689033	50.000000	1.2235075	0.1	4.62	50.00	LINR
4-Bromofluorobenzene	50.354475	50.000000	0.4830239	0.1	-0.71	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): Y041502 Date Analyzed: 04/15/21

Instrument ID: VOA6 Time Analyzed: 2119

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	424718	4.18	754335	4.97	740552	7.67
	UPPER LIMIT	849436	4.68	1508670	5.47	1481104	8.17
	LOWER LIMIT	212359	3.68	377168	4.47	370276	7.17
	CLIENT SAMPLE NO.						
01	VLCSW-210415	407969	4.18	710440	4.97	652816	7.67
02	VBLKW-210415	461480	4.18	750111	4.96	640430	7.67
03	HS21040695-04MS	486307	4.18	783562	4.96	714036	7.67
04	HS21040695-04MSD	506036	4.18	824032	4.96	744085	7.67
05	HS21040286-01	489975	4.18	800655	4.97	671529	7.67
06	HS21040286-02	482900	4.18	771814	4.96	675107	7.67
07	HS21040286-05	450471	4.18	734199	4.97	634219	7.67
08	HS21040286-06	463944	4.18	746680	4.97	650780	7.67
09	HS21040286-07	452332	4.18	729546	4.96	631365	7.67
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS LABORATORY GROUP Contract:

Lab Code: ALS-HS Case No.: SAS No.: SDG No.: HS21040286

Lab File ID (Standard): Y041502 Date Analyzed: 04/15/21

Instrument ID: VOA6 Time Analyzed: 2119

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 (DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	358645	9.66				
	UPPER LIMIT	717290	10.16				
	LOWER LIMIT	179323	9.16				
	CLIENT SAMPLE NO.						
01	VLCSW-210415	329440	9.66				
02	VBLKW-210415	277455	9.66				
03	HS21040695-04MS	335383	9.66				
04	HS21040695-04MSD	349865	9.66				
05	HS21040286-01	281911	9.66				
06	HS21040286-02	298039	9.66				
07	HS21040286-05	263141	9.66				
08	HS21040286-06	291193	9.66				
09	HS21040286-07	266033	9.66				
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

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041501.D

Date : 15-APR-2021 20:58

Client ID: BFB

Instrument: voa6.i

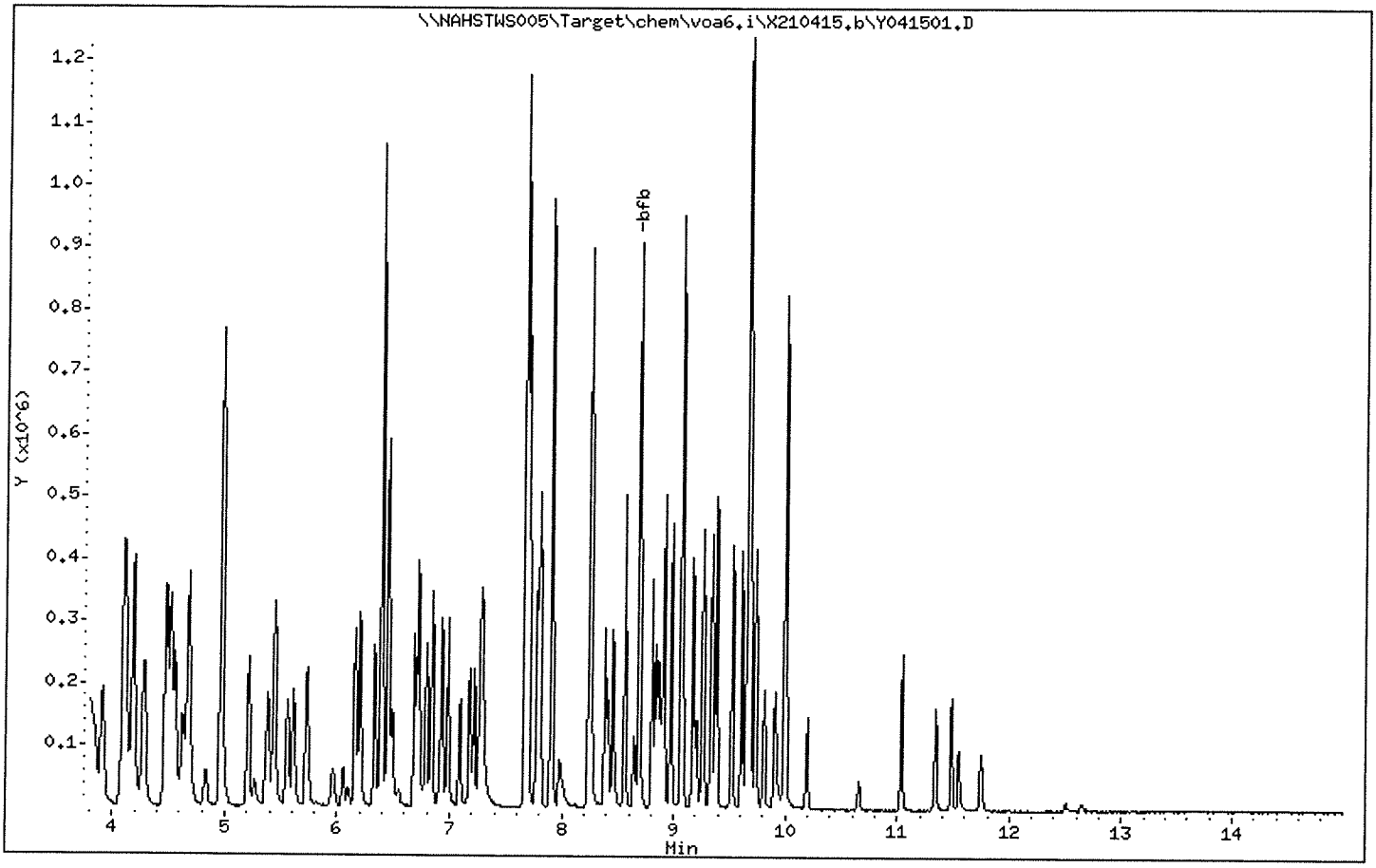
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041501.D

Date : 15-APR-2021 20:58

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

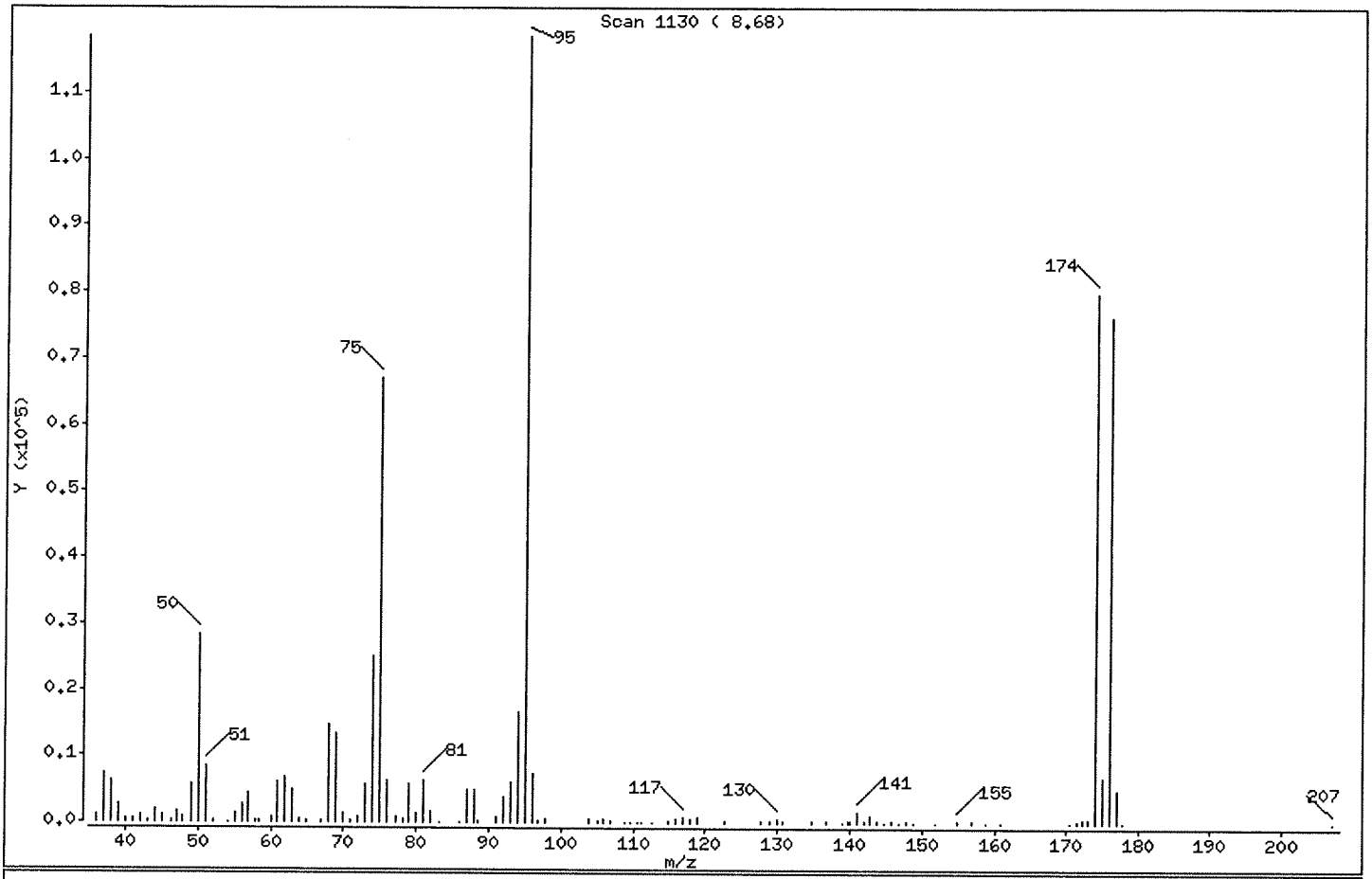
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	23.85
75	30.00 - 60.00% of mass 95	56.55
96	5.00 - 9.00% of mass 95	6.22
173	Less than 2.00% of mass 174	0.50 (0.74)
174	Greater than 50.00% of mass 95	67.37
175	5.00 - 9.00% of mass 174	5.69 (8.44)
176	95.00 - 101.00% of mass 174	64.40 (95.60)
177	5.00 - 9.00% of mass 176	4.23 (6.56)

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041501.D

Date : 15-APR-2021 20:58

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: Y041501.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 106

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	1143	64.00	521	95.00	118432	140.00	143
37.00	7311	65.00	173	96.00	7367	140.90	1559
38.00	6332	66.90	379	96.90	198	142.00	297
39.00	2676	68.00	14781	97.90	421	142.90	1138
39.90	596	69.00	13238	103.80	592	143.90	177
41.00	594	70.00	1370	105.00	233	144.90	79
42.00	972	70.90	200	105.90	665	145.90	229
43.10	371	72.00	819	106.80	154	146.70	81
44.00	1968	73.00	5760	108.90	95	147.80	183
45.00	1031	74.00	25136	109.70	75	148.80	112
46.20	173	75.00	66976	110.60	97	151.80	73
47.00	1549	76.00	6340	111.10	135	154.90	222
47.90	850	77.10	778	112.70	128	156.90	221
49.00	5734	78.10	499	114.80	217	158.90	103
50.00	28248	78.90	5720	115.80	461	160.90	121
51.00	8439	79.90	1376	116.90	892	170.50	53
52.00	355	80.90	6364	117.80	537	171.30	162
54.10	63	81.90	1720	119.00	716	172.20	515
55.00	1455	83.30	52	122.80	143	172.90	589
56.00	2768	86.10	76	127.80	346	173.90	79784
56.90	4395	86.90	4880	128.90	165	174.90	6734
57.90	312	87.90	4827	129.90	431	175.90	76272
58.30	199	88.60	374	130.70	235	176.90	5004
60.10	931	90.90	686	134.80	305	177.80	66
61.00	5914	92.00	3754	136.80	206	207.10	122
62.00	6805	93.00	6121	139.00	122		
63.00	4850	94.00	16576	139.70	139		

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041502.D Page 1
Report Date: 29-Apr-2021 12:39

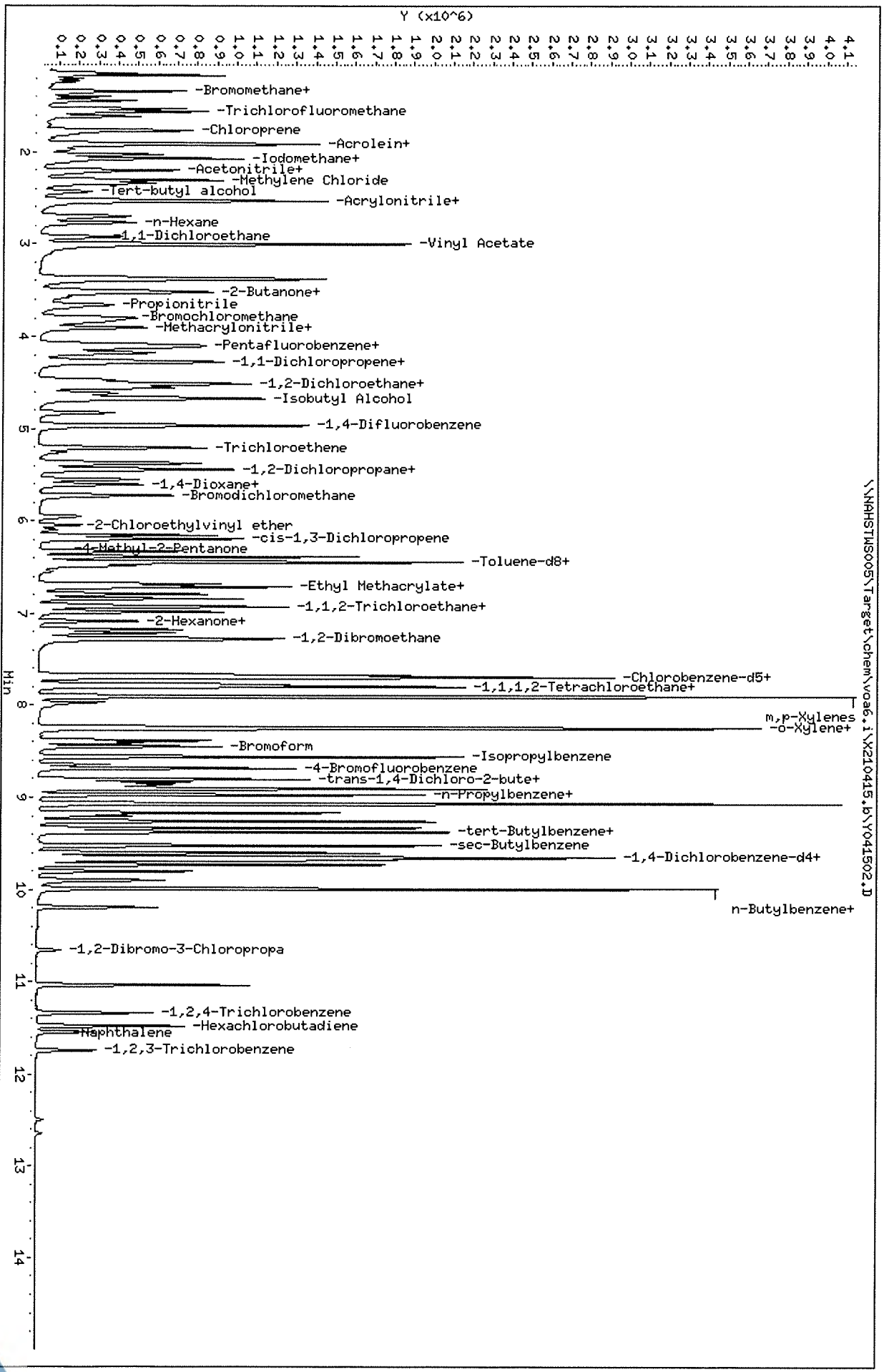
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041502.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 15-APR-2021 21:19
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 31 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.182	4.182	(1.000)	424718	50.0000	
* 36	1,4-Difluorobenzene	114	4.970	4.970	(1.000)	754335	50.0000	
* 47	Chlorobenzene-d5	117	7.670	7.670	(1.000)	740552	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	358645	50.0000	
$ 30	Dibromofluoromethane	113	4.103	4.103	(0.981)	244314	50.0000	48.86
$ 35	1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	298900	50.0000	49.89
$ 48	Toluene-d8	98	6.388	6.388	(0.833)	897026	50.0000	47.23
$ 69	4-Bromofluorobenzene	95	8.688	8.688	(1.133)	339244	50.0000	47.84
11	1,1-Dichloroethene	96	1.919	1.919	(0.459)	283579	50.0000	46.89
33	1,2-Dichloroethane	62	4.555	4.555	(0.916)	392961	50.0000	49.21
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	260167	50.0000	50.11
56	Tetrachloroethene	164	6.925	6.925	(0.903)	214129	50.0000	47.90
38	Trichloroethene	130	5.206	5.206	(1.048)	256828	50.0000	49.73
5	Vinyl Chloride	62	1.145	1.145	(0.274)	318813	50.0000	50.06



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041502.D
Date : 15-APR-2021 21:19
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041505.D Page 1
Report Date: 29-Apr-2021 12:39

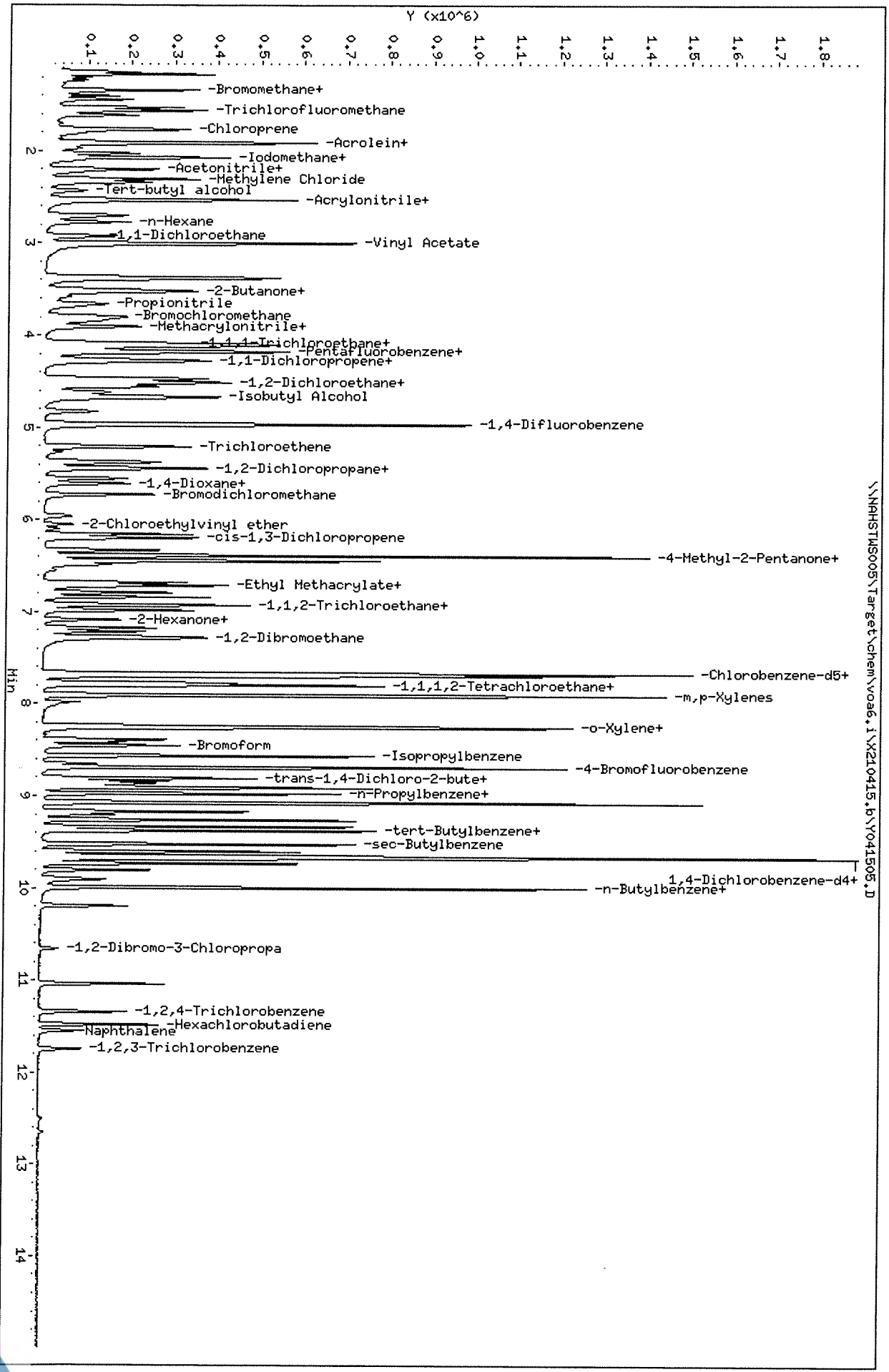
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041505.D
Lab Smp Id: VLCSW-210415 Client Smp ID: VLCSW-210415
Inj Date : 15-APR-2021 22:22
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-210415;VLCSW-210415;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 33 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	407969	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	710440	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	652816	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	329440	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	230442	47.9953	47.99
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	301976	52.4488	52.44
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	796055	47.5358	47.53
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	303583	48.5407	48.54
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	119379	20.5509	20.55
33 1,2-Dichloroethane	62	4.562	4.555	(0.918)	156141	20.7639	20.76
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	104802	21.0147	21.01
56 Tetrachloroethene	164	6.926	6.925	(0.903)	77599	19.6925	19.69
38 Trichloroethene	130	5.207	5.206	(1.048)	101162	20.8006	20.80
5 Vinyl Chloride	62	1.145	1.145	(0.274)	136785	22.3641	22.36



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041505.D
Date : 15-APR-2021 22:22
Client ID: VLCSW-210415
Sample Info: VLCSW-210415;VLCSW-210415;3;;LCS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041507.D Page 1
Report Date: 29-Apr-2021 12:39

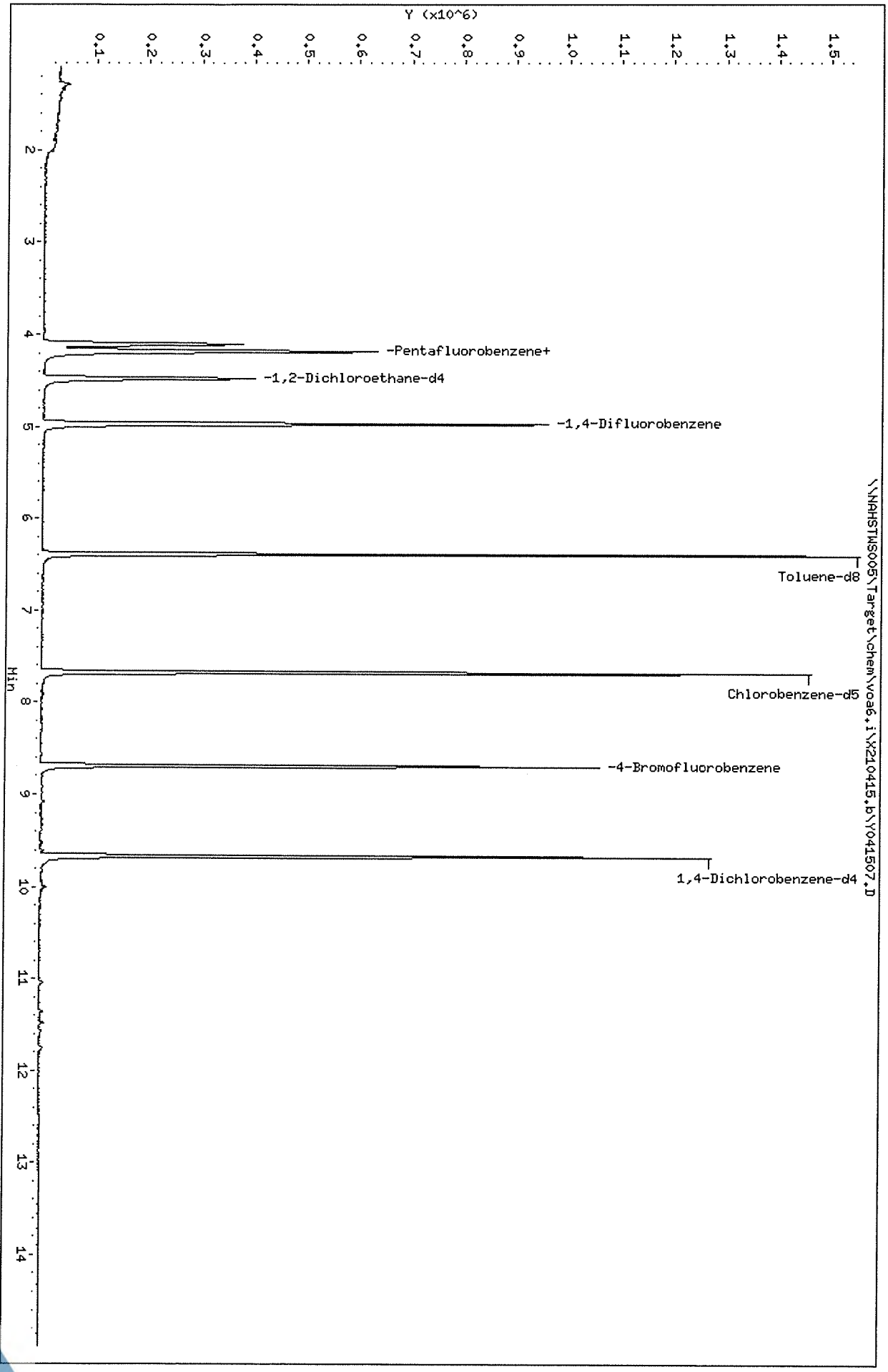
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041507.D
Lab Smp Id: VBLKW-210415 Client Smp ID: VBLKW-210415
Inj Date : 15-APR-2021 23:04
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-210415;VBLKW-210415;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 35 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	461480	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	750111	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	640430	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	277455	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	256770	47.2841	47.28
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	326359	50.1325	50.13
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	900715	54.5413	54.54
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	299367	48.7838	48.78



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041507.D
Date : 15-APR-2021 23:04
Client ID: VBLKW-210415
Sample Info: VBLKW-210415;VBLKW-210415;3;;BLANK
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041510.D Page 1
Report Date: 29-Apr-2021 12:39

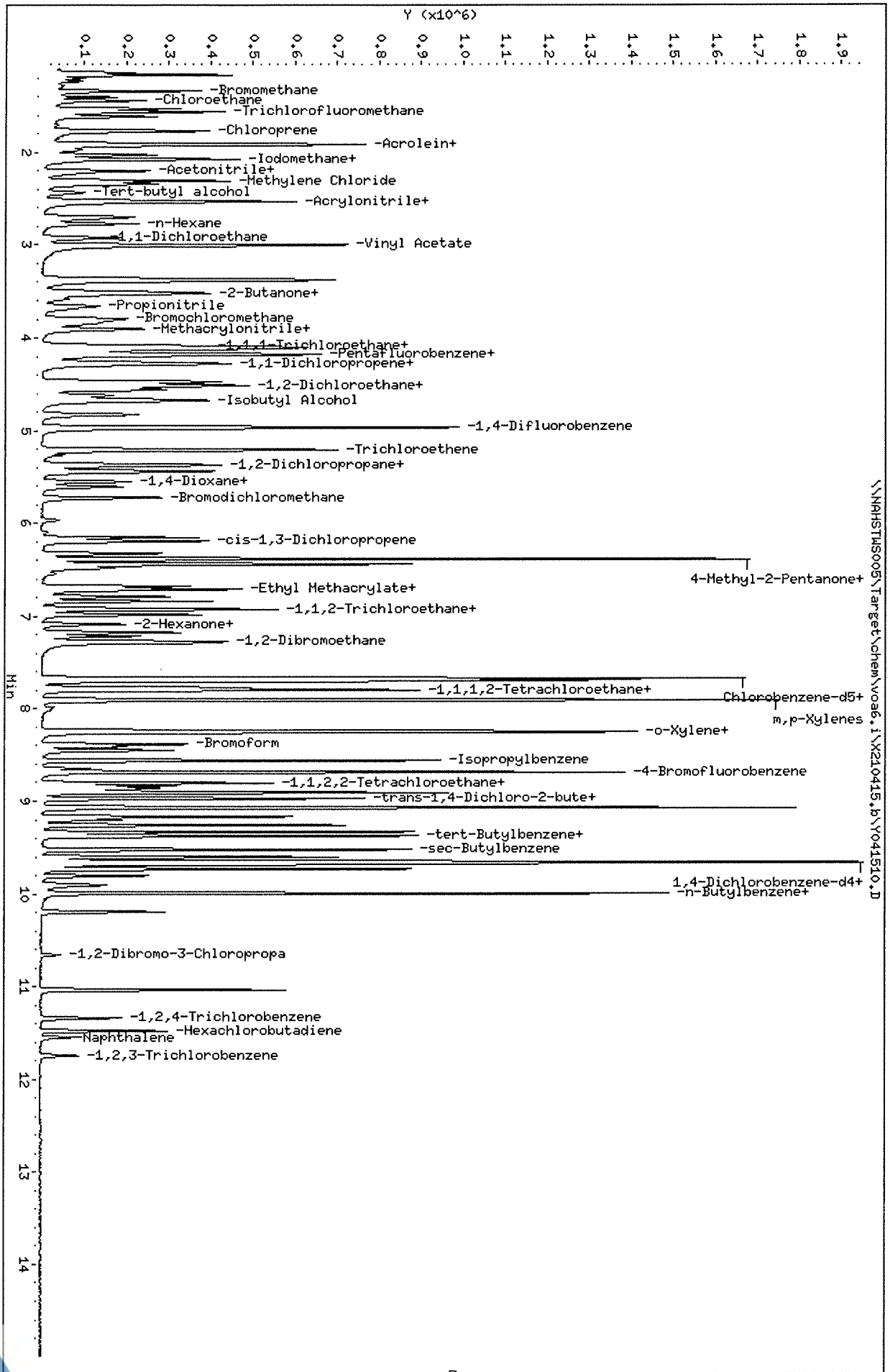
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041510.D
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Inj Date : 16-APR-2021 00:07
Operator : PC Inst ID: voa6.i
Smp Info : HS21040695-04MS;HS21040695-04MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 38 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.182	4.182	(1.000)	486307	50.0000	
*	36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	783562	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	714036	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	335383	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.981)	264941	46.3071	46.30
$	35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.068)	340774	49.6789	49.67
$	48 Toluene-d8	98	6.388	6.388	(0.833)	934379	50.8763	50.87
$	69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	345681	50.4653	50.46
	11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	137975	19.9260	19.92
	33 1,2-Dichloroethane	62	4.555	4.555	(0.918)	165415	19.9444	19.94
	27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	123587	20.7895	20.78
	56 Tetrachloroethene	164	6.926	6.925	(0.903)	91284	21.1793	21.17
	38 Trichloroethene	130	5.207	5.206	(1.049)	215076	40.0964	40.09
	5 Vinyl Chloride	62	1.145	1.145	(0.274)	144880	19.8719	19.87



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041510.D
Date : 16-APR-2021 00:07
Client ID: HS21040695-04MS
Sample Info: HS21040695-04MS;HS21040695-04MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041511.D Page 1
Report Date: 29-Apr-2021 12:39

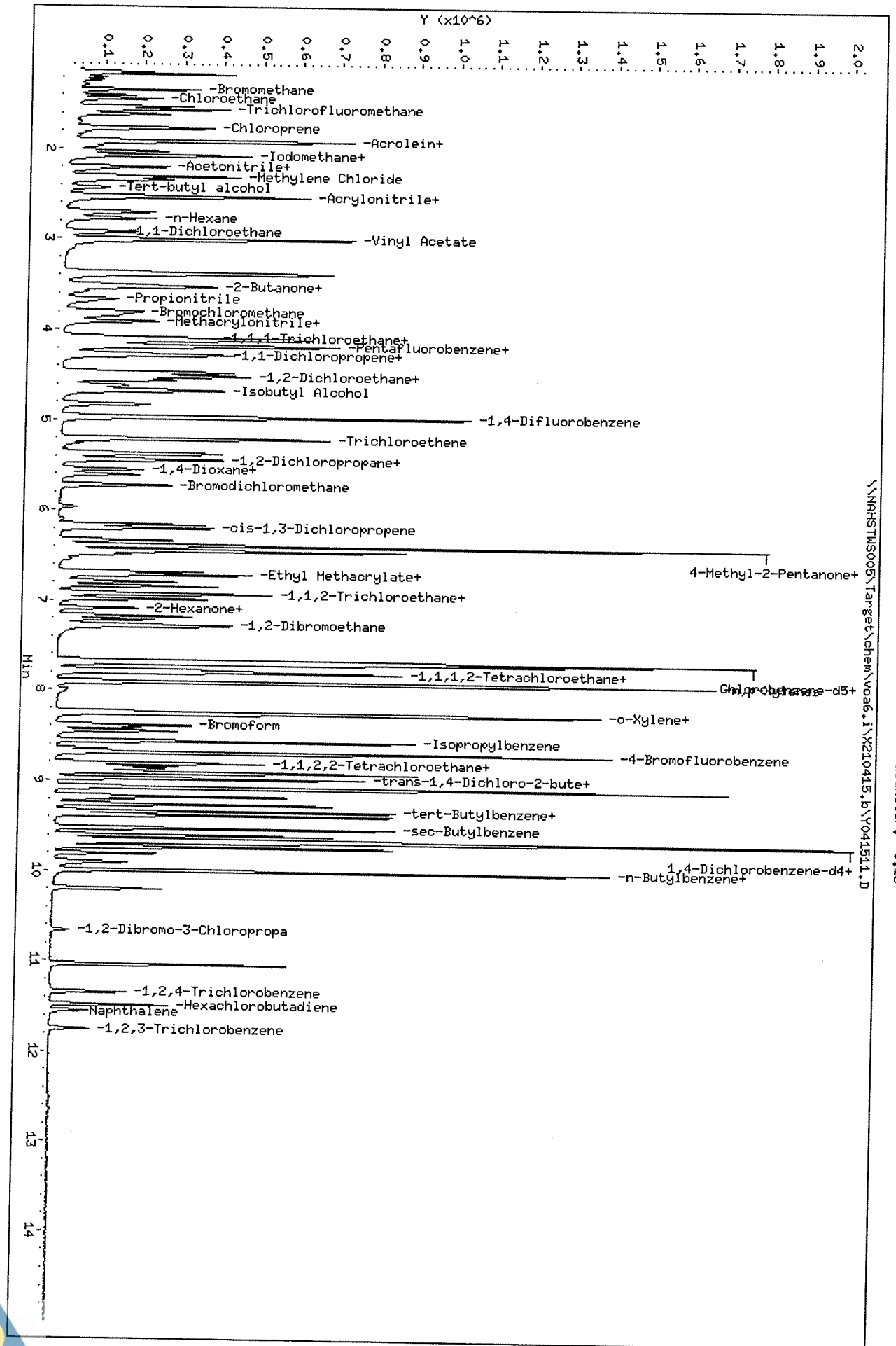
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041511.D
Lab Smp Id: HS21040695-04MSD Client Smp ID: HS21040695-04MSD
Inj Date : 16-APR-2021 00:28
Operator : PC Inst ID: voa6.i
Smp Info : HS21040695-04MSD;HS21040695-04MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 38 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	506036	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	824032	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	744085	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	349865	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	279602	46.9581	46.95
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	344897	48.3329	48.33
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1005480	52.4762	52.47
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	366998	51.3826	51.38
11 1,1-Dichloroethene	96	1.911	1.919	(0.457)	131232	18.2133	18.21
33 1,2-Dichloroethane	62	4.562	4.555	(0.919)	168673	19.3384	19.33
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	120168	19.4262	19.42
56 Tetrachloroethene	164	6.926	6.925	(0.903)	90997	20.2601	20.26
38 Trichloroethene	130	5.206	5.206	(1.049)	206690	36.6405	36.64
5 Vinyl Chloride	62	1.145	1.145	(0.274)	134876	17.7785	17.77



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041511.D
Date : 16-APR-2021 00:28
Client ID: HS21040695-04HSD
Sample Info: HS21040695-04HSD;HS21040695-04HSD;3;;HSD
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041512.D Page 1
Report Date: 29-Apr-2021 12:43

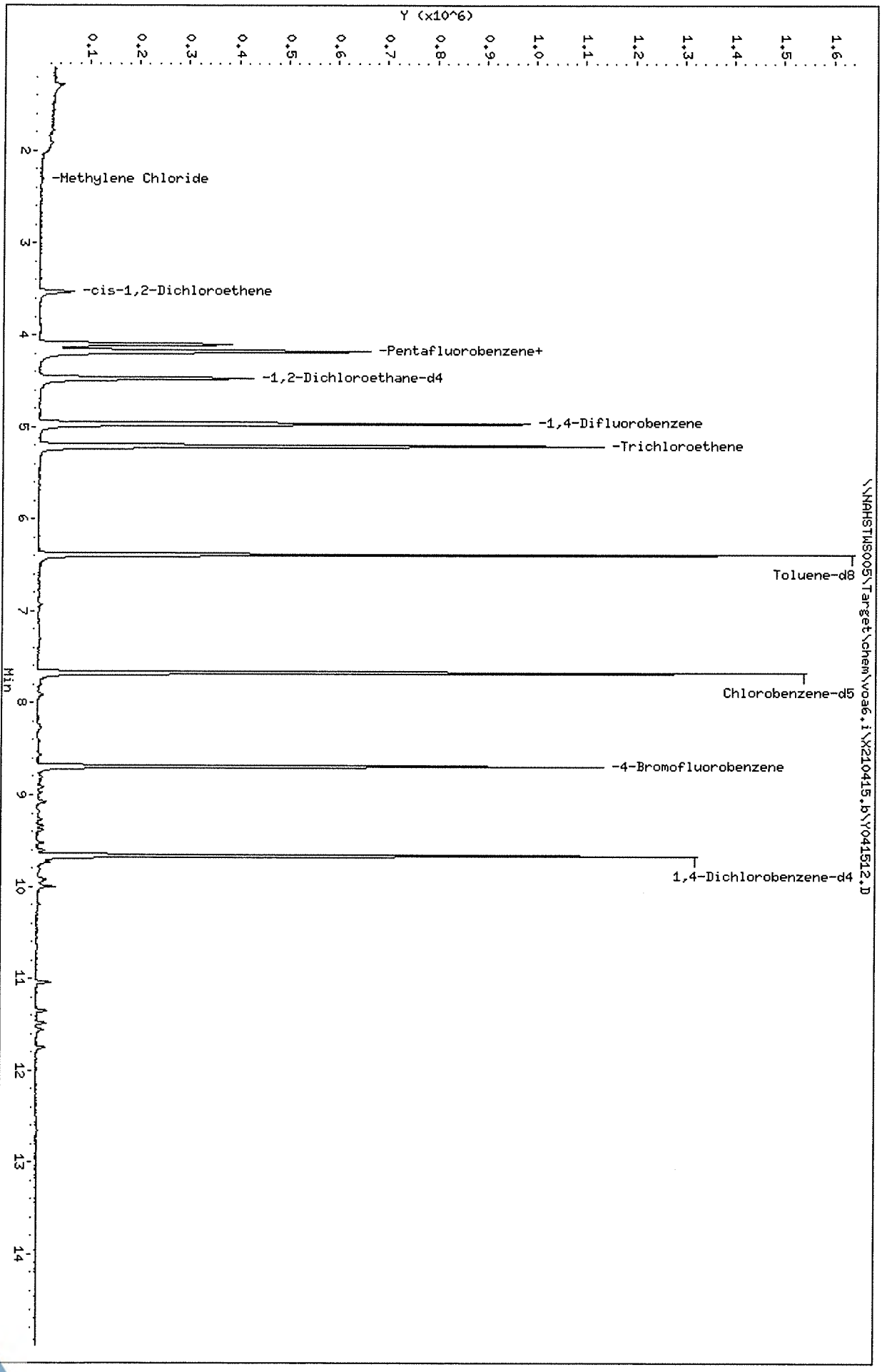
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041512.D
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Inj Date : 16-APR-2021 00:49
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-01;HS21040286-01;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:43 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 39
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	489975	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	800655	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	671529	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	281911	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	267110	46.3364	46.33
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	335410	48.5420	48.54
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	935873	54.0626	54.06
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	304302	47.3420	47.34
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	33259	5.55286	55.52
38 Trichloroethene	130	5.206	5.207	(1.048)	332491	60.6626	606.62



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041512.D
Date : 16-APR-2021 00:49
Client ID: HS21040286-01
Sample Info: HS21040286-01;HS21040286-01;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041512.D

Date : 16-APR-2021 00:49

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

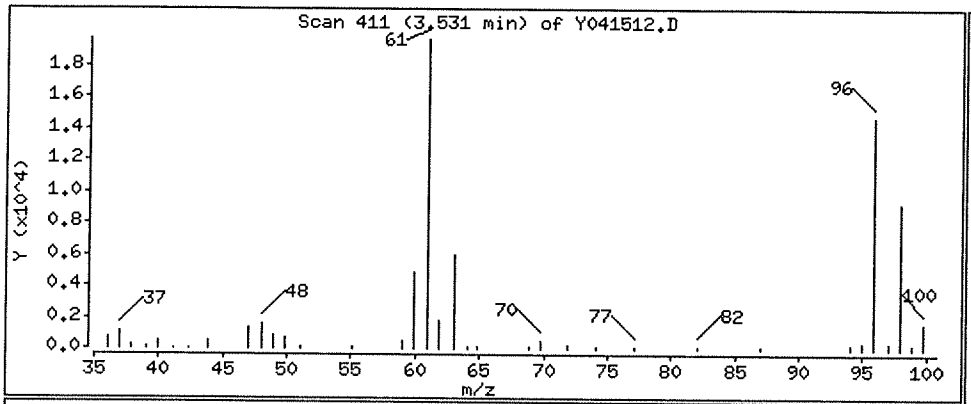
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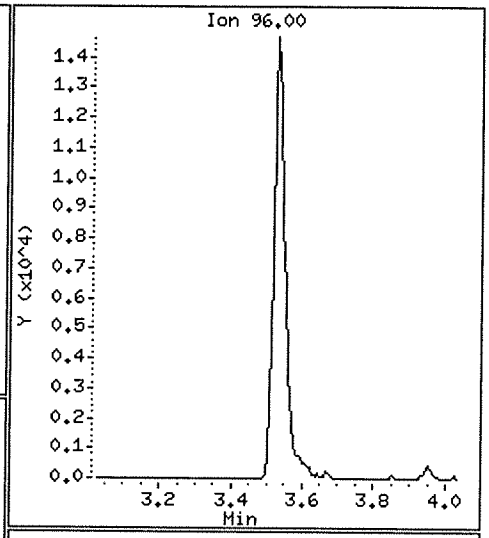
Column phase: DB624

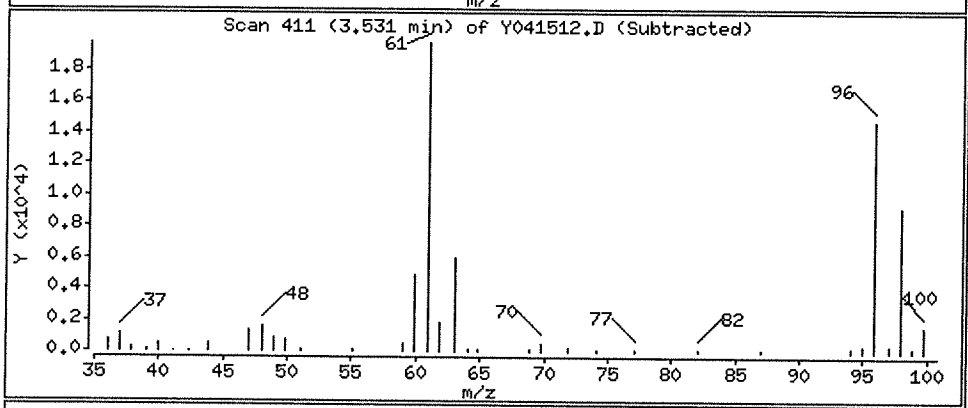
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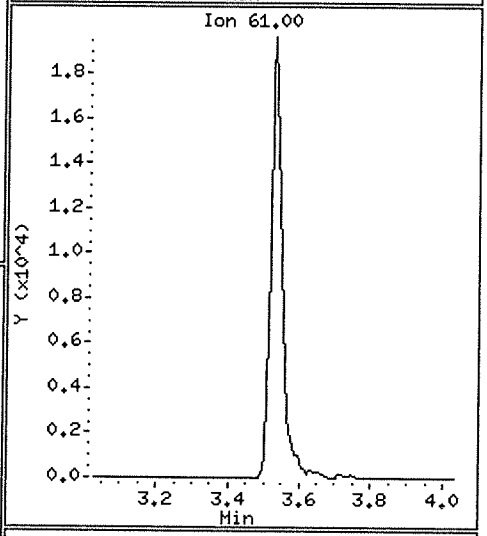
27 cis-1,2-Dichloroethene

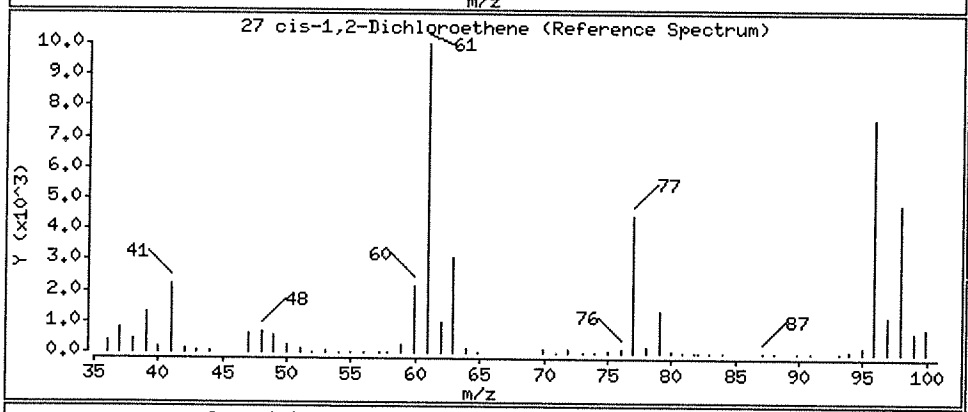
Concentration: 55.52 ug/l

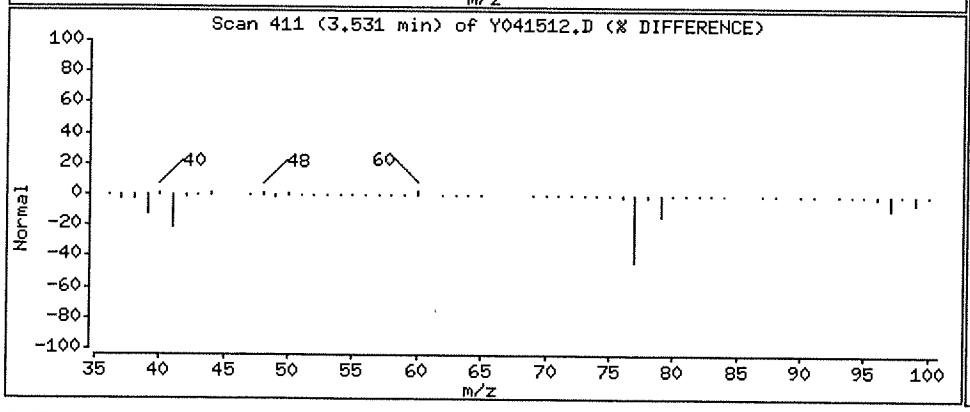


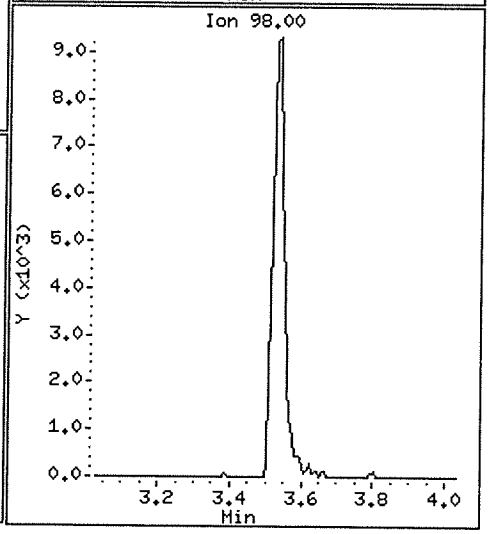












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041512.D

Date : 16-APR-2021 00:49

Client ID: HS21040286-01

Instrument: voa6.i

Sample Info: HS21040286-01;HS21040286-01;;;

Purge Volume: 5.0

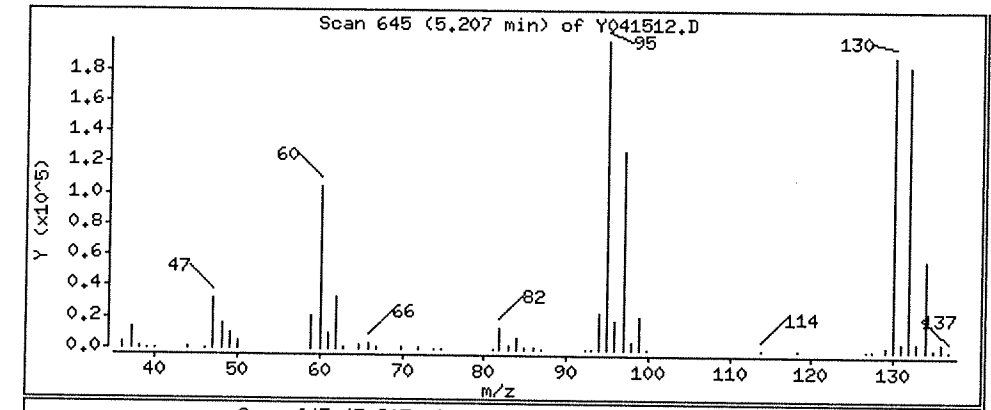
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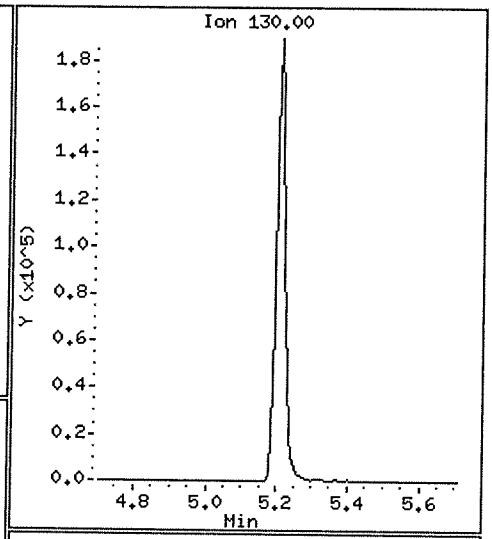
Column phase: DB624

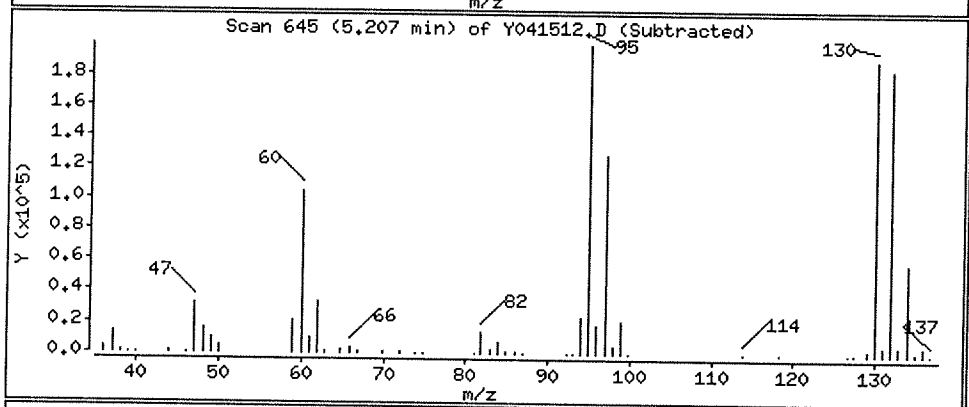
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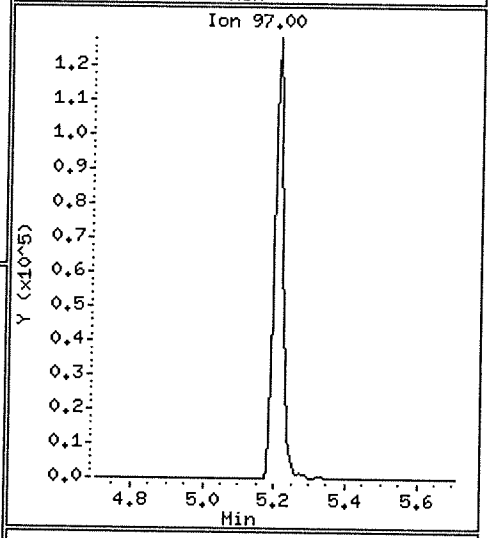
38 Trichloroethene

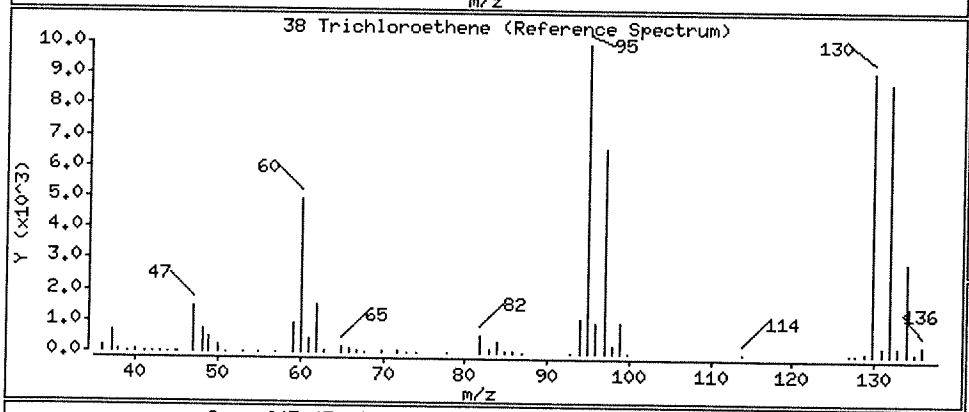
Concentration: 606.62 ug/l

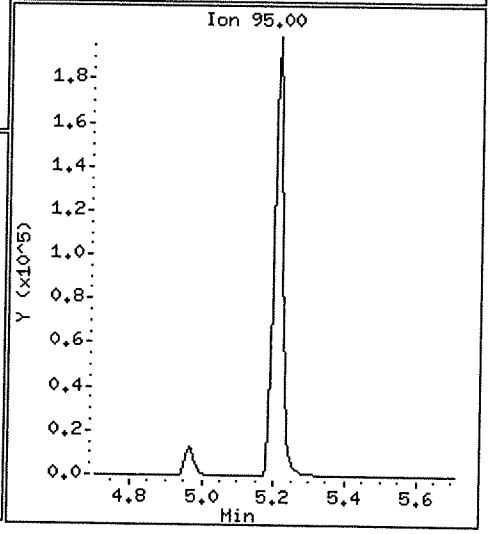


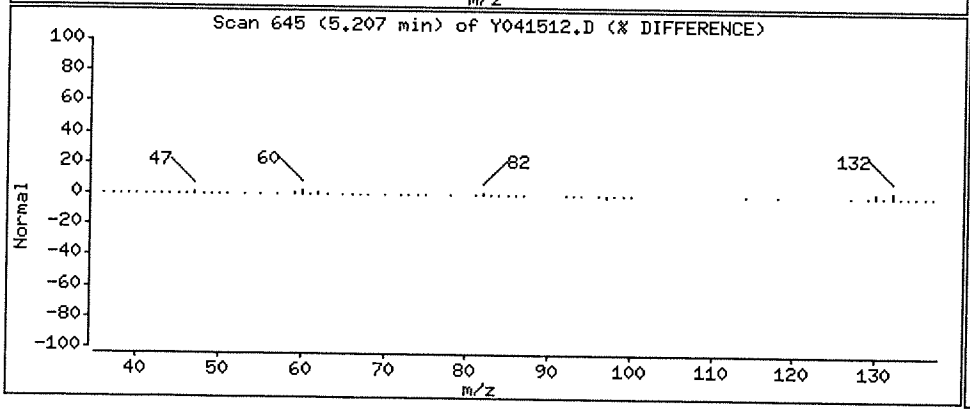












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D Page 1
Report Date: 29-Apr-2021 12:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D
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Inj Date : 16-APR-2021 01:10
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-02;HS21040286-02;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:43 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 40
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

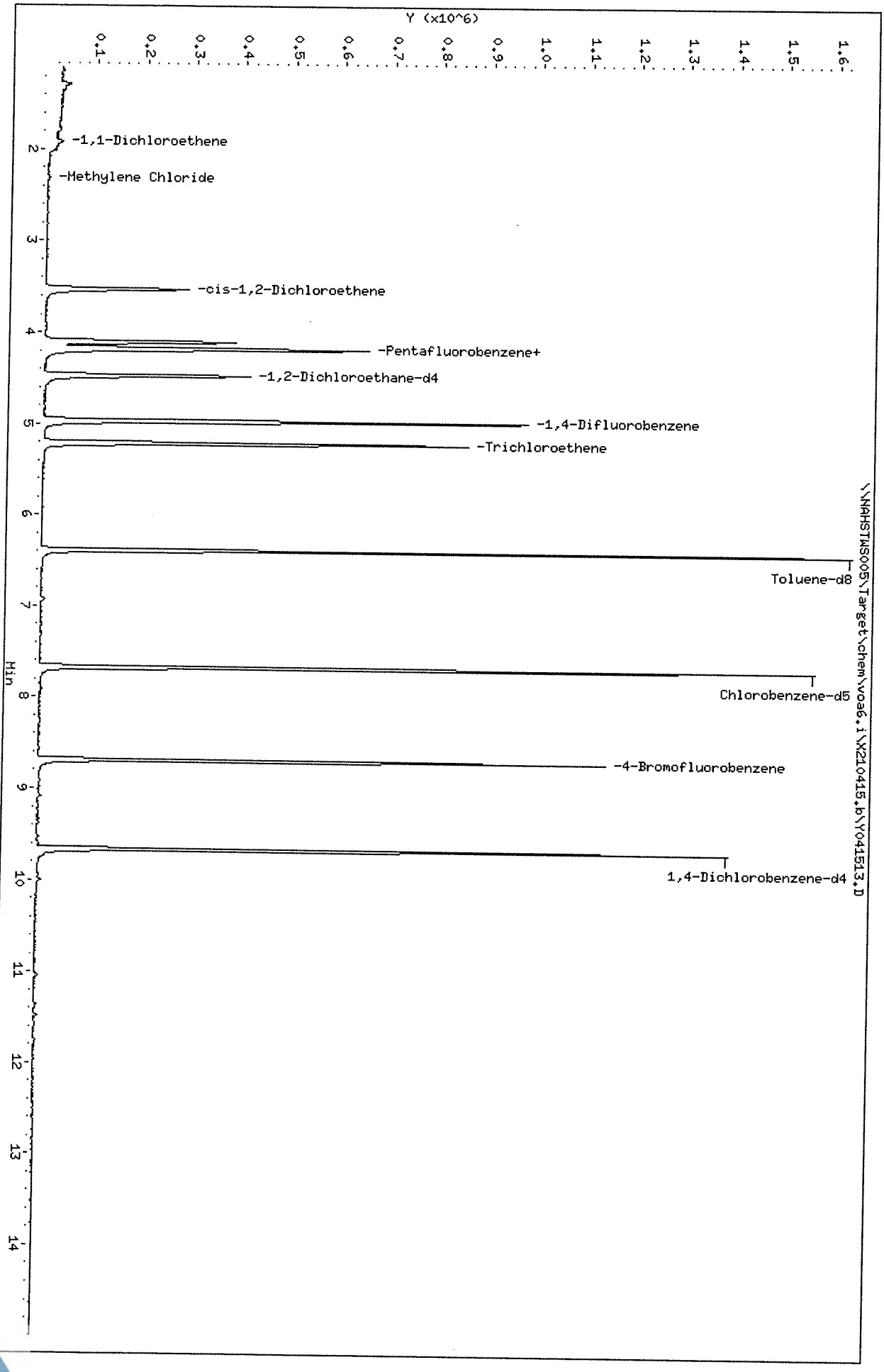
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	482900	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	771814	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	675107	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	298039	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	258952	45.5864	45.58
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	334454	49.1071	49.10
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	936107	53.7989	53.79
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	310167	47.9758	47.97
11 1,1-Dichloroethene	96	1.912	1.919	(0.457)	4812	0.69984	3.49(a)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	145087	24.5784	122.89
38 Trichloroethene	130	5.207	5.207	(1.049)	253420	47.9639	239.81

QC Flag Legend

a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D
Date : 16-APR-2021 01:10
Client ID: HS21040286-02
Sample Info: HS21040286-02;HS21040286-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D

Date : 16-APR-2021 01:10

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

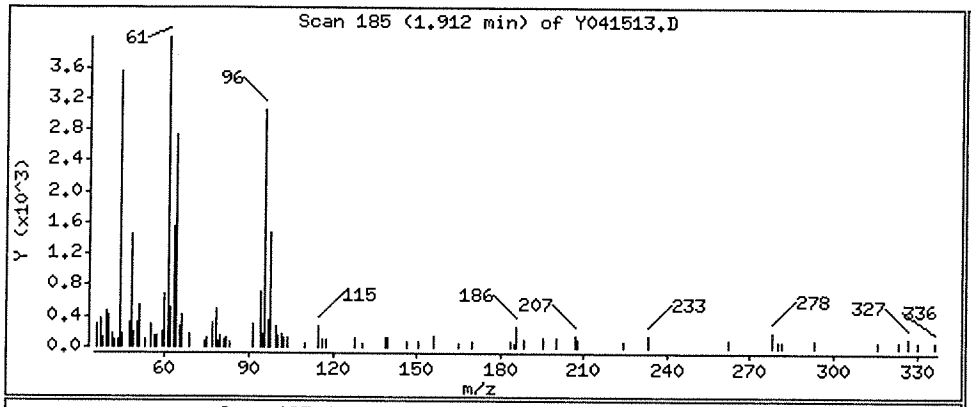
Operator: PC

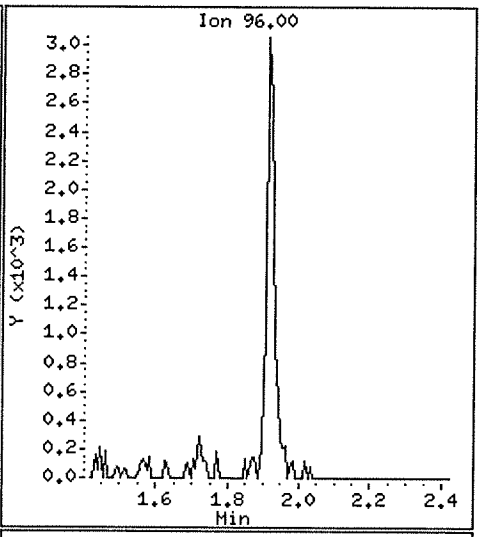
Column phase: DB624

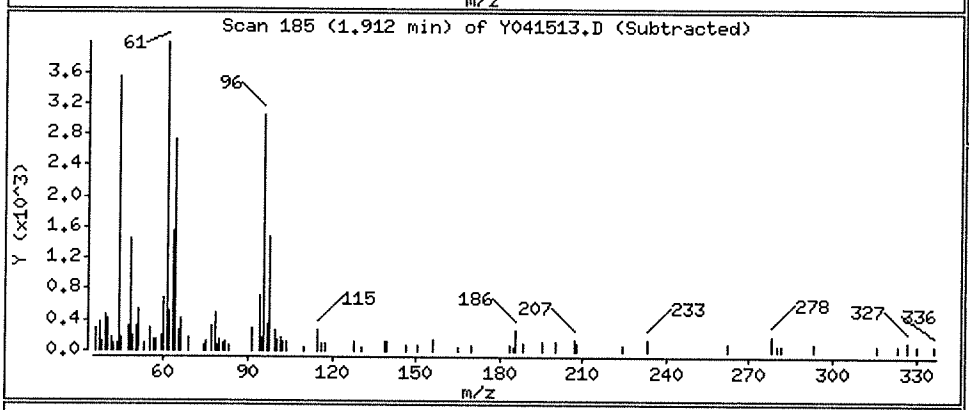
Column diameter: 0.18

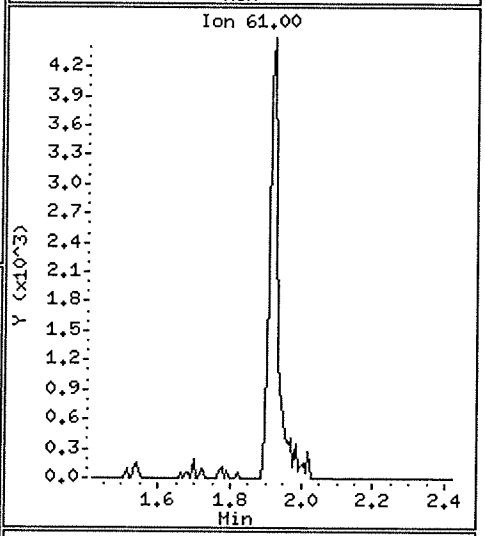
11 1,1-Dichloroethene

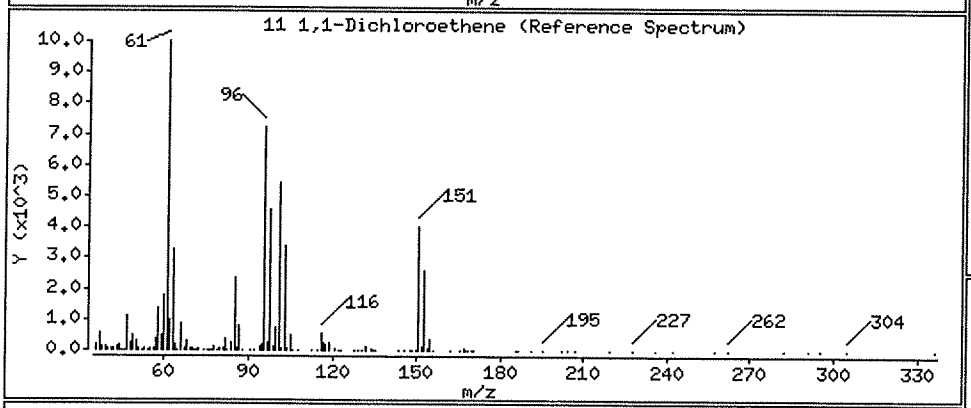
Concentration: 3.49 ug/l

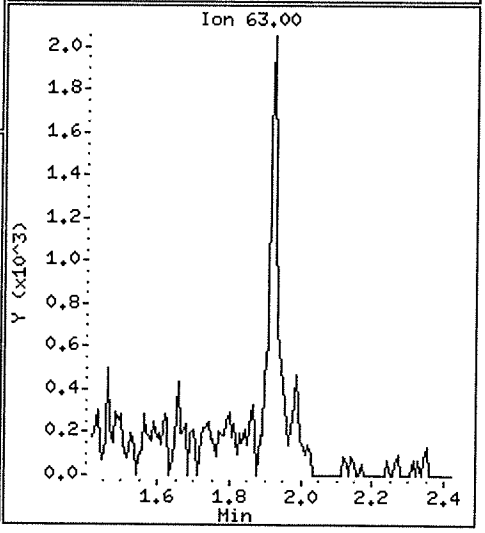


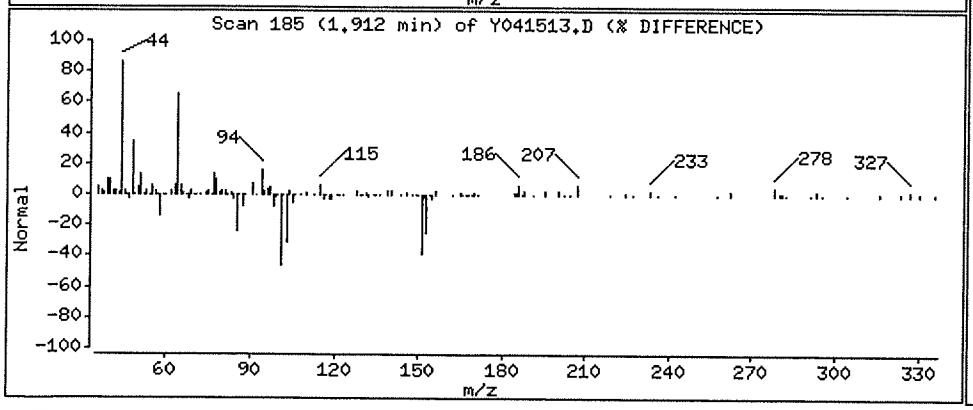












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D

Date : 16-APR-2021 01:10

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

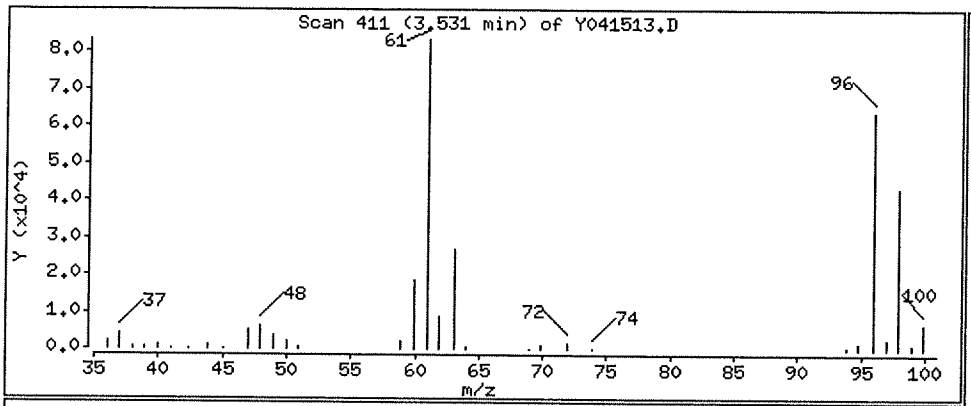
Operator: PC

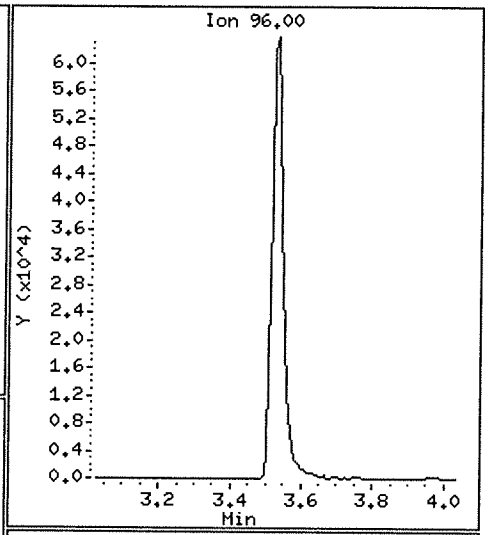
Column phase: DB624

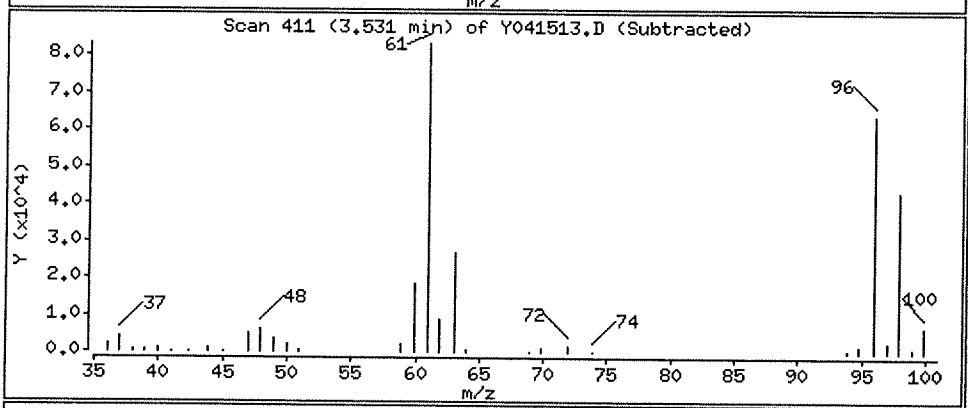
Column diameter: 0.18

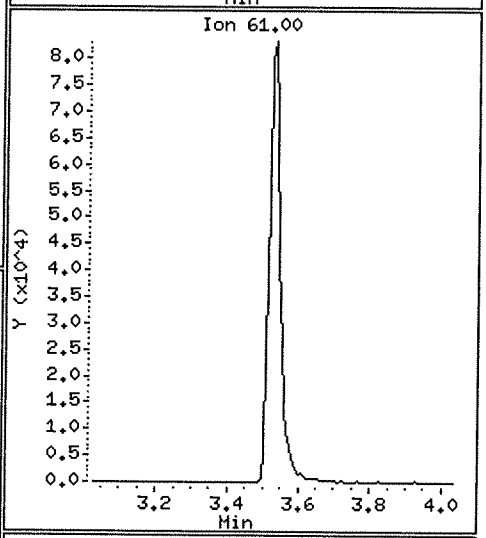
27 cis-1,2-Dichloroethene

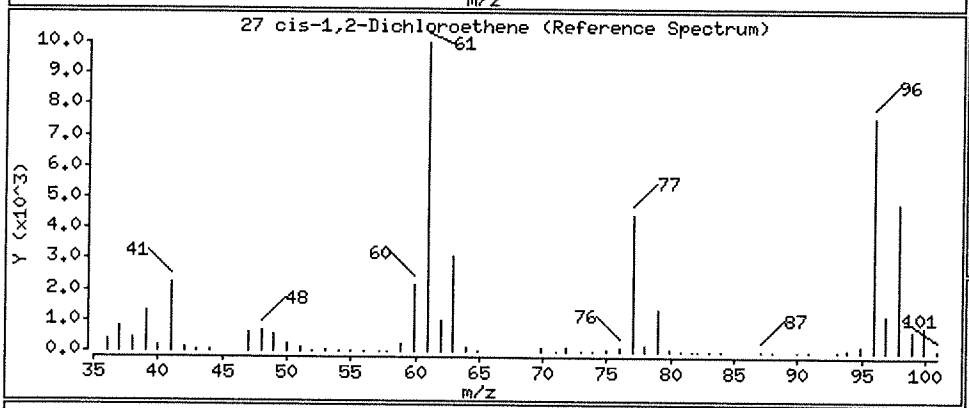
Concentration: 122.89 ug/l

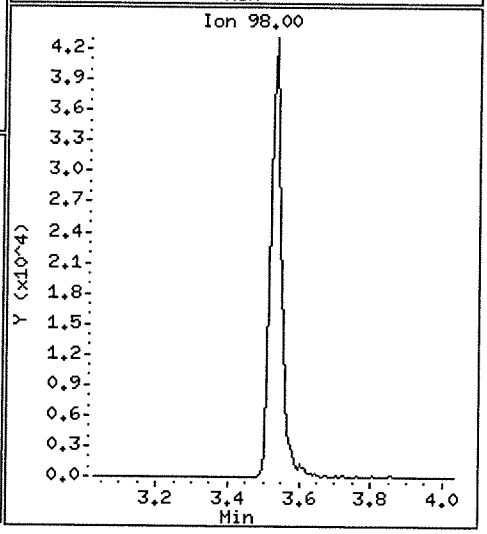


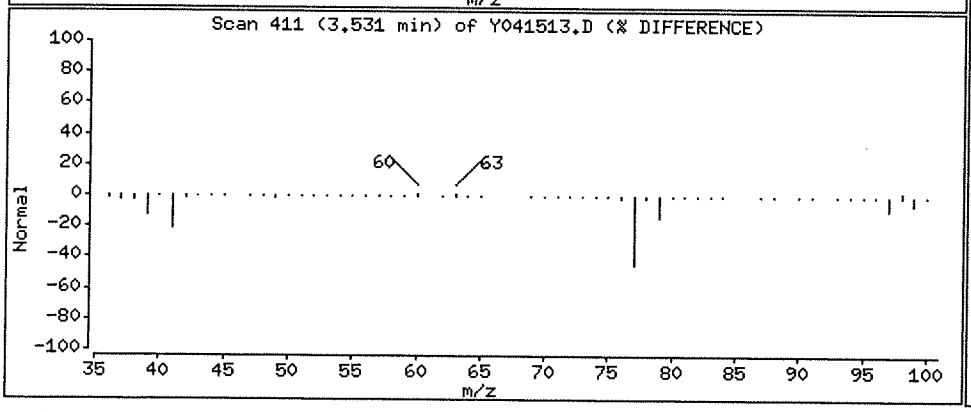












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041513.D

Date : 16-APR-2021 01:10

Client ID: HS21040286-02

Instrument: voa6.i

Sample Info: HS21040286-02;HS21040286-02;;;

Purge Volume: 5.0

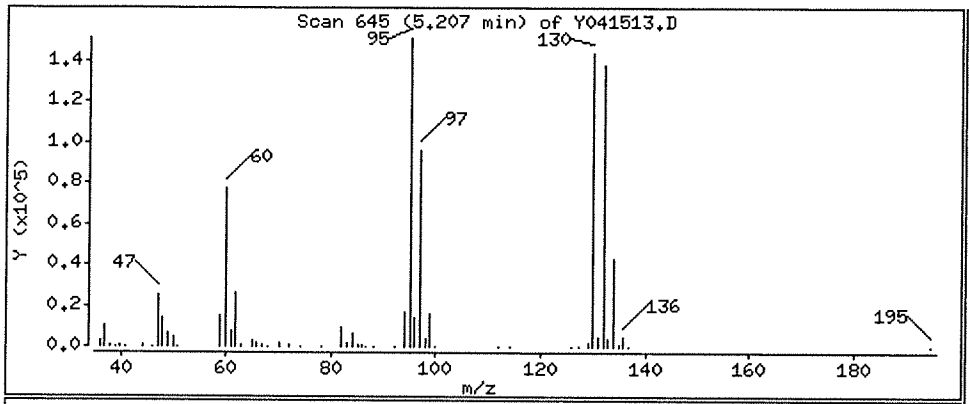
Operator: PC

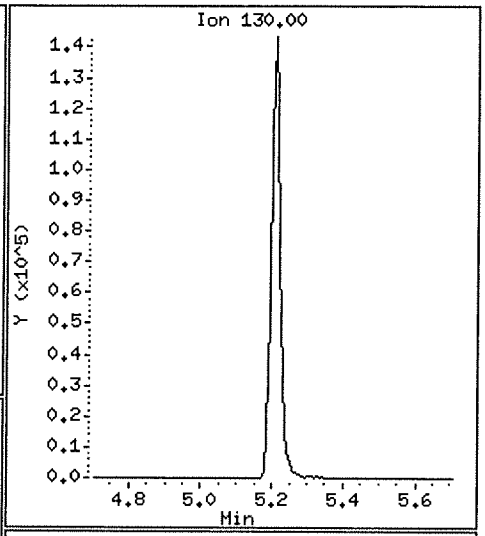
Column phase: DB624

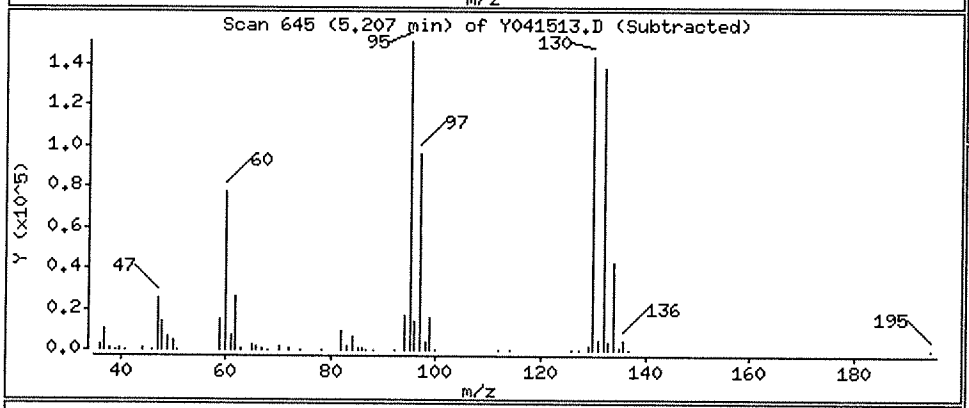
Column diameter: 0.18

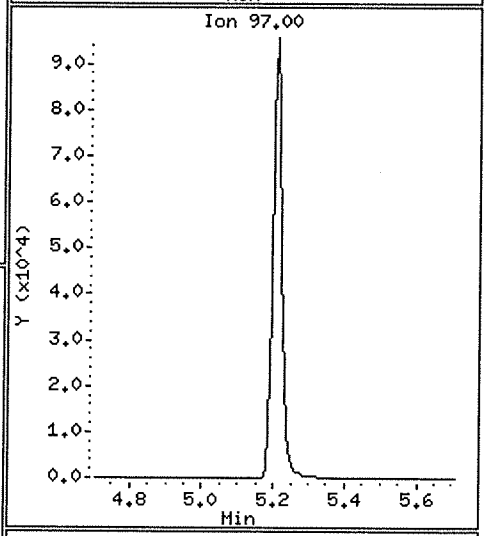
38 Trichloroethene

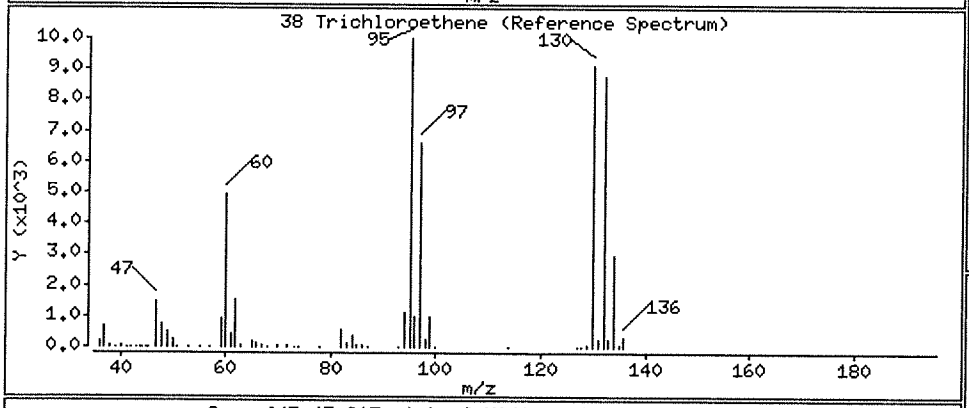
Concentration: 239.81 ug/l

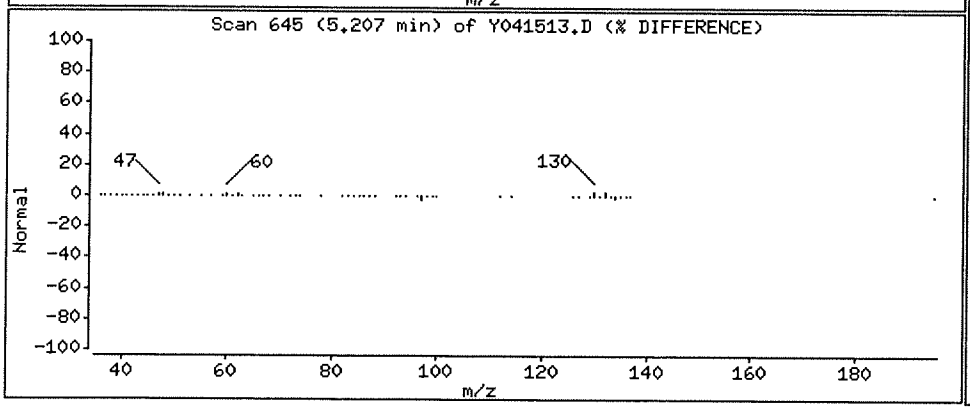


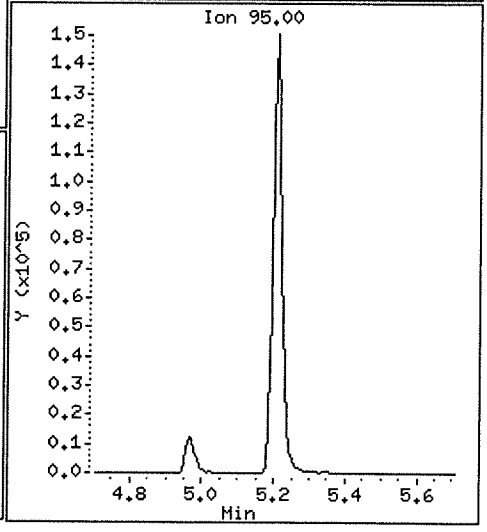












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041514.D Page 1
Report Date: 29-Apr-2021 12:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041514.D
Lab Smp Id: HS21040286-05 Client Smp ID: HS21040286-05
Inj Date : 16-APR-2021 01:31
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-05;HS21040286-05;;;
Misc Info : HS18090001;WATER;0;10;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:43 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 41
Dil Factor: 10.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

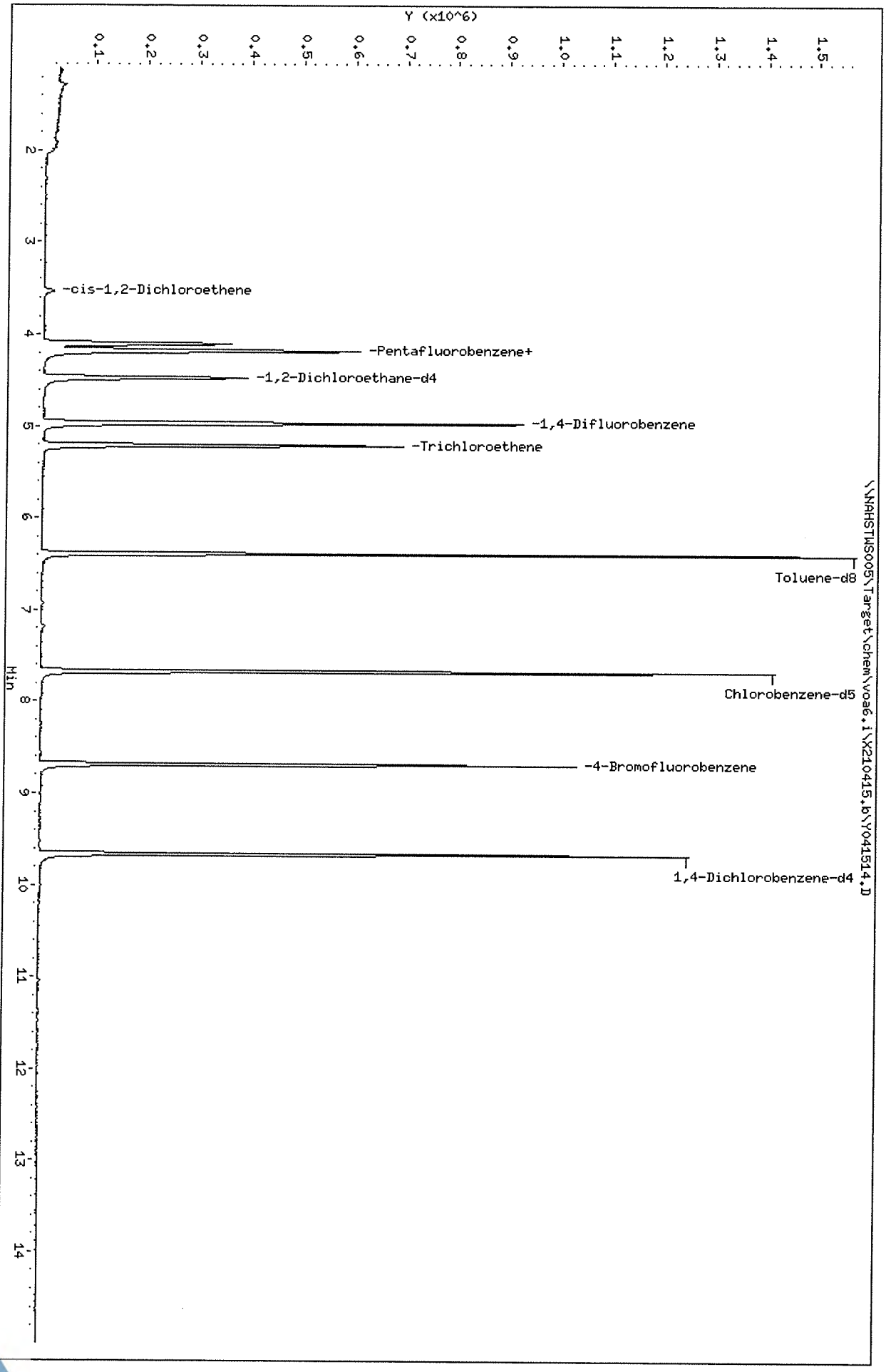
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	10.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	450471	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	734199	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	634219	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	263141	50.0000	
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.981)	249737	47.1145	47.11
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	313997	49.4193	49.41
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	892382	54.5650	54.56
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	290277	47.8002	47.80
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	8841	1.60552	16.05
38 Trichloroethene	130	5.207	5.207	(1.048)	207559	41.2966	412.96

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041514.D
Date : 16-APR-2021 01:31
Client ID: HS21040286-05
Sample Info: HS21040286-05;HS21040286-05;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041514.D

Date : 16-APR-2021 01:31

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

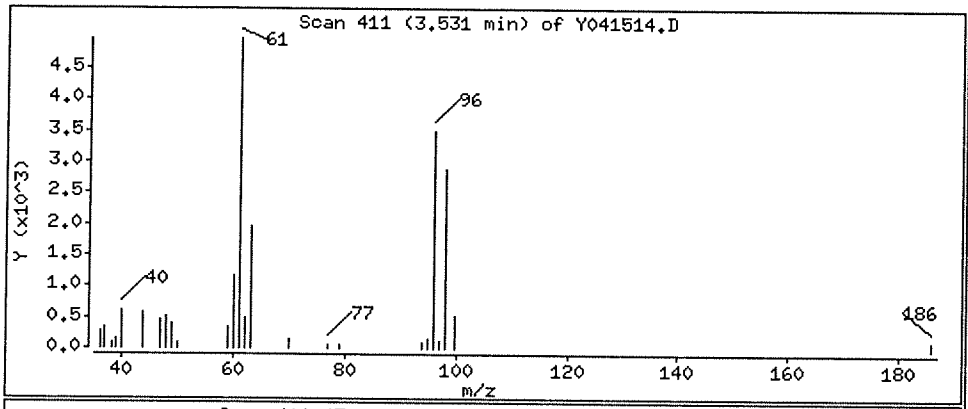
Operator: PC

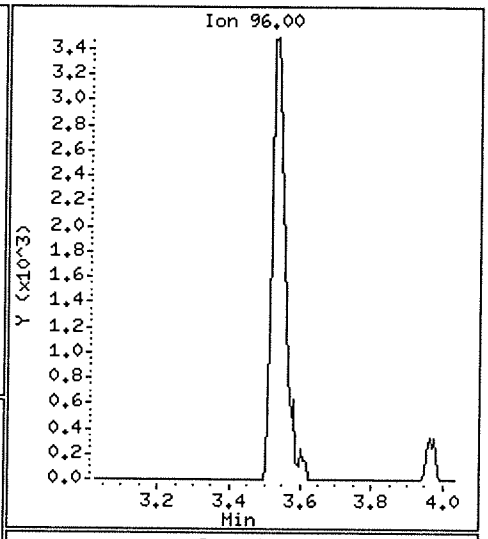
Column phase: DB624

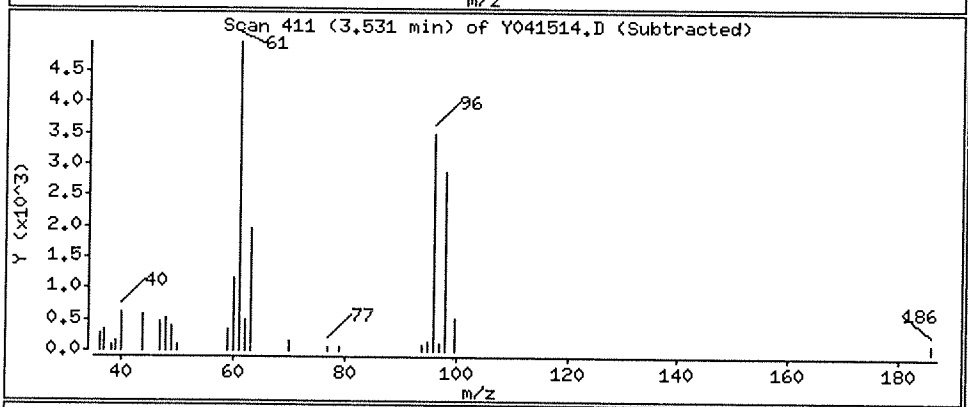
Column diameter: 0.18

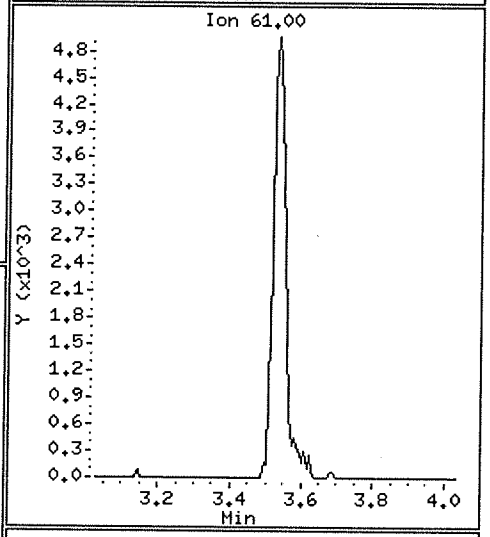
27 cis-1,2-Dichloroethene

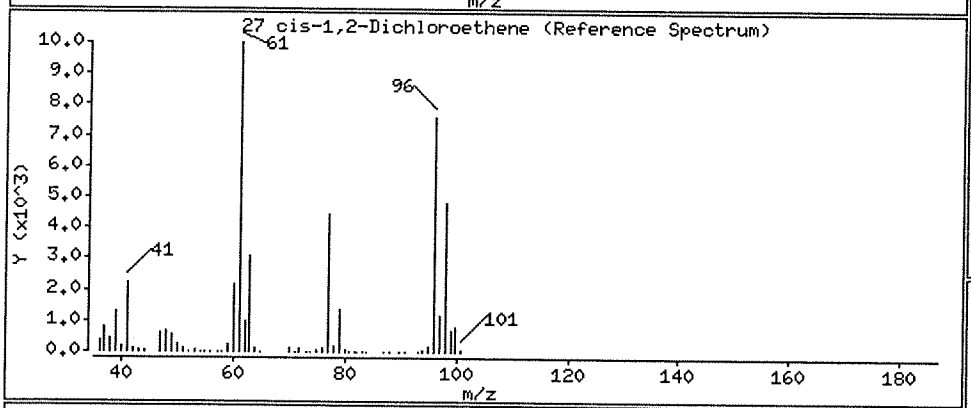
Concentration: 16.05 ug/l

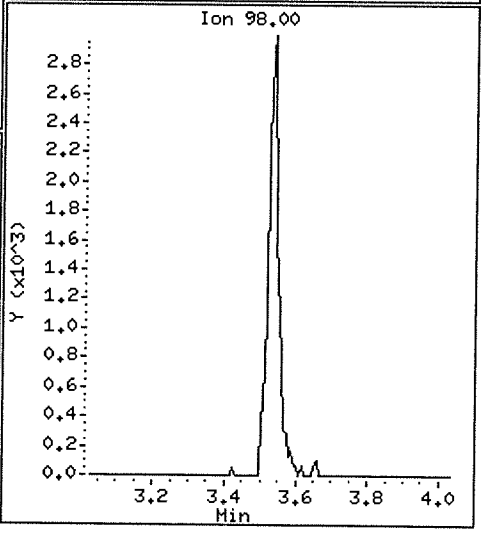


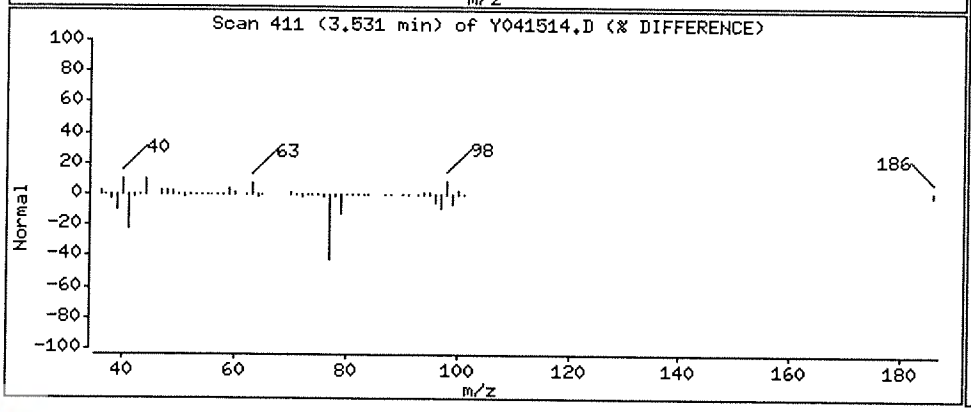












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041514.D

Date : 16-APR-2021 01:31

Client ID: HS21040286-05

Instrument: voa6.i

Sample Info: HS21040286-05;HS21040286-05;;;

Purge Volume: 5.0

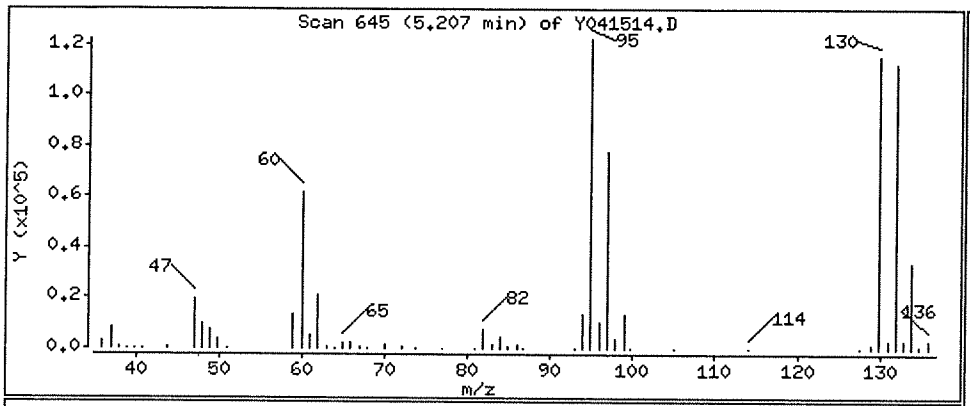
Operator: PC

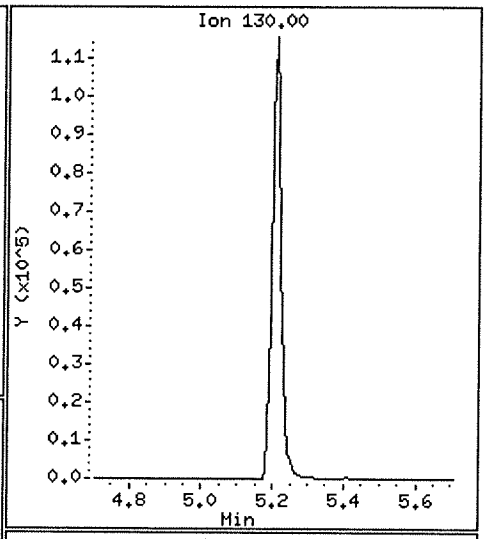
Column phase: DB624

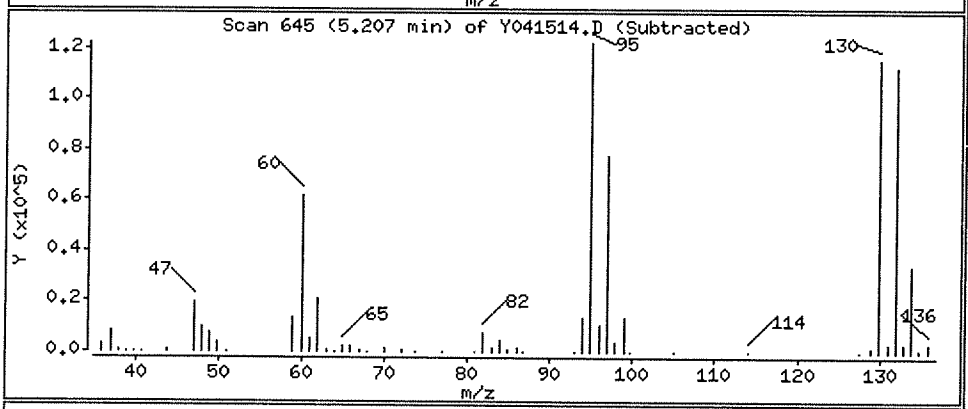
Column diameter: 0.18

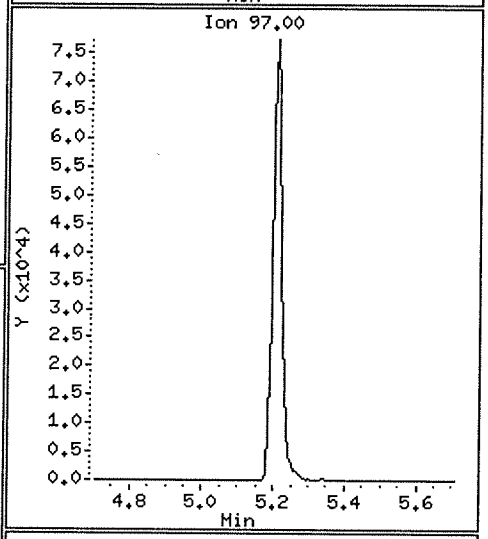
38 Trichloroethene

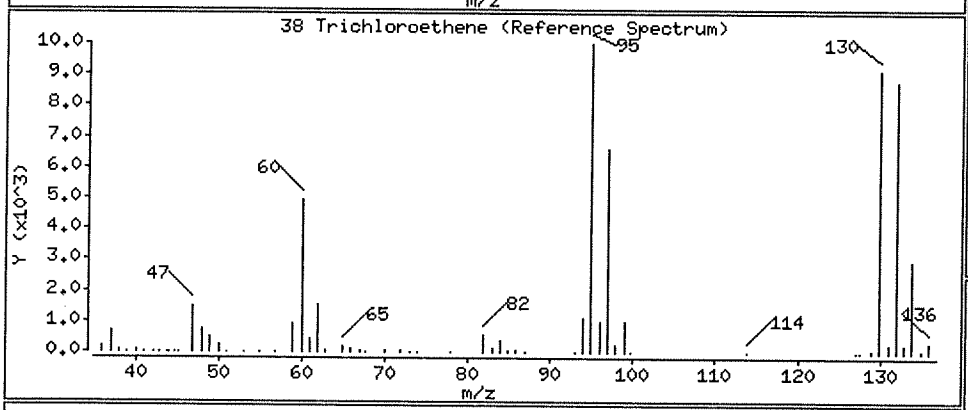
Concentration: 412.96 ug/l

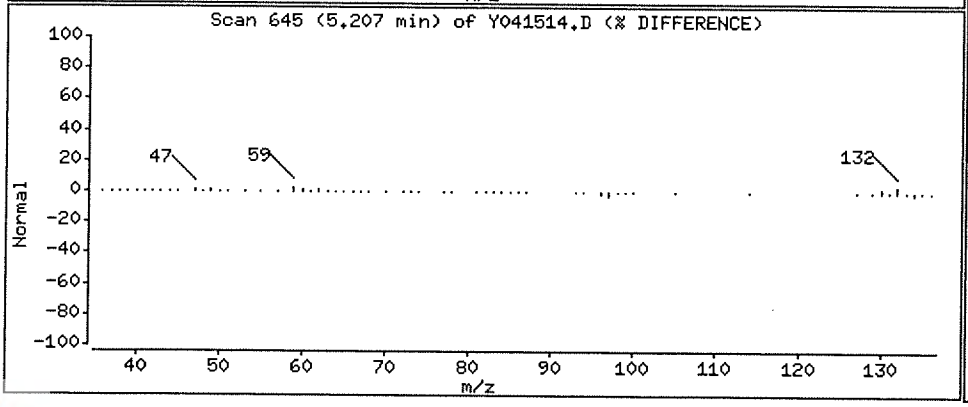


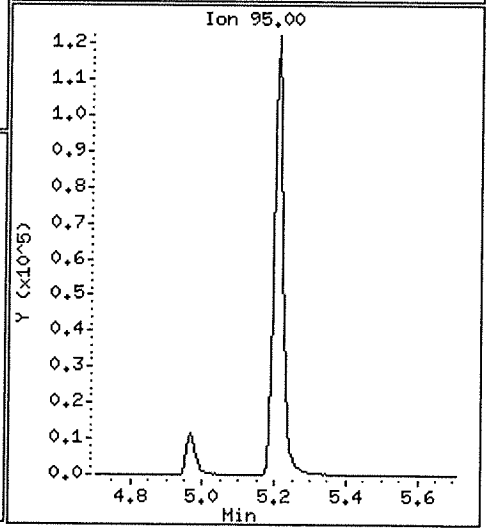












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041515.D Page 1
Report Date: 29-Apr-2021 12:43

ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041515.D
Lab Smp Id: HS21040286-06 Client Smp ID: HS21040286-06
Inj Date : 16-APR-2021 01:52
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-06;HS21040286-06;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:43 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 42
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

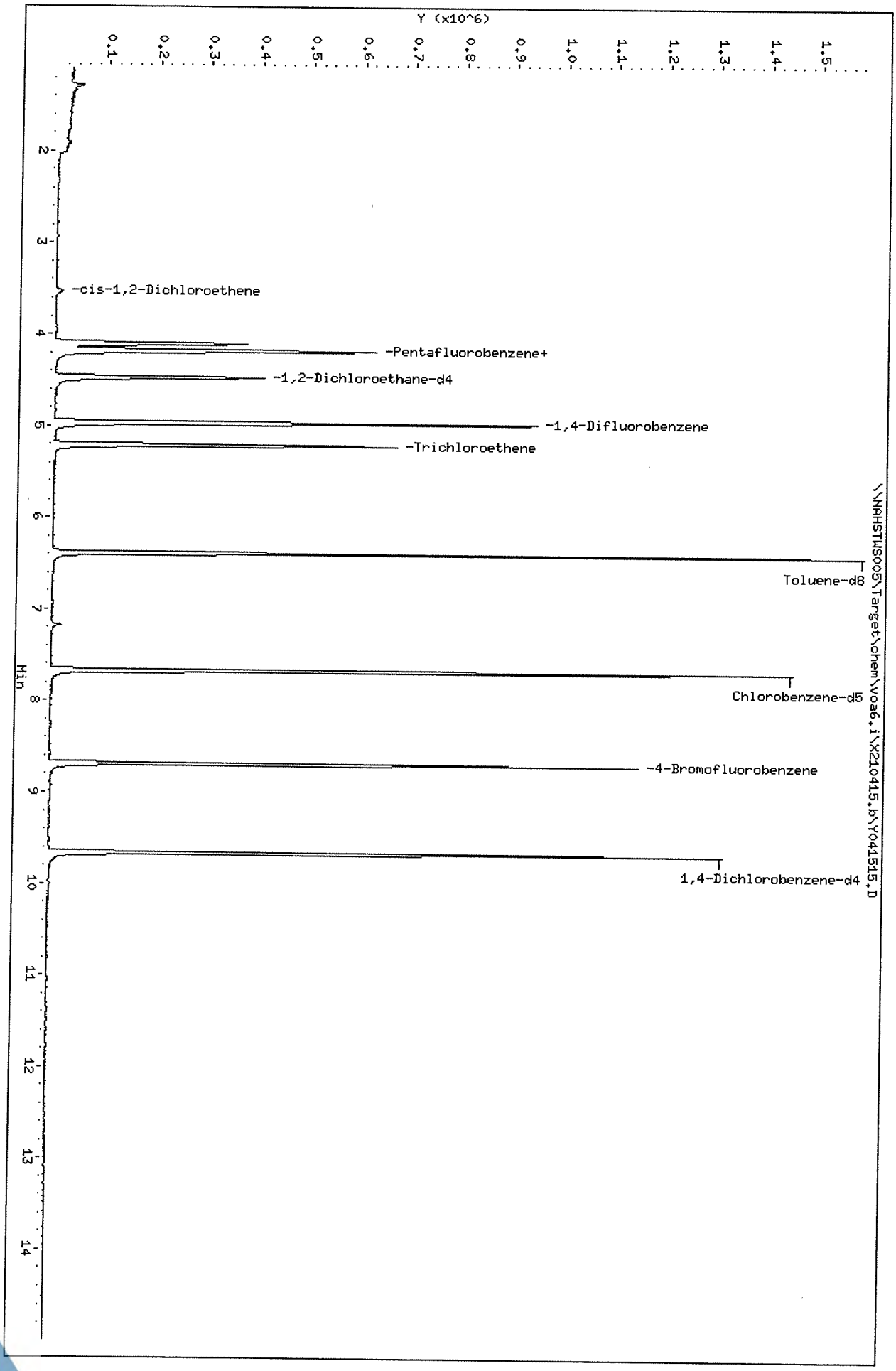
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	463944	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	746680	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	650780	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	291193	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	250335	45.8674	45.86
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	321506	49.1345	49.13
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	908444	54.1483	54.14
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	304421	48.8173	48.81
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	5947	1.04861	5.24
38 Trichloroethene	130	5.207	5.207	(1.048)	202442	39.6052	198.02

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041515.D
Date : 16-APR-2021 01:52
Client ID: HS2104028 6-06
Sample Info: HS2104028 6-06;HS2104028 6-06;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18



Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041515.D

Date : 16-APR-2021 01:52

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

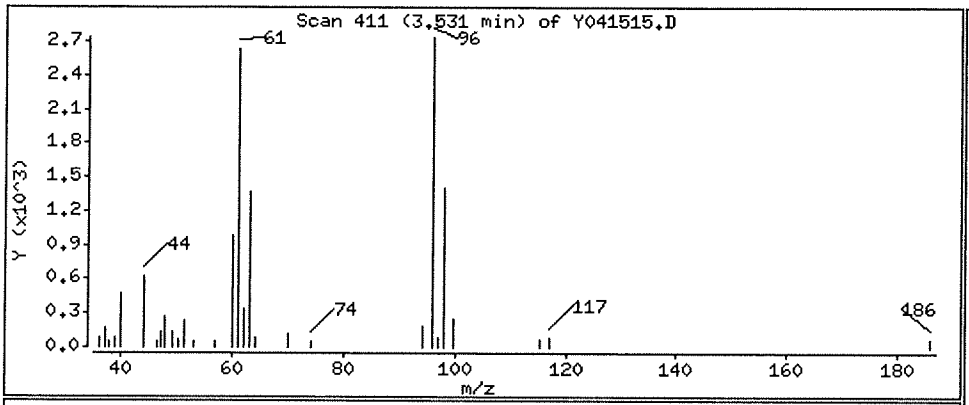
Operator: PC

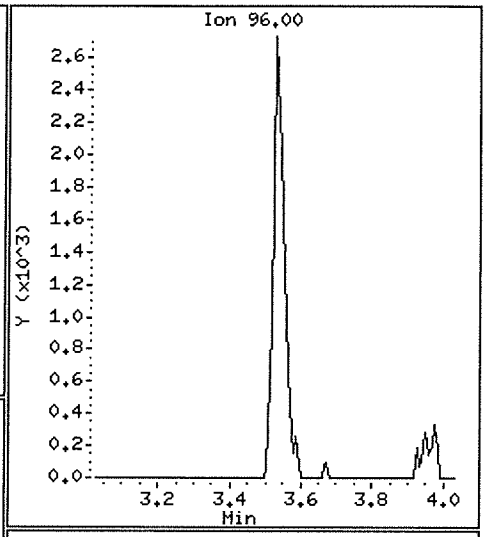
Column phase: DB624

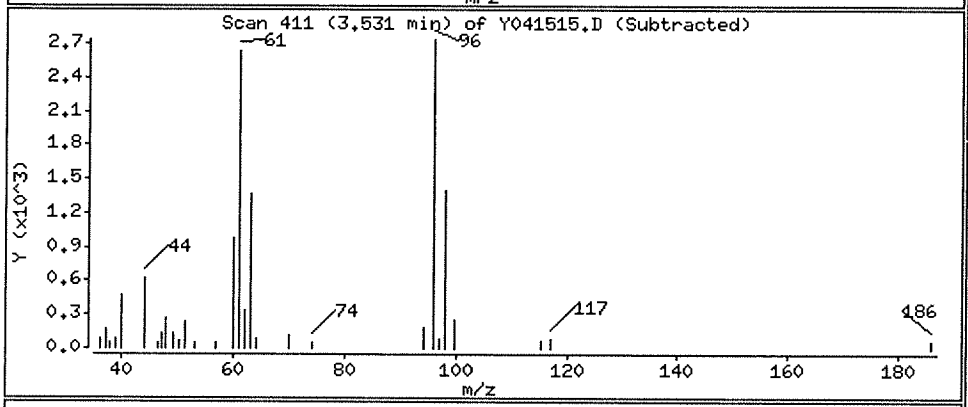
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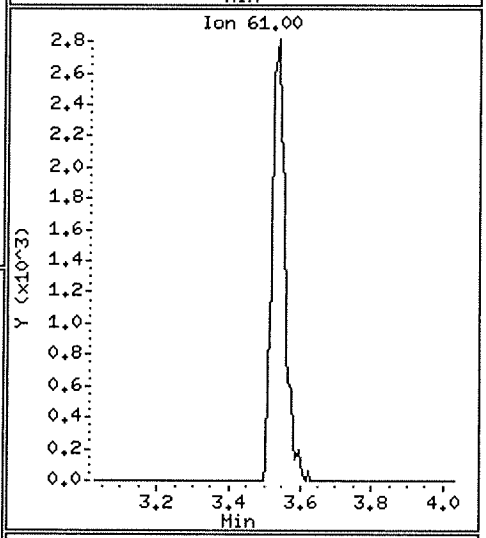
27 cis-1,2-Dichloroethene

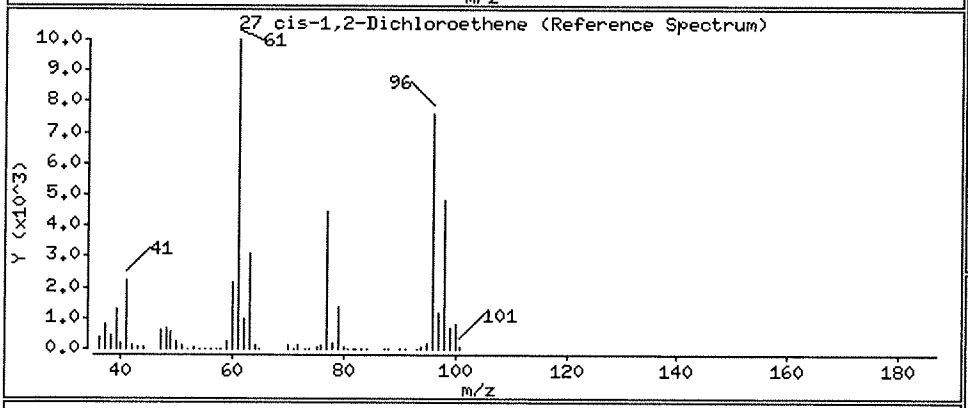
Concentration: 5.24 ug/l

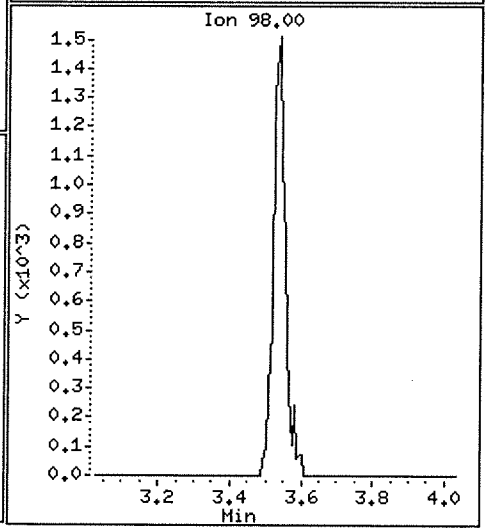


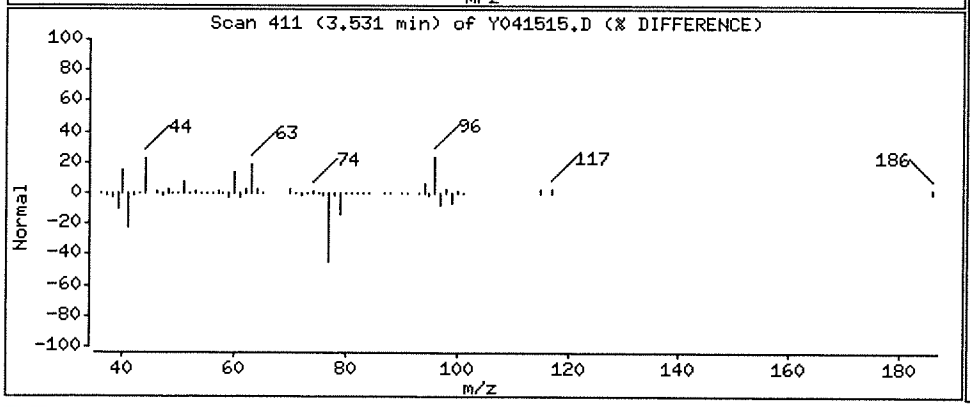












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041515.D

Date : 16-APR-2021 01:52

Client ID: HS21040286-06

Instrument: voa6.i

Sample Info: HS21040286-06;HS21040286-06;;;

Purge Volume: 5.0

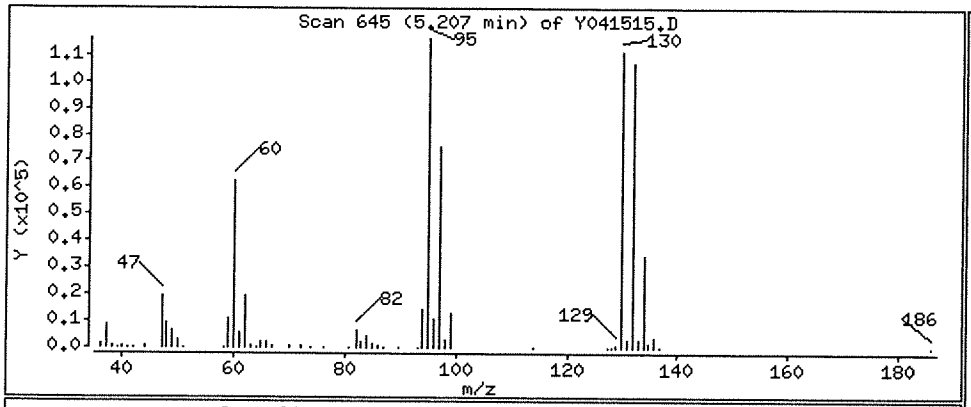
Operator: PC

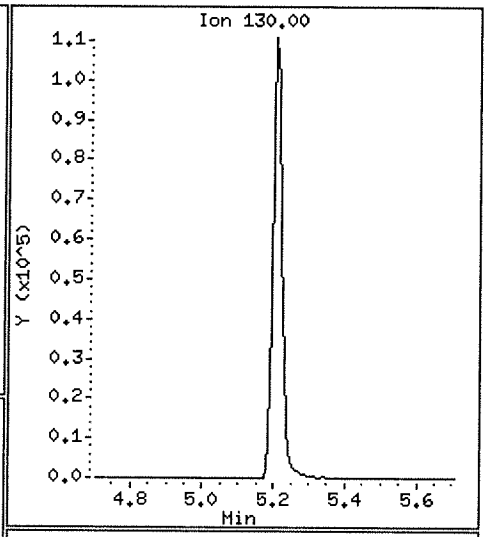
Column phase: DB624

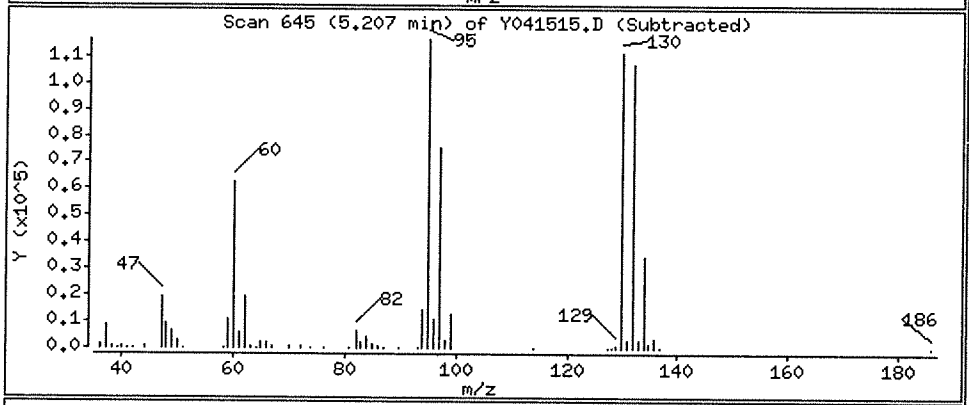
Column diameter: 0.18

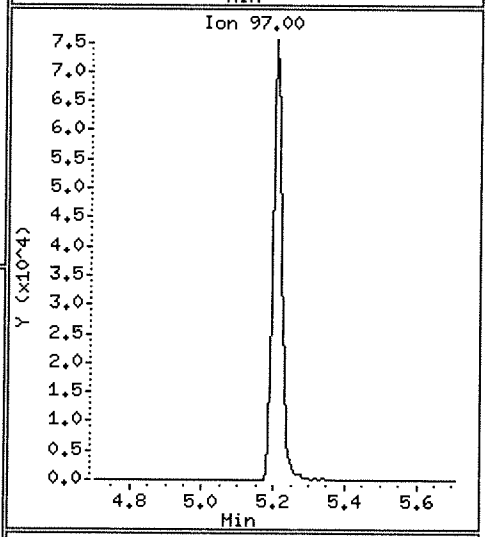
38 Trichloroethene

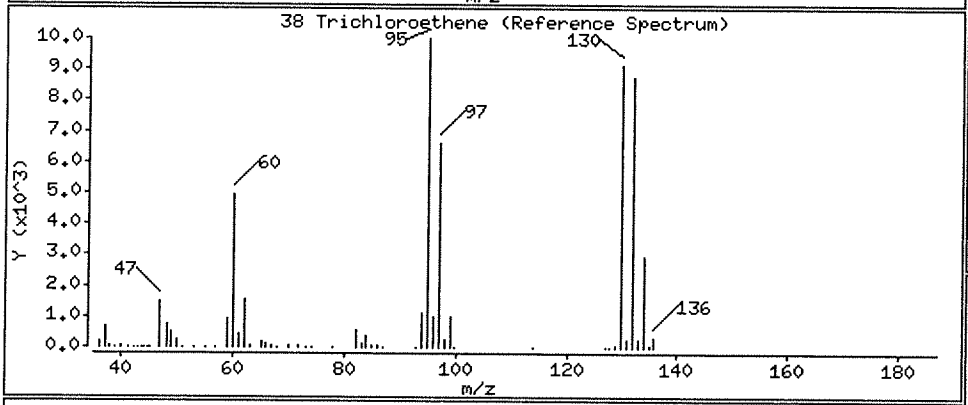
Concentration: 198.02 ug/l

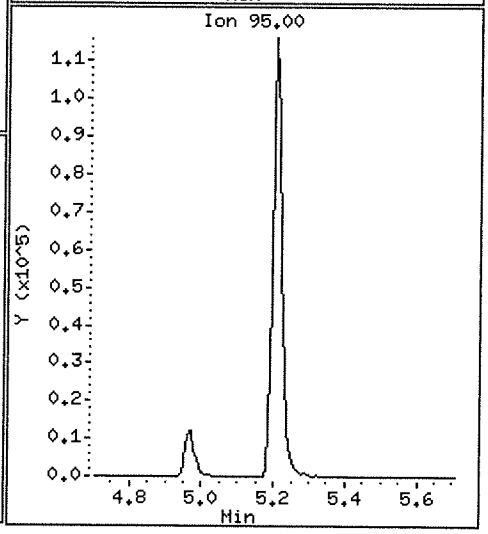


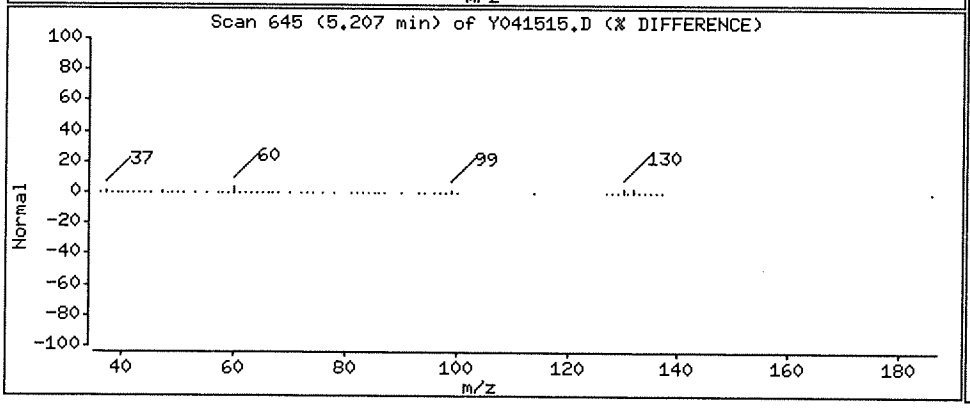












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D Page 1
Report Date: 29-Apr-2021 12:43

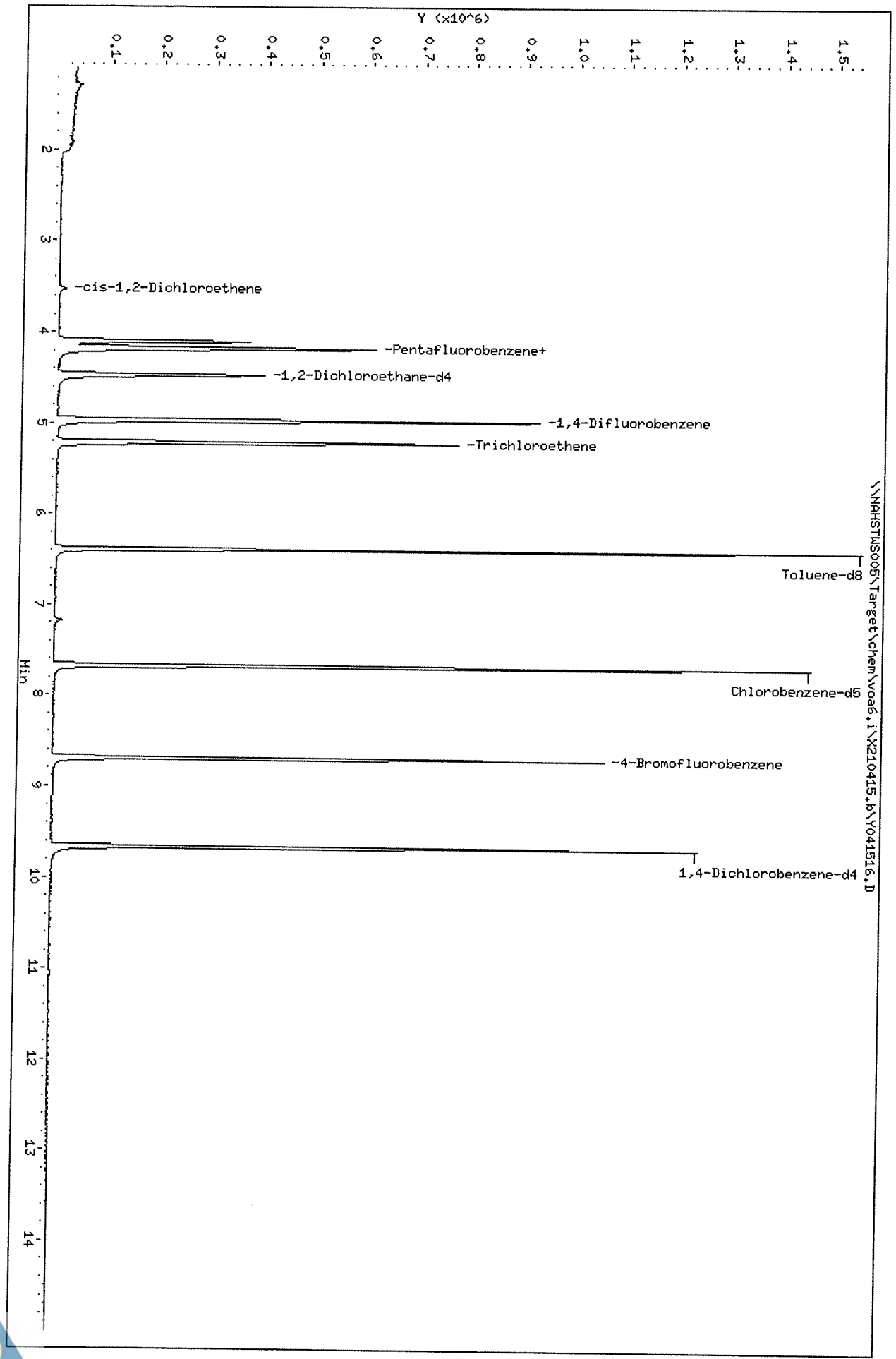
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D
Lab Smp Id: HS21040286-07 Client Smp ID: HS21040286-07
Inj Date : 16-APR-2021 02:14
Operator : PC Inst ID: voa6.i
Smp Info : HS21040286-07;HS21040286-07;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:43 Qin.Xu Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 43
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	5.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	452332	50.0000	
* 36 1,4-Difluorobenzene	114	4.963	4.970	(1.000)	729546	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	631365	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	266033	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	245865	46.2017	46.20
$ 35 1,2-Dichloroethane-d4	65	4.476	4.469	(1.070)	314084	49.2315	49.23
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	887319	54.5029	54.50
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	283677	46.9548	46.95
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.846)	6425	1.16198	5.80
38 Trichloroethene	130	5.206	5.207	(1.049)	227890	45.6309	228.15


Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D
Date : 16-APR-2021 02:14
Client ID: HS21040286-07
Sample Info: HS21040286-07;HS21040286-07;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Page 2
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
2
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10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D

Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D

Date : 16-APR-2021 02:14

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

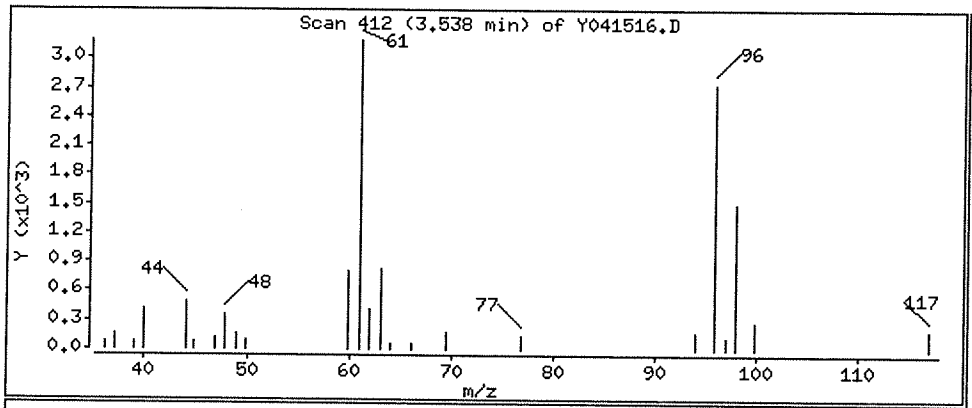
Operator: PC

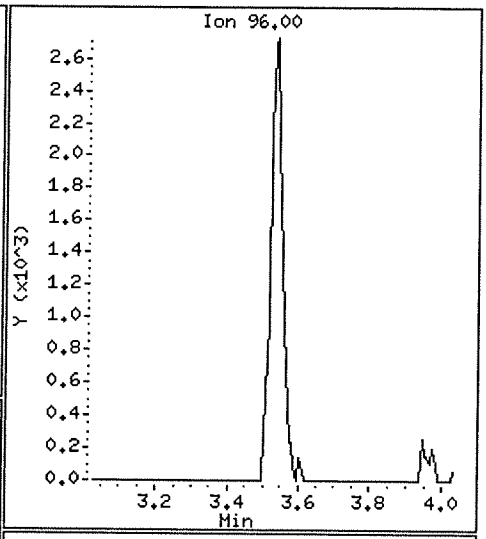
Column phase: DB624

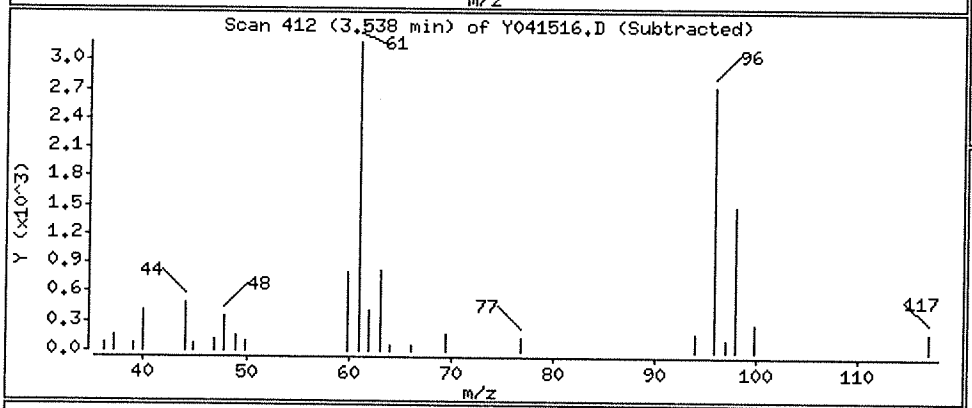
Column diameter: 0.18

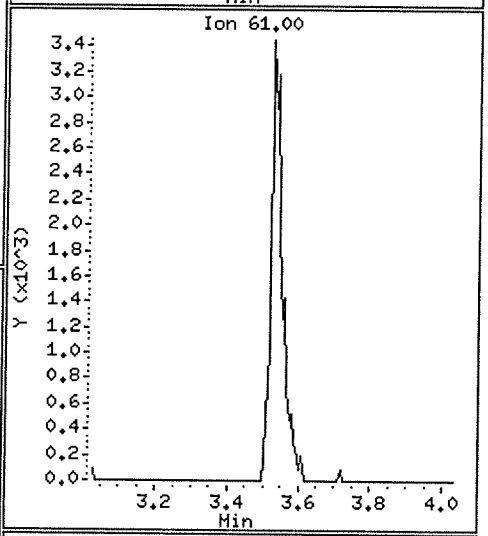
27 cis-1,2-Dichloroethene

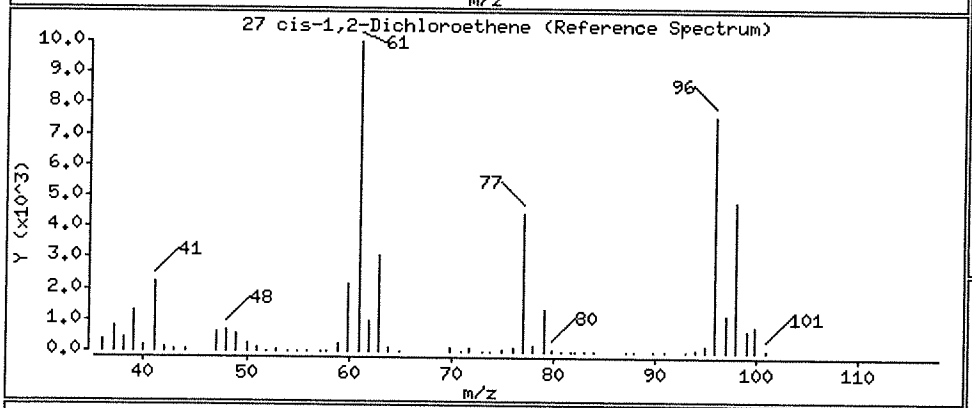
Concentration: 5.80 ug/l

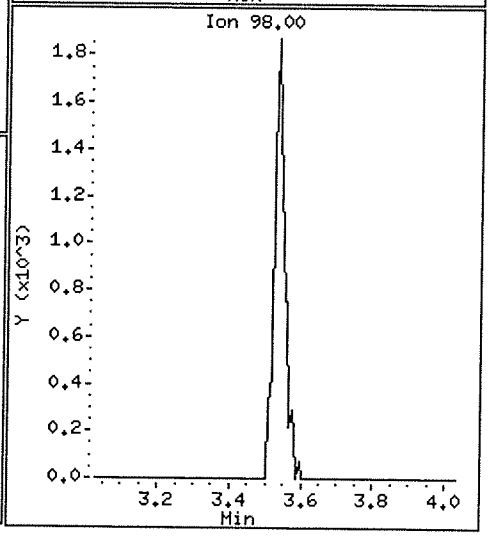


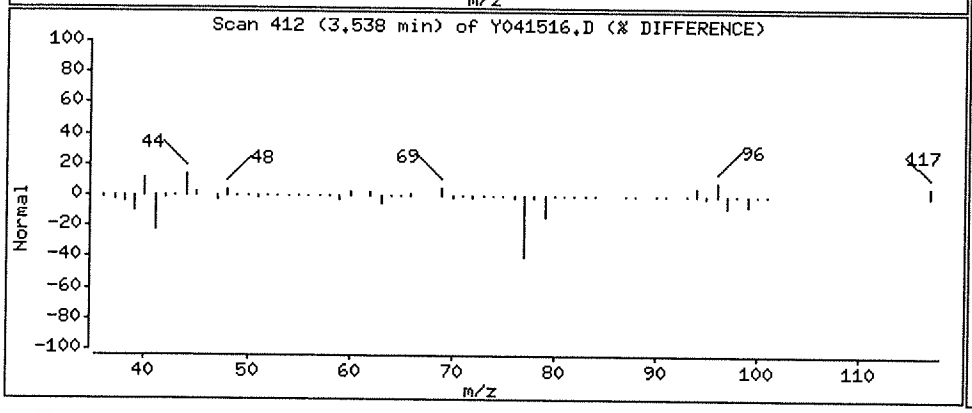












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041516.D

Date : 16-APR-2021 02:14

Client ID: HS21040286-07

Instrument: voa6.i

Sample Info: HS21040286-07;HS21040286-07;;;

Purge Volume: 5.0

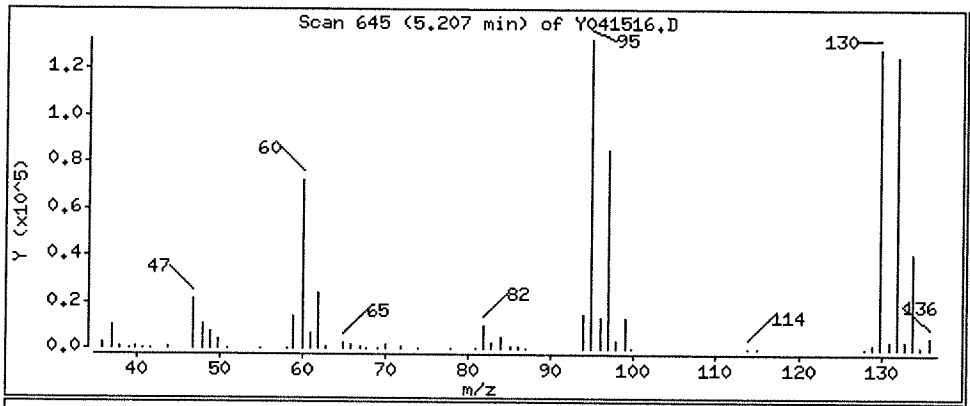
Operator: PC

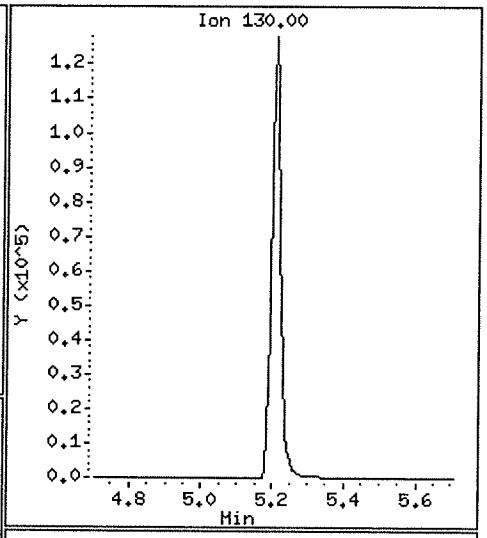
Column phase: DB624

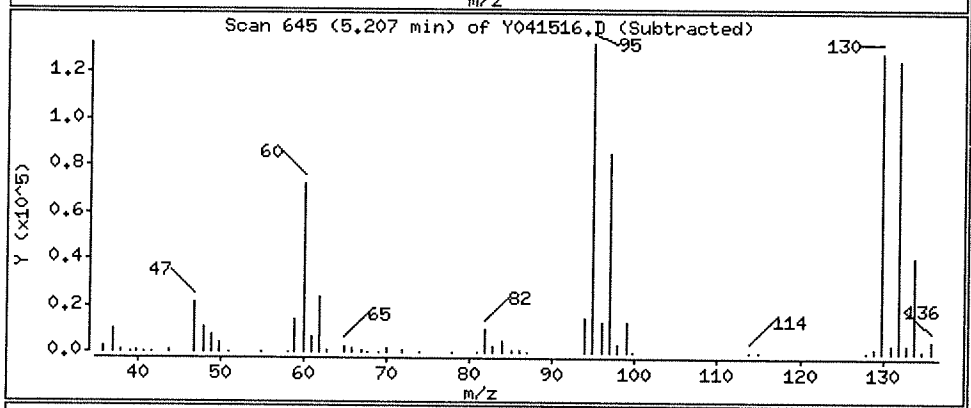
Column diameter: 0.18

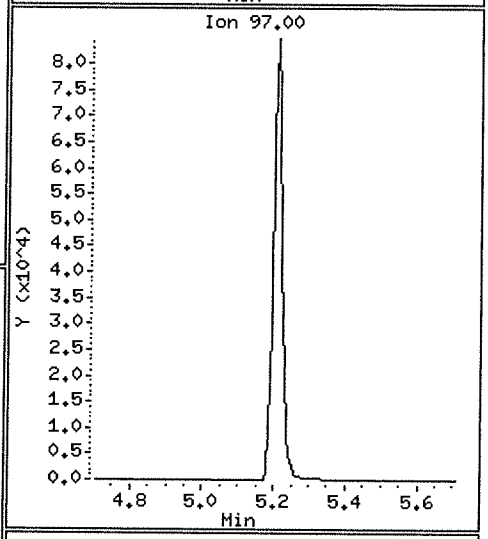
38 Trichloroethene

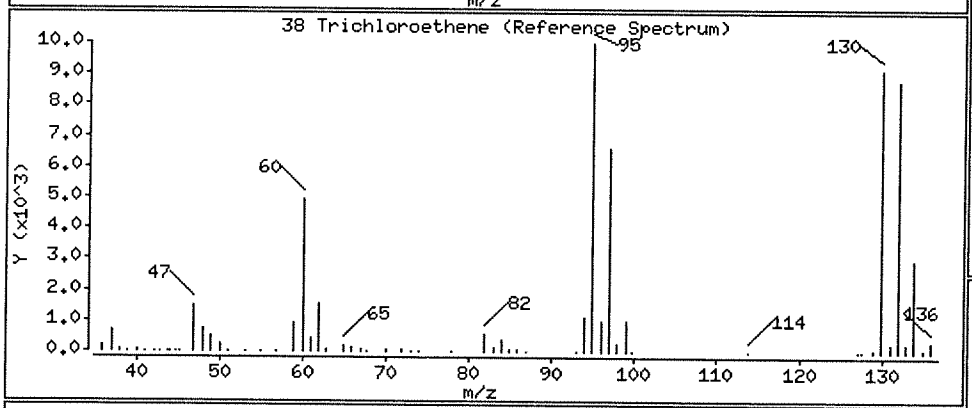
Concentration: 228.15 ug/l

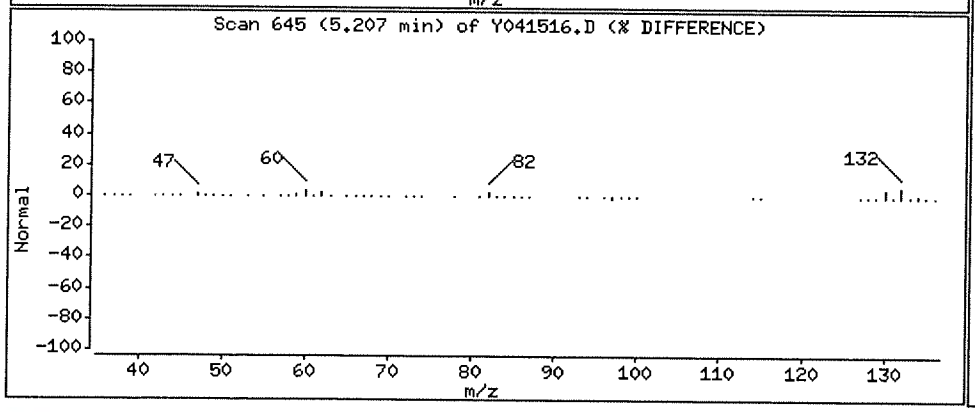


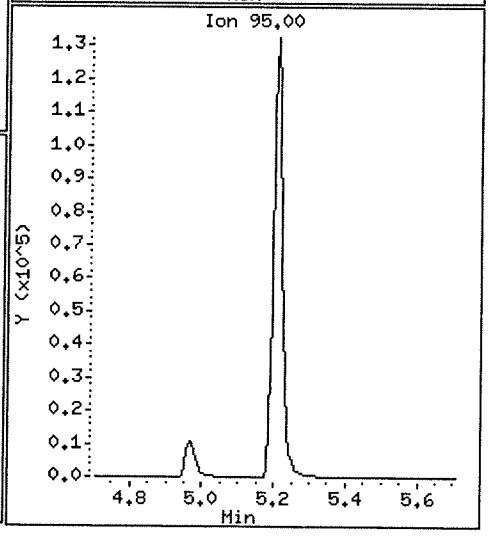












Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041530.D Page 1
Report Date: 29-Apr-2021 12:39

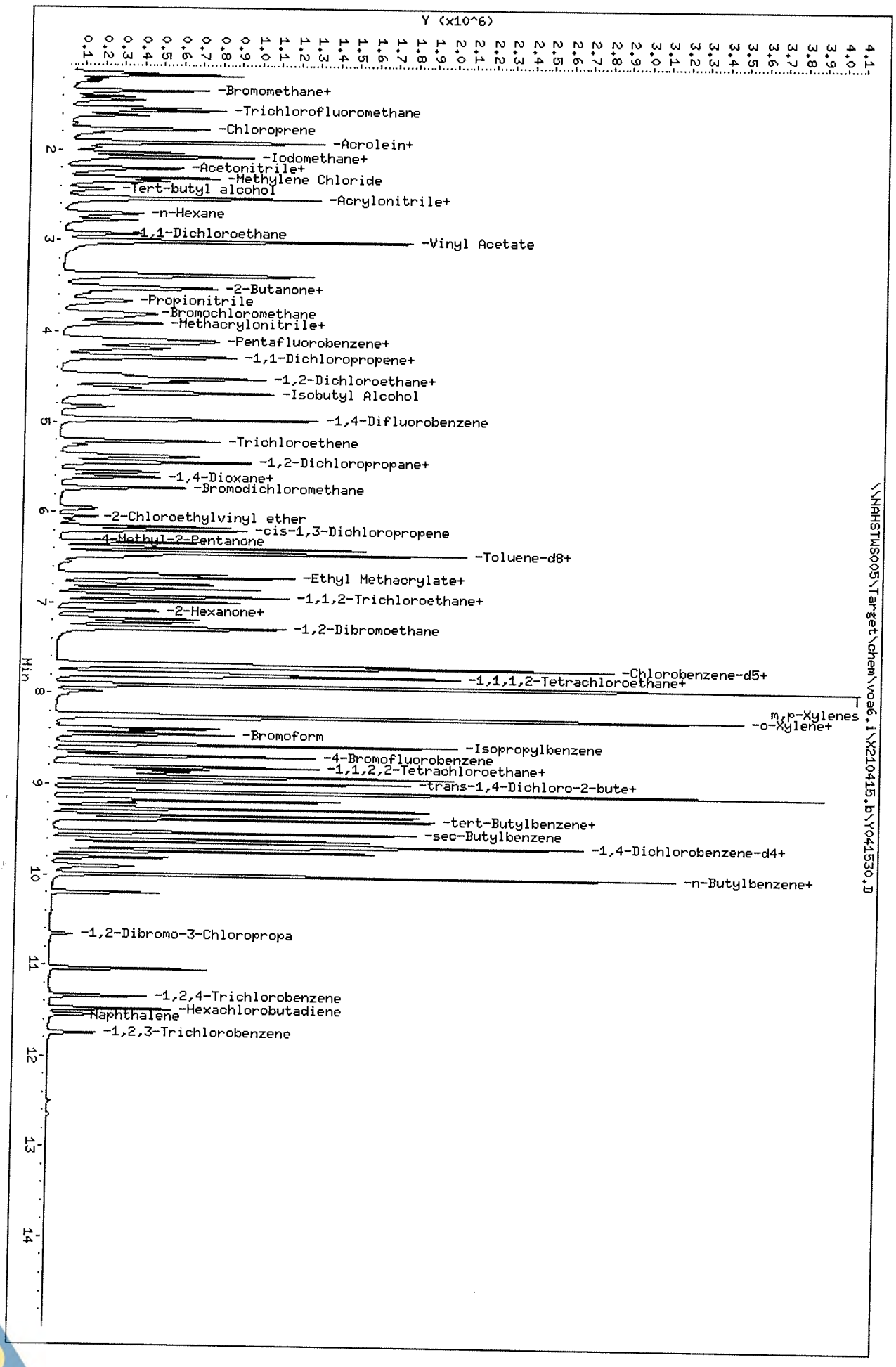
ALS Laboratory Group

Data file : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041530.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 16-APR-2021 07:08
Operator : PC Inst ID: voa6.i
Smp Info : CCV-END;CCV-END;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X210415.b\8260W.m
Meth Date : 29-Apr-2021 12:39 voa6.i Quant Type: ISTD
Cal Date : 02-APR-2021 13:20 Cal File: X040208.D
Als bottle: 57 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBI_short.sub
Target Version: 4.14
Processing Host: NAHSTW7066

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.182	4.182	(1.000)	402306	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	735799	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	715184	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	349450	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.981)	238713	50.0000	50.39
$ 35 1,2-Dichloroethane-d4	65	4.469	4.469	(1.069)	280032	50.0000	49.35
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	875033	50.0000	47.68
$ 69 4-Bromofluorobenzene	95	8.688	8.688	(1.133)	345451	50.0000	50.35
11 1,1-Dichloroethene	96	1.919	1.919	(0.459)	271033	50.0000	47.31
33 1,2-Dichloroethane	62	4.555	4.555	(0.916)	370960	50.0000	47.63
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.844)	252024	50.0000	51.24
56 Tetrachloroethene	164	6.926	6.926	(0.903)	196336	50.0000	45.47
38 Trichloroethene	130	5.207	5.207	(1.048)	243731	50.0000	48.38
5 Vinyl Chloride	62	1.145	1.145	(0.274)	313311	50.0000	51.94



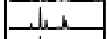
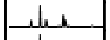
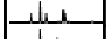
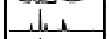
Data File: \\NAHSTWS005\Target\chem\voa6.i\X210415.b\Y041530.D
Date : 16-APR-2021 07:08
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

HS21040286 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS21040286

Sequence: 040621
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method
	STD1		Calibration	BB1	1.00	1	Anions Program 06022020.1	Anions Processing Method
	STD2		Calibration	BB2	1.00	2	Anions Program 06022020.1	Anions Processing Method
	STD3		Calibration	BB3	1.00	3	Anions Program 06022020.1	Anions Processing Method
	STD4		Calibration	BB4	1.00	4	Anions Program 06022020.1	Anions Processing Method
	STD5		Calibration	BB5	1.00	5	Anions Program 06022020.1	Anions Processing Method
	STD6		Calibration	BB6	1.00	6	Anions Program 06022020.1	Anions Processing Method
	ICV		Unknown	BB7	1.00		Anions Program 06022020.1	Anions Processing Method
	ICB		Unknown	BB8	1.00		Anions Program 06022020.1	Anions Processing Method
	CCV		Unknown	R1	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R4	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-04		Unknown	BE4	1.00		Anions Program 06022020.1	Anions Processing Method
	CCV1		Unknown	R3	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R6	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-05		Unknown	BE5	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-06		Unknown	BE6	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-07		Unknown	BE7	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-08		Unknown	BE8	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-08MS		Unknown	RA1	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-08MSD		Unknown	RA2	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-09DF2		Unknown	RA3	2.00		Anions Program 06022020.1	Anions Processing Method
	CCV		Unknown	R1	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R4	1.00		Anions Program 06022020.1	Anions Processing Method
	MBLK-		Unknown	R5	1.00		Anions Program 06022020.1	Anions Processing Method
	LCS-		Unknown	R2	1.00		Anions Program 06022020.1	Anions Processing Method
	CCV1		Unknown	R3	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R7	1.00		Anions Program 06022020.1	Anions Processing Method

Sequence: 040621
Last Update Operator: alshs.nouser

CD	Name	Volume	Status	Inject Time
	STD1	5.0	Finished	3/19/2021 2:34:19 AM -05:00
	STD2	5.0	Finished	3/19/2021 2:52:47 AM -05:00
	STD3	5.0	Finished	3/19/2021 3:11:11 AM -05:00
	STD4	5.0	Finished	3/19/2021 3:29:36 AM -05:00
	STD5	5.0	Finished	3/19/2021 3:48:01 AM -05:00
	STD6	5.0	Finished	3/19/2021 4:06:28 AM -05:00
	ICV	5.0	Finished	3/19/2021 4:24:53 AM -05:00
	ICB	5.0	Finished	3/19/2021 5:01:41 AM -05:00
	CCV	5.0	Finished	4/7/2021 8:25:16 PM -05:00
	CCB	5.0	Finished	4/7/2021 8:43:42 PM -05:00
	HS21040286-04	5.0	Finished	4/7/2021 11:47:50 PM -05:00
	CCV1	5.0	Finished	4/8/2021 12:06:14 AM -05:00
	CCB	5.0	Finished	4/8/2021 12:24:39 AM -05:00
	HS21040286-05	5.0	Finished	4/8/2021 12:43:06 AM -05:00
	HS21040286-06	5.0	Finished	4/8/2021 1:01:30 AM -05:00
	HS21040286-07	5.0	Finished	4/8/2021 1:19:54 AM -05:00
	HS21040286-08	5.0	Finished	4/8/2021 1:38:18 AM -05:00
	HS21040286-08MS	5.0	Finished	4/8/2021 1:56:43 AM -05:00
	HS21040286-08MSD	5.0	Finished	4/8/2021 2:15:07 AM -05:00
	HS21040286-09DF2	5.0	Finished	4/8/2021 2:33:31 AM -05:00
	CCV	5.0	Finished	4/8/2021 3:28:46 AM -05:00
	CCB	5.0	Finished	4/8/2021 3:47:11 AM -05:00
	MBLK-	5.0	Finished	4/8/2021 4:42:26 AM -05:00
	LCS-	5.0	Finished	4/8/2021 5:00:49 AM -05:00
	CCV1	5.0	Finished	4/8/2021 6:32:53 AM -05:00
	CCB	5.0	Finished	4/8/2021 7:09:43 AM -05:00

Sequence: 040621
Injection #6: STD6

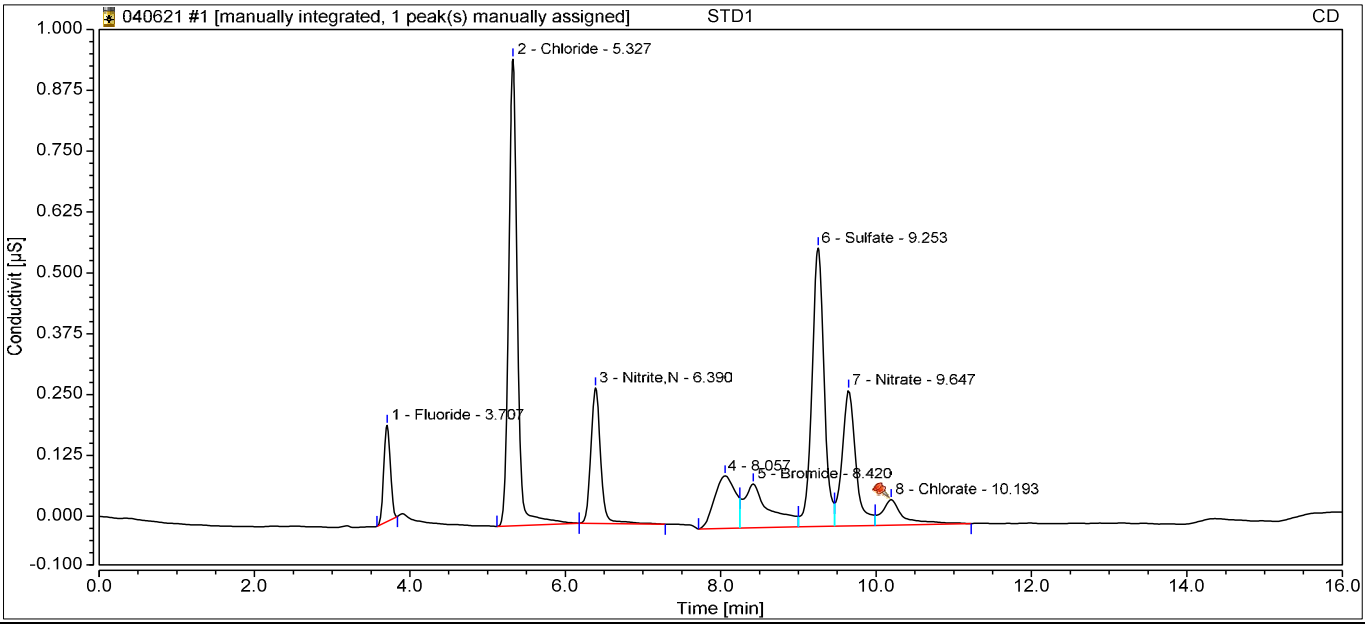
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset, 1/*	*Area*	*6*	*14.2721*	*0.99908*	*-0.0101*	*0.2938*	*0.0000*
2	Chloride	Lin, WithOffset, 1/	Area	6	1.9269	0.99998	0.0246	0.1961	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	27.4558	0.99550	0.0110	0.3827	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	6.5246	0.99931	0.0258	0.0775	0.0000
6	Sulfate	Lin, WithOffset, 1/	Area	6	5.7842	0.99978	0.0360	0.1408	0.0000
7	Nitrate	Lin, WithOffset, 1/	Area	6	2.7454	0.99996	0.0067	0.4997	0.0000
8	Chlorate	Lin, WithOffset, 1/	Area	6	17.5063	0.99733	0.0108	0.0850	0.0000
10	Phosphate	Lin, WithOffset, 1/	Area	5	12.5412	0.99846	-0.0503	0.1737	0.0000
Maximum					**27.4558**	0.99998			
Minimum					1.9269	**0.99550**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**BB1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 02:34**	*Sample Weight:*	**1.0000**

Run Time:



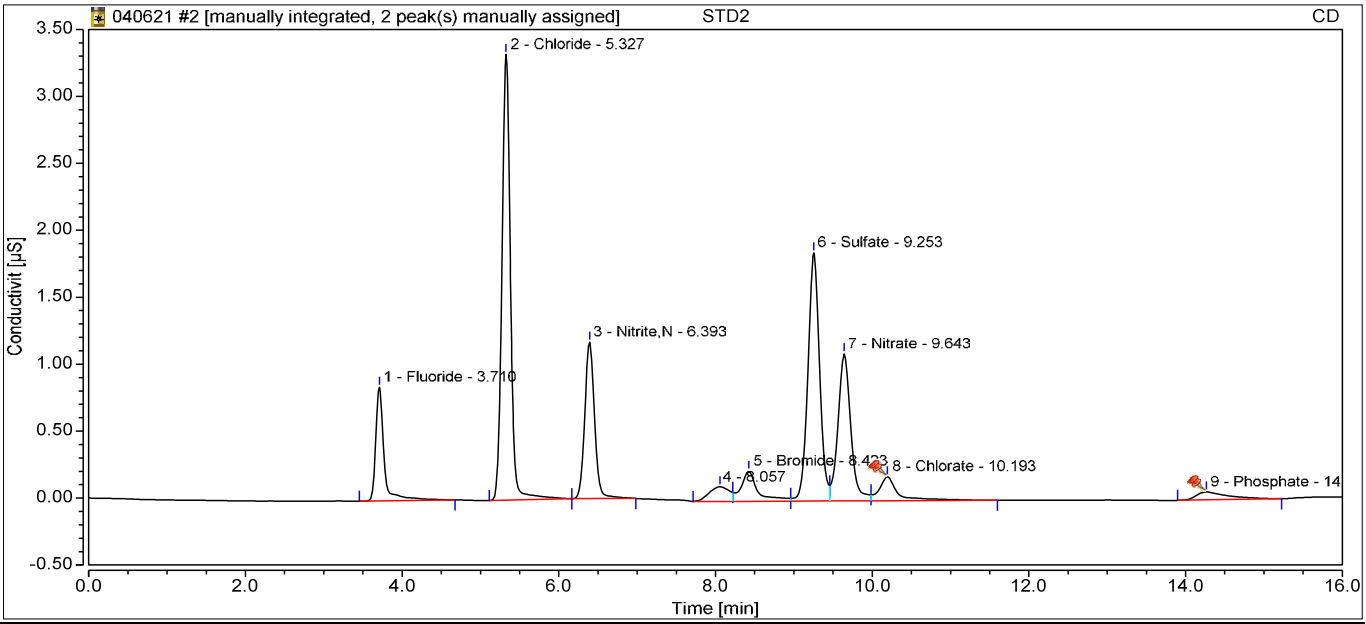
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.019	0.1001	0.1001	1.0000
2	5.33	Chloride	BMb*	0.123	0.5037	0.5037	1.0000
3	6.39	Nitrite,N	bMB*	0.041	0.0772	0.0772	1.0000
5	8.42	Bromide	M *	0.035	0.1129	0.1129	1.0000
6	9.25	Sulfate	M	0.104	0.4806	0.4806	1.0000
7	9.65	Nitrate	M	0.057	0.1016	0.1016	1.0000
8	10.19	Chlorate	MB^	0.017	0.0682	0.0682	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.396**		**1.44**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**BB2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 02:52**	*Sample Weight:*	**1.0000**

Run Time:



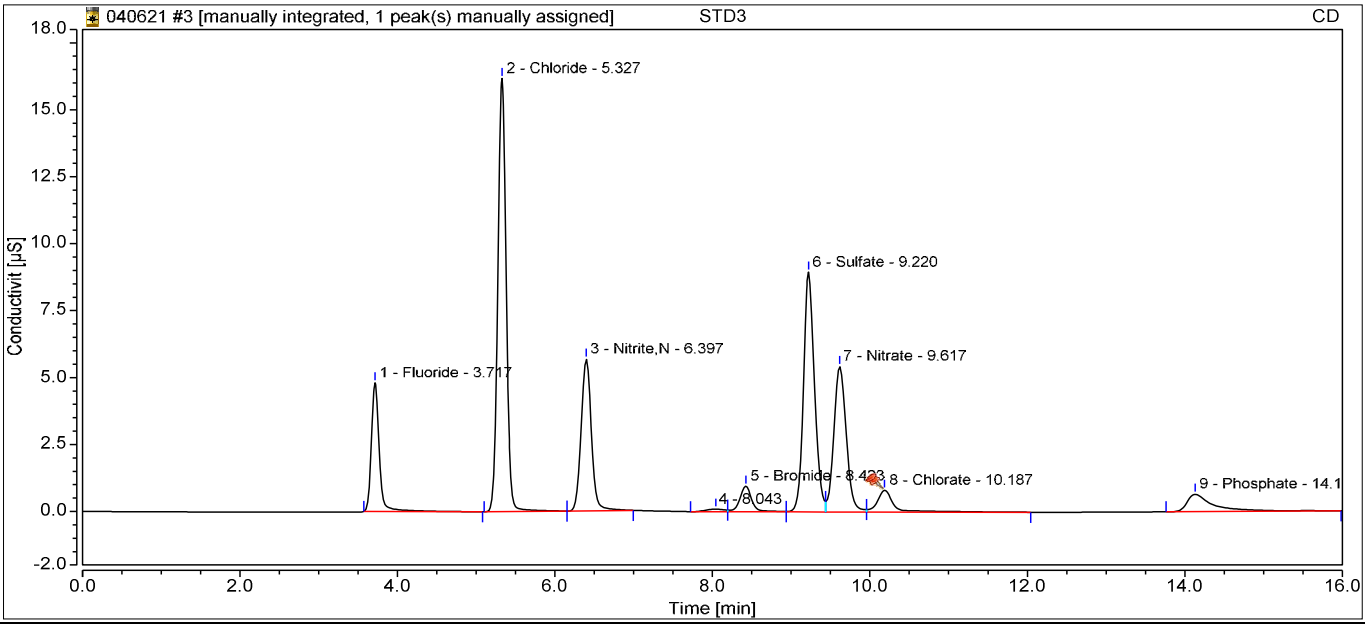
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB*	0.105	0.3907	0.3907	1.0000
2	5.33	Chloride	BMb*	0.415	1.9922	1.9922	1.0000
3	6.39	Nitrite,N	bMB*	0.169	0.4132	0.4132	1.0000
5	8.42	Bromide	M *	0.056	0.3871	0.3871	1.0000
6	9.25	Sulfate	M	0.320	2.0188	2.0188	1.0000
7	9.64	Nitrate	M	0.208	0.4033	0.4033	1.0000
8	10.19	Chlorate	MB^	0.050	0.4595	0.4595	1.0000
9	14.26	Phosphate	BMB^	0.029	0.4541	0.4541	1.0000
Total:			**0.000**	**1.352**		**6.52**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**BB3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 03:11**	*Sample Weight:*	**1.0000**

Run Time:



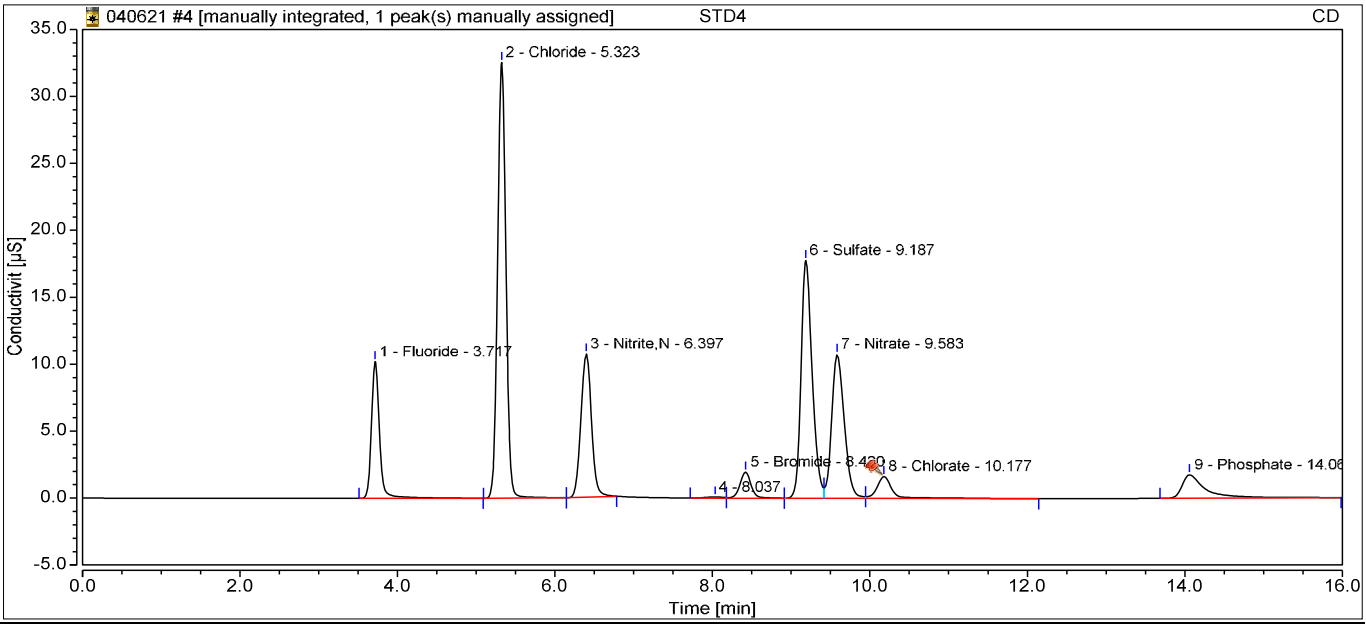
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.559	1.9360	1.9360	1.0000
2	5.33	Chloride	BMb*	1.967	9.9055	9.9055	1.0000
3	6.40	Nitrite,N	bMB*	0.860	2.2190	2.2190	1.0000
5	8.42	Bromide	M *	0.169	1.8534	1.8534	1.0000
6	9.22	Sulfate	M	1.452	10.0579	10.0579	1.0000
7	9.62	Nitrate	M	0.989	1.9651	1.9651	1.0000
8	10.19	Chlorate	MB^	0.201	2.2396	2.2396	1.0000
9	14.13	Phosphate	BMB	0.258	1.7779	1.7779	1.0000
Total:			**0.000**	**6.456**		**31.95**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**BB4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 03:29**	*Sample Weight:*	**1.0000**

Run Time:



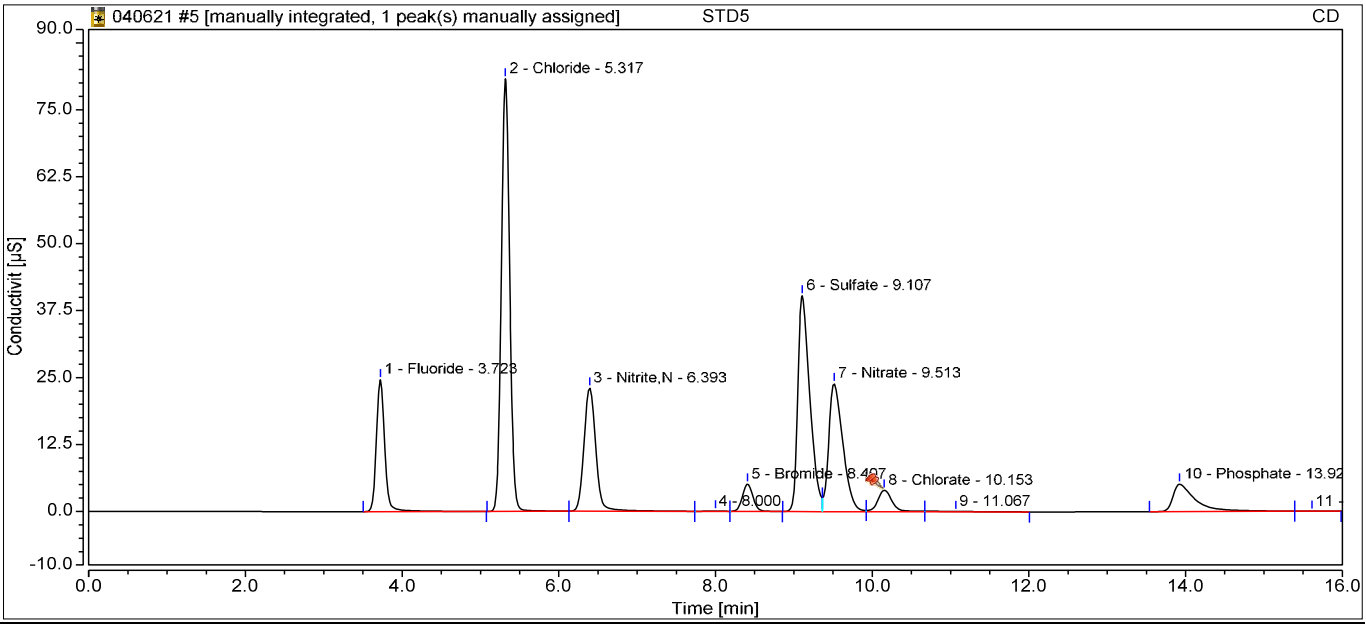
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.213	4.1637	4.1637	1.0000
2	5.32	Chloride	BMb*	3.957	20.0467	20.0467	1.0000
3	6.40	Nitrite,N	bMB*	1.671	4.3379	4.3379	1.0000
5	8.42	Bromide	M *	0.323	3.8403	3.8403	1.0000
6	9.19	Sulfate	M	2.909	20.4074	20.4074	1.0000
7	9.58	Nitrate	M	1.986	3.9610	3.9610	1.0000
8	10.18	Chlorate	MB^	0.380	4.3412	4.3412	1.0000
9	14.06	Phosphate	BMB	0.619	3.8518	3.8518	1.0000
Total:			**0.000**	**13.058**		**64.95**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**BB5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 03:48**	*Sample Weight:*	**1.0000**

Run Time:



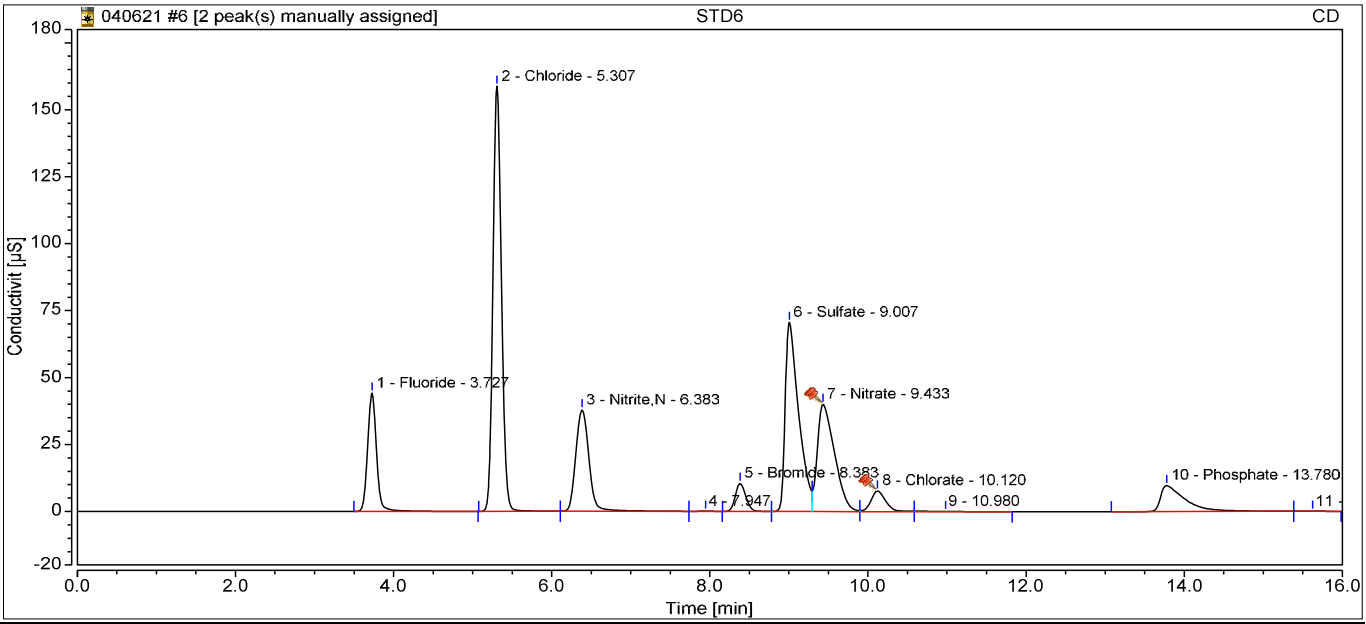
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	3.032	10.3517	10.3517	1.0000
2	5.32	Chloride	BMB	9.893	50.3135	50.3135	1.0000
3	6.39	Nitrite,N	BM *	4.056	10.5692	10.5692	1.0000
5	8.41	Bromide	MB*	0.803	10.0249	10.0249	1.0000
6	9.11	Sulfate	BM	7.184	50.7797	50.7797	1.0000
7	9.51	Nitrate	M	4.996	9.9839	9.9839	1.0000
8	10.15	Chlorate	M ^	0.852	9.8970	9.8970	1.0000
10	13.92	Phosphate	BMB	1.677	9.9434	9.9434	1.0000
Total:			**0.000**	**32.492**		**161.86**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**BB6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 04:06**	*Sample Weight:*	**1.0000**

Run Time:



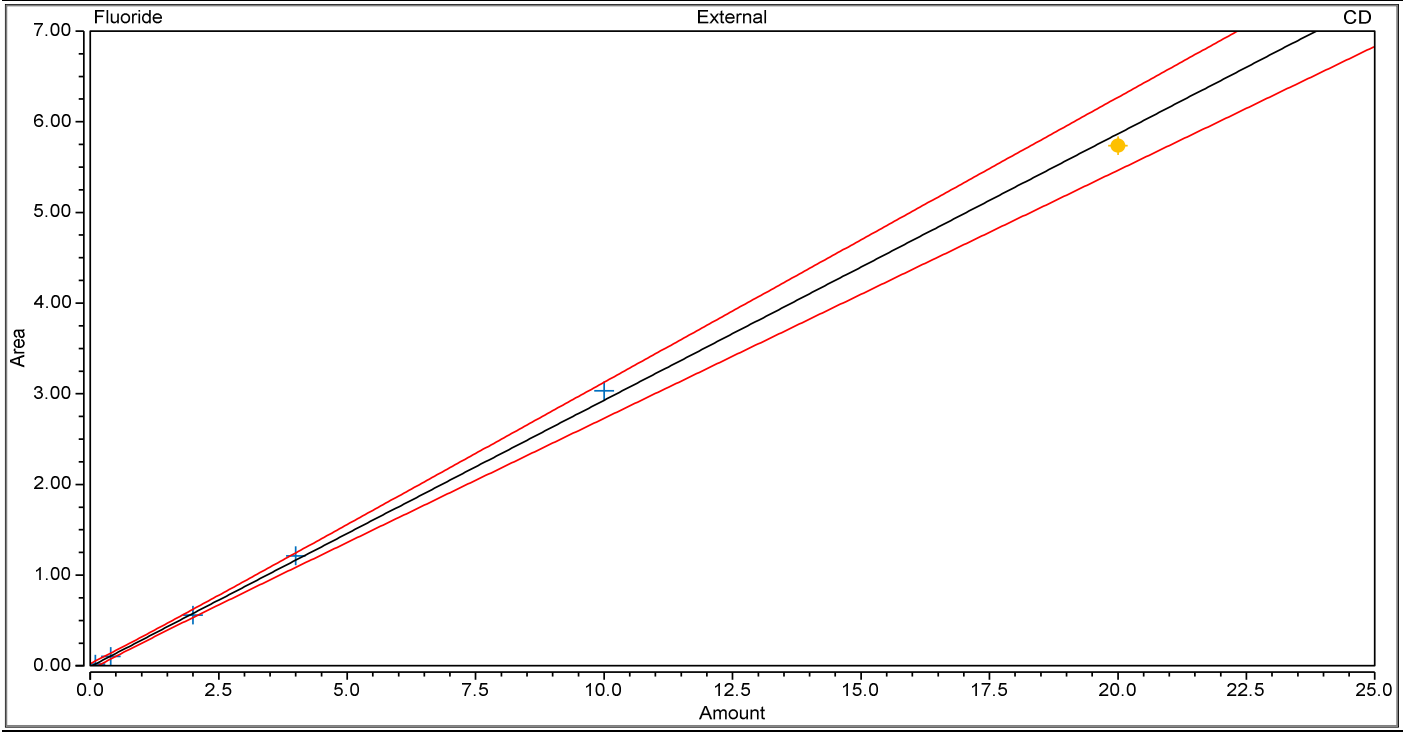
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	5.737	19.5578	19.5578	1.0000
2	5.31	Chloride	BMB	19.587	99.7384	99.7384	1.0000
3	6.38	Nitrite,N	BMB	7.239	18.8834	18.8834	1.0000
5	8.38	Bromide	BM	1.597	20.2814	20.2814	1.0000
6	9.01	Sulfate	M	13.938	98.7555	98.7555	1.0000
7	9.43	Nitrate	M ^	10.043	20.0851	20.0851	1.0000
8	10.12	Chlorate	M ^	1.667	19.4945	19.4945	1.0000
10	13.78	Phosphate	BMB	3.488	20.3728	20.3728	1.0000
Total:			**0.000**	**63.296**		**317.17**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	-0.0101
Evaluation Type	Area	*Slope (C1)*	0.2938
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9991

Calibration Plot **Fluoride**



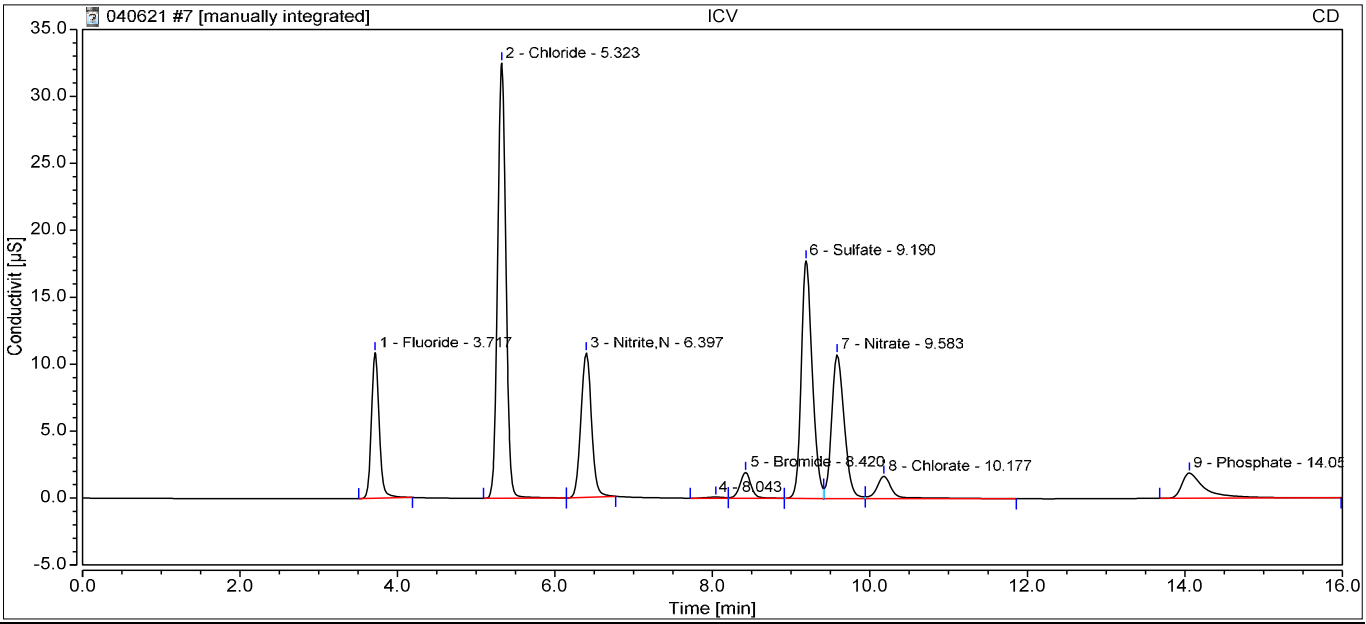
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0193	0.0193	0.019	0.197
2	STD2	2	0.4000	0.1047	0.1047	0.105	0.848
3	STD3	3	2.0000	0.5588	0.5588	0.559	4.805
4	STD4	4	4.0000	1.2134	1.2134	1.213	10.206
5	STD5	5	10.0000	3.0317	3.0317	3.032	24.613
6	STD6	6	20.0000	5.7369	5.7369	5.737	44.208

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**BB7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 04:24**	*Sample Weight:*	**1.0000**

Run Time:



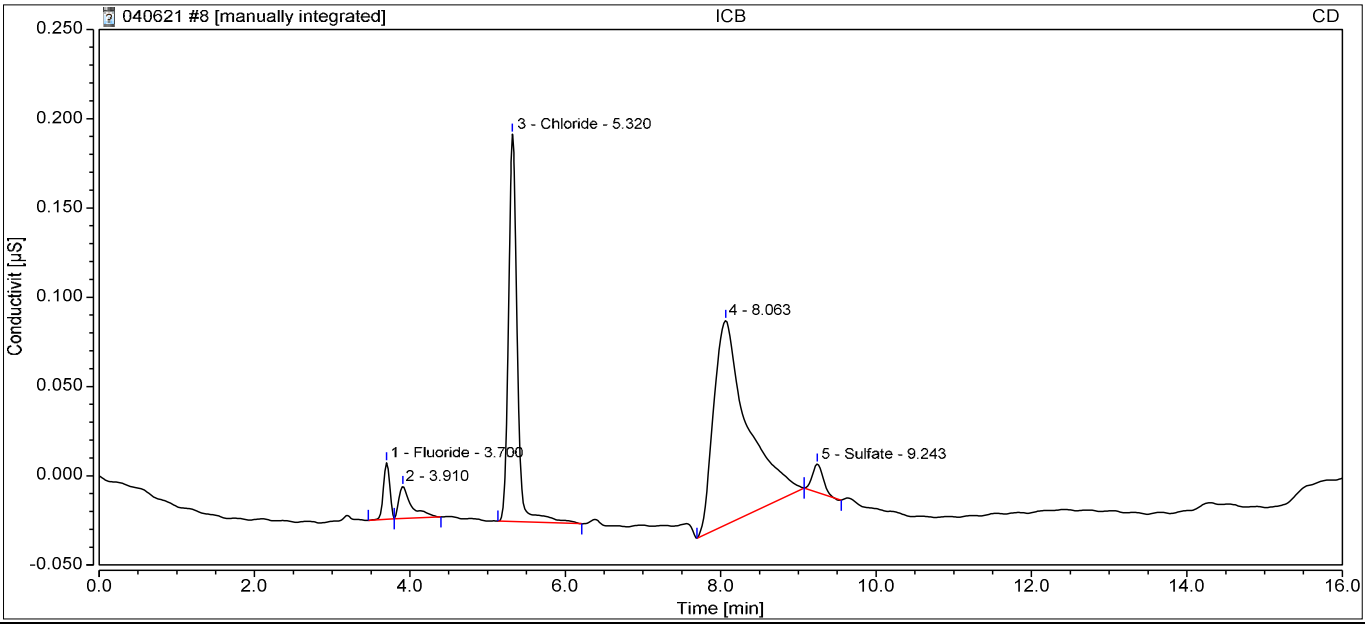
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB*	1.234	4.2342	4.2342	1.0000
2	5.32	Chloride	BMb*	3.949	20.0060	20.0060	1.0000
3	6.40	Nitrite,N	bMB*	1.681	4.3634	4.3634	1.0000
5	8.42	Bromide	M	0.321	3.8099	3.8099	1.0000
6	9.19	Sulfate	M	2.901	20.3535	20.3535	1.0000
7	9.58	Nitrate	M	1.981	3.9506	3.9506	1.0000
8	10.18	Chlorate	MB	0.383	4.3825	4.3825	1.0000
9	14.06	Phosphate	BMB	0.657	4.0742	4.0742	1.0000
Total:			**0.000**	**13.107**		**65.17**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**BB8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**03/19/2021 05:01**	*Sample Weight:*	**1.0000**

Run Time:



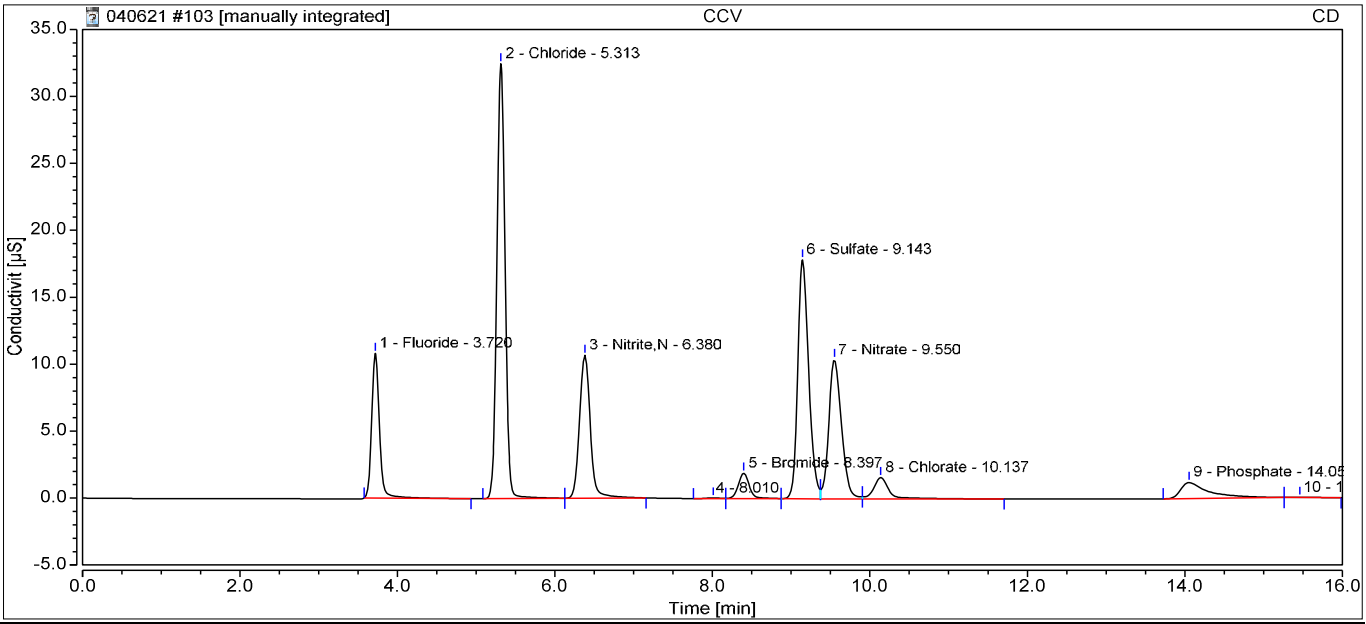
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.70	Fluoride	BMB	0.003	0.0444	0.0444	1.0000
3	5.32	Chloride	BMB	0.028	0.0191	0.0191	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
5	9.24	Sulfate	bMB*	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.034**		**0.06**	

103 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/07/2021 20:25**	*Sample Weight:*	**1.0000**

Run Time:



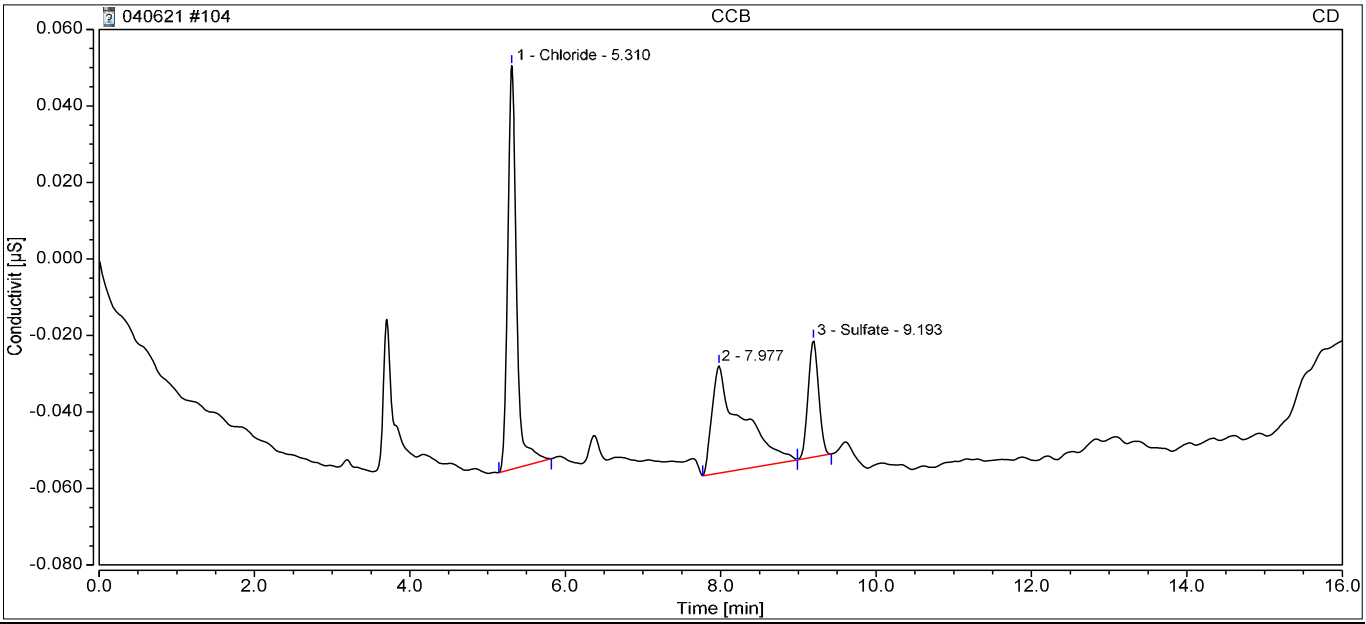
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.227	4.2112	4.2112	1.0000
2	5.31	Chloride	BMb*	3.885	19.6840	19.6840	1.0000
3	6.38	Nitrite,N	bMB*	1.697	4.4049	4.4049	1.0000
5	8.40	Bromide	M	0.314	3.7248	3.7248	1.0000
6	9.14	Sulfate	M	2.861	20.0694	20.0694	1.0000
7	9.55	Nitrate	M	1.943	3.8755	3.8755	1.0000
8	10.14	Chlorate	MB	0.364	4.1535	4.1535	1.0000
9	14.05	Phosphate	BMB	0.498	3.1599	3.1599	1.0000
Total:			**0.000**	**12.791**		**63.28**	

104 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/07/2021 20:43**	*Sample Weight:*	**1.0000**

Run Time:



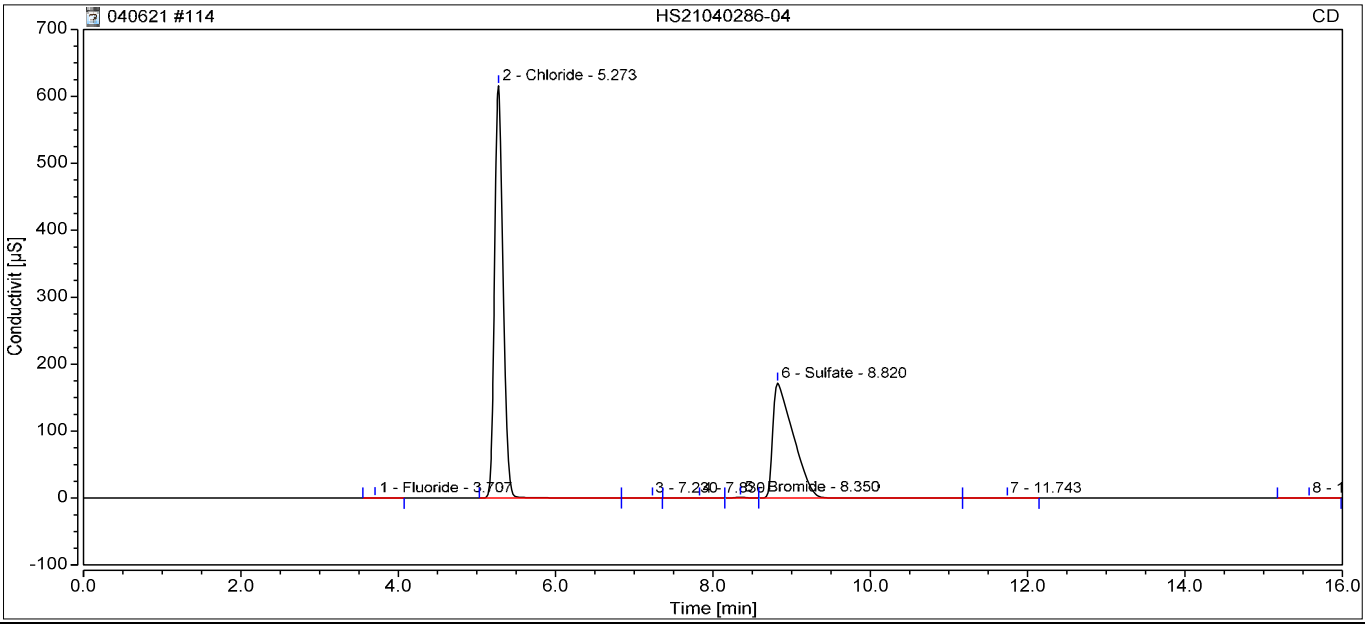
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.31	Chloride	BMB	0.014	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
3	9.19	Sulfate	MB	0.005	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.019**		**0.00**	

114 HS21040286-04

Sample Name:	**HS21040286-04**	*Injection Volume:*	**5.00**
Vial Number:	**BE4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/07/2021 23:47**	*Sample Weight:*	**1.0000**

Run Time:



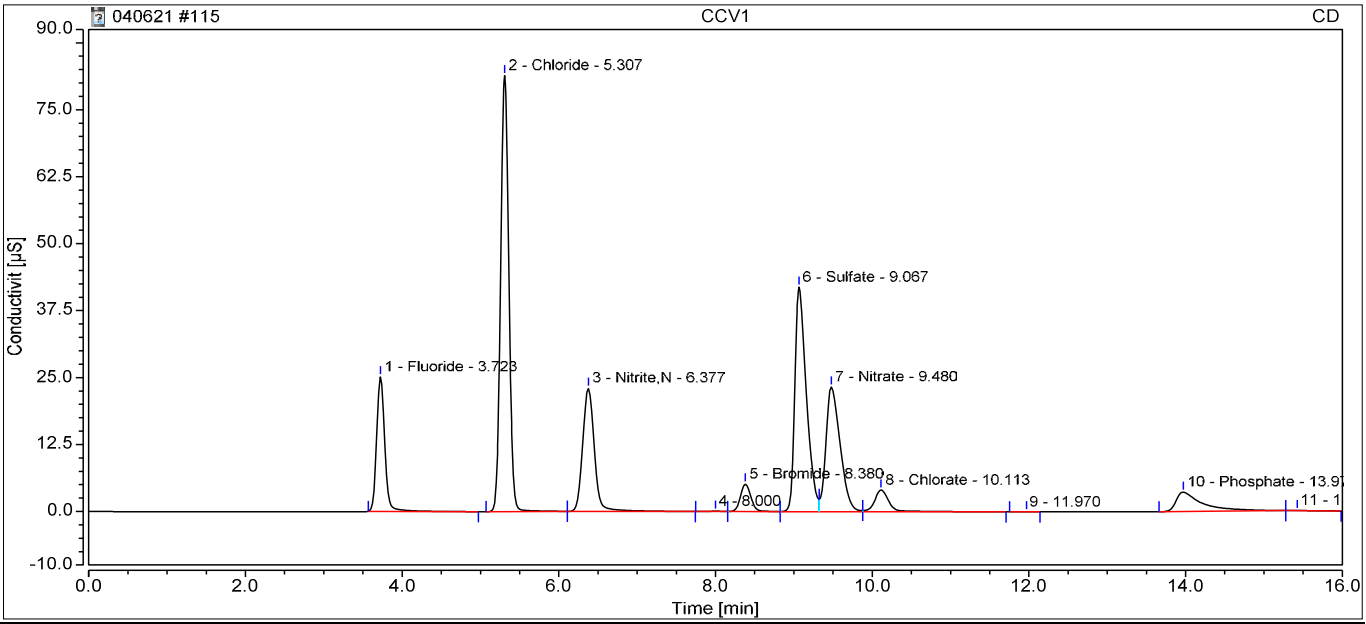
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.047	0.1937	0.1937	1.0000
2	5.27	Chloride	BMB	77.139	393.1641	393.1641	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.35	Bromide	M	0.215	2.4367	2.4367	1.0000
6	8.82	Sulfate	M	51.697	366.9836	366.9836	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**129.097**		**762.78**	

115 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 00:06**	*Sample Weight:*	**1.0000**

Run Time:



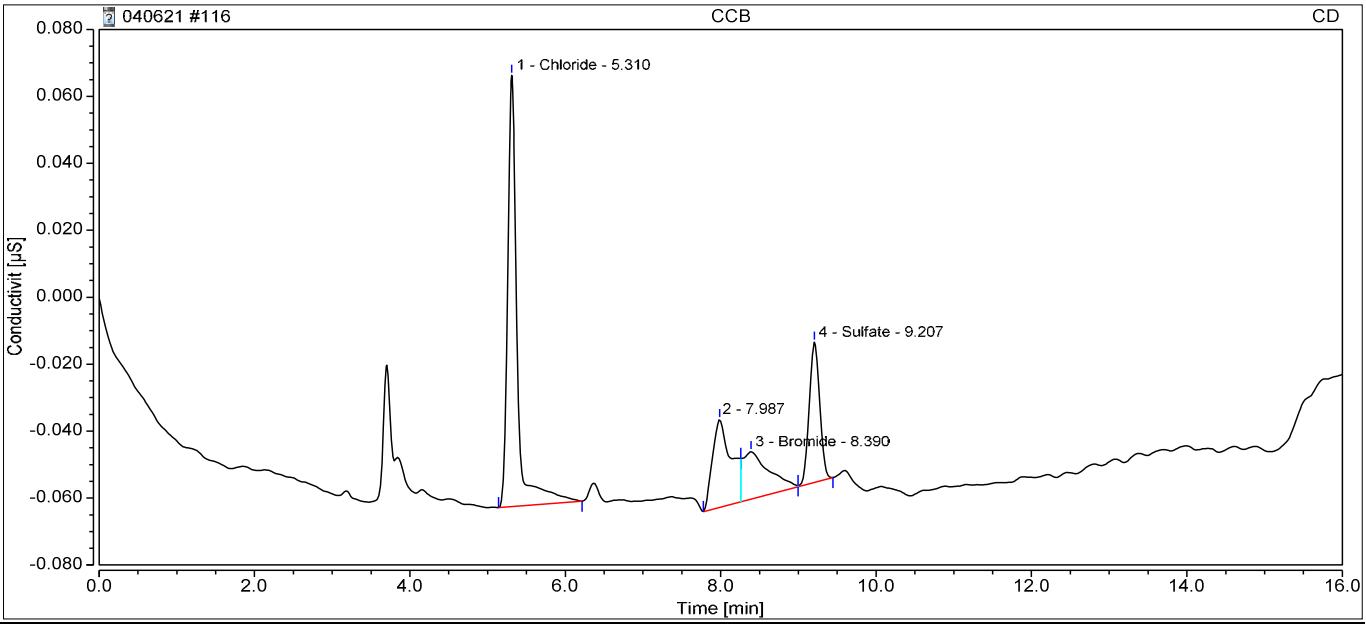
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	3.007	10.2674	10.2674	1.0000
2	5.31	Chloride	BMB	9.787	49.7728	49.7728	1.0000
3	6.38	Nitrite,N	BMB	3.997	10.4145	10.4145	1.0000
5	8.38	Bromide	M	0.791	9.8820	9.8820	1.0000
6	9.07	Sulfate	M	7.172	50.6906	50.6906	1.0000
7	9.48	Nitrate	M	4.898	9.7876	9.7876	1.0000
8	10.11	Chlorate	MB	0.884	10.2799	10.2799	1.0000
10	13.97	Phosphate	BMB	1.416	8.4435	8.4435	1.0000
Total:			**0.000**	**31.952**		**159.54**	

116 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 00:24**	*Sample Weight:*	**1.0000**

Run Time:



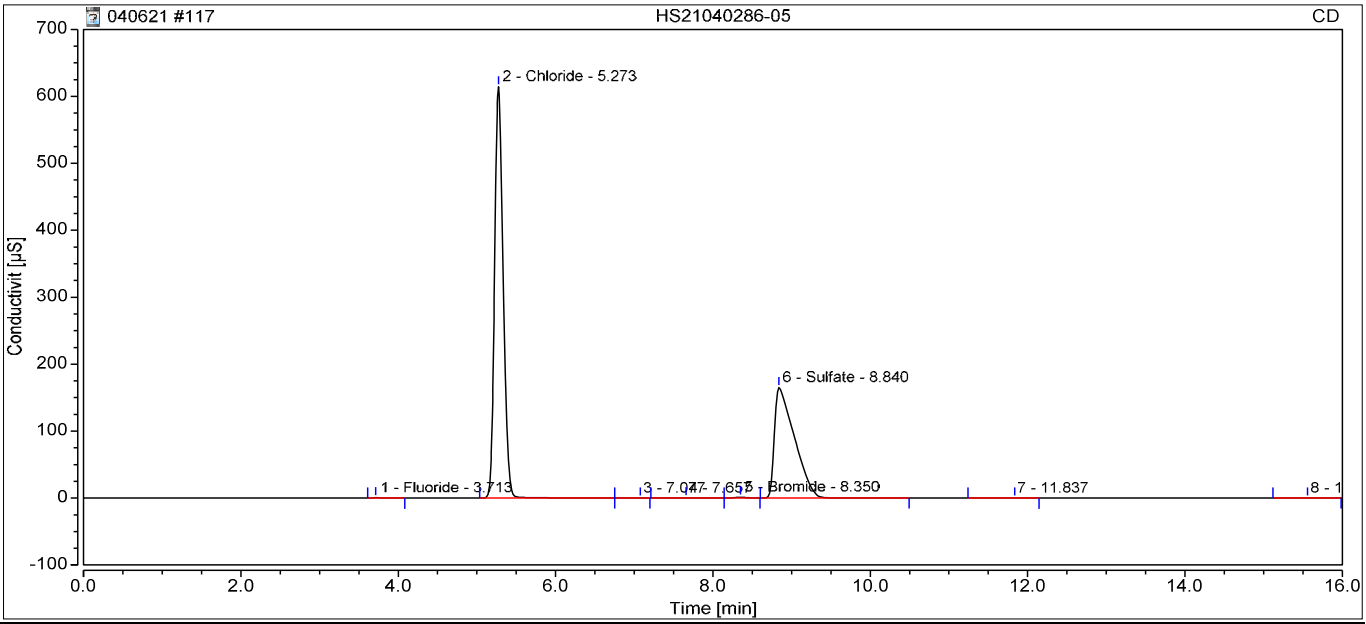
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.31	Chloride	BMB	0.018	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
3	8.39	Bromide	M	0.006	n.a.	n.a.	1.0000
4	9.21	Sulfate	MB	0.007	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.030**		**0.00**	

117 HS21040286-05

Sample Name:	**HS21040286-05**	*Injection Volume:*	**5.00**
Vial Number:	**BE5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 00:43**	*Sample Weight:*	**1.0000**

Run Time:



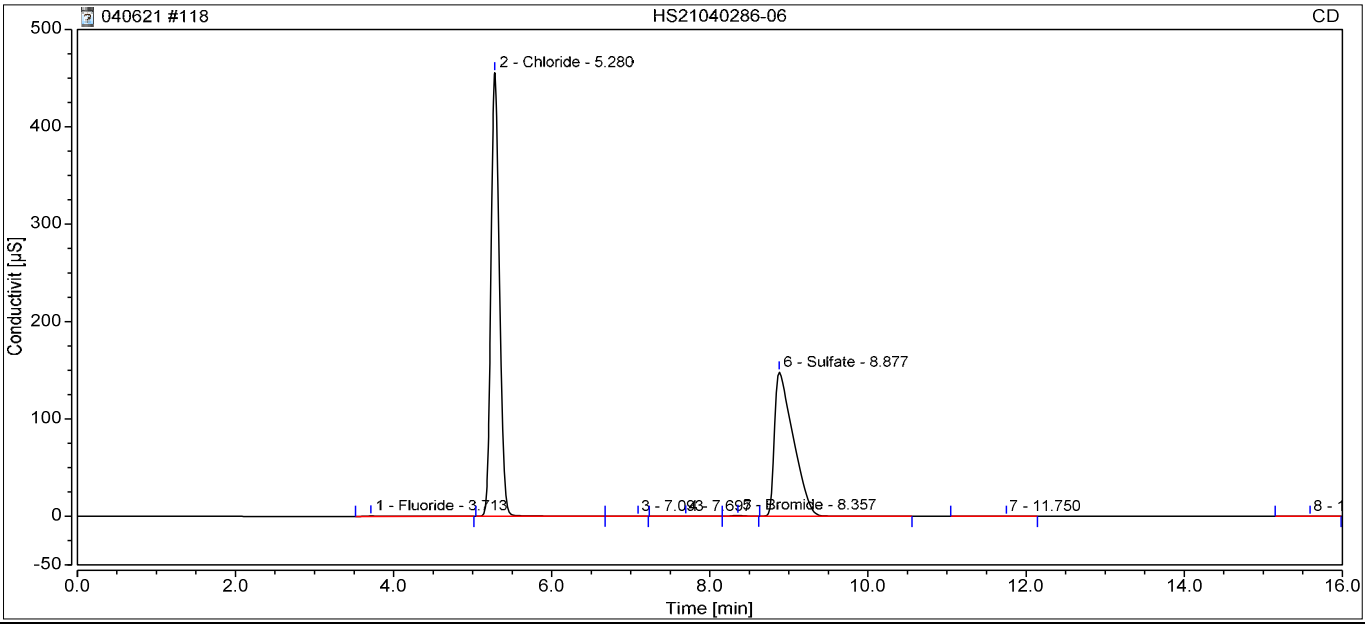
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.056	0.2248	0.2248	1.0000
2	5.27	Chloride	BMB	77.037	392.6442	392.6442	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.35	Bromide	BMB	0.165	1.7929	1.7929	1.0000
6	8.84	Sulfate	BMB	48.469	344.0532	344.0532	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**125.726**		**738.72**	

118 HS21040286-06

Sample Name:	**HS21040286-06**	*Injection Volume:*	**5.00**
Vial Number:	**BE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 01:01**	*Sample Weight:*	**1.0000**

Run Time:



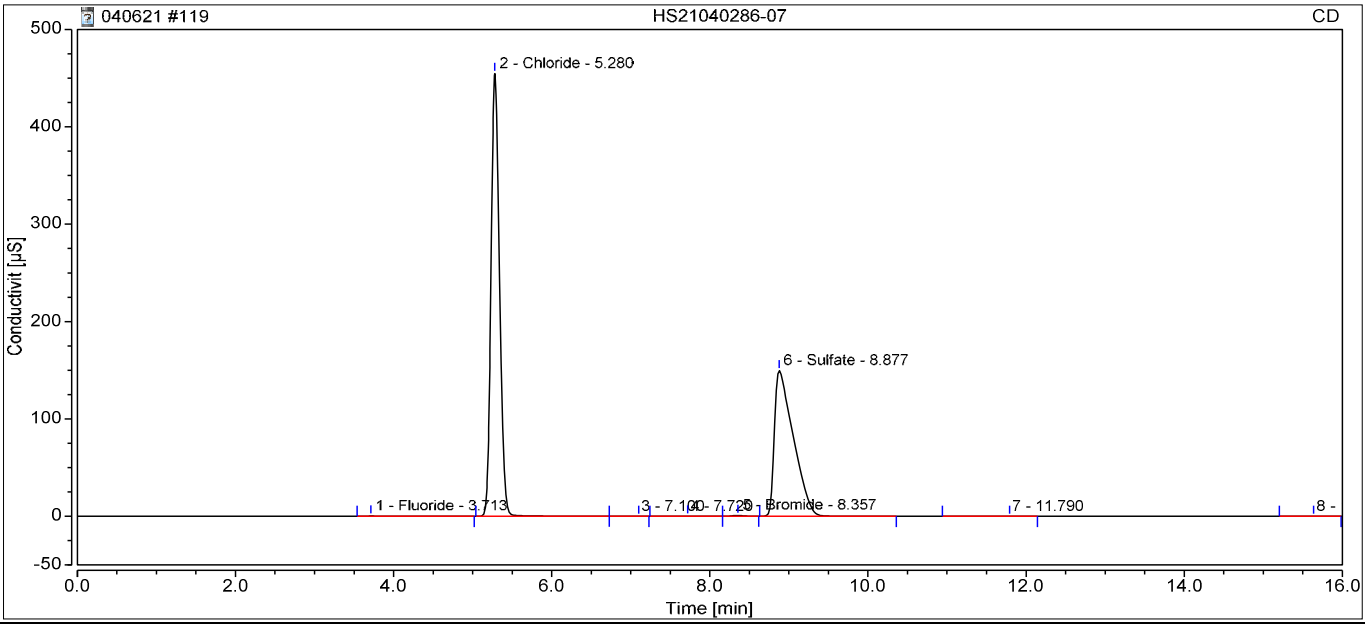
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.066	0.2595	0.2595	1.0000
2	5.28	Chloride	BMB	56.408	287.4696	287.4696	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.36	Bromide	BMB	0.122	1.2377	1.2377	1.0000
6	8.88	Sulfate	BMB	40.807	289.6253	289.6253	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**97.403**		**578.59**	

119 HS21040286-07

Sample Name:	**HS21040286-07**	*Injection Volume:*	**5.00**
Vial Number:	**BE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 01:19**	*Sample Weight:*	**1.0000**

Run Time:



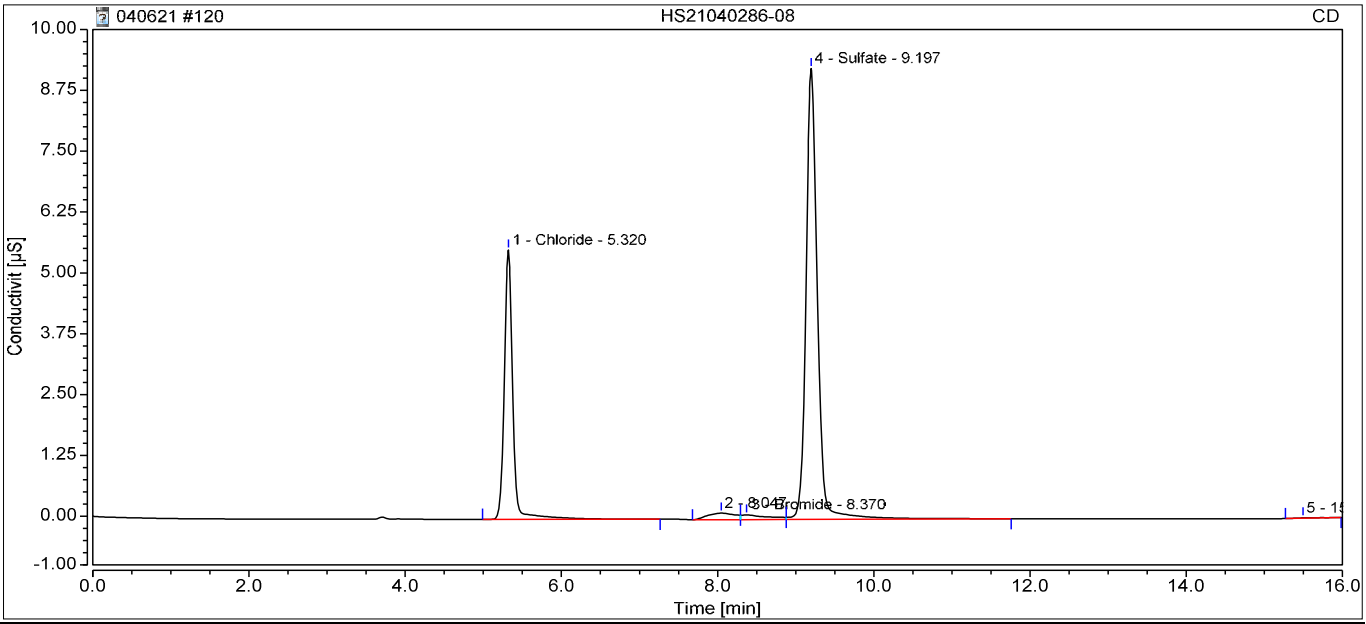
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.065	0.2562	0.2562	1.0000
2	5.28	Chloride	BMB	56.325	287.0461	287.0461	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
5	8.36	Bromide	BMB	0.121	1.2272	1.2272	1.0000
6	8.88	Sulfate	BMB	41.444	294.1532	294.1532	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**97.956**		**582.68**	

120 HS21040286-08

Sample Name:	**HS21040286-08**	*Injection Volume:*	**5.00**
Vial Number:	**BE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 01:38**	*Sample Weight:*	**1.0000**

Run Time:



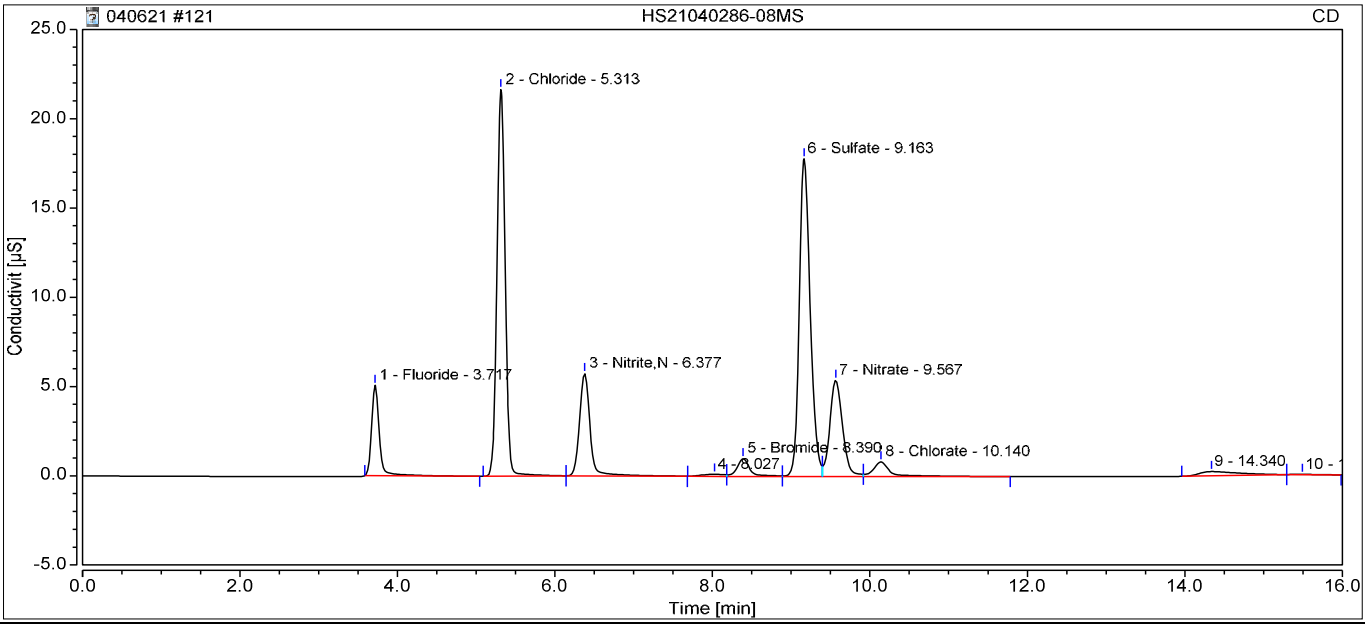
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.32	Chloride	BMB	0.696	3.4219	3.4219	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
3	8.37	Bromide	M	0.038	0.1579	0.1579	1.0000
4	9.20	Sulfate	MB	1.568	10.8792	10.8792	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**2.301**		**14.46**	

121 HS21040286-08MS

Sample Name:	**HS21040286-08MS**	*Injection Volume:*	**5.00**
Vial Number:	**RA1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 01:56**	*Sample Weight:*	**1.0000**

Run Time:



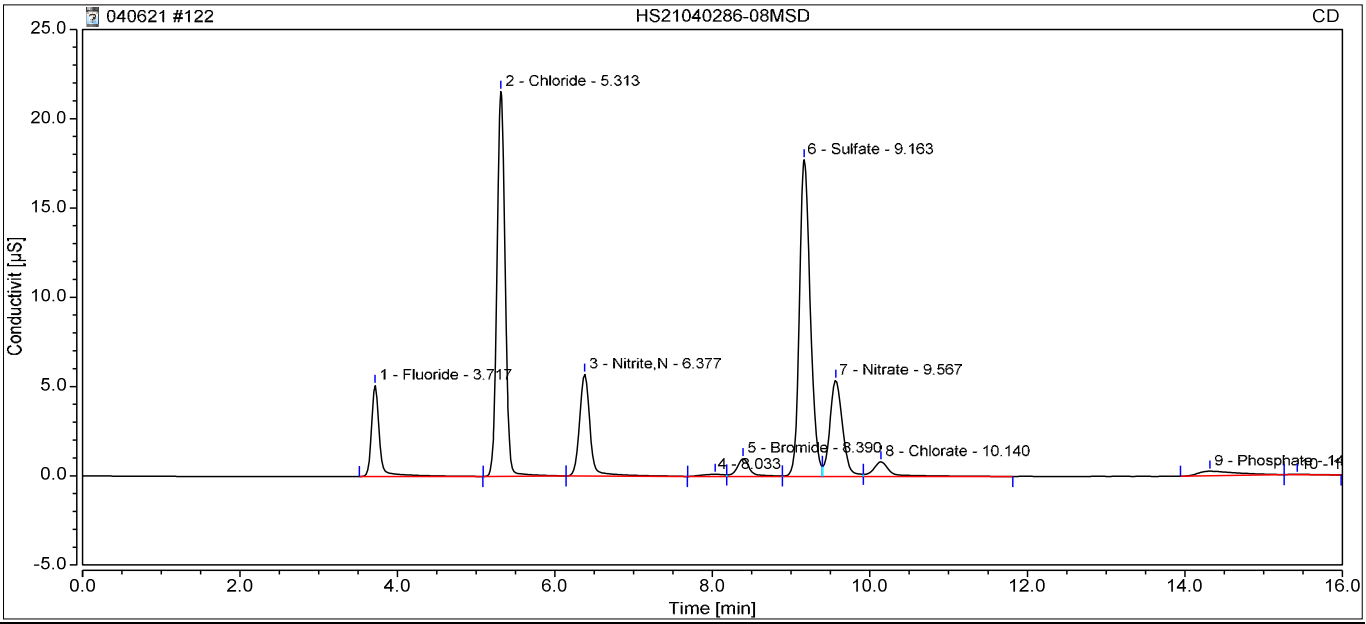
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.579	2.0062	2.0062	1.0000
2	5.31	Chloride	BMB	2.585	13.0527	13.0527	1.0000
3	6.38	Nitrite,N	BMB	0.895	2.3083	2.3083	1.0000
5	8.39	Bromide	M	0.187	2.0819	2.0819	1.0000
6	9.16	Sulfate	M	2.865	20.0972	20.0972	1.0000
7	9.57	Nitrate	M	1.008	2.0031	2.0031	1.0000
8	10.14	Chlorate	MB	0.206	2.2917	2.2917	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**8.324**		**43.84**	

122 HS21040286-08MSD

Sample Name:	**HS21040286-08MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RA2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 02:15**	*Sample Weight:*	**1.0000**

Run Time:



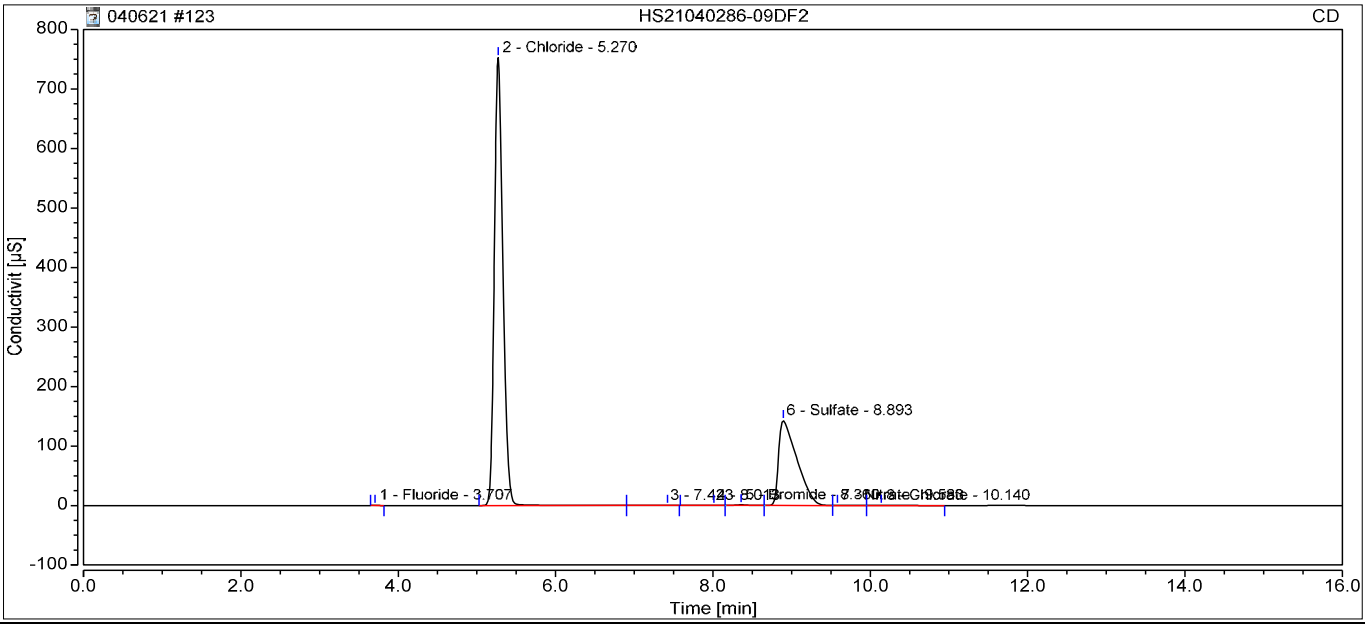
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.611	2.1136	2.1136	1.0000
2	5.31	Chloride	BMB	2.570	12.9780	12.9780	1.0000
3	6.38	Nitrite,N	BMB	0.890	2.2952	2.2952	1.0000
5	8.39	Bromide	M	0.186	2.0626	2.0626	1.0000
6	9.16	Sulfate	M	2.850	19.9871	19.9871	1.0000
7	9.57	Nitrate	M	1.005	1.9977	1.9977	1.0000
8	10.14	Chlorate	MB	0.204	2.2767	2.2767	1.0000
9	14.32	Phosphate	BMB	0.145	1.1275	1.1275	1.0000
Total:			**0.000**	**8.461**		**44.84**	

123 HS21040286-09DF2

Sample Name:	**HS21040286-09DF2**	*Injection Volume:*	**5.00**
Vial Number:	**RA3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**2.0000**
Recording Time:	**04/08/2021 02:33**	*Sample Weight:*	**1.0000**

Run Time:



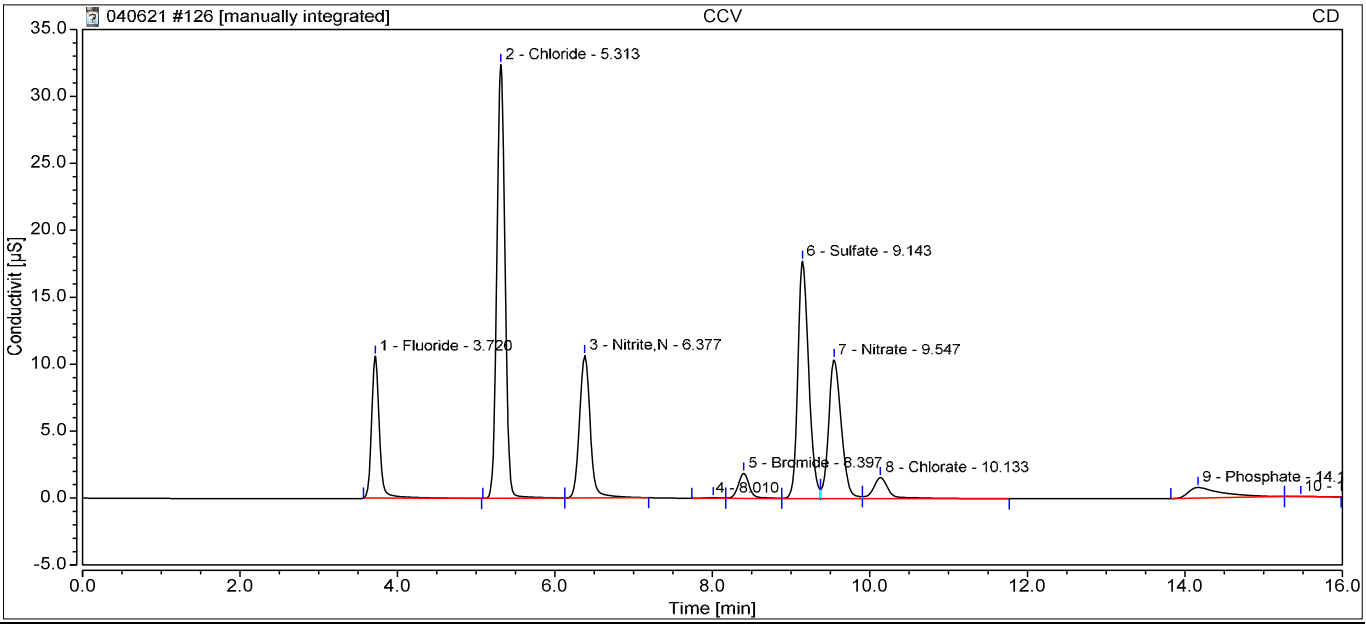
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.009	0.0653	0.1307	2.0000
2	5.27	Chloride	BMB	94.972	484.0843	968.1686	2.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	2.0000
5	8.36	Bromide	M	0.230	2.6304	5.2608	2.0000
6	8.89	Sulfate	M	38.476	273.0677	546.1354	2.0000
7	9.58	Nitrate	M	0.063	0.1128	0.2255	2.0000
8	10.14	Chlorate	MB	0.044	0.3895	0.7791	2.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	2.0000
Total:			**0.000**	**133.793**		**1520.70**	

126 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 03:28**	*Sample Weight:*	**1.0000**

Run Time:



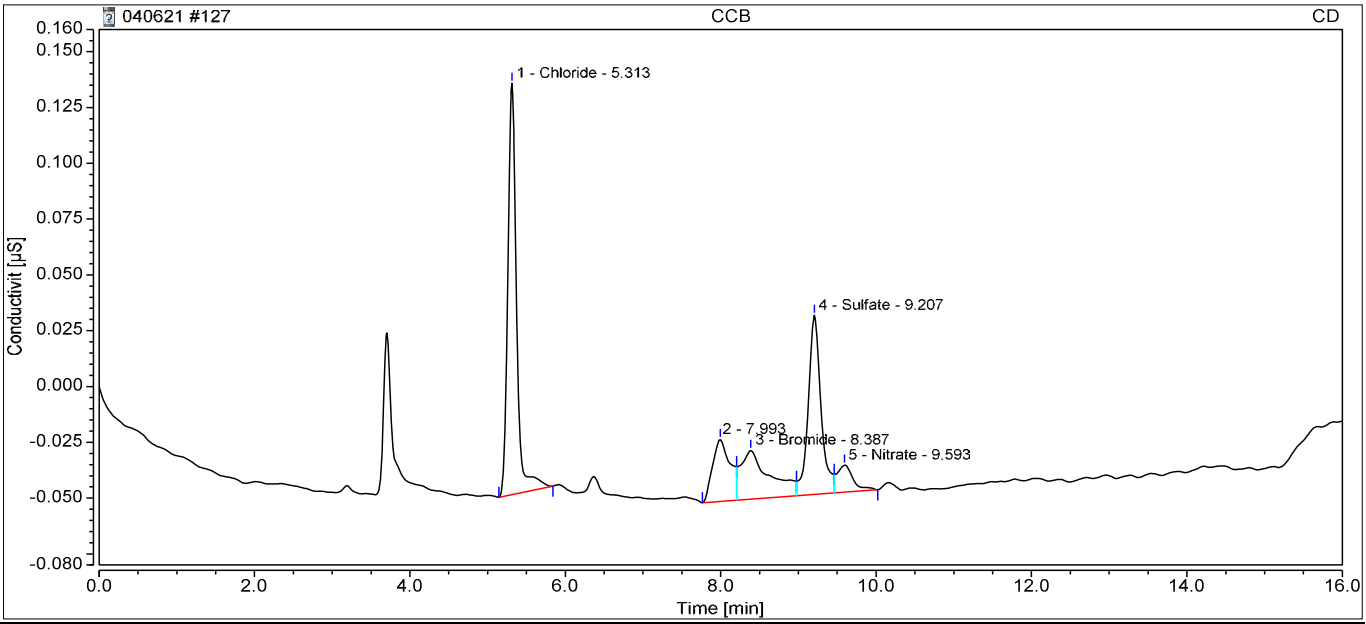
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.216	4.1719	4.1719	1.0000
2	5.31	Chloride	BMb*	3.873	19.6228	19.6228	1.0000
3	6.38	Nitrite,N	bMB*	1.686	4.3754	4.3754	1.0000
5	8.40	Bromide	M	0.308	3.6456	3.6456	1.0000
6	9.14	Sulfate	M	2.828	19.8320	19.8320	1.0000
7	9.55	Nitrate	M	1.931	3.8511	3.8511	1.0000
8	10.13	Chlorate	MB	0.360	4.1053	4.1053	1.0000
9	14.17	Phosphate	BMB	0.393	2.5548	2.5548	1.0000
Total:			**0.000**	**12.595**		**62.16**	

127 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 03:47**	*Sample Weight:*	**1.0000**

Run Time:



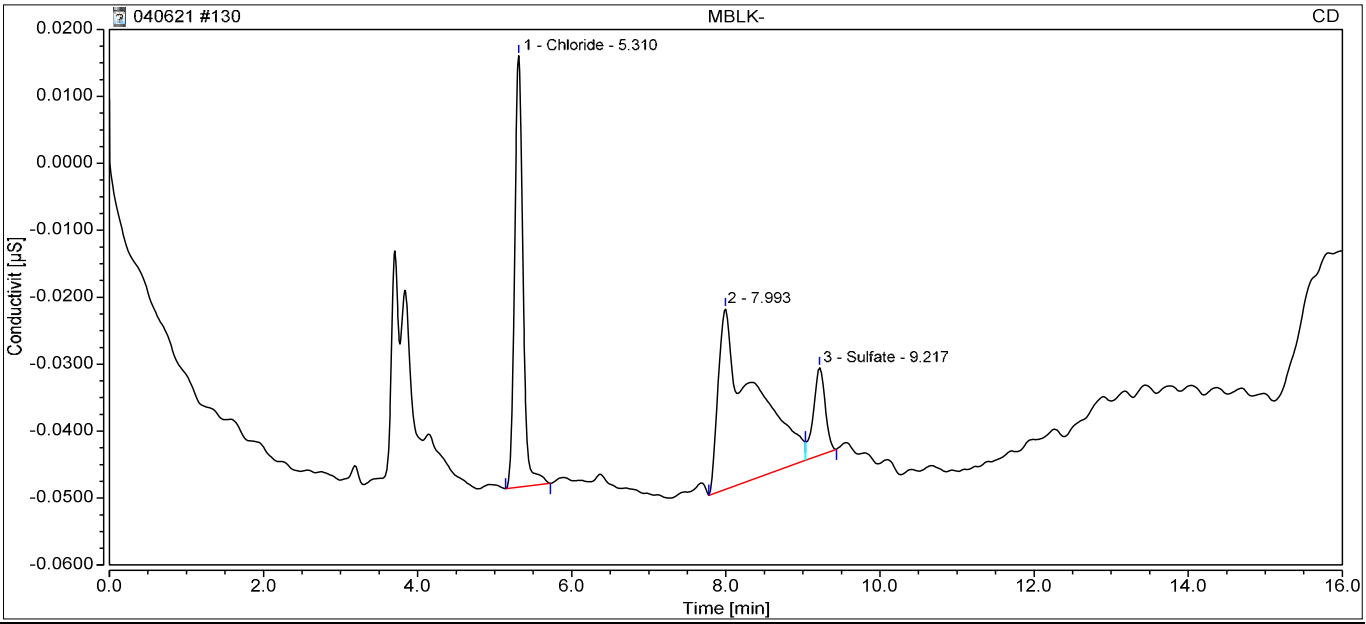
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.31	Chloride	BMB	0.024	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
3	8.39	Bromide	M	0.009	n.a.	n.a.	1.0000
4	9.21	Sulfate	M	0.015	n.a.	n.a.	1.0000
5	9.59	Nitrate	MB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.052**		**0.00**	

130 MBLK-

Sample Name:	**MBLK-**	*Injection Volume:*	**5.00**
Vial Number:	**R5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 04:42**	*Sample Weight:*	**1.0000**

Run Time:



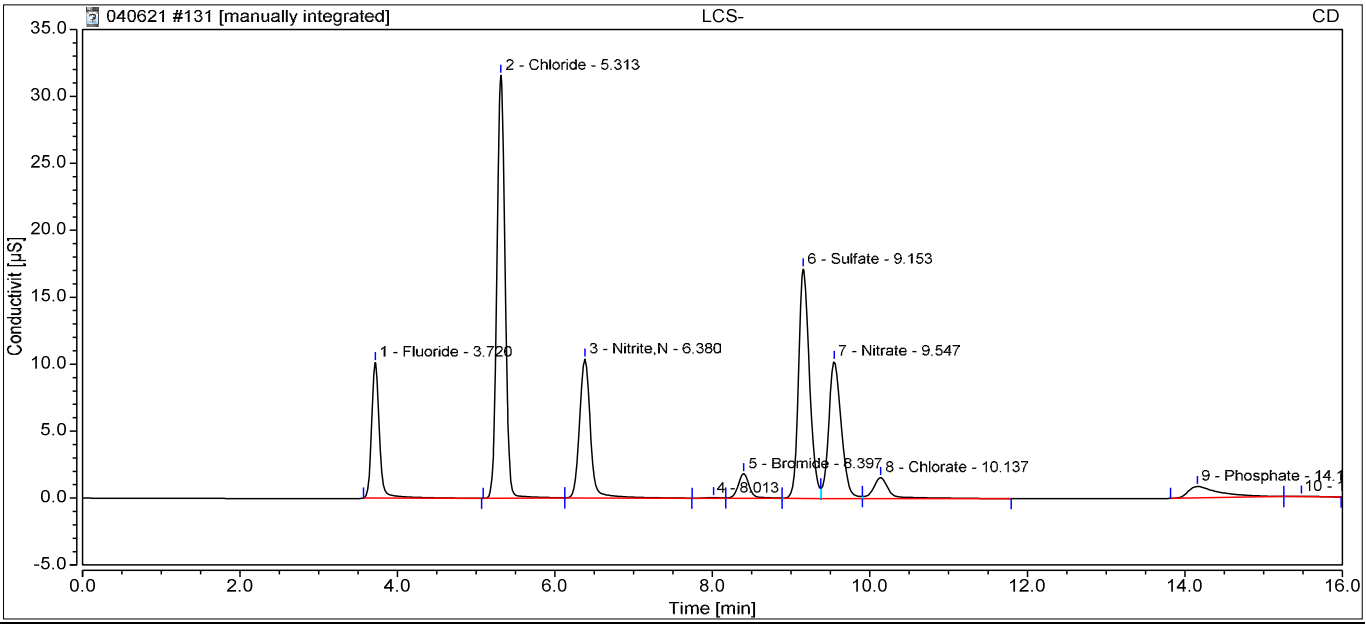
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.31	Chloride	BMB	0.008	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
3	9.22	Sulfate	MB	0.002	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.010**		**0.00**	

131 LCS-

Sample Name:	**LCS-**	*Injection Volume:*	**5.00**
Vial Number:	**R2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 05:00**	*Sample Weight:*	**1.0000**

Run Time:



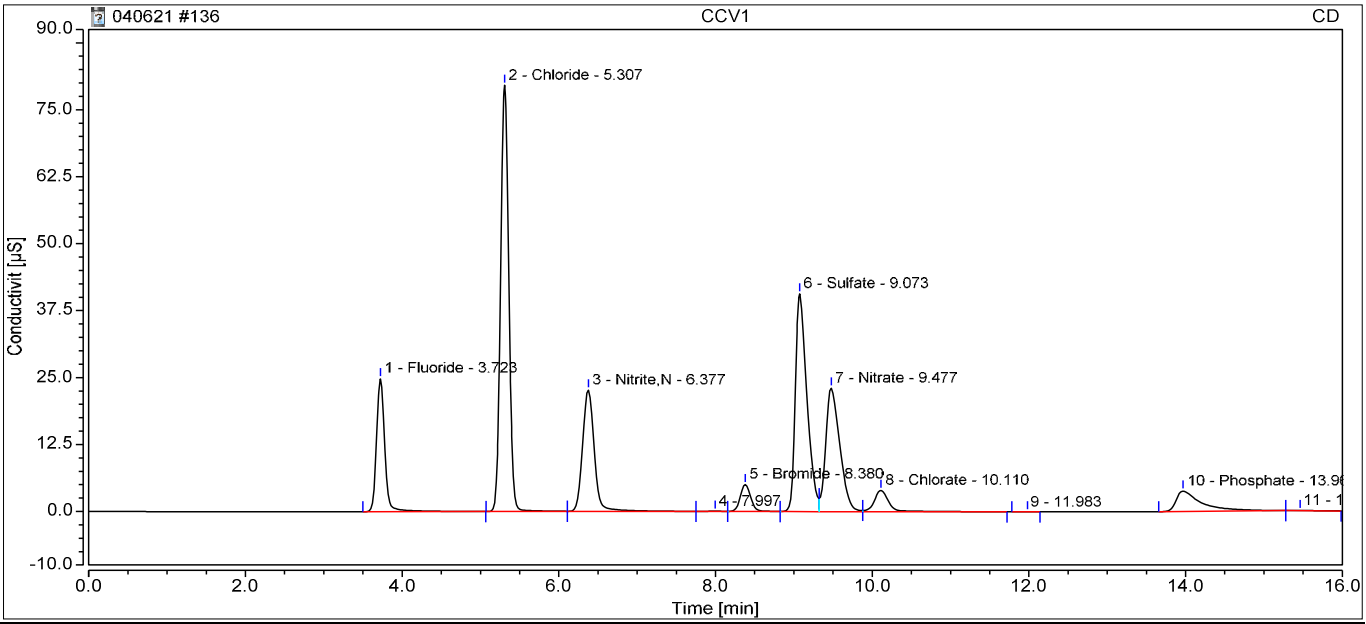
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.161	3.9842	3.9842	1.0000
2	5.31	Chloride	BMB	3.770	19.0969	19.0969	1.0000
3	6.38	Nitrite,N	BMB	1.670	4.3357	4.3357	1.0000
5	8.40	Bromide	M *	0.308	3.6395	3.6395	1.0000
6	9.15	Sulfate	M *	2.752	19.2920	19.2920	1.0000
7	9.55	Nitrate	M *	1.899	3.7859	3.7859	1.0000
8	10.14	Chlorate	MB*	0.371	4.2375	4.2375	1.0000
9	14.16	Phosphate	BMB	0.406	2.6279	2.6279	1.0000
Total:			**0.000**	**12.337**		**61.00**	

136 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 06:32**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

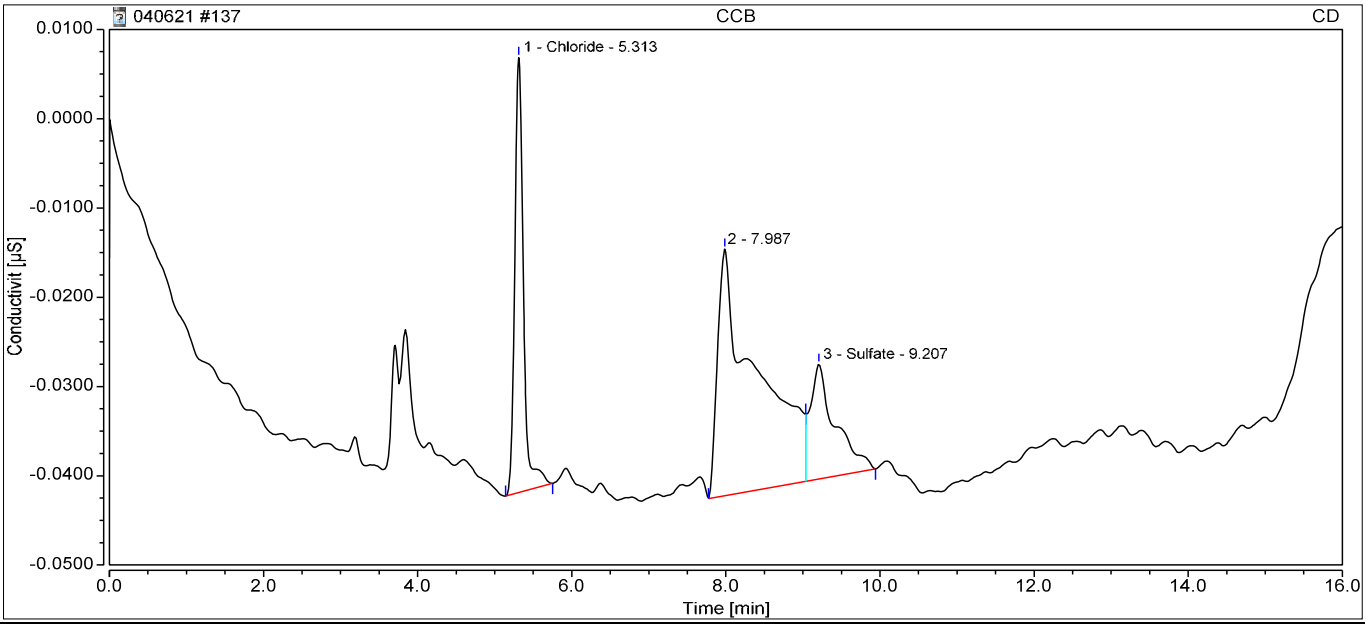
No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	3.011	10.2812	10.2812	1.0000
2	5.31	Chloride	BMB	9.556	48.5968	48.5968	1.0000
3	6.38	Nitrite,N	BMB	3.935	10.2531	10.2531	1.0000
5	8.38	Bromide	M	0.774	9.6519	9.6519	1.0000
6	9.07	Sulfate	M	6.966	49.2305	49.2305	1.0000
7	9.48	Nitrate	M	4.807	9.6067	9.6067	1.0000
8	10.11	Chlorate	MB	0.873	10.1445	10.1445	1.0000
10	13.97	Phosphate	BMB	1.439	8.5760	8.5760	1.0000
Total:			**0.000**	**31.362**		**156.34**	

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137 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/08/2021 07:09**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.31	Chloride	BMB	0.006	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
3	9.21	Sulfate	MB	0.005	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.011**		**0.00**	

Sequence: 042021
Last Update Operator: alshs.nouser

CD	Name	Comment	Type	Position	Dilution	Level	Instrument Method	Processing Method
	STD1		Calibration	BE1	1.00	1	Anions Program 06022020.1	Anions Processing Method
	STD2		Calibration	BE2	1.00	2	Anions Program 06022020.1	Anions Processing Method
	STD3		Calibration	BE3	1.00	3	Anions Program 06022020.1	Anions Processing Method
	STD4		Calibration	BE4	1.00	4	Anions Program 06022020.1	Anions Processing Method
	STD5		Calibration	BE5	1.00	5	Anions Program 06022020.1	Anions Processing Method
	STD6		Calibration	BE6	1.00	6	Anions Program 06022020.1	Anions Processing Method
	ICV		Unknown	BE7	1.00		Anions Program 06022020.1	Anions Processing Method
	ICB		Unknown	BE8	1.00		Anions Program 06022020.1	Anions Processing Method
	CCV		Unknown	R1	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R4	1.00		Anions Program 06022020.1	Anions Processing Method
	MBLK-		Unknown	R5	1.00		Anions Program 06022020.1	Anions Processing Method
	LCS-		Unknown	R2	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-04DF10		Unknown	RE3	10.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-05DF10		Unknown	RE4	10.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-06DF10		Unknown	RE5	10.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-07DF10		Unknown	RE6	10.00		Anions Program 06022020.1	Anions Processing Method
	HS21040286-09DF20		Unknown	RE7	20.00		Anions Program 06022020.1	Anions Processing Method
	CCV1		Unknown	R3	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R6	1.00		Anions Program 06022020.1	Anions Processing Method
	HS21040321-01DF20		Unknown	BB3	20.00		Anions Program 06022020.1	Anions Processing Method
	HS21040321-01MSDF20		Unknown	BB4	20.00		Anions Program 06022020.1	Anions Processing Method
	HS21040321-01MSDDF20		Unknown	BB5	20.00		Anions Program 06022020.1	Anions Processing Method
	CCV		Unknown	R1	1.00		Anions Program 06022020.1	Anions Processing Method
	CCB		Unknown	R4	1.00		Anions Program 06022020.1	Anions Processing Method

Sequence: 042021
Last Update Operator: alshs.nouser

CD	Name	Volume	Status	Inject Time
	STD1	5.0	Finished	4/20/2021 9:54:11 AM -05:00
	STD2	5.0	Finished	4/20/2021 10:12:33 AM -05:00
	STD3	5.0	Finished	4/20/2021 10:30:56 AM -05:00
	STD4	5.0	Finished	4/20/2021 10:49:20 AM -05:00
	STD5	5.0	Finished	4/20/2021 11:07:48 AM -05:00
	STD6	5.0	Finished	4/20/2021 11:28:05 AM -05:00
	ICV	5.0	Finished	4/20/2021 11:46:31 AM -05:00
	ICB	5.0	Finished	4/20/2021 12:25:13 PM -05:00
	CCV	5.0	Finished	4/21/2021 5:35:22 AM -05:00
	CCB	5.0	Finished	4/21/2021 6:14:05 AM -05:00
	MBLK-	5.0	Finished	4/21/2021 6:52:48 AM -05:00
	LCS-	5.0	Finished	4/21/2021 7:11:14 AM -05:00
	HS21040286-04DF10	5.0	Finished	4/21/2021 7:29:38 AM -05:00
	HS21040286-05DF10	5.0	Finished	4/21/2021 7:48:03 AM -05:00
	HS21040286-06DF10	5.0	Finished	4/21/2021 8:06:26 AM -05:00
	HS21040286-07DF10	5.0	Finished	4/21/2021 8:24:49 AM -05:00
	HS21040286-09DF20	5.0	Finished	4/21/2021 8:43:13 AM -05:00
	CCV1	5.0	Finished	4/21/2021 10:00:51 AM -05:00
	CCB	5.0	Finished	4/21/2021 10:19:16 AM -05:00
	HS21040321-01DF20	5.0	Finished	4/21/2021 12:54:10 PM -05:00
	HS21040321-01MSDF20	5.0	Finished	4/21/2021 1:15:51 PM -05:00
	HS21040321-01MSDDF20	5.0	Finished	4/21/2021 1:34:16 PM -05:00
	CCV	5.0	Finished	4/21/2021 1:54:35 PM -05:00
	CCB	5.0	Finished	4/21/2021 2:13:01 PM -05:00

Sequence: 042021
Injection #6: STD6

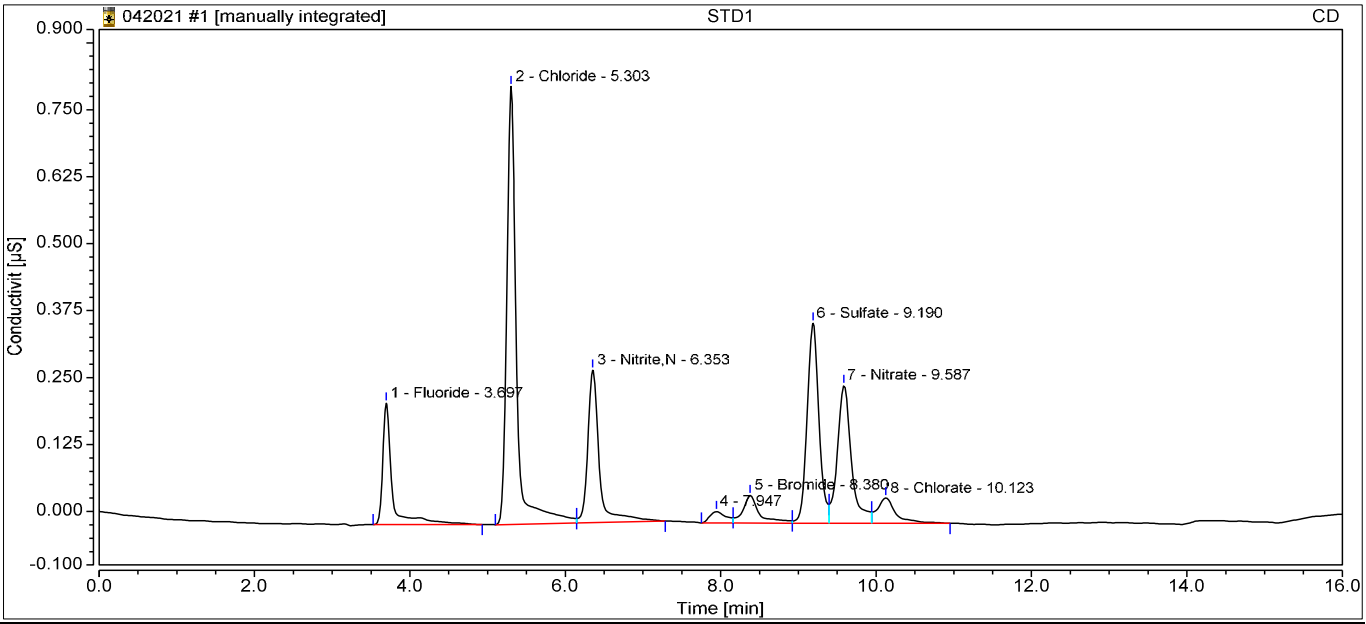
Calibration

Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	***Fluoride***	***Lin, WithOffset, 1/***	***Area***	***6***	***18.7874***	***0.99804***	***0.0037***	***0.3228***	***0.0000***
2	Chloride	Lin, WithOffset, 1/	Area	6	4.4845	0.99989	0.0060	0.2088	0.0000
3	Nitrite,N	Lin, WithOffset, 1/	Area	6	23.2258	0.99660	0.0167	0.4015	0.0000
5	Bromide	Lin, WithOffset, 1/	Area	6	13.6081	0.99885	0.0031	0.0812	0.0000
6	Sulfate	Lin, WithOffset, 1/	Area	6	4.6885	0.99989	-0.0143	0.1515	0.0000
7	Nitrate	Lin, WithOffset, 1/	Area	6	5.2526	0.99986	-0.0011	0.5393	0.0000
8	Chlorate	Lin, WithOffset, 1/	Area	6	20.9413	0.99684	0.0071	0.0945	0.0000
11	Phosphate	Lin, WithOffset, 1/	Area	5	9.6125	0.99905	-0.0521	0.2007	0.0000
Maximum					**23.2258**	0.99989			
Minimum					4.4845	**0.99660**			

1 STD1

Sample Name:	**STD1**	*Injection Volume:*	**5.00**
Vial Number:	**BE1**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 09:54**	*Sample Weight:*	**1.0000**

Run Time:



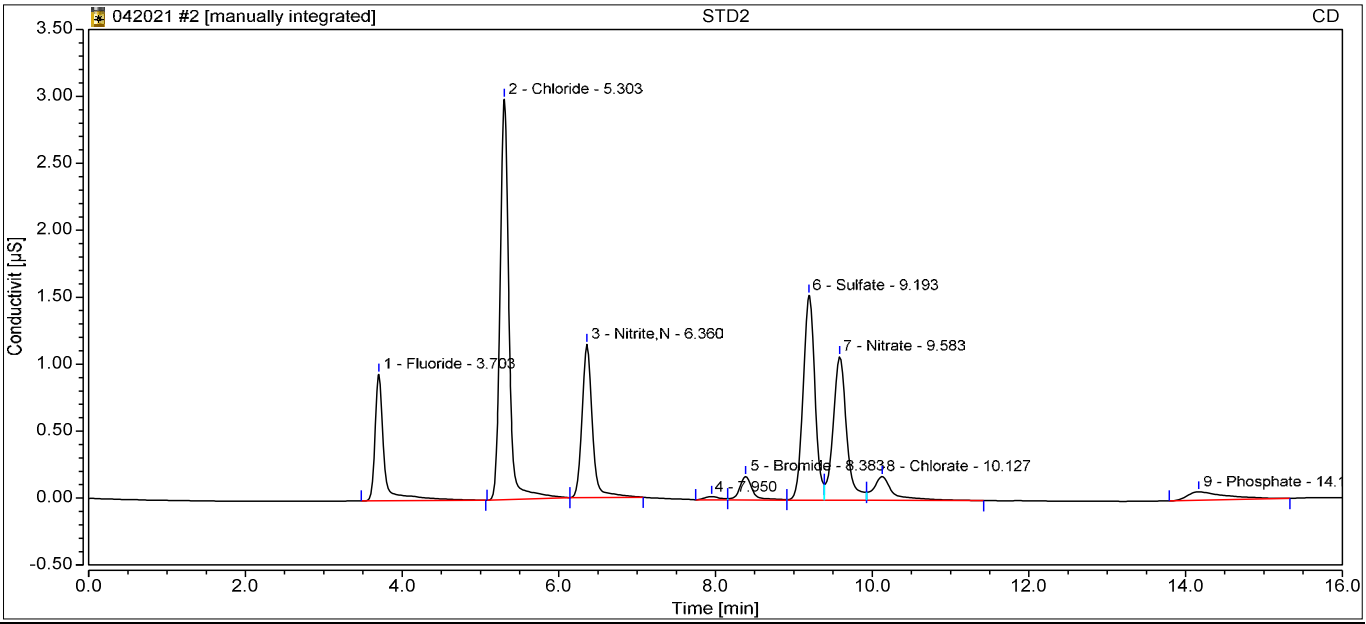
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.70	Fluoride	BMB	0.032	0.0880	0.0880	1.0000
2	5.30	Chloride	BM *	0.118	0.5381	0.5381	1.0000
3	6.35	Nitrite,N	MB*	0.049	0.0802	0.0802	1.0000
5	8.38	Bromide	M	0.013	0.1188	0.1188	1.0000
6	9.19	Sulfate	M	0.066	0.5285	0.5285	1.0000
7	9.59	Nitrate	M	0.054	0.1022	0.1022	1.0000
8	10.12	Chlorate	MB	0.013	0.0640	0.0640	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.345**		**1.52**	

2 STD2

Sample Name:	**STD2**	*Injection Volume:*	**5.00**
Vial Number:	**BE2**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 10:12**	*Sample Weight:*	**1.0000**

Run Time:



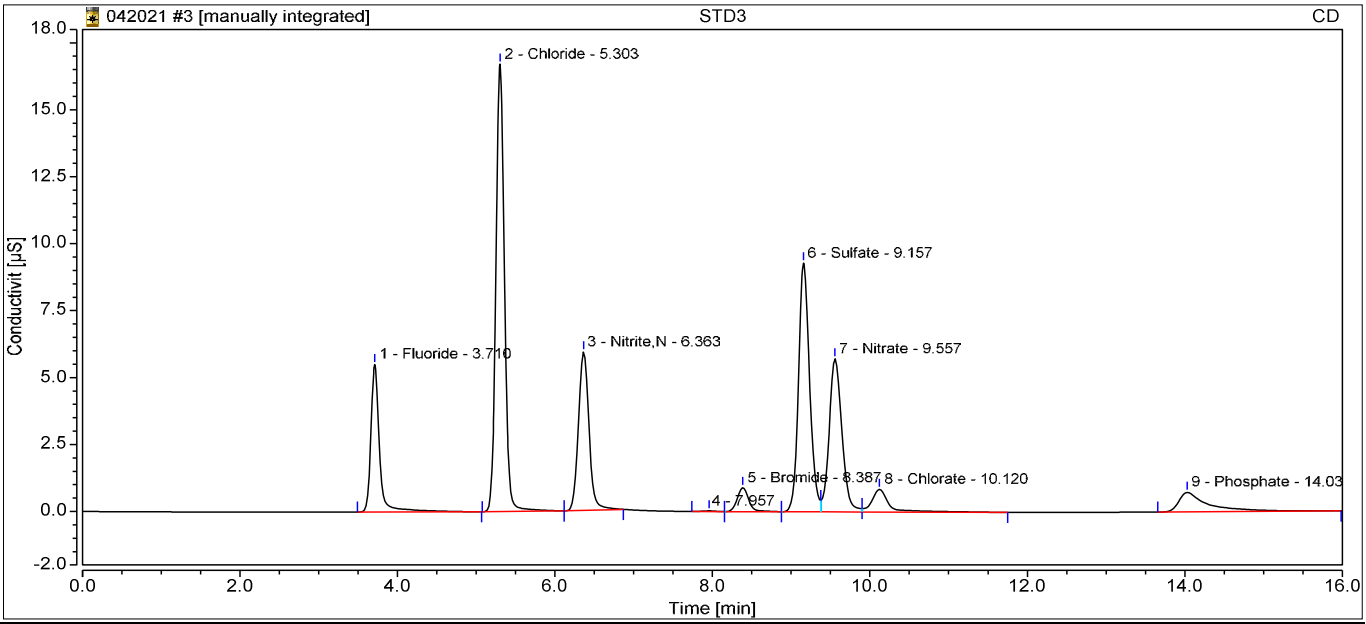
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.70	Fluoride	BMB	0.129	0.3886	0.3886	1.0000
2	5.30	Chloride	BMb*	0.393	1.8537	1.8537	1.0000
3	6.36	Nitrite,N	bMB*	0.176	0.3975	0.3975	1.0000
5	8.38	Bromide	M	0.033	0.3714	0.3714	1.0000
6	9.19	Sulfate	M	0.266	1.8512	1.8512	1.0000
7	9.58	Nitrate	M	0.213	0.3976	0.3976	1.0000
8	10.13	Chlorate	MB	0.052	0.4776	0.4776	1.0000
9	14.17	Phosphate	BMB	0.036	0.4401	0.4401	1.0000
Total:			**0.000**	**1.300**		**6.18**	

3 STD3

Sample Name:	**STD3**	*Injection Volume:*	**5.00**
Vial Number:	**BE3**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 10:30**	*Sample Weight:*	**1.0000**

Run Time:



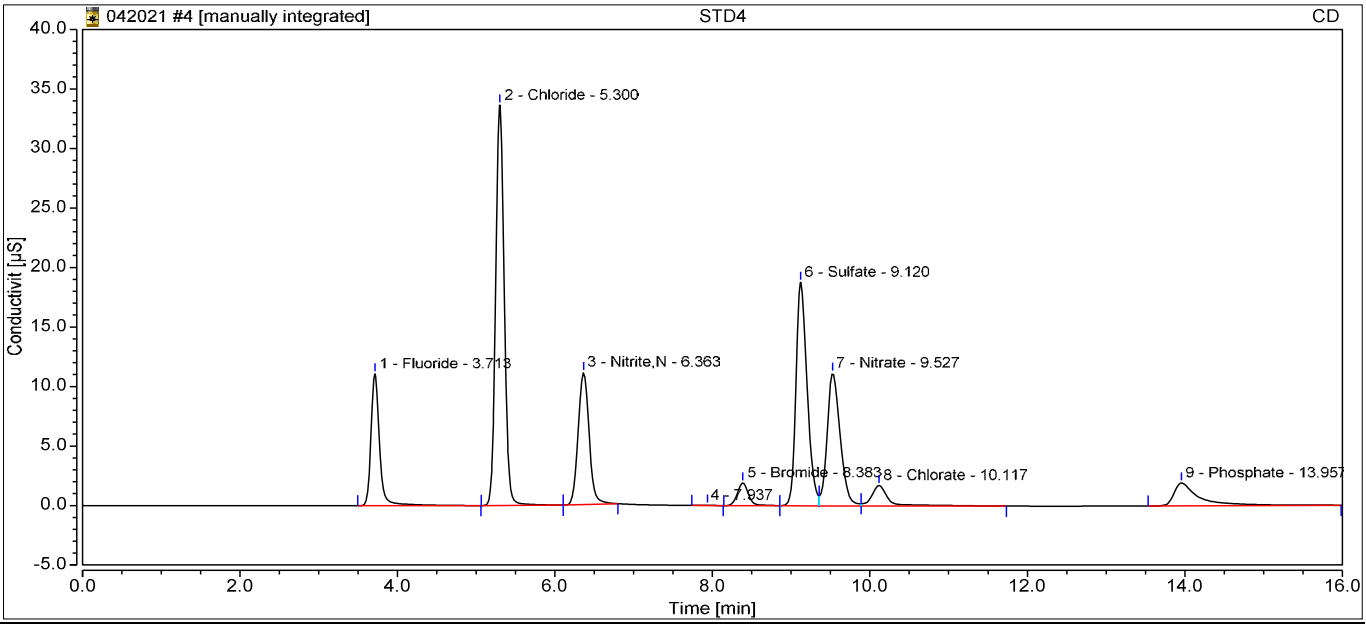
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.701	2.1586	2.1586	1.0000
2	5.30	Chloride	BMb*	2.082	9.9444	9.9444	1.0000
3	6.36	Nitrite,N	bMB*	0.918	2.2461	2.2461	1.0000
5	8.39	Bromide	M	0.152	1.8301	1.8301	1.0000
6	9.16	Sulfate	M	1.509	10.0487	10.0487	1.0000
7	9.56	Nitrate	M	1.072	1.9895	1.9895	1.0000
8	10.12	Chlorate	MB	0.216	2.2126	2.2126	1.0000
9	14.03	Phosphate	BMB	0.322	1.8648	1.8648	1.0000
Total:			**0.000**	**6.971**		**32.29**	

4 STD4

Sample Name:	**STD4**	*Injection Volume:*	**5.00**
Vial Number:	**BE4**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 10:49**	*Sample Weight:*	**1.0000**

Run Time:



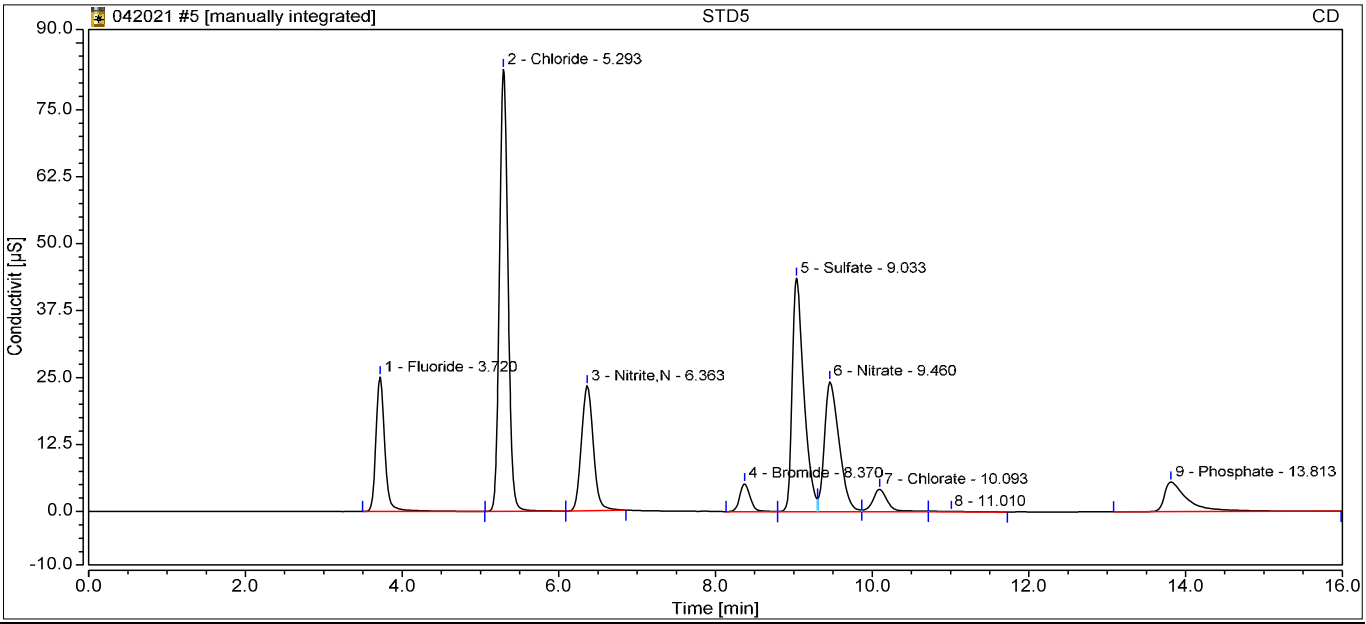
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	1.403	4.3336	4.3336	1.0000
2	5.30	Chloride	BMb*	4.203	20.1063	20.1063	1.0000
3	6.36	Nitrite,N	bMB*	1.787	4.4092	4.4092	1.0000
5	8.38	Bromide	BM	0.313	3.8179	3.8179	1.0000
6	9.12	Sulfate	M	3.063	20.3070	20.3070	1.0000
7	9.53	Nitrate	M	2.148	3.9846	3.9846	1.0000
8	10.12	Chlorate	MB	0.424	4.4085	4.4085	1.0000
9	13.96	Phosphate	BMB	0.719	3.8422	3.8422	1.0000
Total:			**0.000**	**14.060**		**65.21**	

5 STD5

Sample Name:	**STD5**	*Injection Volume:*	**5.00**
Vial Number:	**BE5**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 11:07**	*Sample Weight:*	**1.0000**

Run Time:



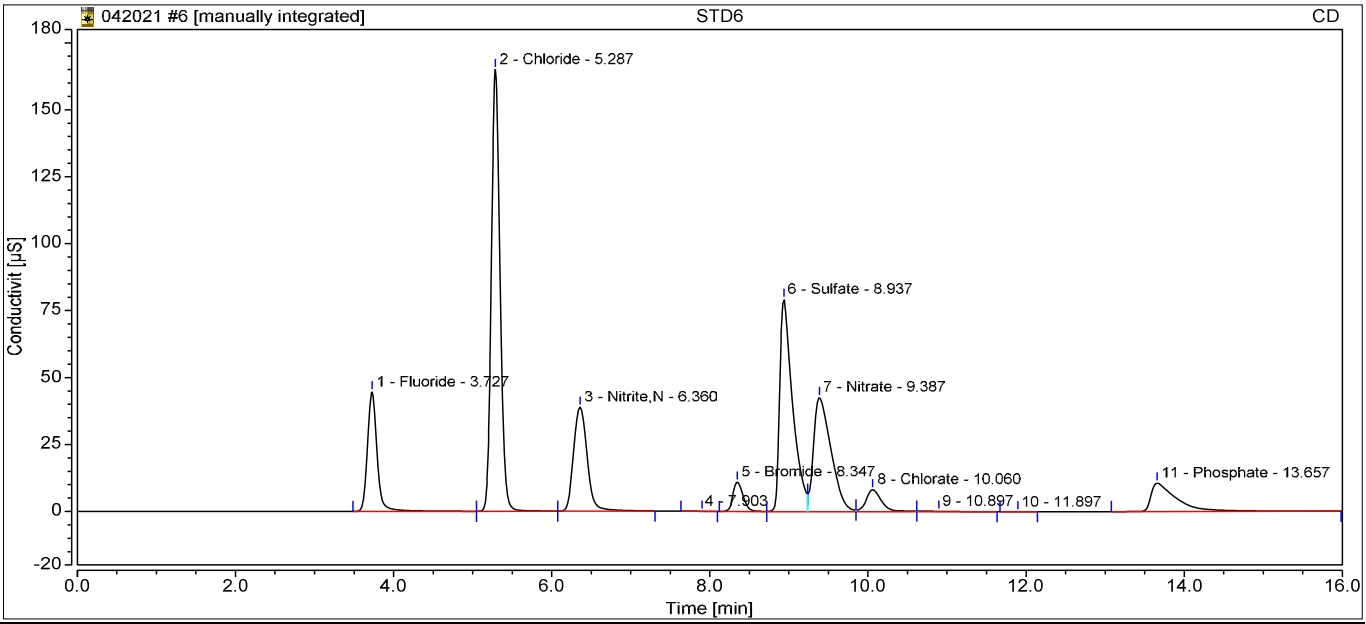
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	3.290	10.1807	10.1807	1.0000
2	5.29	Chloride	BMb*	10.372	49.6551	49.6551	1.0000
3	6.36	Nitrite,N	bMB*	4.114	10.2053	10.2053	1.0000
4	8.37	Bromide	BM	0.808	9.9156	9.9156	1.0000
5	9.03	Sulfate	M	7.557	49.9615	49.9615	1.0000
6	9.46	Nitrate	M	5.301	9.8318	9.8318	1.0000
7	10.09	Chlorate	M	0.936	9.8243	9.8243	1.0000
9	13.81	Phosphate	BMB	1.932	9.8822	9.8822	1.0000
Total:			**0.000**	**34.310**		**159.46**	

6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**5.00**
Vial Number:	**BE6**	*Channel:*	**CD**
Sample Type:	**Calibration Standard**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 11:28**	*Sample Weight:*	**1.0000**

Run Time:



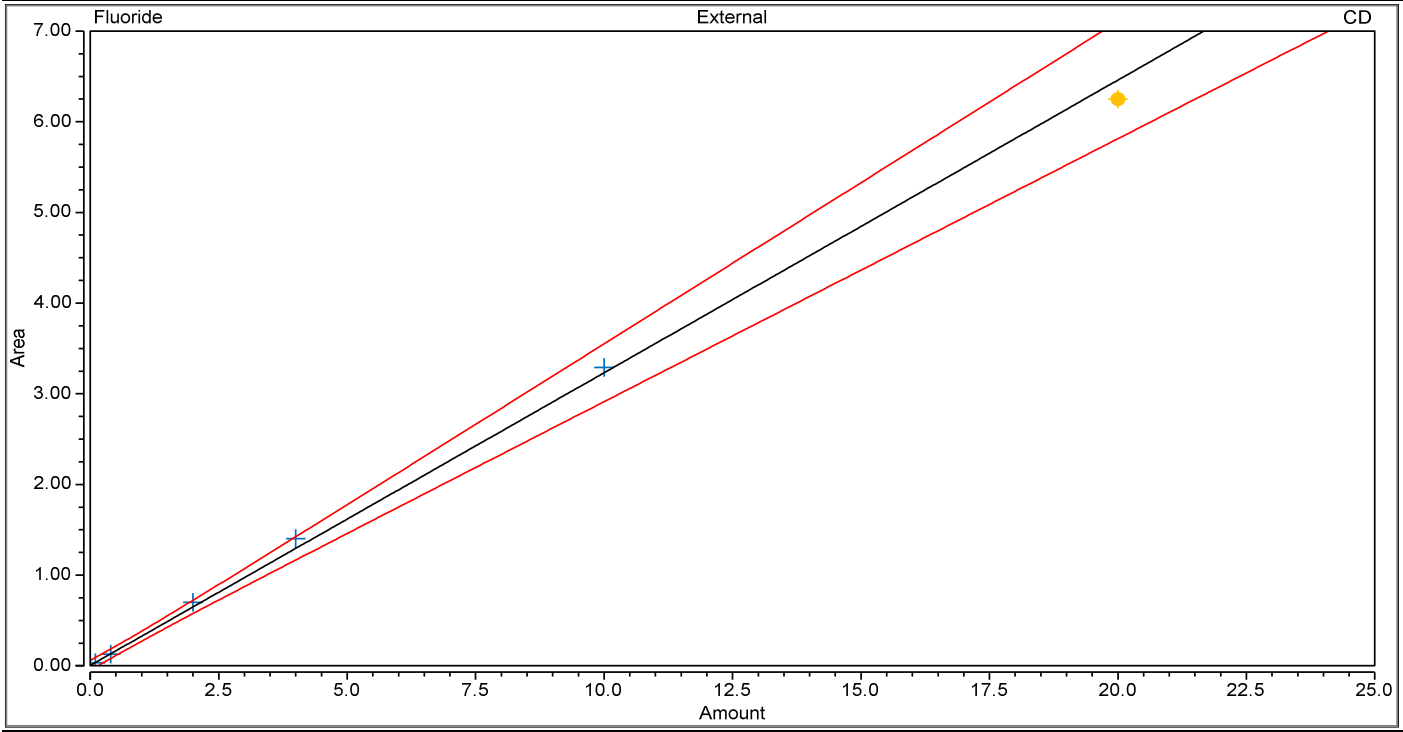
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	6.250	19.3505	19.3505	1.0000
2	5.29	Chloride	BMb*	20.966	100.4024	100.4024	1.0000
3	6.36	Nitrite,N	bMB*	7.710	19.1617	19.1617	1.0000
5	8.35	Bromide	BM	1.662	20.4462	20.4462	1.0000
6	8.94	Sulfate	M	15.110	99.8032	99.8032	1.0000
7	9.39	Nitrate	M	10.889	20.1943	20.1943	1.0000
8	10.06	Chlorate	M	1.852	19.5130	19.5130	1.0000
11	13.66	Phosphate	BMB	4.037	20.3707	20.3707	1.0000
Total:			**0.000**	**68.477**		**319.24**	

Calibration

Calibration Details	Fluoride		
Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0037
Evaluation Type	Area	*Slope (C1)*	0.3228
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9980

Calibration Plot **Fluoride**



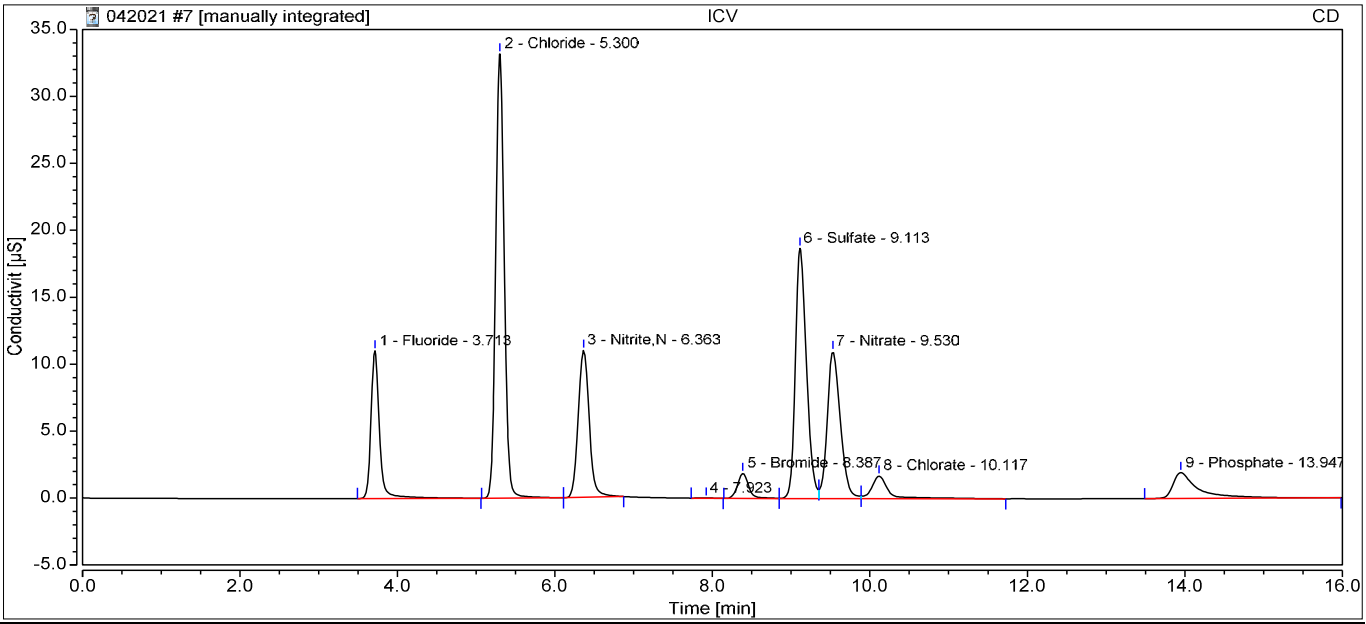
Calibration Results **Fluoride**

No.	Injection Name	Calibration Level	X Value CD Fluoride	Y Value CD Fluoride	Y Value CD Fluoride	Area µS*min CD Fluoride	Height µS CD Fluoride
1	STD1	1	0.1000	0.0321	0.0321	0.032	0.227
2	STD2	2	0.4000	0.1291	0.1291	0.129	0.945
3	STD3	3	2.0000	0.7005	0.7005	0.701	5.506
4	STD4	4	4.0000	1.4026	1.4026	1.403	11.076
5	STD5	5	10.0000	3.2901	3.2901	3.290	25.136
6	STD6	6	20.0000	6.2502	6.2502	6.250	44.624

7 ICV

Sample Name:	**ICV**	*Injection Volume:*	**5.00**
Vial Number:	**BE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 11:46**	*Sample Weight:*	**1.0000**

Run Time:



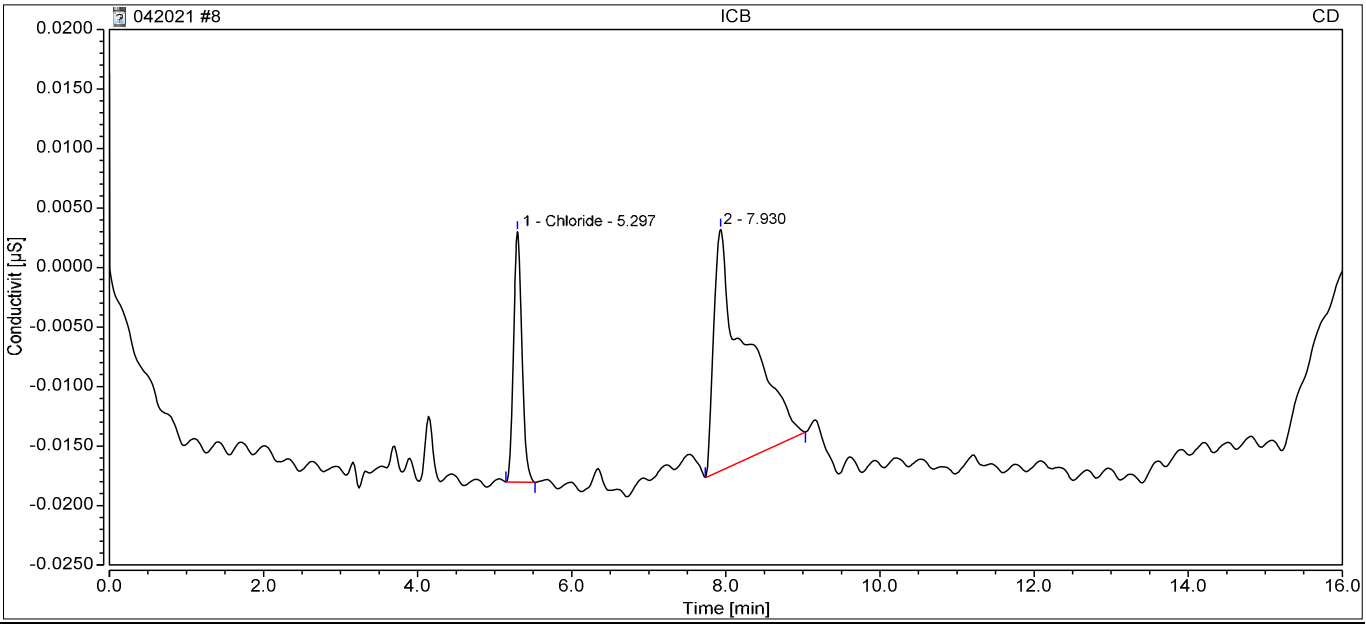
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	1.384	4.2770	4.2770	1.0000
2	5.30	Chloride	BMb*	4.144	19.8205	19.8205	1.0000
3	6.36	Nitrite,N	bMB*	1.777	4.3839	4.3839	1.0000
5	8.39	Bromide	BM	0.309	3.7640	3.7640	1.0000
6	9.11	Sulfate	M	3.024	20.0510	20.0510	1.0000
7	9.53	Nitrate	M	2.119	3.9305	3.9305	1.0000
8	10.12	Chlorate	MB	0.422	4.3868	4.3868	1.0000
9	13.95	Phosphate	BMB	0.725	3.8706	3.8706	1.0000
Total:			**0.000**	**13.903**		**64.48**	

8 ICB

Sample Name:	**ICB**	*Injection Volume:*	**5.00**
Vial Number:	**BE8**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/20/2021 12:25**	*Sample Weight:*	**1.0000**

Run Time:



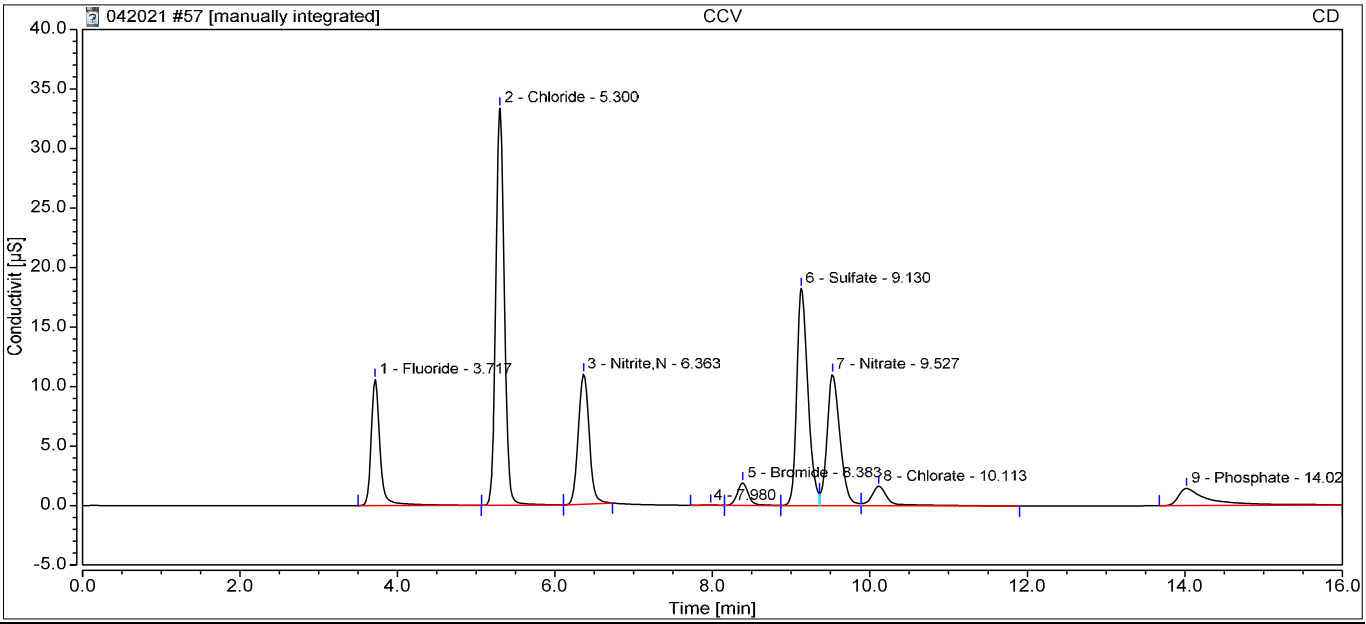
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.30	Chloride	BMB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.003**		**0.00**	

57 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 05:35**	*Sample Weight:*	**1.0000**

Run Time:



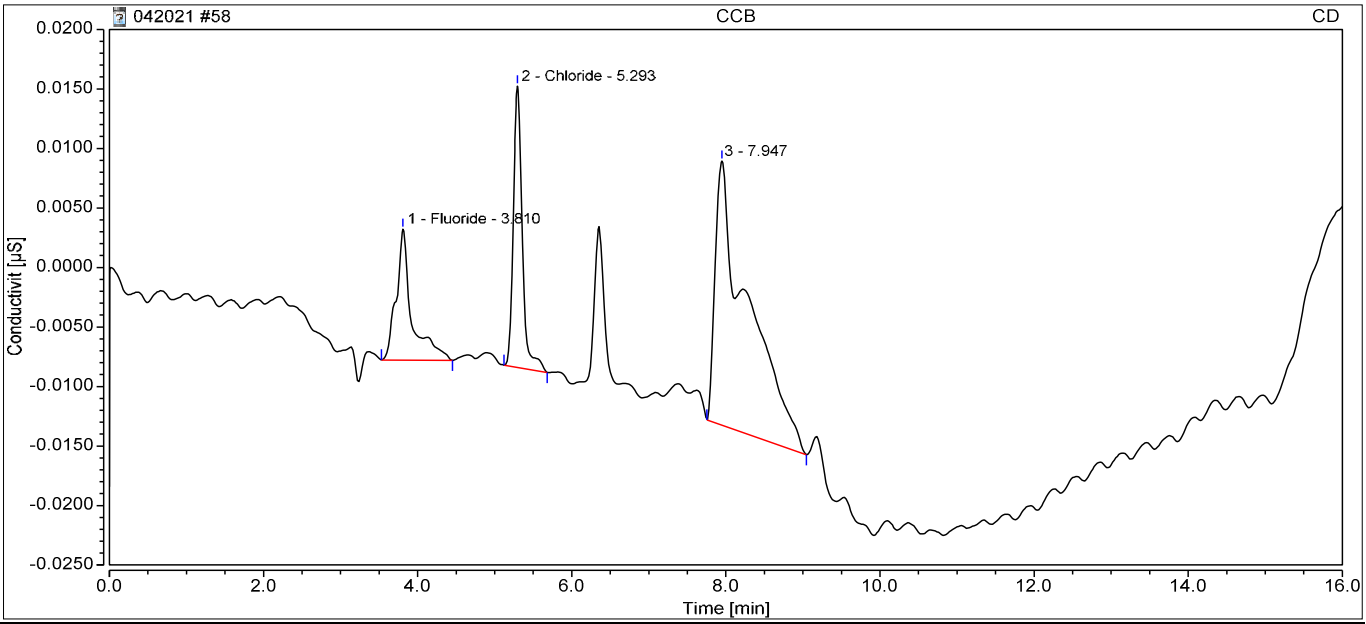
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.383	4.2734	4.2734	1.0000
2	5.30	Chloride	BMb*	4.155	19.8740	19.8740	1.0000
3	6.36	Nitrite,N	bMB*	1.746	4.3065	4.3065	1.0000
5	8.38	Bromide	M	0.310	3.7879	3.7879	1.0000
6	9.13	Sulfate	M	2.982	19.7738	19.7738	1.0000
7	9.53	Nitrate	M	2.112	3.9189	3.9189	1.0000
8	10.11	Chlorate	MB	0.410	4.2612	4.2612	1.0000
9	14.02	Phosphate	BM *	0.676	3.6291	3.6291	1.0000
Total:			**0.000**	**13.775**		**63.82**	

58 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 06:14**	*Sample Weight:*	**1.0000**

Run Time:



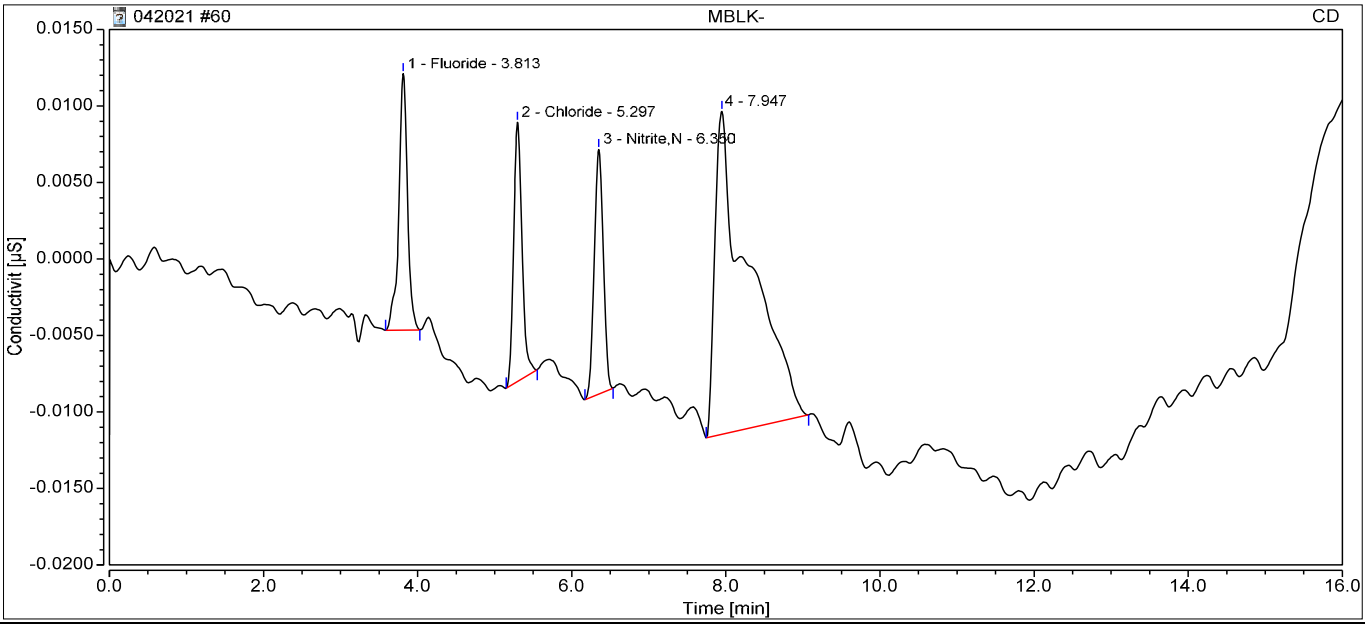
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.81	Fluoride	BMB	0.003	n.a.	n.a.	1.0000
2	5.29	Chloride	BMB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.006**		**0.00**	

60 MBLK-

Sample Name:	**MBLK-**	*Injection Volume:*	**5.00**
Vial Number:	**R5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 06:52**	*Sample Weight:*	**1.0000**

Run Time:



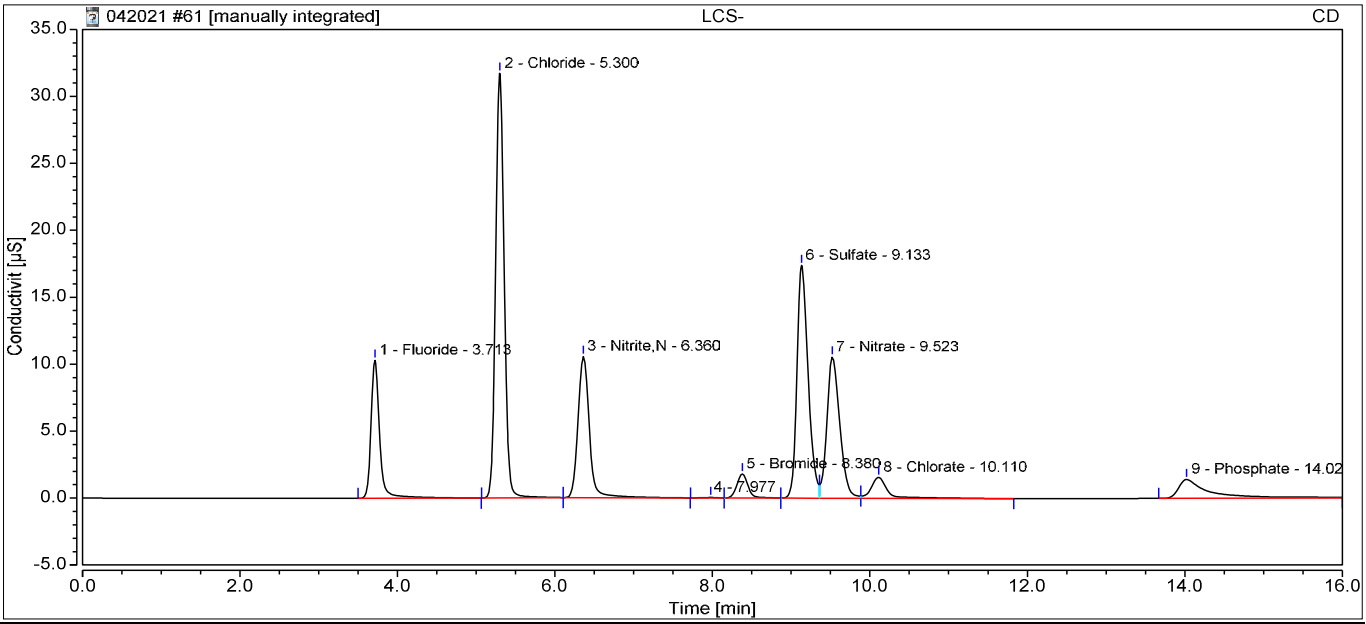
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.81	Fluoride	BMB	0.002	n.a.	n.a.	1.0000
2	5.30	Chloride	BMB	0.002	n.a.	n.a.	1.0000
3	6.35	Nitrite,N	BMB	0.002	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.006**		**0.00**	

61 LCS-

Sample Name:	**LCS-**	*Injection Volume:*	**5.00**
Vial Number:	**R2**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 07:11**	*Sample Weight:*	**1.0000**

Run Time:



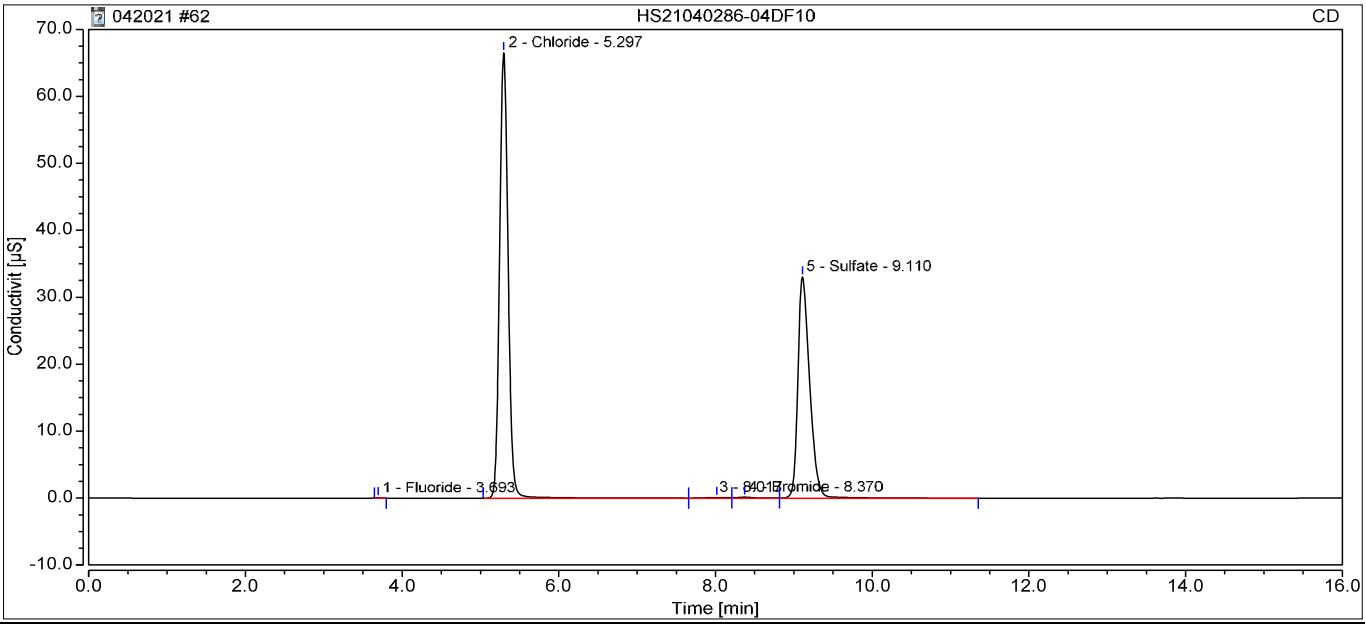
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	1.314	4.0584	4.0584	1.0000
2	5.30	Chloride	BMB	3.954	18.9126	18.9126	1.0000
3	6.36	Nitrite,N	BMB	1.760	4.3416	4.3416	1.0000
5	8.38	Bromide	M	0.296	3.6097	3.6097	1.0000
6	9.13	Sulfate	M	2.843	18.8541	18.8541	1.0000
7	9.52	Nitrate	M	2.012	3.7330	3.7330	1.0000
8	10.11	Chlorate	MB	0.389	4.0418	4.0418	1.0000
9	14.02	Phosphate	BM *	0.675	3.6223	3.6223	1.0000
Total:			**0.000**	**13.243**		**61.17**	

62 HS21040286-04DF10

Sample Name:	**HS21040286-04DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**04/21/2021 07:29**	*Sample Weight:*	**1.0000**

Run Time:



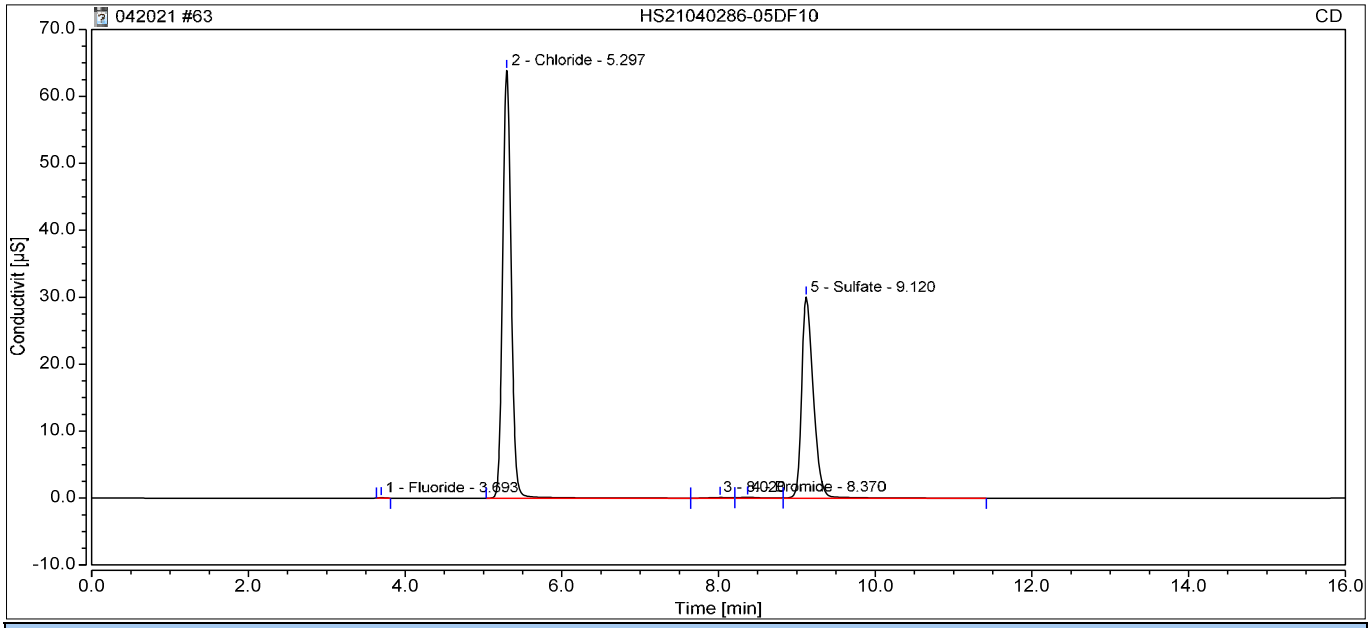
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.69	Fluoride	BMB	0.003	n.a.	n.a.	10.0000
2	5.30	Chloride	BMB	8.388	40.1506	401.5061	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.37	Bromide	M	0.043	0.4865	4.8647	10.0000
5	9.11	Sulfate	MB	5.783	38.2556	382.5556	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**14.217**		**788.93**	

63 HS21040286-05DF10

Sample Name:	**HS21040286-05DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**04/21/2021 07:48**	*Sample Weight:*	**1.0000**

Run Time:



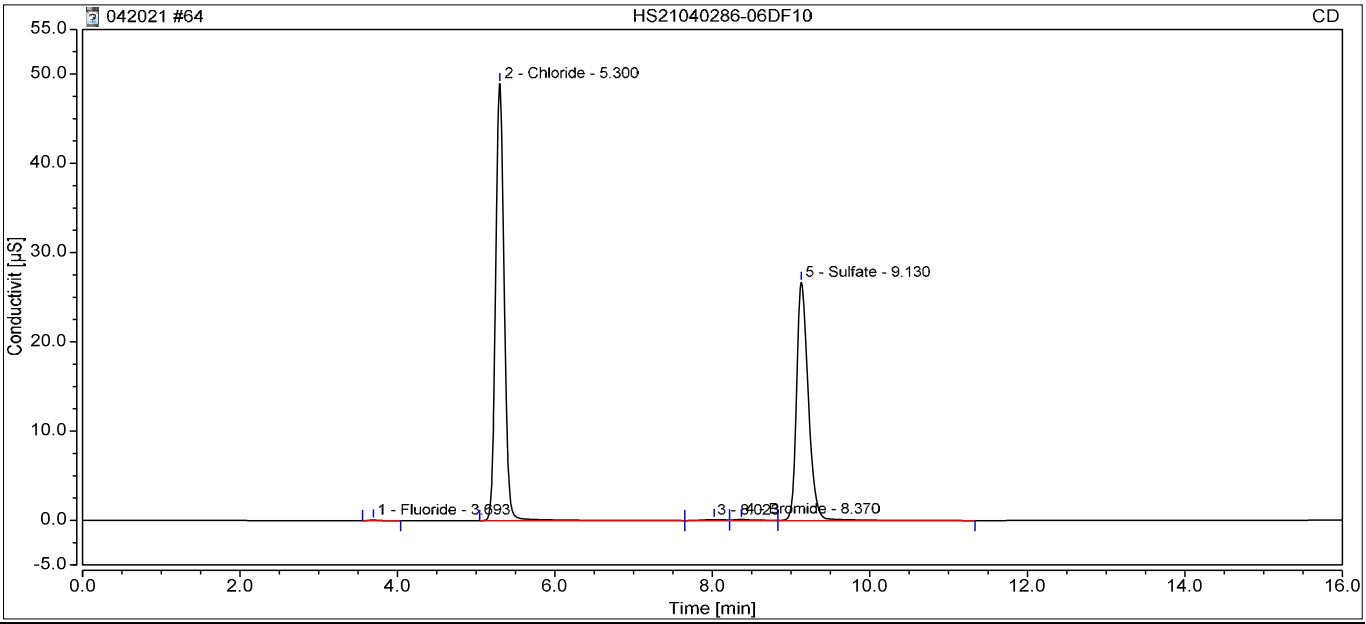
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.69	Fluoride	BMB	0.005	0.0032	0.0315	10.0000
2	5.30	Chloride	BMB	8.056	38.5600	385.5998	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.37	Bromide	M	0.046	0.5245	5.2451	10.0000
5	9.12	Sulfate	MB	5.212	34.4881	344.8815	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**13.318**		**735.76**	

64 HS21040286-06DF10

Sample Name:	**HS21040286-06DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**04/21/2021 08:06**	*Sample Weight:*	**1.0000**

Run Time:



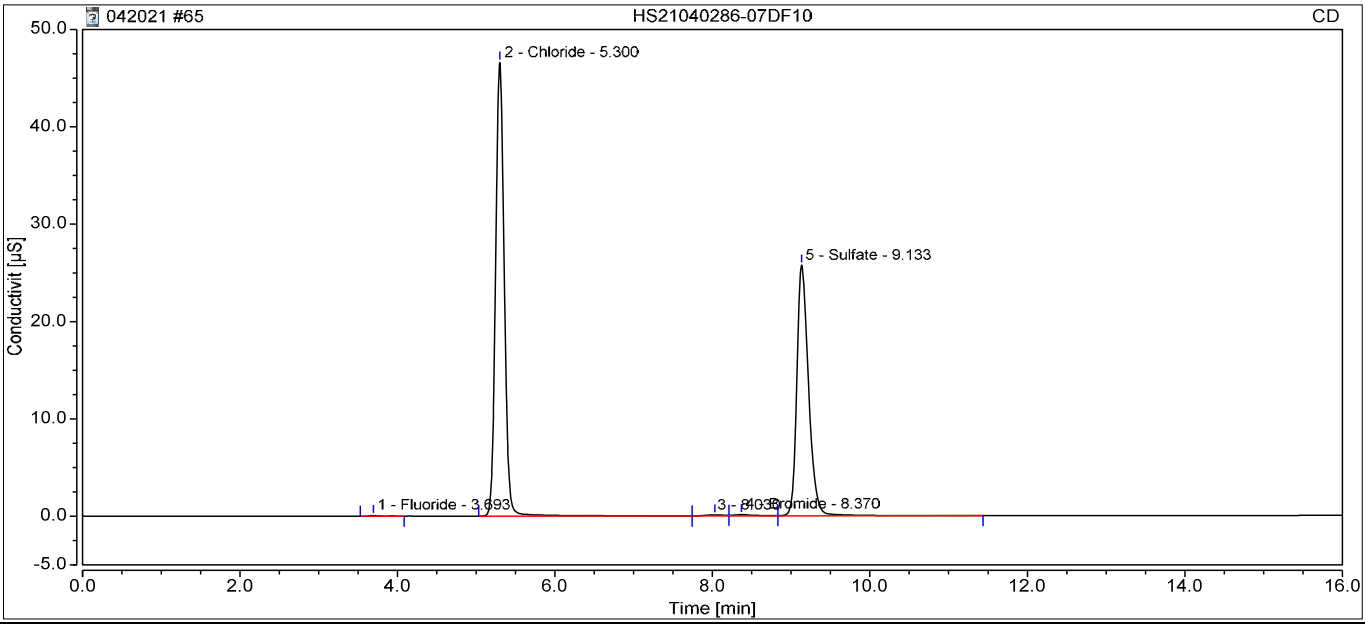
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.69	Fluoride	BMB	0.007	0.0093	0.0933	10.0000
2	5.30	Chloride	BMB	6.163	29.4951	294.9511	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.37	Bromide	M	0.040	0.4602	4.6023	10.0000
5	9.13	Sulfate	MB	4.592	30.3983	303.9831	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**10.803**		**603.63**	

65 HS21040286-07DF10

Sample Name:	**HS21040286-07DF10**	*Injection Volume:*	**5.00**
Vial Number:	**RE6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**10.0000**
Recording Time:	**04/21/2021 08:24**	*Sample Weight:*	**1.0000**

Run Time:



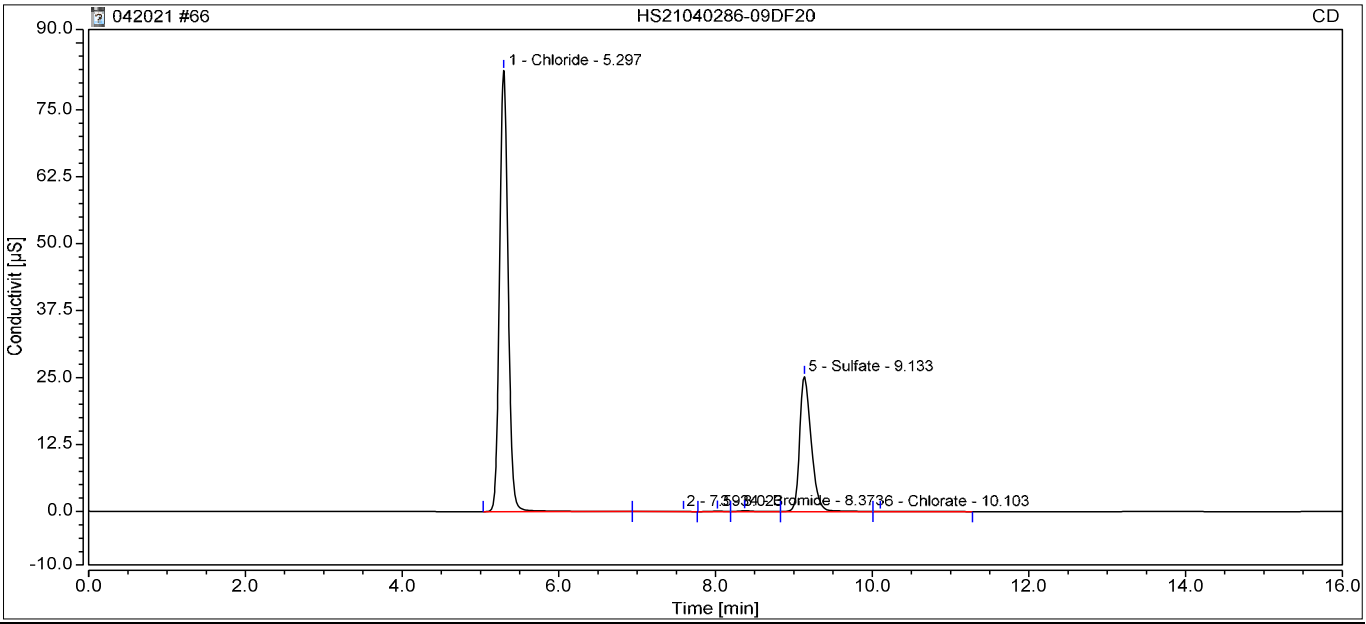
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.69	Fluoride	BMB	0.007	0.0110	0.1103	10.0000
2	5.30	Chloride	BMB	5.920	28.3285	283.2854	10.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	10.0000
4	8.37	Bromide	M	0.045	0.5147	5.1469	10.0000
5	9.13	Sulfate	MB	4.440	29.3919	293.9193	10.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	10.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	10.0000
Total:			**0.000**	**10.412**		**582.46**	

66 HS21040286-09DF20

Sample Name:	**HS21040286-09DF20**	*Injection Volume:*	**5.00**
Vial Number:	**RE7**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**04/21/2021 08:43**	*Sample Weight:*	**1.0000**

Run Time:



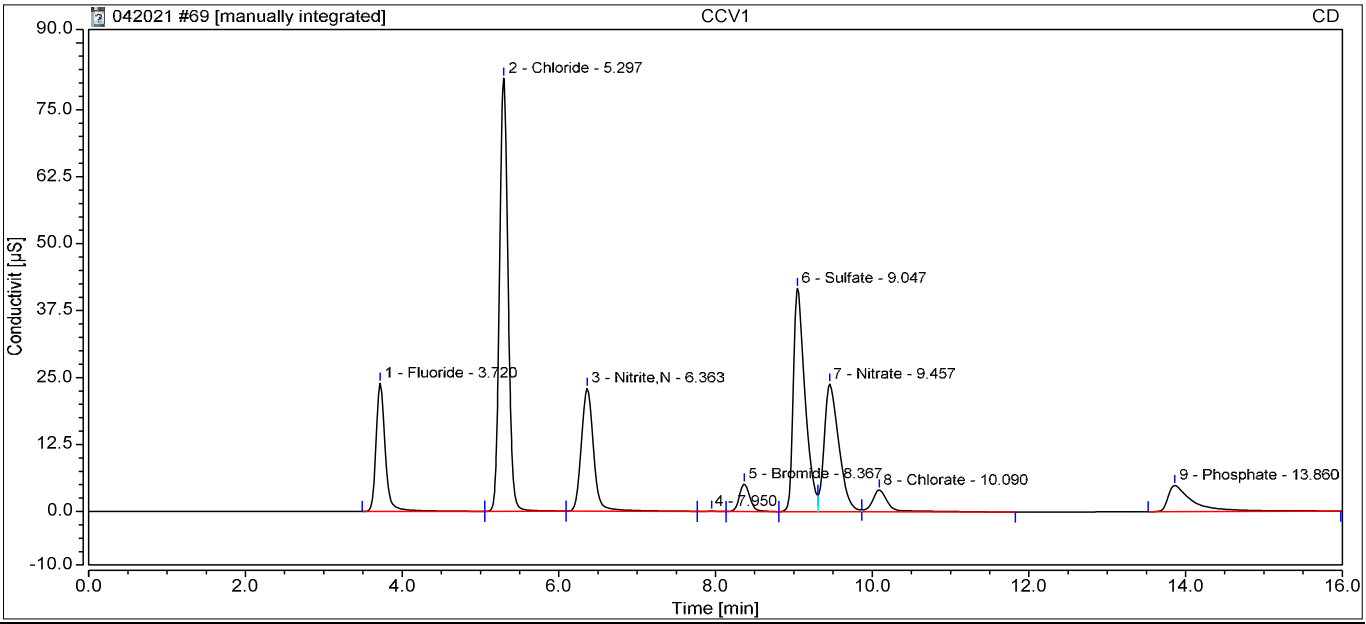
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	20.0000
1	5.30	Chloride	BMB	10.380	49.6922	993.8445	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
4	8.37	Bromide	M	0.043	0.4870	9.7394	20.0000
5	9.13	Sulfate	M	4.322	28.6140	572.2808	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
6	10.10	Chlorate	MB	0.019	0.1228	2.4561	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**14.763**		**1578.32**	

69 CCV1

Sample Name:	**CCV1**	*Injection Volume:*	**5.00**
Vial Number:	**R3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 10:00**	*Sample Weight:*	**1.0000**

Run Time:



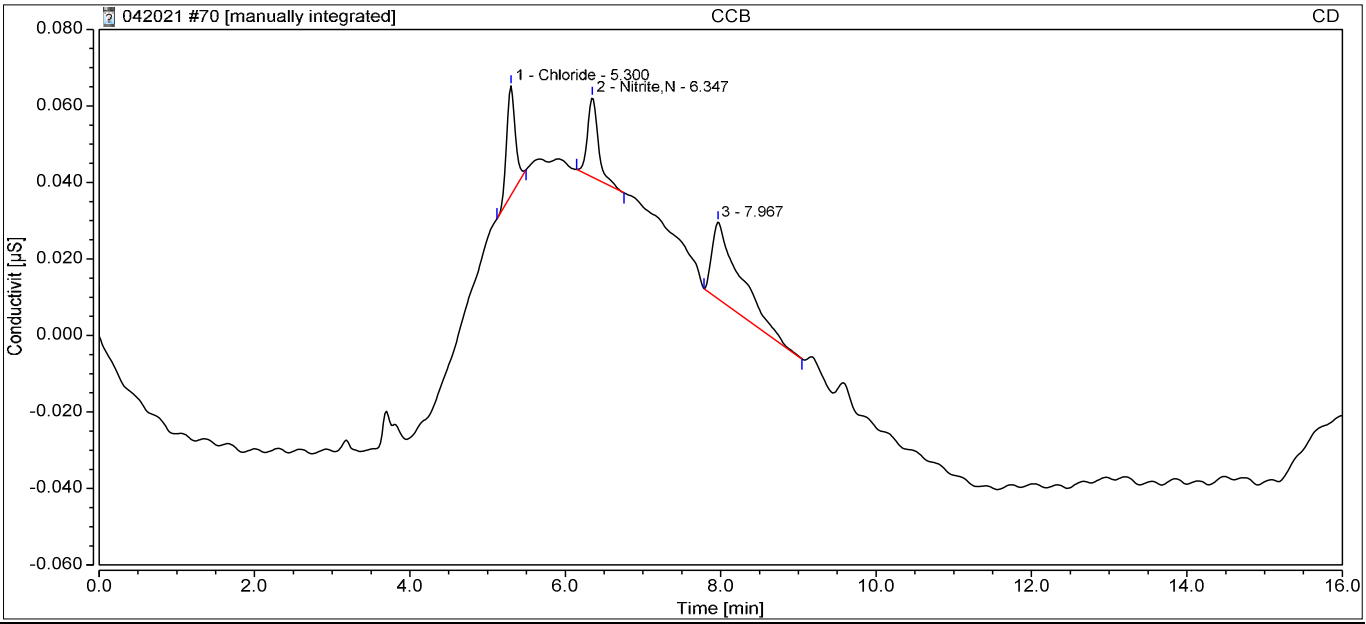
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	3.248	10.0517	10.0517	1.0000
2	5.30	Chloride	BMB	10.173	48.7019	48.7019	1.0000
3	6.36	Nitrite,N	BMB	4.167	10.3367	10.3367	1.0000
5	8.37	Bromide	BMB	0.804	9.8683	9.8683	1.0000
6	9.05	Sulfate	BM	7.278	48.1215	48.1215	1.0000
7	9.46	Nitrate	M	5.193	9.6321	9.6321	1.0000
8	10.09	Chlorate	MB	0.966	10.1446	10.1446	1.0000
9	13.86	Phosphate	BMB*	1.800	9.2243	9.2243	1.0000
Total:			**0.000**	**33.630**		**156.08**	

70 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R6**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 10:19**	*Sample Weight:*	**1.0000**

Run Time:



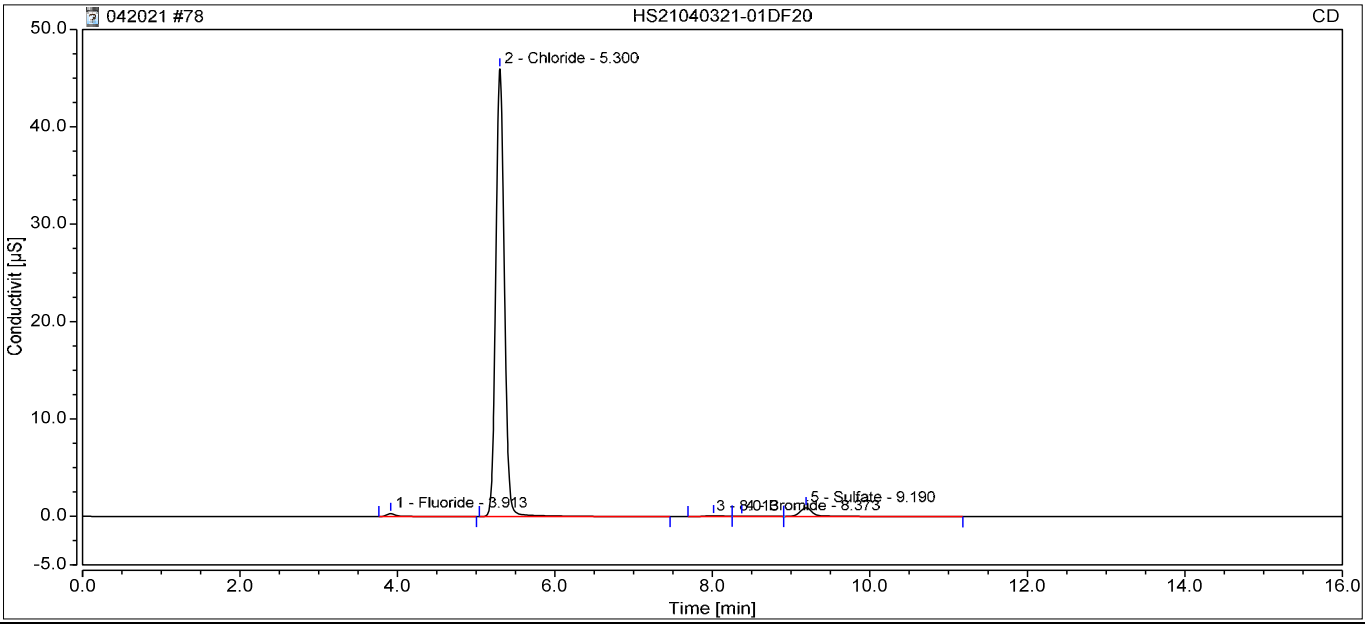
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.30	Chloride	BMB*	0.004	n.a.	n.a.	1.0000
2	6.35	Nitrite,N	BMB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.007**		**0.00**	

78 HS21040321-01DF20

Sample Name:	**HS21040321-01DF20**	*Injection Volume:*	**5.00**
Vial Number:	**BB3**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**04/21/2021 12:54**	*Sample Weight:*	**1.0000**

Run Time:



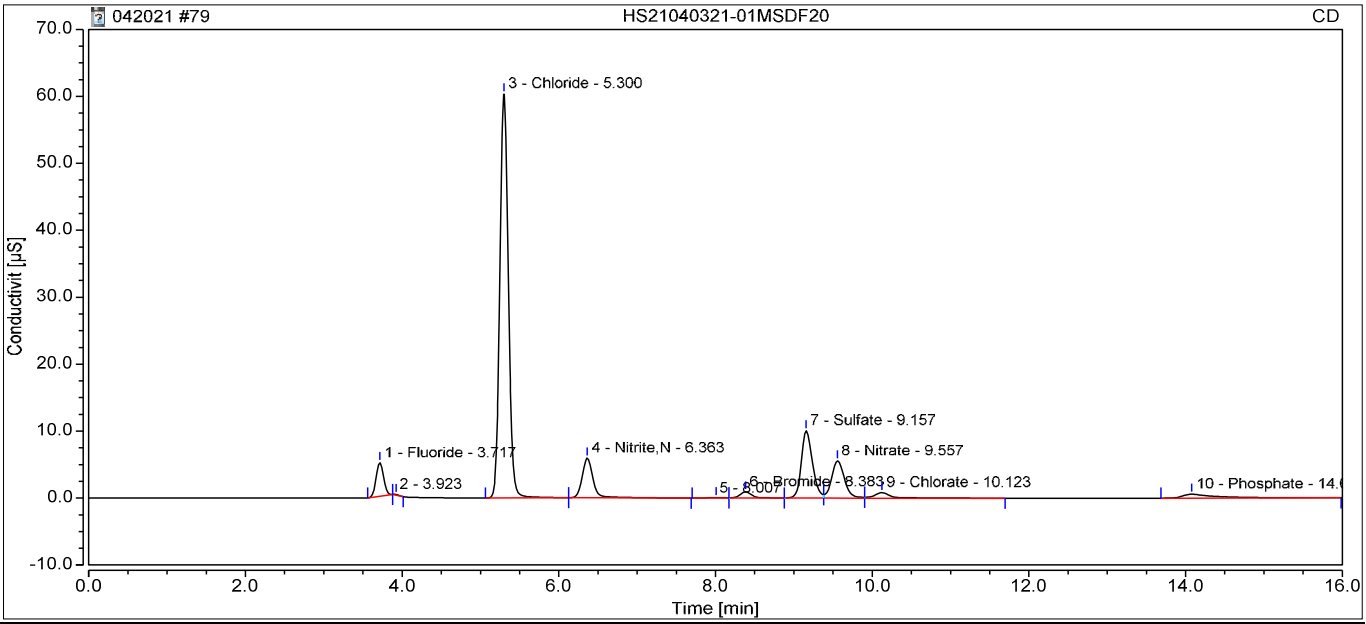
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.91	Fluoride	BMB	0.046	0.1299	2.5983	20.0000
2	5.30	Chloride	BMB	5.783	27.6705	553.4102	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
4	8.37	Bromide	M	0.025	0.2742	5.4831	20.0000
5	9.19	Sulfate	MB	0.199	1.4065	28.1291	20.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	20.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	20.0000
Total:			**0.000**	**6.052**		**589.62**	

79 HS21040321-01MSDF20

Sample Name:	**HS21040321-01MSDF20**	*Injection Volume:*	**5.00**
Vial Number:	**BB4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**04/21/2021 13:15**	*Sample Weight:*	**1.0000**

Run Time:



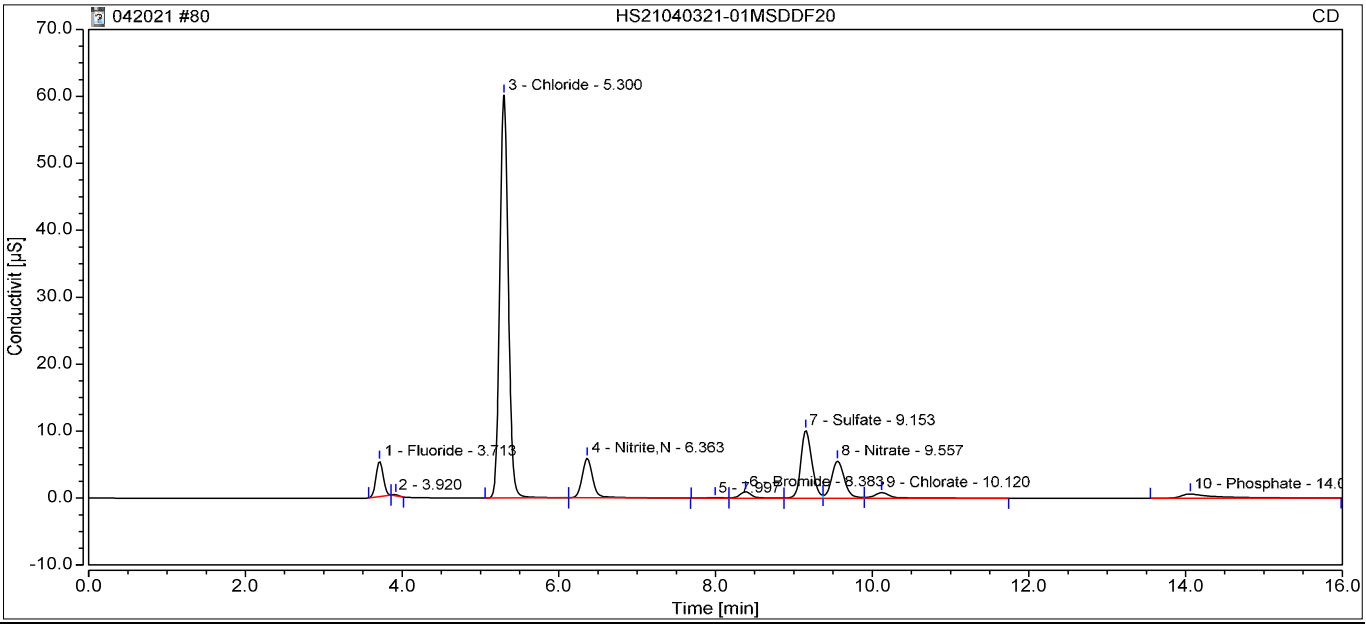
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	0.553	1.7003	34.0056	20.0000
3	5.30	Chloride	BMB	7.547	36.1211	722.4220	20.0000
4	6.36	Nitrite,N	BMB	0.960	2.3494	46.9885	20.0000
6	8.38	Bromide	M	0.169	2.0466	40.9323	20.0000
7	9.16	Sulfate	M	1.644	10.9401	218.8015	20.0000
8	9.56	Nitrate	M	1.052	1.9537	39.0741	20.0000
9	10.12	Chlorate	MB	0.217	2.2190	44.3795	20.0000
10	14.08	Phosphate	BMB	0.300	1.7557	35.1148	20.0000
Total:			**0.000**	**12.442**		**1181.72**	

80 HS21040321-01MSDDF20

Sample Name:	**HS21040321-01MSDDF20**	*Injection Volume:*	**5.00**
Vial Number:	**BB5**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**20.0000**
Recording Time:	**04/21/2021 13:34**	*Sample Weight:*	**1.0000**

Run Time:



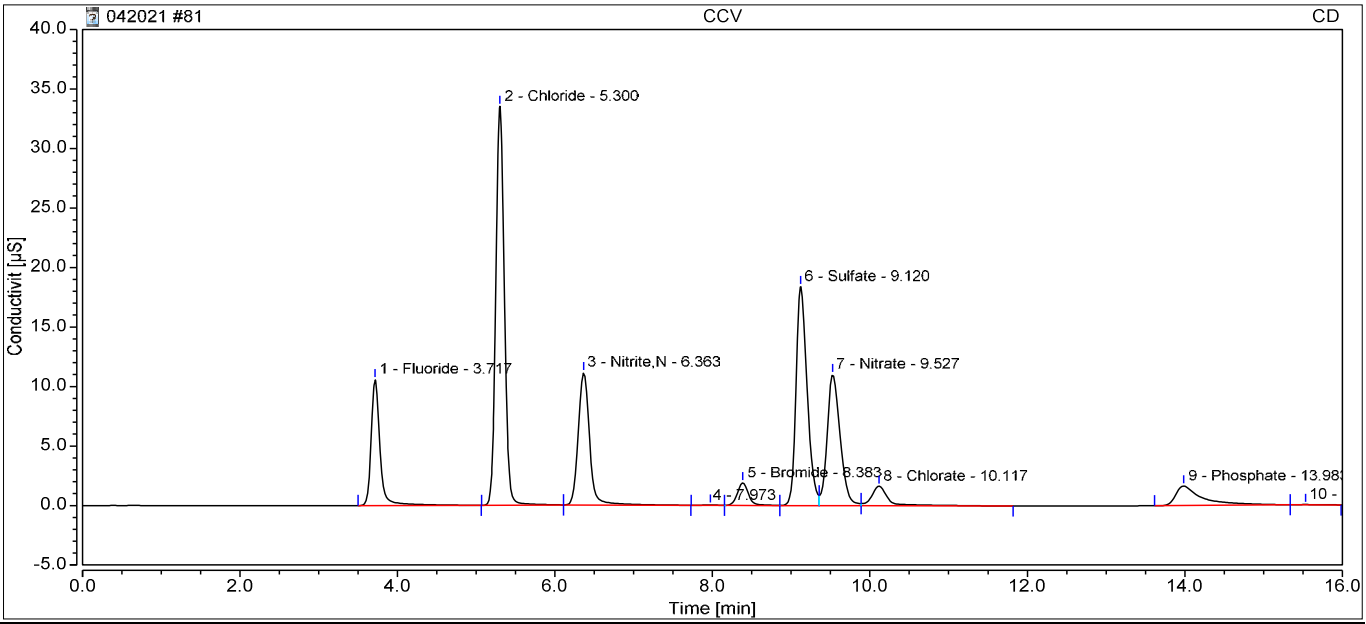
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.562	1.7290	34.5808	20.0000
3	5.30	Chloride	BMB	7.545	36.1120	722.2409	20.0000
4	6.36	Nitrite,N	BMB	0.954	2.3356	46.7117	20.0000
6	8.38	Bromide	M	0.169	2.0485	40.9693	20.0000
7	9.15	Sulfate	M	1.646	10.9559	219.1180	20.0000
8	9.56	Nitrate	M	1.047	1.9442	38.8833	20.0000
9	10.12	Chlorate	MB	0.217	2.2195	44.3891	20.0000
10	14.06	Phosphate	BMB	0.310	1.8039	36.0790	20.0000
Total:			**0.000**	**12.451**		**1182.97**	

81 CCV

Sample Name:	**CCV**	*Injection Volume:*	**5.00**
Vial Number:	**R1**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 13:54**	*Sample Weight:*	**1.0000**

Run Time:



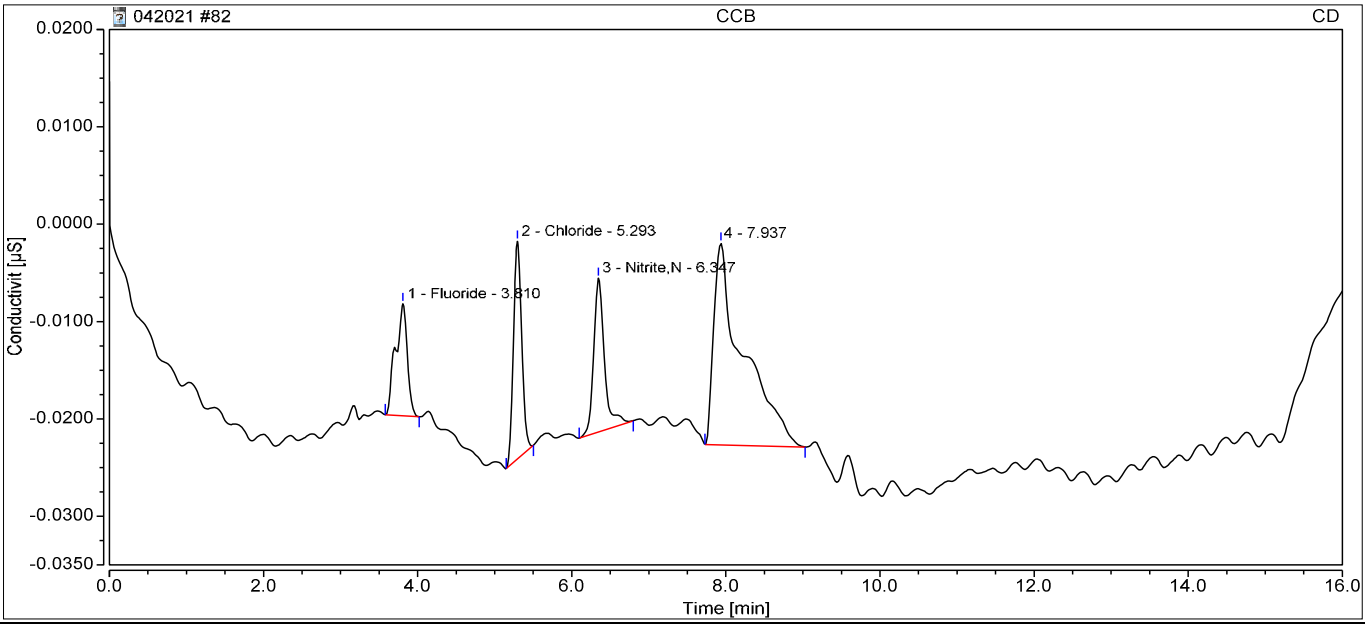
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.72	Fluoride	BMB	1.380	4.2623	4.2623	1.0000
2	5.30	Chloride	BMB	4.180	19.9922	19.9922	1.0000
3	6.36	Nitrite,N	BMB	1.858	4.5871	4.5871	1.0000
5	8.38	Bromide	M	0.310	3.7846	3.7846	1.0000
6	9.12	Sulfate	M	2.992	19.8391	19.8391	1.0000
7	9.53	Nitrate	M	2.114	3.9223	3.9223	1.0000
8	10.12	Chlorate	MB	0.405	4.2055	4.2055	1.0000
9	13.98	Phosphate	BMB	0.636	3.4303	3.4303	1.0000
Total:			**0.000**	**13.875**		**64.02**	

82 CCB

Sample Name:	**CCB**	*Injection Volume:*	**5.00**
Vial Number:	**R4**	*Channel:*	**CD**
Sample Type:	**Unknown**	*Wavelength:*	**210**
Control Program:	**Anions Program 06022020.1**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Anions Processing Method**	*Dilution Factor:*	**1.0000**
Recording Time:	**04/21/2021 14:13**	*Sample Weight:*	**1.0000**

Run Time:



Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.81	Fluoride	BMB	0.002	n.a.	n.a.	1.0000
2	5.29	Chloride	BMB	0.003	n.a.	n.a.	1.0000
3	6.35	Nitrite,N	BMB	0.003	n.a.	n.a.	1.0000
n.a.	n.a.	Bromide	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Sulfate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Nitrate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Chlorate	n.a.	n.a.	n.a.	n.a.	1.0000
n.a.	n.a.	Phosphate	n.a.	n.a.	n.a.	n.a.	1.0000
Total:			**0.000**	**0.007**		**0.00**	

HS21040286 Wet Chem Raw Data (TOC_W 5310B)

ALS WO# HS21040286

C:\TOC-L\Data\2021_02_25_001.tlx

	Type	Analysis	Sample Name	Sample ID	Origin	Result
1	Standard	NPOC	CAL	3150171(01-07)	02_25_2021_CAL.2021_02_	
2	Unknown	NPOC	ICV	315017108	02_25_2021_CAL.cal	NPOC:10.14mg/L
3	Unknown	NPOC	ICB		02_25_2021_CAL.cal	NPOC:-0.1140mg/L
4	Unknown	NPOC	CCV	315017106	02_25_2021_CAL.cal	NPOC:25.02mg/L
5	Unknown	NPOC	CCB		02_25_2021_CAL.cal	NPOC:-0.07587mg/L
6	Unknown	NPOC	MBLK-02252021		02_25_2021_CAL.cal	NPOC:-0.1214mg/L
7	Unknown	NPOC	LCS-02252021		02_25_2021_CAL.cal	NPOC:10.15mg/L
8	Unknown	NPOC	LCSD02252021		02_25_2021_CAL.cal	NPOC:10.16mg/L
9	Unknown	NPOC	HS21020689-01		02_25_2021_CAL.cal	NPOC:22.48mg/L
10	Unknown	NPOC	HS21020689-02		02_25_2021_CAL.cal	NPOC:17.34mg/L
11	Unknown	NPOC	HS21020689-02MS		02_25_2021_CAL.cal	NPOC:28.25mg/L
12	Unknown	NPOC	HS21020689-03		02_25_2021_CAL.cal	NPOC:10.22mg/L
13	Unknown	NPOC	HS21020538-01		02_25_2021_CAL.cal	NPOC:20.36mg/L
14	Unknown	NPOC	HS21020538-02		02_25_2021_CAL.cal	NPOC:4.452mg/L
15	Unknown	NPOC	HS21020793-02DF10		02_25_2021_CAL.cal	NPOC:17.50mg/L
16	Unknown	NPOC	CCV		02_25_2021_CAL.cal	NPOC:25.46mg/L
17	Unknown	NPOC	CCB		02_25_2021_CAL.cal	NPOC:0.08018mg/L

	Notes	Status	Date / Time	Vial
1		Completed	2/25/2021 1	1, 2, 3, 4, 5,
2		Completed	2/25/2021 1	8
3		Completed	2/25/2021 1	9
4		Completed	2/25/2021 1	10
5		Completed	2/25/2021 1	11
6		Completed	2/25/2021 1	12
7		Completed	2/25/2021 1	13
8		Completed	2/25/2021 1:	14
9		Completed	2/25/2021 1:	15
10		Completed	2/25/2021 1:	16
11		Completed	2/25/2021 1:	17
12		Completed	2/25/2021 2:	18
13		Completed	2/25/2021 2:	19
14		Completed	2/25/2021 2:	20
15		Completed	2/25/2021 2:	21
16		Completed	2/25/2021 3:	22
17		Completed	2/25/2021 3:	23

TOC-Control L Report

2021_02_25_001.tlx

Instr.Information

Instrument Options	TOC/ASI/IC Unit/
Catalyst	Regular Sensitivity

Cal. Curve

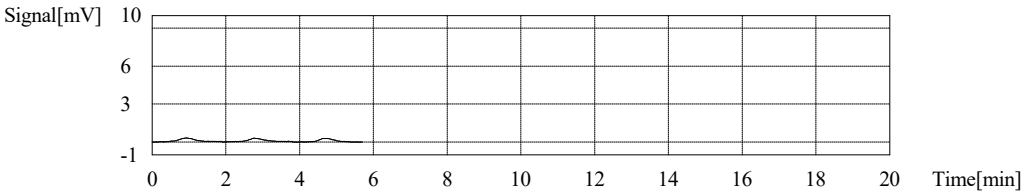
Sample Name:	CAL
Sample ID:	3150171(01-07)
Cal. Curve:	02_25_2021_CAL.2021_02_25_09_13_02.cal
Status	Completed

Type	Anal.
Standard	NPOC

Conc: 0.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	0.7577	50uL	1.000	*******		2/25/2021 9:21:39 AM
2	0.6368	50uL	1.000	*******		2/25/2021 9:23:47 AM
3	0.6500	50uL	1.000	*******		2/25/2021 9:25:55 AM

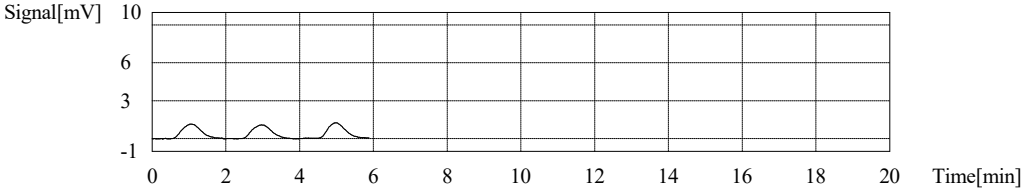
Acid Add.	0.000%
Sparge Gas Flow	80mL/min
Sp. Time	180.0sec
Mean Area	0.6815



Conc: 1.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	4.063	50uL	1.000	*******		2/25/2021 9:34:44 AM
2	3.946	50uL	1.000	*******		2/25/2021 9:37:02 AM
3	3.886	50uL	1.000	*******		2/25/2021 9:39:10 AM

Acid Add.	0.000%
Sparge Gas Flow	80mL/min
Sp. Time	180.0sec
Mean Area	3.965

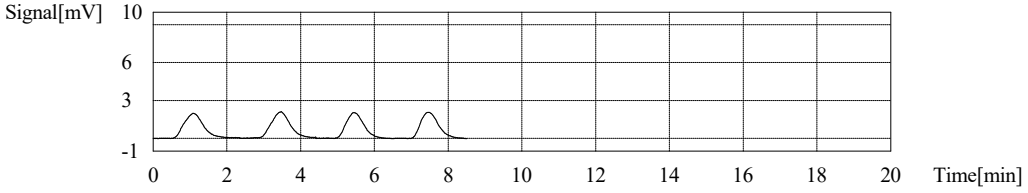


Conc: 2.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	7.014	50uL	1.000	*******		2/25/2021 9:48:25 AM
2	6.976	50uL	1.000	*******		2/25/2021 9:50:44 AM
3	6.738	50uL	1.000	*******	E	2/25/2021 9:53:02 AM
4	6.989	50uL	1.000	*******		2/25/2021 9:55:18 AM

TOC-Control L Report

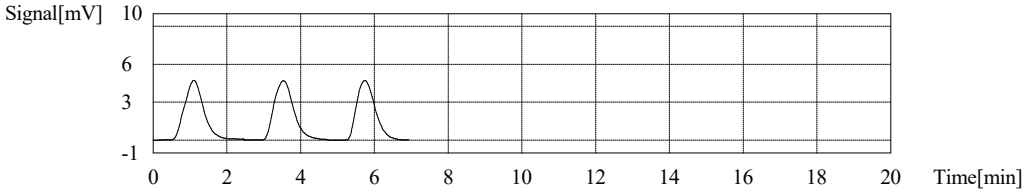
Acid Add. 0.000%
Sparge Gas Flow 80mL/min
Sp. Time 180.0sec
Mean Area 6.993



Conc: 5.000mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	16.70	50uL	1.000	*******		2/25/2021 10:04:35 AM
2	16.99	50uL	1.000	*******		2/25/2021 10:07:06 AM
3	16.40	50uL	1.000	*******		2/25/2021 10:09:32 AM

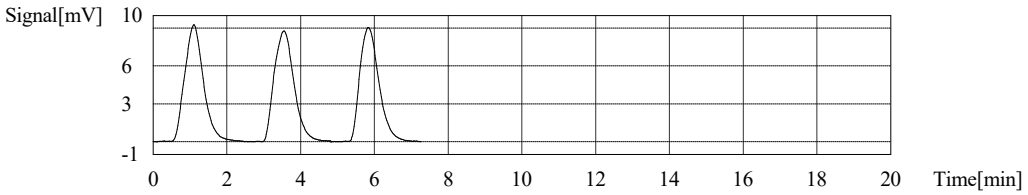
Acid Add. 0.000%
Sparge Gas Flow 80mL/min
Sp. Time 180.0sec
Mean Area 16.70



Conc: 10.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	32.33	50uL	1.000	*******		2/25/2021 10:18:54 AM
2	32.41	50uL	1.000	*******		2/25/2021 10:21:29 AM
3	32.27	50uL	1.000	*******		2/25/2021 10:24:10 AM

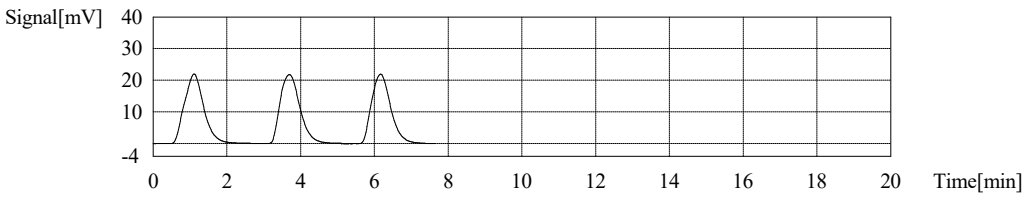
Acid Add. 0.000%
Sparge Gas Flow 80mL/min
Sp. Time 180.0sec
Mean Area 32.34



Conc: 25.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	79.83	50uL	1.000	*******		2/25/2021 10:33:42 AM
2	80.51	50uL	1.000	*******		2/25/2021 10:36:25 AM
3	79.09	50uL	1.000	*******		2/25/2021 10:39:12 AM

Acid Add. 0.000%
Sparge Gas Flow 80mL/min
Sp. Time 180.0sec
Mean Area 79.81



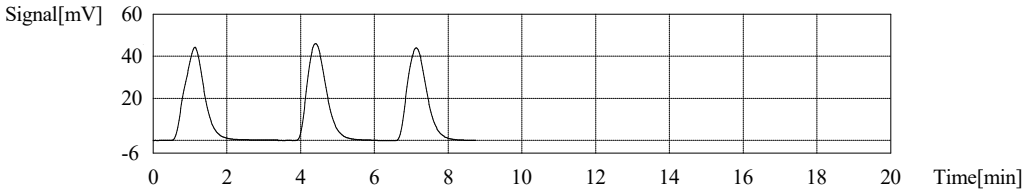
Conc: 50.00mg/L

No.	Area	Inj. Vol.	Aut. Dil.	Rem.	Ex.	Date / Time
1	162.4	50uL	1.000	*******		2/25/2021 10:49:29 AM
2	163.8	50uL	1.000	*******		2/25/2021 10:52:26 AM
3	159.9	50uL	1.000	*******		2/25/2021 10:55:21 AM

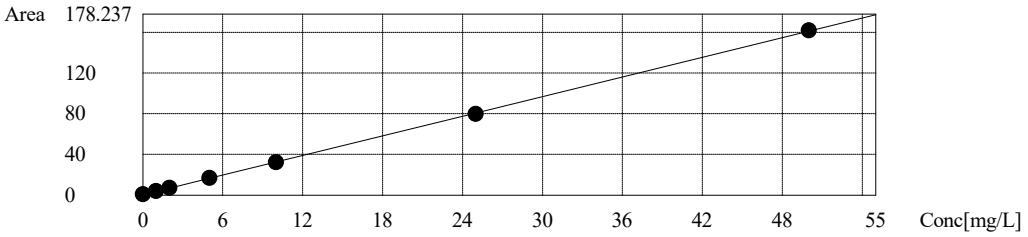
TOC-Control L Report

2021_02_25_001.tlx

Acid Add.	0.000%
Sparge Gas Flow	80mL/min
Sp. Time	180.0sec
Mean Area	162.0



Slope:	3.220
Intercept	0.4365
r^2	0.9999
r	1.0000
RSE(%)	N/A
Zero Shift	No



Sample

Sample Name:	ICV
Sample ID:	315017108
Origin:	02_25_2021_CAL.cal
Status	Completed
Chk. Result	

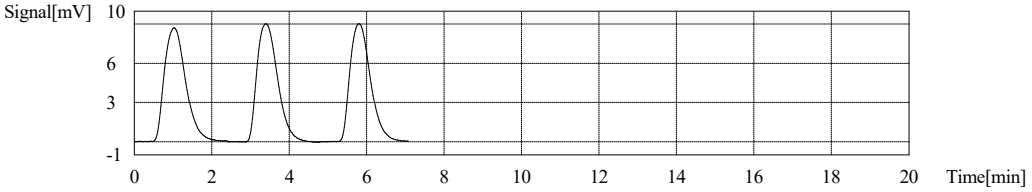
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.14mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	33.04	10.13mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:32:06 AM
2	33.24	10.19mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:34:44 AM
3	32.98	10.11mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:37:17 AM

Mean Area	33.09
Mean Conc.	10.14mg/L



Sample

Sample Name:	ICB
Sample ID:	
Origin:	02_25_2021_CAL.cal
Status	Completed
Chk. Result	

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:-0.1140mg/L

1. Det

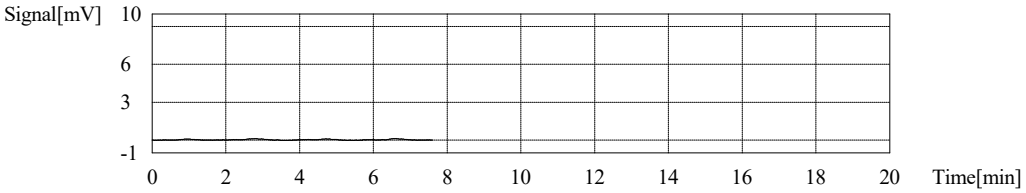
TOC-Control L Report

2021_02_25_001.tlx

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	-0.1356mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:46:05 AM
2	0.2080	-0.07096mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:48:13 AM
3	0.000	-0.1356mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:50:20 AM
4	0.2102	-0.07028mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	2/25/2021 11:52:27 AM

Mean Area 0.06933
Mean Conc. -0.1140mg/L



	Type	Analysis	Sample Name	Sample ID	Origin	Result	Notes	Status	Date / Time
1	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:23.7		Completed	4/19/2021 9:
2	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.01		Completed	4/19/2021 9:
3	Unknown	NPOC	MBLK-04192021		02_25_2021	NPOC:-0.10		Completed	4/19/2021 1
4	Unknown	NPOC	LCS-04192021		02_25_2021	NPOC:9.00		Completed	4/19/2021 1
5	Unknown	NPOC	LCSD-04192021	TOC_W	02_25_2021	NPOC:9.71		Completed	4/19/2021 1
6	Unknown	NPOC	HS21040564-01		02_25_2021	NPOC:15.8		Completed	4/19/2021 1
7	Unknown	NPOC	HS21040564-01MS		02_25_2021	NPOC:26.4		Completed	4/19/2021 1
8	Unknown	NPOC	HS21040766-01		02_25_2021	NPOC:12.0		Completed	4/19/2021 1
9	Unknown	NPOC	HS21040778-02		02_25_2021	NPOC:3.82		Completed	4/19/2021 1
10	Unknown	NPOC	HS21040699-01		02_25_2021	NPOC:4.12		Completed	4/19/2021 1
11	Unknown	NPOC	HS21040756-04		02_25_2021	NPOC:66.7		Completed	4/19/2021 1
12	Unknown	NPOC	HS21040549-01		02_25_2021	NPOC:13.4		Completed	4/19/2021 1
13	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:24.6		Completed	4/19/2021 1
14	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.01		Completed	4/19/2021 1
15	Unknown	NPOC	HS21040551-01	TOC_W 531	02_25_2021	NPOC:24.3		Completed	4/19/2021 1:
16	Unknown	NPOC	HS21040563-01		02_25_2021	NPOC:13.5		Completed	4/19/2021 2:
17	Unknown	NPOC	HS21040566-01		02_25_2021	NPOC:7.63		Completed	4/19/2021 2:
18	Unknown	NPOC	HS21040756-04DF10		02_25_2021	NPOC:6.79		Completed	4/19/2021 2:
19	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:24.3		Completed	4/19/2021 2:
20	Unknown	NPOC	CCB		02_25_2021	NPOC:0.03		Completed	4/19/2021 3:
21	Unknown	NPOC	MBLK2-04192021		02_25_2021	NPOC:-0.06		Completed	4/19/2021 3:
22	Unknown	NPOC	LCS2-04192021		02_25_2021	NPOC:9.07		Completed	4/19/2021 3:
23	Unknown	NPOC	LCSD2-04192021	TOC_W 531	02_25_2021	NPOC:9.70		Completed	4/19/2021 3:
24	Unknown	NPOC	HS21040281-01		02_25_2021	NPOC:0.38		Completed	4/19/2021 4:
25	Unknown	NPOC	HS21040281-02		02_25_2021	NPOC:0.87		Completed	4/19/2021 4:
26	Unknown	NPOC	HS21040281-03		02_25_2021	NPOC:0.89		Completed	4/19/2021 4:
27	Unknown	NPOC	HS21040281-04		02_25_2021	NPOC:43.0		Completed	4/19/2021 4:
28	Unknown	NPOC	HS21040281-05		02_25_2021	NPOC:1.29		Completed	4/19/2021 5:
29	Unknown	NPOC	HS21040281-05MS		02_25_2021	NPOC:11.3		Completed	4/19/2021 5:
30	Unknown	NPOC	HS21040281-06		02_25_2021	NPOC:0.79		Completed	4/19/2021 5:
31	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:23.9		Completed	4/19/2021 6:
32	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.06		Completed	4/19/2021 6:
33	Unknown	NPOC	HS21040281-06MS		02_25_2021	NPOC:10.7		Completed	4/19/2021 6:
34	Unknown	NPOC	HS21040281-07		02_25_2021	NPOC:0.75		Completed	4/19/2021 6:
35	Unknown	NPOC	HS21040281-08		02_25_2021	NPOC:23.3		Completed	4/19/2021 6:
36	Unknown	NPOC	HS21040281-09		02_25_2021	NPOC:1.15		Completed	4/19/2021 7:
37	Unknown	NPOC	HS21040281-10		02_25_2021	NPOC:0.85		Completed	4/19/2021 7:
38	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:23.6		Completed	4/19/2021 7:
39	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.12		Completed	4/19/2021 7:
40	Unknown	NPOC	MBLK3-04192021		02_25_2021	NPOC:-0.13		Completed	4/19/2021 8:
41	Unknown	NPOC	LCS3-04192021		02_25_2021	NPOC:10.2		Completed	4/19/2021 8:
42	Unknown	NPOC	LCSD3-04192021	TOC_W 531	02_25_2021	NPOC:9.79		Completed	4/19/2021 8:
43	Unknown	NPOC	HS21040281-11		02_25_2021	NPOC:189.		Completed	4/19/2021 8:
44	Unknown	NPOC	HS21040281-11MS		02_25_2021	NPOC:194.		Completed	4/19/2021 9:
45	Unknown	NPOC	HS21040284-29		02_25_2021	NPOC:1.75		Completed	4/19/2021 9:
46	Unknown	NPOC	HS21040284-30		02_25_2021	NPOC:0.05		Completed	4/19/2021 9:
47	Unknown	NPOC	HS21040284-31		02_25_2021	NPOC:0.05		Completed	4/19/2021 9:
48	Unknown	NPOC	HS21040284-32		02_25_2021	NPOC:0.05		Completed	4/19/2021 1
49	Unknown	NPOC	HS21040299-67		02_25_2021	NPOC:1.04		Completed	4/19/2021 1
50	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:23.7		Completed	4/19/2021 1
51	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.13		Completed	4/19/2021 1
52	Unknown	NPOC	HS21040299-68		02_25_2021	NPOC:1.97		Completed	4/19/2021 1
53	Unknown	NPOC	HS21040300-01		02_25_2021	NPOC:2264		Completed	4/19/2021 1

	Vial
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	11
19	18
20	19
21	3
22	4
23	5
24	20
25	21
26	22
27	23
28	24
29	25
30	26
31	1
32	2
33	27
34	28
35	29
36	30
37	31
38	13
39	14
40	3
41	4
42	5
43	32
44	33
45	34
46	35
47	36
48	37
49	38
50	18
51	19
52	39
53	40

	Type	Analysis	Sample Name	Sample ID	Origin	Result	Notes	Status	Date / Time
54	Unknown	NPOC	HS21040691-01		02_25_2021	NPOC:18.0		Completed	4/19/2021 1
55	Unknown	NPOC	HS21040702-01		02_25_2021	NPOC:38.8		Completed	4/20/2021 1
56	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:24.5		Completed	4/20/2021 1
57	Unknown	NPOC	CCB		02_25_2021	NPOC:0.16		Completed	4/20/2021 1
58	Unknown	NPOC	MBLK4-04192021		02_25_2021	NPOC:0.09		Completed	4/20/2021 1
59	Unknown	NPOC	LCS4-04192021		02_25_2021	NPOC:10.3		Completed	4/20/2021 1:
60	Unknown	NPOC	LCSD4-04192021	TOC_W 531	02_25_2021	NPOC:9.88		Completed	4/20/2021 1:
61	Unknown	NPOC	HS21040286-04		02_25_2021	NPOC:1.57		Completed	4/20/2021 1:
62	Unknown	NPOC	HS21040286-05		02_25_2021	NPOC:1.76		Completed	4/20/2021 1:
63	Unknown	NPOC	HS21040286-06		02_25_2021	NPOC:1.65		Completed	4/20/2021 2:
64	Unknown	NPOC	HS21040286-07		02_25_2021	NPOC:1.62		Completed	4/20/2021 2:
65	Unknown	NPOC	HS21040286-08		02_25_2021	NPOC:1.57		Completed	4/20/2021 2:
66	Unknown	NPOC	HS21040286-08MS		02_25_2021	NPOC:11.5		Completed	4/20/2021 2:
67	Unknown	NPOC	HS21040286-09		02_25_2021	NPOC:1.72		Completed	4/20/2021 3:
68	Unknown	NPOC	CCV	316131907	02_25_2021	NPOC:23.8		Completed	4/20/2021 3:
69	Unknown	NPOC	CCB		02_25_2021	NPOC:-0.04		Completed	4/20/2021 3:

	Vial
54	41
55	42
56	1
57	2
58	3
59	4
60	5
61	43
62	44
63	45
64	46
65	47
66	48
67	49
68	13
69	14

TOC-Control L Report

Instr.Information

Instrument Options TOC/ASI/IC Unit/
Catalyst Regular Sensitivity

Sample

Sample Name: CCV
Sample ID: 316131907
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

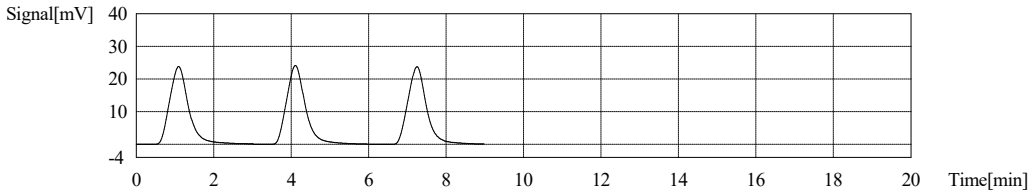
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.52mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	79.87	24.67mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:18:05 AM
2	80.39	24.83mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:21:27 AM
3	77.96	24.08mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:24:32 AM

Mean Area 79.41
Mean Conc. 24.52mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1663mg/L

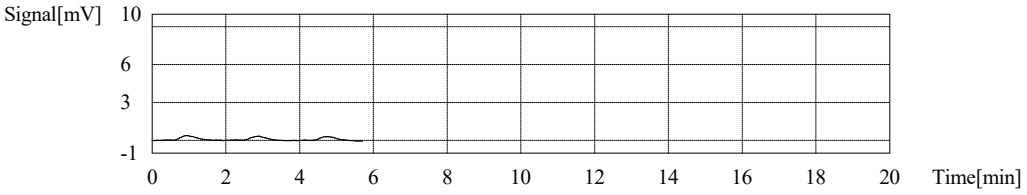
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.055	0.1921mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:33:20 AM
2	0.9410	0.1567mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:35:28 AM
3	0.9202	0.1502mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:37:36 AM

TOC-Control L Report

Mean Area 0.9721
Mean Conc. 0.1663mg/L



Sample

Sample Name: MBLK4-04192021
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

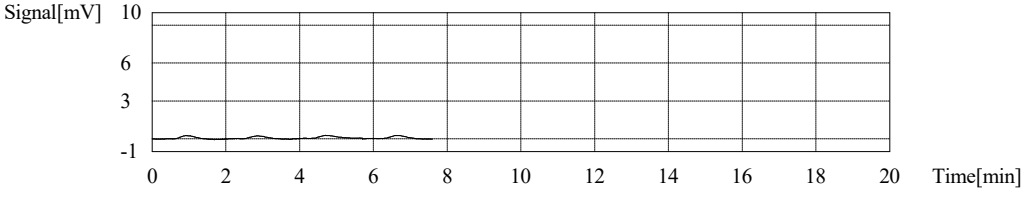
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.09586mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8128	0.1169mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:46:25 AM
2	0.6770	0.07469mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:48:33 AM
3	0.6054	0.05245mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:50:41 AM
4	0.7457	0.09602mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 12:52:50 AM

Mean Area 0.7452
Mean Conc. 0.09586mg/L



Sample

Sample Name: LCS4-04192021
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:10.33mg/L

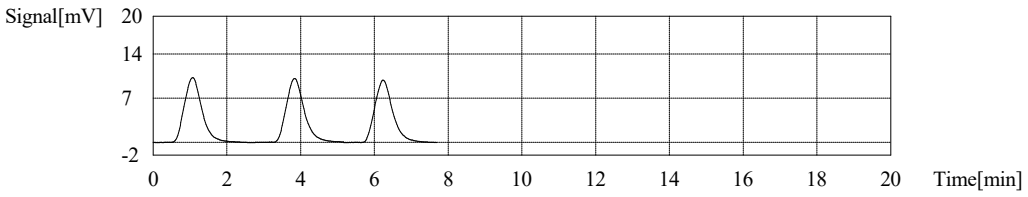
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	34.18	10.48mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:02:25 AM
2	33.64	10.31mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:05:03 AM
3	33.27	10.20mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:07:48 AM

TOC-Control L Report

Mean Area 33.70
Mean Conc. 10.33mg/L



Sample

Sample Name: LCSD4-04192021
Sample ID: TOC_W 5310B
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

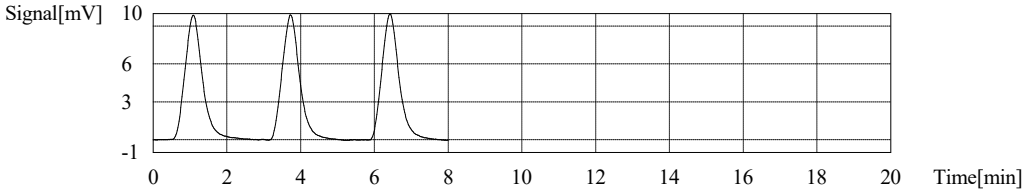
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:9.882mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	31.91	9.774mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:17:20 AM
2	32.48	9.951mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:20:17 AM
3	32.38	9.920mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:23:12 AM

Mean Area 32.26
Mean Conc. 9.882mg/L



Sample

Sample Name: HS21040286-04
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.571mg/L

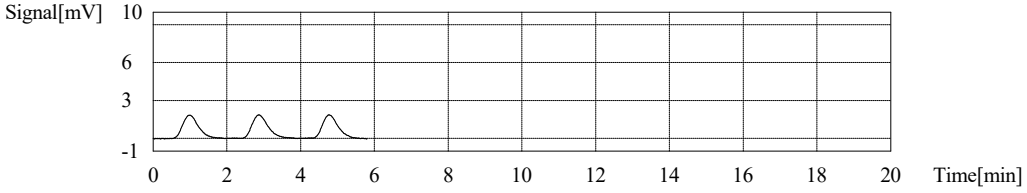
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	5.470	1.563mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:32:10 AM
2	5.507	1.575mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:34:19 AM
3	5.508	1.575mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:36:32 AM

TOC-Control L Report

Mean Area 5.495
Mean Conc. 1.571mg/L



Sample

Sample Name: HS21040286-05
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

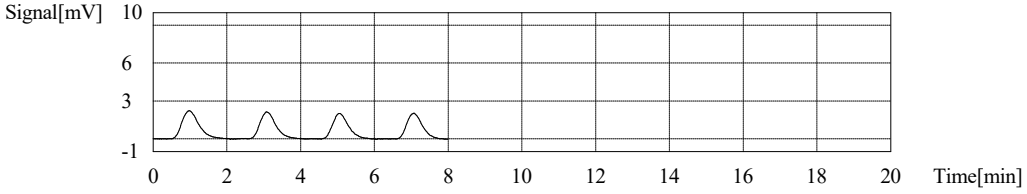
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.765mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.169	2.091mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:45:34 AM
2	6.337	1.832mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:47:46 AM
3	6.057	1.745mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:50:01 AM
4	5.967	1.718mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 1:52:09 AM

Mean Area 6.120
Mean Conc. 1.765mg/L



Sample

Sample Name: HS21040286-06
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.654mg/L

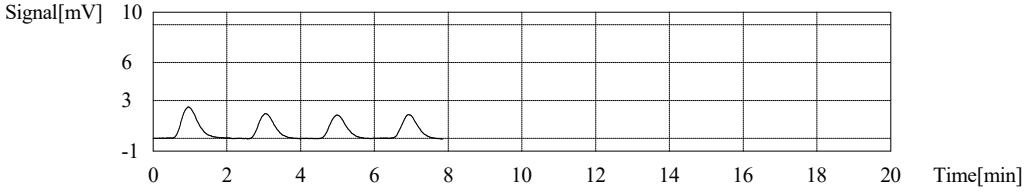
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.407	2.165mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:01:04 AM
2	5.995	1.726mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:03:13 AM
3	5.676	1.627mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:05:23 AM
4	5.618	1.609mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:07:31 AM

TOC-Control L Report

Mean Area 5.763
Mean Conc. 1.654mg/L



Sample

Sample Name: HS21040286-07
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

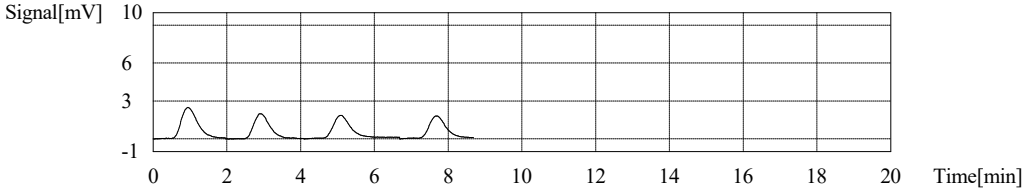
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.621mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.368	2.153mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:16:18 AM
2	5.910	1.700mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:18:41 AM
3	5.745	1.649mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:21:30 AM
4	5.316	1.515mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:23:45 AM

Mean Area 5.657
Mean Conc. 1.621mg/L



Sample

Sample Name: HS21040286-08
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.572mg/L

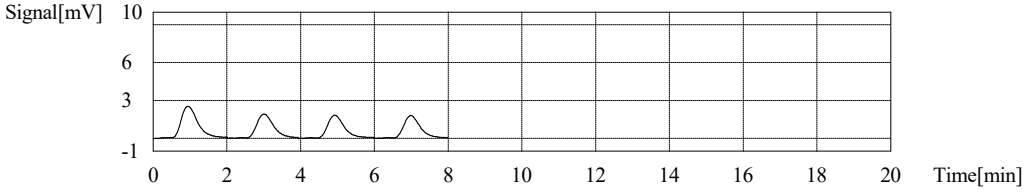
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	7.341	2.144mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:32:37 AM
2	5.767	1.655mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:34:47 AM
3	5.446	1.556mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:37:05 AM
4	5.284	1.505mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:39:20 AM

TOC-Control L Report

Mean Area 5.499
Mean Conc. 1.572mg/L



Sample

Sample Name: HS21040286-08MS
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

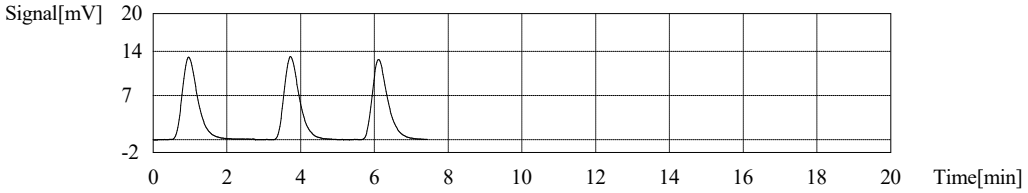
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:11.54mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.18	11.72mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:48:57 AM
2	37.72	11.58mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:51:35 AM
3	36.89	11.32mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 2:54:05 AM

Mean Area 37.60
Mean Conc. 11.54mg/L



Sample

Sample Name: HS21040286-09
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.729mg/L

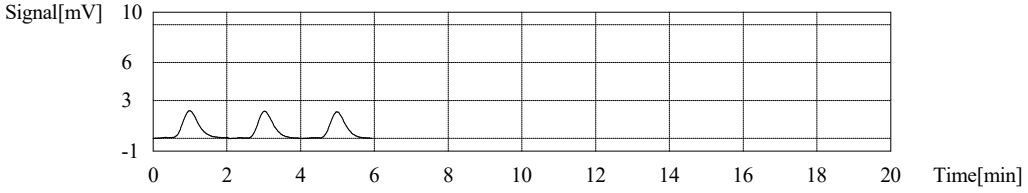
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.136	1.770mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:03:04 AM
2	5.967	1.718mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:05:16 AM
3	5.911	1.700mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:07:27 AM

TOC-Control L Report

Mean Area 6.005
Mean Conc. 1.729mg/L



Sample

Sample Name: CCV
Sample ID: 316131907
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

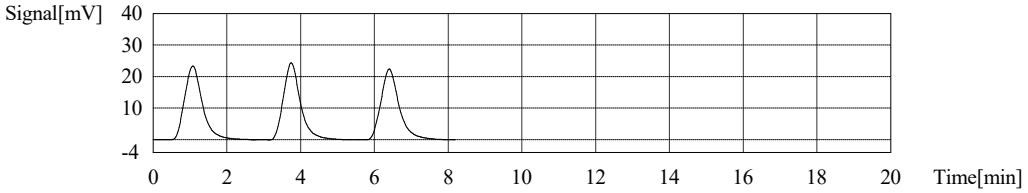
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:23.83mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	77.29	23.87mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:17:07 AM
2	77.87	24.05mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:20:02 AM
3	76.37	23.58mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:23:07 AM

Mean Area 77.18
Mean Conc. 23.83mg/L



Sample

Sample Name: CCB
Sample ID:
Origin: 02_25_2021_CAL.cal
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:-0.04673mg/L

1. Det

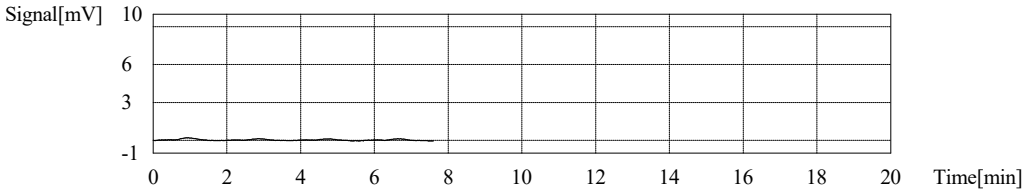
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.5027	0.02056mg/L	50uL	1.000	E	02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:31:56 AM
2	0.2914	-0.04506mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:34:03 AM
3	0.2603	-0.05472mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:36:10 AM
4	0.3064	-0.04040mg/L	50uL	1.000		02_25_2021_CAL.2021_02_25_09_13_02.cal	4/20/2021 3:38:17 AM

TOC-Control L Report

2021_04_19_001.tlx

Mean Area	0.2860
Mean Conc.	-0.04673mg/L



HS21040286 - Sub Perch IV (E2100369)

ALS WO# HS21040286

Initial Calibration

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20210413

1st Review: Grivera
2nd Review: Kneir

ALS Environmental

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 4/13/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100018**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210413_008	Perchlorate6850b.lcm	1x	☒	3100808-05	4/13/2021 10:15
2	PERCHLORATE2		20210413_009	Perchlorate6850b.lcm	1x	☒	3100808-06	4/13/2021 10:23
3	PERCHLORATE3		20210413_010	Perchlorate6850b.lcm	1x	☒	3100808-07	4/13/2021 10:31
4	PERCHLORATE4		20210413_011	Perchlorate6850b.lcm	1x	☒	3100808-08	4/13/2021 10:39
5	PERCHLORATE5		20210413_012	Perchlorate6850b.lcm	1x	☒	3100808-09	4/13/2021 10:47
6	PERCHLORATE6		20210413_013	Perchlorate6850b.lcm	1x	☒	3100809-01	4/13/2021 10:54
7	PERCHLORATE7		20210413_014	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 11:02
8	PERCHLORATE8		20210413_015	Perchlorate6850b.lcm	1x	☒	3100809-03	4/13/2021 11:10
9	PERCHLORATE9		20210413_016	Perchlorate6850b.lcm	1x	☒	3100809-04	4/13/2021 11:18
10	PERCHLORATE10		20210413_017	Perchlorate6850b.lcm	1x	☒	3100809-05	4/13/2021 11:26
11	PERCHLORATEICV		20210413_018	Perchlorate6850b.lcm	1x	☒	3100809-06	4/13/2021 11:58
12	ICS		20210413_019	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:24
13	LODV		20210413_020	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:31
14	PERCHLORATE7		20210413_021	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 12:39
15	EQ2100193-01-DNU		20210413_022	Perchlorate6850b.lcm	1x	☒	INST failed high	4/13/2021 12:47
16	EQ2100193-02		20210413_023	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:55
17	EQ2100193-03		20210413_024	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:27
18	EQ2100193-01-DNU		20210413_025	Perchlorate6850b.lcm	1x	☒	INST failed high	4/13/2021 13:35
19	EQ2100193-04		20210413_026	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:43
20	EQ2100193-05		20210413_027	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:51
21	E2100329-001		20210413_028	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:59
22	E2100330-001DNU		20210413_029	Perchlorate6850b.lcm	1x	☒	need 100X dilution	4/13/2021 14:07
23	E2100331-001		20210413_030	Perchlorate6850b.lcm	1x	☒		4/13/2021 14:15
24	E2100368-001		20210413_031	Perchlorate6850b.lcm	1x	☒		4/13/2021 14:23
25	E2100369-001DNU		20210413_032	Perchlorate6850b.lcm	1x	☒	need 10X dilution	4/13/2021 14:31
26	PERCHLORATE7		20210413_033	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 14:39
27	E2100369-002		20210413_034	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:03
28	E2100369-003		20210413_035	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:11
29	E2100369-004		20210413_036	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:18
30	E2100330-001X100		20210413_037	Perchlorate6850b.lcm	100x	☒		4/13/2021 15:26
31	E2100369-001X10		20210413_038	Perchlorate6850b.lcm	10x	☒		4/13/2021 15:34
32	E2100369-005DNU		20210413_039	Perchlorate6850b.lcm	1x	☒	need 10X dilution	4/13/2021 15:42
33	E2100369-006DNU		20210413_040	Perchlorate6850b.lcm	1x	☒	need 20X dilution	4/13/2021 15:50
34	E2100369-007DNU		20210413_041	Perchlorate6850b.lcm	1x	☒	need 20X dilution	4/13/2021 15:58
35	E2100369-008DNU		20210413_042	Perchlorate6850b.lcm	1x	☒	reanalyze: possible carryover	4/13/2021 16:06
36	E2100369-009DNU		20210413_043	Perchlorate6850b.lcm	1x	☒	need 5000X dilution	4/13/2021 16:14
37	PERCHLORATE7		20210413_044	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 16:38
38	E2100369-008DNU		20210413_045	Perchlorate6850b.lcm	1x	☒		4/13/2021 16:46
39	E2100369-005X10		20210413_046	Perchlorate6850b.lcm	10x	☒		4/13/2021 16:54
40	E2100369-006X20		20210413_047	Perchlorate6850b.lcm	20x	☒		4/13/2021 17:02
41	E2100369-007X20		20210413_048	Perchlorate6850b.lcm	20x	☒		4/13/2021 17:10
42	E2100369-009X5000		20210413_049	Perchlorate6850b.lcm	5000x	☒		4/13/2021 17:17
43	EQ2100193-01		20210413_050	Perchlorate6850b.lcm	1x	☒		4/13/2021 17:25
44	PERCHLORATE7		20210413_051	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 17:33
45								
46								

Initial Calibration - Detailed Report

Calibration ID: EC2100018 **Instrument ID:** E-LCMS-01
Column Name: 1

#	Lab Code	Sample Name	File Location	Aquisition Date
01	EC2100018-01	PERCHLORATE1	20210413_008	04/13/2021 10:15
02	EC2100018-02	PERCHLORATE2	20210413_009	04/13/2021 10:23
03	EC2100018-03	PERCHLORATE3	20210413_010	04/13/2021 10:31
04	EC2100018-04	PERCHLORATE4	20210413_011	04/13/2021 10:39
05	EC2100018-05	PERCHLORATE5	20210413_012	04/13/2021 10:47
06	EC2100018-06	PERCHLORATE6	20210413_013	04/13/2021 10:54
07	EC2100018-07	PERCHLORATE7	20210413_014	04/13/2021 11:02
08	EC2100018-08	PERCHLORATE8	20210413_015	04/13/2021 11:10
09	EC2100018-09	PERCHLORATE9	20210413_016	04/13/2021 11:18
10	EC2100018-10	PERCHLORATE10	20210413_017	04/13/2021 11:26

Analyte **Curve Fit** **Weighting**

Perchlorate **Average RF** **RSD = 9.714** **Average RF = 0.1227**

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.1000	0.154	02	0.5000	0.1219	03	0.7000	0.1209	04	1.0000	0.1214
05	2.0000	0.1284	06	5.0000	0.1206	07	10.0000	0.1183	08	20.0000	0.114
09	30.0000	0.1156	10	50.0000	0.112						

Analyte

Perchlorate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.1000	0.125	25.5	02	0.5000	0.497	-0.6	03	0.7000	0.690	-1.5
04	1.0000	0.989	-1.1	05	2.0000	2.09	4.6	06	5.0000	4.91	-1.7
07	10.0000	9.64	-3.6	08	20.0000	18.6	-7.1	09	30.0000	28.3	-5.8
10	50.0000	45.7	-8.7								

Initial Calibration Verification Summary Report

Calibration ID:	EC2100018	**Instrument ID:**	E-LCMS-01
Datafile ID:	20210413_018	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Perchlorate	EC2100018-11	T	Average RF	10	9.478	ng/mL	-5.2	<= 15

Insight Report

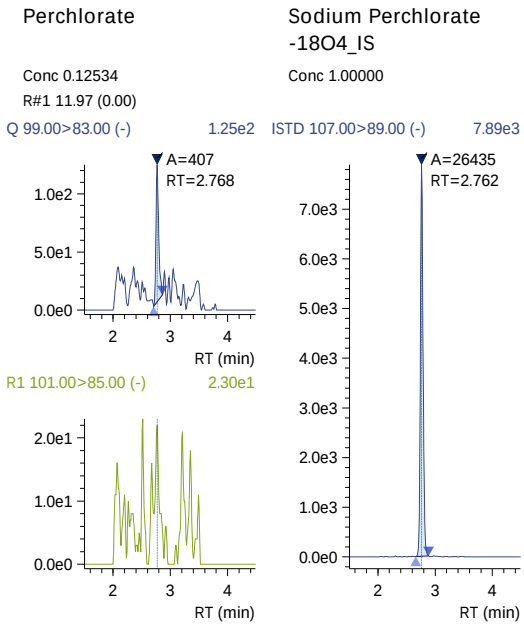
Printed at 4/14/2021 8:51:54 AM

Method File: I:\LCMS01\DATA\20210413\20210413.lcm
Project File: I:\LCMS01\DATA\20210413\20210413.damlp

20210413_008

Sample ID: PERCHLORATE1
Date Acquired: 4/13/2021 10:15:23 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_008.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.768	407	26435	1	0.12534	ng/mL	0.1000	11.97
Sodium Perchlorate-18O4 _IS	Auto	2.762	26435	26435	1	1.00000	ng/mL	1.0000	----



Insight Report

Printed at 4/14/2021 8:55:34 AM

Method File: I:\LCMS01\DATA\20210413\Before\20210413.lcm

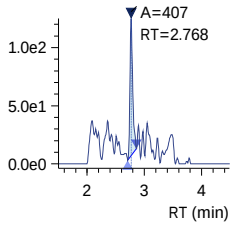
20210413_008

Sample ID: PERCHLORATE1
Date Acquired: 4/13/2021 10:15:23 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_008.lcd
Vial: 22 | Inj. Volume: 25.0000uL | Tray: 1

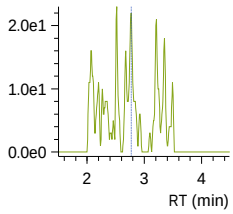
Perchlorate

Conc 0.12722
R#1 11.97 (0.00)

Q 99.00>83.00 (-) 1.25e2



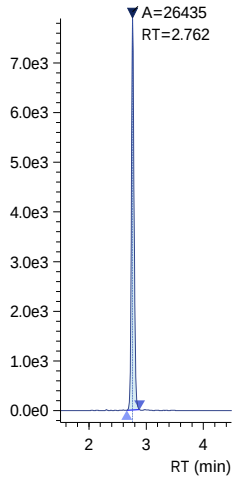
R1 101.00>85.00 (-) 2.30e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.89e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

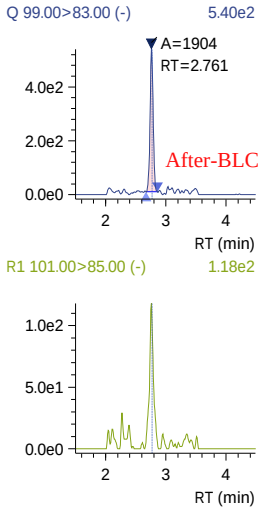
20210413_009

Sample ID: PERCHLORATE2
Date Acquired: 4/13/2021 10:23:19 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_009.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.761	1904	31237	1	0.49684	ng/mL	0.5000	21.42
Sodium Perchlorate-18O4 _IS	Auto	2.758	31237	31237	1	1.00000	ng/mL	1.0000	----

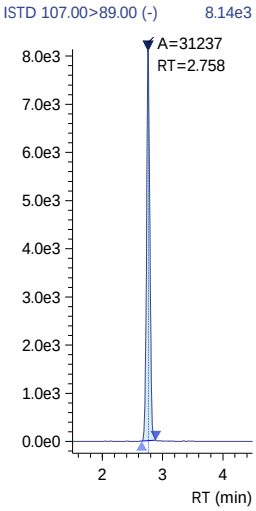
Perchlorate

Conc 0.49684
R#1 21.42 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

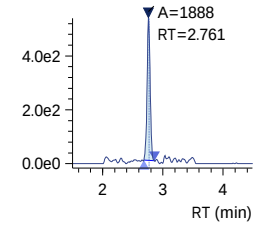
20210413_009

Sample ID: PERCHLORATE2
Date Acquired: 4/13/2021 10:23:19 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_009.lcd
Vial: 23 | Inj. Volume: 25.0000uL | Tray: 1

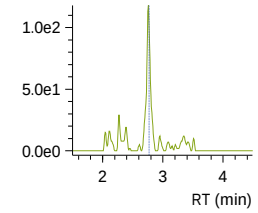
Perchlorate

Conc 0.50005
R#1 20.15 (0.00)

Q 99.00>83.00 (-) 5.40e2



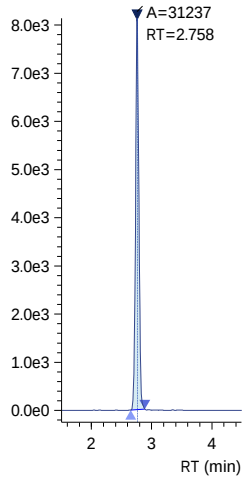
R1 101.00>85.00 (-) 1.18e2



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.14e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

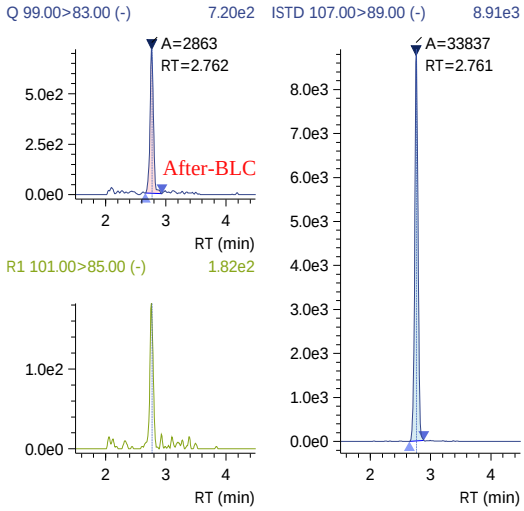
20210413_010

Sample ID: PERCHLORATE3
Date Acquired: 4/13/2021 10:31:12 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_010.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.762	2863	33837	1	0.68967	ng/mL	0.7000	23.86
Sodium Perchlorate-18O4 _IS	Auto	2.761	33837	33837	1	1.00000	ng/mL	1.0000	----

Perchlorate

Conc 0.68967
R#1 23.86 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

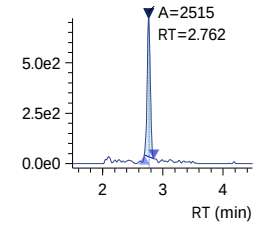
20210413_010

Sample ID: PERCHLORATE3
Date Acquired: 4/13/2021 10:31:12 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_010.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 1

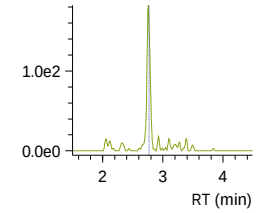
Perchlorate

Conc 0.61492
R#1 25.48 (0.00)

Q 99.00>83.00 (-) 7.20e2



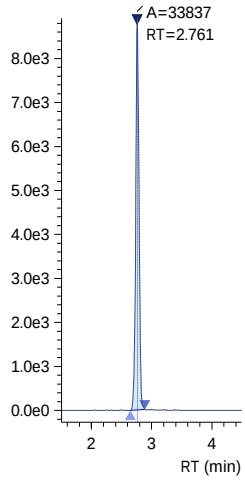
R1 101.00>85.00 (-) 1.82e2



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.91e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

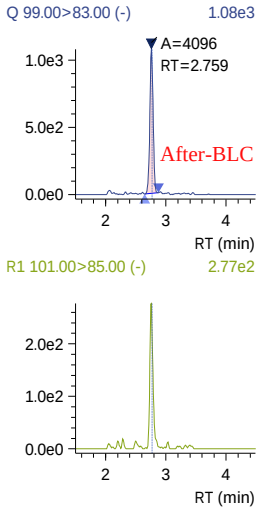
20210413_011

Sample ID: PERCHLORATE4
Date Acquired: 4/13/2021 10:39:04 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_011.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.759	4096	33742	1	0.98947	ng/mL	1.0000	25.61
Sodium Perchlorate-18O4 _IS	Auto	2.757	33742	33742	1	1.00000	ng/mL	1.0000	----

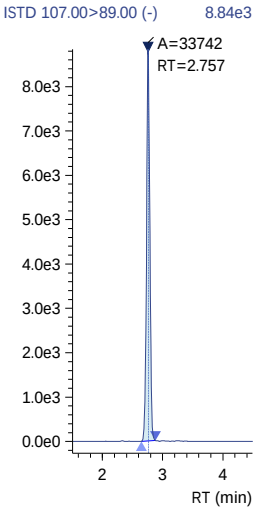
Perchlorate

Conc 0.98947
R#1 25.61 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

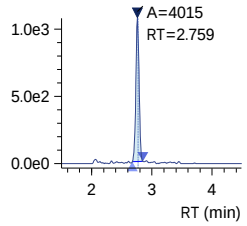
20210413_011

Sample ID: PERCHLORATE4
Date Acquired: 4/13/2021 10:39:04 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_011.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 1

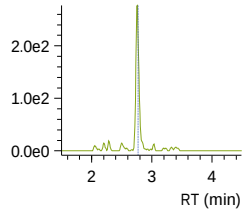
Perchlorate

Conc 0.98444
R#1 25.21 (0.00)

Q 99.00>83.00 (-) 1.08e3



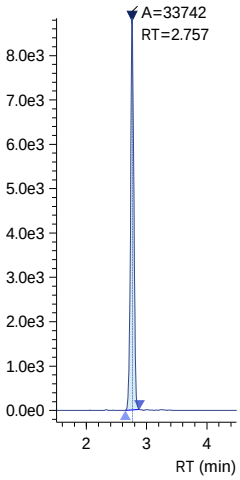
R1 101.00>85.00 (-) 2.77e2



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.84e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

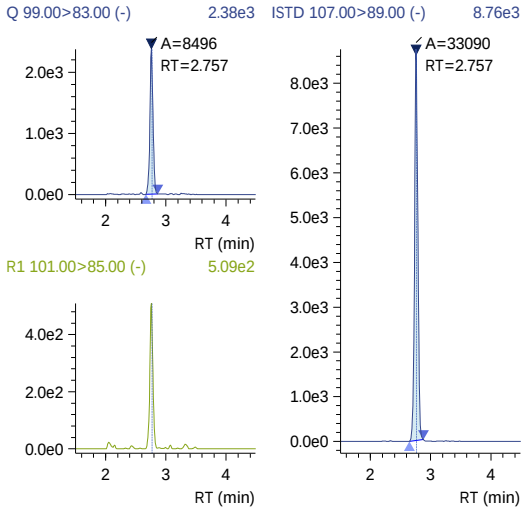
20210413_012

Sample ID: PERCHLORATE5
Date Acquired: 4/13/2021 10:47:01 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_012.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.757	8496	33090	1	2.09273	ng/mL	2.0000	22.06
Sodium Perchlorate-18O4 _IS	Auto	2.757	33090	33090	1	1.00000	ng/mL	1.0000	----

Perchlorate

Conc 2.09273
R#1 22.06 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

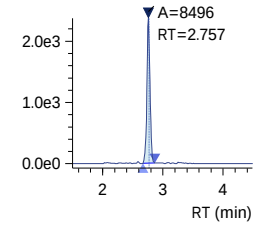
20210413_012

Sample ID: PERCHLORATE5
Date Acquired: 4/13/2021 10:47:01 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_012.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 1

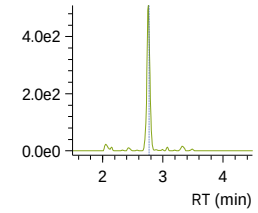
Perchlorate

Conc 2.12410
R#1 22.06 (0.00)

Q 99.00>83.00 (-) 2.38e3



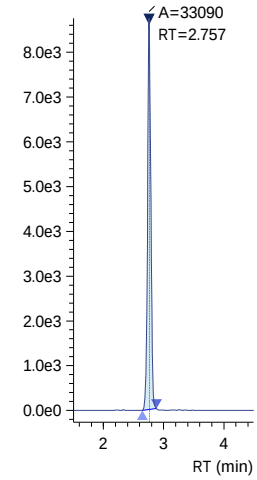
R1 101.00>85.00 (-) 5.09e2



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.76e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

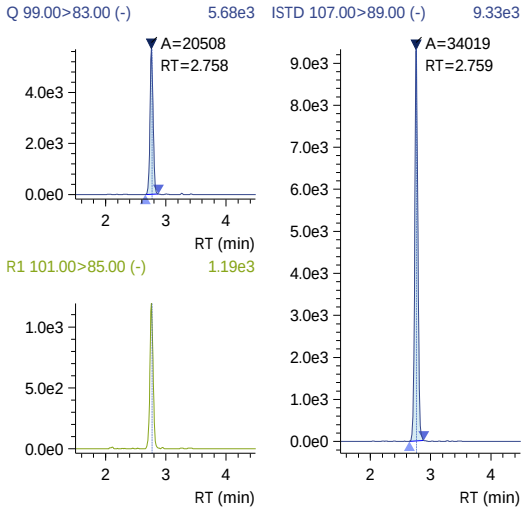
20210413_013

Sample ID: PERCHLORATE6
Date Acquired: 4/13/2021 10:54:54 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_013.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.758	20508	34019	1	4.91382	ng/mL	5.0000	20.99
Sodium Perchlorate-18O4 _IS	Auto	2.759	34019	34019	1	1.00000	ng/mL	1.0000	----

Perchlorate

Conc 4.91382
R#1 20.99 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

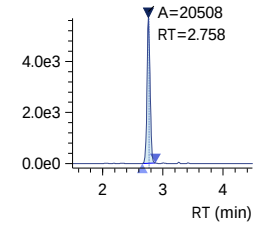
20210413_013

Sample ID: PERCHLORATE6
Date Acquired: 4/13/2021 10:54:54 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_013.lcd
Vial: 27 | Inj. Volume: 25.0000uL | Tray: 1

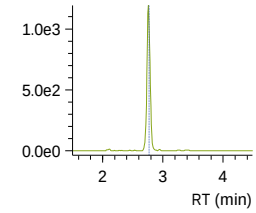
Perchlorate

Conc 4.98748
R#1 20.99 (0.00)

Q 99.00>83.00 (-) 5.68e3



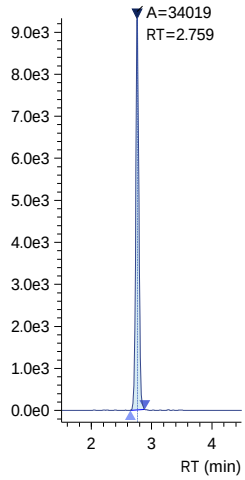
R1 101.00>85.00 (-) 1.19e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 9.33e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

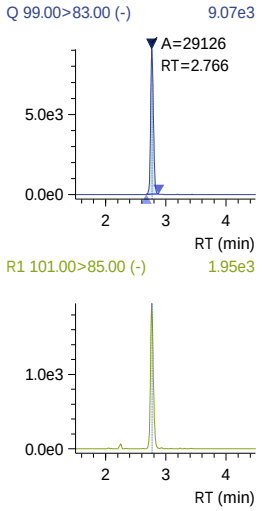
20210413_014

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 11:02:49 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_014.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.766	29126	24621	1	9.64243	ng/mL	10.0000	22.37
Sodium Perchlorate-18O4 _IS	Auto	2.765	24621	24621	1	1.00000	ng/mL	1.0000	----

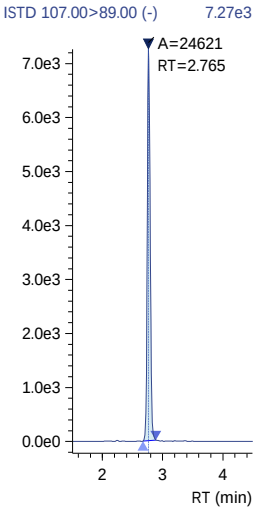
Perchlorate

Conc 9.64243
R#1 22.37 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

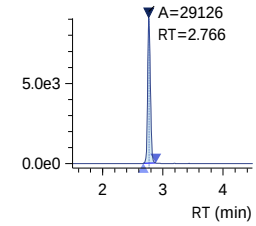
20210413_014

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 11:02:49 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_014.lcd
Vial: 21 | Inj. Volume: 25.0000uL | Tray: 1

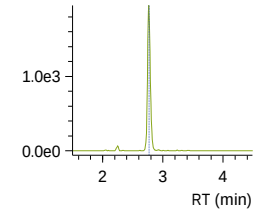
Perchlorate

Conc 9.78696
R#1 22.37 (0.00)

Q 99.00>83.00 (-) 9.07e3



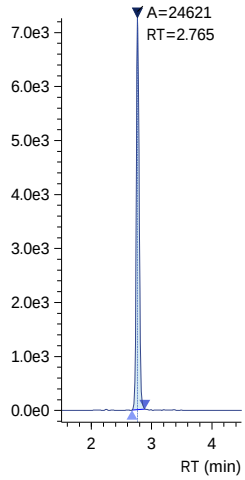
R1 101.00>85.00 (-) 1.95e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.27e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

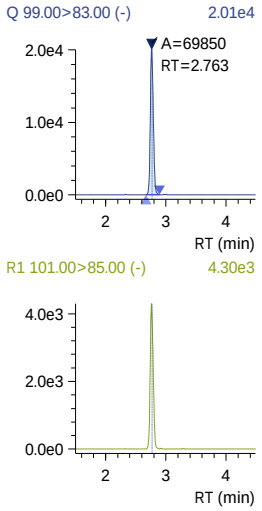
20210413_015

Sample ID: PERCHLORATE8
Date Acquired: 4/13/2021 11:10:43 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_015.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.763	69850	30625	1	18.59082	ng/mL	20.0000	21.49
Sodium Perchlorate-18O4_IS	Auto	2.761	30625	30625	1	1.00000	ng/mL	1.0000	----

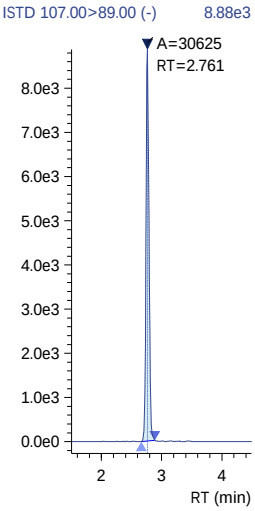
Perchlorate

Conc 18.59082
R#1 21.49 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

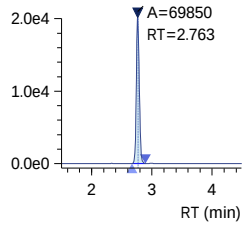
20210413_015

Sample ID: PERCHLORATE8
Date Acquired: 4/13/2021 11:10:43 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_015.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 1

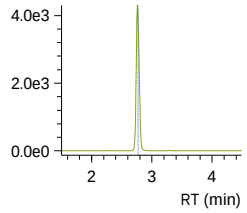
Perchlorate

Conc 18.86948
R#1 21.49 (0.00)

Q 99.00>83.00 (-) 2.01e4



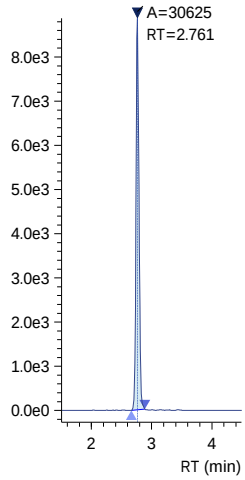
R1 101.00>85.00 (-) 4.30e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.88e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

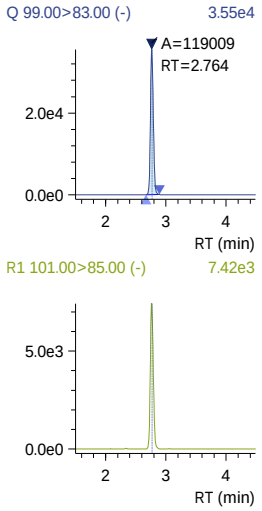
20210413_016

Sample ID: PERCHLORATE9
Date Acquired: 4/13/2021 11:18:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_016.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.764	119009	34325	1	28.26043	ng/mL	30.0000	21.59
Sodium Perchlorate-18O4_IS	Auto	2.763	34325	34325	1	1.00000	ng/mL	1.0000	----

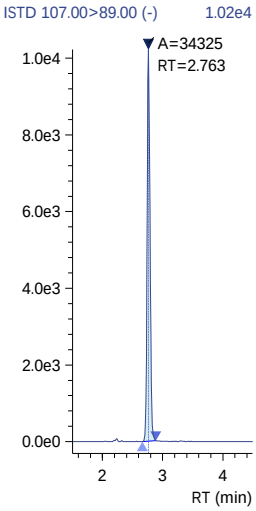
Perchlorate

Conc 28.26043
R#1 21.59 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

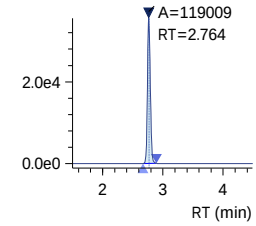
20210413_016

Sample ID: PERCHLORATE9
Date Acquired: 4/13/2021 11:18:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_016.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 1

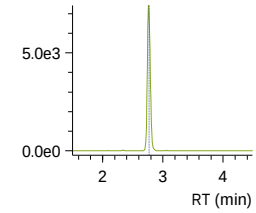
Perchlorate

Conc 28.68402
R#1 21.59 (0.00)

Q 99.00>83.00 (-) 3.55e4



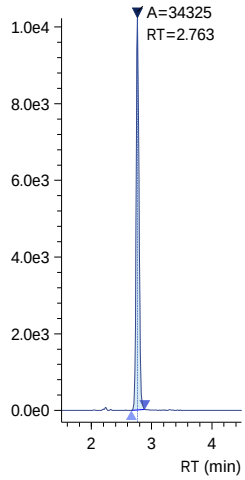
R1 101.00>85.00 (-) 7.42e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 1.02e4



Insight Report

Printed at 4/14/2021 8:51:54 AM

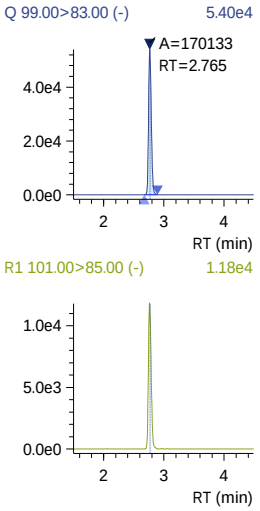
20210413_017

Sample ID: PERCHLORATE10
Date Acquired: 4/13/2021 11:26:31 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_017.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.765	170133	30370	1	45.66271	ng/mL	50.0000	22.95
Sodium Perchlorate-18O4_IS	Auto	2.763	30370	30370	1	1.00000	ng/mL	1.0000	----

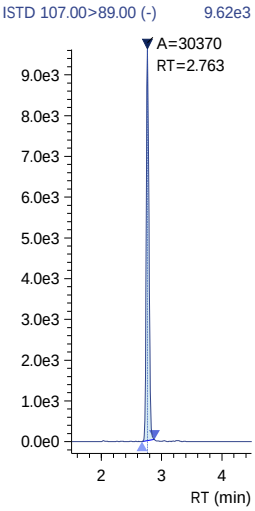
Perchlorate

Conc 45.66271
R#1 22.95 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

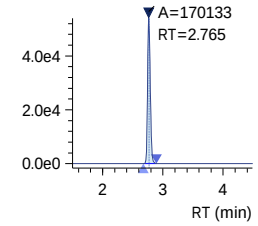
20210413_017

Sample ID: PERCHLORATE10
Date Acquired: 4/13/2021 11:26:31 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_017.lcd
Vial: 30 | Inj. Volume: 25.0000uL | Tray: 1

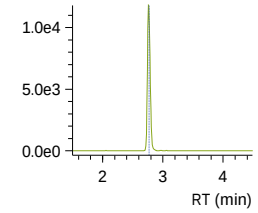
Perchlorate

Conc 46.34714
R#1 22.95 (0.00)

Q 99.00>83.00 (-) 5.40e4



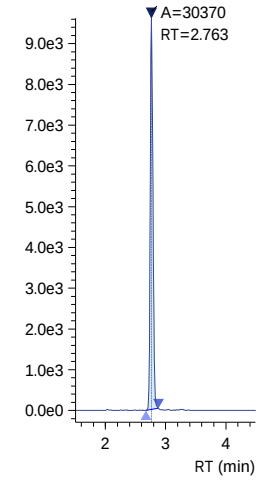
R1 101.00>85.00 (-) 1.18e4



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 9.62e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

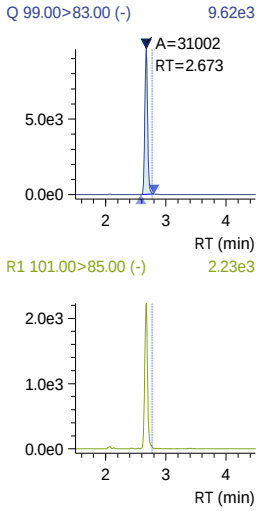
20210413_018

Sample ID: PERCHLORATEICV
Date Acquired: 4/13/2021 11:58:42 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_018.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.673	31002	26657	1	9.47985	ng/mL	10.0000	23.51
Sodium Perchlorate-18O4 _IS	Auto	2.672	26657	26657	1	1.00000	ng/mL	1.0000	----

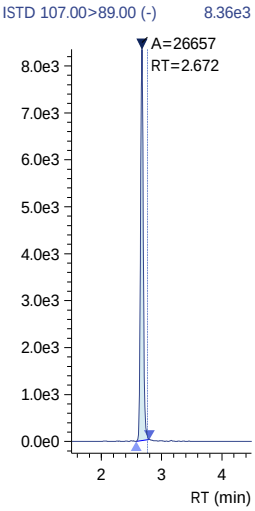
Perchlorate

Conc 9.47985
R#1 23.51 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

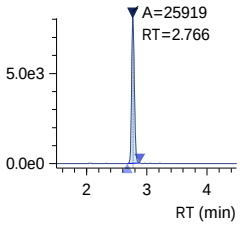
20210413_018

Sample ID: PERCHLORATEICV
Date Acquired: 4/13/2021 11:34:26 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_018.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

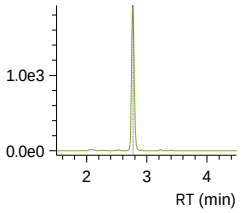
Perchlorate

Conc 8.37906
R#1 24.46 (0.00)

Q 99.00>83.00 (-) 8.06e3



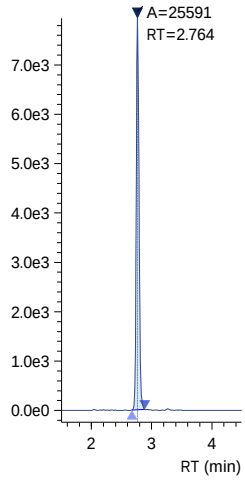
R1 101.00>85.00 (-) 1.93e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.95e3



Chromatograms and Selected Ion Monitoring

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 320, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

20210413

ICAL Date: 4/13/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100018**

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	PERCHLORATE1		20210413_008	Perchlorate6850b.lcm	1x	☒	3100808-05	4/13/2021 10:15
2	PERCHLORATE2		20210413_009	Perchlorate6850b.lcm	1x	☒	3100808-06	4/13/2021 10:23
3	PERCHLORATE3		20210413_010	Perchlorate6850b.lcm	1x	☒	3100808-07	4/13/2021 10:31
4	PERCHLORATE4		20210413_011	Perchlorate6850b.lcm	1x	☒	3100808-08	4/13/2021 10:39
5	PERCHLORATE5		20210413_012	Perchlorate6850b.lcm	1x	☒	3100808-09	4/13/2021 10:47
6	PERCHLORATE6		20210413_013	Perchlorate6850b.lcm	1x	☒	3100809-01	4/13/2021 10:54
7	PERCHLORATE7		20210413_014	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 11:02
8	PERCHLORATE8		20210413_015	Perchlorate6850b.lcm	1x	☒	3100809-03	4/13/2021 11:10
9	PERCHLORATE9		20210413_016	Perchlorate6850b.lcm	1x	☒	3100809-04	4/13/2021 11:18
10	PERCHLORATE10		20210413_017	Perchlorate6850b.lcm	1x	☒	3100809-05	4/13/2021 11:26
11	PERCHLORATEICV		20210413_018	Perchlorate6850b.lcm	1x	☒	3100809-06	4/13/2021 11:58
12	ICS		20210413_019	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:24
13	LODV		20210413_020	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:31
14	PERCHLORATE7		20210413_021	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 12:39
15	EQ2100193-01-DNU		20210413_022	Perchlorate6850b.lcm	1x	☒	INST failed high	4/13/2021 12:47
16	EQ2100193-02		20210413_023	Perchlorate6850b.lcm	1x	☒		4/13/2021 12:55
17	EQ2100193-03		20210413_024	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:27
18	EQ2100193-01-DNU		20210413_025	Perchlorate6850b.lcm	1x	☒	INST failed high	4/13/2021 13:35
19	EQ2100193-04		20210413_026	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:43
20	EQ2100193-05		20210413_027	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:51
21	E2100329-001		20210413_028	Perchlorate6850b.lcm	1x	☒		4/13/2021 13:59
22	E2100330-001DNU		20210413_029	Perchlorate6850b.lcm	1x	☒	need 100X dilution	4/13/2021 14:07
23	E2100331-001		20210413_030	Perchlorate6850b.lcm	1x	☒		4/13/2021 14:15
24	E2100368-001		20210413_031	Perchlorate6850b.lcm	1x	☒		4/13/2021 14:23
25	E2100369-001DNU		20210413_032	Perchlorate6850b.lcm	1x	☒	need 10X dilution	4/13/2021 14:31
26	PERCHLORATE7		20210413_033	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 14:39
27	E2100369-002		20210413_034	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:03
28	E2100369-003		20210413_035	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:11
29	E2100369-004		20210413_036	Perchlorate6850b.lcm	1x	☒		4/13/2021 15:18
30	E2100330-001X100		20210413_037	Perchlorate6850b.lcm	100x	☒		4/13/2021 15:26
31	E2100369-001X10		20210413_038	Perchlorate6850b.lcm	10x	☒		4/13/2021 15:34
32	E2100369-005DNU		20210413_039	Perchlorate6850b.lcm	1x	☒	need 10X dilution	4/13/2021 15:42
33	E2100369-006DNU		20210413_040	Perchlorate6850b.lcm	1x	☒	need 20X dilution	4/13/2021 15:50
34	E2100369-007DNU		20210413_041	Perchlorate6850b.lcm	1x	☒	need 20X dilution	4/13/2021 15:58
35	E2100369-008DNU		20210413_042	Perchlorate6850b.lcm	1x	☒	reanalyze: possible carryover	4/13/2021 16:06
36	E2100369-009DNU		20210413_043	Perchlorate6850b.lcm	1x	☒	need 5000X dilution	4/13/2021 16:14
37	PERCHLORATE7		20210413_044	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 16:38
38	E2100369-008DNU		20210413_045	Perchlorate6850b.lcm	1x	☒		4/13/2021 16:46
39	E2100369-005X10		20210413_046	Perchlorate6850b.lcm	10x	☒		4/13/2021 16:54
40	E2100369-006X20		20210413_047	Perchlorate6850b.lcm	20x	☒		4/13/2021 17:02
41	E2100369-007X20		20210413_048	Perchlorate6850b.lcm	20x	☒		4/13/2021 17:10
42	E2100369-009X5000		20210413_049	Perchlorate6850b.lcm	5000x	☒		4/13/2021 17:17
43	EQ2100193-01		20210413_050	Perchlorate6850b.lcm	1x	☒		4/13/2021 17:25
44	PERCHLORATE7		20210413_051	Perchlorate6850b.lcm	1x	☒	3100809-02	4/13/2021 17:33
45								
46								

20210414

1st Review: Grivera
2nd Review: Kneir

Injection Log
LCMS01 -Shimadzu 8050

ICAL Date: 4/13/2021
Cal. Std. xp: 5/20/2021
ICAL ID: **EC2100018**

Mobile Phases **A:** 0.75% Formic Acid/Water 3100807-09 **B:** MeOH 3100802-01

			File Name	Acquisition Method	Dilution	R	Comments	Date/Time
1	null		20210414_001	Perchlorate6850b.lcm	1x	☒		4/14/2021 9:05
2	null		20210414_002	Perchlorate6850b.lcm	1x	☒		4/14/2021 9:09
3	IB		20210414_003	Perchlorate6850b.lcm	1x	☒		4/14/2021 9:15
4	IB		20210414_004	Perchlorate6850b.lcm	1x	☒		4/14/2021 9:23
5	ICS		20210414_005	Perchlorate6850b.lcm	1x	☒		4/14/2021 9:30
6	LODV		20210414_006	Perchlorate6850b.lcm	1x	☒		4/14/2021 10:22
7	PERCHLORATE7		20210414_007	Perchlorate6850b.lcm	1x	☒	3100809-02	4/14/2021 10:29
8	E2100369-008		20210414_008	Perchlorate6850b.lcm	1x	☒	reanalyzed due to carryover	4/14/2021 11:08
9	PERCHLORATE7		20210414_009	Perchlorate6850b.lcm	1x	☒	3100809-02	4/14/2021 11:32
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21040286

Service Request: E2100369
Date Analyzed: 4/13/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210413\20210413_021

Calibration Date: 4/13/21
Calibration ID: EC2100018
Analysis Lot: 719570
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.83	0.1227	0.1206	-1.7	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/13/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	4/13/21
File ID:	I:\LCMS01\DATA\20210413\20210413_033	**Calibration ID:**	EC2100018
		Analysis Lot:	719570
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.97	0.1227	0.1224	-0.3	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21040286

Service Request: E2100369
Date Analyzed: 4/13/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210413\20210413_044

Calibration Date: 4/13/21
Calibration ID: EC2100018
Analysis Lot: 719570
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	11.1	0.1227	0.1357	10.6	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21040286

Service Request: E2100369
Date Analyzed: 4/13/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210413\20210413_051

Calibration Date: 4/13/21
Calibration ID: EC2100018
Analysis Lot: 719570
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.72	0.1227	0.1193	-2.8	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS21040286

Service Request: E2100369
Date Analyzed: 4/14/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
File ID: I:\LCMS01\DATA\20210414\20210414_007

Calibration Date: 4/13/21
Calibration ID: EC2100018
Analysis Lot: 719704
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.01	0.1227	0.1105	-9.9	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/14/21

Continuing Calibration Verification Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Calibration Date:**	4/13/21
File ID:	I:\LCMS01\DATA\20210414\20210414_009	**Calibration ID:**	EC2100018
		Analysis Lot:	719704
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.32	0.1227	0.1143	-6.8	NA	± 15 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/13/21 12:39

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210413\20210413_021	**Lab Code:**	EQ2100205-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719570
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100205-01	25,141	2.77
Lab Control Sample	EQ2100193-02	39,477	2.76
Duplicate Lab Control Sample	EQ2100193-03	24,790	2.77
50WW06-210406MS	EQ2100193-04	36,600	2.76
50WW06-210406DMS	EQ2100193-05	34,785	2.76

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/13/21 14:39

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210413\20210413_033	**Lab Code:**	EQ2100205-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719570
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100205-02	21,644	2.77
50WW05-210405	E2100369-002	23,918	2.68
50WW29-210405	E2100369-003	19,074	2.76
50WW14-210406	E2100369-004	32,832	2.77
50WW08-210405	E2100369-001	31,152	2.77

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/13/21 16:38

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210413\20210413_044	**Lab Code:**	EQ2100205-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719570
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100205-03	19,570	2.68
50WW13-210406	E2100369-005	28,006	2.77
50WW11-210406	E2100369-006	25,724	2.69
50WW11-210406-FD	E2100369-007	26,926	2.77
50WW12-210406	E2100369-009	22,928	2.78
Method Blank	EQ2100193-01	22,959	2.78

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/13/21 17:33

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210413\20210413_051	**Lab Code:**	EQ2100205-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719570
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100205-04	22,708	2.78

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/14/21 10:29

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210414\20210414_007	**Lab Code:**	EQ2100208-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719704
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100208-01	23,140	2.78
50WW06-210406	E2100369-008	30,487	2.77

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2100369
Project:	HS21040286	**Date Analyzed:**	4/14/21 11:32

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20210414\20210414_009	**Lab Code:**	EQ2100208-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	719704
Analytical Method:	6850	**Signal ID:**	1

		Sodium Perchlorate-18O4	
		Area	**RT**
	ICAL Average ==>	31,230	2.76
	Upper Limit ==>	46,845	4.76
	Lower Limit ==>	15,615	0.76
Associated Analyses			
Continuing Calibration Verification	EQ2100208-02	23,950	2.77

Results flagged with an asterisk (*) indicate values outside control criteria.

Insight Report

Printed at 4/14/2021 8:51:54 AM

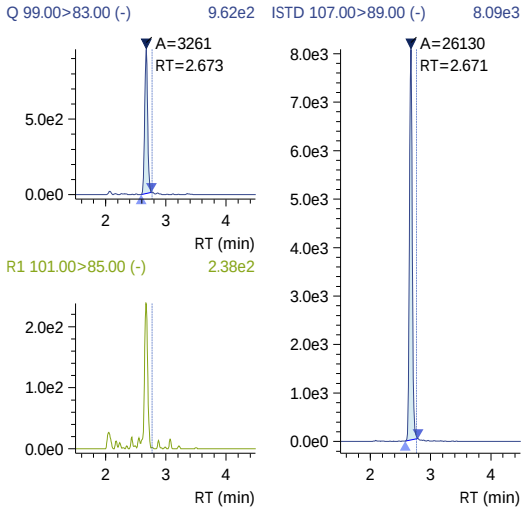
20210413_019

Sample ID: ICS
Date Acquired: 4/13/2021 12:24:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_019.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.673	3261	26130	1	1.01724	ng/mL	----	24.89
Sodium Perchlorate-18O4 _IS	Auto	2.671	26130	26130	1	1.00000	ng/mL	----	----

Perchlorate

Conc 1.01724
R#1 24.89 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

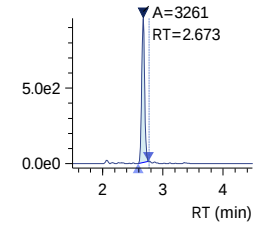
20210413_019

Sample ID: ICS
Date Acquired: 4/13/2021 12:24:05 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_019.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

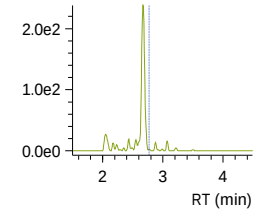
Perchlorate

Conc 1.03249
R#1 24.89 (0.00)

Q 99.00>83.00 (-) 9.62e2



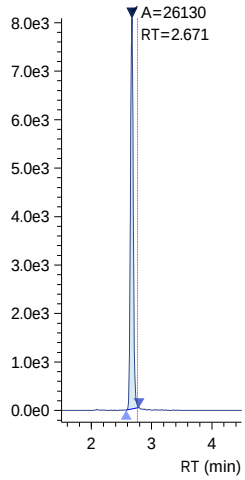
R1 101.00>85.00 (-) 2.38e2



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.09e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

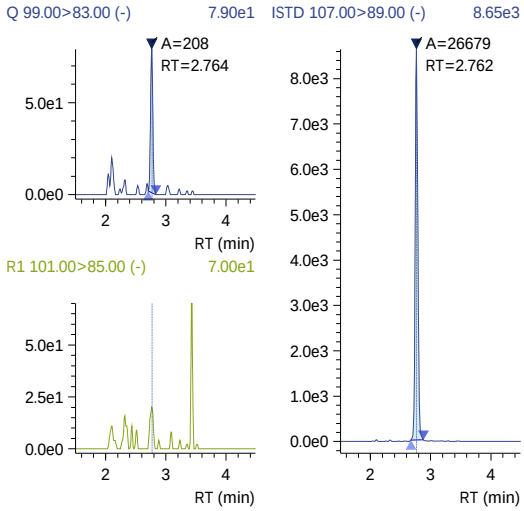
20210413_020

Sample ID: LODV
Date Acquired: 4/13/2021 12:31:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_020.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.764	208	26679	1	0.06340	ng/mL	----	23.29
Sodium Perchlorate-18O4 _IS	Auto	2.762	26679	26679	1	1.00000	ng/mL	----	----

Perchlorate

Conc 0.06340
R#1 23.29 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

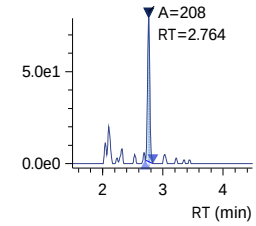
20210413_020

Sample ID: LODV
Date Acquired: 4/13/2021 12:31:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_020.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

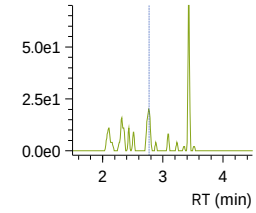
Perchlorate

Conc 0.06435
R#1 23.29 (0.00)

Q 99.00>83.00 (-) 7.90e1



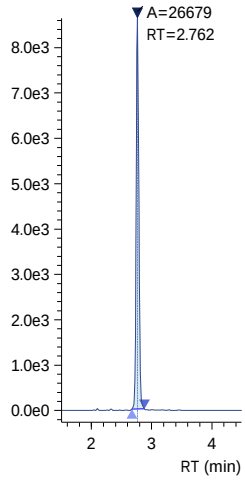
R1 101.00>85.00 (-) 7.00e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.65e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

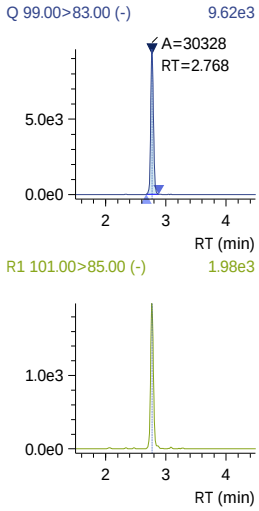
20210413_021

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 12:39:50 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_021.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.768	30328	25141	1	9.83263	ng/mL	10.0000	20.52
Sodium Perchlorate-18O4 _IS	Auto	2.766	25141	25141	1	1.00000	ng/mL	1.0000	----

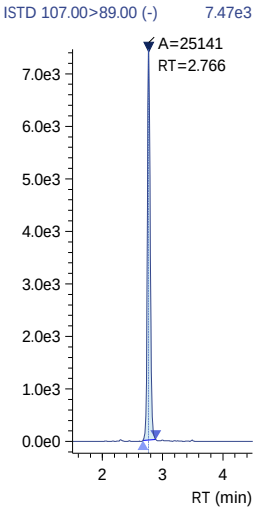
Perchlorate

Conc 9.83263
R#1 20.52 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

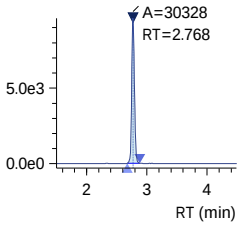
20210413_021

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 12:39:50 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_021.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

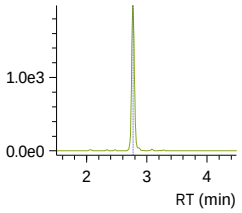
Perchlorate

Conc 9.98001
R#1 20.52 (0.00)

Q 99.00>83.00 (-) 9.62e3



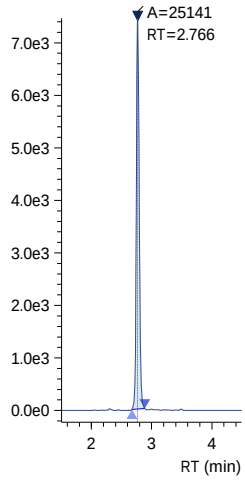
R1 101.00>85.00 (-) 1.98e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.47e3



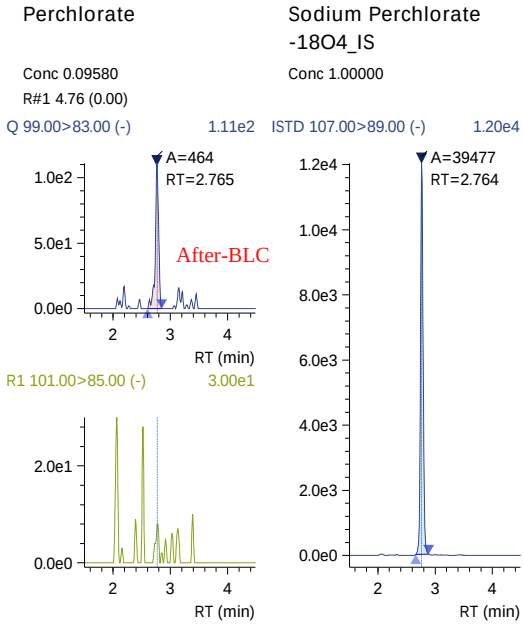
Insight Report

Printed at 4/14/2021 8:51:54 AM

20210413_023

Sample ID: EQ2100193-02
Date Acquired: 4/13/2021 12:55:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_023.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.765	464	39477	1	0.09580	ng/mL	----	4.76
Sodium Perchlorate-18O4 _IS	Auto	2.764	39477	39477	1	1.00000	ng/mL	----	----



Insight Report

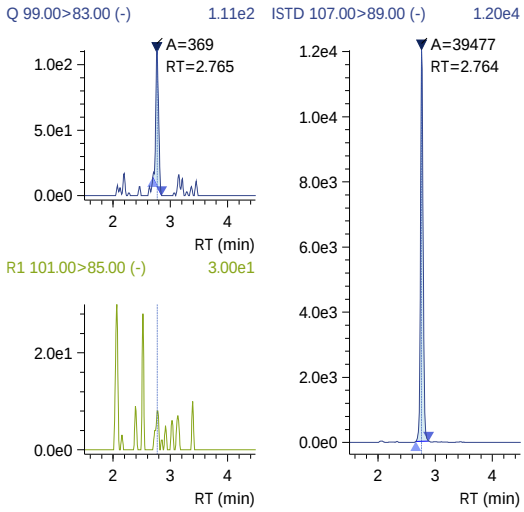
Printed at 4/14/2021 8:55:34 AM

20210413_023

Sample ID: EQ2100193-02
Date Acquired: 4/13/2021 12:55:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_023.lcd
Vial: 26 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc 0.07733
R#1 6.25 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 1:14:32 PM

Method File: I:\LCMS01\DATA\20210413\20210413.lcm
Project File: I:\LCMS01\DATA\20210413\20210413.damlp

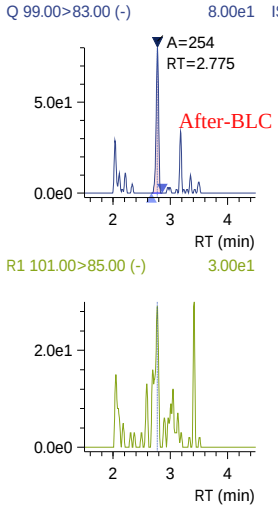
20210413_024

Sample ID: EQ2100193-03
Date Acquired: 4/13/2021 1:27:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_024.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.775	254	24790	1	0.08352	ng/mL	----	32.50
Sodium Perchlorate-18O4 _IS	M	2.768	24790	24790	1	1.00000	ng/mL	----	----

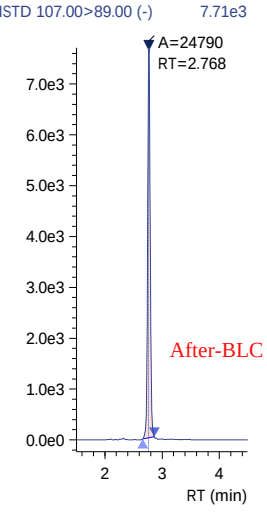
Perchlorate

Conc 0.08352
R#1 32.50 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

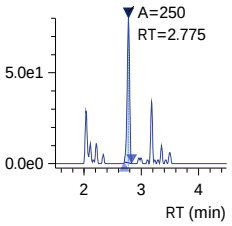
20210413_024

Sample ID: EQ2100193-03
Date Acquired: 4/13/2021 1:27:56 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_024.lcd
Vial: 3 | Inj. Volume: 25.0000uL | Tray: 3

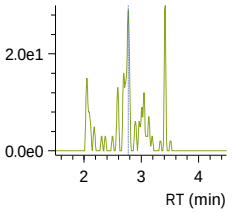
Perchlorate

Conc 0.08311
R#1 26.58 (0.00)

Q 99.00>83.00 (-) 8.00e1



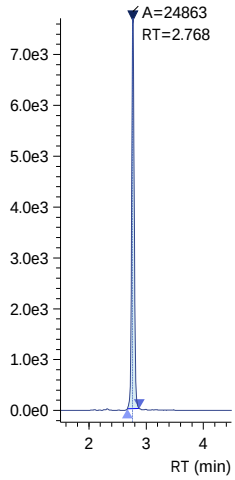
R1 101.00>85.00 (-) 3.00e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.71e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

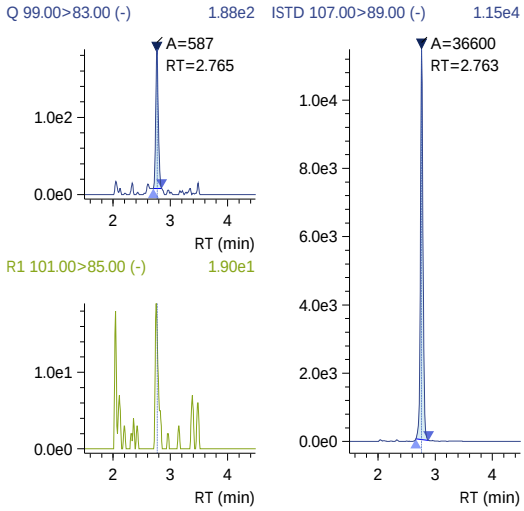
20210413_026

Sample ID: EQ2100193-04
Date Acquired: 4/13/2021 1:43:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_026.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.765	587	36600	1	0.13073	ng/mL	----	10.59
Sodium Perchlorate-18O4 _IS	Auto	2.763	36600	36600	1	1.00000	ng/mL	----	----

Perchlorate

Conc 0.13073
R#1 10.59 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

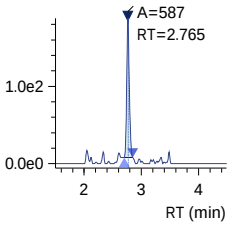
20210413_026

Sample ID: EQ2100193-04
Date Acquired: 4/13/2021 1:43:43 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_026.lcd
Vial: 28 | Inj. Volume: 25.0000uL | Tray: 3

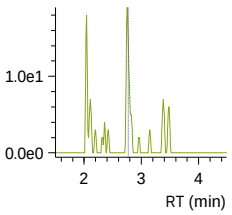
Perchlorate

Conc 0.13269
R#1 10.59 (0.00)

Q 99.00>83.00 (-) 1.88e2



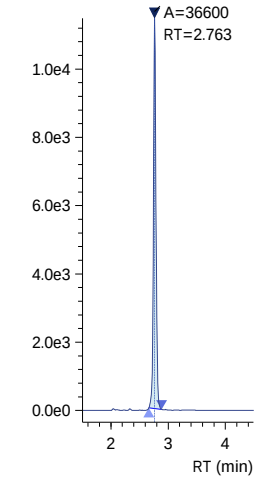
R1 101.00>85.00 (-) 1.90e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 1.15e4



Insight Report

Printed at 4/14/2021 8:51:54 AM

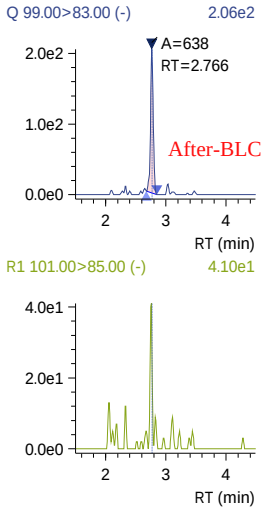
20210413_027

Sample ID: EQ2100193-05
Date Acquired: 4/13/2021 1:51:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_027.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.766	638	34785	1	0.14938	ng/mL	----	18.38
Sodium Perchlorate-18O4 _IS	Auto	2.763	34785	34785	1	1.00000	ng/mL	----	----

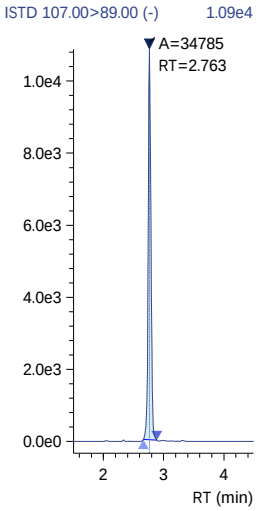
Perchlorate

Conc 0.14938
R#1 18.38 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

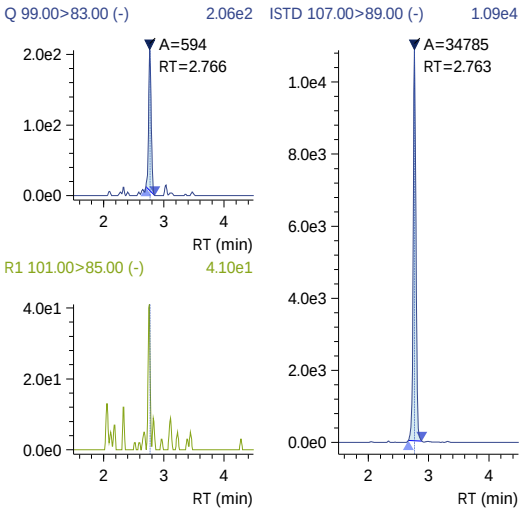
Printed at 4/14/2021 8:55:34 AM

20210413_027

Sample ID: EQ2100193-05
Date Acquired: 4/13/2021 1:51:37 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_027.lcd
Vial: 29 | Inj. Volume: 25.0000uL | Tray: 3

Perchlorate

Conc 0.14134
R#1 21.11 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:51:54 AM

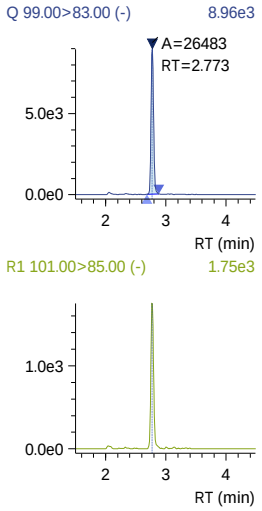
20210413_033

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 2:39:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_033.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.773	26483	21644	1	9.97349	ng/mL	10.0000	20.32
Sodium Perchlorate-18O4 _IS	Auto	2.771	21644	21644	1	1.00000	ng/mL	1.0000	----

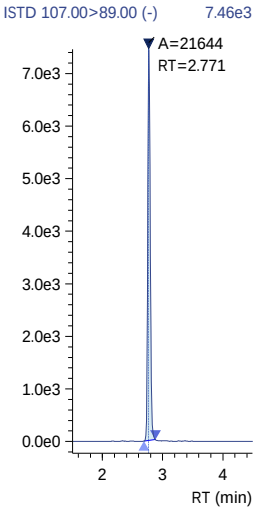
Perchlorate

Conc 9.97349
R#1 20.32 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

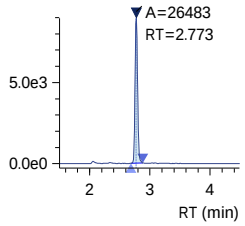
20210413_033

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 2:39:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_033.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

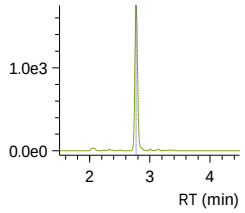
Perchlorate

Conc 10.12298
R#1 20.32 (0.00)

Q 99.00>83.00 (-) 8.96e3



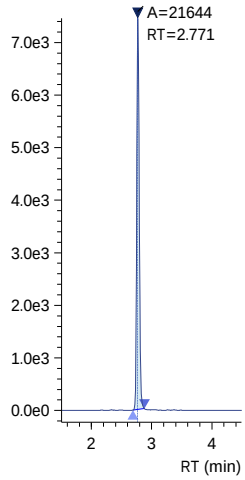
R1 101.00>85.00 (-) 1.75e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.46e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

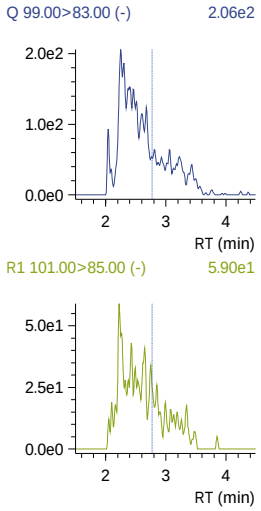
20210413_034

Sample ID: E2100369-002
Date Acquired: 4/13/2021 3:03:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_034.lcd
Vial: 35 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	ND(W/B)	----	----	23918	1	----	ng/mL	----	----
Sodium Perchlorate-18O4_IS	Auto	2.679	23918	23918	1	1.00000	ng/mL	----	----

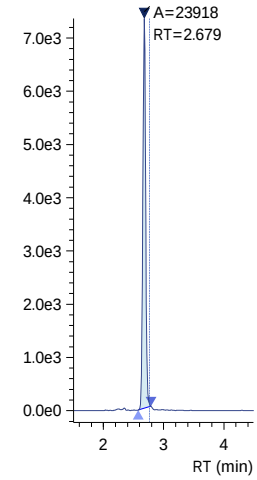
Perchlorate

Conc ----
R#1 ---- (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

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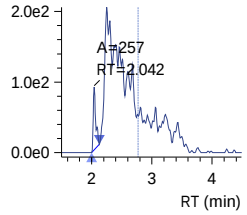
20210413_034

Sample ID: E2100369-002
Date Acquired: 4/13/2021 3:03:11 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_034.lcd
Vial: 35 | Inj. Volume: 25.0000uL | Tray: 3

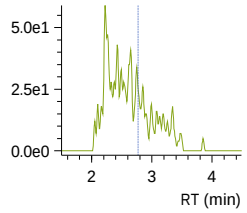
Perchlorate

Conc ----
R#1 ---- (0.00)

Q 99.00>83.00 (-) 2.06e2



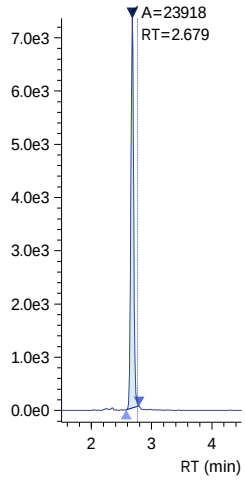
R1 101.00>85.00 (-) 5.90e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.37e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

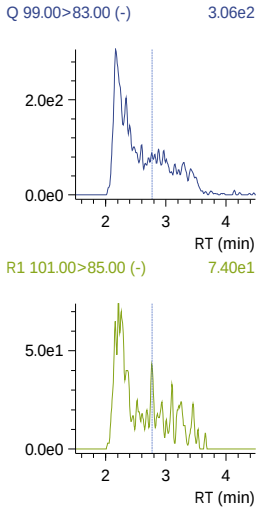
20210413_035

Sample ID: E2100369-003
Date Acquired: 4/13/2021 3:11:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_035.lcd
Vial: 36 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	ND(W/B)	----	----	19074	1	----	ng/mL	----	----
Sodium Perchlorate-18O4_IS	Auto	2.760	19074	19074	1	1.00000	ng/mL	----	----

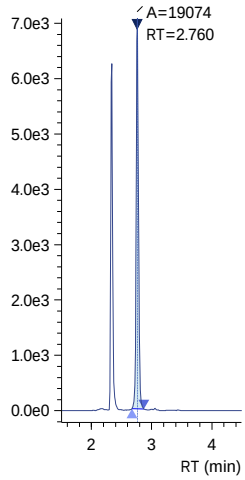
Perchlorate

Conc ----
R#1 ---- (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

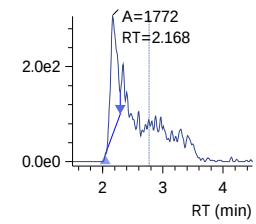
20210413_035

Sample ID: E2100369-003
Date Acquired: 4/13/2021 3:11:03 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_035.lcd
Vial: 36 | Inj. Volume: 25.0000uL | Tray: 3

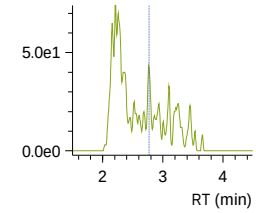
Perchlorate

Conc ----
R#1 ---- (0.00)

Q 99.00>83.00 (-) 3.06e2



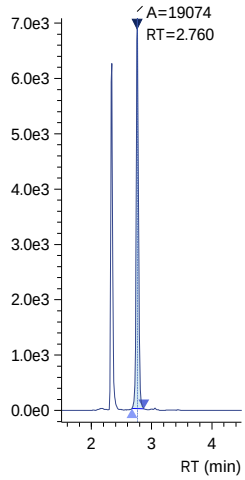
R1 101.00>85.00 (-) 7.40e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.09e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

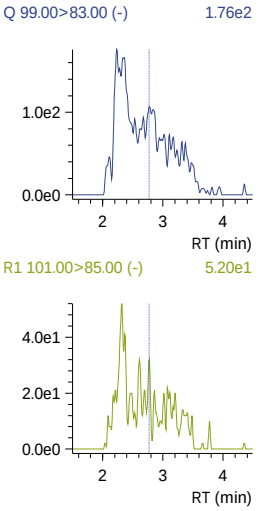
20210413_036

Sample ID: E2100369-004
Date Acquired: 4/13/2021 3:18:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_036.lcd
Vial: 37 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	ND(W/B)	----	----	32832	1	----	ng/mL	----	----
Sodium Perchlorate-18O4_IS	Auto	2.767	32832	32832	1	1.00000	ng/mL	----	----

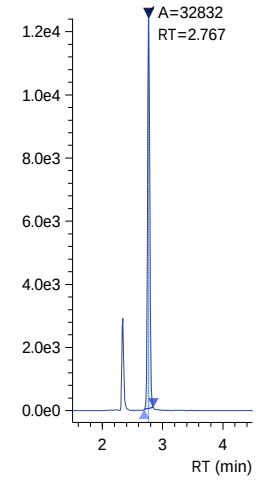
Perchlorate

Conc ----
R#1 ---- (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

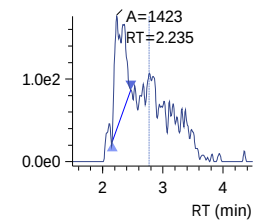
20210413_036

Sample ID: E2100369-004
Date Acquired: 4/13/2021 3:18:57 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_036.lcd
Vial: 37 | Inj. Volume: 25.0000uL | Tray: 3

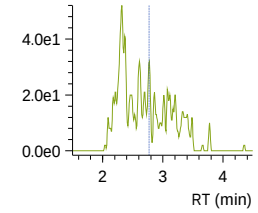
Perchlorate

Conc ----
R#1 ---- (0.00)

Q 99.00>83.00 (-) 1.76e2



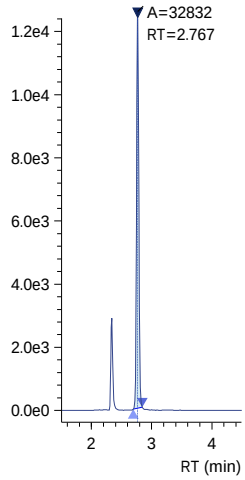
R1 101.00>85.00 (-) 5.20e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 1.24e4



Insight Report

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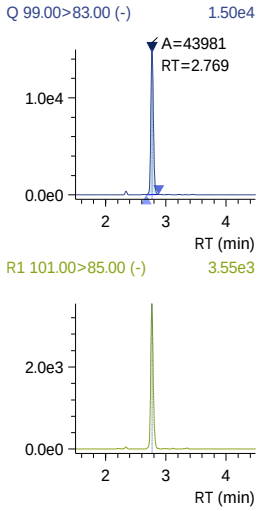
20210413_038

Sample ID: E2100369-001X10
Date Acquired: 4/13/2021 3:34:42 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_038.lcd
Vial: 34 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.769	43981	31152	1	11.50775	ng/mL	----	23.57
Sodium Perchlorate-18O4_IS	Auto	2.768	31152	31152	1	1.00000	ng/mL	----	----

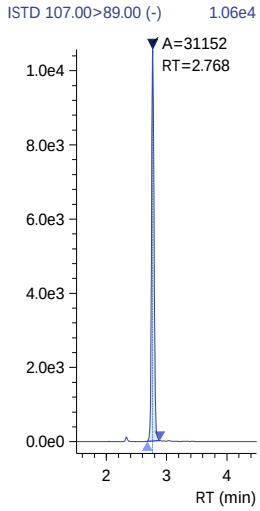
Perchlorate

Conc 11.50775
R#1 23.57 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

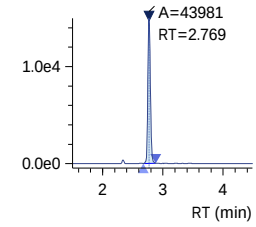
20210413_038

Sample ID: E2100369-001X10
Date Acquired: 4/13/2021 3:34:42 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_038.lcd
Vial: 34 | Inj. Volume: 25.0000uL | Tray: 3

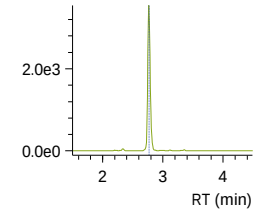
Perchlorate

Conc 11.68024
R#1 23.57 (0.00)

Q 99.00>83.00 (-) 1.50e4



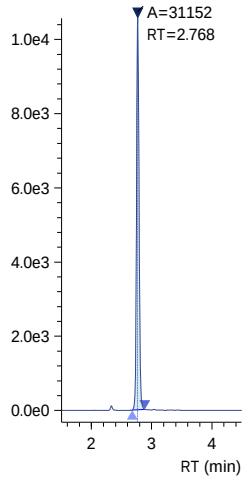
R1 101.00>85.00 (-) 3.55e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 1.06e4



Insight Report

Printed at 4/14/2021 8:51:54 AM

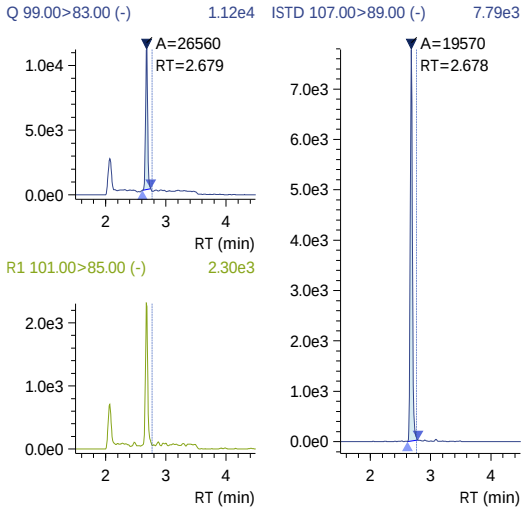
20210413_044

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 4:38:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_044.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.679	26560	19570	1	11.06246	ng/mL	10.0000	20.61
Sodium Perchlorate-18O4_IS	Auto	2.678	19570	19570	1	1.00000	ng/mL	1.0000	----

Perchlorate

Conc 11.06246
R#1 20.61 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

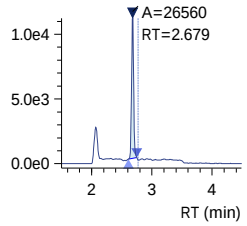
20210413_044

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 4:38:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_044.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

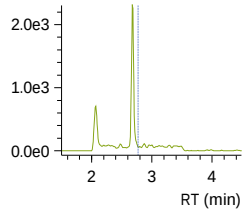
Perchlorate

Conc 11.22827
R#1 20.61 (0.00)

Q 99.00>83.00 (-) 1.12e4



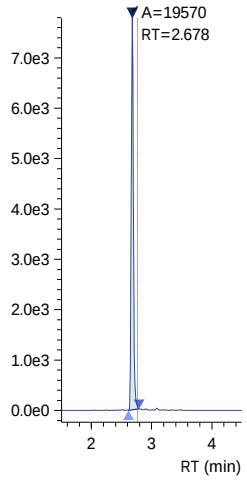
R1 101.00>85.00 (-) 2.30e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.79e3



Insight Report

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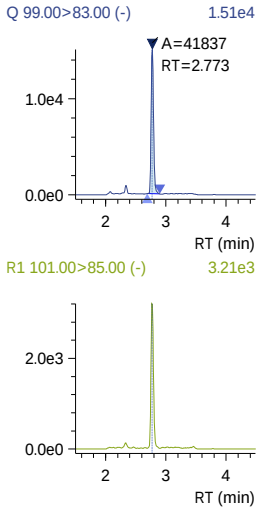
20210413_046

Sample ID: E2100369-005X10
Date Acquired: 4/13/2021 4:54:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_046.lcd
Vial: 38 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.773	41837	28006	1	12.17667	ng/mL	----	22.45
Sodium Perchlorate-18O4_IS	Auto	2.772	28006	28006	1	1.00000	ng/mL	----	----

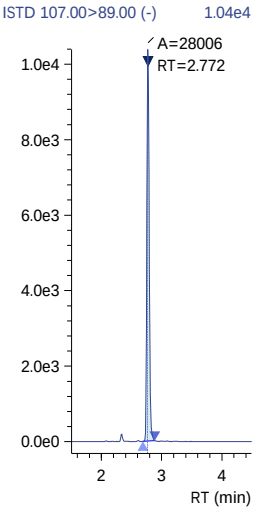
Perchlorate

Conc 12.17667
R#1 22.45 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

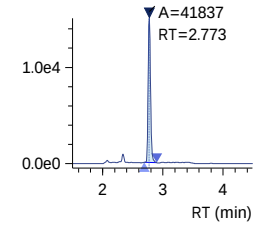
20210413_046

Sample ID: E2100369-005X10
Date Acquired: 4/13/2021 4:54:14 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_046.lcd
Vial: 38 | Inj. Volume: 25.0000uL | Tray: 3

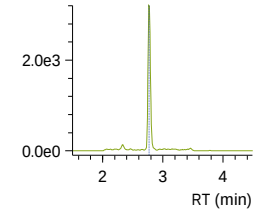
Perchlorate

Conc 12.35918
R#1 22.45 (0.00)

Q 99.00>83.00 (-) 1.51e4



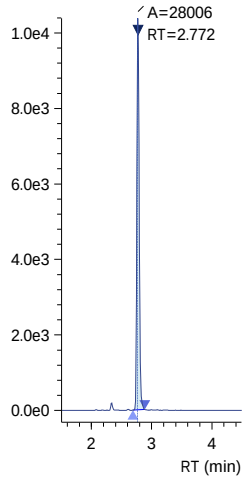
R1 101.00>85.00 (-) 3.21e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 1.04e4



Insight Report

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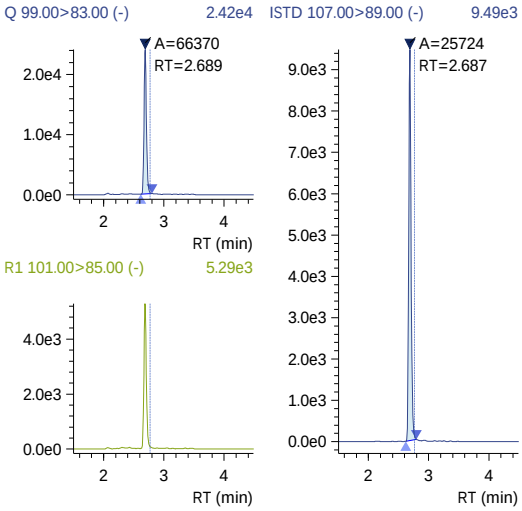
20210413_047

Sample ID: E2100369-006X20
Date Acquired: 4/13/2021 5:02:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_047.lcd
Vial: 39 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.689	66370	25724	1	21.03018	ng/mL	----	22.46
Sodium Perchlorate-18O4_IS	Auto	2.687	25724	25724	1	1.00000	ng/mL	----	----

Perchlorate

Conc 21.03018
R#1 22.46 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

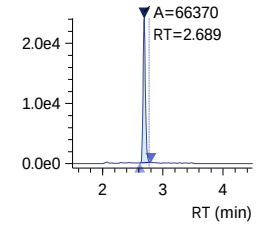
20210413_047

Sample ID: E2100369-006X20
Date Acquired: 4/13/2021 5:02:13 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_047.lcd
Vial: 39 | Inj. Volume: 25.0000uL | Tray: 3

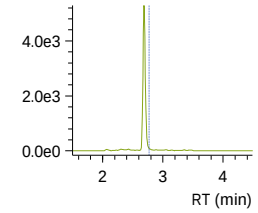
Perchlorate

Conc 21.34540
R#1 22.46 (0.00)

Q 99.00>83.00 (-) 2.42e4



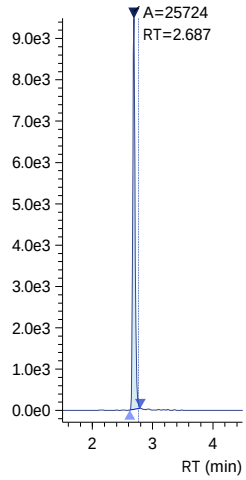
R1 101.00>85.00 (-) 5.29e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 9.49e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

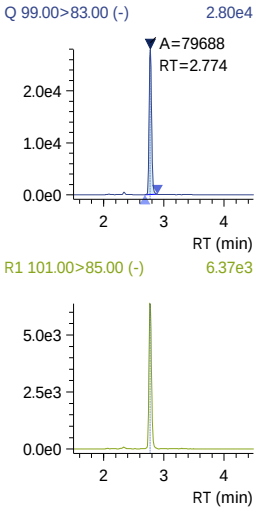
20210413_048

Sample ID: E2100369-007X20
Date Acquired: 4/13/2021 5:10:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_048.lcd
Vial: 40 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.774	79688	26926	1	24.12269	ng/mL	----	24.25
Sodium Perchlorate-18O4_IS	Auto	2.773	26926	26926	1	1.00000	ng/mL	----	----

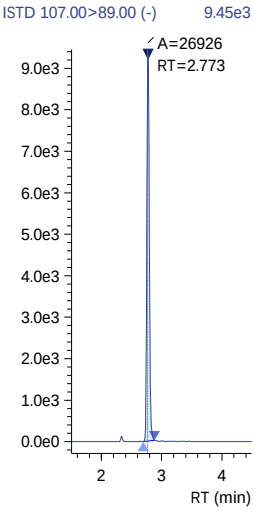
Perchlorate

Conc 24.12269
R#1 24.25 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:55:34 AM

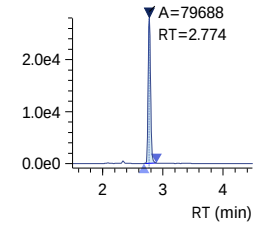
20210413_048

Sample ID: E2100369-007X20
Date Acquired: 4/13/2021 5:10:06 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_048.lcd
Vial: 40 | Inj. Volume: 25.0000uL | Tray: 3

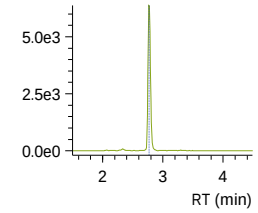
Perchlorate

Conc 24.48426
R#1 24.25 (0.00)

Q 99.00>83.00 (-) 2.80e4



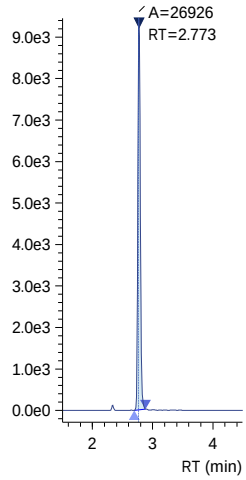
R1 101.00>85.00 (-) 6.37e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 9.45e3



Insight Report

Printed at 4/14/2021 8:51:54 AM

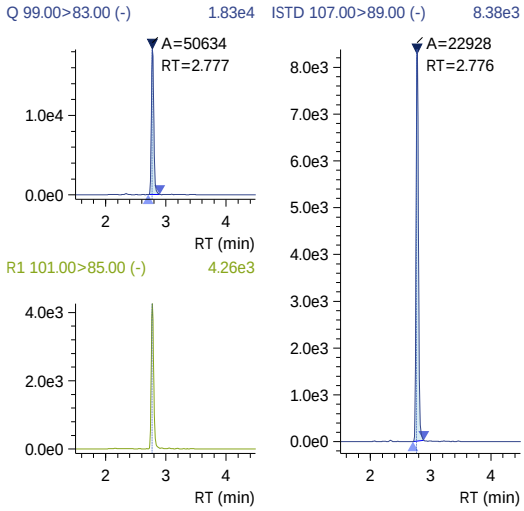
20210413_049

Sample ID: E2100369-009X5000
Date Acquired: 4/13/2021 5:17:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_049.lcd
Vial: 42 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.777	50634	22928	1	18.00042	ng/mL	----	23.28
Sodium Perchlorate-18O4_IS	Auto	2.776	22928	22928	1	1.00000	ng/mL	----	----

Perchlorate

Conc 18.00042
R#1 23.28 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

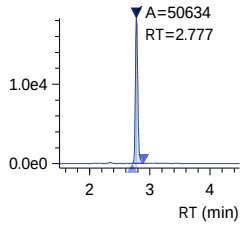
20210413_049

Sample ID: E2100369-009X5000
Date Acquired: 4/13/2021 5:17:59 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_049.lcd
Vial: 42 | Inj. Volume: 25.0000uL | Tray: 3

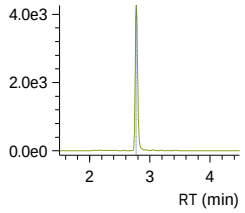
Perchlorate

Conc 18.27023
R#1 23.28 (0.00)

Q 99.00>83.00 (-) 1.83e4



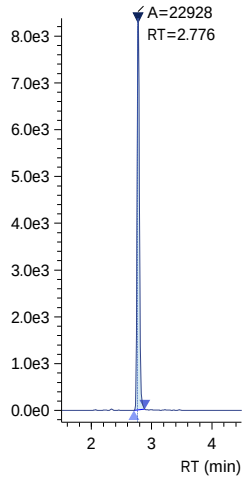
R1 101.00>85.00 (-) 4.26e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.38e3



Insight Report

Printed at 4/14/2021 3:28:07 PM

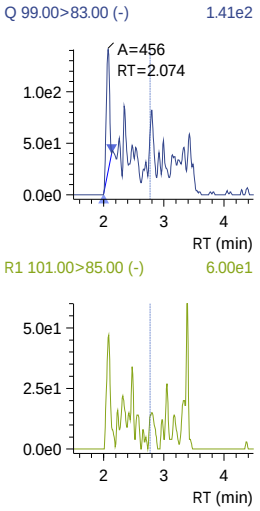
Method File: I:\LCMS01\DATA\20210413\Before\20210413.lcm

20210413_050

Sample ID: EQ2100193-01
Date Acquired: 4/13/2021 5:25:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_050.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 3

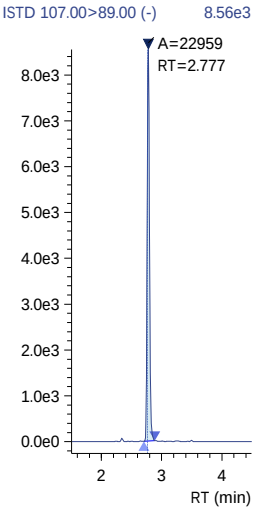
Perchlorate

Conc ----
R#1 ---- (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 3:26:31 PM

Method File: I:\LCMS01\DATA\20210413\20210413.lcm
Project File: I:\LCMS01\DATA\20210413\20210413.damlp

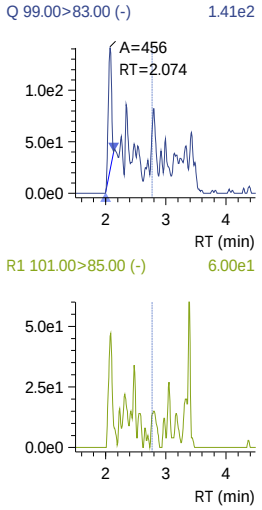
20210413_050

Sample ID: EQ2100193-01
Date Acquired: 4/13/2021 5:25:51 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_050.lcd
Vial: 25 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	ND(W/B)	----	----	22959	1	----	ng/mL	----	----
Sodium Perchlorate-18O4_IS	Auto	2.777	22959	22959	1	1.00000	ng/mL	----	----

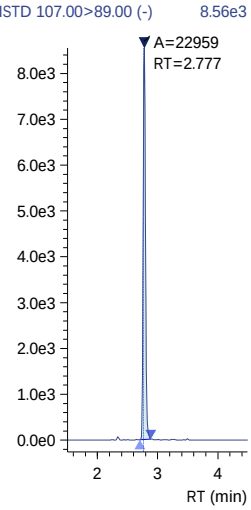
Perchlorate

Conc ----
R#1 ---- (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 8:51:54 AM

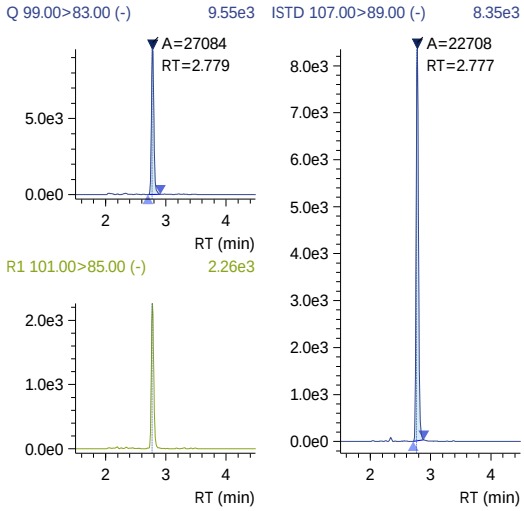
20210413_051

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 5:33:46 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\20210413_051.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.779	27084	22708	1	9.72180	ng/mL	10.0000	23.63
Sodium Perchlorate-18O4_IS	Auto	2.777	22708	22708	1	1.00000	ng/mL	1.0000	----

Perchlorate

Conc 9.72180
R#1 23.63 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 8:55:34 AM

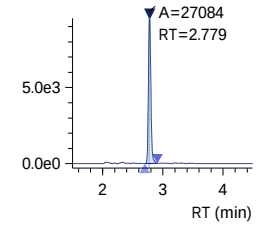
20210413_051

Sample ID: PERCHLORATE7
Date Acquired: 4/13/2021 5:33:46 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210413\Before\20210413_051.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

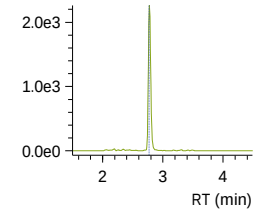
Perchlorate

Conc 9.86752
R#1 23.63 (0.00)

Q 99.00>83.00 (-) 9.55e3



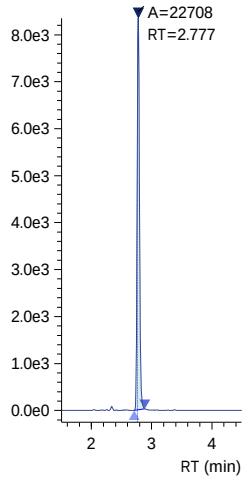
R1 101.00>85.00 (-) 2.26e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.35e3



Insight Report

Printed at 4/14/2021 11:37:58 AM

Method File: I:\LCMS01\DATA\20210414\20210413.lcm
Project File: I:\LCMS01\DATA\20210414\20210414.damlp

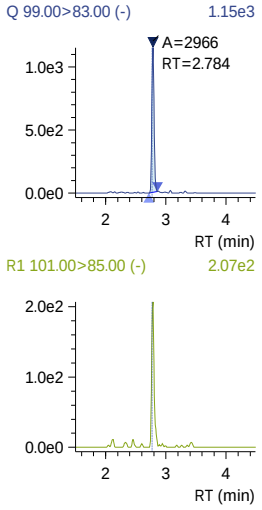
20210414_005

Sample ID: ICS
Date Acquired: 4/14/2021 9:30:56 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\20210414_005.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.784	2966	21948	1	1.10135	ng/mL	----	17.91
Sodium Perchlorate-18O4 _IS	Auto	2.781	21948	21948	1	1.00000	ng/mL	----	----

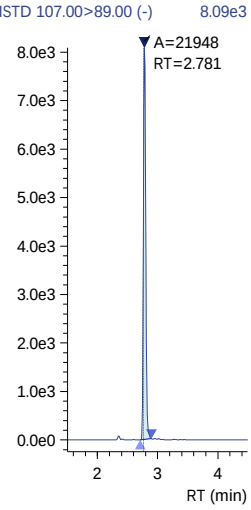
Perchlorate

Conc 1.10135
R#1 17.91 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 11:39:54 AM

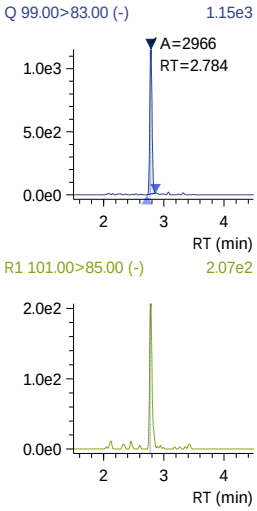
Method File: I:\LCMS01\DATA\20210414\Before\20210413.lcm

20210414_005

Sample ID: ICS
Date Acquired: 4/14/2021 9:30:56 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\Before\20210414_005.lcd
Vial: 32 | Inj. Volume: 25.0000uL | Tray: 1

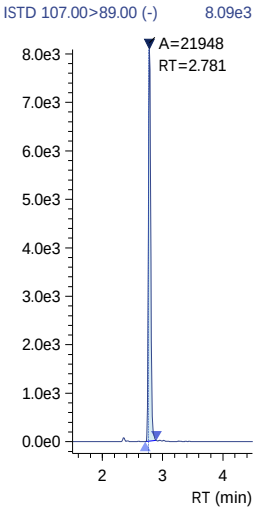
Perchlorate

Conc 1.10135
R#1 17.91 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 11:37:58 AM

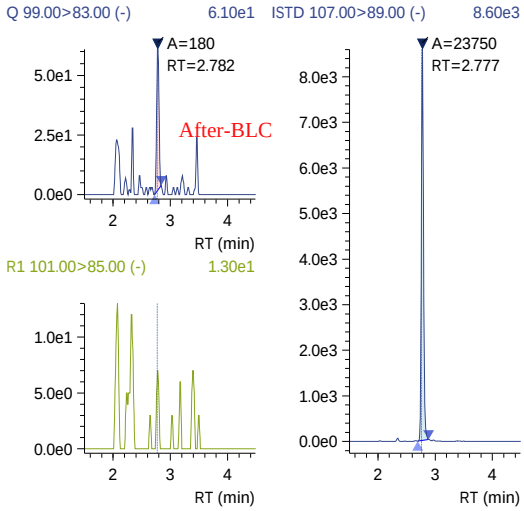
20210414_006

Sample ID: LODV
Date Acquired: 4/14/2021 10:22:07 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\20210414_006.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.782	180	23750	1	0.06161	ng/mL	----	14.29
Sodium Perchlorate-18O4 _IS	Auto	2.777	23750	23750	1	1.00000	ng/mL	----	----

Perchlorate

Conc 0.06161
R#1 14.29 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000

Insight Report

Printed at 4/14/2021 11:39:54 AM

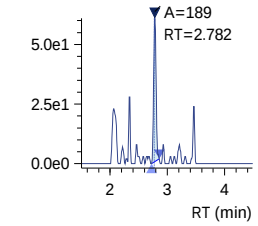
20210414_006

Sample ID: LODV
Date Acquired: 4/14/2021 10:22:07 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\Before\20210414_006.lcd
Vial: 20 | Inj. Volume: 25.0000uL | Tray: 1

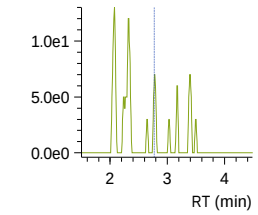
Perchlorate

Conc 0.06469
R#1 14.04 (0.00)

Q 99.00>83.00 (-) 6.10e1



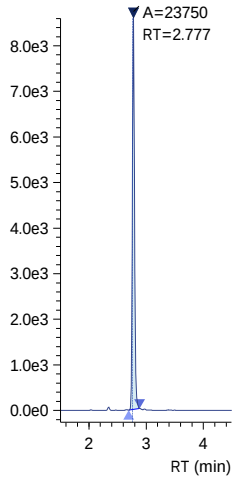
R1 101.00>85.00 (-) 1.30e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.60e3



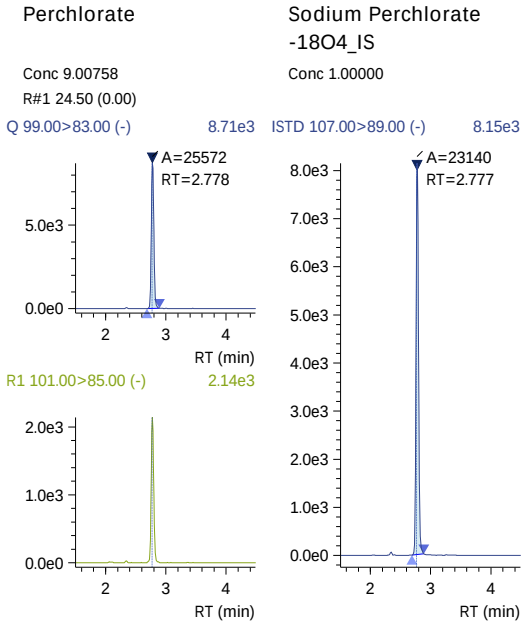
Insight Report

Printed at 4/14/2021 11:37:58 AM

20210414_007

Sample ID: PERCHLORATE7
Date Acquired: 4/14/2021 10:29:59 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\20210414_007.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.778	25572	23140	1	9.00758	ng/mL	10.0000	24.50
Sodium Perchlorate-18O4 _IS	Auto	2.777	23140	23140	1	1.00000	ng/mL	1.0000	----



Insight Report

Printed at 4/14/2021 11:39:54 AM

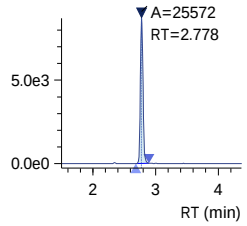
20210414_007

Sample ID: PERCHLORATE7
Date Acquired: 4/14/2021 10:29:59 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\Before\20210414_007.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

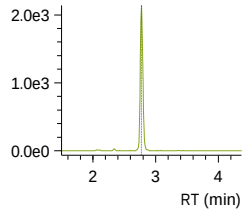
Perchlorate

Conc 9.00758
R#1 24.50 (0.00)

Q 99.00>83.00 (-) 8.71e3



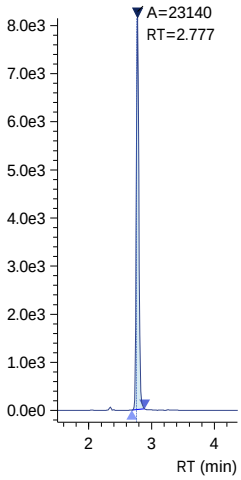
R1 101.00>85.00 (-) 2.14e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 8.15e3



Insight Report

Printed at 4/14/2021 11:37:58 AM

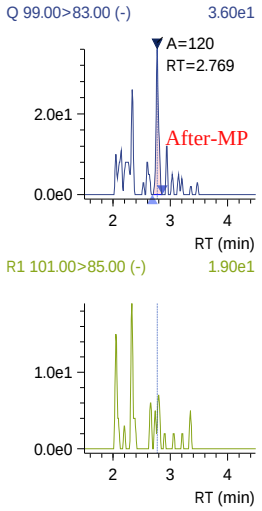
20210414_008

Sample ID: E2100369-008
Date Acquired: 4/14/2021 11:08:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\20210414_008.lcd
Vial: 41 | Inj. Volume: 25.0000uL | Tray: 3

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	M	2.769	120	30487	1	0.03195	ng/mL	----	5.71
Sodium Perchlorate-18O4 _IS	Auto	2.772	30487	30487	1	1.00000	ng/mL	----	----

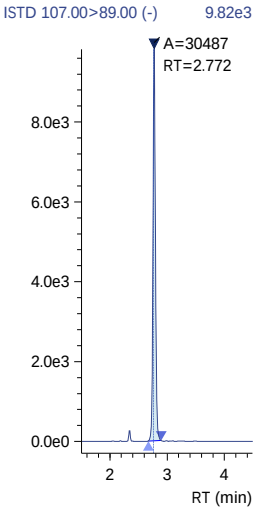
Perchlorate

Conc 0.03195
R#1 5.71 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 11:39:54 AM

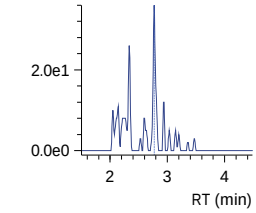
20210414_008

Sample ID: E2100369-008
Date Acquired: 4/14/2021 11:08:37 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\Before\20210414_008.lcd
Vial: 41 | Inj. Volume: 25.0000uL | Tray: 3

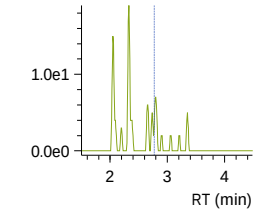
Perchlorate

Conc ----
R#1 ---- (0.00)

Q 99.00>83.00 (-) 3.60e1



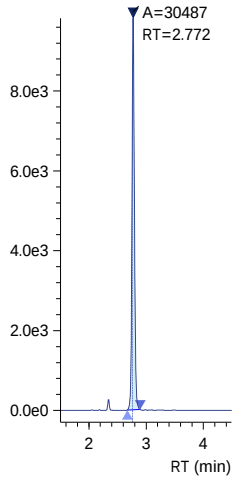
R1 101.00>85.00 (-) 1.90e1



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 9.82e3



Insight Report

Printed at 4/14/2021 11:37:58 AM

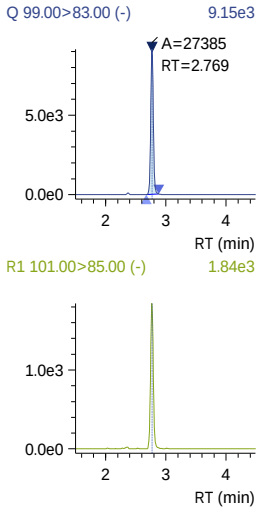
20210414_009

Sample ID: PERCHLORATE7
Date Acquired: 4/14/2021 11:32:19 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\20210414_009.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

Name	Mode ID	Found RT	Area	ISTD Area	ISTD Group	Conc.	Unit	Std. Conc.	Ref 1 Actual Ratio
Perchlorate	Auto	2.769	27385	23950	1	9.31999	ng/mL	10.0000	20.20
Sodium Perchlorate-18O4_IS	Auto	2.767	23950	23950	1	1.00000	ng/mL	1.0000	----

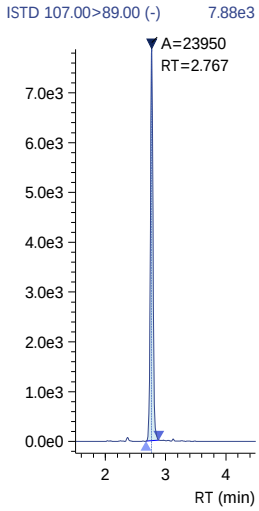
Perchlorate

Conc 9.31999
R#1 20.20 (0.00)



Sodium Perchlorate -18O4_IS

Conc 1.00000



Insight Report

Printed at 4/14/2021 11:39:54 AM

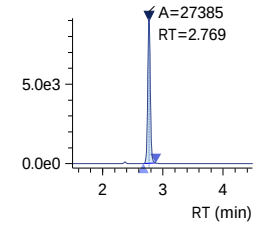
20210414_009

Sample ID: PERCHLORATE7
Date Acquired: 4/14/2021 11:32:19 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20210414\Before\20210414_009.lcd
Vial: 31 | Inj. Volume: 25.0000uL | Tray: 1

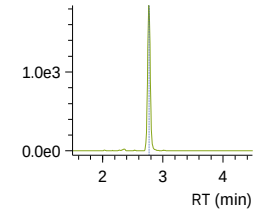
Perchlorate

Conc 9.31999
R#1 20.20 (0.00)

Q 99.00>83.00 (-) 9.15e3



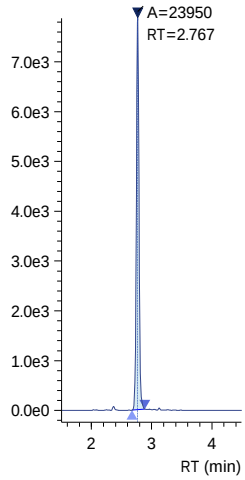
R1 101.00>85.00 (-) 1.84e3



Sodium Perchlorate -18O4_IS

Conc 1.00000

ISTD 107.00>89.00 (-) 7.88e3



HS21040286 ALS Simi Valley Report P2101844
Tier IV

ALS WO# HS21040286

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 14:42
Operator : CB
Sample : 1844-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:29:16 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

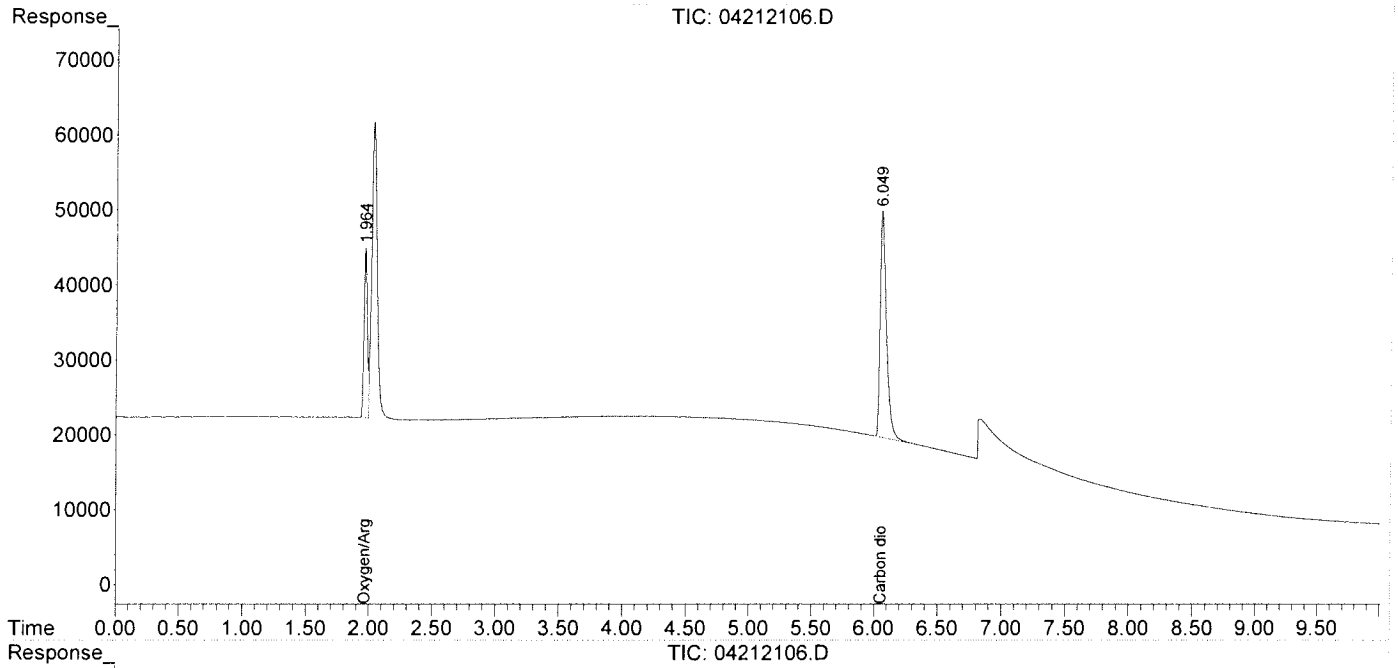
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.964f	413309	0.087	ppm
2)	Carbon monoxide	1.964f	413309	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.050	1051256	4478.591	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

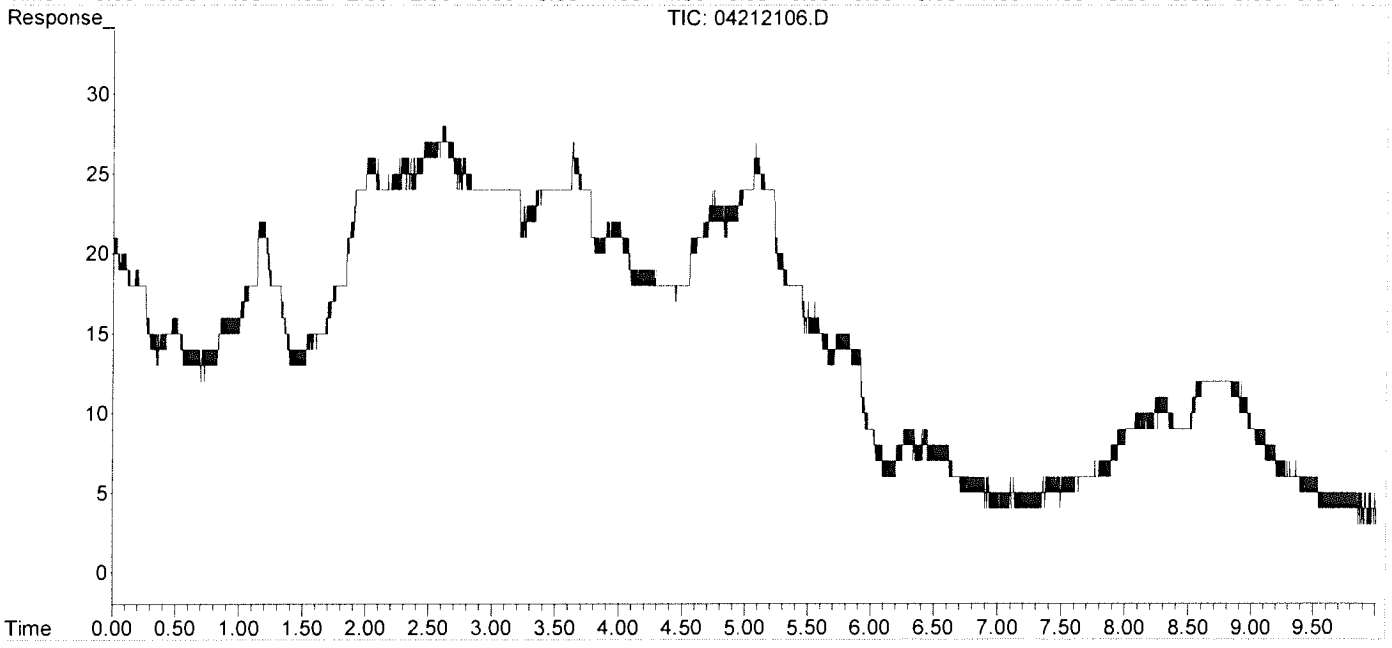
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 14:42
Operator : CB
Sample : 1844-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:29:16 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:02
Operator : CB
Sample : 1844-002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:24 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

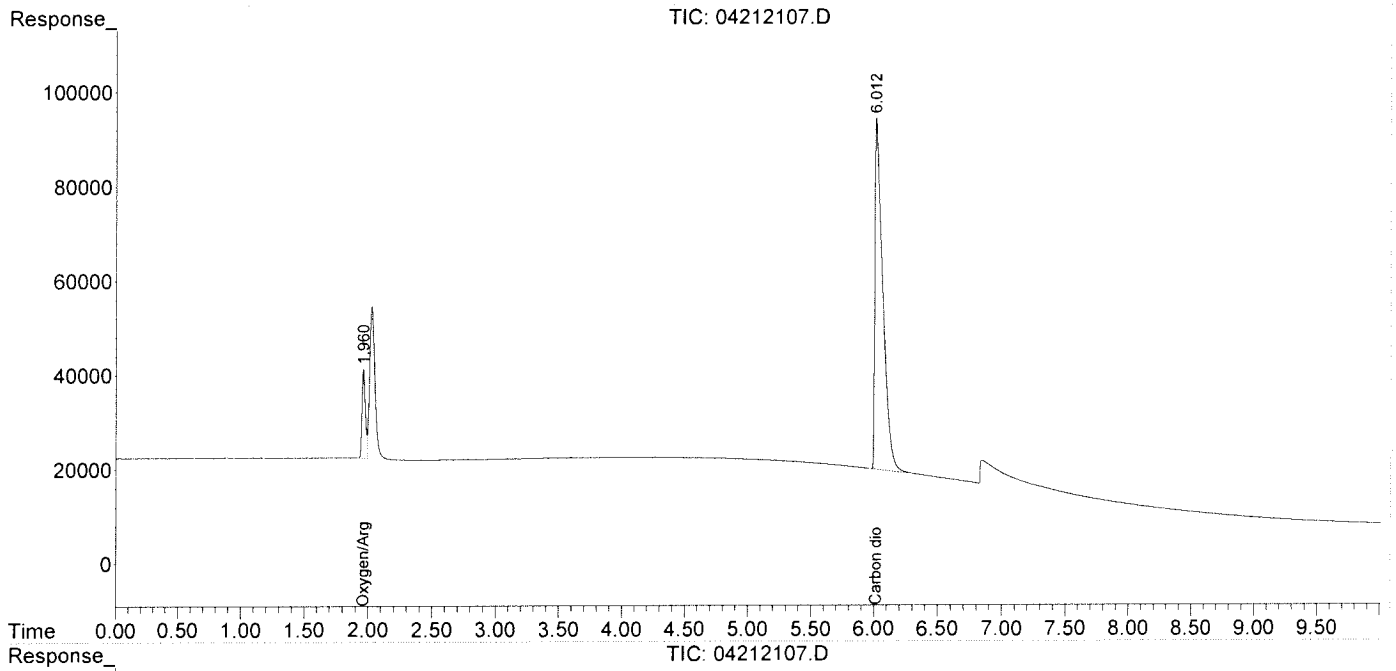
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.960f	345807	0.073	ppm
2)	Carbon monoxide	1.960f	345807	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.013	3177601	13537.307	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

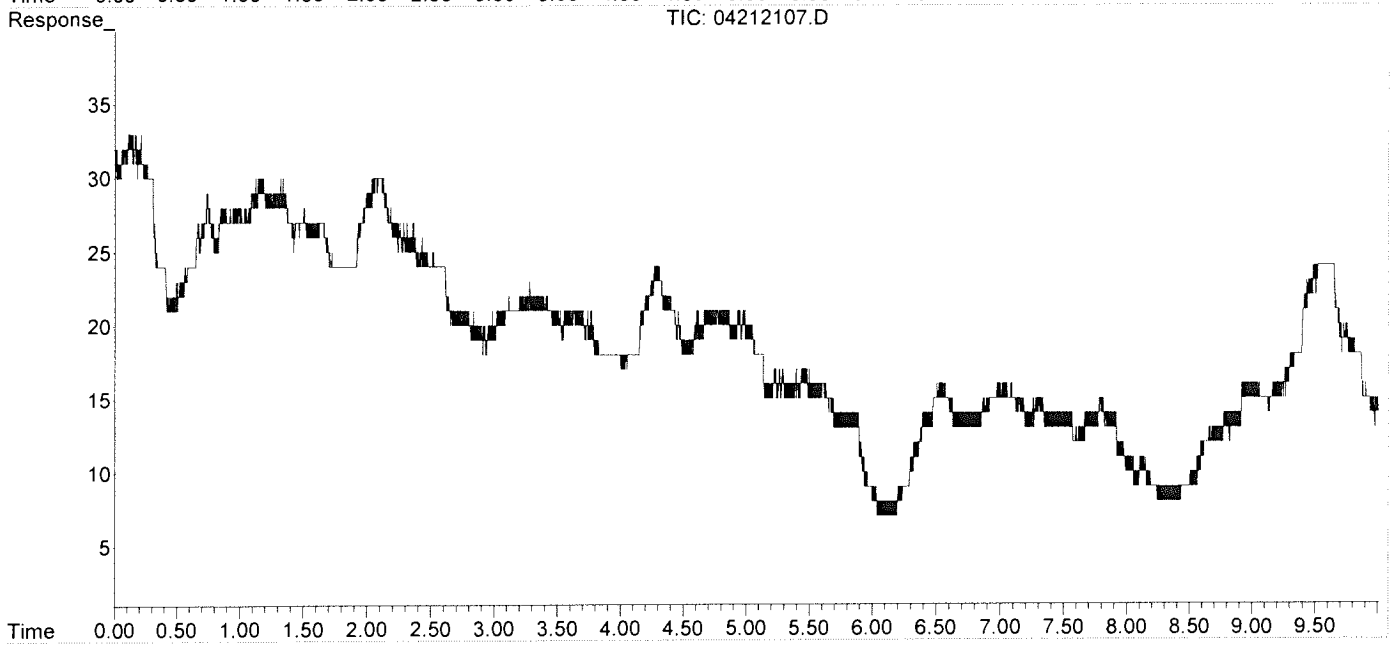
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:02
Operator : CB
Sample : 1844-002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:24 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:17
Operator : CB
Sample : 1844-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:44 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

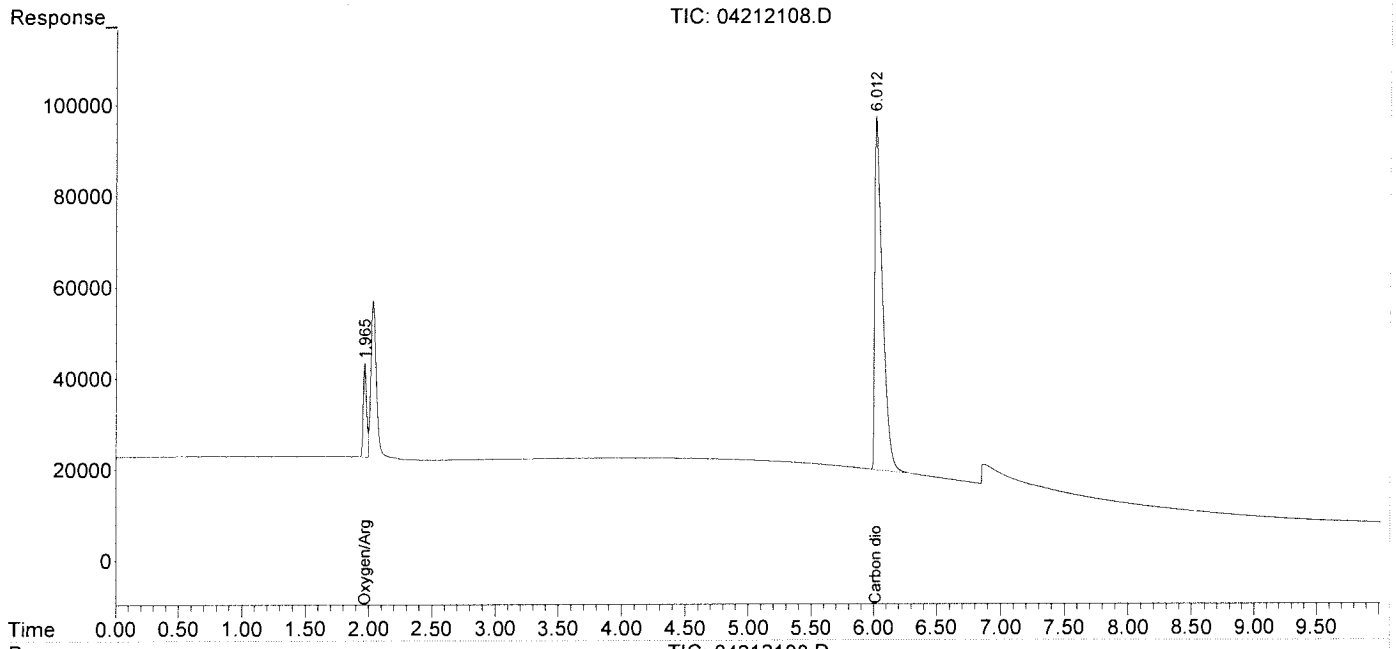
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.966f	373731	0.079	ppm
2)	Carbon monoxide	1.966f	373731	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.013	3335443	14209.750	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

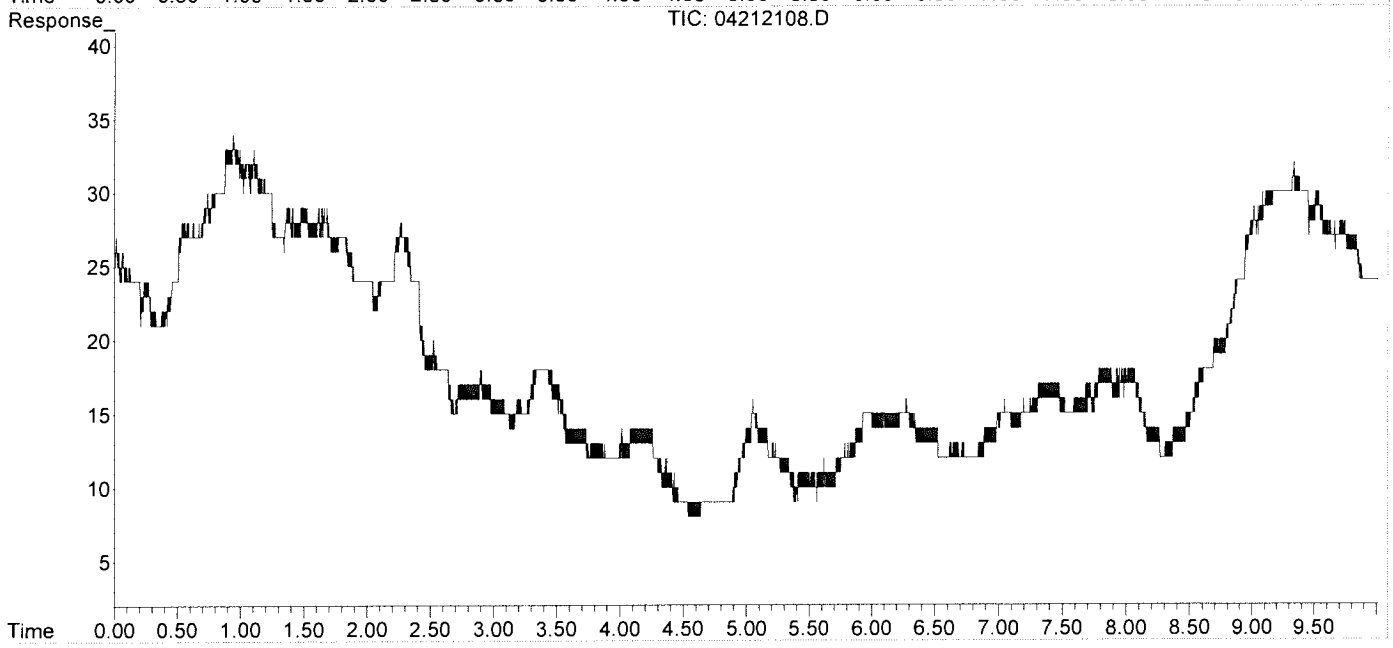
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:17
Operator : CB
Sample : 1844-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:44 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:33
Operator : CB
Sample : 1844-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:59 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

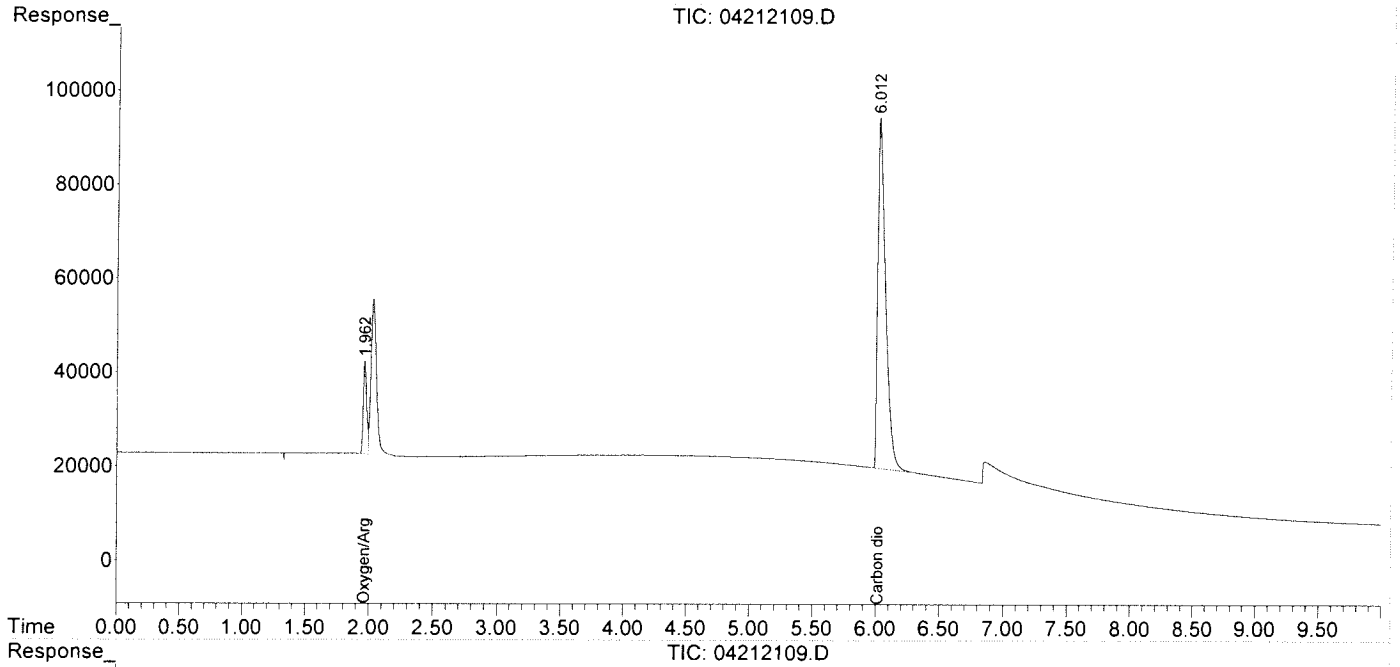
	Compound	R.T.	Response	Conc Units
Target Compounds				
1)	Oxygen/Argon	1.963f	359943	0.076 ppm
2)	Carbon monoxide	1.963f	359943	N.D. ppm
3)	Methane (TCD)	0.000	0	N.D. ppm
4)	Carbon dioxide	6.013	3183517	13562.510 ppm
6)	Methane (FID)	0.000	0	N.D. ppm
7)	Ethylene	0.000	0	N.D. ppm
8)	Ethane	0.000	0	N.D. ppm
9)	Propylene	0.000	0	N.D. ppm
10)	Propane	0.000	0	N.D. ppm
11)	Isobutylene	0.000	0	N.D. ppm
12)	Isobutane	0.000	0	N.D. ppm
13)	n-Butane	0.000	0	N.D. ppm

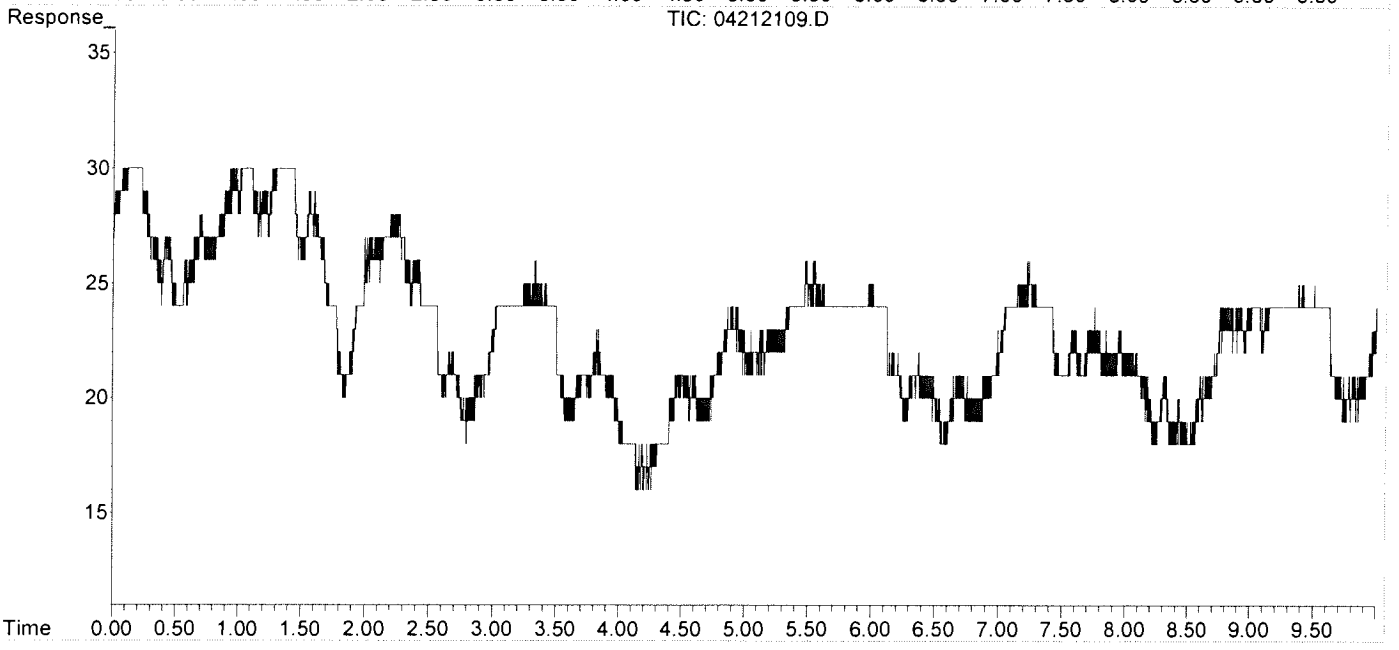
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:33
Operator : CB
Sample : 1844-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:30:59 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:51
Operator : CB
Sample : 1844-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:31:21 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

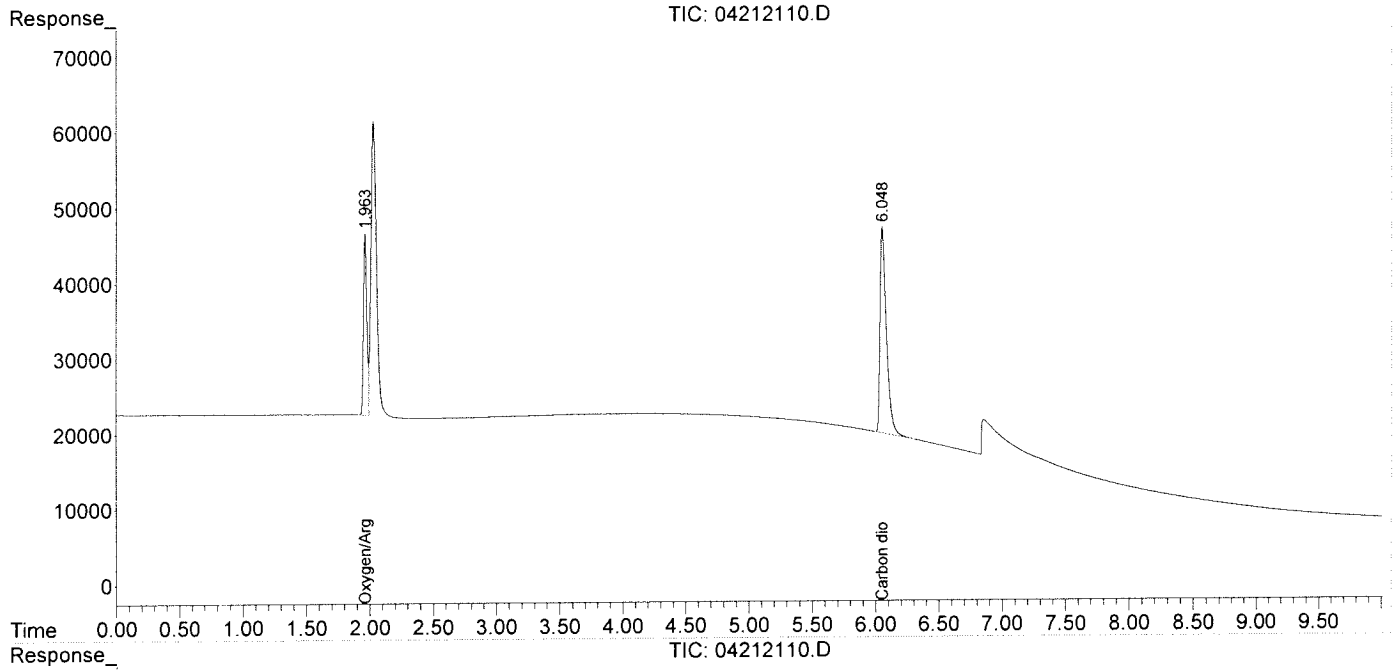
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.963f	440781	0.093	ppm
2)	Carbon monoxide	1.963f	440781	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.049	942611	4015.740	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

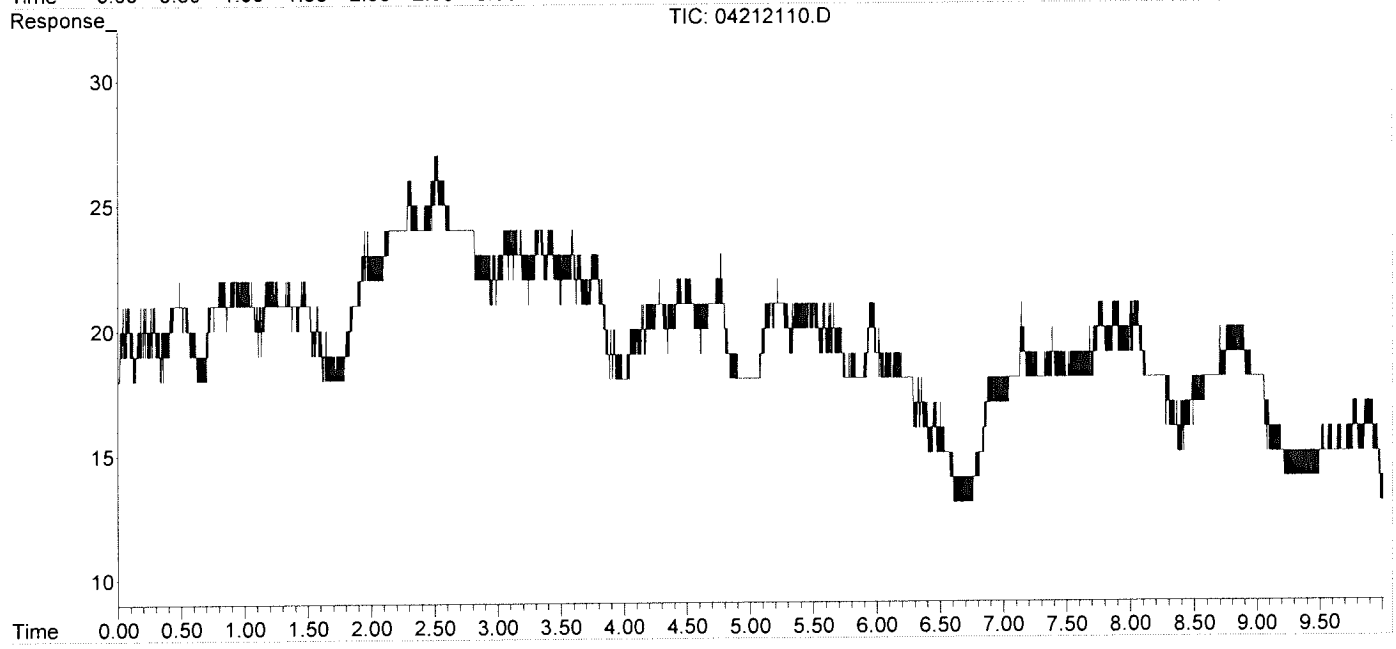
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 15:51
Operator : CB
Sample : 1844-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:31:21 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 16:07
Operator : CB
Sample : 1844-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:31:38 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

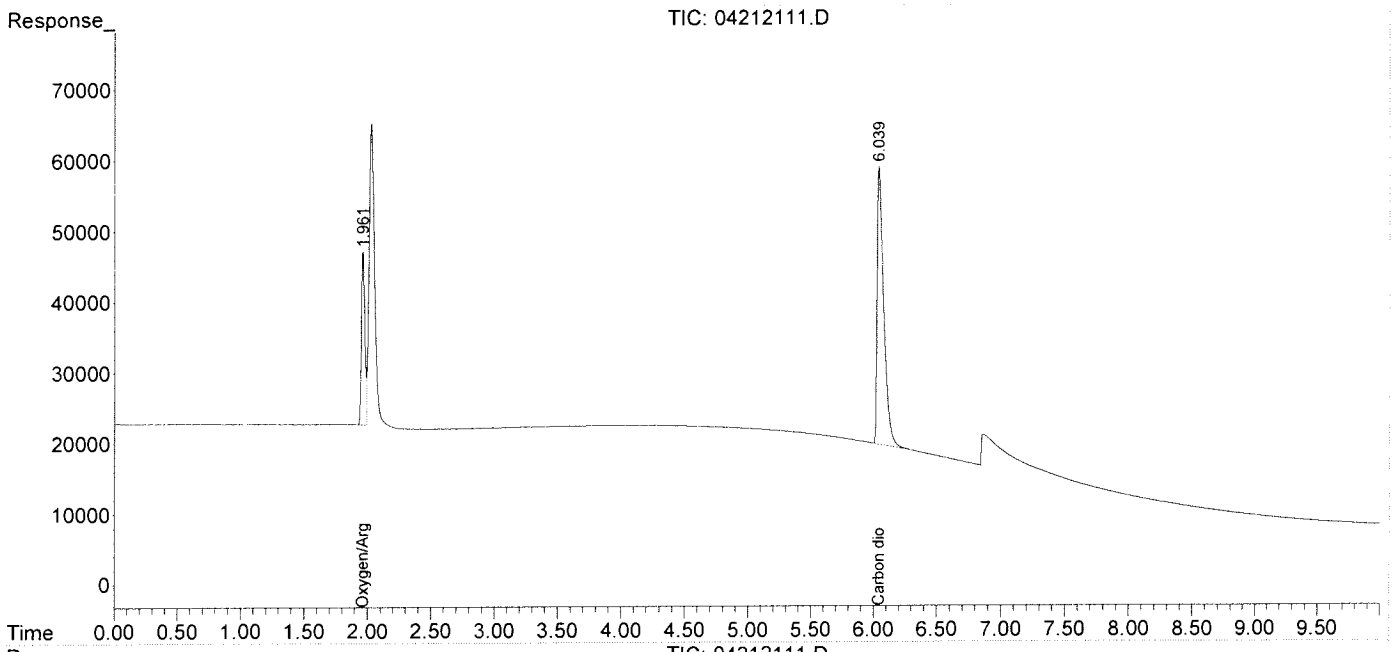
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.961f	444005	0.093	ppm
2)	Carbon monoxide	1.961f	444005	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.040	1416328	6033.881	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

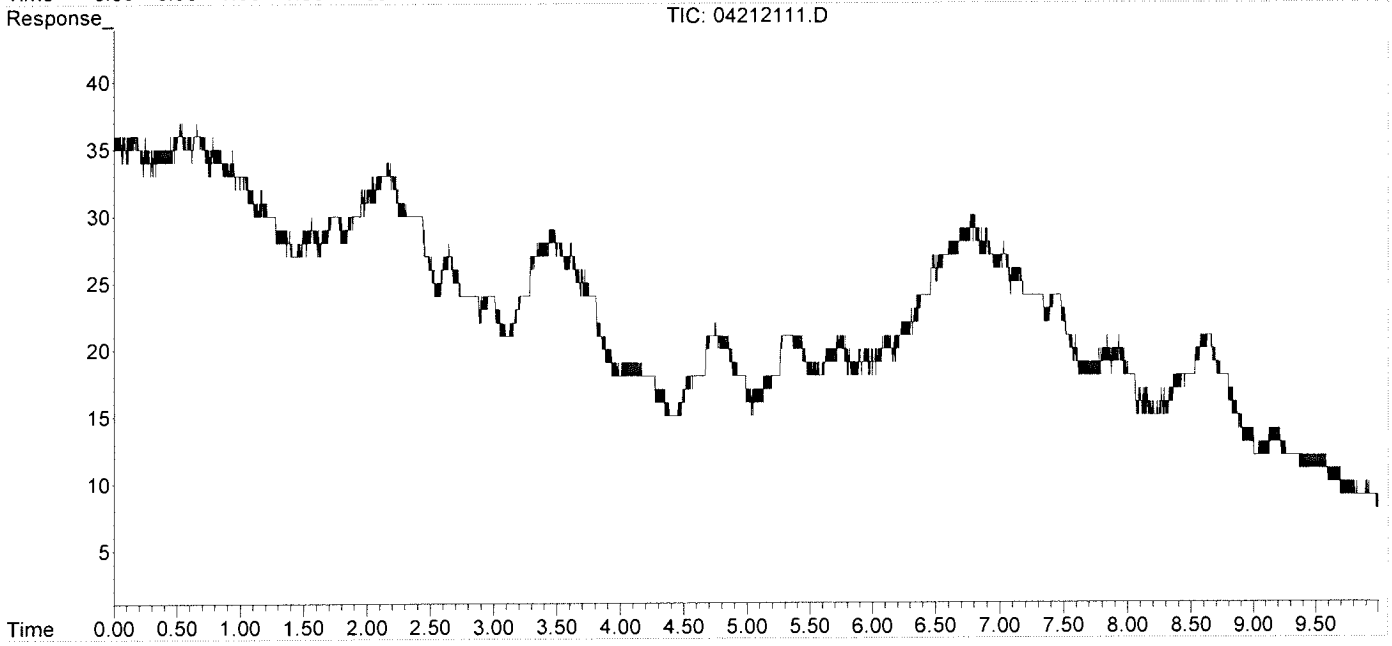
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 16:07
Operator : CB
Sample : 1844-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:31:38 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 13:44
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:12 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

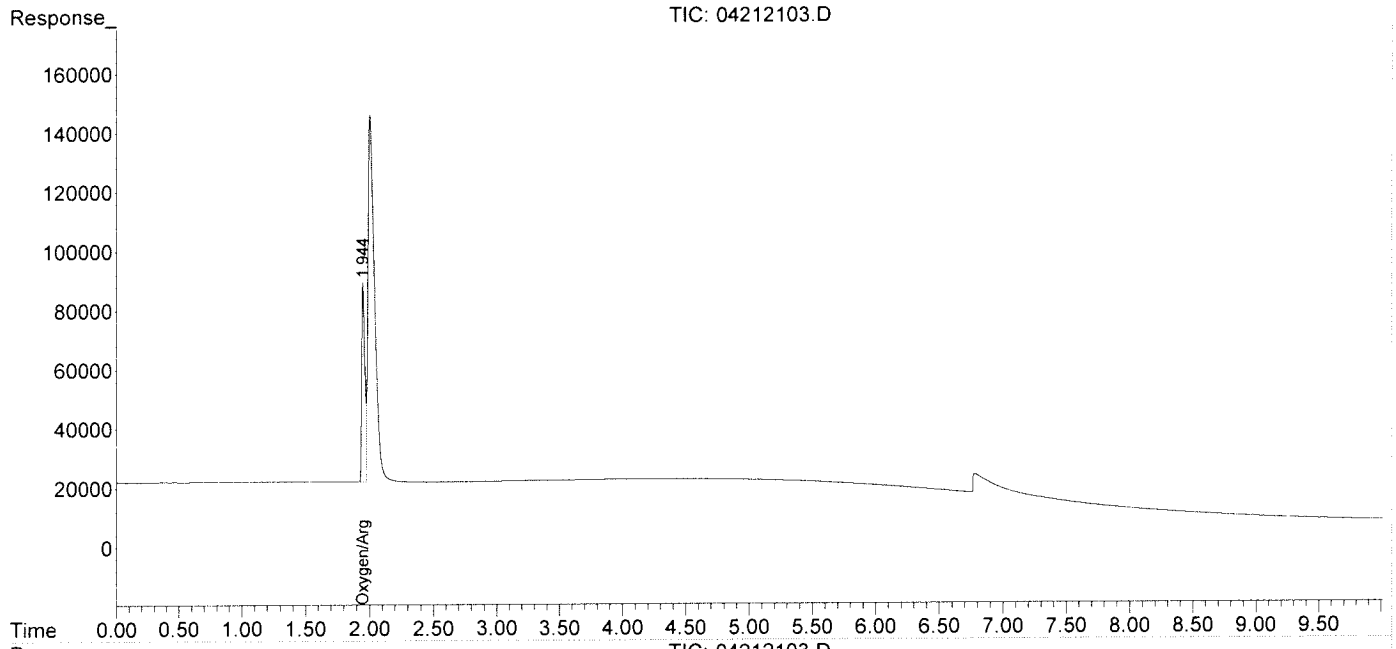
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.945f	1131985	0.238	ppm
2)	Carbon monoxide	1.945f	1131985	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

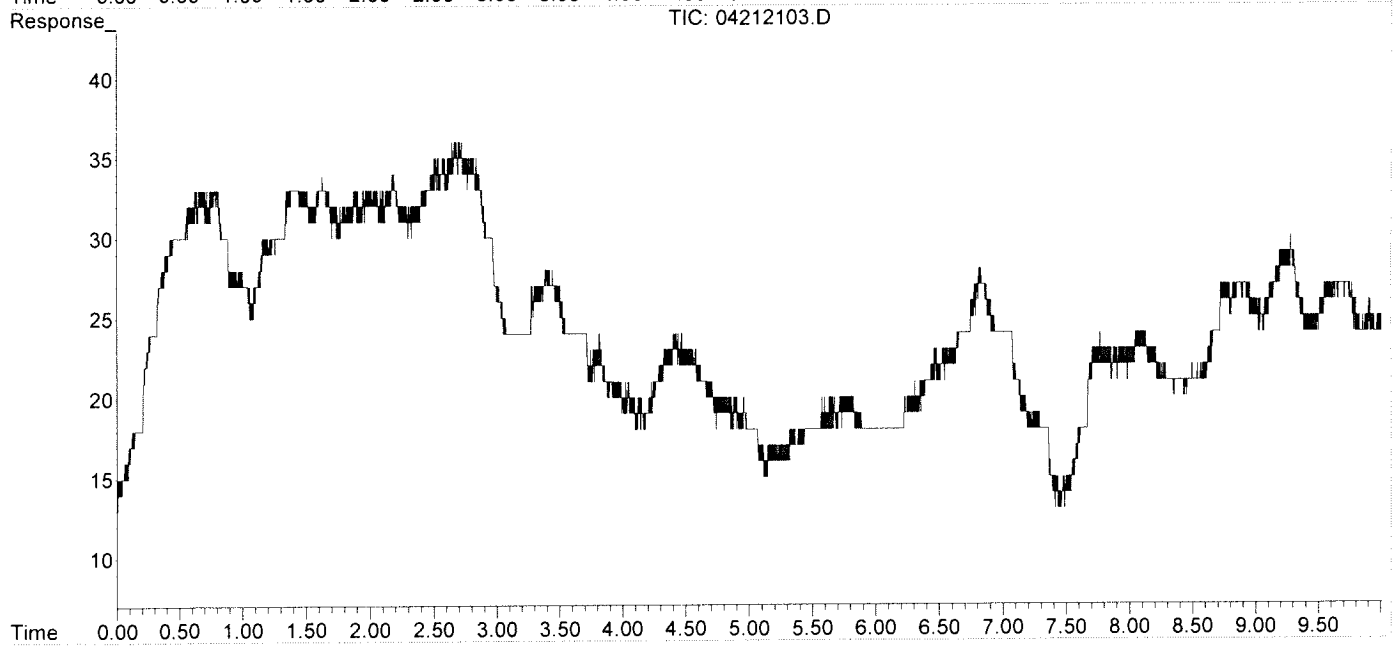
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 13:44
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:12 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 13:58
Operator : CB
Sample : LCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

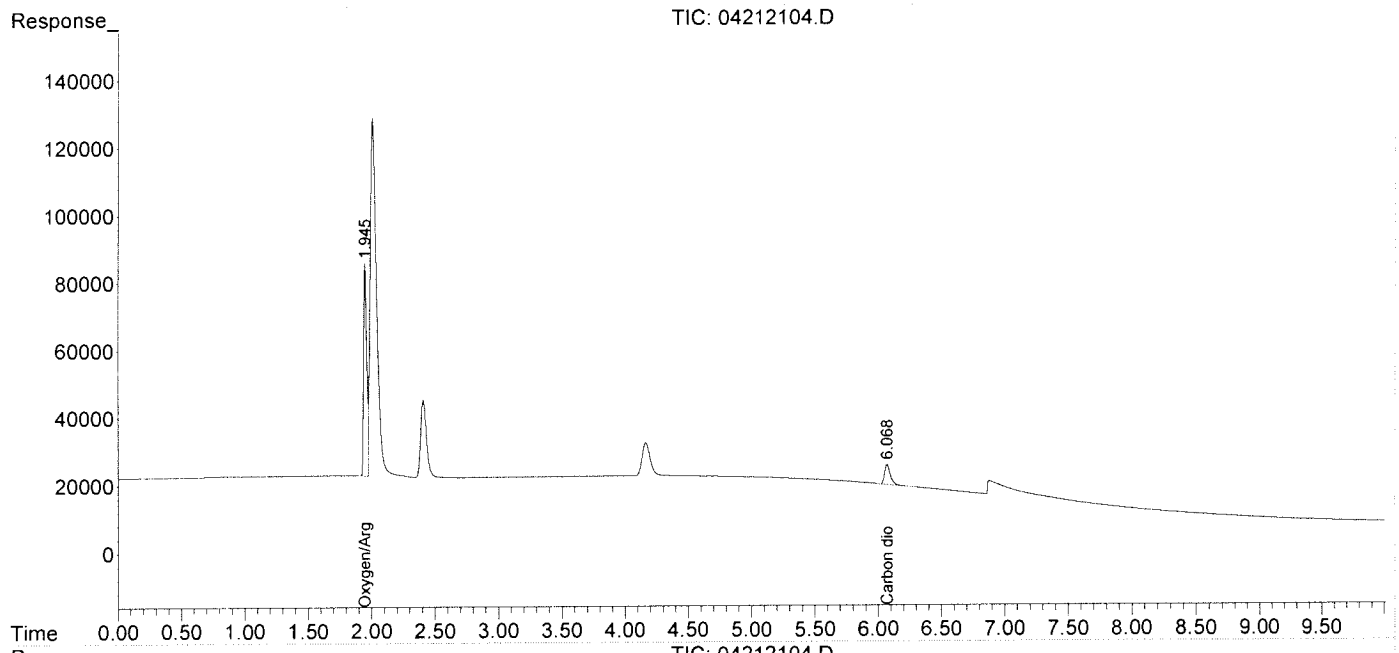
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.945f	1081648	0.227	ppm
2)	Carbon monoxide	1.945f	1081648	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.069	185282	789.344	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

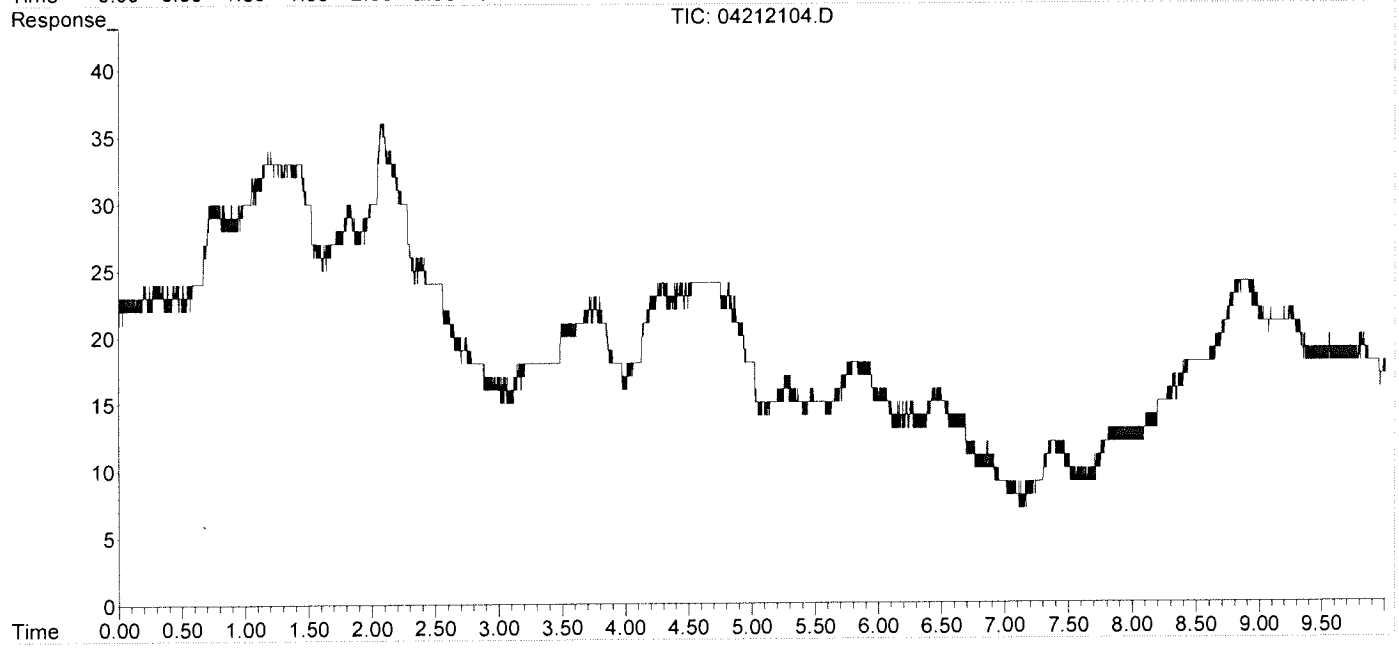
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 13:58
Operator : CB
Sample : LCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:41 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 14:17
Operator : CB
Sample : LCSD 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:57 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

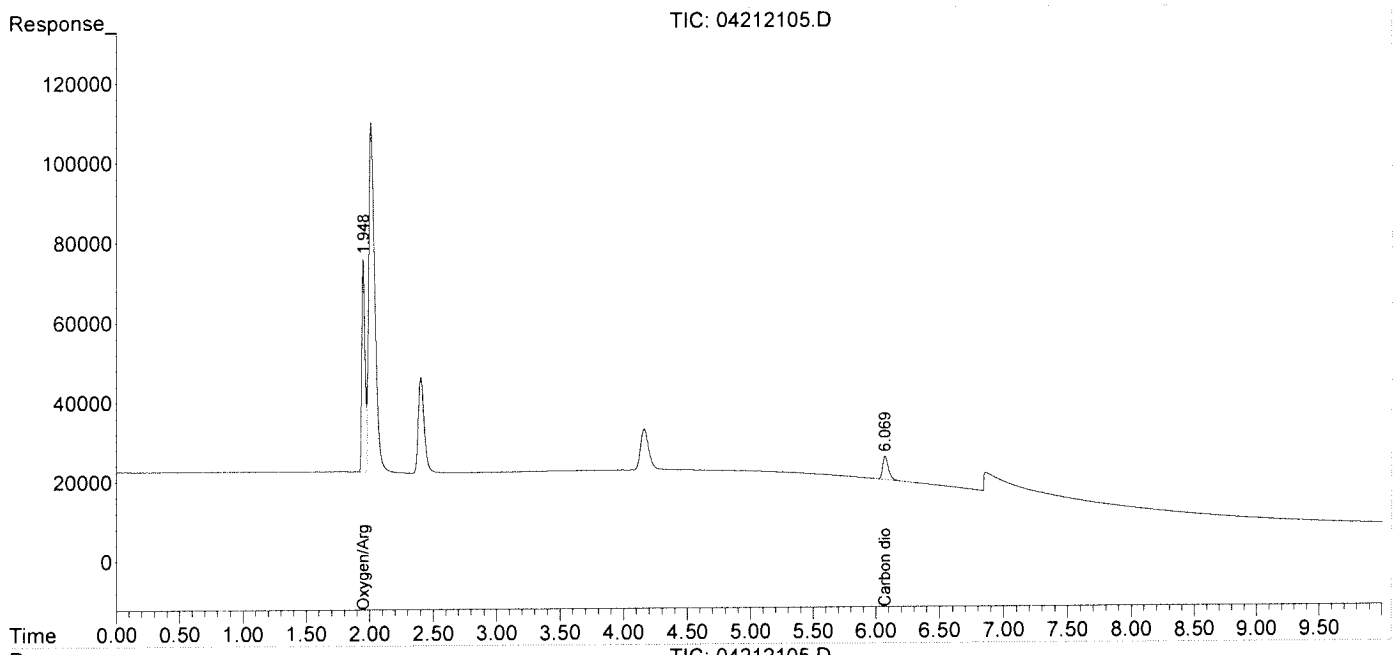
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.949f	932867	0.196	ppm
2)	Carbon monoxide	1.949f	932867	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.070	192222	818.911	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

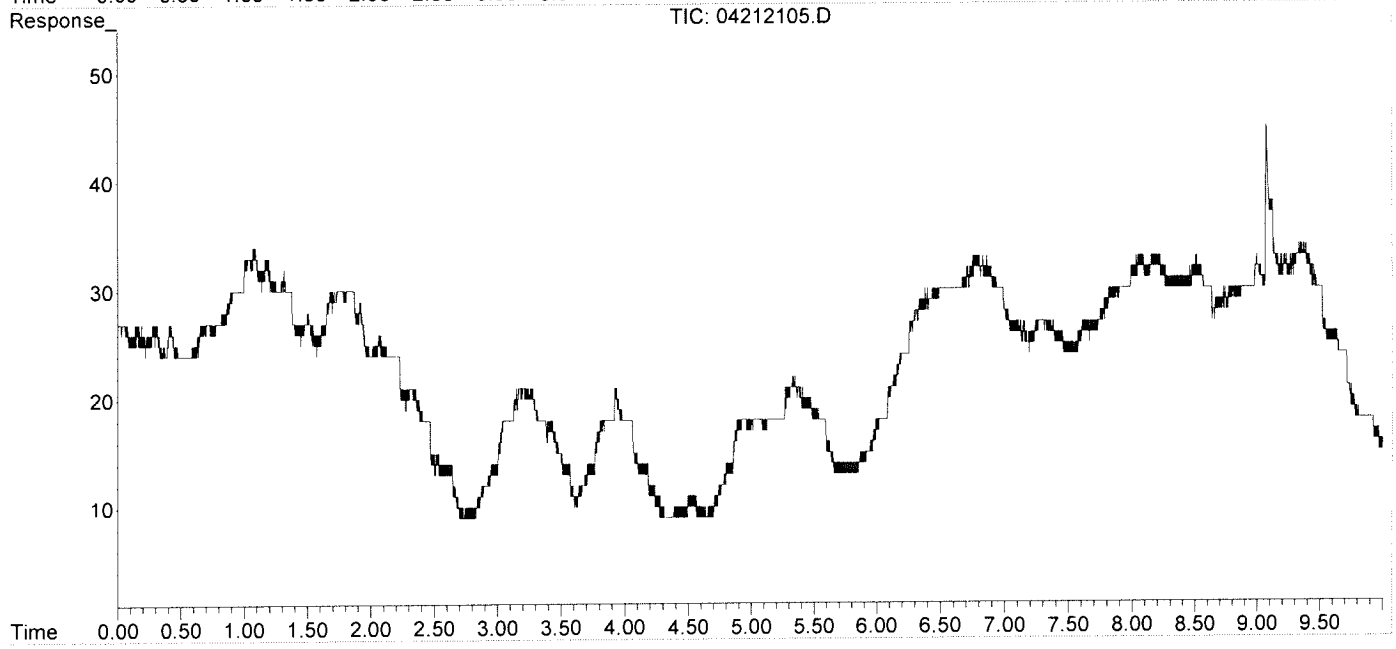
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 14:17
Operator : CB
Sample : LCSD 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:37:57 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

dit Compounds -- Compound #4 -- Carbon dioxide

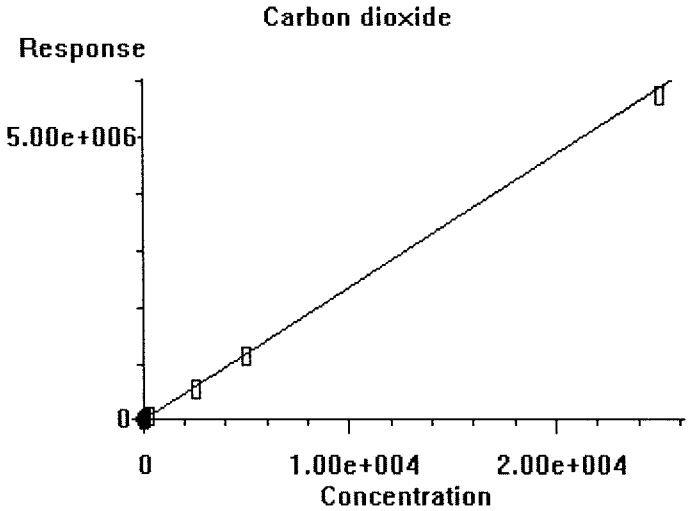
Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

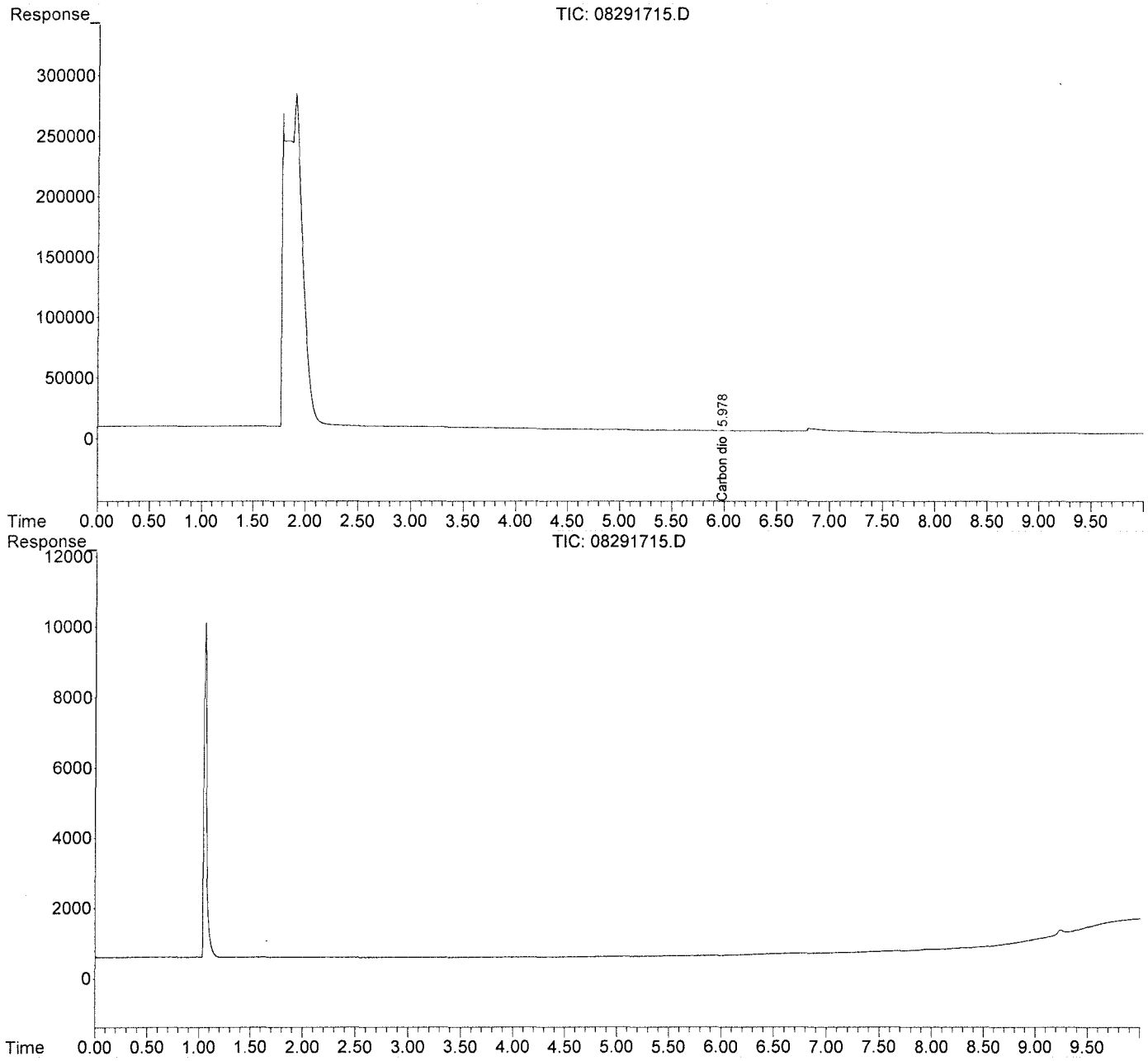
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

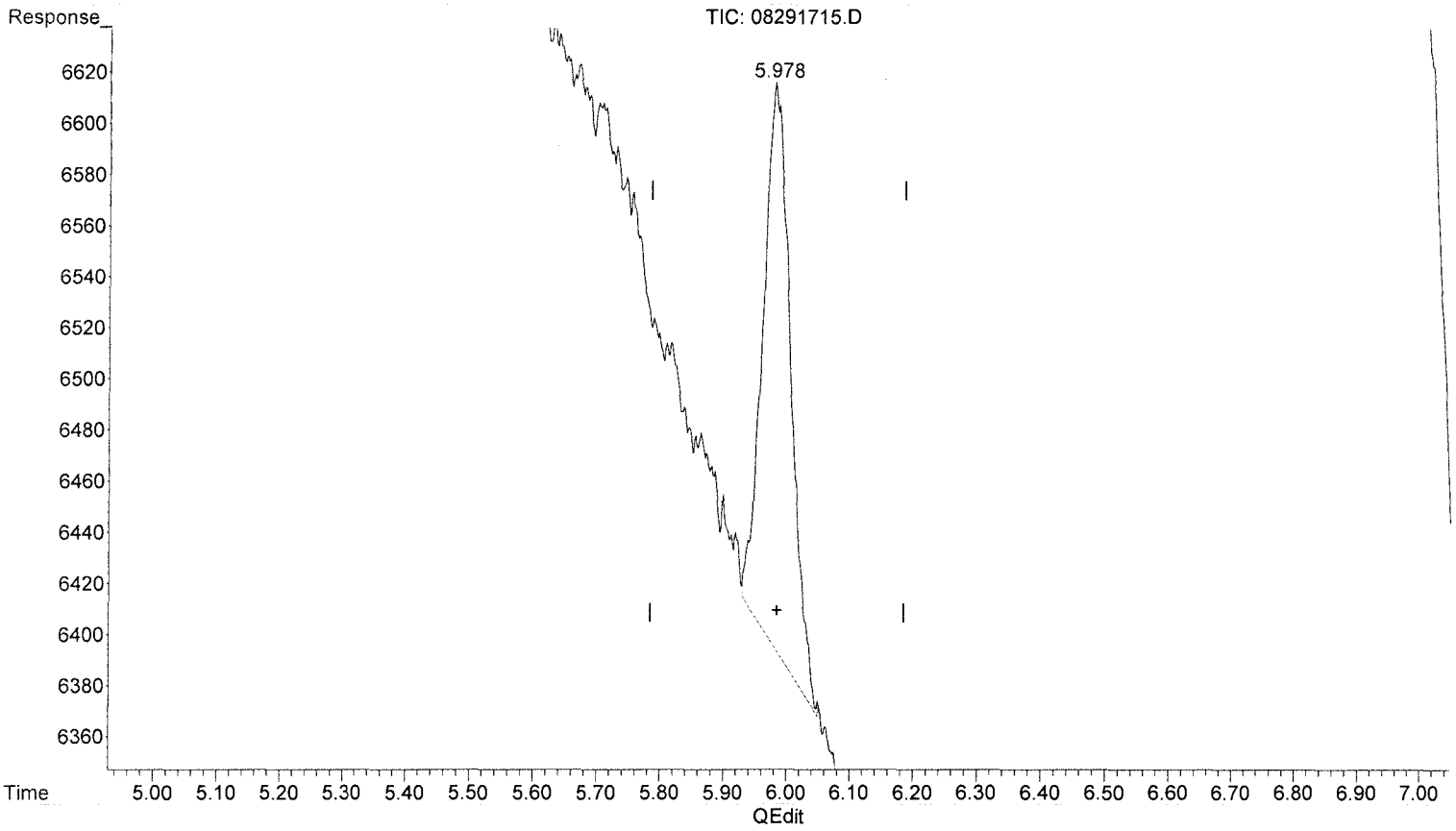
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

M 9/30/17
BLK
M
PRINT

9/4/17

(+) = Expected Retention Time

RS082817_CO2.M Wed Aug 30 13:17:47 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

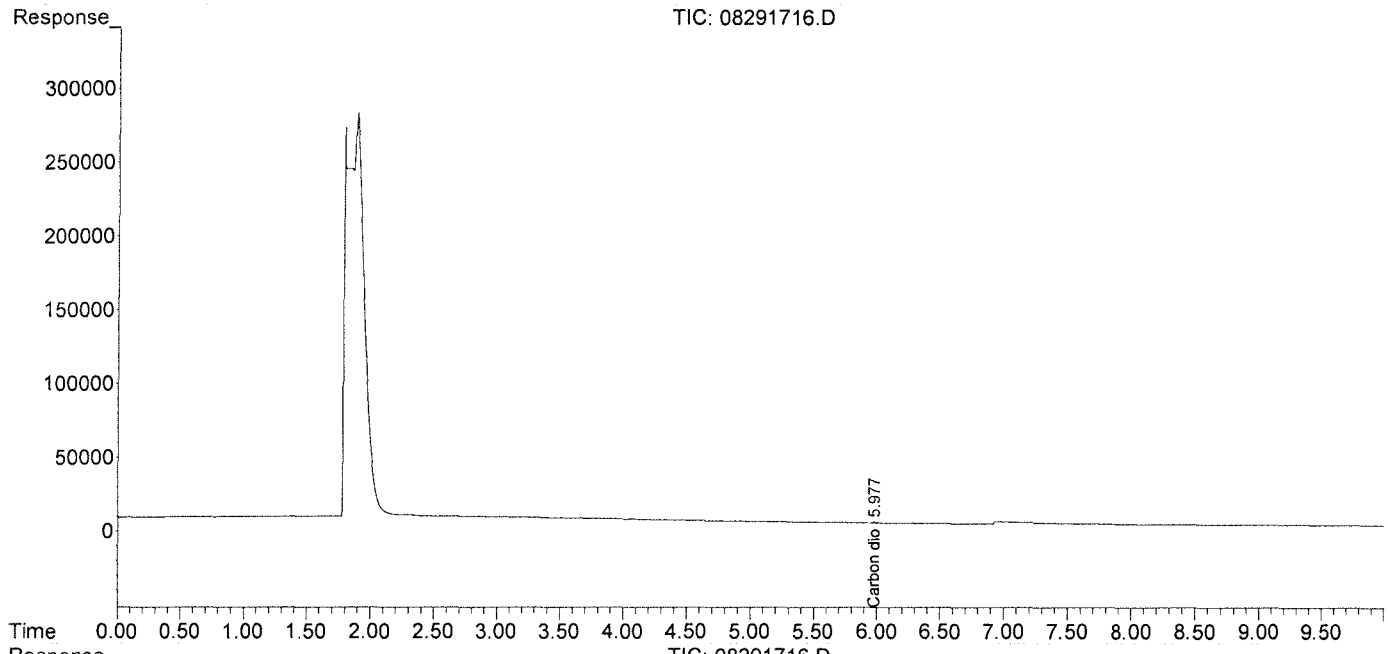
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

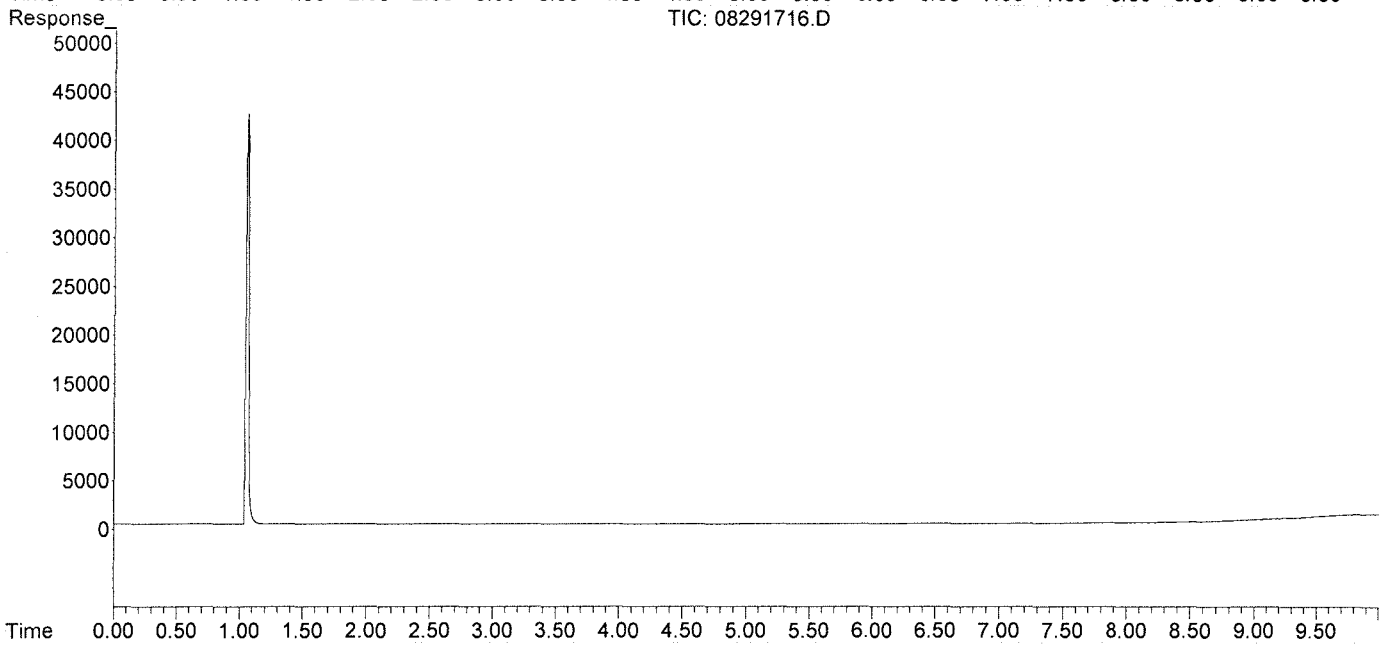
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291716.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:22
Operator : MC
Sample : 100ppm s32-08291702 0.2ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:51:38 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:21:08 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

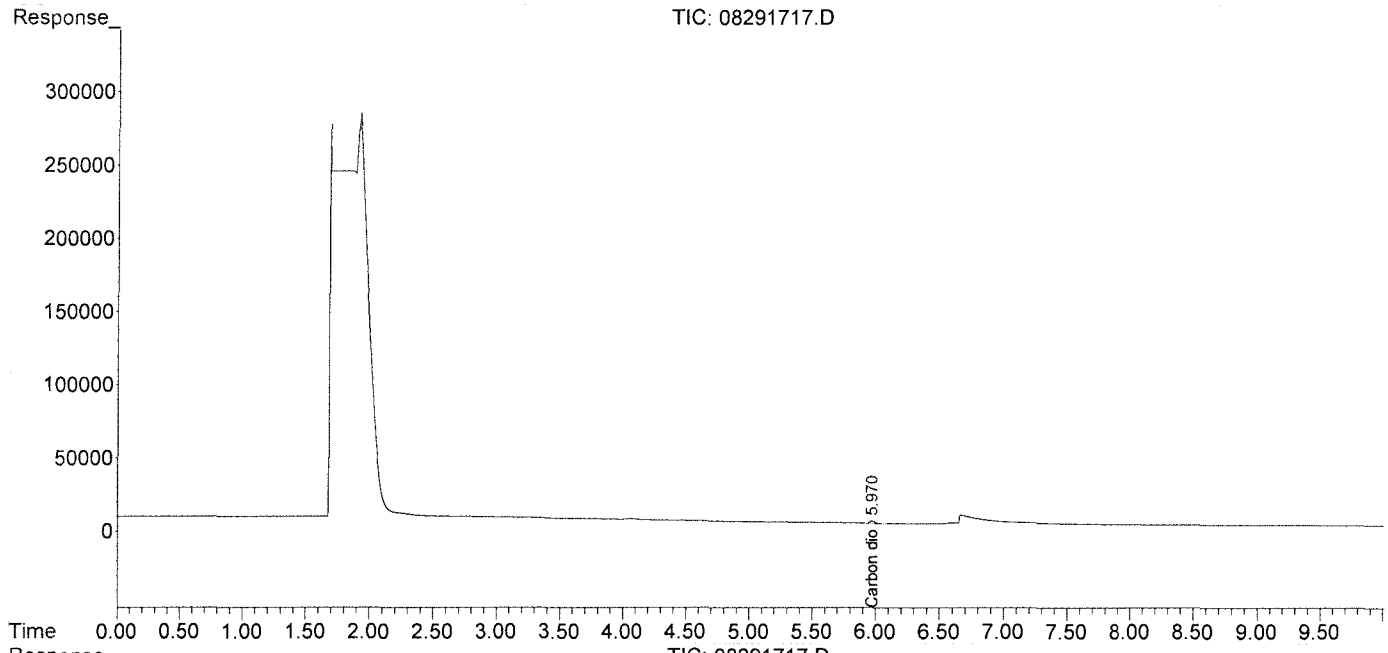
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

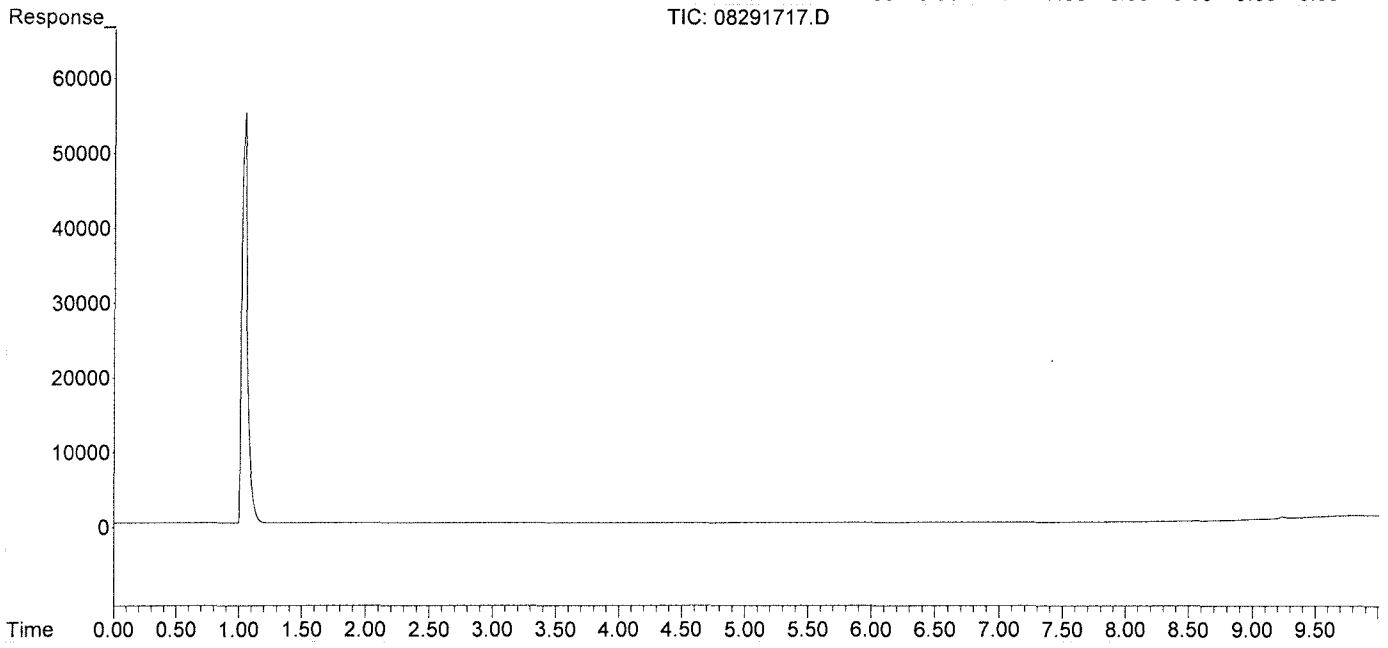
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

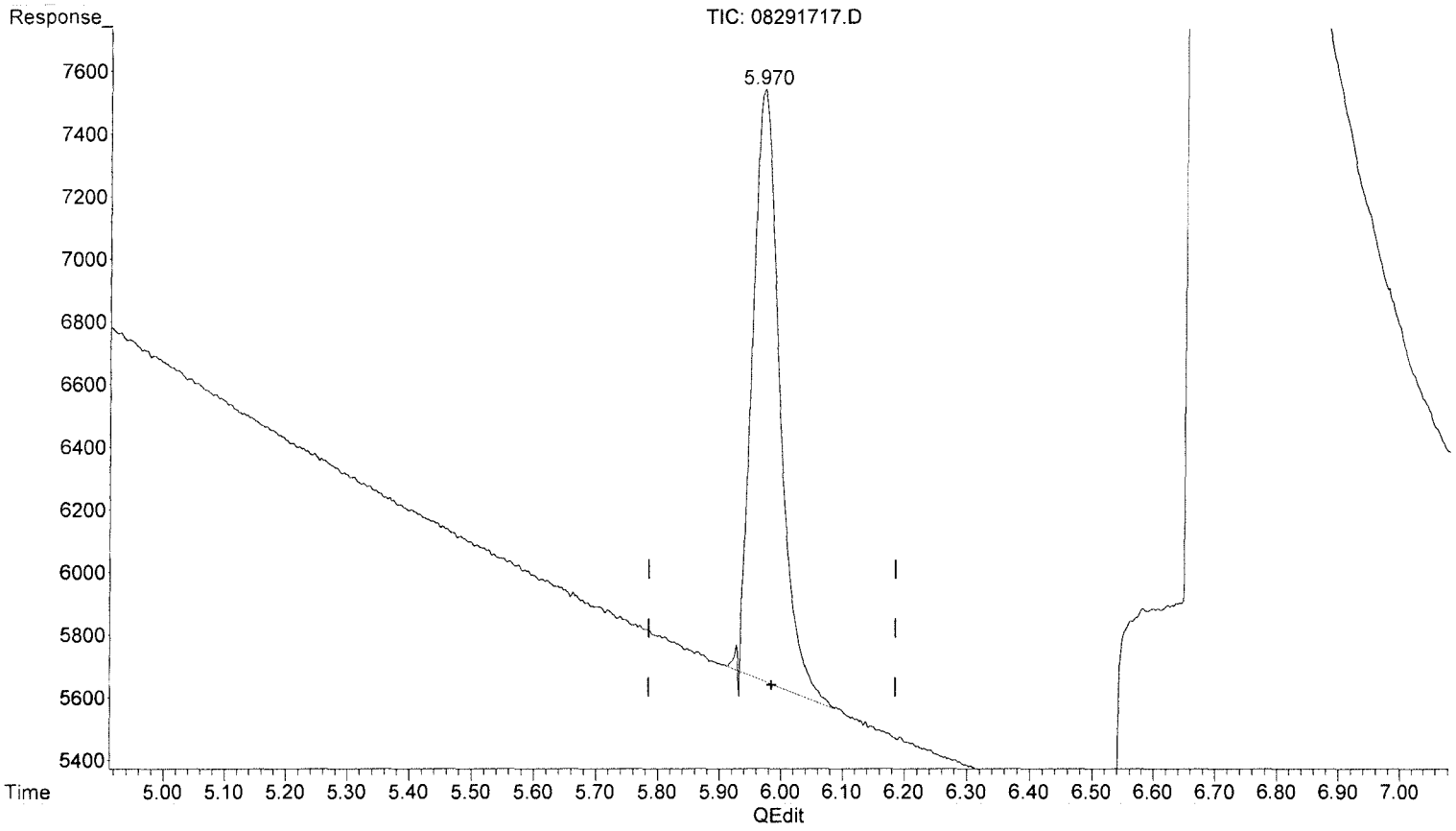




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:03:42 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 14:52:06 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

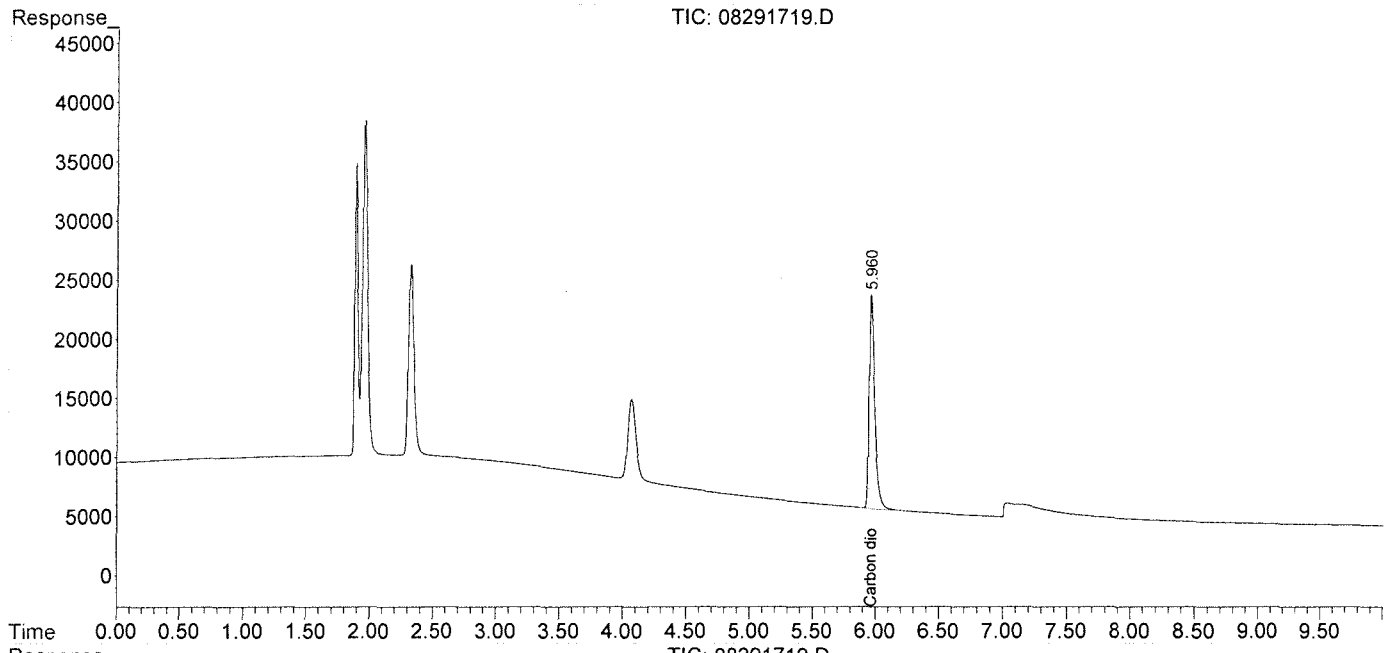
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

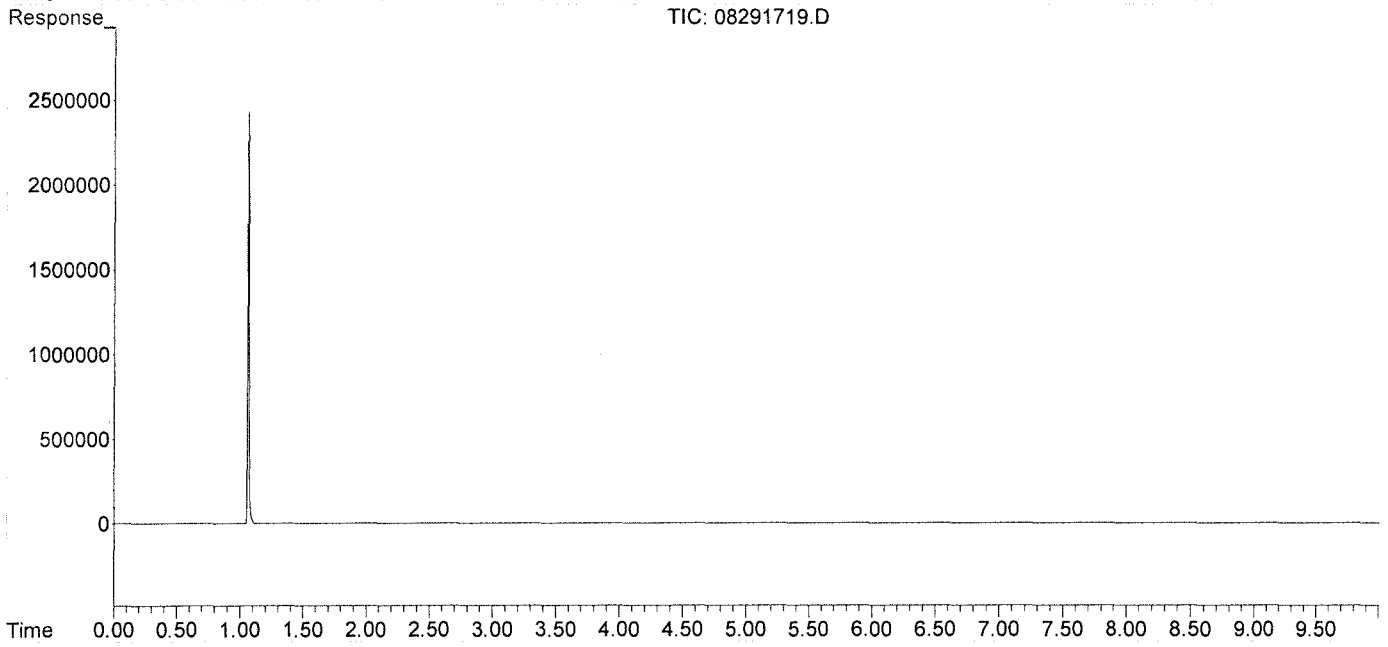
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291719.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:23
Operator : MC
Sample : 2500ppm s32-08231701 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:35:50 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:04:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

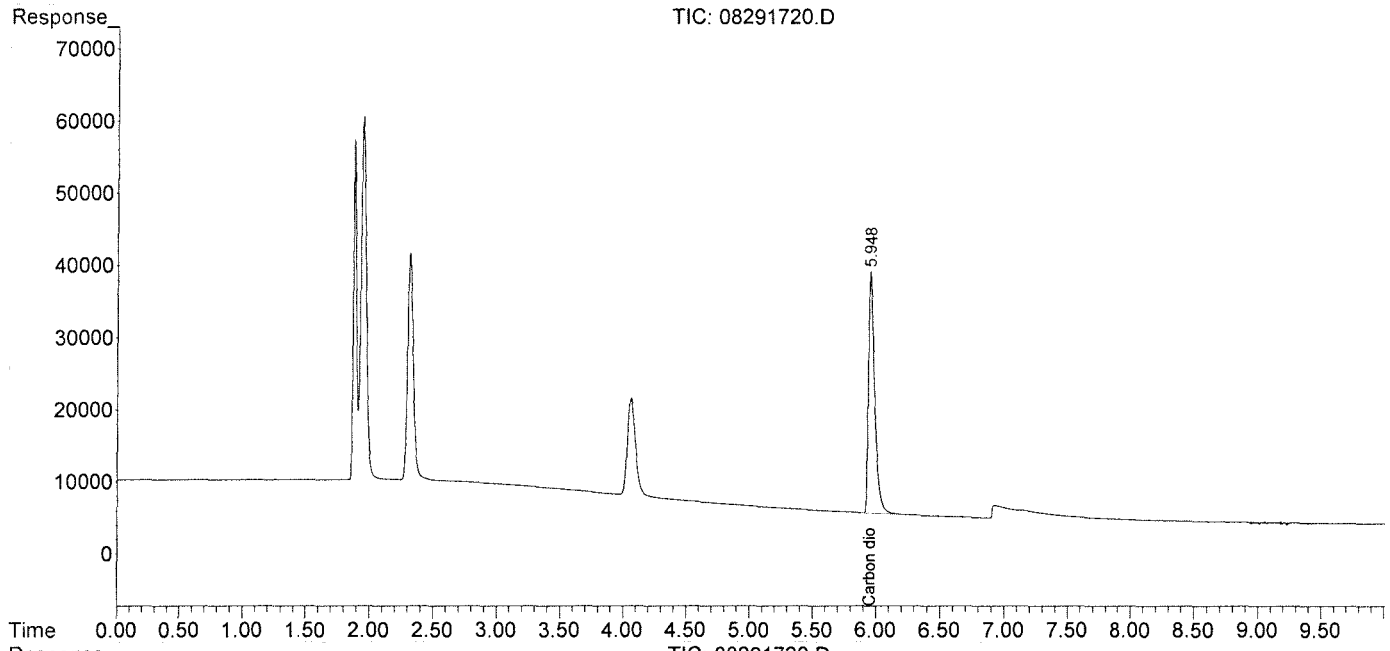
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

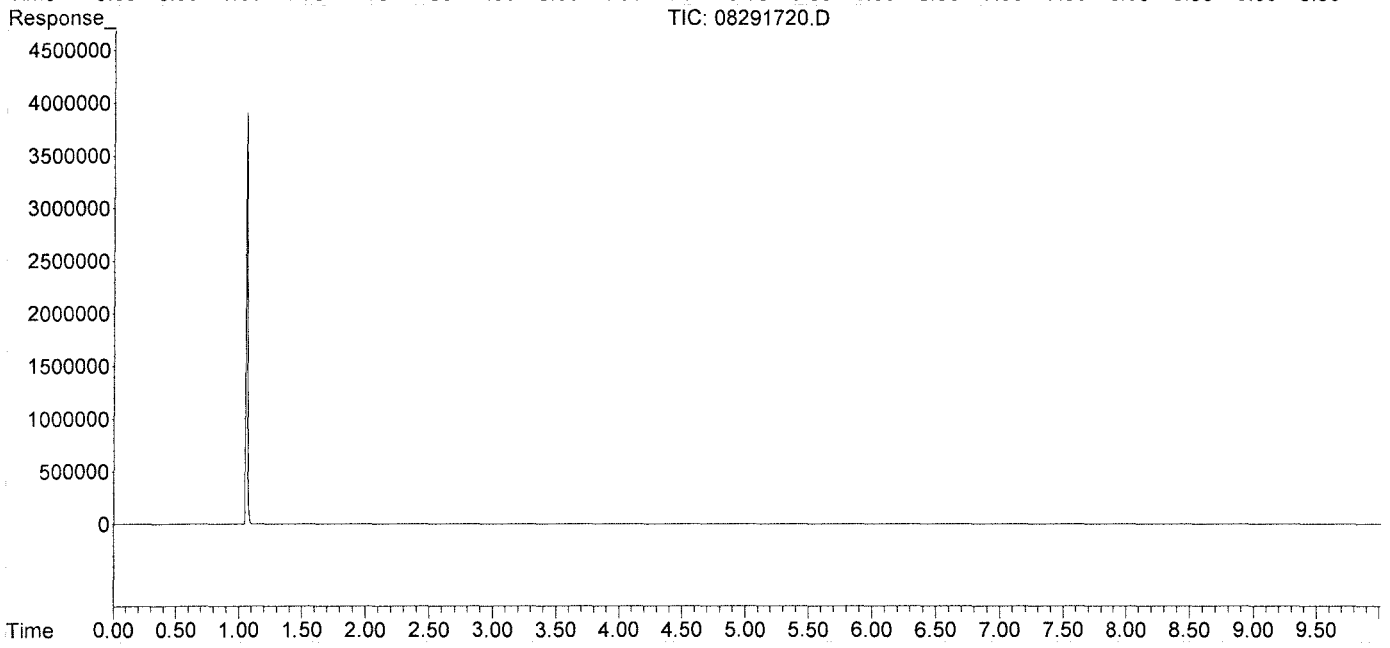
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291720.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 15:44
Operator : MC
Sample : 5000ppm s32-08231701 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 15:57:17 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:36:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

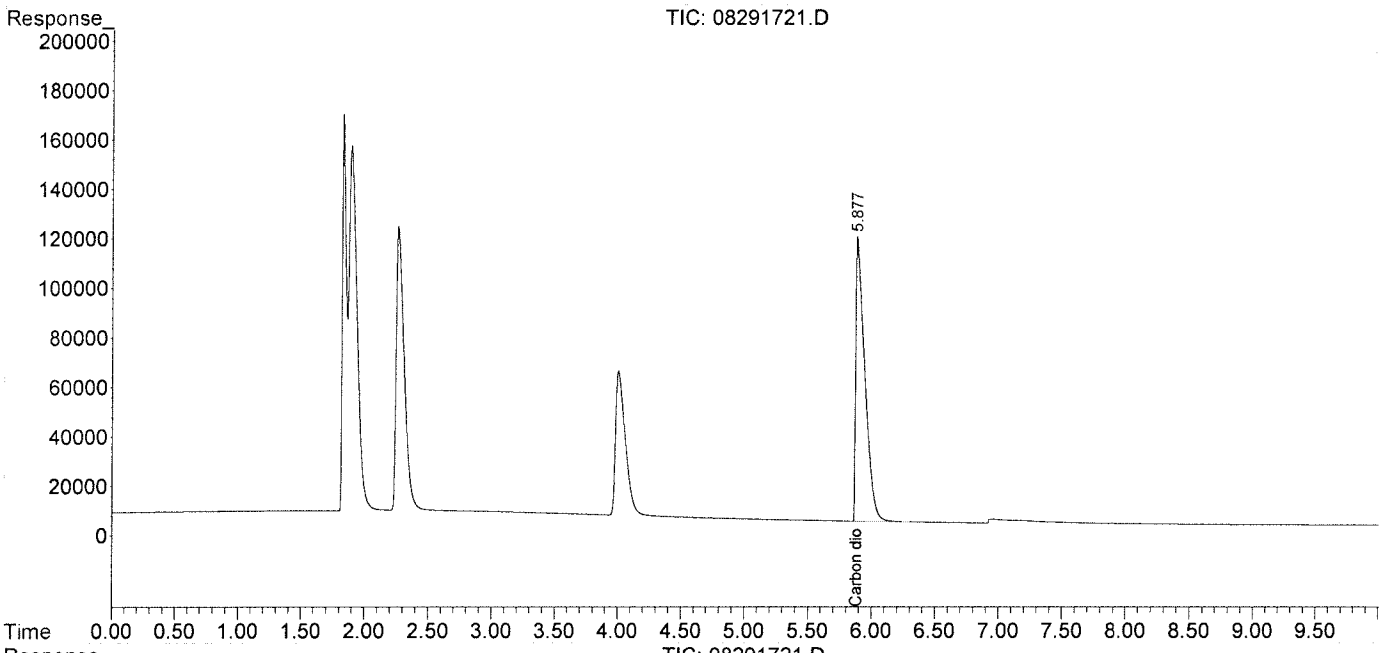
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

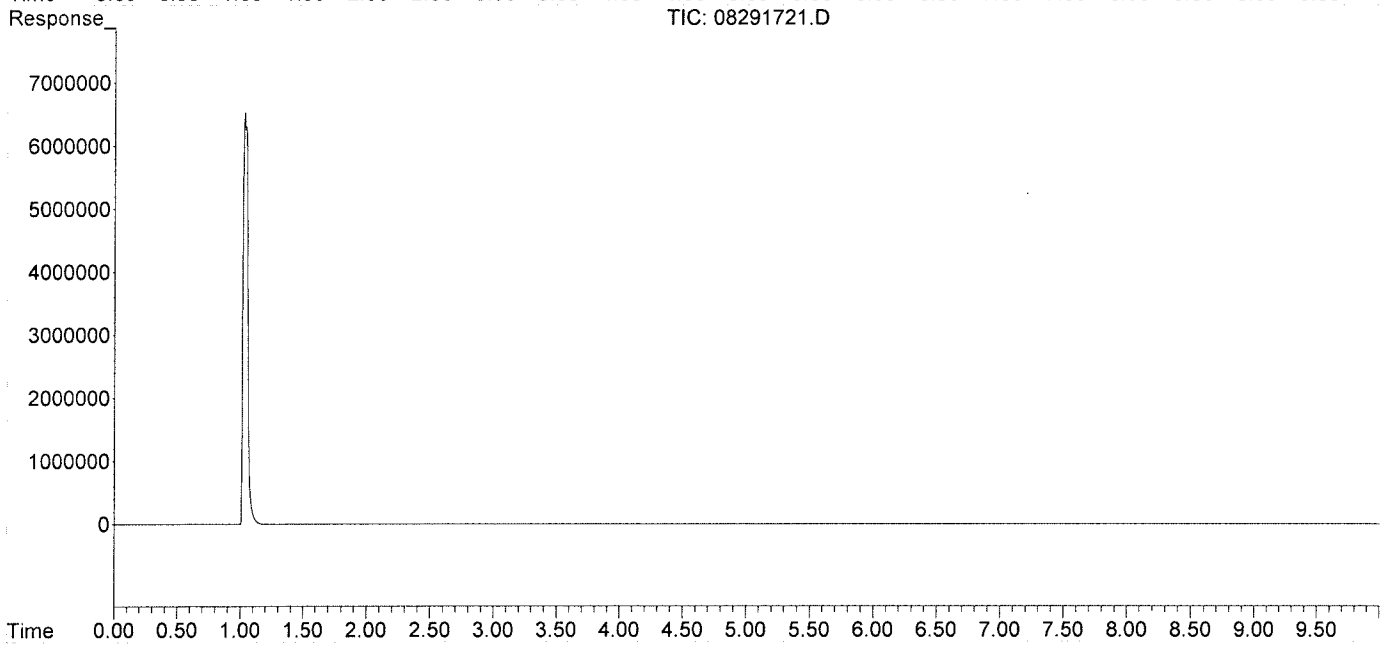
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291721.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:00
Operator : MC
Sample : 25000ppm s32-08231701 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:12:53 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 15:57:37 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.886	536422	0.113	ppm
2)	Carbon monoxide	1.886	536422	N.D.	ppm
3)	Methane (TCD)	4.059f	626500	66244.710	ppm
4)	Carbon dioxide	5.947	1163775	4957.948	ppm
6)	Methane (FID)	1.062	37290742	3947.023	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

Actual %D
Saw 99.16

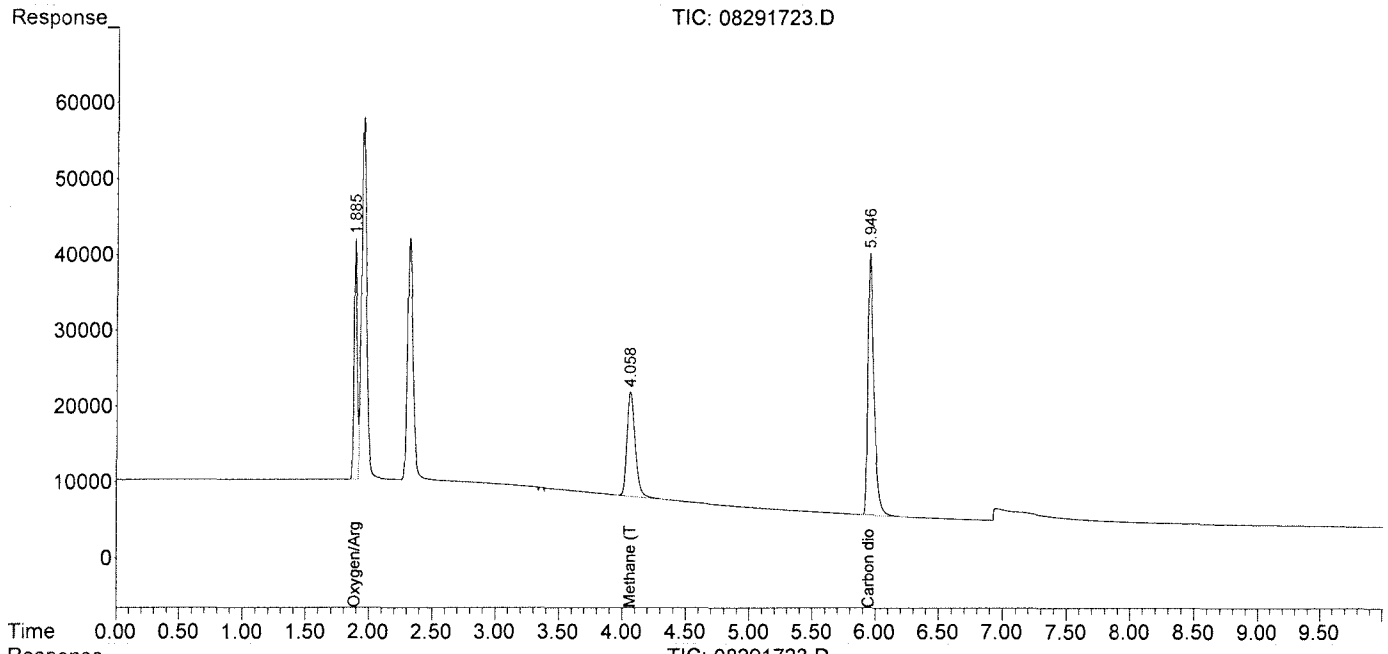
(f)=RT Delta > 1/2 Window (m)=manual int.

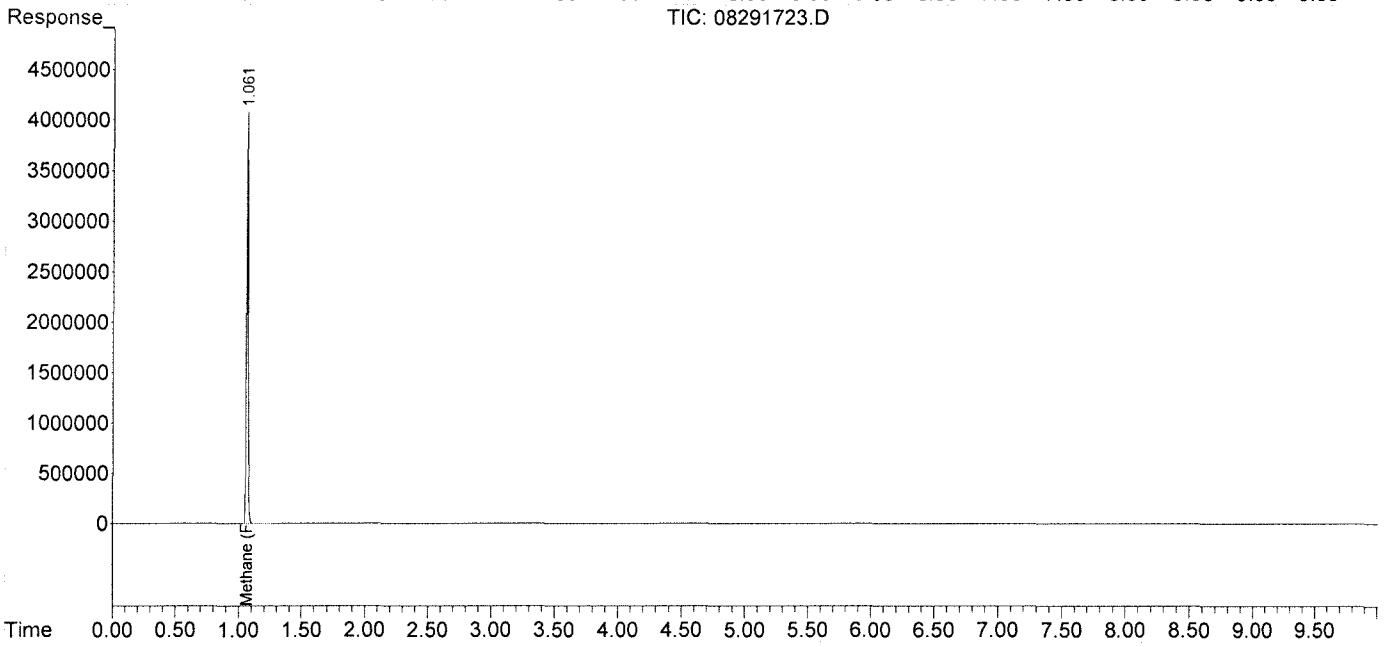
9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2101844
Sample Vol. (ml) : 32.00 ml
Analyst : CB
Date Analysis : 04/21/21
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std 0.1mL	0.100	4366.737
ACTUAL		5000.00
%Difference		12.7%
MCS 0.1mL	0.100	0.000
RB 0.1mL	0.100	0.000
LCS 0.1mL	0.100	789.344
LCSD 0.1mL	0.100	818.911
1844-001 0.1mL	0.100	4478.591
1844-002 0.1mL	0.100	13537.31
1844-003 0.1mL	0.100	14209.75
1844-004 0.1mL	0.100	13562.51
1844-005 0.1mL	0.100	4015.74
1844-006 0.1mL	0.100	6033.881
STD S32-02092101 0.1mL		4536.243
ACTUAL		5000.00
%Difference		9.3%

WWt.		16:07
HENRY'S CONSTANT		
RL		
MCS 0.1mL		
LCS 0.1mL		
LCSD 0.1mL		
1844-001 0.1mL		
1844-002 0.1mL		
1844-003 0.1mL		
1844-004 0.1mL		
1844-005 0.1mL		
1844-006 0.1mL		

FINAL HEAD SPACE RESULT (ppm)

Carbon Dioxide
44.10
1.42E+03
100.00
0.000
7893.440
8189.110
44785.91
135373.07
142097.5
135625.1
40157.4
60338.81

REV01

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 09:25
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

CB
4/21/21

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:39:00 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

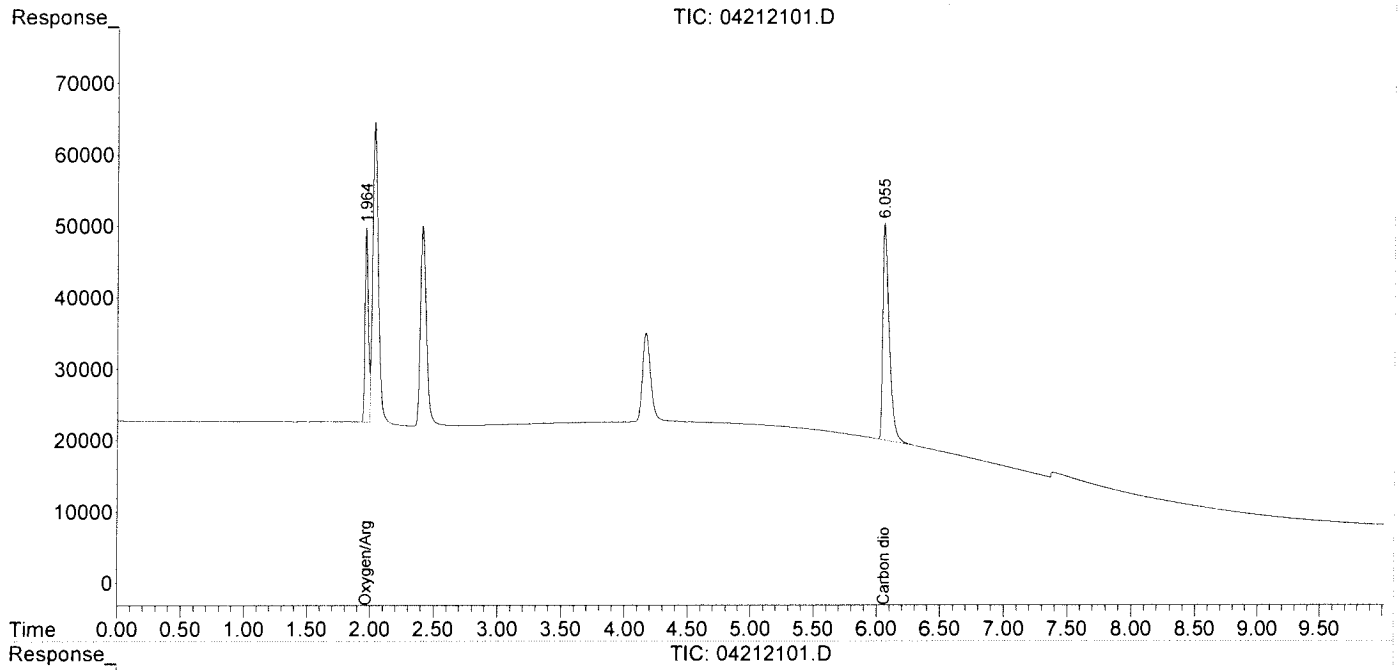
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.965f	494268	0.104	ppm
2)	Carbon monoxide	1.965f	494268	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.056	1064789	4536.243	ppm
6)	Methane (FID)	1.104	32790580	3470.705	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

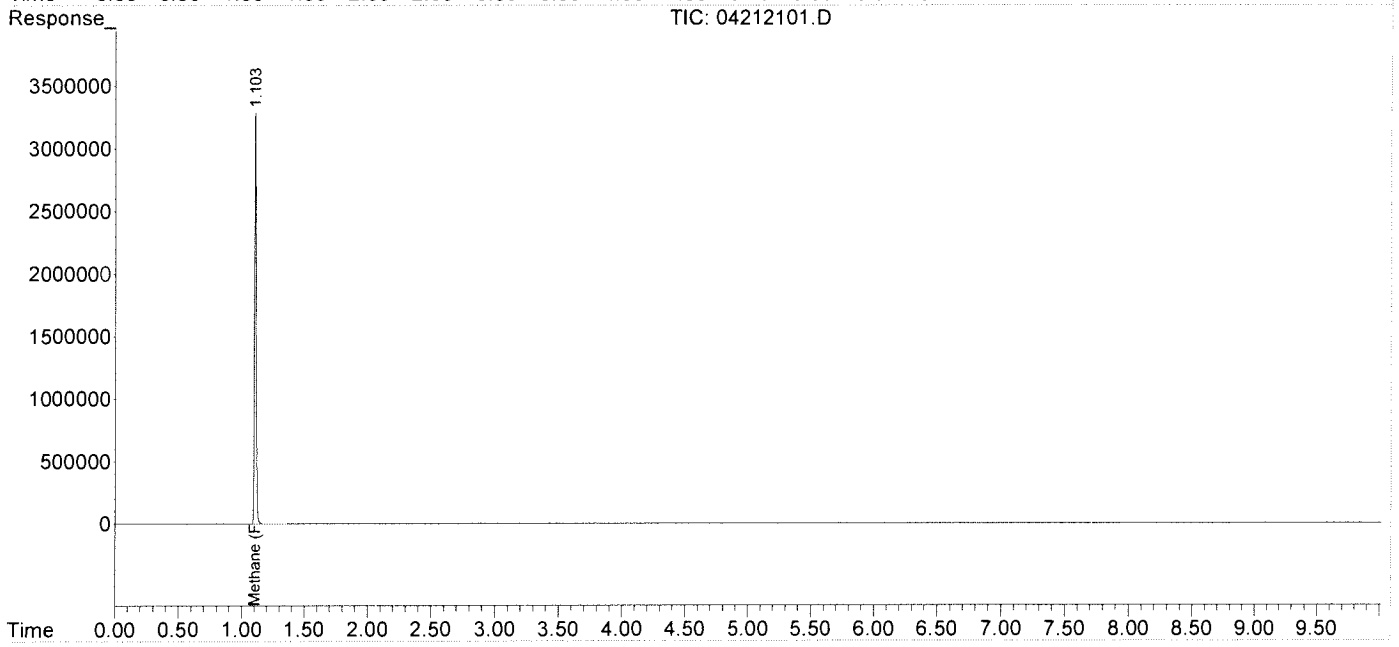
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\21\
Data File : 04212101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 09:25
Operator : CB
Sample : STD S32-02092101 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 21 14:39:00 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 17:37
Operator : CB
Sample : std 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:28:42 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

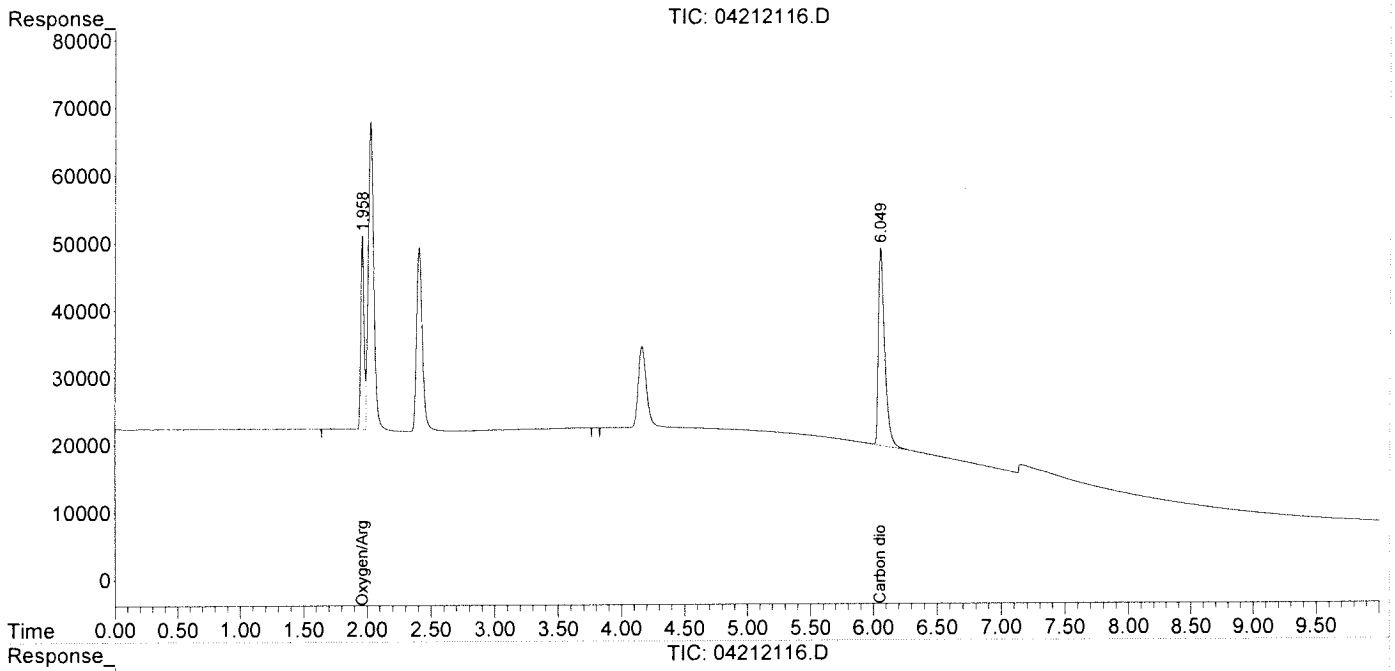
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.959f	514477	0.108	ppm
2)	Carbon monoxide	1.959f	514477	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.050	1025001	4366.737	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

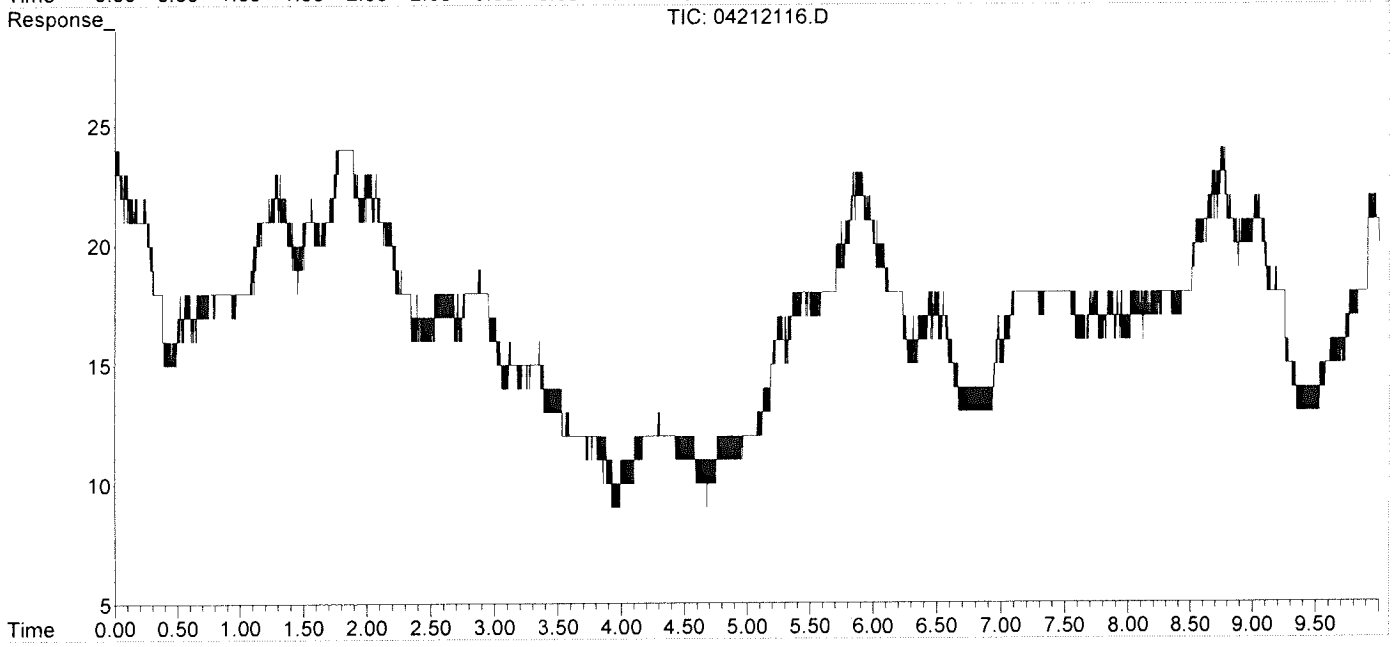
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2021_04\21\
Data File : 04212116.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 21-Apr-2021, 17:37
Operator : CB
Sample : std 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 26 11:28:42 2021
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mis inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	icv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2021_04\21\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	21-Apr-21, 09:07:30	04212100.D	PURGE		CB	RSKBOTH.M	Purge
2	21-Apr-21, 09:25:09	04212101.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass
3	21-Apr-21, 09:41:58	04212102.D	RB 0.1mL		CB	RSKBOTH.M	Pass
4	21-Apr-21, 13:44:55	04212103.D	MCS 0.1mL		CB	RSKBOTH.M	Pass
5	21-Apr-21, 13:58:34	04212104.D	LCS S32-03172101 0.1mL		CB	RSKBOTH.M	Pass
6	21-Apr-21, 14:17:13	04212105.D	LCSD S32-03172101 0.1mL		CB	RSKBOTH.M	Pass
7	21-Apr-21, 14:42:24	04212106.D	P2101844-001 0.1mL		CB	RSKBOTH.M	
8	21-Apr-21, 15:02:06	04212107.D	P2101844-002 0.1mL		CB	RSKBOTH.M	
9	21-Apr-21, 15:17:03	04212108.D	P2101844-003 0.1mL		CB	RSKBOTH.M	
10	21-Apr-21, 15:33:37	04212109.D	P2101844-004 0.1mL		CB	RSKBOTH.M	
11	21-Apr-21, 15:51:55	04212110.D	P2101844-005 0.1mL		CB	RSKBOTH.M	
12	21-Apr-21, 16:07:58	04212111.D	P2101844-006 0.1mL		CB	RSKBOTH.M	
13	21-Apr-21, 16:23:49	04212112.D	P2102036-001 0.1mL		CB	RSKBOTH.M	
14	21-Apr-21, 16:39:40	04212113.D	P2102036-002 0.1mL		CB	RSKBOTH.M	
15	21-Apr-21, 16:55:33	04212114.D	P2102036-003 0.1mL		CB	RSKBOTH.M	
16	21-Apr-21, 17:12:09	04212115.D	P2102036-004 0.1mL		CB	RSKBOTH.M	
17	21-Apr-21, 17:37:16	04212116.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass
18	21-Apr-21, 17:54:41	04212117.D	P2102036-005 0.1mL		CB	RSKBOTH.M	
19	21-Apr-21, 18:09:09	04212118.D	STD S32-02092101 0.1mL		CB	RSKBOTH.M	Pass

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:23:33
Operator : CB
Sample : 1844-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:10 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

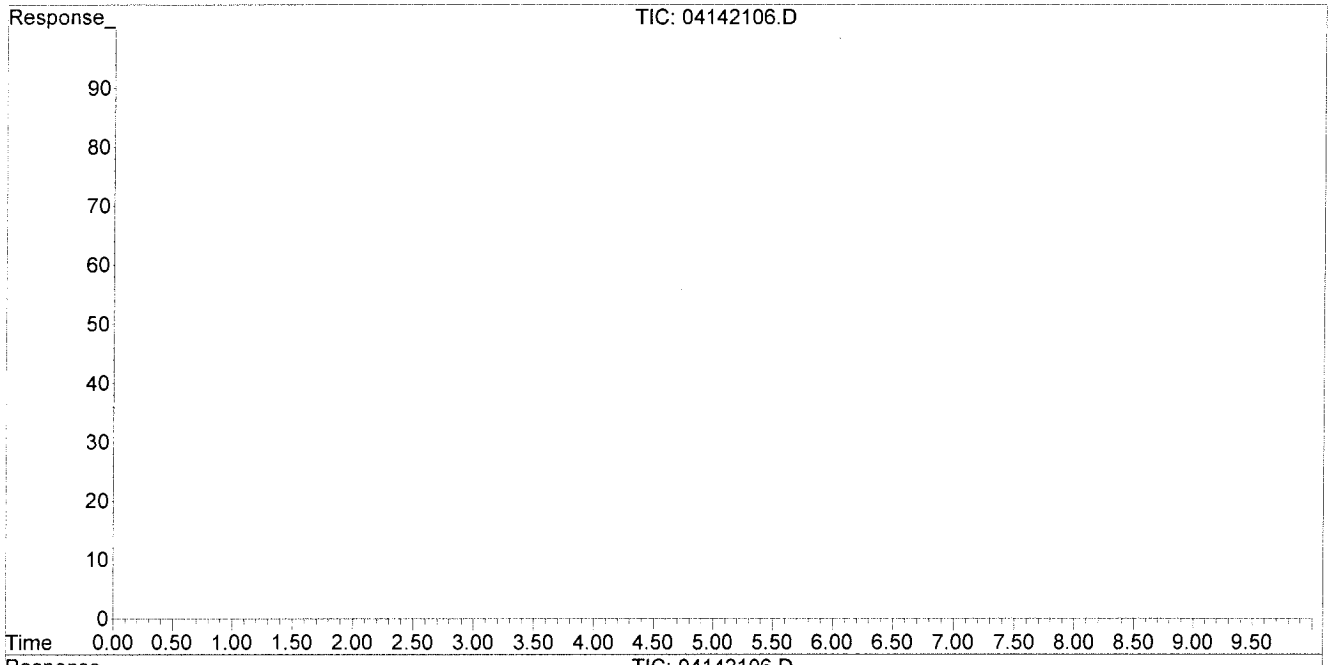
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	14065	1.551	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

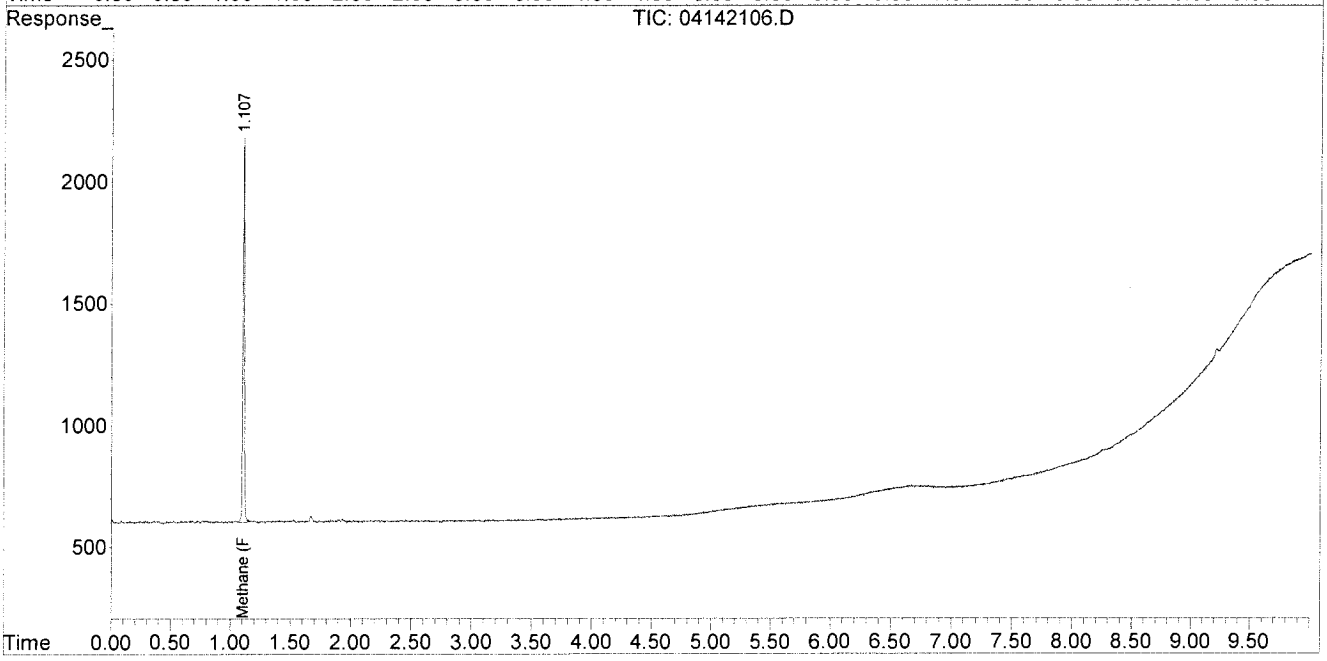
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142106.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:23:33
Operator : CB
Sample : 1844-001 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:10 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:39:25
Operator : CB
Sample : 1844-002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:26 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

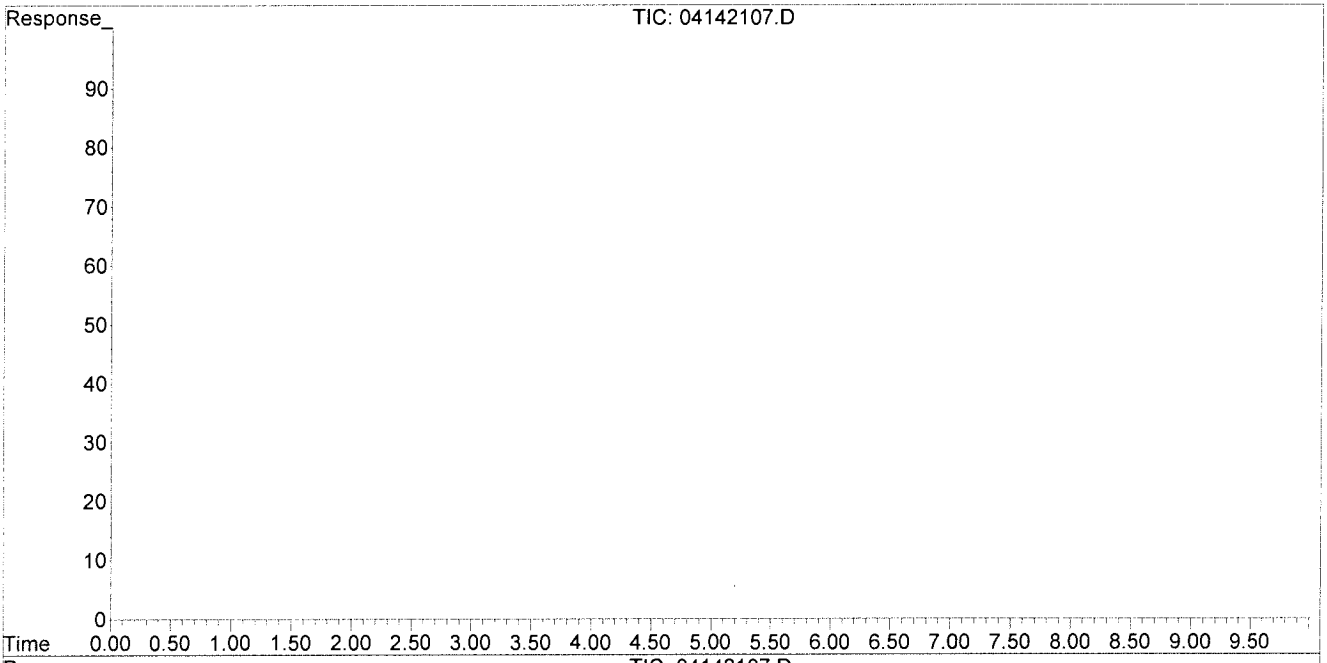
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.106	6657	0.734	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

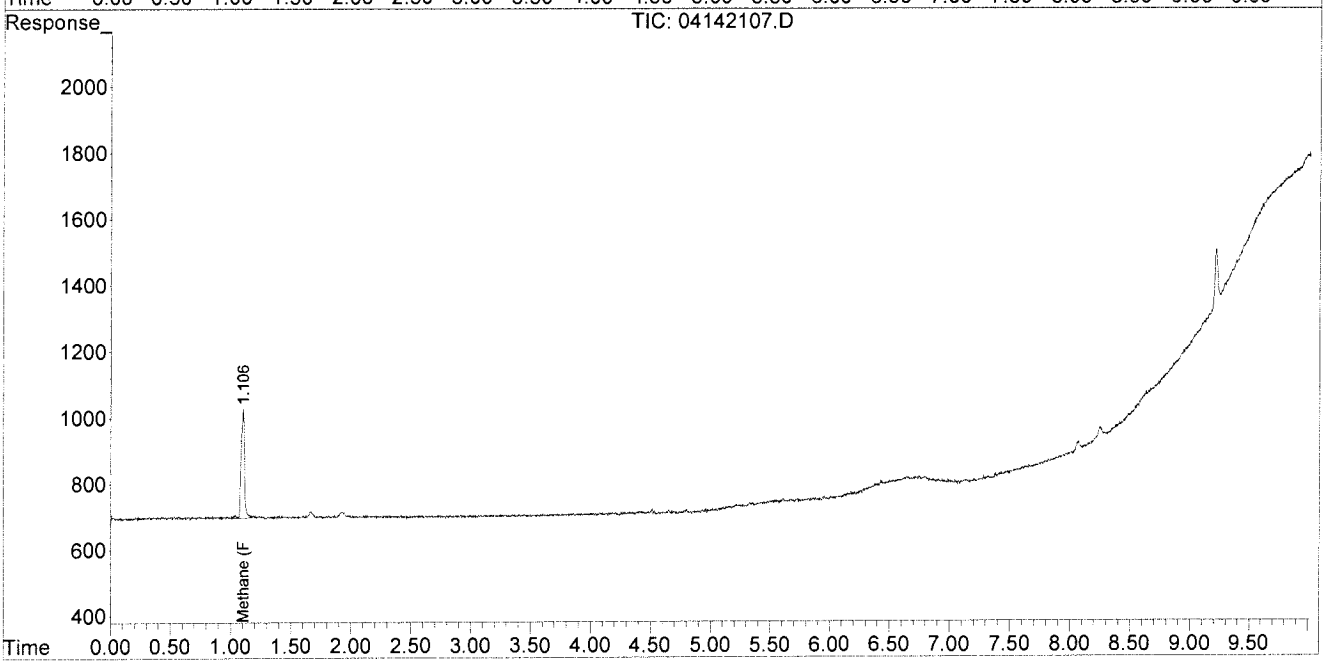
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142107.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:39:25
Operator : CB
Sample : 1844-002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:26 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:58:18
Operator : CB
Sample : 1844-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:41 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

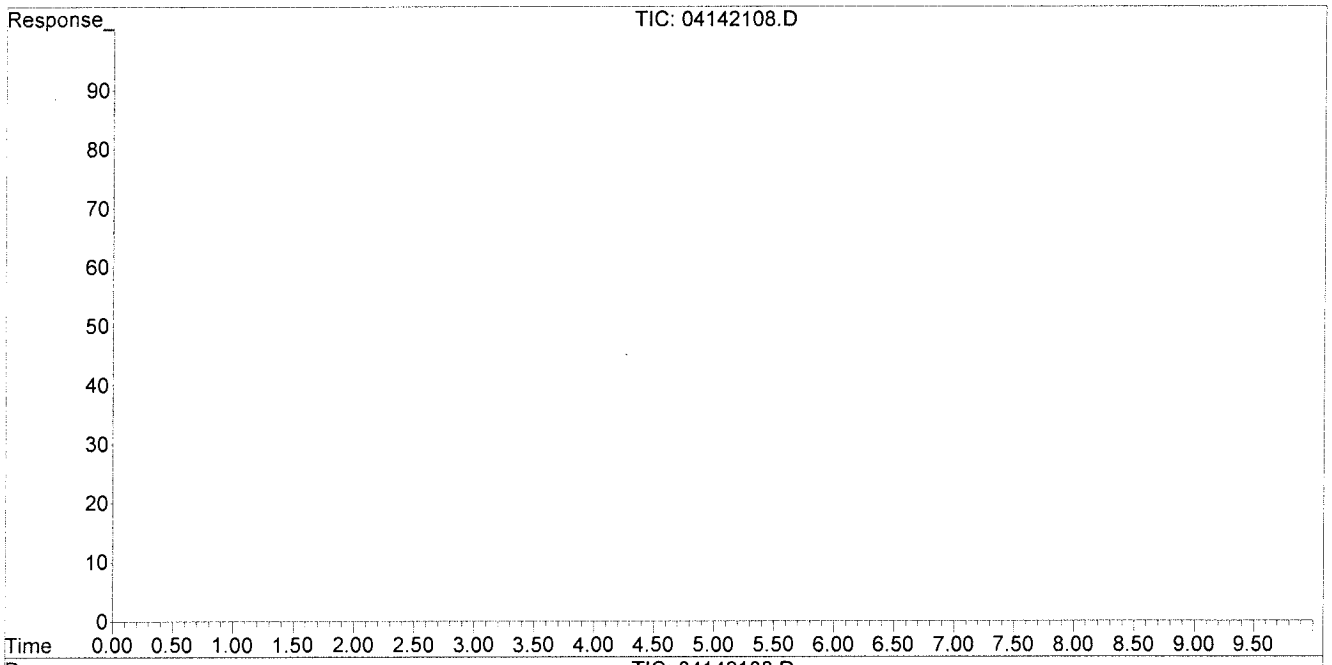
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.105	5360	0.591	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

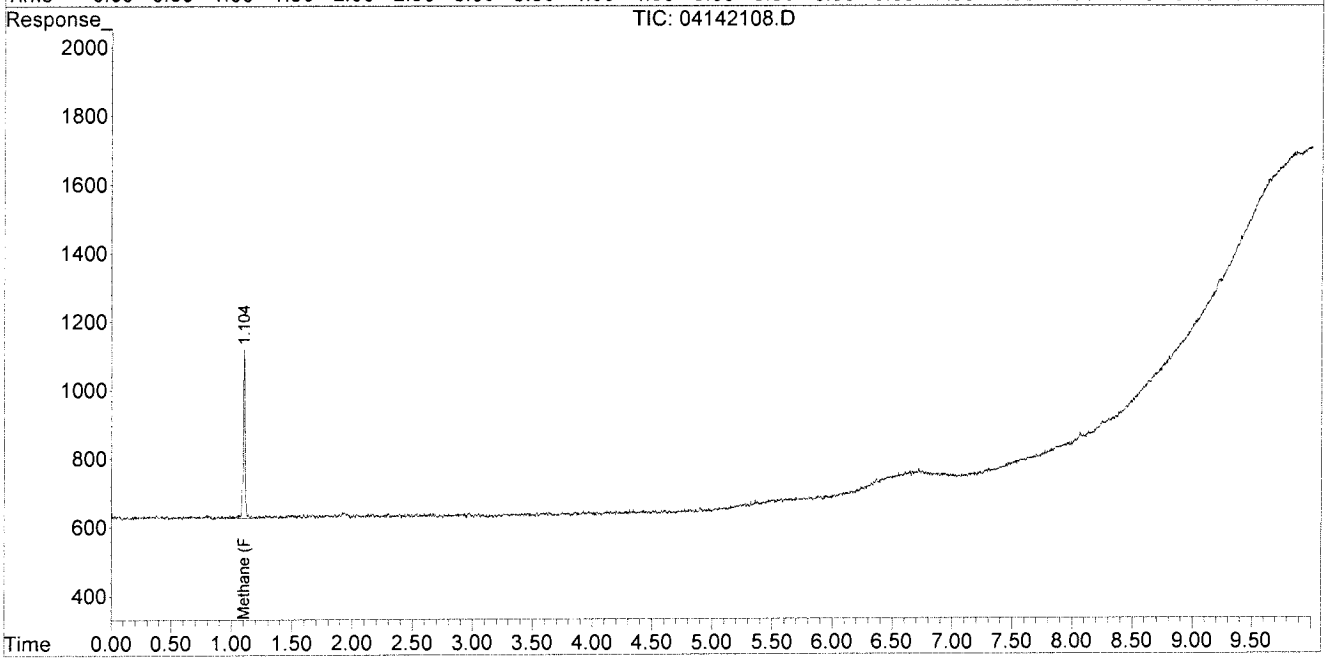
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142108.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 13:58:18
Operator : CB
Sample : 1844-003 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:17:41 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:15:37
Operator : CB
Sample : 1844-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:04 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

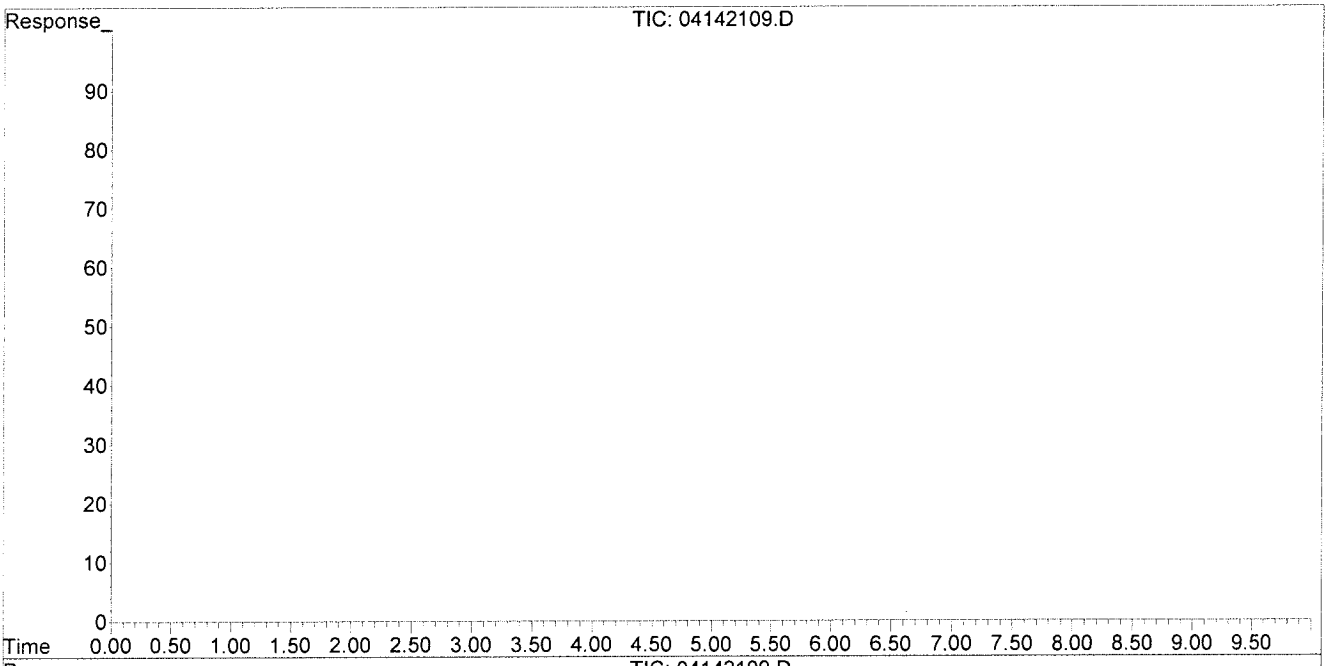
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	8270	0.912	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

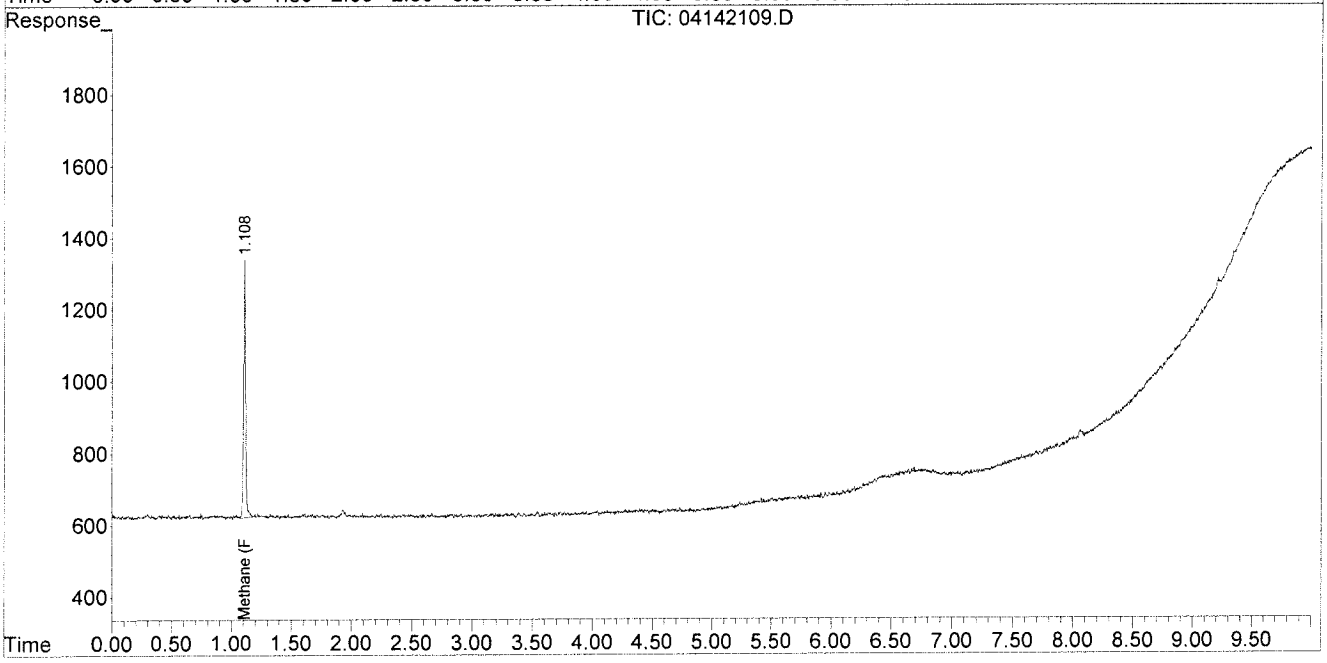
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142109.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:15:37
Operator : CB
Sample : 1844-004 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:04 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:35:00
Operator : CB
Sample : 1844-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:20 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

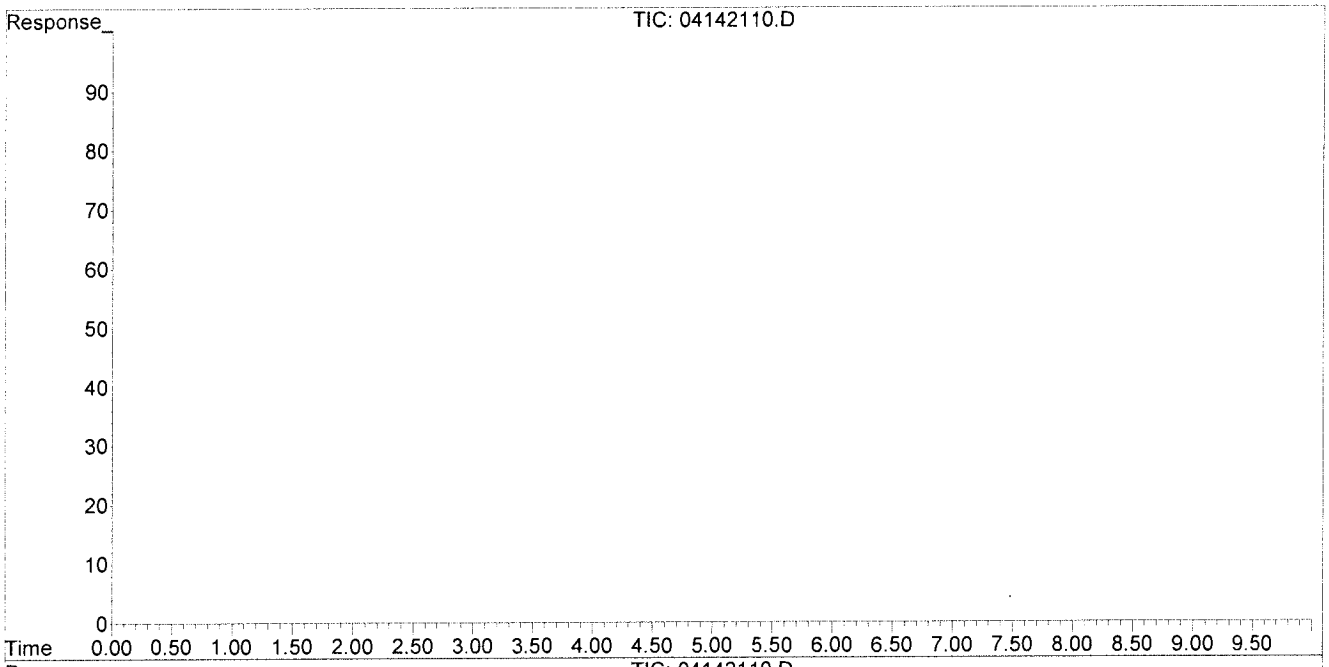
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.106	12179	1.343	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

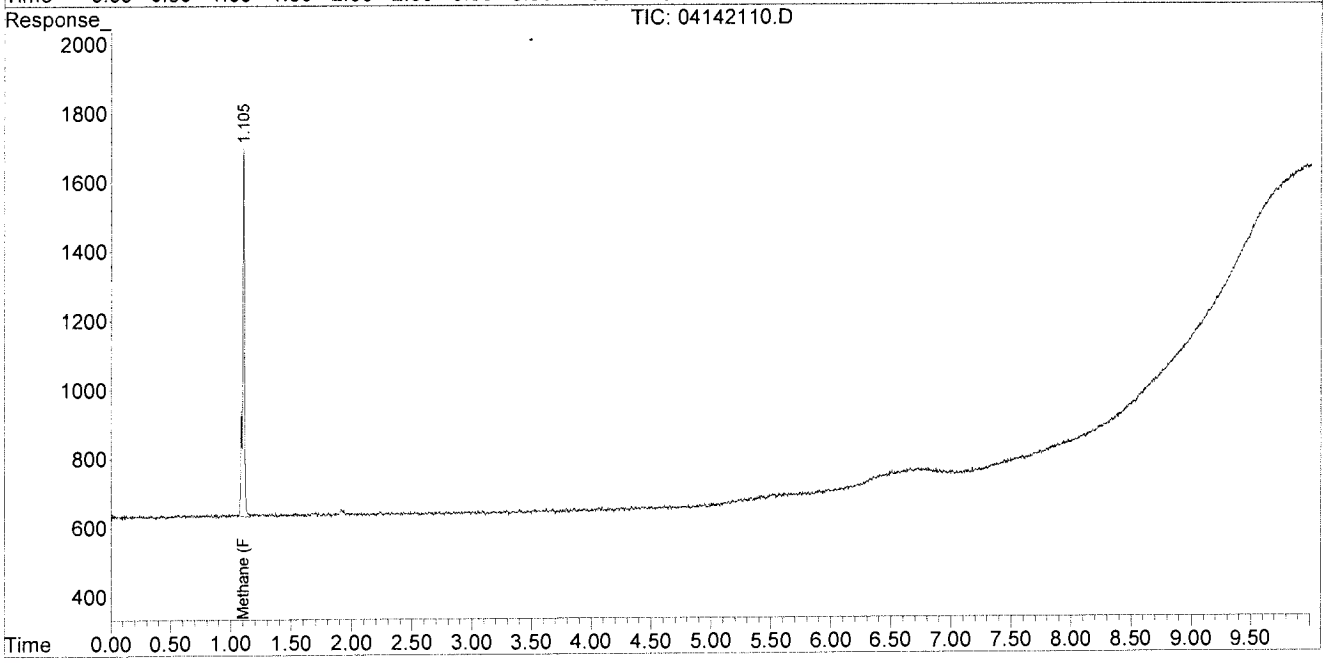
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142110.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:35:00
Operator : CB
Sample : 1844-005 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:20 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:56:19
Operator : CB
Sample : 1844-005 0.1mLMS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:37 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

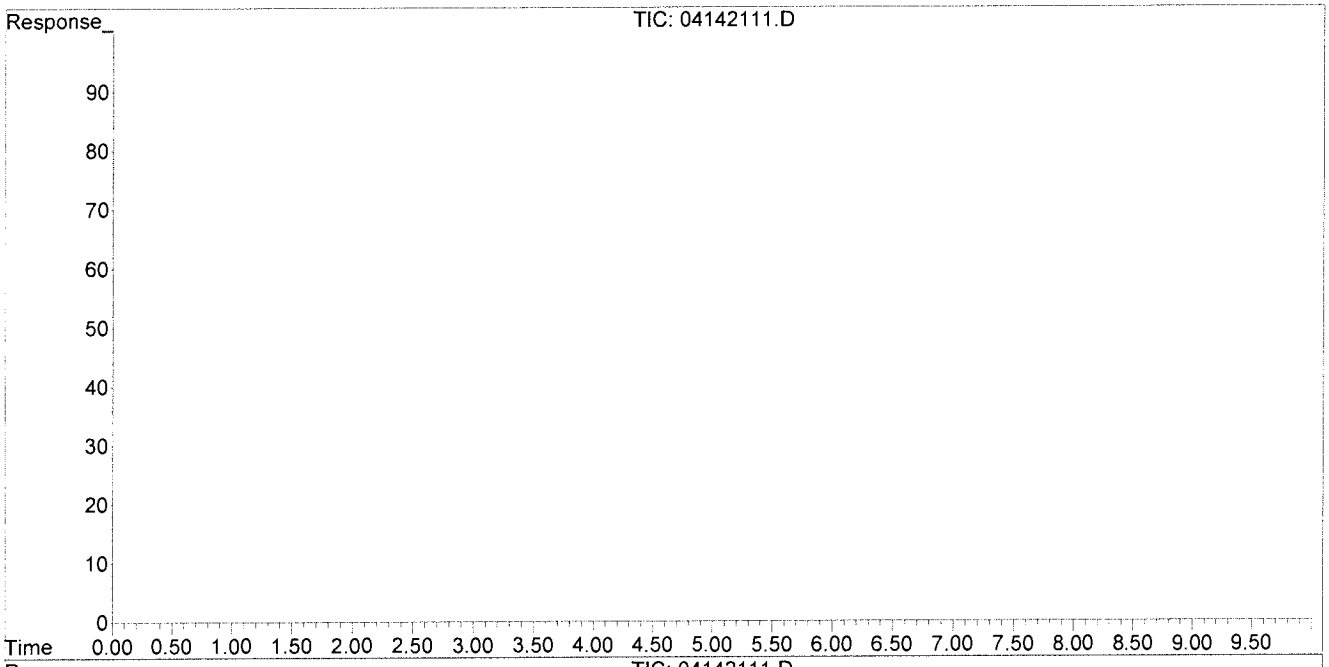
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	684909	75.508	ppm
7)	Ethylene	1.672	1101357	65.814	ppm
8)	Ethane	1.933	1298375	76.599	ppm
9)	Propylene	4.309	1552260	66.247	ppm
10)	Propane	4.428	1981290	79.633	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

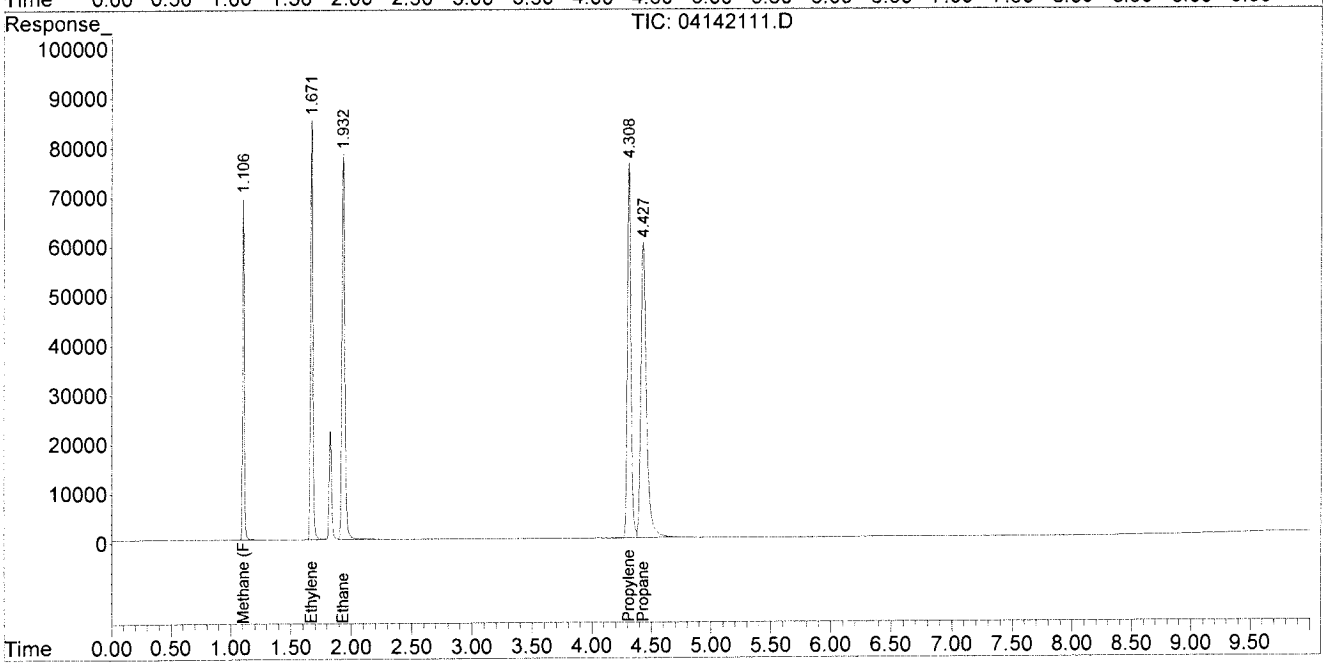
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142111.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 14:56:19
Operator : CB
Sample : 1844-005 0.1mLMS
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:18:37 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:12:45
Operator : CB
Sample : 1844-005 0.1mLMSD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:19:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

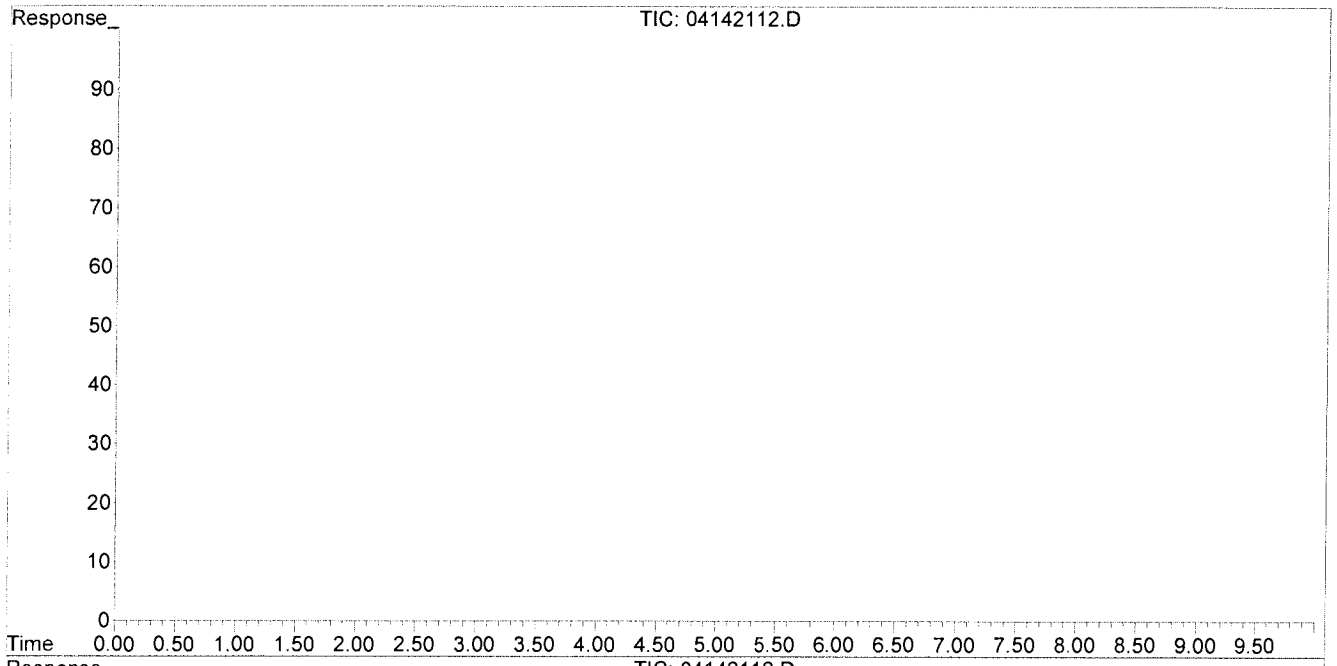
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	681836	75.170	ppm
7)	Ethylene	1.672	1098799	65.661	ppm
8)	Ethane	1.934	1298482	76.606	ppm
9)	Propylene	4.312	1558920	66.531	ppm
10)	Propane	4.430	1992704	80.092	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

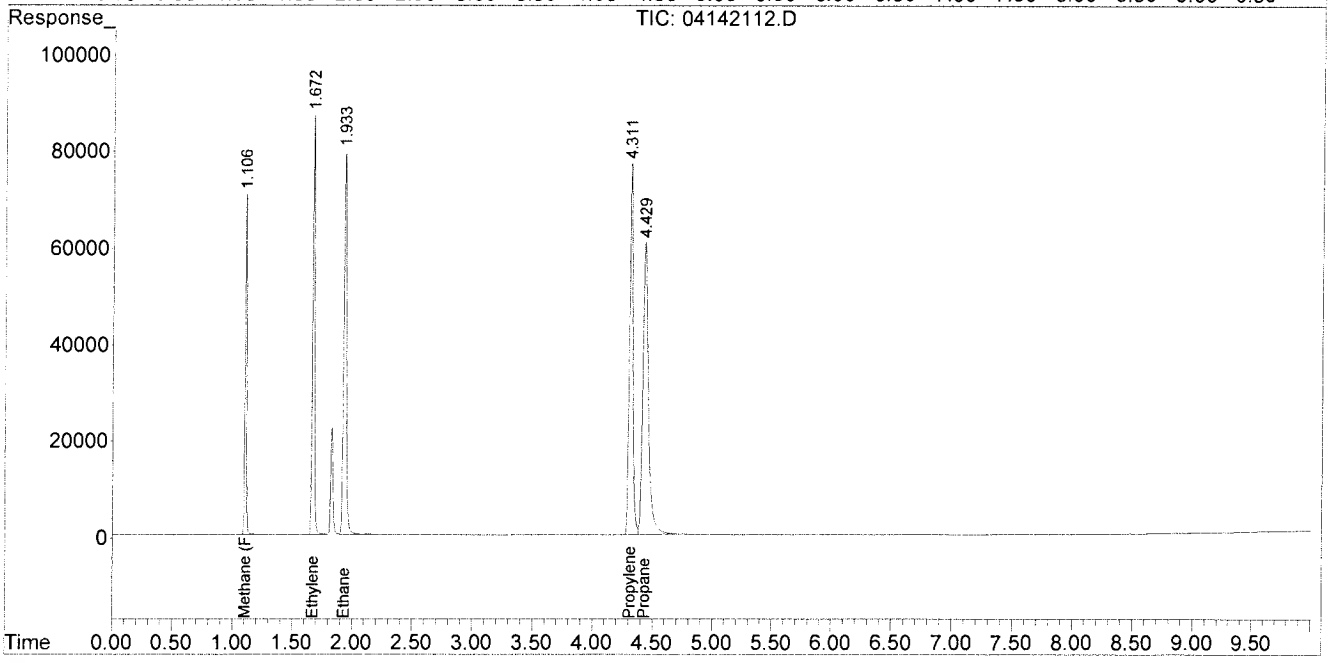
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142112.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:12:45
Operator : CB
Sample : 1844-005 0.1mLMSD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:19:09 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:29:01
Operator : CB
Sample : 1844-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:19:33 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

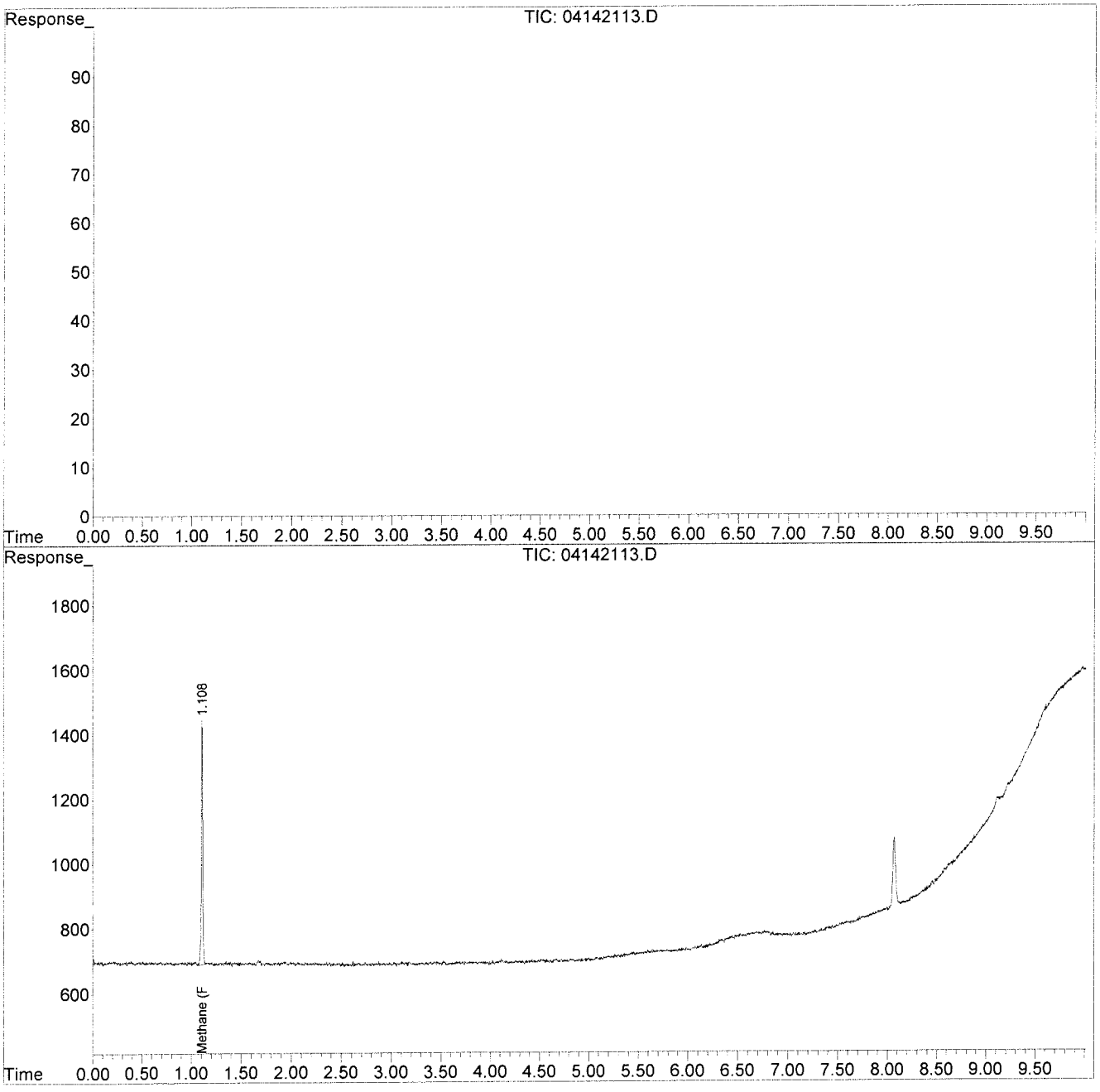
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	7061	0.778	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142113.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:29:01
Operator : CB
Sample : 1844-006 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 20 13:19:33 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 11:36:09
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:05 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

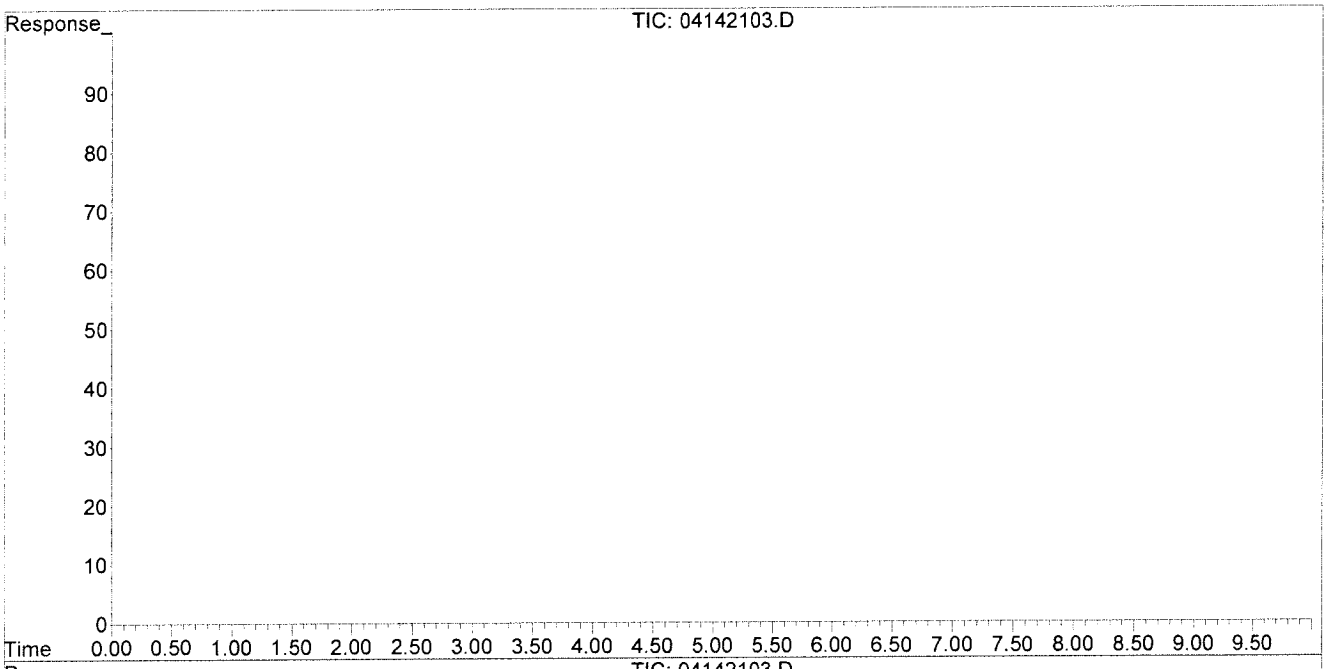
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.091	1729	0.191	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

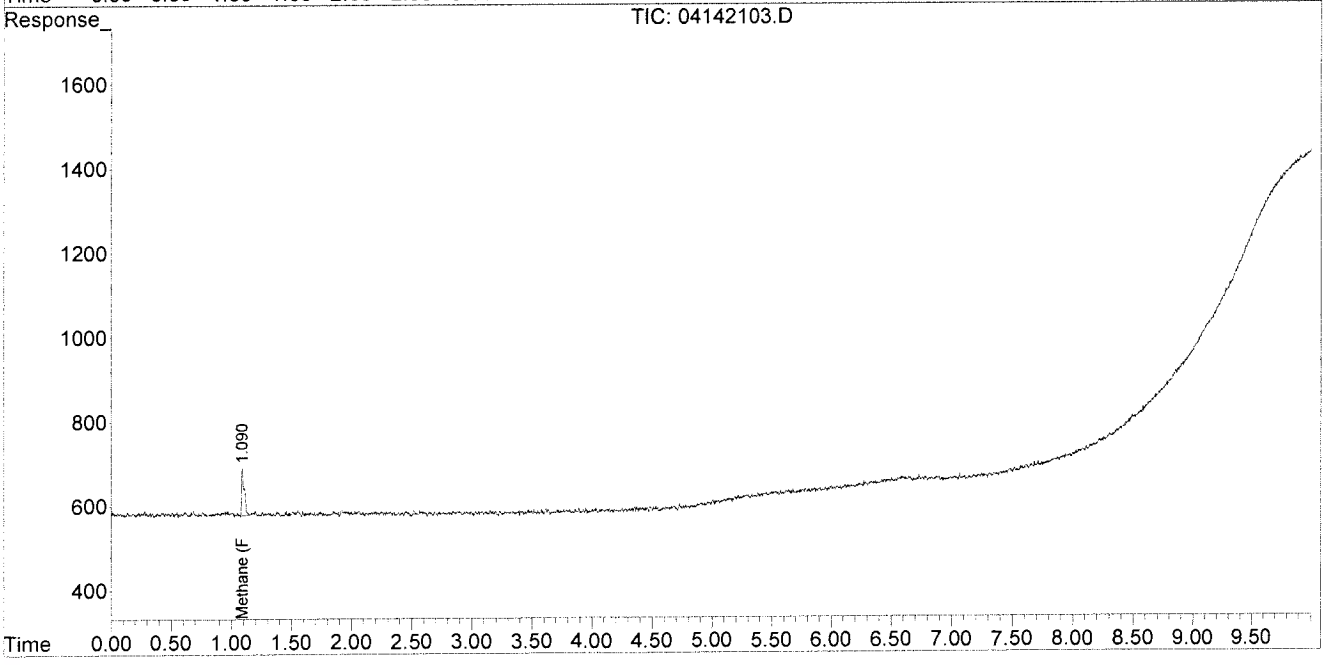
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142103.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 11:36:09
Operator : CB
Sample : MCS 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:05 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 12:02:50
Operator : CB
Sample : LCS S32-06252002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:14 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

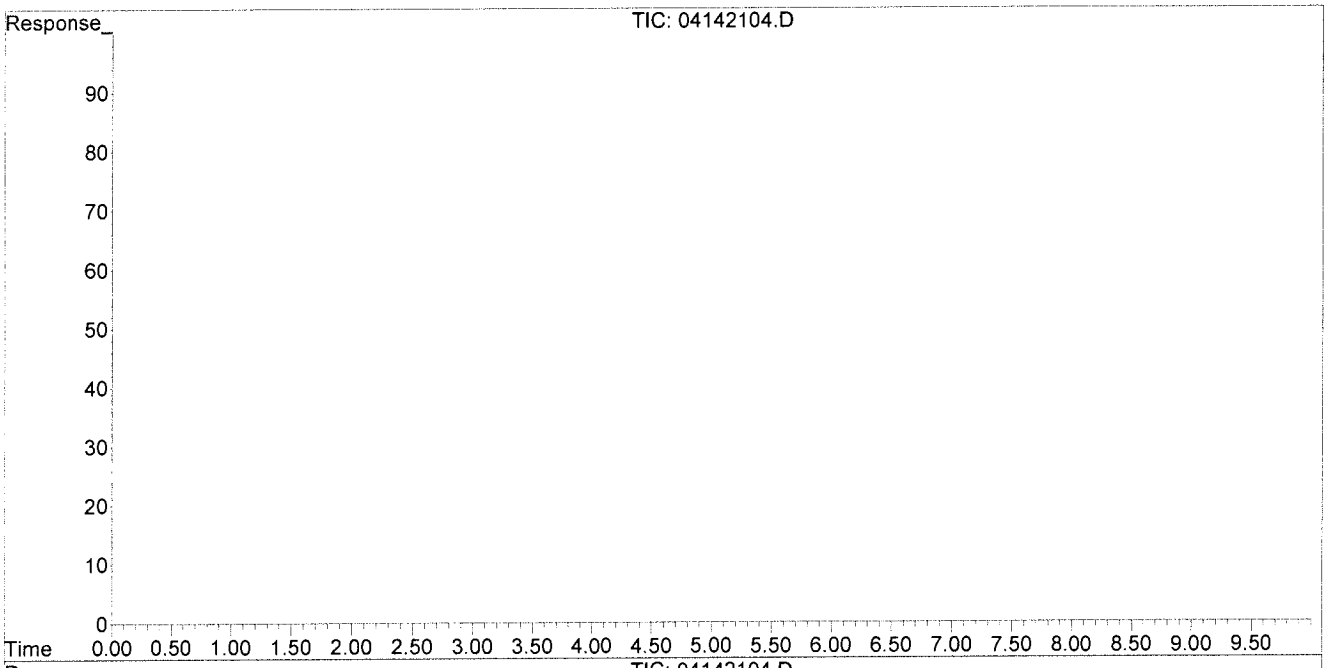
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	14582	1.608	ppm
7)	Ethylene	1.678	19212	1.148	ppm
8)	Ethane	1.941	22391	1.321	ppm
9)	Propylene	4.324	27333	1.167	ppm
10)	Propane	4.443	33962	1.365	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.656	44700	1.679	ppm
13)	n-Butane	6.656	44700	1.679	ppm

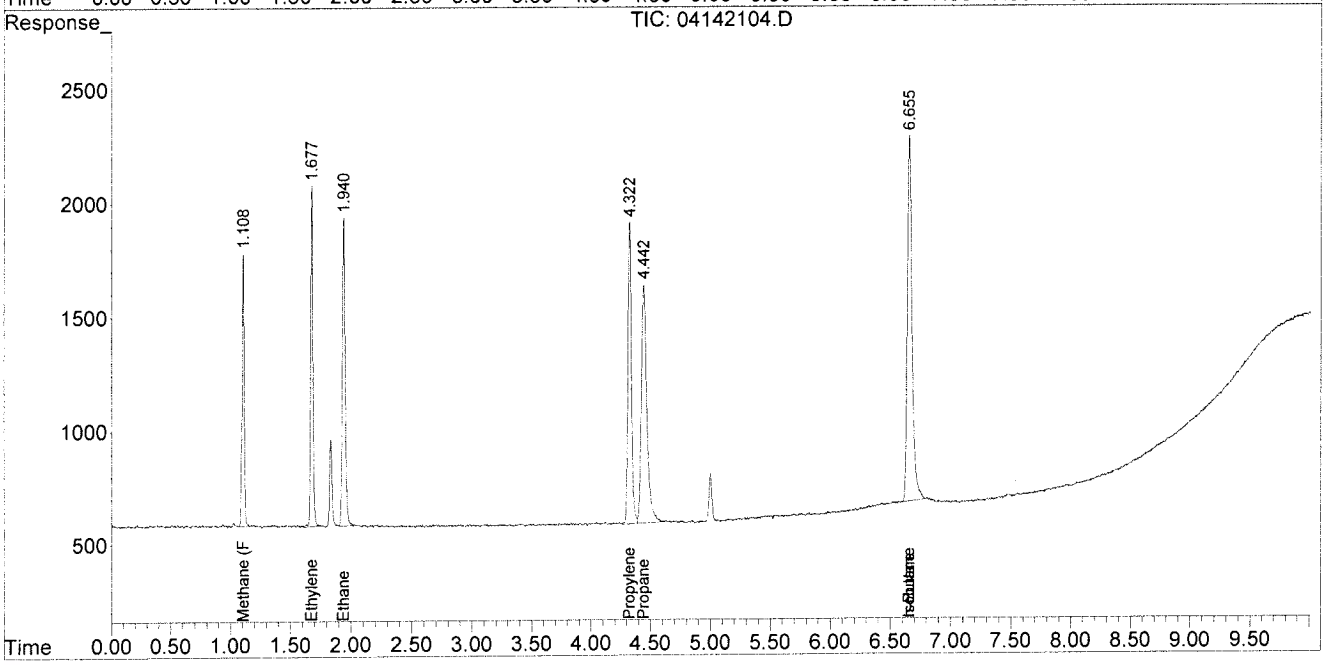
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142104.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 12:02:50
Operator : CB
Sample : LCS S32-06252002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:14 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 12:16:40
Operator : CB
Sample : LCSD S32-06252002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:29 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

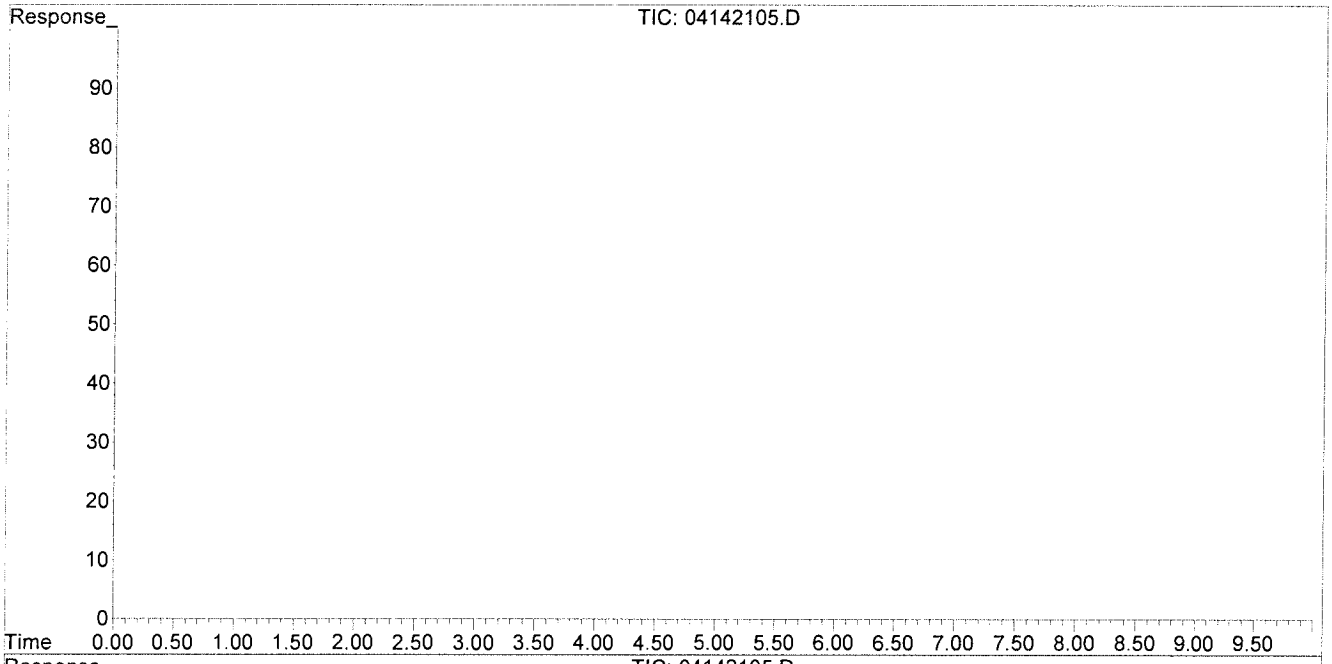
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	12862	1.418	ppm
7)	Ethylene	1.674	18409	1.100	ppm
8)	Ethane	1.937	21814	1.287	ppm
9)	Propylene	4.321	25758	1.099	ppm
10)	Propane	4.439	33050	1.328	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.653	42220	1.586	ppm
13)	n-Butane	6.653	42220	1.586	ppm

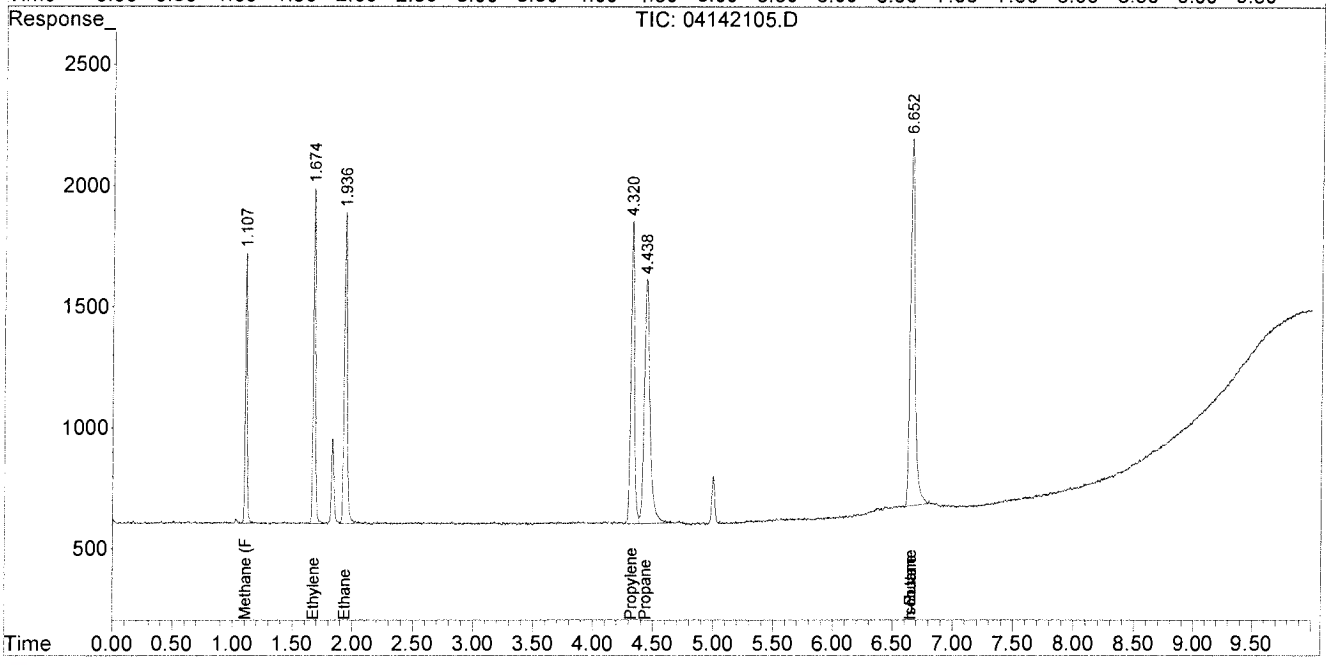
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142105.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 12:16:40
Operator : CB
Sample : LCSD S32-06252002 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 13:19:29 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017

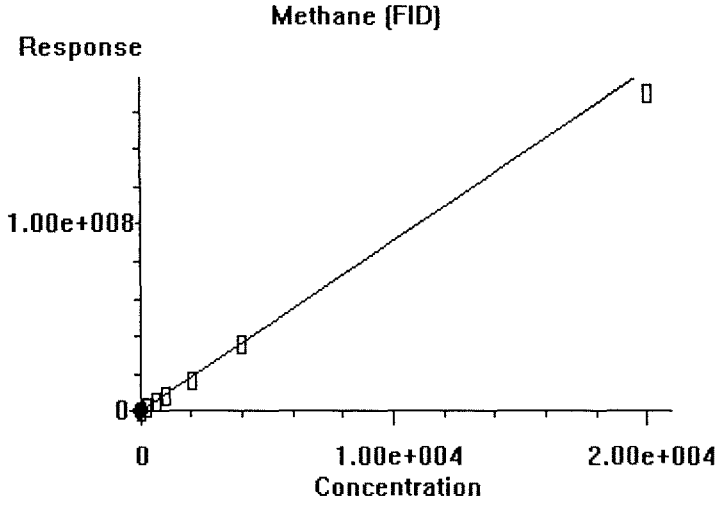
Edit Compounds -- Compound #6 -- Methane (FID)

Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response	Lvl ID	Concentration	Response
1	0.151000		11	20000.000000	169009160.49199
2	0.302000	3564.400000			
3	1.510000	14725.268625			
4	4.530000	41128.575000			
5	10.570000	91966.784531			
6	200.000000	1735997.497500			
7	600.000000	5189848.900000			
8	1000.000000	8598533.570000			
9	2000.000000	16098209.390000			
10	4000.000000	35776839.311362			



0.000e+000	Quadratic term
9.071e+003	Linear term
0.000e+000	Constant term
11.657%	RF Rel Std Dev

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

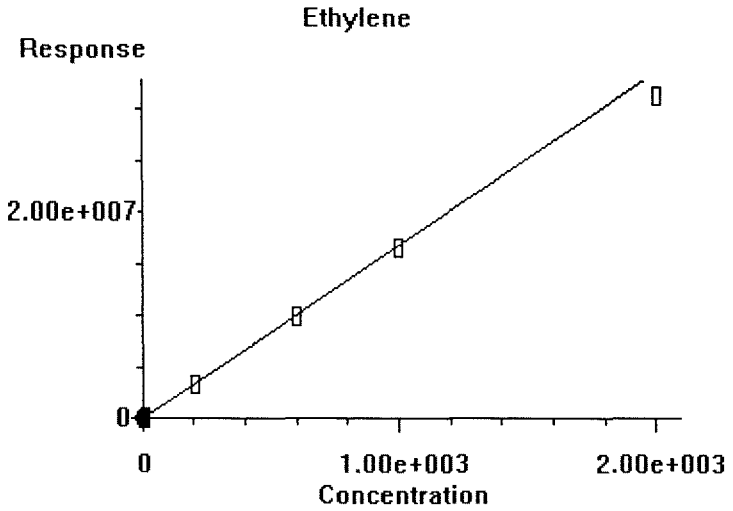
Search by: (•) Ret Time ( ) Name ( ) Index [ ] Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

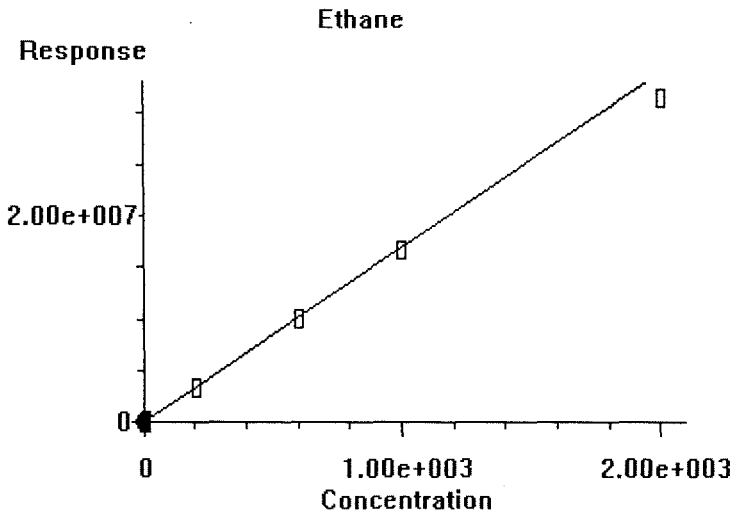
Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16709164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Edit Compounds -- Compound #9 -- Propylene

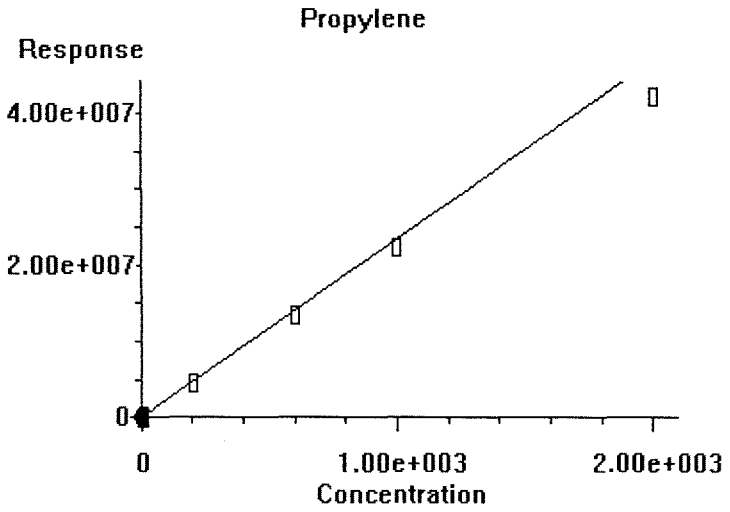
Search by: Ret Time | Name | Index — Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #10 -- Propane

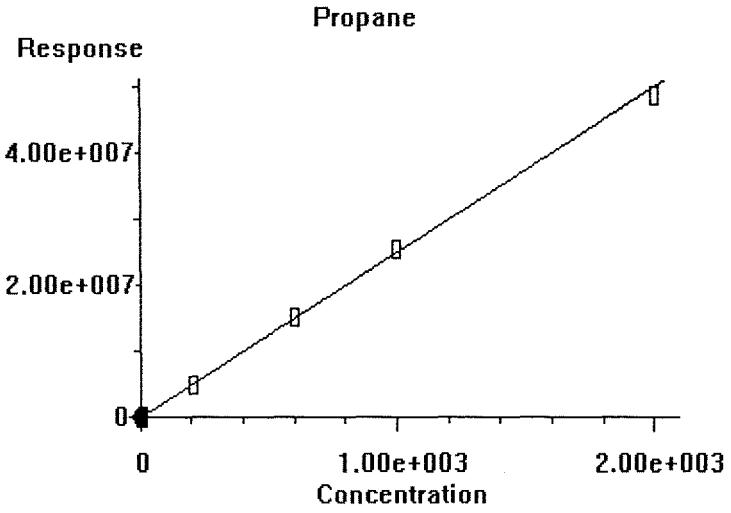
Search by: Ret Time Name Index Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK Cancel Help Print Calibration Curve Copy Calibration Curve

Calibration Status Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

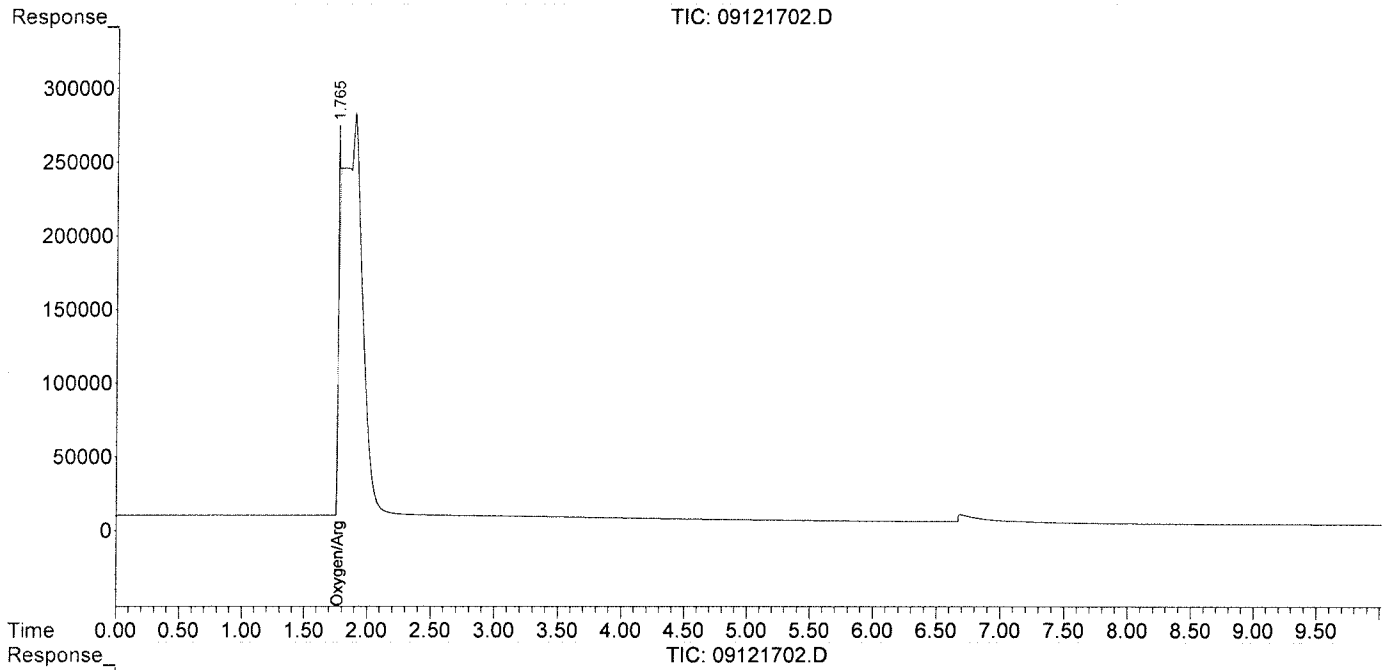
(f)=RT Delta > 1/2 Window (m)=manual int.

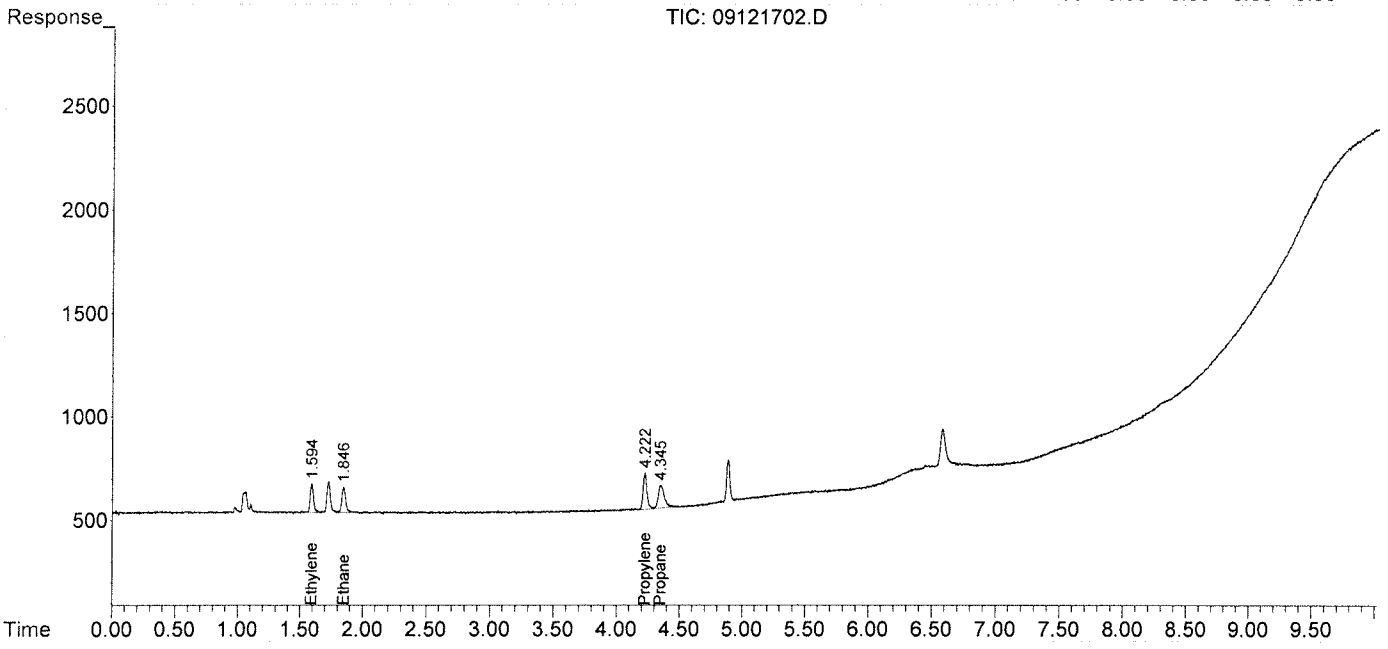
9/13/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

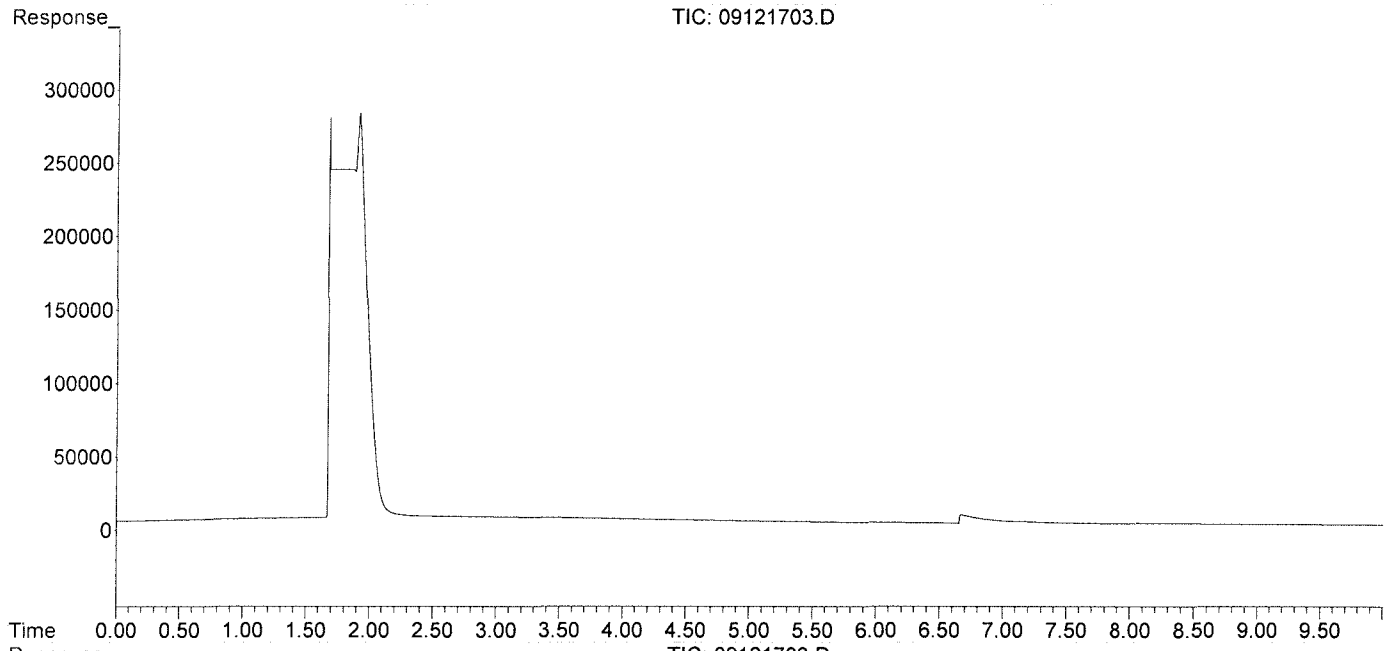
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

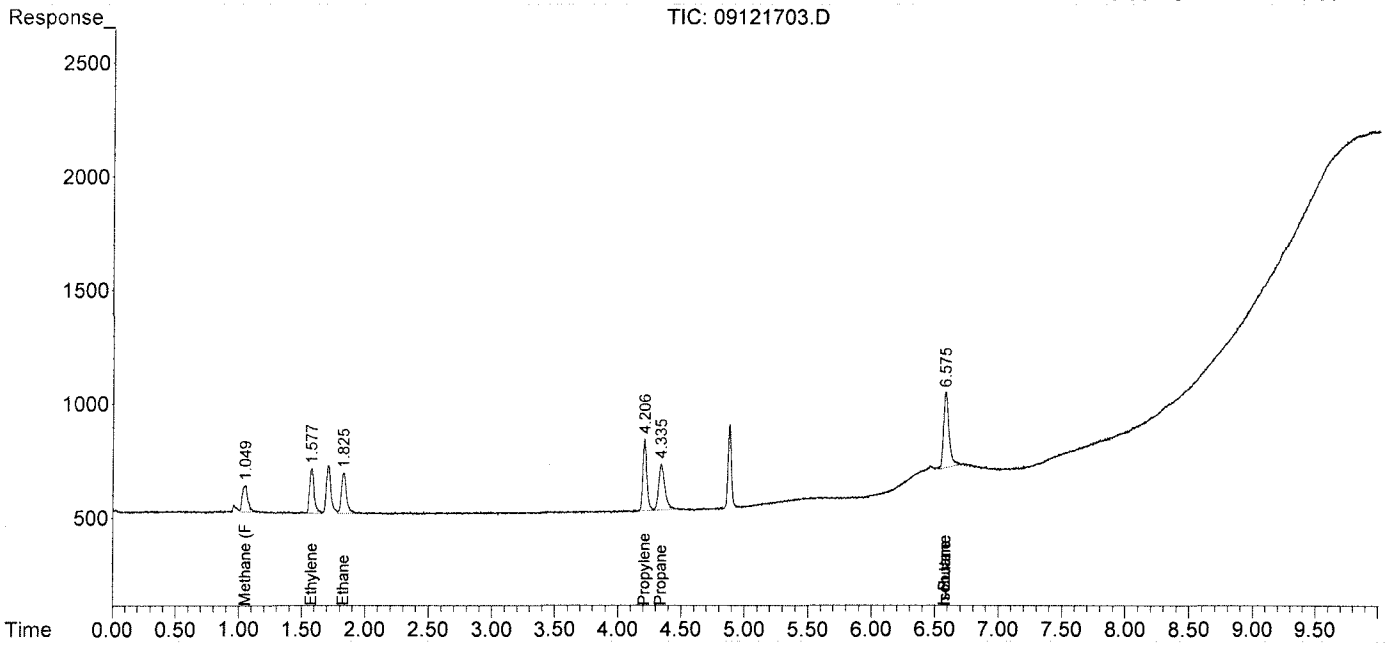
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

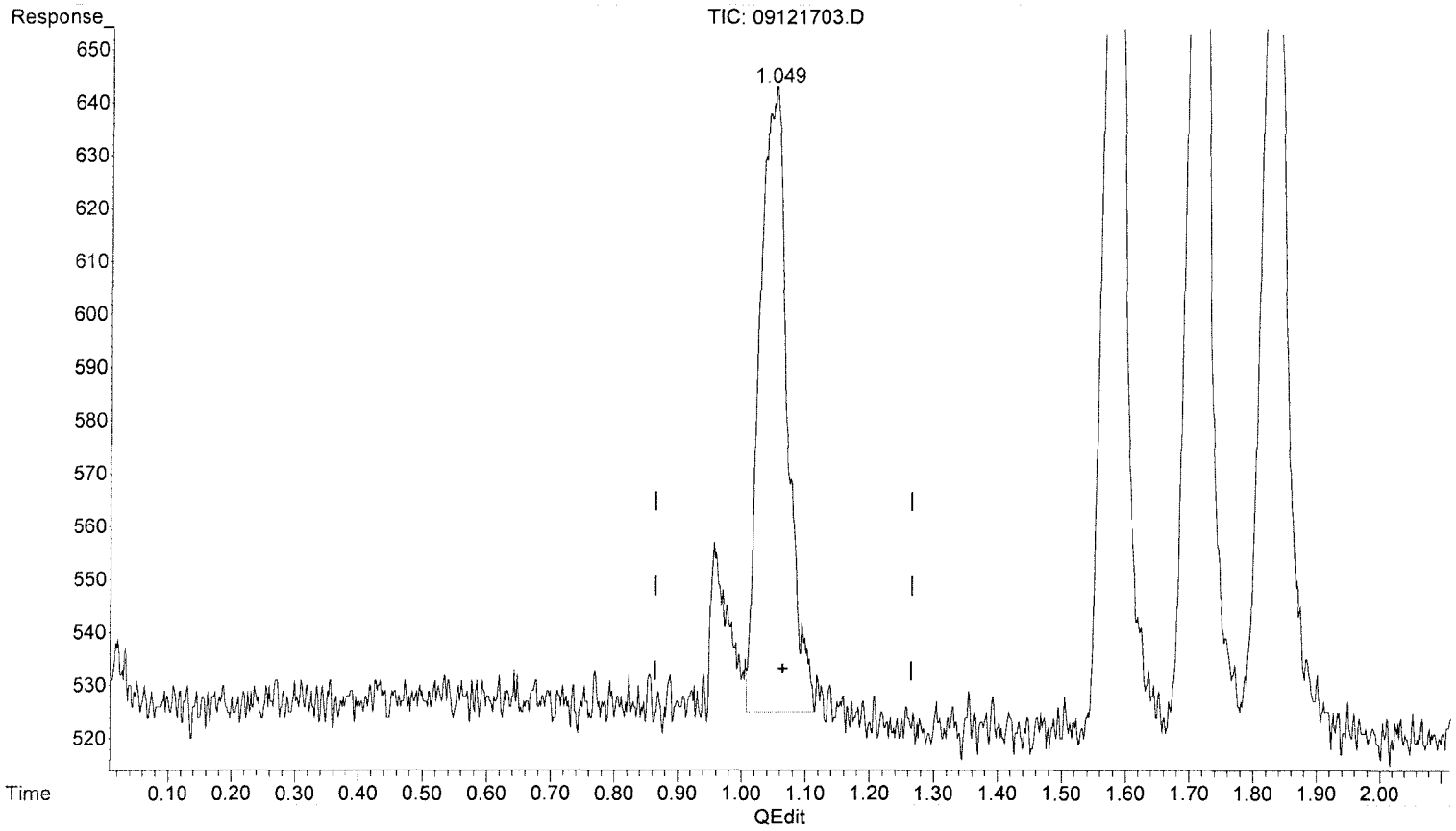




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

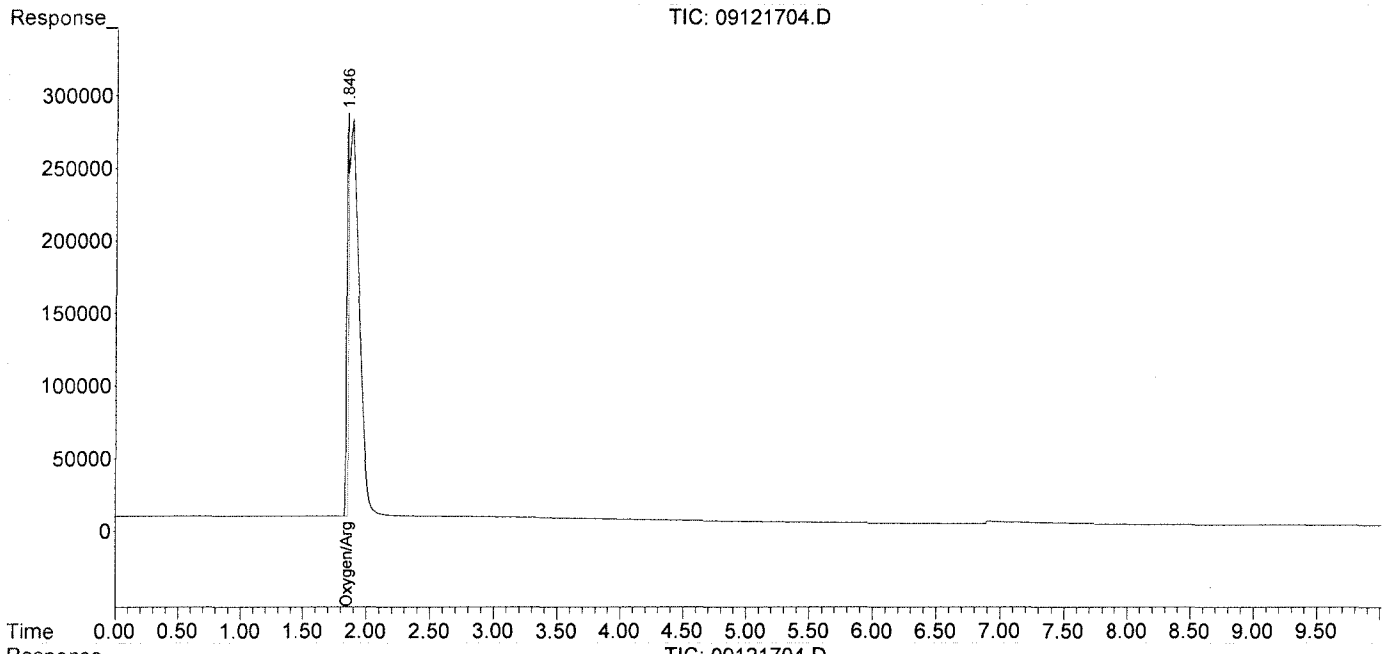
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

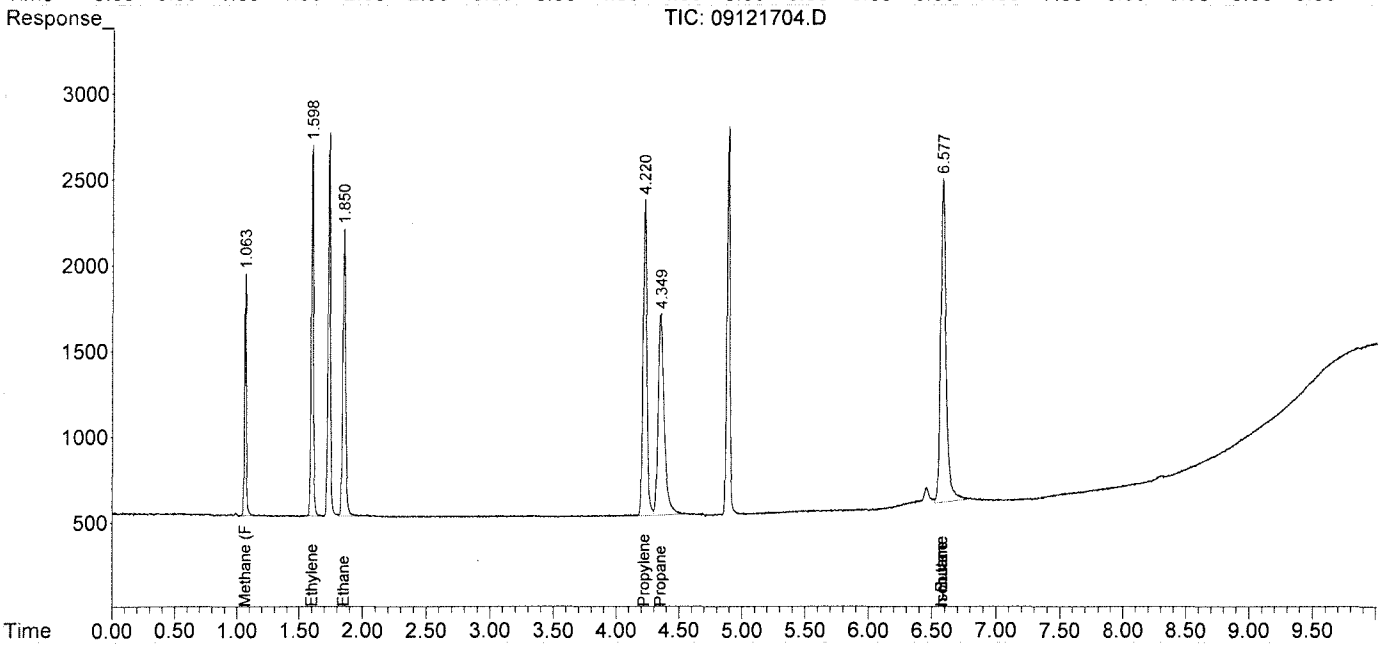
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

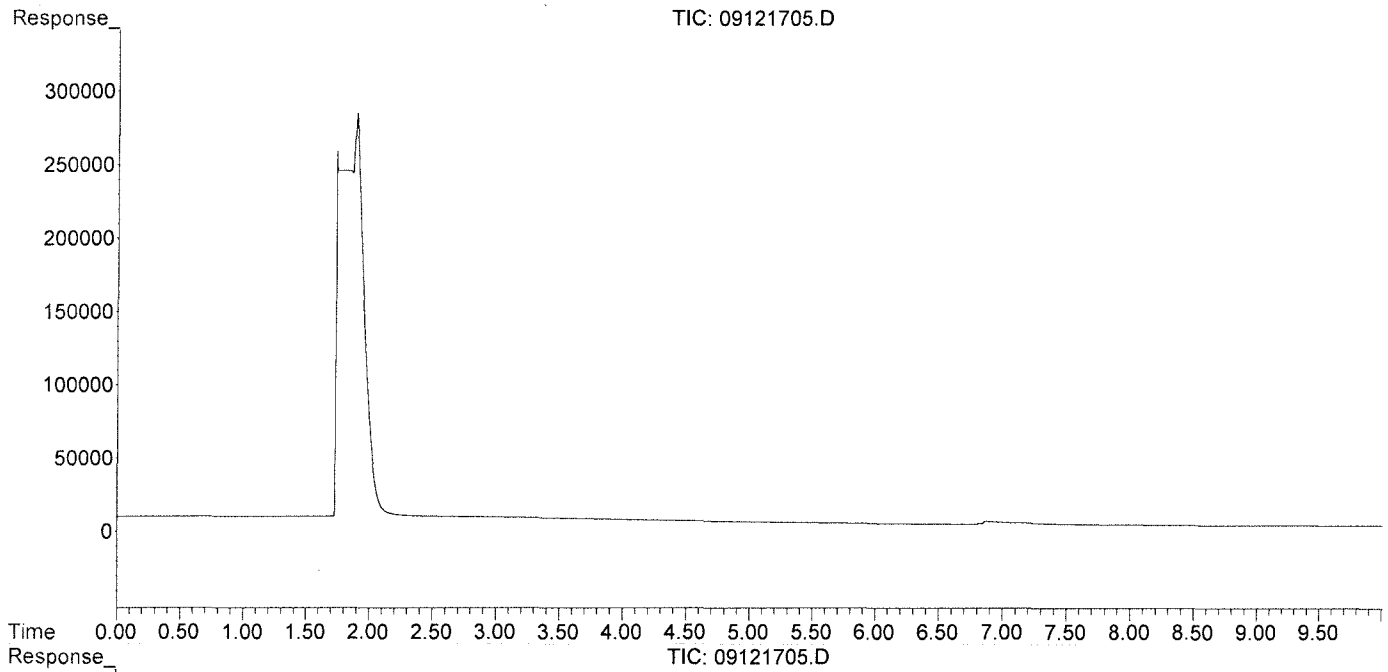
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

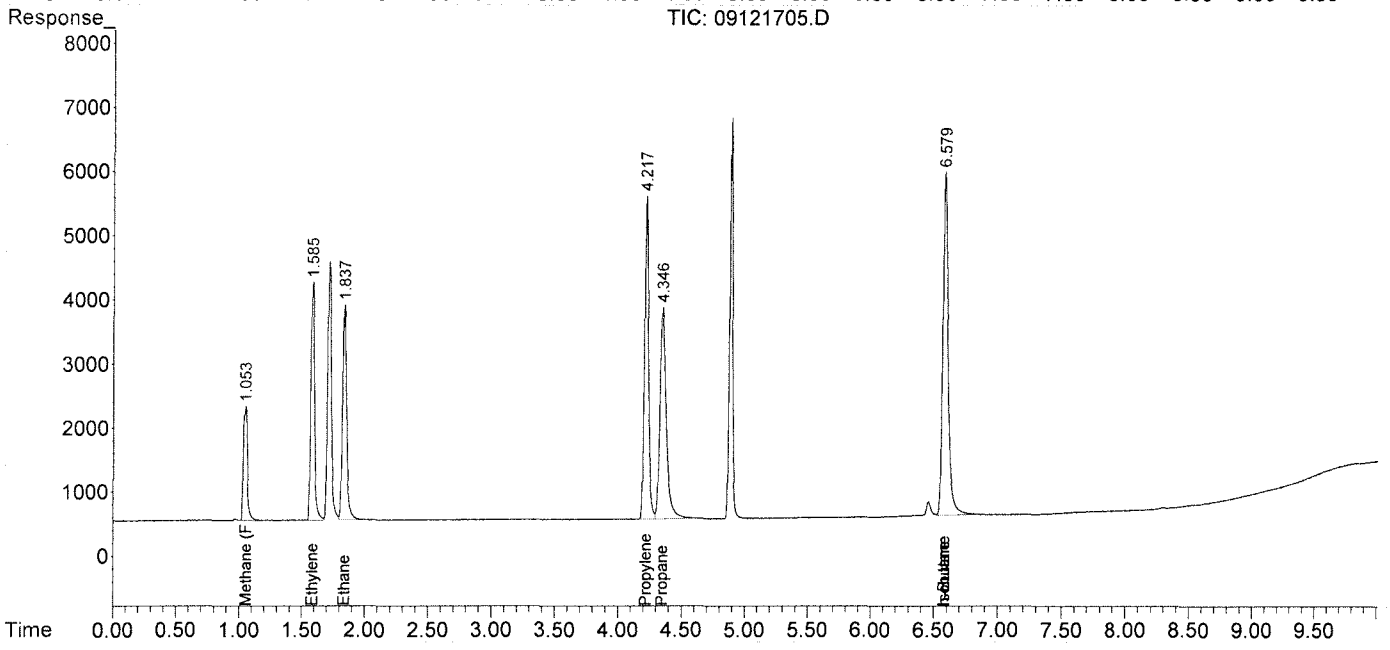
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

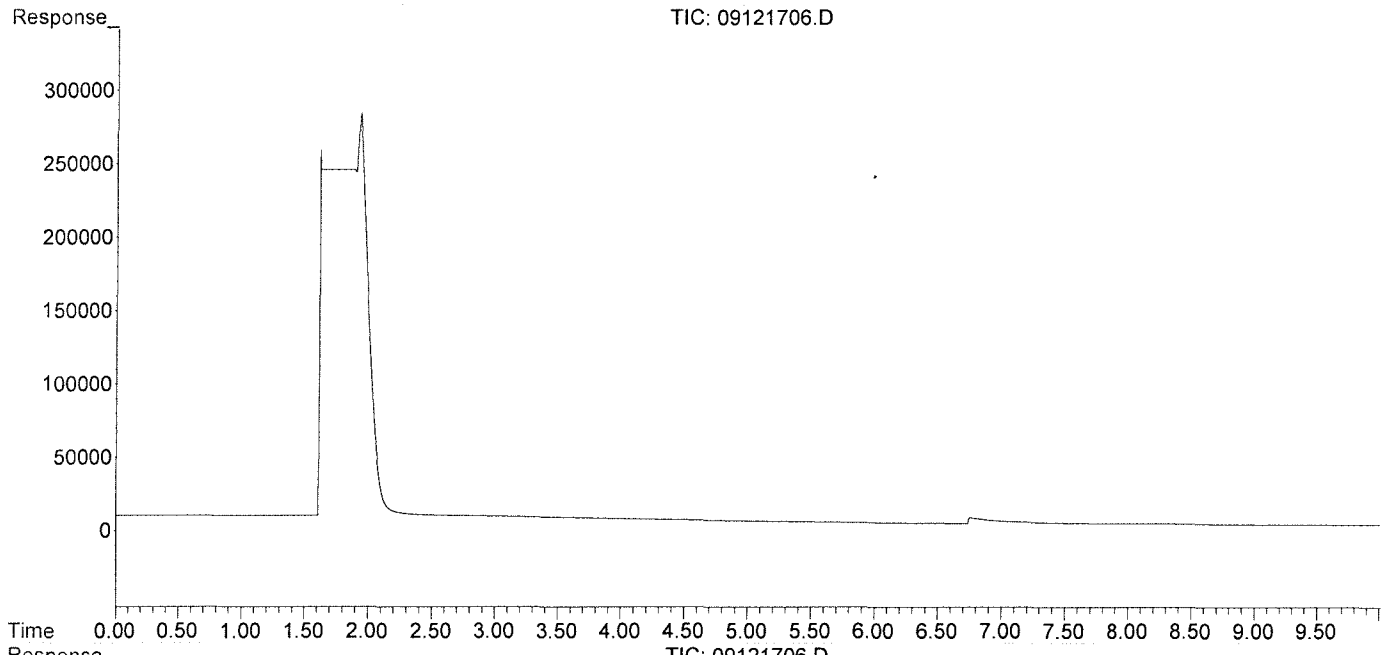
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

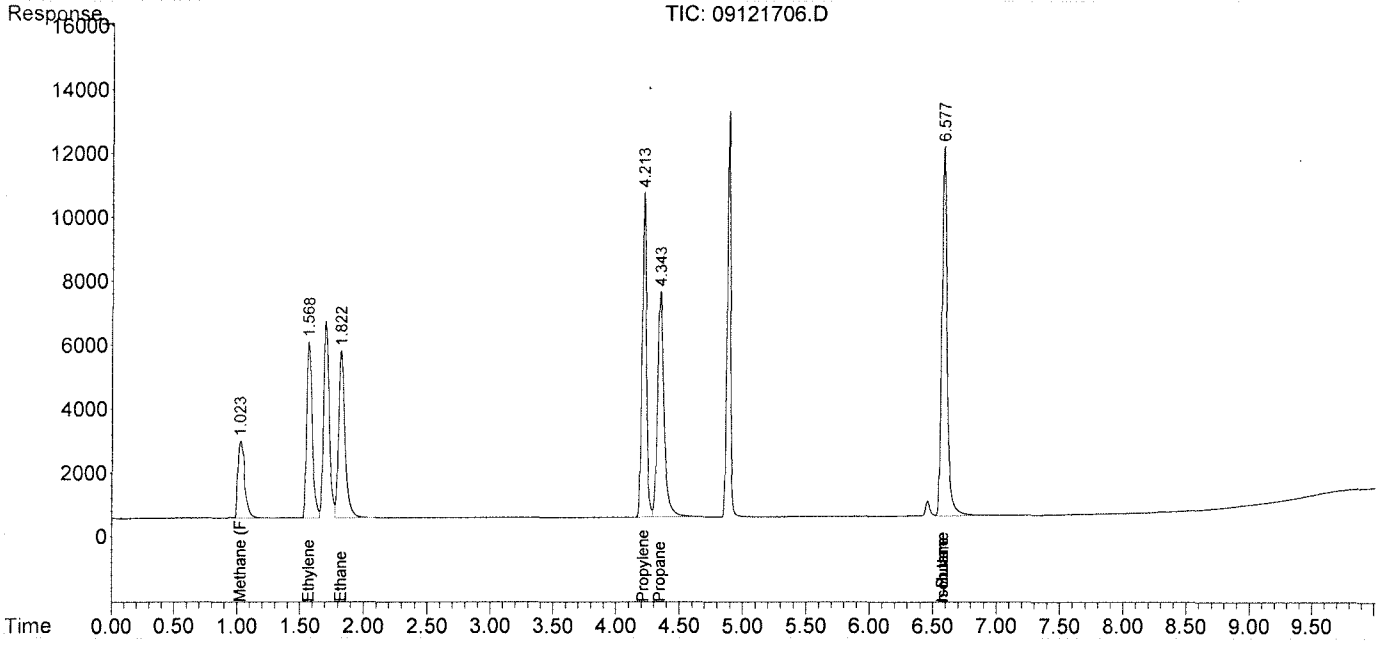
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

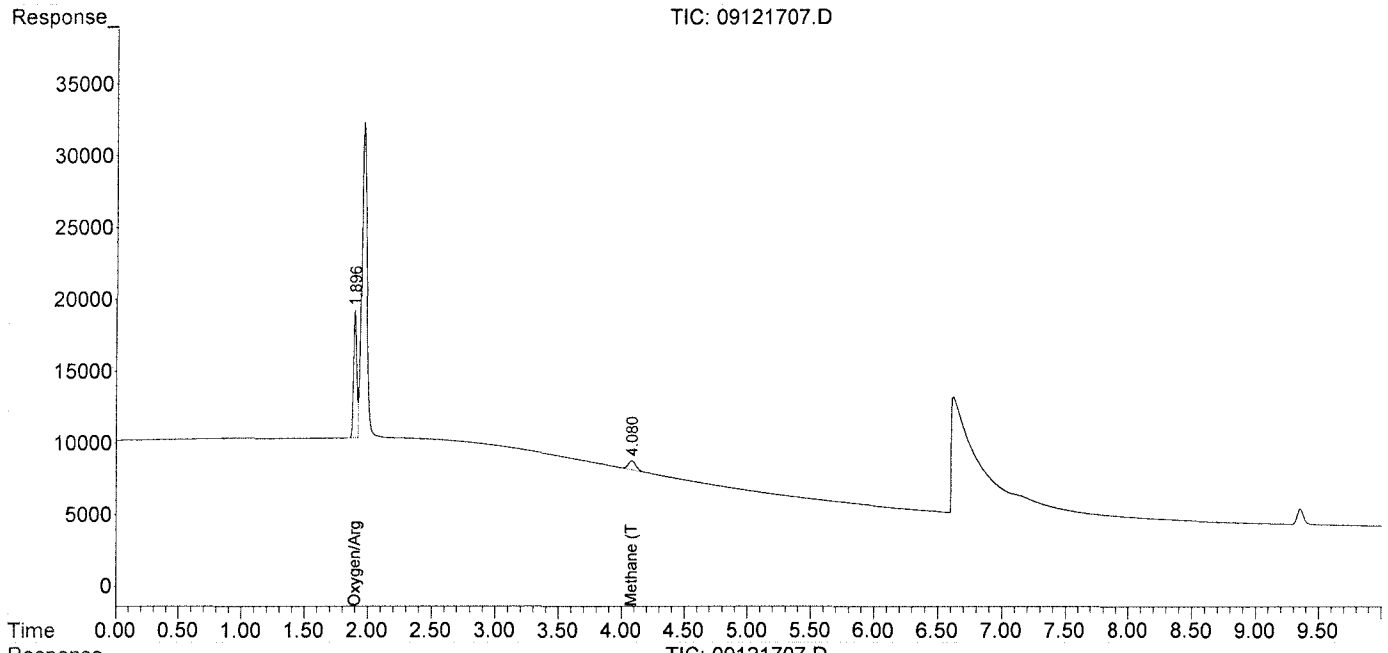
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

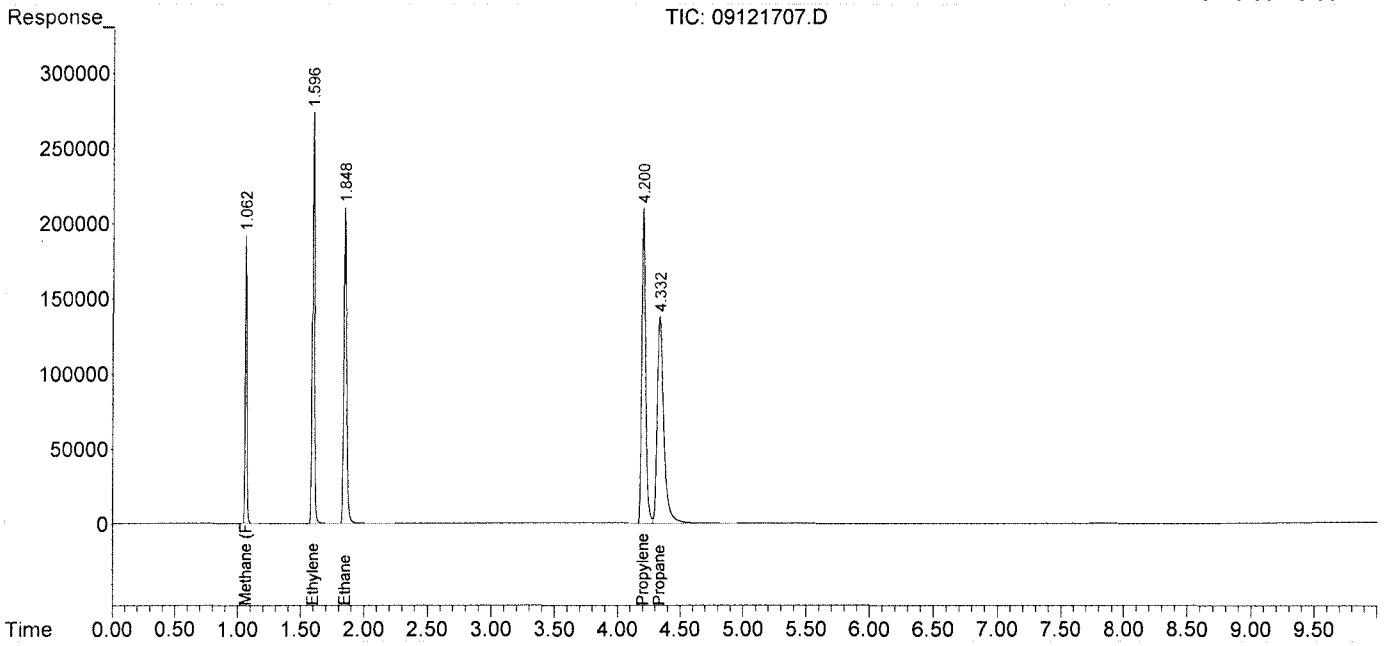
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

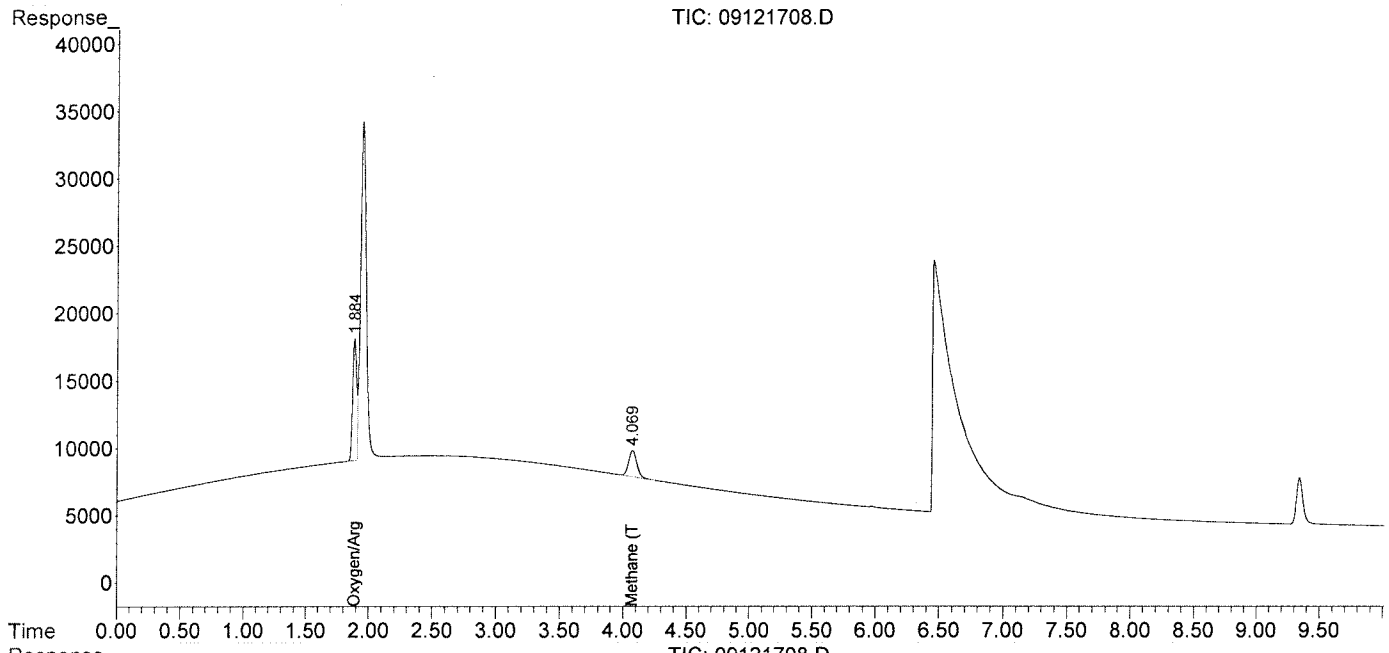
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

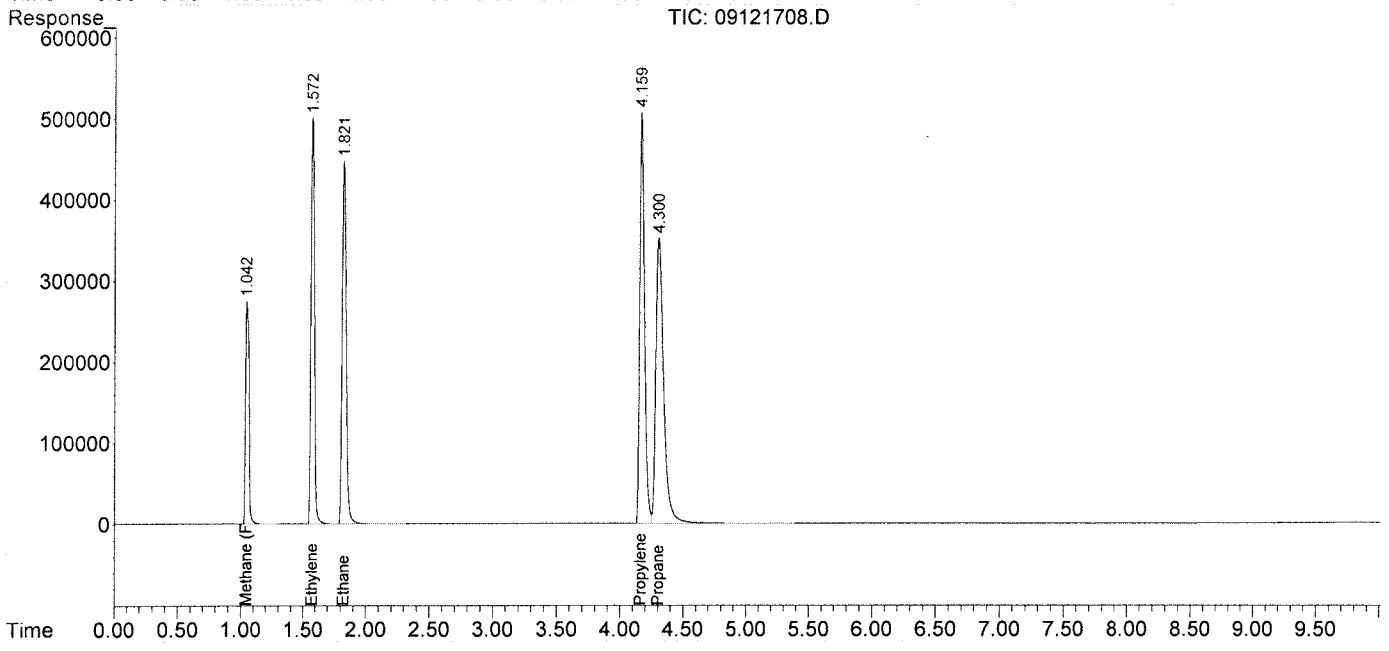
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

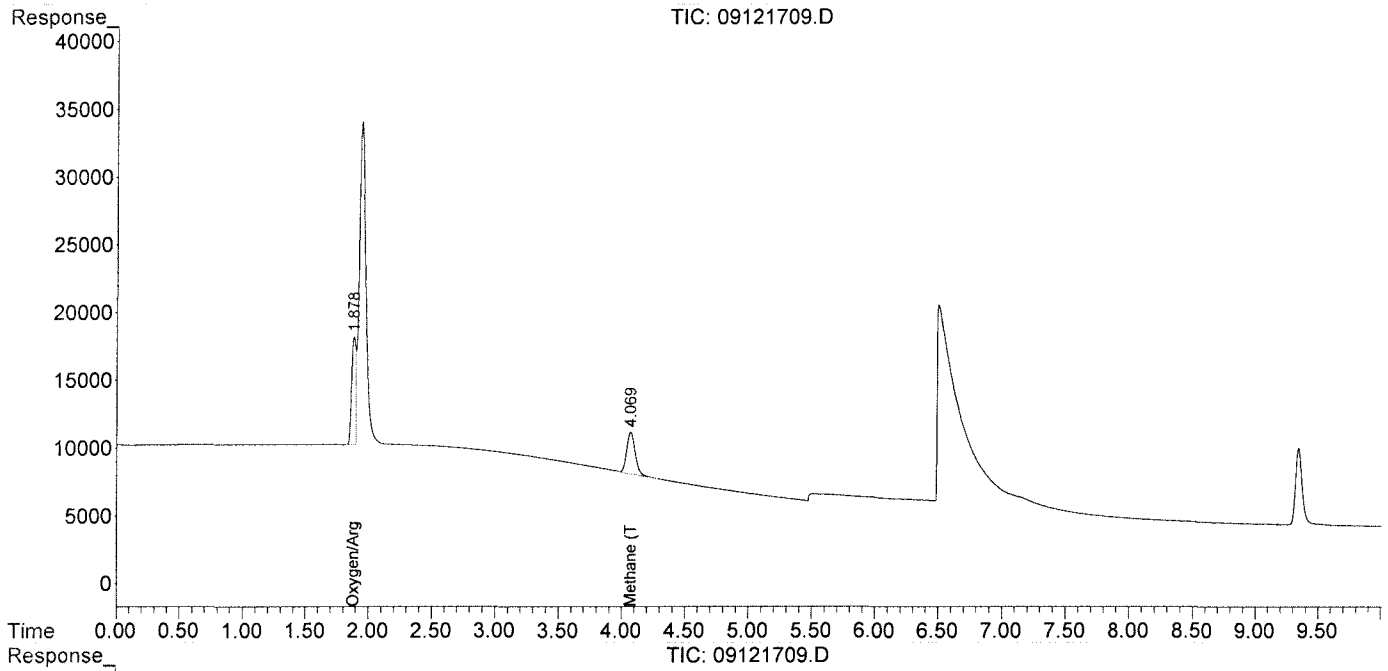
	Compound	R.T.	Response	Conc	Units
Target	Compounds				
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

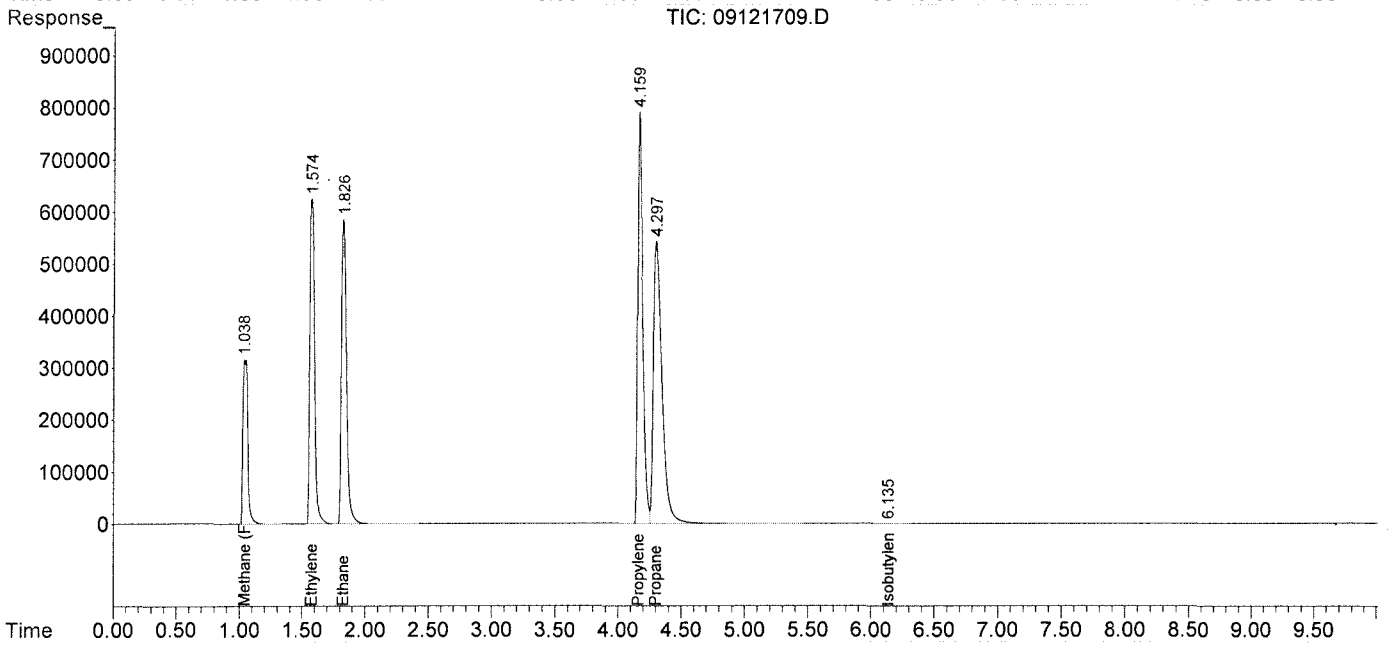
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

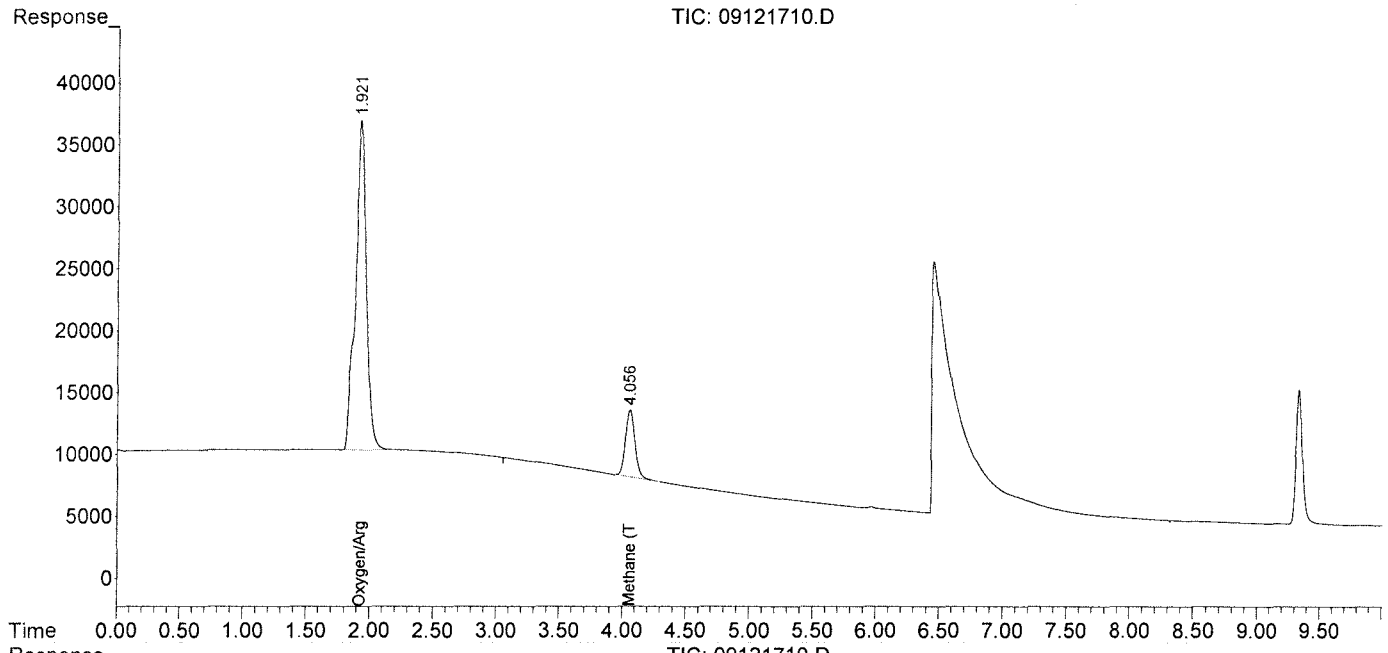
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

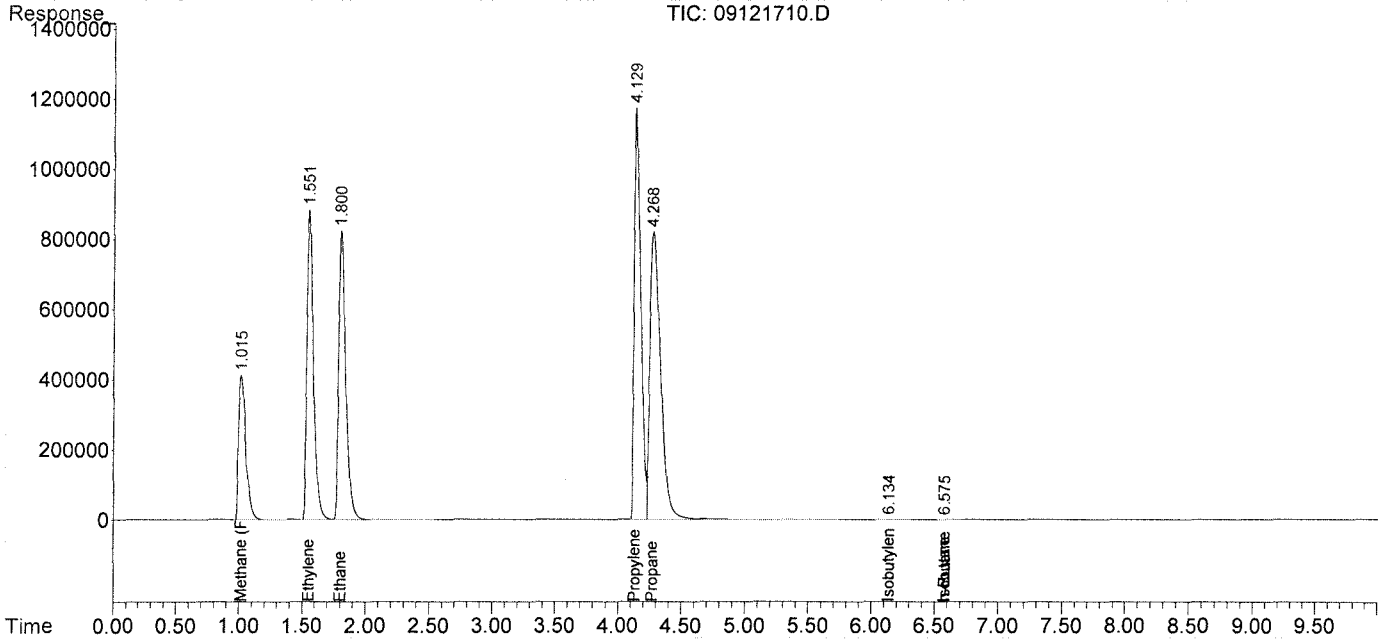
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

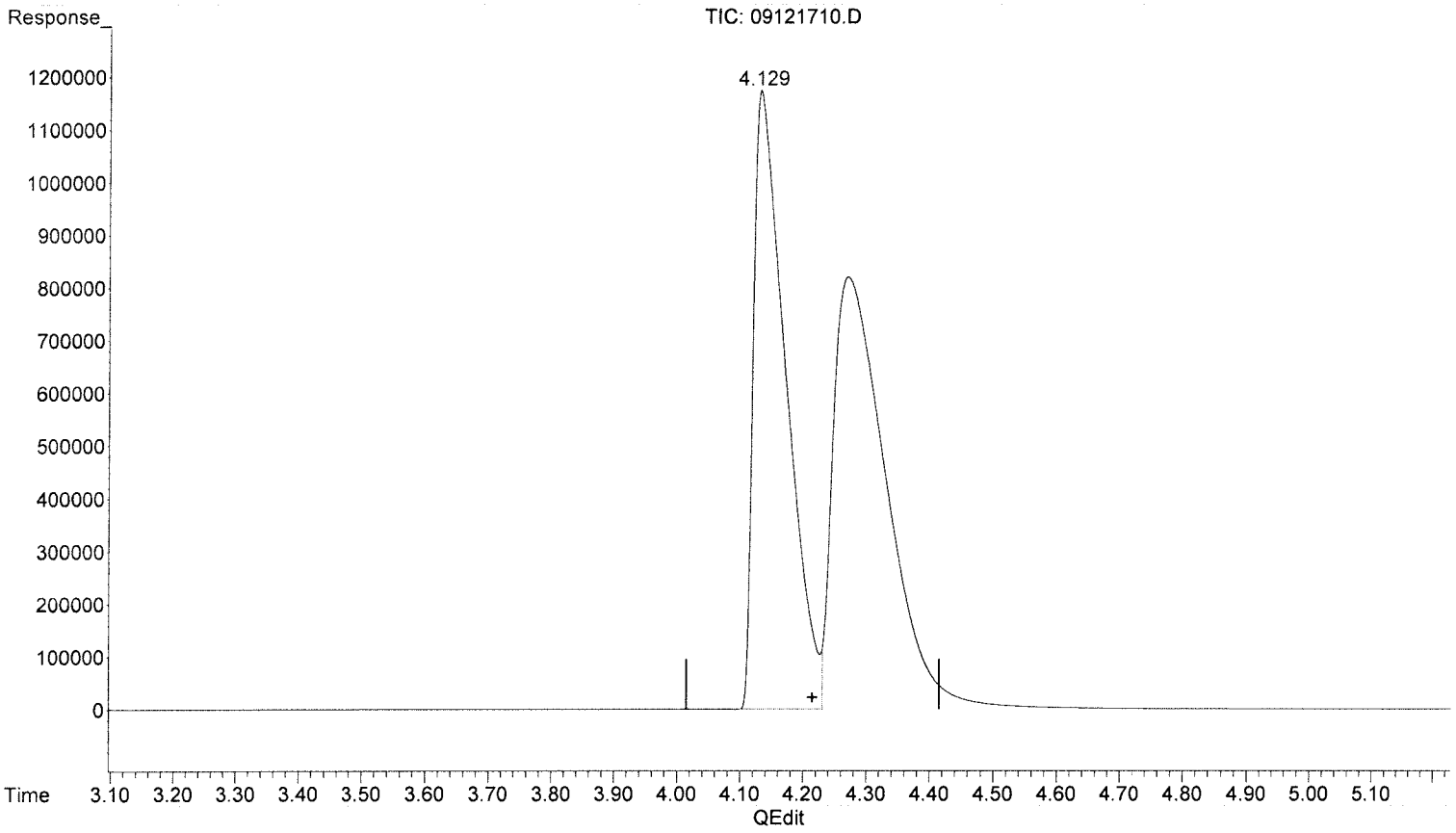




Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

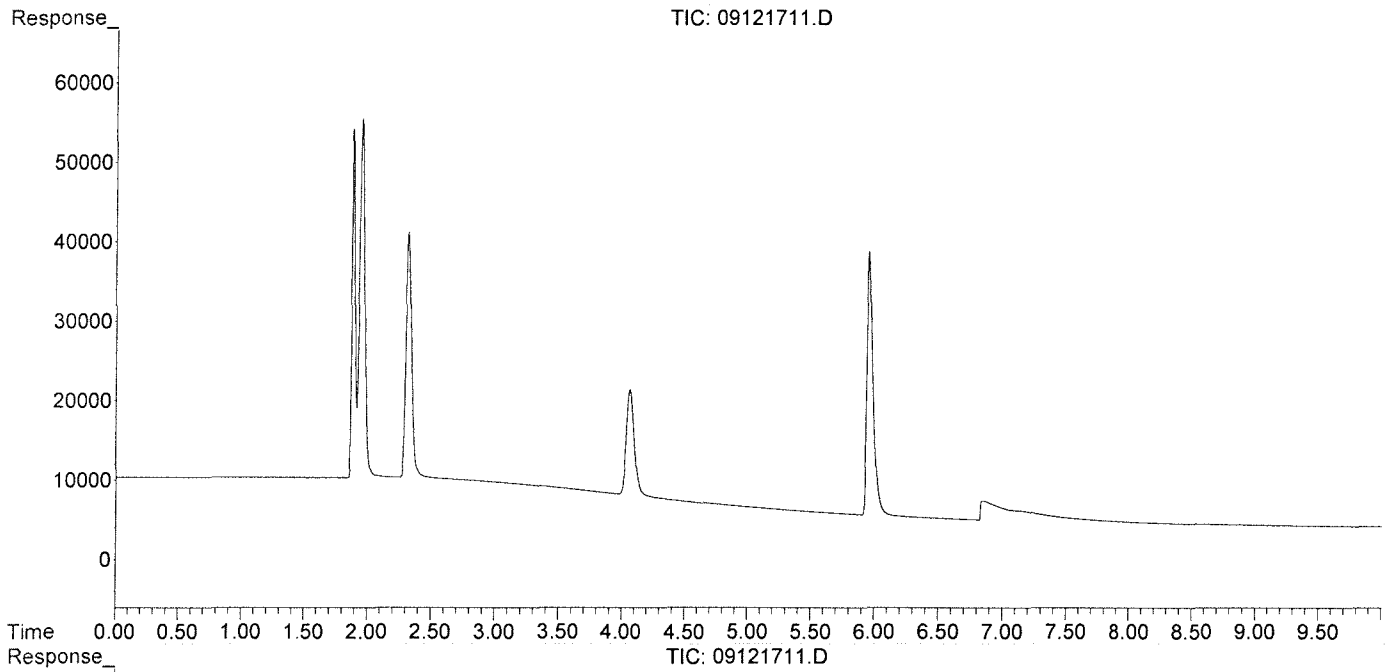
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

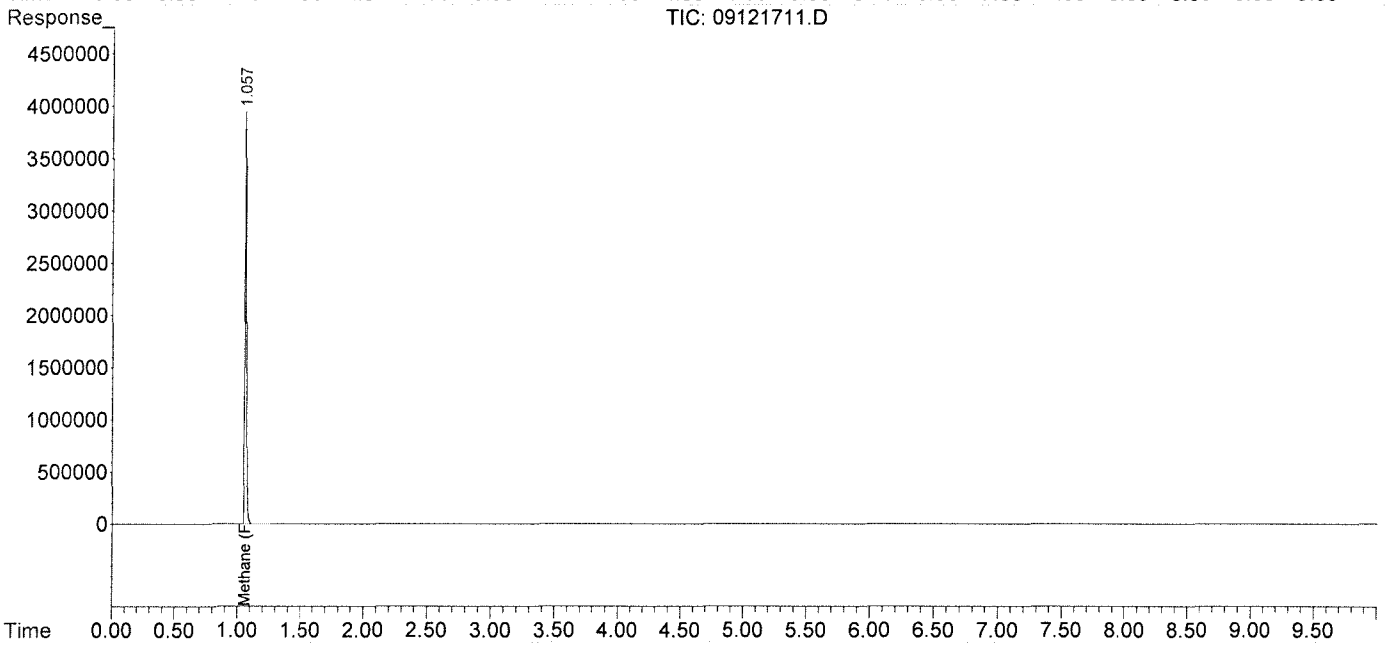
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

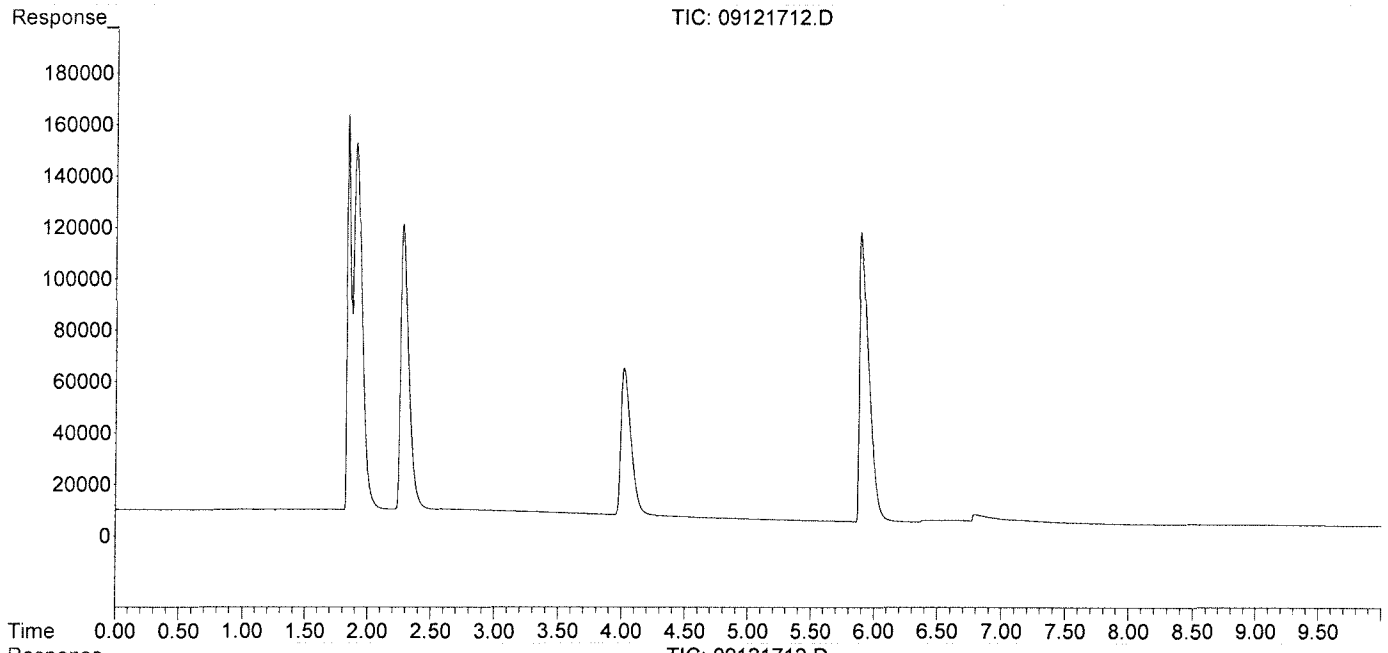
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

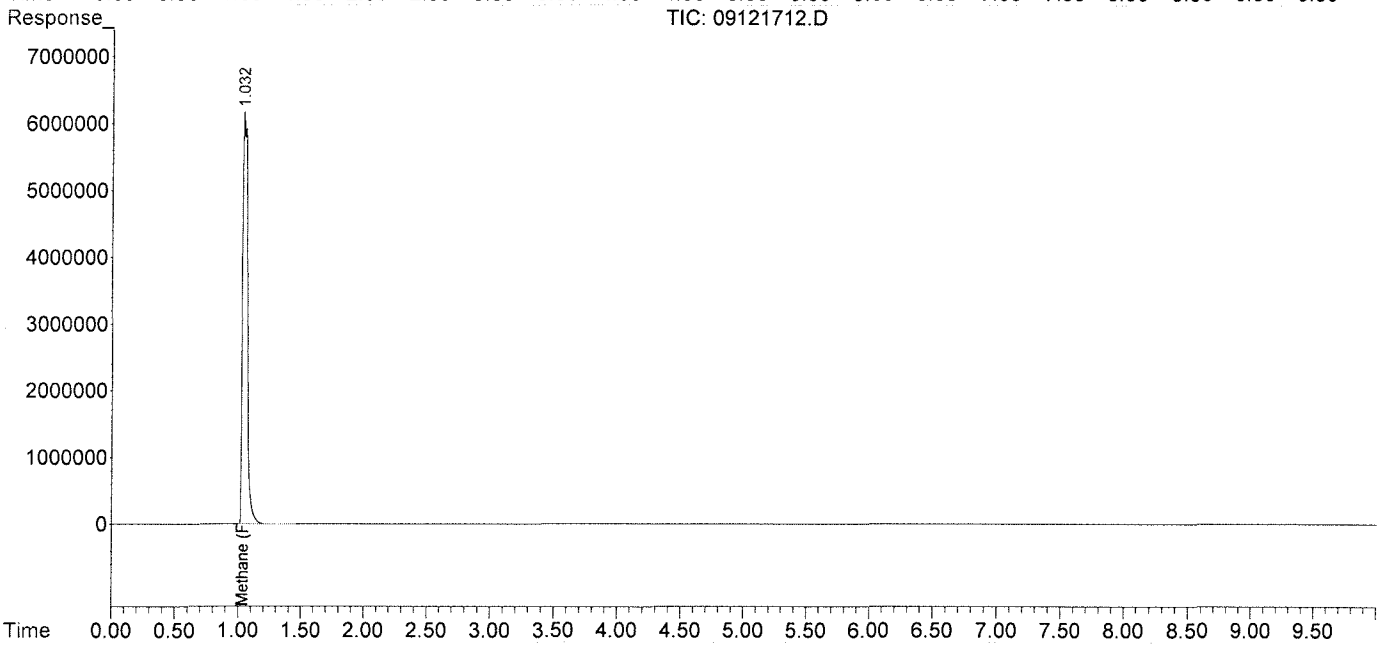
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	~~1570~~ 1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	~~1570~~ 1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	~~1570~~ 1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	~~1570~~ 1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	~~1571~~ 1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/13/17
13)	n-Butane	6.579f	48019	1.804	ppm	

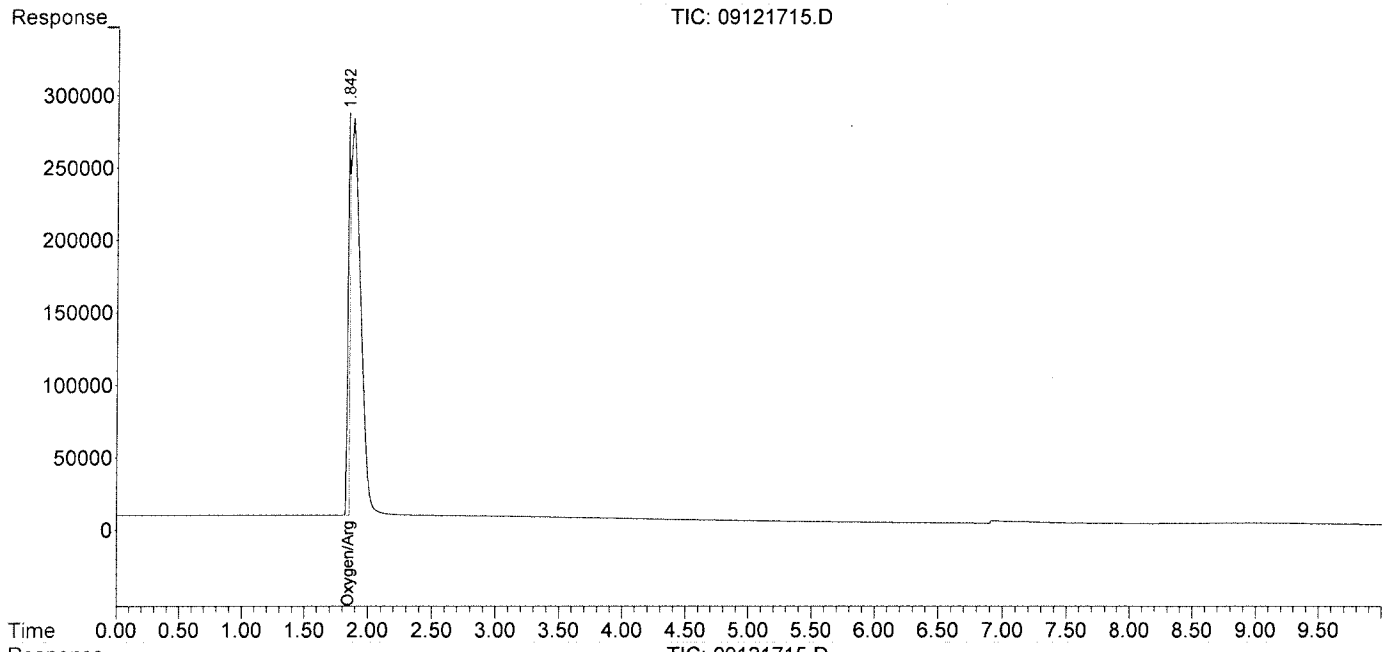
(f)=RT Delta > 1/2 Window (m)=manual int.

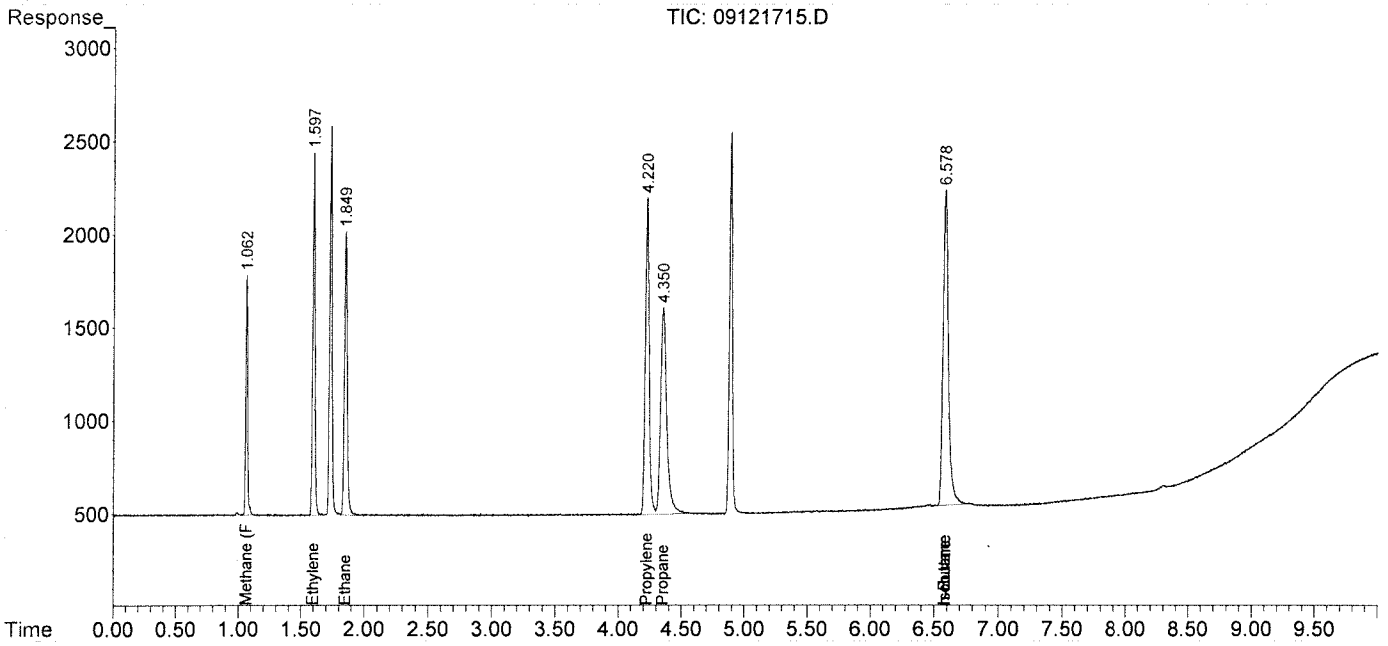
9/14/17

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Dissolved Gases by RSK175

4/20/21
CB

ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P2101844
Sample Vol. (ml) : 32.00 ml
Analyst : CB
Date Analysis : 04/14/21
Head Space Vol.(ml) : 8.00 ml

Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901 0.1ml	0.100	92.467	98.570	98.028
ACTUAL		101.50	100.90	101.40
%Difference		8.9%	2.3%	3.3%
MCS 0.1mL	0.100	0.191	0.000	0.000
RB 0.1mL	0.100	0.000	0.000	0.000
LCS S32-06252002 0.1ml	0.100	1.608	1.148	1.321
LCSD S32-06252002 0.1r	0.100	1.418	1.100	1.287
P2101844-001 0.1mL	0.100	1.551	0.000	0.000
P2101844-002 0.1mL	0.100	0.734	0.000	0.000
P2101844-003 0.1mL	0.100	0.591	0.000	0.000
P2101844-004 0.1mL	0.100	0.912	0.000	0.000
P2101844-005 0.1mL	0.100	1.343	0.000	0.000
P2101844-006 0.1mL	0.100	0.778	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
MCS 0.1mL	1.910	0.000	0.000
LCS S32-06252002 0.1mL	16.080	11.480	13.210
LCSD S32-06252002 0.1mL	14.180	11.000	12.870
P2101844-001 0.1mL	15.510	0.000	0.000
P2101844-002 0.1mL	7.340	0.000	0.000
P2101844-003 0.1mL	5.910	0.000	0.000
P2101844-004 0.1mL	9.120	0.000	0.000
P2101844-005 0.1mL	13.430	0.000	0.000
P2101844-006 0.1mL	7.780	0.000	0.000

P2101844-005 0.1mL MS	0.100	75.508	65.814	76.599
P2101844-005 0.1mL MSI	0.100	75.170	65.661	76.606
STD S32-05221901 0.1mL		88.257	94.273	93.752
ACTUAL		101.50	100.90	101.40
%Difference		13.0%	6.6%	7.5%

P2101844-005 0.1mL MS	755.080	658.140	765.990
P2101844-005 0.1mL MSD	751.700	656.610	766.060
15:29:01	0.78	0.00	0.00

REV01

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 09:14:18
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 09:26:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

CB 10/10/21

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

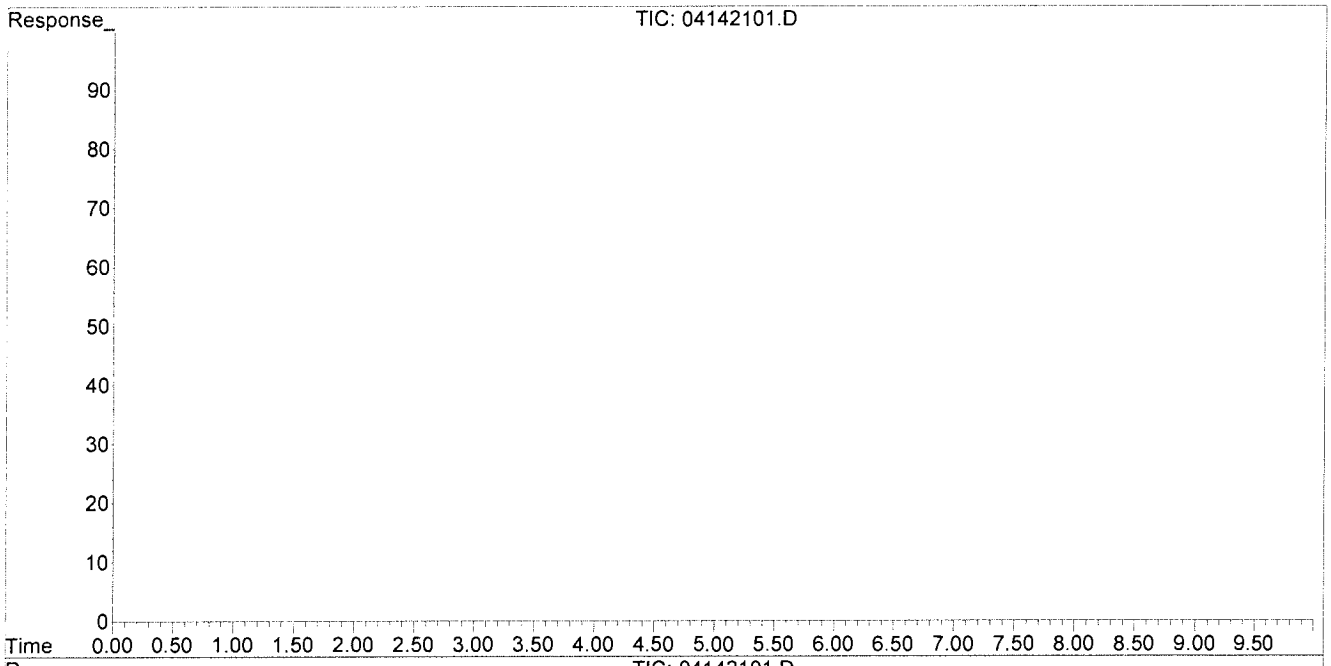
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.107	838735	92.467	ppm
7)	Ethylene	1.674	1649506	98.570	ppm
8)	Ethane	1.937	1661601	98.028	ppm
9)	Propylene	4.317	2422540	103.388	ppm
10)	Propane	4.438	2486216	99.927	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

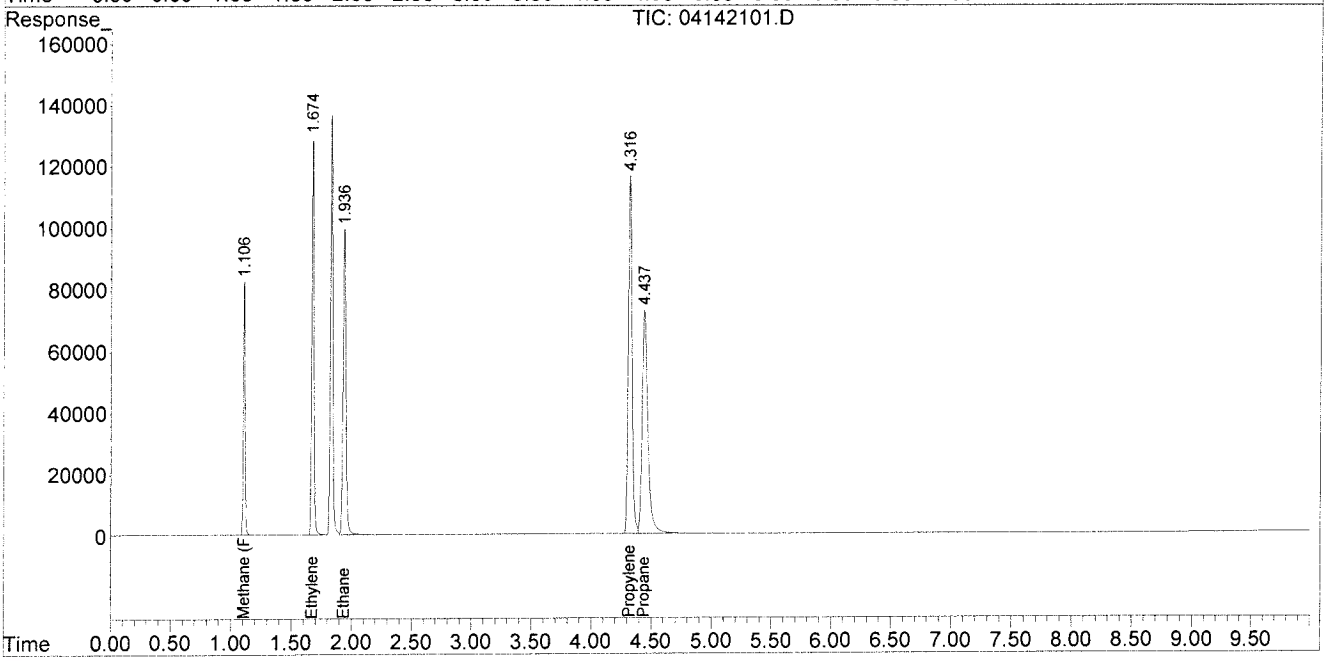
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Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142101.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 09:14:18
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 09:26:56 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:42:42
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 15:53:32 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

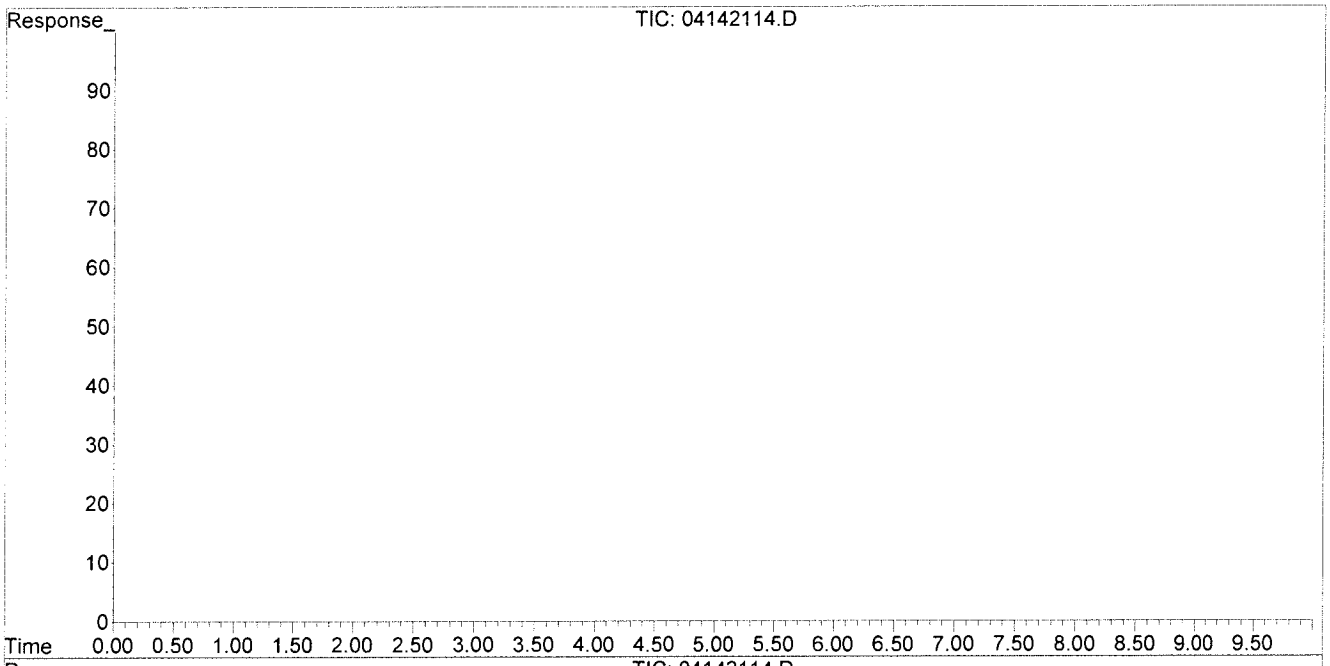
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.104	800545	88.257	ppm
7)	Ethylene	1.667	1577589	94.273	ppm
8)	Ethane	1.927	1589109	93.752	ppm
9)	Propylene	4.306	2322767	99.130	ppm
10)	Propane	4.427	2381042	95.700	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

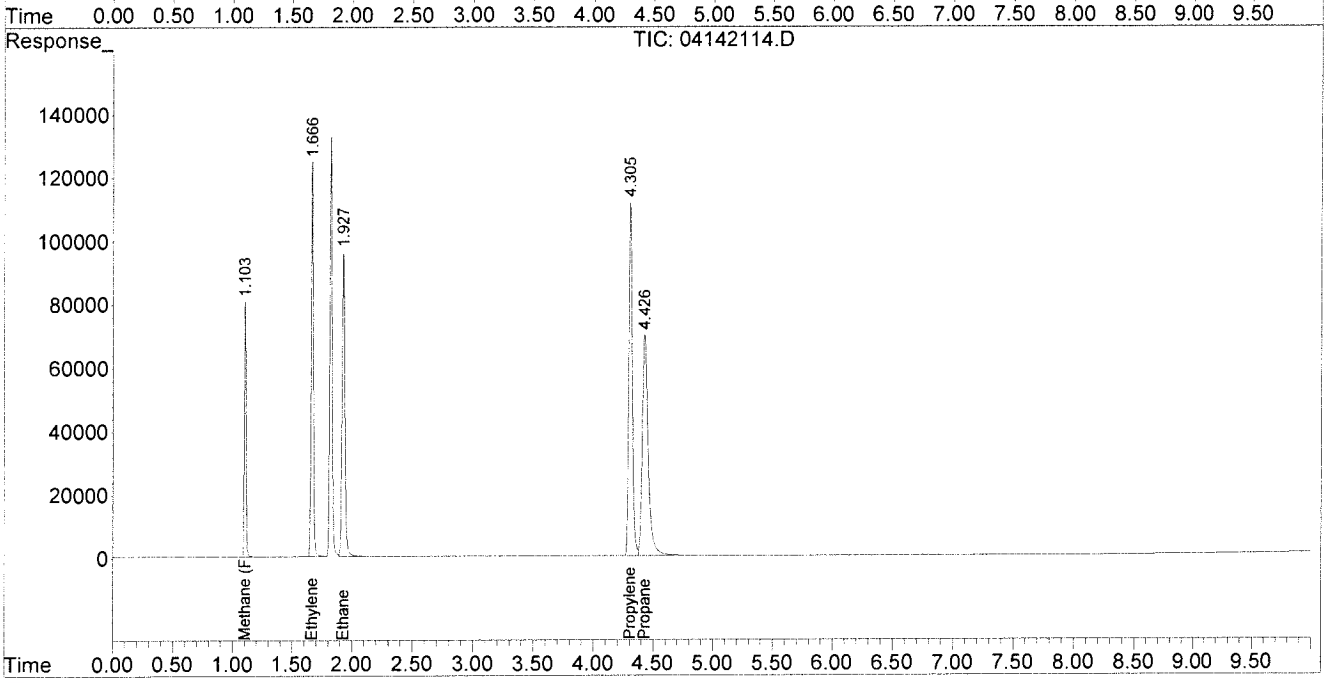
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2021_04\14\
Data File : 04142114.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-Apr-2021, 15:42:42
Operator : CB
Sample : STD S32-05221901 0.1mL
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Apr 14 15:53:32 2021
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2021_04\14\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	14-Apr-21, 08:52:54	04142100.D	purge		CB	RSKBOTH.M	
2	14-Apr-21, 09:14:18	04142101.D	STD S32-05221901 0.1mL		CB	RSKBOTH.M	Pass
3	14-Apr-21, 10:14:35	04142102.D	RB 0.1mL		CB	RSKBOTH.M	Pass
4	14-Apr-21, 11:36:09	04142103.D	MCS 0.1mL		CB	RSKBOTH.M	Pass
5	14-Apr-21, 12:02:50	04142104.D	LCS S32-06252002 0.1mL		CB	RSKBOTH.M	Pass
6	14-Apr-21, 12:16:40	04142105.D	LCSD S32-06252002 0.1mL		CB	RSKBOTH.M	Pass
7	14-Apr-21, 13:23:33	04142106.D	P2101844-001 0.1mL		CB	RSKBOTH.M	
8	14-Apr-21, 13:39:25	04142107.D	P2101844-002 0.1mL		CB	RSKBOTH.M	
9	14-Apr-21, 13:58:18	04142108.D	P2101844-003 0.1mL		CB	RSKBOTH.M	
10	14-Apr-21, 14:15:37	04142109.D	P2101844-004 0.1mL		CB	RSKBOTH.M	
11	14-Apr-21, 14:35:00	04142110.D	P2101844-005 0.1mL		CB	RSKBOTH.M	
12	14-Apr-21, 14:56:19	04142111.D	P2101844-005 0.1mL MS		CB	RSKBOTH.M	Pass
13	14-Apr-21, 15:12:45	04142112.D	P2101844-005 0.1mL MSD		CB	RSKBOTH.M	Pass
14	14-Apr-21, 15:29:01	04142113.D	P2101844-006 0.1mL		CB	RSKBOTH.M	
15	14-Apr-21, 15:42:42	04142114.D	STD S32-05221901 0.1mL		CB	RSKBOTH.M	Pass

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

March 7, 2022

DAIN-ODB-LO

Mr. Brian Follin
U.S. Environmental Protection Agency
1201 Elm Street, Suite 500
Dallas, TX 75270-2002

Re: Draft Final First Annual Remedial Action Operation Report
LHAAP-16 Landfill
Longhorn Army Ammunition Plant, Karnack, Texas, March 2022

Dear Mr. Follin,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) comments on the Draft version received on January 14, 2022. Tables of responses to the EPA and TCEQ comments on the Draft version are included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Electronic Copies furnished:
A. Palmie, TCEQ, Austin, TX
P. Bruckwicki, USFWS, Caddo Lake NWR, TX (1 hard copy and 1 CD)
C. Montoya, USACE, Tulsa District, OK
A. Williams, USACE, Tulsa District, OK
M. Bowlby, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

March 7, 2022

DAIN-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Draft Final First Annual Remedial Action Operation Report
LHAAP-16 Landfill
Longhorn Army Ammunition Plant, Karnack, Texas, March 2022

Dear Ms. Palmie,

An electronic copy of the above referenced document has been added to the project portal's "Documents" folder at the following address for your review: (https://docs.cbifederalservices.com/sites/501032/regulators/Shared%20Documents/Forms/AllItems.aspx). An electronic copy of this letter and download instructions for the electronic file have been sent via email. The document includes revisions based upon the Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality (TCEQ) comments on the Draft version received on January 14, 2022. Tables of responses to the EPA and TCEQ comments on the Draft version are included with this Draft Final document. In accordance with Federal Facility Agreement, this Draft Final will be considered Final after 30 days without further comment.

The document was prepared by Bhate Environmental Associates, Inc., (Bhate) team, on behalf of the Army as part of Bhate's Performance Based Remediation contract for the facility. I ask that Kim Nemmers, Bhate's Project Manager, be copied on any communications related to the project.

The point of contact for this action is the undersigned. I may be contacted at 479-635-0110, or by email at rose.m.zeiler.ctr@army.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

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K. Nemmers, Bhate, Lakewood, CO
P. Srivastav, APTIM, Houston, TX
L. Sierocinski, USAEC, San Antonio, TX

Response to Comments on
Draft First Annual Remedial Action Operation Report, LHAAP-16

Document Date: October 29, 2021
Comment Date: January 14, 2022

Reviewer: Brian Follin - USEPA
Respondent: Dr. Rose Zeiler - Army

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
Specific Comments					
1	Section 1.2, page 1-4	In terms of the performance objectives for the ISB treatment areas, biobarriers, and MNA remedy, the first objective listed was to "Achieve and maintain plume stability as measured by concentrations decreasing in the majority of performance wells relative to the baseline and/or historical concentrations." Evaluating the performance of these remedies against historical concentrations may not be valid depending on when the historical concentrations preceded the initiation of each of the remedies; historical concentrations would need to be relatively recent.	C	Noted	
2	Section 1.3, Page 1-5	The statement that the "detected metals do not appear to be associated with widespread contamination from the landfill" should be followed up with an explanation of what the presumed source(s) of these metals (arsenic, chromium, manganese, nickel and thallium) is (are). Are they naturally occurring based on the geology?	C	Yes, the metals are presumed to be fluctuating with natural changes to Eh, pH, and flow. The text will be revised to the following: "The detected metals do not appear to be associated with releases of contamination from the landfill and are presumed to be naturally occurring; however, the concentrations in groundwater may be influenced by changes in geochemical conditions related to the remediation of the contaminant plumes and they will continue to be evaluated as part of the RA-O."	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
3	Section 1.3, Page 1-5	There is a reference to Figures 1-4 and 1-5, neither of which is included in the document.	C	Figures 1-4 and 1-5 were accidently not included into the pdf report. The figures will be placed into the report.	
4	Section 2.2.1, Page 2-2	It is unclear what the following statement means: "During the first year RA-O quarterly sampling events, groundwater elevations varied by anywhere from 0.5 to 7 feet throughout the year…" Were these comparisons made by subtracting the highest and lowest measured water levels out of the four sampling events at each well, where 0.5 ft and 7 ft represent the smallest and largest measured differences out of all the wells?	C	This was determined by subtracting the highest elevation from the lowest in each well during the RA-O annual sampling events. For clarity, the text will be revised as follows: "During the first year RA-O quarterly sampling events, groundwater elevations measured in individual wells varied by anywhere from 0.38 to 7.4 feet throughout the year, with the largest differential occurring at 16RW10."	
5	Section 2.2.2, Page 2-7; Table 2-7; Figures 2-34 to 2-37	It is unclear why only six shallow zone wells from the Mid-Plume Area are discussed in this section of the text and listed in Table 2-7, when nine wells are shown in the corresponding figures.	C	At the Mid-Plume Area, there are six performance monitoring wells, 16EW01, 16EW02, 16EW03, 16EW04, 16WW48, and 16WW30 as shown on Table 2-7. The other three wells shown on the figures are performance wells for other treatment areas (16WW36, Downgradient for Biobarrier #2 Shallow Zone; 16WW26, Downgradient for Landfill Biobarrier #1 Shallow Zone; and 16WW39, Upgradient of the Bayou Barrier) and are on the figure because they are in close proximity to the other wells being used to monitor the Mid-Plume area. These wells are discussed in the sections related to the monitoring of the treatment areas that they are assigned to. For clarity, the following note has been added to the Mid Plume Area Figures 2-34 through 2-37: "3. Monitoring wells 16WW36, 16WW26, and 16WW39 are not part of the monitoring network for the Mid-Plume Area, but are shown on this map due to their proximity to the Mid-Plume Treatment Area."	
6	Section 2.2.2, Page 2-9	An explanation as to why 16WW57 and 16WW58 were not sampled during the 1st quarter should be included.	C	The sentence in Section 2.2.2, Page 2-9 will be updated for clarity as follows: "Monitoring wells 16WW57 and 16WW58 installed across the Harrison Bayou could not be accessed due to wet	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
				conditions during the first quarter sampling event in March 2020; however, these wells contained TCE concentrations above the MCL in Quarters 2, 3, and 4. In January 2021, TCE was detected at 65 µg/L at 16WW57 and at 2,700 µg/L at 16WW58."	
7	Section 3.0, Page 3-1	Please define "cross-gradient."	C	Cross gradient refers to wells to the side of the area as it pertains to the groundwater flow direction. The text will be updated as follows: "For the evaluation of the remedy, monitoring wells within 15 feet of an injection location, in the same groundwater zone, are assumed to be under the direct influence of the treatment zone, while wells located downgradient from the treatment areas are expected to be influenced by the effects of the injections in the future as treated groundwater flows into these areas. Wells located cross-gradient (sideways from the groundwater flow direction) from the treatment areas may not show any direct influence from the treatment, but can be useful in monitoring geochemical changes outside of, but adjacent to the treatment areas."	
8	Section 3.1.1, Page 3-2	Referring to monitoring well 16IW09, the following statement was made: "… low levels of COCs in this well indicate the biobarrier is working as designed." This statement is not necessarily true. If COC levels prior to construction of the biobarrier were comparable to what was observed after construction of the biobarrier (and based on Table 3-1, it seems like there is no data prior to 3/25/20 at this well, and all COC concentrations measured on that date were similar to those measured afterwards), then that would suggest that COC concentrations do not provide any indication as to whether or not the biobarrier is having an effect (at least at this particular well).	C	The low levels of COCs and fluctuating concentrations at 16IW09 and upgradient at 16RW02 make it difficult to determine what influence the biobarrier is having in this area, though the detected concentration of TCE did decline from 5.8 µg/L to 1 µg/L from Quarter 3 to Quarter 4 in 16IW09. The final sentence in the "Within Treatment Area" section for Landfill Biobarrier #1 will be revised to state "It appears that 16IW09 was installed in an area of the biobarrier that does not contain significantly elevated COCs; therefore, the effect of the biobarrier during the first year of monitoring cannot be fully evaluated due to fluctuations of the detection limits and the lack of clear trends in COC concentrations."	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
9	Section 3.1.2, Page 3-3	I don't follow the logic behind the following statement: "Monitoring wells in the treatment area show fluctuating TCE concentrations due to the elevated levels at upgradient wells 16PM02 and 16PMW03." Please explain why elevated TCE concentrations would lead to fluctuations in the treatment area and where in the treatment area would you anticipate these fluctuations to occur. This concept is repeated in later sections of the text as well, but providing further explanation at the first instance will likely suffice.	C	To clarify the statement about the fluctuating levels, the text in the "Within Treatment Area section will be revised as follows: "Fluctuations in COC concentrations are observed in upgradient monitoring wells, indicating the plume concentrations entering the biobarrier are not stable. As elevated levels of COCs migrate downgradient, into and through the biobarrier, increases in these compounds may be observed at the upgradient edge of the treatment zone (within the biobarrier). Desorption is likely on-going within the biobarrier, and may contribute to the total COC concentrations observed at the upgradient edge of the treatment zone. Vinyl chloride concentrations increased notably at 16IW03 in 4th quarter, suggesting ideal conditions for reductive dechlorination were recently established in this portion of the biobarrier. As the COCs are treated in the biobarrier and downgradient active zones, the compounds are expected to decrease. TCE concentrations in monitoring wells within the upgradient portion of the treatment area may show fluctuating levels due to the elevated concentrations near upgradient wells 16PM02 and 16PMW03 migrating into the treatment zone over time. Monitoring well 16IW03 is located in the biobarrier while monitoring well 16PM06 is located within 15 feet of the biobarrier in the downgradient direction. At 16IW03, TCE declined from 13,000 µg/L in July 2020 to 8,800 µg/L in January 2021 while daughter product vinyl chloride increased from 450 µg/L to 3,700 µg/L.TCE was detected at 49,000 µg/L at 16PM06 in January 2021, slightly higher than 44,000 µg/L detected at 16PM06 in March 2020. Meanwhile, TCE and vinyl chloride concentrations at 16MP06 decreased in a similar fashion between October 2020 and January 2021, indicating the reduction in	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
				concentrations was likely the result of seasonal fluctuations. The trend graph on **Figure 2-20** for 16PM06 does not indicate any definite correlation between groundwater elevations and COC concentrations. Localized groundwater flow conditions near 16PM06 may be influencing the degree to which the nearby biobarrier is impacting the well and may be the reason decreases in COC concentrations have not been observed at this location to the degree that would be expected based on its proximity to the treatment zone.	
10	Section 3.1.2, Page 3-3	Can the authors provide a possible explanation for TCE concentrations at 16PM06 (relatively stable aside from a spike in the 3rd quarter) considering its location immediately downgradient of the biobarrier? In the summary related to this section, the following statement is made: "The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RAO monitoring." I would argue that the effects of the injection treatment are not affecting this well, which is somewhat surprising considering how close it is to the biobarrier.	C	Since the total volume of the amendments were injected into this area and the well is near the biobarrier, it may be possible that the heterogeneity of the aquifer is preventing flow into this area or bypassing 16PM06 with preferential flow pathways. The area near and southeast of the junction between Landfill Biobarriers #1, and #2 is also a topographically low area that often has standing water or very wet conditions that may influence the localized groundwater flow in ways that are not adequately captured by the potentiometric surface maps, due to the lack of gauging locations to the south and southeast of 16PM09. The low ORP and DO in year 1, quarter 4 suggests that the treatment has influenced the geochemical conditions, but the COC concentrations are not responding in a way that would be expected. The following sentence has been added at the end of the second paragraph of Section 3.1.2. "Localized groundwater flow conditions near 16PM06 may be influencing the degree to which the nearby biobarrier is impacting the well and may be the reason decreases in COC concentrations have not been observed at this	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
				location to the degree that would be expected based on its proximity to the treatment zone."	
11	Section 3.1.3 (and Figure 2-25)- Page 3-4	Based on the data shown in Figure 2-25, the following statement is false:" During the fourth quarter sampling event TCE concentrations at 16RW06 and 16RW07 remained elevated at 1,900 ug/L and 2,000 ug/L, respectively." TCE concentrations at 16RW06 were 95 ug/L during the 4th quarter sampling event.	C	The text has been updated to the following: "During the fourth quarter sampling event TCE concentrations at 16RW06 and 16RW07 remained elevated at 95 ug/L and 2,000 ug/L, respectively. "	
12	Section 3.1.3, Page 3-4	The following statement is questionable considering that TCE concentrations increased between the 2nd and 3rd quarters, whereas groundwater elevations decreased: "The contaminant trend chart for monitoring well 16RW10 on Figure 2-27 shows that the fluctuation in TCE concentrations is directly correlated to the fluctuations in groundwater elevations."	C	Agree that there is not a 1-1 relationship between TCE and groundwater elevation from Q2 to Q3 that would indicate a clear direct correlation, but the overall "u" shape of the TCE and groundwater elevation trends is very similar. The sentence has been revised as follows: "The contaminant trend chart for monitoring well 16RW10 on **Figure 2-27** shows that the fluctuation in TCE concentrations may be correlated to the fluctuations in groundwater elevations."	
13	Section 3.1.4, Page 3-6	Referring to the following statement: "Due to the generally east-southeast groundwater flow direction, the only true downgradient well is 16WW40," it appears that there is another downgradient well (16RW12), but it wasn't sampled. Why not?	C	The list of wells to be used for performance sampling was provided in the Remedial Design. Monitoring well 16RW12 was sampled for field parameters near the time of the injections and the data is presented in the Remedial Action Construction Report in May 2021. Per the RD and RAWP this well is not part of the performance sampling post injection. The sentence in question will be revised to state: "Due to the generally east-southeast groundwater flow direction, the only true downgradient well in the current monitoring network is 16WW40." A revised monitoring network will be proposed as part of the 2nd Annual RA-O Report.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
14	Section 3.1.5, Page 3-6	The following statement isn't technically true considering that groundwater flows roughly from west to east in the vicinity of 16EW01, making it simply on the edge of the treatment area as opposed to the "upgradient edge": "While 16EW01 is shown as a treatment zone well, it should be noted that the well is located at the upgradient edge of the treatment area." The "upgradient edge" should mean that this well is located on the western side of the Mid-Plume Area, but it is located on the northern side.	C	Agreed, the groundwater flow on the northern side of the Mid Plume, as shown on the potentiometric figure 2-5, is moving to the east. The sentence has been revised as follows: "While 16EW01 is shown as a treatment zone well, it should be noted that the well is located cross-gradient to the northern edge of the treatment area." The following sentence will be revised to remove the reference to upgradient contamination and states: "The reduction in the TCE to DCE ratio is an indication that dechlorination is occurring there."	
15	Section 3.1.6, Page 3-8	It may be premature to include the following statement considering that TCE and cis-DCE concentrations actually seemed to increase at the wells within the treatment area (16EW06 and 16EW07) and because of the somewhat inconclusive results from the lab resulting from sample dilution: "The data collected from wells within the treatment area suggest that COCs are being reduced in this area as designed."	D	At 16EW06, TCE, cis-1,2-DCE have decreased by more than 50% and the fluctuation observed in TCE are due to detection limits only. At 16EW07, TCE increased to 500 from 490 and then back to below an elevated detection limit of <250. At downgradient well 16WW49, TCE has also reduced from 260 ug/L to below the MCL. Therefore, at this time the data does suggest that COCs are being reduced in this area as designed.	
16	Section 3.1.7, Page 3-9	Please explain the following statement: "The lack of complete delineation of the downgradient extent of the plume prevents evaluation of potential downgradient migration or expansion of the plume." I don't see any dashed lines associated with contours on the downgradient side of the plume, so I'm not sure what this statement is referring to in terms of areas that are lacking in plume delineation.	C	The downgradient dashed lines refer to the areas where the plume reaches Harrison Bayou. The nature of the connection between the shallow and intermediate zones on either side of the bayou is not well understood and will likely be the subject of future delineation efforts east of the bayou (see response to TCEQ Comment #11). A dashed line for "inferred" will be added to the legend of Figures 3-1 through 3-4.	
17	Section 3.2, Page 3-11	At the top of the page, the following statement is made: "…performance goals of ORP < -50mV," whereas the bottom of the page states that "ORP values less than 50 millivolts (mV) are indicative that anaerobic conditions are present." I think the first instance should be changed to "50 mV."	D	The first paragraph of Section 3.2 will be revised to distinguish between the 50 mV ORP level that will not inhibit biological degradation as cited in USEPA 1998 and the -50 mV performance objective in the RAWP and RACR. Section 3.2 will be revised as follows: "ORP values less than 50 millivolts (mV) are indicative that anaerobic conditions are present and favorable for the biological reduction of perchlorate, chlorinated	

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				ethenes, and ethanes in a monitored natural attenuation setting (USEPA 1998). However, lower values for ORP are preferable in enhanced bioremediation settings to promote complete reductive dechlorination, and the RAWP (Bhate 2018a) selected < -50mV as the performance objective for ORP in treatment areas. Comparison of the ORP and TOC to the performance goals of ORP < -50mV and TOC > 20 mg/L, as well as concentration trends in the downgradient wells will guide the decision to reinject additional carbon source." Text has been updated in Sections 3.2.1, 3.2.2, 3.2.3, 3.2.4, 3.2.5, 3.2.6, and 4.1 to compare the ORP levels to -50 mV.	
18	Section 3.2.1, Page 3-12	The following statement fails to mention that iron reduction precedes the use of sulfate as an electron acceptor for anaerobic biodegradation: "After DO and nitrate have been depleted in the groundwater, sulfate may be used as an electron acceptor for anaerobic biodegradation."	C/E	Although it is true that iron is reduced prior to sulfate reduction, ferrous iron was not collected at this site for this evaluation and therefore cannot be discussed. This is the reason it was not mentioned in this report and the sentence is correct that sulfate is reduced after DO and nitrate have been depleted in groundwater.	
19	Section 3.2.1, Page 3-12 to 3-13	Discussion of TOC is somewhat confusing because the statement that "TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998)" is followed up with the revelation that only two wells had TOC concentrations in excess of 20 mg/L. Considering that only two of the wells had concentrations considered as "adequate to support microbial activity," the following statement at the end of this paragraph seems like a bit of an overreach: "the data indicate that carbon concentrations within and close to the biobarrier have been supportive of reductive dechlorination."	C	The statement is referring to the COC data which indicates that reductive dechlorination is occurring. To clarify the statement, the text has been revised to the following: "The COC data indicate that carbon concentrations, which are required, within and close to the biobarrier have been supportive of reductive dechlorination and that a residual mass of carbon remains present within the biobarrier at 16IW09, to support bacterial populations."	
20	Section 3.2.1, Page 3-13	Would be nice to see one or more references to support the following statements: "Ideally, alkalinity should be greater than 20 mg/L." and	C	The alkalinity value of 20 mg/L is a value from observation and experience. The second sentence in the paragraph will be deleted.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		"Microbes capable of degrading chlorinated aliphatic hydrocarbons and petroleum hydrocarbon compounds generally prefer pH values varying from 6 to 8 standard units." It would also be good to include the form of alkalinity being referred to…is at being reported as CaCO3?		The sentence pertaining to pH will be revised as follows: "Microbes capable of degrading chlorinated aliphatic hydrocarbons and petroleum hydrocarbon compounds generally prefer pH values varying from 6 to 8 standard units (USEPA 1998)." The first sentence pertaining to alkalinity will be revised as follows: "Alkalinity levels, measured as CaCO3, in the groundwater monitoring wells ranged between 15.2 and 610 mg/L during the fourth quarterly RA-O event."	
21	Section 3.2.2, Page 3-15	The following statement seems unlikely considering that the ratios of TCE to cis-DCE in the samples collected on those dates were roughly the same. Why would TOC concentrations at this location peak in the 3rd quarter and then completely disappear by the 4th quarter when degradation rates remained stable? "TOC levels increased to 1,190 mg/L in Quarter 3 (October 2020) and then decreased to below the detection limit of 1 mg/L during Quarter 4 (January 2021), which suggest that the carbon may have been completely utilized." I would question the validity of the TOC data from the 4th quarter, particularly if TOC levels rebounded during the next sampling event.	C	The decrease in TOC from 1,190 mg/L to below the detection limit is not expected in one quarter. The text has been revised to indicate that the TOC concentration in January 2021 is likely to be anomalous, as follows: "At 16IW03, located within the treatment area, TOC levels increased to 1,190 mg/L in Quarter 3 (October 2020) and then decreased to below the detection limit of 1 mg/L during Quarter 4 (January 2021). Future monitoring will determine whether the decline in TOC at 16IW03 from Quarter 3 to Quarter 4 was an anomaly."	
22	Section 3.2.2, Page 3-16	The following statement is a little bit confusing because the concentrations of TCE and cis-DCE are more stable at this well across the four sampling events than they are at almost any of the other wells. "The fluctuating concentrations of TCE and cis-1,2-DCE at 16IW03 suggest that the upgradient elevated concentrations are migrating into the biobarrier…"	C	This well is the only well located in the biobarrier and the concentrations have increased from 8,000 ug/L to 13,000 ug/L and subsequently decreased to 8,700 ug/L, indicating that elevated levels may have entered or desorbed from soils within the biobarrier, then subsequently reduced in the biobarrier. The order of magnitude increase in VC and ethene also suggest that degradation is occurring in the biobarrier.	
23	Section 3.2.2, pages 3-16, 3-	The following statement requires further explanation; what abiotic processes are the authors referring to and what evidence do they	C	Examples of the abiotic processes referred to are dilution, dispersion, sorption, and volatilization. In instances where COC concentrations have	

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	18, 3-21, and 3-23	have to support this claim?" the primary MNA processes reducing concentrations outside of the treatment area are likely to be abiotic." The same terminology was used in the last sentences of the sections related to Landfill Biobarrier #3, the Bayou Biobarrier, and the Mid-Plume Area, Shallow Zone, so the same comment would apply to all of those sections.		declined, but there is no clear evidence of biological degradation and the conditions are not conducive to biological degradation, the logical assumption is that the decline in concentrations is likely to result from one or more of the abiotic processes instead. The last sentence in sections 3.2.2, 3.2.3, 3.2.4, and 3.2.5 will be revised to include the following language at the end of the sentence to describe the abiotic processes likely to be involved: "…are likely to be abiotic, including dilution, dispersion, sorption, and volatilization."	
24	Section 3.2.3, page 3-17	The following statement is true in all but one case (16WW55 on 3/25/20) "The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, indicating that nitrate will not inhibit the anaerobic degradation."	C	Agreed and the last two sentences in the Nitrate section on pate 3-17 will be revised to the following: "The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, except for one sampling event at 16WW55 in March 2020 at 1.21 mg/L. These data indicate that nitrate will not inhibit the anaerobic degradation."	
25	Section 3.2.6, Page 3-24	The following statements from the Geochemical Indicator and MNA Parameter Summary section conflict one another: "The qualitative assessment of geochemical indicators during the first annual RA-O event in at LHAAP-16 indicates that current geochemical conditions are not favorable for the biological reduction of VOCs and perchlorate" and "The presence of degradation products, cis-1,2-DCE and VC, and decreasing TCE to DCE rations in downgradient wells suggests that biological degradation is occurring." The presence of cis-1,2-DCE and VC and decreasing TCE to DCE ratios in downgradient wells both qualify as geochemical indicators that suggest that biological reduction of VOCs is likely occurring.	C	The first sentence in the Geochemical Indicator and MNA Parameter Summary will be revised to the following: "The qualitative assessment of geochemical indicators during the first annual RA-O event at LHAAP-16 indicates that current geochemical conditions are favorable for the biological reduction of VOCs and perchlorate."	
26	Table 2-1 and Figure 2-3	Table 2-1 and Figure 2-3 – depth to water at 16WW32 was transcribed incorrectly in Table 2-1 for quarter 2 (listed as 23.38' but should have been 28.38' according to Appendix C	C	Agreed, the elevation was transcribed incorrectly. Table 2-1 and Figure 2-3 will be revised to reflect this change.	

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		documentation). This led to an erroneous mounding of the water table in Figure 2-3 that should be corrected (associated groundwater flow direction arrows should also be corrected on the figure).			
27	Table 2-3	Dissolved oxygen readings seem higher than expected at 16IW09 on 7/16/20 and 1/26/21 considering the methanogenesis taking place during those sampling events. In addition, the dissolved oxygen concentration at 16WW13 on 1/22/21 is much higher than it should be considering the ratio of TCE to cis-DCE in the samples collected on that date.	C	Agreed, the DO levels are higher than what would be expected; however, the values shown are those observed on the DO meter. This is one of the reasons we evaluate multiple lines of evidence to determine if the MNA processes are occurring.	
28	Table 2-4	Dissolved oxygen readings seem higher than expected at 16PM03 on 7/20/20 considering the ratio of TCE to cis-DCE in the samples collected on that date, and the dissolved oxygen concentrations at 16WW36 on 7/14/20 also seems higher than expected considering the methanogenesis taking place during that sampling event	C	Agreed, the DO levels are higher than what would be expected. See response to Comment #27.	
29	Table 2-4	Table 2-4 – the results associated with 16IW03 from 3/25/2020 are repeated twice in the table.	C	The repeated data will be removed.	
30	Table 2-7	The dissolved oxygen concentration at 16EW01 on 3/9/20 seems higher than expected considering the ratio of TCE to cis-DCE in the samples collected on that date.	C	Agreed, the DO levels are higher than what would be expected; however, the values shown are those observed on the DO meter.	
31	Table 2-6	Well 16WW21 was identified as an "Intermediate Zone" well in Table 2-6, but table 2-1 and the text identify it as an Upper Deep Zone well."	C	Table 2-6 will be revised. The word "Intermediate Zone" will be replaced by "Upper Deep Zone well."	
32	Table 2-8	The dissolved oxygen concentration at 16WW29 on 10/14/20 and 1/21/21 seems higher than expected considering the methanogenesis taking place during both sampling events.	C	Agreed, the DO levels are higher than what would be expected; however, the values shown are those observed on the DO meter. See response to Comment #27.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
33	Figure 2-2	Is missing a 174' contour around the 174.5' contour in the Mid-Plume Area.	C	A closed 174' contour will be added surrounding the localized 175' high in the Mid-Plume Area on Figure 2-2.	
34	Figures 3-1 to 3-4	There doesn't appear to be any evidence (based on the data included in this report) to suggest that the perchlorate plume is passing through the southern end of Biobarrier 3 and the northern end of Biobarrier 2 (where the two biobarriers overlap), although Figure 1-3 indicates that two wells do exist in that area (16EW11 and 16IW10). I would suggest sampling at least one of those wells for perchlorate during a future sampling event to get a better handle on what is going on with the perchlorate plume in that area.	C/D	Perchlorate is detected upgradient and downgradient of the Biobarrier 2 and Biobarrier 3 at concentrations above the PCL. Monitoring well 16IW10 is currently included in the monitoring network and did not contain detectable perchlorate in any of the sampling events, but is not ideally located to detect whether there is a connection between the perchlorate concentrations at 16PM03 and 16RW10. Therefore, the plume is drawn showing a connection to be conservative. Monitoring well 16EW11 was used for both extraction and injection during the implementation of the remedy and will need to be evaluated to determine if it may be useful as a monitoring location in the future. The Second Annual RA-O Report will include a revised monitoring program recommendation for future monitoring at LHAAP-16.	
35	Figures 3-1 to 3-4	I would advise the authors to include the surface water sampling sites when contouring the TCE data on Figures 3-1 to 3-4; doing so would provide additional ground-truthed data when contouring the data.	C/E	The surface water sampling locations and data will be added to Figure 3-1 through 3-4 as requested, but the plume edge along the bayou will remain dashed to reflect the uncertainty regarding the relationship between the shallow zone and the bayou and whether contamination extends beyond the bayou.	
36	Figures 3-2 to 3-4	Unclear why the 100 ug/L perchlorate plume delineations surrounding 16WW16 and 16PM03 are not connected (as they are in Figure 3-1).	C	The perchlorate >100 ug/L plume will be connected between 16WW16 and 16PM03 in Figures 3-2, 3-3, and 3-4.	
37	Figures 3-1 to 3-8	Overall, the plume delineation maps look pretty good. I would advise the authors (if they are not doing so already) to ensure that the flow direction arrows are being considered when delineating the plume. Flow direction arrows should be oriented roughly parallel to the longitudinal axis of the plumes. In areas where	C	Noted. The plume delineations shown are based on the groundwater concentration data, but the flow direction arrows are based on the potentiometric contours from the applicable groundwater elevation data for that quarter. Given the complex relationship between surface water recharge, release areas from the landfill, and the	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		well control is absent, the flow direction arrows should provide an additional source of evidence to guide plume delineation.		wide variation of topographic elevations present at the site, it is likely that the potentiometric surface is much more complex than can be depicted based on the available groundwater elevation data.	
General Notes					
1	In general, there were some pretty broad declarations of the effectiveness of the biobarriers in the text. Based on the data provided, I think these declarations are premature. Most of the induced attenuation appears to be concentrated almost exclusively within the biobarriers themselves. Until sufficient evidence exists that downgradient wells are experiencing increased attenuation rates, I would encourage the reservation of judgement on effectiveness of the biobarriers.		C	Noted. As explained in the first two paragraphs of Section 3.0 Remedy Evaluation, the area likely to be influenced by the treatments was relatively small during the first year of monitoring. As such, our conclusions necessarily represent mostly data evaluated from within and very near the treatment zones. However, as reductive dechlorination of COCs occurs within the treatment areas over time, we expect to see the influence over a wider area downgradient, and the data and conclusions will reflect that growth in future reports.	
2	Should include a discussion related to why bromide data was collected at a subset of wells.		C	In Section 3.0 the following text will be added to discuss why bromide was collected: "Bromide was added during injection to evaluate the design and distribution of the amendments. Additional information on the bromide levels and the distribution is provided in the RACR (Bhate 2020)."	
3	Should remark on the possible correlation between groundwater levels and the concentrations of TCE and cis-DCE. The statement…" The trend graph for…does not indicate any definite correlation between groundwater elevations and COC concentrations" is repeated multiple times in the text. Were the authors anticipating a correlation between groundwater-levels and COC concentrations? If so, why?		C	At other sites at LHAAP, there are often strong direct or inverse relationships between groundwater elevations and concentrations that have become apparent over time. Understanding those relationships can be useful in the evaluation of potential seasonal fluctuations and how they may influence apparent trends in the degradation of COCs over time. The statements in this document regarding the lack of definite correlation are simply an indication that there was not a clear trend or relationship identified in the current dataset.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
4		Hydraulic conductivity estimates may be overestimated considering the lack of observable effects in downgradient wells that are in close enough proximity to biobarriers that they should have experienced increased attenuation rates by the 3rd or 4th quarter sampling events but did not.	C/E	Noted. However, as the carbon substrates remain in the subsurface the emulsions which allow the oil to move with groundwater are expected to break down leaving the vegetable oil in place, which also increases its longevity in the treatment area. As the smaller chain carbons are created during the metabolism of the larger oil product, these molecules will move downgradient. Therefore, the primary mechanism of decreasing concentrations at wells farther downgradient may be dilution as treated water migrates. Also, the hydraulic conductivity values are estimates because the lithology between the wells varies, which may increase or decrease the calculated values at specific locations. Localized variations in groundwater flow direction and velocity related to topography, recharge, and stratigraphic factors may also influence the time necessary for groundwater to reach any given location.	
5		Without knowing the long-term history at the site, has anyone ever investigated the altitudes of water levels in wells screened in the shallow zone relative to the altitude of the water in Harrison Bayou to develop a correlation between stage in Harrison Bayou and water levels in these wells to determine when Harrison Bayou is losing and when it is gaining? The following statement was included in section 3.17 (Plume Stability) on Page 3-10: "The relationship between the shallow and intermediate zones in the vicinity of Harrison Bayou is unknown, and the nature of the groundwater flow regime to the east of the bayou is uncertain." Further investigation of the interaction between the shallow zone and Harrison Bayou should be a priority.	C	There has not been a conclusive study of the relationship between the shallow zone and Harrison Bayou. See response to TCEQ Comment #11. The investigation of the area beyond Harrison Bayou will be added to the recommendations.	
6		Comment on the following premise: "The presence of daughter products cis-1,2-DCE and VC indicate biodegradation is occurring." That is repeated often in the document. Should be changed to "biodegradation is likely occurring" because daughter products can migrate from upgradient in the dissolved phase. If daughter product concentrations increase at a location over time as the parent compound's concentration decrease, that would provide a stronger case that biodegradation is actually occurring at the	C	It is possible that the daughter products are migrating from the treatment area upgradient. The text will be revised in Sections 2.2.2, 3.1.1, 3.1.5, 3.1.6, to state that "biodegradation is likely occurring"	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
	location in question. Use 16WW42 in Landfill Biobarrier#1 as an example of this (over the course of the four quarters) discussion on page 3-2.				
7	In the Bayou Biobarrier, why were the two wells within the treatment area (16IW20 and 16RW11) placed in such close proximity to one another? It makes it difficult to evaluate the effectiveness of the northern half of the wall.		C	The two wells were placed at the locations approved in the RAWP. A recommendation for a revised monitoring network will be included in the Second Annual RA-O Report.	
8	Southern half of Bayou Barrier, which is trending in a NW/SE direction probably should have been oriented in a NE/SW direction to effectively capture groundwater flowing from the northwest to the southeast in this area.		C	Noted. The placement of the Bayou Barrier was prescribed in the RD and RAWP and the flow direction in the vicinity of the barrier was less defined prior to the installation and monitoring of the additional wells as part of the remedial implementation.	

Response to Comments on
Draft First Annual Remedial Action Operation Report, LHAAP-16

Document Date: October 29, 2021
Comment Date: January 14, 2022

Reviewers: April Palmie - TCEQ
Respondent: Dr. Rose Zeiler - Army

1. Respondent Concurs (C), Does Not Concur (D), Takes Exception (E), or Delete (X)
2. Commenter Agrees (A) with response, or Does Not Agree (D) with response

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
1	General Figures and Tables	I found the breakdown of the data in the tables and figures and the organization (by area and interval) to be very helpful.	C	Noted. Thank you.	
2	General Figures	For the figures that include shallow and intermediate locations, it is helpful if the intermediate well icons are a different color. The purple used for Mid-Plume Area Intermediate figures would be good in the rest of the figures where intermediate wells are indicated.	C	Intermediate wells will be changed to be purple to match the Mid-Plume Area Intermediate figures.	
3	Figures	On the overall figures (such as 2-1), suggest making the Area labels bigger and/or a different color.	C	The font will be increased for the Area labels on overall Figures 2-1 through 2-5	
4	Figures	For the quarterly figures, please add the month and year to the figure titles (such as COC Concentrations in Groundwater Outside Treatment Areas, Quarter 1 (March 2020)). Figures 3-X have this detail. This is helpful because there are so many figures with the quarterly sampling. I don't think it will be necessary when we shift to semi-annual sampling.	C	The month and year will be added to the figure titles with quarterly sampling.	
5	Figure 3 Series	Figure 3 series is a good representation of the data without too much detail. One request – change the color for TCE concentrations. The	C	The TCE concentrations will be changed to dark green.	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
		lime green doesn't have enough contrast with the background colors. Maybe a dark green would work.			
6	Pg. 2-8, Outside Treatment Area	Suggest replacing "that lie far beyond the treatment areas" with "not in proximity to the treatment areas" or "not used to evaluate performance of the treatment areas" or something similar. Last sentence in that section – "Minor concentrations of DCE and VC" were detected where?	C	The text will be updated as follows: "The analytical results for wells outside of the treatment areas and that are not used to evaluate the performance of the treatment are summarized in **Table 2-9** and on **Figures 2-46** through **2-49**." To clarify the last sentence, the text will be updated as follows; "Minor concentrations of DCE and VC were also detected at 16WW37 during all four quarters of sampling, indicating that limited dechlorination is occurring upgradient of the treatment areas."	
7	3.1.3, Pg. 3-4,	Outside Treatment Area, 2nd sentence – 16RW06 is not 1,900.	C	The text will be updated to change 1,900 to 95 µg/L.	
8	3.1.4, Pg 3-5	Outside Treatment Area, 2nd sentence – Should this be 16WW41 rather than 16RW40? The next sentence discusses 16WW40 but that well is downgradient. Probably should be 16WW41 5,400.	C	Agree, the well should be 16WW41. The text will be updated as follows; "At the Bayou Biobarrier four wells 16WW39, 16WW12, 16WW22, and 16RW41 are located upgradient. During the fourth quarter sampling event TCE concentrations upgradient ranged from 30 µg/L at 16WW22 to 5,400 µg/L at 16WW41."	
9	Conclusions	Include the repairs noted in 2.1.2.	C	Mowing and painting activities will be added to the conclusions. The following text will be added: "Mowing at LHAAP-16 was conducted on March 5, 2020, July 13, 2020, and September 28, 2020, during the first year of RA-O. Well inspections determined that the following wells should be repainted prior to or during the Year 2 Quarter 3 sampling event: 16IW03, 16PM02, 16PM06, 16PM09, 16PM14, 16WW30, 16WW31, 16WW32, and 16WW35."	
10	Appendix B Photographic Log	The photos of surface sampling locations should not have "monitoring well" in the photo description.	C	The word "monitoring well" will be removed from the photo logs and photos where surface sampling location are shown. This applies to the March 2020 and July 2020 photos. Surface water	

Comment #	Section/ Page/ Paragraph	Comment	C, D, E, or X[1]	Response	A or D[2]
				locations were not sampled or photographed during the October 2020 or January 2021 sampling events.	
11		When will we discuss additional well(s) downgradient from 16WW57 and 58? Given the site conditions, it may take a long time to get them installed.	C	A recommendation to install additional wells for delineation of the intermediate plume beyond 16WW57 and 16WW58 will be added to the recommendations in Section 4.2, and the recommendations will be bulletized for clarity.	

Draft Final
First Annual Remedial Action Operation Report, LHAAP-16 Landfill
Longhorn Army Ammunition Plant
Karnack, Texas

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Acronyms and Abbreviations

%	percent
µg/L	micrograms per liter
1,1,2-TCA	1,1,2-trichloroethane
1,1-DCE	1,1-dichloroethene
1,2-DCA	1,2-dichloroethane
ABC+™	microscale ZVI and ABC™
ABC™	carbon source
APTIM	Aptim Federal Services, LLC
Bhate	Bhate Environmental Associates, Inc.
cells/mL	cells per milliliter
cis-1,2-DCE	cis-1,2-dichloroethene
cm/sec	centimeters per second
COCs	contaminants of concern
CVOCs	chlorinated volatile organic compounds
DHC	Dehalococcoides ethenogenes
DO	dissolved oxygen
EDS-ER™	electron donor solution extended release
EPA	see USEPA
IRA	interim remedial action
ISB	in-situ bioremediation
J	estimated value
Jacobs	Jacobs Engineering Group, Inc.
LHAAP	Longhorn Army Ammunition Plant
LUC	land use control
MC	methylene chloride
MCL	maximum contaminant level
mg/L	milligram(s) per liter
MNA	monitored natural attenuation
mV	millivolt(s)
No.	number

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Acronyms and Abbreviations *(continued)*

OHM	OHM Remediation Services Corp.
ORP	oxidation-reduction potential
PCL	protective concentration level
RACR	Remedial Action Completion Report
RA-O	remedial action operation
RAWP	Remedial Action Work Plan
RD	Remedial Design
ROD	Record of Decision
ROI	radius of influence
SDC-9™	APTIM's dechlorinating microbial consortium
TCE	trichloroethene
TCEQ	Texas Commission on Environmental Quality
TOC	total organic carbon
U.S.	United States
U.S. Army	U.S. Department of the Army
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compound
ZVI	zero valent iron

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1.0 INTRODUCTION

The U.S. Army Corps of Engineers (USACE), Tulsa District, contracted Bhate Environmental Associates, Inc. (Bhate) under the Omaha Multiple Environmental Government Acquisition National Small Business Multiple Award Task Order Contract, Environmental Remediation Services with Military Munitions Response Program, Task Order Number (No.) W9128BV17F0150, to conduct environmental restoration at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP). The Bhate Team consists of Bhate and Aptim Federal Services, LLC (APTIM). LHAAP is an active, government-owned, formerly contractor operated and maintained Department of Defense facility located in east Texas (**Figure 1-1**).

LHAAP is located in east-central Texas in the northeastern corner of Harrison County between State Highway 43 in Karnack, Texas, and the western shore of Caddo Lake (**Figure 1-1** and **Figure 1-2**). The nearest cities are Marshall, Texas, approximately 14 miles to the southwest, and Shreveport, Louisiana, approximately 40 miles to the east. Caddo Lake is a large freshwater lake that bounds the former LHAAP installation to the northeast.

LHAAP-16 is a capped landfill covering approximately 17.8 acres in the south-central portion of the former LHAAP (**Figure 1-2**). Harrison Bayou is located along the eastern edge of the LHAAP-16 and flows into Caddo Lake, northeast of the former LHAAP. The landfill covered approximately 13 acres prior to the cap construction. It was established in the 1940s for the disposal of solid and industrial wastes, and was used until the 1980s, when disposal activities were terminated.

The contaminated media at LHAAP-16 includes buried source material (landfill waste under the cap) and the shallow and intermediate groundwater beneath and downgradient of the landfill. The U.S. Department of the Army (U.S. Army) and the U.S. Environmental Protection Agency (USEPA) signed an Interim Record of Decision (ROD) (U.S. Army 1995), and the Texas Water Commission (now the Texas Commission on Environmental Quality [TCEQ]) concurred in 1995 approving an interim remedial action (IRA) for LHAAP-16 to mitigate potential risks posed by buried source material at the site. The IRA included the construction of a landfill cap, which is considered a component of the final remedy for the site. Construction of the multilayer cap was completed in 1998. The groundwater extraction system was voluntarily installed by the U.S. Army in 1996 and 1997 as a treatability study to prevent the groundwater plume from migrating to Harrison Bayou (OHM 1998).

The Final ROD for LHAAP-16 (including the impacted groundwater) was issued in September 2016 and describes the final selected remedy for the site (U.S. Army 2016). The

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groundwater contaminants of concern (COCs) identified in the Final ROD include chlorinated volatile organic compounds (CVOCs) (trichloroethene [TCE], cis-1,2-dichloroethene [cis-1,2-DCE], 1,1-dichloroethene [1,1-DCE], 1,2-dichloroethane [1,2-DCA], vinyl chloride [VC], 1,1,2-trichloroethane [1,1,2-TCA], and methylene chloride [MC]), perchlorate, and metals (arsenic, chromium, manganese, nickel, and thallium) in the shallow and/or intermediate groundwater. The Final Remedial Design (RD) was submitted in January 2017, and the Remedial Action Work Plan (RAWP) describing the in-situ bioremediation (ISB) activities was submitted in June 2018 (Bhate 2018a). The injection activities for the ISB remedy took place between September 24, 2019 and December 21, 2019, as reported in the Final Remedial Action Completion Report (RACR) in April 2021 (Bhate 2021).

The Remedial Action Operation (RA-O) Report represents the first year of RA-O implementation and summarizes the results of the site inspections and sampling activities.

The first year RA-O quarterly sampling events were conducted in March 2020, July/August 2020, October 2020, and January/February 2021. In accordance with the RD/RAWP (Bhate 2018a), a remedy evaluation is included in this report, but a statistical analysis of COC concentration trends and calculation of degradation rates will not be conducted until eight quarterly sampling events have been completed in January 2022.

1.1 Remedial Action Objectives

The remedial action objectives for LHAAP-16, consistent with the reasonably anticipated future use as a national wildlife refuge, are:

- Protection of human health and the environment by preventing exposure to landfill contents.
- Protection of human health and the environment by reducing leaching and migration of landfill hazardous substances into the groundwater.
- Protection of human health by preventing human exposure to the contaminated groundwater.
- Protection of human health and the environment by preventing COCs and COC daughter products from migrating into Harrison Bayou at levels that cause surface water in Harrison Bayou to exceed surface water criteria.
- Return of groundwater to its potential beneficial uses as drinking water, wherever practicable.

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1.2 Performance Objectives

The remedy selected for groundwater at LHAAP-16 (U.S. Army 2016) includes the following components:

- Maintenance of the existing landfill cap to preserve its integrity and minimize or prevent infiltration through the landfill.
- Land use controls (LUCs) to maintain the integrity of any current or future remedial or monitoring systems and preventing the use of groundwater contaminated above cleanup levels as a potable water source.
- ISB to reduce contaminant mass in the most contaminated portion of the shallow and intermediate groundwater zones and to reduce the COC concentrations reaching the biobarriers in the future.
- Installation of four biobarriers to reduce the shallow groundwater concentrations to levels that will not cause the surface water to exceed surface water standards, to control potential migration of contaminants from the landfill, and to reduce groundwater contaminant mass.
- Monitored natural attenuation (MNA) to return groundwater to its beneficial use, wherever practicable. Data from eight quarterly sampling events will be combined with historic data to evaluate the effectiveness of various natural physical, chemical, and biological processes in reducing contaminant concentrations.
- Groundwater and surface water monitoring to evaluate the effectiveness of the cap, confirm the decrease in COC concentrations within the groundwater plume, and to protect surface water in Harrison Bayou from the seepage of contaminated groundwater in accordance with the monitoring program established in the RD (AECOM 2017).
- Long-term operation of the remedy, including maintenance of the landfill cap, maintenance of LUCs, groundwater and surface water monitoring, and reinjection of the vegetable oil in the biobarriers, as needed, to provide continued treatment effectiveness.

The performance monitoring program and LUC inspection program is provided in the RAWP (Bhate 2018a). The performance objectives for the operation of the remedy selected in the ROD are as follows:

- LUC performance objectives to be achieved via annual inspections and maintenance include:

  - Prohibit access to the contaminated groundwater except for environmental monitoring and testing only.
  - Preserve the integrity of the landfill cap, and to restrict intrusive activities (e.g., digging) that would degrade or alter the cap.
  - Restrict land use to nonresidential.
  - Maintain the integrity of any current or future remedial or monitoring systems.
  - Prevent the use of groundwater contaminated above cleanup levels as a potable water source.
- ISB treatment areas, biobarriers, and MNA remedy performance objectives are:
  - Achieve and maintain plume stability as measured by concentrations decreasing in the majority of performance wells relative to the baseline and/or historical concentrations.
  - Achieve and maintain geochemical conditions conducive to natural attenuation of COCs in the shallow and intermediate groundwater zones based on evaluation of biodegradation screening scores using USEPA guidance.
  - Demonstrate MNA processes are occurring using attenuation rate calculations, increases in COC daughter product concentrations, and microbial culture counts.

The performance objective evaluations for the biobarriers and ISB treatment areas will determine when follow-up injections are necessary in the ISB treatment areas based on the criteria presented in Section 4.7.4 of the RAWP (Bhate 2018a).

The performance of the MNA remedy in the shallow and intermediate groundwater zones outside the active treatment areas will be evaluated after two years of quarterly monitoring. Per the ROD, if MNA is found to be ineffective, a contingency remedy of bio-amendment injections outside the active treatment areas will be implemented following documentation in an Explanation of Significant Differences.

This report summarizes the LUC compliance inspection; monitoring well inspection, maintenance, and repair; results of groundwater and surface water sampling; and an evaluation of the current state of the remedy.

1.3 Conceptual Site Model

The contaminated media at LHAAP-16 includes buried source material (landfill waste under the cap) and the shallow and intermediate groundwater beneath and downgradient of the

landfill. The IRA implemented in 1996 through 1998, included placement of a multilayer cap at LHAAP-16 mitigating potential risks posed by buried landfill waste. The cap prevents rainfall from infiltrating and leaching contaminants from principal threat wastes within the landfill. However, groundwater in contact with the buried waste material still provides a mechanism for transportation of COCs away from the landfill (Jacobs 2000). A groundwater extraction system was installed as a treatability study to prevent the groundwater plume from migrating to Harrison Bayou (OHM 1998).

The groundwater COCs for LHAAP-16 identified in the Final ROD (U.S. Army 2016) include CVOCs (TCE, cis-1,2-DCE, 1,1-DCE, 1,2-DCA, VC, 1,1,2-TCA, and MC), perchlorate, and metals (arsenic, chromium, manganese, nickel and thallium) in the shallow and/or intermediate groundwater. Five metals (arsenic, chromium, manganese, nickel, and thallium) had sporadic elevated detections in 2009 and were retained as COCs in shallow and/or intermediate groundwater in the Final ROD. The detected metals do not appear to be associated with widespread releases of contamination from the landfill and are presumed to be naturally occurring; however, the concentrations in groundwater may be influenced by changes in the geochemical conditions related to the remediation of the contaminant plumes and they will continue to be evaluated as part of the RA-O.

The pre-remedy sampling conducted in October 2018 and September 2019 showed volatile organic compound (VOC) contamination (over 10,000 micrograms per liter [µg/L] of TCE) in the shallow zone at monitoring wells 16WW16, 16WW36, and 16EW02. Well locations are shown on **Figure 1-3**. The wells with the highest perchlorate concentration in the shallow zone were 16WW16 and 16WW55, with detections of over 400 µg/L. The highest concentration of VOCs in the intermediate zone was detected at 16WW35, which contained 21,000 µg/L of TCE in October 2018. TCE was also detected above the maximum contaminant level (MCL) located on the east side of Harrison Bayou at 16WW57 and 16WW58 in September 2019 at 24 µg/L and 4,300 µg/L, respectively. Perchlorate was detected above the protective concentration level (PCL) at four intermediate wells, with the highest concentration of perchlorate detected at well 16WW35, which contained a concentration of over 400 µg/L. One well, 16WW21, in the upper deep groundwater zone, was sampled in October 2018 and did not detect COCs above detection limits. **Figure 1-4** and **Figure 1-5** show the extent of the TCE and perchlorate plumes in shallow and intermediate groundwater, respectively, based on the pre-remedy sampling conducted in 2018 and 2019. The shallow groundwater plume extent is shown as undefined on the figures at the boundary with Harrison Bayou based on uncertainty regarding the interaction between Harrison Bayou and the shallow groundwater zone, and the lack of a saturated zone correlating to the shallow zone in wells 16WW57 and 16WW58 during their installation. The lithology for 16WW57 and 16WW58 shown on the boring logs in the

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RACR did not include a shallow saturated zone at depths that would correlate to the shallow zone on the west side of Harrison Bayou.

Surface water samples collected in October 2018 from three locations, 16SW01, 16SW02, and 16SW03, did not detect VOCs or perchlorate above the detection limits.

Based on the current and historical groundwater elevation data, flow direction is to the east/southeast toward Harrison Bayou in the shallow and intermediate zones. The mean hydraulic conductivity values vary from 1.5×10^{-3} centimeters per second (cm/sec) in the shallow zone to 4.2×10^{-4} cm/sec in the deep zone. The groundwater velocity is estimated to vary from 0.31 feet/year in the deep zone to 37 feet/year in the shallow and intermediate zones (Geosyntec 2009).

1.4 In Situ Bioremediation Activities

ISB was conducted at LHAAP-16 to remediate groundwater impacted with VOCs and perchlorate from September thru December 2019. As planned in the RD (AECOM 2017) and RAWP (Bhate 2018a), the following six ISB systems were implemented (**Figure 1-3**):

- Landfill Biobarrier #1 in the shallow groundwater zone southwest of the Mid-Plume area and adjacent to the landfill.
- Landfill Biobarrier #2 in the shallow groundwater zone west of the Mid-Plume area and adjacent to the landfill at the location of the past Semi-Passive Biobarrier Demonstration.
- Landfill Biobarrier #3 in the shallow groundwater zone west of the Mid-Plume area and adjacent to the landfill and immediately north of Landfill Biobarrier #2.
- A "Bayou Biobarrier" in the shallow groundwater zone northeast of the Mid-Plume area near Harrison Bayou.
- A biogrid in the shallow groundwater zone in the Mid-Plume Area.
- A biobarrier in the intermediate groundwater zone in the Mid-Plume Area.

The primary injection components were the carbon source and APTIM's dechlorinating microbial consortium (SDC-9™). The same carbon source (an emulsified vegetable oil [EVO] product known as Electron Donor Solution Extended Release [EDS-ER™] from Tersus Environmental, LLC) was used for the injection mixtures at all ISB areas except for the Bayou Biobarrier. EDS-ER™ was supplied as a water mixable oil that contains no water; therefore, it was mixed with water in the field to generate the applicable volumes for each barrier in accordance with the RAWP (Bhate 2018a). At the Bayou Biobarrier, an amendment mixture referred to as ABC+™ (comprised of microscale zero valent iron [ZVI] and a carbon source

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[ABC™]) was used instead of EDS-ER™. ZVI was added to the injectate solution at the Bayou Biobarrier to supplement the other amendments and accelerate degradation of the site COCs. The volume of amendment mixtures injected at each area and the targeted injection intervals are provided in the RACR (Bhate 2021). The EDS-ER™ product used contains EVO, which should not require replenishment for three to five years (AECOM 2017). The long-lived C14 to C18 fatty acids contained in the ABC+™ used in the Bayou Biobarrier are expected to last at least two years.

Pre-remedy (baseline) sampling was conducted in October 2018 and September 2019 in the shallow and intermediate zone in accordance with the RAWP which included both the shallow and intermediate zones and is summarized in the Final RACR (Bhate 2021). The pre-remedy sampling began in October 2018 before all wells were installed. The remaining well installations were delayed by heavy rainfall and saturated ground conditions that persisted through the spring of 2019. The final wells were installed in August 2019. Overlapping with this time period, the groundwater extraction system was inoperable from December 26, 2018, to September 3, 2019, due to damage to the main LHAAP electrical transformer. After groundwater extraction resumed on September 4, 2019, the extraction system was operated for approximately two weeks prior to sampling to allow aquifer hydraulic conditions to stabilize. To address the possibility that the October 2018 results might not be representative of conditions at the start of ISB due to the extraction system outage, the September 2019 pre-remedy sampling network consisted of a representative subset of the sampling network from the RAWP (Bhate 2018a), with concurrence from TCEQ and USEPA (TCEQ 2019, USEPA 2019).

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2.0 SITE ACTIVITIES AT LHAAP-16

This section describes the results of the first annual RA-O activities, including the annual LUC compliance inspection, quarterly groundwater monitoring, and monitoring system inspections performed at LHAAP-16.

2.1 Annual LUC Compliance Inspection

2.1.1 LUC Inspection

The annual LUC compliance inspection was performed on October 8, 2020. The objectives of the LUCs at LHAAP-16 are to prevent human exposure to groundwater contamination presenting an unacceptable risk to human health and ensure that there is no withdrawal or use of groundwater beneath the site for anything other than environmental monitoring and testing, as well as requiring the integrity of any current or future remedial monitoring systems to be maintained. The LUCs also prohibit intrusive activities within the landfill boundary for as long as the landfill waste remains or until levels of COCs in soil and groundwater allow for unlimited use and unrestricted exposure.

The Annual LUC Compliance Certification Documentation Form for the first year RA-O monitoring period is included in **Appendix A**. No non-compliance issues or concerns were noted during the annual inspection.

2.1.2 Groundwater Monitoring Network Inspections and Maintenance

No damage to bollards, well pads or protective casings was observed during the 2020/2021 well inspections, and minimal encroachment of weeds or brush on the well pads was observed. Area mowing and clearing around the wells is conducted on an as-needed basis, but typically is done before sampling events. Mowing at LHAAP-16 was conducted on March 5, 2020, July 13, 2020, and September 28, 2020, during the first year of RA-O. Well inspection forms for each of the sampling events are included in **Appendix B**. **Appendix B** includes a photo log and well inspection forms which document the condition of the wells during the inspection. The following wells require maintenance to address issues identified during the Quarter 4 inspections: 16IW03, 16PM02, 16PM06, 16PM09, 16PM14, 16WW30, 16WW31, 16WW32, and 16WW35 will be repainted prior to or during the Year 2 Quarter 3 sampling event.

The well siltation measurements are also included in **Table 2-1**. Wells 16EW07, 16EW08, 16WW13, 16WW14, 16WW37, 16WW42 show screen siltation of 11.2 to 38.6 percent (%) during the Quarter 4 RA-O sampling event. Wells 16EW07 and 16EW08 are possibly silted due to injection of amendments into the wells. The July 2021 RA-O event, which was recently completed, confirms siltation in excess of 10% at monitoring wells 16EW07, 16EW08, 16WW13, and 16WW37. Monitoring wells 16WW14 and 16WW42 were not silted in excess

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of 10% during the July 2021 RA-O event. Monitoring wells 16EW07, 16EW08, 16WW13, and 16WW37 will be redeveloped prior to the next quarterly sampling event.

2.2 Groundwater Monitoring

The first annual reporting period includes the period from January 2020 through January 2021 and encompasses the first year of post-injection quarterly monitoring. Quarterly groundwater sampling events were conducted in March 2020, July 2020, October 2020, and January/February 2021. The RA-O groundwater monitoring network approved in the Draft Final RAWP (Bhate 2018a) includes 61 wells for groundwater sampling and gauging and three locations for surface water sampling. The analytes for each well are summarized in **Table 2-2**. The RA-O monitoring well locations are depicted in **Figure 2-1**.

Before collecting groundwater samples, the wells were gauged using a water level probe and both the depth to water and total depth were recorded to the nearest 0.01 foot from the top of casing. Depth to water measurements were used to calculate the groundwater elevations presented in **Table 2-1**. Water samples were collected using low-flow sampling methods, as described in the groundwater sampling procedures found in the *Final Installation-Wide Work Plan* (Bhate 2018b). The objective of using this method was to minimize turbidity in the groundwater samples. After water quality parameters stabilized and were within acceptable ranges per the Work Plan, samples were collected at the same low flow rate.

Groundwater sample collection logs are presented in **Appendix C**. Chain-of-custody forms, laboratory reports, and data validation reports are presented in **Appendix D**.

2.2.1 Groundwater Elevations and Flow Direction

During the first year RA-O quarterly sampling events, groundwater elevations measured in individual wells varied by anywhere from 0.38 to 7.4 feet throughout the year, with the largest differential occurring at 16RW10. The highest groundwater elevations generally occurred during the March 2020 or January/February 2021 events, which is typically the rainy season, and the lowest elevations occurred during the October 2020 event. Groundwater elevations are included in **Table 2-1**. The following wells were not used in the development of potentiometric contours:

- Monitoring wells 16IW03 and 16IW04 do not have survey data available and were not included in the development of potentiometric contours.
- Monitoring wells 16RW10 and 16EW03 were not included in the development of potentiometric contours on the Quarter 1 potentiometric map for the shallow groundwater due to anomalous water level readings compared to the surrounding monitoring wells. The reason for the anomalous readings is unknown for these wells.

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- Monitoring wells 16EW05, 16EW06, 16EW07, and 16E08 were not included in the development of potentiometric contours on the Quarter 1 map for the intermediate groundwater zone due to anomalous water level readings compared to the surrounding monitoring wells. The intermediate zone extraction wells 16EW05, 16EW06, 16EW07, and 16EW08 that were injected into as part of the ISB remedy were noted during sampling to have varying levels of residue from the injections that appears to have affected the well screens and the groundwater elevation measurements to varying degrees.
- Monitoring wells 16EW05, 16EW06, and 16EW07 were not included in the development of potentiometric contours on the Quarter 2 map for the intermediate zone due to anomalous water level readings compared to surrounding wells.
- Monitoring well 16EW07 was not included in the development of potentiometric contours for the Quarter 3 map for the intermediate zone due to anomalous readings compared to surrounding wells.
- Monitoring wells 16EW06 and 16EW07 were not included in the development of potentiometric contours for the Quarter 4 map for the intermediate zone due to anomalous water level readings compared to surrounding wells.

The groundwater flow gradient in the shallow groundwater zone was interpreted to be generally to east and northeast for Quarter 1 (**Figure 2-2**) while the groundwater flow gradient in the shallow groundwater zone was interpreted to be generally east and southeast based on the potentiometric maps for Quarters 2, 3, and 4 (**Figures 2-3** through **2-5**). The slight change in groundwater flow direction from Quarter 1 to Quarters 2 through 4 may be attributed to the injection of amendments or seasonal fluctuations; however, the general groundwater flow direction throughout the site remains towards Harrison Bayou. The groundwater flow gradient in the intermediate groundwater zone was interpreted to be generally to the east and east-southeast for Quarters 1 through 4 (**Figures 2-6** through **2-9**).

2.2.2 Groundwater Analytical Results

Quarterly groundwater samples were collected from 61 monitoring wells and analyzed for perchlorate according to EPA Method 6850 and VOCs (8260C). Thirty-five monitoring wells were also analyzed for geochemical parameters as shown in **Table 2-2**. ISB was conducted at LHAAP-16 in six treatment areas (**Figure 1-3**) to remediate groundwater impacted with VOCs and perchlorate:

1. Landfill Biobarrier #1
2. Landfill Biobarrier #2

3. Landfill Biobarrier #3
4. Bayou Biobarrier
5. Mid-Plume Area in shallow groundwater zone
6. Mid-Plume Area in intermediate groundwater zone

The locations of the ISB treatment areas are shown in **Figure 2-1**. The analytical results are discussed for each treatment area in this section below. Some of the wells sampled during the RA-O event lie outside of the above six treatment areas and are discussed separately under the "Outside the Treatment Areas" subsection. At several of the wells, matrix interference issues or significantly elevated concentrations caused elevated detection limits for the VOCs. Where elevated detection limits exceed the COCs, they are highlighted on **Tables 2-3 through 2-10**.

Landfill Biobarrier #1

Groundwater samples were collected at seven shallow zone monitoring wells and two intermediate zone monitoring wells, as shown in **Table 2-2**. The analytical results for Landfill Biobarrier #1 are summarized in **Table 2-3** and on **Figures 2-10** through **2-13**. Perchlorate concentrations were below the PCL at upgradient wells, downgradient wells and one well within the biobarrier during all four quarterly sampling events. The performance well within Landfill Biobarrier #1, 16IW09, showed TCE was below the MCL in Quarters 1 and 2, increased slightly above the MCL in Quarter 3, then decreased to below the MCL in Quarter 4. Upgradient wells, 16RW01 and 16RW02, and downgradient well 16RW04 showed slight increases in cis-1,2-DCE and TCE concentrations from Quarters 1 and 2 and decreases in concentrations in Quarters 3 and 4. However, VOC concentrations continue to remain above the MCL in upgradient well 16RW01. Perchlorate and VOC concentrations were below the MCL/PCL at downgradient well 16RW05. Downgradient well 16WW26 showed an increase in TCE concentrations from 380 µg/L in September 2019 (baseline event), to 900 µg/L in March 2020 (Quarter 1), with fluctuating concentrations in Quarters 2 and 3 and a further increase in TCE concentration to 1000 µg/L in January 2021. Downgradient well 16WW42 showed TCE and VC concentrations below the MCL in all quarters, while cis-1,2-DCE increased above the MCL in Quarters 3 and 4. Contamination trend plots for 16WW26 and 16WW42 are included in **Figures 2-14** and **2-15**, respectively.

The downgradient well, 16WW13, in the intermediate zone, showed a fluctuating trend of TCE and cis-1,2-DCE with concentrations remaining above the MCL in January 2021 at 97 and 190 µg/L, respectively. Perchlorate and VOC concentrations were below the MCL/PCL at downgradient intermediate well 16WW25.

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Landfill Biobarrier #2

Groundwater samples were collected at eight shallow zone monitoring wells and one intermediate zone monitoring well, as shown in **Table 2-2**. The analytical results for Landfill Biobarrier #2 are summarized in **Table 2-4** and on **Figures 2-16** through **2-19**. Perchlorate was detected above the PCL at two out of three upgradient wells 16PM03 and 16WW16 at 330 µg/L and 309 µg/L, respectively in Quarter 4. Perchlorate was detected below the PCL at performance monitoring well 16IW03 within the biobarrier. Perchlorate was detected below the PCL at four out of five downgradient wells for all four quarters. Perchlorate was detected above the PCL at one downgradient well in the intermediate zone, 16WW35, during Quarters 1, 2, and 3.

Performance monitoring well 16IW03 showed an increase in TCE concentrations from 8,000 µg/L in March 2020 (Quarter 1) to 13,000 µg/L in July 2020 and showed a decline in concentrations to 8,800 µg/L in January 2021. The presence of cis-1,2-DCE and VC indicates that biodegradation is likely occurring in the vicinity of performance well 16IW03. Upgradient wells (16PM02, 16PM03, and 16WW16) and downgradient wells (16PM06, 16PM14, 16PM09, and 16WW36) show an increase in TCE and cis-1,2-DCE concentrations post-Quarter 1, and then a decline in concentrations in Quarter 4. TCE, cis-1,2-DCE, VC, 1,1-DCE, and 1,2-DCA concentrations remain above the MCL in upgradient and downgradient wells. The presence of VC and cis-1,2-DCE in the vicinity of Landfill Biobarrier #2 is an indication that reductive dechlorination is occurring. Contaminant trend charts for wells 16PM06 and 16WW36 are included on **Figures 2-20** and **2-21**, respectively.

Downgradient well 16WW35 in the intermediate zone showed a decline in TCE concentrations from 21,000 µg/L in October 2018 (pre-remedy sampling event) to 13,000 µg/L in January 2021 (Quarter 4).

Landfill Biobarrier #3

Groundwater samples were collected from seven shallow zone monitoring locations, as shown in **Table 2-2**. The analytical results for Landfill Biobarrier #3 are summarized in **Table 2-5** and on **Figures 2-22** through **2-25**. Perchlorate was not detected above the PCL at any of the wells upgradient of the biobarrier (16RW06, 16RW07, and 16WW14) or within the biobarrier (16IW10). Perchlorate was detected above the PCL at two of the three downgradient wells (16WW55 and 16RW10).

The TCE concentration at performance well 16IW10 showed a decline in concentrations from 200 µg/L in March 2020 (Quarter 1) to 31 µg/L in January 2021 (Quarter 4) while cis-1,2-DCE and VC concentrations increased in concentration post-Quarter 1 and reduced in concentration

in Quarter 4. Upgradient monitoring well 16RW06 showed a slight increase in TCE concentration from 86 µg/L in March 2020, to 95 µg/L in January 2021. TCE concentrations decreased from Quarter 1 to Quarter 3 at 16RW07 and 16RW10 and then increased in Quarter 4. TCE concentrations at 16RW09 showed a reduction in concentration from 1,300 µg/L in March 2020 to 690 µg/L in February 2021, with an increase in cis-1,2-DCE concentration from 34 µg/L in March 2020 to 230 µg/L in February 2021. At downgradient well 16WW55, TCE decreased from 5,900 µg/L in October 2018 (pre-remedy sampling event) to 2,900 µg/L in January 2021, with a slight decrease in cis-1,2-DCE, and an increase in VC from non-detect levels in October 2018 to 26 µg/L in January 2021. Contaminant trend charts for wells 16IW10 and 16RW10 are included on **Figures 2-26** and **2-27**.

Bayou Biobarrier

Groundwater samples were collected from seven shallow zone monitoring wells, one intermediate zone monitoring well, and one upper deep zone well as shown in **Table 2-2**. The analytical results for Bayou Barrier #3 are summarized in **Table 2-6** and on **Figures 2-28** through **2-31**. Perchlorate was detected in two shallow wells, 16WW12 and 16WW39, at concentrations above the PCL. At 16WW39, the concentration decreased from 120 µg/L in October 2018 (pre-remedy sampling event) to below the PCL in July 2020 (Quarter 2) and remained below the PCL for the remaining quarters. At 16WW12, the perchlorate concentration increased from below the PCL in October 2018 to 120 µg/L in September 2019; and decreased post-injections to 24.1 µg/L in February 2021. Perchlorate was detected in the one upgradient intermediate well, 16WW41, at concentrations above the PCL however, concentrations decreased from 310 µg/L in March 2020 to below the PCL in January 2021.

Performance monitoring well 16IW20, within the Bayou Biobarrier, showed a reduction in TCE concentration from 850 µg/L in March 2020 to 13 µg/L in January 2021, with an increase in concentrations of cis-1,2-DCE and VC indicating that reductive dechlorination is occurring. Upgradient well 16WW39 in the shallow zone show a reduction in TCE concentration from 3,900 µg/L in October 2018 to 300 µg/L in February 2021. The downgradient well 16WW40 showed an increase in TCE concentration post-injections compared to the pre-remedy sampling event in October 2018; TCE increased from 660 µg/L in October 2018 to 1,700 µg/L in Quarters 2 and 3, then reduced to 1,500 µg/L in Quarter 4 (February 2021). Downgradient well 16WW56 showed an increase in TCE concentration from 27 µg/L in September 2019 to 520 µg/L in March 2020 (Quarter 1), and the concentration later decreased to 29 µg/L in January 2021. Contaminant trend charts for wells 16RW11 and 16IW20 are included on **Figures 2-32** and **2-33**.

The upgradient well in the intermediate zone, 16WW41, showed a reduction in TCE concentrations from October 2018; however, the concentrations continued to fluctuate above

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the MCL at 5,400 µg/L in January 2021. Upgradient well 16WW21 in the upper deep zone showed COC concentrations were non-detect during all four quarters of the RA-O event.

Mid-Plume Area in the Shallow Groundwater Zone

Groundwater samples were collected from six shallow zone monitoring locations, as shown in **Table 2-2**. The analytical results for the Mid-Plume Area in the shallow groundwater zone are summarized in **Table 2-7** and on **Figures 2-34** through **2-37**. Perchlorate was detected above the PCL in three of the wells in the shallow zone (16EW01, 16EW02, and 16WW48). Perchlorate was detected above the PCL at 16EW02 during the Quarter 1 sampling event and decreased to below the PCL in Quarter 2 and remained below the PCL in Quarter 3 and Quarter 4. At 16EW01, perchlorate remained about the same at ~28 µg/L in Quarters 1, 2, and 3 and then increased to 180 µg/L in January 2021. At 16WW48, perchlorate was detected below the PCL in October 2018 and increased to concentrations above the PCL at 120 µg/L in Quarter 1 and remained above the PCL in Quarter 4 at 122 µg/L.

Monitoring wells 16EW01, 16EW02, 16EW04, and 16WW48 showed fluctuating TCE concentrations post-injections with concentrations in Quarter 4 being higher than concentrations detected during the pre-remedy sampling events in 2018 and 2019. However, the concentrations did not exceed historical concentrations detected at 16EW01, 16EW02, and 16EW04 in 2015 and 2016, and the parent to daughter product ratios have declined in 16EW02, 16EW04, and 16WW48, indicating that ISB enhanced dechlorination is occurring. The parent to daughter product ratio in 16EW01, located at the upgradient edge of the treatment area increased from March 2020 to October 2020 and then decreased back to the same value in January 2021, as would be expected with seasonal fluctuations and influx of COCs from upgradient. 16WW48, located cross/downgradient and outside of the treatment area, showed increasing concentrations of COCs, which is likely caused by the cessation of extraction in September 2019 allowing COCs to migrate towards the bayou. However, the significant decrease in TCE to DCE ratio also indicates that the effects of dechlorination occurring from the ISB are showing up at 16WW48.

The highest TCE concentration was detected at monitoring well 16EW02 at 38,000 µg/L in January 2021 (Quarter 4). Cis-1,2-DCE showed increasing concentrations compared to pre-remedy sampling results indicating that reductive dechlorination is occurring. Monitoring well 16WW30 showed declining TCE concentrations post-injections with TCE being below the MCL at 16WW30 at 2.2 µg/L in January 2021. Monitoring well 16EW03 showed increasing TCE concentrations with increasing groundwater elevations; TCE at 16EW03 increased from 170 µg/L in March 2020 to 290 µg/L in February 2021. The contaminant trend graphs for wells 16EW02 and 16WW30 are included on **Figures 2-38** and **2-39**, respectively.

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Mid-Plume Area in the Intermediate Groundwater Zone

Groundwater samples were collected from seven intermediate zone monitoring locations, as shown in **Table 2-2**. The analytical results for the Mid-Plume Area in the intermediate groundwater zone are summarized in **Table 2-8** and on **Figures 2-40** through **2-43**.

Perchlorate was detected below the PCL at all monitoring wells in the Mid-Plume intermediate zone, except for a non-detect value of 20 U µg/L for 16EW05 that was diluted due to residual EVO in the well. Perchlorate was only detected at 16EW06 in September 2019 and decreased to below the PCL in Quarter 1 and remained below the PCL in Quarters 2, 3, and 4. Monitoring wells 16EW05, 16EW06, 16EW07, and 16EW08 were also used as injection wells to inject the amendments. The samples collected from 16EW05, 16EW06, and 16EW07 were very viscous and classified by the laboratory as solids with high dilution; therefore, these locations were not included in the July 2020 (Quarter 2) sampling data. Also, contents at well 16EW05 were solidified and could not be collected in Quarter 3 or Quarter 4. Monitoring wells EW06, EW07, and EW08 show TCE concentrations have decreased post-injections; however, the detection limits are much higher than the MCL of 5 µg/L due to residual EVO present in the wells that required dilution prior to analysis. Additionally, the increase in concentration of cis-1,2-DCE and VC indicates that reductive dechlorination is occurring. TCE and other COCs at monitoring well 16WW29 remained below the MCL from the pre-remedy sampling event through four quarters of sampling. Monitoring well 16WW49 showed a decline in TCE concentration from 260 µg/L in October 2018 to below the MCL at 2.5 µg/L in January 2021 with an increase in cis-1,2-DCE concentration in March 2020 followed by a reduction in cis-1,2-DCE concentrations in subsequent quarters. Monitoring well 16WW51, located downgradient of the mid-plume treatment area showed an increase of TCE from 90 µg/L during the 2019 pre-remedy sampling to a high of 1,700 µg/L in Quarter 3, before declining to 1,000 µg/L in Quarter 4. The TCE to cis-1,2-DCE ratio declined from Quarter 3 to Quarter 4, while the cis-1,2-DCE increased, indicating that dechlorination is occurring. The contaminant trend graphs for wells 16EW06 and 16WW49 are included on **Figures 2-44** and **2-45**, respectively.

Outside the Treatment Areas

Groundwater samples were collected from nine shallow zone monitoring locations and five intermediate zone monitoring locations, as shown in **Table 2-2**. The analytical results for wells outside of the treatment and that are not used to evaluate the performance of treatment are summarized in **Table 2-9** and on **Figures 2-46** through **2-49**. Perchlorate was below the PCL at all 14 wells. In the shallow zone, TCE increased from below the MCL in October 2018 to above the MCL at 16WW32 and 16WW34 in March 2020 and then reduced back to below the MCL in July 2020, remaining below the MCL through the Quarter 4 sampling event. At

16WW38, TCE was detected at 4,400 µg/L in October 2018 and reduced to 2,300 µg/L in January 2021. In the intermediate zone, TCE increased from below the MCL in October 2018 to above the MCL in March 2020 at 16WW33, then reduced to below the MCL in July 2020 and remained below the MCL through Quarter 4 sampling event. Monitoring wells 16WW57 and 16WW58 installed across the Harrison Bayou could not be accessed due to wet conditions during the first quarter sampling event in March 2020; however, these wells contained TCE concentrations above the MCL in Quarters 2, 3, and 4. In January 2021, TCE was detected at 65 µg/L at 16WW57 and at 2,700 µg/L at 16WW58. At monitoring well 16WW37, located well upgradient of any treatment area, the TCE concentration ranged from 84 µg/L during the 2018 pre-remedy sampling to a high of 120 µg/L in Quarter 3, before declining to 99 µg/L in Quarter 4. Minor concentrations of DCE and VC were also detected at 16WW37 during all four quarters of sampling, indicating that limited dechlorination is occurring upgradient of the treatment areas.

2.2.3 Year 2 Groundwater Monitoring Network

Well rehabilitation actions are planned for summer 2021 to remove the solidified residue from 16EW05 and to reduce the viscosity of the residual product in 16EW06 and 16EW07 that may be affecting the wells screens and/or filter pack. No changes to the monitoring network are planned for the Year 2 RA-O period.

2.2.4 Metals Sampling

The selected remedy in the ROD requires sampling of groundwater for metals for the first five year review to determine if further monitoring of metals is warranted. This sampling will be conducted in conjunction with Year 3 Semiannual Event #1 in July 2022. In accordance with Section 4.8 of the RAWP (Bhate 2018a), the full list of monitoring wells from Table 1-2 of the RAWP will be analyzed for thallium, and selected wells will be analyzed for arsenic, chromium, manganese, and/or nickel based on the previous results.

2.3 Surface Water Sampling

Surface water samples were collected at three locations (16SW01, 16SW02, and 16SW03) in Harrison Bayou during all four quarterly RA-O sampling events. The locations and results are shown on **Figures 2-50** through **2-53**. Photographs of the monitoring locations taken at the time of sampling for the March 2020 and July 2020 events are located in the photographic log in **Appendix B**. Since Harrison Bayou flows from south to north, 16SW03 is the upstream sampling location, and 16SW01 is the downstream sampling location. The bayou was flowing strongly during the March 2020 and January 2021 sampling events, barely flowing during the July 2020 event, and flowing slightly during the October 2020 event.

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These samples were analyzed for VOCs, perchlorate, metals, and field parameters. The field parameters included dissolved oxygen (DO), pH, oxidation-reduction potential (ORP), conductivity, and temperature. The analytical results for the three sample locations are presented in **Table 2-10**. Perchlorate and VOCs were not detected at any of the three locations. Arsenic, chromium, manganese, and nickel were detected but found to be below their respective cleanup levels. Thallium was not detected at any of locations during all four quarters.

3.0 REMEDY EVALUATION

The following sections present the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final RD (AECOM 2017) for LHAAP-16 groundwater COCs. The plume stability evaluation (Line of Evidence #1) will not include Mann-Kendall trend analysis until the end of the Year 2 RA-O due to the minimum of eight samples needed for a statistically significant trend assessment.

The anticipated radius of influence (ROI) of the ISB injections from the RAWP (Bhate 2018a) was 15 feet. Bromide was added during injection to evaluate the design and distribution of the amendments. Additional information on the bromide levels and the distribution is provided in the RACR (Bhate 2020). For the evaluation of the remedy, monitoring wells within 15 feet of an injection location, in the same groundwater zone, are assumed to be under the direct influence of the treatment zone, while wells located downgradient from the treatment areas are expected to be influenced by the effects of the injections in the future as treated groundwater flows into these areas. Wells located cross-gradient (sideways from the groundwater flow direction) from the treatment areas may not show any direct influence from the treatment, but can be useful in monitoring geochemical changes outside of, but adjacent to the treatment areas. Wells located outside the 15-foot ROI, were not expected to show reductions in COC concentrations in the first few quarters of sampling, though downgradient wells should eventually show reductions over time depending on their distance from the treatment area. **Table 2-2** breaks down the list of wells in each treatment area by their location with respect to the treatment zones. The discussion of the first line of evidence in **Section 3.1** separates the wells into those inside of the treatment area and those outside of the treatment area in order to single out the locations where the effects from the ISB treatment would be expected to be observed within the first year of RAO monitoring.

3.1 First Line of Evidence: Change in COC Concentrations

Natural attenuation is the combination of multiple mechanisms, including biodegradation, volatilization, dilution, advection, and absorption that reduce contaminant concentrations. The decrease of COC concentrations over time in the absence of any other treatment is evidence of natural attenuation via biodegradation, though the observed decrease or increase in COC concentrations may also be influenced by other factors such as short-term fluctuations in groundwater elevations and other natural attenuation processes such as volatilization, sorption, aquifer dilution, and dispersion.

TCE and perchlorate are the most widespread COCs in the shallow and intermediate groundwater. Historical perchlorate and TCE concentrations are shown in **Table 3-1**.

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3.1.1 Landfill Biobarrier # 1

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-10** through **2-13,** as well as in **Table 2-3**.

Within Treatment Area

Monitoring well 16IW09 in the treatment area contained TCE and perchlorate concentrations below the MCLs/PCL in Quarters 1 and 4, while the detection limit of 25 µg/L exceeded the MCL in Quarter 2, and the detected concentration of 5.8 µg/L narrowly exceeded the MCL in Quarter 3. It appears that 16IW09 was installed in an area of the biobarrier that does not contain significantly elevated COCs; therefore, the effect of the biobarrier during the first year of monitoring cannot be fully evaluated due to fluctuations of the detection limits and the lack of clear trends in COC concentrations.

Outside Treatment Area

To evaluate the groundwater coming into the treatment area, two wells 16RW01 and 16RW02 are located upgradient. During the fourth quarter sampling event concentrations at 16RW01 remained elevated with TCE at 2,900 ug/L and at 16RW02 all COCs were below the MCL/PCLs. The elevated levels at 16RW01 indicate that elevated COCs will continue to migrate into the biobarrier and may cause fluctuating concentrations in the treatment area. Downgradient well 16WW26 contained TCE as high as 4,580 µg/L in May 2013 (**Table 3-1**) which decreased to 1,000 µg/L in January 2021. Downgradient well 16WW42 showed a reduction in TCE concentration from 29 µg/L in September 2019 to below the MCL in March 2020 and TCE remained below the MCL for subsequent quarters. Contaminant trend charts for monitoring wells 16WW26 and 16WW42 are shown on **Figures 2-14** and **2-15**. The data do not indicate any definite correlation between groundwater elevations and COC concentrations. Upgradient and downgradient wells, 16RW01 and 16RW04 respectively, showed slight reduction in TCE concentrations but remained above the MCL in the Quarter 4 RA-O event. The presence of daughter products cis-1,2-DCE and VC indicate biodegradation is likely occurring. Perchlorate concentrations remained below the PCL in the area. TCE concentrations remain well above the MCL in downgradient location 16WW26 and cis-1,2-DCE increased to above the MCL at downgradient location 16WW42 in Quarters 3 and 4. The increase in the concentration of cis-1,2-DCE while TCE stayed below the MCL at 16WW42 is evidence that the injections performed upgradient are causing degradation to occur downgradient of the biobarrier.

Summary

VOC and perchlorate concentrations near the biobarrier were declining prior to the injections and VOC concentrations within the treatment area are below the MCLs. VOC concentrations

remain above the MCLs at locations downgradient of the treatment area, but daughter products indicative of dechlorination have recently increased in monitoring well 16WW42. Reductions in COC concentrations are expected in the downgradient wells as groundwater flows through the biobarrier. Quarterly RA-O monitoring will be continued in the second year to evaluate the impact of the ISB remedy on VOC and perchlorate concentrations. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RAO monitoring. Future sampling will aid in determining effectiveness of the biobarriers at downgradient wells.

3.1.2 Landfill Biobarrier #2

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-16** to **2-19** as well as in **Table 2-4**. Contaminant trend for monitoring wells 16PM06 and 16WW36 are shown in **Figures 2-20** and **2-21**.

Within Treatment Area

Fluctuations in COC concentrations are observed in upgradient monitoring wells, indicating the plume concentrations entering the biobarrier are not stable. As elevated levels of COCs migrate downgradient, into and through the biobarrier, increases in these compounds may be observed at the upgradient edge of the treatment zone (within the biobarrier). Desorption is likely on-going within the biobarrier, and may contribute to the total COC concentrations observed at the upgradient edge of the treatment zone. Vinyl chloride concentrations increased notably at 16IW03 in 4th quarter, suggesting ideal conditions for reductive dechlorination were recently established in this portion of the biobarrier. As the COCs are treated in the biobarrier and downgradient active zones, the compounds are expected to decrease.

TCE concentrations in monitoring wells within the upgradient portion of the treatment area may show fluctuating levels due to the elevated concentrations near upgradient wells 16PM02 and 16PMW03 migrating into the treatment zone over time. Monitoring well 16IW03 is located in the biobarrier while monitoring well 16PM06 is located within 15 feet of the biobarrier in the downgradient direction. At 16IW03, TCE declined from 13,000 µg/L in July 2020 to 8,800 µg/L in January 2021 while daughter product vinyl chloride increased from 450 µg/L to 3,700 µg/L.TCE was detected at 49,000 µg/L at 16PM06 in January 2021, slightly higher than 44,000 µg/L detected at 16PM06 in March 2020. Meanwhile, TCE and vinyl chloride concentrations at 16MP06 decreased in a similar fashion between October 2020 and January 2021, indicating the reduction in concentrations was likely the result of seasonal fluctuations. The trend graph on **Figure 2-20** for 16PM06 does not indicate any definite correlation between groundwater elevations and COC concentrations. Localized groundwater flow conditions near 16PM06 may be influencing the degree to which the nearby biobarrier is impacting the well and may be the reason decreases in COC concentrations have not been

observed at this location to the degree that would be expected based on its proximity to the treatment zone.

Perchlorate was detected above the PCL at monitoring well 16PM03 in the Quarter 4 RA-O event; perchlorate decreased slightly from 400 µg/L in March 2020 to 330 J µg/L in January 2021.

Outside Treatment Area

To evaluate the groundwater coming into the treatment area, two wells 16PM02 and 16PM03 are located upgradient. During the fourth quarter sampling event TCE concentrations at 16PM02 and 16PM03 remained elevated at 23,000 ug/L and at 9,800 ug/L, respectively. The elevated concentrations upgradient will continue to migrate into the biobarrier and may cause fluctuating concentrations in the treatment area. At downgradient well 16WW36, TCE decreased from 22,000 µg/L in October 2018 to 1,500 µg/L in January 2021. The trend graph for 16WW36 on **Figure 2-21** does not indicate any definite correlation between groundwater elevations and COC concentrations.

TCE concentrations continue to remain well above the MCL at other wells (16PM09, 16PM14, and 16WW16). However, the presence of daughter products like cis-1,2-DCE and VC and general decreasing trends in the TCE to DCE ratio over the course of Year 1 at several wells indicates that dechlorination is occurring downgradient of the biobarrier.

Summary

While the data indicate that TCE and perchlorate degradation is occurring, the ISB remedy is not reducing concentrations at the rate expected in the vicinity of Landfill Biobarrier #2. COCs remain above the MCLs downgradient of the biobarrier, though evidence of influence from the biobarrier is present at some downgradient locations in the form of decreasing TCE to DCE ratios and recent declines in TCE concentrations from Quarter 3 to Quarter 4. Quarterly RA-O monitoring will be continued in the second year to evaluate the impact of the ISB remedy on VOC and perchlorate concentrations. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RAO monitoring. However, to reduce the high concentrations of COCs in less time, this area may require future biobarrier injections or optimizations including a larger network of injection wells to distribute additional carbon throughout this area. Future sampling will be required to determine the effectiveness of this biobarrier.

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3.1.3 Landfill Biobarrier #3

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-22** through **2-25** as well as in **Table 2-5**.

Within Treatment Area

At monitoring well 16IW10, which lies within the treatment area, TCE decreased from 200 µg/L in March 2020 to 31 µg/L in January 2021. Perchlorate concentrations remained below the PCL at 16IW10. The decrease in COCs within the treatment area indicates that the ISB biobarrier is reducing contaminant concentrations as expected. The contaminant trend chart for monitoring well 16IW10 on **Figure 2-26**, does not show any definite correlation between groundwater elevations and COC concentrations.

Outside Treatment Area

To evaluate the groundwater coming into the treatment area, two wells 16RW06 and 16RW07 are located upgradient. During the fourth quarter sampling event TCE concentrations at 16RW06 and 16RW07 remained elevated at 95 ug/L and 2,000 ug/L, respectively. The elevated concentrations upgradient will continue to migrate into the biobarrier and are expected to be reduced in the biobarrier. TCE concentrations in downgradient wells, 16RW09 and 16RW10, showed fluctuating concentrations, with TCE at 690 and 5,300 µg/L in January 2021, respectively. The contaminant trend chart for monitoring well 16RW10 on **Figure 2-27** shows that the fluctuation in TCE concentrations may be correlated to the fluctuations in groundwater elevations. Perchlorate was detected above the PCL at monitoring wells 16RW10 and 16WW55. At 16RW10, perchlorate decreased from 150 µg/L in March 2020 to below the PCL in October 2020 and increased to 125 J µg/L (above the PCL) in February 2021. The TCE concentrations declined from Quarter 1 to Quarter 4 in downgradient locations 16RW09 and 16WW55, and the TCE to DCE ratios declined at downgradient locations 16RW09, 16RW10, and 16WW55. While the TCE remains above the MCL at all three downgradient wells, the declining TCE to DCE ratios at all three wells and decrease in the TCE concentrations in two of the three wells suggest that the biobarrier is causing dechlorination to occur downgradient of the barrier.

Summary

The ISB remedy is effectively reducing COC concentrations within the treatment area. COCs remain above the MCL/PCL both upgradient and downgradient of the barrier, but dechlorination is occurring within and downgradient of the barrier. Further reduction in concentrations is expected in the downgradient wells as groundwater flows through the biobarrier and clean groundwater migrates downgradient. Quarterly RA-O monitoring will be continued in the second year to evaluate the impact of the ISB remedy on VOC and perchlorate

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concentrations. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RAO monitoring.

3.1.4 Bayou Biobarrier

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-28** to **2-31** as well as in **Table 2-6**.

Within Treatment Area

TCE concentrations decreased significantly within the treatment area at monitoring well 16IW20, from 850 µg/L in March 2020 to 13 µg/L in January 2021. The TCE concentration decreased within the treatment area at monitoring well 16RW11, from 20 µg/L in March 2020 to below the MCL in October 2020 and remained below the MCL in February 2021. Contaminant trend charts for monitoring wells 16RW11 and 16IW20 are shown on **Figures 2-32** and **2-33**. The data does not show any definite correlation between groundwater elevations and COC concentrations. Perchlorate remained below the PCL for all four quarters.

Outside Treatment Area

As seen at the other biobarriers, to evaluate the groundwater coming into the treatment area, upgradient wells are sampled. At the Bayou Biobarrier four wells 16WW39, 16WW12, 16WW22, and 16RW41 are located upgradient. During the fourth quarter sampling event TCE concentrations upgradient ranged from 30 ug/L at 16WW22 to 1,400 ug/L at 16WW41. The elevated levels upgradient will migrate into the biobarrier and are expected to be reduced in the biobarrier. At upgradient well 16WW39, TCE was detected at 3,900 µg/L in 2018 and decreased to 300 µg/L in February 2021 (**Table 3-1**). TCE at 16WW12 decreased from 4,100 µg/L in the 2018 pre-remedy sampling to 1,100 µg/L in Quarter 4, while the cis-1,2-DCE concentration remained relatively stable over the same timeframe. Perchlorate was detected above the PCL at one upgradient well and one cross-gradient well (16WW39 and 16WW12, respectively). Perchlorate at 16WW39 decreased from 120 µg/L in October 2018 to below the PCL at 3.64 J µg/L in February 2021 post-injections; while perchlorate concentrations at 16WW12 decreased but remained slightly above the PCL at 24.1 J µg/L in February 2021. VOCs and perchlorate concentrations remain above the MCL/PCL upgradient and downgradient of the treatment area. Due to the generally east-southeast groundwater flow direction, the only true downgradient well in the current monitoring network is 16WW40. Groundwater is flowing generally parallel to the southern portion of the biobarrier based on the Quarters 2, 3, and 4 potentiometric surface maps. Well 16WW12 is close to the barrier and generally cross-gradient, but may be seeing some level of influence from the dispersion of the upgradient areas of the southern portion of the barrier. At downgradient well 16WW40,

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TCE showed an increase in concentration from 660 µg/L in October 2018 to 1,500 µg/L in February 2021.

Summary

The ISB remedy is effectively reducing COC concentrations within the treatment area and may be affecting concentrations upgradient of the treatment area. COC concentrations increased downgradient of the treatment area at 16WW40 which suggest that there are elevated concentrations migrating from upgradient, which may be from the north as shown by the updated potentiometric maps. A decrease in COCs was observed at 16WW12 that is cross-/downgradient and closer to the barrier. There is evidence of dechlorination occurring downgradient of the barrier, but the potentiometric surface data suggests that the barrier may not be effectively cutting off shallow zone contamination in the vicinity of 16WW48 from reaching the bayou. COC concentrations are above the MCL/PCL, but are expected to decrease in the downgradient wells as groundwater flows through the biobarrier, in locations where the flow is crossing the barrier. Quarterly RA-O monitoring will be continued in the second year to evaluate the impact of the ISB remedy on VOC and perchlorate concentrations. As discussed in **Section 1.3**, a shallow saturated zone that would correlate to the shallow groundwater zone on the west side of Harrison Bayou was not detected in monitoring wells 16WW57 and 16WW58. Therefore, the Bayou Biobarrier is likely to only influence the shallow zone between the biobarrier and the bayou.

3.1.5 Mid-Plume Area (Shallow)

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-34** to **2-37** as well as in **Table 2-7**.

Within Treatment Area

At monitoring well 16EW03, TCE was detected at 44,900 µg/L in February 2010 and decreased to 24,000 µg/L in February 2018, then decreased to 290 µg/L post-injections in February 2021. This data suggests that the ISB treatment is reducing COC levels at some locations in the treatment area. TCE concentrations have fluctuated widely at 16EW04; TCE increased from 758 µg/L in 2010 to 40,200 µg/L in February 2016 and decreased to 900 µg/L in February 2019 and later increased to 17,000 µg/L in February 2021. Perchlorate at 16EW01 increased from 28 µg/L in March 2020 to 180 J µg/L in January 2021. The contaminant trend chart for monitoring well 16EW02 shown on **Figure 2-38**, does not show any definite correlation between groundwater elevations and COC concentrations. While 16EW01 is shown as a treatment zone well, it should be noted that the well is located cross-gradient to the northern edge of the treatment area. The reduction in the TCE to DCE ratio is an indication that dechlorination is occurring there.

Outside Treatment Area

TCE concentrations at downgradient well 16WW30 increased from below the MCL to above the MCL at 360 µg/L in September 2019, prior to the remedy, and then reduced to below the MCL in January 2021. This data suggest that treated groundwater is moving downgradient and reducing COCs. However, TCE at 16WW48 has increased significantly between Quarter 1 and Quarter 4, likely due to a combination of the cessation of groundwater extraction and fringe effects from the treatment zone mobilizing COCs. However, the TCE to DCE ration decreased significantly over the same period indicating the dechlorination is also occurring downgradient of the treatment area. Perchlorate was detected above the PCL at 16EW01 and 16WW48 in January 2021. Perchlorate concentration at 16WW48 remained about the same at 120 µg/L in March 2020 and 122 µg/L in January 2021. The contaminant trend chart for monitoring well 16WW30 shown on **Figure 2-39**. does not show any definite correlation between groundwater elevations and COC concentrations. COCs remain well above the MCL/PCL at locations within and downgradient of the treatment area, but the declining TCE and perchlorate concentrations and the decrease in the TCE to DCE ratios indicate that dechlorination is occurring within and downgradient as a result of the treatment.

Summary

The impact of the ISB remedy is limited in the Mid-Plume Area shallow zone. In most wells in the treatment area, COCs have increased which suggest that elevated concentrations upgradient are migrating into this area. The presence of cis-1,2-DCE and VC indicate that biodegradation is likely occurring, but concentrations have fluctuated widely in some wells and the overall trends in the treatment area are unclear. COCs remain above the MCL/PCL within and downgradient of the treatment area. Quarterly RA-O monitoring will be continued in the second year to monitor reduction in COC concentrations and see if statistically significant trends develop. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to the groundwater flow directions observed during the Year 1 RAO monitoring. However, if concentrations continue to increase, additional carbon may needed, and injected at closer spacing to ensure COCs are reducing across the treatment area.

3.1.6 Mid-Plume Area (Intermediate)

COC concentrations for the first year RA-O sampling events are provided on **Figures 2-40** to **2-43** as well as in **Table 2-8**.

Within Treatment Area

At monitoring well 16EW08, TCE decreased from 170 µg/L in February 2019 to below the MCL at 3.1 µg/L in February 2021. Samples collected from monitoring wells 16EW06 and

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16EW07 required a dilution by the laboratory due to residual EVO in the wells and the dilution resulted in reporting limits for TCE that exceeded the MCL. Perchlorate was detected above the PCL at 16EW06 at 42 µg/L in September 2019 and decreased to below the PCL post-injections. The data collected from wells within the treatment area suggest that COCs are being reduced in this area as designed. The contaminant trend chart for monitoring well 16EW06 is shown on **Figure 2-44**.

Outside Treatment Area

At downgradient monitoring well 16WW49, TCE decreased from 260 µg/L in March 2020 to below the MCL in October 2020 and remained below the MCL in January 2021, while DCE decreased from 270 µg/L in Quarter 1 to 120 µg/L in Quarter 4. The data from 16WW49, indicates that the treatment area is reducing COCs downgradient as expected. The contaminant trend chart for monitoring well 16WW49 is shown on **Figure 2-45**. Downgradient well 16WW51 showed an increase in TCE from 90 µg/L in September 2019 to 1,700 µg/L in Quarter 3, before decreasing to 1000 µg/L in Quarter 4. The cis-1,2-DCE concentration increased and the TCE to DCE ratio decreased significantly in Quarter 4, indicating that the effects of dechlorination from the ISB remedy are becoming apparent at 16WW51. Perchlorate was below the PCL at all wells in the Mid-Plume Area in the intermediate zone.

Summary

The ISB remedy is effectively reducing COC concentrations in the Mid-Plume Area intermediate zone. COC concentrations are above the MCL within and downgradient of the barrier, but are expected to continue decreasing in the downgradient wells as groundwater flows through the barrier. The presence of cis-1,2-DCE and VC indicate that biodegradation is likely occurring. Concentrations of COCs remain below the MCL/PCL at downgradient locations 16WW29 and 16EW08. Quarterly RA-O monitoring will be continued in the second year to evaluate the impact of the ISB remedy on VOC and perchlorate concentrations. The injection locations and monitoring locations appear to be placed well to address the contamination in this area relative to decreases in COCs and the groundwater flow directions observed during the Year 1 RAO monitoring.

3.1.7 Plume Stability

COC plume maps completed for each of the first year RA-O sampling events in the shallow and intermediate zones are presented on **Figures 3-1** through **3-8**. The ISB remedy at LHAAP-16 is not designed or expected to reduce the overall size of the plume immediately. Additionally, as mentioned in **Section 3.0**, wells located in the treatment zone that are not in the same groundwater zone as the ISB treatment, as well as locations that are upgradient/downgradient/crossgradient and outside the influence of the treatment area, are not expected to show significant changes in COC concentrations within the first few quarters of

post-remedy sampling. However, discussion of these wells has been included in this section because it is an evaluation of the whole plume and are shown on the plume maps for completeness.

A COC plume map for the shallow zone is presented on **Figure 3-1** through **3-4** for Quarters 1 through 4. TCE and perchlorate are the most widespread COCs in the shallow groundwater. The COC data over the monitoring period indicate that the plumes are showing overall stable conditions. The lack of complete delineation of the downgradient extent of the plume prevents evaluation of potential downgradient migration or expansion of the plume.

In the shallow zone, the shapes of both the TCE and perchlorate plumes are oblong, elongated along the easterly/southeasterly groundwater flow path. The shallow plumes are shown with a dashed boundary along Harrison Bayou due to uncertainty in the nature of the connection (if any) between the shallow zone and Harrison Bayou, and the absence of a shallow saturated zone in wells 16WW57 and 16WW58 located to the east of Harrison Bayou, as explained in **Section 1.3**. It is unlikely that shallow zone contamination extends across the bayou due to the lack of a shallow saturated zone to the east of the bayou. The groundwater contaminants follow the pattern of groundwater flow to the east and southeast. The TCE and perchlorate plumes in March 2020 (Quarter 1) resemble the shape of the plumes in July 2020 (Quarter 2), October 2020 (Quarter 3), and January/February 2021 (Quarter 4). The TCE plume is slightly smaller in Quarters 2, 3, and 4 compared to Quarter 1. In the shallow zone, high TCE concentrations were observed in the vicinity of Landfill Biobarrier #2, and the Mid-Plume Area. Monitoring wells 16IW03, 16PM02, 16PM03, 16WW16, 16PM06, 16WW36, 16EW01, 16EW02, and 16EW04 show high TCE concentrations. However, concentrations remain within the historical range. Additionally, the increase in concentration of daughter products indicates that reductive dechlorination is occurring. The perchlorate plume decreased in size in Quarters 2, 3, and 4, when compared to Quarter 1. The highest perchlorate concentrations were observed in the vicinity of Landfill Biobarrier #2. Monitoring wells 16PM03 and 16WW16 showed high perchlorate concentrations with the highest concentration detected at 16WW16 at 510 µg/L in the Quarter 1 RA-O event. Perchlorate concentrations showed decrease in concentrations but remained above the PCL in Quarter 4 at 16PM03 and 16WW16. Perchlorate was detected at 1,050 µg/L in 2012 at monitoring well 16EW01 in the Mid-Plume Area, which has since decreased to 180 J µg/L in January 2021.

A COC plume map for the intermediate zone is presented on **Figure 3-5** through **3-8** for Quarters 1 through 4. In the intermediate zone, TCE and perchlorate are the most widespread COCs. Monitoring wells 16WW57 and 16WW58 could not be accessed/sampled in Quarter 1 due to wet conditions and fallen trees. TCE was detected above the MCL across the Harrison Bayou at 16WW57 and 16WW58. TCE was detected at 3,400 µg/L at 16WW58 in Quarter 2 and decreased to 2,700 µg/L in Quarter 4. While reductions in the TCE concentration at

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16WW58 are a positive indication, the lack of complete delineation of the downgradient extent prevents evaluation of the potential for downgradient expansion or migration. The relationship between the shallow and intermediate zones in the vicinity of Harrison Bayou is unknown, and the nature of the groundwater flow regime to the east of the bayou is uncertain. High TCE concentrations were detected downgradient of Landfill Biobarrier #2 at 16WW35 and upgradient of Bayou Biobarrier at 16WW41. TCE was detected at 11,000 µg/L and 6,400 µg/L at 16WW35 and 16WW41, respectively, during the Quarter 1 RA-O event. The highest perchlorate concentrations were also detected around these two wells (16WW35 and 16WW41) at 560 and 310 µg/L, respectively, during the Quarter 1 RA-O event. Perchlorate concentrations decreased to below the PCL in all the wells in the intermediate zone in Quarter 4.

Overall, the COC data suggest that the TCE plume is showing overall stable conditions and is not expanding where data exists to evaluate the extent. The effects of the ISB remedy are identifiable as increased evidence of dechlorination in downgradient wells from all treatment areas, but continued monitoring is necessary to determine if it will be sufficient to achieve the performance objective of reducing concentrations to below the cleanup values. The Bayou Biobarrier does not appear to be intercepting contamination migrating from the vicinity of 16WW48 towards the bayou under the potentiometric conditions observed during most of the Year 1 sampling events. Perchlorate concentrations above the PCL have been eliminated in the intermediate zone as of Quarter 4. Quarterly RA-O monitoring will continue for the second year to evaluate the effects of the ISB remedy in the treatment areas and surrounding wells.

3.2 Second Line of Evidence: Geochemical Indicators

Table 2-2 identifies the wells that were chosen to be evaluated for MNA performance parameters. The field parameters for LHAAP-16 wells include DO, ORP, pH, conductivity, turbidity, and temperature. MNA parameters (alkalinity, nitrate, sulfate, dissolved gases, bromide, and total organic carbon [TOC]) were sampled for a subset of wells. In accordance with Section 4.7 of the RAWP (Bhate 2018a), the geochemical indicators ORP and TOC within the treatment areas will be evaluated to determine if or when reinjections may be necessary. ORP values less than 50 millivolts (mV) are indicative that anaerobic conditions are present and favorable for the biological reduction of perchlorate, chlorinated ethenes, and ethanes in a monitored natural attenuation setting (USEPA 1998). However, lower values for ORP are preferable in enhanced bioremediation settings to promote complete reductive dechlorination, and the RAWP (Bhate 2018a) selected < -50mV as the performance objective for ORP in treatment areas. Comparison of the ORP and TOC to the performance goals of ORP < 50mV and TOC > 20 mg/L, as well as concentration trends in the downgradient wells will guide the decision to reinject additional carbon source. The second line of evidence for each treatment area is discussed below.

3.2.1 Landfill Biobarrier #1

Three of the nine wells were analyzed for MNA parameters while six wells were sampled for bromide and TOC (**Table 2-1**). Two of the three wells analyzed for MNA parameters and five of the wells analyzed for bromide and TOC were in locations suitable to monitor the performance of the ISB remedy; while 16WW25, sampled for MNA, bromide, and TOC, is located in the intermediate zone, where the biobarrier is not expected to have any influence.

Dissolved Oxygen

DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA 1998). Anaerobic bacteria generally cannot function at DO concentrations greater than approximately 0.5 milligram per liter (mg/L), and biotic reductive dechlorination is not expected to occur at DO levels above that threshold. DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-3** and range between 0.52 and 2.94 mg/L. The third quarterly RA-O monitoring event showed significantly lower DO levels ranging between 0.04 and 0.71 mg/L. Low DO levels below 0.5 mg/L were also observed in several of the wells in the first and second quarterly RA-O events. Based on the DO readings, the DO levels decreased post-injections showing favorable conditions for reductive dechlorination in Quarters 1, 2, and 3. However, the Quarter 4 RA-O event shows that DO levels may not be conducive to reductive dechlorination in the vicinity of Landfill Biobarrier #1. RA-O monitoring will be continued to determine if the recent increases in the DO readings are a sustained trend or represent a temporary fluctuation.

Oxidation-Reduction Potential

The ORP levels indicate the oxidative or reductive potential in the aquifer matrix and provide real-time data showing if conditions are conducive for anaerobic biodegradation. During the fourth quarterly RA-O event, the ORP ranged between -3.6 to 215.1 mV, with ORP readings below 50 mV at one of the seven wells (16RW04). The ORP level observed at 16IW09, located in the treatment area was 53.2 mV in January 2021, which is above the RAWP criteria of -50 mV necessary to ensure the biobarrier is working properly. The ORP values indicate that oxidative conditions are present in most wells, which is not favorable for reductive dechlorination.

Nitrate

After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of perchlorate and chlorinated ethenes via denitrification. Nitrate levels above 1 mg/L may compete with the reductive pathway (USEPA 1998). The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, which is indicative of denitrification.

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Sulfate

After DO and nitrate have been depleted in the groundwater, sulfate may be used as an electron acceptor for anaerobic biodegradation. This process is termed "sulfate reduction" and results in the production of sulfide. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA 1998). **Table 2-3** indicates that the sulfate concentrations were above 20 mg/L at one of two shallow zone wells sampled for sulfate during the first year RA-O sampling event and may compete as an electron acceptor with perchlorate. However, sulfate concentrations are reducing over time, indicating sulfate reducing conditions exist and the observed sulfate will be addressed via the biodegradation process.

Total Organic Carbon

Regardless of the electron acceptor being used, organic carbon is a required source of reduced hydrogen and energy needed to sustain microbial degradation of contaminants. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity (USEPA 1998). TOC concentrations were measured in select wells during the fourth RA-O event and found to range between 1.65 and 787 mg/L. The TOC level observed at 16IW09, located in the treatment area, was 787 mg/L in January 2021, and is expected to provide sufficient carbon for reductive dechlorination. One other well 16RW05, also showed TOC concentrations above 20 mg/L. Wells such as 16WW26 are far enough from the biobarrier injection locations that significant increases in TOC were not expected there. The COC data indicate that carbon concentrations, which are required, within and close to the biobarrier have been supportive of reductive dechlorination and that a residual mass of carbon remains present within in the biobarrier at 16IW09 to support bacterial populations.

Alkalinity

Alkalinity levels, measured as $CaCO_3$, in the groundwater monitoring wells ranged between 15.2 and 610 mg/L during the fourth quarterly RA-O event. 16IW09, located within the biobarrier, showed a high alkalinity measurement of 610 mg/L, versus 15.2 mg/L measured in 16WW26, well downgradient of the biobarrier. The higher alkalinity measurement suggests the presence of increased microbial activity within and adjacent to the biobarrier.

pH

The pH of groundwater has an effect on the presence and activity of microbial populations in groundwater. Microbes capable of degrading chlorinated aliphatic hydrocarbons and petroleum hydrocarbon compounds generally prefer pH values varying from 6 to 8 standard units (USEPA 1998). During the fourth quarterly RA-O event, the pH ranged from 5.25 to 7.25 standard units with two out of seven wells showing pH in the optimal range, while the

remaining five wells showed a pH slightly below 6 standard units. The sub-optimal pH levels in some wells may be marginal for microbial populations but will not necessarily prevent biological degradation from occurring.

Ethane and Ethene

Ethane and ethene, the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes, were detected at very low concentrations indicating that complete degradation of chlorinated ethenes is not occurring.

Methane

Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (USEPA 1998). Methane was measured in selected wells for MNA evaluation and ranged from 2.5 µg/L to 5,200 µg/L in the fourth quarterly RA-O event. Methane concentrations indicate highly reducing conditions in the treatment area (16IW09) while methane was below 500 µg/L downgradient of the treatment area at monitoring wells 16WW25 and 16WW26.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event in Landfill Biobarrier #1 at LHAAP-16 indicates that current geochemical conditions (TOC, pH, methane, and alkalinity) in the treatment area remain favorable for the biological reduction of VOCs and perchlorate. TOC exceeds the performance objective of 20 mg/L within the biobarrier and at downgradient location 16RW05, while the ORP does not meet the performance objective of less than -50 mV within or downgradient of the barrier during the Quarter 4 sampling event. The ORP values met the objective in Quarters 1 through 3 at 16RW05 before increasing to slightly above the objective in Quarter 4. There is abundant carbon present within the biobarrier, and it remains to be seen whether the Quarter 4 ORP values represent temporary fluctuations or sustained trends. Based on the ORP and TOC values meeting the performance objectives in one or more locations within or downgradient of the injection area, no reinjection is recommended based on the Year 1 monitoring data. Additional monitoring will determine if a seasonal effect is responsible for the change in geochemical conditions. Quarterly RA-O monitoring will continue to be conducted in Year 2 to determine if conditions are conducive for biological degradation.

3.2.2 Landfill Biobarrier #2

Four of the nine wells were sampled for MNA parameters, and seven wells were sampled for bromide and TOC as shown in **Table 2-2**. Two of the four wells analyzed for MNA parameters and four of the wells analyzed for bromide and TOC were in locations suitable to monitor the performance of the ISB remedy. Wells 16WW16 and 16WW35, sampled for MNA, bromide,

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and TOC, are located upgradient of the barrier or within the intermediate zone, respectively, where the biobarrier is not expected to have any influence.

Dissolved Oxygen

DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-4**. DO levels in the treatment area ranged between 0.03 and 1.38 mg/L while DO levels outside the treatment area ranged between 0.08 and 2.77 mg/L. The third quarterly RA-O monitoring event showed significantly lower DO levels, with DO levels measuring less than 0.5 mg/L at all monitoring wells in the vicinity of Landfill Biobarrier #2. Based on the DO readings, the DO levels decreased post-injections showing favorable conditions for reductive dechlorination in Quarter 3. However, the Quarter 4 RA-O event shows that DO levels are not conducive to reductive dechlorination in a majority of the wells in the treatment area and outside the treatment area. Quarterly RA-O monitoring will be continued in Year 2 to determine if the increased DO Readings from Year 1 Quarter 4 represent a sustained trend or a temporary fluctuation.

Oxidation-Reduction Potential

During the fourth quarterly RA-O event, the ORP was detected at -108 and 49.9 mV at 16PM06 and 16IW03, respectively, within the treatment area, indicating that reducing conditions are present in some areas within the treatment area which allow for reductive dechlorination of VOCs and perchlorate. Outside the treatment area, ORP levels were detected above -50 mV in all seven wells which is expected in wells not within or downgradient of the biobarrier.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (USEPA 1998). The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, indicating that nitrate will not inhibit the anaerobic degradation.

Sulfate

Table 2-4 indicates that the sulfate concentrations were below 20 mg/L in the treatment area and above 20 mg/L outside the treatment area at 16WW16, 16WW35 and 16WW36, ranging from 180 to 7,880 mg/L during the fourth quarterly RA-O sampling event. Elevated sulfate levels may compete as an electron acceptor with perchlorate and VOCs. Sulfate concentration at 16WW36has dropped from 3,330 mg/L in July 2020 to 180 mg/L in January 2021, indicating that the competition from sulfate is decreasing over time. However, sulfate concentrations at 16WW16 (upgradient) and 16WW35 (intermediate zone) seem to show an increasing trend.

Total Organic Carbon

TOC concentrations were measured in select wells during the Quarter 4 RA-O event and found to range between less than 1 to 8.53 mg/L. TOC ranged between 4.07 and 27.8 mg/L outside the treatment area. At 16IW03, located within the treatment area, TOC levels increased to 1,190 mg/L in Quarter 3 (October 2020) and then decreased to below the detection limit of 1 mg/L during Quarter 4 (January 2021). Future monitoring will determine whether the decline in TOC at 16IW03 from Quarter 3 to Quarter 4 was an anomaly.

Alkalinity

Alkalinity levels in the groundwater monitoring wells ranged between 465 and 1,390 mg/L during the fourth quarterly RA-O event. The well within the treatment area, 16IW03 showed the highest alkalinity measurement of 1,390 mg/L. The higher alkalinity measurement suggests the presence of increased microbial activity in the treatment area.

pH

During the fourth quarterly RA-O event, the pH ranged from 5.33 to 6.72 standard units with five out of nine wells showing pH in the optimal range while the remaining four wells showed a pH slightly below 6 standard units.

Ethane and Ethene

Ethane and ethene, the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes, were detected at very low concentrations. Ethene in the fourth quarterly RA-O event ranged from 0.81 J to 500 µg/L; the well in the treatment area (16IW03) showed the highest concentration of 500 µg/L. Ethane in the fourth quarterly event ranged from non-detect to 2.7 µg/L; the well in the treatment area (16IW03) showed the highest concentration of 2.7 µg/L. These results indicate that complete dechlorination is occurring within the treatment area, however, it is not yet occurring downgradient of the treatment area.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 240 to 610 µg/L in the fourth quarterly RA-O event. Methane concentrations indicate reducing conditions in the treatment area at well 16IW03.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event at LHAAP-16 indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate within the treatment area closest to the biobarrier, as anticipated during the first year of monitoring. The fluctuating concentrations of TCE and cis-1,2-DCE at 16IW03 suggest that the upgradient elevated concentrations are migrating into the biobarrier and the increases in VC and ethene provide evidence that complete reductive

dechlorination is occurring. Based on the ORP values meeting the performance objectives in one or more locations within or downgradient of the injection area, and what may be a temporary decline in the TOC values within the biobarrier, no reinjection is recommended based on the Year 1 monitoring data. Certain parameters observed in a few locations may indicate that conditions could favor biological natural attenuation, such as high alkalinity and optimal pH. Additionally, the presence of degradation products, cis-1,2-DCE and VC, suggests that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations outside of the treatment area are likely to be abiotic, including dilution, dispersion, sorption, and volatilization.

3.2.3 Landfill Biobarrier #3

Two of the seven wells were sampled for MNA parameters, and four wells were sampled for bromide and TOC as shown in **Table 2-2**. One of the two wells analyzed for MNA parameters and three of the four wells analyzed for bromide and TOC were in locations suitable to monitor the performance of the ISB remedy; while 16WW55, was sufficiently downgradient that the biobarrier is not expected to have any influence within the first year.

Dissolved Oxygen

DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-5** and range between 0.09 and 1.1 mg/L, with an average of 0.57 mg/L and low DO levels (< 0.5 mg/L) observed at two of the seven wells. The third quarterly RA-O monitoring event showed significantly lower DO levels ranging between 0.04 and 0.56 mg/L with an average of 0.34 mg/L. The DO levels have decreased post-injections showing favorable conditions for reductive dechlorination in Quarter 3. However, the Quarter 4 RA-O event shows that DO levels are not conducive to reductive dechlorination in the vicinity of Landfill Biobarrier #3. Quarterly RA-O monitoring will be continued in Year 2 to determine if the increase in the DO readings is a sustained trend or represents a temporary fluctuation.

Oxidation-Reduction Potential

During the fourth quarterly RA-O event, the ORP ranged between -30 and 153.5 mV, with all ORP readings above the -50 mV performance objective. However, ORP levels were below 50 mV at two of the seven wells (16RW09 and 16RW10), suggesting the groundwater conditions are acceptable for the reduction of chlorinated ethenes and perchlorate. The increase in ORP observed during Quarter 4 will continue to be evaluated to determine if the elevated levels continue and if future optimization is required. Oxidative groundwater conditions are present in five of the remaining wells which are downgradient of the biowall and were not expected to see direct effects of the carbon injection yet.

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Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (USEPA 1998). The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, except for one sampling event at 16WW55 in March 2020 at 1.21 mg/L. These data indicate that nitrate will not inhibit the anaerobic degradation.

Sulfate

Table 2-5 indicates that the sulfate concentrations were above 20 mg/L at one of the two wells sampled for sulfate during the fourth quarterly RA-O sampling event and ranged from 6.59 and 1,020 mg/L. Sulfate levels were elevated in one downgradient well 16WW55 and may compete as an electron acceptor with perchlorate and VOCs. 16WW55 is located outside the influence of the treatment area and sulfate concentrations are not expected to reduce at this well.

Total Organic Carbon

TOC concentrations were measured in select wells during the fourth RA-O event and found to range between 2.28 and 836 mg/L. The well in the treatment area (16IW10) showed high TOC concentrations (836 mg/L) indicating that carbon concentrations are supportive of reductive dechlorination in the treatment area.

Alkalinity

Alkalinity levels in the groundwater monitoring wells ranged between 325 and 1,320 mg/L during the fourth quarterly RA-O event. The well within the treatment area, 16IW10 showed the highest alkalinity measurement of 1,320 mg/L. The higher alkalinity measurement suggests the presence of increased microbial activity in the treatment area.

pH

During the fourth quarterly RA-O event, the pH ranged from 5.65 to 6.67 standard units with six out of seven wells showing pH in the optimal range indicating conducive conditions for biodegradation.

Ethane and Ethene

Ethane and ethene, the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes, were detected at very low concentrations indicating that complete dechlorination is not occurring in the vicinity of Landfill Biobarrier #3.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 63 to 1,200 µg/L in the fourth quarterly RA-O event. Methane was detected at 1,200 µg/L at monitoring well 16IW10 indicating highly reducing conditions within the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event in at LHAAP-16 indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate within the treatment area. At well 16IW10, TOC exceeds the performance criteria within the treatment area, and the ORP was below the -50 mV performance objective in the third quarter, but rose above the objective in Quarter 4. Also, in nearby downgradient wells the ORP levels continued to be below 50 mV. Based on the TOC values meeting the performance objectives and ORP levels that were below the performance objective until Quarter 4 in one or more locations within or downgradient of the injection area, no reinjection is recommended based on the Year 1 monitoring data. Conditions are less conducive to biological degradation upgradient and downgradient of the treatment area. Nonetheless, certain parameters observed in a few locations may indicate conditions that could favor biological natural attenuation, such as high alkalinity and optimal pH. Additionally, the presence of degradation products, cis-1,2-DCE and VC suggests that limited biological degradation is occurring and the declining TCE to DCE ratio suggests dechlorination is occurring; however, the primary MNA processes reducing concentrations downgradient of the biobarrier treatment zone are likely to be abiotic, including dilution, dispersion, sorption, and volatilization.

3.2.4 Bayou Biobarrier

Four of the nine wells were sampled for MNA parameters and eight wells were sampled for bromide and TOC as shown in **Table 2-2**. Two of the four wells analyzed for MNA parameters and five of the wells analyzed for bromide and TOC were in locations suitable to monitor the performance of the ISB remedy. Wells 16WW41 and 16WW21 were located upgradient, and 16WW56, located cross-gradient to the treatment area, respectively, are not expected to have any influence from the biobarrier.

Dissolved Oxygen

DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-6** and range between 0.04 and 0.5 mg/L in the treatment area. Outside of the treatment area, DO levels ranged between 0.3 and 0.78 mg/L. Low DO levels were observed in majority of the wells indicating conditions are favorable for reductive dechlorination.

Oxidation-Reduction Potential

During the fourth quarterly RA-O event, the ORP ranged between -220 and -41.2 mV in the treatment area. Well 16IW20 is located in the treatment area the ORP level continues to be near the -50 mV criteria at -41.2 mV during the Quarter 4 sampling event. This data indicates that the groundwater in the biowall is reducing and favorable for reductive dechlorination. Outside of the treatment area, the ORP ranged between -152 and 204.7 mV. ORP values are

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also declining and have nearly reached the performance objective at 16WW12, which is close to the barrier and parallel to the groundwater flow direction. ORP readings below 50 mV indicate acceptable reducing conditions are present in a majority of the wells in the vicinity of the Bayou Biobarrier and highly reducing (< -200 mV) ORP values indicate that conditions ideal for complete reductive dechlorination are present at some locations.

Nitrate

Nitrate levels above 1 mg/L may compete with the reductive pathway (USEPA 1998). The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, indicating that nitrate will not inhibit the anaerobic degradation.

Sulfate

Table 2-6 indicates that the sulfate concentrations were slightly above 20 mg/L at 16IW20 in the treatment area during the fourth quarterly RA-O sampling event. Outside the treatment area, sulfate ranged from 307 to 9,300 mg/L. Sulfate levels may compete as an electron acceptor with perchlorate and VOCs.

Total Organic Carbon

TOC concentrations were measured in select wells during the fourth RA-O event and was detected at 20.1 mg/L in the treatment area at 16IW20, indicating that there is sufficient carbon for continued reductive dechlorination in the biowall. TOC was also detected above 20 mg/L in the upgradient intermediate zone well 16WW41, outside the influence of the treatment area. This high TOC could possibly be attributed to the Mid-Plume area treatment in the intermediate zone. TOC greater than 20 mg/L indicates that carbon concentrations are supportive of reductive dechlorination in the treatment area and upgradient of the treatment area in the intermediate zone.

Alkalinity

Alkalinity levels in the groundwater monitoring wells ranged between 188 and 1,110 mg/L during the fourth quarterly RA-O event. The well within the treatment area, 16IW20 showed the highest alkalinity measurement of 1,110 mg/L. High alkalinity was also observed at upgradient intermediate monitoring well 16WW41. The higher alkalinity measurement suggests the presence of increased microbial activity in the treatment area.

pH

During the fourth quarterly RA-O event, the pH ranged from 5.38 to 6.68 standard units, with six out of nine wells showing pH in the optimal range, indicating conducive conditions for biodegradation.

Ethane and Ethene

Ethane concentrations ranged from non-detect to 1.1 µg/L and ethene concentrations ranged from non-detect to 22 µg/L. Low ethene and ethane concentrations indicate that complete dechlorination is not occurring in the vicinity of Bayou Biobarrier.

Methane

Methane was measured in selected wells for MNA evaluation and ranged from 0.91 J to 2,900 µg/L in the fourth quarterly RA-O event. Methane was detected at 2,900 µg/L within the treatment area at monitoring well 16IW20, indicating highly reducing conditions within the treatment area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event in at LHAAP-16 indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate within the treatment area. TOC exceeded the performance objective at 16IW20 within the biobarrier in Quarter 4. ORP values meet the performance objective at numerous wells within and downgradient of the biobarrier. Based on the ORP and TOC values meeting the performance objectives in one or more locations within or downgradient of the injection area, the biobarrier is creating reduced conditions as designed. Conditions are less conducive to biological degradation downgradient of the treatment area. Nonetheless, certain parameters observed in a few locations may indicate conditions that could favor biological natural attenuation, such as high alkalinity and optimal pH. Additionally, the presence of degradation products, cis-1,2-DCE and VC, suggests that limited biological degradation is occurring; however, the primary MNA processes reducing concentrations are abiotic, including dilution, dispersion, sorption, and volatilization.

3.2.5 Mid-Plume Area, Shallow Zone

Three of the six wells were sampled for MNA parameters, and four wells were sampled for bromide and TOC as shown in **Table 2-2**.

Dissolved Oxygen

DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-7** and ranged between 0.03 and 1.78 mg/L, with an average of 0.62 mg/L and low DO levels (< 0.5 mg/L) observed at two of the six wells (16EW03 and 16EW04) in the treatment area. The Quarter 4 RA-O event shows that DO levels are not conducive to reductive dechlorination in the vicinity of Mid-Plume Area. However, the DO was below 0.5 mg/L in all six wells during the Quarter 3 sampling event. Quarterly RA-O monitoring will continue in Year 2 to determine if the increased DO readings in Quarter 4 represent a sustained trend or a temporary fluctuation.

Oxidation-Reduction Potential

During the fourth quarterly RA-O event, the ORP ranged between -189 and 65.6 mV. The ORP readings were below -50 mV at two of the six wells, 16EW03 and 16EW04, , with the lowest value of -189 mV at 16EW03 indicating conditions that are favorable for reductive dechlorination at some locations within the Mid Plume treatment zone.

Nitrate

The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling at all wells except 16EW01 which showed nitrate at 1.46 mg/L in January 2021. The data indicates that nitrate will not inhibit the anaerobic degradation in the aquifer.

Sulfate

Table 2-7 indicates that the sulfate concentrations were above 20 mg/L at all three of the wells sampled for sulfate during the fourth quarterly RA-O sampling event and ranged from 2,380 to 4,270 mg/L. Sulfate levels were elevated in three wells and may compete as an electron acceptor with perchlorate and VOCs.

Total Organic Carbon

TOC concentrations were measured in select wells during the fourth RA-O event and found to range between 1.01 to 19.4 mg/L. TOC concentrations were less than 20 mg/L during the fourth quarterly RA-O event, including within the injection area, indicating that carbon concentrations in the groundwater are not supportive of reductive dechlorination. This data suggest that the injections method did not distribute the carbon effectively.

Alkalinity

Alkalinity levels in the groundwater monitoring wells ranged between 358 and 891 mg/L during the fourth quarterly RA-O event. The higher alkalinity measurement suggests the presence of increased microbial activity in the Mid-Plume Area, shallow zone.

pH

During the fourth quarterly RA-O event, the pH ranged from 5.66 to 6.61 standard units with five out of six wells showing pH in the optimal range, indicating conducive conditions for biodegradation.

Ethane and Ethene

Ethane and ethene, the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes, were detected at very low concentrations indicating that complete dechlorination is not occurring in the vicinity of the Mid-Plume Area in the shallow zone.

Methane

Methane was measured in selected wells for MNA evaluation and all detections were below 500 µg/L, indicating that methanogenic conditions were not observed in the vicinity of the Mid-Plume Area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event in at LHAAP-16 indicates that current geochemical conditions remain favorable for the biological reduction of VOCs and perchlorate. The low levels of TOC below the performance objective of 20 mg/L indicate that microbial populations are likely to have consumed the carbon source injected at least in vicinity of the monitoring locations. The ORP values meet the performance objectives of less than -50 mV at two locations and were below 50 mV in several more locations. Based on the ORP values meeting the performance objectives in one or more locations within or downgradient of the injection area, no reinjection is recommended based on the Year 1 monitoring data. Continued monitoring will determine if the TOC remains below the performance objective, and reinjections may be recommended if the TOC values stay low and the ORP values increase above the performance objective in the future. The decreasing TCE to DCE ratios at several wells, along with increasing DCE concentrations suggest that dechlorination is occurring within and downgradient of the treatment area. However, the primary MNA processes reducing TCE concentrations may be abiotic, including dilution, dispersion, sorption, and volatilization in some areas.

3.2.6 Mid-Plume Area, Intermediate Zone

Two of the seven wells were sampled for MNA parameters, and five wells were sampled for bromide and TOC as shown in **Table 2-2**. Well 16EW05 was only sampled in Quarters 1 and 2 due to residual EVO scrud that formed an obstruction in the well and prevented sampling in Quarters 3 and 4.

Dissolved Oxygen

DO levels in the fourth quarterly RA-O monitoring event are presented in **Table 2-8** and range between 0.06 mg/L and 4.79 mg/L, with an average of 1.06 mg/L, and low DO levels (< 0.5 mg/L) observed at four of the seven wells. The Quarter 4 RA-O event shows that DO levels are conducive to reductive dechlorination in the treatment area in the intermediate zone Mid-Plume Area.

Oxidation-Reduction Potential

During the fourth quarterly RA-O event, the ORP ranged between -257 and 138.3 mV, with ORP readings below -50 mV at four of the six wells (16EW06, 16EW07, 16EW08, and 16WW51), including all of the wells within the treatment area. The ORP value of -257 mV at

16EW07, located in the center of the treatment area, indicates conditions that are favorable for reductive dechlorination.

Nitrate

The nitrate concentrations were below 1.0 mg/L during the first year RA-O sampling, indicating that nitrate will not inhibit the anaerobic degradation.

Sulfate

Table 2-8 indicates that the sulfate concentration detected in 16WW29 was 462 mg/L during the fourth quarterly RA-O sampling event. Sulfate levels may be competing as an electron acceptor with perchlorate and VOCs. However, the concentration has declined from 1,900 mg/L in Quarter 2 and the competition from sulfate may be reducing over time due to the presence of sulfate reducing bacteria.

Total Organic Carbon

TOC concentrations were measured in select wells during the fourth RA-O event and were found to range from non-detect to 445 mg/L. TOC was detected above 20 mg/L at the only well where it was analyzed for within the treatment area(16EW08) at 445 mg/L. At 16EW05, also located in the treatment area, TOC was not sampled during the fourth quarter, however in the third quarter it was detected at 300 mg/L. The data from these two wells suggest that TOC has been distributed in the intermediate zone a sufficient amount of carbon is present to support reductive dechlorination. TOC concentrations were below 20 mg/L at the remaining three wells outside of the treatment area.

Alkalinity

Monitoring well 16WW29 was the only well that was analyzed for alkalinity in the fourth quarterly RA-O event and alkalinity was detected at 26.2 mg/L. The low alkalinity concentrations suggest low microbial activity in the Mid-Plume Area, intermediate zone.

pH

During the fourth quarterly RA-O event, the pH ranged from 5.00 to 6.67 standard units with two out of seven wells (both downgradient of the treatment zone) showing pH in the optimal range, indicating the conditions are not ideal for biodegradation in the treatment area of the Mid-Plume Area, intermediate zone.

Ethane and Ethene

Ethane and ethene, the two end products of the reductive dechlorination pathways for chlorinated ethanes and ethenes, were not detected, indicating that complete dechlorination is not observed in the vicinity of the Mid-Plume Area in the intermediate zone.

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Methane

Methane was measured at 16WW29 for MNA evaluation and detected below 500 µg/L indicating that methanogenic conditions are not present in the vicinity of the Mid-Plume Area.

Geochemical Indicator and MNA Parameter Summary

The qualitative assessment of geochemical indicators during the first annual RA-O event at LHAAP-16 indicates that current geochemical conditions are favorable for the biological reduction of VOCs and perchlorate. The TOC concentrations detected in the treatment zone was well above the performance objective of 20 mg/L and the ORP values meet the objective of less than -50mV within and downgradient of the treatment area. These values indicate that the conditions are favorable for biological degradation in the treatment area. Based on the ORP and TOC values meeting the performance objectives in one or more locations within or downgradient of the injection area, no reinjection is recommended based on the Year 1 monitoring data. The presence of degradation products, cis-1,2-DCE and VC, and decreasing TCE to DCE rations in downgradient wells suggests that biological degradation is occurring.

3.3 Third Line of Evidence: Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive, data from the field or microcosm studies will be necessary to establish the third line of evidence for MNA. Dechlorinating bacteria, Dehalococcoides ethenogenes (DHC), were analyzed at select wells in the treatment areas. DHC populations of 1×10^3 cells per milliliter (cells/mL) are generally favorable for reductive dechlorination, with populations over 1×10^4 cells/mL considered to be ideal. DHC concentrations in each area is discussed in **Sections 3.3.1** through **3.3.6** below.

3.3.1 Landfill Biobarrier #1

Two wells were sampled for DHC as shown in **Table 2-2**.

DHC concentrations in the Landfill Biobarrier #1 area ranged from 2.9 cells/mL to 7.6 cells/mL in the fourth quarterly RA-O event (**Table 2-3**). These low concentrations indicate some amount of microbial activity; however, the populations detected are not enough for complete reductive dechlorination.

3.3.2 Landfill Biobarrier #2

Two wells were sampled for DHC as shown in **Table 2-2**.

DHC concentrations in the Landfill Biobarrier #2 Area ranged from 7.9 to 976 cells/mL in the fourth quarterly RA-O event. High DHC concentration of 976 cells/mL were detected in the treatment area at monitoring well 16IW03. High DHC concentrations were also detected at monitoring well 16WW36 in Quarters 1, 2, and 3 RA-O events ranging from 892 to

1,680 cells/mL, which then decreased to 7.9 cells/mL in the Quarter 4 RA-O event (**Table 2-4**). The higher DHC concentrations indicate the presence of high microbial activity to support the complete reductive dechlorination of chlorinated ethenes.

3.3.3 Landfill Biobarrier #3

Two wells (16IW10 and 16WW55) were sampled for DHC as shown in **Table 2-2**.

DHC was detected at 370,000 cells/mL in the biobarrier at 16IW10 in the fourth quarterly RA-O event (**Table 2-5**). The higher DHC concentrations indicate the presence of high microbial activity to support the complete reductive dechlorination of chlorinated ethenes. DHC was detected at a low concentration of 0.8 mg/L at 16WW55 which is expected since the well is located outside the influence of the treatment area.

3.3.4 Bayou Biobarrier

Two Bayou Biobarrier treatment area performance wells (16IW20 and 16WW22) were sampled for DHC as shown in **Table 2-2**. Additionally, monitoring wells 16WW41 and 16WW56 were also sampled for DHC.

DHC concentrations in the Landfill Biobarrier #3 area ranged from 0.3 J to 2,100 cells/mL in the fourth quarterly RA-O event (**Table 2-6**). High DHC concentration of 2,100 cells/mL were detected in the treatment area at monitoring well 16IW20. The higher DHC concentrations indicate the presence of high microbial activity to support the complete reductive dechlorination of chlorinated ethenes.

3.3.5 Mid-Plume Area, Shallow Zone

Three wells were sampled for DHC as shown in **Table 2-2**. DHC concentrations in the Mid-Plume Area, shallow zone, ranged from 25.8 to 3,600 cells/mL in the fourth quarterly RA-O event (**Table 2-7**). High DHC concentration of 292 and 3,600 cells/mL were detected in the treatment area at monitoring well 16EW01 and 16EW02 respectively. The high DHC concentration indicates the presence of high microbial activity to support the complete reductive dechlorination of chlorinated ethenes.

3.3.6 Mid-Plume Area, Intermediate Zone

Two wells were sampled for DHC as shown in **Table 2-2**. High DHC concentrations were detected at monitoring well 16EW05 at 5,040 and 5,060 cells/mL during the Quarter 1 and Quarter 2 RA-O event, respectively (**Table 2-8**). Samples were not collected at 16EW05 during the Quarter 3 and Quarter 4 RA-O events due to injectate residue plugging the borehole. As expected, monitoring well 16WW29, cross gradient of the treatment area shows low microbial activity.

4.0 SUMMARY AND RECOMMENDATIONS

4.1 Summary

The LUCs for LHAAP-16 include a land use restriction prohibiting residential use, a requirement to maintain the integrity of any current or future remedial or monitoring systems, and a groundwater use restriction, which prohibits water well installation for any purpose other than environmental monitoring and testing until COCs in the groundwater and soil allow unrestricted use and unlimited exposure. The annual LUC compliance inspection for the first year RA-O was conducted on October 8, 2020. Noncompliance issues or concerns were not identified during the annual inspection. No change in land use or groundwater use occurred at the site during the first annual RA-O monitoring period.

Mowing at LHAAP-16 was conducted on March 5, 2020, July 13, 2020, and September 28, 2020, during the first year of RA-O. Well inspections determined that the following wells will be repainted prior to or during the Year 2 Quarter 3 sampling event: 16IW03, 16PM02, 16PM06, 16PM09, 16PM14, 16WW30, 16WW31, 16WW32, and 16WW35.

No damage to bollards, well pads or protective casings was observed during the 2020/2021 well inspections, and minimal encroachment of weeds or brush on the well pads was observed. Monitoring wells 16EW07, 16EW08, 16WW13, 16WW14, 16WW37, 16WW42 showed screen siltation of 11.2 to 38.6% during the Quarter 4 RA-O sampling event. The July 2021 RA-O event, which was recently completed, confirms siltation in excess of 10% at monitoring wells 16EW07, 16EW08, 16WW13, and 16WW37. Monitoring wells 16WW14 and 16WW42 were not silted in excess of 10% during the July 2021 RA-O event. Monitoring wells 16EW07, 16EW08, 16WW13, and 16WW37 will be redeveloped prior to the next quarterly sampling event in October 2021. Well rehabilitation actions are planned for August 2021 to remove the solidified residue from 16EW05 and to reduce the viscosity of the of the residual product in 16EW06 and 16EW07 that may be affecting the wells screens and/or filter pack. No change to the monitoring network is proposed for the Year 2 RA-O.

VOCs, perchlorate data, geochemical and microbial indicators were collected over the course of monitoring to evaluate the effectiveness of the ISB remedy. The first line of evidence evaluated reductions in VOCs and perchlorate concentrations. The second line of evidence evaluated geochemical indicators. The third line of evidence evaluated the microbial populations in the aquifer. The results of the evaluation and the conclusions are summarized below.

An assessment of the first line of evidence indicated that perchlorate and TCE concentrations are reducing post ISB injections. The monitoring wells located in the treatment area show COC

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concentration reductions and geochemical and microbial conditions favorable for reductive dechlorination. The increase in formation of daughter products (cis-1,2-DCE, VC, and 1,1-DCE) indicates that reductive dechlorination is occurring. Additionally, perchlorate concentrations in the intermediate groundwater reduced to below the PCL in Quarter 4. The first line of evidence supports the conclusion that the ISB remedy is effectively reducing concentrations; however, concentrations have not reduced to below MCL/PCL.

The qualitative assessment of geochemical indicators performed as the second line of evidence indicates that current geochemical conditions are supportive of reductive degradation processes within the biobarrier. Conditions are not conducive for reductive dechlorination downgradient or upgradient of the treatment areas. The presence of degradation products, cis-1,2-DCE, and VC in areas with marginally conducive conditions suggests that limited biological degradation is occurring; however, the primary MNA processes reducing COC concentrations in areas downgradient and upgradient of the biobarriers are likely to be abiotic. The following sections summarize the second line of evidence for the TOC and ORP performance objectives for each treatment area.

Landfill Biobarrier #1

As discussed in the Summary for Section 3.2.1, the TOC exceeds the performance objective within Landfill Biobarrier #1 at 16IW09 and at downgradient location 16RW05. The ORP values do not meet the performance objective in Quarter 4. The ORP values met the performance objective at downgradient location 16RW05 in Quarters 1 through 3 and only increased to above the < 50 mV performance objective in Quarter 4. Based on the ORP and TOC values meeting the performance objectives in one or more locations within and downgradient of the injection area for multiple quarters of sampling, no reinjection is recommended based on the Year 1 monitoring data.

Landfill Biobarrier #2

As discussed in the Summary for Section 3.2.2, the TOC was well over the performance objective within Landfill Biobarrier #2 at 16IW03 until Quarter 4 when the concentration dropped significantly. Further monitoring will determine if this decline was a temporary in nature. The ORP values met the performance objective in downgradient location 16PM06 and remained acceptable at 16IW03. However, the high levels of COCs inside and outside of the treatment area suggest that additional carbon injection locations may be required in the future to completely reduce the concentrations present at in this area.

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Landfill Biobarrier #3

As discussed in the Summary for Section 3.2.3, the TOC exceeds the performance objective within Landfill Biobarrier #3 at 16IW10. The ORP values met the -50 mV performance objective within the treatment zone at 16IW10 in Quarter 3 before rising above the objective in Quarter 4 and remain below 50 mV in both nearby downgradient locations (16RW09 and 16RW10). Based on the reduction of COCs and acceptable ORP values, along with TOC values meeting the performance objectives in one or more locations within and downgradient of the injection area, the biobarrier treatment is working as designed.

Bayou Biobarrier

As discussed in the Summary for Section 3.2.4, the TOC exceeds the performance objective within the Bayou Biobarrier at 16IW20. The ORP values are near or below the performance objective within the treatment zone at 16IW20 and three other nearby locations (16RW11, 16WW21, and 16WW39). Based on the ORP and TOC values meeting the performance objectives in one or more locations within or downgradient of the injection areas, the biobarrier treatment is working as designed. However, the groundwater is currently flowing parallel to the southern portion of the biobarrier and the barrier may not be effectively intercepting contamination flowing towards the bayou.

Mid-Plume Shallow Zone Treatment Area

As discussed in the Summary for Section 3.2.5, the TOC does not meet the performance objective within Mid-Plume Shallow Zone Treatment Area. The ORP values met the performance objective at two locations within the treatment zone (16EW03 and 16EW04). Based on the ORP values meeting the performance objectives in one or more locations within the injection area, no reinjection is recommended based on the Year 1 monitoring data. The TOC values below the performance objective will continue to be monitored and if COC concentrations continue to increase, additional carbon may need to be injected and at closer spacing to ensure reducing groundwater conditions are established across the treatment area.

Mid-Plume Intermediate Zone Treatment Area

As discussed in the Summary for Section 3.2.6, the TOC exceeds the performance objective within the Mid-Plume Intermediate Zone Treatment Area at 16EW08. The ORP values met the performance objective within the treatment zone at three locations (16EW06, 16EW07, and 16EW08) and one nearby downgradient location (16WW51). Based on the decreasing COC concentrations along with ORP and TOC values meeting the performance objectives in one or more locations within and downgradient of the injection area, the treatment are is working as designed.

The third line of evidence indicates microbial conditions within the treatment areas of Landfill Biobarrier #2, Landfill Biobarrier #3, Bayou Biobarrier, and Mid-Plume Area (shallow and intermediate) are supportive of the complete dechlorination of chlorinated ethenes. Landfill Biobarrier #1, however, did not show microbial conditions supportive of the complete dechlorination of chlorinated ethenes.

The evaluation of the ISB remedy at LHAAP-16 indicates that reductive degradation processes stimulated by the ISB injections are reducing VOCs and perchlorate concentrations in groundwater in the treatment areas. The ISB remedy has successfully eliminated the perchlorate plume in the intermediate zone. The groundwater flow direction to the east of the shallow zone mid-plume area is generally to the east-southeast and appears to be flowing cross-gradient to the Bayou Biobarrier. If this condition continues, southward extension of the Bayou Biobarrier may be a prudent step to minimize contamination migrating towards the bayou, if COC concentrations remain high at 16WW48. COC concentrations are expected to reduce in the downgradient area, as groundwater flows through the biobarrier/treatment area. The decrease in VOC and perchlorate concentrations upgradient and downgradient of the treatment areas are primarily due to abiotic processes including dispersion, dilution, sorption, and volatilization. Quarterly sampling will continue for the second year of RA-O monitoring in compliance with the RACR (Bhate 2021).

4.2 Recommendations

To aid in collecting groundwater samples and delineate the downgradient edge of the plume, the following actions are recommended:

- Extraction wells 16EW05, 16EW06 and 16EW07 are recommended for rehabilitation. The sludge in 16EW05, 16EW06 and 16EW07 is referred to as scrud, a combination of scum and crud that often builds up in wells used for injection of EVO or other oily carbon substrates. A product called Scrud Remover™ is recommended to treat the impacted wells. Scrud Remover™ is a two-part solution developed by Redox Tech, LLC and Provectus Environmental Products for safely rehabilitating wells used as injection locations that have been fouled with scrud. Scrud Remover's two parts contain a mix of alcohols, fatty acids, and phosphate that is designed for treating wells to break down the scrud, and then flushing them to prevent reaccumulation. Part A is a mixture of alcohols and proprietary ingredients that acts as a surfactant to break down the scrud into a liquid form, while Part B is a mixture of fatty acid methyl ester and phosphate that is used to flush the well and prevent reaccumulation of the scrud. The technical data sheet for Scrud Remover™, as well as Safety Data Sheets for Part A and Part B are included in **Appendix E**. The components included in both parts are intended for use in sites where bioremediation remedies are in place and are not expected to

negatively affect biological degradation. The surfactant action of the Part A solution is not expected to cause significant dispersion of contaminants from within the treatment zone and will be significantly diluted by the Part B flush that will be conducted approximately 90 minutes after Part A is added to each well.

- Additionally, monitoring wells 16EW07, 16EW08, 16WW13, and 16WW37 have greater than 10% siltation and are recommended for redevelopment prior to the October 2021. At 16EW07, the siltation level may change with the scrud removal rehabilitation planned for August 2021 and the need for redevelopment will be determined after the completion of rehabilitation.

- On the east side of Harrison Bayou, elevated concentrations of the COCs have been detected at 16WW57 and 16WW58. Additional wells on the east side of the bayou are recommended.

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Tables

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16EW01	Shallow	3/9/2020	198.43	198.32	30.89	35.89	38.89	39.20	25.15	173.17	None
		7/16/2020	198.43	198.32	30.89	35.89	38.89	39.30	23.60	174.72	None
		10/20/2020	198.43	198.32	30.89	35.89	38.89	39.45	24.30	174.02	None
		1/25/2021	198.43	198.32	30.89	35.89	38.89	39.09	23.23	175.09	None
16EW02	Shallow	3/9/2020	196.44	196.19	21.75	26.75	29.75	29.70	21.65	174.54	None
		7/16/2020	196.44	196.19	21.75	26.75	29.75	29.30	21.37	174.82	None
		10/21/2020	196.44	196.19	21.75	26.75	29.75	29.70	21.80	174.39	None
		1/26/2021	196.44	196.19	21.75	26.75	29.75	29.52	21.00	175.19	None
16EW03	Shallow	3/25/2020	186.17	185.70	12.53	17.53	20.53	19.30	5.78	179.92	None
		7/28/2020	186.17	185.70	12.53	17.53	20.53	18.25	11.50	174.20	None
		10/22/2020	186.17	185.70	12.53	17.53	20.53	19.30	11.95	173.75	None
		2/2/2021	186.17	185.70	12.53	17.53	20.53	19.50	10.80	174.90	None
16EW04	Shallow	3/9/2020	180.71	180.66	13.95	18.95	21.95	19.70	6.00	174.66	None
		7/28/2020	180.71	180.66	13.95	18.95	21.95	19.35	6.55	174.11	None
		10/20/2020	180.71	180.66	13.95	18.95	21.95	19.20	7.10	173.56	None
		2/2/2021	180.71	180.66	13.95	18.95	21.95	19.35	6.00	174.66	None
16EW05	Intermediate	3/30/2020	198.57	198.00	46.43	51.43	54.43	51.35	4.88	193.12	1.6
		7/16/2020	198.57	198.00	46.43	51.43	54.43	53.88	2.75	195.25	None
16EW06	Intermediate	3/25/2020	196.34	196.06	49.72	54.72	57.72	55.60	18.30	177.76	None
		7/16/2020	196.34	196.06	49.72	54.72	57.72	56.55	19.21	176.85	None
		10/21/2020	196.34	196.06	49.72	54.72	57.72	56.52	22.20	173.86	None
		2/2/2021	196.34	196.06	49.72	54.72	57.72	56.47	19.00	177.06	None
16EW07	Intermediate	3/25/2020	185.41	185.41	41.00	46.00	49.00	46.38	9.10	176.31	None
		7/28/2020	185.41	185.41	41.00	46.00	49.00	45.37	10.10	175.31	12.6
		10/22/2020	185.41	185.41	41.00	46.00	49.00	45.35	10.60	174.81	13.0
		2/2/2021	185.41	185.41	41.00	46.00	49.00	45.30	9.27	176.14	14.0
16EW08	Intermediate	3/25/2020	179.81	179.57	33.76	38.76	41.76	39.62	4.00	175.57	None
		7/28/2020	179.81	179.57	33.76	38.76	41.76	37.95	6.12	173.45	16.2
		10/20/2020	179.81	179.57	33.76	38.76	41.76	38.65	6.90	172.67	2.2
		2/2/2021	179.81	179.57	33.76	38.76	41.76	37.25	4.75	174.82	30.2

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Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16IW03 [a]	Shallow	3/25/2020	NA	NA	NA	NA	NA	20.39	14.45	NA	NA
		7/28/2020	NA	NA	NA	NA	NA	20.37	14.35	NA	NA
		10/13/2020	NA	NA	NA	NA	NA	20.35	14.88	NA	NA
		1/26/2021	NA	NA	NA	NA	NA	25.85	14.22	NA	NA
16RW03 [b]	Shallow	3/9/2020	178.32	181.66	13.34	23.34	23.34	23.08	4.77	176.89	2.6
16IW04 [a]	Shallow	3/10/2020	NA	NA	NA	NA	NA	28.35	16.05	NA	NA
16RW08 [b]	Shallow	3/11/2020	193.62	196.37	19.25	29.25	29.75	30.45	22.22	174.15	None
16RW12 [b]	Shallow	3/10/2020	193.23	196.22	21.49	31.49	31.99	32.20	23.20	173.02	None
16IW09	Shallow	3/25/2020	178.08	181.41	11.33	21.33	21.58	22.25	4.88	176.53	None
		7/16/2020	178.08	181.41	11.33	21.33	21.58	21.38	7.10	174.31	None
		10/13/2020	178.08	181.41	11.33	21.33	21.58	22.28	10.15	171.26	None
		1/26/2021	178.08	181.41	11.33	21.33	21.58	22.28	3.90	177.51	None
16IW10	Shallow	3/25/2020	192.69	195.90	18.21	28.21	28.71	28.50	21.60	174.30	None
		7/14/2020	192.69	195.90	18.21	28.21	28.71	28.45	21.40	174.50	None
		10/13/2020	192.69	195.90	18.21	28.21	28.71	28.47	21.77	174.13	None
		1/26/2021	192.69	195.90	18.21	28.21	28.71	28.44	21.12	174.78	None
16IW20	Shallow	3/9/2020	186.03	188.94	14.91	24.91	25.41	25.48	16.07	172.87	None
		7/21/2020	186.03	188.94	14.91	24.91	25.41	25.35	16.38	172.56	None
		10/21/2020	186.03	188.94	14.91	24.91	25.41	25.47	17.17	171.77	None
		1/27/2021	186.03	188.94	14.91	24.91	25.41	25.46	15.78	173.16	None
16PM02	Shallow	3/17/2020	188	191.10	18.10	28.10	31.10	28.42	16.20	174.90	None
		7/20/2020	188	191.10	18.10	28.10	31.10	28.40	16.22	174.88	None
		10/26/2020	188	191.10	18.10	28.10	31.10	28.40	16.65	174.45	None
		1/22/2021	188	191.10	18.10	28.10	31.10	28.39	15.54	175.56	None
16PM03	Shallow	3/17/2020	187.5	190.40	17.90	27.40	27.90	28.48	16.20	174.20	None
		7/20/2020	187.5	190.40	17.90	27.40	27.90	28.48	15.05	175.35	None
		10/26/2020	187.5	190.40	17.90	27.40	27.90	28.45	15.95	174.45	None
		1/22/2021	187.5	190.40	17.90	27.40	27.90	28.41	15.00	175.40	None
16PM06	Shallow	3/10/2020	186.4	189.60	18.20	28.20	31.20	27.50	15.73	173.87	7.0
		7/20/2020	186.4	189.60	18.20	28.20	31.20	27.40	15.05	174.55	8.0
		10/26/2020	186.4	189.60	18.20	28.20	31.20	27.85	15.55	174.05	3.5
		2/2/2021	186.4	189.60	18.20	28.20	31.20	27.60	14.95	174.65	6.0

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Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16PM09	Shallow	3/10/2020	185.5	188.30	16.80	26.80	27.80	27.18	13.92	174.38	None
		7/20/2020	185.5	188.30	16.80	26.80	27.80	27.20	13.38	174.92	None
		10/26/2020	185.5	188.30	16.80	26.80	27.80	27.10	14.05	174.25	None
		1/22/2021	185.5	188.30	16.80	26.80	27.80	26.97	12.73	175.57	None
16PM14	Shallow	3/10/2020	188.2	191.20	18.00	28.00	31.00	28.20	17.20	174.00	None
		7/20/2020	188.2	191.20	18.00	28.00	31.00	28.20	16.42	174.78	None
		10/26/2020	188.2	191.20	18.00	28.00	31.00	28.22	17.10	174.10	None
		2/2/2021	188.2	191.20	18.00	28.00	31.00	28.20	16.56	174.64	None
16RW01	Shallow	3/12/2020	186.56	189.77	18.21	28.21	28.51	28.21	16.03	173.74	None
		7/27/2020	186.56	189.77	18.21	28.21	28.51	28.38	16.18	173.59	None
		10/20/2020	186.56	189.77	18.21	28.21	28.51	28.21	16.85	172.92	None
		1/22/2021	186.56	189.77	18.21	28.21	28.51	28.37	15.76	174.01	None
16RW02	Shallow	3/12/2020	179.94	182.97	11.03	21.03	21.03	21.50	6.31	176.66	None
		7/21/2020	179.94	182.97	11.03	21.03	21.03	21.50	9.20	173.77	None
		10/22/2020	179.94	182.97	11.03	21.03	21.03	21.50	11.82	171.15	None
		1/22/2021	179.94	182.97	11.03	21.03	21.03	21.48	4.63	178.34	None
16RW04	Shallow	3/9/2020	188.04	190.94	16.90	26.90	27.20	27.65	17.50	173.44	None
		7/28/2020	188.04	190.94	16.90	26.90	27.20	27.63	17.42	173.52	None
		10/21/2020	188.04	190.94	16.90	26.90	27.20	27.62	18.32	172.62	None
		1/28/2021	188.04	190.94	16.90	26.90	27.20	27.62	17.03	173.91	None
16RW05	Shallow	3/12/2020	177.61	180.70	13.09	23.09	23.09	23.40	4.79	175.91	None
		7/16/2020	177.61	180.70	13.09	23.09	23.09	23.22	6.18	174.52	None
		10/22/2020	177.61	180.70	13.09	23.09	23.09	23.40	10.05	170.65	None
		1/28/2021	177.61	180.70	13.09	23.09	23.09	23.37	4.57	176.13	None
16RW06	Shallow	3/17/2020	194.35	197.37	18.52	28.52	29.02	29.25	23.30	174.07	None
		7/14/2020	194.35	197.37	18.52	28.52	29.02	29.25	22.72	174.65	None
		10/26/2020	194.35	197.37	18.52	28.52	29.02	29.25	23.15	174.22	None
		1/22/2021	194.35	197.37	18.52	28.52	29.02	29.23	22.65	174.72	None
16RW07	Shallow	3/17/2020	192.20	195.48	18.28	28.28	28.78	28.41	21.15	174.33	None
		7/14/2020	192.20	195.48	18.28	28.28	28.78	28.45	19.68	175.80	None
		10/26/2020	192.20	195.48	18.28	28.28	28.78	28.42	21.12	174.36	None
		1/22/2021	192.20	195.48	18.28	28.28	28.78	28.77	20.58	174.90	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16RW09	Shallow	3/11/2020	195.14	197.81	19.67	29.67	30.17	30.65	24.93	172.88	None
		7/14/2020	195.14	197.81	19.67	29.67	30.17	30.62	23.37	174.44	None
		10/26/2020	195.14	197.81	19.67	29.67	30.17	30.62	24.00	173.81	None
		2/2/2021	195.14	197.81	19.67	29.67	30.17	30.63	23.33	174.48	None
16RW10	Shallow	3/11/2020	192.27	195.25	17.98	27.98	28.48	28.22	14.83	180.42	None
		7/20/2020	192.27	195.25	17.98	27.98	28.48	28.20	20.62	174.63	None
		10/26/2020	192.27	195.25	17.98	27.98	28.48	28.20	22.23	173.02	None
		2/2/2021	192.27	195.25	17.98	27.98	28.48	28.20	20.65	174.60	None
16RW11	Shallow	3/17/2020	187.46	189.95	14.49	24.49	24.99	25.61	17.23	172.72	None
		7/21/2020	187.46	189.95	14.49	24.49	24.99	25.65	17.30	172.65	None
		10/21/2020	187.46	189.95	14.49	24.49	24.99	25.27	17.91	172.04	None
		2/3/2021	187.46	189.95	14.49	24.49	24.99	25.28	16.93	173.02	None
16WW12	Shallow	3/11/2020	186.17	188.81	16.64	26.64	26.64	27.00	15.78	173.03	None
		7/21/2020	186.17	188.81	16.64	26.64	26.64	26.98	16.15	172.66	None
		10/21/2020	186.17	188.81	16.64	26.64	26.64	26.97	16.77	172.04	None
		2/3/2021	186.17	188.81	16.64	26.64	26.64	27.00	15.69	173.12	None
16WW13	Intermediate	3/12/2020	175.74	178.47	16.73	26.73	26.73	22.90	3.67	174.80	38.3
		7/23/2020	175.74	178.47	16.73	26.73	26.73	22.90	5.70	172.77	38.3
		10/22/2020	175.74	178.47	16.73	26.73	26.73	25.90	7.00	171.47	8.3
		1/22/2021	175.74	178.47	16.73	26.73	26.73	22.87	2.86	175.61	38.6
16WW14	Shallow	3/24/2020	195.24	198.87	20.63	30.63	32.63	30.47	24.42	174.45	1.6
		7/20/2020	195.24	198.87	20.63	30.63	32.63	30.25	23.78	175.09	3.8
		10/19/2020	195.24	198.87	20.63	30.63	32.63	30.25	24.05	174.82	3.8
		1/22/2021	195.24	198.87	20.63	30.63	32.63	29.23	23.71	175.16	14.0
16WW16	Shallow	3/11/2020	193.02	195.64	21.62	31.62	31.62	31.54	20.78	174.86	0.8
		7/14/2020	193.02	195.64	21.62	31.62	31.62	31.55	20.40	175.24	0.7
		10/8/2020	193.02	195.64	21.62	31.62	31.62	31.55	20.68	174.96	0.7
		1/20/2021	193.02	195.64	21.62	31.62	31.62	31.52	20.47	175.17	1.0
16WW21	Upper Deep	3/16/2020	194.85	198.06	93.21	103.21	103.21	103.21	23.92	174.14	0.0
		7/15/2020	194.85	198.06	93.21	103.21	103.21	103.52	23.62	174.44	None
		10/14/2020	194.85	198.06	93.21	103.21	103.21	103.52	24.35	173.71	None
		2/3/2021	194.85	198.06	93.21	103.21	103.21	103.52	23.51	174.55	None

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW22	Shallow	3/16/2020	197.19	200.13	23.94	33.94	33.94	34.30	26.50	173.63	None
		7/15/2020	197.19	200.13	23.94	33.94	33.94	34.30	25.90	174.23	None
		10/14/2020	197.19	200.13	23.94	33.94	33.94	34.30	26.65	173.48	None
		1/25/2021	197.19	200.13	23.94	33.94	33.94	34.28	25.94	174.19	None
16WW23	Intermediate	3/31/2020	174.78	177.98	27.20	37.20	37.20	39.17	3.95	174.03	None
		7/27/2020	174.78	177.98	27.20	37.20	37.20	37.17	5.58	172.40	0.3
		10/8/2020	174.78	177.98	27.20	37.20	37.20	37.15	6.45	171.53	0.5
		1/28/2021	174.78	177.98	27.20	37.20	37.20	37.15	4.10	173.88	0.5
16WW24	Shallow	3/31/2020	174.66	177.95	14.29	19.29	19.29	19.20	3.28	174.67	1.8
		7/27/2020	174.66	177.95	14.29	19.29	19.29	19.25	6.00	171.95	0.8
		10/8/2020	174.66	177.95	14.29	19.29	19.29	19.33	7.22	170.73	None
		1/28/2021	174.66	177.95	14.29	19.29	19.29	19.23	3.52	174.43	1.2
16WW25	Intermediate	3/16/2020	185.52	188.77	42.25	52.25	52.25	52.50	15.20	173.57	None
		7/21/2020	185.52	188.77	42.25	52.25	52.25	52.52	16.75	172.02	None
		10/14/2020	185.52	188.77	42.25	52.25	52.25	52.52	16.38	172.39	None
		1/21/2021	185.52	188.77	42.25	52.25	52.25	52.51	14.50	174.27	None
16WW26	Shallow	3/9/2020	185.36	188.83	15.97	20.97	20.97	21.85	14.84	173.99	None
		7/21/2020	185.36	188.83	15.97	20.97	20.97	21.80	14.90	173.93	None
		10/14/2020	185.36	188.83	15.97	20.97	20.97	21.80	15.92	172.91	None
		1/21/2021	185.36	188.83	15.97	20.97	20.97	21.78	14.58	174.25	None
16WW27	Intermediate	3/12/2020	174.21	177.31	29.10	39.10	39.10	39.31	4.30	173.01	None
		7/23/2020	174.21	177.31	29.10	39.10	39.10	39.32	5.31	172.00	None
		10/22/2020	174.21	177.31	29.10	39.10	39.10	39.35	6.55	170.76	None
		1/28/2021	174.21	177.31	29.10	39.10	39.10	39.29	4.00	173.31	None
16WW29	Intermediate	3/30/2020	175.16	178.24	40.08	45.08	45.08	45.00	4.53	173.71	1.6
		7/15/2020	175.16	178.24	40.08	45.08	45.08	45.00	5.19	173.05	1.6
		10/14/2020	175.16	178.24	40.08	45.08	45.08	45.00	6.27	171.97	1.6
		1/21/2021	175.16	178.24	40.08	45.08	45.08	44.98	4.34	173.90	2.0
16WW30	Shallow	3/30/2020	175.33	178.47	28.14	33.14	33.14	33.00	4.75	173.72	2.8
		7/15/2020	175.33	178.47	28.14	33.14	33.14	33.00	5.41	173.06	2.8
		10/14/2020	175.33	178.47	28.14	33.14	33.14	33.00	6.77	171.70	2.8
		1/21/2021	175.33	178.47	28.14	33.14	33.14	32.98	4.58	173.89	3.2

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW31	Intermediate	3/12/2020	200.00	202.78	41.78	51.78	51.78	51.82	28.63	174.15	None
		7/27/2020	200.00	202.78	41.78	51.78	51.78	51.80	28.38	174.40	None
		10/19/2020	200.00	202.78	41.78	51.78	51.78	51.80	29.00	173.78	None
		1/19/2021	200.00	202.78	41.78	51.78	51.78	51.81	28.46	174.32	None
16WW32	Shallow	3/12/2020	199.85	202.86	25.01	35.01	35.01	35.00	28.65	174.21	0.1
		7/27/2020	199.85	202.86	25.01	35.01	35.01	35.00	28.38	174.48	0.1
		10/19/2020	199.85	202.86	25.01	35.01	35.01	35.01	29.02	173.84	0.0
		1/19/2021	199.85	202.86	25.01	35.01	35.01	34.98	28.58	174.28	0.3
16WW33	Intermediate	3/12/2020	199.92	203.09	42.17	52.17	52.17	52.00	28.81	174.28	1.7
		7/23/2020	199.92	203.09	42.17	52.17	52.17	52.00	28.27	174.82	1.7
		10/19/2020	199.92	203.09	42.17	52.17	52.17	51.95	28.95	174.14	2.2
		2/3/2021	199.92	203.09	42.17	52.17	52.17	52.00	28.25	174.84	1.7
16WW34	Shallow	3/12/2020	200.27	203.08	29.81	34.81	34.81	34.90	28.72	174.36	None
		7/23/2020	200.27	203.08	29.81	34.81	34.81	34.95	28.18	174.90	None
		10/19/2020	200.27	203.08	29.81	34.81	34.81	34.89	28.80	174.28	None
		2/3/2021	200.27	203.08	29.81	34.81	34.81	34.88	28.25	174.83	None
16WW35	Intermediate	3/11/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.85	174.38	0.3
		7/14/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.55	174.68	0.3
		10/13/2020	188.15	191.23	36.58	46.58	46.58	46.55	16.95	174.28	0.3
		1/20/2021	188.15	191.23	36.58	46.58	46.58	46.53	16.53	174.70	0.5
16WW36	Shallow	3/11/2020	187.95	190.94	19.49	24.49	24.49	24.78	16.40	174.54	None
		7/14/2020	187.95	190.94	19.49	24.49	24.49	24.85	16.68	174.26	None
		10/13/2020	187.95	190.94	19.49	24.49	24.49	25.90	16.25	174.69	None
		1/20/2021	187.95	190.94	19.49	24.49	24.49	24.85	16.02	174.92	None
16WW37	Intermediate	3/17/2020	198.75	201.97	43.72	48.72	48.72	47.93	26.93	175.04	15.8
		7/23/2020	198.75	201.97	43.72	48.72	48.72	47.95	26.20	175.77	15.4
		10/19/2020	198.75	201.97	43.72	48.72	48.72	48.22	26.80	175.17	10.0
		1/20/2021	198.75	201.97	43.72	48.72	48.72	47.92	26.41	175.56	16.0
16WW38	Shallow	3/17/2020	198.62	201.92	22.30	32.30	32.30	32.27	26.80	175.12	0.3
		7/23/2020	198.62	201.92	22.30	32.30	32.30	32.30	26.30	175.62	0.0
		10/19/2020	198.62	201.92	22.30	32.30	32.30	32.27	26.63	175.29	0.3
		1/20/2021	198.62	201.92	22.30	32.30	32.30	32.24	26.29	175.63	0.6

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW39	Shallow	3/16/2020	189.17	192.17	18.00	28.00	29.50	29.27	19.10	173.07	None
		7/15/2020	189.17	192.17	18.00	28.00	29.50	29.41	18.77	173.40	None
		10/14/2020	189.17	192.17	18.00	28.00	29.50	29.40	19.45	172.72	None
		2/3/2021	189.17	192.17	18.00	28.00	29.50	29.28	18.62	173.55	None
16WW40	Shallow	3/10/2020	179.39	182.19	10.80	20.80	21.30	17.50	9.80	172.39	33.0
		7/21/2020	179.39	182.19	10.80	20.80	21.30	19.20	10.15	172.04	16.0
		10/21/2020	179.39	182.19	10.80	20.80	21.30	19.95	10.61	171.58	8.5
		2/3/2021	179.39	182.19	10.80	20.80	21.30	19.95	9.72	172.47	8.5
16WW41	Intermediate	3/16/2020	195.38	197.98	42.60	52.60	53.60	53.02	24.95	173.03	None
		7/15/2020	195.38	197.98	42.60	52.60	53.60	53.03	24.33	173.65	None
		10/14/2020	195.38	197.98	42.60	52.60	53.60	53.03	25.85	172.13	None
		1/25/2021	195.38	197.98	42.60	52.60	53.60	53.02	24.10	173.88	None
16WW42	Shallow	3/10/2020	174.17	178.74	6.57	16.57	16.57	15.45	4.02	174.72	11.2
		7/23/2020	174.17	178.74	6.57	16.57	16.57	17.46	7.15	171.59	None
		10/22/2020	174.17	178.74	6.57	16.57	16.57	15.89	8.48	170.26	6.8
		1/28/2021	174.17	178.74	6.57	16.57	16.57	15.45	3.71	175.03	11.2
16WW43	Shallow	3/12/2020	174.54	177.13	4.59	14.59	14.59	15.48	4.50	172.63	None
		7/23/2020	174.54	177.13	4.59	14.59	14.59	15.38	6.40	170.73	None
		10/22/2020	174.54	177.13	4.59	14.59	14.59	15.47	7.71	169.42	None
		1/28/2021	174.54	177.13	4.59	14.59	14.59	15.45	4.60	172.53	None
16WW44	Shallow	3/17/2020	196.47	198.65	22.18	32.18	32.18	32.95	23.07	175.58	None
		7/20/2020	196.47	198.65	22.18	32.18	32.18	32.90	22.65	176.00	None
		10/19/2020	196.47	198.65	22.18	32.18	32.18	32.95	23.35	175.30	None
		1/22/2021	196.47	198.65	22.18	32.18	32.18	32.92	22.32	176.33	None
16WW46	Shallow	3/12/2020	183.55	185.84	12.29	22.29	23.29	22.00	12.43	173.41	2.9
		7/27/2020	183.55	185.84	12.29	22.29	23.29	22.08	13.00	172.84	2.1
		10/19/2020	183.55	185.84	12.29	22.29	23.29	22.05	13.60	172.24	2.4
		1/19/2021	183.55	185.84	12.29	22.29	23.29	22.00	12.57	173.27	2.9
16WW48	Shallow	3/30/2020	181.46	184.41	12.95	22.95	22.95	22.56	11.04	173.37	3.9
		7/15/2020	181.46	184.41	12.95	22.95	22.95	22.80	11.62	172.79	1.5
		10/20/2020	181.46	184.41	12.95	22.95	22.95	22.55	12.24	172.17	4.0
		1/21/2021	181.46	184.41	12.95	22.95	22.95	22.56	10.87	173.54	3.9

Table 2-1
Groundwater Elevation Data, LHAAP-16

Monitoring Well	Zone	Date	Ground Surface Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen (ft BTOC)	Bottom of Screen (ft BTOC)	Constructed Well Depth (ft BTOC)	Measured Well Depth (ft BTOC)	Depth to Water (ft BTOC)	Groundwater Elevation (ft MSL)	Screened Interval Siltation (%)
16WW49	Intermediate	3/16/2020	187.66	190.69	45.03	55.03	55.03	54.73	17.52	173.17	3.0
		7/27/2020	187.66	190.69	45.03	55.03	55.03	54.73	17.52	173.17	3.0
		10/20/2020	187.66	190.69	45.03	55.03	55.03	54.80	18.25	172.44	2.3
		1/29/2021	187.66	190.69	45.03	55.03	55.03	54.70	17.03	173.66	3.3
16WW51	Intermediate	3/17/2020	180.13	183.26	34.13	44.13	44.63	44.57	10.45	172.81	None
		7/27/2020	180.13	183.26	34.13	44.13	44.63	44.60	11.15	172.11	None
		10/20/2020	180.13	183.26	34.13	44.13	44.63	44.53	12.10	171.16	None
		1/29/2021	180.13	183.26	34.13	44.13	44.63	44.53	9.97	173.29	None
16WW55	Shallow	3/25/2020	191.11	194.03	19.92	29.92	30.42	30.52	20.11	173.92	None
		7/14/2020	191.11	194.03	19.92	29.92	30.42	30.41	19.64	174.39	None
		10/13/2020	191.11	194.03	19.92	29.92	30.42	30.43	20.27	173.76	None
		1/20/2021	191.11	194.03	19.92	29.92	30.42	30.41	19.93	174.10	None
16WW56	Shallow	3/16/2020	195.35	198.61	24.26	34.26	34.56	37.07	25.66	172.95	None
		7/15/2020	195.35	198.61	24.26	34.26	34.56	34.08	25.40	173.21	1.8
		10/21/2020	195.35	198.61	24.26	34.26	34.56	34.05	26.20	172.41	2.1
		1/25/2021	195.35	198.61	24.26	34.26	34.56	34.05	25.09	173.52	2.1
16WW57	Intermediate	8/17/2020	173.12	177.06	29.94	39.94	41.94	39.95	4.95	172.11	None
		10/8/2020	173.12	177.06	29.94	39.94	41.94	39.94	5.35	171.71	0.0
		1/27/2021	173.12	177.06	29.94	39.94	41.94	39.94	3.78	173.28	0.0
16WW58	Intermediate	8/17/2020	173.32	177.24	31.92	41.92	43.92	42.80	6.97	170.27	None
		10/8/2020	173.32	177.24	31.92	41.92	43.92	42.82	6.78	170.46	None
		1/27/2021	173.32	177.24	31.92	41.92	43.92	42.81	4.41	172.83	None

Notes:

[a] 16IW03 and 16IW04 do not have survey data available.

[b] Monitoring wells were sampled as part of design effectiveness in March 2020 and are included on potentiometric maps for Quarter 1.

% - percent

ft BTOC - feet below top of casing

ft MSL - feet above mean sea level

Table 2-2
RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
16IW09	Performance data within Landfill Biobarrier #1; Shallow Zone	VOCs, P, MNA, Bromide, DHC, TOC
16RW01	Upgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P
16RW02	Upgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P
16RW04	Downgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, Bromide, TOC
16RW05	Downgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, Bromide, TOC
16WW26	Downgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16WW42	Downgradient well for Landfill Biobarrier #1; Shallow Zone	VOCs, P, Bromide, TOC
16IW03	Performance data within Landfill Biobarrier #2; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16PM02	Upgradient well for Landfill Biobarrier #2; Shallow Zone	VOCs, P
16PM03	Upgradient well for Landfill Biobarrier #2 Shallow Zone	VOCs, P
16PM06	Downgradient well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, Bromide, TOC
16PM09	Downgradient well for Landfill Biobarrier #2; Shallow Zone	VOCs, P
16PM14	Downgradient well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, Bromide, TOC
16WW36	Downgradient well for Landfill Biobarrier #2; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16IW10	Performance data within Landfill Biobarrier #3; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16RW06	Upgradient well for Landfill Biobarrier #3; Shallow Zone	VOCs, P
16RW07	Upgradient well for Landfill Biobarrier #3; Shallow Zone	VOCs, P
16RW09	Downgradient well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, Bromide,-TOC
16RW10	Downgradient well for Landfill Biobarrier #3; Shallow Zone	VOCs, P, Bromide, TOC
16RW11	Performance data within the Bayou Biobarrier; Shallow Zone	VOCs, P
16IW20	Performance data within the Bayou Biobarrier; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16WW39	Upgradient well for Bayou Biobarrier; Shallow Zone	VOCs, P, Bromide and TOC
16WW12	Upgradient well for Bayou Biobarrier; Shallow Zone	VOCs, P, Bromide, TOC
16WW22	Upgradient well for Bayou Biobarrier; Shallow Zone	VOCs, P, MNA, Bromide, TOC, DHC
16WW40	Downgradient well for Bayou Biobarrier; Shallow Zone	VOCs, P, Bromide, TOC
16EW01	Performance data for injection ISB area - Shallow Zone Mid-Plume	VOCs, P, MNA, Bromide, TOC,DHC
16EW02	Performance data for injection ISB area - Shallow Zone Mid-Plume	VOCs, P, MNA, Bromide, TOC, DHC
16EW03	Performance data for injection ISB area - Shallow Zone Mid-Plume	VOCs, P

Table 2-2
RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
16EW04	Performance data for injection ISB area - Shallow Zone Mid-Plume	VOCs, P
16WW48	Performance data for downgradient - Shallow Zone Mid-Plume	VOCs, P, MNA, Bromide, TOC, DHC
16WW30	Performance data for downgradient - Shallow Zone Mid-Plume	VOCs, P, Bromide, TOC
16WW21	Performance data for downgradient well in Upper Deep Zone Mid-Plume; also upgradient well for Bayou Biobarrier	VOCs, P, Bromide, TOC
16EW05	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, MNA, Bromide, TOC, DHC
16EW06	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P
16EW07	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P
16EW08	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, Bromide, TOC
16WW29	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, MNA, Bromide, TOC, DHC
16WW49	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, Bromide, TOC
16WW51	Performance Data for Injection Well – Intermediate Zone Mid-Plume	VOCs, P, Bromide, TOC
Surface Water Sampling		
16SW01	Surface water	VOCs, P, Metals
16SW02	Surface water	VOCs, P, Metals
16SW03	Surface water	VOCs, P, Metals
Additional Wells - MNA Network		
16WW13	Intermediate - MNA evaluation; downgradient of Landfill Biobarrier #1	VOCs, P
16WW14	Shallow - MNA evaluation; upgradient of Landfill Biobarrier #3	VOCs, P
16WW16	Shallow - MNA evaluation; upgradient of Landfill Biobarrier #2	VOCs, P, MNA, Bromide, TOC, DHC
16WW24	Shallow - MNA evaluation	VOCs, P
16WW32	Shallow - MNA evaluation	VOCs, P
16WW34	Shallow - MNA evaluation	VOCs, P
16WW35	Intermediate - MNA evaluation; downgradient of Landfill Biobarrier #2	VOCs, P, MNA, Bromide, TOC, DHC
16WW38	Shallow - MNA evaluation	VOCs, P
16WW41	Intermediate - MNA evaluation; upgradient of Bayou Biobarrier	VOCs, P, MNA, Bromide, TOC, DHC
16WW43	Shallow - MNA evaluation	VOCs, P
16WW44	Shallow - MNA evaluation	VOCs, P
16WW46	Shallow - MNA evaluation	VOCs, P
16WW55	Shallow - MNA evaluation; downgradient to Landfill Biobarrier #3	VOCs, P, MNA, Bromide, TOC, DHC
16WW56	Shallow - MNA evaluation; downgradient to Bayou Biobarrier	VOCs, P, MNA, Bromide, TOC, DHC
16WW23	Intermediate - MNA evaluation	VOCs, P
16WW25	Intermediate - MNA evaluation; downgradient of Landfill Biobarrier #1	VOCs, P, MNA, Bromide, TOC, DHC
16WW27	Intermediate - MNA evaluation	VOCs, P
16WW31	Intermediate - MNA evaluation	VOCs, P

Table 2-2
RA-O Monitoring Network, LHAAP-16

Site Well ID	Well Description	Parameters
16WW33	Intermediate - MNA evaluation	VOCs, P
16WW37	Intermediate - MNA evaluation	VOCs, P
16WW57	Intermediate - MNA evaluation	VOCs, P, MNA, Bromide, TOC, DHC
16WW58	Intermediate- MNA evaluation	VOCs, P, MNA, Bromide, TOC, DHC

Notes:

MNA parameters for LHAAP-16 include: alkalinity, anions (nitrate and sulfate), ethene, ethane, and methane.

DHC - Dehalococcoides ethenogenes

ID - identifier

ISB - in situ bioremediation

Metals - arsenic, chromium, manganese, nickel, and thallium

MNA - monitored natural attenuation

P - perchlorate

RA-O - Remedial Action Operation

TOC - total organic carbon

VOCs - volatile organic compounds

Table 2-3
Year 1 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			Location Code	16IW09 (Shallow Zone)										16RW01 (Shallow Zone)		16RW04 (Shallow Zone)							
			Sample ID	16IW09-200325		16IW09-200325-FD		16IW09-200716		16IW09-201013		16IW09-210126		16RW01-200312		16RW04-200309		16RW04-200728		16RW04-201021		16RW04-210128	
			Sample Date	3/25/2020		3/25/2020		7/16/2020		10/13/2020		1/26/2021		3/12/2020		3/9/2020		7/28/2020		10/21/2020		1/28/2021	
			Sample Purpose	REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																							
Dehalococcoides	cells/mL	NV		27.8		NA		5.1	J	< 7.2	U	2.9		NA		NA		NA		NA		NA	
Field Measurements																							
Dissolved oxygen	mg/L	NV		0.09		0.09		1.52		0.09		2.5		0.08		0.2		0.04		0.03		0.52	
Oxidation-Reduction Potential	mV	NV		8		8		143		56		53.2		151		250		198		156		-3.6	
pH	STD UNIT	NV		4.94		4.94		4.62		5.42		5.56		5.49		5.07		5.33		5.00		5.62	
Dissolved Gases (RSK-175)																							
Ethane	µg/L	NV		11.4		11.9		17.9		< 0.25	U	< 0.47	U	NA		NA		NA		NA		NA	
Ethylene	µg/L	NV		10.2		7.93		16.6		1.25		< 0.55	U	NA		NA		NA		NA		NA	
Methane	µg/L	NV		1,340		1,110		3970		< 0.25	U	5,200		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																							
Alkalinity	mg/L	NV		432		440		428		698		610		NA		NA		NA		NA		NA	
Bromide	mg/L	NV		11.6		11.3		13.4		7.76		4.65		NA		0.43		2.41		1.21		1.53	
Nitrate	mg/L	NV		< 0.1	U	< 0.1	U	< 2	U	0.499		0.615		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV		1.43		1.48		4.44	J	11.2		7.11		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV		820		820		1840		1250		787		NA		3.17		3.34		2.7		2.84	
Perchlorate (EPA 6850)																							
Perchlorate	µg/L	17		< 2	UJ	< 2	U	0.184	J	0.038	J	< 0.25	U	< 2	U	< 2	U	2.08		< 0.05	U	0.328	J
Volatile Organic Compounds (8260C)																							
1,1,2-Trichloroethane	µg/L	5		< 5	UJ	< 5	U	< 50	U	< 0.5	U	< 1	U	< 2.5	U	< 2.5	U	< 10	U	< 2.5	U	< 10	U
1,1-Dichloroethene	µg/L	7		< 5	UJ	< 5	U	< 25	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	4.1	J	< 5	U
1,2-Dichloroethane	µg/L	5		< 5	UJ	< 5	UJ	< 25	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 5	U	< 2.5	U	< 5	U
cis-1,2-Dichloroethene	µg/L	70		< 5	UJ	< 5	UJ	< 25	U	4.1		2.8		120		120		150		140		130	
Methylene chloride	µg/L	5		< 10	UJ	< 10	UJ	< 50	U	< 1	U	< 2	U	< 5	U	< 5	U	< 10	U	< 5	U	< 20	U
Trichloroethene	µg/L	5		< 5	UJ	< 5	U	< 25	U	5.8		1		3,300		3,000		3,500		3,400		2,800	
Vinyl chloride	µg/L	2		< 5	UJ	< 5	UJ	< 25	U	< 0.5	U	< 0.5	U	4	J	< 2.5	U	4.1	J	5.3		< 5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			Location Code		16RW05 (Shallow Zone)						16WW26 (Shallow Zone)											
			Sample ID		16RW05-200312		16RW05-200716		16RW05-201022		16RW05-210129		16WW26-181009		16WW26-190917		16WW26-200309		16WW26-200721		16WW26-201014		16WW26-210121	
			Sample Date		3/12/2020		7/16/2020		10/22/2020		1/29/2021		10/9/2018		9/17/2019		3/9/2020		7/21/2020		10/14/2020		1/21/2021	
			Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																								
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		0.3	J			16.7		5.4		21.9		7.6	
Field Measurements																								
Dissolved oxygen	mg/L	NV	0.03		0.05		0.05		2.51		0.66		0.44		0.07		0.05		0.71		0.97	
Oxidation-Reduction Potential	mV	NV	-97		-207		-55		73.8		50.4		-1.6		266		189		68		99.9	
pH	STD UNIT	NV	6.36		5.79		6.68		7.25		5.08		5.21		4.72		5.02		5.48		5.25	
Dissolved Gases (RSK-175)																								
Ethane	µg/L	NV	NA		NA		NA		NA		0.591	J			1.86		0.239	J	< 0.25	U	< 0.47	U
Ethylene	µg/L	NV	NA		NA		NA		NA		2.59				0.295	J	1.38		< 0.5	U	< 0.55	U
Methane	µg/L	NV	NA		NA		NA		NA		10.5				5.1		5.1		4.5		2.5	
General Chemistry (2320B/SM5310B/SW9056A)																								
Alkalinity	mg/L	NV	NA		NA		NA		NA		12		NA		14.9		21.5		38.4		15	
Bromide	mg/L	NV	52.8		55.2		44		45.8		< 0.1	U	NA		0.258		0.774		0.638		1.11	
Nitrate	mg/L	NV	NA		NA		NA		NA		< 0.1	U	NA		1.23		< 0.1	U	< 0.1	U	0.22	
Sulfate	mg/L	NV	NA		NA		NA		NA		1170		NA		390		665		375	J-	354	
Total organic carbon	mg/L	NV	500		416		117		34.8		5.03		NA		2.27		3.05		2.11		1.65	
Perchlorate (EPA 6850)																								
Perchlorate	µg/L	17	< 2	U	1.77		< 0.05	U	< 0.5	U	< 2	U	< 2	U	< 2	U	0.025	J	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																								
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 10	U	< 0.5	U	< 1	U	< 2.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 2.5	U	1.4		1.4		1.7		2.5		1.5	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	7.8		8	J	9.3		1.5		290		35		56		38		78		54	
Methylene chloride	µg/L	5	< 1	U	< 10	U	< 1	U	< 2	U	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	3		< 5	U	0.89	J	< 0.5	U	2,400		380		900		490		850		1000	
Vinyl chloride	µg/L	2	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U	5	J	< 0.5	U	1.3		0.88	J	1.9		1.4	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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U - Undetected: The analyte was analyzed for, but not detected

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			16WW42 (Shallow Zone)														16WW13 (Intermediate Zone)					
Location Code			16WW42 (Shallow Zone)														16WW13 (Intermediate Zone)					
Sample ID			16WW42-181012		16WW42-1909016		16WW42-200310		16WW42-200310-FD		16WW42-200723		16WW42-200723-FD		16WW42-201022		16WW42-210128		16WW13-181012		16WW13-190918		16WW13-200312	
Sample Date			10/12/2018		9/16/2019		3/10/2020		3/10/2020		7/23/2020		7/23/2020		10/22/2020		1/28/2021		10/12/2018		9/18/2019		3/12/2020	
Sample Purpose			REG		REG		REG		FD		REG		FD		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																								
Dehalococcoides	cells/mL	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																								
Dissolved oxygen	mg/L	NV	1.21		1.89		1.52		1.52		0.04		0.04		0.04		2.94		1.02		0.16		2.47	
Oxidation-Reduction Potential	mV	NV	113.6		-31.4		241		241		9		9		21		215.1		225.7		190		161	
pH	STD UNIT	NV	5.27		6.10		5.15		5.15		5.70		5.70		5.94		5.37		4.68		5.52		5.58	
Dissolved Gases (RSK-175)																								
Ethane	µg/L	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																								
Alkalinity	mg/L	NV					NA		NA		NA		NA		NA		NA						NA	
Bromide	mg/L	NV	0.182				1.36		1.35		2.45		2.43		2.74		2.03		0.929		NA		NA	
Nitrate	mg/L	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV					NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV					1.73		1.68		4.16		4.33		4.31		2.12		NA		NA		NA	
Perchlorate (EPA 6850)																								
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 2	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 2	U	< 2	U	< 2	U
Volatile Organic Compounds (8260C)																								
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 5	U	< 0.5	U	< 0.5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	0.7	J	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	42		240		8.6		8.2		24	J+	20		180		98		1,700		210		18	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 10	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	6		29		3.3		3.3		1.3		1.2		3.2		0.59	J	4,400		630		7.5	
Vinyl chloride	µg/L	2	< 0.5	U	1.1		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	51		5.6		< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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U - Undetected: The analyte was analyzed for, but not detected

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-3
Year 1 RA-O Analytical Results, Landfill Biobarrier #1, LHAAP-16

			Location Code	16WW13 (Intermediate Zone)								16WW25 (Intermediate Zone)													
			Sample ID	16WW13-200723		16WW13-200723-FD		16WW13-201022		16WW13-210122		16WW25-181009		16WW25-190919		16WW25-190919-FD		16WW25-200316		16WW25-200721		16WW25-201014		16WW25-210121		16WW25-210121-FD	
			Sample Date	7/23/2020		7/23/2020		10/22/2020		1/22/2021		10/9/2018		9/19/2019		9/19/2019		3/16/2020		7/21/2020		10/14/2020		1/21/2021		1/21/2021	
			Sample Purpose	REG		FD		REG		REG		REG		REG		FD		REG		REG		REG		REG		FD	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																											
Dehalococcoides	cells/mL	NV		NA		NA		NA		NA		0.5	U	NA		NA		6.2		1.9		3.5		7		NA	
Field Measurements																											
Dissolved oxygen	mg/L	NV		0.07		0.07		0.32		5.7		0.31		0.2		NA		0.05		0.02		0.02		0.69		0.69	
Oxidation-Reduction Potential	mV	NV		183		183		137		156.7		-13.4		-18.2		NA		-38		-16		-14		-37.4		-37.4	
pH	STD UNIT	NV		5.58		5.58		4.69		6.04		5.95		5.68		NA		6.20		5.97		6.10		6.27		6.27	
Dissolved Gases (RSK-175)																											
Ethane	µg/L	NV		NA		NA		NA		NA		0.316	J	NA		NA		0.371	J	0.284	J	< 0.25	U	< 0.47	U	< 0.47	U
Ethylene	µg/L	NV		NA		NA		NA		NA		0.954	J	NA		NA		2.26		0.845	J	< 0.5	U	< 0.55	U	< 0.55	U
Methane	µg/L	NV		NA		NA		NA		NA		13.7		NA		NA		22.1		15.6		15.3		9.9		9.6	
General Chemistry (2320B/SM5310B/SW9056A)																											
Alkalinity	mg/L	NV		NA		NA		NA		NA		69		NA		NA		32.4		52.8		52.7		28.7		32.3	
Bromide	mg/L	NV		NA		NA		NA		NA		2.86		NA		NA		3.71	J	2.69		2.11		2.67		2.67	
Nitrate	mg/L	NV		NA		NA		NA		NA		< 0.1	U	NA		NA		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Sulfate	mg/L	NV		NA		NA		NA		NA		5710		NA		NA		5,000		5,550		5,270		2,160		2,050	
Total organic carbon	mg/L	NV		NA		NA		NA		NA		23.8		NA		NA		31.2		27.9		27.7	J-	13.1	J	12.5	
Perchlorate (EPA 6850)																											
Perchlorate	µg/L	17		0.134		< 0.1	U	< 0.05	U	< 0.05	UJ	< 2	U	< 2	U	< 2	U	< 2	U	0.512	J	0.077	J	< 0.5	U	< 0.5	U
Volatile Organic Compounds (8260C)																											
1,1,2-Trichloroethane	µg/L	5		< 1	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7		< 0.5	U	0.61	J	1.3		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		180		200		620		190		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5		< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5		190		190		1,100		97		< 0.5	U	< 0.5	U	< 0.5	U	0.85	J	0.58	J	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2		4		3.9		8.8		1.1		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-4
Year 1 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

			16IW03 (Shallow Zone)										16PM02 (Shallow Zone)								16PM03 (Shallow Zone)							
Location Code			16IW03 (Shallow Zone)										16PM02 (Shallow Zone)								16PM03 (Shallow Zone)							
Sample ID			16IW03-200325		16IW03-200728		16IW03-201013		16IW03-210126		16IW03-210126-FD		16PM02-200317		16PM02-200720		16PM02-201026		16PM02-210122		16PM03-200317		16PM03-200720		16PM03-201026		16PM03-210122	
Sample Date			3/25/2020		7/28/2020		10/13/2020		1/26/2021		1/26/2021		3/17/2020		7/20/2020		10/26/2020		1/22/2021		3/17/2020		7/20/2020		10/26/2020		1/22/2021	
Sample Purpose			REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																												
Dehalococcoides	cells/mL	NV	866		817		634		976		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																												
Dissolved oxygen	mg/L	NV	0.1		0.04		0.04		1.38		1.38		0.09		0.03		0.11		0.49		0.06		3.7		0.02		0.51	
Oxidation-Reduction Potential	mV	NV	-53		-97		-103		49.9		49.9		102		136		74		133		74		117		48		107.6	
pH	STD UNIT	NV	5.21		5.41		5.35		5.33		5.33		5.91		5.42		5.59		5.91		6.35		5.57		6.28		6.38	
Dissolved Gases (RSK-175)																												
Ethane	µg/L	NV	1.38		7.46		4.98	J+	2.7		2.8		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	4.6		50		57.7	J+	500		530		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	12.4		946		685		610		630		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																												
Alkalinity	mg/L	NV	502		NA		771		1390		1240		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.582		0.973		1.27		5.17		4.2		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	0.325		0.851		0.665	J+	< 0.1	UJ	0.152	J	NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	6.92	J-	18.7	J-	10.9	J-	11.6	J	18.1	J	NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	650		47.8		1190		< 1	U	< 1	U	NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																												
Perchlorate	µg/L	17	< 2	U	1.85		0.0876	J	< 0.5	U	< 0.5	U	< 2	U	0.0686	J	< 0.05	U	< 0.05	UJ	400		245		360		330	J
Volatile Organic Compounds (8260C)																												
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 25	U	4.1	J	< 10	U	< 10	U	< 25	U	< 25	U	< 25	U	< 25	U	< 5	U	< 20	U	< 10	U	< 10	U
1,1-Dichloroethene	µg/L	7	37		51		38		49		48		32	J	44		74		34		66		50		40		31	
1,2-Dichloroethane	µg/L	5	< 5	U	< 12	U	5.4		5.9	J	5.7	J	< 25	U	25		60		13	J	21		25		23		18	
cis-1,2-Dichloroethene	µg/L	70	14,000		14,000		11,000		12,000		12,000		3,200		4,800		8,800		2,700		6,600		9,300		5,700		5,300	
Methylene chloride	µg/L	5	< 10	U	< 25	U	< 5	U	< 20	U	< 20	U	< 50	U	< 25	U	< 50	U	< 50	U	< 10	U	< 20	U	17	J	< 20	U
Trichloroethene	µg/L	5	8,000		13,000		10,000		8,800		8,700		21,000		31,000		65,000		23,000		9,700		9,100		12,000		9,800	
Vinyl chloride	µg/L	2	160		460		530		3,700		3,600		51		110		240		50		370		320		370		310	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

FD - field duplicate

µg/L - micrograms per liter

mg/L - milligrams per liter

MCL - maximum contaminant level

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-4
Year 1 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

			16PM06 (Shallow Zone)								16PM09 (Shallow Zone)								16PM14 (Shallow Zone)									
Location Code			16PM06 (Shallow Zone)								16PM09 (Shallow Zone)								16PM14 (Shallow Zone)									
Sample ID			16PM06-200310		16PM06-200720		16PM06-201026		16PM06-210202		16PM09-200310		16PM09-200720		16PM09-201026		16PM09-210122		16PM14-200310		16PM14-200720		16PM14-201026		16PM14-201026-FD		16PM14-210202	
Sample Date			3/10/2020		7/20/2020		10/26/2020		2/2/2021		3/10/2020		7/20/2020		10/26/2020		1/22/2021		3/10/2020		7/20/2020		10/26/2020		10/26/2020		2/2/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																												
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																												
Dissolved oxygen	mg/L	NV	0.09		0.05		0.02		0.03		0.64		0.06		0.1		0.67		0.08		0.2		0.26		0.26		0.08	
Oxidation-Reduction Potential	mV	NV	-53		1		-1		-108		75		77		95		152.7		88		132		133		133		25	
pH	STD UNIT	NV	6.21		5.87		5.93		5.37		6.36		5.76		5.22		6.15		6.36		5.97		6.20		6.20		5.69	
Dissolved Gases (RSK-175)																												
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	2.26		6.08		4.26		6.17		0.266		NA		NA		NA		2.65		5.04		2.01		2.93		7.54	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	8		8.08		6.88		8.53		3.33		NA		NA		NA		10.5		9.97		8.93		8.88		9.84	
Perchlorate (EPA 6850)																												
Perchlorate	µg/L	17	< 2	U	< 0.5	U	< 0.05	U	< 0.5	UJ	< 2	U	< 0.05	U	0.0253	J	< 0.05	UJ	< 2	U	0.435	J	< 0.1	U	< 0.1	U	0.648	J
Volatile Organic Compounds (8260C)																												
1,1,2-Trichloroethane	µg/L	5	< 12	U	< 25	U	< 25	U	< 25	U	1		< 5	U	< 5	U	1.8		< 5	U	< 10	U	< 10	U	< 5	U	< 10	U
1,1-Dichloroethene	µg/L	7	120		150		140		65	J	14		30		50		33		20		21		25		22		18	
1,2-Dichloroethane	µg/L	5	45		50		55		40	J	< 0.5	U	< 2.5	U	< 2.5	U	< 0.5	U	25		24		26		25		23	J
cis-1,2-Dichloroethene	µg/L	70	42,000		49,000		47,000		33,000	J	250		520		1,000		560		3,500		3,300		3,200		3,500		3,500	
Methylene chloride	µg/L	5	< 25	U	< 25	U	< 50	U	< 50	U	< 1	U	< 5	U	< 5	U	< 2	U	< 10	U	< 10	U	< 10	U	< 10	U	< 20	U
Trichloroethene	µg/L	5	44,000		58,000		85,000		49,000	J	680		1,400		2,000		1,300		4,900		5,100		5,400		5,800		3,800	
Vinyl chloride	µg/L	2	1,700		2,100		1,800		790	J	7.8		23		47		32		110		150		140		140		130	

Notes:

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PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-4
Year 1 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

			16WW36 (Shallow Zone)												16WW16 (Shallow Zone)											
Location Code			16WW36 (Shallow Zone)												16WW16 (Shallow Zone)											
Sample ID			16WW36-181009		16WW36-190916		16WW36-200311		16WW36-200714		16WW36-201013		16WW36-210120		16WW16-181010		16WW16-190916		16WW16-200311		16WW16-200311-FD		16WW16-200714		16WW16-201008		16WW16-210120	
Sample Date			10/9/2018		9/16/2019		3/11/2020		7/14/2020		10/13/2020		1/20/2021		10/10/2018		9/16/2019		3/11/2020		3/11/2020		7/14/2020		10/8/2020		1/20/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																										
Dehalococcoides	cells/mL	NV	202				1,500		892		1680		7.9		0.5	U			5.1		NA		2.3		0.5		1.1	
Field Measurements																										
Dissolved oxygen	mg/L	NV	0.39		0.21		0.1		2.42		0.25		2.77		0.96		0.28		0.44		0.44		0.76		0.02		0.99	
Oxidation-Reduction Potential	mV	NV	116.1		87.4		101		105		223		141.1		193.6		58.9		113		113		104		75		162.1	
pH	STD UNIT	NV	6.07		5.98		6.61		6.29		6.06		6.72		6.10		6.12		6.59		6.59		6.48		6.36		6.59	
Dissolved Gases (RSK-175)																										
Ethane	µg/L	NV	< 1	U			2.16		3.38		1.09		< 0.47	U	2.31				4.87		4.98		5.33		5.64		0.75	
Ethylene	µg/L	NV	12.3				18.9		26.1		10.1		0.81	J	4.98				10.2		9.84		10.4		11.6		2.8	
Methane	µg/L	NV	175				749		944		273		240		403				1,210		1,290		997		907		380	
General Chemistry (2320B/SM5310B/SW9056A)																										
Alkalinity	mg/L	NV	613				614		580		563		465		362				397		393		400		391		344	
Bromide	mg/L	NV	2.7				0.91		2.85		2.41		0.503		4.69				4.51		4.62		5.82		6.75		5.92	
Nitrate	mg/L	NV	< 0.2	U			< 0.5	U	< 0.5	U	< 0.5	U	0.074	J	< 0.1	U			< 0.1	U	< 0.1	U	< 0.1	U	< 0.5	U	0.741	
Sulfate	mg/L	NV	6290				2,670		3330		2840		180		722				433		437		521		491		849	
Total organic carbon	mg/L	NV	33				19.7		18.6		18.3		10.2		4.34				4.85		4.97		18.4		3.35		4.07	
Perchlorate (EPA 6850)																										
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 0.5	U	0.167		< 0.05	U	420		460		510		560		442		480		309	
Volatile Organic Compounds (8260C)																										
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 12	U	< 12	U	< 25	U	< 50	U	0.94	J	< 25	U	< 12		< 12	U	< 12	U	< 25	U	< 25	U	< 5	U
1,1-Dichloroethene	µg/L	7	450		190		160		290		170		15		< 25	U	25		37		41		50		59		12	
1,2-Dichloroethane	µg/L	5	34	J	13	J	13	J	20	J	< 25	U	0.85	J	< 25	U	19		30		30		32		33		8.6	
cis-1,2-Dichloroethene	µg/L	70	66,000		19,000		19,000		29,000		26,000		980		8,500		6,600		13,000		13,000		16,000		17,000		2,800	
Methylene chloride	µg/L	5	< 50	U	< 25	U	< 25	U	< 25	U	< 50	U	< 2	U	< 50	U	< 25		< 25	U	< 25	U	< 25	U	44	J	< 10	U
Trichloroethene	µg/L	5	22,000		15,000		18,000		25,000		22,000		1,500		21,000		13,000		27,000		28,000		28,000		32,000		5,700	
Vinyl chloride	µg/L	2	610		230		180		320		180		17		330		220		300		310		430		470		110	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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MCL - maximum contaminant level

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mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-4
Year 1 RA-O Analytical Results, Landfill Biobarrier #2, LHAAP-16

	Location Code		16WW35 (Intermediate Zone)											
	Sample ID		16WW35-181010		16WW35-190918		16WW35-200311		16WW35-200714		16WW35-201013		16WW35-210120	
	Sample Date		10/10/2018		9/18/2019		3/11/2020		7/14/2020		10/13/2020		1/20/2021	
	Sample Purpose		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	33.9		NA		516		36.6		76.2		61.4	
Field Measurements														
Dissolved oxygen	mg/L	NV	0.42		0.26		0.07		0.18		0.16		0.89	
Oxidation-Reduction Potential	mV	NV	158.6		143		122		137		181		147.9	
pH	STD UNIT	NV	6.17		6.64		6.85		6.62		6.63		6.89	
Dissolved Gases (RSK-175)														
Ethane	µg/L	NV	0.644	J	NA		1.2		0.824	J	1.01		0.2	J
Ethylene	µg/L	NV	4.38		NA		10.9		9.31		9.34		2.6	
Methane	µg/L	NV	55		NA		140		114		96.9		53	
General Chemistry (2320B/SM5310B/SW9056A)														
Alkalinity	mg/L	NV	969		NA		1,140		1180		1140		886	
Bromide	mg/L	NV	< 0.2	U	NA		< 1	U	< 1	U	< 0.5	U	3.46	
Nitrate	mg/L	NV	< 0.2	U	NA		< 1	U	< 1	U	< 0.5	U	< 0.2	U
Sulfate	mg/L	NV	8,400		NA		8,660		9850		9510		7880	
Total organic carbon	mg/L	NV	44		NA		58.5		67		65.5		27.8	
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	420		410		560		451		565		< 0.5	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 25	U	< 12	U	< 5	U	< 10	U	< 2.5	U	7.2	J
1,1-Dichloroethene	µg/L	7	190		120		96		81		93		120	
1,2-Dichloroethane	µg/L	5	< 25	U	< 12	U	< 5	U	< 5	U	< 2.5	U	8.2	J
cis-1,2-Dichloroethene	µg/L	70	19,000		8,800		4,000		1,700		1,600		12,000	
Methylene chloride	µg/L	5	< 50	U	< 25	U	< 10	U	< 10	U	< 5	U	< 20	U
Trichloroethene	µg/L	5	21,000		13,000		11,000		9,500		11,000		13,000	
Vinyl chloride	µg/L	2	170		75		82		93		97		60	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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µg/L - micrograms per liter

mg/L - milligrams per liter

MCL - maximum contaminant level

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-5
Year 1 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

	Location Code		16RW06 (Shallow Zone)								16RW07 (Shallow Zone)									
	Sample ID		16RW06-200317		16RW06-200714		16RW06-201026		16RW06-210122		16RW07-200317		16RW07-200714		16RW07-200714-FD		16RW07-201026		16RW07-210122	
	Sample Date		3/17/2020		7/14/2020		10/26/2020		1/22/2021		3/17/2020		7/14/2020		7/14/2020		10/26/2020		1/22/2021	
	Sample Purpose		REG		REG		REG		REG		REG		REG		FD		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																				
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																				
Dissolved oxygen	mg/L	NV	0.73		1.68		0.27		0.55		0.09		0.48		0.48		0.91		0.58	
Oxidation-Reduction Potential	mV	NV	134		136		69		91.1		-26		86		86		143		70.1	
pH	STD UNIT	NV	5.99		5.94		6.27		6.61		6.41		5.96		5.96		5.60		6.52	
Dissolved Gases (RSK-175)																				
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																				
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																				
Perchlorate	µg/L	17	< 2	U	< 0.5	U	< 0.1	U	< 0.25	UJ	4.9		2.45		2.33		0.391		0.638	J
Volatile Organic Compounds (8260C)																				
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 2.5	U	< 5	U	< 5	U	< 1	U	< 5	U
1,1-Dichloroethene	µg/L	7	0.9	J	1		1.3		1.3		12		13		15		6.4		13	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	1.9		2.4		4.8		3.3		120		110		100		38		120	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U	< 5	U	< 5	U	< 5	U	< 1	U	< 10	U
Trichloroethene	µg/L	5	86		77	J+	110		95		1,900		2,100		2,300		1,100		2,000	
Vinyl chloride	µg/L	2	0.84	J	1.2		2.5		2.2		76		89		95		28		90	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-5
Year 1 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

			16RW09 (Shallow Zone)								16RW10 (Shallow Zone)								16IW10 (Shallow Zone)									
Location Code			16RW09 (Shallow Zone)								16RW10 (Shallow Zone)								16IW10 (Shallow Zone)									
Sample ID			16RW09-200311		16RW09-200714		16RW09-201026		16RW09-210202		16RW10-200311		16RW10-200720		16RW10-201026		16RW10-210202		16IW10-200325		16IW10-200714		16IW10-201013		16IW10-210126		16IW10-210126-FD	
Sample Date			3/11/2020		7/14/2020		10/26/2020		2/2/2021		3/11/2020		7/20/2020		10/26/2020		2/2/2021		3/25/2020		7/14/2020		10/13/2020		1/26/2021		1/26/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																												
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		9,120		6,110		59,500		370,000		NA	
Field Measurements																												
Dissolved oxygen	mg/L	NV	0.04		0.03		0.14		0.11		0.86		0.07		0.04		0.09		0.09		0.05		0.13		1.1		1.1	
Oxidation-Reduction Potential	mV	NV	53		128		208		-14		50		94		52		-30		-21		-17		-83		61.1		61.1	
pH	STD UNIT	NV	6.69		5.95		5.56		5.65		6.64		6.35		6.34		6.16		5.19		5.72		6.37		6.11		6.11	
Dissolved Gases (RSK-175)																												
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		6.46		7.51		< 0.25	U	< 0.47	U	< 0.47	U
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		48.3		66.7		19.1		9.9		7.6	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		1,450		4650		1470		1200	J	780	J
General Chemistry (2320B/SM5310B/SW9056A)																												
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		2,390		1760		1680		1320		1320	
Bromide	mg/L	NV	4.86		6.98		5.38		5.84		3.33		8.29		< 0.1	U	7.4		143		119		94.8		83.6		84.5	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		< 0.1	U	< 0.1	U	< 0.5	U	< 0.2	U	< 0.2	U
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		3.19		4.43		5.73		6.59		6.79	
Total organic carbon	mg/L	NV	2.56		2.56		1.58		2.28		4.08		4.58		4.1		3.24		2,720		< 2	U	1220		836		857	
Perchlorate (EPA 6850)																												
Perchlorate	µg/L	17	< 2	U	0.491	J	0.12	J	0.459	J	150		62.7		8.11		125	J	< 2	U	< 0.5	U	< 0.1	U	< 0.5	U	< 0.5	U
Volatile Organic Compounds (8260C)																												
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 5	U	< 0.5	U	< 5	U	< 2.5	U	< 5	U	< 2.5	U	< 10	U	< 5	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	7.5		9.9		7.5		6.8		10		17		21		14		< 5	U	1.5		0.67	J	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 2.5	U	< 0.5	U	< 2.5	U	38		4	J	4.6	J	66		< 5	U	0.96	J	0.98	J	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	34		45		290		230		830		290		390		1,200		110		110		220		23		22	
Methylene chloride	µg/L	5	< 1	U	< 5	U	< 1	U	< 10	U	< 5	U	< 5	U	5.5	J	< 20	U	< 10	U	< 1	U	< 1	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	1,300		1,300		980		690		4,800		1,800		2,000		5,300		200		190		46		31		29	
Vinyl chloride	µg/L	2	41		52		33		25		22		80		100		50		< 5	U	8.4		53		8.3		8.3	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NM - not measured

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-5
Year 1 RA-O Analytical Results, Landfill Biobarrier #3, LHAAP-16

	Location Code		16WW14 (Shallow Zone)												16WW55 (Shallow Zone)											
	Sample ID		16WW14-181010		16WW14-190916		16WW14-200317		16WW14-200720		16WW14-201019		16WW14-210122		16WW55-181015		16WW55-190917		16WW55-200325		16WW55-200714		16WW55-201013		16WW55-210120	
	Sample Date		10/10/2018		9/16/2019		3/17/2020		7/20/2020		10/19/2020		1/22/2021		10/15/2018		9/17/2019		3/25/2020		7/14/2020		10/13/2020		1/20/2021	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																										
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		0.5	U			0.3	J	3.8		< 0.5	U	0.8	
Field Measurements																										
Dissolved oxygen	mg/L	NV	0.44		0.88		0.03		0.26		0.37		0.93		2.08		0.2		0.05		0.52		0.56		0.69	
Oxidation-Reduction Potential	mV	NV	57.1		24		52		95		96		103.5		319.9		90.7		134		182		60		153.5	
pH	STD UNIT	NV	5.93		6.17		6.41		6.24		6.02		6.67		6.19		6.17		6.24		6.21		6.14		6.52	
Dissolved Gases (RSK-175)																										
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		0.749	J			0.607	J	0.682	J	< 0.25	U	0.25	J
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		3.79				2.06		2.76		1.07		0.92	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		136				70.1		82.2		30.1		63	
General Chemistry (2320B/SM5310B/SW9056A)																										
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		347				381		358		355		325	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		2.12				3.78		5.53		4.75		6.06	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.1	U			1.21		< 0.1	U	< 0.1	U	0.861	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		1110				770		982		745		1020	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		7.32				5.21		5.58		4.98		4.25	
Perchlorate (EPA 6850)																										
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	0.544	J	< 0.05	U	< 0.05	UJ	400		480		360		263		287		259	
Volatile Organic Compounds (8260C)																										
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 5	U	< 5	U	< 2.5	U	< 10	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	9.1	J	10		12		< 5	U	7.1	
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	5.3	J	5.8		6.9	J	12		4	J
cis-1,2-Dichloroethene	µg/L	70	2.6		0.79	J	1.2		1.4		< 0.5	U	< 0.5	U	540		310		380		440		450		340	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 10	U	< 10	U	< 5	U	< 10	U	< 10	U	< 10	U
Trichloroethene	µg/L	5	42		25		33		42		25		18		5,900		3,200		4,300		4,500		4,400		2,900	
Vinyl chloride	µg/L	2	1.1		< 0.5	U	0.4	J	0.61	J	< 0.5	U	< 0.5	U	< 5	U	37		25		32		26		26	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

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NA - not analyzed

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NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-6
Year 1 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

Location Code			16IW20 (Shallow Zone)								16RW11 (Shallow Zone)												16WW12 (Shallow Zone)												
Sample ID			16IW20-200309		16IW20-200721		16IW20-201021		16IW20-210127		16RW11-200317		16RW11-200721		16RW11-201021		16RW11-201021-FD		16RW11-210203		16WW12-181012		16WW12-190918		16WW12-200311		16WW12-200721		16WW12-201021		16WW12-210203				
Sample Date			3/9/2020		7/21/2020		10/21/2020		1/27/2021		3/17/2020		7/21/2020		10/21/2020		10/21/2020		2/3/2021		10/12/2018		9/18/2019		3/11/2020		7/21/2020		10/21/2020		2/3/2021				
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG		REG				
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual			
Dechlorinating Bacteria (Census)																																			
Dehalococcoides	cells/mL	NV	0.4	J	1.1		55,400		2,100		NA		NA		NA		NA		NA						NA		NA		NA		NA				
Field Measurements																																			
Dissolved oxygen	mg/L	NV	2.6		0.04		0.07		0.5		0.07		0.24		0.04		0.04		0.04		0.36		0.34		0.61		0.07		0.25		0.08				
Oxidation-Reduction Potential	mV	NV	-230		-211		-23		-41.2		-82		-66		-18		-18		-220		130.1		163.3		158		68		72		55				
pH	STD UNIT	NV	6.49		6		6.20		6.44		6.28		6.46		6.24		6.24		6.68		5.74		5.79		6.41		6.01		6.02		5.82				
Dissolved Gases (RSK-175)																																			
Ethane	µg/L	NV	0.951	J	3.87		4		1.1		NA		NA		NA		NA		NA						NA		NA		NA		NA				
Ethylene	µg/L	NV	4.95		9.89		30.9		22		NA		NA		NA		NA		NA						NA		NA		NA		NA				
Methane	µg/L	NV	46.6		1450		2400		2900		NA		NA		NA		NA		NA						NA		NA		NA		NA				
General Chemistry (2320B/SM5310B/SW9056A)																																			
Alkalinity	mg/L	NV	599		870		877		1110		NA		NA		NA		NA		NA						NA		NA		NA		NA				
Bromide	mg/L	NV	13.4		37.5		34.9		46.7		NA		NA		NA		NA		NA		3.9				3.71		6.16		5.76		5.7				
Nitrate	mg/L	NV	< 0.1	U	< 0.1	U	< 0.1	U	0.0802	J	NA		NA		NA		NA		NA						NA		NA		NA		NA				
Sulfate	mg/L	NV	795		214		165		105		NA		NA		NA		NA		NA						NA		NA		NA		NA				
Total organic carbon	mg/L	NV	10.7		8.4		14.4		20.1		NA		NA		NA		NA		NA						7.08		8.72		3.98		3.73				
Perchlorate (EPA 6850)																																			
Perchlorate	µg/L	17	< 2	U	0.562	J	< 0.05	U	< 0.5	UJ	< 2	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.25	UJ	12		120		53		61.5		18.5		24.1	J			
Volatile Organic Compounds (8260C)																																			
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 5	U	< 2.5	U	< 2.5	U	< 5	U	< 5	U	< 1	U			
1,1-Dichloroethene	µg/L	7	5.4		3.5		1.6		< 0.5	UJ	0.56	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	4.9	J	3.6	J	7.5		3.8	J	3.2				
1,2-Dichloroethane	µg/L	5	6.2		4.4		2.7		0.92	J	1.6		1.6		0.73	J	0.91	J	< 0.5	U	16		9.2		7.5		12		5.5		4.3				
cis-1,2-Dichloroethene	µg/L	70	57		170		170		47	J	73		60	J-	3.5		3.3		0.92	J	86		52		48		71		67		84				
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 10	U	< 5	U	< 5	U	< 5	U	< 5	U	< 2	U			
Trichloroethene	µg/L	5	850		280		130		13		20		8.9	J-	3.7		3.3		2.2		4,100		2,100		1,700		2,800		1,500		1,100				
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	7.2	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	12		5.5		3.4	J	8.1		5.8		4.8				

Notes:

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RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-6
Year 1 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

			16WW22 (Shallow Zone)												16WW40 (Shallow Zone)													
Location Code			16WW22 (Shallow Zone)												16WW40 (Shallow Zone)													
Sample ID			16WW22-181010		16WW22-190917		16WW22-200316		16WW22-200715		16WW22-201014		16WW22-210125		16WW40-181012		16WW40-181012-FD		16WW40-190917		16WW40-200310		16WW40-200721		16WW40-201021		16WW40-210203		16WW40-210203-FD	
Sample Date			10/10/2018		9/17/2019		3/16/2020		7/15/2020		10/14/2020		1/25/2021		10/12/2018		10/12/2018		9/17/2019		3/10/2020		7/21/2020		10/21/2020		2/3/2021		2/3/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		FD	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																														
Dehalococcoides	cells/mL	NV	5.2				4.6		4		11.1		28.3								NA		NA		NA		NA		NA	
Field Measurements																														
Dissolved oxygen	mg/L	NV	0.89		0.23		0.05		0.05		0.62		0.78		0.3				2.09		0.06		0.04		0.04		0.04		0.04	
Oxidation-Reduction Potential	mV	NV	68.3		-17.7		-5		51		8		51.1		-44.1				7.8		78		-107		22		47		47	
pH	STD UNIT	NV	5.86		6.05		6.39		6.21		6.27		6.30		5.90				5.88		6.3		6.12		6.21		5.46		5.46	
Dissolved Gases (RSK-175)																														
Ethane	µg/L	NV	< 1	U			0.288	J	< 0.25	U	< 0.25	U	< 0.47	U							NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	1.56				1.68		1.16		< 0.5	U	< 0.55	U							NA		NA		NA		NA		NA	
Methane	µg/L	NV	2.46				2.98		2.04		2.04		0.91	J							NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																														
Alkalinity	mg/L	NV	239				168		204		183		200								NA		NA		NA		NA		NA	
Bromide	mg/L	NV	4.46				4		5.77		5.26		5.54		5.57		5.72				4.2		8.9		6.97		9.31		8.78	
Nitrate	mg/L	NV	< 0.1	U			< 0.5	U	< 0.1	U	< 0.1	U	0.186	J							NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	772				368		283		163		307								NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	2.62				2.35		1.23		0.81		1.13								9.79		8.66		7.35		7.61		7.57	
Perchlorate (EPA 6850)																														
Perchlorate	µg/L	17	5.5		< 2	U	< 2	U	0.442	J	< 0.05	U	0.246	J	< 2	U	< 2	U	< 2	U	< 2	U	0.898	J	0.24		1.31	J	0.85	J
Volatile Organic Compounds (8260C)																														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 2.5	U	< 5	U	< 5	U
1,1-Dichloroethene	µg/L	7	1.9		< 0.5	U	0.65	J	< 0.5	U	< 0.5	U	< 0.5	U	3.5		3.5		3.7		5.8		7		7.5		5.3		4.3	J
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	3.8		3.8		3.8		5.2		6.1		6		7	J	6.8	
cis-1,2-Dichloroethene	µg/L	70	19		2.7		4.2		2.7		3		3.2		220		240		130		160		220		230		150		160	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 5	U	< 5	U	< 10	U	< 10	U
Trichloroethene	µg/L	5	150		34		52		24		7.8		30		660		640		740		1,500		1,700		1,700		1,500		1,400	
Vinyl chloride	µg/L	2	4.5		0.44	J	0.69	J	< 0.5	U	< 0.5	U	0.49	J	4.5		4.2		3		4.1		5.3		6.3		4.4	J	4.5	J

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-6
Year 1 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

Location Code			16WW39 (Shallow Zone)												16WW21 (Upper Deep Well)																
Sample ID			16WW39-181010		16WW39-190917		16WW39-200316		16WW39-200715		16WW39-201014		16WW39-210203		16WW21-181012		16WW21-200316		16WW21-200316-FD		16WW21-200715		16WW21-201014		16WW21-201014-FD		16WW21-210203		16WW21-210203-FD		16WW4
Sample Date			10/10/2018		9/17/2019		3/16/2020		7/15/2020		10/14/2020		2/3/2021		10/12/2018		3/16/2020		3/16/2020		7/15/2020		10/14/2020		10/14/2020		2/3/2021		2/3/2021		10/9
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		FD		RI
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result
Dechlorinating Bacteria (Census)																															
Dehalococcoides	cells/mL	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		0.5
Field Measurements																															
Dissolved oxygen	mg/L	NV	0.48		0.23		0.08		0.05		0.25		0.03		0.82		0.88		0.88		0.41		0.23		0.23		0.12		0.12		0.79
Oxidation-Reduction Potential	mV	NV	115.9		24.1		122		92		47		-50		166.4		50		50		153		17		17		-152		-152		266
pH	STD UNIT	NV	5.74		5.97		6.50		5.94		6.13		5.38		5.52		7.89		7.89		5.67		6.55		6.55		6.50		6.50		6.21
Dissolved Gases (RSK-175)																															
Ethane	µg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		0.281
Ethylene	µg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		3.04
Methane	µg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		6.55
General Chemistry (2320B/SM5310B/SW9056A)																															
Alkalinity	mg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		951
Bromide	mg/L	NV	4.2				4.84		7.98		7.9		8.44		0.218		0.206		0.209		1.3		0.864		0.895		0.578		0.62		3.35
Nitrate	mg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		< 0.2
Sulfate	mg/L	NV					NA		NA		NA		NA				NA		NA		NA		NA		NA		NA		NA		9,260
Total organic carbon	mg/L	NV					4.57		2.61		2.31		1.62	J			< 1.2	UJ	< 0.78	UJ	0.89		0.58		0.12	J	< 0.2	U	< 0.2	U	58
Perchlorate (EPA 6850)																															
Perchlorate	µg/L	17	120		130		62		15.1		1.08		3.64	J	< 2	U	< 2	U	< 2	U	0.25		< 0.05	U	< 0.05	U	< 0.05	UJ	< 0.05	UJ	60
Volatile Organic Compounds (8260C)																															
1,1,2-Trichloroethane	µg/L	5	< 5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 5
1,1-Dichloroethene	µg/L	7	< 5	U	2.7		2.3		2		1.7		0.84	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	17
1,2-Dichloroethane	µg/L	5	< 5	U	2		1.7		1.2		1.3		0.72	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5
cis-1,2-Dichloroethene	µg/L	70	220		110		98		74		73		37		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	1,200
Methylene chloride	µg/L	5	< 10	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	UJ	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 10
Trichloroethene	µg/L	5	3,900		1,200		1,100		560		350		300		< 0.5	U	1.3		1.1		0.55	J	1.5		1.9		< 0.5	U	< 0.5	U	9,800
Vinyl chloride	µg/L	2	15		7.1		5.3		3.3		5		2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	110

Notes:

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FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-6
Year 1 RA-O Analytical Results, Bayou Biobarrier, LHAAP-16

			16WW41 (Intermediate Zone)												16WW56 (Shallow Zone)									
Location Code			16WW41-		16WW41-190917		16WW41-200316		16WW41-200715		16WW41-201014		16WW41-210125		16WW56-		16WW56-		16WW56-200715		16WW56-201021		16WW56-210125	
Sample ID			181009																					
Sample Date			2018		9/17/2019		3/16/2020		7/15/2020		10/14/2020		1/25/2021		9/17/2019		3/16/2020		7/15/2020		10/21/2020		1/25/2021	
Sample Purpose			EG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																								
Dehalococcoides	cells/mL	NV	U	NA		< 0.5	U	0.15	J	0.3	J	0.3	J			8.8		27.4		41.5		65.3		
Field Measurements																								
Dissolved oxygen	mg/L	NV		0.27		0.09		0.06		0.28		0.67		0.22		0.55		1.48		0.31		0.64		
Oxidation-Reduction Potential	mV	NV		109.5		82		149		10		61.5		33.7		2		105		233		204.7		
pH	STD UNIT	NV		6.18		6.59		6.32		6.63		6.61		6.05		6.75		6.67		6.40		6.33		
Dissolved Gases (RSK-175)																								
Ethane	µg/L	NV	J	NA		0.374	J	< 0.25	U	< 0.25	U	0.54	J	< 0.47	U	0.417	J	< 0.25	U	< 0.25	U	< 0.47	U	
Ethylene	µg/L	NV		NA		9.96		10.2		10.7		110		0.36	J	5.17		0.93	J	2.01	J+	0.36	J	
Methane	µg/L	NV		NA		16.3		16.6		14.5		180		0.57	J	4.94		1.39		1.26		0.57	J	
General Chemistry (2320B/SM5310B/SW9056A)																								
Alkalinity	mg/L	NV		NA		1,010		1040		1000		1010		188		389		178		233		188		
Bromide	mg/L	NV		NA		< 0.5	U	5.9		< 0.5	U	< 1	U	5.1		3.19		5.2		3.95	J+	5.1		
Nitrate	mg/L	NV	U	NA		< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	0.213		< 0.5	U	< 0.1	U	< 0.1	U	0.213		
Sulfate	mg/L	NV		NA		8,060		8830		9220		9300		252		2,090		140		1190		252		
Total organic carbon	mg/L	NV		NA		44.8		42		40.8		49.6		1.17		10.7		0.93		0.72		1.17		
Perchlorate (EPA 6850)																								
Perchlorate	µg/L	17		< 2	U	310		155		81.2		3.71	J	< 2	U	< 2	U	< 0.5	U	0.309		< 0.1	UJ	
Volatile Organic Compounds (8260C)																								
1,1,2-Trichloroethane	µg/L	5	U	< 5	U	< 2.5	U	< 20	U	< 5	U	< 10	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	
1,1-Dichloroethene	µg/L	7		11		14		24	J+	17		20		< 0.5	U	2.9		< 0.5	U	1.5		< 0.5	U	
1,2-Dichloroethane	µg/L	5	U	< 5	U	4	J	< 10	U	5.7	J	< 5	U	< 0.5	U	3.4		< 0.5	U	0.66	J	< 0.5	U	
cis-1,2-Dichloroethene	µg/L	70		1,300		2,000		2,000	J+	2,400		2,400		1.7		44		< 0.5	U	20	J+	3.7		
Methylene chloride	µg/L	5	U	< 10	U	< 5	U	< 20	U	< 10	U	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	
Trichloroethene	µg/L	5		3,900		6,400		6,200		5,400		5,400		27		520		9.3		270		29		
Vinyl chloride	µg/L	2		80		120		160	J+	230		340		0.41	J	6.3		< 0.5	U	2.8		< 0.5	U	

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COC concentrations highlighted in blue exceed the PCL/MCL.

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PCL – Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-7
Year 1 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

			Location Code	16EW01 (Shallow Zone)								16EW02 (Shallow Zone)													
			Sample ID	16EW01-200309		16EW01-200716		16EW01-201020		16EW01-210125		16EW02-181009		16EW02-190918		16EW02-200309		16EW02-200716		16EW02-200716-FD		16EW02-201021		16EW02-210126	
			Sample Date	3/9/2020		7/16/2020		10/20/2020		1/25/2021		10/9/2018		9/18/2019		3/9/2020		7/16/2020		7/16/2020		10/21/2020		1/26/2021	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																									
Dehalococcoides	cells/mL	NV		4.9		0.2	J	0.4	J	292		0.2	J			3.6		5.9		NA		406		3600	
Field Measurements																									
Dissolved oxygen	mg/L	NV		4.68		0.79		0.34		0.6		1.16		1.11		3.77		0.37		0.37		0.02		0.67	
Oxidation-Reduction Potential	mV	NV		-79		58		22		46.2		80.2		171		55		191		191		43		65.6	
pH	STD UNIT	NV		6.36		5.88		6.33		6.61		6.00		6.16		6.86		5.96		5.96		6.25		6.19	
Dissolved Gases (RSK-175)																									
Ethane	µg/L	NV		3.01	J	0.603	J	< 2.5	U	< 0.47	U	1.16				0.463	J	0.275	J	0.349	J	< 0.25	U	0.71	
Ethylene	µg/L	NV		92.8		105		112		9.1		8.81				1.58		0.627	J	1.12		1.54		26	
Methane	µg/L	NV		82.6		177		182		11		33.6				4.34		5.65		6.34		9.39		130	
General Chemistry (2320B/SM5310B/SW9056A)																									
Alkalinity	mg/L	NV		396		418		517		891		438				418		407		411		328		473	
Bromide	mg/L	NV		3.39		6.04		7.02		13.5		2.66				2.06		12.7		11.9		6.87		7.05	
Nitrate	mg/L	NV		< 0.1	U	< 0.5	U	< 0.5	U	1.46		< 0.1	U			< 0.1	U	< 0.1	U	< 0.1	U	< 0.5	U	< 0.2	U
Sulfate	mg/L	NV		206		3,510		3,960		4,270		2,130				1,260		1,650		1,590		1,380		2,950	
Total organic carbon	mg/L	NV		13.4		13.7		14.4		19.4		10.3				6.48		8.37		8.3		7.36		12	
Perchlorate (EPA 6850)																									
Perchlorate	µg/L	17		28		28.4		27.5		180	J	< 2	U	< 2	U	25		16.2		9.34		< 0.05	U	< 0.5	U
Volatile Organic Compounds (8260C)																									
1,1,2-Trichloroethane	µg/L	5		< 5	U	< 20	U	< 12	U	< 10	U	< 25	U	< 12	U	< 12	U	< 25	U	< 25	U	< 25	U	< 25	U
1,1-Dichloroethene	µg/L	7		27		36		29		24		100		110		37		97		86		110		140	
1,2-Dichloroethane	µg/L	5		24		27		25		16		< 25	U	51		22	J	43		39		48	J	55	
cis-1,2-Dichloroethene	µg/L	70		6,500		6,800		7,600		7,200		16,000		25,000		11,000		22,000		21,000		26,000		35,000	
Methylene chloride	µg/L	5		< 10	U	< 20	U	< 25	U	< 20	U	< 50	U	< 25	U	< 25	U	< 25	U	< 25	U	< 50	U	< 50	U
Trichloroethene	µg/L	5		3,700		4,700		5,400		4,100		24,000		42,000		17,000		37,000		35,000		26,000		38,000	
Vinyl chloride	µg/L	2		530		780		630		820		470		650		< 12	U	39		28		51		930	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

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RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-7
Year 1 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

			Location Code	16EW03 (Shallow Zone)							16EW04 (Shallow Zone)								16WW30 (Shallow Zone)									
			Sample ID	16EW03-200325		16EW03-200728		16EW03-201022		16EW03-210202			16EW04-200309		16EW04-200728		16EW04-201020		16EW04-210202		16WW30-181012		16WW30-190918		16WW30-200330		16WW30-		16WW30-201014		16WW30-210121	
			Sample Date	3/25/2020		7/28/2020		10/22/2020		2/2/2021			3/9/2020		7/28/2020		10/20/2020		2/2/2021		10/12/2018		9/18/2019		3/30/2020		7/15/2020		10/14/2020		1/21/2021	
			Sample Purpose	REG		REG		REG		REG			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																															
Dehalococcoides	cells/mL	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Field Measurements																															
Dissolved oxygen	mg/L	NV		0.24		2.25		0.02		0.09			2.78		0.11		0.02		0.03		1.3		0.22		0.06		0.07		0.08		0.52	
Oxidation-Reduction Potential	mV	NV		-98		-263		-73		-189			65		82		-105		-54		50.1		-54.3		152		2		-27		-28.3	
pH	STD UNIT	NV		6.97		6.39		6.18		6.25			7.26		5.91		6.70		5.66		5.83		6.14		4.40		5.81		6.19		6.23	
Dissolved Gases (RSK-175)																															
Ethane	µg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Ethylene	µg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Methane	µg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																															
Alkalinity	mg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Bromide	mg/L	NV		NA		NA		NA		NA			0.637		NA		NA		NA		3.22				1.05		3.79		3.56		4.18	
Nitrate	mg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Sulfate	mg/L	NV		NA		NA		NA		NA			NA		NA		NA		NA						NA		NA		NA		NA	
Total organic carbon	mg/L	NV		NA		NA		NA		NA			3.4		NA		NA		NA						5.23		2.35		2.13		1.01	
Perchlorate (EPA 6850)																															
Perchlorate	µg/L	17		< 10	U	2.09		< 0.1	U	< 0.5	UJ		< 2	U	1.42		< 0.05	U	< 0.5	UJ	< 2	U	< 2	U	< 2	U	0.309	J	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																															
1,1,2-Trichloroethane	µg/L	5		< 2.5	U	< 25	U	1.3		< 5	U		< 2.5	U	< 25	U	< 5	UJ	< 10	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7		< 2.5	U	< 12	U	1.2		4	J		3	J	20	J	5.9	J-	16		< 0.5	U	0.82	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5		4.5	J	< 12	U	3.4		< 2.5	U		2.5	J	13	J	< 5	UJ	13		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		1,700	J-	440		1,400		1,100			960		4,300		4,400		4,800		< 0.5	U	79		< 0.5	U	< 0.5	U	< 0.5	U	0.77	J
Methylene chloride	µg/L	5		< 5	U	< 25	U	< 1	U	< 10	U		< 5	U	< 25	U	< 10	UJ	< 20	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5		170		60		130		290			3,400		15,000		520	J-	17,000		1.8		360		14		3.5		5.7		2.2	
Vinyl chloride	µg/L	2		750		< 12	U	200		780			< 2.5	U	15	J	< 5	UJ	29		< 0.5	U	0.41	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-7
Year 1 RA-O Analytical Results, Mid-Plume Area, Shallow Zone, LHAAP-16

Location Code			16WW48 (Shallow Zone)														
Sample ID			16WW48-181018		16WW48-		16WW48-200330		16WW48-200330-FD		16WW48-200715		16WW48-201020		16WW48-210121		
Sample Date			10/18/2018		9/18/2019		3/30/2020		3/30/2020		7/15/2020		10/20/2020		1/21/2021		
Sample Purpose			REG		REG		REG		FD		REG		REG		REG		
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	
Dechlorinating Bacteria (Census)																	
Dehalococcoides	cells/mL	NV					1		NA		0.5		1.9		25.8		
Field Measurements																	
Dissolved oxygen	mg/L	NV	0.98		0.25		0.08		0.08		0.04		0.03		1.78		
Oxidation-Reduction Potential	mV	NV	173.1		124.7		33		33		158		59		40.9		
pH	STD UNIT	NV	5.75		5.80		5.6		5.6		5.57		6.26		6.37		
Dissolved Gases (RSK-175)																	
Ethane	µg/L	NV	0.174	J			< 0.5	U	< 0.5	U	0.249	J	< 0.25	UJ	< 0.47	U	
Ethylene	µg/L	NV	2.19				0.244	J	0.546	J	1.6		1.23	J-	< 0.55	U	
Methane	µg/L	NV	2.21				1.12		1.48		2.69		3.53	J-	1.2	J	
General Chemistry (2320B/SM5310B/SW9056A)																	
Alkalinity	mg/L	NV	259				312		313		312		351		358		
Bromide	mg/L	NV	4.33				4.55		4.62		9.4		7.35		7.43		
Nitrate	mg/L	NV	< 0.2				< 0.5	U	< 0.5	U	< 0.2	U	< 0.5	U	0.408		
Sulfate	mg/L	NV	1,770				2,020		2,010		2,330		2,490		2,380		
Total organic carbon	mg/L	NV	8.78				9.82		9.5		8.9		8.44		7.81		
Perchlorate (EPA 6850)																	
Perchlorate	µg/L	17	14		< 2	U	120		110		157		167		122		
Volatile Organic Compounds (8260C)																	
1,1,2-Trichloroethane	µg/L	5	< 0.5		< 2.5	U	< 10	U	< 10	U	< 20	U	< 25	U	< 10	U	
1,1-Dichloroethene	µg/L	7	11		7		12	J	13	J	27		32		36		
1,2-Dichloroethane	µg/L	5	12		7		19	J	18	J	34		44		36		
cis-1,2-Dichloroethene	µg/L	70	2,600		1,800		5,000		4,800		9,500		16,000		15,000		
Methylene chloride	µg/L	5	< 1		< 5	U	< 20	U	< 20	U	< 20	U	< 25	U	< 20	U	
Trichloroethene	µg/L	5	8,800		3,700		7,100		6,900		9,000		14,000	J+	13,000		
Vinyl chloride	µg/L	2	15		7.4		< 10	U	< 10	U	22		57		20		

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

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MCL - maximum contaminant level

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mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-8
Year 1 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

	Location Code		16EW05 (Intermediate Zone)				16EW06 (Intermediate Zone)																		16EW07 (Intermediate Zone)			
	Sample ID		16EW05-200330		16EW05-200716		16EW06-181009		16EW06-181011		16EW06-190918		16EW06-200325		16EW06-200716		16EW06-201021		16EW06-201021-FD		16EW06-210202		16EW06-210202-FD		16EW07-181013		16EW07-200325	
	Sample Date		3/30/2020		7/16/2020		10/9/2018		10/11/2018		9/18/2019		3/25/2020		7/16/2020		10/21/2020		10/21/2020		2/2/2021		2/2/2021		10/13/2018		3/25/2020	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		FD		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																												
Dehalococcoides	cells/mL	NV	5,060		5,040		1.7						NA		NA		NA		NA		NA		NA				NA	
Field Measurements																												
Dissolved oxygen	mg/L	NV	0.07		0.04		0.95		0.74		0.53		0.02		0.08		0.11		0.11		0.07		0.07		1.62		0.05	
Oxidation-Reduction Potential	mV	NV	-47		-32		59.3		189.9		58		29		-41		-49		-49		-59		-59		-130.9		-37	
pH	STD UNIT	NV	5.25		5.65		5.84		6.17		6.18		4.52		5.87		5.93		5.93		5.87		5.87		7.12		5.1	
Dissolved Gases (RSK-175)																												
Ethane	µg/L	NV	9.16		NA		0.31	J					NA		NA		NA		NA		NA		NA				NA	
Ethylene	µg/L	NV	2.22		NA		3.76						NA		NA		NA		NA		NA		NA				NA	
Methane	µg/L	NV	248		NA		8.39						NA		NA		NA		NA		NA		NA				NA	
General Chemistry (2320B/SM5310B/SW9056A)																												
Alkalinity	mg/L	NV	102	U	66.2		438						NA		NA		NA		NA		NA		NA				NA	
Bromide	mg/L	NV	5	U	19.8		3.38		3.1				NA		NA		NA		NA		NA		NA		2.14		NA	
Nitrate	mg/L	NV	5	U	0.995	U	< 0.2	U					NA		NA		NA		NA		NA		NA				NA	
Sulfate	mg/L	NV	25	U	64.7		6,120						NA		NA		NA		NA		NA		NA				NA	
Total organic carbon	mg/L	NV	300		NA		31		NA				NA		NA		NA		NA		NA		NA				NA	
Perchlorate (EPA 6850)																												
Perchlorate	µg/L	17	< 20	U	0.16	J	< 2	U			42		< 10	U	< 0.75	U	< 0.75	U	< 0.75	U	< 0.75	U	< 0.75	U			< 10	U
Volatile Organic Compounds (8260C)																												
1,1,2-Trichloroethane	µg/L	5	< 50	UJ			< 2.5	U			< 12	U	< 50	U			< 250	U	< 500	U	< 500	U	< 500	U			< 50	U
1,1-Dichloroethene	µg/L	7	< 50	UJ			25				22	J	< 50	U			< 250	U	< 250	U	< 250	U	< 250	U			< 50	U
1,2-Dichloroethane	µg/L	5	< 50	UJ			4.6	J			< 12	U	< 50	U			< 250	U	< 250	U	< 250	U	< 250	U			< 50	U
cis-1,2-Dichloroethene	µg/L	70	< 50	UJ	Refer to note "a"		3,700				3,700		160		Refer to note "a"		750		520		400	J	520				< 50	U
Methylene chloride	µg/L	5	< 100	UJ			< 5	U			< 25	U	< 100	U			< 500	U	< 500	U	< 1000	U	< 1000	U			< 100	U
Trichloroethene	µg/L	5	< 50	UJ			5,500				6,500		< 50	U			< 250	U	< 250	U	< 250	U	< 250	U			100	
Vinyl chloride	µg/L	2	< 50	UJ			240				190		< 50	U			510		< 250	U	250	J	240	J			< 50	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

" VOC samples from 16EW05, 16EW06, and 16EW07 were collected. The sample matrix was very viscous and describe by the lab as oil and grease. The samples were analyzed as solids with high dilution instead of liquids by the laboratory as a liquid due to the consistency. The analytical data for these locations are not reported here, as the dilution and alternate method used make them unsuitable for comparison to the pre-remedy samples.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-8
Year 1 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

			Location Code	16EW07 (Intermediate Zone)						16EW08 (Intermediate Zone)										16WW29 (Intermediate Zone)									
			Sample ID	16EW07-200728		16EW07-201022		16EW07-210202		16EW08-181013		16EW08-200331		16EW08-200728		16EW08-201020		16EW08-210202		16WW29-181015		16WW29-190918		16WW29-200330		16WW29-200715		16WW29-201014		16WW29-210121	
			Sample Date	7/28/2020		10/22/2020		2/2/2021		10/13/2018		3/31/2020		7/28/2020		10/20/2020		2/2/2021		10/15/2018		9/18/2019		3/30/2020		7/15/2020		10/14/2020		1/21/2021	
			Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																															
Dehalococcoides	cells/mL	NV		NA		NA		NA				NA		NA		NA		NA		0.5				10.1		7.5		32.2		7.2	
Field Measurements																															
Dissolved oxygen	mg/L	NV		0.33		0.47		0.4		0.48		0.07		0.26		0.03		0.06		1.16		0.42		0.04		0.07		3.01		4.79	
Oxidation-Reduction Potential	mV	NV		-247		-261		-257		-16		-27		-243		74		-122		25.1		-39.1		-44		-6		-2		138.3	
pH	STD UNIT	NV		5.53		5.59		5.45		6.23		5.20		5.85		4.97		5.00		6.19		5.85		4.96		5.77		5.99		5.97	
Dissolved Gases (RSK-175)																															
Ethane	µg/L	NV		NA		NA		NA				NA		NA		NA		NA		< 1	U			0.275	J	0.26	J	< 0.25	U	< 0.47	U
Ethylene	µg/L	NV		NA		NA		NA				NA		NA		NA		NA		1.87				0.864	J	1.14		1.13		< 0.55	U
Methane	µg/L	NV		NA		NA		NA				NA		NA		NA		NA		2.41				35.5		31.3		15.3		8	
General Chemistry (2320B/SM5310B/SW9056A)																															
Alkalinity	mg/L	NV		NA		NA		NA				NA		NA		NA		NA		45.9				65.2		24.4		71.8		26.2	
Bromide	mg/L	NV		NA		NA		NA		1.11		< 0.5	U	16		9.59		7.93		0.218				1.16		2.62		1.37		0.886	
Nitrate	mg/L	NV		NA		NA		NA				NA		NA		NA		NA		< 0.1	U			< 0.1	U	< 0.2	U	< 0.2	U	0.273	
Sulfate	mg/L	NV		NA		NA		NA				NA		NA		NA		NA		99.2				1,560		1900		1200		462	
Total organic carbon	mg/L	NV		NA		NA		NA				800		711		332		445		1.8				16		15.3		11.2		4.47	
Perchlorate (EPA 6850)																															
Perchlorate	µg/L	17		4.68	J	< 0.75	U	< 0.75	U			< 20	U	0.0836	J	< 0.05	U	< 0.05	UJ	< 2		< 2	U	< 2	U	< 0.5	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																															
1,1,2-Trichloroethane	µg/L	5				< 500	U	< 500	U			< 100	U	< 50	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7				< 250	U	< 250	U			< 50	U	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5				< 250	U	< 250	U			< 50	U	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	Refer to note "a"			< 250	U	< 250	U			< 50	U	< 25	U	1.7		1	J	8.4		< 0.5	U	< 0.5	U	< 0.5	U	1.1		1.8	
Methylene chloride	µg/L	5				< 500	U	< 1000	U			< 100	U	< 50	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5				490	J	< 250	U			52	J	< 25	U	1.6		3.1		3.3		2.7		< 0.5	U	< 0.5	U	< 0.5	U	0.99	J
Vinyl chloride	µg/L	2				< 250	U	< 250	U			< 50	U	< 25	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

" VOC samples from 16EW05, 16EW06, and 16EW07 were collected. The sample matrix was very viscous and describe by the lab as oil and grease. The samples were analyzed as solids with high dilution instead of liquids by the laboratory as a liquid due to the consistency. The analytical data for these locations are not reported here, as the dilution and alternate method used make them unsuitable for comparison to the pre-remedy samples.

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PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-8
Year 1 RA-O Analytical Results, Mid-Plume Area, Intermediate Zone, LHAAP-16

			16WW49 (Intermediate Zone)										16WW51 (Intermediate Zone)											
Location Code			16WW49 (Intermediate Zone)										16WW51 (Intermediate Zone)											
Sample ID			16WW49-190919		16WW49-200316		16WW49-200727		16WW49-201020		16WW49-210129		16WW51-190918		16WW51-200317		16WW51-200727		16WW51-200727-FD		16WW51-201020		16WW51-210129	
Sample Date			9/19/2019		3/16/2020		7/27/2020		10/20/2020		1/29/2021		9/18/2019		3/17/2020		7/27/2020		7/27/2020		10/20/2020		1/29/2021	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																								
Dehalococcoides	cells/mL	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Field Measurements																								
Dissolved oxygen	mg/L	NV	0.44		0.08		0.04		0.09		1.48		0		0.07		0.1		0.1		0.18		0.54	
Oxidation-Reduction Potential	mV	NV	-27.3		-38		28		-23		-11.4		-90.8		-84		21		21		41		-58.3	
pH	STD UNIT	NV	6.16		6.51		6.23		6.39		6.67		6.06		6.32		5.99		5.99		5.49		6.14	
Dissolved Gases (RSK-175)																								
Ethane	µg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Ethylene	µg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Methane	µg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																								
Alkalinity	mg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Bromide	mg/L	NV			2.16		3.01		2.66		3.12				3.71		5.27		5.26		4.65		5.58	
Nitrate	mg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Sulfate	mg/L	NV			NA		NA		NA		NA				NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV			5.22		4.11		3.74		3.81				4.43		4.55		4.57		4.52		3.9	
Perchlorate (EPA 6850)																								
Perchlorate	µg/L	17	< 2	U	< 2	U	2.41		< 0.05	U	< 0.5	U	< 2	U	< 2	U	2.86		2.82		< 0.05	U	< 0.5	U
Volatile Organic Compounds (8260C)																								
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 5	U	< 5	U	< 2.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	0.77	J	0.77	J	< 0.5	U	< 0.5	U	< 0.5	U	1.4		2.8	J	3.4	J	< 2.5	U	1.3	
1,2-Dichloroethane	µg/L	5	0.86	J	0.85	J	0.77	J	0.66	J	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	130		270		170		190		120		9.1		25		54		57		50		86	
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 5	U	< 5	U	< 5	U	< 2	U
Trichloroethene	µg/L	5	260		8.3		36		4.8		2.5		90		830		1,300		1,300		1,700		1,000	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	0.41	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 2.5	U	< 2.5	U	< 2.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

" VOC samples from 16EW05, 16EW06, and 16EW07 were collected. The sample matrix was very viscous and describe by the lab as oil and grease. The samples were analyzed as solids with high dilution instead of liquids by the laboratory as a liquid due to the consistency. The analytical data for these locations are not reported here, as the dilution and alternate method used make them unsuitable for comparison to the pre-remedy samples.

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

	Location Code		16WW23 (Intermediate Zone)												16WW24 (Shallow Zone)													
	Sample ID		16WW23-181012		16WW23-190917		16WW23-200331		16WW23-200727		16WW23-201008		16WW23-210128		16WW24-181009		16WW24-181009-FD		16WW24-190917		16WW24-200331		16WW24-200331-FD		16WW24-200727		16WW24-201008		16WW24-210128	
	Sample Date		10/12/2018		9/17/2019		3/31/2020		7/27/2020		10/8/2020		1/28/2021		10/9/2018		10/9/2018		9/17/2019		3/31/2020		3/31/2020		7/27/2020		10/8/2020		1/28/2021	
	Sample Purpose		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		FD		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																														
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		1.6	NA	NA		NA		NA		NA		NA		NA		NA	
Field Measurements																														
Dissolved oxygen	mg/L	NV	1.23		0.14		0.08		0.03		0.04		1.37		0.17	NA	NA		0.44		0.04		0.04		0.03		0.03		2.09	
Oxidation-Reduction Potential	mV	NV	13.2		8		2		17		-23		56.7		282.6	NA	NA		357		356		356		17		225		189.3	
pH	STD UNIT	NV	5.49		6.07		4.53		5.67		5.96		5.61		3.54	NA	NA		3.76		4.78		4.78		5.67		3.89		3.44	
Dissolved Gases (RSK-175)																														
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		0.256	J	0.555	J	NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		1.39	J	1.24		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		1.65		3.27		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		< 5	U	< 5	U	NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.218		NA		NA		NA		NA		NA		1.26		1.32		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		< 0.1	U	< 0.1	U	NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		905		898		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		2.76		2.65		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																														
Perchlorate	µg/L	17	< 2	U	< 2	U	< 20	U	< 0.05	U	< 0.05	U	0.346	J	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 0.05	U	< 0.05	U	< 0.5	U
Volatile Organic Compounds (8260C)																														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

estimation due to discrepancies in meeting certain analyte-specific

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

NS - not sampled

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			16WW27 (Intermediate Zone)																16WW31 (Intermediate Zone)											
Location Code			16WW27 (Intermediate Zone)																16WW31 (Intermediate Zone)											
Sample ID			16WW27-181012		16WW27-190917		16WW27-200312		16WW27-200312-FD		16WW27-200723		16WW27-201022		16WW27-201022-FD		16WW27-210128		16WW31-181010		16WW31-181010-FD		16WW31-200312		16WW31-200727		16WW31-201019		16WW31-210119	
Sample Date			10/12/2018		9/17/2019		3/12/2020		3/12/2020		7/23/2020		10/22/2020		10/22/2020		1/28/2021		10/10/2018		10/10/2018		3/12/2020		7/27/2020		10/19/2020		1/19/2021	
Sample Purpose			REG		REG		REG		FD		REG		REG		FD		REG		REG		FD		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																														
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																														
Dissolved oxygen	mg/L	NV	0.98		0.04		0.05		0.05		0.03		0.03		0.03		0.67		0.71		0.71		0.04		0.22		0.12		0.98	
Oxidation-Reduction Potential	mV	NV	-11.4		-26		-52		-52		2		4		4		-28.8		219.1		219.1		101		129		89		182.5	
pH	STD UNIT	NV	5.54		5.99		6.17		6.17		5.83		5.99		5.99		5.87		5.32		5.32		6.3		6.47		6.27		6.05	
Dissolved Gases (RSK-175)																														
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																														
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																														
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 2	U	< 0.5	U	< 0.05	U	< 0.05	U	< 0.5	U	< 2	U	< 2	U	< 2	U	1.31		< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	1.1		1.3		< 0.5	U	1.2		1.1		< 0.5	U	< 0.5	U	< 0.5	U	1.1		< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

estimation due to discrepancies in meeting certain analyte-specific

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

NS - not sampled

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			16WW32 (Shallow Zone)										16WW33 (Intermediate Zone)												16WW34 (Shallow Zone)							
Location Code			16WW32 (Shallow Zone)										16WW33 (Intermediate Zone)												16WW34 (Shallow Zone)							
Sample ID			16WW32-181011		16WW32-200312		16WW32-200727		16WW32-201019		16WW32-210119		16WW33-181010		16WW33-200312		16WW33-200723		16WW33-200723-FD		16WW33-201019		16WW33-210203		16WW34-181010		16WW34-200312		16WW34-200723		16WW34-201019	
Sample Date			10/11/2018		3/12/2020		7/27/2020		10/19/2020		1/19/2021		10/10/2018		3/12/2020		7/23/2020		7/23/2020		10/19/2020		2/3/2021		10/10/2018		3/12/2020		7/23/2020		10/19/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		FD		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																																
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																																
Dissolved oxygen	mg/L	NV	1.94		0.64		2		0.34		1.04		1.39		0.06		0.03		0.03		0.11		0.11		0.92		0.85		0.57		0.36	
Oxidation-Reduction Potential	mV	NV	115.4		19		78		70		142.2		132.3		63		99		99		116		-56		13.2		-18		77		139	
pH	STD UNIT	NV	5.64		6.71		6.58		6.52		6.40		6.49		6.51		6.33		6.33		6.09		6.26		6.15		6.86		6.37		5.76	
Dissolved Gases (RSK-175)																																
Ethane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																																
Alkalinity	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																																
Perchlorate	µg/L	17	< 2		< 2	U	< 0.05	U	< 0.05	U	< 0.05	U	< 2	U	< 2	U	< 0.5	U	< 0.5	U	0.0259	J	< 0.05	UJ	< 2	U	< 2	U	< 0.5	U	< 0.05	U
Volatile Organic Compounds (8260C)																																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	0.8	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	13		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	31		< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	9.9		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	79		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	130		< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

estimation due to discrepancies in meeting certain analyte-specific

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

NS - not sampled

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

			Location Code	16WW34 (Shallow Zone)						16WW37 (Intermediate Zone)										16WW38 (Shallow Zone)									
			Sample ID	16WW34-201019-FD		16WW34-210203		16WW34-210203-FD		16WW37-181010		16WW37-200317		16WW37-200723		16WW37-201019		16WW37-210120		16WW38-181010		16WW38-200317		16WW38-200723		16WW38-201019		16WW38-210120	
			Sample Date	10/19/2020		2/3/2021		2/3/2021		10/10/2018		3/17/2020		7/23/2020		10/19/2020		1/20/2021		10/10/2018		3/17/2020		7/23/2020		10/19/2020		1/20/2021	
			Sample Purpose	FD		REG		FD		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL		Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																													
Dehalococcoides	cells/mL	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																													
Dissolved oxygen	mg/L	NV		0.36		0.04		0.04		0.57		0.08		0.67		0.15		0.58		0.38		0.07		1.17		0.13		0.65	
Oxidation-Reduction Potential	mV	NV		139		-2		-2		48.3		-11		72		50		23.4		-44.9		-16		45		33		101.3	
pH	STD UNIT	NV		5.76		5.72		5.72		6.73		7.17		6.96		6.23		6.82		5.94		6.50		6.37		6.35		6.51	
Dissolved Gases (RSK-175)																													
Ethane	µg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																													
Alkalinity	mg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																													
Perchlorate	µg/L	17		< 0.05	U	< 0.05	UJ	< 0.05	UJ	< 2	U	< 2	U	< 0.5	U	0.393		0.786		< 2	U	< 2	U	< 0.5	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																													
1,1,2-Trichloroethane	µg/L	5		< 0.5	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 5	U	< 2.5	U	< 5	U	< 5	U	< 1	U
1,1-Dichloroethene	µg/L	7		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	0.82	J	0.76	J	0.64	J	0.7	J	21		13		17		20		12	
1,2-Dichloroethane	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 5	U	< 2.5	U	< 2.5	U	< 5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70		< 0.5	U	< 0.5	U	< 0.5	U	5.2		6.1		5.7		5.9		6.5		240		200		940		1,100		210	
Methylene chloride	µg/L	5		< 1	U	< 2	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 10	U	< 5	U	< 5	U	< 10	U	< 2	U
Trichloroethene	µg/L	5		< 0.5	U	< 0.5	U	< 0.5	U	84		110		87		120		99		4,400		3,000		2,400		3,800		2,300	
Vinyl chloride	µg/L	2		< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	2.1		0.41	J	1.4		3.1		160		95		57		100		94	

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

estimation due to discrepancies in meeting certain analyte-specific

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U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

FD - field duplicate

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

NS - not sampled

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

Location Code			16WW43 (Shallow Zone)												16WW44 (Shallow Zone)										16WW46 (Shallow Zone)							
Sample ID			16WW43-181009		16WW43-190917		16WW43-200312		16WW43-200723		16WW43-201022		16WW43-210128		16WW44-181010		16WW44-200317		16WW44-200720		16WW44-201019		16WW44-210122		16WW46-181012		16WW46-200312		16WW46-200727		16WW46-200727-FD	
Sample Date			10/9/2018		9/17/2019		3/12/2020		7/23/2020		10/22/2020		1/28/2021		10/10/2018		3/17/2020		7/20/2020		10/19/2020		1/22/2021		10/12/2018		3/12/2020		7/27/2020		7/27/2020	
Sample Purpose			REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		REG		FD	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																																
Dehalococcoides	cells/mL	NV	2.1		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																																
Dissolved oxygen	mg/L	NV	1.46		0.09		1.37		0.05		0.04		3.24		1.8		0.03		0.2		0.08		0.67		0.49		0.61		0.02		0.2	
Oxidation-Reduction Potential	mV	NV	-1.7		42		62		56		15		-6.8		53.5		4		107		22		-45.1		43.9		70		3		107	
pH	STD UNIT	NV	6.12		5.92		6.24		5.83		5.92		6.30		5.99		6.42		5.55		6.05		6.46		6.24		6.88		6.42		5.55	
Dissolved Gases (RSK-175)																																
Ethane	µg/L	NV	< 1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ethylene	µg/L	NV	2.28		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Methane	µg/L	NV	133		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
General Chemistry (2320B/SM5310B/SW9056A)																																
Alkalinity	mg/L	NV	104		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Bromide	mg/L	NV	0.173		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate	mg/L	NV	< 0.1	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Sulfate	mg/L	NV	6.35		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Total organic carbon	mg/L	NV	9.46		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Perchlorate (EPA 6850)																																
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	0.0428	J	< 0.05	U	0.0777	J	< 2	U	< 2	U	< 0.05	U	< 0.05	U	< 0.05	UJ	< 2	U	< 2	U	4.07		3.31	
Volatile Organic Compounds (8260C)																																
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 0.5	U	< 1	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U	< 2	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	0.61	J	< 0.5	U	0.94	J	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	3		2.7		0.57	J	0.66	J
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

estimation due to discrepancies in meeting certain analyte-specific

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PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-9
Year 1 RA-O Analytical Results, Outside Treatment Areas, LHAAP-16

		Location Code	16WW46 (Shallow Zone)				16WW57 (Intermediate Zone)								16WW58 (Intermediate Zone)							
		Sample ID	16WW46-201019		16WW46-210119		16WW57 [a]		16WW57-200817		16WW57-201008		16WW57-210127		16WW58 [a]		16WW58-200817		16WW58-201008		16WW58-210127	
		Sample Date	10/19/2020		1/19/2021		March 2020		8/17/2020		10/8/2020		1/27/2021		March 2020		8/17/2020		10/8/2020		1/27/2021	
		Sample Purpose	REG		REG		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																						
Dehalococcoides	cells/mL	NV	NA		NA		NS		1.3		2.6		4.3		NS		1.1		10.3		28	
Field Measurements																						
Dissolved oxygen	mg/L	NV	0.16		0.74		NS		0.04		0.04		0.44		NS		0.03		0.06		0.47	
Oxidation-Reduction Potential	mV	NV	85		-12		NS		45		2		14.9		NS		-23		-73		-39.2	
pH	STD UNIT	NV	5.89		6.52		NS		5.79		5.85		6.02		NS		5.69		6.23		6.21	
Dissolved Gases (RSK-175)																						
Ethane	µg/L	NV	NA		NA		NS		< 0.25	U	< 0.25	U	< 0.47	U	NS		< 0.25	U	< 0.25	U	< 0.47	U
Ethylene	µg/L	NV	NA		NA		NS		< 0.5	U	1.25		< 0.55	U	NS		1.71		0.645	J	0.44	J
Methane	µg/L	NV	NA		NA		NS		2.19	J-	2.99		0.86	J	NS		9.69		6.59		7.7	
General Chemistry (2320B/SM5310B/SW9056A)																						
Alkalinity	mg/L	NV	NA		NA		NS		138		77.6		131		NS		97.8		41.9		85.6	
Bromide	mg/L	NV	NA		NA		NS		4.7		5.69		4.96		NS		3.42		4.33		3.7	
Nitrate	mg/L	NV	NA		NA		NS		< 0.5	U	< 1	U	< 0.5	U	NS		< 0.1	U	< 0.5	U	0.234	
Sulfate	mg/L	NV	NA		NA		NS		2610		2440		2520		NS		348		383		367	
Total organic carbon	mg/L	NV	NA		NA		NS		13.2		13.1		12.6		NS		4.56		4.13		3.53	
Perchlorate (EPA 6850)																						
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	NS		0.454	J	< 0.05	U	< 0.5	UJ	NS		< 0.5	U	< 0.05	U	< 0.25	U
Volatile Organic Compounds (8260C)																						
1,1,2-Trichloroethane	µg/L	5	< 1	U	< 1	U	NS		< 1	U	< 1	U	< 1	U	NS		< 5	U	< 2.5	U	< 5	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	NS		1.5		1.3		0.94	J	NS		2.9	J	3.3	J	< 2.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	NS		< 0.5	U	< 0.5	U	< 0.5	U	NS		< 2.5	U	< 2.5	U	< 2.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	NS		< 0.5	U	< 0.5	U	< 0.5	U	NS		110		140		94	
Methylene chloride	µg/L	5	< 1	U	< 2	U	NS		< 1	U	< 1	U	< 2	U	NS		< 5	U	5.7	J	< 10	U
Trichloroethene	µg/L	5	0.66	J	< 0.5	U	NS		69	J+	72		65	J	NS		3,400		4,400		2,700	
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	NS		< 0.5	U	< 0.5	U	< 0.5	UJ	NS		< 2.5	U	< 2.5	U	< 2.5	U

Notes:

COC concentrations highlighted in blue exceed the PCL/MCL.

[a] Not sampled due to wet conditions and downed trees blocking access to the wells.

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RA-O - remedial action operation

Std. Units - standard pH units

Val Qual - validation qualifier

Table 2-10
Year 1 RA-O Analytical Results, Surface Water, LHAAP-16

		Sampling Event	Pre-Remedy Sampling								Year 1, Quarter 1						Year 1, Quarter 2					
		Location Code	16SW01				16SW02		16SW03		16SW01		16SW02		16SW03		16SW01		16SW02		16SW03	
		Sample ID	16SW01-181011		16SW01-181011-FD		16SW02-181011		16SW03-181011		16SW01-200331		16SW02-200331		16SW03-200331		16SW01-200728		16SW02-200728		16SW03-200728	
		Sample Date	10/11/2018		10/11/2018		10/11/2018		10/11/2018		3/31/2020		3/31/2020		3/31/2020		7/27/2020		7/28/2020		7/28/2020	
		Sample Purpose	REG		FD		REG		REG		REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)																						
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Field Measurements																						
Dissolved oxygen	mg/L	NV	3.74		3.74		3.44		4.4		NM		NM		NM		NM		NM		NM	
Oxidation-Reduction Potential	mV	NV	199.2		199.2		173.6		185.4		NM		NM		NM		NM		NM		NM	
pH	SU	NV	6.97		6.97		6.67		7.16		NM		NM		NM		NM		NM		NM	
Metals (SW6020)																						
Arsenic	mg/L	0.01	0.00204		0.00212		0.00198	J	0.00194	J	0.00106	J	0.00102	J	0.0012	J	0.00195	J	0.00209	J	0.0018	J
Chromium	mg/L	0.1	0.000499	J	0.000515	J	< 0.001	U	< 0.001	U	0.00185	J	0.00138	J	0.00206	J	0.00189	J	0.00196	J	0.00212	J
Manganese	mg/L	7.82	0.545		0.586		0.485		0.36		0.123		0.114		0.136		1.05		1.42		0.687	J
Nickel	mg/L	0.49	0.00756		0.00786		0.00725		0.00668		0.00397	J	0.00349	J	0.00436	J	0.00364	J	0.00398	J	0.0032	J
Thallium	mg/L	0.002	0.000418	J	< 0.001	U	< 0.001	U	< 0.001	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U	< 0.0005	U
Perchlorate (EPA 6850)																						
Perchlorate	µg/L	17	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 2	U	< 0.05	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)																						
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:

J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.

U - Undetected: The analyte was analyzed for, but not detected.

µg/L - micrograms per liter

MCL - maximum contaminant level

mg/L - milligrams per liter

mL - milliliter

mV - millivolt

NA - not analyzed

NV - No value, PCL values are only shown for constituents of concern.

PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.

RA-O - remedial action operation

Std. Units - standard pH units

UTL - upper tolerance limit

Val Qual - validation qualifier

Table 2-10
Year 1 RA-O Analytical Results, Surface Water, LHAAP-16

		Sampling Event	Year 1, Quarter 3						Year 1, Quarter 4					
		Location Code	16SW01		16SW02		16SW03		16SW01		16SW02		16SW03	
		Sample ID	16SW01-201026		16SW02-201026		16SW03-201026		16SW01-210127		16SW02-210127		16SW03-210127	
		Sample Date	10/26/2020		10/26/2020		10/26/2020		1/27/2021		1/27/2021		1/27/2021	
		Sample Purpose	REG		REG		REG		REG		REG		REG	
Analyte	Units	MCL/PCL/UTL	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual	Result	Val Qual
Dechlorinating Bacteria (Census)														
Dehalococcoides	cells/mL	NV	NA		NA		NA		NA		NA		NA	
Field Measurements														
Dissolved oxygen	mg/L	NV	NM		NM		NM		8.54		8.6		8.88	
Oxidation-Reduction Potential	mV	NV	NM		NM		NM		19.9		63.7		16.5	
pH	SU	NV	NM		NM		NM		6.67		6.82		7.41	
Metals (SW6020)														
Arsenic	mg/L	0.01	0.00145	J	0.00225	J	0.00097	J	0.00101	J	0.000934	J	0.000854	J
Chromium	mg/L	0.1	0.000543	J	0.00114	J	< 0.001	U	0.00196	J	0.00175	J	0.00203	J
Manganese	mg/L	7.82	1.21		3.53		0.204		0.0488	J	0.045		0.122	
Nickel	mg/L	0.49	0.00353	J	0.00691		0.00205	J	0.00384	J	0.00338	J	0.00361	J
Thallium	mg/L	0.002	0.000711	J	< 0.0005	U	< 0.0005	U	0.000668	J	< 0.0005	U	< 0.0005	U
Perchlorate (EPA 6850)														
Perchlorate	µg/L	17	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U	< 0.05	U
Volatile Organic Compounds (8260C)														
1,1,2-Trichloroethane	µg/L	5	< 0.5	U	< 1	U	< 1	U	< 1	U	< 1	U	< 1	U
1,1-Dichloroethene	µg/L	7	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
1,2-Dichloroethane	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
cis-1,2-Dichloroethene	µg/L	70	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Methylene chloride	µg/L	5	< 1	U	< 1	U	< 1	U	< 2	U	< 2	U	< 2	U
Trichloroethene	µg/L	5	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U
Vinyl chloride	µg/L	2	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U	< 0.5	U

Notes:
J - Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
J+ - The analyte was positively identified; the associated numerical value is its approximate concentration with a high bias in the sample.
U - Undetected: The analyte was analyzed for, but not detected.
µg/L - micrograms per liter
MCL - maximum contaminant level
mg/L - milligrams per liter
mL - milliliter
mV - millivolt
NA - not analyzed
NV - No value, PCL values are only shown for constituents of concern.
PCL - Texas Risk Reduction Program (TRRP) Tier 1 Groundwater Residential Protective Concentration Level.
RA-O - remedial action operation
Std. Units - standard pH units
UTL - upper tolerance limit
Val Qual - validation qualifier

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16EW01	02/10/2010	770	68.1
	02/16/2011	729	36.4
	12/04/2012	1,050	380 J
	02/05/2014	245	8,470
	02/19/2015	217	12,800
	02/25/2016	206	7,250
	02/07/2018	130	3,600
	02/26/2019	51 J	3,700
	03/09/2020	28	3,700
	07/16/2020	28.4	4,700
	10/20/2020	27.5	5,400
	01/25/2021	180 J	4,100
16EW02	02/10/2010	38	102,000
	02/16/2011	29.3	68,000
	12/04/2012	151	33,400
	02/05/2014	2.28	34,900
	02/19/2015	0.482	57,800
	02/25/2016	2.64	47,100
	02/07/2018	5	19,000
	10/09/2018	< 2 U	24,000
	02/26/2019	< 2 U	34,000
	09/18/2019	< 2 U	42,000
	03/09/2020	25	17,000
	07/16/2020	16.2	37,000
	10/21/2020	< 0.05 U	26,000
	01/26/2021	< 0.5 U	38,000
16EW03	02/10/2010	< 3	44,900
	02/16/2011	6.54	30,500
	12/04/2012	0.139 J	31,400
	02/05/2014	1.83	5,800
	02/19/2015	0.554	3,190
	02/25/2016	< 0.2 U	29,600
	02/07/2018	< 4 U	24,000
	02/26/2019	< 2 U	7,400
	03/25/2020	< 10 U	170
	07/28/2020	2.09	60
	10/22/2020	< 0.1 U	130
	02/02/2021	< 0.5 UJ	290
16EW04	02/10/2010	< 1.5	758
	02/16/2011	0.518	11,000 E
	12/04/2012	0.165 J	53,500
	02/05/2014	12.7	31,000
	02/19/2015	2.97	24,400

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16EW04	02/25/2016	0.229 J	40,200
	02/07/2018	< 4 U	67
	02/26/2019	< 2 U	900
	03/09/2020	< 2 U	3,400
	07/28/2020	1.42	15,000
	10/20/2020	< 0.05 U	520 J-
	02/02/2021	< 0.5 UJ	17,000
16EW05	02/10/2010	4.4	15.1
	02/16/2011	252	501
	12/04/2012	529	7,130
	02/05/2014	334	7,410
	02/19/2015	67	570
	02/25/2016	410	4,010
	02/07/2018	130	100 J
	02/26/2019	230	1,700
	03/30/2020	< 20 U	< 50 UJ
	07/16/2020	0.16 J	< 100 U
16EW06	02/10/2010	30	2,580
	02/16/2011	123	8,330
	12/04/2012	76.4	6,370
	02/05/2014	190	2,710
	02/19/2015	75.5	6,740
	02/25/2016	0.389 J	2,360
	02/07/2018	< 4 U	660
	10/09/2018	< 2 U	5,500
	02/26/2019	< 2 U	250
	09/18/2019	42	6,500
	03/25/2020	< 10 U	< 50 U
	07/16/2020	< 0.75 U	40 J
	10/21/2020	< 0.75 U	< 250 U
	02/02/2021	< 0.75 U	< 250 U
16EW07	02/10/2010	< 3	184
	02/16/2011	1.85	356
	12/04/2012	< 0.2 U	304
	02/05/2014	< 0.2 U	573
	02/19/2015	< 0.2 U	859
	02/25/2016	< 0.2 U	386
	02/07/2018	< 4 U	130
	02/26/2019	< 2 U	81
	03/25/2020	< 10 U	100
	07/28/2020	4.68 J	5,000 J-
	10/22/2020	< 0.75 U	490 J
	02/02/2021	< 0.75 U	< 250 U

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16EW08	02/10/2010	< 1.2	39.8
	02/16/2011	0.116 J	196
	12/04/2012	< 0.2 U	122
	02/05/2014	0.823	53.9
	02/19/2015	< 0.2 U	59.9
	02/25/2016	< 0.2 U	35.8
	02/07/2018	< 4 U	460
	02/26/2019	< 2 U	170
	03/31/2020	< 20 U	52 J
	07/28/2020	0.0836 J	< 25 U
	10/20/2020	< 0.05 U	1.6
	02/02/2021	< 0.05 UJ	3.1
16IW03	03/25/2020	< 2 U	8,000
	07/28/2020	1.85	13,000
	10/13/2020	0.0876 J	10,000
	01/26/2021	< 0.5 U	8,800
16IW09	03/25/2020	< 2 UJ	< 5 UJ
	07/16/2020	0.184 J	< 25 U
	10/13/2020	0.0381 J	5.8
	01/26/2021	< 0.25 U	1
16IW10	03/25/2020	< 2 U	200
	07/14/2020	< 0.5 U	190
	10/13/2020	< 0.1 U	46
	01/26/2021	< 0.5 U	31
16IW20	03/09/2020	< 2 U	850
	07/21/2020	0.562 J	280
	10/21/2020	< 0.05 U	130
	01/27/2021	< 0.5 UJ	13
16PM02	03/17/2020	< 2 U	21,000
	07/20/2020	0.0686 J	31,000
	10/26/2020	< 0.05 U	65,000
	01/22/2021	< 0.05 UJ	23,000
16PM03	03/17/2020	400	9,700
	07/20/2020	245	9,100
	10/26/2020	360	12,000
	01/22/2021	330 J	9,800
16PM06	03/10/2020	< 2 U	44,000
	07/20/2020	< 0.5 U	58,000
	10/26/2020	< 0.05 U	85,000
	02/02/2021	< 0.5 UJ	49,000 J
16PM09	03/10/2020	< 2 U	680
	07/20/2020	< 0.05 U	1,400
	10/26/2020	0.0253 J	2,000

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16PM09	01/22/2021	< 0.05 UJ	1,300
16PM14	03/10/2020	< 2 U	4,900
	07/20/2020	0.435 J	5,100
	10/26/2020	< 0.1 U	5,400
	02/02/2021	0.648 J	3,800
16RW01	03/12/2020	< 2 U	3,300
	07/27/2020	1.63	4,200
	10/20/2020	< 0.05 U	4,000
	01/22/2021	< 0.05 UJ	2,900
16RW02	03/12/2020	< 2 U	2.3
	07/21/2020	< 0.05 U	4.8
	10/22/2020	< 0.05 U	6.7
	01/22/2021	< 0.05 UJ	1.9
16RW04	03/09/2020	< 2 U	3,000
	07/28/2020	2.08	3,500
	10/21/2020	< 0.05 U	3,400
	01/28/2021	0.328 J	2,800
16RW05	03/12/2020	< 2 U	3
	07/16/2020	1.77	< 5 U
	10/22/2020	< 0.05 U	0.89 J
	01/29/2021	< 0.5 U	< 0.5 U
16RW06	03/17/2020	< 2 U	86
	07/14/2020	< 0.5 U	77 J+
	10/26/2020	< 0.1 U	110
	01/22/2021	< 0.25 UJ	95
16RW07	03/17/2020	4.9	1,900
	07/14/2020	2.45	2,100
	10/26/2020	0.391	1,100
	01/22/2021	0.638 J	2,000
16RW09	03/11/2020	< 2 U	1,300
	07/14/2020	0.491 J	1,300
	10/26/2020	0.12 J	980
	02/02/2021	0.459 J	690
16RW10	03/11/2020	150	4,800
	07/20/2020	62.7	1,800
	10/26/2020	8.11	2,000
	02/02/2021	125 J	5,300
16RW11	03/17/2020	< 2 U	20
	07/21/2020	< 0.05 U	8.9 J-
	10/21/2020	< 0.05 U	3.7
	02/03/2021	< 0.25 UJ	2.2
16SW01	10/11/2018	< 2 U	< 0.5 U
	10/11/2018	< 2 U	< 0.5 U

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16SW01	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
16SW02	10/11/2018	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
16SW03	10/11/2018	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/28/2020	< 0.05 U	< 0.5 U
	10/26/2020	< 0.05 U	< 0.5 U
	01/27/2021	< 0.05 U	< 0.5 U
16WW12	05/23/2013	248	3,290
	10/12/2018	12	4,100
	09/18/2019	120	2,100
	03/11/2020	53	1,700
	07/21/2020	61.5	2,800
	10/21/2020	18.5	1,500
	02/03/2021	24.1 J	1,100
16WW13	05/21/2013	< 0.2 U	50.4
	10/12/2018	< 2 U	4,400
	09/18/2019	< 2 U	630
	03/12/2020	< 2 U	7.5
	07/23/2020	0.134	190
	10/22/2020	< 0.05 U	1,100
	01/22/2021	< 0.05 UJ	97
16WW14	05/21/2013	1.32	72.1
	10/10/2018	< 2 U	42
	09/16/2019	< 2 U	25
	03/17/2020	< 2 U	33
	07/20/2020	0.544 J	42
	10/19/2020	< 0.05 U	25
	01/22/2021	< 0.05 UJ	18
16WW16	05/22/2013	443	22,000
	10/10/2018	420	21,000
	09/16/2019	460	13,000
	03/11/2020	510	27,000
	07/14/2020	442	28,000
	10/08/2020	480	32,000
	01/20/2021	309	5,700
16WW21	10/12/2018	< 2 U	< 0.5 U

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16WW21	03/16/2020	< 2 U	1.3
	07/15/2020	0.25	0.55 J
	10/14/2020	< 0.05 U	1.5
	02/03/2021	< 0.05 UJ	< 0.5 U
16WW22	05/21/2013	65.4	323
	10/10/2018	5.5	150
	09/17/2019	< 2 U	34
	03/16/2020	< 2 U	52
	07/15/2020	0.442 J	24
	10/14/2020	< 0.05 U	7.8
	01/25/2021	0.246 J	30
16WW23	05/20/2013	< 0.2 U	< 0.5 U
	10/12/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/31/2020	< 20 U	< 0.5 U
	07/27/2020	< 0.05 U	< 0.5 U
	10/08/2020	< 0.05 U	< 0.5 U
	01/28/2021	0.346 J	< 0.5 U
16WW24	05/20/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/31/2020	< 2 U	< 0.5 U
	07/27/2020	2.38	< 0.5 U
	10/08/2020	< 0.05 U	< 0.5 U
	01/28/2021	< 0.5 U	< 0.5 U
16WW25	05/22/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/19/2019	< 2 U	< 0.5 U
	03/16/2020	< 2 U	0.85 J
	07/21/2020	0.512 J	0.58 J
	10/14/2020	0.077 J	< 0.5 U
	01/21/2021	< 0.5 U	< 0.5 U
16WW26	05/23/2013	0.262 J	4,580
	10/09/2018	< 2 U	2,400
	09/17/2019	< 2 U	380
	09/18/2019	< 2 U	440
	03/09/2020	< 2 U	900
	07/21/2020	0.025 J	490
	10/14/2020	< 0.05 U	850
	01/21/2021	< 0.05 U	1,000
16WW27	05/20/2013	< 0.2 U	< 0.5 U
	10/12/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16WW27	03/12/2020	< 2 U	1.1
	07/23/2020	< 0.5 U	< 0.5 U
	10/22/2020	< 0.05 U	1.2
	01/28/2021	< 0.5 U	< 0.5 U
16WW29	05/21/2013	< 0.2 U	1.07
	10/15/2018	< 2	3.3
	09/18/2019	< 2 U	2.7
	03/30/2020	< 2 U	< 0.5 U
	07/15/2020	< 0.5 U	< 0.5 U
	10/14/2020	< 0.05 U	< 0.5 U
	01/21/2021	< 0.05 U	0.99 J
16WW30	05/23/2013	< 0.2 U	203
	10/12/2018	< 2 U	1.8
	09/18/2019	< 2 U	360
	03/30/2020	< 2 U	14
	07/15/2020	0.309 J	3.5
	10/14/2020	< 0.05 U	5.7
	01/21/2021	< 0.05 U	2.2
16WW31	05/22/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	1.1
	07/27/2020	1.31	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/19/2021	< 0.05 U	< 0.5 U
16WW32	05/21/2013	< 0.2 U	< 0.5 U
	10/11/2018	< 2	< 0.5 U
	03/12/2020	< 2 U	9.9
	07/27/2020	< 0.05 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/19/2021	< 0.05 U	< 0.5 U
16WW33	05/18/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	79
	07/23/2020	< 0.5 U	< 0.5 U
	10/19/2020	0.0259 J	< 0.5 U
	02/03/2021	< 0.05 UJ	< 0.5 U
16WW34	05/20/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/12/2020	< 2 U	130
	07/23/2020	< 0.5 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	02/03/2021	< 0.05 UJ	< 0.5 U
16WW35	05/22/2013	310	4,830

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16WW35	10/10/2018	420	21,000
	09/18/2019	410	13,000
	03/11/2020	560	11,000
	07/14/2020	451	9,500
	10/13/2020	565	11,000
	01/20/2021	< 0.5 U	13,000
16WW36	05/22/2013	< 0.2 U	4,220
	10/09/2018	< 2 U	22,000
	09/16/2019	< 2 U	15,000
	03/11/2020	< 2 U	18,000
	07/14/2020	< 0.5 U	25,000
	10/13/2020	0.167	22,000
	01/20/2021	< 0.05 U	1,500
16WW37	05/18/2013	10.4	305 J
	10/10/2018	< 2 U	84
	03/17/2020	< 2 U	110
	07/23/2020	< 0.5 U	87
	10/19/2020	0.393	120
	01/20/2021	0.786	99
16WW38	05/18/2013	< 0.2 U	745 J
	10/10/2018	< 2 U	4,400
	03/17/2020	< 2 U	3,000
	07/23/2020	< 0.5 U	2,400
	10/19/2020	< 0.05 U	3,800
	01/20/2021	< 0.05 U	2,300
16WW39	10/10/2018	120	3,900
	09/17/2019	130	1,200
	03/16/2020	62	1,100
	07/15/2020	15.1	560
	10/14/2020	1.08	350
	02/03/2021	3.64 J	300
16WW40	05/23/2013	0.208 J	1,060
	10/12/2018	< 2 U	660
	09/17/2019	< 2 U	740
	03/10/2020	< 2 U	1,500
	07/21/2020	0.898 J	1,700
	10/21/2020	0.24	1,700
	02/03/2021	1.31 J	1,500
16WW41	05/22/2013	292	6,550
	10/09/2018	60	9,800
	09/17/2019	< 2 U	3,900
	03/16/2020	310	6,400
	07/15/2020	155	6,200

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16WW41	10/14/2020	81.2	5,400
	01/25/2021	3.71 J	5,400
16WW42	05/21/2013	< 0.2 U	1.31
	10/12/2018	< 2 U	6
	09/16/2019	< 2 U	29
	03/10/2020	< 2 U	3.3
	07/23/2020	< 0.05 U	1.3
	10/22/2020	< 0.05 U	3.2
	01/28/2021	< 0.05 U	0.59 J
16WW43	05/20/2013	< 0.2 U	< 0.5 U
	10/09/2018	< 2 U	< 0.5 U
	09/17/2019	< 2 U	< 0.5 U
	03/12/2020	< 2 U	0.61 J
	07/23/2020	0.0428 J	< 0.5 U
	10/22/2020	< 0.05 U	0.94 J
	01/28/2021	0.0777 J	< 0.5 U
16WW44	05/20/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
	03/17/2020	< 2 U	< 0.5 U
	07/20/2020	< 0.05 U	< 0.5 U
	10/19/2020	< 0.05 U	< 0.5 U
	01/22/2021	< 0.05 UJ	< 0.5 U
16WW45	05/21/2013	< 0.2 U	< 0.5 U
	10/10/2018	< 2 U	< 0.5 U
16WW46	05/21/2013	< 0.2 U	0.647 J
	10/12/2018	< 2 U	3
	03/12/2020	< 2 U	2.7
	07/27/2020	4.07	0.57 J
	10/19/2020	< 0.05 U	0.66 J
	01/19/2021	< 0.05 U	< 0.5 U
16WW48	10/18/2018	14	8,800
	09/18/2019	< 2 U	3,700
	03/30/2020	120	7,100
	07/15/2020	157	9,000
	10/20/2020	167	14,000 J+
	01/21/2021	122	13,000
16WW49	09/19/2019	< 2 U	260
	03/16/2020	< 2 U	8.3
	07/27/2020	2.41	36
	10/20/2020	< 0.05 U	4.8
	01/29/2021	< 0.5 U	2.5
16WW51	02/06/2019		68
	09/18/2019	< 2 U	90

Table 3-1
Historical TCE and Perchlorate Concentrations (2010–2021)

	Parameter	Perchlorate (µg/L)	Trichloroethene (µg/L)
Well ID	Date	Result	Result
16WW51	03/17/2020	< 2 U	830
	07/27/2020	2.86	1,300
	10/20/2020	< 0.05 U	1,700
	01/29/2021	< 0.5 U	1,000
16WW55	10/15/2018	400	5,900
	09/17/2019	480	3,200
	03/25/2020	360	4,300
	07/14/2020	263	4,500
	10/13/2020	287	4,400
	01/20/2021	259	2,900
16WW56	02/06/2019		40
	09/17/2019	< 2 U	27
	03/16/2020	< 2 U	520
	07/15/2020	< 0.5 U	9.3
	10/21/2020	0.309	270
	01/25/2021	< 0.1 UJ	29
16WW57	08/15/2019	< 2 U	25
	09/18/2019	< 2 U	24
	08/17/2020	0.454 J	69 J+
	10/08/2020	< 0.05 U	72
	01/27/2021	< 0.5 UJ	65 J
16WW58	08/15/2019	< 2 U	2,700
	09/18/2019	< 2 U	4,300
	08/17/2020	< 0.5 U	3,400
	10/08/2020	< 0.05 U	4,400
	01/27/2021	< 0.25 U	2,700

Notes:

µg/L - micrograms per liter

J - The analyte was positively identified; the reported value is the estimated concentration of the constituent detected in the sample analyzed.

J+ - The duplicate analysis is not within control limits.

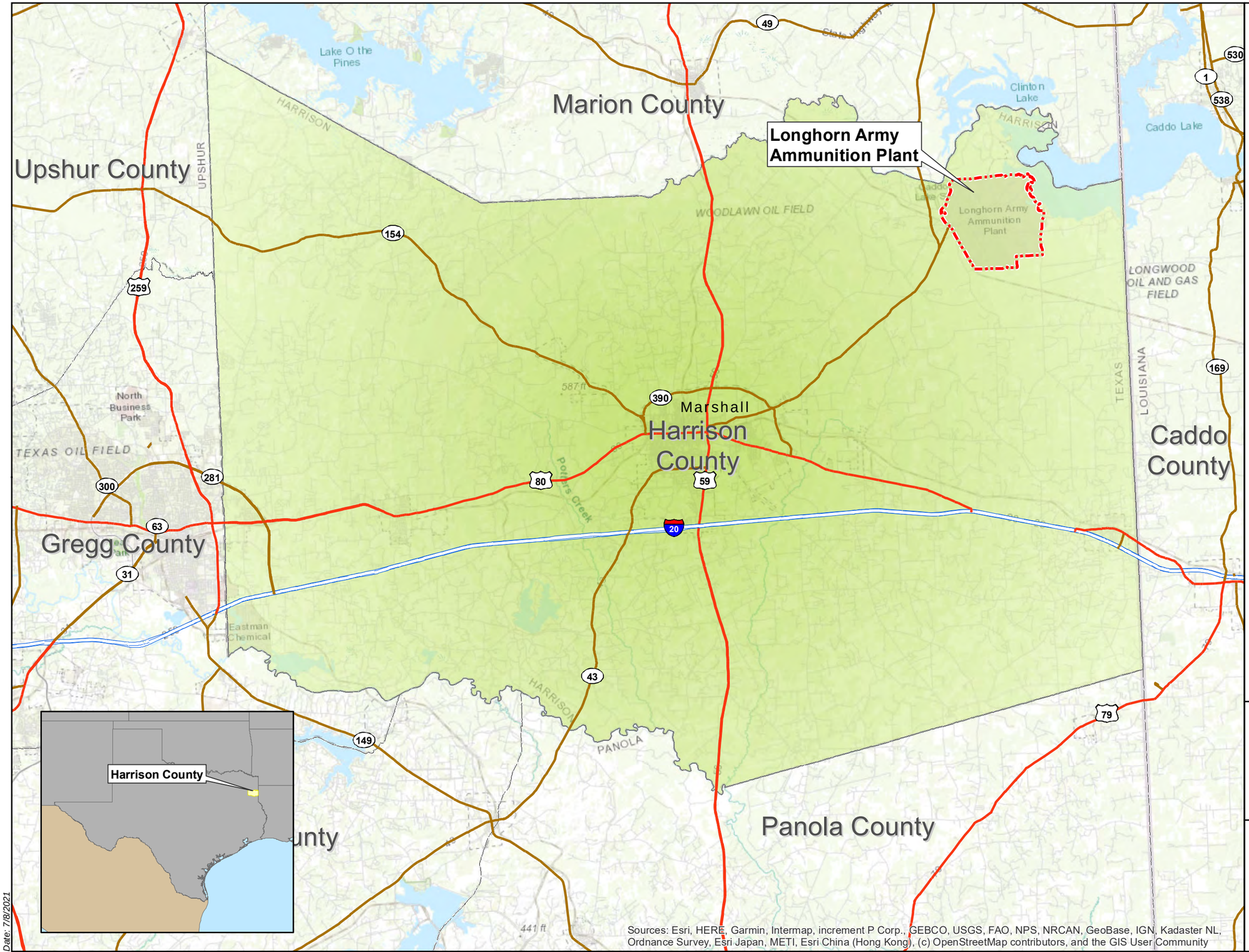
U - Not detected. The analyte was analyzed for, but not detected above the associated reporting limit.

UJ - The analyte was analyzed for, but not detected above the established reporting limit. However, review and evaluation of supporting QC data have indicated that the "non-detect" may be inaccurate or imprecise. The non-detect result should be estimated.

ID - identifier

TCE - trichloroethene

Figures



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

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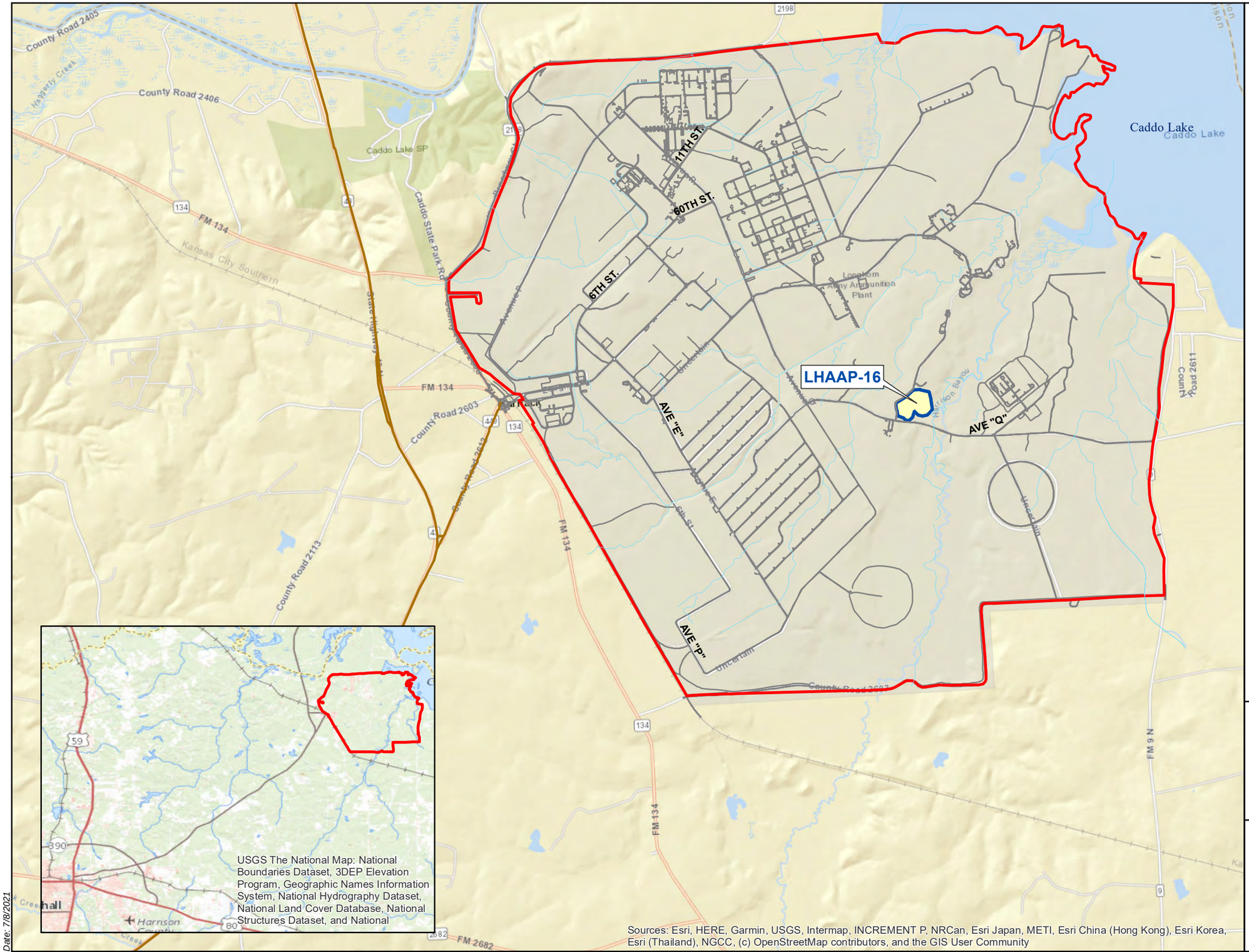
Figure 1-1

LHAAP Location Map
First Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/8/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year1\LHAAP_LocationMap.mxd



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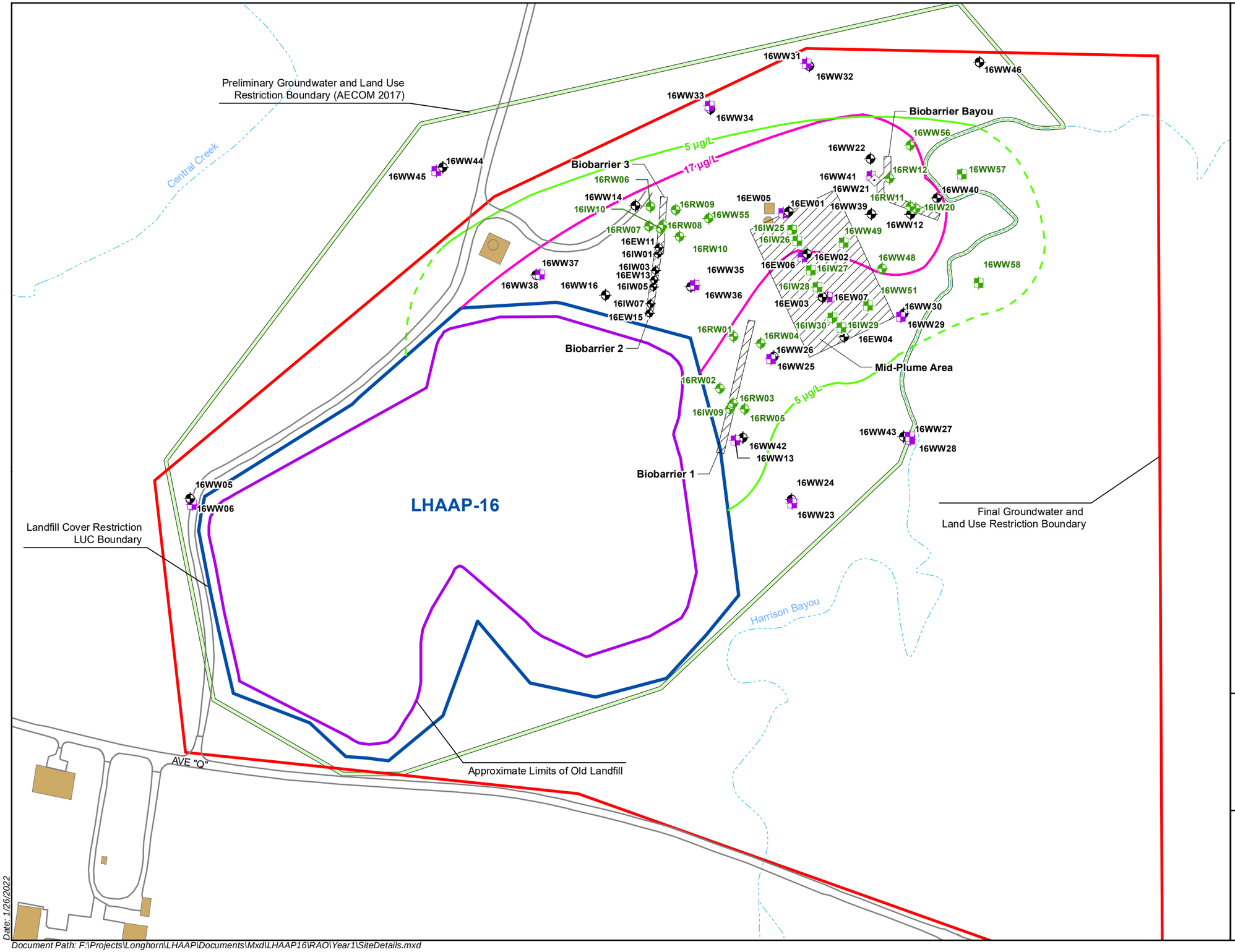
Figure 1-2

LHAAP Site Location Map
First Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/8/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year1\LHAAP_SiteLocationMap.mxd



- Shallow Well Installed 2018 or 2019
- Intermediate Well Installed 2018 or 2019
- Existing Shallow Monitoring Well
- Existing Intermediate Monitoring Well
- Existing Upper Deep Monitoring Well
- Extent of Perchlorate Contamination > 17 µg/L in Intermediate and Shallow Zones (September 2019)
- Extent of TCE Contamination > 5 µg/L in Intermediate and Shallow Zones (Dashed Where Inferred) (September 2019)
- Stream
- Target In Situ Reaction Zone
- Road
- Final Groundwater and Land Use Restriction Boundary
- Landfill Cover Restriction LUC Boundary
- Approximate Limits of Old Landfill
- Preliminary Groundwater and Land Use Restriction Boundary (AECOM 2017)
- Building or Tank

Notes:
1. µg/L - micrograms per liter
2. LUC - land use control
3. TCE - trichloroethene
4. The eastern side of the Final Groundwater and Land Use Restriction Boundary is shared with the western edge of a similar land use restriction that will cover LHAAP-17 and LHAAP-18/24 located to the east of LHAAP-16.

N

0 100 200 Feet

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Figure 1-3
Site Details
First Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 1/26/2022

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Existing Shallow Monitoring Well
Groundwater Flow Direction
Sub Area
Stream
Road
LHAAP-16 Landfill Fence
Building or Tank

Perchlorate Plume (µg/L)
17 - 100
>100

Trichloroethene (TCE) Plume (µg/L)
5 - 10
10 - 100
100 - 1,000
1,000 - 10,000
>10,000

Notes:
1. Perchlorate MCL/PCL = 17 µg/L
TCE MCL/PCL = 5 µg/L
2. Qualifiers:
J - Estimated: The analyte was positively identified; the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U - Undetected: The analyte was analyzed for, but not detected.
3. µg/L = micrograms per liter

N
0 65 130
Feet

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Figure 1-4

Shallow Zone TCE and Perchlorate Plumes
Pre-remedy (2018/2019)
First Annual RA-O Report
LHAAP-16

LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

Date: 7/28/2021

Document Path: F:\Projects\Longhorn\LHAAP\Documents\Mxd\LHAAP16\RAO\Year1\ShallowGroundwater_BLPerchTCE.mxd