LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 27

2020

Bate Stamp Numbers
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Department of the Army
Longhorn Army Ammunition Plant

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

VOLUME 27

2020

A. Title: (cont'd) Report – Level IV DOD to Quarterly Evaluation Report, 3rd Quarter (April-September) 2020, Groundwater Treatment Plant, Longhorn Army Ammunition Plant, Karnack, Texas, December 2020
Author(s): Bhate Environmental Associates, Inc.
Recipient: U.S. Army Corps of Engineers
Date: December 3, 2020
Bate Stamp: 00995430 – 00996147

B. Title: Report – Draft Final 6th Annual Remedial Action Operations Report (September 2018-August 2019), LHAAP-35A (58), Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas, December 2020
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 9, 2020
Bate Stamp: 00996148 – 00996469

C. Title: (cont'd) Report – Appendix F Lab Results to Draft Final 6th Annual Remedial Action Operations Report (September 2018-August 2019), LHAAP-35A (58), Shops Area, Longhorn Army Ammunition Plant, Karnack, Texas, December 2020
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: December 9, 2020
Bate Stamp: 00996470 – 00997221

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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;
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Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

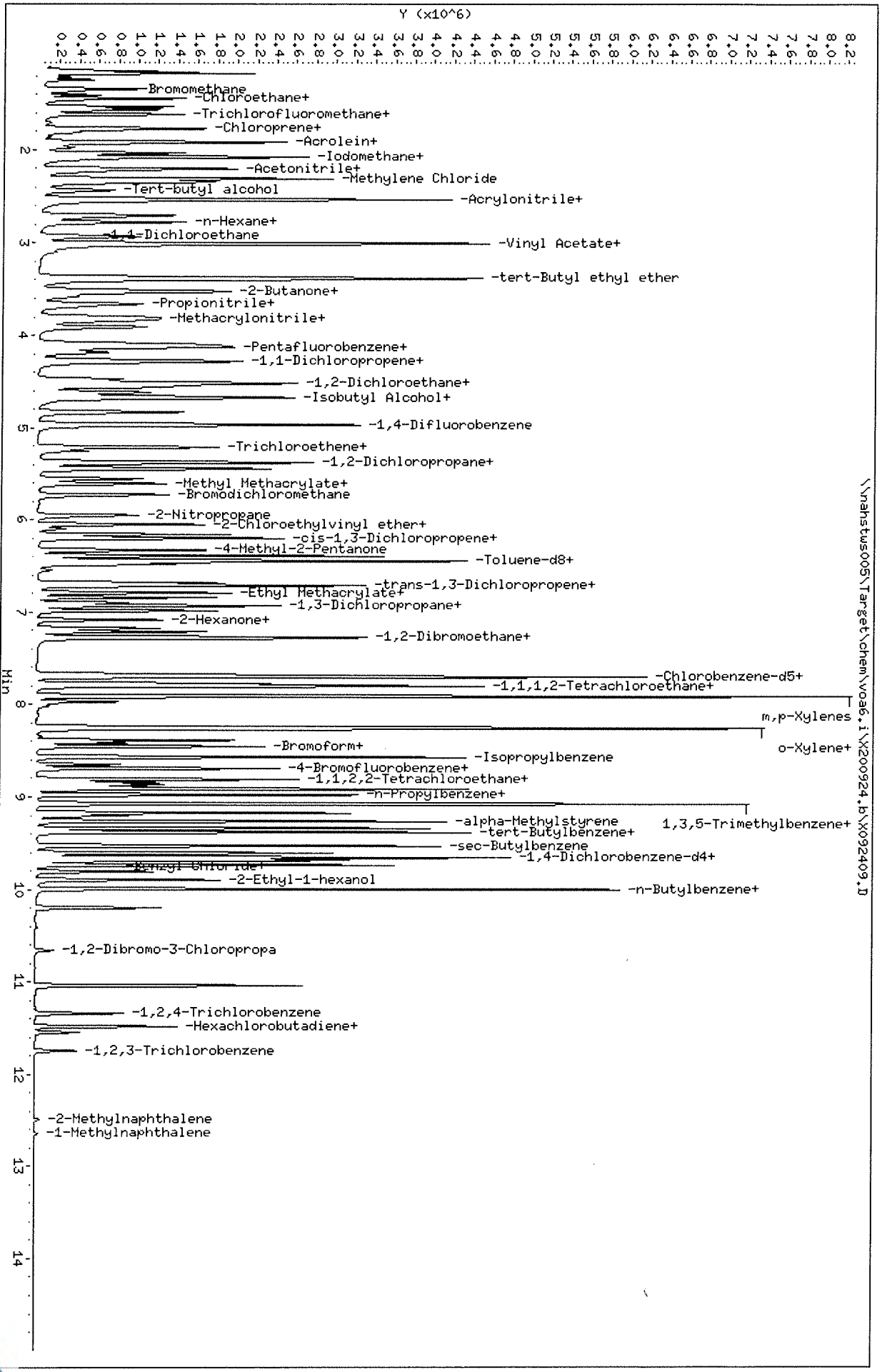
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	546812	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	336603	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	538620	100.000	95.88
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	828059	100.000	98.32
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	532212	100.000	89.41
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	433386	100.000	90.78
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1082912	100.000	94.79
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	479537	100.000	97.53
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	781119	100.000	97.19
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	119849	100.000	92.12
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	460144	100.000	93.45(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	247364	100.000	95.77
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1944092	100.000	97.02
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	36517	100.000	89.90
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	516275	100.000	91.65
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	885366	100.000	94.45

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	692994	100.000	92.00
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	624040	100.000	96.47
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1952542	100.000	98.23
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	1045261	100.000	96.54
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	889978	100.000	90.12
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1008581	100.000	93.80
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	819698	100.000	95.49
24	2-Butanone	43	3.581	3.581	(0.855)	417435	200.000	209.13(A)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	1648682	100.000	94.26
52	2-Hexanone	43	7.090	7.090	(0.924)	693153	200.000	192.85
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1878301	100.000	94.32
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1988284	100.000	99.17
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1045952	200.000	183.82
10	Acetone	43	1.976	1.976	(0.472)	255829	200.000	200.90(A)
37	Benzene	78	4.519	4.519	(0.909)	2385190	100.000	95.46
74	Bromobenzene	156	8.810	8.810	(0.911)	651117	100.000	95.72
29	Bromochloromethane	128	3.803	3.803	(0.908)	312045	100.000	91.31
39	Bromodichloromethane	83	5.729	5.729	(1.153)	761611	100.000	96.13
66	Bromoform	173	8.416	8.416	(1.097)	347277	100.000	98.08
6	Bromomethane	94	1.346	1.346	(0.321)	446857	100.000	101.69
19	Carbon Disulfide	76	2.076	2.076	(0.496)	3373538	200.000	198.64
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	697129	100.000	99.76
59	Chlorobenzene	112	7.699	7.699	(1.004)	1517748	100.000	92.03
7	Chloroethane	64	1.403	1.403	(0.335)	407389	100.000	95.10
28	Chloroform	83	3.910	3.910	(0.933)	1002276	100.000	94.56
3	Chloromethane	50	1.081	1.081	(0.258)	754195	100.000	100.72
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	637736	100.000	95.19
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	968365	100.000	96.62
55	Dibromochloromethane	129	7.176	7.176	(0.936)	550586	100.000	95.05
44	Dibromomethane	93	5.558	5.558	(1.118)	359271	100.000	93.66
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	565982	100.000	99.24
61	Ethylbenzene	106	7.800	7.800	(1.017)	812673	100.000	94.40
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	246513	100.000	102.01
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2411893	100.000	96.36
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1946449	200.000	188.34
17	Methylene Chloride	84	2.306	2.306	(0.550)	605902	100.000	101.96
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1770652	100.000	102.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2876371	100.000	100.17
92	Naphthalene	128	11.546	11.546	(1.194)	292674	100.000	93.24
63	o-Xylene	106	8.244	8.244	(1.075)	955661	100.000	94.69
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2338282	100.000	99.42
64	Styrene	104	8.258	8.258	(1.077)	1628033	100.000	94.29
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1601570	100.000	96.66
56	Tetrachloroethene	164	6.933	6.933	(0.904)	489193	100.000	95.52
50	Toluene	91	6.453	6.453	(0.841)	2417385	100.000	92.13
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	548910	100.000	96.90
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	812915	100.000	97.32
38	Trichloroethene	130	5.214	5.214	(1.049)	604179	100.000	96.69
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	806123	100.000	101.40
5	Vinyl Chloride	62	1.145	1.145	(0.273)	730234	100.000	103.38

QC Flag Legend

A - Target compound detected but, quantitated amount
exceeded maximum amount.
M - Compound response manually integrated.



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Column phase: DB624

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

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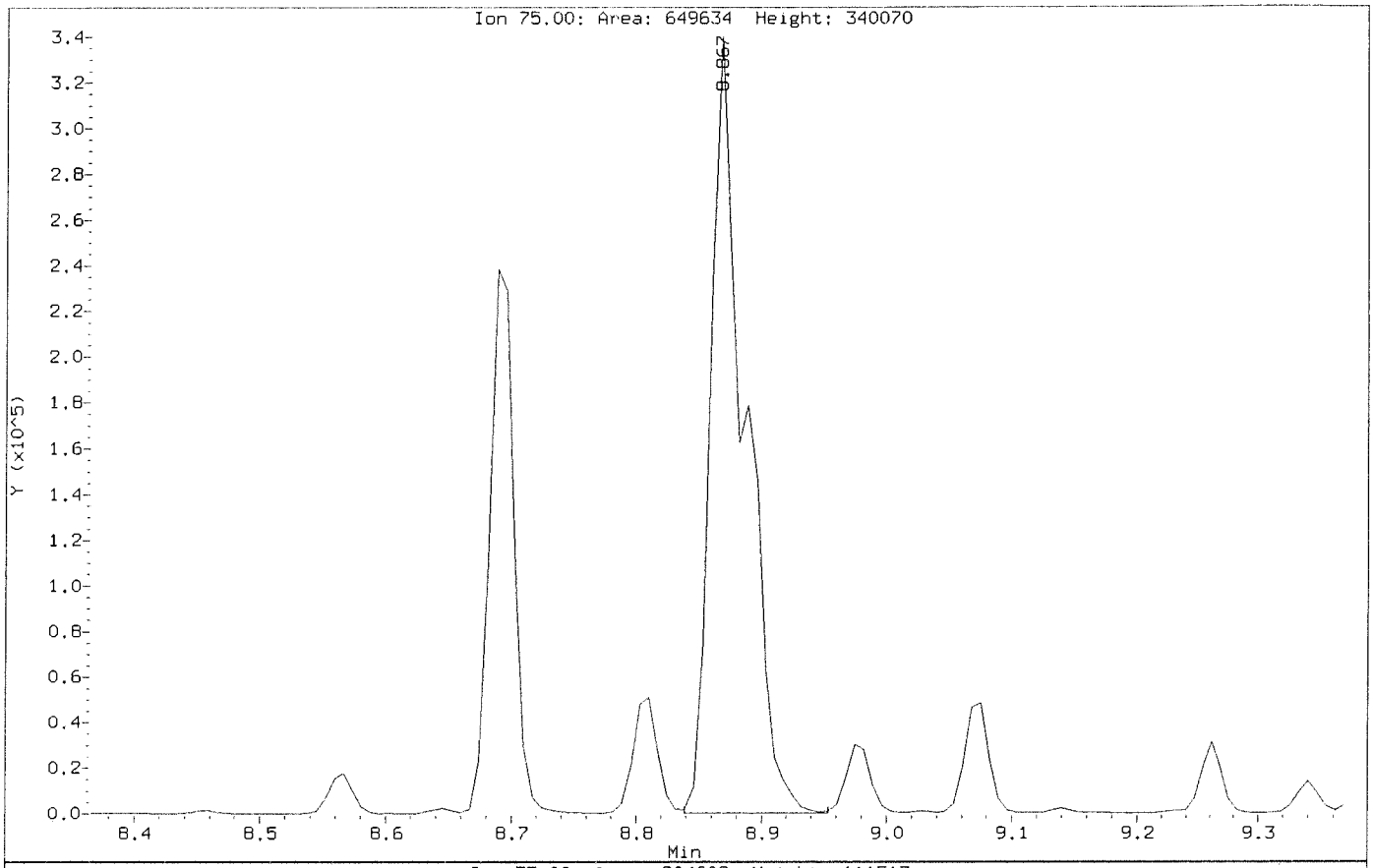
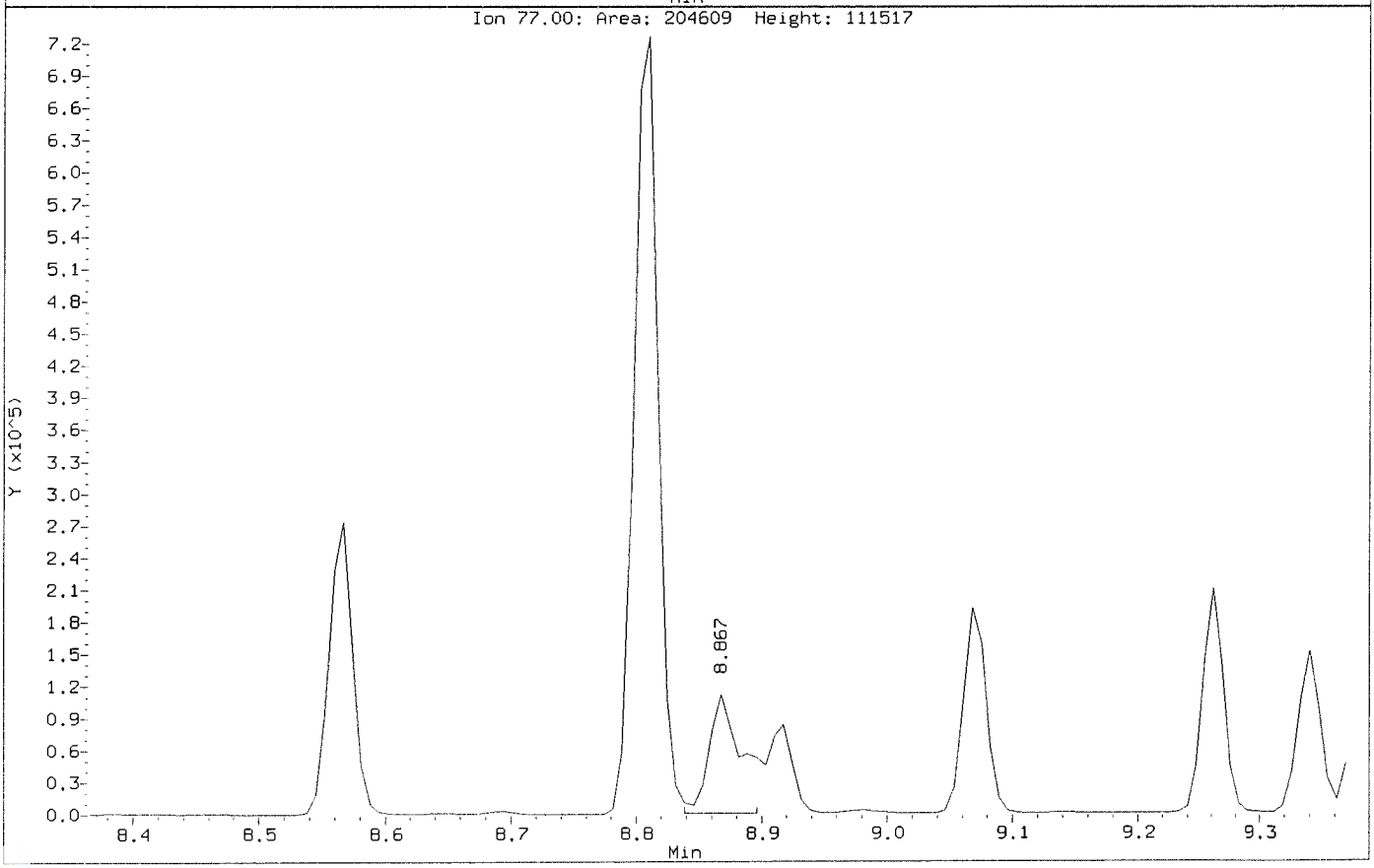
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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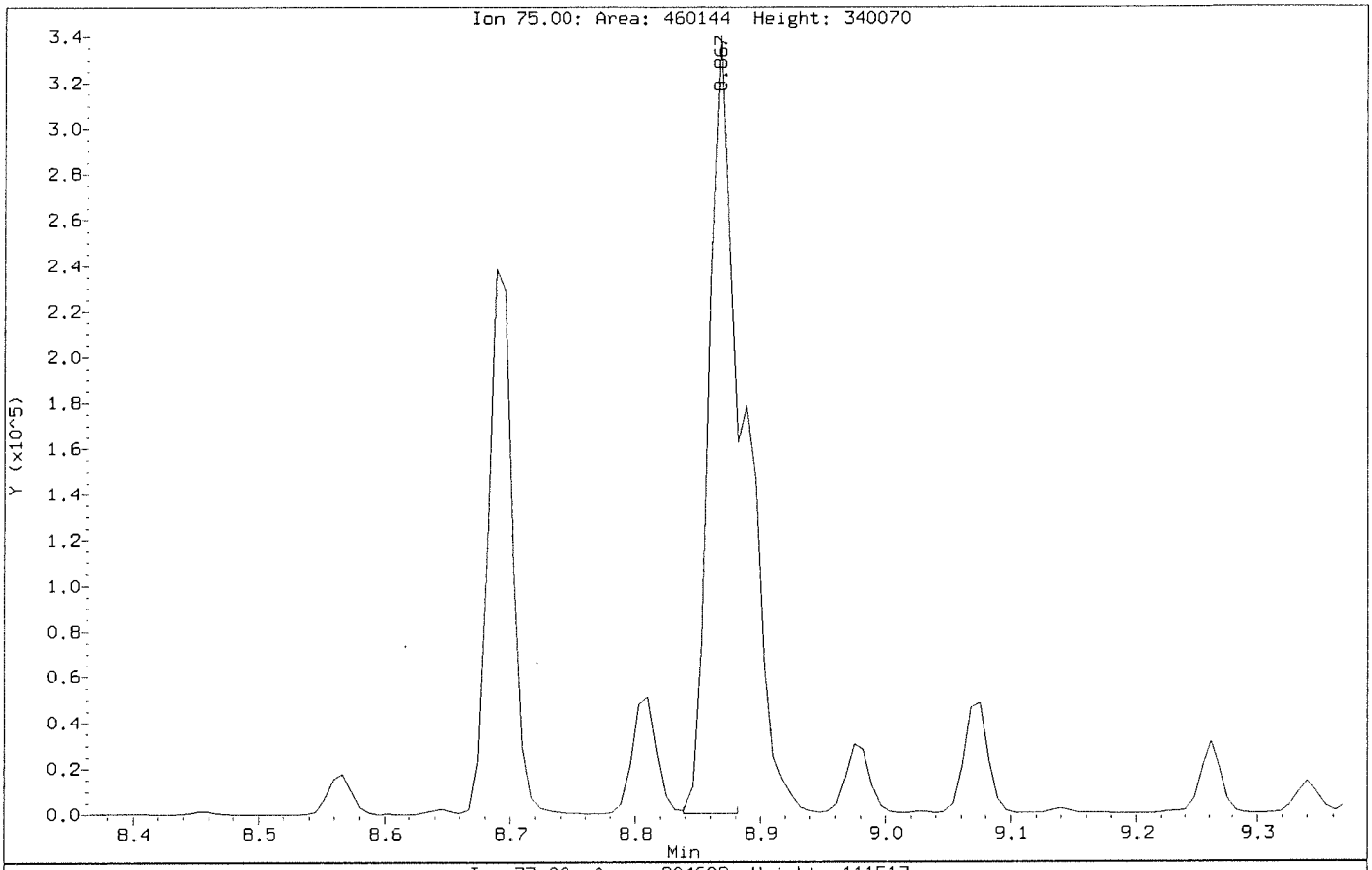
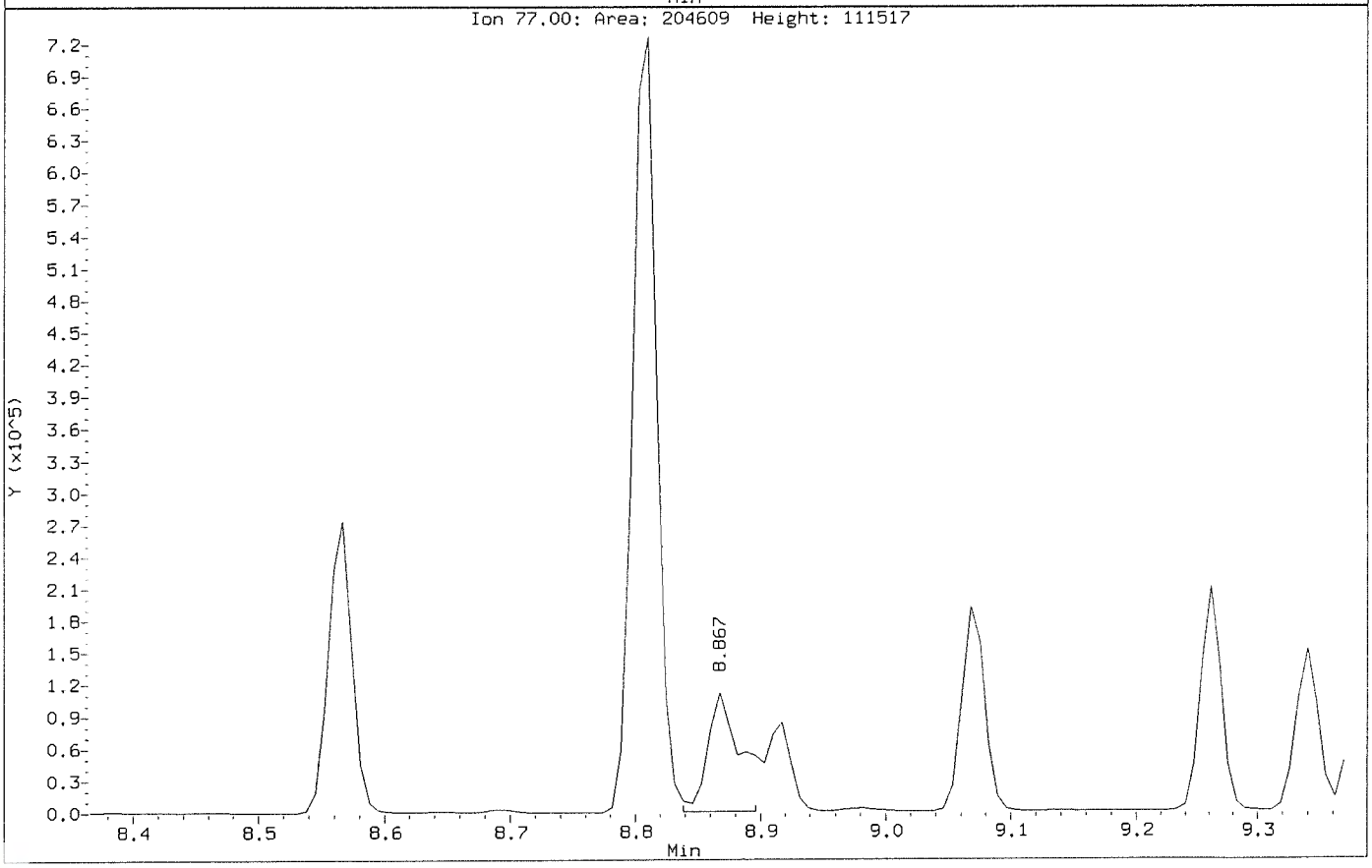
Injection Date: 24-SEP-2020 14:45
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Report Date: 13-Oct-2020 11:23

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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 :
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Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

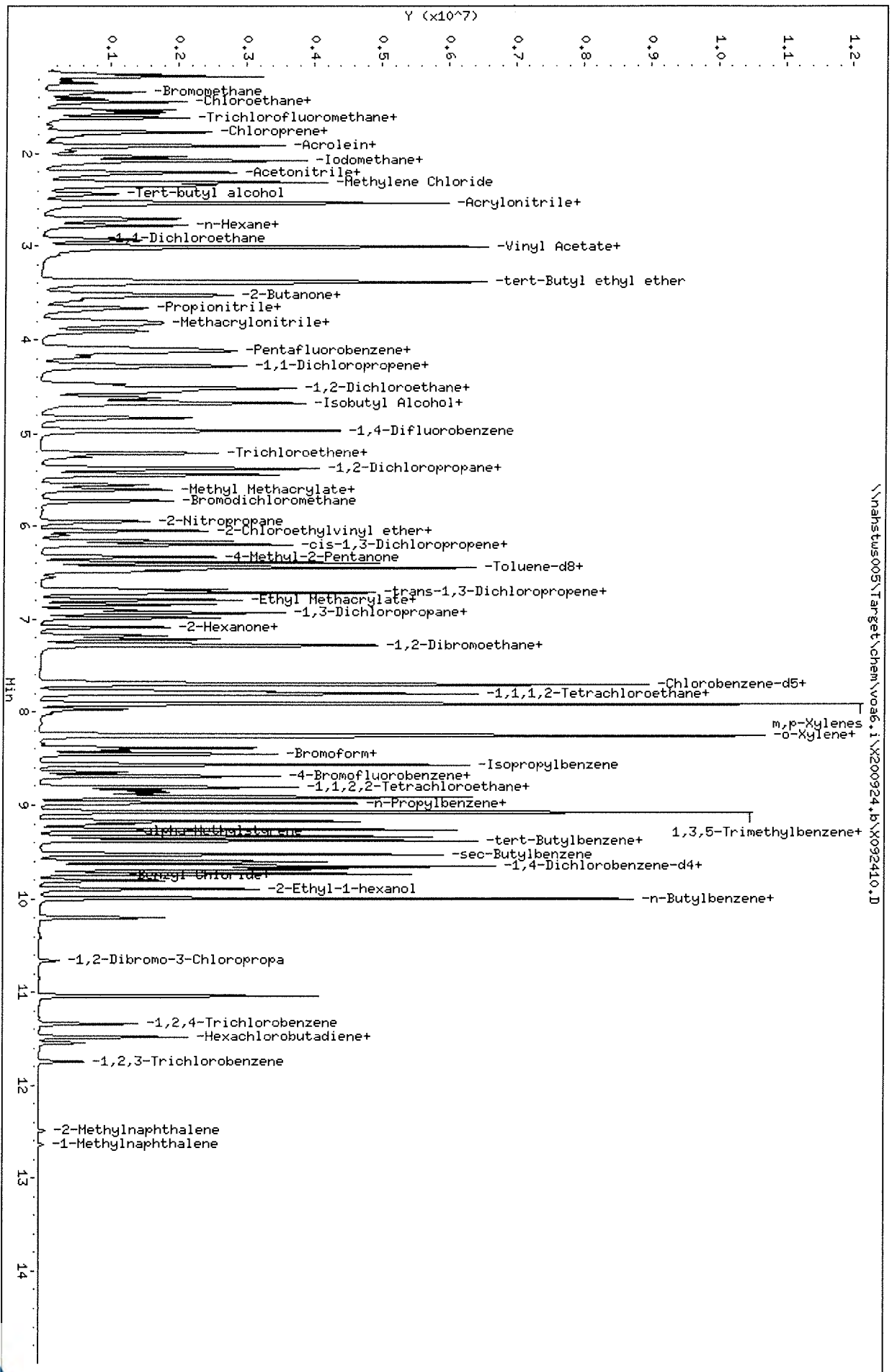
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	531920	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	329958	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	783989	150.000	145.21
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	1209503	150.000	147.63
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	804309	150.000	137.84
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	627933	150.000	136.85
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1562221	150.000	140.58
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	699764	150.000	146.31
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	1139618	150.000	147.30
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	196114	150.000	153.78
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	678354	150.000	140.54(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	386588	150.000	151.87
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2817092	150.000	143.42
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	57707	150.000	144.92
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	761017	150.000	140.56
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1308650	150.000	142.42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1012585	150.000	139.64
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	904655	150.000	145.27
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	2822481	150.000	144.86
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1521632	150.000	143.37
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1302913	150.000	137.27
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1489597	150.000	141.33
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	1188510	150.000	142.34
24	2-Butanone	43	3.581	3.581	(0.855)	625735	300.000	322.26(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2388112	150.000	139.28
52	2-Hexanone	43	7.090	7.090	(0.924)	1024572	300.000	296.58(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2725898	150.000	139.64
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2920943	150.000	148.63
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1567164	300.000	286.56(A)
10	Acetone	43	1.976	1.976	(0.472)	368697	300.000	300.09(A)
37	Benzene	78	4.519	4.519	(0.909)	3448252	150.000	143.36
74	Bromobenzene	156	8.810	8.810	(0.911)	951989	150.000	142.77
29	Bromochloromethane	128	3.803	3.803	(0.908)	454072	150.000	136.59
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1108506	150.000	145.34
66	Bromoform	173	8.416	8.416	(1.097)	517500	150.000	152.06
6	Bromomethane	94	1.338	1.338	(0.320)	643333	150.000	150.62
19	Carbon Disulfide	76	2.076	2.076	(0.496)	4895270	300.000	296.32(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1027004	150.000	152.66
59	Chlorobenzene	112	7.699	7.699	(1.004)	2206389	150.000	139.20
7	Chloroethane	64	1.403	1.403	(0.335)	578170	150.000	138.75
28	Chloroform	83	3.910	3.910	(0.933)	1456902	150.000	141.30
3	Chloromethane	50	1.081	1.081	(0.258)	1119689	150.000	153.71
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	926983	150.000	142.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1418593	150.000	147.03
55	Dibromochloromethane	129	7.176	7.176	(0.936)	806662	150.000	144.89
44	Dibromomethane	93	5.558	5.558	(1.118)	521767	150.000	141.30
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	843912	150.000	151.02
61	Ethylbenzene	106	7.800	7.800	(1.017)	1183946	150.000	143.10
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	372303	150.000	154.25
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3498166	150.000	145.41
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2812643	300.000	283.15(A)
17	Methylene Chloride	84	2.305	2.305	(0.550)	861961	150.000	149.44
87	n-Butylbenzene	91	9.999	9.999	(1.034)	2576017	150.000	151.51
73	n-Propylbenzene	91	8.917	8.917	(0.922)	4173432	150.000	148.27
92	Naphthalene	128	11.546	11.546	(1.194)	477401	150.000	155.15
63	o-Xylene	106	8.244	8.244	(1.075)	1381156	150.000	142.38
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3408972	150.000	147.86
64	Styrene	104	8.265	8.265	(1.078)	2356658	150.000	142.01
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	2344446	150.000	144.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	708095	150.000	143.86
50	Toluene	91	6.453	6.453	(0.841)	3514507	150.000	139.36
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	794499	150.000	144.18
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1206197	150.000	150.00
38	Trichloroethene	130	5.207	5.207	(1.048)	882316	150.000	146.68
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1178939	150.000	152.45
5	Vinyl Chloride	62	1.145	1.145	(0.273)	1069212	150.000	155.61

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

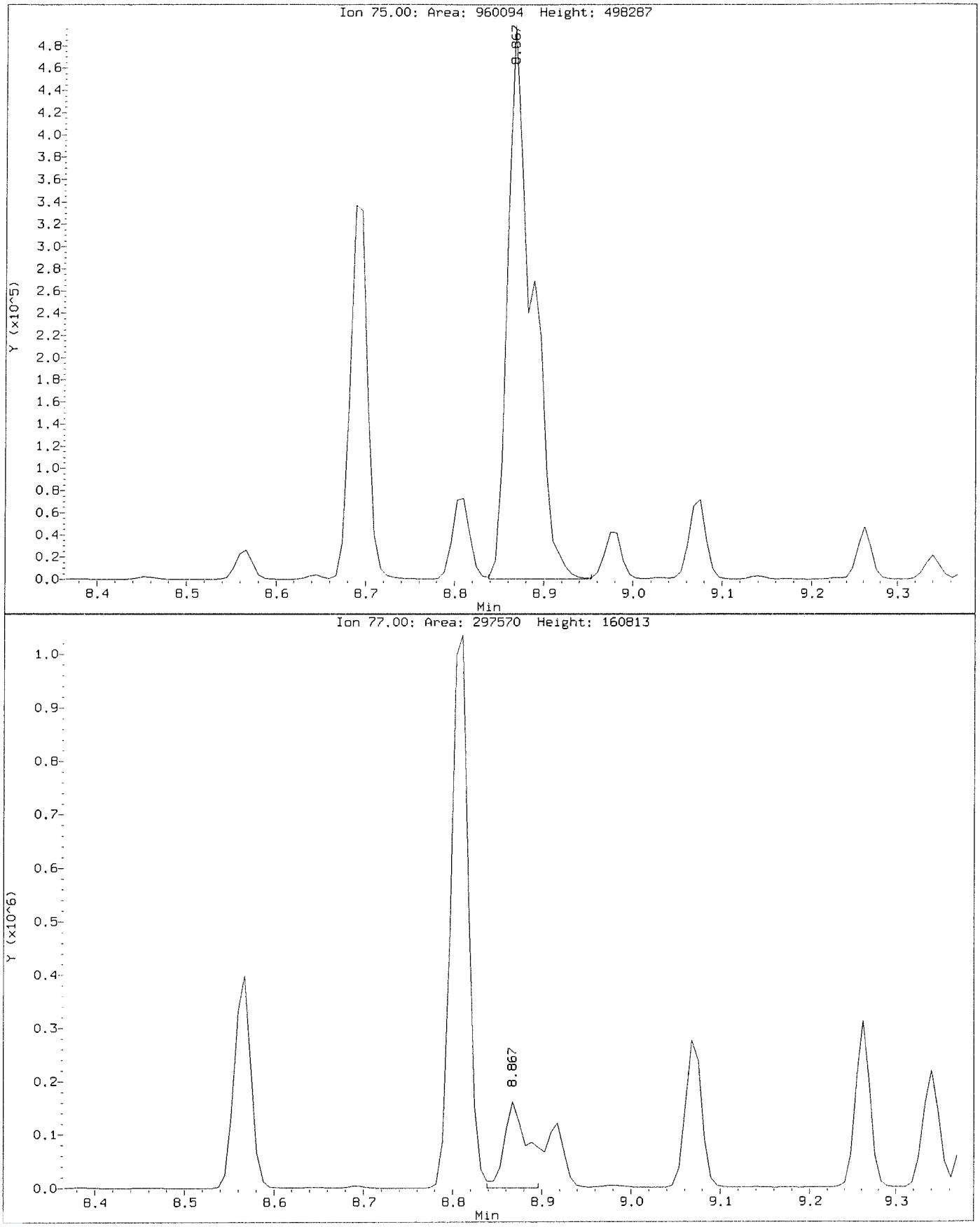


Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092410.D
Date : 24-SEP-2020 15:09
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092410.D
Injection Date: 24-SEP-2020 15:09
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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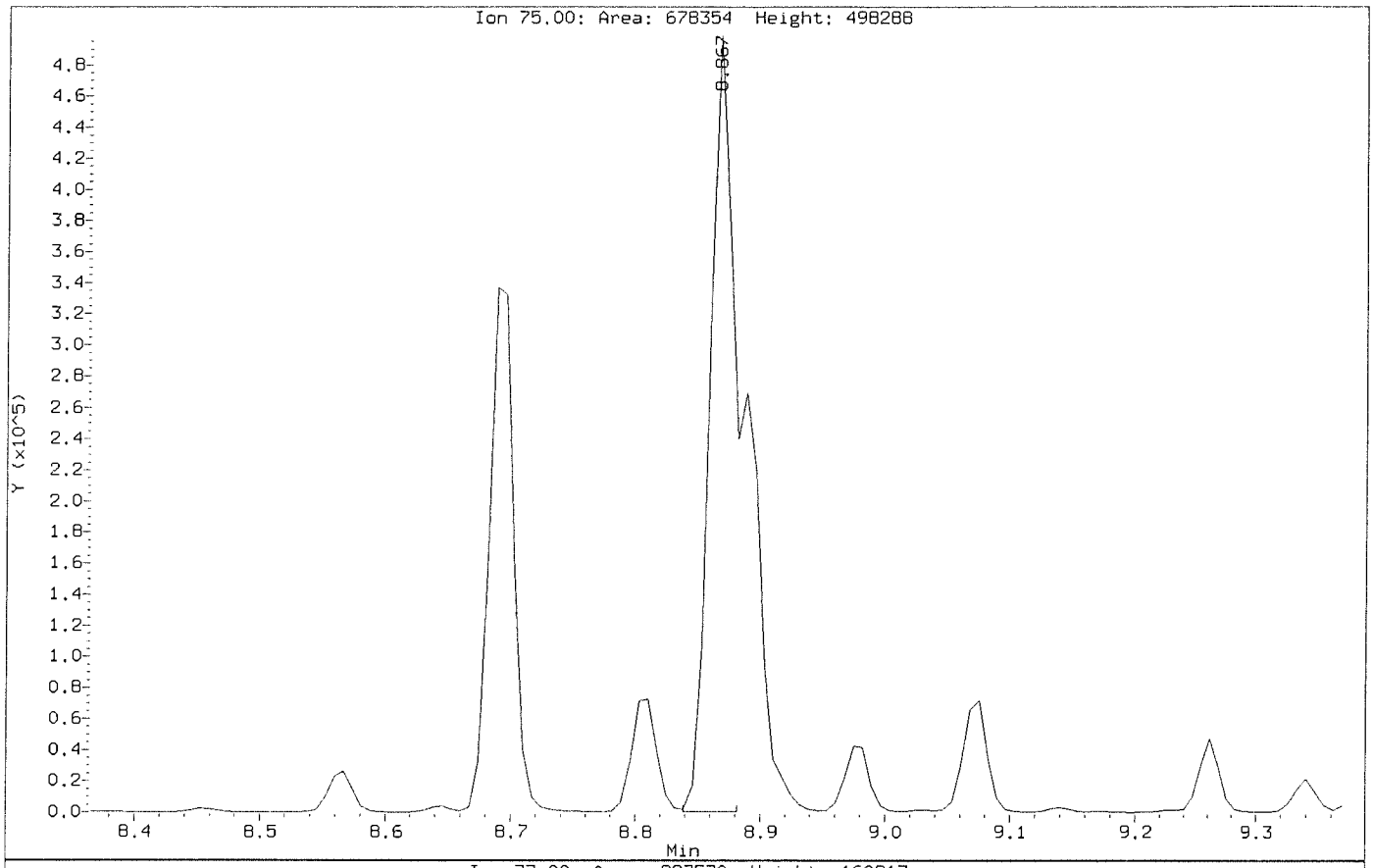
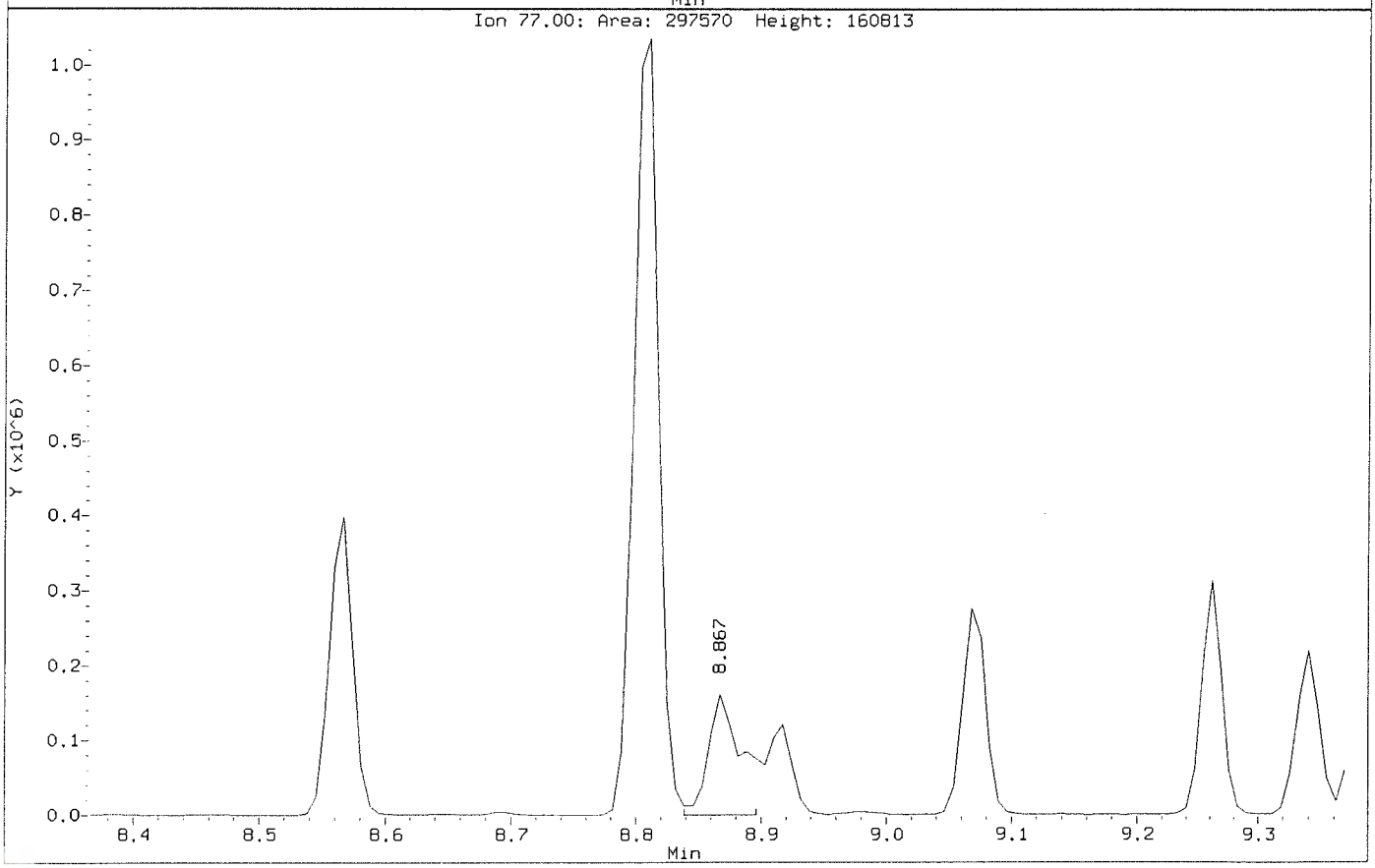
Injection Date: 24-SEP-2020 15:09
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092411.D Page 1
Report Date: 13-Oct-2020 11:23

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

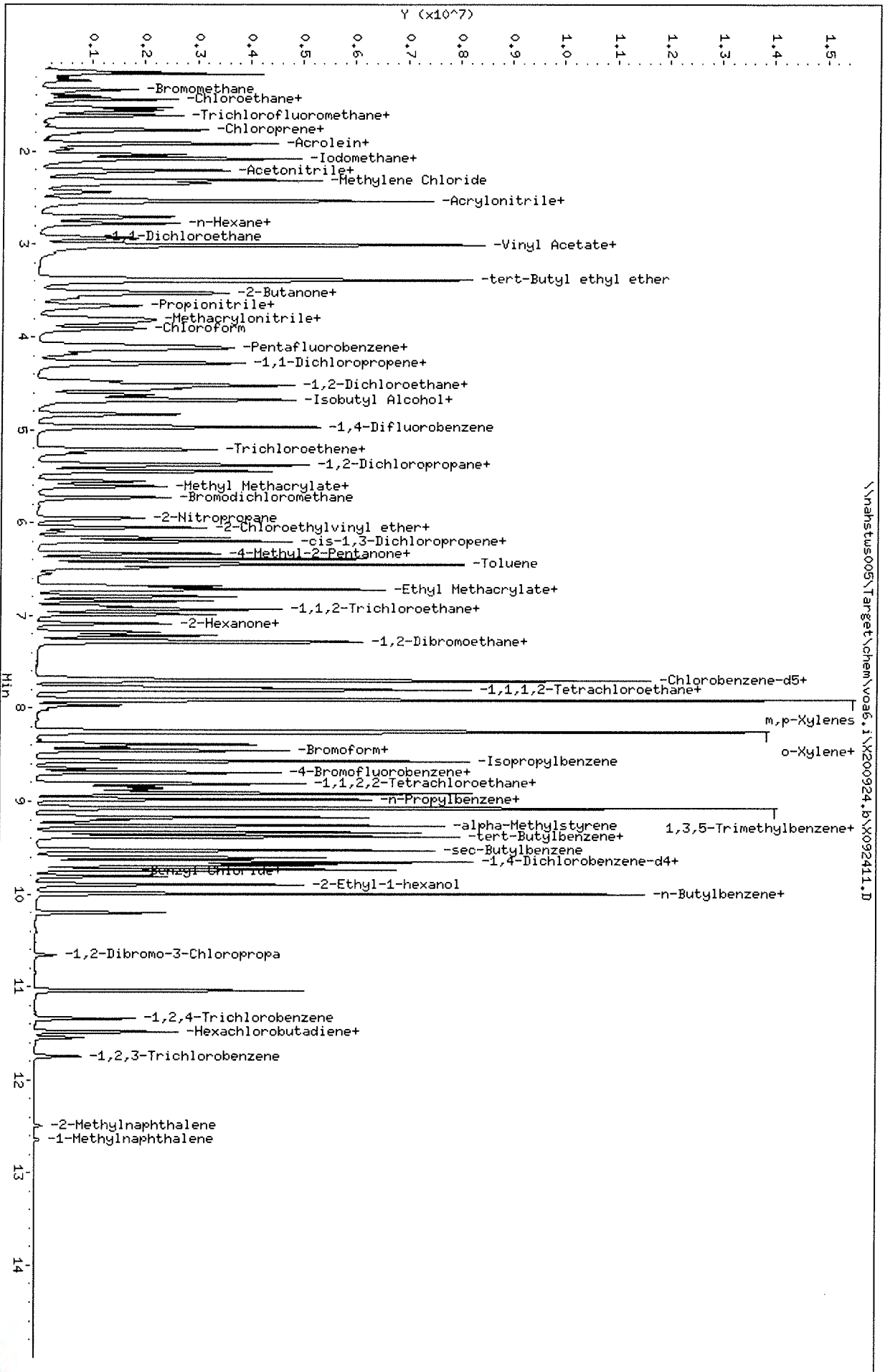
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	514617	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	818151	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	766117	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319805	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1023952	200.000	192.86
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	1570020	200.000	198.08
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1009059	200.000	178.42
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	811095	200.000	179.76
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2021086	200.000	187.99
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	898417	200.000	194.16
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	1470799	200.000	195.41
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	252027	200.000	203.90(A)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	845182	200.000	180.66(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	497987	200.000	201.39(A)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	3640675	200.000	191.23
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	75498	200.000	195.63
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	982108	200.000	184.47
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1668003	200.000	187.30

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092411.D Page 2
Report Date: 13-Oct-2020 11:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1311886	200.000	185.97
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	1174366	200.000	193.85
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	3615186	200.000	191.44
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1939698	200.000	188.57
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1687479	200.000	180.80
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1908950	200.000	186.87
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	1529599	200.000	189.35
24	2-Butanone	43	3.580	3.580	(0.855)	794870	400.000	423.13(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	3075929	200.000	185.09
52	2-Hexanone	43	7.090	7.090	(0.924)	1315951	400.000	387.37(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	3499907	200.000	184.98
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	3720558	200.000	195.33
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2021801	400.000	375.95(A)
10	Acetone	43	1.976	1.976	(0.472)	468128	400.000	395.42(A)
37	Benzene	78	4.519	4.519	(0.909)	4491768	200.000	191.96
74	Bromobenzene	156	8.809	8.809	(0.911)	1227148	200.000	189.89
29	Bromochloromethane	128	3.803	3.803	(0.908)	585962	200.000	182.19
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1448888	200.000	195.26
66	Bromoform	173	8.416	8.416	(1.097)	667425	200.000	199.43
6	Bromomethane	94	1.338	1.338	(0.320)	822601	200.000	199.15
19	Carbon Disulfide	76	2.076	2.076	(0.496)	6314905	400.000	395.11(A)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	1334523	200.000	203.90(A)
59	Chlorobenzene	112	7.699	7.699	(1.004)	2881341	200.000	184.87
7	Chloroethane	64	1.403	1.403	(0.335)	746987	200.000	185.30
28	Chloroform	83	3.910	3.910	(0.933)	1888897	200.000	189.35
3	Chloromethane	50	1.081	1.081	(0.258)	1519539	200.000	215.62(A)
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	1197643	200.000	189.96
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1863781	200.000	198.57
55	Dibromochloromethane	129	7.176	7.176	(0.936)	1046893	200.000	191.23
44	Dibromomethane	93	5.557	5.557	(1.118)	676562	200.000	188.33
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1091943	200.000	201.27(A)
61	Ethylbenzene	106	7.807	7.807	(1.018)	1537966	200.000	189.03
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	468444	200.000	197.29
67	Isopropylbenzene	105	8.566	8.566	(1.117)	4482158	200.000	189.47
62	m,p-Xylenes	106	7.907	7.907	(1.031)	3653571	400.000	374.04(A)
17	Methylene Chloride	84	2.305	2.305	(0.550)	1112263	200.000	199.56
87	n-Butylbenzene	91	9.999	9.999	(1.034)	3292137	200.000	199.77
73	n-Propylbenzene	91	8.917	8.917	(0.922)	5360526	200.000	196.50
92	Naphthalene	128	11.546	11.546	(1.194)	612632	200.000	205.43(A)
63	o-Xylene	106	8.244	8.244	(1.075)	1788902	200.000	187.54
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	4353469	200.000	194.82
64	Styrene	104	8.265	8.265	(1.078)	3107739	200.000	190.44
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	2997110	200.000	190.39
56	Tetrachloroethene	164	6.933	6.933	(0.904)	917390	200.000	189.53
50	Toluene	91	6.453	6.453	(0.841)	4536037	200.000	182.92
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1022675	200.000	191.84
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1572450	200.000	201.00(A)
38	Trichloroethene	130	5.214	5.214	(1.049)	1150173	200.000	196.54
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	1512632	200.000	202.18(A)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	1412833	200.000	212.53(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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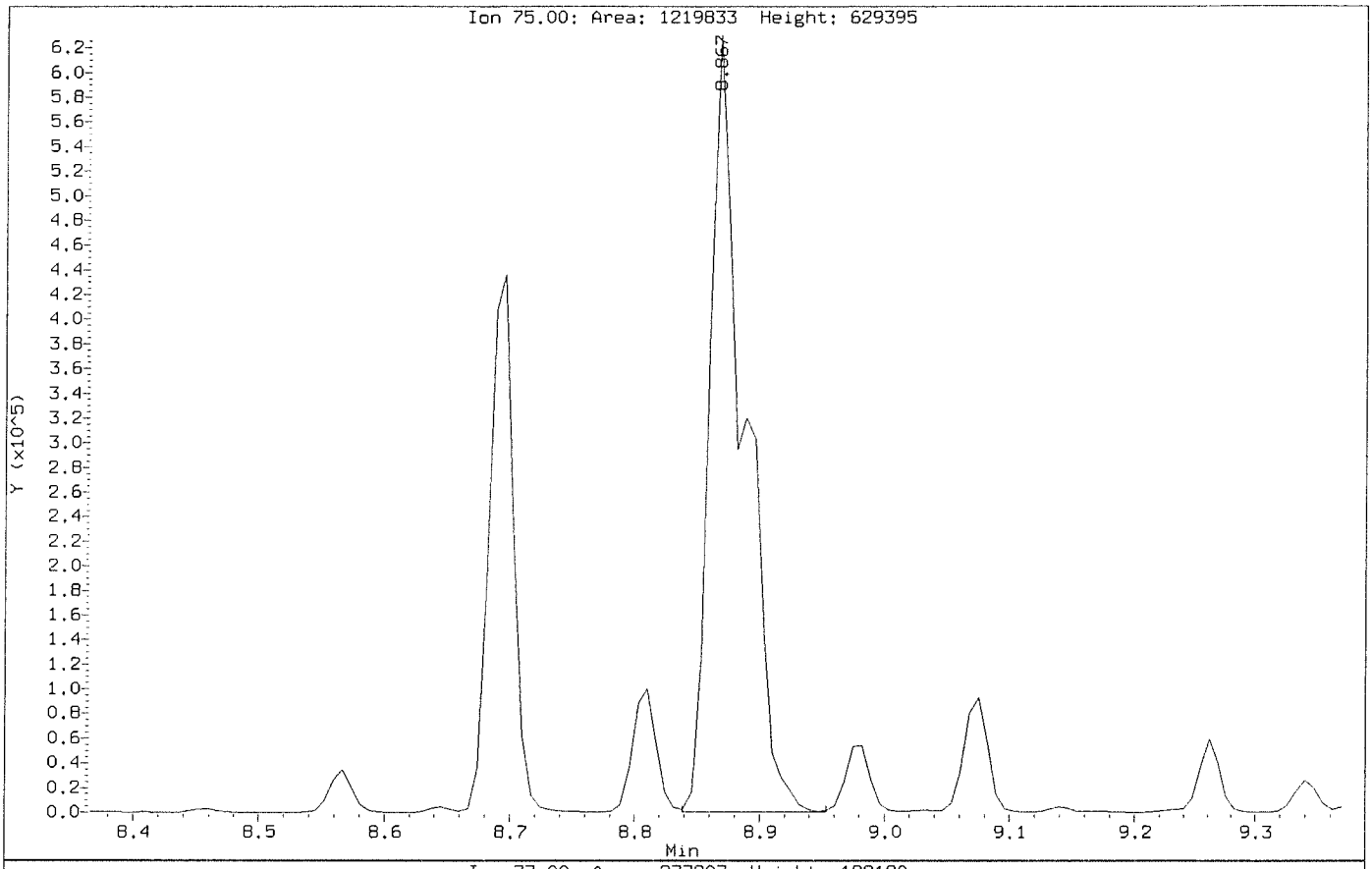
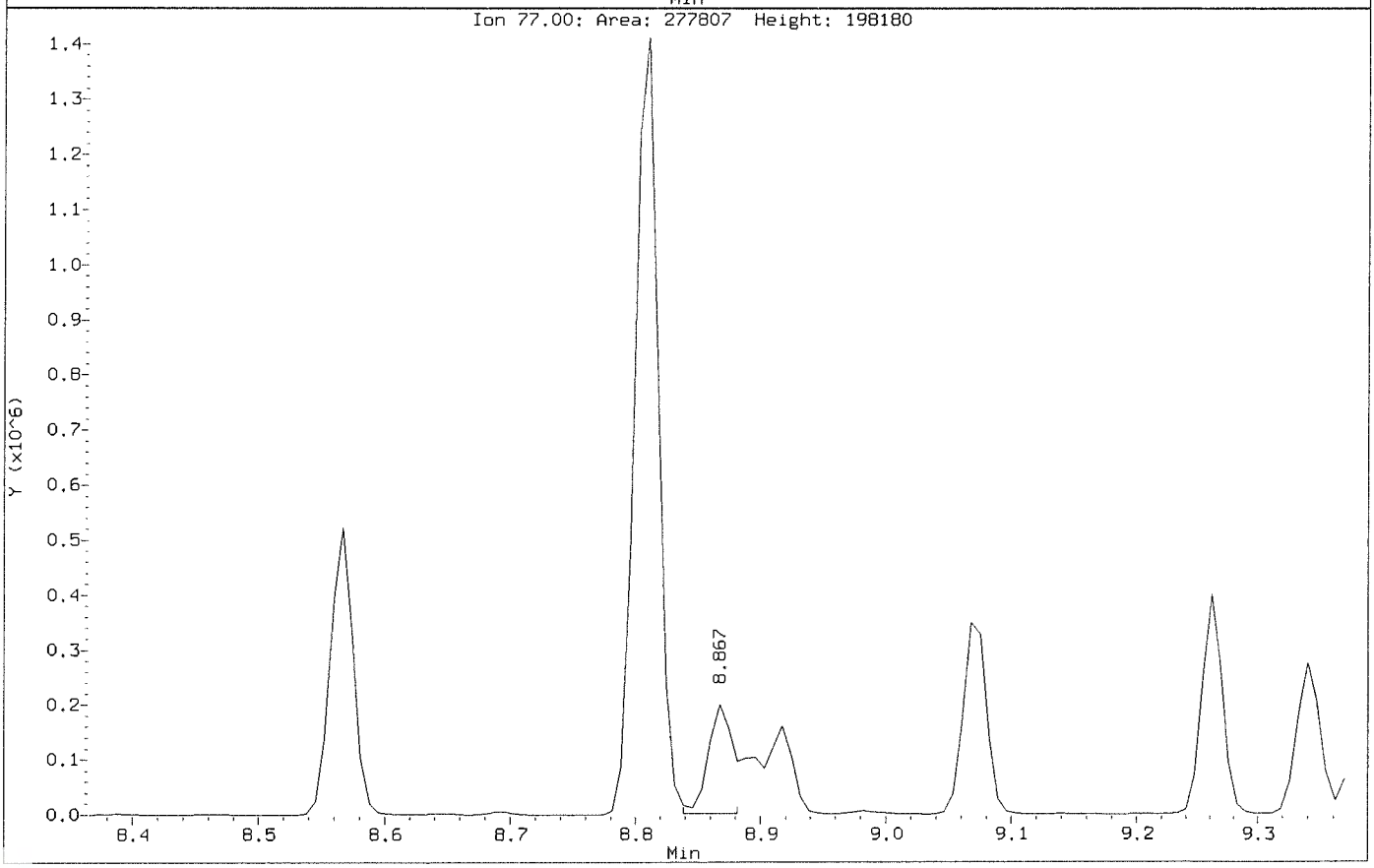
Date : 24-SEP-2020 15:33
Client ID: VSTD200
Sample Info: VSTD200;VSTD200;1;10;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092411.D
Injection Date: 24-SEP-2020 15:33
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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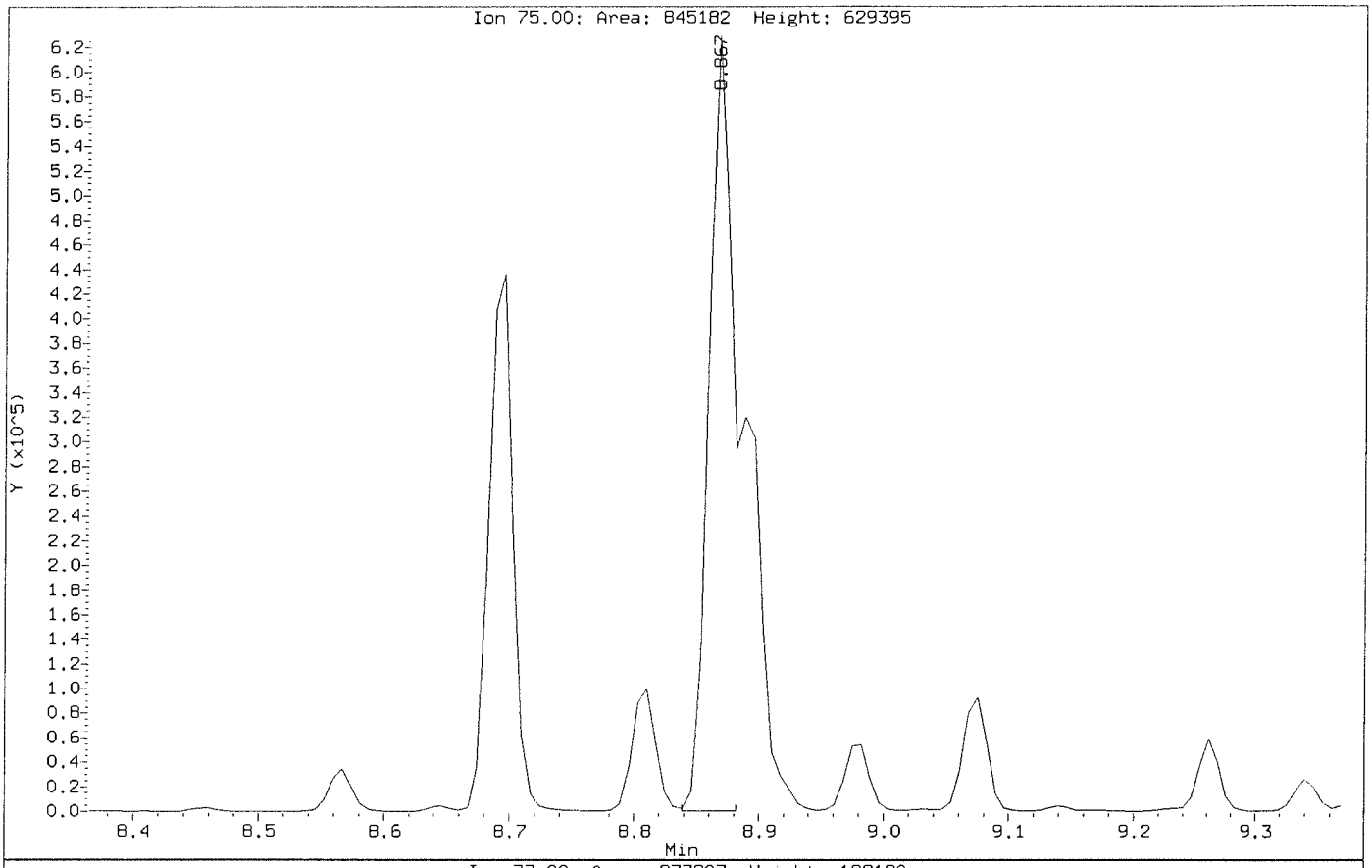
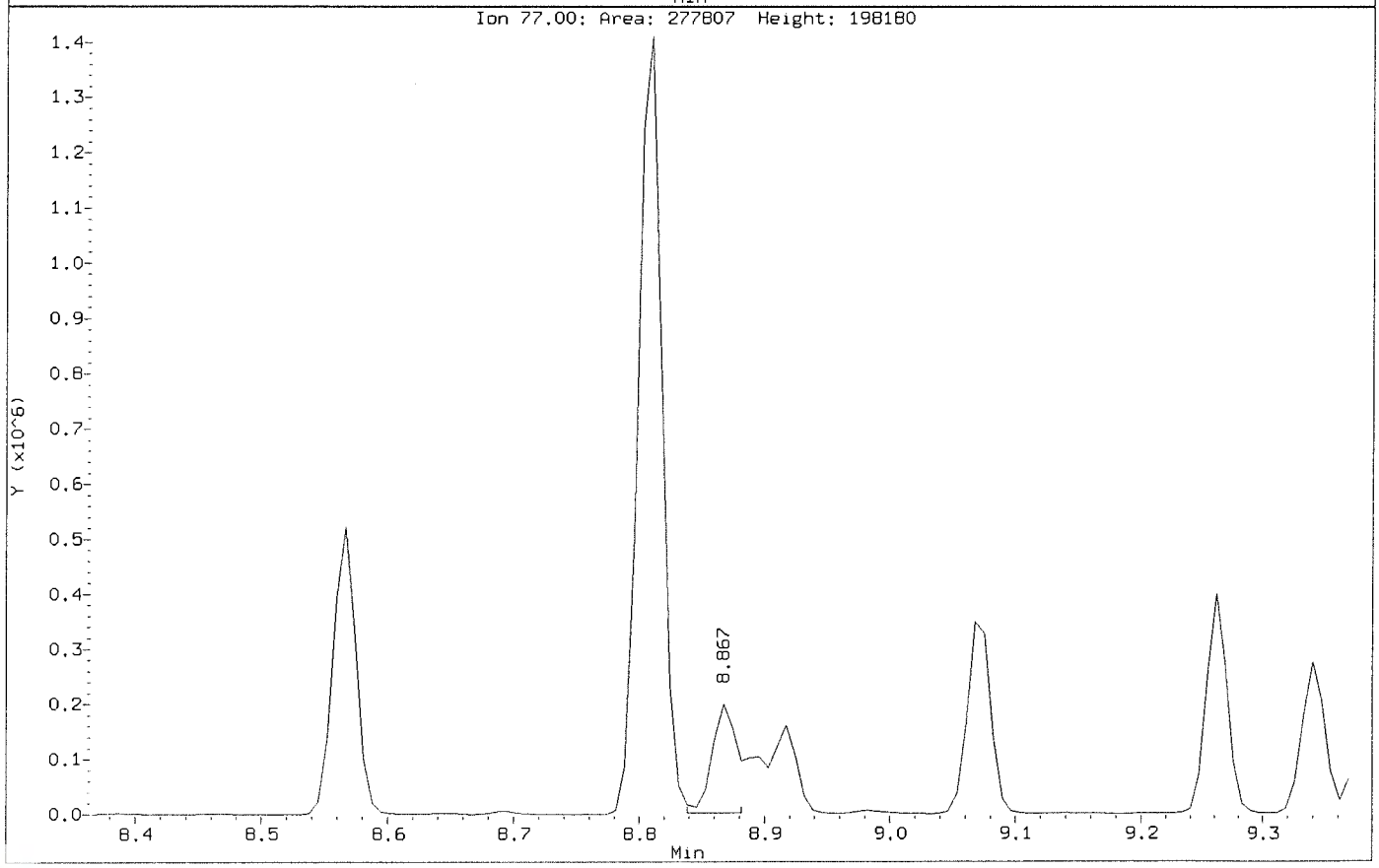
Injection Date: 24-SEP-2020 15:33
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092414.D Page 1
Report Date: 13-Oct-2020 11:23

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

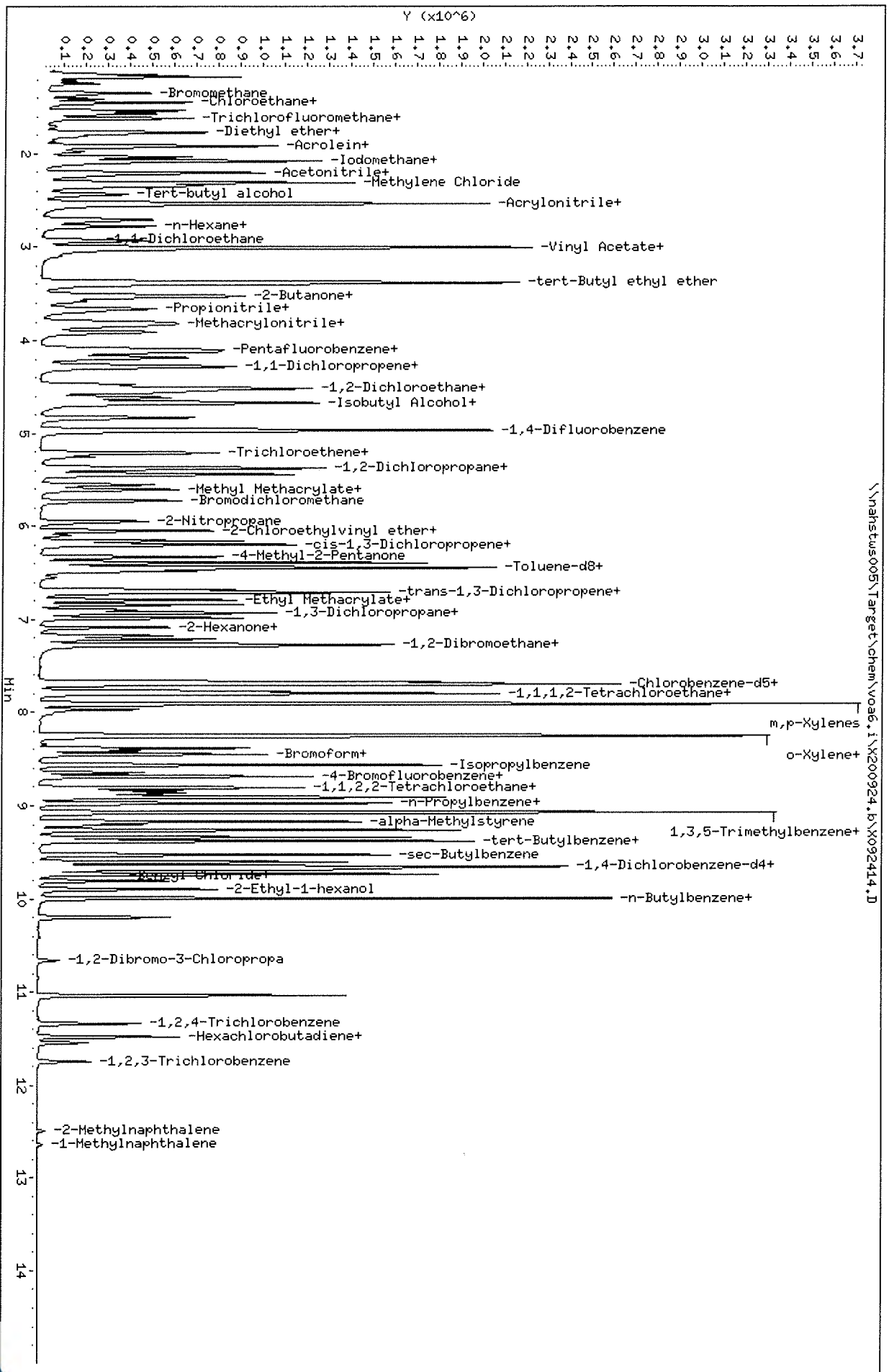
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555853	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	880879	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	809143	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	340955	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	255261	45.5235	45.52
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	372773	43.5426	43.54
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	269578	44.7109	44.71
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	212341	44.5585	44.55
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	513975	44.2622	44.26
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	215034	43.0259	43.02
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	342196	42.2270	42.22
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	67558	51.2677	51.26
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	237004	47.5196	47.51(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127322	49.3405	49.34
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	893102	44.0033	44.00
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	18502	44.9686	44.96
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	254893	45.3327	45.33
88 1,2-Dichlorobenzene	146	9.992	9.999	(1.034)	427645	45.0424	45.04

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092414.D Page 2
Report Date: 13-Oct-2020 11:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	342758	45.1289	45.12
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	300814	46.1197	46.11
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	869784	43.2026	43.20
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	491942	44.8587	44.85
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	440493	44.6861	44.68
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	480988	44.1640	44.16
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	389339	44.6220	44.62
24	2-Butanone	43	3.581	3.580	(0.855)	219196	108.029	108.02
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	763308	43.0841	43.08
52	2-Hexanone	43	7.090	7.090	(0.924)	341403	95.1537	95.15
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	871870	43.2233	43.22
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	839031	41.3173	41.31
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	518916	91.3618	91.36
10	Acetone	43	1.976	1.976	(0.472)	144721	109.546	109.54
37	Benzene	78	4.519	4.519	(0.909)	1129724	44.8428	44.84
74	Bromobenzene	156	8.810	8.809	(0.912)	314637	45.6672	45.66
29	Bromochloromethane	128	3.803	3.803	(0.908)	152577	43.9222	43.92
39	Bromodichloromethane	83	5.729	5.729	(1.153)	364239	45.5934	45.59
66	Bromoform	173	8.416	8.416	(1.097)	169090	47.8404	47.84
6	Bromomethane	94	1.346	1.338	(0.321)	214339	47.8614	47.86
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1550506	89.8154	89.81
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	295499	41.9357	41.93
59	Chlorobenzene	112	7.699	7.699	(1.004)	717662	43.5977	43.59
7	Chloroethane	64	1.410	1.403	(0.337)	187221	42.9974	42.99
28	Chloroform	83	3.917	3.910	(0.935)	480173	44.5656	44.56
3	Chloromethane	50	1.081	1.081	(0.258)	347050	45.5939	45.59
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	305678	44.8873	44.88
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	467703	46.2818	46.28
55	Dibromochloromethane	129	7.176	7.176	(0.936)	263131	45.5092	45.50
44	Dibromomethane	93	5.558	5.557	(1.118)	175762	45.4424	45.44
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	230691	41.0358	41.03
61	Ethylbenzene	106	7.800	7.807	(1.017)	366397	42.6400	42.63
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	107937	45.3302	45.33
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1042703	41.7341	41.73
62	m,p-Xylenes	106	7.907	7.907	(1.031)	899893	87.2295	87.22
17	Methylene Chloride	84	2.306	2.305	(0.550)	293086	48.1510	48.15
87	n-Butylbenzene	91	9.999	9.999	(1.035)	744175	42.3576	42.35
73	n-Propylbenzene	91	8.917	8.917	(0.923)	1231158	42.3313	42.33
92	Naphthalene	128	11.546	11.546	(1.195)	165067	51.9179	51.91
63	o-Xylene	106	8.244	8.244	(1.075)	448211	44.4912	44.49
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	959537	40.2778	40.27
64	Styrene	104	8.258	8.265	(1.077)	794863	46.1195	46.11
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	686333	40.8964	40.89
56	Tetrachloroethene	164	6.933	6.933	(0.904)	211119	41.2989	41.29
50	Toluene	91	6.446	6.453	(0.840)	1141578	43.5879	43.58
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	260688	45.2738	45.27
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	394997	46.8967	46.89
38	Trichloroethene	130	5.214	5.214	(1.049)	279338	44.3352	44.33
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	339177	41.9731	41.97
5	Vinyl Chloride	62	1.145	1.145	(0.273)	314294	43.7725	43.77

QC Flag Legend

M - Compound response manually integrated.

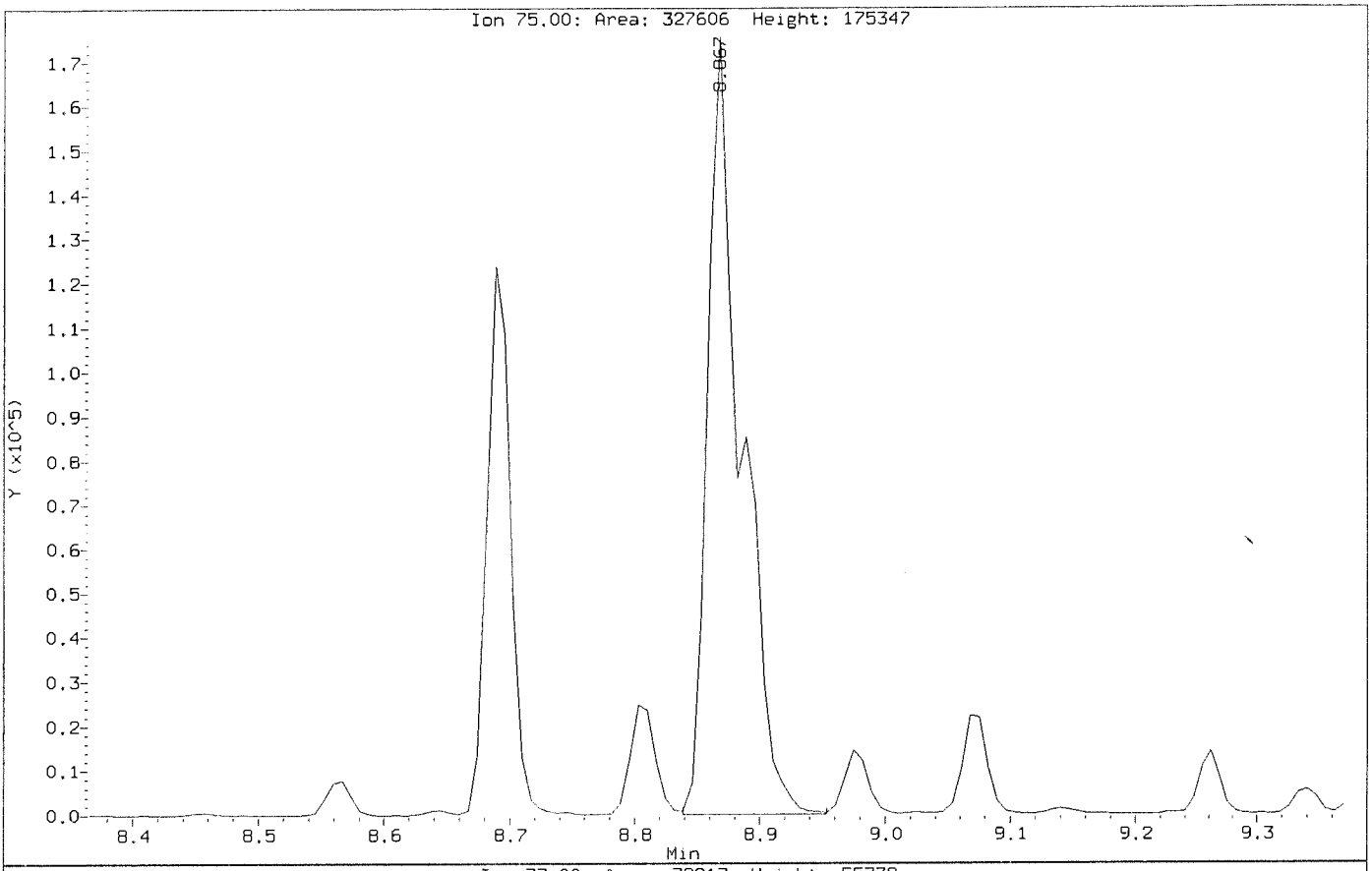


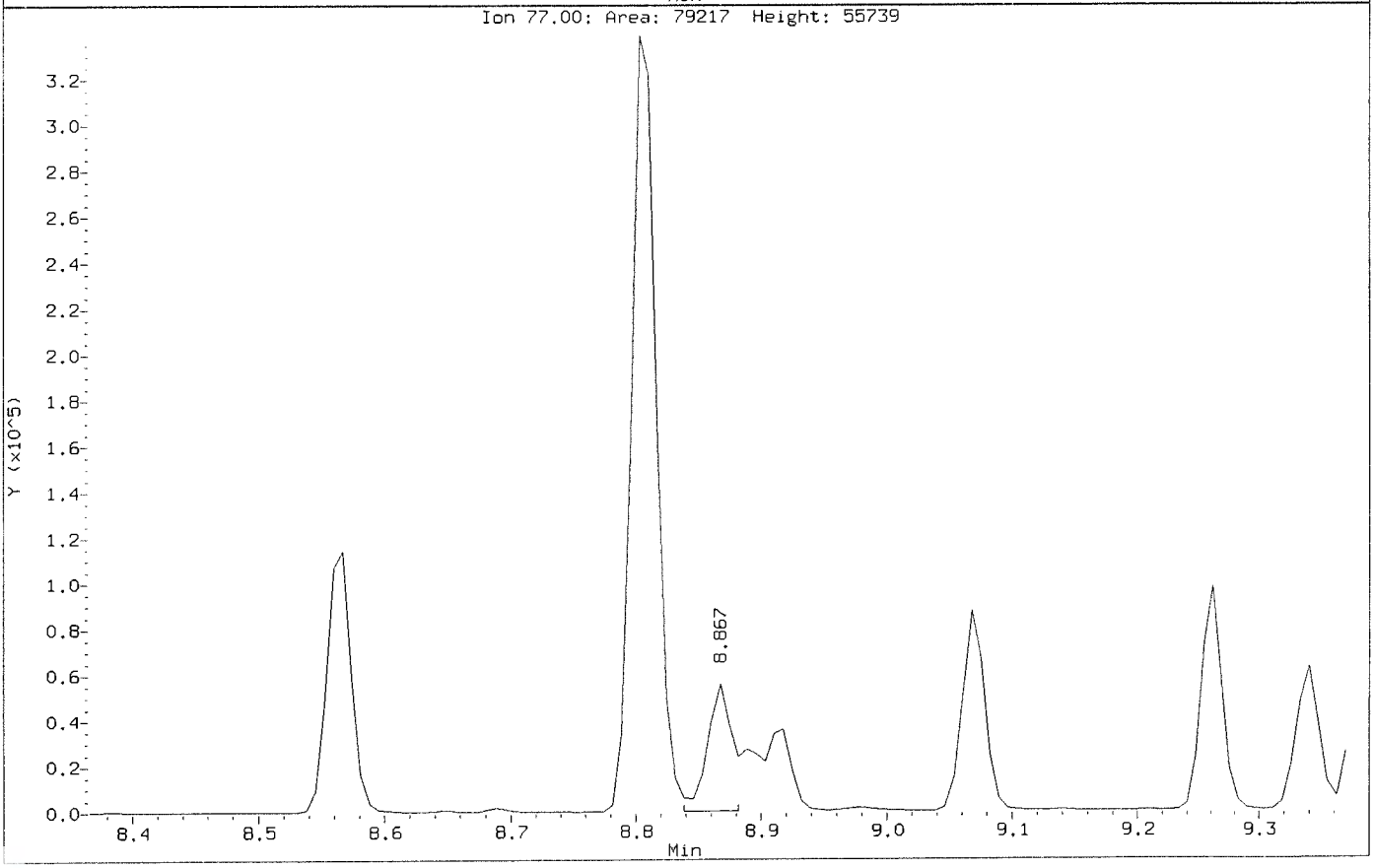
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092414.D
Date : 24-SEP-2020 16:45
Client ID: ICV
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092414.D
Injection Date: 24-SEP-2020 16:45
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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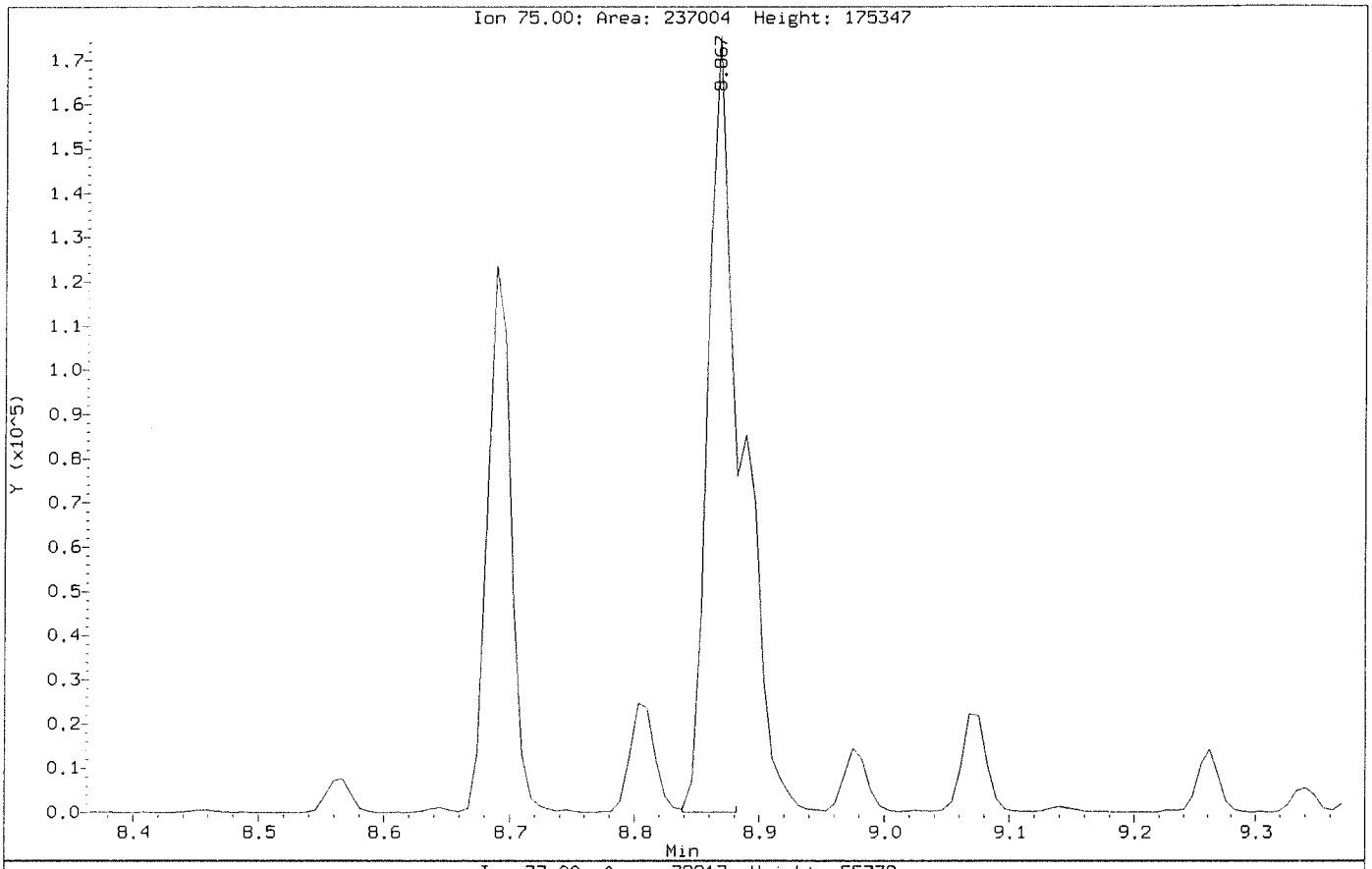
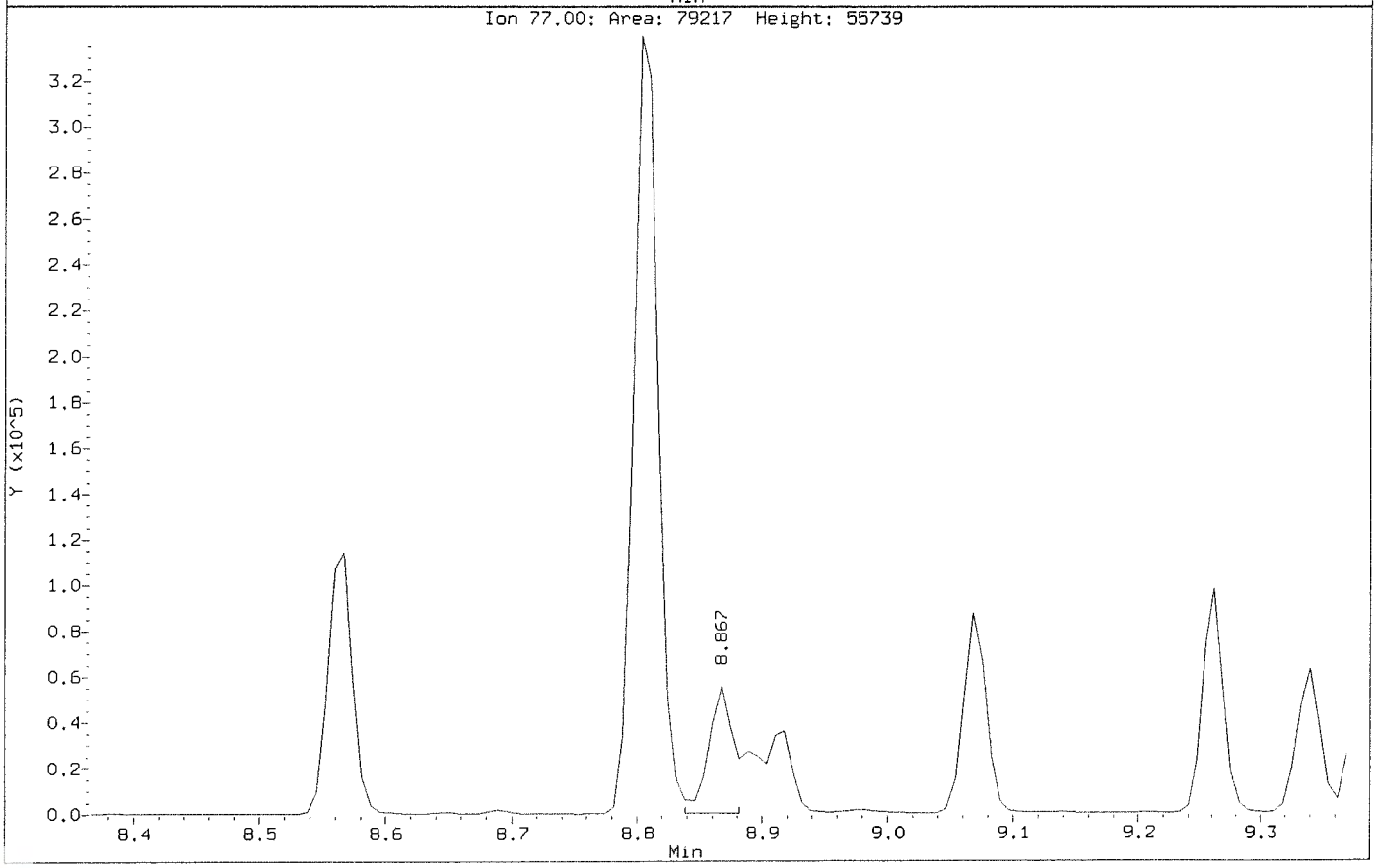
Injection Date: 24-SEP-2020 16:45
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092416.D Page 1
Report Date: 13-Oct-2020 11:22

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092416.D
Lab Smp Id: VLCSW-200924 Client Smp ID: VLCSW-200924
Inj Date : 24-SEP-2020 17:33
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200924;VLCSW-200924;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 17 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

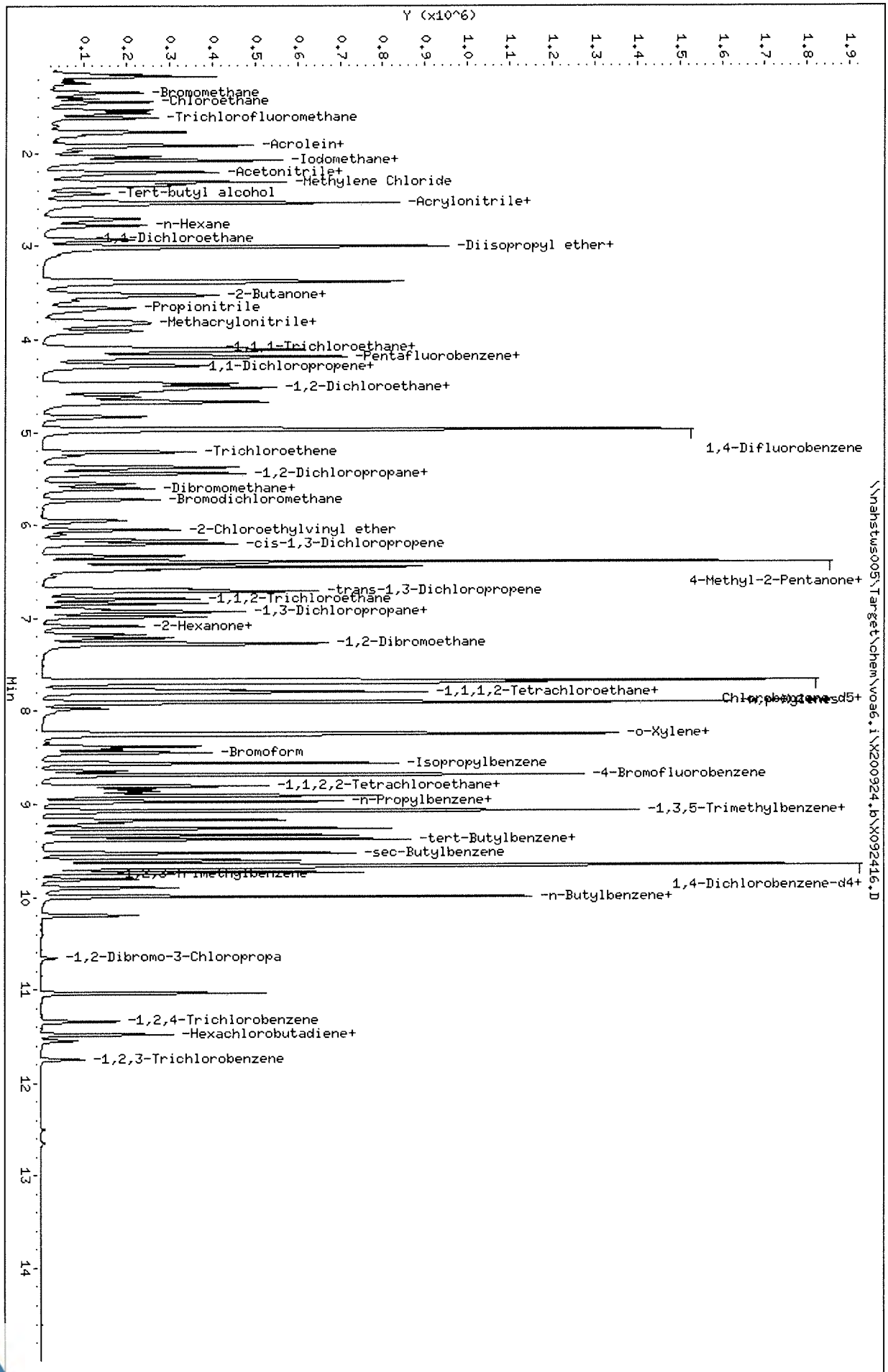
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	602309	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	938823	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	845297	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	360132	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	292041	47.1857	47.18
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	329257	48.6298	48.62
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1065140	47.9285	47.92
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	382031	51.8868	51.88
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	108269	18.4829	18.48
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	165126	17.8002	17.80
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	114158	17.9255	17.92
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	90554	18.1895	18.18
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	229642	18.2509	18.25
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	97304	17.9678	17.96
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	154215	17.8556	17.85
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	28135	20.2139	20.21
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96818	18.3785	18.37(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	53333	20.3957	20.39
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	396200	18.4814	18.48
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	7294	16.7839	16.78
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	110861	18.8733	18.87
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	180959	18.0449	18.04

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092416.D Page 2
Report Date: 13-Oct-2020 11:22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	149526	18.4721	18.47
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	132153	19.0107	19.01
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	379402	17.8416	17.84
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	211988	18.3012	18.30
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	187862	18.2427	18.24
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	207919	18.0744	18.07
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	175418	18.5539	18.55
24	2-Butanone	43	3.581	3.580	(0.855)	88531	40.2665	40.26
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	338351	18.0809	18.08
52	2-Hexanone	43	7.090	7.090	(0.924)	141976	37.8782	37.87
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	379208	17.7983	17.79
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	380498	17.7395	17.73
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	216933	36.5603	36.56
10	Acetone	43	1.976	1.976	(0.472)	65280	42.6349	42.63
37	Benzene	78	4.519	4.519	(0.909)	494990	18.4352	18.43
74	Bromobenzene	156	8.810	8.809	(0.912)	134454	18.4758	18.47
29	Bromochloromethane	128	3.803	3.803	(0.908)	66391	17.6378	17.63
39	Bromodichloromethane	83	5.729	5.729	(1.153)	156598	18.3922	18.39
66	Bromoform	173	8.416	8.416	(1.097)	69359	18.7843	18.78
6	Bromomethane	94	1.346	1.338	(0.321)	97521	19.9582	19.95
19	Carbon Disulfide	76	2.076	2.076	(0.496)	689276	36.8478	36.84
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	129445	17.2364	17.23
59	Chlorobenzene	112	7.699	7.699	(1.004)	314558	18.2920	18.29
7	Chloroethane	64	1.410	1.403	(0.337)	82841	17.5579	17.55
28	Chloroform	83	3.917	3.910	(0.935)	213770	18.3100	18.31
3	Chloromethane	50	1.081	1.081	(0.258)	151626	18.3835	18.38
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	136698	18.5252	18.52
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	198440	18.4248	18.42
55	Dibromochloromethane	129	7.176	7.176	(0.936)	109195	18.0778	18.07
44	Dibromomethane	93	5.558	5.557	(1.118)	75868	18.4046	18.40
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	103096	18.1423	18.14
61	Ethylbenzene	106	7.800	7.807	(1.017)	162810	18.1369	18.13
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	53938	22.0610	22.06
67	Isopropylbenzene	105	8.566	8.566	(1.117)	457275	17.5196	17.51
62	m,p-Xylenes	106	7.907	7.907	(1.031)	388763	36.0723	36.07
17	Methylene Chloride	84	2.306	2.305	(0.550)	129722	19.2496	19.24
87	n-Butylbenzene	91	9.999	9.999	(1.035)	339369	18.2879	18.28
73	n-Propylbenzene	91	8.917	8.917	(0.923)	544101	17.7118	17.71
92	Naphthalene	128	11.546	11.546	(1.195)	62486	18.6069	18.60
63	o-Xylene	106	8.244	8.244	(1.075)	190277	18.0798	18.07
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	434006	17.2479	17.24
64	Styrene	104	8.265	8.265	(1.078)	330272	18.3434	18.34
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	307938	17.3720	17.37
56	Tetrachloroethene	164	6.933	6.933	(0.904)	93880	17.5792	17.57
50	Toluene	91	6.453	6.453	(0.841)	501623	18.3339	18.33
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	116662	18.6981	18.69
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	167631	18.6739	18.67
38	Trichloroethene	130	5.214	5.214	(1.049)	123998	18.4657	18.46
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	155309	17.7371	17.73
5	Vinyl Chloride	62	1.145	1.145	(0.273)	139355	17.9113	17.91

QC Flag Legend

M - Compound response manually integrated.



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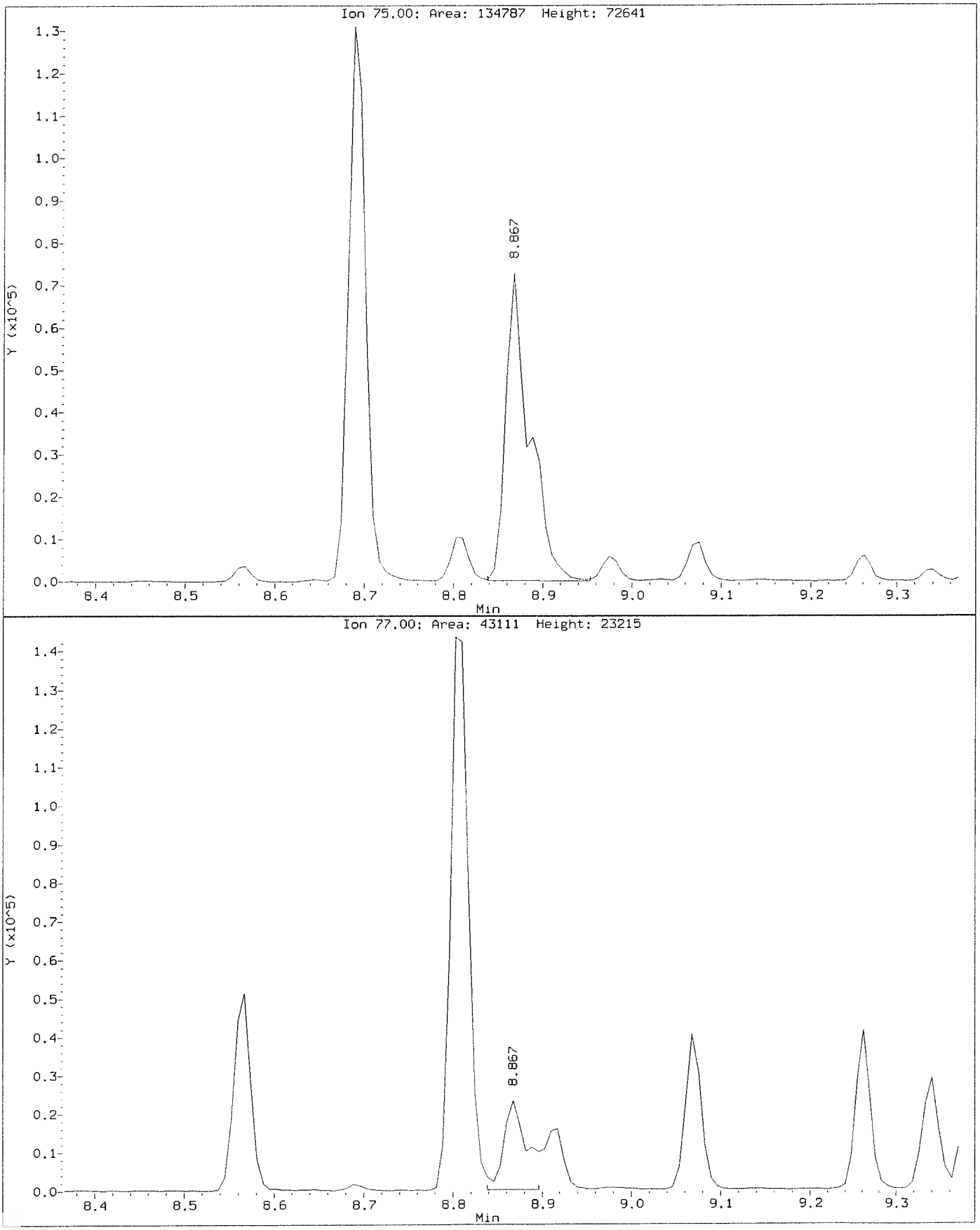
Date : 24-SEP-2020 17:33
Client ID: VLCSW-200924
Sample Info: VLCSW-200924;VLCSW-200924;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092416.D
Injection Date: 24-SEP-2020 17:33
Instrument: voa6.i
Client Sample ID: VLCSW-200924

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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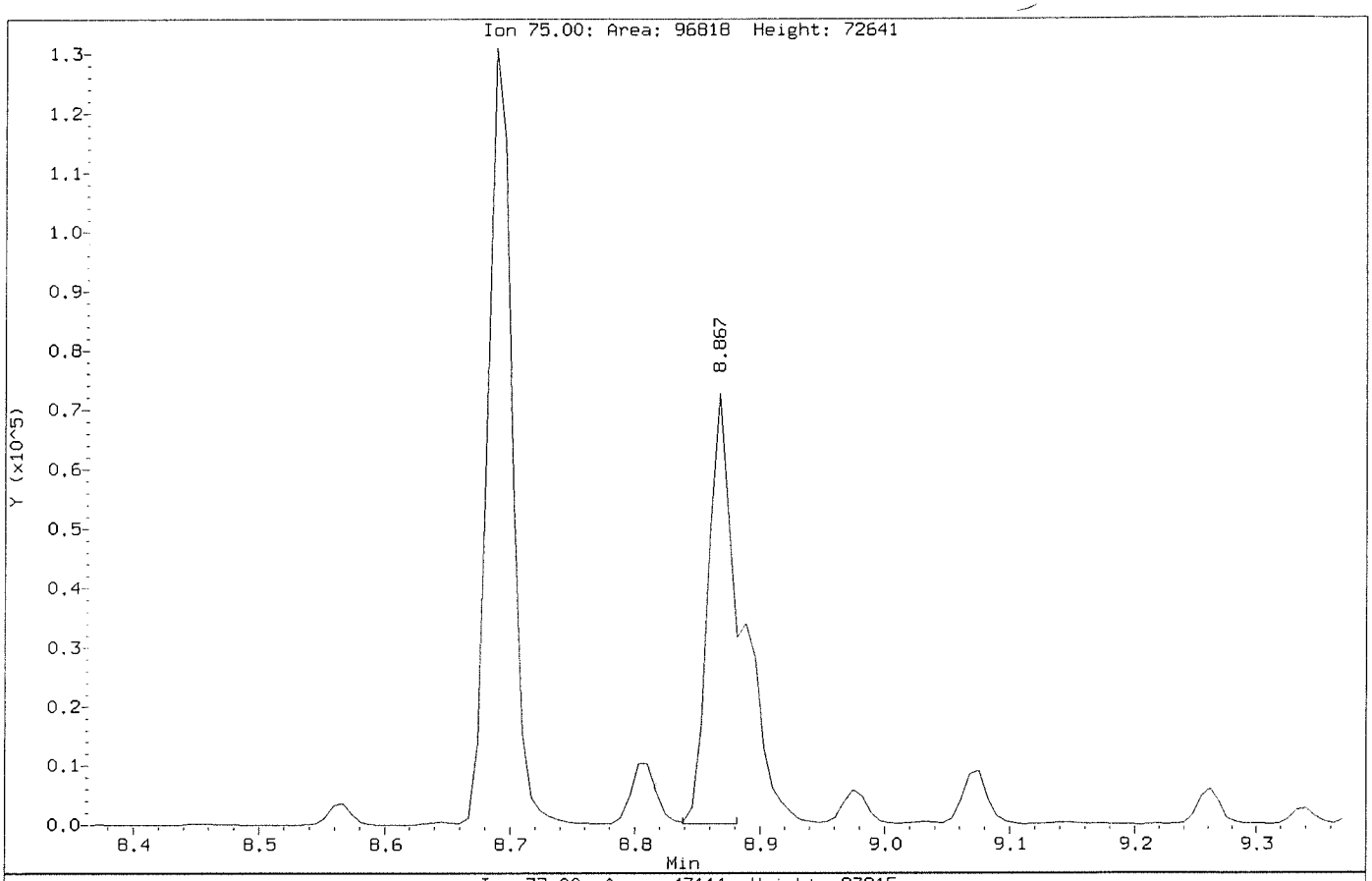
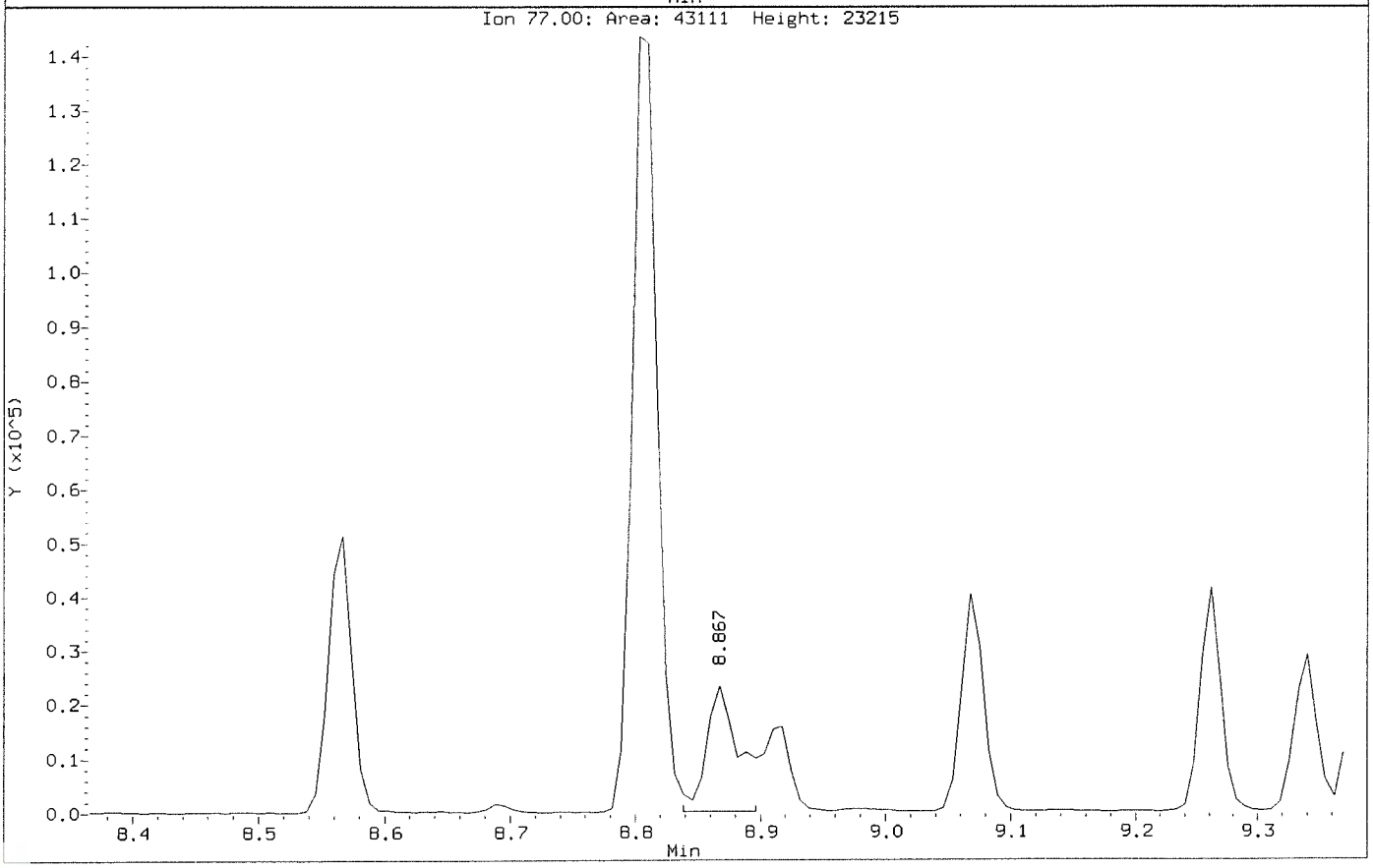
Injection Date: 24-SEP-2020 17:33
Instrument: voa6.i
Client Sample ID: VLCSW-200924

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D Page 1
Report Date: 13-Oct-2020 11:22

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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D
Lab Smp Id: VBLKW-200924 Client Smp ID: VBLKW-200924
Inj Date : 24-SEP-2020 18:45
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200924;VBLKW-200924;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 20 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555169	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	880416	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	775740	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	327303	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	264129	46.2996	46.29
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	282402	45.2511	45.25
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1025931	50.3035	50.30
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	357732	52.9599	52.95

00995461

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D

Date : 24-SEP-2020 18:45

Client ID: VBLKW-200924

Sample Info: VBLKW-200924;VBLKW-200924;3;;BLANK

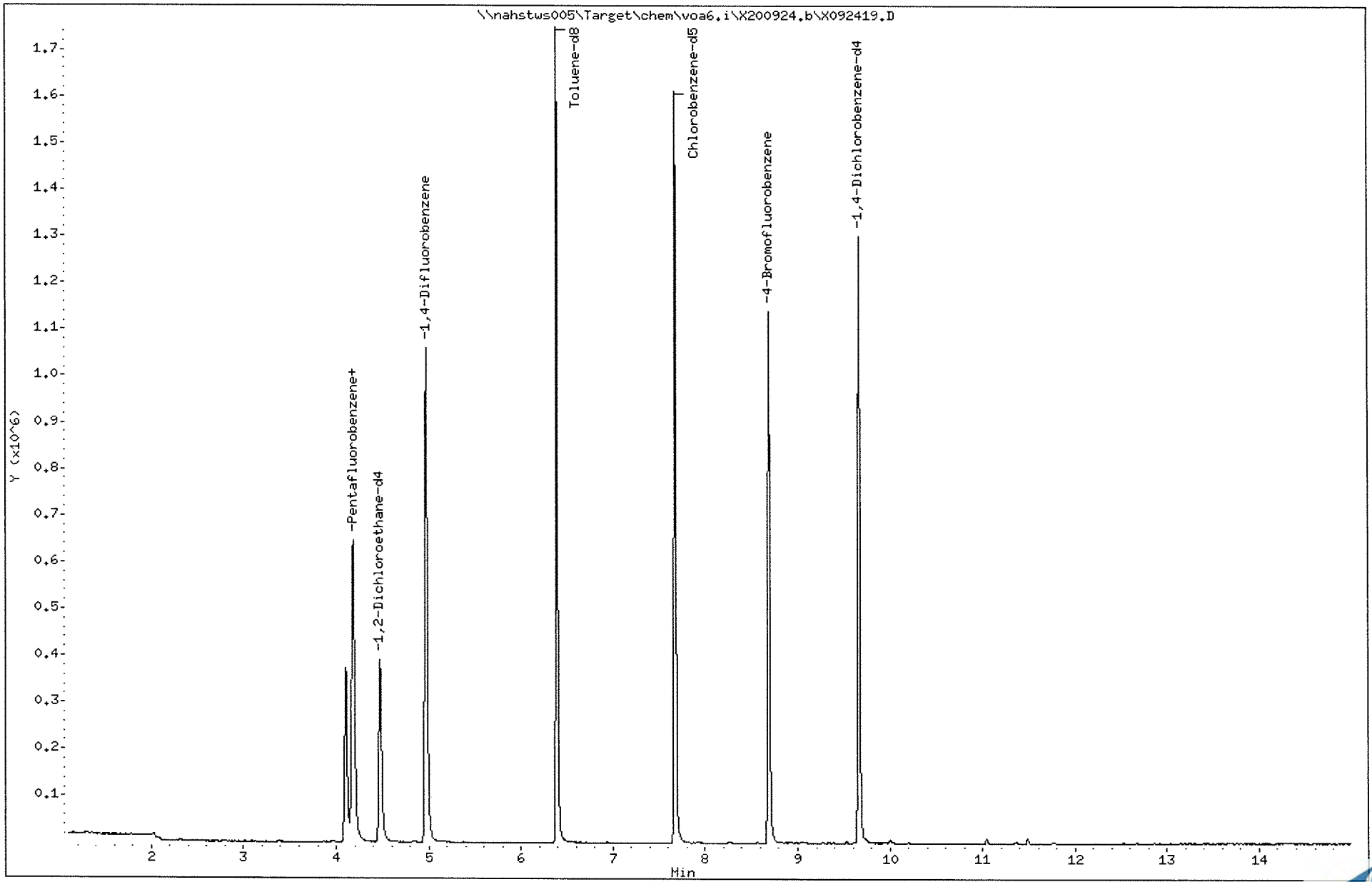
Purge Volume: 5.0

Column phase: DB624

Instrument: voa6.i

Operator: PC

Column diameter: 0.18



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D

Date : 24-SEP-2020 18:45

Client ID: VBLKW-200924

Instrument: voa6.i

Sample Info: VBLKW-200924;VBLKW-200924;3;;BLANK

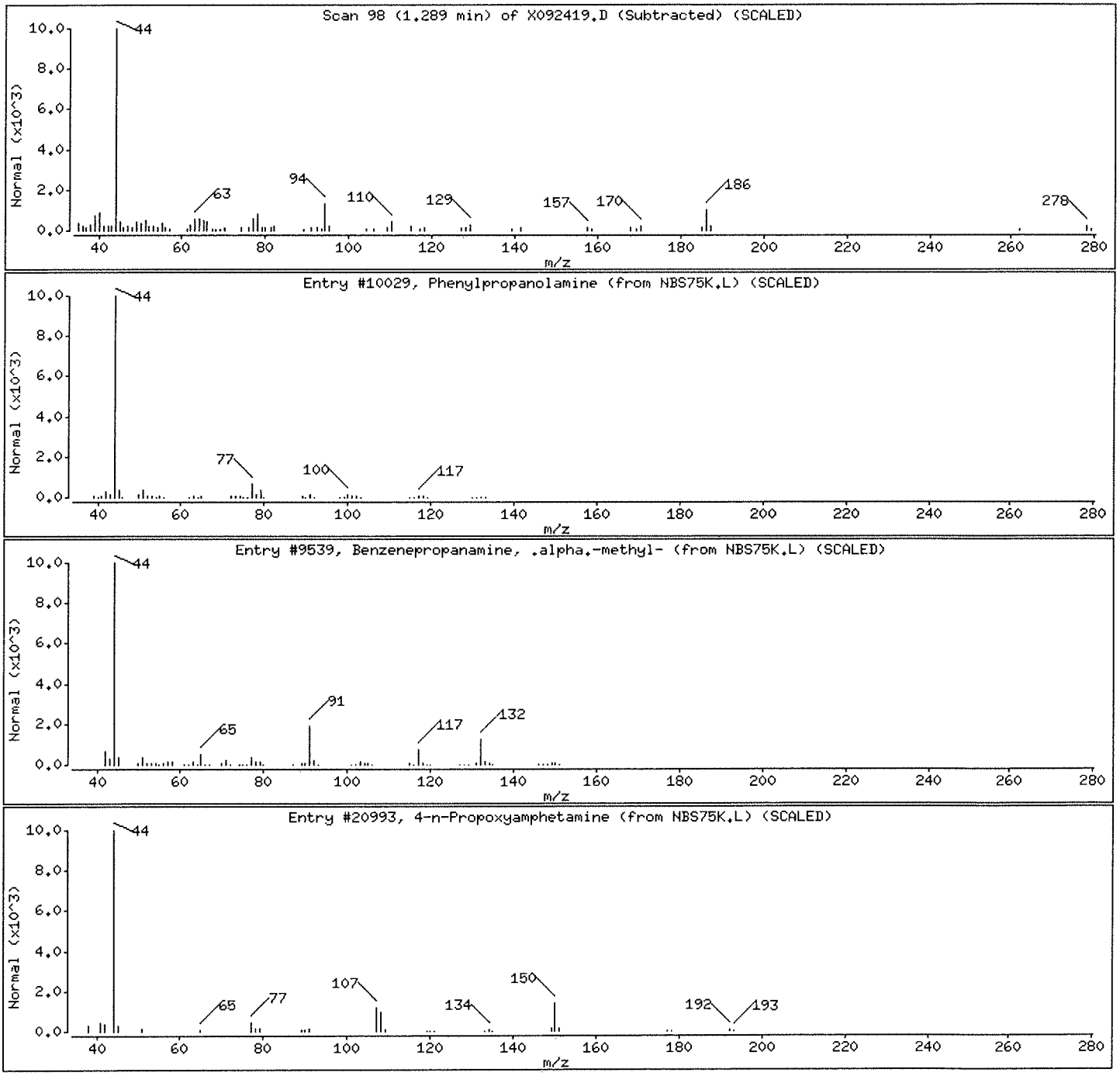
Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Phenylpropanolamine	492-41-1	NBS75K.L	10029	40	C9H13NO	151
Benzenepropanamine, .alpha.-methyl-	22374-89-6	NBS75K.L	9539	33	C10H15N	149
4-n-Propoxyamphetamine	0-00-0	NBS75K.L	20993	33	C12H19NO	193



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092420.D
Lab Smp Id: HS20090748-03 Client Smp ID: HS20090748-03
Inj Date : 24-SEP-2020 19:09
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-03;HS20090748-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 14-Oct-2020 16:45 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

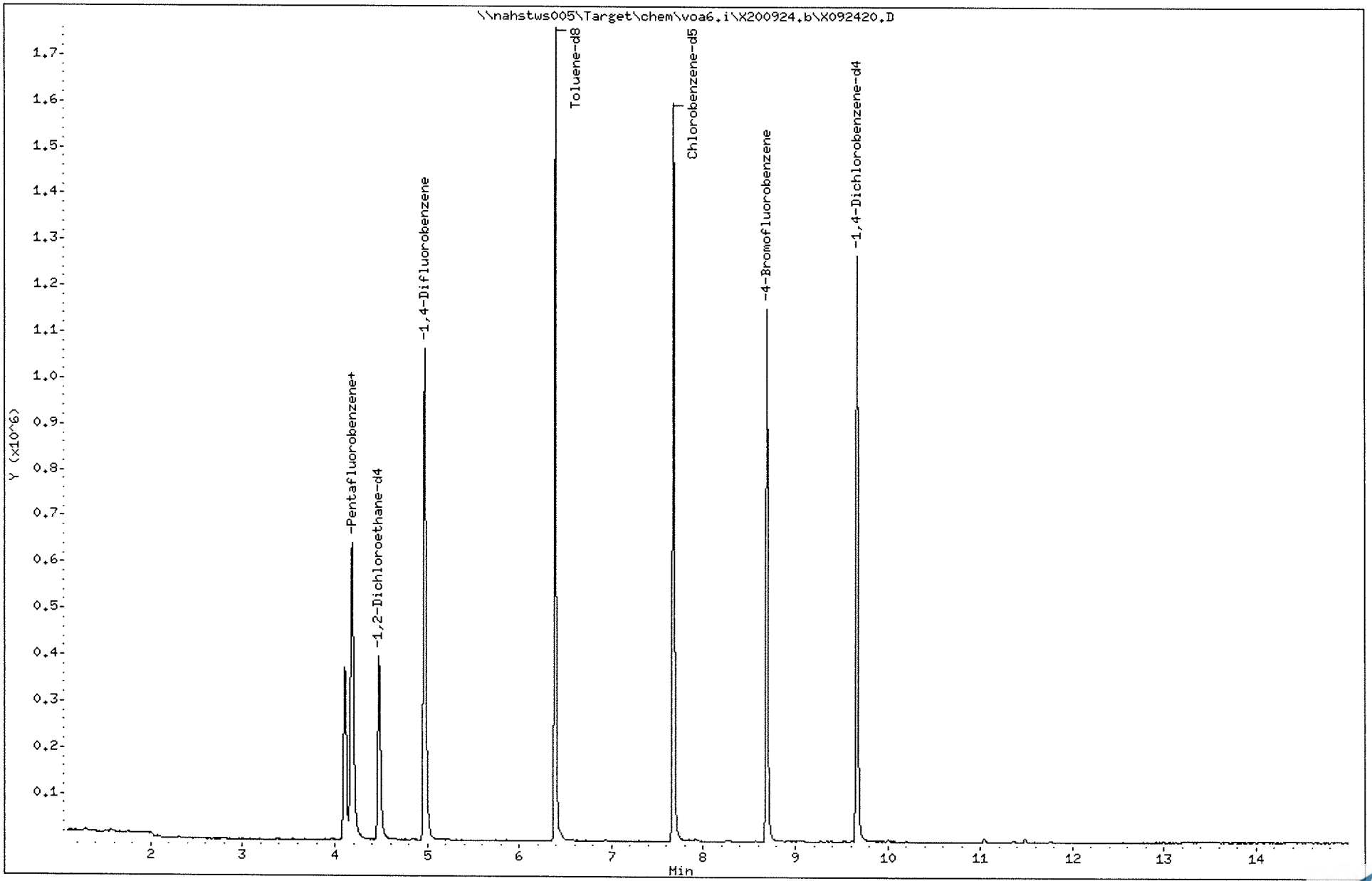
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	557708	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	877491	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	779477	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	328330	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	266022	46.4191	46.41
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	281549	44.9090	44.90
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1030121	50.2668	50.26
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	353446	52.0607	52.06

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092420.D
Date : 24-SEP-2020 19:09
Client ID: HS20090748-03
Sample Info: HS20090748-03;HS20090748-03;;;
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\X200924.b\X092422.D
Lab Smp Id: HS20090748-01 Client Smp ID: HS20090748-01
Inj Date : 24-SEP-2020 19:58
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-01;HS20090748-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 14-Oct-2020 16:45 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

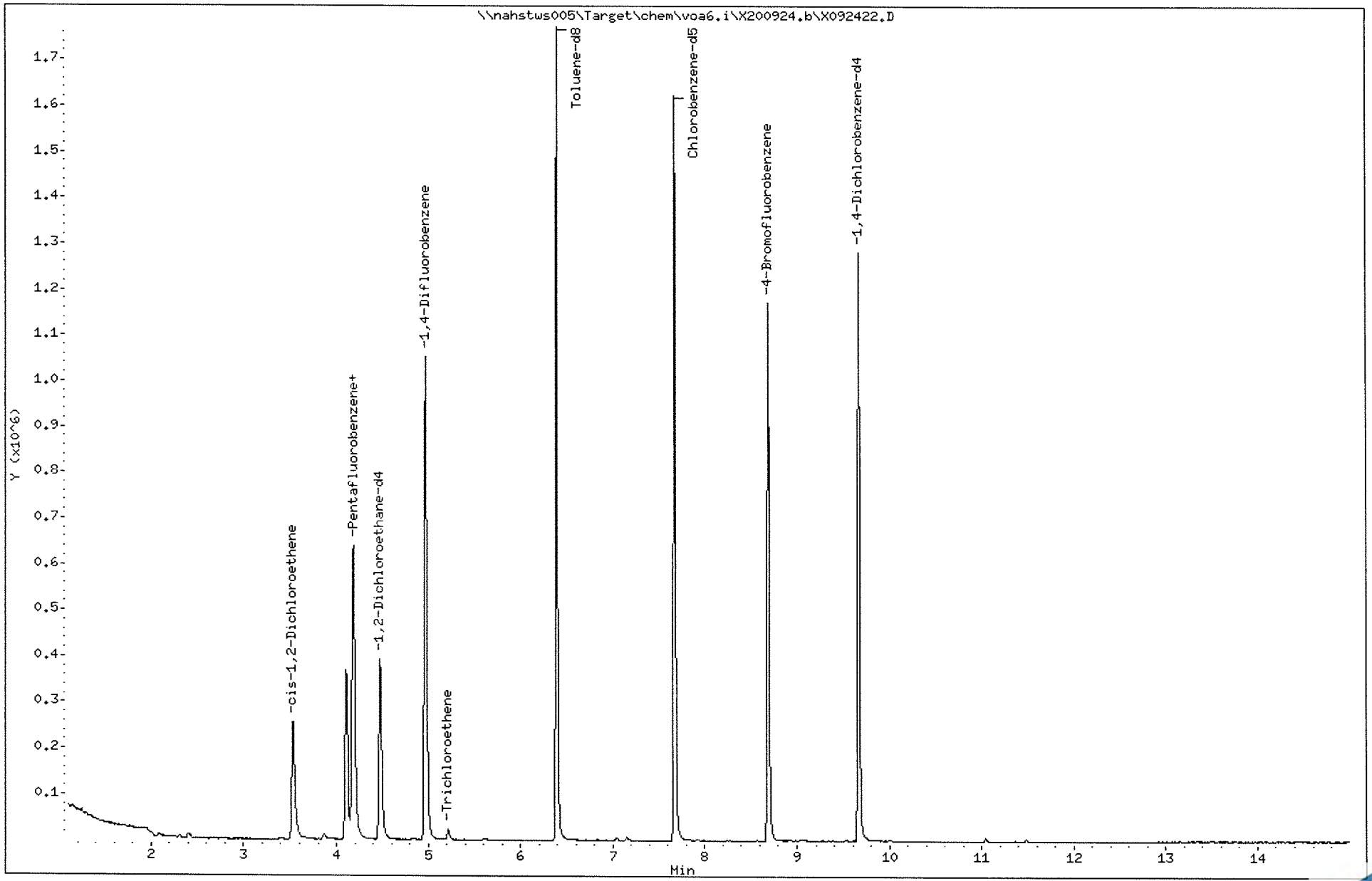
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	550328	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	872798	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	778039	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.662	(1.000)	330800	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	265442	46.9391	46.93
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	282470	45.6601	45.66
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1021290	49.9280	49.92
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	356169	52.5666	52.56
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	137768	20.4337	20.43
38 Trichloroethene	130	5.214	5.214	(1.049)	8080	1.29429	1.29(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\X092422.D
Date : 24-SEP-2020 19:58
Client ID: HS20090748-01
Sample Info: HS20090748-01;HS20090748-01;;;
Purge Volume: 5.0
Column phase: DB624

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



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Date : 24-SEP-2020 19:58

Client ID: HS20090748-01

Instrument: voa6.i

Sample Info: HS20090748-01;HS20090748-01;;;

Purge Volume: 5.0

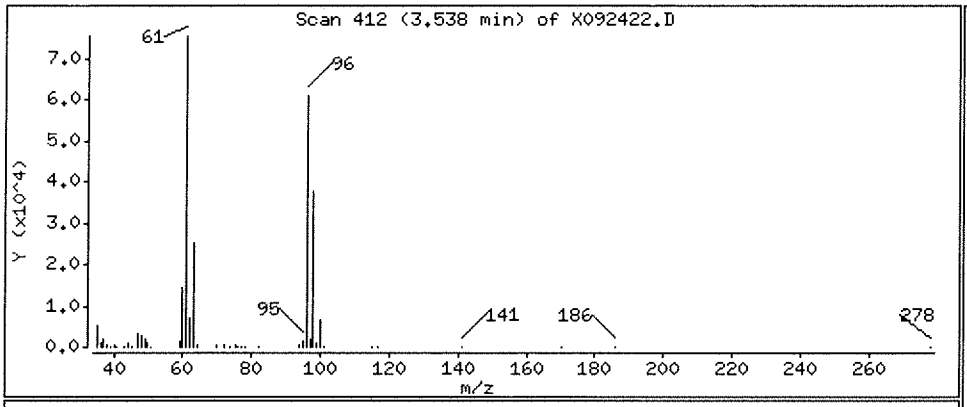
Operator: PC

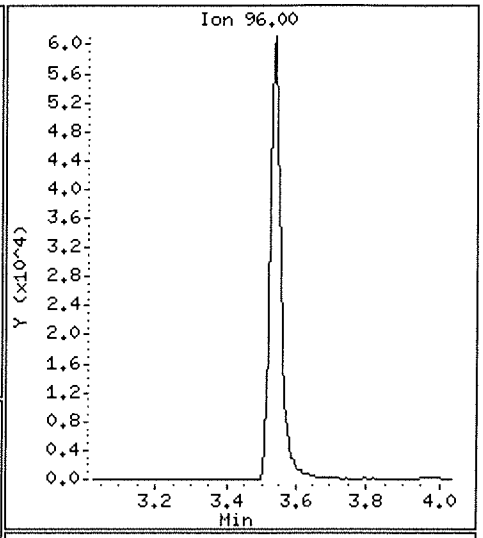
Column phase: DB624

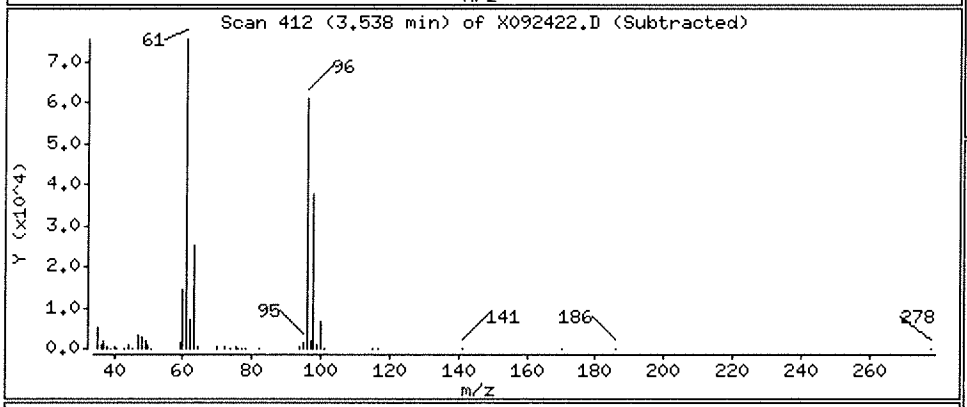
Column diameter: 0.18

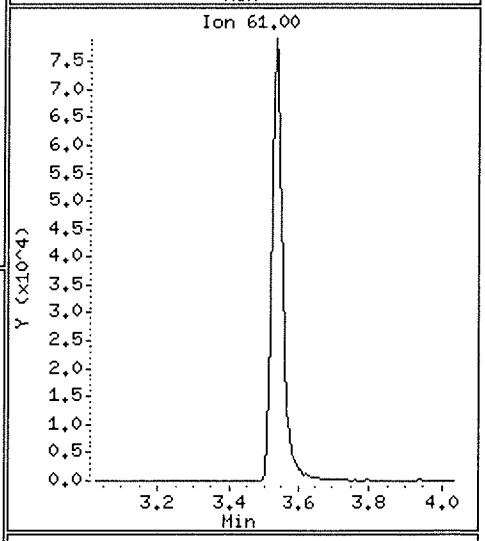
27 cis-1,2-Dichloroethene

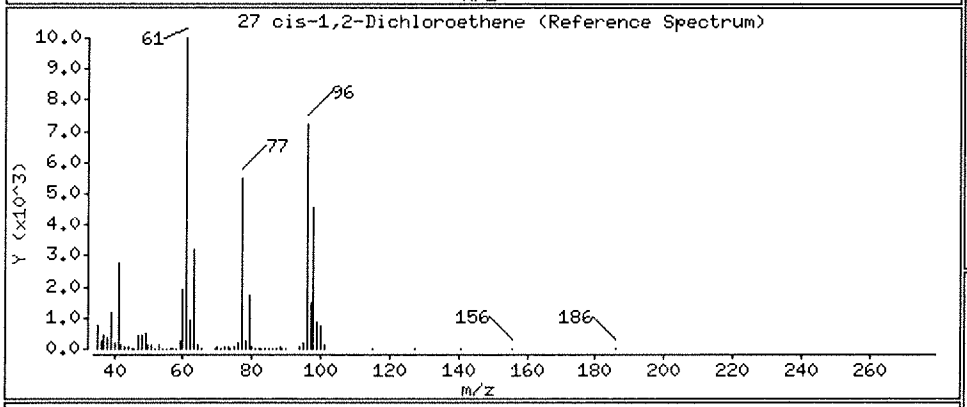
Concentration: 20.43 ug/l

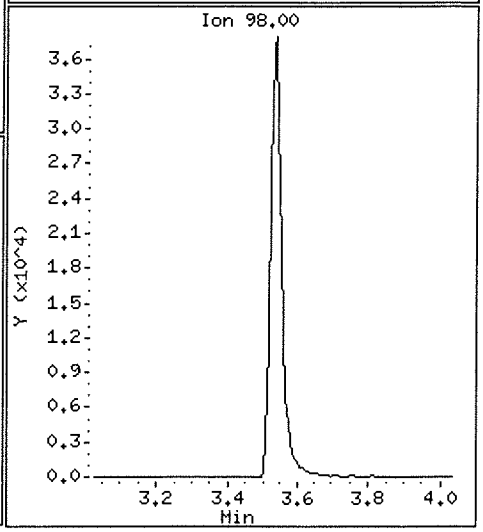


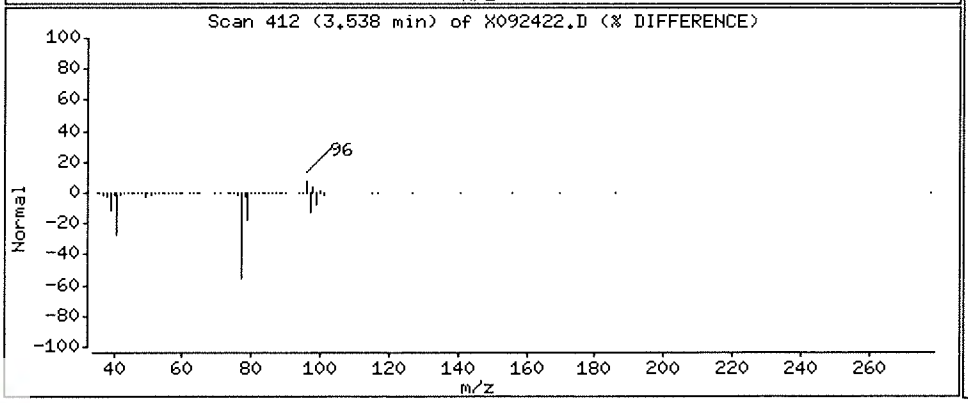












Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092422.D

Date : 24-SEP-2020 19:58

Client ID: HS20090748-01

Instrument: voa6.i

Sample Info: HS20090748-01;HS20090748-01;;;

Purge Volume: 5.0

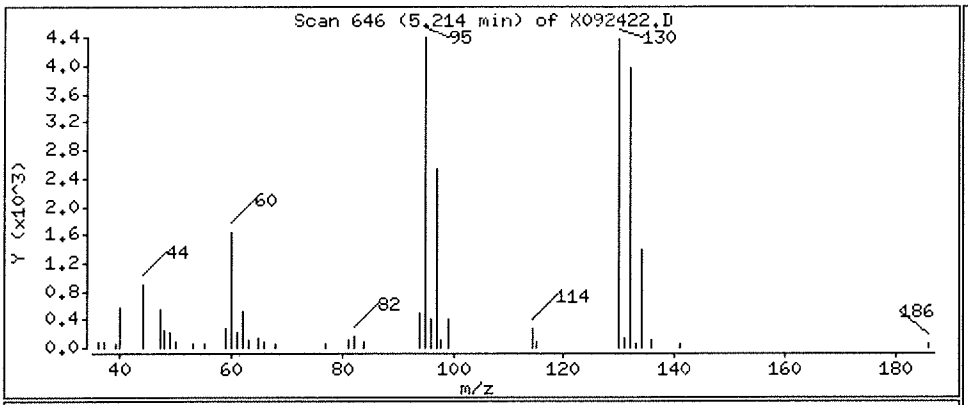
Operator: PC

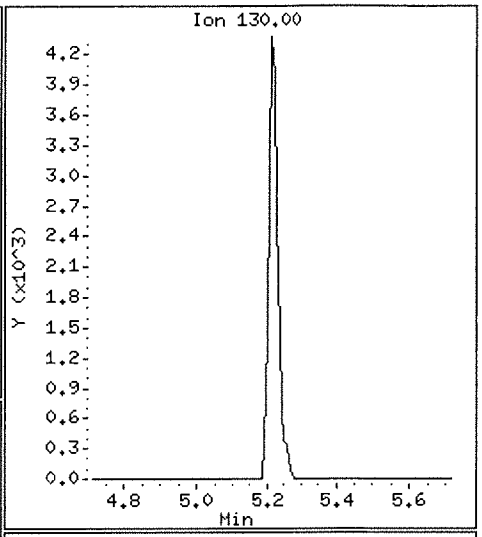
Column phase: DB624

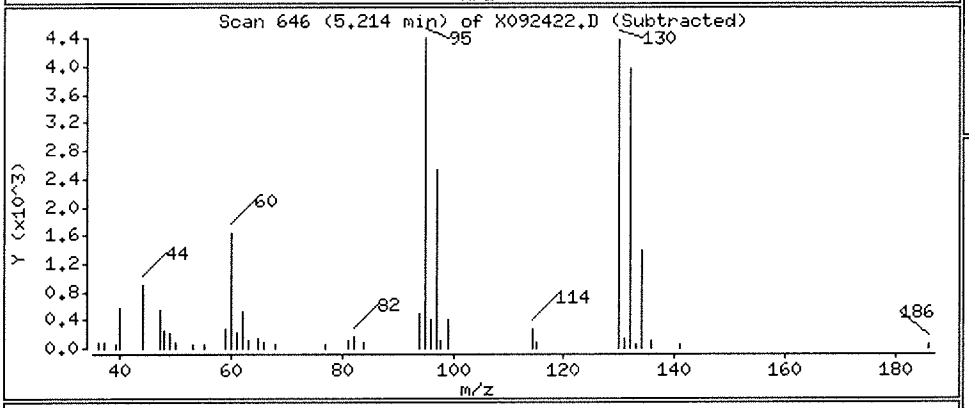
Column diameter: 0.18

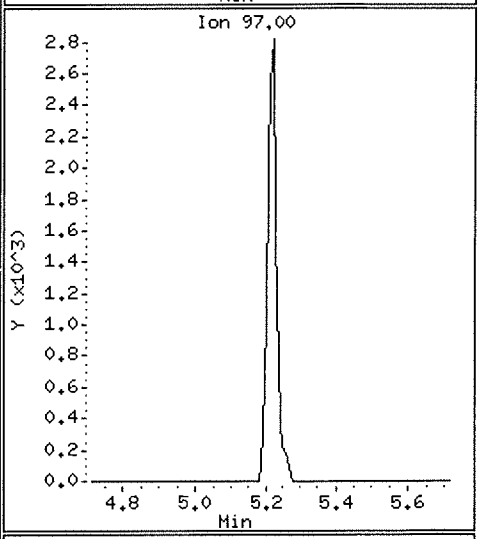
38 Trichloroethene

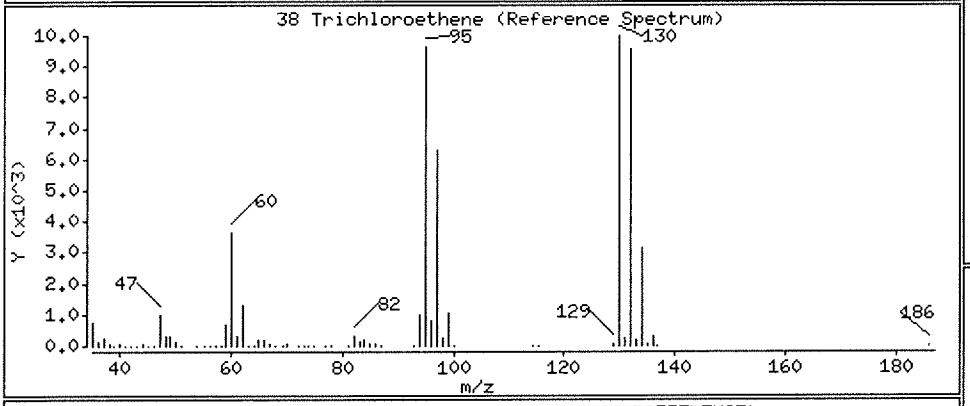
Concentration: 1.29 ug/l

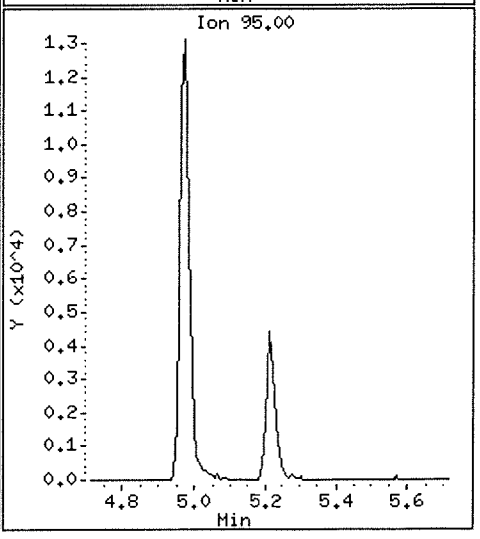


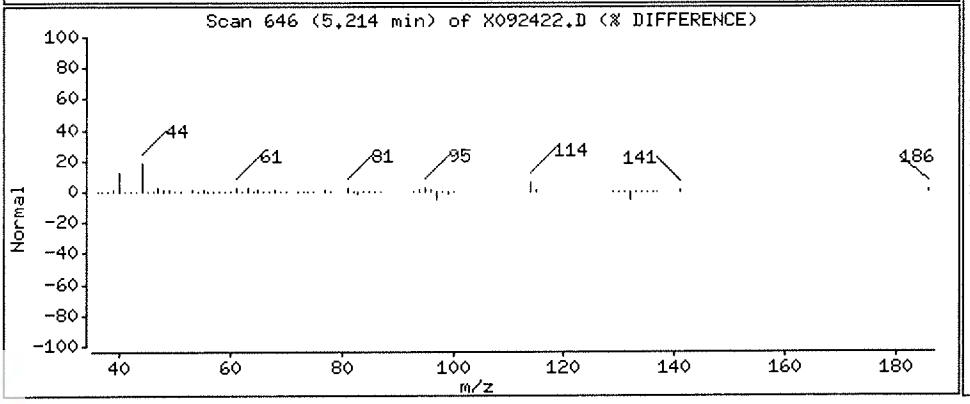












Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092422.D

Date : 24-SEP-2020 19:58

Client ID: HS20090748-01

Instrument: voa6.i

Sample Info: HS20090748-01;HS20090748-01;;;

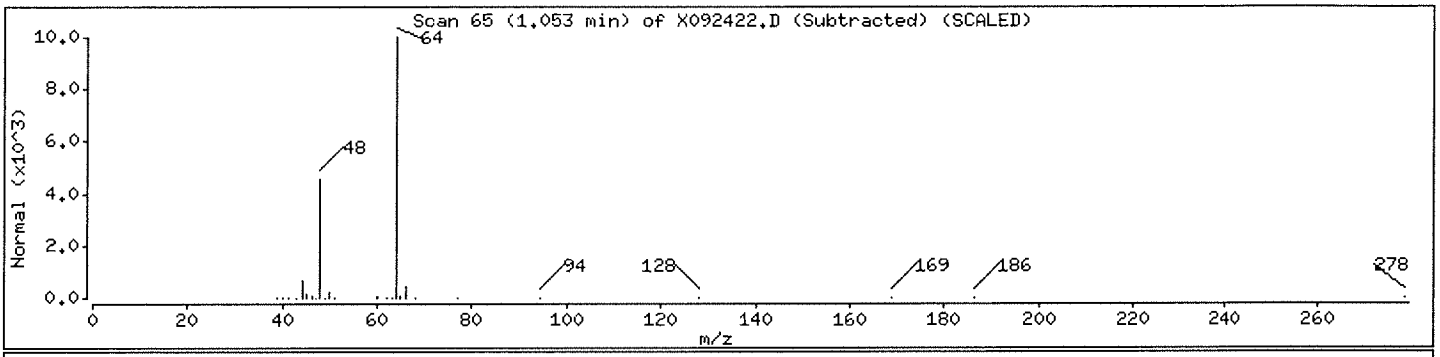
Purge Volume: 5.0

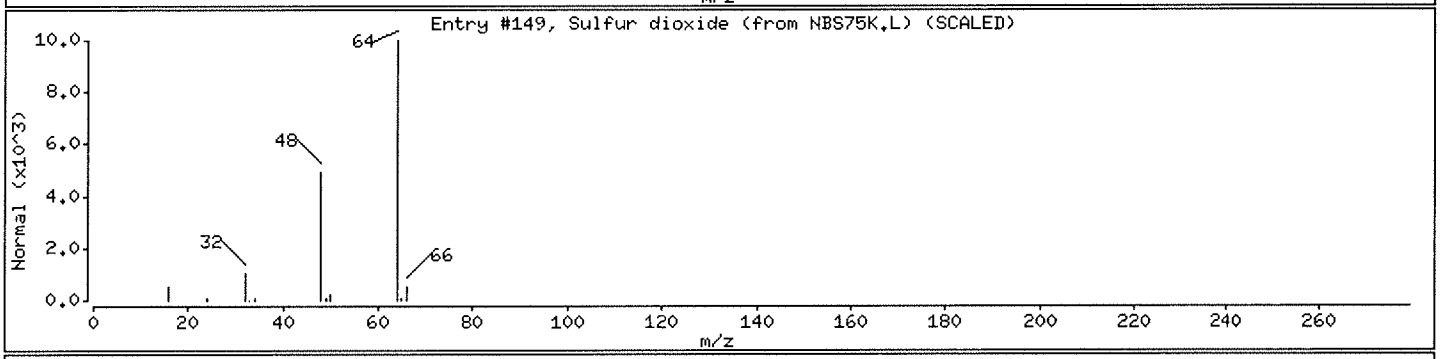
Operator: PC

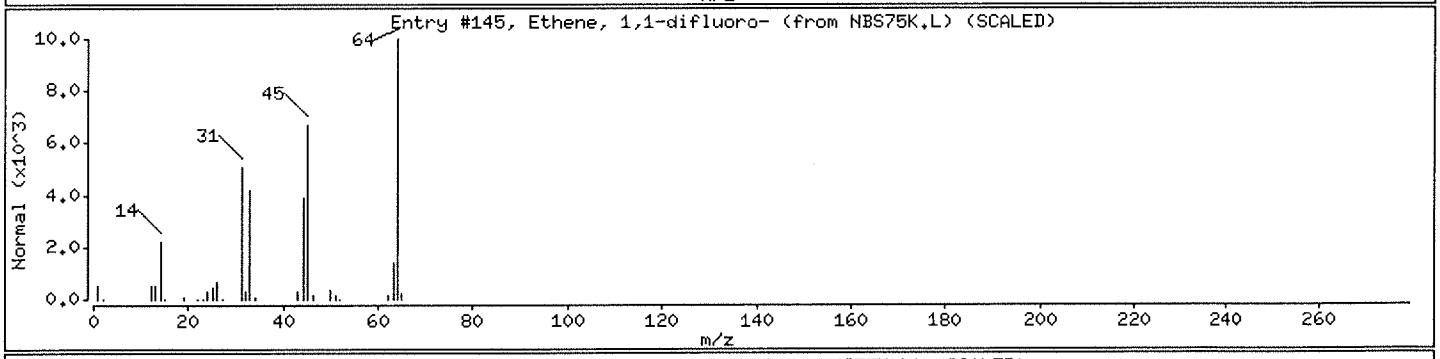
Column phase: DB624

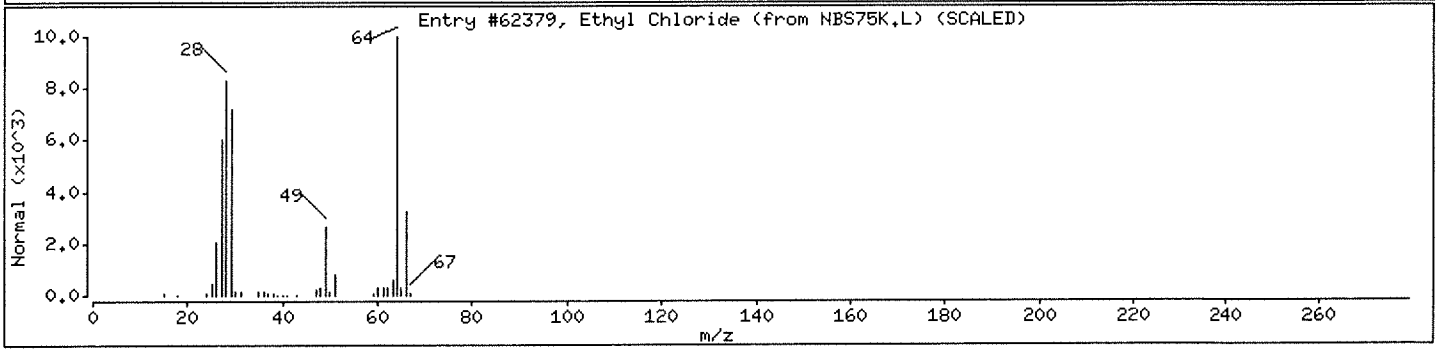
Column diameter: 0.18

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Sulfur dioxide	7446-09-5	NBS75K.L	149	83	O2S	64
Ethene, 1,1-difluoro-	75-38-7	NBS75K.L	145	5	C2H2F2	64
Ethyl Chloride	75-00-3	NBS75K.L	62379	3	C2H5Cl	64









Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092425.D Page 1
Report Date: 13-Oct-2020 11:22

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092425.D
Lab Smp Id: HS20090748-01MS Client Smp ID: HS20090748-01MS
Inj Date : 24-SEP-2020 21:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-01MS;HS20090748-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 26 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

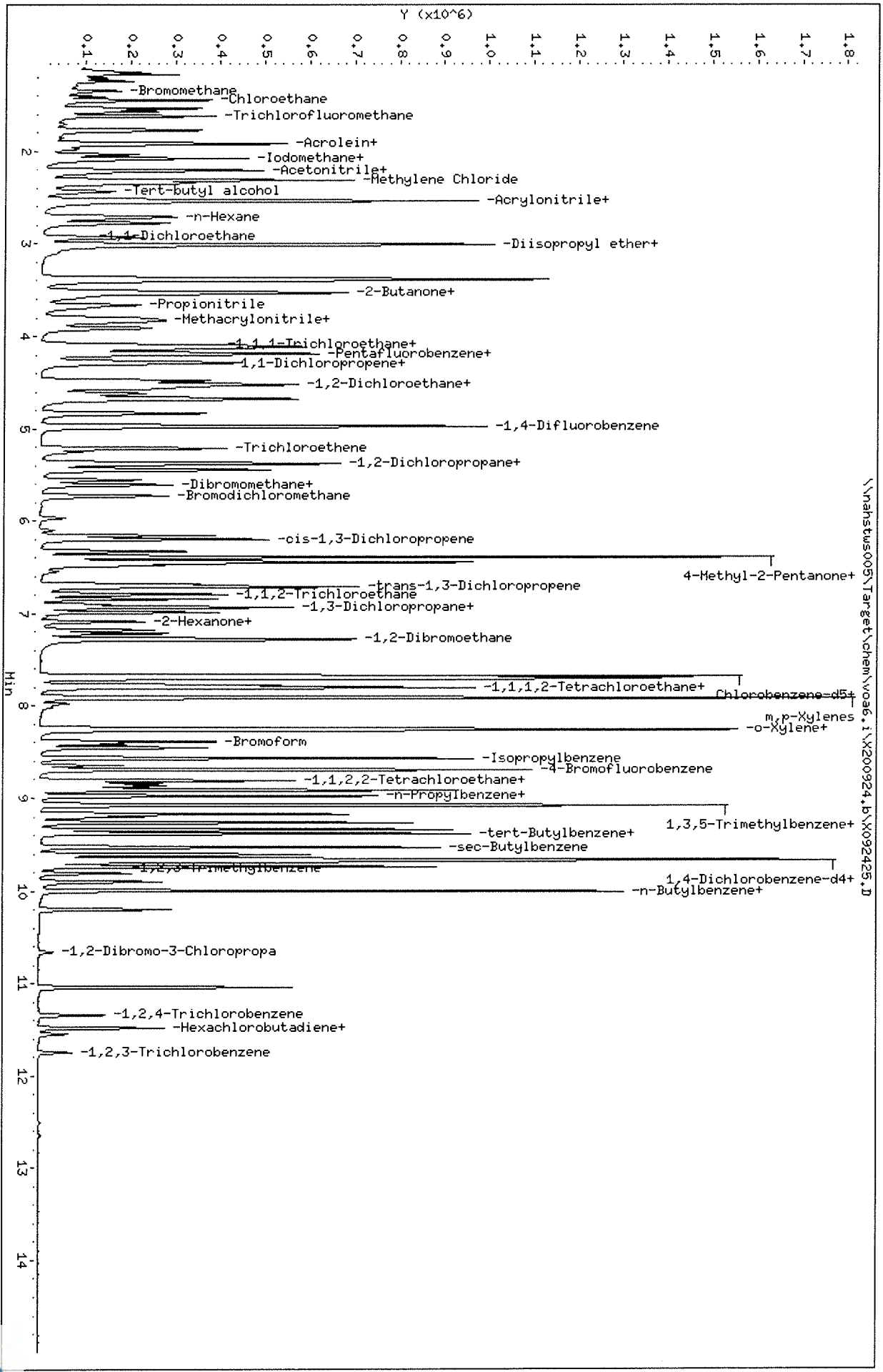
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	512532	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	814545	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	733420	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309007	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	247516	46.9968	46.99
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	264332	45.8791	45.87
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	941957	48.8512	48.85
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	332399	52.0348	52.03
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	116824	22.9856	22.98
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	183204	23.2083	23.20
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.914)	117000	21.4113	21.41
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	94923	21.9756	21.97
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	237959	22.2245	22.22
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	95586	20.7423	20.74
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	171673	22.9097	22.90
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	21312	17.8451	17.84
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	97616	21.5957	21.59(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	43991	19.6596	19.65
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	431042	23.4333	23.43
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	7068	18.9547	18.95
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	111142	21.8074	21.80
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	186220	21.6418	21.64

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	154285	21.9681	21.96
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	138931	23.0350	23.03
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	428248	23.4705	23.47
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	222110	22.3475	22.34
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	195281	21.8558	21.85
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	215885	21.8719	21.87
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	180098	22.3856	22.38
24	2-Butanone	43	3.588	3.580	(0.856)	78750	42.0918	42.09
76	2-Chlorotoluene	91	8.974	8.981	(0.928)	368989	22.9805	22.98
52	2-Hexanone	43	7.090	7.090	(0.924)	132595	40.7716	40.77
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	409262	22.3870	22.38
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	438820	23.8435	23.84
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	212914	41.3566	41.35
10	Acetone	43	1.976	1.976	(0.472)	50791	38.5471	38.54
37	Benzene	78	4.519	4.519	(0.909)	524814	22.5282	22.52
74	Bromobenzene	156	8.809	8.809	(0.911)	142652	22.8455	22.84
29	Bromochloromethane	128	3.802	3.803	(0.908)	69718	21.7660	21.76
39	Bromodichloromethane	83	5.729	5.729	(1.153)	165652	22.4240	22.42
66	Bromoform	173	8.415	8.416	(1.097)	69540	21.7062	21.70
6	Bromomethane	94	1.345	1.338	(0.321)	60964	14.5987	14.59
19	Carbon Disulfide	76	2.076	2.076	(0.496)	567520	35.6531	35.65
34	Carbon Tetrachloride	117	4.275	4.268	(0.860)	152951	23.4737	23.47
59	Chlorobenzene	112	7.699	7.699	(1.004)	334845	22.4419	22.44
7	Chloroethane	64	1.410	1.403	(0.337)	58311	14.5237	14.52(M)
28	Chloroform	83	3.917	3.910	(0.935)	225848	22.7330	22.73
3	Chloromethane	50	1.080	1.081	(0.258)	63017	8.97866	8.97
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	273178	43.5055	43.50
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	205502	21.9916	21.99
55	Dibromochloromethane	129	7.176	7.176	(0.936)	115562	22.0503	22.05
44	Dibromomethane	93	5.557	5.557	(1.118)	78519	21.9539	21.95
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	16393	5.07539	5.07
61	Ethylbenzene	106	7.799	7.807	(1.017)	179353	23.0275	23.02
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	50445	23.9522	23.95
67	Isopropylbenzene	105	8.566	8.566	(1.117)	538109	23.7615	23.76
62	m,p-Xylenes	106	7.907	7.907	(1.031)	432292	46.2298	46.22
17	Methylene Chloride	84	2.313	2.305	(0.552)	130114	22.8163	22.81
87	n-Butylbenzene	91	9.998	9.999	(1.034)	382529	24.0242	24.02
73	n-Propylbenzene	91	8.917	8.917	(0.922)	625156	23.7173	23.71
92	Naphthalene	128	11.546	11.546	(1.194)	49219	17.0812	17.08
63	o-Xylene	106	8.244	8.244	(1.075)	210660	23.0699	23.06
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	513717	23.7934	23.79
64	Styrene	104	8.265	8.265	(1.078)	396126	25.3570	25.35
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	363143	23.8757	23.87
56	Tetrachloroethene	164	6.933	6.933	(0.904)	109327	23.5945	23.59
50	Toluene	91	6.453	6.453	(0.841)	551233	23.2203	23.22
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	121133	22.8154	22.81
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	169985	21.8253	21.82
38	Trichloroethene	130	5.214	5.214	(1.049)	139166	23.8865	23.88
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	144842	19.4392	19.43
5	Vinyl Chloride	62	1.145	1.145	(0.273)	82397	12.4456	12.44

QC Flag Legend

M - Compound response manually integrated.

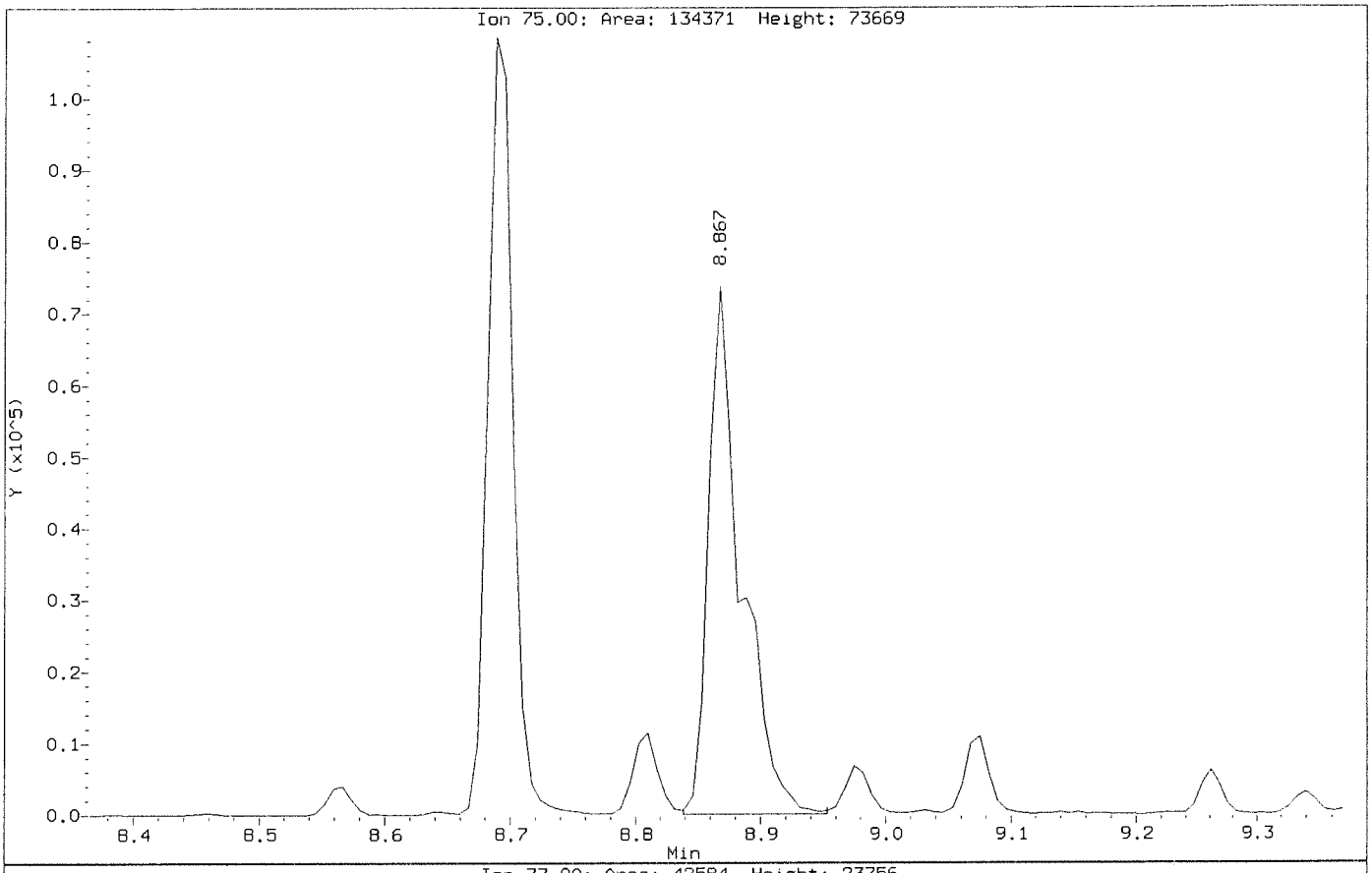


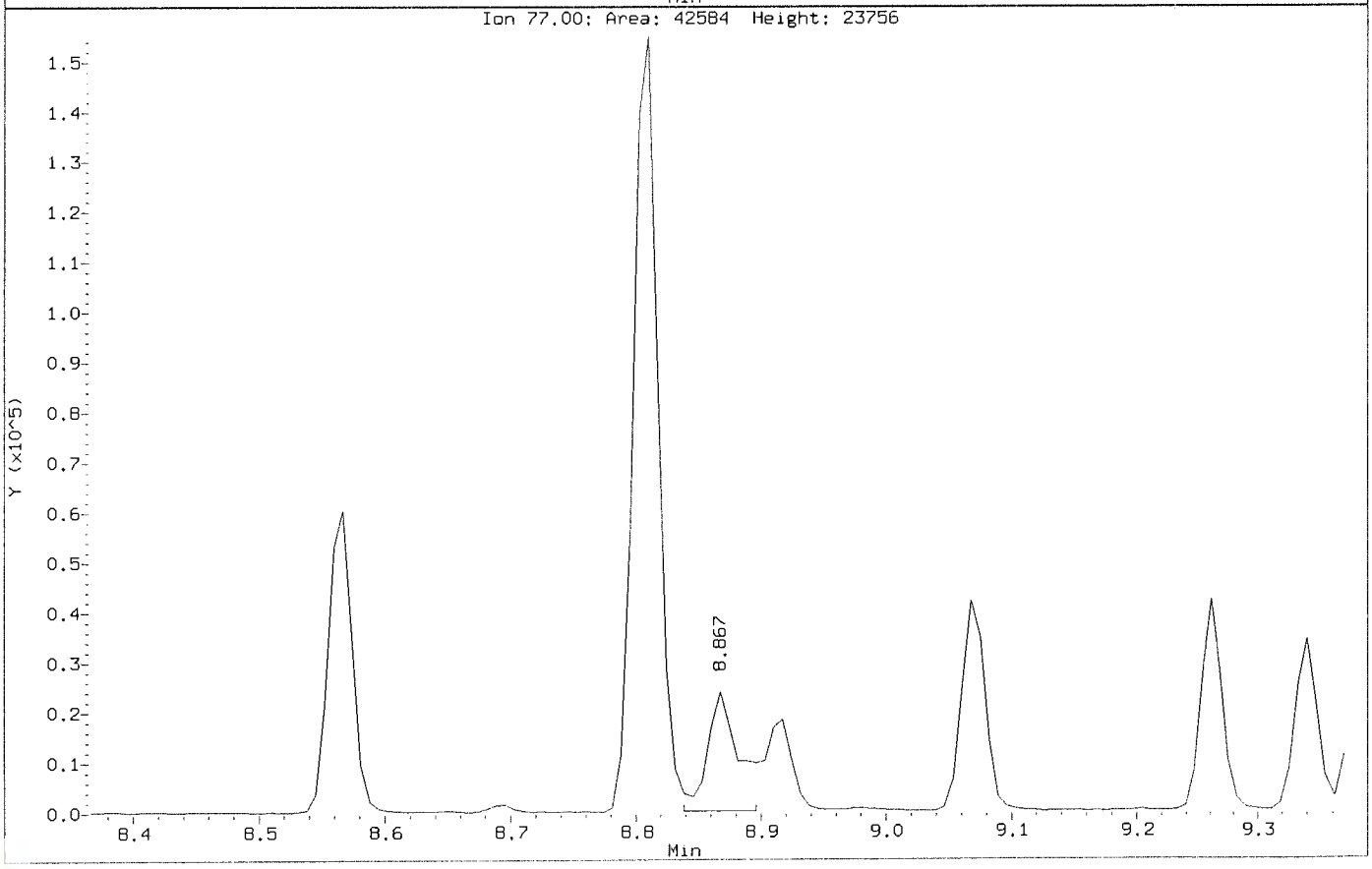
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092425.D
Date : 24-SEP-2020 21:10
Client ID: HS20090748-01MS
Sample Info: HS20090748-01MS;HS20090748-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092425.D
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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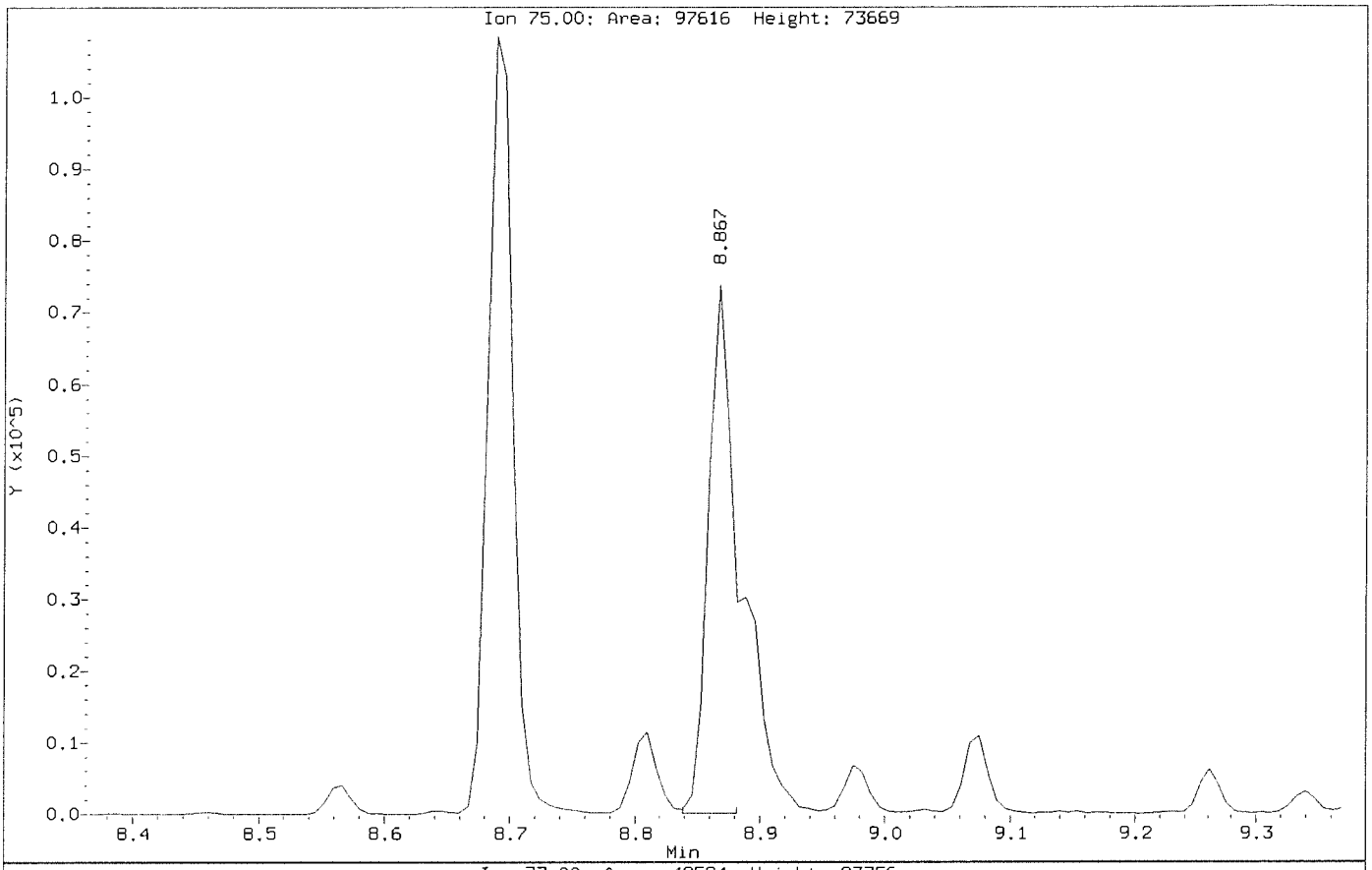
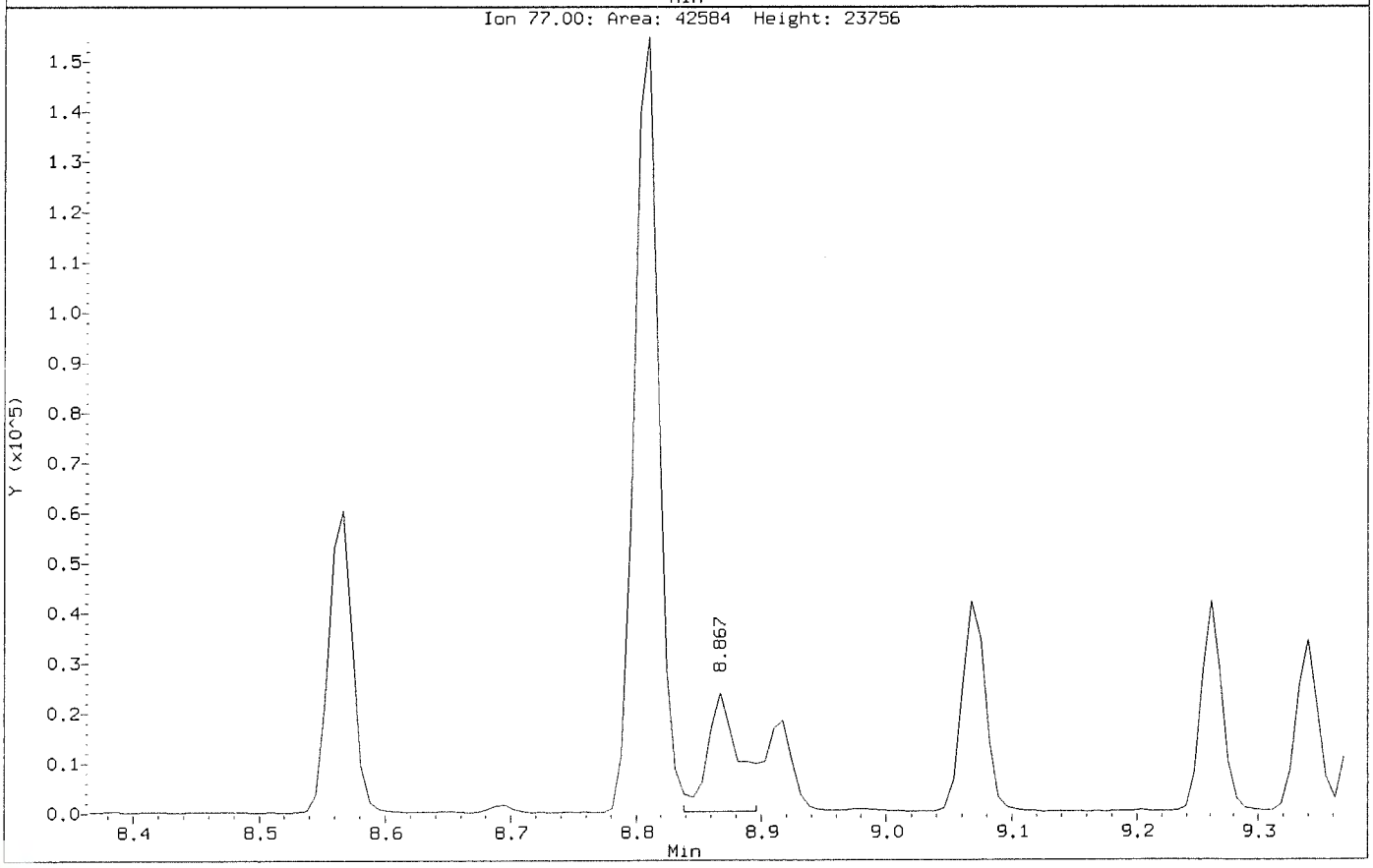
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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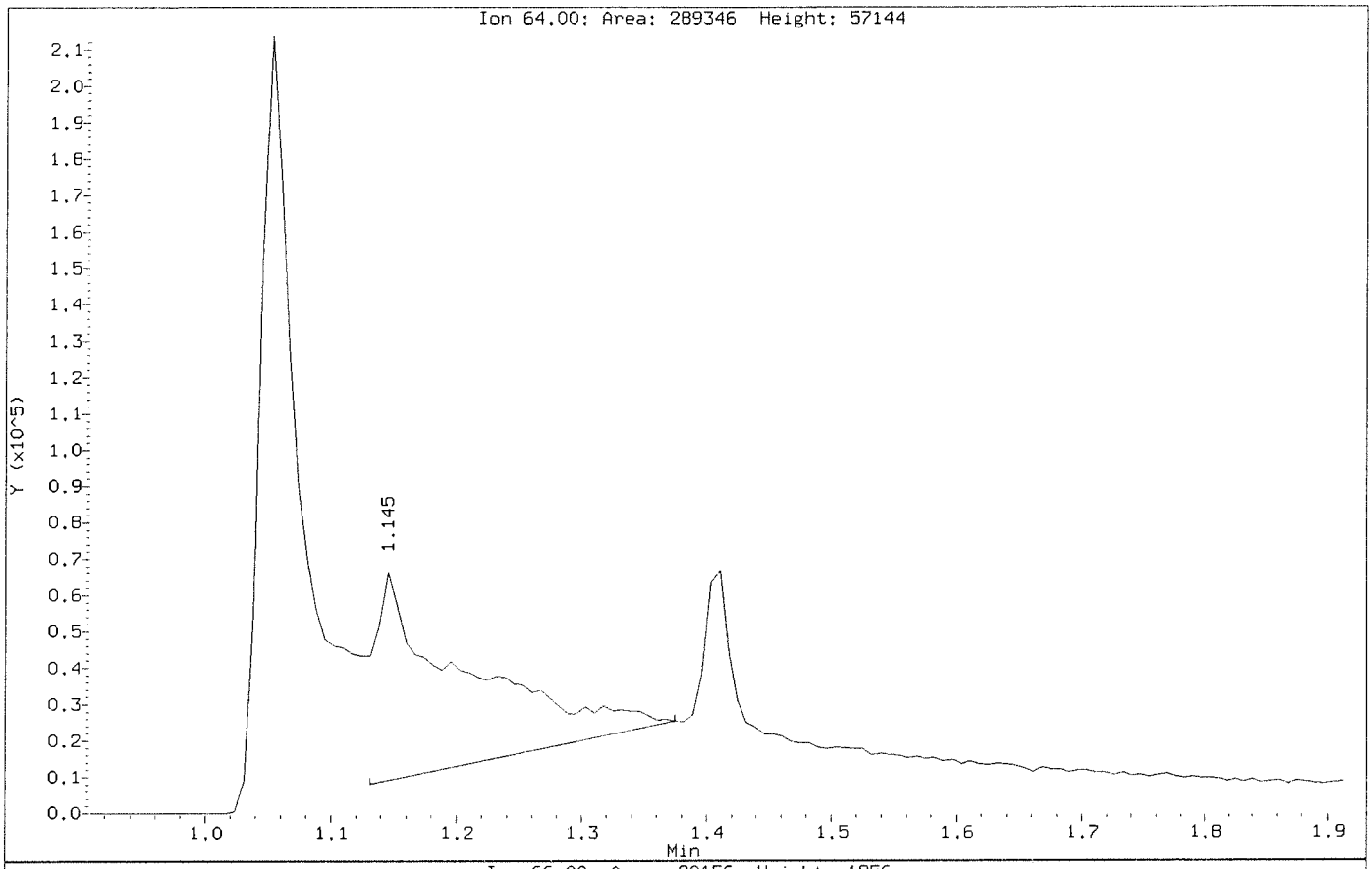
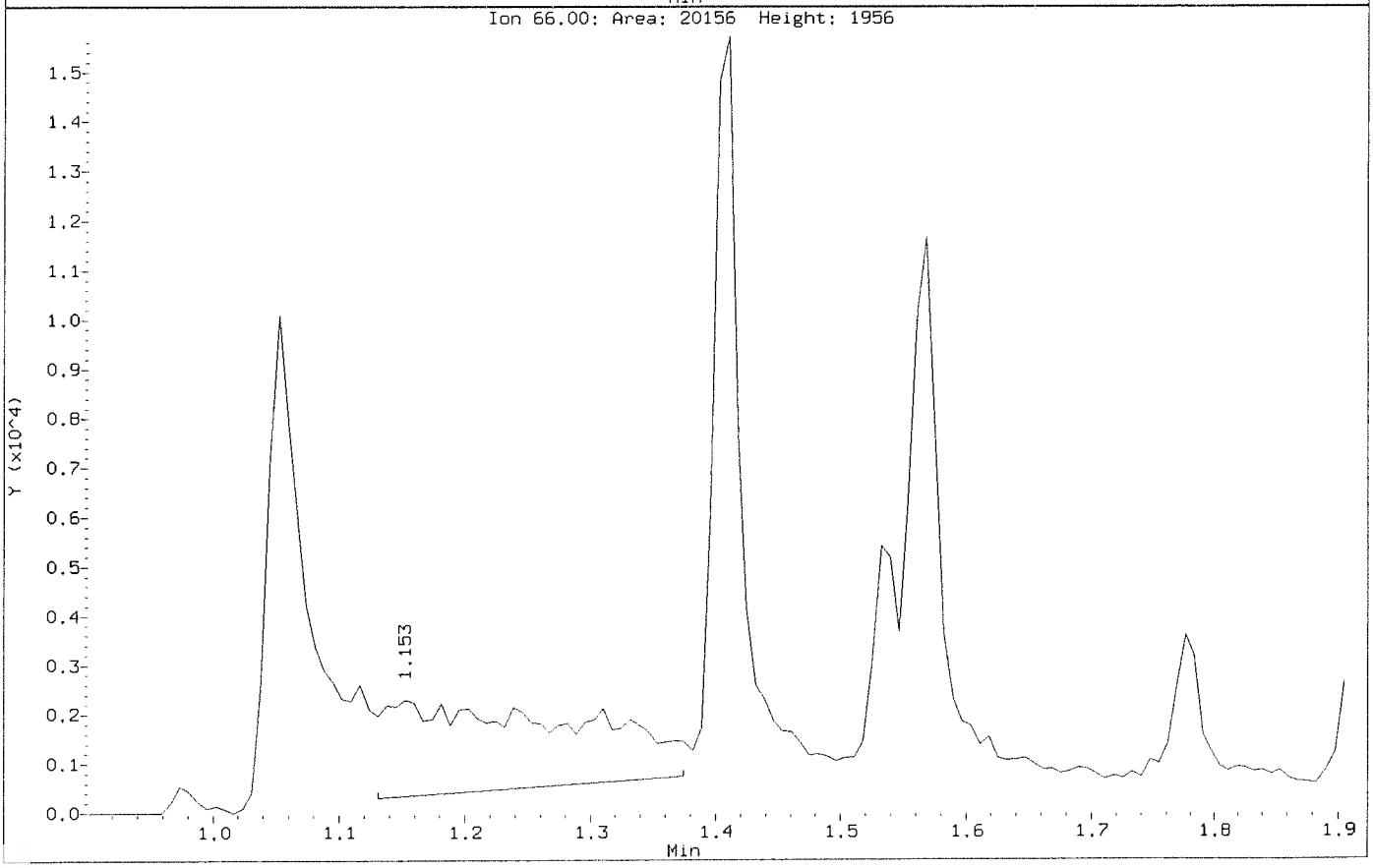
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: Chloroethane
CAS Number: 75-00-3





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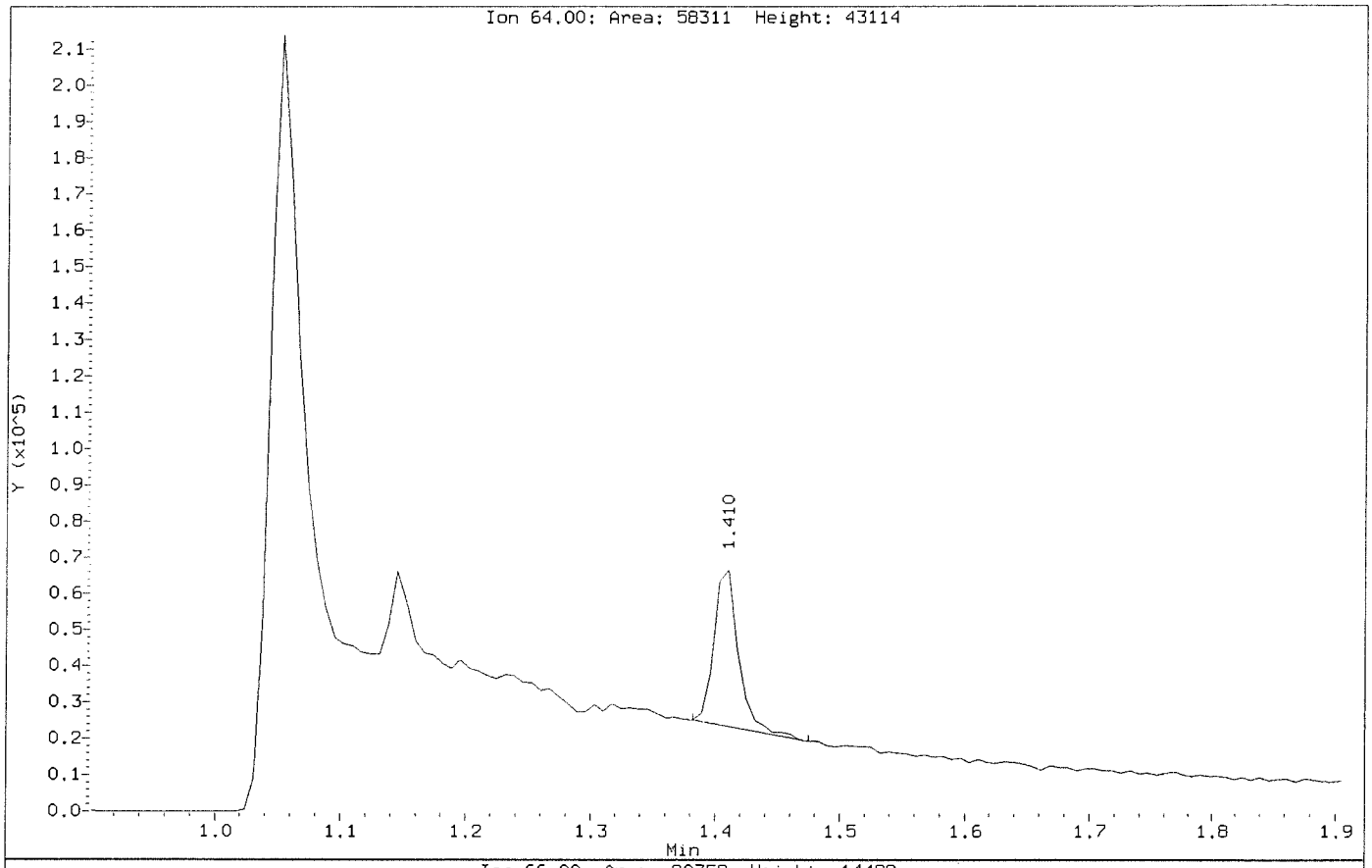
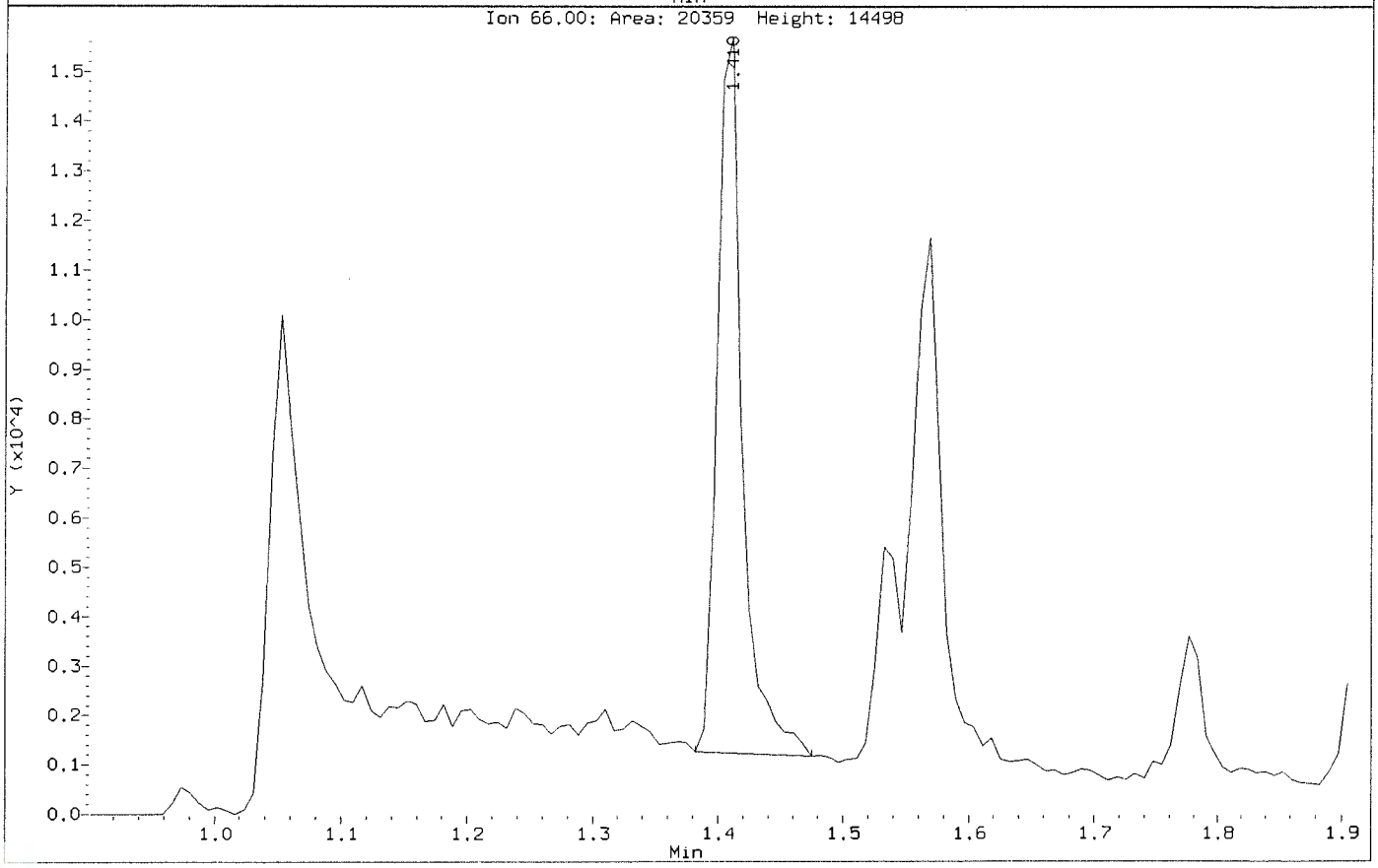
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: Chloroethane
CAS Number: 75-00-3





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092426.D Page 1
Report Date: 13-Oct-2020 11:22

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092426.D
Lab Smp Id: HS20090748-01MSD Client Smp ID: HS20090748-01MSD
Inj Date : 24-SEP-2020 21:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-01MSD;HS20090748-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 26 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

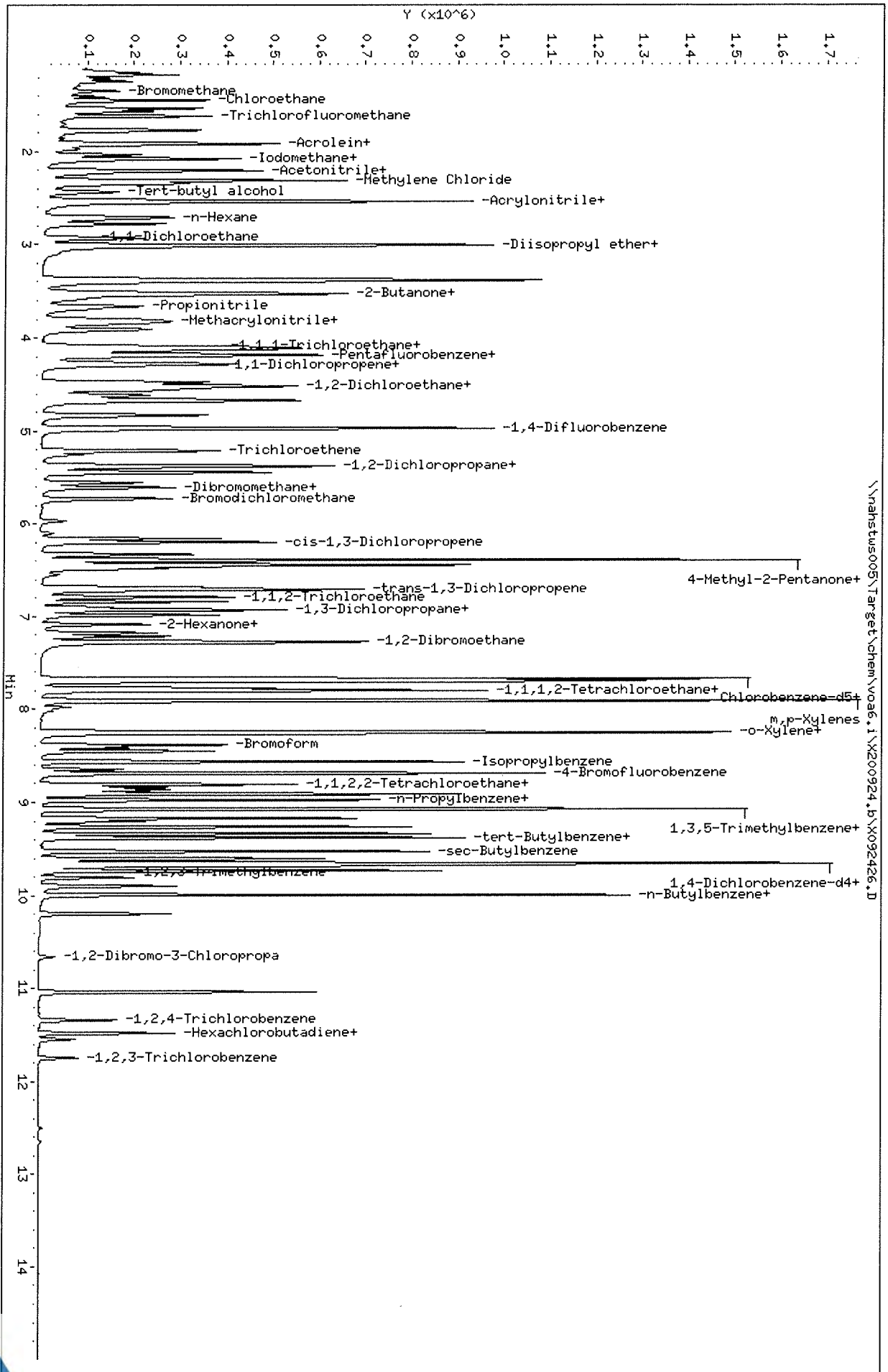
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	509084	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	804716	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	725877	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	301126	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	244819	46.7996	46.79
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	256122	44.7552	44.75
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	935111	49.0001	49.00
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	327945	51.8684	51.86
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112080	22.2813	22.28
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	175833	22.4254	22.42
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	117907	22.1420	22.14
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	94521	22.1099	22.10
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	227509	21.3924	21.39
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	91090	19.9005	19.90
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	163612	22.1006	22.10
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	24334	20.9088	20.90
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96870	21.9915	21.99(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	49110	22.3219	22.32
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	416059	23.2107	23.21
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	7404	20.3754	20.37
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	109951	21.7979	21.79
88 1,2-Dichlorobenzene	146	9.991	9.999	(1.034)	187544	22.3661	22.36

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	152008	21.9082	21.90
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	133359	22.3813	22.38
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	419089	23.5696	23.56
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	218288	22.5378	22.53
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	193136	21.8403	21.84
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	216306	22.4881	22.48
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	171151	21.4176	21.41
24	2-Butanone	43	3.588	3.580	(0.856)	80496	43.3165	43.31
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	354582	22.6612	22.66
52	2-Hexanone	43	7.090	7.090	(0.924)	135912	42.2258	42.22
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	400344	22.4724	22.47
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	425450	23.7220	23.72
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	214000	41.9995	41.99
10	Acetone	43	1.976	1.976	(0.472)	51175	39.1747	39.17
37	Benzene	78	4.519	4.519	(0.909)	503468	21.8759	21.87
74	Bromobenzene	156	8.810	8.809	(0.912)	138912	22.8288	22.82
29	Bromochloromethane	128	3.803	3.803	(0.908)	65374	20.5480	20.54
39	Bromodichloromethane	83	5.729	5.729	(1.153)	159421	21.8441	21.84
66	Bromoform	173	8.416	8.416	(1.097)	68701	21.6672	21.66
6	Bromomethane	94	1.346	1.338	(0.321)	54895	13.2122	13.21
19	Carbon Disulfide	76	2.076	2.076	(0.496)	535421	33.8644	33.86
34	Carbon Tetrachloride	117	4.275	4.268	(0.860)	144228	22.4053	22.40
59	Chlorobenzene	112	7.699	7.699	(1.004)	323931	21.9360	21.93
7	Chloroethane	64	1.410	1.403	(0.337)	55002	13.7923	13.79(M)
28	Chloroform	83	3.917	3.910	(0.935)	218438	22.1361	22.13
3	Chloromethane	50	1.081	1.081	(0.258)	59547	8.54172	8.54
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	262796	42.1356	42.13
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	200304	21.6972	21.69
55	Dibromochloromethane	129	7.176	7.176	(0.936)	111909	21.5752	21.57
44	Dibromomethane	93	5.558	5.557	(1.118)	75936	21.4910	21.49
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	14904	4.82114	4.82(a)
61	Ethylbenzene	106	7.800	7.807	(1.017)	175902	22.8191	22.81
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	50004	24.3460	24.34
67	Isopropylbenzene	105	8.566	8.566	(1.117)	518754	23.1448	23.14
62	m,p-Xylenes	106	7.907	7.907	(1.031)	418653	45.2365	45.23
17	Methylene Chloride	84	2.313	2.305	(0.552)	127378	22.4776	22.47
87	n-Butylbenzene	91	9.999	9.999	(1.035)	372447	24.0032	24.00
73	n-Propylbenzene	91	8.917	8.917	(0.923)	608176	23.6770	23.67
92	Naphthalene	128	11.546	11.546	(1.195)	57726	20.5578	20.55
63	o-Xylene	106	8.244	8.244	(1.075)	203443	22.5111	22.51
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	497767	23.6581	23.65
64	Styrene	104	8.258	8.265	(1.077)	350210	22.6508	22.65
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	350744	23.6641	23.66
56	Tetrachloroethene	164	6.933	6.933	(0.904)	105425	22.9888	22.98
50	Toluene	91	6.453	6.453	(0.841)	527952	22.4707	22.47
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	113540	21.5301	21.53
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	167411	21.7574	21.75
38	Trichloroethene	130	5.214	5.214	(1.049)	134239	23.3223	23.32
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	135523	18.3117	18.31
5	Vinyl Chloride	62	1.145	1.145	(0.273)	76744	11.6702	11.67

QC Flag Legend

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



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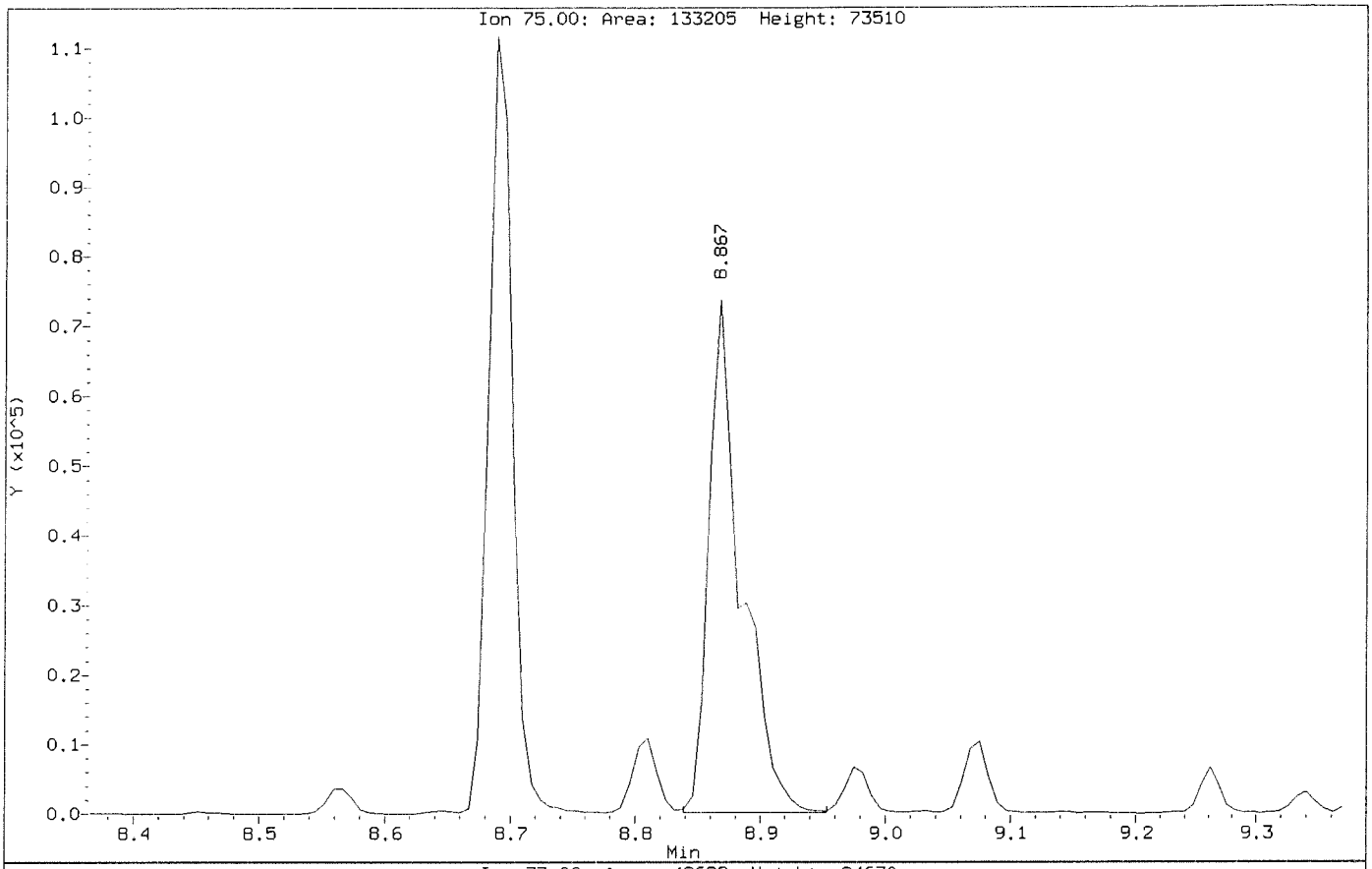
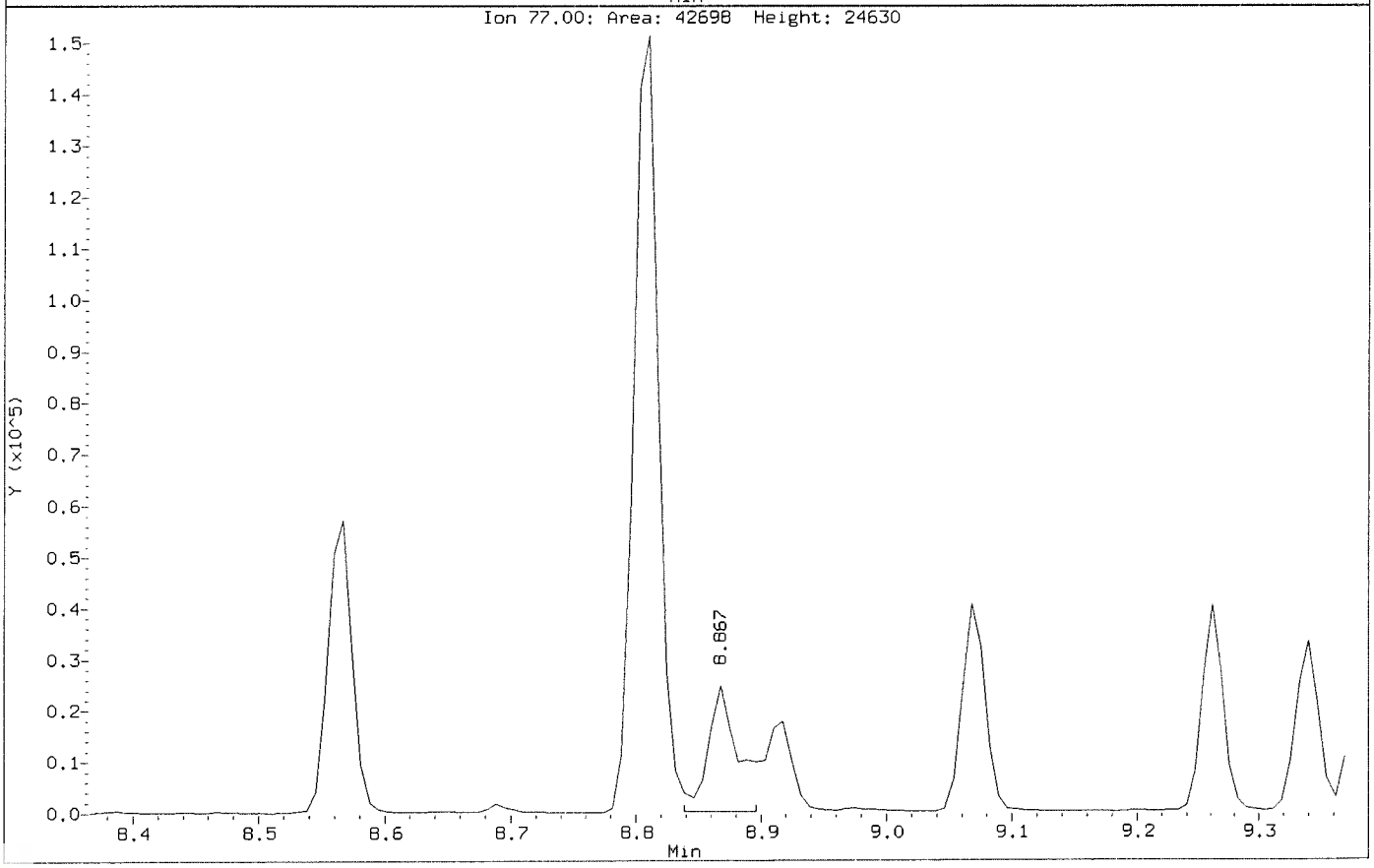
Sample Info: HS20090748-01MSD;HS20090748-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092426.D
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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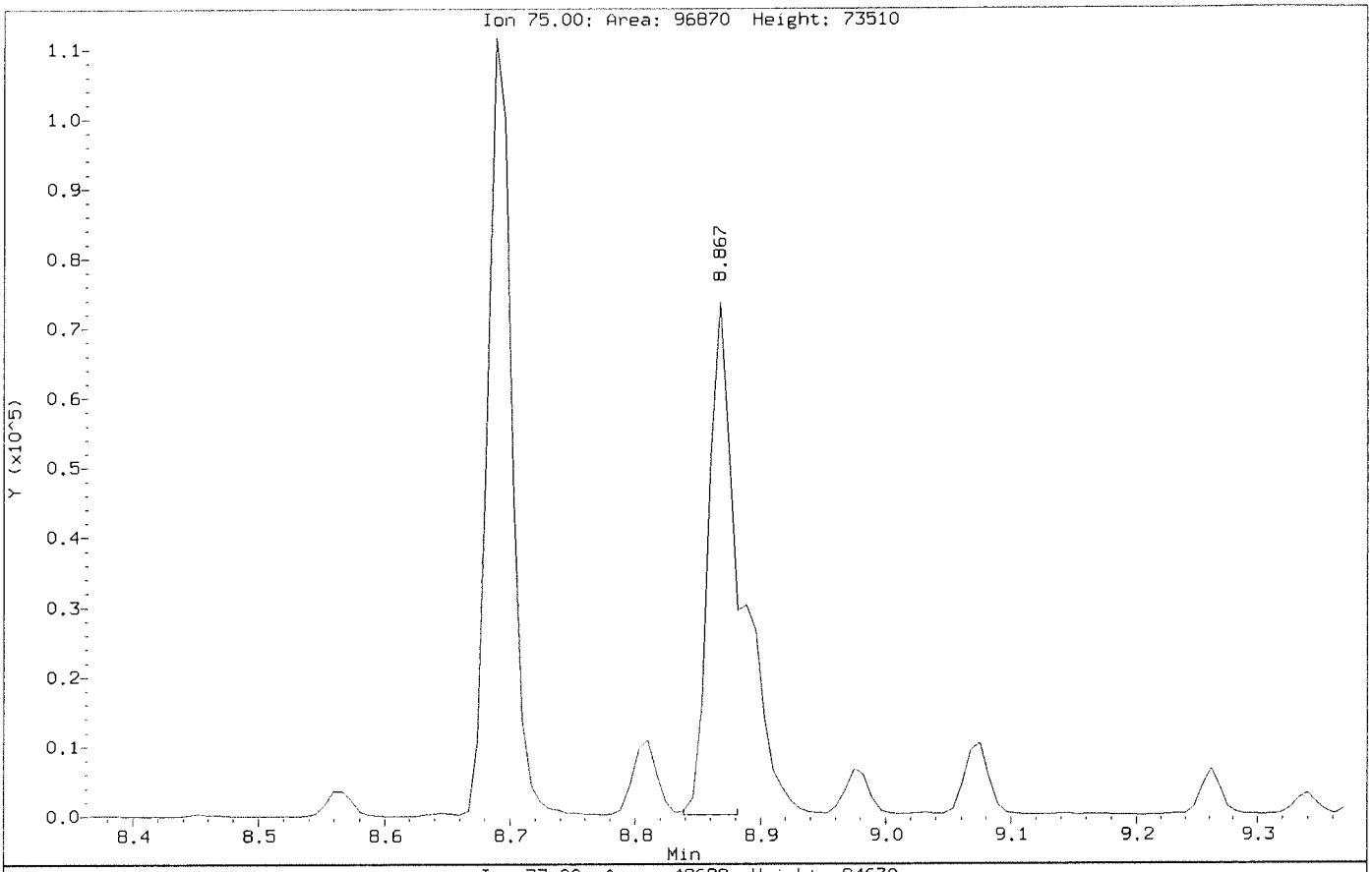
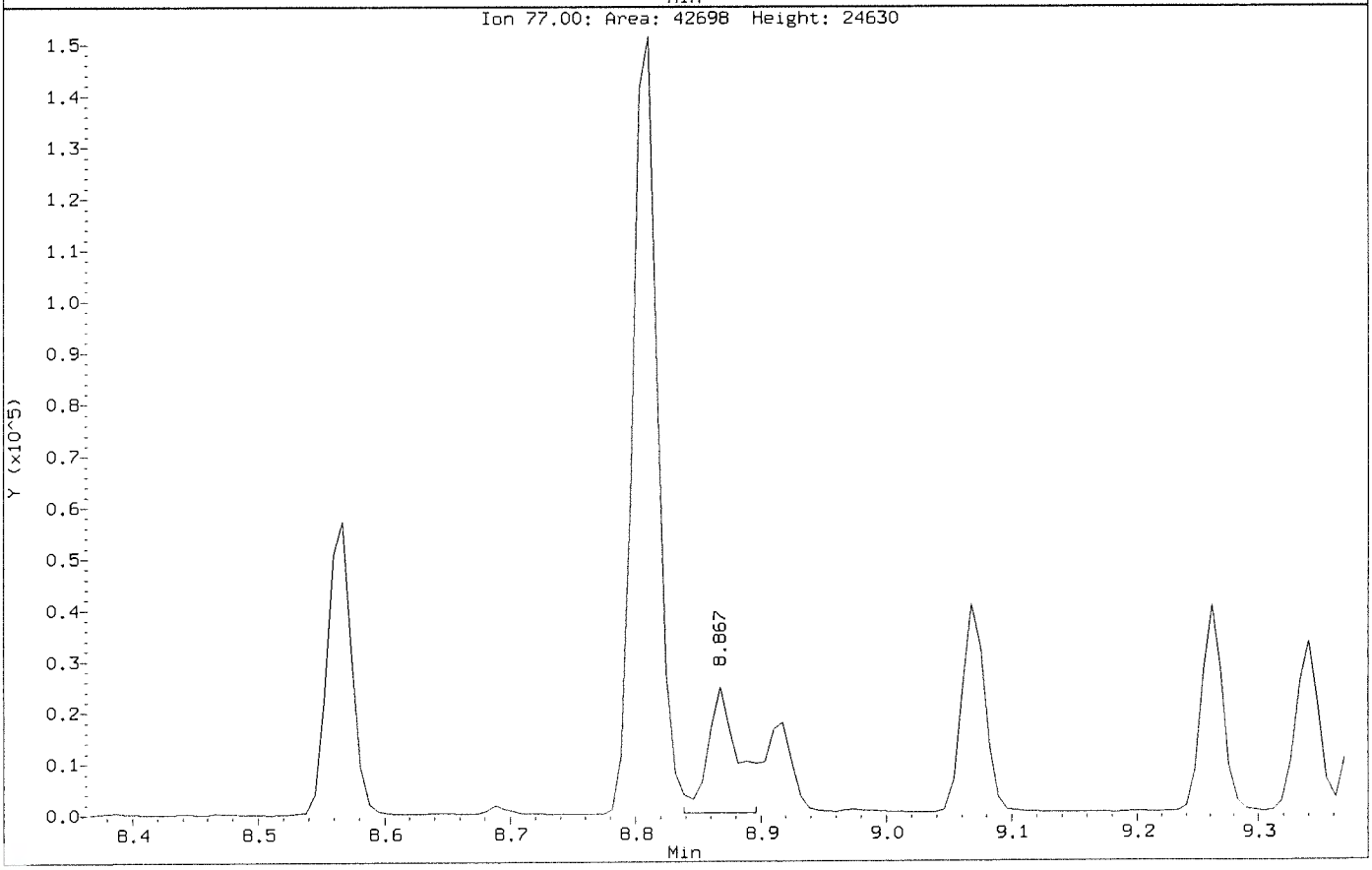
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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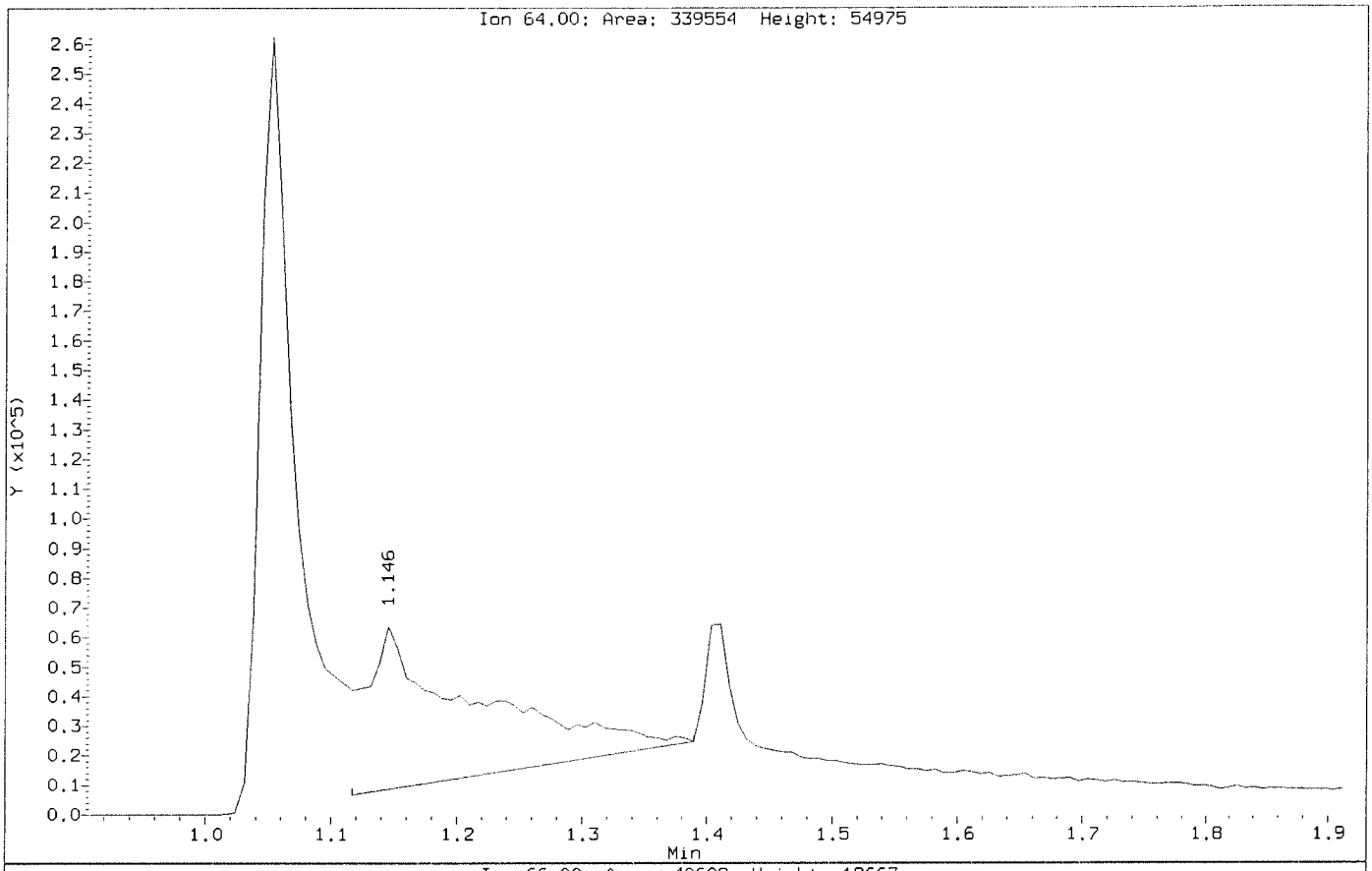
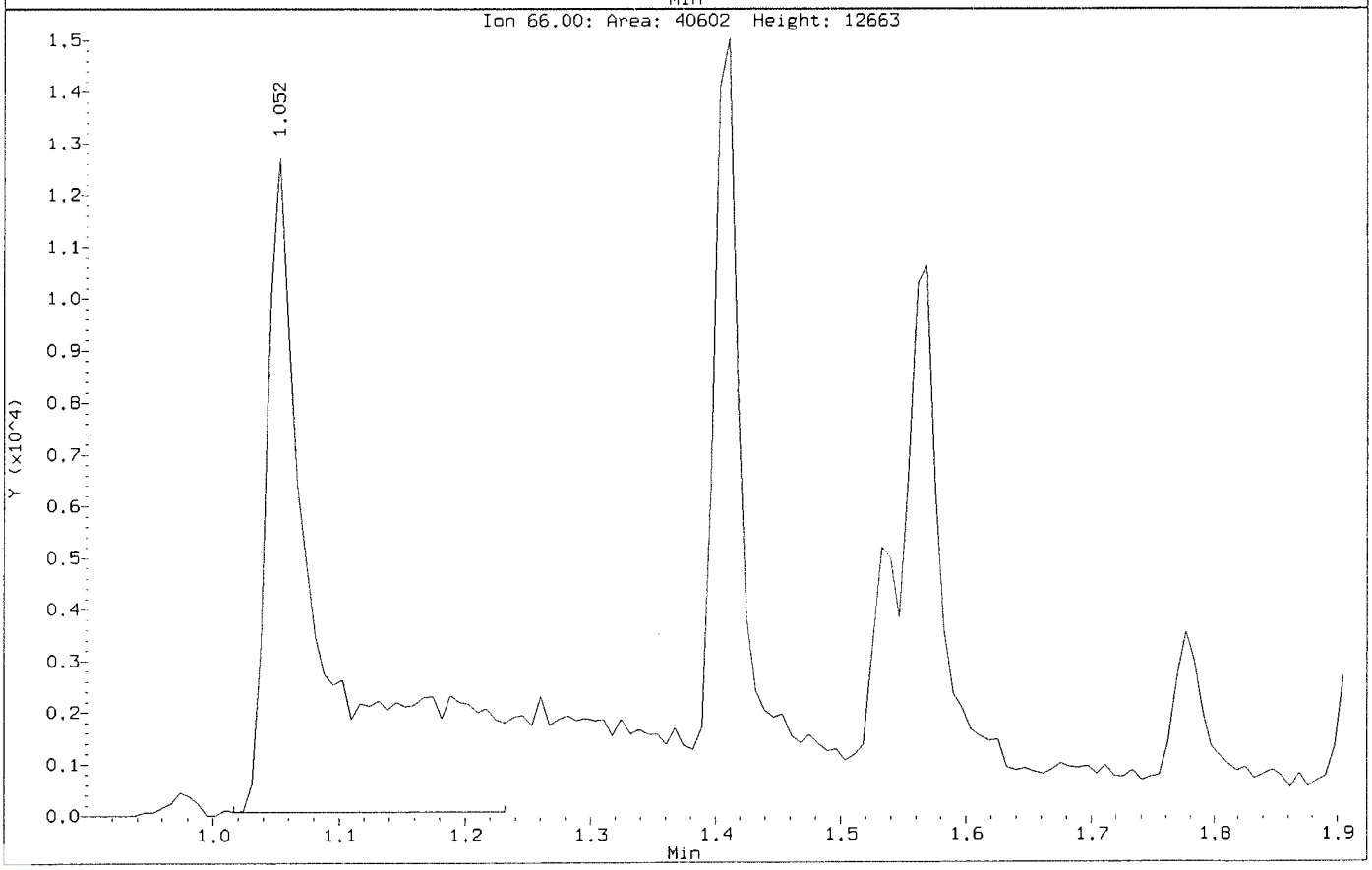
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: Chloroethane
CAS Number: 75-00-3





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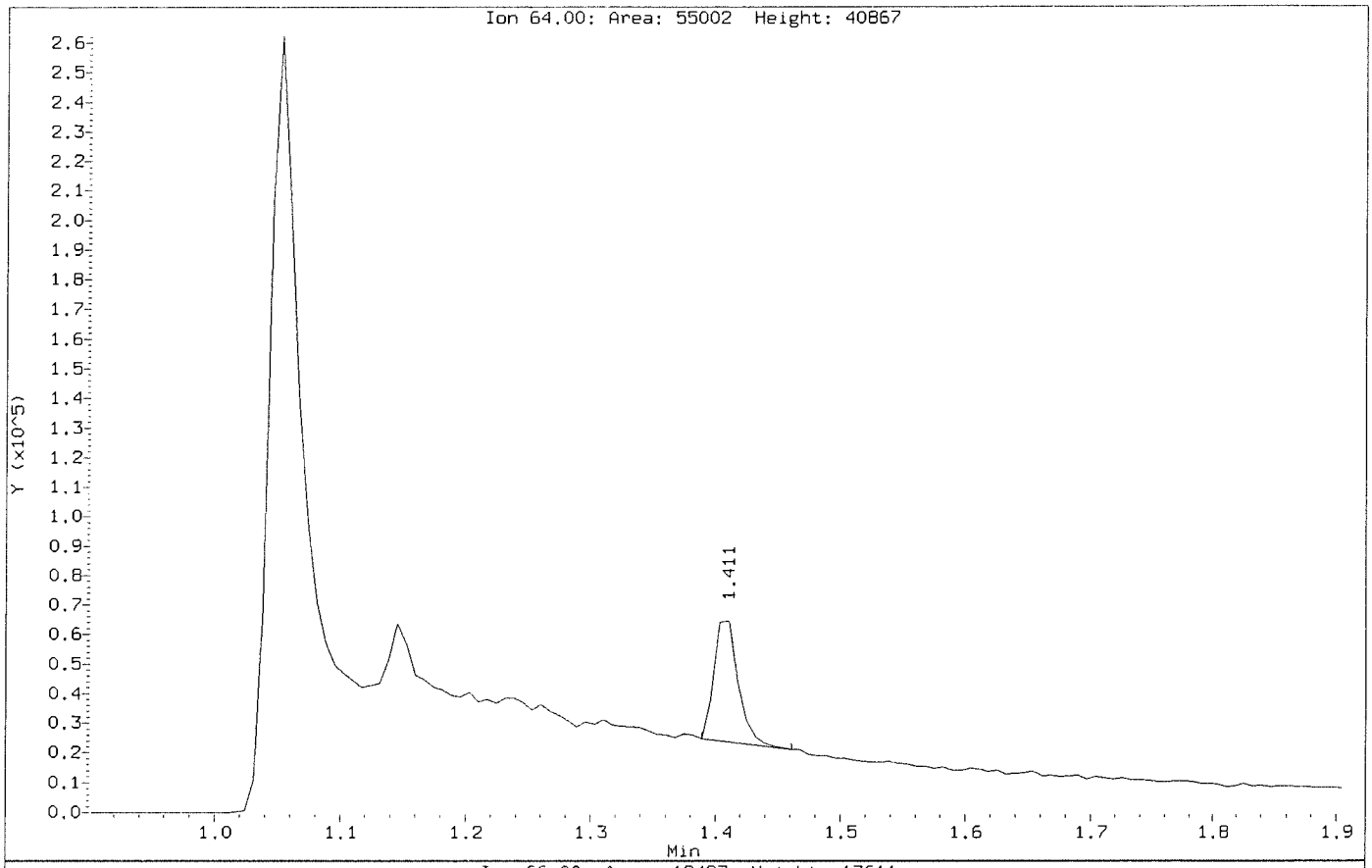
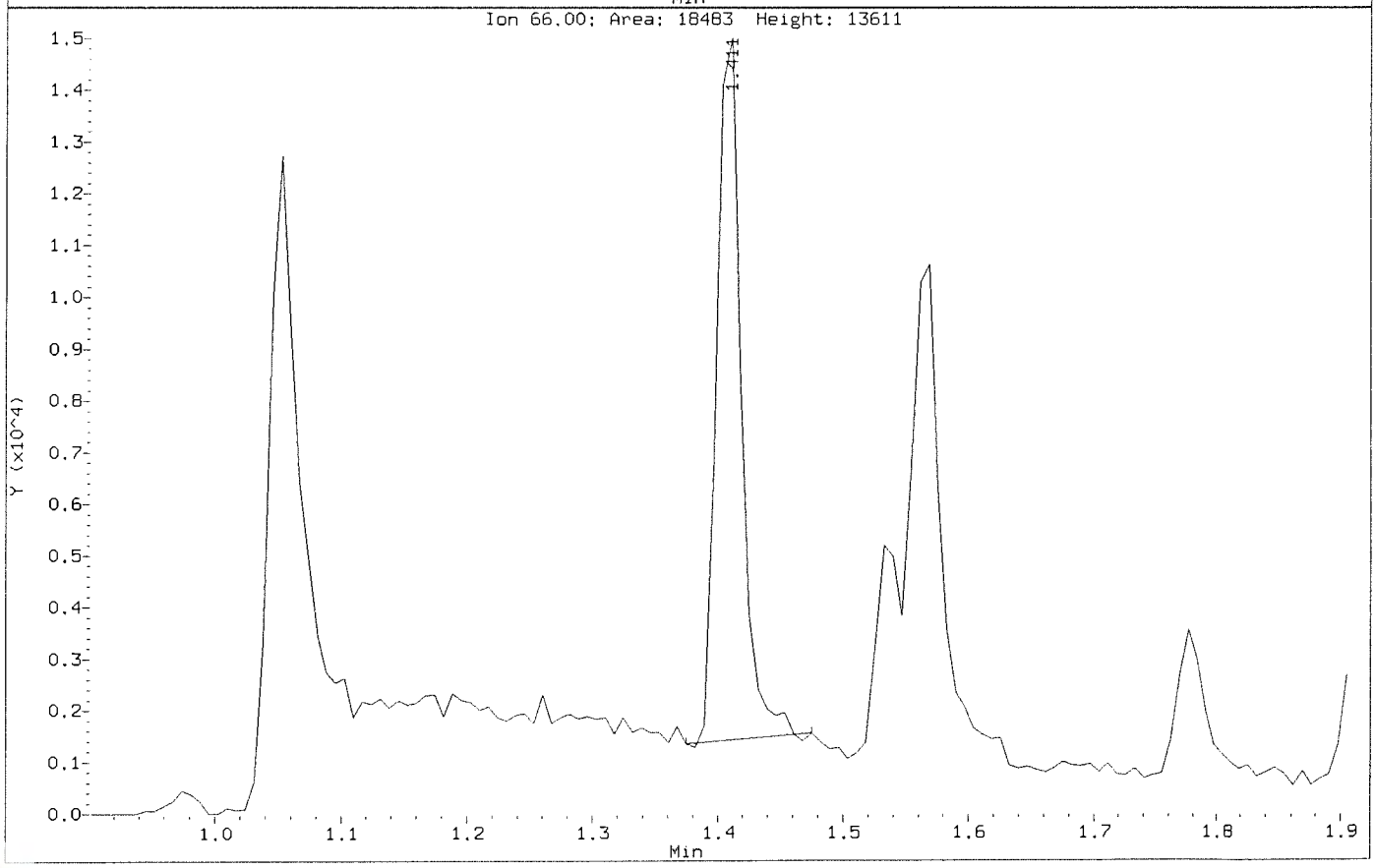
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 13-Oct-2020 11:22

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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092427.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-SEP-2020 21:58
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\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:22 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

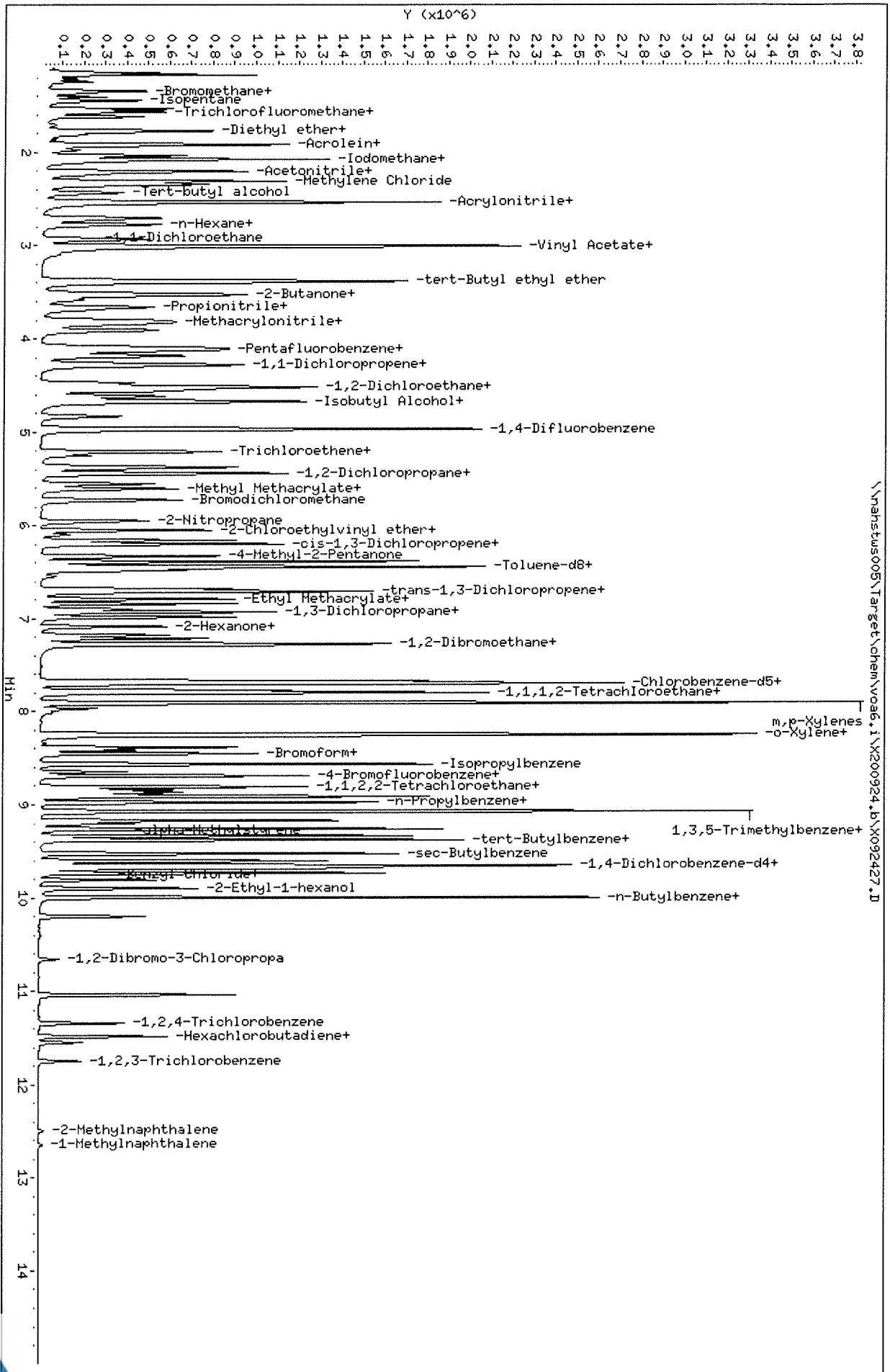
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	550330	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	874401	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	799359	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	341266	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	276922	50.0000	48.96
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	301526	50.0000	48.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1013539	50.0000	48.22
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	359186	50.0000	51.58
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	261588	50.0000	47.22
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	392830	50.0000	46.34
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	272941	50.0000	45.22
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	216279	50.0000	45.94
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	536138	50.0000	46.63
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	233137	50.0000	47.11
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	363253	50.0000	45.15
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	56058	50.0000	42.50
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	233072	50.0000	46.68(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	111367	50.0000	43.29
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	895461	50.0000	44.07
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	17749	50.0000	43.09
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	258386	50.0000	46.51
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	420350	50.0000	44.23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	348293	50.0000	46.19
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	309864	50.0000	47.85
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	873894	50.0000	43.36
83	1,3-Dichlorobenzene	146	9.604	9.604	(0.994)	482415	50.0000	43.94
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	448748	50.0000	46.08
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	476051	50.0000	43.67
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	389561	50.0000	45.09
24	2-Butanone	43	3.580	3.580	(0.855)	208516	100.000	103.79
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	766779	50.0000	43.24
52	2-Hexanone	43	7.090	7.090	(0.924)	335645	100.000	94.69
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	872281	50.0000	43.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	853647	50.0000	41.99
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	517068	100.000	92.15
10	Acetone	43	1.976	1.976	(0.472)	130117	100.000	99.01
37	Benzene	78	4.519	4.519	(0.909)	1166994	50.0000	46.66
74	Bromobenzene	156	8.809	8.809	(0.912)	313263	50.0000	45.42
29	Bromochloromethane	128	3.802	3.802	(0.908)	156915	50.0000	45.62
39	Bromodichloromethane	83	5.729	5.729	(1.153)	374784	50.0000	47.26
66	Bromoform	173	8.415	8.415	(1.097)	168281	50.0000	48.19
6	Bromomethane	94	1.346	1.346	(0.321)	209486	50.0000	47.24
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1635980	100.000	95.71
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	315938	50.0000	45.16
59	Chlorobenzene	112	7.699	7.699	(1.004)	733021	50.0000	45.07
7	Chloroethane	64	1.410	1.410	(0.337)	245872	50.0000	57.03
28	Chloroform	83	3.917	3.917	(0.935)	501939	50.0000	47.05
3	Chloromethane	50	1.080	1.080	(0.258)	340987	50.0000	45.24
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	316651	50.0000	46.96
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	472509	50.0000	47.10
55	Dibromochloromethane	129	7.176	7.176	(0.936)	266775	50.0000	46.70
44	Dibromomethane	93	5.557	5.557	(1.118)	180068	50.0000	46.90
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	261976	50.0000	46.76
61	Ethylbenzene	106	7.799	7.799	(1.017)	380959	50.0000	44.87
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	100641	50.0000	42.32
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1069634	50.0000	43.33
62	m,p-Xylenes	106	7.907	7.907	(1.031)	907760	100.000	89.06
17	Methylene Chloride	84	2.313	2.313	(0.552)	304148	50.0000	50.50
87	n-Butylbenzene	91	9.998	9.998	(1.035)	733566	50.0000	41.71
73	n-Propylbenzene	91	8.917	8.917	(0.923)	1242774	50.0000	42.69
92	Naphthalene	128	11.546	11.546	(1.195)	135886	50.0000	42.70
63	o-Xylene	106	8.244	8.244	(1.075)	446866	50.0000	44.90
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	983954	50.0000	41.26
64	Styrene	104	8.258	8.258	(1.077)	785377	50.0000	46.12
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	705191	50.0000	41.98
56	Tetrachloroethene	164	6.933	6.933	(0.904)	214609	50.0000	42.49
50	Toluene	91	6.453	6.453	(0.841)	1187899	50.0000	45.91
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	269639	50.0000	47.29
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	397835	50.0000	47.58
38	Trichloroethene	130	5.214	5.214	(1.049)	289750	50.0000	46.32
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	379543	50.0000	47.43
5	Vinyl Chloride	62	1.145	1.145	(0.273)	340613	50.0000	47.91

QC Flag Legend

M - Compound response manually integrated.

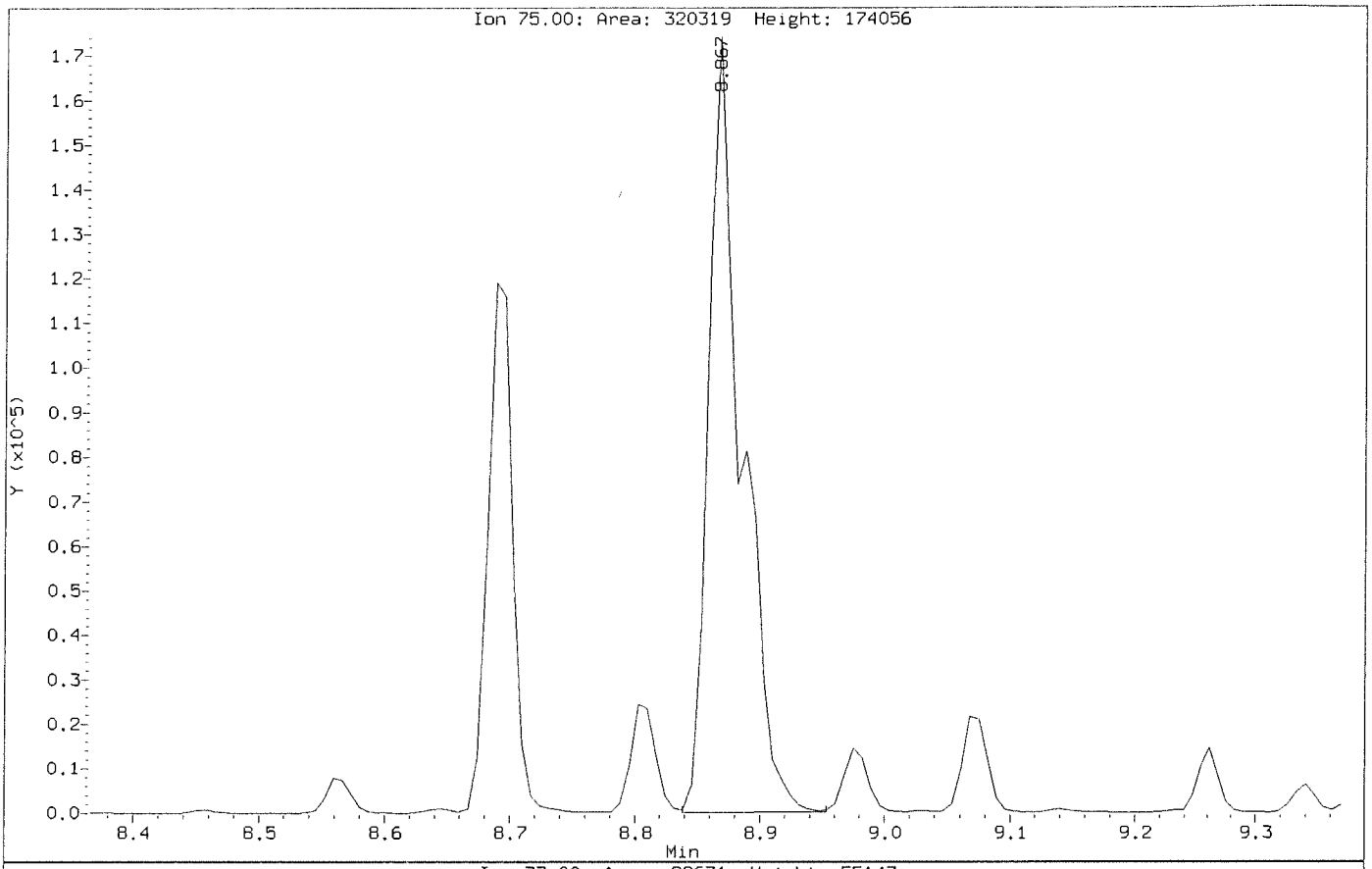


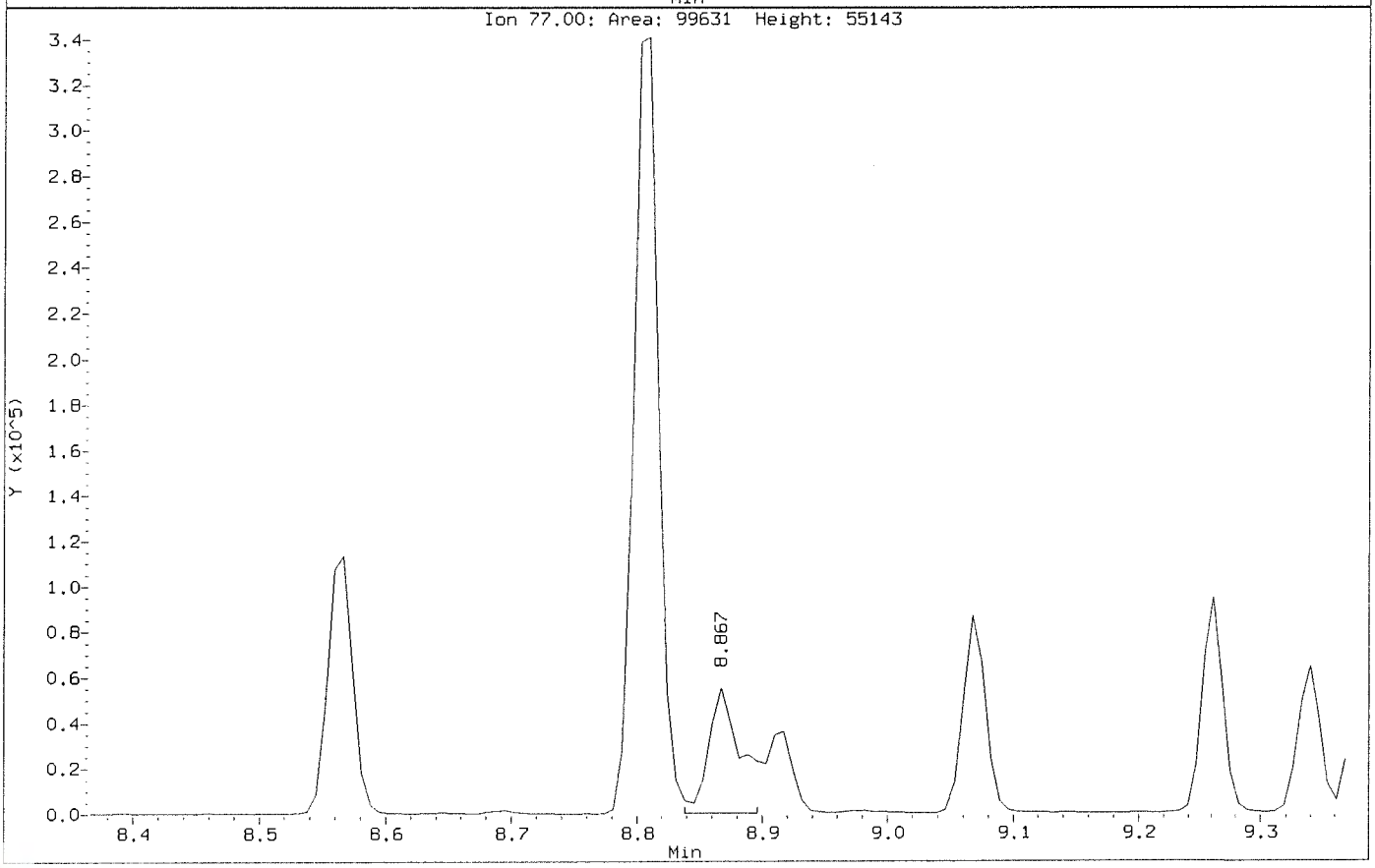
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092427.D
Date : 24-SEP-2020 21:58
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092427.D
Injection Date: 24-SEP-2020 21:58
Instrument: voa6.i
Client Sample ID: CCV-END

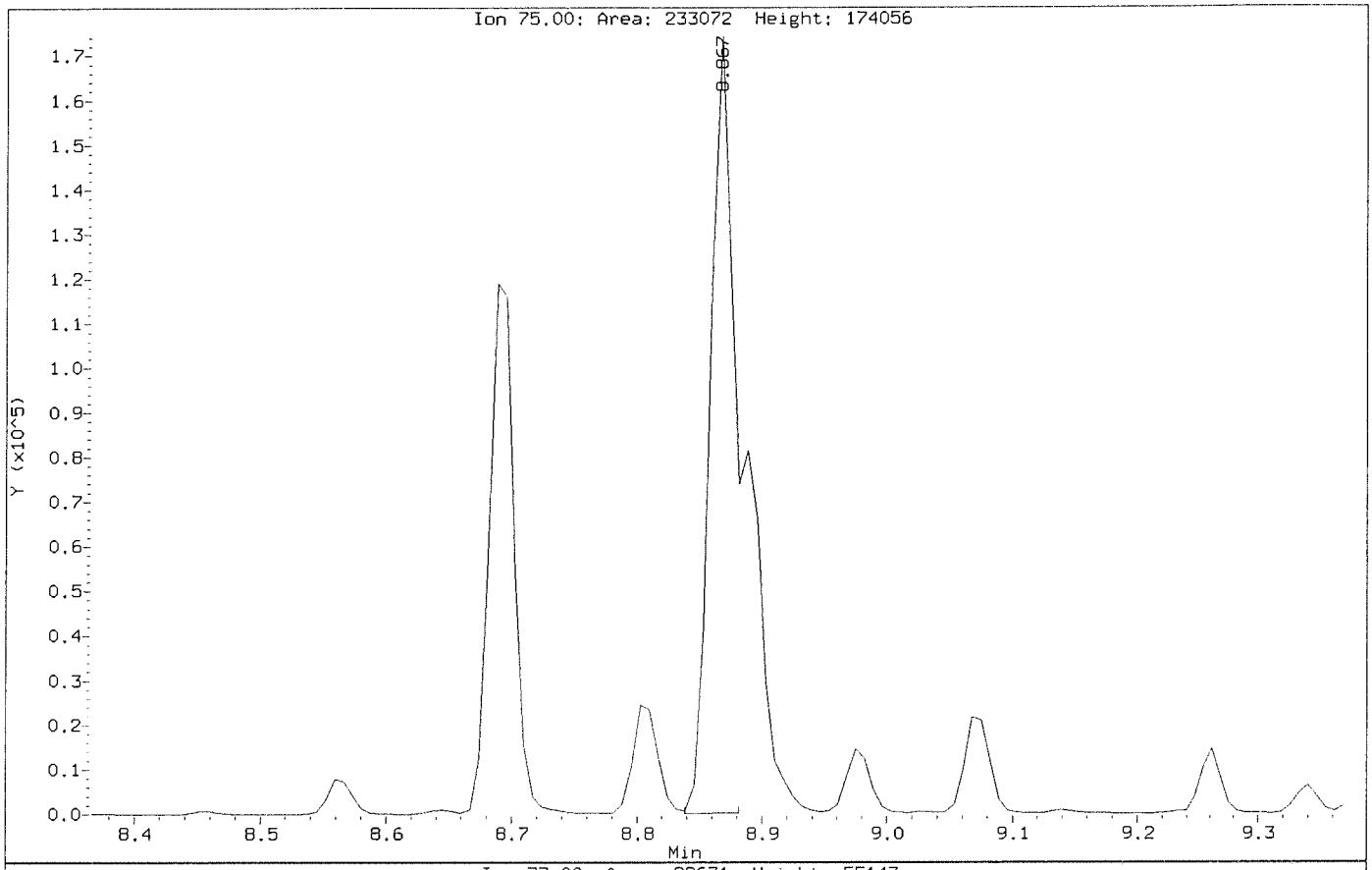
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4

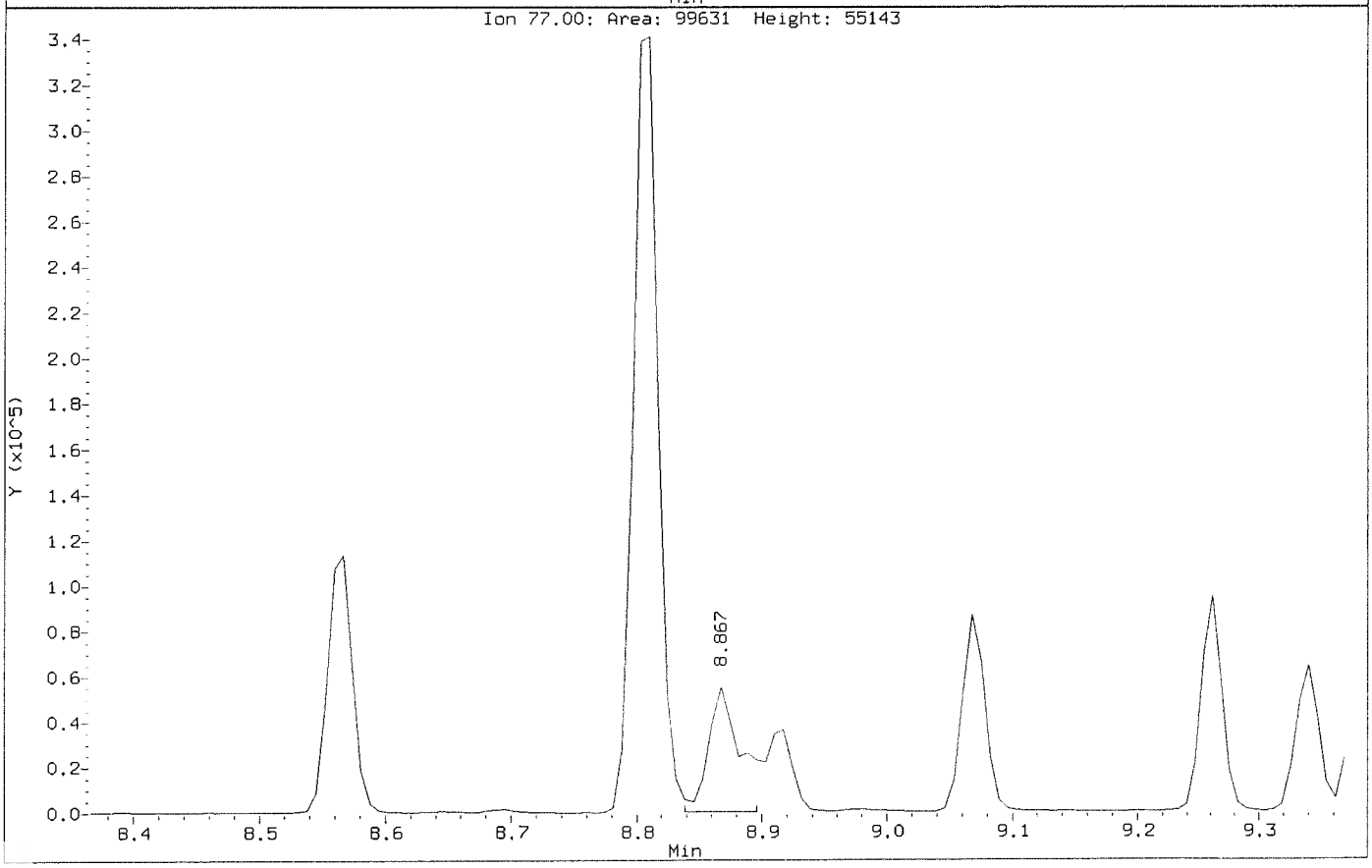




Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092427.D
Injection Date: 24-SEP-2020 21:58
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





HS20090748 8270SIM_W Raw Data

ALS WO# HS20090748

Prep Batch Report

Batch ID: 157399
Prep Code: 3510_B_SIM
Start Date: 16 Sep 2020 12:30 PM
End Date: 16 Sep 2020 02:30 PM
Technician: Todi Lala

Init Sample Weight / Volume: 1000
Final Sample Volume: 1
Original Factor: 0.001
Prep Unit Factor: 1
Prep Unit: mL

Sample ID	Fraction	Matrix	pH	Initial Weight / Volume	Final Volume	Prep Factor	Spike Factor	Fail Safe	Due Date	Comments
HS20090748-01	C	Water		1000	1	0.001	1	25 Sep 2020	30 Sep 2020	
LCS-157399	A			1000	1	0.001	1			
LCSD-157399	A			1000	1	0.001	1			
MBLK-157399	A			1000	1	0.001	1			

SV06 -Logbook

Batch: 41634 **Analyst:** Andrew Neir

Date: 09-01-2020 **Reviewer:**

Method: 8270DLL **Laboratory:** Houston

Comments: MSSV003

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	DFTPP	TUNE	09-01-2020 01:52 pm	1.00			001.D		Y	NA
2	SLSTD-2.5	CCV	09-01-2020 02:04 pm	1.00			002.D		Y	NA
3	DXSIM-0.08	SAMP	09-01-2020 02:41 pm	1.00			003.D		Y	NA
4	DXSIM-0.01	SAMP	09-01-2020 03:03 pm	1.00			004.D		Y	NA
5	DXSIM-0.03	SAMP	09-01-2020 03:22 pm	1.00			005.D		Y	NA
6	DXSIM-0.05	SAMP	09-01-2020 03:41 pm	1.00			006.D		Y	NA
7	DXSIM-0.10	SAMP	09-01-2020 04:00 pm	1.00			007.D		Y	NA
8	DXSIM-0.15	SAMP	09-01-2020 04:19 pm	1.00			008.D		Y	NA
9	DXSIM-0.2	SAMP	09-01-2020 04:38 pm	1.00			009.D		Y	NA
10	DXSIM-0.5	SAMP	09-01-2020 04:57 pm	1.00			010.D		Y	NA
11	DXSIM-ICV	SAMP	09-01-2020 05:16 pm	1.00			011.D		Y	NA
12	MBLK-156910	MBLK	09-01-2020 05:36 pm	1.00	1000.00 mL	1.00 mL	012.D	Liquid	Y	NA
13	LCS-156910	LCS	09-01-2020 05:55 pm	1.00	1000.00 mL	1.00 mL	013.D	Liquid	Y	NA
14	LCSD-156910	LCSD	09-01-2020 06:15 pm	1.00	1000.00 mL	1.00 mL	014.D	Liquid	Y	NA
15	HS20090012-01	SAMP	09-01-2020 06:34 pm	1.00	1000.00 mL	1.00 mL	015.D	Liquid	Y	NA
16	HS20070585-01	SAMP	09-01-2020 06:53 pm	1.00	1000.00 mL	1.00 mL	016.D	Liquid	Y	NA
17	HS20070585-02	SAMP	09-01-2020 07:13 pm	1.00	1000.00 mL	1.00 mL	017.D	Liquid	Y	NA
18	HS20070585-09	SAMP	09-01-2020 07:33 pm	1.00	1000.00 mL	1.00 mL	018.D	Liquid	Y	NA
19	HS20070585-10	SAMP	09-01-2020 07:52 pm	1.00	1000.00 mL	1.00 mL	019.D	Liquid	Y	NA
20	HS20070586-01	SAMP	09-01-2020 08:11 pm	1.00	30.00 gm	1.00 mL	020.D	Solid	Y	NA
21	HS20070586-02	SAMP	09-01-2020 08:31 pm	1.00	30.00 gm	1.00 mL	021.D	Solid	Y	NA
22	HS20070586-05	SAMP	09-01-2020 08:50 pm	1.00	30.00 gm	1.00 mL	022.D	Solid	Y	NA
23	HS20070586-06	SAMP	09-01-2020 09:10 pm	1.00	30.00 gm	1.00 mL	023.D	Solid	Y	NA
24	MBLK-156817	MBLK	09-01-2020 09:29 pm	1.00	1000.00 mL	1.00 mL	024.D	Liquid	Y	NA
25	LCS-156817	LCS	09-01-2020 09:48 pm	1.00	1000.00 mL	1.00 mL	025.D	Liquid	Y	NA
26	LCSD-156817	LCSD	09-01-2020 10:07 pm	1.00	1000.00 mL	1.00 mL	026.D	Liquid	Y	NA
27	HS20081150-01	SAMP	09-01-2020 10:26 pm	1.00	1000.00 mL	1.00 mL	027.D	Liquid	Y	NA
28	HS20081150-01	SAMP	09-01-2020 10:45 pm	100.0(	1000.00 mL	1.00 mL	028.D	Liquid	Y	NA
29	HS20081151-01	SAMP	09-01-2020 11:04 pm	1.00	1000.00 mL	1.00 mL	029.D	Liquid	Y	NA
30	HS20081151-01	SAMP	09-01-2020 11:23 pm	100.0(	1000.00 mL	1.00 mL	030.D	Liquid	Y	NA
31	DXSIM-0.08	SAMP	09-01-2020 11:42 pm	100.0(	1000.00 mL	1.00 mL	031.D	Liquid	Y	NA
32	HS20081309-03	SAMP	09-02-2020 12:02 am	1.00	1000.00 mL	1.00 mL	032.D	Liquid	Y	NA
33	HS20081238-01	SAMP	09-02-2020 12:21 am	1.00	1000.00 mL	1.00 mL	033.D	Liquid	Y	NA
34	HS20081238-02	SAMP	09-02-2020 12:40 am	1.00	1000.00 mL	1.00 mL	034.D	Liquid	Y	NA
35	HS20081238-03	SAMP	09-02-2020 01:00 am	1.00	1000.00 mL	1.00 mL	035.D	Liquid	Y	NA
36	HS20081238-04	SAMP	09-02-2020 01:19 am	1.00	1000.00 mL	1.00 mL	036.D	Liquid	Y	NA
37	HS20081238-05	SAMP	09-02-2020 01:39 am	1.00	1000.00 mL	1.00 mL	037.D	Liquid	Y	NA
38	HS20081238-06	SAMP	09-02-2020 01:58 am	1.00	1000.00 mL	1.00 mL	038.D	Liquid	Y	NA
39	HS20081238-07	SAMP	09-02-2020 02:18 am	1.00	1000.00 mL	1.00 mL	039.D	Liquid	Y	NA
40	HS20081238-08	SAMP	09-02-2020 02:37 am	1.00	1000.00 mL	1.00 mL	040.D	Liquid	Y	NA
41	HS20081238-09	SAMP	09-02-2020 02:57 am	1.00	1000.00 mL	1.00 mL	041.D	Liquid	Y	NA

SV06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
42	HS20081238-10	SAMP	09-02-2020 03:16 am	1.00	1000.00 mL	1.00 mL	042.D	Liquid	Y	NA
43	HS20081238-11	SAMP	09-02-2020 03:35 am	1.00	1000.00 mL	1.00 mL	043.D	Liquid	Y	NA
44	HS20081238-12	SAMP	09-02-2020 03:55 am	1.00	1000.00 mL	1.00 mL	044.D	Liquid	Y	NA
45	HS20081238-13	SAMP	09-02-2020 04:14 am	1.00	1000.00 mL	1.00 mL	045.D	Liquid	Y	NA
46	HS20081238-14	SAMP	09-02-2020 04:34 am	1.00	1000.00 mL	1.00 mL	046.D	Liquid	Y	NA
47	HS20081238-15	SAMP	09-02-2020 04:53 am	1.00	1000.00 mL	1.00 mL	047.D	Liquid	Y	NA
48	HS20081238-16	SAMP	09-02-2020 05:13 am	1.00	1000.00 mL	1.00 mL	048.D	Liquid	Y	NA
49	HS20081238-17	SAMP	09-02-2020 05:32 am	1.00	1000.00 mL	1.00 mL	049.D	Liquid	Y	NA
50	HS20081238-18	SAMP	09-02-2020 05:52 am	1.00	1000.00 mL	1.00 mL	050.D	Liquid	Y	NA

Chemical	Value
IS ID	3111842-01
CAL STD ID	3111832-06
DFTPP ID	3111843-07
PCP Tailing	0.82
Benz. Tailing	0.78
Routine SOP Maintenance	ACN

FORM 3
WATER SEMIVOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Matrix Spike - Sample No.: DXSIM-ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	% REC #	QC. LIMITS REC.
1,4-Dioxane	0.08000	0.07779	97	75-125

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

_____

FORM III SV

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Lab File ID: 001 DFTPP Injection Date: 09/01/20

Instrument ID: SV6 DFTPP Injection Time: 1352

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	46.9
68	Less than 2.0% of mass 69	0.5 (0.9)1
69	Mass 69 relative abundance	50.7
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	10.0 - 80.0% of mass 198	57.0
197	Less than 2.0% of mass 198	0.4
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	25.7
365	1.0 - 100.0% of mass 198	4.0
441	Present, but less than mass 443	14.5
442	50.0 - 150.0% of mass 198	97.1
443	15.0 - 24.0% of mass 442	18.6 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DXSIM-0.08	DXSIM-0.08	003	09/01/20	1441
02	DXSIM-0.01	DXSIM-0.01	004	09/01/20	1503
03	DXSIM-0.03	DXSIM-0.03	005	09/01/20	1522
04	DXSIM-0.05	DXSIM-0.05	006	09/01/20	1541
05	DXSIM-0.10	DXSIM-0.10	007	09/01/20	1600
06	DXSIM-0.15	DXSIM-0.15	008	09/01/20	1619
07	DXSIM-0.2	DXSIM-0.2	009	09/01/20	1638
08	DXSIM-0.5	DXSIM-0.5	010	09/01/20	1657
09	DXSIM-ICV	DXSIM-ICV	011	09/01/20	1716
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Instrument ID: SV6 Calibration Date(s): 09/01/20 09/01/20

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1441 1657

LAB FILE ID: RF0.01: 004 RF0.03: 005 RF0.05: 006
RF0.08: 003 RF0.1: 007 RF0.15: 008

COMPOUND	RF0.01	RF0.03	RF0.05	RF0.08	RF0.1	RF0.15
1,4-Dioxane	0.301	0.225	0.233	0.205	0.272	0.298
Nitrobenzene-d5	0.475	0.356	0.285	0.364	0.296	0.373
4-Terphenyl-d14	0.997	0.901	0.769	0.929	0.708	0.713
2-Fluorobiphenyl	1.354	1.207	1.318	1.119	1.138	1.054

FORM VI SV

FORM 6
SEMIVOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009074

Instrument ID: SV6 Calibration Date(s): 09/01/20 09/01/20

Column: RTX-5SIL MS ID: 0.28 (mm) Calibration Time(s): 1441 1657

LAB FILE ID: RF0.2: 009 RF0.5: 010

COMPOUND	RF0.2	RF0.5	CURVE	COEFFICENT A1	%RSD OR R^2	MAX %RSD OR R^2
1,4-Dioxane	0.332	0.280	AVRG	0.26820713	16.222	20.000
Nitrobenzene-d5	0.330	0.356	AVRG	0.35440929	16.461	20.000
4-Terphenyl-d14	0.774	0.841	AVRG	0.82891532	12.765	20.000
2-Fluorobiphenyl	1.123	1.017	AVRG	1.16642898	10.235	20.000

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\001.D

Date : 01-SEP-2020 13:52

Client ID: DFTPP

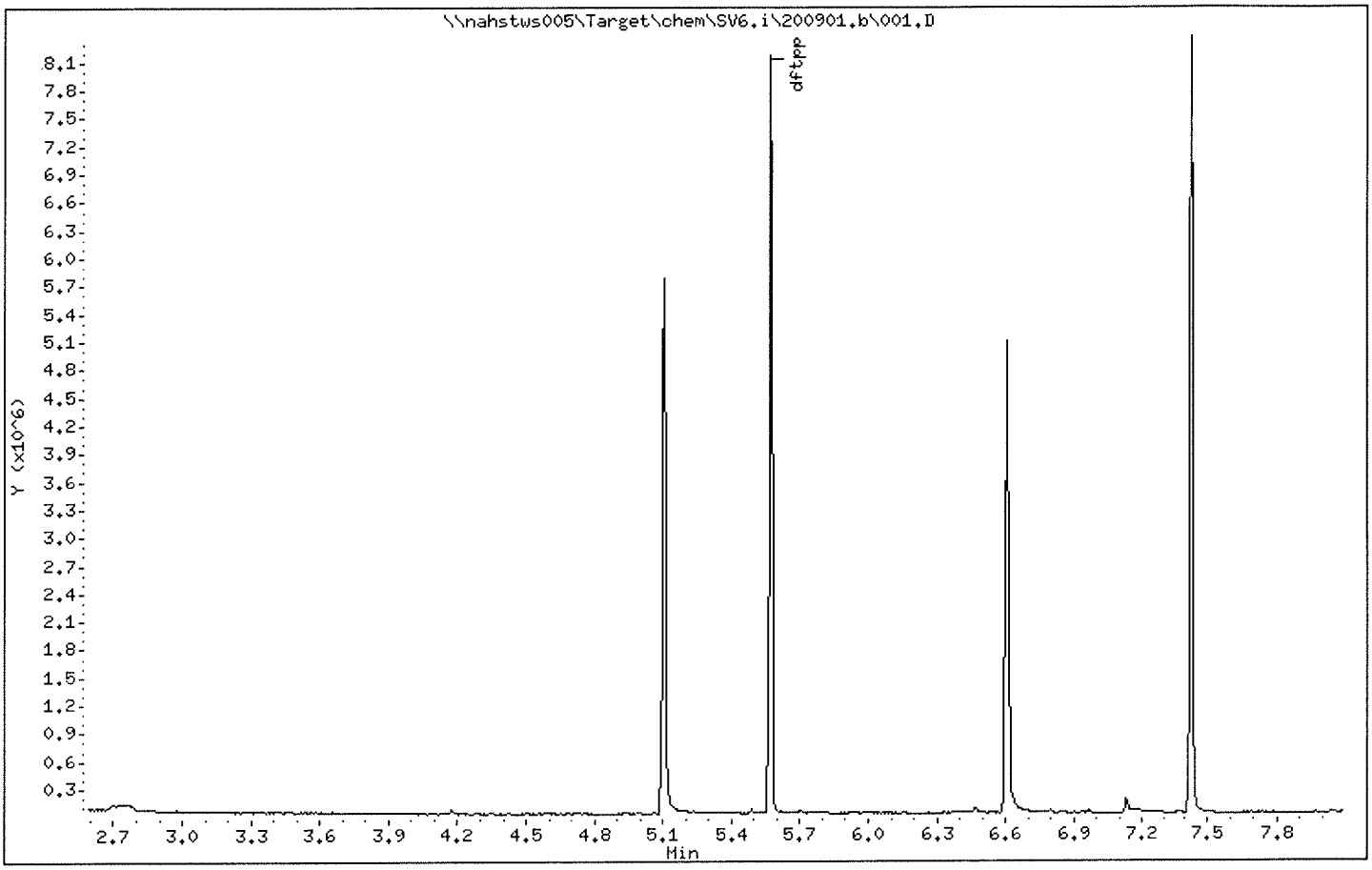
Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\SV6.i\200901.b\001.D

Date : 01-SEP-2020 13:52

Client ID: DFTPP

Instrument: SV6.i

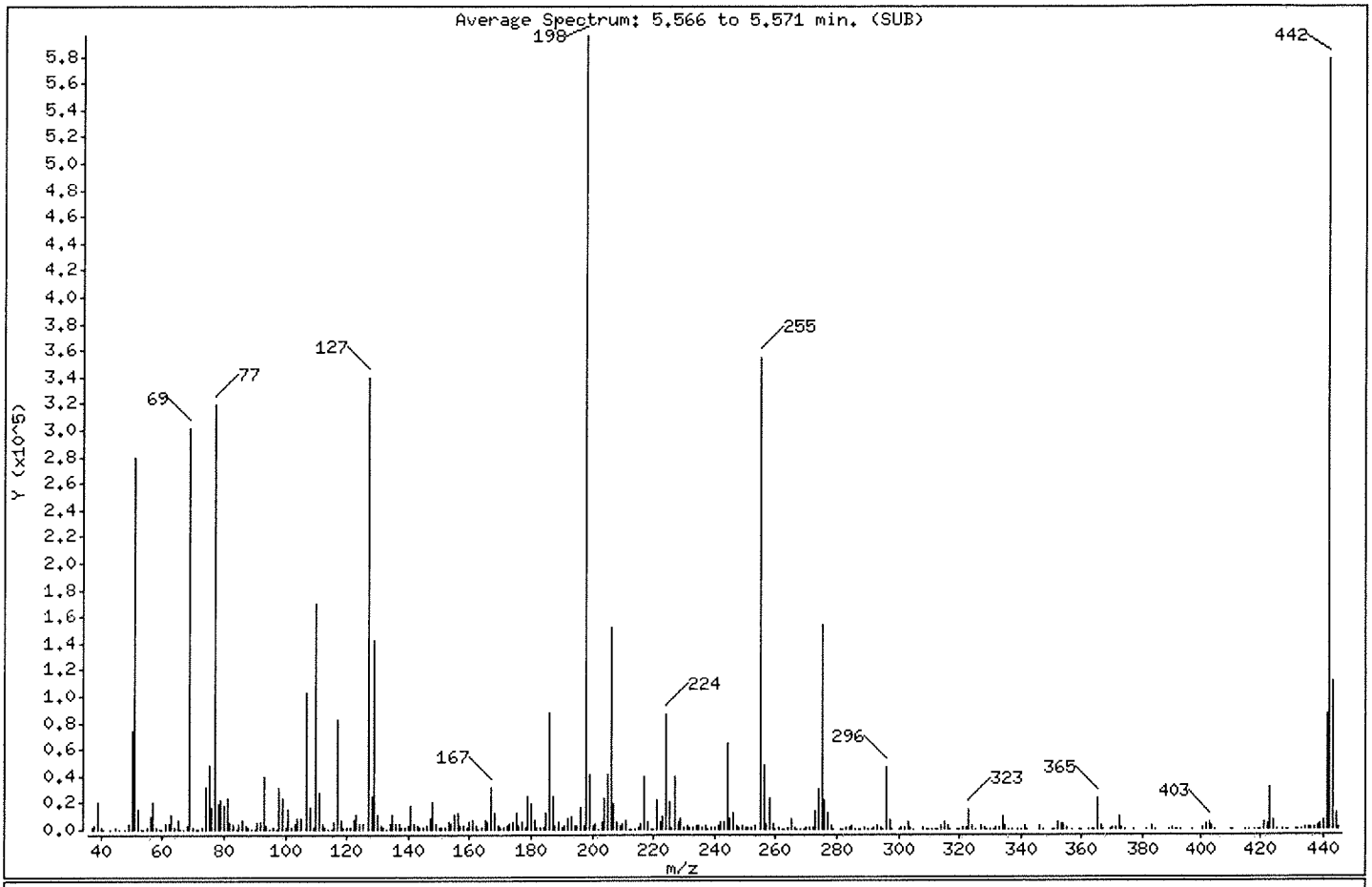
Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	46.88
68	Less than 2.00% of mass 69	0.48 (0.94)
69	Mass 69 relative abundance	50.68
70	Less than 2.00% of mass 69	0.31 (0.60)
127	10.00 - 80.00% of mass 198	56.99
197	Less than 2.00% of mass 198	0.41
199	5.00 - 9.00% of mass 198	6.84
275	10.00 - 60.00% of mass 198	25.68
365	1.00 - 100.00% of mass 198	4.01
441	Present, but less than mass 443	14.46
442	50.00 - 150.00% of mass 198	97.09
443	15.00 - 24.00% of mass 442	18.56 (19.12)

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\001.D

Date : 01-SEP-2020 13:52

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Average Spectrum: 5.566 to 5.571 min. (SUB)
Location of Maximum: 198.00
Number of points: 361

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	1132	133.00	523	224.00	85920	321.00	1936
38.00	3168	134.00	3567	225.00	20560	322.00	1358
39.00	20240	135.00	10509	226.00	1905	323.00	14582
40.00	847	136.00	4080	227.00	40272	324.00	3093
41.00	359	137.00	4659	228.00	6109	325.00	247
43.00	637	138.00	1176	229.00	8104	327.00	2927
45.00	726	139.00	691	230.00	865	328.00	1591
46.00	246	140.00	2173	231.00	3342	329.00	359
48.00	286	141.00	17232	232.00	803	330.00	103
49.00	3524	142.00	4786	233.00	880	331.00	218
50.00	74392	143.00	3273	234.00	2655	332.00	1451
51.00	279360	144.00	1143	235.00	3054	333.00	1368
52.00	14715	145.00	1076	236.00	1716	334.00	9177
53.00	159	146.00	3257	237.00	2356	335.00	2757
54.00	143	147.00	8842	238.00	432	336.00	112
55.00	1240	148.00	20160	239.00	1632	337.00	81
56.00	9103	149.00	3787	240.00	840	339.00	506
57.00	20872	150.00	1314	241.00	2253	340.00	133
58.00	1121	151.00	1875	242.00	5114	341.00	2506
59.00	664	152.00	1877	243.00	5015	342.00	537
60.00	26	153.00	5718	244.00	65016	346.00	3406
61.00	3531	154.00	4312	245.00	8277	347.00	505
62.00	3772	155.00	11251	246.00	11826	350.00	102
63.00	11375	156.00	12646	247.00	2935	351.00	344
64.00	1278	157.00	2476	248.00	921	352.00	5264
65.00	6226	158.00	2412	249.00	3014	353.00	3632
66.00	463	159.00	1824	250.00	749	354.00	4465
67.00	118	160.00	5511	251.00	954	355.00	955
68.00	2831	161.00	7151	252.00	1849	357.00	279
69.00	302016	162.00	2988	253.00	2849	359.00	276
70.00	1818	163.00	269	255.00	355200	360.00	121
71.00	296	164.00	816	256.00	47456	362.00	107
72.00	314	165.00	7317	257.00	3953	363.00	617
73.00	1963	166.00	5545	258.00	23384	364.00	541
74.00	30928	167.00	31856	259.00	3869	365.00	23912

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\001.D

Date : 01-SEP-2020 13:52

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Average Spectrum: 5.566 to 5.571 min. (SUB)
Location of Maximum: 198.00
Number of points: 361

m/z	Y	m/z	Y	m/z	Y	m/z	Y
75.00	48584	168.00	12438	260.00	547	366.00	2559
76.00	16219	169.00	2506	261.00	696	367.00	373
77.00	318912	170.00	1228	262.00	171	369.00	84
78.00	19664	171.00	1246	263.00	152	370.00	770
79.00	21776	172.00	2840	264.00	715	371.00	1471
80.00	17632	173.00	4122	265.00	8690	372.00	10099
81.00	23216	174.00	5776	266.00	1098	373.00	1794
82.00	5569	175.00	12113	267.00	359	374.00	159
83.00	4711	176.00	3068	268.00	471	377.00	136
84.00	622	177.00	5288	269.00	197	381.00	77
85.00	4731	178.00	1999	270.00	890	383.00	2249
86.00	7005	179.00	24752	271.00	1141	384.00	683
87.00	3268	180.00	18880	272.00	1967	389.00	169
88.00	1411	181.00	6948	273.00	13049	390.00	1414
89.00	683	182.00	2055	274.00	30776	391.00	520
90.00	327	183.00	718	275.00	152960	392.00	477
91.00	5418	184.00	1986	276.00	21272	393.00	139
92.00	5846	185.00	11921	277.00	12978	397.00	447
93.00	39760	186.00	87664	278.00	2659	401.00	836
94.00	2446	187.00	24008	279.00	628	402.00	4295
95.00	461	188.00	3104	281.00	567	403.00	5624
96.00	1877	189.00	5095	282.00	547	404.00	2205
97.00	570	190.00	857	283.00	1874	405.00	159
98.00	31608	191.00	2656	284.00	1318	410.00	82
99.00	22912	192.00	7627	285.00	3378	411.00	82
100.00	2053	193.00	9015	286.00	376	415.00	105
101.00	14676	194.00	2583	287.00	107	416.00	235
102.00	994	195.00	2733	288.00	123	418.00	200
103.00	3962	196.00	16172	289.00	862	419.00	258
104.00	8895	197.00	2436	290.00	416	420.00	272
105.00	7876	198.00	595968	291.00	335	421.00	5352
107.00	102624	199.00	40792	292.00	773	422.00	4268
108.00	16204	200.00	3416	293.00	2950	423.00	31088
109.00	1647	201.00	4505	294.00	931	424.00	6308
110.00	170432	202.00	32	295.00	485	425.00	681

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\001.D

Date : 01-SEP-2020 13:52

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Average Spectrum: 5.566 to 5.571 min. (SUB)
Location of Maximum: 198.00
Number of points: 361

m/z	Y	m/z	Y	m/z	Y	m/z	Y
111.00	27200	203.00	5754	296.00	46784	427.00	276
112.00	4383	204.00	23032	297.00	6214	428.00	255
113.00	1212	205.00	41664	298.00	580	429.00	278
114.00	601	206.00	152320	300.00	320	431.00	536
115.00	615	207.00	19016	301.00	981	432.00	96
116.00	5674	208.00	5811	302.00	1252	433.00	459
117.00	81968	209.00	2446	303.00	5202	434.00	1073
118.00	6322	210.00	3435	304.00	1503	435.00	1536
119.00	751	211.00	6291	305.00	88	436.00	1880
120.00	1445	212.00	214	308.00	1015	437.00	1700
121.00	773	213.00	353	309.00	672	438.00	3309
122.00	6206	214.00	404	310.00	442	439.00	4207
123.00	10790	215.00	1996	311.00	195	440.00	6195
124.00	4730	216.00	3882	312.00	263	441.00	86192
125.00	4622	217.00	40296	313.00	551	442.00	578624
127.00	339648	218.00	5802	314.00	2613	443.00	110608
128.00	24424	219.00	597	315.00	5016	444.00	12237
129.00	142400	220.00	249	316.00	2249	445.00	721
130.00	10696	221.00	21896	317.00	530		
131.00	2236	222.00	5339	319.00	175		
132.00	1119	223.00	9504	320.00	160		

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\003.D
Lab Smp Id: DXSIM-0.08 Client Smp ID: DXSIM-0.08
Inj Date : 01-SEP-2020 14:41 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.08;DXSIM-0.08
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 16:57 Cal File: 010.D
Als bottle: 3 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.683	3.683	(1.000)	8895	0.10000		(aH)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	35367	0.10000		(H)
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.902)	10301	0.08000	0.08218	(QH)
* 86 Acenaphthene-d10	164	6.496	6.496	(1.000)	22159	0.10000		(H)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.945)	19840	0.08000	0.07676	(QH)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	43559	0.10000		(H)
* 182 Chrysene-d12	240	10.845	10.845	(1.000)	35410	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.554	9.554	(0.937)	26311	0.08000	0.08964	
* 198 Perylene-d12	264	12.972	12.972	(1.000)	41042	0.10000		
1 1,4-Dioxane	58	1.895	1.895	(0.583)	1458	0.08000	0.06111	(aQH)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

00995506

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\003.D

Date : 01-SEP-2020 14:41

Client ID: DXSIM-0.08

Instrument: SV6.i

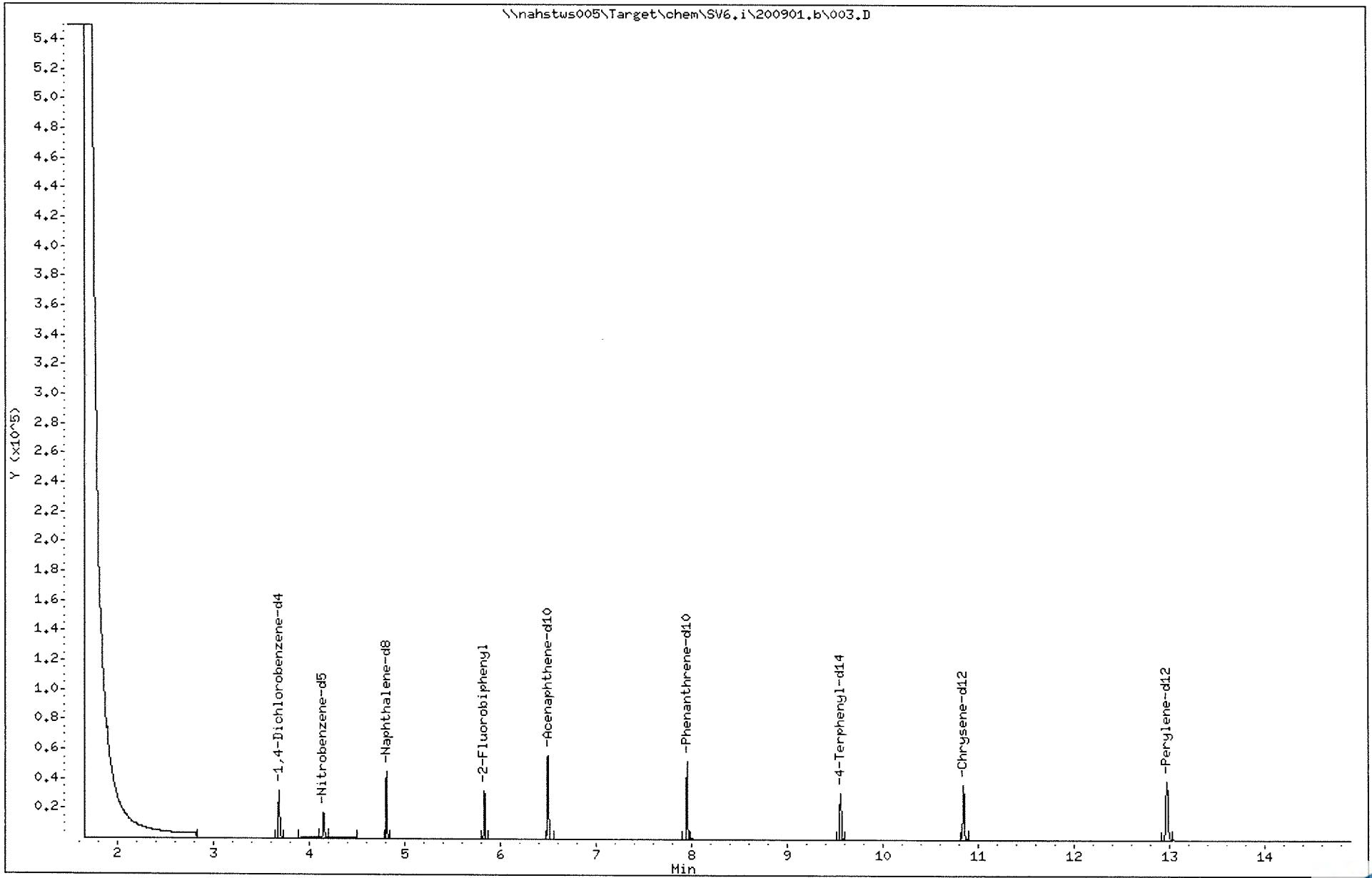
Sample Info: DXSIM-0.08;DXSIM-0.08

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\004.D
Lab Smp Id: DXSIM-0.01 Client Smp ID: DXSIM-0.01
Inj Date : 01-SEP-2020 15:03 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.01;DXSIM-0.01
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 4 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.683	3.683	(1.000)	8796	0.10000		(a)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	32119	0.10000		(H)
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	1526	0.01000	0.01340	(QM)
* 86 Acenaphthene-d10	164	6.496	6.496	(1.000)	19919	0.10000		
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.898)	2697	0.01000	0.01161	(M)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	38069	0.10000		
* 182 Chrysene-d12	240	10.845	10.845	(1.000)	32361	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.554	9.554	(0.881)	3227	0.01000	0.01203	(M)
* 198 Perylene-d12	264	12.967	12.967	(1.000)	42122	0.10000		(M)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\004.D

Date : 01-SEP-2020 15:03

Client ID: DXSIM-0.01

Instrument: SV6.i

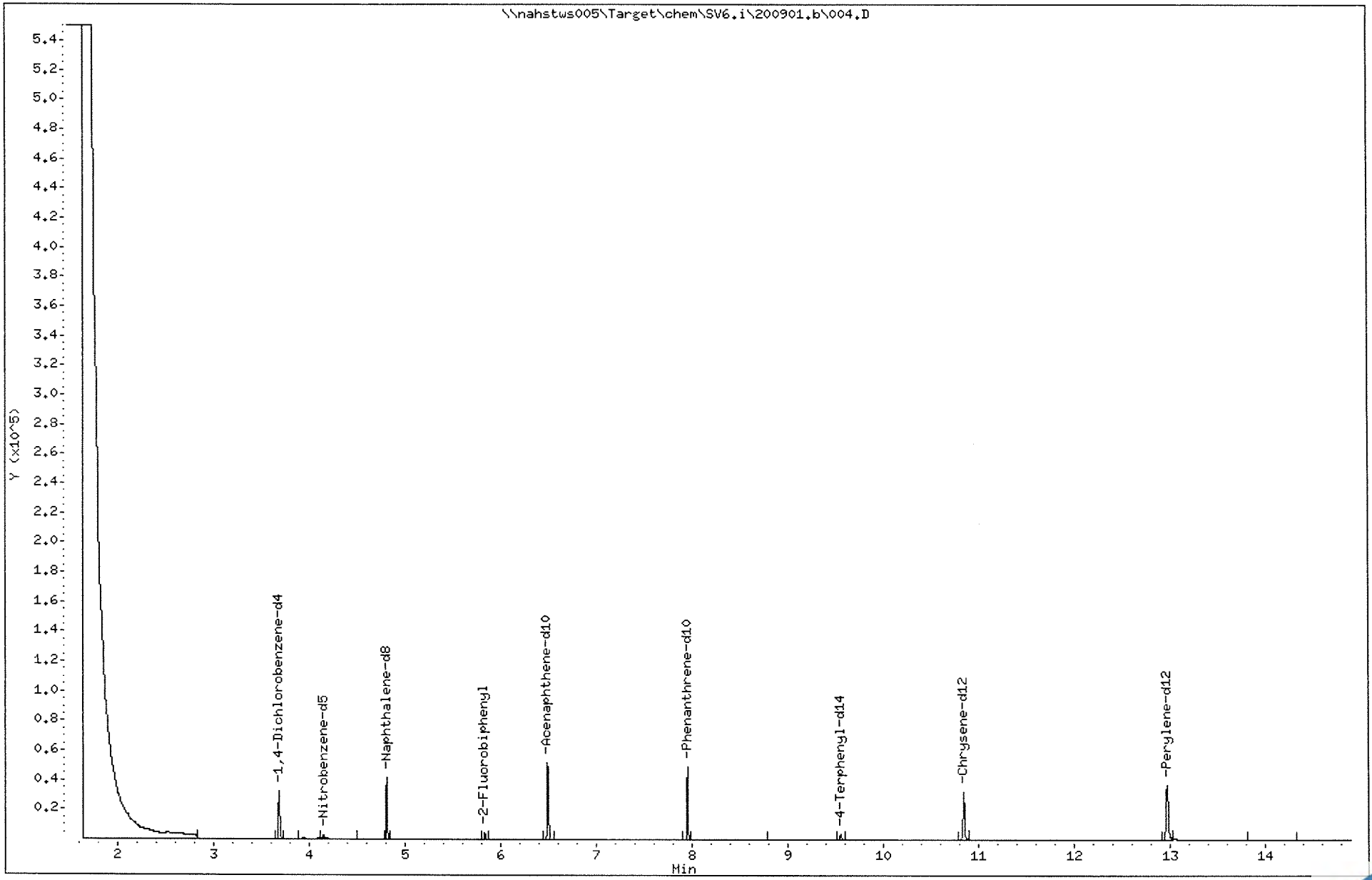
Sample Info: DXSIM-0.01;DXSIM-0.01

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\005.D
Lab Smp Id: DXSIM-0.03 Client Smp ID: DXSIM-0.03
Inj Date : 01-SEP-2020 15:22 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.03;DXSIM-0.03
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 15:03 Cal File: 004.D
Als bottle: 5 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

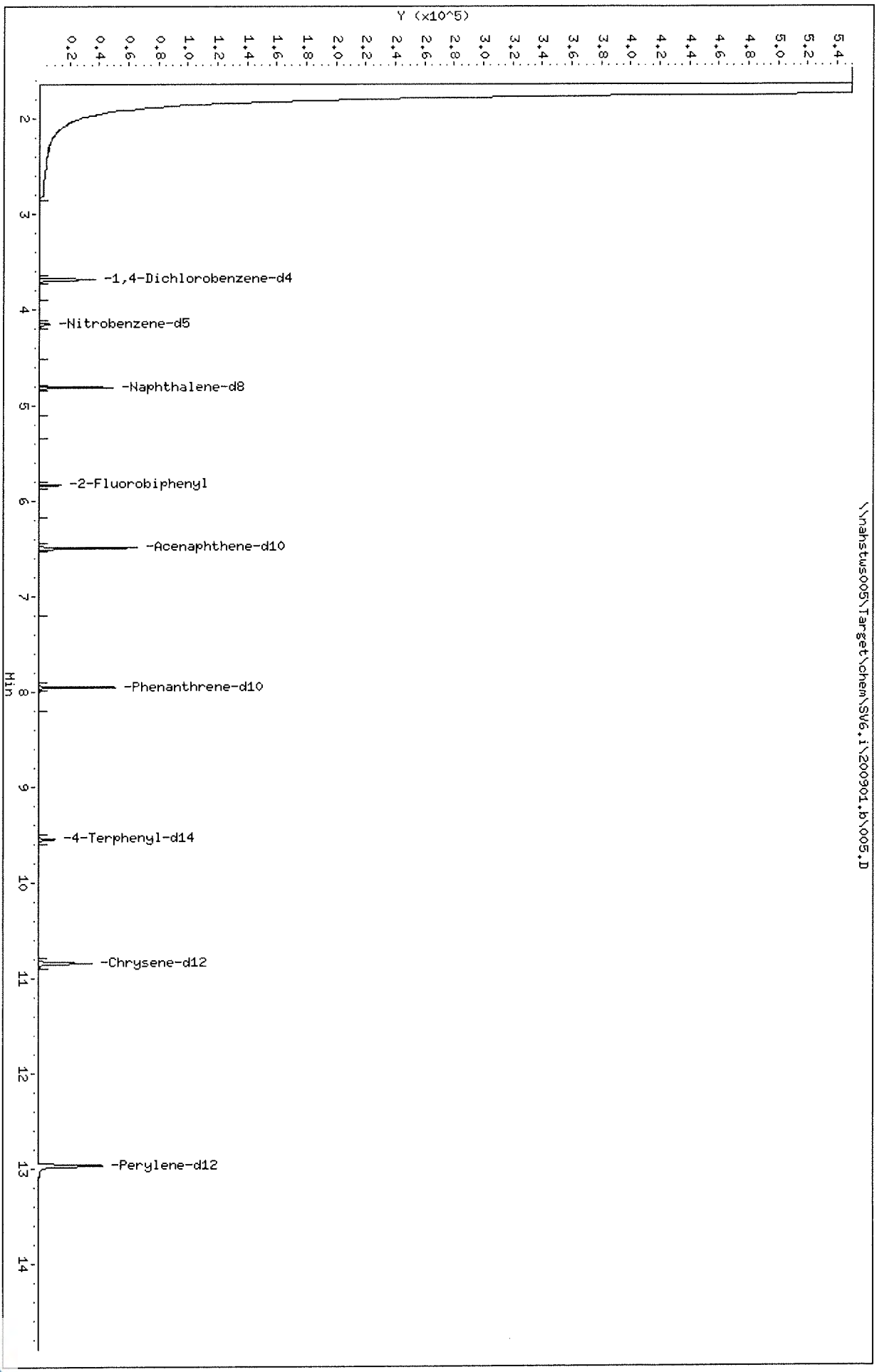
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	11206	0.10000		(aQ)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	37822	0.10000		
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	4046	0.03000	0.03018	(QM)
* 86 Acenaphthene-d10	164	6.491	6.491	(1.000)	24426	0.10000		(M)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.899)	8846	0.03000	0.03105	(QM)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	45805	0.10000		(M)
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	35939	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.549	9.549	(0.927)	9716	0.03000	0.03261	
* 198 Perylene-d12	264	12.967	12.967	(1.000)	49371	0.10000		

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\005.D
Date : 01-SEP-2020 15:22
Client ID: DXSIM-0.03
Sample Info: DXSIM-0.03;DXSIM-0.03
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\006.D
Lab Smp Id: DXSIM-0.05 Client Smp ID: DXSIM-0.05
Inj Date : 01-SEP-2020 15:41 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.05;DXSIM-0.05
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 15:22 Cal File: 005.D
Als bottle: 6 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

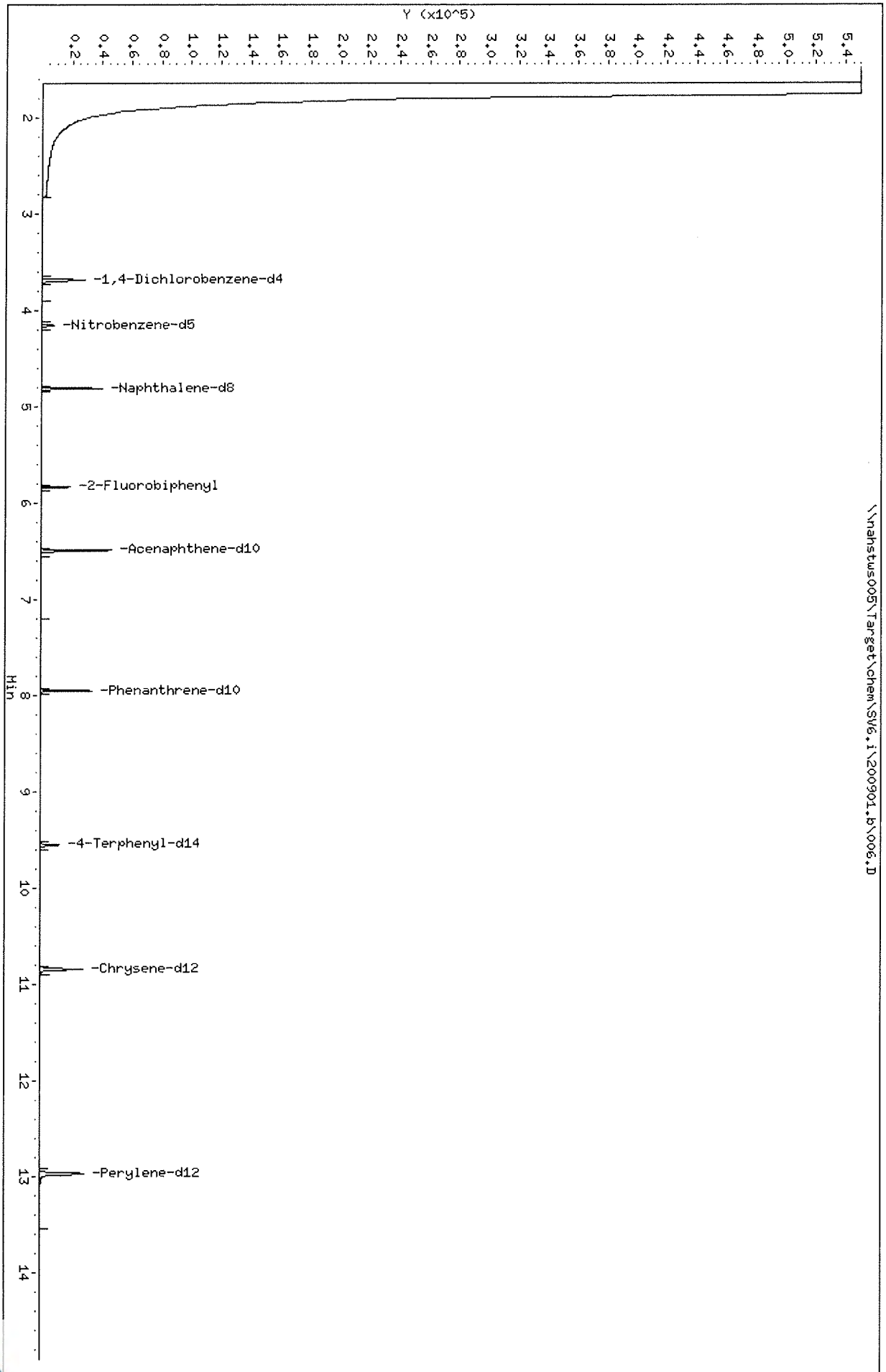
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	8859	0.10000		(aQ)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	32258	0.10000		(M)
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	4593	0.05000	0.04017	(M)
* 86 Acenaphthene-d10	164	6.496	6.496	(1.000)	17615	0.10000		(M)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.898)	11613	0.05000	0.05652	(QM)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	28977	0.10000		
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	28714	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.549	9.549	(0.934)	11038	0.05000	0.04638	
* 198 Perylene-d12	264	12.967	12.967	(1.000)	33234	0.10000		

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\006.D
Date : 01-SEP-2020 15:41
Client ID: DXSIM-0.05
Sample Info: DXSIM-0.05;DXSIM-0.05
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\007.D
Lab Smp Id: DXSIM-0.10 Client Smp ID: DXSIM-0.10
Inj Date : 01-SEP-2020 16:00 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.10;DXSIM-0.10
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 15:41 Cal File: 006.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	11640	0.10000	(aM)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	55315	0.10000	
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	16389	0.10000	0.08360(M)
* 86 Acenaphthene-d10	164	6.491	6.491	(1.000)	27614	0.10000	(QM)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.899)	31424	0.10000	0.09756(M)
* 126 Phenanthrene-d10	188	7.946	7.946	(1.000)	55479	0.10000	
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	48676	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.549	9.549	(1.000)	34456	0.10000	0.08540
* 198 Perylene-d12	264	12.962	12.962	(1.000)	53866	0.10000	
1 1,4-Dioxane	58	1.918	1.918	(0.567)	3169	0.10000	0.1015(aQH)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\007.D

Date : 01-SEP-2020 16:00

Client ID: DXSIM-0.10

Instrument: SV6.i

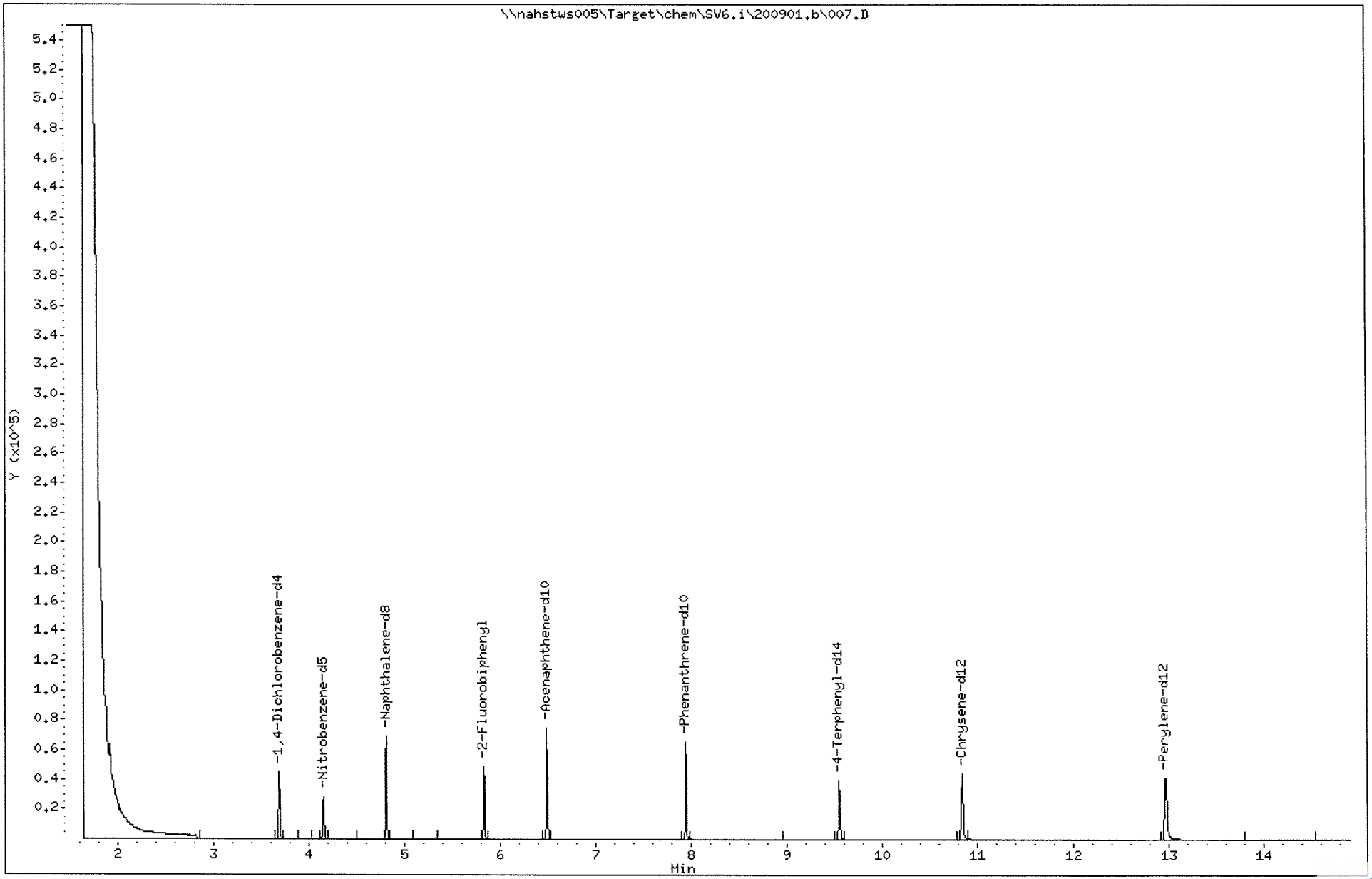
Sample Info: DXSIM-0.10;DXSIM-0.10

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\008.D
Lab Smp Id: DXSIM-0.15 Client Smp ID: DXSIM-0.15
Inj Date : 01-SEP-2020 16:19 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.15;DXSIM-0.15
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 16:00 Cal File: 007.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	15270	0.10000		(aQM)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	61912	0.10000		
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	34608	0.15000	0.1577	(AM)
* 86 Acenaphthene-d10	164	6.491	6.491	(1.000)	37191	0.10000		(M)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.899)	58798	0.15000	0.1355	(M)
* 126 Phenanthrene-d10	188	7.946	7.946	(1.000)	72506	0.10000		
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	63837	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.549	9.549	(0.881)	68288	0.15000	0.1290	(M)
* 198 Perylene-d12	264	12.961	12.961	(1.000)	62319	0.10000		(M)
1 1,4-Dioxane	58	1.932	1.932	(0.555)	6821	0.15000	0.1665	(aQH)

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.
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\008.D

Date : 01-SEP-2020 16:19

Client ID: DXSIM-0.15

Instrument: SV6.i

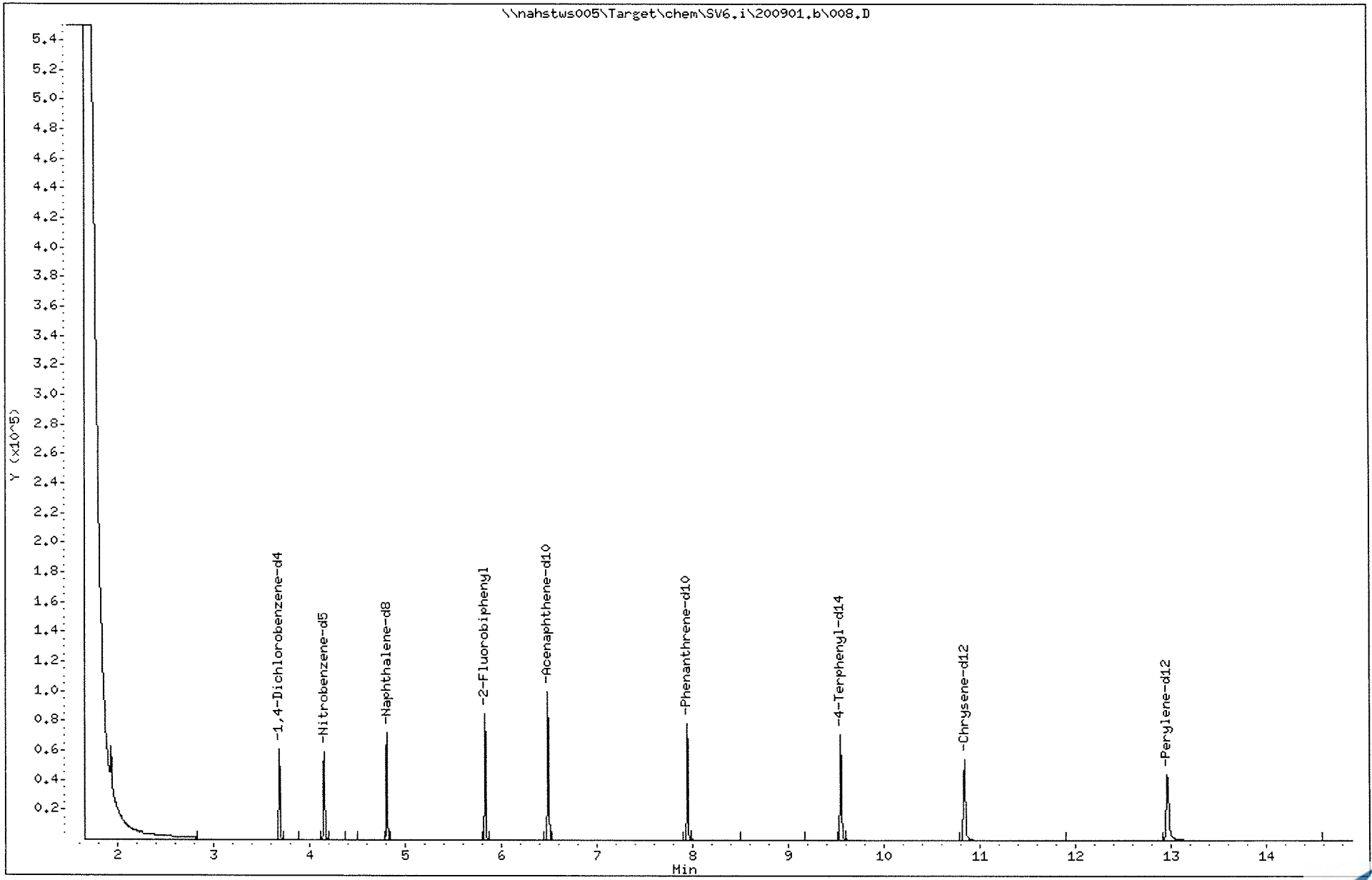
Sample Info: DXSIM-0.15;DXSIM-0.15

Purge Volume: 1000.0

Operator: LG

Column phase: RTX-5SIL MS

Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200901.b\009.D Page 1
Report Date: 14-Oct-2020 17:04

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\009.D
Lab Smp Id: DXSIM-0.2 Client Smp ID: DXSIM-0.2
Inj Date : 01-SEP-2020 16:38 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.2;DXSIM-0.2
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 16:19 Cal File: 008.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

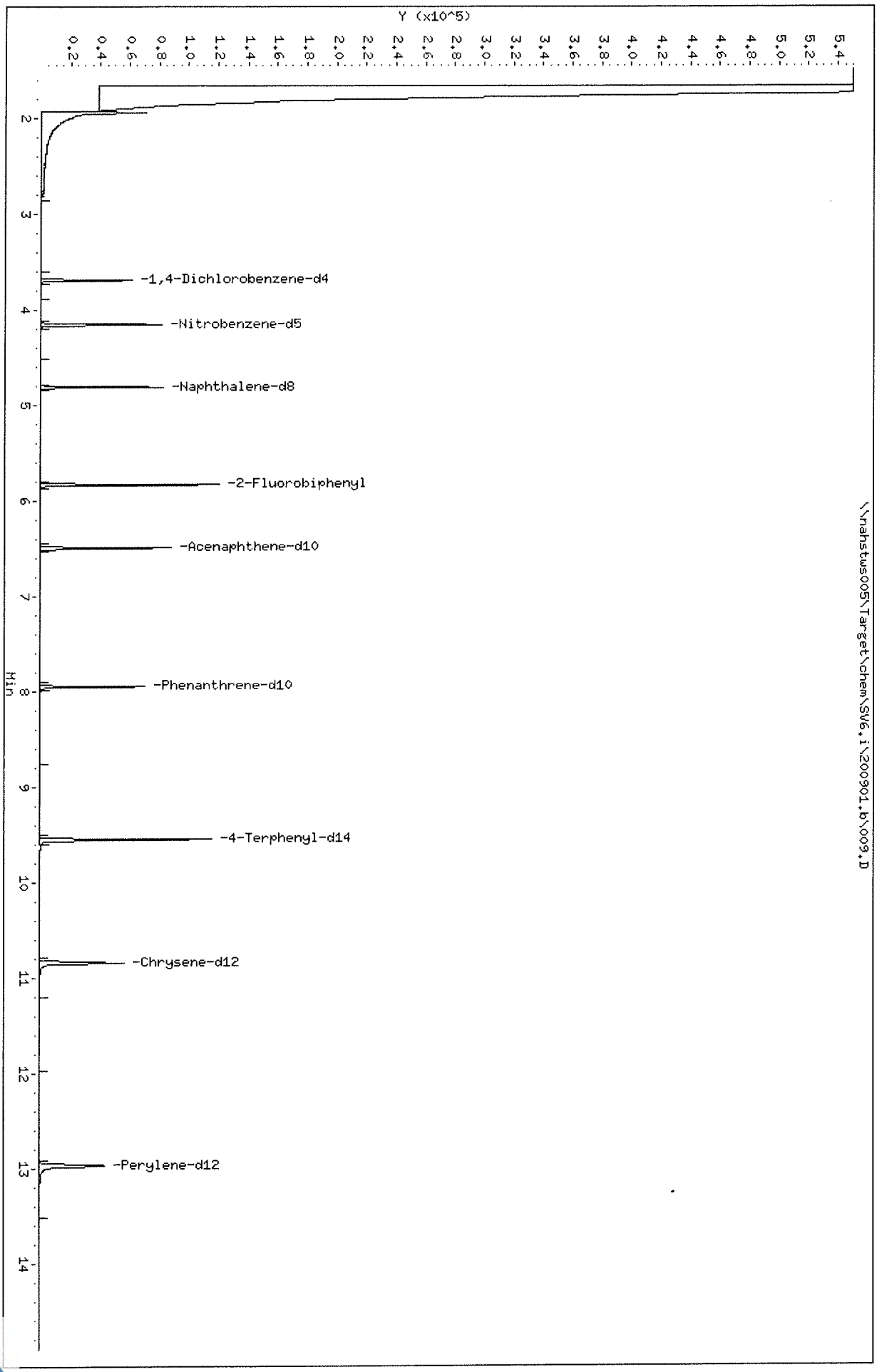
Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 20 1,4-Dichlorobenzene-d4	152	3.694	3.694	(1.000)	16191	0.10000	(aQ)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	71876	0.10000	
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	47444	0.20000	0.1862(AM)
* 86 Acenaphthene-d10	164	6.491	6.491	(1.000)	37058	0.10000	(Q)
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.899)	83257	0.20000	0.1926(A)
* 126 Phenanthrene-d10	188	7.946	7.946	(1.000)	66839	0.10000	
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	69577	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.549	9.549	(0.933)	107656	0.20000	0.1867(A)
* 198 Perylene-d12	264	12.967	12.967	(1.000)	67389	0.10000	(M)
1 1,4-Dioxane	58	1.943	1.943	(0.526)	10742	0.20000	0.2474(QM)

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.
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.



Data File: \\nahstws005\Target\chem\SV6.i\200901.b\009.D
Date : 01-SEP-2020 16:38
Client ID: DXSIM-0.2
Sample Info: DXSIM-0.2;DXSIM-0.2
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\010.D Page 1
Report Date: 14-Oct-2020 17:04

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\010.D
Lab Smp Id: DXSIM-0.5 Client Smp ID: DXSIM-0.5
Inj Date : 01-SEP-2020 16:57 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-0.5;DXSIM-0.5
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 16:38 Cal File: 009.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

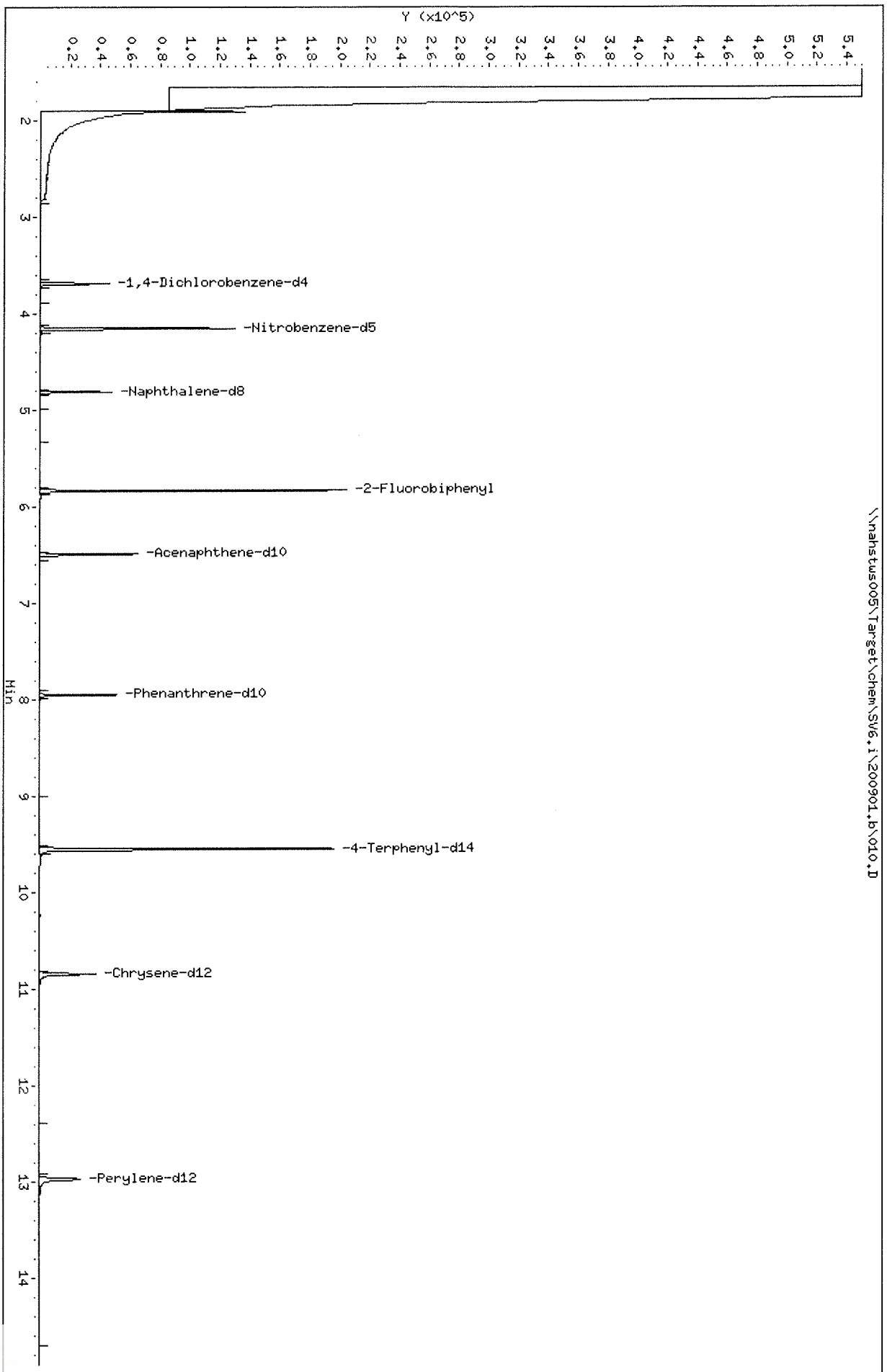
Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	12162	0.10000	(a)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	42331	0.10000	(M)
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	75298	0.50000	0.5019(AM)
* 86 Acenaphthene-d10	164	6.496	6.496	(1.000)	25766	0.10000	
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.898)	131053	0.50000	0.4360(AQM)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	46874	0.10000	
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	42265	0.10000	(M)
$ 158 4-Terphenyl-d14	244	9.554	9.554	(0.934)	177660	0.50000	0.5071(A)
* 198 Perylene-d12	264	12.967	12.967	(1.000)	40372	0.10000	(M)
1 1,4-Dioxane	58	1.910	1.910	(0.518)	17000	0.50000	0.5212(AQH)

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.
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.



Data File: \\nahstws005\Target\chem\SW6.i\200901.b\010.D
Date : 01-SEP-2020 16:57
Client ID: DXSIM-0.5
Sample Info: DXSIM-0.5;DXSIM-0.5
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SW6.i
Operator: LG
Column diameter: 0.28

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\011.D Page 1
Report Date: 14-Oct-2020 17:04

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200901.b\011.D
Lab Smp Id: DXSIM-ICV Client Smp ID: DXSIM-ICV
Inj Date : 01-SEP-2020 17:16 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DXSIM-ICV;DXSIM-ICV
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200901.b\DXSIM.m
Meth Date : 14-Oct-2020 17:04 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 16:57 Cal File: 010.D
Als bottle: 11 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

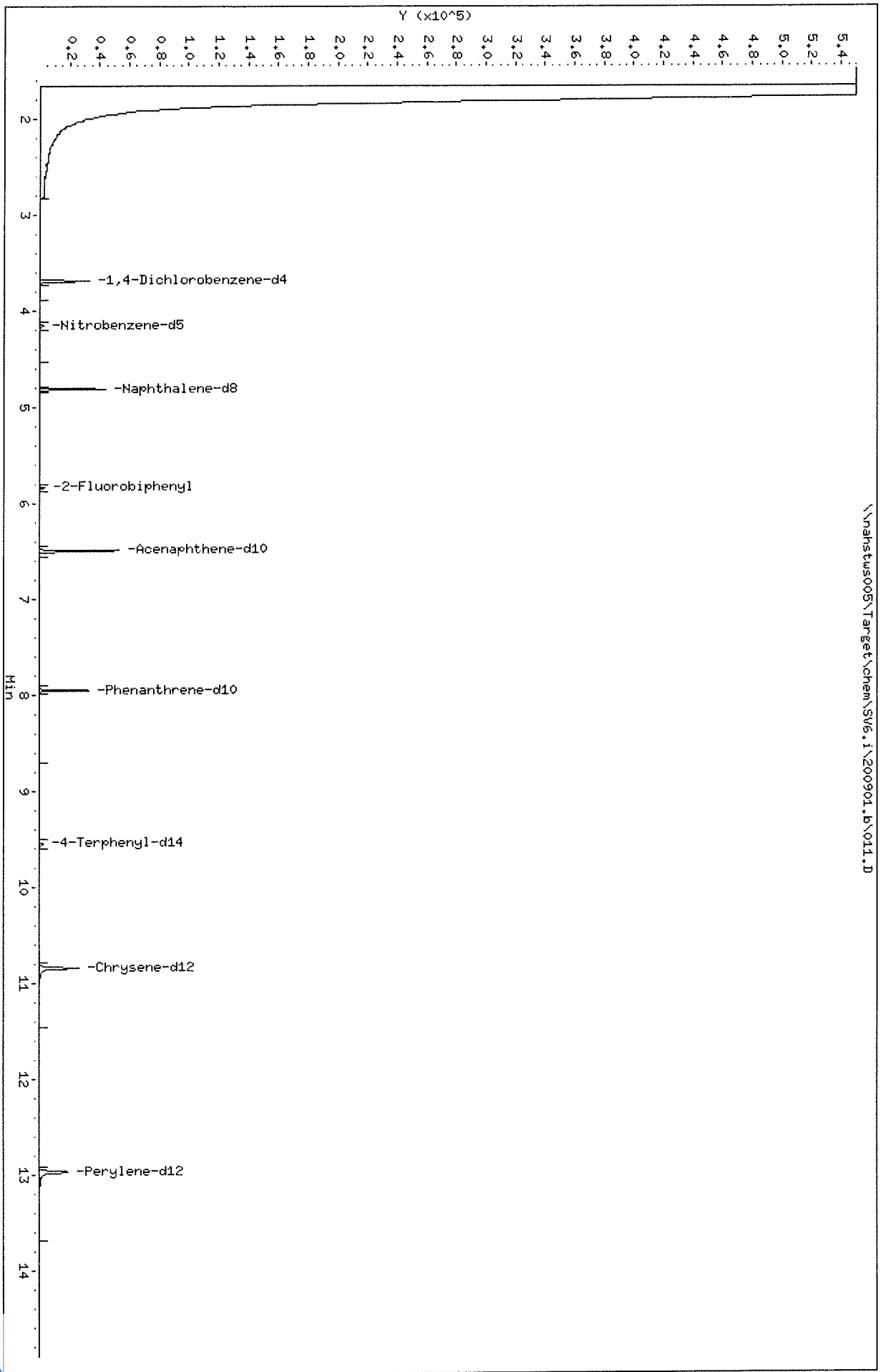
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)	
* 20 1,4-Dichlorobenzene-d4	152	3.688	3.688	(1.000)	8963	0.10000		(a)
* 45 Naphthalene-d8	136	4.809	4.809	(1.000)	36304	0.10000		(M)
$ 33 Nitrobenzene-d5	82	4.155	4.155	(0.864)	1344	0.01045	0.01044	(RM)
* 86 Acenaphthene-d10	164	6.496	6.496	(1.000)	20841	0.10000		
$ 69 2-Fluorobiphenyl	172	5.834	5.834	(0.898)	2375	0.00977	0.009770	(RM)
* 126 Phenanthrene-d10	188	7.951	7.951	(1.000)	29957	0.10000		
* 182 Chrysene-d12	240	10.840	10.840	(1.000)	32572	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.549	9.554	(0.881)	3102	0.01149	0.01149	(RM)
* 198 Perylene-d12	264	12.967	12.967	(1.000)	29891	0.10000		(M)
1 1,4-Dioxane	58	1.906	1.910	(0.517)	1870	0.07779	0.07779	(aQH)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
R - Spike/Surrogate failed recovery limits.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\SV6.i\200901.b\011.D
Date : 01-SEP-2020 17:16
Client ID: DXSIM-ICV
Sample Info: DXSIM-ICV;DXSIM-ICV
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



SV06 -Logbook

Batch: 41816 **Analyst:** Andrew Neir
Date: 09-18-2020 **Reviewer:**
Method: 8270DLL/LVI/SIM **Laboratory:** Houston
Comments: MSSV003

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	DFTPP	TUNE	09-18-2020 09:04 am	1.00			001.D		Y	NA
2	SLSTD-2.5	CCV	09-18-2020 09:46 am	1.00			002.D		Y	NA
3	SLSTD-0.025	CCV	09-18-2020 10:20 am	1.00			003.D		Y	NA
4	DX-0.08	CCV	09-18-2020 10:38 am	1.00			004.D		Y	NA
5	CCB	SAMP	09-18-2020 10:57 am	1.00			005.D		Y	NA
6	MBLK-157492	MBLK	09-18-2020 11:18 am	1.00	33.00 mL	2.00 mL	006.D	Liquid	Y	NA
7	LCS-157492	LCS	09-18-2020 11:37 am	1.00	33.00 mL	2.00 mL	007.D	Liquid	Y	NA
8	LCSD-157492	LCSD	09-18-2020 11:57 am	1.00	33.00 mL	2.00 mL	008.D	Liquid	Y	NA
9	HS20090767-07	SAMP	09-18-2020 12:16 pm	1.00	33.00 mL	2.00 mL	009.D	Liquid	Y	NA
10	HS20090767-24	SAMP	09-18-2020 12:36 pm	1.00	33.00 mL	2.00 mL	010.D	Liquid	Y	NA
11	HS20090587-15	SAMP	09-18-2020 12:56 pm	1.00	33.00 mL	2.00 mL	011.D	Liquid	Y	NA
12	HS20090587-15	SAMP	09-18-2020 01:18 pm	10.00	33.00 mL	2.00 mL	012.D	Liquid	Y	NA
13	HS20090587-15	SAMP	09-18-2020 01:38 pm	100.0(	33.00 mL	2.00 mL	013.D	Liquid	Y	NA
14	MBLK-517399	MBLK	09-18-2020 02:00 pm	1.00	1000.00 mL	1.00 mL	014.D	Liquid	Y	NA
15	LCS-517399	LCS	09-18-2020 02:18 pm	1.00	1000.00 mL	1.00 mL	015.D	Liquid	Y	NA
16	LCSD-517399	LCSD	09-18-2020 02:36 pm	1.00	1000.00 mL	1.00 mL	016.D	Liquid	Y	NA
17	HS20090748-01	SAMP	09-18-2020 02:54 pm	100.0(	1000.00 mL	1.00 mL	017.D	Liquid	Y	NA
18	DX-0.08	CCV	09-18-2020 03:12 pm	1.00			018.D	uid	Y	NA

Chemical	Value
IS ID	3111852-01
CAL STD ID	3111832-06/3111841-04/3111841-02
DFTPP ID	3111842-01
PCP Tailing	0.86
Benz. Tailing	0.79
Routine SOP Maintenance	ACN

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 #	S3 (FBP) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	MBLK-157399	75	67	83						0
02	LCS-157399	91	85	118						0
03	LCSD-157399	78	95	86						0
04										
05										
06										
07										
08										
09										
10										
11										
12										
13										
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24										
25										
26										
27										
28										

	QC LIMITS
S1 (NBZ) = Nitrobenzene-d5	(40-140)
S2 = 4-Terphenyl-d14	(40-140)
S3 (FBP) = 2-Fluorobiphenyl	(40-140)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

MBLK-157399

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Lab File ID: 014 Lab Sample ID: MBLK-157399

Instrument ID: SV6 Date Extracted:

Matrix: (soil/water) WATER Date Analyzed: 09/18/20

Level: (low/med) LOW Time Analyzed: 1400

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

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LCS-157399	LCS-157399	015	09/18/20
02	LCSD-157399	LCSD-157399	016	09/18/20
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
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30				

COMMENTS:

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Lab File ID: 001 DFTPP Injection Date: 09/18/20

Instrument ID: SV6 DFTPP Injection Time: 0904

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	
68	Less than 2.0% of mass 69	( )1
69	Mass 69 relative abundance	
70	Less than 2.0% of mass 69	( )1
127	10.0 - 80.0% of mass 198	
197	Less than 2.0% of mass 198	
198	Base Peak, 100% relative abundance	
199	5.0 to 9.0% of mass 198	
275	10.0 - 60.0% of mass 198	
365	1.0 - 100.0% of mass 198	
441	Present, but less than mass 443	
442	50.0 - 150.0% of mass 198	
443	15.0 - 24.0% of mass 442	( )2

1-Value is % mass 69 2-Value is % mass 442

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	DX-0.08	DX-0.08	004	09/18/20	1038
02	MBLK-157399	MBLK-157399	014	09/18/20	1400
03	LCS-157399	LCS-157399	015	09/18/20	1418
04	LCSD-157399	LCSD-157399	016	09/18/20	1436
05	DX-0.08	DX-0.08	018	09/18/20	1512
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
SEMIVOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Instrument ID: SV6 Calibration Date: 09/18/20 Time: 1038

Lab File ID: 004 Init. Calib. Date(s): 09/01/20 09/01/20

Init. Calib. Times: 1441 1657

GC Column: RTX-5SIL MS ID: 0.28 (mm)

COMPOUND	RRF OR AMOUNT	RRF8e-002 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
1,4-Dioxane	0.2680000	0.2328530	0.01	-13.11	20.00	AVRG
Nitrobenzene-d5	0.3540000	0.3693098	0.01	4.32	20.00	AVRG
4-Terphenyl-d14	0.8290000	0.9205248	0.01	11.04	20.00	AVRG
2-Fluorobiphenyl	1.1660000	1.2850548	0.01	10.21	20.00	AVRG

FORM VII SV

FORM 7B
SEMIVOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Instrument ID: SV6 Calibration Date: 09/18/20 Time: 1512

Lab File ID: 018 Init. Calib. Date(s): 09/01/20 09/01/20

Init. Calib. Times: 1441 1657

GC Column: RTX-5SIL MS ID: 0.28 (mm)

COMPOUND	RRF OR AMOUNT	RRF8e-002 OR AMOUNT	MIN RRF	%D OR %DRIFT	MAX %D OR %DRIFT	CURV TYPE
1,4-Dioxane	0.2680000	0.2543651	0.01	-5.09	50.00	AVRG
Nitrobenzene-d5	0.3540000	0.3336495	0.01	-5.75	50.00	AVRG
4-Terphenyl-d14	0.8290000	0.6890281	0.01	-16.88	50.00	AVRG
2-Fluorobiphenyl	1.1660000	0.8506002	0.01	-27.05	50.00	AVRG

FORM VII SV

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Lab File ID (Standard): 004 Date Analyzed: 09/18/20

Instrument ID: SV6 Time Analyzed: 1038

		IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	12 HOUR STD	9958		3.59		54436		4.71		28812		6.39	
	UPPER LIMIT	19916		4.09		108872		5.21		57624		6.89	
	LOWER LIMIT	4979		3.09		27218		4.21		14406		5.89	
	CLIENT SAMPLE NO.												
01	MBLK-157399	9499		3.59		41987		4.71		24099		6.39	
02	LCS-157399	12675		3.59		47985		4.71		27896		6.39	
03	LCSD-157399	17613		3.60		70997		4.71		42057		6.39	
04													
05													
06													
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

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

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

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20090748

Lab File ID (Standard): 004 Date Analyzed: 09/18/20

Instrument ID: SV6 Time Analyzed: 1038

		IS4(PHN) AREA	#	RT	#	IS5(CRY) AREA	#	RT	#	IS6(PRY) AREA	#	RT	#
	12 HOUR STD	43872		7.85		37389		10.71		42373		12.81	
	UPPER LIMIT	87744		8.35		74778		11.21		84746		13.31	
	LOWER LIMIT	21936		7.35		18695		10.21		21187		12.31	
	CLIENT SAMPLE NO.												
01	MBLK-157399	48024		7.85		45637		10.71		48794		12.80	
02	LCS-157399	52882		7.84		49519		10.70		70521		12.80	
03	LCSD-157399	75332		7.84		63706		10.70		72860		12.80	
04													
05													
06													
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

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

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

FORM VIII SV

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\001.D

Date : 18-SEP-2020 09:04

Client ID: DFTPP

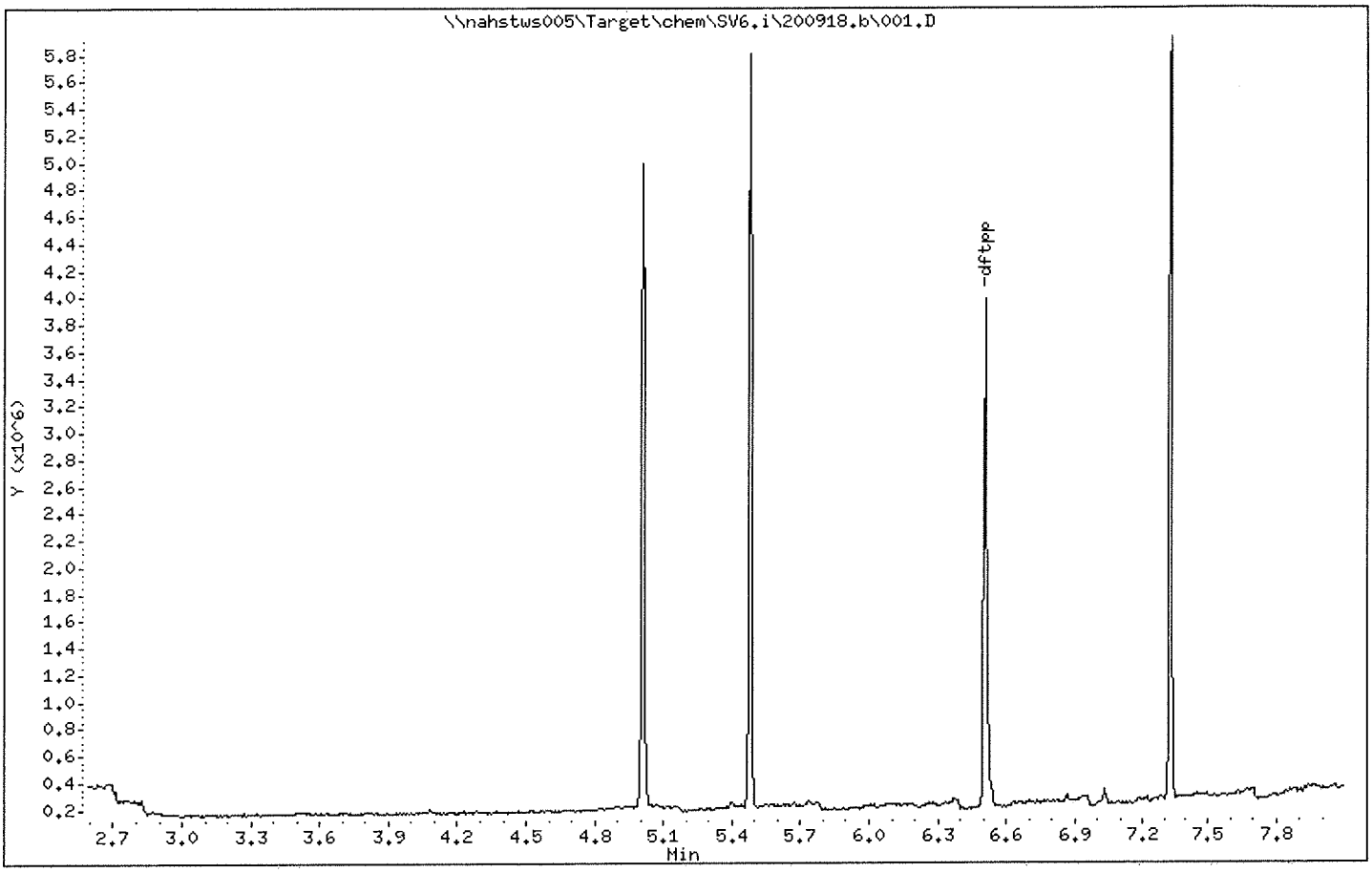
Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LC

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\001.D

Date : 18-SEP-2020 09:04

Client ID: DFTPP

Instrument: SV6.i

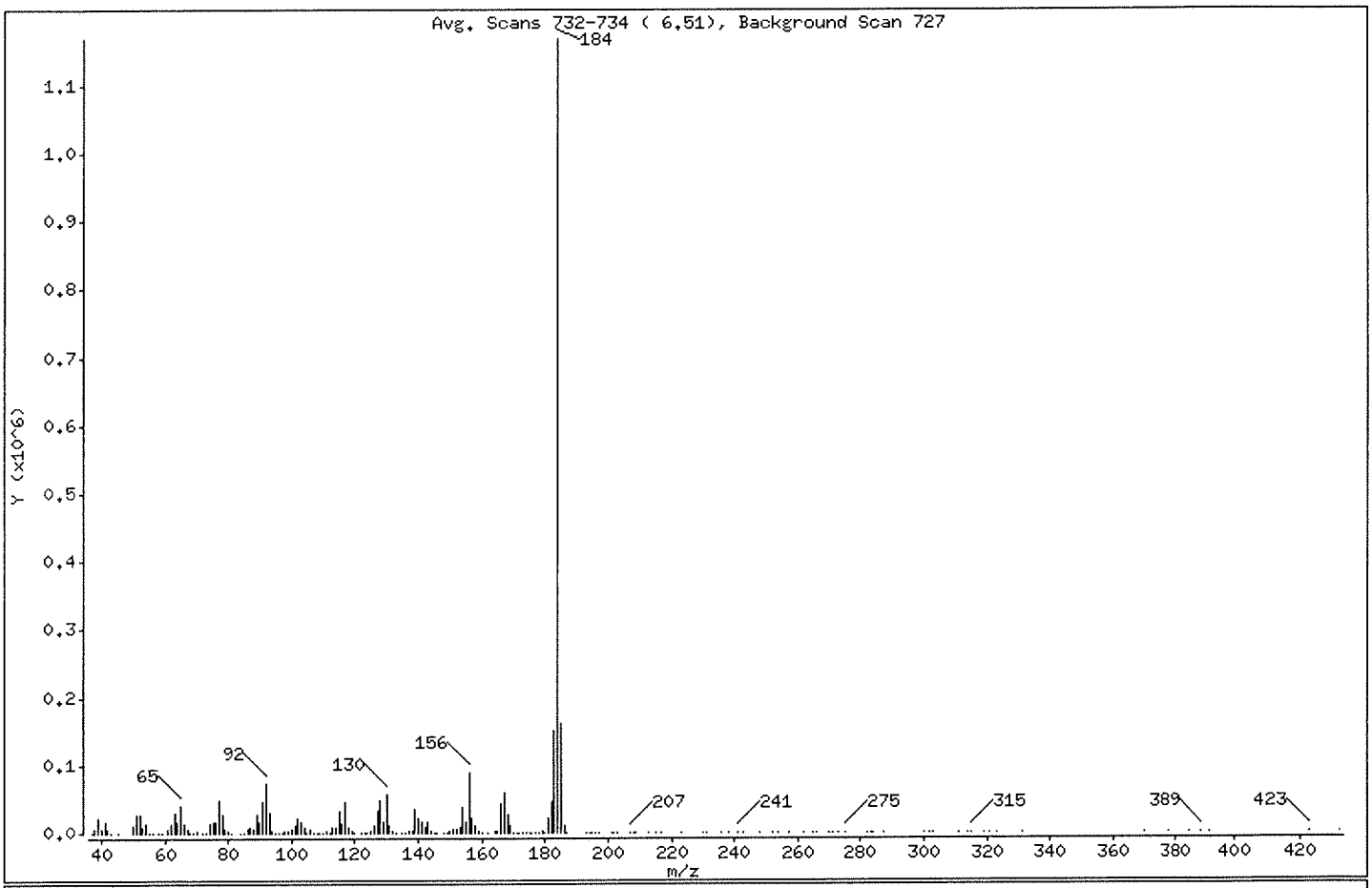
Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	0.00 *
51	10.00 - 80.00% of mass 198	0.00 *
68	Less than 2.00% of mass 69	0.00 (60.82) *
69	Mass 69 relative abundance	0.00
70	Less than 2.00% of mass 69	0.00 (306.48) *
127	10.00 - 80.00% of mass 198	0.00 *
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	0.00 *
275	10.00 - 60.00% of mass 198	0.00 *
365	1.00 - 100.00% of mass 198	0.00 *
441	Present, but less than mass 443	0.00 *
442	50.00 - 150.00% of mass 198	0.00 *
443	15.00 - 24.00% of mass 442	0.00 (0.00) *

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\001.D

Date : 18-SEP-2020 09:04

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Avg. Scans 732-734 (6.51), Background Scan 727
Location of Maximum: 184.00
Number of points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	858	95.00	303	145.00	1200	207.00	406
38.00	5127	96.00	77	146.00	116	208.00	116
39.00	22008	97.00	1080	148.00	310	209.00	150
40.00	5059	98.00	2617	149.00	47	213.00	89
41.00	15082	99.00	3100	150.00	2022	215.00	103
42.00	5987	100.00	4562	151.00	4719	217.00	95
43.00	590	101.00	10202	152.00	6239	223.00	28
45.00	771	102.00	20736	153.00	7700	230.00	70
50.00	11373	103.00	17376	154.00	38880	231.00	79
51.00	25560	104.00	9306	155.00	16912	236.00	92
52.00	27352	105.00	1060	156.00	87496	238.00	52
53.00	8977	106.00	5343	157.00	20184	241.00	292
54.00	13555	107.00	635	158.00	11765	243.00	66
55.00	1109	108.00	326	159.00	1461	248.00	53
56.00	549	109.00	74	160.00	309	252.00	125
58.00	995	110.00	815	162.00	120	254.00	52
59.00	125	111.00	1438	164.00	3688	257.00	54
61.00	4544	112.00	1008	165.00	3921	262.00	131
62.00	12404	113.00	6933	166.00	42568	265.00	212
63.00	30224	114.00	8173	167.00	59928	266.00	135
64.00	15213	115.00	31976	168.00	25832	270.00	105
65.00	40312	116.00	13986	169.00	11335	271.00	55
66.00	12765	117.00	46960	170.00	1113	273.00	160
67.00	6121	118.00	8110	171.00	307	275.00	177
68.00	666	119.00	2334	172.00	252	282.00	112
69.00	1095	120.00	309	173.00	102	283.00	25
70.00	3356	122.00	237	174.00	232	284.00	163
72.00	343	123.00	188	175.00	63	287.00	146
73.00	884	124.00	675	176.00	329	300.00	55
74.00	13627	125.00	2213	177.00	210	302.00	61
75.00	16480	126.00	9902	178.00	421	303.00	74
76.00	16776	127.00	31320	179.00	2928	311.00	52
77.00	48104	128.00	47688	180.00	572	314.00	104
78.00	27080	129.00	16213	181.00	20808	315.00	182
79.00	4895	130.00	56896	182.00	45160	319.00	125

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\001.D

Date : 18-SEP-2020 09:04

Client ID: DFTPP

Instrument: SV6.i

Sample Info: DFTPP;DFTPP;3;;DFTPP

Operator: LG

Column phase: DB-5MS

Column diameter: 0.25

Data File: 001.D
Spectrum: Avg. Scans 732-734 (6.51), Background Scan 727
Location of Maximum: 184.00
Number of points: 189

m/z	Y	m/z	Y	m/z	Y	m/z	Y
80.00	3928	131.00	10087	183.00	151424	321.00	82
81.00	334	132.00	3364	184.00	1169408	323.00	78
84.00	1016	133.00	381	185.00	162048	331.00	70
85.00	1294	135.00	468	186.00	10230	370.00	63
86.00	4669	136.00	171	187.00	500	378.00	70
87.00	7524	137.00	2195	193.00	155	385.00	60
88.00	5722	138.00	2935	194.00	193	389.00	159
89.00	26328	139.00	35752	195.00	85	392.00	71
90.00	15123	140.00	21392	196.00	101	423.00	102
91.00	44728	141.00	16568	197.00	56	433.00	55
92.00	72464	142.00	7601	201.00	195		
93.00	28704	143.00	16744	202.00	56		
94.00	2496	144.00	3609	203.00	260		

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\004.D
Lab Smp Id: DX-0.08 Client Smp ID: DX-0.08
Inj Date : 18-SEP-2020 10:38 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DX-0.08;DX-0.08
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:58 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 4 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

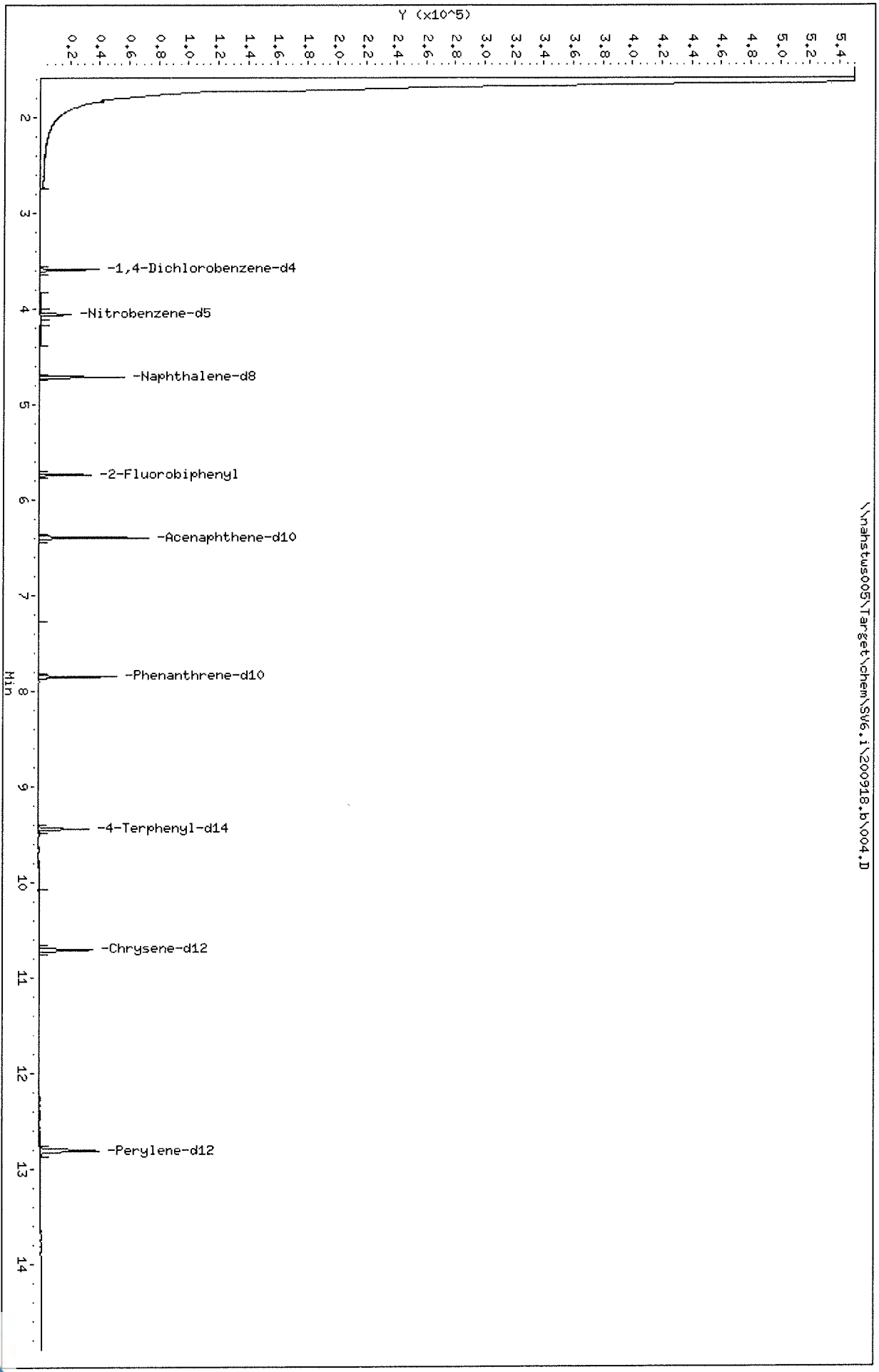
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.593	3.593	(1.000)	9958	0.10000		(aM)
* 45 Naphthalene-d8	136	4.712	4.712	(1.000)	54436	0.10000		(M)
$ 33 Nitrobenzene-d5	82	4.060	4.060	(0.862)	16083	0.08000	0.08336	(QM)
* 86 Acenaphthene-d10	164	6.393	6.393	(1.000)	28812	0.10000		(M)
$ 69 2-Fluorobiphenyl	172	5.740	5.740	(0.898)	29620	0.08000	0.08814	(M)
* 126 Phenanthrene-d10	188	7.849	7.849	(1.000)	43872	0.10000		
* 182 Chrysene-d12	240	10.705	10.705	(1.000)	37389	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.441	9.441	(0.882)	27534	0.08000	0.08884	(M)
* 198 Perylene-d12	264	12.806	12.806	(1.000)	42373	0.10000		(M)
1 1,4-Dioxane	58	1.836	1.836	(0.511)	1855	0.08000	0.06945	(aQMH)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\004.D
Date : 18-SEP-2020 10:38
Client ID: DX-0.08
Sample Info: DX-0.08;DX-0.08
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\014.D Page 1
Report Date: 14-Oct-2020 16:58

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\014.D
Lab Smp Id: MBLK-157399 Client Smp ID: MBLK-157399
Inj Date : 18-SEP-2020 14:00 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : MBLK-517399;MBLK-157399;3;;BLANK
Misc Info : HS20090748;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:58 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 14 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

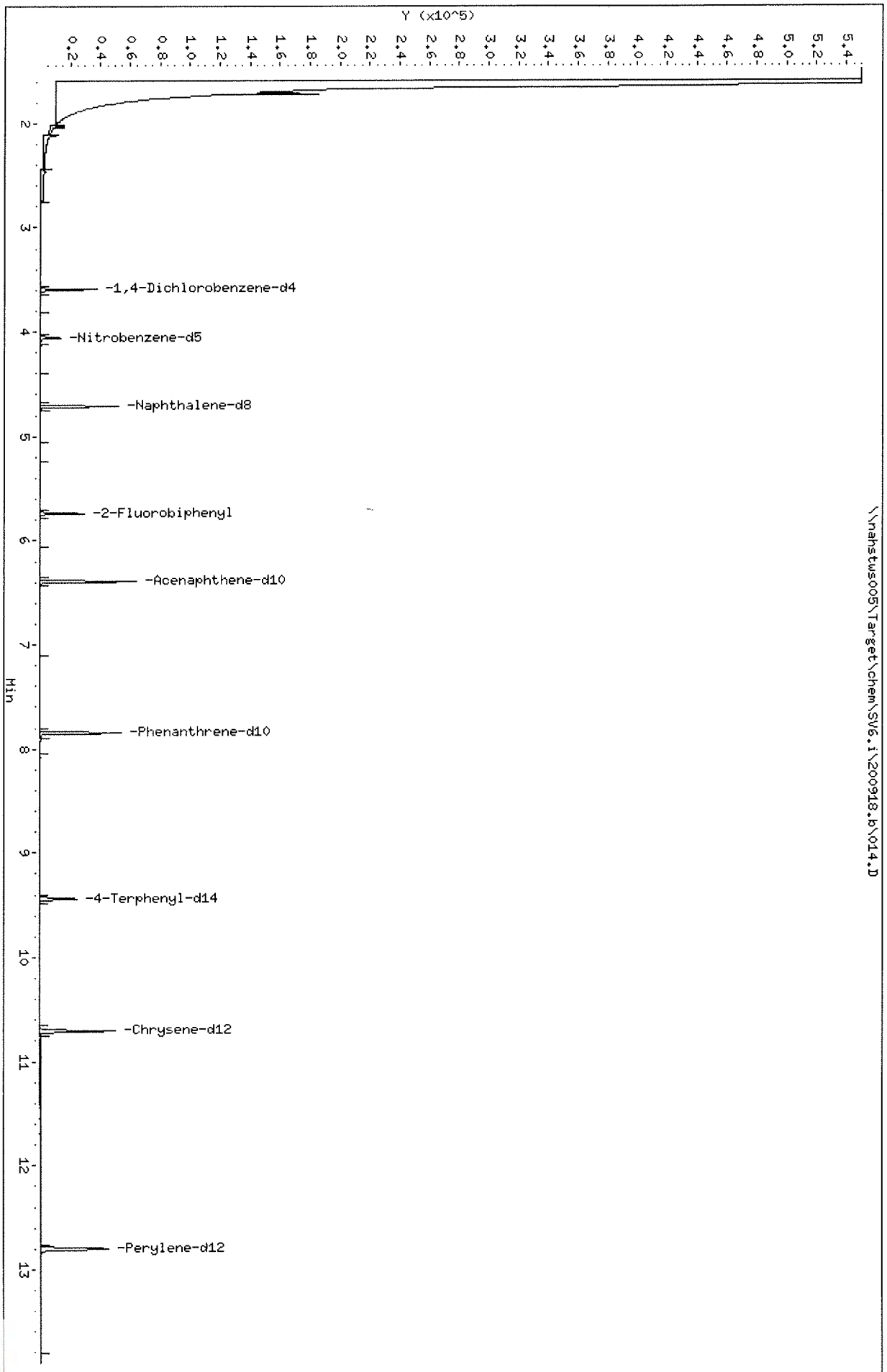
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)	
* 20 1,4-Dichlorobenzene-d4	152	3.593	3.593	(1.000)	9499	0.10000		(a)
* 45 Naphthalene-d8	136	4.712	4.712	(1.000)	41987	0.10000		
$ 33 Nitrobenzene-d5	82	4.060	4.060	(0.862)	8886	0.05972	0.05972	
* 86 Acenaphthene-d10	164	6.394	6.393	(1.000)	24099	0.10000		
$ 69 2-Fluorobiphenyl	172	5.737	5.740	(0.897)	18585	0.06612	0.06612	
* 126 Phenanthrene-d10	188	7.849	7.849	(1.000)	48024	0.10000		
* 182 Chrysene-d12	240	10.705	10.705	(1.000)	45637	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.441	9.441	(0.918)	20287	0.05363	0.05363	
* 198 Perylene-d12	264	12.800	12.806	(1.000)	48794	0.10000		

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\SV6.i\200918.b\014.D
Date : 18-SEP-2020 14:00
Client ID: MBLK-157399
Sample Info: MBLK-517399;MBLK-157399;3;;BLANK
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\015.D Page 1
Report Date: 14-Oct-2020 16:58

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\015.D
Lab Smp Id: LCS-157399 Client Smp ID: LCS-157399
Inj Date : 18-SEP-2020 14:18 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : LCS-517399;LCS-157399;3;;LCS
Misc Info : HS20090748;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:58 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 15 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

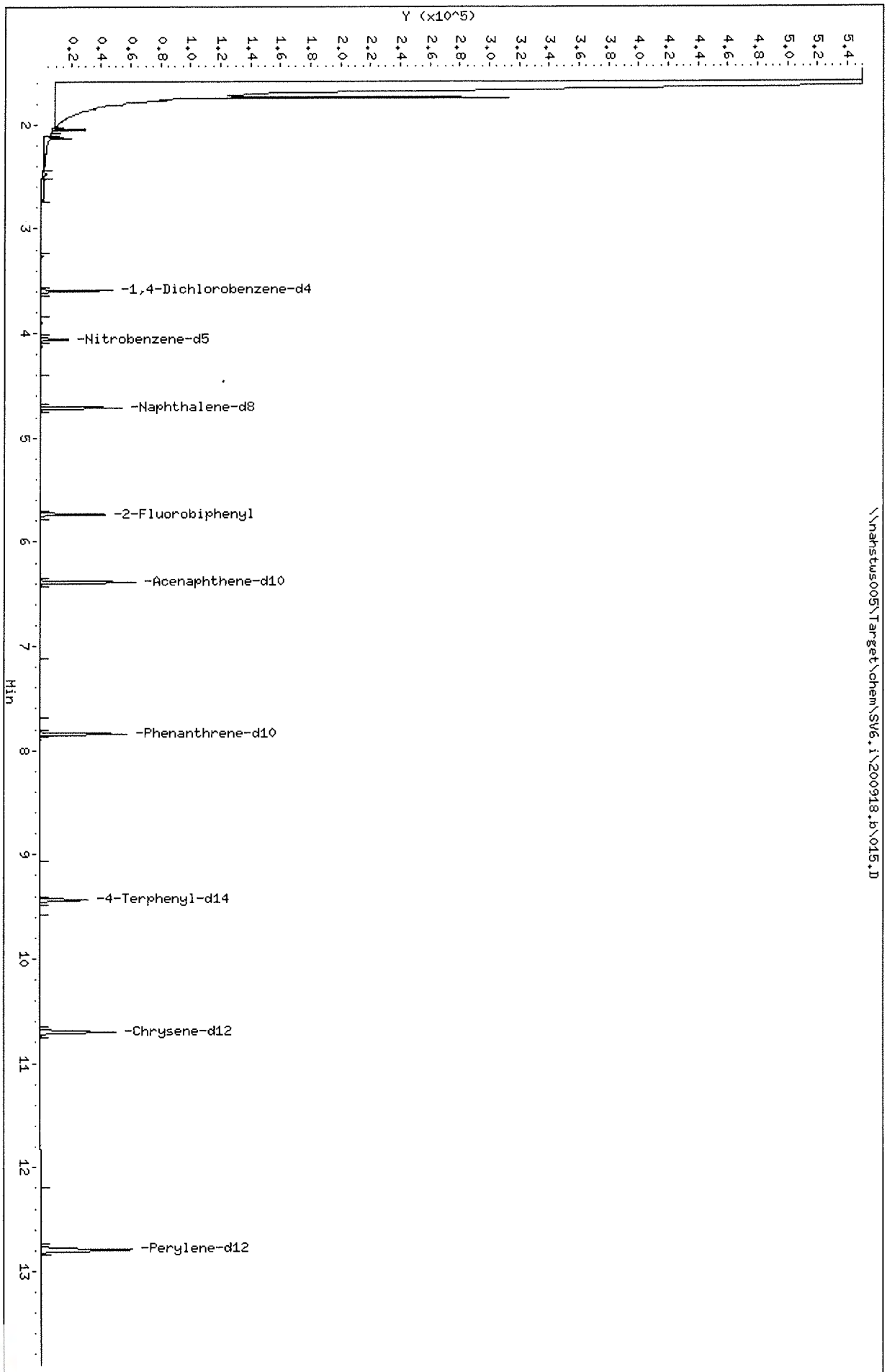
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)
* 20 1,4-Dichlorobenzene-d4	152	3.593	3.593	(1.000)	12675	0.10000	(aM)
* 45 Naphthalene-d8	136	4.712	4.712	(1.000)	47985	0.10000	
$ 33 Nitrobenzene-d5	82	4.060	4.060	(0.862)	12330	0.07250	0.07250
* 86 Acenaphthene-d10	164	6.394	6.393	(1.000)	27896	0.10000	
$ 69 2-Fluorobiphenyl	172	5.737	5.740	(0.897)	30616	0.09409	0.09409
* 126 Phenanthrene-d10	188	7.843	7.849	(1.000)	52882	0.10000	
* 182 Chrysene-d12	240	10.700	10.705	(1.000)	49519	0.10000	
$ 158 4-Terphenyl-d14	244	9.435	9.441	(0.882)	27809	0.06775	0.06775
* 198 Perylene-d12	264	12.795	12.806	(1.000)	70521	0.10000	
1 1,4-Dioxane	58	1.807	1.836	(0.503)	2364	0.06954	0.06954 (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\SV6.i\200918.b\015.D
Date : 18-SEP-2020 14:18
Client ID: LCS-157399
Sample Info: LCS-517399;LCS-157399;3;;LCS
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\016.D Page 1
Report Date: 14-Oct-2020 16:58

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\016.D
Lab Smp Id: LCSD-157399 Client Smp ID: LCSD-157399
Inj Date : 18-SEP-2020 14:36 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : LCSD-517399;LCSD-157399;3;;LCSD
Misc Info : HS20090748;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:58 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 16 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

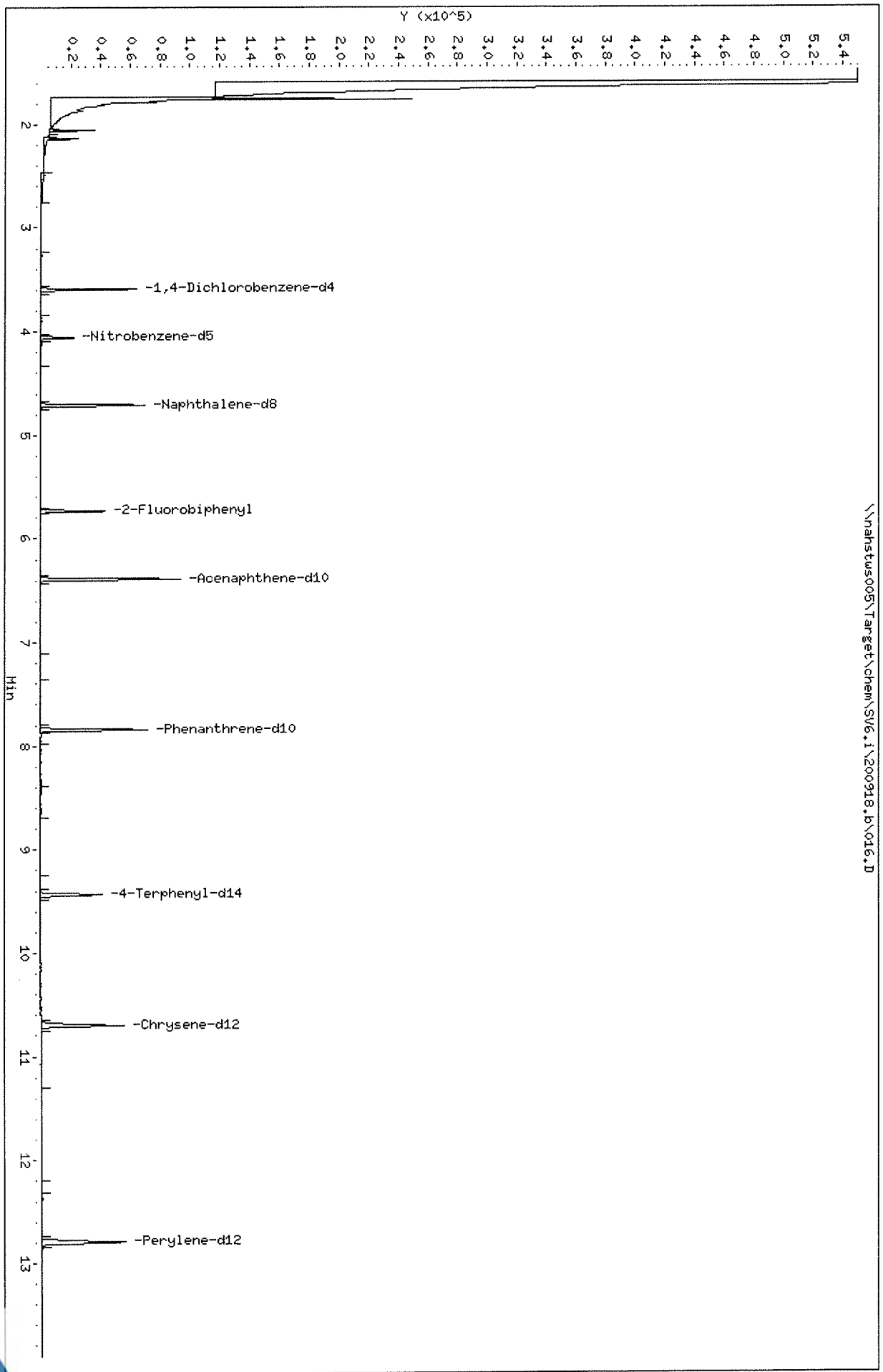
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)	
* 20 1,4-Dichlorobenzene-d4	152	3.598	3.593	(1.000)	17613	0.10000		(a)
* 45 Naphthalene-d8	136	4.708	4.712	(1.000)	70997	0.10000		
$ 33 Nitrobenzene-d5	82	4.060	4.060	(0.862)	15670	0.06228	0.06228	
* 86 Acenaphthene-d10	164	6.388	6.393	(1.000)	42057	0.10000		
$ 69 2-Fluorobiphenyl	172	5.733	5.740	(0.897)	33676	0.06865	0.06865	
* 126 Phenanthrene-d10	188	7.843	7.849	(1.000)	75332	0.10000		
* 182 Chrysene-d12	240	10.700	10.705	(1.000)	63706	0.10000		
$ 158 4-Terphenyl-d14	244	9.435	9.441	(0.882)	40227	0.07618	0.07618	
* 198 Perylene-d12	264	12.795	12.806	(1.000)	72860	0.10000		
1 1,4-Dioxane	58	1.818	1.836	(0.505)	3222	0.06821	0.06820	(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\SV6.i\200918.b\016.D
Date : 18-SEP-2020 14:36
Client ID: LCSD-157399
Sample Info: LCSD-517399;LCSD-157399;3;;LCSD
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\017.D Page 1
Report Date: 14-Oct-2020 16:57

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\017.D
Lab Smp Id: HS20090748-01 Client Smp ID: HS20090748-01
Inj Date : 18-SEP-2020 14:54 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : HS20090748-01;HS20090748-01
Misc Info : HS20090748;1;0;100
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:57 dev.giga Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 17
Dil Factor: 100.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	100.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

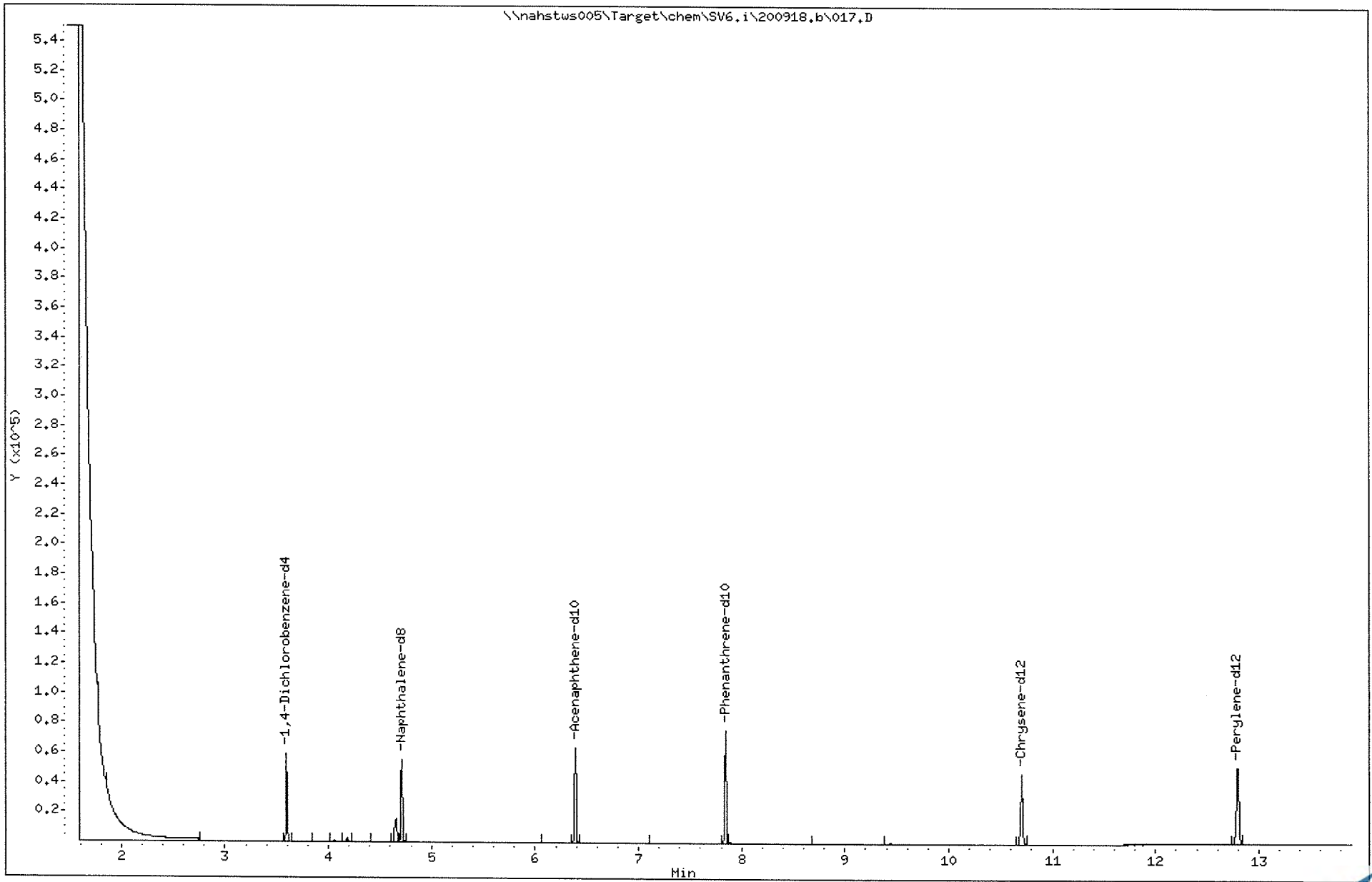
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (NG)	FINAL (ug/L)
* 20 1,4-Dichlorobenzene-d4	152	3.593	3.593	(1.000)	14814	0.10000	(a)
* 45 Naphthalene-d8	136	4.712	4.712	(1.000)	52620	0.10000	
* 86 Acenaphthene-d10	164	6.394	6.393	(1.000)	27866	0.10000	
* 126 Phenanthrene-d10	188	7.843	7.849	(1.000)	67867	0.10000	
* 182 Chrysene-d12	240	10.700	10.705	(1.000)	47037	0.10000	
* 198 Perylene-d12	264	12.800	12.806	(1.000)	63597	0.10000	
1 1,4-Dioxane	58	1.855	1.836	(0.516)	2252	0.05668	5.668(aQ)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\017.D
Date : 18-SEP-2020 14:54
Client ID: HS20090748-01
Sample Info: HS20090748-01;HS20090748-01
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



Data File: \\nahstws005\Target\chem\SV6.i\200918.b\017.D

Date : 18-SEP-2020 14:54

Client ID: HS20090748-01

Instrument: SV6.i

Sample Info: HS20090748-01;HS20090748-01

Purge Volume: 1000.0

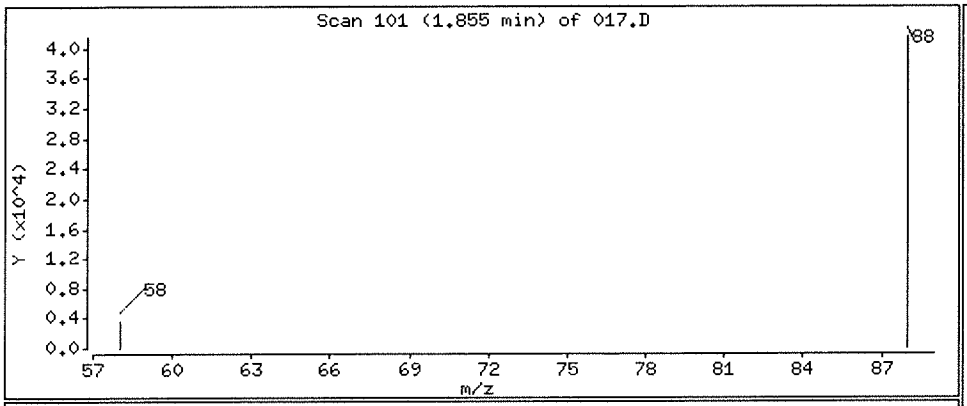
Operator: LG

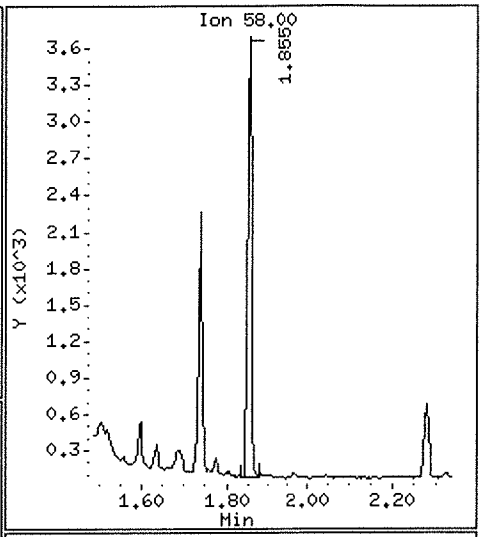
Column phase: RTX-5SIL MS

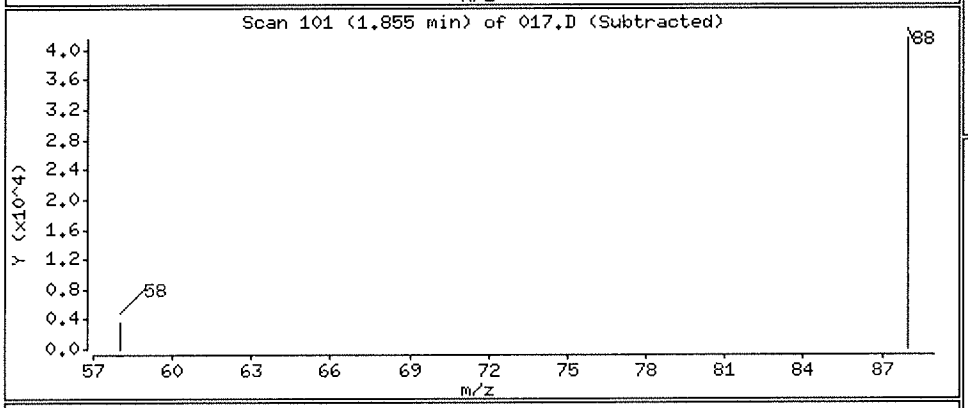
Column diameter: 0.28

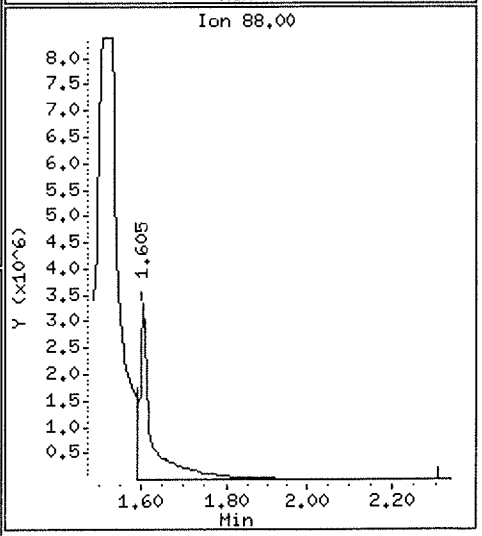
1 1,4-Dioxane

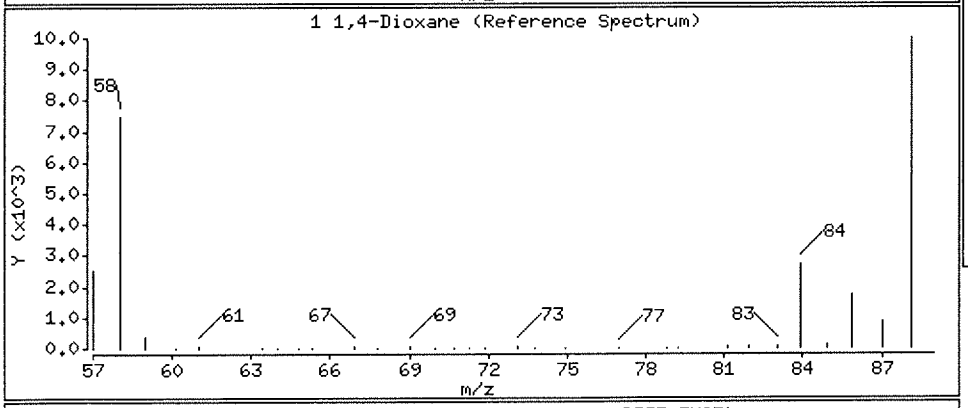
Concentration: 5.668 ug/L

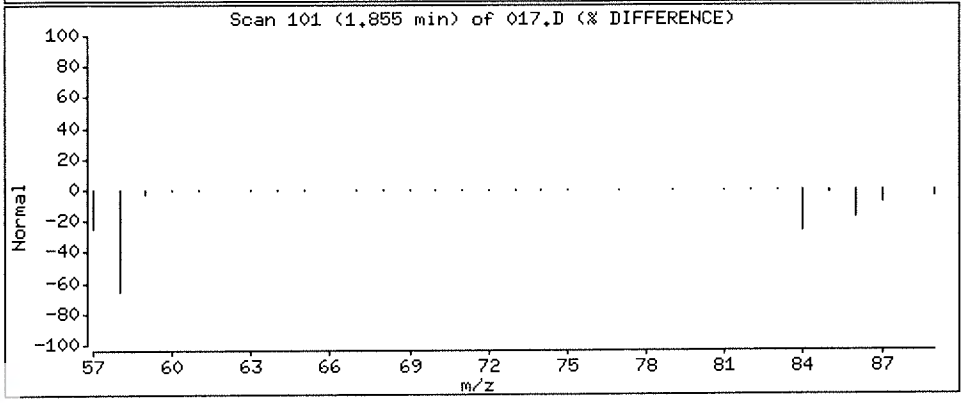












Data File: \\nahstws005\Target\chem\SV6.i\200918.b\018.D Page 1
Report Date: 14-Oct-2020 16:58

ALS Laboratory Group

GC/MS Semivolatiles EPA method 8270D

Data file : \\nahstws005\Target\chem\SV6.i\200918.b\018.D
Lab Smp Id: DX-0.08 Client Smp ID: DX-0.08
Inj Date : 18-SEP-2020 15:12 MS Autotune Date: 31-JUL-2020 09:35
Operator : LG Inst ID: SV6.i
Smp Info : DX-0.08;DX-0.08
Misc Info : ;1;0;1
Comment :
Method : \\nahstws005\Target\chem\SV6.i\200918.b\DXSIM.m
Meth Date : 14-Oct-2020 16:58 SV6.i Quant Type: ISTD
Cal Date : 01-SEP-2020 14:41 Cal File: 003.D
Als bottle: 18 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: 14dx.sub
Target Version: 4.14
Processing Host: NAHSTW7056

Concentration Formula: Amt * DF * Uf * Vt/Vo * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	1000.000	Volume of final extract (uL)
Vo	1000.000	Volume of sample extracted (mL)
Cpnd Variable		Local Compound Variable

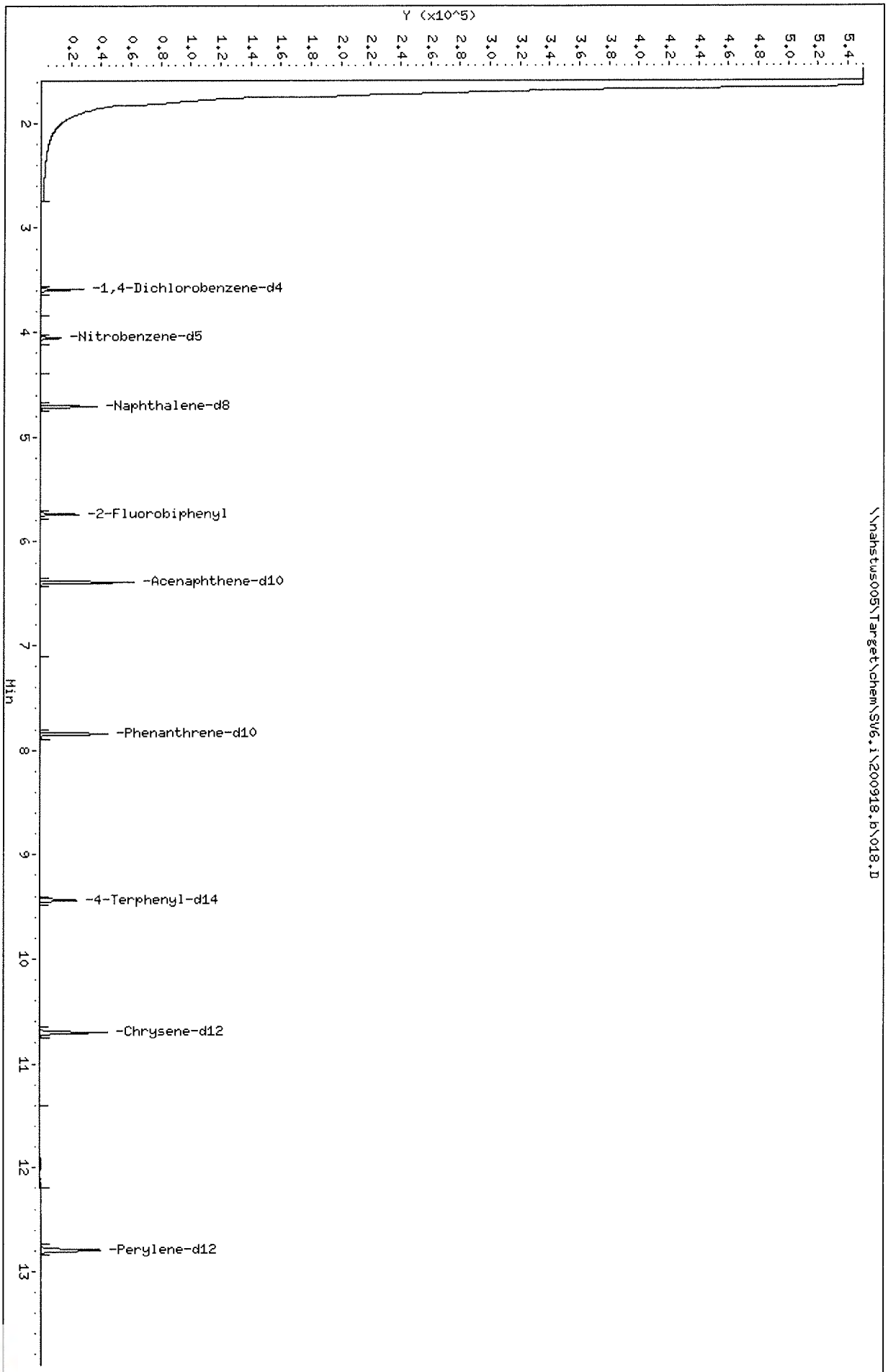
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (NG)	ON-COL (NG)	
* 20 1,4-Dichlorobenzene-d4	152	3.593	3.593	(1.000)	7789	0.10000		(a)
* 45 Naphthalene-d8	136	4.712	4.712	(1.000)	32684	0.10000		(M)
$ 33 Nitrobenzene-d5	82	4.060	4.060	(0.892)	8724	0.08000	0.07531	
* 86 Acenaphthene-d10	164	6.393	6.393	(1.000)	24493	0.10000		
$ 69 2-Fluorobiphenyl	172	5.737	5.737	(0.897)	16667	0.08000	0.05834	
* 126 Phenanthrene-d10	188	7.849	7.849	(1.000)	43867	0.10000		
* 182 Chrysene-d12	240	10.705	10.705	(1.000)	41515	0.10000		(M)
$ 158 4-Terphenyl-d14	244	9.441	9.441	(1.000)	22884	0.08000	0.06650	
* 198 Perylene-d12	264	12.800	12.800	(1.000)	45742	0.10000		
1 1,4-Dioxane	58	1.829	1.829	(0.509)	1585	0.08000	0.07587	(aQ)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
Q - Qualifier signal failed the ratio test.
M - Compound response manually integrated.

Data File: \\nahstws005\Target\chem\SV6.i\200918.b\018.D
Date : 18-SEP-2020 15:12
Client ID: DX-0.08
Sample Info: DX-0.08;DX-0.08
Purge Volume: 1000.0
Column phase: RTX-5SIL MS

Instrument: SV6.i
Operator: LG
Column diameter: 0.28



HS20090748 - ME - ICP_W_DOD

ALS WO# HS20090748

ALS Houston, US

Date: 07-Oct-20

FORM 12 - PREPARATION LOG

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748
Start Date: 17-Sep-2020 12:00 End Date: 17-Sep-2020 16:00

Batch ID: 157451
Prep Code: 3010A
Method: SW3010A
Technician:

SampID	ClientID	Matrix	Init Wt	Init Vol	FinalVol (mL)	PrepFac
HS20090748-01	LH18/24-SP650_091520	Water		10	10	1
HS20090748-01MS				10	10	1
HS20090748-01MSD				10	10	1
HS20090748-01PDS				10	10	1
HS20090748-01SD				10	10	1
LCS-157451				10	10	1
MBLK-157451				10	10	1

FORM 13 - ANALYSIS RUN LOG

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748
Start Date: 21-Sep-2020 End Date: 21-Sep-2020

Run ID:ICPMS06_368933
Instrument:ICPMS06
Method:

Sample No.	D/F	Time	FileID	Analytes
ICPMS06_368933_Tune	1	21-Sep-2020 00:00	ICPMS06_368933_Tune_1	
CAL BLK	1	21-Sep-2020 11:10	013CALB.d_5747083	AG BA PB SE
2/10/200	1	21-Sep-2020 11:12	014CALS.d_5747084	AG BA PB SE
5/25/500	1	21-Sep-2020 11:13	015CALS.d_5747085	AG BA PB SE
10/50/100	1	21-Sep-2020 11:15	016CALS.d_5747086	AG BA PB SE
100/500/10K	1	21-Sep-2020 11:17	017CALS.d_5747087	AG BA PB SE
200/1000/20K	1	21-Sep-2020 11:19	018CALS.d_5747088	AG BA PB SE
ICV	1	21-Sep-2020 11:23	020_ICV.d_5747090	AG BA PB SE
LLICV2	1	21-Sep-2020 11:24	021LCV2.d_5747091	AG BA PB SE
LLICV5	1	21-Sep-2020 11:26	022LCV5.d_5747092	AG BA PB SE
ICB	1	21-Sep-2020 11:28	023_ICB.d_5747093	AG BA PB SE
ICSA	1	21-Sep-2020 11:30	024ICSA.d_5747094	AG BA PB SE
ICSAB	1	21-Sep-2020 11:32	025ICSB.d_5747095	AG BA PB SE
CCV 1	1	21-Sep-2020 11:50	030_CCV.d_5747106	AG BA PB SE
CCB 1	1	21-Sep-2020 11:52	031_CCB.d_5747107	AG BA PB SE
CCV 2	1	21-Sep-2020 12:18	042_CCV.d_5747118	AG BA PB SE
CCB 2	1	21-Sep-2020 12:19	043_CCB.d_5747119	AG BA PB SE
CCV 3	1	21-Sep-2020 12:44	054_CCV.d_5747130	AG BA PB SE
CCB 3	1	21-Sep-2020 12:52	057_CCB.d_5747133	AG BA PB SE
CCB 4	1	21-Sep-2020 12:54	058_CCB.d_5747134	AG BA PB SE
CCV 4	1	21-Sep-2020 13:39	082_CCV.d_5747278	AG BA PB SE
CCB 5	1	21-Sep-2020 13:41	083_CCB.d_5747279	AG BA PB SE
MBLK-157451	1	21-Sep-2020 13:48	084SMPL.d_5747280	AG BA PB SE
LCS-157451	1	21-Sep-2020 13:54	087SMPL.d_5747283	AG BA PB SE
LH18/24-SP650_091520	1	21-Sep-2020 13:56	088SMPL.d_5747284	AG BA PB SE
LH18/24-SP650_091520SD	5	21-Sep-2020 13:58	089SMPL.d_5747285	AG BA PB SE
LH18/24-SP650_091520MS	1	21-Sep-2020 13:59	090SMPL.d_5747286	AG BA PB SE
LH18/24-SP650_091520PDS	1	21-Sep-2020 14:03	092SMPL.d_5747288	AG BA PB SE
CCV 5	1	21-Sep-2020 14:08	094_CCV.d_5747290	AG BA PB SE
CCB 6	1	21-Sep-2020 14:10	095_CCB.d_5747291	AG BA PB SE
CCV 6	1	21-Sep-2020 15:10	118_CCV.d_5747355	AG BA PB SE
CCB 7	1	21-Sep-2020 15:11	119_CCB.d_5747356	AG BA PB SE
LH18/24-SP650_091520MSD	1	21-Sep-2020 15:39	127SMPL.d_5747357	AG BA PB SE
CCV 7	1	21-Sep-2020 15:44	130_CCV.d_5747359	AG BA PB SE
CCB 8	1	21-Sep-2020 15:46	131_CCB.d_5747360	AG BA PB SE

Form 2 - Initial and Continuing Calibration Verification

Client: Bhate Environmental Associates, Inc. Run ID: ICPMS06_368933
Project: Longhorn GW Treatment Plant Monthly Effluent Samples Instrument: ICPMS06
WorkOrder: HS20090748 Method: SW6020

ICV	Date: 21-Sep-2020 11:23		Seq: 5747090	ICV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	105.471	105	90-110	
Lead	100	104.383	104	90-110	
Selenium	100	105.18	105	90-110	
Silver	100	104.571	105	90-110	

CCV1	Date: 21-Sep-2020 11:50		Seq: 5747106	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	102.016	102	90-110	
Lead	100	102.686	103	90-110	
Selenium	100	102.538	103	90-110	
Silver	100	101.558	102	90-110	

CCV2	Date: 21-Sep-2020 12:18		Seq: 5747118	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.561	102	90-110	
Lead	100	103.863	104	90-110	
Selenium	100	98.645	99	90-110	
Silver	100	99.774	100	90-110	

CCV3	Date: 21-Sep-2020 12:44		Seq: 5747130	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	101.074	101	90-110	
Lead	100	104.837	105	90-110	
Selenium	100	100.501	101	90-110	
Silver	100	102.234	102	90-110	

CCV4	Date: 21-Sep-2020 13:39		Seq: 5747278	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	97.474	98	90-110	
Lead	100	97.937	98	90-110	
Selenium	100	94.738	95	90-110	
Silver	100	96.309	96	90-110	

CCV5	Date: 21-Sep-2020 14:08		Seq: 5747290	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	98.017	98	90-110	
Lead	100	96.785	97	90-110	
Selenium	100	97.34	97	90-110	
Silver	100	97.225	97	90-110	

CCV6	Date: 21-Sep-2020 15:10		Seq: 5747355	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.803	100	90-110	
Lead	100	97.857	98	90-110	
Selenium	100	99.703	100	90-110	
Silver	100	97.976	98	90-110	

CCV7	Date: 21-Sep-2020 15:44		Seq: 5747359	CCV	Units: ug/L
Analyte	**True**	**Found**	**%R**	**Control Limits**	**Flag**
Barium	100	99.898	100	90-110	
Lead	100	96.93	97	90-110	
Selenium	100	96.689	97	90-110	
Silver	100	100.863	101	90-110	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Run ID: ICPMS06_368933
Instrument: ICPMS06
Method: SW6020

ICB	Date: 21-Sep-2020 11:28		Seq: 5747093	ICB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	5	1.9	5	U	
Lead	5	0.6	5	U	
Selenium	5	1.1	5	U	
Silver	5	0.2	5	U	

CCB1	Date: 21-Sep-2020 11:52		Seq: 5747107	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB2	Date: 21-Sep-2020 12:19		Seq: 5747119	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB3	Date: 21-Sep-2020 12:52		Seq: 5747133	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2.61	0.6	2		
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB4	Date: 21-Sep-2020 12:54		Seq: 5747134	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2.239	0.6	2		
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB5	Date: 21-Sep-2020 13:41		Seq: 5747279	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	0.738	0.6	2	J	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

MBLK-157451	Date: 21-Sep-2020 13:48		Seq: 5747280	MBLK	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	5	1.9	5	U	
Lead	2.164	0.6	5	J	
Selenium	5	1.1	5	U	
Silver	5	0.2	5	U	

CCB6	Date: 21-Sep-2020 14:10		Seq: 5747291	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

Form 3 - BLANKS

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Run ID: ICPMS06_368933
Instrument: ICPMS06
Method: SW6020

CCB7	Date: 21-Sep-2020 15:11		Seq: 5747356	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

CCB8	Date: 21-Sep-2020 15:46		Seq: 5747360	CCB	Units: ug/L
Analyte	**Result**	**MDL**	**Report Limit**	**Qual**	
Barium	4	1.9	4	U	
Lead	2	0.6	2	U	
Selenium	2	1.1	2	U	
Silver	2	0.2	2	U	

ALS Houston, US Date: 07-Oct-20

Form 4 - ICP Interference Check Sample

Client: Bhate Environmental Associates, Inc. Run ID:ICPMS06_368933
Project: Longhorn GW Treatment Plant Monthly Effluent Samples Instrument:ICPMS06
WorkOrder: HS20090748 Method:SW6020

ICSA	Date: 21-Sep-2020 11:30	Seq: 5747094	ICSA	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium		0.046	0	
Lead		-0.143	0	
Selenium		0.149	0	
Silver		0.008	0	

ICSAB	Date: 21-Sep-2020 11:32	Seq: 5747095	ICSAB	Units: ug/L
Analyte	**True**	**Found**	**%R**	
Barium	100	104.9	105	
Lead	100	105.5	106	
Selenium	100	111.3	111	
Silver	100	98.32	98.3	

ALS Houston, US Date: 07-Oct-20

Form 5A - Matrix Spike/Matrix Spike Duplicate Recovery

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Date Analyzed: 21-Sep-2020 15:39
Date Extracted: 17-Sep-2020 16:00
Units: ug/L

Matrix Spike: HS20090748-01MS
Client Sample ID: LH18/24-SP650_091520

Analysis Method: SW6020

Analyte	Sample Result	MS Result	Spike Amount	% Rec	MSD Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Barium	154.8	206.3	50.00	103	208.8	50.00	108	86-114	1.24	20
Lead	0.6790	47.47	50.00	93.6	44.44	50.00	87.5	88-115	6.60	20
Selenium	5.000	45.15	50.00	90.0	43.78	50.00	87.6	80-120	3.08	20
Silver	5.000	41.20	50.00	82.4	40.71	50.00	81.4	85-116	1.21	20

ALS Houston, US

Date: 07-Oct-20

Form 5B - Post Digest Sample Recovery

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Date Analyzed: 21-Sep-2020 14:03
Date Extracted: 17-Sep-2020 16:00
Units: ug/L

Lab Sample ID: HS20090748-01PDS
Client Sample ID: LH18/24-SP650_091520

Analysis Method: SW6020

Analyte	Sample Result	PDS Result	Spike Amount	% Rec	% Rec Limits
Barium	154.8	262	100	107	80-120
Lead	0.679	103.4	100	103	80-120
Selenium	0	103.6	100	103	80-120
Silver	0	97.66	100	98	80-120

ALS Houston, US

Date: 07-Oct-20

Form 7 - Laboratory Control Sample

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Date Analyzed: 21-Sep-2020 13:54
Date Extracted: 17-Sep-2020 16:00
Units: ug/L

Lab Sample ID: LCS-157451

Analysis Method: SW6020

Analyte	Spike Amount	LCS Result	% Rec	% Rec Limits
Barium	50	46.15	92	86-114
Lead	50	46.91	94	88-115
Selenium	50	48.41	97	80-120
Silver	50	47.21	94	85-116

ALS Houston, US Date: 07-Oct-20

Form 8 - ICP Serial Dilutions

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Monthly Effluent Samples
WorkOrder: HS20090748

Date Analyzed: 21-Sep-2020 13:58
Date Extracted: 17-Sep-2020 16:00
Units: ug/L

Lab Sample ID: HS20090748-01SD
Client Sample ID:LH18/24-SP650_091520

Analysis Method: SW6020

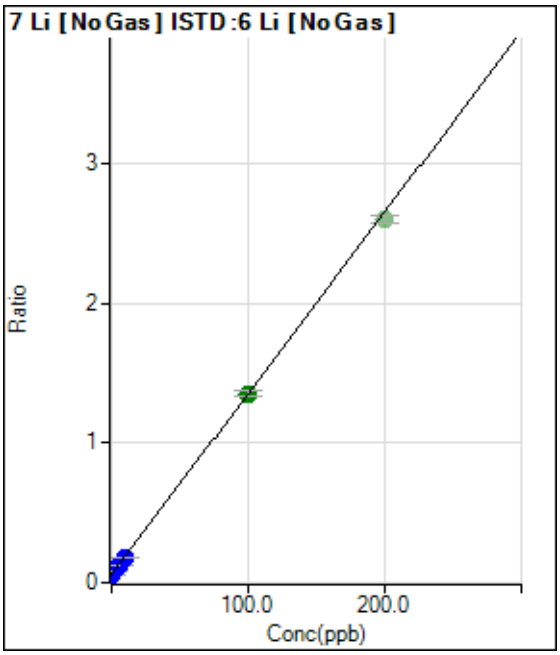
Analyte	Sample Result	C	SD Result	C	RPD	Q
Barium	154.8		158.3		2	
Lead	0.679	J	0	U	0	
Selenium	0	U	0	U	0	
Silver	0	U	0	U	0	

Calibration for 020_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\092120B.b\
Analysis File: 092120B.batch.bin
DA Date-Time: 9/21/2020 11:29:19 AM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	013CALB.d	CAL BLK	9/21/2020 11:10:12 AM
2	014CALS.d	2/10/200	9/21/2020 11:12:05 AM
3	015CALS.d	5/25/500	9/21/2020 11:13:57 AM
4	016CALS.d	10/50/100	9/21/2020 11:15:49 AM
5	017CALS.d	100/500/10K	9/21/2020 11:17:41 AM
6	018CALS.d	200/1000/20K	9/21/2020 11:19:26 AM

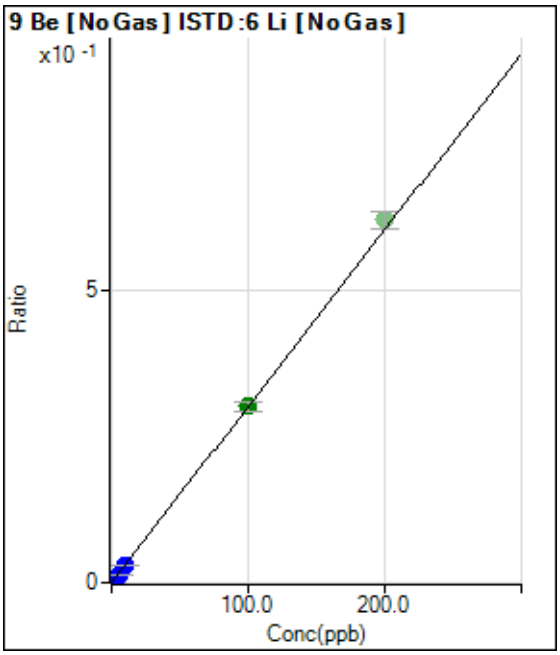
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	149939.87	0.0579	P	3.5
2	☐	2.000	2.036	211314.61	0.0844	P	0.8
3	☐	5.000	4.752	306121.57	0.1196	P	1.7
4	☐	10.000	9.713	466994.59	0.1840	P	2.1
5	☐	100.000	100.040	3276564.01	1.3569	A	3.2
6	☑	200.000		5941593.66	2.6015	A	2.0

y = 0.0130 * x + 0.0579
R = 1.0000
DL = 0.469
BEC = 4.462

Weight: <None>
Min Conc: <None>

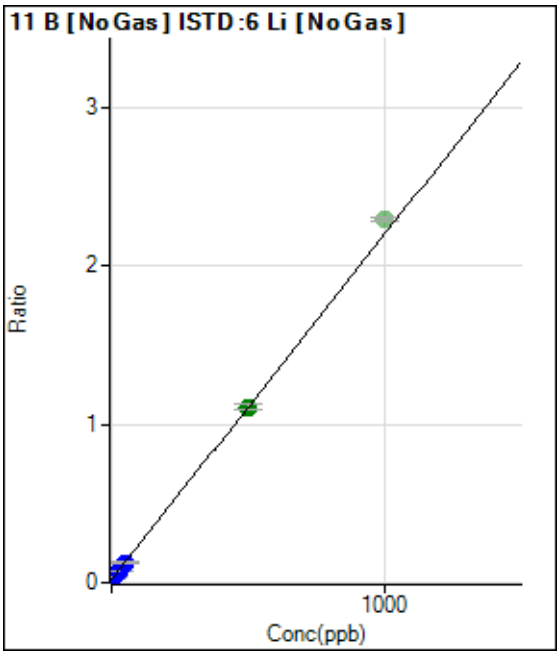


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	49.1
2	☐	2.000	2.054	15486.93	0.0062	P	2.8
3	☐	5.000	4.785	36855.06	0.0144	P	1.8
4	☐	10.000	9.936	75897.22	0.0299	P	1.1
5	☐	100.000	100.016	726683.14	0.3010	A	5.6
6	☑	200.000		1414598.36	0.6196	A	4.8

y = 0.0030 * x + 3.8437E-006
R = 1.0000
DL = 0.001883
BEC = 0.001277

Weight: <None>
Min Conc: <None>

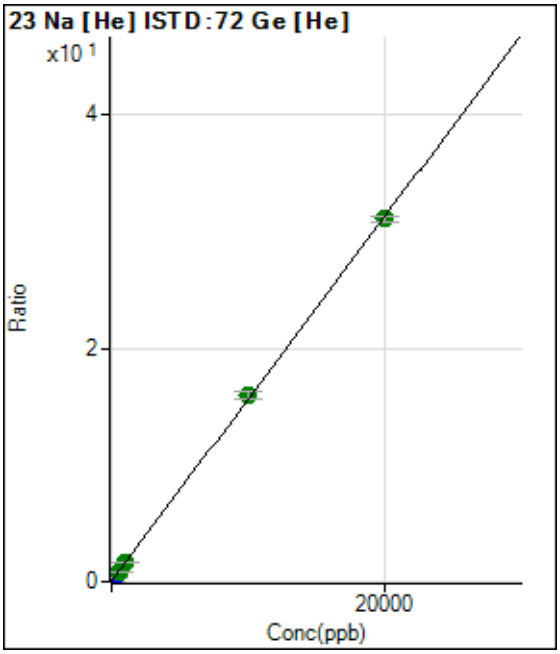
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	49424.15	0.0191	P	0.8
2	☐	10.000	9.628	100328.56	0.0401	P	2.7
3	☐	25.000	23.761	181286.60	0.0709	P	3.1
4	☐	50.000	49.682	323143.52	0.1273	P	1.5
5	☐	500.000	500.101	2677296.52	1.1088	A	3.7
6	☑	1000.000		5228784.61	2.2894	A	1.1

y = 0.0022 * x + 0.0191
R = 1.0000
DL = 0.1995
BEC = 8.76

Weight: <None>
Min Conc: <None>

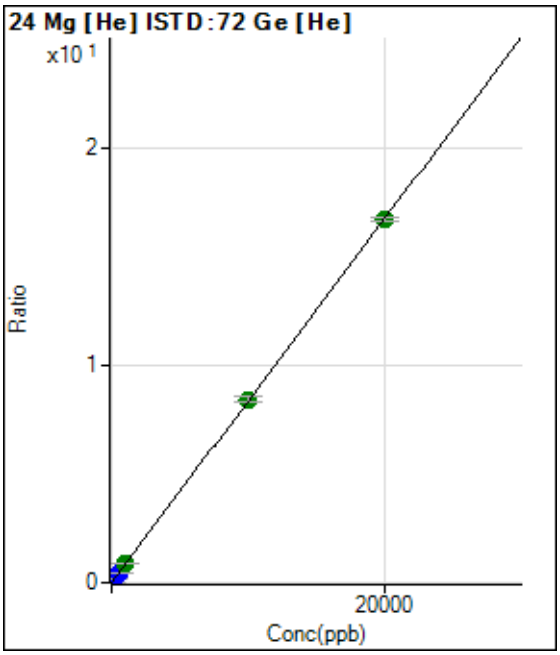


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63293.82	0.0566	P	2.9
2	☐	200.000	205.607	415213.65	0.3771	P	2.1
3	☐	500.000	510.993	930281.83	0.8531	A	0.2
4	☐	1000.000	1025.865	1761027.63	1.6557	A	4.1
5	☐	10000.00	10212.56	16552148.92	15.9760	A	3.9
6	☐	20000.00	19892.09	31823983.69	31.0644	A	1.4

y = 0.0016 * x + 0.0566
R = 0.9999
DL = 3.176
BEC = 36.3

Weight: <None>
Min Conc: <None>

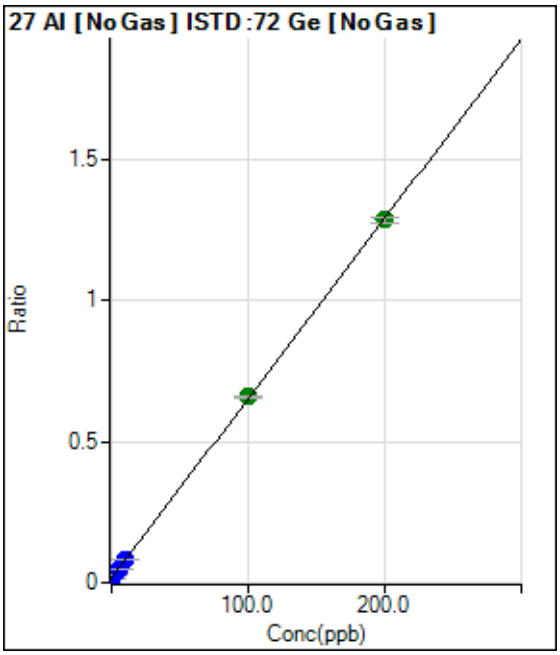
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	313.34	0.0003	P	35.2
2	☐	200.000	206.253	190560.11	0.1731	P	3.1
3	☐	500.000	522.775	477895.45	0.4383	P	0.6
4	☐	1000.000	1023.577	912426.50	0.8578	A	3.3
5	☐	10000.00	10092.07	8760163.83	8.4554	A	3.7
6	☐	20000.00	19952.15	17126576.41	16.7161	A	0.9

y = 8.3779E-004 * x + 2.7971E-004
R = 1.0000
DL = 0.3527
BEC = 0.3339

Weight: <None>
Min Conc: <None>

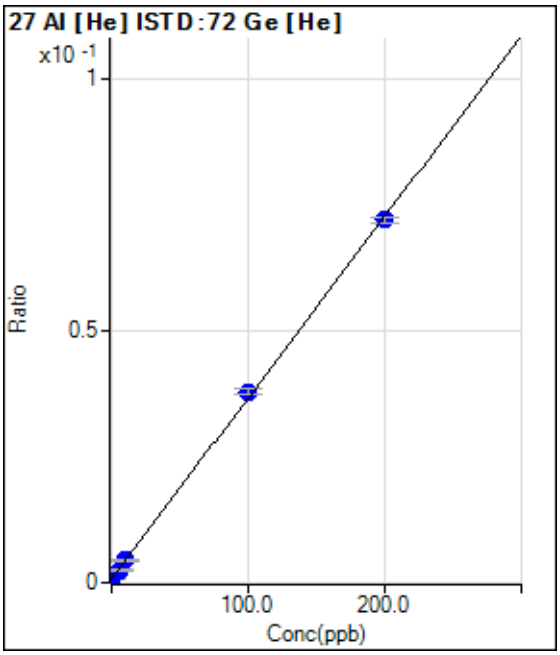


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66668.50	0.0152	P	9.7
2	☐	2.000	2.080	125208.57	0.0284	P	1.7
3	☐	5.000	5.215	208298.07	0.0484	P	0.4
4	☐	10.000	10.579	358276.93	0.0827	P	1.9
5	☐	100.000	101.154	2773494.33	0.6606	A	1.3
6	☐	200.000	199.388	5319793.25	1.2875	A	1.7

y = 0.0064 * x + 0.0152
R = 1.0000
DL = 0.6884
BEC = 2.375

Weight: <None>
Min Conc: <None>

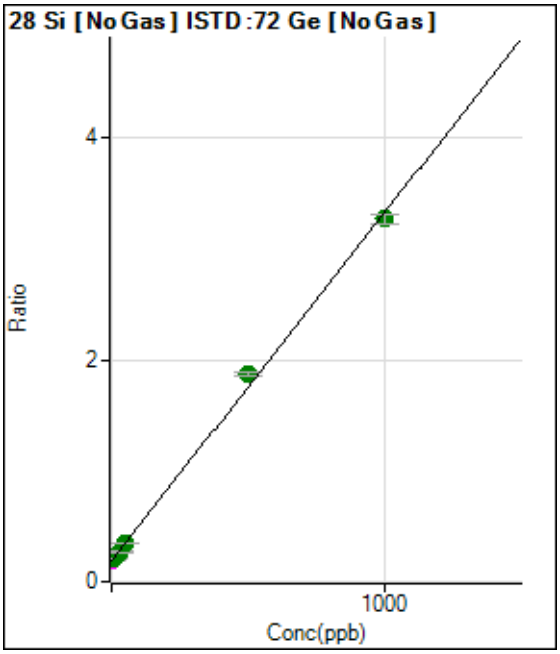
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	816.71	0.0007	P	10.6
2	☐	2.000	2.328	1723.47	0.0016	P	13.4
3	☐	5.000	4.719	2643.63	0.0024	P	6.4
4	☐	10.000	10.327	4717.55	0.0044	P	7.6
5	☐	100.000	103.339	39195.95	0.0378	P	2.6
6	☐	200.000	198.318	73662.44	0.0719	P	1.7

y = 3.5889E-004 * x + 7.3071E-004
R = 0.9998
DL = 0.65
BEC = 2.036

Weight: <None>
Min Conc: <None>

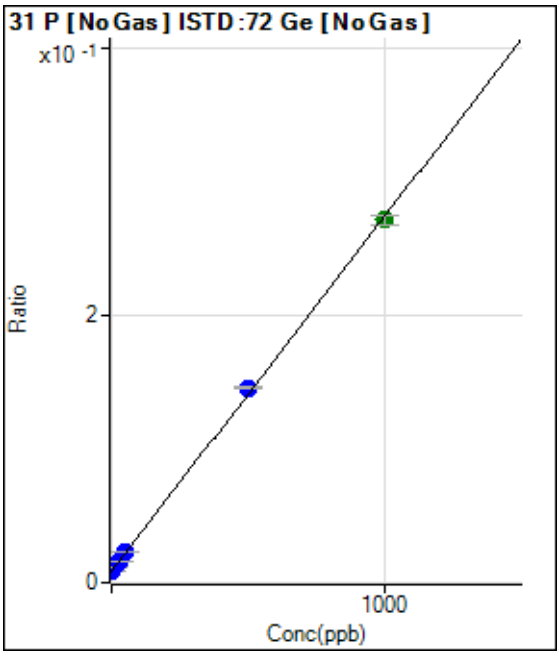


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	826175.30	0.1879	M	6.1
2	☐	10.000	8.435	944869.18	0.2144	A	3.1
3	☐	25.000	24.480	1138901.44	0.2648	A	4.0
4	☐	50.000	49.135	1483460.86	0.3422	A	1.5
5	☐	500.000	535.837	7853886.97	1.8707	A	2.4
6	☐	1000.000	982.154	13520266.47	3.2724	A	2.3

y = 0.0031 * x + 0.1879
R = 0.9991
DL = 10.88
BEC = 59.84

Weight: <None>
Min Conc: <None>

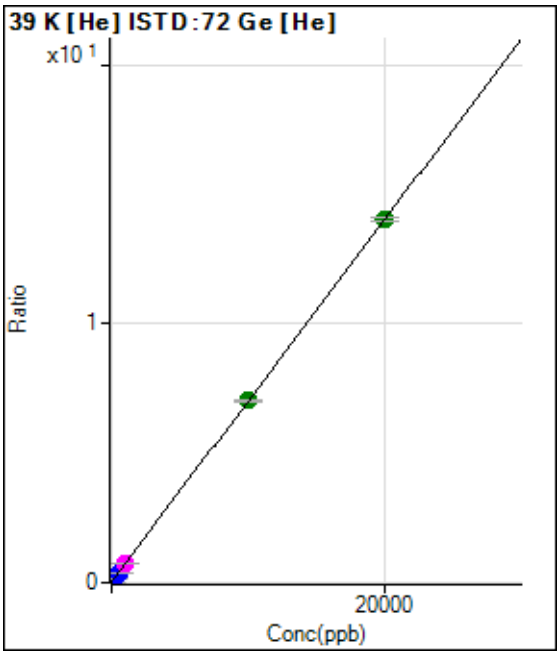
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	37280.47	0.0085	P	3.3
2	☐	10.000	10.004	49033.54	0.0111	P	2.1
3	☐	25.000	27.297	67588.03	0.0157	P	0.4
4	☐	50.000	53.171	97847.44	0.0226	P	1.9
5	☐	500.000	517.678	611717.61	0.1457	P	1.6
6	☐	1000.000	990.945	1120427.17	0.2712	A	3.0

y = 2.6510E-004 * x + 0.0085
R = 0.9998
DL = 3.133
BEC = 31.98

Weight: <None>
Min Conc: <None>

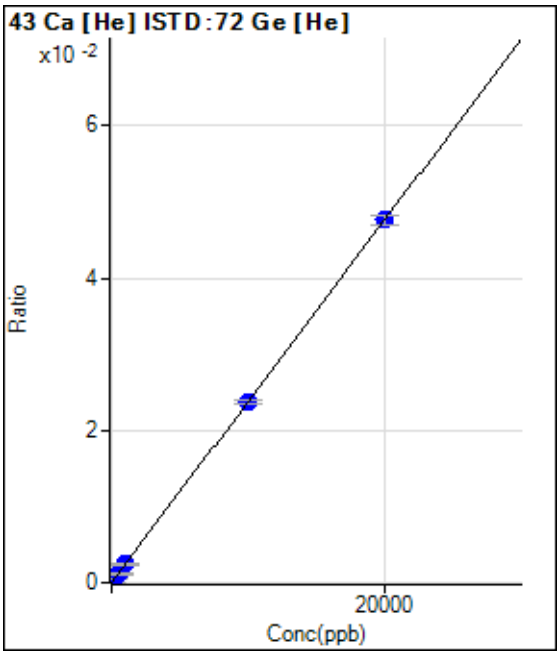


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	32084.44	0.0287	P	4.4
2	☐	200.000	204.968	189375.24	0.1720	P	1.3
3	☐	500.000	503.132	414742.12	0.3804	P	2.4
4	☐	1000.000	1034.348	799809.26	0.7517	M	1.7
5	☐	10000.00	9999.040	7274280.93	7.0184	A	1.3
6	☐	20000.00	19998.63	14350478.12	14.0086	A	1.0

y = 6.9904E-004 * x + 0.0287
R = 1.0000
DL = 5.374
BEC = 41.04

Weight: <None>
Min Conc: <None>

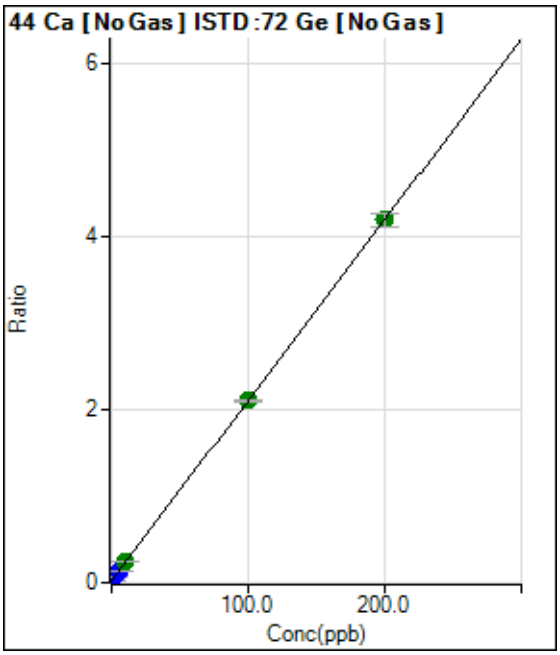
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	48.9
2	☐	200.000	229.065	623.36	0.0006	P	9.3
3	☐	500.000	483.890	1276.75	0.0012	P	11.6
4	☐	1000.000	1001.306	2556.97	0.0024	P	2.4
5	☐	10000.00	9969.292	24602.38	0.0237	P	1.2
6	☐	20000.00	20015.40	48783.96	0.0476	P	2.5

y = 2.3787E-006 * x + 2.0787E-005
R = 1.0000
DL = 12.82
BEC = 8.739

Weight: <None>
Min Conc: <None>

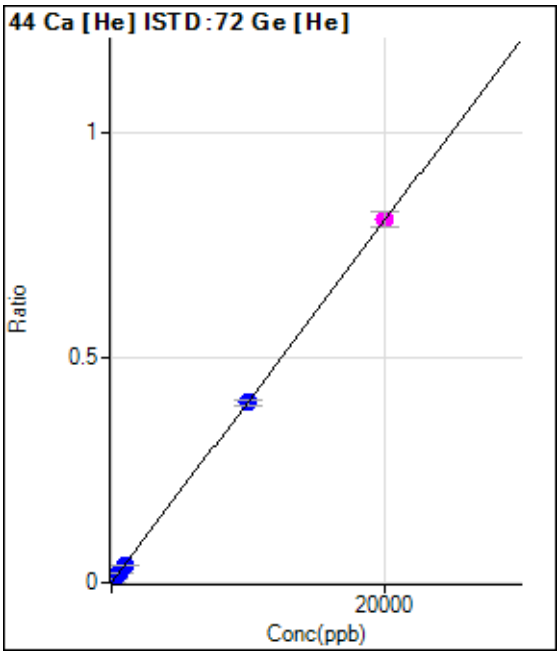


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	98005.67	0.0223	P	1.5
2	☐	2.000	2.048	286319.88	0.0650	P	2.2
3	☐	5.000	5.272	568653.44	0.1322	P	1.2
4	☐	10.000	10.455	1041783.55	0.2403	A	0.7
5	☐	100.000	99.977	8847369.04	2.1073	A	0.9
6	☐	200.000	199.982	17319699.33	4.1930	A	3.9

y = 0.0209 * x + 0.0223
R = 1.0000
DL = 0.04769
BEC = 1.068

Weight: <None>
Min Conc: <None>

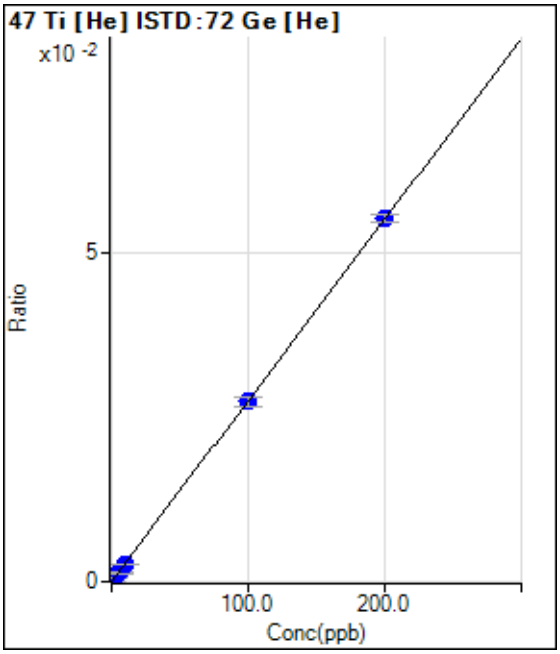
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	460.02	0.0004	P	17.8
2	☐	200.000	201.670	9400.07	0.0085	P	3.2
3	☐	500.000	477.285	21420.35	0.0196	P	1.3
4	☐	1000.000	992.144	42981.04	0.0404	P	0.5
5	☐	10000.00	9930.232	415084.15	0.4006	P	3.0
6	☐	20000.00	20035.82	827183.69	0.8079	M	4.3

y = 4.0300E-005 * x + 4.1087E-004
R = 1.0000
DL = 5.445
BEC = 10.2

Weight: <None>
Min Conc: <None>

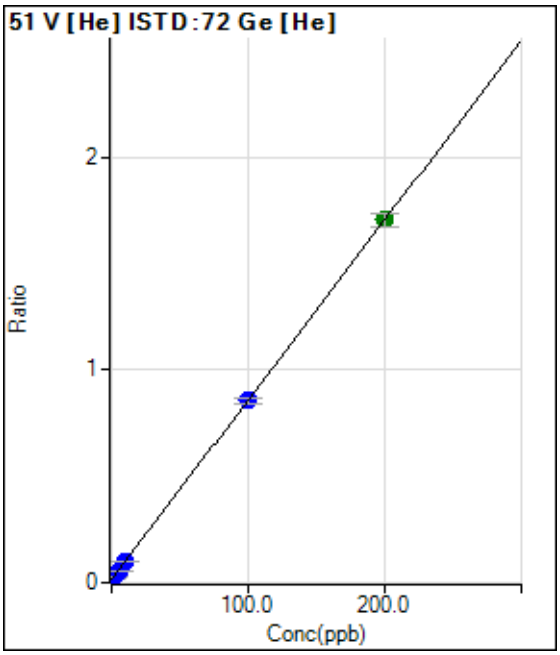


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	86.6
2	☐	2.000	1.952	610.03	0.0006	P	6.5
3	☐	5.000	4.859	1473.44	0.0014	P	6.8
4	☐	10.000	9.135	2687.00	0.0025	P	0.9
5	☐	100.000	99.310	28259.62	0.0273	P	4.8
6	☐	200.000	200.392	56366.23	0.0550	P	2.2

y = 2.7454E-004 * x + 1.7771E-005
R = 1.0000
DL = 0.1682
BEC = 0.06473

Weight: <None>
Min Conc: <None>

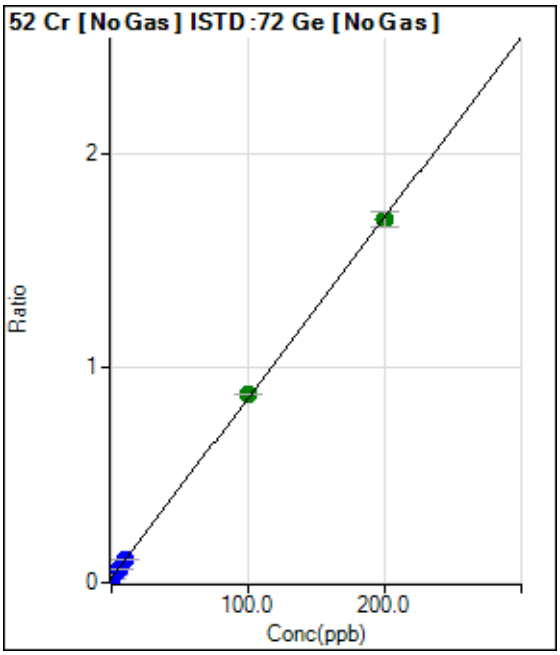
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16207.40	0.0145	P	1.1
2	☐	2.000	1.907	33676.81	0.0306	P	1.7
3	☐	5.000	4.879	60691.43	0.0557	P	1.2
4	☐	10.000	10.023	105375.62	0.0991	P	1.9
5	☐	100.000	99.503	884927.22	0.8540	P	2.9
6	☐	200.000	200.251	1744884.76	1.7041	A	4.1

y = 0.0084 * x + 0.0145
R = 1.0000
DL = 0.05442
BEC = 1.717

Weight: <None>
Min Conc: <None>

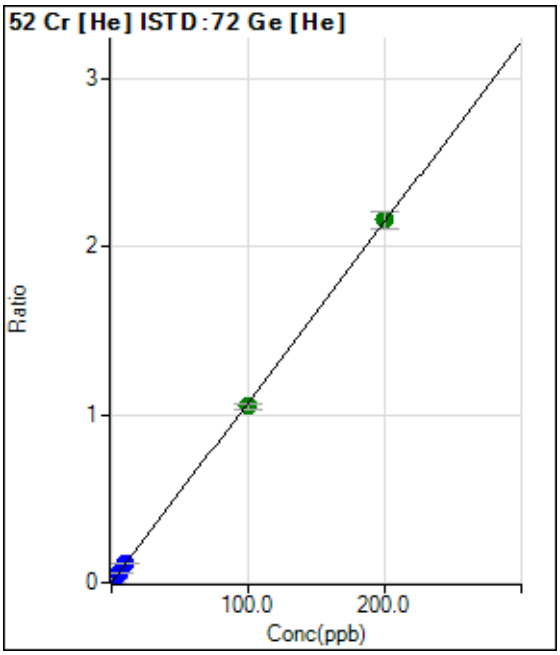


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	89545.64	0.0204	P	3.4
2	☐	2.000	2.083	166846.54	0.0379	P	0.6
3	☐	5.000	5.473	285369.57	0.0664	P	1.6
4	☐	10.000	10.670	476937.09	0.1100	P	1.6
5	☐	100.000	102.442	3700032.55	0.8812	A	0.2
6	☐	200.000	198.733	6982229.90	1.6904	A	4.4

y = 0.0084 * x + 0.0204
R = 0.9999
DL = 0.249
BEC = 2.423

Weight: <None>
Min Conc: <None>

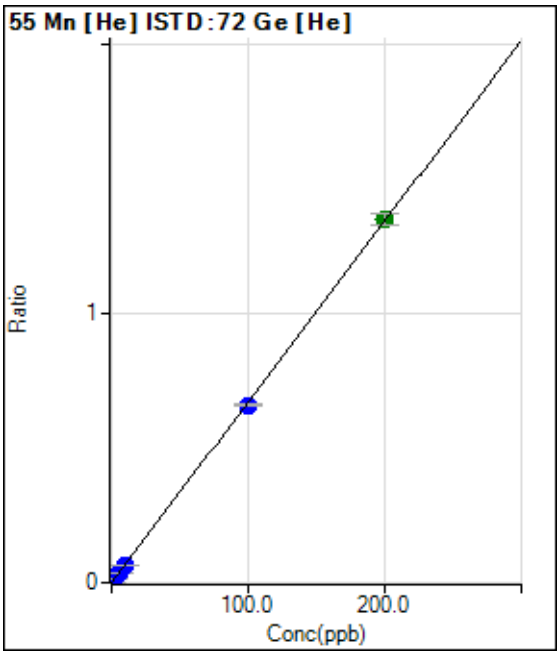
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1983.51	0.0018	P	5.8
2	☐	2.000	2.024	25874.80	0.0235	P	2.7
3	☐	5.000	4.941	59777.86	0.0548	P	2.6
4	☐	10.000	10.170	118027.04	0.1110	P	2.4
5	☐	100.000	97.739	1089072.25	1.0511	A	3.8
6	☐	200.000	201.123	2212591.74	2.1611	A	4.8

y = 0.0107 * x + 0.0018
R = 0.9999
DL = 0.02886
BEC = 0.1651

Weight: <None>
Min Conc: <None>

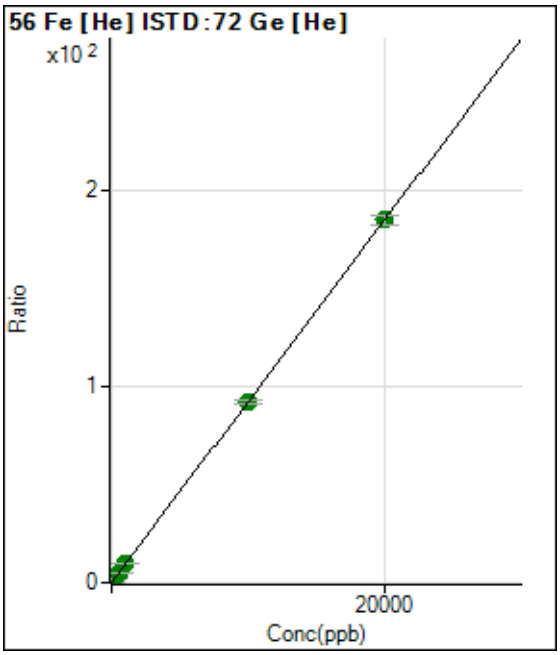


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	240.01	0.0002	P	18.5
2	☐	2.000	1.949	14634.75	0.0133	P	1.7
3	☐	5.000	4.808	35396.46	0.0325	P	1.2
4	☐	10.000	9.989	71508.18	0.0672	P	1.5
5	☐	100.000	98.427	684510.15	0.6605	P	1.7
6	☐	200.000	200.792	1379710.24	1.3471	A	3.0

y = 0.0067 * x + 2.1439E-004
R = 1.0000
DL = 0.01769
BEC = 0.03196

Weight: <None>
Min Conc: <None>

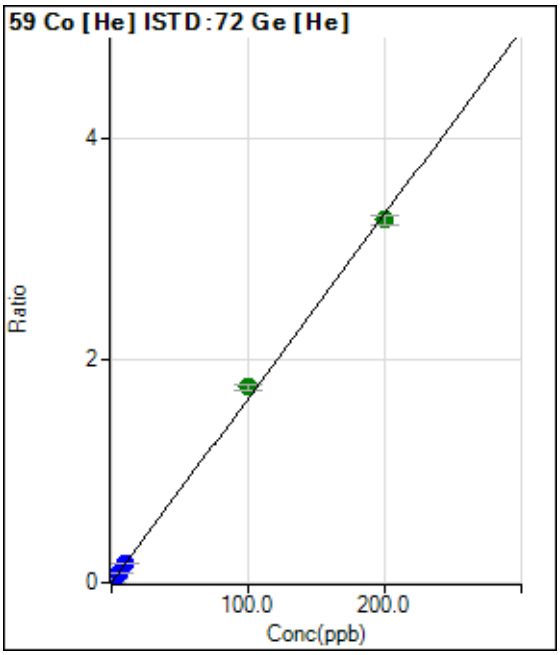
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12966.78	0.0115	P	65.4
2	☐	200.000	200.553	2049523.04	1.8607	A	2.8
3	☐	500.000	487.198	4910416.49	4.5038	A	1.9
4	☐	1000.000	1029.577	10111521.93	9.5048	A	1.5
5	☐	10000.00	9953.086	95118421.92	91.7844	A	2.0
6	☐	20000.00	20022.29	189079223.8	184.628	A	3.0

y = 0.0092 * x + 0.0115
R = 1.0000
DL = 2.454
BEC = 1.25

Weight: <None>
Min Conc: <None>

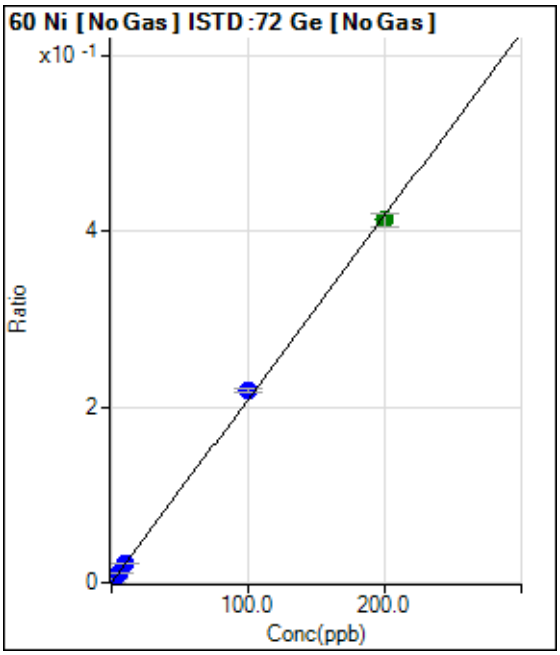


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	163.33	0.0001	P	19.1
2	☐	2.000	2.037	37295.11	0.0339	P	1.1
3	☐	5.000	5.102	92239.07	0.0846	P	2.5
4	☐	10.000	10.819	190679.11	0.1792	P	1.9
5	☐	100.000	105.966	1818022.11	1.7543	A	2.0
6	☐	200.000	196.973	3339419.32	3.2608	A	3.0

y = 0.0166 * x + 1.4606E-004
R = 0.9994
DL = 0.005056
BEC = 0.008823

Weight: <None>
Min Conc: <None>

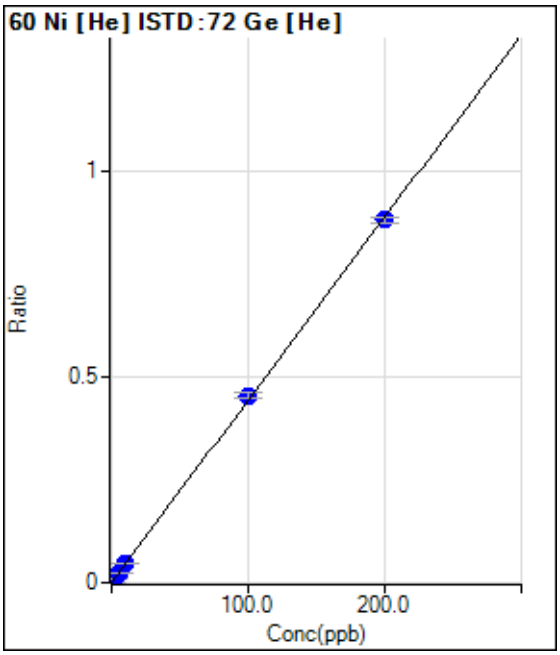
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	453.35	0.0001	P	7.1
2	☐	2.000	2.143	20151.94	0.0046	P	3.1
3	☐	5.000	5.334	48316.41	0.0112	P	1.7
4	☐	10.000	10.569	96045.46	0.0222	P	2.2
5	☐	100.000	104.366	914794.31	0.2179	P	2.0
6	☐	200.000	197.779	1705251.90	0.4128	A	3.8

y = 0.0021 * x + 1.0314E-004
R = 0.9997
DL = 0.01051
BEC = 0.04943

Weight: <None>
Min Conc: <None>

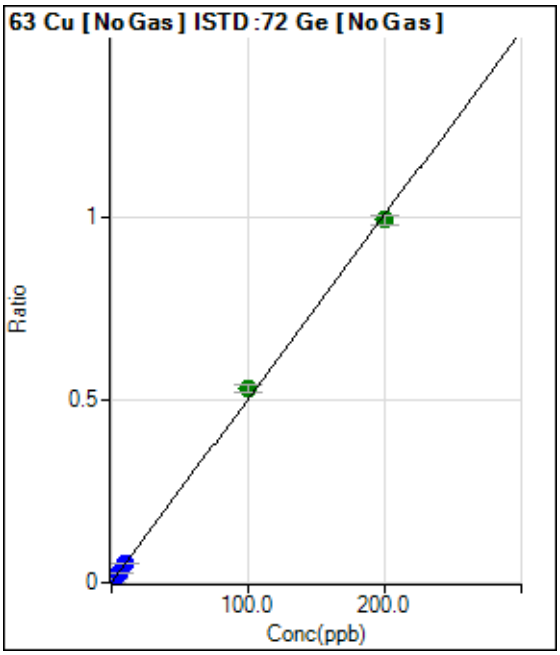


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	180.01	0.0002	P	13.3
2	☐	2.000	1.967	9777.00	0.0089	P	3.9
3	☐	5.000	5.134	24983.35	0.0229	P	2.3
4	☐	10.000	10.508	49721.33	0.0467	P	1.1
5	☐	100.000	102.611	471406.86	0.4549	P	2.5
6	☐	200.000	198.666	902045.87	0.8806	P	1.5

y = 0.0044 * x + 1.6071E-004
R = 0.9999
DL = 0.01447
BEC = 0.03626

Weight: <None>
Min Conc: <None>

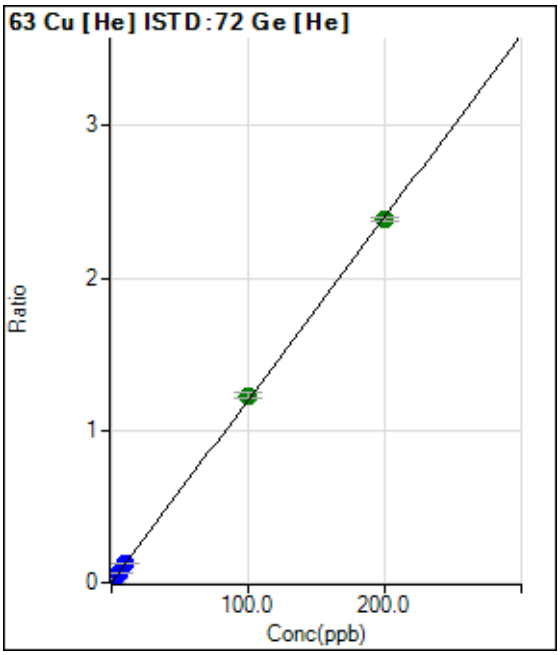
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1986.85	0.0005	P	10.4
2	☐	2.000	2.128	49169.70	0.0112	P	1.2
3	☐	5.000	5.368	118128.62	0.0275	P	1.9
4	☐	10.000	10.607	233319.05	0.0538	P	2.5
5	☐	100.000	105.330	2227068.25	0.5305	A	3.5
6	☐	200.000	197.294	4103872.96	0.9933	A	2.7

y = 0.0050 * x + 4.5204E-004
R = 0.9995
DL = 0.02808
BEC = 0.08982

Weight: <None>
Min Conc: <None>

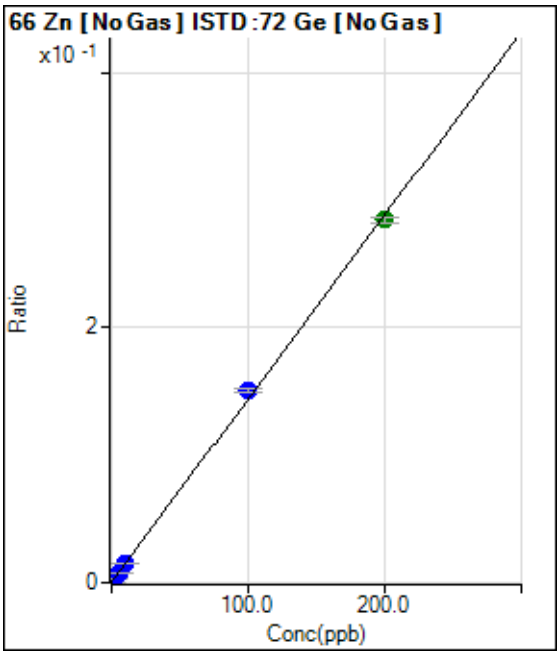


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1080.07	0.0010	P	19.1
2	☐	2.000	2.090	28643.97	0.0260	P	3.0
3	☐	5.000	5.312	70469.55	0.0646	P	2.1
4	☐	10.000	10.423	133911.48	0.1259	P	1.7
5	☐	100.000	102.609	1275228.99	1.2307	A	2.7
6	☐	200.000	198.666	2440154.28	2.3819	A	0.9

y = 0.0120 * x + 9.6602E-004
R = 0.9999
DL = 0.04626
BEC = 0.08061

Weight: <None>
Min Conc: <None>

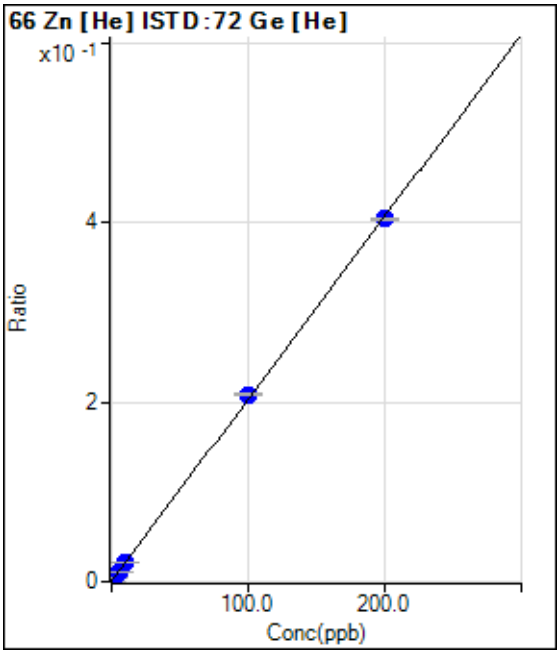
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1400.10	0.0003	P	5.3
2	☐	2.000	2.069	14518.04	0.0033	P	3.5
3	☐	5.000	5.219	33668.84	0.0078	P	2.5
4	☐	10.000	10.496	66854.56	0.0154	P	1.6
5	☐	100.000	104.791	634454.35	0.1511	P	1.8
6	☐	200.000	197.574	1176732.04	0.2847	A	1.8

y = 0.0014 * x + 3.1822E-004
R = 0.9996
DL = 0.03504
BEC = 0.2211

Weight: <None>
Min Conc: <None>

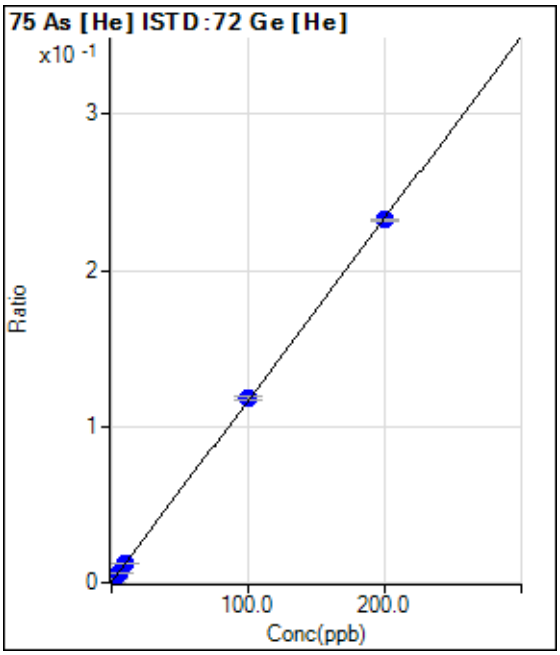


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	490.02	0.0004	P	18.3
2	☐	2.000	1.995	4937.67	0.0045	P	6.0
3	☐	5.000	4.962	11455.03	0.0105	P	3.4
4	☐	10.000	10.424	22966.37	0.0216	P	2.5
5	☐	100.000	102.296	215609.85	0.2080	P	1.4
6	☐	200.000	198.832	413813.20	0.4039	P	0.5

y = 0.0020 * x + 4.3731E-004
R = 0.9999
DL = 0.1181
BEC = 0.2155

Weight: <None>
Min Conc: <None>

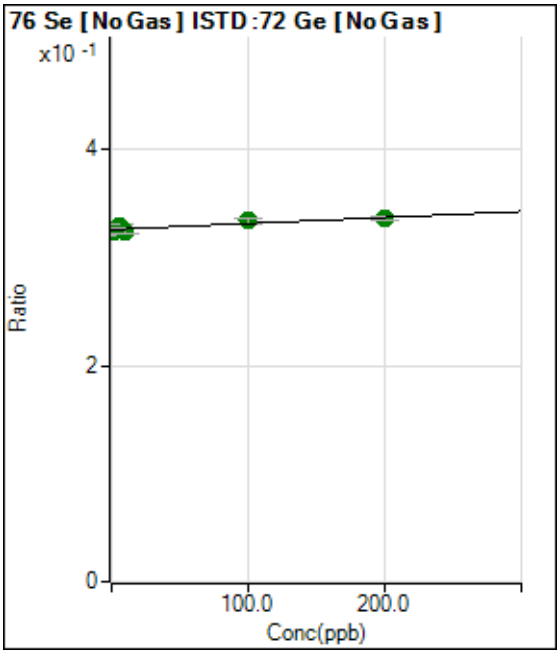
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	333.34	0.0003	P	8.3
2	☐	2.000	1.967	2851.43	0.0026	P	2.5
3	☐	5.000	4.764	6373.75	0.0058	P	0.2
4	☐	10.000	9.957	12651.52	0.0119	P	1.6
5	☐	100.000	101.496	122787.96	0.1185	P	1.7
6	☐	200.000	199.260	237992.62	0.2323	P	0.6

y = 0.0012 * x + 2.9819E-004
R = 1.0000
DL = 0.06396
BEC = 0.2561

Weight: <None>
Min Conc: <None>

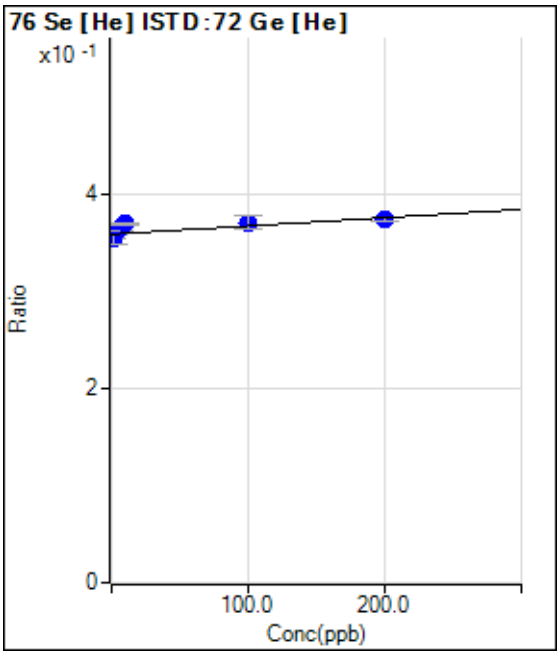


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1434642.79	0.3262	A	1.9
2	☐	2.000	-49.422	1424690.39	0.3234	A	2.2
3	☐	5.000	46.484	1413981.28	0.3288	A	1.7
4	☐	10.000	-25.949	1407825.81	0.3247	A	1.7
5	☐	100.000	152.611	1405425.24	0.3347	A	1.6
6	☐	200.000	174.969	1388220.13	0.3359	A	1.1

y = 5.5793E-005 * x + 0.3262
R = 0.8931
DL = 327.4
BEC = 5846

Weight: <None>
Min Conc: <None>

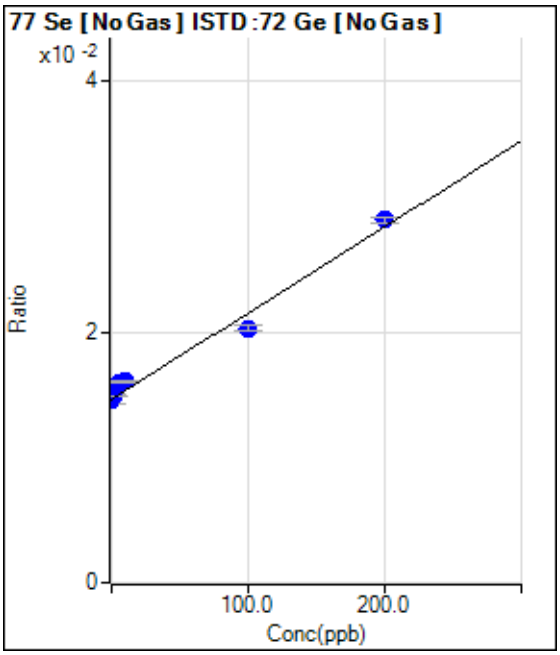
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	400715.97	0.3583	P	2.1
2	☐	2.000	-61.485	388685.98	0.3530	P	2.8
3	☐	5.000	71.844	397281.55	0.3644	P	1.9
4	☐	10.000	128.378	392797.82	0.3692	P	0.6
5	☐	100.000	141.112	383612.68	0.3703	P	3.8
6	☐	200.000	172.489	382068.56	0.3729	P	1.2

y = 8.5159E-005 * x + 0.3583
R = 0.7091
DL = 269.6
BEC = 4207

Weight: <None>
Min Conc: <None>

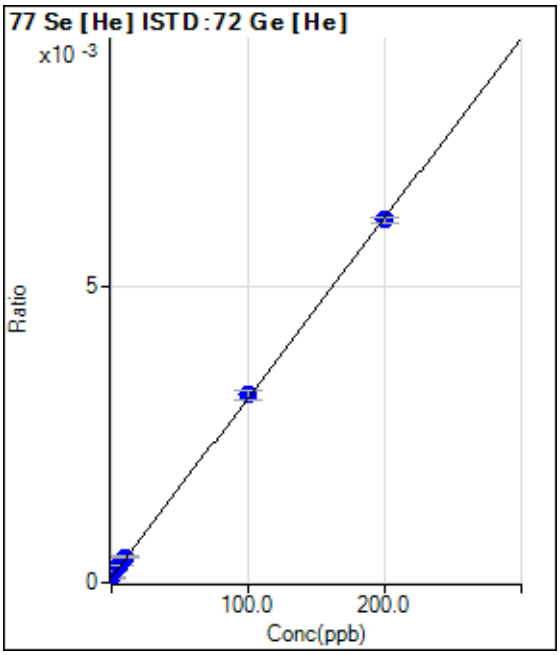


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	64384.32	0.0146	P	4.5
2	☐	2.000	3.611	65613.17	0.0149	P	0.7
3	☐	5.000	19.877	68852.85	0.0160	P	1.2
4	☐	10.000	20.870	69696.94	0.0161	P	1.2
5	☐	100.000	82.128	85168.36	0.0203	P	2.0
6	☐	200.000	208.005	119573.78	0.0289	P	1.7

y = 6.8706E-005 * x + 0.0146
R = 0.9899
DL = 28.48
BEC = 213.2

Weight: <None>
Min Conc: <None>

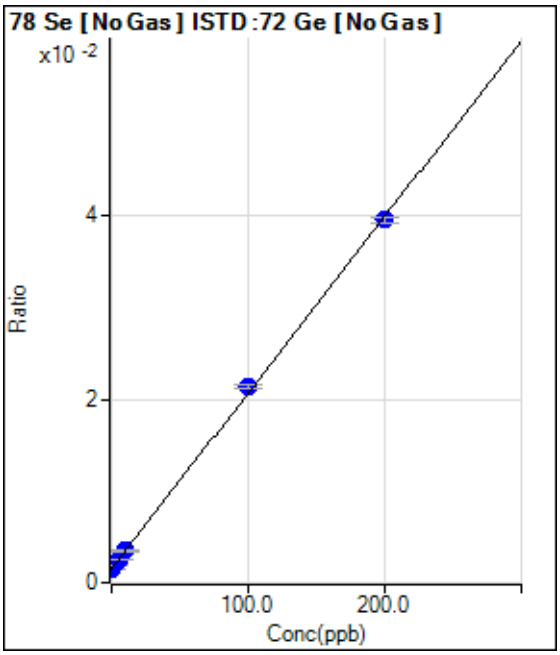
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0001	P	37.1
2	☐	2.000	3.743	223.34	0.0002	P	23.3
3	☐	5.000	6.826	323.34	0.0003	P	7.5
4	☐	10.000	11.298	460.01	0.0004	P	12.1
5	☐	100.000	101.823	3293.80	0.0032	P	4.9
6	☐	200.000	198.961	6274.94	0.0061	P	1.8

y = 3.0341E-005 * x + 8.9566E-005
R = 0.9999
DL = 3.282
BEC = 2.952

Weight: <None>
Min Conc: <None>

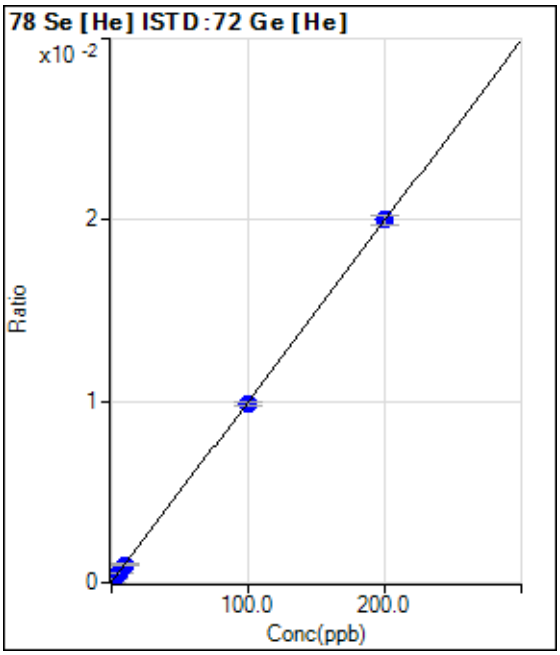


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6678.44	0.0015	P	2.5
2	☐	2.000	1.913	8302.69	0.0019	P	1.5
3	☐	5.000	5.347	10934.61	0.0025	P	4.4
4	☐	10.000	10.161	15021.99	0.0035	P	3.5
5	☐	100.000	103.326	89524.45	0.0213	P	1.7
6	☐	200.000	198.321	163372.22	0.0395	P	1.9

y = 1.9170E-004 * x + 0.0015
R = 0.9998
DL = 0.5839
BEC = 7.918

Weight: <None>
Min Conc: <None>

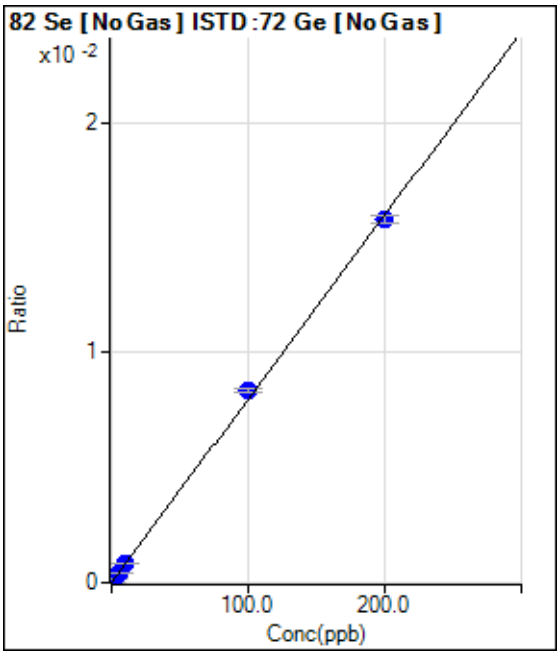
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	18.8
2	☐	2.000	2.129	270.00	0.0002	P	10.7
3	☐	5.000	4.738	550.68	0.0005	P	6.5
4	☐	10.000	9.575	1050.71	0.0010	P	5.0
5	☐	100.000	99.109	10272.61	0.0099	P	2.1
6	☐	200.000	200.472	20496.27	0.0200	P	2.7

y = 9.9661E-005 * x + 3.2825E-005
R = 1.0000
DL = 0.1854
BEC = 0.3294

Weight: <None>
Min Conc: <None>

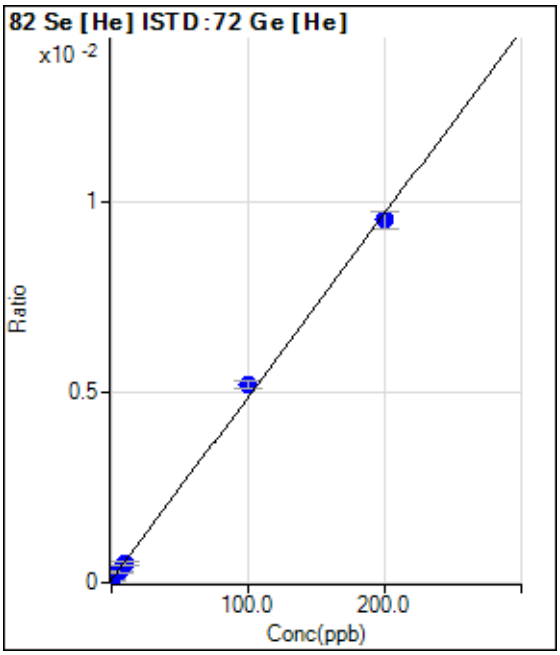


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	-63.13	0.0000	P	-154.3
2	☐	2.000	2.165	700.36	0.0002	P	16.8
3	☐	5.000	5.218	1730.51	0.0004	P	11.4
4	☐	10.000	10.166	3458.03	0.0008	P	2.0
5	☐	100.000	104.556	34994.01	0.0083	P	2.5
6	☐	200.000	197.707	65190.23	0.0158	P	1.9

y = 7.9867E-005 * x - 1.4155E-005
R = 0.9996
DL = 0.8202
BEC = -0.1772

Weight: <None>
Min Conc: <None>

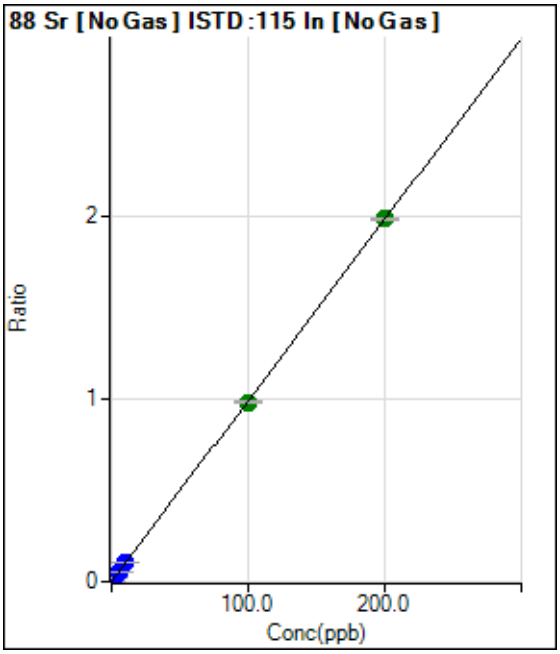
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.00	0.0001	P	24.1
2	☐	2.000	2.611	216.68	0.0002	P	12.5
3	☐	5.000	4.424	310.01	0.0003	P	8.7
4	☐	10.000	8.996	536.69	0.0005	P	13.0
5	☐	100.000	106.919	5404.54	0.0052	P	4.3
6	☐	200.000	196.599	9760.40	0.0095	P	4.5

y = 4.8124E-005 * x + 7.1418E-005
R = 0.9991
DL = 1.071
BEC = 1.484

Weight: <None>
Min Conc: <None>

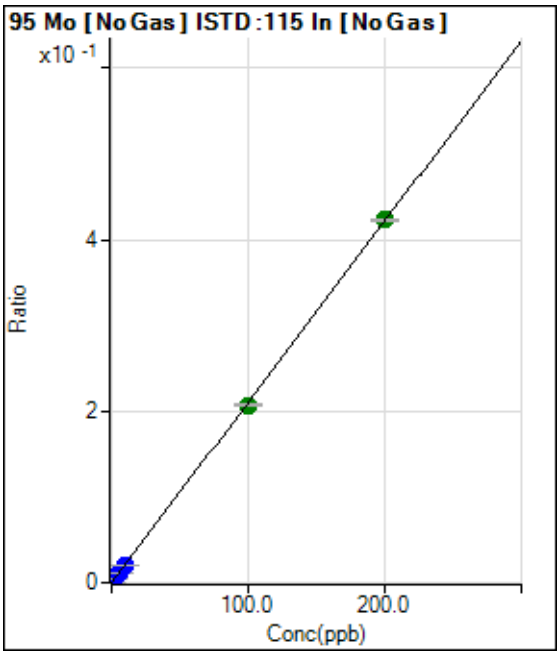


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1386.77	0.0002	P	2.7
2	☐	2.000	2.058	114741.74	0.0206	P	1.3
3	☐	5.000	5.091	280733.88	0.0506	P	1.2
4	☐	10.000	10.260	568135.76	0.1018	P	1.0
5	☐	100.000	99.180	5288072.42	0.9817	A	1.0
6	☐	200.000	200.394	10294153.39	1.9832	A	0.7

y = 0.0099 * x + 2.4079E-004
R = 1.0000
DL = 0.001984
BEC = 0.02433

Weight: <None>
Min Conc: <None>

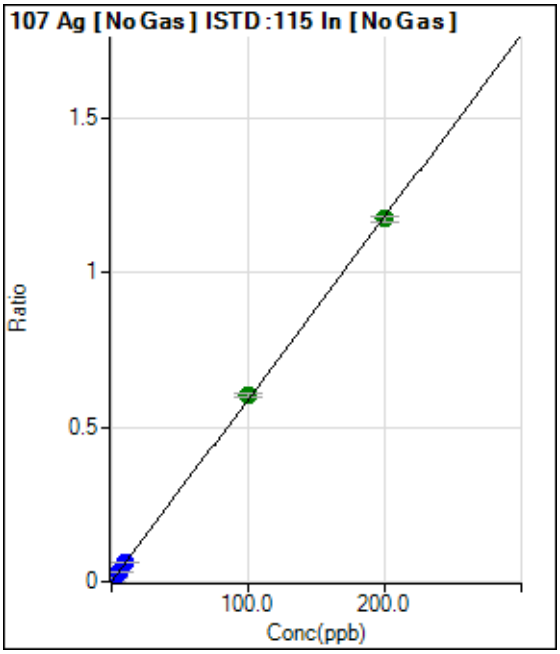
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76.67	0.0000	P	45.3
2	☐	2.000	2.021	23791.67	0.0043	P	0.8
3	☐	5.000	4.982	58305.17	0.0105	P	2.1
4	☐	10.000	9.937	116955.19	0.0209	P	1.4
5	☐	100.000	98.334	1116178.32	0.2072	A	1.1
6	☐	200.000	200.836	2196433.71	0.4232	A	0.4

y = 0.0021 * x + 1.3320E-005
R = 1.0000
DL = 0.008585
BEC = 0.006322

Weight: <None>
Min Conc: <None>

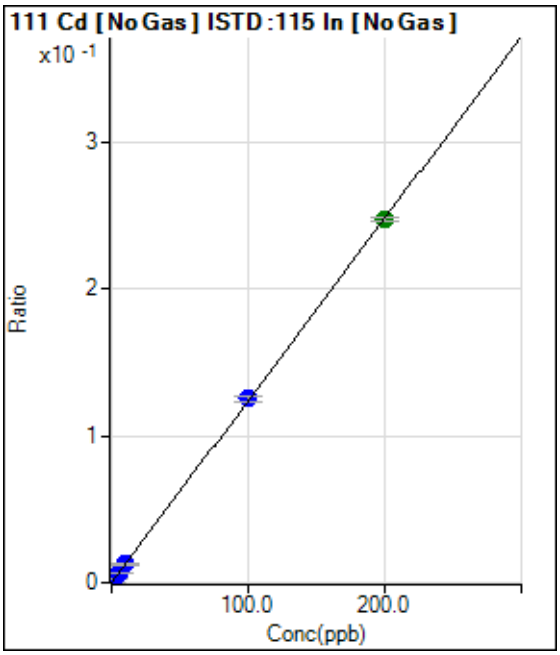


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	793.37	0.0001	P	12.4
2	☐	2.000	2.084	69281.59	0.0124	P	2.6
3	☐	5.000	5.126	168585.37	0.0304	P	1.7
4	☐	10.000	10.396	343379.41	0.0615	P	1.8
5	☐	100.000	102.083	3247191.62	0.6028	A	1.7
6	☐	200.000	198.935	6096209.07	1.1746	A	1.6

y = 0.0059 * x + 1.3772E-004
R = 0.9999
DL = 0.00868
BEC = 0.02333

Weight: <None>
Min Conc: <None>

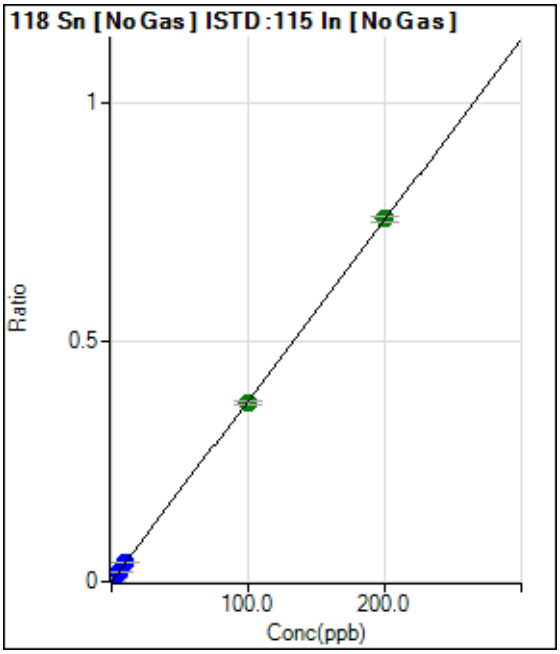
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	112.7
2	☐	2.000	1.999	13820.79	0.0025	P	2.0
3	☐	5.000	5.005	34442.24	0.0062	P	2.6
4	☐	10.000	10.075	69781.64	0.0125	P	1.2
5	☐	100.000	101.290	676662.23	0.1256	P	3.0
6	☐	200.000	199.351	1283492.56	0.2473	A	0.9

y = 0.0012 * x + 2.3066E-006
R = 1.0000
DL = 0.006284
BEC = 0.00186

Weight: <None>
Min Conc: <None>

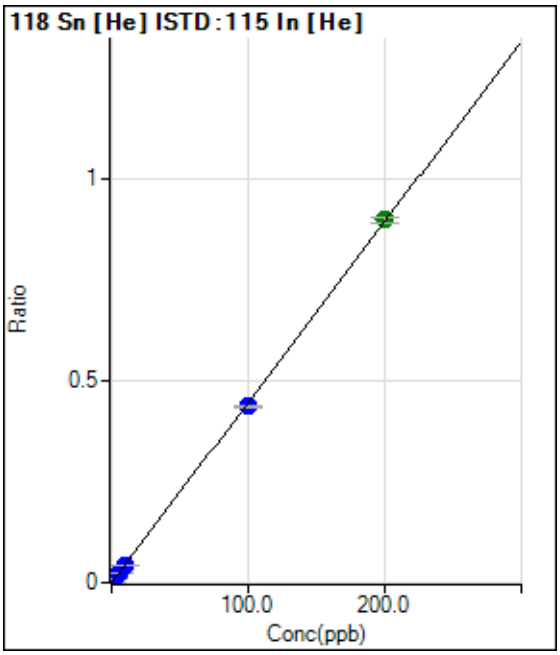


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2767.01	0.0005	P	6.0
2	☐	2.000	2.017	45047.73	0.0081	P	0.5
3	☐	5.000	5.022	107732.49	0.0194	P	1.2
4	☐	10.000	10.048	214280.53	0.0384	P	0.1
5	☐	100.000	98.570	2005371.69	0.3723	A	2.4
6	☐	200.000	200.712	3931945.77	0.7576	A	1.6

y = 0.0038 * x + 4.8008E-004
R = 1.0000
DL = 0.02302
BEC = 0.1273

Weight: <None>
Min Conc: <None>

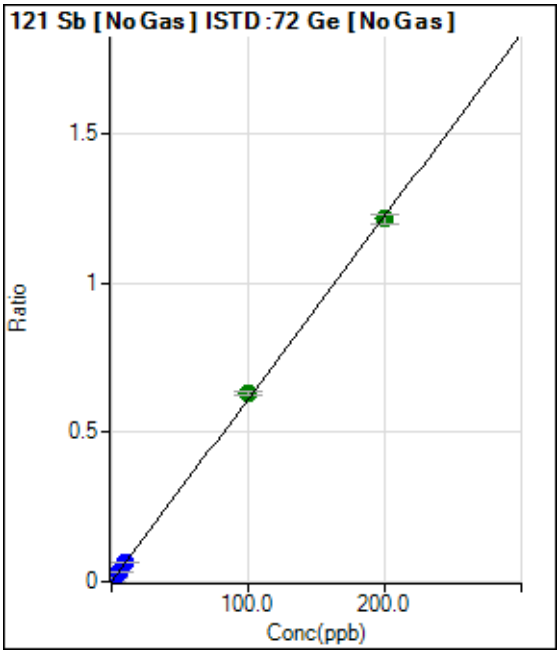
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1150.07	0.0006	P	8.4
2	☐	2.000	1.931	18770.45	0.0092	P	1.1
3	☐	5.000	4.808	44429.28	0.0220	P	3.3
4	☐	10.000	9.680	88777.26	0.0437	P	1.3
5	☐	100.000	97.705	851059.23	0.4360	P	1.7
6	☐	200.000	201.169	1727126.23	0.8971	A	1.6

y = 0.0045 * x + 5.6019E-004
R = 0.9999
DL = 0.03158
BEC = 0.1257

Weight: <None>
Min Conc: <None>

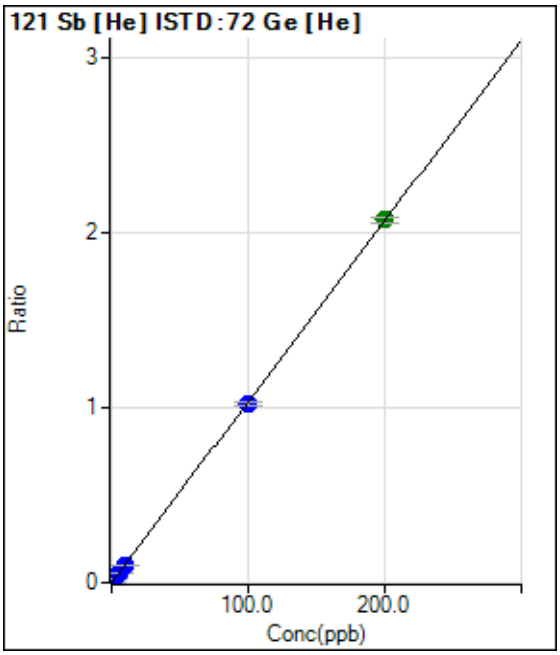


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1893.50	0.0004	P	5.1
2	☐	2.000	1.956	54550.70	0.0124	P	1.1
3	☐	5.000	5.046	134425.49	0.0313	P	0.2
4	☐	10.000	10.162	270936.65	0.0625	P	2.6
5	☐	100.000	102.724	2636139.34	0.6280	A	2.3
6	☐	200.000	198.629	5015223.57	1.2138	A	2.4

y = 0.0061 * x + 4.3071E-004
R = 0.9999
DL = 0.01087
BEC = 0.07051

Weight: <None>
Min Conc: <None>

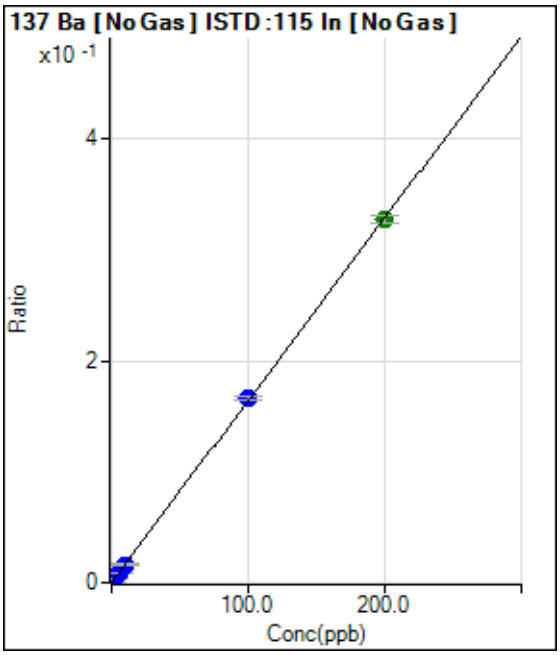
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	653.36	0.0006	P	19.8
2	☐	2.000	1.880	22045.55	0.0200	P	1.9
3	☐	5.000	4.786	54577.15	0.0501	P	2.0
4	☐	10.000	9.678	107035.32	0.1006	P	3.3
5	☐	100.000	98.699	1057960.84	1.0209	P	2.1
6	☐	200.000	200.673	2125456.95	2.0751	A	1.7

y = 0.0103 * x + 5.8467E-004
R = 1.0000
DL = 0.03363
BEC = 0.05656

Weight: <None>
Min Conc: <None>

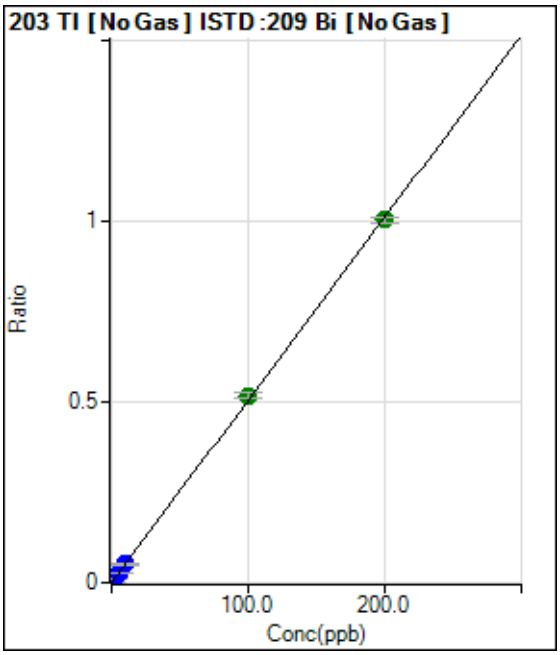


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	200.01	0.0000	P	24.5
2	☐	2.000	2.014	18606.93	0.0033	P	2.4
3	☐	5.000	4.949	45242.95	0.0082	P	2.5
4	☐	10.000	9.985	91696.62	0.0164	P	1.6
5	☐	100.000	101.683	899178.09	0.1669	P	2.2
6	☐	200.000	199.160	1696913.47	0.3270	A	2.1

y = 0.0016 * x + 3.4643E-005
R = 0.9999
DL = 0.0155
BEC = 0.0211

Weight: <None>
Min Conc: <None>

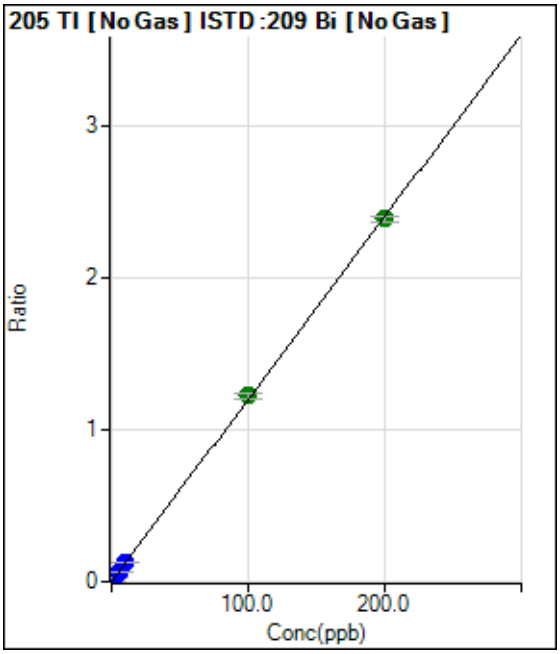
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	153.34	0.0000	P	37.1
2	☐	2.000	1.992	58789.04	0.0101	P	2.8
3	☐	5.000	4.792	141822.21	0.0242	P	1.0
4	☐	10.000	10.137	295707.66	0.0512	P	4.6
5	☐	100.000	102.435	2901358.29	0.5169	A	2.8
6	☐	200.000	198.781	5445358.46	1.0031	A	1.7

y = 0.0050 * x + 2.6544E-005
R = 0.9999
DL = 0.005855
BEC = 0.00526

Weight: <None>
Min Conc: <None>

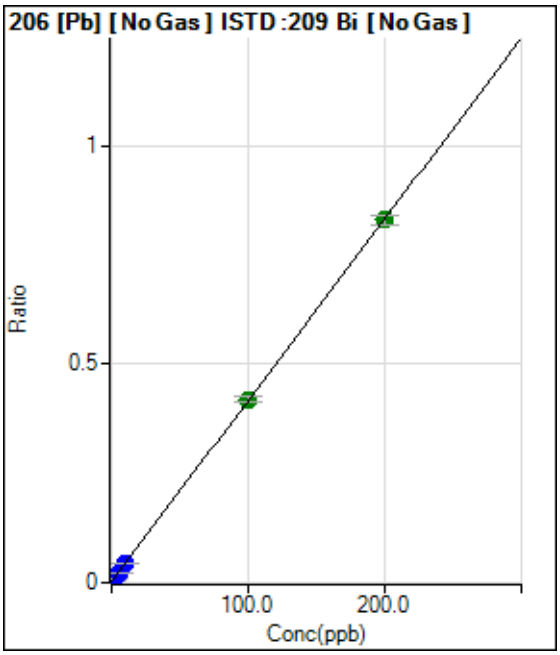


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	336.68	0.0001	P	12.1
2	☐	2.000	1.992	139805.16	0.0240	P	2.6
3	☐	5.000	4.937	347404.53	0.0593	P	1.1
4	☐	10.000	10.305	714722.10	0.1237	P	5.0
5	☐	100.000	102.030	6870546.36	1.2242	A	3.4
6	☐	200.000	198.972	12959803.14	2.3873	A	1.6

y = 0.0120 * x + 5.8293E-005
R = 0.9999
DL = 0.001767
BEC = 0.004859

Weight: <None>
Min Conc: <None>

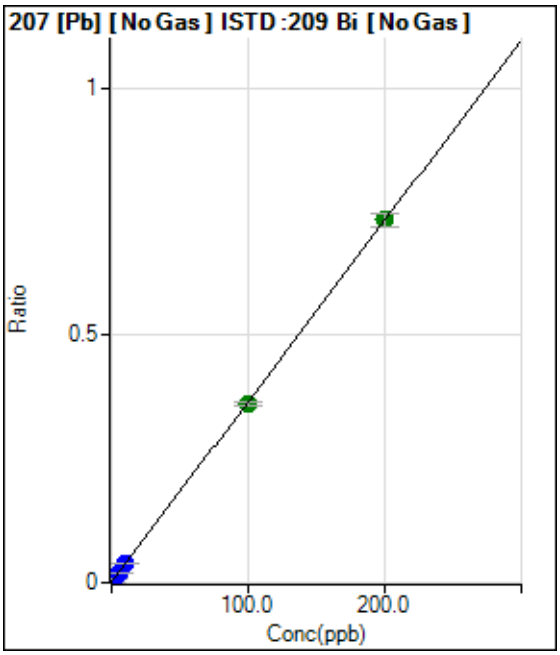
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13003.77	0.0023	P	0.7
2	☐	2.000	1.967	60745.29	0.0104	P	1.8
3	☐	5.000	5.000	134755.16	0.0230	P	0.6
4	☐	10.000	10.021	253219.92	0.0438	P	4.8
5	☐	100.000	100.644	2356621.47	0.4199	A	3.1
6	☐	200.000	199.677	4509402.95	0.8308	A	2.9

y = 0.0041 * x + 0.0023
R = 1.0000
DL = 0.01092
BEC = 0.5423

Weight: <None>
Min Conc: <None>

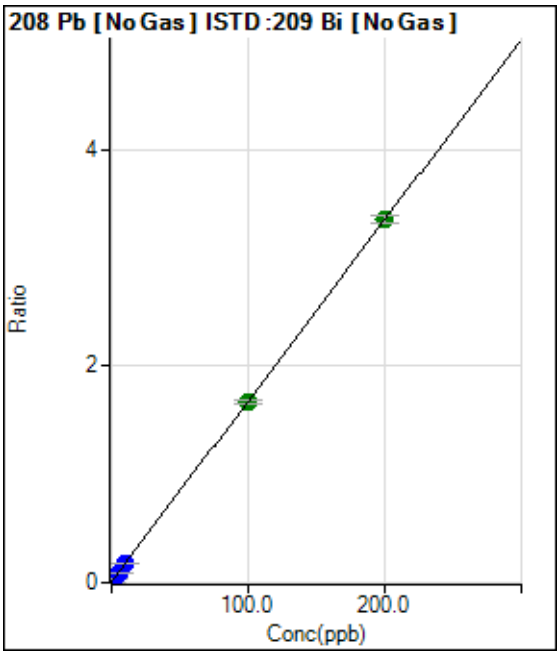


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10317.88	0.0018	P	2.9
2	☐	2.000	1.967	52300.63	0.0090	P	1.7
3	☐	5.000	5.035	118008.93	0.0201	P	3.0
4	☐	10.000	10.024	221664.11	0.0383	P	1.9
5	☐	100.000	98.747	2031814.35	0.3619	A	1.4
6	☐	200.000	200.625	3980545.56	0.7334	A	3.9

y = 0.0036 * x + 0.0018
R = 1.0000
DL = 0.04248
BEC = 0.4895

Weight: <None>
Min Conc: <None>

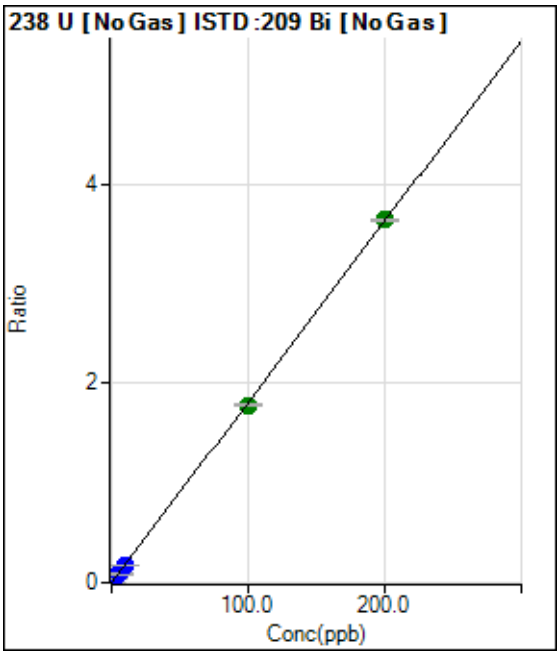
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	48798.10	0.0084	P	0.5
2	☐	2.000	1.991	243401.01	0.0417	P	1.1
3	☐	5.000	5.006	539349.77	0.0921	P	1.5
4	☐	10.000	10.095	1023586.84	0.1771	P	2.0
5	☐	100.000	99.527	9379522.10	1.6709	A	2.2
6	☐	200.000	200.232	18201692.54	3.3531	A	2.0

y = 0.0167 * x + 0.0084
R = 1.0000
DL = 0.007524
BEC = 0.5055

Weight: <None>
Min Conc: <None>

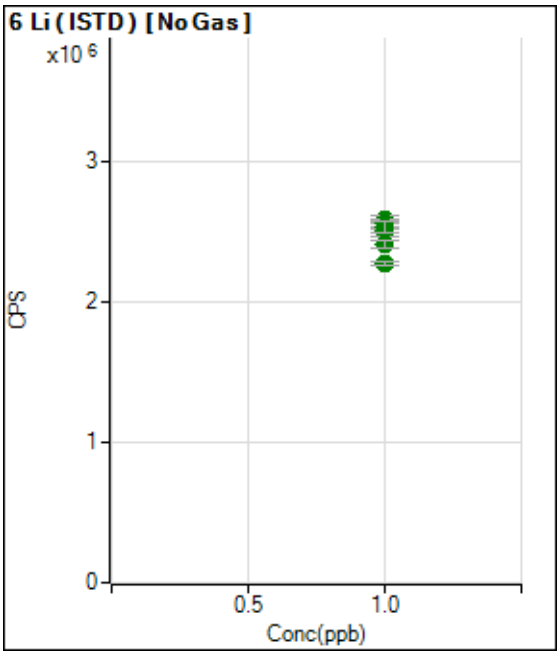


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0000	P	33.4
2	☐	2.000	1.924	203382.05	0.0348	P	1.1
3	☐	5.000	4.809	510257.78	0.0871	P	1.4
4	☐	10.000	9.848	1031213.42	0.1784	P	2.0
5	☐	100.000	98.284	9992270.06	1.7800	A	1.2
6	☐	200.000	200.871	19751618.46	3.6378	A	0.4

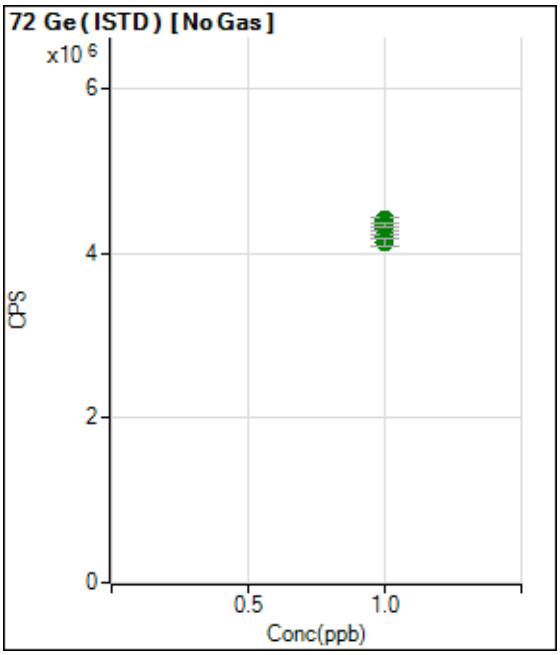
y = 0.0181 * x + 1.0972E-005
R = 0.9999
DL = 0.0006068
BEC = 0.0006058

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d

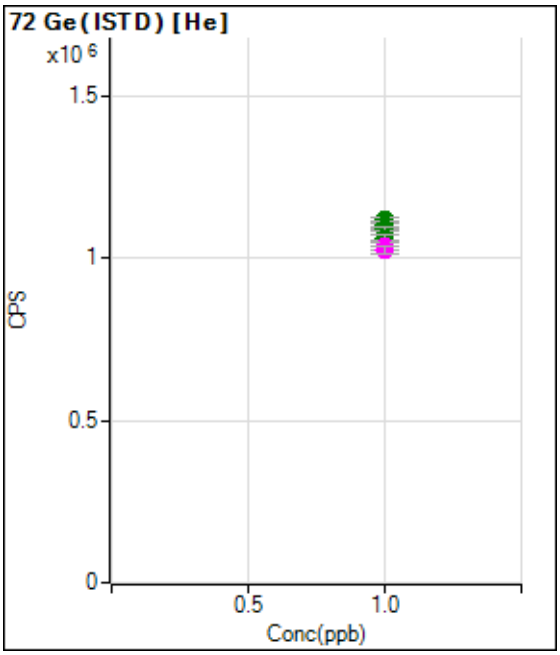


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2589134.74		A	2.1
2	☐	1.000		2505192.38		A	2.6
3	☐	1.000		2559501.44		A	2.3
4	☐	1.000		2538320.49		A	2.8
5	☐	1.000		2415737.08		A	1.8
6	☐	1.000		2284056.83		A	1.2

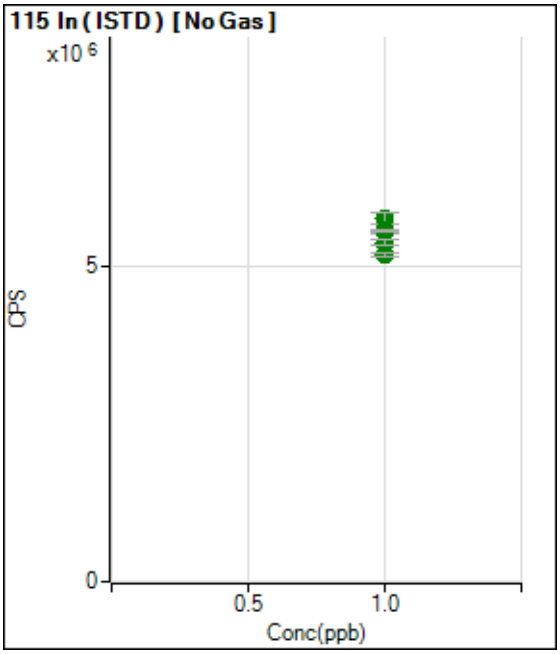


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		4398724.00		A	1.8
2	☐	1.000		4405774.10		A	1.3
3	☐	1.000		4300858.58		A	1.0
4	☐	1.000		4334989.21		A	1.0
5	☐	1.000		4198643.27		A	1.4
6	☐	1.000		4132846.40		A	2.0

Calibration for 020_ICV.d

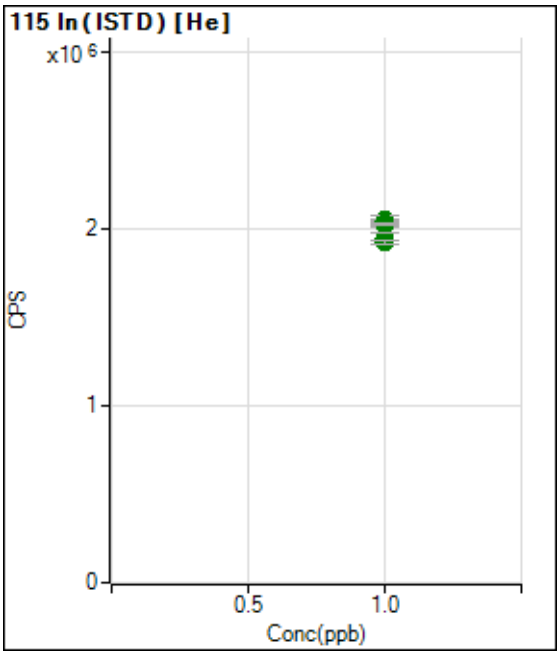


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1118718.47		A	1.4
2	☐	1.000		1101392.46		A	2.0
3	☐	1.000		1090447.27		A	1.1
4	☐	1.000		1063995.51		A	1.5
5	☐	1.000		1036684.70		M	2.6
6	☐	1.000		1024533.97		M	2.1

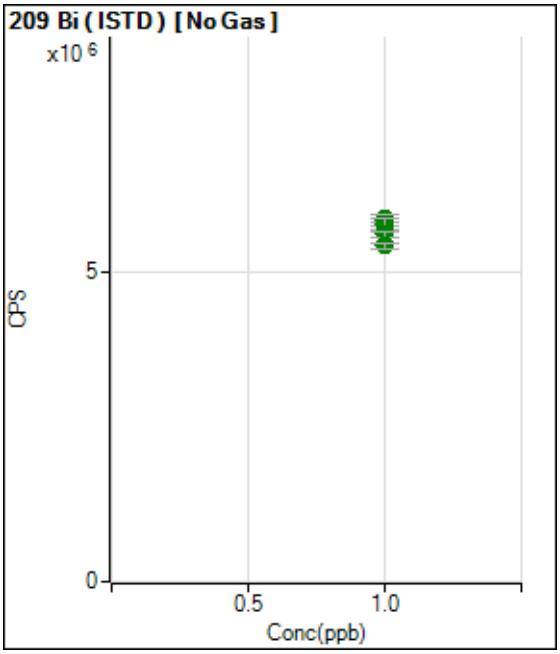


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5762279.09		A	3.0
2	☐	1.000		5569465.29		A	1.1
3	☐	1.000		5546527.08		A	0.9
4	☐	1.000		5582843.11		A	0.4
5	☐	1.000		5387468.46		A	1.9
6	☐	1.000		5190590.08		A	0.8

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2053664.34		A	0.6
2	☐	1.000		2048181.01		A	2.8
3	☐	1.000		2021047.87		A	1.2
4	☐	1.000		2031475.83		A	0.8
5	☐	1.000		1952588.14		A	3.2
6	☐	1.000		1925432.46		A	1.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5779491.99		A	0.8
2	☐	1.000		5837391.16		A	2.8
3	☐	1.000		5859482.83		A	2.0
4	☐	1.000		5783185.54		A	3.1
5	☐	1.000		5614344.50		A	1.8
6	☐	1.000		5429486.59		A	1.6

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	013CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:10:12-05:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	7	1	No Gas	149940	0.00
Be	9	1	No Gas	10	500.00
V	51	2	He	16207	0.00
Cr	52	2	He	1984	0.36
Fe	56	2	He	12967	0.52
Se	78	2	He	37	47.82
Sn	118	2	He	1150	0.68
As	75	2	He	333	2.10
Ca	44	2	He	460	4.04
Na	23	2	He	63294	0.00
Mg	24	2	He	313	11.45
K	39	2	He	32084	0.01
Mn	55	2	He	240	7.96
Co	59	2	He	163	11.45
Ni	60	2	He	180	8.17
Cu	63	2	He	1080	1.72
Zn	66	2	He	490	4.02
Al	27	2	He	817	1.15
B	11	1	No Gas	49424	0.01
Al	27	1	No Gas	66669	0.02
Si	28	1	No Gas	826175	0.00
P	31	1	No Gas	37280	0.00
Ag	107	1	No Gas	793	1.60
Cd	111	1	No Gas	13	859.23
Sr	88	1	No Gas	1387	0.06
Mo	95	1	No Gas	77	59.75
Sn	118	1	No Gas	2767	0.26
Sb	121	1	No Gas	1894	0.19
Ba	137	1	No Gas	200	12.99
Tl	205	1	No Gas	337	3.34
Tl	203	1	No Gas	153	24.19
Pb	208	1	No Gas	48798	0.00
U	238	1	No Gas	63	51.90
Ca	43	2	He	23	212.09
Sb	121	2	He	653	2.89
Ti	47	2	He	20	433.01
Cu	63	1	No Gas	1987	0.47

Calibration Blank Report

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	No Gas	2589135	2.06
Ge	72	2	He	1118718	1.36

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Ge	72	1	No Gas	4398724	1.75
In	115	1	No Gas	5762279	3.02
Bi	209	1	No Gas	5779492	0.83

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	014CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:12:05-05:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	15487	0.00
V	51	2	He	33677	0.00
Cr	52	2	He	25875	0.01
Fe	56	2	He	2049523	0.00
Se	78	2	He	270	4.29
Sn	118	2	He	18770	0.01
As	75	2	He	2851	0.15
Ca	44	2	He	9400	0.02
Na	23	2	He	415214	0.00
Mg	24	2	He	190560	0.00
K	39	2	He	189375	0.00
Mn	55	2	He	14635	0.02
Co	59	2	He	37295	0.00
Ni	60	2	He	9777	0.04
Cu	63	2	He	28644	0.01
Zn	66	2	He	4938	0.10
Al	27	2	He	1723	0.72
B	11	1	No Gas	100329	0.00
Al	27	1	No Gas	125209	0.00
Si	28	1	No Gas	944869	0.00
P	31	1	No Gas	49034	0.00
Ag	107	1	No Gas	69282	0.00
Cd	111	1	No Gas	13821	0.01
Sr	88	1	No Gas	114742	0.00
Mo	95	1	No Gas	23792	0.01
Sn	118	1	No Gas	45048	0.00
Sb	121	1	No Gas	54551	0.00
Ba	137	1	No Gas	18607	0.01
Tl	205	1	No Gas	139805	0.00
Tl	203	1	No Gas	58789	0.00
Pb	208	1	No Gas	243401	0.00
U	238	1	No Gas	203382	0.00
Ca	43	2	He	623	1.63
Sb	121	2	He	22046	0.01
Cu	63	1	No Gas	49170	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2505192	2.57	2589135	96.76	70	120	

Calibration Standard Report

Ge	72	2	He	1101392	1.97	1118718	98.45	70	120	
Ge	72	1	No Gas	4405774	1.28	4398724	100.16	70	120	
In	115	1	No Gas	5569465	1.11	5762279	96.65	70	120	
Bi	209	1	No Gas	5837391	2.82	5779492	101.00	70	120	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	015CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:13:57-05:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	36855	0.00
V	51	2	He	60691	0.00
Cr	52	2	He	59778	0.00
Fe	56	2	He	4910416	0.00
Se	78	2	He	551	1.18
Sn	118	2	He	44429	0.01
As	75	2	He	6374	0.02
Ca	44	2	He	21420	0.00
Na	23	2	He	930282	0.00
Mg	24	2	He	477895	0.00
K	39	2	He	414742	0.00
Mn	55	2	He	35396	0.00
Co	59	2	He	92239	0.00
Ni	60	2	He	24983	0.01
Cu	63	2	He	70470	0.00
Zn	66	2	He	11455	0.03
Al	27	2	He	2644	0.25
B	11	1	No Gas	181287	0.00
Al	27	1	No Gas	208298	0.00
Si	28	1	No Gas	1138901	0.00
P	31	1	No Gas	67588	0.00
Ag	107	1	No Gas	168585	0.00
Cd	111	1	No Gas	34442	0.01
Sr	88	1	No Gas	280734	0.00
Mo	95	1	No Gas	58305	0.00
Sn	118	1	No Gas	107732	0.00
Sb	121	1	No Gas	134425	0.00
Ba	137	1	No Gas	45243	0.00
Tl	205	1	No Gas	347405	0.00
Tl	203	1	No Gas	141822	0.00
Pb	208	1	No Gas	539350	0.00
U	238	1	No Gas	510258	0.00
Ca	43	2	He	1277	0.82
Sb	121	2	He	54577	0.00
Cu	63	1	No Gas	118129	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2559501	2.26	2589135	98.86	70	120	

Calibration Standard Report

Ge	72	2	He	1090447	1.13	1118718	97.47	70	120	
Ge	72	1	No Gas	4300859	0.95	4398724	97.78	70	120	
In	115	1	No Gas	5546527	0.89	5762279	96.26	70	120	
Bi	209	1	No Gas	5859483	1.95	5779492	101.38	70	120	

Calibration Standard Report

Sample Table

Sample Name	10/50/100
Data File Name	016CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:15:49-05:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	75897	0.00
V	51	2	He	105376	0.00
Cr	52	2	He	118027	0.00
Fe	56	2	He	10111522	0.00
Se	78	2	He	1051	0.59
Sn	118	2	He	88777	0.00
As	75	2	He	12652	0.01
Ca	44	2	He	42981	0.00
Na	23	2	He	1761028	0.00
Mg	24	2	He	912426	0.00
K	39	2	He	799809	0.00
Mn	55	2	He	71508	0.00
Co	59	2	He	190679	0.00
Ni	60	2	He	49721	0.00
Cu	63	2	He	133911	0.00
Zn	66	2	He	22966	0.00
Al	27	2	He	4718	0.13
B	11	1	No Gas	323144	0.00
Al	27	1	No Gas	358277	0.00
Si	28	1	No Gas	1483461	0.00
P	31	1	No Gas	97847	0.00
Ag	107	1	No Gas	343379	0.00
Cd	111	1	No Gas	69782	0.00
Sr	88	1	No Gas	568136	0.00
Mo	95	1	No Gas	116955	0.00
Sn	118	1	No Gas	214281	0.00
Sb	121	1	No Gas	270937	0.00
Ba	137	1	No Gas	91697	0.00
Tl	205	1	No Gas	714722	0.00
Tl	203	1	No Gas	295708	0.00
Pb	208	1	No Gas	1023587	0.00
U	238	1	No Gas	1031213	0.00
Ca	43	2	He	2557	0.15
Sb	121	2	He	107035	0.00
Cu	63	1	No Gas	233319	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2538320	2.76	2589135	98.04	70	120	

Calibration Standard Report

Ge	72	2	He	1063996	1.51	1118718	95.11	70	120	
Ge	72	1	No Gas	4334989	1.03	4398724	98.55	70	120	
In	115	1	No Gas	5582843	0.45	5762279	96.89	70	120	
Bi	209	1	No Gas	5783186	3.11	5779492	100.06	70	120	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	017CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:17:41-05:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	726683	0.00
V	51	2	He	884927	0.00
Cr	52	2	He	1089072	0.00
Fe	56	2	He	95118422	0.00
Se	78	2	He	10273	0.03
Sn	118	2	He	851059	0.00
As	75	2	He	122788	0.00
Ca	44	2	He	415084	0.00
Na	23	2	He	16552149	0.00
Mg	24	2	He	8760164	0.00
K	39	2	He	7274281	0.00
Mn	55	2	He	684510	0.00
Co	59	2	He	1818022	0.00
Ni	60	2	He	471407	0.00
Cu	63	2	He	1275229	0.00
Zn	66	2	He	215610	0.00
Al	27	2	He	39196	0.01
B	11	1	No Gas	2677297	0.00
Al	27	1	No Gas	2773494	0.00
Si	28	1	No Gas	7853887	0.00
P	31	1	No Gas	611718	0.00
Ag	107	1	No Gas	3247192	0.00
Cd	111	1	No Gas	676662	0.00
Sr	88	1	No Gas	5288072	0.00
Mo	95	1	No Gas	1116178	0.00
Sn	118	1	No Gas	2005372	0.00
Sb	121	1	No Gas	2636139	0.00
Ba	137	1	No Gas	899178	0.00
Tl	205	1	No Gas	6870546	0.00
Tl	203	1	No Gas	2901358	0.00
Pb	208	1	No Gas	9379522	0.00
U	238	1	No Gas	9992270	0.00
Ca	43	2	He	24602	0.01
Sb	121	2	He	1057961	0.00
Cu	63	1	No Gas	2227068	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2415737	1.84	2589135	93.30	70	120	

Calibration Standard Report

Ge	72	2	He	1036685	2.60	1118718	92.67	70	120	
Ge	72	1	No Gas	4198643	1.39	4398724	95.45	70	120	
In	115	1	No Gas	5387468	1.88	5762279	93.50	70	120	
Bi	209	1	No Gas	5614344	1.78	5779492	97.14	70	120	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	018CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:19:26-05:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	No Gas	1414598	0.00
V	51	2	He	1744885	0.00
Cr	52	2	He	2212592	0.00
Fe	56	2	He	189079224	0.00
Se	78	2	He	20496	0.01
Sn	118	2	He	1727126	0.00
As	75	2	He	237993	0.00
Ca	44	2	He	827184	0.00
Na	23	2	He	31823984	0.00
Mg	24	2	He	17126576	0.00
K	39	2	He	14350478	0.00
Mn	55	2	He	1379710	0.00
Co	59	2	He	3339419	0.00
Ni	60	2	He	902046	0.00
Cu	63	2	He	2440154	0.00
Zn	66	2	He	413813	0.00
Al	27	2	He	73662	0.00
B	11	1	No Gas	5228785	0.00
Al	27	1	No Gas	5319793	0.00
Si	28	1	No Gas	13520266	0.00
P	31	1	No Gas	1120427	0.00
Ag	107	1	No Gas	6096209	0.00
Cd	111	1	No Gas	1283493	0.00
Sr	88	1	No Gas	10294153	0.00
Mo	95	1	No Gas	2196434	0.00
Sn	118	1	No Gas	3931946	0.00
Sb	121	1	No Gas	5015224	0.00
Ba	137	1	No Gas	1696913	0.00
Tl	205	1	No Gas	12959803	0.00
Tl	203	1	No Gas	5445358	0.00
Pb	208	1	No Gas	18201693	0.00
U	238	1	No Gas	19751618	0.00
Ca	43	2	He	48784	0.00
Sb	121	2	He	2125457	0.00
Cu	63	1	No Gas	4103873	0.00

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2284057	1.15	2589135	88.22	70	120	

Calibration Standard Report

Ge	72	2	He	1024534	2.09	1118718	91.58	70	120	
Ge	72	1	No Gas	4132846	2.01	4398724	93.96	70	120	
In	115	1	No Gas	5190590	0.80	5762279	90.08	70	120	
Bi	209	1	No Gas	5429487	1.64	5779492	93.94	70	120	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICV
Data File Name	020_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:23:04-05:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	No Gas	111.079	2.315	3392577	1.28	100	111.1	90	110	ICV Main CR1 Failed
Be	9	1	No Gas	102.460	2.992	724995	1.90	100	102.5	90	110	
V	51	2	He	99.006	1.620	882600	0.88	100	99.0	90	110	
Cr	52	2	He	102.885	2.499	1149034	2.17	100	102.9	90	110	
Fe	56	2	He	10144.319	1.285	97158472	1.02	10000	101.4	90	110	
Se	78	2	He	105.180	0.622	10922	1.30	100	105.2	90	110	
Sn	118	2	He	101.438	2.294	868376	0.98	100	101.4	90	110	
As	75	2	He	105.829	1.454	128287	0.59	100	105.8	90	110	
Ca	44	2	He	10141.176	3.101	424841	2.31	10000	101.4	90	110	
Na	23	2	He	10456.254	2.164	16986064	1.47	10000	104.6	90	110	
Mg	24	2	He	10223.880	2.118	8895756	1.30	10000	102.2	90	110	
K	39	2	He	10082.515	0.417	7350107	0.44	10000	100.8	90	110	
Mn	55	2	He	103.154	0.493	718888	0.38	100	103.2	90	110	
Co	59	2	He	107.541	2.264	1848936	1.48	100	107.5	90	110	
Ni	60	2	He	103.973	0.785	478750	0.59	100	104.0	90	110	
Cu	63	2	He	105.231	1.137	1310833	0.97	100	105.2	90	110	
Zn	66	2	He	105.672	1.172	223164	0.88	100	105.7	90	110	
Al	27	2	He	105.020	3.627	39898	2.69	100	105.0	90	110	
B	11	1	No Gas	511.676	3.251	2690945	2.24	500	102.3	90	110	
Al	27	1	No Gas	102.689	2.616	2786294	2.51	100	102.7	90	110	
Si	28	1	No Gas	677.269	0.590	9621610	1.71	500	135.5	90	110	ICV Main CR1 Failed
P	31	1	No Gas	526.885	2.617	615739	2.50	500	105.4	90	110	
Ag	107	1	No Gas	104.571	3.120	3292149	4.28	100	104.6	90	110	
Cd	111	1	No Gas	104.029	2.149	687957	3.37	100	104.0	90	110	
Sr	88	1	No Gas	100.382	1.090	5296091	1.75	100	100.4	90	110	
Mo	95	1	No Gas	100.051	2.334	1123816	3.11	100	100.1	90	110	
Sn	118	1	No Gas	101.196	1.832	2037118	1.77	100	101.2	90	110	
Sb	121	1	No Gas	107.083	1.987	2720173	0.83	100	107.1	90	110	
Ba	137	1	No Gas	105.471	0.863	922974	0.72	100	105.5	90	110	
Tl	205	1	No Gas	107.447	1.752	7058724	1.35	100	107.4	90	110	
Tl	203	1	No Gas	108.100	1.862	2986933	1.73	100	108.1	90	110	
Pb	208	1	No Gas	104.383	0.927	9593542	1.29	100	104.4	90	110	
U	238	1	No Gas	99.160	0.465	9833083	0.65	100	99.2	90	110	
Ca	43	2	He	10064.902	4.219	24883	3.40	10000	100.6	90	110	
Sb	121	2	He	104.441	2.731	1121914	2.48	100	104.4	90	110	
Ti	47	2	He	99.237	1.449	28313	0.59	100	99.2	90	110	
Cu	63	1	No Gas	107.553	1.927	2251236	1.37	100	107.6	90	110	

QC ISTD Table

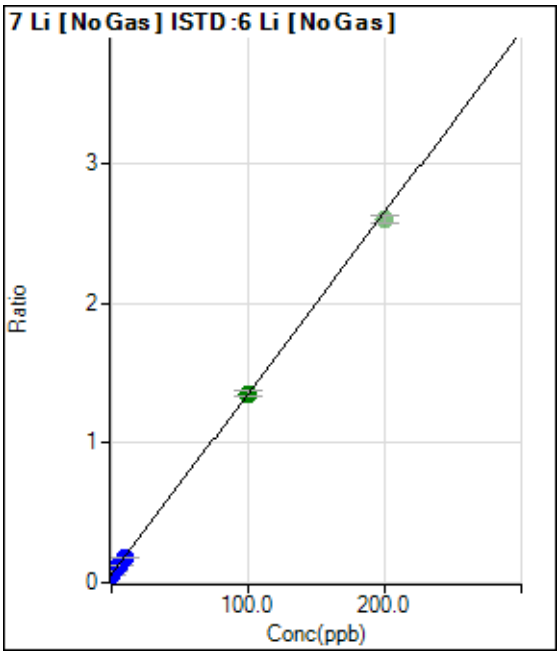
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2297883	1.10	2589135	88.75	70	120	
Ge	72	2	He	1038645	0.86	1118718	92.84	70	120	
Ge	72	1	No Gas	4156196	1.19	4398724	94.49	70	120	
In	115	1	No Gas	5330371	1.27	5762279	92.50	70	120	
Bi	209	1	No Gas	5475523	0.41	5779492	94.74	70	120	

Calibration for 020_ICV.d

Batch Folder: C:\Agilent\ICPMH\1\DATA\092120B.b\
Analysis File: 092120B.batch.bin
DA Date-Time: 9/21/2020 11:29:19 AM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	013CALB.d	CAL BLK	9/21/2020 11:10:12 AM
2	014CALS.d	2/10/200	9/21/2020 11:12:05 AM
3	015CALS.d	5/25/500	9/21/2020 11:13:57 AM
4	016CALS.d	10/50/100	9/21/2020 11:15:49 AM
5	017CALS.d	100/500/10K	9/21/2020 11:17:41 AM
6	018CALS.d	200/1000/20K	9/21/2020 11:19:26 AM

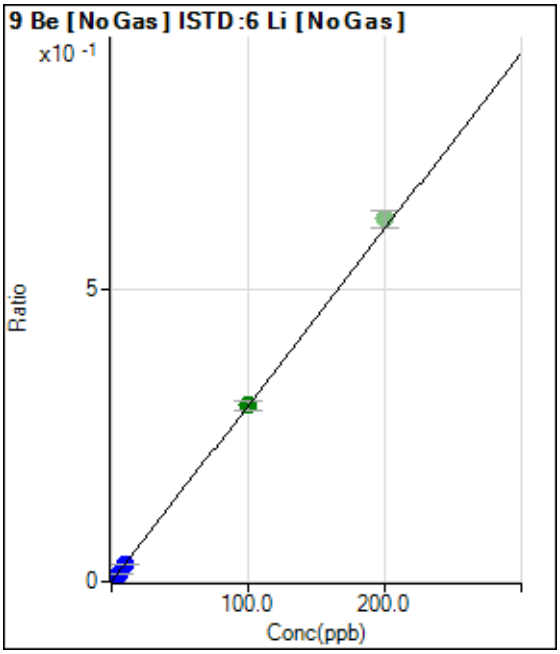
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	149939.87	0.0579	P	3.5
2	☐	2.000	2.036	211314.61	0.0844	P	0.8
3	☐	5.000	4.752	306121.57	0.1196	P	1.7
4	☐	10.000	9.713	466994.59	0.1840	P	2.1
5	☐	100.000	100.040	3276564.01	1.3569	A	3.2
6	☑	200.000		5941593.66	2.6015	A	2.0

y = 0.0130 * x + 0.0579
R = 1.0000
DL = 0.469
BEC = 4.462

Weight: <None>
Min Conc: <None>

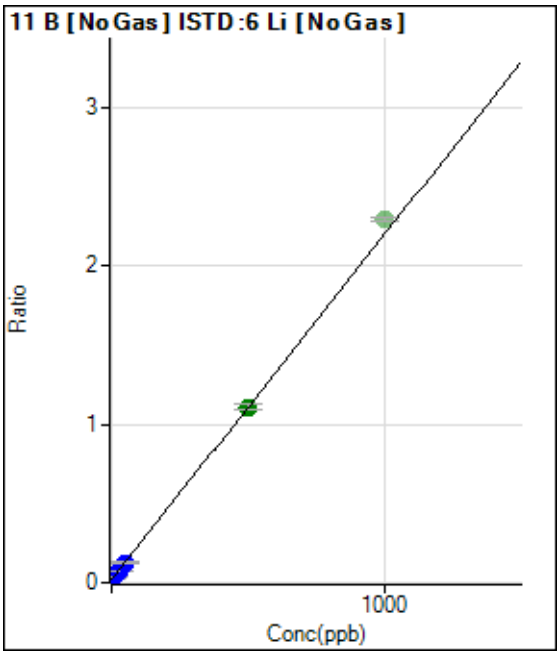


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10.00	0.0000	P	49.1
2	☐	2.000	2.054	15486.93	0.0062	P	2.8
3	☐	5.000	4.785	36855.06	0.0144	P	1.8
4	☐	10.000	9.936	75897.22	0.0299	P	1.1
5	☐	100.000	100.016	726683.14	0.3010	A	5.6
6	☑	200.000		1414598.36	0.6196	A	4.8

y = 0.0030 * x + 3.8437E-006
R = 1.0000
DL = 0.001883
BEC = 0.001277

Weight: <None>
Min Conc: <None>

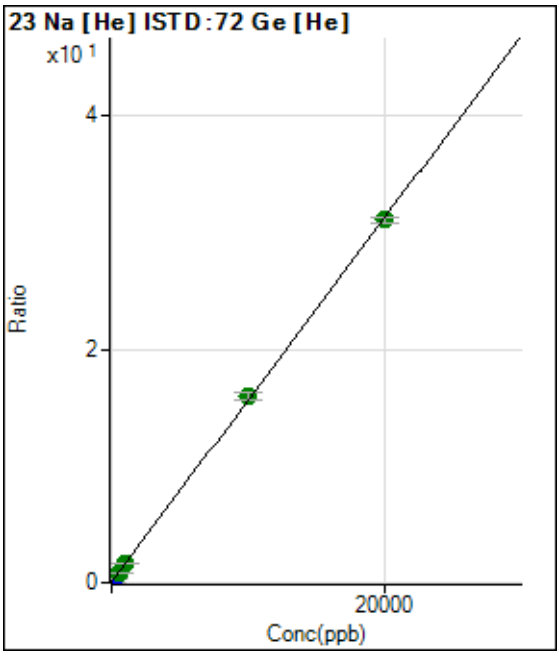
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	49424.15	0.0191	P	0.8
2	☐	10.000	9.628	100328.56	0.0401	P	2.7
3	☐	25.000	23.761	181286.60	0.0709	P	3.1
4	☐	50.000	49.682	323143.52	0.1273	P	1.5
5	☐	500.000	500.101	2677296.52	1.1088	A	3.7
6	☑	1000.000		5228784.61	2.2894	A	1.1

y = 0.0022 * x + 0.0191
R = 1.0000
DL = 0.1995
BEC = 8.76

Weight: <None>
Min Conc: <None>

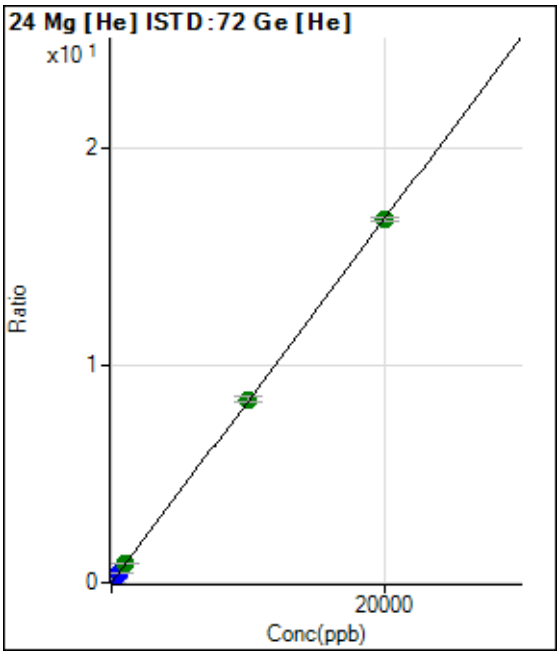


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63293.82	0.0566	P	2.9
2	☐	200.000	205.607	415213.65	0.3771	P	2.1
3	☐	500.000	510.993	930281.83	0.8531	A	0.2
4	☐	1000.000	1025.865	1761027.63	1.6557	A	4.1
5	☐	10000.00	10212.56	16552148.92	15.9760	A	3.9
6	☐	20000.00	19892.09	31823983.69	31.0644	A	1.4

y = 0.0016 * x + 0.0566
R = 0.9999
DL = 3.176
BEC = 36.3

Weight: <None>
Min Conc: <None>

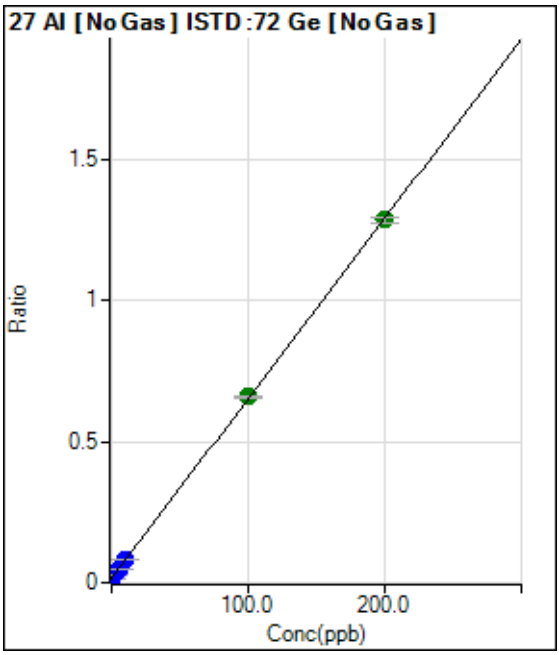
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	313.34	0.0003	P	35.2
2	☐	200.000	206.253	190560.11	0.1731	P	3.1
3	☐	500.000	522.775	477895.45	0.4383	P	0.6
4	☐	1000.000	1023.577	912426.50	0.8578	A	3.3
5	☐	10000.00	10092.07	8760163.83	8.4554	A	3.7
6	☐	20000.00	19952.15	17126576.41	16.7161	A	0.9

y = 8.3779E-004 * x + 2.7971E-004
R = 1.0000
DL = 0.3527
BEC = 0.3339

Weight: <None>
Min Conc: <None>

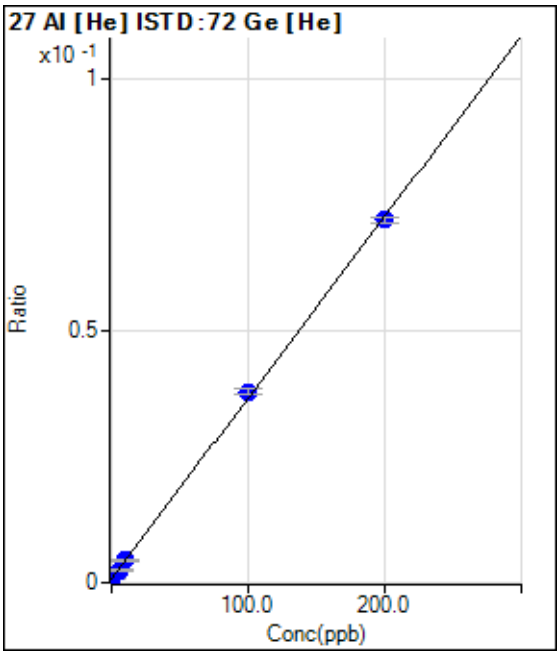


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	66668.50	0.0152	P	9.7
2	☐	2.000	2.080	125208.57	0.0284	P	1.7
3	☐	5.000	5.215	208298.07	0.0484	P	0.4
4	☐	10.000	10.579	358276.93	0.0827	P	1.9
5	☐	100.000	101.154	2773494.33	0.6606	A	1.3
6	☐	200.000	199.388	5319793.25	1.2875	A	1.7

y = 0.0064 * x + 0.0152
R = 1.0000
DL = 0.6884
BEC = 2.375

Weight: <None>
Min Conc: <None>

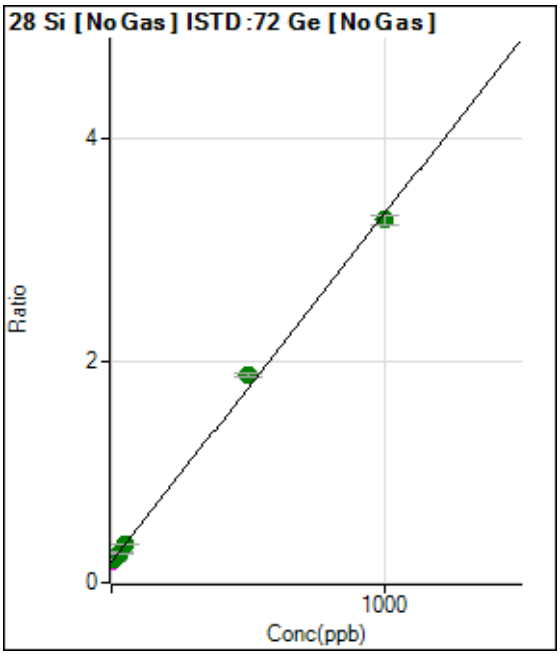
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	816.71	0.0007	P	10.6
2	☐	2.000	2.328	1723.47	0.0016	P	13.4
3	☐	5.000	4.719	2643.63	0.0024	P	6.4
4	☐	10.000	10.327	4717.55	0.0044	P	7.6
5	☐	100.000	103.339	39195.95	0.0378	P	2.6
6	☐	200.000	198.318	73662.44	0.0719	P	1.7

y = 3.5889E-004 * x + 7.3071E-004
R = 0.9998
DL = 0.65
BEC = 2.036

Weight: <None>
Min Conc: <None>

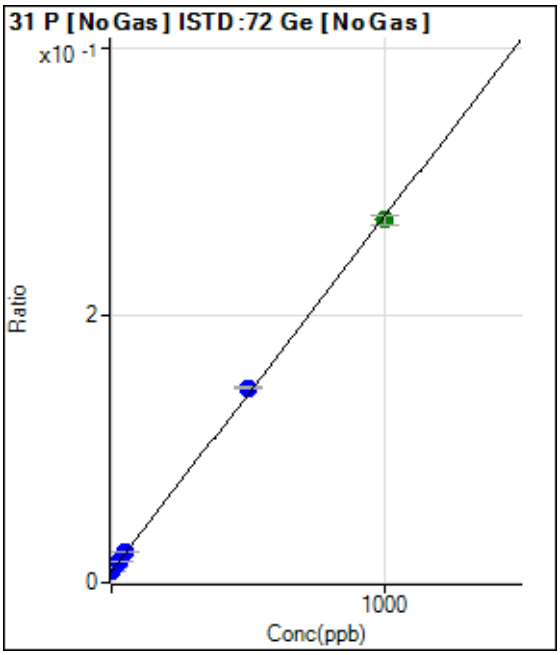


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	826175.30	0.1879	M	6.1
2	☐	10.000	8.435	944869.18	0.2144	A	3.1
3	☐	25.000	24.480	1138901.44	0.2648	A	4.0
4	☐	50.000	49.135	1483460.86	0.3422	A	1.5
5	☐	500.000	535.837	7853886.97	1.8707	A	2.4
6	☐	1000.000	982.154	13520266.47	3.2724	A	2.3

y = 0.0031 * x + 0.1879
R = 0.9991
DL = 10.88
BEC = 59.84

Weight: <None>
Min Conc: <None>

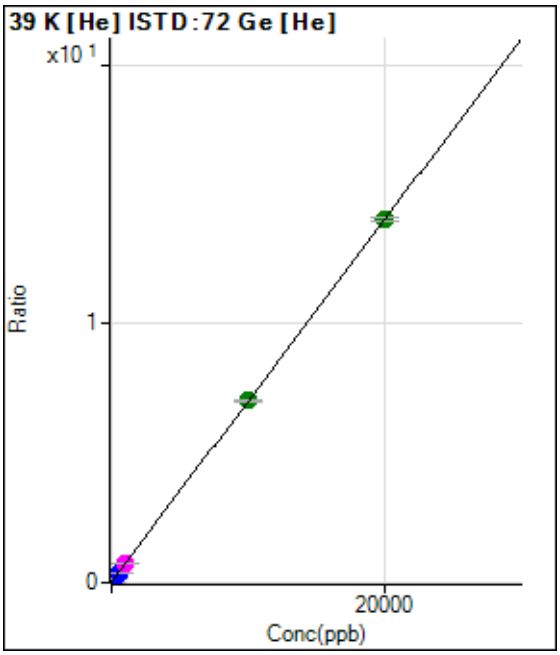
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	37280.47	0.0085	P	3.3
2	☐	10.000	10.004	49033.54	0.0111	P	2.1
3	☐	25.000	27.297	67588.03	0.0157	P	0.4
4	☐	50.000	53.171	97847.44	0.0226	P	1.9
5	☐	500.000	517.678	611717.61	0.1457	P	1.6
6	☐	1000.000	990.945	1120427.17	0.2712	A	3.0

y = 2.6510E-004 * x + 0.0085
R = 0.9998
DL = 3.133
BEC = 31.98

Weight: <None>
Min Conc: <None>

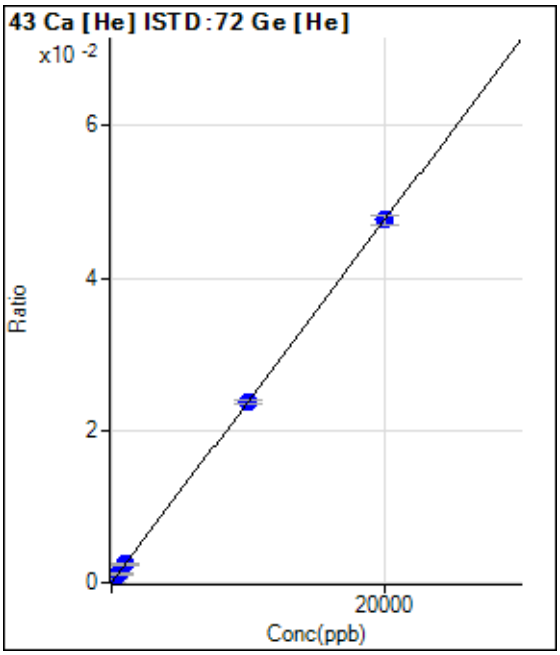


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	32084.44	0.0287	P	4.4
2	☐	200.000	204.968	189375.24	0.1720	P	1.3
3	☐	500.000	503.132	414742.12	0.3804	P	2.4
4	☐	1000.000	1034.348	799809.26	0.7517	M	1.7
5	☐	10000.00	9999.040	7274280.93	7.0184	A	1.3
6	☐	20000.00	19998.63	14350478.12	14.0086	A	1.0

y = 6.9904E-004 * x + 0.0287
R = 1.0000
DL = 5.374
BEC = 41.04

Weight: <None>
Min Conc: <None>

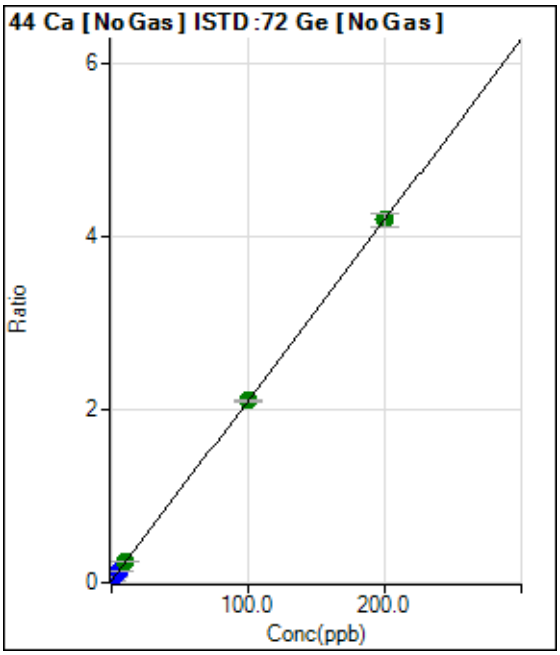
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23.33	0.0000	P	48.9
2	☐	200.000	229.065	623.36	0.0006	P	9.3
3	☐	500.000	483.890	1276.75	0.0012	P	11.6
4	☐	1000.000	1001.306	2556.97	0.0024	P	2.4
5	☐	10000.00	9969.292	24602.38	0.0237	P	1.2
6	☐	20000.00	20015.40	48783.96	0.0476	P	2.5

y = 2.3787E-006 * x + 2.0787E-005
R = 1.0000
DL = 12.82
BEC = 8.739

Weight: <None>
Min Conc: <None>

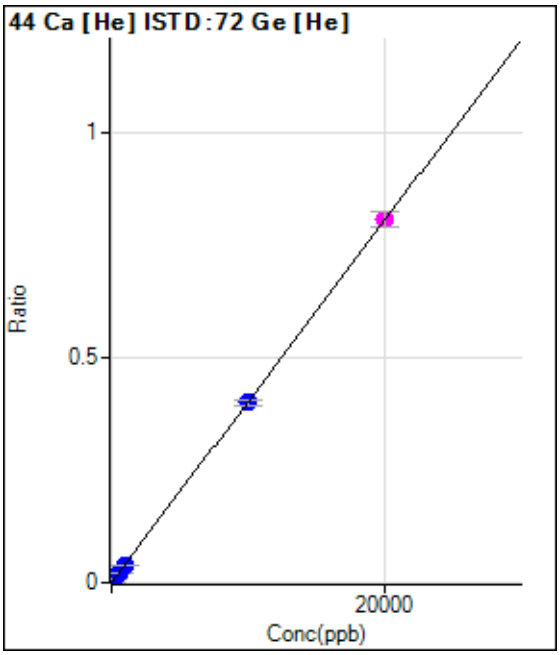


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	98005.67	0.0223	P	1.5
2	☐	2.000	2.048	286319.88	0.0650	P	2.2
3	☐	5.000	5.272	568653.44	0.1322	P	1.2
4	☐	10.000	10.455	1041783.55	0.2403	A	0.7
5	☐	100.000	99.977	8847369.04	2.1073	A	0.9
6	☐	200.000	199.982	17319699.33	4.1930	A	3.9

y = 0.0209 * x + 0.0223
R = 1.0000
DL = 0.04769
BEC = 1.068

Weight: <None>
Min Conc: <None>

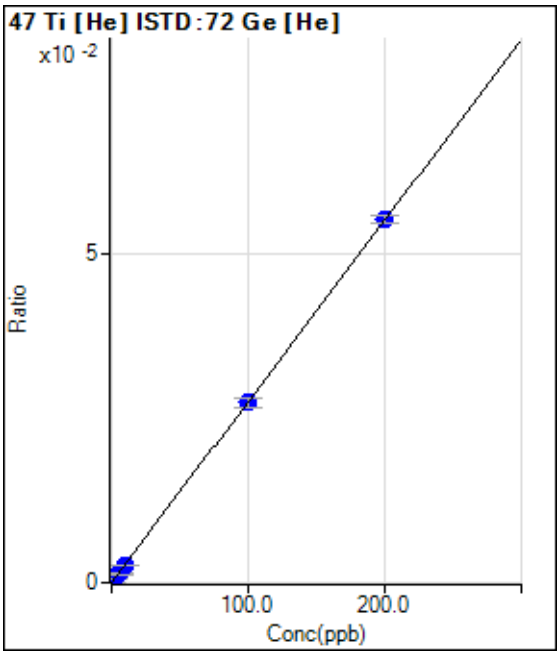
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	460.02	0.0004	P	17.8
2	☐	200.000	201.670	9400.07	0.0085	P	3.2
3	☐	500.000	477.285	21420.35	0.0196	P	1.3
4	☐	1000.000	992.144	42981.04	0.0404	P	0.5
5	☐	10000.00	9930.232	415084.15	0.4006	P	3.0
6	☐	20000.00	20035.82	827183.69	0.8079	M	4.3

y = 4.0300E-005 * x + 4.1087E-004
R = 1.0000
DL = 5.445
BEC = 10.2

Weight: <None>
Min Conc: <None>

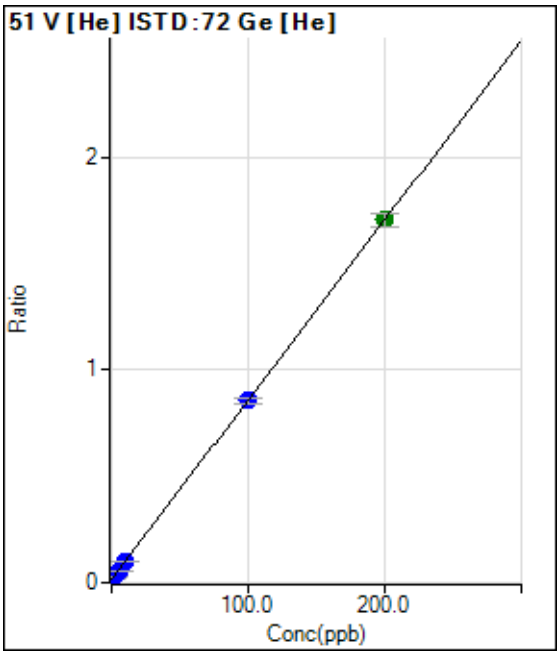


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	20.00	0.0000	P	86.6
2	☐	2.000	1.952	610.03	0.0006	P	6.5
3	☐	5.000	4.859	1473.44	0.0014	P	6.8
4	☐	10.000	9.135	2687.00	0.0025	P	0.9
5	☐	100.000	99.310	28259.62	0.0273	P	4.8
6	☐	200.000	200.392	56366.23	0.0550	P	2.2

y = 2.7454E-004 * x + 1.7771E-005
R = 1.0000
DL = 0.1682
BEC = 0.06473

Weight: <None>
Min Conc: <None>

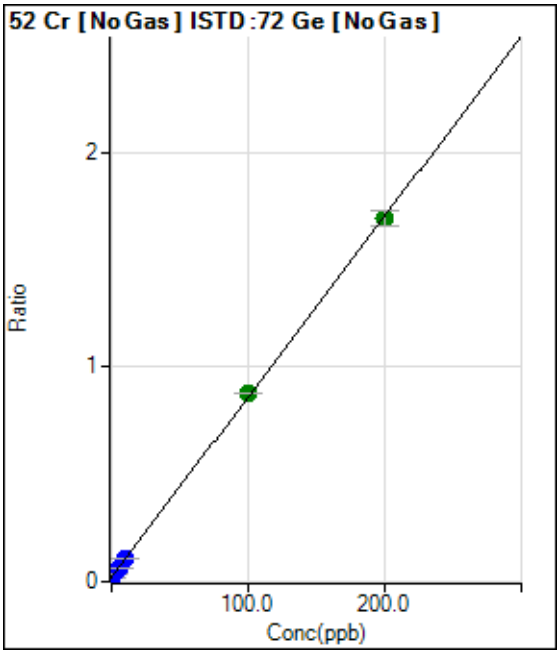
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	16207.40	0.0145	P	1.1
2	☐	2.000	1.907	33676.81	0.0306	P	1.7
3	☐	5.000	4.879	60691.43	0.0557	P	1.2
4	☐	10.000	10.023	105375.62	0.0991	P	1.9
5	☐	100.000	99.503	884927.22	0.8540	P	2.9
6	☐	200.000	200.251	1744884.76	1.7041	A	4.1

y = 0.0084 * x + 0.0145
R = 1.0000
DL = 0.05442
BEC = 1.717

Weight: <None>
Min Conc: <None>

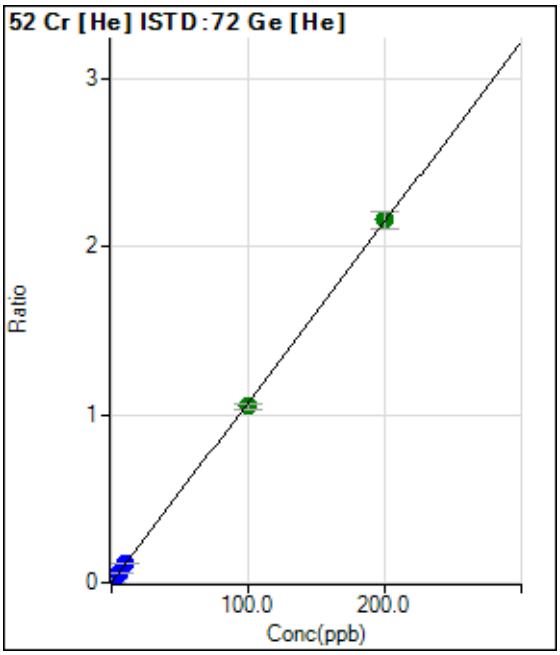


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	89545.64	0.0204	P	3.4
2	☐	2.000	2.083	166846.54	0.0379	P	0.6
3	☐	5.000	5.473	285369.57	0.0664	P	1.6
4	☐	10.000	10.670	476937.09	0.1100	P	1.6
5	☐	100.000	102.442	3700032.55	0.8812	A	0.2
6	☐	200.000	198.733	6982229.90	1.6904	A	4.4

y = 0.0084 * x + 0.0204
R = 0.9999
DL = 0.249
BEC = 2.423

Weight: <None>
Min Conc: <None>

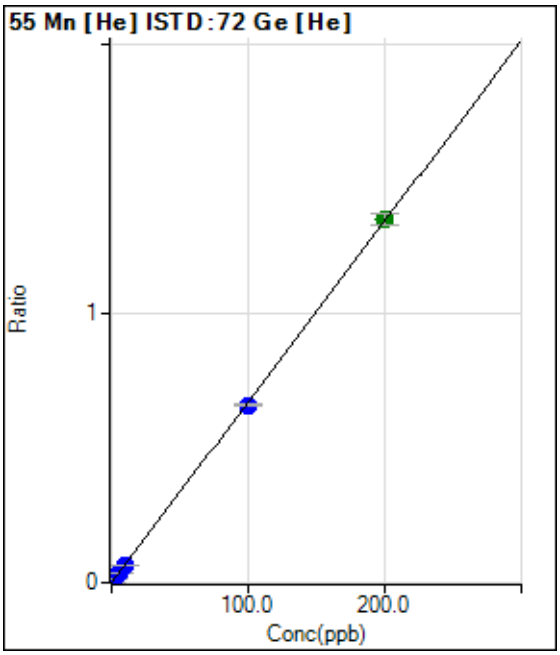
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1983.51	0.0018	P	5.8
2	☐	2.000	2.024	25874.80	0.0235	P	2.7
3	☐	5.000	4.941	59777.86	0.0548	P	2.6
4	☐	10.000	10.170	118027.04	0.1110	P	2.4
5	☐	100.000	97.739	1089072.25	1.0511	A	3.8
6	☐	200.000	201.123	2212591.74	2.1611	A	4.8

y = 0.0107 * x + 0.0018
R = 0.9999
DL = 0.02886
BEC = 0.1651

Weight: <None>
Min Conc: <None>

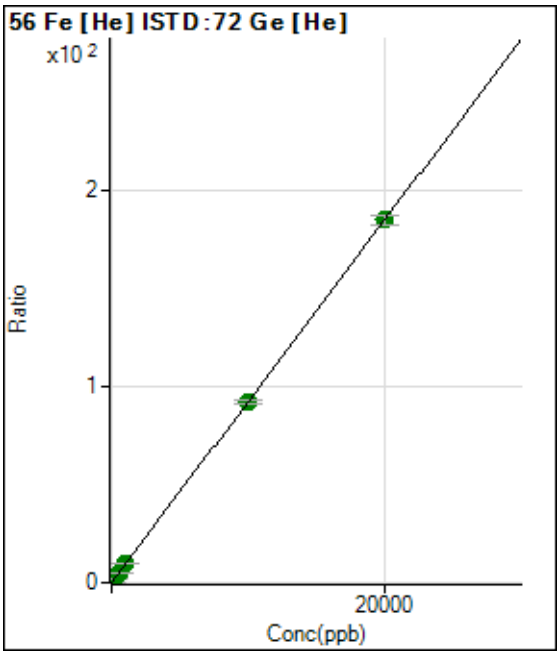


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	240.01	0.0002	P	18.5
2	☐	2.000	1.949	14634.75	0.0133	P	1.7
3	☐	5.000	4.808	35396.46	0.0325	P	1.2
4	☐	10.000	9.989	71508.18	0.0672	P	1.5
5	☐	100.000	98.427	684510.15	0.6605	P	1.7
6	☐	200.000	200.792	1379710.24	1.3471	A	3.0

y = 0.0067 * x + 2.1439E-004
R = 1.0000
DL = 0.01769
BEC = 0.03196

Weight: <None>
Min Conc: <None>

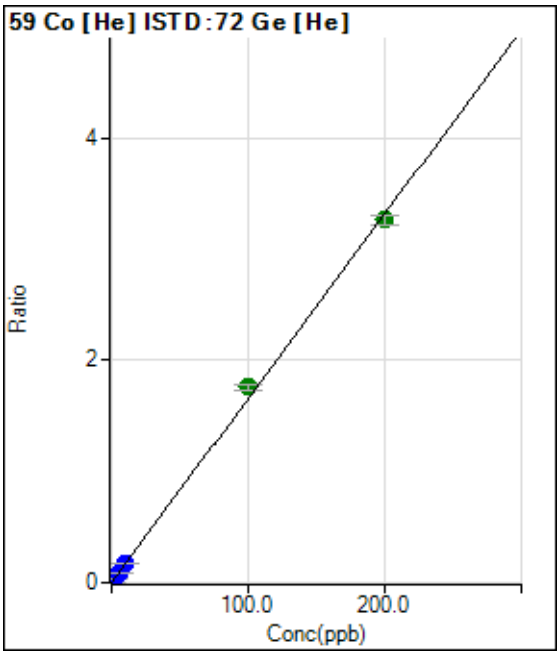
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	12966.78	0.0115	P	65.4
2	☐	200.000	200.553	2049523.04	1.8607	A	2.8
3	☐	500.000	487.198	4910416.49	4.5038	A	1.9
4	☐	1000.000	1029.577	10111521.93	9.5048	A	1.5
5	☐	10000.00	9953.086	95118421.92	91.7844	A	2.0
6	☐	20000.00	20022.29	189079223.8	184.628	A	3.0

y = 0.0092 * x + 0.0115
R = 1.0000
DL = 2.454
BEC = 1.25

Weight: <None>
Min Conc: <None>

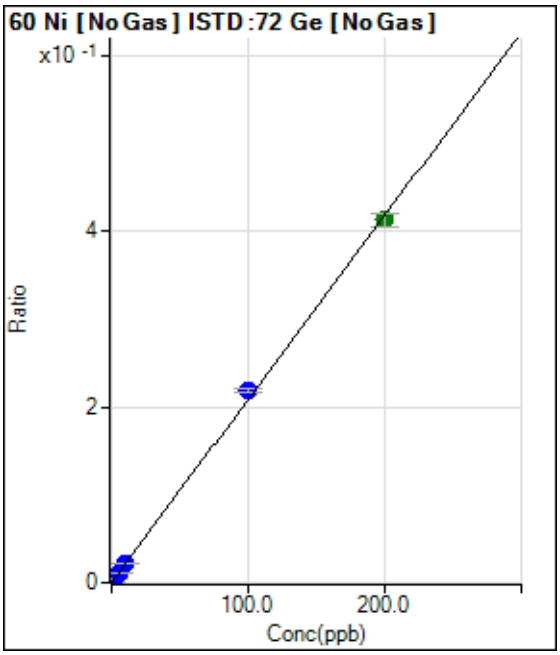


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	163.33	0.0001	P	19.1
2	☐	2.000	2.037	37295.11	0.0339	P	1.1
3	☐	5.000	5.102	92239.07	0.0846	P	2.5
4	☐	10.000	10.819	190679.11	0.1792	P	1.9
5	☐	100.000	105.966	1818022.11	1.7543	A	2.0
6	☐	200.000	196.973	3339419.32	3.2608	A	3.0

y = 0.0166 * x + 1.4606E-004
R = 0.9994
DL = 0.005056
BEC = 0.008823

Weight: <None>
Min Conc: <None>

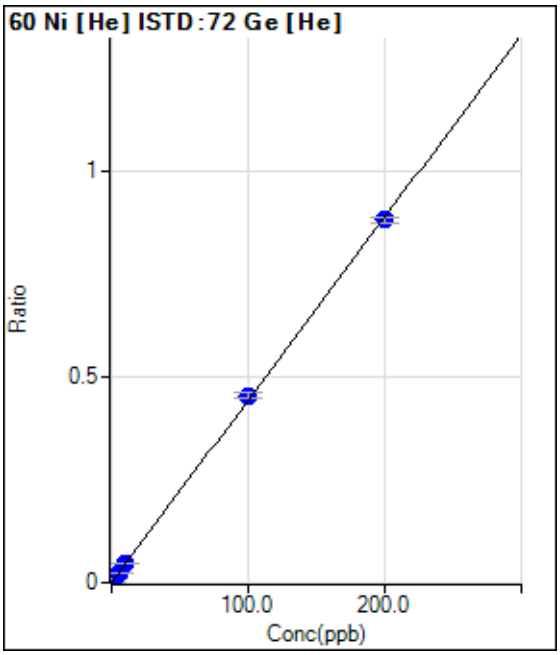
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	453.35	0.0001	P	7.1
2	☐	2.000	2.143	20151.94	0.0046	P	3.1
3	☐	5.000	5.334	48316.41	0.0112	P	1.7
4	☐	10.000	10.569	96045.46	0.0222	P	2.2
5	☐	100.000	104.366	914794.31	0.2179	P	2.0
6	☐	200.000	197.779	1705251.90	0.4128	A	3.8

y = 0.0021 * x + 1.0314E-004
R = 0.9997
DL = 0.01051
BEC = 0.04943

Weight: <None>
Min Conc: <None>

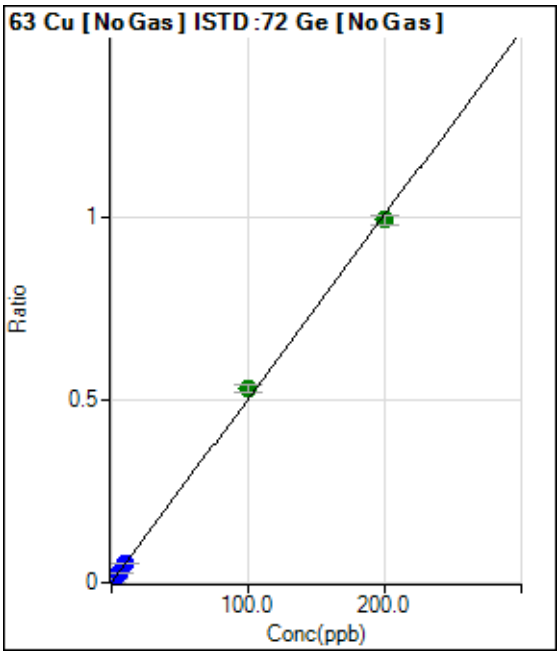


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	180.01	0.0002	P	13.3
2	☐	2.000	1.967	9777.00	0.0089	P	3.9
3	☐	5.000	5.134	24983.35	0.0229	P	2.3
4	☐	10.000	10.508	49721.33	0.0467	P	1.1
5	☐	100.000	102.611	471406.86	0.4549	P	2.5
6	☐	200.000	198.666	902045.87	0.8806	P	1.5

y = 0.0044 * x + 1.6071E-004
R = 0.9999
DL = 0.01447
BEC = 0.03626

Weight: <None>
Min Conc: <None>

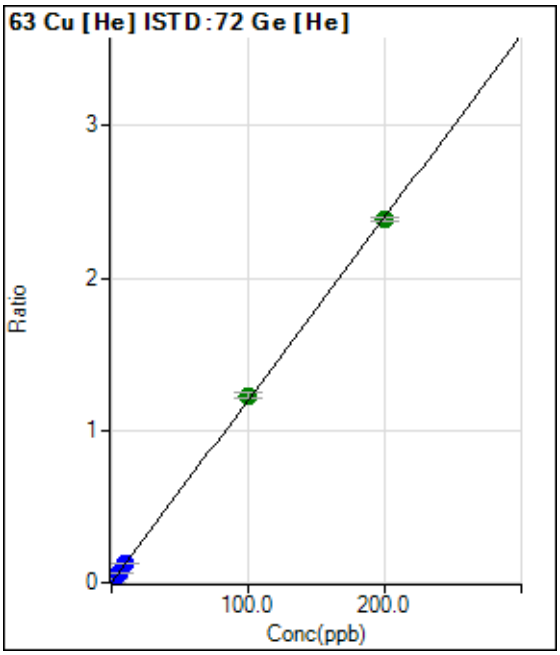
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1986.85	0.0005	P	10.4
2	☐	2.000	2.128	49169.70	0.0112	P	1.2
3	☐	5.000	5.368	118128.62	0.0275	P	1.9
4	☐	10.000	10.607	233319.05	0.0538	P	2.5
5	☐	100.000	105.330	2227068.25	0.5305	A	3.5
6	☐	200.000	197.294	4103872.96	0.9933	A	2.7

y = 0.0050 * x + 4.5204E-004
R = 0.9995
DL = 0.02808
BEC = 0.08982

Weight: <None>
Min Conc: <None>

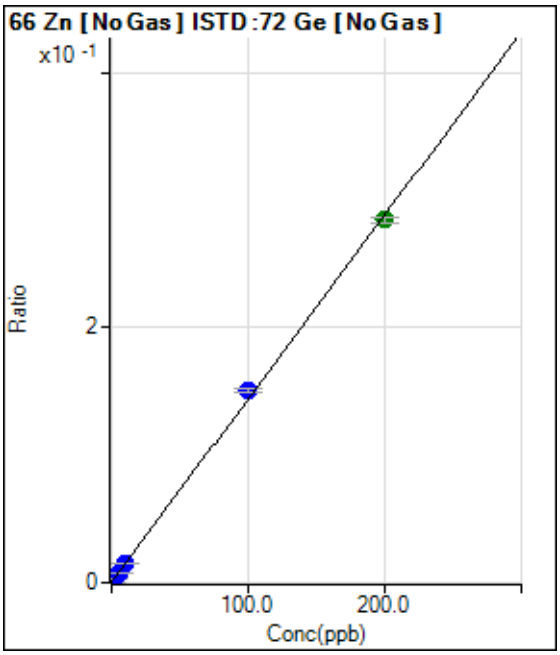


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1080.07	0.0010	P	19.1
2	☐	2.000	2.090	28643.97	0.0260	P	3.0
3	☐	5.000	5.312	70469.55	0.0646	P	2.1
4	☐	10.000	10.423	133911.48	0.1259	P	1.7
5	☐	100.000	102.609	1275228.99	1.2307	A	2.7
6	☐	200.000	198.666	2440154.28	2.3819	A	0.9

y = 0.0120 * x + 9.6602E-004
R = 0.9999
DL = 0.04626
BEC = 0.08061

Weight: <None>
Min Conc: <None>

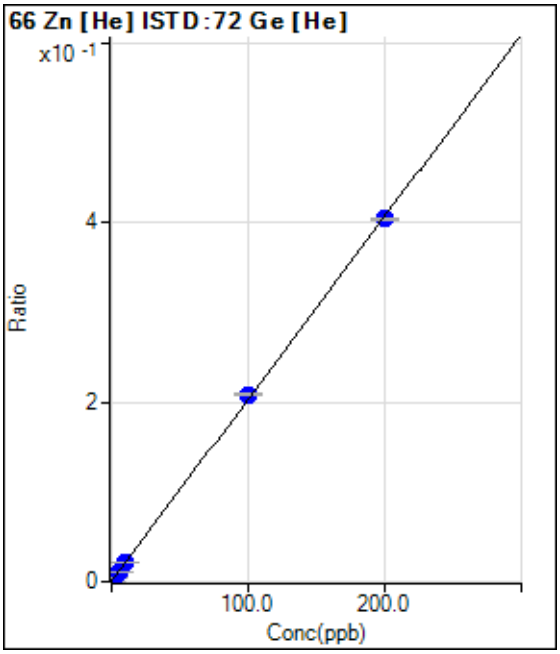
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1400.10	0.0003	P	5.3
2	☐	2.000	2.069	14518.04	0.0033	P	3.5
3	☐	5.000	5.219	33668.84	0.0078	P	2.5
4	☐	10.000	10.496	66854.56	0.0154	P	1.6
5	☐	100.000	104.791	634454.35	0.1511	P	1.8
6	☐	200.000	197.574	1176732.04	0.2847	A	1.8

y = 0.0014 * x + 3.1822E-004
R = 0.9996
DL = 0.03504
BEC = 0.2211

Weight: <None>
Min Conc: <None>

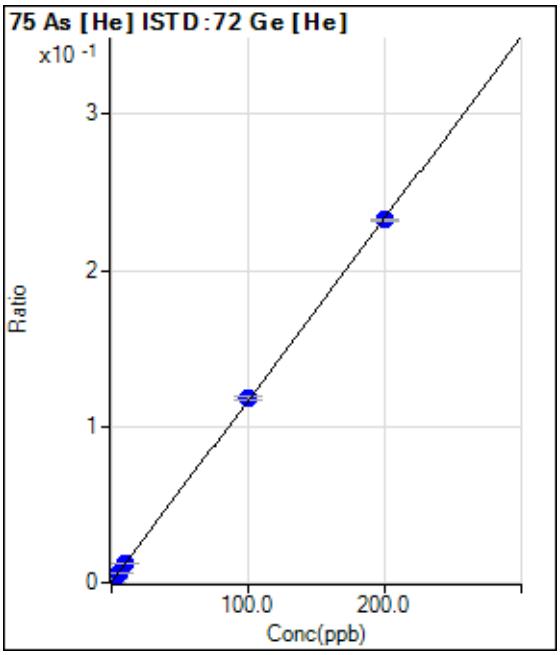


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	490.02	0.0004	P	18.3
2	☐	2.000	1.995	4937.67	0.0045	P	6.0
3	☐	5.000	4.962	11455.03	0.0105	P	3.4
4	☐	10.000	10.424	22966.37	0.0216	P	2.5
5	☐	100.000	102.296	215609.85	0.2080	P	1.4
6	☐	200.000	198.832	413813.20	0.4039	P	0.5

y = 0.0020 * x + 4.3731E-004
R = 0.9999
DL = 0.1181
BEC = 0.2155

Weight: <None>
Min Conc: <None>

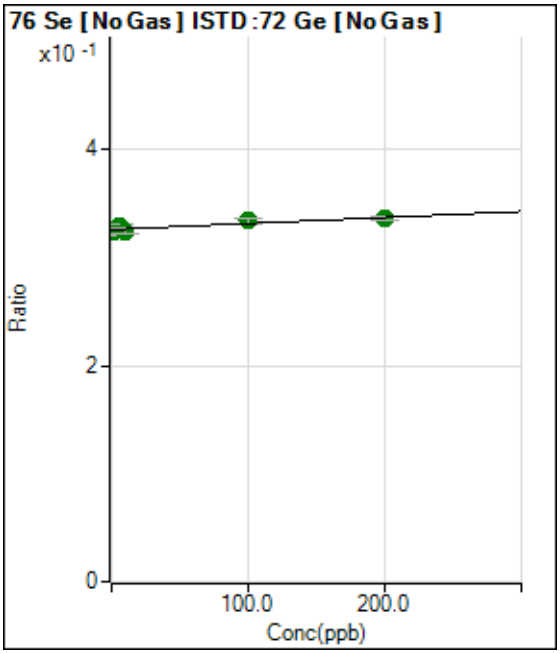
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	333.34	0.0003	P	8.3
2	☐	2.000	1.967	2851.43	0.0026	P	2.5
3	☐	5.000	4.764	6373.75	0.0058	P	0.2
4	☐	10.000	9.957	12651.52	0.0119	P	1.6
5	☐	100.000	101.496	122787.96	0.1185	P	1.7
6	☐	200.000	199.260	237992.62	0.2323	P	0.6

y = 0.0012 * x + 2.9819E-004
R = 1.0000
DL = 0.06396
BEC = 0.2561

Weight: <None>
Min Conc: <None>

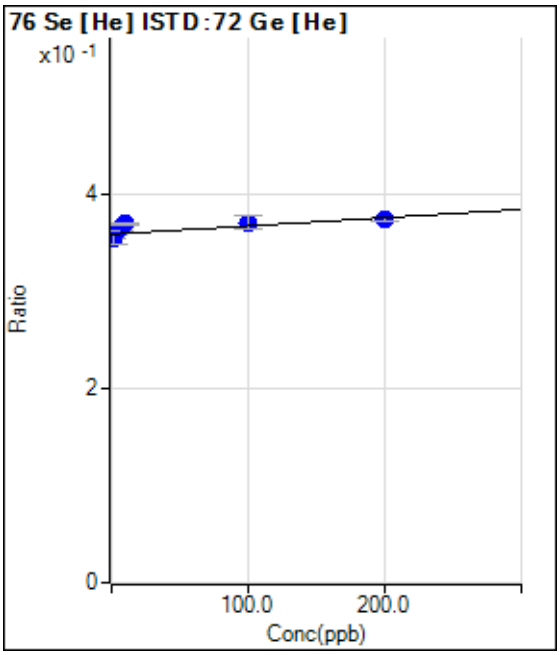


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1434642.79	0.3262	A	1.9
2	☐	2.000	-49.422	1424690.39	0.3234	A	2.2
3	☐	5.000	46.484	1413981.28	0.3288	A	1.7
4	☐	10.000	-25.949	1407825.81	0.3247	A	1.7
5	☐	100.000	152.611	1405425.24	0.3347	A	1.6
6	☐	200.000	174.969	1388220.13	0.3359	A	1.1

y = 5.5793E-005 * x + 0.3262
R = 0.8931
DL = 327.4
BEC = 5846

Weight: <None>
Min Conc: <None>

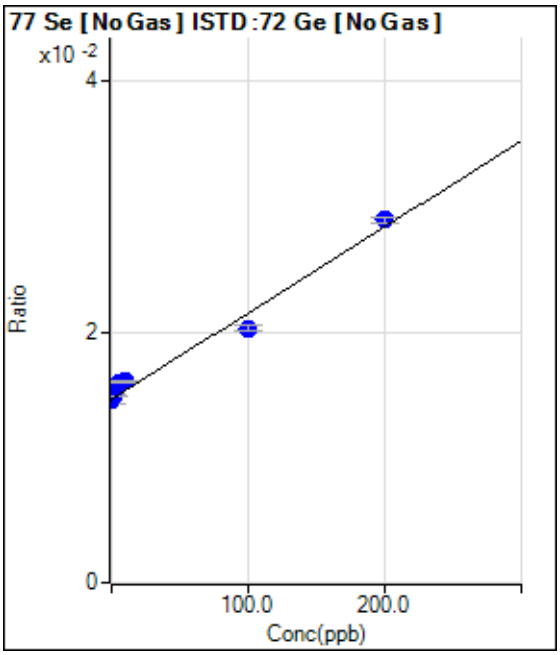
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	400715.97	0.3583	P	2.1
2	☐	2.000	-61.485	388685.98	0.3530	P	2.8
3	☐	5.000	71.844	397281.55	0.3644	P	1.9
4	☐	10.000	128.378	392797.82	0.3692	P	0.6
5	☐	100.000	141.112	383612.68	0.3703	P	3.8
6	☐	200.000	172.489	382068.56	0.3729	P	1.2

y = 8.5159E-005 * x + 0.3583
R = 0.7091
DL = 269.6
BEC = 4207

Weight: <None>
Min Conc: <None>

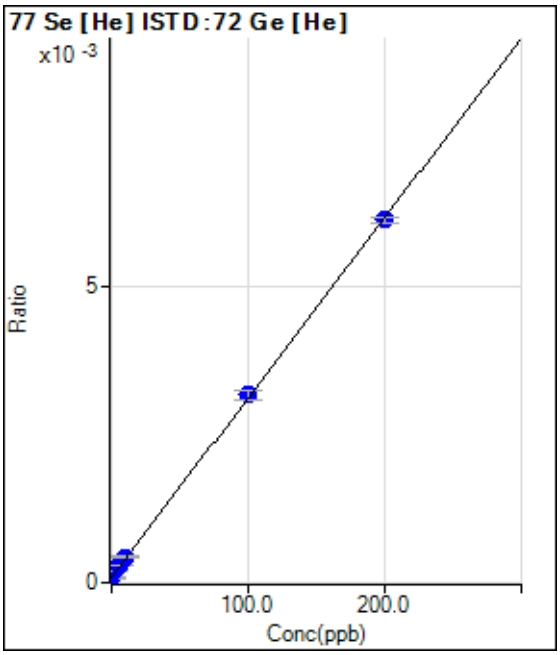


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	64384.32	0.0146	P	4.5
2	☐	2.000	3.611	65613.17	0.0149	P	0.7
3	☐	5.000	19.877	68852.85	0.0160	P	1.2
4	☐	10.000	20.870	69696.94	0.0161	P	1.2
5	☐	100.000	82.128	85168.36	0.0203	P	2.0
6	☐	200.000	208.005	119573.78	0.0289	P	1.7

y = 6.8706E-005 * x + 0.0146
R = 0.9899
DL = 28.48
BEC = 213.2

Weight: <None>
Min Conc: <None>

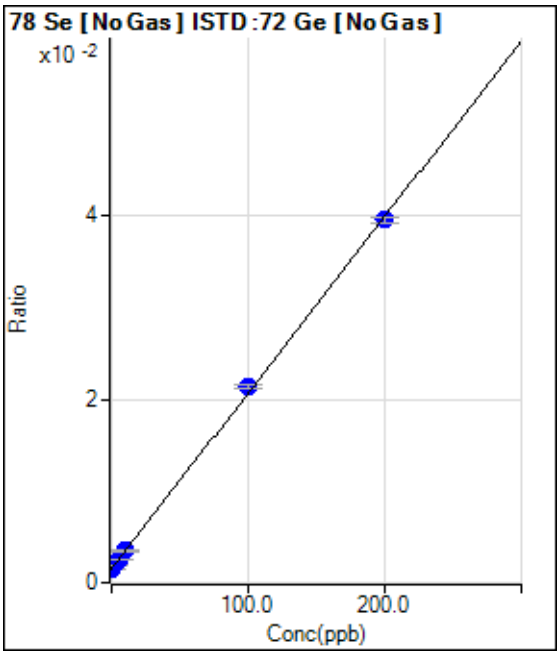
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	100.00	0.0001	P	37.1
2	☐	2.000	3.743	223.34	0.0002	P	23.3
3	☐	5.000	6.826	323.34	0.0003	P	7.5
4	☐	10.000	11.298	460.01	0.0004	P	12.1
5	☐	100.000	101.823	3293.80	0.0032	P	4.9
6	☐	200.000	198.961	6274.94	0.0061	P	1.8

y = 3.0341E-005 * x + 8.9566E-005
R = 0.9999
DL = 3.282
BEC = 2.952

Weight: <None>
Min Conc: <None>

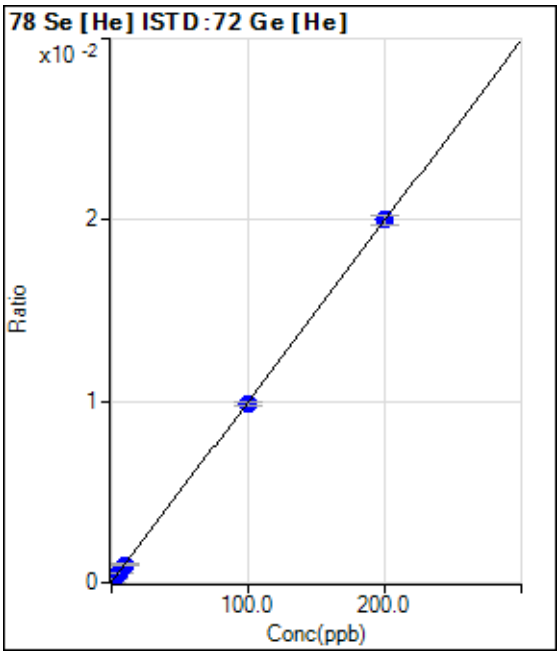


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	6678.44	0.0015	P	2.5
2	☐	2.000	1.913	8302.69	0.0019	P	1.5
3	☐	5.000	5.347	10934.61	0.0025	P	4.4
4	☐	10.000	10.161	15021.99	0.0035	P	3.5
5	☐	100.000	103.326	89524.45	0.0213	P	1.7
6	☐	200.000	198.321	163372.22	0.0395	P	1.9

y = 1.9170E-004 * x + 0.0015
R = 0.9998
DL = 0.5839
BEC = 7.918

Weight: <None>
Min Conc: <None>

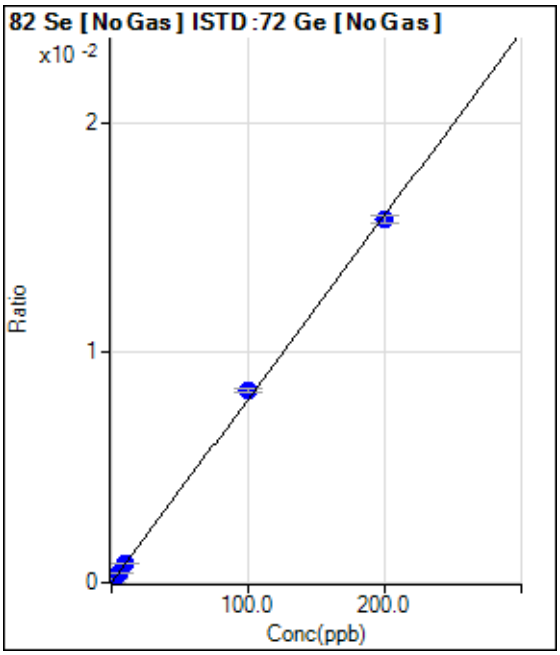
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	36.67	0.0000	P	18.8
2	☐	2.000	2.129	270.00	0.0002	P	10.7
3	☐	5.000	4.738	550.68	0.0005	P	6.5
4	☐	10.000	9.575	1050.71	0.0010	P	5.0
5	☐	100.000	99.109	10272.61	0.0099	P	2.1
6	☐	200.000	200.472	20496.27	0.0200	P	2.7

y = 9.9661E-005 * x + 3.2825E-005
R = 1.0000
DL = 0.1854
BEC = 0.3294

Weight: <None>
Min Conc: <None>

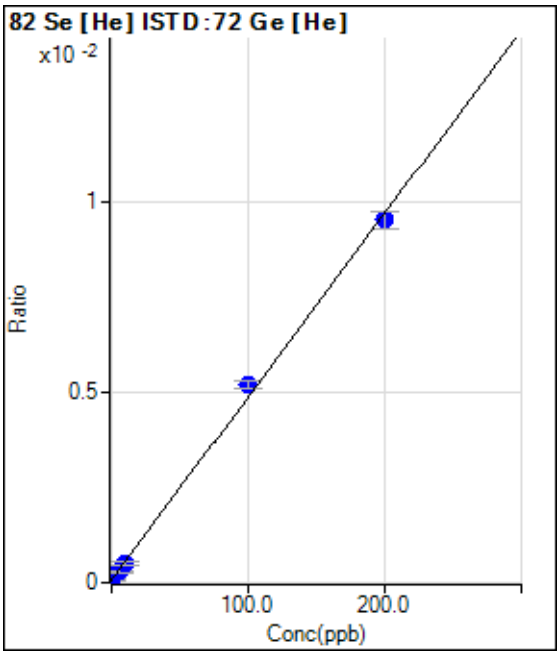


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	-63.13	0.0000	P	-154.3
2	☐	2.000	2.165	700.36	0.0002	P	16.8
3	☐	5.000	5.218	1730.51	0.0004	P	11.4
4	☐	10.000	10.166	3458.03	0.0008	P	2.0
5	☐	100.000	104.556	34994.01	0.0083	P	2.5
6	☐	200.000	197.707	65190.23	0.0158	P	1.9

y = 7.9867E-005 * x - 1.4155E-005
R = 0.9996
DL = 0.8202
BEC = -0.1772

Weight: <None>
Min Conc: <None>

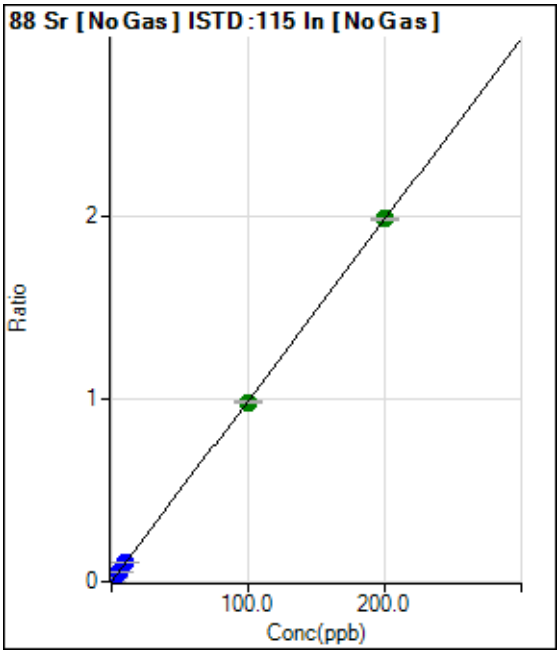
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	80.00	0.0001	P	24.1
2	☐	2.000	2.611	216.68	0.0002	P	12.5
3	☐	5.000	4.424	310.01	0.0003	P	8.7
4	☐	10.000	8.996	536.69	0.0005	P	13.0
5	☐	100.000	106.919	5404.54	0.0052	P	4.3
6	☐	200.000	196.599	9760.40	0.0095	P	4.5

y = 4.8124E-005 * x + 7.1418E-005
R = 0.9991
DL = 1.071
BEC = 1.484

Weight: <None>
Min Conc: <None>

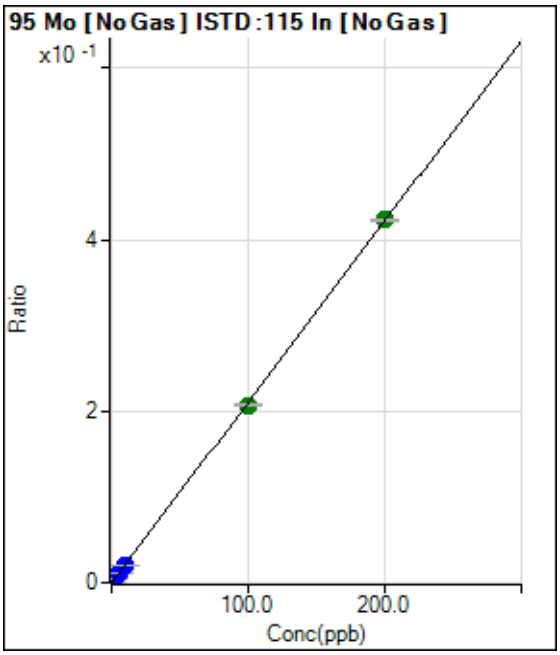


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1386.77	0.0002	P	2.7
2	☐	2.000	2.058	114741.74	0.0206	P	1.3
3	☐	5.000	5.091	280733.88	0.0506	P	1.2
4	☐	10.000	10.260	568135.76	0.1018	P	1.0
5	☐	100.000	99.180	5288072.42	0.9817	A	1.0
6	☐	200.000	200.394	10294153.39	1.9832	A	0.7

y = 0.0099 * x + 2.4079E-004
R = 1.0000
DL = 0.001984
BEC = 0.02433

Weight: <None>
Min Conc: <None>

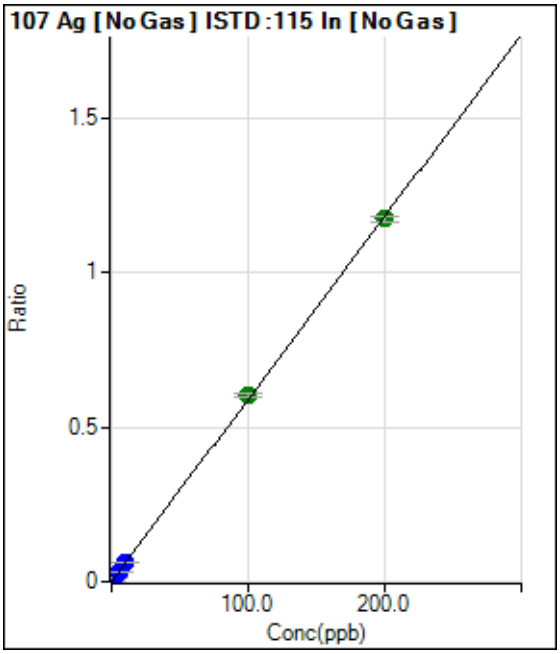
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76.67	0.0000	P	45.3
2	☐	2.000	2.021	23791.67	0.0043	P	0.8
3	☐	5.000	4.982	58305.17	0.0105	P	2.1
4	☐	10.000	9.937	116955.19	0.0209	P	1.4
5	☐	100.000	98.334	1116178.32	0.2072	A	1.1
6	☐	200.000	200.836	2196433.71	0.4232	A	0.4

y = 0.0021 * x + 1.3320E-005
R = 1.0000
DL = 0.008585
BEC = 0.006322

Weight: <None>
Min Conc: <None>

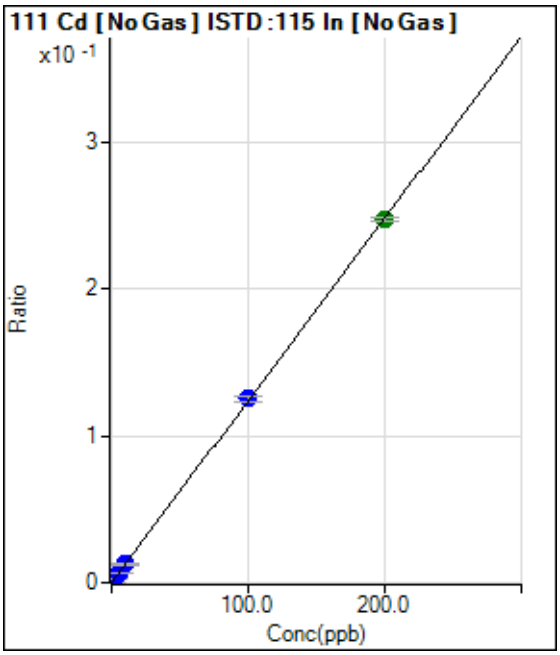


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	793.37	0.0001	P	12.4
2	☐	2.000	2.084	69281.59	0.0124	P	2.6
3	☐	5.000	5.126	168585.37	0.0304	P	1.7
4	☐	10.000	10.396	343379.41	0.0615	P	1.8
5	☐	100.000	102.083	3247191.62	0.6028	A	1.7
6	☐	200.000	198.935	6096209.07	1.1746	A	1.6

y = 0.0059 * x + 1.3772E-004
R = 0.9999
DL = 0.00868
BEC = 0.02333

Weight: <None>
Min Conc: <None>

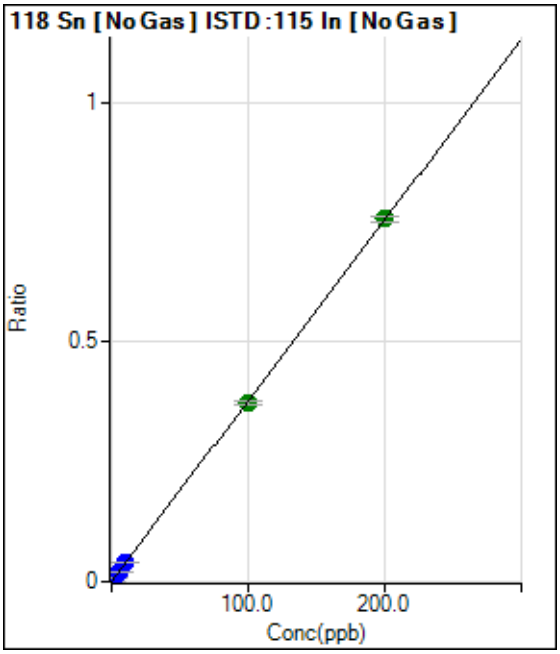
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13.33	0.0000	P	112.7
2	☐	2.000	1.999	13820.79	0.0025	P	2.0
3	☐	5.000	5.005	34442.24	0.0062	P	2.6
4	☐	10.000	10.075	69781.64	0.0125	P	1.2
5	☐	100.000	101.290	676662.23	0.1256	P	3.0
6	☐	200.000	199.351	1283492.56	0.2473	A	0.9

y = 0.0012 * x + 2.3066E-006
R = 1.0000
DL = 0.006284
BEC = 0.00186

Weight: <None>
Min Conc: <None>

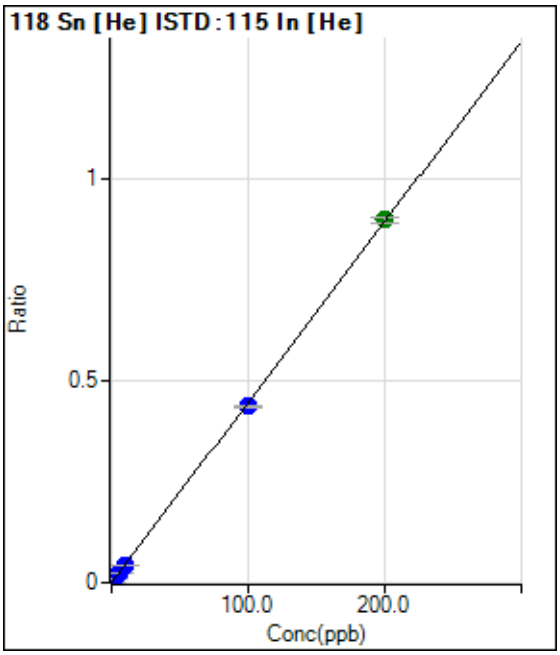


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2767.01	0.0005	P	6.0
2	☐	2.000	2.017	45047.73	0.0081	P	0.5
3	☐	5.000	5.022	107732.49	0.0194	P	1.2
4	☐	10.000	10.048	214280.53	0.0384	P	0.1
5	☐	100.000	98.570	2005371.69	0.3723	A	2.4
6	☐	200.000	200.712	3931945.77	0.7576	A	1.6

y = 0.0038 * x + 4.8008E-004
R = 1.0000
DL = 0.02302
BEC = 0.1273

Weight: <None>
Min Conc: <None>

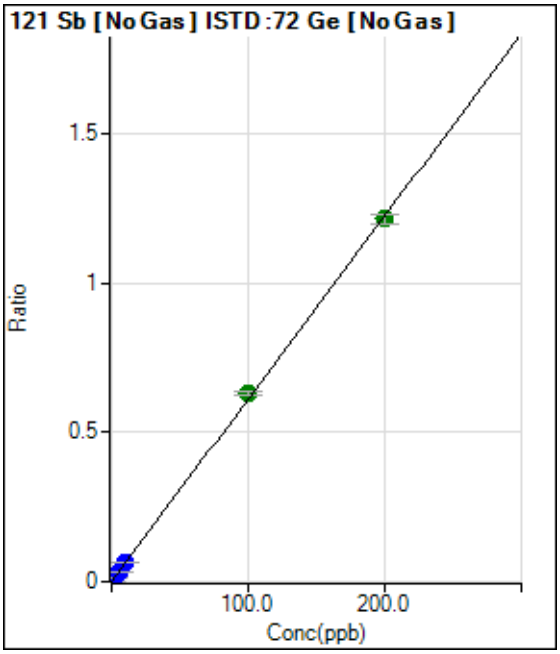
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1150.07	0.0006	P	8.4
2	☐	2.000	1.931	18770.45	0.0092	P	1.1
3	☐	5.000	4.808	44429.28	0.0220	P	3.3
4	☐	10.000	9.680	88777.26	0.0437	P	1.3
5	☐	100.000	97.705	851059.23	0.4360	P	1.7
6	☐	200.000	201.169	1727126.23	0.8971	A	1.6

y = 0.0045 * x + 5.6019E-004
R = 0.9999
DL = 0.03158
BEC = 0.1257

Weight: <None>
Min Conc: <None>

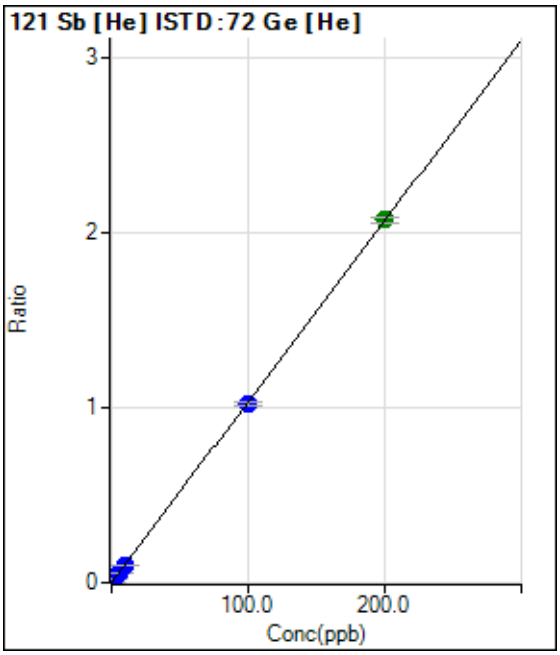


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1893.50	0.0004	P	5.1
2	☐	2.000	1.956	54550.70	0.0124	P	1.1
3	☐	5.000	5.046	134425.49	0.0313	P	0.2
4	☐	10.000	10.162	270936.65	0.0625	P	2.6
5	☐	100.000	102.724	2636139.34	0.6280	A	2.3
6	☐	200.000	198.629	5015223.57	1.2138	A	2.4

y = 0.0061 * x + 4.3071E-004
R = 0.9999
DL = 0.01087
BEC = 0.07051

Weight: <None>
Min Conc: <None>

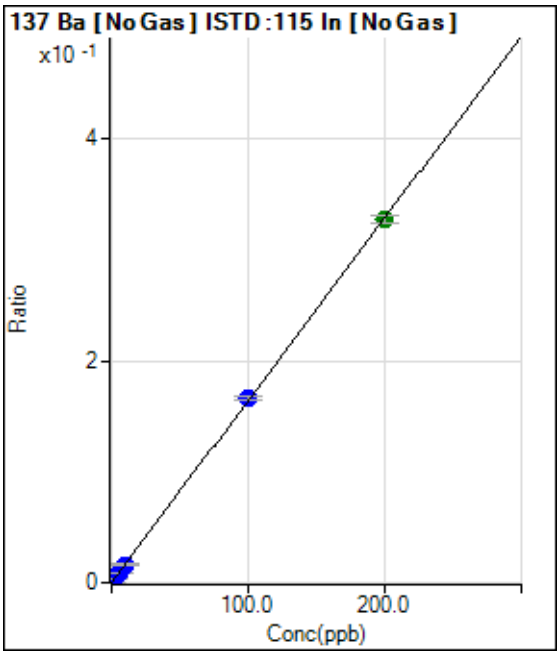
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	653.36	0.0006	P	19.8
2	☐	2.000	1.880	22045.55	0.0200	P	1.9
3	☐	5.000	4.786	54577.15	0.0501	P	2.0
4	☐	10.000	9.678	107035.32	0.1006	P	3.3
5	☐	100.000	98.699	1057960.84	1.0209	P	2.1
6	☐	200.000	200.673	2125456.95	2.0751	A	1.7

y = 0.0103 * x + 5.8467E-004
R = 1.0000
DL = 0.03363
BEC = 0.05656

Weight: <None>
Min Conc: <None>

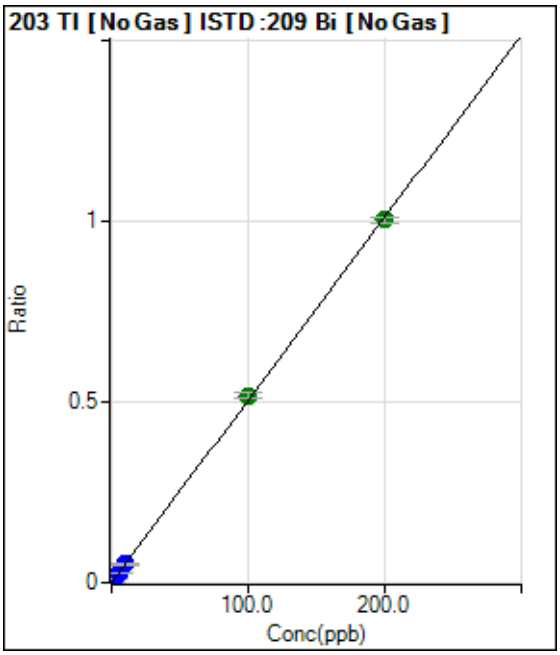


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	200.01	0.0000	P	24.5
2	☐	2.000	2.014	18606.93	0.0033	P	2.4
3	☐	5.000	4.949	45242.95	0.0082	P	2.5
4	☐	10.000	9.985	91696.62	0.0164	P	1.6
5	☐	100.000	101.683	899178.09	0.1669	P	2.2
6	☐	200.000	199.160	1696913.47	0.3270	A	2.1

y = 0.0016 * x + 3.4643E-005
R = 0.9999
DL = 0.0155
BEC = 0.0211

Weight: <None>
Min Conc: <None>

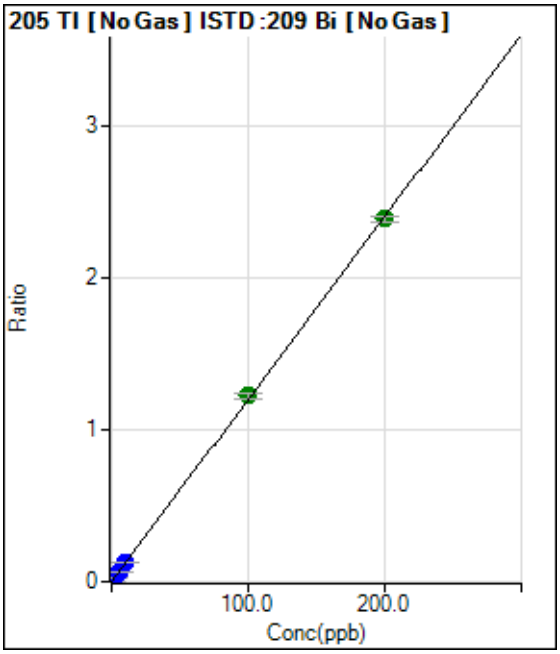
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	153.34	0.0000	P	37.1
2	☐	2.000	1.992	58789.04	0.0101	P	2.8
3	☐	5.000	4.792	141822.21	0.0242	P	1.0
4	☐	10.000	10.137	295707.66	0.0512	P	4.6
5	☐	100.000	102.435	2901358.29	0.5169	A	2.8
6	☐	200.000	198.781	5445358.46	1.0031	A	1.7

y = 0.0050 * x + 2.6544E-005
R = 0.9999
DL = 0.005855
BEC = 0.00526

Weight: <None>
Min Conc: <None>

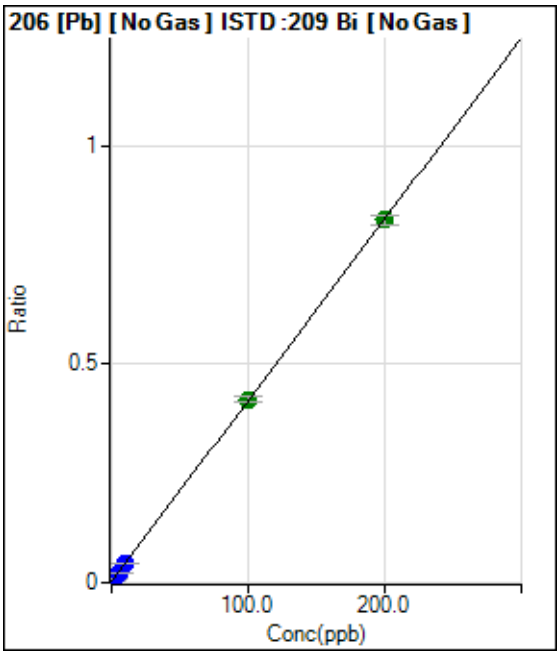


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	336.68	0.0001	P	12.1
2	☐	2.000	1.992	139805.16	0.0240	P	2.6
3	☐	5.000	4.937	347404.53	0.0593	P	1.1
4	☐	10.000	10.305	714722.10	0.1237	P	5.0
5	☐	100.000	102.030	6870546.36	1.2242	A	3.4
6	☐	200.000	198.972	12959803.14	2.3873	A	1.6

y = 0.0120 * x + 5.8293E-005
R = 0.9999
DL = 0.001767
BEC = 0.004859

Weight: <None>
Min Conc: <None>

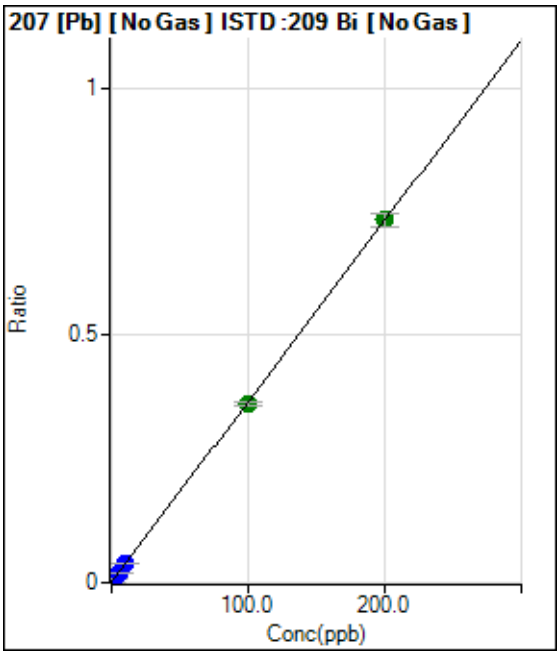
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	13003.77	0.0023	P	0.7
2	☐	2.000	1.967	60745.29	0.0104	P	1.8
3	☐	5.000	5.000	134755.16	0.0230	P	0.6
4	☐	10.000	10.021	253219.92	0.0438	P	4.8
5	☐	100.000	100.644	2356621.47	0.4199	A	3.1
6	☐	200.000	199.677	4509402.95	0.8308	A	2.9

y = 0.0041 * x + 0.0023
R = 1.0000
DL = 0.01092
BEC = 0.5423

Weight: <None>
Min Conc: <None>

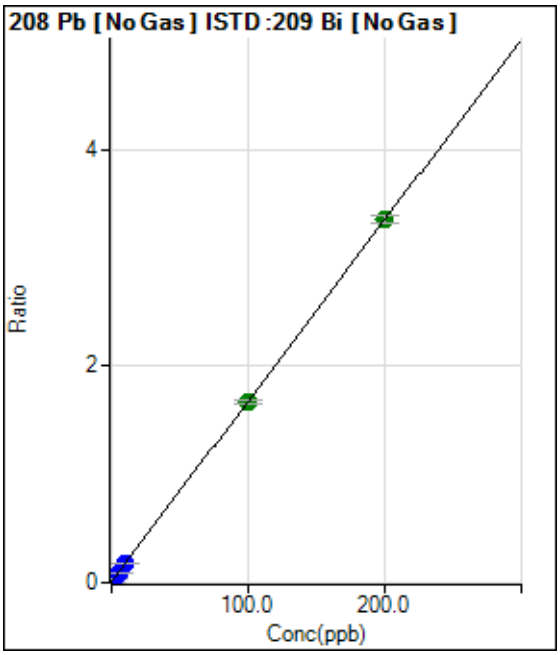


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	10317.88	0.0018	P	2.9
2	☐	2.000	1.967	52300.63	0.0090	P	1.7
3	☐	5.000	5.035	118008.93	0.0201	P	3.0
4	☐	10.000	10.024	221664.11	0.0383	P	1.9
5	☐	100.000	98.747	2031814.35	0.3619	A	1.4
6	☐	200.000	200.625	3980545.56	0.7334	A	3.9

y = 0.0036 * x + 0.0018
R = 1.0000
DL = 0.04248
BEC = 0.4895

Weight: <None>
Min Conc: <None>

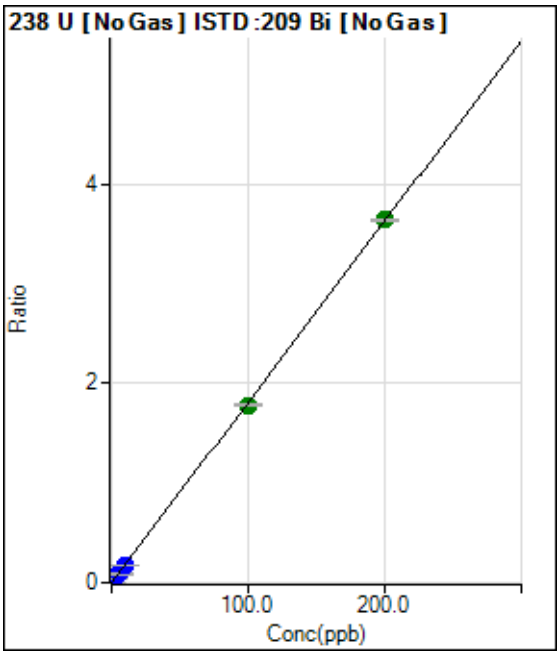
Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	48798.10	0.0084	P	0.5
2	☐	2.000	1.991	243401.01	0.0417	P	1.1
3	☐	5.000	5.006	539349.77	0.0921	P	1.5
4	☐	10.000	10.095	1023586.84	0.1771	P	2.0
5	☐	100.000	99.527	9379522.10	1.6709	A	2.2
6	☐	200.000	200.232	18201692.54	3.3531	A	2.0

y = 0.0167 * x + 0.0084
R = 1.0000
DL = 0.007524
BEC = 0.5055

Weight: <None>
Min Conc: <None>

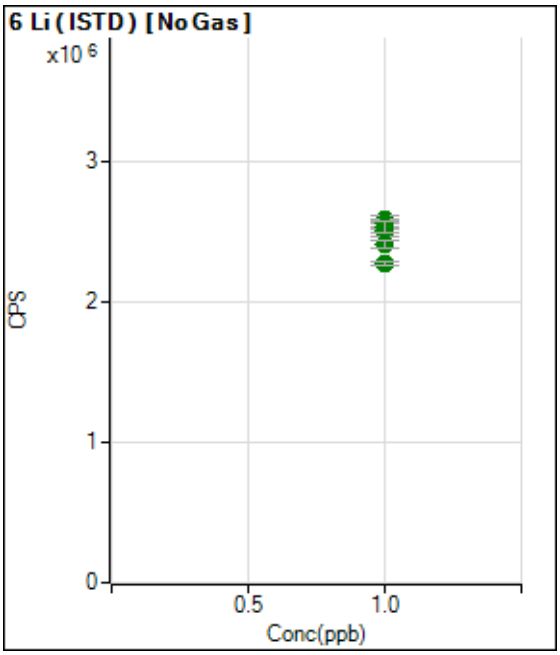


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	63.33	0.0000	P	33.4
2	☐	2.000	1.924	203382.05	0.0348	P	1.1
3	☐	5.000	4.809	510257.78	0.0871	P	1.4
4	☐	10.000	9.848	1031213.42	0.1784	P	2.0
5	☐	100.000	98.284	9992270.06	1.7800	A	1.2
6	☐	200.000	200.871	19751618.46	3.6378	A	0.4

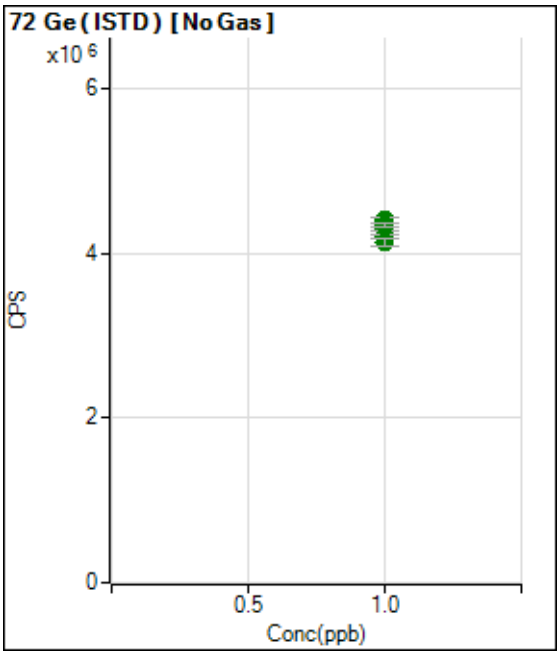
y = 0.0181 * x + 1.0972E-005
R = 0.9999
DL = 0.0006068
BEC = 0.0006058

Weight: <None>
Min Conc: <None>

Calibration for 020_ICV.d

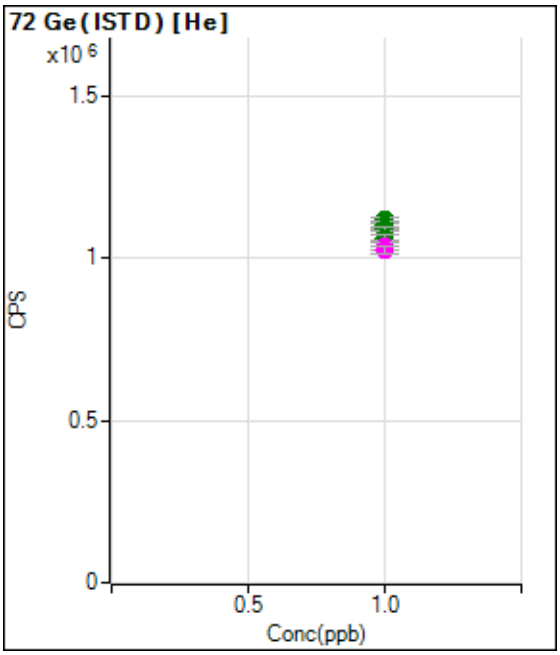


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2589134.74		A	2.1
2	☐	1.000		2505192.38		A	2.6
3	☐	1.000		2559501.44		A	2.3
4	☐	1.000		2538320.49		A	2.8
5	☐	1.000		2415737.08		A	1.8
6	☐	1.000		2284056.83		A	1.2

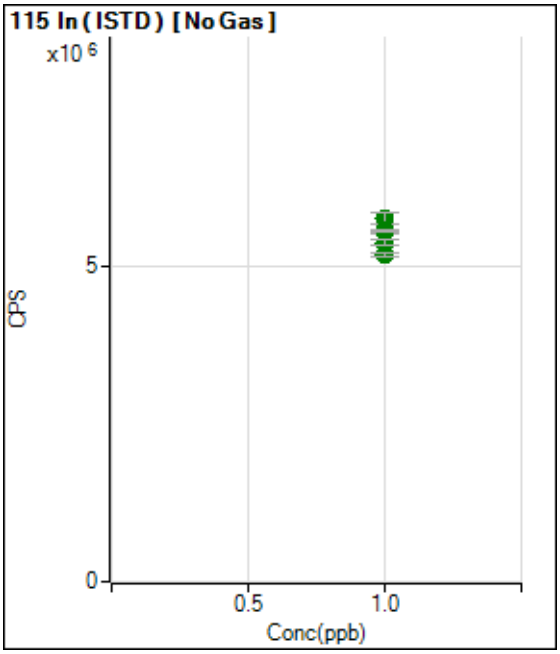


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		4398724.00		A	1.8
2	☐	1.000		4405774.10		A	1.3
3	☐	1.000		4300858.58		A	1.0
4	☐	1.000		4334989.21		A	1.0
5	☐	1.000		4198643.27		A	1.4
6	☐	1.000		4132846.40		A	2.0

Calibration for 020_ICV.d

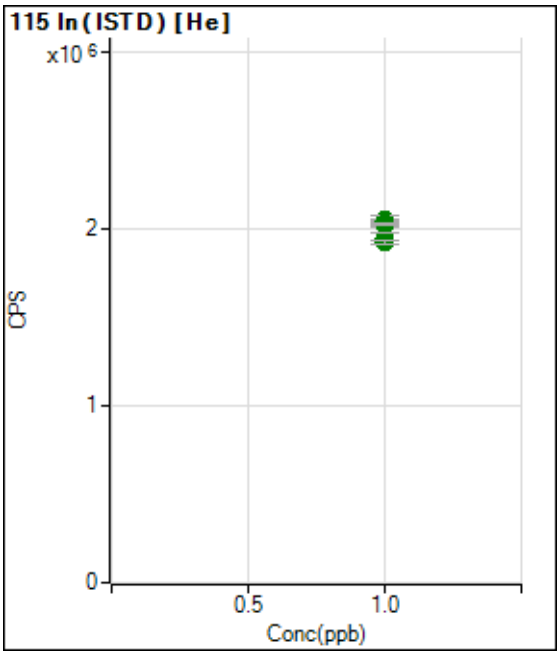


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		1118718.47		A	1.4
2	☐	1.000		1101392.46		A	2.0
3	☐	1.000		1090447.27		A	1.1
4	☐	1.000		1063995.51		A	1.5
5	☐	1.000		1036684.70		M	2.6
6	☐	1.000		1024533.97		M	2.1

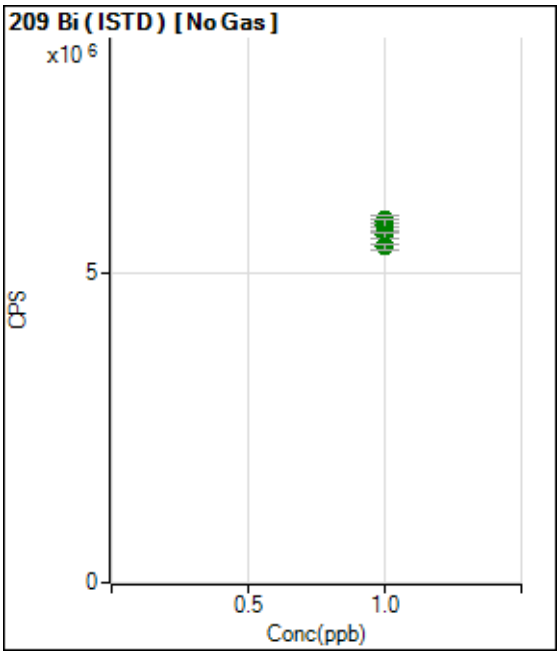


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5762279.09		A	3.0
2	☐	1.000		5569465.29		A	1.1
3	☐	1.000		5546527.08		A	0.9
4	☐	1.000		5582843.11		A	0.4
5	☐	1.000		5387468.46		A	1.9
6	☐	1.000		5190590.08		A	0.8

Calibration for 020_ICV.d



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		2053664.34		A	0.6
2	☐	1.000		2048181.01		A	2.8
3	☐	1.000		2021047.87		A	1.2
4	☐	1.000		2031475.83		A	0.8
5	☐	1.000		1952588.14		A	3.2
6	☐	1.000		1925432.46		A	1.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5779491.99		A	0.8
2	☐	1.000		5837391.16		A	2.8
3	☐	1.000		5859482.83		A	2.0
4	☐	1.000		5783185.54		A	3.1
5	☐	1.000		5614344.50		A	1.8
6	☐	1.000		5429486.59		A	1.6

Sample Report

Sample Table

Sample Name	LLICV2
Data File Name	021LCV2.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:24:48-05:00
Sample Type	LLCCV2
Dilution	1
Comment	
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	2.148	2.148	9.11	202363	0.00	2	
Be	9	1	No Gas	1.980	1.980	5.04	14453	0.01	2	
V	51	2	He	1.305	1.305	8.01	26894	0.00	2	NewName Main CR1 Failed
Cr	52	2	He	2.030	2.030	3.01	24853	0.01	2	
Fe	56	2	He	203.278	203.278	3.84	1988736	0.01	200	
Se	78	2	He	2.047	2.047	9.96	250	0.82	2	
Sn	118	2	He	2.164	2.164	1.64	20416	0.01	2	
As	75	2	He	1.950	1.950	6.18	2708	0.07	2	
Ca	44	2	He	193.265	193.265	1.49	8656	2.23	200	
Na	23	2	He	209.182	209.182	3.74	403599	0.05	200	
Mg	24	2	He	211.211	211.211	2.72	186957	0.11	200	
K	39	2	He	208.367	208.367	5.11	183840	0.11	200	
Mn	55	2	He	2.019	2.019	3.18	14508	0.01	2	
Co	59	2	He	2.049	2.049	4.18	35931	0.01	2	
Ni	60	2	He	2.039	2.039	7.13	9690	0.02	2	
Cu	63	2	He	2.078	2.078	2.44	27295	0.01	2	
Zn	66	2	He	1.976	1.976	4.97	4691	0.04	2	
Al	27	2	He	2.315	2.315	23.39	1643	0.14	2	
B	11	1	No Gas	28.364	28.364	8.76	196443	0.01	10	NewName Main CR1 Failed
Al	27	1	No Gas	2.134	2.134	0.81	121103	0.00	2	
Si	28	1	No Gas	9.081	9.081	12.67	910874	0.00	10	
P	31	1	No Gas	9.283	9.283	11.02	46033	0.02	10	
Ag	107	1	No Gas	2.062	2.062	1.86	66822	0.00	2	
Cd	111	1	No Gas	2.070	2.070	4.80	13944	0.01	2	
Sr	88	1	No Gas	2.072	2.072	3.70	112584	0.00	2	
Mo	95	1	No Gas	2.037	2.037	3.19	23374	0.01	2	
Sn	118	1	No Gas	2.303	2.303	1.79	49745	0.00	2	
Sb	121	1	No Gas	2.278	2.278	2.67	60376	0.00	2	
Ba	137	1	No Gas	2.030	2.030	2.69	18273	0.01	2	
Tl	205	1	No Gas	2.134	2.134	3.35	146324	0.00	2	
Tl	203	1	No Gas	2.075	2.075	3.71	59875	0.00	2	
Pb	208	1	No Gas	1.979	1.979	2.02	236653	0.00	2	
U	238	1	No Gas	1.968	1.968	0.91	203361	0.00	2	
Ca	43	2	He	193.345	193.345	7.50	507	38.16	200	
Sb	121	2	He	2.094	2.094	3.99	23445	0.01	2	
Ti	47	2	He	1.971	1.971	7.39	590	0.33	200	
Cu	63	1	No Gas	2.134	2.134	2.08	47102	0.00	2	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2372986	5.35	2589135	91.65	70	120	
Ge	72	2	He	1055438	3.33	1118718	94.34	70	120	
Ge	72	1	No Gas	4208963	1.31	4398724	95.69	70	120	
In	115	1	No Gas	5428016	1.27	5762279	94.20	70	120	
Bi	209	1	No Gas	5703506	1.35	5779492	98.69	70	120	

Sample Report

Sample Table

Sample Name	LLICV5
Data File Name	022LCV5.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:26:41-05:00
Sample Type	LLCCV5
Dilution	1
Comment	
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	4.963	4.963	2.52	296614	0.00	5	
Be	9	1	No Gas	4.769	4.769	3.74	35913	0.01	5	
V	51	2	He	4.317	4.317	3.38	52845	0.01	5	
Cr	52	2	He	5.102	5.102	2.57	58690	0.01	5	
Fe	56	2	He	499.962	499.962	2.93	4796596	0.01	500	
Se	78	2	He	4.786	4.786	5.61	529	0.90	5	
Sn	118	2	He	4.908	4.908	2.40	44469	0.01	5	
As	75	2	He	4.956	4.956	3.35	6298	0.08	5	
Ca	44	2	He	514.440	514.440	4.11	21941	2.34	500	
Na	23	2	He	510.563	510.563	4.86	884620	0.06	500	
Mg	24	2	He	524.073	524.073	2.44	456021	0.11	500	
K	39	2	He	507.658	507.658	2.96	398132	0.13	500	
Mn	55	2	He	5.007	5.007	4.14	35079	0.01	5	
Co	59	2	He	5.251	5.251	2.32	90393	0.01	5	
Ni	60	2	He	5.178	5.178	2.78	23998	0.02	5	
Cu	63	2	He	5.211	5.211	2.79	65837	0.01	5	
Zn	66	2	He	5.270	5.270	4.89	11555	0.05	5	
Al	27	2	He	5.197	5.197	8.86	2697	0.19	5	
B	11	1	No Gas	34.684	34.684	1.49	237629	0.01	25	NewName2 Main CR1 Failed
Al	27	1	No Gas	5.300	5.300	2.07	203442	0.00	5	
Si	28	1	No Gas	22.987	22.987	12.30	1080443	0.00	25	
P	31	1	No Gas	26.582	26.582	4.34	64490	0.04	25	
Ag	107	1	No Gas	5.135	5.135	1.22	165378	0.00	5	
Cd	111	1	No Gas	4.920	4.920	1.90	33162	0.01	5	
Sr	88	1	No Gas	5.006	5.006	0.93	270355	0.00	5	
Mo	95	1	No Gas	4.953	4.953	1.88	56751	0.01	5	
Sn	118	1	No Gas	4.958	4.958	1.04	104169	0.00	5	
Sb	121	1	No Gas	5.175	5.175	0.54	133096	0.00	5	
Ba	137	1	No Gas	4.994	4.994	1.47	44707	0.01	5	
Tl	205	1	No Gas	4.979	4.979	1.10	344055	0.00	5	
Tl	203	1	No Gas	4.879	4.879	1.03	141806	0.00	5	
Pb	208	1	No Gas	4.977	4.977	3.26	526783	0.00	5	
U	238	1	No Gas	4.747	4.747	1.04	494697	0.00	5	
Ca	43	2	He	469.086	469.086	2.67	1180	39.75	500	
Sb	121	2	He	4.852	4.852	2.73	52663	0.01	5	
Ti	47	2	He	4.875	4.875	7.74	1407	0.35	5	
Cu	63	1	No Gas	5.323	5.323	1.31	113143	0.00	5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2445334	1.96	2589135	94.45	70	120	
Ge	72	2	He	1038268	1.85	1118718	92.81	70	120	
Ge	72	1	No Gas	4153820	0.33	4398724	94.43	70	120	
In	115	1	No Gas	5431191	0.62	5762279	94.25	70	120	
Bi	209	1	No Gas	5754167	1.83	5779492	99.56	70	120	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICB
Data File Name	023_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:28:34-05:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	-0.016	-424.9	139831	2.0	0.5	
Be	9	1	No Gas	0.003	45.7	30	33.3	0.5	
V	51	2	He	-0.529	-5.9	10532	2.3	2.5	
Cr	52	2	He	0.007	149.9	1947	8.5	2.5	
Fe	56	2	He	-0.115	-42.0	10991	1.8	100	
Se	78	2	He	-0.010	-500.6	33	12.5	1	
Sn	118	2	He	0.058	17.2	1590	3.9	2.5	
As	75	2	He	0.025	185.4	342	13.2	2.5	
Ca	44	2	He	3.503	29.4	580	7.9	100	
Na	23	2	He	3.455	25.1	65102	1.6	100	
Mg	24	2	He	0.256	69.2	517	27.7	100	
K	39	2	He	3.514	64.6	32696	1.9	100	
Mn	55	2	He	0.029	36.7	430	14.1	2.5	
Co	59	2	He	0.003	86.5	200	18.0	2.5	
Ni	60	2	He	0.032	31.5	317	12.8	2.5	
Cu	63	2	He	0.029	46.6	1387	15.0	1	
Zn	66	2	He	0.002	1048.9	463	8.2	2.5	
Al	27	2	He	0.446	35.8	937	8.6	5	
B	11	1	No Gas	8.410	1.5	90633	2.4	0.5	ICB Main CR1 Failed
Al	27	1	No Gas	0.341	19.0	72872	0.7	5	
Si	28	1	No Gas	-3.596	-53.4	742524	0.3	10	
P	31	1	No Gas	0.284	345.6	35964	1.7	10	
Ag	107	1	No Gas	0.014	25.1	1203	8.7	2.5	
Cd	111	1	No Gas	0.002	52.4	23	24.7	1	
Sr	88	1	No Gas	0.008	8.3	1753	2.9	2.5	
Mo	95	1	No Gas	0.006	48.1	143	24.5	2.5	
Sn	118	1	No Gas	0.078	10.0	4181	3.1	5	
Sb	121	1	No Gas	0.078	9.8	3821	4.7	2.5	
Ba	137	1	No Gas	0.043	41.4	570	28.2	2.5	
Tl	205	1	No Gas	0.014	18.5	1267	13.6	1	
Tl	203	1	No Gas	0.015	13.4	573	9.9	1	
Pb	208	1	No Gas	-0.076	-5.5	40189	0.9	2.5	
U	238	1	No Gas	0.002	31.1	230	23.0	2.5	
Ca	43	2	He	-0.795	-851.2	20	86.6	100	
Sb	121	2	He	0.073	13.5	1410	4.4	2.5	
Ti	47	2	He	-0.005	-1380.4	17	124.9	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2422807	2.82	2589135	93.58	70	120	
Ge	72	2	He	1050866	3.18	1118718	93.93	70	120	
Ge	72	1	No Gas	4206764	3.15	4398724	95.64	70	120	
In	115	1	No Gas	5409999	1.01	5762279	93.89	70	120	
Bi	209	1	No Gas	5601400	0.39	5779492	96.92	70	120	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	024ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:30:56-05:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.823	15.1	154300	2.8	0	ICSA Main CR1 Failed
Be	9	1	No Gas	0.003	90.0	28	62.0	0	ICSA Main CR1 Failed
V	51	2	He	-0.589	-0.7	9456	1.0	0	ICSA Main CR1 Failed
Cr	52	2	He	0.965	6.0	12049	5.7	0	ICSA Main CR1 Failed
Fe	56	2	He	99630.552	0.7	912492786	1.0	0	
Se	78	2	He	0.149	20.3	47	6.5	0	ICSA Main CR1 Failed
Sn	118	2	He	0.083	17.0	1713	6.7	0	ICSA Main CR1 Failed
As	75	2	He	0.213	6.4	542	3.0	0	ICSA Main CR1 Failed
Ca	44	2	He	98472.853	1.5	3941982	0.9	0	
Na	23	2	He	104424.745	2.0	161728724	1.5	0	
Mg	24	2	He	99568.987	3.1	82847020	2.5	0	
K	39	2	He	103483.443	3.8	71869691	3.2	0	
Mn	55	2	He	0.187	18.3	1457	15.4	0	ICSA Main CR1 Failed
Co	59	2	He	0.204	8.9	3497	8.0	0	ICSA Main CR1 Failed
Ni	60	2	He	0.237	24.4	1203	20.9	0	ICSA Main CR1 Failed
Cu	63	2	He	0.216	3.1	3527	2.4	0	ICSA Main CR1 Failed
Zn	66	2	He	0.461	15.0	1363	10.0	0	ICSA Main CR1 Failed
Al	27	2	He	97496.976	3.6	34750429	2.9	0	
B	11	1	No Gas	6.561	7.1	75056	2.5	0	
Al	27	1	No Gas	100030.156	2.1	2496129829	0.2	0	
Si	28	1	No Gas	22.749	16.7	1014026	3.3	0	
P	31	1	No Gas	93534.681	2.6	96991045	0.8	0	
Ag	107	1	No Gas	0.008	62.3	890	15.2	0	ICSA Main CR1 Failed
Cd	111	1	No Gas	1.589	4.4	9624	4.4	0	ICSA Main CR1 Failed
Sr	88	1	No Gas	1.011	4.4	49984	4.3	0	ICSA Main CR1 Failed
Mo	95	1	No Gas	2012.311	2.9	20678939	2.8	0	
Sn	118	1	No Gas	0.083	14.1	3864	5.4	0	ICSA Main CR1 Failed
Sb	121	1	No Gas	0.061	3.3	3147	2.8	0	ICSA Main CR1 Failed
Ba	137	1	No Gas	0.046	9.7	540	6.7	0	ICSA Main CR1 Failed
Tl	205	1	No Gas	0.011	5.1	927	6.3	0	ICSA Main CR1 Failed
Tl	203	1	No Gas	0.005	26.3	263	15.3	0	ICSA Main CR1 Failed
Pb	208	1	No Gas	-0.143	-35.7	29724	12.0	0	ICSA Main CR1 Failed
U	238	1	No Gas	0.003	7.6	357	8.1	0	ICSA Main CR1 Failed
Ca	43	2	He	98250.909	1.0	232158	0.8	0	
Sb	121	2	He	0.080	13.1	1403	7.0	0	ICSA Main CR1 Failed
Ti	47	2	He	1994.451	0.9	543874	0.6	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2248609	1.10	2589135	86.85	70	120	
Ge	72	2	He	993287	0.69	1118718	88.79	70	120	
Ge	72	1	No Gas	3911400	1.85	4398724	88.92	70	120	
In	115	1	No Gas	4877364	0.13	5762279	84.64	70	120	
Bi	209	1	No Gas	4921260	2.87	5779492	85.15	70	120	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	025ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:32:53-05:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Li	7	1	No Gas	97.256	0.816	2937357	2.61	100	97.3	180	120	ICSB Main CR1 Failed
Be	9	1	No Gas	102.629	1.622	686784	1.87	100	102.6	80	120	
V	51	2	He	98.997	3.675	848279	4.47	100	99.0	80	120	
Cr	52	2	He	101.722	0.685	1091770	1.12	100	101.7	80	120	
Fe	56	2	He	113795.591	1.145	1047209398	1.03	100	113795.6	80	120	ICSB Main CR1 Failed
Se	78	2	He	111.268	1.674	11099	0.50	100	111.3	80	120	
Sn	118	2	He	100.588	0.815	832927	0.77	100	100.6	80	120	
As	75	2	He	105.296	1.630	122652	0.20	100	105.3	80	120	
Ca	44	2	He	112011.047	2.115	4505546	1.95	100	112011.0	80	120	ICSB Main CR1 Failed
Na	23	2	He	116363.239	0.907	181089577	0.93	100	116363.2	80	120	
Mg	24	2	He	114389.737	2.106	95637979	1.13	100	114389.7	80	120	ICSB Main CR1 Failed
K	39	2	He	116881.787	0.739	81574087	0.69	100	116881.8	80	120	ICSB Main CR1 Failed
Mn	55	2	He	101.142	1.474	677347	1.69	100	101.1	80	120	
Co	59	2	He	101.717	0.715	1680676	0.91	100	101.7	80	120	
Ni	60	2	He	98.870	1.192	437468	0.56	100	98.9	80	120	
Cu	63	2	He	97.965	1.886	1172973	3.11	100	98.0	80	120	
Zn	66	2	He	101.177	1.467	205332	0.48	100	101.2	80	120	
Al	27	2	He	101622.985	1.171	36399825	0.90	100	101623.0	80	120	ICSB Main CR1 Failed
B	11	1	No Gas	511.052	3.097	2519288	4.29	100	511.1	80	120	
Al	27	1	No Gas	103715.728	0.992	2586068868	0.60	100	103715.7	80	120	ICSB Main CR1 Failed
Si	28	1	No Gas	521.023	2.111	7127716	1.58	100	521.0	80	120	
P	31	1	No Gas	97417.541	1.415	100940282	0.91	100	97417.5	80	120	ICSB Main CR1 Failed
Ag	107	1	No Gas	98.315	1.169	2850341	2.08	100	98.3	80	120	
Cd	111	1	No Gas	102.343	0.583	623236	0.55	100	102.3	80	120	
Sr	88	1	No Gas	106.444	0.337	5172318	1.07	100	106.4	80	120	
Mo	95	1	No Gas	2188.986	0.879	22643270	1.57	100	2189.0	80	120	ICSB Main CR1 Failed
Sn	118	1	No Gas	101.106	1.476	1874543	0.91	100	101.1	80	120	
Sb	121	1	No Gas	103.545	0.707	2473621	2.06	100	103.5	80	120	
Ba	137	1	No Gas	104.882	0.782	845354	0.57	100	104.9	80	120	
Tl	205	1	No Gas	106.201	0.295	6104880	2.59	100	106.2	80	120	
Tl	203	1	No Gas	108.280	1.521	2617223	1.14	100	108.3	80	120	
Pb	208	1	No Gas	105.502	0.736	8483783	2.88	100	105.5	80	120	
U	238	1	No Gas	104.825	2.321	9091584	0.50	100	104.8	80	120	
Ca	43	2	He	112922.664	1.922	268084	0.97	100	112922.7	80	120	ICSB Main CR1 Failed
Sb	121	2	He	99.206	1.325	1024067	0.16	100	99.2	80	120	
Ti	47	2	He	2152.760	3.142	589748	1.87	100	2152.8	80	120	ICSB Main CR1 Failed
Cu	63	1	No Gas	101.643	1.983	2000312	1.03	100	101.6	80	120	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2223840	1.85	2589135	85.89	70	120	
Ge	72	2	He	998113	1.42	1118718	89.22	70	120	
Ge	72	1	No Gas	3907737	1.56	4398724	88.84	70	120	
In	115	1	No Gas	4909483	1.10	5762279	85.20	70	120	
Bi	209	1	No Gas	4790849	2.48	5779492	82.89	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	030_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:50:47-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	98.541	2.290	3071681	2.31	100	98.5	90	110	
Be	9	1	No Gas	102.980	1.918	711758	1.88	100	103.0	90	110	
V	51	2	He	97.215	4.720	888471	2.63	100	97.2	90	110	
Cr	52	2	He	98.890	0.997	1132715	2.59	100	98.9	90	110	
Fe	56	2	He	10005.475	3.424	98222982	1.25	10000	100.1	90	110	
Se	78	2	He	102.538	3.171	10914	0.78	100	102.5	90	110	
Sn	118	2	He	97.491	1.279	870408	1.89	100	97.5	90	110	
As	75	2	He	102.224	2.844	127037	0.50	100	102.2	90	110	
Ca	44	2	He	10137.200	1.738	435463	1.27	10000	101.4	90	110	
Na	23	2	He	10173.730	3.886	16940402	0.98	10000	101.7	90	110	
Mg	24	2	He	10101.328	4.292	9007612	1.66	10000	101.0	90	110	
K	39	2	He	10097.958	2.982	7547531	2.89	10000	101.0	90	110	
Mn	55	2	He	99.216	1.574	708936	1.35	100	99.2	90	110	
Co	59	2	He	106.469	3.363	1876386	1.04	100	106.5	90	110	
Ni	60	2	He	102.911	3.080	485750	1.57	100	102.9	90	110	
Cu	63	2	He	101.050	3.393	1290244	1.33	100	101.0	90	110	
Zn	66	2	He	101.623	1.814	220071	2.01	100	101.6	90	110	
Al	27	2	He	101.994	2.354	39754	1.44	100	102.0	90	110	
B	11	1	No Gas	498.093	2.022	2536662	2.54	500	99.6	90	110	
Al	27	1	No Gas	98.860	2.688	2760934	2.95	100	98.9	90	110	
Si	28	1	No Gas	501.182	5.567	7530088	5.14	5000	10.0	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	504.526	2.818	607788	2.18	500	100.9	90	110	
Ag	107	1	No Gas	101.558	2.013	3227439	1.89	100	101.6	90	110	
Cd	111	1	No Gas	101.469	0.714	677434	1.38	100	101.5	90	110	
Sr	88	1	No Gas	99.443	1.383	5297136	1.20	100	99.4	90	110	
Mo	95	1	No Gas	101.022	0.937	1145573	0.47	100	101.0	90	110	
Sn	118	1	No Gas	98.501	1.646	2002110	0.95	100	98.5	90	110	
Sb	121	1	No Gas	102.184	1.026	2669498	0.34	100	102.2	90	110	
Ba	137	1	No Gas	102.016	1.488	901418	1.33	100	102.0	90	110	
Tl	205	1	No Gas	104.524	0.972	6901944	1.81	100	104.5	90	110	
Tl	203	1	No Gas	105.855	2.561	2939577	2.53	100	105.9	90	110	
Pb	208	1	No Gas	102.686	1.576	9486891	2.68	100	102.7	90	110	
U	238	1	No Gas	97.913	0.760	9758713	1.68	100	97.9	90	110	
Ca	43	2	He	10105.235	3.025	25618	2.52	10000	101.1	90	110	
Sb	121	2	He	98.216	3.801	1081443	1.95	100	98.2	90	110	
Ti	47	2	He	99.124	2.760	28998	2.65	100	99.1	90	110	
Cu	63	1	No Gas	104.867	2.313	2257056	1.35	100	104.9	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2296715	0.63	2589135	88.71	70	120	
Ge	72	2	He	1065210	2.94	1118718	95.22	70	120	
Ge	72	1	No Gas	4273837	1.18	4398724	97.16	70	120	
In	115	1	No Gas	5382177	1.22	5762279	93.40	70	120	
Bi	209	1	No Gas	5503161	1.13	5779492	95.22	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	031_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T11:52:32-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.262	51.8	142115	0.8	0.5	
Be	9	1	No Gas	0.008	28.9	65	23.1	0.5	
V	51	2	He	-0.587	-0.9	10415	2.2	2.5	
Cr	52	2	He	0.023	19.9	2200	2.5	2.5	
Fe	56	2	He	0.608	19.2	18697	4.6	100	
Se	78	2	He	0.031	258.6	39	24.0	2	
As	75	2	He	0.046	37.0	384	4.8	2.5	
Ca	44	2	He	4.858	37.0	663	13.7	100	
Na	23	2	He	15.549	8.7	88231	0.8	100	
Mg	24	2	He	0.534	17.5	793	10.1	100	
K	39	2	He	13.158	9.6	41362	1.2	100	
Mn	55	2	He	0.127	8.0	1167	5.6	2.5	
Co	59	2	He	0.005	63.5	243	22.6	2.5	
Ni	60	2	He	0.034	71.4	340	35.3	2.5	
Cu	63	2	He	0.034	21.9	1503	4.9	2	
Zn	66	2	He	0.084	11.0	663	2.3	2.5	
Al	27	2	He	1.289	11.3	1303	6.0	5	
B	11	1	No Gas	11.382	6.9	101742	4.8	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.778	11.8	85343	2.5	5	
Si	28	1	No Gas	-4.350	-11.0	739194	0.6	10	
P	31	1	No Gas	-1.444	-21.6	34340	0.8	10	
Ag	107	1	No Gas	0.020	18.0	1353	6.0	2.5	
Cd	111	1	No Gas	0.007	44.1	57	36.7	1	
Sr	88	1	No Gas	0.020	14.3	2347	4.3	2.5	
Mo	95	1	No Gas	0.070	8.1	857	5.4	2.5	
Sn	118	1	No Gas	0.264	8.9	7899	4.6	5	
Sb	121	1	No Gas	0.293	14.0	9424	11.0	2.5	
Ba	137	1	No Gas	0.024	16.8	393	10.6	2.5	
Tl	205	1	No Gas	0.080	56.9	5745	53.0	1	
Tl	203	1	No Gas	0.084	53.3	2527	49.5	1	
Pb	208	1	No Gas	0.011	120.4	48601	2.1	2.5	
U	238	1	No Gas	0.012	23.7	1253	22.0	2.5	
Ca	43	2	He	1.617	511.4	27	78.1	100	
Sb	121	2	He	0.220	2.7	3117	0.7	2.5	
Ti	47	2	He	0.024	288.9	27	78.1	2.5	
Cu	63	1	No Gas	0.040	6.7	2770	2.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2317978	2.22	2589135	89.53	70	120	
Ge	72	2	He	1091955	1.87	1118718	97.61	70	120	
Ge	72	1	No Gas	4241915	0.66	4398724	96.44	70	120	
In	115	1	No Gas	5350036	2.26	5762279	92.85	70	120	
Bi	209	1	No Gas	5633813	0.56	5779492	97.48	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	042_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T12:18:10-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	99.555	2.835	2947983	4.19	100	99.6	90	110	
Be	9	1	No Gas	104.767	1.613	687935	1.20	100	104.8	90	110	
V	51	2	He	97.677	1.195	846291	1.00	100	97.7	90	110	
Cr	52	2	He	95.502	3.294	1036369	2.61	100	95.5	90	110	
Fe	56	2	He	9966.875	3.577	92739289	2.85	10000	99.7	90	110	
Se	78	2	He	98.645	0.889	9954	1.05	100	98.6	90	110	
Sn	118	2	He	98.816	2.759	840158	1.40	100	98.8	90	110	
As	75	2	He	100.985	2.127	118954	1.49	100	101.0	90	110	
Ca	44	2	He	9720.801	0.370	395754	0.41	10000	97.2	90	110	
Na	23	2	He	9839.325	0.684	15535187	0.68	10000	98.4	90	110	
Mg	24	2	He	9643.057	0.424	8153354	0.89	10000	96.4	90	110	
K	39	2	He	9790.635	1.722	6935283	1.01	10000	97.9	90	110	
Mn	55	2	He	98.629	2.053	667815	1.34	100	98.6	90	110	
Co	59	2	He	104.059	1.396	1738426	0.75	100	104.1	90	110	
Ni	60	2	He	101.936	2.647	456023	2.04	100	101.9	90	110	
Cu	63	2	He	102.213	1.993	1237145	1.87	100	102.2	90	110	
Zn	66	2	He	101.410	0.611	208114	0.91	100	101.4	90	110	
Al	27	2	He	98.078	1.092	36261	1.79	100	98.1	90	110	
B	11	1	No Gas	501.660	1.016	2426966	1.81	500	100.3	90	110	
Al	27	1	No Gas	100.817	2.915	2702140	2.24	100	100.8	90	110	
Si	28	1	No Gas	504.668	3.939	7274710	2.88	5000	10.1	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	503.088	1.499	582123	1.16	500	100.6	90	110	
Ag	107	1	No Gas	99.774	3.282	3091414	1.93	100	99.8	90	110	
Cd	111	1	No Gas	101.208	1.861	658863	1.34	100	101.2	90	110	
Sr	88	1	No Gas	98.955	4.483	5138682	3.15	100	99.0	90	110	
Mo	95	1	No Gas	98.192	3.863	1085630	2.82	100	98.2	90	110	
Sn	118	1	No Gas	100.565	0.628	1993433	0.89	100	100.6	90	110	
Sb	121	1	No Gas	103.483	2.239	2596228	2.41	100	103.5	90	110	
Ba	137	1	No Gas	101.561	1.356	875229	2.19	100	101.6	90	110	
Tl	205	1	No Gas	104.695	3.480	6877059	2.03	100	104.7	90	110	
Tl	203	1	No Gas	106.036	3.834	2929392	2.50	100	106.0	90	110	
Pb	208	1	No Gas	103.863	1.089	9546924	1.48	100	103.9	90	110	
U	238	1	No Gas	97.578	1.482	9677071	1.57	100	97.6	90	110	
Ca	43	2	He	9500.946	0.728	22829	1.44	10000	95.0	90	110	
Sb	121	2	He	99.785	0.467	1041590	0.84	100	99.8	90	110	
Ti	47	2	He	94.941	2.511	26322	2.74	100	94.9	90	110	
Cu	63	1	No Gas	103.504	4.162	2139722	4.44	100	103.5	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2182254	1.75	2589135	84.29	70	120	
Ge	72	2	He	1009179	0.72	1118718	90.21	70	120	
Ge	72	1	No Gas	4104008	0.65	4398724	93.30	70	120	
In	115	1	No Gas	5248714	1.37	5762279	91.09	70	120	
Bi	209	1	No Gas	5477157	2.55	5779492	94.77	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	043_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T12:19:56-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.168	69.9	136374	0.4	0.5	
Be	9	1	No Gas	0.010	15.6	75	11.5	0.5	
V	51	2	He	-0.836	-0.1	7554	0.4	2.5	
Cr	52	2	He	0.023	28.1	2054	3.7	2.5	
Fe	56	2	He	0.625	14.8	17569	4.5	100	
Se	78	2	He	0.013	532.1	35	20.3	2	
As	75	2	He	-0.018	-156.1	281	12.1	2.5	
Ca	44	2	He	4.856	60.9	617	20.0	100	
Na	23	2	He	14.771	3.0	80901	1.3	100	
Mg	24	2	He	0.563	21.4	763	13.4	100	
K	39	2	He	8.073	6.2	34888	1.2	100	
Mn	55	2	He	0.135	14.9	1137	12.5	2.5	
Co	59	2	He	0.002	189.1	190	41.1	2.5	
Ni	60	2	He	0.016	23.2	233	6.5	2.5	
Cu	63	2	He	0.051	3.2	1607	1.0	2	
Zn	66	2	He	0.501	9.0	1477	5.8	2.5	
Al	27	2	He	1.209	8.0	1183	2.6	5	
B	11	1	No Gas	8.691	9.2	86288	4.9	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.882	6.3	84796	1.0	5	
Si	28	1	No Gas	-4.669	-22.5	707040	1.2	10	
P	31	1	No Gas	-2.279	-38.2	32131	2.3	10	
Ag	107	1	No Gas	0.015	12.5	1187	1.8	2.5	
Cd	111	1	No Gas	0.005	93.7	43	66.6	1	
Sr	88	1	No Gas	0.023	8.0	2497	0.8	2.5	
Mo	95	1	No Gas	0.051	32.4	643	28.2	2.5	
Sn	118	1	No Gas	0.244	8.3	7416	3.4	5	
Sb	121	1	No Gas	0.303	10.5	9307	7.5	2.5	
Ba	137	1	No Gas	0.029	39.5	430	19.9	2.5	
Tl	205	1	No Gas	0.080	55.1	5645	52.8	1	
Tl	203	1	No Gas	0.076	46.9	2264	44.7	1	
Pb	208	1	No Gas	-0.081	-9.9	39128	2.0	2.5	
U	238	1	No Gas	0.011	29.1	1153	28.4	2.5	
Ca	43	2	He	3.672	195.0	30	57.7	100	
Sb	121	2	He	0.257	5.1	3297	3.9	2.5	
Ti	47	2	He	0.031	135.1	27	43.3	2.5	
Cu	63	1	No Gas	0.044	30.8	2747	8.8	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2269397	2.22	2589135	87.65	70	120	
Ge	72	2	He	1016125	0.42	1118718	90.83	70	120	
Ge	72	1	No Gas	4081317	1.44	4398724	92.78	70	120	
In	115	1	No Gas	5305327	3.43	5762279	92.07	70	120	
Bi	209	1	No Gas	5517727	0.83	5779492	95.47	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	054_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T12:44:27-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	100.832	2.921	2933415	0.86	100	100.8	90	110	
Be	9	1	No Gas	103.729	1.724	669885	0.55	100	103.7	90	110	
V	51	2	He	95.970	0.936	774430	0.44	100	96.0	90	110	
Cr	52	2	He	96.039	3.450	970632	4.01	100	96.0	90	110	
Fe	56	2	He	9986.752	2.512	86526332	1.95	10000	99.9	90	110	
Se	78	2	He	100.501	2.376	9441	1.82	100	100.5	90	110	
Sn	118	2	He	99.312	1.034	793057	1.08	100	99.3	90	110	
As	75	2	He	100.249	1.135	109956	0.64	100	100.2	90	110	
Ca	44	2	He	9678.584	1.182	366872	0.80	10000	96.8	90	110	
Na	23	2	He	9858.209	0.655	14492046	0.22	10000	98.6	90	110	
Mg	24	2	He	9843.676	0.846	7749232	0.84	10000	98.4	90	110	
K	39	2	He	9548.209	1.970	6298674	2.14	10000	95.5	90	110	
Mn	55	2	He	98.185	2.165	619025	1.99	100	98.2	90	110	
Co	59	2	He	105.080	1.483	1634557	1.35	100	105.1	90	110	
Ni	60	2	He	101.887	0.976	424424	0.47	100	101.9	90	110	
Cu	63	2	He	103.297	1.653	1164188	2.15	100	103.3	90	110	
Zn	66	2	He	102.099	0.780	195091	1.35	100	102.1	90	110	
Al	27	2	He	97.028	2.836	33407	3.01	100	97.0	90	110	
B	11	1	No Gas	495.044	1.561	2355795	0.85	500	99.0	90	110	
Al	27	1	No Gas	101.264	1.731	2497713	1.67	100	101.3	90	110	
Si	28	1	No Gas	502.608	0.342	6671210	0.50	5000	10.1	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	503.251	1.242	535870	0.73	500	100.7	90	110	
Ag	107	1	No Gas	102.234	1.970	3035998	0.96	100	102.2	90	110	
Cd	111	1	No Gas	101.097	2.806	630587	0.84	100	101.1	90	110	
Sr	88	1	No Gas	97.398	3.393	4847197	1.51	100	97.4	90	110	
Mo	95	1	No Gas	99.260	3.833	1051563	2.09	100	99.3	90	110	
Sn	118	1	No Gas	97.054	1.932	1843487	0.47	100	97.1	90	110	
Sb	121	1	No Gas	107.295	1.193	2477091	1.12	100	107.3	90	110	
Ba	137	1	No Gas	101.074	1.753	834695	2.19	100	101.1	90	110	
Tl	205	1	No Gas	101.580	2.310	6498187	0.37	100	101.6	90	110	
Tl	203	1	No Gas	103.533	2.113	2786034	2.06	100	103.5	90	110	
Pb	208	1	No Gas	104.837	1.375	9383104	1.23	100	104.8	90	110	
U	238	1	No Gas	98.958	1.564	9556067	0.64	100	99.0	90	110	
Ca	43	2	He	9547.593	1.806	21360	2.14	10000	95.5	90	110	
Sb	121	2	He	101.844	0.541	989824	1.10	100	101.8	90	110	
Ti	47	2	He	97.574	4.830	25184	4.42	100	97.6	90	110	
Cu	63	1	No Gas	103.740	0.270	1973446	0.30	100	103.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2146417	1.99	2589135	82.90	70	120	
Ge	72	2	He	939624	0.57	1118718	83.99	70	120	
Ge	72	1	No Gas	3776772	0.49	4398724	85.86	70	120	
In	115	1	No Gas	5030397	2.19	5762279	87.30	70	120	
Bi	209	1	No Gas	5333157	1.97	5779492	92.28	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	058_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T12:54:05-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.088	180.2	128896	1.4	0.5	
Be	9	1	No Gas	0.001	153.1	17	75.5	0.5	
V	51	2	He	-1.424	-0.7	2319	3.6	2.5	
Cr	52	2	He	0.070	19.3	2364	5.9	2.5	
Fe	56	2	He	0.236	14.3	12853	2.5	100	
Se	78	2	He	-0.016	-348.2	29	17.2	2	
As	75	2	He	-0.155	-15.5	110	23.7	2.5	
Ca	44	2	He	4.356	50.3	550	14.9	100	
Na	23	2	He	-0.711	-91.5	52047	1.5	100	
Mg	24	2	He	0.171	44.6	397	15.4	100	
K	39	2	He	1.875	34.5	28146	1.8	100	
Mn	55	2	He	0.109	15.5	887	12.1	2.5	
Co	59	2	He	0.001	117.4	160	16.5	2.5	
Ni	60	2	He	0.023	12.9	247	4.7	2.5	
Cu	63	2	He	0.015	60.7	1077	9.3	2	
Zn	66	2	He	0.189	21.1	770	10.1	2.5	
Al	27	2	He	0.993	15.6	1020	5.5	5	
B	11	1	No Gas	-0.204	-52.4	40692	1.6	0.5	
Al	27	1	No Gas	0.603	4.4	71996	1.4	5	
Si	28	1	No Gas	-6.333	-24.8	636646	1.7	10	
P	31	1	No Gas	-2.462	-34.9	29652	2.3	10	
Ag	107	1	No Gas	-0.004	-66.9	580	13.5	2.5	
Cd	111	1	No Gas	0.000	881.2	13	114.6	1	
Sr	88	1	No Gas	0.013	19.7	1887	8.0	2.5	
Mo	95	1	No Gas	0.000	-4116.4	67	31.2	2.5	
Sn	118	1	No Gas	0.016	70.1	2740	6.8	5	
Sb	121	1	No Gas	0.054	1.5	2894	0.7	2.5	
Ba	137	1	No Gas	0.023	58.9	363	30.3	2.5	
Tl	205	1	No Gas	0.002	86.2	420	20.3	1	
Tl	203	1	No Gas	0.001	187.5	170	27.0	1	
Pb	208	1	No Gas	2.239	1.0	250987	1.4	2.5	
U	238	1	No Gas	0.000	-171.1	50	34.6	2.5	
Ca	43	2	He	13.661	65.3	50	40.0	100	
Sb	121	2	He	0.058	38.3	1107	19.5	2.5	
Ti	47	2	He	0.013	300.5	20	50.0	2.5	
Cu	63	1	No Gas	0.010	22.0	1907	2.5	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag

Continuing Calibration Blank (CCB) Report

Li	6	1	No Gas	2183101	2.46	2589135	84.32	70	120	
Ge	72	2	He	938123	0.34	1118718	83.86	70	120	
Ge	72	1	No Gas	3789654	1.37	4398724	86.15	70	120	
In	115	1	No Gas	5064179	2.25	5762279	87.89	70	120	
Bi	209	1	No Gas	5475166	0.63	5779492	94.73	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	082_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:39:32-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	94.549	2.272	2720341	1.76	100	94.5	90	110	
Be	9	1	No Gas	99.797	0.945	635539	0.78	100	99.8	90	110	
V	51	2	He	92.182	0.936	766508	0.68	100	92.2	90	110	
Cr	52	2	He	91.417	1.399	951367	2.03	100	91.4	90	110	
Fe	56	2	He	9516.003	2.073	84896782	1.37	10000	95.2	90	110	
Se	78	2	He	94.738	1.859	9166	0.64	100	94.7	90	110	
Sn	118	2	He	96.453	1.498	796813	2.56	100	96.5	90	110	
As	75	2	He	94.583	1.156	106837	0.43	100	94.6	90	110	
Ca	44	2	He	9248.612	1.265	360993	0.42	10000	92.5	90	110	
Na	23	2	He	9175.699	2.063	13896118	3.22	10000	91.8	90	110	
Mg	24	2	He	9038.165	2.382	7325544	1.47	10000	90.4	90	110	
K	39	2	He	8953.658	1.914	6083680	2.20	10000	89.5	90	110	CCV Main CR1-2 Failed
Mn	55	2	He	93.463	1.007	606772	0.78	100	93.5	90	110	
Co	59	2	He	99.584	3.013	1594871	2.22	100	99.6	90	110	
Ni	60	2	He	96.159	3.025	412397	1.86	100	96.2	90	110	
Cu	63	2	He	96.472	1.944	1119556	2.00	100	96.5	90	110	
Zn	66	2	He	95.960	0.938	188836	1.77	100	96.0	90	110	
Al	27	2	He	101.709	2.687	36020	2.13	100	101.7	90	110	
B	11	1	No Gas	481.377	2.753	2260124	2.99	500	96.3	90	110	
Al	27	1	No Gas	112.228	2.131	2829025	0.13	100	112.2	90	110	CCV Main CR1-2 Failed
Si	28	1	No Gas	444.871	3.556	6130822	1.04	5000	8.9	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	474.615	1.748	519584	1.22	500	94.9	90	110	
Ag	107	1	No Gas	96.309	0.900	2889173	0.75	100	96.3	90	110	
Cd	111	1	No Gas	97.400	2.235	613743	1.40	100	97.4	90	110	
Sr	88	1	No Gas	97.618	1.815	4908854	2.08	100	97.6	90	110	
Mo	95	1	No Gas	94.725	1.627	1014110	2.39	100	94.7	90	110	
Sn	118	1	No Gas	99.499	1.266	1909365	2.24	100	99.5	90	110	
Sb	121	1	No Gas	100.301	1.210	2372782	2.71	100	100.3	90	110	
Ba	137	1	No Gas	97.474	0.759	813094	1.56	100	97.5	90	110	
Tl	205	1	No Gas	98.051	1.783	6352943	0.68	100	98.1	90	110	
Tl	203	1	No Gas	97.769	2.699	2664049	1.49	100	97.8	90	110	
Pb	208	1	No Gas	97.937	0.697	8880459	0.71	100	97.9	90	110	
U	238	1	No Gas	95.910	1.074	9381248	1.97	100	95.9	90	110	
Ca	43	2	He	8937.792	1.869	20596	3.45	10000	89.4	90	110	CCV Main CR1-2 Failed
Sb	121	2	He	92.584	1.854	926490	0.91	100	92.6	90	110	
Ti	47	2	He	91.785	2.763	24392	1.28	100	91.8	90	110	
Cu	63	1	No Gas	99.814	0.938	1945459	2.14	100	99.8	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2116361	1.73	2589135	81.74	70	120	
Ge	72	2	He	967597	1.59	1118718	86.49	70	120	
Ge	72	1	No Gas	3869571	2.09	4398724	87.97	70	120	
In	115	1	No Gas	5080504	1.00	5762279	88.17	70	120	
Bi	209	1	No Gas	5400813	1.37	5779492	93.45	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	083_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:41:18-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.210	30.9	135396	2.1	0.5	
Be	9	1	No Gas	0.010	15.8	75	13.3	0.5	
V	51	2	He	-1.098	-0.5	5081	0.4	2.5	
Cr	52	2	He	0.041	11.7	2154	3.6	2.5	
Fe	56	2	He	0.907	15.1	19354	5.9	100	
Se	78	2	He	-0.021	-380.0	30	26.7	2	
As	75	2	He	-0.064	-60.3	218	20.0	2.5	
Ca	44	2	He	3.490	100.6	537	25.4	100	
Na	23	2	He	2.783	7.7	59296	1.0	100	
Mg	24	2	He	0.775	18.9	903	12.1	100	
K	39	2	He	4.087	23.3	30698	1.0	100	
Mn	55	2	He	0.145	7.7	1157	6.7	2.5	
Co	59	2	He	0.007	51.9	257	22.2	2.5	
Ni	60	2	He	0.033	43.9	300	21.9	2.5	
Cu	63	2	He	0.029	28.6	1273	6.9	2	
Zn	66	2	He	0.117	12.8	657	5.3	2.5	
Al	27	2	He	1.198	23.4	1130	9.2	5	
B	11	1	No Gas	6.354	6.5	73513	3.5	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.826	7.1	79448	1.6	5	
Si	28	1	No Gas	-4.331	-21.6	678046	0.4	10	
P	31	1	No Gas	-2.744	-41.4	30143	2.9	10	
Ag	107	1	No Gas	0.003	100.6	790	11.6	2.5	
Cd	111	1	No Gas	0.009	69.5	70	57.1	1	
Sr	88	1	No Gas	0.024	23.3	2437	9.8	2.5	
Mo	95	1	No Gas	0.053	43.4	643	37.5	2.5	
Sn	118	1	No Gas	0.317	10.0	8603	7.4	5	
Sb	121	1	No Gas	0.832	16.0	21438	14.6	2.5	
Ba	137	1	No Gas	0.031	44.8	443	29.0	2.5	
Tl	205	1	No Gas	0.032	27.3	2460	21.8	1	
Tl	203	1	No Gas	0.030	28.4	1010	23.2	1	
Pb	208	1	No Gas	0.738	7.8	116365	1.6	2.5	
U	238	1	No Gas	0.011	31.5	1203	28.2	2.5	
Ca	43	2	He	2.643	609.2	27	142.0	100	
Sb	121	2	He	0.560	7.9	6195	6.1	2.5	
Ti	47	2	He	0.035	125.3	27	43.3	2.5	
Cu	63	1	No Gas	0.013	52.3	2017	6.2	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2231953	0.76	2589135	86.20	70	120	
Ge	72	2	He	973242	1.28	1118718	87.00	70	120	
Ge	72	1	No Gas	3890151	1.35	4398724	88.44	70	120	
In	115	1	No Gas	5131701	2.07	5762279	89.06	70	120	
Bi	209	1	No Gas	5608856	3.17	5779492	97.05	70	120	

Sample Report

Sample Table

Sample Name	MBLK-157451
Data File Name	084SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:48:24-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.099	0.099	291.49	136981	0.00	2000	
Be	9	1	No Gas	0.009	0.009	24.39	73	0.01	2000	
V	51	2	He	-1.010	-1.010	-1.56	5927	-0.02	2000	
Cr	52	2	He	0.113	0.113	23.42	2964	0.00	2000	
Fe	56	2	He	1.555	1.555	4.02	25691	0.01	200000	
Se	78	2	He	-0.060	-0.060	-189.94	27	-0.23	2000	
Sn	118	2	He	0.028	0.028	68.10	1340	0.00	200	
As	75	2	He	-0.074	-0.074	-41.69	211	-0.03	2000	
Ca	44	2	He	22.110	22.110	8.30	1293	1.71	200000	
Na	23	2	He	11.585	11.585	3.54	74157	0.02	200000	
Mg	24	2	He	20.514	20.514	2.00	17351	0.12	200000	
K	39	2	He	13.270	13.270	12.23	37719	0.04	200000	
Mn	55	2	He	0.207	0.207	9.77	1590	0.01	2000	
Co	59	2	He	0.016	0.016	12.36	413	0.00	2000	
Ni	60	2	He	0.095	0.095	14.64	580	0.02	2000	
Cu	63	2	He	0.090	0.090	3.45	2027	0.00	2000	
Zn	66	2	He	1.892	1.892	3.90	4247	0.04	2000	
Al	27	2	He	9.223	9.223	6.27	4014	0.23	2000	
B	11	1	No Gas	-0.511	-0.511	-105.84	41575	0.00	2000	
Al	27	1	No Gas	10.429	10.429	1.08	323715	0.00	2000	
Si	28	1	No Gas	81.814	81.814	1.40	1762538	0.00	2000	
Ag	107	1	No Gas	-0.009	-0.009	-27.59	463	0.00	2000	
Cd	111	1	No Gas	0.016	0.016	33.74	117	0.01	2000	
Sr	88	1	No Gas	0.074	0.074	6.73	5201	0.00	2000	
Mo	95	1	No Gas	0.018	0.018	34.21	270	0.01	2000	
Sn	118	1	No Gas	0.041	0.041	32.86	3381	0.00	2000	
Sb	121	1	No Gas	0.108	0.108	9.44	4331	0.00	2000	
Ba	137	1	No Gas	0.435	0.435	2.79	3997	0.01	2000	
Tl	205	1	No Gas	0.010	0.010	26.06	1033	0.00	2000	
Tl	203	1	No Gas	0.008	0.008	42.14	380	0.00	2000	
Pb	208	1	No Gas	2.164	2.164	8.23	260143	0.00	2000	
U	238	1	No Gas	0.001	0.001	67.27	143	0.00	2000	
Ca	43	2	He	25.099	25.099	88.96	80	31.37	200000	
Sb	121	2	He	0.138	0.138	9.90	1994	0.01	2000	
Ti	47	2	He	0.082	0.082	45.15	40	0.20	2000	
Cu	63	1	No Gas	0.091	0.091	21.59	3611	0.00	2000	
Zn	66	1	No Gas	1.852	1.852	3.23	11819	0.02	2000	
Se	82	1	No Gas	-0.053	-0.053	-104.71	-73	0.07	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2320148	7.01	2589135	89.61	70	120	

Sample Report

Ge	72	2	He	993422	0.24	1118718	88.80	70	120	
Ge	72	1	No Gas	3962036	0.35	4398724	90.07	70	120	
In	115	1	No Gas	5345526	2.19	5762279	92.77	70	120	
Bi	209	1	No Gas	5824665	3.64	5779492	100.78	70	120	

Sample Report

Sample Table

Sample Name	LCS-157451
Data File Name	087SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:54:19-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	0.469	0.469	35.69	144305	0.00	2000	
Be	9	1	No Gas	46.584	46.584	4.46	315941	0.01	2000	
V	51	2	He	42.918	42.918	1.11	375660	0.01	2000	
Cr	52	2	He	44.462	44.462	0.80	477946	0.01	2000	
Fe	56	2	He	4386.153	4386.153	1.22	40352645	0.01	200000	
Se	78	2	He	48.414	48.414	2.22	4846	1.00	2000	
Sn	118	2	He	-0.019	-0.019	-33.55	880	0.00	200	
As	75	2	He	46.203	46.203	0.39	53962	0.09	2000	
Ca	44	2	He	4268.480	4268.480	0.99	172008	2.48	200000	
Na	23	2	He	4470.668	4470.668	0.75	7007945	0.06	200000	
Mg	24	2	He	4379.493	4379.493	1.81	3660216	0.12	200000	
K	39	2	He	4500.348	4500.348	0.90	3166699	0.14	200000	
Mn	55	2	He	44.305	44.305	1.07	296663	0.01	2000	
Co	59	2	He	47.216	47.216	0.20	779811	0.01	2000	
Ni	60	2	He	45.634	45.634	1.07	201909	0.02	2000	
Cu	63	2	He	46.759	46.759	0.50	559966	0.01	2000	
Zn	66	2	He	48.811	48.811	1.44	99242	0.05	2000	
Al	27	2	He	49.405	49.405	0.94	18416	0.27	2000	
B	11	1	No Gas	-1.375	-1.375	-11.07	36287	0.00	2000	
Al	27	1	No Gas	53.096	53.096	2.78	1416652	0.00	2000	
Si	28	1	No Gas	69.660	69.660	6.46	1627581	0.00	2000	
Ag	107	1	No Gas	47.208	47.208	1.96	1441121	0.00	2000	
Cd	111	1	No Gas	47.503	47.503	1.08	304587	0.02	2000	
Sr	88	1	No Gas	0.128	0.128	7.14	7786	0.00	2000	
Mo	95	1	No Gas	45.842	45.842	0.92	499313	0.01	2000	
Sn	118	1	No Gas	-0.017	-0.017	-94.98	2144	0.00	2000	
Sb	121	1	No Gas	47.723	47.723	1.83	1168587	0.00	2000	
Ba	137	1	No Gas	46.153	46.153	1.08	391762	0.01	2000	
Tl	205	1	No Gas	46.673	46.673	3.10	3097388	0.00	2000	
Tl	203	1	No Gas	44.778	44.778	2.23	1249920	0.00	2000	
Pb	208	1	No Gas	46.909	46.909	1.27	4381037	0.00	2000	
U	238	1	No Gas	0.000	0.000	-376.88	53	0.00	2000	
Ca	43	2	He	4252.341	4252.341	4.20	10111	42.06	200000	
Sb	121	2	He	44.791	44.791	1.10	462473	0.01	2000	
Ti	47	2	He	42.469	42.469	1.95	11648	0.36	2000	
Cu	63	1	No Gas	48.373	48.373	2.05	976167	0.00	2000	
Zn	66	1	No Gas	50.279	50.279	2.18	290885	0.02	2000	
Se	82	1	No Gas	49.678	49.678	4.43	15820	0.31	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2256218	4.00	2589135	87.14	70	120	
Ge	72	2	He	997521	0.40	1118718	89.17	70	120	
Ge	72	1	No Gas	4003138	1.32	4398724	91.01	70	120	

Sample Report

In	115	1	No Gas	5169323	1.62	5762279	89.71	70	120	
Bi	209	1	No Gas	5532179	1.62	5779492	95.72	70	120	

Sample Report

Sample Table

Sample Name	HS20090748-01
Data File Name	088SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:56:10-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	20.144	20.144	2.83	684795	0.00	2000	
Be	9	1	No Gas	0.018	0.018	15.68	125	0.01	2000	
V	51	2	He	-1.290	-1.290	-1.06	3515	-0.04	2000	
Cr	52	2	He	1.103	1.103	6.68	13267	0.01	2000	
Fe	56	2	He	124.191	124.191	0.68	1127098	0.01	200000	
Se	78	2	He	0.151	0.151	32.46	47	0.32	2000	
Sn	118	2	He	0.028	0.028	48.09	1230	0.00	200	
As	75	2	He	0.507	0.507	3.68	866	0.06	2000	
Ca	44	2	He	8852.267	8852.267	1.05	348030	2.54	200000	
Na	23	2	He	355240.217	355240.217	2.59	539590499	0.07	200000	>LDR
Mg	24	2	He	9705.970	9705.970	1.32	7924014	0.12	200000	
K	39	2	He	1643.774	1643.774	1.37	1147702	0.14	200000	
Mn	55	2	He	42.862	42.862	1.13	280385	0.02	2000	
Co	59	2	He	0.554	0.554	5.31	9073	0.01	2000	
Ni	60	2	He	1.394	1.394	7.20	6178	0.02	2000	
Cu	63	2	He	0.977	0.977	4.56	12352	0.01	2000	
Zn	66	2	He	14.412	14.412	1.36	28921	0.05	2000	
Al	27	2	He	15.714	15.714	10.92	6205	0.25	2000	
B	11	1	No Gas	22.866	22.866	6.00	147639	0.02	2000	
Al	27	1	No Gas	16.220	16.220	1.03	453063	0.00	2000	
Si	28	1	No Gas	8680.278	8680.278	0.25	104811552	0.01	2000	>LDR
Ag	107	1	No Gas	-0.007	-0.007	-8.11	460	0.00	2000	
Cd	111	1	No Gas	0.031	0.031	28.56	200	0.02	2000	
Sr	88	1	No Gas	219.251	219.251	0.93	10515455	0.00	2000	
Mo	95	1	No Gas	1.029	1.029	3.17	10571	0.01	2000	
Sn	118	1	No Gas	0.024	0.024	69.23	2767	0.00	2000	
Sb	121	1	No Gas	0.722	0.722	3.66	18493	0.00	2000	
Ba	137	1	No Gas	154.843	154.843	1.11	1232065	0.01	2000	
Tl	205	1	No Gas	0.089	0.089	56.22	5452	0.00	2000	
Tl	203	1	No Gas	0.091	0.091	53.19	2367	0.00	2000	
Pb	208	1	No Gas	0.679	0.679	3.05	96279	0.00	2000	
U	238	1	No Gas	0.087	0.087	3.59	7683	0.00	2000	
Ca	43	2	He	9060.586	9060.586	1.22	21023	43.10	200000	
Sb	121	2	He	0.627	0.627	4.07	6889	0.01	2000	
Ti	47	2	He	0.397	0.397	43.07	123	0.32	2000	
Cu	63	1	No Gas	6.107	6.107	1.41	119090	0.01	2000	
Zn	66	1	No Gas	15.269	15.269	0.40	85123	0.02	2000	
Se	82	1	No Gas	0.400	0.400	32.75	68	0.59	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2144461	3.19	2589135	82.83	70	120	
Ge	72	2	He	974432	0.78	1118718	87.10	70	120	
Ge	72	1	No Gas	3818434	0.81	4398724	86.81	70	120	
In	115	1	No Gas	4846437	0.93	5762279	84.11	70	120	
Bi	209	1	No Gas	4866100	0.40	5779492	84.20	70	120	

Sample Report

Sample Table

Sample Name	HS20090748-01SD
Data File Name	089SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:58:04-05:00
Sample Type	Sample
Dilution	5
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	4.336	21.682	2.04	266285	0.00	2000	
Be	9	1	No Gas	0.003	0.015	62.77	30	0.01	2000	
V	51	2	He	-1.111	-5.555	-0.91	5197	-0.02	2000	
Cr	52	2	He	0.240	1.201	9.10	4421	0.01	2000	
Fe	56	2	He	25.807	129.034	0.86	253395	0.01	200000	
Se	78	2	He	0.112	0.560	117.89	45	0.25	2000	
Sn	118	2	He	0.009	0.045	70.45	1120	0.00	200	
As	75	2	He	0.013	0.063	230.06	318	0.00	2000	
Ca	44	2	He	1771.921	8859.606	1.96	72954	2.43	200000	
Na	23	2	He	71039.554	355197.772	2.81	112528878	0.06	200000	
Mg	24	2	He	1964.741	9823.705	1.62	1672314	0.12	200000	
K	39	2	He	335.904	1679.522	0.59	267641	0.13	200000	
Mn	55	2	He	8.581	42.903	0.91	58680	0.01	2000	
Co	59	2	He	0.119	0.595	4.19	2150	0.01	2000	
Ni	60	2	He	0.351	1.755	8.67	1743	0.02	2000	
Cu	63	2	He	0.212	1.061	1.02	3564	0.01	2000	
Zn	66	2	He	3.067	15.334	1.16	6765	0.05	2000	
Al	27	2	He	4.147	20.736	8.43	2254	0.18	2000	
B	11	1	No Gas	3.221	16.104	9.77	60847	0.01	2000	
Al	27	1	No Gas	4.422	22.108	2.14	175534	0.00	2000	
Si	28	1	No Gas	1741.662	8708.309	2.09	22899215	0.01	2000	
Ag	107	1	No Gas	-0.014	-0.072	-13.22	273	-0.01	2000	
Cd	111	1	No Gas	0.005	0.027	81.12	47	0.01	2000	
Sr	88	1	No Gas	43.844	219.219	2.26	2226947	0.00	2000	
Mo	95	1	No Gas	0.192	0.962	8.06	2147	0.01	2000	
Sn	118	1	No Gas	-0.002	-0.010	-752.55	2424	0.00	2000	
Sb	121	1	No Gas	0.242	1.212	4.20	7739	0.00	2000	
Ba	137	1	No Gas	31.654	158.269	2.90	266628	0.01	2000	
Tl	205	1	No Gas	0.006	0.028	41.09	660	0.00	2000	
Tl	203	1	No Gas	0.007	0.034	58.79	320	0.00	2000	
Pb	208	1	No Gas	0.425	2.127	3.73	82353	0.00	2000	
U	238	1	No Gas	0.016	0.082	4.84	1623	0.00	2000	
Ca	43	2	He	1721.503	8607.513	7.51	4181	41.18	200000	
Sb	121	2	He	0.233	1.165	4.37	3040	0.01	2000	
Ti	47	2	He	0.102	0.512	71.95	47	0.22	2000	
Cu	63	1	No Gas	0.643	3.216	1.36	14935	0.00	2000	
Zn	66	1	No Gas	3.195	15.973	1.17	19898	0.02	2000	
Se	82	1	No Gas	0.386	1.929	45.25	67	0.58	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2331173	0.97	2589135	90.04	70	120	
Ge	72	2	He	1015728	0.53	1118718	90.79	70	120	
Ge	72	1	No Gas	4047972	1.29	4398724	92.03	70	120	

Sample Report

In	115	1	No Gas	5129326	1.28	5762279	89.02	70	120	
Bi	209	1	No Gas	5296740	1.62	5779492	91.65	70	120	

Sample Report

Sample Table

Sample Name	HS20090748-01MS
Data File Name	090SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T13:59:59-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	21.443	21.443	5.18	702094	0.00	2000	
Be	9	1	No Gas	48.121	48.121	4.01	302233	0.02	2000	
V	51	2	He	42.575	42.575	0.52	368657	0.01	2000	
Cr	52	2	He	43.938	43.938	1.07	467100	0.01	2000	
Fe	56	2	He	4357.168	4357.168	0.52	39643835	0.01	200000	
Se	78	2	He	45.152	45.152	0.96	4471	1.01	2000	
Sn	118	2	He	0.050	0.050	8.96	1430	0.00	200	
As	75	2	He	46.188	46.188	0.28	53347	0.09	2000	
Ca	44	2	He	13677.316	13677.316	1.67	544169	2.51	200000	
Na	23	2	He	369957.570	369957.570	1.82	568929565	0.07	200000	>LDR
Mg	24	2	He	14574.738	14574.738	1.83	12045418	0.12	200000	
K	39	2	He	6035.178	6035.178	0.65	4190060	0.14	200000	
Mn	55	2	He	88.332	88.332	1.24	584694	0.02	2000	
Co	59	2	He	46.629	46.629	0.83	761593	0.01	2000	
Ni	60	2	He	45.340	45.340	1.32	198381	0.02	2000	
Cu	63	2	He	45.752	45.752	0.56	541856	0.01	2000	
Zn	66	2	He	62.568	62.568	0.44	125679	0.05	2000	
Al	27	2	He	59.276	59.276	5.54	21704	0.27	2000	
B	11	1	No Gas	24.883	24.883	6.85	152956	0.02	2000	
Al	27	1	No Gas	60.433	60.433	2.00	1570292	0.00	2000	
Si	28	1	No Gas	9292.534	9292.534	0.34	115079258	0.01	2000	>LDR
Ag	107	1	No Gas	41.205	41.205	0.43	1207318	0.00	2000	
Cd	111	1	No Gas	45.069	45.069	0.98	277319	0.02	2000	
Sr	88	1	No Gas	223.698	223.698	0.87	10981177	0.00	2000	
Mo	95	1	No Gas	46.959	46.959	1.56	490837	0.01	2000	
Sn	118	1	No Gas	0.048	0.048	34.81	3274	0.00	2000	
Sb	121	1	No Gas	45.303	45.303	1.46	1085948	0.00	2000	
Ba	137	1	No Gas	206.251	206.251	2.96	1679524	0.01	2000	
Tl	205	1	No Gas	46.616	46.616	1.88	2752962	0.00	2000	
Tl	203	1	No Gas	44.597	44.597	2.64	1107513	0.00	2000	
Pb	208	1	No Gas	47.468	47.468	3.08	3942950	0.00	2000	
U	238	1	No Gas	0.091	0.091	5.70	8146	0.00	2000	
Ca	43	2	He	13916.241	13916.241	0.99	32676	42.59	200000	
Sb	121	2	He	42.980	42.980	0.07	438876	0.01	2000	
Ti	47	2	He	42.936	42.936	2.44	11645	0.37	2000	
Cu	63	1	No Gas	52.049	52.049	0.56	1028080	0.01	2000	
Zn	66	1	No Gas	63.980	63.980	0.68	362011	0.02	2000	
Se	82	1	No Gas	44.536	44.536	5.44	13877	0.32	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2089224	3.99	2589135	80.69	70	120	
Ge	72	2	He	986472	0.39	1118718	88.18	70	120	
Ge	72	1	No Gas	3918145	0.94	4398724	89.07	70	120	
In	115	1	No Gas	4960341	0.23	5762279	86.08	70	120	
Bi	209	1	No Gas	4922560	2.31	5779492	85.17	70	120	

Sample Report

Sample Table

Sample Name	HS20090748-01PDS
Data File Name	092SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T14:03:44-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	20.505	20.505	2.29	685352	0.00	2000	
Be	9	1	No Gas	106.607	106.607	2.97	678211	0.02	2000	
V	51	2	He	100.544	100.544	2.74	843676	0.01	2000	
Cr	52	2	He	97.939	97.939	2.44	1029928	0.01	2000	
Fe	56	2	He	9903.050	9903.050	2.07	89311555	0.01	200000	
Se	78	2	He	103.608	103.608	1.48	10130	1.02	2000	
Sn	118	2	He	0.073	0.073	34.45	1587	0.00	200	
As	75	2	He	107.551	107.551	1.13	122760	0.09	2000	
Ca	44	2	He	19036.655	19036.655	0.61	750751	2.54	200000	
Na	23	2	He	375437.051	375437.051	0.53	572468898	0.07	200000	>LDR
Mg	24	2	He	19668.402	19668.402	2.20	16113875	0.12	200000	
K	39	2	He	11707.103	11707.103	1.50	8031600	0.15	200000	
Mn	55	2	He	140.702	140.702	1.44	923296	0.02	2000	
Co	59	2	He	103.510	103.510	1.25	1676000	0.01	2000	
Ni	60	2	He	100.137	100.137	0.59	434208	0.02	2000	
Cu	63	2	He	101.667	101.667	0.65	1192580	0.01	2000	
Zn	66	2	He	119.645	119.645	1.50	237857	0.05	2000	
Al	27	2	He	116.199	116.199	2.11	41496	0.28	2000	
B	11	1	No Gas	24.061	24.061	3.42	151182	0.02	2000	
Al	27	1	No Gas	119.347	119.347	0.70	2991873	0.00	2000	
Si	28	1	No Gas	9359.790	9359.790	1.15	113943098	0.01	2000	>LDR
Ag	107	1	No Gas	97.655	97.655	2.64	2807720	0.00	2000	
Cd	111	1	No Gas	102.139	102.139	0.14	616799	0.02	2000	
Sr	88	1	No Gas	222.857	222.857	1.12	10736064	0.00	2000	
Mo	95	1	No Gas	104.497	104.497	1.31	1071807	0.01	2000	
Sn	118	1	No Gas	0.074	0.074	14.88	3694	0.00	2000	
Sb	121	1	No Gas	99.698	99.698	2.27	2347868	0.00	2000	
Ba	137	1	No Gas	261.995	261.995	0.62	2093912	0.01	2000	
Tl	205	1	No Gas	102.408	102.408	3.54	6012385	0.00	2000	
Tl	203	1	No Gas	104.178	104.178	2.16	2572494	0.00	2000	
Pb	208	1	No Gas	103.355	103.355	2.11	8489324	0.00	2000	
U	238	1	No Gas	0.090	0.090	3.63	8043	0.00	2000	
Ca	43	2	He	19140.722	19140.722	1.24	44556	42.96	200000	
Sb	121	2	He	95.547	95.547	0.84	966600	0.01	2000	
Ti	47	2	He	95.619	95.619	3.10	25685	0.37	2000	
Cu	63	1	No Gas	109.992	109.992	1.59	2133700	0.01	2000	
Zn	66	1	No Gas	121.863	121.863	2.05	676687	0.02	2000	
Se	82	1	No Gas	107.359	107.359	4.58	32962	0.33	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2114607	1.81	2589135	81.67	70	120	
Ge	72	2	He	978048	1.39	1118718	87.43	70	120	
Ge	72	1	No Gas	3852132	1.52	4398724	87.57	70	120	
In	115	1	No Gas	4868262	1.14	5762279	84.49	70	120	
Bi	209	1	No Gas	4894013	1.27	5779492	84.68	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	094_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T14:08:20-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	94.741	0.792	2847904	1.58	100	94.7	90	110	
Be	9	1	No Gas	99.821	1.425	664112	0.73	100	99.8	90	110	
V	51	2	He	92.207	1.802	793673	1.74	100	92.2	90	110	
Cr	52	2	He	90.185	1.262	971496	1.21	100	90.2	90	110	
Fe	56	2	He	9475.306	3.552	87514505	3.63	10000	94.8	90	110	
Se	78	2	He	97.340	1.789	9749	1.87	100	97.3	90	110	
Sn	118	2	He	97.761	1.781	796781	0.53	100	97.8	90	110	
As	75	2	He	97.398	1.587	113881	1.65	100	97.4	90	110	
Ca	44	2	He	9472.777	3.022	382756	3.08	10000	94.7	90	110	
Na	23	2	He	9476.749	1.395	14851790	1.47	10000	94.8	90	110	
Mg	24	2	He	9467.588	2.518	7944306	2.52	10000	94.7	90	110	
K	39	2	He	9175.578	1.166	6452633	1.08	10000	91.8	90	110	
Mn	55	2	He	92.977	1.908	624849	1.98	100	93.0	90	110	
Co	59	2	He	100.597	0.663	1667964	0.74	100	100.6	90	110	
Ni	60	2	He	97.028	1.211	430837	1.23	100	97.0	90	110	
Cu	63	2	He	97.560	2.694	1171945	2.62	100	97.6	90	110	
Zn	66	2	He	97.970	0.970	199545	0.92	100	98.0	90	110	
Al	27	2	He	105.293	2.757	38577	2.67	100	105.3	90	110	
B	11	1	No Gas	472.516	0.537	2318551	1.30	500	94.5	90	110	
Al	27	1	No Gas	108.639	1.299	2805181	0.28	100	108.6	90	110	
Si	28	1	No Gas	474.614	0.488	6646879	0.60	5000	9.5	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	484.804	1.629	542494	0.54	500	97.0	90	110	
Ag	107	1	No Gas	97.225	2.221	2927280	1.72	100	97.2	90	110	
Cd	111	1	No Gas	97.352	1.489	615759	1.24	100	97.4	90	110	
Sr	88	1	No Gas	97.026	2.108	4897310	2.53	100	97.0	90	110	
Mo	95	1	No Gas	95.224	2.732	1023025	2.20	100	95.2	90	110	
Sn	118	1	No Gas	97.461	2.081	1876949	1.73	100	97.5	90	110	
Sb	121	1	No Gas	98.371	1.621	2381613	2.15	100	98.4	90	110	
Ba	137	1	No Gas	98.017	0.529	820593	0.17	100	98.0	90	110	
Tl	205	1	No Gas	98.408	0.503	6451489	1.58	100	98.4	90	110	
Tl	203	1	No Gas	99.518	2.363	2743436	1.27	100	99.5	90	110	
Pb	208	1	No Gas	96.785	1.317	8878790	1.22	100	96.8	90	110	
U	238	1	No Gas	94.941	1.998	9393182	1.16	100	94.9	90	110	
Ca	43	2	He	9200.982	2.160	21941	2.21	10000	92.0	90	110	
Sb	121	2	He	94.059	1.266	974415	1.24	100	94.1	90	110	
Ti	47	2	He	94.030	2.100	25872	2.04	100	94.0	90	110	
Cu	63	1	No Gas	101.663	0.257	2027875	0.74	100	101.7	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2211087	1.79	2589135	85.40	70	120	
Ge	72	2	He	1001531	0.08	1118718	89.52	70	120	
Ge	72	1	No Gas	3960200	1.00	4398724	90.03	70	120	
In	115	1	No Gas	5099230	0.66	5762279	88.49	70	120	
Bi	209	1	No Gas	5463821	1.41	5779492	94.54	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	095_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T14:10:05-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.250	14.9	136798	1.2	0.5	
Be	9	1	No Gas	0.014	27.3	100	26.0	0.5	
V	51	2	He	-1.163	-1.1	4641	1.9	2.5	
Cr	52	2	He	0.036	44.7	2147	8.6	2.5	
Fe	56	2	He	0.774	8.1	18540	3.9	100	
Se	78	2	He	-0.067	-58.9	26	15.4	2	
As	75	2	He	-0.057	-34.7	230	9.5	2.5	
Ca	44	2	He	-0.451	-765.6	390	35.5	100	
Na	23	2	He	54.423	1.6	140455	1.8	100	
Mg	24	2	He	0.804	6.9	947	5.4	100	
K	39	2	He	9.801	13.9	35296	2.7	100	
Mn	55	2	He	0.029	44.7	403	20.6	2.5	
Co	59	2	He	0.007	51.2	253	21.7	2.5	
Ni	60	2	He	0.023	52.9	260	20.4	2.5	
Cu	63	2	He	0.038	32.0	1417	10.9	2	
Zn	66	2	He	-0.022	-176.3	390	20.5	2.5	
Al	27	2	He	0.809	35.8	1013	9.3	5	
B	11	1	No Gas	5.347	13.9	68717	4.6	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.662	27.7	76327	6.7	5	
Si	28	1	No Gas	-1.239	-29.1	724681	1.2	10	
P	31	1	No Gas	0.018	5795.9	33397	2.4	10	
Ag	107	1	No Gas	-0.004	-44.6	600	10.4	2.5	
Cd	111	1	No Gas	0.013	48.1	97	43.1	1	
Sr	88	1	No Gas	0.033	9.8	2947	4.4	2.5	
Mo	95	1	No Gas	0.064	20.7	777	20.1	2.5	
Sn	118	1	No Gas	0.266	6.0	7762	5.2	5	
Sb	121	1	No Gas	0.858	10.1	22303	7.7	2.5	
Ba	137	1	No Gas	0.020	38.4	353	19.3	2.5	
Tl	205	1	No Gas	0.042	35.6	3137	33.8	1	
Tl	203	1	No Gas	0.045	31.3	1413	30.0	1	
Pb	208	1	No Gas	0.173	3.3	62405	1.1	2.5	
U	238	1	No Gas	0.012	22.0	1223	22.9	2.5	
Ca	43	2	He	-1.696	-141.6	17	34.6	100	
Sb	121	2	He	0.649	5.1	7245	4.3	2.5	
Ti	47	2	He	-0.016	-130.3	13	43.3	2.5	
Cu	63	1	No Gas	0.215	7.8	6041	4.7	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2236186	1.17	2589135	86.37	70	120	
Ge	72	2	He	993099	0.86	1118718	88.77	70	120	
Ge	72	1	No Gas	3937970	1.72	4398724	89.53	70	120	
In	115	1	No Gas	5232795	1.52	5762279	90.81	70	120	
Bi	209	1	No Gas	5508580	1.95	5779492	95.31	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	118_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T15:10:09-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	96.635	2.700	2713342	1.93	100	96.6	90	110	
Be	9	1	No Gas	100.487	3.420	624934	1.09	100	100.5	90	110	
V	51	2	He	93.814	1.693	741055	0.74	100	93.8	90	110	
Cr	52	2	He	93.608	2.962	925518	1.86	100	93.6	90	110	
Fe	56	2	He	9583.642	1.295	81256960	0.68	10000	95.8	90	110	
Se	78	2	He	99.703	1.723	9167	2.25	100	99.7	90	110	
Sn	118	2	He	99.197	1.421	762459	0.35	100	99.2	90	110	
As	75	2	He	97.184	1.407	104314	0.33	100	97.2	90	110	
Ca	44	2	He	9421.144	0.550	349483	1.07	10000	94.2	90	110	
Na	23	2	He	9370.184	1.918	13481229	1.41	10000	93.7	90	110	
Mg	24	2	He	9358.157	2.508	7208155	1.62	10000	93.6	90	110	
K	39	2	He	9293.665	1.267	5999798	1.20	10000	92.9	90	110	
Mn	55	2	He	95.094	1.709	586657	0.82	100	95.1	90	110	
Co	59	2	He	98.719	1.682	1502664	1.43	100	98.7	90	110	
Ni	60	2	He	96.219	1.096	392220	0.50	100	96.2	90	110	
Cu	63	2	He	95.879	2.238	1057307	1.42	100	95.9	90	110	
Zn	66	2	He	99.443	0.329	185954	1.43	100	99.4	90	110	
Al	27	2	He	104.803	1.070	35259	2.06	100	104.8	90	110	
B	11	1	No Gas	480.054	4.920	2200907	3.38	500	96.0	90	110	
Al	27	1	No Gas	109.925	2.753	2654777	1.28	100	109.9	90	110	
Si	28	1	No Gas	456.961	1.253	6013638	0.39	5000	9.1	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	483.996	2.285	506772	0.82	500	96.8	90	110	
Ag	107	1	No Gas	97.976	4.224	2824036	2.89	100	98.0	90	110	
Cd	111	1	No Gas	98.978	2.134	599420	0.95	100	99.0	90	110	
Sr	88	1	No Gas	96.944	0.332	4685423	1.18	100	96.9	90	110	
Mo	95	1	No Gas	93.566	2.434	962591	2.07	100	93.6	90	110	
Sn	118	1	No Gas	97.953	2.482	1806160	1.17	100	98.0	90	110	
Sb	121	1	No Gas	102.722	1.546	2326674	1.16	100	102.7	90	110	
Ba	137	1	No Gas	99.803	0.235	800126	1.15	100	99.8	90	110	
Tl	205	1	No Gas	99.790	0.861	6355194	0.92	100	99.8	90	110	
Tl	203	1	No Gas	101.379	0.316	2715495	0.81	100	101.4	90	110	
Pb	208	1	No Gas	97.857	1.739	8720146	0.71	100	97.9	90	110	
U	238	1	No Gas	95.794	1.970	9207280	0.94	100	95.8	90	110	
Ca	43	2	He	9515.476	2.682	20829	2.20	10000	95.2	90	110	
Sb	121	2	He	96.506	0.530	917893	1.52	100	96.5	90	110	
Ti	47	2	He	95.779	2.049	24192	1.37	100	95.8	90	110	
Cu	63	1	No Gas	99.305	1.962	1853243	0.88	100	99.3	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2067689	2.50	2589135	79.86	70	120	
Ge	72	2	He	919501	1.11	1118718	82.19	70	120	
Ge	72	1	No Gas	3705594	1.46	4398724	84.24	70	120	
In	115	1	No Gas	4883095	1.37	5762279	84.74	70	120	
Bi	209	1	No Gas	5307959	1.05	5779492	91.84	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	119_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T15:11:56-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.196	20.5	126685	1.8	0.5	
Be	9	1	No Gas	0.011	49.9	77	43.4	0.5	
V	51	2	He	-1.353	-1.3	2861	3.9	2.5	
Cr	52	2	He	0.010	28.5	1753	0.9	2.5	
Fe	56	2	He	0.476	13.2	14802	3.2	100	
Se	78	2	He	0.060	259.4	36	38.9	2	
As	75	2	He	-0.143	-6.9	122	7.9	2.5	
Ca	44	2	He	1.530	114.8	440	15.7	100	
Na	23	2	He	26.587	6.2	91200	1.8	100	
Mg	24	2	He	0.533	31.3	677	20.2	100	
K	39	2	He	4.514	18.6	29629	1.6	100	
Mn	55	2	He	0.039	15.8	440	9.1	2.5	
Co	59	2	He	0.004	78.8	203	25.2	2.5	
Ni	60	2	He	0.016	97.6	217	30.7	2.5	
Cu	63	2	He	0.018	74.8	1097	14.1	2	
Zn	66	2	He	-0.066	-62.5	283	28.3	2.5	
Al	27	2	He	0.689	65.1	910	16.6	5	
B	11	1	No Gas	5.865	9.3	66783	5.1	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.540	30.4	69197	6.4	5	
Si	28	1	No Gas	-6.712	-12.5	620575	1.5	10	
P	31	1	No Gas	-1.023	-34.2	30531	2.4	10	
Ag	107	1	No Gas	0.001	65.8	720	2.8	2.5	
Cd	111	1	No Gas	0.004	82.3	37	56.8	1	
Sr	88	1	No Gas	0.018	17.9	2114	8.1	2.5	
Mo	95	1	No Gas	0.065	50.5	753	45.8	2.5	
Sn	118	1	No Gas	0.272	3.4	7502	2.5	5	
Sb	121	1	No Gas	0.638	7.8	16100	7.8	2.5	
Ba	137	1	No Gas	0.013	33.1	280	12.9	2.5	
Tl	205	1	No Gas	0.075	50.6	5115	47.7	1	
Tl	203	1	No Gas	0.076	52.6	2197	49.4	1	
Pb	208	1	No Gas	-0.034	-50.2	42145	3.3	2.5	
U	238	1	No Gas	0.012	20.5	1230	19.8	2.5	
Ca	43	2	He	4.732	326.9	30	115.5	100	
Sb	121	2	He	0.472	8.3	5078	6.7	2.5	
Ti	47	2	He	0.026	374.1	23	107.9	2.5	
Cu	63	1	No Gas	0.056	9.4	2727	4.8	2.5	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2094963	1.37	2589135	80.91	70	120	
Ge	72	2	He	930431	0.97	1118718	83.17	70	120	
Ge	72	1	No Gas	3719675	1.29	4398724	84.56	70	120	
In	115	1	No Gas	4986470	0.31	5762279	86.54	70	120	
Bi	209	1	No Gas	5354236	0.34	5779492	92.64	70	120	

Sample Report

Sample Table

Sample Name	HS20090748-01MSD
Data File Name	127SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T15:39:06-05:00
Sample Type	Sample
Dilution	1
Comment	DOD TW 157451
ISTD Ref FileName	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Li	7	1	No Gas	21.810	21.810	3.32	650112	0.00	2000	
Be	9	1	No Gas	48.003	48.003	4.59	275204	0.02	2000	
V	51	2	He	42.219	42.219	0.71	335566	0.01	2000	
Cr	52	2	He	43.306	43.306	1.19	422471	0.01	2000	
Fe	56	2	He	4269.241	4269.241	1.58	35645848	0.01	200000	
Se	78	2	He	43.782	43.782	5.57	3980	1.10	2000	
Sn	118	2	He	0.335	0.335	16.82	3427	0.01	200	
As	75	2	He	45.625	45.625	0.59	48361	0.09	2000	
Ca	44	2	He	13639.933	13639.933	1.00	497978	2.74	200000	
Na	23	2	He	372298.576	372298.576	2.21	525394779	0.07	200000	>LDR
Mg	24	2	He	14458.731	14458.731	2.46	10965983	0.13	200000	
K	39	2	He	6002.118	6002.118	1.19	3824165	0.16	200000	
Mn	55	2	He	87.135	87.135	1.36	529308	0.02	2000	
Co	59	2	He	45.485	45.485	1.52	681732	0.01	2000	
Ni	60	2	He	44.426	44.426	1.02	178378	0.02	2000	
Cu	63	2	He	44.671	44.671	0.72	485485	0.01	2000	
Zn	66	2	He	62.351	62.351	0.31	114929	0.05	2000	
Al	27	2	He	59.637	59.637	2.61	20035	0.30	2000	
B	11	1	No Gas	32.267	32.267	3.54	170366	0.02	2000	
Al	27	1	No Gas	62.219	62.219	2.11	1463399	0.00	2000	
Si	28	1	No Gas	9113.838	9113.838	1.71	102278395	0.01	2000	>LDR
Ag	107	1	No Gas	40.710	40.710	0.44	1110675	0.00	2000	
Cd	111	1	No Gas	45.209	45.209	0.21	259030	0.02	2000	
Sr	88	1	No Gas	218.871	218.871	2.37	10002395	0.00	2000	
Mo	95	1	No Gas	46.152	46.152	1.92	449134	0.01	2000	
Sn	118	1	No Gas	0.389	0.389	3.90	8997	0.00	2000	
Sb	121	1	No Gas	47.520	47.520	0.84	1032140	0.00	2000	
Ba	137	1	No Gas	208.819	208.819	1.77	1583074	0.01	2000	
Tl	205	1	No Gas	43.297	43.297	5.56	2587556	0.00	2000	
Tl	203	1	No Gas	41.446	41.446	4.64	1041916	0.00	2000	
Pb	208	1	No Gas	44.435	44.435	2.27	3741027	0.00	2000	
U	238	1	No Gas	0.089	0.089	1.16	8103	0.00	2000	
Ca	43	2	He	13449.327	13449.327	2.11	28978	46.41	200000	
Sb	121	2	He	44.256	44.256	1.90	414689	0.01	2000	
Ti	47	2	He	43.639	43.639	6.33	10861	0.40	2000	
Cu	63	1	No Gas	48.142	48.142	1.56	861724	0.01	2000	
Zn	66	1	No Gas	64.751	64.751	1.29	331965	0.02	2000	
Se	82	1	No Gas	46.418	46.418	3.90	13110	0.35	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	1906807	3.09	2589135	73.65	70	120	
Ge	72	2	He	905227	0.37	1118718	80.92	70	120	
Ge	72	1	No Gas	3550406	0.83	4398724	80.71	70	120	
In	115	1	No Gas	4618792	1.53	5762279	80.16	70	120	
Bi	209	1	No Gas	4985533	2.83	5779492	86.26	70	120	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	130_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T15:44:53-05:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Li	7	1	No Gas	95.909	3.798	2739723	1.49	100	95.9	90	110	
Be	9	1	No Gas	98.388	0.975	622700	1.31	100	98.4	90	110	
V	51	2	He	93.287	1.574	740743	0.56	100	93.3	90	110	
Cr	52	2	He	92.590	0.976	920317	0.70	100	92.6	90	110	
Fe	56	2	He	9439.842	3.218	80438165	2.35	10000	94.4	90	110	
Se	78	2	He	96.689	2.951	8934	1.93	100	96.7	90	110	
Sn	118	2	He	98.382	2.157	764386	0.85	100	98.4	90	110	
As	75	2	He	96.685	1.043	104315	0.58	100	96.7	90	110	
Ca	44	2	He	9528.300	2.892	355199	1.89	10000	95.3	90	110	
Na	23	2	He	9475.419	0.998	13702216	0.02	10000	94.8	90	110	
Mg	24	2	He	9325.762	2.572	7219896	1.56	10000	93.3	90	110	
K	39	2	He	9121.882	2.967	5918959	2.35	10000	91.2	90	110	
Mn	55	2	He	94.727	3.511	587317	2.50	100	94.7	90	110	
Co	59	2	He	99.026	1.291	1515021	0.34	100	99.0	90	110	
Ni	60	2	He	97.574	2.331	399746	1.32	100	97.6	90	110	
Cu	63	2	He	96.623	3.594	1070935	3.03	100	96.6	90	110	
Zn	66	2	He	99.104	0.704	186262	0.84	100	99.1	90	110	
Al	27	2	He	102.401	4.023	34634	3.31	100	102.4	90	110	
B	11	1	No Gas	470.846	3.612	2197494	3.10	500	94.2	90	110	
Al	27	1	No Gas	109.409	0.510	2650732	0.35	100	109.4	90	110	
Si	28	1	No Gas	453.813	3.880	5993708	2.71	5000	9.1	90	110	CCV Main CR1-2 Failed
P	31	1	No Gas	481.642	0.860	505983	0.47	500	96.3	90	110	
Ag	107	1	No Gas	100.863	1.134	2867244	2.87	100	100.9	90	110	
Cd	111	1	No Gas	99.650	0.470	595052	2.35	100	99.7	90	110	
Sr	88	1	No Gas	98.479	4.637	4688714	1.96	100	98.5	90	110	
Mo	95	1	No Gas	95.122	3.104	964567	2.49	100	95.1	90	110	
Sn	118	1	No Gas	97.822	2.936	1778278	3.01	100	97.8	90	110	
Sb	121	1	No Gas	102.039	2.083	2317958	1.91	100	102.0	90	110	
Ba	137	1	No Gas	99.898	2.469	789268	0.75	100	99.9	90	110	
Tl	205	1	No Gas	97.703	1.060	6342666	1.71	100	97.7	90	110	
Tl	203	1	No Gas	96.910	2.186	2645798	2.07	100	96.9	90	110	
Pb	208	1	No Gas	96.930	1.715	8804844	1.17	100	96.9	90	110	
U	238	1	No Gas	95.496	4.118	9352174	1.63	100	95.5	90	110	
Ca	43	2	He	9246.438	1.229	20345	0.26	10000	92.5	90	110	
Sb	121	2	He	97.256	2.288	929591	1.29	100	97.3	90	110	
Ti	47	2	He	90.488	4.233	22973	3.89	100	90.5	90	110	
Cu	63	1	No Gas	100.162	3.760	1874643	3.31	100	100.2	90	110	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2103352	2.19	2589135	81.24	70	120	
Ge	72	2	He	924208	1.02	1118718	82.61	70	120	
Ge	72	1	No Gas	3716159	0.76	4398724	84.48	70	120	
In	115	1	No Gas	4814322	2.81	5762279	83.55	70	120	
Bi	209	1	No Gas	5411341	2.59	5779492	93.63	70	120	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	131_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq Date Time	2020-09-21T15:46:39-05:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	013CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Li	7	1	No Gas	0.156	20.0	125497	1.1	0.5	
Be	9	1	No Gas	0.013	17.5	92	16.7	0.5	
V	51	2	He	-1.286	-1.4	3334	3.1	2.5	
Cr	52	2	He	0.018	37.2	1800	4.4	2.5	
Fe	56	2	He	0.382	14.1	13801	3.6	100	
Se	78	2	He	-0.060	-164.5	25	37.4	2	
As	75	2	He	-0.093	-8.1	174	4.0	2.5	
Ca	44	2	He	1.707	53.8	440	8.2	100	
Na	23	2	He	43.409	0.5	113966	1.2	100	
Mg	24	2	He	0.591	21.6	710	12.9	100	
K	39	2	He	6.623	14.1	30558	1.4	100	
Mn	55	2	He	0.042	15.1	453	8.4	2.5	
Co	59	2	He	0.009	6.5	263	2.2	2.5	
Ni	60	2	He	0.005	144.1	167	17.3	2.5	
Cu	63	2	He	0.021	86.8	1117	18.1	2	
Zn	66	2	He	-0.049	-104.8	310	29.6	2.5	
Al	27	2	He	0.761	47.6	920	12.2	5	
B	11	1	No Gas	8.823	12.4	80162	5.3	0.5	CCB Main CR1 Failed
Al	27	1	No Gas	0.398	4.3	65920	0.7	5	
Si	28	1	No Gas	-5.300	-10.3	638123	0.5	10	
P	31	1	No Gas	-1.213	-76.2	30387	2.6	10	
Ag	107	1	No Gas	-0.001	-91.4	643	6.5	2.5	
Cd	111	1	No Gas	0.003	3.6	30	0.0	1	
Sr	88	1	No Gas	0.017	24.8	1970	7.9	2.5	
Mo	95	1	No Gas	0.055	27.9	633	23.4	2.5	
Sn	118	1	No Gas	0.391	3.9	9540	0.7	5	
Sb	121	1	No Gas	0.553	11.3	14178	9.8	2.5	
Ba	137	1	No Gas	0.009	39.1	243	12.6	2.5	
Tl	205	1	No Gas	0.071	51.4	4995	49.7	1	
Tl	203	1	No Gas	0.077	49.8	2257	48.0	1	
Pb	208	1	No Gas	-0.143	-14.8	32961	4.5	2.5	
U	238	1	No Gas	0.011	21.0	1137	21.5	2.5	
Ca	43	2	He	3.445	201.3	27	57.3	100	
Sb	121	2	He	0.448	2.2	4784	1.2	2.5	
Ti	47	2	He	0.014	555.5	20	100.0	2.5	
Cu	63	1	No Gas	0.078	14.8	3140	6.4	2.5	

QC ISTD Table

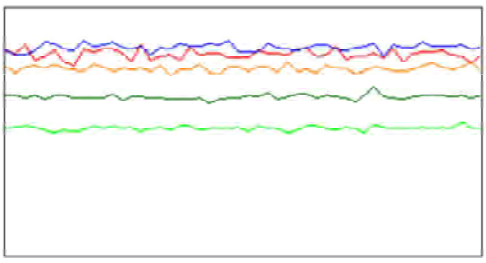
Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	No Gas	2093076	0.87	2589135	80.84	70	120	
Ge	72	2	He	917171	1.02	1118718	81.98	70	120	
Ge	72	1	No Gas	3725802	0.93	4398724	84.70	70	120	
In	115	1	No Gas	4880446	2.29	5762279	84.70	70	120	
Bi	209	1	No Gas	5439462	1.46	5779492	94.12	70	120	

Tune Check Report

Operator Name	ALSHS NoUser
Acq/Data Batch	C:\Agilent\ICPMH\1\DATA\092120B.b
Acq. Date-Time	9/21/2020 10:14:00 AM
Report Comment	---
Instrument Name	G8421A SG18523544

[No Gas]

Sensitivity



Sampling Period [sec]	0.514
Integration Time [sec]	0.1

Mass	Range	Count	Resp [cps/ug/l]	Resp (Required) [cps/ug/l]	Resp (Flag)
9	10000	8153	81528.24		
24	50000	25773	257734.80		
59	50000	42126	421255.59		
115	100000	75602	756023.75		
208	100000	64250	642498.64		

Mass	Resp Ratio	Resp Ratio (Required)	Resp Ratio (Flag)
9		-	
24		-	
59		-	
115		-	
208		-	

Mass	RSD%	RSD% (Required)	RSD% (Flag)
9	2.349	5.000	
24	1.751	5.000	
59	1.769	5.000	
115	1.701	5.000	
208	1.630	5.000	

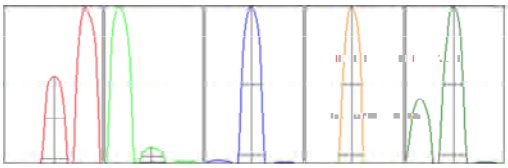
Mass	Background	Background (Required)	Background (Flag)
9	0.300		
24	0.400		
59	0.100		
115	0.100		
208	0.600		

Oxide/Doubly Charged Ratio

Oxide	156 / 140 0.677 %
Doubly Charged	70 / 140 0.736 %

Tune Check Report

Resolution/Axis



Integration Time [sec]	0.1
Acquisition Time [sec]	37.4
Y Axis	Linear

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	8151.84	9.05	8.90 - 9.10	
24	26126.54	23.95	23.90 - 24.10	
59	43055.31	58.95	58.90 - 59.10	
115	77356.99	114.95	114.90 - 115.10	
208	65304.99	208.00	207.90 - 208.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.62	0.780		
24	0.66	0.787		
59	0.61	0.780		
115	0.58	0.734		
208	0.62	0.824		

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.48 L/min	Dilution Gas	0.57 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	9.0 V	Deflect	12.6 V
Extract 2	-195.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-90 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	---	OctP RF	190 V		

QP Parameters

Mass Gain	130	Axis Gain	0.9996	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.14		

Hardware Settings

Torch

Torch H	0.9 mm	Torch V	0.1 mm

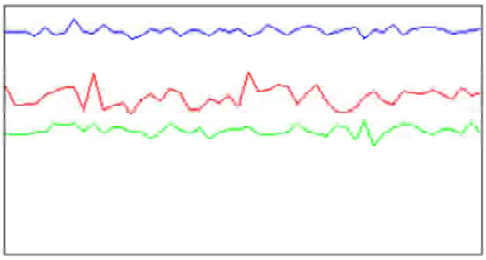
EM

Discriminator	4.3 mV	Analog HV	2429 V	Pulse HV	1216 V

[He]

Tune Check Report

Sensitivity



Sampling Period [sec]	0.306
Integration Time [sec]	0.1

Mass	Range	Count	Resp [cps/ug/l]	Resp (Required) [cps/ug/l]	Resp (Flag)
9	500	317	3165.75		
24	2000	995	9950.13		
59	20000	18035	180348.49		

Mass	Resp Ratio	Resp Ratio (Required)	Resp Ratio (Flag)
9		-	
24		-	
59		-	

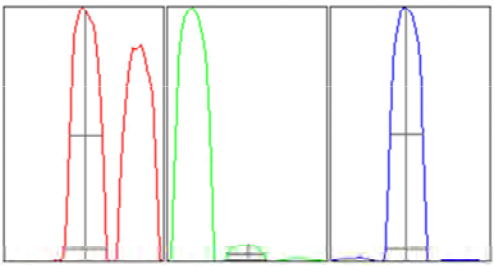
Mass	RSD%	RSD% (Required)	RSD% (Flag)
9	6.029	5.000	Fail
24	4.130	5.000	
59	1.692	5.000	

Mass	Background	Background (Required)	Background (Flag)
9	0.100		
24	0.200		
59	0.000		

Oxide/Doubly Charged Ratio

Oxide	156 / 140 0.296 %
Doubly Charged	70 / 140 0.710 %

Resolution/Axis



Integration Time [sec]	0.1
Acquisition Time [sec]	22.24
Y Axis	Linear

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	313.05	9.05	8.90 - 9.10	
24	961.62	24.05	23.90 - 24.10	
59	18087.80	58.95	58.90 - 59.10	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.62	0.785		
24	0.67	0.788		

Tune Check Report

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
59	0.62	0.781		

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.48 L/min	Dilution Gas	0.57 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	10.0 V	Deflect	0.2 V
Extract 2	-195.0 V	Cell Entrance	-40 V	Plate Bias	-60 V
Omega Bias	-80 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	3.0 V
He Flow	4.4 mL/min	OctP Bias	-18.0 V		
H2 Flow	---	OctP RF	200 V		

QP Parameters

Mass Gain	130	Axis Gain	0.9996	QP Bias	-15.0 V
Mass Offset	125	Axis Offset	0.14		

Hardware Settings

Torch

Torch H	0.9 mm	Torch V	0.1 mm

EM

Discriminator	4.3 mV	Analog HV	2429 V	Pulse HV	1216 V

HS20090748 Cr6_W_7196_DOD Raw Data

ALS WO# HS20090748

Standard Table Report

10/14/2020 05:09:57 PM

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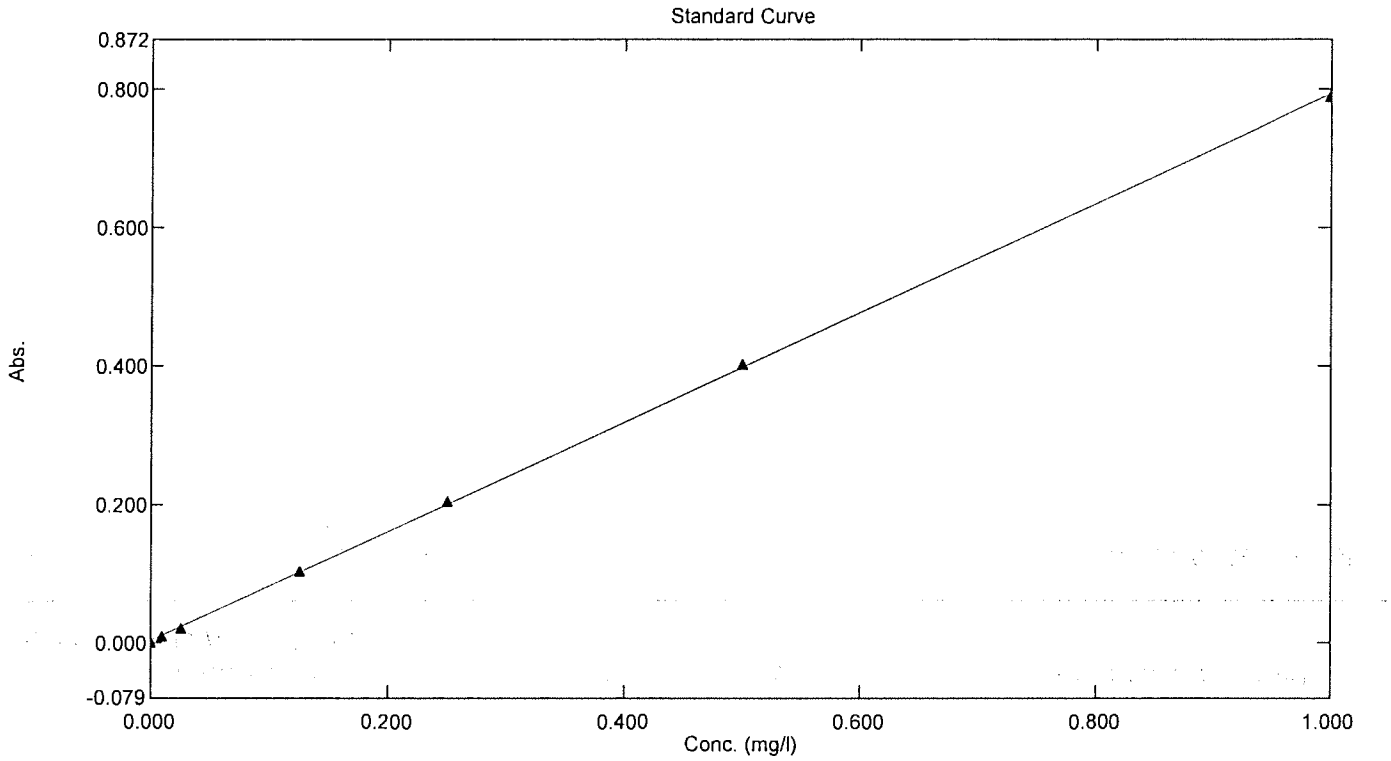

Correlation Coefficient r2 = 0.99986

Standard Table

	Sample ID	Type	Ex	Conc	WL540.0	Wgt.Factor	Comments
1	STD1	Standard		0.000	0.000	1.000	
2	STD2	Standard		0.010	0.008	1.000	
3	STD3	Standard		0.025	0.020	1.000	
4	STD4	Standard		0.125	0.104	1.000	
5	STD5	Standard		0.250	0.203	1.000	
6	STD6	Standard		0.500	0.403	1.000	
7	STD7	Standard		1.000	0.790	1.000	
8							

Sample Table Report

10/14/2020 05:10:01 PM

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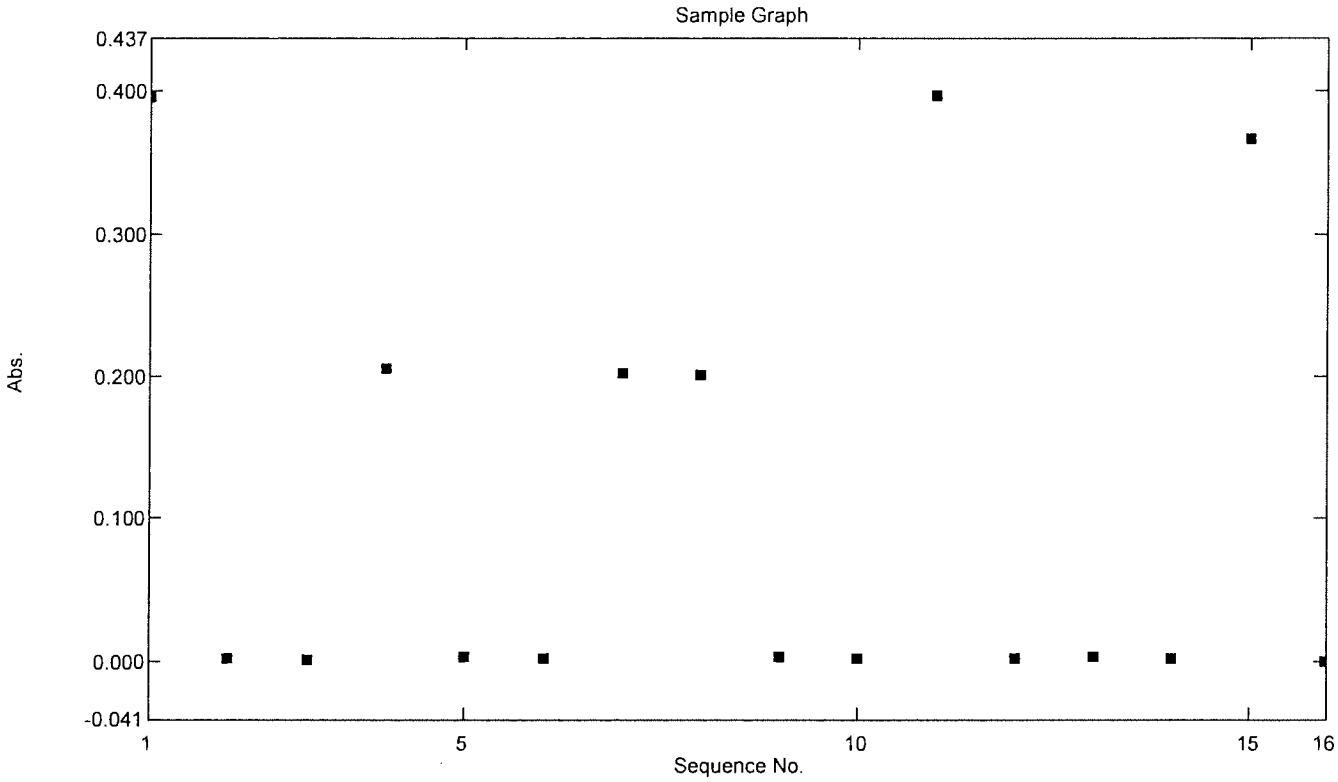

Sample Table

	Sample ID	Type	Ex	Conc	WL540.0	Comments
1	CCV	Unknown		0.498	0.396	314064802 WC-14
2	CCB	Unknown		-0.001	0.001	314064710 WC-13
3	MBLK	Unknown		-0.002	0.001	314062704 WC-13
4	LCS	Unknown		0.256	0.205	314064801 WC-14
5	HS20090748.01	Unknown		0.000	0.003	1:03PM,SAMP-BKG=TOTAL
6	HS20090748.01BKG	Unknown		-0.001	0.001	1:04PM,0
7	HS20090748.01MS	Unknown		0.252	0.202	1:05PM
8	HS20090748.01MSD	Unknown		0.251	0.201	1:05PM
9	HS20090744.01	Unknown		-0.000	0.002	1:06PM,0
10	HS20090744.01BKG	Unknown		-0.001	0.002	1:07PM
11	CCV2	Unknown		0.499	0.397	
12	CCB2	Unknown		-0.001	0.001	
13	HS20090769.01	Unknown		0.000	0.003	4:37PM,0
14	HS20090769.01BKG	Unknown		-0.001	0.002	4:37PM
15	CCV3	Unknown		0.461	0.367	
16	CCB3	Unknown		-0.004	-0.001	
17						

10450 Stancliff Rd. Suite 210
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WorkOrder: HS20091027

Longhorn GW Treatment Plant Weekly Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

09-Oct-2020

ALS Environmental
ALS Group USA, Corp
10450 Stancliff Road, Suite 210
Houston, TX 77099
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HS20091027 Longhorn GW Treatment Plant Weekly Samples Final

ALS WO# HS20091027

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Houston, TX 77099
T: +1 281 530 5656
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October 05, 2020

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

Work Order: **HS20091027**

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

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Sep 23, 2020 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091027

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20091027-01	LH18/24-SP650_092220	Water		22-Sep-2020 14:00	23-Sep-2020 09:50	☐
HS20091027-02	LH18/24-SP650_092220-AIX	Water		22-Sep-2020 14:00	23-Sep-2020 09:50	☐

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091027

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Specialty Lab in Houston, TX. Final report attached.

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

WetChemistry by Method E350.3

Batch ID: R369498

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

WetChemistry by Method E365.3

Batch ID: R369102

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

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Sample ID: LH18/24-SP650_092220
Collection Date: 22-Sep-2020 14:00

ANALYTICAL REPORT
WorkOrder:HS20091027
Lab ID:HS20091027-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: YP
Nitrogen, Ammonia (As N)	**19**	a	**0.10**	**0.20**	**0.20**	**mg/L**	1	29-Sep-2020 13:55
ORTHO PHOSPHATE (PO4) AS P BY E365.3		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**3.50**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	23-Sep-2020 11:57
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	01-Oct-2020 09:22

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

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder:HS20091027
Sample ID: LH18/24-SP650_092220-AIX
Lab ID:HS20091027-02
Collection Date: 22-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	05-Oct-2020 14:50

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

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091027

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R369102 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3				**Matrix:** Water	
HS20091027-01	LH18/24-SP650_092220	22 Sep 2020 14:00			23 Sep 2020 11:57	10
Batch ID: R369498 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS20091027-01	LH18/24-SP650_092220	22 Sep 2020 14:00			29 Sep 2020 13:55	1
Batch ID: R369652 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Water	
HS20091027-01	LH18/24-SP650_092220	22 Sep 2020 14:00			01 Oct 2020 09:22	1
Batch ID: R369825 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS20091027-02	LH18/24-SP650_092220-AIX	22 Sep 2020 14:00			05 Oct 2020 14:50	1

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091027

QC BATCH REPORT

Batch ID: R369102 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3

MBLK Sample ID: **MBLK-369102** Units: **mg/L** Analysis Date: **23-Sep-2020 11:57**
Client ID: Run ID: **UV-2450_369102** SeqNo: **5749655** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-369102** Units: **mg/L** Analysis Date: **23-Sep-2020 11:57**
Client ID: Run ID: **UV-2450_369102** SeqNo: **5749656** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.256	0.0250	0.25	0	102	85 - 115				

MS Sample ID: **HS20091027-01MS** Units: **mg/L** Analysis Date: **23-Sep-2020 11:57**
Client ID: **LH18/24-SP650_092220** Run ID: **UV-2450_369102** SeqNo: **5749657** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	6	0.250	2.5	3.5	100	80 - 120				

MSD Sample ID: **HS20091027-01MSD** Units: **mg/L** Analysis Date: **23-Sep-2020 11:57**
Client ID: **LH18/24-SP650_092220** Run ID: **UV-2450_369102** SeqNo: **5749662** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	5.94	0.250	2.5	3.5	97.6	80 - 120	6	1.01	20	

The following samples were analyzed in this batch: HS20091027-01

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091027

QC BATCH REPORT

Batch ID: R369498 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-R369498** Units: **mg/L** Analysis Date: **29-Sep-2020 13:55**
Client ID: Run ID: **WetChem_HS_369498** SeqNo: **5758420** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-R369498** Units: **mg/L** Analysis Date: **29-Sep-2020 13:55**
Client ID: Run ID: **WetChem_HS_369498** SeqNo: **5758419** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.31	0.20	10	0	103	85 - 115				

MS Sample ID: **HS20090992-01MS** Units: **mg/L** Analysis Date: **29-Sep-2020 13:55**
Client ID: Run ID: **WetChem_HS_369498** SeqNo: **5758422** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	12.14	0.20	10	0.235	119	80 - 120				

MSD Sample ID: **HS20090992-01MSD** Units: **mg/L** Analysis Date: **29-Sep-2020 13:55**
Client ID: Run ID: **WetChem_HS_369498** SeqNo: **5758421** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	11.97	0.20	10	0.235	117	80 - 120	12.14	1.39	20	

The following samples were analyzed in this batch: HS20091027-01

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS20091027**

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	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 05-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091027

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20091027-01	LH18/24-SP650_092220	Login	9/23/2020 11:05:35 AM	JRM	WET015
HS20091027-01	LH18/24-SP650_092220	Login	9/23/2020 11:05:35 AM	JRM	WET015
HS20091027-01	LH18/24-SP650_092220	Login	9/23/2020 11:05:35 AM	JRM	Sub
HS20091027-02	LH18/24-SP650_092220-AIX	Login	9/23/2020 11:05:35 AM	JRM	Sub

ALS Houston, US Date: 05-Oct-20

Sample Receipt Checklist

Work Order ID: HS20091027 **Date/Time Received:** 23-Sep-2020 09:50

Client Name: Bhate Environmental **Received by:** Paresh M. Giga

Completed By:	/S/ Jared R. Makan	23-Sep-2020 11:08	**Reviewed by:**	/S/ Corey Grandits	23-Sep-2020 16:14
	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):	1.1°C/1.1°C UC/C	IR31
Cooler(s)/Kit(s):	42604	
Date/Time sample(s) sent to storage:	09/23/2020 11:50	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

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

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By:
Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_092220	Water	09/22/20 / 14:00		3	X	X			H2SO4	
LH18/24-SP650_092220	Water	09/22/20 / 14:00		1			X		NONE	
LH18/24–SP650_092220_AIX	Water	09/22/20 / 14:00		1				X	NONE	

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	09/22/20	14:30		9/23/2020	07:30						

For Lab Use Only

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

Remarks:

HS20091027

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

4 2 6 0 4 1.10 431 01F 00

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

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

42604

CUSTODY SEAL

Date: 9/22/20 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By:
Date: 09/23/20

42604 SEP 23 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

42604

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINGER
BHATE ENVIRONMENTAL ASSOCIATES
1209-B EAST GRAND AVE.
FMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 09SEP20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 18x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: ADDITIONAL BOTTLES – BO 73689 – RJ
RMA:

FedEx Express

FedEx
TRK# 0221 1891 8880 1533

WED - 23 SEP 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

October 05, 2020 Service Request No:E2000908

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

Laboratory Results for: HS20091027

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory September 16, 2020
For your reference, these analyses have been assigned our service request number **E2000908.**

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.:**	E2000908
Project:	HS20091027	**Date Received:**	09/25/20
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

One sample was received for analysis at ALS Environmental in Houston on 09/25/20.

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

Data Validation Notes and Discussion

Precision and Accuracy:

EQ2000476: 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 batch precision (MS/DMS) measurements were determined on another work order in the extraction batch. The LCS/LCSD recoveries passed.

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
Project: HS20091027 **Service Request:**E2000908

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000908-001	LH18/24-SP650_092220	9/15/2020	1400

Service Request Summary

Folder #: **E2000908**
Client Name: ALS Environmental - US
Project Name: HS20091027
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: 09/16/20
Internal Due Date: 10/7/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: HS20091027
EDD: No EDD Specified

1 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000908-001	LH18/24-SP650_092220	Water	09/15/20 1400	**IV**

Service Request Summary

Folder #: **E2000908**
Client Name: ALS Environmental - US
Project Name: HS20091027
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: 09/16/20
Internal Due Date: 10/7/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: HS20091027
EDD: No EDD Specified

1 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 6C
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	1	Level II due 10/7, level IV 10/14

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.

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.

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
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
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 York Department of Health	11707	3/31/2021
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

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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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:** **14743**

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:	HS20091027
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20091027-02**	**LH18/24-SP650_091520-AIX**	**Water**	**22 Sep 2020 14:00**
	SUB_Perch-6850			30 Sep 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. MODASHIA Date/Time:

Received By: Date/Time: 9/25/20 1200

Cooler ID(s): Temperature(s):

Cooler Receipt Form

ALS Environmental

Project Chemist: CH

Client/Project: ALS-H

Thermometer ID: 1251

Date/Time Received: 9/25/20

Initials: CH

Date/Time Logged in: 9/25/20

Initials: CH

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?
-		9/25/20	1200	CH	4.2	☒
						☐
						☐
						☐

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

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

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

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

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

Notes, Discrepancies, & Resolutions:

Service request Label:

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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
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Preparation Information Benchsheet

Prep Run#: 366862
Team: Semivoa GCMS/GRIVERA

Prep WorkFlow: GenExt28Day
Prep Method: Method

Status: Prepped
Prep Date/Time: 10/2/20 10:00

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000908-001	LH18/24-SP650_092220	.01	6850/ClO4 DOD			Water	10mL	
2	E2000929-001	LH18/24-SP650_092920-AIX	.01	6850/ClO4 DOD			Water	10mL	
3	E2000929-002	LH18/24-SP650_092920-BIX	.01	6850/ClO4 DOD			Water	10mL	
4	E2000929-003	LH18/24-SP650_092920-Between	.01	6850/ClO4 DOD			Water	10mL	
5	EQ2000476-01	MB		6850/ClO4 DOD			Liquid	10mL	
6	EQ2000476-02	LCS		6850/ClO4 DOD			Liquid	10mL	
7	EQ2000476-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
8	EQ2000476-04	45MI20047 MS	.06	6850/ClO4 DOD			Liquid	10mL	
9	EQ2000476-05	45MI20047 DMS	.06	6850/ClO4 DOD			Liquid	10mL	
10	R2008696-002	45MI20044	.06	6850/ClO4 DOD			Water	10mL	
11	R2008696-004	45MI20065	.06	6850/ClO4 DOD			Water	10mL	
12	R2008696-006	45MI20047	.06	6850/ClO4 DOD			Water	10mL	
13	R2008696-008	45MI20073	.06	6850/ClO4 DOD			Water	10mL	
14	R2008696-010	45MI20042	.06	6850/ClO4 DOD			Water	10mL	
15	R2008696-012	45MI20066	.06	6850/ClO4 DOD			Water	10mL	
16	R2008696-014	45MI20043	.06	6850/ClO4 DOD			Water	10mL	
17	R2008729-003	45MI20054	.06	6850/ClO4 DOD			Water	10mL	
18	R2008729-004	45MI20051	.05	6850/ClO4 DOD			Water	10mL	
19	R2008729-006	45MI20053	.05	6850/ClO4 DOD			Water	10mL	
20	R2008729-008	45MI20055	.05	6850/ClO4 DOD			Water	10mL	
21	R2008763-002	45MI20058	.05	6850/ClO4 DOD			Water	10mL	
22	R2008763-004	45MI20064	.05	6850/ClO4 DOD			Water	10mL	
23	R2008763-006	45MI20075	.05	6850/ClO4 DOD			Water	10mL	
24	R2008763-008	45MI20057	.05	6850/ClO4 DOD			Water	10mL	
25	R2008763-010	45MI20068	.05	6850/ClO4 DOD			Water	10mL	

Spiking Solutions

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

EQ2000476-02	1.00µL	EQ2000476-03	1.00µL	EQ2000476-04	1.00µL	EQ2000476-05	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

E2000908-001	100.00µL	E2000929-001	100.00µL	E2000929-002	100.00µL	E2000929-003	100.00µL	EQ2000476-01	100.00µL	EQ2000476-02	100.00µL
EQ2000476-03	100.00µL	EQ2000476-04	100.00µL	EQ2000476-05	100.00µL	R2008696-002	100.00µL	R2008696-004	100.00µL	R2008696-006	100.00µL
R2008696-008	100.00µL	R2008696-010	100.00µL	R2008696-012	100.00µL	R2008696-014	100.00µL	R2008729-003	100.00µL	R2008729-004	100.00µL

Preparation Information Benchsheet

Prep Run#: 366862
Team: Semivoa GCMS/GRIVERA
Prep WorkFlow: GenExt28Day
Prep Method: Method
Status: Prepped
Prep Date/Time: 10/2/20 10:00

R2008729-006	100.00µL	R2008729-008	100.00µL	R2008763-002	100.00µL	R2008763-004	100.00µL	R2008763-006	100.00µL	R2008763-008	100.00µL
R2008763-010	100.00µL										

Preparation Steps

Step: Preparation
Started: 10/2/20 10:00
Finished: 10/2/20 11:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 10/2/2020

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	9/15/20 1400
Sample Matrix:	Water	**Date Received:**	9/16/20
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 10:05
Sample Name:	LH18/24-SP650_092220	**Units:**	µg/L
Lab Code:	E2000908-001	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_008	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**2.09**		1.00	0.500	0.250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 14:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000476-01	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_008	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	ND	U	0.100	0.0500	0.0250	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027
Sample Matrix: Water

Service Request: E2000908
Date Analyzed: 10/ 2/20

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: 366862

	Lab Control Sample EQ2000476-02			Duplicate Lab Control Sample EQ2000476-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.104	0.100	104	0.100	0.100	100	84 - 119	3	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 18:11
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000476-02	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_033	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.104**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 18:19
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000476-03	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_034	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.100**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/ 2/20 - 10/ 5/20

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:	R2008696-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS **Matrix Spike** EQ2000476-04			Batch QCDMS **Duplicate Matrix Spike** EQ2000476-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	0.100	0.100	100	0.0925	0.100	93	84 - 119	8	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:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 17:55
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000476-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_031	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.100**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000908
Project:	HS20091027	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 11:39
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000476-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_014	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.0925**	J	0.100	0.0500	0.0250	

Initial Calibration

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Phone (713)266-1599 Fax (713)266-0130
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20200915

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

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

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
16								
17								
18								
19								
20								
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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								

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

ALS Group Houston

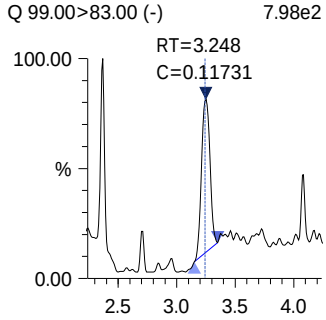
PERCHLORATE1

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

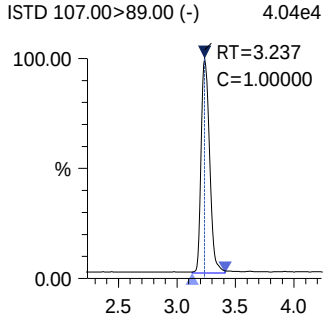
Perchlorate

Conc 0.11731
Area 2833



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 202512



ALS Group Houston

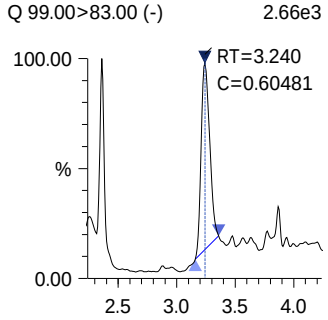
PERCHLORATE2

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

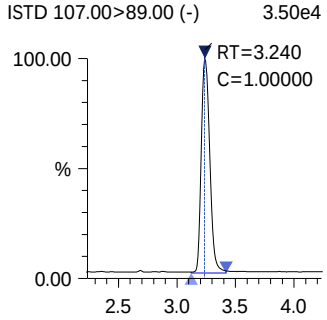
Perchlorate

Conc 0.60481
Area 11634



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 176422



ALS Group Houston

PERCHLORATE3

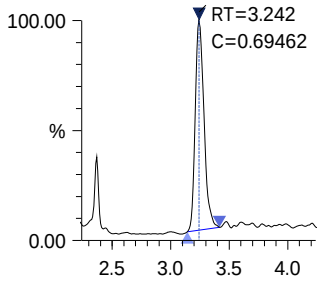
Date acquired: 9/15/2020 6:13:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

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

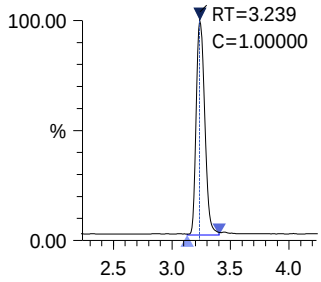
Q 99.00>83.00 (-) 2.91e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 194971

ISTD 107.00>89.00 (-) 3.85e4



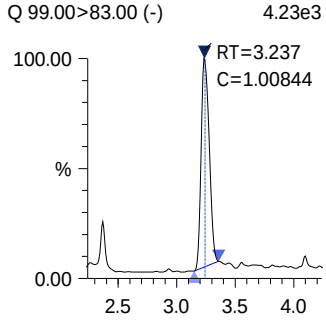
PERCHLORATE4

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

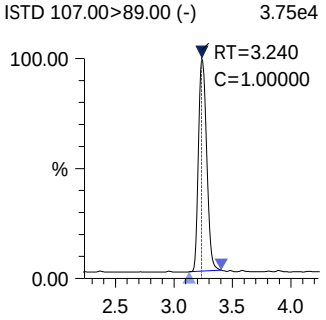
Perchlorate

Conc 1.00844
Area 19524



Sodium Perchlorate-18O4 _IS

Conc 1.00000
Area 179246



ALS Group Houston

PERCHLORATE5

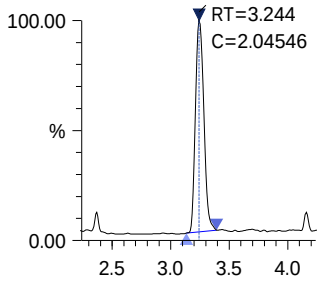
Date acquired: 9/15/2020 6:29:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_048.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

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

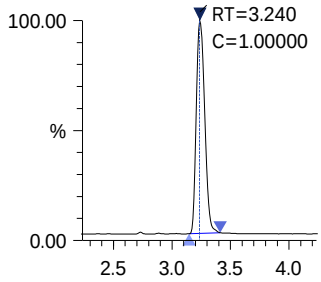
Q 99.00>83.00 (-) 7.92e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 175734

ISTD 107.00>89.00 (-) 3.56e4



ALS Group Houston

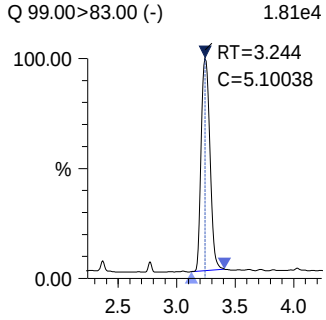
PERCHLORATE6

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

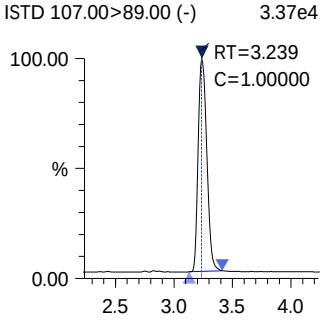
Perchlorate

Conc 5.10038
Area 92162



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 169754



ALS Group Houston

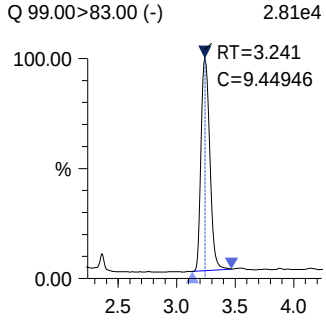
PERCHLORATE7

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

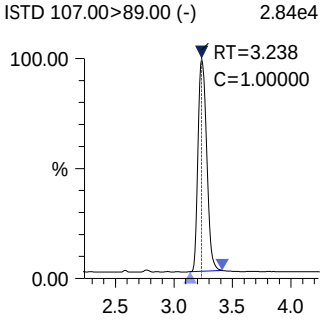
Perchlorate

Conc 9.44946
Area 144012



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 143911



ALS Group Houston

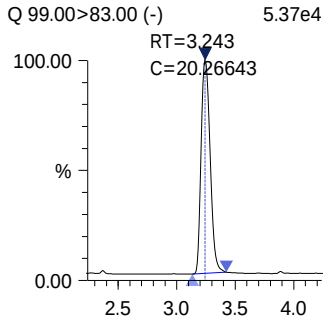
PERCHLORATE8

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

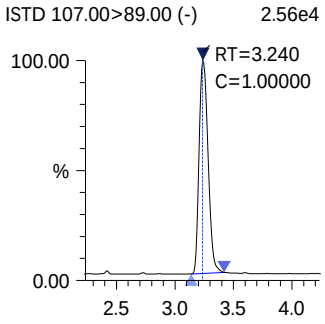
Perchlorate

Conc 20.26643
Area 284308



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 133870



ALS Group Houston

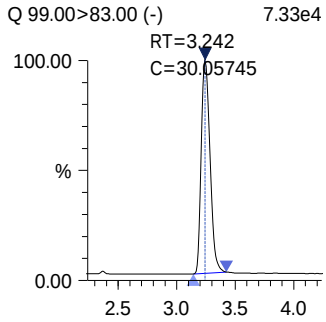
PERCHLORATE9

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

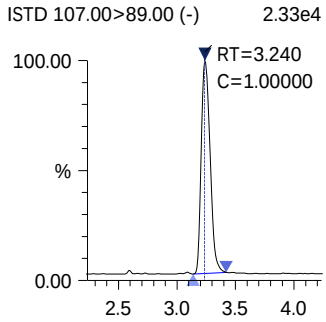
Perchlorate

Conc 30.05745
Area 377183



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 120846



ALS Group Houston

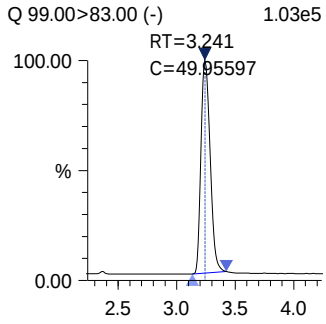
PERCHLORATE10

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

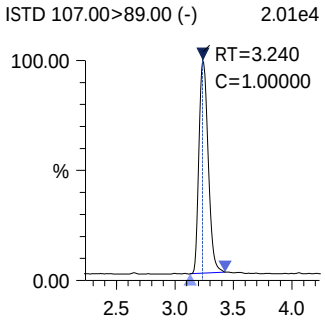
Perchlorate

Conc 49.95597
Area 553330



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 108660



ALS Group Houston

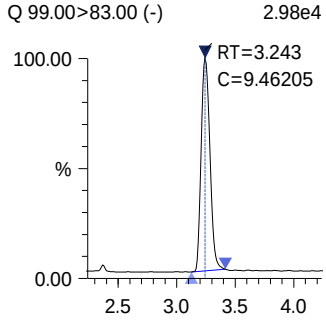
PERCHLORATEICV

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

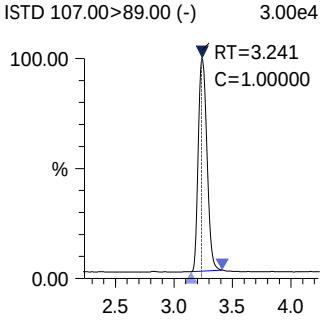
Perchlorate

Conc 9.46205
Area 152650



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 152342



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

20201002

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	null		20201002_001	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:14
2	null		20201002_002	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:19
3	null		20201002_003	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:24
4	IB		20201002_004	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:21
5	IB		20201002_005	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:29
6	LODV		20201002_006	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:37
7	PERCHLORATE7		20201002_007	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 14:45
8	EQ2000476-01		20201002_008	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:54
9	E2000908-001		20201002_009	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:02
10	E2000929-001		20201002_010	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:10
11	E2000929-002		20201002_011	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:17
12	E2000929-003		20201002_012	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:25
13	R2008696-002		20201002_013	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:33
14	R2008696-004		20201002_014	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:41
15	R2008696-006		20201002_015	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:49
16	R2008696-008		20201002_016	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:57
17	R2008696-010		20201002_017	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:05
18	PERCHLORATE7		20201002_018	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 16:13
19	R2008696-012		20201002_019	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:21
20	R2008696-014		20201002_020	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:28
21	R2008729-003		20201002_021	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:36
22	R2008729-004		20201002_022	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:44
23	R2008729-006		20201002_023	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:52
24	R2008729-008		20201002_024	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:00
25	R2008763-002		20201002_025	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:08
26	R2008763-004		20201002_026	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:16
27	R2008763-006		20201002_027	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:24
28	R2008763-008		20201002_028	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:32
29	PERCHLORATE7		20201002_029	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 17:39
30	R2008763-010		20201002_030	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:47
31	EQ2000476-04		20201002_031	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:55
32	EQ2000476-05		20201002_032	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:03
33	EQ2000476-02		20201002_033	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:11
34	EQ2000476-03		20201002_034	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:19
35	PERCHLORATE7		20201002_035	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 18:27
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20201005

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

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

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		20201005_001	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:16
2	null		20201005_002	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:21
3	null		20201005_003	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:26
4	PERCHLORATE7		20201005_007	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 9:41
5	E2000908-001X10		20201005_008	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:05
6	E2000929-001X10		20201005_009	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:12
7	E2000929-002X10		20201005_010	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:20
8	E2000929-003X10		20201005_011	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:28
9	PERCHLORATE7		20201005_013	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 10:44
10	EQ2000476-05		20201005_014	Perchlorate6850b.lcm	1x	☒		10/5/2020 11:39
11	PERCHLORATE7		20201005_015	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 11:47
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 2/20

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\20201002\20201002_007

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.09	NA	NA	NA	-9.1	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 2/20

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\20201002\20201002_018

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.89	NA	NA	NA	-11.1	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 2/20

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\20201002\20201002_029

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.95	NA	NA	NA	-10.5	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 2/20

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\20201002\20201002_035

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.00	NA	NA	NA	-10.0	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 5/20

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\20201005\20201005_007

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.85	NA	NA	NA	-11.5	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 5/20

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\20201005\20201005_013

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.90	NA	NA	NA	-11.0	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/ 5/20

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\20201005\20201005_015

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.01	NA	NA	NA	-9.9	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091027

Service Request: E2000908
Date Analyzed: 10/2/20 14:45

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\LCMS01\DATA\20201002\20201002_007
Instrument ID: E-LCMS-01
Analytical Method: 6850

Lab Code: EQ2000479-01
Analysis Lot: 697873
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	EQ2000479-01	148,035	3.13
Method Blank	EQ2000476-01	156,859	3.08
Batch QC	R2008696-006	134,632	3.13

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/2/20 16:13

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_018	**Lab Code:**	EQ2000479-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-02	135,238	3.14

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/2/20 17:39

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_029	**Lab Code:**	EQ2000479-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-03	139,489	3.14
Batch QCMS	EQ2000476-04	148,650	3.14
Lab Control Sample	EQ2000476-02	167,581	3.14
Duplicate Lab Control Sample	EQ2000476-03	157,295	3.14

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/2/20 18:27

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_035	**Lab Code:**	EQ2000479-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-04	141,494	3.14

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/5/20 09:41

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201005\20201005_007	**Lab Code:**	EQ2000480-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-01	138,844	3.08
LH18/24-SP650_092220	E2000908-001	134,906	3.02

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/5/20 10:44

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201005\20201005_013	**Lab Code:**	EQ2000480-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-02	144,685	3.09
Batch QCDMS	EQ2000476-05	188,495	3.06

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:**	E2000908
Project:	HS20091027	**Date Analyzed:**	10/5/20 11:47

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201005\20201005_015	**Lab Code:**	EQ2000480-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-03	152,873	3.10

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

ALS Group Houston

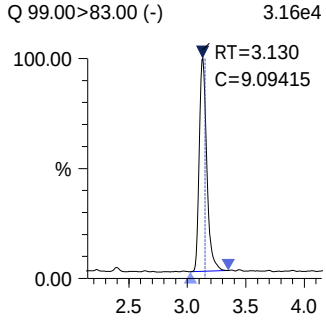
PERCHLORATE7

Date acquired: 10/2/2020 2:45:34 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_007.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	10/2/2020 2:45:34 PM	142622	9.09415	20201002_007	3.130	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 2:45:34 PM	148035	1.00000	20201002_007	3.128	25.0000	1.0000	4

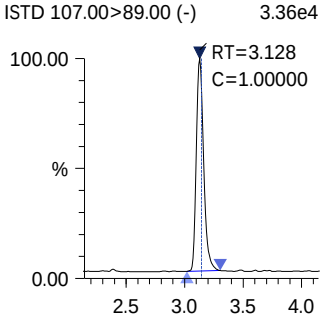
Perchlorate

Conc 9.09415
Area 142622



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148035



ALS Group Houston

EQ2000476-01

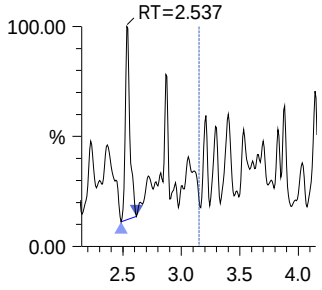
Date acquired: 10/2/2020 2:54:15 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_008.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-01	10/2/2020 2:54:15 PM	----	----	20201002_008	----	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	EQ2000476-01	10/2/2020 2:54:15 PM	156859	1.00000	20201002_008	3.079	25.0000	1.0000	24

Perchlorate

Conc ----
Area ----

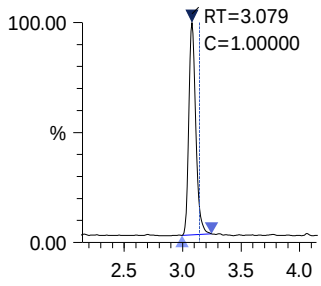
Q 99.00>83.00 (-) 4.70e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 156859

ISTD 107.00>89.00 (-) 3.77e4



ALS Group Houston

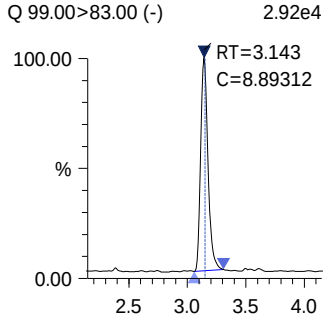
PERCHLORATE7

Date acquired: 10/2/2020 4:13:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_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	10/2/2020 4:13:10 PM	127441	8.89312	20201002_018	3.143	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 4:13:10 PM	135238	1.00000	20201002_018	3.140	25.0000	1.0000	4

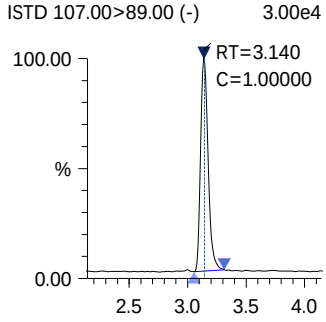
Perchlorate

Conc 8.89312
Area 127441



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 135238



ALS Group Houston

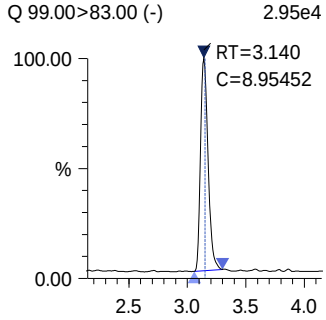
PERCHLORATE7

Date acquired: 10/2/2020 5:39:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_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	10/2/2020 5:39:54 PM	132345	8.95452	20201002_029	3.140	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 5:39:54 PM	139489	1.00000	20201002_029	3.139	25.0000	1.0000	4

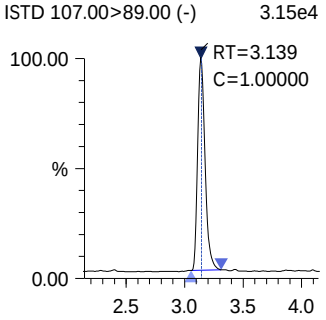
Perchlorate

Conc 8.95452
Area 132345



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 139489



ALS Group Houston

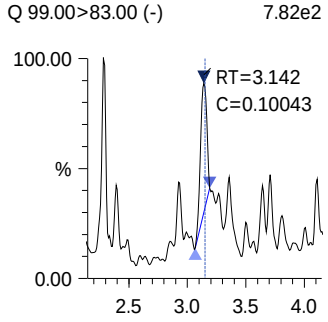
EQ2000476-04

Date acquired: 10/2/2020 5:55:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_031.lcd
Vial: 45 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-04	10/2/2020 5:55:39 PM	1812	0.10043	20201002_031	3.142	25.0000	1.0000	45
Sodium Perchlorate-18O4_IS	EQ2000476-04	10/2/2020 5:55:39 PM	148650	1.00000	20201002_031	3.137	25.0000	1.0000	45

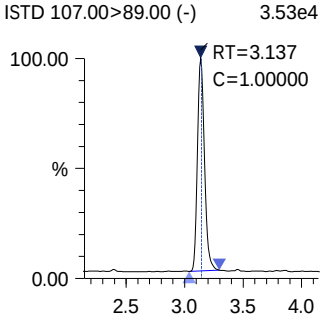
Perchlorate

Conc 0.10043
Area 1812



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148650



ALS Group Houston

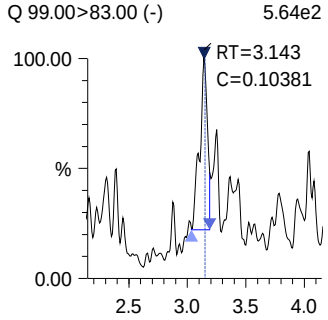
EQ2000476-02

Date acquired: 10/2/2020 6:11:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_033.lcd
Vial: 47 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-02	10/2/2020 6:11:24 PM	2103	0.10381	20201002_033	3.143	25.0000	1.0000	47
Sodium Perchlorate-18O4_IS	EQ2000476-02	10/2/2020 6:11:24 PM	167581	1.00000	20201002_033	3.143	25.0000	1.0000	47

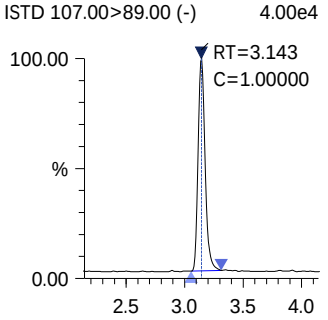
Perchlorate

Conc 0.10381
Area 2103



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 167581



ALS Group Houston

EQ2000476-03

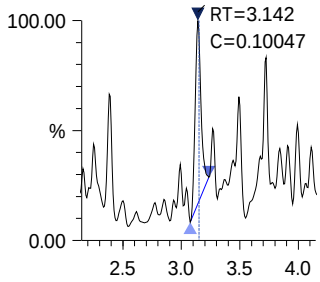
Date acquired: 10/2/2020 6:19:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_034.lcd
Vial: 48 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-03	10/2/2020 6:19:16 PM	1918	0.10047	20201002_034	3.142	25.0000	1.0000	48
Sodium Perchlorate-18O4_IS	EQ2000476-03	10/2/2020 6:19:16 PM	157295	1.00000	20201002_034	3.141	25.0000	1.0000	48

Perchlorate

Conc 0.10047
Area 1918

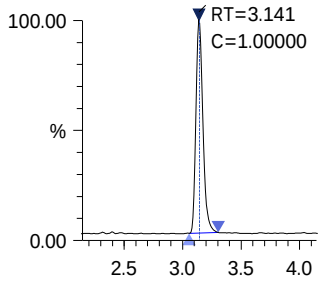
Q 99.00>83.00 (-) 6.42e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 157295

ISTD 107.00>89.00 (-) 3.75e4



ALS Group Houston

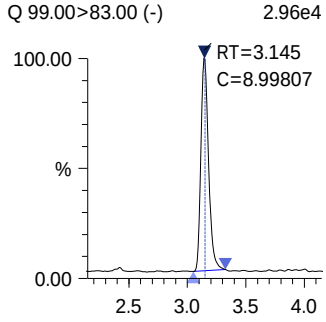
PERCHLORATE7

Date acquired: 10/2/2020 6:27:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_035.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	10/2/2020 6:27:08 PM	134894	8.99807	20201002_035	3.145	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 6:27:08 PM	141494	1.00000	20201002_035	3.143	25.0000	1.0000	4

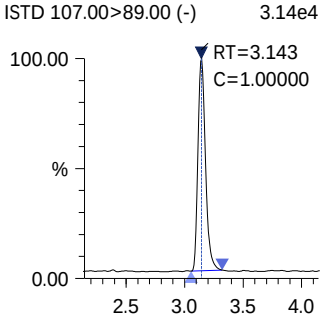
Perchlorate

Conc 8.99807
Area 134894



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 141494



ALS Group Houston

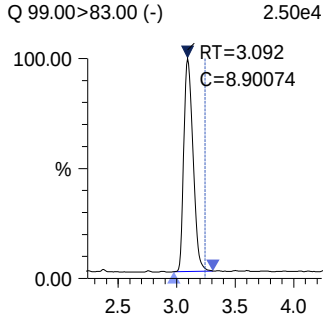
PERCHLORATE7

Date acquired: 10/5/2020 10:44:32 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_013.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	10/5/2020 10:44:32 AM	136458	8.90074	20201005_013	3.092	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/5/2020 10:44:32 AM	144685	1.00000	20201005_013	3.090	25.0000	1.0000	4

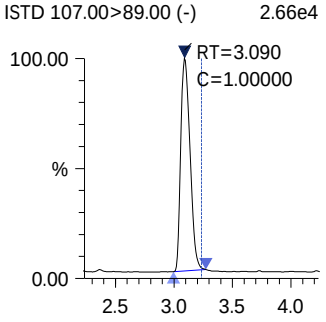
Perchlorate

Conc 8.90074
Area 136458



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144685



ALS Group Houston

EQ2000476-05

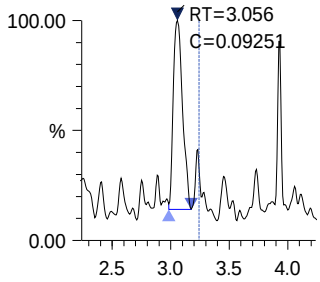
Date acquired: 10/5/2020 11:39:09 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_014.lcd
Vial: 46 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-05	10/5/2020 11:39:09 AM	2138	0.09251	20201005_014	3.056	25.0000	1.0000	46
Sodium Perchlorate-18O4_IS	EQ2000476-05	10/5/2020 11:39:09 AM	188495	1.00000	20201005_014	3.055	25.0000	1.0000	46

Perchlorate

Conc 0.09251
Area 2138

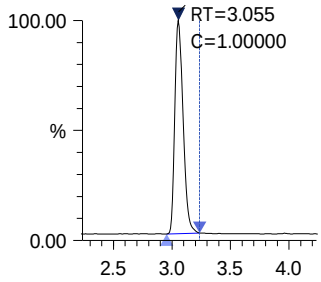
Q 99.00>83.00 (-) 4.42e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 188495

ISTD 107.00>89.00 (-) 3.87e4



ALS Group Houston

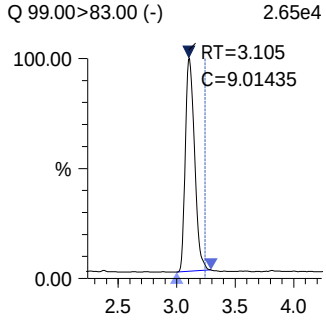
PERCHLORATE7

Date acquired: 10/5/2020 11:47:05 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_015.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	10/5/2020 11:47:05 AM	146003	9.01435	20201005_015	3.105	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/5/2020 11:47:05 AM	152873	1.00000	20201005_015	3.104	25.0000	1.0000	4

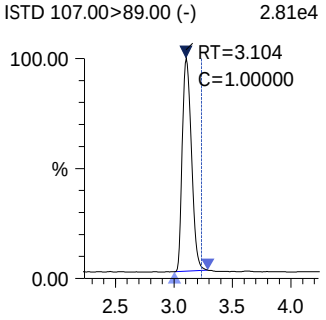
Perchlorate

Conc 9.01435
Area 146003



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 152873



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September 30, 2020

Analytical Report for Service Request No: K2008453

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

RE: HS20091027

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory September 25, 2020
For your reference, these analyses have been assigned our service request number **K2008453.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

Client: ALS Environmental - US
Project: HS20091027
Sample Matrix: Water

Service Request: K2008453
Date Received: 09/25/2020

CASE NARRATIVE

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

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 09/25/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was 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 09/30/2020

Chain of Custody

ALS Environmental—Kelso Laboratory
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K200 4153

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14742**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20091027
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20091027-01**	**LH18/24-SP650_092220**	**Water**	**22 Sep 2020 14:00**
	TOC Analysis for DOD Level IV			30 Sep 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 9/24/2020 1800

Received By: _____ Date/Time: 9/25/20 1010

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

Cooler Receipt and Preservation Form

PM Kelly

Client ALS - Houston Service Request K20 08453

Received: 9/25/20 Opened: 9/25/20 By: BK Unloaded: 9/25/20 By: BK

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

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

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
NA	2.7	IR01				189188807082	

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: RUSH

General Chemistry

ALS Environmental—Kelso Laboratory
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www.alsglobal.com

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2008453
Project:	HS20091027	**Date Collected:**	09/22/20
Sample Matrix:	Water	**Date Received:**	09/25/20
Analysis Method:	9060A	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic (TOC)

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
LH18/24-SP650_092220	K2008453-001	**3.60**	0.50	0.20	0.07	1	09/28/20 17:05	
Method Blank	K2008453-MB1	**0.09 J**	0.50	0.20	0.07	1	09/28/20 17:05	
Method Blank	K2008453-MB2	ND U	0.50	0.20	0.07	1	09/28/20 17:05	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2008453
Project:	HS20091027	**Date Analyzed:**	09/28/20
Sample Matrix:	Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	9060A	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	696984

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008453-LCS1	25.0	25.0	100	83-117
Lab Control Sample	K2008453-LCS2	25.0	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2008453
Project: HS20091027

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic (TOC)

Analysis Method: 9060A **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	696984	KQ2014301-09	09/28/20 17:05	25.0	25.1	100	90-110
CCV2	696984	KQ2014301-10	09/28/20 17:05	25.0	25.0	100	90-110
CCV3	696984	KQ2014301-11	09/28/20 17:05	25.0	24.8	99	90-110
CCV4	696984	KQ2014301-12	09/28/20 17:05	25.0	24.7	99	90-110
CCV5	696984	KQ2014301-13	09/28/20 17:05	25.0	24.7	99	90-110
CCV6	696984	KQ2014301-14	09/28/20 17:05	25.0	24.7	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2008453
Project: HS20091027

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic (TOC)

Analysis Method: 9060A **Units:**mg/L

	Analysis Lot	Lab Code	Date Analyzed	LOQ	LOD	MDL	Result	Q
CCB1	696984	KQ2014301-15	09/28/20 17:05	0.50	0.20	0.07	0.10	J
CCB2	696984	KQ2014301-16	09/28/20 17:05	0.50	0.20	0.07	ND	U
CCB3	696984	KQ2014301-17	09/28/20 17:05	0.50	0.20	0.07	0.12	J
CCB4	696984	KQ2014301-18	09/28/20 17:05	0.50	0.20	0.07	ND	U
CCB5	696984	KQ2014301-19	09/28/20 17:05	0.50	0.20	0.07	ND	U
CCB6	696984	KQ2014301-20	09/28/20 17:05	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original (8109) 8170, 8434, 8453, 8472

Tier: II II IV IV II

Date Analyzed: 9/28/20

Analyst: MAS

Run # 696984

Analysis: 9060A /TOCT

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 MAS 9/30/20
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:

Samples were ~~received~~ received past the hold time
MAS 9-30-20

Final Approved by: _____ Date: 9/30/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-05 **Analyst:** MSPECHT **Analysis Lot:** 696984 **Method/Testcode:** 9060A/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
K2008109-002	Carbon, Total Organic (TOC)	N/A		Water	5.38 mg/L		5.38 mg/L	1		0.50			9/28/20 17:05:24	N	II
K2008109-003	Carbon, Total Organic (TOC)	N/A		Water	3.99 mg/L		3.99 mg/L	1		0.50			9/28/20 17:05:24	Y	II
K2008170-001	Carbon, Total Organic (TOC)	N/A		Water	2.68 mg/L		2.68 mg/L	1		0.50			9/28/20 17:05:24	N	II
K2008170-002	Carbon, Total Organic (TOC)	N/A		Water	2.76 mg/L		2.76 mg/L	1		0.50			9/28/20 17:05:24	Y	II
K2008434-004	Carbon, Total Organic (TOC)	N/A		Water	0.32 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	IV
K2008434-007	Carbon, Total Organic (TOC)	N/A		Water	0.38 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	IV
K2008434-009	Carbon, Total Organic (TOC)	N/A		Water	0.14 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	IV
K2008434-019	Carbon, Total Organic (TOC)	N/A		Water	0.17 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	IV
K2008453-001	Carbon, Total Organic (TOC)	N/A		Water	3.60 mg/L		3.60 mg/L	1		0.50			9/28/20 17:05:24	N	IV
K2008472-001	Carbon, Total Organic (TOC)	N/A		Water	1.17 mg/L		1.17 mg/L	1		0.50			9/28/20 17:05:24	N	II
K2008472-002	Carbon, Total Organic (TOC)	N/A		Water	1.13 mg/L		1.13 mg/L	1		0.50			9/28/20 17:05:24	N	II
K2008472-003	Carbon, Total Organic (TOC)	N/A		Water	70.48 mg/L		352 mg/L	5		2.5			9/28/20 17:05:24	N	II
K2008472-003.R01	Carbon, Total Organic (TOC)	N/A		Water	34.62 mg/L		346 mg/L	10		5.0			9/28/20 17:05:24	N	II
K2008472-004	Carbon, Total Organic (TOC)	N/A		Water	70.85 mg/L		354 mg/L	5		2.5			9/28/20 17:05:24	N	II
K2008472-004.R01	Carbon, Total Organic (TOC)	N/A		Water	35.27 mg/L		353 mg/L	10		5.0			9/28/20 17:05:24	N	II
K2008472-005	Carbon, Total Organic (TOC)	N/A		Water	0.31 mg/L		25 mg/L U	50		25			9/28/20 17:05:24	N	II
K2008472-005.R01	Carbon, Total Organic (TOC)	N/A		Water	11.28 mg/L		11.3 mg/L	1		0.50			9/28/20 17:05:24	N	II
K2008472-006	Carbon, Total Organic (TOC)	N/A		Water	7.44 mg/L		372 mg/L	50		25			9/28/20 17:05:24	N	II
K2008472-006.R01	Carbon, Total Organic (TOC)	N/A		Water	18.63 mg/L		373 mg/L	20		10			9/28/20 17:05:24	N	II
KQ2014301-03	Carbon, Total Organic (TOC)	MS	K2008109-003	Water	28.88 mg/L		28.9 mg/L	1		0.50	100		9/28/20 17:05:24	N	II
KQ2014301-04	Carbon, Total Organic (TOC)	DUP	K2008109-003	Water	4.01 mg/L		4.01 mg/L	1		0.50		<1	9/28/20 17:05:24	N	II
KQ2014301-05	Carbon, Total Organic (TOC)	MS	K2008170-002	Water	27.47 mg/L		27.5 mg/L	1		0.50	99		9/28/20 17:05:24	N	II
KQ2014301-06	Carbon, Total Organic (TOC)	DUP	K2008170-002	Water	2.65 mg/L		2.65 mg/L	1		0.50		4	9/28/20 17:05:24	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-05 **Analyst:** MSPECHT **Analysis Lot:** 696984 **Method/Testcode:** 9060A/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
KQ2014301-07	Carbon, Total Organic (TOC)	MB		Water	0.09 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	IV
KQ2014301-08	Carbon, Total Organic (TOC)	LCS		Water	24.98 mg/L		25.0 mg/L	1		0.50	100		9/28/20 17:05:24	N	IV
KQ2014301-09	Carbon, Total Organic (TOC)	CCV		Water	25.10 mg/L		25.1 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-10	Carbon, Total Organic (TOC)	CCV		Water	25.03 mg/L		25.0 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-11	Carbon, Total Organic (TOC)	CCV		Water	24.83 mg/L		24.8 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-12	Carbon, Total Organic (TOC)	CCV		Water	24.71 mg/L		24.7 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-13	Carbon, Total Organic (TOC)	CCV		Water	24.73 mg/L		24.7 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-14	Carbon, Total Organic (TOC)	CCV		Water	24.72 mg/L		24.7 mg/L	1					9/28/20 17:05:24	N	II
KQ2014301-15	Carbon, Total Organic (TOC)	CCB		Water	0.10 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-16	Carbon, Total Organic (TOC)	CCB		Water	0.07 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-17	Carbon, Total Organic (TOC)	CCB		Water	0.12 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-18	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-19	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-20	Carbon, Total Organic (TOC)	CCB		Water	0.04 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-21	Carbon, Total Organic (TOC)	MB		Water	0.05 mg/L		0.50 mg/L U	1		0.50			9/28/20 17:05:24	N	II
KQ2014301-22	Carbon, Total Organic (TOC)	LCS		Water	24.97 mg/L		25.0 mg/L	1		0.50	100		9/28/20 17:05:24	N	II

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

TOC-Control L Report

2020_09_28_001.tlx

Instr.Information

Instrument Options: TOC/ASI/IC Unit/
Catalyst: Regular Sensitivity

Sample

Sample Name: CCV1
Sample ID: 25 PPM
Origin: 9060A Method.met
Status: Completed
Chk. Result

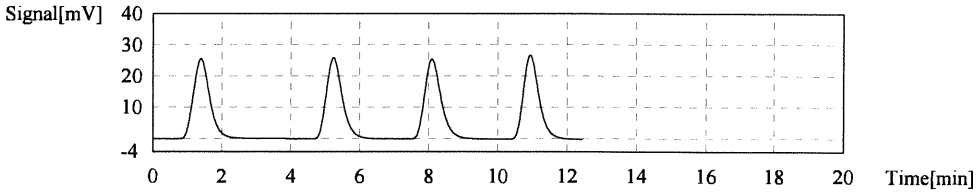
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.10mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	86.55	25.57mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:05:24 PM
2	85.08	25.14mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:08:29 PM
3	84.19	24.87mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:11:34 PM
4	84.08	24.84mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:14:38 PM

Mean Area: 84.97
Mean Conc.: 25.10mg/L



Sample

Sample Name: CCB1
Sample ID: CCB
Origin: 9060A Method.met
Status: Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1046mg/L

1. Det

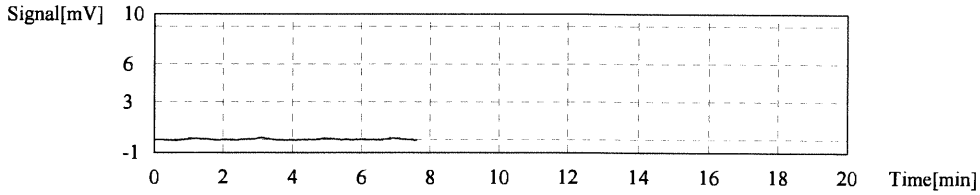
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4131	0.1220mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:22:10 PM
2	0.1953	0.05770mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:24:17 PM
3	0.4552	0.1345mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:26:24 PM
4	0.3528	0.1042mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:28:31 PM

TOC-Control L Report

2020_09_28_001.tlx

Mean Area 0.3541
Mean Conc. 0.1046mg/L



Sample

Sample Name: ICS
Sample ID: ICS
Origin: 9060A Method.met
Status Completed
Chk. Result

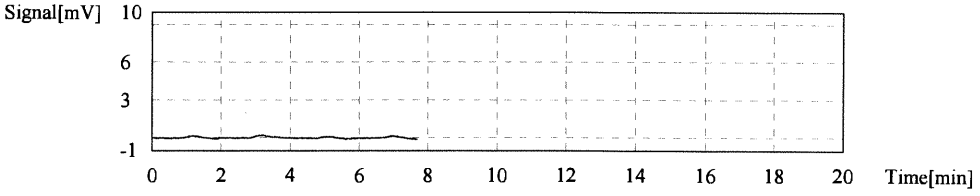
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1356mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4115	0.1216mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:36:05 PM
2	0.6174	0.1824mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:38:17 PM
3	0.4254	0.1257mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:40:24 PM
4	0.3823	0.1129mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:42:31 PM

Mean Area 0.4592
Mean Conc. 0.1356mg/L



Sample

Sample Name: MB
Sample ID: MB
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.05256mg/L

1. Det

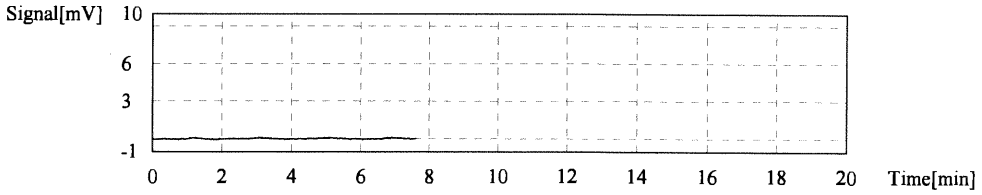
Anal.: NPOC

TOC-Control L Report

2020_09_28_001.tlx

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2862	0.08455mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:50:03 PM
2	0.06420	0.01897mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:52:11 PM
3	0.1298	0.03835mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:54:18 PM
4	0.2314	0.06836mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 5:56:25 PM

Mean Area 0.1779
Mean Conc. 0.05256mg/L



Sample

Sample Name: LCS
Sample ID: LCS
Origin: 9060A Method.met
Status Completed
Chk. Result

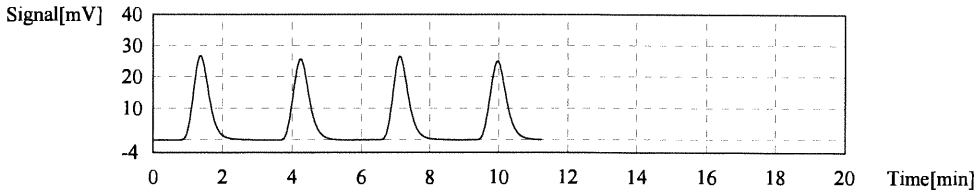
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.97mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	85.38	25.22mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:04:54 PM
2	84.44	24.95mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:08:04 PM
3	84.38	24.93mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:11:09 PM
4	83.86	24.77mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:14:03 PM

Mean Area 84.52
Mean Conc. 24.97mg/L



Sample

Sample Name: K2008472-001
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.171mg/L

TOC-Control L Report

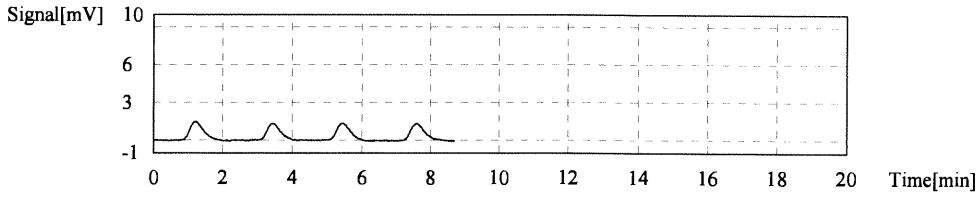
2020_09_28_001.tlx

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.400	1.300mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:21:54 PM
2	3.751	1.108mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:24:08 PM
3	3.690	1.090mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:26:30 PM
4	4.018	1.187mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:29:05 PM

Mean Area 3.965
Mean Conc. 1.171mg/L



Sample

Sample Name: K2008472-002
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

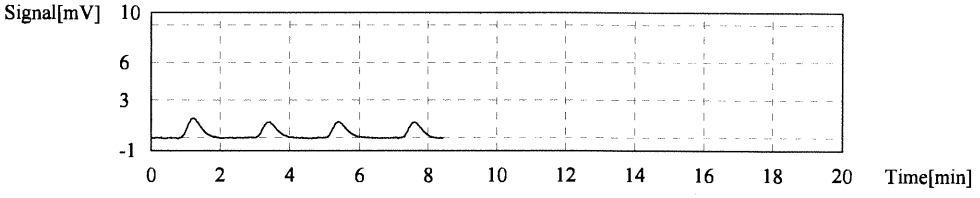
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 1.125mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	4.462	1.318mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:36:52 PM
2	3.577	1.057mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:39:07 PM
3	3.816	1.127mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:41:31 PM
4	3.377	0.9977mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:43:48 PM

Mean Area 3.808
Mean Conc. 1.125mg/L



Sample

Sample Name: K2008472-003
Sample ID: 5X
Origin: 9060A Method.met
Status Completed
Chk. Result

TOC-Control L Report

2020_09_28_001.tlx

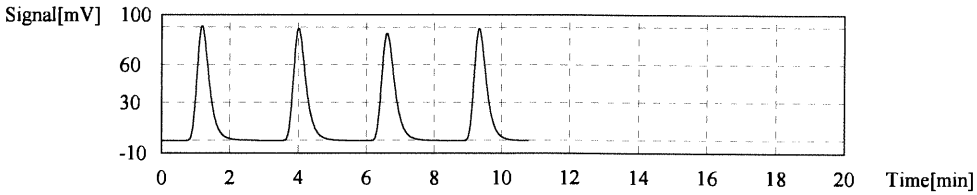
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC: 70.48mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	241.0	71.20mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:52:16 PM
2	239.0	70.61mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:55:07 PM
3	236.7	69.93mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 6:58:05 PM
4	237.5	70.17mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:00:59 PM

Mean Area 238.6
Mean Conc. 70.48mg/L



Sample

Sample Name: K2008472-004
Sample ID: 5X
Origin: 9060A Method.met
Status Completed
Chk. Result

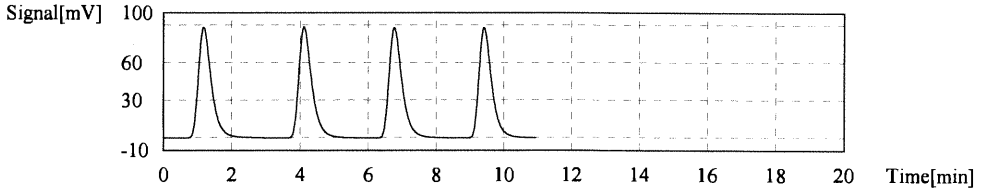
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC: 70.85mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	241.5	71.35mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:09:33 PM
2	241.9	71.46mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:12:27 PM
3	238.9	70.58mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:15:20 PM
4	237.0	70.02mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:18:18 PM

Mean Area 239.8
Mean Conc. 70.85mg/L



Sample

TOC-Control L Report

2020_09_28_001.tlx

Sample Name: K2008472-005
Sample ID: 50X
Origin: 9060A Method.met
Status Completed
Chk. Result

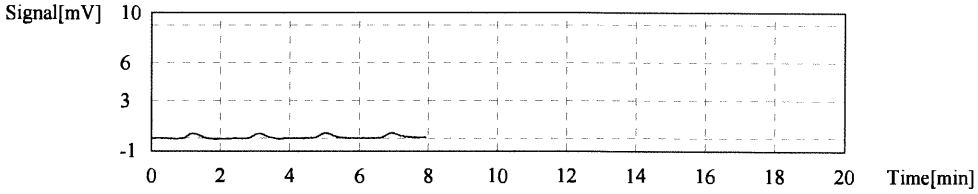
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3117mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.194	0.3527mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:25:50 PM
2	0.9951	0.2940mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:27:59 PM
3	0.9425	0.2784mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:30:08 PM
4	1.089	0.3217mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:32:34 PM

Mean Area 1.055
Mean Conc. 0.3117mg/L



Sample

Sample Name: K2008472-006
Sample ID: 50X
Origin: 9060A Method.met
Status Completed
Chk. Result

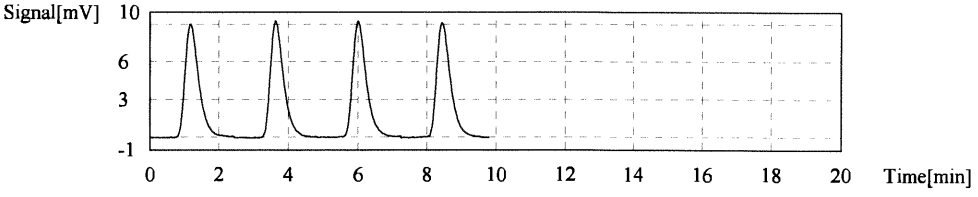
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:7.439mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	25.13	7.424mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:40:38 PM
2	25.24	7.457mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:43:16 PM
3	25.19	7.442mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:45:55 PM
4	25.16	7.433mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:48:40 PM

Mean Area 25.18
Mean Conc. 7.439mg/L



TOC-Control L Report

2020_09_28_001.tlx

Sample

Sample Name: K2008109-002
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

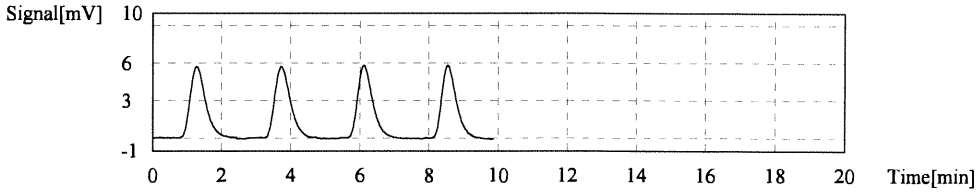
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:5.379mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	17.99	5.315mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:56:44 PM
2	18.58	5.489mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 7:59:24 PM
3	17.99	5.315mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:02:04 PM
4	18.27	5.398mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:04:51 PM

Mean Area 18.21
Mean Conc. 5.379mg/L



Sample

Sample Name: CCV2
Sample ID: 25 PPM
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:25.03mg/L

1. Det

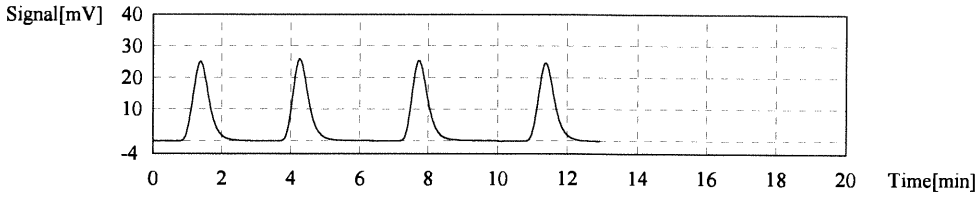
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	84.89	25.08mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:13:34 PM
2	85.56	25.28mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:17:17 PM
3	84.55	24.98mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:21:09 PM
4	83.85	24.77mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:24:18 PM

TOC-Control L Report

2020_09_28_001.tlx

Mean Area 84.71
Mean Conc. 25.03mg/L



Sample

Sample Name: CCB2
Sample ID: CCB
Origin: 9060A Method.met
Status Completed
Chk. Result

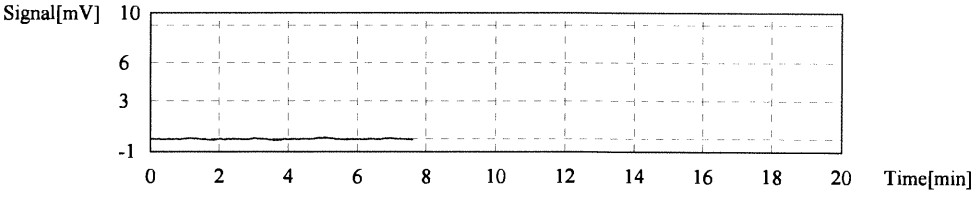
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.06979mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2481	0.07330mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:31:50 PM
2	0.1830	0.05406mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:33:59 PM
3	0.3863	0.1141mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:36:08 PM
4	0.1275	0.03767mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:38:16 PM

Mean Area 0.2362
Mean Conc. 0.06979mg/L



Sample

Sample Name: K2008109-003
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 3.991mg/L

1. Det

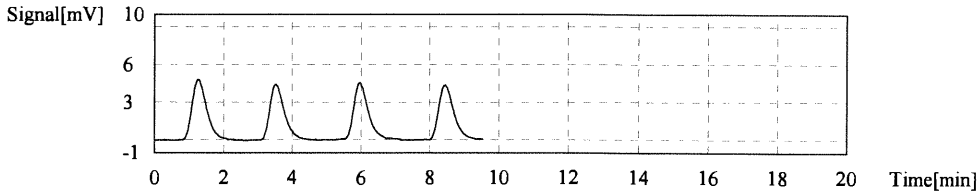
Anal.: NPOC

TOC-Control L Report

2020_09_28_001.tlx

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	14.10	4.166mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:46:17 PM
2	13.22	3.906mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:48:55 PM
3	13.63	4.027mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:51:36 PM
4	13.09	3.867mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 8:54:12 PM

Mean Area 13.51
Mean Conc. 3.991mg/L



Sample

Sample Name: K2008109-003 DUP
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

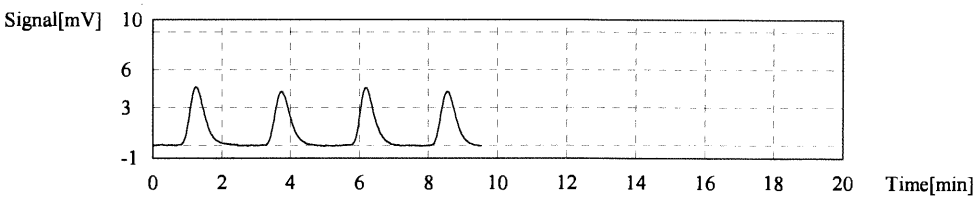
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:4.005mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	13.88	4.101mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:02:18 PM
2	13.75	4.062mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:05:02 PM
3	13.43	3.968mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:07:33 PM
4	13.17	3.891mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:10:02 PM

Mean Area 13.56
Mean Conc. 4.005mg/L



Sample

Sample Name: K2008109-003 MS
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:28.88mg/L

TOC-Control L Report

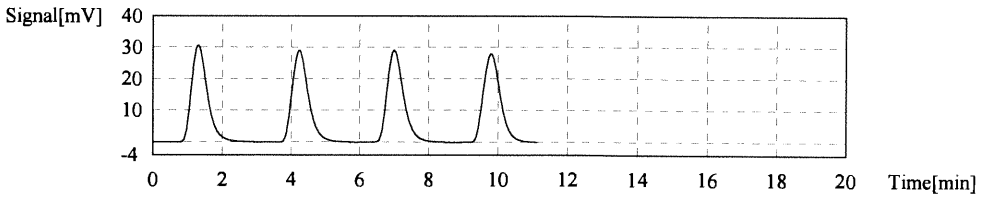
2020_09_28_001.tlx

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	98.67	29.15mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:18:38 PM
2	98.10	28.98mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:21:44 PM
3	97.76	28.88mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:24:45 PM
4	96.53	28.52mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:27:41 PM

Mean Area 97.77
Mean Conc. 28.88mg/L



Sample

Sample Name: K2008170-001
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

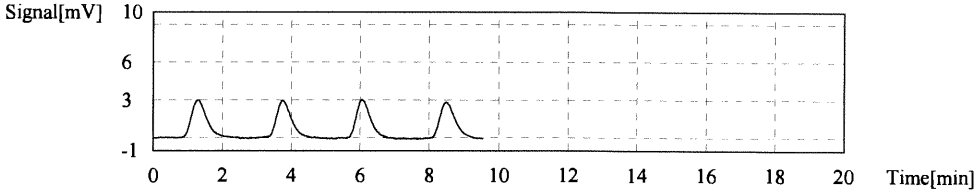
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.683mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.136	2.699mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:35:46 PM
2	9.389	2.774mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:38:20 PM
3	8.897	2.628mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:40:58 PM
4	8.903	2.630mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:43:30 PM

Mean Area 9.081
Mean Conc. 2.683mg/L



Sample

Sample Name: K2008170-002
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

TOC-Control L Report

2020_09_28_001.tlx

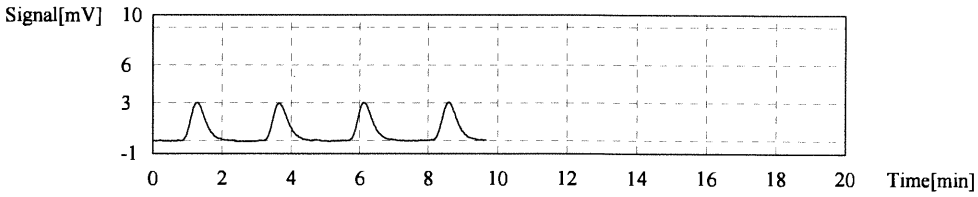
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.755mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.304	2.749mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:51:30 PM
2	9.164	2.707mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:54:12 PM
3	9.515	2.811mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:56:53 PM
4	9.313	2.751mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 9:59:29 PM

Mean Area 9.324
Mean Conc. 2.755mg/L



Sample

Sample Name: K2008170-002 DUP
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

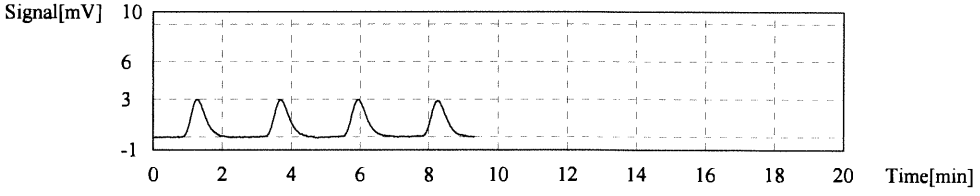
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:2.649mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	9.174	2.710mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:07:35 PM
2	9.054	2.675mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:10:03 PM
3	8.998	2.658mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:12:36 PM
4	8.645	2.554mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:15:10 PM

Mean Area 8.968
Mean Conc. 2.649mg/L



Sample

TOC-Control L Report

2020_09_28_001.tlx

Sample Name: K2008170-002 MS
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

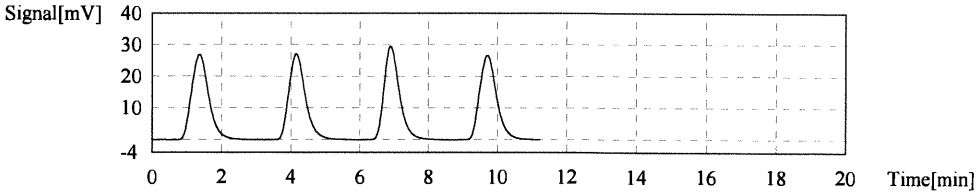
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:27.47mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	92.59	27.35mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:23:37 PM
2	92.79	27.41mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:26:38 PM
3	93.72	27.69mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:29:38 PM
4	92.81	27.42mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:32:45 PM

Mean Area 92.98
Mean Conc. 27.47mg/L



Sample

Sample Name: K2008453-001
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

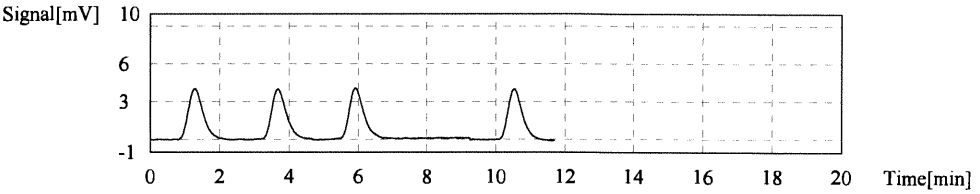
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:3.595mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	12.06	3.563mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:40:47 PM
2	11.63	3.436mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:43:16 PM
3	13.22	3.906mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:48:07 PM
4	11.76	3.474mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:50:48 PM

Mean Area 12.17
Mean Conc. 3.595mg/L



TOC-Control L Report

2020_09_28_001.tlx

Sample

Sample Name: K2008434-004
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

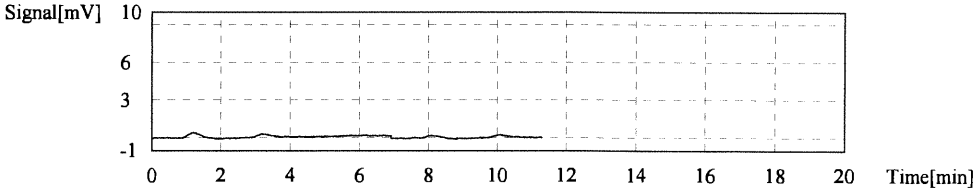
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3186mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.174	0.3468mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 10:58:27 PM
2	1.365	0.4033mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:03:36 PM
3	0.8082	0.2388mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:05:45 PM
4	0.9664	0.2855mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:08:27 PM

Mean Area 1.078
Mean Conc. 0.3186mg/L



Sample

Sample Name: K2008434-007
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.3777mg/L

1. Det

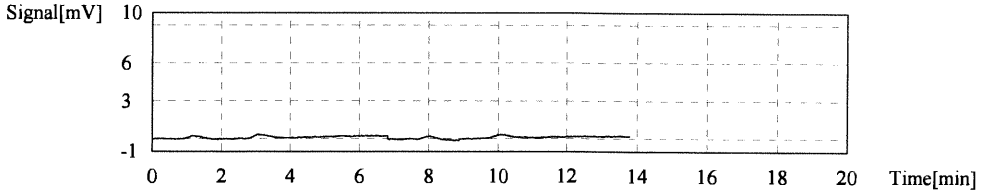
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.7053	0.2084mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:15:59 PM
2	1.705	0.5037mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:21:08 PM
3	0.8076	0.2386mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:23:27 PM
4	1.896	0.5601mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:28:36 PM

TOC-Control L Report

2020_09_28_001.tlx

Mean Area 1.278
Mean Conc. 0.3777mg/L



Sample

Sample Name: CCV3
Sample ID: 25 PPM
Origin: 9060A Method.met
Status Completed
Chk. Result

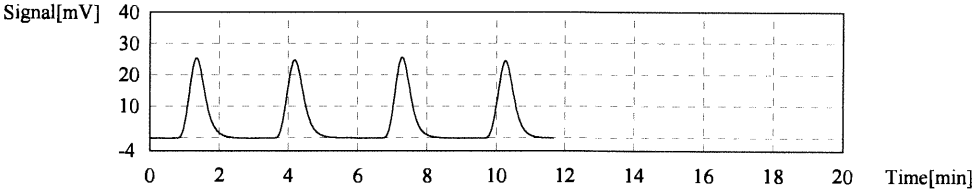
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.83mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	84.37	24.93mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:37:03 PM
2	84.92	25.09mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:40:25 PM
3	84.13	24.85mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:43:37 PM
4	82.77	24.45mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:46:37 PM

Mean Area 84.05
Mean Conc. 24.83mg/L



Sample

Sample Name: CCB3
Sample ID: CCB
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1237mg/L

1. Det

Anal.: NPOC

TOC-Control L Report

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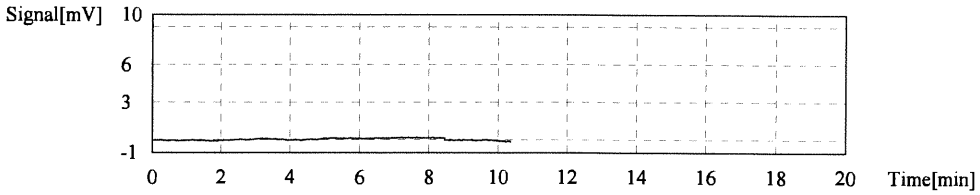
No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:54:09 PM
2	0.4186	0.1237mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/28/2020 11:56:27 PM
3	1.170	0.3457mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:01:14 AM
4	0.08560	0.02529mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:03:23 AM

Mean Area 0.4186
Mean Conc. 0.1237mg/L



Sample

Sample Name: K2008434-009
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

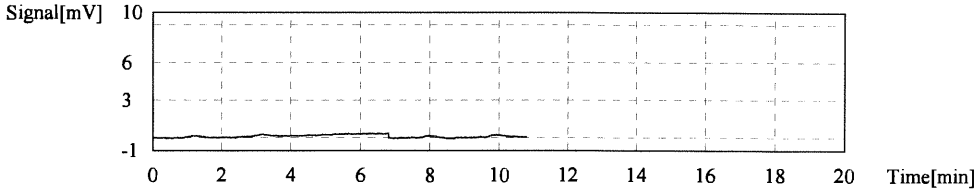
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1391mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.4333	0.1280mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:10:55 AM
2	0.5033	0.1487mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:16:02 AM
3	0.3922	0.1159mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:18:11 AM
4	0.5542	0.1637mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:20:32 AM

Mean Area 0.4708
Mean Conc. 0.1391mg/L



Sample

Sample Name: K2008434-019
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1720mg/L

TOC-Control L Report

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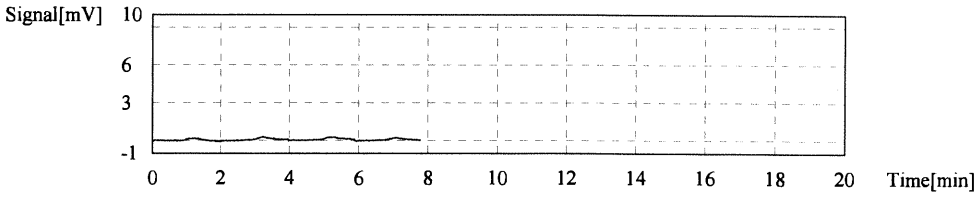
1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.9214	0.2722mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:28:11 AM
2	0.4726	0.1396mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:30:23 AM
3	0.5108	0.1509mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:32:32 AM
4	0.4242	0.1253mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:34:41 AM

Mean Area 0.5823
Mean Conc. 0.1720mg/L



Sample

Sample Name: MB
Sample ID: MB
Origin: 9060A Method.met
Status Completed
Chk. Result

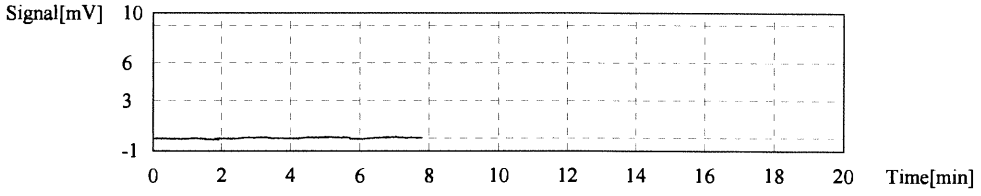
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.08801mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2288	0.06759mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:42:14 AM
2	0.4895	0.1446mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:44:23 AM
3	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:46:30 AM
4	0.4733	0.1398mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:48:48 AM

Mean Area 0.2979
Mean Conc. 0.08801mg/L



Sample

Sample Name: LCS
Sample ID: LCS
Origin: 9060A Method.met
Status Completed
Chk. Result

TOC-Control L Report

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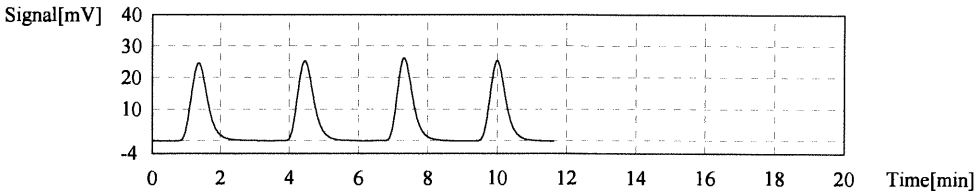
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.98mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	85.06	25.13mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:57:33 AM
2	84.88	25.08mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:00:41 AM
3	83.99	24.81mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:03:36 AM
4	84.28	24.90mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:06:48 AM

Mean Area 84.55
Mean Conc. 24.98mg/L



Sample

Sample Name: K2008508-001
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

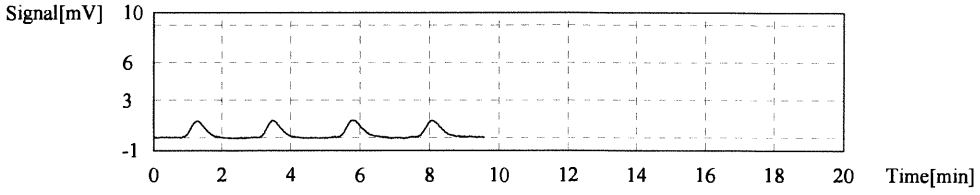
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:1.303mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	3.932	1.162mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:14:40 AM
2	4.406	1.302mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:17:12 AM
3	4.345	1.284mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:19:41 AM
4	4.962	1.466mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:22:41 AM

Mean Area 4.411
Mean Conc. 1.303mg/L



Sample

TOC-Control L Report

2020_09_28_001.tlx

Sample Name: K2008508-002
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

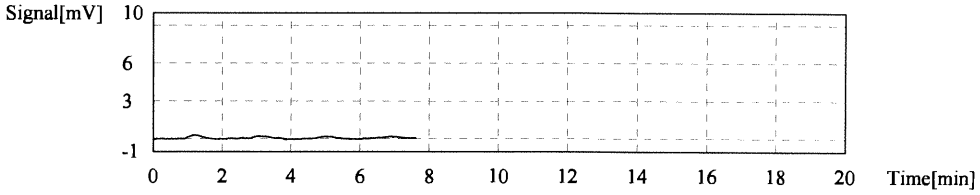
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1805mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.8158	0.2410mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:30:14 AM
2	0.6537	0.1931mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:32:21 AM
3	0.4653	0.1375mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:34:30 AM
4	0.5091	0.1504mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:36:39 AM

Mean Area 0.6110
Mean Conc. 0.1805mg/L



Sample

Sample Name: K2008508-003
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

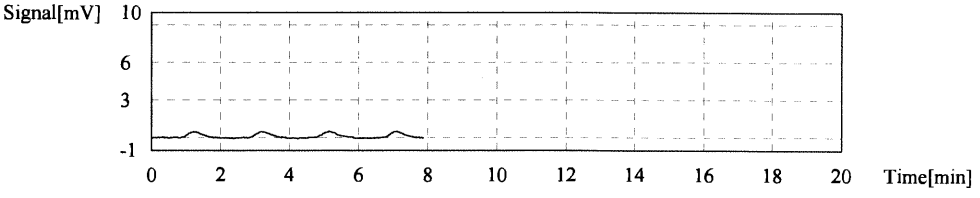
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.4185mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.362	0.4024mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:44:15 AM
2	1.365	0.4033mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:46:25 AM
3	1.375	0.4062mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:48:35 AM
4	1.564	0.4621mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:50:50 AM

Mean Area 1.417
Mean Conc. 0.4185mg/L



TOC-Control L Report

2020_09_28_001.tlx

Sample

Sample Name: K2008508-005
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

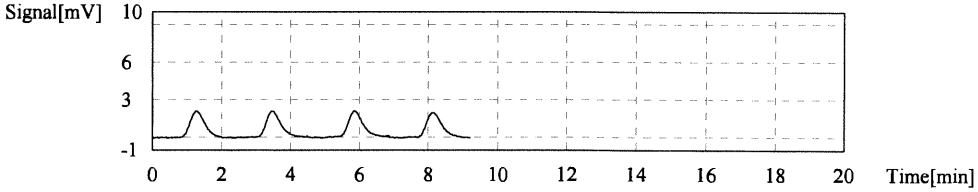
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 1.799mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	6.240	1.843mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:58:41 AM
2	6.164	1.821mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:01:18 AM
3	5.882	1.738mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:03:47 AM
4	6.067	1.792mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:06:24 AM

Mean Area 6.088
Mean Conc. 1.799mg/L



Sample

Sample Name: K2008508-006
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC 0.4246mg/L

1. Det

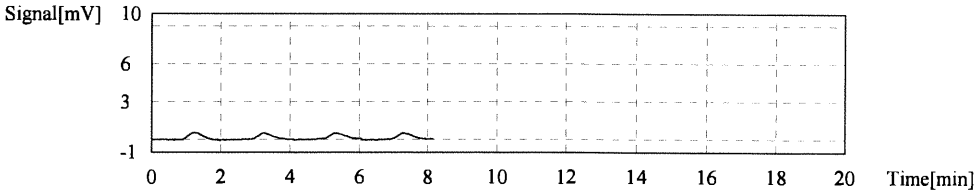
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	1.724	0.5093mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:14:04 AM
2	1.358	0.4012mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:16:23 AM
3	1.248	0.3687mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:18:36 AM
4	1.419	0.4192mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:20:57 AM

TOC-Control L Report

2020_09_28_001.tlx

Mean Area 1.437
Mean Conc. 0.4246mg/L



Sample

Sample Name: CCV4
Sample ID: 25PPM
Origin: 9060A Method.met
Status Completed
Chk. Result

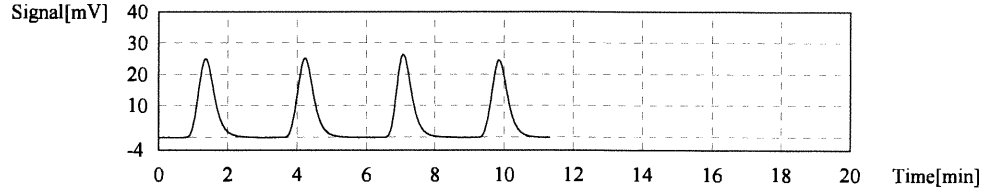
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.71mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	84.77	25.04mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:29:36 AM
2	83.86	24.77mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:32:46 AM
3	83.48	24.66mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:35:44 AM
4	82.39	24.34mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:38:49 AM

Mean Area 83.63
Mean Conc. 24.71mg/L



Sample

Sample Name: CCB4
Sample ID: CCB
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.000mg/L

1. Det

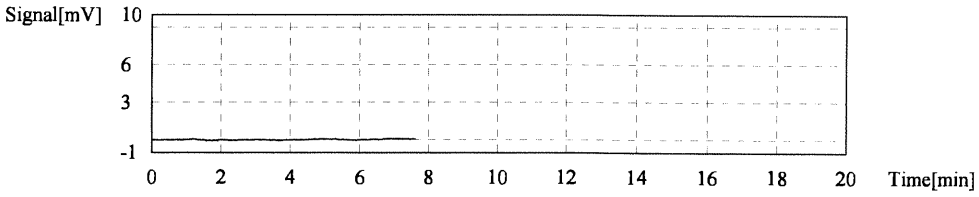
Anal.: NPOC

TOC-Control L Report

2020_09_28_001.tlx

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:46:22 AM
2	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:48:30 AM
3	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:50:38 AM
4	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 2:52:46 AM

Mean Area 0.000
Mean Conc. 0.000mg/L



TOC-Control L Report

2020_09_29_001.tlx

Instr.Information

Instrument Options: TOC/ASI/IC Unit/
Catalyst: Regular Sensitivity

Sample

Sample Name: CCV1
Sample ID: 25 PPM
Origin: 9060A Method.met
Status: Completed
Chk. Result:

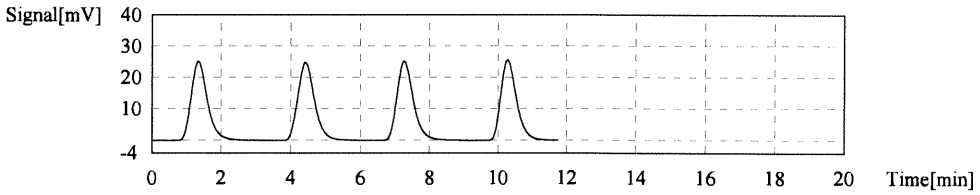
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.73mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	84.05	24.83mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 10:45:41 AM
2	84.20	24.88mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 10:48:50 AM
3	83.72	24.73mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 10:52:07 AM
4	82.85	24.48mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 10:55:10 AM

Mean Area: 83.70
Mean Conc.: 24.73mg/L



Sample

Sample Name: CCB1
Sample ID: CCB
Origin: 9060A Method.met
Status: Completed
Chk. Result:

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.000mg/L

1. Det

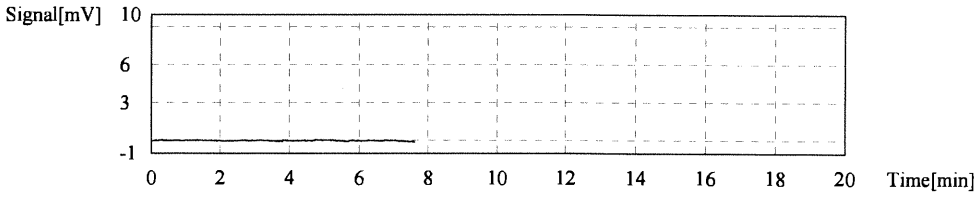
Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:02:43 AM
2	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:04:51 AM
3	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:06:59 AM
4	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:09:07 AM

TOC-Control L Report

2020_09_29_001.tlx

Mean Area 0.000
Mean Conc. 0.000mg/L



Sample

Sample Name: ICS
Sample ID: ICS
Origin: 9060A Method.met
Status Completed
Chk. Result

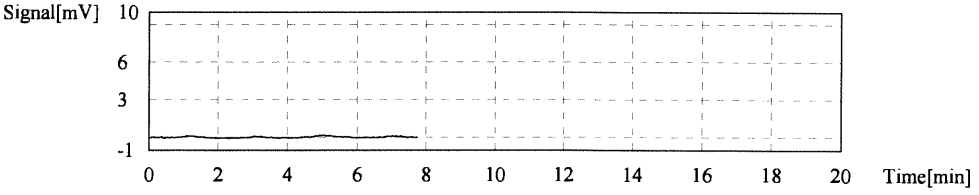
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.1001mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.2089	0.06172mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:16:40 AM
2	0.2013	0.05947mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:18:48 AM
3	0.6313	0.1865mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:21:04 AM
4	0.3141	0.09280mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:23:14 AM

Mean Area 0.3389
Mean Conc. 0.1001mg/L



Sample

Sample Name: K2008472-003
Sample ID: 10X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:34.62mg/L

1. Det

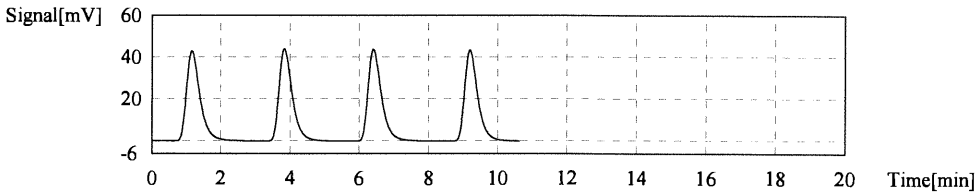
Anal.: NPOC

TOC-Control L Report

2020_09_29_001.tlx

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	117.8	34.80mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:31:37 AM
2	118.1	34.89mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:34:27 AM
3	117.2	34.62mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:37:27 AM
4	115.7	34.18mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:40:19 AM

Mean Area 117.2
Mean Conc. 34.62mg/L



Sample

Sample Name: K2008472-004
Sample ID: 10X
Origin: 9060A Method.met
Status Completed
Chk. Result

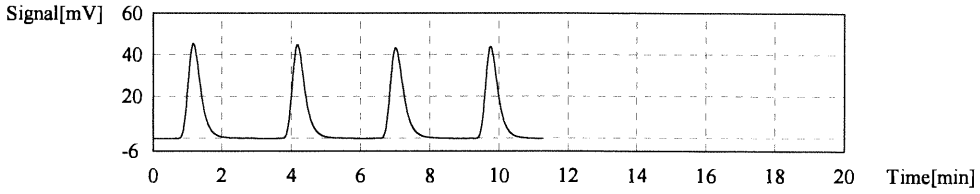
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:35.27mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	119.9	35.42mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:48:58 AM
2	120.9	35.72mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:52:05 AM
3	119.5	35.30mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:55:04 AM
4	117.3	34.65mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 11:58:00 AM

Mean Area 119.4
Mean Conc. 35.27mg/L



Sample

Sample Name: K2008472-005
Sample ID: 1X
Origin: 9060A Method.met
Status Completed
Chk. Result

Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:11.28mg/L

TOC-Control L Report

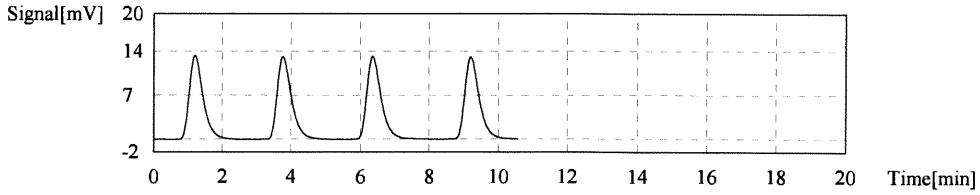
2020_09_29_001.tlx

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	38.01	11.23mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:06:16 PM
2	38.24	11.30mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:09:05 PM
3	38.40	11.34mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:12:09 PM
4	38.04	11.24mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:15:00 PM

Mean Area 38.17
Mean Conc. 11.28mg/L



Sample

Sample Name: K2008472-006
Sample ID: 20X
Origin: 9060A Method.met
Status Completed
Chk. Result

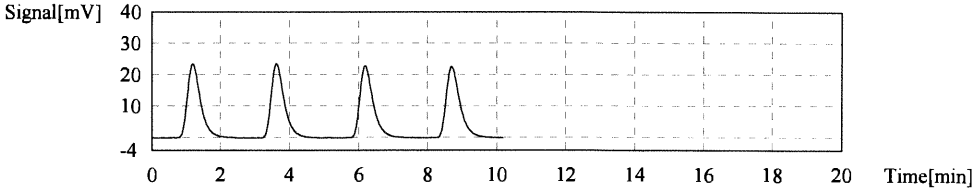
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC: 18.63mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	63.34	18.71mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:23:05 PM
2	63.54	18.77mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:25:56 PM
3	62.56	18.48mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:28:41 PM
4	62.82	18.56mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:31:34 PM

Mean Area 63.06
Mean Conc. 18.63mg/L



Sample

Sample Name: CCV2
Sample ID: 25 PPM
Origin: 9060A Method.met
Status Completed
Chk. Result

TOC-Control L Report

2020_09_29_001.tlx

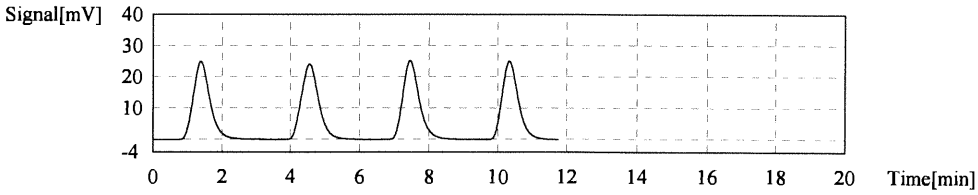
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:24.72mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	84.10	24.85mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:40:26 PM
2	84.14	24.86mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:43:38 PM
3	84.17	24.87mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:46:48 PM
4	82.28	24.31mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:49:48 PM

Mean Area 83.67
Mean Conc. 24.72mg/L



Sample

Sample Name: CCB2
Sample ID: CCB
Origin: 9060A Method.met
Status Completed
Chk. Result

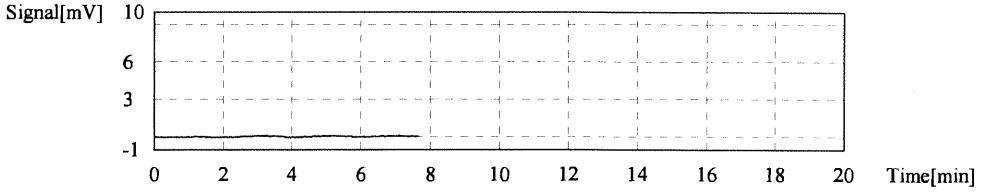
Type	Anal.	Manual Dilution	Result
Unknown	NPOC	1.000	NPOC:0.03853mg/L

1. Det

Anal.: NPOC

No.	Area	Conc.	Inj. Vol.	Aut. Dil.	Ex.	Cal. Curve	Date / Time
1	0.1144	0.03380mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:57:20 PM
2	0.07860	0.02322mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 12:59:28 PM
3	0.3287	0.09711mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:01:39 PM
4	0.000	0.000mg/L	50uL	1.000		9060A Calibration.2020_07_17_10_50_29.cal	9/29/2020 1:03:49 PM

Mean Area 0.1304
Mean Conc. 0.03853mg/L



HS20091027 Wet Chem Raw Data (NIT-AMM_W- E350.3 - ISE)

ALS WO# HS20091027

NIT_AMM_W_1SH350-3

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Logbook **31220**

Ion Selective Electrode Logbook

Analyst: YP				Date: 9/29/20 11:20 AM			
Method: SM4500NH3-D/EPA 350.3 or SM4500 NH3 B-F							
Probe Calibration Date: 9/29/20		Cal Std ID: 3140661O1 – 06		Probe ID: X01-11806			
Std Level		mV	Conc., mg/L:	Sodium Thiosulfate ID:			
STD 1 (mg/L):	0.2	135.6	0.200	Std Level	mV	Conc., mg/L:	
STD 2 (mg/L):	1	96.3	1.003	STD 4 (mg/L): 10	38.6	10.010	
STD 3 (mg/L):	5	55.1	5.001	STD 5 (mg/L): 30	-2.2	49.936	
LSC / MS Spike ID: 3100602320				ICAL Date & Slope:			
ICV Cal STD ID: 3140661O1				99.1 / -58.4 mV			
DPD Reagent ID: 3100602305							

WO # / SX #	Bottle #	Initial g or ml	Final Vol. ml	Dilution Factor	Initial Conc. mg/L	Final Conc. mg/L	Chlorine Check (+/–)	Comments
ICV		50ml	50ml		10.463			
CCB					0.009			
MBLK					0.003			
LCS					10.306			
HS200 90992-01					0.235		+ve	Rechecked
HS200 90992-01MS					12.135		–	
HS200 90992-01MSD					11.967			
HS200 91161-01		1ml	50ml	50X	12.830		+ve	Rechecked
HS200 91161-02		1ml	50ml	50X	13.035		+ve	Rechecked.
HS200 91027-01 (9190)		50ml			18.530		-ve	
CCV					9.164			
CCB					0.006			
				YP 9/29				

Batch ID: 369497 / 369498 | Reported By YP | Reviewed By: MD

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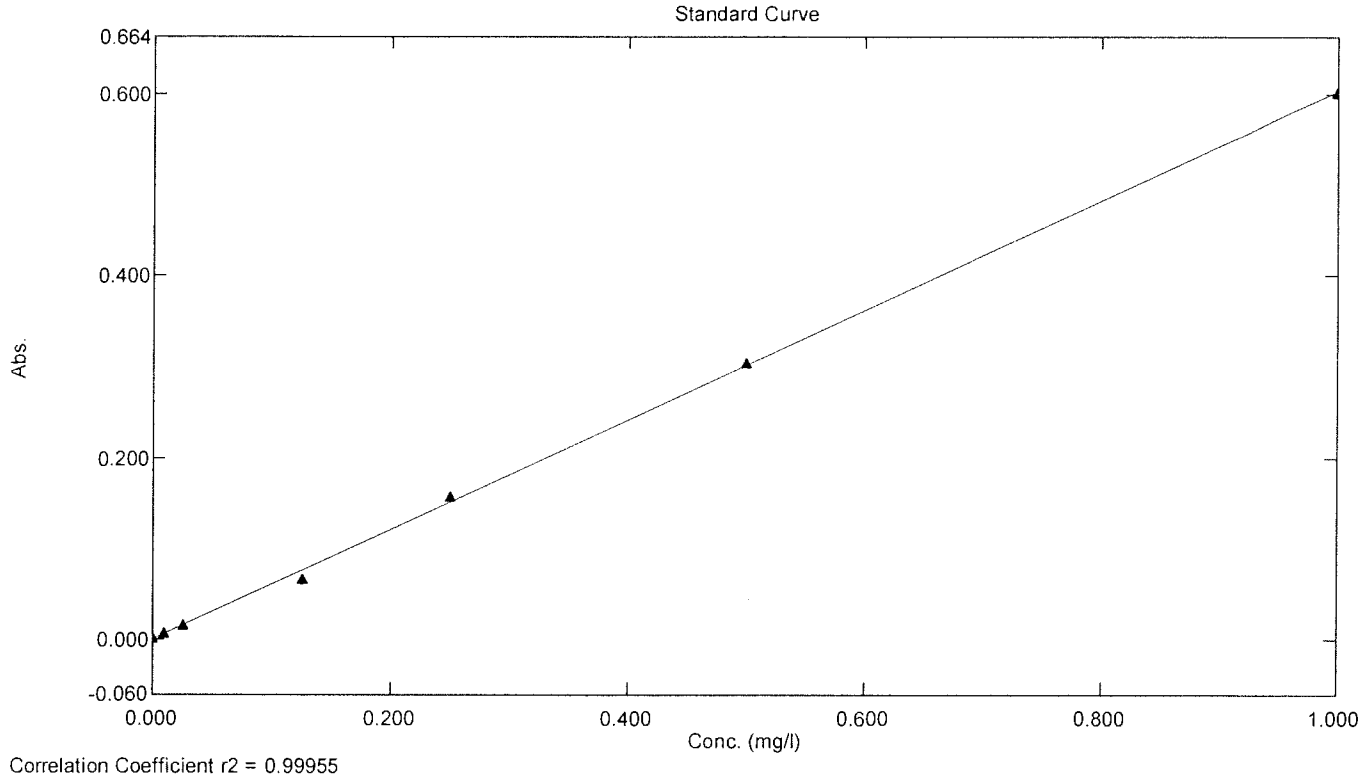
HS20091027 Wet Chem Raw Data (P-ORTHO)

ALS WO# HS20091027

Standard Table Report

10/09/2020 11:15:40 AM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\2020\092320_P_ORTHO_W.pho



Correlation Coefficient r2 = 0.99955

Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	0.002	1.000	
2	STD2	Standard		0.010	0.007	1.000	
3	STD3	Standard		0.025	0.015	1.000	
4	STD4	Standard		0.125	0.066	1.000	
5	STD5	Standard		0.250	0.157	1.000	
6	STD6	Standard		0.500	0.305	1.000	
7	STD7	Standard		1.000	0.602	1.000	
8							

Sample Table Report

10/09/2020 11:15:43 AM

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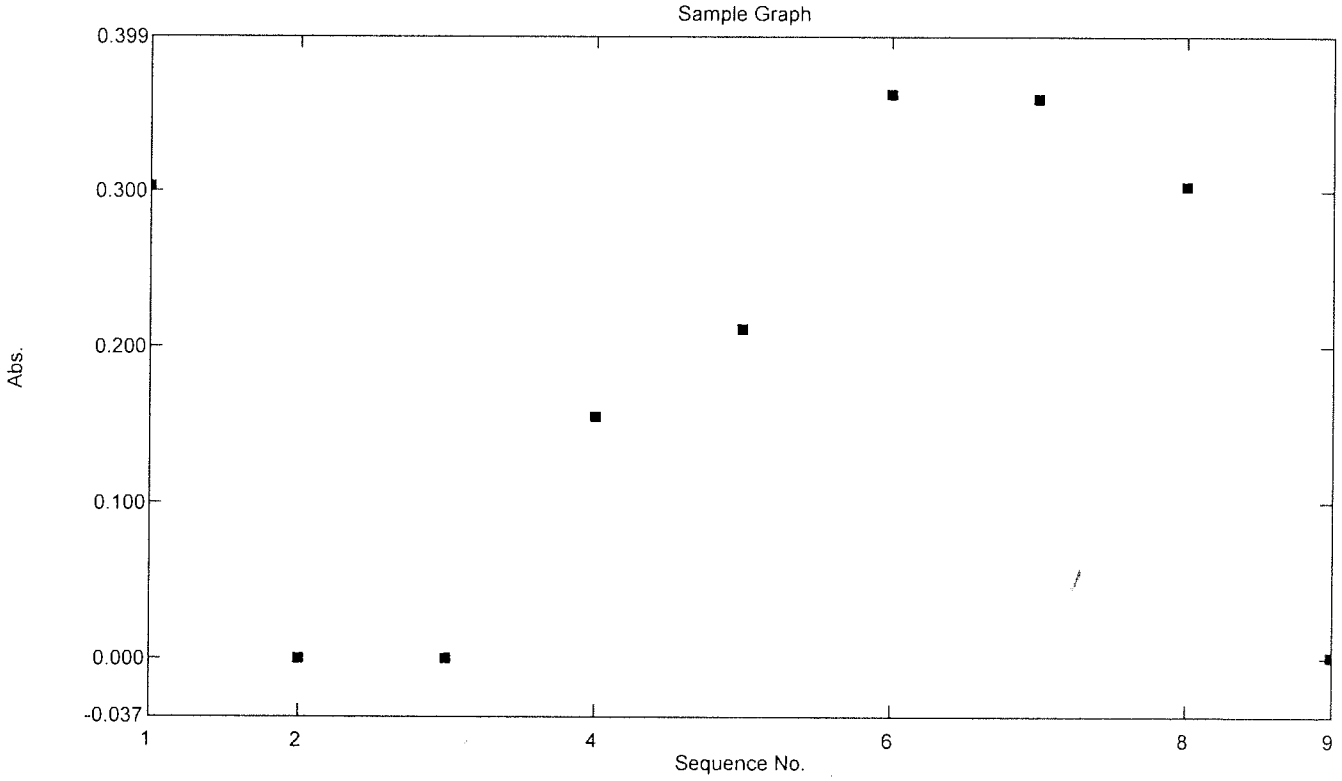

Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.501	0.303	314065605 WC-14
2	CCB	Unknown		-0.000	-0.000	
3	MBLK	Unknown		0.001	0.000	
4	LCS	Unknown		0.256	0.155	314065604 WC-14
5	HS20091027.01	Unknown		0.350	0.212	PF:10X,11:57AM
6	HS20091027.01MS	Unknown		0.600	0.363	PF:10X,11:58AM
7	HS20091027.01MS D	Unknown		0.594	0.359	PF:10X,11:58AM
8	CCV2	Unknown		0.501	0.303	
9	CCB2	Unknown		0.002	0.001	C-314065703 UV-11
10						

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WorkOrder: HS20091030

Longhorn GW Treatment Plant Bi Weekly Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

13-Oct-2020

ALS Environmental
ALS Group USA, Corp
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  - Trip Blank
  - Dates Report
  - QC
  - Acronyms
  - Certifications
  - Sample Tracking Record
  - SampleReceiptCheckList
  - COC
- HS20091030 8260_W_DOD Raw Data
- HS20091030 Wet Chem Raw Data (9056_anions_W)

HS20091030 Longhorn GW Treatment Plant Bi Weekly Samples Final

ALS WO# HS20091030

10450 Stancliff Rd. Suite 210
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F: +1 281 530 5887

September 25, 2020

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

Work Order: **HS20091030**

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

Dear Marcia Olive,

ALS Environmental received 2 sample(s) on Sep 23, 2020 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Work Order: HS20091030

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20091030-01	LH18/24-SP650_092220	Water		22-Sep-2020 14:00	23-Sep-2020 09:50	☐
HS20091030-02	Trip Blank	Water		22-Sep-2020 14:00	23-Sep-2020 09:50	☐

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Work Order: HS20091030

CASE NARRATIVE

GCMS Volatiles by Method SW8260

Batch ID: R369299

Sample ID: HS20090748-01MS

- MS and MSD are for an unrelated sample

WetChemistry by Method SW9056

Batch ID: R369212

Sample ID: HS20091029-01MS

- MS and MSD are for an unrelated sample (Chloride,Sulfate)

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Sample ID: LH18/24-SP650_092220
Collection Date: 22-Sep-2020 14:00

ANALYTICAL REPORT
WorkOrder:HS20091030
Lab ID:HS20091030-01
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Sep-2020 20:22
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Sep-2020 20:22
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Sep-2020 20:22
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Sep-2020 20:22
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Sep-2020 20:22
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22

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

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**
Project: Longhorn GW Treatment Plant Bi Weekly Samples WorkOrder:HS20091030
Sample ID: LH18/24-SP650_092220 Lab ID:HS20091030-01
Collection Date: 22-Sep-2020 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
cis-1,2-Dichloroethene	**19**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Sep-2020 20:22
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Sep-2020 20:22
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Sep-2020 20:22
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 20:22
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Trichloroethene	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	24-Sep-2020 20:22
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 20:22
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 20:22
Surr: 1,2-Dichloroethane-d4	*90.8*			**0**	*81-118*	*%REC*	*1*	*24-Sep-2020 20:22*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*24-Sep-2020 20:22*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*24-Sep-2020 20:22*
Surr: Toluene-d8	*100.0*			**0**	*89-112*	*%REC*	*1*	*24-Sep-2020 20:22*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: YP
Chloride	**570**		**4.00**	**10.0**	**10.0**	**mg/L**	20	23-Sep-2020 18:55
Sulfate	**46.6**		**0.200**	**0.500**	**0.500**	**mg/L**	1	23-Sep-2020 18:37

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

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder:HS20091030
Sample ID: Trip Blank
Lab ID:HS20091030-02
Collection Date: 22-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,1,2,2-Tetrachloroethane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,1,2-Trichloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,1-Dichloropropene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2,3-Trichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2,3-Trichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2,4-Trichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2,4-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,2-Dichlorobenzene	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
1,2-Dichloropropane	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,3,5-Trimethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,3-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,3-Dichloropropane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
1,4-Dichlorobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	24-Sep-2020 19:33
2-Chlorotoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
2-Hexanone	2.0	U	1.0	2.0	2.0	UG/L	1	24-Sep-2020 19:33
4-Chlorotoluene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
4-Isopropyltoluene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
4-Methyl-2-pentanone	2.0	U	0.70	2.0	2.0	UG/L	1	24-Sep-2020 19:33
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	24-Sep-2020 19:33
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Bromobenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Bromoform	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Bromomethane	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	24-Sep-2020 19:33
Carbon tetrachloride	1.0	U	0.50	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Chlorobenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Chloroethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33

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

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder:HS20091030
Sample ID: Trip Blank
Lab ID:HS20091030-02
Collection Date: 22-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Dibromochloromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Dichlorodifluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Ethylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Isopropylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	24-Sep-2020 19:33
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	24-Sep-2020 19:33
n-Butylbenzene	1.0	U	0.40	1.0	1.0	UG/L	1	24-Sep-2020 19:33
n-Propylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Naphthalene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
o-Xylene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
sec-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Styrene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
tert-Butylbenzene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Tetrachloroethene	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Trichlorofluoromethane	1.0	U	0.30	1.0	1.0	UG/L	1	24-Sep-2020 19:33
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	24-Sep-2020 19:33
Surr: 1,2-Dichloroethane-d4	*90.4*			**0**	*81-118*	*%REC*	*1*	*24-Sep-2020 19:33*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*24-Sep-2020 19:33*
Surr: Dibromofluoromethane	*94.7*			**0**	*80-119*	*%REC*	*1*	*24-Sep-2020 19:33*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*24-Sep-2020 19:33*

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

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R369212 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Water	
HS20091030-01	LH18/24-SP650_092220	22 Sep 2020 14:00			23 Sep 2020 18:55	20
HS20091030-01	LH18/24-SP650_092220	22 Sep 2020 14:00			23 Sep 2020 18:37	1
Batch ID: R369299 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS20091030-01	LH18/24-SP650_092220	22 Sep 2020 14:00			24 Sep 2020 20:22	1
HS20091030-02	Trip Blank	22 Sep 2020 14:00			24 Sep 2020 19:33	1

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200924** Units: **UG/L** Analysis Date: **24-Sep-2020 18:45**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753827** PrepDate: DF: **1**

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

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200924** Units: **UG/L** Analysis Date: **24-Sep-2020 18:45**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753827** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	1.0	1.0								U
Chlorobenzene	1.0	1.0								U
Chloroethane	1.0	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	1.0	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	1.0	1.0								U
Ethylbenzene	1.0	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	1.0	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	1.0	1.0								U
n-Butylbenzene	1.0	1.0								U
n-Propylbenzene	1.0	1.0								U
o-Xylene	1.0	1.0								U
sec-Butylbenzene	1.0	1.0								U
Styrene	1.0	1.0								U
tert-Butylbenzene	1.0	1.0								U
Tetrachloroethene	1.0	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	1.0	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.25*	*1.0*	*50*	*0*	*90.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.96*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.3*	*1.0*	*50*	*0*	*92.6*	*80 - 119*				
Surr: Toluene-d8	*50.3*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200924** Units: **UG/L** Analysis Date: **24-Sep-2020 17:33**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753826** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.48	1.0	20	0	92.4	78 - 124				
1,1,1-Trichloroethane	17.8	1.0	20	0	89.0	74 - 131				
1,1,2,2-Tetrachloroethane	17.93	1.0	20	0	89.6	71 - 121				
1,1,2-Trichloroethane	18.19	1.0	20	0	90.9	80 - 119				
1,1-Dichloroethane	18.25	1.0	20	0	91.3	77 - 125				
1,1-Dichloroethene	17.97	1.0	20	0	89.8	71 - 131				
1,1-Dichloropropene	17.86	1.0	20	0	89.3	78 - 125				
1,2,3-Trichlorobenzene	20.21	1.0	20	0	101	69 - 129				
1,2,3-Trichloropropane	18.38	1.0	20	0	91.9	73 - 122				
1,2,4-Trichlorobenzene	20.4	1.0	20	0	102	69 - 130				
1,2,4-Trimethylbenzene	18.48	1.0	20	0	92.4	76 - 124				
1,2-Dibromo-3-chloropropane	16.78	1.0	20	0	83.9	62 - 128				
1,2-Dibromoethane	18.87	1.0	20	0	94.4	77 - 121				
1,2-Dichlorobenzene	18.04	1.0	20	0	90.2	80 - 119				
1,2-Dichloroethane	18.47	1.0	20	0	92.4	73 - 128				
1,2-Dichloropropane	19.01	1.0	20	0	95.1	78 - 122				
1,3,5-Trimethylbenzene	17.84	1.0	20	0	89.2	75 - 124				
1,3-Dichlorobenzene	18.3	1.0	20	0	91.5	80 - 119				
1,3-Dichloropropane	18.24	1.0	20	0	91.2	80 - 119				
1,4-Dichlorobenzene	18.07	1.0	20	0	90.4	79 - 118				
2,2-Dichloropropane	18.55	1.0	20	0	92.8	60 - 139				
2-Butanone	40.27	2.0	40	0	101	56 - 143				
2-Chlorotoluene	18.08	1.0	20	0	90.4	79 - 122				
2-Hexanone	37.88	2.0	40	0	94.7	57 - 139				
4-Chlorotoluene	17.8	1.0	20	0	89.0	78 - 122				
4-Isopropyltoluene	17.74	1.0	20	0	88.7	77 - 127				
4-Methyl-2-pentanone	36.56	2.0	40	0	91.4	67 - 130				
Acetone	42.63	2.0	40	0	107	39 - 160				
Benzene	18.44	1.0	20	0	92.2	79 - 120				
Bromobenzene	18.48	1.0	20	0	92.4	80 - 120				
Bromochloromethane	17.64	1.0	20	0	88.2	78 - 123				
Bromodichloromethane	18.39	1.0	20	0	92.0	79 - 125				
Bromoform	18.78	1.0	20	0	93.9	66 - 130				
Bromomethane	19.96	1.0	20	0	99.8	53 - 141				

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-200924** Units: **UG/L** Analysis Date: **24-Sep-2020 17:33**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753826** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	36.85	2.0	40	0	92.1	64 - 133				
Carbon tetrachloride	17.24	1.0	20	0	86.2	72 - 136				
Chlorobenzene	18.29	1.0	20	0	91.5	82 - 118				
Chloroethane	17.56	1.0	20	0	87.8	60 - 138				
Chloroform	18.31	1.0	20	0	91.6	79 - 124				
Chloromethane	18.38	1.0	20	0	91.9	50 - 139				
cis-1,2-Dichloroethene	18.53	1.0	20	0	92.6	78 - 123				
cis-1,3-Dichloropropene	18.42	1.0	20	0	92.1	75 - 124				
Dibromochloromethane	18.08	1.0	20	0	90.4	74 - 126				
Dibromomethane	18.4	1.0	20	0	92.0	79 - 123				
Dichlorodifluoromethane	18.14	1.0	20	0	90.7	32 - 152				
Ethylbenzene	18.14	1.0	20	0	90.7	79 - 121				
Hexachlorobutadiene	22.06	1.0	20	0	110	66 - 134				
Isopropylbenzene	17.52	1.0	20	0	87.6	72 - 131				
m,p-Xylene	36.07	2.0	40	0	90.2	80 - 121				
Methylene chloride	19.25	2.0	20	0	96.2	74 - 124				
Naphthalene	18.61	1.0	20	0	93.0	61 - 128				
n-Butylbenzene	18.29	1.0	20	0	91.4	75 - 128				
n-Propylbenzene	17.71	1.0	20	0	88.6	76 - 126				
o-Xylene	18.08	1.0	20	0	90.4	78 - 122				
sec-Butylbenzene	17.25	1.0	20	0	86.2	77 - 126				
Styrene	18.34	1.0	20	0	91.7	78 - 123				
tert-Butylbenzene	17.37	1.0	20	0	86.9	78 - 124				
Tetrachloroethene	17.58	1.0	20	0	87.9	74 - 129				
Toluene	18.33	1.0	20	0	91.7	80 - 121				
trans-1,2-Dichloroethene	18.7	1.0	20	0	93.5	75 - 124				
trans-1,3-Dichloropropene	18.67	1.0	20	0	93.4	73 - 127				
Trichloroethene	18.47	1.0	20	0	92.3	79 - 123				
Trichlorofluoromethane	17.74	1.0	20	0	88.7	65 - 141				
Vinyl chloride	17.91	1.0	20	0	89.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*48.63*	*1.0*	*50*	*0*	*97.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.89*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*47.19*	*1.0*	*50*	*0*	*94.4*	*80 - 119*				
Surr: Toluene-d8	*47.93*	*1.0*	*50*	*0*	*95.9*	*89 - 112*				

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20090748-01MS** Units: **UG/L** Analysis Date: **24-Sep-2020 21:10**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753833** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.99	1.0	20	0	115	78 - 124				
1,1,1-Trichloroethane	23.21	1.0	20	0	116	74 - 131				
1,1,2,2-Tetrachloroethane	21.41	1.0	20	0	107	71 - 121				
1,1,2-Trichloroethane	21.98	1.0	20	0	110	80 - 119				
1,1-Dichloroethane	22.22	1.0	20	0	111	77 - 125				
1,1-Dichloroethene	20.74	1.0	20	0	104	71 - 131				
1,1-Dichloropropene	22.91	1.0	20	0	115	78 - 125				
1,2,3-Trichlorobenzene	17.85	1.0	20	0	89.2	69 - 129				
1,2,3-Trichloropropane	21.6	1.0	20	0	108	73 - 122				
1,2,4-Trichlorobenzene	19.66	1.0	20	0	98.3	69 - 130				
1,2,4-Trimethylbenzene	23.43	1.0	20	0	117	76 - 124				
1,2-Dibromo-3-chloropropane	18.95	1.0	20	0	94.8	62 - 128				
1,2-Dibromoethane	21.81	1.0	20	0	109	77 - 121				
1,2-Dichlorobenzene	21.64	1.0	20	0	108	80 - 119				
1,2-Dichloroethane	21.97	1.0	20	0	110	73 - 128				
1,2-Dichloropropane	23.04	1.0	20	0	115	78 - 122				
1,3,5-Trimethylbenzene	23.47	1.0	20	0	117	75 - 124				
1,3-Dichlorobenzene	22.35	1.0	20	0	112	80 - 119				
1,3-Dichloropropane	21.86	1.0	20	0	109	80 - 119				
1,4-Dichlorobenzene	21.87	1.0	20	0	109	79 - 118				
2,2-Dichloropropane	22.39	1.0	20	0	112	60 - 139				
2-Butanone	42.09	2.0	40	0	105	56 - 143				
2-Chlorotoluene	22.98	1.0	20	0	115	79 - 122				
2-Hexanone	40.77	2.0	40	0	102	57 - 139				
4-Chlorotoluene	22.39	1.0	20	0	112	78 - 122				
4-Isopropyltoluene	23.84	1.0	20	0	119	77 - 127				
4-Methyl-2-pentanone	41.36	2.0	40	0	103	67 - 130				
Acetone	38.55	2.0	40	0	96.4	39 - 160				
Benzene	22.53	1.0	20	0	113	79 - 120				
Bromobenzene	22.85	1.0	20	0	114	80 - 120				
Bromochloromethane	21.77	1.0	20	0	109	78 - 123				
Bromodichloromethane	22.42	1.0	20	0	112	79 - 125				
Bromoform	21.71	1.0	20	0	109	66 - 130				
Bromomethane	14.6	1.0	20	0	73.0	53 - 141				

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS20090748-01MS** Units: **UG/L** Analysis Date: **24-Sep-2020 21:10**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753833** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	35.65	2.0	40	0	89.1	64 - 133				
Carbon tetrachloride	23.47	1.0	20	0	117	72 - 136				
Chlorobenzene	22.44	1.0	20	0	112	82 - 118				
Chloroethane	14.52	1.0	20	0	72.6	60 - 138				
Chloroform	22.73	1.0	20	0	114	79 - 124				
Chloromethane	8.979	1.0	20	0	44.9	50 - 139				S
cis-1,2-Dichloroethene	43.51	1.0	20	20.43	115	78 - 123				
cis-1,3-Dichloropropene	21.99	1.0	20	0	110	75 - 124				
Dibromochloromethane	22.05	1.0	20	0	110	74 - 126				
Dibromomethane	21.95	1.0	20	0	110	79 - 123				
Dichlorodifluoromethane	5.075	1.0	20	0	25.4	32 - 152				S
Ethylbenzene	23.03	1.0	20	0	115	79 - 121				
Hexachlorobutadiene	23.95	1.0	20	0	120	66 - 134				
Isopropylbenzene	23.76	1.0	20	0	119	72 - 131				
m,p-Xylene	46.23	2.0	40	0	116	80 - 121				
Methylene chloride	22.82	2.0	20	0	114	74 - 124				
Naphthalene	17.08	1.0	20	0	85.4	61 - 128				
n-Butylbenzene	24.02	1.0	20	0	120	75 - 128				
n-Propylbenzene	23.72	1.0	20	0	119	76 - 126				
o-Xylene	23.07	1.0	20	0	115	78 - 122				
sec-Butylbenzene	23.79	1.0	20	0	119	77 - 126				
Styrene	25.36	1.0	20	0	127	78 - 123				S
tert-Butylbenzene	23.88	1.0	20	0	119	78 - 124				
Tetrachloroethene	23.59	1.0	20	0	118	74 - 129				
Toluene	23.22	1.0	20	0	116	80 - 121				
trans-1,2-Dichloroethene	22.82	1.0	20	0	114	75 - 124				
trans-1,3-Dichloropropene	21.83	1.0	20	0	109	73 - 127				
Trichloroethene	23.89	1.0	20	1.294	113	79 - 123				
Trichlorofluoromethane	19.44	1.0	20	0	97.2	65 - 141				
Vinyl chloride	12.45	1.0	20	0	62.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.88*	*1.0*	*50*	*0*	*91.8*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.03*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*47*	*1.0*	*50*	*0*	*94.0*	*80 - 119*				
Surr: Toluene-d8	*48.85*	*1.0*	*50*	*0*	*97.7*	*89 - 112*				

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20090748-01MSD** Units: **UG/L** Analysis Date: **24-Sep-2020 21:34**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753834** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.28	1.0	20	0	111	78 - 124	22.99	3.11	20	
1,1,1-Trichloroethane	22.43	1.0	20	0	112	74 - 131	23.21	3.43	20	
1,1,2,2-Tetrachloroethane	22.14	1.0	20	0	111	71 - 121	21.41	3.36	20	
1,1,2-Trichloroethane	22.11	1.0	20	0	111	80 - 119	21.98	0.609	20	
1,1-Dichloroethane	21.39	1.0	20	0	107	77 - 125	22.22	3.82	20	
1,1-Dichloroethene	19.9	1.0	20	0	99.5	71 - 131	20.74	4.14	20	
1,1-Dichloropropene	22.1	1.0	20	0	111	78 - 125	22.91	3.59	20	
1,2,3-Trichlorobenzene	20.91	1.0	20	0	105	69 - 129	17.85	15.8	20	
1,2,3-Trichloropropane	21.99	1.0	20	0	110	73 - 122	21.6	1.82	20	
1,2,4-Trichlorobenzene	22.32	1.0	20	0	112	69 - 130	19.66	12.7	20	
1,2,4-Trimethylbenzene	23.21	1.0	20	0	116	76 - 124	23.43	0.954	20	
1,2-Dibromo-3-chloropropane	20.38	1.0	20	0	102	62 - 128	18.95	7.22	20	
1,2-Dibromoethane	21.8	1.0	20	0	109	77 - 121	21.81	0.0436	20	
1,2-Dichlorobenzene	22.37	1.0	20	0	112	80 - 119	21.64	3.29	20	
1,2-Dichloroethane	21.91	1.0	20	0	110	73 - 128	21.97	0.273	20	
1,2-Dichloropropane	22.38	1.0	20	0	112	78 - 122	23.04	2.88	20	
1,3,5-Trimethylbenzene	23.57	1.0	20	0	118	75 - 124	23.47	0.422	20	
1,3-Dichlorobenzene	22.54	1.0	20	0	113	80 - 119	22.35	0.848	20	
1,3-Dichloropropane	21.84	1.0	20	0	109	80 - 119	21.86	0.0707	20	
1,4-Dichlorobenzene	22.49	1.0	20	0	112	79 - 118	21.87	2.78	20	
2,2-Dichloropropane	21.42	1.0	20	0	107	60 - 139	22.39	4.42	20	
2-Butanone	43.32	2.0	40	0	108	56 - 143	42.09	2.87	20	
2-Chlorotoluene	22.66	1.0	20	0	113	79 - 122	22.98	1.4	20	
2-Hexanone	42.23	2.0	40	0	106	57 - 139	40.77	3.5	20	
4-Chlorotoluene	22.47	1.0	20	0	112	78 - 122	22.39	0.38	20	
4-Isopropyltoluene	23.72	1.0	20	0	119	77 - 127	23.84	0.511	20	
4-Methyl-2-pentanone	42	2.0	40	0	105	67 - 130	41.36	1.54	20	
Acetone	39.17	2.0	40	0	97.9	39 - 160	38.55	1.62	20	
Benzene	21.88	1.0	20	0	109	79 - 120	22.53	2.94	20	
Bromobenzene	22.83	1.0	20	0	114	80 - 120	22.85	0.0732	20	
Bromochloromethane	20.55	1.0	20	0	103	78 - 123	21.77	5.76	20	
Bromodichloromethane	21.84	1.0	20	0	109	79 - 125	22.42	2.62	20	
Bromoform	21.67	1.0	20	0	108	66 - 130	21.71	0.18	20	
Bromomethane	13.21	1.0	20	0	66.1	53 - 141	14.6	9.97	20	

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369299 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS20090748-01MSD** Units: **UG/L** Analysis Date: **24-Sep-2020 21:34**
Client ID: Run ID: **VOA6_369299** SeqNo: **5753834** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	33.86	2.0	40	0	84.7	64 - 133	35.65	5.15	20	
Carbon tetrachloride	22.41	1.0	20	0	112	72 - 136	23.47	4.66	20	
Chlorobenzene	21.94	1.0	20	0	110	82 - 118	22.44	2.28	20	
Chloroethane	13.79	1.0	20	0	69.0	60 - 138	14.52	5.17	20	
Chloroform	22.14	1.0	20	0	111	79 - 124	22.73	2.66	20	
Chloromethane	8.542	1.0	20	0	42.7	50 - 139	8.979	4.99	20	S
cis-1,2-Dichloroethene	42.14	1.0	20	20.43	109	78 - 123	43.51	3.2	20	
cis-1,3-Dichloropropene	21.7	1.0	20	0	108	75 - 124	21.99	1.35	20	
Dibromochloromethane	21.58	1.0	20	0	108	74 - 126	22.05	2.18	20	
Dibromomethane	21.49	1.0	20	0	107	79 - 123	21.95	2.13	20	
Dichlorodifluoromethane	4.821	1.0	20	0	24.1	32 - 152	5.075	5.14	20	S
Ethylbenzene	22.82	1.0	20	0	114	79 - 121	23.03	0.909	20	
Hexachlorobutadiene	24.35	1.0	20	0	122	66 - 134	23.95	1.63	20	
Isopropylbenzene	23.14	1.0	20	0	116	72 - 131	23.76	2.63	20	
m,p-Xylene	45.24	2.0	40	0	113	80 - 121	46.23	2.17	20	
Methylene chloride	22.48	2.0	20	0	112	74 - 124	22.82	1.5	20	
Naphthalene	20.56	1.0	20	0	103	61 - 128	17.08	18.5	20	
n-Butylbenzene	24	1.0	20	0	120	75 - 128	24.02	0.0875	20	
n-Propylbenzene	23.68	1.0	20	0	118	76 - 126	23.72	0.17	20	
o-Xylene	22.51	1.0	20	0	113	78 - 122	23.07	2.45	20	
sec-Butylbenzene	23.66	1.0	20	0	118	77 - 126	23.79	0.571	20	
Styrene	22.65	1.0	20	0	113	78 - 123	25.36	11.3	20	
tert-Butylbenzene	23.66	1.0	20	0	118	78 - 124	23.88	0.89	20	
Tetrachloroethene	22.99	1.0	20	0	115	74 - 129	23.59	2.6	20	
Toluene	22.47	1.0	20	0	112	80 - 121	23.22	3.28	20	
trans-1,2-Dichloroethene	21.53	1.0	20	0	108	75 - 124	22.82	5.8	20	
trans-1,3-Dichloropropene	21.76	1.0	20	0	109	73 - 127	21.83	0.312	20	
Trichloroethene	23.32	1.0	20	1.294	110	79 - 123	23.89	2.39	20	
Trichlorofluoromethane	18.31	1.0	20	0	91.6	65 - 141	19.44	5.97	20	
Vinyl chloride	11.67	1.0	20	0	58.4	58 - 137	12.45	6.43	20	
Surr: 1,2-Dichloroethane-d4	*44.76*	*1.0*	*50*	*0*	*89.5*	*81 - 118*	*45.88*	*2.48*	*20*	
Surr: 4-Bromofluorobenzene	*51.87*	*1.0*	*50*	*0*	*104*	*85 - 114*	*52.03*	*0.32*	*20*	
Surr: Dibromofluoromethane	*46.8*	*1.0*	*50*	*0*	*93.6*	*80 - 119*	*47*	*0.421*	*20*	
Surr: Toluene-d8	*49*	*1.0*	*50*	*0*	*98.0*	*89 - 112*	*48.85*	*0.304*	*20*	

ALS Houston, US Date: 25-Sep-20

Client:	Bhate Environmental Associates, Inc.
Project:	Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder:	HS20091030

QC BATCH REPORT

Batch ID:	**R369299 (0)**	**Instrument:**	**VOA6**	**Method:**	**VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch: HS20091030-01 HS20091030-02

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: HS20091030

QC BATCH REPORT

Batch ID: R369212 (0) **Instrument:** ICS-Integrion **Method:** ANIONS BY SW9056A

MBLK Sample ID: **MBLK-092320** Units: **mg/L** Analysis Date: **23-Sep-2020 13:30**
Client ID: Run ID: **ICS-Integrion_369212** SeqNo: **5752157** 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-092320** Units: **mg/L** Analysis Date: **23-Sep-2020 13:48**
Client ID: Run ID: **ICS-Integrion_369212** SeqNo: **5752158** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.74	0.500	20	0	98.7	80 - 120				
Sulfate	19.34	0.500	20	0	96.7	80 - 120				

MS Sample ID: **HS20091029-01MS** Units: **mg/L** Analysis Date: **23-Sep-2020 18:01**
Client ID: Run ID: **ICS-Integrion_369212** SeqNo: **5752163** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	17.07	0.500	10	12.57	44.9	80 - 120				S
Sulfate	35.82	0.500	10	29.83	60.0	80 - 120				S

MSD Sample ID: **HS20091029-01MSD** Units: **mg/L** Analysis Date: **23-Sep-2020 18:19**
Client ID: Run ID: **ICS-Integrion_369212** SeqNo: **5752164** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	17.21	0.500	10	12.57	46.4	80 - 120	17.07	0.829	20	S
Sulfate	36.01	0.500	10	29.83	61.9	80 - 120	35.82	0.53	20	S

The following samples were analyzed in this batch: HS20091030-01

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
WorkOrder: **HS20091030**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	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
Maryland	343, 2019-2020	30-Sep-2020
North Carolina	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 25-Sep-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Bi Weekly Samples
Work Order: HS20091030

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20091030-01	LH18/24-SP650_092220	Login	9/23/2020 11:25:42 AM	JRM	WET378
HS20091030-01	LH18/24-SP650_092220	Login	9/23/2020 11:25:42 AM	JRM	VOA120
HS20091030-02	Trip Blank	Login	9/23/2020 11:25:42 AM	JRM	VOA120

ALS Houston, US Date: 25-Sep-20

Sample Receipt Checklist

Work Order ID: HS20091030 **Date/Time Received:** 23-Sep-2020 09:50

Client Name: Bhate Environmental **Received by:** Paresh M. Giga

Completed By:	/S/ Jared R. Makan	23-Sep-2020 11:27	**Reviewed by:**	/S/ Corey Grandits	23-Sep-2020 16:16
	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):	1.1°C/1.1°C UC/C	IR31
Cooler(s)/Kit(s):	42604	
Date/Time sample(s) sent to storage:	09/23/2020 11:30	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

CHAIN OF CUSTODY

Name Of Lab Shipping To: ALS 10450 Stancliff Rd. Suite 210, Houston, Tx. 77099 ATTN: R.J. Modashia

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT
BI-WEEKLY SAMPLES

Prepared By:
Scott Beesinger

P.O Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: VOC	Analyses: CHLORIDE, SULFATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_092220	Water	09/22/20 / 14:00		3	3		HCL	
LH18/24-SP650_092220	Water	09/22/20 / 14:00		1		1	NONE	
Trip Blank	Water	09/22/20		2	2		HCL	

Additional Remarks: **3 DAY TAT ON VOC's. Standard TAT on other parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	09/22/20	14:30		9/23/2020	09:50						

For Lab Use Only

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

Remarks
42604 CIC 1.1 -431
CIF 0.6

HS20091030

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Bi Weekly Samples

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

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

42604

CUSTODY SEAL

Date: 9/22/20 Time: 1430
Name: [illegible]
Company: [illegible]

Seal Broken By: [illegible]
Date: 09/23/2020

42604 SEP 23 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

42604

ORIGIN ID:SGRA (303) 597-2450
SCOTT BEESINGER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE.
PMB202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 08SEP20
ACTWGT: 1.00 LB MAN
CAD: 3001306/CAFF3211
DIMS: 19x18x13 IN

10 CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: ADDITIONAL BOTTLES - BO 73689 - RJ
RMA:

FedEx Express

FedEx
TRK# 0221 1891 8880 1533

WED - 23 SEP 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

HS20091030 8260_W_DOD Raw Data

ALS WO# HS20091030

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 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

	CLIENT SAMPLE NO.	SMC1 (DCE)#	SMC2 #	SMC3 (TOL)#	OTHER #	TOT OUT
01	VLCSW-200924	97	94	96	104	0
02	VBLKW-200924	90	92	101	106	0
03	HS20091030-02	90	95	102	105	0
04	HS20091030-01	91	93	100	104	0
05	HS20090748-01	92	94	98	104	0
06	HS20090748-01	90	94	98	104	0
07						
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		QC LIMITS
SMC1 (DCE)	= 1,2-Dichloroethane-d4	(0-130)
SMC2	= Dibromofluoromethane	(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 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	46.28	92	80-120
trans-1,3-Dichloroprope	50.00	46.89	94	80-120
1,3-Dichlorobenzene	50.00	44.85	90	80-120
2,2-Dichloropropane	50.00	44.62	89	80-120
1,1-Dichloropropene	50.00	42.22	84	80-120
Dibromomethane	50.00	45.44	91	80-120
1,2-Dibromoethane	50.00	45.33	91	80-120
trans-1,2-Dichloroethen	50.00	45.27	90	80-120
1,1,1,2-Tetrachloroetha	50.00	45.52	91	80-120
1,1,1-Trichloroethane	50.00	43.54	87	80-120
1,1,2,2-Tetrachloroetha	50.00	44.71	89	80-120
1,1,2-Trichloroethane	50.00	44.55	89	80-120
1,1-Dichloroethane	50.00	44.26	88	80-120
1,1-Dichloroethene	50.00	43.02	86	80-120
Trichloroethene	50.00	44.33	89	80-120
1,2,3-Trichlorobenzene	50.00	51.26	102	80-120
Trichlorofluoromethane	50.00	41.97	84	80-120
1,2,4-Trichlorobenzene	50.00	49.34	99	80-120
1,2,4-Trimethylbenzene	50.00	44.00	88	80-120
Tetrachloroethene	50.00	41.29	82	80-120
1,2-Dichlorobenzene	50.00	45.04	90	80-120
1,2-Dichloroethane	50.00	45.12	90	80-120
1,2-Dichloropropane	50.00	46.11	92	80-120
1,3,5-Trimethylbenzene	50.00	43.20	86	80-120
1,3-Dichloropropane	50.00	44.68	89	80-120
1,4-Dichlorobenzene	50.00	44.16	88	80-120
Toluene	50.00	43.58	87	80-120
2-Butanone	100.00	108.02	108	80-120

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

* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Chlorotoluene	50.00	43.08	86	80-120
2-Hexanone	100.00	95.15	95	80-120
4-Chlorotoluene	50.00	43.22	86	80-120
tert-Butylbenzene	50.00	40.89	82	80-120
4-Methyl-2-Pentanone	100.00	91.36	91	80-120
Acetone	100.00	109.54	110	80-120
Benzene	50.00	44.84	90	80-120
Bromobenzene	50.00	45.66	91	80-120
Bromochloromethane	50.00	43.92	88	80-120
Bromodichloromethane	50.00	45.59	91	80-120
Bromoform	50.00	47.84	96	80-120
Bromomethane	50.00	47.86	96	80-120
Carbon Disulfide	100.00	89.81	90	80-120
Carbon Tetrachloride	50.00	41.93	84	80-120
Chlorobenzene	50.00	43.59	87	80-120
Chloroethane	50.00	42.99	86	80-120
Chloroform	50.00	44.56	89	80-120
Chloromethane	50.00	45.59	91	80-120
cis-1,2-Dichloroethene	50.00	44.88	90	80-120
Dibromochloromethane	50.00	45.50	91	80-120
Dichlorodifluoromethane	50.00	41.03	82	80-120
Ethylbenzene	50.00	42.63	85	80-120
Hexachlorobutadiene	50.00	45.33	91	80-120
Isopropylbenzene	50.00	41.73	83	80-120
m,p-Xylenes	100.00	87.22	87	80-120
Methylene Chloride	50.00	48.15	96	80-120
n-Butylbenzene	50.00	42.35	85	80-120
n-Propylbenzene	50.00	42.33	85	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Matrix Spike - Sample No.: ICV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
Naphthalene	50.00	51.91	104	80-120
o-Xylene	50.00	44.49	89	80-120
sec-Butylbenzene	50.00	40.27	80	80-120
Styrene	50.00	46.11	92	80-120
Vinyl Chloride	50.00	43.77	88	80-120
1,2,3-Trichloropropane	50.00	47.51	95	80-120
p-Isopropyltoluene	50.00	41.31	83	80-120
1,2-Dibromo-3-Chloropro	50.00	44.96	90	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 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-200924

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Lab File ID: X092419 Lab Sample ID: VBLKW-200924

Date Analyzed: 09/24/20 Time Analyzed: 1845

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-200924	VLCSW-200924	X092416	1733
02	HS20091030-0	HS20091030-02	X092421	1933
03	HS20091030-0	HS20091030-01	X092423	2022
04	HS20090748-0	HS20090748-01M	X092425	2110
05	HS20090748-0	HS20090748-01M	X092426	2134
06				
07				
08				
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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.: HS20091030

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	VLCSW-200924	VLCSW-200924	X092416	09/24/20	1733
13	VBLKW-200924	VBLKW-200924	X092419	09/24/20	1845
14	HS20091030-0	HS20091030-02	X092421	09/24/20	1933
15	HS20091030-0	HS20091030-01	X092423	09/24/20	2022
16	HS20090748-0	HS20090748-01M	X092425	09/24/20	2110
17	HS20090748-0	HS20090748-01M	X092426	09/24/20	2134
18	CCV-END	CCV-END	X092427	09/24/20	2158
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

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
cis-1,3-Dichloropropene		0.604	0.628	0.568	0.604	0.541
trans-1,3-Dichloropropene		0.493	0.544	0.449	0.488	0.454
1,3-Dichlorobenzene		1.748	1.889	1.644	1.680	1.520
2,2-Dichloropropane		0.861	0.919	0.796	0.818	0.755
1,1-Dichloropropene		0.527	0.482	0.495	0.471	0.433
Dibromomethane		0.239	0.252	0.223	0.235	0.206
1,2-Dibromoethane		0.381	0.414	0.336	0.379	0.333
trans-1,2-Dichloroethene		0.537	0.588	0.521	0.545	0.506
1,1,1,2-Tetrachloroethane		0.377	0.392	0.346	0.354	0.332
1,1,1-Trichloroethane		0.761	0.888	0.781	0.820	0.738
1,1,2,2-Tetrachloroethane		0.972	1.064	0.959	0.972	0.806
1,1,2-Trichloroethane		0.329	0.353	0.304	0.315	0.282
1,1-Dichloroethane		1.171	1.218	1.028	1.103	0.991
1,1-Dichloroethene		0.476	0.539	0.431	0.448	0.435
Trichloroethene		0.372	0.414	0.359	0.376	0.338
1,2,3-Trichlorobenzene		0.212	0.229	0.179	0.207	0.172
Trichlorofluoromethane		0.757	0.831	0.697	0.720	0.706
1,2,4-Trichlorobenzene		2229	2921	5479	14272	49391
1,2,4-Trimethylbenzene		3.253	3.430	3.000	3.122	2.892
Tetrachloroethene		0.330	0.385	0.342	0.326	0.303
1,2-Dichlorobenzene		1.582	1.610	1.410	1.464	1.310
1,2-Dichloroethane		0.464	0.540	0.412	0.472	0.402
1,2-Dichloropropane		0.349	0.428	0.384	0.397	0.357
1,3,5-Trimethylbenzene		3.204	3.443	2.987	3.074	2.846
1,3-Dichloropropane		0.675	0.751	0.610	0.667	0.574
1,4-Dichlorobenzene		1.942	1.823	1.606	1.670	1.478
Toluene		1.763	1.942	1.682	1.757	1.559
2-Butanone		0.159	0.163	0.163	0.188	0.182
2-Chlorotoluene		2.978	3.094	2.683	2.737	2.473
2-Hexanone		0.236	0.214	0.234	0.236	0.212
4-Chlorotoluene		3.311	3.565	3.106	3.156	2.760
tert-Butylbenzene		2.792	2.908	2.555	2.536	2.344
4-Methyl-2-Pentanone		0.403	0.380	0.356	0.375	0.329
Acetone		4284	6768	9048	17679	61351
Benzene		1.490	1.723	1.410	1.500	1.365
Bromobenzene		1.061	1.189	1.028	1.073	0.964
Bromochloromethane		0.353	0.379	0.328	0.323	0.295
Bromodichloromethane		0.508	0.505	0.447	0.466	0.426
Bromoform		0.214	0.238	0.211	0.232	0.207
Bromomethane		3098	7731	11427	28439	96280
Carbon Disulfide		1.618	1.837	1.489	1.545	1.490
Carbon Tetrachloride		0.450	0.410	0.425	0.402	0.374
Chlorobenzene		1.160	1.233	1.044	1.068	0.953
Chloroethane		0.468	0.445	0.392	0.414	0.365

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009103

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
Chloroform		0.973	1.141	0.992	1.044	0.936
Chloromethane		0.732	0.710	0.650	0.686	0.643
cis-1,2-Dichloroethene		0.624	0.717	0.604	0.661	0.596
Dibromochloromethane		0.378	0.421	0.354	0.371	0.337
Dichlorodifluoromethane		2901	6629	12034	28274	113538
Ethylbenzene		0.570	0.644	0.540	0.559	0.508
Hexachlorobutadiene		3351	3302	5496	12681	49814
Isopropylbenzene		1.678	1.831	1.584	1.626	1.476
m,p-Xylenes		0.696	0.760	0.654	0.678	0.614
Methylene Chloride		5505	9684	16648	39690	137362
n-Butylbenzene		2.993	2.947	2.400	2.488	2.487
n-Propylbenzene		4.661	4.835	4.262	4.396	4.114
Naphthalene		0.532	0.476	0.478	0.463	0.420
o-Xylene		0.650	0.742	0.643	0.665	0.599
sec-Butylbenzene		4.025	3.986	3.550	3.514	3.338
Styrene		1.181	1.221	1.038	1.129	1.027
Vinyl Chloride		0.636	0.723	0.606	0.632	0.612
1,2,3-Trichloropropane		0.736	0.868	0.803	0.779	0.679
p-Isopropyltoluene		3.578	3.306	2.975	2.940	2.823
1,2-Dibromo-3-Chloropropane		0.058	0.078	0.056	0.065	0.056
1,2-Dichloroethane-d4		0.637	0.580	0.541	0.589	0.547
Dibromofluoromethane		0.609	0.515	0.484	0.562	0.504
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.: HS2009103

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
cis-1,3-Dichloropropene	0.531	0.554	0.562	0.570
trans-1,3-Dichloropropene	0.450	0.465	0.478	0.480
1,3-Dichlorobenzene	1.386	1.553	1.537	1.516
2,2-Dichloropropane	0.678	0.750	0.745	0.743
1,1-Dichloropropene	0.383	0.447	0.452	0.449
Dibromomethane	0.201	0.206	0.207	0.207
1,2-Dibromoethane	0.318	0.318	0.326	0.320
trans-1,2-Dichloroethene	0.468	0.502	0.498	0.497
1,1,1,2-Tetrachloroethane	0.315	0.332	0.335	0.334
1,1,1-Trichloroethane	0.665	0.757	0.758	0.763
1,1,2,2-Tetrachloroethane	0.793	0.790	0.812	0.789
1,1,2-Trichloroethane	0.267	0.267	0.269	0.265
1,1-Dichloroethane	0.940	0.990	0.979	0.982
1,1-Dichloroethene	0.402	0.438	0.438	0.436
Trichloroethene	0.312	0.346	0.350	0.351
1,2,3-Trichlorobenzene	0.166	0.178	0.198	0.197
Trichlorofluoromethane	0.622	0.737	0.739	0.735
1,2,4-Trichlorobenzene	124784	247364	386588	497987
1,2,4-Trimethylbenzene	2.510	2.888	2.846	2.846
Tetrachloroethene	0.253	0.302	0.303	0.299
1,2-Dichlorobenzene	1.213	1.315	1.322	1.304
1,2-Dichloroethane	0.392	0.397	0.401	0.401
1,2-Dichloropropane	0.342	0.357	0.358	0.359
1,3,5-Trimethylbenzene	2.440	2.900	2.851	2.826
1,3-Dichloropropane	0.548	0.549	0.557	0.551
1,4-Dichlorobenzene	1.360	1.498	1.505	1.492
Toluene	1.388	1.491	1.504	1.480
2-Butanone	0.206	0.191	0.196	0.193
2-Chlorotoluene	2.151	2.449	2.412	2.404
2-Hexanone	0.214	0.214	0.219	0.215
4-Chlorotoluene	2.445	2.790	2.754	2.736
tert-Butylbenzene	1.924	2.379	2.368	2.343
4-Methyl-2-Pentanone	0.328	0.322	0.335	0.330
Acetone	153009	255829	368697	468128
Benzene	1.277	1.365	1.367	1.372
Bromobenzene	0.889	0.967	0.962	0.959
Bromochloromethane	0.279	0.285	0.284	0.285
Bromodichloromethane	0.413	0.436	0.439	0.443
Bromoform	0.210	0.214	0.221	0.218
Bromomethane	218171	446857	643333	822601
Carbon Disulfide	1.386	1.542	1.534	1.534
Carbon Tetrachloride	0.324	0.399	0.407	0.408
Chlorobenzene	0.877	0.936	0.944	0.940
Chloroethane	0.344	0.372	0.362	0.363

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009103

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
Chloroform	0.890	0.916	0.913	0.918
Chloromethane	0.611	0.690	0.702	0.738
cis-1,2-Dichloroethene	0.564	0.583	0.581	0.582
Dibromochloromethane	0.328	0.340	0.345	0.342
Dichlorodifluoromethane	235600	565982	843912	1091943
Ethylbenzene	0.448	0.501	0.506	0.502
Hexachlorobutadiene	102822	246513	372303	468444
Isopropylbenzene	1.252	1.488	1.497	1.463
m,p-Xylenes	0.536	0.600	0.602	0.596
Methylene Chloride	303593	605902	861961	1112263
n-Butylbenzene	2.066	2.630	2.602	2.574
n-Propylbenzene	3.438	4.273	4.216	4.190
Naphthalene	0.431	0.435	0.482	0.479
o-Xylene	0.540	0.589	0.591	0.584
sec-Butylbenzene	2.708	3.473	3.444	3.403
Styrene	0.962	1.004	1.008	1.014
Vinyl Chloride	0.579	0.668	0.670	0.686
1,2,3-Trichloropropane	0.688	0.684	0.685	0.661
p-Isopropyltoluene	2.366	2.953	2.951	2.908
1,2-Dibromo-3-Chloropropane	0.058	0.054	0.058	0.059
1,2-Dichloroethane-d4	0.545	0.544	0.536	0.539
Dibromofluoromethane	0.491	0.491	0.483	0.485
Toluene-d8	1.241	1.226	1.208	1.191
4-Bromofluorobenzene	368645	706326	1011330	1311827

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009103

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	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.57360540		5.610	15.000
trans-1,3-Dichloropropene	AVRG		0.47808495		6.216	15.000
1,3-Dichlorobenzene	AVRG		1.60820005		9.290	15.000
2,2-Dichloropropane	AVRG		0.78485479		9.213	15.000
1,1-Dichloropropene	AVRG		0.45997920		8.917	15.000
Dibromomethane	AVRG		0.21954206		8.424	15.000
1,2-Dibromoethane	AVRG		0.34744899		10.056	15.000
trans-1,2-Dichloroethene	AVRG		0.51794510		6.732	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.34649256		7.010	15.000
1,1,1-Trichloroethane	AVRG		0.77008815		7.853	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.88418602		12.031	15.000
1,1,2-Trichloroethane	AVRG		0.29447500		10.989	15.000
1,1-Dichloroethane	AVRG		1.04452475		9.239	15.000
1,1-Dichloroethene	AVRG		0.44955963		8.570	15.000
Trichloroethene	AVRG		0.35763128		7.969	15.000
1,2,3-Trichlorobenzene	AVRG		0.19324402		10.853	15.000
Trichlorofluoromethane	AVRG		0.72688377		7.613	15.000
1,2,4-Trichlorobenzene	LINR	2.746e-002	2.56905140		0.9990136	0.9900000
1,2,4-Trimethylbenzene	AVRG		2.97638251		8.970	15.000
Tetrachloroethene	AVRG		0.31588869		11.507	15.000
1,2-Dichlorobenzene	AVRG		1.39230756		9.714	15.000
1,2-Dichloroethane	AVRG		0.43110842		11.681	15.000
1,2-Dichloropropane	AVRG		0.37022435		7.462	15.000
1,3,5-Trimethylbenzene	AVRG		2.95239803		9.456	15.000
1,3-Dichloropropane	AVRG		0.60913171		11.944	15.000
1,4-Dichlorobenzene	AVRG		1.59712325		11.610	15.000
Toluene	AVRG		1.61839272		11.010	15.000
2-Butanone	AVRG		0.18251644		9.154	15.000
2-Chlorotoluene	AVRG		2.59810067		11.606	15.000
2-Hexanone	AVRG		0.22171060		4.753	15.000
4-Chlorotoluene	AVRG		2.95805584		11.804	15.000
tert-Butylbenzene	AVRG		2.46106150		11.636	15.000
4-Methyl-2-Pentanone	AVRG		0.35097560		8.234	15.000
Acetone	LINR	-0.1016719	8.80554020		0.9985929	0.9900000
Benzene	AVRG		1.42999265		9.055	15.000
Bromobenzene	AVRG		1.01036504		8.748	15.000
Bromochloromethane	AVRG		0.31247517		11.396	15.000
Bromodichloromethane	AVRG		0.45345872		7.310	15.000
Bromoform	AVRG		0.21840761		4.729	15.000
Bromomethane	LINR	-4.77e-003	2.49479317		0.9998004	0.9900000
Carbon Disulfide	AVRG		1.55286116		7.945	15.000
Carbon Tetrachloride	AVRG		0.39996836		8.725	15.000
Chlorobenzene	AVRG		1.01718815		11.612	15.000
Chloroethane	AVRG		0.39167182		10.785	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009103

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	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroform	AVRG		0.96918894		8.302	15.000
Chloromethane	AVRG		0.68469210		6.196	15.000
cis-1,2-Dichloroethene	AVRG		0.61256258		7.953	15.000
Dibromochloromethane	AVRG		0.35728688		8.083	15.000
Dichlorodifluoromethane	LINR	4.145e-002	1.87764616		0.9978779	0.9900000
Ethylbenzene	AVRG		0.53098194		10.520	15.000
Hexachlorobutadiene	2ORDR	1.818e-002	2.84082074	-0.1088007	0.9976659	0.9900000
Isopropylbenzene	AVRG		1.54388319		10.527	15.000
m,p-Xylenes	AVRG		0.63748802		10.458	15.000
Methylene Chloride	LINR	-1.42e-002	1.85325576		0.9998633	0.9900000
n-Butylbenzene	AVRG		2.57642229		10.827	15.000
n-Propylbenzene	AVRG		4.26505902		9.136	15.000
Naphthalene	AVRG		0.46624710		7.340	15.000
o-Xylene	AVRG		0.62252020		9.561	15.000
sec-Butylbenzene	AVRG		3.49356204		10.998	15.000
Styrene	AVRG		1.06500599		8.405	15.000
Vinyl Chloride	AVRG		0.64586993		6.955	15.000
1,2,3-Trichloropropane	AVRG		0.73140081		9.692	15.000
p-Isopropyltoluene	AVRG		2.97795815		11.100	15.000
1,2-Dibromo-3-Chloropropane	AVRG		6.034e-002		11.963	15.000
1,2-Dichloroethane-d4	AVRG		0.56206107		6.062	15.000
Dibromofluoromethane	AVRG		0.51378762		8.475	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

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Instrument ID: VOA6 Calibration Date: 09/24/20 Time: 2158

Lab File ID: X092427 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
cis-1,3-Dichloropropene	0.5740000	0.5403802	0.5403802	0.2	5.86	50.00	AVRG
trans-1,3-Dichloropropene	0.4780000	0.4549800	0.4549800	0.1	4.82	50.00	AVRG
1,3-Dichlorobenzene	1.6080000	1.4136041	1.4136041	0.6	12.09	50.00	AVRG
2,2-Dichloropropane	0.7850000	0.7078680	0.7078680	0.1	9.82	50.00	AVRG
1,1-Dichloropropene	0.4600000	0.4154307	0.4154307	0.1	9.69	50.00	AVRG
Dibromomethane	0.2200000	0.2059330	0.2059330	0.1	6.39	50.00	AVRG
1,2-Dibromoethane	0.3470000	0.3232415	0.3232415	0.1	6.85	50.00	AVRG
trans-1,2-Dichloroethene	0.5180000	0.4899588	0.4899588	0.1	5.41	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3460000	0.3272472	0.3272472	0.1	5.42	50.00	AVRG
1,1,1-Trichloroethane	0.7700000	0.7138081	0.7138081	0.1	7.30	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.8840000	0.7997896	0.7997896	0.3	9.53	50.00	AVRG
1,1,2-Trichloroethane	0.2940000	0.2705655	0.2705655	0.1	7.97	50.00	AVRG
1,1-Dichloroethane	1.0450000	0.9742118	0.9742118	0.2	6.77	50.00	AVRG
1,1-Dichloroethene	0.4490000	0.4236313	0.4236313	0.1	5.65	50.00	AVRG
Trichloroethene	0.3580000	0.3313697	0.3313697	0.2	7.44	50.00	AVRG
1,2,3-Trichlorobenzene	0.1930000	0.1642648	0.1642648	0.01	14.89	50.00	AVRG
Trichlorofluoromethane	0.7270000	0.6896644	0.6896644	0.1	5.14	50.00	AVRG
1,2,4-Trichlorobenzene	43.291362	50.000000	0.3263349	0.1	13.42	50.00	LINR
1,2,4-Trimethylbenzene	2.9760000	2.6239385	2.6239385	0.1	11.83	50.00	AVRG
Tetrachloroethene	0.3160000	0.2684764	0.2684764	0.2	15.04	50.00	AVRG
1,2-Dichlorobenzene	1.3920000	1.2317371	1.2317371	0.4	11.51	50.00	AVRG
1,2-Dichloroethane	0.4310000	0.3983218	0.3983218	0.1	7.58	50.00	AVRG
1,2-Dichloropropane	0.3700000	0.3543729	0.3543729	0.1	4.22	50.00	AVRG
1,3,5-Trimethylbenzene	2.9520000	2.5607415	2.5607415	0.1	13.25	50.00	AVRG
1,3-Dichloropropane	0.6090000	0.5613848	0.5613848	0.1	7.82	50.00	AVRG
1,4-Dichlorobenzene	1.5970000	1.3949558	1.3949558	0.4	12.65	50.00	AVRG
Toluene	1.6180000	1.4860645	1.4860645	0.4	8.15	50.00	AVRG
2-Butanone	0.1820000	0.1894463	0.1894463	0.1	-4.09	50.00	AVRG
2-Chlorotoluene	2.5980000	2.2468661	2.2468661	0.1	13.52	50.00	AVRG
2-Hexanone	0.2220000	0.2099463	0.2099463	0.1	5.43	50.00	AVRG
4-Chlorotoluene	2.9580000	2.5560150	2.5560150	0.1	13.59	50.00	AVRG
tert-Butylbenzene	2.4610000	2.0663969	2.0663969	0.1	16.03	50.00	AVRG
4-Methyl-2-Pentanone	0.3510000	0.3234266	0.3234266	0.1	7.86	50.00	AVRG
Acetone	99.013083	100.00000	0.1182173	0.1	0.99	50.00	LINR
Benzene	1.4300000	1.3346211	1.3346211	0.5	6.67	50.00	AVRG
Bromobenzene	1.0100000	0.9179438	0.9179438	0.1	9.11	50.00	AVRG
Bromochloromethane	0.3120000	0.2851289	0.2851289	0.1	8.61	50.00	AVRG
Bromodichloromethane	0.4540000	0.4286180	0.4286180	0.2	5.59	50.00	AVRG
Bromoform	0.2180000	0.2105199	0.2105199	0.1	3.43	50.00	AVRG
Bromomethane	47.244174	50.000000	0.3806552	0.1	5.51	50.00	LINR
Carbon Disulfide	1.5530000	1.4863627	1.4863627	0.1	4.29	50.00	AVRG
Carbon Tetrachloride	0.4000000	0.3613193	0.3613193	0.1	9.67	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS2009103

Instrument ID: VOA6 Calibration Date: 09/24/20 Time: 2158

Lab File ID: X092427 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
Chlorobenzene	1.0170000	0.9170110	0.9170110	0.5	9.83	50.00	AVRG
Chloroethane	0.3920000	0.4467719	0.4467719	0.1	-13.97	50.00	AVRG
Chloroform	0.9690000	0.9120691	0.9120691	0.2	5.88	50.00	AVRG
Chloromethane	0.6850000	0.6196046	0.6196046	0.1	9.55	50.00	AVRG
cis-1,2-Dichloroethene	0.6120000	0.5753839	0.5753839	0.1	5.98	50.00	AVRG
Dibromochloromethane	0.3570000	0.3337362	0.3337362	0.1	6.52	50.00	AVRG
Dichlorodifluoromethane	46.763837	50.000000	0.4760344	0.1	6.47	50.00	LINR
Ethylbenzene	0.5310000	0.4765806	0.4765806	0.1	10.25	50.00	AVRG
Hexachlorobutadiene	42.324602	50.000000	0.2949049	0.1	15.35	50.00	2RDR
Isopropylbenzene	1.5440000	1.3381147	1.3381147	0.1	13.33	50.00	AVRG
m,p-Xylenes	0.6370000	0.5678050	0.5678050	0.1	10.86	50.00	AVRG
Methylene Chloride	50.503879	50.000000	0.5526648	0.1	-1.01	50.00	LINR
n-Butylbenzene	2.5760000	2.1495432	2.1495432	0.5	16.56	50.00	AVRG
n-Propylbenzene	4.2650000	3.6416578	3.6416578	0.1	14.62	50.00	AVRG
Naphthalene	0.4660000	0.3981821	0.3981821	0.2	14.55	50.00	AVRG
o-Xylene	0.6220000	0.5590304	0.5590304	0.3	10.12	50.00	AVRG
sec-Butylbenzene	3.4930000	2.8832465	2.8832465	0.1	17.46	50.00	AVRG
Styrene	1.0650000	0.9825085	0.9825085	0.3	7.74	50.00	AVRG
Vinyl Chloride	0.6460000	0.6189250	0.6189250	0.1	4.19	50.00	AVRG
1,2,3-Trichloropropane	0.7310000	0.6829629	0.6829629	0.1	6.57	50.00	AVRG
p-Isopropyltoluene	2.9780000	2.5014124	2.5014124	0.1	16.00	50.00	AVRG
1,2-Dibromo-3-Chloropropane	6.e-002	5.2e-002	5.2e-002	0.05	13.33	50.00	AVRG
1,2-Dichloroethane-d4	0.5620000	0.5479004	0.5479004	0.1	2.51	50.00	AVRG
Dibromofluoromethane	0.5140000	0.5031926	0.5031926	0.1	2.10	50.00	AVRG
Toluene-d8	1.3140000	1.2679397	1.2679397	0.1	3.50	50.00	AVRG
4-Bromofluorobenzene	51.582762	50.000000	0.4493425	0.1	-3.16	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.: HS20091030

Lab File ID (Standard): X092408 Date Analyzed: 09/24/20

Instrument ID: VOA6 Time Analyzed: 1421

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

		IS1(CBZ) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(DCB) AREA #	RT #
	12 HOUR STD	829935	7.67	910705	4.97	353927	9.66
	UPPER LIMIT	1659870	8.17	1821410	5.47	707854	10.16
	LOWER LIMIT	414968	7.17	455353	4.47	176964	9.16
	CLIENT SAMPLE NO.						
01	VLCSW-200924	845297	7.67	938823	4.97	360132	9.66
02	VBLKW-200924	775740	7.67	880416	4.97	327303	9.67
03	HS20091030-02	762894	7.67	879584	4.97	311626	9.67
04	HS20091030-01	772614	7.67	860532	4.97	313004	9.67
05	HS20090748-01	733420	7.67	814545	4.97	309007	9.67
06	HS20090748-01	725877	7.67	804716	4.97	301126	9.66
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (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 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS-HOUSTON Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS20091030

Lab File ID (Standard): X092408 Date Analyzed: 09/24/20

Instrument ID: VOA6 Time Analyzed: 1421

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	565166	4.19				
	UPPER LIMIT	1130332	4.69				
	LOWER LIMIT	282583	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-200924	602309	4.19				
02	VBLKW-200924	555169	4.19				
03	HS20091030-02	555012	4.19				
04	HS20091030-01	546965	4.19				
05	HS20090748-01	512532	4.19				
06	HS20090748-01	509084	4.19				
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\X200924.b\X092401.D

Date : 24-SEP-2020 11:10

Client ID: BFB

Instrument: voa6.i

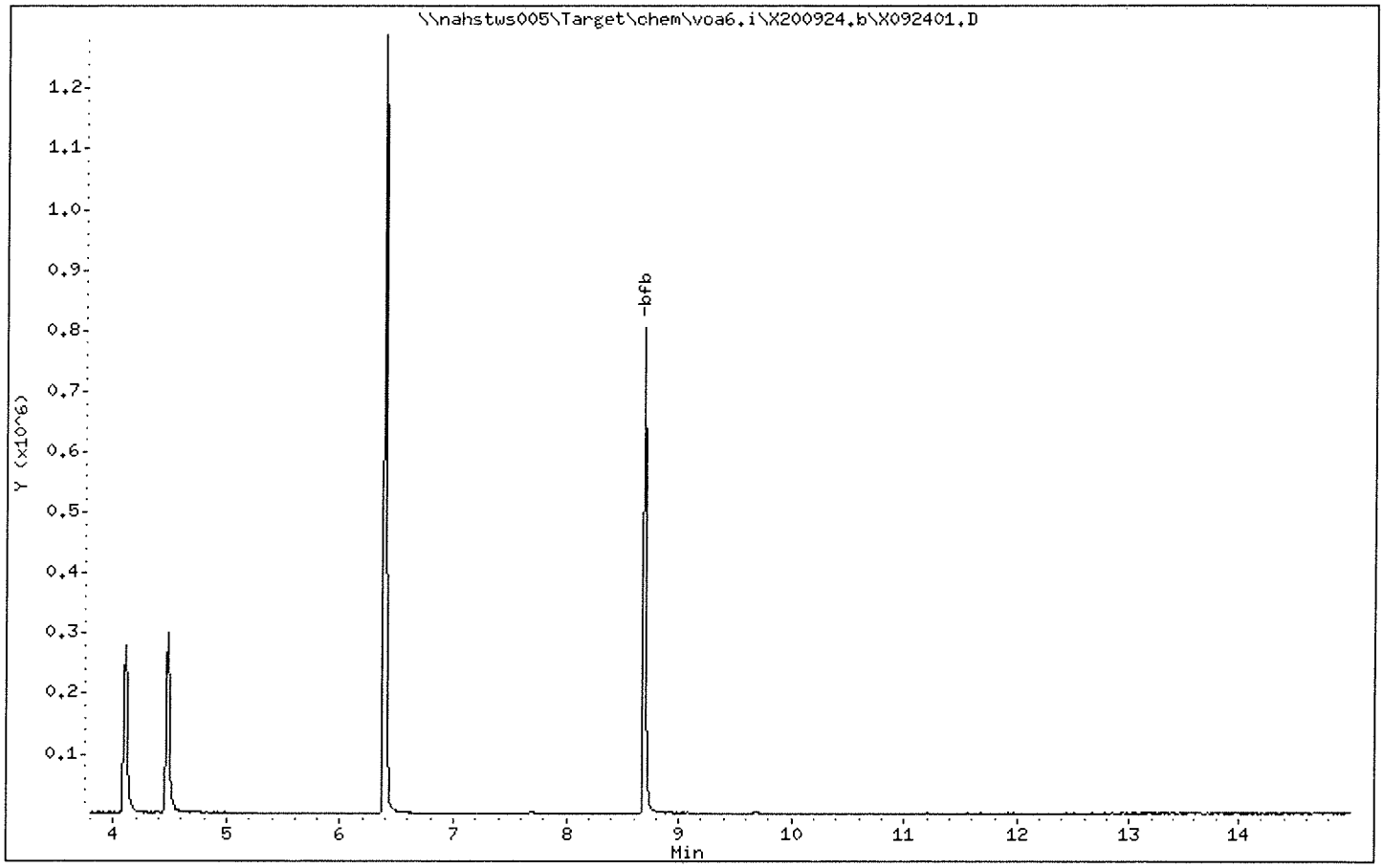
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



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

Date : 24-SEP-2020 11:10

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

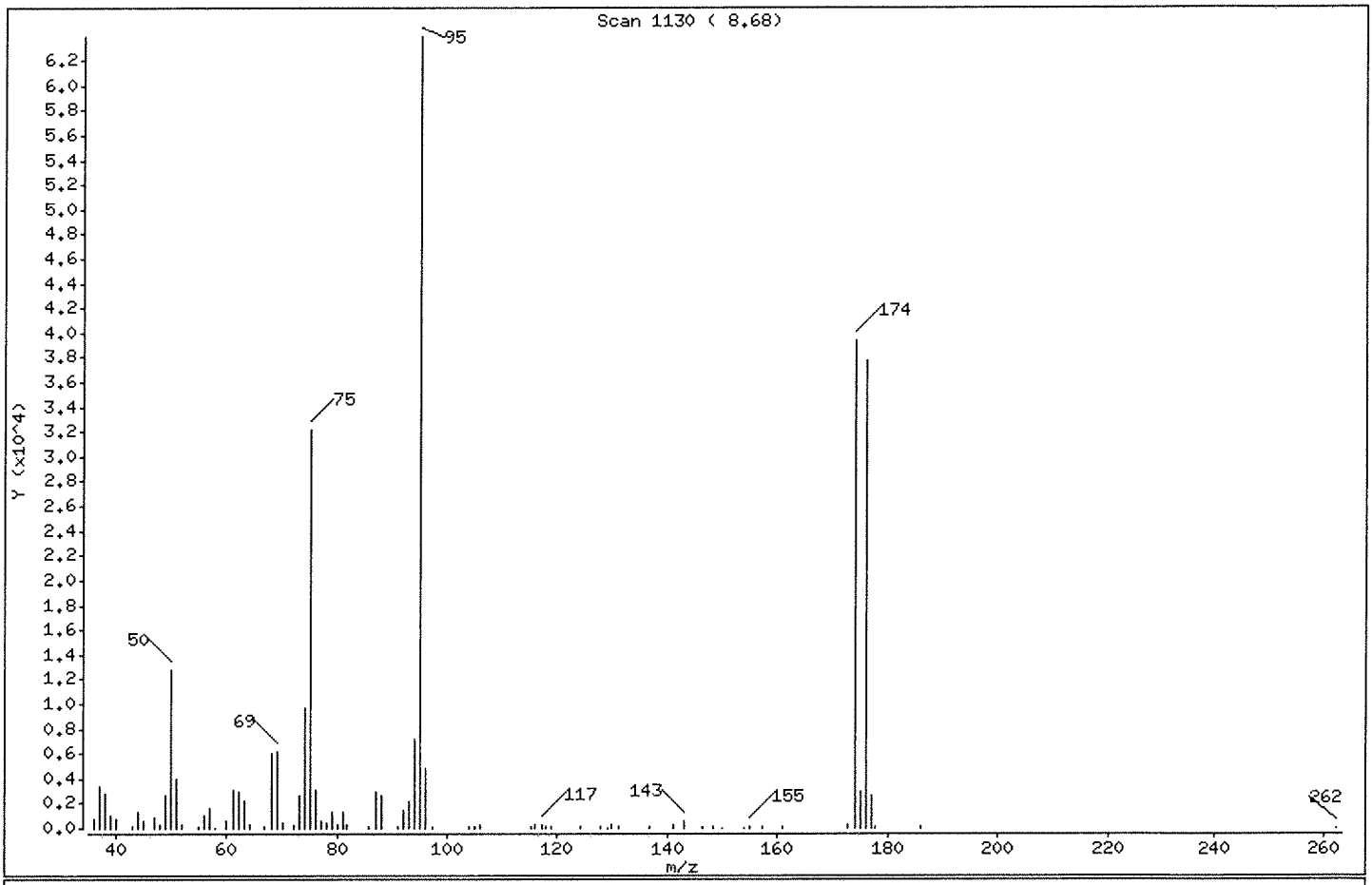
Volume Injected (uL): 2.0

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\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		

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

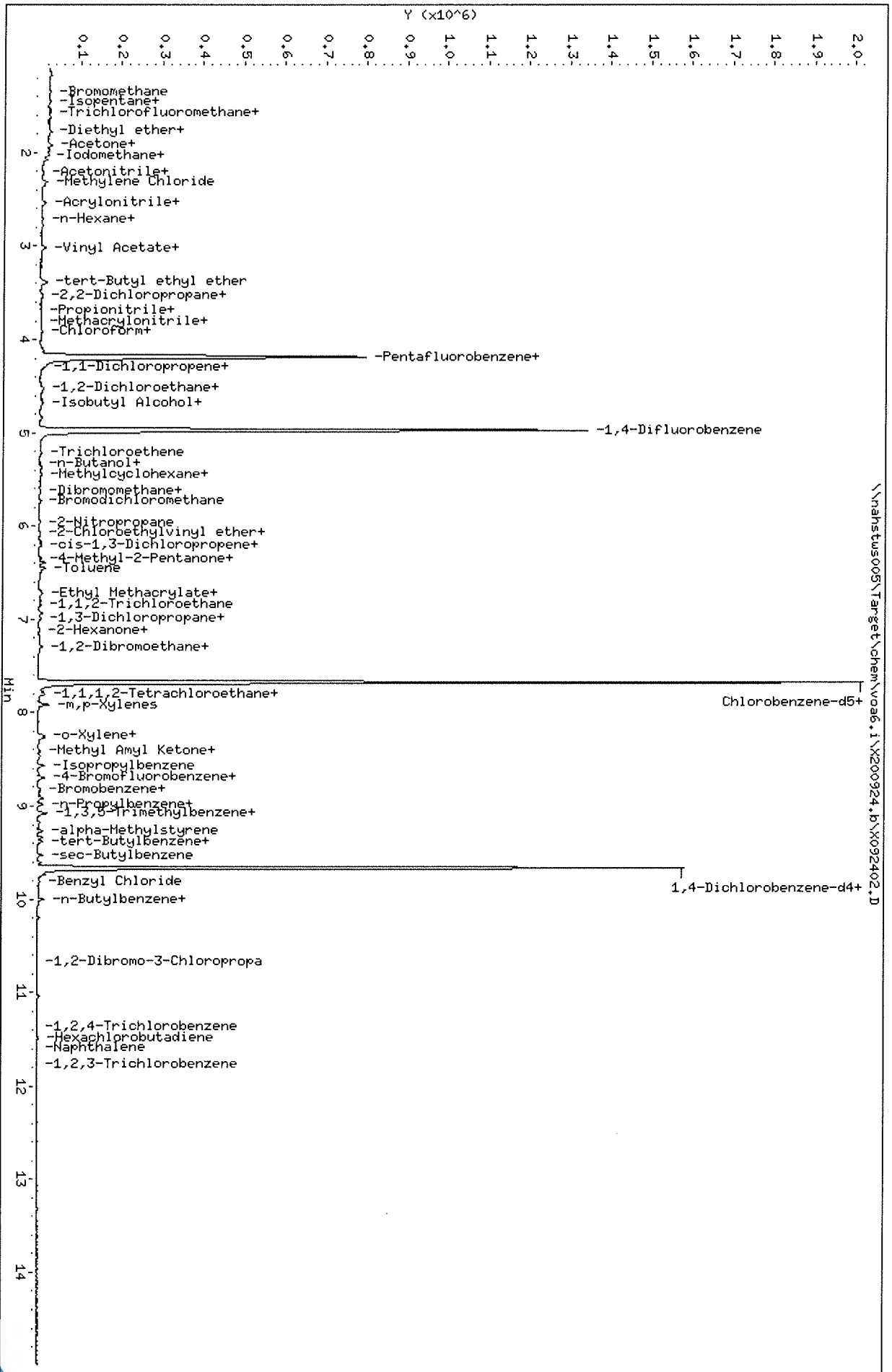
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	689255	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1110772	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	970158	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	403723	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)
$ 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)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2084	0.25000	0.30(a)
31 1,1,1-Trichloroethane	97	4.096	4.096	(0.978)	3047	0.25000	0.28(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	2033	0.25000	0.28(aM)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1754	0.25000	0.30(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	4149	0.25000	0.28(Ta)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1960	0.25000	0.31(a)
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	4394	0.25000	0.43(a)
93 1,2,3-Trichlorobenzene	180	11.761	11.761	(1.216)	209	0.25000	0.13(aM)
71 1,2,3-Trichloropropane	75	8.874	8.874	(0.918)	1939	0.25000	0.32(aM)
90 1,2,4-Trichlorobenzene	180	11.359	11.359	(1.175)	629	0.25000	1.57(aM)
79 1,2,4-Trimethylbenzene	105	9.390	9.390	(0.971)	6923	0.25000	0.28(a)
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	24	0.25000	0.04(aM)
57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	2205	0.25000	0.32(a)
88 1,2-Dichlorobenzene	146	10.006	10.006	(1.035)	3283	0.25000	0.29(a)

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092402.D Page 2
Report Date: 13-Oct-2020 11:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.576	4.576	(0.921)	3037	0.25000	0.31(aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	2261	0.25000	0.27(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	6914	0.25000	0.29(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	3732	0.25000	0.28(a)
54	1,3-Dichloropropane	76	6.990	6.990	(0.911)	3561	0.25000	0.30(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	4213	0.25000	0.32(a)
26	2,2-Dichloropropane	77	3.509	3.509	(0.838)	3427	0.25000	0.31(a)
24	2-Butanone	43	3.623	3.623	(0.865)	834	0.50000	0.33(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	6603	0.25000	0.31(a)
52	2-Hexanone	43	7.126	7.126	(0.929)	2395	0.50000	0.55(a)
77	4-Chlorotoluene	91	9.082	9.082	(0.939)	6800	0.25000	0.28(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	6876	0.25000	0.28(a)
45	4-Methyl-2-Pentanone	43	6.345	6.345	(0.827)	4043	0.50000	0.59(a)
10	Acetone	43	1.983	1.983	(0.473)	3858	0.50000	(a)
37	Benzene	78	4.526	4.526	(0.911)	9036	0.25000	0.28(a)
74	Bromobenzene	156	8.817	8.817	(0.912)	2319	0.25000	0.28(a)
29	Bromochloromethane	128	3.810	3.810	(0.909)	1564	0.25000	0.36(aM)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	2701	0.25000	0.26(aM)
66	Bromoform	173	8.415	8.415	(1.097)	1037	0.25000	0.24(aM)
6	Bromomethane	94	1.345	1.345	(0.321)	2296	0.25000	0.17(aM)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	13194	0.50000	0.61(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	2765	0.25000	0.31(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	6427	0.25000	0.32(a)
7	Chloroethane	64	1.410	1.410	(0.337)	1828	0.25000	0.33(aM)
28	Chloroform	83	3.917	3.917	(0.935)	4124	0.25000	0.30(a)
3	Chloromethane	50	1.080	1.080	(0.258)	2721	0.25000	0.28(aM)
27	cis-1,2-Dichloroethene	96	3.545	3.545	(0.846)	2548	0.25000	0.30(a)
46	cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	3539	0.25000	0.27(a)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	2043	0.25000	0.29(a)
44	Dibromomethane	93	5.565	5.565	(1.120)	1356	0.25000	0.27(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1988	0.25000	2.34(aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	2951	0.25000	0.28(a)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	750	0.25000	1.17(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	9283	0.25000	0.30(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	7240	0.50000	0.58(a)
17	Methylene Chloride	84	2.312	2.312	(0.552)	4057	0.25000	(a)
87	n-Butylbenzene	91	9.998	9.998	(1.034)	5273	0.25000	0.25(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	10348	0.25000	0.30(a)
92	Naphthalene	128	11.589	11.589	(1.199)	788	0.25000	0.20(a)
63	o-Xylene	106	8.251	8.251	(1.076)	3465	0.25000	0.28(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	8177	0.25000	0.28(a)
64	Styrene	104	8.265	8.265	(1.078)	5747	0.25000	0.27(a)
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	5920	0.25000	0.29(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1901	0.25000	0.31(a)
50	Toluene	91	6.453	6.453	(0.841)	9946	0.25000	0.31(a)
20	trans-1,2-Dichloroethene	96	2.542	2.542	(0.607)	2138	0.25000	0.29(a)
51	trans-1,3-Dichloropropene	75	6.696	6.696	(1.347)	2811	0.25000	0.26(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	2204	0.25000	0.27(a)
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	2639	0.25000	0.26(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	2201	0.25000	0.24(a)

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\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

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

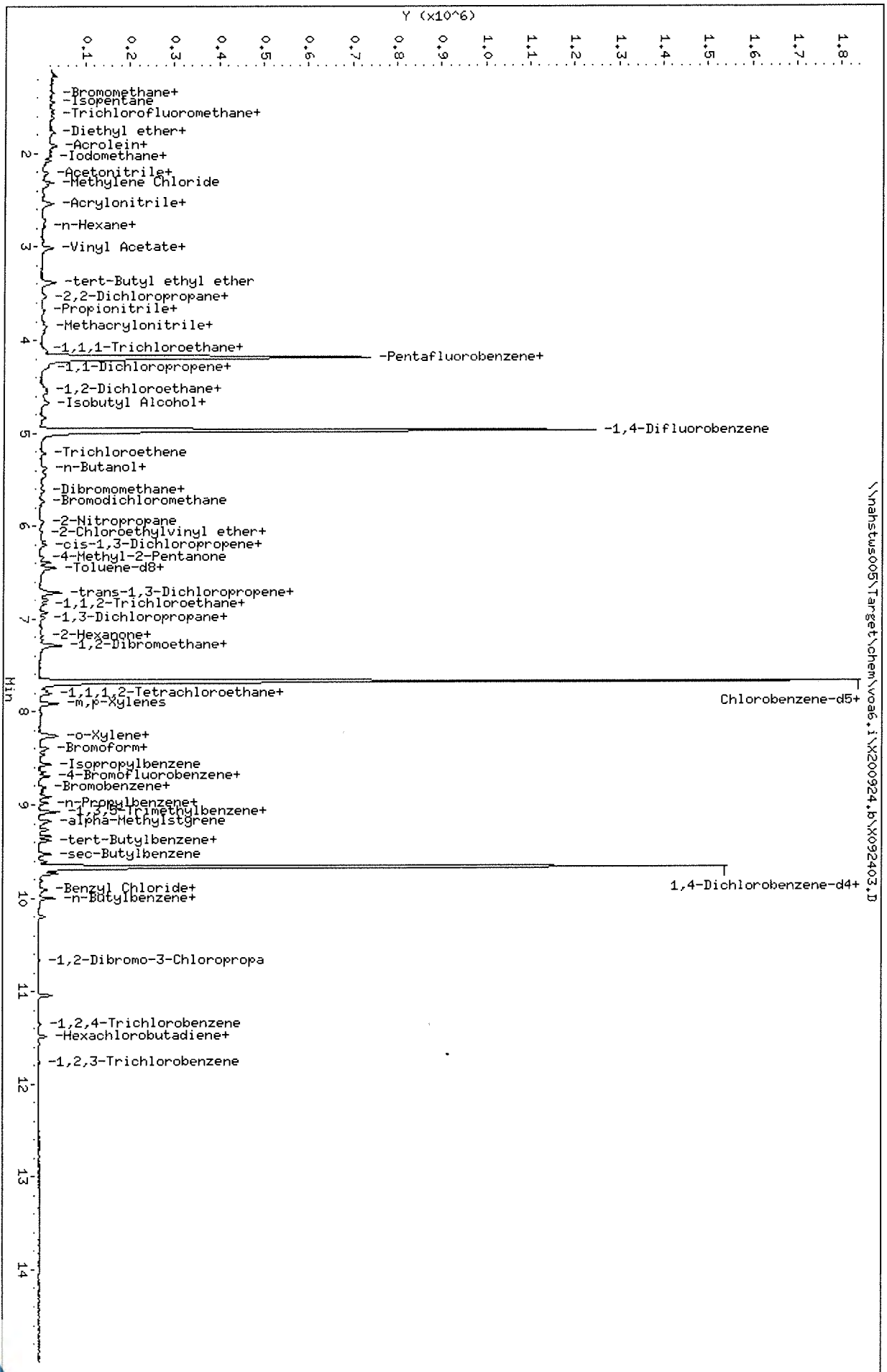
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	642784	50.0000	
*	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	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	392686	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)
$	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)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	3395	0.50000	0.54(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	4890	0.50000	0.49(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	3817	0.50000	0.54(aM)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2965	0.50000	0.55(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	7525	0.50000	0.56(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	3062	0.50000	0.52(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	5375	0.50000	0.57(a)
	93 1,2,3-Trichlorobenzene	180	11.761	11.761	(1.216)	833	0.50000	0.54(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	2889	0.50000	0.50(aM)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	2229	0.50000	2.10(aM)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	12774	0.50000	0.54(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	230	0.50000	0.48(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	3438	0.50000	0.54(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	6211	0.50000	0.56(a)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.569	4.569	(0.919)	4729	0.50000	0.53(aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	3559	0.50000	0.47(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	12580	0.50000	0.54(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	6864	0.50000	0.54(a)
54	1,3-Dichloropropane	76	6.990	6.990	(0.911)	6082	0.50000	0.55(a)
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	7626	0.50000	0.60(a)
26	2,2-Dichloropropane	77	3.523	3.523	(0.841)	5532	0.50000	0.54(a)
24	2-Butanone	43	3.638	3.638	(0.868)	2048	1.00000	0.87(a)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	11695	0.50000	0.57(a)
52	2-Hexanone	43	7.105	7.105	(0.926)	4262	1.00000	1.06(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	13001	0.50000	0.55(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	14051	0.50000	0.60(a)
45	4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	7266	1.00000	1.14(a)
10	Acetone	43	1.983	1.983	(0.473)	4284	1.00000	(a)
37	Benzene	78	4.526	4.526	(0.911)	15191	0.50000	0.52(a)
74	Bromobenzene	156	8.817	8.817	(0.912)	4166	0.50000	0.52(a)
29	Bromochloromethane	128	3.810	3.810	(0.909)	2272	0.50000	0.56(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	5173	0.50000	0.55(aM)
66	Bromoform	173	8.416	8.416	(1.097)	1929	0.50000	0.48(Ta)
6	Bromomethane	94	1.346	1.346	(0.321)	3098	0.50000	0.36(a)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	20804	1.00000	1.04(a)
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	4583	0.50000	0.56(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	10454	0.50000	0.57(a)
7	Chloroethane	64	1.410	1.410	(0.337)	3007	0.50000	0.59(a)
28	Chloroform	83	3.917	3.917	(0.935)	6256	0.50000	0.50(a)
3	Chloromethane	50	1.081	1.081	(0.258)	4707	0.50000	0.53(a)
27	cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	4012	0.50000	0.50(a)
46	cis-1,3-Dichloropropene	75	6.166	6.166	(1.241)	6161	0.50000	0.52(a)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	3409	0.50000	0.52(a)
44	Dibromomethane	93	5.565	5.565	(1.120)	2436	0.50000	0.54(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	2901	0.50000	2.49(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	5137	0.50000	0.53(a)
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	3351	0.50000	2.12(aM)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	15126	0.50000	0.54(a)
62	m,p-Xylenes	106	7.914	7.914	(1.032)	12539	1.00000	1.09(a)
17	Methylene Chloride	84	2.313	2.313	(0.552)	5505	0.50000	0.08(a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	11754	0.50000	0.58(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	18305	0.50000	0.54(a)
92	Naphthalene	128	11.574	11.574	(1.197)	2091	0.50000	0.57(aM)
63	o-Xylene	106	8.251	8.251	(1.076)	5859	0.50000	0.52(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	15807	0.50000	0.57(a)
64	Styrene	104	8.272	8.272	(1.078)	10644	0.50000	0.55(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	10963	0.50000	0.56(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	2972	0.50000	0.52(a)
50	Toluene	91	6.453	6.453	(0.841)	15888	0.50000	0.54(a)
20	trans-1,2-Dichloroethene	96	2.542	2.542	(0.607)	3450	0.50000	0.51(a)
51	trans-1,3-Dichloropropene	75	6.696	6.696	(1.347)	5027	0.50000	0.51(a)
38	Trichloroethene	130	5.221	5.221	(1.050)	3796	0.50000	0.52(a)
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	4865	0.50000	0.52(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	4088	0.50000	0.49(a)

QC Flag Legend

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



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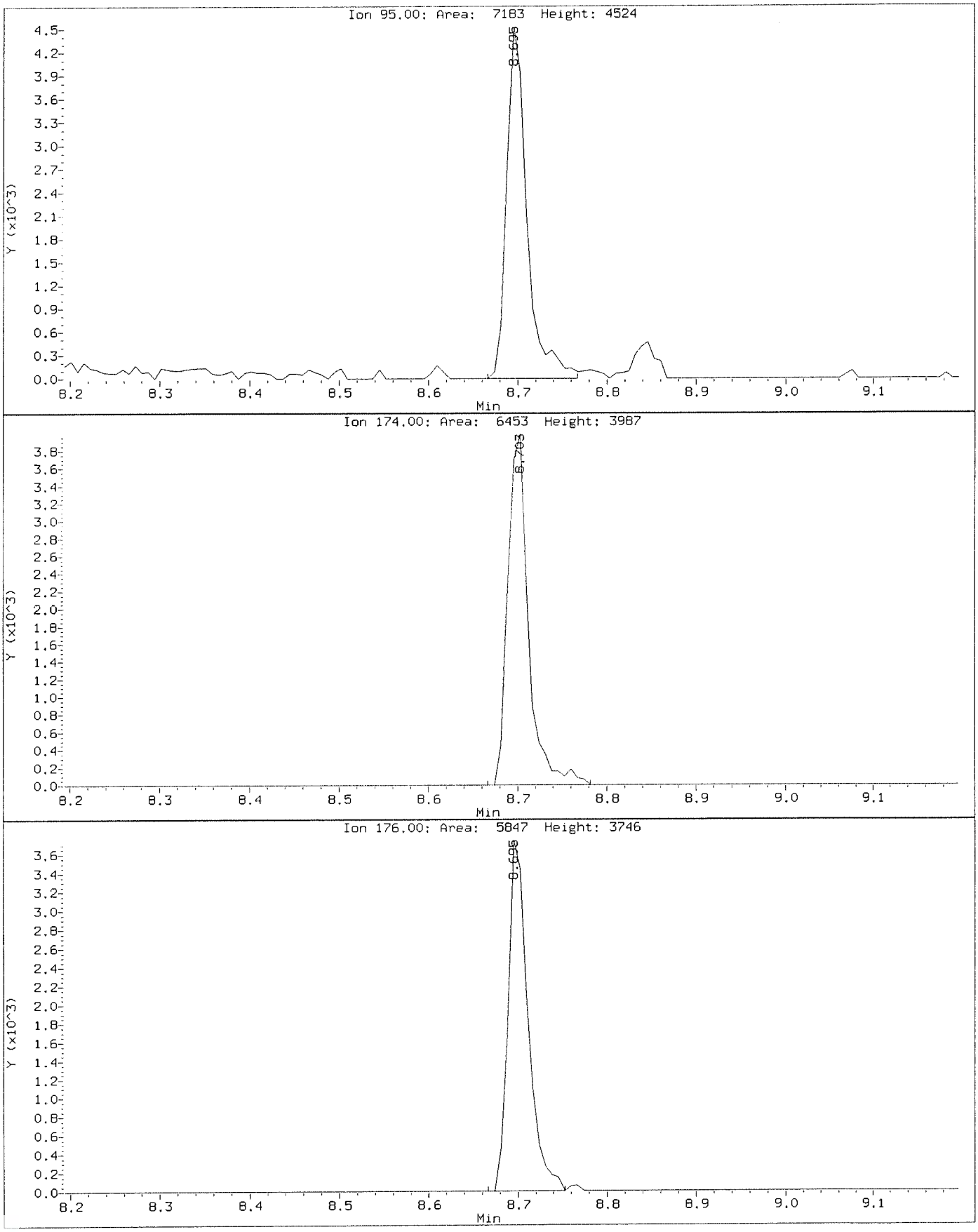
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\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



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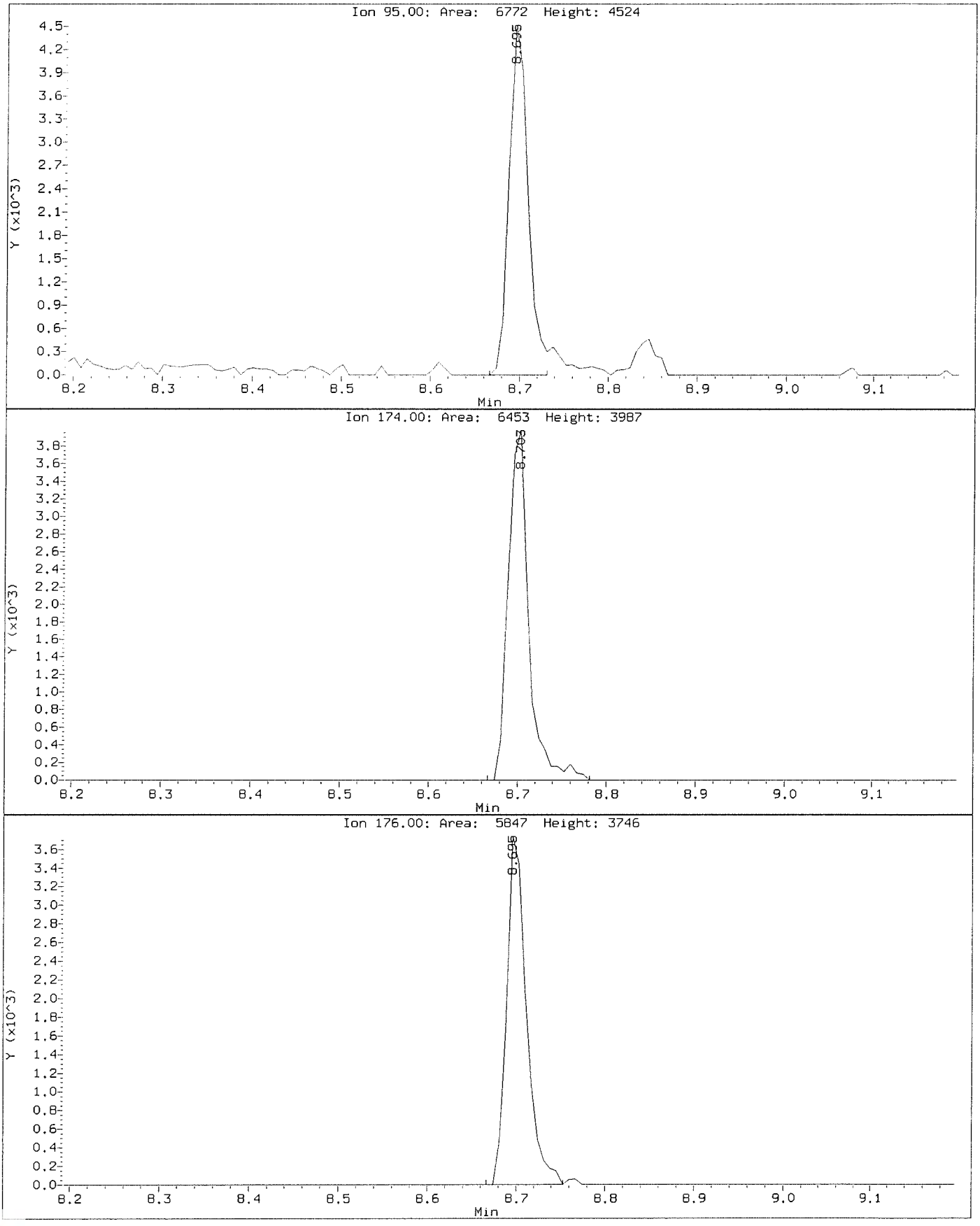
Instrument: voa6.i
Client Sample ID: VSTD000.5

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



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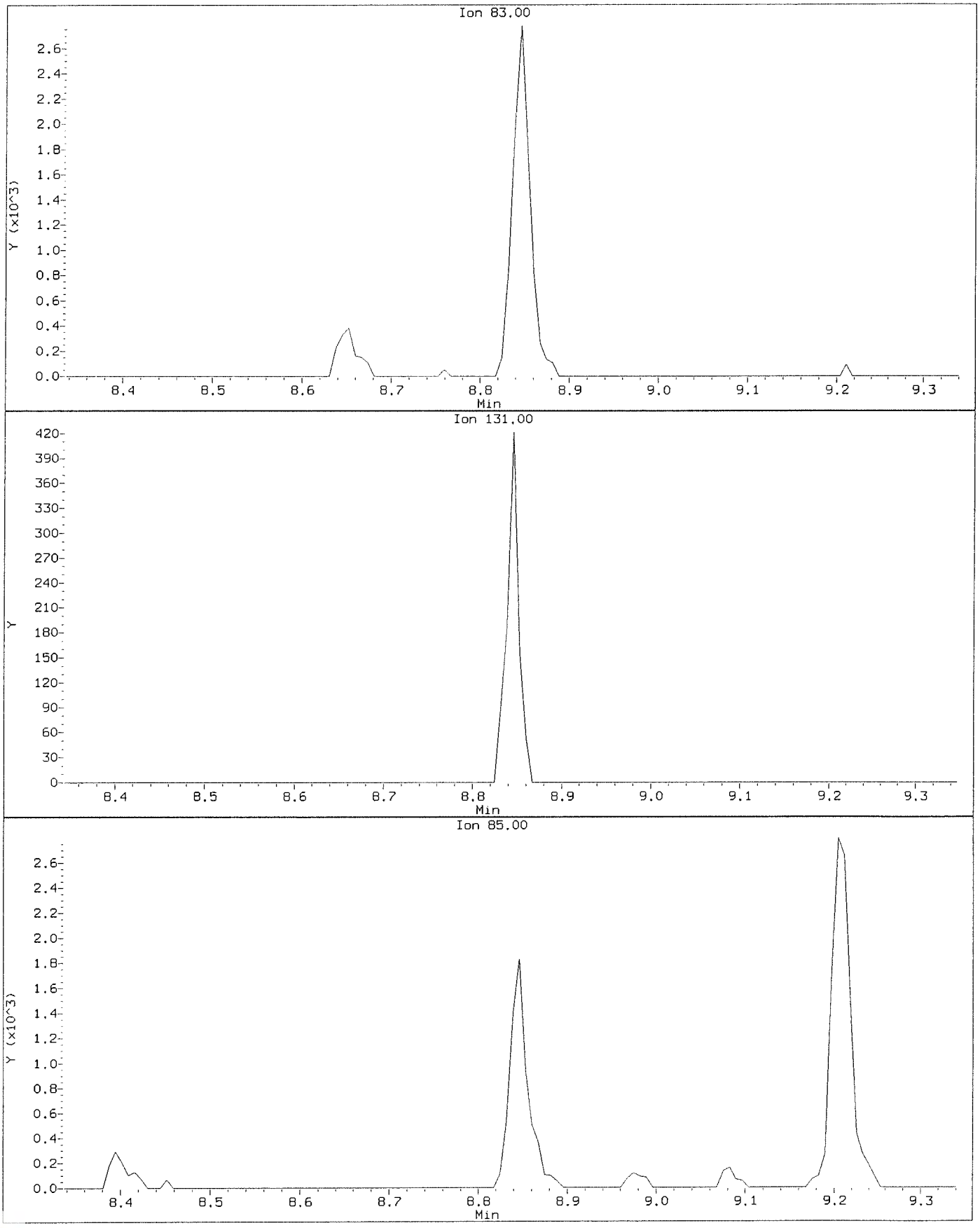
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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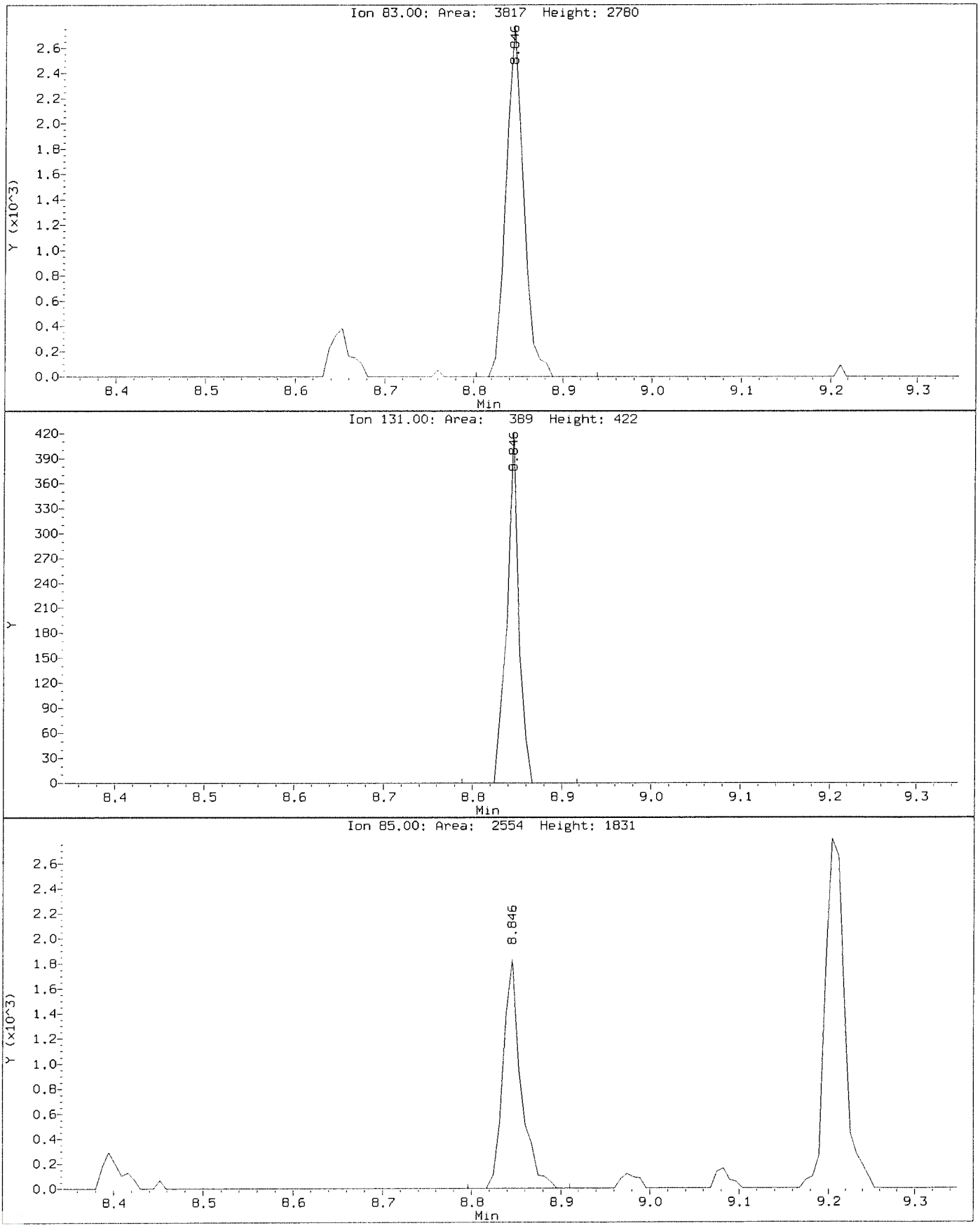
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



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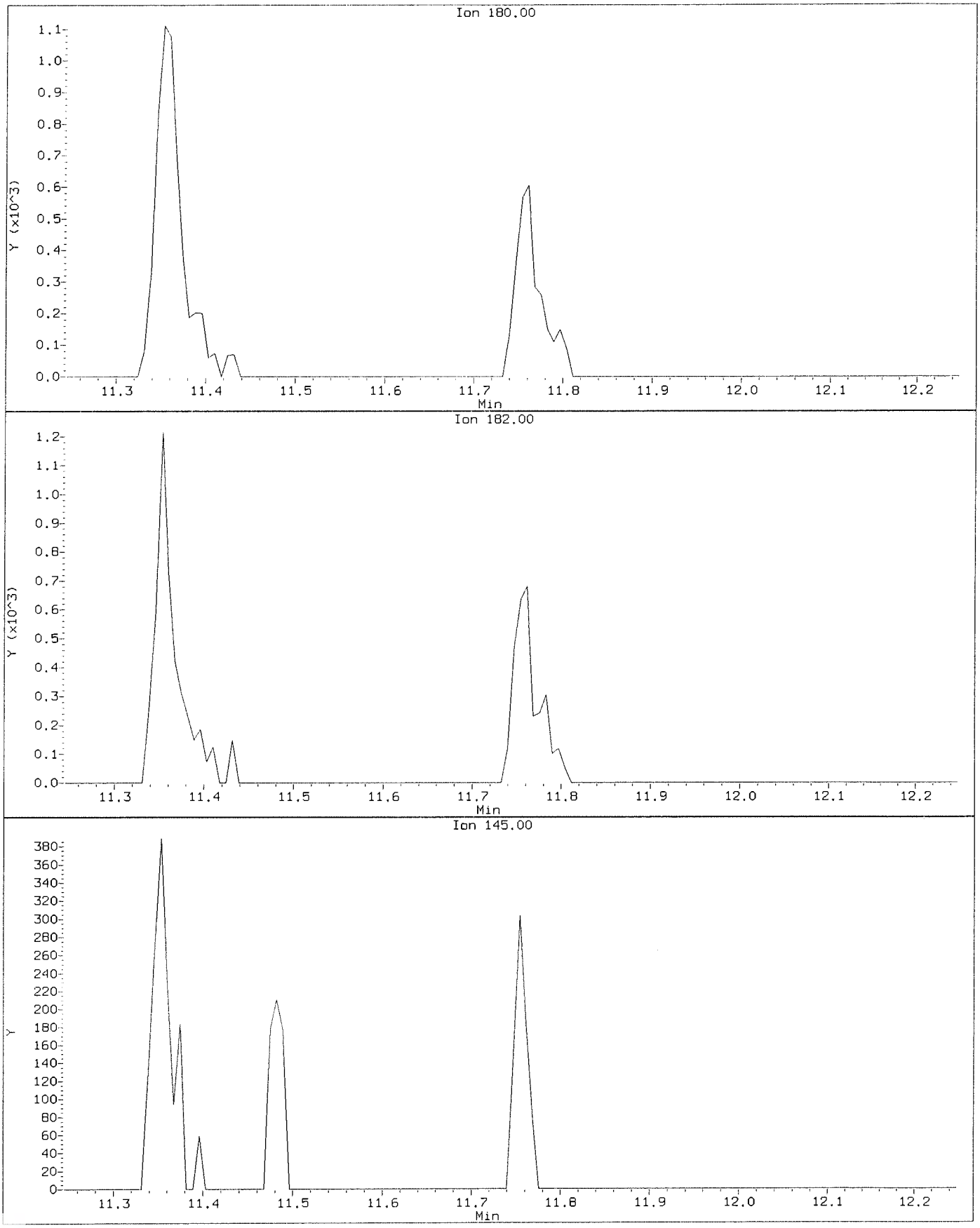
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



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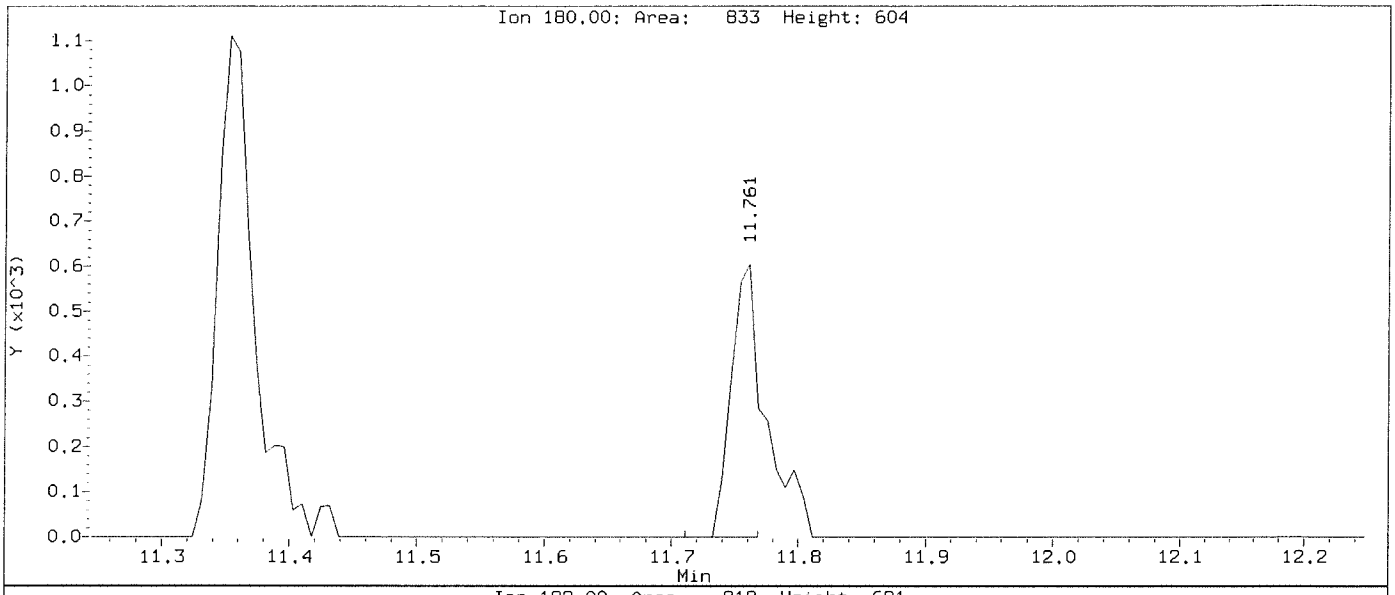
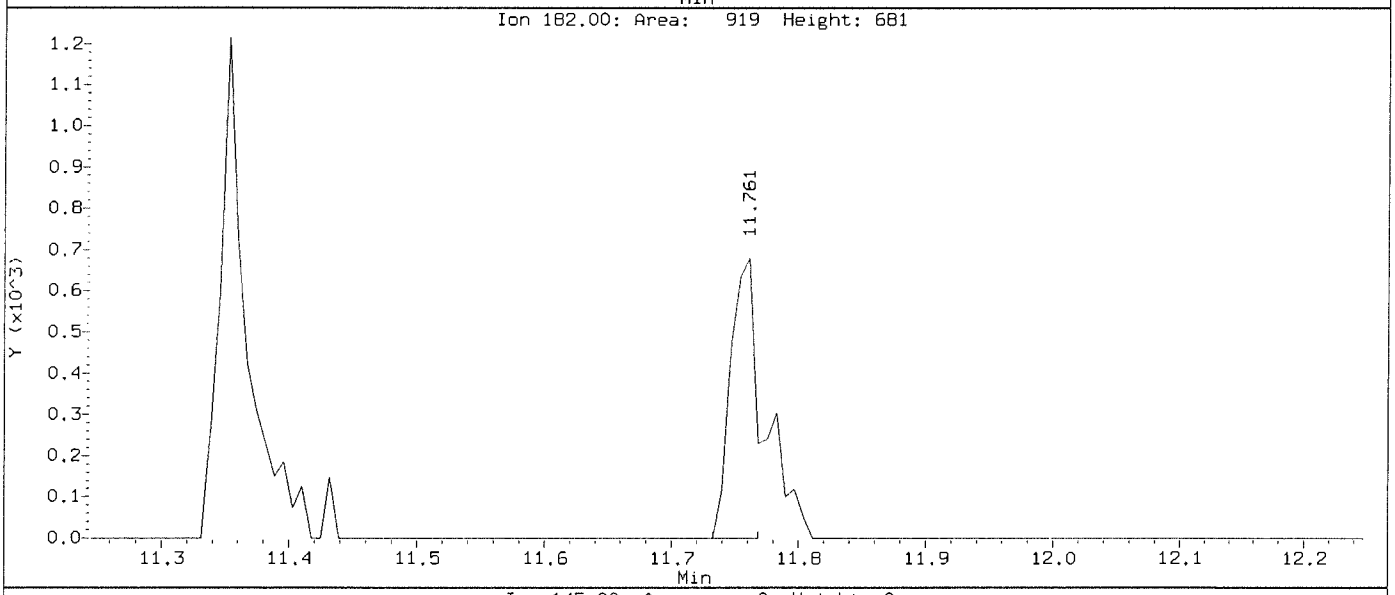
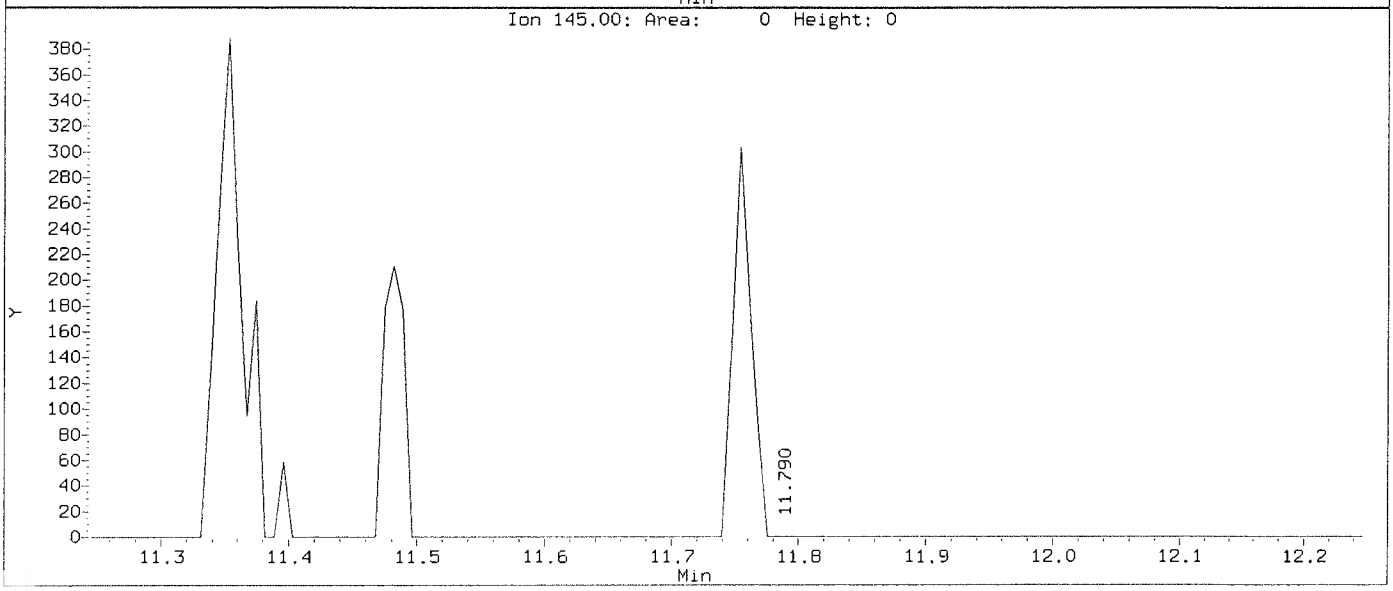
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6







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Instrument: voa6.i
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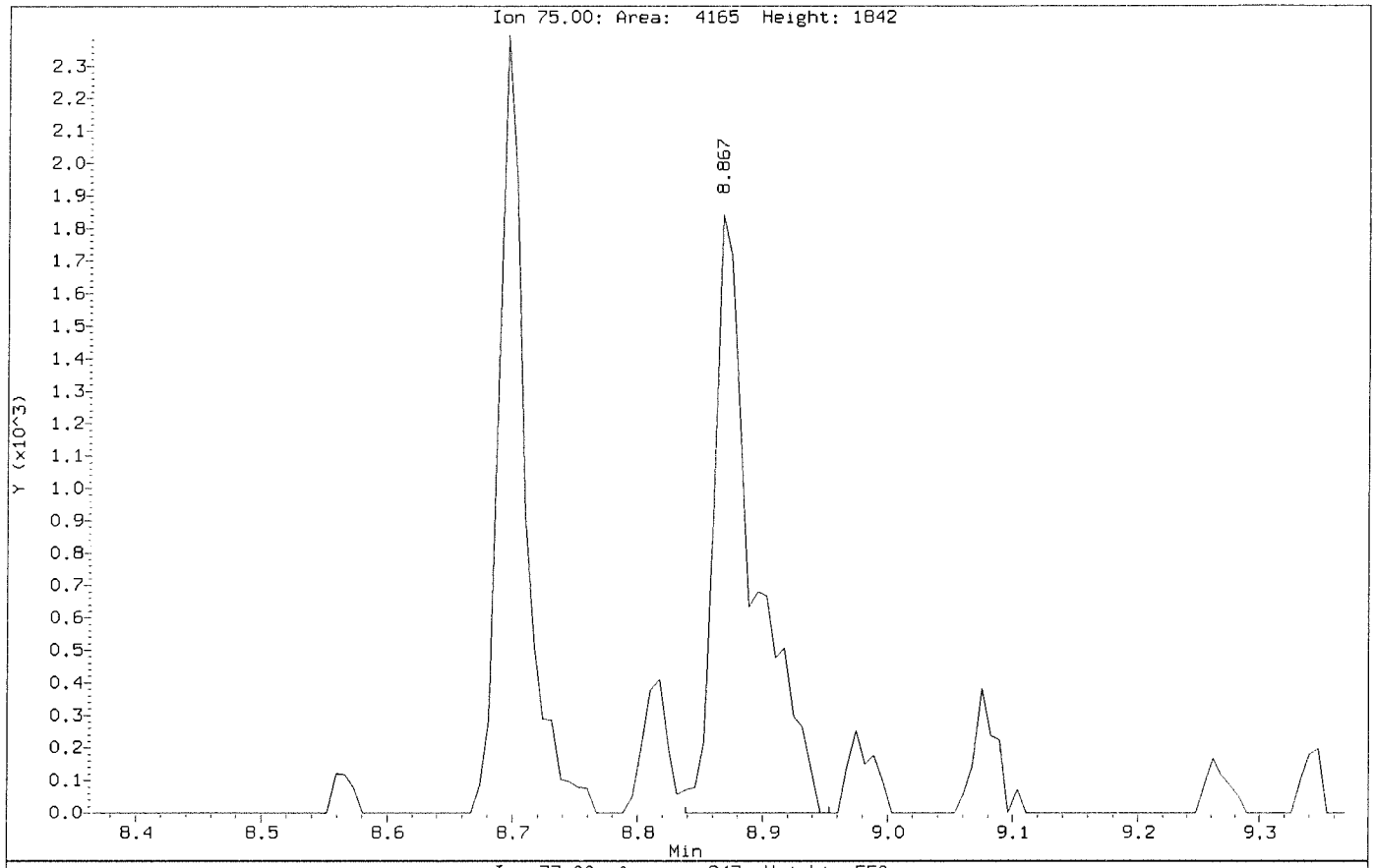
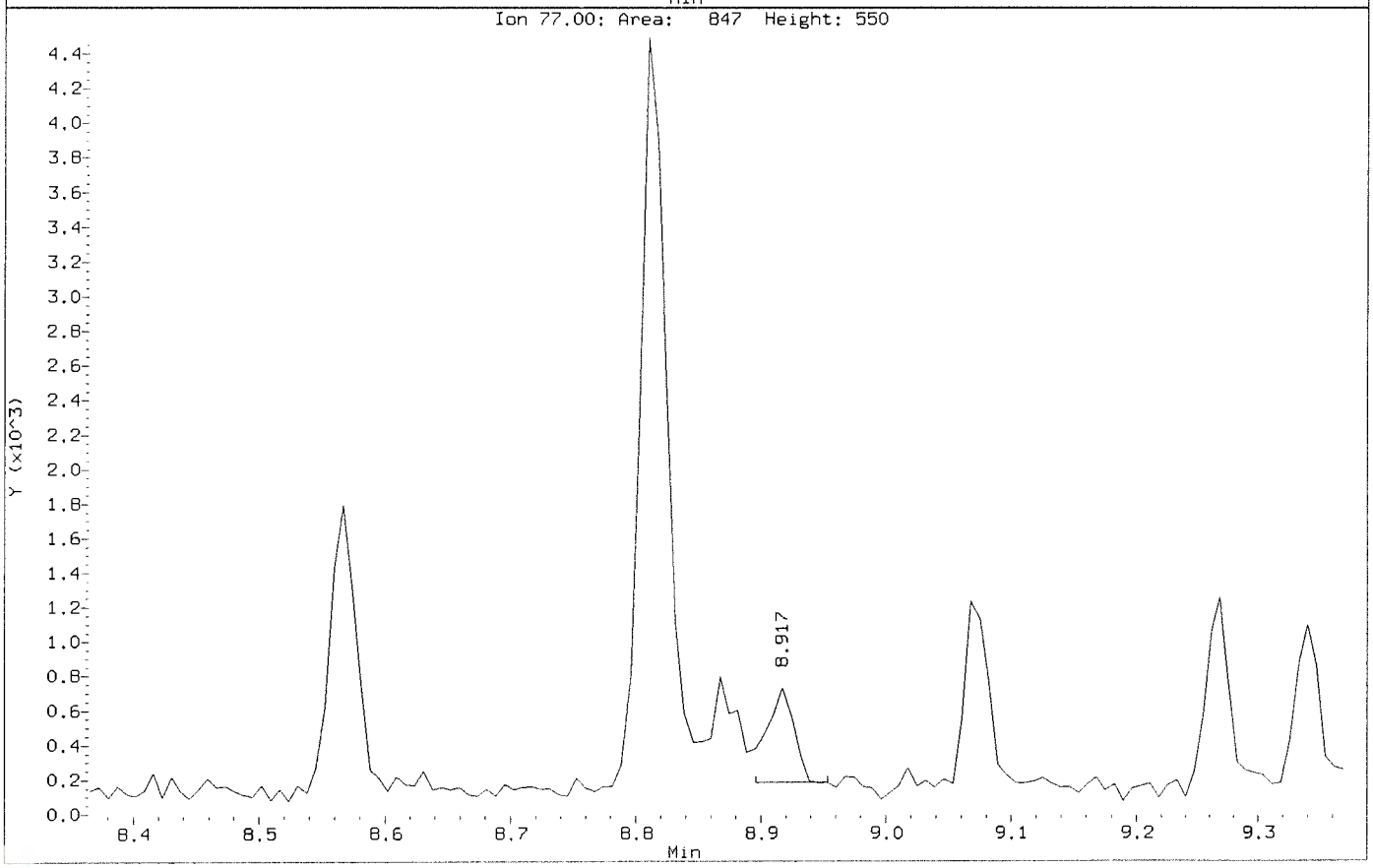
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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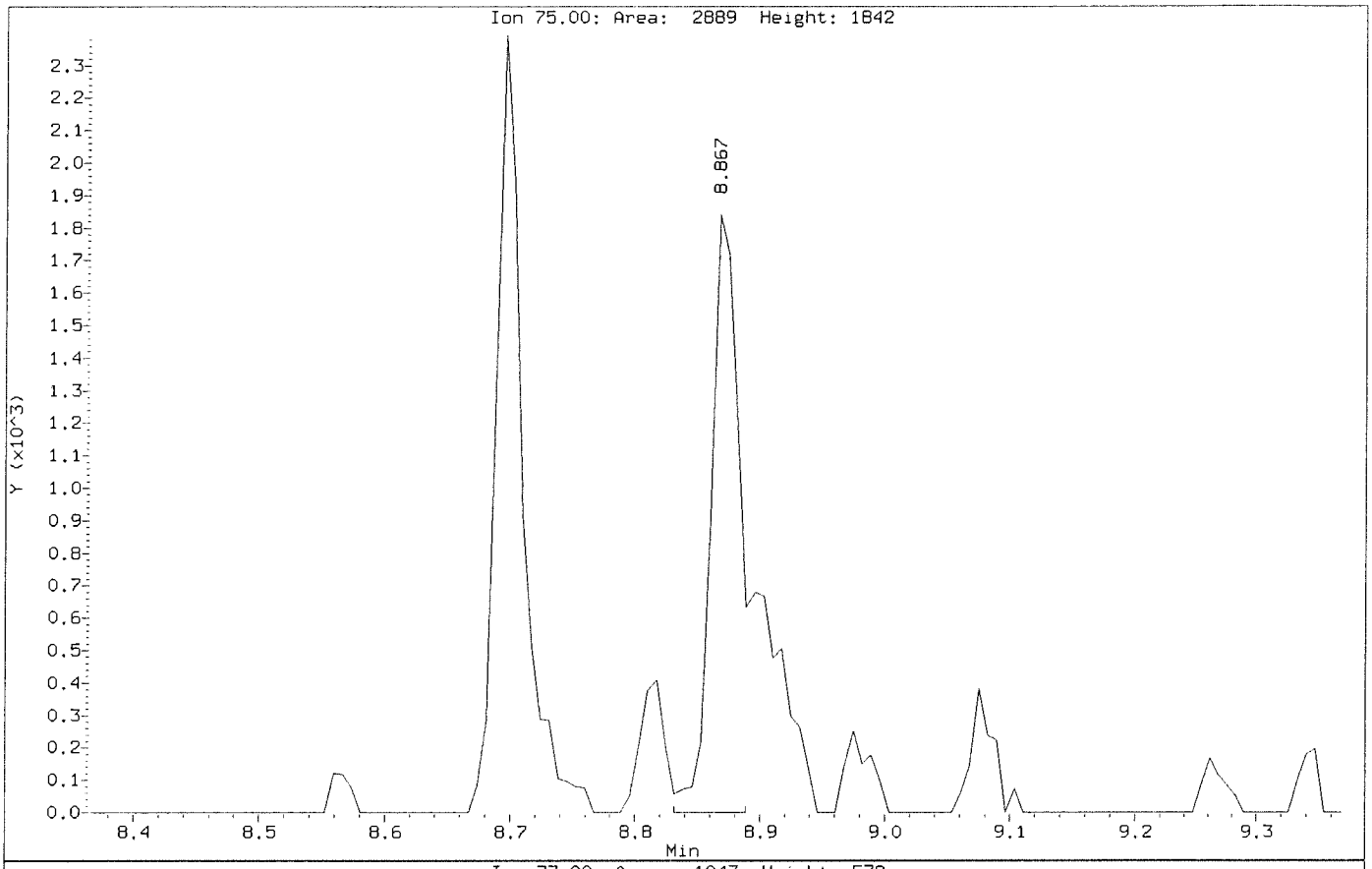
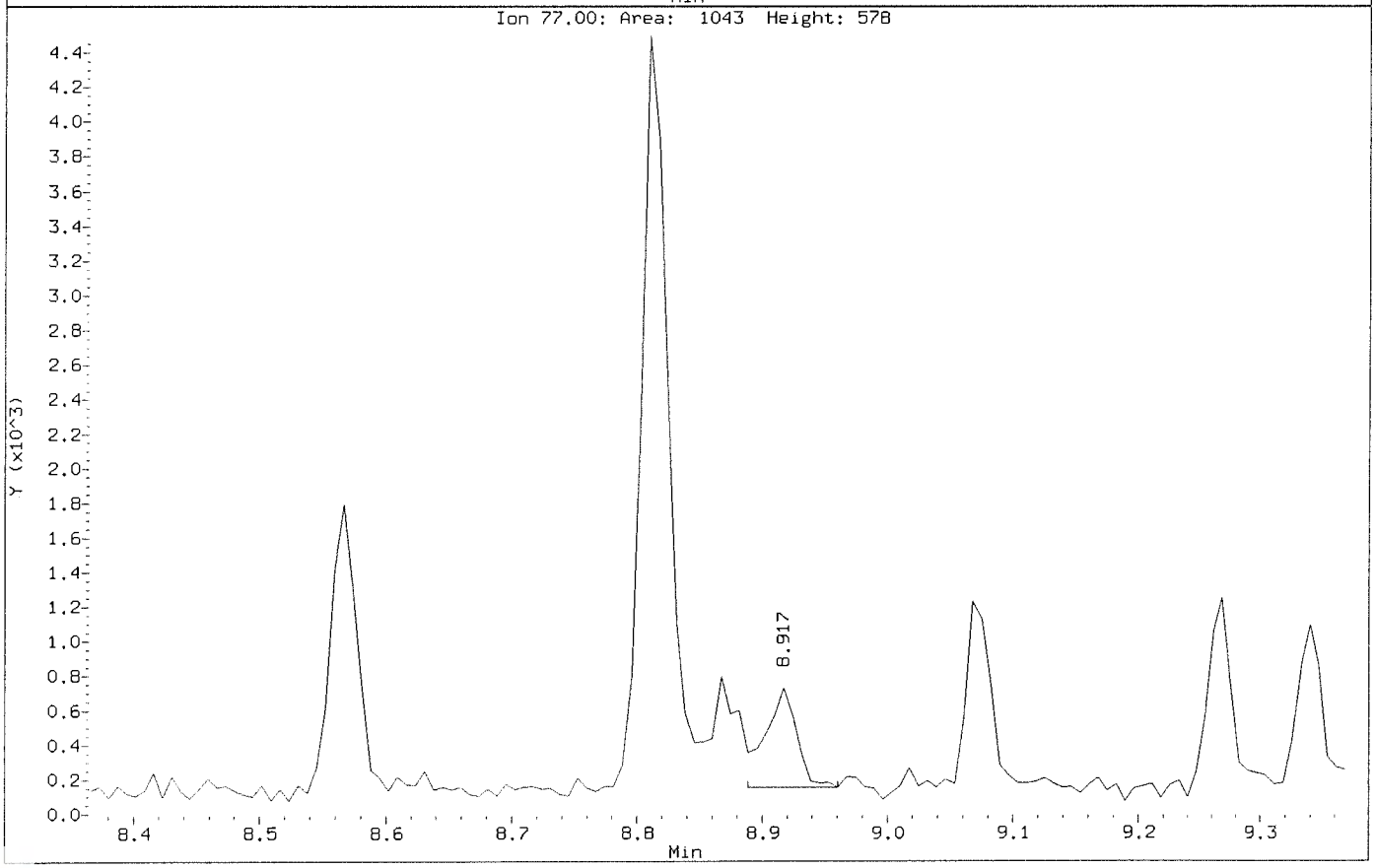
Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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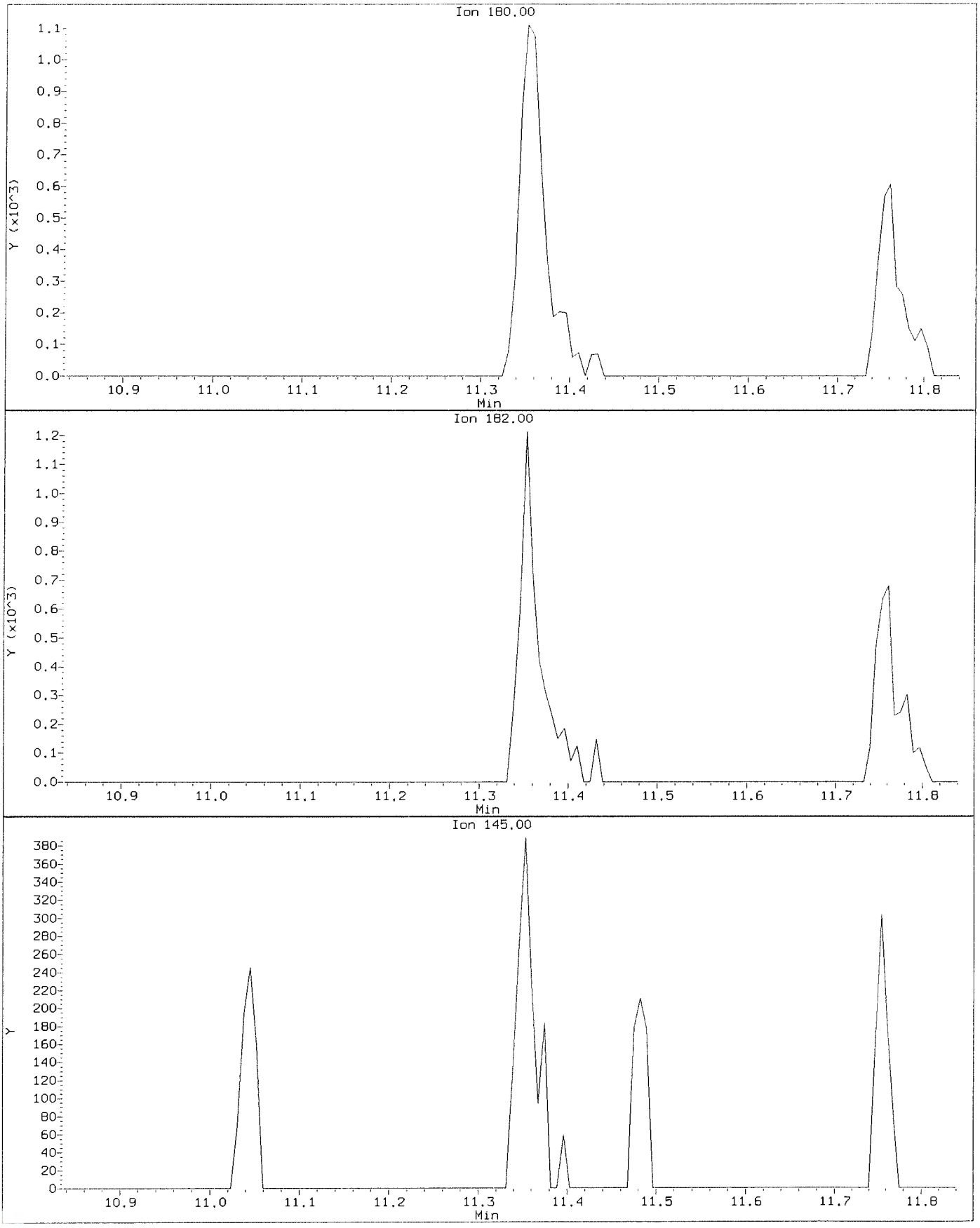
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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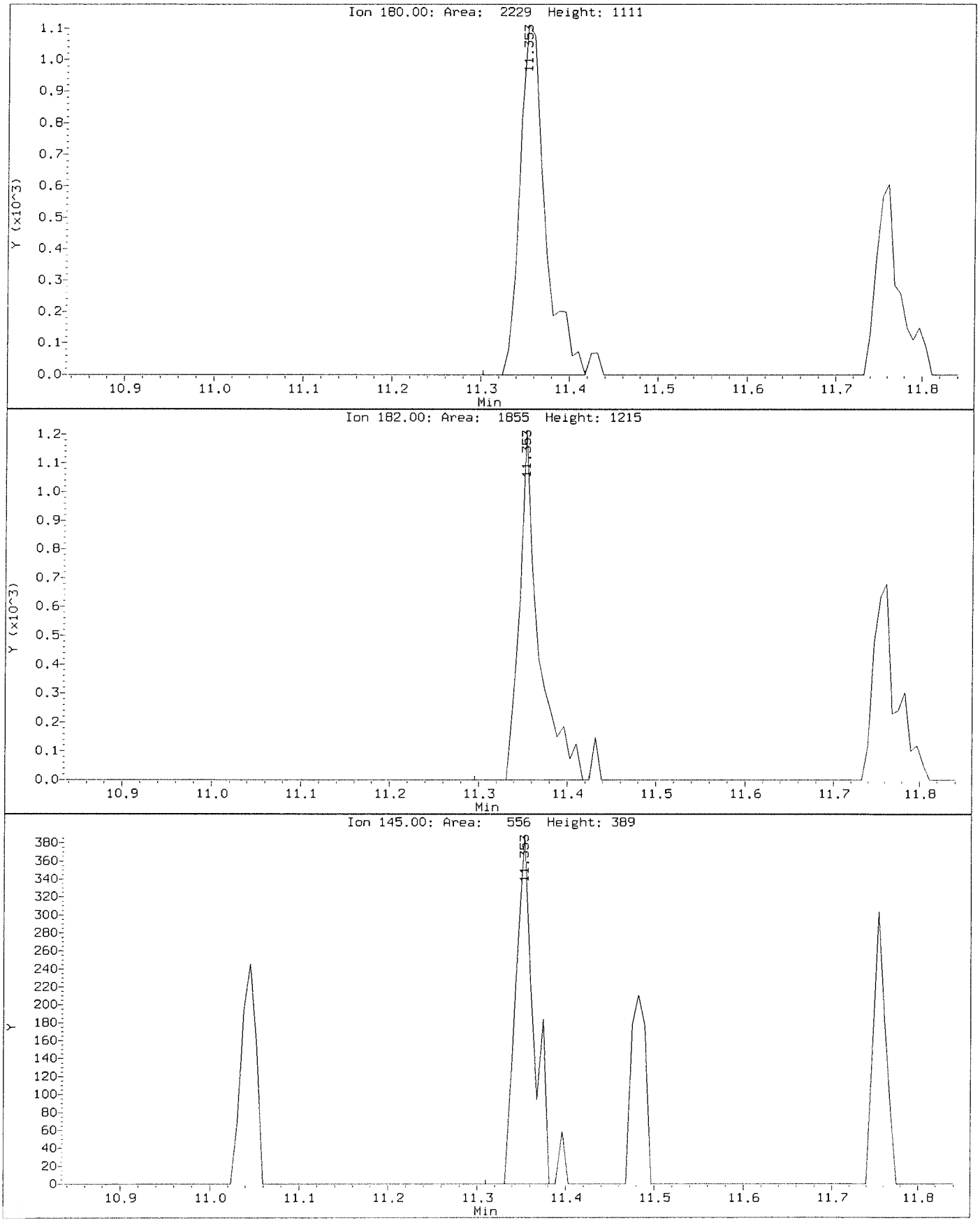
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



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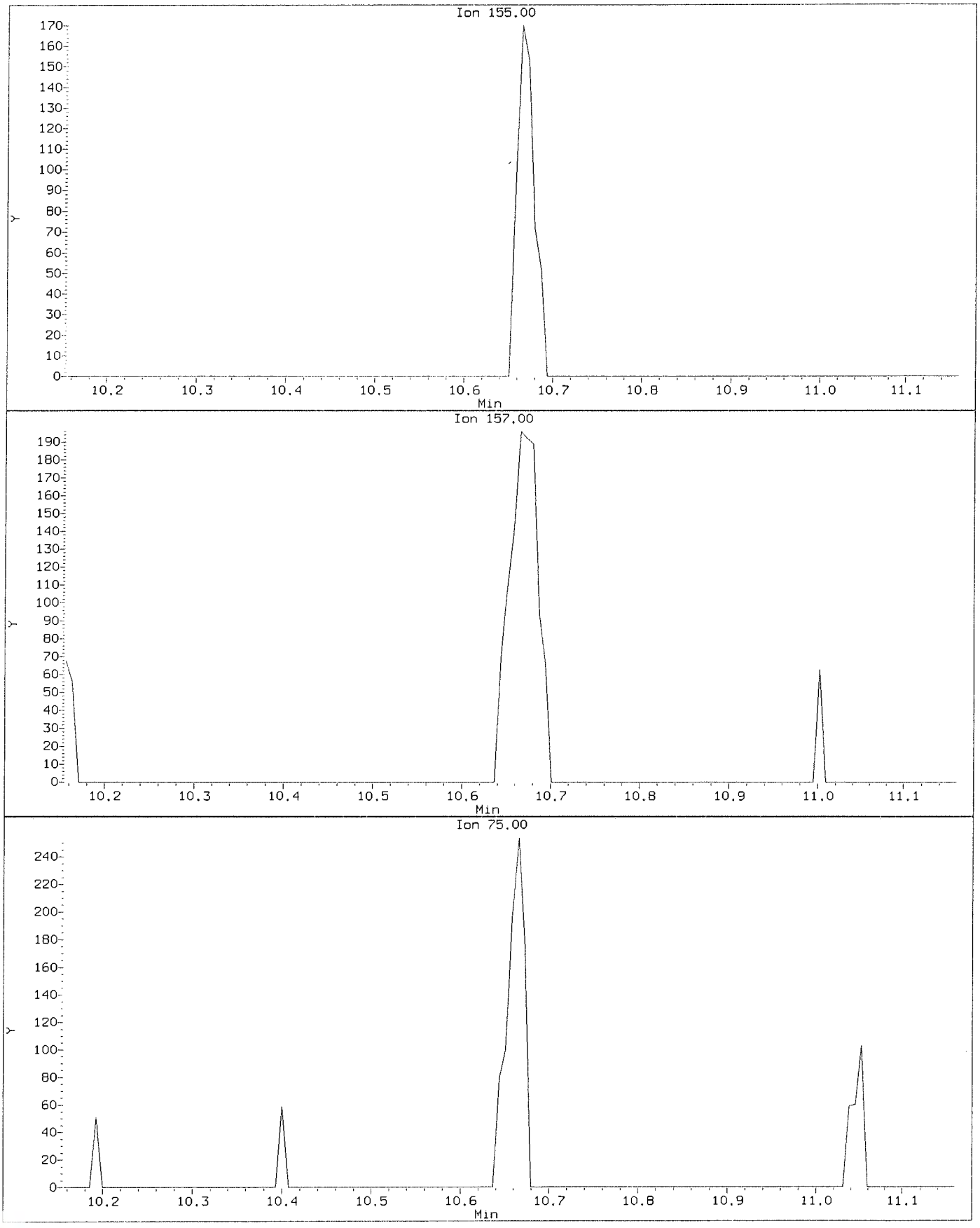
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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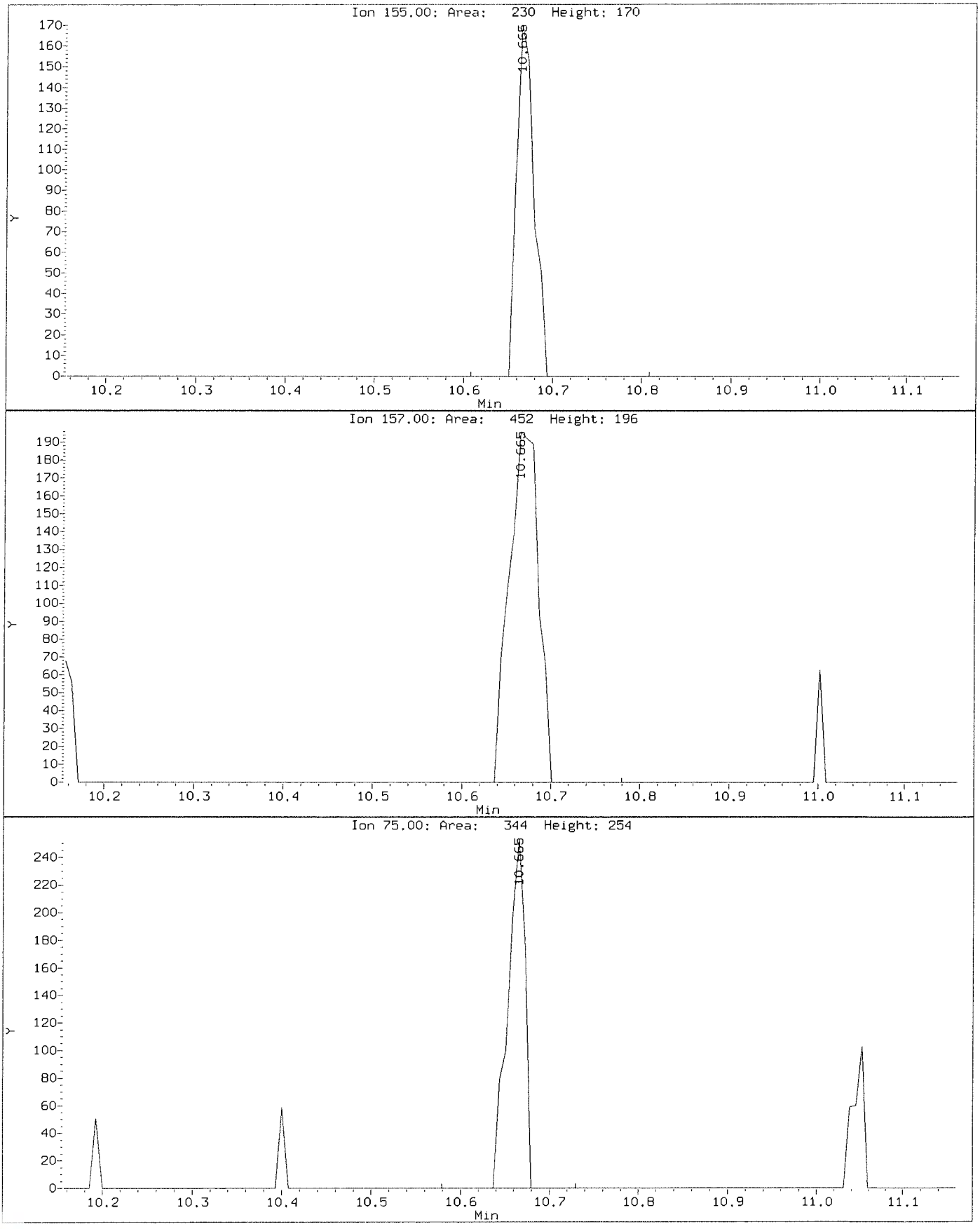
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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Instrument: voa6.i
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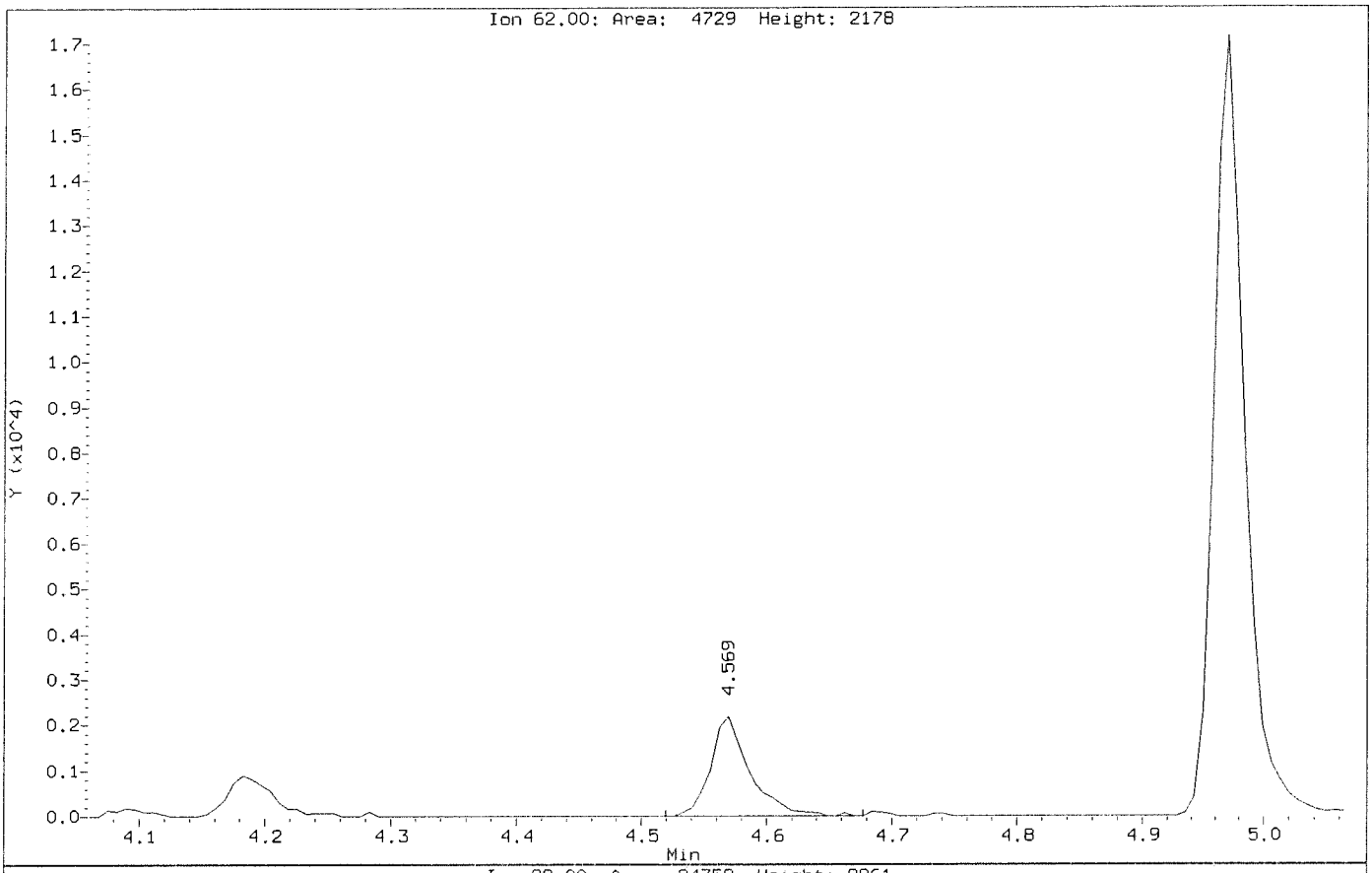
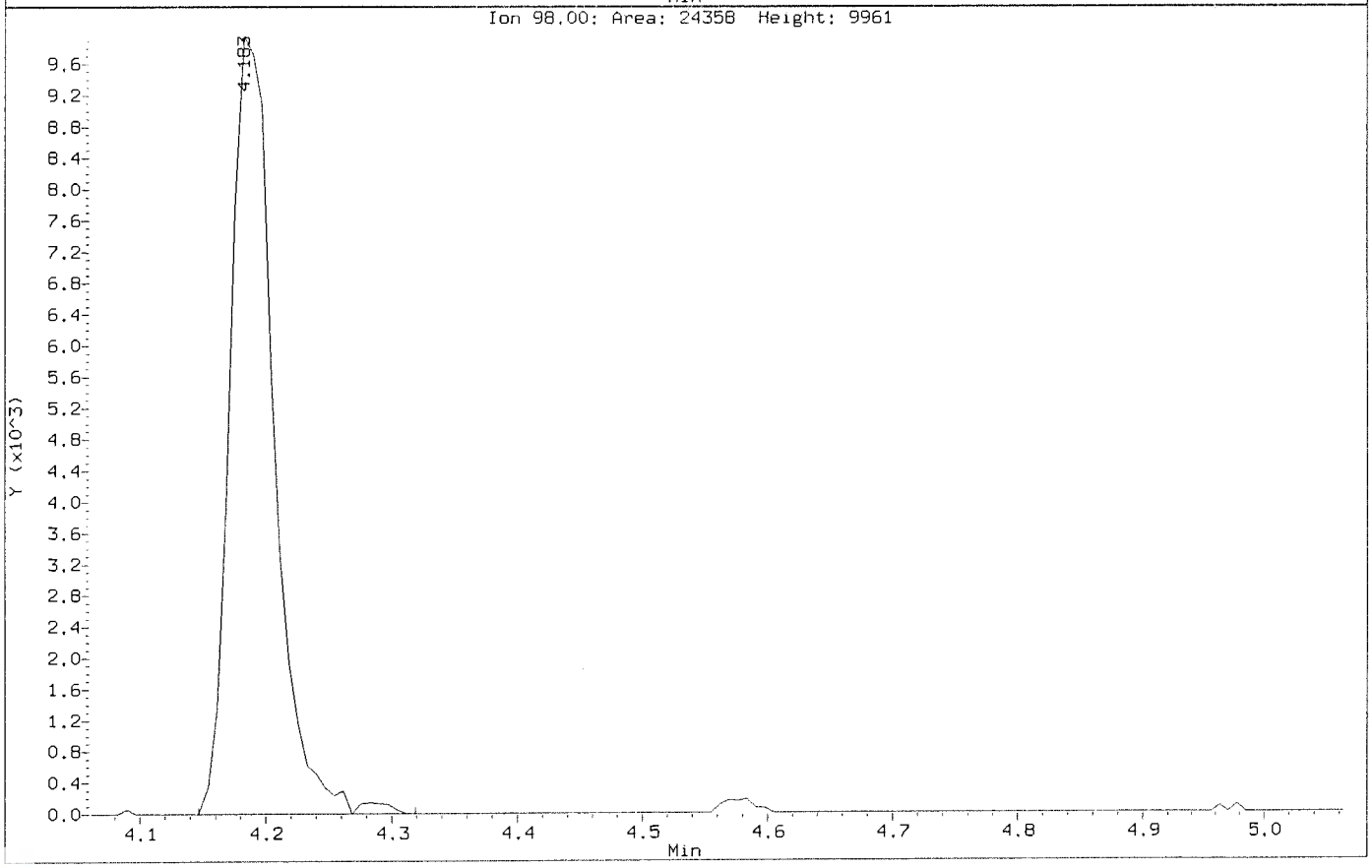
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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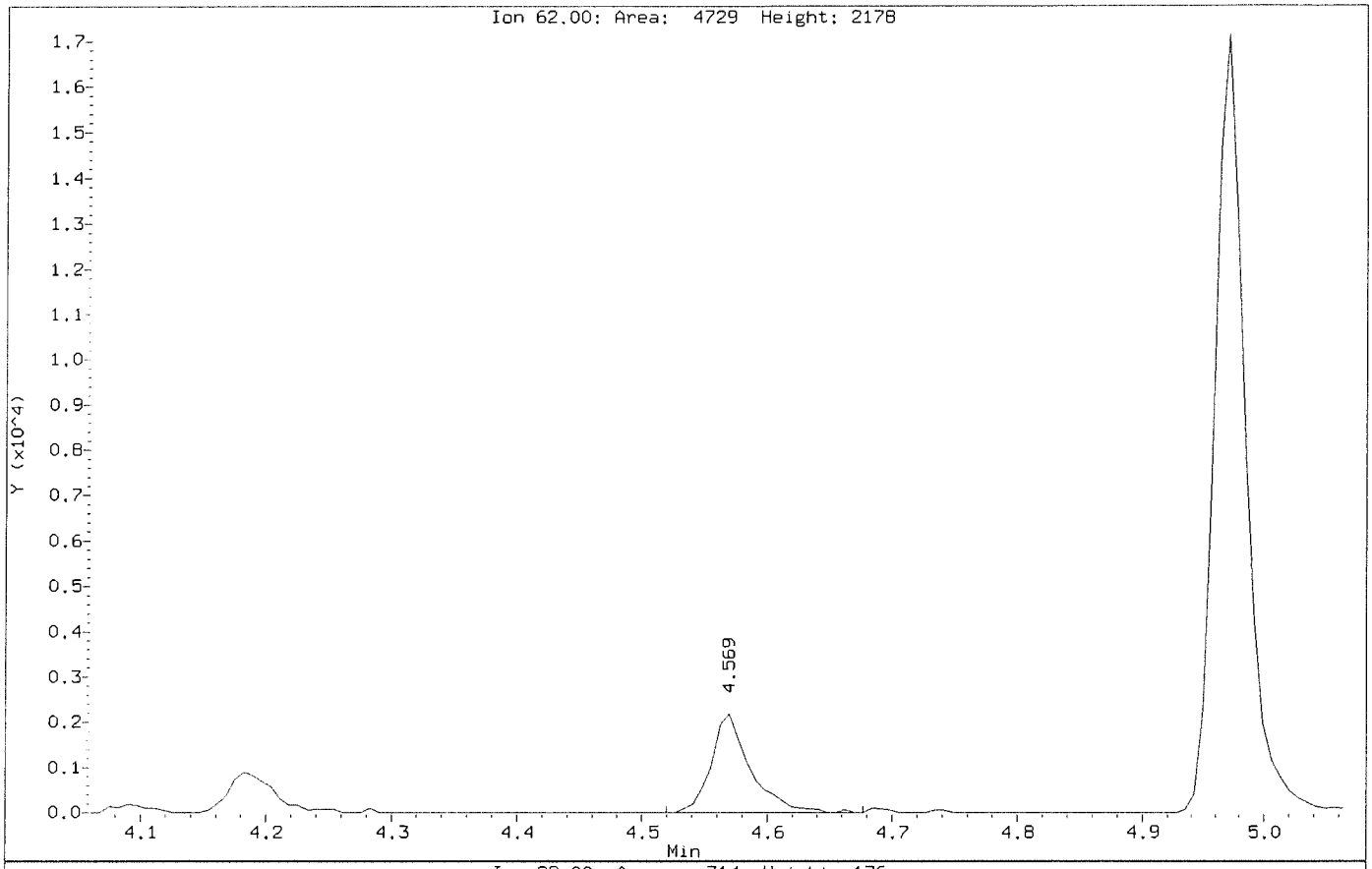
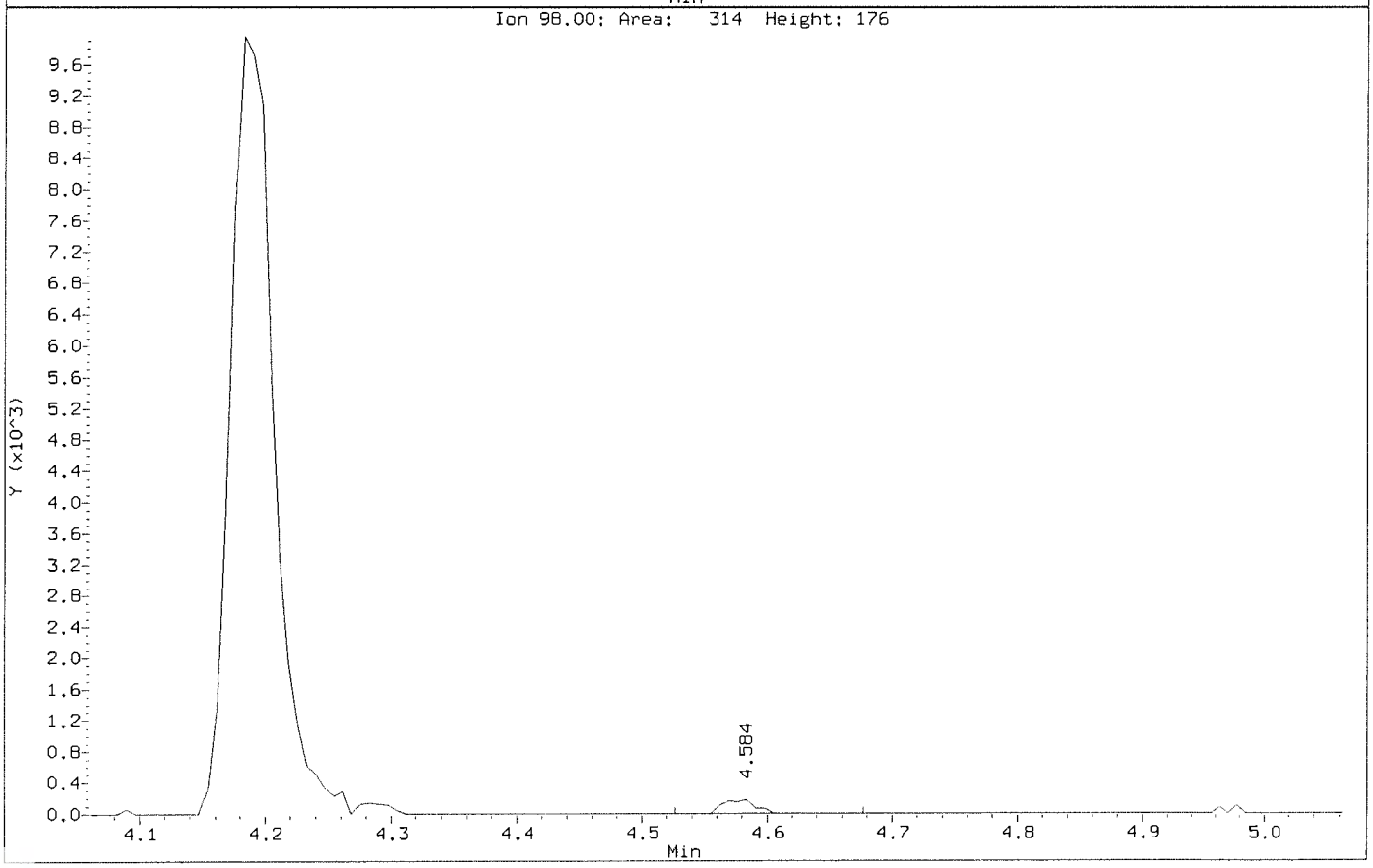
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





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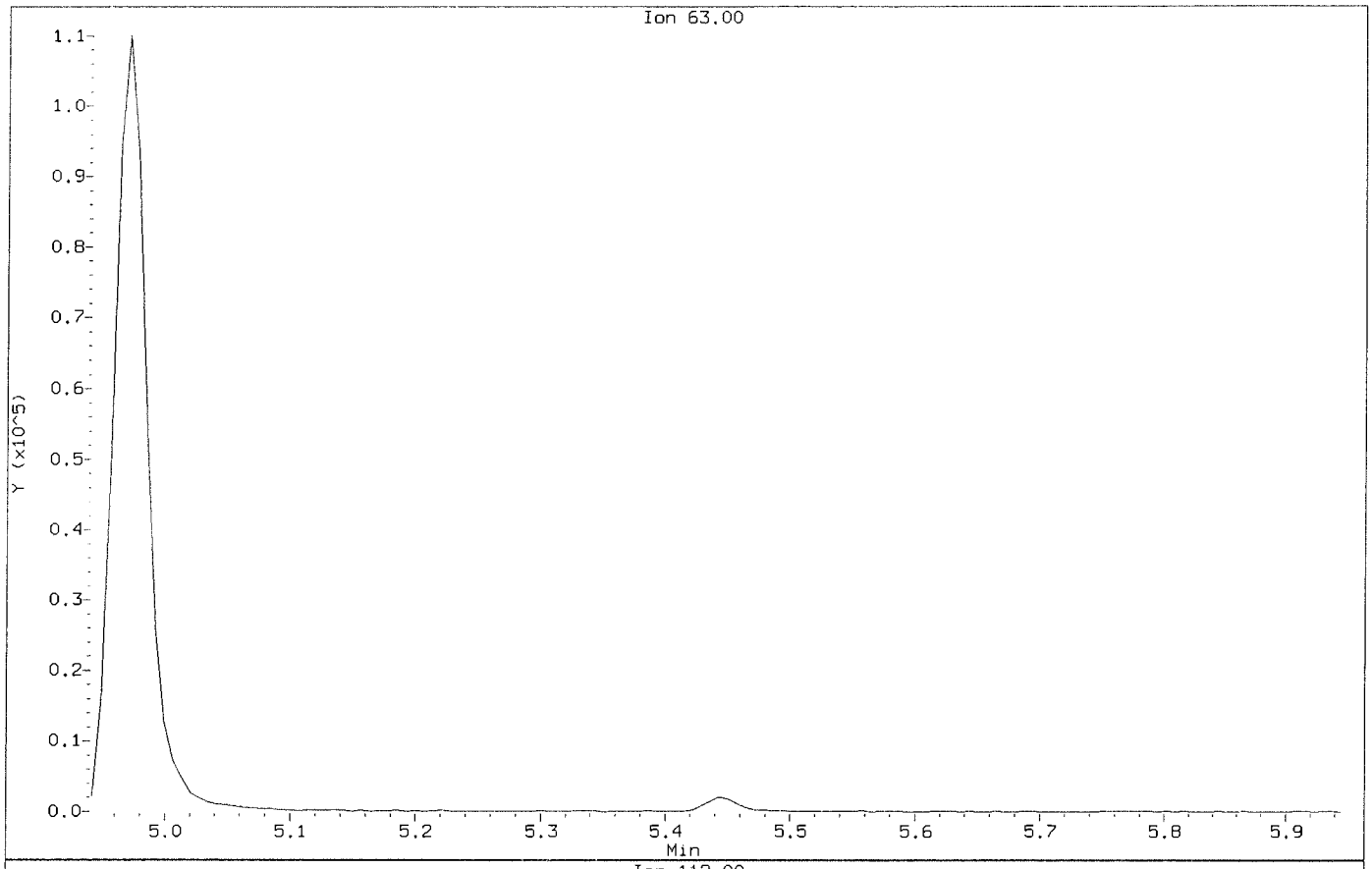
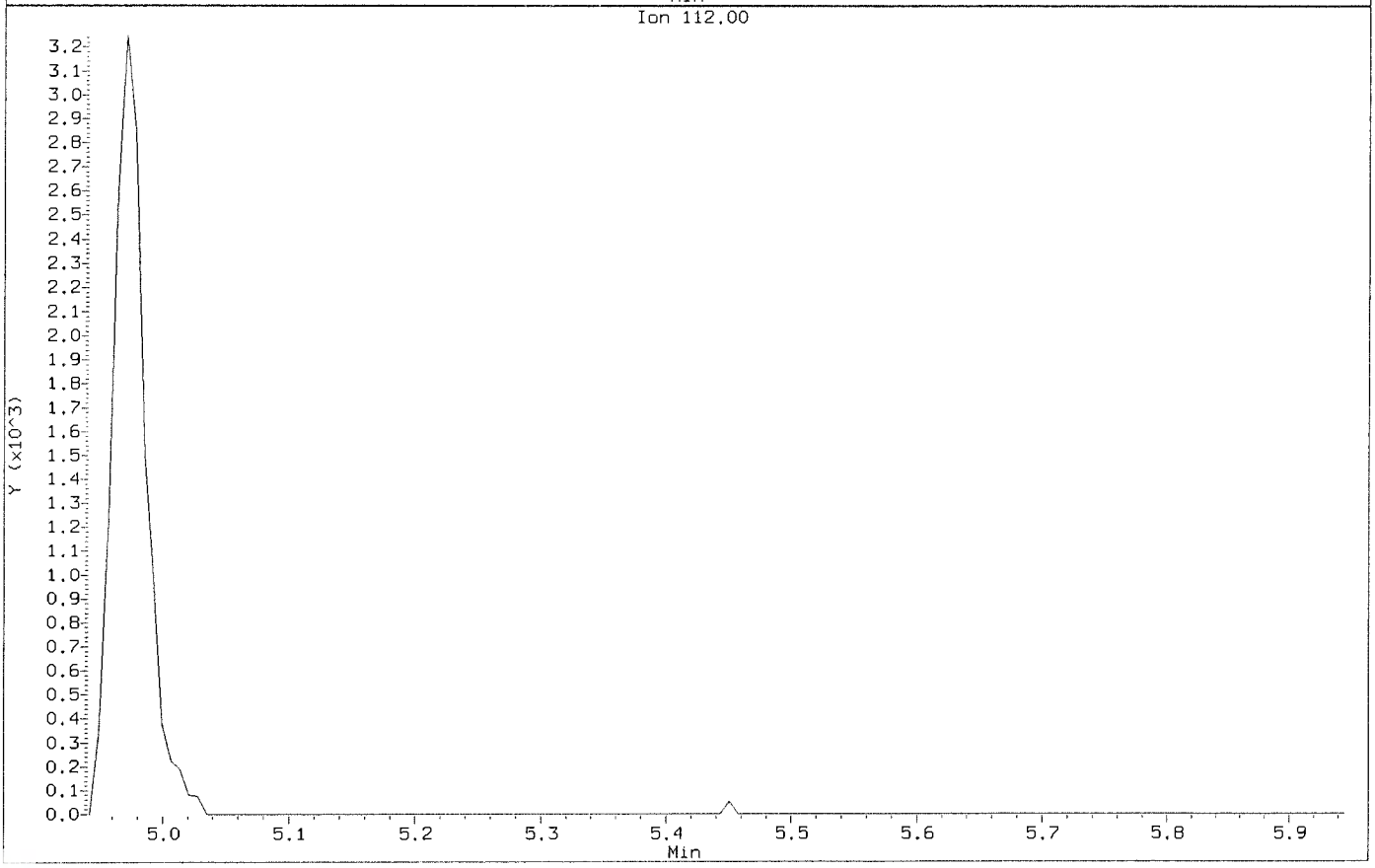
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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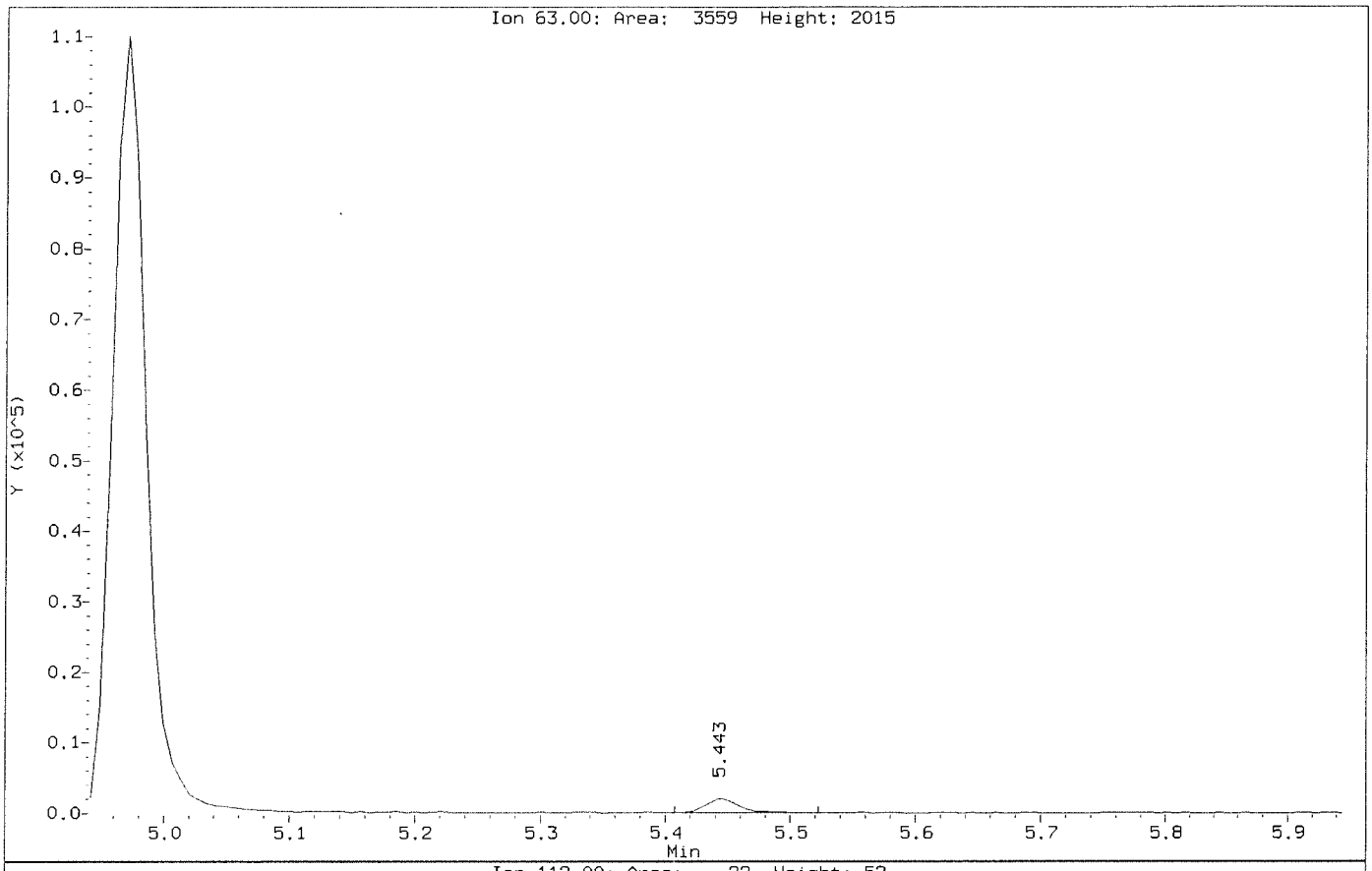
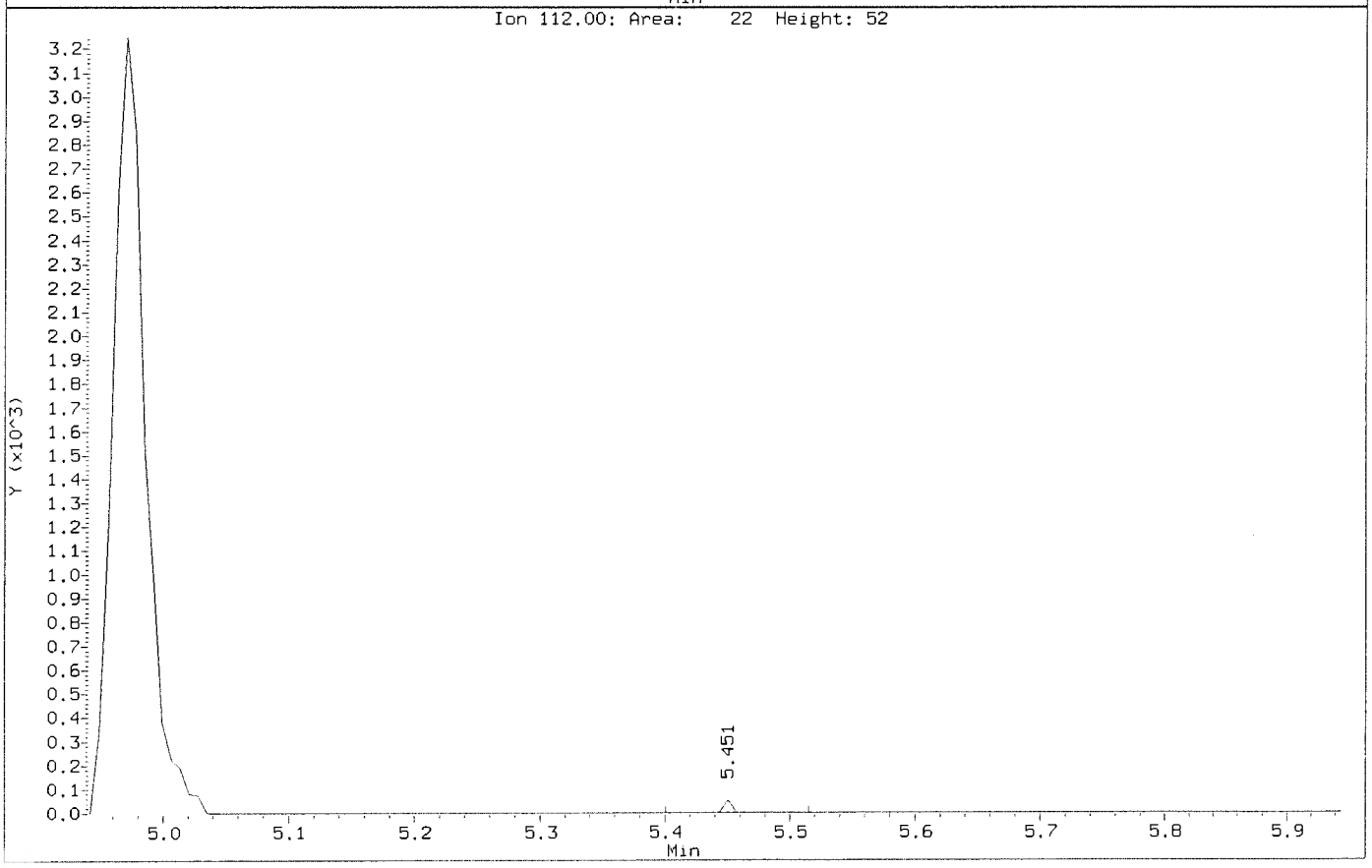
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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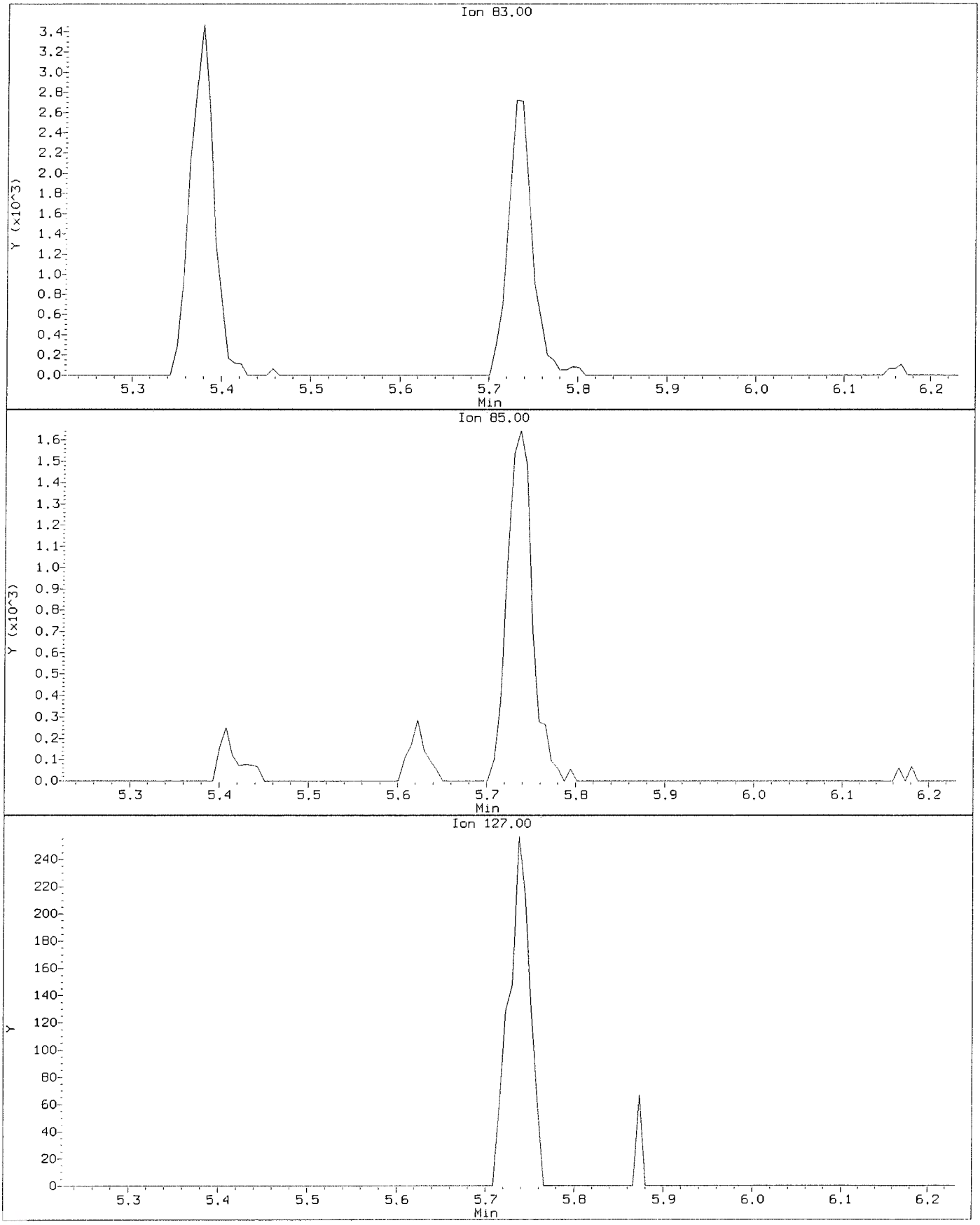
Compound: Bromodichloromethane
CAS Number: 75-27-4



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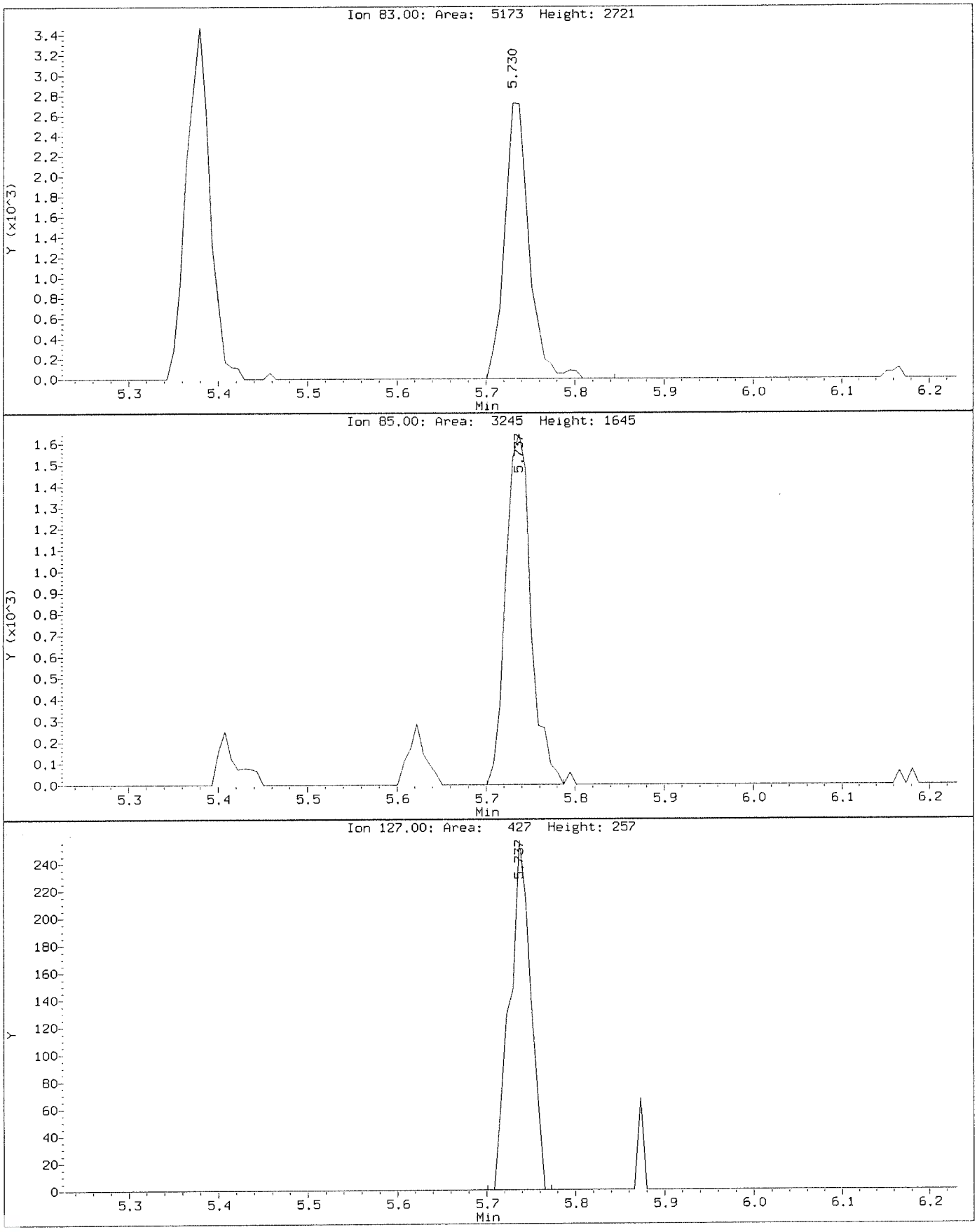
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



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Instrument: voa6.i
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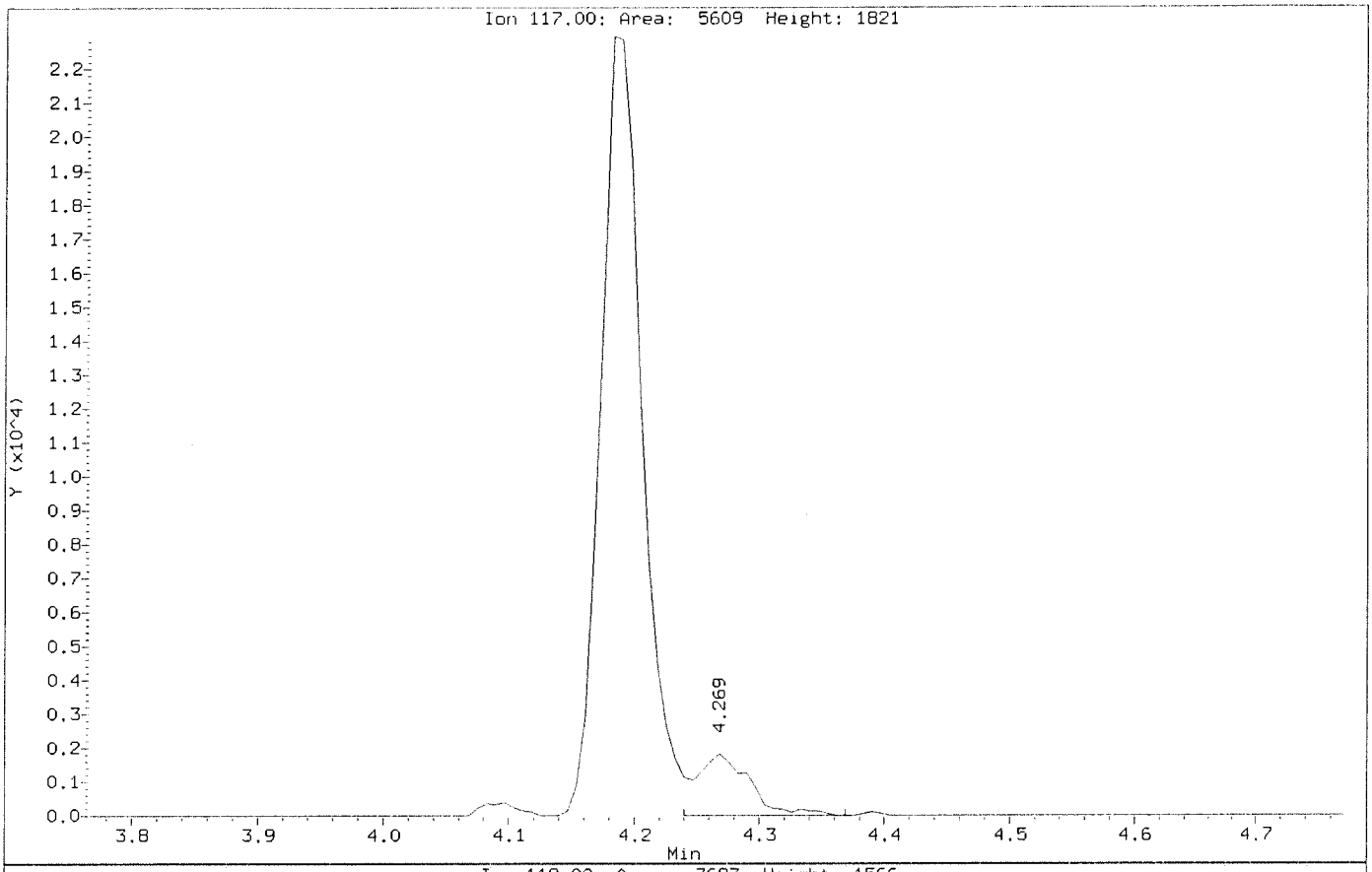
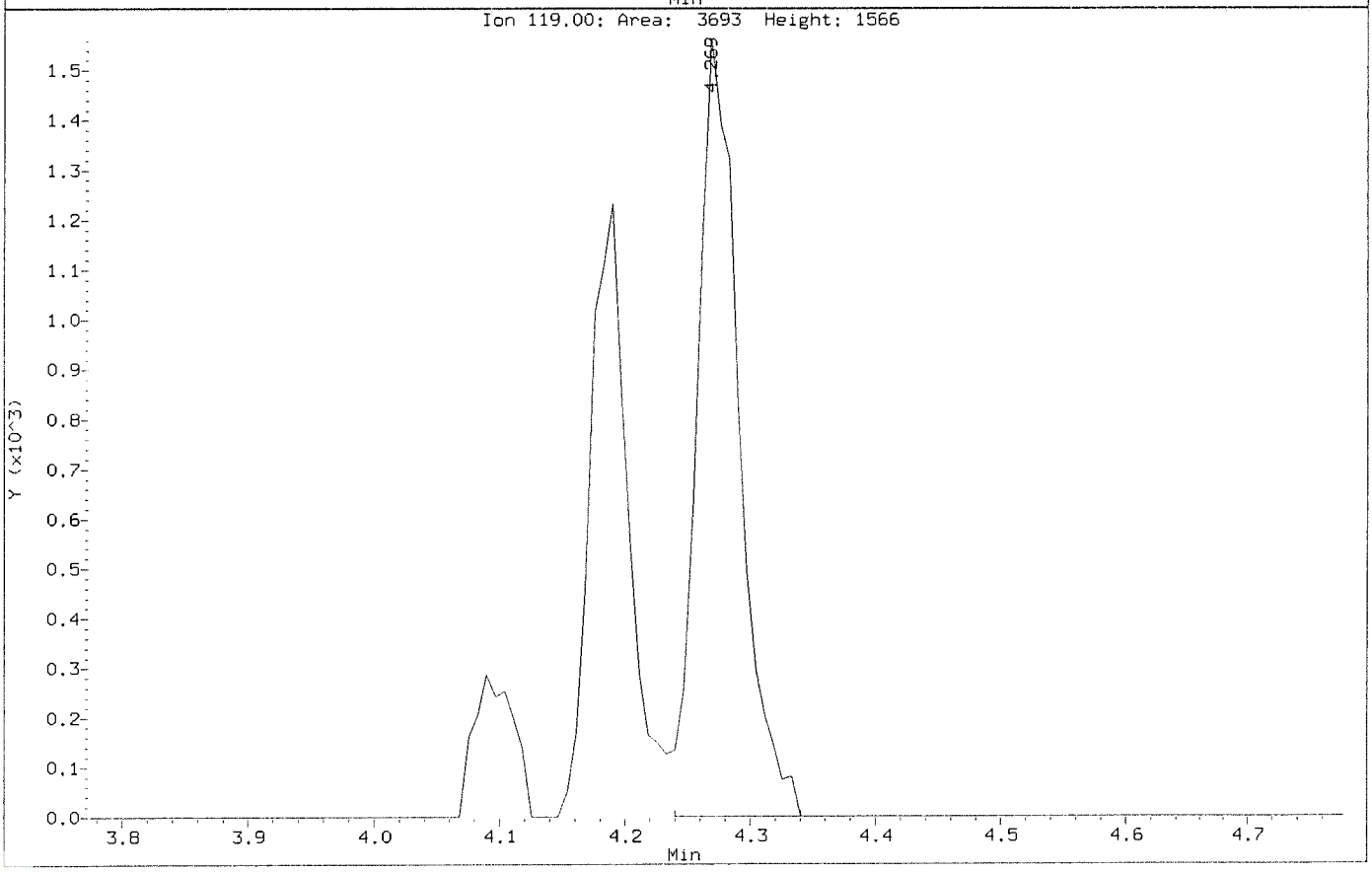
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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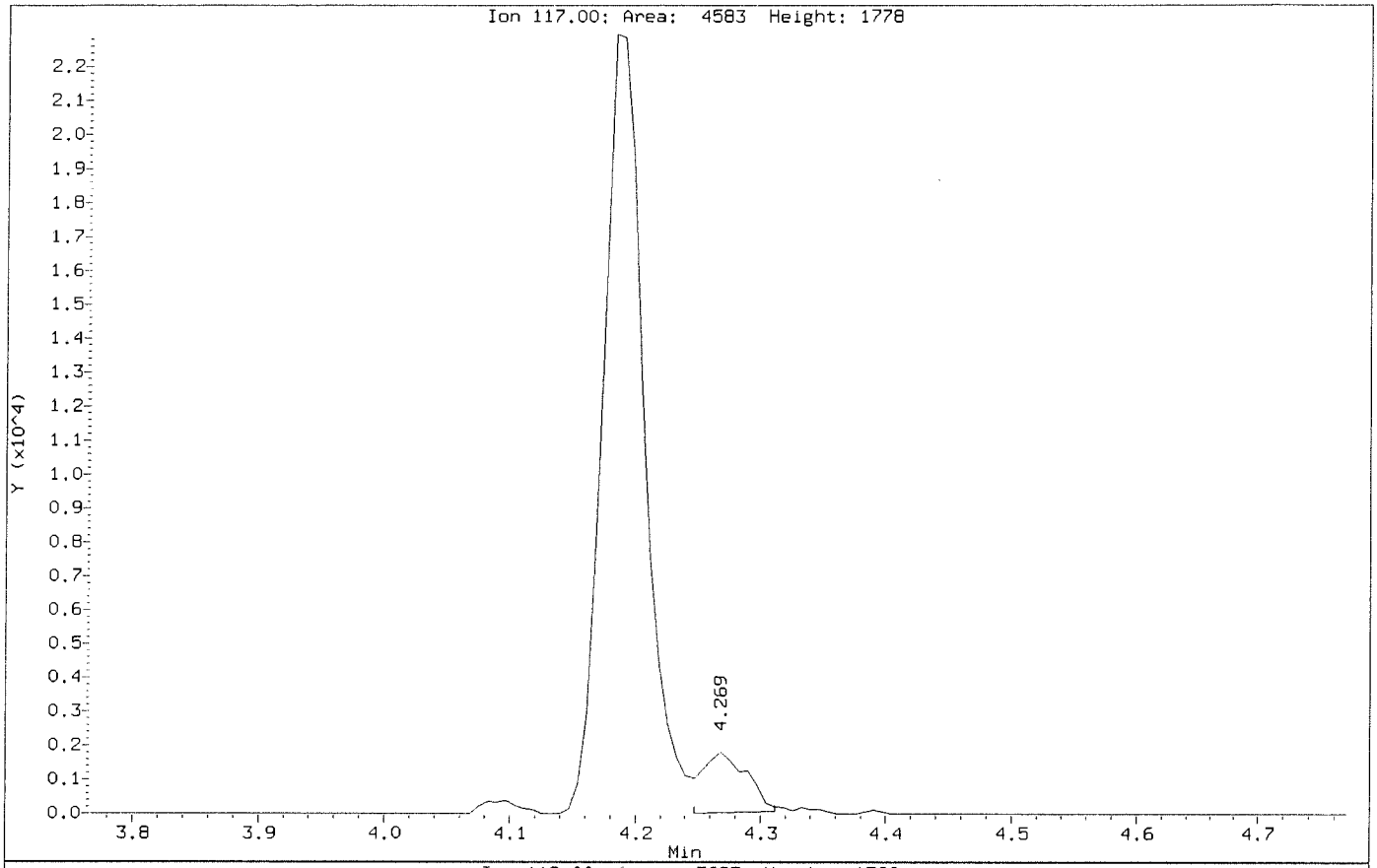
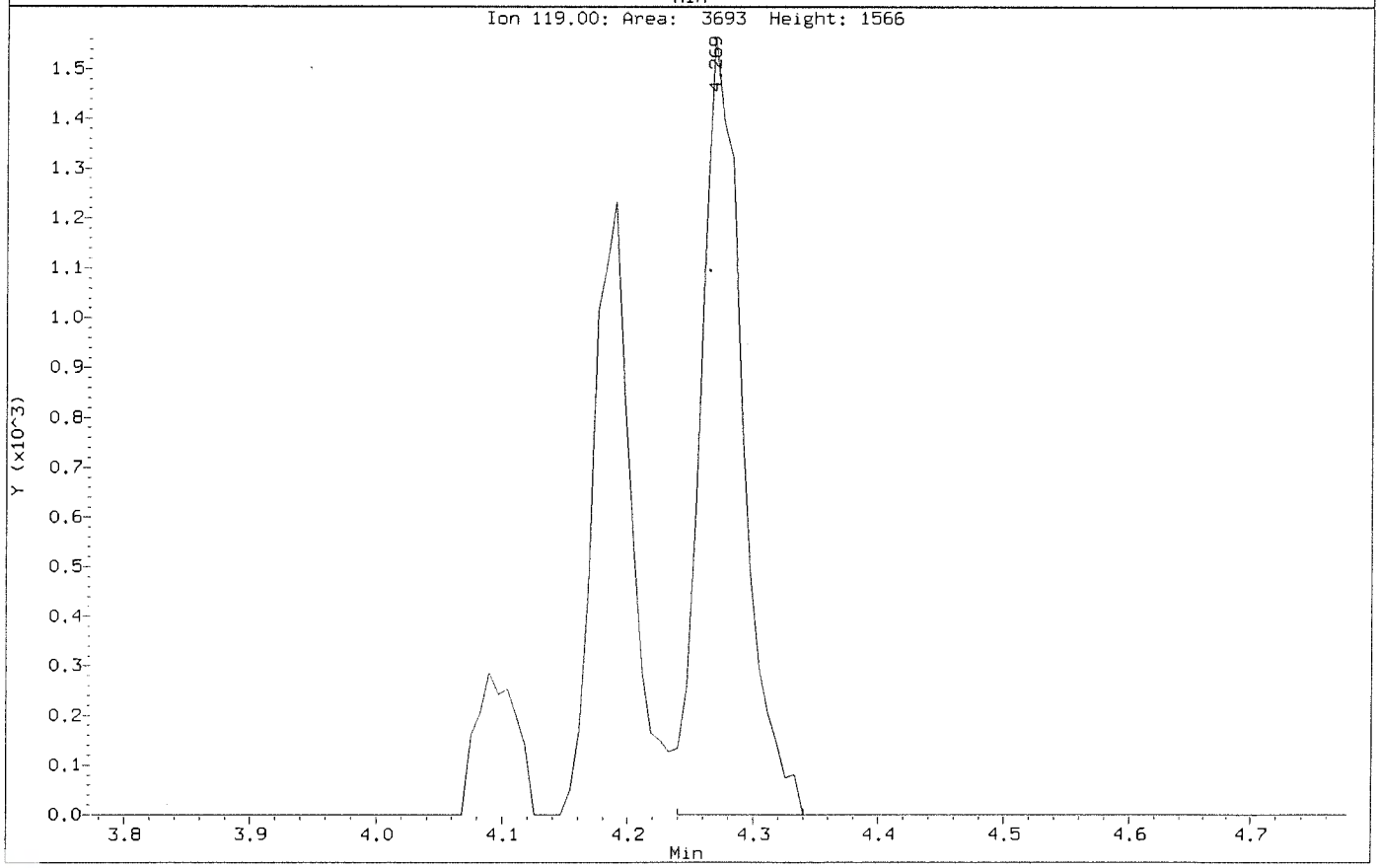
Instrument: voa6.i
Client Sample ID: VSTD000.5

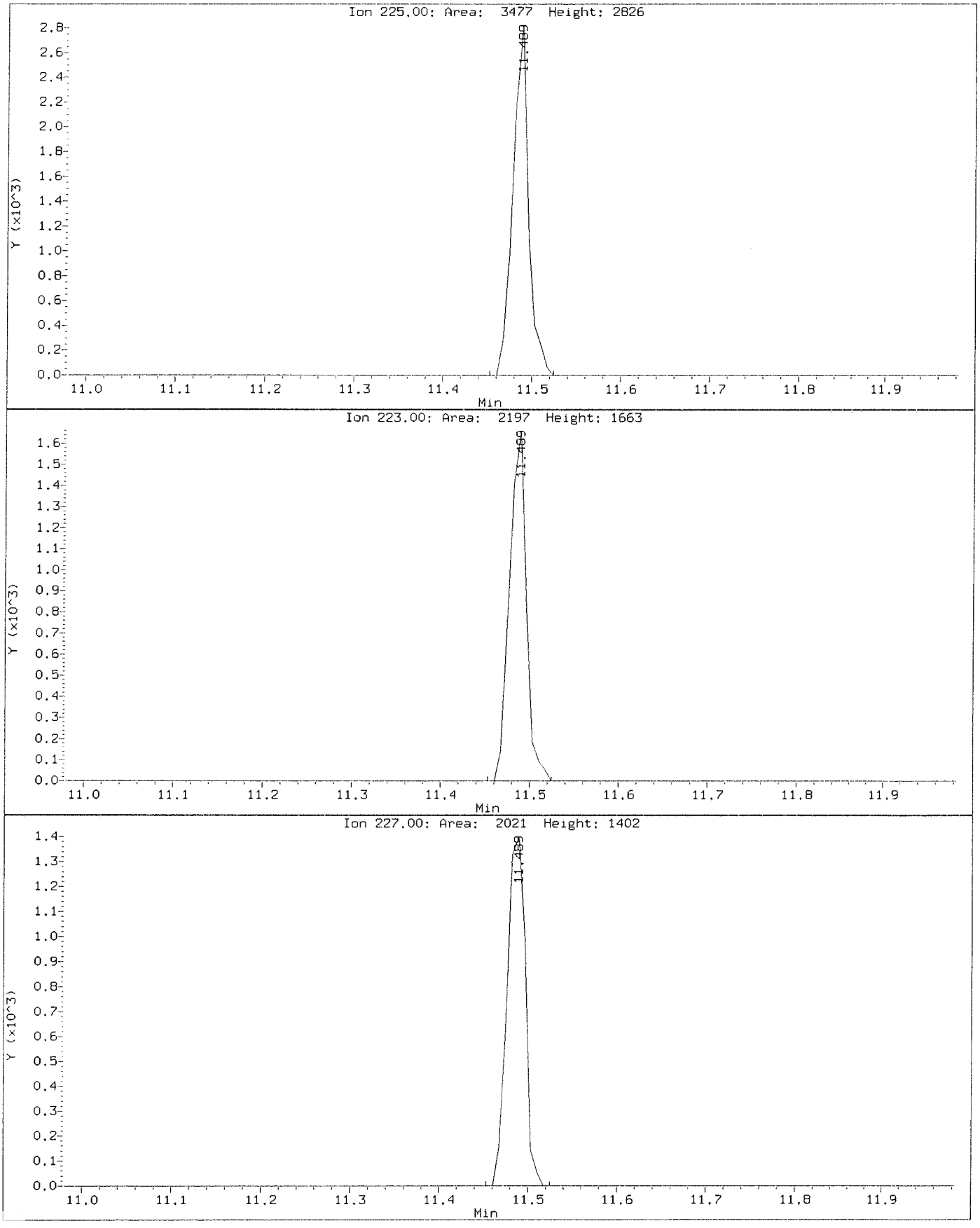
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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

Compound: Hexachlorobutadiene
CAS Number: 87-68-3



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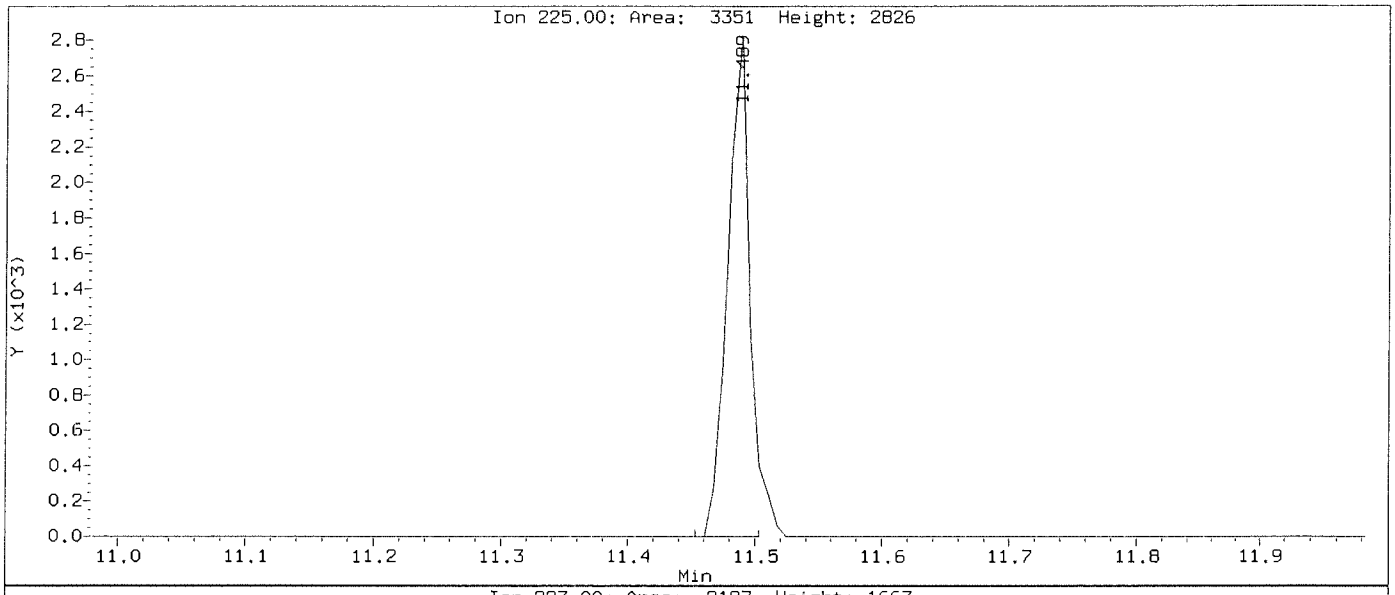
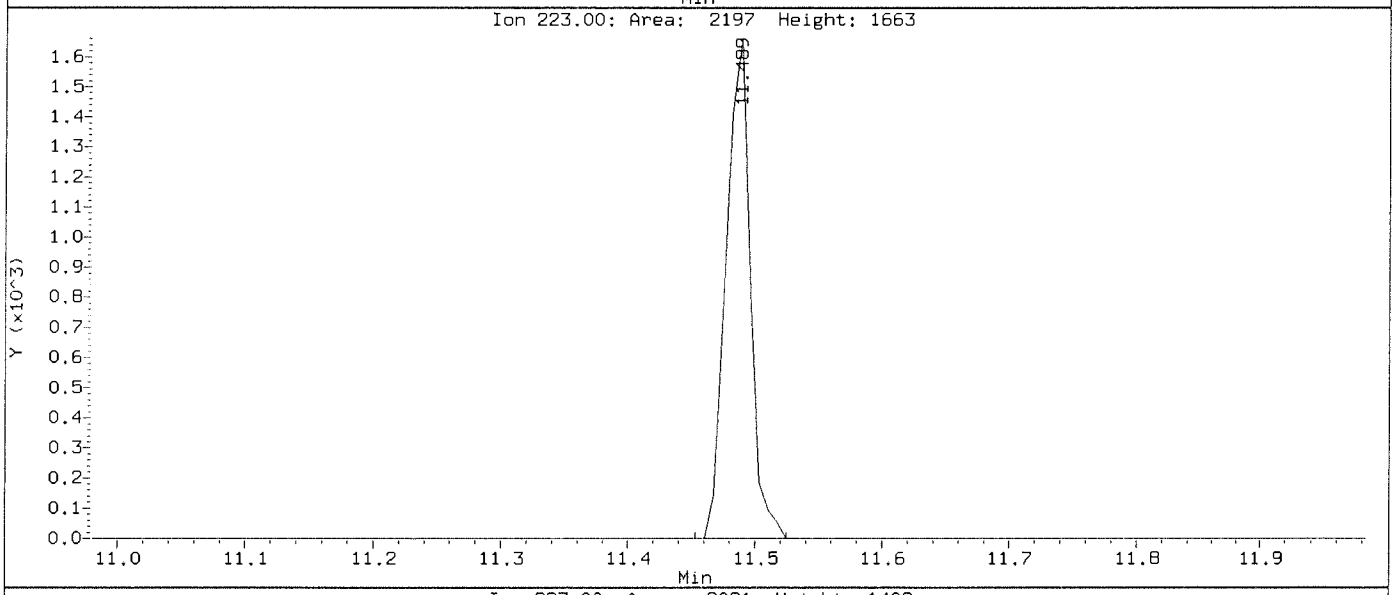
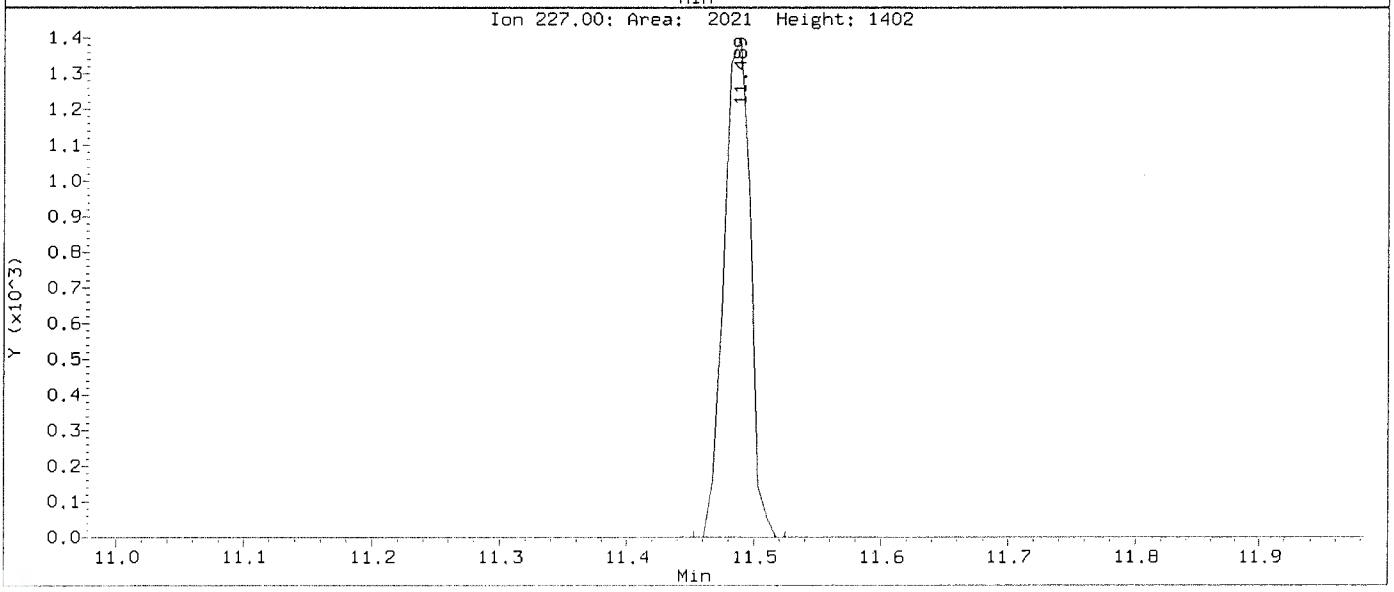
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Hexachlorobutadiene
CAS Number: 87-68-3







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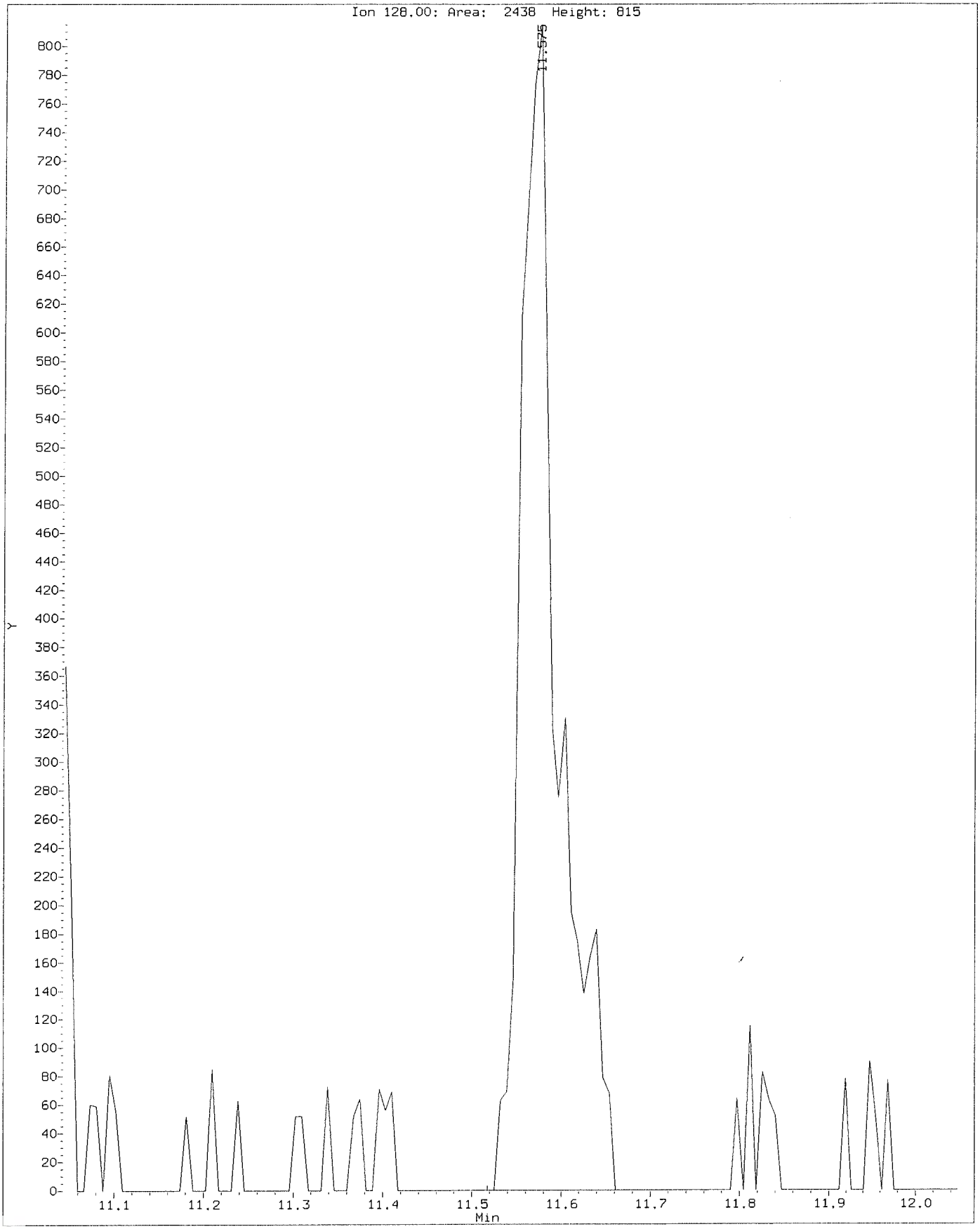
Injection Date: 24-SEP-2020 11:58
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Naphthalene
CAS Number: 91-20-3



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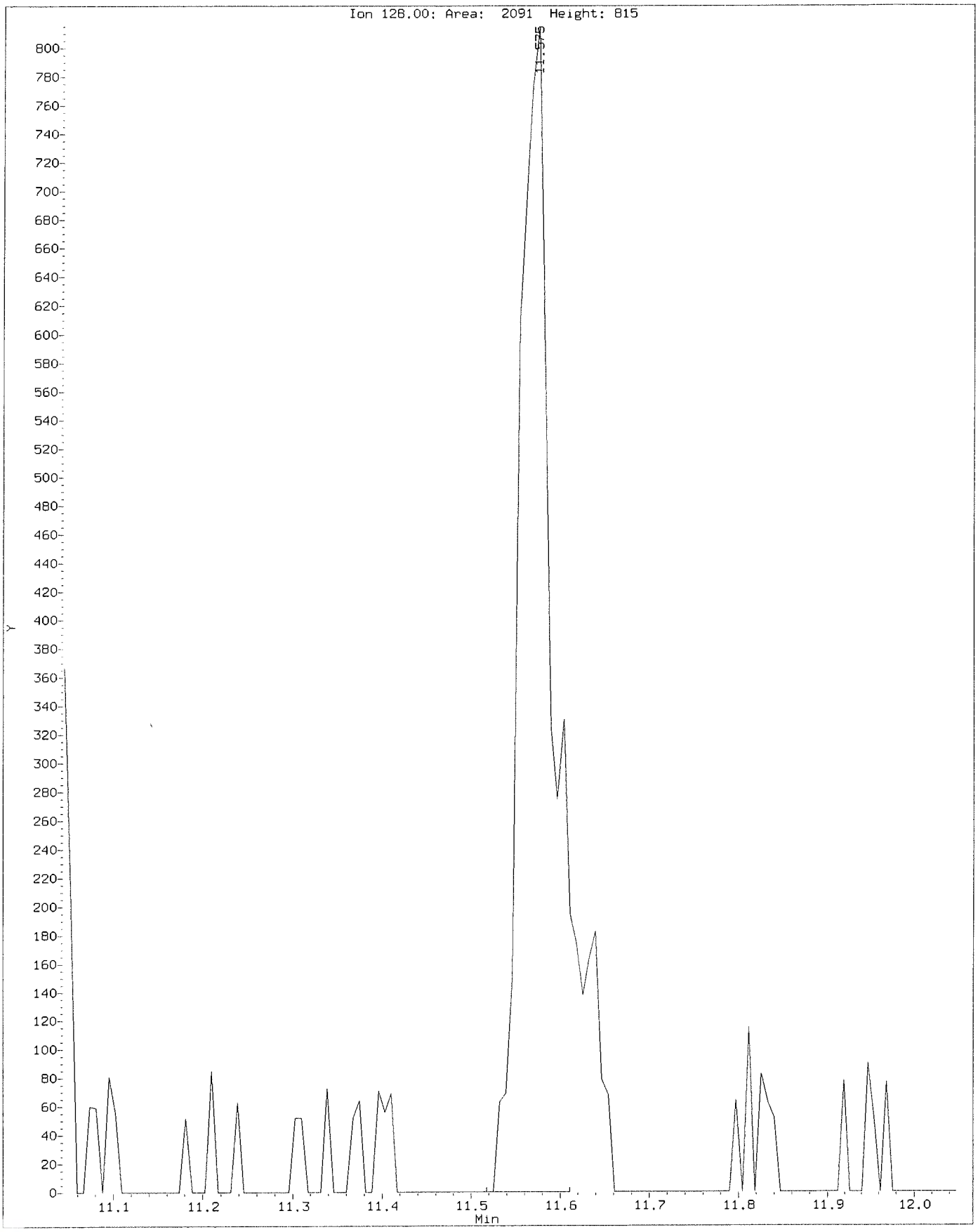
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Naphthalene
CAS Number: 91-20-3



ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

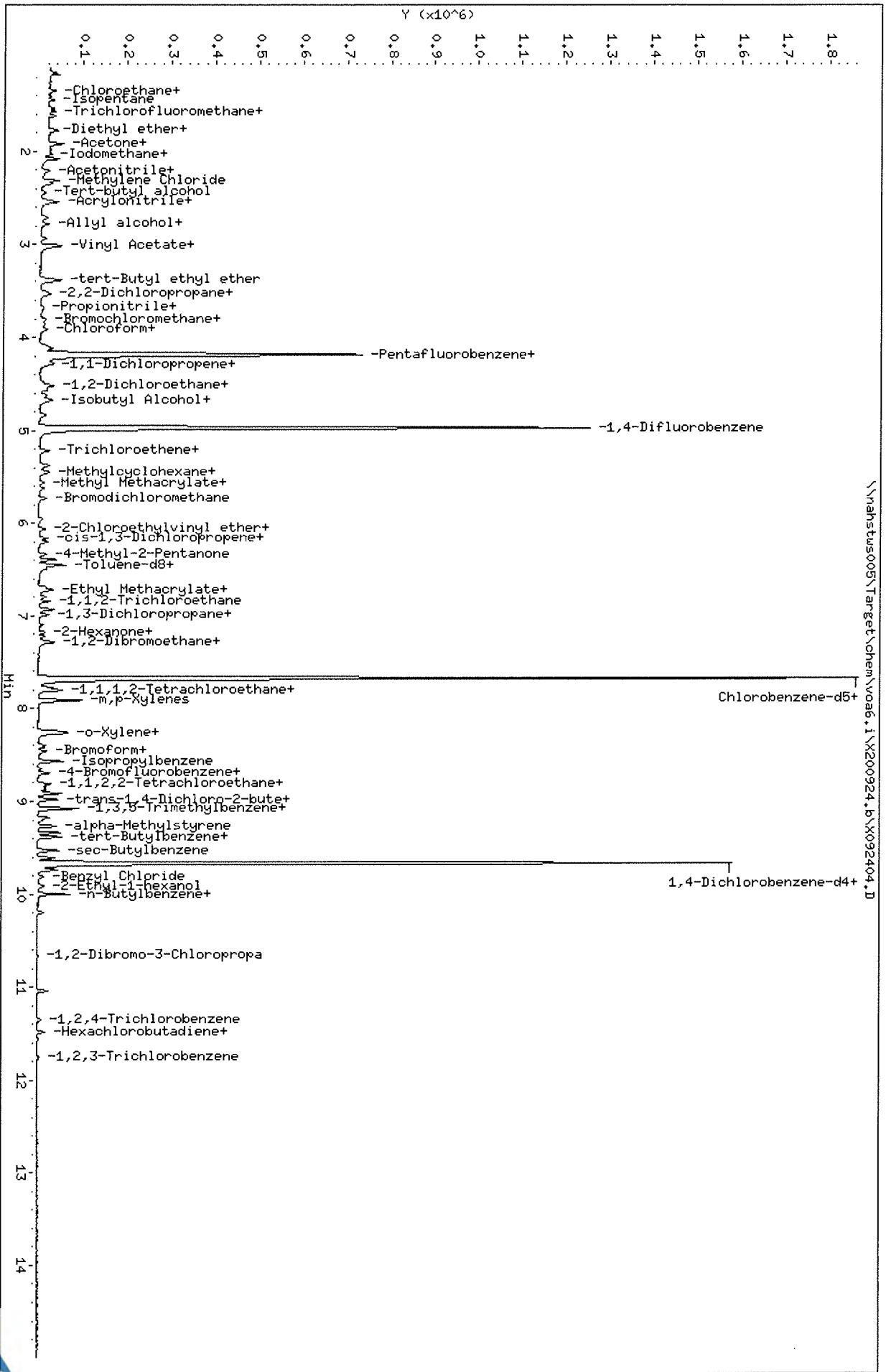
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	632214	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1010972	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	898139	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	383057	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)
$	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)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	7049	1.00000	1.13(a)
	31 1,1,1-Trichloroethane	97	4.096	4.096	(0.978)	11235	1.00000	1.15(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	8149	1.00000	1.20(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	6343	1.00000	1.19(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	15395	1.00000	1.16(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	6814	1.00000	1.19(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	9757	1.00000	1.04(aM)
	93 1,2,3-Trichlorobenzene	180	11.754	11.754	(1.216)	1757	1.00000	1.18(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	6651	1.00000	1.18(aM)
	90 1,2,4-Trichlorobenzene	180	11.352	11.352	(1.174)	2921	1.00000	2.35(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	26280	1.00000	1.15(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.672	(1.104)	597	1.00000	1.29(aM)
	57 1,2-Dibromoethane	107	7.269	7.269	(0.948)	7429	1.00000	1.19(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	12334	1.00000	1.15(a)

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092404.D Page 2
Report Date: 13-Oct-2020 11:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.569	4.569	(0.919)	10910	1.00000	1.25(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	8653	1.00000	1.15(aM)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	26381	1.00000	1.16(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	14475	1.00000	1.17(a)
54	1,3-Dichloropropane	76	6.990	6.990	(0.911)	13486	1.00000	1.23(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	13966	1.00000	1.14(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	11616	1.00000	1.17(a)
24	2-Butanone	43	3.616	3.616	(0.863)	4126	2.00000	1.78(a)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	23708	1.00000	1.19(a)
52	2-Hexanone	43	7.098	7.098	(0.925)	7700	2.00000	1.93(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	27312	1.00000	1.20(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	25331	1.00000	1.11(a)
45	4-Methyl-2-Pentanone	43	6.338	6.338	(0.826)	13653	2.00000	2.16(a)
10	Acetone	43	1.976	1.976	(0.472)	6768	2.00000	(a)
37	Benzene	78	4.519	4.519	(0.909)	34840	1.00000	1.20(a)
74	Bromobenzene	156	8.817	8.817	(0.912)	9112	1.00000	1.17(a)
29	Bromochloromethane	128	3.803	3.803	(0.908)	4791	1.00000	1.21(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	10203	1.00000	1.11(a)
66	Bromoform	173	8.416	8.416	(1.097)	4274	1.00000	1.08(aM)
6	Bromomethane	94	1.346	1.346	(0.321)	7731	1.00000	1.28(aM)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	46459	2.00000	2.36(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	8300	1.00000	1.02(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	22145	1.00000	1.21(a)
7	Chloroethane	64	1.410	1.410	(0.337)	5632	1.00000	1.13(a)
28	Chloroform	83	3.917	3.917	(0.935)	14431	1.00000	1.17(a)
3	Chloromethane	50	1.081	1.081	(0.258)	8974	1.00000	1.03(a)
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	9071	1.00000	1.17(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	12704	1.00000	1.09(a)
55	Dibromochloromethane	129	7.183	7.183	(0.937)	7560	1.00000	1.17(a)
44	Dibromomethane	93	5.557	5.557	(1.118)	5100	1.00000	1.14(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	6629	1.00000	3.05(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	11569	1.00000	1.21(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	3302	1.00000	2.13(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	32898	1.00000	1.18(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	27318	2.00000	2.38(a)
17	Methylene Chloride	84	2.313	2.313	(0.552)	9684	1.00000	0.71(a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	22581	1.00000	1.14(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	37045	1.00000	1.13(a)
92	Naphthalene	128	11.560	11.560	(1.196)	3645	1.00000	1.02(a)
63	o-Xylene	106	8.251	8.251	(1.076)	13335	1.00000	1.19(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	30538	1.00000	1.14(a)
64	Styrene	104	8.265	8.265	(1.078)	21938	1.00000	1.14(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	22282	1.00000	1.18(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	6913	1.00000	1.21(a)
50	Toluene	91	6.453	6.453	(0.841)	34881	1.00000	1.19(a)
20	trans-1,2-Dichloroethene	96	2.542	2.542	(0.607)	7431	1.00000	1.13(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	11002	1.00000	1.13(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	8381	1.00000	1.15(a)
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	10504	1.00000	1.14(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	9143	1.00000	1.11(a)

QC Flag Legend

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



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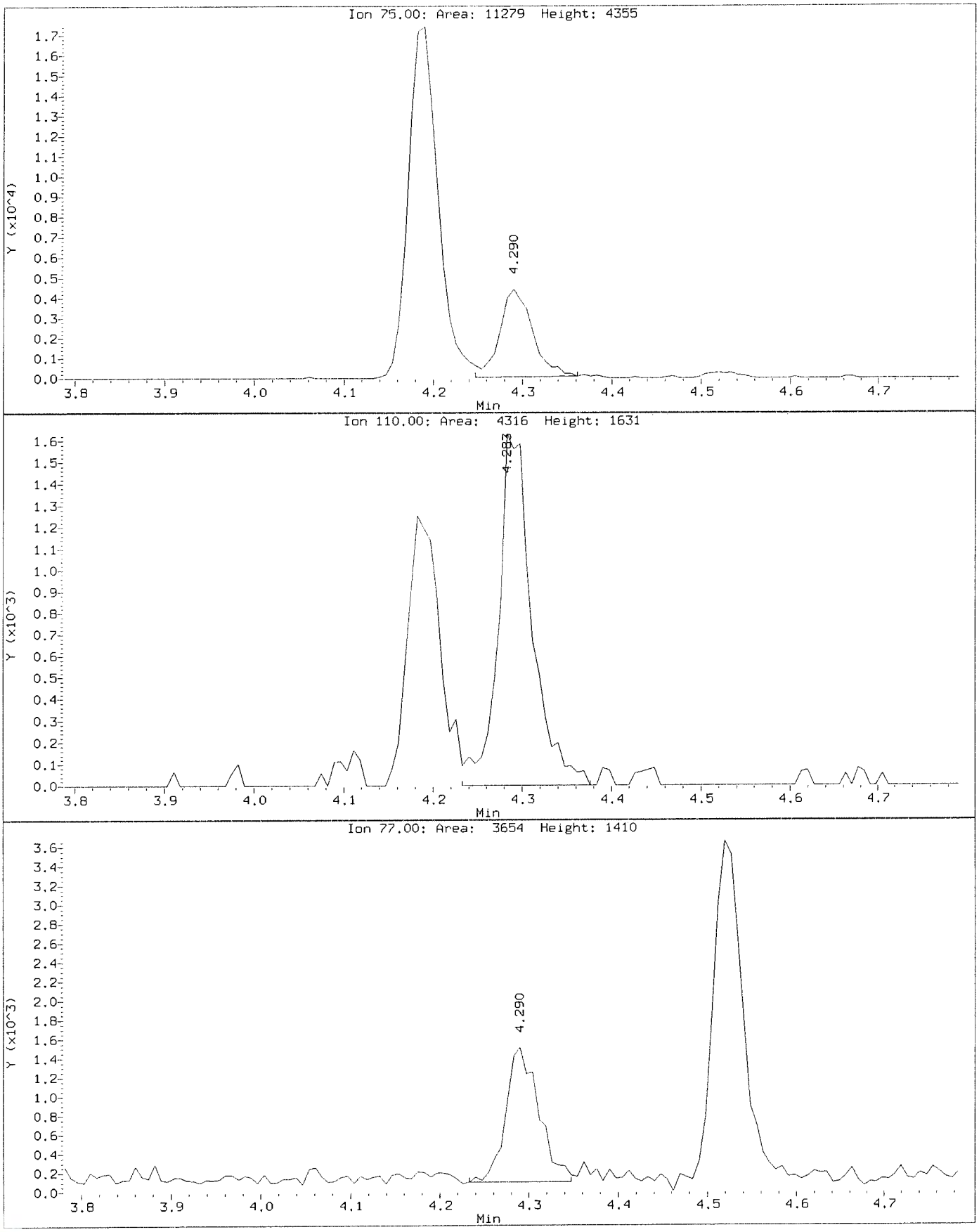
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624

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

\\nahstws005\Target\chem\voa6.i\X200924.b\X092404.D

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092404.D
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



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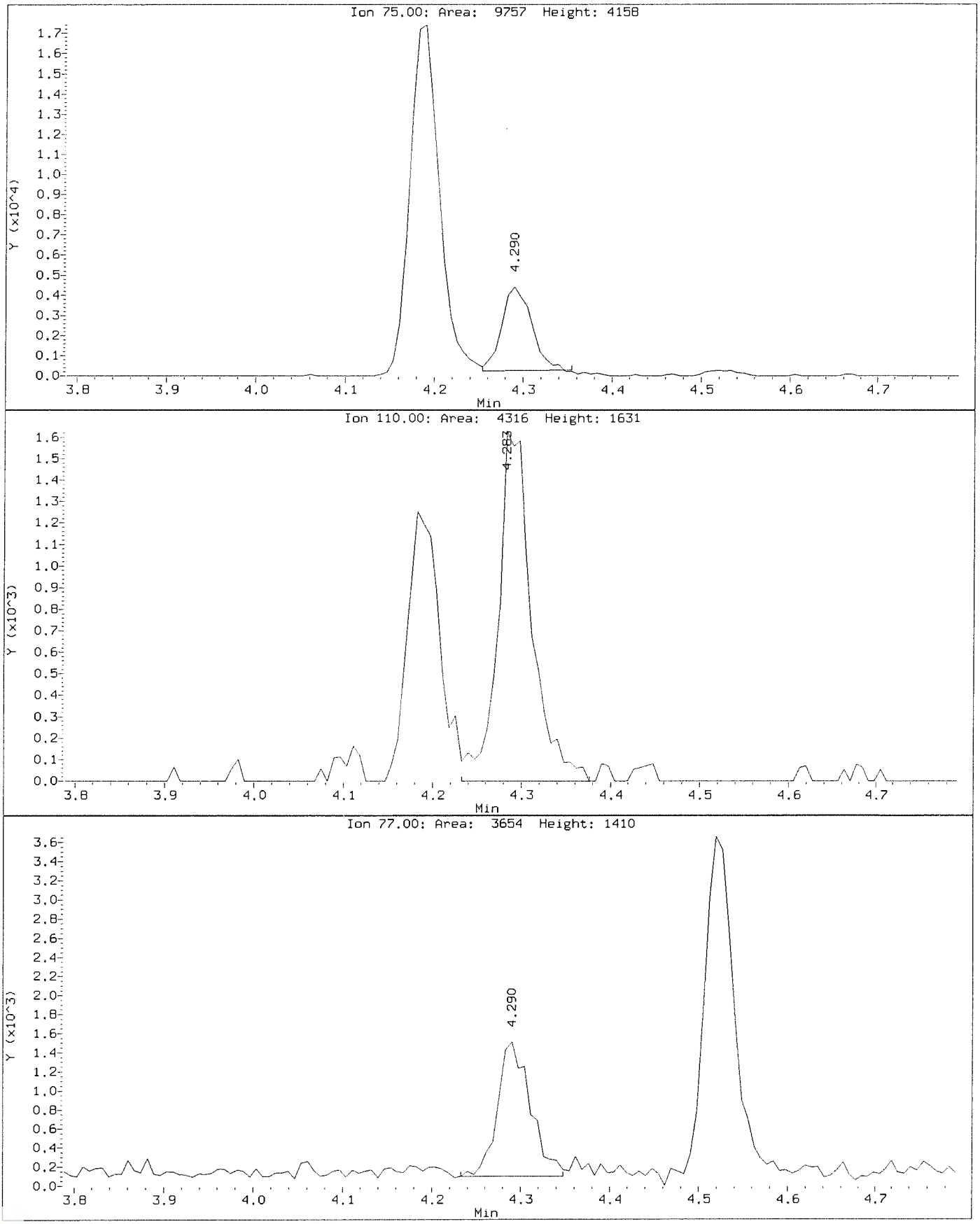
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



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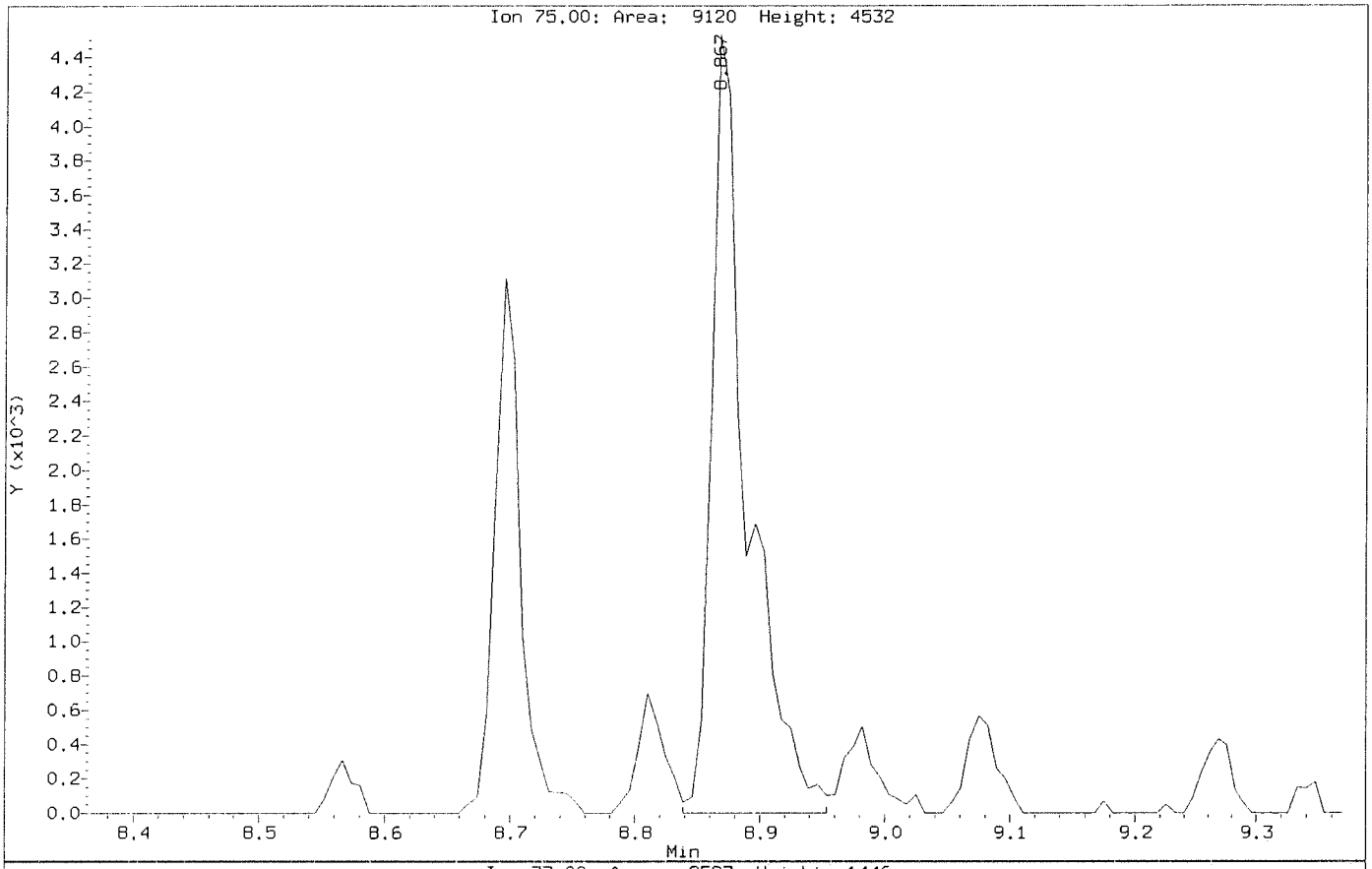
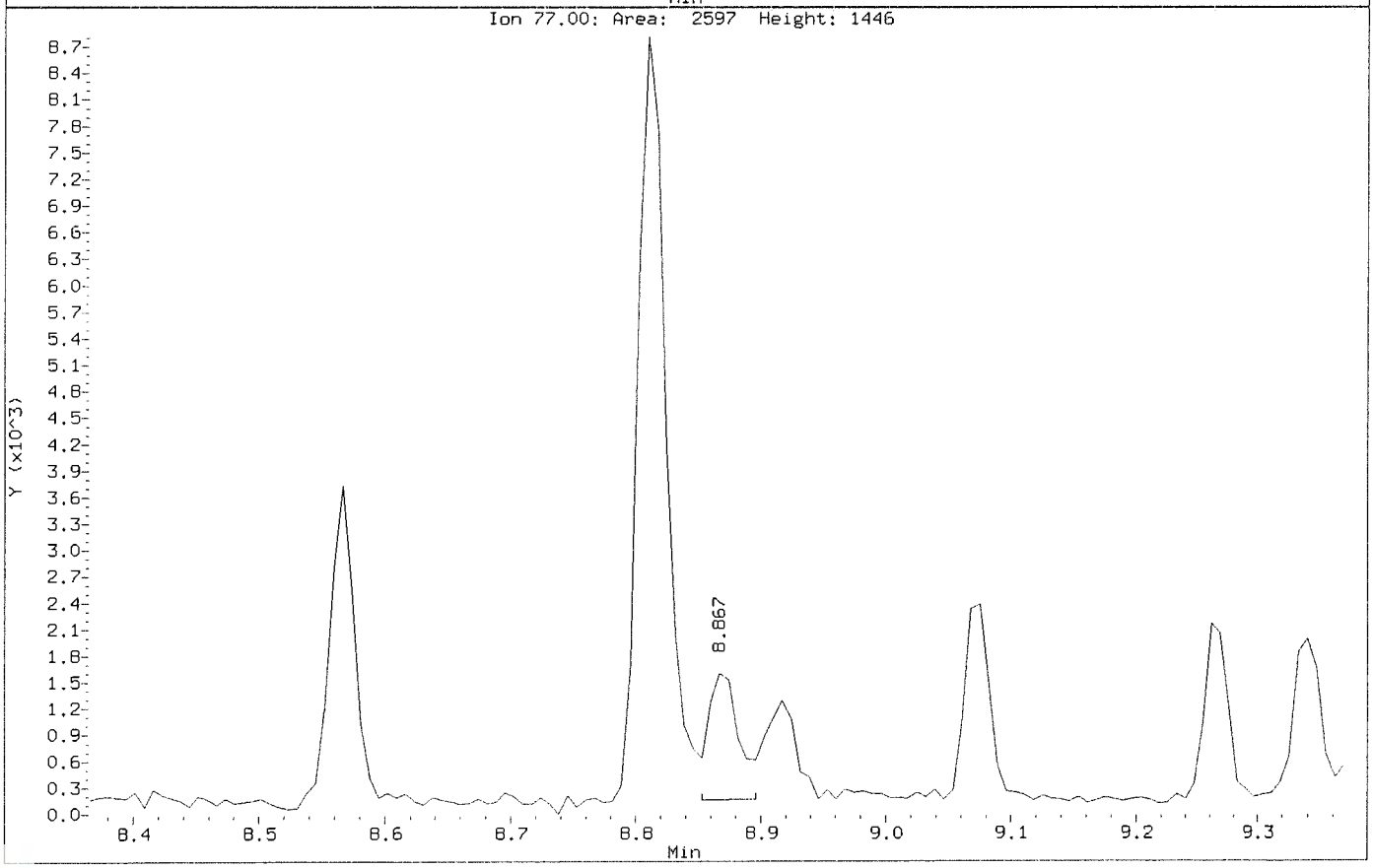
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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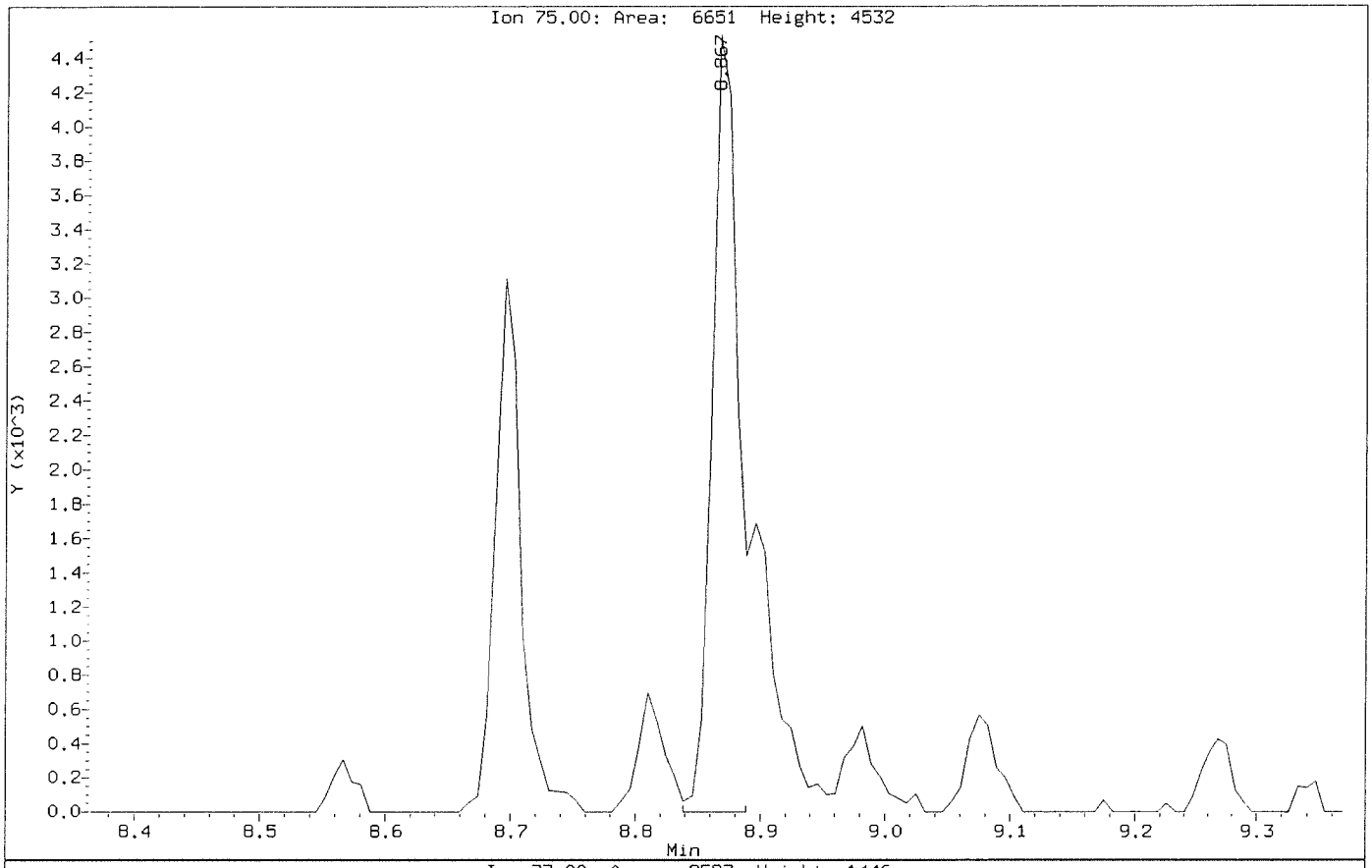
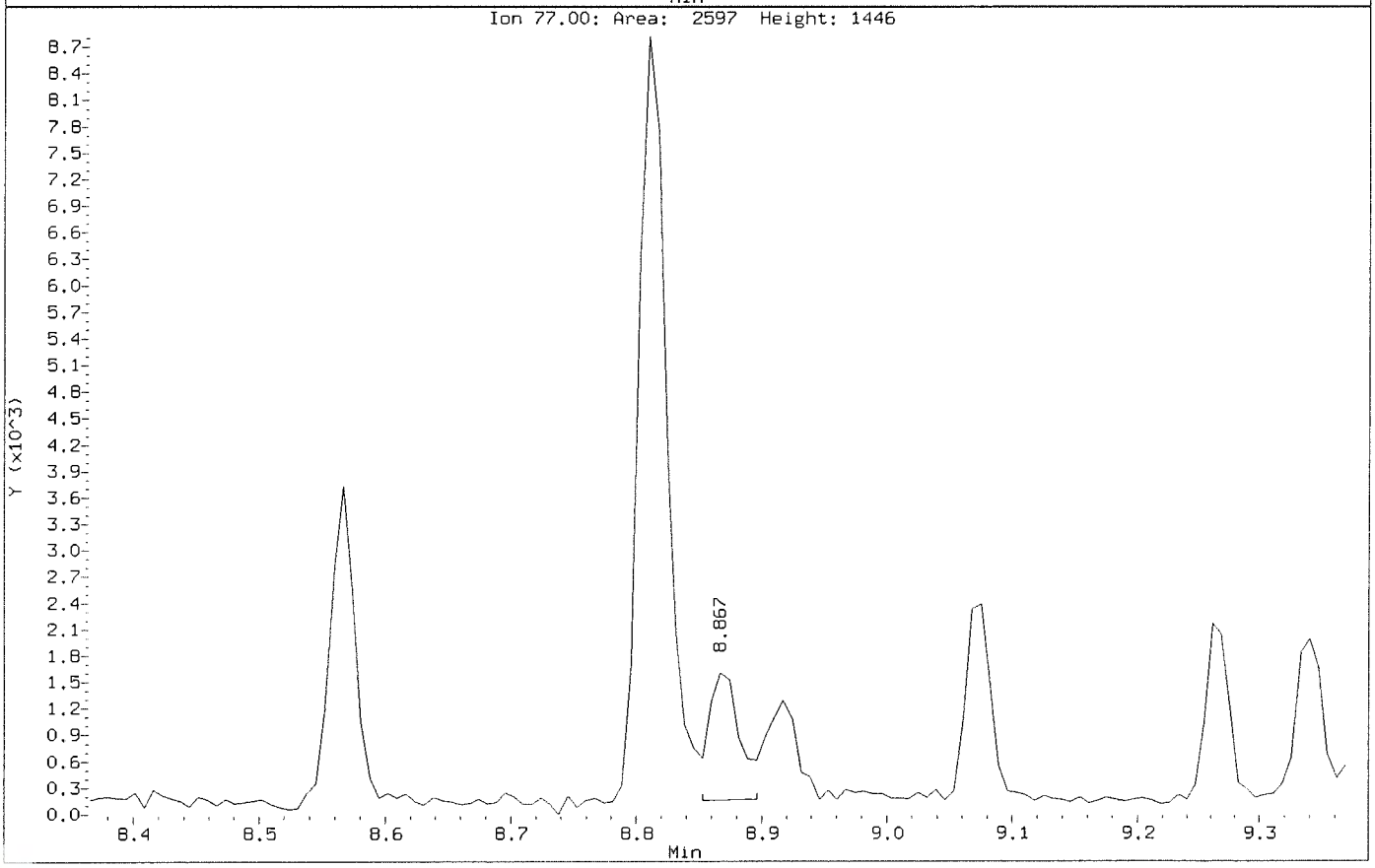
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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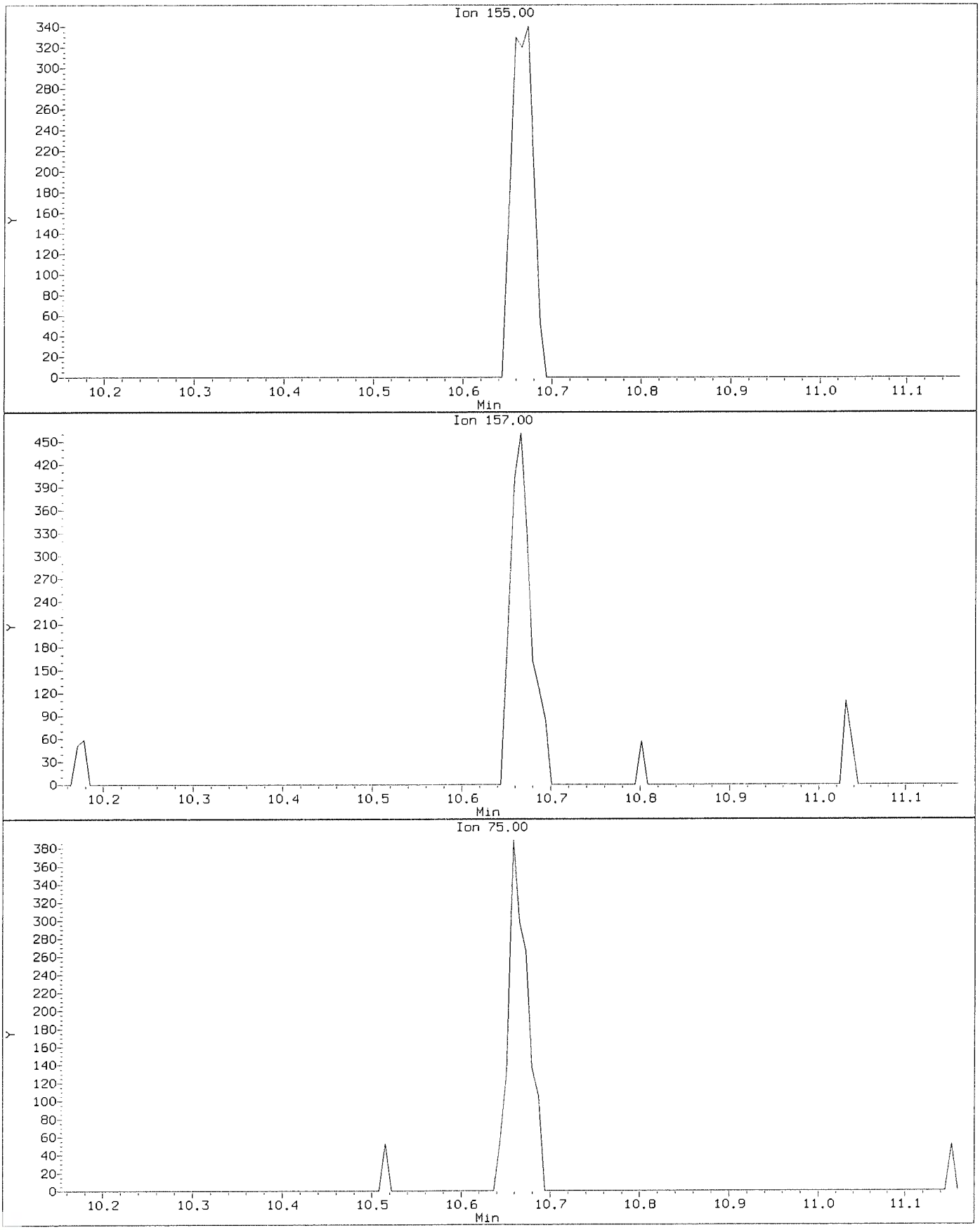
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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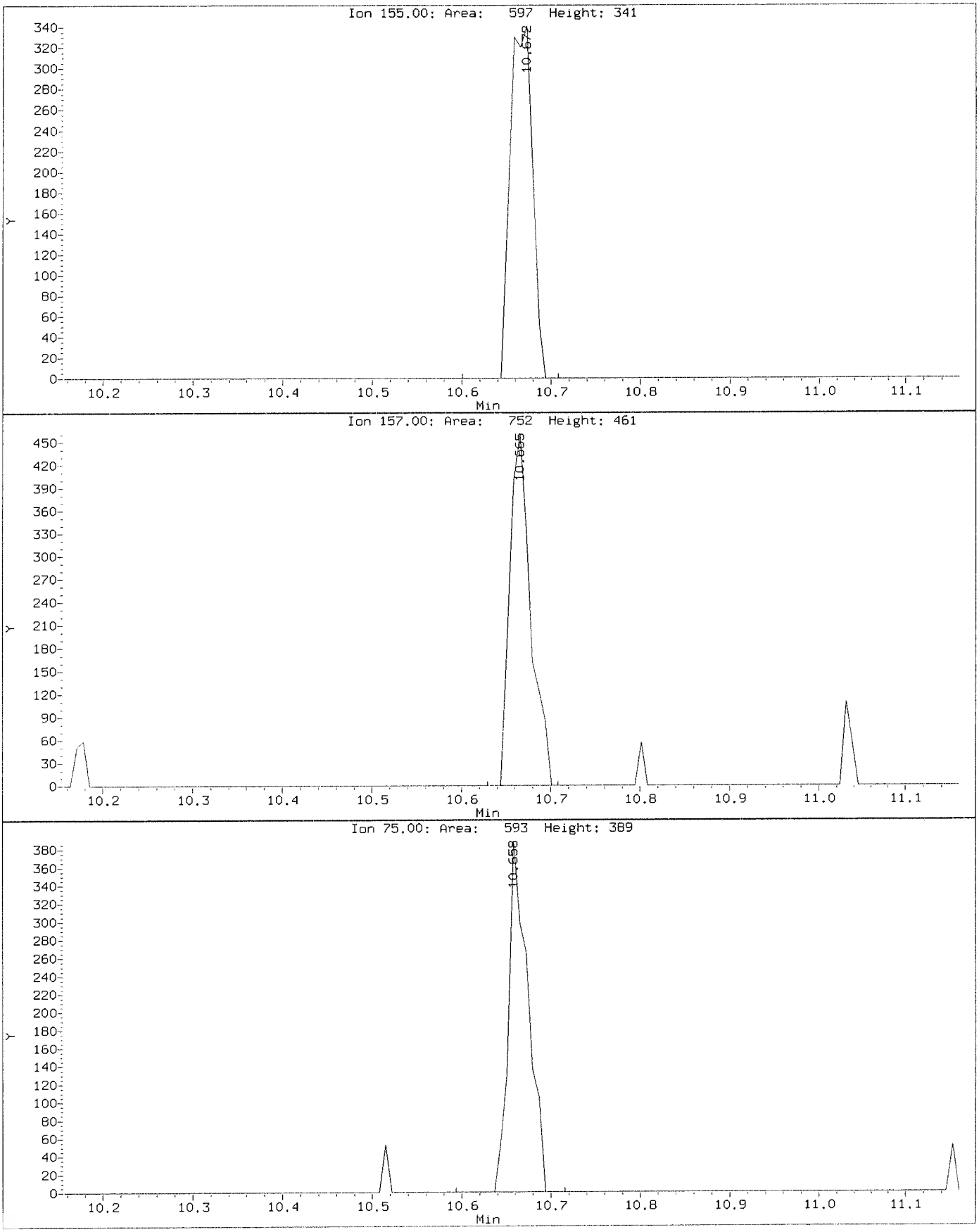
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



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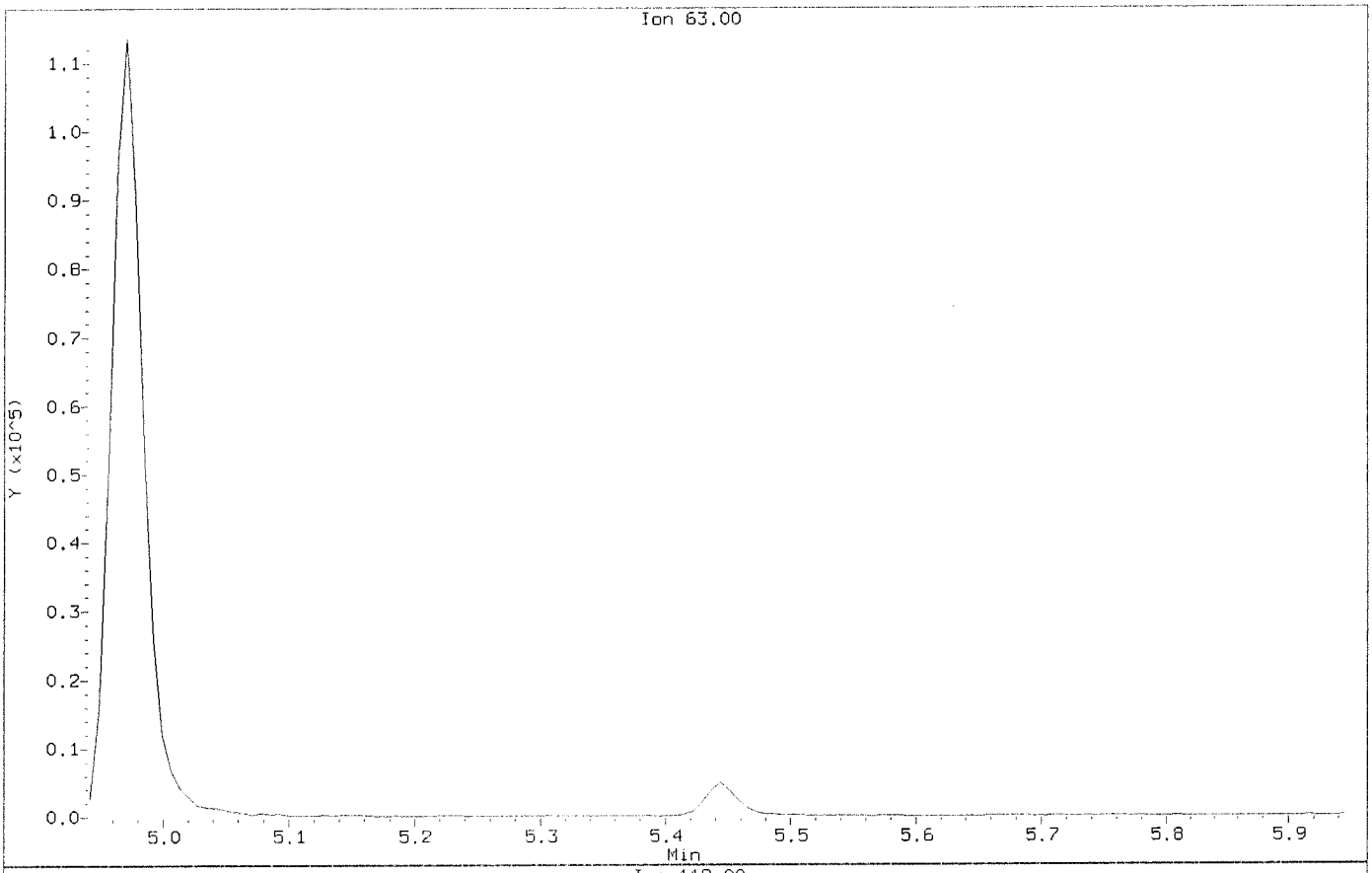
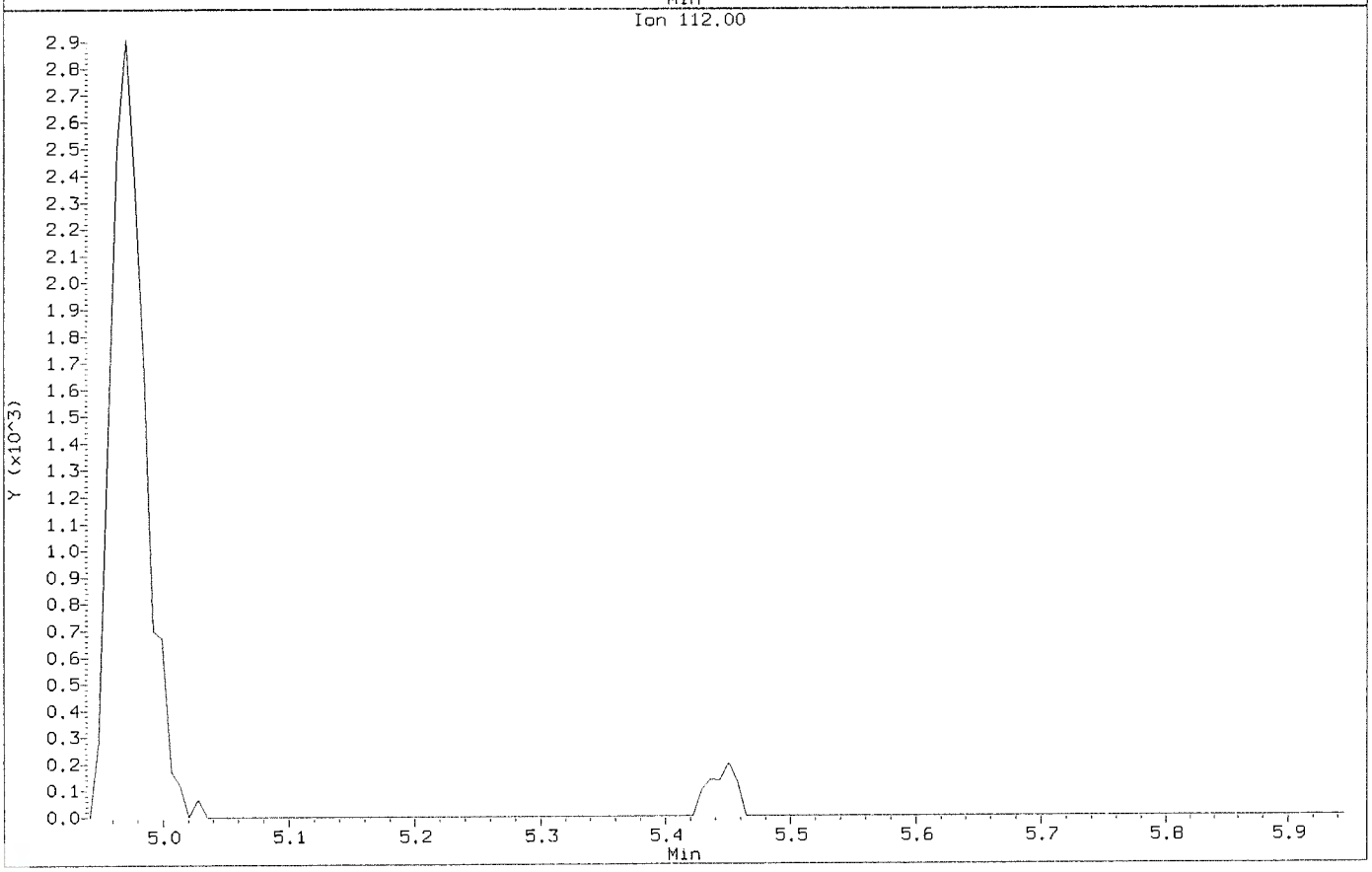
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

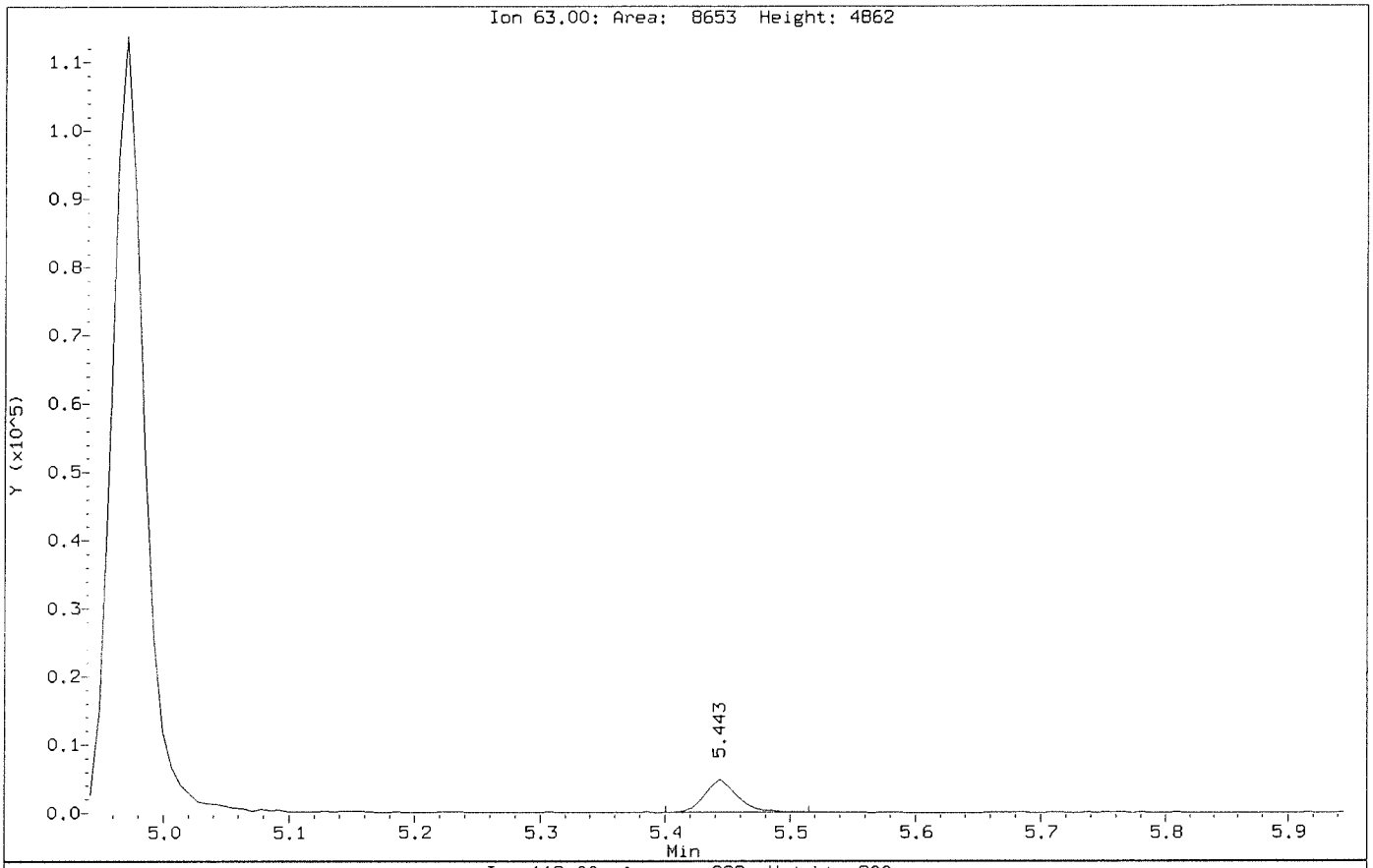
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

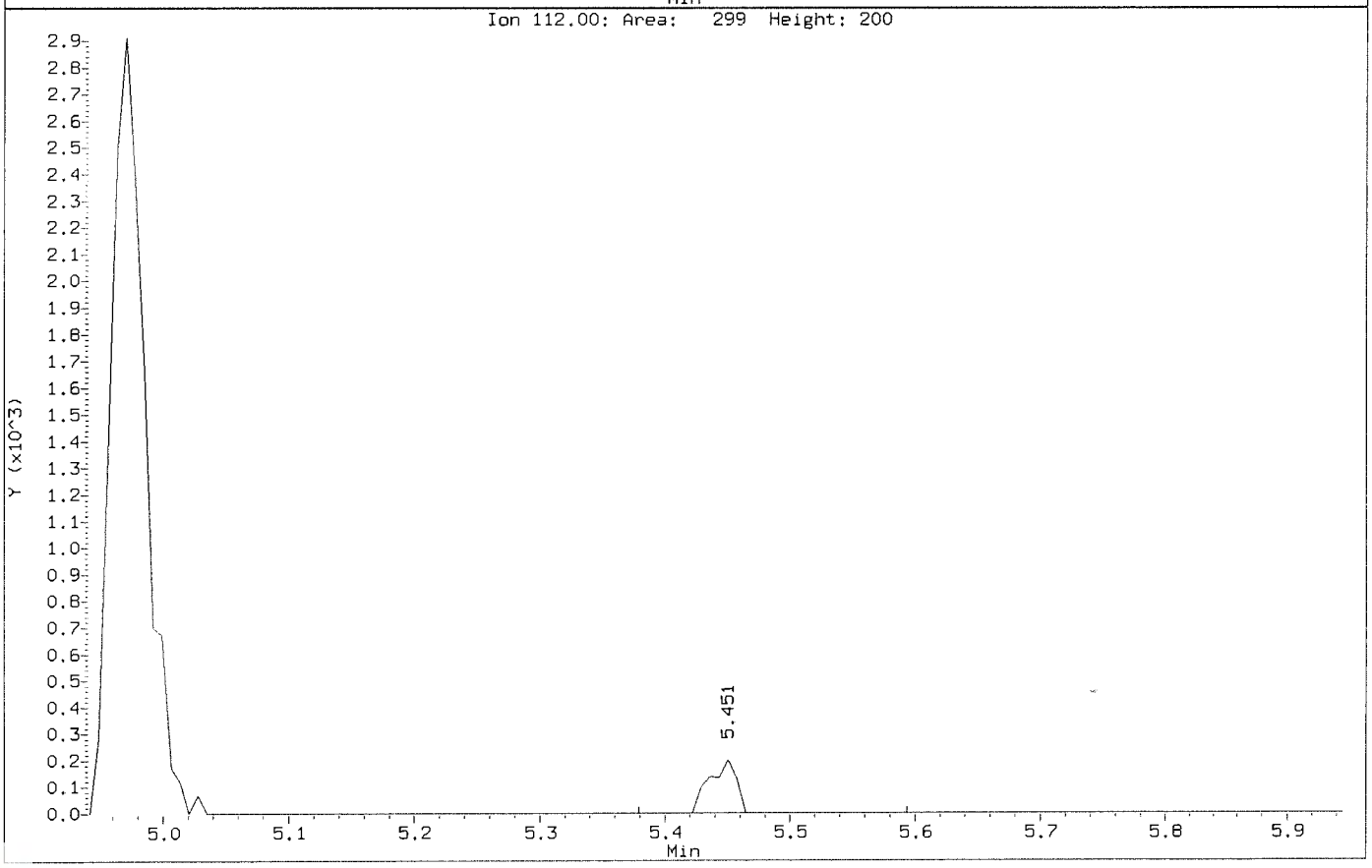




Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092404.D
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





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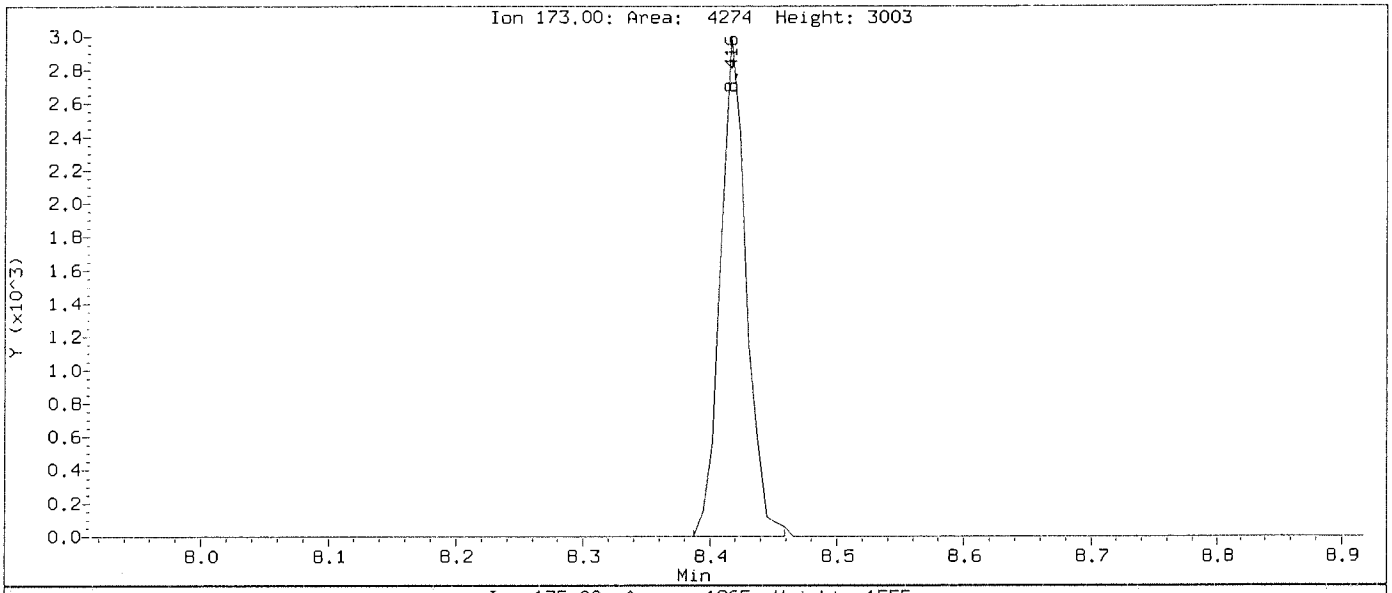
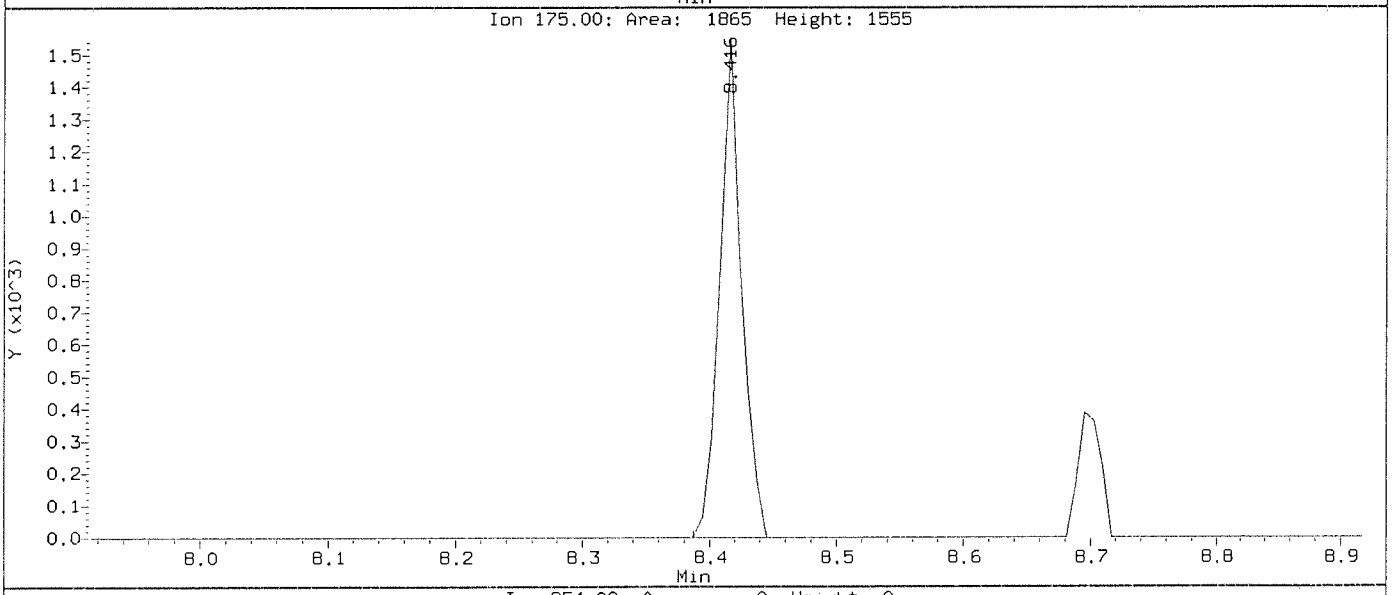
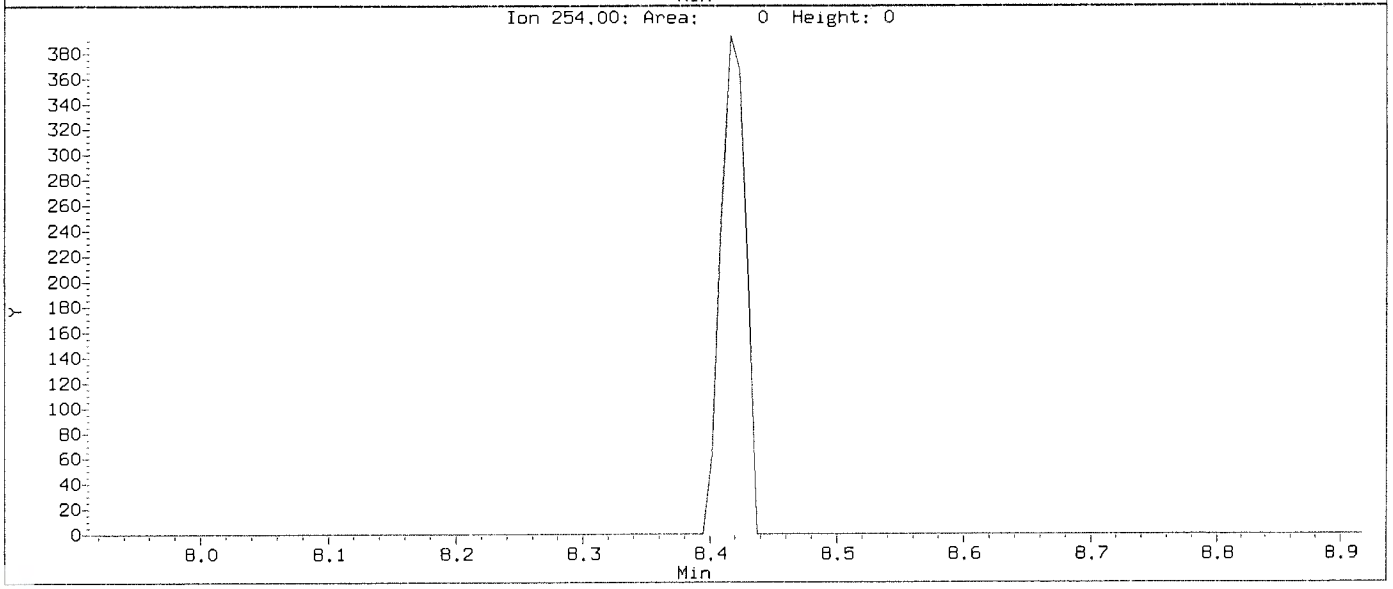
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromoform
CAS Number: 75-25-2







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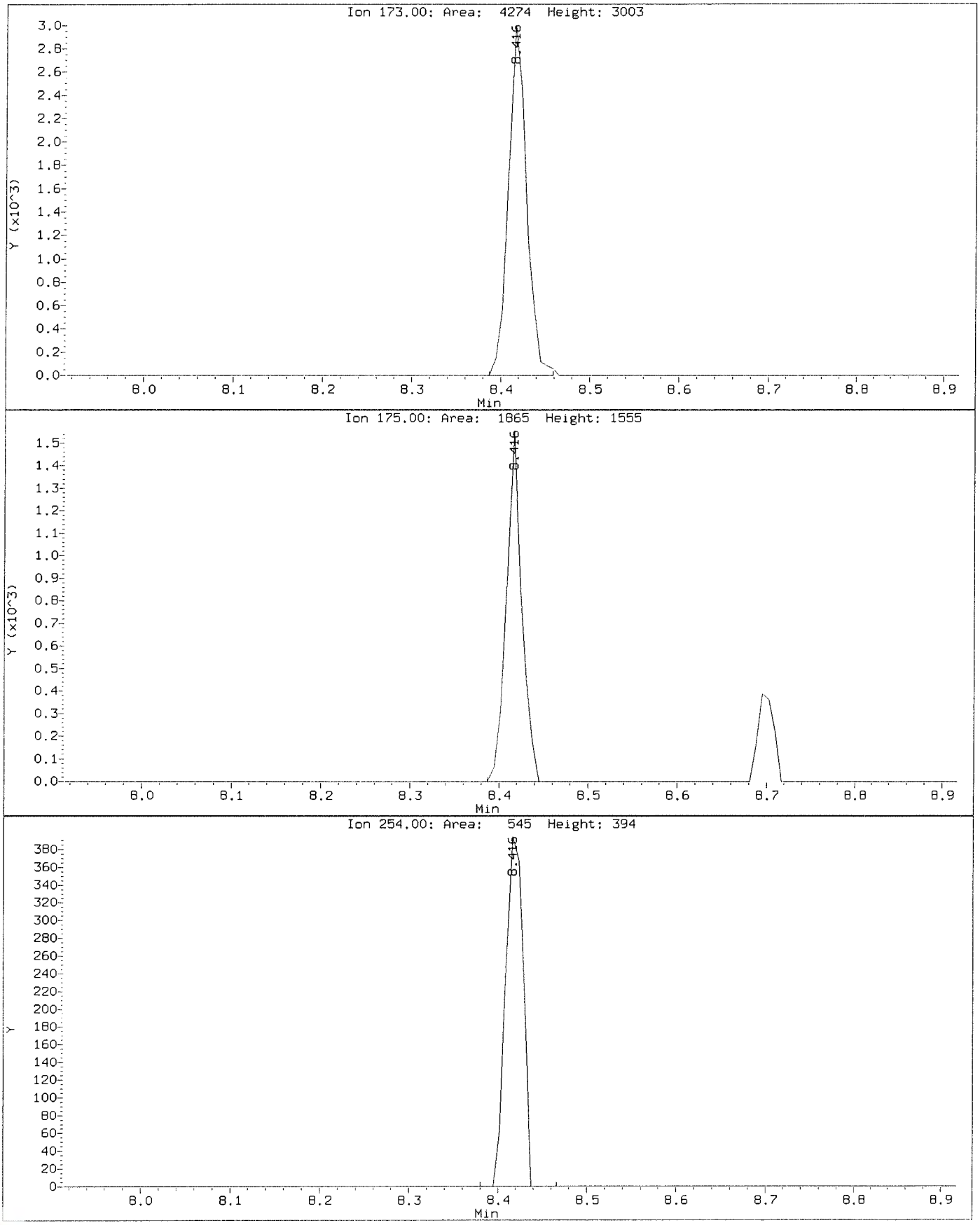
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromoform
CAS Number: 75-25-2



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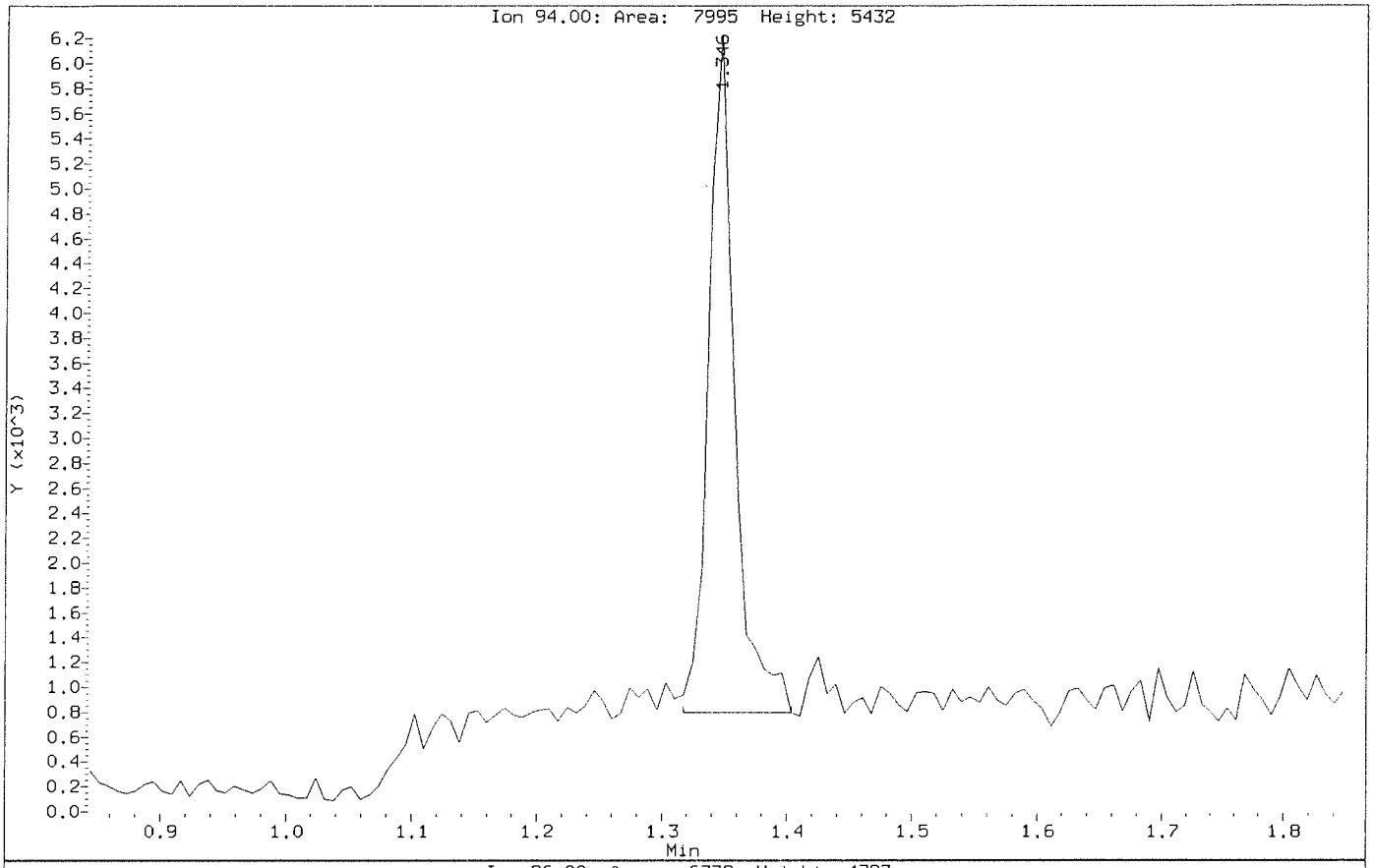
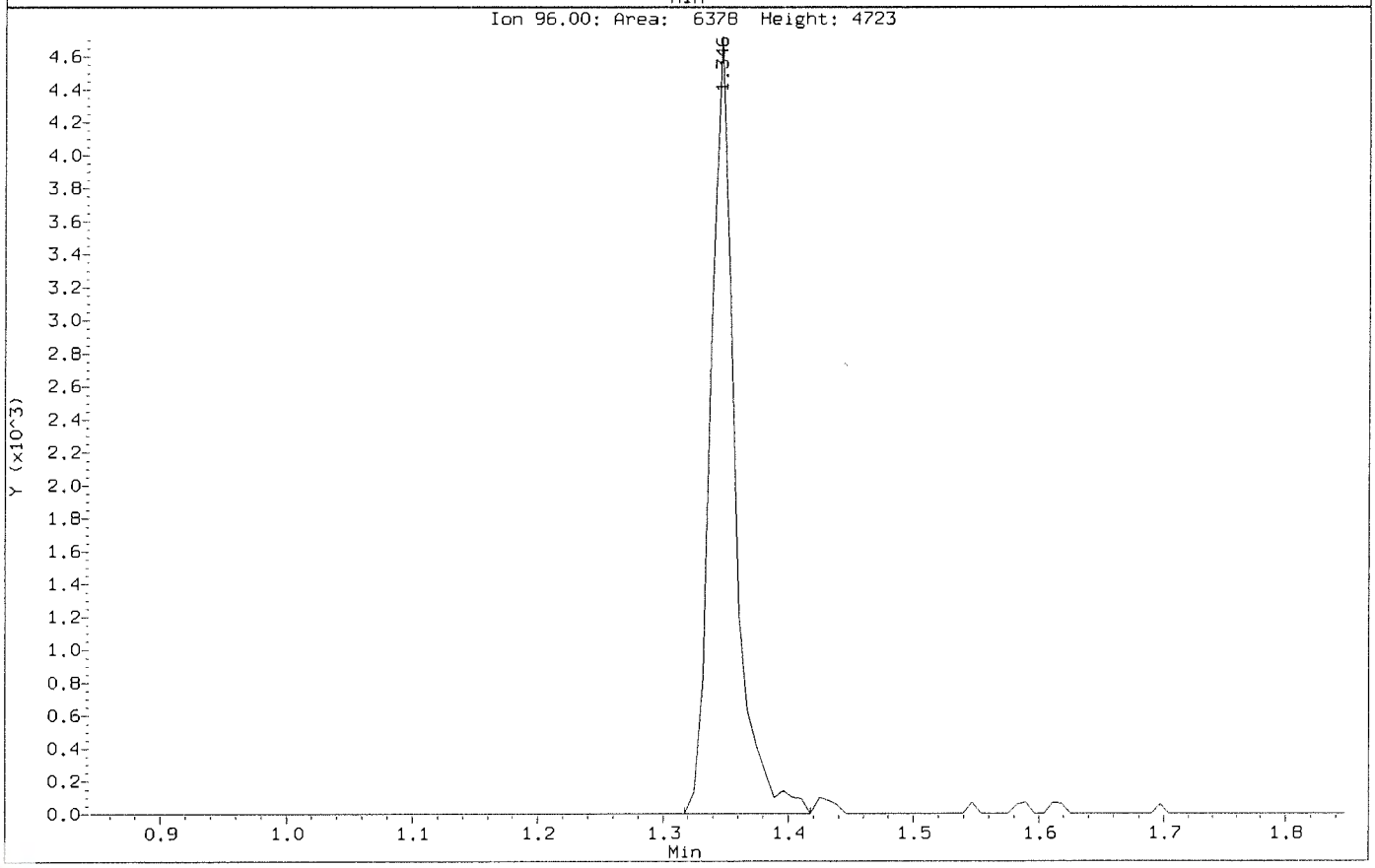
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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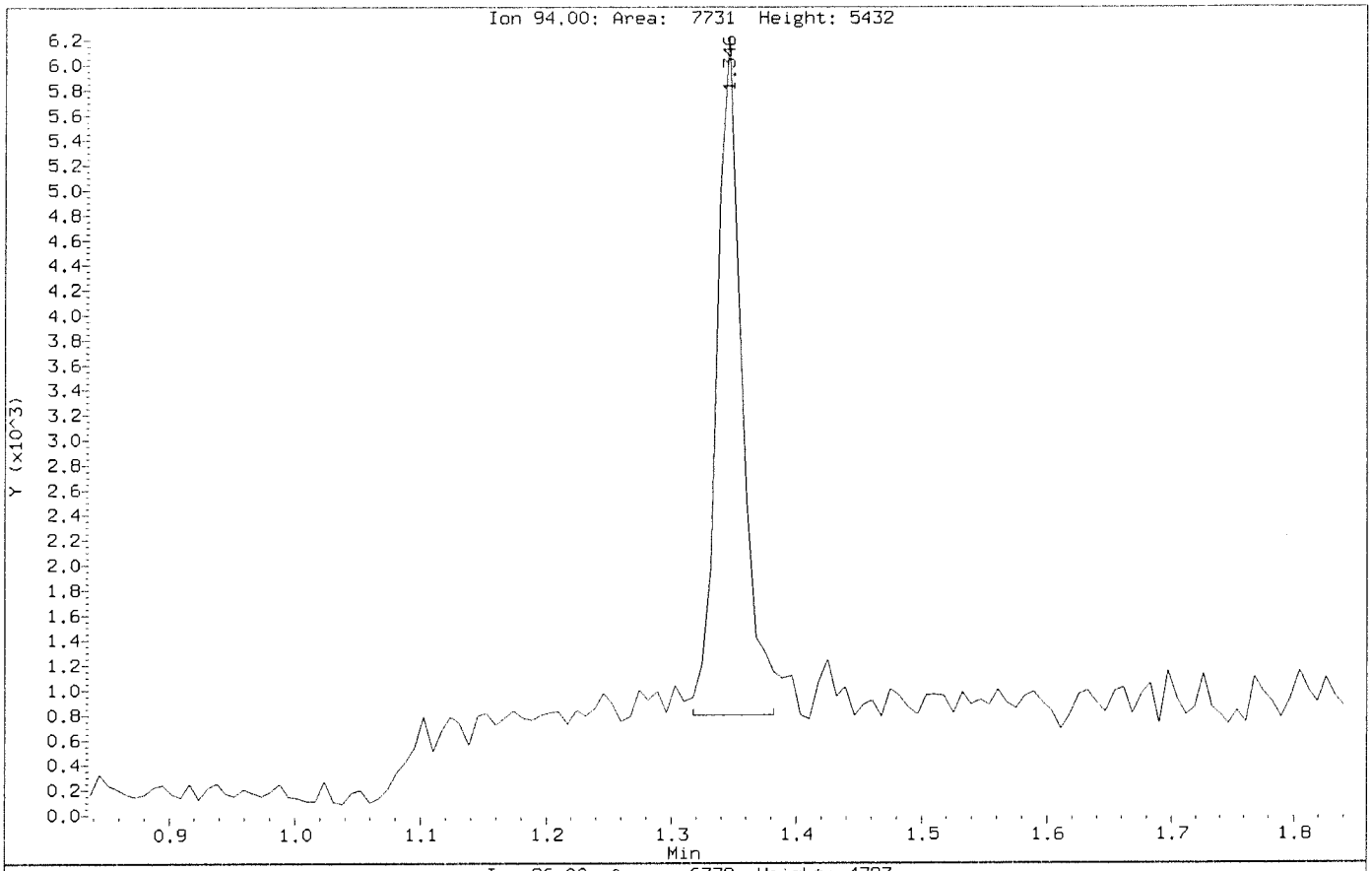
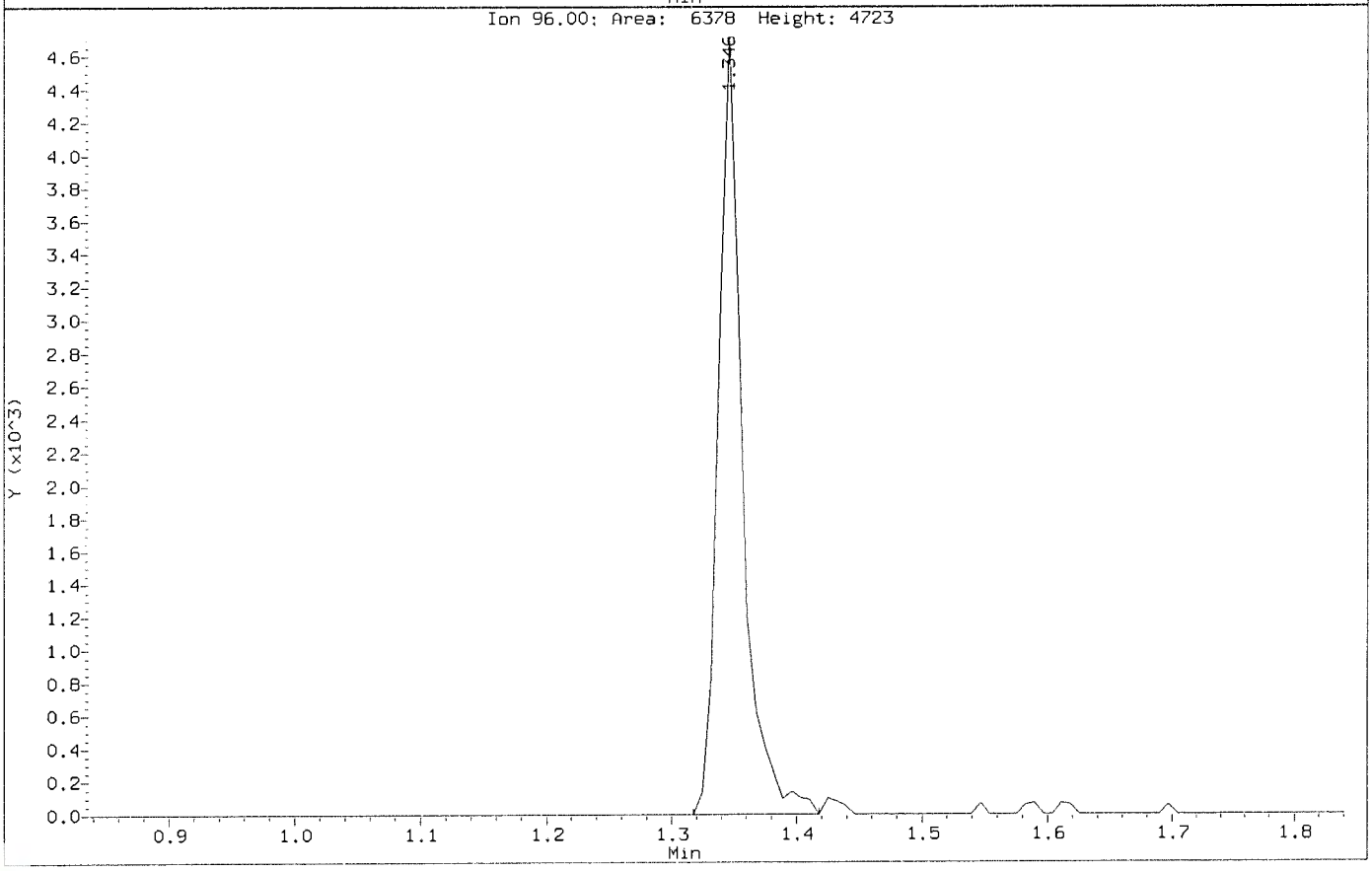
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9





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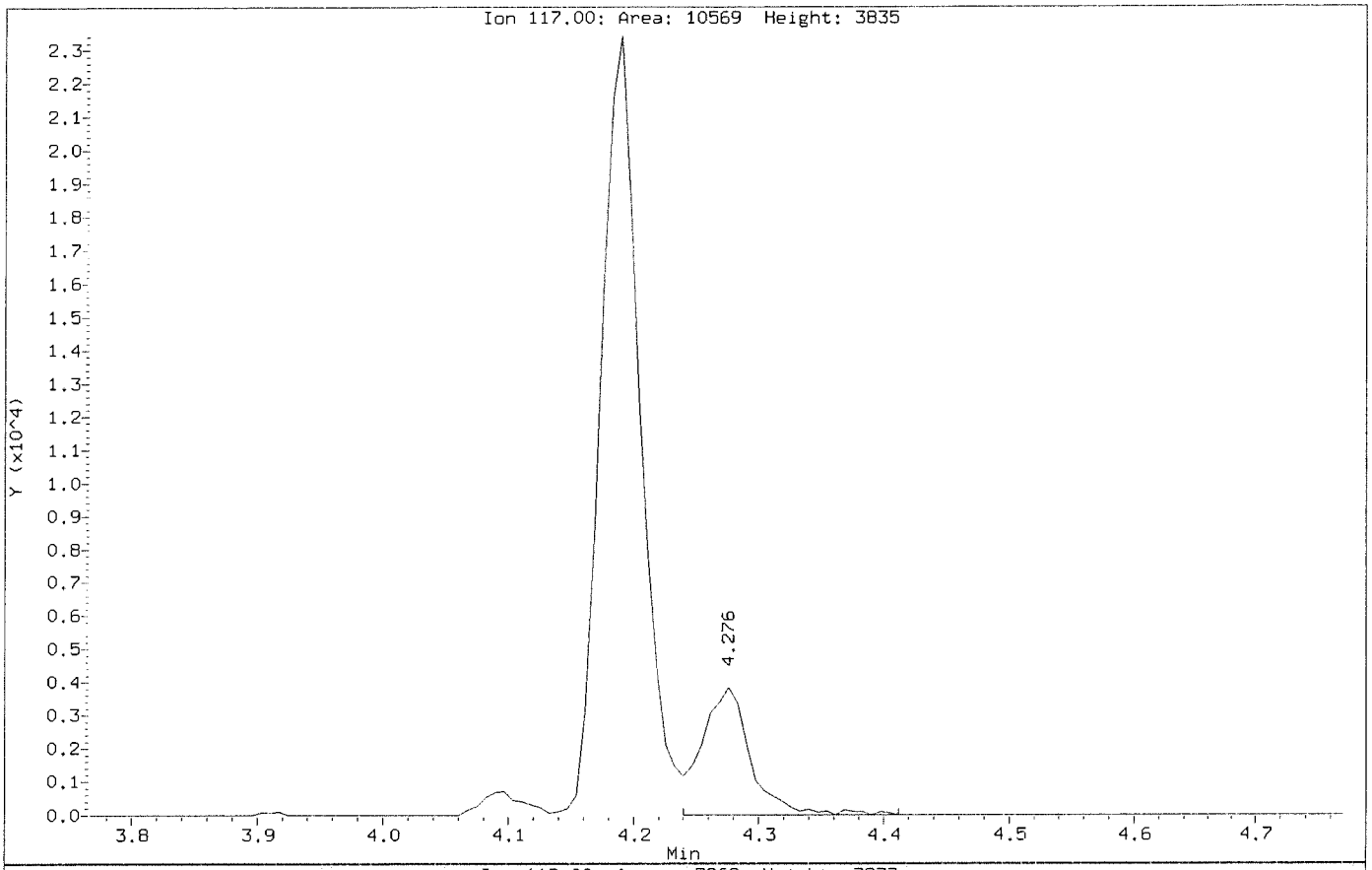
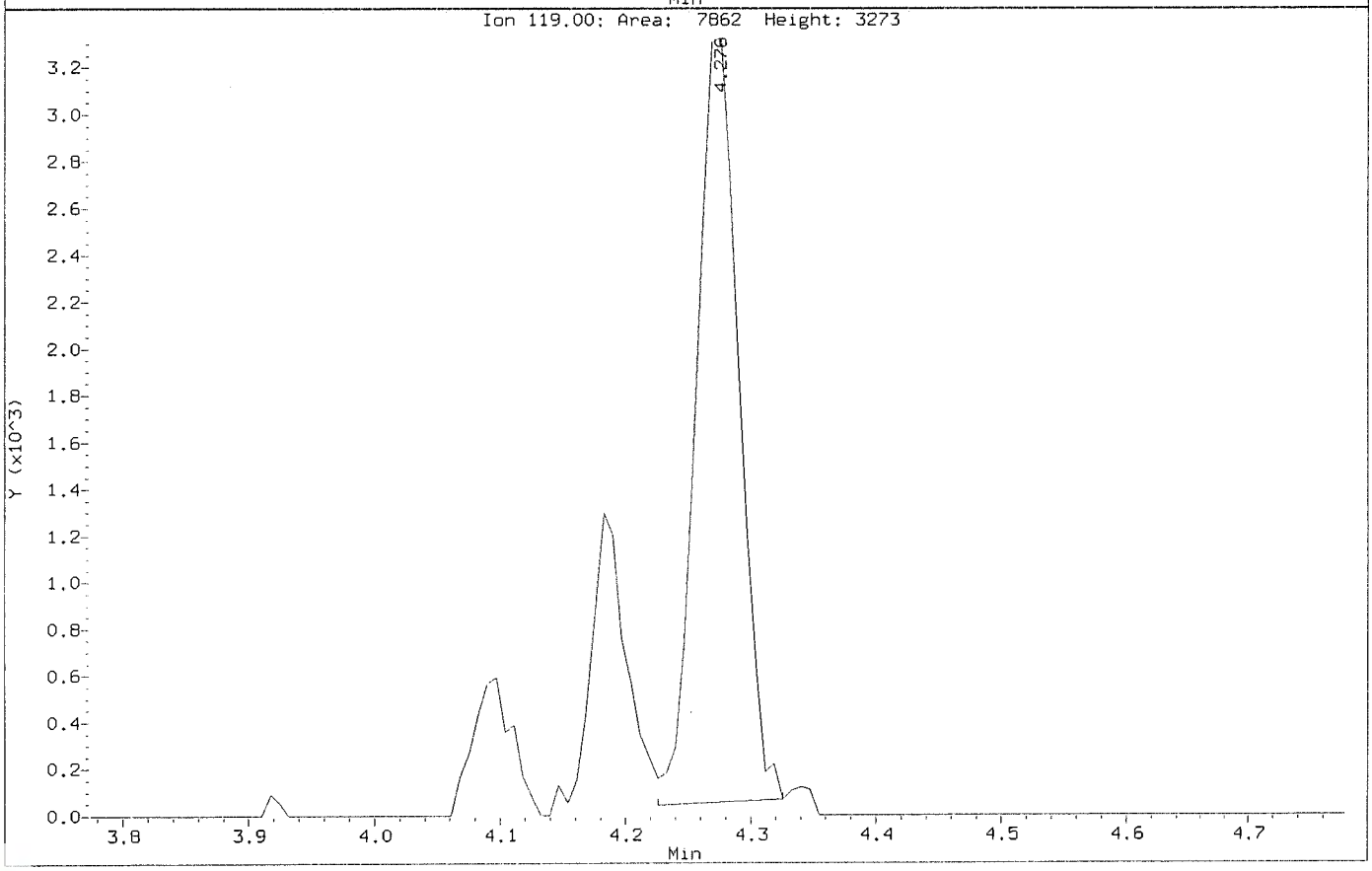
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





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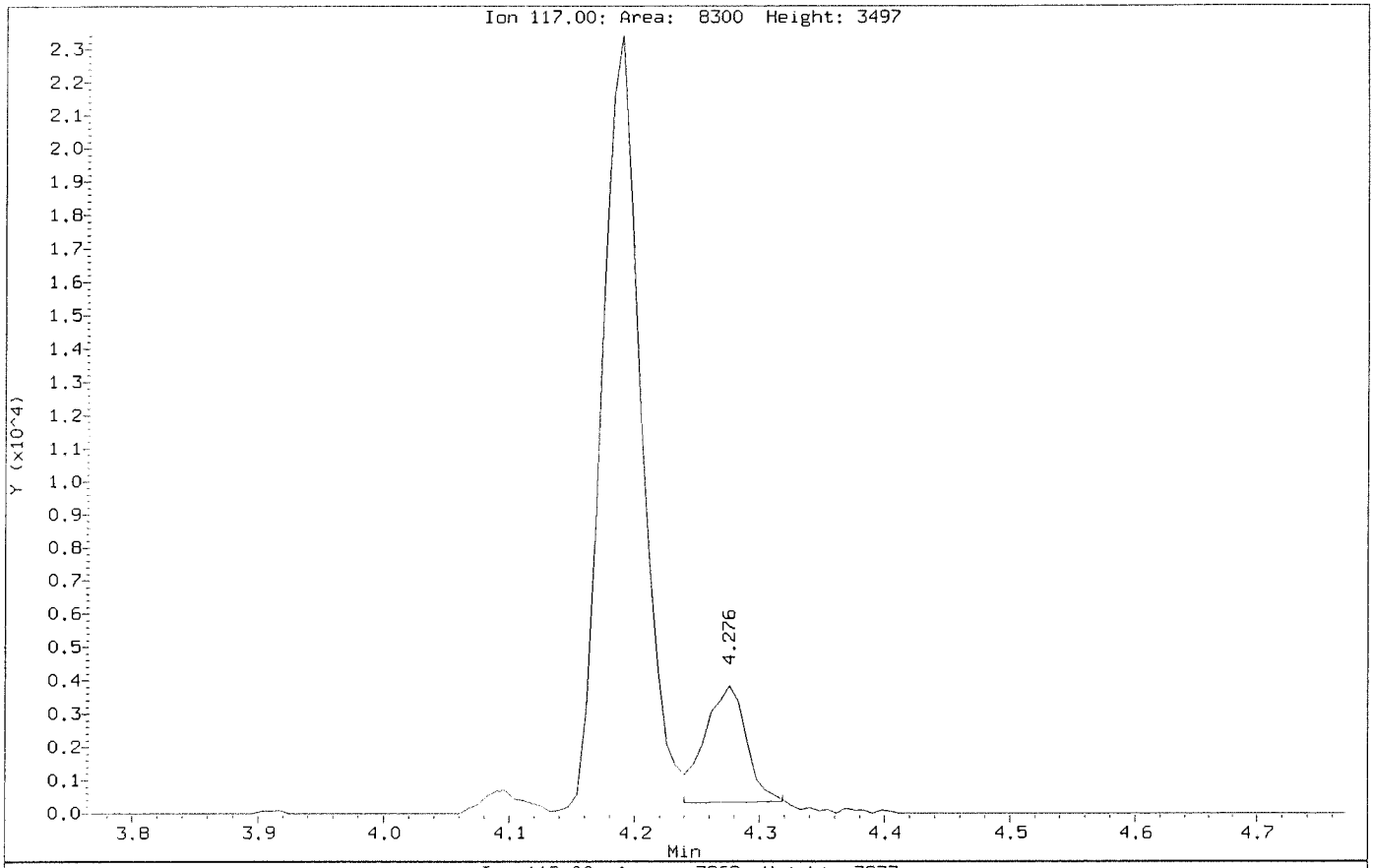
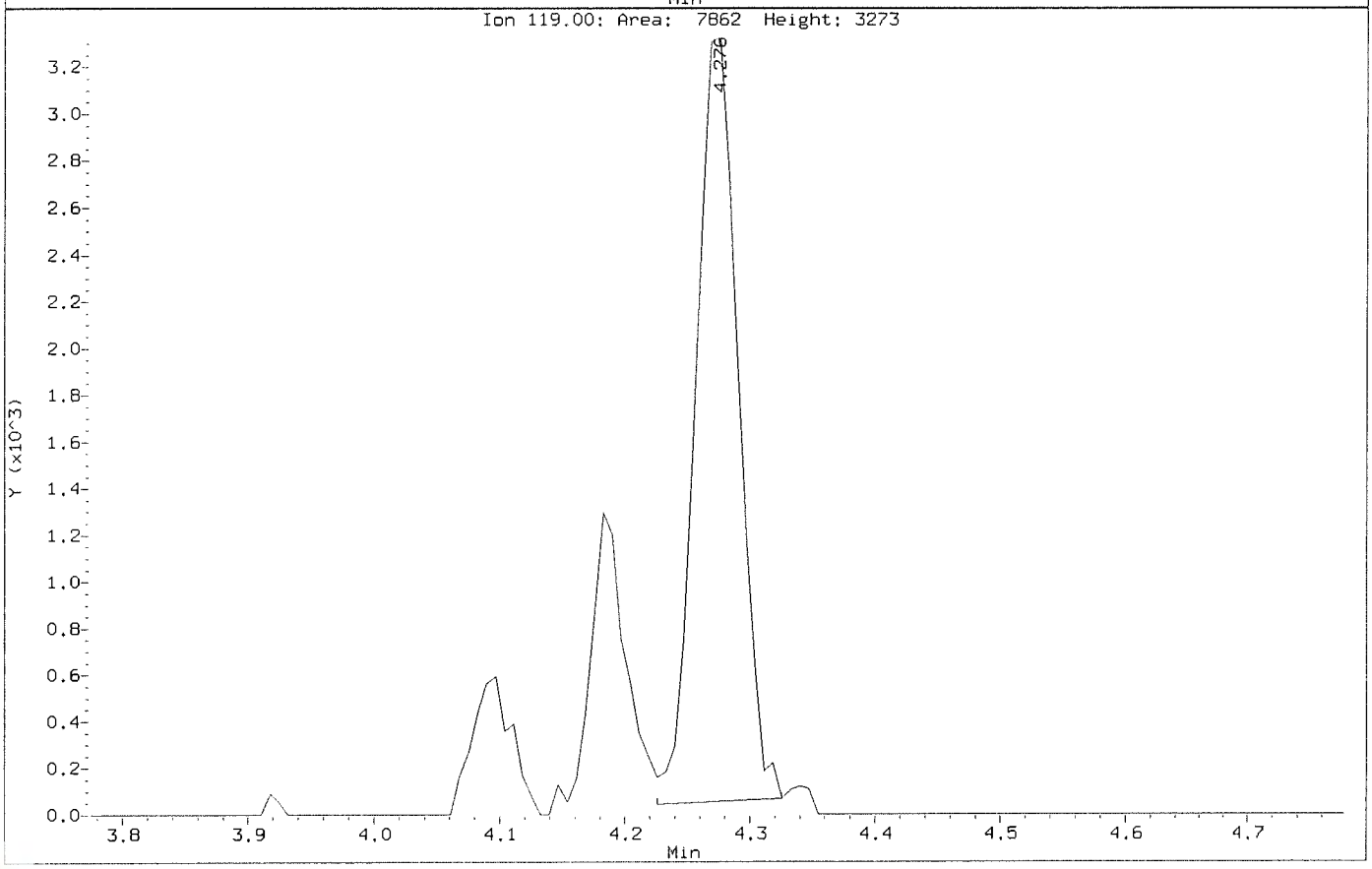
Injection Date: 24-SEP-2020 12:46
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Carbon Tetrachloride
CAS Number: 56-23-5





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092405.D Page 1
Report Date: 13-Oct-2020 11:23

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

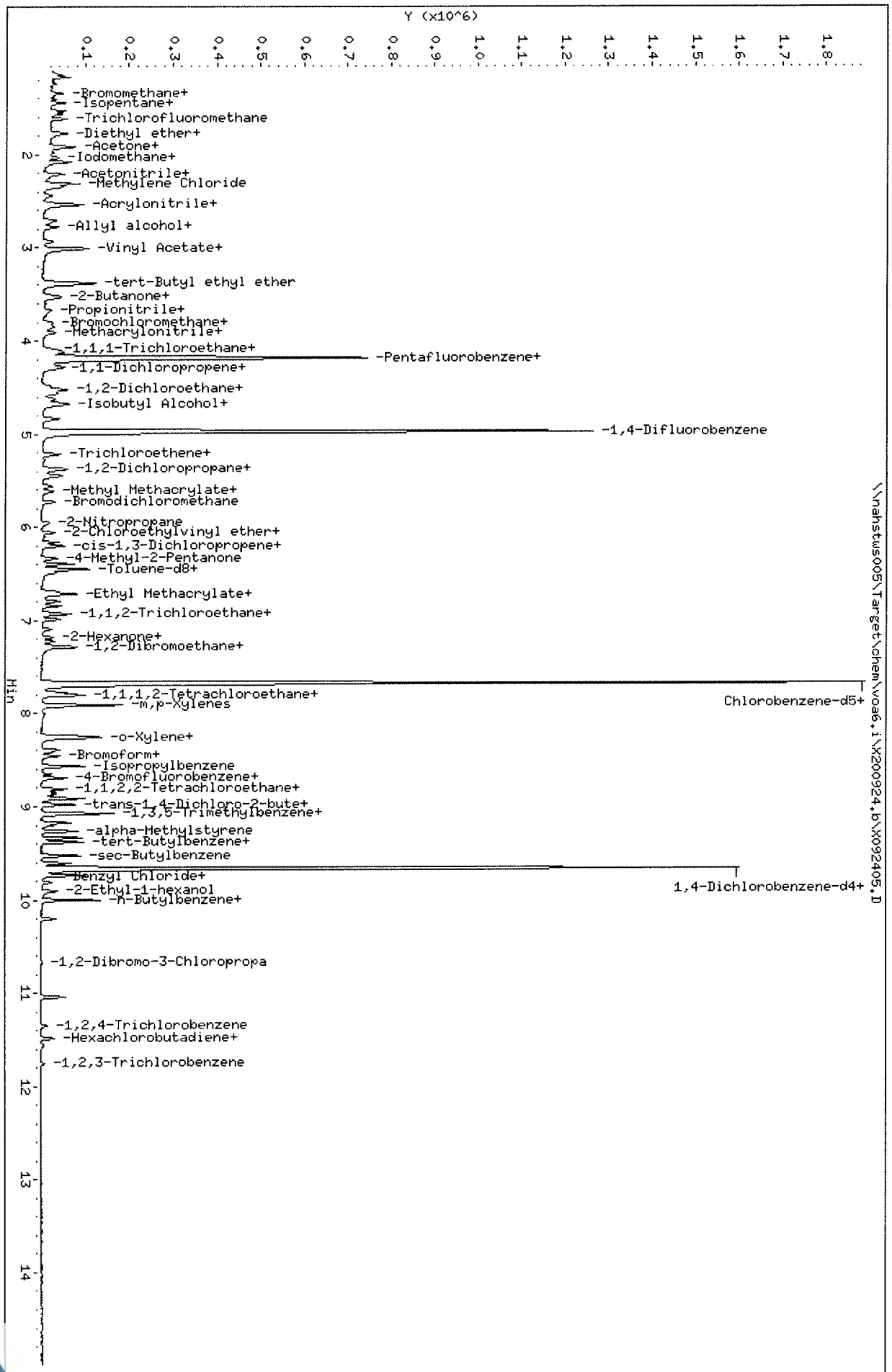
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	644357	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	1019524	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	903632	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	382631	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)
$	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)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	12510	2.00000	1.99(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	20125	2.00000	2.02(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	14679	2.00000	2.16(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10973	2.00000	2.06(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	26490	2.00000	1.96(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11109	2.00000	1.91(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	20197	2.00000	2.15(a)
	93 1,2,3-Trichlorobenzene	180	11.754	11.754	(1.216)	2737	2.00000	1.85(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	12294	2.00000	2.19(aM)
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	5479	2.00000	3.21(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	45912	2.00000	2.01(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	862	2.00000	1.86(a)
	57 1,2-Dibromoethane	107	7.270	7.270	(0.948)	12165	2.00000	1.93(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	21583	2.00000	2.02(a)

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092405.D Page 2
Report Date: 13-Oct-2020 11:23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.569	4.569	(0.919)	16818	2.00000	1.91(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	15682	2.00000	2.07(a)
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	45721	2.00000	2.02(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	25155	2.00000	2.04(a)
54	1,3-Dichloropropane	76	6.990	6.990	(0.911)	22062	2.00000	2.00(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	24589	2.00000	2.01(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	20525	2.00000	2.02(a)
24	2-Butanone	43	3.602	3.602	(0.860)	8427	4.00000	3.58(a)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	41065	2.00000	2.06(a)
52	2-Hexanone	43	7.098	7.098	(0.925)	16923	4.00000	4.22(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	47538	2.00000	2.10(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	45536	2.00000	1.99(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	25721	4.00000	4.05(a)
10	Acetone	43	1.983	1.983	(0.473)	9048	4.00000	1.09(a)
37	Benzene	78	4.519	4.519	(0.909)	57516	2.00000	1.97(a)
74	Bromobenzene	156	8.810	8.810	(0.911)	15741	2.00000	2.03(a)
29	Bromochloromethane	128	3.810	3.810	(0.909)	8453	2.00000	2.09(a)
39	Bromodichloromethane	83	5.729	5.729	(1.153)	18226	2.00000	1.97(a)
66	Bromoform	173	8.416	8.416	(1.097)	7643	2.00000	1.93(a)
6	Bromomethane	94	1.346	1.346	(0.321)	11427	2.00000	1.97(a)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	76740	4.00000	3.83(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	17342	2.00000	2.12(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	37718	2.00000	2.05(a)
7	Chloroethane	64	1.410	1.410	(0.337)	10093	2.00000	1.99(a)
28	Chloroform	83	3.917	3.917	(0.935)	25563	2.00000	2.04(a)
3	Chloromethane	50	1.081	1.081	(0.258)	16756	2.00000	1.89(a)
27	cis-1,2-Dichloroethene	96	3.538	3.538	(0.844)	15564	2.00000	1.97(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	23162	2.00000	1.98(a)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	12783	2.00000	1.97(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	9079	2.00000	2.02(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	12034	2.00000	3.82(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	19509	2.00000	2.03(a)
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	5496	2.00000	2.94(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	57275	2.00000	2.05(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	47303	4.00000	4.10(a)
17	Methylene Chloride	84	2.313	2.313	(0.552)	16648	2.00000	1.68(a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	36734	2.00000	1.86(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	65226	2.00000	1.99(a)
92	Naphthalene	128	11.553	11.553	(1.195)	7312	2.00000	2.04(a)
63	o-Xylene	106	8.244	8.244	(1.075)	23228	2.00000	2.06(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	54335	2.00000	2.03(a)
64	Styrene	104	8.265	8.265	(1.078)	37510	2.00000	1.94(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	39109	2.00000	2.07(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	12381	2.00000	2.16(a)
50	Toluene	91	6.453	6.453	(0.841)	60795	2.00000	2.07(a)
20	trans-1,2-Dichloroethene	96	2.542	2.542	(0.607)	13424	2.00000	2.01(a)
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	18306	2.00000	1.87(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	14627	2.00000	2.00(a)
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	17957	2.00000	1.91(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	15623	2.00000	1.87(a)

QC Flag Legend

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

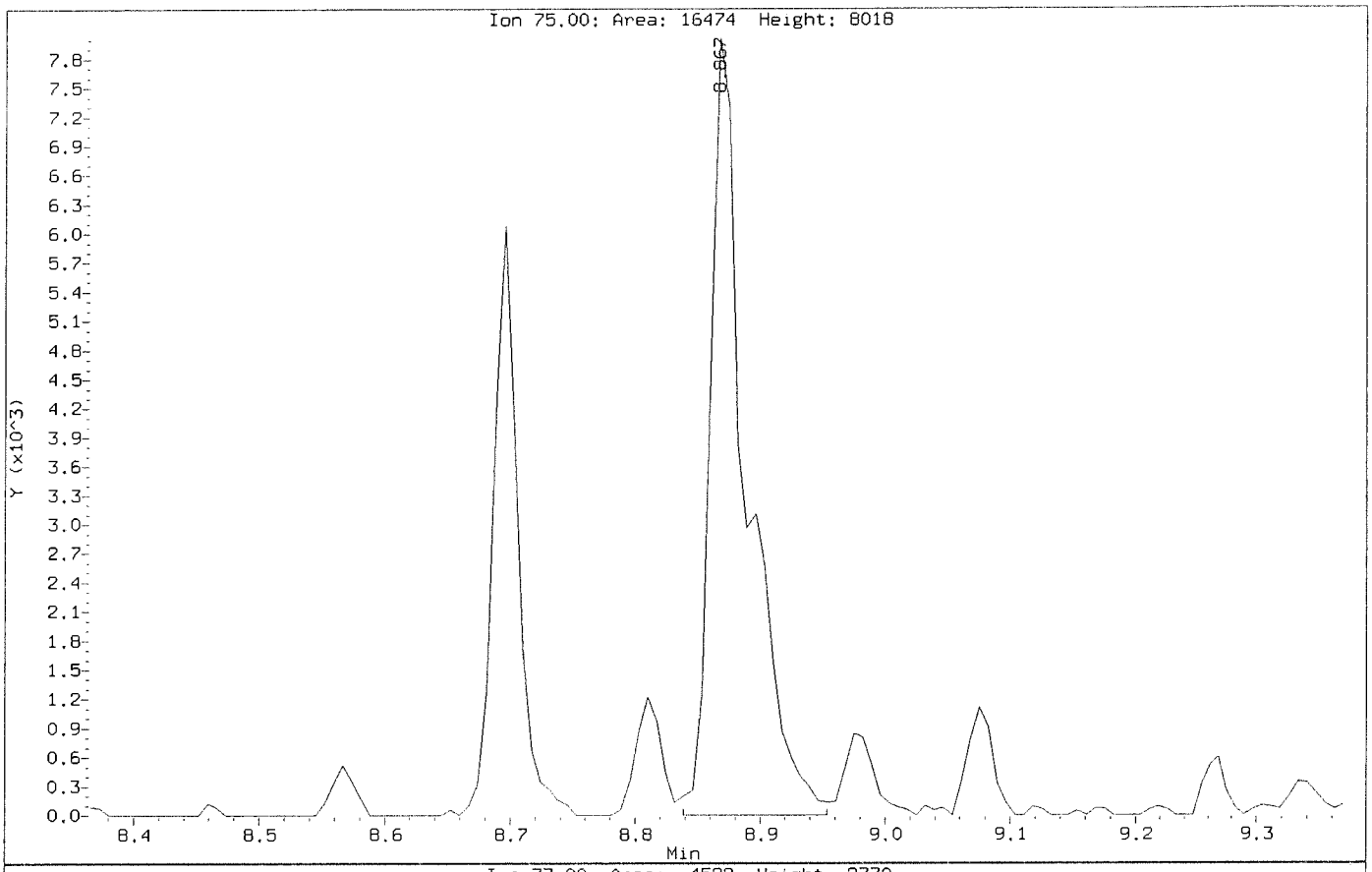


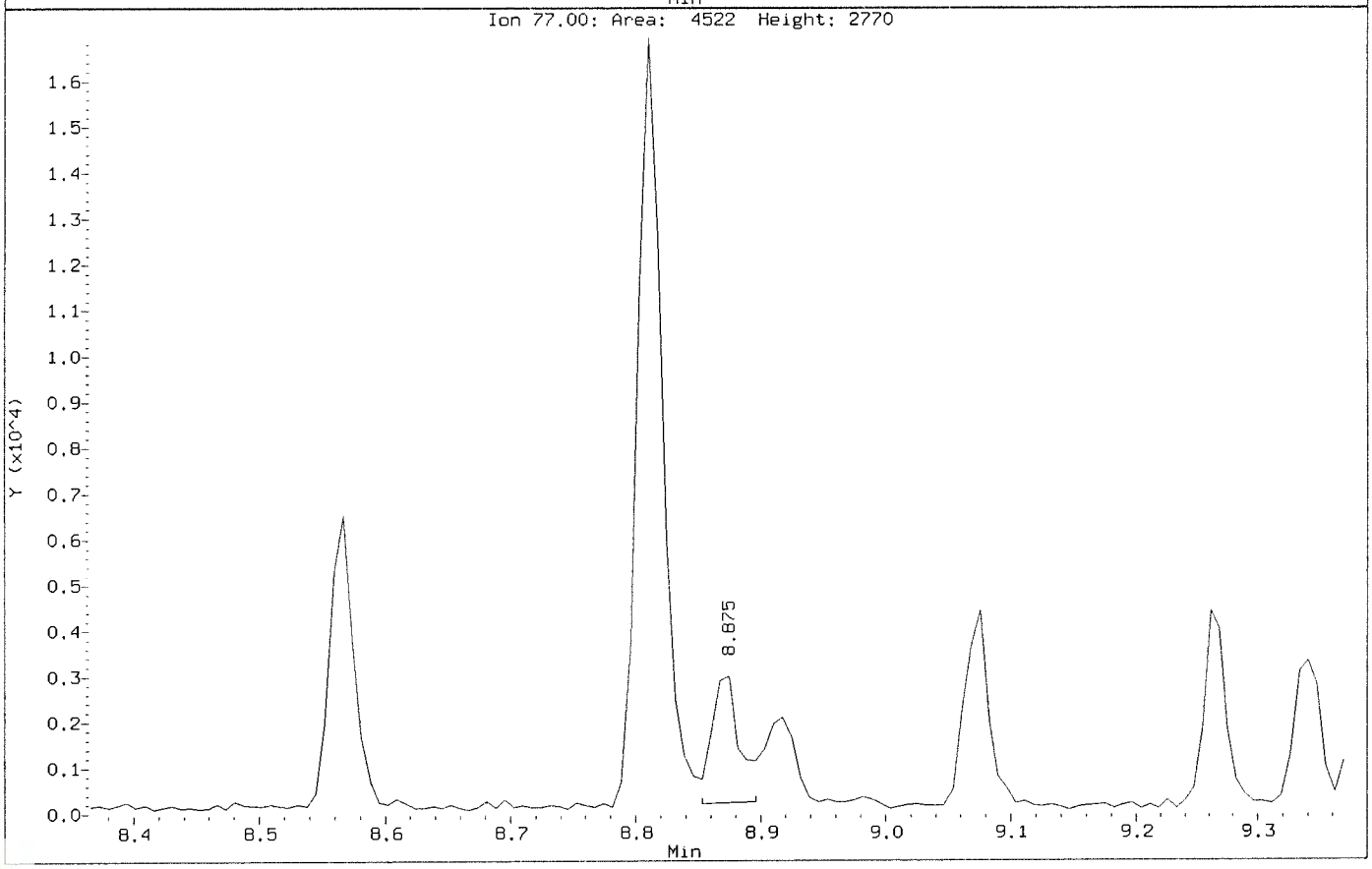
Data File: \\nahstws005\Target\chem\voa6,i\X200924,b\X092405,D
Date : 24-SEP-2020 13:10
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092405.D
Injection Date: 24-SEP-2020 13:10
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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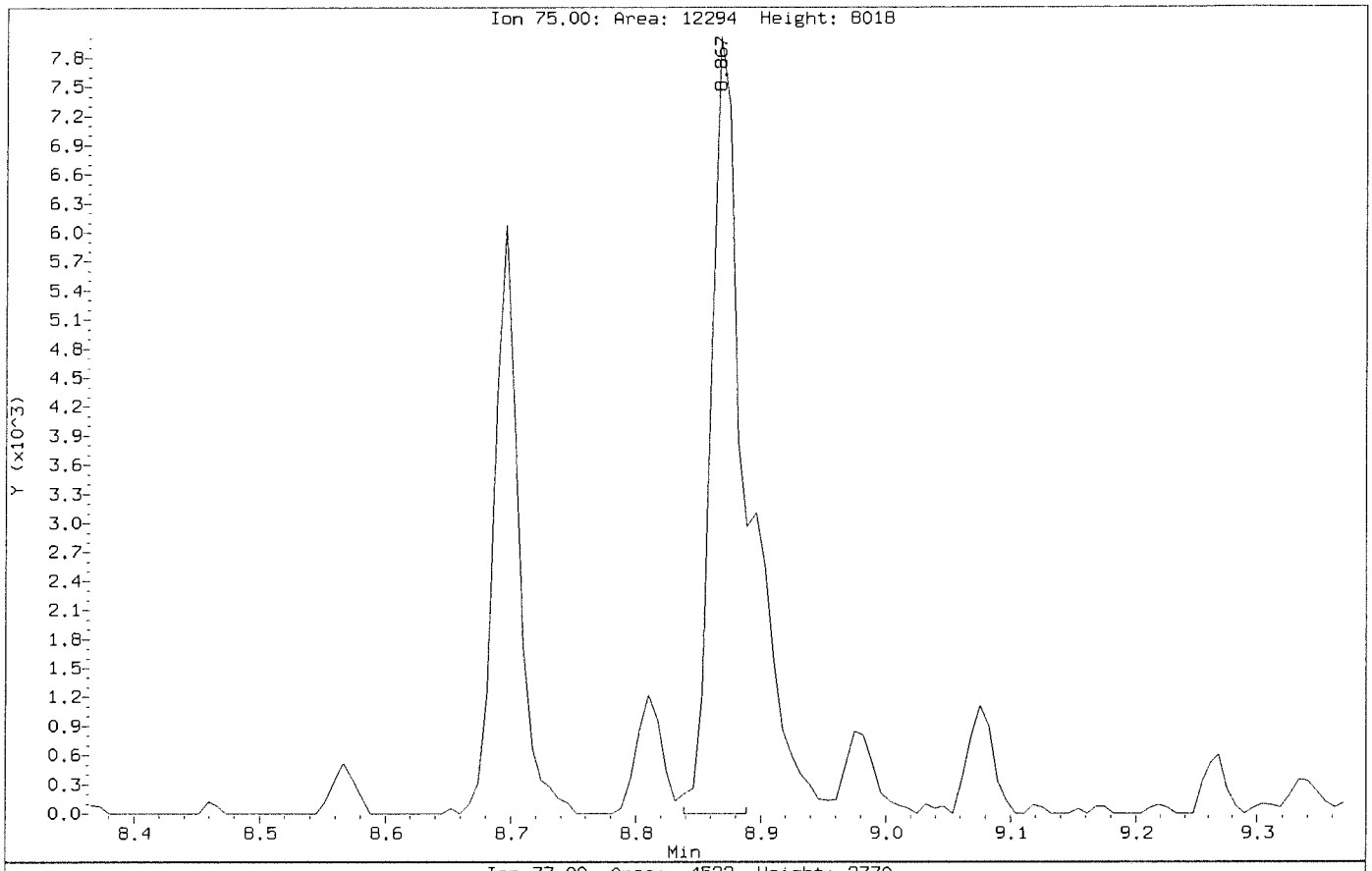
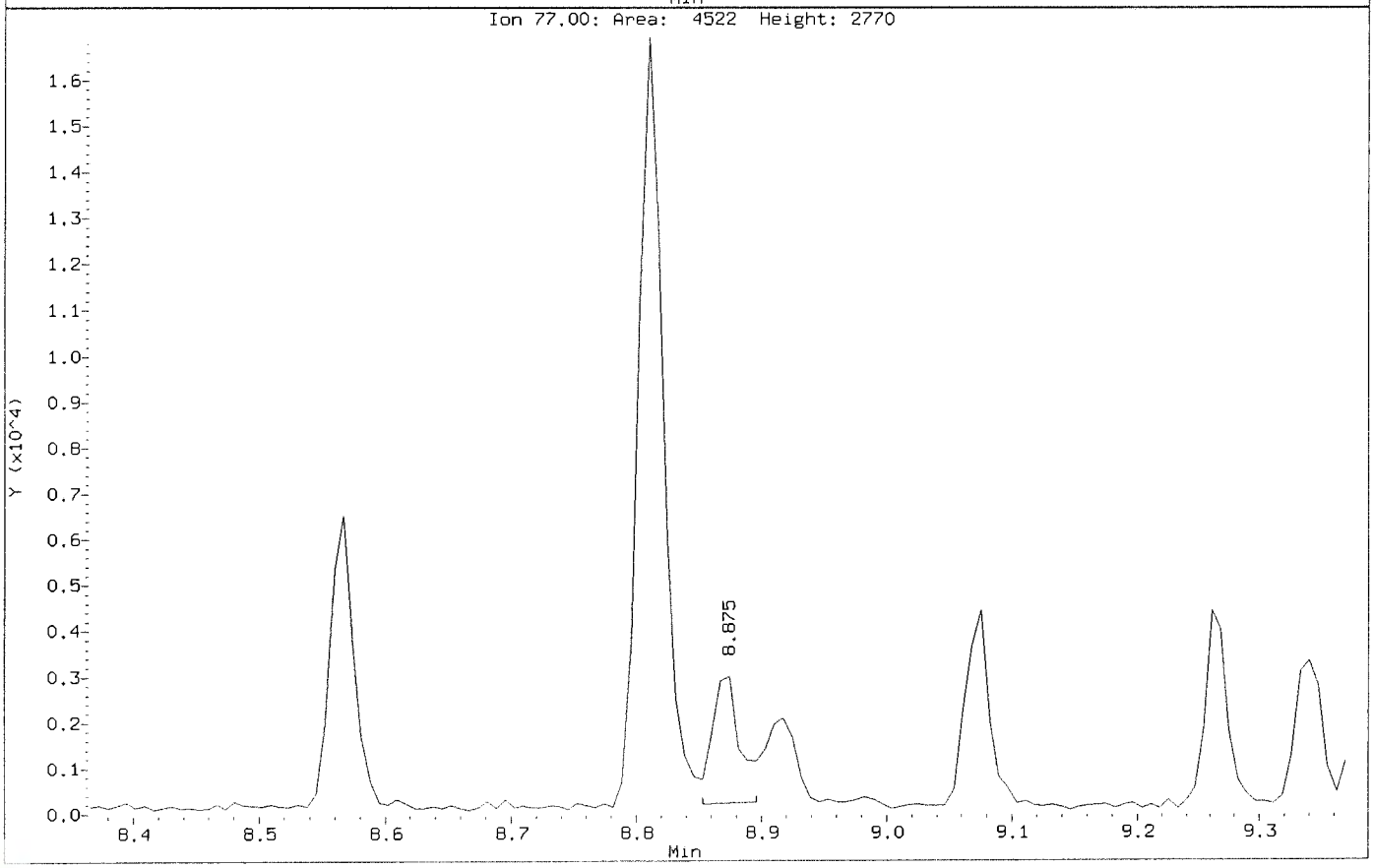
Injection Date: 24-SEP-2020 13:10
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

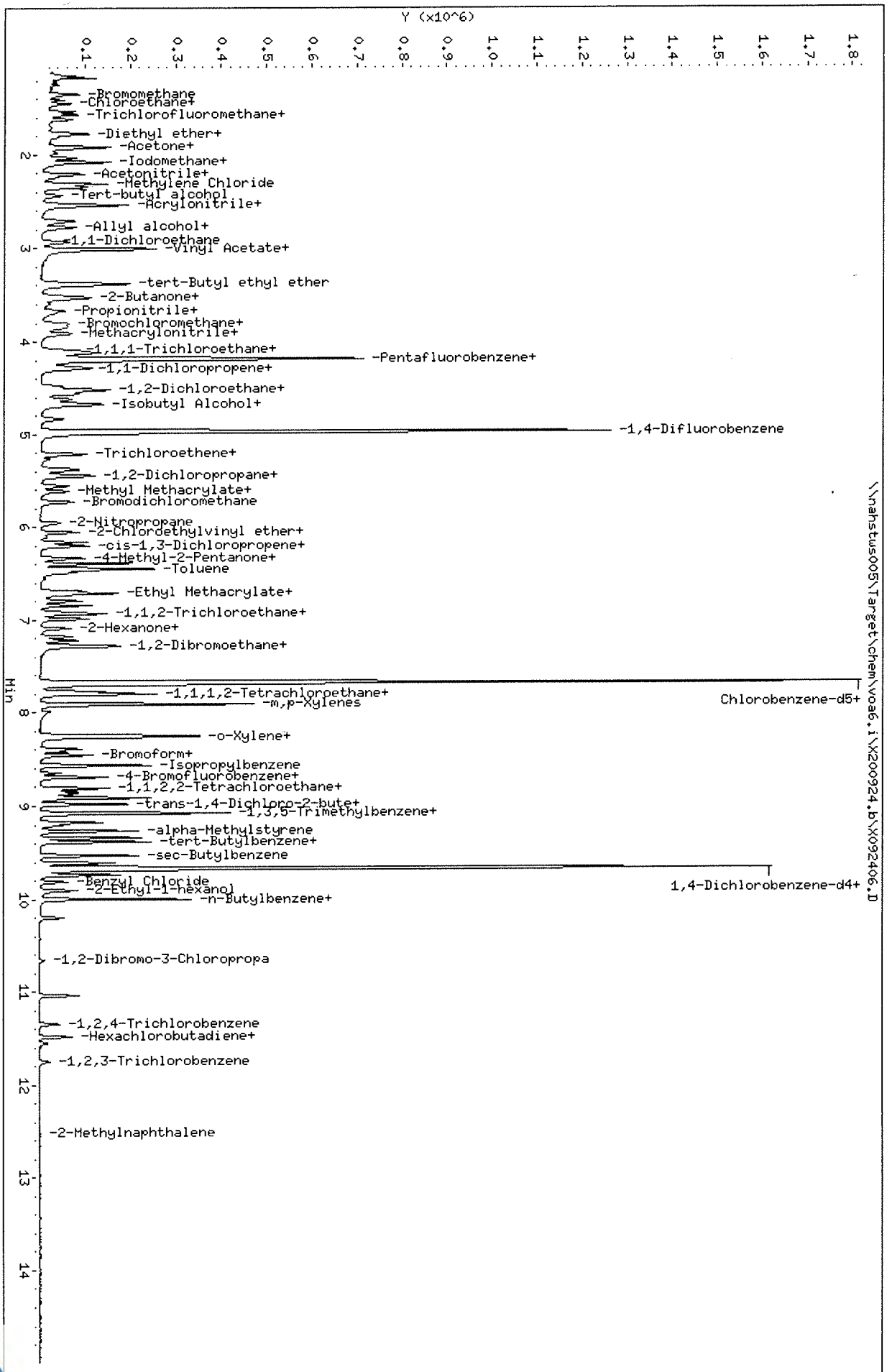
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	604947	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	366206	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	30508	5.00000	5.10
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	49631	5.00000	5.32
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	35579	5.00000	5.49
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	27209	5.00000	5.35
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	66717	5.00000	5.27
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	27129	5.00000	4.98(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	45564	5.00000	5.11
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	7596	5.00000	5.36
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	28529	5.00000	5.32(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	14272	5.00000	6.37
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	114323	5.00000	5.24
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	2370	5.00000	5.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	32725	5.00000	5.45
18 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	53633	5.00000	5.25

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	45690	5.00000	5.47
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	38422	5.00000	5.35
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	112577	5.00000	5.20
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	61531	5.00000	5.22
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	57519	5.00000	5.47
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	61140	5.00000	5.22
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	49490	5.00000	5.21
24	2-Butanone	43	3.595	3.595	(0.858)	22783	10.0000	10.31
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	100230	5.00000	5.26
52	2-Hexanone	43	7.090	7.090	(0.924)	40720	10.0000	10.64
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	115574	5.00000	5.33
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	107669	5.00000	4.93(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	64724	10.0000	10.68
10	Acetone	43	1.976	1.976	(0.472)	17679	10.0000	7.78
37	Benzene	78	4.519	4.519	(0.909)	145224	5.00000	5.24
74	Bromobenzene	156	8.809	8.809	(0.911)	39295	5.00000	5.31
29	Bromochloromethane	128	3.802	3.802	(0.908)	19555	5.00000	5.17
39	Bromodichloromethane	83	5.729	5.729	(1.153)	45076	5.00000	5.13
66	Bromoform	173	8.415	8.415	(1.097)	19994	5.00000	5.30
6	Bromomethane	94	1.346	1.346	(0.321)	28439	5.00000	5.62
19	Carbon Disulfide	76	2.076	2.076	(0.496)	186941	10.0000	9.95
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	38907	5.00000	5.02
59	Chlorobenzene	112	7.699	7.699	(1.004)	92091	5.00000	5.24
7	Chloroethane	64	1.410	1.410	(0.337)	25052	5.00000	5.28
28	Chloroform	83	3.917	3.917	(0.935)	63153	5.00000	5.38
3	Chloromethane	50	1.081	1.081	(0.258)	41522	5.00000	5.01
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	40006	5.00000	5.39
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	58436	5.00000	5.26
55	Dibromochloromethane	129	7.176	7.176	(0.936)	32041	5.00000	5.19
44	Dibromomethane	93	5.557	5.557	(1.118)	22782	5.00000	5.35
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	28274	5.00000	6.46
61	Ethylbenzene	106	7.799	7.799	(1.017)	48263	5.00000	5.26
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	12681	5.00000	5.82
67	Isopropylbenzene	105	8.566	8.566	(1.117)	140289	5.00000	5.26
62	m,p-Xylenes	106	7.907	7.907	(1.031)	117010	10.0000	10.63
17	Methylene Chloride	84	2.313	2.313	(0.552)	39690	5.00000	5.37
87	n-Butylbenzene	91	9.998	9.998	(1.034)	91095	5.00000	4.82(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	160991	5.00000	5.15
92	Naphthalene	128	11.553	11.553	(1.195)	16943	5.00000	4.96(a)
63	o-Xylene	106	8.244	8.244	(1.075)	57363	5.00000	5.34
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	128686	5.00000	5.02
64	Styrene	104	8.265	8.265	(1.078)	97357	5.00000	5.29
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	92883	5.00000	5.15
56	Tetrachloroethene	164	6.933	6.933	(0.904)	28143	5.00000	5.16
50	Toluene	91	6.453	6.453	(0.841)	151563	5.00000	5.42
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	32989	5.00000	5.26
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	47268	5.00000	5.10
38	Trichloroethene	130	5.214	5.214	(1.049)	36421	5.00000	5.25
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	43540	5.00000	4.95(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	38248	5.00000	4.89(a)

QC Flag Legend

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

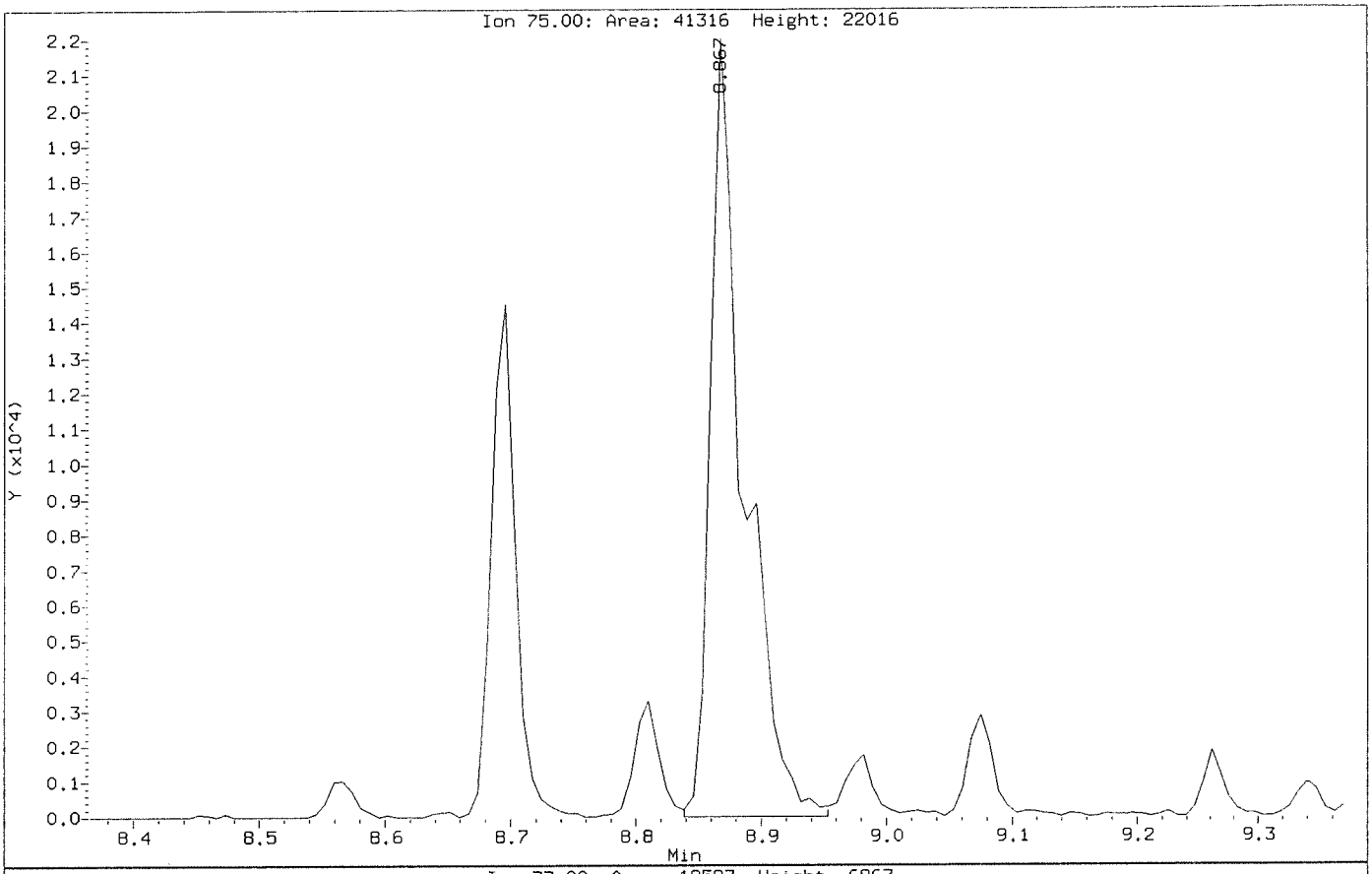


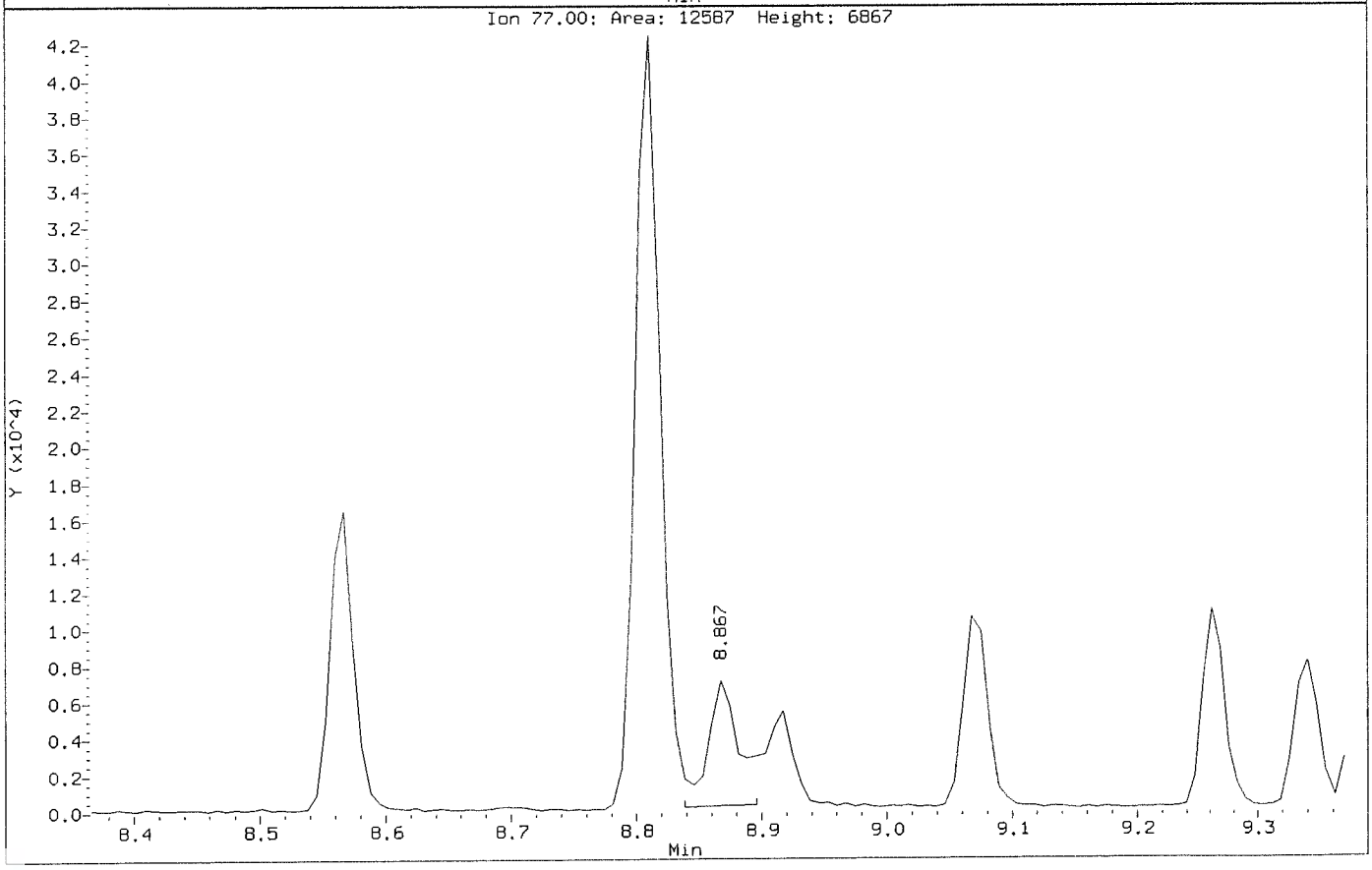
Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092406.D
Date : 24-SEP-2020 13:33
Client ID: VSTD005
Sample Info: VSTD005;VSTD005;1;5;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092406.D
Injection Date: 24-SEP-2020 13:33
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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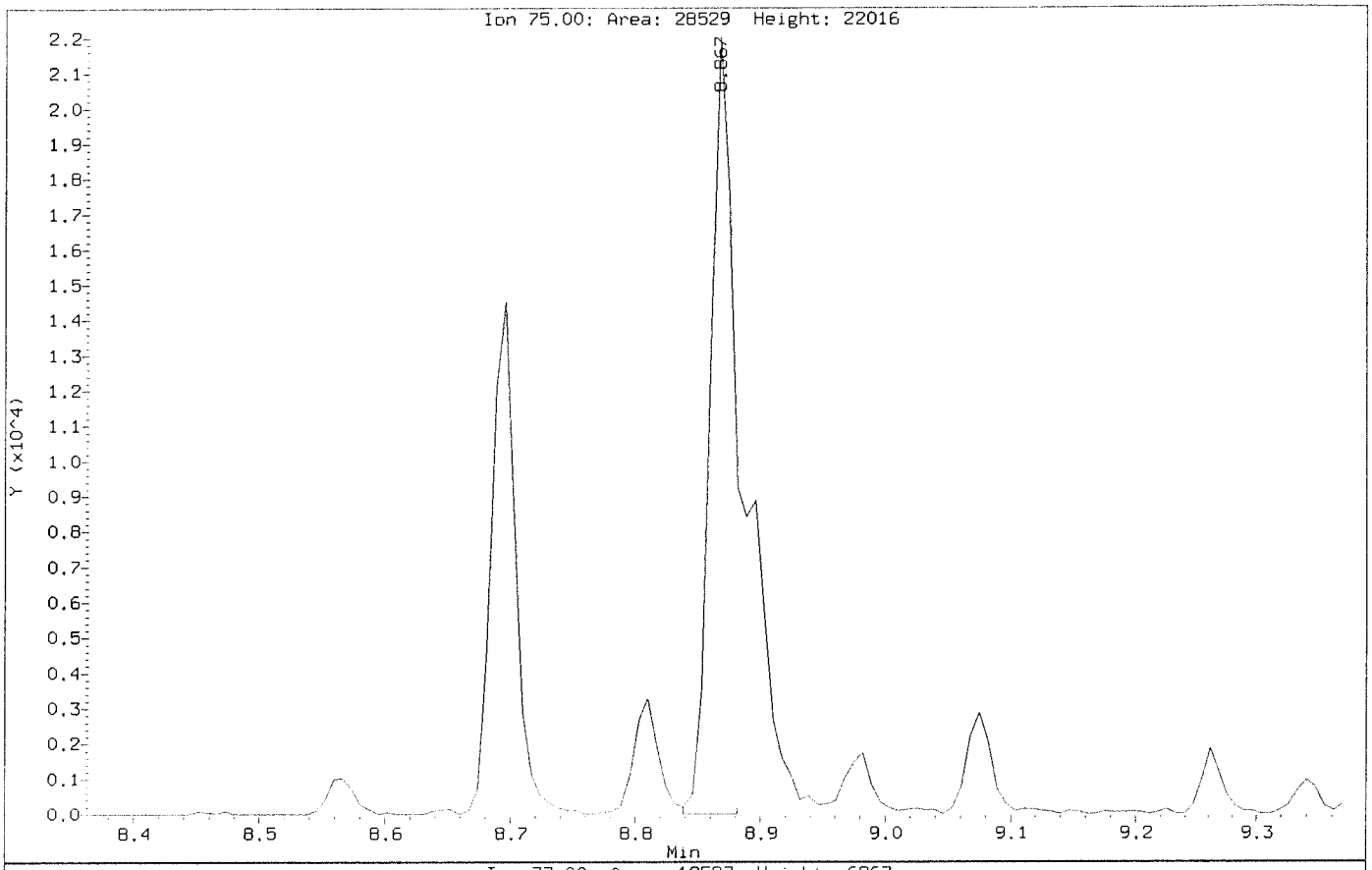
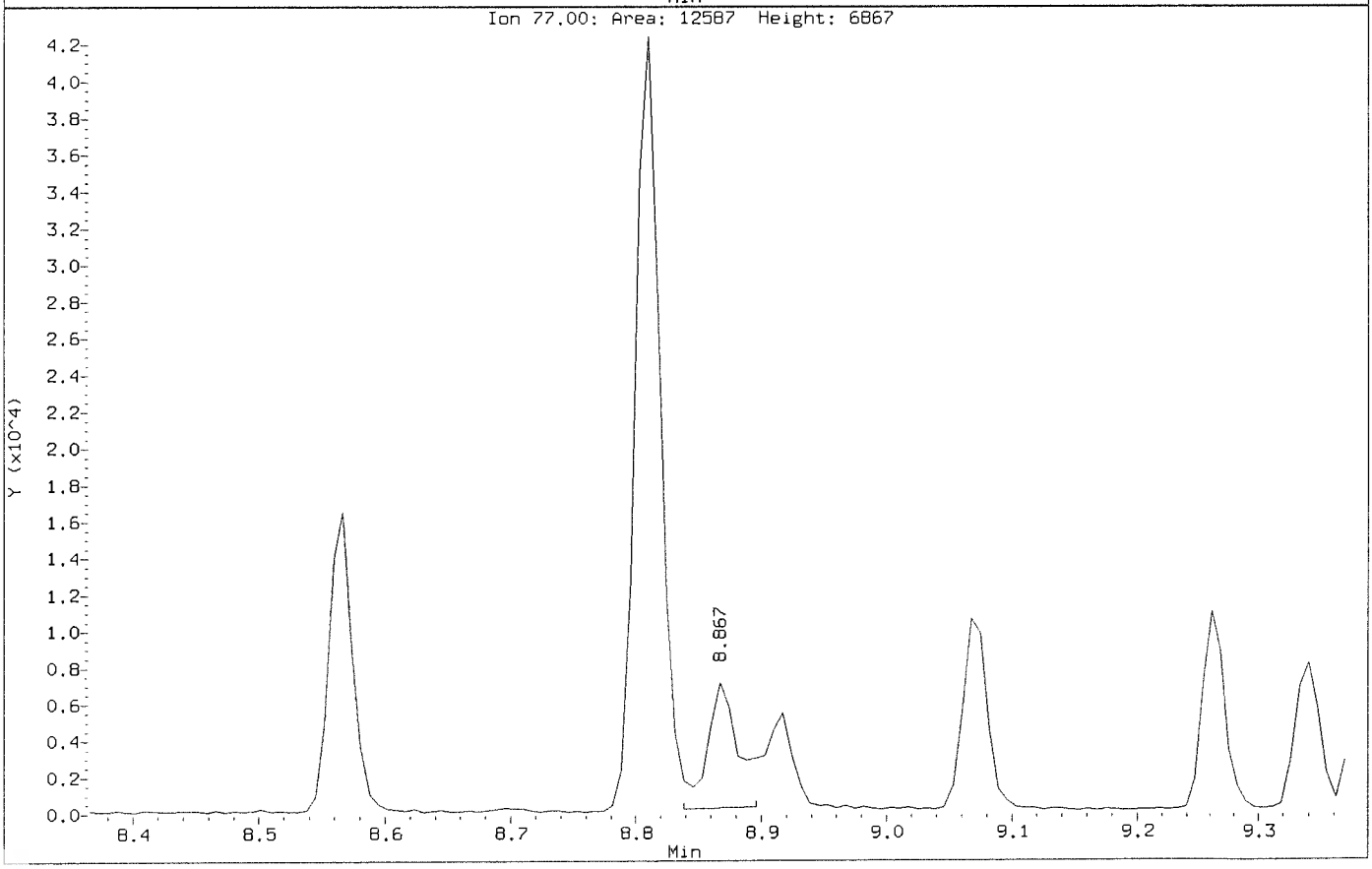
Instrument: voa6.i
Client Sample ID: VSTD005

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092407.D Page 1
Report Date: 13-Oct-2020 11:23

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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

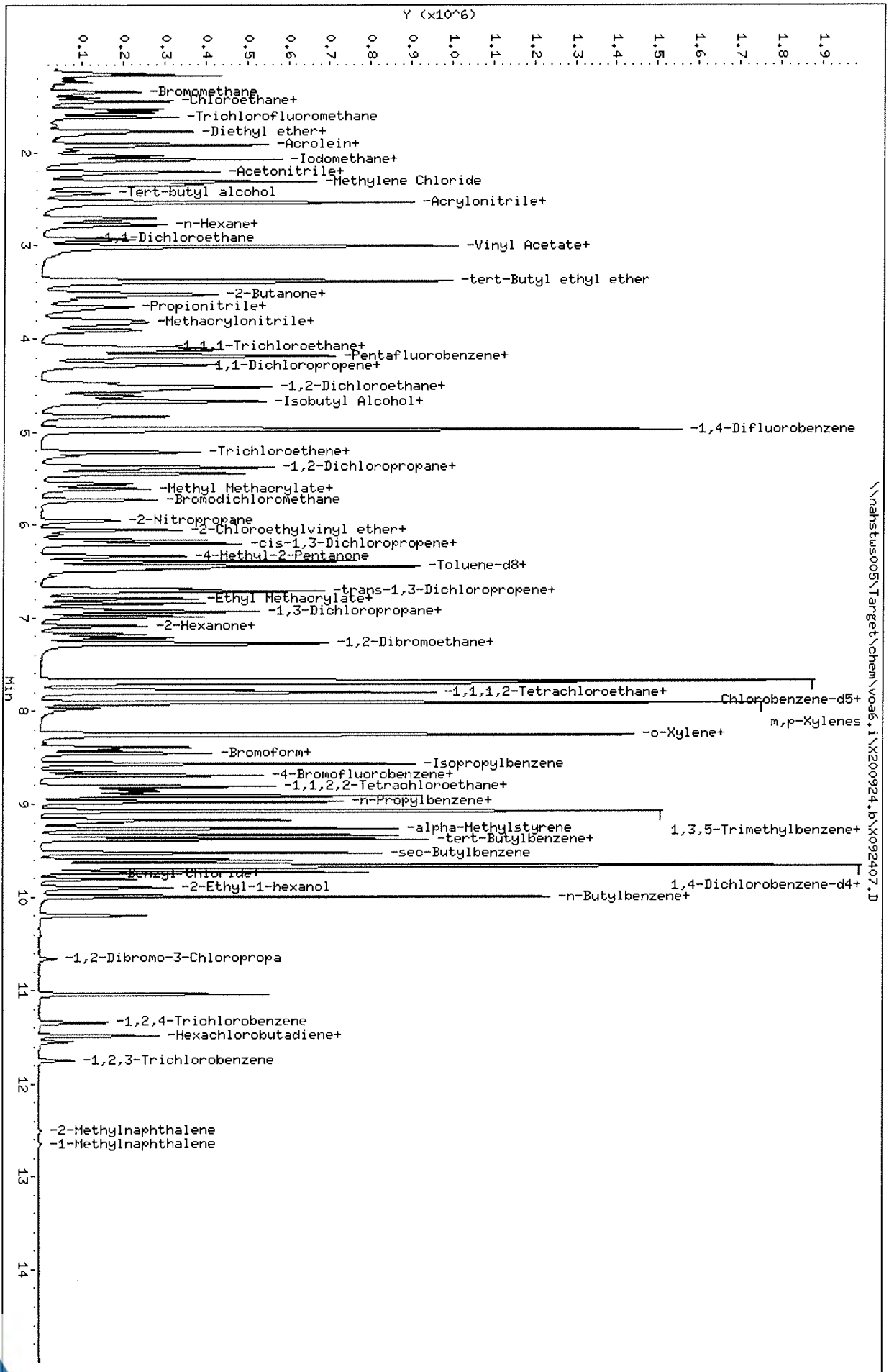
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	597686	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	364939	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	114469	20.0000	19.18
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	176318	20.0000	19.15
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	117650	20.0000	18.23
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	97092	20.0000	19.14
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	236851	20.0000	18.96
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	104067	20.0000	19.36
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	165987	20.0000	18.82
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	25160	20.0000	17.83
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	99152	20.0000	18.57(M)
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.174)	49391	20.0000	18.75
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	422220	20.0000	19.43
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	8129	20.0000	18.45
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	114808	20.0000	19.18
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	191275	20.0000	18.82

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	153916	20.0000	18.62
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	136853	20.0000	19.28
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	415398	20.0000	19.27
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.995)	221882	20.0000	18.90
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	197702	20.0000	18.84
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	215720	20.0000	18.50
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	180409	20.0000	19.22
24	2-Butanone	43	3.588	3.588	(0.856)	87144	40.0000	39.94
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	361041	20.0000	19.03
52	2-Hexanone	43	7.090	7.090	(0.924)	146255	40.0000	38.30
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	402829	20.0000	18.65
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	412064	20.0000	18.95
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	226622	40.0000	37.49
10	Acetone	43	1.976	1.976	(0.472)	61351	40.0000	40.10
37	Benzene	78	4.519	4.519	(0.909)	523094	20.0000	19.08
74	Bromobenzene	156	8.809	8.809	(0.912)	140723	20.0000	19.08
29	Bromochloromethane	128	3.802	3.802	(0.908)	70448	20.0000	18.86
39	Bromodichloromethane	83	5.729	5.729	(1.153)	163173	20.0000	18.77
66	Bromoform	173	8.415	8.415	(1.097)	71380	20.0000	18.97
6	Bromomethane	94	1.345	1.345	(0.321)	96280	20.0000	19.85
19	Carbon Disulfide	76	2.076	2.076	(0.496)	712494	40.0000	38.38
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	143505	20.0000	18.72
59	Chlorobenzene	112	7.699	7.699	(1.004)	328244	20.0000	18.73
7	Chloroethane	64	1.410	1.410	(0.337)	87182	20.0000	18.62
28	Chloroform	83	3.917	3.917	(0.935)	223718	20.0000	19.31
3	Chloromethane	50	1.080	1.080	(0.258)	153741	20.0000	18.78
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	142521	20.0000	19.46
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	207519	20.0000	18.87
55	Dibromochloromethane	129	7.176	7.176	(0.936)	116110	20.0000	18.86
44	Dibromomethane	93	5.557	5.557	(1.118)	79007	20.0000	18.77
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	113538	20.0000	19.90
61	Ethylbenzene	106	7.799	7.799	(1.017)	174975	20.0000	19.13
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	49814	20.0000	20.19
67	Isopropylbenzene	105	8.566	8.566	(1.117)	508270	20.0000	19.11
62	m,p-Xylenes	106	7.907	7.907	(1.031)	423076	40.0000	38.53
17	Methylene Chloride	84	2.305	2.305	(0.550)	137362	20.0000	20.58
87	n-Butylbenzene	91	9.998	9.998	(1.035)	363106	20.0000	19.30
73	n-Propylbenzene	91	8.917	8.917	(0.923)	600477	20.0000	19.28
92	Naphthalene	128	11.546	11.546	(1.195)	61326	20.0000	18.02
63	o-Xylene	106	8.243	8.243	(1.075)	206196	20.0000	19.23
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	487237	20.0000	19.10
64	Styrene	104	8.265	8.265	(1.078)	353788	20.0000	19.28
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	342131	20.0000	19.04
56	Tetrachloroethene	164	6.933	6.933	(0.904)	104308	20.0000	19.17
50	Toluene	91	6.453	6.453	(0.841)	537067	20.0000	19.26
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	121098	20.0000	19.55
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	174041	20.0000	18.99
38	Trichloroethene	130	5.214	5.214	(1.049)	129379	20.0000	18.87
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	168693	20.0000	19.41
5	Vinyl Chloride	62	1.145	1.145	(0.273)	146437	20.0000	18.96

QC Flag Legend

M - Compound response manually integrated.



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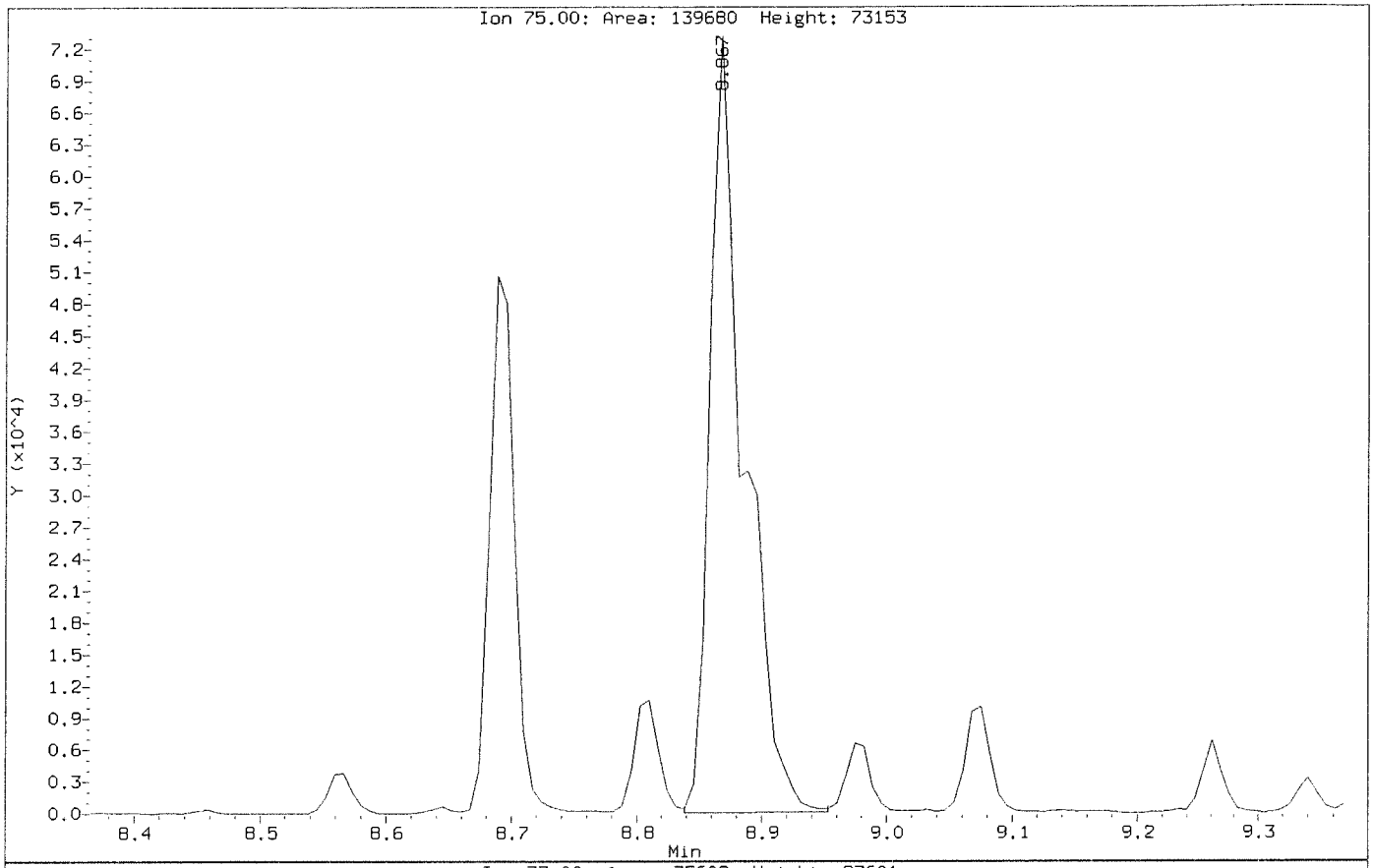
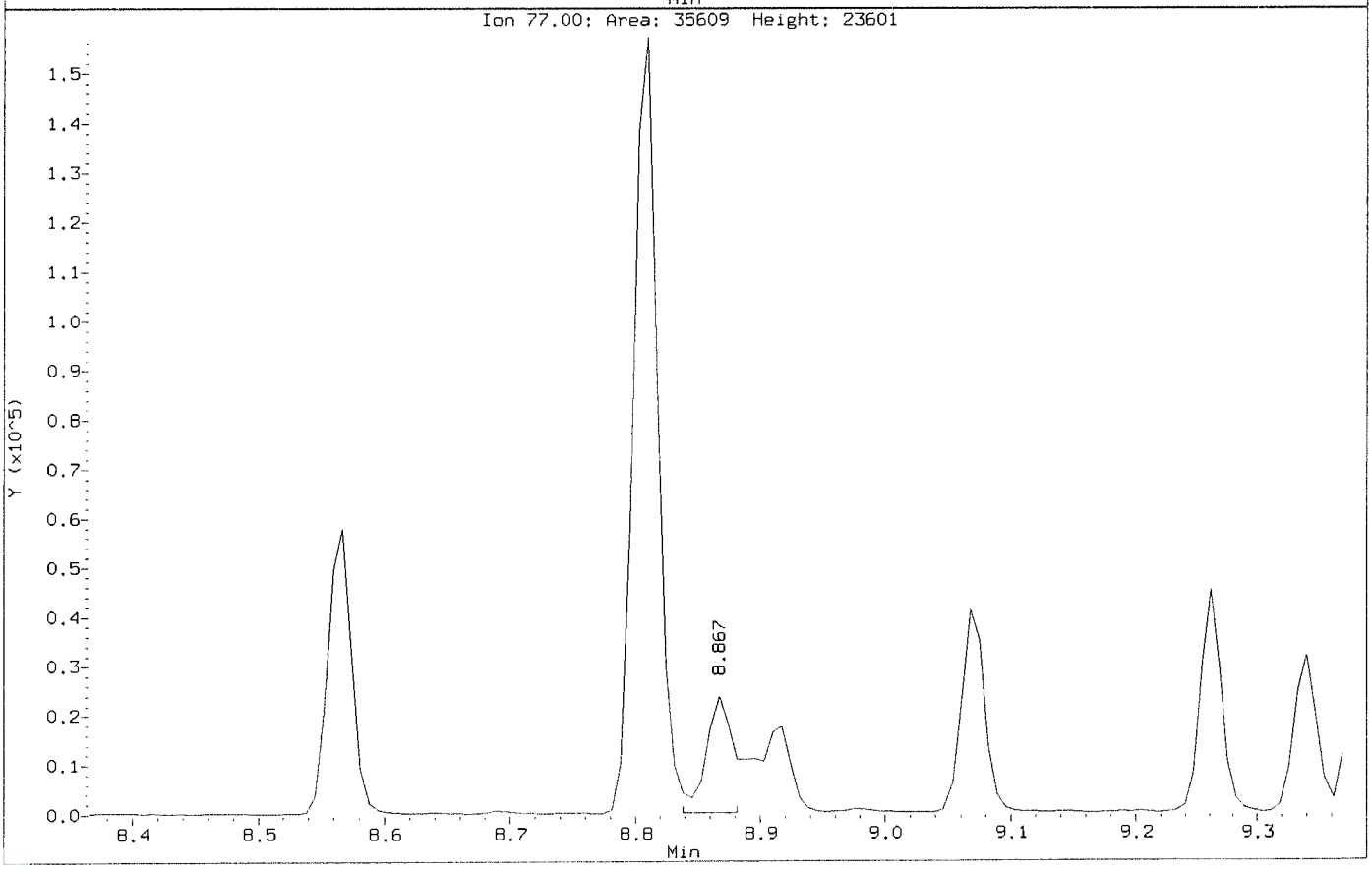
Date : 24-SEP-2020 13:57
Client ID: VSTD020
Sample Info: VSTD020;VSTD020;1;6;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092407.D
Injection Date: 24-SEP-2020 13:57
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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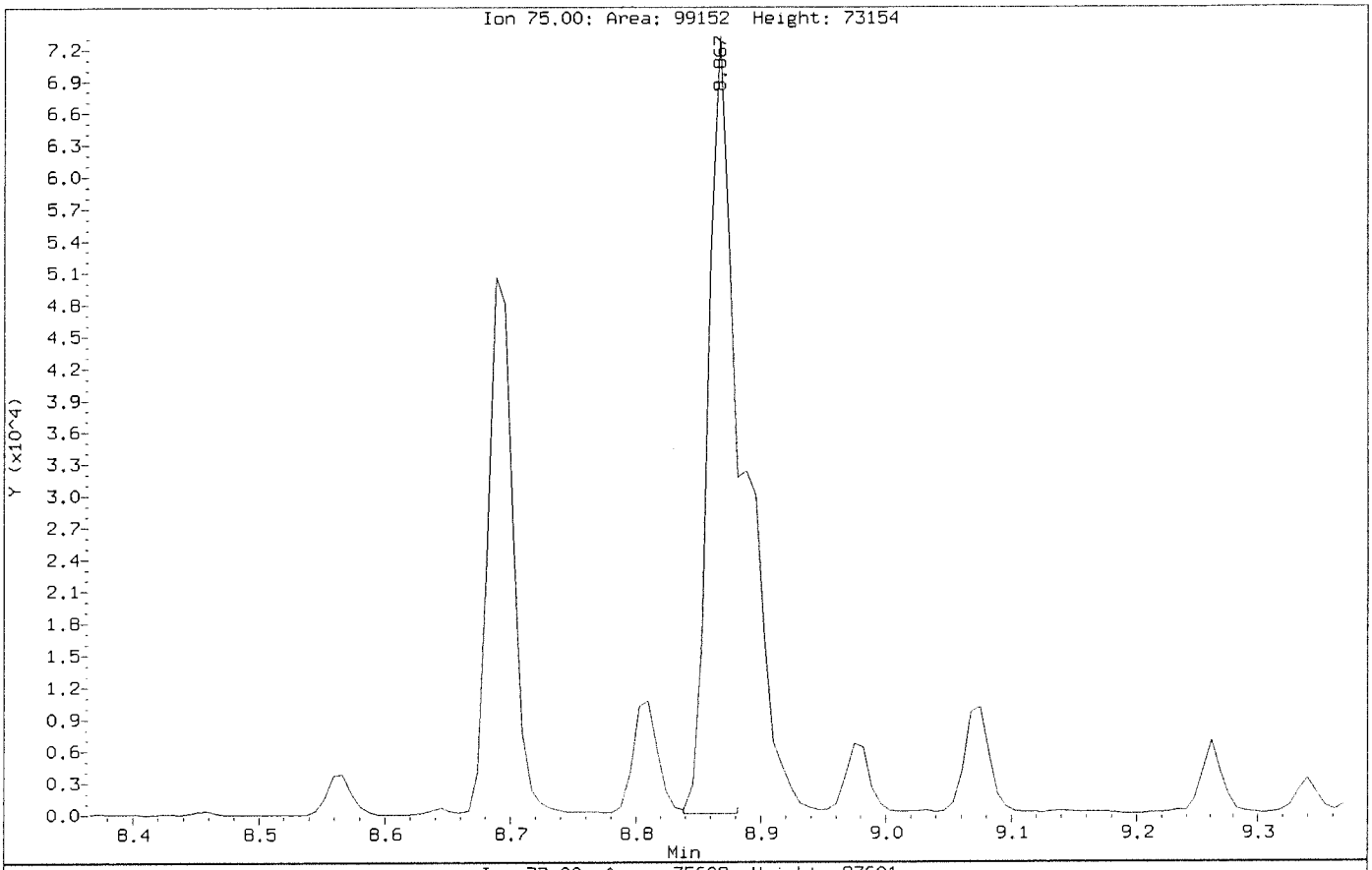
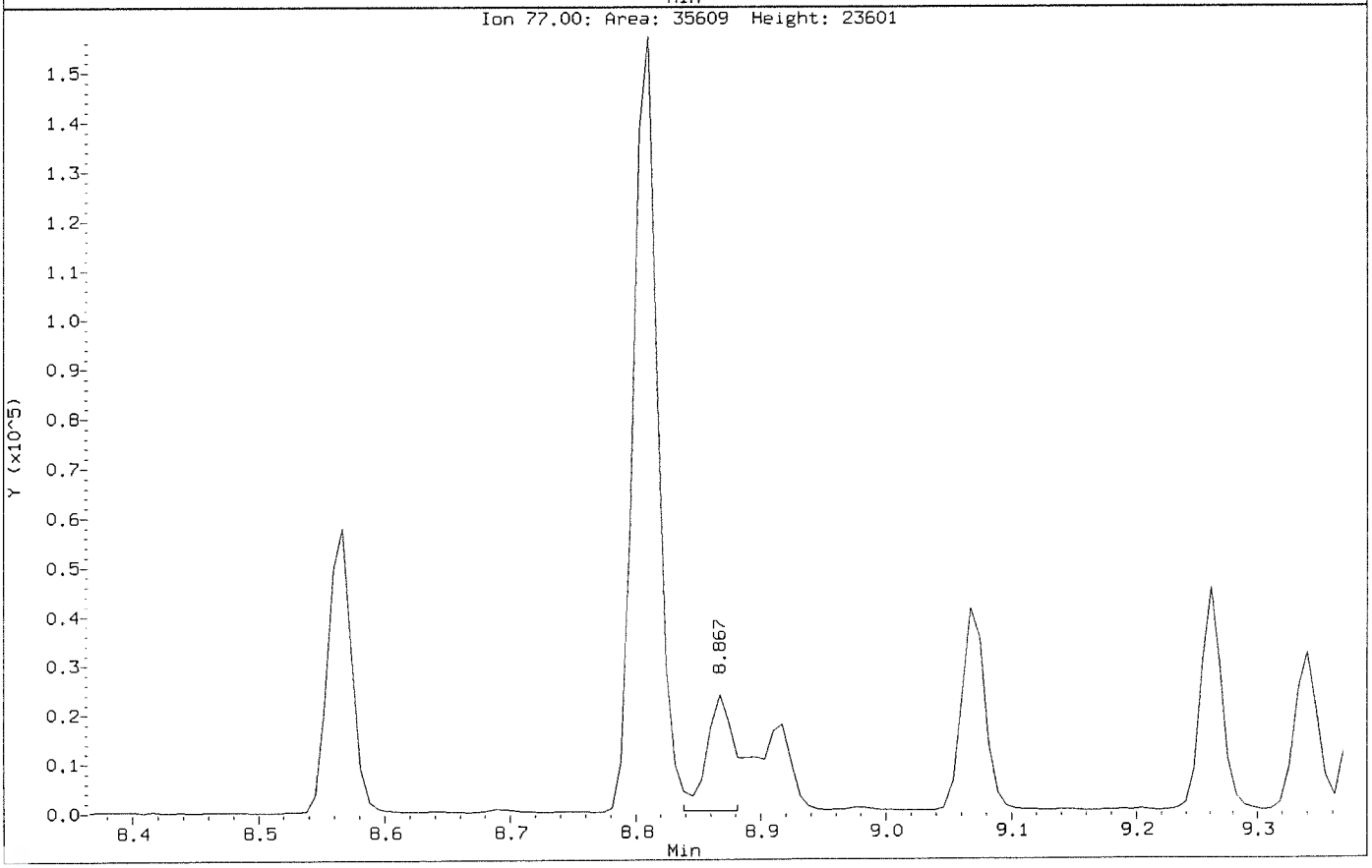
Injection Date: 24-SEP-2020 13:57
Instrument: voa6.i
Client Sample ID: VSTD020

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

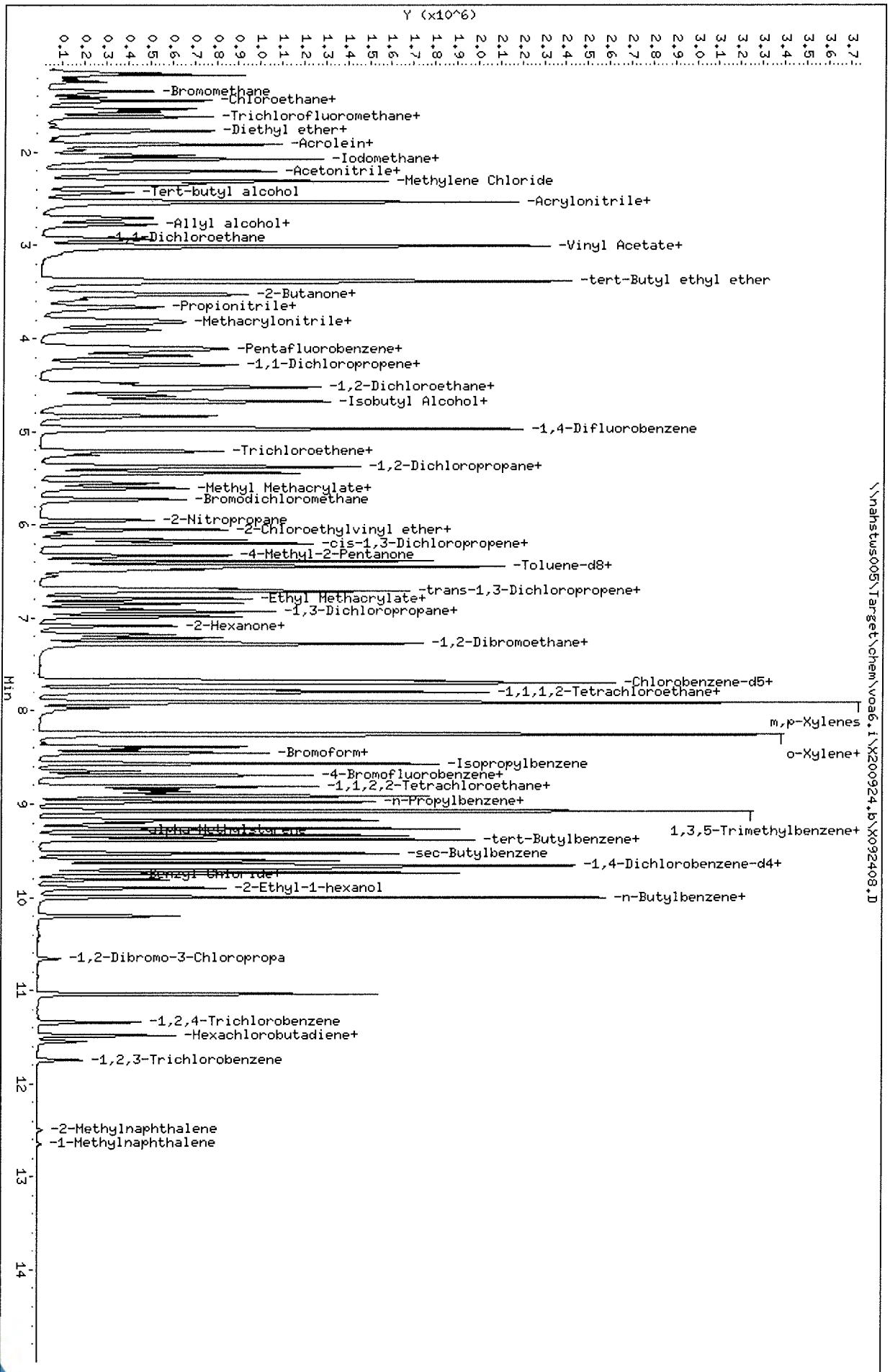
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	565166	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	353927	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	261758	50.0000	45.51
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	375794	50.0000	43.17
68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	280829	50.0000	44.86
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	221270	50.0000	45.26
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	531332	50.0000	45.00
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	227518	50.0000	44.77
32 1,1-Dichloropropene	75	4.289	4.289	(0.863)	348526	50.0000	41.59
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	58736	50.0000	42.93
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	243402	50.0000	47.01(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	124784	50.0000	46.66
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	888516	50.0000	42.17
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	20616	50.0000	48.27
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	264089	50.0000	45.79
88 1,2-Dichlorobenzene	146	9.991	9.991	(1.034)	429312	50.0000	43.56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	356652	50.0000	45.42
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	311284	50.0000	46.16
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	863451	50.0000	41.31
83	1,3-Dichlorobenzene	146	9.604	9.604	(0.994)	490714	50.0000	43.10
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	455083	50.0000	45.00
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	481319	50.0000	42.57
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	383156	50.0000	43.18
24	2-Butanone	43	3.580	3.580	(0.855)	233034	100.000	112.95
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	761189	50.0000	41.38
52	2-Hexanone	43	7.090	7.090	(0.924)	356053	100.000	96.75
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	865469	50.0000	41.33
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	837442	50.0000	39.72
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	544400	100.000	93.44
10	Acetone	43	1.976	1.976	(0.472)	153009	100.000	114.11
37	Benzene	78	4.519	4.519	(0.909)	1162667	50.0000	44.63
74	Bromobenzene	156	8.809	8.809	(0.912)	314740	50.0000	44.00
29	Bromochloromethane	128	3.802	3.802	(0.908)	157955	50.0000	44.72
39	Bromodichloromethane	83	5.729	5.729	(1.153)	375833	50.0000	45.50
66	Bromoform	173	8.415	8.415	(1.097)	174123	50.0000	48.03
6	Bromomethane	94	1.345	1.345	(0.321)	218171	50.0000	47.91
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1567013	100.000	89.27
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	295202	50.0000	40.52
59	Chlorobenzene	112	7.699	7.699	(1.004)	728183	50.0000	43.12
7	Chloroethane	64	1.403	1.403	(0.335)	194264	50.0000	43.87
28	Chloroform	83	3.917	3.917	(0.935)	502736	50.0000	45.89
3	Chloromethane	50	1.080	1.080	(0.258)	345422	50.0000	44.63
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	318945	50.0000	46.06
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	483233	50.0000	46.25
55	Dibromochloromethane	129	7.176	7.176	(0.936)	272125	50.0000	45.88
44	Dibromomethane	93	5.557	5.557	(1.118)	183392	50.0000	45.86
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	235600	50.0000	41.20
61	Ethylbenzene	106	7.799	7.799	(1.017)	371688	50.0000	42.17
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	102822	50.0000	41.71
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1038705	50.0000	40.53
62	m,p-Xylenes	106	7.907	7.907	(1.031)	890486	100.000	84.15
17	Methylene Chloride	84	2.305	2.305	(0.550)	303593	50.0000	49.06
87	n-Butylbenzene	91	9.998	9.998	(1.035)	731188	50.0000	40.09
73	n-Propylbenzene	91	8.917	8.917	(0.923)	1216787	50.0000	40.30
92	Naphthalene	128	11.546	11.546	(1.195)	152719	50.0000	46.27
63	o-Xylene	106	8.243	8.243	(1.075)	447984	50.0000	43.35
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	958531	50.0000	38.76
64	Styrene	104	8.258	8.258	(1.077)	798852	50.0000	45.18
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	680800	50.0000	39.07
56	Tetrachloroethene	164	6.933	6.933	(0.904)	209713	50.0000	39.99
50	Toluene	91	6.446	6.446	(0.840)	1151574	50.0000	42.86
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	264379	50.0000	45.15
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	410118	50.0000	47.09
38	Trichloroethene	130	5.214	5.214	(1.049)	284429	50.0000	43.66
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	351293	50.0000	42.75
5	Vinyl Chloride	62	1.145	1.145	(0.273)	327079	50.0000	44.80

QC Flag Legend

M - Compound response manually integrated.



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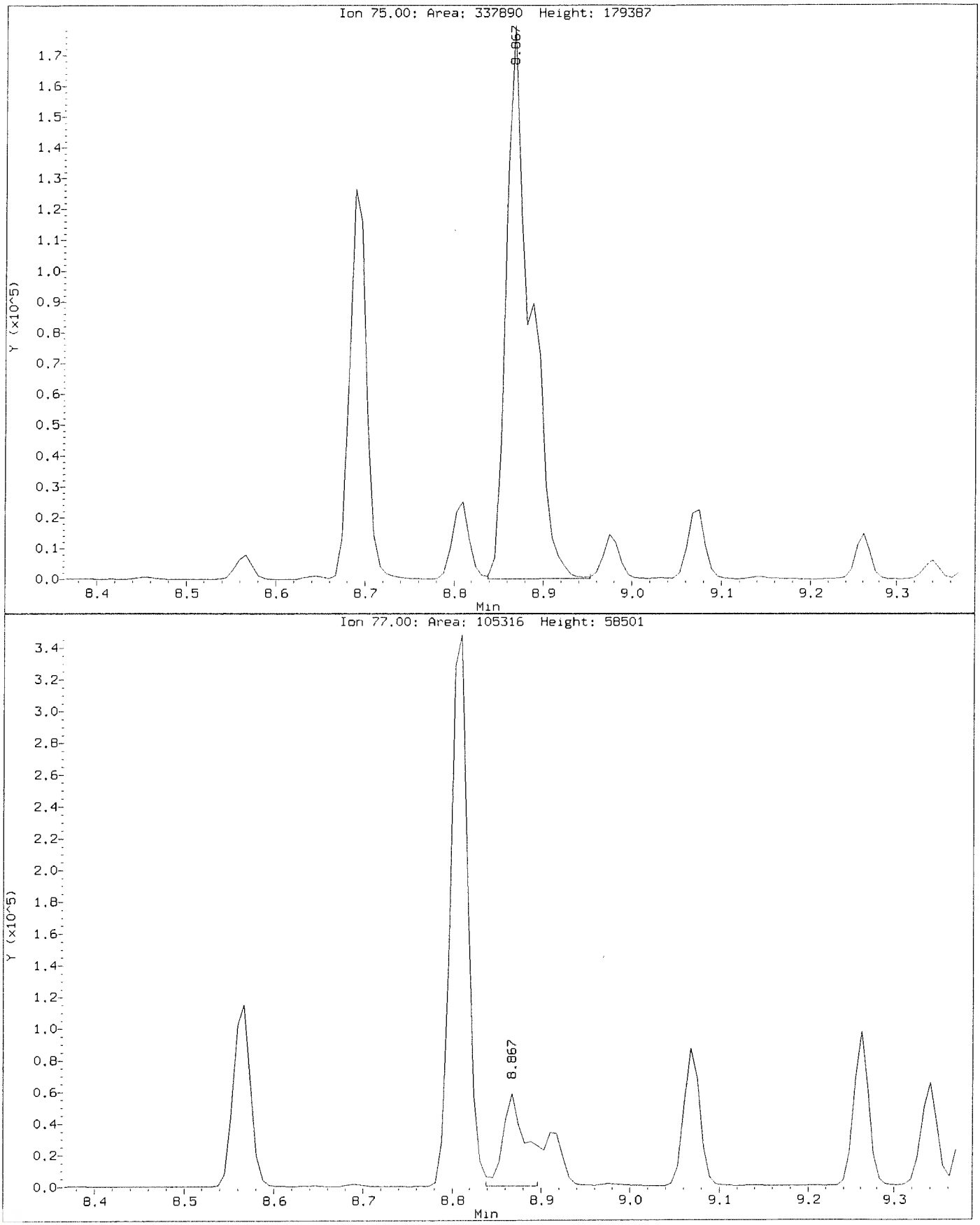
Date : 24-SEP-2020 14:21
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

\\nahstws005\Target\chem\voa6.i\X200924.b\X092408.D

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092408.D
Injection Date: 24-SEP-2020 14:21
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4



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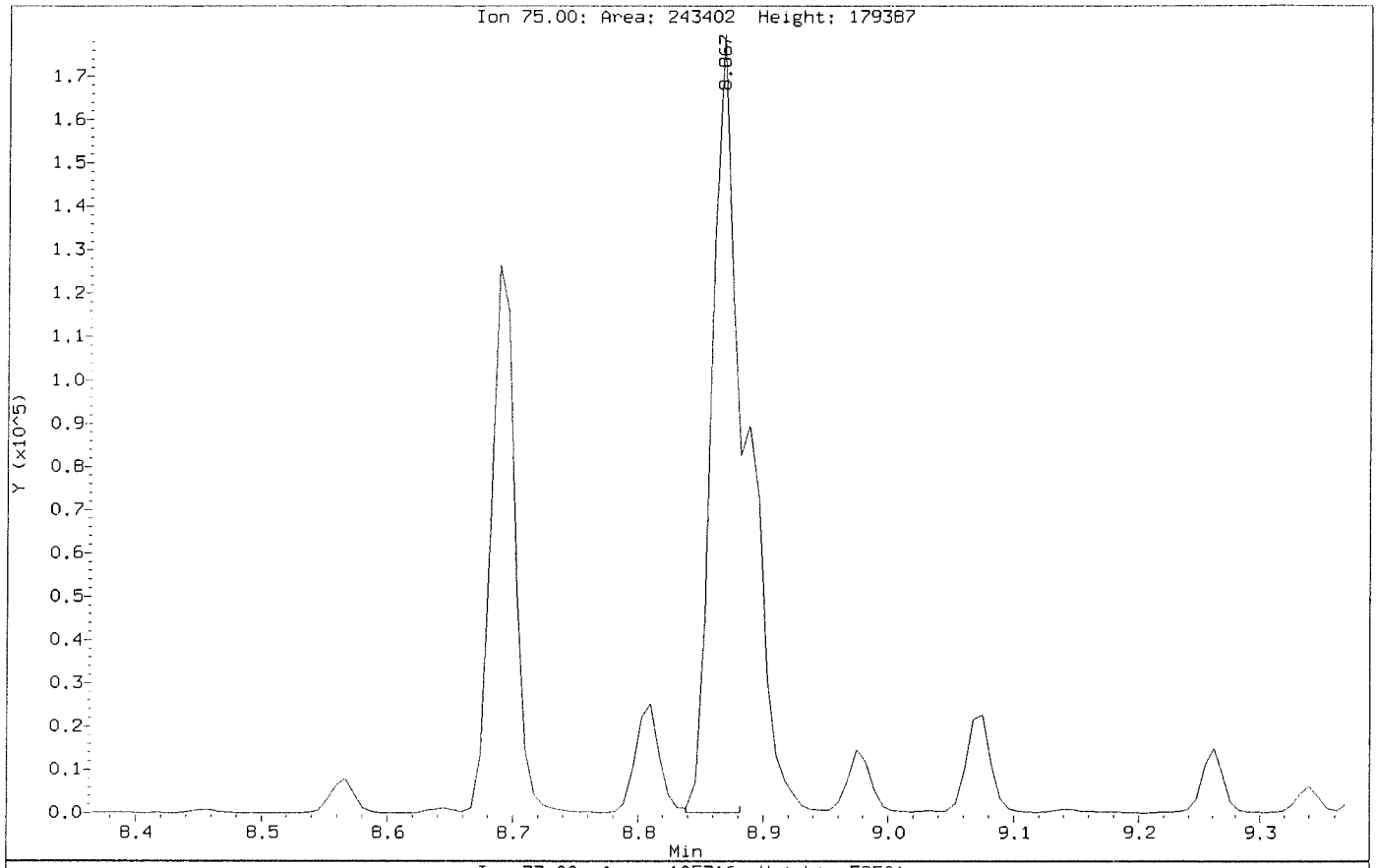
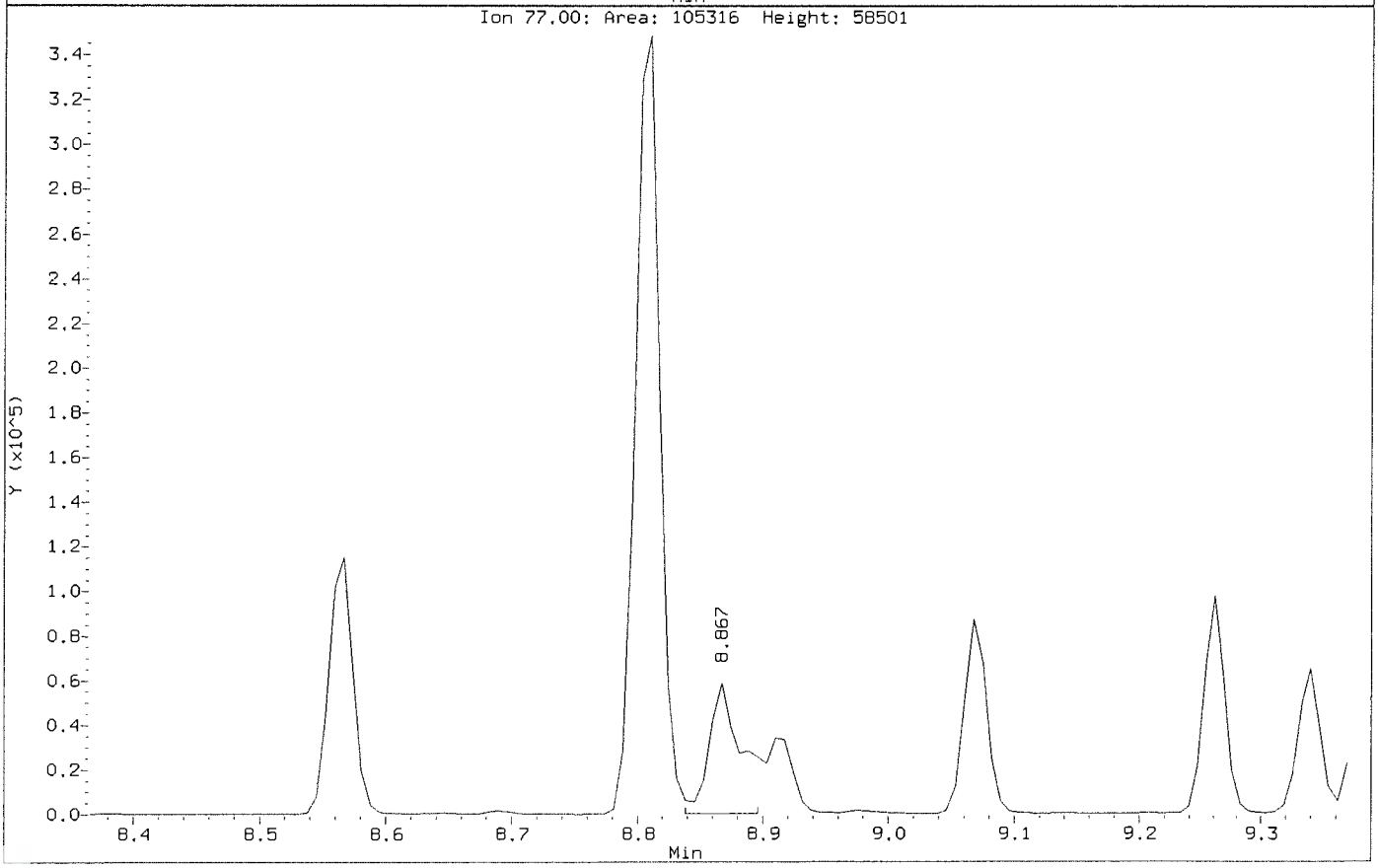
Injection Date: 24-SEP-2020 14:21
Instrument: voa6.i
Client Sample ID: VSTD050

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092409.D Page 1
Report Date: 13-Oct-2020 11:23

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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

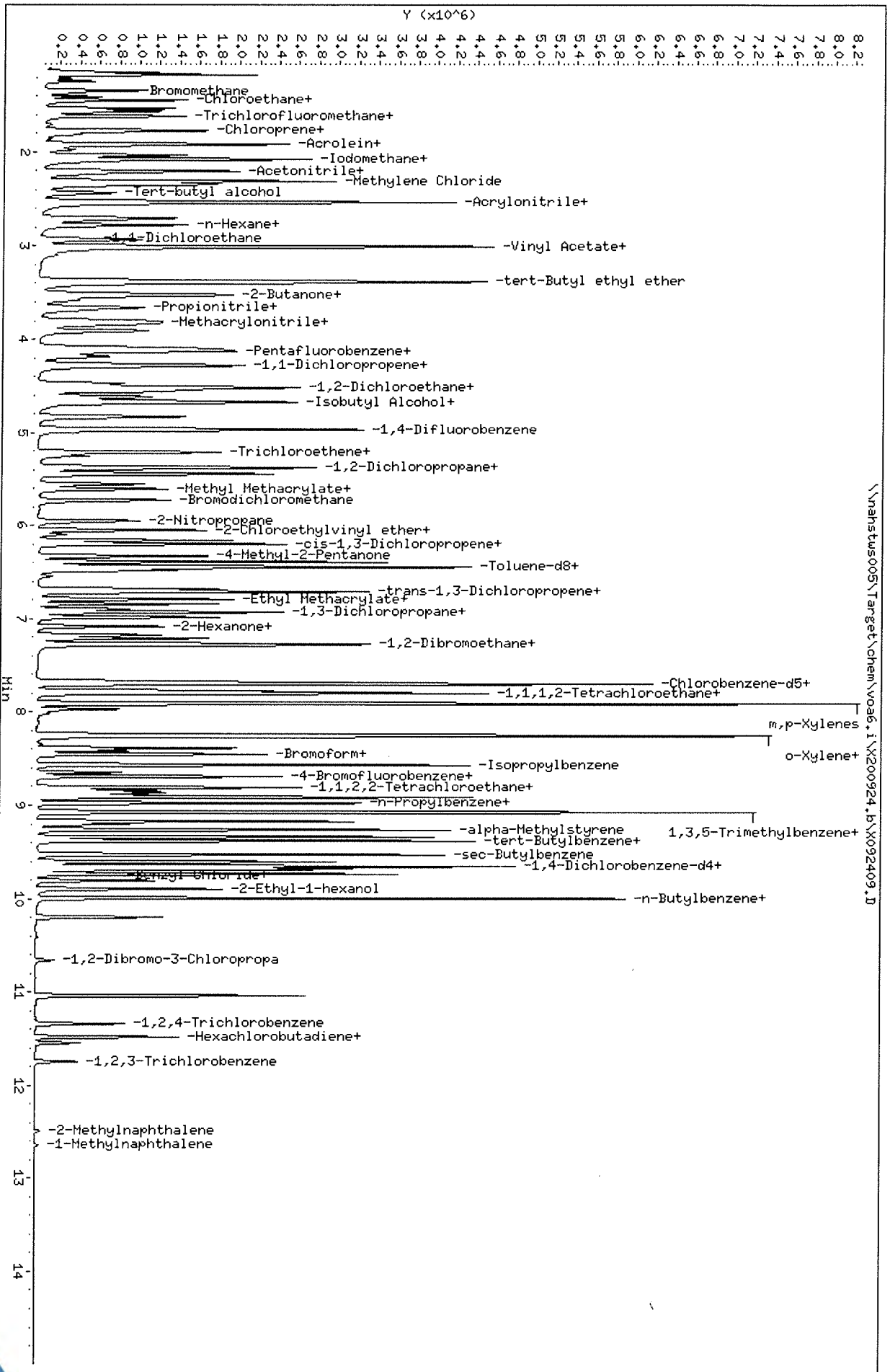
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	546812	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	336603	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	538620	100.000	95.88
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	828059	100.000	98.32
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	532212	100.000	89.41
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	433386	100.000	90.78
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1082912	100.000	94.79
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	479537	100.000	97.53
32 1,1-Dichloropropene	75	4.283	4.283	(0.862)	781119	100.000	97.19
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	119849	100.000	92.12
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	460144	100.000	93.45(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	247364	100.000	95.77
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1944092	100.000	97.02
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	36517	100.000	89.90
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	516275	100.000	91.65
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	885366	100.000	94.45

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	692994	100.000	92.00
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	624040	100.000	96.47
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	1952542	100.000	98.23
83	1,3-Dichlorobenzene	146	9.605	9.605	(0.993)	1045261	100.000	96.54
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	889978	100.000	90.12
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1008581	100.000	93.80
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	819698	100.000	95.49
24	2-Butanone	43	3.581	3.581	(0.855)	417435	200.000	209.13(A)
76	2-Chlorotoluene	91	8.974	8.974	(0.928)	1648682	100.000	94.26
52	2-Hexanone	43	7.090	7.090	(0.924)	693153	200.000	192.85
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1878301	100.000	94.32
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1988284	100.000	99.17
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	1045952	200.000	183.82
10	Acetone	43	1.976	1.976	(0.472)	255829	200.000	200.90(A)
37	Benzene	78	4.519	4.519	(0.909)	2385190	100.000	95.46
74	Bromobenzene	156	8.810	8.810	(0.911)	651117	100.000	95.72
29	Bromochloromethane	128	3.803	3.803	(0.908)	312045	100.000	91.31
39	Bromodichloromethane	83	5.729	5.729	(1.153)	761611	100.000	96.13
66	Bromoform	173	8.416	8.416	(1.097)	347277	100.000	98.08
6	Bromomethane	94	1.346	1.346	(0.321)	446857	100.000	101.69
19	Carbon Disulfide	76	2.076	2.076	(0.496)	3373538	200.000	198.64
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	697129	100.000	99.76
59	Chlorobenzene	112	7.699	7.699	(1.004)	1517748	100.000	92.03
7	Chloroethane	64	1.403	1.403	(0.335)	407389	100.000	95.10
28	Chloroform	83	3.910	3.910	(0.933)	1002276	100.000	94.56
3	Chloromethane	50	1.081	1.081	(0.258)	754195	100.000	100.72
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	637736	100.000	95.19
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	968365	100.000	96.62
55	Dibromochloromethane	129	7.176	7.176	(0.936)	550586	100.000	95.05
44	Dibromomethane	93	5.558	5.558	(1.118)	359271	100.000	93.66
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	565982	100.000	99.24
61	Ethylbenzene	106	7.800	7.800	(1.017)	812673	100.000	94.40
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	246513	100.000	102.01
67	Isopropylbenzene	105	8.566	8.566	(1.117)	2411893	100.000	96.36
62	m,p-Xylenes	106	7.907	7.907	(1.031)	1946449	200.000	188.34
17	Methylene Chloride	84	2.306	2.306	(0.550)	605902	100.000	101.96
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1770652	100.000	102.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2876371	100.000	100.17
92	Naphthalene	128	11.546	11.546	(1.194)	292674	100.000	93.24
63	o-Xylene	106	8.244	8.244	(1.075)	955661	100.000	94.69
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2338282	100.000	99.42
64	Styrene	104	8.258	8.258	(1.077)	1628033	100.000	94.29
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1601570	100.000	96.66
56	Tetrachloroethene	164	6.933	6.933	(0.904)	489193	100.000	95.52
50	Toluene	91	6.453	6.453	(0.841)	2417385	100.000	92.13
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	548910	100.000	96.90
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	812915	100.000	97.32
38	Trichloroethene	130	5.214	5.214	(1.049)	604179	100.000	96.69
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	806123	100.000	101.40
5	Vinyl Chloride	62	1.145	1.145	(0.273)	730234	100.000	103.38

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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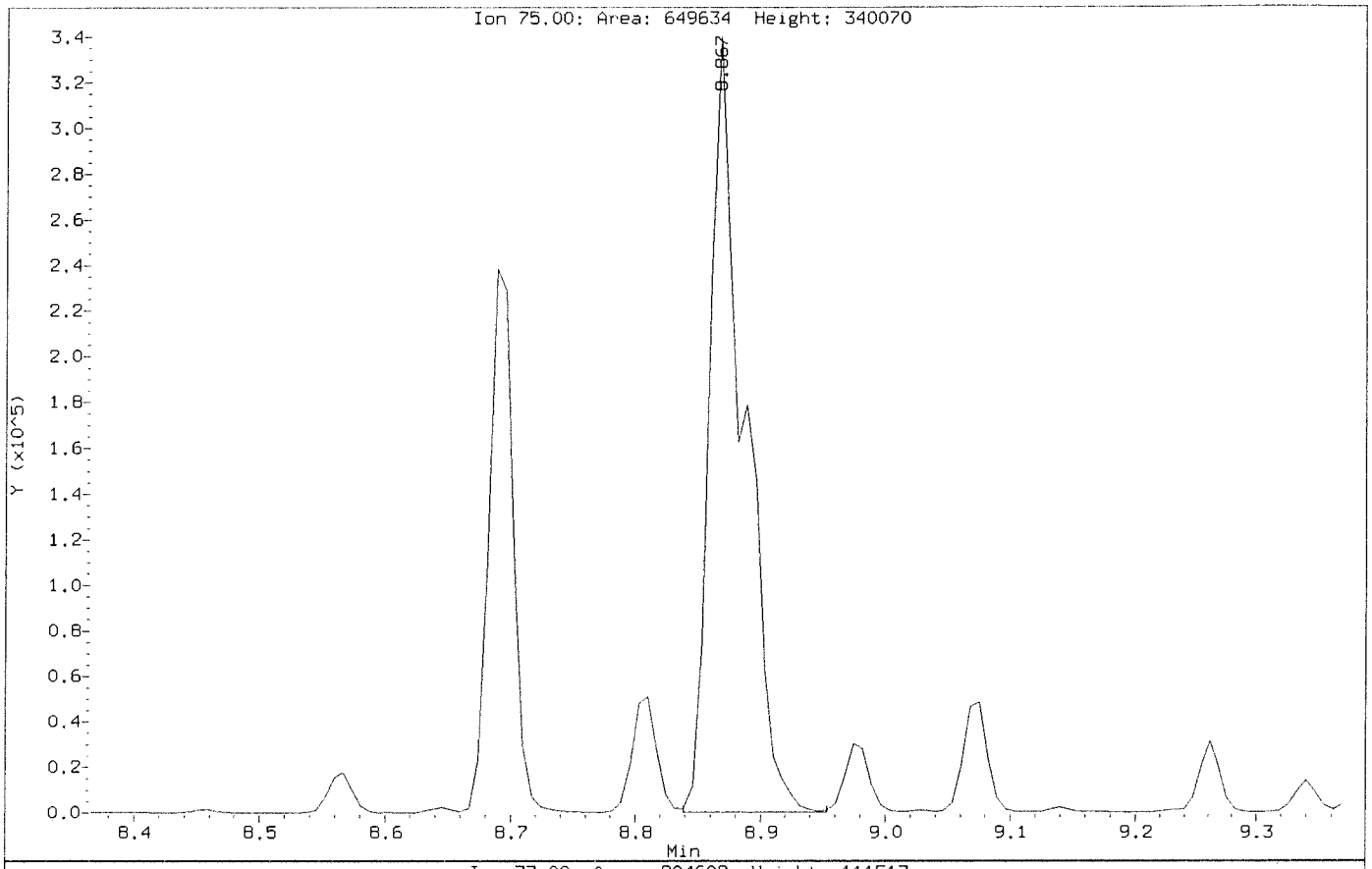
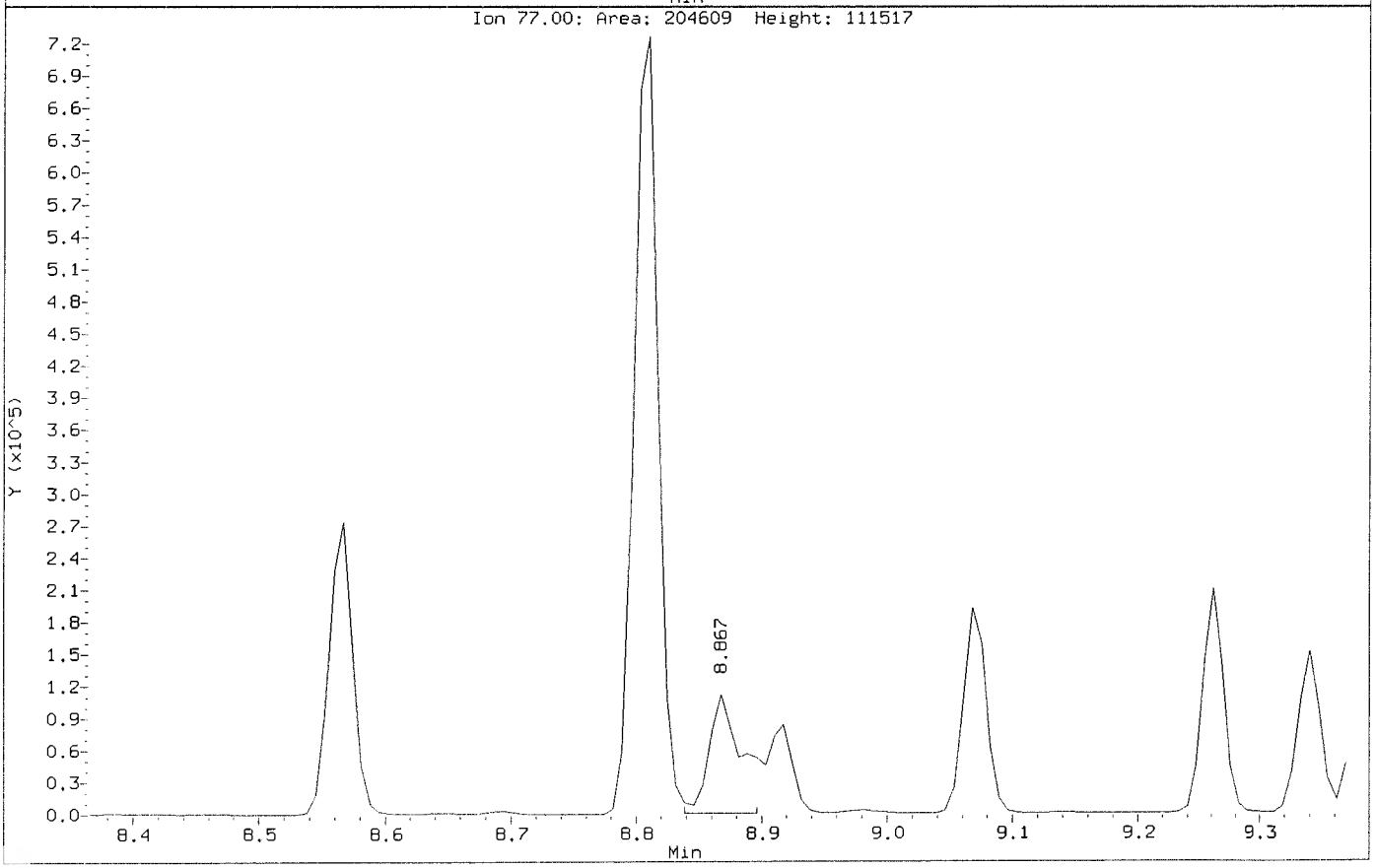
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092409.D
Injection Date: 24-SEP-2020 14:45
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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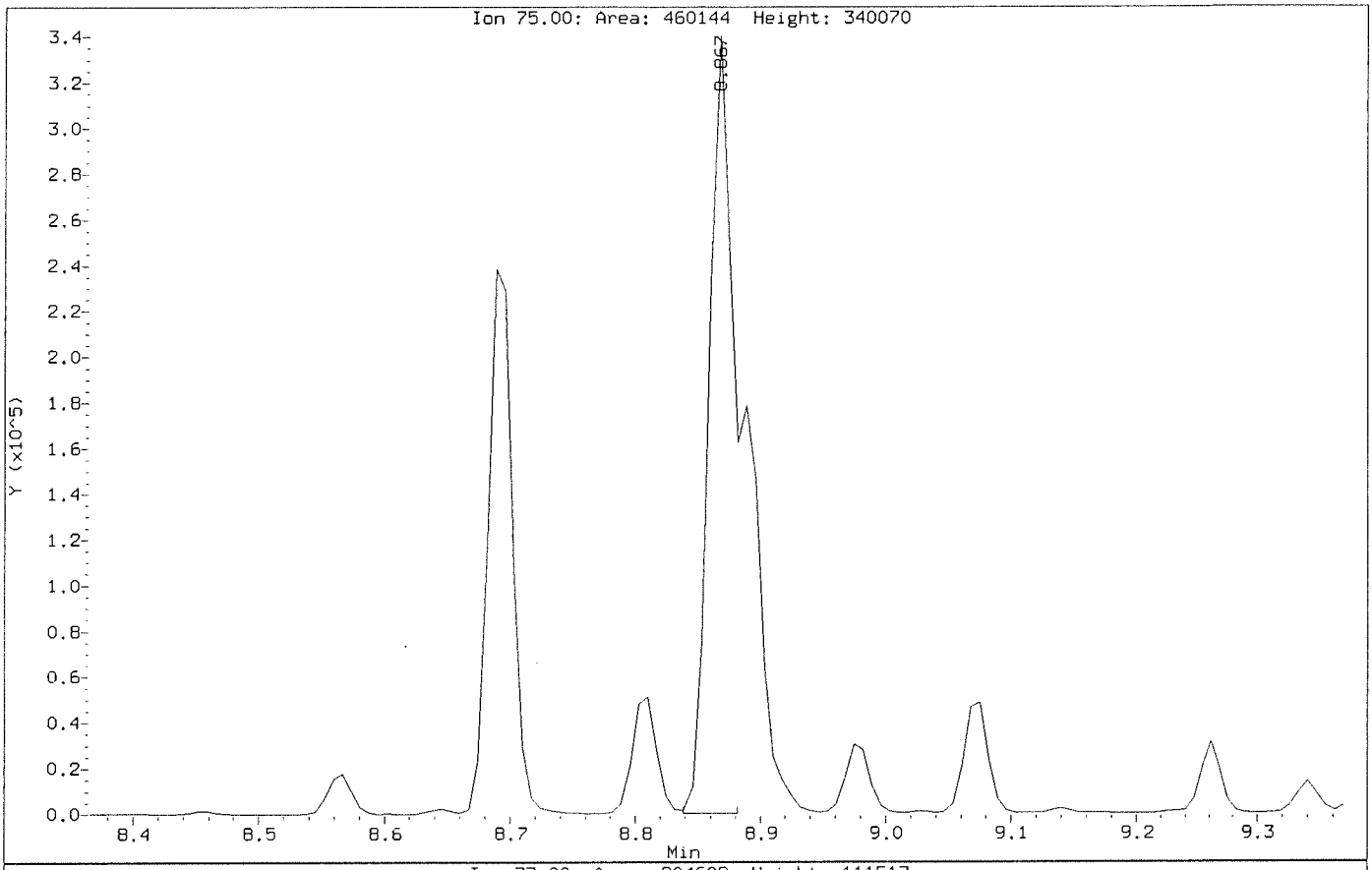
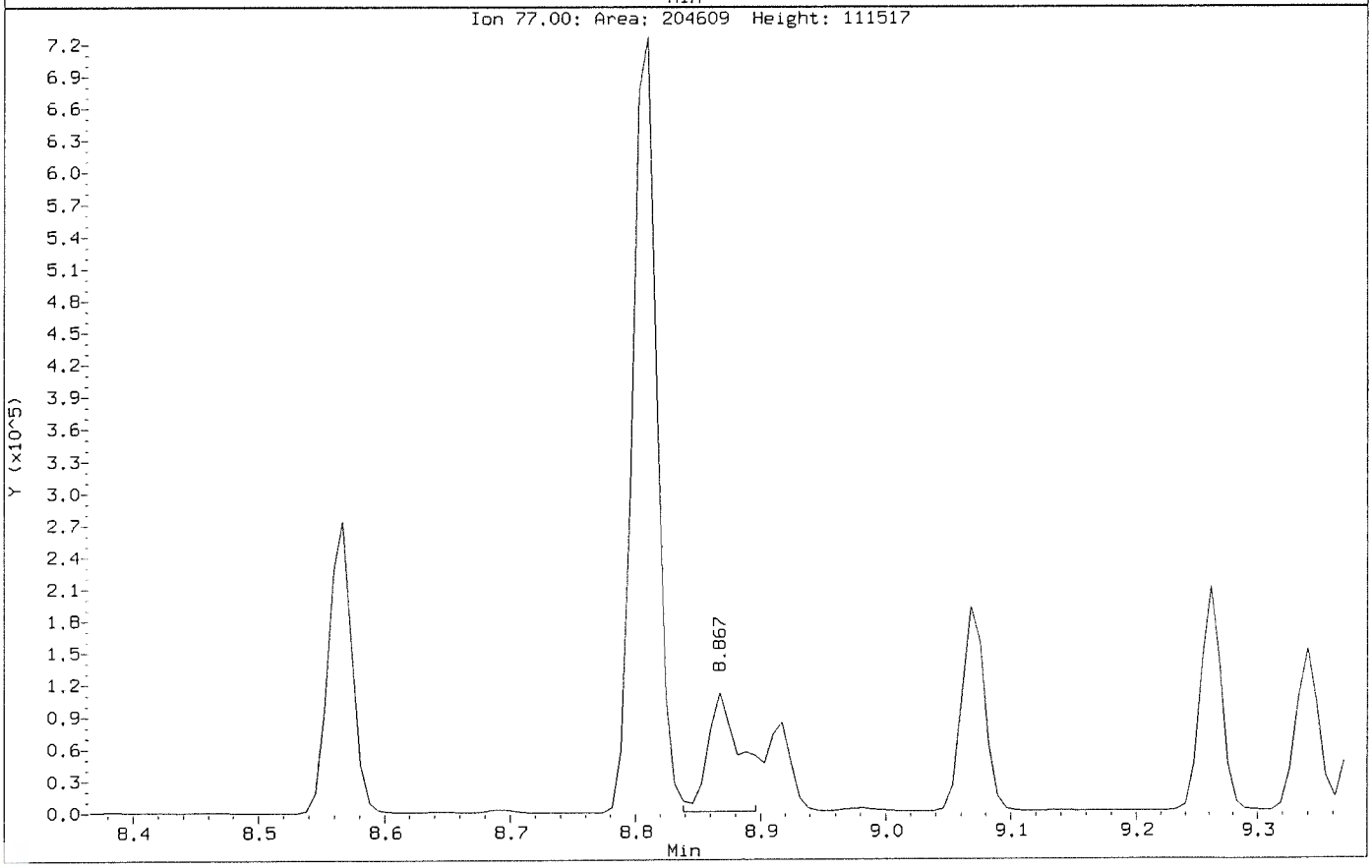
Instrument: voa6.i
Client Sample ID: VSTD100

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

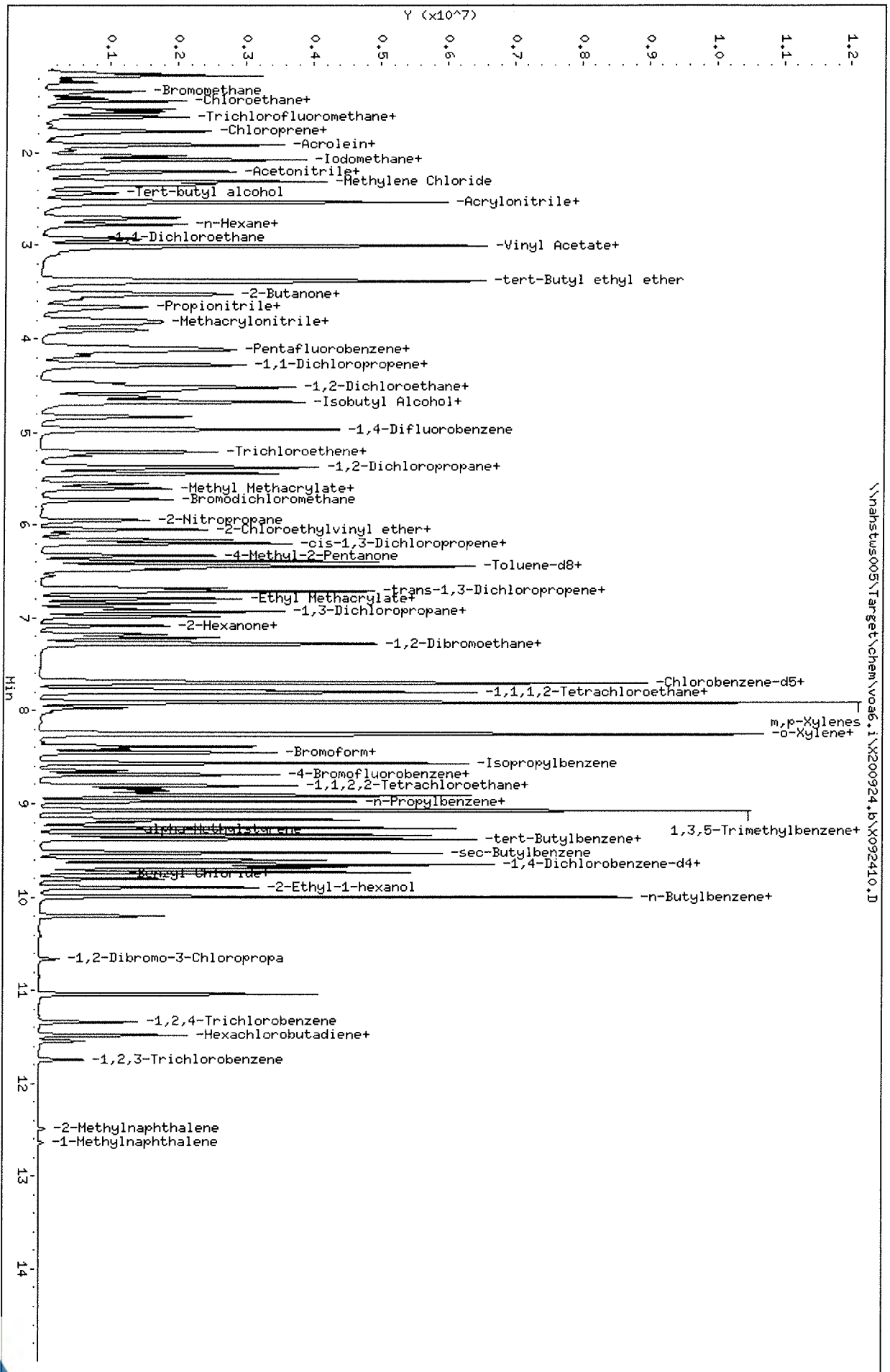
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	531920	50.0000	
* 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	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	329958	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	783989	150.000	145.21
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	1209503	150.000	147.63
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	804309	150.000	137.84
53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	627933	150.000	136.85
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	1562221	150.000	140.58
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	699764	150.000	146.31
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	1139618	150.000	147.30
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	196114	150.000	153.78
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	678354	150.000	140.54(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	386588	150.000	151.87
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	2817092	150.000	143.42
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	57707	150.000	144.92
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	761017	150.000	140.56
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1308650	150.000	142.42

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	1012585	150.000	139.64
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	904655	150.000	145.27
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	2822481	150.000	144.86
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1521632	150.000	143.37
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	1302913	150.000	137.27
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1489597	150.000	141.33
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	1188510	150.000	142.34
24	2-Butanone	43	3.581	3.581	(0.855)	625735	300.000	322.26(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	2388112	150.000	139.28
52	2-Hexanone	43	7.090	7.090	(0.924)	1024572	300.000	296.58(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	2725898	150.000	139.64
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2920943	150.000	148.63
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	1567164	300.000	286.56(A)
10	Acetone	43	1.976	1.976	(0.472)	368697	300.000	300.09(A)
37	Benzene	78	4.519	4.519	(0.909)	3448252	150.000	143.36
74	Bromobenzene	156	8.810	8.810	(0.911)	951989	150.000	142.77
29	Bromochloromethane	128	3.803	3.803	(0.908)	454072	150.000	136.59
39	Bromodichloromethane	83	5.729	5.729	(1.153)	1108506	150.000	145.34
66	Bromoform	173	8.416	8.416	(1.097)	517500	150.000	152.06
6	Bromomethane	94	1.338	1.338	(0.320)	643333	150.000	150.62
19	Carbon Disulfide	76	2.076	2.076	(0.496)	4895270	300.000	296.32(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	1027004	150.000	152.66
59	Chlorobenzene	112	7.699	7.699	(1.004)	2206389	150.000	139.20
7	Chloroethane	64	1.403	1.403	(0.335)	578170	150.000	138.75
28	Chloroform	83	3.910	3.910	(0.933)	1456902	150.000	141.30
3	Chloromethane	50	1.081	1.081	(0.258)	1119689	150.000	153.71
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	926983	150.000	142.24
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1418593	150.000	147.03
55	Dibromochloromethane	129	7.176	7.176	(0.936)	806662	150.000	144.89
44	Dibromomethane	93	5.558	5.558	(1.118)	521767	150.000	141.30
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	843912	150.000	151.02
61	Ethylbenzene	106	7.800	7.800	(1.017)	1183946	150.000	143.10
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	372303	150.000	154.25
67	Isopropylbenzene	105	8.566	8.566	(1.117)	3498166	150.000	145.41
62	m,p-Xylenes	106	7.907	7.907	(1.031)	2812643	300.000	283.15(A)
17	Methylene Chloride	84	2.305	2.305	(0.550)	861961	150.000	149.44
87	n-Butylbenzene	91	9.999	9.999	(1.034)	2576017	150.000	151.51
73	n-Propylbenzene	91	8.917	8.917	(0.922)	4173432	150.000	148.27
92	Naphthalene	128	11.546	11.546	(1.194)	477401	150.000	155.15
63	o-Xylene	106	8.244	8.244	(1.075)	1381156	150.000	142.38
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	3408972	150.000	147.86
64	Styrene	104	8.265	8.265	(1.078)	2356658	150.000	142.01
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	2344446	150.000	144.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	708095	150.000	143.86
50	Toluene	91	6.453	6.453	(0.841)	3514507	150.000	139.36
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	794499	150.000	144.18
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1206197	150.000	150.00
38	Trichloroethene	130	5.207	5.207	(1.048)	882316	150.000	146.68
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	1178939	150.000	152.45
5	Vinyl Chloride	62	1.145	1.145	(0.273)	1069212	150.000	155.61

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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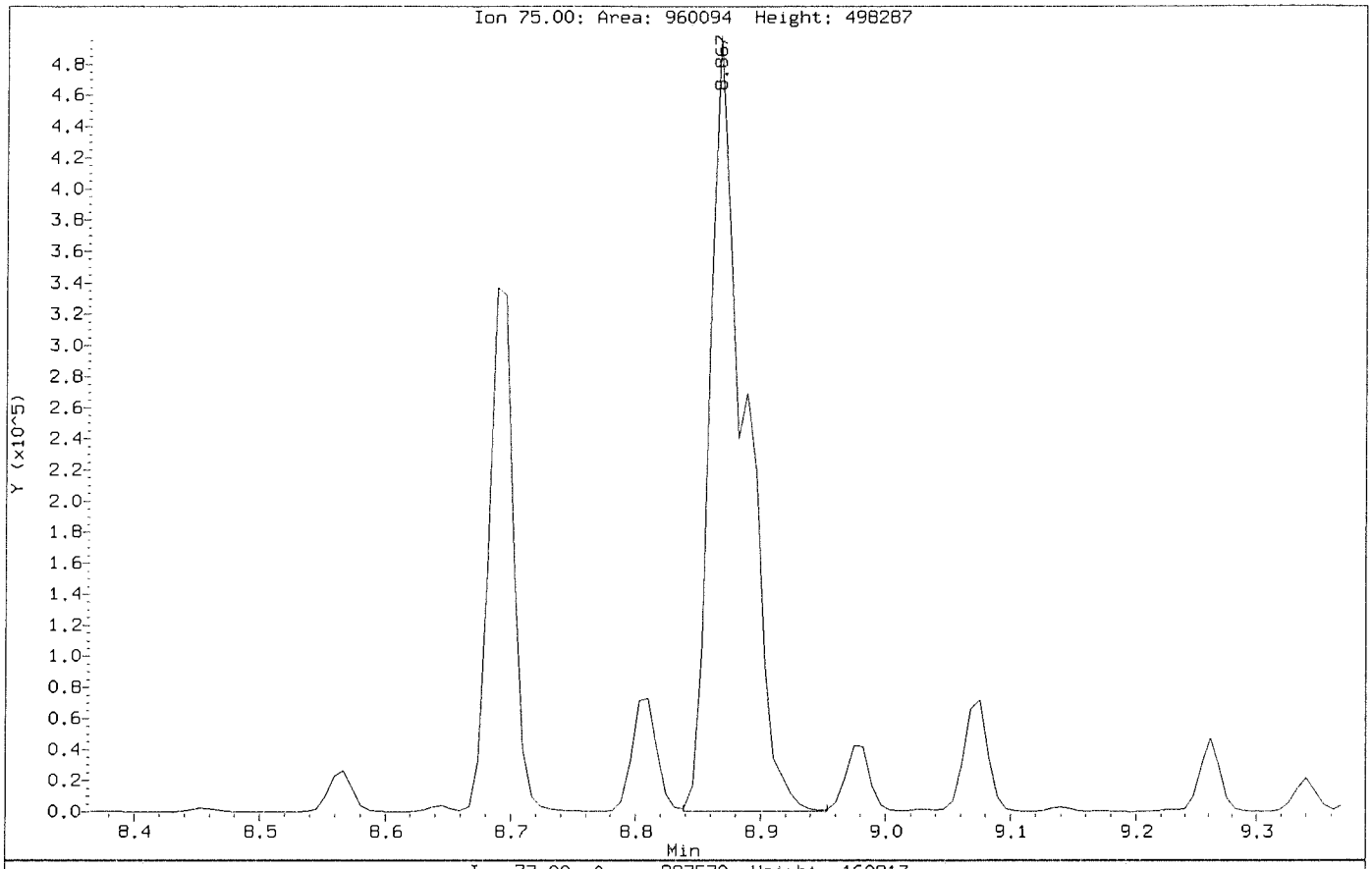
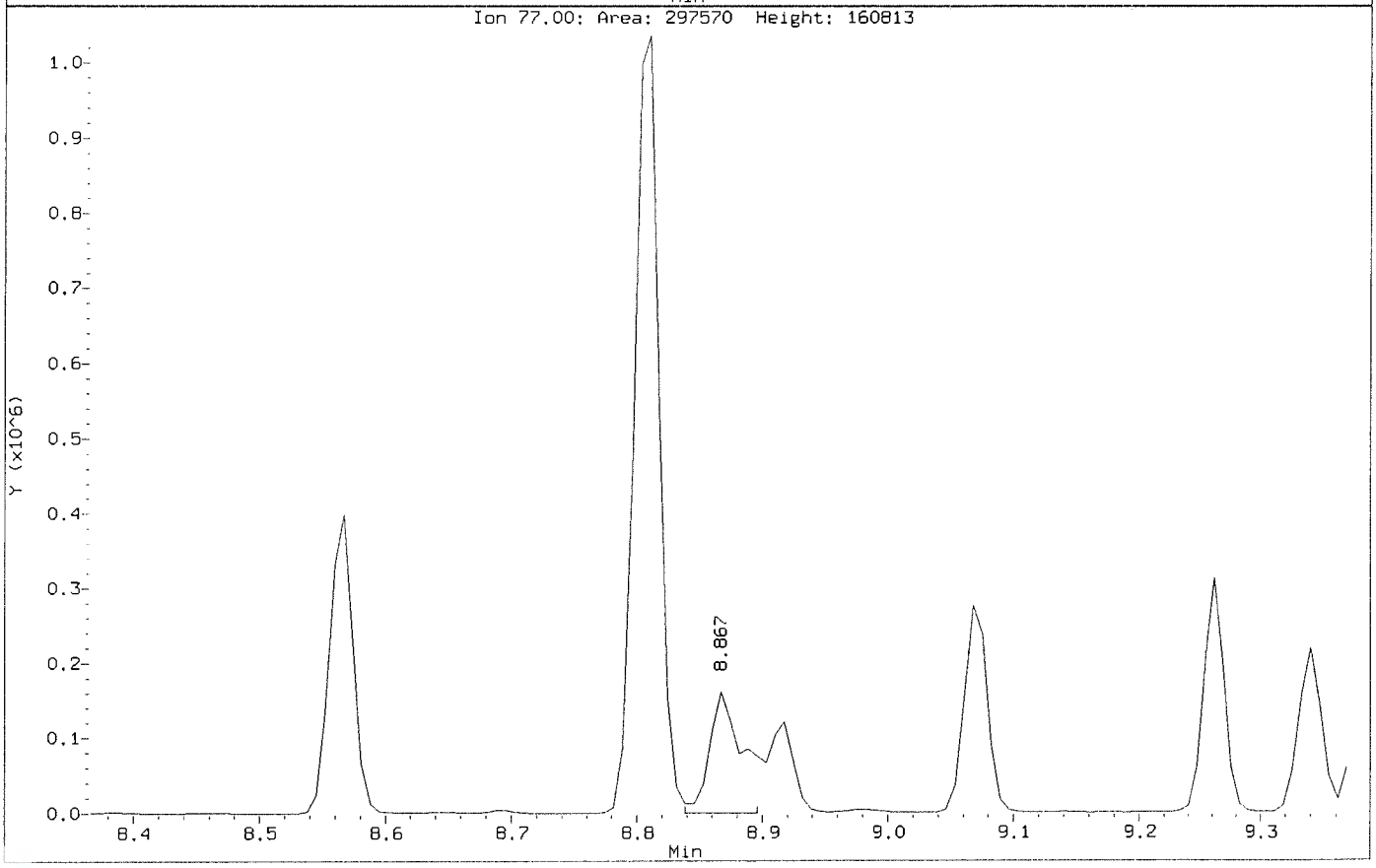
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092410.D
Injection Date: 24-SEP-2020 15:09
Instrument: voa6.i
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Injection Date: 24-SEP-2020 15:09
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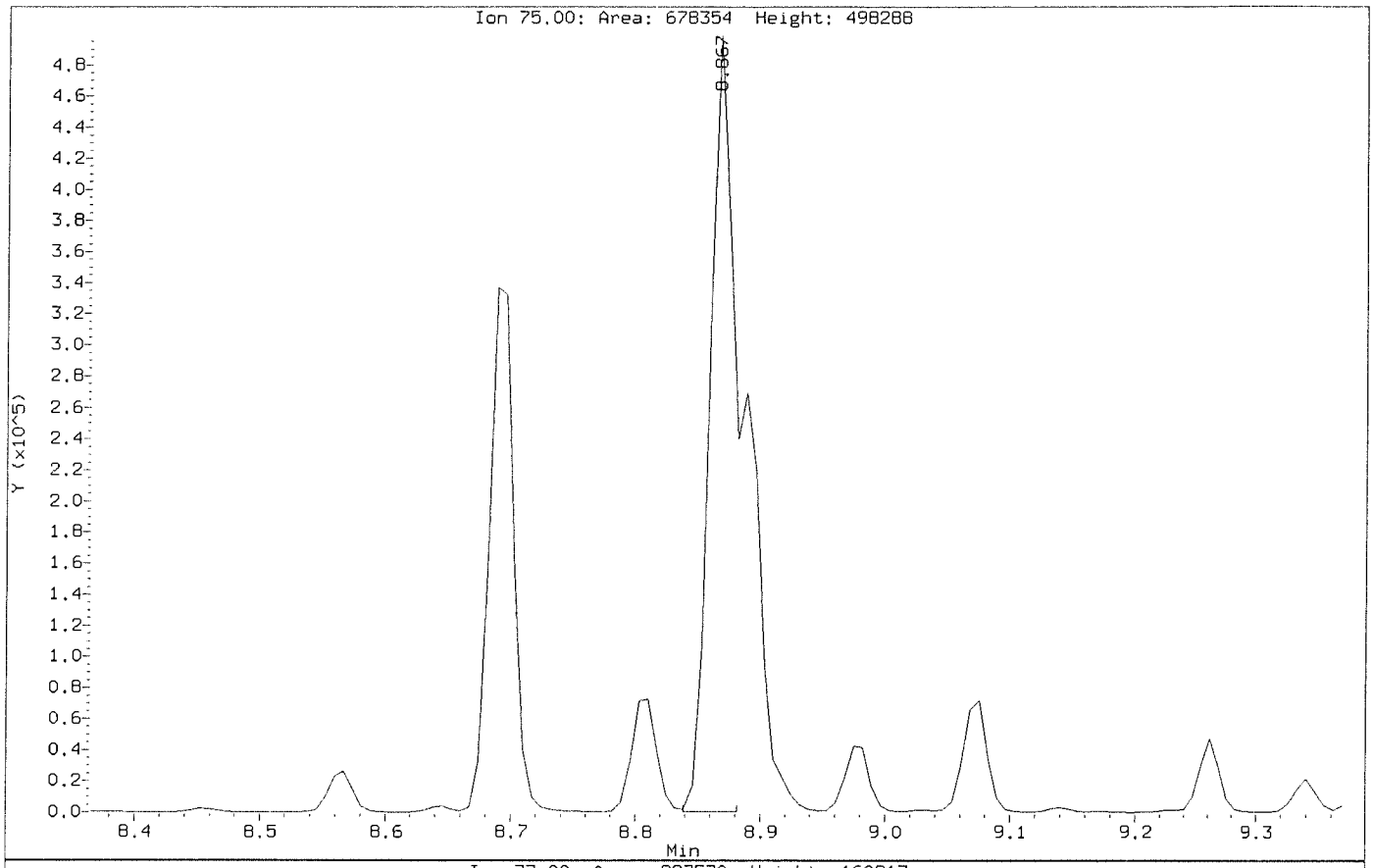
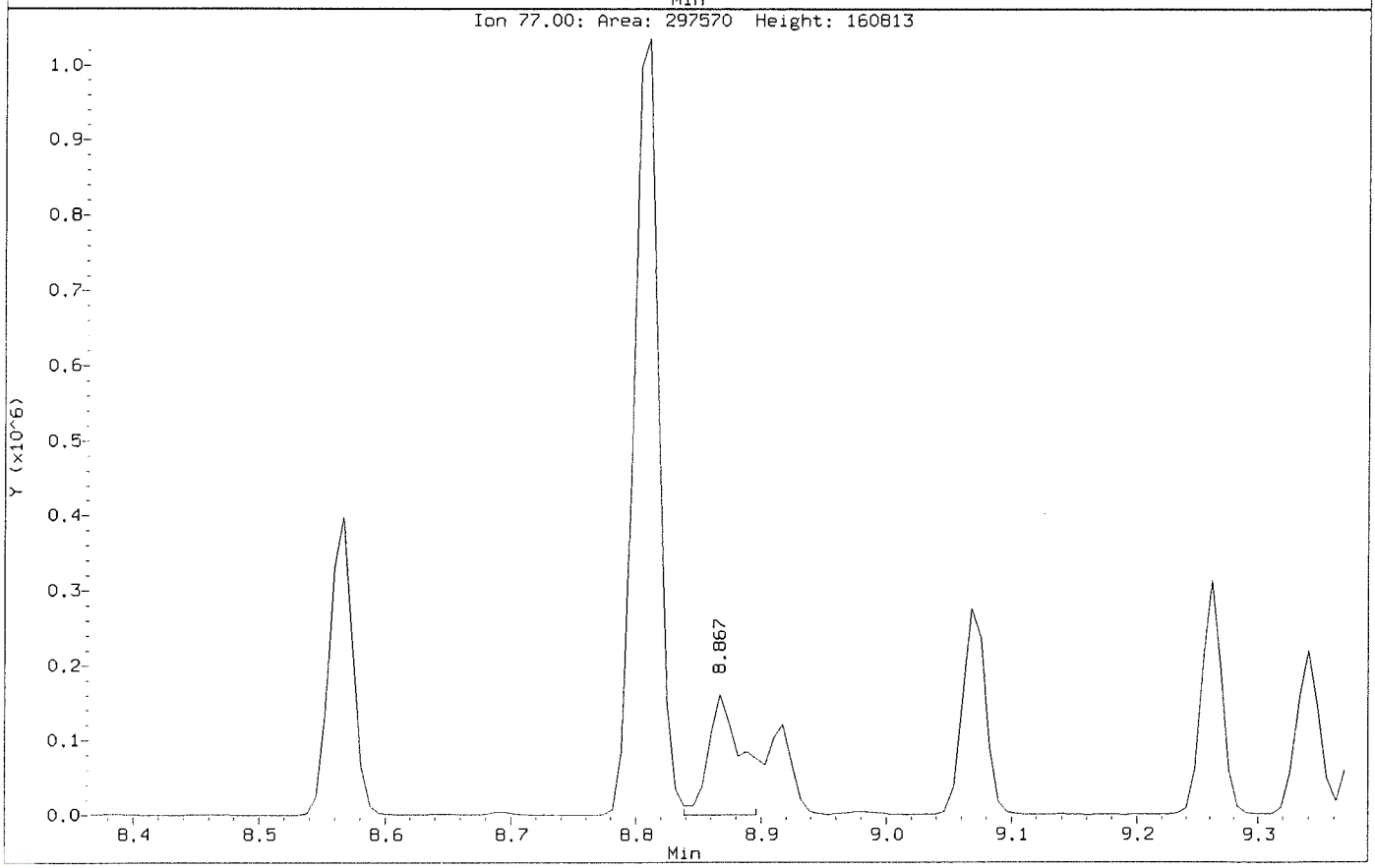
Client Sample ID: VSTD150

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092411.D
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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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

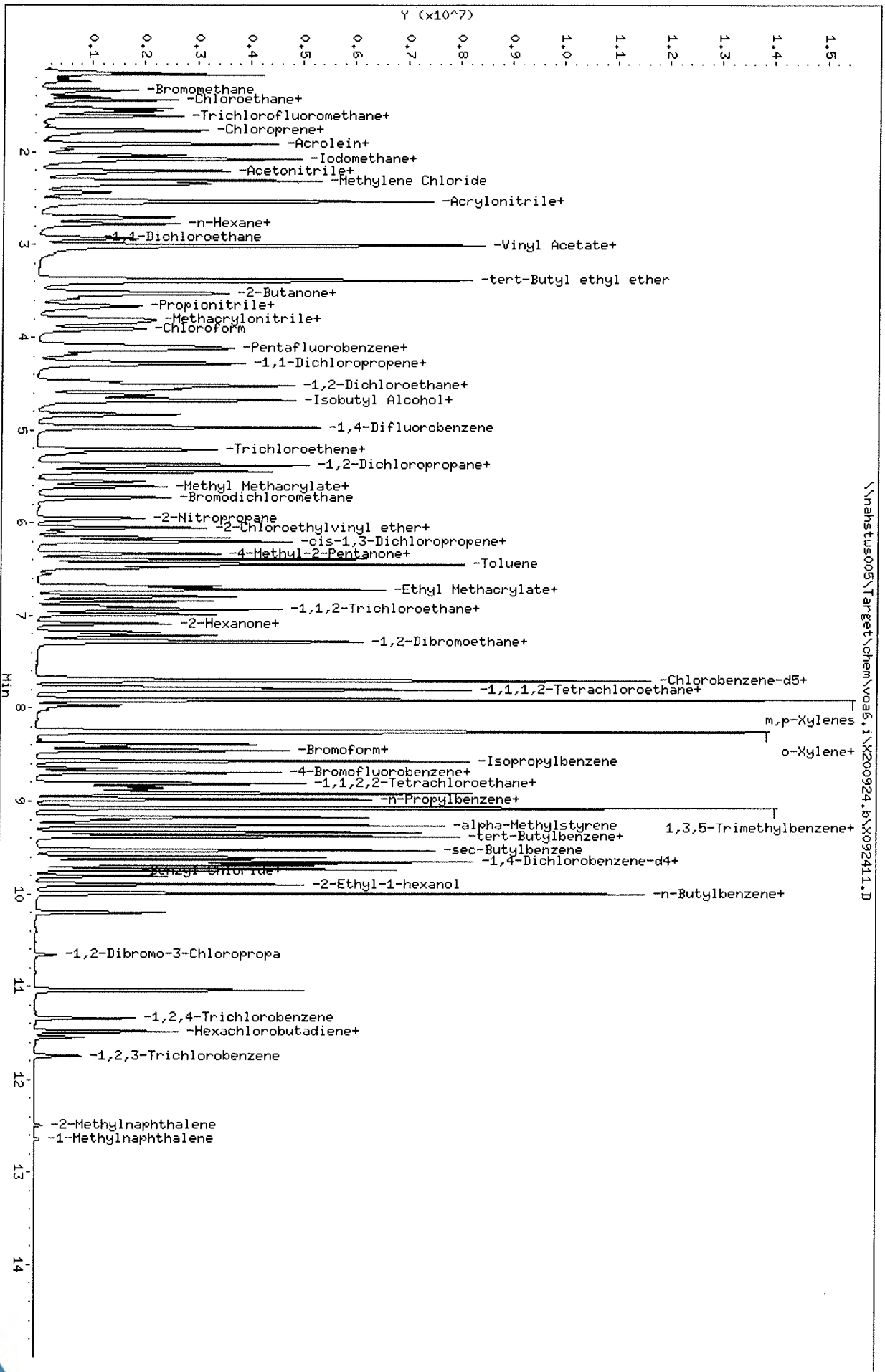
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	514617	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	818151	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	766117	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	319805	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
$ 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
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1023952	200.000	192.86
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	1570020	200.000	198.08
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1009059	200.000	178.42
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	811095	200.000	179.76
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2021086	200.000	187.99
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	898417	200.000	194.16
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	1470799	200.000	195.41
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	252027	200.000	203.90(A)
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	845182	200.000	180.66(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	497987	200.000	201.39(A)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	3640675	200.000	191.23
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	75498	200.000	195.63
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	982108	200.000	184.47
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1668003	200.000	187.30

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092411.D Page 2
Report Date: 13-Oct-2020 11:23

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	1311886	200.000	185.97
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	1174366	200.000	193.85
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	3615186	200.000	191.44
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1939698	200.000	188.57
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	1687479	200.000	180.80
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	1908950	200.000	186.87
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	1529599	200.000	189.35
24 2-Butanone	43	3.580	3.580	(0.855)	794870	400.000	423.13(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3075929	200.000	185.09
52 2-Hexanone	43	7.090	7.090	(0.924)	1315951	400.000	387.37(A)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	3499907	200.000	184.98
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	3720558	200.000	195.33
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	2021801	400.000	375.95(A)
10 Acetone	43	1.976	1.976	(0.472)	468128	400.000	395.42(A)
37 Benzene	78	4.519	4.519	(0.909)	4491768	200.000	191.96
74 Bromobenzene	156	8.809	8.809	(0.911)	1227148	200.000	189.89
29 Bromochloromethane	128	3.803	3.803	(0.908)	585962	200.000	182.19
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1448888	200.000	195.26
66 Bromoform	173	8.416	8.416	(1.097)	667425	200.000	199.43
6 Bromomethane	94	1.338	1.338	(0.320)	822601	200.000	199.15
19 Carbon Disulfide	76	2.076	2.076	(0.496)	6314905	400.000	395.11(A)
34 Carbon Tetrachloride	117	4.268	4.268	(0.859)	1334523	200.000	203.90(A)
59 Chlorobenzene	112	7.699	7.699	(1.004)	2881341	200.000	184.87
7 Chloroethane	64	1.403	1.403	(0.335)	746987	200.000	185.30
28 Chloroform	83	3.910	3.910	(0.933)	1888897	200.000	189.35
3 Chloromethane	50	1.081	1.081	(0.258)	1519539	200.000	215.62(A)
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	1197643	200.000	189.96
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	1863781	200.000	198.57
55 Dibromochloromethane	129	7.176	7.176	(0.936)	1046893	200.000	191.23
44 Dibromomethane	93	5.557	5.557	(1.118)	676562	200.000	188.33
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1091943	200.000	201.27(A)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1537966	200.000	189.03
91 Hexachlorobutadiene	225	11.481	11.481	(1.187)	468444	200.000	197.29
67 Isopropylbenzene	105	8.566	8.566	(1.117)	4482158	200.000	189.47
62 m,p-Xylenes	106	7.907	7.907	(1.031)	3653571	400.000	374.04(A)
17 Methylene Chloride	84	2.305	2.305	(0.550)	1112263	200.000	199.56
87 n-Butylbenzene	91	9.999	9.999	(1.034)	3292137	200.000	199.77
73 n-Propylbenzene	91	8.917	8.917	(0.922)	5360526	200.000	196.50
92 Naphthalene	128	11.546	11.546	(1.194)	612632	200.000	205.43(A)
63 o-Xylene	106	8.244	8.244	(1.075)	1788902	200.000	187.54
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	4353469	200.000	194.82
64 Styrene	104	8.265	8.265	(1.078)	3107739	200.000	190.44
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	2997110	200.000	190.39
56 Tetrachloroethene	164	6.933	6.933	(0.904)	917390	200.000	189.53
50 Toluene	91	6.453	6.453	(0.841)	4536037	200.000	182.92
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1022675	200.000	191.84
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	1572450	200.000	201.00(A)
38 Trichloroethene	130	5.214	5.214	(1.049)	1150173	200.000	196.54
8 Trichlorofluoromethane	101	1.560	1.560	(0.373)	1512632	200.000	202.18(A)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1412833	200.000	212.53(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.



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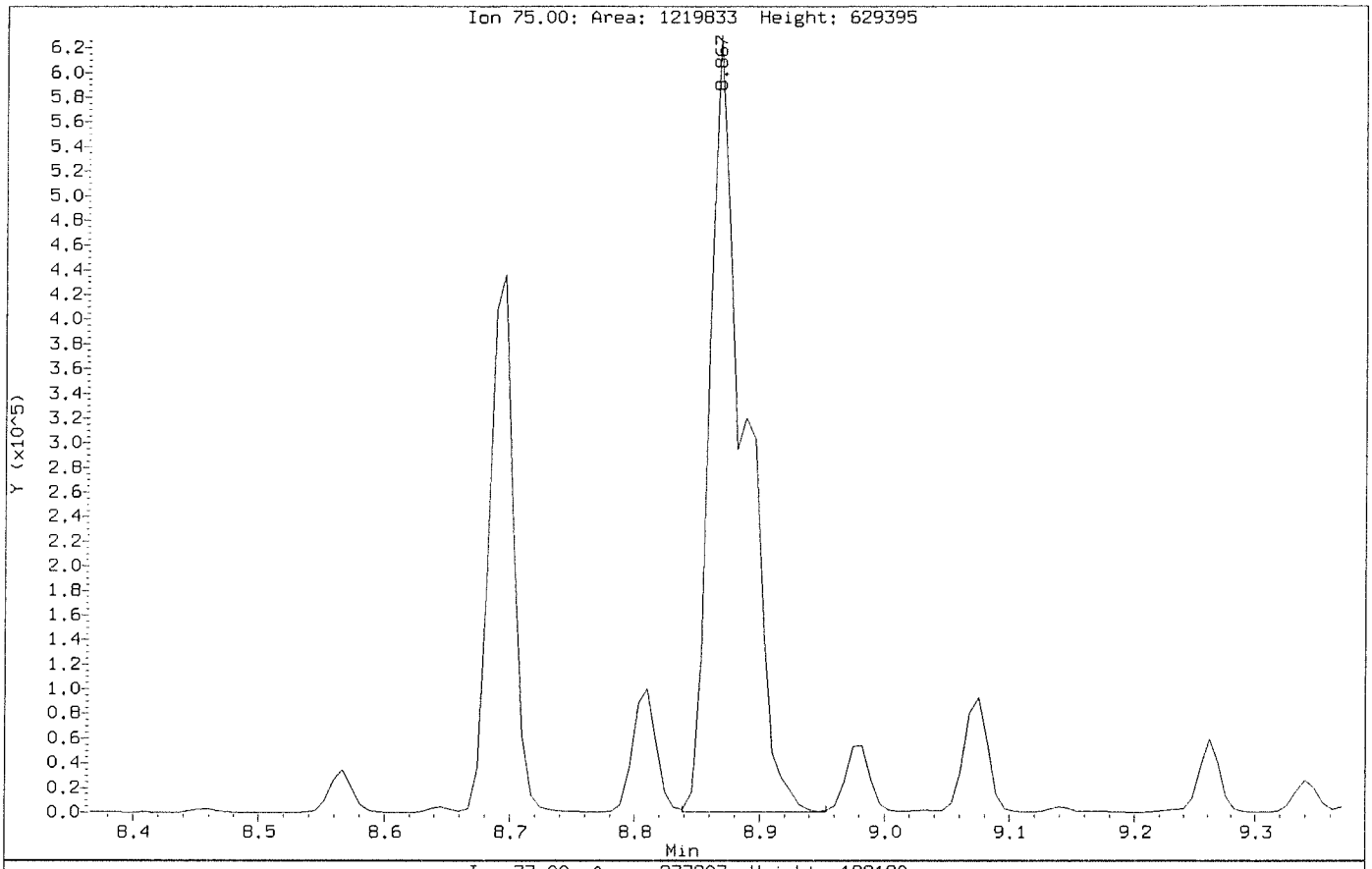
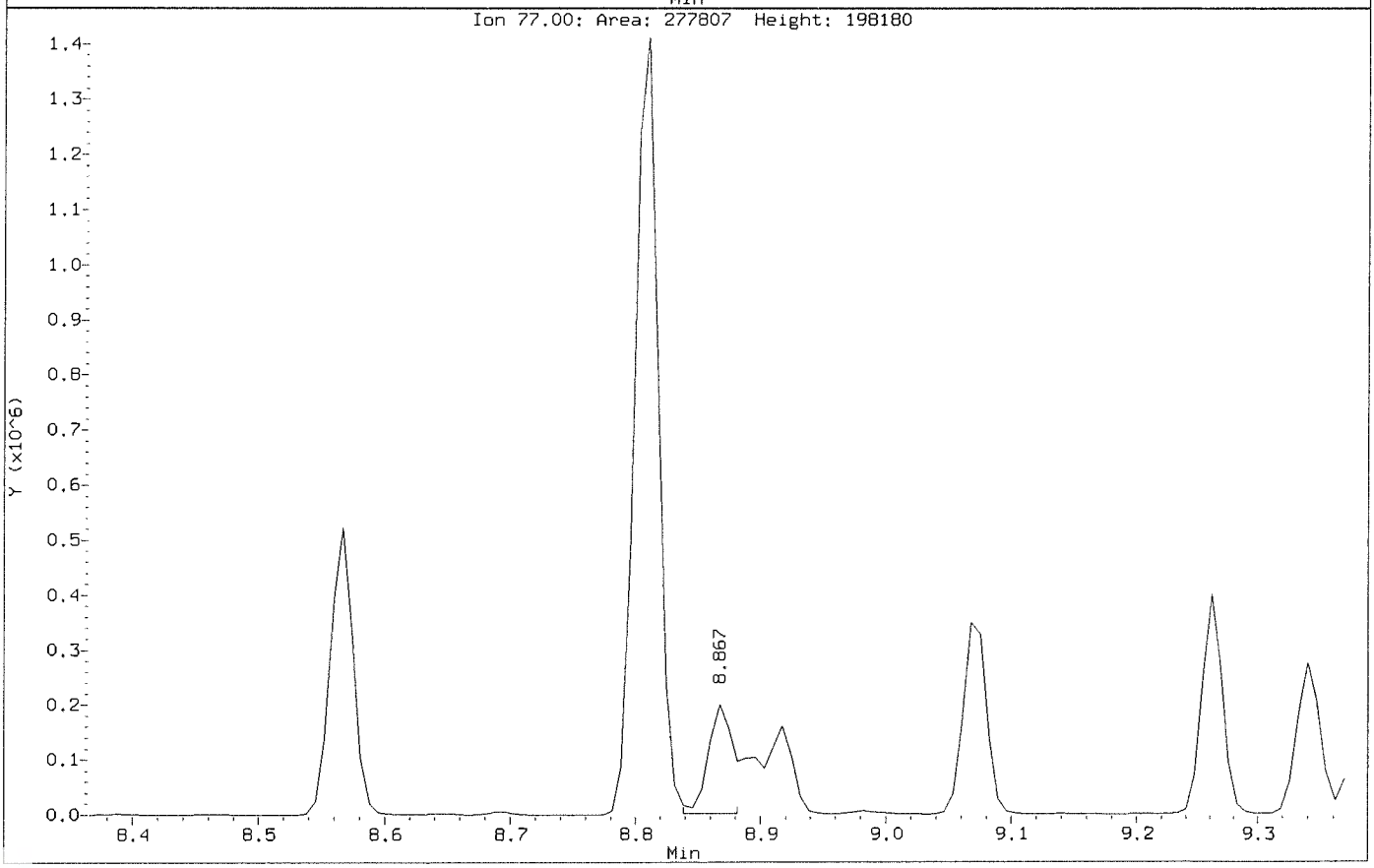
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092411.D
Injection Date: 24-SEP-2020 15:33
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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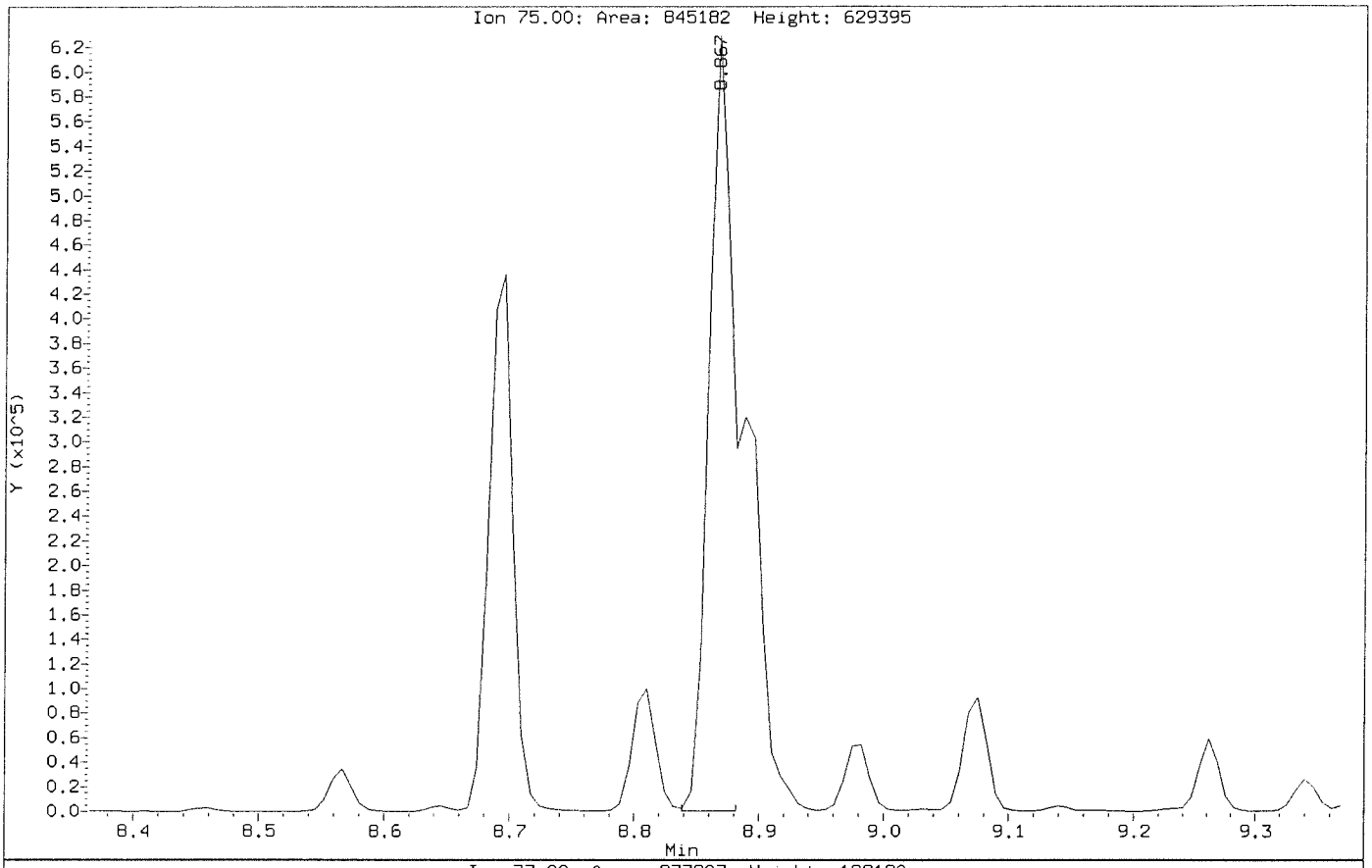
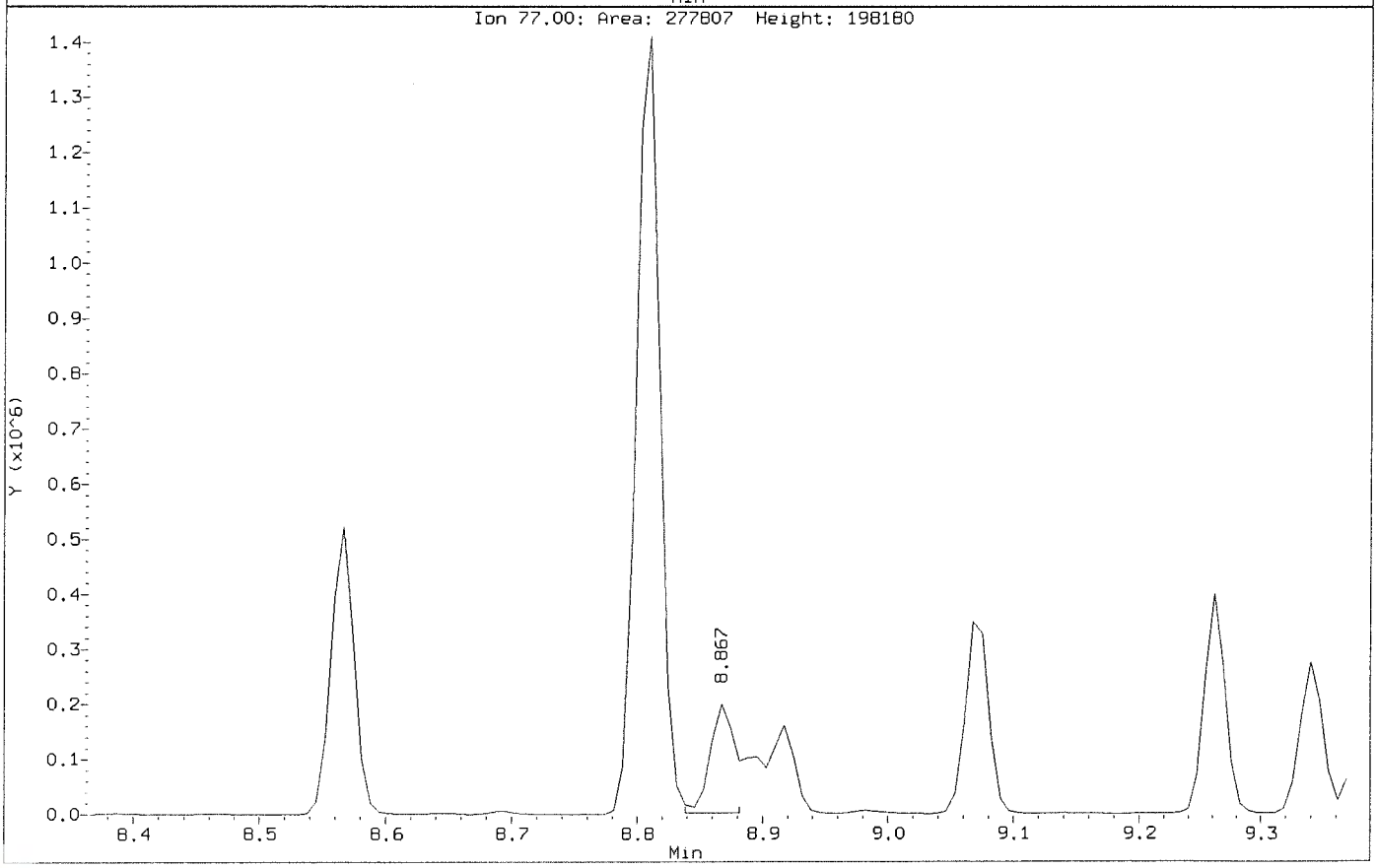
Instrument: voa6.i
Client Sample ID: VSTD200

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092414.D
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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\8260W.m
Meth Date : 13-Oct-2020 11:23 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: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

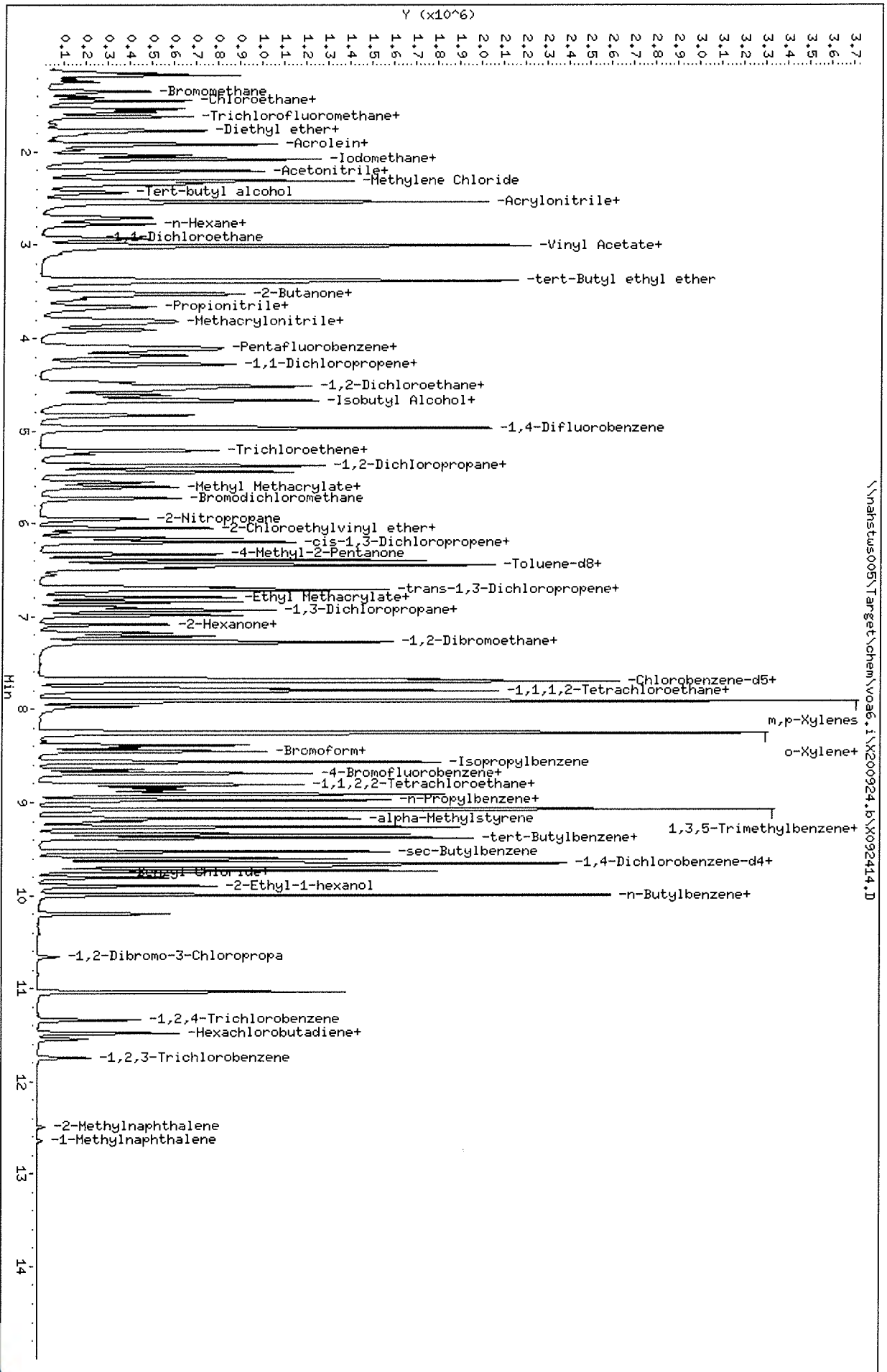
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555853	50.0000	
*	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	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	340955	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
$	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
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	255261	45.5235	45.52
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	372773	43.5426	43.54
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	269578	44.7109	44.71
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	212341	44.5585	44.55
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	513975	44.2622	44.26
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	215034	43.0259	43.02
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	342196	42.2270	42.22
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	67558	51.2677	51.26
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	237004	47.5196	47.51(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	127322	49.3405	49.34
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	893102	44.0033	44.00
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	18502	44.9686	44.96
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	254893	45.3327	45.33
	88 1,2-Dichlorobenzene	146	9.992	9.999	(1.034)	427645	45.0424	45.04

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	342758	45.1289	45.12
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	300814	46.1197	46.11
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	869784	43.2026	43.20
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	491942	44.8587	44.85
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	440493	44.6861	44.68
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	480988	44.1640	44.16
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	389339	44.6220	44.62
24	2-Butanone	43	3.581	3.580	(0.855)	219196	108.029	108.02
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	763308	43.0841	43.08
52	2-Hexanone	43	7.090	7.090	(0.924)	341403	95.1537	95.15
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	871870	43.2233	43.22
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	839031	41.3173	41.31
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	518916	91.3618	91.36
10	Acetone	43	1.976	1.976	(0.472)	144721	109.546	109.54
37	Benzene	78	4.519	4.519	(0.909)	1129724	44.8428	44.84
74	Bromobenzene	156	8.810	8.809	(0.912)	314637	45.6672	45.66
29	Bromochloromethane	128	3.803	3.803	(0.908)	152577	43.9222	43.92
39	Bromodichloromethane	83	5.729	5.729	(1.153)	364239	45.5934	45.59
66	Bromoform	173	8.416	8.416	(1.097)	169090	47.8404	47.84
6	Bromomethane	94	1.346	1.338	(0.321)	214339	47.8614	47.86
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1550506	89.8154	89.81
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	295499	41.9357	41.93
59	Chlorobenzene	112	7.699	7.699	(1.004)	717662	43.5977	43.59
7	Chloroethane	64	1.410	1.403	(0.337)	187221	42.9974	42.99
28	Chloroform	83	3.917	3.910	(0.935)	480173	44.5656	44.56
3	Chloromethane	50	1.081	1.081	(0.258)	347050	45.5939	45.59
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	305678	44.8873	44.88
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	467703	46.2818	46.28
55	Dibromochloromethane	129	7.176	7.176	(0.936)	263131	45.5092	45.50
44	Dibromomethane	93	5.558	5.557	(1.118)	175762	45.4424	45.44
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	230691	41.0358	41.03
61	Ethylbenzene	106	7.800	7.807	(1.017)	366397	42.6400	42.63
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	107937	45.3302	45.33
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1042703	41.7341	41.73
62	m,p-Xylenes	106	7.907	7.907	(1.031)	899893	87.2295	87.22
17	Methylene Chloride	84	2.306	2.305	(0.550)	293086	48.1510	48.15
87	n-Butylbenzene	91	9.999	9.999	(1.035)	744175	42.3576	42.35
73	n-Propylbenzene	91	8.917	8.917	(0.923)	1231158	42.3313	42.33
92	Naphthalene	128	11.546	11.546	(1.195)	165067	51.9179	51.91
63	o-Xylene	106	8.244	8.244	(1.075)	448211	44.4912	44.49
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	959537	40.2778	40.27
64	Styrene	104	8.258	8.265	(1.077)	794863	46.1195	46.11
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	686333	40.8964	40.89
56	Tetrachloroethene	164	6.933	6.933	(0.904)	211119	41.2989	41.29
50	Toluene	91	6.446	6.453	(0.840)	1141578	43.5879	43.58
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	260688	45.2738	45.27
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	394997	46.8967	46.89
38	Trichloroethene	130	5.214	5.214	(1.049)	279338	44.3352	44.33
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	339177	41.9731	41.97
5	Vinyl Chloride	62	1.145	1.145	(0.273)	314294	43.7725	43.77

QC Flag Legend

M - Compound response manually integrated.



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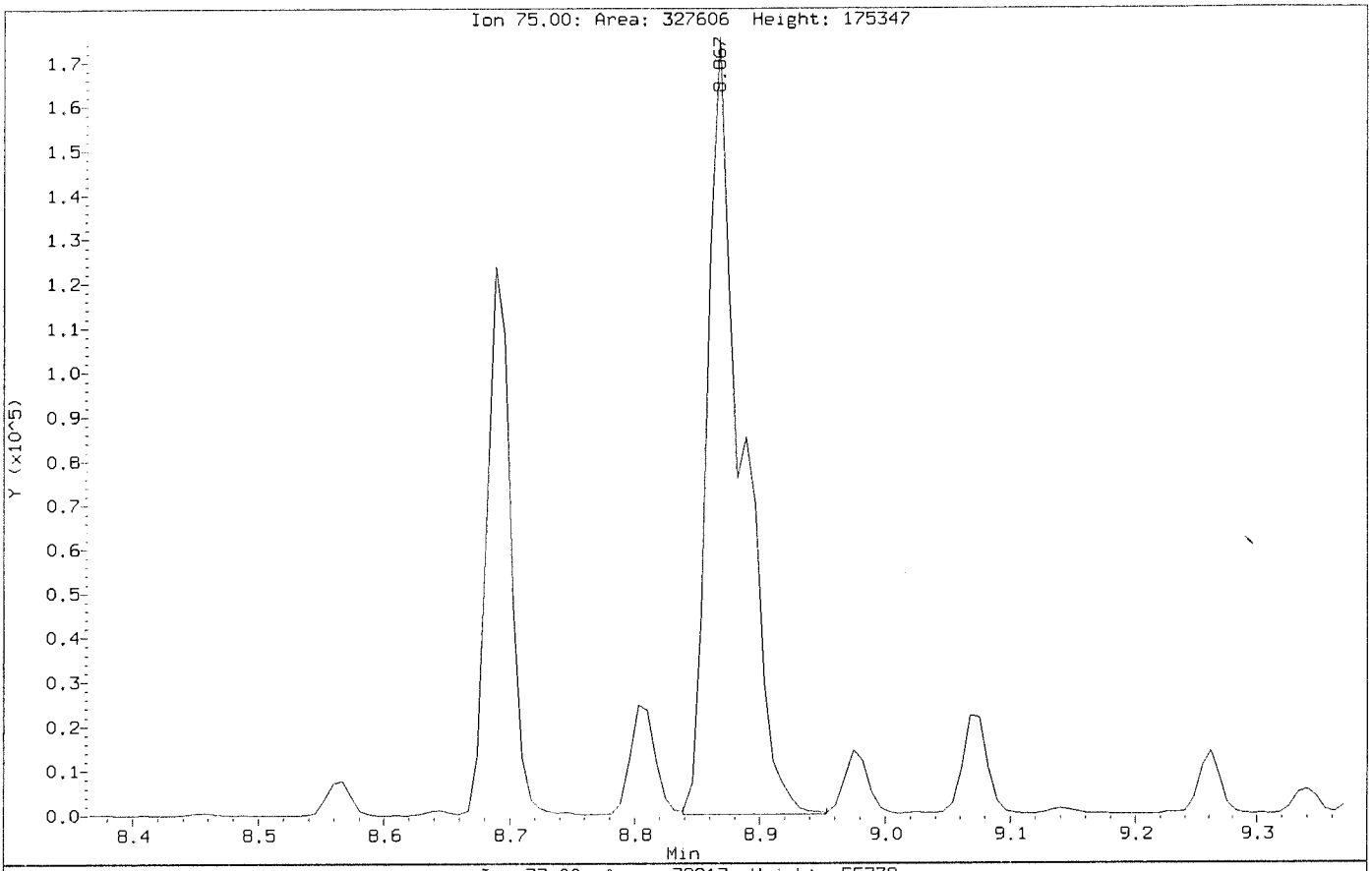
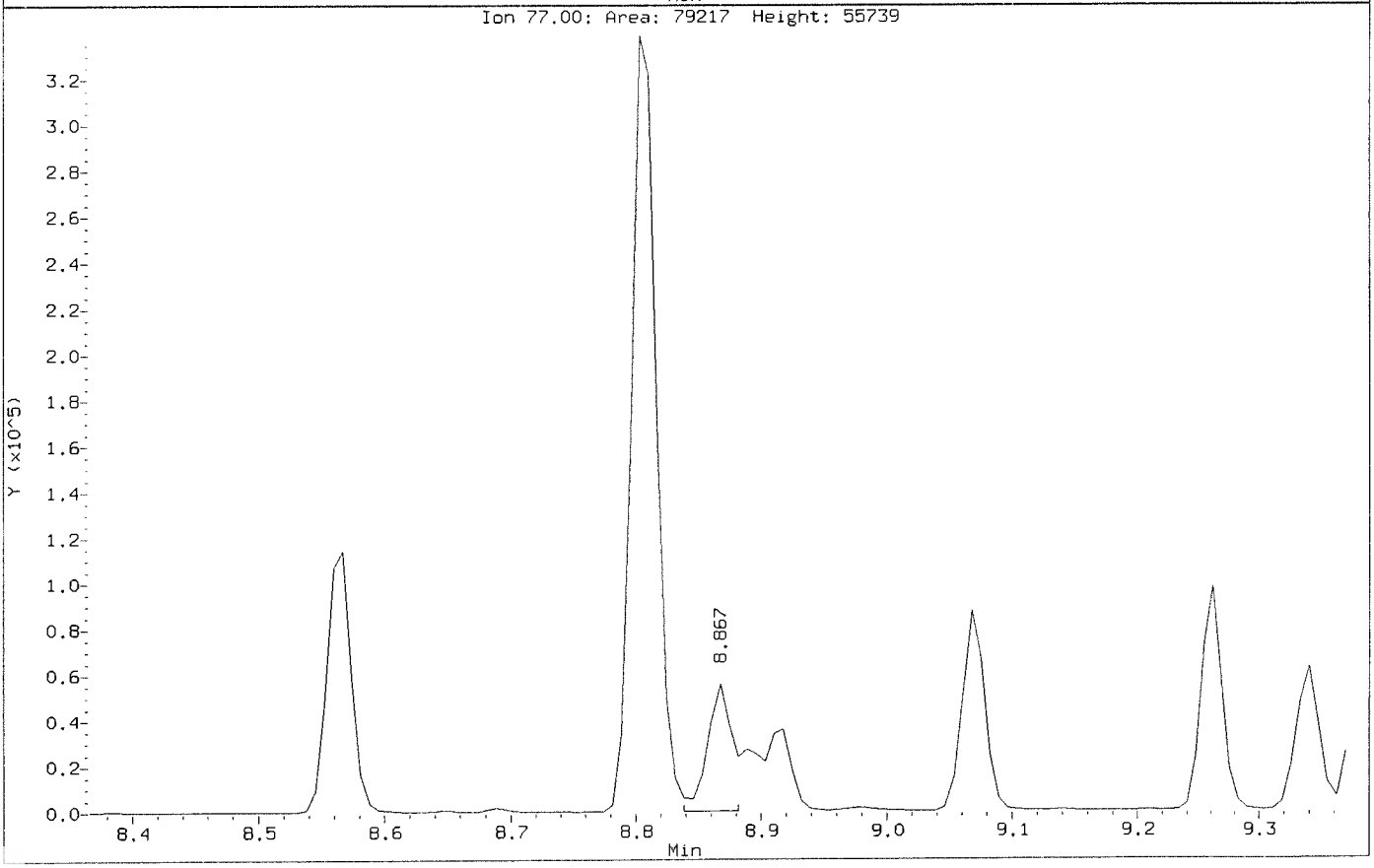
Date : 24-SEP-2020 16:45
Client ID: ICV
Sample Info: VSTD050;VSTD050;2;;ICV
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092414.D
Injection Date: 24-SEP-2020 16:45
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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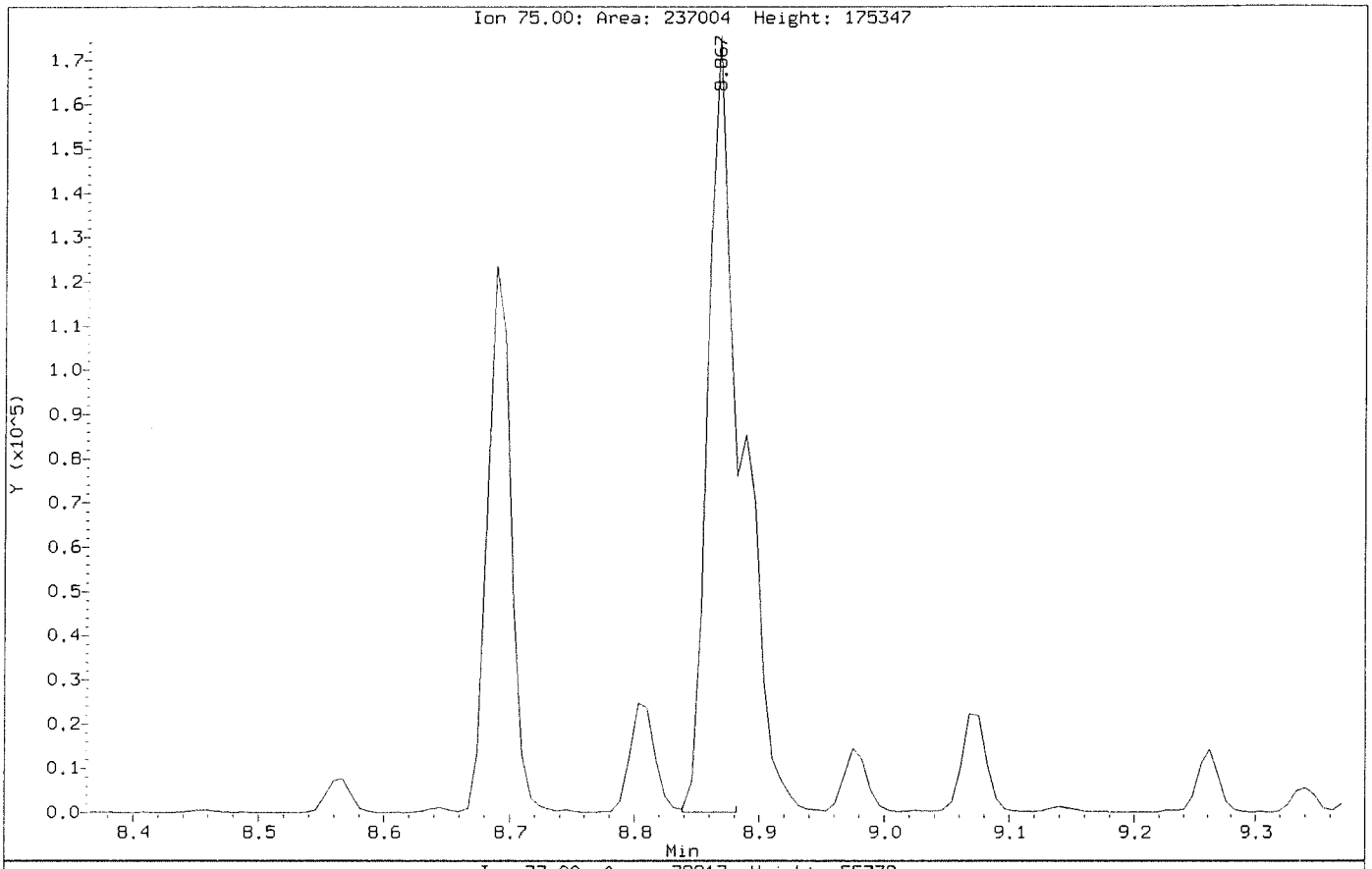
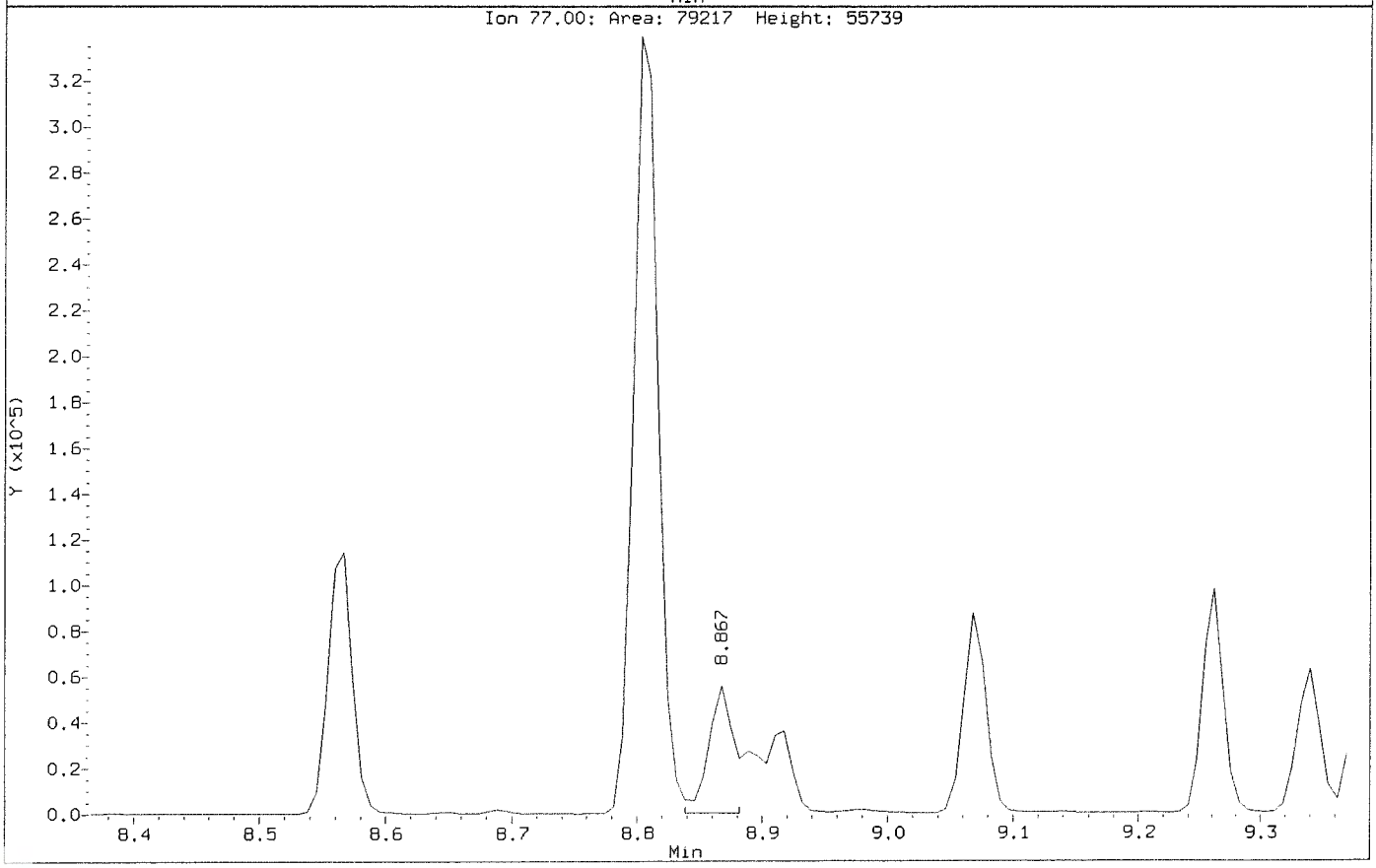
Injection Date: 24-SEP-2020 16:45
Instrument: voa6.i
Client Sample ID: ICV

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092416.D
Lab Smp Id: VLCSW-200924 Client Smp ID: VLCSW-200924
Inj Date : 24-SEP-2020 17:33
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-200924;VLCSW-200924;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 17 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

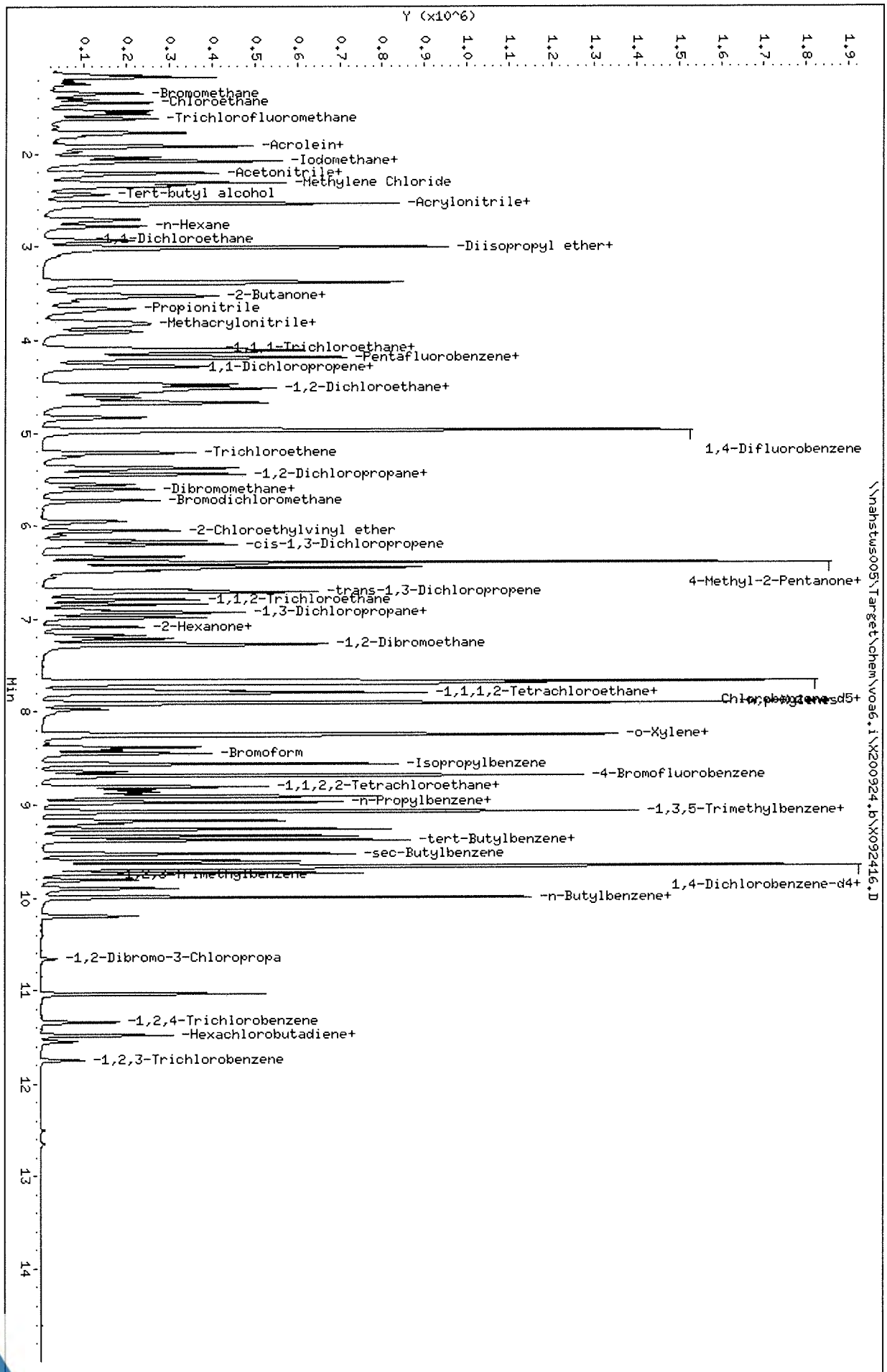
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	602309	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	938823	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	845297	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	360132	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	292041	47.1857	47.18
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	329257	48.6298	48.62
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1065140	47.9285	47.92
$ 69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	382031	51.8868	51.88
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	108269	18.4829	18.48
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	165126	17.8002	17.80
68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	114158	17.9255	17.92
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	90554	18.1895	18.18
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	229642	18.2509	18.25
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	97304	17.9678	17.96
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	154215	17.8556	17.85
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	28135	20.2139	20.21
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96818	18.3785	18.37(M)
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	53333	20.3957	20.39
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	396200	18.4814	18.48
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	7294	16.7839	16.78
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	110861	18.8733	18.87
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.035)	180959	18.0449	18.04

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	149526	18.4721	18.47
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	132153	19.0107	19.01
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	379402	17.8416	17.84
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	211988	18.3012	18.30
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	187862	18.2427	18.24
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	207919	18.0744	18.07
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	175418	18.5539	18.55
24	2-Butanone	43	3.581	3.580	(0.855)	88531	40.2665	40.26
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	338351	18.0809	18.08
52	2-Hexanone	43	7.090	7.090	(0.924)	141976	37.8782	37.87
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	379208	17.7983	17.79
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	380498	17.7395	17.73
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	216933	36.5603	36.56
10	Acetone	43	1.976	1.976	(0.472)	65280	42.6349	42.63
37	Benzene	78	4.519	4.519	(0.909)	494990	18.4352	18.43
74	Bromobenzene	156	8.810	8.809	(0.912)	134454	18.4758	18.47
29	Bromochloromethane	128	3.803	3.803	(0.908)	66391	17.6378	17.63
39	Bromodichloromethane	83	5.729	5.729	(1.153)	156598	18.3922	18.39
66	Bromoform	173	8.416	8.416	(1.097)	69359	18.7843	18.78
6	Bromomethane	94	1.346	1.338	(0.321)	97521	19.9582	19.95
19	Carbon Disulfide	76	2.076	2.076	(0.496)	689276	36.8478	36.84
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	129445	17.2364	17.23
59	Chlorobenzene	112	7.699	7.699	(1.004)	314558	18.2920	18.29
7	Chloroethane	64	1.410	1.403	(0.337)	82841	17.5579	17.55
28	Chloroform	83	3.917	3.910	(0.935)	213770	18.3100	18.31
3	Chloromethane	50	1.081	1.081	(0.258)	151626	18.3835	18.38
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	136698	18.5252	18.52
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	198440	18.4248	18.42
55	Dibromochloromethane	129	7.176	7.176	(0.936)	109195	18.0778	18.07
44	Dibromomethane	93	5.558	5.557	(1.118)	75868	18.4046	18.40
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	103096	18.1423	18.14
61	Ethylbenzene	106	7.800	7.807	(1.017)	162810	18.1369	18.13
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	53938	22.0610	22.06
67	Isopropylbenzene	105	8.566	8.566	(1.117)	457275	17.5196	17.51
62	m,p-Xylenes	106	7.907	7.907	(1.031)	388763	36.0723	36.07
17	Methylene Chloride	84	2.306	2.305	(0.550)	129722	19.2496	19.24
87	n-Butylbenzene	91	9.999	9.999	(1.035)	339369	18.2879	18.28
73	n-Propylbenzene	91	8.917	8.917	(0.923)	544101	17.7118	17.71
92	Naphthalene	128	11.546	11.546	(1.195)	62486	18.6069	18.60
63	o-Xylene	106	8.244	8.244	(1.075)	190277	18.0798	18.07
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	434006	17.2479	17.24
64	Styrene	104	8.265	8.265	(1.078)	330272	18.3434	18.34
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	307938	17.3720	17.37
56	Tetrachloroethene	164	6.933	6.933	(0.904)	93880	17.5792	17.57
50	Toluene	91	6.453	6.453	(0.841)	501623	18.3339	18.33
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	116662	18.6981	18.69
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	167631	18.6739	18.67
38	Trichloroethene	130	5.214	5.214	(1.049)	123998	18.4657	18.46
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	155309	17.7371	17.73
5	Vinyl Chloride	62	1.145	1.145	(0.273)	139355	17.9113	17.91

QC Flag Legend

M - Compound response manually integrated.



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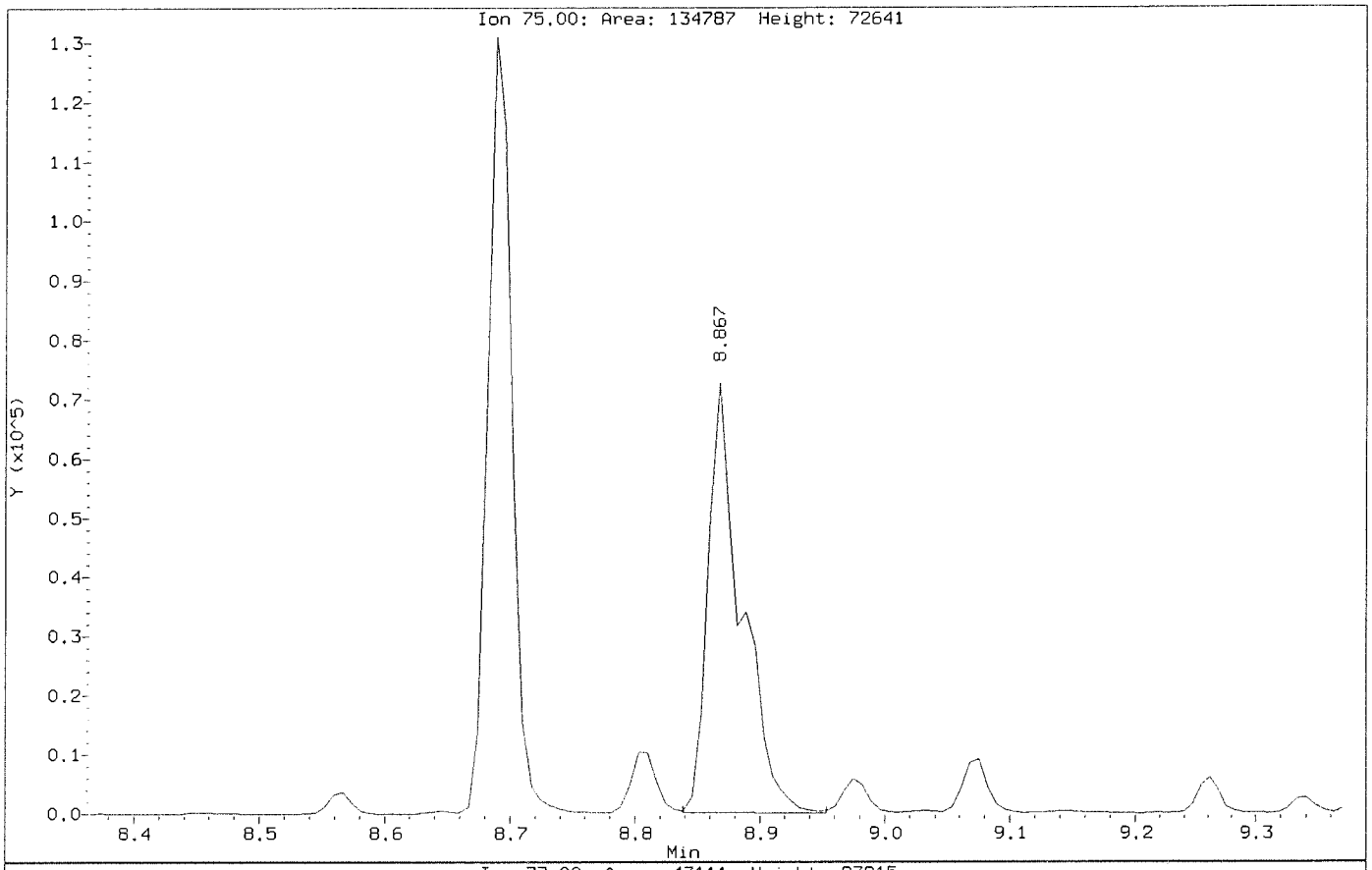
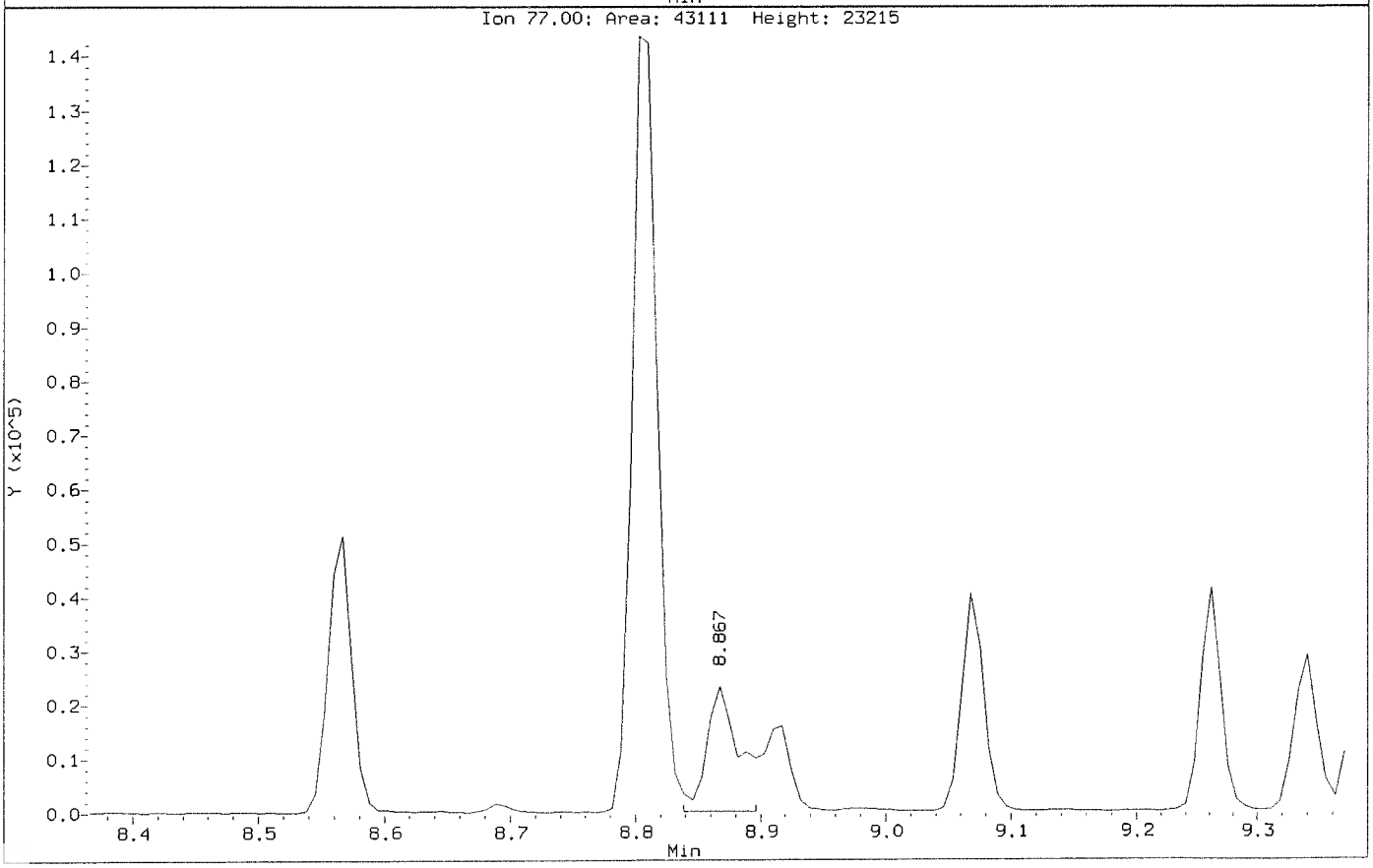
Sample Info: VLCSW-200924;VLCSW-200924;3;;LCS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092416.D
Injection Date: 24-SEP-2020 17:33
Instrument: voa6.i
Client Sample ID: VLCSW-200924

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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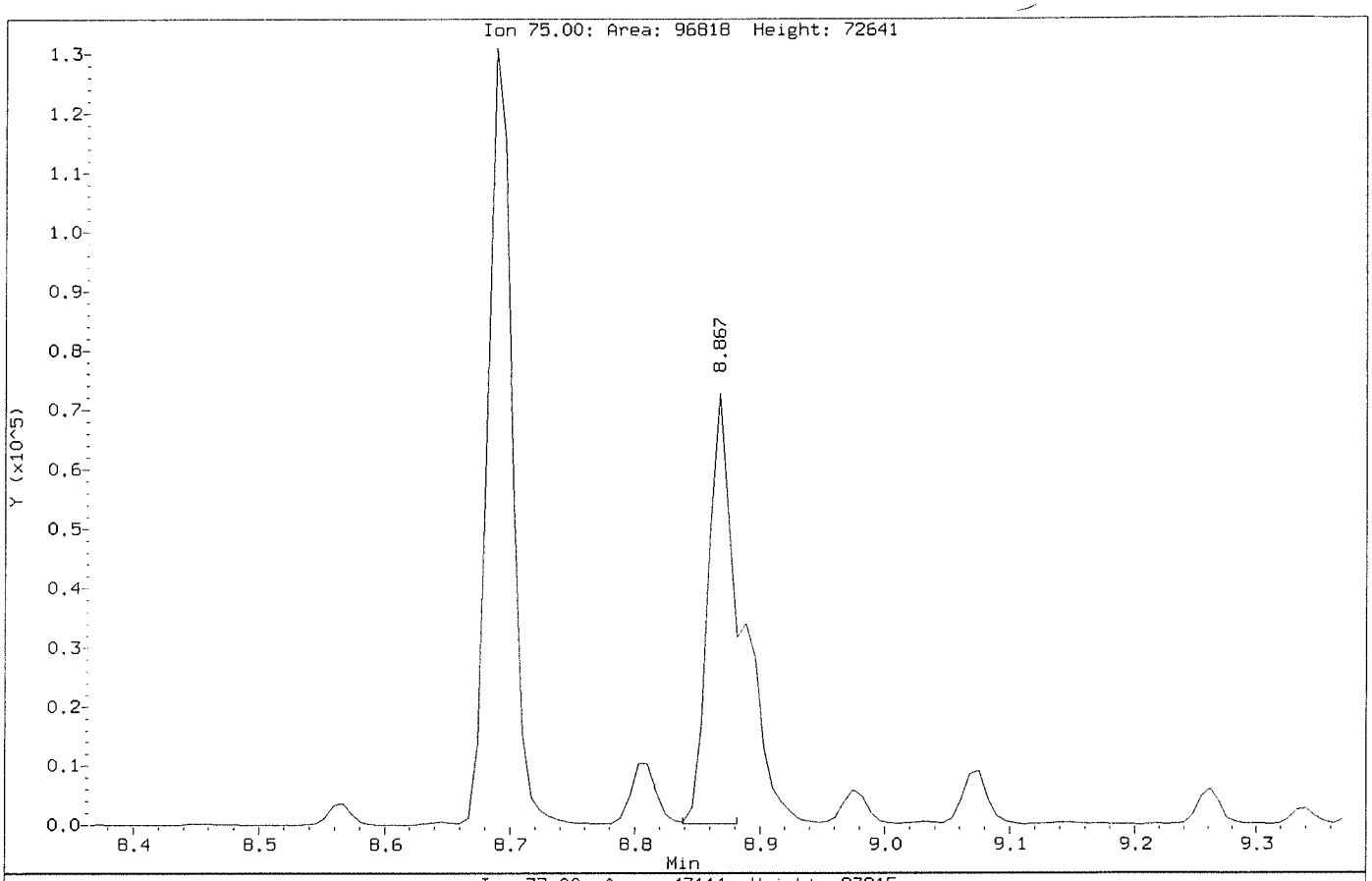
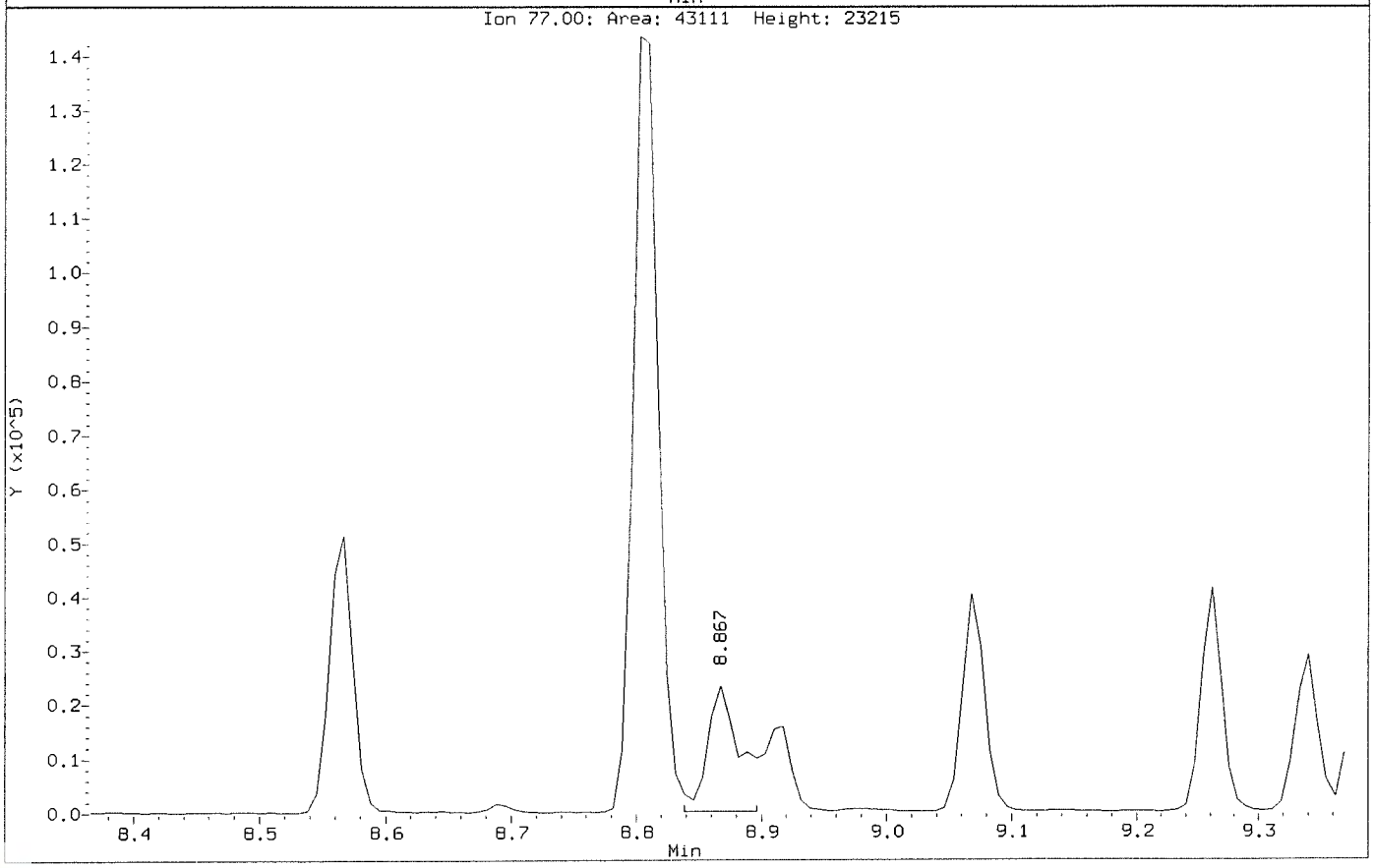
Injection Date: 24-SEP-2020 17:33
Instrument: voa6.i
Client Sample ID: VLCSW-200924

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D Page 1
Report Date: 13-Oct-2020 11:22

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D
Lab Smp Id: VBLKW-200924 Client Smp ID: VBLKW-200924
Inj Date : 24-SEP-2020 18:45
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-200924;VBLKW-200924;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 20 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

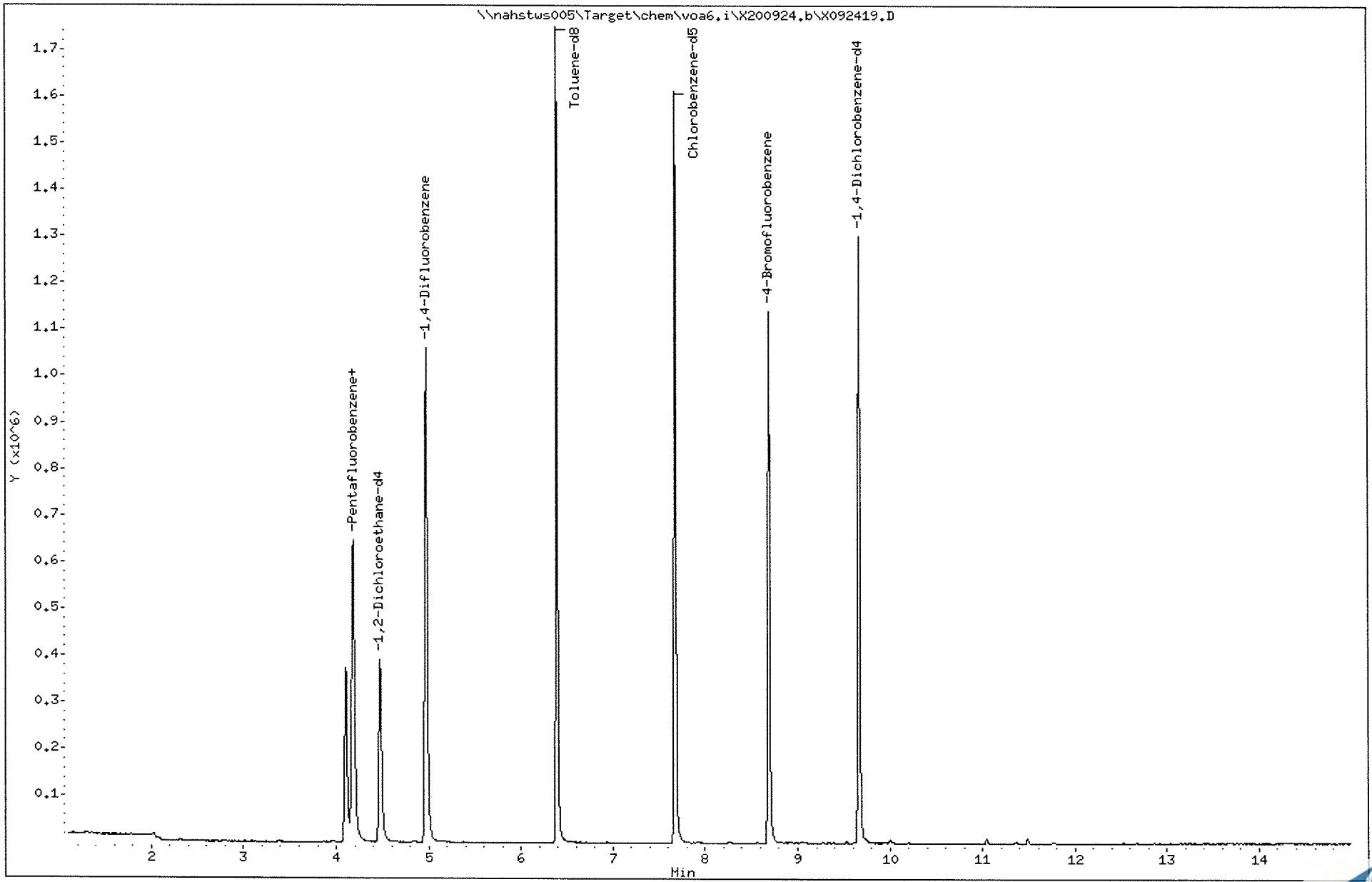
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555169	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	880416	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	775740	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	327303	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	264129	46.2996	46.29
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	282402	45.2511	45.25
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1025931	50.3035	50.30
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	357732	52.9599	52.95

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092419.D
Date : 24-SEP-2020 18:45
Client ID: VBLKW-200924
Sample Info: VBLKW-200924;VBLKW-200924;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\X200924.b\X092419.D

Date : 24-SEP-2020 18:45

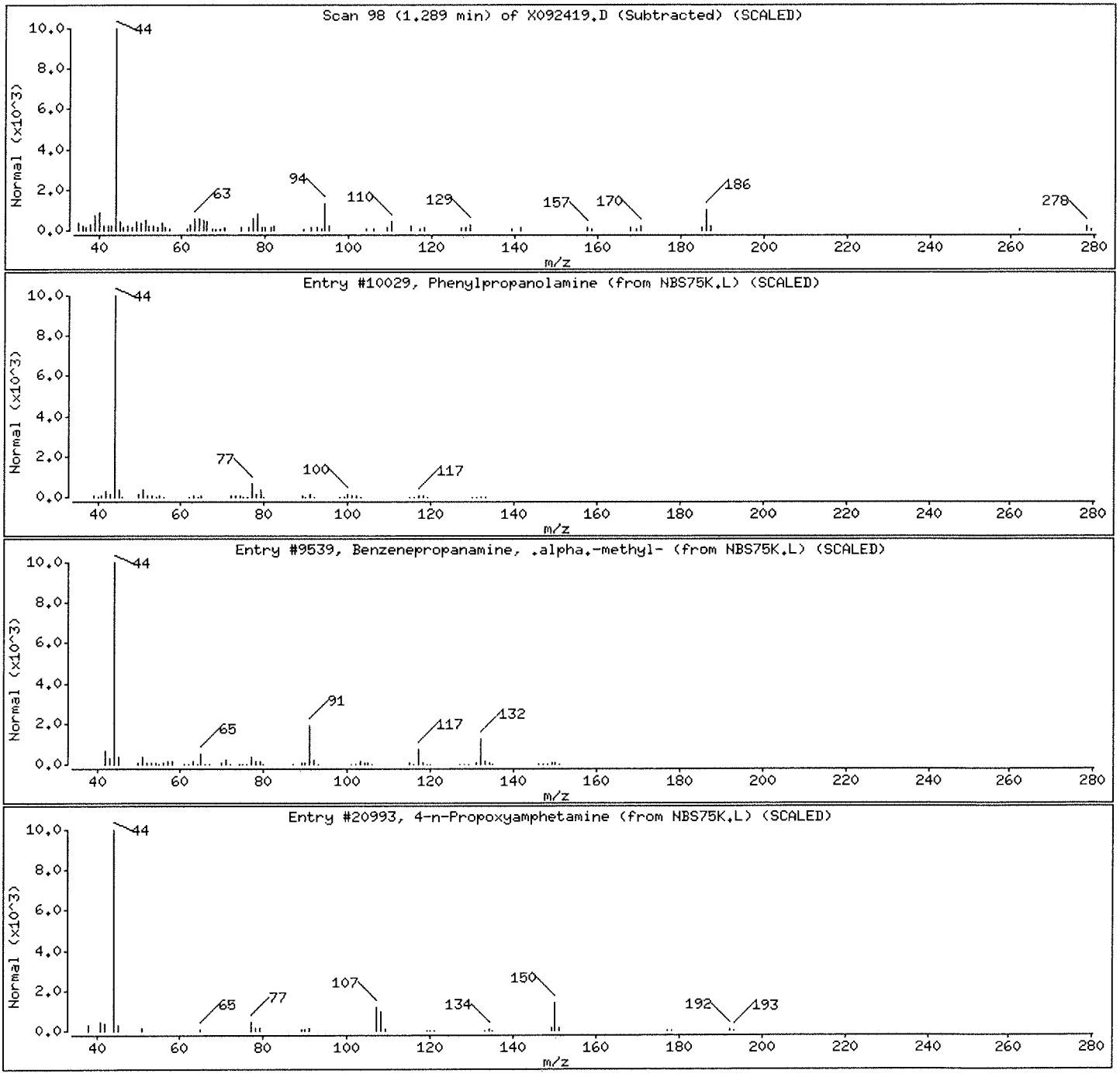
Client ID: VBLKW-200924 Instrument: voa6.i

Sample Info: VBLKW-200924;VBLKW-200924;3;;BLANK

Purge Volume: 5.0 Operator: PC

Column phase: DB624 Column diameter: 0.18

Library Search Compound Match	CAS Number	Library	Entry	Quality	Formula	Weight
Phenylpropanolamine	492-41-1	NBS75K.L	10029	40	C9H13NO	151
Benzenepropanamine, .alpha.-methyl-	22374-89-6	NBS75K.L	9539	33	C10H15N	149
4-n-Propoxyamphetamine	0-00-0	NBS75K.L	20993	33	C12H19NO	193



Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092421.D Page 1
Report Date: 13-Oct-2020 11:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092421.D
Lab Smp Id: HS20091030-02 Client Smp ID: HS20091030-02
Inj Date : 24-SEP-2020 19:33
Operator : PC Inst ID: voa6.i
Smp Info : HS20091030-02;HS20091030-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:18 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

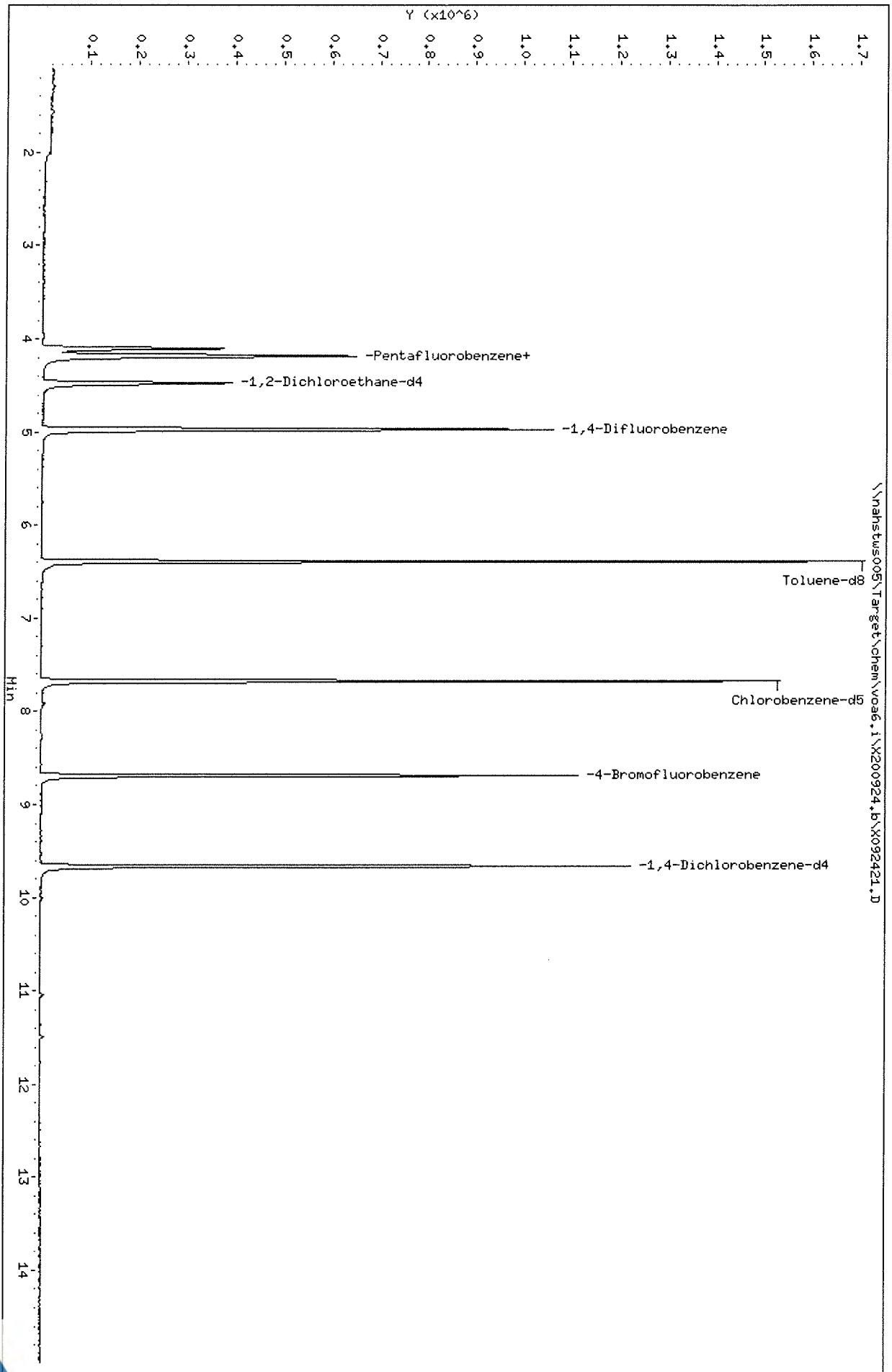
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555012	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	879584	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	762894	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	311626	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	270135	47.3658	47.36
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	281852	45.1757	45.17
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1026497	51.1788	51.17
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	347571	52.3121	52.31

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092421.D
Date : 24-SEP-2020 19:33
Client ID: HS20091030-02
Sample Info: HS20091030-02;HS20091030-02;;;
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\X092423.D Page 1
Report Date: 13-Oct-2020 11:19

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092423.D
Lab Smp Id: HS20091030-01 Client Smp ID: HS20091030-01
Inj Date : 24-SEP-2020 20:22
Operator : PC Inst ID: voa6.i
Smp Info : HS20091030-01;HS20091030-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:18 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	546965	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	860532	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	772614	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	313004	50.0000	
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	261063	46.4485	46.44
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	279209	45.4105	45.41
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	1015341	49.9857	49.98
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	351222	52.1947	52.19
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	127577	19.0385	19.03
38 Trichloroethene	130	5.221	5.214	(1.050)	6315	1.02598	1.02(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\X092423.D

Date : 24-SEP-2020 20:22

Client ID: HS20091030-01

Instrument: voa6.i

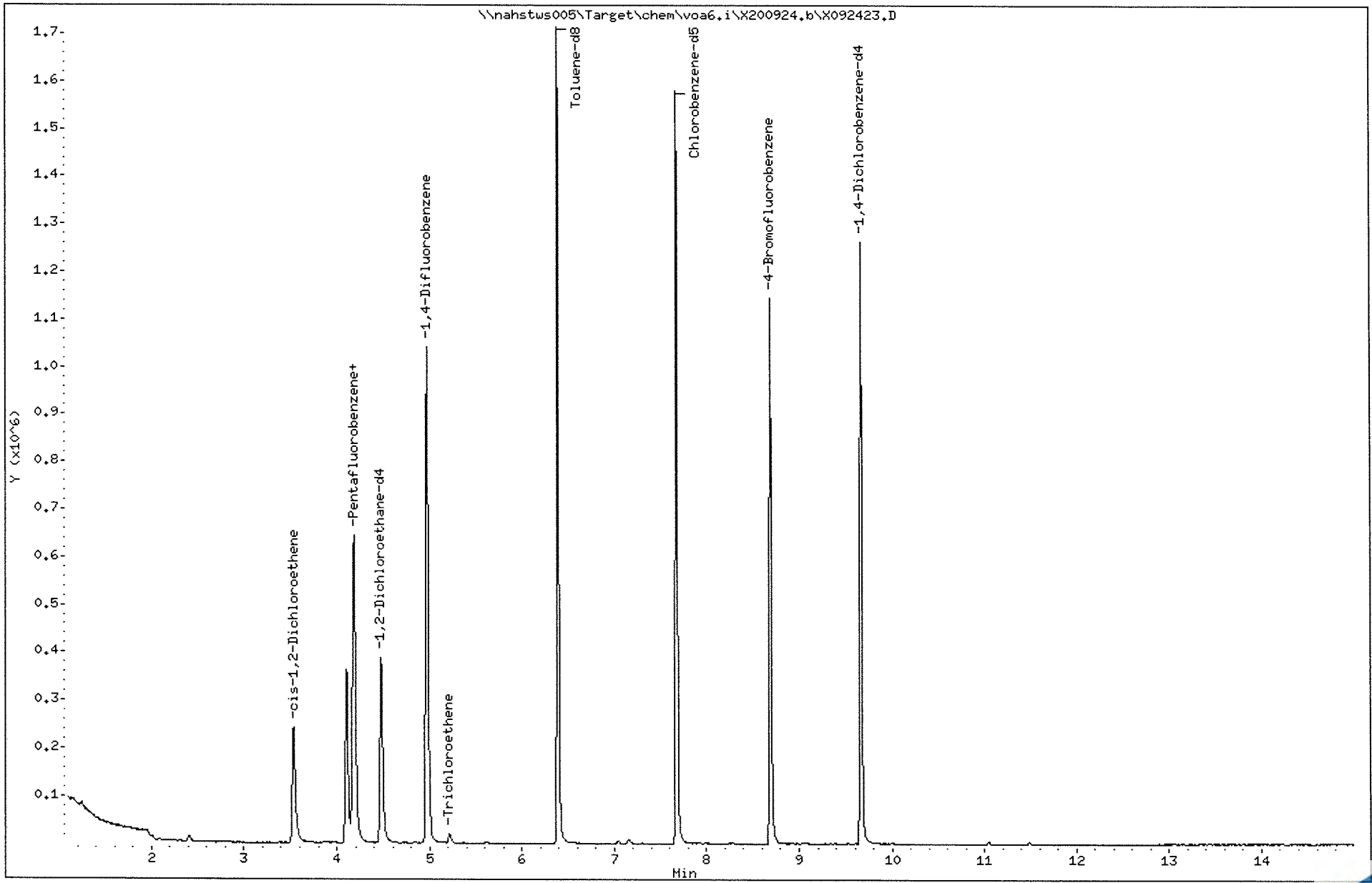
Sample Info: HS20091030-01;HS20091030-01;;;

Purge Volume: 5.0

Operator: PC

Column phase: DB624

Column diameter: 0.18



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Date : 24-SEP-2020 20:22

Client ID: HS20091030-01

Instrument: voa6.i

Sample Info: HS20091030-01;HS20091030-01;;;

Purge Volume: 5.0

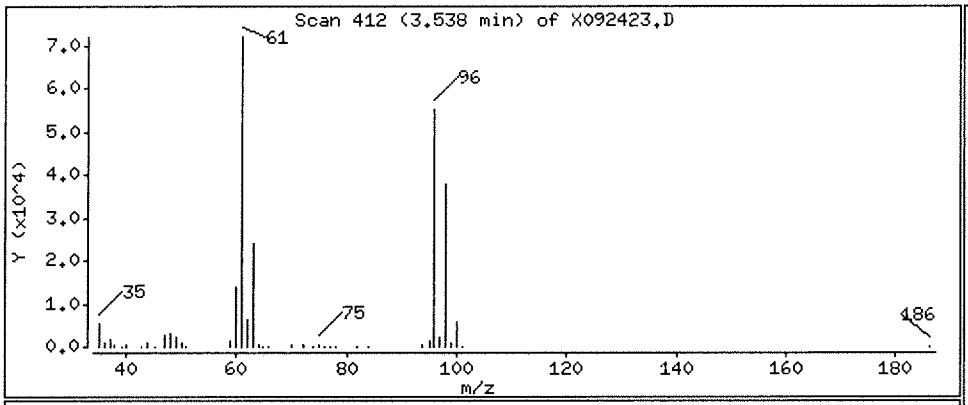
Operator: PC

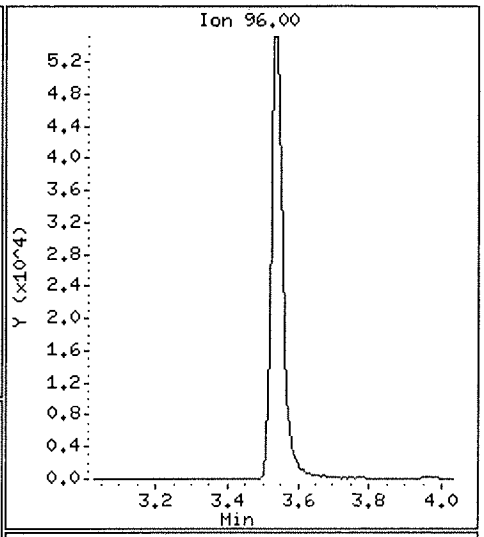
Column phase: DB624

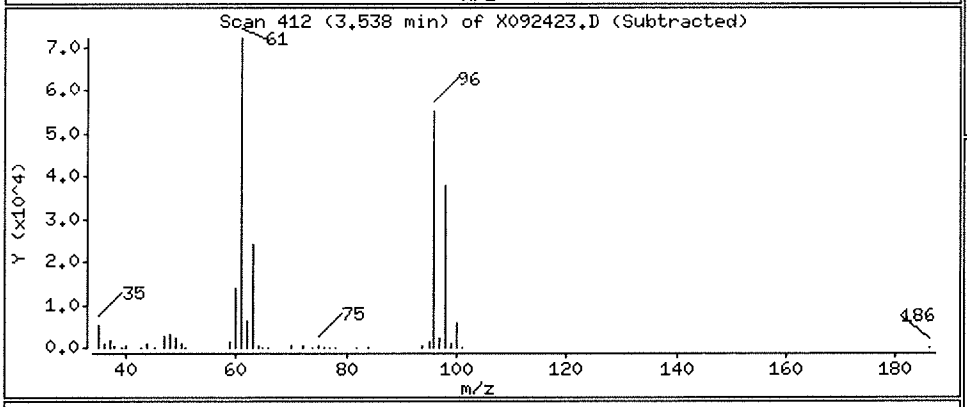
Column diameter: 0.18

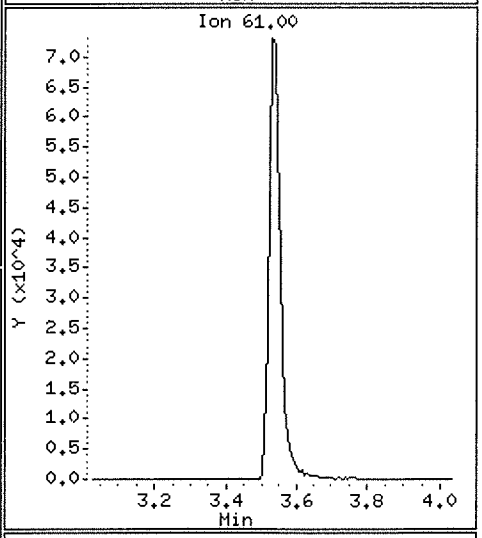
27 cis-1,2-Dichloroethene

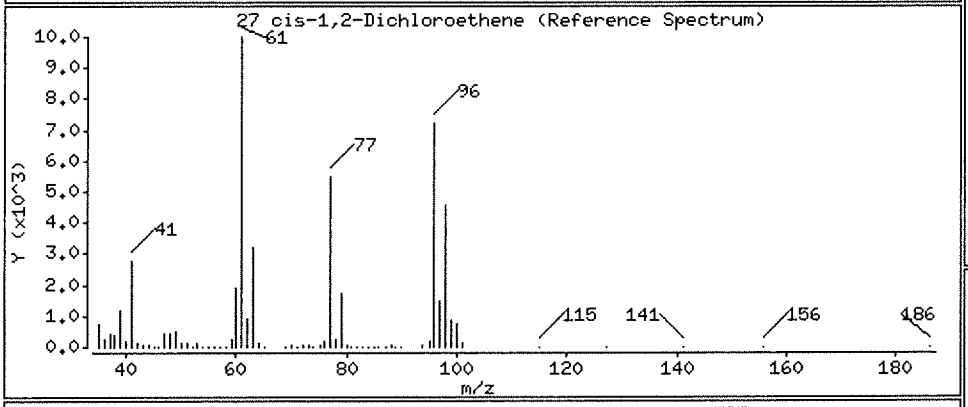
Concentration: 19.03 ug/l

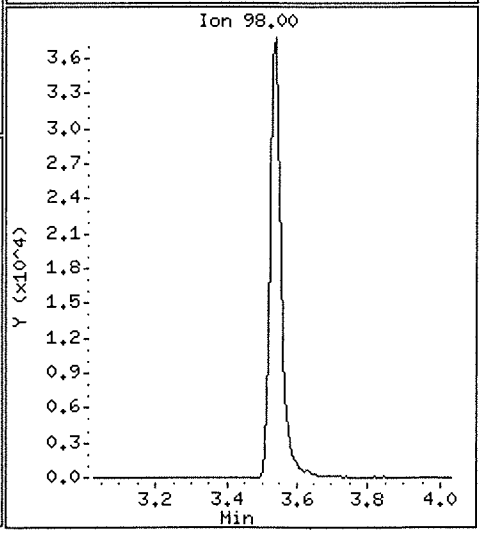


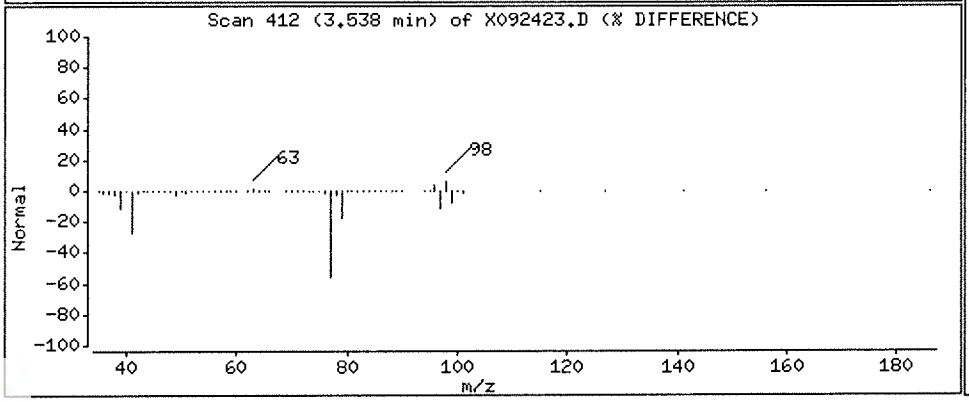












Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092423.D

Date : 24-SEP-2020 20:22

Client ID: HS20091030-01

Instrument: voa6.i

Sample Info: HS20091030-01;HS20091030-01;;;

Purge Volume: 5.0

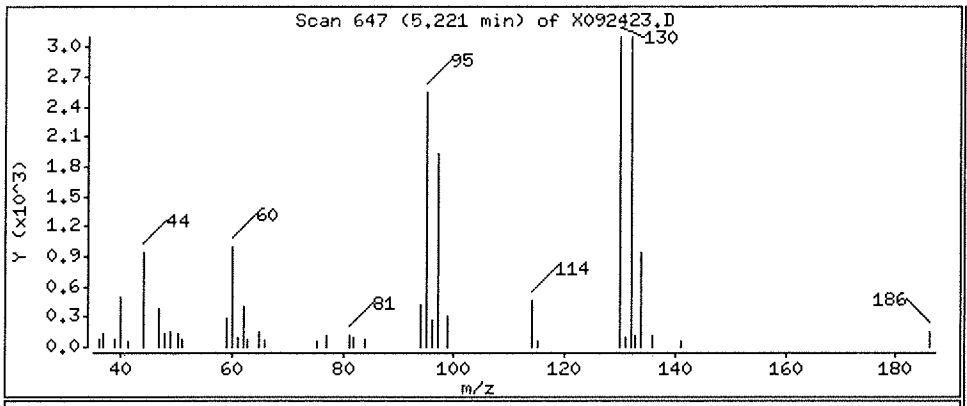
Operator: PC

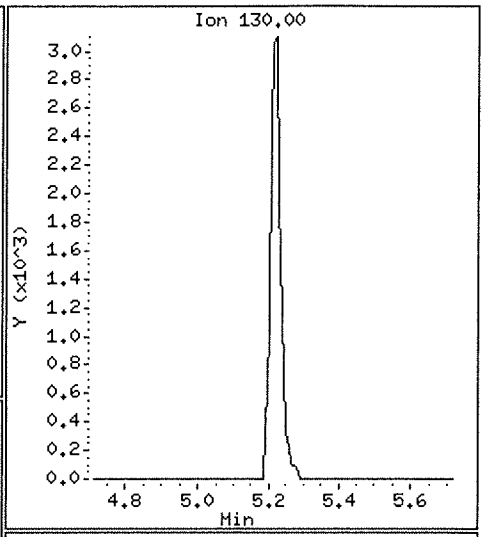
Column phase: DB624

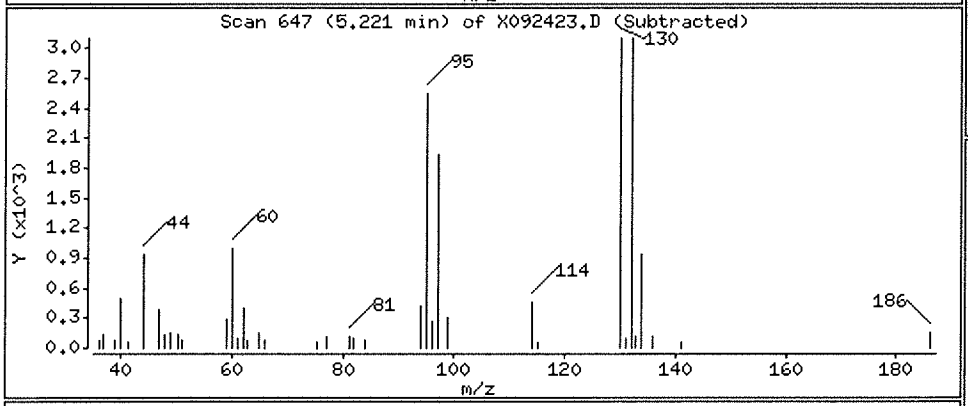
Column diameter: 0.18

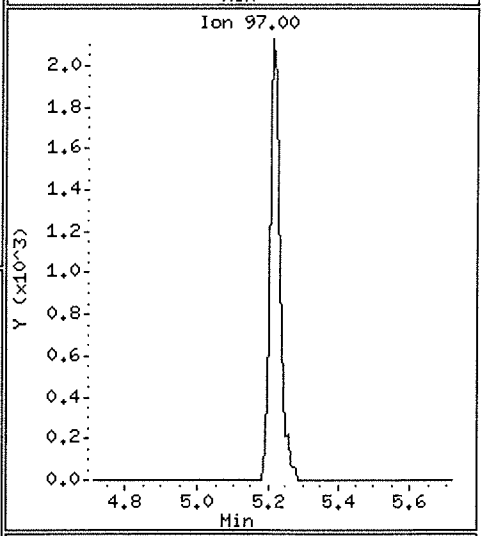
38 Trichloroethene

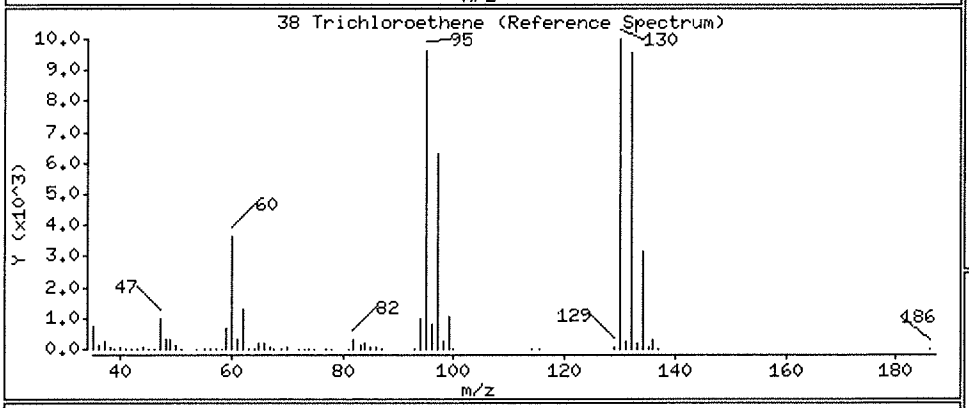
Concentration: 1.02 ug/l

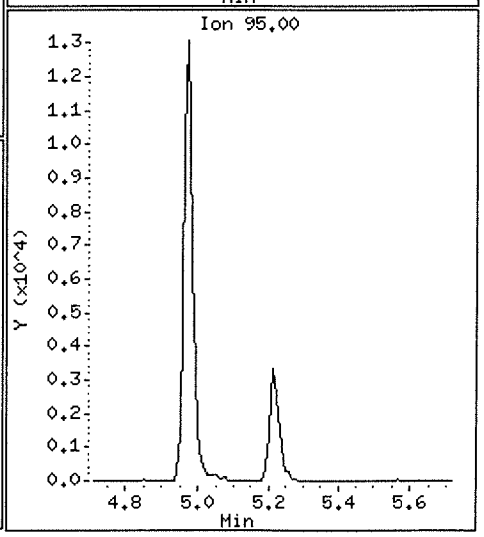


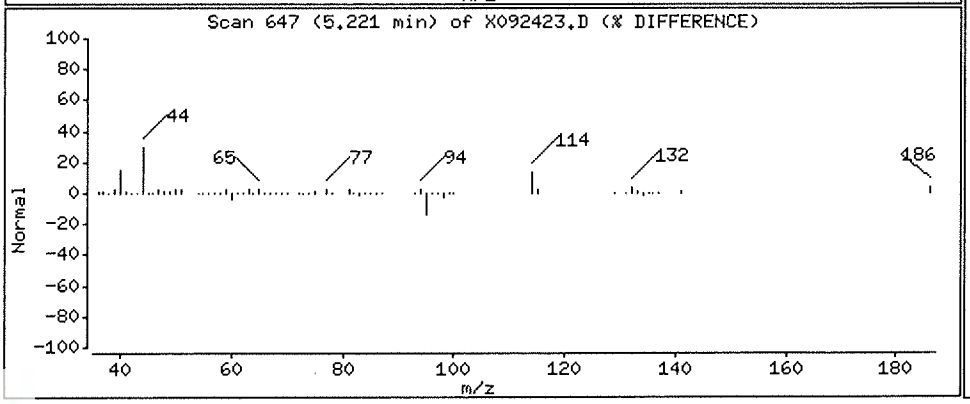












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Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092425.D
Lab Smp Id: HS20090748-01MS Client Smp ID: HS20090748-01MS
Inj Date : 24-SEP-2020 21:10
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-01MS;HS20090748-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 26 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

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

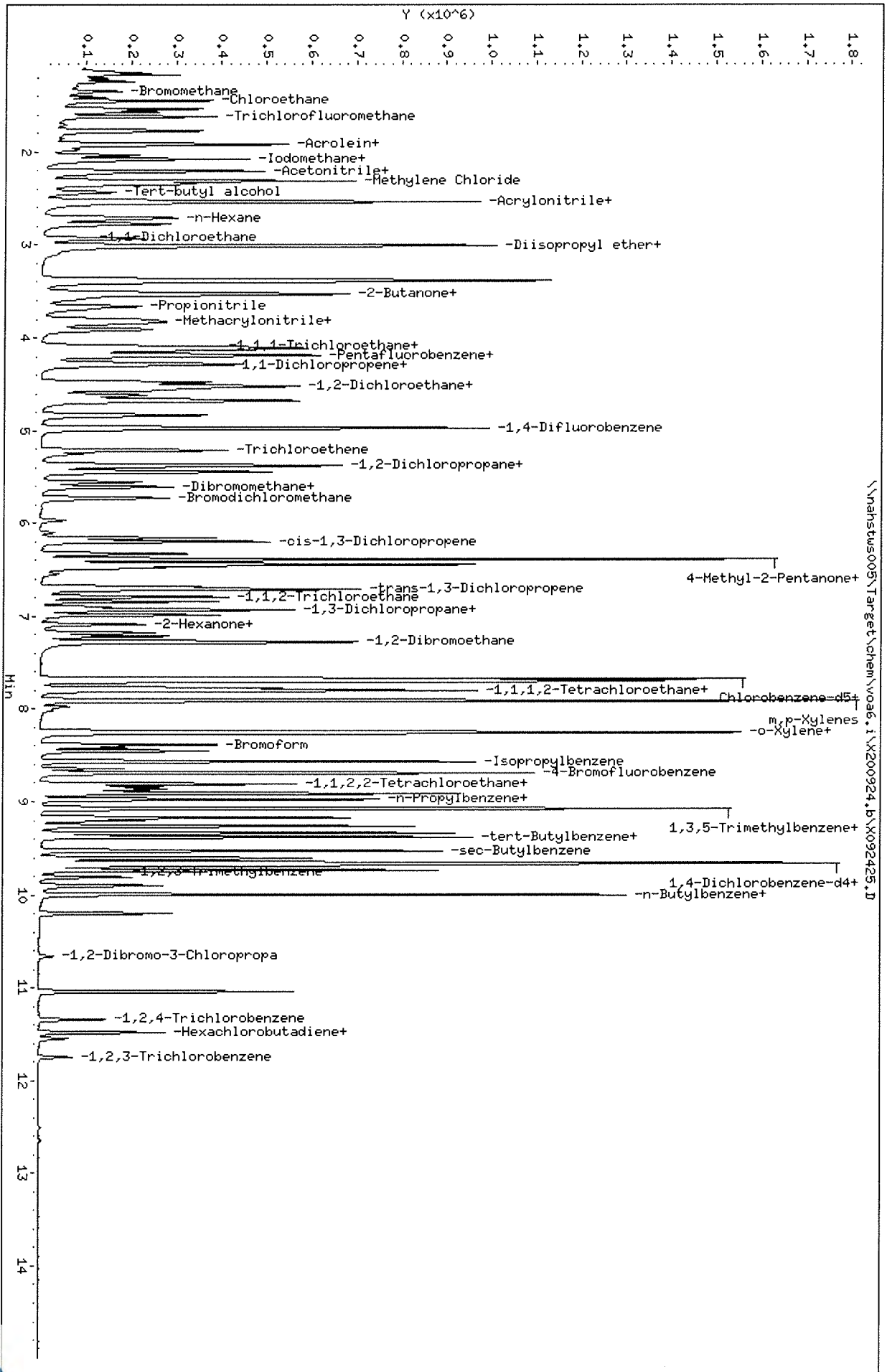
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	512532	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	814545	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	733420	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	309007	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	247516	46.9968	46.99
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	264332	45.8791	45.87
$	48 Toluene-d8	98	6.388	6.388	(0.833)	941957	48.8512	48.85
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	332399	52.0348	52.03
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	116824	22.9856	22.98
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	183204	23.2083	23.20
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.914)	117000	21.4113	21.41
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	94923	21.9756	21.97
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	237959	22.2245	22.22
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	95586	20.7423	20.74
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	171673	22.9097	22.90
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	21312	17.8451	17.84
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	97616	21.5957	21.59(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	43991	19.6596	19.65
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	431042	23.4333	23.43
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	7068	18.9547	18.95
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	111142	21.8074	21.80
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	186220	21.6418	21.64

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092425.D Page 2
Report Date: 13-Oct-2020 11:22

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	154285	21.9681	21.96
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	138931	23.0350	23.03
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	428248	23.4705	23.47
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	222110	22.3475	22.34
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	195281	21.8558	21.85
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	215885	21.8719	21.87
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	180098	22.3856	22.38
24	2-Butanone	43	3.588	3.580	(0.856)	78750	42.0918	42.09
76	2-Chlorotoluene	91	8.974	8.981	(0.928)	368989	22.9805	22.98
52	2-Hexanone	43	7.090	7.090	(0.924)	132595	40.7716	40.77
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	409262	22.3870	22.38
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	438820	23.8435	23.84
45	4-Methyl-2-Pentanone	43	6.324	6.331	(0.824)	212914	41.3566	41.35
10	Acetone	43	1.976	1.976	(0.472)	50791	38.5471	38.54
37	Benzene	78	4.519	4.519	(0.909)	524814	22.5282	22.52
74	Bromobenzene	156	8.809	8.809	(0.911)	142652	22.8455	22.84
29	Bromochloromethane	128	3.802	3.803	(0.908)	69718	21.7660	21.76
39	Bromodichloromethane	83	5.729	5.729	(1.153)	165652	22.4240	22.42
66	Bromoform	173	8.415	8.416	(1.097)	69540	21.7062	21.70
6	Bromomethane	94	1.345	1.338	(0.321)	60964	14.5987	14.59
19	Carbon Disulfide	76	2.076	2.076	(0.496)	567520	35.6531	35.65
34	Carbon Tetrachloride	117	4.275	4.268	(0.860)	152951	23.4737	23.47
59	Chlorobenzene	112	7.699	7.699	(1.004)	334845	22.4419	22.44
7	Chloroethane	64	1.410	1.403	(0.337)	58311	14.5237	14.52(M)
28	Chloroform	83	3.917	3.910	(0.935)	225848	22.7330	22.73
3	Chloromethane	50	1.080	1.081	(0.258)	63017	8.97866	8.97
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	273178	43.5055	43.50
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	205502	21.9916	21.99
55	Dibromochloromethane	129	7.176	7.176	(0.936)	115562	22.0503	22.05
44	Dibromomethane	93	5.557	5.557	(1.118)	78519	21.9539	21.95
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	16393	5.07539	5.07
61	Ethylbenzene	106	7.799	7.807	(1.017)	179353	23.0275	23.02
91	Hexachlorobutadiene	225	11.481	11.481	(1.187)	50445	23.9522	23.95
67	Isopropylbenzene	105	8.566	8.566	(1.117)	538109	23.7615	23.76
62	m,p-Xylenes	106	7.907	7.907	(1.031)	432292	46.2298	46.22
17	Methylene Chloride	84	2.313	2.305	(0.552)	130114	22.8163	22.81
87	n-Butylbenzene	91	9.998	9.999	(1.034)	382529	24.0242	24.02
73	n-Propylbenzene	91	8.917	8.917	(0.922)	625156	23.7173	23.71
92	Naphthalene	128	11.546	11.546	(1.194)	49219	17.0812	17.08
63	o-Xylene	106	8.244	8.244	(1.075)	210660	23.0699	23.06
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	513717	23.7934	23.79
64	Styrene	104	8.265	8.265	(1.078)	396126	25.3570	25.35
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	363143	23.8757	23.87
56	Tetrachloroethene	164	6.933	6.933	(0.904)	109327	23.5945	23.59
50	Toluene	91	6.453	6.453	(0.841)	551233	23.2203	23.22
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	121133	22.8154	22.81
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	169985	21.8253	21.82
38	Trichloroethene	130	5.214	5.214	(1.049)	139166	23.8865	23.88
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	144842	19.4392	19.43
5	Vinyl Chloride	62	1.145	1.145	(0.273)	82397	12.4456	12.44

QC Flag Legend

M - Compound response manually integrated.



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Client ID: HS20090748-01MS
Sample Info: HS20090748-01MS;HS20090748-01MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

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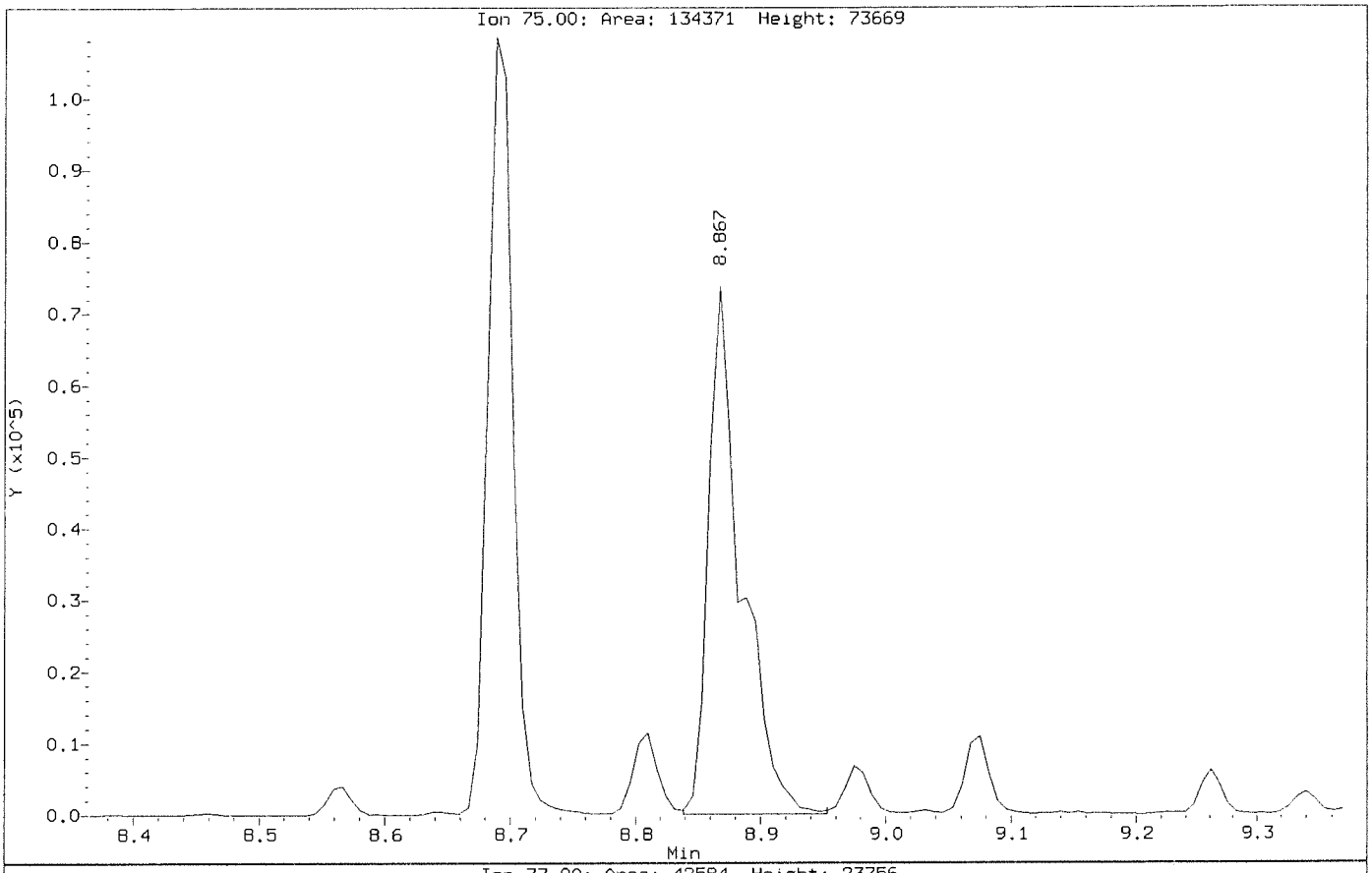
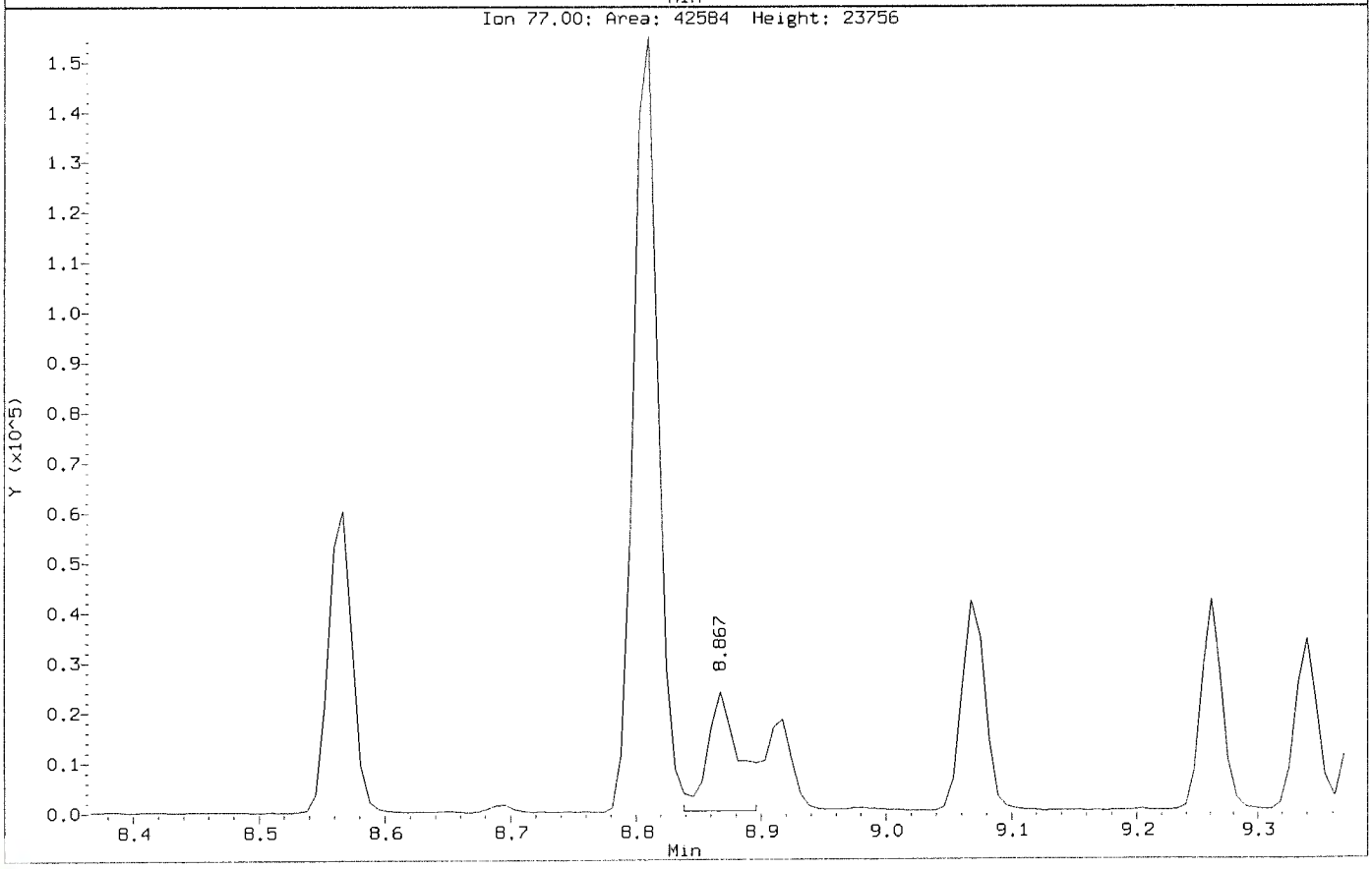
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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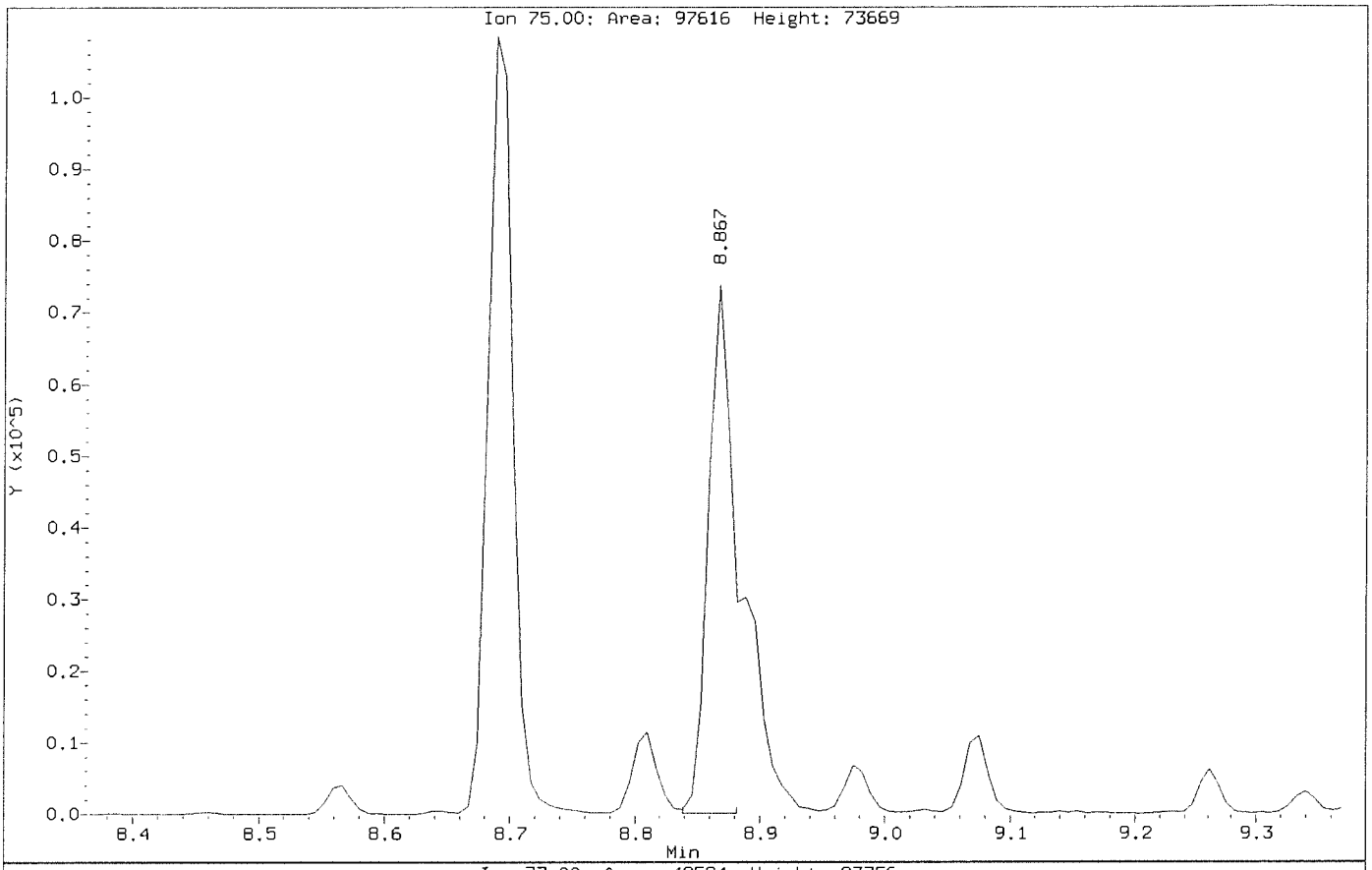
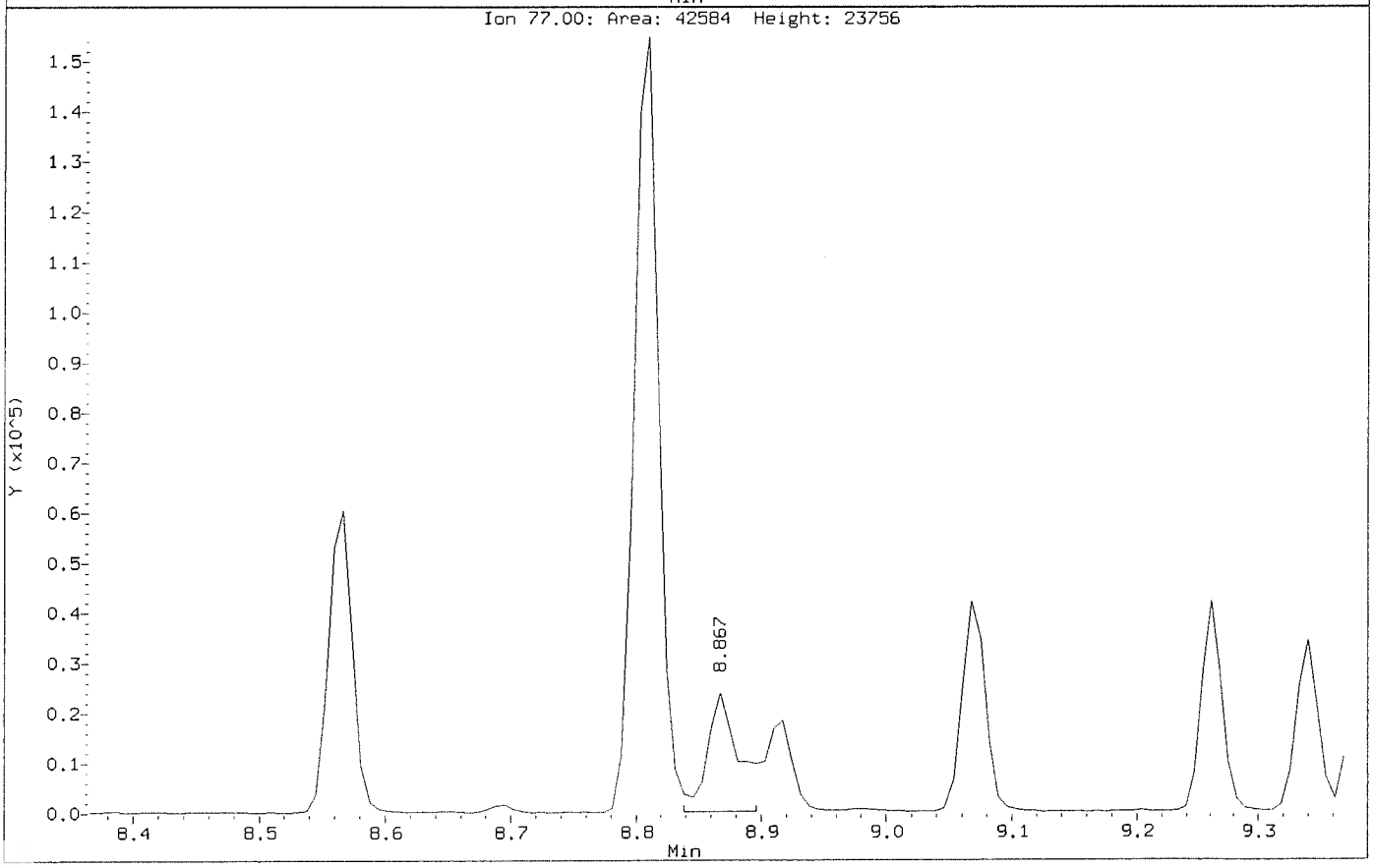
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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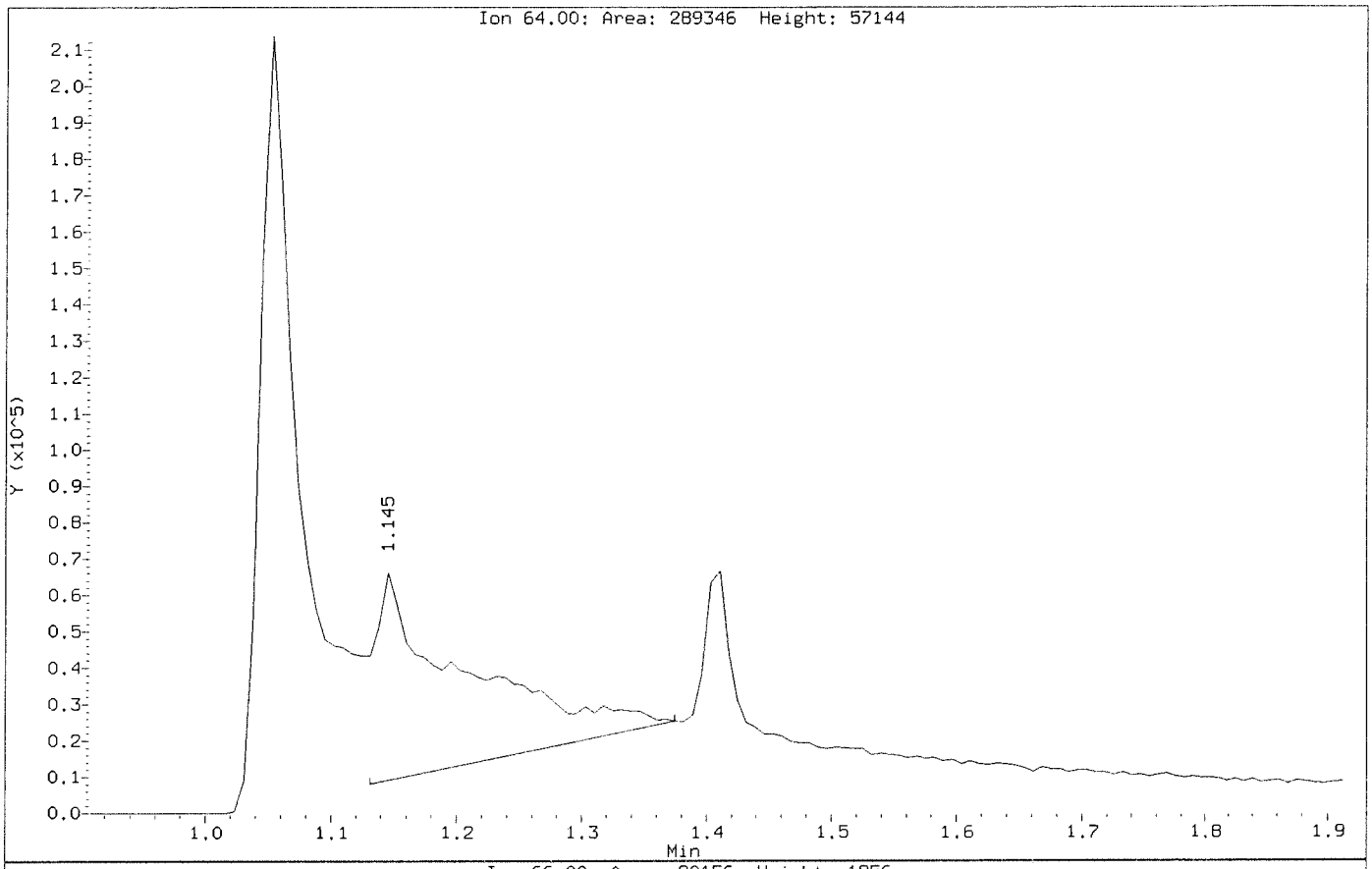
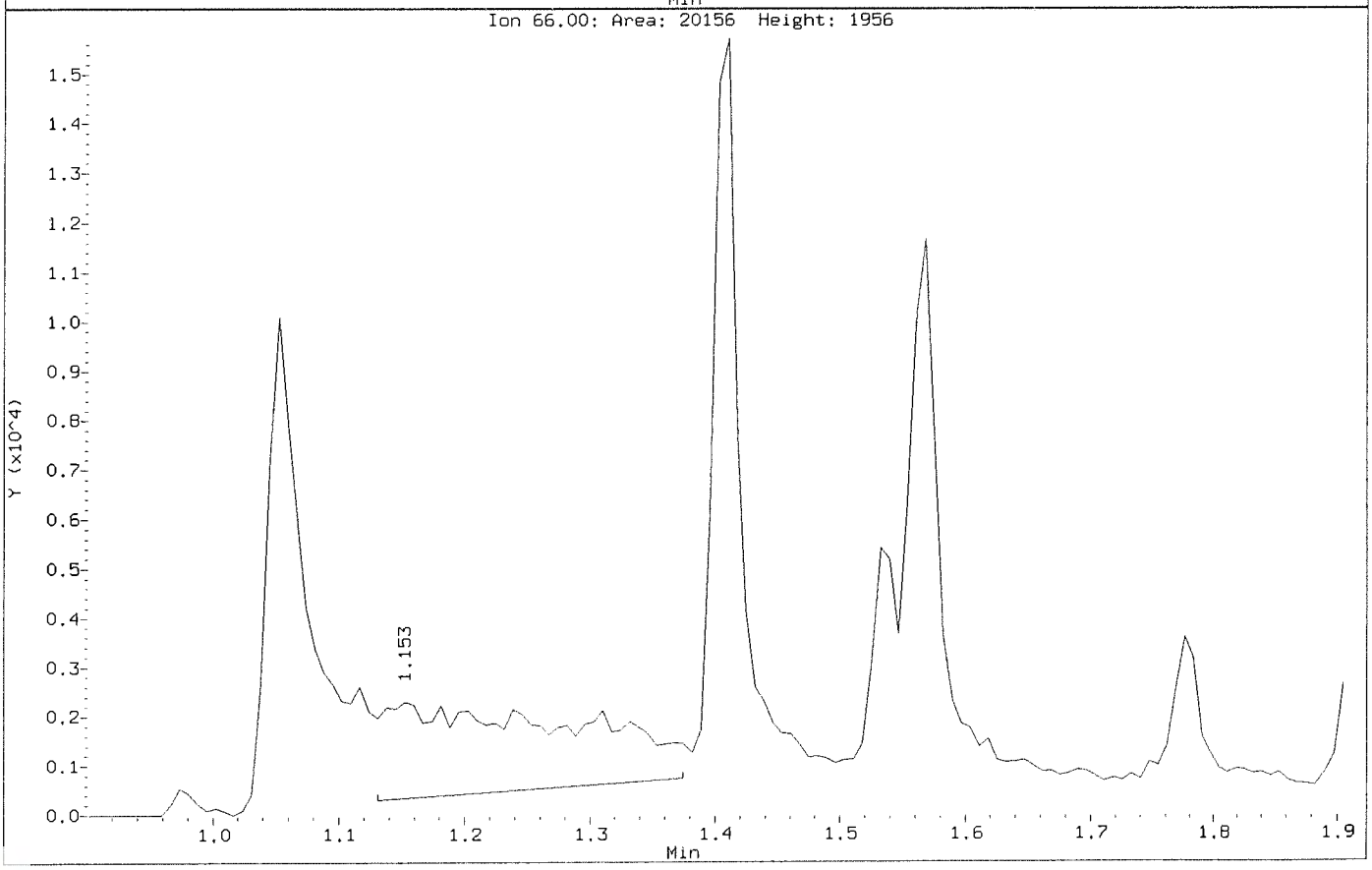
Injection Date: 24-SEP-2020 21:10
Instrument: voa6.i
Client Sample ID: HS20090748-01MS

Compound: Chloroethane
CAS Number: 75-00-3





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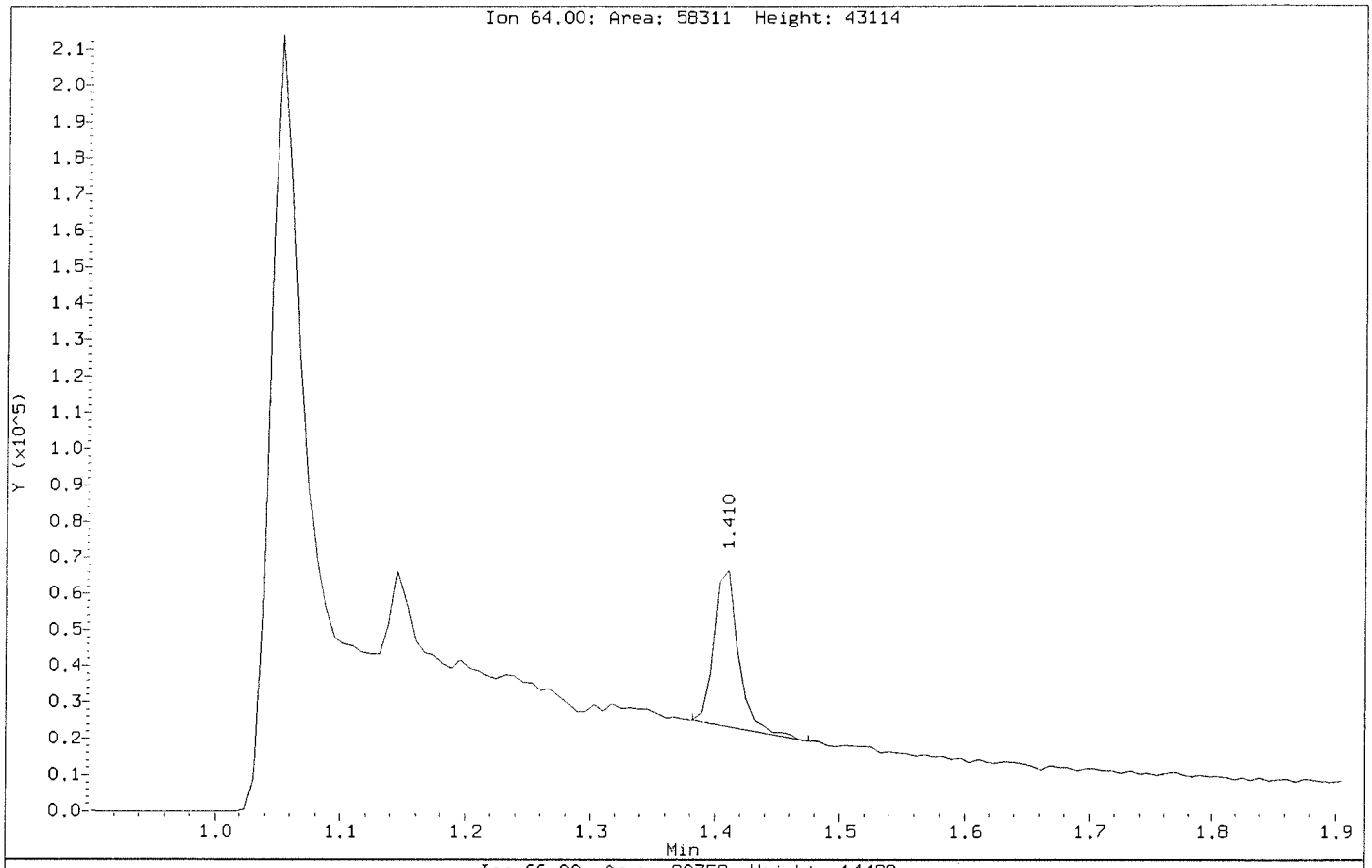
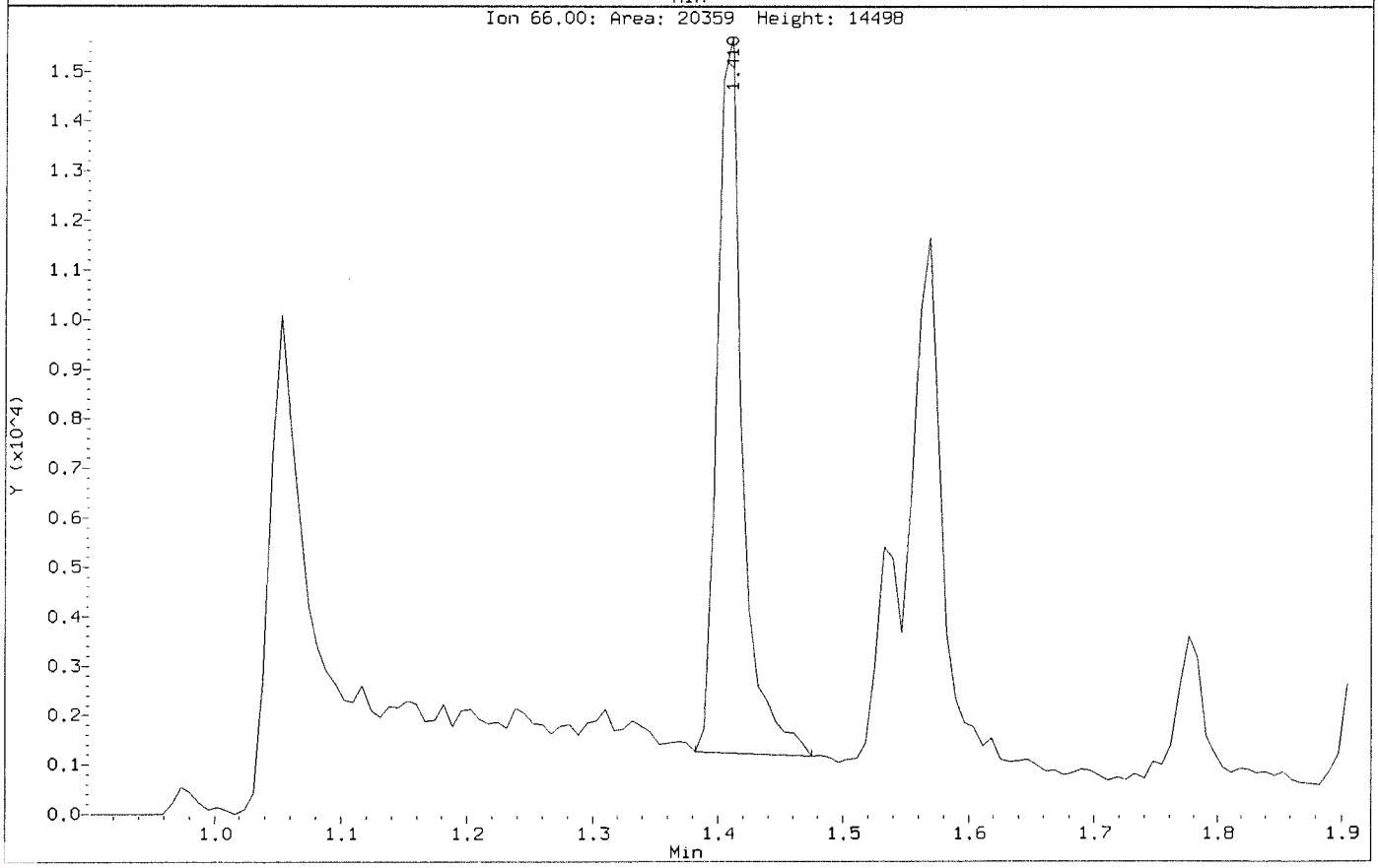
Client Sample ID: HS20090748-01MS

Compound: Chloroethane
CAS Number: 75-00-3





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Report Date: 13-Oct-2020 11:22

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092426.D
Lab Smp Id: HS20090748-01MSD Client Smp ID: HS20090748-01MSD
Inj Date : 24-SEP-2020 21:34
Operator : PC Inst ID: voa6.i
Smp Info : HS20090748-01MSD;HS20090748-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment   :
Method   : \\nahstws005\Target\chem\voa6.i\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:20 dev.giga Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 26 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

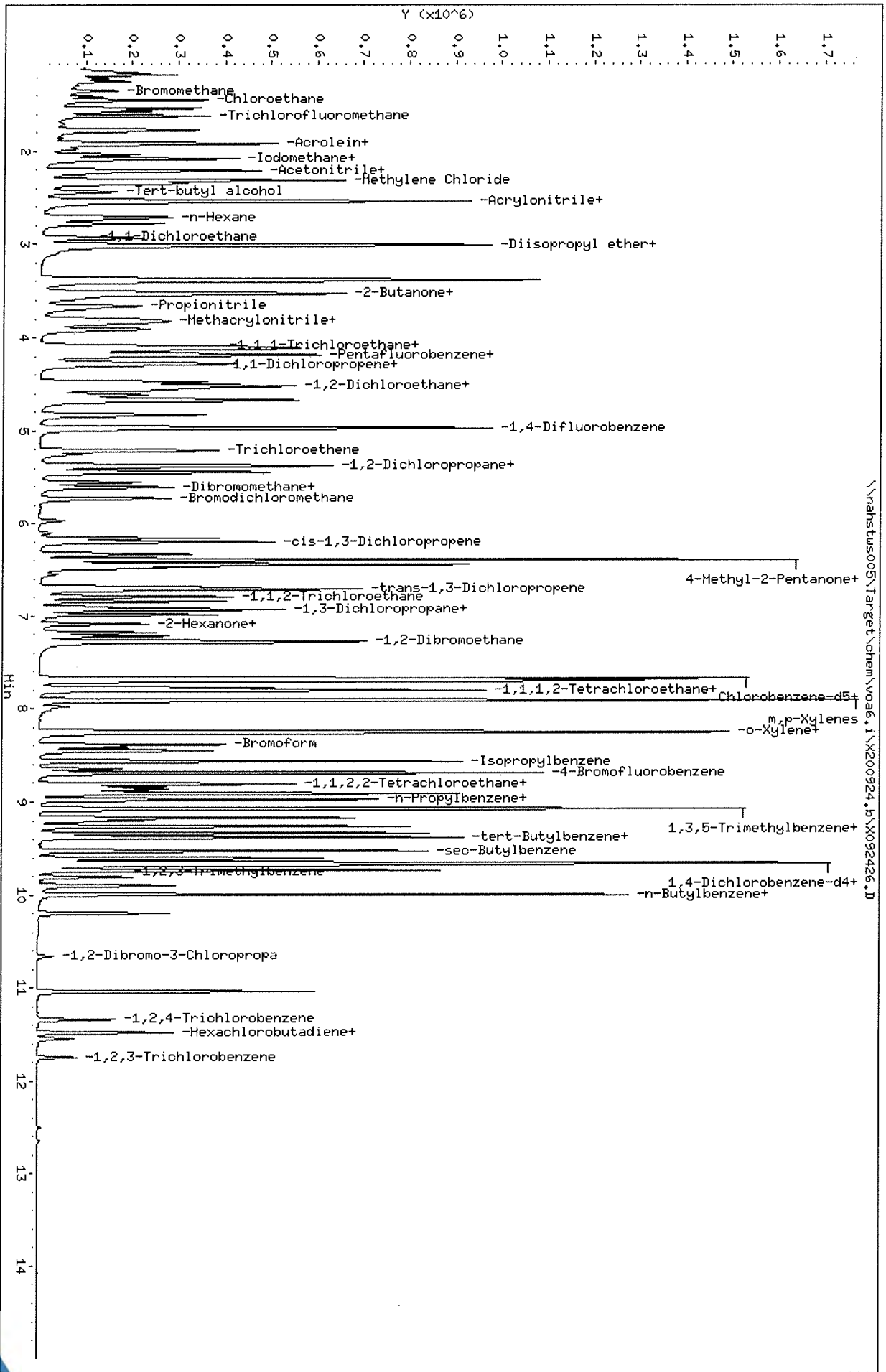
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	509084	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	804716	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	725877	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.669	(1.000)	301126	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	244819	46.7996	46.79
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	256122	44.7552	44.75
$	48 Toluene-d8	98	6.388	6.388	(0.833)	935111	49.0001	49.00
$	69 4-Bromofluorobenzene	95	8.688	8.695	(1.133)	327945	51.8684	51.86
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	112080	22.2813	22.28
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	175833	22.4254	22.42
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.845	(0.915)	117907	22.1420	22.14
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	94521	22.1099	22.10
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	227509	21.3924	21.39
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	91090	19.9005	19.90
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	163612	22.1006	22.10
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	24334	20.9088	20.90
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	96870	21.9915	21.99(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	49110	22.3219	22.32
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.971)	416059	23.2107	23.21
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.103)	7404	20.3754	20.37
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	109951	21.7979	21.79
	88 1,2-Dichlorobenzene	146	9.991	9.999	(1.034)	187544	22.3661	22.36

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	152008	21.9082	21.90
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	133359	22.3813	22.38
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	419089	23.5696	23.56
83	1,3-Dichlorobenzene	146	9.605	9.612	(0.994)	218288	22.5378	22.53
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	193136	21.8403	21.84
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	216306	22.4881	22.48
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	171151	21.4176	21.41
24	2-Butanone	43	3.588	3.580	(0.856)	80496	43.3165	43.31
76	2-Chlorotoluene	91	8.974	8.981	(0.929)	354582	22.6612	22.66
52	2-Hexanone	43	7.090	7.090	(0.924)	135912	42.2258	42.22
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	400344	22.4724	22.47
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	425450	23.7220	23.72
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	214000	41.9995	41.99
10	Acetone	43	1.976	1.976	(0.472)	51175	39.1747	39.17
37	Benzene	78	4.519	4.519	(0.909)	503468	21.8759	21.87
74	Bromobenzene	156	8.810	8.809	(0.912)	138912	22.8288	22.82
29	Bromochloromethane	128	3.803	3.803	(0.908)	65374	20.5480	20.54
39	Bromodichloromethane	83	5.729	5.729	(1.153)	159421	21.8441	21.84
66	Bromoform	173	8.416	8.416	(1.097)	68701	21.6672	21.66
6	Bromomethane	94	1.346	1.338	(0.321)	54895	13.2122	13.21
19	Carbon Disulfide	76	2.076	2.076	(0.496)	535421	33.8644	33.86
34	Carbon Tetrachloride	117	4.275	4.268	(0.860)	144228	22.4053	22.40
59	Chlorobenzene	112	7.699	7.699	(1.004)	323931	21.9360	21.93
7	Chloroethane	64	1.410	1.403	(0.337)	55002	13.7923	13.79(M)
28	Chloroform	83	3.917	3.910	(0.935)	218438	22.1361	22.13
3	Chloromethane	50	1.081	1.081	(0.258)	59547	8.54172	8.54
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	262796	42.1356	42.13
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	200304	21.6972	21.69
55	Dibromochloromethane	129	7.176	7.176	(0.936)	111909	21.5752	21.57
44	Dibromomethane	93	5.558	5.557	(1.118)	75936	21.4910	21.49
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	14904	4.82114	4.82(a)
61	Ethylbenzene	106	7.800	7.807	(1.017)	175902	22.8191	22.81
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	50004	24.3460	24.34
67	Isopropylbenzene	105	8.566	8.566	(1.117)	518754	23.1448	23.14
62	m,p-Xylenes	106	7.907	7.907	(1.031)	418653	45.2365	45.23
17	Methylene Chloride	84	2.313	2.305	(0.552)	127378	22.4776	22.47
87	n-Butylbenzene	91	9.999	9.999	(1.035)	372447	24.0032	24.00
73	n-Propylbenzene	91	8.917	8.917	(0.923)	608176	23.6770	23.67
92	Naphthalene	128	11.546	11.546	(1.195)	57726	20.5578	20.55
63	o-Xylene	106	8.244	8.244	(1.075)	203443	22.5111	22.51
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	497767	23.6581	23.65
64	Styrene	104	8.258	8.265	(1.077)	350210	22.6508	22.65
78	tert-Butylbenzene	119	9.340	9.340	(0.967)	350744	23.6641	23.66
56	Tetrachloroethene	164	6.933	6.933	(0.904)	105425	22.9888	22.98
50	Toluene	91	6.453	6.453	(0.841)	527952	22.4707	22.47
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	113540	21.5301	21.53
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	167411	21.7574	21.75
38	Trichloroethene	130	5.214	5.214	(1.049)	134239	23.3223	23.32
8	Trichlorofluoromethane	101	1.568	1.560	(0.374)	135523	18.3117	18.31
5	Vinyl Chloride	62	1.145	1.145	(0.273)	76744	11.6702	11.67

QC Flag Legend

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



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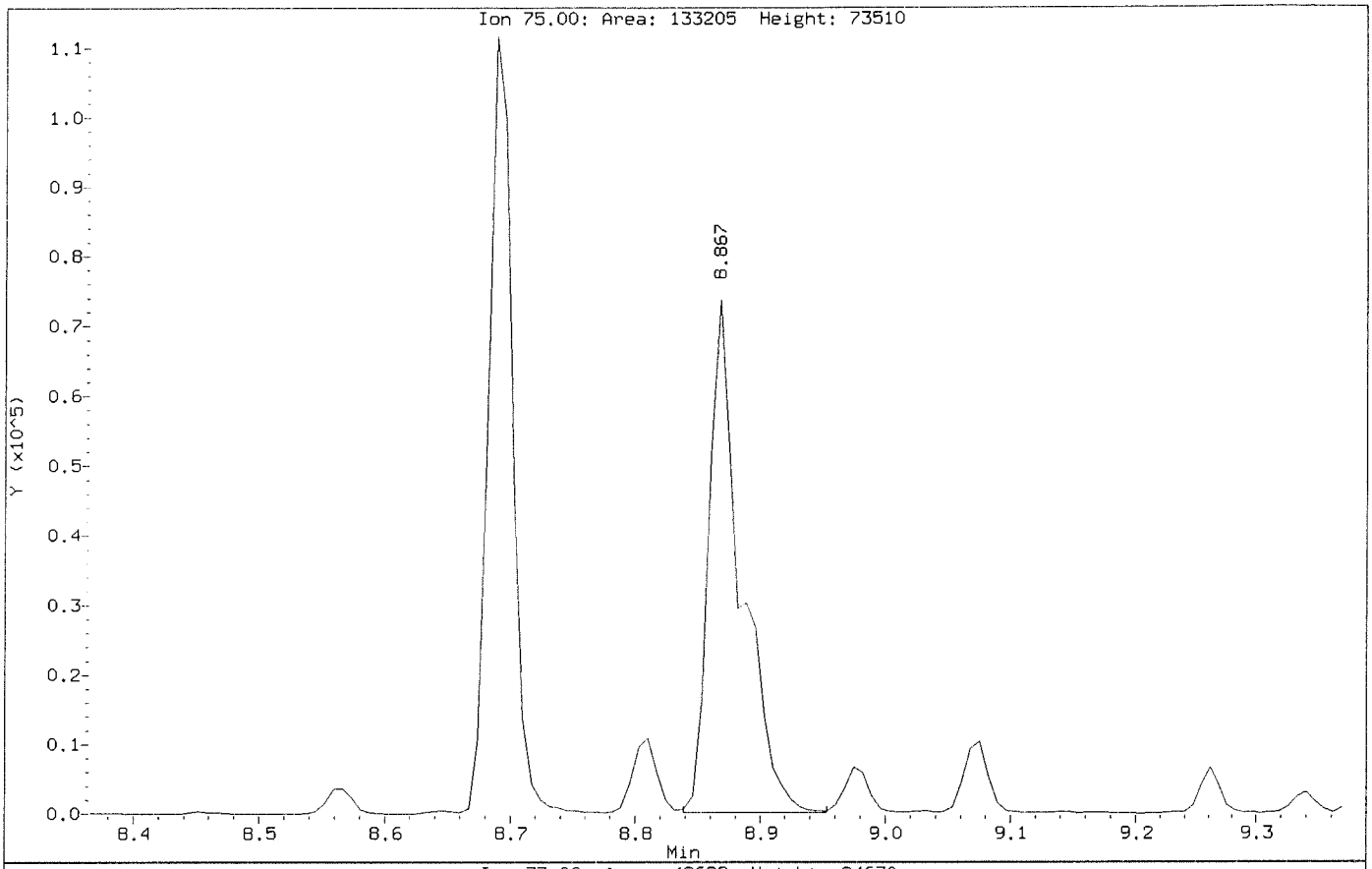
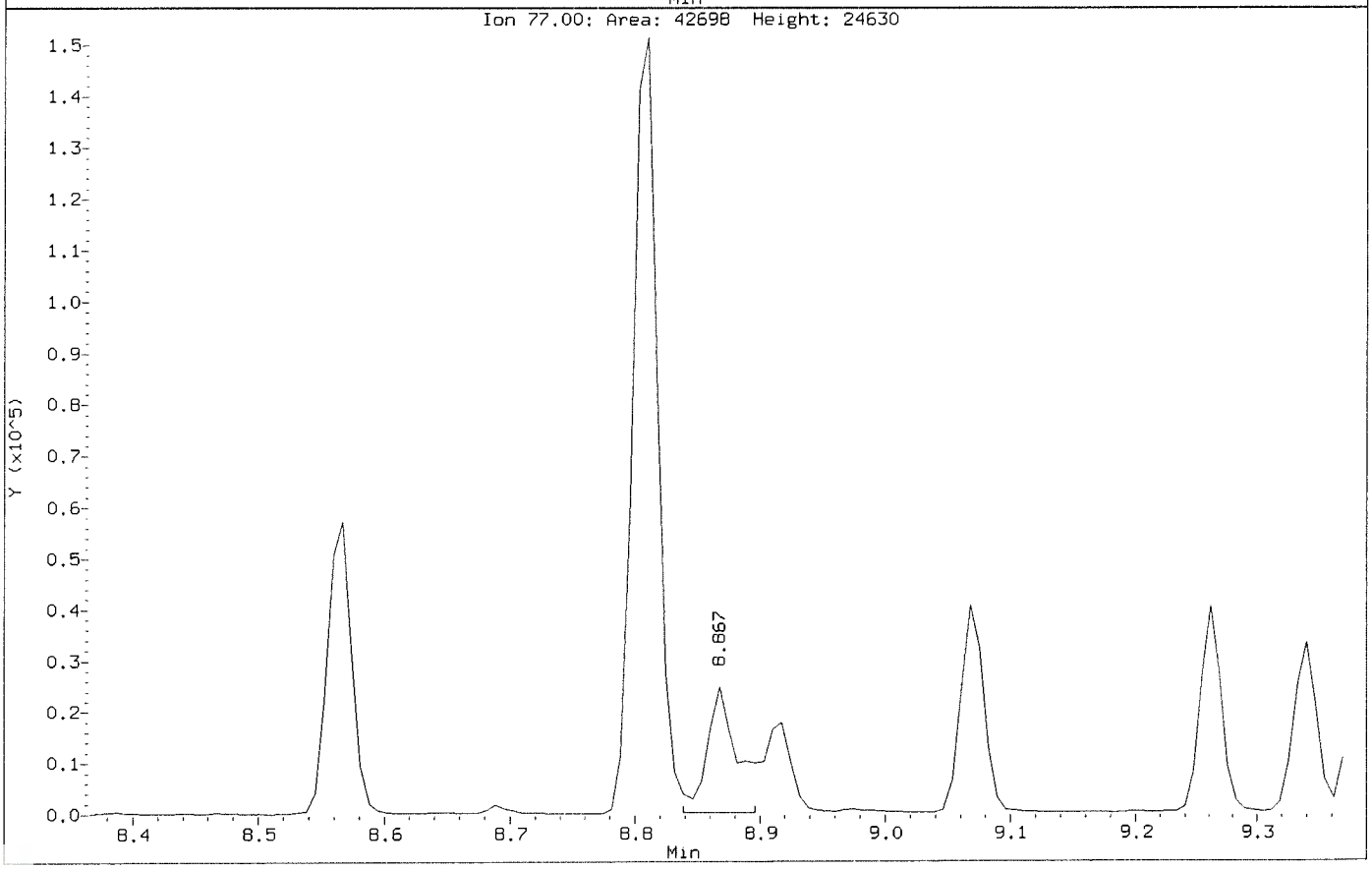
Sample Info: HS20090748-01MSD;HS20090748-01MSD;3;;MSD
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092426.D
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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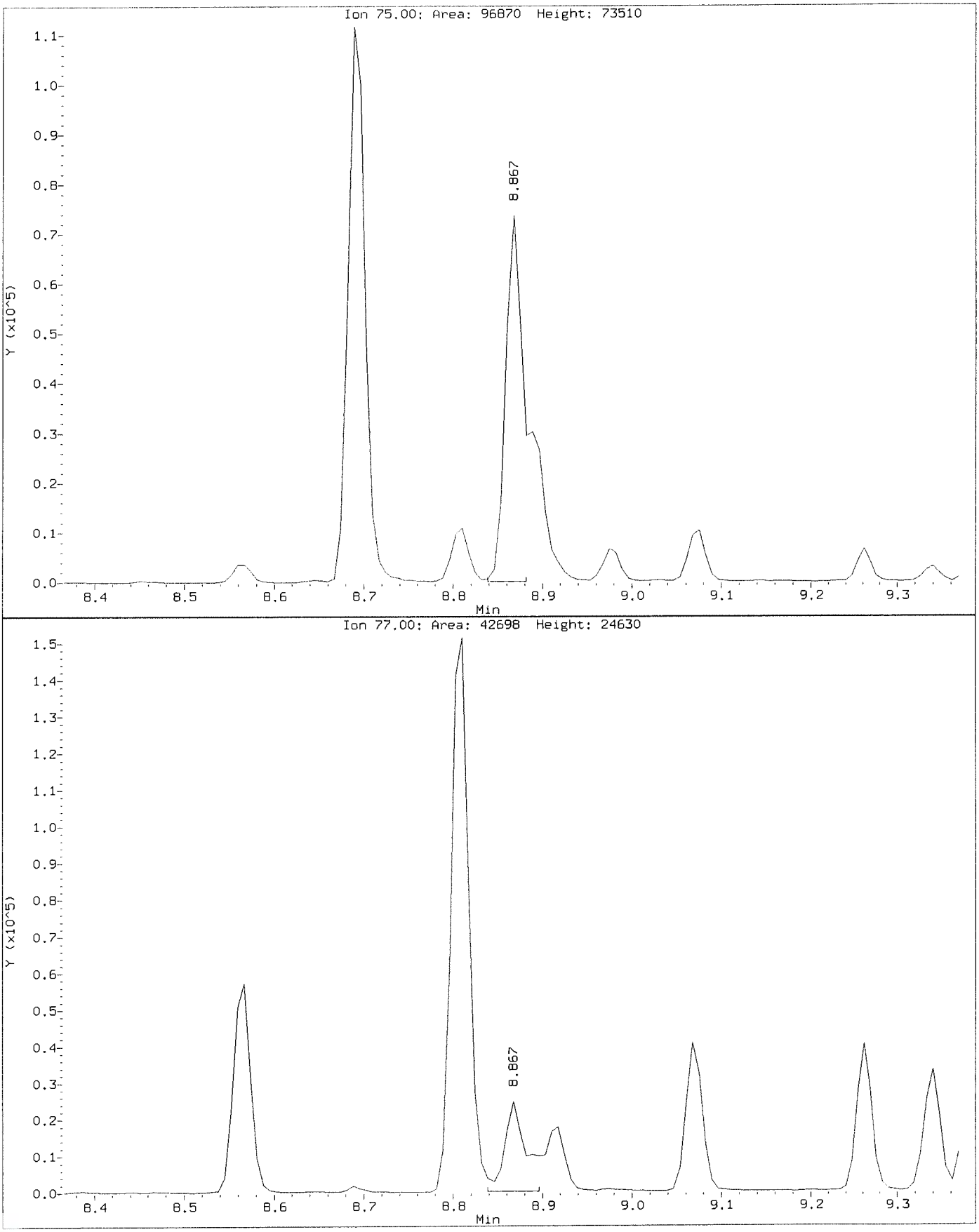
CAS Number: 96-18-4



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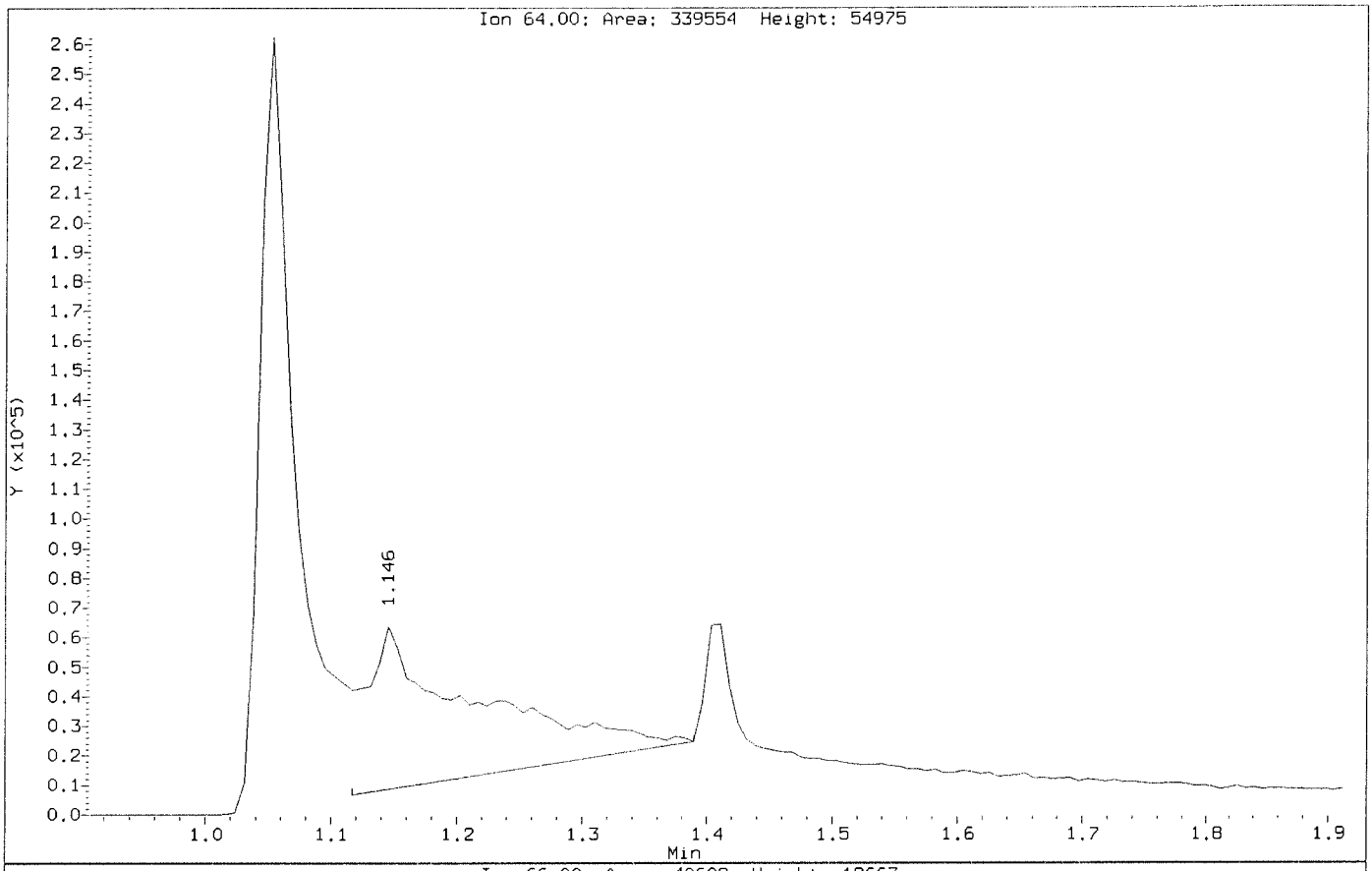
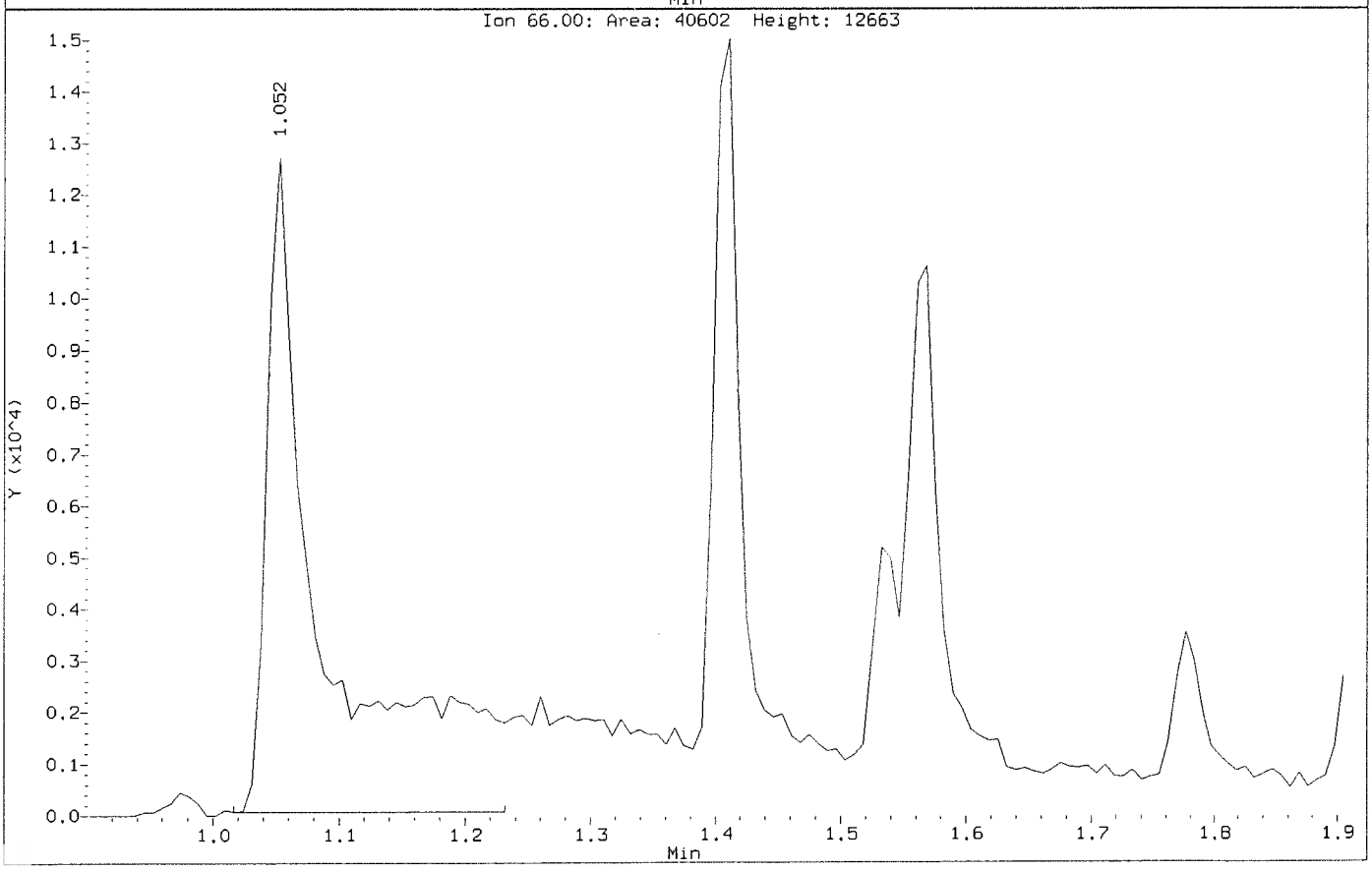
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

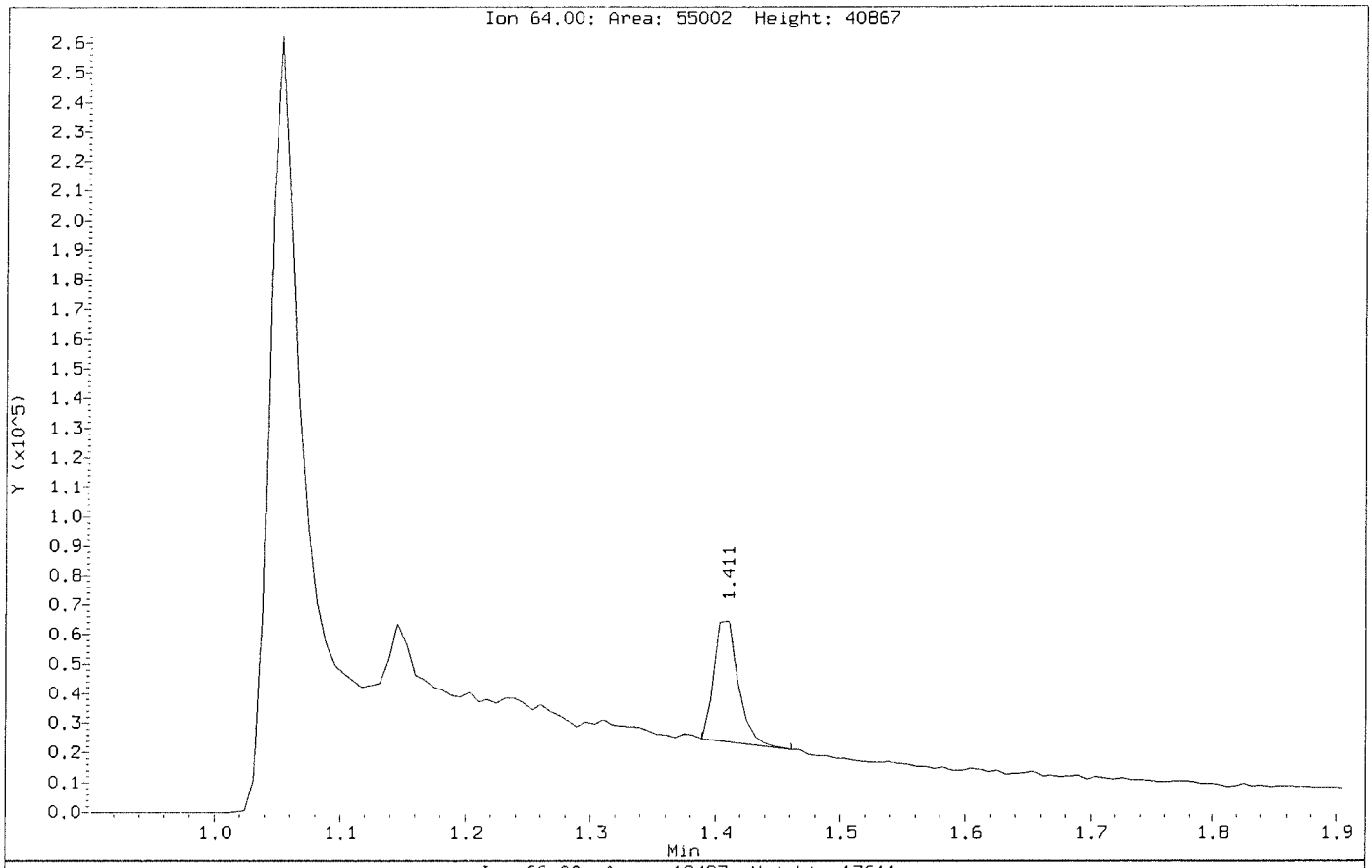
Compound: Chloroethane
CAS Number: 75-00-3

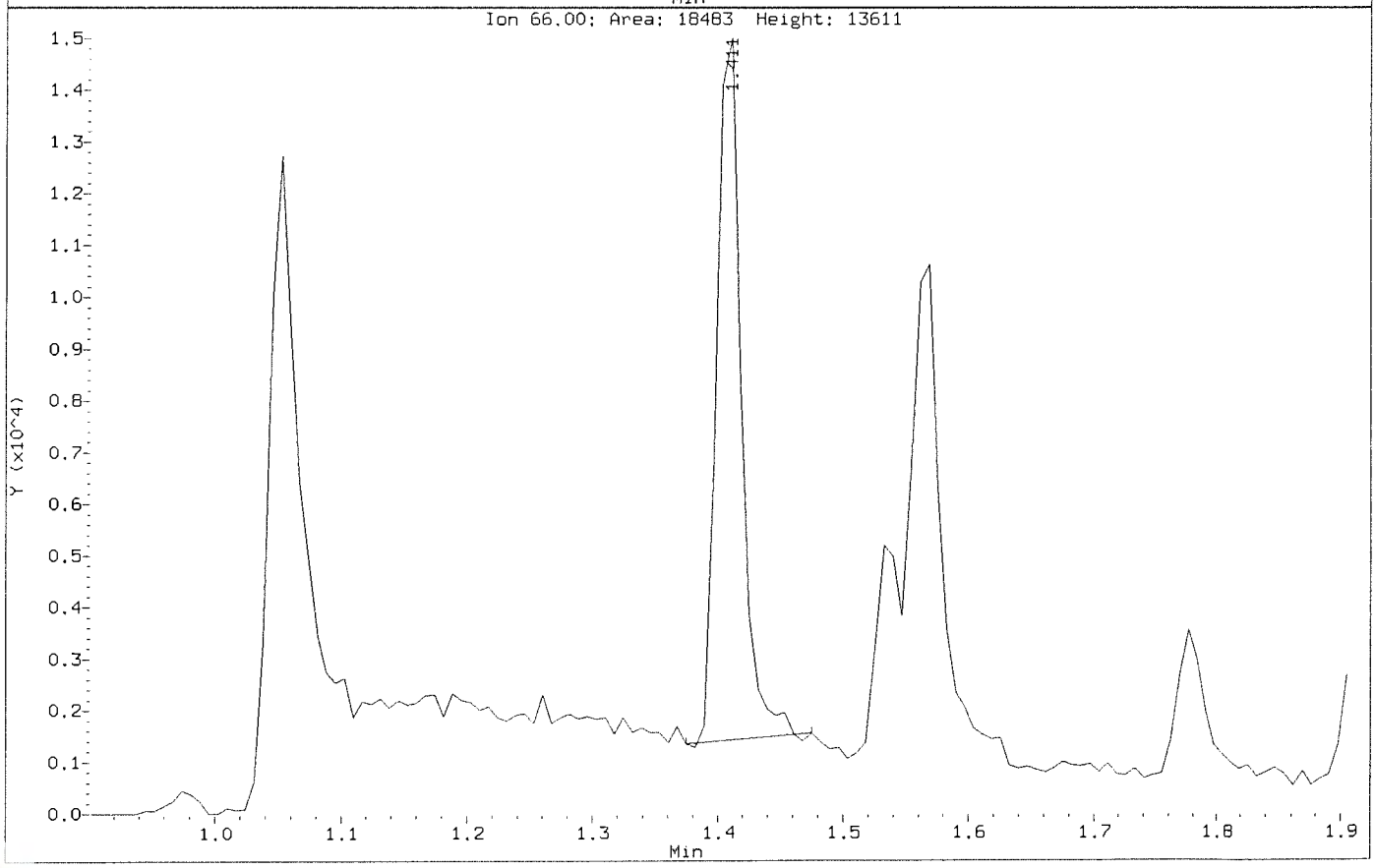




Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\X092426.D
Injection Date: 24-SEP-2020 21:34
Instrument: voa6.i
Client Sample ID: HS20090748-01MSD

Compound: Chloroethane
CAS Number: 75-00-3





ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X200924.b\X092427.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 24-SEP-2020 21:58
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\X200924.b\8260W.m
Meth Date : 13-Oct-2020 11:22 voa6.i Quant Type: ISTD
Cal Date : 24-SEP-2020 15:33 Cal File: X092411.D
Als bottle: 27 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: bhate.sub
Target Version: 4.14
Processing Host: NAHSTW7056

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

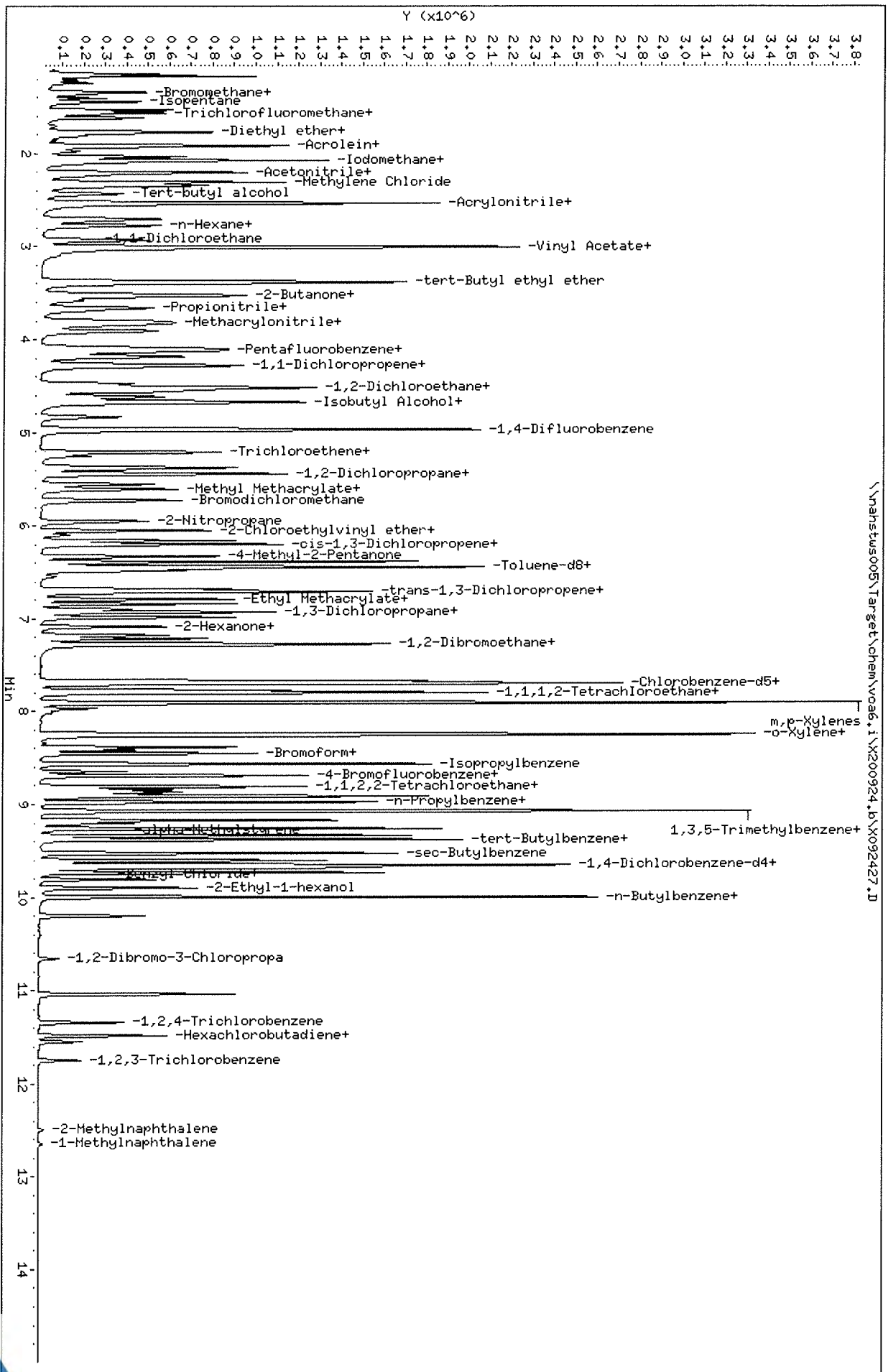
Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	550330	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	874401	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	799359	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.662	9.662	(1.000)	341266	50.0000	
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	276922	50.0000	48.96
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	301526	50.0000	48.74
$	48 Toluene-d8	98	6.388	6.388	(0.833)	1013539	50.0000	48.22
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	359186	50.0000	51.58
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	261588	50.0000	47.22
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	392830	50.0000	46.34
	68 1,1,2,2-Tetrachloroethane	83	8.838	8.838	(0.915)	272941	50.0000	45.22
	53 1,1,2-Trichloroethane	83	6.840	6.840	(0.892)	216279	50.0000	45.94
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	536138	50.0000	46.63
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	233137	50.0000	47.11
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	363253	50.0000	45.15
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.216)	56058	50.0000	42.50
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.918)	233072	50.0000	46.68(M)
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	111367	50.0000	43.29
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.971)	895461	50.0000	44.07
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.103)	17749	50.0000	43.09
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	258386	50.0000	46.51
	88 1,2-Dichlorobenzene	146	9.998	9.998	(1.035)	420350	50.0000	44.23

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
33	1,2-Dichloroethane	62	4.562	4.562	(0.918)	348293	50.0000	46.19
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	309864	50.0000	47.85
75	1,3,5-Trimethylbenzene	105	9.067	9.067	(0.938)	873894	50.0000	43.36
83	1,3-Dichlorobenzene	146	9.604	9.604	(0.994)	482415	50.0000	43.94
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	448748	50.0000	46.08
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.002)	476051	50.0000	43.67
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	389561	50.0000	45.09
24	2-Butanone	43	3.580	3.580	(0.855)	208516	100.000	103.79
76	2-Chlorotoluene	91	8.974	8.974	(0.929)	766779	50.0000	43.24
52	2-Hexanone	43	7.090	7.090	(0.924)	335645	100.000	94.69
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	872281	50.0000	43.20
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	853647	50.0000	41.99
45	4-Methyl-2-Pentanone	43	6.324	6.324	(0.824)	517068	100.000	92.15
10	Acetone	43	1.976	1.976	(0.472)	130117	100.000	99.01
37	Benzene	78	4.519	4.519	(0.909)	1166994	50.0000	46.66
74	Bromobenzene	156	8.809	8.809	(0.912)	313263	50.0000	45.42
29	Bromochloromethane	128	3.802	3.802	(0.908)	156915	50.0000	45.62
39	Bromodichloromethane	83	5.729	5.729	(1.153)	374784	50.0000	47.26
66	Bromoform	173	8.415	8.415	(1.097)	168281	50.0000	48.19
6	Bromomethane	94	1.346	1.346	(0.321)	209486	50.0000	47.24
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1635980	100.000	95.71
34	Carbon Tetrachloride	117	4.268	4.268	(0.859)	315938	50.0000	45.16
59	Chlorobenzene	112	7.699	7.699	(1.004)	733021	50.0000	45.07
7	Chloroethane	64	1.410	1.410	(0.337)	245872	50.0000	57.03
28	Chloroform	83	3.917	3.917	(0.935)	501939	50.0000	47.05
3	Chloromethane	50	1.080	1.080	(0.258)	340987	50.0000	45.24
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	316651	50.0000	46.96
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	472509	50.0000	47.10
55	Dibromochloromethane	129	7.176	7.176	(0.936)	266775	50.0000	46.70
44	Dibromomethane	93	5.557	5.557	(1.118)	180068	50.0000	46.90
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	261976	50.0000	46.76
61	Ethylbenzene	106	7.799	7.799	(1.017)	380959	50.0000	44.87
91	Hexachlorobutadiene	225	11.481	11.481	(1.188)	100641	50.0000	42.32
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1069634	50.0000	43.33
62	m,p-Xylenes	106	7.907	7.907	(1.031)	907760	100.000	89.06
17	Methylene Chloride	84	2.313	2.313	(0.552)	304148	50.0000	50.50
87	n-Butylbenzene	91	9.998	9.998	(1.035)	733566	50.0000	41.71
73	n-Propylbenzene	91	8.917	8.917	(0.923)	1242774	50.0000	42.69
92	Naphthalene	128	11.546	11.546	(1.195)	135886	50.0000	42.70
63	o-Xylene	106	8.244	8.244	(1.075)	446866	50.0000	44.90
81	sec-Butylbenzene	105	9.526	9.526	(0.986)	983954	50.0000	41.26
64	Styrene	104	8.258	8.258	(1.077)	785377	50.0000	46.12
78	tert-Butylbenzene	119	9.339	9.339	(0.967)	705191	50.0000	41.98
56	Tetrachloroethene	164	6.933	6.933	(0.904)	214609	50.0000	42.49
50	Toluene	91	6.453	6.453	(0.841)	1187899	50.0000	45.91
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	269639	50.0000	47.29
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	397835	50.0000	47.58
38	Trichloroethene	130	5.214	5.214	(1.049)	289750	50.0000	46.32
8	Trichlorofluoromethane	101	1.568	1.568	(0.374)	379543	50.0000	47.43
5	Vinyl Chloride	62	1.145	1.145	(0.273)	340613	50.0000	47.91

QC Flag Legend

M - Compound response manually integrated.



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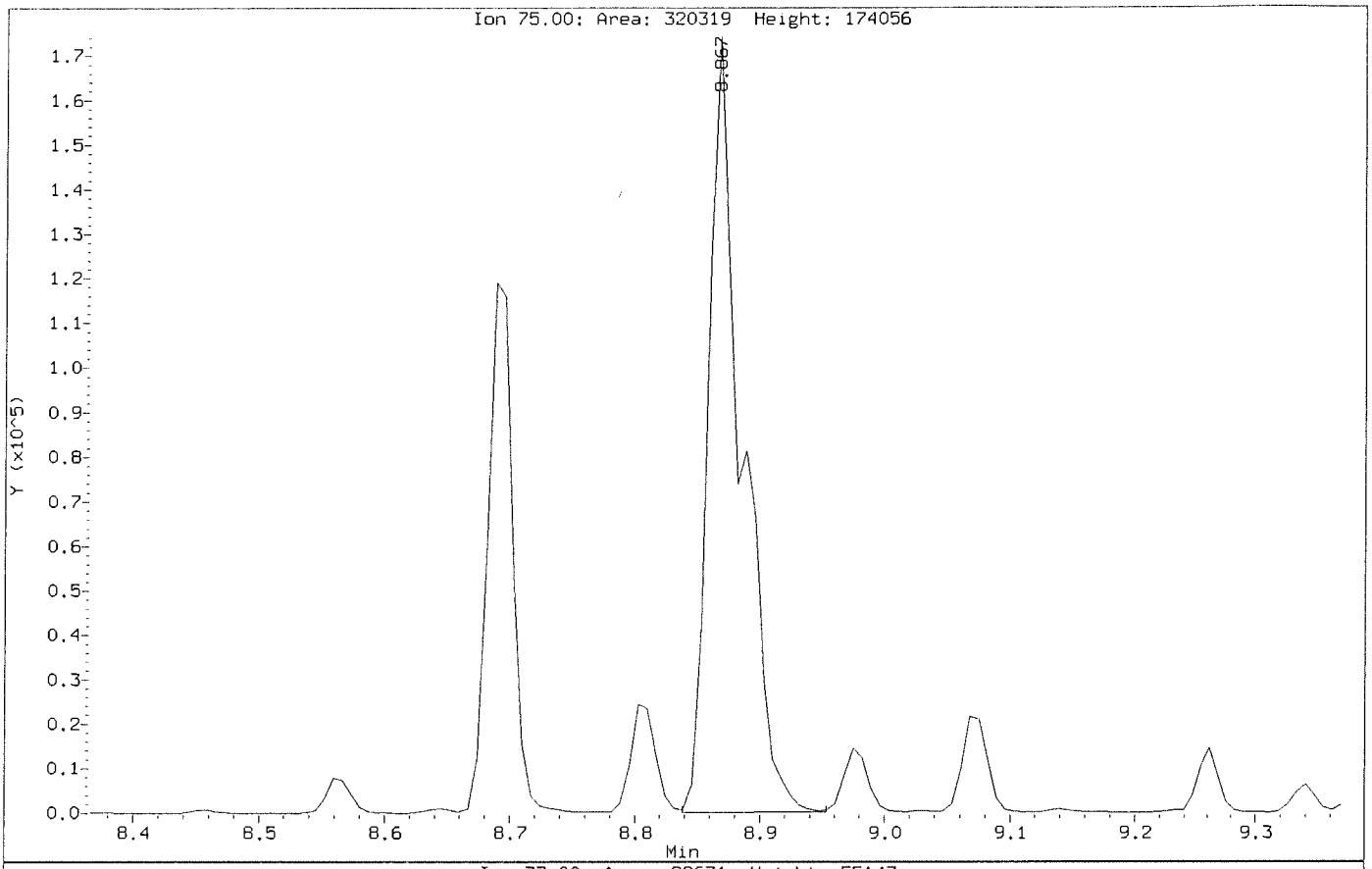
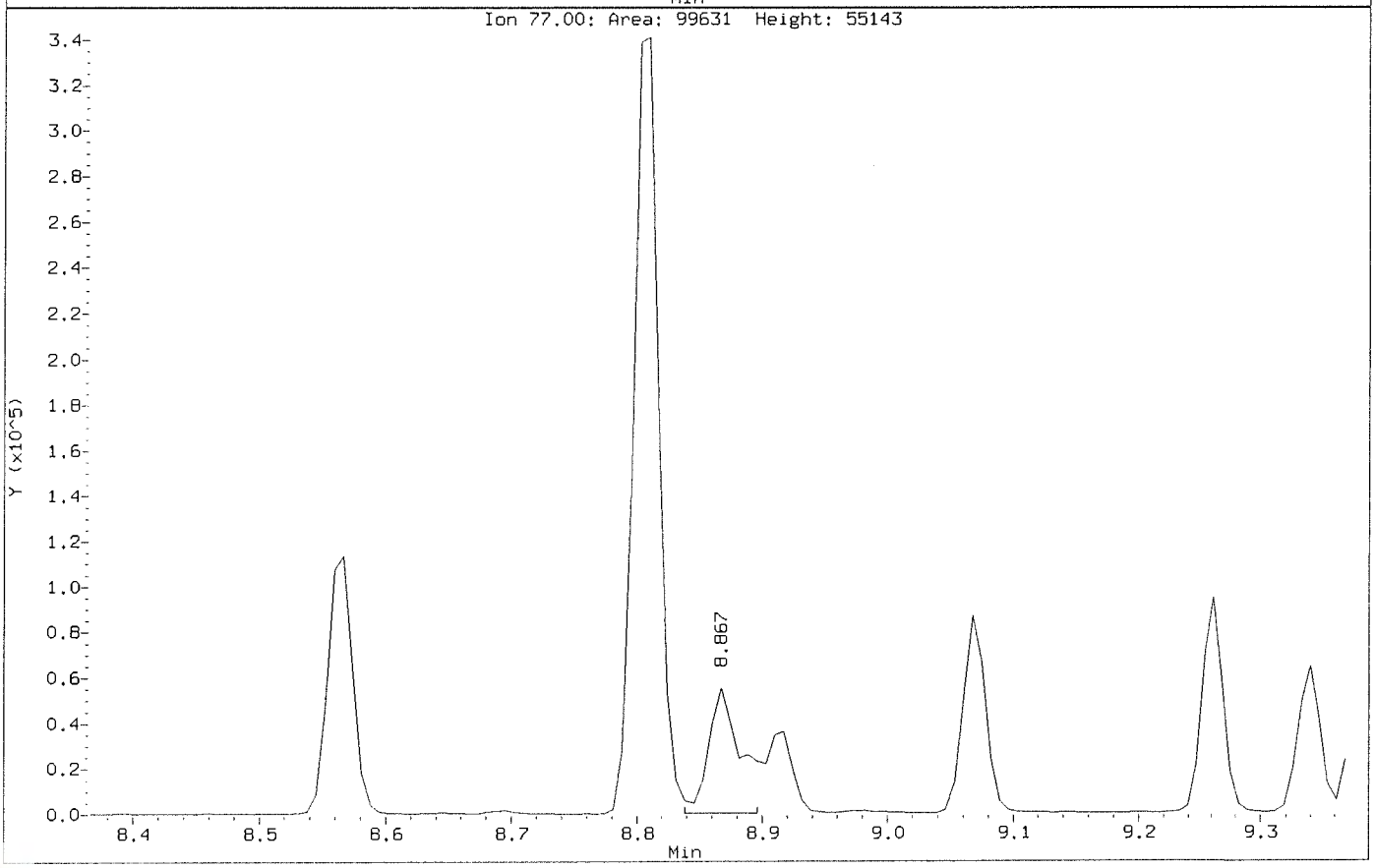
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X200924.b\Before\X092427.D
Injection Date: 24-SEP-2020 21:58
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





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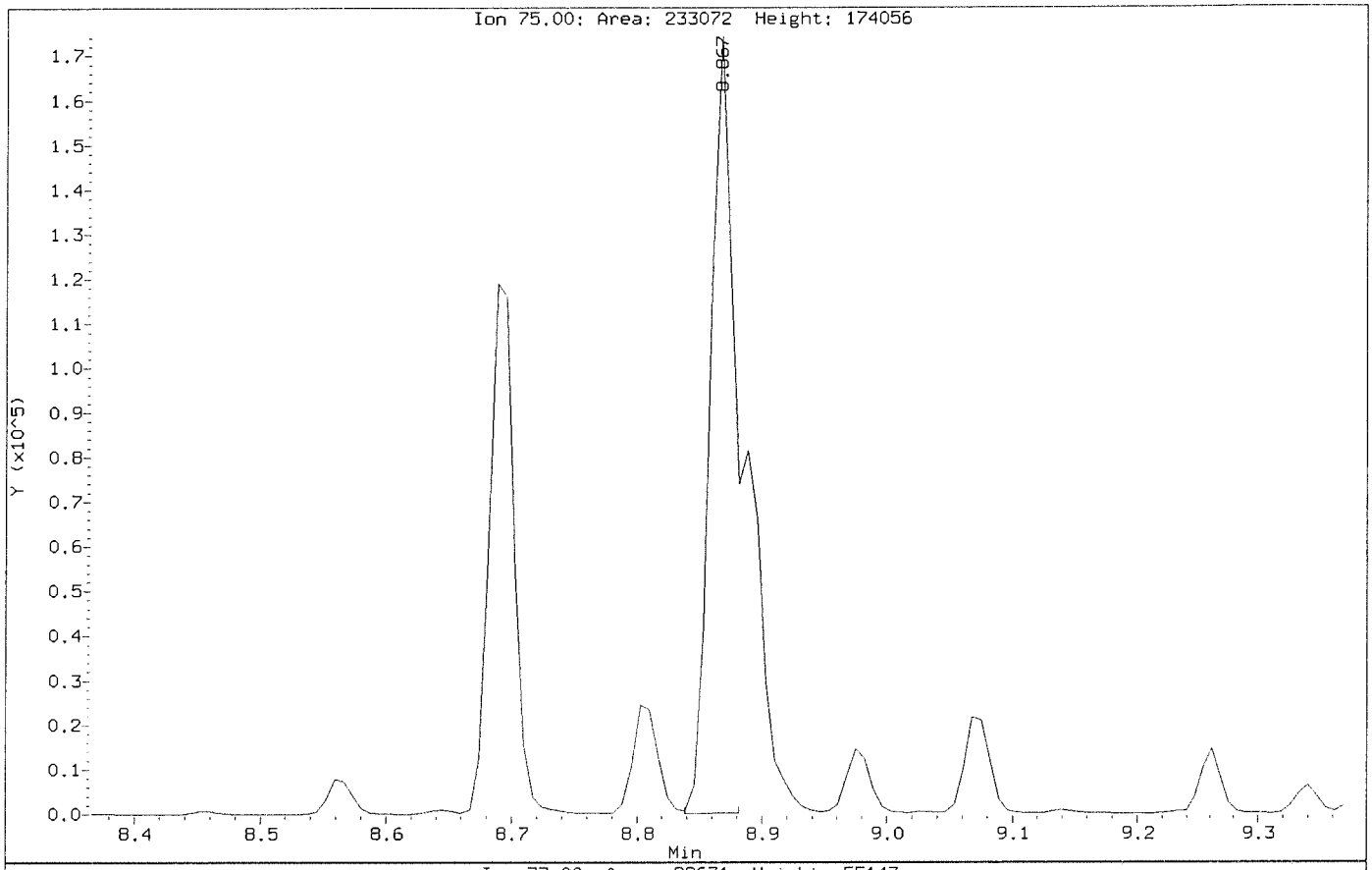
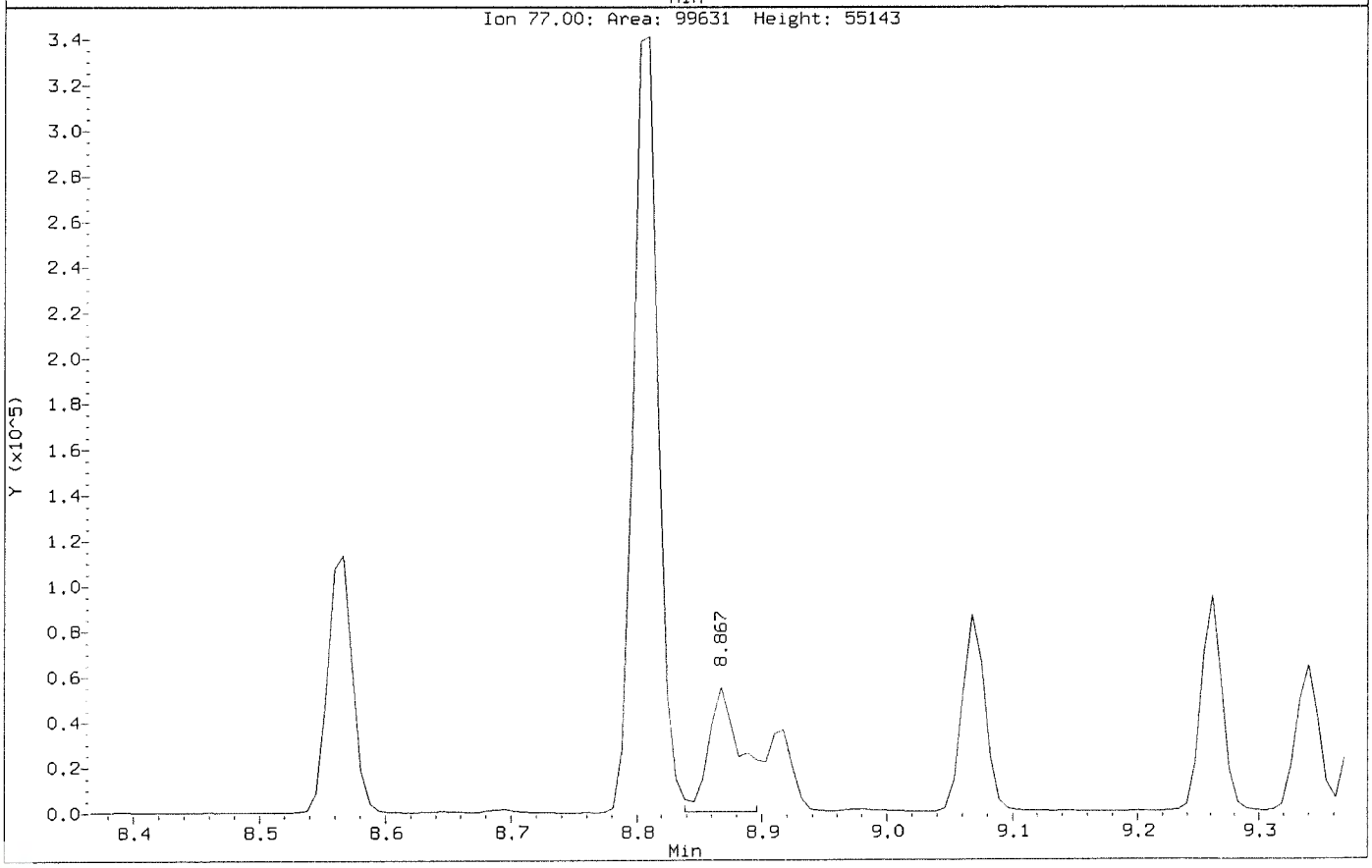
Injection Date: 24-SEP-2020 21:58
Instrument: voa6.i
Client Sample ID: CCV-END

Compound: 1,2,3-Trichloropropane
CAS Number: 96-18-4





HS20091030 Wet Chem Raw Data (9056_anions_W)

ALS WO# HS20091030

Sequence: 092320
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
	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
	MBLK-092320		Unknown	BB1	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	LCS-092320		Unknown	BB2	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
	HS20091029-01MS		Unknown	RA8	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20091029-01MSD		Unknown	RB1	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20091030-01		Unknown	RB3	1.00		Anions Program 06022020.1	Anions Processing Method	5.0	Finished
	HS20091030-01DF20		Unknown	RB4	20.00		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

Sequence: 092320
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
9/23/2020 12:54:44 PM -05:00
9/23/2020 1:12:45 PM -05:00
9/23/2020 1:30:51 PM -05:00
9/23/2020 1:48:58 PM -05:00
9/23/2020 4:31:20 PM -05:00
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9/23/2020 6:01:34 PM -05:00
9/23/2020 6:19:35 PM -05:00
9/23/2020 6:37:38 PM -05:00
9/23/2020 6:55:39 PM -05:00
9/23/2020 8:07:47 PM -05:00
9/23/2020 8:25:47 PM -05:00

Sequence: 092320
Injection #6: STD6

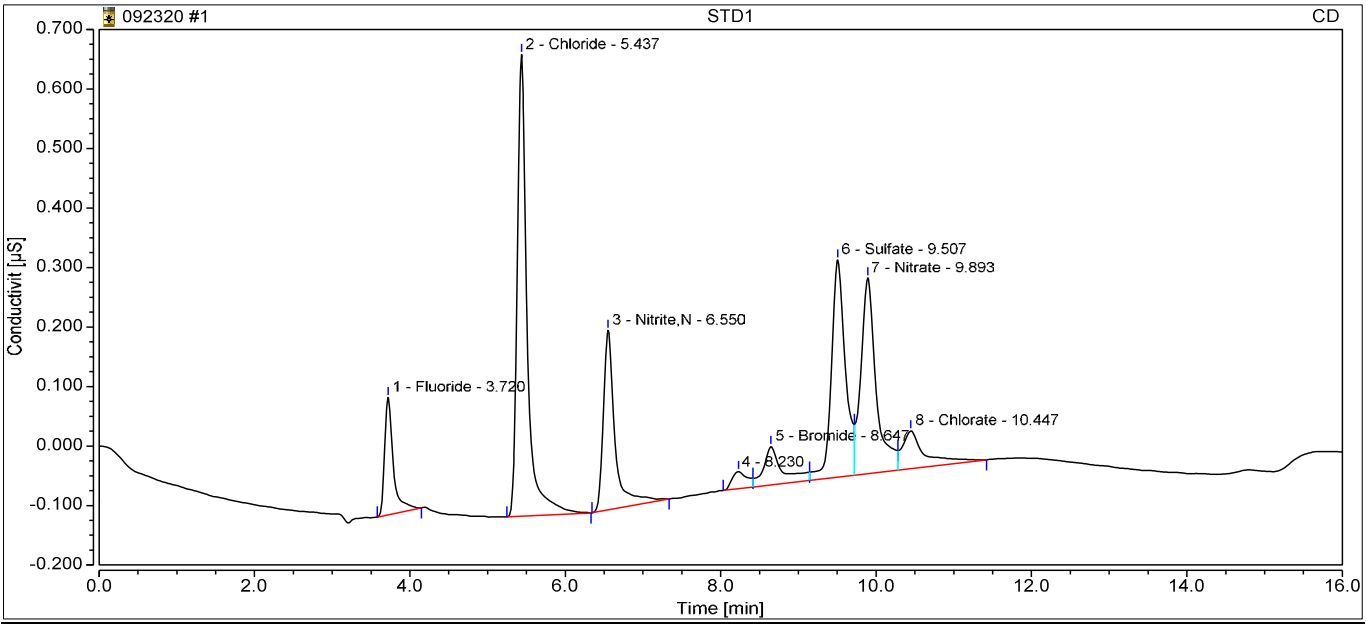
Calibration

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:

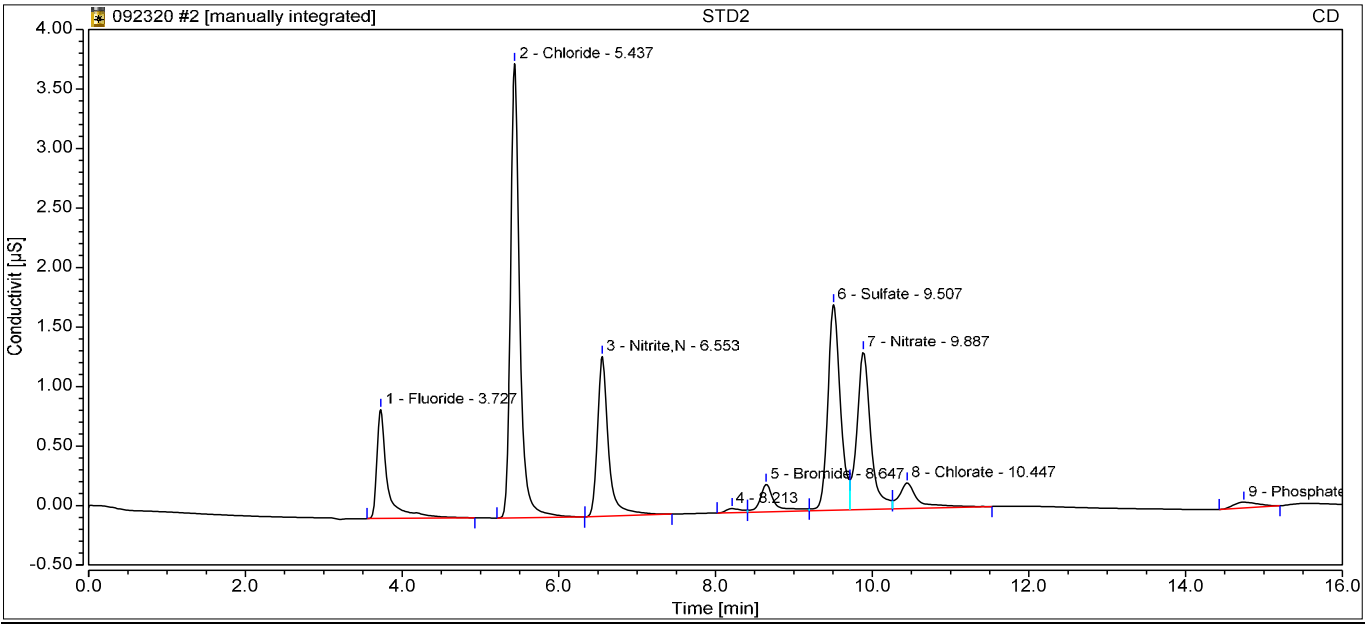


Integration Results

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:

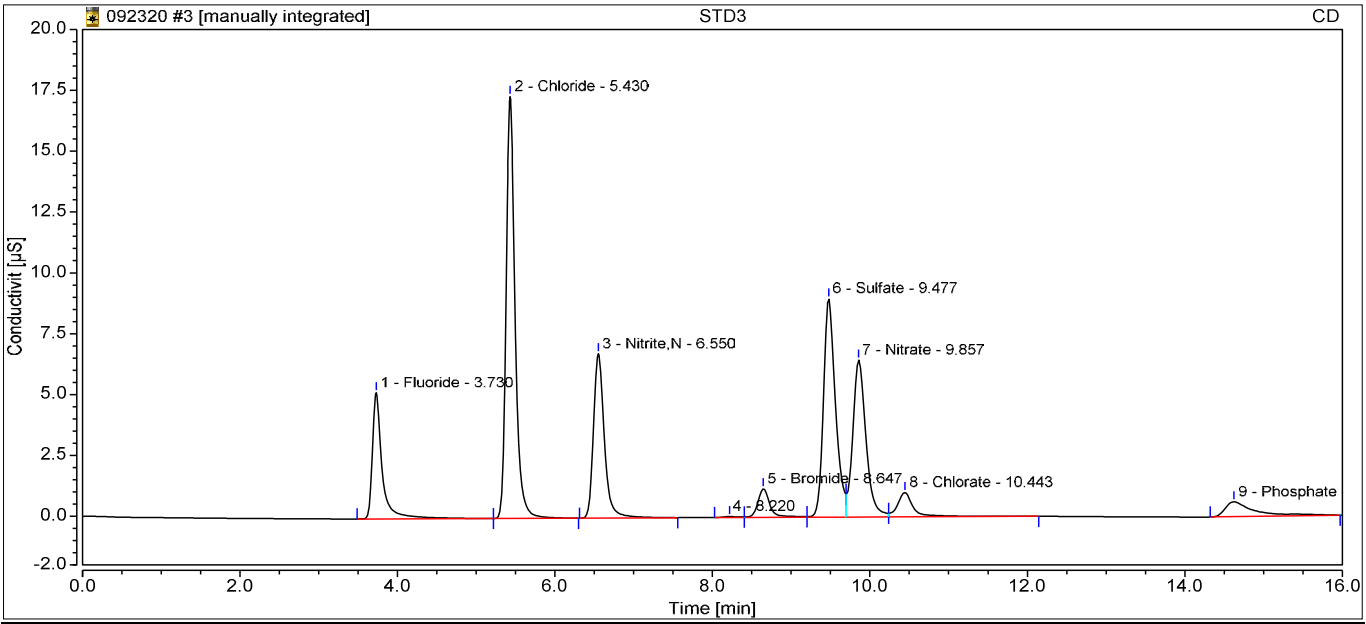


Integration Results

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:



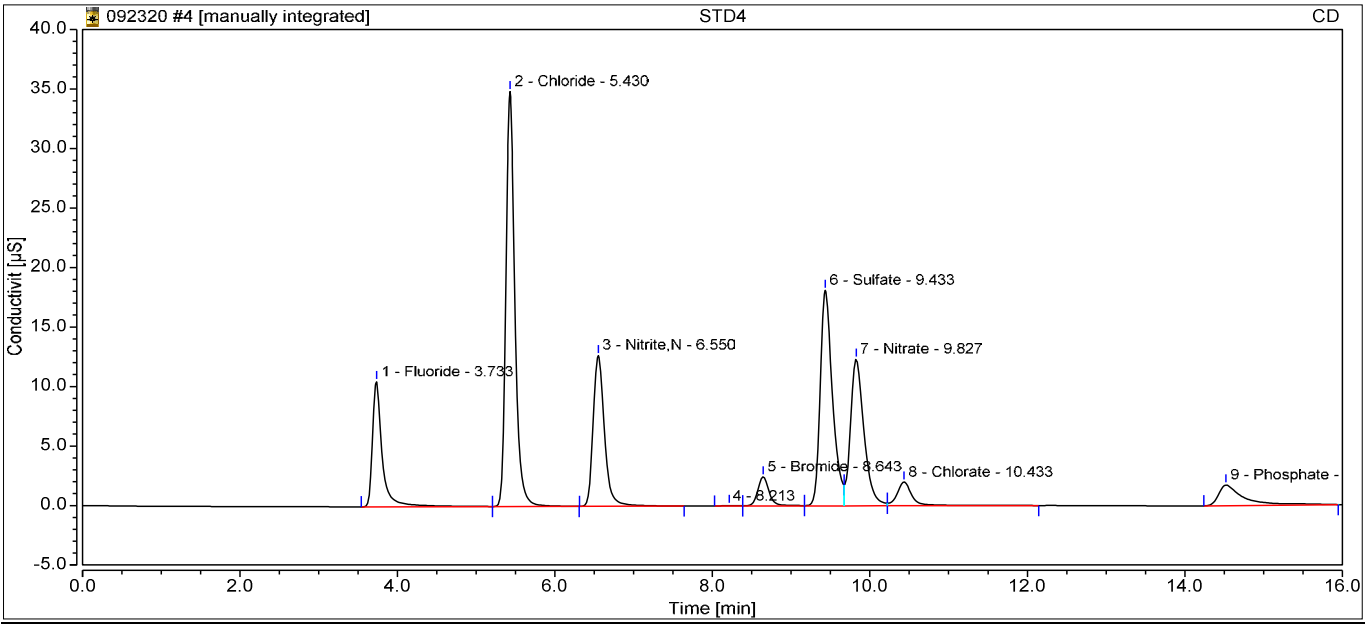
Integration Results

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:

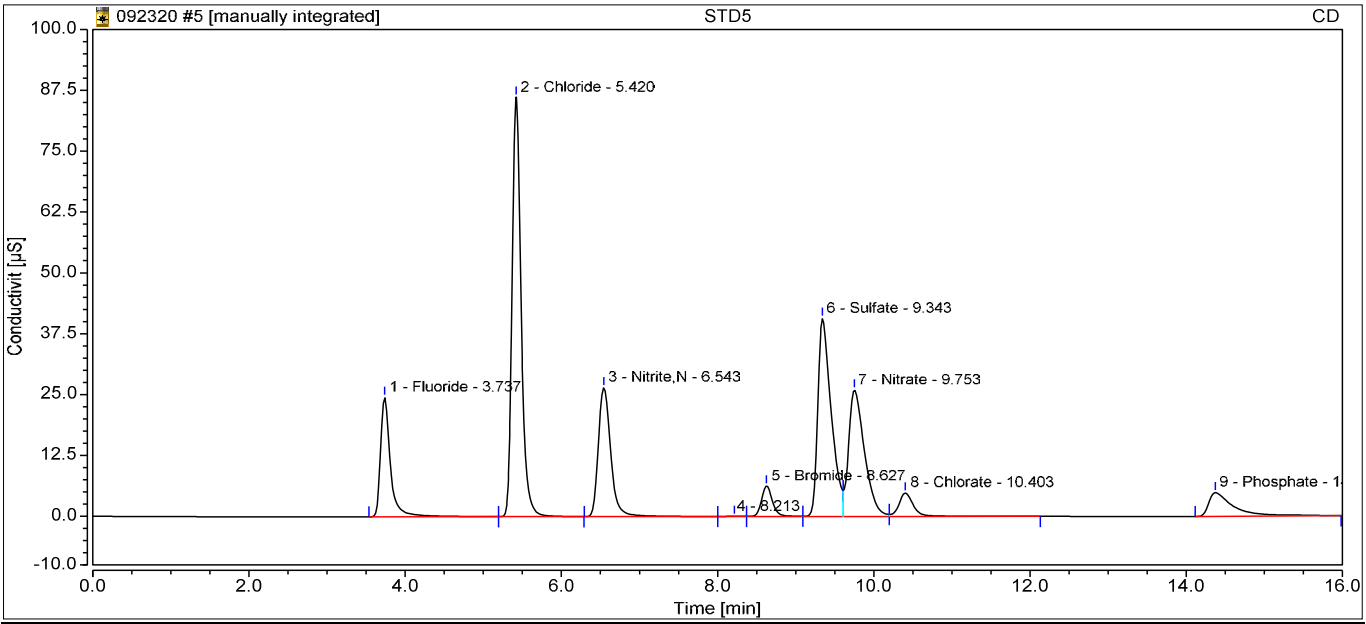


Integration Results

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:

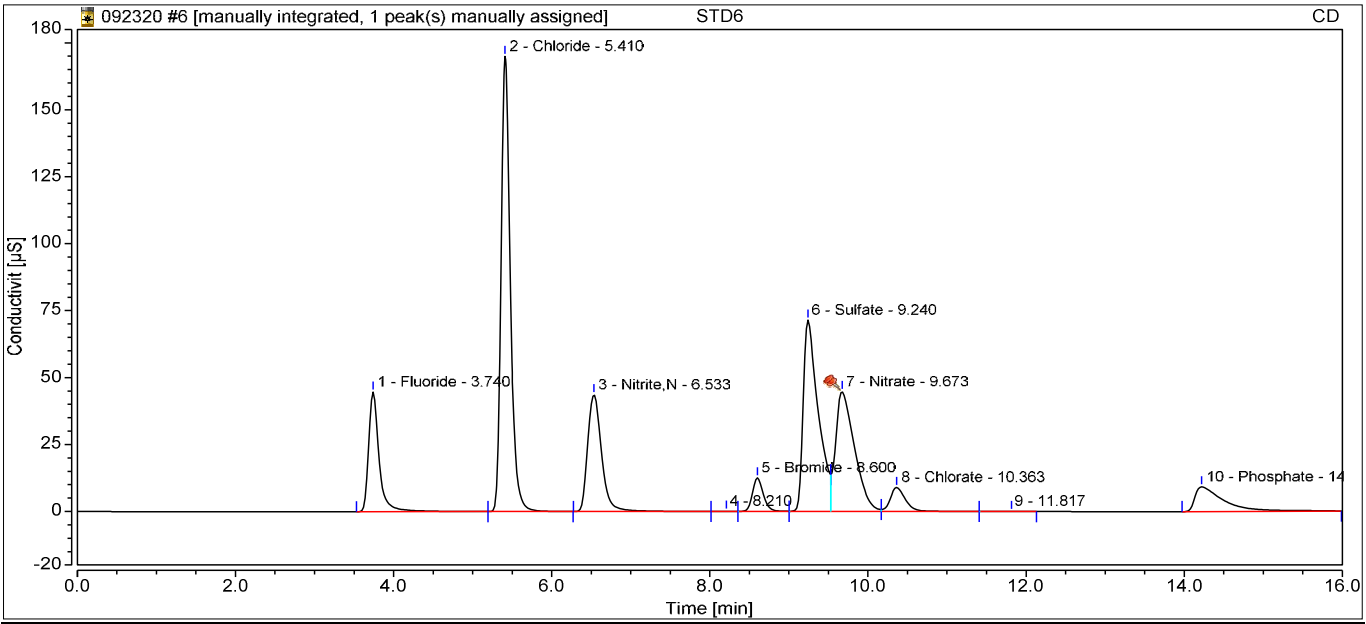


Integration Results

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:



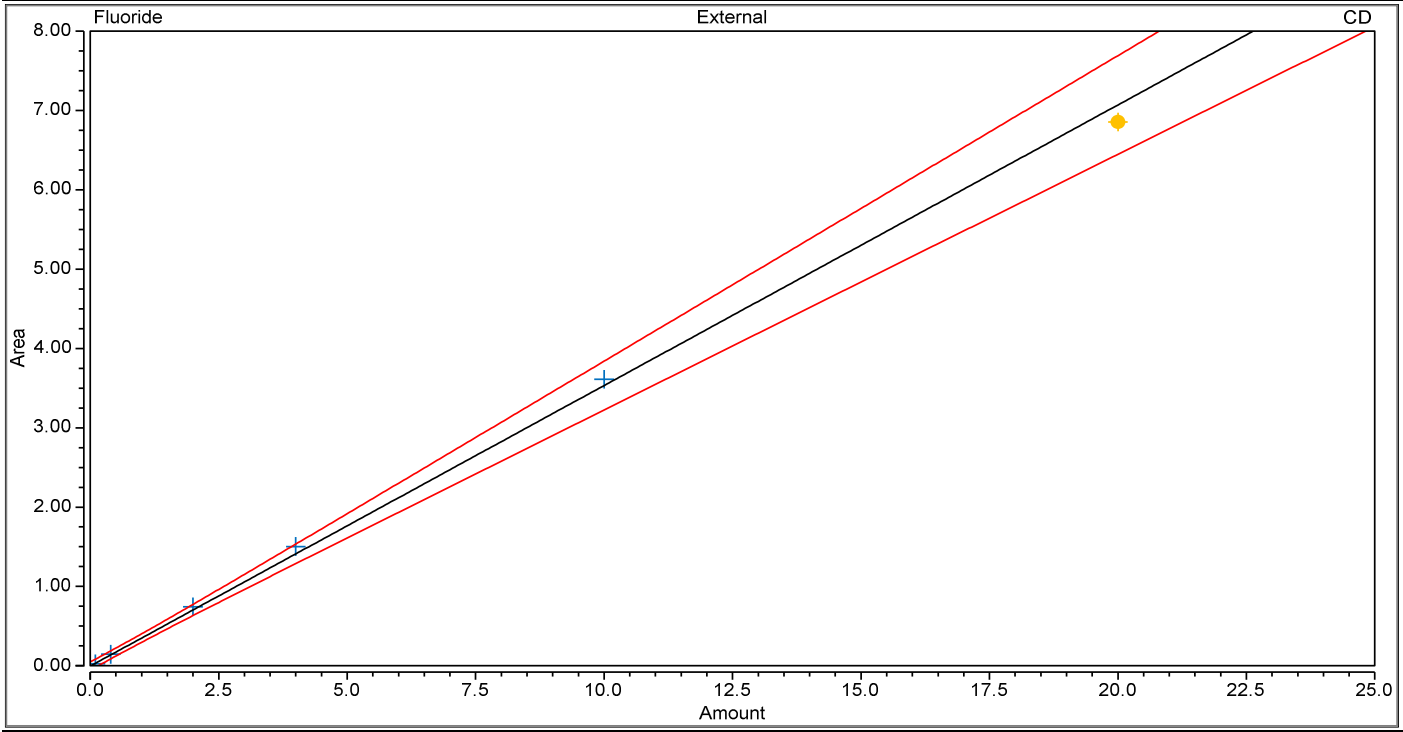
Integration Results

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**

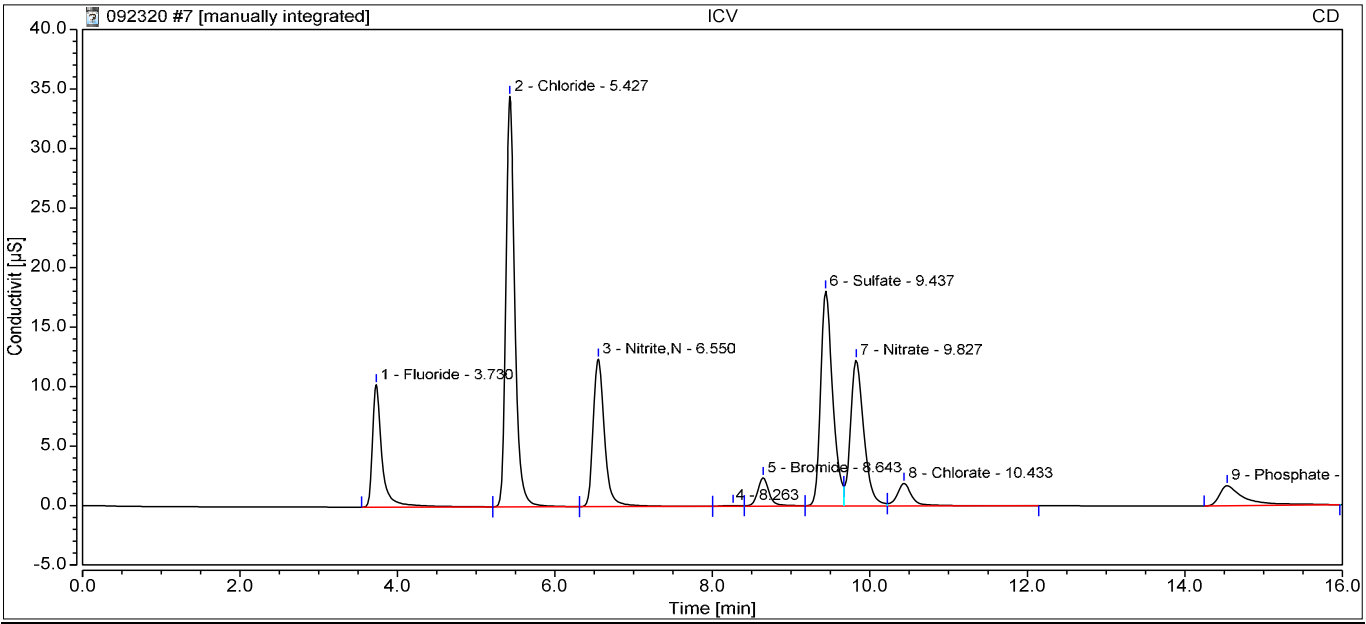


Calibration Results **Fluoride**

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:



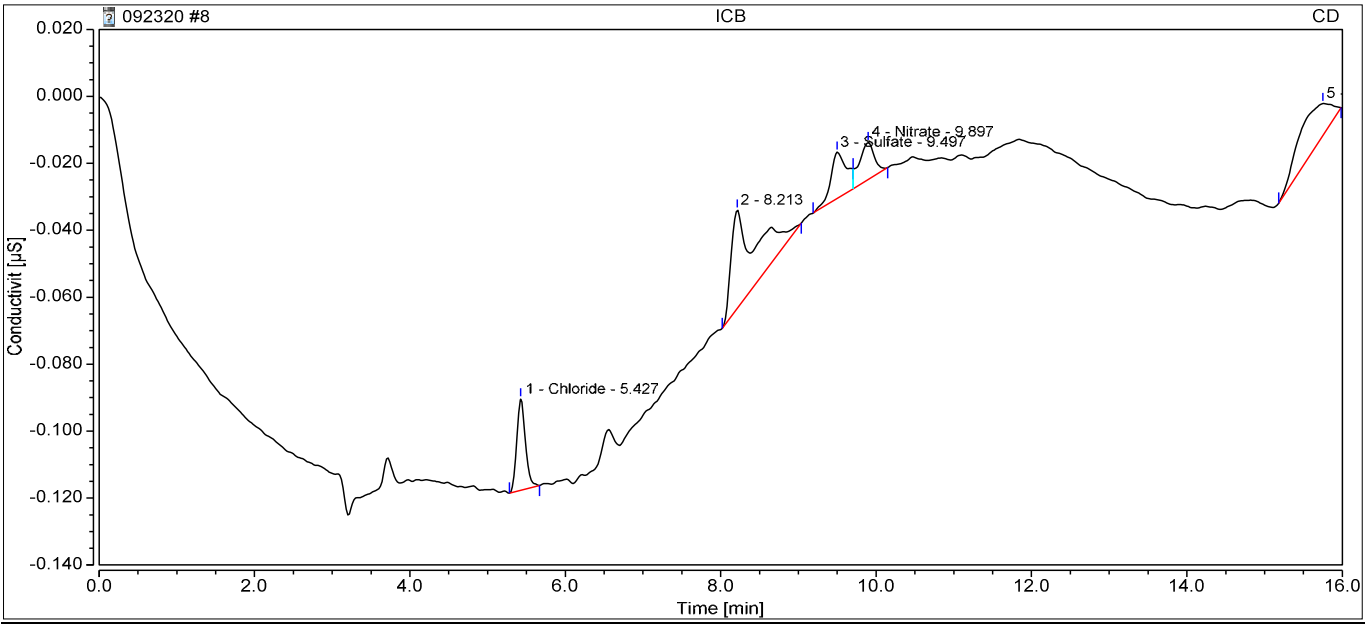
Integration Results

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:



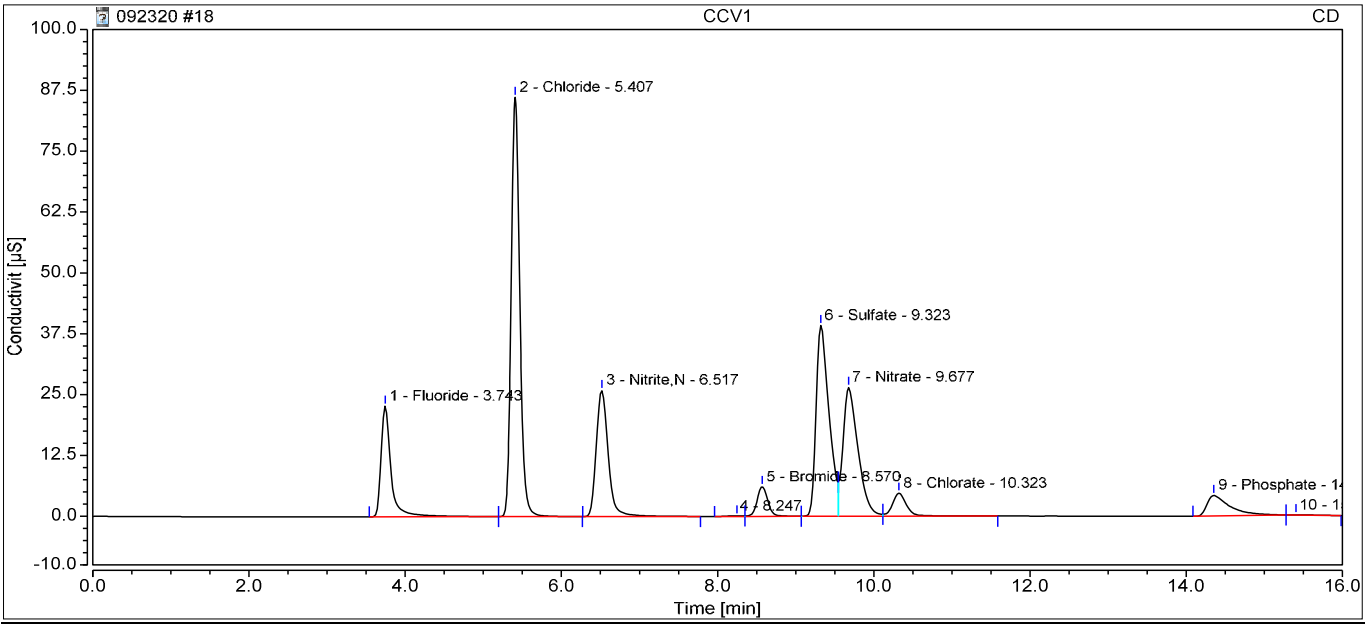
Integration Results

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**	

18 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:	**09/23/2020 12:54**	*Sample Weight:*	**1.0000**

Run Time:



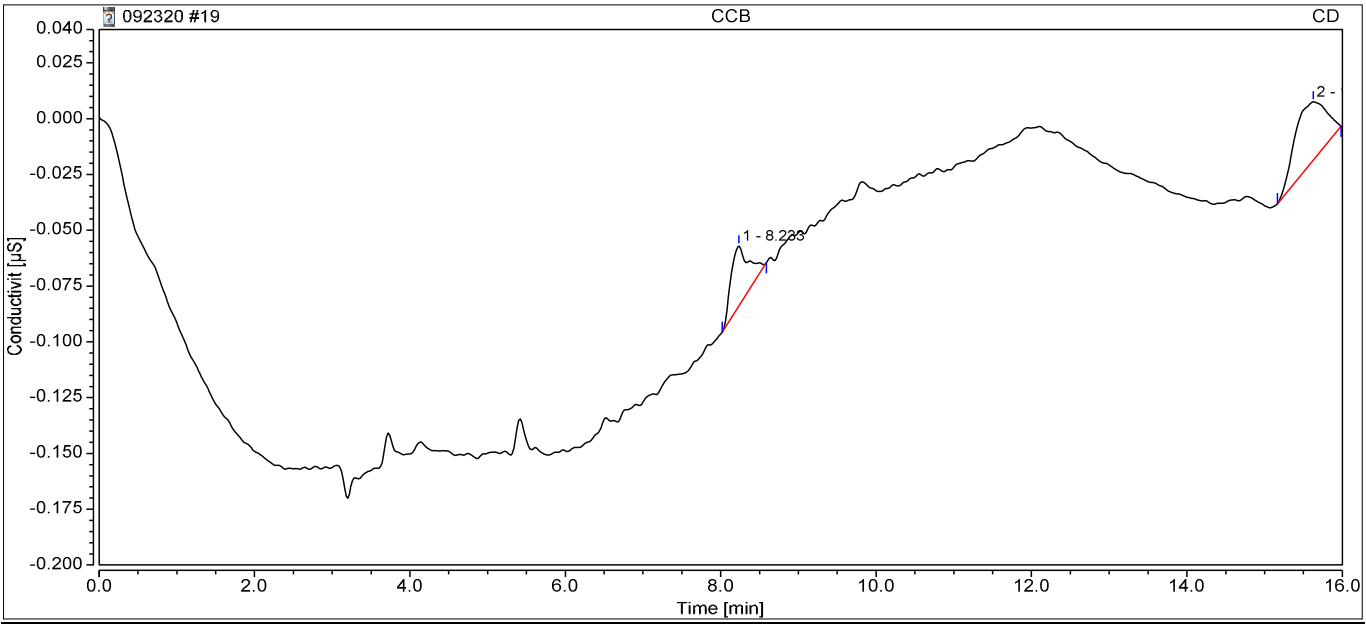
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.360	9.5128	9.5128	1.0000
2	5.41	Chloride	BMB	10.878	47.4764	47.4764	1.0000
3	6.52	Nitrite,N	BMB	4.608	9.7434	9.7434	1.0000
5	8.57	Bromide	M	0.978	9.6195	9.6195	1.0000
6	9.32	Sulfate	M	7.506	46.8779	46.8779	1.0000
7	9.68	Nitrate	M	5.908	9.5758	9.5758	1.0000
8	10.32	Chlorate	MB	0.993	9.6059	9.6059	1.0000
9	14.35	Phosphate	BMB	1.439	7.7869	7.7869	1.0000
Total:			**0.000**	**35.670**		**150.20**	

19 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:	**09/23/2020 13:12**	*Sample Weight:*	**1.0000**

Run Time:



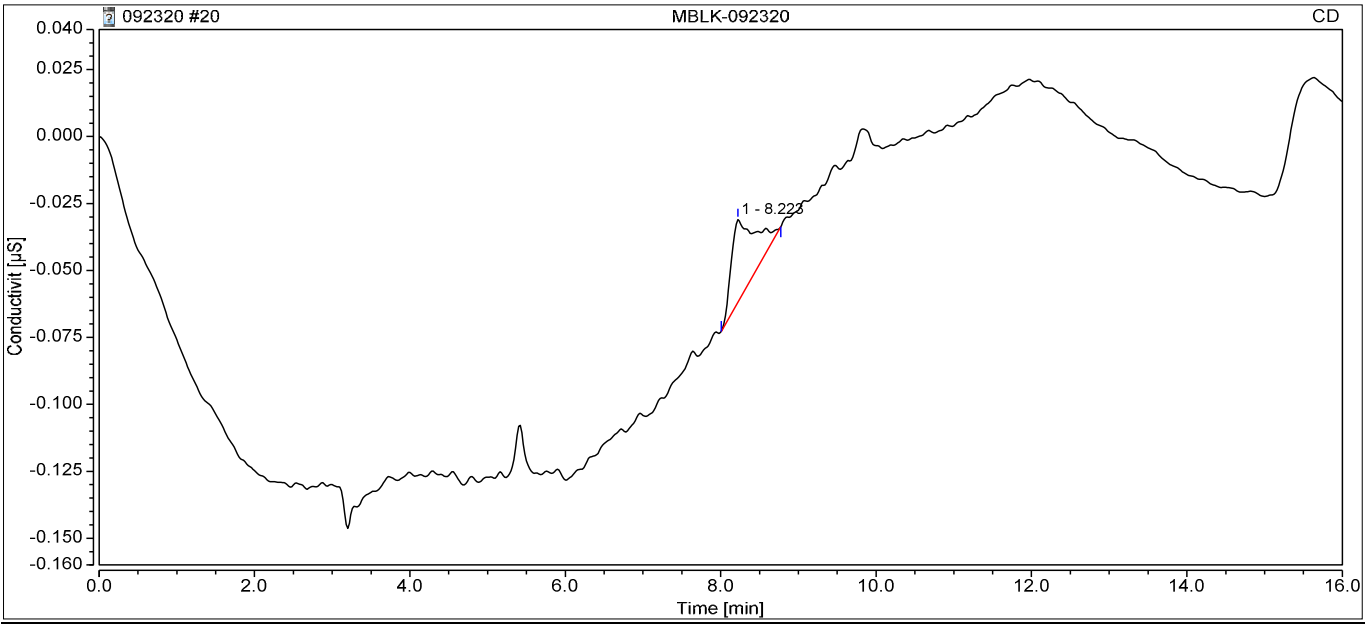
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
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**	

20 MBLK-092320

Sample Name:	**MBLK-092320**	*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:	**09/23/2020 13:30**	*Sample Weight:*	**1.0000**

Run Time:



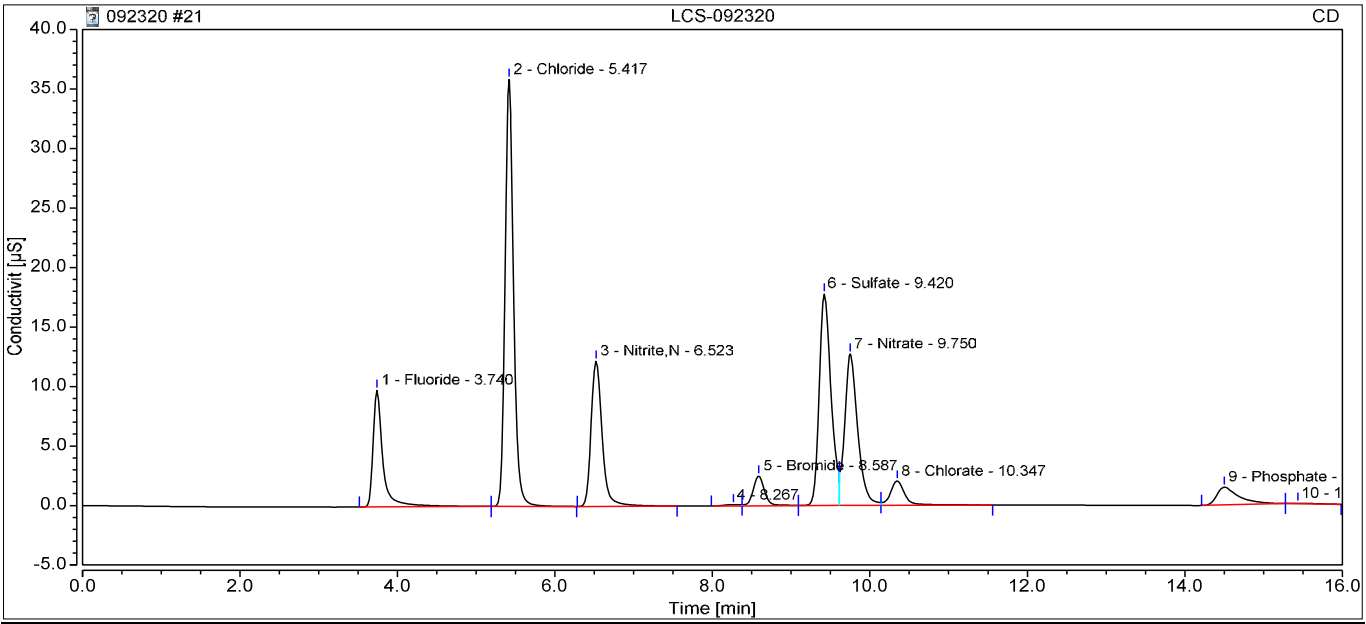
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	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**	

21 LCS-092320

Sample Name:	**LCS-092320**	*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:	**09/23/2020 13:48**	*Sample Weight:*	**1.0000**

Run Time:



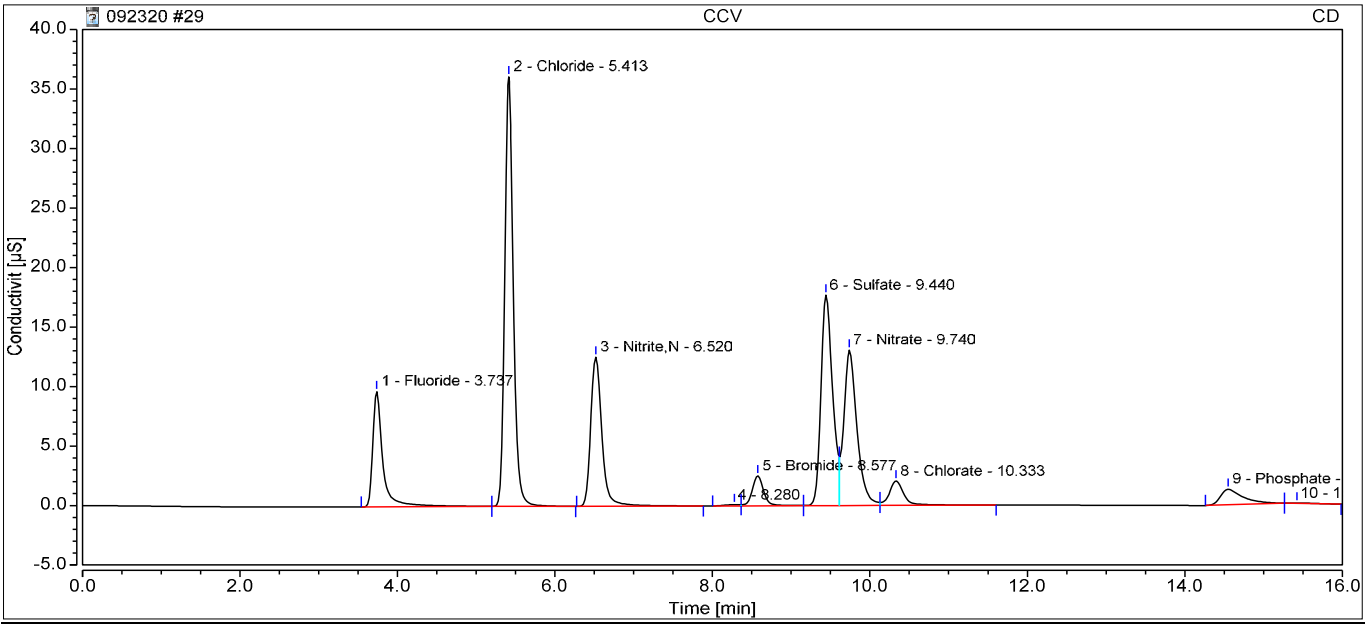
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.421	4.0282	4.0282	1.0000
2	5.42	Chloride	BMB	4.530	19.7399	19.7399	1.0000
3	6.52	Nitrite,N	BMB	1.987	4.1787	4.1787	1.0000
5	8.59	Bromide	M	0.416	4.0461	4.0461	1.0000
6	9.42	Sulfate	M	3.095	19.3384	19.3384	1.0000
7	9.75	Nitrate	M	2.441	3.9431	3.9431	1.0000
8	10.35	Chlorate	MB	0.433	4.1132	4.1132	1.0000
9	14.50	Phosphate	BMB	0.485	2.8779	2.8779	1.0000
Total:			**0.000**	**14.809**		**62.27**	

29 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:	**09/23/2020 16:31**	*Sample Weight:*	**1.0000**

Run Time:



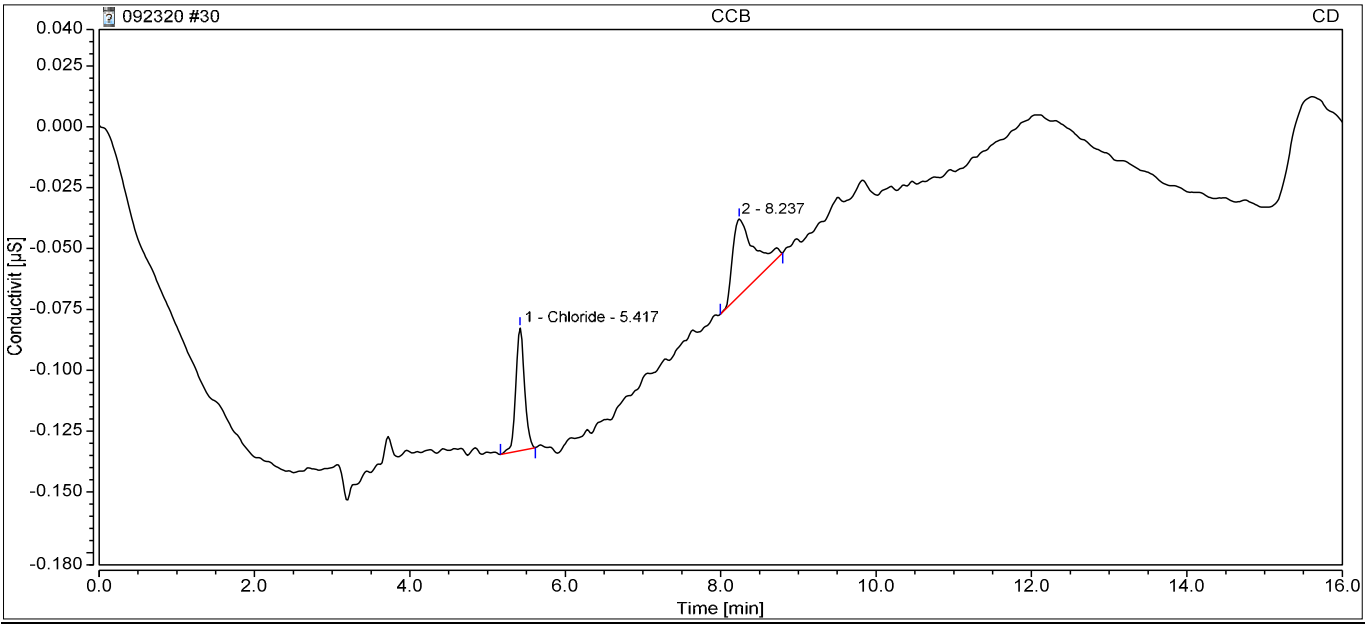
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	1.433	4.0632	4.0632	1.0000
2	5.41	Chloride	BMB	4.566	19.8970	19.8970	1.0000
3	6.52	Nitrite,N	BMB	2.065	4.3438	4.3438	1.0000
5	8.58	Bromide	M	0.417	4.0582	4.0582	1.0000
6	9.44	Sulfate	M	3.037	18.9761	18.9761	1.0000
7	9.74	Nitrate	M	2.535	4.0961	4.0961	1.0000
8	10.33	Chlorate	MB	0.439	4.1704	4.1704	1.0000
9	14.55	Phosphate	BMB	0.434	2.6146	2.6146	1.0000
Total:			**0.000**	**14.927**		**62.22**	

30 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:	**09/23/2020 16:49**	*Sample Weight:*	**1.0000**

Run Time:



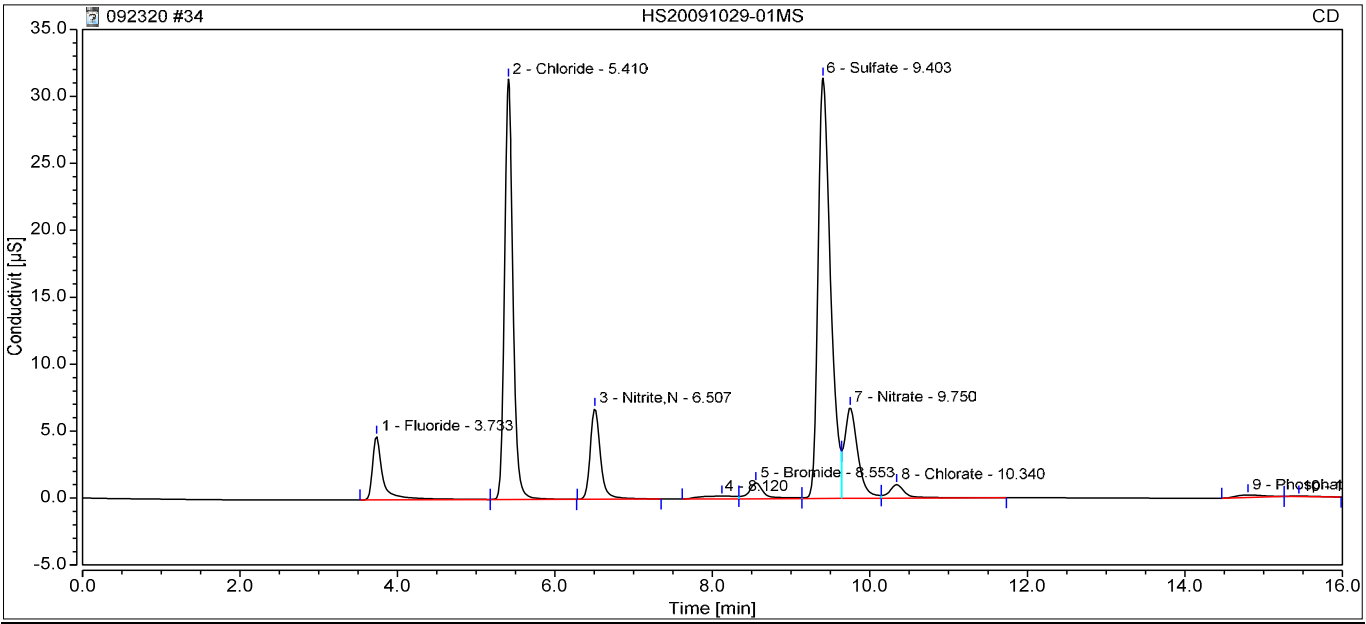
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.42	Chloride	BMB	0.007	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**	**0.007**		**0.00**	

34 HS20091029-01MS

Sample Name:	**HS20091029-01MS**	*Injection Volume:*	**5.00**
Vial Number:	**RA8**	*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:	**09/23/2020 18:01**	*Sample Weight:*	**1.0000**

Run Time:



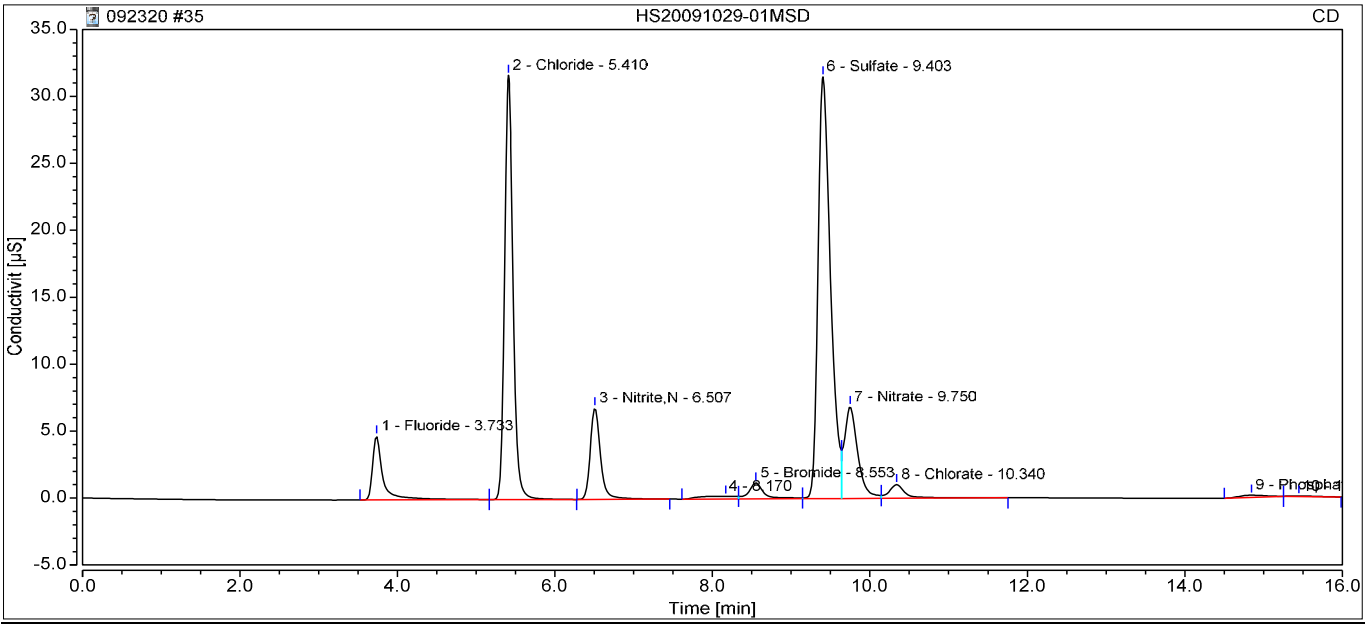
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.724	2.0585	2.0585	1.0000
2	5.41	Chloride	BMB	3.918	17.0655	17.0655	1.0000
3	6.51	Nitrite,N	BMB	1.024	2.1337	2.1337	1.0000
5	8.55	Bromide	M	0.261	2.5094	2.5094	1.0000
6	9.40	Sulfate	M	5.735	35.8231	35.8231	1.0000
7	9.75	Nitrate	M	1.350	2.1704	2.1704	1.0000
8	10.34	Chlorate	MB	0.243	2.2427	2.2427	1.0000
9	14.80	Phosphate	BMB	0.070	0.7378	0.7378	1.0000
Total:			**0.000**	**13.325**		**64.74**	

35 HS20091029-01MSD

Sample Name:	**HS20091029-01MSD**	*Injection Volume:*	**5.00**
Vial Number:	**RB1**	*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:	**09/23/2020 18:19**	*Sample Weight:*	**1.0000**

Run Time:



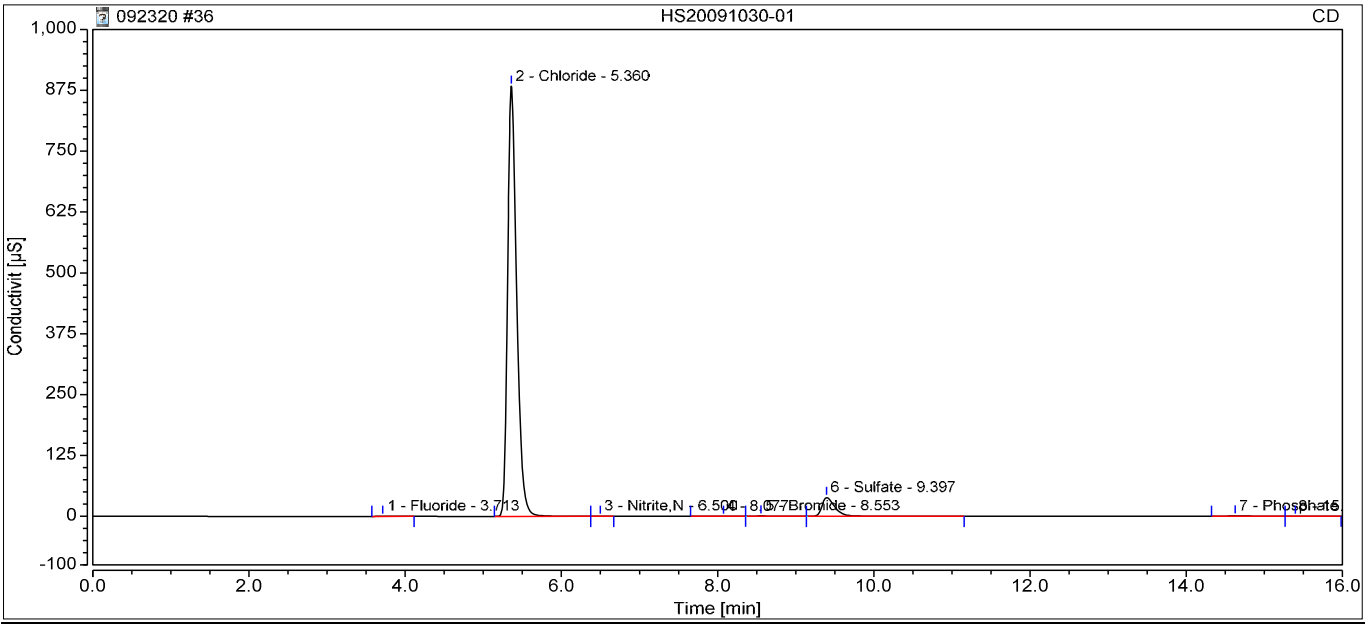
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.73	Fluoride	BMB	0.725	2.0601	2.0601	1.0000
2	5.41	Chloride	BMB	3.951	17.2076	17.2076	1.0000
3	6.51	Nitrite,N	BMB	1.031	2.1486	2.1486	1.0000
5	8.55	Bromide	M	0.261	2.5097	2.5097	1.0000
6	9.40	Sulfate	M	5.766	36.0136	36.0136	1.0000
7	9.75	Nitrate	M	1.357	2.1815	2.1815	1.0000
8	10.34	Chlorate	MB	0.244	2.2610	2.2610	1.0000
9	14.85	Phosphate	BMB	0.059	0.6828	0.6828	1.0000
Total:			**0.000**	**13.394**		**65.06**	

36 HS20091030-01

Sample Name:	**HS20091030-01**	*Injection Volume:*	**5.00**
Vial Number:	**RB3**	*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:	**09/23/2020 18:37**	*Sample Weight:*	**1.0000**

Run Time:



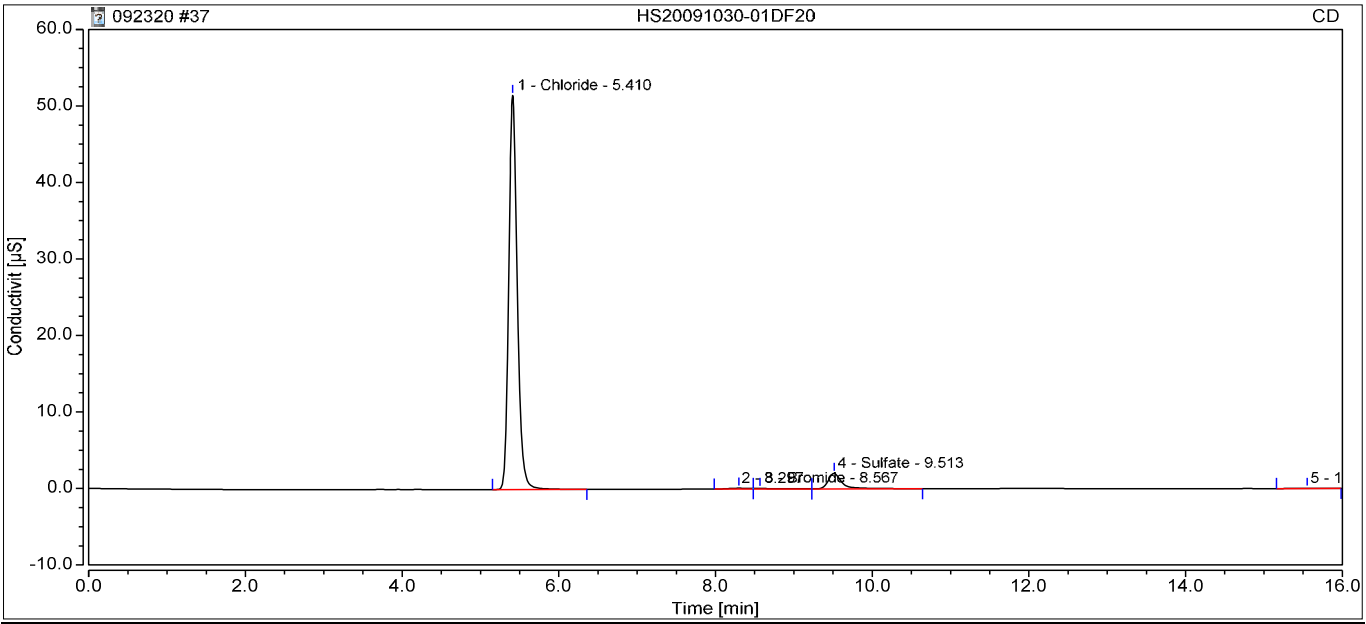
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.71	Fluoride	BMB	0.032	0.1033	0.1033	1.0000
2	5.36	Chloride	BMB	119.341	521.4095	521.4095	1.0000
3	6.50	Nitrite,N	BMB	0.012	n.a.	n.a.	1.0000
5	8.55	Bromide	M	0.159	1.4928	1.4928	1.0000
6	9.40	Sulfate	MB	7.463	46.6102	46.6102	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
7	14.63	Phosphate	BMB	0.297	1.9104	1.9104	1.0000
Total:			**0.000**	**127.305**		**571.53**	

37 HS20091030-01DF20

Sample Name:	**HS20091030-01DF20**	*Injection Volume:*	**5.00**
Vial Number:	**RB4**	*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:	**09/23/2020 18:55**	*Sample Weight:*	**1.0000**

Run Time:



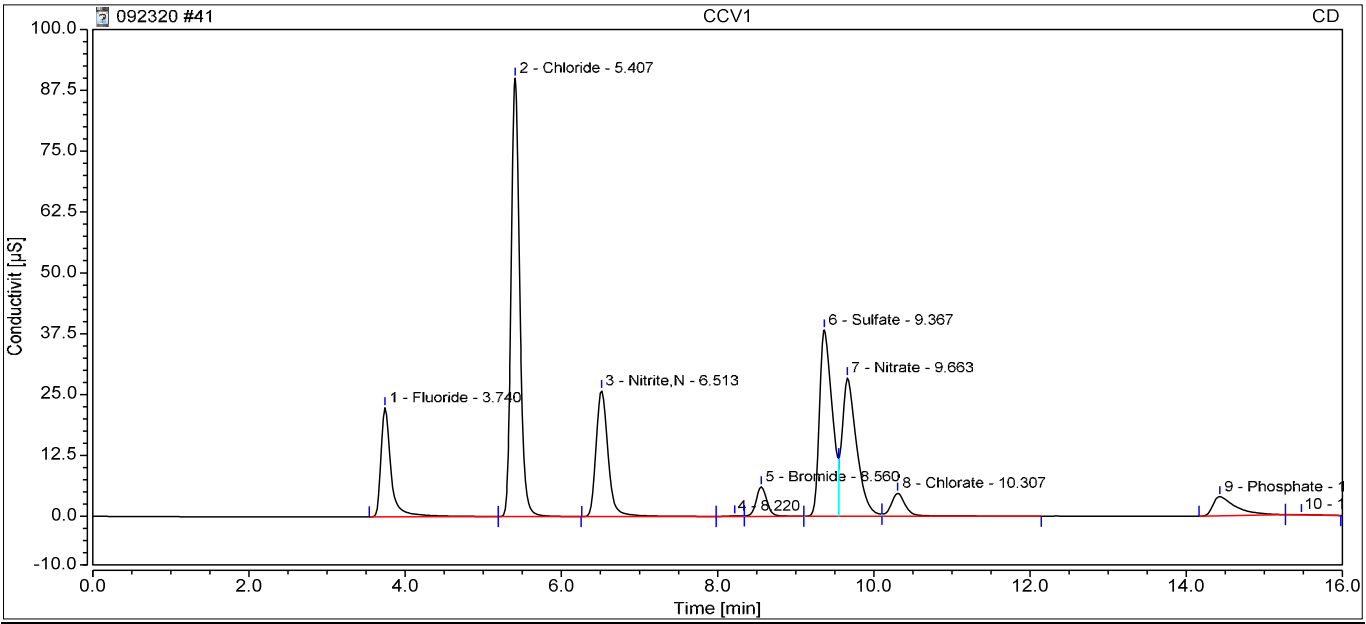
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	20.0000
1	5.41	Chloride	BMB	6.533	28.4903	569.8064	20.0000
n.a.	n.a.	Nitrite,N	n.a.	n.a.	n.a.	n.a.	20.0000
3	8.57	Bromide	M	0.028	0.1975	3.9498	20.0000
4	9.51	Sulfate	MB	0.415	2.6056	52.1114	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**	**6.977**		**625.87**	

41 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:	**09/23/2020 20:07**	*Sample Weight:*	**1.0000**

Run Time:



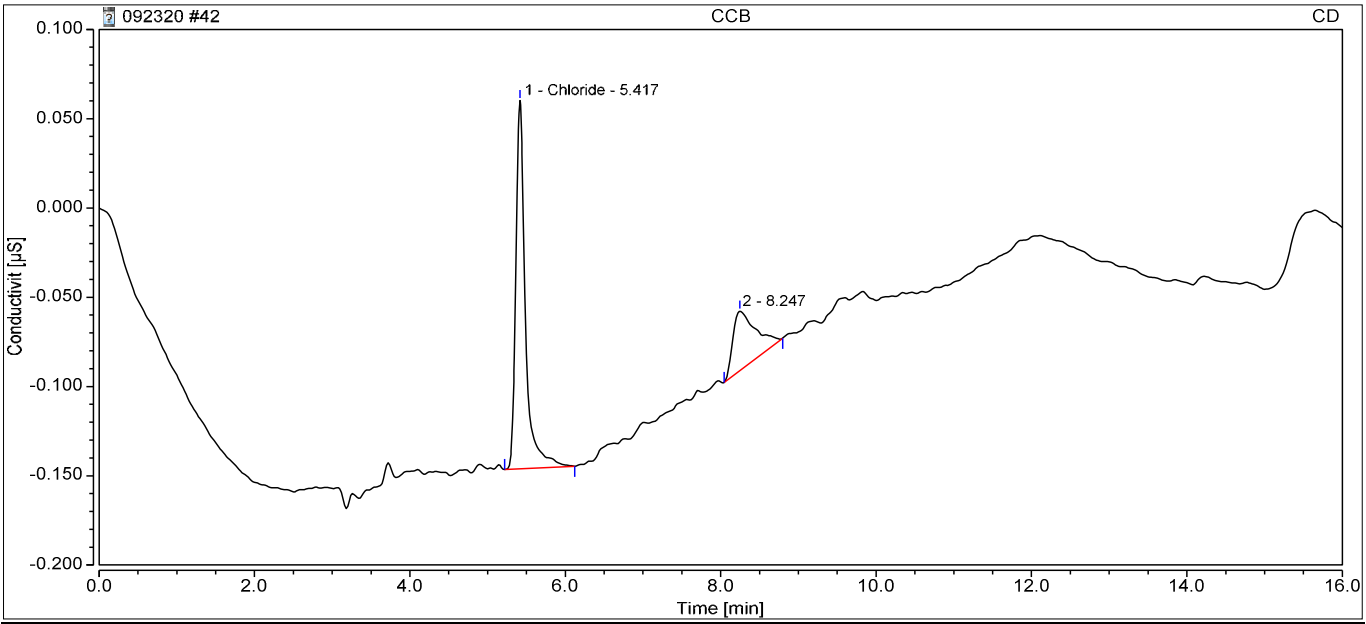
Integration Results

No.	Retention min	Peak Name	Peak Type	Area µS*min	Amount ppm	Concentration ppm	Dilution
1	3.74	Fluoride	BMB	3.375	9.5541	9.5541	1.0000
2	5.41	Chloride	BMB	11.461	50.0218	50.0218	1.0000
3	6.51	Nitrite,N	BMB	4.640	9.8097	9.8097	1.0000
5	8.56	Bromide	M	0.989	9.7248	9.7248	1.0000
6	9.37	Sulfate	M	7.235	45.1833	45.1833	1.0000
7	9.66	Nitrate	M	6.211	10.0686	10.0686	1.0000
8	10.31	Chlorate	MB	1.021	9.8781	9.8781	1.0000
9	14.43	Phosphate	BMB	1.341	7.2815	7.2815	1.0000
Total:			**0.000**	**36.271**		**151.52**	

42 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:	**09/23/2020 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
n.a.	n.a.	Fluoride	n.a.	n.a.	n.a.	n.a.	1.0000
1	5.42	Chloride	BMB	0.030	0.0729	0.0729	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**	**0.030**		**0.07**	

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WorkOrder: HS20091394

Longhorn GW Treatment Plant Weekly Samples

Bhate Environmental Associates, Inc.

Marcia Olive
445 Union Blvd Ste 129
Lakewood CO 80228

13-Oct-2020

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HS20091394 Longhorn GW Treatment Plant Weekly Samples Final

ALS WO# HS20091394

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October 08, 2020

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

Work Order: **HS20091394**

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

Dear Marcia Olive,

ALS Environmental received 4 sample(s) on Sep 30, 2020 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091394

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS20091394-01	LH18/24-SP650_092920	Water		29-Sep-2020 14:00	30-Sep-2020 10:00	☐
HS20091394-02	LH18/24-SP650_092920-AIX	Water		29-Sep-2020 14:00	30-Sep-2020 10:00	☐
HS20091394-03	LH18/24-SP650_092920-BIX	Water		29-Sep-2020 14:00	30-Sep-2020 10:00	☐
HS20091394-04	LH18/24-SP650_092920-Between	Water		29-Sep-2020 14:00	30-Sep-2020 10:00	☐

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091394

Work Order Comments

• TThe analysis for Perchlorate was subcontracted to ALS High Res Lab Houston, TX. Final report attached.

Work Order Comments

• The analysis for TOC was subcontracted to ALS Environmental in Kelso WA. Final report attached.

WetChemistry by Method E350.3

Batch ID: R369751

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

WetChemistry by Method E365.3

Batch ID: R369718

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

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder:HS20091394
Sample ID: LH18/24-SP650_092920
Lab ID:HS20091394-01
Collection Date: 29-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
AMMONIA AS N BY E350.3(ISE)		**Method:E350.3**						Analyst: MZD
Nitrogen, Ammonia (As N)	**15**	a	**0.10**	**0.20**	**0.20**	**mg/L**	1	02-Oct-2020 09:35
ORTHO PHOSPHATE (PO4) AS P BY E365.3		**Method:E365.3**						Analyst: MZD
Phosphorus, Total Orthophosphate (As P)	**3.20**	a	**0.100**	**0.250**	**0.250**	**mg/L**	10	01-Oct-2020 12:52
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	08-Oct-2020 17:46

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

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc. **ANALYTICAL REPORT**

Project: Longhorn GW Treatment Plant Weekly Samples WorkOrder:HS20091394

Sample ID: LH18/24-SP650_092920-AIX Lab ID:HS20091394-02

Collection Date: 29-Sep-2020 14:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	05-Oct-2020 14:50

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

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder:HS20091394
Sample ID: LH18/24-SP650_092920-BIX
Lab ID:HS20091394-03
Collection Date: 29-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	05-Oct-2020 14:50

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

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
ANALYTICAL REPORT
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder:HS20091394
Sample ID: LH18/24-SP650_092920-Between
Lab ID:HS20091394-04
Collection Date: 29-Sep-2020 14:00
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: GR
Subcontract Analysis	See Attached		0	0		NA	1	05-Oct-2020 14:50

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

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091394

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R369718 (0)	**Test Name :** ORTHO PHOSPHATE (PO4) AS P BY E365.3				**Matrix:** Water	
HS20091394-01	LH18/24-SP650_092920	29 Sep 2020 14:00			01 Oct 2020 12:52	10
Batch ID: R369751 (0)	**Test Name :** AMMONIA AS N BY E350.3(ISE)				**Matrix:** Water	
HS20091394-01	LH18/24-SP650_092920	29 Sep 2020 14:00			02 Oct 2020 09:35	1
Batch ID: R369825 (0)	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Water	
HS20091394-02	LH18/24-SP650_092920-AIX	29 Sep 2020 14:00			05 Oct 2020 14:50	1
HS20091394-03	LH18/24-SP650_092920-BIX	29 Sep 2020 14:00			05 Oct 2020 14:50	1
HS20091394-04	LH18/24-SP650_092920-Between	29 Sep 2020 14:00			05 Oct 2020 14:50	1
Batch ID: R370096 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Water	
HS20091394-01	LH18/24-SP650_092920	29 Sep 2020 14:00			08 Oct 2020 17:46	1

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091394

QC BATCH REPORT

Batch ID: R369718 (0) **Instrument:** UV-2450 **Method:** ORTHO PHOSPHATE (PO4) AS P BY E365.3

MBLK Sample ID: **MBLK-369718** Units: **mg/L** Analysis Date: **01-Oct-2020 12:52**
Client ID: Run ID: **UV-2450_369718** SeqNo: **5762925** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.0250	0.0250								U

LCS Sample ID: **LCS-369718** Units: **mg/L** Analysis Date: **01-Oct-2020 12:52**
Client ID: Run ID: **UV-2450_369718** SeqNo: **5762926** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.251	0.0250	0.25	0	100	85 - 115				

MS Sample ID: **HS20091003-04MS** Units: **mg/L** Analysis Date: **01-Oct-2020 12:52**
Client ID: Run ID: **UV-2450_369718** SeqNo: **5762928** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.292	0.0250	0.25	0.02	109	80 - 120				

MSD Sample ID: **HS20091003-04MSD** Units: **mg/L** Analysis Date: **01-Oct-2020 12:52**
Client ID: Run ID: **UV-2450_369718** SeqNo: **5762929** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phosphorus, Total Orthophosphate (As P)	0.284	0.0250	0.25	0.02	106	80 - 120	0.292	2.78	20	

The following samples were analyzed in this batch: HS20091394-01

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: HS20091394

QC BATCH REPORT

Batch ID: R369751 (0) **Instrument: WetChem_HS** **Method: AMMONIA AS N BY E350.3(ISE)**

MBLK Sample ID: **MBLK-369751** Units: **mg/L** Analysis Date: **02-Oct-2020 09:35**
Client ID: Run ID: **WetChem_HS_369751** SeqNo: **5763670** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	0.20	0.20								U

LCS Sample ID: **LCS-369751** Units: **mg/L** Analysis Date: **02-Oct-2020 09:35**
Client ID: Run ID: **WetChem_HS_369751** SeqNo: **5763671** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.42	0.20	10	0	104	80 - 120				

MS Sample ID: **HS20091327-01MS** Units: **mg/L** Analysis Date: **02-Oct-2020 09:35**
Client ID: Run ID: **WetChem_HS_369751** SeqNo: **5763674** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.1	0.20	10	0.254	98.4	80 - 120				

MSD Sample ID: **HS20091327-01MSD** Units: **mg/L** Analysis Date: **02-Oct-2020 09:35**
Client ID: Run ID: **WetChem_HS_369751** SeqNo: **5763675** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Ammonia (As N)	10.09	0.20	10	0.254	98.3	80 - 120	10.1	0.0991	20	

The following samples were analyzed in this batch: HS20091394-01

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
WorkOrder: **HS20091394**

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	624-2020	31-Dec-2020
North Dakota	R-193 2020-2021	30-Apr-2021
Texas	T104704231-20-26	30-Apr-2021

ALS Houston, US Date: 08-Oct-20

Client: Bhate Environmental Associates, Inc.
Project: Longhorn GW Treatment Plant Weekly Samples
Work Order: HS20091394

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS20091394-01	LH18/24-SP650_092920	Login	9/30/2020 1:05:19 PM	JRM	WET015
HS20091394-01	LH18/24-SP650_092920	Login	9/30/2020 1:05:19 PM	JRM	WET015
HS20091394-01	LH18/24-SP650_092920	Login	9/30/2020 1:05:19 PM	JRM	Sub
HS20091394-02	LH18/24-SP650_092920-AIX	Login	9/30/2020 1:05:19 PM	JRM	Sub
HS20091394-03	LH18/24-SP650_092920-BIX	Login	9/30/2020 1:05:19 PM	JRM	Sub

ALS Houston, US Date: 08-Oct-20

Sample Receipt Checklist

Work Order ID: HS20091394 **Date/Time Received:** 30-Sep-2020 10:00

Client Name: Bhate Environmental **Received by:** Jared R. Makan

Completed By:	/S/ Jared R. Makan	30-Sep-2020 13:15	**Reviewed by:**	/S/ RJ Modashia	30-Sep-2020 15:19
	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):	1.0°C/1.0°C UC/C	IR31
Cooler(s)/Kit(s):	44955	
Date/Time sample(s) sent to storage:	09/30/2020 13:15	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

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

Project No.
NWO1312.0150.0
16.0001

Job:
GROUNDWATER TREATMENT PLANT WEEKLY SAMPLES

Prepared By:
Scott Beesinger

P.O. Number

Field Sample I.D.	Sample Matrix	Date / Time	MS / MSD	No. OF CONTAINERS	Analyses: AMMONIA-N	TOTAL ORGANIC CARBON	ORTHO-PHOSPHATE	PERCHLORATE	Remarks (Preservatives, etc.)	Lab I.D.#
LH18/24-SP650_092920	Water	09/29/20 / 14:00		3	X	X			H2SO4	
LH18/24-SP650_092920	Water	09/29/20 / 14:00		1			X		NONE	
LH18/24-SP650_092920_AIX	Water	09/29/20 / 14:00		1				X	NONE	
LH18/24-SP650_092920_BIX	Water	09/29/20 / 14:00		1				X	NONE	
LH18/24-SP650_092920_Between	Water	09/29/20 / 14:00		1				X	NONE	

Additional Remarks: **Standard TAT on all parameters**

Relinquished By:	Date	Time	Received By:	Date	Time	Relinquished By:	Date	Time	Received By:	Date	Time
Scott Beesinger	09/29/20	14:30	JM	9/30/2020	1000						

For Lab Use Only

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

Remarks:

HS20091394

Bhate Environmental Associates, Inc.
Longhorn GW Treatment Plant Weekly Samples

44955 1.0
+31
cir-0.

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

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

44955

CUSTODY SEAL

Date: 9/29/20 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 09/30/20

44955 SEP 30 2020

Must Deliver Next Business Day
Time and Tempature Sensitive!

44955

ORIGIN ID:SGRA (303) 587-2450
SCOTT BEESINGER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE.
PH@202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 08SEP20
ACTWGT: 1.00 LB MAN
CAD: 3001130/CAFE3211
DIMS: 19x16x13 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: ADDITIONAL BOTTLES - BO 73689 - RJ
RMA:

FedEx Express

FedEx
TRK# 0221 1891 8880 1474

WED - 30 SEP AA
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

F10: 1b2785 29Sep2020 CGGA 560C2/A27E/8520

October 05, 2020 Service Request No:E2000929

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

Laboratory Results for: HS20091394

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory October 01, 2020
For your reference, these analyses have been assigned our service request number **E2000929.**

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.:**	E2000929
Project:	HS20091394	**Date Received:**	10/01/20
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

Three samples were received for analysis at ALS Environmental in Houston on 10/01/20.

The samples were received in good condition and re 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:

EQ2000476: 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 batch precision (MS/DMS) measurements were determined on another work order in the extraction batch. The LCS/LCSD recoveries passed.

Lowest practical dilution performed on sample E2000929-001 & E2000929-002.

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
Project: HS20091394 **Service Request:**E2000929

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E2000929-001	LH18/24-SP650_092920-AIX	9/29/2020	1400
E2000929-002	LH18/24-SP650_092920-BIX	9/29/2020	1400
E2000929-003	LH18/24-SP650_092920-Between	9/29/2020	1400

Service Request Summary

Folder #: **E2000929**
Client Name: ALS Environmental - US
Project Name: HS20091394
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: 10/01/20
Internal Due Date: 10/5/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: HS20091394
EDD: No EDD Specified

3 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3C
Pressure Gas:
Rush

Lab Samp No.	Client Samp No	Matrix	Collected	HOUSTON ClO4 DOD/6850
E2000929-001	LH18/24-SP650_092920-AIX	Water	09/29/20 1400	**IV**
E2000929-002	LH18/24-SP650_092920-BIX	Water	09/29/20 1400	**IV**
E2000929-003	LH18/24-SP650_092920-Between	Water	09/29/20 1400	**IV**

Service Request Summary

Folder #: **E2000929**
Client Name: ALS Environmental - US
Project Name: HS20091394
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: 10/01/20
Internal Due Date: 10/5/2020
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: N
Report to MDL?: Y
P.O. Number: HS20091394
EDD: No EDD Specified

3 250 mL-Plastic Bottle HDPE WM CLEAR Unpreserved
Location: EHRMS-WIC 3C
Pressure Gas:
Rush

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	ClO4 DOD/6850	3	Level II due 10/5,level IV 10/21

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.

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.

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
Arkansas Department of Environmental Quality	20-030-0	3/26/2021
Department of Defense	A2LA 2897.01	11/30/2021
Hawaii Department of Health	2020	4/30/2021
Illinois Environmental Protection Agency	2000322020-4	5/9/2021
Louisiana Department of Health and Hospitals	LA028-2020	12/31/2020
Maine Department of Health and Human Services	2020016	6/5/2022
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 York Department of Health	11707	3/31/2021
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

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:** **14802**

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:	HS20091394
TSR:	Danielle Winnings

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS20091394-02**	**LH18/24-SP650_092920-AIX**	**Water**	**29 Sep 2020 14:00**
	SUB_Perch-6850			08 Oct 2020
2.	**HS20091394-03**	**LH18/24-SP650_092920-BIX**	**Water**	**29 Sep 2020 14:00**
	SUB_Perch-6850			08 Oct 2020
3.	**HS20091394-04**	**LH18/24-SP650_092920-Between**	**Water**	**29 Sep 2020 14:00**
	SUB_Perch-6850			08 Oct 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 10/1/20 1100

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

ALS Environmental

Cooler Receipt Form

Project Chemist [illegible]

Client/Project Aus-t

Thermometer ID [illegible]

Date/Time Received: [illegible] Initials: [illegible] Date/Time Logged in: [illegible] Initials [illegible]

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?
-		[illegible]	[illegible]	[illegible]	[illegible]	☒
						☐
						☐
						☐

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#: 366862
Team: Semivoa GCMS/GRIVERA
Prep WorkFlow: GenExt28Day
Prep Method: Method
Status: Prepped
Prep Date/Time: 10/2/20 10:00

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E2000908-001	LH18/24-SP650_092220	.01	6850/ClO4 DOD			Water	10mL	
2	E2000929-001	LH18/24-SP650_092920-AIX	.01	6850/ClO4 DOD			Water	10mL	
3	E2000929-002	LH18/24-SP650_092920-BIX	.01	6850/ClO4 DOD			Water	10mL	
4	E2000929-003	LH18/24-SP650_092920-Between	.01	6850/ClO4 DOD			Water	10mL	
5	EQ2000476-01	MB		6850/ClO4 DOD			Liquid	10mL	
6	EQ2000476-02	LCS		6850/ClO4 DOD			Liquid	10mL	
7	EQ2000476-03	DLCS		6850/ClO4 DOD			Liquid	10mL	
8	EQ2000476-04	45MI20047 MS	.06	6850/ClO4 DOD			Liquid	10mL	
9	EQ2000476-05	45MI20047 DMS	.06	6850/ClO4 DOD			Liquid	10mL	
10	R2008696-002	45MI20044	.06	6850/ClO4 DOD			Water	10mL	
11	R2008696-004	45MI20065	.06	6850/ClO4 DOD			Water	10mL	
12	R2008696-006	45MI20047	.06	6850/ClO4 DOD			Water	10mL	
13	R2008696-008	45MI20073	.06	6850/ClO4 DOD			Water	10mL	
14	R2008696-010	45MI20042	.06	6850/ClO4 DOD			Water	10mL	
15	R2008696-012	45MI20066	.06	6850/ClO4 DOD			Water	10mL	
16	R2008696-014	45MI20043	.06	6850/ClO4 DOD			Water	10mL	
17	R2008729-003	45MI20054	.06	6850/ClO4 DOD			Water	10mL	
18	R2008729-004	45MI20051	.05	6850/ClO4 DOD			Water	10mL	
19	R2008729-006	45MI20053	.05	6850/ClO4 DOD			Water	10mL	
20	R2008729-008	45MI20055	.05	6850/ClO4 DOD			Water	10mL	
21	R2008763-002	45MI20058	.05	6850/ClO4 DOD			Water	10mL	
22	R2008763-004	45MI20064	.05	6850/ClO4 DOD			Water	10mL	
23	R2008763-006	45MI20075	.05	6850/ClO4 DOD			Water	10mL	
24	R2008763-008	45MI20057	.05	6850/ClO4 DOD			Water	10mL	
25	R2008763-010	45MI20068	.05	6850/ClO4 DOD			Water	10mL	

Spiking Solutions

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

EQ2000476-02	1.00µL	EQ2000476-03	1.00µL	EQ2000476-04	1.00µL	EQ2000476-05	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

E2000908-001	100.00µL	E2000929-001	100.00µL	E2000929-002	100.00µL	E2000929-003	100.00µL	EQ2000476-01	100.00µL	EQ2000476-02	100.00µL
EQ2000476-03	100.00µL	EQ2000476-04	100.00µL	EQ2000476-05	100.00µL	R2008696-002	100.00µL	R2008696-004	100.00µL	R2008696-006	100.00µL
R2008696-008	100.00µL	R2008696-010	100.00µL	R2008696-012	100.00µL	R2008696-014	100.00µL	R2008729-003	100.00µL	R2008729-004	100.00µL

Preparation Information Benchsheet

Prep Run#: 366862
Team: Semivoa GCMS/GRIVERA
Prep WorkFlow: GenExt28Day
Prep Method: Method
Status: Prepped
Prep Date/Time: 10/2/20 10:00

R2008729-006	100.00µL	R2008729-008	100.00µL	R2008763-002	100.00µL	R2008763-004	100.00µL	R2008763-006	100.00µL	R2008763-008	100.00µL
R2008763-010	100.00µL										

Preparation Steps

Step: Preparation
Started: 10/2/20 10:00
Finished: 10/2/20 11:30
By: GRIVERA
Comments

Comments: _____

Reviewed By: GR Date: 10/2/2020

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

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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:**	E2000929
Project:	HS20091394	**Date Collected:**	9/29/20 1400
Sample Matrix:	Water	**Date Received:**	10/ 1/20
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 10:12
Sample Name:	LH18/24-SP650_092920-AIX	**Units:**	µg/L
Lab Code:	E2000929-001	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_009	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	ND	U	1.00	0.500	0.250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	9/29/20 1400
Sample Matrix:	Water	**Date Received:**	10/ 1/20
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 10:20
Sample Name:	LH18/24-SP650_092920-BIX	**Units:**	µg/L
Lab Code:	E2000929-002	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_010	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	ND	U	1.00	0.500	0.250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	9/29/20 1400
Sample Matrix:	Water	**Date Received:**	10/ 1/20
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 10:28
Sample Name:	LH18/24-SP650_092920-Between	**Units:**	µg/L
Lab Code:	E2000929-003	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_011	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.591**	J	1.00	0.500	0.250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 14:54
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	EQ2000476-01	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_008	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	ND	U	0.100	0.0500	0.0250	

Accuracy & Precision

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394
Sample Matrix: Water

Service Request: E2000929
Date Analyzed: 10/ 2/20

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: 366862

	Lab Control Sample EQ2000476-02			Duplicate Lab Control Sample EQ2000476-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.104	0.100	104	0.100	0.100	100	84 - 119	3	15

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

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

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 18:11
Sample Name:	Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000476-02	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_033	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.104**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 18:19
Sample Name:	Duplicate Lab Control Sample	**Units:**	µg/L
Lab Code:	EQ2000476-03	**Basis:**	NA

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_034	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.100**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	10/ 2/20 - 10/ 5/20

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:	R2008696-006	**Basis:**	NA

Analytical Method: 6850
Prep Method: Method

		Batch QCMS Matrix Spike EQ2000476-04			Batch QCDMS Duplicate Matrix Spike EQ2000476-05					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	0.100	0.100	100	0.0925	0.100	93	84 - 119	8	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:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/2/20 17:55
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000476-04	**Basis:**	NA
Run Type:	Matrix Spike		

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

Analytical Method:	6850	**Analysis Lot:**	697873
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201002\20201002_031	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.100**		0.100	0.0500	0.0250	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/2/20
		Date Analyzed:	10/5/20 11:39
Sample Name:	Batch QC	**Units:**	µg/L
Lab Code:	EQ2000476-05	**Basis:**	NA
Run Type:	Duplicate Matrix Spike		

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

Analytical Method:	6850	**Analysis Lot:**	697897
Prep Method:	Method	**Extraction Lot:**	366862
Data File Name:	I:\LCMS01\DATA\20201005\20201005_014	**Instrument Name:**	E-LCMS-01
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	LOQ	LOD	MDL	Note
14797-73-0	Perchlorate	**0.0925**	J	0.100	0.0500	0.0250	

Initial Calibration

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20200915

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

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

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
16								
17								
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36								

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								

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

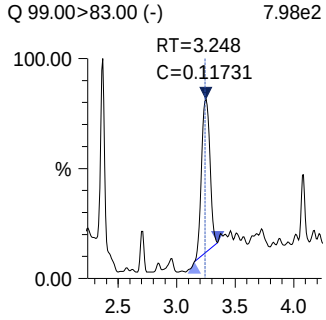
PERCHLORATE1

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

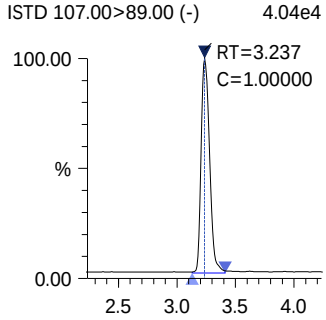
Perchlorate

Conc 0.11731
Area 2833



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 202512



ALS Group Houston

PERCHLORATE2

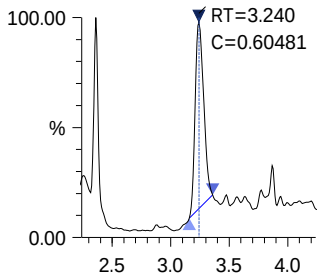
Date acquired: 9/15/2020 3:10:04 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_024.lcd
Vial: 6 | Inj. Volume: 25.0000uL | Tray: 1

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

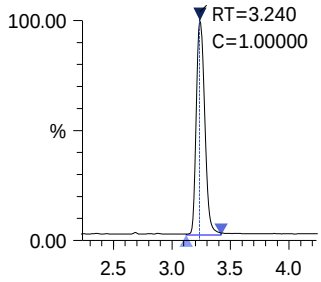
Q 99.00>83.00 (-) 2.66e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 176422

ISTD 107.00>89.00 (-) 3.50e4



ALS Group Houston

PERCHLORATE3

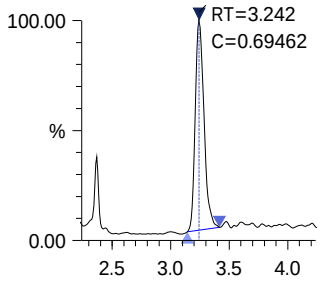
Date acquired: 9/15/2020 6:13:20 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_046.lcd
Vial: 7 | Inj. Volume: 25.0000uL | Tray: 1

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

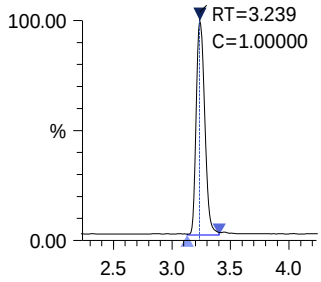
Q 99.00>83.00 (-) 2.91e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 194971

ISTD 107.00>89.00 (-) 3.85e4



ALS Group Houston

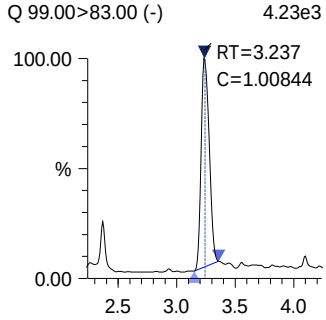
PERCHLORATE4

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

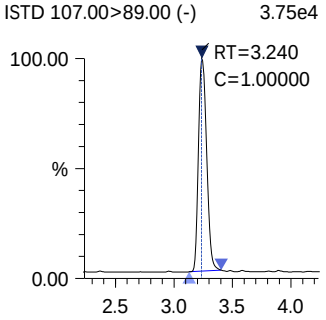
Perchlorate

Conc 1.00844
Area 19524



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 179246



ALS Group Houston

PERCHLORATE5

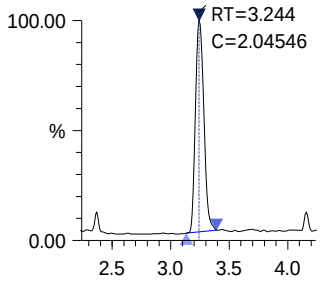
Date acquired: 9/15/2020 6:29:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20200915\20200915_048.lcd
Vial: 9 | Inj. Volume: 25.0000uL | Tray: 1

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

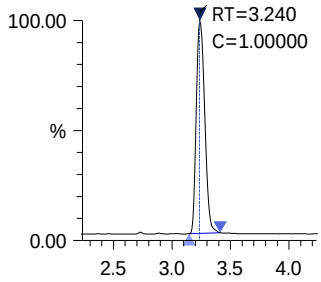
Q 99.00>83.00 (-) 7.92e3



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 175734

ISTD 107.00>89.00 (-) 3.56e4



ALS Group Houston

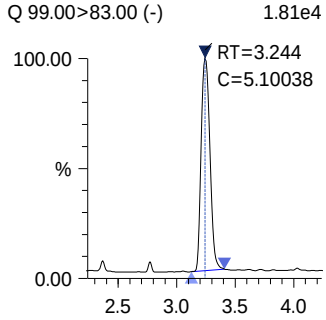
PERCHLORATE6

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

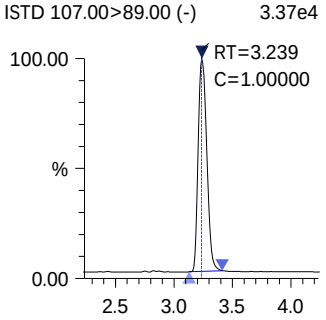
Perchlorate

Conc 5.10038
Area 92162



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 169754



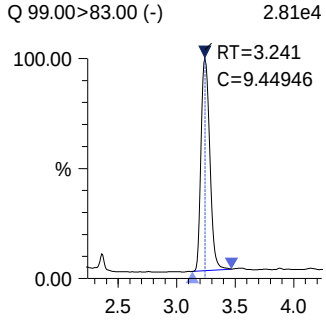
PERCHLORATE7

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

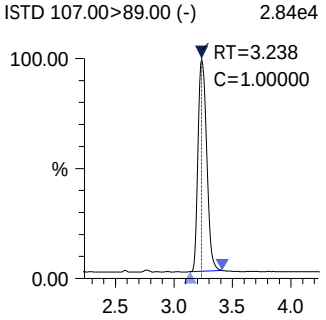
Perchlorate

Conc 9.44946
Area 144012



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 143911



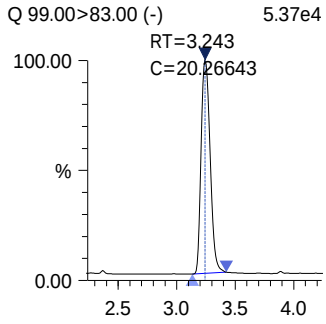
PERCHLORATE8

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

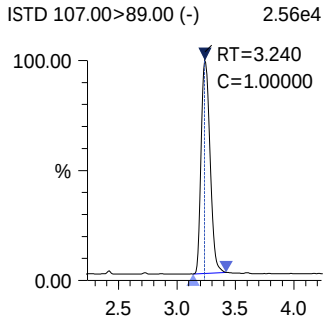
Perchlorate

Conc 20.26643
Area 284308



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 133870



ALS Group Houston

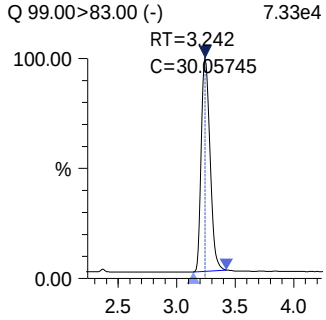
PERCHLORATE9

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

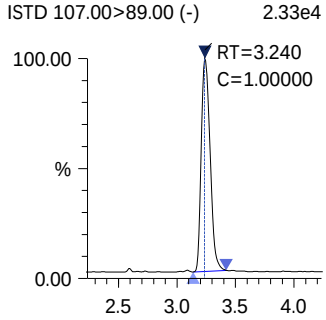
Perchlorate

Conc 30.05745
Area 377183



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 120846



ALS Group Houston

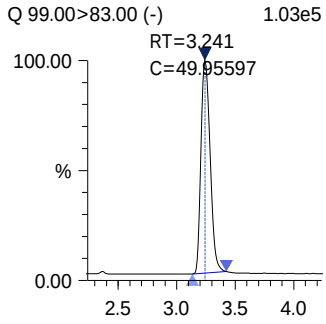
PERCHLORATE10

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

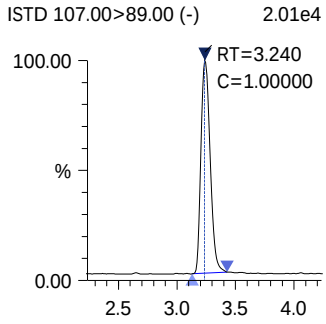
Perchlorate

Conc 49.95597
Area 553330



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 108660



ALS Group Houston

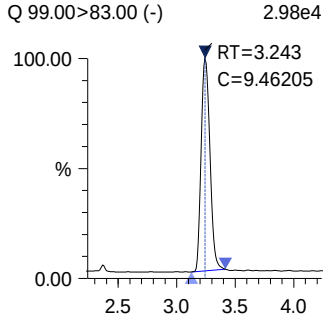
PERCHLORATEICV

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

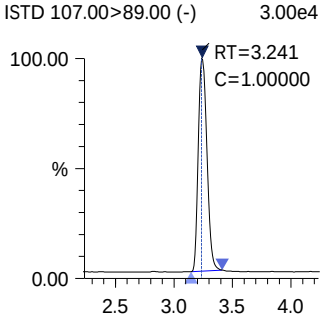
Perchlorate

Conc 9.46205
Area 152650



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 152342



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

20201002

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	null		20201002_001	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:14
2	null		20201002_002	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:19
3	null		20201002_003	Perchlorate6850b.lcm	1x	☒		10/2/2020 12:24
4	IB		20201002_004	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:21
5	IB		20201002_005	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:29
6	LODV		20201002_006	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:37
7	PERCHLORATE7		20201002_007	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 14:45
8	EQ2000476-01		20201002_008	Perchlorate6850b.lcm	1x	☒		10/2/2020 14:54
9	E2000908-001		20201002_009	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:02
10	E2000929-001		20201002_010	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:10
11	E2000929-002		20201002_011	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:17
12	E2000929-003		20201002_012	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:25
13	R2008696-002		20201002_013	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:33
14	R2008696-004		20201002_014	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:41
15	R2008696-006		20201002_015	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:49
16	R2008696-008		20201002_016	Perchlorate6850b.lcm	1x	☒		10/2/2020 15:57
17	R2008696-010		20201002_017	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:05
18	PERCHLORATE7		20201002_018	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 16:13
19	R2008696-012		20201002_019	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:21
20	R2008696-014		20201002_020	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:28
21	R2008729-003		20201002_021	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:36
22	R2008729-004		20201002_022	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:44
23	R2008729-006		20201002_023	Perchlorate6850b.lcm	1x	☒		10/2/2020 16:52
24	R2008729-008		20201002_024	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:00
25	R2008763-002		20201002_025	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:08
26	R2008763-004		20201002_026	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:16
27	R2008763-006		20201002_027	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:24
28	R2008763-008		20201002_028	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:32
29	PERCHLORATE7		20201002_029	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 17:39
30	R2008763-010		20201002_030	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:47
31	EQ2000476-04		20201002_031	Perchlorate6850b.lcm	1x	☒		10/2/2020 17:55
32	EQ2000476-05		20201002_032	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:03
33	EQ2000476-02		20201002_033	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:11
34	EQ2000476-03		20201002_034	Perchlorate6850b.lcm	1x	☒		10/2/2020 18:19
35	PERCHLORATE7		20201002_035	Perchlorate6850b.lcm	1x	☒	3100807-04	10/2/2020 18:27
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20201005

1st Review: Grivera
2nd Review: Hvan

Injection Log
LCMS01 -Shimadzu 8050

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

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		20201005_001	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:16
2	null		20201005_002	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:21
3	null		20201005_003	Perchlorate6850b.lcm	1x	☒		10/5/2020 9:26
4	PERCHLORATE7		20201005_007	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 9:41
5	E2000908-001X10		20201005_008	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:05
6	E2000929-001X10		20201005_009	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:12
7	E2000929-002X10		20201005_010	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:20
8	E2000929-003X10		20201005_011	Perchlorate6850b.lcm	1x	☒		10/5/2020 10:28
9	PERCHLORATE7		20201005_013	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 10:44
10	EQ2000476-05		20201005_014	Perchlorate6850b.lcm	1x	☒		10/5/2020 11:39
11	PERCHLORATE7		20201005_015	Perchlorate6850b.lcm	1x	☒	3100807-04	10/5/2020 11:47
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 2/20

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\20201002\20201002_007

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.09	NA	NA	NA	-9.1	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 2/20

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\20201002\20201002_018

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.89	NA	NA	NA	-11.1	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 2/20

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\20201002\20201002_029

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.95	NA	NA	NA	-10.5	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 2/20

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\20201002\20201002_035

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697873
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.00	NA	NA	NA	-10.0	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 5/20

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\20201005\20201005_007

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.85	NA	NA	NA	-11.5	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 5/20

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\20201005\20201005_013

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	8.90	NA	NA	NA	-11.0	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US
Project: HS20091394

Service Request: E2000929
Date Analyzed: 10/ 5/20

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\20201005\20201005_015

Calibration Date: 9/15/20
Calibration ID: EC2000032
Analysis Lot: 697897
Units: ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Perchlorate	10.0	9.01	NA	NA	NA	-9.9	± 15 %	Quadratic

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/2/20 14:45

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_007	**Lab Code:**	EQ2000479-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-01	148,035	3.13
Method Blank	EQ2000476-01	156,859	3.08
Batch QC	R2008696-006	134,632	3.13

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/2/20 16:13

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_018	**Lab Code:**	EQ2000479-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-02	135,238	3.14

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/2/20 17:39

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_029	**Lab Code:**	EQ2000479-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-03	139,489	3.14
Batch QCMS	EQ2000476-04	148,650	3.14
Lab Control Sample	EQ2000476-02	167,581	3.14
Duplicate Lab Control Sample	EQ2000476-03	157,295	3.14

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/2/20 18:27

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201002\20201002_035	**Lab Code:**	EQ2000479-04
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697873
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	EQ2000479-04	141,494	3.14

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/5/20 09:41

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201005\20201005_007	**Lab Code:**	EQ2000480-01
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-01	138,844	3.08
LH18/24-SP650_092920-AIX	E2000929-001	119,560	3.08
LH18/24-SP650_092920-BIX	E2000929-002	115,782	3.09
LH18/24-SP650_092920-Between	E2000929-003	117,650	3.09

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/5/20 10:44

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID:	I:\LCMS01\DATA\20201005\20201005_013	**Lab Code:**	EQ2000480-02
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-02	144,685	3.09
Batch QCDMS	EQ2000476-05	188,495	3.06

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:**	E2000929
Project:	HS20091394	**Date Analyzed:**	10/5/20 11:47

Internal Standard Area and RT Summary

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

File ID:	I:\LCMS01\DATA\20201005\20201005_015	**Lab Code:**	EQ2000480-03
Instrument ID:	E-LCMS-01	**Analysis Lot:**	697897
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	EQ2000480-03	152,873	3.10

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

ALS Group Houston

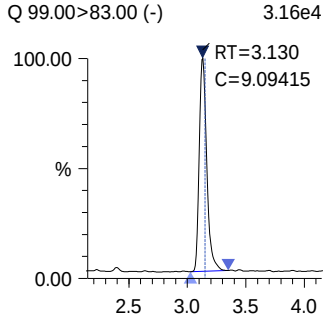
PERCHLORATE7

Date acquired: 10/2/2020 2:45:34 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_007.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	10/2/2020 2:45:34 PM	142622	9.09415	20201002_007	3.130	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 2:45:34 PM	148035	1.00000	20201002_007	3.128	25.0000	1.0000	4

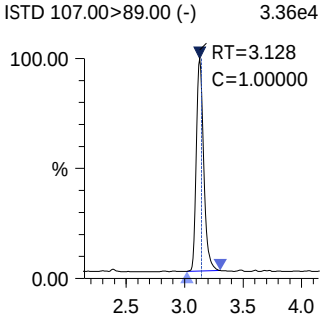
Perchlorate

Conc 9.09415
Area 142622



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148035



ALS Group Houston

EQ2000476-01

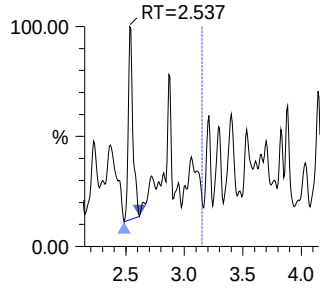
Date acquired: 10/2/2020 2:54:15 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_008.lcd
Vial: 24 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-01	10/2/2020 2:54:15 PM	----	----	20201002_008	----	25.0000	1.0000	24
Sodium Perchlorate-18O4_IS	EQ2000476-01	10/2/2020 2:54:15 PM	156859	1.00000	20201002_008	3.079	25.0000	1.0000	24

Perchlorate

Conc ----
Area ----

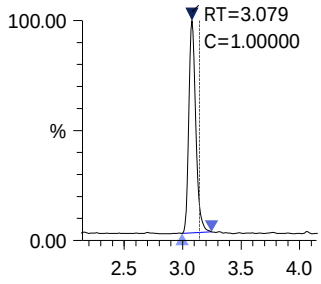
Q 99.00>83.00 (-) 4.70e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 156859

ISTD 107.00>89.00 (-) 3.77e4



ALS Group Houston

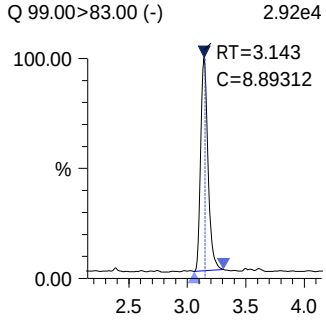
PERCHLORATE7

Date acquired: 10/2/2020 4:13:10 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_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	10/2/2020 4:13:10 PM	127441	8.89312	20201002_018	3.143	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 4:13:10 PM	135238	1.00000	20201002_018	3.140	25.0000	1.0000	4

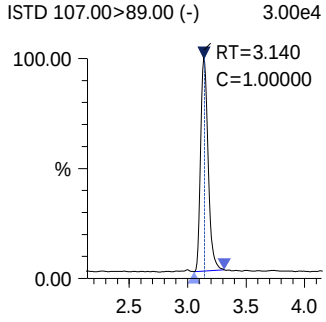
Perchlorate

Conc 8.89312
Area 127441



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 135238



ALS Group Houston

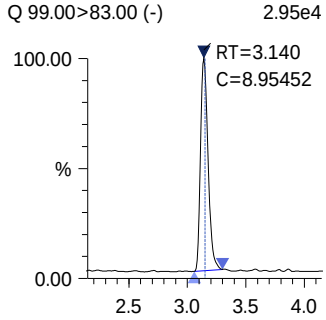
PERCHLORATE7

Date acquired: 10/2/2020 5:39:54 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_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	10/2/2020 5:39:54 PM	132345	8.95452	20201002_029	3.140	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 5:39:54 PM	139489	1.00000	20201002_029	3.139	25.0000	1.0000	4

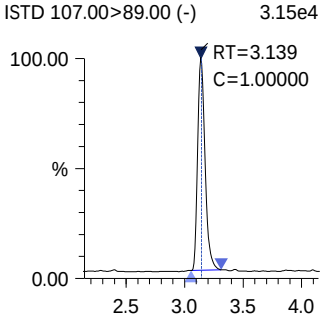
Perchlorate

Conc 8.95452
Area 132345



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 139489



ALS Group Houston

EQ2000476-04

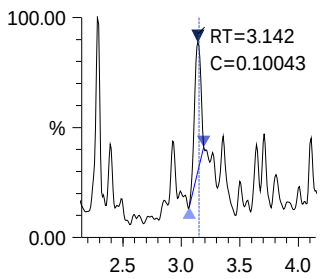
Date acquired: 10/2/2020 5:55:39 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_031.lcd
Vial: 45 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-04	10/2/2020 5:55:39 PM	1812	0.10043	20201002_031	3.142	25.0000	1.0000	45
Sodium Perchlorate-18O4_IS	EQ2000476-04	10/2/2020 5:55:39 PM	148650	1.00000	20201002_031	3.137	25.0000	1.0000	45

Perchlorate

Conc 0.10043
Area 1812

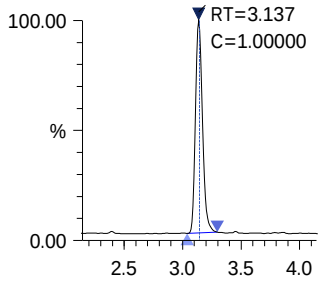
Q 99.00>83.00 (-) 7.82e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 148650

ISTD 107.00>89.00 (-) 3.53e4



ALS Group Houston

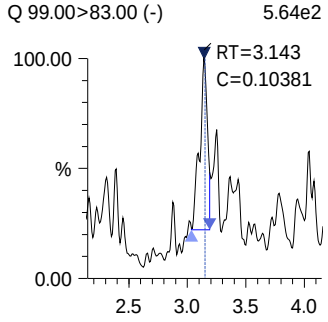
EQ2000476-02

Date acquired: 10/2/2020 6:11:24 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_033.lcd
Vial: 47 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-02	10/2/2020 6:11:24 PM	2103	0.10381	20201002_033	3.143	25.0000	1.0000	47
Sodium Perchlorate-18O4_IS	EQ2000476-02	10/2/2020 6:11:24 PM	167581	1.00000	20201002_033	3.143	25.0000	1.0000	47

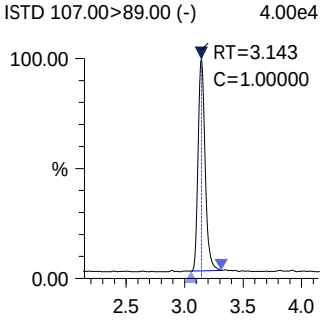
Perchlorate

Conc 0.10381
Area 2103



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 167581



ALS Group Houston

EQ2000476-03

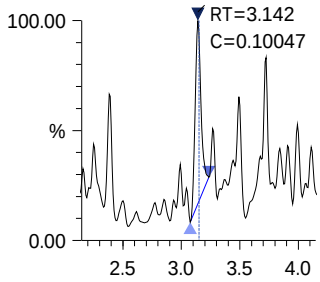
Date acquired: 10/2/2020 6:19:16 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_034.lcd
Vial: 48 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-03	10/2/2020 6:19:16 PM	1918	0.10047	20201002_034	3.142	25.0000	1.0000	48
Sodium Perchlorate-18O4_IS	EQ2000476-03	10/2/2020 6:19:16 PM	157295	1.00000	20201002_034	3.141	25.0000	1.0000	48

Perchlorate

Conc 0.10047
Area 1918

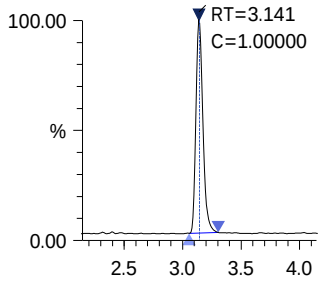
Q 99.00>83.00 (-) 6.42e2



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 157295

ISTD 107.00>89.00 (-) 3.75e4



ALS Group Houston

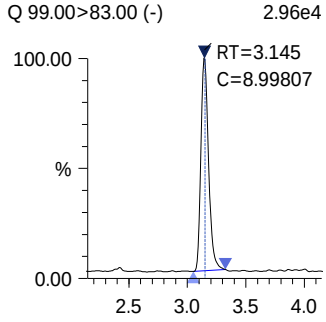
PERCHLORATE7

Date acquired: 10/2/2020 6:27:08 PM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201002\20201002_035.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	10/2/2020 6:27:08 PM	134894	8.99807	20201002_035	3.145	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/2/2020 6:27:08 PM	141494	1.00000	20201002_035	3.143	25.0000	1.0000	4

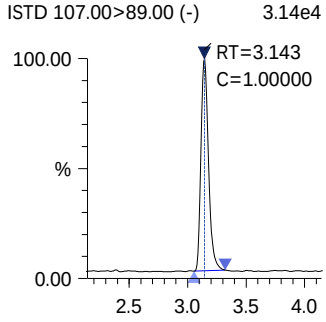
Perchlorate

Conc 8.99807
Area 134894



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 141494



ALS Group Houston

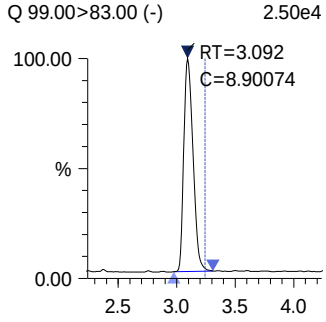
PERCHLORATE7

Date acquired: 10/5/2020 10:44:32 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_013.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	10/5/2020 10:44:32 AM	136458	8.90074	20201005_013	3.092	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/5/2020 10:44:32 AM	144685	1.00000	20201005_013	3.090	25.0000	1.0000	4

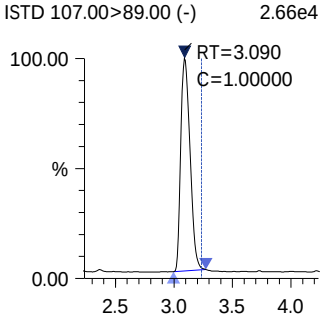
Perchlorate

Conc 8.90074
Area 136458



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 144685



ALS Group Houston

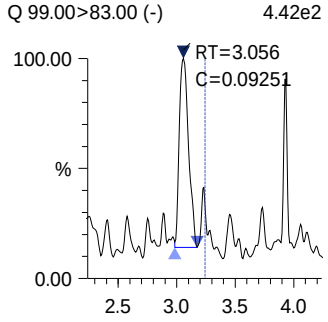
EQ2000476-05

Date acquired: 10/5/2020 11:39:09 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_014.lcd
Vial: 46 | Inj. Volume: 25.0000uL | Tray: 2

Name	Sample ID	Acquired Date	Area	Conc.	Data Filename	Found RT	Inj Vol	ISTD Amount	Vial
Perchlorate	EQ2000476-05	10/5/2020 11:39:09 AM	2138	0.09251	20201005_014	3.056	25.0000	1.0000	46
Sodium Perchlorate-18O4_IS	EQ2000476-05	10/5/2020 11:39:09 AM	188495	1.00000	20201005_014	3.055	25.0000	1.0000	46

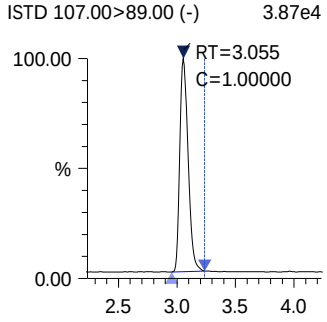
Perchlorate

Conc 0.09251
Area 2138



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 188495



ALS Group Houston

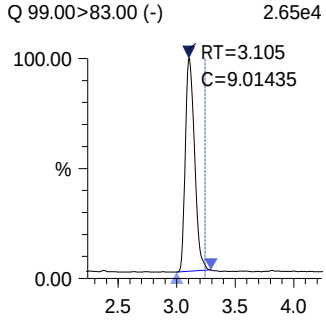
PERCHLORATE7

Date acquired: 10/5/2020 11:47:05 AM
Acquired by: System Administrator
Data File: I:\LCMS01\DATA\20201005\20201005_015.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	10/5/2020 11:47:05 AM	146003	9.01435	20201005_015	3.105	25.0000	1.0000	4
Sodium Perchlorate-18O4_IS	PERCHLORATE7	10/5/2020 11:47:05 AM	152873	1.00000	20201005_015	3.104	25.0000	1.0000	4

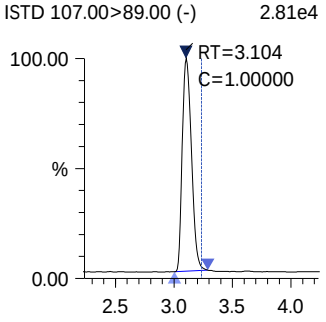
Perchlorate

Conc 9.01435
Area 146003



Sodium Perchlorate-18O4_IS

Conc 1.00000
Area 152873



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October 08, 2020

Analytical Report for Service Request No: K2008740

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

RE: HS20091394-01

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory October 01, 2020
For your reference, these analyses have been assigned our service request number **K2008740.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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Client: ALS Environmental - US
Project: HS20091394-01
Sample Matrix: Water

Service Request: K2008740
Date Received: 10/01/2020

CASE NARRATIVE

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

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 10/01/2020. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was 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 10/08/2020

Chain of Custody

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K2008740

Subcontract Chain of Custody

SAMPLING STATE: **Dept of Defense** **COC ID:** **14801**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS20091394
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS20091394-01**	**LH18/24-SP650_092920**	**Water**	**29 Sep 2020 14:00**
	TOC Analysis for DOD Level IV			08 Oct 2020

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: D. Lawal Date/Time: 9/30/20 18:00

Received By: Date/Time: 10/1/20 1000

Cooler ID(s): Temperature(s):

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

IC20087490

Purchase Order

PO: HS20091394

VENDOR:

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

Phone: +1 360 501 3312

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	14801
TSR:	Danielle Winnings

Item	Catalog No	Unit Price	Quantity	Ext Price
1. TOC Analysis for DOD Level IV	NA	$9.00	1	$9.00
			Order Total:	$9.00

PM Kelly

Cooler Receipt and Preservation Form

ient AIS- Houston Service Request K20 08740

eceived: 10/11/20 Opened: 10/11/20 By: BR Unloaded: 10/11/20 By: BR

Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*

Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*

Were custody seals on coolers? NA Y N If yes, how many and where? Front

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

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":

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

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

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.5	—	IR4		—	—	1891888099 13	

Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____

Were custody papers properly filled out (ink, signed, etc.)? NA Y N

Were samples received in good condition (unbroken) NA Y N

Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N

. Did all sample labels and tags agree with custody papers? NA Y N

. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N

. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N

. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N

. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, Resolutions: _____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K2008740
Project:	HS20091394-01	**Date Collected:**	09/29/20
Sample Matrix:	Water	**Date Received:**	10/1/20
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
LH18/24-SP650_092920	K2008740-001	**2.17**	0.50	0.20	0.07	1	10/07/20 18:15	
Method Blank	K2008740-MB	ND U	0.50	0.20	0.07	1	10/07/20 18:15	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K2008740
Project:	HS20091394-01	**Date Analyzed:**	10/07/20
Sample Matrix:	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:	698234

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2008740-LCS	24.1	25.0	96	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K2008740
Project: HS20091394-01

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	698234	KQ2014960-09	10/07/20 18:15	25.0	25.9	103	90-110
CCV2	698234	KQ2014960-10	10/07/20 18:15	25.0	25.4	102	90-110
CCV3	698234	KQ2014960-11	10/07/20 18:15	25.0	24.9	100	90-110
CCV4	698234	KQ2014960-12	10/07/20 18:15	25.0	25.2	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K2008740
Project: HS20091394-01

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	698234	KQ2014960-05	10/07/20 18:15	0.50	0.20	0.07	ND	U
CCB2	698234	KQ2014960-06	10/07/20 18:15	0.50	0.20	0.07	ND	U
CCB3	698234	KQ2014960-07	10/07/20 18:15	0.50	0.20	0.07	ND	U
CCB4	698234	KQ2014960-08	10/07/20 18:15	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # 8311 8157 8557 8870 8740

Tier: II IV II IV IV

Date Analyzed: 10-6-20

Analyst: MK

Run # 698234 / 698233

Analysis: TOC / DOC

DATA QUALITY REPORT
INORGANICS

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

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

COMMENTS:

Final Approved by: _____ Date: 10/7/20

DOREPORT

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 698233 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2008311-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.77 mg/L	10 mL	1.77 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.07 mg/L	10 mL	1.07 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.41 mg/L	10 mL	1.41 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.45 mg/L	10 mL	2.45 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-007	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.63 mg/L	10 mL	2.63 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-008	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.59 mg/L	10 mL	2.59 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-009	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.61 mg/L	10 mL	2.61 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-010	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.94 mg/L	10 mL	0.94 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-011	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.53 mg/L	10 mL	2.53 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
K2008311-012	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.54 mg/L	10 mL	2.54 mg/L	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-01	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-02	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	23.68 mg/L	10 mL	23.7 mg/L	1	0.07	0.50	95		10/6/20 18:15:00	N	II
KQ2014958-03	Carbon, Dissolved Organic (DOC)	DLCS		Surface Water	23.79 mg/L	10 mL	23.8 mg/L	1	0.07	0.50	95	<1	10/6/20 18:15:00	N	II
KQ2014958-04	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-05	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-06	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-07	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/6/20 18:15:00	N	II
KQ2014958-08	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.86 mg/L	10 mL	25.9 mg/L	1					10/6/20 18:15:00	N	II
KQ2014958-09	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.38 mg/L	10 mL	25.4 mg/L	1					10/6/20 18:15:00	N	II
KQ2014958-10	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.90 mg/L	10 mL	24.9 mg/L	1					10/6/20 18:15:00	N	II
KQ2014958-11	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.21 mg/L	10 mL	25.2 mg/L	1					10/6/20 18:15:00	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-01 **Analyst:** MKANALY **Analysis Lot:** 698234 **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
K2008157-001	Carbon, Total Organic	N/A		Water	2.34 mg/L	10 mL	2.34 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008557-001	Carbon, Total Organic	N/A		Water	5.30 mg/L	10 mL	5.30 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	II
K2008740-001	Carbon, Total Organic	N/A		Water	2.17 mg/L	10 mL	2.17 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008877-001	Carbon, Total Organic	N/A		Ground Water	1.58 mg/L	10 mL	1.58 mg/L	1	0.07	0.50			10/7/20 18:15:00	Y	IV
K2008877-002	Carbon, Total Organic	N/A		Ground Water	3.54 mg/L	10 mL	3.54 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008877-003	Carbon, Total Organic	N/A		Ground Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008877-004	Carbon, Total Organic	N/A		Ground Water	1.86 mg/L	10 mL	1.86 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008877-005	Carbon, Total Organic	N/A		Ground Water	6.09 mg/L	10 mL	6.09 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
K2008877-006	Carbon, Total Organic	N/A		Ground Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-01	Carbon, Total Organic	DUP	K2008877-001	Ground Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50		1	10/7/20 18:15:00	N	IV
KQ2014960-02	Carbon, Total Organic	MS	K2008877-001	Ground Water	28.02 mg/L	10 mL	28.0 mg/L	1	0.07	0.50	106		10/7/20 18:15:00	N	IV
KQ2014960-03	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-04	Carbon, Total Organic	LCS		Water	24.09 mg/L	10 mL	24.1 mg/L	1	0.07	0.50	96		10/7/20 18:15:00	N	IV
KQ2014960-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			10/7/20 18:15:00	N	IV
KQ2014960-09	Carbon, Total Organic	CCV		Water	25.86 mg/L	10 mL	25.9 mg/L	1					10/7/20 18:15:00	N	IV
KQ2014960-10	Carbon, Total Organic	CCV		Water	25.38 mg/L	10 mL	25.4 mg/L	1					10/7/20 18:15:00	N	IV
KQ2014960-11	Carbon, Total Organic	CCV		Water	24.90 mg/L	10 mL	24.9 mg/L	1					10/7/20 18:15:00	N	IV
KQ2014960-12	Carbon, Total Organic	CCV		Water	25.21 mg/L	10 mL	25.2 mg/L	1					10/7/20 18:15:00	N	IV

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

Schedule: 100620

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/10/07 08:07 - Wednesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K2008157-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K2008877-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K2008877-001D	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K2008877-001MS	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K2008877-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K2008877-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K2008877-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K2008877-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2008877-006	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2008311-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K2008311-002	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K2008311-003	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K2008311-004	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2008311-005	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
17	Sample	K2008311-006	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2008311-007	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
19	Sample	K2008311-008	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
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
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
22	Sample	K2008311-009	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K2008311-010	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K2008311-011	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K2008311-012	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K2008311-005	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K2008311-007	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K2008311-008	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K2008557-001	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K208740-001	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
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 100620
Tuesday, October 06, 2020 06:15 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/10/07 11:56 - Wednesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	100620	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) Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v7)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/10/06 18:15

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.41	27.59	14.18	49.65	05:27
2	TC Clean	8.03	21.21	13.18	49.84	07:17
3	TC Clean	1.28	14.58	13.30	49.75	07:00
4	TC Clean	0.76	14.06	13.30	50.00	07:03

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/10/06 18:47

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.20	13.01	13.21	49.62	05:25
2	TC Clean	3.49	16.68	13.19	49.77	07:18

3	TC Clean	0.64	13.85	13.21	50.00	07:03
4	TC Clean	0.47	13.55	13.08	49.87	07:02

Sample Type: Clean From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2020/10/06 19:18

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.51	12.67	13.18	49.67	05:17
2	TC Clean	3.48	16.35	12.87	49.76	07:16
3	TC Clean	0.39	13.46	13.07	49.89	07:02
4	TC Clean	0.29	13.36	13.07	49.77	07:02

Sample Type: Blank (Creating v1457) From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2020/10/06 19:50

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	-0.52	12.41	12.93	49.71	05:18
2	TC Clean	3.73	16.66	12.93	49.66	07:15
3	TC Clean	0.71	13.83	13.12	49.64	07:00
4	TC Clean	0.66	13.90	13.24	49.92	07:02
5	Reagent Blank	5.08	18.08	13.00	49.78	08:13
6	Acid Blank	-0.13	12.89	13.02	49.85	08:02

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/10/06 20:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.97	22.00	13.04	49.83	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 3

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.8559 ppm (PASS)	0.0000 ppm	0%	2020/10/06 20:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.8559	258.5594	191.27	204.27	13.01	49.94	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 4

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/10/06 21:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.74	20.71	12.98	49.85	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 4

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2020/10/06 21:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.62	20.42	12.80	49.99	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.0885 ppm (PASS)	0.0000 ppm	0%	2020/10/06 21:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.0885	240.8854	178.87	191.80	12.93	49.92	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0819 ppm	0.0000 ppm	0.0000%	2020/10/06 21:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0819	0.8188	9.82	22.51	12.69	49.89	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K2008157-001	2.3388 ppm	0.1008 ppm	4.3100%	2020/10/06 22:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4101	24.1009	26.15	38.83	12.68	50.03	10:31
2	TOC	2.2675	22.6753	25.15	38.05	12.90	49.99	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K2008877-001	1.5821 ppm	0.0274 ppm	1.7300%	2020/10/06 22:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6015	16.0152	20.48	33.42	12.95	49.96	10:25
2	TOC	1.5627	15.6274	20.20	33.25	13.04	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K2008877-001D	1.5647 ppm	0.0668 ppm	4.2700%	2020/10/06 23:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6119	16.1192	20.55	33.17	12.62	49.94	10:29
2	TOC	1.5174	15.1741	19.89	33.01	13.12	49.93	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K2008877-001MS	28.0161 ppm	0.0492 ppm	0.1800%	2020/10/06 23:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.9814	279.8136	205.53	218.52	12.99	49.94	10:28
2	TOC	28.0509	280.5092	206.01	219.09	13.08	49.94	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K2008877-002	3.5402 ppm	0.1013 ppm	2.8600%	2020/10/07 00:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.6118	36.1183	34.58	47.62	13.04	49.94	10:30
2	TOC	3.4686	34.6856	33.57	46.63	13.05	49.95	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K2008877-003	1.8176 ppm	0.0053 ppm	0.2900%	2020/10/07 00:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8213	18.2134	22.02	35.06	13.04	49.95	10:31
2	TOC	1.8138	18.1378	21.96	34.95	12.99	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K2008877-004	1.8570 ppm	0.0175 ppm	0.9400%	2020/10/07 01:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8694	18.6938	22.35	35.39	13.03	49.97	10:27
2	TOC	1.8446	18.4457	22.18	35.16	12.98	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.3819 ppm (PASS)	0.0000 ppm	0%	2020/10/07 01:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.3819	253.8195	187.94	200.90	12.96	49.96	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/10/07 01:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.59	20.69	13.10	50.00	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K2008877-005	6.0944 ppm	0.0221 ppm	0.3600%	2020/10/07 01:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.0787	60.7875	51.88	65.00	13.12	49.99	10:26
2	TOC	6.1100	61.0997	52.10	65.18	13.08	50.00	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K2008877-006	1.1383 ppm	0.0134 ppm	1.1800%	2020/10/07 02:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1478	11.4776	17.29	30.30	13.01	50.04	10:26
2	TOC	1.1288	11.2880	17.16	30.11	12.95	50.04	10:25

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K2008311-001	1.2840 ppm	0.0012 ppm	0.0900%	2020/10/07 02:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2832	12.8319	18.24	31.38	13.14	50.04	10:25
2	TOC	1.2849	12.8490	18.26	31.32	13.07	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K2008311-002	1.7744 ppm	0.0365 ppm	2.0600%	2020/10/07 03:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7486	17.4863	21.51	34.66	13.15	50.05	10:29
2	TOC	1.8002	18.0024	21.87	34.80	12.93	50.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K2008311-003	0.5426 ppm	0.0216 ppm	3.9800%	2020/10/07 03:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5274	5.2736	12.94	26.10	13.16	50.07	10:27
2	TOC	0.5579	5.5787	13.16	26.24	13.08	50.07	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K2008311-004	1.0718 ppm	0.0310 ppm	2.9000%	2020/10/07 04:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0498	10.4983	16.61	29.82	13.21	50.07	10:26
2	TOC	1.0937	10.9373	16.91	30.00	13.08	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2008311-005	1.4339 ppm	0.0000 ppm	0.0000%	2020/10/07 04:45

MR

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4339	14.3387	19.30	32.25	12.95	50.12	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K2008311-006	2.4503 ppm	0.0069 ppm	0.2800%	2020/10/07 05:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4454	24.4544	26.40	39.68	13.29	50.12	10:27
2	TOC	2.4551	24.5514	26.46	39.48	13.02	50.12	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K2008311-007	2.6971 ppm	0.0000 ppm	0.0000%	2020/10/07 05:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6971	26.9705	28.16	41.38	13.22	50.13	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K2008311-008	2.6425 ppm	0.0000 ppm	0.0000%	2020/10/07 05:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6425	26.4245	27.78	41.02	13.25	50.14	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.8974 ppm (PASS)	0.0000 ppm	0%	2020/10/07 05:57

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8974	248.9740	184.54	197.90	13.36	50.16	10:27

Completion State	Success Action	Method	Calibration	STD Conc - Pos B

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/10/07 06:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.86	21.08	13.22	50.16	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	0 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/10/07 06:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.82	21.20	13.38	50.18	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	23.6770 ppm (PASS)	0.0000 ppm	0%	2020/10/07 06:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.6770	236.7699	175.98	189.20	13.22	50.19	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

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

	Pos	BAT	Concentration	Dil	Sample ID	Min / Max	Result	Std. Dev.	RSD	Start Time

			(ppm)			(% dev)				
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	23.7946 ppm (PASS)	0.0000 ppm	0%	2020/10/07 06:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.7946	237.9459	176.81	190.08	13.28	50.19	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	25 ppmC

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K2008311-009	2.6083 ppm	0.0249 ppm	0.9500%	2020/10/07 07:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5907	25.9071	27.42	40.72	13.30	50.18	10:27
2	TOC	2.6259	26.2592	27.66	40.84	13.18	50.18	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K2008311-010	0.9351 ppm	0.0634 ppm	6.7800%	2020/10/07 07:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8903	8.9031	15.49	28.77	13.28	50.16	10:29
2	TOC	0.9800	9.7997	16.12	29.31	13.19	50.15	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K2008311-011	2.5265 ppm	0.0001 ppm	0.0000%	2020/10/07 08:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5264	25.2641	26.96	40.12	13.16	50.11	10:28
2	TOC	2.5266	25.2656	26.96	40.26	13.29	50.15	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K2008311-012	2.5421 ppm	0.0321 ppm	1.2600%	2020/10/07 08:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5194	25.1943	26.92	40.18	13.27	50.16	10:28
2	TOC	2.5648	25.6476	27.23	40.33	13.10	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	16	TOC	K2008311-005	1.4069 ppm	0.0034 ppm	0.2400%	2020/10/07 09:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4045	14.0450	19.09	32.07	12.98	50.04	10:26
2	TOC	1.4094	14.0935	19.13	32.25	13.12	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	18	TOC	K2008311-007	2.6313 ppm	0.0468 ppm	1.7800%	2020/10/07 09:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5983	25.9826	27.47	40.64	13.17	50.00	10:28
2	TOC	2.6644	26.6441	27.93	41.08	13.15	50.04	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	19	TOC	K2008311-008	2.5927 ppm	0.0030 ppm	0.1200%	2020/10/07 10:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5948	25.9484	27.44	40.63	13.18	50.06	10:27
2	TOC	2.5906	25.9056	27.41	40.61	13.19	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K2008557-001	5.2985 ppm	0.0286 ppm	0.5400%	2020/10/07 10:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.3188	53.1878	46.55	59.41	12.86	49.96	10:26

2	TOC	5.2783	52.7830	46.27	59.06	12.79	50.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K208740-001	2.1675 ppm	0.0083 ppm	0.3800%	2020/10/07 10:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1616	21.6161	24.40	37.49	13.09	50.02	10:29
2	TOC	2.1733	21.7330	24.49	37.36	12.87	49.96	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.2416 (IC) (v1457)	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	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)	25.2062 ppm (PASS)	0.0000 ppm	0%	2020/10/07 11:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2062	252.0618	186.71	199.68	12.97	50.04	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/10/07 11:39

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.83	20.99	13.16	49.99	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v38)	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
v1456	1.6967	0.1340	0.0000	0.0000	0.0000	2020/10/05 21:31	Fusion1 (Fusion1)
v1457	1.6940	-0.1340	0.0000	0.0000	0.0000	2020/10/06 20:38	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v38
Ver Creation: 2020/06/13 16:40
Comment:
Operator: Fusion1 (Fusion1)
Basic Analysis Type: TOC
Calibration curve formula: TOC: y = 7.015x + 9.892
r^2 value: TOC: r^2 = 0.99974

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	9.5750	0.0000		2020/06/13 15:13
0.500 ppm	12.9010	0.5000		2020/06/13 15:28
1.0 ppm	15.6320	1.0000		2020/06/13 15:42
5.0 ppm	43.2510	5.0000		2020/06/13 15:56
10 ppm	82.4040	10.0000		2020/06/13 16:11
25 ppm	188.6880	25.0000		2020/06/13 16:25
50 ppm	358.6500	50.0000		2020/06/13 16:39

Methods

Name: CAS_salt_010711 (TOC)

Version: v4
Ver Creation: 2019/02/21 17:57
Comment:
Operator: Fusion1 (Fusion1)

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

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7

PreSpargeTime	2.00 mins	SyringeSpeedDIWater	7
SystemFlow	500 ml/min	NDIRPressurization	60 psig
		SyringeSpeedSampleDispense	5
		SyringeSpeedSampleAspirate	4
		SyringeSpeedUVDispense	5
		SyringeSpeedUVAspirate	5
		SyringeSpeedICDispense	5
		SyringeSpeedICAspirate	5
		NDIRPressureStabilize	1.75 min
		SampleMixing	Off
		SampleMixingCycles	1
		SampleMixingVolume	10.0
		LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/10/07 11:53

ALS Environmental

StarLIMS Ru 698233/698234

Analysis: DOC/TOC

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

CCV: 19-GEN-8-40-C 50 ppm LCS: 19-GEN-8-41-k 25.0 ppm

ICAL Date: 6/16/2020

ICAL ID: 19-GEN-8-22-G

ICS ID: 19-GEN-8-35-J

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 19-GEN-8-15-B 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 19-GEN-08-45-J

21 % H3PO4: 19-GEN-08-46-F

Equipment ID: K-TOC-03

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

FILTER ID: 16967789

Analyzed By:	MK	Date Analyzed:	10-6-20
Reviewed By:	JC	Date Reviewed:	10/7/20

HS20091394 Wet Chem Raw Data (NIT-AMM_W- E350.3 - ISE)

ALS WO# HS20091394

NIT AMN- W-TSE /350.3

Logbook **31220**

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Ion Selective Electrode Logbook

Analyst: MD	Date: 10/2/20 9:35AM
Method: SM4500NH3-D/EPA 350.3 or SM4500 NH3 B-F	

Probe Calibration Date:	Cal Std ID:	Probe ID:
10/2/20	3140661(4-08)	X01-11806

Std Level		mV	Conc., mg/L:
STD 1 (mg/L):	0.2	133.0	0.201
STD 2 (mg/L):	1	94.9	0.999
STD 3 (mg/L):	5	52.03	5.005
LSC / MS Spike ID:		3100602320	
ICV Cal STD ID:		3140610	
DPD Reagent ID:		3100602305	

Sodium Thiosulfate ID:		
Std Level	mV	Conc., mg/L:
STD 4 (mg/L) 10	35.0	9.988
STD 5 (mg/L) 50	-6.2	52.016

ICAL Date & Slope: 99.7 %/ 1-58.8 mv

WO # / SX #	Bottle #	Initial g or ml	Final Vol. ml	Dilution Factor	Initial Conc. mg/L	Final Conc. mg/L	Chlorine Check (+/ –)	Comments
ICV		5ml	50ml		10.193			
CCB					0.009			
MBLK					0.010			
LCS					10.421			
MS2009/327-01					0.254		-ve	
1327-01 MS					10.098			
1327-01 MSD					10.088			
1396-01					14.764		-ve	
1343-01		1ml	50ml	50X	11.026		+ve	Rechecked
1345-01					11.633			
CCV		50ml	50ml		9.946			
CCB					0.009			

Batch ID:	Reported By	Reviewed By:
369750 / 369751	MD	YP

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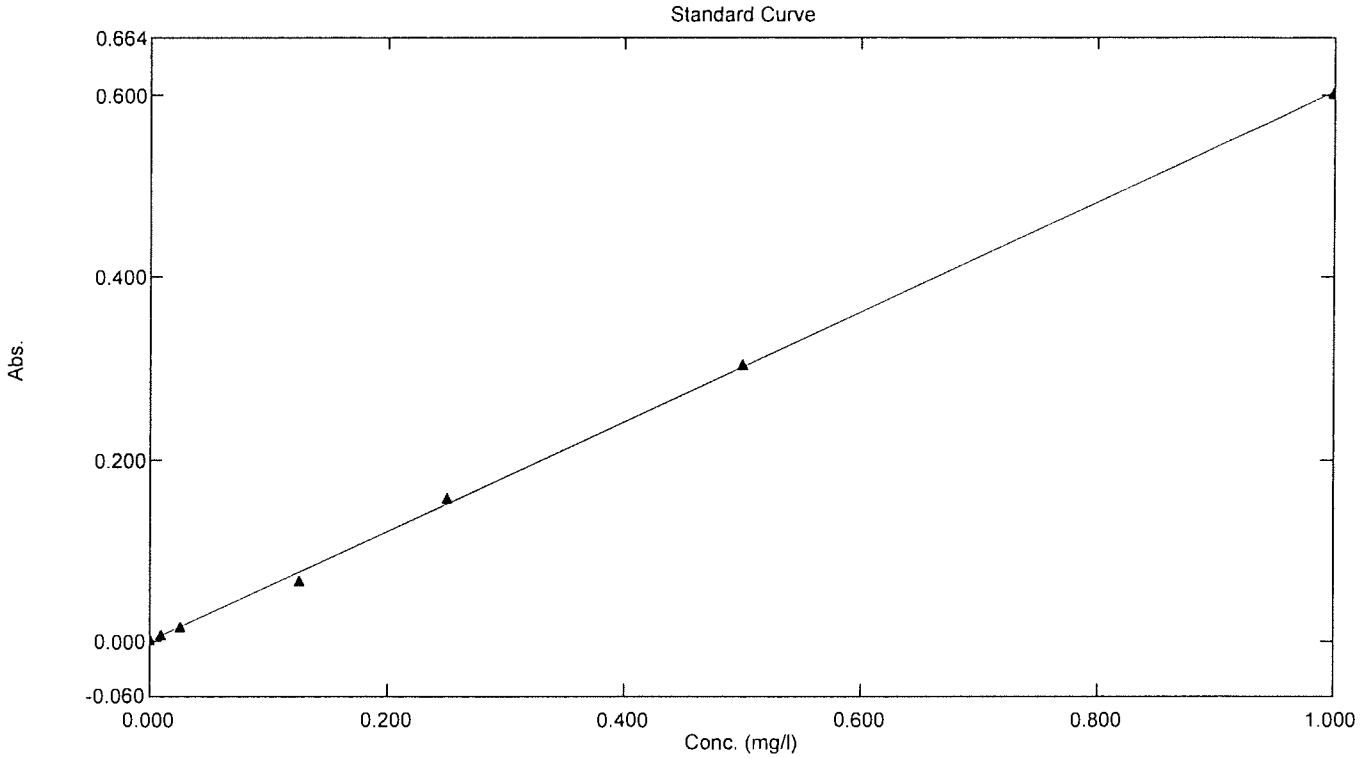
HS20091394 Wet Chem Raw Data (P-ORTHO)

ALS WO# HS20091394

Standard Table Report

10/13/2020 12:31:43 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\2020\100120_P_ORTHO_W.pho



Correlation Coefficient r2 = 0.99955

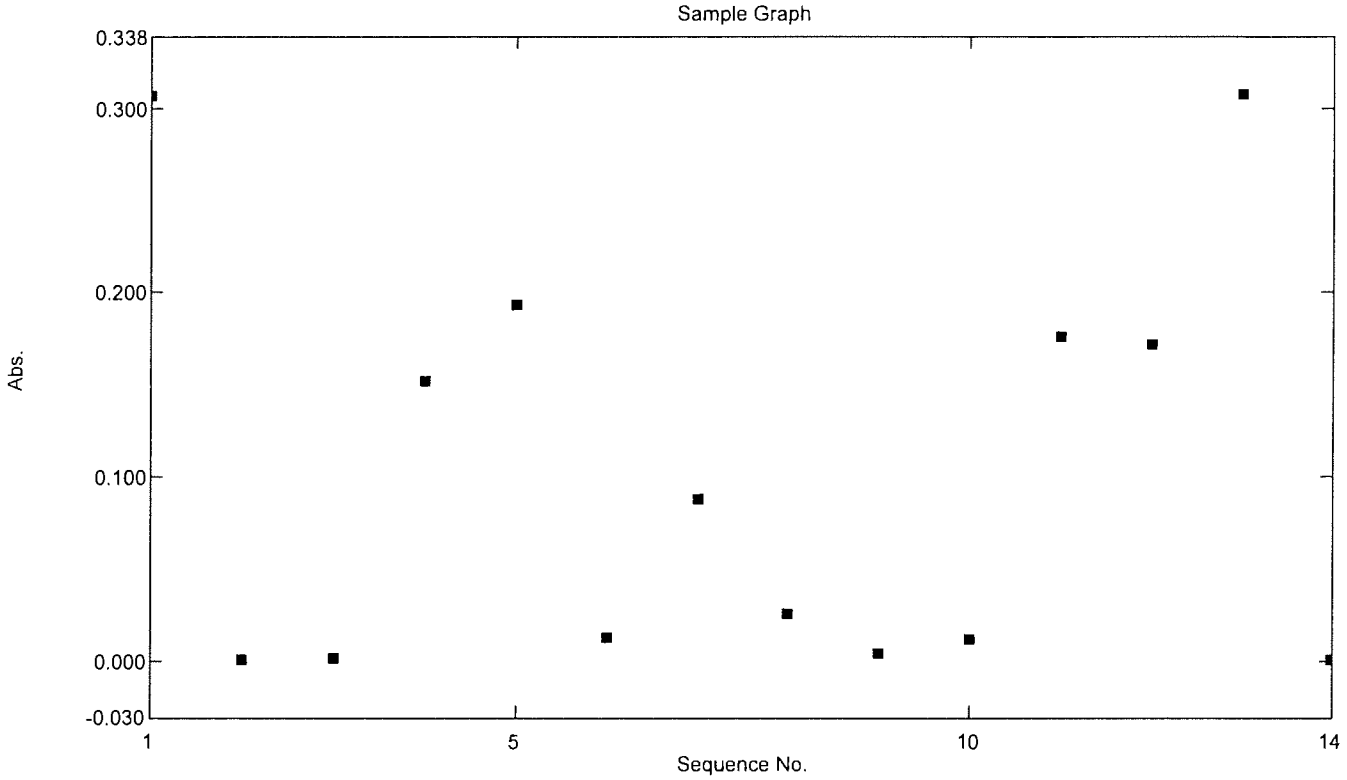
Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	0.002	1.000	
2	STD2	Standard		0.010	0.007	1.000	
3	STD3	Standard		0.025	0.015	1.000	
4	STD4	Standard		0.125	0.066	1.000	
5	STD5	Standard		0.250	0.157	1.000	
6	STD6	Standard		0.500	0.305	1.000	
7	STD7	Standard		1.000	0.602	1.000	
8							

Sample Table Report

10/13/2020 12:31:46 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\O_PO4_UNKNOWN\2020\100120_P_ORTHO_W.ph



Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.508	0.307	314065605 WC-14
2	CCB	Unknown		0.001	0.001	
3	MBLK	Unknown		0.003	0.002	
4	LCS	Unknown		0.251	0.152	314065604 WC-14
5	HS20091394.01	Unknown		0.320	0.193	12:51PM,PF:10X
6	HS20010003.01	Unknown		0.022	0.013	12:52PM
7	HS20010003.02	Unknown		0.146	0.088	12:52PM
8	HS20010003.03	Unknown		0.043	0.026	12:53PM
9	HS20010003.03.	Unknown		0.007	0.004	PF,10X,12:53PM
10	HS20010003.04	Unknown		0.020	0.012	12:54PM
11	HS20010003.04MS	Unknown		0.292	0.176	12:54PM
12	HS20010003.04MS D	Unknown		0.284	0.172	12:55PM
13	CCV2	Unknown		0.509	0.308	
14	CCB2	Unknown		0.002	0.001	C-314066302 UV-11
15						

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

December 9, 2020

DAIM-ODB-LO

Mr. William Rhotenberry
US Environmental Protection Agency
Federal Facilities Section R6
1201 Elm Street, Suite 500
Dallas, Texas 75270-2102

Re: Draft Final 6th Annual Remedial Action Operations Report (September 2018-August 2019) LHAAP-35A (58), Shops Area Longhorn Army Ammunition Plant, Karnack, Texas, December 2020

Dear Mr. Rhotenberry,

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's (EPA) comment on the Draft version received on November 10, 2020. A response to the EPA comment on the Draft version of the document is included with this Draft Final. In accordance with the FFA, the Draft Final will be considered Final after 30 days without further comment.

The document was revised by Bhate Environmental Associates, Inc., (Bhate) 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.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX

P. Bruckwicki, Caddo Lake NWR, TX
A. Williams, USACE, Fort Worth District, (Located in Tulsa, OK)
A. Maly, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO (for project files)

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

December 9, 2020

DAIM-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 6th Annual Remedial Action Operations Report (September 2018-August 2019) LHAAP-35A (58), Shops Area Longhorn Army Ammunition Plant, Karnack, Texas, December 2020

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's (EPA) comment on the Draft version received on November 10, 2020. A response to the EPA comment on the Draft version of the document is included with this Draft Final. In accordance with the FFA, the Draft Final will be considered Final after 30 days without further comment.

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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.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
W. Rhotenberry, USEPA Region 6, Dallas, TX
L. Poulos, USEPA Region 6, Dallas, TX
P. Bruckwicki, Caddo Lake NWR, TX

A. Williams, USACE, Fort Worth District, (Located in Tulsa, OK)
A. Maly, USAEC, San Antonio, TX
K. Nemmers, Bhate, Lakewood, CO (for project files)

Responses to Comments on
Draft Year 6 Annual Remedial Action Operation Report (September 2019 to August 2020) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
12 November 2020

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/ Paragraph	Comment (November 10, 2020)	C, D, E or X[1]	Response (November 12, 2020)	A or D[2]	Comment	C, D, E or X[1]	Response	A or D[2]
Reviewer: William Rhotenberry, USEPA, Region 6 **Respondent:** Kim Nemmers, Bhate									
1	Page 1-5 /5th paragraph	Suggest including an example of water levels between shallow and intermediate zone to support the difference in water levels. Suggest adding a sentence at the end of the paragraph that states that there is vertical connectivity based on water levels from the intermediate and deep zone.	C	Concur. The 5th paragraph on Page 1-5 will be revised to state: "Based on groundwater surface measurements obtained in October 2013, groundwater elevation for the intermediate zone was approximately 178 ft above msl, and the elevation of deep zone groundwater was 175.75 ft above msl. The groundwater levels indicate hydraulic connectivity between the intermediate and deep zones. The occurrence of predominantly clay soil beneath the shallow zone impedes the vertical migration of groundwater, which is corroborated by the difference in groundwater elevations between the shallow zone (185 to 202 ft above msl) and the intermediate and deep zones (175 to 178 ft above msl) (AECOM, May 2016)."					
2	Page 2-2/ Section 2.2.1/ last sentence	Assume 35AWW05 will be sampled again at some point since missing off the master sampling plan. Recommend just for verification. Also, suggest including references to figures on Section 2.2 for a reader to look at to see well locations.	C	Concur. The last sentence of Section 2.2.1 will be revised to state: "Intermediate groundwater zone well, 35AWW05 was inadvertently omitted from the master sampling plan for December 2019 and June 2020 but the well will be sampled in future events including the Year 7 Semi-Annual RA(O) events." Additionally, reference to Figure 2 will be added to Sections 2.2.1 and 2.2.2 as suggested.					
3	Table 1: Page 2-3/ 2nd paragraph	Figure 2 and table 1 here are referenced but noticed that on table 1 the screen intervals for wells sampled during June 2020 are slightly different (some up to about .5 feet ie 35AWW06). Reviewer believes that APTIMs found some errors in the recording of the screen lengths and they are showing the adjusted ones in some of these cases. Assume further in document this might be mentioned. Please see well 35AWW11 on 9/11/2019 and 6/23/2020. Different screen intervals on both dates. There are other ones in table that also show different screen intervals. Please revise or clarify why there are differences in screen intervals for wells.	C	Concur. Some inconsistencies have been identified in the LHAAP database following a thorough review of well completion logs regarding total well depths and screened intervals. Therefore, screened intervals were revised for some wells based on total well depths in the database. Table 1 will be revised to reflect the correct screened intervals and will include a new column indicating the rationale for the changed screened intervals and a new column for pump inlet depth (ft from top of casing). The groundwater sample collection forms will be revised for consistency. A note will be inserted on the cover sheet for Appendix E (Groundwater Sample Collection Forms) to state: *The monitoring well sample collection forms for the September 2019, December 2019, March 2020, and June 2020 sampling event have been revised to correct the screen interval to ensure they match the depth in the LHAAP-58 database.*					

Responses to Comments on
Draft Year 6 Annual Remedial Action Operation Report (September 2019 to August 2020) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
12 November 2020

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/ Paragraph	Comment (November 10, 2020)	C, D, E or X[1]	Response (November 12, 2020)	A or D[2]	Comment	C, D, E or X[1]	Response	A or D[2]
4	Table 3: 35AWW06, 9/11/19 sample	There are concentration of propionic acid that exceeds an MCL/MSC. Reviewer must admit that they have never seen this compound show up anywhere before and even had to look up compound. Is this a byproduct of EISB?	C	Yes, propionic acid is a byproduct of the anaerobic degradation process. As discussed in Section 4.2.2, the presence of Volatile Fatty Acids (VFAs), including propionic acid, confirms the fermentation of carbon substrates. No text changes proposed.					
		END of EPA Comments							

Responses to Comments on
Draft Year 6 Annual Remedial Action Operation Report (September 2019 to August 2020) at LHAAP-35A(58), Shops Area
Longhorn Ammunition Plant, Karnack, Texas
12 November 2020

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/ Paragraph	Comment (October 21, 2020)	C, D, E or X[1]	Response (November 12, 2020)	A or D[2]	Comment	C, D, E or X[1]	Response	A or D[2]
Reviewer: April Palmie, TCEQ **Respondent:** Kim Nemmers, Bhate									
1	General	I've reviewed the Draft 6th Annual RA-O Report for LHAAP-58 and don't have any comments.	C	Noted.					
		END of TCEQ Comments							

DRAFT FINAL
YEAR 6 ANNUAL REMEDIAL ACTION OPERATION REPORT (SEPTEMBER 2019-AUGUST 2020)
LHAAP-35A (58) SHOPS AREA
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

December 2020

Prepared For:

U.S. Army Corps of Engineers
Tulsa District
1645 S 101 E Avenue
Tulsa, Oklahoma 74128-4609

Contract No: W9128F-13-D-0012
Delivery Order No: W912BV17F0150
Bhate Project No.: NWO1312.0150.012.0001.03

Prepared By:

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YEAR 6 ANNUAL REMEDIAL ACTION OPERATION REPORT (SEPTEMBER 2019-AUGUST 2020) LHAAP-35A (58) SHOPS AREA LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

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ACRONYMS AND ABBREVIATIONS

<	Less than
>	Greater than
%	Percent
AECOM	AECOM Technical Services, Inc.
APTIM	APTIM Federal Services, LLC
bgs	Below ground surface
Bhate	Bhate Environmental Associates, Inc.
COC(s)	Contaminant(s) of concern
CSM	Conceptual site model
DCA	Dichloroethane
DCE	Dichloroethene
DHB	Dehalobacter
DHC	Dehalococcoides
DO	Dissolved oxygen
EISB	Enhanced In-situ Bioremediation
ESD	Explanation of Significant Differences
ft	Feet (or foot)
HPLC	High Performance Liquid Chromatography
IWWP	Installation-Wide Work Plan
J	Data qualifier denoting an estimated concentration
LHAAP	Longhorn Army Ammunition Plant
LUC(s)	Land Use Control(s)
MC	Methylene chloride
MCL(s)	Maximum contaminant level(s)
µg/L	Micrograms per liter
mg/L	Milligrams per liter
mL	Milliliter
MNA	Monitored Natural Attenuation

MSC	Medium-specific concentration
msl	Mean sea level
mV	Millivolts
No.	Number
ORP	Oxidation-reduction potential
PCE	Tetrachloroethene
PCBs	Polychlorinated biphenyls
pH	Potential of hydrogen
RA(O)(s)	Remedial Action Operation(s)
RAO(s)	Remedial Action Objective(s)
RACR	Remedial Action Completion Report
RAWP	Remedial Action Work Plan
RD	Remedial Design
ROD	Record of Decision
Shaw	Shaw Environmental, Inc.
s.u.	Standard units
SVOC(s)	Semi-volatile Organic Compound(s)
TCA	Trichloroethane
TCE	Trichloroethene
TM	Technical Memorandum
TOC	Total Organic Carbon
U.S.	United States
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VC	Vinyl chloride
VFA	Volatile Fatty Acids
VOC(s)	Volatile Organic Compound(s)

1 INTRODUCTION

The United States (U.S.) Army Corps of Engineers (USACE), Tulsa District, contracted Bhate Environmental Associates, Inc. (Bhate), to perform remedial actions at multiple sites at the former Longhorn Army Ammunition Plant (LHAAP) in Karnack, Texas, under the Huntsville District's Architect-Engineer Indefinite Delivery Contract Number (No.) W9128F-13-D-0012, Delivery Order No. W912BV17F0150. Bhate is performing groundwater and surface water monitoring as part of Remedial Action Operations (RA(O)s) for the Enhanced In-situ Bioremediation (EISB) and Monitored Natural Attenuation (MNA) groundwater remedy at LHAAP-35A (58). Remedial activities are required under the Record of Decision (ROD) issued for LHAAP-35A (58) in September 2010 (Shaw Environmental, Inc. [Shaw], September 2010).

The Remedial Action Work Plan (RAWP) for the entire site was prepared in August 2013 in accordance with the ROD and was implemented in September 2013 (AECOM Technical Services, Inc. [AECOM], August 2013). Within the eastern plume, EISB was performed in September 2013. The MNA remedy for the western plume at this site, as presented in the ROD, calls for an evaluation of the remedy after 2 years of implementation. The ROD also provides for implementation of a contingency remedy to enhance MNA if it is found to be ineffective. RA(O) implementation for the western plume was completed between October 2013 and October 2015 and the Year 2 RA(O) report was finalized in May 2016 (AECOM, May 2016). After 2 years of MNA, the Year 2 RA(O) report concluded that MNA was ineffective and implementation of a contingency remedy was appropriate. A RAWP for the contingency remedy for the western plume was developed and finalized (Bhate, January 2018). The contingency remedy for the western plume is EISB injections, which was implemented in March and April 2018, as documented in the Remedial Action Completion Report (RACR) (Bhate, August 2018).

Groundwater monitoring at LHAAP-35A (58) was conducted quarterly following EISB injections at the eastern plume for 2 years but is now semi-annual. The contingency remedy within the western plume requires that quarterly sampling be completed in select performance monitoring wells for 2 years. This report includes the sixth, seventh, and eighth quarterly sampling events in the western plume completed in September 2019, December 2019, and March 2020. The first semi-annual sampling event for the western plume was completed in June 2020 and is also documented within this Annual RA(O) Report. This RA(O) report documents Year 6 of RA(O) implementation and summarizes the Land Use Control (LUC) compliance inspection; monitoring well inspection, maintenance, and repair activities; results of groundwater and surface water sampling; and an evaluation of EISB and MNA between September 2019 and June 2020.

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**). 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 LHAAP to the north and east. The eastern fence of the LHAAP installation is 3.5 miles from the Texas-Louisiana border (AECOM, May 2016).

1.1 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for LHAAP-35A (58), consistent with the reasonably anticipated future use of the site as a national wildlife refuge, as presented in the ROD (Shaw, September 2010) are:

- Protection of human health by preventing human exposure to the contaminated groundwater;
- Protection of human health and the environment by preventing contaminated groundwater from migrating into nearby surface water; and,
- Returning groundwater to its potential beneficial use as a drinking water source, wherever practicable.

An Explanation of Significant Differences (ESD) was prepared and finalized for LHAAP-35A (58), Shops Area, Group 4 (Bhate/APTIM Federal Services, LLC [APTIM], July 2018) to formalize that the LUCs and groundwater monitoring required for LHAAP-03, a small site entirely contained in the LHAAP-35A (58) eastern Volatile Organic Compound (VOC) plume and LUC boundaries, will be captured under LHAAP-35A (58). The 2018 ESD (Bhate/APTIM, July 2018) identifies that well 03WW01 be sampled for arsenic within the LHAAP-35A (58) RA(O) and clarifies that LUCs will remain in place until the levels of the contaminants of concern (COCs) in soil and groundwater allow for unrestricted use and unlimited exposure.

1.2 Performance Objectives

The LHAAP-35A (58) site has groundwater plumes in two distinct areas: 1) eastern plume and 2) western plume. The current remedies selected for the two areas are: LUC; EISB in the area of highest levels of contamination; and MNA for the remainder of the plume, beyond the influence of the EISB treatment area. EISB was implemented as a contingency remedy within the western plume in 2018 as documented in the Final ESD ROD for the Western Plume Contingency Remedy at LHAAP-35A(58) Shops Area (Bhate, March 2018). EISB was previously completed in the eastern plume in 2013.

The performance objectives at LHAAP-35A (58) consist of two components: physical inspections and groundwater/surface water monitoring. As a component of the LUC implementation, a civil survey of the LUC boundary was conducted in November 2014 and recorded in the Harrison County Courthouse in March 2015 (AECOM, May 2016). Physical inspections are conducted annually to confirm compliance with the LUC objectives. These objectives include preventing human exposure to groundwater contamination at levels that pose an unacceptable risk to a future maintenance worker and ensuring that there is no withdrawal or use of groundwater from the site for anything other than environmental monitoring and testing until the cleanup levels (maximum contaminant levels [MCLs]) are attained. Groundwater monitoring conducted at the site since October 2013 was included in the facility-wide fourth Longhorn Five-Year Review Report, completed in 2019 (USACE, June 2019).

Groundwater and surface water monitoring is being performed to demonstrate that EISB in conjunction with MNA of the eastern and western plumes are effective remedies to:

- Detect changes in environmental conditions that may reduce the efficacy of the remedial processes,
- Identify potentially toxic and/or mobile transformation products,
- Verify that the plumes are not expanding,
- Verify that no unacceptable impacts to downgradient receptors are occurring, such as discharges of contaminated groundwater to surface water,
- Detect new releases of contaminants to the environment that could impact the effectiveness of the remedies, and
- Verify attainment of the RAOs.

Groundwater monitoring completed as part of the Year 6 RA(O) activities consisted of two semi-annual groundwater sampling events conducted in December 2019 and June 2020 as specified in the Eastern Plume RAWP (AECOM, August 2013). Quarterly sampling of the western plume is required for 2 years following the EISB treatment and this Year 6 Annual RA(O) Report includes the 6th through 8th quarters of sampling conducted in September 2019, December 2019, and March 2020. Semi-annual surface water sampling at 35ASW03, located adjacent to the western groundwater plume in a ditch that runs parallel to 4th Street, was not performed in December 2019 or June 2020, as groundwater elevations were below the elevation of the ditch.

1.3 Site Description

The LHAAP-35A (58) site, also known as the Shops Area, is located in the north-central portion of LHAAP and currently covers an area of approximately 11 acres (**Figure 1**) (Shaw, September 2010). The surface features include asphalt-paved roads, a parking area, and areas that are wooded and overgrown with grasses and other vegetation (**Figure 2**). The topography is relatively flat with the surface drainage flowing into the tributaries of Goose Prairie Creek, which eventually discharges into Caddo Lake.

The Shops Area, was established in 1942 as part of the installation's initial construction (Shaw, September 2011). The facility was used to provide plant-operated laundry, automotive, woodworking, metalworking, painting, refrigeration, and electrical services. The site was active throughout the LHAAP's mission and was deactivated along with the rest of the installation in 1996-1997. The LHAAP-35A (58) site boundary has changed over the years. Earlier investigations for LHAAP-35A (58) were performed in areas to the south that are no longer included within the site boundary (AECOM, May 2016). LHAAP-35A (58) encompasses the following sites:

- LHAAP-02, vacuum truck overnight parking
- LHAAP-03, the Paint Shop Building 722 (waste collection)
- LHAAP-60, Former Storage Building 714
- LHAAP-68, a mobile storage tank parking area
- LHAAP-69, service station with underground storage tanks

The following sites were within the historical LHAAP-35A (58) site boundary, but are not included within the current site boundary:

- LHAAP-04, former Pilot Wastewater Treatment Plant
- LHAAP-56, a vehicle wash rack and oil/water separator, Building 744-A
- LHAAP-59, Storage Building 725
- LHAAP-60, Building 411
- LHAAP-61, Water Treatment Plant
- LHAAP-66, 405-L Transformer Yard

The following sites are within the LUC boundary for LHAAP-35A (58):

- LHAAP-02, vacuum truck overnight parking
- LHAAP-03, the Paint Shop Building 722 (waste collection)
- LHAAP-56, a vehicle wash rack and oil/water separator, Building 744-A
- LHAAP-59, Storage Building 725
- LHAAP-60, Former Storage Building 714
- LHAAP-65, Former Building 209 (flammable materials storehouse)
- LHAAP-68, a mobile storage tank parking area
- LHAAP-69, service station with underground storage tanks

LHAAP-60, Building 411, which is located within the historical site boundary of LHAAP-35A (58) is included within the LUC boundary for LHAAP-04.

1.4 Conceptual Site Model

Much of the following conceptual site model (CSM) information has previously been presented in the 2nd Annual RA(O) Report (January 2015 – October 2015) (AECOM, May 2016). **Figure 3** presents the CSM from the ROD (Shaw, September 2010). Between 1992 and 2008, multiple investigations were conducted in a phased approach to evaluate the nature and extent of contamination at the LHAAP-35A (58) site. The findings from these investigations were that the shallow zone groundwater was impacted with VOCs, while the soil and former sump/waste rack sump areas (LHAAP-56) posed no unacceptable threat to human health or the environment (Shaw, September 2011). **Figure 2** shows the locations of all the shallow, intermediate, and deep zone monitoring wells, as well as surface water sampling locations, present at the site. The sources of contamination at LHAAP-35A (58) were surface spills associated with the various support services that occurred in the area. The spills resulted in minor soil contamination and the COCs released to the surface soil subsequently migrated downward through leaching, to the groundwater.

Overland flow does not appear to be a complete pathway for migration of contaminants to surface water, as none of the COCs (VOCs, Semi-volatile Organic Compounds [SVOCs], explosives,

pesticides, or polychlorinated biphenyls [PCBs]) were detected in water samples from the on-site ditch. Likewise, no VOCs, SVOCs, explosives, or pesticides were detected in samples of the ditch sediment. Some metals were detected in surface water and sediment at concentrations in the naturally occurring background range.

Investigation results indicate that the shallow zone groundwater is impacted with VOCs, but soil and former sump/waste rack areas pose no unacceptable risk to human health or the environment (Shaw, September 2011). There have been no previous remedial actions at LHAAP-35A (58). The nearest surface water body to LHAAP-35A (58) is a ditch that runs parallel to 4th Street on the western boundary of the site and flows to the southeast. The depth of groundwater in wells adjacent to the ditch is well below the bottom of the ditch at 18 to 25 feet (ft) below ground surface (bgs) (e.g., in wells 35AWW16, 35AWW18, and LHSMW07).

The potentially complete exposure pathways are groundwater use as drinking water and potential migration of impacted groundwater into surface water. Shallow groundwater is not used as drinking water at the refuge and this potential exposure pathway is eliminated from any hypothetical future receptor because LUCs are in place that prohibit the use of groundwater for any purpose other than for environmental monitoring and testing. **Figure 2** shows the groundwater use restrictions area established for this site.

The hydrogeology beneath the site, as presented in the Draft Final RACR (AECOM, October 2015), consists of three water-bearing zones identified as shallow, intermediate, and deep. The shallow zone extends to approximately 40 ft bgs. The lithology of the shallow zone is characterized by discontinuous layers of fine grained soils consisting of interbedded silt, sand, and clay. According to the groundwater gauging data conducted in October 2013 (First Performance Monitoring Sampling Event), the depth to groundwater ranged from 17.53 ft bgs to 30.13 ft bgs. Groundwater elevations in the shallow zone in October 2013 ranged from 184.21 ft above mean sea level (msl) to 202.32 ft above msl.

Data from boring log 35AWW02, which was drilled in the deep zone to a depth of 140 ft bgs, and 35AWW05, which was drilled in the intermediate zone to a depth of 75.75 ft bgs, indicate the soils in the intermediate and deep zones consist mostly of clay with the occasional presence of silt and sand layers. Based on groundwater surface measurements obtained in October 2013, groundwater elevation for the intermediate zone was approximately 178 ft above msl, and the elevation of deep zone groundwater was 175.75 ft above msl. The groundwater levels indicate hydraulic connectivity between the intermediate and deep zones. The occurrence of predominantly clay soil beneath the shallow zone impedes the vertical migration of groundwater, which is corroborated by the difference in groundwater elevations between the shallow zone (185 to 202 ft above msl) and the intermediate and deep zones (175 to 178 ft above msl) (AECOM, May 2016).

Based on previous investigations, the shallow groundwater COCs at LHAAP-35A (58) are tetrachloroethene (PCE); trichloroethene (TCE); 1,1,2-trichloroethane (TCA); 1,1-dichloroethene (DCE); 1,2-dichloroethane (1,2-DCA); cis-1,2-DCE; trans-1,2-DCE; vinyl chloride (VC); methylene chloride (MC); and benzene. In addition, low concentrations of 1,1-DCA were detected in the

shallow zone groundwater, but were below the groundwater medium-specific concentration (MSC) so 1,1-DCA is not considered a groundwater COC at this site. No COCs were detected in samples from the intermediate and deep groundwater zones.

Although arsenic has not been designated as a COC, it is included in the shallow zone groundwater monitoring program in accordance with the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012); the ESD for LHAAP-03 groundwater and LUCs (Bhate/APTIM, July 2018); and the 2013 RAWP (AECOM, August 2013).

2 SITE ACTIVITIES AT LHAAP-35A (58)

2.1 Annual LUC Compliance Inspection, Maintenance, and Repairs

2.1.1 Annual LUC Compliance Inspection

The objectives of the LUCs at LHAAP-35A (58) are to prevent human exposure to groundwater contamination presenting an unacceptable risk to human health, and to ensure that there is no withdrawal or use of groundwater beneath the site for any purpose other than environmental monitoring and testing until the cleanup levels are attained (AECOM, August 2013). The ESD for LHAAP-03 groundwater and LUCs formally changed the duration of the LUCs, which will remain in effect until COC concentrations in groundwater and soil are reduced to levels that allow unrestricted use and unlimited exposure (Bhate/APTIM, July 2018). As depicted on **Figure 2**, the sites that are included in the LUC boundary under LHAAP-58 include LHAAP-02, LHAAP-03, LHAAP-35A, LHAAP-56, LHAAP-59, LHAAP-60D, LHAAP-65, LHAAP-68, and LHAAP-69. Notices of the groundwater use restrictions accompany all property transfer documents and were recorded at the Harrison County Courthouse in March 2015 in accordance with the Texas Administrative Code Title 30, §335.566. Additional details regarding the implementation of the LUCs are presented in the RACR (AECOM, October 2015).

Bhate performed the annual LUC compliance inspection for LHAAP-35A (58) on June 29, 2020. The Annual Land Use Control Compliance Certification Documentation form for the Year 6 RA(O) period is presented in **Appendix A**. No compliance issues or concerns were noted during the annual inspection in 2020.

2.1.2 Well Field Operation & Maintenance

Inspections of the conditions/integrity of monitoring wells were conducted in June 2020 and were documented in a photographic log (**Appendix B**) and during each sampling event with the information recorded on the field sampling forms. Maintenance items identified during the June 2020 inspection that were addressed in September 2020, included repainting of the yellow steel stickups for wells LHSMW04 and LHSMW07. Maintenance items for the upcoming period, noted during the June 2020 inspection, includes redevelopment of monitoring well 03WW01 due to a buildup of silt in the well. Additionally, there are hinges on several monitoring wells noted to have rust observed at varying degrees (LHSMW07, 35AWW10, 35AWW12, 35AWW15, 35AWW17, 35AWW19, 35AWW21, and 35AWW22). The hinges will be watched to see if they continue to worsen, which will require replacement or repair. Mowing the area to control brush and weeds was conducted on a routine basis and as needed to allow access to the wells, typically before sampling events. During the Year 6 annual reporting period, mowing was conducted prior to the groundwater sampling events in March 2020 and June 2020. **Appendix B** provides photos of the June 2020 monitoring well conditions, and **Appendix C** provides the Well Inspection Forms which contain information about the individual well surface conditions observed during each of the Year 6 sampling events.

2.2 Groundwater Monitoring for RA(O)

Groundwater monitoring at LHAAP-35A (58) is conducted semi-annually, while the contingency remedy within the western plume requires that quarterly sampling be completed at select performance monitoring wells. During the Year 6 RA(O), groundwater sampling was completed semi-annually in December 2019 and June 2020 in the eastern and western plume, and quarterly in September 2019, December 2019, March 2020, and June 2020 in the western plume.

2.2.1 Semi Annual Eastern and Western Plume Monitoring

In accordance with the RAWP (AECOM, August 2013), the following 21 shallow zone wells within the eastern and western plumes were sampled in December 2019 and June 2020: 03WW01, 35AWW06, 35AWW08, 35AWW09, 35AWW10, 35AWW11, 35AWW12, 35AWW13, 35AWW14, 35AWW15, 35AWW16, 35AWW17, 35AWW18, 35AWW19, 35AWW20, 35AWW21, 35AWW22, 35AWW23, 35AWW24, LHSMW06, and LHSMW07 (**Figure 2**). Monitoring well LHSMW04 was dry in both December 2019 and June 2020 and therefore was not sampled during the Year 6 RA(O). LHSMW04 was also dry in October 2016, November 2017, July 2018, December 2018, and December 2019. Intermediate groundwater zone well, 35AWW01, was also sampled in December 2019 and June 2020. Intermediate groundwater zone well, 35AWW05 was inadvertently omitted from the master sampling plan for December 2019 and June 2020 but the well will be sampled in future events including the Year 7 Semi-Annual RA(O) events.

2.2.2 Quarterly Western Plume Monitoring

Six wells within the western plume are required to be sampled quarterly for 2 years. Per the Western Plume RAWP (Bhate, January 2018), these wells include 35AWW06, 35AWW11, 35AWW19, 35AWW20, 35AWW23, and LHSMW07 (**Figure 2**). In addition, monitoring well LHSMW06 was sampled semi-annually (December 2019 and June 2020, as described above) and is used to define the western plume though it is considered an MNA well and not associated with performance monitoring of the Western Plume Contingency RAWP. Also, monitoring well 35AWW15 was sampled semi-annually (December 2019 and June 2020, as described above) and is used to delineate the upgradient extent of the western plume though it is not considered a performance monitoring well for the Western Plume RAWP. The western plume monitoring wells were sampled in September 2019, December 2019, March 2020, and June 2020.

2.2.3 Sampling Procedures and Analysis

Before collecting groundwater samples, the wells were gauged using a water level probe and the depth to water was recorded to the nearest 0.01 ft from the top of casing. During the Year 6 RA(O) period, 23 monitoring wells were gauged for depth to water in December 2019 and June 2020. Groundwater samples were collected using the low-flow sampling technique described in the Groundwater Sampling Procedures in the Installation-Wide Work Plan (IWWP) (Bhate, May 2018). After water quality parameters stabilized and were within acceptable ranges, samples were collected at the same low flow rate.

The MNA analyte list was modified for the Year 6 sampling events to follow the recommendations put forth in the Final Technical Memorandum (TM) - MNA Parameters (Bhate/APTIM, February

2019) (**Appendix D**). The TM modified the MNA analyte list for consistency across several sites and to reduce redundant or non-essential parameters. Analytes eliminated in the Year 6 RA(O) sampling events were alkalinity; nitrite; sulfide; total iron; dissolved iron and manganese; and total phosphorous. Groundwater samples from each well collected during Year 6 (September 2019, December 2019, March 2020, and June 2020) were analyzed by ALS Environmental for VOCs (SW8260C). Select wells were also analyzed by ALS Environmental for dissolved gases (RSK-175); Total Organic Carbon (TOC) (SM5310C); total arsenic (SW6020A); chloride, nitrate, and sulfate (SW9056A); Volatile Fatty Acids (VFAs) (High Performance Liquid Chromatography [HPLC]-METACIDS); and/or dechlorinating bacteria (dehalococcoides [DHC]/dehalobacter [DHB]) (CENSUS). A Hach kit was used to complete ferrous iron screening in the field.

The LHAAP-35A (58) monitoring wells are depicted on **Figure 2**. **Table 1** presents the monitoring wells that were gauged during the Year 6 RA(O) period. Each of the monitoring wells were secure and sampled with no technical issues encountered. During Year 6 RA(O), the well screen intervals were evaluated. Corrections from this review are presented in **Table 1**. No impacts or non-compliance for water level measurement and pump placement were identified due to these corrections.

During the 6 years of RA(O) sampling, only monitoring well LHSMW04, located to the east of the eastern groundwater plume, has been periodically dry. However, the absence of data from this well has had no effect on evaluating EISB or MNA. Monitoring well LHSMW04 is located between 35AWW09 and 35AWW12 and the results for these two wells provide ample data to evaluate this area.

Groundwater Sample Collection Forms are presented in **Appendix E**. Chain of custody forms, laboratory reports, and quality control summary reports are presented with the laboratory results in **Appendix F**.

2.2.4 Groundwater Elevation and Flow Direction

2.2.4.1 Shallow Groundwater Zone

Groundwater levels for the Year 6 RA(O) were measured in December 2019 and June 2020. The groundwater flow direction in the shallow water bearing unit during the Year 6 RA(O) monitoring period at LHAAP-35A (58) is interpreted to the southeast in the western portion of the site and to the east-southeast in the eastern portion of the site (see **Figures 4 and 5**). This corresponds well with the flow directions presented in the Remedial Design (RD) document (Shaw, September 2011), which was interpreted to the southeast in the westernmost area, and to the east for the remainder of the site. Groundwater elevation data are presented in **Table 1**.

The shallow zone groundwater elevations increased across the site in all the shallow wells between December 2019 and June 2020. The greatest increase, 4.42 ft, occurred in shallow monitoring well 35AWW19. A total of 10 wells had increases greater than (>) 1 ft.

2.2.4.2 Intermediate Groundwater Zone

Well 35AWW01 (**Figure 2**) is completed in the intermediate groundwater zone. Groundwater elevations increased in 35AWW01 between December 2019 and June 2019 by 0.96 ft. A potentiometric surface map cannot be constructed to determine the groundwater flow direction based upon one monitoring well. The groundwater elevations are presented in **Table 1**.

2.2.4.3 Deep Groundwater Zone

Well 35AWW02 (**Figure 2**) is the only well screened in the deep groundwater zone. This well is not included in the sampling program, in accordance with the RAWP (AECOM, August 2013). Therefore, this monitoring well was not gauged during the Year 6 RA(O) sampling events. The groundwater elevation at 35AWW02 was relatively static (within 0.44 ft) in measurements between October 2013 and October 2016 (**Table 1**).

2.2.5 Vertical Gradient

There are two pairs of shallow and intermediate zone co-located wells, which include monitoring wells 35AWW08 (shallow) and 35AWW01 (intermediate); and LHSMW07 (shallow) and 35AWW05 (intermediate). During the Year 6 RA(O) monitoring period, the elevation difference between wells 35AWW08 and 35AWW01 was 15.10 ft in December 2019 and 13.92 ft in June 2020. Since 35AWW05 was not sampled during the Year 6 RA(O) monitoring period, no water level measurement was collected and a current vertical gradient could not be calculated. However, during the previous Year 5 RA(O) monitoring period the elevation differences between wells LHSMW07 and 35AWW05 was over 24 ft in both the December 2018 and June 2019 sampling events. These elevation differences are consistent with those observed in the first 5 years of RA(O) monitoring. This difference in elevation between the shallow groundwater zone and the intermediate groundwater zone indicates that there is hydraulic separation between these two water bearing zones. Because the potentiometric level of the shallow zone groundwater is higher than the potentiometric level of the intermediate zone groundwater, a potential downward vertical gradient exists at this site.

2.3 Groundwater Analytical Results

2.3.1 Shallow Zone

The COCs for shallow zone groundwater are PCE, TCE, cis-1,2-DCE; trans-1,2-DCE; MC; VC; 1,1,2-TCA; 1,2-DCA; 1,1-DCE; and benzene (AECOM, May 2016). Analytical results for the December 2019 and the June 2020 semi-annual samples in the eastern plume are presented in **Table 2**, and analytical results for the quarterly sampling events from the western plume are presented in **Table 3**. **Figure 6** presents the COC analytical data for September 2019 through June 2020.

Twenty-two wells were sampled for COCs during the Year 6 RA(O), not including well LHSMW04, which was dry during the Year 6 RA(O) sampling events. Select wells were also sampled for MNA parameters per the RAWP (AECOM, August 2013) and the TM - MNA Parameters (Bhate/APTIM, February 2019).

During the December 2019 event, wells 03WW01, 35AWW09, 35AWW14, 35AWW18, 35AWW19, 35AWW20, 35AWW23, LHSMW06, and LHSMW07 had one or more COCs reported at concentrations above the laboratory detection limits. Only wells 03WW01, 35AWW09, 35AWW14, 35AWW20, LHSMW06, and LHSMW07 had concentrations of COCs exceeding the MCLs.

During the June 2020 event, monitoring wells 03WW01, 35AWW06, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW19, 35AWW20, 35AWW23, LHSMW06, and LHSMW07 had one or more COCs listed above reported at concentrations above laboratory detection limits. Only wells 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 had concentrations exceeding COC MCLs.

Groundwater monitoring well sampling forms were completed for each well sampled and are included in **Appendix E**. The laboratory analytical results are included in **Appendix F**.

2.3.2 Intermediate Zone

Wells 35AWW01 and 35AWW05 (**Figure 7**) are completed in the intermediate groundwater zone, however, monitoring well 35AWW05 was erroneously omitted from the Year 6 RA(O). As a result only intermediate zone monitoring well 35AWW01 was sampled during the Year 6 RA(O) monitoring period. Analytical results for this well were below laboratory detection limits for all analytes in both the December 2019 and June 2020 events. The laboratory analytical results are shown in **Table 2** and laboratory analytical reports are included in **Appendix F**.

2.3.3 Deep Zone

Well 35AWW02 is completed in the deep groundwater zone. This well is not included in the sampling program in accordance with the Eastern Plume RAWP (AECOM, August 2013) and was not sampled during the Year 6 RA(O). Deep well 35AWW02 was sampled only during the October 2013 sampling event and the COC concentrations were below the laboratory detection limits. The laboratory analytical results for 35AWW02 are included in **Table 4** (Historical Monitoring Well COC Concentrations).

2.3.4 Arsenic Monitoring

Although arsenic has not been designated as a COC, groundwater was analyzed for arsenic from the Year 1 RA(O) monitoring period through July 2015 of the Year 2 RA(O) monitoring period, as described in the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012). The four quarters of arsenic monitoring were completed to be compliant with the Eastern Plume RAWP (AECOM, August 2013). However, per the Year 2 RA(O) Report (AECOM, May 2016), arsenic monitoring was recommended for additional wells within the eastern plume (03WW01, 35AWW08, and 35AWW09). Continuation of the arsenic sampling program during the period of implementation and monitoring of EISB effectiveness within the western plume was also recommended based upon the recommendation to implement EISB for the western plume. However, arsenic monitoring at LHAAP-58 was inadvertently left out of the Year 3 RA(O) monitoring period and no arsenic

monitoring was conducted during the Year 3 reporting period. Arsenic was analyzed for in Year 5 and Year 6 RA(O) sampling events.

During the Year 6 RA(O) monitoring period, arsenic analysis was completed in select monitoring wells in accordance with the Revised Technical Memorandum, Steps to Remedy-in-Place for LHAAP-03/LHAAP-58 (AECOM, November 2012); the ESD for LHAAP-03 groundwater and LUCs (Bhate/APTIM, July 2018); and the 2013 RAWP (AECOM, August 2013). In December 2019, groundwater from the following monitoring wells was analyzed for arsenic: 03WW01, 35AWW08, 35AWW09, and LHSMW06. In June 2020, groundwater from the following monitoring wells was analyzed for arsenic: 03WW01, 35AWW08, 35AWW09, 35AWW20, and LHSMW06.

Arsenic was reported at concentrations above the MCL of 0.010 milligrams per liter (mg/L) during the Year 1 RA(O) monitoring period and during the July 2015 sampling event of the Year 2 RA(O) monitoring period in wells 03WW01, 1004TW001, 1004TW006, 35AWW08, 35AWW20, and LHSMW07 (AECOM, May 2016). Background concentrations of arsenic at Site LHAAP-58 were reported up to 0.0621 mg/L in November 2008 for perimeter well 110 in a filtered sample that was collected on December 16, 2004 (Shaw, June 2007). Therefore, the presence of arsenic in site groundwater cannot be attributed solely to reductive conditions caused by EISB.

In December 2019, monitoring wells 03WW01 (0.0158 mg/L) and 35AWW08 (0.0253 mg/L) exceeded the MCL of 0.010 mg/L but were below the site background level of 0.0621 mg/L. The two other monitoring wells sampled did not have arsenic detected in the groundwater above the MCL. In June 2020, arsenic was reported above the MCL in 35AWW08 (0.0210 mg/L) but below the site background level. The additional wells sampled for arsenic had reported concentrations below the MCL in December 2019 and June 2020.

2.4 Surface Water Sampling

The Eastern Plume RAWP (AECOM, August 2013) specifies that surface water monitoring for COCs (1,1,2-TCA; 1,1-DCA; 1,1-DCE; 1,2-dichloroethane; benzene; cis-1,2-DCE; TCE; PCE; and VC) will be performed at surface water sample location 35ASW03, which is in a ditch that runs parallel to 4th Street, on the western boundary of the site and adjacent to the western groundwater plume. **Figure 2** depicts the surface water sampling location.

The Draft Final RACR for LHAAP-35A (58) (AECOM, October 2015) states that *the water level in 35AWW18 will be gauged for comparison with the ditch bottom elevation at 35BSW03*. The surveyed bottom of the ditch at the lowest point is 213.58 ft above msl. The gauged water levels in the nearest upgradient monitoring well 35AWW18 in December 2019 and June 2020 were 196.93 ft above msl and 197.58 ft above msl, respectively. As anticipated no surface water was present at location 35ASW03 in either the December 2019 or June 2020 sampling events. Therefore no surface water samples were collected during the Year 6 RA(O) monitoring event.

Surface water samples are collected to evaluate the potential effect of the plume on surface water. The ditch was dry and therefore surface water was not sampled. The elevation of the ditch at surface water sampling location 35BSW03 was 213.58 ft above msl, which is approximately 15 to 16 ft higher than the gauged groundwater elevations present at the nearest

upgradient monitoring well in December 2019 and June 2020. Therefore, it is not likely that the groundwater at LHAAP-58 is or will contribute to the nearby surface water.

2.5 Well Abandonment

No additional wells are recommended for removal from the monitoring program beyond those previously recommended in the Year 2 RA(O) Report (AECOM, May 2016), which included 35AWW02, 35AWW03, and 1004TW0001,. As noted in the Year 3 RA(O) Report (Bhate, April 2018), well 1004TW006 was recommended for abandonment but could not be located.

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3 PERFORMANCE MONITORING OF EISB

The EISB target area is located within the vicinity of wells 03WW01 and 35AWW08 within the eastern groundwater plume. Well 35AWW10 is considered an upgradient clean well and well 35AWW09 is located downgradient of the EISB area, but within the groundwater plume. Groundwater monitoring was performed in August 2013 prior to EISB implementation (baseline event), in October 2013 after the EISB injections, quarterly for 2 years and has been semi-annual since October 2016. Within the western groundwater plume, groundwater sampling completed in July 2018 was the first sampling event following EISB implementation. Two years of quarterly sampling was completed in Year 6 RA(O) with June 2020 as the first semi-annual sampling event. **Figure 6** presents the EISB treatment locations within the western groundwater plume. A total of six monitoring wells have been evaluated via a total of 8 quarterly performance monitoring events, over the 2 years following injections, to assess the EISB in the western plume (Bhate, January 2018). This report presents the results of quarterly sampling events 6 through 8 completed from September 2019 through March 2020. The EISB performance and key parameters are discussed below and much of the information is provided in **Tables 2, 3, 5, and 6**.

The monitoring program is intended to track the biologic degradation of the chlorinated solvents from PCE to TCE to cis-1,2-DCE to VC and finally ethene, while also monitoring the in-situ conditions favorable for microbial activity as evidenced by reduction-oxidation (i.e., redox) conditions, geochemistry, and microbial counts. Analytes eliminated in March and June 2019, per the Draft TM – MNA Parameters (Bhate/APTIM, January 2019), were alkalinity; nitrite; sulfide; total iron; dissolved iron and manganese; and total phosphorous.

3.1 Analysis of VOCs

3.1.1 Eastern Plume

Major reductions have been observed in PCE in the eastern two monitoring wells, 03WW01 and 35AWW08, located within the influence of the EISB treatment area. Well 35AWW09 is located outside the treatment area and is discussed in Section 4. Between August 2013 (baseline sampling event) and June 2020, PCE concentrations reported for well 35AWW08 have decreased from 1,640 micrograms per liter (µg/L) to 6.7 µg/L, with concentrations below the MCL during July and December 2019 (**Table 4**). This difference in PCE concentrations in well 35AWW08 is a decrease of approximately 99.5 percent (%). PCE concentrations in well 35AWW08 remained below the MCL of 5 µg/L in the four semi-annual sampling events from July 2018 through December 2019. However, in the June 2020 sampling, PCE was detected above the MCL at a concentration of 6.7 µg/L. From August 2013 to June 2020, PCE concentrations in well 03WW01 decreased from 368 µg/L to 4.5 J (data qualifier denoting an estimated concentration) µg/L (**Table 4**). This is a decrease of approximately 98.8% of PCE in well 03WW01. PCE concentrations in well 03WW01 have remained below the MCL of 5 µg/L since October 2016, except for the December 2018 sampling event when a concentration of 15 µg/L was reported.

TCE, a degradation product of PCE, initially decreased between August 2013 and October 2013 (following EISB injections), but subsequently increased (due to reduction of PCE into TCE) indicating the occurrence of early stages of dechlorination. In monitoring well 03WW01, TCE dropped below the MCL of 5 µg/L in October 2016 and has remained below the MCL through June 2020, except for a reported concentration above the MCL of 5.7 µg/L in December 2018. The maximum detected TCE concentration in either the December 2019 or June 2020 sampling events was in well 35AWW09 in December 2019 at a concentration of 160 µg/L (**Table 2**).

The concentrations of cis-1,2-DCE remained below the MCL of 70 µg/L in the eastern plume monitoring wells (**Table 2**) during the December 2019 and June 2020 sampling events. VC was detected above the MCL of 2 µg/L in well 03WW01 during both the December 2019 and June 2020 sampling events at concentrations of 5.4 J µg/L and 7.2 µg/L, respectively. The lack of increase in the cis-1,2-DCE and VC is likely due to the low levels of PCE and TCE currently remaining and degrading to these daughter products. Ethene is being produced which indicates that complete degradation is occurring.

3.1.2 Western Plume

PCE was not detected above the MCL of 5 µg/L in the western plume wells during the Year 6 RA(O) sampling events (**Table 3**). In December 2019, well 35AWW20 had reported concentrations of TCE; 1,2-DCA; cis-1,2-DCE; VC; 1,1,2-TCA; 1,1-DCE; and benzene above MCLs (**Table 3**). This includes a significant decrease in TCE in 35AWW20 from 570 µg/L in December 2018 to 94 µg/L in June 2020. TCE has remained below the MCL in well 35AWW23 since June 2019. TCE was detected above the MCL in LHSMW06 in December 2019 and June 2020 at concentrations of 17 J µg/L and 16 µg/L, respectively. The TCE daughter product cis-1,2-DCE was detected in well 35AWW20 above the MCL in September 2019 (110 µg/L), December 2019 (70 J µg/L), March 2020 (71 µg/L), and below the MCL in June 2020 (63 µg/L). The daughter product VC has increased significantly at well 35AWW20 with concentrations during the Year 6 RA(O) increasing from 790 µg/L in September 2019 to 2,000 µg/L in June 2020. This significant increase in VC could be a result of the degradation of cis-1,2-DCE and/or 1,1-DCE. VC was also detected above the MCL of 2 µg/L in well LHSMW06 in the December 2019 sampling event at 5.7 J µg/L and at 5.5 µg/L in the June 2020 sampling event.

1,1,2-TCA was detected above the MCL (5 µg/L) in well 35AWW20 throughout the Year 6 RA(O) with concentrations ranging from 72 µg/L in September 2019 to 83 µg/L in March 2020. 1,1,2-TCA was not detected in any other western plume wells sampled during the Year 6 RA(O).

1,1-DCE, a daughter product of both 1,1,2,-TCA and TCE, was detected above the MCL (7 µg/L) in three wells (35AWW20, LHSMW06, and LHSMW07) during the Year 6 RA(O) reporting period. Concentrations of 1,1-DCE in western plume well LHSMW06 remained consistent during the reporting period ranging from 19 J µg/L in December 2019 to 22 µg/L in June 2020, and exceeded the MCL (7 µg/L) during each sampling event. Concentrations of 1,1-DCE at LHSMW07 increased during the reporting period from 46 µg/L in September 2019 to 130 µg/L in June 2020, and exceeded the MCL (7 µg/L) during each quarterly sampling event. The recent increase in 1,1-DCE at LHSMW07 during the reporting period may be attributable to the reduction of parent compounds TCE and 1,1,2-TCA in the western plume near LHSMW07 and upgradient well

35AWW20. However, 1,1-DCE has decreased in LHSMW07 from November 2017, prior to the western plume contingency implementation, when the concentration of 1,1-DCE was 600 µg/L (Table 4). Concentrations of 1,1-DCE in western plume well 35AWW20 decreased during the Year 6 RA(O) reporting period from 3,900 µg/L in September 2019 to 1,100 µg/L in June 2020, and exceeded the MCL (7 µg/L) during each quarterly sampling event.

The TCE and 1,1-DCE concentrations in monitoring well 35AWW14 located in a downgradient direction of the western plume, have increased from below the MCL in October 2013 to above the MCL in October 2016, and remained above the MCL through June 2020. All COCs remain below the respective MCLs in upgradient well 35AWW11.

3.2 Analysis of Field Parameters

The field parameters (potential of hydrogen [pH], dissolved oxygen [DO], oxidation-reduction potential [ORP], temperature, and specific conductivity) were measured in the LHAAP-35A (58) wells during the monitoring events. **Table 5** contains the Year 6 RA(O) field parameters for wells 03WW01 and 35AWW08. The pH in these two wells initially decreased between January 2014 and October 2014, potentially related to substrate fermentation and organic acid production. However, since October 2014, and continuing through this Year 6 monitoring period, the pH in wells within both the eastern and western plumes has generally increased, indicating a self-buffering capacity of the aquifer.

3.3 TOC Levels

TOC is an indicator of the presence of carbon substrate. The background level of TOC is typically less than 10 mg/L. Therefore, TOC present above the background level are indicative of the substrates presence in groundwater near the sampled monitoring well.

3.3.1 Eastern Plume

After injection of the carbon substrate in October 2013, there was an initial spike of the TOC levels in both wells (03WW01 and 35AWW08), indicating effective substrate distribution from the injection points to the impacted zone. TOC levels have since decreased. Over the course of the Year 6 monitoring period, the TOC levels have continued to decrease, which is expected as the carbon substrate is consumed and due to migration away from the injection area. The most recent residual TOC levels (June 2020) of 69.8 mg/L in 03WW01 and 208 mg/L in 35AWW08 indicate that TOC remains at sufficiently high concentrations to support reductive dechlorination, albeit at lower amounts compared to the period immediately after injection in October 2013 (**Table 5**). The June 2020 TOC levels were higher than background TOC concentrations in nearby wells such as 35AWW09 and 35AWW10 with October 2016 TOC concentrations of 5.76 mg/L and 3.21 mg/L, respectively.

3.3.2 Western Plume

Within the western plume, TOC increased in the sampled monitoring wells following the March/April 2018 contingency EISB injections when compared to the baseline sampling results

(March 2018), within the influence of the injection points with the exception of 35AWW19. The greatest increases were observed in 35AWW06 and 35AWW11. The June 2020 data indicate sustained elevated TOC concentrations are present in well 35AWW23 (**Table 6**).

3.4 Analysis of Anions

Although sulfate reduction occurs through competing reactions to reductive dechlorination, the decrease in sulfate concentration is indicative of reducing aquifer conditions.

3.4.1 Eastern Plume

Decreased sulfate concentrations in October 2014 through October 2016 in the two EISB wells (03WW01 and 35AWW08) relative to levels in nearby wells that did not receive EISB treatment (35AWW09 and 35AWW10), indicate the development of reducing conditions conducive to reductive dechlorination occurred following initial injections. Sulfate concentrations in 03WW01 reduced from an August 2013 baseline concentration of 534 mg/L to non-detectable levels (less than [<] 0.5 mg/L) in October 2016. Since then, sulfate concentrations increased in monitoring well 03WW01 to 231 mg/L in June 2020, which is likely due to untreated groundwater moving through the eastern plume. In monitoring well 35AWW08, data trends show that sulfate was reduced from a baseline concentration of 1,480 mg/L to < 10 mg/L in October 2016 as a result of EISB and remain low (**Table 5**). Note that the largest reductions in COC concentrations occur at the same time the largest reductions in sulfate concentrations are observed.

3.4.2 Western Plume

Following the EISB injections, sulfate decreased in each of the wells influenced by the EISB injections by approximately 50%, with the exception of well 35AWW19 where sulfate reduction was observed to a lesser extent. In June 2020, sulfate concentrations increased in 35AWW20, at the center of the western plume, to 1,270 mg/L, maintaining an increasing trend since the July 2018 concentration of 882 mg/L (**Table 6**). Over this same time period, sulfate concentrations also increased in impacted well LHSMW07 from 1,090 mg/L in July 2018 to 3,000 mg/L in June 2020.

3.5 Dissolved Gases

3.5.1 Eastern Plume

Approximately 2 years after implementation of EISB, methane concentrations peaked, indicating methanogenesis indicative of reductive dechlorination occurred. The methane concentration during the Year 6 monitoring period in 03WW01 decreased from 2,900 µg/L in June 2019 to 640 µg/L in June 2020. (**Table 5**). The methane concentration in 35AWW08 decreased to non-detectable levels (< 1.0 µg/L) in December 2018 but rebounded to 1,500 µg/L in June 2020. Methane concentrations are still representative of reducing conditions due to methanogenesis.

Concurrently, carbon dioxide levels remain elevated in both 03WW01 and 35AWW08, supporting the continued metabolism of the carbon substrate. Ethene was detected in June 2020 at both

03WW01 (0.46 µg/L) and 35AWW08 (12 µg/L), indicating that complete dechlorination is occurring.

3.5.2 Western Plume

Methane following the EISB treatment of the western plume increased within 6 to 9 months of implementation, then concentrations generally declined across the treatment area. In June 2020, methane concentrations decreased in 35AWW20, the well with the highest COC concentrations in the western plume, to 260 µg/L, the lowest concentration reported since September 2018. Carbon dioxide levels have decreased in 35AWW20 from 730,000 µg/L in June 2019 to 250,000 µg/L in June 2020 (**Table 6**). Ethene has increased in 35AWW20 from 1.3 µg/L in June 2019 to 5.5 µg/L in June 2020. Ethene production is one line of evidence that complete reduction of the COCs is occurring.

3.6 Dechlorinating Bacteria

3.6.1 Eastern Plume

Bacterial cultures containing DHC species, the bacteria responsible for degrading cis-1,2-DCE to VC, were introduced during the bioaugmentation event in October 2013. DHB populations increased within 3 months to a year following injections. During the Year 3 RA(O) sampling event (October 2016), DHC species spiked to the highest levels yet observed, to 9,460,000 cells/milliliter (mL) in 03WW01 and to 25,600,000 cells/mL in 35AWW08, indicating effective distribution of the introduced culture within the eastern plume per the RAWP. Since the Year 3 RA(O) sampling event, DHC concentrations have generally decreased, which is anticipated as the concentration of chlorinated VOCs decreases to below 50 µg/L. Concentrations of DHC in the Year 6 RA(O) in June 2020 were 6,500 cells/mL in 03WW01 and 594,000 cells/mL in 35AWW08 (**Table 5**). DHC species counts are still adequate for the continued degradation of PCE/TCE to VC.

3.6.2 Western Plume

The DHB populations increased significantly, within 3 to 6 months, after injection in the western plume in each of the monitoring wells influenced by the EISB treatment (LHSMW07, 35AWW06, 35AWW011, 35AWW19, and 35AWW20). DHB populations then tapered off from maximum cell counts noted in July 2018 (**Table 6**). DHC increased within 6 months to a year in most of these monitoring wells (excluding 35AWW19), but not to the degree DHB populations increased. Note that 35AWW23 and 35AWW24 exhibited limited increases in both DHB and DHC populations; this is likely because chlorinated solvent concentrations were below 50 µg/L in these wells prior to injections. Chlorinated solvents are electron acceptors that accept hydrogen atoms and expel chlorine atoms, and are a necessary component of the ideal environment for DHC and DHB to proliferate.

The critical performance monitoring well in the western plume, 35AWW20, indicates an increasing trend of DHB population from 1,120 cells/mL in March 2018 to 5,970,000 cells/mL in July 2018, before declining to non-detect in June 2019. During this period, ORP was observed at less than -250 mV, indicating methanogenesis was occurring. TCE peaked to 570 µg/L in

December 2018 and was reduced to 230 µg/L in June 2019. The DHC population increased from 15,000 cells/mL in June 2019 to 115,000 cells/mL in June 2020. Over the same time period, BAV1 VC reductase, the bacteria responsible for degradation of VC, has maintained populations over 10,000 cells/mL (**Table 6**). The increase in DHC populations from June 2019 to June 2020 corresponds with the further reduction of TCE, relatively stable concentrations of cis-1,2-DCE, and increase in VC in well 35AWW20 over this period of time. Groundwater pH is over 6 standard units (s.u.) and DHC, DHB, and the BAV1 VC reductase populations at the current population counts should be sufficient to reduce VC to ethene completely via reductive dechlorination.

3.7 Summary

In summary, the EISB treatment has been effective in reducing the VOC concentrations (PCE by as much as 99.7%) and the conditions are still conducive for continued reductions. Although biologic activity has slowed and substrate mass is decreasing, the COC mass requiring treatment is also greatly diminished. Therefore, continued reductions of COC concentrations do not require robust biologic activity. Reductions of VOCs (**Figure 8**) and increases in ethene (**Tables 5** and **6**) have been observed throughout both the eastern and western plume areas. The individual COC lateral extents comparing October 2016 MCL exceedances and those documented in June 2020 show a greatly contracted plume footprint (**Figure 9**). Combining the reduction in maximum concentrations and the reduction in areal extent indicate significant remediation progress.

4 NATURAL ATTENUATION EVALUATION

This section presents the results of the natural attenuation evaluation in accordance with the three lines of evidence discussed in the Final Remedial Design (Shaw, September 2011) for LHAAP-35A (58) groundwater COCs. The discussion below pertains only to the shallow aquifer where COCs are detected above cleanup levels. Analytes eliminated starting in 2019, per the Draft TM – MNA Parameters (Bhate/APTIM, January 2019) were alkalinity, nitrite, sulfide, total iron, dissolved manganese, total phosphorous, and dissolved iron (lab analysis).

Per the August 2013 RAWP (AECOM, August 2013), 18 shallow monitoring wells were included in the MNA monitoring program for VOCs (35AWW06, 35AWW08, 35AWW10, 35AWW11, 35AWW12, 35AWW13, 35AWW14, 35AWW15, 35AWW16, 35AWW17, 35AWW18, 35AWW19, 35AWW20, 35AWW21, 35AWW22, LHSMW04, LHSMW06, and LHSMW07). Well 35AWW01 is the intermediate groundwater well evaluated for VOCs; however, intermediate groundwater monitoring 35AWW05 will also be sampled for VOCs in Year 7 RA(O). Note that LHSMW04 was not sampled because it was dry. However, following the 2018 EISB treatment within the western plume, wells 35AWW20, LHSMW07, and 35AWW19 are performance monitoring wells for the contingency remedy.

4.1 First Line of Evidence: Change in COC Concentrations over Time and with Distance

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 and distance in the absence of any other treatment is evidence of natural attenuation (AECOM, May 2016). The change in groundwater COC concentrations over time and with distance was evaluated at LHAAP-35A (58). COC exceedances for the Year 6 RA(O) monitoring period are presented on **Figure 6**.

The only wells where COCs were detected above their respective MCLs during the Year 6 RA(O) groundwater sampling events are 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 (**Tables 2 and 3**). The only wells where COCs were detected above their respective MCLs during the June 2020 groundwater sampling event are 03WW01, 35AWW08, 35AWW09, 35AWW14, 35AWW18, 35AWW20, LHSMW06, and LHSMW07 (**Tables 2 and 3**).

The Draft Final RACR for LHAAP-35A (58) (AECOM, October 2015) states that historical groundwater data indicates that monitoring wells 35AWW20 and LHSMW07 in the western plume, and wells 35AWW08 and 35AWW09 in the eastern plume, will be the primary focus of COC trend analysis as they contain the highest relative COC concentrations. Additionally, COCs exceeded MCLs in well 03WW01, located in the eastern plume, during this monitoring period and are therefore discussed herein.

Mann-Kendall analysis for the available historical data in each well (typically starting in 2008) through the end of the Year 6 RA(O) period (June 2020) was completed for various COCs for

monitoring wells 03WW01, 35AWW08, 35AWW09, 35AWW20, LHSMW06, and LHSMW07. The results are presented in **Appendix G** in tabular and graphical format with statistical results presented on the lower left hand side of the table. The GSI Environmental, Inc., Mann-Kendall Toolkit, Version 1.0 software was used for this analysis. Data used to generate the Mann-Kendall analysis is presented in **Table 4.** A summary table of the Mann-Kendall results is presented below.

Mann-Kendall Trend Summary

Monitoring Well	PCE	TCE	cis-1,2-DCE	1,1-DCE	VC
03WW01	**Decreasing***	**Decreasing***	**Probably Increasing***	--	--
35AWW08	**Decreasing**	**Decreasing**	**Stable***	--	--
35AWW09	**Increasing**	**Increasing**	**Increasing***	--	--
35AWW20	--	**Decreasing**	**Decreasing***	**Decreasing**	**Increasing**
LHSMW06	--	**Increasing**	--	**Increasing**	**Increasing**
LHSMW07	--	**Stable***	--	**Decreasing**	**Increasing**

Note:
* Most recent concentrations are below MCLs

Of the analyzed parameters and wells using Mann-Kendall statistical analysis set, three monitoring wells, 03WW01 and 35AWW08 within the eastern plume and 35AWW20 in the western plume, showed a decreasing trend in parent compounds (PCE and/or TCE) concentration over time. Since June 2019, PCE and TCE in 03WW01 have been below the MCL of 5 µg/L. PCE in 03WW01 has a decreasing trend with a confidence factor > 99.9%. Additionally, TCE in 03WW01 has a decreasing trend with a 98.2% confidence factor. In 35AWW08, PCE was not detected and below the MCL for the first time in July 2018, although it is currently above the MCL of 5 µg/L as of June 2020 (6.7 µg/L). Despite this recent exceedance, PCE in 35AWW08 shows a decreasing trend with a confidence factor > 99.9%. Similarly, TCE in 35AWW08 has a decreasing trend with a 99.9% confidence factor. Although PCE trends were not evaluated at 35AWW20 because it has been non-detect or below the MCL since 2013, TCE displays a decreasing trend with a confidence factor > 99.9%.

4.1.1 Eastern Plume

Well 03WW01

This well is located within the September 2013 EISB area. PCE and TCE previously detected in this well at concentrations above their respective MCLs were not detected from October 2016 through July 2018. Detections in the Year 6 RA(O) were < 0.5 µg/L for PCE and TCE in December

2019 and 4.5 J µg/L for PCE and TCE in June 2020. Although PCE and TCE were detected in June 2020, these detections were below the MCL for two consecutive sampling events. The decrease in PCE concentration is 99.8% between August 2013 and June 2020 and the decrease in TCE is 95.3% over the same time period. Degradation of TCE resulted in the maximum concentration of cis-1,2-DCE at 117 µg/L in April 2016, with a subsequent decline in the Year 6 RA(O) to 17 µg/L in June 2020.

The Mann-Kendall trend analysis in 03WW01 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 6 RA(O) period (June 2020) (**Appendix G**). The Mann-Kendall results indicate statistical evidence of a decreasing trend in concentrations for PCE (confidence factor > 99.9%) and TCE (confidence factor of 98.2%). The cis-1,2-DCE results indicate a probably increasing trend; however, the detected concentrations have been below the MCL since October 2016.

Well 35AWW08

This well is located within the September 2013 EISB area. PCE concentrations decreased rapidly after the introduction of the carbon substrate and bacterial augmentation, however, the PCE concentration as of June 2020 exceeded the MCL at 6.7 µg/L. TCE concentrations increased after substrate injection and more rapidly after bioaugmentation, reaching a peak of 953 µg/L in May 2014 followed by a decrease to 17 µg/L in June 2020. The initial increase in TCE concentrations is an indication of PCE degradation.

Degradation of TCE resulted in a temporary increase in cis-1,2-DCE concentrations, especially during the Year 2 monitoring period, reaching a high of 79.6 µg/L in October 2015. In June 2020, cis-1,2-DCE was detected below the MCL at 7.3 µg/L.

The Mann-Kendall trend analysis in 35AWW08 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 6 RA(O) period (June 2020) (**Appendix G**). The results provide statistical evidence of a decreasing trend in concentrations for PCE (confidence factor > 99.9%) and TCE (confidence factor of 99.9%). The cis-1,2-DCE results indicate a stable trend with a confidence factor of 58.5%, however, concentrations are currently below the MCL.

Well 35AWW09

This well is located downgradient of the September 2013 EISB area. PCE and TCE were detected in this well at concentrations above their respective MCLs during the Year 6 RA(O) monitoring period. PCE concentrations increased from 57.6 J µg/L in October 2013 to 440 µg/L in June 2020. Similarly, TCE concentrations exhibited a significant increase from 8.97 J µg/L in October 2013 to 140 µg/L in June 2020. It should be noted that cis-1,2-DCE was detected at a low concentration of 1.1 µg/L during both semi-annul events in the Year 6 RA(O) period, and VC was not detected.

The Mann-Kendall trend analysis in 35AWW09 was conducted for PCE; TCE; and cis-1,2-DCE for analytical results from 2008 through the end of the Year 6 RA(O) monitoring period (June 2020) (**Appendix G**). The results provide statistical evidence of an increasing trend in PCE (99.0% confidence factor) and TCE (99.1% confidence factor) concentrations. Additionally, there is

statistical evidence of an increasing trend in cis-1,2-DCE concentrations (99.9% confidence factor), although all concentrations are below the MCL.

The cause of the increase in COCs in well 35AWW09 appears to be migration of COCs in groundwater from the upgradient contaminated area (e.g., 35AWW08 and 03WW01). The initial increase in concentrations in 35AWW09 is likely associated with continued plume migration downgradient. The influence of biodegradation associated with EISB appears to remain within the area targeted for EISB (area of monitoring wells 35AWW08 and 03WW01) with little to no influence observed in 35AWW09. **Figure 8** shows COC concentration profiles in wells 03WW01, 35AWW08, and 35AWW09, and the table above summarizes the Mann-Kendall trend results for these same wells.

4.1.2 Western Plume

Well 35AWW20

The concentrations of 1,1-DCE; cis-1,2-DCE; TCE; and VC were detected in this well above their respective MCLs during the quarterly Year 6 RA(O) monitoring events (**Table 3**). EISB injections were completed in the Western Plume in March and April 2018 (Bhate, August 2018). Concentrations of TCE have decreased by approximately 70.6% between November 2017 (320 µg/L) and June 2020 (94 µg/L), while the concentration of 1,1-DCE decreased by 45.0%, between November 2017 (1,900 µg/L) and June 2020 (1,100 µg/L). Conversely, as TCE has decreased, the TCE daughter product cis-1,2-DCE has slightly increased from November 2017 (53 µg/L) to June 2020 (63 µg/L), and the TCE degradation product VC significantly increased between November 2017 and June 2020 from 78 µg/L to 2,000 µg/L.

In addition to the above COCs, well 35AWW20 contained 1,1,2-TCA and 1,2-DCA (daughter product of degradation of 1,1,2-TCA) above the MCLs (5 µg/L for 1,1,2-TCA and also for 1,2-DCA) during the quarterly Year 6 RA(O) monitoring events (**Table 3**). Prior to EISB treatment, the COC 1,1,2-TCA fluctuated between a minimum of 48.3 µg/L in February 2014 and a maximum of 82.7 µg/L in October 2016. Additionally, the 1,1,2-TCA daughter product, 1,2-DCA, fluctuated between a minimum of 13.2 µg/L in February 2014 and a maximum of 20.3 µg/L in October 2013. During the period following EISB treatment (March 2018 through June 2020), 1,1,2-TCA fluctuated between a minimum of 38 J µg/L in March 2019 and a maximum of 88 µg/L in December 2018, and 1,2-DCA fluctuated between a minimum of 8.7 µg/L (duplicate) in November 2017 and a maximum of 26 µg/L in December 2018 for 1,2-DCA.

The Mann-Kendall trend analysis in 35AWW20 was conducted for TCE; cis-1,2-DCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 6 RA(O) period (June 2020) (**Appendix G**). The results indicate evidence of a decreasing trend over time at 35AWW20 for TCE (> 99.9% confidence factor); 1,1-DCE (> 99.9% confidence factor); and cis-1,2-DCE (confidence factor of 97.9%). Conversely VC concentrations indicate an increasing trend over the last three sampling events, supporting that reductive dechlorination is occurring in the vicinity of 35AWW20 (confidence factor of 99.0%).

Well LHSMW06

The COCs TCE; 1,1-DCE; and VC exceeded the MCLs in the December 2019 and June 2020 sampling events (**Table 3**). The Mann-Kendall trend analysis in LHSMW06 was conducted for TCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 6 RA(O) period (June 2020). While the results indicate increasing trends in concentrations (with confidence factors of > 99.9%) for TCE; 1,1-DCE; and VC over time, the maximum detected concentrations of these COCs were 17 µg/L, 22 µg/L, and 5.7 µg/L, respectively.

Well LHSMW07

During the initial 3-year monitoring period, the COCs 1,1-DCE; TCE; and VC were detected in this well at concentrations above their respective MCLs as well as the first sampling event in Year 4 (November 2017). However, during the four sampling events in Year 6, only 1,1-DCE and VC exceeded the MCLs in June 2020, at concentrations of 130 µg/L and 44 µg/L, respectively. TCE remained below the MCL of 5 µg/L.

The Mann-Kendall trend analysis in LHSMW07 was conducted for TCE; 1,1-DCE; and VC for analytical results from 2008 through the end of the Year 6 RA(O) period (June 2020). The results indicate a stable trend in concentrations for TCE (confidence factor of 88.1%). The results provide statistical evidence of a decreasing trend in concentrations for 1,1-DCE (confidence factor of 96.9%) and an increasing trend in VC (confidence factor of > 99.9%).

1,1,2-TCA was detected above the MCL of 5 µg/L for the first time in April 2014 at 5.68 µg/L and was also above the MCL in October 2016 at a concentration of 7.72 µg/L. However, 1,1,2-TCA was not detected in September 2019, December 2019, March 2020, or June 2020. It was detected at a concentration of 0.73 J µg/L in September 2018, below the MCL of 5 µg/L. 1,1-DCA, the daughter product of 1,1,2-TCA, was detected below the MCL, at concentrations between 9.0 µg/L in June 2020 and 42 µg/L in December 2018.

Figure 8 shows COC concentration profiles in wells 35AWW20 and LHSMW07 only, and the table above summarizes the Mann-Kendall trend results for these same wells.

4.1.3 Plume Stability

Figure 8 shows trends associated with key wells in both the eastern and western plume core and leading edge. **Figure 9** compares the extent of the plume associated with each COC in October 2016 compared to June 2020. Plume stability is evaluated through these figures in conjunction with the analyses presented in the sections above.

4.1.3.1 Eastern Plume

Based on the southeasterly direction of groundwater flow over the 5-year RA(O) monitoring period, the following wells are considered to be along the groundwater flow path: 35AWW10, 35AWW08, 03WW01, 35AWW09, and 35AWW21. The COC concentrations in the upgradient well, 35AWW10, remained below detection limits during the Year 6 RA(O) events.

Figure 8 provides plots of groundwater COC concentrations and groundwater elevation changes over time in wells 35AWW08, 03WW01, and 35AWW09. Monitoring well 35AWW08 has a Mann-Kendall decreasing trend for both PCE and TCE and a stable trend for cis-1,2-DCE. PCE and TCE in 35AWW08 had detected concentrations above the MCLs in June 2020, at 6.7 µg/L and 17 µg/L, respectively. Monitoring well 03WW01, which is hydraulically downgradient of 35AWW08 and upgradient of 35AWW09, has a Mann-Kendall decreasing trend for PCE and TCE and a probably increasing trend for cis-1,2-DCE, although the concentrations are below the MCLs for these three COCs.

Monitoring well 35AWW09 is located approximately 75 ft downgradient from 03WW01. There is an increasing trend in concentrations of PCE and TCE in 35AWW09. The increase in concentrations in 35AWW09 is likely associated with downgradient dissolved phase migration from higher concentration areas near well 35AWW08. A review of the data in 35AWW09 over the course of the Year 6 monitoring period does not indicate any correlation between groundwater elevations and COC concentrations.

The concentrations of COCs in downgradient wells 35AWW12 and 35AWW21 remained below the detection limits. No increased concentrations or detections of new COCs at boundary area wells 35AWW10, 35AWW13, 35AWW22, 35AWW12, and 35AWW21 occurred, therefore, the extent of the eastern plume is stable.

4.1.3.2 Western Plume

Based on the southeasterly direction of groundwater flow, the following wells can be considered to be along the groundwater flow path from 35AWW15, 35AWW20, 35AWW23, and 35AWW19, to 35AWW24 with a less dominant southerly component from LHSMW07 and 35AWW06 to 35AWW17. Groundwater also flows southeasterly from LHSMW06 and 35AWW23 to 35AWW19 and 35AWW11 to 35AWW14. The COC concentrations in upgradient well 35AWW15 have remained below detection limits throughout the Year 6 reporting period. The in-plume well (35AWW20) exhibits the highest levels of COCs, which have, based on the Mann-Kendall analysis, shown a decreasing trend for TCE; 1,1-DCE; and cis-1,2-DCE. Only VC is showing an increasing trend indicating ongoing reductive dechlorination at 35AWW20.

The impacts observed at 35AWW20 are unique. In addition to PCE and associated daughter products, the following chlorinated solvents are detected: 1,1,2-TCA; 1,1-DCA; 1,2-DCA; and 1,1-DCE. As indicated in Table 3, 1,1-DCE concentrations decreased from 3,900 µg/L in September 2019 to 1,100 µg/L in June 2020. A degradation product of 1,1-DCE dechlorination is VC. VC concentrations have significantly increased in 35AWW20 and remain above MCLs in June 2020. Decreasing trends are observed for both TCE and 1,1-DCE. While VC concentrations have increased approximately 150% from 790 µg/L in September 2019 to 2,000 µg/L in June 2020, much of the increase is attributed to the 72% reduction of 1,1-DCE over the same time period. There is no evidence VC is accumulating or stalling and VC is not expected to persist under the current site geochemical aquifer conditions.

The 1,1-DCE concentration in monitoring well 35AWW19, located in a downgradient direction of the western plume, has decreased from above the MCL in January 2014 through December 2018, to below the MCL in June 2020 (4.6 µg/L). Detections of 1,1-DCE in monitoring well 35AWW19 remained below the MCLs in the Year 6 RA(O) sampling events suggesting that migration of the plume is no longer occurring following EISB treatment of the western plume. However, it should be noted that 1,1-DCE and VC were detected in cross-gradient well LHSMW06 above the MCLs in the June 2020 sampling event.

Evidence that plume expansion is not occurring is that concentrations of COCs in perimeter wells, including boundary area wells 35AWW15, 35AWW16, 35AWW17, and 35AWW18, exhibited no detections of COCs.

4.2 Second Line of Evidence: Geochemical Indicators

Table 2 includes the geochemical indicator parameters that are useful for MNA evaluation. Some geochemical parameters are measured in the field and are recorded during sampling events. The field parameters for LHAAP-35A (58) wells include: DO, ORP, pH, conductivity, turbidity, and temperature. The other geochemical indicators analyzed in the laboratory include: alkalinity, chloride, nitrate, nitrite, iron, sulfate, sulfide, methane, ethane, ethene, TOC, phosphorous, manganese, and dechlorinating bacteria. Analytes eliminated in 2019 per the Draft TM – MNA Parameters (Bhate/APTIM, January 2019) were alkalinity, nitrite, sulfide, total iron, dissolved manganese, total phosphorous, and dissolved iron (lab analysis). TOC continues to be evaluated due to the March/April 2018 EISB treatment with the western plume.

A summary of the geochemical aquifer conditions following ERD injections in each plume area is presented in **Tables 5 and 6**. The following discussion examines the geochemical indicators recorded during the Year 6 RA(O) monitoring period.

4.2.1 Eastern Plume

- pH – Neutral pH (6.0 to 8.5 s.u.) is desirable for MNA. During the Year 6 RA(O) monitoring period, groundwater was observed within this range throughout the impacted areas of the eastern plume. Minor excursions were observed outside the plume.
- Chloride – During biodegradation of chlorinated hydrocarbons in groundwater, chloride is released. This results in higher chloride concentrations in the contaminant plume as compared to background levels in upgradient wells or in un-impacted downgradient wells (USEPA, September 1998). Chloride levels in the shallow zone ranged between 4.46 mg/L (December 2019) in background well 35AWW10 and 2,510 mg/L in plume performance monitoring well 35AWW08 in June 2020. Additionally, chloride levels within eastern plume EISB treatment area wells 03WW01 (965 mg/L in June 2020) and 35AWW09 (1,490 mg/L in June 2020) provide evidence of biodegradation in the eastern plume. These levels can be compared to background chloride concentrations in upgradient well 35AWW10 with a chloride concentration of 6.59 mg/L in June 2019.

- Dissolved Oxygen – DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA, September 1998). Anaerobic bacteria generally cannot function at DO concentrations > 0.5 mg/L and hence, reductive dechlorination will not occur. In June 2020, eastern plume treatment area wells 03WW01 and 35AWW08 had DO measurements of 0.04 and 0.07 mg/L respectively. The DO levels in the treatment area are conducive to reductive dechlorination. The DO level observed in eastern plume well 35AWW09 was 1.17 mg/L (June 2020); this DO level is not low enough to adequately support anaerobic conditions outside of the EISB treatment area (35AWW09).
- Oxidation-Reduction Potential – The ORP levels indicate how oxidative or reductive the groundwater is in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values < 50 millivolts (mV) indicate that the aquifer is sulfate-reducing, and values < -200 mV are required before anaerobic conditions are favorable for the biological reductive dechlorination of chlorinated ethenes. In June 2020, ORP measurements at 03WW01 (-139 mV) and 35AWW08 (-172 mV) indicated anaerobic conditions are marginally favorable for reductive dechlorination within the treatment area; however, ORP is one of many lines of evidence of reductive dechlorination. The ORP measured outside of the EISB area was 165 mV in June 2020 at well 35AWW09. This indicates that conditions in the eastern plume outside of the EISB treatment area (35AWW09), are generally aerobic and not supportive of anaerobic degradation.
- Nitrate – After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of organic carbon by denitrification. In order for reductive dechlorination to occur, nitrate concentrations in the contaminated portion of the aquifer must be less than 1.0 mg/L (USEPA, September 1998). Nitrate was not detected in June 2020 at 35AWW08 or 03WW01. Based on these observations, nitrate reduction in the shallow aquifer is not a likely mode of microbial respiration at the site, and the lack of nitrate is favorable for achieving the reducing conditions ideal for anaerobic reductive dechlorination.
- Iron – In some cases, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which may be soluble in water. Ferrous iron concentrations can be used as an indicator of anaerobic degradation of organic compounds. Ferrous iron concentrations in LHAAP-35A (58) wells during the June 2020 sampling event were as follows: 1.74 mg/L in 03WW01; 3.08 mg/L in 35AWW08; and 0.43 mg/L in 35AWW09. The comparatively higher concentrations of ferrous iron in monitoring wells 03WW01 and 35AWW08 indicate active reductive conditions in the eastern plume around these wells as a result of EISB. However, ferrous iron concentrations in 35AWW09 indicate limited reductive conditions in the portion of the eastern plume outside the influence of EISB.

- Sulfate – After DO and nitrate have been depleted in the microbiological treatment zone, 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 > 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA, September 1998). Sulfate concentrations were 231 mg/L in 03WW01 (June 2020) and 15.5 mg/L in 35AWW08 (June 2020). The sulfate concentration in 35AWW09, outside the influence of EISB, was 1,060 mg/L in June 2020. Sulfate levels were above 20 mg/L in the wells sampled within the eastern plume, except 35AWW08.
- Dissolved gases – Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Ethane and ethene are the end products of reductive dechlorination of chlorinated VOCs, and their levels increase if complete reductive dechlorination takes place. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (USEPA, September 1998). Methane concentrations in well 03WW01 have increased from pre-EISB concentrations of 3.22 µg/L in August 2013 to 640 µg/L in June 2020. Similarly, methane concentrations in 35AWW08 increased from 10.1 µg/L in August 2013 to 1,500 µg/L in June 2020. These wells are influenced by EISB and the production of methane is a strong indicator of anaerobic conditions. Ethene was detected at concentrations of 0.46 µg/L in 03WW01 and 12 µg/L in 35AWW08 in June 2020. The ethene detected in June 2020 at 35AWW08 is the highest ethene detection measured to date and indicates the complete dechlorination of chlorinated COCs in this portion of the eastern plume.
- TOC – Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as a carbon and energy source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations > 20 mg/L are considered adequate to support microbial activity (USEPA, September 1998). TOC concentrations in eastern plume area wells 03WW01 and 35AWW08, influenced by injected substrate, exceeded this threshold with December 2018 concentrations of 42 mg/L and 392 mg/L respectively. The TOC remained relatively stable in the June 2020 sampling event with detections for 03WW01 and 35AWW08 being 69.8 mg/L and 208 mg/L respectively. These concentrations indicate that sufficient TOC remains in the aquifer to support reductive dechlorination in the eastern plume. However, TOC is decreasing towards the lower end of the threshold. As expected, TOC was very low (3.17 mg/L in June 2020) at 35AWW09, which is located outside of the EISB treatment zone.
- Volatile fatty acids (VFA) – The presence of VFAs confirms the fermentation of carbon substrates and should be observed coincident with elevated TOC. Low levels of acetic acid (6.1 mg/L) and lactic acid (1.8 J mg/L) were observed in well 35AWW08 during the June 2020 sampling event, confirming fermentation is occurring to some extent. VFA were non-detect in 35AWW09, which is outside of the EISB treatment zone. VFAs were not detected in groundwater from well 03WW01 during June 2020.

The qualitative assessment of geochemical indicators in the shallow groundwater zone at LHAAP-35A (58) indicates naturally occurring geochemical conditions are not supportive of MNA. However, the areas influenced by the EISB treatment continue to allow for MNA.

4.2.2 Western Plume

- pH – Neutral pH (6.0 to 8.5 s.u.) is desirable for MNA. During the Year 6 RA(O) monitoring period, groundwater was observed within this range throughout the impacted areas of the western plume. Minor excursions were observed outside the plume.
- Chloride – During biodegradation of chlorinated hydrocarbons in groundwater, chloride is released to groundwater. This results in higher chloride concentrations in the contaminant plume as compared to background levels in upgradient wells or in unimpacted downgradient wells (USEPA, September 1998). Prior to EISB injection, the chloride levels in the shallow zone detected in November 2017 ranged from 1,040 mg/L in 35AWW06 to 2,650 mg/L in 35AWW11. Chloride levels in 35AWW11 were slightly lower in June 2020 than the pre-EISB injection results but still elevated (2,040 mg/L). Chloride levels in the shallow zone were also elevated in LHSMW07, and remained stable over the Year 6 RA(O) from 1,820 mg/L in September 2019 to 2,010 mg/L in June 2020. Additionally, chloride levels within the other western plume EISB treatment area wells provide evidence of biodegradation in the western plume. These levels can be compared to background chloride concentrations in downgradient wells such as 35AWW24 with a chloride concentration below 120 mg/L.
- Dissolved Oxygen – DO is the most thermodynamically favored electron acceptor used by microbes for biodegradation of organic carbon, whether natural or anthropogenic (USEPA, September 1998). Anaerobic bacteria generally cannot function at DO concentrations > 0.5 mg/L and hence, reductive dechlorination will not occur. The DO levels observed in western plume wells 35AWW06, 35AWW11, 35AWW19, 35AWW20, 35AWW23, 35AWW24, and LHSMW07 were < 0.1 mg/L in June 2020 (**Table 6**). These DO levels are adequate to support anaerobic conditions within the EISB treatment area.
- Oxidation-Reduction Potential – The ORP levels indicate how oxidative or reductive the groundwater is in the aquifer matrix and provide real-time data to determine if conditions are conducive for anaerobic biodegradation. ORP values < 50 mV indicate that the aquifer is sulfate-reducing, and vales < -200 mV are required before anaerobic conditions are favorable for the biological reductive dechlorination of chlorinated ethenes. During the monitoring period, wells within proximity of the EISB treatment area (35AWW06, 35AWW11, 35AWW20, 35AWW23, and LHSMW07) exhibited a negative ORP. Areas outside of the treatment area (LHSMW06, 35AWW16, 35AWW18, 35AWW19, and 35AWW24) continued to have a positive ORP. These results indicate that conditions in the western plume outside of the EISB treatment area are generally aerobic and not supportive of anaerobic degradation.

- Nitrate – After DO has been depleted in the microbiological treatment zone, nitrate may be used as an electron acceptor for anaerobic biodegradation of organic carbon by denitrification. In order for reductive dechlorination to occur, nitrate concentrations in the contaminated portion of the aquifer must be < 1.0 mg/L (USEPA, September 1998). Nitrate concentrations were non-detect or below 1 mg/L in the western plume monitoring wells in each of the sampling events during the Year 6 Year monitoring period. Based on these observations, nitrate reduction in the shallow aquifer is not a likely mode of microbial respiration at the site, and the lack of nitrate is favorable for achieving the reducing conditions ideal for anaerobic reductive dechlorination.
- Iron – In some cases, iron (III) (ferric iron) is used as an electron acceptor during anaerobic biodegradation of organic carbon. During this process, iron (III) is reduced to iron (II) (ferrous iron), which may be soluble in water. Ferrous iron concentrations can be used as an indicator of anaerobic degradation of organic compounds. Ferrous iron concentrations in western plume wells during the Year 6 period ranged from 1.34 mg/L (35AWW20, December 2019) to 3.3 mg/L (35AWW06 [September 2019, December 2019, and June 2020], 35AWW11 [December 2019], and 35AWW23 [September 2019]). Starting in Year 6, the ferrous iron data was collected in the field to ensure a more accurate result since the reaction from ferric to ferrous iron occurs quickly if exposed to oxygen. The relatively high concentrations of ferrous iron in monitoring wells outside of the main contaminant plume areas (35AWW06) and lower within the plume areas (35AWW20) indicates active reducing conditions exist in the western plume and that ferric iron may be utilized as an electron acceptor in some areas of the plume generating elevated ferrous iron concentrations.
- Sulfate – After DO and nitrate have been depleted in the microbiological treatment zone, 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 > 20 mg/L may cause competitive exclusion of dechlorination. However, in many plumes with high concentrations of sulfate, reductive dechlorination still occurs (USEPA, September 1998). Sulfate concentrations decreased significantly downgradient of the main plume in 35AWW06 from 1,560 mg/L in November 2017 to 35.1 mg/L in June 2020 (**Table 6**). Concentrations have fluctuated within the plume (35AWW20) decreasing from 2,150 mg/L in November 2017 to 882 mg/L in July 2018 and increasing again to 1,270 mg/L in June 2020.
- Dissolved gases – Methanogenesis occurs in highly reducing conditions and generally occurs after oxygen, nitrate, and sulfate have been depleted. Ethane and ethene are the end products of reductive dechlorination of chlorinated VOCs and their levels increase if complete reductive dechlorination takes place. Methane levels above 500 µg/L are considered to indicate methanogenic conditions (USEPA, September 1998). Methane concentrations above 500 µg/L in June 2020 were present in wells 35AWW06, 35AWW11, and 35AWW23. Ethene was detected within the western plume in wells LHSMW07 and 35AWW20 in June 2020; the two wells with highest detected VOC concentrations. This

indicates complete degradation of VOCs within the wells containing the highest VOC detections in the western plume.

- Total Organic Carbon – Regardless of the electron acceptor being used, organic carbon is a required source of reduced carbon and energy to sustain microbial activity. TOC is utilized as a carbon and energy source to support the reductive dechlorination of the chlorinated COCs. TOC concentrations > 20 mg/L are considered adequate to support microbial activity (United States Environmental Protection Agency [USEPA], 1998). TOC concentrations in the western plume increased following EISB injections, which is to be expected. However, during the Year 6 reporting period all wells in the western plume, with exception of 35AWW06 (September 2019) and 35AWW23 (throughout Year 6), had TOC concentrations below 20 mg/L Although TOC concentrations are low in these two wells, ethene was detected, indicating that complete reductive dechlorination is occurring.
- VFAs – The presence of VFAs confirms the fermentation of carbon substrates and should be observed coincident with elevated TOC. The highest levels of acetic acid (250 mg/L) and propionic acid (1,100 mg/L) were observed in well 35AWW23 during the September 2019 sampling event, confirming fermentation is occurring even though COC concentrations were already relatively low in this well. Where COCs were elevated, at 35AWW20, acetic acid was detected at 3.1 J mg/L in December 2019 and all other VFAs were non-detect, indicating fermentation was not occurring where remedial action was required.

The qualitative assessment of geochemical indicators in the shallow groundwater zone at LHAAP-35A (58) indicates that geochemical conditions in many areas of the plume are supportive of MNA, both within the areas influenced by the EISB treatment and also downgradient of that area.

4.3 Third Line of Evidence: Predictive Modeling and Microbial Analysis

If the first two lines of evidence for MNA are deemed inadequate or inconclusive, and/or if the need for a contingency remedy is evaluated, data from field or microcosm studies will be necessary to establish the third line of evidence for MNA.

Dechlorinating bacteria, DHC ethenogenes, and associated functional genes have been analyzed in wells within and outside the eastern and western plumes. Microbial population analyses was discontinued during the Year 6 reporting period at wells 35AWW10 and 35AWW24, located outside of the EISB areas as recommended in the Year 5 RA(O) Report. It has been established that the microbial populations are limited and unaffected by the EISB injections in these areas.

4.3.1 Eastern Plume

Dechlorinating bacteria, DHC and DHB, and associated functional genes were analyzed in groundwater samples from wells 03WW01, 35AWW08, and 35AWW09, within and outside the eastern plume. Generally, the microbial population counts and the functional gene counts have been at or below the laboratory reporting limits in areas not influenced by bioaugmentation such

as at 35AWW09, indicating a limited natural population of the bacteria and the absence of gene expression necessary for anaerobic biological degradation of the COCs. However, during the current reporting period, monitoring well 35AWW09 had elevated microbial population counts at 2,400,000 cells/mL for DHC and 42,500 cells/mL DHB in December 2019. In June 2020, at monitoring well 35AWW08, the microbial population counts were comparatively lower than 35AWW09, at 594,000 cells/mL for DHC and 29,500 cells/mL for DHB, and have also decreased since June 2019 (**Table 5**). The high microbial population counts at monitoring well 35AWW09 indicate that anaerobic degradation of COCs is possible at 35AWW09 even though the September 2013 EISB injection effort did not specifically target this well.

The microbial population count in 03WW01 (6,500 cells/mL for DHC and 699 cells for DHB in June 2020) was low compared to the cell counts in 35AWW08, but elevated compared to 03WW01 cell counts in June 2019 (6,040 cells/mL for DHC and 292 cells/mL for DHB). The continued presence of the VC reductase in 03WW01, 35AWW08, and 35AWW09 indicates that complete reductive dechlorination can occur to allow VC to reduce to ethene over time.

4.3.2 Western Plume

Dechlorinating bacteria, DHC ethenogenes, DHB, BAV1 VC Reductase, and associated functional genes were analyzed in groundwater samples from wells within and outside the western plume. Monitoring wells 35AWW20 and LHSMW07 had significant changes in detections of DHB over the Year 6 reporting period with increases in each of these two monitoring wells. DHC increased in 35AWW20 from non-detected counts in September 2018 to 115,000 cells/mL in June 2020, while decreasing in LHSMW07 from 11,600 cells/mL in September 2018 to 1,090 cells/mL in June 2020. Although DHC decreased at LHSMW07, the presence of the VC reductase in LHSMW07 at cell counts ranging from 274 cells/mL (September 2019) to 2,270 cells/mL (March 2020) during Year 6 RA(O) is an increase over the 3.9 cells/mL reported in July 2018.

As previously discussed, VC has increased as a result of the reductive dechlorination of TCE and 1,1-DCE within the western plume. However, the increase of DHC and presence of VC reductase indicates that complete reductive dechlorination can occur to allow VC to reduce to ethene over time. Ethene increased in 35AWW20 from 1.3 µg/L in June 2019 to 5.5 µg/L in June 2020. Therefore, complete degradation is occurring and is expected to continue.

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5 CONCLUSIONS AND RECOMMENDATIONS

COC concentration data and geochemical indicator measurements were collected over the course of the monitoring period at LHAAP-35A (58) to evaluate the effectiveness of the EISB and MNA groundwater remedy. A tiered approach based on assessment of three lines of evidence was used to evaluate the occurrence of natural attenuation in site groundwater. The first line of evidence evaluated reductions in COC concentrations over time and with increasing distance from source areas, including evaluation of Mann-Kendall tests for trends; the second line of evidence evaluated geochemical indicators; and the third line of evidence evaluated microbial conditions in the aquifer. The results of the tiered evaluation and the conclusions are summarized below.

Data for Year 6 RA(O) were collected between September 2019 and June 2020. The groundwater flow direction at the site is interpreted to the southeast in the western portion of the site and to the east-southeast in the eastern portion of the site (see **Figures 4 and 5**).

The EISB treatment in the eastern and western plume area appears to be effectively reducing the VOC concentrations and the current groundwater conditions are conducive to continued reductions of VOCs throughout most of the site. Although recent increases in degradation products 1,1-DCE and VC have been observed within the western plume, decreases in parent compounds TCE and 1,1,2-TCA indicate that reductive dechlorination is ongoing, in the area of 35AWW20 and LHSMW07. Reductive dechlorination in this portion of the western plume is supported by a near-neutral pH and sufficient microbial population counts. **Figure 8** presents the graphical depiction of the trends of the COCs of various monitoring wells within LHAAP-58. With the exception of 35AWW09, the trend plots display decreasing COC trends in both the eastern and western plumes. Furthermore, **Figure 9** presents the change in the plumes from October 2016 to June 2020, which demonstrates the reduced lateral extent of the plumes.

The primary initial influence of EISB within the eastern plume was a reduction of PCE in 03WW01 and 35AWW08. TCE concentrations were observed to increase at each well after the September 2013 substrate injection, as PCE was degraded to TCE, followed by a decrease in concentration as the rate of TCE formation became lower than the rate of TCE biodegradation. Generally, cis-1,2-DCE was observed to increase in these two wells due to formation of cis-1,2-DCE from biodegradation of TCE. PCE; TCE; cis-1,2-DCE; and VC had reduced to non-detect at well 03WW01 by the end of the Year 3 RA(O) (October 2016). Throughout 2019 and 2020, cis-1,2-DCE and VC concentrations have remained steady in 03WW01 until detected concentrations in June 2020 were 17 µg/L (cis-1,2-DCE) and 7.2 µg/L (VC). PCE and TCE concentrations increased in 03WW01 in December 2018 to 15 µg/L and 5.7 µg/L, respectively; but returned to levels below MCLs in June 2020. PCE remained above MCL in well 35AWW08 in June 2020 at 6.7 µg/L. However, based upon the presence of ethene in both wells, complete degradation is occurring.

Concentrations of PCE and TCE in 35AWW09, located within the eastern plume but outside the EISB area, have fluctuated seasonally with the December 2019 results the highest over the last 5 years. Continued monitoring of 35AWW09 will allow for further evaluation of the COC concentration trends. The concentrations of COCs in downgradient well 35AWW21, which is

located outside the eastern plume, have remained below the detection limits. Therefore, based on the inferred east-southeastern groundwater flow path, COC levels are not migrating beyond the original plume boundaries. Concentrations of COCs downgradient of monitoring wells 35AWW08, 03WW01, and 35AWW09 have exhibited no increase in COC concentrations or new detections of COCs. Specifically, the boundary area wells 35AWW10, 35AWW13, 35AWW22, 35AWW12, and 35AWW21 do not have increasing COC trends. Therefore, it appears that the lateral extent of the eastern plume is stable.

In the western plume, EISB treatment was completed in March and April 2018 per the Final RAWP (Bhate, January 2018). The concentrations of COCs (PCE; TCE; cis-1,2-DCE; 1,1-DCE; and VC), in upgradient well 35AWW15 have remained below detection limits during this monitoring period. Concentrations of COCs in perimeter wells, 35AWW15, 35AWW16, 35AWW17, and 35AWW18, which are located well away from the most impacted area, remain non-detect or below MCLs. PCE concentrations in LHSMW07 and 35AWW20, wells within the influence of the EISB treatment, were non-detect before EISB treatment and have remained below detection limits through the June 2020 sampling event. TCE and cis-1,2-DCE have been non-detect or below MCLs since September 2018 in LHSMW07. However, VC has increased from non-detect in September 2018 to 44 µg/L in June 2020 LHSMW07.

VC concentrations have significantly increased in 35AWW20 and remain above MCLs in June 2020. Decreasing trends are observed for both TCE and 1,1-DCE. While VC concentrations have increased approximately 150% from 790 µg/L in September 2019 to 2,000 µg/L in June 2020, much of the increase is attributed to the 72% reduction of 1,1-DCE over the same time period. There is no evidence that VC is accumulating or stalling, and VC is not expected to persist under the current site geochemical aquifer conditions and microbial populations.

An increase in 1,1-DCE at LHSMW07 was observed and 1,1-DCE detections over the MCL were noted in three wells (LHSMW06, LHSMW07, and 35AWW20) during the reporting period. However, the presence of 1,1-DCE at LHSMW07 corresponds to an increase in DHB populations. No further treatment of the western plume is recommended at this time, however, monitoring of VC and 1,1-DCE should continue.

The qualitative assessment of geochemical indicators and the absence of dechlorinating bacteria in the shallow groundwater zone (outside of the EISB zone) at LHAAP-35A (58) indicates current naturally occurring geochemical conditions are not optimal for, but may not preclude, MNA.

Groundwater monitoring will continue to be performed at LHAAP-35A (58) on the eastern and western plumes on a semi-annual basis during the Year 7 RA(O) in compliance with the Eastern Plume RAWP (AECOM, August 2013). Table 7 presents the proposed groundwater monitoring plan for the Year 7 RA (O). Two years of quarterly performance monitoring of the western plume have been completed per the Western Plume RAWP (Bhate, January 2018). No change in land or groundwater use has occurred at the site, and current land use complies with the ROD.

Surface water samples were not collected at surface water sample location 35ASW03 during the Year 6 RA(O) monitoring period as the ditch was dry during each sampling event. Surface water sampling will be conducted in the Year 7 RA(O) when the groundwater elevation in 35AWW18 is at or above the surveyed ditch elevation.

A LUC compliance inspection was conducted on June 29, 2020. No compliance issues or concerns were noted during the annual inspection (**Appendix A**). Well conditions, are documented in the photographic log presented in **Appendix B**. The well inspection information is documented on the Well Inspection Forms (**Appendix C**). Mowing the well areas is conducted regularly, as part of routine maintenance at the site, particularly before sampling events.

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FIGURES

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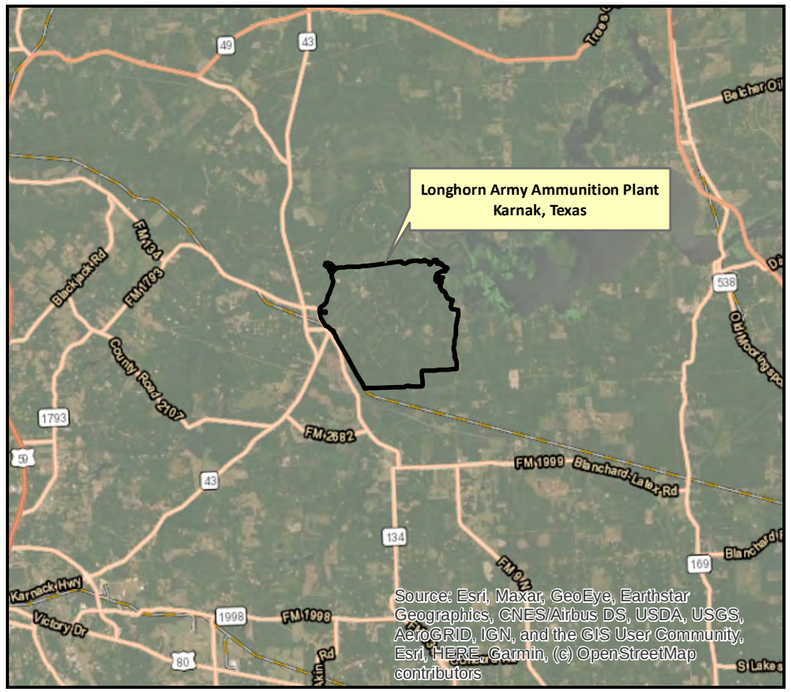

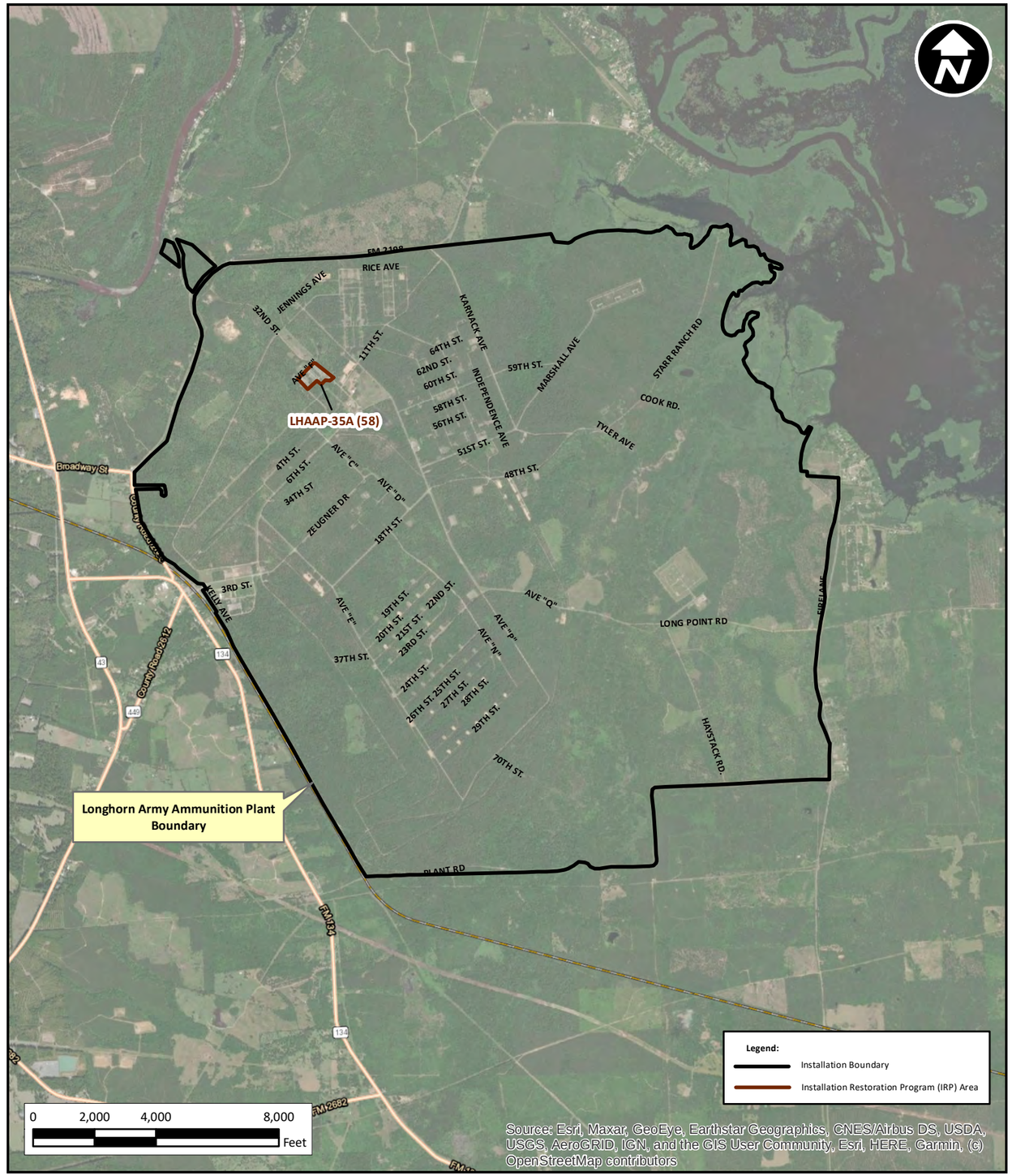

Longhorn Army Ammunition Plant
Location and Site Vicinity Map

Figure 1

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

bhate

www.bhate.com

00996206

Monitoring Well Location Map

Figure 2

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NW01312.0150.012.0001.03

bhate

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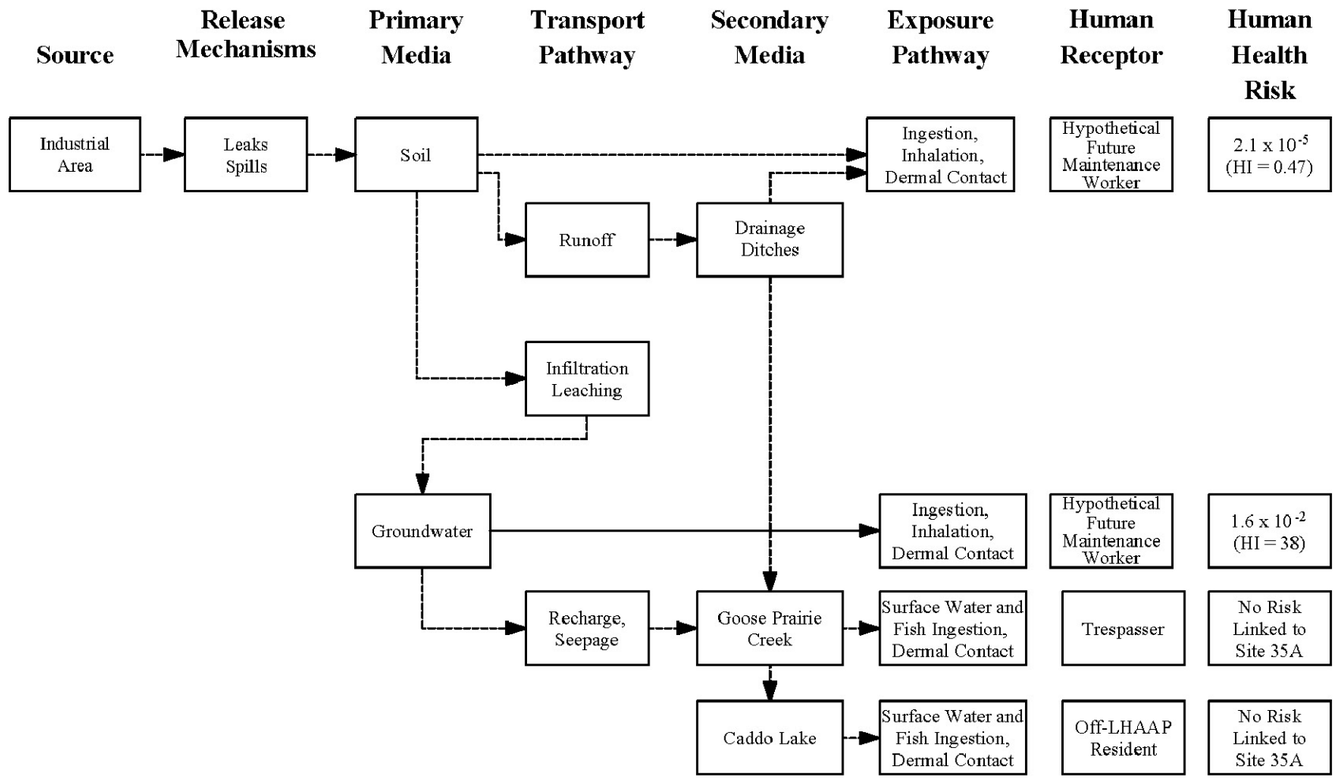
Aerial Photography Source: Google Earth, April 2018

0 75 150 300 Feet

Legend:

- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- Intermediate Monitoring Well Location
- Deep Monitoring Well Location
- Surface Water Sample Location
- Groundwater Use Restrictions Area
- Installation Restoration Program (IRP) Area
- Stream
- 401 Building Number

00996207



Pathway considered for remediation

Pathway *not* considered for remediation

Source: Shaw, May 2010

Conceptual Site Model

Figure 3

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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32ND ST.
HARRELL ST
TACKET DR
AVE "F"
AVE "G"
LHAAP-35A (58)
5TH ST.
6TH ST.
8TH ST.
9TH ST.
10TH ST.
11TH ST.

35AWW03 (NM)
LHSMW05 (NM)
35AWW22 (186.27)
35AWW13 (194.07)
35AWW07R (NM)
35AWW15 (203.10)
35AWW10 (201.04)
35AWW08 (187.95)
LHSMW04 (Dry)
35AWW12 (185.66)
03WW01 (186.49)
35AWW09 (185.25)
LHSMW06 (204.46)
35AWW21 (184.87)
1004TW001 (NM)
1004TW006 (NM)
35AWW20 (203.85)
LHSMW03 (NM)
35AWW16 (202.88)
35AWW11 (190.47)
35AWW14 (188.86)
LHSMW07 (202.75)
35AWW23 (199.62)
35AWW06 (201.11)
35AWW18 (196.93)
35AWW17 (197.44)
35AWW19 (193.81)
35AWW24 (193.95)

204.00
202.00
200.00
198.00
196.00
194.00
192.00
190.00
188.00
186.00

Aerial Photography Source: Google Earth, April 2018

0 75 150 300
Feet

Legend:
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- (193.95) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- (NM) Not Measured
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number

December 2019 Shallow Potentiometric Map

Figure 4

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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00996209

32ND ST.
HARRELL ST
TACKET DR
AVE "F"
AVE "G"
8TH ST.
9TH ST.
10TH ST.
4TH ST.
6TH ST.
11TH ST.

LHAAP-35A (58)

35AWW03 (NM)
35AWW13 (195.80)
35AWW22 (186.94)
35AWW10 (203.51)
LHSMW05 (NM)
35AWW15 (205.04)
LHSMW04 (Dry)
35AWW12 (187.04)
03WW01 (186.99)
35AWW09 (186.12)
35AWW07R (NM)
LHSMW06 (205.90)
35AWW08 (187.73)
35AWW21 (186.77)
1004TW006 (NM)
35AWW20 (204.40)
1004TW001 (NM)
35AWW11 (192.04)
LHSMW03 (NM)
35AWW16 (204.20)
204.00
LHSMW07 (204.05)
35AWW14 (189.64)
35AWW23 (200.63)
202.00
35AWW06 (201.98)
200.00
35AWW17 (198.04)
35AWW18 (197.58)
35AWW19 (198.13)
198.00
35AWW24 (194.79)
196.00
194.00
192.00
190.00
188.00
198.00

Aerial Photography Source: Google Earth, April 2018

0 75 150 300 Feet

Legend:

- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- (189.64) Potentiometric Surface Elevation in Feet Above Mean Sea Level
- (NM) Not Measured
- Potentiometric Surface Contour
- Direction of Groundwater Flow
- Installation Restoration Program (IRP) Area
- 401 Building Number

June 2020 Shallow Potentiometric Map

Figure 5

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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Legend
J = Estimated value
U = Result is less than the laboratory detection limit
< = less than
COC = Contaminant of Concern
USEPA = United States Environmental Protection Agency
MCL = Maximum Contaminant Limit
DCA = Dichloroethane
DCE = Dichloroethene
PCE = Tetrachloroethene
TCA = Trichloroethane
TCE = Trichloroethene
VC = Vinyl Chloride
Bold Red values exceed the USEPA MCL
All results and MCLs are reported in micrograms per liter (µg/L)

COCs shown on this figure	
COC	MCL
1,1-DCE	7
1,1,2-TCA	5
1,2-DCA	5
Benzene	5
cis-1,2-DCE	70
PCE	5
trans-1,2-DCE	100
TCE	5
VC	2

LHSMW06		12/20/2019	12/20/2019	6/25/2020
COC	MCL	Result	Dup. Result	Result
1,1-DCE	7	**19 J**	**20 J**	**22**
TCE	5	**17 J**	**17 J**	**16**
VC	2	**5.7 J**	**5.6 J**	**5.5**

03WW01		12/18/2019	6/23/2020
COC	MCL	Result	Result
VC	2	**5.4 J**	**7.2**

35AWW20		9/11/2019	12/19/2019	3/24/2020	6/24/2020
COC	MCL	Result	Result	Result	Result
1,1,2-TCA	5	**72**	**75 J**	**83**	**73**
1,1-DCE	7	**3,900**	**970 J**	**1,300**	**1,100**
1,2-DCA	5	**19**	**19 J**	**18**	**18**
Benzene	5	**8.3**	**9.0 J**	**8.7**	**8.5**
cis-1,2-DCE	70	**110**	**70 J**	**71**	63
TCE	5	**350**	**99 J**	**120**	**94**
VC	2	**790**	**2,800 J**	**1,500**	**2,000**

35AWW09		12/18/2019	6/23/2020
COC	MCL	Result	Result
PCE	5	**500**	**440**
TCE	5	**160**	**140**

35AWW08		12/18/2019	6/23/2020
COC	MCL	Result	Result
PCE	5	<5.0U	**6.7**
TCE	5	<5.0U	**17**

LHSMW07		9/11/2019	12/19/2019	3/24/2020	6/24/2020
COC	MCL	Result	Result	Result	Result
1,1-DCE	7	**46**	**46 J**	**94**	**130**
VC	2	**49**	**42 J**	**46**	**44**

35AWW14		12/19/2019	6/25/2020
COC	MCL	Result	Result
1,1-DCE	7	**15 J**	**9.3**
TCE	5	**11 J**	**11**

35AWW18		12/18/2019	6/25/2020
COC	MCL	Result	Result
1,1-DCE	7	4.1	**18**

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:
- Shallow Monitoring Well Location
- Shallow Temporary Monitoring Well Location
- Shallow Monitoring Well Location No exceedances above MCLs for listed COCs
- Shallow Monitoring Well Location - Removed from RA(O)
- KB1® Plus Injection Point Locations (March 2018)
- KB1® Injection Point Locations (March 2018)
- (NS) Not Sampled
- Installation Restoration Program (IRP) Area
- Stream
- 401 Building Number

COC Exceedances in Shallow Groundwater (September 2019 - June 2020)

Figure 6

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM
DATE: 9/3/2020
SCALE: As Shown
PROJECT NO: NWO1312.0150.012.0001.03

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Legend
COC = Contaminant of Concern
MCL = Maximum Contaminant Limit
DCA = Dichloroethane
DCE = Dichloroethane
PCE = Tetrachloroethene
TCA = Trichloroethane
TCE = Trichloroethene
VC = Vinyl Chloride
All results and MCLs are reported in micrograms per liter (µg/L)

COCs shown on this figure

COC	MCL
1,1-DCE	7
1,1,2-TCA	5
1,2-DCA	5
Benzene	5
cis-1,2-DCE	70
PCE	5
trans-1,2-DCE	100
TCE	5
VC	2

HARRELL ST.
32ND ST.
TACKET DR
AVE "F"
AVE "G"
8TH ST.
9TH ST.
10TH ST.
11TH ST.
6TH ST.
4TH ST.
LHAAP-35A (58)
35AWW01
35AWW05 (NS)
207
102
102
102-R
103
AVE "P"
L-6
101
GH-1
401

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:
- Intermediate Monitoring Well Location, No exceedances above MCLs for listed COCs
- (NS) Not Sampled
- Installation Restoration Program (IRP) Area
- Stream
- 401 Building Number

COC Exceedances in Intermediate Groundwater (December 2019 and June 2020)

Figure 7

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

PROJECT NO: NWO1312.0150.012.0001.03
SCALE: As Shown
DATE: 9/3/2020
DRAWN BY: MRM

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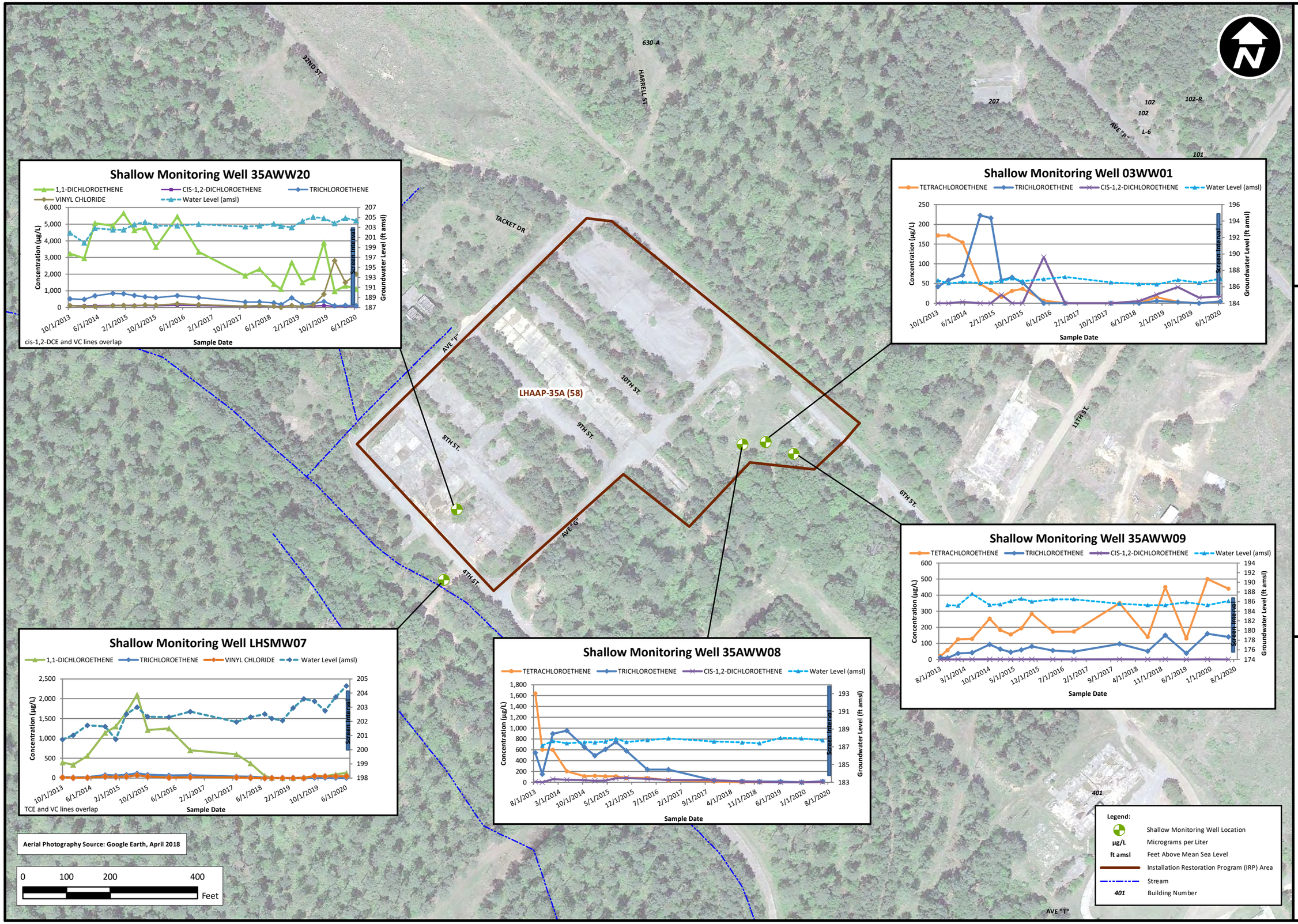
00996212



Shallow Monitoring Well 35AWW20

cis-1,2-DCE and VC lines overlap

Shallow Monitoring Well 03WW01

Shallow Monitoring Well 35AWW09

Shallow Monitoring Well LHSMW07

TCE and VC lines overlap

Shallow Monitoring Well 35AWW08

Aerial Photography Source: Google Earth, April 2018

0 100 200 400 Feet

Legend:

- Shallow Monitoring Well Location
- µg/L — Micrograms per Liter
- ft amsl — Feet Above Mean Sea Level
- Installation Restoration Program (IRP) Area
- Stream
- *401* — Building Number

Figure 8

COC Concentration Trends

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/4/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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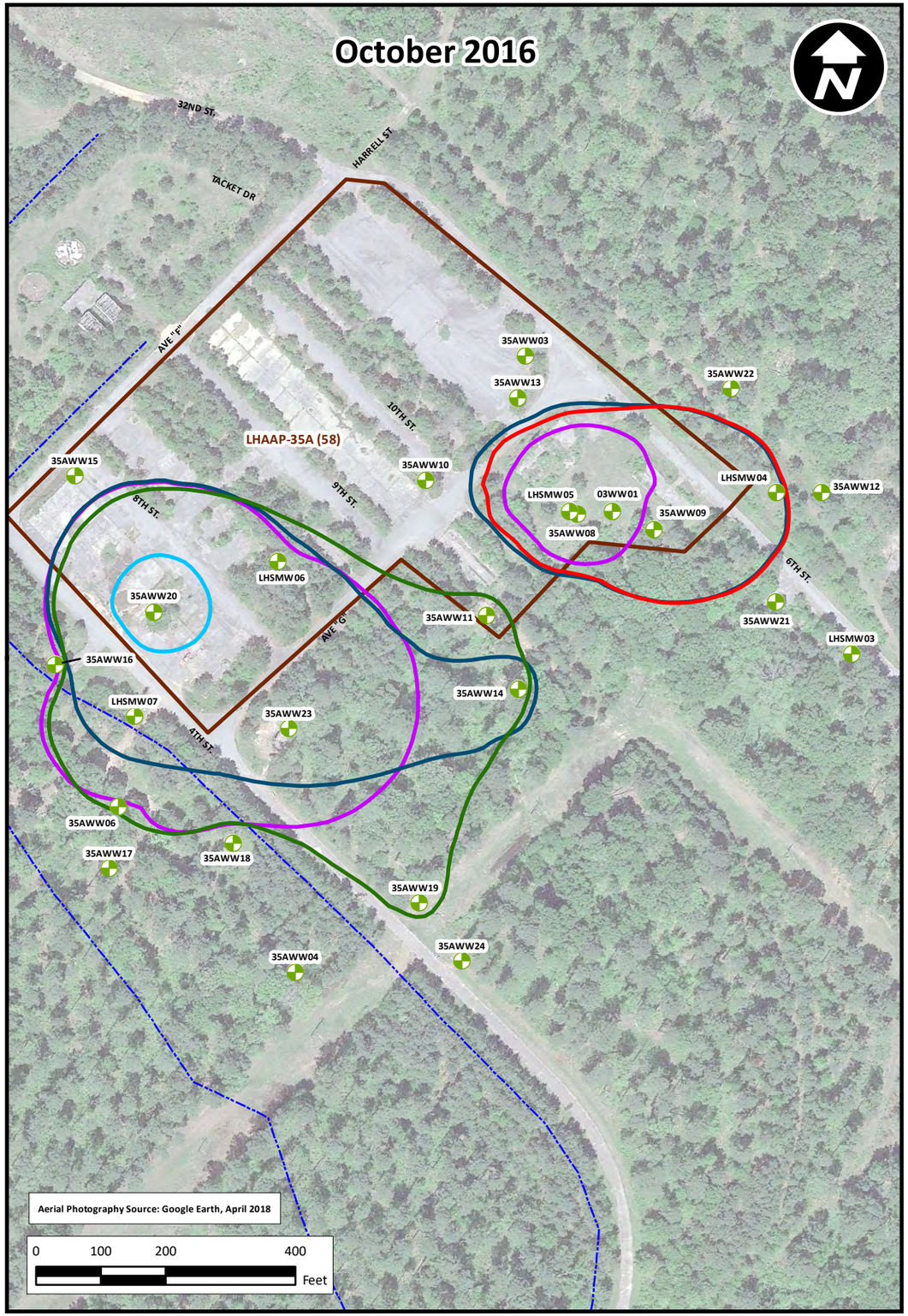

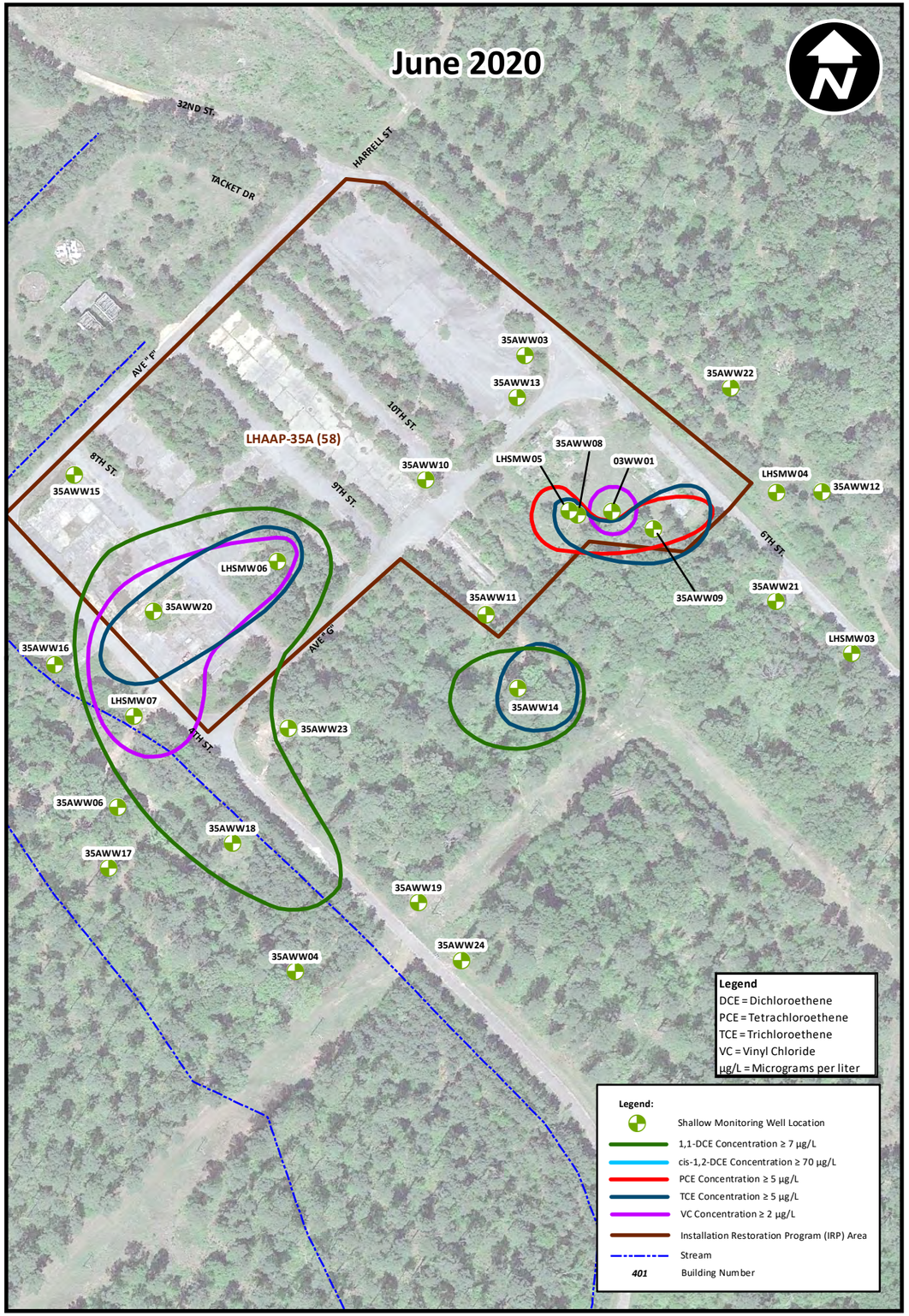

Lateral Extent of Plume Comparison (October 2016 and June 2020)

Figure 9

Year 6 Annual Remedial Action Operation Report (September 2019 – August 2020)
LHAAP-35A (58), Shops Area
Longhorn Army Ammunition Plant
Karnack, Texas

DRAWN BY: MRM

DATE: 9/3/2020

SCALE: As Shown

PROJECT NO: NWO1312.0150.012.0001.03

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TABLES

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Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
03WW01	Shallow	10/9/2013	N/A -Bailed	22.51-32.51	Revised from 21.53 - 31.53 to match the LHAAP database. No impact to pump placement or WL measurements.	216.29	29.51	186.78
		1/29/2014	N/A -Bailed	22.51-32.51		216.29	29.86	186.43
		5/20/2014	N/A -Bailed	22.51-32.51		216.29	29.72	186.57
		10/27/2014	N/A -Bailed	22.51-32.51		216.29	29.81	186.48
		1/20/2015	N/A -Bailed	22.51-32.51		216.29	29.75	186.54
		4/14/2015	N/A -Bailed	22.51-32.51		216.29	29.60	186.69
		7/7/2015	N/A -Bailed	22.51-32.51		216.29	29.25	187.04
		10/7/2015	N/A -Bailed	22.51-32.51		216.29	29.60	186.69
		4/12/2016	N/A -Bailed	22.51-32.51		216.29	29.36	186.93
		10/3/2016	N/A -Bailed	22.51-32.51		216.29	29.09	187.20
		11/15/2017	N/A -Bailed	22.51-32.51		216.29	29.80	186.49
		7/18/2018	N/A -Bailed	22.51-32.51		216.29	29.96	186.33
		12/11/2018	N/A -Bailed	22.51-32.51		216.29	30.00	186.29
		6/3/2019	N/A -Bailed	22.51-32.51		216.29	29.45	186.84
		12/18/2019	31.00	22.51-32.51		216.29	29.80	186.49
		6/23/2020	30.50	22.51-32.51		216.29	29.30	186.99
1004TW001	Shallow	5/28/2014	N/A -Bailed	N/A	N/A	NM	18.05	NC
		10/30/2014	N/A -Bailed	N/A		NM	18.40	NC
		7/8/2015	N/A -Bailed	N/A		NM	17.00	NC
		4/14/2016	N/A -Bailed	N/A		NM	17.75	NC
		10/4/2016	N/A -Bailed	N/A		NM	17.46	NC
		11/17/2017	N/A -Bailed	N/A		NM	17.84	NC
1004TW006	Shallow	1/31/2014	N/A -Bailed	N/A		NM	19.17	NC

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW01	Intermediate	10/11/2013	67.50	63.07-73.07	Revised from 62.69 -72.69 to match the LHAAP database. No impact to pump placement or WL measurements.	218.03	40.58	177.45
		1/31/2014	67.50	63.07-73.07		218.03	40.21	177.82
		5/29/2014	67.50	63.07-73.07		218.03	39.31	178.72
		10/31/2014	67.50	63.07-73.07		218.03	40.17	177.86
		1/27/2015	67.50	63.07-73.07		218.03	39.40	178.63
		4/10/2015	67.50	63.07-73.07		218.03	40.06	177.97
		7/10/2015	67.69	63.07-73.07		218.03	39.10	178.93
		10/6/2015	67.70	63.07-73.07		218.03	39.79	178.24
		4/12/2016	67.69	63.07-73.07		218.03	38.86	179.17
		10/5/2016	67.50	63.07-73.07		218.03	39.01	179.02
		11/16/2017	67.50	63.07-73.07		218.03	45.81	172.22
		7/2/2018	67.50	63.07-73.07		218.03	43.00	175.03
		12/13/2018	67.50	63.07-73.07		218.03	40.27	177.76
		6/10/2019	67.50	63.07-73.07		218.03	44.52	173.51
		12/18/2019	67.50	63.07-73.07		218.03	45.18	172.85
		6/25/2020	67.69	63.07-73.07		218.03	44.22	173.81
35AWW02	Deep	10/22/2013	131.00	128.59 - 138.59	No change	218.05	42.30	175.75
		4/13/2016	N/A - Water Level Only	128.59 - 138.59	No change	218.05	42.26	175.79
		10/4/2016	N/A - Water Level Only	128.59 - 138.59	No change	218.05	42.70	175.35

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW03	Shallow	2/1/2014	--	11.93 - 21.93	Revised from 11.75 - 21.75 to match the LHAAP database. No impact to pump placement or WL measurements.	219.66	DRY	NC
		5/29/2014	--	11.93 - 21.93		219.66	DRY	NC
		10/30/2014	--	11.93 - 21.93		219.66	DRY	NC
		7/9/2015	--	11.93 - 21.93		219.66	DRY	NC
		4/13/2016	--	11.93 - 21.93		219.66	DRY	NC
		10/4/2016	--	11.93 - 21.93		219.66	DRY	NC
		11/16/2017	--	11.93 - 21.93		219.66	DRY	NC
35AWW05	Intermediate	10/16/2013	66.00	62.41 - 72.41	Revised from 62.4 -72.4 to match the LHAAP database. No impact to pump placement or WL measurements.	221.41	43.70	177.71
		2/1/2014	66.00	62.41 - 72.41		221.41	37.70	183.71
		5/22/2014	66.00	62.41 - 72.41		221.41	43.12	178.29
		10/21/2014	66.00	62.41 - 72.41		221.41	43.60	177.81
		1/23/2015	66.00	62.41 - 72.41		221.41	42.90	178.51
		4/8/2015	66.00	62.41 - 72.41		221.41	42.55	178.86
		7/10/2015	67.40	62.41 - 72.41		221.41	42.67	178.74
		10/5/2015	67.40	62.41 - 72.41		221.41	43.31	178.10
		4/14/2016	67.40	62.41 - 72.41		221.41	41.40	180.01
		10/5/2016	67.15	62.41 - 72.41		221.41	42.43	178.98
		11/13/2017	67.15	62.41 - 72.41		221.41	45.72	175.69
		7/2/2018	67.15	62.41 - 72.41		221.41	45.47	175.94
		12/12/2018	67.15	62.41 - 72.41		221.41	43.67	177.74
		6/10/2019	67.15	62.41 - 72.41		221.41	46.20	175.21

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW06	Shallow	10/15/2013	24.00	19.05 - 29.05	No change	220.43	21.50	198.93
		1/30/2014	24.00	19.05 - 29.05		220.43	21.14	199.29
		5/21/2014	24.00	19.05 - 29.05		220.43	20.65	199.78
		10/29/2014	24.00	19.05 - 29.05		220.43	20.55	199.88
		1/28/2015	23.00	19.05 - 29.05		220.43	20.58	199.85
		4/15/2015	22.00	19.05 - 29.05		220.43	18.95	201.48
		7/7/2015	24.05	19.05 - 29.05		220.43	19.47	200.96
		10/7/2015	24.05	19.05 - 29.05		220.43	19.97	200.46
		4/11/2016	24.05	19.05 - 29.05		220.43	19.95	200.48
		10/3/2016	25.50	19.05 - 29.05		220.43	19.53	200.90
		11/14/2017	25.50	19.05 - 29.05		220.43	18.90	201.53
		7/18/2018	25.50	19.05 - 29.05		220.43	18.68	201.75
		9/26/2018	25.50	19.05 - 29.05		220.43	20.35	200.08
		12/11/2018	25.50	19.05 - 29.05		220.43	19.96	200.47
		3/19/2019	25.50	19.05 - 29.05		220.43	19.50	200.93
		6/4/2019	25.50	19.05 - 29.05		220.43	18.95	201.48
		9/11/2019	25.50	19.05 - 29.05		220.43	18.90	201.53
		12/19/2019	25.50	19.05 - 29.05		220.43	19.32	201.11
		3/24/2020	25.50	19.05 - 29.05		220.43	18.68	201.75
		4/7/2020	25.50	19.05 - 29.05		220.43	18.77	201.66
		6/24/2020	24.05	19.05 - 29.05		220.43	18.45	201.98

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW07R	Shallow	10/16/2013	N/A -Bailed	21.55 - 31.25	No change	212.11	27.90	184.21
		2/3/2014	N/A -Bailed	21.55 - 31.25		212.11	28.90	183.21
		5/29/2014	27.50	21.55 - 31.25		212.11	25.83	186.28
		10/30/2014	28.00	21.55 - 31.25		212.11	26.55	185.56
		7/10/2015	26.40	21.55 - 31.25		212.11	24.08	188.03
		4/13/2016	N/A -Bailed	21.55 - 31.25		212.11	24.34	187.77
		10/4/2016	N/A -Bailed	21.55 - 31.25		212.11	24.82	187.29
		11/17/2017	27.63	21.55 - 31.25		212.11	26.14	185.97
35AWW08	Shallow	10/9/2013	N/A -Bailed	21.83 - 31.83	No change	216.95	29.80	187.15
		1/29/2014	N/A -Bailed	21.83 - 31.83		216.95	29.30	187.65
		5/20/2014	N/A -Bailed	21.83 - 31.83		216.95	29.55	187.40
		10/27/2014	N/A -Bailed	21.83 - 31.83		216.95	29.43	187.52
		1/20/2015	N/A -Bailed	21.83 - 31.83		216.95	29.45	187.50
		4/14/2015	N/A -Bailed	21.83 - 31.83		216.95	29.35	187.60
		7/7/2015	N/A -Bailed	21.83 - 31.83		216.95	29.05	187.90
		10/7/2015	N/A -Bailed	21.83 - 31.83		216.95	29.41	187.54
		4/12/2016	N/A -Bailed	21.83 - 31.83		216.95	29.20	187.75
		10/3/2016	N/A -Bailed	21.83 - 31.83		216.95	29.00	187.95
		11/15/2017	N/A -Bailed	21.83 - 31.83		216.95	29.00	187.95
		7/18/2018	N/A -Bailed	21.83 - 31.83		216.95	29.45	187.50
		12/11/2018	N/A -Bailed	21.83 - 31.83		216.95	29.55	187.40
		6/3/2019	N/A -Bailed	21.83 - 31.83		216.95	28.95	188.00
		12/18/2019	31.00	21.83 - 31.83		216.95	29.00	187.95
		6/23/2020	30.50	21.83 - 31.83		216.95	29.22	187.73

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW09	Shallow	10/10/2013	36.00	26.69 - 41.29	No change	217.47	32.21	185.26
		1/29/2014	35.00	26.69 - 41.29		217.47	32.32	185.15
		5/20/2014	34.00	26.69 - 41.29		217.47	29.87	187.60
		10/27/2014	35.00	26.69 - 41.29		217.47	32.15	185.32
		1/21/2015	35.00	26.69 - 41.29		217.47	32.04	185.43
		4/14/2015	34.00	26.69 - 41.29		217.47	31.38	186.09
		7/7/2015	34.00	26.69 - 41.29		217.47	30.87	186.60
		10/7/2015	34.00	26.69 - 41.29		217.47	31.46	186.01
		4/12/2016	34.00	26.69 - 41.29		217.47	31.02	186.45
		10/3/2016	34.88	26.69 - 41.29		217.47	31.00	186.47
		11/15/2017	34.88	26.69 - 41.29		217.47	32.22	185.25
		7/16/2018	34.88	26.69 - 41.29		217.47	32.22	185.25
		12/11/2018	34.88	26.69 - 41.29		217.47	32.21	185.26
		6/3/2019	34.88	26.69 - 41.29		217.47	31.60	185.87
		12/18/2019	34.88	26.69 - 41.29		217.47	32.22	185.25
		6/23/2020	33.99	26.69 - 41.29		217.47	31.35	186.12

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW10	Shallow	10/10/2013	23.50	18.16 - 32.76	No change	220.76	20.15	200.61
		1/29/2014	23.75	18.16 - 32.76		220.76	18.85	201.91
		5/20/2014	23.50	18.16 - 32.76		220.76	17.10	203.66
		10/28/2014	23.60	18.16 - 32.76		220.76	19.55	201.21
		1/27/2015	23.50	18.16 - 32.76		220.76	17.78	202.98
		4/14/2015	23.50	18.16 - 32.76		220.76	16.45	204.31
		7/7/2015	25.46	18.16 - 32.76		220.76	17.17	203.59
		10/7/2015	25.50	18.16 - 32.76		220.76	19.45	201.31
		4/13/2016	25.46	18.16 - 32.76		220.76	17.41	203.35
		10/3/2016	26.43	18.16 - 32.76		220.76	18.98	201.78
		11/15/2017	26.43	18.16 - 32.76		220.76	19.72	201.04
		7/12/2018	26.43	18.16 - 32.76		220.76	18.95	201.81
		12/12/2018	26.43	18.16 - 32.76		220.76	18.75	202.01
		6/4/2019	26.43	18.16 - 32.76		220.76	16.05	204.71
		12/19/2019	25.43	18.16 - 32.76		220.76	19.72	201.04
		6/29/2020	25.46	18.16 - 32.76		220.76	17.25	203.51

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW11	Shallow	10/15/2013	32.50	22.24 - 36.84	No change	220.15	31.36	188.79
		2/3/2014	33.00	22.24 - 36.84		220.15	31.80	188.35
		5/21/2014	33.00	22.24 - 36.84		220.15	31.55	188.60
		10/29/2014	33.00	22.24 - 36.84		220.15	31.73	188.42
		1/27/2015	33.00	22.24 - 36.84		220.15	31.60	188.55
		4/14/2015	33.00	22.24 - 36.84		220.15	31.25	188.90
		7/8/2015	32.50	22.24 - 36.84		220.15	30.72	189.43
		10/7/2015	34.70	22.24 - 36.84		220.15	31.20	188.95
		4/12/2016	34.50	22.24 - 36.84		220.15	31.03	189.12
		10/3/2016	33.00	22.24 - 36.84		220.15	30.48	189.67
		11/14/2017	32.00	22.24 - 36.84		220.15	30.91	189.24
		7/16/2018	31.50	22.24 - 36.84		220.15	30.60	189.55
		9/27/2018	32.00	22.24 - 36.84		220.15	31.10	189.05
		12/11/2018	33.00	22.24 - 36.84		220.15	31.05	189.10
		3/19/2019	32.00	22.24 - 36.84		220.15	30.00	190.15
		6/3/2019	30.80	22.24 - 36.84		220.15	29.27	190.88
		9/11/2019	30.80	22.24 - 36.84		221.15	29.46	191.69
		12/18/2019	30.80	22.24 - 36.84		220.15	29.68	190.47
		3/24/2020	30.80	22.24 - 36.84		221.15	29.03	192.12
		6/23/2020	30.50	22.24 - 36.84		221.15	29.11	192.04

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW12	Shallow	10/18/2013	32.00	22.17 - 36.77	No change	215.99	30.05	185.94
		1/31/2014	32.00	22.17 - 36.77		215.99	28.10	187.89
		5/29/2014	32.00	22.17 - 36.77		215.99	29.00	186.99
		10/30/2014	32.00	22.17 - 36.77		215.99	30.11	185.88
		1/28/2015	32.00	22.17 - 36.77		215.99	29.45	186.54
		4/7/2015	31.00	22.17 - 36.77		215.99	28.70	187.29
		7/9/2015	31.00	22.17 - 36.77		215.99	28.22	187.77
		10/5/2015	33.00	22.17 - 36.77		215.99	29.35	186.64
		4/12/2016	32.50	22.17 - 36.77		215.99	28.54	187.45
		10/5/2016	30.31	22.17 - 36.77		215.99	28.87	187.12
		11/16/2017	31.00	22.17 - 36.77		215.99	30.33	185.66
		6/29/2018	31.00	22.17 - 36.77		215.99	30.05	185.94
		12/14/2018	34.00	22.17 - 36.77		215.99	29.66	186.33
		6/10/2019	30.31	22.17 - 36.77		215.99	28.59	187.40
		12/18/2019	33.00	22.17 - 36.77		215.99	30.33	185.66
		6/25/2020	30.75	22.17 - 36.77		215.99	28.95	187.04

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW13	Shallow	10/11/2013	29.50	24.72 - 39.32	No change	219.12	25.07	194.05
		2/3/2014	29.50	24.72 - 39.32		219.12	24.91	194.21
		5/22/2014	29.50	24.72 - 39.32		219.12	23.80	195.32
		10/21/2014	29.50	24.72 - 39.32		219.12	24.85	194.27
		1/23/2015	29.50	24.72 - 39.32		219.12	24.70	194.42
		4/8/2015	29.50	24.72 - 39.32		219.12	23.72	195.40
		7/9/2015	32.00	24.72 - 39.32		219.12	23.39	195.73
		10/6/2015	32.00	24.72 - 39.32		219.12	24.61	194.51
		4/13/2016	32.02	24.72 - 39.32		219.12	24.10	195.02
		10/6/2016	32.98	24.72 - 39.32		219.12	24.41	194.71
		11/16/2017	32.98	24.72 - 39.32		219.12	25.05	194.07
		6/29/2018	32.98	24.72 - 39.32		219.12	24.37	194.75
		12/11/2018	32.98	24.72 - 39.32		219.12	25.03	194.09
		6/7/2019	32.98	24.72 - 39.32		219.12	23.08	196.04
		12/18/2019	32.98	24.72 - 39.32		219.12	25.05	194.07
		6/29/2020	32.02	24.72 - 39.32		219.12	23.32	195.80

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW14	Shallow	10/18/2013	N/A -Bailed	17.06 - 31.76	No change	218.41	30.80	187.61
		1/31/2014	N/A -Bailed	17.06 - 31.76		218.41	30.95	187.46
		5/28/2014	N/A -Bailed	17.06 - 31.76		218.41	30.57	187.84
		10/29/2014	N/A -Bailed	17.06 - 31.76		218.41	31.00	187.41
		1/20/2015	N/A -Bailed	17.06 - 31.76		218.41	30.85	187.56
		4/7/2015	N/A -Bailed	17.06 - 31.76		218.41	30.48	187.93
		7/8/2015	N/A -Bailed	17.06 - 31.76		218.41	29.75	188.66
		10/1/2015	N/A -Bailed	17.06 - 31.76		218.41	30.19	188.22
		4/12/2016	N/A -Bailed	17.06 - 31.76		218.41	29.67	188.74
		10/5/2016	N/A -Bailed	17.06 - 31.76		218.41	29.31	189.10
		11/16/2017	N/A -Bailed	17.06 - 31.76		218.41	29.55	188.86
		7/18/2018	N/A -Bailed	17.06 - 31.76		218.41	29.58	188.83
		12/13/2018	N/A -Bailed	17.06 - 31.76		218.41	29.55	188.86
		6/7/2019	N/A -Bailed	17.06 - 31.76		218.41	28.65	189.76
		12/19/2019	N/A -Bailed	17.06 - 31.76		218.41	29.55	188.86
		6/25/2020	N/A -Bailed	17.06 - 31.76		218.41	28.77	189.64

Table 1
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LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW15	Shallow	10/16/2013	30.50	25.67 - 40.37	No change	222.97	20.65	202.32
		2/1/2014	30.50	25.67 - 40.37		222.97	20.40	202.57
		5/28/2014	30.50	25.67 - 40.37		222.97	19.64	203.33
		10/21/2014	30.40	25.67 - 40.37		222.97	20.18	202.79
		1/23/2015	30.50	25.67 - 40.37		222.97	20.15	202.82
		4/10/2015	30.50	25.67 - 40.37		222.97	19.31	203.66
		7/10/2015	33.00	25.67 - 40.37		222.97	18.95	204.02
		10/6/2015	33.00	25.67 - 40.37		222.97	19.56	203.41
		4/14/2016	33.00	25.67 - 40.37		222.97	19.51	203.46
		10/5/2016	34.10	25.67 - 40.37		222.97	19.34	203.63
		11/16/2017	34.10	25.67 - 40.37		222.97	19.87	203.10
		7/18/2018	34.10	25.67 - 40.37		222.97	19.50	203.47
		12/12/2018	34.10	25.67 - 40.37		222.97	16.55	206.42
		6/7/2019	34.10	25.67 - 40.37		222.97	17.77	205.20
		12/20/2019	34.10	25.67 - 40.37		222.97	19.87	203.10
		6/25/2020	33.02	25.67 - 40.37		222.97	17.93	205.04

Table 1
Groundwater Elevation Data
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW16	Shallow	10/22/2013	27.00	21.75 - 36.45	No change	220.88	19.58	201.30
		1/31/2014	27.00	21.75 - 36.45		220.88	19.28	201.60
		5/28/2014	27.00	21.75 - 36.45		220.88	18.60	202.28
		10/30/2014	27.00	21.75 - 36.45		220.88	19.96	200.92
		1/27/2015	27.00	21.75 - 36.45		220.88	18.90	201.98
		4/7/2015	27.00	21.75 - 36.45		220.88	18.22	202.66
		7/9/2015	29.00	21.75 - 36.45		220.88	17.79	203.09
		10/6/2015	29.25	21.75 - 36.45		220.88	18.20	202.68
		4/12/2016	29.10	21.75 - 36.45		220.88	18.43	202.45
		10/4/2016	30.16	21.75 - 36.45		220.88	17.90	202.98
		11/13/2017	30.16	21.75 - 36.45		220.88	18.00	202.88
		6/29/2018	30.16	21.75 - 36.45		220.88	18.10	202.78
		12/12/2018	30.16	21.75 - 36.45		220.88	18.26	202.62
		6/10/2019	30.16	21.75 - 36.45		220.88	17.30	203.58
		12/19/2019	30.16	21.75 - 36.45		220.88	18.00	202.88
		6/25/2020	29.10	21.75 - 36.45		220.88	16.68	204.20

Table 1
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW17	Shallow	10/18/2013	32.00	26.97 - 41.67	No change	221.44	28.00	193.44
		2/1/2014	N/A -Bailed	26.97 - 41.67		221.44	36.90	184.54
		5/29/2014	32.00	26.97 - 41.67		221.44	26.60	194.84
		10/31/2014	32.00	26.97 - 41.67		221.44	26.80	194.64
		1/28/2015	32.00	26.97 - 41.67		221.44	26.00	195.44
		4/10/2015	32.00	26.97 - 41.67		221.44	25.65	195.79
		7/10/2015	34.32	26.97 - 41.67		221.44	25.42	196.02
		10/5/2015	34.30	26.97 - 41.67		221.44	25.93	195.51
		4/11/2016	34.32	26.97 - 41.67		221.44	25.60	195.84
		10/3/2016	32.63	26.97 - 41.67		221.44	25.30	196.14
		11/13/2017	32.63	26.97 - 41.67		221.44	24.00	197.44
		6/29/2018	32.63	26.97 - 41.67		221.44	25.07	196.37
		12/17/2018	32.63	26.97 - 41.67		221.44	24.78	196.66
		6/10/2019	32.63	26.97 - 41.67		221.44	24.28	197.16
		12/18/2019	32.63	26.97 - 41.67		221.44	24.00	197.44
		6/29/2020	34.32	26.97 - 41.67		221.44	23.40	198.04

Table 1
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW18	Shallow	10/18/2013	32.00	26.85 - 41.55	No change	221.75	28.35	193.40
		2/1/2014	32.00	26.85 - 41.55		221.75	27.90	193.85
		5/29/2014	32.50	26.85 - 41.55		221.75	27.65	194.10
		10/31/2014	Not recorded	26.85 - 41.55		221.75	27.50	194.25
		1/28/2015	32.00	26.85 - 41.55		221.75	27.11	194.64
		4/10/2015	32.00	26.85 - 41.55		221.75	25.90	195.85
		7/10/2015	34.20	26.85 - 41.55		221.75	26.42	195.33
		10/5/2015	34.20	26.85 - 41.55		221.75	26.67	195.08
		4/11/2016	34.20	26.85 - 41.55		221.75	26.40	195.35
		10/5/2016	34.83	26.85 - 41.55		221.75	25.93	195.82
		11/13/2017	34.83	26.85 - 41.55		221.75	24.82	196.93
		6/29/2018	34.83	26.85 - 41.55		221.75	24.55	197.20
		12/17/2018	34.83	26.85 - 41.55		221.75	25.59	196.16
		6/4/2019	34.83	26.85 - 41.55		221.75	24.85	196.90
		12/18/2019	34.83	26.85 - 41.55		221.75	24.82	196.93
		6/25/2020	34.20	26.85 - 41.55		221.75	24.17	197.58

Table 1
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW19	Shallow	10/22/2013	N/A -Bailed	16.89 - 31.39	Revised from 16.99 - 31.09 to match the LHAAP database. No impact to pump placement or WL measurements.	219.71	30.65	189.06
		1/31/2014	N/A -Bailed	16.89 - 31.39		219.71	30.68	189.03
		5/28/2014	N/A -Bailed	16.89 - 31.39		219.71	30.30	189.41
		10/29/2014	N/A -Bailed	16.89 - 31.39		219.71	30.45	189.26
		1/20/2015	N/A -Bailed	16.89 - 31.39		219.71	30.15	189.56
		4/7/2015	N/A -Bailed	16.89 - 31.39		219.71	29.84	189.87
		7/8/2015	N/A -Bailed	16.89 - 31.39		219.71	29.16	190.55
		10/1/2015	N/A -Bailed	16.89 - 31.39		219.71	29.46	190.25
		4/12/2016	N/A -Bailed	16.89 - 31.39		219.71	28.87	190.84
		10/5/2016	N/A -Bailed	16.89 - 31.39		219.71	28.13	191.58
		11/17/2017	N/A -Bailed	16.89 - 31.39		219.71	27.81	191.90
		7/18/2018	N/A -Bailed	16.89 - 31.39		219.71	27.37	192.34
		9/27/2018	N/A -Bailed	16.89 - 31.39		219.71	27.79	191.92
		12/10/2018	29.00	16.89 - 31.39		219.71	27.58	192.13
		3/19/2019	29.00	16.89 - 31.39		219.71	27.00	192.71
		6/3/2019	27.50	16.89 - 31.39		219.71	26.45	193.26
		9/11/2019	28.50	16.89 - 31.39		219.71	25.55	194.16
		12/18/2019	27.00	16.89 - 31.39		219.71	25.90	193.81
		3/24/2020	26.75	16.89 - 31.39		219.71	26.00	193.71
		6/24/2020	26.00	16.89 - 31.39		223.05	24.92	198.13

Table 1
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW20	Shallow	10/15/2013	25.50	20.94 - 35.64	No change	223.05	21.12	201.93
		2/3/2014	27.00	20.94 - 35.64		223.05	23.12	199.93
		5/21/2014	25.50	20.94 - 35.64		223.05	20.18	202.87
		10/29/2014	25.60	20.94 - 35.64		223.05	20.50	202.55
		1/27/2015	25.50	20.94 - 35.64		223.05	20.50	202.55
		4/15/2015	25.75	20.94 - 35.64		223.05	19.45	203.60
		7/8/2015	28.29	20.94 - 35.64		223.05	18.95	204.10
		10/8/2015	28.30	20.94 - 35.64		223.05	19.67	203.38
		4/13/2016	28.29	20.94 - 35.64		223.05	19.69	203.36
		10/4/2016	28.77	20.94 - 35.64		223.05	19.38	203.67
		11/14/2017	28.77	20.94 - 35.64		223.05	19.87	203.18
		7/16/2018	28.77	20.94 - 35.64		223.05	19.31	203.74
		9/26/2018	28.77	20.94 - 35.64		223.05	19.75	203.30
		12/10/2018	28.77	20.94 - 35.64		223.05	20.03	203.02
		3/19/2019	28.77	20.94 - 35.64		223.05	18.76	204.29
		6/4/2019	28.77	20.94 - 35.64		223.05	17.95	205.10
		9/11/2019	28.77	20.94 - 35.64		223.05	18.20	204.85
		12/19/2019	28.77	20.94 - 35.64		223.05	19.20	203.85
		3/24/2020	28.77	20.94 - 35.64		223.05	18.15	204.90
		6/24/2020	28.29	20.94 - 35.64		223.05	18.65	204.40

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW21	Shallow	10/16/2013	36.00	27.56 - 42.26	No change	219.05	34.36	184.69
		2/4/2014	36.00	27.56 - 42.26		219.05	33.55	185.50
		5/22/2014	35.00	27.56 - 42.26		219.05	32.40	186.65
		10/21/2014	36.90	27.56 - 42.26		219.05	33.90	185.15
		1/23/2015	36.00	27.56 - 42.26		219.05	33.06	185.99
		4/8/2015	35.00	27.56 - 42.26		219.05	31.73	187.32
		7/9/2015	34.91	27.56 - 42.26		219.05	31.11	187.94
		10/6/2015	34.90	27.56 - 42.26		219.05	32.74	186.31
		4/13/2016	34.91	27.56 - 42.26		219.05	31.44	187.61
		10/4/2016	35.49	27.56 - 42.26		219.05	32.10	186.95
		11/13/2017	35.49	27.56 - 42.26		219.05	34.18	184.87
		6/29/2018	35.49	27.56 - 42.26		219.05	33.77	185.28
		12/13/2018	35.49	27.56 - 42.26		219.05	32.90	186.15
		6/10/2019	35.49	27.56 - 42.26		219.05	31.38	187.67
		12/20/2019	38.00	27.56 - 42.26		219.05	34.18	184.87
		6/29/2020	34.85	27.56 - 42.26		219.05	32.28	186.77

Table 1
Groundwater Elevation Data
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW22	Shallow	10/22/2013	N/A -Bailed	22.27 - 36.77	No change	219.14	32.13	187.01
		1/31/2014	N/A -Bailed	22.27 - 36.77		219.14	32.08	187.06
		5/28/2014	N/A -Bailed	22.27 - 36.77		219.14	32.00	187.14
		10/29/2014	N/A -Bailed	22.27 - 36.77		219.14	32.45	186.69
		1/20/2015	N/A -Bailed	22.27 - 36.77		219.14	33.32	185.82
		4/8/2015	N/A -Bailed	22.27 - 36.77		219.14	32.09	187.05
		7/9/2015	33.00	22.27 - 36.77		219.14	31.72	187.42
		10/5/2015	35.00	22.27 - 36.77		219.14	32.30	186.84
		4/12/2016	N/A -Bailed	22.27 - 36.77		219.14	32.00	187.14
		10/5/2016	N/A -Bailed	22.27 - 36.77		219.14	31.91	187.23
		11/17/2017	N/A -Bailed	22.27 - 36.77		219.14	32.87	186.27
		7/18/2018	N/A -Bailed	22.27 - 36.77		219.14	33.80	185.34
		12/14/2018	34.53	22.27 - 36.77		219.14	32.72	186.42
		6/10/2019	34.50	22.27 - 36.77		219.14	32.40	186.74
		12/18/2019	34.50	22.27 - 36.77		219.14	32.87	186.27
		6/24/2020	33.50	22.77 - 36.77		219.14	32.20	186.94
35AWW23	Shallow	7/17/2018	36.00	28.2 - 43.2	Revised from 25.2 - 40.2 to incorporate the 3 ft riser. Due to measurements being from original construction logs in field, no impact to pump placement and WLs.	223.07	23.55	199.52
		12/10/2018	36.00	28.2 - 43.2		223.07	20.71	202.36
		6/3/2019	36.00	28.2 - 43.2		223.07	23.97	199.10
		9/11/2019	36.00	28.2 - 43.2		223.07	22.00	201.07
		12/18/2019	36.00	28.2 - 43.2		223.07	23.45	199.62
		3/24/2020	36.00	28.2 - 43.2		223.07	22.60	200.47
		6/24/2020	35.70	28.2 - 43.2		223.07	22.44	200.63

Table 1
Groundwater Elevation Data
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Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
35AWW24	Shallow	7/17/2018	29.68	25.10 - 35.10	Revised from 22.1 - 32.1 to incorporate the 3 ft riser. Due to measurements being from original construction logs in field, no impact to pump placement and WLs.	219.04	26.60	192.44
		9/27/2018	29.68	25.10 - 35.10		219.04	20.11	198.93
		12/10/2018	29.68	25.10 - 35.10		219.04	26.75	192.29
		3/19/2019	29.68	25.10 - 35.10		219.04	26.06	192.98
		6/3/2019	29.68	25.10 - 35.10		219.04	25.47	193.57
		12/19/2019	29.68	25.10 - 35.10		219.04	25.09	193.95
		6/25/2020	30.10	25.10 - 35.10		219.04	24.25	194.79
LHSMW03	Shallow	10/9/2013	--	24.82 - 34.82	Revised from 22.54 - 35.54 to match the LHAAP database. No impact to pump placement and WLs.	217.26	DRY	NC
		2/3/2014	N/A -Bailed Dry	24.82 - 34.82		217.26	31.00	186.26
		5/28/2014	N/A -Bailed Dry	24.82 - 34.82		217.26	29.40	187.86
		10/29/2014	N/A -Bailed	24.82 - 34.82		217.26	31.20	186.06
		7/8/2015	N/A -Bailed	24.82 - 34.82		217.26	28.21	189.05
		4/13/2016	N/A -Bailed	24.82 - 34.82		217.26	28.75	188.51
		10/4/2016	N/A -Bailed	24.82 - 34.82		217.26	29.51	187.75
		11/17/2017	N/A -Bailed	24.82 - 34.82		217.26	31.36	185.90

Table 1
Groundwater Elevation Data
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Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
LHSMW04	Shallow	10/9/2013	--	21.11 - 31.11	No change	216.95	DRY	NC
		1/31/2014	--	21.11 - 31.11		216.95	DRY	NC
		5/20/2014	--	21.11 - 31.11		216.95	DRY	NC
		10/30/2014	--	21.11 - 31.11		216.95	DRY	NC
		1/20/2015	--	21.11 - 31.11		216.95	DRY	NC
		4/7/2015	--	21.11 - 31.11		216.95	DRY	NC
		7/8/2015	--	21.11 - 31.11		216.95	DRY	NC
		10/1/2015	--	21.11 - 31.11		216.95	DRY	NC
		3/28/2016	N/A -Bailed	21.11 - 31.11		216.95	29.72	187.23
		4/12/2016	N/A -Bailed	21.11 - 31.11		216.95	29.65	187.30
		10/4/2016	--	21.11 - 31.11		216.95	DRY	NC
		11/16/2017	--	21.11 - 31.11		216.95	DRY	NC
		7/17/2018	--	21.11 - 31.11		216.95	DRY	NC
		12/11/2018	--	21.11 - 31.11		216.95	DRY	NC
		6/4/2019	--	21.11 - 31.11		216.95	DRY	NC
		12/19/2019	--	21.11 - 31.11		216.95	DRY	NC
		6/24/2020	--	21.11 - 31.11		216.95	DRY	NC

Table 1
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Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
LHSMW05	Shallow	10/9/2013	--	14.32 - 24.32	Revised from 14.08 - 24.08 to match the LHAAP database. No impact to pump placement and WLs.	217.59	DRY	NC
		1/31/2014	--	14.32 - 24.32		217.59	DRY	NC
		5/20/2014	--	14.32 - 24.32		217.59	DRY	NC
		10/30/2014	--	14.32 - 24.32		217.59	DRY	NC
		1/20/2015	--	14.32 - 24.32		217.59	DRY	NC
		4/7/2015	--	14.32 - 24.32		217.59	DRY	NC
		7/10/2015	--	14.32 - 24.32		217.59	DRY	NC
		10/1/2015	--	14.32 - 24.32		217.59	DRY	NC
		4/12/2016	--	14.32 - 24.32		217.59	DRY	NC
		10/4/2016	--	14.32 - 24.32		217.59	DRY	NC
LHSMW06	Shallow	10/16/2013	N/A -Bailed	13.32 - 23.32	No change	223.18	20.97	202.21
		1/30/2014	N/A -Bailed	13.32 - 23.32		223.18	20.50	202.68
		5/28/2014	N/A -Bailed	13.32 - 23.32		223.18	19.30	203.88
		10/29/2014	N/A -Bailed	13.32 - 23.32		223.18	19.81	203.37
		1/20/2015	N/A -Bailed	13.32 - 23.32		223.18	19.92	203.26
		4/7/2015	N/A -Bailed	13.32 - 23.32		223.18	18.92	204.26
		7/8/2015	N/A -Bailed	13.32 - 23.32		223.18	18.21	204.97
		10/1/2015	N/A -Bailed	13.32 - 23.32		223.18	18.98	204.20
		4/12/2016	N/A -Bailed	13.32 - 23.32		223.18	19.11	204.07
		10/5/2016	N/A -Bailed	13.32 - 23.32		223.18	18.91	204.27
		11/17/2017	N/A -Bailed	13.32 - 23.32		223.18	19.31	203.87
		7/2/2018	19.50	13.32 - 23.32		223.18	18.80	204.38
		12/13/2018	21.00	13.32 - 23.32		223.18	19.18	204.00
		6/7/2019	18.53	13.32 - 23.32		223.18	16.93	206.25
		12/20/2019	19.50	13.32 - 23.32		223.18	18.72	204.46
		6/25/2020	18.32	13.32 - 23.32		223.18	17.28	205.90

Table 1
Groundwater Elevation Data
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Aquifer	Sampling Date	Pump Inlet Depth (ft from Top of Casing)	Screen Intervals (ft from Top of Casing)	Rationale for Changes to Screen Interval Measurement in Year 6 RA(O)	Top of Casing Elevation (ft)	Depth to Water (ft from Top of Casing)	Groundwater Elevation (ft above msl)
LHSMW07	Shallow	10/15/2013	23.00	19.73 - 29.73	No change	221.27	20.55	200.72
		1/30/2014	24.00	19.73 - 29.73		221.27	20.25	201.02
		5/22/2014	22.00	19.73 - 29.73		221.27	19.55	201.72
		10/29/2014	23.00	19.73 - 29.73		221.27	19.63	201.64
		1/28/2015	22.00	19.73 - 29.73		221.27	20.53	200.74
		4/15/2015	22.00	19.73 - 29.73		221.27	18.75	202.52
		7/7/2015	24.73	19.73 - 29.73		221.27	18.27	203.00
		10/8/2015	24.73	19.73 - 29.73		221.27	18.94	202.33
		4/14/2016	24.73	19.73 - 29.73		221.27	18.97	202.30
		10/4/2016	24.73	19.73 - 29.73		221.27	18.58	202.69
		11/14/2017	24.73	19.73 - 29.73		221.27	19.00	202.27
		7/17/2018	24.73	19.73 - 29.73		221.27	18.75	202.52
		9/26/2018	24.73	19.73 - 29.73		221.27	19.07	202.20
		12/10/2018	24.73	19.73 - 29.73		221.27	19.21	202.06
		3/19/2019	24.73	19.73 - 29.73		221.27	18.32	202.95
		6/3/2019	24.73	19.73 - 29.73		221.27	17.68	203.59
		9/11/2019	24.73	19.73 - 29.73		221.27	17.84	203.43
		12/19/2019	24.73	19.73 - 29.73		221.27	18.52	202.75
		3/24/2020	24.73	19.73 - 29.73		221.27	17.55	203.72
		6/24/2020	24.73	19.73 - 29.73		221.27	17.22	204.05

Notes:
ft - feet
msl = mean sea level
WL = water level
N/A - not available
NC - not calculated
NM - not measured
Screen intervals were reviewed and corrected as appropriate for the Year 6 RA(O) Report. No potential impact to pump placement or WLs from adjustments.

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2019 and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	03WW01_121819 12/18/19	03WW01_062320 6/23/20	35AWW01_122019 12/20/19	35AWW01_062520 6/25/20	35AWW01_062520-a 6/25/20	35AWW08_121819 12/18/19	35AWW08_062320 6/23/20	35AWW09_121819 12/18/19	35AWW09_062320 6/23/20	35AWW10_121919 12/19/19	35AWW10_121919-a 12/19/19	35AWW10_062920 6/29/20	35AWW12_121819 12/18/19	35AWW12_062520 6/25/20	35AWW13_121819 12/18/19	35AWW13_062920 6/29/20
Location Description			Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - ESE, inside site boundary.	Site 58 - ESE, inside site boundary. Duplicate	Site 58 - ESE, inside site boundary.	Site 58 - E, outside site boundary.	Site 58 - E, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.
Location Depth			Shallow	Shallow	Intermediate	Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19121092	HS20061178	HS19121257	HS20061390	HS20061390	HS19121092	HS20061178	HS19121092	HS20061178	HS19121155	HS19121155	HS20070055	HS19121092	HS20061390	HS19121092	HS20070055
Total Organic Carbon (SM5310C)																		
Total Organic Carbon	mg/L	NV	**92**	**69.8**	NA	NA	NA	**291**	**208**	**2.96**	**3.17**	**4.44**	**4.10**	NA	NA	NA	NA	NA
Volatile Organic Compounds (8260C)																		
1,1,1,2-Tetrachloroethane	µg/L	110	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,1,1-Trichloroethane	µg/L	200	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,1,2-Trichloroethane	µg/L	5	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,1-Dichloroethane	µg/L	10,000	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	**1.0**	**0.77 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethene	µg/L	7	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2,3-Trichlorobenzene	µg/L	310	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2,3-Trichloropropane	µg/L	0.041	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2,4-Trichlorobenzene	µg/L	70	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,2-Dichloroethane	µg/L	5	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 0.5 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 0.5 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,3-Dichlorobenzene	µg/L	3,100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,3-Dichloropropane	µg/L	29	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
1,4-Dichlorobenzene	µg/L	75	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
2,2-Dichloropropane	µg/L	42	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 10 U	< 5.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 10 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
2-Hexanone	µg/L	6,100	< 10 U	< 10 U	< 1.0 UJ	< 2.0 U	< 2.0 U	< 10 U	< 10 U	< 1.0 U	< 2.0 U	< 1.0 UJ	< 1.0 UJ	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U
4-Chlorotoluene	µg/L	2,000	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
4-Isopropyltoluene	µg/L	10,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
4-Methyl-2-pentanone	µg/L	8,200	< 10 U	< 10 U	< 1.0 UJ	< 2.0 U	< 2.0 U	< 10 U	< 10 U	< 1.0 U	< 2.0 U	< 1.0 UJ	< 1.0 UJ	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U
Acetone	µg/L	92,000	**41**	< 5.0 U	< 2.0 UJ	< 1.0 U	< 1.0 U	**55**	**54**	< 2.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 UJ	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 UJ
Benzene	µg/L	5	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Bromochloromethane	µg/L	4,100	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Bromomethane	µg/L	140	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Carbon disulfide	µg/L	10,000	< 10 U	< 5.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 10 U	< 5.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Carbon tetrachloride	µg/L	5	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Chlorobenzene	µg/L	100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Chloroethane	µg/L	41,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Chloroform	µg/L	1,000	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloromethane	µg/L	220	< 5.0 UJ	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	**14**	**17**	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	**7.3**	**1.1**	**1.1**	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Dibromomethane	µg/L	380	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Ethylbenzene	µg/L	700	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Hexachlorobutadiene	µg/L	20	< 10 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 10 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
m,p-Xylene	µg/L	10,000	< 10 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 10 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
Methylene chloride	µg/L	5	< 10 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 10 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
n-Propylbenzene	µg/L	4,100	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Naphthalene	µg/L	2,000	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
o-Xylene	µg/L	10,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
sec-Butylbenzene	µg/L	4,100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Styrene	µg/L	100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
tert-Butylbenzene	µg/L	4,100	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2019 and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	03WW01_121819 12/18/19	03WW01_062320 6/23/20	35AWW01_122019 12/20/19	35AWW01_062520 6/25/20	35AWW01_062520-a 6/25/20	35AWW08_121819 12/18/19	35AWW08_062320 6/23/20	35AWW09_121819 12/18/19	35AWW09_062320 6/23/20	35AWW10_121919 12/19/19	35AWW10_121919-a 12/19/19	35AWW10_062920 6/29/20	35AWW12_121819 12/18/19	35AWW12_062520 6/25/20	35AWW13_121819 12/18/19	35AWW13_062920 6/29/20
Location Description			Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary. Field Duplicate.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.	Site 58 - ESE, inside site boundary.	Site 58 - ESE, inside site boundary. Duplicate	Site 58 - ESE, inside site boundary.	Site 58 - E, outside site boundary.	Site 58 - E, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.
Location Depth			Shallow	Shallow	Intermediate	Intermediate	Intermediate	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19121092	HS20061178	HS19121257	HS20061390	HS20061390	HS19121092	HS20061178	HS19121092	HS20061178	HS19121155	HS19121155	HS20070055	HS19121092	HS20061390	HS19121092	HS20070055
Tetrachloroethene	µg/L	5	< 5.0 U	**4.5 J**	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	**6.7**	**500**	**440**	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Toluene	µg/L	1,000	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	**4.5 J**	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 5.0 U	< 2.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	< 5.0 U	**4.5 J**	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	**17**	**160**	**140**	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 5.0 U	< 5.0 U	< 0.5 UJ	< 1.0 U	< 1.0 U	< 5.0 U	< 5.0 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U
Vinyl chloride	µg/L	2	**5.4 J**	**7.2**	< 0.5 UJ	< 0.5 U	< 0.5 U	< 5.0 U	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)																		
Acetic Acid	mg/L	NV	**3.1 J**	< 2.0 U	NA	NA	NA	**29**	**6.1**	< 2.0 U	< 1.0 U	< 2.0 U	< 2.0 U	NA	NA	NA	NA	NA
Butyric Acid	mg/L	NV	< 1.0 U	< 1.0 U	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA
Lactic Acid	mg/L	NV	**1.8 J**	< 1.0 U	NA	NA	NA	**7.7 J**	**1.8 J**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA
Propionic Acid	mg/L	51	< 1.0 U	< 1.0 U	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA
Pyruvic Acid	mg/L	NV	< 0.10 U	< 0.10 U	NA	NA	NA	< 0.10 U	< 0.10 U	< 0.10 U	< 0.5 U	< 0.10 U	< 0.10 U	NA	NA	NA	NA	NA
Metals (SW6020)																		
Arsenic	mg/L	0.01	**0.0158**	**0.00936**	NA	NA	NA	**0.0253**	**0.0210**	**0.000606 J**	< 0.000500 U	NA	NA	NA	NA	NA	NA	NA
Anions (9056A)																		
Chloride	mg/L	NV	**940**	**965**	NA	NA	NA	**2,290**	**2,510**	**1,310**	**1,490**	**4.46**	**5.43**	NA	NA	NA	NA	NA
Nitrate	mg/L	10	< 0.500 U	< 0.200 U	NA	NA	NA	**0.704**	< 0.200 U	< 0.500 U	< 0.100 U	**0.115**	**0.115**	NA	NA	NA	NA	NA
Sulfate	mg/L	NV	**155**	**231**	NA	NA	NA	< 2.5 U	**15.5**	**940**	**1,060**	**46.1**	**46.5**	NA	NA	NA	NA	NA
Dissolved Gases (RSK-175)																		
Carbon Dioxide	µg/L	NV	**340,000**	**300,000**	NA	NA	NA	**240,000**	**230,000**	**120,000**	**100,000**	**210,000**	**180,000**	NA	NA	NA	NA	NA
Ethane	µg/L	NV	< 0.47 U	< 0.47 U	NA	NA	NA	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	NA	NA	NA	NA	NA
Ethene	µg/L	NV	**0.61 J**	**0.46**	NA	NA	NA	**6.2**	**12**	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	NA	NA	NA	NA	NA
Methane	µg/L	NV	**540**	**640**	NA	NA	NA	**760**	**1,500**	**2.6**	**1.9**	< 1.0 U	< 1.0 U	NA	NA	NA	NA	NA
Dechlorinating Bacteria																		
BAV1 Vinyl Chloride Reductase	cells/mL	NV	**0.7**	< 0.50 U	NA	NA	NA	NA	< 1.0 U	< 2.6 U	NA	NA	NA	NA	NA	NA	NA	NA
Dehalobacter spp.	cells/mL	NV	**2,480**	**699**	NA	NA	NA	NA	**29,500**	**42,500**	NA	NA	NA	NA	NA	NA	NA	NA
Dehalococoides	cells/mL	NV	**22,200**	**6,500**	NA	NA	NA	NA	**594,000**	**2,400,000**	NA	NA	NA	NA	NA	NA	NA	NA
tceA Reductase	cells/mL	NV	**595**	**742**	NA	NA	NA	NA	**256,000**	**377,000**	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride Reductase	cells/mL	NV	**6,080**	**2,410**	NA	NA	NA	NA	**92,000**	**330,000**	NA	NA	NA	NA	NA	NA	NA	NA
Field Parameters																		
Temperature	^{0}C	NV	13.82	22.77	13.78	20.94		15.61	22.82	12.78	20.75	18.28		23.05	18.67	20.42	21.08	23.85
pH	s.u.	5-9	6.41	6.44	7.08	6.46		6.65	6.77	6.20	6.14	5.44		4.81	4.99	5.83	6.32	5.80
DO	mg/L	< 0.5	0.05	0.04	0.03	0.06		0.04	0.07	0.06	1.17	0.76		0.66	0.49	0.39	0.06	0.07
ORP	mV	< 0.0	-128	-139	-73	-61		-161	-172	229	165	198		259	303	112	52	205

Notes:

Blue highlighting indicates concentrations above the MCL/MSC

MCL/MSC-Maximum Contaminant Limit/Medium-Specific Concentration

NA - Not Analyzed, NV - No Value

µg/L - micrograms per liter; mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

DO - dissolved oxygen

ORP - oxidation reduction potential

^{0}C - degrees Celsius

mV - millivolt

s.u. - standard unit

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2019 and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW14_121919 12/19/19	35AWW14_062520 6/25/20	35AWW16_121919 12/19/19	35AWW16_062520 6/25/20	35AWW17_121819 12/18/19	35AWW17_062920 6/29/20	35AWW18_121819 12/18/19	35AWW18_062520 6/25/20	34AWW21_122019 12/20/19	34AWW21_122019-a 12/20/19	34AWW21_062920 6/29/20	34AWW21_062920_a 6/29/20	35AWW22_121819 12/18/19	35AWW22_062420 6/24/20	35ASW03 December 2019	35ASW03 June 2020
Location Description			Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ESE, outside site boundary, beside Building 725. Duplicate	Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ESE, outside site boundary, beside Building 725. Field Duplicate.	Site 58 - ENE, outside site boundary.	Site 58 - ENE, outside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Surface Water	Surface Water
Lab Package			HS19121155	HS20061390	HS19121155	HS20061390	HS19121092	HS20070055	HS19121092	HS20061390	HS19121257	HS19121257	HS20070055	HS20070055	HS19121092	HS20061218	NA	NA
Total Organic Carbon (SM5310C)																		
Total Organic Carbon	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
Volatile Organic Compounds (8260C)																		
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,1,1-Trichloroethane	µg/L	200	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,1,2-Trichloroethane	µg/L	5	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,1-Dichloroethane	µg/L	10,000	**9.1**	**12**	**0.65 J**	**0.43 J**	< 0.5 U	< 0.5 U	**1.2**	**2.8**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U		
1,1-Dichloroethene	µg/L	7	**15 J**	**9.3**	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	**4.1**	**18**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U		
1,1-Dichloropropene	µg/L	2.9	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2,3-Trichlorobenzene	µg/L	310	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2,3-Trichloropropane	µg/L	0.041	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2,4-Trichlorobenzene	µg/L	70	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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-Dibromoethane	µg/L	0.05	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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-Dichlorobenzene	µg/L	600	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,2-Dichloroethane	µg/L	5	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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-Dichloropropane	µg/L	5	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,3-Dichlorobenzene	µg/L	3,100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,3-Dichloropropane	µg/L	29	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
1,4-Dichlorobenzene	µg/L	75	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
2,2-Dichloropropane	µg/L	42	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
2-Butanone	µg/L	61,000	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U		
2-Chlorotoluene	µg/L	2,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
2-Hexanone	µg/L	6,100	< 1.0 UJ	< 2.0 U	< 1.0 UJ	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U		
4-Chlorotoluene	µg/L	2,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
4-Isopropyltoluene	µg/L	10,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
4-Methyl-2-pentanone	µg/L	8,200	< 1.0 UJ	< 2.0 U	< 1.0 UJ	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 2.0 U	< 1.0 U	< 2.0 U		
Acetone	µg/L	92,000	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 2.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U		
Benzene	µg/L	5	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Bromobenzene	µg/L	2,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Bromochloromethane	µg/L	4,100	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Bromodichloromethane	µg/L	4.6	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Bromoform	µg/L	36	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Bromomethane	µg/L	140	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Carbon disulfide	µg/L	10,000	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U		
Carbon tetrachloride	µg/L	5	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Chlorobenzene	µg/L	100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Chloroethane	µg/L	41,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Chloroform	µg/L	1,000	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Chloromethane	µg/L	220	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U		
cis-1,2-Dichloroethene	µg/L	70	**3.7 J**	**4.6**	< 0.5 UJ	< 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-1,3-Dichloropropene	µg/L	5.3	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Dibromochloromethane	µg/L	34	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Dibromomethane	µg/L	380	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Dichlorodifluoromethane	µg/L	20,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Ethylbenzene	µg/L	700	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Hexachlorobutadiene	µg/L	20	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Isopropylbenzene	µg/L	10,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
m,p-Xylene	µg/L	10,000	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Methylene chloride	µg/L	5	< 1.0 UJ	< 1.0 U	< 1.0 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
n-Butylbenzene	µg/L	4,100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
n-Propylbenzene	µg/L	4,100	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Naphthalene	µg/L	2,000	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
o-Xylene	µg/L	10,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
sec-Butylbenzene	µg/L	4,100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Styrene	µg/L	100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
tert-Butylbenzene	µg/L	4,100	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		

Table 2. Eastern Plume Semi-Annual Analytical Data, December 2019 and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW14_121919 12/19/19	35AWW14_062520 6/25/20	35AWW16_121919 12/19/19	35AWW16_062520 6/25/20	35AWW17_121819 12/18/19	35AWW17_062920 6/29/20	35AWW18_121819 12/18/19	35AWW18_062520 6/25/20	34AWW21_122019 12/20/19	34AWW21_122019-a 12/20/19	34AWW21_062920 6/29/20	34AWW21_062920_a 6/29/20	35AWW22_121819 12/18/19	35AWW22_062420 6/24/20	35ASW03 December 2019	35ASW03 June 2020
Location Description			Site 58 - SE, outside site boundary.	Site 58 - SE, outside site boundary.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary, near Building 744-A.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - SSW, outside site boundary.	Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ESE, outside site boundary, beside Building 725. Duplicate	Site 58 - ESE, outside site boundary, beside Building 725.	Site 58 - ESE, outside site boundary, beside Building 725. Field Duplicate.	Site 58 - ENE, outside site boundary.	Site 58 - ENE, outside site boundary.	Site 58 - E, inside site boundary.	Site 58 - E, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Surface Water	Surface Water
Lab Package			HS19121155	HS20061390	HS19121155	HS20061390	HS19121092	HS20070055	HS19121092	HS20061390	HS19121257	HS19121257	HS20070055	HS20070055	HS19121092	HS20061218	NA	NA
Tetrachloroethene	µg/L	5	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Toluene	µg/L	1,000	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
trans-1,2-Dichloroethene	µg/L	100	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
trans-1,3-Dichloropropene	µg/L	29	< 0.5 UJ	< 0.5 U	< 0.5 UJ	< 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		
Trichloroethene	µg/L	5	**11 J**	**11**	< 0.5 UJ	< 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		
Trichlorofluoromethane	µg/L	31,000	< 0.5 UJ	< 1.0 U	< 0.5 UJ	< 1.0 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U		
Vinyl chloride	µg/L	2	**0.75 J**	< 0.5 U	< 0.5 UJ	< 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		
Volatile Fatty Acids (HPLC-METACIDS)																		
Acetic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Butyric Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Lactic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
Propionic Acid	mg/L	51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Pyruvic Acid	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Metals (SW6020)																		
Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
Anions (9056A)																		
Chloride	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Nitrate	mg/L	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
Sulfate	mg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dissolved Gases (RSK-175)																		
Carbon Dioxide	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Ethane	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Ethene	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
Methane	µg/L	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dechlorinating Bacteria																		
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dehalobacter spp.	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dehalococoides	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**Dry**	**Dry**
tceA Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Field Parameters																		
Temperature	^{0}C	NV	18.09	20.83	17.36	21.66	14.64	20.42	15.09	20.70	16.26		20.93		16.62	21.04		
pH	s.u.	5-9	5.76	6.05	6.36	6.35	6.05	6.21	5.88	6.46	4.59		5.12		5.35	5.95	**Dry**	**Dry**
DO	mg/L	< 0.5	10.34	8.37	0.03	0.06	0.40	0.06	0.37	0.07	0.14		0.39		0.31	0.96		
ORP	mV	< 0.0	14	55	21	94	135	64	138	91	343		233		263	67		

Notes:

Blue highlighting indicates concentrations above the MCL/MSC

MCL/MSC-Maximum Contaminant Limit/Medium-Specific Concentration

NA - Not Analyzed, NV - No Value

µg/L - micrograms per liter; mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

DO - dissolved oxygen

ORP - oxidation reduction potential

^{0}C - degrees Celsius

mV - millivolt

s.u. - standard unit

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW06_091119 9/11/19	35AWW06_091119_a 9/11/19	35AWW06_121919 12/19/19	35AWW06_032420 03/24/20	35AWW06_062420 6/24/20	35AWW11_091119 9/11/19	35AWW11_121819 12/18/19	35AWW11_032420 03/24/20	35AWW11_032420-a 03/24/20	35AWW11_062320 6/23/20	35AWW15_122019 12/20/19	35AWW15_062520 6/25/20
Location Description			Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary. Duplicate	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary. Duplicate	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - W, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19090511	HS19090511	HS19121155	HS20040727/ HS20031084	HS20061218	HS19090511	HS19121092	HS20031084	HS20031084	HS20061178	HS19121257	HS20061390
Total Organic Carbon (SM5310C)														
Total Organic Carbon	mg/L	NV	**84.9**	**83.8**	**13.8**	**15.6**	**10.2**	**28 J**	**9.94**	**5.88**	**7.86**	**7.28**	NA	NA
Volatile Organic Compounds (8260C)														
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 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
1,1-Dichloroethene	µg/L	7	**0.92 J**	**0.88 J**	< 0.5 UJ	**0.78 J**	**0.99 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
2-Butanone	µg/L	61,000	**46**	**48**	< 1.0 UJ	< 1.0 U	< 1.0 U	**67**	**29**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
2-Hexanone	µg/L	6,100	**1.6 J**	**1.5 J**	< 1.0 UJ	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 UJ	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 UJ	< 2.0 U
Acetone	µg/L	92,000	**280**	**280**	< 1.0 UJ	< 1.0 U	< 1.0 U	**75**	**38**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromobenzene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromoform	µg/L	36	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Bromomethane	µg/L	140	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Carbon disulfide	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Carbon tetrachloride	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chlorobenzene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chloroethane	µg/L	41,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Dibromochloromethane	µg/L	34	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Ethylbenzene	µg/L	700	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Methylene chloride	µg/L	5	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Naphthalene	µg/L	2,000	**0.77 J**	**0.81 J**	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
o-Xylene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW06_091119 9/11/19	35AWW06_091119_a 9/11/19	35AWW06_121919 12/19/19	35AWW06_032420 03/24/20	35AWW06_062420 6/24/20	35AWW11_091119 9/11/19	35AWW11_121819 12/18/19	35AWW11_032420 03/24/20	35AWW11_032420-a 03/24/20	35AWW11_062320 6/23/20	35AWW15_122019 12/20/19	35AWW15_062520 6/25/20
Location Description			Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary. Duplicate	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary.	Site 58 - SE, inside site boundary. Duplicate	Site 58 - SE, inside site boundary.	Site 58 - W, inside site boundary.	Site 58 - W, inside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19090511	HS19090511	HS19121155	HS20040727/ HS20031084	HS20061218	HS19090511	HS19121092	HS20031084	HS20031084	HS20061178	HS19121257	HS20061390
Styrene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Tetrachloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**1.4**	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Vinyl chloride	µg/L	2	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	**0.51 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)														
Acetic Acid	mg/L	NV	NA	**36**	< 2.0 U	**1.5 J**	< 2.0 U	**54**	**26**	**5.8**	**5.5**	**0.65 J**	NA	NA
Butyric Acid	mg/L	NV	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA
Lactic Acid	mg/L	NV	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	**0.67 J**	< 1.0 U	NA	NA
Propionic Acid	mg/L	51	NA	**170**	< 1.0 U	< 1.0 U	< 1.0 U	**31**	**4.1**	< 1.0 U	< 1.0 U	< 1.0 U	NA	NA
Pyruvic Acid	mg/L	NV	NA	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	NA	NA
Metals (6020A)														
Total Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anions (9056A)														
Chloride	mg/L	NV	**917**	**921**	**935**	**968**	**1,080**	**1,990**	**2,080**	**2,090**	**2,110**	**2,040**	NA	NA
Nitrate	mg/L	10	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.500 U	< 0.500 U	< 0.500 U	< 0.100 U	NA	NA
Nitrite	mg/L	1	< 0.100 U	< 0.100 U	NA	NA	< 0.100 U	< 0.100 U	NA	NA	NA	NA	NA	NA
Sulfate	mg/L	NV	**1.28 J**	**0.790 J**	**0.845**	**1.51**	**35.1**	**259**	**192**	**282 J**	**113 J**	**416**	NA	NA
Dissolved Gases (RSK-175)														
Carbon Dioxide	µg/L	NV	**320,000**	**350,000**	**270,000**	**360,000**	**270,000**	**690,000**	**330,000**	**450,000**	**510,000**	**390,000**	NA	NA
Ethane	µg/L	NV	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	NA	NA
Ethene	µg/L	NV	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	NA	NA
Methane	µg/L	NV	**2,900**	**3,300**	**1,500**	**1,300**	**1,400**	**1,300**	**750**	**850**	**860**	**1,000**	NA	NA
Dechlorinating Bacteria														
BAV1 Vinyl Chloride Reductase	cells/mL	NV	**0.70 J**	NA	**29.6**	**4.7**	< 0.60 U	< 0.90 U	< 0.60 U	**19.5**	NA	< 1.1 U	NA	NA
Dehalobacter spp.	cells/mL	NV	< 25.6 U	NA	< 10.2 U	**1,220**	**1,990**	**115,000**	**213,000**	**40,600**	NA	**41,100**	NA	NA
Dehalococoides	cells/mL	NV	**28.6**	NA	**80.3**	**9.6**	**3.5**	**1,240**	**900**	**940**	NA	**382**	NA	NA
tceA Reductase	cells/mL	NV	< 2.60 U	NA	< 1.0 U	< 0.50 U	**0.3 J**	< 0.90 U	**6.70**	< 0.60 U	NA	**78.2**	NA	NA
Vinyl Chloride Reductase	cells/mL	NV	< 2.60 U	NA	< 1.0 U	< 0.50 U	**0.50 J**	**80.1**	**99.7**	**443**	NA	**199**	NA	NA
Field Parameters														
Temperature	^{0}C	NV	23.02		15.85	19.46	20.65	26.12	15.99	18.79		21.59	18.99	22.93
pH	s.u.	5-9	6.99		6.81	6.83	6.65	6.23	6.28	6.08		6.10	5.95	6.15
DO	mg/L	< 0.5	0.06		0.05	0.07	0.08	0.07	0.09	0.08		0.05	0.48	0.04
ORP	mV	< 0.0	-120		-152	-179	-100	-100	-95	-100		-46	134	62

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed, NV - No Value

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

DO - dissolved oxygen

ORP - oxidation reduction potential

^{0}C - degrees Celsius

mV - millivolt

s.u. - standard unit

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW19_091119 9/11/19	35AWW19_121819 12/18/19	35AWW19_032420 03/24/20	35AWW19_062420 6/24/20	35AWW20_091119 9/11/19	35AWW20_121919 12/19/19	35AWW20_032420 03/24/20	35AWW20_062420 6/24/20	35AWW23_091119 9/11/19	35AWW23_121819 12/18/19	35AWW23_032420 03/24/20	35AWW23_062420 6/24/20	35AWW24_121919 12/19/19	35AWW24_062520 6/25/20
Location Description			Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Downgradient Western Plume well	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Downgradient Western Plume well
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19090511	HS19121092	HS20031084	HS20061218	HS19090511	HS19121155	HS20031084	HS20061218	HS19090511	HS19121092	HS20031084	HS20061218	HS19121155	HS20061390
Total Organic Carbon (SM5310C)																
Total Organic Carbon	mg/L	NV	**1.19**	**1.75**	**1.79**	**1.75**	**15**	**13.1**	**18.3**	**13.9**	**108**	**127**	**250**	**849**	NA	NA
Volatile Organic Compounds (8260C)																
1,1,1,2-Tetrachloroethane	µg/L	110	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	**72**	**75 J**	**83**	**73**	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	**0.92 J**	**0.98 J**	**0.84 J**	**0.85 J**	**550 J**	**640**	**560**	**510**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,1-Dichloroethene	µg/L	7	**5.3**	**4.5**	**4.4**	**4.6**	**3,900**	**970 J**	**1,300**	**1,100**	**0.70 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,1-Dichloropropene	µg/L	2.9	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	**16**	**17 J**	**25**	**21**	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,2-Dichloroethane	µg/L	5	**1.2**	**1.0**	**1.1**	< 0.5 U	**19**	**19 J**	**18**	**18**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	**0.95 J**	< 5.0 UJ	< 2.5 U	**0.97 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	**2.9**	< 5.0 UJ	< 2.5 U	**3.6**	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 1.0 U	**340**	**390**	**300**	**160**	< 1.0 UJ	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 2.0 U	< 1.0 U	< 0.5 U	**4.0**	< 2.0 U	< 1.0 UJ	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 2.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 2.0 U	< 1.0 UJ	< 2.0 U
Acetone	µg/L	92,000	< 1.0 U	< 2.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 10 UJ	< 5.0 U	< 1.0 U	**380**	**480 J**	**400**	**190**	< 1.0 UJ	< 1.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**8.3**	**9.0 J**	**8.7**	**8.5**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromobenzene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Bromoform	µg/L	36	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Bromomethane	µg/L	140	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Carbon disulfide	µg/L	10,000	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**6.0**	< 10 UJ	< 5.0 U	**3.7**	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Carbon tetrachloride	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chlorobenzene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chloroethane	µg/L	41,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**110**	**70 J**	**71**	**63**	**7.8**	**7.6**	**6.5**	**5.0**	< 0.5 UJ	< 0.5 U
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Dibromochloromethane	µg/L	34	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Ethylbenzene	µg/L	700	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Methylene chloride	µg/L	5	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 U	< 10 UJ	< 5.0 U	< 1.0 U	< 1.0 U	< 0.5 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Naphthalene	µg/L	2,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	**1.6**	**3.0**	< 1.0 U	< 0.5 UJ	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 U	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 1.0 U
o-Xylene	µg/L	10,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW19_091119 9/11/19	35AWW19_121819 12/18/19	35AWW19_032420 03/24/20	35AWW19_062420 6/24/20	35AWW20_091119 9/11/19	35AWW20_121919 12/19/19	35AWW20_032420 03/24/20	35AWW20_062420 6/24/20	35AWW23_091119 9/11/19	35AWW23_121819 12/18/19	35AWW23_032420 03/24/20	35AWW23_062420 6/24/20	35AWW24_121919 12/19/19	35AWW24_062520 6/25/20
Location Description			Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - S, outside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Site 58 - SW, inside site boundary.	Downgradient Western Plume well	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Site 58 - SW, outside site boundary.	Downgradient Western Plume well	Downgradient Western Plume well
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS19090511	HS19121092	HS20031084	HS20061218	HS19090511	HS19121155	HS20031084	HS20061218	HS19090511	HS19121092	HS20031084	HS20061218	HS19121155	HS20061390
Styrene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Tetrachloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	**0.61 J**	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Toluene	µg/L	1,000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**14**	**9.1 J**	**6.6**	**7.2**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**350**	**99 J**	**120**	**94**	**3.8**	**2.7**	**1.3**	< 0.5 U	< 0.5 UJ	< 0.5 U
Trichlorofluoromethane	µg/L	31,000	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 5.0 UJ	< 2.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 UJ	< 1.0 U
Vinyl chloride	µg/L	2	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	**790**	**2,800 J**	**1,500**	**2,000**	< 0.5 U	**1.1**	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U
Volatile Fatty Acids (HPLC-METACIDS)																
Acetic Acid	mg/L	NV	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	**3.1 J**	< 2.0 U	< 2.0 U	**250**	**140**	**97**	**76**	NA	NA
Butyric Acid	mg/L	NV	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**180**	< 1.0 U	< 2.0 U	< 1.0 U	NA	NA
Lactic Acid	mg/L	NV	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 10 U	< 1.0 U	< 2.0 UJ	< 1.0 U	NA	NA
Propionic Acid	mg/L	51	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	**1,100**	< 1.0 U	**320**	**44**	NA	NA
Pyruvic Acid	mg/L	NV	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 UJ	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U	< 1.0 U	< 0.10 U	< 0.20 U	< 0.10 U	NA	NA
Metals (6020A)																
Total Arsenic	mg/L	0.01	NA	NA	NA	NA	NA	NA	NA	**0.00119 J**	NA	NA	NA	NA	NA	NA
Anions (9056A)																
Chloride	mg/L	NV	**1,050**	**979**	**922**	**934**	**902**	**821**	**718 J**	**911**	**857**	**868**	**925**	**1,160**	NA	NA
Nitrate	mg/L	10	< 0.100 U	< 0.500 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 U	< 0.100 UJ	**0.747**	< 0.100 U	< 0.500 U	< 0.100 U	< 0.100 U	NA	NA
Nitrite	mg/L	1	< 0.100 U	NA	NA	< 0.100 U	< 0.100 U	NA	NA	< 0.100 U	< 0.100 U	NA	NA	< 0.100 U	NA	NA
Sulfate	mg/L	NV	**1,010**	**997**	**989**	**1,020**	**1,200**	**1,170**	**1,020 J**	**1,270**	**4.63**	**1.62 J**	**1.84**	**1.26**	NA	NA
Dissolved Gases (RSK-175)																
Carbon Dioxide	µg/L	NV	**230,000**	**160,000**	**200,000**	**160,000**	**290,000 J**	**270,000**	**260,000**	**250,000**	**590,000**	**360,000**	**600,000**	**310,000**	NA	NA
Ethane	µg/L	NV	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	**0.24 J**	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	< 0.47 U	NA	NA
Ethene	µg/L	NV	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	**5.9**	**6.3**	**6.0 J**	**5.5**	< 0.55 U	< 0.55 U	< 0.55 U	< 0.55 U	NA	NA
Methane	µg/L	NV	**3.0**	**2.0**	**3.1**	**3.0**	**640 J**	**310**	**410**	**260**	**2,700**	**1,400**	**1,400**	**1,300**	NA	NA
Dechlorinating Bacteria																
BAV1 Vinyl Chloride Reductase	cells/mL	NV	< 0.5 U	< 0.50 U	**1.8**	< 0.50 U	**10,300**	**49,100**	**19,800**	**18,400**	**1.10 J**	**0.40 J**	**0.90**	**12.6**	NA	NA
Dehalobacter spp.	cells/mL	NV	**23,600**	**12,200**	**12,200**	**19,700**	**386**	**6,070**	**954**	**3,830**	< 13.9 U	< 5.6 U	< 5.50 U	< 5.6 U	NA	NA
Dehalococoides	cells/mL	NV	**18.4**	**14.8**	**9.4**	**2.0**	**16,000**	**27,800**	**13,000**	**115,000**	**326**	**689**	**136**	**765**	NA	NA
tceA Reductase	cells/mL	NV	**0.70**	**0.3 J**	< 0.50 U	< 0.50 U	< 0.5 U	< 0.5 U	< 0.50 U	< 0.50 U	**3.40**	**29.6**	**23**	**48.6**	NA	NA
Vinyl Chloride Reductase	cells/mL	NV	**1.10**	**0.60**	< 0.50 U	**0.10 J**	< 0.5 U	**4.60**	< 0.50 U	< 0.50 U	**32.1**	**69.8**	**49.3**	**106**	NA	NA
Field Parameters																
Temperature	^{0}C	NV	21.45	17.91	21.68	21.11	22.68	17.51	21.51	22.20	24.87	16.02	19.93	21.51	19.64	2
pH	s.u.	5-9	6.10	5.97	5.97	5.89	6.67	6.40	6.50	6.33	6.24	6.17	6.23	6.17	5.62	5
DO	mg/L	< 0.5	0.19	0.08	0.04	0.04	0.03	0.08	0.05	0.07	0.02	0.02	0.05	0.04	0.03	0
ORP	mV	< 0.0	77	37	46	56	-45	-52	-94	-47	-44	-104	-102	-117	147	1

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed, NV - No Value

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

DO - dissolved oxygen

ORP - oxidation reduction potential

^{0}C - degrees Celsius

mV - millivolt

s.u. - standard unit

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW24_062520-a 6/25/20	LHSMW06_122019 12/20/19	LHSMW06_122019_a 12/20/19	LHSMW06_062520 6/25/20	LHSMW07_091119 9/11/19	LHSMW07_121919 12/19/19	LHSMW07_032420 03/24/20	LHSMW07_062420 6/24/20
Location Description			Downgradient Western Plume well Duplicate	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715. Duplicate	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS20061390	HS19121257	HS19121257	HS20061390	HS19090511	HS19121155	HS20031084	HS20061218
Total Organic Carbon (SM5310C)										
Total Organic Carbon	mg/L	NV	NA	NA	NA	NA	**3.42**	**3.48 J**	**3.29 J**	**3.00**
Volatile Organic Compounds (8260C)										
1,1,1,2-Tetrachloroethane	µg/L	110	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
1,1,1-Trichloroethane	µg/L	200	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
1,1,2,2-Tetrachloroethane	µg/L	14	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,1,2-Trichloroethane	µg/L	5	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,1-Dichloroethane	µg/L	10,000	< 0.5 U	**8.4**	**8.4**	**7.0**	**11**	**13**	**11**	**9.0**
1,1-Dichloroethene	µg/L	7	< 0.5 U	**19 J**	**20 J**	**22**	**46**	**46 J**	**94**	**130**
1,1-Dichloropropene	µg/L	2.9	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,2,3-Trichlorobenzene	µg/L	310	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
1,2,3-Trichloropropane	µg/L	0.041	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
1,2,4-Trichlorobenzene	µg/L	70	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
1,2,4-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,2-Dibromo-3-chloropropane	µg/L	0.2	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
1,2-Dibromoethane	µg/L	0.05	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
1,2-Dichlorobenzene	µg/L	600	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,2-Dichloroethane	µg/L	5	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	**0.67 J**	**0.64 J**	< 0.5 U	< 0.5 U
1,2-Dichloropropane	µg/L	5	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,3,5-Trimethylbenzene	µg/L	5,100	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
1,3-Dichlorobenzene	µg/L	3,100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,3-Dichloropropane	µg/L	29	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
1,4-Dichlorobenzene	µg/L	75	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
2,2-Dichloropropane	µg/L	42	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
2-Butanone	µg/L	61,000	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
2-Chlorotoluene	µg/L	2,000	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
2-Hexanone	µg/L	6,100	< 2.0 U	< 1.0 UJ	< 1.0 UJ	< 2.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 2.0 U
4-Chlorotoluene	µg/L	2,000	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
4-Isopropyltoluene	µg/L	10,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
4-Methyl-2-pentanone	µg/L	8,200	< 2.0 U	< 1.0 UJ	< 1.0 UJ	< 2.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 2.0 U
Acetone	µg/L	92,000	< 1.0 U	< 2.0 UJ	< 2.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
Benzene	µg/L	5	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Bromobenzene	µg/L	2,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Bromochloromethane	µg/L	4,100	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Bromodichloromethane	µg/L	4.6	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Bromoform	µg/L	36	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Bromomethane	µg/L	140	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Carbon disulfide	µg/L	10,000	< 1.0 U	< 1.0 UJ	< 1.0 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
Carbon tetrachloride	µg/L	5	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Chlorobenzene	µg/L	100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Chloroethane	µg/L	41,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Chloroform	µg/L	1,000	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Chloromethane	µg/L	220	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene	µg/L	70	< 0.5 U	**68 J**	**68 J**	**65**	**1.1**	**1.2 J**	**1.0**	**1.0**
cis-1,3-Dichloropropene	µg/L	5.3	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Dibromochloromethane	µg/L	34	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Dibromomethane	µg/L	380	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Dichlorodifluoromethane	µg/L	20,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Ethylbenzene	µg/L	700	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Hexachlorobutadiene	µg/L	20	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
Isopropylbenzene	µg/L	10,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
m,p-Xylene	µg/L	10,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
Methylene chloride	µg/L	5	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U	< 1.0 U
Naphthalene	µg/L	2,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
n-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
n-Propylbenzene	µg/L	4,100	< 1.0 U	< 0.5 U	< 0.5 U	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 1.0 U
o-Xylene	µg/L	10,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
sec-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U

Table 3. Western Plume Analytical Data, September 2019, December 2019, March 2020, and June 2020
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Location Identification: / Sample Date:	Units	MCL/MSC	35AWW24_062520-a 6/25/20	LHSMW06_122019 12/20/19	LHSMW06_122019_a 12/20/19	LHSMW06_062520 6/25/20	LHSMW07_091119 9/11/19	LHSMW07_121919 12/19/19	LHSMW07_032420 03/24/20	LHSMW07_062420 6/24/20
Location Description			Downgradient Western Plume well Duplicate	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, inside site boundary, beside Building 715. Duplicate	Site 58 - SW, inside site boundary, beside Building 715.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.	Site 58 - SW, outside site boundary.
Location Depth			Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow	Shallow
Lab Package			HS20061390	HS19121257	HS19121257	HS20061390	HS19090511	HS19121155	HS20031084	HS20061218
Styrene	µg/L	100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
tert-Butylbenzene	µg/L	4,100	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Tetrachloroethene	µg/L	5	< 1.0 U	**1.9 J**	**1.9 J**	**2.1**	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Toluene	µg/L	1,000	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
trans-1,2-Dichloroethene	µg/L	100	< 0.5 U	**1.4 J**	**1.5 J**	**1.4**	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
trans-1,3-Dichloropropene	µg/L	29	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 0.5 U
Trichloroethene	µg/L	5	< 0.5 U	**17 J**	**17 J**	**16**	**3.1**	**3.1 J**	**2.8**	**2.5**
Trichlorofluoromethane	µg/L	31,000	< 1.0 U	< 0.5 UJ	< 0.5 UJ	< 1.0 U	< 0.5 U	< 0.5 UJ	< 0.5 U	< 1.0 U
Vinyl chloride	µg/L	2	< 0.5 U	**5.7 J**	**5.6 J**	**5.5**	**49**	**42 J**	**46**	**44**
Volatile Fatty Acids (HPLC-METACIDS)										
Acetic Acid	mg/L	NV	NA	NA	NA	NA	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U
Butyric Acid	mg/L	NV	NA	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Lactic Acid	mg/L	NV	NA	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 UJ	< 1.0 U
Propionic Acid	mg/L	51	NA	NA	NA	NA	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Pyruvic Acid	mg/L	NV	NA	NA	NA	NA	< 0.10 U	< 0.10 U	< 0.10 U	< 0.10 U
Metals (6020A)										
Total Arsenic	mg/L	0.01	NA	< 0.000500 U	< 0.000500 U	< 0.000500 U	NA	NA	NA	NA
Anions (9056A)										
Chloride	mg/L	NV	NA	NA	NA	NA	**1,820**	**1,770**	**1,960**	**2,010**
Nitrate	mg/L	10	NA	NA	NA	NA	< 0.100 U	< 0.500 U	< 0.500 U	< 0.100 U
Nitrite	mg/L	1	NA	NA	NA	NA	< 0.100 U	NA	NA	< 0.100 U
Sulfate	mg/L	NV	NA	NA	NA	NA	**2,530**	**2,560**	**2,750**	**3,000**
Dissolved Gases (RSK-175)										
Carbon Dioxide	µg/L	NV	NA	NA	NA	NA	**340,000**	**250,000**	**250,000**	**250,000**
Ethane	µg/L	NV	NA	NA	NA	NA	**0.20 J**	< 0.47 U	< 0.47 U	< 0.47 U
Ethene	µg/L	NV	NA	NA	NA	NA	**6.1**	**2.8**	**2.3**	**2.2**
Methane	µg/L	NV	NA	NA	NA	NA	**240**	**100**	**77**	**140**
Dechlorinating Bacteria										
BAV1 Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	< 0.5 U	**3.30**	**4.8**	**0.9**
Dehalobacter spp.	cells/mL	NV	NA	NA	NA	NA	**1,320**	**5,230**	**10,300**	**42,100**
Dehalococoides	cells/mL	NV	NA	NA	NA	NA	**49.8**	**949.0**	**2,280**	**1,090**
tceA Reductase	cells/mL	NV	NA	NA	NA	NA	**0.30 J**	**0.20 J**	< 0.60 U	< 0.50 U
Vinyl Chloride Reductase	cells/mL	NV	NA	NA	NA	NA	**274**	**271**	**2,270**	**378.0**
Field Parameters										
Temperature	^{0}C	NV	1.09	15.11		20.92	22.98	17.31	20.42	20.39
pH	s.u.	5-9	.55	6.51		6.11	6.65	6.43	6.65	6.37
DO	mg/L	< 0.5	.98	0.09		0.03	0.05	0.09	0.06	0.08
ORP	mV	< 0.0	43	56		143	-48	-47	-87	-43

Notes:

Blue Highlighting Indicates concentrations above the MCL/MSC

MCL/MSC - Maximum Contaminant Limit/Medium-Specific Concentrations

NA - Not Analyzed, NV - No Value

µg/L - micrograms per liter

mg/L - milligrams per liter

J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

U - Undetected: The analyte was analyzed for, but not detected.

DO - dissolved oxygen

ORP - oxidation reduction potential

^{0}C - degrees Celsius

mV - millivolt

s.u. - standard unit

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	03WW01-11/24/2008		03WW01-5/9/2011		03WW01-082013 8/20/2013		03WW01-101013 10/10/2013		03WW01-12914 1/29/2014		03WW01-052114 5/21/2014		03WW01-102814 10/28/2014		03WW01-012115 1/21/2015		03WW01-041515 4/15/2015		03WW01-070815 7/8/2015		03WW01-100815 10/8/2015		03WW01-041316 4/13/2016	
1,1-DICHLOROETHENE	µg/L	7	<20	U	<2.5	U	<2	U	<5	U	<10	U	<10	U	<100	U	<100	U	<50	U	<100	U	<100	U	<25	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<20	U	1.1		0.978		<2.5	U	<5	U	3.3		<50	U	<50	U	21.4		<50	U	<50	U	117	
TETRACHLOROETHENE	µg/L	5	2,570		418		368		172		172		154		48.6		32.8		15.9		31.4		36.4		6.49	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<20	U	<2.5	U	<1	U	<2.5	U	<5	U	<5	U	<50	U	<50	U	<25	U	<50	U	<50	U	<12.5	U
TRICHLOROETHENE	µg/L	5	196		69.1		94.8		42.1		58.4		71.2		223		216		131		65.6		51.8		<12.5	U
VINYL CHLORIDE	µg/L	2	<20	U	<2.5	U	<1	U	<2.5	U	<5	U	<5	U	<50	U	<50	U	<25	U	<50	U	<50	U	<12.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCL
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
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UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	03WW01-100416 10/4/2016		03WW01-111517 11/15/2017		03WW01-071818 7/18/2018		03WW01_121218 12/12/2018		03WW01_060419 6/4/2019		03WW01_121819 12/18/2019		03WW01_062320 6/23/2020		35ASW03-101713 10/17/2013		35ASW03-020314 2/3/2014		35ASW03-052814 5/28/2014		35ASW03-012315 1/23/2015		35ASW03-041015 4/10/2015		35ASW03-041316 4/13/2016	
1,1-DICHLOROETHENE	µg/L	7	<10	U	<2.5	U	<0.5	U	<0.5	U	<2.5	U	<5.0	U	< 2.5	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<5	U	<2.5	U	5.3		22		41		14		17		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<5	U	<2.5	U	<0.5	U	15		3.2		<5.0	U	4.5	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<5	U	<2.5	U	<0.5	U	<0.5	U	<2.5	U	<5.0	U	< 2.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<5	U	<2.5	U	<0.5	U	5.7		2.9		<5.0	U	4.5	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.259	J	<0.5	U
VINYL CHLORIDE	µg/L	2	<5	U	<2.5	U	4.8		7.6		11		5.4	J	7.2		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW01-981108 11/8/1998	35AWW01-981108FD 11/8/1998	35AWW01-040909 9/9/2004	35AWW01-020608 2/6/2008	35AWW01-111908 11/19/2008	35AWW01-101113 10/11/2013	35AWW01-013114 1/31/2014	35AWW01FD-013114 1/31/2014	35AWW01-052914 5/29/2014	35AWW01-103114 10/31/2014	35AWW01-012715 1/27/2015	35AWW01-041015 4/10/2015	35AWW01FD-041015 4/10/2015	35AWW01-071015 7/10/2015
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<5 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<1 U	<1 U	<5 U	<1 U	<1 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
TETRACHLOROETHENE	µg/L	5	<1 U	<1 U	<5 U	<1 U	<1 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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<1 U	<1 U	<5 U	<1 U	<1 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
TRICHLOROETHENE	µg/L	5	<1 U	<1 U	<5 U	<1 U	<1 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	<1 U	<1 U	<5 U	<1 U	<1 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:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW01FD-071015 7/10/2015	35AWW01-100615 10/6/2015	35AWW01FD-100615 10/6/2015	35AWW01-041216 4/12/2016	35AWW01FD-041216 4/12/2016	35AWW01-100516 10/5/2016	35WW01-111617 11/16/2017	35AWW01-070218 7/2/2018	35AWW01_121318 12/13/2018	35AWW01_061019 6/10/2019	35AWW01_122019 12/20/2019	35AWW01_062520 6/25/2020	35AWW01_062520-a 6/25/2020	35AWW02-981108 11/8/1998
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<1 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 UJ	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<1 U
TETRACHLOROETHENE	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 UJ	<1.0 U	<1.0 U	<1 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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 UJ	<0.5 U	<0.5 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	<0.5 UJ	<0.5 U	<0.5 U	<1 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 UJ	<0.5 U	<0.5 U	<0.5 UJ	<0.5 U	<0.5 U	<1 U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	35AWW02-040910 9/10/2004		35AWW02-112608 11/26/2008		35AWW02-112608-FD 11/26/2008		35AWW02-102213 10/22/2013		35AWW05-040908 9/8/2004		35AWW05-112108 11/21/2008		35AWW05-101613 10/16/2013		35AWW05-020114 2/1/2014		35AWW05-052214 5/22/2014		35AWW05FD-052214 5/22/2014		35AWW05-102114 10/21/2014		35AWW05-012315 1/23/2015		35AWW05FD-012315 1/23/2015		35AWW05-040815 4/8/2015	
1,1-DICHLOROETHENE	µg/L	7	<5	U	<1	U	<1	U	<1	U	<5	U	0.551	J	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<5	U	<1	U	<1	U	<0.5	U	<5	U	<1	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
TETRACHLOROETHENE	µg/L	5	<5	U	<1	U	<1	U	<0.5	U	<5	U	<1	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<5	U	<1	U	<1	U	<0.5	U	<5	U	<1	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
TRICHLOROETHENE	µg/L	5	<5	U	<1	U	<1	U	<0.5	U	<5	U	<1	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	<5	U	<1	U	<1	U	<0.5	U	<5	U	<1	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:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	35AWW05-071015 7/10/2015	35AWW05-100515 10/2/2015	35AWW05-041416 4/14/2016	35AWW05-100516 10/5/2016	35AWW05-111317 11/13/2017	35AWW05-070218 7/2/2018	35AWW05-070218_a 7/2/2018	35AWW05_121218 12/12/2018	35AWW05_061019 6/10/2019	35AWW06-120308 12/3/2008	35AWW06-110509 5/9/2011	35AWW06-101513 10/15/2013	35AWW06-013014 1/30/2014	35AWW06-052114 5/21/2014
1,1-DICHLOROETHENE	µg/L	7	<1 U	<1 U	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U	57.6	21.3	15.8	14.2	12
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	0.37 J	<1 U	<0.5 U	<0.5 U	<0.5 U
TETRACHLOROETHENE	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	7.19	<1 U	<0.5 U	<0.5 U	<0.5 U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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 U	<1 U	<0.5 U	<0.5 U	<0.5 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	0.811 J	<1 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	<1 U	<1 U	<0.5 U	<0.5 U	<0.5 U

Notes:
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Table 4
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW06-102914 10/29/2014		35AWW06-012815 1/28/2015		35AWW06-041515 4/15/2015		35AWW06-070715 7/7/2015		35AWW06-100715 10/7/2015		35AWW06-041116 4/11/2016		35AWW06-100316 10/3/2016		35AWW06-111417 11/14/2017		35AWW06-71818 7/18/2018		35AWW06_092618 9/26/2018		35AWW06_121118 12/11/2018		35AWW06_031919 03/19/2019		35AWW06_031919_a 03/19/2019		35AWW06_060419 6/4/2019	
1,1-DICHLOROETHENE	µg/L	7	16		13.5		4.17		18.6		12.8		13		7.48		3.9		<0.5	UJ	<0.5	U	3.4		<0.5	U	1.4		<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	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	UJ	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW06_091119 9/11/2019		35AWW06_091119_a 9/11/2019		35AWW06_121919 12/19/2019		35AWW06_032420 03/24/2020		35AWW06_062420 6/24/2020		35AWW07R-101613 10/16/2013		35AWW08-112408 11/24/2008		35AWW08-110509 5/9/2011		35AWW08-082013 8/20/2013		35AWW08-101013 10/10/2013		35AWW08-012914 1/29/2014		35AWW08-052014 5/20/2014		35AWW08-102714 10/27/2014		35AWW08-012115 1/21/2015	
1,1-DICHLOROETHENE	µg/L	7	0.92	J	0.88	J	<0.5	UJ	0.78	J	0.99	J	<1	U	<100	U	<25	U	<10	U	<10	U	<10	U	<10	U	<50	U	<50	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	0.709	J	<100	U	13.4	J	9.35	J	<5	U	55.9		47.2		38.6	J	27.2	J
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	0.586	J	9,590		6,480		1,640		603	J	599		204		112		119	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<100	U	<25	U	<5	U	<5	U	<5	U	2.82	J	<25	U	<25	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	1.03		675		1,150		544		149	J	895		953		653		491	
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	0.51	J	<0.5	U	<100	U	<25	U	<5	U	<5	U	<5	U	<5	U	<25	U	<25	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
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MCL - Maximum Contaminant Level
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW08-041515 4/15/2015		35AWW08-070815 7/8/2015		35AWW08-100815 10/8/2015		35AWW08-041316 4/13/2016		35AWW08-100416 10/4/2016		35AWW08-111517 11/15/2017		35AWW08-071818 7/18/2018		35AWW08-111517 12/12/2018		35AWW08-071818 6/4/2019		35AWW08_121819 12/18/2019		35AWW08_062320 6/23/2020		35AWW09-082913 8/29/2013		35AWW09-101013 10/10/2013		35AWW09-012914 1/29/2014	
1,1-DICHLOROETHENE	µg/L	7	<50	U	<100	U	<25	U	<25	U	<10	U	<5	U	<2.5	UJ	<0.5	U	<2.5	U	< 5.0	U	< 2.5	U	<1	U	<1	UJ	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	30.7	J	73.5	J	79.6		60.9		41.7		38		12	J	8.9	J	<2.5	U	< 5.0	U	7.3		<0.5	U	<0.5	UJ	0.317	J
TETRACHLOROETHENE	µg/L	5	110		110		79		80.1		36.9		12		<2.5	UJ	< 5.0	U	4.8	J	< 5.0	U	6.7		21.9		57.6	J	125	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<25	U	<50	U	<12.5	U	<12.5	U	<5	U	<5	U	<2.5	U	<0.5	U	<2.5	U	< 5.0	U	4.5	J	<0.5	U	<0.5	UJ	<0.5	U
TRICHLOROETHENE	µg/L	5	607		746		581		234		235		33		19	J	12		13		< 5.0	U	17		11.9		8.97	J	37.3	
VINYL CHLORIDE	µg/L	2	<25	U	<50	U	<12.5	U	14.2	J	7.46	J	<5	U	9.0	J	<0.5	U	<2.5	U	< 5.0	U	<2.5	U	<0.5	U	<0.5	UJ	<0.5	U

Notes:
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW09-052014 5/20/2014		35AWW09-102714 10/27/2014		35AWW09-012115 1/21/2015		35AWW09-041415 4/14/2015		35AWW09-070715 7/7/2015		35AWW09-100715 10/7/2015		35AWW09-041216 4/12/2016		35AWW09-100316 10/3/2016		35AWW09-111517 11/15/2017		35AWW09-071618 7/12/2018		35AWW09_121118 12/11/2018		35AWW09_060319 6/3/2019		35AWW09_121819 12/18/2019		35AWW09_062320 6/23/2020	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<0.5	U	2.7		<0.5	U	<0.5	U	<0.5	U	<0.5	U
CIS-1,2-DICHLOROETHENE	µg/L	70	0.502	J	0.703	J	0.486	J	0.483	J	0.622	J	0.717	J	0.515	J	0.437	J	0.78	J	0.94	J	0.94	J	<0.5	U	1.1		1.1	
TETRACHLOROETHENE	µg/L	5	128		254		183		155		194		283		172		173		450		130		150		130		500		440	
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
TRICHLOROETHENE	µg/L	5	41.7		93		64.3		45		59.5		81.3		55.7		48.2		150		38		150		38		160		140	
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

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW10-082913 8/29/2013		35AWW10-101013 10/10/2013		35AWW10-012914 1/29/2014		35AWW10-052014 5/20/2014		35AWW10-102814 10/28/2014		35AWW10-012715 1/27/2015		35AWW10-041415 4/14/2015		35AWW10-070715 7/7/2015		35AWW10-100715 10/7/2015		35AWW10-041316 4/13/2016		35AWW10-100316 10/3/2016		35AWW10-111517 11/15/2017		35AWW10-071218 07/12/2018		35AWW10_121218 12/12/18	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	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
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	0.401	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	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
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

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Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW10_121218_a 12/12/2018		35AWW10_060419 6/4/2019		35AWW10_060419_a 6/4/2019		35AWW10_121919 12/19/2019		35AWW10_121919-a 12/19/2019		35AWW10_062920 6/29/2020		35AWW11-101513 10/15/2013		35AWW11-020314 2/3/2014		35AWW11-052114 5/21/2014		35AWW11-102914 10/29/2014		35AWW11-012715 1/27/2015		35AWW11-041415 4/14/2015		35AWW11-070815 7/8/2015		35AWW11-100715 10/7/2015	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	UJ	<0.5	U	7.7		10.1		11.6		21.9		12.5		13.5		16.8		14.7	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.292	J	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	UJ	<1.0	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	UJ	<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
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	UJ	<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	UJ	<0.5	UJ	<0.5	U	0.442	J	<0.5	U	<0.5	U	0.369	J	<0.5	U	0.273	J	<0.5	U	<0.5	U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW11-041216 4/12/2016		35AWW11-100316 10/3/2016		35AWW11-111417 11/14/2017		35AWW11-071618 07/16/2018		35AWW11_092718 9/27/2018		35AWW11_121118 12/11/2018		35AWW11_031919 03/19/2019		35AWW11_060319 6/3/2019		35AWW11_091119 9/11/2019		35AWW11_121819 12/18/2019		35AWW11_032420 03/24/2020		35AWW11_032420-a 03/24/2020		35AWW11_062320 6/23/2020		35AWW12-101813 10/18/2013	
1,1-DICHLOROETHENE	µg/L	7	21.3		16		12		9		2.3		1.6		<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
TETRACHLOROETHENE	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
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	1.4		<0.5	U	<0.5	U	<0.5	U
VINYL CHLORIDE	µg/L	2	0.532	J	0.328	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	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW12FD-101813 10/18/2013		35AWW12-013114 1/31/2014		35AWW12FD-013114 1/31/2014		35AWW12-052914 5/29/2014		35AWW12-103014 10/30/2014		35AWW12-012815 1/28/2015		35AWW12-040715 4/7/2015		35AWW12FD-040715 4/7/2015		35AWW12-070915 7/9/2015		35AWW12-100515 10/5/2015		35AWW12FD-100515 10/5/2015		35AWW12-041216 4/12/2016		35AWW12-100516 10/5/2016		35AWW12FD-100516 10/5/2016	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	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
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.343	J	0.326	J	0.279	J	0.251	J	<0.5	U	0.511	J	0.426	J	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
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

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW12-111617 11/16/2017		35AWW12-062918 06/29/2018		35AWW12_121418 12/14/2018		35AWW12_121418 12/14/2018		35AWW12_061019a 6/10/2019		35AWW12_121819 12/18/2019		35AWW12_062520 6/25/2020		35AWW13-101113 10/11/2013		35AWW13FD-101113 10/11/2013		35AWW13-020314 2/3/2014		35AWW13-052214 5/22/2014		35AWW13-102114 10/21/2014		35AWW13FD-102114 10/21/2014		35AWW13-012315 1/23/2015	
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	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	UJ	<0.5	UJ	<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
TETRACHLOROETHENE	µg/L	5	<0.5	UJ	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	UJ	<0.5	UJ	<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
TRICHLOROETHENE	µg/L	5	<0.5	UJ	<0.5	UJ	<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:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW13-040815 4/8/2015		35AWW13-070915 7/9/2015		35AWW13-100615 10/6/2015		35AWW13-041316 4/13/2016		35AWW13-100616 10/6/2016		35AWW13-111617 11/16/2017		35AWW13-062818 06/29/2018		35AWW13_121118 12/11/2018		35AWW13_060719 6/7/2019		35AWW13_121819 12/18/2019		35AWW13_062920 6/29/2020		35AWW14-101813 10/18/2013		35AWW14-013114 1/31/2014		35AWW14-052814 5/28/2014	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	1.63	J	1.63	J	1.22	J
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	2.04		1.75		1.46	
TETRACHLOROETHENE	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
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	0.663	J	0.669	J	0.612	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	0.272	J	<0.5	U	<0.5	U

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW14FD-052814 5/28/2014		35AWW14-103014 10/30/2014		35AWW14-012115 1/21/2015		35AWW14-040715 4/7/2015		35AWW14-070915 7/9/2015		35AWW14-100215 10/2/2015		35AWW14-041316 4/13/2016		35AWW14-100616 10/6/2016		35AWW14-111717 11/17/2017		35AWW14-071818 07/18/2018		35AWW14_121318 12/13/2018		35AWW14_060719 6/7/19		35AWW14_121919 12/19/2019		35AWW14_062520 6/25/2020	
1,1-DICHLOROETHENE	µg/L	7	1.07	J	1.57	J	1.8	J	1.78	J	1.7	J	2.47		3.25		10.4		8.7		9.7	J	10		12		15	J	9.3	
CIS-1,2-DICHLOROETHENE	µg/L	70	1.47		1.94		1.91		2.08		1.7		1.96		1.78		5.09		3.5		4.0	J	4.6		5.2		3.7	J	4.6	
TETRACHLOROETHENE	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	UJ	<0.5	U	<0.5	U	<0.5	UJ	<1.0	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
TRICHLOROETHENE	µg/L	5	0.565	J	0.806	J	0.707	J	0.786	J	0.632	J	1.06		1.79		10.2		7.4		8.4	J	9.4		12		11	J	11	
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	0.303	J	0.303	J	<0.5	UJ	1.3		<0.5	U	0.75	J	<0.5	U

Notes:
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW15-101613 10/16/2013		35AWW15FD-101613 10/16/2013		35AWW15-020114 2/1/2014		35AWW15-052814 5/28/2014		35AWW15-102114 10/21/2014		35AWW15-012315 1/23/2015		35AWW15-041015 4/10/2015		35AWW15-071015 7/10/2015		35AWW15-100615 10/6/2015		35AWW15-041416 4/14/2016		35AWW15-100516 10/5/2016		35AWW15-111617 11/16/2017		35AWW15-071818 07/18/2018		35AWW15-071818_a 07/18/2018	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<0.5	U	<0.5	UJ	<0.5	UJ
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	UJ	<0.5	UJ
TETRACHLOROETHENE	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	UJ	<0.5	UJ
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	UJ
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	UJ	<0.5	UJ
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	UJ	<0.5	UJ

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: Sample Date:	Units	MCL	35AWW15_121218 12/12/2018		35AWW15_060719 6/7/2019		35AWW15_122019 12/20/2019		35AWW15_062520 6/25/2020		35AWW16-102213 10/22/2013		35AWW16-013114 1/31/2014		35AWW16-052814 5/28/2014		35AWW16-103014 10/30/2014		35AWW16-012715 1/27/2015		35AWW16FD-012715 1/27/2015		35AWW16-040715 4/7/2015		35AWW16-070915 7/9/2015		35AWW16FD-070915 7/9/2015		35AWW16-100615 10/6/2015	
1,1-DICHLOROETHENE	µg/L	7	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	UJ	<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
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	UJ	<1.0	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	UJ	<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
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	UJ	<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	UJ	<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:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW16-041216 4/12/2016		35AWW16-100416 10/4/2016		35AWW16FD-100416 10/4/2016		35AWW16-111317 11/13/2017		35AWW16-111317_a 11/13/2017		35AWW16-062918 06/29/2018		35AWW16-062918_a 06/29/2018		35AWW16_121218 12/12/2018		35AWW16_061019 6/10/2019		35AWW16_121919 12/19/2019		35AWW16_062520 6/25/2020		35AWW17-101813 10/18/2013		35AWW17-020114 2/1/2014		35AWW17-052914 5/29/2014	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	1.4		<0.5	UJ	<0.5	U	<1	U	<1	U	<1	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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	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	UJ	<1.0	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	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	UJ	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U

Notes:
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µg/L - micrograms per liter
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW17-103114 10/31/2014		35AWW17-012815 1/28/2015		35AWW17-041015 4/10/2015		35AWW17-071015 7/10/2015		35AWW17-100515 10/2/2015		35AWW17-041116 4/11/2016		35AWW17-100316 10/3/2016		35AWW17-111317 11/13/2017		35AWW17-062918 06/29/2018		35AWW17_121718 12/17/2018		35AWW17_061019 6/10/2019		35AWW17_121819 12/18/2019		35AWW17_062920 6/29/2020		35AWW18-101813 10/18/2013	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	UJ	<1	U	<1	U	<1	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<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
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<1.0	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<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
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<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	UJ	<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:
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW18-020114 2/1/2014		35AWW18-052914 5/29/2014		35AWW18-103114 10/31/2014		35AWW18-012815 1/28/2015		35AWW18-041015 4/10/2015		35AWW18-071015 7/10/2015		35AWW18-100515 10/2/2015		35AWW18-041116 4/11/2016		35AWW18FD-041116 4/11/2016		35AWW18-100516 10/5/2016		35AWW18-111317 11/13/2017		35AWW18-062918 06/29/2018		35AWW18_121718 12/17/2018		35AWW18_121718_a 12/17/2018	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	0.792	J	0.726	J	0.78	J	<1	UJ	<1	U	2.13		2.09		0.97	J	<0.5	U	1.2		2		2.3	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<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	UJ	<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:
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Table 4
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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW18_060419 6/4/2019		35AWW18_121819 12/18/2019		35AWW18_062520 6/25/2020		35AWW19-102213 10/22/2013		35AWW19-013114 1/31/2014		35AWW19-052814 5/28/2014		35AWW19-103014 10/30/2014		35AWW19-012115 1/21/2015		35AWW19-040715 4/7/2015		35AWW19-070915 7/9/2015		35AWW19FD-070915 7/9/2015		35AWW19-100215 10/2/2015		35AWW19-041216 4/13/2016		35AWW19-100616 10/6/2016	
1,1-DICHLOROETHENE	µg/L	7	3.5		4.1		18		6.45		9.31		9.98		10.9		17.4		17.5		13.4		11.7		14.7		13.5		12.9	
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
TETRACHLOROETHENE	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
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	U	<0.5	U	0.379	J	0.619	J	0.596	J	0.81	J	0.941	J	1.13		0.807	J	0.751	J	0.939	J	0.899	J	0.754	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

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW19-111717 11/17/2017		35AWW19-071818 07/18/2018		35AWW19_092718 9/27/2018		35AWW19_121018 12/10/2018		35AWW19_031919 03/19/2019		35AWW19_060319 6/3/2019		35AWW19_091119 9/11/2019		35AWW19_121819 12/18/2019		35AWW19_032420 03/24/2020		35AWW19_062420 6/24/2020		35AWW20-101513 10/15/2013		35AWW20-020314 2/3/2014		35AWW20-052114 5/21/2014		35AWW20-102914 10/29/2014	
1,1-DICHLOROETHENE	µg/L	7	7.7		13	J	8.8		7.5		3.6		2.6		5.3		4.5		4.4		4.6		3,230		2,950		5,060		4,910	
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5	U	<0.5	UJ	<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		87.7		110		119	
TETRACHLOROETHENE	µg/L	5	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<1.0	U	1.65		1.53		<10	U	<10	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	3.77		3.52		<10	U	<10	U
TRICHLOROETHENE	µg/L	5	<0.5	U	<0.5	UJ	0.59	J	0.59	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	513		479		695		843	
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	105		62.4		65.7		102	

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW20-012715 1/27/2015		35AWW20-041515 4/15/2015		35AWW20-070815 7/8/2015		35AWW20-100815 10/8/2015		35AWW20-041316 4/13/2016		35AWW20-100416 10/4/2016		35AWW20-111417 11/14/2017		35AWW20-111417_a 11/14/2017		35AWW20-071618 07/16/2018		35AWW20_092618 9/26/2018		35AWW20_092618-a 9/26/2018		35AWW20_121018 12/10/2018		35AWW20_031919 03/19/2019		35AWW20_060419 6/4/2019	
1,1-DICHLOROETHENE	µg/L	7	5,660		4,640		4,780		3,630		5,460		3,440		1,900		2,000		1,400		1,100		970		2,700		1,500		1,800	
CIS-1,2-DICHLOROETHENE	µg/L	70	123		120		118		105		126		115		53		50		69		45		40		120		49	J	79	
TETRACHLOROETHENE	µg/L	5	<10	U	<12.5	U	<12.5	U	<12.5	U	<12.5	U	<10	U	0.80	J	0.77	J	<0.5	U	0.81	J	0.71	J	1.3		<0.5	UJ	<2.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<10	U	<12.5	U	<12.5	U	<12.5	U	5.16	J	<10	U	6.7		5.6		2.9		1.8		1.7		6.1		4.9	J	13	
TRICHLOROETHENE	µg/L	5	820		718		636		582		707		594		320		320		270		170		140		570		180		230	
VINYL CHLORIDE	µg/L	2	122		90.6		151		126		216		166		78		75		71		<0.5	U	<0.5	U	110		54	J	140	

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: Sample Date:	Units	MCL	35AWW20_091119 9/11/2019		35AWW20_121919 12/19/2019		35AWW20_032420 03/24/2020		35AWW20_062420 6/24/2020		35AWW21-101613 10/16/2013		35AWW21-020414 2/4/2014		35AWW21-052214 5/22/2014		35AWW21-102114 10/21/2014		35AWW21-012315 1/23/2015		35AWW21-040815 4/8/2015		35AWW21-070915 7/9/2015		35AWW21-100615 10/6/2015		35AWW21-041316 4/13/2016		35AWW21FD-041316 4/13/2016	
1,1-DICHLOROETHENE	µg/L	7	3,900		970	J	1,300		1,100		<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U
CIS-1,2-DICHLOROETHENE	µg/L	70	110		70	J	71		63		<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
TETRACHLOROETHENE	µg/L	5	<0.5	U	<5.0	UJ	<2.5	U	0.61	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	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	14		9.1	J	6.6		7.2		<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
TRICHLOROETHENE	µg/L	5	350		99	J	120		94		<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	790		2,800	J	1,500		2,000		<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

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW21-100416 10/4/2016		35AWW21FD-100416 10/4/2016		35AWW21-111317 11/13/2017		35AWW21-062918 06/29/2018		34AWW21_121318 12/13/2018		35AWW21_060419 6/4/2019		34AWW21_122019 12/20/2019		34AWW21_122019-a 12/20/2019		34AWW21_062920 6/29/2020		34AWW21_062920_a 6/29/2020		35AWW22-102213 10/22/2013		35AWW22-013114 1/31/2014		35AWW22-052914 5/29/2014		35AWW22-103014 10/30/2014	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	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	U	<1	U	<1	U	<1	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
TETRACHLOROETHENE	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	<1.0	U	<1.0	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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
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

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW22FD-103014 10/30/2014		35AWW22-012115 1/21/2015		35AWW22FD-012115 1/21/2015		35AWW22-040715 4/7/2015		35AWW22-070915 7/9/2015		35AWW22-100515 10/5/2015		35AWW22-041316 4/13/2016		35AWW22-100616 10/6/2016		35AWW22-111717 11/17/2017		35AWW22-071818 07/18/2018		35AWW22_121418 12/14/2018		35AWW22_061019 6/10/2019		35AWW22_121819 12/18/2019		35AWW22_062420 6/24/2020	
1,1-DICHLOROETHENE	µg/L	7	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<1	U	<0.5	U	<0.5	UJ	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TETRACHLOROETHENE	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	UJ	<0.5	U	<0.5	U	<0.5	U	<1.0	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	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	UJ	<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	UJ	<0.5	U	<0.5	U	<0.5	U	<0.5	U

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1,1-DICHLOROETHENE	µg/L	7	2.1		2.5		<0.5	U	0.7	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.81	J	<0.5	U	<0.5	UJ	<0.5	U
CIS-1,2-DICHLOROETHENE	µg/L	70	12		20		4.3		7.8		7.6		6.5		5.0		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
TETRACHLOROETHENE	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	UJ	<1.0	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<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	UJ	<0.5	U
TRICHLOROETHENE	µg/L	5	2.6		5.3		1.8		3.8		2.7		1.3		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U
VINYL CHLORIDE	µg/L	2	<0.5	U	<0.5	U	<0.5	U	<0.5	U	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	UJ	<0.5	U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	35AWW24_062520-a 6/25/2020	LHSMW04-941201 12/1/1994	LHSMW04-960812 8/12/1996	LHSMW04-980513 5/13/1998	LHSMW04-040909 9/9/2004	LHSMW04-FEB2007 2/20/2007	LHSMW04-013008 1/30/2008	LHSMW04-112508 11/25/2008	LHSMW04-032916 3/29/2016	LHSMW04-041316 4/13/2016	LHSMW05-941201 12/1/1994	LHSMW05-960131 1/31/1996	LHSMW05-960812 8/12/1996	LHSMW05-980513 5/13/1998
1,1-DICHLOROETHENE	µg/L	7	<0.5 U	<5 U	<0.2 U	<1 U	<5 U	<2 U	<1 U	<1 U	<1 U	<2.5 U	<5 U	<1 U	<0.2 U	<40 U
CIS-1,2-DICHLOROETHENE	µg/L	70	<0.5 U	NA	<0.2 U	<1 U	<5 U	<2 U	<1 U	0.292 J	0.666 J	0.851 J	NA	<1 U	0.21	<40 U
TETRACHLOROETHENE	µg/L	5	<1.0 U	<5 U	<0.25 U	<1 U	<5 U	6.4	8.74	25.7	419	397	870	4,884	2,700	4,900
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5 U	NA	<0.29 U	<1 U	<5 U	<2 U	<1 U	<1 U	<0.5 U	<1.25 U	NA	<1 U	<0.29 U	<40 U
TRICHLOROETHENE	µg/L	5	<0.5 U	<5 U	<0.25 U	<1 U	<5 U	4.6	5.74	11.3	106	86.1	49	99	39.7	160
VINYL CHLORIDE	µg/L	2	<0.5 U	NA	<0.24 U	<1 U	<5 U	<2 U	<1 U	<1 U	<0.5 U	<1.25 U	NA	<1 U	<0.24 U	<40 U

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LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW05-040909 9/9/2004		LHSMW06-941201 12/1/1994		LHSMW06-960813 8/13/1996		LHSMW06-980513 5/13/1998		LHSMW06-040908 9/8/2004		LHSMW06-FEB2007 2/21/2007		LHSMW06-111908 11/19/2008		LHSMW06-101713 10/17/2013		LHSMW06-013114 1/31/2014		LHSMW06-052814 5/28/2014		LHSMW06-103014 10/30/2014		LHSMW06-012115 1/21/2015	
1,1-DICHLOROETHENE	µg/L	7	<5	U	<5	U	2		1.3		<5	U	<2	U	<1	U	1.23	J	0.884	J	1.68	J	4.03		3.28	
CIS-1,2-DICHLOROETHENE	µg/L	70	<5	U	NA		0.98		1.4		<5	U	5.1		2.26		4.01		1.85		2.59		5.2		3.25	
TETRACHLOROETHENE	µg/L	5	5,100	J	<5	U	0.27		0.69		2	J	<2	U	<1	U	0.663	J	<0.5	U	0.255	J	0.381	J	0.255	J
TRANS-1,2-DICHLOROETHENE	µg/L	100	<5	U	NA		<0.29	U	<1	U	<5	U	<2	U	<1	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	230	J	<5	U	0.43		0.53		<5	U	0.77	J	0.486	J	1.87		0.751	J	1.41		2.77		1.75	
VINYL CHLORIDE	µg/L	2	<5	U	NA		0.62		<1	U	<5	U	<2	U	<1	U	0.627	J	0.5	J	0.597	J	1.15		0.924	J

Notes:
Blue Highlighting Indicates Analyte Detected Above MCl
µg/L - micrograms per liter
MCL - Maximum Contaminant Level
NA - not analyzed
J - Estimated value; analyte concentration was less than the limit of quantification
U - Analyte was not detected.
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
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Sample Identification: / Sample Date:	Units	MCL	LHSMW06-040715 4/7/2015		LHSMW06-070915 7/9/2015		LHSMW06-100215 10/2/2015		LHSMW06-041316 4/13/2016		LHSMW06-100616 10/6/2016		LHSMW06-111717 11/17/2017		LHSMW06-070218 07/02/2018		LHSMW06_121318 12/13/2018		LHSMW06_121318_a 12/13/2018		LHSMW06_060719 6/7/2019		LHSMW06_122019 12/20/2019		LHSMW06_122019_a 12/20/2019		LHSMW06_062520 6/25/2020		LHSMW07-941201 12/1/1994	
1,1-DICHLOROETHENE	µg/L	7	5.95		8.2		12.1		13.7		19.2		12.0		2.3		19.0		20.0		4.3		19	J	20	J	22		750	
CIS-1,2-DICHLOROETHENE	µg/L	70	5.52		7.24		10.4		11.9		19		14		12		55		55		29		68	J	68	J	65		NA	
TETRACHLOROETHENE	µg/L	5	0.454	J	0.443	J	0.518	J	0.563	J	0.9	J	<0.5	U	1.6		1.5		1.4		<0.5	U	1.9	J	1.9	J	2.1		<5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<0.5	U	<0.5	U	<0.5	U	<0.5	U	0.391	J	<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	1.4	J	1.5	J	1.4		NA	
TRICHLOROETHENE	µg/L	5	3.02		3.23		5.66		6.5		9.06		5.8		2.8		16.0		16.0		7.5		17	J	17	J	16		16	
VINYL CHLORIDE	µg/L	2	0.967	J	1.36		2.1		2.38		2.94		2.2		<0.5	U	5.0		5.0		1.2		5.7	J	5.6	J	5.5		NA	

Notes:
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MCL - Maximum Contaminant Level
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW07-941201FD 12/1/1994		LHSMW07-960131 1/31/1996		LHSMW07-960812 8/12/1996		LHSMW07-980513 5/13/1998		LHSMW07-040908 9/8/2004		LHSMW07-FEB2007 2/21/2007		LHSMW07-111908 11/21/2008		LHSMW07-110509 5/9/2011		LHSMW07-101513 10/15/2013		LHSMW07-013014 1/30/2014		LHSMW07-052214 5/22/2014		LHSMW07-102914 10/29/2014		LHSMW07-012815 1/28/2015	
1,1-DICHLOROETHENE	µg/L	7	660		1,341		311		950		590	J	394		576		669		396		334		558	J	1,140		1,300	
CIS-1,2-DICHLOROETHENE	µg/L	70	NA		NA		2.5		11		6		3.6		7.96		10.1		6.1		4.66		7.17		21		19.3	
TETRACHLOROETHENE	µg/L	5	<5	U	7		2.7		<1	U	<5	U	<2	U	<1	U	0.253	J	<0.5	U	<1	U	<0.5	U	<1	U	<2.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	NA		NA		<0.29	U	0.73		<5	U	<2	U	0.421	J	0.384	J	0.282	J	<1	U	0.296	J	1.06	J	<2.5	U
TRICHLOROETHENE	µg/L	5	19		24		5.9		25		24		15.8		25		41.3		23.9		17.6		23.1		78.1		64.3	
VINYL CHLORIDE	µg/L	2	NA		10		1.1		7.2		9		3		14.4		9.47		15.9		5.43		7.98		35.4		28.8	

Notes:
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Table 4
Historical Monitoring Well COC Concentrations
LHAAP-58, Longhorn Army Ammunition Plan, Karnack, Texas
Year 6 RA(O) Report

Sample Identification: / Sample Date:	Units	MCL	LHSMW07-041515 4/15/2015		LHSMW07-070715 7/7/2015		LHSMW07-100815 10/8/2015		LHSMW07-041416 4/14/2016		LHSMW07-100416 10/4/2016		LHSMW07-111417 11/14/2017		LHSMW07-071718 07/17/2018		LHSMW07_092618 9/26/2018		LHSMW07_121018 12/10/2018		LHSMW07_031919 03/19/2019		LHSMW07_060319 6/3/2019		LHSMW07_091119 9/11/2019		LHSMW07_121919 12/19/2019		LHSMW07_032420 03/24/2020		LHSMW07_062420 6/24/2020	
1,1-DICHLOROETHENE	µg/L	7	1,660		2,100		1,210		1,250		701		600		56		3.1		<0.5	U	<0.5	U	16		46		46	J	94		130	
CIS-1,2-DICHLOROETHENE	µg/L	70	31.4		32.4		22.5		19.6		22.1		11		5.0		1.1		<0.5	U	<0.5	U	0.7	J	1.1		1.2	J	1.0		1.0	
TETRACHLOROETHENE	µg/L	5	<5	U	<2.5	U	<2.5	U	0.397	J	<2.5	U	<0.5	U	<0.5	U	0.397	J	<2.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U
TRANS-1,2-DICHLOROETHENE	µg/L	100	<5	U	1.29	J	<2.5	U	0.681	J	<2.5	U	<0.5	U	<0.5	U	0.681	J	<2.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	UJ	<0.5	U	<0.5	U
TRICHLOROETHENE	µg/L	5	82.1		118		84.9		67.5		71.6		39.0		12		2.4		<0.5	U	1.1		1.8		3.1		3.1	J	2.8		2.5	
VINYL CHLORIDE	µg/L	2	34.1		69.4	J	37.1		10.8		21.8		15.0		<0.5	U	<0.5	U	<0.5	U	<0.5	U	<0.5	U	49		42	J	46		44	

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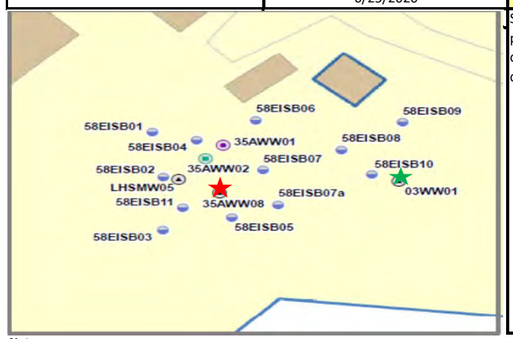
UJ - The analysis was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. 'UJ' not detects are not definite; the analyte may be present.

Table 5
Enhanced In-situ Bioremediation Performance Data Summary - Eastern Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria	
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL
★ 35AWW08	8/20/2013	6.05	NR	NR	8.23	26.9	16.5	1,640	544	9.35 J	< 5 U	< 2 U	10.1	< 2 U	143,000	0.04	< 4 U	< 4 U	1,480	2,510	174	< 0.9 U	< 5.3 U
	10/10/2013	6.7	NR	NR	47.7	4.1	66,400	603 J	149 J	<5	< 5 U	< 2 U	5.38	< 2 U	NA	52.4	12.3 J	<20	703	905	35,600	3.6	1,300
	1/29/2014	6.68	NR	NR	23.4	79.8	43,500	599	895	55.9	< 5 U	< 2 U	345	< 2 U	428,000	144	< 10 U	< 10 U	285	2,190	27,700	< 0.8 U	12,900
	5/20/2014	5.57	NR	NR	18.2	90.4	16,900	204	953	47.2	< 5 U	< 2 U	NA	< 2 U	NA	< 800 U	< 10 U	< 10 U	262	1,590	18,300	4,880	574,000
	10/27/2014	6.86	NR	NR	19.5	213	13,900	112	653	38.6 J	< 25 U	< 2 U	4,420	< 2 U	505,000	478	< 20 U	< 20 U	< 100 U	2,020	11,800 J	70.4	3,050,000 J
	1/21/2015	6.82	NR	NR	18.1	225	6,030	119	491	27.2 J	< 25 U	< 40 U	2,540	< 40 U	152,000 J	10.9 J	< 3 U	< 3 U	< 15 U	1,900	20,400	NA	NA
	4/15/2015	8.06	NR	NR	16.4	448	8,330	110	607	30.7 J	< 25 U	< 20 U	3,380	< 20 U	249,000	< 80 U	< 2 U	< 2 U	< 10 U	2,250	18,800 J	NA	NA
	7/8/2015	8.07	NR	NR	13.9	325	2,540	110	746	73.5 J	< 50 U	< 20 U	5,600	< 20 U	370,000	123	< 2 U	< 2 U	< 10 U	2,250	10,100 J	NA	NA
	10/8/2015	7.22	NR	NR	11.3	300	2,240	79	581	79.6	< 12.5 U	< 20 U	5,510	< 20 U	374,000	21.1	< 5 U	< 5 U	< 25 U	2,130 J	20,600	448	72,900
	4/13/2016	6.86	NR	-162	13.9	74.6	NA	80.1	234	60.9	14.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/4/2016	6.92	NR	NR	11.8	50.4	918	36.9	235	41.7	7.46 J	< 20 U	7,350	< 20 U	424,000	17.6	< 2 U	< 2 U	< 10 U	2000	9,160 J	25,600,000	625,000
	11/15/2017	6.58	NR[3]	NR[3]	11.8	63.6	581	12	33	38	< 5 U	< 0.23 U	670	0.56 J	190,000	17.4 J	0.249	< 0.05 U	2.03	2,060	4,360	3,060,000	< 38.5 U
	7/18/2018	7.15	NR[3]	NR[3]	14.9	31.4	484 J	< 2.5 UJ	19 J	12 J	9.0 J	< 0.47 U	920	0.49 J	350,000	13.7 J	< 0.200 UJ	< 0.200 UJ	0.9	2460	3,050 J	1,410,000	47,000
	12/11/2018	7.28	NR[3]	NR[3]	10.9	82.5	392	< 0.5 U	12	8.9 J	< 0.5 U	< 0.47 U	< 1.0 U	< 0.55 U	290,000	21 J	0.147 J	< 0.100 U	4.76	2,240	3,420	1,200,000	173,000
	6/3/2019	8.67	NR[3]	NR[3]	9.93	86.9	306	4.8 J	13	< 2.5 U	< 2.5 U	< 0.47 U	3,000	4.1	260,000	2.03	0.219 J	NA	1.42 J	2,510	NA	3,790,000	139,000
	12/18/2019	6.65	0.04	-161	9.62	60.5	291	<5.0 U	<5.0 U	<5.0 U	<5.0 U	< 0.47 U	760	6.2	240,000	2.55	0.704	NA	<2.5 U	2,290	NA	NA	NA
	6/23/2020	6.77	0.07	-172	8.54	27.3	208	6.7	17	7.3	<2.5 U	< 0.47 U	1,500	12	230,000	3.08	< 0.200 U	NA	15.5	2,510	NA	594,000	29,500
★ 03WW01	8/20/2013	6.18	NR	NR	3.64	33	10.5	368	94.8	0.978 J	< 1 U	< 2 U	3.22	< 2 U	143,000	0.04	< 1 U	< 1 U	534	892	142	1.2	0.4 J
	10/10/2013	6.55	NR	NR	39.2	10	49,200	172	42.1	< 2.5 U	< 2.5 U	< 2 U	4.35	< 2 U	NA	35.4	< 20 U	< 20 U	487	398	39,700	< 2.1 U	15.7 J
	1/29/2014	6.58	NR	NR	20.2	256	30,200	172	58.4	< 5 U	< 5 U	< 2 U	5.09	< 2 U	337,000	110	< 10 U	< 10 U	457	906	27,500	< 0.9 U	639,000
	5/21/2014	5.52	NR	NR	16	152	29,100	154	71.2	3.3 J	< 5 U	< 2 U	479	< 2 U	564,000	0.0217	< 10 U	< 10 U	376	780	25,700	2,870	2,700,000
	10/28/2014	5.87	NR	NR	14.2	171	8,440	48.6 J	223	< 50 U	< 50 U	< 2 U	910	< 2 U	564,000 J	107	< 1 U	< 1 U	11	940	12,300 J	10.9	192,000
	1/21/2015	6.51	NR	NR	13.6	93.3	7,720	32.8 J	216	< 50 U	< 50 U	< 10 U	393	< 10 U	333,000	40.6	< 2 U	< 2 U	10.2	881	19,000 J	NA	NA
	4/15/2015	7.11	NR	NR	12.8	387	7,800	15.9 J	131	21.4 J	< 25 U	< 20 U	3,170	< 20 U	396,000	27.8 J	< 1 U	< 1 U	18	976	24,100	NA	NA
	7/8/2015	7.62	NR	NR	11.8	847	3,640	31.4 J	65.6 J	< 50 U	< 50 U	< 20 U	16,100	< 20 U	408,000	96.1	< 1 U	< 1 U	3.62 J	1,020	12,400 J	NA	NA
	10/8/2015	6.65	NR	NR	11.4	525	1,700	36.4 J	51.8 J	< 50 U	< 50 U	< 20 U	5,880	< 20 U	500,000	0.835	< 5 U	< 5 U	< 25 U	1,200	20,300	78	8,800
	4/13/2016	7.19	NR	-127	7.99	127	NA	6.49 J	<12.5U	117	< 12.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/4/2016	6.81	NR	NR	6.38	70	292	< 5 U	< 5 U	< 5 U	< 5 U	<20	5,950	< 20 U	657,000	8.02	< 1 U	< 1 U	< 5 U	762	5,500 J	9,460,000	53,300
	11/15/2017	7.25	NR[3]	NR[3]	6.59	135	191	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 0.23 U	620	1.2	310,000	18.9 J	< 0.05 U	< 0.05 U	40.8	1,020	3,310	35,300	< 20.8 U
	7/18/2018	6.8	NR[3]	NR[3]	6.23	9.5	118 J	< 0.5 UJ	< 0.5 UJ	5.3 J	4.8 J	< 0.47 U	590	0.89 J	490,000	40 J	< 0.200 UJ	< 0.200 UJ	161	977	2,290	7.5	6
	12/11/2018	6.24	NR[3]	NR[3]	2	54.1	42	15	5.7	22	7.6	< 0.47 U	1,800	2.3	390,000	27.5 J	< 0.100 U	< 0.100 U	42.8	336	862	10,100	599
	6/3/2019	8.1	NR[3]	NR[3]	4.95	14.8	66	3.2 J	2.9 J	41	11	< 0.47 U	2,900	1.6	520,000	0.84	0.196 J	NA	239	809	NA	6,040	292
	12/18/2019	6.41	0.05	-128	5.62	24.8	92	< 5 U	< 5 U	14	5.4 J	< 0.47 U	540	0.61 J	340,000	3.15	<0.500 U	NA	155	940	NA	22,240	2,480
	6/25/2020	6.44	0.04	-139	4.68	6.3	69.8	4.5 J	4.5 J	17	7.2	< 0.47 U	640	0.46	300,000	1.74	< 0.200 U	NA	231	965	NA	6,500	699



Slight decrease in pH noted during May 2014 sampling event, potentially related to excessive substrate fermentation and organic acid production, need to monitor closely. System has continued to self buffer over time.

-Initial spike in TOC indicates effective substrate distribution.
-Residual electron donor present to support desired biogeochemical reactions.
-Declining TOC concentrations over time indicative of substrate consumption.
-Electron donor nearly depleated.

PCE is degrading fully to VC. Residual degradation products of TCE, cDCE, and VC continue to degrade.

Reduced methane and ethene indicates slowing of reductive dechlorination due to limited substrate and eletron acceptors remaining.

Increasing sulfate concentration indicates that reductive dechlorination is starting to stall.

-Initial spike in dechlorinating bacteria counts suggest effective distribution of the bioaugmentation culture.
-Elevated dechlorinating bacteria counts in 2016 indicated rapid proliferation.
-Since 2016 generally declining bacteria counts

Notes:

1. Electron donor injections completed in Sept. 2013
2. Bioaugmentation performed in Nov. 2013
3. Data recorded but not used since bailer was used to collect the sample.

pH = potential of hydrogen
SU = standard units
DO = dissolved oxygen
mg/L = milligrams per liter
ORP = oxidation-reduction potential
mV = millivolts
Spec Cond = specific conductivity
ms/cm = millisiemens per centimeter
Turb = turbidity
NTU = nephelometric turbidity units
TOC = total organic carbon
cVOC = chlorinated volatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
VC = vinyl chloride
µg/L = micrograms per liter
CO_2 = carbon dioxide
Fe^{2+} = ferrous iron
NO_3 = nitrate
NO_2 = nitrite
SO_4 = sulfate
Cl^- = chloride
Alk = alkalinity
DHC = dehalococcoides
DHBt = dehalobacter spp.
cells/mL = cells per milliliter
NA = not analyzed
NR = not recorded
U - Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection
U - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

Table 6
Enhanced In-situ Bioremediation Performance Data Summary-Western Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria	
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL
LHSMW07	11/14/2017	5.94	0.09	159	11	40.9	6.81	< 0.5 U	39	11	15	< 0.23 U	18	< 0.22 U	220,000	0.4 J	< 0.0500 U	< 0.100 U	2,940	2,540	750	NA	NA
	3/7/2018	6.1	0.65	180	12.1	5.1	6.67	< 1.0 U	34	11	5	< 0.47 U	3	< 0.55 U	350,000	0.07 J	< 0.0500 U	< 0.0500 U	2,700	2,420	757	11.8	< 4.8 U
	7/17/2018	6.23	0	-389	14.1	13.2	321	< 0.5 U	12	5	< 0.5 U	< 0.47 U	1.4	< 0.55 U	540,000	2.58 J	< 0.200 U	< 0.200 U	1,090	2,270	1,990	17.2	6,570,000
	9/26-27/2018	5.99	0	-222	9.24	20.3	14.2	< 0.50 U	2.4	1.1	< 0.50 U	< 0.47 U	27	4.0	760,000	0.93 J	< 0.200 U	< 0.200 U	1,120	2,180	2,060	11,600	3,540,000
	12/10/2018	6.7	0.02	-324	10.8	10.7	7.53	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.46 J	170	28	460,000	0.43 J	< 0.200 U	< 0.200 U	1,530	2,030	1,640	6,080	166,000
	3/19/2019	6.57	0.17	-311	11	27.5	4.11	< 0.5 U	1.1	< 0.5 U	< 0.5 U	0.52 J	270	25	440,000	0.67	< 0.500 U	NA	2,390	1,980	NA	10,000	61,400
	6/3/2019	6.27	0.07	-96	10.4	17.5	4.13	< 0.5 U	1.8	0.70 J	< 0.5 U	0.20 J	78	3.9	660,000	0.25	< 0.500 U	NA	2,470	1,780	NA	7,580	< 9.5 U
	9/11/2019	6.65	0.05	-48	9.19	5.8	3.42	< 0.5 U	3.1	1.1	49	0.20 J	240	6.1	340,000	1.72	< 0.100 U	< 0.100 U	2,530	1,820	NA	49.8	1,320
	12/19/2019	6.43	0.09	-47	9.59	6.6	3.48 J	< 0.5 UJ	3.1 J	1.2 J	42 J	< 0.47 U	100	2.8	250,000	1.85	< 0.500 U	NA	2,560	1,770	NA	949	5,230
	3/24/2020	6.65	0.06	-87	10.1	0	3.29 J	< 0.5 U	2.8	1.0	46	< 0.47 U	77	2.3	250,000	1.76	< 0.500 U	NA	2,750	1,960	NA	2,280	10,300
	6/24/2020	6.37	0.08	-43	9.24	0	3.00	< 1.0 U	2.5	1.0	44	< 0.47 U	140	2.2	250,000	2.07	< 0.100 U	< 0.100 U	3,000	2,010	NA	1,090	42,100
35AWW06	11/14/2017	5.86	0.06	197	5.87	8.7	2.29	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.23 U	0.32 J	< 0.22 U	200,000	0.09 J	2.12	< 0.0500 U	1,560	1,040	666	NA	NA
	3/8/2018	5.67	0.26	136	5.91	4.4	2.32	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	500,000 J	0.12 J	< 0.0500 U	< 0.0500 U	1,480	1,000	666	1.5	291
	7/2/2018	4.9	0	-35	5.86	96.7	4,200 J	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.47 U	< 1.0 U	0.58 J	780,000 J	14 J	< 0.200 UJ	< 0.200 UJ	811	904	386	< 1.8 U	52,900
	9/26-27/2018	4.75	0	78	4.95	55.5	2860	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 UJ	3.0 J	< 0.55 UJ	860,000	27.8 J	< 0.200 U	< 0.200 U	508	910	775	3.60	705,000
	12/11/2018	5.9	0.02	-177	5.2	36.8	685	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	890	0.44 J	790,000	88.1 J	< 0.200 U	< 0.200 U	13.4	858	1,210	2.50	144,000
	3/19/2019	6.39	0.16	-234	5.09	31.8	407	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3,100	< 0.55 U	720,000	0.44	< 0.500 U	NA	2.33 J	919	NA	12.3	21,200
	6/4/2019	6.61	0.06	-99	5.15	46.1	331	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,500	< 0.55 U	750,000	0.65	0.180 J	NA	2.08 J	964	NA	26.8	159
	9/11/2019	6.99	0.06	-120	4.92	57.6	84.9	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3,300	< 0.55 U	350,000	3.3	<0.100 U	<0.100 U	1.28 J	921	NA	28.6	<25.6 U
	12/19/2019	6.81	0.05	-152	4.97	86	13.8	<0.5 UJ	<0.5 UJ	<0.5 UJ	<0.5 UJ	< 0.47 U	1,500	< 0.55 U	270,000	3.3	<0.100 U	NA	0.845	935	NA	80.3	<10.2 U
	3/24/2020	6.83	0.07	-179	5.5	34	15.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,300	< 0.55 U	360,000	2.24	<0.100 U	NA	1.51	968	NA	9.6	1,220
	6/24/2020	6.65	0.08	-100	4.93	256	10.2	< 1.0 U	< 0.5 U	< 0.5 U	0.51 J	< 0.47 U	1,400	< 0.55 U	270,000	3.3	< 0.100 U	< 0.100 U	35.1	1,080	NA	3.5	1,990
35AWW11	11/14/2017	5.64	0.37	278	8.88	65.2	5.05	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.23 U	< 0.63 U	< 0.22 U	230,000	0.08 J	< 0.0500 U	< 0.0500 U	1,290	2,650	452	NA	NA
	3/7/2018	5.94	0.59	211	9.49	90.8	5.28	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	16	0.38 J	360,000	0.10 J	< 0.0500 U	< 0.0500 U	1,260	2,530	446	0.6	< 5.0 U
	7/16/2018	5.31	0	-56	8.77	15.5	1,650	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	0.80 J	< 0.55 U	450,000	27.6 J	< 0.100 U	< 0.100 U	652	2,440	649	4.60	910,000
	9/26-27/2018	5.64	0	-194	8.4	116	1,120	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	0.63	1,300	2.1	320,000	36.5 J	< 0.200 U	< 0.200 U	285	2,110	1,190	2.10	394,000
	12/11/2018	6.02	0.05	-247	9.31	14.2	701	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	5.5	< 0.55 U	820,000	20.6 J	< 0.200 U	< 0.200 U	127	2,120	1,430	10.6	220,000
	3/19/2019	5.92	0.11	-142	9	36.2	485	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	450	< 0.55 U	940,000	0.43	< 0.500 U	NA	172	2,150	NA	231	818,000
	6/3/2019	5.7	0.09	-136	7.81	54.6	94.6	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	590	< 0.55 U	750,000	1.33	< 0.500 U	NA	210	1,920	NA	2,100	2,570,000
	9/11/2019	6.23	0.07	-100	7.15	39.6	28 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,300	< 0.55 U	690,000	2.05	< 0.100 U	< 0.100 U	259	1,990	NA	1,240	115,000
	12/18/2019	6.28	0.09	-95	7.95	22.1	9.94	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	750	< 0.55 U	330,000	3.3	< 0.500 U	NA	192	2,080	NA	900	213,000
	3/24/2020	6.08	0.08	-100	7.82	7.2	7.86	< 0.5 U	1.4	< 0.5 U	< 0.5 U	< 0.47 U	860	< 0.55 U	510,000	1.41	< 0.500 U	NA	282 J	2,110	NA	940	40,600
	6/23/2020	6.1	0.05	-46	6.65	5.4	7.28	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1,000	< 0.55 U	390,000	2.45	< 0.100 U	NA	416	2,040	NA	382	41,100
35AWW19	11/17/2017	5.27	NR[3]	NR[3]	5.97	26.5	NA	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/8/2018	5.28	NA	NA	6.08	26.4	2.51	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	97,000	1.10 J	< 0.0500 U	< 0.0500 U	1,220	1,430	159	0.4 J	< 11.9 U
	7/18/2019	6.08	NR[3]	NR[3]	5.67	12	2.38 J	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.47 U	0.65 J	< 0.55 U	180,000 J	2.78 J	< 0.200 UJ	< 0.200 UJ	983	1,370	199	0.30 J	20,400
	9/26-27/2018	5.77	0.01	42	5.46	36.1	2.21	< 0.5 U	0.59 J	< 0.5 U	< 0.5 U	< 0.47 U	27	0.32 J	250,000	3.99 J	< 0.200 U	< 0.200 U	989	1,230	213	0.8	148,000
	12/10/2018	5.94	0.04	-72	5.7	5.2	2.17	< 0.5 U	0.59 J	< 0.5 U	< 0.5 U	< 0.47 U	5.7	< 0.55 U	330,000	4.19 J	< 0.200 U	< 0.200 U	998	1,190	198	0.50 J	99,000
	3/19/2019	5.37	0.14	70	5.67	80.1	2.20	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1.3 J	< 0.55 U	790,000	0.38	< 0.500 U	NA	994	1,140	NA	< 0.50 U	91.5
	6/3/2019	5.69	0.05	93	5.46	16.6	1.88	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	1.4	< 0.55 U	560,000	0	< 0.500 U	NA	966	1,080	NA	3.30	62,700
	9/11/2019	6.1	0.19	77	4.91	8.8	1.19	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.0	<0.55 U	230,000	1.62	< 0.100 U	< 0.100 U	1,010	1,050	NA	18.4	23,600
	12/18/2019	5.97	0.08	37	4.81	73.5	1.75	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	2.0	<0.55 U	160,000	2.08	< 0.500 U	NA	997	979	NA	14.8	12,200
	3/24/2020	5.97	0.04	46	4.61	25.5	1.79	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.1	<0.55 U	200,000	1.86	< 0.100 U	NA	989	922	NA	9.4	12,200
	6/24/2020	5.89	0.04	56	4.14	34	1.75	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	3.0	<0.55 U	160,000	1.97	< 0.100 U	< 0.100 U	1,020	934	NA	2.0	19,700
35AWW20	11/14/2017	5.97	0.04	138	7.71	27.5	13.8	0.80 J	320	53	78	< 0.23 U	18	0.41 J	230,000	0.45 J	< 0.0500 U	< 0.0500 U	2,150	1,730	834	NA	NA
	3/7/2018	6.16	0.6	106	7.97	21.3	14.5	< 5.0 U	330	76	110	< 0.47 U	< 1.3 U	< 0.55 U	370,000	0.69 J	< 0.0500 U	< 0.0500 U	1,840	1,510	848	5.5	1,120
	7/16/2018	6.18	0	-357	7.19	0	43	< 0.5 U	270	69	71	< 0.47 U	0.93 J	< 0.55 U	360,000	1.18 J	< 0.100 U	< 0.100 U	882	1,420	1,450	1.50	5,970,000
	9/26-27/2018	5.95	0	-206	6.34	11.1	53	0.81 J	170	45	< 0.5 U	< 0.47 U	37	0.66 J	770,000	1.41 J	< 0.200 U	< 0.200 U	922	1,220	1,470	< 1.30 U	3,770,000
	12/10/2018	6.21	0.07	-270	7.14	48.1	19	1.3	570	120	110	< 0.47 U	440	1.3	720,000	5.01 J	< 0.200 U	< 0.200 U	1,010	1,010	1,190	< 1.90 U	283,000
	3/19/2019	6.26	0.11	-247	6.94	28.1	12	< 0.5 UJ	180	49 J	54 J	< 0.47 UJ	840	1.94 J	890,000	0.17	< 0.500 U	NA	1,120	1,090	NA	< 1.50 U	14,000
	6/4/2019	6.65	0.1	-56	6.79	47.1	12.9	< 2.5 U	230	79	140	0.19 J	920	1.3	730,000	0.09	0.194 J	NA	1,240	1,180	NA	15,500	< 21.7 U
	9/11/2019	6.67	0.03	-45	6.03	9.7	15.0	< 0.5 U	350	110	790	0.24 J	640 J	5.9	290,000 J	1.59	< 0.100 U	< 0.100 U	1,200	902	NA	16,000	386
	12/19/2019	6.4	0.08	-52	5.78	24.2	13.1	< 5.0 UJ	99 J	70 J	2,800 J	< 0.47 U	310	6.3	270,000	1.34	< 0.100 U	NA	1,170	821	NA	27,800	6,070
	3/24/2020	6.5	0.05	-94	5.45	7.8	18.3	< 2.5 U	120	71	1,500	< 0.47 U	410	6.0 J	260,000	2.29	< 0.100 UJ	NA	1,020 J	718 J	NA	13,000	954
	6/24/2020	6.33	0.07	-47	5.45	0	13.9	0.61 J	94	63	2,000	< 0.47 U	260	5.5	250,000	2.5	0.747	< 0.100 U	1,270	911	NA	115,000	3,830

Table 6
Enhanced In-situ Bioremediation Performance Data Summary-Western Plume
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Monitoring Location	Sample Date	Field Parameters					Electron Donor	cVOCs				Dissolved Gases				Wet Chemistry						Dechlorinating Bacteria	
		pH	DO	ORP	Spec Cond	Turb	TOC	PCE	TCE	cDCE	VC	Ethane	Methane	Ethene	CO_2	Fe^{2+}	NO_3	NO_2	SO_4	Cl^-	Alk	DHC	DHBt
		SU	mg/L	mV	ms/cm	NTU	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cells/mL	cells/mL
35AWW23	3/8/2018	5.92	0.76	185	3.58	89.5	3.31	< 1.0 U	27	21	3.1	< 0.47 U	< 1.0 U	< 0.55 U	500,000	0.13 J	1.2	< 0.0500 U	761	487	608	< 0.5 U	< 4.8 U
	7/17/2018	5.67	0	-167	3.4	178	856	< 0.5 U	2.6	12	< 0.5 U	< 0.47 U	49	0.38 J	370,000	25.1 J	< 0.100 U	< 0.100 U	< 0.500 U	482	914	45.1	9,530
	9/26-27/2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/10/2018	5.6	0.05	-86	3.99	32.5	879	< 0.5 U	5.3	20	< 0.5 U	< 0.47 U	2,200	< 0.55 U	810,000	50 J	< 0.200 U	< 0.200 U	4.19	578	1,110	149	< 25.0 U
	3/19/2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/3/2019	5.74	0.02	-50	4.86	47.7	1,360	< 0.5 U	1.8	4.3	< 0.5 U	< 0.47 U	1,300	< 0.55 U	750,000	0.57	< 0.500 U	NA	14.1	732	NA	652	< 38.5 U
	9/11/2019	6.24	0.02	-44	4.76	26.3	108	< 0.5 U	3.8	7.8	<0.5 U	< 0.47 U	2,700	< 0.55 U	590,000	3.3	< 0.100 U	< 0.100 U	4.63	857	NA	326	< 13.9 U
	12/18/2019	6.17	0.02	-104	4.85	43.2	127	< 0.5 U	2.7	7.6	1.1	< 0.47 U	1,400	< 0.55 U	360,000	1.83	<0.500 U	NA	1.62 J	868	NA	689	< 5.6 U
	3/24/2020	6.23	0.05	-102	4.72	28.6	250	< 0.5 U	1.3	6.5	<0.5 U	< 0.47 U	1,400	< 0.55 U	600,000	2.33	< 0.100 U	NA	1.84	925	NA	136	<5.5 U
	6/24/2020	6.17	0.04	-117	4.29	22.6	849	< 1.0 U	< 0.5 U	5.0	<0.5 U	< 0.47 U	1,300	< 0.55 U	310,000	3.01	< 0.100 U	< 0.100 U	1.26	1,160	NA	765	< 5.6 U
35AWW24	3/8/2018	5.31	0.66	224	0.487	99.5	1.45	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 0.47 U	< 1.0 U	< 0.55 U	290,000	0.33 J	0.11	< 0.0500 U	85.7	119	66.5	< 2.0 U	79.9
	7/17/2018	4.98	0	71	0.484	449	1.58	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	< 1.0 U	< 0.55 U	430,000	0.16 J	0.0640 J	< 0.100 U	73.6	117	52.4	< 1.90 U	137
	9/26-27/2018	4.52	0	252	0.584	352	0.87	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	190	< 0.55 U	330,000	0.31 J	< 0.100 U	< 0.100 U	69.9	110	50.8	< 0.50 U	4.6 J
	12/10/2018	4.41	0.05	38	0.489	514	1.67	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	68	< 0.55 U	660,000	0.54 J	0.157 J	< 0.100 U	69.9	109	45.9	< 1.20 U	1.50 J
	3/19/2019	4.79	0.08	154	0.485	213	1.68 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	7.8	< 0.55 U	680,000	1.17	< 0.100 U	NA	70	115	NA	< 0.80 U	< 8.30 U
	6/3/2019	4.53	0.06	347	0.574	74	1.55 J	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.47 U	4.2	< 0.55 U	530,000	1.17	< 0.100 U	NA	74.9	106	NA	0.90	24.7
	12/19/2019	5.62	0.03	147	0.551	55.1	NA	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	< 0.50 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/25/2020	5.55	0.98	143	0.515	25.3	NA	< 1.0 U	< 0.5 U	< 0.5 U	< 0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		-Slight increase in pH following injection is favorable.					-Initial spike in TOC indicates effective substrate distribution to several of the areas.	-Decreasing concentrations of cVOCs. -Additional time/monitoring necessary to observe complete dechlorination at 35AWW20.				-Increased carbon dioxide indicates metabolism of the injected substrate is occurring.				-Decreasing sulfate concentration indicates the onset/development of reducing conditions conducive to reductive dechlorination.						-Initial spike in dechlorinating bacteria counts suggest effective distribution of the bioaugmentation culture.	

Notes:
1. Electron donor injections completed in March 2018
2. Bioaugmentation performed in April 2018
3. Data recorded but not used since bailer was used to collect the sample.

pH = potential of hydrogen
SU = standard units
DO = dissolved oxygen
mg/L = milligrams per liter
ORP = oxidation-reduction potential
mV = millivolts
Spec Cond = specific conductivity
ms/cm = millisiemens per centimeter
Turb = turbidity
NTU = nephelometric turbidity units
TOC = total organic carbon
cVOC = chlorinated volatile organic compounds
PCE = tetrachloroethene
TCE = trichloroethene
cDCE = cis-1,2-dichloroethene
VC = vinyl chloride
µg/L = micrograms per liter
CO_2 = carbon dioxide
Fe^{2+} = ferrous iron
NO_3 = nitrate
NO_2 = nitrite
SO_4 = sulfate
Cl^- = chloride
Alk = alkalinity
DHC = dehalococcoides
DHBt = dehalobacter spp.
cells/mL = cells per milliliter
NA = not analyzed
NR = not recorded
U - Undetected: The analyte was analyzed for, but not detected and reported to the limit of detection
U - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
J - Estimated: Between the method detection limit and reporting limit and/or due to discrepancies in meeting certain analyte-specific quality control criteria.

Table 7
Year 7 RA(O) Groundwater Monitoring Plan
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Well description	Year 6 RA(O)				Year 7 RA(O)	
		Sep-19	Dec-19	Mar-20	Jun-20	Dec-20	Jun-21
LHAAP-35A(58)		Western Plume Quarterly Performance Sampling	Semi-Annual Sampling	Western Plume Quarterly Performance Sampling	Semi-Annual Sampling	Semi-Annual Sampling	Semi-Annual Sampling
35ASW03	Surface Water Sample		Dry		Dry	VOCs	VOCs
03WW01	Shallow		VOCs, MNA, VFA, DHB/DHC, As		VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As
35AWW01	Intermediate		VOCs		VOCs	VOCs, As	VOCs, As
35AWW05	Intermediate					VOCs	VOCs
35AWW06	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW08	Shallow		VOCs, MNA, VFA, As		VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As
35AWW09	Shallow		VOCs, MNA, VFA, DHB/DHC, As		VOCs, MNA, VFA, As	VOCs, MNA, VFA, As	VOCs, MNA, VFA, As
35AWW10	Shallow		VOCs, MNA, VFA		VOCs	VOCs	VOCs
35AWW11	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW12	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW13	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW14	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW15	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW16	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW17	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW18	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW19	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW20	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As	VOCs, MNA, VFA, DHB/DHC, As

Table 7
Year 7 RA(O) Groundwater Monitoring Plan
LHAAP-58, Longhorn Army Ammunition Plant, Karnack, Texas
Year 6 RA(O) Report

Well Identification	Well description	Year 6 RA(O)				Year 7 RA(O)	
		Sep-19	Dec-19	Mar-20	Jun-20	Dec-20	Jun-21
LHAAP-35A(58)		**Western Plume Quarterly Performance Sampling**	**Semi-Annual Sampling**	**Western Plume Quarterly Performance Sampling**	**Semi-Annual Sampling**	**Semi-Annual Sampling**	**Semi-Annual Sampling**
35AWW21	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW22	Shallow		VOCs		VOCs	VOCs	VOCs
35AWW23	Shallow, New Wells South of Avenue G in center of Western Plume	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC
35AWW24	Shallow, Downgradient Western Plume well		VOCs		VOCs	VOCs	VOCs
LHSMW04	Shallow		Dry		Dry	VOCs, MNA, As	VOCs, MNA, As
LHSMW06	Shallow		VOCs, As		VOCs, As	VOCs, As	VOCs, As
LHSMW07	Shallow	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC	VOCs, MNA, VFA, DHB/DHC

Notes:
VOCs - Volatile Organic Compounds
MNA - Monitored Natural Attenuation (parameters include: total organic carbon, anions [sulfate, chloride, nitrate, and nitrite], and dissolved gasses [carbon dioxide, methane, ethane, and ethene]
VFA - Volatile Fatty Acids
DHB - Dehalobacter
DHC - Dehalococcoides
As - Arsenic

APPENDIX A
ANNUAL LAND USE CONTROL COMPLIANCE CERTIFICATION DOCUMENTATION

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Annual Land Use Control Compliance Certification Documentation

In accordance with the Remedial Design dated September 2011, for LHAAP-58, a certification of site was conducted by Bhate Environmental Associates, Inc. on 6/29/20.

A summary of land use control mechanism is as follows:

- Groundwater restriction – restriction of the use of groundwater to environmental monitoring and testing until cleanup levels are met

A Summary of compliance with land use and restriction covenants is as follows:

- No use of groundwater, installation of new groundwater wells, or tampering with existing wells at LHAAP-58.

I, the undersigned, do document that the certification was performed as indicated above, and that the above information is true and correct to the best of my knowledge, information and belief.

Date: June 29, 2020

Name/Title: Scott Beasinger / Senior Field Tech

Signature:

APPENDIX B
PHOTOGRAPHIC LOG

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Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 1: 03WW01 in good condition.

Photo 2: Dry surface water sampling location 35ASW03.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 3: 35AWW01 in good condition.

Photo 4: 35AWW06 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 5: 35AWW08 in good condition.

Photo 6: 35AWW10 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 7: 35AWW11 in good condition.

Photo 8: 35AWW12 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 9: 35AWW13 in good condition.

Photo 10: 35AWW14 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 11: 35AWW15 in good condition.

Photo 12: 35AWW16 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 13: 35AWW17 in good condition.

Photo 14: 35AWW18 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 15: 35AWW19 in good condition.

Photo 16: 35AWW20 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 17: 35AWW21 in good condition.

Photo 18: 35AWW22 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 19: 35AWW23 in good condition.

Photo 20: 35AWW24 in good condition.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 21: LHSMW04 in good condition (June 2020).
Recommend painting.

Photo 22: LHSMW04 repainted
September 2020.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 23: LHSMW06 in good condition

Photo 24: LHSMW07 in good condition (June 2020).
Recommend painting.

Longhorn Army Ammunition Plant Site LHAAP-58 Photograph Log June 2020

Photo 25: LHSMW07 repainted September 2020

APPENDIX C
WELL INSPECTION FORMS

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00996308

WELL INSPECTION FORM

Job Name: LTAMP
Job No.: NW013/2.0150
Client: Army
Site Name: 58

Well ID: ~~35ANWL3~~ 28 35ALWW11
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 38.10
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible?				☒ Yes	☐ No
Protective casing?				☒ Yes	☐ No
Material: METAL					
Condition:	☒ Good	☐ Broken	☐ Cracked	☐ Need Paint	
Lid Condition:	☒ Good	☐ Broken	☒ Cracked		
Hinge Condition:	☒ Good	☐ Less than 50% rusted	☐ More than 50% rusted		

☐ FLUSH MOUNTED

Well cover present? NA				☐ Yes	☐ No
Condition:	☐ Good	☐ Broken	☐ Cracked		
Condition of Sump:	☐ Clean	☐ Dry	☐ Standing Water		

CONCRETE PAD:

Sloped away from casing?				☒ Yes	☐ No
Pad Area Cleared of Vegetation?				☒ Yes	☐ No
Check any of the following features that apply:					
☐ Many Cracks	☐ Gap Around Casing	☐ Few Cracks	☐ Ponded Water	☐ No Pad Present	

WELL CONDITION:

Inner Diameter (inches): 2"					
Condition:	☒ Good	☐ Broken	☐ Cracked	☐ Other (describe)	
Cap present?				☒ Yes	☐ No
Well lock present?				☒ Yes	☐ No
Lock functioning properly?				☒ Yes	☐ No
Are bollards present and stable?				☒ Yes	☐ No
Well ID visible?				☒ Yes	☐ No

WELL INTEGRITY:

Bailer present?	☐ Yes	☒ No
Visual obstruction?	☐ Yes	☒ No
Is well open to completed depth? (complete when gauging)	☒ Yes	☐ No
Is silt present in well? (complete when gauging)	☐ Yes	☒ No
Is silt greater than 10% of well screen length? (complete when gauging)	☐ Yes	☒ No

COMMENTS:

00996309

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW23
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 43.69
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996310

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW06
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 30.50
Inspector: Scott Baggingar

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996311

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 58LHSMW07
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 30.40
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996312

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AMW20
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 36.12
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996313

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35A WW19
Inspection Date: 9/11/19
Well Completion Depth/ Measured Depth: 32.46
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996314

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW09
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 42.18
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996315

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 03WW01
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 33.43
Inspector: Scott Bassinger

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: METAL
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☐ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

00996316

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35ANW08
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 33.35
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996317

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58

Well ID: 35AWW11
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 38.10
Inspector: Scott Baesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996318

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW23
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 43.70
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996319

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW19
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 32.46
Inspector: Scott Baesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996320

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 357WW13
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 42.28
Inspector: Scott Beasingar

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996321

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0158
Client: ARMY
Site Name: 58

Well ID: 35AWW17
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 42.50
Inspector: Kennie Moore

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: Metal
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☑ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☐ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

00996322

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW18
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 42.25
Inspector: Kennie Moore

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: metal
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☒ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

00996323

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013J2.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW22
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 37.70
Inspector: Kennie Moore

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: Metal
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☐ Good ☑ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☑ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☑ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

Broken hinge

00996324

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: AW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW12
Inspection Date: 12/18/19
Well Completion Depth/ Measured Depth: 37.80
Inspector: Kennie Moore

☑ ABOVE GROUND
Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: Metal
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☐ Good ☑ Broken ☑ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☑ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches) 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☑ No
Visual obstruction? ☑ Yes ☐ No
Is well open to completed depth? (complete when gauging)
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:
Broken hinge

00996325

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO13|2.0150
Client: Army
Site Name: 58
Well ID: LHSMW04
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 31.16
Inspector: Scott Bussinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996326

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35AMW14
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 32.45
Inspector: Scott Buggington

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996327

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35AWW10
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 33.73
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996328

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW20
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 36.10
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996329

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35ANW06
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 30.50
Inspector: Scott Baesinger

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: METAL
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☒ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches) 4"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

00996330

WELL INSPECTION FORM

Job Name: LAAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: LHSMW07
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 30.40
Inspector: Scott Baessinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches) 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996331

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW16
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 37.50
Inspector: Scott Baggsincur

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: METAL
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☐ Cracked
Hinge Condition: ☑ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996332

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW24
Inspection Date: 12/19/19
Well Completion Depth/ Measured Depth: 35.00
Inspector: Scott Baesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996333

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW01
Inspection Date: 12/20/19
Well Completion Depth/ Measured Depth: 72.50
Inspector: Scott Baesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996334

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: Army
Site Name: 58
Well ID: LHSMW06
Inspection Date: 12/20/19
Well Completion Depth/ Measured Depth: 23.53
Inspector: Scott Baessinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ **FLUSH MOUNTED**
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996335

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW0312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW21
Inspection Date: 12/20/19
Well Completion Depth/ Measured Depth: 42,90
Inspector: Scott Bussinger

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: METAL
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☑ Good ☐ Broken ☐ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☑ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☑ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

00996336

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013121.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW15
Inspection Date: 12/20/19
Well Completion Depth/ Measured Depth: 41.50
Inspector: Kennie Moore

☑ ABOVE GROUND

Well Accessible? ☑ Yes ☐ No
Protective casing? ☑ Yes ☐ No
Material: Metal
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☐ Good ☑ Broken ☑ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☑ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☑ Yes ☐ No
Pad Area Cleared of Vegetation? ☑ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☑ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☑ Yes ☐ No
Well lock present? ☑ Yes ☐ No
Lock functioning properly? ☑ Yes ☐ No
Are bollards present and stable? ☑ Yes ☐ No
Well ID visible? ☑ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☑ No
Visual obstruction? ☐ Yes ☑ No
Is well open to completed depth? (complete when gauging) ☑ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☑ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☑ No

COMMENTS:

Hinge broken

00996337

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW11
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 37.88
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996338

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.050
Client: ARMY
Site Name: 58
Well ID: 35AMW20
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 36.15
Inspector: Scott Bessinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996339

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWD1312.0150
Client: Army
Site Name: 58
Well ID: LHSMW07
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 30.41
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996340

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35A MW06
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 30.50
Inspector: Scott Beesinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA
Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996341

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW23
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 43.72
Inspector: Scott Bressinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996342

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: Army
Site Name: 58
Well ID: 35AWW19
Inspection Date: 3/24/20
Well Completion Depth/ Measured Depth: 32.45
Inspector: Scott Bessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996343

WELL INSPECTION FORM

Job Name: LHAAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AMW09
Inspection Date: 6/23/20
Well Completion Depth/ Measured Depth: 42.10
Inspector: Scott Baessinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996344

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 03WW01
Inspection Date: 6/23/20
Well Completion Depth/ Measured Depth: 33.37
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996345

WELL INSPECTION FORM

Job Name: LAMAP
Job No.: NW0312.0150
Client: ARMY
Site Name: 58
Well ID: 35HWW08
Inspection Date: 6/23/20
Well Completion Depth/ Measured Depth: 33.30
Inspector: Scott Bassinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996346

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW11
Inspection Date: 6/23/20
Well Completion Depth/ Measured Depth: 37.88
Inspector: Scott Bressingham

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996347

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARmy
Site Name: 58
Well ID: 35HNW19
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 32.45
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996348

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW20
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 36.10
Inspector: Scott Bressinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996349

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013J2.0150
Client: Army
Site Name: 58
Well ID: LHSMW07
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 30.45
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996350

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35A WW06
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 30.35
Inspector: Scott Beesinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996351

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW23
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 43.75
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996352

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: LHSMW04
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 31.30
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996353

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35ATWW22
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 37.70
Inspector: Scott Bressinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996354

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AMW14
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 32.30
Inspector: Scott Bagsing AR

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996355

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW01
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 72.53
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996356

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW15
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 41.38
Inspector: Scott Baesinger

☒ ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996357

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW12
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 37.60
Inspector: Scott Baggenger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996358

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW013/2.0150
Client: Army
Site Name: 58
Well ID: 35AWW16
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 37.43
Inspector: Scott Beesinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996359

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWD 1312.0150
Client: ARMY
Site Name: 58
Well ID: 35AWW24
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 35.05
Inspector: Scott BEESINGER

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☒ Yes ☐ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996360

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: ARMY
Site Name: 58
Well ID: LHSMW06
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 23.50
Inspector: Scott Bassinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 4"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996361

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NWO 1312.0150
Client: Army
Site Name: 58
Well ID: 35A WW18
Inspection Date: 6/25/20
Well Completion Depth/ Measured Depth: 42.18
Inspector: Scott Bissinger

ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☐ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED NA

Well cover present? ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2 11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996362

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW0 1312.0150
Client: Army
Site Name: 58
Well ID: 35A MW21
Inspection Date: 6/24/20
Well Completion Depth/ Measured Depth: 42.82
Inspector: Scott Bressinger

ABOVE GROUND
Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED
Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:
Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:
Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:
Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996363

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 354WW13
Inspection Date: 6/29/20
Well Completion Depth/ Measured Depth: 40.22
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): ≥11
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996364

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35A WW10
Inspection Date: 6/29/20
Well Completion Depth/ Measured Depth: 33.70
Inspector: Scott Beesinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☒ Good ☐ Less than 50% rusted ☐ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ Yes ☒ No
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

00996365

WELL INSPECTION FORM

Job Name: LHAAP
Job No.: NW01312.0150
Client: Army
Site Name: 58
Well ID: 35AWW17
Inspection Date: 6/29/20
Well Completion Depth/ Measured Depth: 42.36
Inspector: Scott Bussinger

☒ ABOVE GROUND

Well Accessible? ☒ Yes ☐ No
Protective casing? ☒ Yes ☐ No
Material: METAL
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Need Paint
Lid Condition: ☒ Good ☐ Broken ☒ Cracked
Hinge Condition: ☐ ~~Good~~ So ☐ Less than 50% rusted ☒ More than 50% rusted

☐ FLUSH MOUNTED

Well cover present? NA ☐ Yes ☐ No
Condition: ☐ Good ☐ Broken ☐ Cracked
Condition of Sump: ☐ Clean ☐ Dry ☐ Standing Water

CONCRETE PAD:

Sloped away from casing? ☒ Yes ☐ No
Pad Area Cleared of Vegetation? ☒ Yes ☐ No
Check any of the following features that apply:
☐ Many Cracks ☐ Gap Around Casing ☐ Few Cracks ☐ Ponded Water ☐ No Pad Present

WELL CONDITION:

Inner Diameter (inches): 2"
Condition: ☒ Good ☐ Broken ☐ Cracked ☐ Other (describe)
Cap present? ☒ Yes ☐ No
Well lock present? ☒ Yes ☐ No
Lock functioning properly? ☒ Yes ☐ No
Are bollards present and stable? ☒ Yes ☐ No
Well ID visible? ☒ Yes ☐ No

WELL INTEGRITY:

Bailer present? ☐ Yes ☒ No
Visual obstruction? ☐ ~~Yes~~ ☒ ~~No~~
Is well open to completed depth? (complete when gauging) ☒ Yes ☐ No
Is silt present in well? (complete when gauging) ☐ Yes ☒ No
Is silt greater than 10% of well screen length? (complete when gauging) ☐ Yes ☒ No

COMMENTS:

APPENDIX D
TECHNICAL MEMORANDUM - MONITORED NATURAL ATTENUATION MONITORING PARAMETERS

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DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

February 26, 2019

DAIM-ODB-LO

Mr. Rich Mayer
U.S. Environmental Protection Agency
Federal Facilities Section R6
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters, Longhorn Army Ammunition Plant, Karnack, Texas, February 2019

Dear Mr. Mayer,

One hard copy and one compact disc (CD) of the above-referenced document is being transmitted to you for your records. Comments, not requiring revisions, were received on the Draft version of the document from Environmental Protection Agency (EPA) and from Texas Commission on Environmental Quality (TCEQ) on February 15, 2019.

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.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
A. Palmie, TCEQ, Austin, TX (1 HC and 1 CD)
P. Bruckwicki, Caddo Lake NWR, TX (1 HC and 1 CD)
A. Williams, USACE, Fort Worth District, TX (1 CD)
A. Maly, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 HC and 1 CD)
P. Srivastav, APTIM, Houston, TX (letter)

DEPARTMENT OF THE ARMY
LONGHORN ARMY AMMUNITION PLANT
POST OFFICE BOX 220
RATCLIFF, AR 72951

February 26, 2019

DAIM-ODB-LO

Ms. April Palmie
Texas Commission on Environmental Quality
Superfund Section, MC-136
12100 Park 35 Circle, Bldg D
Austin, TX 78753

Re: Final Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters, Longhorn Army Ammunition Plant, Karnack, Texas, February 2019

Dear Ms. Palmie,

One hard copy and one compact disc (CD) of the above-referenced document is being transmitted to you for your records. Comments, not requiring revisions, were received on the Draft version of the document from Environmental Protection Agency (EPA) and from Texas Commission on Environmental Quality (TCEQ) on February 15, 2019.

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.civ@mail.mil.

Sincerely,

Rose M. Zeiler, Ph.D.
Longhorn AAP Site Manager

Copies furnished:
R. Mayer, USEPA Region 6, Dallas, TX (1 HC and 1 CD)
P. Bruckwicki, Caddo Lake NWR, TX (1 HC and 1 CD)
A. Williams, USACE, Fort Worth District, TX (1 CD)
A. Maly, USAEC, San Antonio, TX (1 CD)
K. Nemmers, Bhate, Lakewood, CO (1 HC and 1 CD)
P. Srivastav, APTIM, Houston, TX (letter)

Final
Technical Memorandum – Monitored Natural Attenuation Monitoring Parameters
Longhorn Army Ammunition Plant
Karnack, Texas

Prepared for U.S. Army Corps of Engineers, Tulsa District
Contracting Division
2488 East 81st Street
Tulsa, Oklahoma 74137-4290

Prepared by

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Prepared by

APTIM

Aptim Federal Services, LLC
2500 CityWest, Suite 1700
Houston, Texas 77042

Contract No. W9128F-13-D-0012
Task Order No. W9128BV17F0150
Project No. 501032
Rev 0
February 2019

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Acronyms and Abbreviations

APTIM	Aptim Federal Services, LLC
LHAAP	Longhorn Army Ammunition Plant
LUC	land use controls
MNA	monitored natural attenuation
RACR	Remedial Action Completion Report
RA-O	Remedial Action Operation
RAWP	Remedial Action Work Plan
TCE	trichloroethene

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1.0 INTRODUCTION

The purpose of this Technical Memorandum is to create a standard list of monitored natural attenuation (MNA) parameters across Longhorn Army Ammunition Plant (LHAAP) sites and eliminate analysis that are either redundant or not useful for the evaluation of MNA effectiveness. MNA with land use controls (LUCs) is the selected remedy to remediate trichloroethene (TCE) plumes in the groundwater at sites LHAAP-37, LHAAP-67, LHAAP-50, LHAAP-46, and LHAAP-58. On **Table 1**, each site and the three documents, Remedial Action Work Plan (RAWP), Remedial Action Completion Report (RACR), and Remedial Action Operation (RA-O), are listed and cross-referenced with the MNA parameters cited in each document.

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2.0 CURRENT REMEDIAL ACTION OPERATION (RA-O) MONITORING

Currently the list of MNA analytical parameters inclusive of all the sites includes anions (sulfate, sulfide, nitrate, nitrite, and chloride), methane, ethane, ethene, carbon dioxide, total iron, dissolved iron (ferrous) conducted in the lab and in the field, dissolved manganese, total phosphorus, alkalinity, total organic and inorganic carbon as shown on **Table 1**. Some of these analyses are redundant or are not required for the evaluation of MNA at LHAAP sites.

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3.0 PROPOSED PATH FORWARD

The proposed path is to optimize the MNA analytical list so that it is consistent across all sites. The optimization of analytical list will make the sampling and evaluation more accurate and efficient. The optimization includes eliminating MNA parameters that are redundant or nonessential, including alkalinity, nitrite, sulfide, total inorganic carbon, total iron, the lab analysis for dissolved iron and dissolved manganese, and total phosphorous.

Rationale for eliminating these parameters is as follows:

- Alkalinity is used as an indicator of microbial growth, because it is affected by microbial respiration off gases like carbon dioxide. Since alkalinity is affected by carbon dioxide, which is currently being analyzed, it is recommended that alkalinity be removed from the analytical list.
- Nitrate and sulfate concentrations at LHAAP sites are below levels that may inhibit reductive dechlorination, and therefore the reduced states of these chemicals, nitrite and sulfide, are not expected to be observed, and are recommended to be removed from the analytical list. Nitrate and sulfate will remain on analytical list to evaluate increased levels that may inhibit biological reactions in the future.
- Total organic carbon is essential for the MNA analysis; however, total inorganic carbon does not provide useful data and is recommended to be removed from the analytical list.
- The analysis for ferrous iron is being conducted in the field during sample collection and provides the most representative data to determine if iron reducing conditions are present in the groundwater. Total iron analysis for groundwater includes both solid (ferric) and dissolved (ferrous) forms of iron and does not provide useful data in the evaluation of MNA. Therefore, it is recommended that the lab analysis for total iron, and dissolved iron be removed from the analytical list. The field analysis for ferrous iron will remain on the on the analytical list.
- Dissolved manganese is also used to evaluate the reduced state in groundwater, like dissolved iron. The dissolved manganese analysis is redundant, because field analysis for dissolved iron is being retained, and recommended be removed from the analytical list.
- Total phosphorus does not provide essential data the analysis of MNA and is recommended for removal from the analytical list.

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The proposed list of analysis which are consistent across each site include nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, total organic carbon, and field analyzed ferrous iron and is provided on **Table 2**.

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4.0 CONCLUSION

Currently, each of the sites where MNA and LUC are the selected remedy, there is a different list and some of the analyses are redundant or not useful. It is recommended that the following analyses are removed from the MNA parameter list for all sites: alkalinity, nitrite, sulfide, total inorganic carbon, total iron, lab analyzed ferrous iron, dissolved manganese, and total phosphorus. The updated list includes nitrate, sulfate, chloride, methane, ethane, ethene, carbon dioxide, total organic carbon, and field analyzed ferrous iron. The recommended list of parameters will remove redundancy and create more consistent evaluations of the MNA processes in the future.

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Tables

Table 1
MNA Parameter and LHAAP Site Comparison

	LHAAP-37			LHAAP-67			LHAAP-50			LHAAP-46			LHAAP-58		
MNA Parameter	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O	RAWP	RACR	RA-O
Alkalinity							x	x	x	x	x	x	x	x	x
Nitrate	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Nitrite		x		x	x	x	x	x	x	x	x	x	x	x	x
Sulfate	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Sulfide		x				x	x	x	x	x	x	x	x	x	x
Chloride	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Methane	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Ethane	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Ethene	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Carbon Dioxide						x	x	x	x	x	x	x	x	x	x
Total Organic Carbon	x	x		x	x	x	x	x	x	x	x	x	x	x	x
Total Inorganic Carbon	x	x		x	x	x									
Iron (dissolved) -field	x	x		x	x	x									x
Iron (dissolved) -lab							x	x	x	x	x	x	x	x	x
Total Iron							x	x	x	x	x	x	x	x	x
Manganese (dissolved)							x	x	x	x	x	x	x	x	x
Total Iron							x	x	x	x	x	x	x	x	x
Total Phosphorous							x	x	x	x	x	x	x	x	x

Notes:

LHAAP-37 RA-O does not list MNA parameters because the Y1Q1 report has not been finalized.

LHAAP - Longhorn Army Ammunition Plant

MNA - monitored natural attenuation

RAWP - Remedial Action Work Plan

RACR - Remedial Action Completion Report

RA-O - Remedial Action Operation

Table 2
Proposed LHAAP MNA Parameters

MNA Parameter	LHAAP-37	LHAAP-67	LHAAP-50	LHAAP-46	LHAAP-58
Nitrate	X	X	X	X	X
Sulfate	X	X	X	X	X
Chloride	X	X	X	X	X
Methane	X	X	X	X	X
Ethane	X	X	X	X	X
Ethene	X	X	X	X	X
Carbon Dioxide	X	X	X	X	X
Total Organic Carbon	X	X	X	X	X
Iron (dissolved) -field	X	X	X	X	X

Notes:

MNA - monitored natural attenuation

LHAAP - Longhorn Army Ammunition Plant

APPENDIX E
MONITORING WELL SAMPLE COLLECTION FORMS

Note: The monitoring well sample collection forms for the September 2019, December 2019, March 2020, and June 2020 sampling event have been revised to correct the screen interval to ensure they match the depth in the LHAAP-58 database.

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Screened interval: 19.05 - 29.05
Z. Beck - 11/12/2020

00996388

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58	Location ID: 35AWW06	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.90
	Total Well Depth (ft) (C): 30.50	Water Column Thickness (ft) (C-B): 11.60	2nd Depth to Water(pre-purge): 18.90
	Screened Interval: ~~20.50 - 30.50~~	Weather: CLEAR / SUNNY	Well Volume (gal) (A*(C-B)): 7.56
	Pump placement: 25.50	Well Condition: GOOD	Ferrous Iron: 3.30 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	0945	18.97	.13	100	23.24	7.24	5.05	0.67	69.3	-95	
	0950	19.03	.26	100	22.99	7.00	4.94	0.41	66.5	-103	
	0955	19.07	.39	100	22.86	6.99	4.93	0.22	62.1	-115	
	1000	19.09	.52	100	22.90	6.99	4.93	0.07	58.8	-118	
	1005	19.11	.65	100	22.94	6.99	4.92	0.06	58.4	-119	
	1010	19.12	.78	100	22.97	6.99	4.92	0.06	58.0	-120	
	1015	19.12	.91	100	23.02	6.99	4.92	0.06	57.6	-120	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40ml GLASS	HCL	~~N~~		VOC
4	40ml GLASS	HCL	~~N~~		MEE
4	40ml GLASS	NA	N		EDB
4	40ml AMBER	H2SO4	N		TOC
1	120 ml PLASTIC	NA	N		ANIONS
1	250ml AMBER	H3PO4	N		VFA
1	1 LITER AMBER	NA	N		DHC/DHB

Sample ID: 35AWW06-091119

Sample Time: 1015

00996389

Screened interval: 22.24 - 36.84
Z. Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW11	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.46
	Total Well Depth (ft) (C): 38.10	Water Column Thickness (ft) (C-B): 8.64	2nd Depth to Water(pre-purge): 29.46
	Screened Interval: ~~23.50 - 38.10~~	Weather: CLEAR / SUNNY	Well Volume (gal) (A*(C-B)): 1.38
	Pump placement: 30.80	Well Condition: GOOD	Ferrous Iron: 2.05 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	1210	29.53	.13	100	27.43	6.44	6.81	0.87	49.7	-45	
	1215	29.54	.26	100	26.37	6.31	6.93	0.31	42.2	-67	
	1220	29.63	.39	100	26.25	6.25	7.13	0.08	40.9	-97	
	1225	29.66	.52	100	26.20	6.24	7.14	0.08	40.5	-98	
	1230	29.68	.65	100	26.16	6.23	7.15	0.07	39.8	-99	
	1235	29.70	.78	100	26.12	6.23	7.15	0.07	39.6	-100	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC
	2	40 ml GLASS	HCL	N		MEE
	2	40ml GLASS	NA	N		CO2
	2	40 ml AMBER	H2SO4	N		TOC
	1	120 ml PLASTIC	NA	N		ANIONS
	1	250 ml AMBER	H3PO4	N		VFA
	1	1-liter AMBER	NA	N		DHC/DHB

Sample ID: 35AWW11-091119 Sample Time: 1235

Screened interval: 16.89 - 31.39
Z. Beck - 11/12/2020

00996390

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW19	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 25.55
	Total Well Depth (ft) (C): 32.46	Water Column Thickness (ft) (C-B): 6.91	2nd Depth to Water(pre-purge): 25.55
	Screened Interval: ~~17.96 - 32.46~~	Weather: CLEAR / SUNNY	Well Volume (gal) (A*(C-B)): 1.11
	Pump placement: 28.50	Well Condition: GOOD	Ferrous Iron: 1.62 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	0645	25.63	.13	100	24.36	6.23	5.11	0.93	15.3	116	
	0650	25.69	.26	100	22.11	6.13	4.97	0.32	11.9	83	
	0655	25.73	.39	100	21.73	6.11	4.92	0.20	9.9	80	
	0700	25.76	.52	100	21.64	6.10	4.91	0.20	9.5	79	
	0705	25.78	.65	100	21.53	6.10	4.91	0.19	9.1	78	
	0710	25.80	.78	100	21.45	6.10	4.91	0.19	8.8	77	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml Glass	HCL	N		VOC
2	40 ml Glass	HCL	N		MEE
2	40 ml Glass	NA	N		CO2
2	40 ml Amber	H2SO4	N		TOC
1	120 ml Plastic	NA	N		Anions
1	250ml Amber	H3PO4	N		VFA
1	1 Liter Amber	NA	N		DHC/DHB

Sample ID: 35AWW19-091119 Sample Time: 0710

Screened interval: 20.94 - 35.64
Z. Beck - 11/12/2020

00996391

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW20	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 18.20
	Total Well Depth (ft) (C): 36.12	Water Column Thickness (ft) (C-B): 17.92	2nd Depth to Water(pre-purge): 18.20
	Screened Interval: ~~21.42 - 36.12~~	Weather: Clear / Sunny	Well Volume (gal) (A*(C-B)): 2.87
	Pump placement: 28.77	Well Condition: Good	Ferrous Iron: 1.59 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	0740	18.27	.13	100	22.70	6.62	5.77	0.87	29.7	0	
↓	0745	18.32	.26	100	22.73	6.64	6.09	0.21	10.1	-14	
	0750	18.35	.39	100	22.69	6.65	6.09	0.09	8.1	-28	
	0755	18.37	.52	100	22.69	6.67	6.04	0.04	8.5	-42	
	0800	18.39	.65	100	22.68	6.67	6.03	0.03	8.9	-43	
	0805	18.40	.78	100	22.67	6.67	6.03	0.03	9.3	-44	
↓	0810	18.40	.91	100	22.68	6.67	6.03	0.03	9.7	-45	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
9	40 mL Glass	HCl	N		VOC
6	40 mL Glass	HCl	N		MEG
6	40mL Glass	NA	N		CO2
6	40mL Amber	H2SO4	N		TOC
1	120 mL Plastic	NA	N		Anions
1	250 mL Amber	H3PO4	N		VFA
1	1 Liter Amber	NA	N		DHC/DHB

Sample ID: 35AWW20-09111119 Sample Time: 0810

Screened interval: 28.20 - 43.20
Z. Beck - 11/12/2020

00996392

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: [redacted] 35AWW23	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC [redacted] 2"	Unit Casing Volume (gal/lin ft) (A): ~~0.160~~ 0.160	Initial Depth to Water (ft) (B): 22.00
	Total Well Depth (ft) (C): 43.69	Water Column Thickness (ft) (C-B): 21.69	2nd Depth to Water(pre-purge): 22.00
	Screened Interval: ~~28.50 - 43.50~~	Weather: Clear/Sunny	Well Volume (gal) (A*(C-B)): 3.47
	Pump placement: 36.00	Well Condition: Good	Ferrous Iron: 3.30 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	1055	22.07	.13	100	25.58	6.51	4.79	0.66	32.3	-12	
	1100	22.12	.26	100	25.10	6.31	4.80	0.33	27.5	-30	
	1105	22.16	.39	100	24.95	6.28	4.79	0.18	27.3	-36	
	1110	22.19	.52	100	24.93	6.25	4.77	0.03	27.1	-41	
	1115	22.21	.65	100	24.91	6.25	4.76	0.03	26.8	-42	
	1120	22.22	.78	100	24.89	6.24	4.76	0.02	26.5	-43	
	1125	22.23	.91	100	24.87	6.24	4.76	0.02	26.3	-44	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40mL Glass	HCL	N		VOC
2	40 mL Glass	HCL	N		MEE
2	40 mL Glass	~~HCL~~ NA	N		CO2
2	40 mL Amber	H2SO4	N		TOC
1	120 mL Plastic	NA	N		Anions
1	250 mL Amber	H3PO4	N		VFA
1	1 Liter Amber	NA	N		DHC/DHB

Sample ID: 35AWW23_091119 Sample Time: 1125

00996393

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW07	Date: 9/11/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 17.84
	Total Well Depth (ft) (C): 30.40	Water Column Thickness (ft) (C-B): 12.56	2nd Depth to Water(pre-purge): 17.84
	Screened Interval: 19.73 - 29.73	Weather: CLEAR/SUNNY	Well Volume (gal) (A*(C-B)): 8.19
	Pump placement: 24.73	Well Condition: GOOD	Ferrous Iron: 1.72 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
9/11/19	0850	17.90	.13	100	23.31	6.90	9.20	0.91	1.1	-22	
	0855	17.94	.26	100	23.14	6.67	9.16	0.30	4.4	-37	
	0900	17.98	.39	100	23.09	6.65	9.18	0.06	4.7	-46	
	0905	18.01	.52	100	23.05	6.65	9.19	0.06	5.0	-47	
	0910	18.03	.65	100	23.01	6.65	9.19	0.05	5.4	-47	
	0915	18.04	.78	100	22.98	6.65	9.19	0.05	5.8	-48	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml Glass	HCl	N		VOC
2	40 ml Glass	HCl	N		MEE
2	40 ml Glass	NA	N		CO2
2	40 ml Amber	H2SO4	N		TOC
1	120 ml Plastic	N	N		ANIONS
1	250 ml Amber	~~H2SO4~~	N		VFA
1	1 Liter Amber	NA	N		DHC/DHB

Sample ID: LHSMW07-091119 Sample Time: 0915

00996394

Screened interval: 22.51 - 32.51
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58		Location ID: 03WW01		Date: 12/18/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 29.80
	Total Well Depth (ft) (C): 33.43		Water Column Thickness (ft) (C-B): 3.63		2nd Depth to Water (pre-purge): 29.80
	Screened Interval: ~~23.43 - 33.43~~		Weather: CLEAR / COLD		Well Volume (gal) (A*(C-B)): 0.58
	Pump placement: 31.00		Well Condition: GOOD		Ferrous Iron: 3.15 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	0835	29.88	.13	100	12.45	6.23	6.33	0.89	28.8	-87	
	0840	29.94	.26	100	13.62	6.38	5.71	0.25	26.0	-120	
	0845	29.98	.39	100	13.68	6.40	5.63	0.06	25.7	-127	
	0850	30.01	.52	100	13.73	6.40	5.62	0.06	25.4	-127	
	0855	30.03	.65	100	13.78	6.41	5.62	0.06	25.1	-128	
	0900	30.05	.78	100	13.82	6.41	5.62	0.05	24.8	-128	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC
						1	250 ml Amber		N		VFA
						1	125ml Plastic	HNO3	N		Arsenic
						1	1 Liter Glass	NA	N		DHC/DHB
Conversions	Stabilization Criteria						MNA		N		
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%							
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%							
	Cond	+/- 10%	ORP	+/- 10	Sample ID:		03WW01_121819		Sample Time:		0900

00996395

Screened interval: 63.07 - 73.07
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35AWW01		Date: 12/20/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"		Unit Casing Volume (gal/lin ft) (A): 0.652		Initial Depth to Water (ft) (B): 45.18
	Total Well Depth (ft) (C): 72.50		Water Column Thickness (ft) (C-B): 27.32		2nd Depth to Water(pre-purge): 45.18
	Screened Interval: ~~62.50 - 72.50~~		Weather: CLEAR / COLD		Well Volume (gal) (A*(C-B)): 17.81
	Pump placement: 67.50		Well Condition: GOOD		Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/20/19	0810	45.25	.13	100	11.83	7.61	0.793	0.73	128	-33	
	0815	45.30	.26	100	12.70	7.33	0.749	0.19	116	-62	
	0820	45.33	.39	100	13.55	7.10	0.740	0.04	108	-71	
	0825	45.35	.52	100	13.63	7.09	0.739	0.04	107	-72	
	0830	45.36	.65	100	13.70	7.08	0.739	0.03	107	-73	
	0835	45.37	.78	100	13.78	7.08	0.739	0.03	106	-73	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		9	40 ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW01_12[illegible]19 Sample Time: 0835

00996396

Screened interval: 19.05 - 29.05
Z.Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58		Location ID: 35A WW06		Date: 12/19/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: BAESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"		Unit Casing Volume (gal/lin ft) (A): 0.652		Initial Depth to Water (ft) (B): 19.32
	Total Well Depth (ft) (C): 30.50		Water Column Thickness (ft) (C-B): 11.18		2nd Depth to Water(pre-purge): 19.32
	Screened Interval: ~~20.50 - 30.50~~		Weather: CLEAR / COOL		Well Volume (gal) (A*(C-B)): 7.29
	Pump placement: 25.50		Well Condition: GOOD		Ferrous Iron: 3.30 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	1010	19.40	.13	100	14.25	6.97	5.03	0.75	95.3	-134	
	1015	19.46	.26	100	15.40	6.83	4.98	0.20	90.5	-145	
	1020	19.50	.39	100	15.61	6.82	4.97	0.06	87.8	-151	
	1025	19.53	.52	100	15.67	6.82	4.97	0.06	87.3	-151	
	1030	19.55	.65	100	15.76	6.81	4.97	0.06	86.6	-152	
	1035	19.57	.78	100	15.85	6.81	4.97	0.05	86.0	-152	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml GLASS	HCL	N		VOC
1	250 ml AMBER	Phosphoric	N		VFA
1	200 mL PLASTIC	NA	N		ANIONS
3	40 ml GLASS	HCL	N		MEE
2	40 ml GLASS	NA	N		CO2
2	40 ml AMBER	H2SO4	N		TOC
1	1 Liter GLASS	NA	N		DHC/DHB

Sample ID: 35AWW06-121919 Sample Time: 1035

Screened interval: 21.83 - 31.83
Z.Beck - 11/12/2020

00996397

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58			Location ID: 35AWW08				Date: 12/18/19				
	Project Name: LHAAP			Project No./Phase: NWO1312.0150				Recorded By: BEESINGER				
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro			Water Quality Meter/ID#: U-52 Horiba				PID Type/ID#: NA				
	Water Level Indicator Type/ID#: Solinist 101			Other Equipment/ID#: NA				Decon Method: Liquinox & DI water				
	Tubing Type/Diameter (in): 1/4"			Other Equipment/ID#: NA				PPE: Level D				
WELL INFO	Casing Type / ID (in): PVC 2"			Unit Casing Volume (gal/lin ft) (A): ~~0.652~~ 0.160				Initial Depth to Water (ft) (B): 29.00				
	Total Well Depth (ft) (C): 33.35			Water Column Thickness (ft) (C-B): 4.35				2nd Depth to Water(pre-purge): 29.00				
	Screened Interval: ~~23.35 - 33.35~~			Weather: CLEAR / COLD				Well Volume (gal) (A*(C-B)): 0.70				
	Pump placement: 31.00			Well Condition: GOOD				Ferrous Iron: 2.55 mg/L				
CASING INFO	Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0	
	Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57	

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	0930	29.08	.13	100	13.45	6.74	9.98	0.69	69.8	-116	
	0935	29.15	.26	100	14.81	6.65	9.84	0.20	64.3	-150	
	0940	29.20	.39	100	15.40	6.65	9.64	0.05	62.0	-158	
	0945	29.23	.52	100	15.47	6.65	9.63	0.05	61.6	-159	
	0950	29.25	.65	100	15.55	6.65	9.62	0.04	60.9	-160	
	0955	29.27	.78	100	15.61	6.65	9.62	0.04	60.5	-161	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
1	250ml Amber		N		VFA
1	125ml Plastic	HNO3	N		Arsenic
1	1 Liter Glass	NA	N		DHC/DHB
	MNA		N		

Sample ID: 35AWW08-121819 Sample Time: 0955

00996398

Screened interval: 26.69 - 41.29
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW09	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.22
	Total Well Depth (ft) (C): 42.18	Water Column Thickness (ft) (C-B): 9.96	2nd Depth to Water (pre-purge): 32.22
	Screened Interval: ~~27.58 - 42.18~~	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 1.59
	Pump placement: 34.88	Well Condition: GOOD	Ferrous Iron: [redacted] 1.00 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	0735	32.30	.13	100	11.04	6.30	4.94	0.79	90.4	202	
	0740	32.36	.26	100	12.17	6.22	5.87	0.23	82.5	208	
	0745	32.40	.39	100	12.59	6.21	5.91	0.07	78.9	227	
	0750	32.42	.52	100	12.65	6.20	5.92	0.07	78.4	228	
	0755	34.44	.65	100	12.72	6.20	5.93	0.06	77.7	228	
	0800	34.46	.78	100	12.78	6.20	5.93	0.06	77.3	229	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml GLASS	HCL	N		VOC
	1	250 ml AMBER	PHOSPHORIC	N		VFA
	1	125ml PLASTIC	HNO3	N		ARSENIC
	~~1~~	~~1 LITRE GLASS~~	~~NA~~	~~N~~		~~DHG/DHB~~
		MNA		N		MNA

Sample ID: 35AWW09_121819 Sample Time: 0800

00996399

Screened interval: 18.16 - 32.76
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35A WW10		Date: 12/19/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: BAESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 19.72
	Total Well Depth (ft) (C): 33.73		Water Column Thickness (ft) (C-B): 14.01		2nd Depth to Water(pre-purge): 19.72
	Screened Interval: ~~19.13 - 33.73~~		Weather: CLEAR / COLD		Well Volume (gal) (A*(C-B)): 2.24
	Pump placement: 26.43		Well Condition: GOOD		Ferrous Iron: 0.14 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	0810	19.80	.13	100	15.94	5.85	0.244	0.94	45.3	169	
	0815	19.86	.26	100	17.50	5.54	0.208	0.90	41.2	187	
	0820	19.90	.39	100	18.01	5.45	0.205	0.78	39.9	195	
	0825	19.93	.52	100	18.12	5.44	0.205	0.77	39.6	196	
	0830	19.95	.65	100	18.20	5.44	0.205	0.76	38.8	197	
	0835	19.96	.78	100	18.28	5.44	0.205	0.76	38.5	198	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC
	2	250 ml AMBER	PHOSPHORIC	N		VFA
	2	200 ml Plastic	NA	N		ANIONS
	6	40ml GLASS	HCL	N		MEE
	4	40ml GLASS	NA	N		CO2
	4	40ml AMBER	H2SO4	N		TOC

Sample ID: 35AWW10_121919 Sample Time: 0835

Screened interval: 22.24 - 36.84
Z.Beck - 11/12/2020

00996400

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35A WW11	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.68
	Total Well Depth (ft) (C): 38.10	Water Column Thickness (ft) (C-B): 8.42	2nd Depth to Water(pre-purge): 29.68
	Screened Interval: ~~23.50 - 38.10~~	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 1.34
	Pump placement: 30.80	Well Condition: GOOD	Ferrous Iron: 3.30 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1025	29.75	.13	100	14.20	7.23	7.52	0.81	31.3	-50	
	1030	29.81	.26	100	15.43	6.58	7.82	0.30	25.4	-79	
	1035	29.85	.39	100	15.77	6.30	7.93	0.10	23.8	-93	
	1040	29.88	.52	100	15.85	6.29	7.94	0.10	23.3	-94	
	1045	29.90	.65	100	15.92	6.28	7.94	0.09	22.7	-95	
	1050	29.92	.78	100	15.99	6.28	7.95	0.09	22.1	-95	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml GLASS	HCl	N		VOC
	1	250ml AMBER		N		VFA
	1	1 Liter GLASS	NA	N		DHC/DHB
		40ml GLASS	HCL	N		MEE
		~~40ml AMBER~~	H2SO4	N		TOC
		40ml GLASS	NA	N		CO2
	1	125ml PLASTIC		N		ANIONS

Sample ID: 35AWW11_121719 Sample Time: 1050

00996401

Screened interval: 22.17 - 36.77
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW12	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: KennieMoore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 30.33
	Total Well Depth (ft) (C): 37.80	Water Column Thickness (ft) (C-B): 7.47	2nd Depth to Water(pre-purge): 30.33
	Screened Interval: 23.01 - 37.61	Weather: Clear	Well Volume (gal) (A*(C-B)): 1.19
	Pump placement: 33.00	Well Condition: Good/broken hinge	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1205	30.35	.13	100	18.09	5.23	1.72	0.66	33.2	252	
	1210	30.37	.26	100	18.45	4.98	1.76	0.61	16.4	299	
	1215	30.39	.39	100	18.49	5.00	1.79	0.52	13.6	301	
	1220	30.41	.52	100	18.55	5.00	1.79	0.50	13.2	302	
	1225	30.43	.65	100	18.62	4.99	1.79	0.50	12.9	302	
	1230	30.45	.78	100	18.67	4.99	1.79	0.49	12.7	303	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW12_121819 Sample Time: 1230

00996402

Screened interval: 24.72 - 39.32
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A MW13	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BLEVINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 25.05
	Total Well Depth (ft) (C): 42.28	Water Column Thickness (ft) (C-B): 17.23	2nd Depth to Water(pre-purge): 25.05
	Screened Interval: ~~25.68 - 40.28~~	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 2.76
	Pump placement: 32.98	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1305	25.12	.13	100	20.30	6.36	1.33	0.63	43.2	33	
	1310	25.18	.26	100	20.80	6.32	1.28	0.18	38.5	44	
	1315	25.22	.39	100	20.89	6.32	1.25	0.07	36.9	50	
	1320	25.25	.52	100	20.94	6.31	1.24	0.07	36.4	51	
	1325	25.27	.65	100	20.99	6.32	1.24	0.07	35.7	51	
	1330	25.29	.78	100	21.08	6.32	1.24	0.06	35.2	52	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC

00996403

Screened interval: 17.06 - 31.76
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35BMW14	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BASINGAR
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.55
	Total Well Depth (ft) (C): 32.45	Water Column Thickness (ft) (C-B): 2.90	2nd Depth to Water (pre-purge): 29.55
	Screened Interval: ~~17.76 - 32.46~~	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 0.46
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	0744	29.55		NA							Bailing well
12/19/19	0748	32.40	.5	NA							Bailed .5 gallons RANDY
12/19/19	1320	29.57	NA	NA	18.09	5.76	6.36	10.34	21.2	14	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40mL GLASS	HCL	N		VOC

Conversions	Stabilization Criteria										
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%							
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%							
	Cond	+/- 10%	ORP	+/- 10	Sample ID:	35BMW14_121919			Sample Time:		1320

00996404

Screened interval: 25.67 - 40.37
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW15	Date: 12/20/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Kennie Moore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 19.87
	Total Well Depth (ft) (C): 41.50	Water Column Thickness (ft) (C-B): 21.63	2nd Depth to Water (pre-purge): 19.87
	Screened Interval: ~~26.78 - 41.48~~	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 3.46
	Pump placement: 34.1	Well Condition: Good / hinge broken	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/20/19	0825	19.90	.13	100	17.25	6.21	13.6	1.07	370	109	
	0830	19.92	.26	100	17.96	6.02	13.5	0.61	292	126	
	0835	19.94	.39	100	18.89	5.97	13.5	0.56	269	132	
	0840	19.96	.52	100	19.00	5.96	13.5	0.52	265	133	
	0845	19.98	.65	100	18.97	5.96	13.4	0.51	262	134	
	0850	20.00	.78	100	18.99	5.95	13.4	0.48	259	134	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml glass	HCL	N		VOC

Sample ID: 35AWW15-122019 Sample Time: 0850

00996405

Screened interval: 21.75 - 36.45
Z.Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A WW16	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 18.00
	Total Well Depth (ft) (C): 37.50	Water Column Thickness (ft) (C-B): 19.50	2nd Depth to Water (pre-purge): 18.00
	Screened Interval: ~~22.81 - 37.51~~	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 3.12
	Pump placement: 30.16	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	1200	18.07	.13	100	15.50	6.89	10.1	0.65	140	[redacted]-14	
	1205	18.12	.26	100	16.75	6.49	10.9	0.17	129	15	
	1210	18.16	.39	100	17.10	6.39	11.0	0.04	122	20	
	1215	18.19	.52	100	17.17	6.38	11.1	0.04	121	20	
	1220	18.21	.65	100	17.27	6.37	11.1	0.03	121	21	
↓	1225	18.23	.78	100	17.36	6.36	11.1	0.03	120	21	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW16-121919 Sample Time: 1225

Screened interval: 26.97 - 41.67
Z.Beck - 11/12/2020

00996406

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW17	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Kennie Moore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 24.00
	Total Well Depth (ft) (C): 42.50	Water Column Thickness (ft) (C-B): 18.50	2nd Depth to Water (pre-purge): 24.00
	Screened Interval: ~~22.78 - 42.48~~	Weather: Clear	Well Volume (gal) (A*(C-B)): 2.96
	Pump placement: 32.63	Well Condition: Good	Ferrous Iron: NA

CASING INFO	Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
	Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	0820	24.02	.13	100	13.59	6.08	10.8	0.78	72.0	128	
	0825	24.04	.26	100	14.36	6.07	10.6	0.51	69.9	129	
	0830	24.06	.39	100	14.59	6.05	10.5	0.46	63.7	133	
	0835	24.08	.52	100	14.63	6.04	10.5	0.44	61.6	134	
	0840	24.10	.65	100	14.64	6.04	10.4	0.41	61.2	135	
	0845	24.12	.78	100	14.64	6.05	10.4	0.40	60.9	135	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW17_121819 Sample Time: 0845

00996407

Screened interval: 26.85 - 41.55
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58		Location ID: 35AWW18		Date: 12/18/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: KennieMoore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 24.82
	Total Well Depth (ft) (C): 42.25		Water Column Thickness (ft) (C-B): 17.43		2nd Depth to Water(pre-purge): 24.82
	Screened Interval: ~~27.48 - 42.18~~		Weather: Clear		Well Volume (gal) (A*(C-B)): 2.78
	Pump placement: 34.83		Well Condition: Good		Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	0930	24.85	.13	100	14.23	5.89	10.6	0.63	153	118	
	0935	24.87	.26	100	14.40	5.87	10.6	0.54	124	123	
	0940	24.89	.39	100	14.69	5.87	10.5	0.41	118	134	
	0945	24.91	.52	100	14.86	5.88	10.6	0.37	117	136	
	0950	24.93	.65	100	14.91	5.88	10.6	0.36	117	137	
	0955	24.95	.78	100	14.97	5.88	10.5	0.36	116	138	
	1000	24.97	.91	100	15.09	5.88	10.5	0.37	115	138	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40ml glass	HCL	N		VOC
Sample ID: 35AWW18-121819				Sample Time: 1000		

00996408

Screened interval: 16.89 - 31.39
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A MW19	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BREEDLOVE
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 25.90
	Total Well Depth (ft) (C): 32.46	Water Column Thickness (ft) (C-B): 6.56	2nd Depth to Water(pre-purge): 25.90
	Screened Interval: 17.96 - 32.46	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 1.05
	Pump placement: 27.00	Well Condition: GOOD	Ferrous Iron: 2.08 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1215	25.97	.13	100	17.81	6.47	4.82	0.89	88.4	13	
	1220	26.03	.26	100	17.87	6.06	4.83	0.29	78.2	32	
	1225	26.07	.39	100	17.88	5.98	4.81	0.09	75.1	36	
	1230	26.09	.52	100	17.89	5.98	4.81	0.08	74.7	36	
	1235	26.11	.65	100	17.90	5.97	4.81	0.08	74.0	37	
	1240	26.13	.78	100	17.91	5.97	4.81	0.08	73.5	37	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml GLASS	HCL	N		VOC
1	250 ml AMBER		N		VFA
1	1 LITER GLASS	NA	N		DHC/DHB
	40ml GLASS	HCL	N		MEE
	40ml AMBER	H2SO4	N		TOC
	40ml GLASS	NA	N		CO2
1	125ml PLASTIC	NA	N		ANIONS

Sample ID: 35AMW19-121819

Sample Time: 1240

00996409

Screened interval: 20.94 - 35.64
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35A MW20	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BLASINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 19.20
	Total Well Depth (ft) (C): 36.10	Water Column Thickness (ft) (C-B): 16.90	2nd Depth to Water(pre-purge): 19.20
	Screened Interval: ~~21.42 - 36.12~~	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 2.70
	Pump placement: 28.77	Well Condition: GOOD	Ferrous Iron: 1.34 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	0915	19.28	.13	100	15.33	5.75	5.58	0.81	32.3	-31	
	0920	19.33	.26	100	16.57	6.25	5.69	0.27	26.9	-42	
	0925	19.37	.34	100	17.29	6.39	5.77	0.09	25.7	-50	
	0930	19.39	.52	100	17.37	6.40	5.77	0.09	25.1	-51	
	0935	19.41	.65	100	17.44	6.40	5.78	0.08	24.8	-52	
	0940	19.42	.78	100	17.51	6.40	5.78	0.08	24.2	-52	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC
	1	250ml AMBER	Ascorbic	N		VFA
	1	200ml Plastic	NA	N		Anions
	3	40ml GLASS	HCL	N		MEE
	2	40ml GLASS	NA	N		CO2
	2	40ml AMBER	H2SO4	N		TOC
	1	1 Liter GLASS	NA	N		DHC/DHB

Sample ID: 35A MW20_121919 Sample Time: 0940

Screened interval: 27.56 - 42.26
Z.Beck - 11/12/2020

00996410

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW21	Date: 12/20/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: KennieMoore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 34.18
	Total Well Depth (ft) (C): 42.90	Water Column Thickness (ft) (C-B): 8.72	2nd Depth to Water (pre-purge): 34.18
	Screened Interval: ~~28.14 - 42.84~~	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 1.39
	Pump placement: 38.00	Well Condition: Good	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/20/19	0955	34.20	.13	100	14.43	4.63	2.53	0.29	305	311	
|	1000	34.22	.26	100	15.07	4.64	2.51	0.22	204	322	
|	1005	34.24	.39	100	15.73	4.63	2.37	0.21	195	337	
|	1010	34.26	.52	100	15.97	4.61	2.27	0.16	184	341	
|	1015	34.29	.65	100	16.13	4.60	2.27	0.15	183	341	
|	1020	34.31	.78	100	16.19	4.60	2.26	0.15	182	342	
|	1025	34.34	.91	100	16.26	4.59	2.26	0.14	181	343	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		6	40ml glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW21-122019 Sample Time: 1025

Screened interval: 22.27 - 36.77
Z.Beck - 11/12/2020

00996411

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW22	Date: 12/18/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: KennieMoore
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.87
	Total Well Depth (ft) (C): 37.78	Water Column Thickness (ft) (C-B):	2nd Depth to Water (pre-purge): 32.87
	Screened Interval: ~~25.28 - 37.78~~	Weather: Clear	Well Volume (gal) (A*(C-B)):
	Pump placement: 34.5	Well Condition: Good / broken hinge	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1055	32.89	.13	100	15.24	5.30	9.56	0.62	60.3	243	
	1100	32.92	.26	100	16.03	5.34	9.38	0.41	39.0	254	
	1105	32.94	.39	100	16.48	5.34	9.38	0.39	29.6	259	
	1110	32.96	.52	100	16.51	5.35	9.37	0.37	27.2	261	
	1115	32.99	.65	100	16.57	5.34	9.36	0.32	25.3	262	
	1120	33.01	.78	100	16.62	5.35	9.36	0.31	24.0	263	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml glass	HCL	N		VOC
Conversions	Stabilization Criteria										
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%							
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%							
	Cond	+/- 10%	ORP	+/- 10	Sample ID: 35AWW22-121819				Sample Time: 1120		

00996412

Screened interval: 28.20 - 43.20
Z.Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35AWW23		Date: 12/18/19
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: BEESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 23.45
	Total Well Depth (ft) (C): 43.70		Water Column Thickness (ft) (C-B): 20.25		2nd Depth to Water(pre-purge): 23.45
	Screened Interval: ~~28.50 - 43.50~~		Weather: CLEAR/COOL		Well Volume (gal) (A*(C-B)): 3.24
	Pump placement: 36.00		Well Condition: GOOD		Ferrous Iron: 1.83 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/18/19	1120	23.52	.13	100	14.54	6.80	4.96	0.73	59.6	-77	
	1125	23.58	.26	100	15.59	6.30	4.90	0.19	48.4	-93	
	1130	23.62	.39	100	15.83	6.20	4.86	0.03	45.0	-101	
	1135	23.65	.52	100	15.90	6.19	4.86	0.03	44.4	-102	
	1140	23.67	.65	100	15.96	6.18	4.85	0.03	43.9	-103	
	1145	23.69	.78	100	16.02	6.17	4.85	0.02	43.2	-104	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml GLASS	HCL	N		VOC
	1	250ml AMBER	PHOSPHORIC	N		VFA
	1	1 LITER GLASS	NA	N		DHC/DHB
	3	40ml GLASS	HCL	N		MEE
	2	40ml AMBER	H2SO4	N		TOC
	#2	40ml GLASS	NA	N		CO2
	1	125ml PLASTIC	NA	N		ANIONS

Sample ID: 35AWW23_121819 Sample Time: 1145

00996413

Screened interval: 25.10 - 35.10
Z.Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW24	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BAESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 25.09
	Total Well Depth (ft) (C): 35.00	Water Column Thickness (ft) (C-B): 9.91	2nd Depth to Water(pre-purge): 25.09
	Screened Interval: ~~24.68 - 34.68~~	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 1.59
	Pump placement: 29.68	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	1245	25.17	.13	100	18.73	6.75	0.888	0.75	69.2	98	
	1250	25.23	.26	100	19.18	5.90	0.645	0.22	61.4	130	
	1255	25.27	.39	100	19.45	5.65	0.552	0.04	57.0	145	
	1300	25.30	.52	100	19.51	5.64	0.551	0.03	56.5	146	
	1305	25.32	.65	100	19.57	5.63	0.551	0.04	55.9	146	
↓	1310	25.34	.78	100	19.64	5.62	0.551	0.03	55.1	147	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW24-121919 Sample Time: 1310

Screened interval: 21.11 - 31.11
Z.Beck - 11/12/2020

00996414

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: LHSMW04	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BEESINGAR
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): DRY
	Total Well Depth (ft) (C): 31.16	Water Column Thickness (ft) (C-B): NA	2nd Depth to Water (pre-purge): DRY
	Screened Interval: ~~21.14 - 31.14~~	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): NA
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
			DRY WELL								

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units							

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: Sample Time:

Screened interval: 13.32 - 23.32
Z. Beck - 11/12/2020

00996415

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: LHSmw06	Date: 12/20/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BRESINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.72
	Total Well Depth (ft) (C): 23.53	Water Column Thickness (ft) (C-B): 4.81	2nd Depth to Water(pre-purge): 18.72
	Screened Interval: ~~13.53 - 23.53~~	Weather: CLEAR / COLD	Well Volume (gal) (A*(C-B)): 3.14
	Pump placement: 19.50	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/20/19	0900	18.80	.13	100	12.33	6.70	2.46	0.73	9.7	21	
↓	0905	18.86	.26	100	13.95	6.55	2.44	0.22	6.3	37	
	0910	18.90	~~.39~~	100	14.83	6.52	2.43	0.09	3.2	53	
	0915	18.93	~~.52~~	100	14.92	6.52	2.42	0.09	1.5	54	
	0920	18.95	~~.65~~	100	15.03	6.51	2.42	0.08	0.7	55	
↓	0925	18.97	~~.78~~	100	15.11	6.51	2.42	0.09	0.0	56	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40ml Glass		HCL	N		VOC
2	125 ml Plastic		HNO3	N		Arsenic
Sample ID: LHSmw06-122019				Sample Time: 0925		

00996416

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW07	Date: 12/19/19
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: BASSINGER
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.52
	Total Well Depth (ft) (C): 30.40	Water Column Thickness (ft) (C-B): 11.88	2nd Depth to Water (pre-purge): 18.52
	Screened Interval: 19.73 - 29.73	Weather: CLEAR / COOL	Well Volume (gal) (A*(C-B)): 7.75
	Pump placement: 24.73	Well Condition: GOOD	Ferrous Iron: 1.85 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
12/19/19	1105	18.60	.13	100	14.57	6.88	8.75	0.84	11.9	-57	
	1110	18.65	.26	100	16.20	6.55	9.38	0.25	7.4	-48	
	1115	18.68	.39	100	17.09	6.45	9.57	0.10	7.2	-48	
	1120	18.70	.52	100	17.17	6.44	9.58	0.10	7.0	-48	
	1125	18.72	.65	100	17.25	6.44	9.59	0.09	6.8	-47	
	1130	18.73	.78	100	17.31	6.43	9.59	0.09	6.6	-47	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml GLASS	HCL	N		VOC
						1	250ml AMBER	Phosphoric	N		VFA
						1	250ml Plastic	NA	N		ANIONS
						3	40ml GLASS	HCL	N		MEE
Conversions	Stabilization Criteria					2	40ml GLASS	NA	N		CO2
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%		2	40ml AMBER	H2SO4	N		TOC
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%		1	1 Liter GLASS	NA	N		DHC/DHB
	Cond	+/- 10%	ORP	+/- 10	Sample ID: LHSMW07-121919				Sample Time: 1130		

Screened interval: 19.05 - 29.05
Z. Beck - 11/12/2020

00996417

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW06	Date: 3/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.68
	Total Well Depth (ft) (C): 30.50	Water Column Thickness (ft) (C-B): 11.82	2nd Depth to Water(pre-purge): 18.68
	Screened Interval: ~~20.50 - 30.50~~	Weather: Clear/ Sunny	Well Volume (gal) (A*(C-B)): 7.71
	Pump placement: 25.50	Well Condition: Good	Ferrous Iron: 2.24 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	1045	18.75	.13	100	20.18	7.35	5.62	0.77	36.7	-159	
	1050	18.81	.26	100	19.75	6.95	5.54	0.27	34.5	-171	
	1055	18.85	.39	100	19.62	6.85	5.50	0.08	34.4	-177	
	1100	18.88	.52	100	19.55	6.84	5.50	0.08	34.2	-178	
	1105	18.90	.65	100	19.50	6.84	5.50	0.07	34.1	-179	
	1110	18.92	.78	100	19.46	6.83	5.50	0.07	34.0	-179	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions

1 L = 0.26 gals	Stabilization Criteria			
1 gal = 3.79 L	Temp	+/- 10%	DO	+/- 10%
	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCl	N		VOC
3	40ml Glass	HCl	N		MeE
2	40ml Glass	NA	N		CO2
2	40ml Amber	H2SO4	N		TOC
1	250ml Amber	H3PO4	N		VFA
1	~~250~~ 500ml Plastic	NA	N		Anions
1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW06_032420 Sample Time: 1110

Screened interval: 22.24 - 36.84
Z. Beck - 11/12/2020

00996418

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW11	Date: 3/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.03
	Total Well Depth (ft) (C): 37.88	Water Column Thickness (ft) (C-B): 8.85	2nd Depth to Water(pre-purge): 29.03
	Screened Interval: ~~23.50 - 38.10~~	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.42
	Pump placement: 30.80	Well Condition: GOOD	Ferrous Iron: 1.41 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	0720	29.10	.13	100	18.50	5.82	7.32	0.78	14.6	-43	
	0725	29.16	.26	100	18.57	6.01	7.50	0.27	8.3	-80	
	0730	29.20	.39	100	18.61	6.07	7.80	0.09	8.1	-97	
	0735	29.23	.52	100	18.68	6.08	7.81	0.09	7.7	-98	
	0740	29.25	.65	100	18.75	6.08	7.82	0.08	7.4	-99	
	0745	29.27	.78	100	18.79	6.08	7.82	0.08	7.2	-100	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
6	40 ml GLASS	HCL	N		VOC
6	40 ml GLASS	HCL	N		MEE
4	40 ml GLASS	NA	N		CO2
4	40ml AMBER	H2SO4	N		TOC
2	250ml AMBER	P-ACID	N		VFA
2	125 ml PLASTIC	NA	N		ANIONS
1	1 LITER GLASS	NA	N		DHC/DHB

Sample ID: 35AWW11-032420 Sample Time: 0745

Screened interval: 16.89 - 31.39
Z. Beck - 11/12/2020

00996419

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35ATWW19		Date: 3/24/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 26.00
	Total Well Depth (ft) (C): 32.45		Water Column Thickness (ft) (C-B): 6.45		2nd Depth to Water(pre-purge): 26.00
	Screened Interval: ~~17.96-32.46~~		Weather: Clear		Well Volume (gal) (A*(C-B)): 1.03
	Pump placement: 26.75		Well Condition: Good		Ferrous Iron: 1.86 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	1235	26.08	.13	100	23.05	6.79	4.70	0.77	33.2	23	
	1240	26.14	.26	100	22.07	6.08	4.67	0.23	26.8	50	
	1245	26.18	.39	100	21.83	6.00	4.62	0.05	26.4	49	
	1250	26.21	.52	100	21.77	5.99	4.62	0.05	26.0	48	
	1255	26.24	.65	100	21.72	5.98	4.62	0.04	25.8	47	
	1300	26.26	.78	100	21.68	5.97	4.61	0.04	25.5	46	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC
						3	40ml Glass	HCL	N		MEE
						2	40ml Glass	NA	N		CO2
						2	40ml Amber	H2SO4	N		TOC
Conversions	Stabilization Criteria					1	250 mL Amber	H3PO4	N		VFA
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%		1	250ml Plastic	NA	N		Anions
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%		1	1 Liter Glass	NA	N		DHC/DHB
	Cond	+/- 10%	ORP	+/- 10	Sample ID: 35ATWW19_032420				Sample Time: 1300		

Screened interval: 20.94 - 35.64
Z. Beck - 11/12/2020

00996420

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW20	Date: 3/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 18.15
	Total Well Depth (ft) (C): 36.15	Water Column Thickness (ft) (C-B): 18.00	2nd Depth to Water(pre-purge): 18.15
	Screened Interval: 21.48-36.12	Weather: CLEAR/ SUNNY	Well Volume (gal) (A*(C-B)): 2.88
	Pump placement: 28.77	Well Condition: GOOD	Ferrous Iron: 2.29 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	0835	18.23	.13	100	20.11	6.79	6.12	1.03	0.7	-87	
	0840	18.28	.26	100	20.90	6.53	5.99	0.63	3.0	-95	
	0845	18.32	.39	100	21.12	6.48	5.75	0.29	6.9	-96	
	0850	18.35	.52	100	21.37	6.50	5.46	0.06	7.1	-95	
	0855	18.37	.65	100	21.40	6.50	5.46	0.06	7.4	-95	
	0900	18.39	.78	100	21.45	6.50	5.45	0.05	7.6	-94	
	0905	18.40	.91	100	21.51	6.50	5.45	0.05	7.8	-94	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40mL Glass	HCl	N		VOC
	9	40 mL Glass	HCl	N		MEE
	6	40 mL Glass	NA	N		CO2
	6	40 ml Amber	H2SO4	N		TOC
	3	250 ml Amber	P-AC:D	N		VFA
	3	125 ml Plastic	NA	N		Anions
	1	1 L Fiberglass	NA	N		DHC/DHB

Sample ID: 35AWW20-032420 Sample Time: 0905

Screened interval: 28.20 - 43.50
Z. Beck - 11/12/2020

00996421

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58	Location ID: 35AWW23	Date: 3/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 22.60
	Total Well Depth (ft) (C): 43.72	Water Column Thickness (ft) (C-B): 21.12	2nd Depth to Water(pre-purge): 22.60
	Screened Interval: ~~28.50 - 43.50~~	Weather: CLEAR / SUNNY	Well Volume (gal) (A*(C-B)): 3.38
	Pump placement: 36.00	Well Condition: GOOD	Ferrous Iron: 2.33 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	1140	22.67	.13	100	20.12	6.98	4.77	0.81	32.3	-73	
	1145	22.73	.26	100	20.01	6.33	4.75	0.30	30.4	-90	
	1150	22.77	.39	100	19.99	6.25	4.72	0.06	29.7	-100	
	1155	22.80	.52	100	19.96	6.24	4.72	0.06	29.4	-101	
	1200	22.82	.65	100	19.94	6.23	4.72	0.06	28.9	-101	
	1205	22.84	.78	100	19.93	6.23	4.72	0.05	28.6	-102	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MEE
	2	40ml Glass	NA	N		EDB
	2	40ml Amber	H2SO4	N		TOC
	1	250ml Amber	H3PO4	N		VFA
	1	250ml Plastic	NA	N		ANIONS
	1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW23-032420 Sample Time: 1205

00996422

Screened interval: 19.05 - 29.05
Z. Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58		Location ID: 35AWW06		Date: 4/7/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"		Unit Casing Volume (gal/lin ft) (A): 0.652		Initial Depth to Water (ft) (B): 18.77
	Total Well Depth (ft) (C): 30.50		Water Column Thickness (ft) (C-B): 11.73		2nd Depth to Water(pre-purge): 18.77
	Screened Interval: ~~20.50 - 30.50~~		Weather: CLEAR		Well Volume (gal) (A*(C-B)): 7.65
	Pump placement: 25.50		Well Condition: GOOD		Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
4/7/20	0835	18.85	.13	100	20.39	5.55	4.84	0.79	96.2	-85	
	0840	18.91	.26	100	19.69	5.96	4.71	0.31	85.9	-119	
	0845	18.95	.39	100	19.66	6.25	4.65	0.08	82.7	-145	
	0850	18.97	.52	100	19.61	6.26	4.65	0.08	82.1	-146	
	0855	18.99	.65	100	19.57	6.27	4.64	0.07	81.6	-147	
	0900	19.00	.78	100	19.53	6.28	4.64	0.07	81.3	-147	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		1	250 ml AmBer	HP304	N		VFA

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW06_040720 Sample Time: 0900

00996423

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW07	Date: 3/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 17.55
	Total Well Depth (ft) (C): 30.41	Water Column Thickness (ft) (C-B): 12.86	2nd Depth to Water(pre-purge): 17.55
	Screened Interval: 19.73 - 29.73	Weather: CLEAR/SUNNY	Well Volume (gal) (A*(C-B)): 8.38
	Pump placement: 24.73	Well Condition: GOOD	Ferrous Iron: 1.76 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
3/24/20	0950	17.62	.13	100	21.43	6.89	9.84	0.84	0.0	-81	
	0955	17.68	.26	100	20.80	6.73	10.0	0.27	0.0	-89	
	1000	17.72	.39	100	20.60	6.66	10.0	0.07	0.0	-89	
	1005	17.75	.52	100	20.54	6.65	10.1	0.07	0.0	-88	
	1010	17.77	.65	100	20.47	6.65	10.1	0.07	0.0	-88	
	1015	17.78	.78	100	20.42	6.65	10.1	0.06	0.0	-87	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MEE
	2	40 ml Glass	NA	N		CO2
	2	40ml Glass	H2SO4	N		TOC
	1	250 ml Amber	P-ACID	N		VFA
	1	125ml Plastic	NA	N		ANIONS
	1	1 Liter Glass	NA	N		DHL/DHB

Sample ID: LHSMW07_032420 Sample Time: 1015

00996424

Screened Interval: 22.51-32.51
Z. Beck- 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 03WW01	Date: 6/23/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.30
	Total Well Depth (ft) (C): 33.37	Water Column Thickness (ft) (C-B): 4.07	2nd Depth to Water(pre-purge): 29.30
	Screened Interval: ~~21.53 - 31.53~~	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.65
	Pump placement: 30.50	Well Condition: GOOD	Ferrous Iron: 1.74 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/23/20	1030	29.37	.13	100	24.44	6.31	5.82	0.69	7.1	-127	
	1035	29.43	.26	100	23.35	6.34	5.40	0.33	6.1	-133	
	1040	29.47	.39	100	23.39	6.41	4.93	0.18	9.1	-140	
	1045	29.50	.52	100	22.98	6.43	4.70	0.05	8.2	-140	
	1050	29.53	.65	100	22.90	6.43	4.69	0.04	7.4	-139	
	1055	29.55	.78	100	22.85	6.44	4.68	0.04	6.9	-139	
	1100	29.57	.91	100	22.77	6.44	4.68	0.04	6.3	-139	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml Glass	HCl	N		VOC
3	40 ml Glass	HCl	N		MEE
2	40 ml Amber	H_2SO_4	N		TOC
2	40 ml Glass	NA	N		CO2
1	250 ml Amber	H_3PO_4	N		VFA
1	125 ml Plastic	HNO_3	N		Arsenic
1	200 ml Plastic	NA	N		Anions

Sample ID: 03WW01_062320 Sample Time: 1100

1 1 Liter Glass NA N DHC/DHB

00996425

Screened interval: 63.07 - 73.07
Z. Beck - 11/12/2020

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58		Location ID: 35A NWO1		Date: 6/25/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): SS [redacted] 4"		Unit Casing Volume (gal/lin ft) (A): 0.652		Initial Depth to Water (ft) (B): 44.22
	Total Well Depth (ft) (C): 72.53		Water Column Thickness (ft) (C-B): 28.31		2nd Depth to Water(pre-purge): 44.22
	Screened Interval: ~~63.69 - 72.69~~		Weather: Cloudy		Well Volume (gal) (A*(C-B)): 18.46
	Pump placement: 67.69		Well Condition: Good		Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	0725	44.28	.13	100	22.05	7.01	0.842	0.76	161	[redacted]-17	
	0730	44.33	.26	100	21.29	6.62	0.739	0.27	142	-47	
	0735	44.36	.39	100	21.13	6.47	0.697	0.07	137	-58	
	0740	44.38	.52	100	21.06	6.47	0.697	0.07	136	-59	
	0745	44.39	.65	100	20.99	6.46	0.696	0.07	135	-60	
	0750	44.40	.78	100	20.94	6.46	0.696	0.06	135	-61	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	6	40 ml Glass	HCL	N		VOC
Sample ID: 35ANWO1-062520				Sample Time: 0750		

00996426

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A WW06	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 18.45
	Total Well Depth (ft) (C): 30.35	Water Column Thickness (ft) (C-B): 11.90	2nd Depth to Water(pre-purge): 18.45
	Screened Interval: 19.05 - 29.05	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 7.76
	Pump placement: 24.05	Well Condition: GOOD	Ferrous Iron: 3.30 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	1040	18.53	.13	100	21.70	6.75	5.29	0.77	289	-88	
	1045	18.58	.26	100	21.31	6.68	5.00	0.27	265	-93	
	1050	18.62	.39	100	20.88	6.67	4.95	0.09	258	-98	
	1055	18.65	.52	100	20.80	6.66	4.94	0.09	257	-99	
	1100	18.67	.65	100	20.73	6.65	4.93	0.09	257	-100	
	1105	18.69	.78	100	20.65	6.65	4.93	0.08	256	-100	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40 ml Glass	HCl	N		VOC
3	40 ml Glass	HCl	N		MEE
2	40 ml Amber	H2SO4	N		TOC
2	40 ml Glass	NA	N		CO2
1	250 ml Amber	H3PO4	N		VFA
1	200 ml Plastic	NA	N		Anions
1	1 Liter Glass	NA	N		DHC/DHB

Sample ID: 35AWW06_062420 Sample Time: 1105

00996427

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW08	Date: 6/23/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 29.22
	Total Well Depth (ft) (C): 33.30	Water Column Thickness (ft) (C-B): 4.08	2nd Depth to Water(pre-purge): 29.22
	Screened Interval: 21.83 - 31.83	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.65
	Pump placement: 30.50	Well Condition: GOOD	Ferrous Iron: 3.08 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/23/20	1135	29.30	.13	100	24.31	6.54	9.37	0.83	20.6	-127	
	1140	29.36	.26	100	23.80	6.56	9.33	0.40	21.5	-145	
	1145	29.40	.39	100	23.83	6.67	8.81	0.21	24.7	-156	
	1150	29.43	.52	100	23.08	6.75	8.55	0.08	26.2	-170	
	1155	29.46	.65	100	22.99	6.76	8.55	0.08	26.7	-171	
	1200	29.48	.78	100	22.89	6.77	8.54	0.07	27.0	-171	
	1205	29.50	.91	100	22.82	6.77	8.54	0.07	27.3	-172	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	3	40ml Glass	HCL	N		MAE
	2	40ml Amber	H_2SO_4	N		TOC
	2	40ml Glass	NA	N		CO2
	1	250ml Amber	H_3PO_4	N		VFA
	1	125ml Plastic	HNO_3	N		ARSENIC
	1	200ml Plastic	NA	N		ANIONS
Sample ID:	35AWW08_062320			Sample Time:	1205	

1 1 Liter Glass NA N DIC/DHB

00996428

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW09	Date: 6/23/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 31.35
	Total Well Depth (ft) (C): 42.10	Water Column Thickness (ft) (C-B): 10.75	2nd Depth to Water(pre-purge): 31.35
	Screened Interval: 26.69 - 41.29	Weather: CLEAR / SUNNY	Well Volume (gal) (A*(C-B)): 1.72
	Pump placement: 33.99	Well Condition: GOOD	Ferrous Iron: 0.43 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/23/20	0940	31.42	.13	100	22.90	6.02	5.35	1.44	23.1	204	
	0945	31.48	.26	100	21.31	6.10	5.61	1.29	16.0	175	
	0950	31.52	.39	100	20.98	6.13	5.83	1.22	9.0	168	
	0955	31.55	.52	100	20.89	6.14	5.84	1.20	8.1	167	
	1000	31.57	.65	100	20.82	6.14	5.85	1.18	7.5	166	
	1005	31.59	.78	100	20.75	6.14	5.85	1.17	6.8	165	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCL	N		VOC
3	40ml Glass	HCL	N		MAH
2	40ml AMBER	H2SO4	N		TOC
2	40ml GLASS	NA	N		CO2
~~1~~	~~500ml AMBER~~	~~H2SO4~~	~~N~~		~~VFA~~
1	200ml Plastic	NA	N		ANIONS
1	125ml Plastic	HNO3	N		ARSENIC

Sample ID: 35AWW09_062320 Sample Time: 1005

~~1 Plastic Glass NA~~ ~~DUP/TRIP~~

00996429

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW10	Date: 6/29/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 17.25
	Total Well Depth (ft) (C): 33.70	Water Column Thickness (ft) (C-B): 16.45	2nd Depth to Water(pre-purge): 17.25
	Screened Interval: 18.16 - 32.76	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 2.63
	Pump placement: 25.46	Well Condition: Broken Hinge	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/29/20	0915	17.32	.13	100	23.86	5.51	0.273	0.93	11.4	234	
	0920	17.37	.26	100	23.29	4.95	0.265	0.78	4.3	248	
	0925	17.41	.39	100	23.20	4.84	0.261	0.68	2.1	257	
	0930	17.43	.52	100	23.14	4.83	0.260	0.67	1.6	258	
	0935	17.45	.65	100	23.08	4.82	0.260	0.66	1.0	258	
	0940	17.46	.78	100	23.05	4.81	0.260	0.66	0.3	259	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40 ml Glass	HCl	N		VOC

Sample ID: 35AWW10-062920 Sample Time: 0940

00996430

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

Page 1 of 1

LOCATION	Site: LHAAP - 58		Location ID: 35AWW11		Date: 6/23/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 29.11
	Total Well Depth (ft) (C): 37.88		Water Column Thickness (ft) (C-B): 8.77		2nd Depth to Water(pre-purge): 29.11
	Screened Interval: 22.24 - 36.84		Weather: CLEAR		Well Volume (gal) (A*(C-B)): 1.40
	Pump placement: 30.50		Well Condition: GOOD		Ferrous Iron: 2.45 mg/L

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/23/20	1300	29.19	.13	100	22.51	6.40	6.06	0.70	8.9	-12	
	1305	29.25	.26	100	21.89	6.25	6.30	0.23	8.1	-36	
	1310	29.29	.39	100	21.80	6.12	6.63	0.06	6.5	-44	
	1315	29.32	.52	100	21.73	6.11	6.64	0.05	6.0	-45	
	1320	29.34	.65	100	21.65	6.11	6.65	0.05	5.7	-46	
	1325	29.36	.78	100	21.59	6.10	6.65	0.05	5.4	-46	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers	Volume/Type	Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass	HCl	N		VOC
3	40ml Glass	HCl	N		MEG
2	40ml Amber	H2SO4	N		TOC
2	40ml Glass	NA	N		CO2
1	250ml Amber	H3PO4	N		VFA
1	200ml Plastic	NA	N		Anions
1	1 Liter Glass	NA	N		PHC/DHB

Sample ID: 35AWW11-062320 Sample Time: 1325

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW12	Date: 6/25/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.95
	Total Well Depth (ft) (C): 37.60	Water Column Thickness (ft) (C-B): 8.65	2nd Depth to Water(pre-purge): 28.95
	Screened Interval: 22.17 - 36.77	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 1.38
	Pump placement: 30.75	Well Condition: Broken Hinge	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	0905	29.03	.13	100	21.63	6.75	2.20	0.72	4.4	85	
	0910	29.09	.26	100	20.98	6.00	2.18	0.31	4.1	96	
	0915	29.13	.39	100	20.67	5.85	2.20	0.37	3.6	110	
	0920	29.16	.52	100	20.59	5.84	2.21	0.38	3.1	111	
	0925	29.18	.65	100	20.48	5.84	2.21	0.39	2.7	112	
	0930	29.20	.78	100	20.42	5.83	2.24	0.39	2.2	112	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC

Sample ID: 35AWW12_062520 Sample Time: 0930

00996432

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW13	Date: 6/29/20		
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger		
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA		
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water		
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D		
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.32		
	Total Well Depth (ft) (C): 40.22	Water Column Thickness (ft) (C-B): 16.90	2nd Depth to Water(pre-purge): 23.32		
	Screened Interval: 24.72 - 39.32	Weather: Cloudy	Well Volume (gal) (A*(C-B)): 2.70		
	Pump placement: 32.02	Well Condition: Good	Ferrous Iron: NA		

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/29/20	0825	23.30	.13	100	24.07	5.94	1.24	0.80	25.1	209	
	0830	23.36	.26	100	24.02	5.89	1.24	0.29	17.6	211	
	0835	23.40	.39	100	23.97	5.81	1.22	0.08	15.8	207	
	0840	23.42	.52	100	23.94	5.81	1.21	0.08	15.3	206	
	0845	23.44	.65	100	23.89	5.81	1.20	0.08	14.7	206	
	0850	23.45	.78	100	23.85	5.80	1.20	0.07	14.4	205	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	9	40ml GLASS	HCL	N		VOC

Sample ID: 35AWW13-062920 Sample Time: 0850

00996433

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35BWW14	Date: 6/25/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 28.77
	Total Well Depth (ft) (C): 32.30	Water Column Thickness (ft) (C-B): 3.43	2nd Depth to Water(pre-purge): 28.77
	Screened Interval: 17.06-31.76	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.55
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO	Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
	Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	0700	28.77	NA	NA							BAILING WELL
6/25/20	0705	32.25	0.50	~~NA~~ NA							BAIL 5 GALLONS RANDOM
6/25/20	1255	28.81	NA	NA	20.83	6.05	2.11	8.37	17.3	55	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW14_062520 Sample Time: 1255

00996434

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58		Location ID: 35A WW 15		Date: 6/25/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 17.93
	Total Well Depth (ft) (C): [redacted] 41.38		Water Column Thickness (ft) (C-B): 23.45		2nd Depth to Water(pre-purge): 17.93
	Screened Interval: 25.67 - 40.37		Weather: Cloudy		Well Volume (gal) (A*(C-B)): 3.75
	Pump placement: 33.02		Well Condition: [redacted] Broken Hinge		Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	0810	18.00	.13	100	23.08	5.97	[redacted] 11.1	0.67	101	20	
	0815	18.06	.26	100	23.02	6.08	12.4	0.20	85.3	44	
	0820	18.10	.39	100	22.99	6.12	12.4	0.05	79.0	60	
	0825	18.12	.52	100	22.97	6.13	12.4	0.05	78.6	61	
	0830	18.14	.65	100	22.95	6.14	12.4	0.04	78.1	61	
↓	0835	18.15	.78	100	22.93	6.15	12.4	0.04	77.5	62	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40 ml Glass	HCL	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35A WW15_062520 Sample Time: [redacted] 0835

00996435

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35A WW16	Date: 6/25/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 16.68
	Total Well Depth (ft) (C): 37.43	Water Column Thickness (ft) (C-B): 20.75	2nd Depth to Water(pre-purge): 16.68
	Screened Interval: 21.75 - 36.45	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 3.32
	Pump placement: 29.10	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	0950	16.75	.13	100	22.47	6.17	9.69	0.76	193	133	
	0955	16.81	.26	100	21.95	6.20	10.6	0.21	159	114	
	1000	16.85	.39	100	21.80	6.34	10.6	0.07	144	97	
	1005	16.87	.52	100	21.77	6.34	10.7	0.07	143	96	
	1010	16.89	.65	100	21.72	6.35	10.7	0.06	142	95	
	1015	16.90	.78	100	21.66	6.35	10.7	0.06	141	94	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

Sample ID: 35AWW16-062520 Sample Time: 1015

00996436

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58	Location ID: 35AWW17	Date: 6/29/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 23.40
	Total Well Depth (ft) (C): 42.36	Water Column Thickness (ft) (C-B): 18.96	2nd Depth to Water(pre-purge): 23.40
	Screened Interval: 26.97 - 41.67	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): 3.03
	Pump placement: 34.32	Well Condition: ~~Good~~ BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/29/20	1005	23.47	.13	100	21.92	5.69	9.48	0.71	27.3	[redacted]148	
	1010	23.53	.26	100	20.89	6.03	9.52	0.22	19.2	113	
	1015	23.57	.39	100	20.63	6.19	9.43	0.07	17.0	67	
	1020	23.59	.52	100	20.54	6.20	9.42	0.07	16.6	66	
	1025	23.61	.65	100	20.46	6.20	9.42	0.06	16.3	65	
	1030	23.62	.78	100	20.42	6.21	9.41	0.06	15.9	64	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40 ml Glass	HCl	N		VOC

Sample ID: 35AWW17_062920 Sample Time: 1030

00996437

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35A WW18		Date: 6/25/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 24.17
	Total Well Depth (ft) (C): 42.18		Water Column Thickness (ft) (C-B): 18.01		2nd Depth to Water(pre-purge): 24.17
	Screened Interval: 26.85 - 41.55		Weather: CLOUDY / LIGHT RAIN		Well Volume (gal) (A*(C-B)): 2.88
	Pump placement: 34.20		Well Condition: GOOD		Ferrous Iron: NA

CASING INFO	Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
	Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	1215	24.25	.13	100	22.08	6.50	8.71	0.65	144	139	
	1220	24.31	.26	100	21.19	6.39	8.82	0.23	121	118	
	1225	24.35	.39	100	20.97	6.45	8.80	0.08	105	94	
	1230	24.37	.52	100	20.87	6.45	8.79	0.08	104	93	
	1235	24.39	.65	100	20.78	6.46	8.79	0.07	103	92	
	1240	24.40	.78	100	20.70	6.46	8.79	0.07	102	91	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC

Sample ID: 35AWW18_062520 Sample Time: 1240

00996438

Screened interval: 16.89 - 31.39
Z. Beck - 11/12/2020

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GROUNDWATER SAMPLE COLLECTION FORM

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LOCATION	Site: LHAAP - 58		Location ID: 35AWW19		Date: 6/24/20
	Project Name: LHAAP		Project No./Phase: NWO1312.0150		Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro		Water Quality Meter/ID#: U-52 Horiba		PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101		Other Equipment/ID#: NA		Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"		Other Equipment/ID#: NA		PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"		Unit Casing Volume (gal/lin ft) (A): 0.160		Initial Depth to Water (ft) (B): 24.92
	Total Well Depth (ft) (C): 32.45		Water Column Thickness (ft) (C-B): 7.53		2nd Depth to Water(pre-purge): 24.92
	Screened Interval: ~~17.29 - 31.39~~		Weather: CLEAR		Well Volume (gal) (A*(C-B)): 1.20
	Pump placement: 26.00		Well Condition: 2 BROKEN HINGE		Ferrous Iron: 1.97 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	0805	25.00	.13	100	22.19	6.08	4.10	0.69	47.7	[redacted]100	
	0810	25.06	.26	100	21.59	6.00	4.17	0.23	39.3	72	
	0815	25.10	.39	100	21.30	5.91	4.15	0.05	35.7	59	
	0820	25.13	.52	100	21.22	5.90	4.14	0.05	35.2	58	
	0825	25.15	.65	100	21.16	5.89	4.14	0.04	34.6	57	
	0830	25.17	.78	100	21.11	5.89	4.14	0.04	34.0	56	

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml Glass		HCL	N		VOC
3	40ml Glass		HCL	N		MEE
2	40 ml Amber		H2SO4	N		TOC
2	40ml Glass		NA	N		CO2
1	250 ml Amber		H3PO4	N		VFA
1	200 ml Plastic		NA	N		Anions
1	1 Liter Glass		NA	N		DHC/DHB

Sample ID: 35AWW19_062420 Sample Time: 0830

00996439

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW20	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 18.65
	Total Well Depth (ft) (C): 36.10	Water Column Thickness (ft) (C-B): 17.45	2nd Depth to Water(pre-purge): 18.65
	Screened Interval: 20.94 - 35.64	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 2.79
	Pump placement: 28.29	Well Condition: GOOD	Ferrous Iron: 2.50 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	0900	18.72	.13	100	22.70	6.18	5.47	0.70	1.5	15	
	0905	18.78	.26	100	22.38	6.25	5.53	0.25	1.1	-33	
	0910	18.82	.39	100	22.34	6.32	5.47	0.08	0.7	-45	
	0915	18.84	.52	100	22.30	6.32	5.46	0.08	0.2	-46	
	0920	18.85	.65	100	22.26	6.33	5.45	0.08	0.0	-47	
	0925	18.86	.78	100	22.20	6.33	5.45	0.07	0.0	-47	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40ml Glass	HCL	N		VOC
						3	40ml Glass	HCl	N		Mag
						2	40ml Amber	H2SO4	N		TOC
						2	40ml Glass	NA	N		CO2
Conversions	**Stabilization Criteria**					1	250ml Amber	H3PO4	N		VFA
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%		1	125ml Plastic	HNO3	N		Arsenic
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%		1	200ml Plastic	NA	N		Anions
	Cond	+/- 10%	ORP	+/- 10	Sample ID: 35AWW20-062420				Sample Time: 0925		

1 1 Liter Glass NA N DHC/DHB

00996440

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW21	Date: 6/29/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.28
	Total Well Depth (ft) (C): 42.82	Water Column Thickness (ft) (C-B): 10.54	2nd Depth to Water(pre-purge): 32.28
	Screened Interval: 27.56 - 42.26	Weather: CLOUDY	Well Volume (gal) (A*(C-B)): 1.69
	Pump placement: 34.85	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/29/20	0730	32.35	.13	100	22.70	6.47	2.49	0.75	22.1	205	
	0735	32.41	.26	100	21.41	5.39	2.49	0.50	9.7	219	
	0740	32.45	.39	100	21.10	5.13	2.49	0.41	9.2	230	
	0745	32.48	.52	100	21.03	5.13	2.49	0.40	8.7	231	
	0750	32.51	.65	100	21.97	5.12	2.48	0.39	8.0	232	
	0755	32.53	.78	100	20.93	5.12	2.48	0.39	7.3	233	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	6	40ml Glass	HCl	N		VOC
Sample ID: 35AWW21-062920				Sample Time: 0755		

00996441

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A WW22	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 32.20
	Total Well Depth (ft) (C): 37.70	Water Column Thickness (ft) (C-B): 5.50	2nd Depth to Water(pre-purge): 32.20
	Screened Interval: 22.77 - 36.77	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 0.88
	Pump placement: 33.50	Well Condition: BROKEN HINGE	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	1240	32.28	.13	100	23.82	6.49	7.40	1.21	4.6	33	
	1245	32.34	.26	100	21.89	6.01	7.55	1.08	2.1	51	
	1250	32.38	.39	100	21.30	5.96	7.60	1.01	1.8	65	
	1255	32.41	.52	100	21.18	5.96	7.61	0.99	0.7	66	
	1300	32.44	.65	100	21.10	5.95	7.62	0.97	0.0	67	
	1305	32.47	.78	100	21.04	5.95	7.62	0.96	0.0	67	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCl	N		VOC

Sample ID: 35Awww22_062420 Sample Time: 1305

00996442

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35A WW23	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 22.44
	Total Well Depth (ft) (C): 43.75	Water Column Thickness (ft) (C-B): 21.31	2nd Depth to Water(pre-purge): 22.44
	Screened Interval: 28.20 - 43.20	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 3.41
	Pump placement: 35.70	Well Condition: GOOD	Ferrous Iron: 3.01 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	1135	22.51	.13	100	22.33	7.11	4.32	0.67	30.1	-84	
	1140	22.57	.26	100	21.65	6.40	4.31	0.21	25.6	-112	
	1145	22.61	.39	100	21.63	6.20	4.30	0.05	23.9	-115	
	1150	22.64	.52	100	21.58	6.19	4.29	0.05	23.4	-116	
	1155	22.66	.65	100	21.55	6.18	4.29	0.04	22.8	-116	
↓	1200	22.68	.78	100	21.51	6.17	4.29	0.04	22.6	-117	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		3	40 ml GLASS	HCl	N		VOC
						3	40 ml GLASS	HCl	N		MEE
						2	40 ml AMBER	H2SO4	N		TOC
						2	40 ml GLASS	NA	N		CO2
Conversions	**Stabilization Criteria**					1	250ml AMBER	H3PO4	N		VFA
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%		1	200 ml Plastic	NA	N		ANIONS
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%		1	1 Liter GLASS	NA	N		DHL/DHB
	Cond	+/- 10%	ORP	+/- 10	Sample ID: 35AWW23_062420				Sample Time: 1200		

00996443

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GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: 35AWW24	Date: 6/25/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 2"	Unit Casing Volume (gal/lin ft) (A): 0.160	Initial Depth to Water (ft) (B): 24.25
	Total Well Depth (ft) (C): 35.05	Water Column Thickness (ft) (C-B): 10.80	2nd Depth to Water(pre-purge): 24.25
	Screened Interval: 25.10 - 35.10	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 1.73
	Pump placement: 30.10	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO										
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	1035	24.32	.13	100	22.04	6.86	0.627	1.44	41.2	114	
	1040	24.38	.26	100	21.29	5.78	0.544	1.19	33.6	133	
	1045	24.42	.39	100	21.22	5.57	0.516	1.03	26.9	141	
	1050	24.45	.52	100	21.17	5.56	0.515	1.01	26.4	142	
	1055	24.48	.65	100	21.12	5.56	0.155	0.99	25.8	142	
	1100	24.51	.78	100	21.09	5.55	0.515	0.98	25.3	143	

Colorimeter Results					No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Time	Analyte	Dilution	Result	Units		6	40 ml Glass	HCl	N		VOC

Conversions	Stabilization Criteria					
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%		
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%		
	Cond	+/- 10%	ORP	+/- 10	Sample ID: 35AWW24-062520	Sample Time: 1100

00996444

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSMW04	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): DRY
	Total Well Depth (ft) (C): 31.30	Water Column Thickness (ft) (C-B): NA	2nd Depth to Water(pre-purge): DRY
	Screened Interval: 21.11 - 31.11	Weather: CLEAR	Well Volume (gal) (A*(C-B)): NA
	Pump placement: NA	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)

DRY WELL

Colorimeter Results				
Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
Sample ID:				Sample Time:		

00996445

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSmw06	Date: 6/25/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): SS 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 17.28
	Total Well Depth (ft) (C): ~~23.50~~ 23.50	Water Column Thickness (ft) (C-B): 6.22	2nd Depth to Water(pre-purge): 17.28
	Screened Interval: 18.32 - 23.32	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 4.06
	Pump placement: 18.32	Well Condition: GOOD	Ferrous Iron: NA

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/25/20	1125	17.35	.13	100	22.03	5.98	2.61	0.67	4.1	161	
	1130	17.41	.26	100	21.59	6.02	2.59	0.20	2.9	157	
	1135	17.45	.39	100	21.18	6.09	2.47	0.04	1.7	146	
	1140	17.48	.52	100	21.10	6.10	2.46	0.04	0.6	145	
	1145	17.50	.65	100	21.00	6.11	2.45	0.04	0.0	144	
↓	1150	17.52	.78	100	20.92	6.11	2.45	0.03	0.0	143	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	**Stabilization Criteria**			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type			Preserv.	Filter (Y/N)	Method	Parameter(s)
	3	40ml Glass	HCL	N		VOC
	1	120 ml Plastic	HNO3	N		Arsenic

Sample ID: LHSmw06-062520 Sample Time: 1150

00996446

bhate ENVIRONMENT INFRASTRUCTURE

GROUNDWATER SAMPLE COLLECTION FORM

LOCATION	Site: LHAAP - 58	Location ID: LHSmw07	Date: 6/24/20
	Project Name: LHAAP	Project No./Phase: NWO1312.0150	Recorded By: Scott Beesinger
EQUIPMENT	Pump Type/ID#: Bladder Pump / SamplePro	Water Quality Meter/ID#: U-52 Horiba	PID Type/ID#: NA
	Water Level Indicator Type/ID#: Solinist 101	Other Equipment/ID#: NA	Decon Method: Liquinox & DI water
	Tubing Type/Diameter (in): 1/4"	Other Equipment/ID#: NA	PPE: Level D
WELL INFO	Casing Type / ID (in): PVC 4"	Unit Casing Volume (gal/lin ft) (A): 0.652	Initial Depth to Water (ft) (B): 17.22
	Total Well Depth (ft) (C): 30.45	Water Column Thickness (ft) (C-B): 13.23	2nd Depth to Water(pre-purge): 17.22
	Screened Interval: 19.73-29.73	Weather: CLEAR	Well Volume (gal) (A*(C-B)): 8.63
	Pump placement: 24.73	Well Condition: GOOD	Ferrous Iron: 2.07 mg/L

CASING INFO											
Casing ID (in)	0.5	0.75	1.0	1.5	2.0	3.0	4.0	5.0	6.0	8.0
Unit Casing Volume (gal/lin ft)	0.016	0.020	0.043	0.103	0.160	0.378	0.652	1.03	1.48	2.57

DATE	TIME (24 Hr)	Water Level (BTOC)	Volume Removed (Gals)	Pumping Rate (ml/min)	Temp (C)	pH	Cond (mS/cm)	DO (mg/l)	Turb (NTU)	ORP (mV)	Remarks (odor, clarity, etc.)
6/24/20	0950	17.30	.13	100	21.49	6.57	9.18	0.73	1.9	-17	
	0955	17.35	.26	100	20.69	6.36	9.20	0.21	1.2	-29	
	1000	17.38	.39	100	20.58	6.36	9.23	0.09	0.7	-40	
	1005	17.40	.52	100	20.51	6.37	9.24	0.09	0.3	-41	
	1010	17.42	.65	100	20.45	6.37	9.24	0.08	0.0	-42	
↓	1015	17.43	.78	100	20.39	6.37	9.24	0.08	0.0	-43	

Colorimeter Results

Time	Analyte	Dilution	Result	Units

Conversions	Stabilization Criteria			
1 L = 0.26 gals	Temp	+/- 10%	DO	+/- 10%
1 gal = 3.79 L	pH	+/- 0.1	Turb	+/- 10%
	Cond	+/- 10%	ORP	+/- 10

No. Containers/Volume/Type		Preserv.	Filter (Y/N)	Method	Parameter(s)
3	40ml GLASS	HCL	N		VOC
3	40ml GLASS	HCl	N		MEE
2	40ml AMBER	H2SO4	N		TOC
2	40ml GLASS	NA	N		CO2
1	250ml AMBER	H3PO4	N		VFA
1	200ml PLASTIC	NA	N		ANIONS
1	1L FAIR GLASS	NA	N		DHC/DHB

Sample ID: LHSmw07_062420 Sample Time: 1015

APPENDIX F
LABORATORY ANALYTICAL RESULTS
(Provided Electronically)

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APPENDIX G
MANN-KENDALL TREND TEST RESULTS

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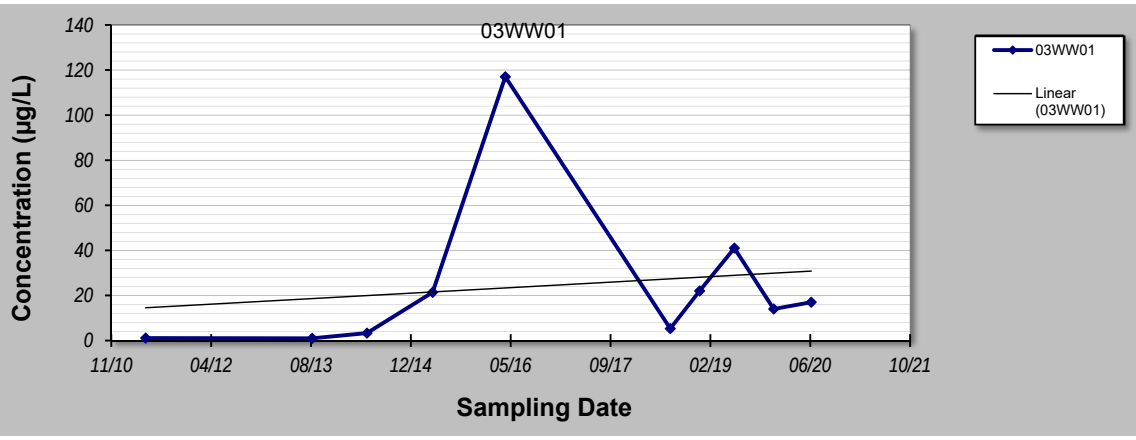
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	CIS-1,2-DICHLOROETHENE
Conducted By:	Emma Gardner	Concentration Units:	µg/L

Sampling Point ID: **03WW01**

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	9-May-11	1.1
2	20-Aug-13	0.978
3	21-May-14	3.3
4	15-Apr-15	21.4
5	13-Apr-16	117
6	18-Jul-18	5.3
7	12-Dec-18	22
8	4-Jun-19	41
9	18-Dec-19	14
10	23-Jun-20	17
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		1.43
Mann-Kendall Statistic (S):		19
Confidence Factor:		94.6%
Concentration Trend:		Prob. Increasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.
4. Any ND values <50 have been excluded.

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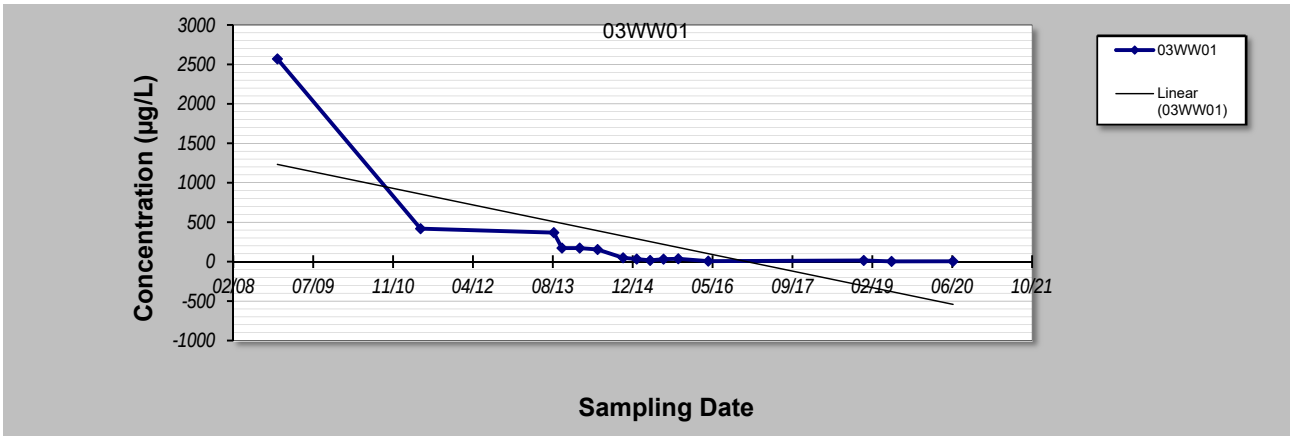
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	03WW01		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	2570
2	9-May-11	418
3	20-Aug-13	368
4	10-Oct-13	172
5	29-Jan-14	172
6	21-May-14	154
7	28-Oct-14	48.6
8	21-Jan-15	32.8
9	15-Apr-15	15.9
10	8-Jul-15	31.4
11	8-Oct-15	36.4
12	13-Apr-16	6.49
13	12-Dec-18	15
14	4-Jun-19	3.2
15	23-Jun-20	4.5
16		
17		
18		
19		
20		
Coefficient of Variation:		2.41
Mann-Kendall Statistic (S):		-92
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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4. Any ND values <50 have been excluded.

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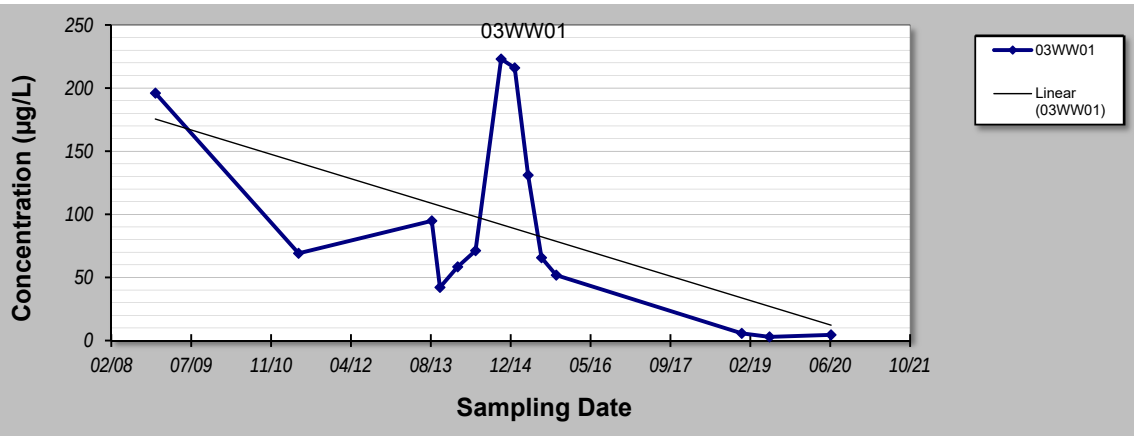
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	03WW01		

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	196
2	9-May-11	69.1
3	20-Aug-13	94.8
4	10-Oct-13	42.1
5	29-Jan-14	58.4
6	21-May-14	71.2
7	28-Oct-14	223
8	21-Jan-15	216
9	15-Apr-15	131
10	8-Jul-15	65.6
11	8-Oct-15	51.8
12	12-Dec-18	5.7
13	4-Jun-19	2.9
14	23-Jun-20	4.5
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.86
Mann-Kendall Statistic (S):		-39
Confidence Factor:		98.2%
Concentration Trend:		Decreasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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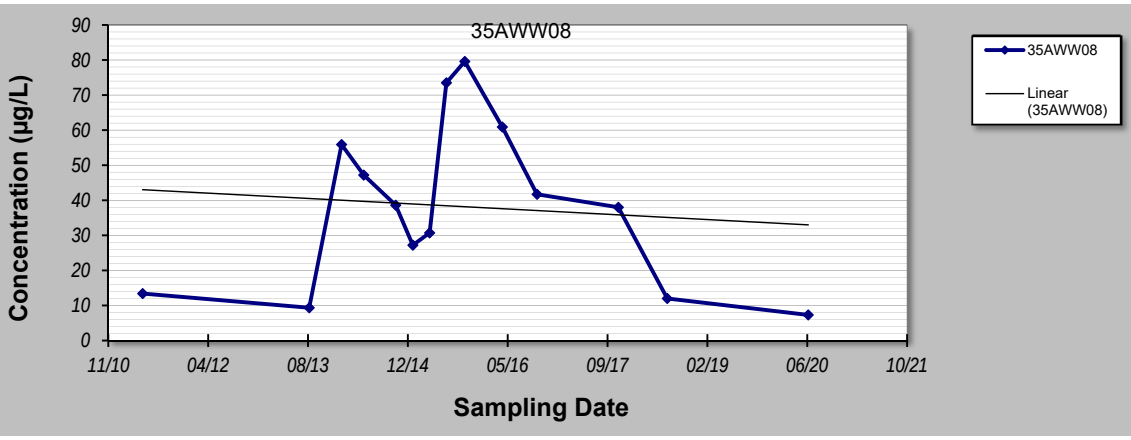
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	CIS-1,2-DICHLOROETHENE
Conducted By:	Emma Gardner	Concentration Units:	µg/L

Sampling Point ID: **35AWW08**

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	9-May-11	13.4
2	20-Aug-13	9.35
3	29-Jan-14	55.9
4	20-May-14	47.2
5	27-Oct-14	38.6
6	21-Jan-15	27.2
7	15-Apr-15	30.7
8	8-Jul-15	73.5
9	8-Oct-15	79.6
10	13-Apr-16	60.9
11	4-Oct-16	41.7
12	15-Nov-17	38
13	18-Jul-18	12
14	23-Jun-20	7.3
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.61
Mann-Kendall Statistic (S):		-5
Confidence Factor:		58.5%
Concentration Trend:		Stable



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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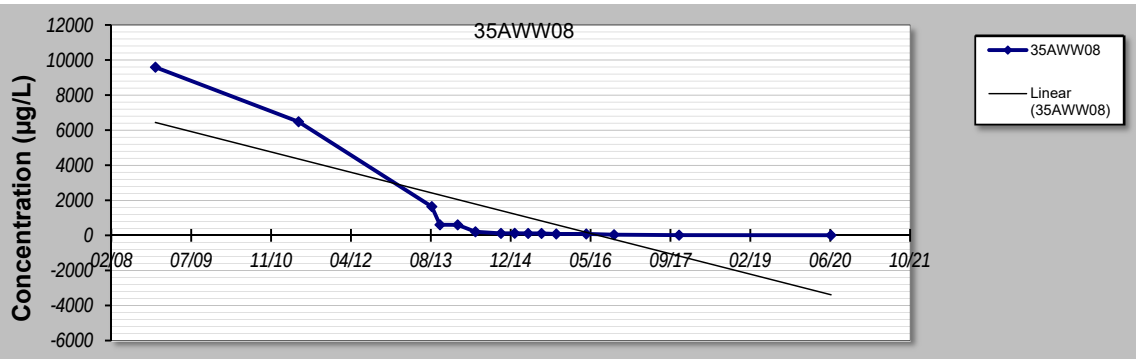
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	35AWW08		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	9590
2	9-May-11	6480
3	20-Aug-13	1640
4	10-Oct-13	603
5	29-Jan-14	599
6	20-May-14	204
7	27-Oct-14	112
8	21-Jan-15	119
9	15-Apr-15	110
10	8-Jul-15	110
11	8-Oct-15	79
12	13-Apr-16	80.1
13	4-Oct-16	36.9
14	15-Nov-17	12
15	23-Jun-20	6.7
16		
17		
18		
19		
20		
Coefficient of Variation:		2.14
Mann-Kendall Statistic (S):		-100
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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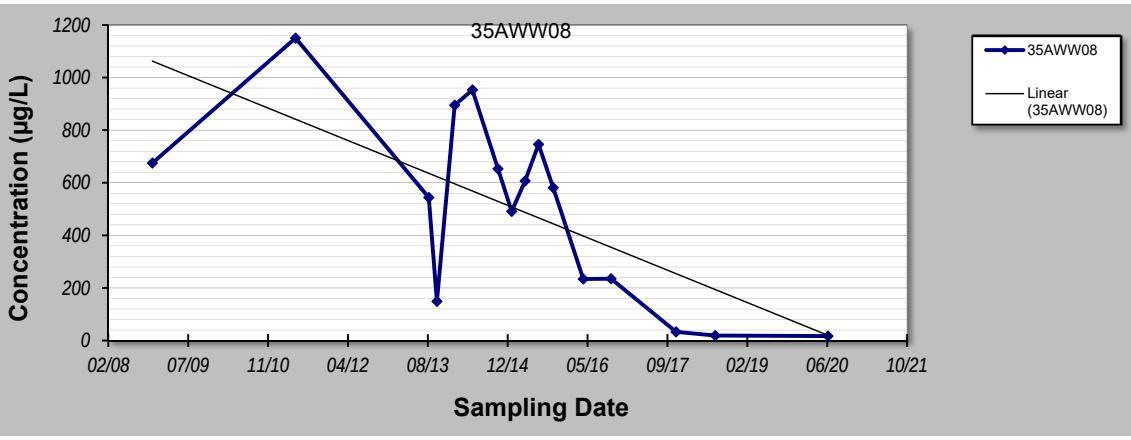
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	35AWW08		

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	24-Nov-08	675
2	9-May-11	1150
3	20-Aug-13	544
4	10-Oct-13	149
5	29-Jan-14	895
6	20-May-14	953
7	27-Oct-14	653
8	21-Jan-15	491
9	15-Apr-15	607
10	8-Jul-15	746
11	8-Oct-15	581
12	13-Apr-16	234
13	4-Oct-16	235
14	15-Nov-17	33
15	18-Jul-18	19
16	23-Jun-20	17
17		
18		
19		
20		
Coefficient of Variation:		0.71
Mann-Kendall Statistic (S):		-68
Confidence Factor:		99.9%
Concentration Trend:		Decreasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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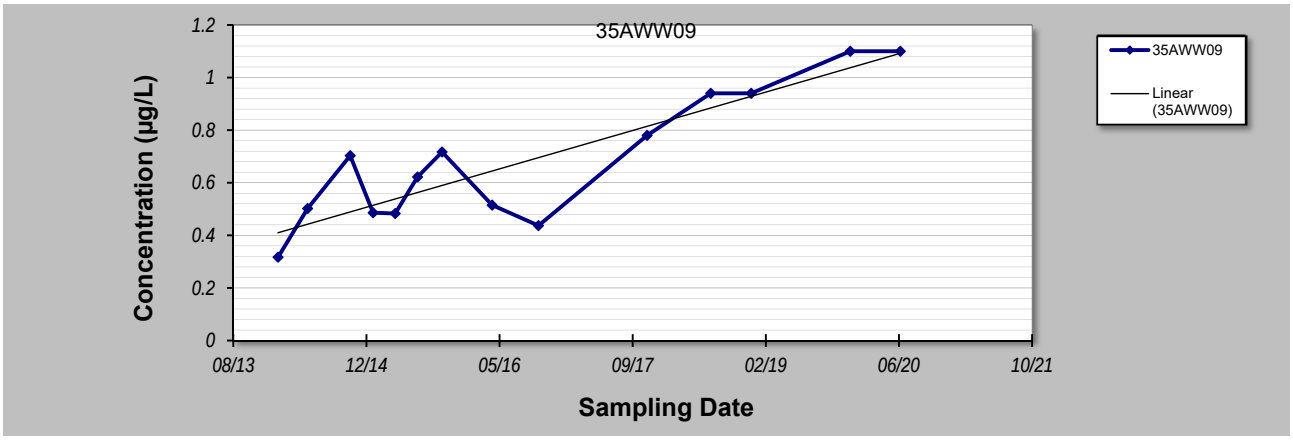
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	cis-1,2-Dichloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L

Sampling Point ID: **35AWW09**

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	29-Jan-14	0.317
2	20-May-14	0.502
3	27-Oct-14	0.703
4	21-Jan-15	0.486
5	14-Apr-15	0.483
6	7-Jul-15	0.622
7	7-Oct-15	0.717
8	12-Apr-16	0.515
9	3-Oct-16	0.437
10	15-Nov-17	0.78
11	12-Jul-18	0.94
12	11-Dec-18	0.94
13	18-Dec-19	1.1
14	23-Jun-20	1.1
15		
16		
17		
18		
19		
20		
Coefficient of Variation:		0.37
Mann-Kendall Statistic (S):		57
Confidence Factor:		99.9%
Concentration Trend:		Increasing



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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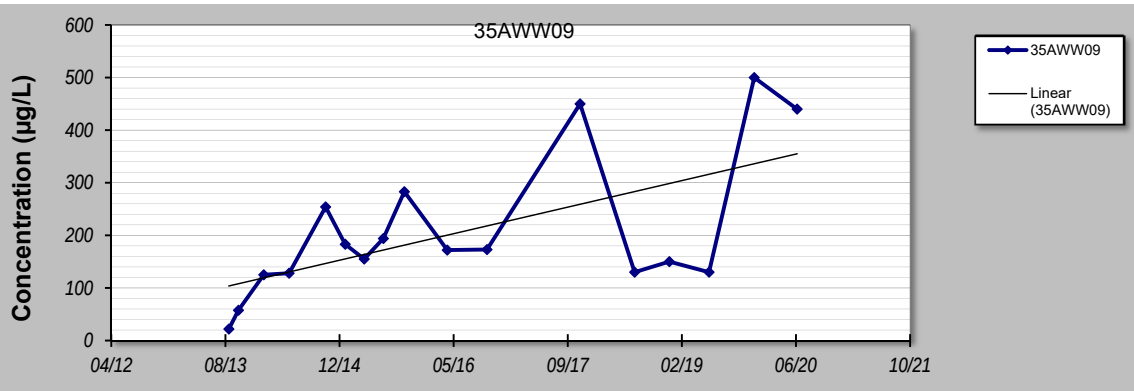
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Tetrachloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	35AWW09		

Sampling Event	Sampling Date	TETRACHLOROETHENE CONCENTRATION (µg/L)
1	29-Aug-13	21.9
2	10-Oct-13	57.6
3	29-Jan-14	125
4	20-May-14	128
5	27-Oct-14	254
6	21-Jan-15	183
7	14-Apr-15	155
8	7-Jul-15	194
9	7-Oct-15	283
10	12-Apr-16	172
11	3-Oct-16	173
12	15-Nov-17	450
13	12-Jul-18	130
14	11-Dec-18	150
15	3-Jun-19	130
16	18-Dec-19	500
17	23-Jun-20	440
18		
19		
20		
Coefficient of Variation:		0.65
Mann-Kendall Statistic (S):		57
Confidence Factor:		99.0%
Concentration Trend:		Increasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.
4. Any ND values <50 have been excluded.

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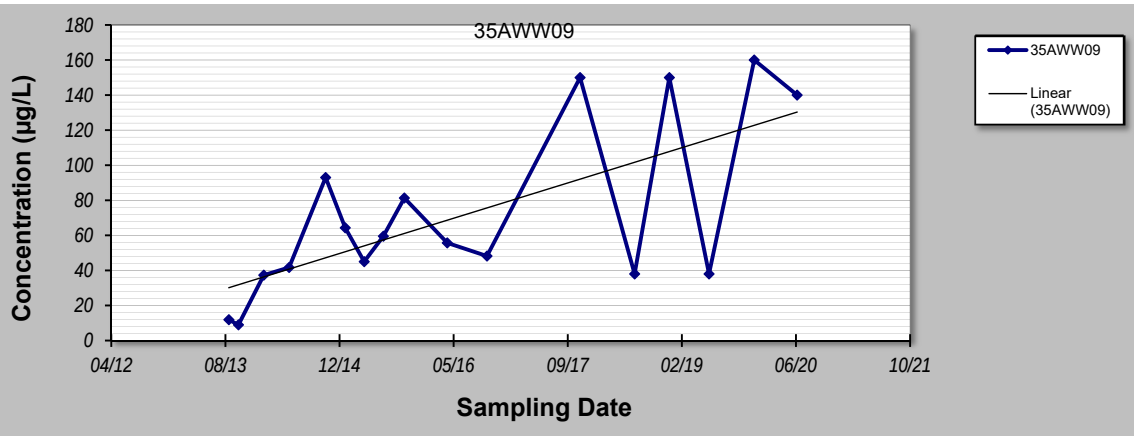
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Trichloroethene
Conducted By:	Emma Gardner	Concentration Units:	µg/L

Sampling Point ID: **35AWW09**

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	29-Aug-13	11.9
2	10-Oct-13	8.97
3	29-Jan-14	37.3
4	20-May-14	41.7
5	27-Oct-14	93
6	21-Jan-15	64.3
7	14-Apr-15	45
8	7-Jul-15	59.5
9	7-Oct-15	81.3
10	12-Apr-16	55.7
11	3-Oct-16	48.2
12	15-Nov-17	150
13	12-Jul-18	38
14	11-Dec-18	150
15	3-Jun-19	38
16	18-Dec-19	160
17	23-Jun-20	140
18		
19		
20		
Coefficient of Variation:		0.69
Mann-Kendall Statistic (S):		58
Confidence Factor:		99.1%
Concentration Trend:		Increasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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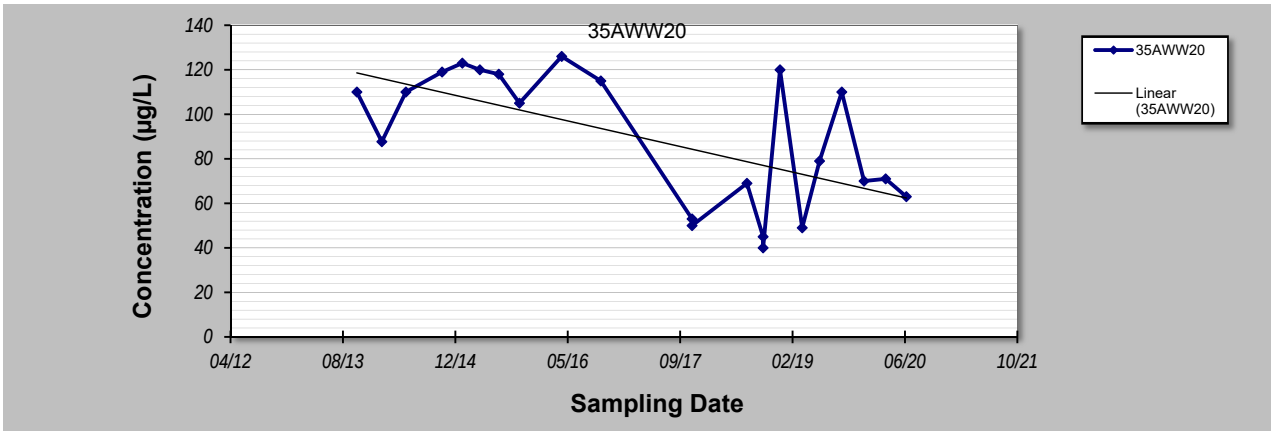
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner
Job ID:
Constituent: cis-1,2-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	110
2	3-Feb-14	87.7
3	21-May-14	110
4	29-Oct-14	119
5	27-Jan-15	123
6	15-Apr-15	120
7	8-Jul-15	118
8	8-Oct-15	105
9	13-Apr-16	126
10	4-Oct-16	115
11	14-Nov-17	53
12	14-Nov-17	50
13	16-Jul-18	69
14	26-Sep-18	45
15	26-Sep-18	40
16	10-Dec-18	120
17	19-Mar-19	49
18	4-Jun-19	79
19	11-Sep-19	110
20	19-Dec-19	70
21	24-Mar-20	71
22	24-Jun-20	63
23		
24		
25		
Coefficient of Variation:		0.34
Mann-Kendall Statistic (S):		-73
Confidence Factor:		97.9%
Concentration Trend:		Decreasing



Notes:

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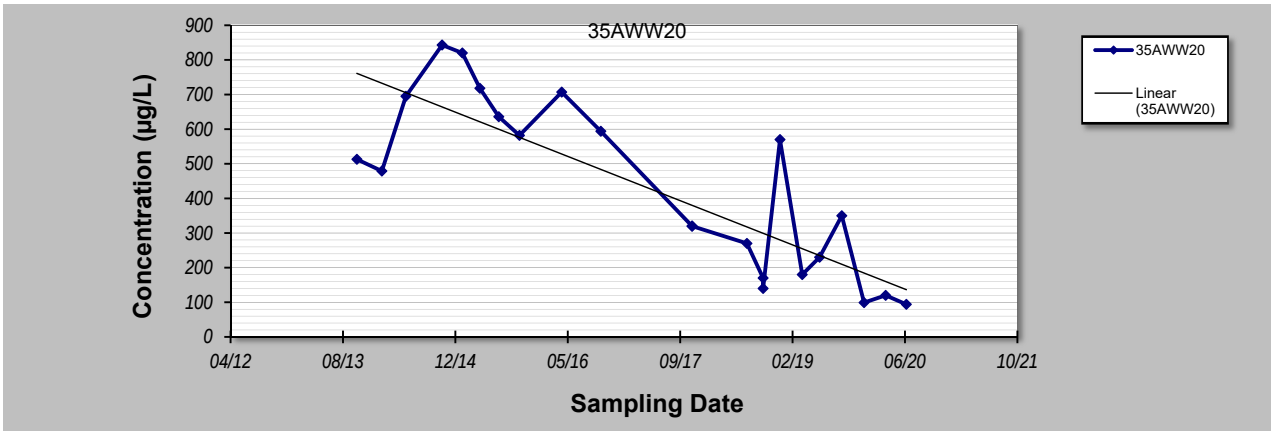
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner

Job ID:
Constituent: Trichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	513
2	3-Feb-14	479
3	21-May-14	695
4	29-Oct-14	843
5	27-Jan-15	820
6	15-Apr-15	718
7	8-Jul-15	636
8	8-Oct-15	582
9	13-Apr-16	707
10	4-Oct-16	594
11	14-Nov-17	320
12	14-Nov-17	320
13	16-Jul-18	270
14	26-Sep-18	170
15	26-Sep-18	140
16	10-Dec-18	570
17	19-Mar-19	180
18	4-Jun-19	230
19	11-Sep-19	350
20	19-Dec-19	99
21	24-Mar-20	120
22	24-Jun-20	94
23		
24		
25		
Coefficient of Variation:		0.58
Mann-Kendall Statistic (S):		-144
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



Notes:

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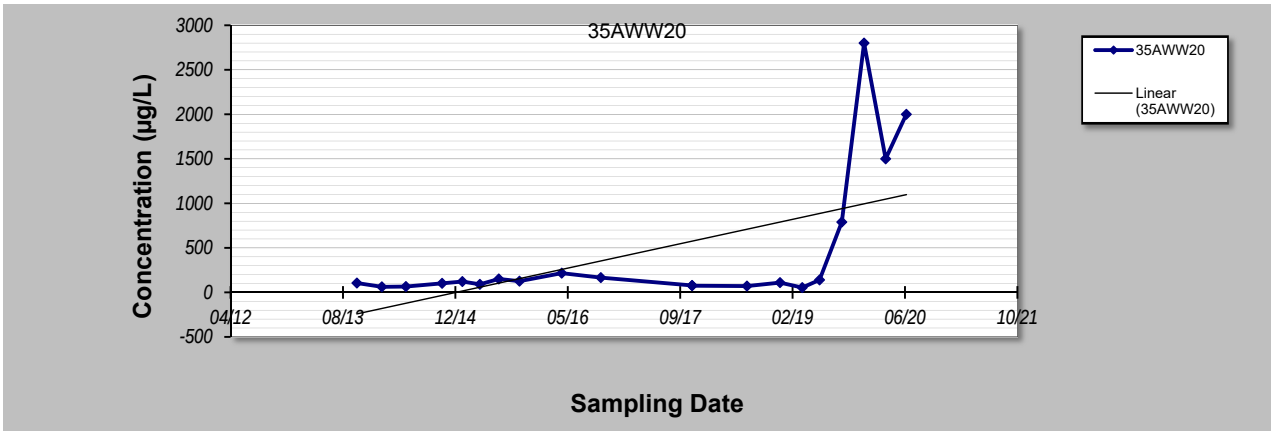
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **2-Sep-20**
Facility Name: **LHAAP-58**
Conducted By: **Emma Gardner**
Job ID:
Constituent: **Vinyl Chloride**
Concentration Units: **µg/L**
Sampling Point ID: **35AWW20**

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	15-Oct-13	105
2	3-Feb-14	62.4
3	21-May-14	65.7
4	29-Oct-14	102
5	27-Jan-15	122
6	15-Apr-15	90.6
7	8-Jul-15	151
8	8-Oct-15	126
9	13-Apr-16	216
10	4-Oct-16	166
11	14-Nov-17	78
12	14-Nov-17	75
13	16-Jul-18	71
14	10-Dec-18	110
15	19-Mar-19	54
16	4-Jun-19	140
17	11-Sep-19	790
18	19-Dec-19	2800
19	24-Mar-20	1500
20	24-Jun-20	2000
21		
22		
23		
24		
25		
Coefficient of Variation:		1.73
Mann-Kendall Statistic (S):		72
Confidence Factor:		99.0%
Concentration Trend:		Increasing



Notes:

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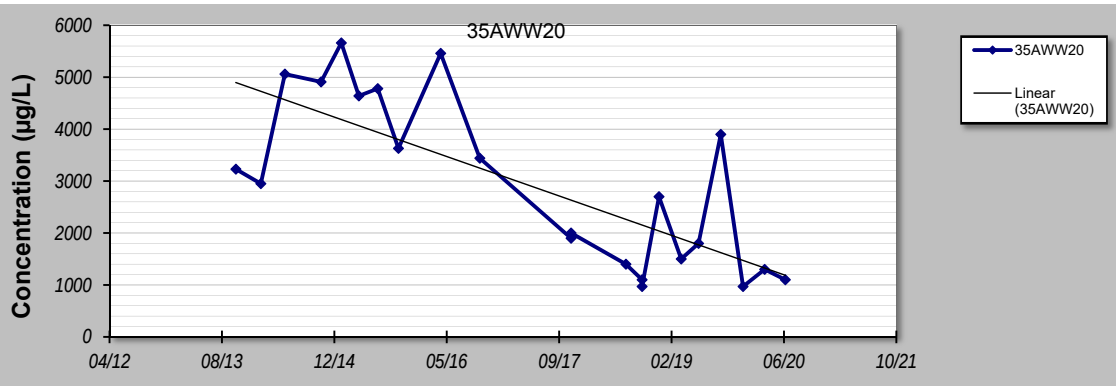
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner
Job ID:
Constituent: 1,1-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: 35AWW20

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	15-Oct-13	3230
2	3-Feb-14	2950
3	21-May-14	5060
4	29-Oct-14	4910
5	27-Jan-15	5660
6	15-Apr-15	4640
7	8-Jul-15	4780
8	8-Oct-15	3630
9	13-Apr-16	5460
10	4-Oct-16	3440
11	14-Nov-17	1900
12	14-Nov-17	2000
13	16-Jul-18	1400
14	26-Sep-18	1100
15	26-Sep-18	970
16	10-Dec-18	2700
17	19-Mar-19	1500
18	4-Jun-19	1800
19	11-Sep-19	3900
20	19-Dec-19	970
21	24-Mar-20	1300
22	24-Jun-20	1100
23		
24		
25		
Coefficient of Variation:		0.55
Mann-Kendall Statistic (S):		-121
Confidence Factor:		>99.9%
Concentration Trend:		Decreasing



Notes:

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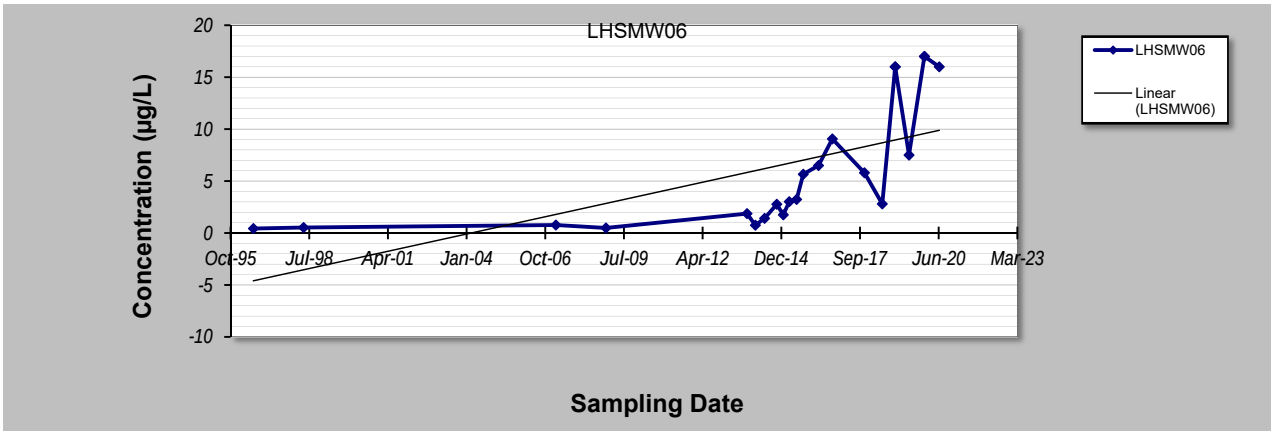
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **2-Sep-20**
Facility Name: **LHAAP-58**
Conducted By: **Emma Gardner**
Job ID:
Constituent: **Trichloroethene**
Concentration Units: **µg/L**
Sampling Point ID: **LHSMW06**

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	13-Aug-96	0.43
2	13-May-98	0.53
3	21-Feb-07	0.77
4	19-Nov-08	0.486
5	17-Oct-13	1.87
6	31-Jan-14	0.751
7	28-May-14	1.41
8	30-Oct-14	2.77
9	21-Jan-15	1.75
10	7-Apr-15	3.02
11	9-Jul-15	3.23
12	2-Oct-15	5.66
13	13-Apr-16	6.5
14	6-Oct-16	9.06
15	17-Nov-17	5.8
16	2-Jul-18	2.8
17	13-Dec-18	16
18	13-Dec-18	16
19	7-Jun-19	7.5
20	20-Dec-19	17
21	20-Dec-19	17
22	25-Jun-20	16
23		
24		
25		
Coefficient of Variation:		0.99
Mann-Kendall Statistic (S):		187
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



Notes:

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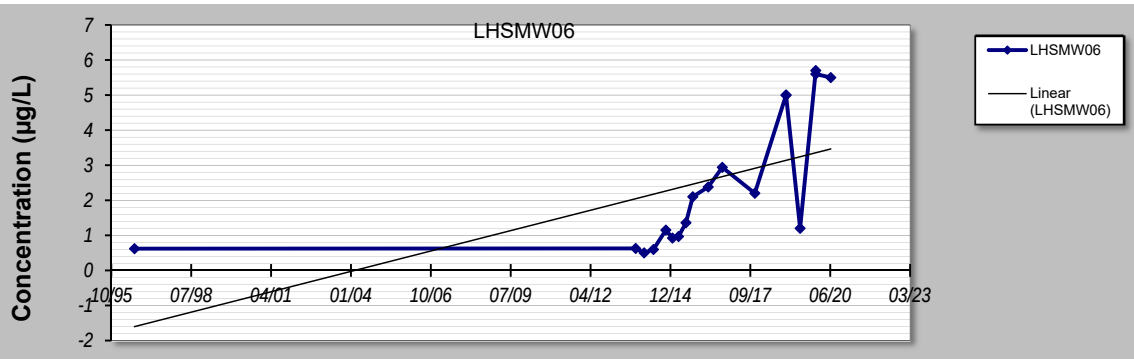
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	2-Sep-20	Job ID:	
Facility Name:	LHAAP-58	Constituent:	Vinyl Chloride
Conducted By:	Emma Gardner	Concentration Units:	µg/L
Sampling Point ID:	LHSMW06		

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	13-Aug-96	0.62
2	17-Oct-13	0.627
3	31-Jan-14	0.5
4	28-May-14	0.597
5	30-Oct-14	1.15
6	21-Jan-15	0.924
7	7-Apr-15	0.967
8	9-Jul-15	1.36
9	2-Oct-15	2.1
10	13-Apr-16	2.38
11	6-Oct-16	2.94
12	17-Nov-17	2.2
13	13-Dec-18	5
14	13-Dec-18	5
15	7-Jun-19	1.2
16	20-Dec-19	5.7
17	20-Dec-19	5.6
18	25-Jun-20	5.5
19		
20		
Coefficient of Variation:		0.80
Mann-Kendall Statistic (S):		116
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



Notes:

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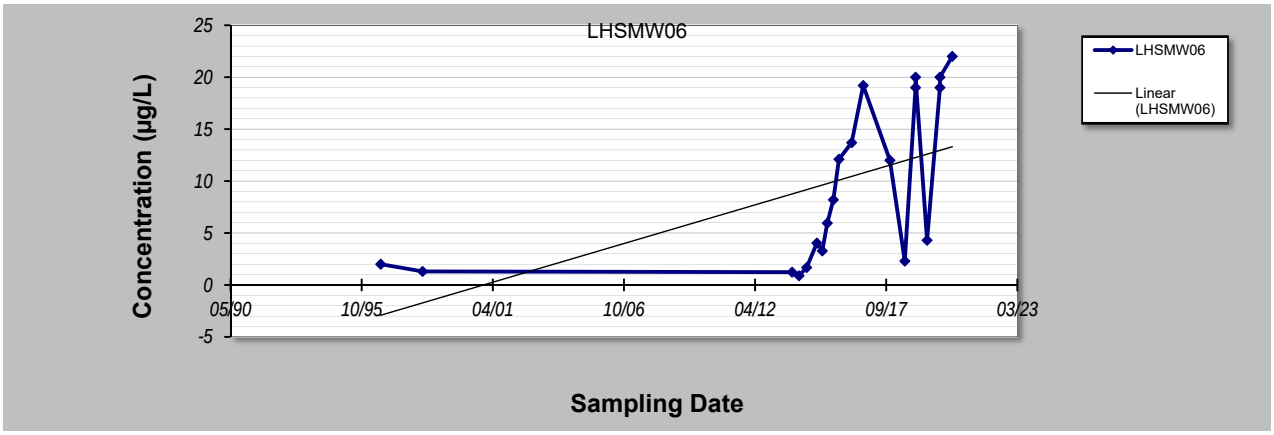
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **2-Sep-20**
Facility Name: **LHAAP-58**
Conducted By: **Emma Gardner**
Job ID:
Constituent: **1,1-Dichloroethene**
Concentration Units: **µg/L**
Sampling Point ID: **LHSMW06**

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	13-Aug-96	2
2	13-May-98	1.3
3	17-Oct-13	1.23
4	31-Jan-14	0.884
5	28-May-14	1.68
6	30-Oct-14	4.03
7	21-Jan-15	3.28
8	7-Apr-15	5.95
9	9-Jul-15	8.2
10	2-Oct-15	12.1
11	13-Apr-16	13.7
12	6-Oct-16	19.2
13	17-Nov-17	12
14	2-Jul-18	2.3
15	13-Dec-18	19
16	13-Dec-18	20
17	7-Jun-19	4.3
18	20-Dec-19	19
19	20-Dec-19	20
20	25-Jun-20	22
21		
22		
23		
24		
25		
Coefficient of Variation:		0.82
Mann-Kendall Statistic (S):		128
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



Notes:

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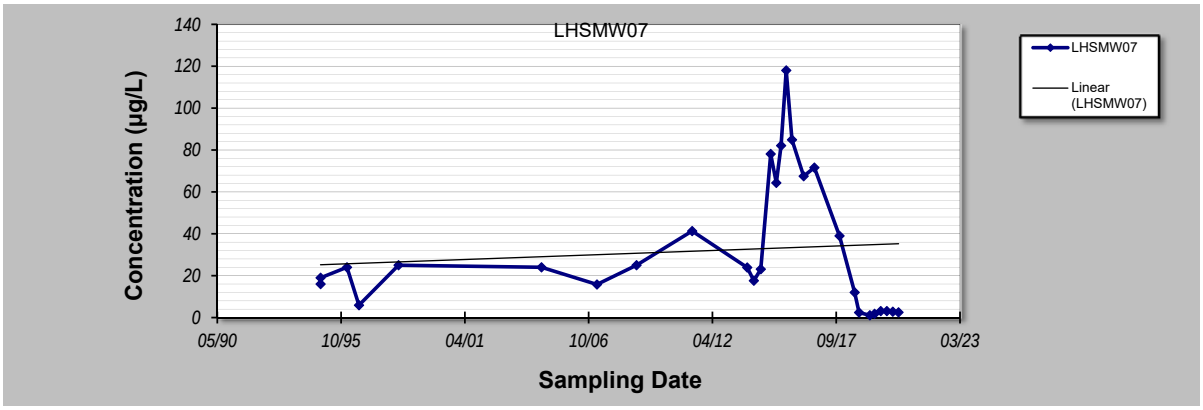
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner

Job ID:
Constituent: Trichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (µg/L)
1	1-Dec-94	16
2	1-Dec-94	19
3	31-Jan-96	24
4	12-Aug-96	5.9
5	13-May-98	25
6	8-Sep-04	24
7	21-Feb-07	15.8
8	21-Nov-08	25
9	9-May-11	41.3
10	15-Oct-13	23.9
11	30-Jan-14	17.6
12	22-May-14	23.1
13	29-Oct-14	78.1
14	28-Jan-15	64.3
15	15-Apr-15	82.1
16	7-Jul-15	118
17	8-Oct-15	84.9
18	14-Apr-16	67.5
19	4-Oct-16	71.6
20	14-Nov-17	39
21	17-Jul-18	12
22	26-Sep-18	2.4
23	19-Mar-19	1.1
24	3-Jun-19	1.8
25	11-Sep-19	3.1
26	19-Dec-19	3.1
27	24-Mar-20	2.8
28	24-Jun-20	2.5
29		
30		
Coefficient of Variation:		1.00
Mann-Kendall Statistic (S):		-61
Confidence Factor:		88.1%
Concentration Trend:		Stable



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.
4. Any ND values <50 have been excluded.

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GSI Environmental Inc., www.gsi-net.com

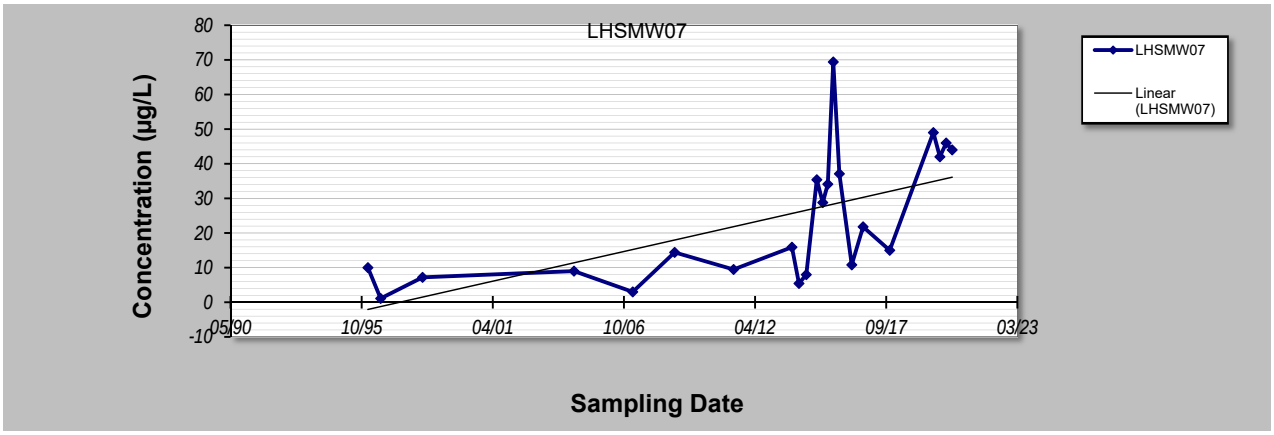
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner

Job ID:
Constituent: Vinyl Chloride
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (µg/L)
1	31-Jan-96	10
2	12-Aug-96	1.1
3	13-May-98	7.2
4	8-Sep-04	9
5	21-Feb-07	3
6	21-Nov-08	14.4
7	9-May-11	9.47
8	15-Oct-13	15.9
9	30-Jan-14	5.43
10	22-May-14	7.98
11	29-Oct-14	35.4
12	28-Jan-15	28.8
13	15-Apr-15	34.1
14	7-Jul-15	69.4
15	8-Oct-15	37.1
16	14-Apr-16	10.8
17	4-Oct-16	21.8
18	14-Nov-17	15
19	11-Sep-19	49
20	19-Dec-19	42
21	24-Mar-20	46
22	24-Jun-20	44
23		
24		
25		
Coefficient of Variation:		0.79
Mann-Kendall Statistic (S):		133
Confidence Factor:		>99.9%
Concentration Trend:		Increasing



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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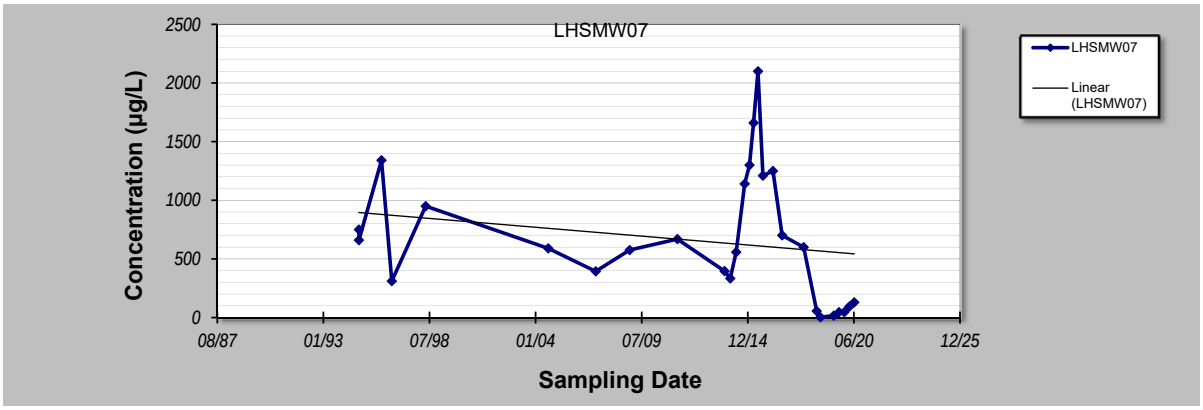
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 2-Sep-20
Facility Name: LHAAP-58
Conducted By: Emma Gardner

Job ID:
Constituent: 1,1-Dichloroethene
Concentration Units: µg/L

Sampling Point ID: LHSMW07

Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (µg/L)
1	1-Dec-94	750
2	1-Dec-94	660
3	31-Jan-96	1341
4	12-Aug-96	311
5	13-May-98	950
6	8-Sep-04	590
7	21-Feb-07	394
8	21-Nov-08	576
9	9-May-11	669
10	15-Oct-13	396
11	30-Jan-14	334
12	22-May-14	558
13	29-Oct-14	1140
14	28-Jan-15	1300
15	15-Apr-15	1660
16	7-Jul-15	2100
17	8-Oct-15	1210
18	14-Apr-16	1250
19	4-Oct-16	701
20	14-Nov-17	600
21	17-Jul-18	56
22	26-Sep-18	3.1
23	3-Jun-19	16
24	11-Sep-19	46
25	19-Dec-19	46
26	24-Mar-20	94
27	24-Jun-20	130
28		
29		
30		
Coefficient of Variation:		0.83
Mann-Kendall Statistic (S):		-90
Confidence Factor:		96.9%
Concentration Trend:		Decreasing



Notes:

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QUALITY CONTROL SUMMARY REPORT
LHAAP-58 SEPTEMBER 2019
WESTERN PLUME QUARTERLY SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

October 2019

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

Prepared By:

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Table 2: Qualified Analytical Data
Table 3: Completeness by Method

1 INTRODUCTION

Bhate Environmental Associates, Inc. (Bhate) reviewed one data package from ALS Environmental, Houston, Texas with the analyses for Volatile Fatty Acids (VFAs) subcontracted to ALS Rochester, NY; Total organic carbon (TOC) subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on September 11, 2019, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in September 2019 was to complete the western plume quarterly sampling event.

Analyses performed include:

- RSK-175 – Dissolved Gases (methane, ethane, ethene, carbon dioxide)
- SM5310C –TOC
- SW8260C – Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, nitrite and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS –VFAs
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])

Table 1 lists the sample identification (ID) numbers and their associated laboratory package.

Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time with the following exception:

The VFA container for sample 35AWW06_091119 was received broken and the analysis could not be performed.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

All CCV recoveries were within control limits.

1.4 Blanks

If the analyte result for an associated sample was less than 5x (10x for common laboratory contaminants) the analyte concentration in the blank, that result was qualified "UB" and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5x (10x) the amount in the blank, no qualifier was applied.

No compounds required flagging due to blank contamination.

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

All recoveries were within control limits.

1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

1.7.1 RSK-175

The MS and/or MSD recoveries, as well as the relative percent difference (RPD), for carbon dioxide (138%/74%), methane (24%/0%) and ethane (71%) in spike sample 35AWW20_091119

were outside control limits. Due to matrix effect, these compounds were flagged as estimated, "J" (see Table 2).

1.7.2 SW8260

The MSD recovery of 1,1-dichloroethane (71.6%) was below control limits in spiked sample 35AWW20_091119. This compound was flagged as estimated, "J".

1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field and laboratory duplicates for precision was done using the RPD. The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. Field duplicate RPD limits were set at <30% for groundwater matrices.

1.9.1 Lab Precision

The laboratory RPD limit of sample 35AWW11_060319 was exceeded for TOC. This compound was qualified as estimated, "J".

1.9.2 Field Precision

The field duplicate RPD for sulfate was outside control limits in sample 35AWW06_091119 and its duplicate. This compound was flagged as estimated, "J", in both samples.

2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see Table 3). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM2320B	E365.3	SM5310C	SW6020A	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	SM3500Fe	E376.1	CENSUS	Arsenic 6020A
35AWW06 _091119	HS19090511			X		X		X	X			X	
35AWW06 _091119_a	HS19090511			X		X	X	X	X			X	
35AWW11_091119	HS19090511			X		X	X	X	X			X	
35AWW19_091119	HS19090511			X		X	X	X	X			X	
35AWW20_091119	HS19090511			X		X	X	X	X			X	
35AWW23_061019	HS19090511			X		X	X	X	X			X	
LHSMW07_091119	HS19090511			X		X	X	X	X			X	

Notes:
MW – Monitoring Well
SM – Standard Method
SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – USEPA Method
HS - Houston

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier	Reason for Qualification
35AWW06_091119	HS19090511	Sulfate (mg/L)	1.28 J	FD RPD
35AWW06_091119_a	HS19090511	Sulfate (mg/L)	0.790 J	FD RPD
35AWW11_091119	HS19090511	TOC (mg/L)	28 J	Lab RPD
35AWW20_060319	HS19090511	Carbon dioxide (µg/L) Methane (µg/L) Ethane (µg/L) 1,1-Dichloroethane (µg/L)	290,000 J 640 J 0.24 J 550 J	MS >/MSD </RPD > MS/MSD </RPD > MSD < MSD <

Notes:
mg/L – milligrams per liter
µg/L – micrograms per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
Lab RPD – the relative percent difference between sample and laboratory duplicate was outside control limits
MS/MSD </>/RPD > – Matrix spike/duplicate recoveries were below/above control limits/relative percent difference between the MS and MSD was above control limits
FD RPD – the relative percent difference between the field duplicate sample and parent was outside control limits

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100

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October 03, 2019

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

Work Order: **HS19090511**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

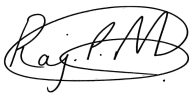
ALS Environmental received 8 sample(s) on Sep 12, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19090511

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19090511-01	35AWW19_091119	Groundwater		11-Sep-2019 07:10	12-Sep-2019 08:50	☐
HS19090511-02	35AWW20_091119	Groundwater		11-Sep-2019 08:10	12-Sep-2019 08:50	☐
HS19090511-03	LHSMW07_091119	Groundwater		11-Sep-2019 09:15	12-Sep-2019 08:50	☐
HS19090511-04	35AWW06_091119	Groundwater		11-Sep-2019 10:15	12-Sep-2019 08:50	☐
HS19090511-05	35AWW06_091119_a	Groundwater		11-Sep-2019 10:15	12-Sep-2019 08:50	☐
HS19090511-06	35AWW23_091119	Groundwater		11-Sep-2019 11:25	12-Sep-2019 08:50	☐
HS19090511-07	35AWW11_091119	Groundwater		11-Sep-2019 12:35	12-Sep-2019 08:50	☐
HS19090511-08	Trip Blank	Water	ALS-112818-31	11-Sep-2019 00:00	12-Sep-2019 08:50	☐

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc. **CASE NARRATIVE**
Project: LHAAP-58
Work Order: HS19090511

Work Order Comments

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

Work Order Comments

• The analysis for VFA was subcontracted to ALS Rochester, NY. Final report attached.

• The analysis for MEE plus CO2 was subcontracted to ALS Simi Valley, CA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R346254

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

Batch ID: R346196

Sample ID: 35AWW20_091119 (HS19090511-02MS)

• MSD failed QC limits for some few compounds: 1,1-Dichloroethane, 1,1-Dichloroethene

WetChemistry by Method SW9056

Batch ID: R346164

Sample ID: 35AWW20_091119 (HS19090511-02MS)

• 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. (Sulfate)

Batch ID: R346978

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_091119
Collection Date: 11-Sep-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,1-Dichloroethane	**0.92**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 15:52
1,1-Dichloroethene	**5.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 15:52
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,2-Dichloroethane	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 15:52
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 15:52
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 15:52
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 15:52
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 15:52
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 15:52
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_091119
Collection Date: 11-Sep-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 15:52
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 15:52
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 15:52
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:52
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:52
Surr: 1,2-Dichloroethane-d4	*89.8*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 15:52*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 15:52*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 15:52*
Surr: Toluene-d8	*95.9*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 15:52*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,050**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 01:15
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 21:02
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 21:02
Sulfate	**1,010**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 01:15
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_091119
Collection Date: 11-Sep-2019 07:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	02-Oct-2019 16:32
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_091119
Collection Date: 11-Sep-2019 08:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,1,2-Trichloroethane	**72**		**0.30**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
1,1-Dichloroethane	**550**		**5.0**	**12**	**25**	**UG/L**	25	12-Sep-2019 17:04
1,1-Dichloroethene	**3,900**		**5.0**	**12**	**25**	**UG/L**	25	12-Sep-2019 17:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,2-Dichlorobenzene	**16**		**0.50**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
1,2-Dichloroethane	**19**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,3-Dichlorobenzene	**0.95**	J	**0.40**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
1,4-Dichlorobenzene	**2.9**		**0.40**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 16:16
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 16:16
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 16:16
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 16:16
Benzene	**8.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Carbon disulfide	**6.0**		**0.60**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 16:16
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_091119
Collection Date: 11-Sep-2019 08:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
cis-1,2-Dichloroethene	**110**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 16:16
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 16:16
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 16:16
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 16:16
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
trans-1,2-Dichloroethene	**14**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 16:16
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Trichloroethene	**350**		**5.0**	**12**	**25**	**UG/L**	25	12-Sep-2019 17:04
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 16:16
Vinyl chloride	**790**		**5.0**	**12**	**25**	**UG/L**	25	12-Sep-2019 17:04
Surr: 1,2-Dichloroethane-d4	*93.5*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 16:16*
Surr: 1,2-Dichloroethane-d4	*90.5*			**0**	*81-118*	*%REC*	*25*	*12-Sep-2019 17:04*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 16:16*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*25*	*12-Sep-2019 17:04*
Surr: Dibromofluoromethane	*93.6*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 16:16*
Surr: Dibromofluoromethane	*93.7*			**0**	*80-119*	*%REC*	*25*	*12-Sep-2019 17:04*
Surr: Toluene-d8	*94.1*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 16:16*
Surr: Toluene-d8	*96.2*			**0**	*89-112*	*%REC*	*25*	*12-Sep-2019 17:04*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**902**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 01:31
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 21:18
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 21:18
Sulfate	**1,200**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 01:31

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW20_091119
Collection Date: 11-Sep-2019 08:10

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_091119
Collection Date: 11-Sep-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,1-Dichloroethane	**11**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
1,1-Dichloroethene	**46**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,2-Dichloroethane	**0.67**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 18:40
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 18:40
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 18:40
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 18:40
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 18:40
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_091119
Collection Date: 11-Sep-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
cis-1,2-Dichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 18:40
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 18:40
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 18:40
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 18:40
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Trichloroethene	**3.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 18:40
Vinyl chloride	**49**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 18:40
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 18:40*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 18:40*
Surr: Dibromofluoromethane	*91.9*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 18:40*
Surr: Toluene-d8	*95.4*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 18:40*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,820**		**8.00**	**20.0**	**20.0**	**mg/L**	40	26-Sep-2019 02:21
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:08
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:08
Sulfate	**2,530**		**8.00**	**20.0**	**20.0**	**mg/L**	40	26-Sep-2019 02:21
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: LHSMW07_091119
Collection Date: 11-Sep-2019 09:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_091119
Collection Date: 11-Sep-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,1-Dichloroethene	**0.92**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:04
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
2-Butanone	**46**		**0.50**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:04
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
2-Hexanone	**1.6**	J	**1.0**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:04
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 19:04
Acetone	**280**		**0.40**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:04
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 19:04
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_091119
Collection Date: 11-Sep-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 19:04
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 19:04
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 19:04
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:04
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Naphthalene	**0.77**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:04
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:04
Surr: 1,2-Dichloroethane-d4	*90.9*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 19:04*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 19:04*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 19:04*
Surr: Toluene-d8	*95.2*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 19:04*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**917**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 02:38
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:25
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:25
Sulfate	**1.28**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Sep-2019 22:25
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26

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

ALS Houston, US

Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP-58

WorkOrder:HS19090511

Sample ID: 35AWW06_091119

Lab ID:HS19090511-04

Collection Date: 11-Sep-2019 10:15

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_091119_a
Collection Date: 11-Sep-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,1-Dichloroethene	**0.88**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:28
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
2-Butanone	**48**		**0.50**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:28
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
2-Hexanone	**1.5**	J	**1.0**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:28
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 19:28
Acetone	**280**		**0.40**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:28
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 19:28
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW06_091119_a
Collection Date: 11-Sep-2019 10:15

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 19:28
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 19:28
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 19:28
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:28
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Naphthalene	**0.81**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:28
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:28
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 19:28*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 19:28*
Surr: Dibromofluoromethane	*94.4*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 19:28*
Surr: Toluene-d8	*96.4*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 19:28*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**921**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 02:54
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:41
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:41
Sulfate	**0.790**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Sep-2019 22:41
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_091119
Collection Date: 11-Sep-2019 11:25

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,1-Dichloroethene	**0.70**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:52
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
2-Butanone	**340**		**0.50**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 19:52
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 19:52
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 19:52
Acetone	**380**		**2.0**	**5.0**	**10**	**UG/L**	5	13-Sep-2019 15:03
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 19:52
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_091119
Collection Date: 11-Sep-2019 11:25

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
cis-1,2-Dichloroethene	**7.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:52
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 19:52
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 19:52
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 19:52
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 19:52
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Trichloroethene	**3.8**		**0.20**	**0.50**	**1.0**	**UG/L**	1	12-Sep-2019 19:52
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 19:52
Surr: 1,2-Dichloroethane-d4	*90.0*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 19:52*
Surr: 1,2-Dichloroethane-d4	*91.8*			**0**	*81-118*	*%REC*	*5*	*13-Sep-2019 15:03*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 19:52*
Surr: 4-Bromofluorobenzene	*102*			**0**	*85-114*	*%REC*	*5*	*13-Sep-2019 15:03*
Surr: Dibromofluoromethane	*93.4*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 19:52*
Surr: Dibromofluoromethane	*92.2*			**0**	*80-119*	*%REC*	*5*	*13-Sep-2019 15:03*
Surr: Toluene-d8	*94.8*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 19:52*
Surr: Toluene-d8	*95.1*			**0**	*89-112*	*%REC*	*5*	*13-Sep-2019 15:03*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**857**		**4.00**	**10.0**	**10.0**	**mg/L**	20	26-Sep-2019 03:44
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:58
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 22:58
Sulfate	**4.63**		**0.200**	**0.500**	**0.500**	**mg/L**	1	12-Sep-2019 22:58

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_091119
Collection Date: 11-Sep-2019 11:25

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_091119
Collection Date: 11-Sep-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
2-Butanone	**67**		**0.50**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 20:17
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 20:17
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 20:17
Acetone	**75**		**0.40**	**1.0**	**2.0**	**UG/L**	1	12-Sep-2019 20:17
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 20:17
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_091119
Collection Date: 11-Sep-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 20:17
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 20:17
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 20:17
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 20:17
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 20:17
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 20:17*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 20:17*
Surr: Dibromofluoromethane	*95.3*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 20:17*
Surr: Toluene-d8	*96.9*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 20:17*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,990**		**8.00**	**20.0**	**20.0**	**mg/L**	40	26-Sep-2019 04:01
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 23:15
Nitrogen, Nitrite (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	12-Sep-2019 23:15
Sulfate	**259**		**8.00**	**20.0**	**20.0**	**mg/L**	40	26-Sep-2019 04:01
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	19-Sep-2019 11:24
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Oct-2019 13:26

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_091119
Collection Date: 11-Sep-2019 12:35

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	27-Sep-2019 15:09
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	27-Sep-2019 09:08

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 11-Sep-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 15:28
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	12-Sep-2019 15:28
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	12-Sep-2019 15:28
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 15:28
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	12-Sep-2019 15:28
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 11-Sep-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19090511
Lab ID:HS19090511-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	12-Sep-2019 15:28
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	12-Sep-2019 15:28
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	12-Sep-2019 15:28
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	12-Sep-2019 15:28
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	12-Sep-2019 15:28
Surr: 1,2-Dichloroethane-d4	*89.6*			**0**	*81-118*	*%REC*	*1*	*12-Sep-2019 15:28*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*12-Sep-2019 15:28*
Surr: Dibromofluoromethane	*92.7*			**0**	*80-119*	*%REC*	*1*	*12-Sep-2019 15:28*
Surr: Toluene-d8	*96.3*			**0**	*89-112*	*%REC*	*1*	*12-Sep-2019 15:28*

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R346164 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			12 Sep 2019 21:02	1
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			12 Sep 2019 21:18	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			12 Sep 2019 22:08	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			12 Sep 2019 22:25	1
HS19090511-05	35AWW06_091119_a	11 Sep 2019 10:15			12 Sep 2019 22:41	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			12 Sep 2019 22:58	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			12 Sep 2019 23:15	1
Batch ID: R346196 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19090511-08	Trip Blank	11 Sep 2019 00:00			12 Sep 2019 15:28	1
Batch ID: R346196 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			12 Sep 2019 15:52	1
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			12 Sep 2019 17:04	25
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			12 Sep 2019 16:16	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			12 Sep 2019 18:40	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			12 Sep 2019 19:04	1
HS19090511-05	35AWW06_091119_a	11 Sep 2019 10:15			12 Sep 2019 19:28	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			12 Sep 2019 19:52	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			12 Sep 2019 20:17	1
Batch ID: R346254 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			13 Sep 2019 15:03	5
Batch ID: R346534 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			19 Sep 2019 11:24	1
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			19 Sep 2019 11:24	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			19 Sep 2019 11:24	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			19 Sep 2019 11:24	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			19 Sep 2019 11:24	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			19 Sep 2019 11:24	1
Batch ID: R346978 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			26 Sep 2019 01:15	20
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			26 Sep 2019 01:31	20
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			26 Sep 2019 02:21	40
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			26 Sep 2019 02:38	20
HS19090511-05	35AWW06_091119_a	11 Sep 2019 10:15			26 Sep 2019 02:54	20
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			26 Sep 2019 03:44	20
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			26 Sep 2019 04:01	40

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID: R347081 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			27 Sep 2019 09:08	1
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			27 Sep 2019 09:08	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			27 Sep 2019 09:08	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			27 Sep 2019 09:08	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			27 Sep 2019 09:08	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			27 Sep 2019 09:08	1
Batch ID: R347160 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			27 Sep 2019 15:09	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			27 Sep 2019 15:09	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			27 Sep 2019 15:09	1
HS19090511-05	35AWW06_091119_a	11 Sep 2019 10:15			27 Sep 2019 15:09	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			27 Sep 2019 15:09	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			27 Sep 2019 15:09	1
Batch ID: R347473 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			02 Oct 2019 16:32	1
Batch ID: R347558 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19090511-01	35AWW19_091119	11 Sep 2019 07:10			03 Oct 2019 13:26	1
HS19090511-02	35AWW20_091119	11 Sep 2019 08:10			03 Oct 2019 13:26	1
HS19090511-03	LHSMW07_091119	11 Sep 2019 09:15			03 Oct 2019 13:26	1
HS19090511-04	35AWW06_091119	11 Sep 2019 10:15			03 Oct 2019 13:26	1
HS19090511-05	35AWW06_091119_a	11 Sep 2019 10:15			03 Oct 2019 13:26	1
HS19090511-06	35AWW23_091119	11 Sep 2019 11:25			03 Oct 2019 13:26	1
HS19090511-07	35AWW11_091119	11 Sep 2019 12:35			03 Oct 2019 13:26	1

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190912** Units: **UG/L** Analysis Date: **12-Sep-2019 14:16**
Client ID: Run ID: **VOA6_346196** SeqNo: **5251290** PrepDate: DF: **1**

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

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190912** Units: **UG/L** Analysis Date: **12-Sep-2019 14:16**
Client ID: Run ID: **VOA6_346196** SeqNo: **5251290** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.49*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.33*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*47.23*	*1.0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*48.69*	*1.0*	*50*	*0*	*97.4*	*89 - 112*				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190912** Units: **UG/L** Analysis Date: **12-Sep-2019 13:14**
Client ID: Run ID: **VOA6_346196** SeqNo: **5251289** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.79	1.0	20	0	94.0	78 - 124				
1,1,1-Trichloroethane	16.84	1.0	20	0	84.2	74 - 131				
1,1,2,2-Tetrachloroethane	19.48	1.0	20	0	97.4	71 - 121				
1,1,2-Trichloroethane	18.36	1.0	20	0	91.8	80 - 119				
1,1-Dichloroethane	17.04	1.0	20	0	85.2	77 - 125				
1,1-Dichloroethene	17.82	1.0	20	0	89.1	71 - 131				
1,1-Dichloropropene	16.59	1.0	20	0	83.0	78 - 125				
1,2,3-Trichlorobenzene	17.1	1.0	20	0	85.5	69 - 129				
1,2,3-Trichloropropane	18.53	1.0	20	0	92.7	73 - 122				
1,2,4-Trichlorobenzene	17.23	1.0	20	0	86.2	69 - 130				
1,2,4-Trimethylbenzene	16.42	1.0	20	0	82.1	76 - 124				
1,2-Dibromo-3-chloropropane	18.85	1.0	20	0	94.3	62 - 128				
1,2-Dibromoethane	18.97	1.0	20	0	94.9	77 - 121				
1,2-Dichlorobenzene	17.59	1.0	20	0	88.0	80 - 119				
1,2-Dichloroethane	18.52	1.0	20	0	92.6	73 - 128				
1,2-Dichloropropane	17.96	1.0	20	0	89.8	78 - 122				
1,3,5-Trimethylbenzene	15.77	1.0	20	0	78.8	75 - 124				
1,3-Dichlorobenzene	17.44	1.0	20	0	87.2	80 - 119				
1,3-Dichloropropane	18.26	1.0	20	0	91.3	80 - 119				
1,4-Dichlorobenzene	17.19	1.0	20	0	86.0	79 - 118				
2,2-Dichloropropane	17.29	1.0	20	0	86.5	60 - 139				
2-Butanone	37.79	2.0	40	0	94.5	56 - 143				
2-Chlorotoluene	17.77	1.0	20	0	88.8	79 - 122				
2-Hexanone	37.23	2.0	40	0	93.1	57 - 139				
4-Chlorotoluene	16.74	1.0	20	0	83.7	78 - 122				
4-Isopropyltoluene	15.52	1.0	20	0	77.6	77 - 127				
4-Methyl-2-pentanone	36.75	2.0	40	0	91.9	67 - 130				
Acetone	48.17	2.0	40	0	120	39 - 160				
Benzene	17.72	1.0	20	0	88.6	79 - 120				
Bromobenzene	18.14	1.0	20	0	90.7	80 - 120				
Bromochloromethane	17.83	1.0	20	0	89.2	78 - 123				
Bromodichloromethane	18.17	1.0	20	0	90.8	79 - 125				
Bromoform	19.55	1.0	20	0	97.8	66 - 130				
Bromomethane	22.76	1.0	20	0	114	53 - 141				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190912** Units: **UG/L** Analysis Date: **12-Sep-2019 13:14**
Client ID: Run ID: **VOA6_346196** SeqNo: **5251289** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	32.76	2.0	40	0	81.9	64 - 133				
Carbon tetrachloride	16.13	1.0	20	0	80.6	72 - 136				
Chlorobenzene	17.6	1.0	20	0	88.0	82 - 118				
Chloroethane	20.34	1.0	20	0	102	60 - 138				
Chloroform	17.65	1.0	20	0	88.3	79 - 124				
Chloromethane	18.52	1.0	20	0	92.6	50 - 139				
cis-1,2-Dichloroethene	17.79	1.0	20	0	88.9	78 - 123				
cis-1,3-Dichloropropene	18.94	1.0	20	0	94.7	75 - 124				
Dibromochloromethane	18.53	1.0	20	0	92.6	74 - 126				
Dibromomethane	18.41	1.0	20	0	92.1	79 - 123				
Dichlorodifluoromethane	14.86	1.0	20	0	74.3	32 - 152				
Ethylbenzene	16.72	1.0	20	0	83.6	79 - 121				
Hexachlorobutadiene	16.17	1.0	20	0	80.9	66 - 134				
Isopropylbenzene	15.59	1.0	20	0	77.9	72 - 131				
m,p-Xylene	33.77	2.0	40	0	84.4	80 - 121				
Methylene chloride	18.28	2.0	20	0	91.4	74 - 124				
Naphthalene	17.79	1.0	20	0	88.9	61 - 128				
n-Butylbenzene	15.37	1.0	20	0	76.9	75 - 128				
n-Propylbenzene	15.29	1.0	20	0	76.5	76 - 126				
o-Xylene	17.46	1.0	20	0	87.3	78 - 122				
sec-Butylbenzene	15.48	1.0	20	0	77.4	77 - 126				
Styrene	18.32	1.0	20	0	91.6	78 - 123				
tert-Butylbenzene	15.75	1.0	20	0	78.8	78 - 124				
Tetrachloroethene	15.73	1.0	20	0	78.6	74 - 129				
Toluene	17.34	1.0	20	0	86.7	80 - 121				
trans-1,2-Dichloroethene	16.88	1.0	20	0	84.4	75 - 124				
trans-1,3-Dichloropropene	19.15	1.0	20	0	95.8	73 - 127				
Trichloroethene	17.38	1.0	20	0	86.9	79 - 123				
Trichlorofluoromethane	17.08	1.0	20	0	85.4	65 - 141				
Vinyl chloride	17.69	1.0	20	0	88.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.82*	*1.0*	*50*	*0*	*99.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.67*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*50.96*	*1.0*	*50*	*0*	*102*	*80 - 119*				
Surr: Toluene-d8	*45.71*	*1.0*	*50*	*0*	*91.4*	*89 - 112*				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19090511-02MS** Units: **UG/L** Analysis Date: **12-Sep-2019 17:28**
Client ID: **35AWW20_091119** Run ID: **VOA6_346196** SeqNo: **5251295** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	473.7	25	500	0	94.7	78 - 124				
1,1,1-Trichloroethane	430.1	25	500	0	86.0	74 - 131				
1,1,2,2-Tetrachloroethane	486.3	25	500	0	97.3	71 - 121				
1,1,2-Trichloroethane	530.5	25	500	80.66	90.0	80 - 119				
1,1-Dichloroethane	953.4	25	500	553.3	80.0	77 - 125				
1,1-Dichloroethene	4339	25	500	3915	84.7	71 - 131				O
1,1-Dichloropropene	455.3	25	500	0	91.1	78 - 125				
1,2,3-Trichlorobenzene	441.7	25	500	0	88.3	69 - 129				
1,2,3-Trichloropropane	444.8	25	500	0	89.0	73 - 122				
1,2,4-Trichlorobenzene	471.1	25	500	0	94.2	69 - 130				
1,2,4-Trimethylbenzene	468.8	25	500	0	93.8	76 - 124				
1,2-Dibromo-3-chloropropane	467.9	25	500	0	93.6	62 - 128				
1,2-Dibromoethane	452.6	25	500	0	90.5	77 - 121				
1,2-Dichlorobenzene	467	25	500	20.32	89.3	80 - 119				
1,2-Dichloroethane	444.1	25	500	20.96	84.6	73 - 128				
1,2-Dichloropropane	426.7	25	500	0	85.3	78 - 122				
1,3,5-Trimethylbenzene	470.9	25	500	0	94.2	75 - 124				
1,3-Dichlorobenzene	468.9	25	500	0	93.8	80 - 119				
1,3-Dichloropropane	451	25	500	0	90.2	80 - 119				
1,4-Dichlorobenzene	448.5	25	500	0	89.7	79 - 118				
2,2-Dichloropropane	430.9	25	500	0	86.2	60 - 139				
2-Butanone	794.6	50	1000	0	79.5	56 - 143				
2-Chlorotoluene	489.8	25	500	0	98.0	79 - 122				
2-Hexanone	895.9	50	1000	0	89.6	57 - 139				
4-Chlorotoluene	460.3	25	500	0	92.1	78 - 122				
4-Isopropyltoluene	490.3	25	500	0	98.1	77 - 127				
4-Methyl-2-pentanone	906.8	50	1000	0	90.7	67 - 130				
Acetone	771.4	50	1000	0	77.1	39 - 160				
Benzene	440.8	25	500	0	88.2	79 - 120				
Bromobenzene	461.6	25	500	0	92.3	80 - 120				
Bromochloromethane	404.5	25	500	0	80.9	78 - 123				
Bromodichloromethane	426.2	25	500	0	85.2	79 - 125				
Bromoform	460.4	25	500	0	92.1	66 - 130				
Bromomethane	366.3	25	500	0	73.3	53 - 141				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19090511-02MS** Units: **UG/L** Analysis Date: **12-Sep-2019 17:28**
Client ID: **35AWW20_091119** Run ID: **VOA6_346196** SeqNo: **5251295** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	770.1	50	1000	0	77.0	64 - 133				
Carbon tetrachloride	459.4	25	500	0	91.9	72 - 136				
Chlorobenzene	446.4	25	500	0	89.3	82 - 118				
Chloroethane	474.6	25	500	0	94.9	60 - 138				
Chloroform	413.4	25	500	0	82.7	79 - 124				
Chloromethane	358.1	25	500	0	71.6	50 - 139				
cis-1,2-Dichloroethene	528.6	25	500	112.9	83.1	78 - 123				
cis-1,3-Dichloropropene	444.6	25	500	0	88.9	75 - 124				
Dibromochloromethane	456.4	25	500	0	91.3	74 - 126				
Dibromomethane	422.2	25	500	0	84.4	79 - 123				
Dichlorodifluoromethane	244	25	500	0	48.8	32 - 152				
Ethylbenzene	465.2	25	500	0	93.0	79 - 121				
Hexachlorobutadiene	524.1	25	500	0	105	66 - 134				
Isopropylbenzene	475.3	25	500	0	95.1	72 - 131				
m,p-Xylene	932	50	1000	0	93.2	80 - 121				
Methylene chloride	415.9	50	500	0	83.2	74 - 124				
Naphthalene	446.4	25	500	0	89.3	61 - 128				
n-Butylbenzene	512.6	25	500	0	103	75 - 128				
n-Propylbenzene	472.6	25	500	0	94.5	76 - 126				
o-Xylene	461.7	25	500	0	92.3	78 - 122				
sec-Butylbenzene	479.8	25	500	0	96.0	77 - 126				
Styrene	462.5	25	500	0	92.5	78 - 123				
tert-Butylbenzene	480	25	500	0	96.0	78 - 124				
Tetrachloroethene	490.1	25	500	0	98.0	74 - 129				
Toluene	456.5	25	500	0	91.3	80 - 121				
trans-1,2-Dichloroethene	425.5	25	500	11.68	82.8	75 - 124				
trans-1,3-Dichloropropene	439.7	25	500	0	87.9	73 - 127				
Trichloroethene	794.3	25	500	350.1	88.8	79 - 123				
Trichlorofluoromethane	460.7	25	500	0	92.1	65 - 141				
Vinyl chloride	1212	25	500	795	83.4	58 - 137				
Surr: 1,2-Dichloroethane-d4	*1163*	*25*	*1250*	*0*	*93.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*1252*	*25*	*1250*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*1171*	*25*	*1250*	*0*	*93.7*	*80 - 119*				
Surr: Toluene-d8	*1196*	*25*	*1250*	*0*	*95.7*	*89 - 112*				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19090511-02MSD** Units: **UG/L** Analysis Date: **12-Sep-2019 17:52**
Client ID: **35AWW20_091119** Run ID: **VOA6_346196** SeqNo: **5251296** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	470.6	25	500	0	94.1	78 - 124	473.7	0.651	20	
1,1,1-Trichloroethane	418.7	25	500	0	83.7	74 - 131	430.1	2.7	20	
1,1,2,2-Tetrachloroethane	504.6	25	500	0	101	71 - 121	486.3	3.69	20	
1,1,2-Trichloroethane	545.1	25	500	80.66	92.9	80 - 119	530.5	2.72	20	
1,1-Dichloroethane	911.4	25	500	553.3	71.6	77 - 125	953.4	4.51	20	S
1,1-Dichloroethene	4224	25	500	3915	61.7	71 - 131	4339	2.68	20	SO
1,1-Dichloropropene	454.7	25	500	0	90.9	78 - 125	455.3	0.129	20	
1,2,3-Trichlorobenzene	510.9	25	500	0	102	69 - 129	441.7	14.5	20	
1,2,3-Trichloropropane	472.7	25	500	0	94.5	73 - 122	444.8	6.08	20	
1,2,4-Trichlorobenzene	506.3	25	500	0	101	69 - 130	471.1	7.2	20	
1,2,4-Trimethylbenzene	480.5	25	500	0	96.1	76 - 124	468.8	2.47	20	
1,2-Dibromo-3-chloropropane	500.7	25	500	0	100	62 - 128	467.9	6.77	20	
1,2-Dibromoethane	472.6	25	500	0	94.5	77 - 121	452.6	4.33	20	
1,2-Dichlorobenzene	494.3	25	500	20.32	94.8	80 - 119	467	5.67	20	
1,2-Dichloroethane	456.3	25	500	20.96	87.1	73 - 128	444.1	2.71	20	
1,2-Dichloropropane	420.8	25	500	0	84.2	78 - 122	426.7	1.38	20	
1,3,5-Trimethylbenzene	485.5	25	500	0	97.1	75 - 124	470.9	3.05	20	
1,3-Dichlorobenzene	487	25	500	0	97.4	80 - 119	468.9	3.79	20	
1,3-Dichloropropane	450.1	25	500	0	90.0	80 - 119	451	0.198	20	
1,4-Dichlorobenzene	474	25	500	0	94.8	79 - 118	448.5	5.53	20	
2,2-Dichloropropane	424.6	25	500	0	84.9	60 - 139	430.9	1.47	20	
2-Butanone	803.4	50	1000	0	80.3	56 - 143	794.6	1.1	20	
2-Chlorotoluene	505	25	500	0	101	79 - 122	489.8	3.06	20	
2-Hexanone	949.3	50	1000	0	94.9	57 - 139	895.9	5.79	20	
4-Chlorotoluene	472.6	25	500	0	94.5	78 - 122	460.3	2.64	20	
4-Isopropyltoluene	502.8	25	500	0	101	77 - 127	490.3	2.51	20	
4-Methyl-2-pentanone	911.6	50	1000	0	91.2	67 - 130	906.8	0.53	20	
Acetone	778	50	1000	0	77.8	39 - 160	771.4	0.859	20	
Benzene	434.7	25	500	0	86.9	79 - 120	440.8	1.38	20	
Bromobenzene	482.7	25	500	0	96.5	80 - 120	461.6	4.45	20	
Bromochloromethane	400.2	25	500	0	80.0	78 - 123	404.5	1.08	20	
Bromodichloromethane	432.8	25	500	0	86.6	79 - 125	426.2	1.53	20	
Bromoform	482.9	25	500	0	96.6	66 - 130	460.4	4.77	20	
Bromomethane	400.1	25	500	0	80.0	53 - 141	366.3	8.82	20	

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19090511-02MSD** Units: **UG/L** Analysis Date: **12-Sep-2019 17:52**
Client ID: **35AWW20_091119** Run ID: **VOA6_346196** SeqNo: **5251296** PrepDate: DF: **25**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	732.9	50	1000	0	73.3	64 - 133	770.1	4.95	20	
Carbon tetrachloride	453.1	25	500	0	90.6	72 - 136	459.4	1.37	20	
Chlorobenzene	451.6	25	500	0	90.3	82 - 118	446.4	1.15	20	
Chloroethane	427.9	25	500	0	85.6	60 - 138	474.6	10.3	20	
Chloroform	401.9	25	500	0	80.4	79 - 124	413.4	2.82	20	
Chloromethane	327.3	25	500	0	65.5	50 - 139	358.1	9	20	
cis-1,2-Dichloroethene	512.7	25	500	112.9	80.0	78 - 123	528.6	3.05	20	
cis-1,3-Dichloropropene	438.3	25	500	0	87.7	75 - 124	444.6	1.42	20	
Dibromochloromethane	464.7	25	500	0	92.9	74 - 126	456.4	1.82	20	
Dibromomethane	423.2	25	500	0	84.6	79 - 123	422.2	0.248	20	
Dichlorodifluoromethane	223.6	25	500	0	44.7	32 - 152	244	8.7	20	
Ethylbenzene	471.8	25	500	0	94.4	79 - 121	465.2	1.41	20	
Hexachlorobutadiene	542.1	25	500	0	108	66 - 134	524.1	3.37	20	
Isopropylbenzene	479.8	25	500	0	96.0	72 - 131	475.3	0.939	20	
m,p-Xylene	939.3	50	1000	0	93.9	80 - 121	932	0.784	20	
Methylene chloride	405.1	50	500	0	81.0	74 - 124	415.9	2.63	20	
Naphthalene	496.9	25	500	0	99.4	61 - 128	446.4	10.7	20	
n-Butylbenzene	527.9	25	500	0	106	75 - 128	512.6	2.93	20	
n-Propylbenzene	490.1	25	500	0	98.0	76 - 126	472.6	3.64	20	
o-Xylene	462.2	25	500	0	92.4	78 - 122	461.7	0.104	20	
sec-Butylbenzene	493.9	25	500	0	98.8	77 - 126	479.8	2.9	20	
Styrene	468.7	25	500	0	93.7	78 - 123	462.5	1.34	20	
tert-Butylbenzene	495.4	25	500	0	99.1	78 - 124	480	3.16	20	
Tetrachloroethene	479	25	500	0	95.8	74 - 129	490.1	2.31	20	
Toluene	456.9	25	500	0	91.4	80 - 121	456.5	0.0941	20	
trans-1,2-Dichloroethene	413	25	500	11.68	80.3	75 - 124	425.5	3	20	
trans-1,3-Dichloropropene	436.8	25	500	0	87.4	73 - 127	439.7	0.658	20	
Trichloroethene	779.4	25	500	350.1	85.9	79 - 123	794.3	1.9	20	
Trichlorofluoromethane	432.5	25	500	0	86.5	65 - 141	460.7	6.32	20	
Vinyl chloride	1153	25	500	795	71.5	58 - 137	1212	5.03	20	
Surr: 1,2-Dichloroethane-d4	*1141*	*25*	*1250*	*0*	*91.3*	*81 - 118*	*1163*	*1.9*	*20*	
Surr: 4-Bromofluorobenzene	*1244*	*25*	*1250*	*0*	*99.5*	*85 - 114*	*1252*	*0.623*	*20*	
Surr: Dibromofluoromethane	*1164*	*25*	*1250*	*0*	*93.1*	*80 - 119*	*1171*	*0.54*	*20*	
Surr: Toluene-d8	*1211*	*25*	*1250*	*0*	*96.9*	*89 - 112*	*1196*	*1.26*	*20*	

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346196 (0)	Instrument: VOA6	Method: VOLATILES ORGANICS BY METHOD 8260C

The following samples were analyzed in this batch:

HS19090511-01	HS19090511-02	HS19090511-03	HS19090511-04
HS19090511-05	HS19090511-06	HS19090511-07	HS19090511-08

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346254 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-190913** Units: **UG/L** Analysis Date: **13-Sep-2019 13:03**
Client ID: Run ID: **VOA6_346254** SeqNo: **5252716** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	1.0	2.0								U
Surr: 1,2-Dichloroethane-d4	*44.76*	*1.0*	*50*	*0*	*89.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.34*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*46.38*	*1.0*	*50*	*0*	*92.8*	*80 - 119*				
Surr: Toluene-d8	*47.77*	*1.0*	*50*	*0*	*95.5*	*89 - 112*				

LCS Sample ID: **VLCSW-190913** Units: **UG/L** Analysis Date: **13-Sep-2019 12:15**
Client ID: Run ID: **VOA6_346254** SeqNo: **5252715** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	48.23	2.0	40	0	121	39 - 160				
Surr: 1,2-Dichloroethane-d4	*53.71*	*1.0*	*50*	*0*	*107*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.67*	*1.0*	*50*	*0*	*109*	*85 - 114*				
Surr: Dibromofluoromethane	*53.23*	*1.0*	*50*	*0*	*106*	*80 - 119*				
Surr: Toluene-d8	*47.76*	*1.0*	*50*	*0*	*95.5*	*89 - 112*				

MS Sample ID: **HS19090535-01MS** Units: **UG/L** Analysis Date: **13-Sep-2019 15:28**
Client ID: Run ID: **VOA6_346254** SeqNo: **5252719** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	33.45	2.0	40	0	83.6	39 - 160				
Surr: 1,2-Dichloroethane-d4	*46.6*	*1.0*	*50*	*0*	*93.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.2*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*46.58*	*1.0*	*50*	*0*	*93.2*	*80 - 119*				
Surr: Toluene-d8	*48.35*	*1.0*	*50*	*0*	*96.7*	*89 - 112*				

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346254 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19090535-01MSD** Units: **UG/L** Analysis Date: **13-Sep-2019 15:52**
Client ID: Run ID: **VOA6_346254** SeqNo: **5252720** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	32.56	2.0	40	0	81.4	39 - 160	33.45	2.71	20	
Surr: 1,2-Dichloroethane-d4	*46.21*	*1.0*	*50*	*0*	*92.4*	*81 - 118*	*46.6*	*0.826*	*20*	
Surr: 4-Bromofluorobenzene	*50.61*	*1.0*	*50*	*0*	*101*	*85 - 114*	*50.2*	*0.813*	*20*	
Surr: Dibromofluoromethane	*46.69*	*1.0*	*50*	*0*	*93.4*	*80 - 119*	*46.58*	*0.238*	*20*	
Surr: Toluene-d8	*47.87*	*1.0*	*50*	*0*	*95.7*	*89 - 112*	*48.35*	*0.985*	*20*	

The following samples were analyzed in this batch: HS19090511-06

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346164 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-091219** Units: **mg/L** Analysis Date: **12-Sep-2019 17:42**
Client ID: Run ID: **ICS-Integrion_346164** SeqNo: **5250735** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-091219** Units: **mg/L** Analysis Date: **12-Sep-2019 17:59**
Client ID: Run ID: **ICS-Integrion_346164** SeqNo: **5250736** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.011	0.100	4	0	100	80 - 120				
Nitrogen, Nitrite (As N)	4.162	0.100	4	0	104	80 - 120				
Sulfate	20.13	0.500	20	0	101	80 - 120				

LCSD Sample ID: **WLCSDW1-091219** Units: **mg/L** Analysis Date: **12-Sep-2019 18:15**
Client ID: Run ID: **ICS-Integrion_346164** SeqNo: **5250737** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	3.997	0.100	4	0	99.9	80 - 120	4.011	0.365	20	
Nitrogen, Nitrite (As N)	4.146	0.100	4	0	104	80 - 120	4.162	0.366	20	
Sulfate	20.13	0.500	20	0	101	80 - 120	20.13	0.00745	20	

MS Sample ID: **HS19090511-02MS** Units: **mg/L** Analysis Date: **12-Sep-2019 21:35**
Client ID: **35AWW20_091119** Run ID: **ICS-Integrion_346164** SeqNo: **5250980** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.02	0.100	2	0	101	80 - 120				
Nitrogen, Nitrite (As N)	2.105	0.100	2	0	105	80 - 120				
Sulfate	1164	0.500	10	1156	73.4	80 - 120				SEO

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346164 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS19090511-02MSD** Units: **mg/L** Analysis Date: **12-Sep-2019 21:52**
Client ID: **35AWW20_091119** Run ID: **ICS-Integrion_346164** SeqNo: **5250981** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	2.035	0.100	2	0	102	80 - 120	2.02	0.735	20	
Nitrogen, Nitrite (As N)	2.128	0.100	2	0	106	80 - 120	2.105	1.09	20	
Sulfate	1173	0.500	10	1156	166	80 - 120	1164	0.793	20	SEO

The following samples were analyzed in this batch: HS19090511-01 HS19090511-02 HS19090511-03 HS19090511-04 HS19090511-05 HS19090511-06 HS19090511-07

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19090511

QC BATCH REPORT

Batch ID: R346978 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW2-092519** Units: **mg/L** Analysis Date: **26-Sep-2019 00:25**
Client ID: Run ID: **ICS-Integrion_346978** SeqNo: **5268869** 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: **WLCSW2-092519** Units: **mg/L** Analysis Date: **26-Sep-2019 00:42**
Client ID: Run ID: **ICS-Integrion_346978** SeqNo: **5268870** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.87	0.500	20	0	99.3	80 - 120				
Sulfate	20.25	0.500	20	0	101	80 - 120				

LCSD Sample ID: **WLCSDW2-092519** Units: **mg/L** Analysis Date: **26-Sep-2019 00:58**
Client ID: Run ID: **ICS-Integrion_346978** SeqNo: **5268871** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.76	0.500	20	0	98.8	80 - 120	19.87	0.565	20	
Sulfate	20.08	0.500	20	0	100	80 - 120	20.25	0.834	20	

MS Sample ID: **HS19090511-02MS** Units: **mg/L** Analysis Date: **26-Sep-2019 01:48**
Client ID: **35AWW20_091119** Run ID: **ICS-Integrion_346978** SeqNo: **5268874** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1085	10.0	200	901.8	91.5	80 - 120				O
Sulfate	1377	10.0	200	1197	90.1	80 - 120				O

MSD Sample ID: **HS19090511-02MSD** Units: **mg/L** Analysis Date: **26-Sep-2019 02:05**
Client ID: **35AWW20_091119** Run ID: **ICS-Integrion_346978** SeqNo: **5268875** PrepDate: DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1078	10.0	200	901.8	88.0	80 - 120	1085	0.649	20	O
Sulfate	1365	10.0	200	1197	84.3	80 - 120	1377	0.841	20	O

The following samples were analyzed in this batch: HS19090511-01 HS19090511-02 HS19090511-03 HS19090511-04 HS19090511-05 HS19090511-06 HS19090511-07

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19090511**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Houston, US Date: 03-Oct-19

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Carolina	624-2019	31-Dec-2019
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-141	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19090511

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	WET111
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	Sub
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	Sub
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	VOA257
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	Sub
HS19090511-01	35AWW19_091119	Login	9/12/2019 12:27:15 PM	JML	Sub
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-02	35AWW20_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-03	LHSMW07_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-04	35AWW06_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-05	35AWW06_091119_a	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-05	35AWW06_091119_a	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-05	35AWW06_091119_a	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-05	35AWW06_091119_a	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-06	35AWW23_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	WET111
HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	VOA257
HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	Sub

ALS Houston, US Date: 03-Oct-19

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19090511

SAMPLE TRACKING

HS19090511-07	35AWW11_091119	Login	9/12/2019 12:36:52 PM	JML	Sub
HS19090511-08	Trip Blank	Login	9/12/2019 12:38:33 PM	JML	VOA257

00996521

ALS Houston, US Date: 03-Oct-19

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19090511
Date/Time Received: **12-Sep-2019 08:50**
Received by: **AC**

Checklist completed by: *Paresh M. Giga* 12-Sep-2019
eSignature | Date

Reviewed by: _____
eSignature | Date

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

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

Temperature(s)/Thermometer(s):	1.8c U/c	IR25
Cooler(s)/Kit(s):	43953	
Date/Time sample(s) sent to storage:	9/12/19 13:20	

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

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

00996522

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

Chain of Custody and Analytical Request

Page: ____ of ____

Project/Phase No: NWO1312.0150

HS19090511

Bhate Environmental Associates, Inc.

LHAAP-58

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / LHAAP-58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TDC	CO2	ANIONS	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW19_09111 9		11 Sep 2019	0710	-	N		WG	10	X	X	X	X	X				
35AWW20_09111 9		11 Sep 2019	0810	-	N		WG	10	X	X	X	X	X				
35AWW20_09111 9_MS		11 Sep 2019	0810	-	MS		WG	10	X	X	X	X	X				
35AWW20_09111 9_MSD		11 Sep 2019	0810	-	SD		WG	10	X	X	X	X	X				
LHSMW07_09111 9		11 Sep 2019	0915	-	N		WG	10	X	X	X	X	X				
35AWW06_09111 9		11 Sep 2019	1015	-	N		WG	10	X	X	X	X	X				
35AWW06_09111 9_a		11 Sep 2019	1015	-	FD		WG	10	X	X	X	X	X				
35AWW23_09111 9		11 Sep 2019	1125	-	N		WG	10	X	X	X	X	X				
35AWW11_09111 9		11 Sep 2019	1235	-	N		WG	10	X	X	X	X	X				
TRIP BLANK		11 Sep 2019		-	TB		W	2	X								
				-													

Sample Analysis Requested (5)

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	9/11/19	1330	1. AC	09/12/19	08:50
2.			2.		
3.			3.		

VC 1.8 IR#25 CF 0.0 43953

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped No.:

Method of Shipment: ____

Fed Ex ____ Airbill Number:

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

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

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

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

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

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

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

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

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

43953

CUSTODY SEAL

Date: 9/11/19 Time: 1330
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 09/12/19

43953

Must Deliver Next Business Day
Time and Tempature Sensitive!

43953

ORIGIN ID:SGRA (903) 930-8193
SCOTT BEESINER
BHATE ENVIRONMENTAL ASSOCIATES
1203-B EAST GRAND AVE. PMB202

MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 04SEP19
ACTWGT: 1.00 LB MAN
CAD: 3001307/CAFE3211
DIMS: 26x14x14 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656

REF: WEST PUSM2-30 57486-CC

RMA:

FedEx Express

FedEx
TRK# 4809 7837 5327

THU - 12 SEP 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

1ID 162705 11SEP19 0GSA 568C1/9084/0C0A

ALS Environmental
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October 02, 2019

Analytical Report for Service Request No: K1909004

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

RE: HS19090511

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory September 13, 2019
For your reference, these analyses have been assigned our service request number **K1909004.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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ALS Environmental

Client: ALS Environmental - US
Project: HS19090511
Sample Matrix: Water

Service Request: K1909004
Date Received: 09/13/2019

CASE NARRATIVE

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

Sample Receipt:

One water sample was received for analysis at ALS Environmental on 09/13/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The sample was stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 10/02/2019

Chain of Custody

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9004
KL908452

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Houston, TX 77099
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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12161**

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:	HS19090511
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19090511-02**	**35AWW20_091119**	**Groundwater**	**11 Sep 2019 08:10**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
2.	**HS19090511-03**	**LHSMW07_091119**	**Groundwater**	**11 Sep 2019 09:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
3.	**HS19090511-04**	**35AWW06_091119**	**Groundwater**	**11 Sep 2019 10:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
4.	**HS19090511-05**	**35AWW06_091119_a**	**Groundwater**	**11 Sep 2019 10:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
5.	**HS19090511-06**	**35AWW23_091119**	**Groundwater**	**11 Sep 2019 11:25**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
6.	**HS19090511-07**	**35AWW11_091119**	**Groundwater**	**11 Sep 2019 12:35**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS19090511-02 MS/MSD

QC Level: DOD IV (DoD Data Package)

Received: ALS
Cody Graves 9/13/19
1000

9004
KL40845L

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **12161**

Relinquished By: _____ Date/Time: 9/12/19 1800.

Received By: _____ Date/Time: 9/13/19 1000

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

ALS

Cooler Receipt and Preservation Form

9004 PC KL

Client ALS, Houston Service Request K19 08452

Received: 9/13/19 Opened: 9/13/19 By: CG Unloaded: 9/13/19 By: CG

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.5	-0.4	0.8	0.9	+0.1	360	12161	4809 7837 8755	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: Received 2 vials for HS1909051I-01 (35AWW19_091119) collected 9/11/19 @ 0710. Not listed on COC.

7/25/16 *Page* ____ *of* ____

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1909004
Project:	HS19090511	**Date Collected:**	09/11/19
Sample Matrix:	Water	**Date Received:**	09/13/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW19_091119	K1909004-001	**1.19**	0.50	0.20	0.07	1	09/29/19 02:07	
Method Blank	K1909004-MB	ND U	0.50	0.20	0.07	1	09/28/19 23:46	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1909004
Project	HS19090511	**Date Collected:**	09/11/19
Sample Matrix:	Water	**Date Received:**	09/13/19
		Date Analyzed:	09/29/19

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	35AWW19_091119	**Units:**	mg/L
Lab Code:	K1909004-001	**Basis:**	NA

Analyte Name	Analysis Method	LOQ	LOD	MDL	Sample Result	Duplicate Sample K1909004-001DUP Result	Average	RPD	RPD Limit
Carbon, Total Organic	SM 5310 C	0.50	0.20	0.07	1.19	1.14	1.17	4	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:**	K1909004
Project:	HS19090511	**Date Analyzed:**	09/29/19
Sample Matrix:	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:	653373

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1909004-LCS	24.4	25.0	98	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1909004
Project: HS19090511

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	653373	KQ1913973-01	09/28/19 14:30	25.0	24.5	98	90-110
CCV2	653373	KQ1913973-02	09/28/19 18:33	25.0	24.1	97	90-110
CCV3	653373	KQ1913973-03	09/28/19 23:17	25.0	23.9	96	90-110
CCV4	653373	KQ1913973-04	09/29/19 04:00	25.0	23.5	94	90-110
CCV5	653373	KQ1913973-25	09/29/19 12:37	25.0	23.7	95	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1909004
Project: HS19090511

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	653373	KQ1913973-05	09/28/19 14:45	0.50	0.20	0.07	ND	U
CCB2	653373	KQ1913973-06	09/28/19 18:47	0.50	0.20	0.07	ND	U
CCB3	653373	KQ1913973-07	09/28/19 23:31	0.50	0.20	0.07	ND	U
CCB4	653373	KQ1913973-08	09/29/19 04:14	0.50	0.20	0.07	ND	U
CCB5	653373	KQ1913973-26	09/29/19 12:52	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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8714, 8802
IV IV

Original
Work Request # ( ) T1901580, K1908491, 8525, 8546, 8565, 8683, 8707, 8754

Tier: IV II III II I II IV II

9004
IV

Date Analyzed: QB 10/1/19 9 10/1/19

DOC: 653372
653374

Analyst: QB for BCD

Run # TOC: 653373
653375

Analysis: TOC/DOC

DATA QUALITY REPORT
INORGANICS

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

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

COMMENTS:
10. K1908683-1 lidup RPD is 11%
- sample concentration is less than 5x MRL

17. T1901580 was due 9/30/19
K1908525 was due 10/1/19
K1908546 was due 9/30/19

Final Approved by: [signature] Date: 10/01/19

DQREPORT

00996544

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653372 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913972-01	Carbon, Dissolved Organic (DOC)	CCV		Water	24.45 mg/L	10 mL	24.5 mg/L	1					9/28/19 14:30:00	N	IV
KQ1913972-02	Carbon, Dissolved Organic (DOC)	CCV		Water	24.15 mg/L	10 mL	24.1 mg/L	1					9/28/19 18:33:00	N	IV
KQ1913972-03	Carbon, Dissolved Organic (DOC)	CCV		Water	23.92 mg/L	10 mL	23.9 mg/L	1					9/28/19 23:17:00	N	IV
KQ1913972-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 14:45:00	N	IV
KQ1913972-05	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 18:47:00	N	IV
KQ1913972-06	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 23:31:00	N	IV
KQ1913972-07	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 14:59:00	N	IV
KQ1913972-08	Carbon, Dissolved Organic (DOC)	LCS		Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		9/28/19 15:14:00	N	IV
KQ1913972-09	Carbon, Dissolved Organic (DOC)	MS	T1901580-097	Water	29.96 mg/L	10 mL	30.0 mg/L	1	0.07	0.50	106		9/28/19 17:08:00	N	IV
KQ1913972-10	Carbon, Dissolved Organic (DOC)	DUP	T1901580-097	Water	3.54 mg/L	10 mL	3.54 mg/L	1	0.07	0.50		<1	9/28/19 16:40:00	N	IV
KQ1913972-11	Carbon, Dissolved Organic (DOC)	DUP	T1901580-098	Water	3.39 mg/L	10 mL	3.39 mg/L	1	0.07	0.50		1	9/28/19 17:37:00	N	IV
KQ1913972-12	Carbon, Dissolved Organic (DOC)	DUP	T1901580-099	Water	3.38 mg/L	10 mL	3.38 mg/L	1	0.07	0.50		<1	9/28/19 18:05:00	N	IV
KQ1913972-13	Carbon, Dissolved Organic (DOC)	DUP	T1901580-100	Water	2.43 mg/L	10 mL	2.43 mg/L	1	0.07	0.50		5	9/28/19 19:02:00	N	IV
KQ1913972-14	Carbon, Dissolved Organic (DOC)	DUP	T1901580-101	Water	3.35 mg/L	10 mL	3.35 mg/L	1	0.07	0.50		1	9/28/19 19:30:00	N	IV
KQ1913972-15	Carbon, Dissolved Organic (DOC)	DUP	T1901580-102	Water	2.95 mg/L	10 mL	2.95 mg/L	1	0.07	0.50		2	9/28/19 19:58:00	N	IV
KQ1913972-16	Carbon, Dissolved Organic (DOC)	DUP	T1901580-103	Water	3.41 mg/L	10 mL	3.41 mg/L	1	0.07	0.50		1	9/28/19 20:26:00	N	IV
KQ1913972-17	Carbon, Dissolved Organic (DOC)	DUP	T1901580-104	Water	3.41 mg/L	10 mL	3.41 mg/L	1	0.07	0.50		1	9/28/19 20:55:00	N	IV
T1901580-097	Carbon, Dissolved Organic (DOC)	N/A		Water	3.54 mg/L	10 mL	3.54 mg/L	1	0.07	0.50			9/28/19 16:40:00	N	IV
T1901580-098	Carbon, Dissolved Organic (DOC)	N/A		Water	3.43 mg/L	10 mL	3.43 mg/L	1	0.07	0.50			9/28/19 17:37:00	N	IV
T1901580-099	Carbon, Dissolved Organic (DOC)	N/A		Water	3.39 mg/L	10 mL	3.39 mg/L	1	0.07	0.50			9/28/19 18:05:00	N	IV
T1901580-100	Carbon, Dissolved Organic (DOC)	N/A		Water	2.54 mg/L	10 mL	2.54 mg/L	1	0.07	0.50			9/28/19 19:02:00	N	IV
T1901580-101	Carbon, Dissolved Organic (DOC)	N/A		Water	3.31 mg/L	10 mL	3.31 mg/L	1	0.07	0.50			9/28/19 19:30:00	N	IV
T1901580-102	Carbon, Dissolved Organic (DOC)	N/A		Water	2.90 mg/L	10 mL	2.90 mg/L	1	0.07	0.50			9/28/19 19:58:00	N	IV

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

10/01/19

AB for BCD 10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653372 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
T1901580-103	Carbon, Dissolved Organic (DOC)	N/A		Water	3.36 mg/L	10 mL	3.36 mg/L	1	0.07	0.50			9/28/19 20:26:00	N	IV
T1901580-104	Carbon, Dissolved Organic (DOC)	N/A		Water	3.36 mg/L	10 mL	3.36 mg/L	1	0.07	0.50			9/28/19 20:55:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653373 **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
K1908491-003	Carbon, Total Organic	N/A		Water	6.14 mg/L	10 mL	614 mg/L	100	7	50			9/29/19 02:35:00	N	II
K1908491-004	Carbon, Total Organic	N/A		Water	4.83 mg/L	10 mL	483 mg/L	100	7	50			9/29/19 03:03:00	N	II
K1908491-005	Carbon, Total Organic	N/A		Water	4.60 mg/L	10 mL	460 mg/L	100	7	50			9/29/19 03:32:00	N	II
K1908525-009	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 21:23:00	N	III
K1908546-001	Carbon, Total Organic	N/A		Water	3.11 mg/L	10 mL	3.11 mg/L	1	0.07	0.50			9/28/19 22:06:00	N	II
K1908546-002	Carbon, Total Organic	N/A		Water	1.63 mg/L	10 mL	1.63 mg/L	1	0.07	0.50			9/28/19 22:20:00	N	II
K1908565-001	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 15:43:00	N	I
K1908565-002	Carbon, Total Organic	N/A		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 16:11:00	N	I
K1908683-001	Carbon, Total Organic	N/A		Water	1.30 mg/L	10 mL	1.30 mg/L	1	0.07	0.50			9/29/19 00:15:00	N	II
K1908683-002	Carbon, Total Organic	N/A		Water	1.97 mg/L	10 mL	1.97 mg/L	1	0.07	0.50			9/29/19 00:43:00	N	II
K1908707-001	Carbon, Total Organic	N/A		Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50			9/29/19 01:39:00	N	IV
K1908754-001	Carbon, Total Organic	N/A		Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			9/29/19 04:29:00	N	II
K1909004-001	Carbon, Total Organic	N/A		Water	1.19 mg/L	10 mL	1.19 mg/L	1	0.07	0.50			9/29/19 02:07:00	N	IV
KQ1913973-01	Carbon, Total Organic	CCV		Reagent Water	24.45 mg/L	10 mL	24.5 mg/L	1					9/28/19 14:30:00	N	I
KQ1913973-02	Carbon, Total Organic	CCV		Reagent Water	24.15 mg/L	10 mL	24.1 mg/L	1					9/28/19 18:33:00	N	I
KQ1913973-03	Carbon, Total Organic	CCV		Reagent Water	23.92 mg/L	10 mL	23.9 mg/L	1					9/28/19 23:17:00	N	I
KQ1913973-04	Carbon, Total Organic	CCV		Reagent Water	23.54 mg/L	10 mL	23.5 mg/L	1					9/29/19 04:00:00	N	I
KQ1913973-05	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 14:45:00	N	I
KQ1913973-06	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 18:47:00	N	I
KQ1913973-07	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 23:31:00	N	I
KQ1913973-08	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/29/19 04:14:00	N	I
KQ1913973-09	Carbon, Total Organic	MB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/28/19 23:46:00	N	I
KQ1913973-10	Carbon, Total Organic	LCS		Reagent Water	24.39 mg/L	10 mL	24.4 mg/L	1	0.07	0.50	98		9/29/19 00:01:00	N	I
KQ1913973-11	Carbon, Total Organic	MS	K1908525-009	Water	25.07 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		9/28/19 21:51:00	N	III
KQ1913973-12	Carbon, Total Organic	DUP	K1908565-001	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/28/19 15:43:00	N	I
KQ1913973-13	Carbon, Total Organic	DUP	K1908565-002	Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/28/19 16:11:00	N	I
KQ1913973-14	Carbon, Total Organic	DUP	K1908525-009	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/28/19 21:23:00	N	III
KQ1913973-15	Carbon, Total Organic	DUP	K1908546-001	Water	3.12 mg/L	10 mL	3.12 mg/L	1	0.07	0.50		<1	9/28/19 22:06:00	N	II
KQ1913973-16	Carbon, Total Organic	DUP	K1908546-002	Water	1.67 mg/L	10 mL	1.67 mg/L	1	0.07	0.50		2	9/28/19 22:20:00	N	II

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Results Summary

10/01/19

QA for BCD 10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653373 **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
KQ1913973-17	Carbon, Total Organic	DUP	K1908683-001	Water	1.17 mg/L	10 mL	1.17 mg/L	1	0.07	0.50		11*	9/29/19 00:15:00	N	II
KQ1913973-18	Carbon, Total Organic	DUP	K1908683-002	Water	2.02 mg/L	10 mL	2.02 mg/L	1	0.07	0.50		2	9/29/19 00:43:00	N	II
KQ1913973-19	Carbon, Total Organic	DUP	K1908707-001	Water	1.18 mg/L	10 mL	1.18 mg/L	1	0.07	0.50		4	9/29/19 01:39:00	N	IV
KQ1913973-20	Carbon, Total Organic	DUP	K1909004-001	Water	1.14 mg/L	10 mL	1.14 mg/L	1	0.07	0.50		4	9/29/19 02:07:00	N	IV
KQ1913973-21	Carbon, Total Organic	DUP	K1908491-003	Water	6.20 mg/L	10 mL	620 mg/L	100	7	50		<1	9/29/19 02:35:00	N	II
KQ1913973-22	Carbon, Total Organic	DUP	K1908491-004	Water	4.77 mg/L	10 mL	477 mg/L	100	7	50		1	9/29/19 03:03:00	N	II
KQ1913973-23	Carbon, Total Organic	DUP	K1908491-005	Water	4.60 mg/L	10 mL	460 mg/L	100	7	50		<1	9/29/19 03:32:00	N	II
KQ1913973-24	Carbon, Total Organic	DUP	K1908754-001	Water	1.38 mg/L	10 mL	1.38 mg/L	1	0.07	0.50		2	9/29/19 04:29:00	N	II
KQ1913973-25	Carbon, Total Organic	CCV		Reagent Water	23.67 mg/L	10 mL	23.7 mg/L	1					9/29/19 12:37:00	N	I
KQ1913973-26	Carbon, Total Organic	CCB		Reagent Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/29/19 12:52:00	N	I

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

QB for BCD
10/1/19

00996548

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653374 **Method/Testcode:** 9060A/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1908714-022	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	2.01 mg/L	10 mL	2.01 mg/L	1		0.50			9/29/19 04:57:00	N	IV
K1908714-023	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	9.11 mg/L	10 mL	9.11 mg/L	1		0.50			9/29/19 07:03:00	N	IV
K1908714-024	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.60 mg/L	10 mL	0.60 mg/L	1		0.50			9/29/19 07:59:00	N	IV
K1908714-026	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	4.50 mg/L	10 mL	4.50 mg/L	1		0.50			9/29/19 08:54:00	N	IV
K1908714-027	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	1.17 mg/L	10 mL	1.17 mg/L	1		0.50			9/29/19 09:50:00	N	IV
K1908802-001	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	4.08 mg/L	10 mL	4.08 mg/L	1		0.50			9/29/19 10:46:00	N	IV
K1908802-002	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	7.87 mg/L	10 mL	7.87 mg/L	1		0.50			9/29/19 11:42:00	N	IV
K1908802-003	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	1.00 mg/L	10 mL	1.00 mg/L	1		0.50			9/29/19 14:58:00	N	IV
K1908802-004	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50			9/29/19 15:54:00	N	IV
K1908802-005	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.69 mg/L	10 mL	0.69 mg/L	1		0.50			9/29/19 16:50:00	N	IV
K1908802-008	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.60 mg/L	10 mL	0.60 mg/L	1		0.50			9/29/19 17:46:00	N	IV
K1908802-009	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	3.75 mg/L	10 mL	3.75 mg/L	1		0.50			9/29/19 18:41:00	N	IV
K1908802-011	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.77 mg/L	10 mL	0.77 mg/L	1		0.50			9/29/19 19:37:00	N	IV
K1908802-014	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.83 mg/L	10 mL	0.83 mg/L	1		0.50			9/29/19 20:32:00	N	IV
K1908802-015	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.82 mg/L	10 mL	0.82 mg/L	1		0.50			9/29/19 21:28:00	N	IV
K1908802-017	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.75 mg/L	10 mL	0.75 mg/L	1		0.50			9/29/19 22:53:00	N	IV
K1908802-018	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	1.08 mg/L	10 mL	1.08 mg/L	1		0.50			9/29/19 23:49:00	N	IV
K1908802-019	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.48 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 00:45:00	N	IV
K1908802-020	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	0.50 mg/L	10 mL	0.50 mg/L	1		0.50			9/30/19 01:40:00	N	IV
K1908802-022	Carbon, Dissolved Organic (DOC)	N/A		Pore Water	1.36 mg/L	10 mL	1.36 mg/L	1		0.50			9/30/19 02:36:00	N	IV
KQ1913974-01	Carbon, Dissolved Organic (DOC)	CCV		Pore Water	23.54 mg/L	10 mL	23.5 mg/L	1					9/29/19 04:00:00	N	IV
KQ1913974-02	Carbon, Dissolved Organic (DOC)	CCV		Pore Water	23.67 mg/L	10 mL	23.7 mg/L	1					9/29/19 12:37:00	N	IV
KQ1913974-03	Carbon, Dissolved Organic (DOC)	CCV		Pore Water	23.09 mg/L	10 mL	23.1 mg/L	1					9/29/19 22:24:00	N	IV

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

10/01/19

AB for BCD 10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653374 **Method/Testcode:** 9060A/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913974-04	Carbon, Dissolved Organic (DOC)	CCV		Pore Water	22.84 mg/L	10 mL	22.8 mg/L	1					9/30/19 07:29:00	N	IV
KQ1913974-05	Carbon, Dissolved Organic (DOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 04:14:00	N	IV
KQ1913974-06	Carbon, Dissolved Organic (DOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 12:52:00	N	IV
KQ1913974-07	Carbon, Dissolved Organic (DOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 22:38:00	N	IV
KQ1913974-08	Carbon, Dissolved Organic (DOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:44:00	N	IV
KQ1913974-09	Carbon, Dissolved Organic (DOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 13:06:00	N	IV
KQ1913974-10	Carbon, Dissolved Organic (DOC)	LCS		Pore Water	24.32 mg/L	10 mL	24.3 mg/L	1		0.50	97		9/29/19 14:02:00	N	IV
KQ1913974-11	Carbon, Dissolved Organic (DOC)	MS	K1908714-022	Pore Water	24.82 mg/L	10 mL	99.3 mg/L	4		2.0	97		9/29/19 05:53:00	N	IV
KQ1913974-12	Carbon, Dissolved Organic (DOC)	MS	K1908714-022	Pore Water	25.07 mg/L	10 mL	100 mg/L	4		2.0	98		9/29/19 05:53:00	N	IV
KQ1913974-13	Carbon, Dissolved Organic (DOC)	MS	K1908714-022	Pore Water	25.08 mg/L	10 mL	100 mg/L	4		2.0	98		9/29/19 05:53:00	N	IV
KQ1913974-14	Carbon, Dissolved Organic (DOC)	MS	K1908714-022	Pore Water	24.97 mg/L	10 mL	99.9 mg/L	4		2.0	98		9/29/19 05:53:00	N	IV
KQ1913974-15	Carbon, Dissolved Organic (DOC)	DUP	K1908714-022	Pore Water	2.15 mg/L	10 mL	2.15 mg/L	1		0.50		7	9/29/19 04:57:00	N	IV
KQ1913974-16	Carbon, Dissolved Organic (DOC)	TRP	K1908714-022	Pore Water	2.21 mg/L	10 mL	2.21 mg/L	1		0.50		5	9/29/19 04:57:00	N	IV
KQ1913974-17	Carbon, Dissolved Organic (DOC)	QUAD	K1908714-022	Pore Water	2.27 mg/L	10 mL	2.27 mg/L	1		0.50		5	9/29/19 04:57:00	N	IV
KQ1913974-18	Carbon, Dissolved Organic (DOC)	DUP	K1908714-023	Pore Water	9.08 mg/L	10 mL	9.08 mg/L	1		0.50		<1	9/29/19 07:03:00	N	IV
KQ1913974-19	Carbon, Dissolved Organic (DOC)	TRP	K1908714-023	Pore Water	9.10 mg/L	10 mL	9.10 mg/L	1		0.50		<1	9/29/19 07:03:00	N	IV
KQ1913974-20	Carbon, Dissolved Organic (DOC)	QUAD	K1908714-023	Pore Water	9.12 mg/L	10 mL	9.12 mg/L	1		0.50		<1	9/29/19 07:03:00	N	IV
KQ1913974-21	Carbon, Dissolved Organic (DOC)	DUP	K1908714-024	Pore Water	0.55 mg/L	10 mL	0.55 mg/L	1		0.50		9	9/29/19 07:59:00	N	IV
KQ1913974-22	Carbon, Dissolved Organic (DOC)	TRP	K1908714-024	Pore Water	0.56 mg/L	10 mL	0.56 mg/L	1		0.50		5	9/29/19 07:59:00	N	IV
KQ1913974-23	Carbon, Dissolved Organic (DOC)	QUAD	K1908714-024	Pore Water	0.52 mg/L	10 mL	0.52 mg/L	1		0.50		6	9/29/19 07:59:00	N	IV
KQ1913974-24	Carbon, Dissolved Organic (DOC)	DUP	K1908714-026	Pore Water	4.46 mg/L	10 mL	4.46 mg/L	1		0.50		<1	9/29/19 08:54:00	N	IV
KQ1913974-25	Carbon, Dissolved Organic (DOC)	TRP	K1908714-026	Pore Water	4.47 mg/L	10 mL	4.47 mg/L	1		0.50		<1	9/29/19 08:54:00	N	IV
KQ1913974-26	Carbon, Dissolved Organic (DOC)	QUAD	K1908714-026	Pore Water	4.54 mg/L	10 mL	4.54 mg/L	1		0.50		<1	9/29/19 08:54:00	N	IV

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

QB for BCD
10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653374 **Method/Testcode:** 9060A/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913974-27	Carbon, Dissolved Organic (DOC)	DUP	K1908714-027	Pore Water	1.15 mg/L	10 mL	1.15 mg/L	1		0.50		2	9/29/19 09:50:00	N	IV
KQ1913974-28	Carbon, Dissolved Organic (DOC)	TRP	K1908714-027	Pore Water	1.14 mg/L	10 mL	1.14 mg/L	1		0.50		1	9/29/19 09:50:00	N	IV
KQ1913974-29	Carbon, Dissolved Organic (DOC)	QUAD	K1908714-027	Pore Water	1.12 mg/L	10 mL	1.12 mg/L	1		0.50		2	9/29/19 09:50:00	N	IV
KQ1913974-30	Carbon, Dissolved Organic (DOC)	DUP	K1908802-001	Pore Water	4.08 mg/L	10 mL	4.08 mg/L	1		0.50		<1	9/29/19 10:46:00	N	IV
KQ1913974-31	Carbon, Dissolved Organic (DOC)	TRP	K1908802-001	Pore Water	4.16 mg/L	10 mL	4.16 mg/L	1		0.50		1	9/29/19 10:46:00	N	IV
KQ1913974-32	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-001	Pore Water	4.18 mg/L	10 mL	4.18 mg/L	1		0.50		1	9/29/19 10:46:00	N	IV
KQ1913974-33	Carbon, Dissolved Organic (DOC)	DUP	K1908802-002	Pore Water	7.90 mg/L	10 mL	7.90 mg/L	1		0.50		<1	9/29/19 11:42:00	N	IV
KQ1913974-34	Carbon, Dissolved Organic (DOC)	TRP	K1908802-002	Pore Water	7.95 mg/L	10 mL	7.95 mg/L	1		0.50		<1	9/29/19 11:42:00	N	IV
KQ1913974-35	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-002	Pore Water	8.00 mg/L	10 mL	8.00 mg/L	1		0.50		<1	9/29/19 11:42:00	N	IV
KQ1913974-36	Carbon, Dissolved Organic (DOC)	DUP	K1908802-003	Pore Water	0.97 mg/L	10 mL	0.97 mg/L	1		0.50		4	9/29/19 14:58:00	N	IV
KQ1913974-37	Carbon, Dissolved Organic (DOC)	TRP	K1908802-003	Pore Water	0.95 mg/L	10 mL	0.95 mg/L	1		0.50		3	9/29/19 14:58:00	N	IV
KQ1913974-38	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-003	Pore Water	0.94 mg/L	10 mL	0.94 mg/L	1		0.50		3	9/29/19 14:58:00	N	IV
KQ1913974-39	Carbon, Dissolved Organic (DOC)	DUP	K1908802-004	Pore Water	0.66 mg/L	10 mL	0.66 mg/L	1		0.50		1	9/29/19 15:54:00	N	IV
KQ1913974-40	Carbon, Dissolved Organic (DOC)	TRP	K1908802-004	Pore Water	0.73 mg/L	10 mL	0.73 mg/L	1		0.50		5	9/29/19 15:54:00	N	IV
KQ1913974-41	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-004	Pore Water	0.72 mg/L	10 mL	0.72 mg/L	1		0.50		5	9/29/19 15:54:00	N	IV
KQ1913974-42	Carbon, Dissolved Organic (DOC)	DUP	K1908802-005	Pore Water	0.71 mg/L	10 mL	0.71 mg/L	1		0.50		3	9/29/19 16:50:00	N	IV
KQ1913974-43	Carbon, Dissolved Organic (DOC)	TRP	K1908802-005	Pore Water	0.71 mg/L	10 mL	0.71 mg/L	1		0.50		2	9/29/19 16:50:00	N	IV
KQ1913974-44	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-005	Pore Water	0.65 mg/L	10 mL	0.65 mg/L	1		0.50		4	9/29/19 16:50:00	N	IV
KQ1913974-45	Carbon, Dissolved Organic (DOC)	DUP	K1908802-008	Pore Water	0.58 mg/L	10 mL	0.58 mg/L	1		0.50		4	9/29/19 17:46:00	N	IV
KQ1913974-46	Carbon, Dissolved Organic (DOC)	TRP	K1908802-008	Pore Water	0.62 mg/L	10 mL	0.62 mg/L	1		0.50		4	9/29/19 17:46:00	N	IV
KQ1913974-47	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-008	Pore Water	0.60 mg/L	10 mL	0.60 mg/L	1		0.50		3	9/29/19 17:46:00	N	IV
KQ1913974-48	Carbon, Dissolved Organic (DOC)	DUP	K1908802-009	Pore Water	3.80 mg/L	10 mL	3.80 mg/L	1		0.50		2	9/29/19 18:41:00	N	IV
KQ1913974-49	Carbon, Dissolved Organic (DOC)	TRP	K1908802-009	Pore Water	3.85 mg/L	10 mL	3.85 mg/L	1		0.50		1	9/29/19 18:41:00	N	IV

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

QA for BCD
10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653374 **Method/Testcode:** 9060A/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913974-50	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-009	Pore Water	3.81 mg/L	10 mL	3.81 mg/L	1		0.50		1	9/29/19 18:41:00	N	IV
KQ1913974-51	Carbon, Dissolved Organic (DOC)	DUP	K1908802-011	Pore Water	0.76 mg/L	10 mL	0.76 mg/L	1		0.50		2	9/29/19 19:37:00	N	IV
KQ1913974-52	Carbon, Dissolved Organic (DOC)	TRP	K1908802-011	Pore Water	0.74 mg/L	10 mL	0.74 mg/L	1		0.50		2	9/29/19 19:37:00	N	IV
KQ1913974-53	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-011	Pore Water	0.73 mg/L	10 mL	0.73 mg/L	1		0.50		2	9/29/19 19:37:00	N	IV
KQ1913974-54	Carbon, Dissolved Organic (DOC)	DUP	K1908802-014	Pore Water	0.80 mg/L	10 mL	0.80 mg/L	1		0.50		4	9/29/19 20:32:00	N	IV
KQ1913974-55	Carbon, Dissolved Organic (DOC)	TRP	K1908802-014	Pore Water	0.83 mg/L	10 mL	0.83 mg/L	1		0.50		2	9/29/19 20:32:00	N	IV
KQ1913974-56	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-014	Pore Water	0.83 mg/L	10 mL	0.83 mg/L	1		0.50		2	9/29/19 20:32:00	N	IV
KQ1913974-57	Carbon, Dissolved Organic (DOC)	DUP	K1908802-015	Pore Water	0.88 mg/L	10 mL	0.88 mg/L	1		0.50		6	9/29/19 21:28:00	N	IV
KQ1913974-58	Carbon, Dissolved Organic (DOC)	TRP	K1908802-015	Pore Water	0.85 mg/L	10 mL	0.85 mg/L	1		0.50		3	9/29/19 21:28:00	N	IV
KQ1913974-59	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-015	Pore Water	0.81 mg/L	10 mL	0.81 mg/L	1		0.50		3	9/29/19 21:28:00	N	IV
KQ1913974-60	Carbon, Dissolved Organic (DOC)	DUP	K1908802-017	Pore Water	0.74 mg/L	10 mL	0.74 mg/L	1		0.50		<1	9/29/19 22:53:00	N	IV
KQ1913974-61	Carbon, Dissolved Organic (DOC)	TRP	K1908802-017	Pore Water	0.74 mg/L	10 mL	0.74 mg/L	1		0.50		<1	9/29/19 22:53:00	N	IV
KQ1913974-62	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-017	Pore Water	0.70 mg/L	10 mL	0.70 mg/L	1		0.50		3	9/29/19 22:53:00	N	IV
KQ1913974-63	Carbon, Dissolved Organic (DOC)	DUP	K1908802-018	Pore Water	1.13 mg/L	10 mL	1.13 mg/L	1		0.50		5	9/29/19 23:49:00	N	IV
KQ1913974-64	Carbon, Dissolved Organic (DOC)	TRP	K1908802-018	Pore Water	1.09 mg/L	10 mL	1.09 mg/L	1		0.50		3	9/29/19 23:49:00	N	IV
KQ1913974-65	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-018	Pore Water	1.10 mg/L	10 mL	1.10 mg/L	1		0.50		2	9/29/19 23:49:00	N	IV
KQ1913974-66	Carbon, Dissolved Organic (DOC)	DUP	K1908802-019	Pore Water	0.48 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 00:45:00	N	IV
KQ1913974-67	Carbon, Dissolved Organic (DOC)	TRP	K1908802-019	Pore Water	0.51 mg/L	10 mL	0.51 mg/L	1		0.50		NC	9/30/19 00:45:00	N	IV
KQ1913974-68	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-019	Pore Water	0.51 mg/L	10 mL	0.51 mg/L	1		0.50		NC	9/30/19 00:45:00	N	IV
KQ1913974-69	Carbon, Dissolved Organic (DOC)	DUP	K1908802-020	Pore Water	0.53 mg/L	10 mL	0.53 mg/L	1		0.50		5	9/30/19 01:40:00	N	IV
KQ1913974-70	Carbon, Dissolved Organic (DOC)	TRP	K1908802-020	Pore Water	0.52 mg/L	10 mL	0.52 mg/L	1		0.50		3	9/30/19 01:40:00	N	IV
KQ1913974-71	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-020	Pore Water	0.55 mg/L	10 mL	0.55 mg/L	1		0.50		4	9/30/19 01:40:00	N	IV
KQ1913974-72	Carbon, Dissolved Organic (DOC)	DUP	K1908802-022	Pore Water	1.43 mg/L	10 mL	1.43 mg/L	1		0.50		5	9/30/19 02:36:00	N	IV

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

AB for BCD
10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653374 **Method/Testcode:** 9060A/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913974-73	Carbon, Dissolved Organic (DOC)	TRP	K1908802-022	Pore Water	1.41 mg/L	10 mL	1.41 mg/L	1		0.50		3	9/30/19 02:36:00	N	IV
KQ1913974-74	Carbon, Dissolved Organic (DOC)	QUAD	K1908802-022	Pore Water	1.41 mg/L	10 mL	1.41 mg/L	1		0.50		2	9/30/19 02:36:00	N	IV
KQ1913974-75	Carbon, Dissolved Organic (DOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 13:06:00	N	IV
KQ1913974-76	Carbon, Dissolved Organic (DOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 13:06:00	N	IV
KQ1913974-77	Carbon, Dissolved Organic (DOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 13:06:00	N	IV
KQ1913974-78	Carbon, Dissolved Organic (DOC)	LCS		Pore Water	24.06 mg/L	10 mL	24.1 mg/L	1		0.50	96		9/29/19 14:02:00	N	IV
KQ1913974-79	Carbon, Dissolved Organic (DOC)	LCS		Pore Water	24.11 mg/L	10 mL	24.1 mg/L	1		0.50	96		9/29/19 14:02:00	N	IV
KQ1913974-80	Carbon, Dissolved Organic (DOC)	LCS		Pore Water	24.23 mg/L	10 mL	24.2 mg/L	1		0.50	97		9/29/19 14:02:00	N	IV

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QB for BCD
10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653375 **Method/Testcode:** 9060A/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
K1908714-022	Carbon, Total Organic (TOC)	N/A		Pore Water	2.40 mg/L	10 mL	2.40 mg/L	1		0.50			9/30/19 03:32:00	N	IV
K1908714-023	Carbon, Total Organic (TOC)	N/A		Pore Water	9.05 mg/L	10 mL	9.05 mg/L	1		0.50			9/30/19 05:38:00	N	IV
K1908714-024	Carbon, Total Organic (TOC)	N/A		Pore Water	0.50 mg/L	10 mL	0.50 mg/L	1		0.50			9/30/19 06:34:00	N	IV
K1908714-026	Carbon, Total Organic (TOC)	N/A		Pore Water	4.52 mg/L	10 mL	4.52 mg/L	1		0.50			9/30/19 09:50:00	N	IV
K1908714-027	Carbon, Total Organic (TOC)	N/A		Pore Water	1.00 mg/L	10 mL	1.00 mg/L	1		0.50			9/30/19 10:46:00	N	IV
K1908714-029	Carbon, Total Organic (TOC)	N/A		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 11:42:00	N	IV
K1908802-001	Carbon, Total Organic (TOC)	N/A		Pore Water	3.96 mg/L	10 mL	3.96 mg/L	1		0.50			9/30/19 12:38:00	N	IV
K1908802-002	Carbon, Total Organic (TOC)	N/A		Pore Water	7.91 mg/L	10 mL	7.91 mg/L	1		0.50			9/30/19 13:33:00	N	IV
K1908802-003	Carbon, Total Organic (TOC)	N/A		Pore Water	0.90 mg/L	10 mL	0.90 mg/L	1		0.50			9/30/19 14:29:00	N	IV
K1908802-004	Carbon, Total Organic (TOC)	N/A		Pore Water	0.56 mg/L	10 mL	0.56 mg/L	1		0.50			9/30/19 15:25:00	N	IV
K1908802-005	Carbon, Total Organic (TOC)	N/A		Pore Water	0.62 mg/L	10 mL	0.62 mg/L	1		0.50			9/30/19 16:20:00	N	IV
K1908802-008	Carbon, Total Organic (TOC)	N/A		Pore Water	0.59 mg/L	10 mL	0.59 mg/L	1		0.50			9/30/19 17:46:00	N	IV
K1908802-009	Carbon, Total Organic (TOC)	N/A		Pore Water	3.85 mg/L	10 mL	3.85 mg/L	1		0.50			9/30/19 18:42:00	N	IV
K1908802-010	Carbon, Total Organic (TOC)	N/A		Water	1.43 mg/L	10 mL	1.43 mg/L	1		0.50			9/30/19 19:37:00	N	IV
K1908802-011	Carbon, Total Organic (TOC)	N/A		Pore Water	0.69 mg/L	10 mL	0.69 mg/L	1		0.50			9/30/19 20:33:00	N	IV
K1908802-013	Carbon, Total Organic (TOC)	N/A		Pore Water	0.37 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 21:29:00	N	IV
K1908802-015	Carbon, Total Organic (TOC)	N/A		Pore Water	0.64 mg/L	10 mL	0.64 mg/L	1		0.50			9/30/19 22:24:00	N	IV
K1908802-017	Carbon, Total Organic (TOC)	N/A		Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50			9/30/19 23:20:00	N	IV
K1908802-018	Carbon, Total Organic (TOC)	N/A		Pore Water	0.86 mg/L	10 mL	0.86 mg/L	1		0.50			10/1/19 00:16:00	N	IV
K1908802-019	Carbon, Total Organic (TOC)	N/A		Pore Water	0.44 mg/L	10 mL	0.50 mg/L U	1		0.50			10/1/19 01:11:00	N	IV
KQ1913975-01	Carbon, Total Organic (TOC)	CCV		Pore Water	23.09 mg/L	10 mL	23.1 mg/L	1					9/29/19 22:24:00	N	IV
KQ1913975-02	Carbon, Total Organic (TOC)	CCV		Pore Water	22.84 mg/L	10 mL	22.8 mg/L	1					9/30/19 07:29:00	N	IV
KQ1913975-03	Carbon, Total Organic (TOC)	CCV		Pore Water	23.68 mg/L	10 mL	23.7 mg/L	1					9/30/19 17:16:00	N	IV

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10/01/19 AB for BCD 10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653375 **Method/Testcode:** 9060A/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
KQ1913975-04	Carbon, Total Organic (TOC)	CCV		Pore Water	22.84 mg/L	10 mL	22.8 mg/L	1					10/1/19 02:07:00	N	IV
KQ1913975-05	Carbon, Total Organic (TOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/29/19 22:38:00	N	IV
KQ1913975-06	Carbon, Total Organic (TOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:44:00	N	IV
KQ1913975-07	Carbon, Total Organic (TOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 17:31:00	N	IV
KQ1913975-08	Carbon, Total Organic (TOC)	CCB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			10/1/19 02:22:00	N	IV
KQ1913975-09	Carbon, Total Organic (TOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:59:00	N	IV
KQ1913975-10	Carbon, Total Organic (TOC)	LCS		Pore Water	23.28 mg/L	10 mL	23.3 mg/L	1		0.50	93		9/30/19 08:54:00	N	IV
KQ1913975-11	Carbon, Total Organic (TOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:59:00	N	IV
KQ1913975-12	Carbon, Total Organic (TOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:59:00	N	IV
KQ1913975-13	Carbon, Total Organic (TOC)	MB		Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/30/19 07:59:00	N	IV
KQ1913975-14	Carbon, Total Organic (TOC)	LCS		Pore Water	23.42 mg/L	10 mL	23.4 mg/L	1		0.50	94		9/30/19 08:54:00	N	IV
KQ1913975-15	Carbon, Total Organic (TOC)	LCS		Pore Water	23.37 mg/L	10 mL	23.4 mg/L	1		0.50	93		9/30/19 08:54:00	N	IV
KQ1913975-16	Carbon, Total Organic (TOC)	LCS		Pore Water	23.38 mg/L	10 mL	23.4 mg/L	1		0.50	94		9/30/19 08:54:00	N	IV
KQ1913975-17	Carbon, Total Organic (TOC)	MS	K1908714-022	Pore Water	24.93 mg/L	10 mL	99.7 mg/L	4		2.0	97		9/30/19 04:28:00	N	IV
KQ1913975-18	Carbon, Total Organic (TOC)	MS	K1908714-022	Pore Water	25.04 mg/L	10 mL	100 mg/L	4		2.0	98		9/30/19 04:28:00	N	IV
KQ1913975-19	Carbon, Total Organic (TOC)	MS	K1908714-022	Pore Water	25.03 mg/L	10 mL	100 mg/L	4		2.0	98		9/30/19 04:28:00	N	IV
KQ1913975-20	Carbon, Total Organic (TOC)	MS	K1908714-022	Pore Water	25.12 mg/L	10 mL	100 mg/L	4		2.0	98		9/30/19 04:28:00	N	IV
KQ1913975-21	Carbon, Total Organic (TOC)	DUP	K1908714-022	Pore Water	2.76 mg/L	10 mL	2.76 mg/L	1		0.50		14	9/30/19 03:32:00	N	IV
KQ1913975-22	Carbon, Total Organic (TOC)	TRP	K1908714-022	Pore Water	2.87 mg/L	10 mL	2.87 mg/L	1		0.50		9	9/30/19 03:32:00	N	IV
KQ1913975-23	Carbon, Total Organic (TOC)	QUAD	K1908714-022	Pore Water	2.91 mg/L	10 mL	2.91 mg/L	1		0.50		8	9/30/19 03:32:00	N	IV
KQ1913975-24	Carbon, Total Organic (TOC)	DUP	K1908714-023	Pore Water	8.94 mg/L	10 mL	8.94 mg/L	1		0.50		1	9/30/19 05:38:00	N	IV
KQ1913975-25	Carbon, Total Organic (TOC)	TRP	K1908714-023	Pore Water	9.00 mg/L	10 mL	9.00 mg/L	1		0.50		<1	9/30/19 05:38:00	N	IV
KQ1913975-26	Carbon, Total Organic (TOC)	QUAD	K1908714-023	Pore Water	9.02 mg/L	10 mL	9.02 mg/L	1		0.50		<1	9/30/19 05:38:00	N	IV

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

AB for BCD
10/1/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653375 **Method/Testcode:** 9060A/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
KQ1913975-27	Carbon, Total Organic (TOC)	DUP	K1908714-024	Pore Water	0.43 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 06:34:00	N	IV
KQ1913975-28	Carbon, Total Organic (TOC)	TRP	K1908714-024	Pore Water	0.41 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 06:34:00	N	IV
KQ1913975-29	Carbon, Total Organic (TOC)	QUAD	K1908714-024	Pore Water	0.38 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 06:34:00	N	IV
KQ1913975-30	Carbon, Total Organic (TOC)	DUP	K1908714-026	Pore Water	4.38 mg/L	10 mL	4.38 mg/L	1		0.50		3	9/30/19 09:50:00	N	IV
KQ1913975-31	Carbon, Total Organic (TOC)	TRP	K1908714-026	Pore Water	4.48 mg/L	10 mL	4.48 mg/L	1		0.50		2	9/30/19 09:50:00	N	IV
KQ1913975-32	Carbon, Total Organic (TOC)	QUAD	K1908714-026	Pore Water	4.48 mg/L	10 mL	4.48 mg/L	1		0.50		1	9/30/19 09:50:00	N	IV
KQ1913975-33	Carbon, Total Organic (TOC)	DUP	K1908714-027	Pore Water	1.04 mg/L	10 mL	1.04 mg/L	1		0.50		4	9/30/19 10:46:00	N	IV
KQ1913975-34	Carbon, Total Organic (TOC)	TRP	K1908714-027	Pore Water	1.02 mg/L	10 mL	1.02 mg/L	1		0.50		2	9/30/19 10:46:00	N	IV
KQ1913975-35	Carbon, Total Organic (TOC)	QUAD	K1908714-027	Pore Water	1.03 mg/L	10 mL	1.03 mg/L	1		0.50		2	9/30/19 10:46:00	N	IV
KQ1913975-36	Carbon, Total Organic (TOC)	DUP	K1908714-029	Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 11:42:00	N	IV
KQ1913975-37	Carbon, Total Organic (TOC)	TRP	K1908714-029	Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 11:42:00	N	IV
KQ1913975-38	Carbon, Total Organic (TOC)	QUAD	K1908714-029	Pore Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 11:42:00	N	IV
KQ1913975-39	Carbon, Total Organic (TOC)	DUP	K1908802-001	Pore Water	4.04 mg/L	10 mL	4.04 mg/L	1		0.50		2	9/30/19 12:38:00	N	IV
KQ1913975-40	Carbon, Total Organic (TOC)	TRP	K1908802-001	Pore Water	4.07 mg/L	10 mL	4.07 mg/L	1		0.50		1	9/30/19 12:38:00	N	IV
KQ1913975-41	Carbon, Total Organic (TOC)	QUAD	K1908802-001	Pore Water	4.08 mg/L	10 mL	4.08 mg/L	1		0.50		1	9/30/19 12:38:00	N	IV
KQ1913975-42	Carbon, Total Organic (TOC)	DUP	K1908802-002	Pore Water	7.93 mg/L	10 mL	7.93 mg/L	1		0.50		<1	9/30/19 13:33:00	N	IV
KQ1913975-43	Carbon, Total Organic (TOC)	TRP	K1908802-002	Pore Water	7.97 mg/L	10 mL	7.97 mg/L	1		0.50		<1	9/30/19 13:33:00	N	IV
KQ1913975-44	Carbon, Total Organic (TOC)	QUAD	K1908802-002	Pore Water	7.96 mg/L	10 mL	7.96 mg/L	1		0.50		<1	9/30/19 13:33:00	N	IV
KQ1913975-45	Carbon, Total Organic (TOC)	DUP	K1908802-003	Pore Water	0.93 mg/L	10 mL	0.93 mg/L	1		0.50		4	9/30/19 14:29:00	N	IV
KQ1913975-46	Carbon, Total Organic (TOC)	TRP	K1908802-003	Pore Water	0.90 mg/L	10 mL	0.90 mg/L	1		0.50		2	9/30/19 14:29:00	N	IV
KQ1913975-47	Carbon, Total Organic (TOC)	QUAD	K1908802-003	Pore Water	0.92 mg/L	10 mL	0.92 mg/L	1		0.50		2	9/30/19 14:29:00	N	IV
KQ1913975-48	Carbon, Total Organic (TOC)	DUP	K1908802-004	Pore Water	0.59 mg/L	10 mL	0.59 mg/L	1		0.50		5	9/30/19 15:25:00	N	IV
KQ1913975-49	Carbon, Total Organic (TOC)	TRP	K1908802-004	Pore Water	0.53 mg/L	10 mL	0.53 mg/L	1		0.50		5	9/30/19 15:25:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653375 **Method/Testcode:** 9060A/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
KQ1913975-50	Carbon, Total Organic (TOC)	QUAD	K1908802-004	Pore Water	0.54 mg/L	10 mL	0.54 mg/L	1		0.50		4	9/30/19 15:25:00	N	IV
KQ1913975-51	Carbon, Total Organic (TOC)	DUP	K1908802-005	Pore Water	0.58 mg/L	10 mL	0.58 mg/L	1		0.50		6	9/30/19 16:20:00	N	IV
KQ1913975-52	Carbon, Total Organic (TOC)	TRP	K1908802-005	Pore Water	0.56 mg/L	10 mL	0.56 mg/L	1		0.50		5	9/30/19 16:20:00	N	IV
KQ1913975-53	Carbon, Total Organic (TOC)	QUAD	K1908802-005	Pore Water	0.57 mg/L	10 mL	0.57 mg/L	1		0.50		4	9/30/19 16:20:00	N	IV
KQ1913975-54	Carbon, Total Organic (TOC)	DUP	K1908802-008	Pore Water	0.59 mg/L	10 mL	0.59 mg/L	1		0.50		<1	9/30/19 17:46:00	N	IV
KQ1913975-55	Carbon, Total Organic (TOC)	TRP	K1908802-008	Pore Water	0.57 mg/L	10 mL	0.57 mg/L	1		0.50		2	9/30/19 17:46:00	N	IV
KQ1913975-56	Carbon, Total Organic (TOC)	QUAD	K1908802-008	Pore Water	0.54 mg/L	10 mL	0.54 mg/L	1		0.50		4	9/30/19 17:46:00	N	IV
KQ1913975-57	Carbon, Total Organic (TOC)	DUP	K1908802-009	Pore Water	3.87 mg/L	10 mL	3.87 mg/L	1		0.50		<1	9/30/19 18:42:00	N	IV
KQ1913975-58	Carbon, Total Organic (TOC)	TRP	K1908802-009	Pore Water	3.85 mg/L	10 mL	3.85 mg/L	1		0.50		<1	9/30/19 18:42:00	N	IV
KQ1913975-59	Carbon, Total Organic (TOC)	QUAD	K1908802-009	Pore Water	3.90 mg/L	10 mL	3.90 mg/L	1		0.50		<1	9/30/19 18:42:00	N	IV
KQ1913975-60	Carbon, Total Organic (TOC)	DUP	K1908802-010	Water	1.49 mg/L	10 mL	1.49 mg/L	1		0.50		4	9/30/19 19:37:00	N	IV
KQ1913975-61	Carbon, Total Organic (TOC)	TRP	K1908802-010	Water	1.41 mg/L	10 mL	1.41 mg/L	1		0.50		3	9/30/19 19:37:00	N	IV
KQ1913975-62	Carbon, Total Organic (TOC)	QUAD	K1908802-010	Water	1.41 mg/L	10 mL	1.41 mg/L	1		0.50		3	9/30/19 19:37:00	N	IV
KQ1913975-63	Carbon, Total Organic (TOC)	DUP	K1908802-011	Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50		3	9/30/19 20:33:00	N	IV
KQ1913975-64	Carbon, Total Organic (TOC)	TRP	K1908802-011	Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50		2	9/30/19 20:33:00	N	IV
KQ1913975-65	Carbon, Total Organic (TOC)	QUAD	K1908802-011	Pore Water	0.65 mg/L	10 mL	0.65 mg/L	1		0.50		2	9/30/19 20:33:00	N	IV
KQ1913975-66	Carbon, Total Organic (TOC)	DUP	K1908802-013	Pore Water	0.41 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 21:29:00	N	IV
KQ1913975-67	Carbon, Total Organic (TOC)	TRP	K1908802-013	Pore Water	0.43 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 21:29:00	N	IV
KQ1913975-68	Carbon, Total Organic (TOC)	QUAD	K1908802-013	Pore Water	0.40 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/30/19 21:29:00	N	IV
KQ1913975-69	Carbon, Total Organic (TOC)	DUP	K1908802-015	Pore Water	0.69 mg/L	10 mL	0.69 mg/L	1		0.50		7	9/30/19 22:24:00	N	IV
KQ1913975-70	Carbon, Total Organic (TOC)	TRP	K1908802-015	Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50		3	9/30/19 22:24:00	N	IV
KQ1913975-71	Carbon, Total Organic (TOC)	QUAD	K1908802-015	Pore Water	0.65 mg/L	10 mL	0.65 mg/L	1		0.50		3	9/30/19 22:24:00	N	IV
KQ1913975-72	Carbon, Total Organic (TOC)	DUP	K1908802-017	Pore Water	0.67 mg/L	10 mL	0.67 mg/L	1		0.50		1	9/30/19 23:20:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 653375 **Method/Testcode:** 9060A/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
KQ1913975-73	Carbon, Total Organic (TOC)	TRP	K1908802-017	Pore Water	0.68 mg/L	10 mL	0.68 mg/L	1		0.50		<1	9/30/19 23:20:00	N	IV
KQ1913975-74	Carbon, Total Organic (TOC)	QUAD	K1908802-017	Pore Water	0.64 mg/L	10 mL	0.64 mg/L	1		0.50		3	9/30/19 23:20:00	N	IV
KQ1913975-75	Carbon, Total Organic (TOC)	DUP	K1908802-018	Pore Water	0.88 mg/L	10 mL	0.88 mg/L	1		0.50		2	10/1/19 00:16:00	N	IV
KQ1913975-76	Carbon, Total Organic (TOC)	TRP	K1908802-018	Pore Water	0.93 mg/L	10 mL	0.93 mg/L	1		0.50		4	10/1/19 00:16:00	N	IV
KQ1913975-77	Carbon, Total Organic (TOC)	QUAD	K1908802-018	Pore Water	0.88 mg/L	10 mL	0.88 mg/L	1		0.50		3	10/1/19 00:16:00	N	IV
KQ1913975-78	Carbon, Total Organic (TOC)	DUP	K1908802-019	Pore Water	0.44 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	10/1/19 01:11:00	N	IV
KQ1913975-79	Carbon, Total Organic (TOC)	TRP	K1908802-019	Pore Water	0.48 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	10/1/19 01:11:00	N	IV
KQ1913975-80	Carbon, Total Organic (TOC)	QUAD	K1908802-019	Pore Water	0.47 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	10/1/19 01:11:00	N	IV

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

AB for BCD
10/1/19

DOC:653372, 653374
TOC:653373, 653375

Schedule: 09282019

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/09/28 14:04 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Running
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1908565-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1908565-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	T1901580-097.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	T1901580-097.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	T1901580-098.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	T1901580-099.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	T1901580-100.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	T1901580-101.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	T1901580-102.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	T1901580-103.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	T1901580-104.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1908525-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1908525-009.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
17	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
18	Sample	K1908546-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1908546-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1908683-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1908683-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1908707-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1909004-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1908491-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1908491-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1908491-005.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1908754-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1908714-022.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
31	Sample	K1908714-022.09 ms 4x doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
32	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
33	Sample	K1908714-023.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
34	Sample	K1908714-024.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
35	Sample	K1908714-026.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
36	Sample	K1908714-027.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
37	Sample	K1908802-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
38	Sample	K1908802-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

10/01/19

Schedule: 09282019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
40	Sample	K1908802-003.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
41	Sample	K1908802-004.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
42	Sample	K1908802-005.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
43	Sample	K1908802-008.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
44	Sample	K1908802-009.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
45	Sample	K1908802-011.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
46	Sample	K1908802-014.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
47	Sample	K1908802-015.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1908802-017.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
49	Sample	K1908802-018.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
50	Sample	K1908802-019.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
51	Sample	K1908802-020.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
52	Sample	K1908802-022.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
53	Sample	K1908714-022.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
54	Sample	K1908714-022.08 ms 4x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
55	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
56	Sample	K1908714-023.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
57	Sample	K1908714-024.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
59	Sample	K1908714-026.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
60	Sample	K1908714-027.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
61	Sample	K1908714-029.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
62	Sample	K1908802-001.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
63	Sample	K1908802-002.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
64	Sample	K1908802-003.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
65	Sample	K1908802-004.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
66	Sample	K1908802-005.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1908802-008.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
68	Sample	K1908802-009.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
69	Sample	K1908802-010.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
70	Sample	K1908802-011.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
71	Sample	K1908802-013.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
72	Sample	K1908802-015.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
73	Sample	K1908802-017.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
74	Sample	K1908802-018.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
75	Sample	K1908802-019.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Schedule: 09282019

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/09/28 14:04 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1908565-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1908565-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	T1901580-097.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	T1901580-097.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	T1901580-098.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	T1901580-099.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	T1901580-100.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	T1901580-101.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	T1901580-102.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	T1901580-103.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	T1901580-104.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1908525-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1908525-009.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
17	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
18	Sample	K1908546-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1908546-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1908683-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1908683-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1908707-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1909004-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1908491-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1908491-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1908491-005.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1908754-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1908714-022.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
31	Sample	K1908714-022.09 ms 4x doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
32	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
33	Sample	K1908714-023.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
34	Sample	K1908714-024.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
35	Sample	K1908714-026.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
36	Sample	K1908714-027.09 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
37	Sample	K1908802-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
38	Sample	K1908802-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

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Schedule: 09282019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
40	Sample	K1908802-003.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
41	Sample	K1908802-004.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
42	Sample	K1908802-005.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
43	Sample	K1908802-008.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
44	Sample	K1908802-009.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
45	Sample	K1908802-011.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
46	Sample	K1908802-014.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
47	Sample	K1908802-015.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1908802-017.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
49	Sample	K1908802-018.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
50	Sample	K1908802-019.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
51	Sample	K1908802-020.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
52	Sample	K1908802-022.04 doc	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
53	Sample	K1908714-022.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
54	Sample	K1908714-022.08 ms 4x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
55	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
56	Sample	K1908714-023.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
57	Sample	K1908714-024.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
59	Sample	K1908714-026.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
60	Sample	K1908714-027.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
61	Sample	K1908714-029.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
62	Sample	K1908802-001.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
63	Sample	K1908802-002.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
64	Sample	K1908802-003.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
65	Sample	K1908802-004.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
66	Sample	K1908802-005.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1908802-008.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
68	Sample	K1908802-009.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
69	Sample	K1908802-010.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
70	Sample	K1908802-011.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
71	Sample	K1908802-013.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
72	Sample	K1908802-015.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
73	Sample	K1908802-017.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
74	Sample	K1908802-018.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
75	Sample	K1908802-019.03	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 09282019
Saturday, September 28, 2019 12:01 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/10/01 09:46 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	09282019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v5) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7)		
Comment:			

Report Results

10/01/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/28 12:01

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.19	15.92	3.73	49.84	05:24
2	TC Clean	6.36	10.01	3.65	50.23	04:02
3	TC Clean	2.60	6.22	3.62	50.31	03:46
4	TC Clean	1.70	5.38	3.68	50.29	03:47

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/28 12:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.77	14.18	3.42	49.89	05:10
2	TC Clean	8.79	12.05	3.26	50.18	04:03
3	TC Clean	6.35	9.83	3.48	50.25	03:48

4	TC Clean	3.76	7.30	3.54	50.27	03:56

Sample Type: Clean From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/28 12:59

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.42	14.05	3.63	49.56	05:20
2	TC Clean	9.36	13.06	3.70	50.16	04:02
3	TC Clean	4.96	8.55	3.59	50.27	03:57
4	TC Clean	2.72	6.22	3.50	50.26	03:55

Sample Type: Blank (Creating v1300) From Schedule Version 6

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/09/28 13:42

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.59	14.02	3.43	49.80	05:19
2	TC Clean	8.52	11.95	3.42	50.11	04:02
3	TC Clean	3.33	6.95	3.62	50.16	03:47
4	TC Clean	2.12	5.54	3.42	50.22	03:44
5	Reagent Blank	5.24	8.83	3.59	50.13	05:03
6	Acid Blank	1.29	4.83	3.54	49.86	05:30

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.4730 ppm	0.0000 ppm	0.0000%	2019/09/28 14:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4730	4.7299	12.08	15.66	3.58	50.30	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4545 ppm (PASS)	0.0000 ppm	0%	2019/09/28 14:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4545	244.5447	175.46	179.08	3.62	50.29	10:32

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/28 14:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.38	12.09	3.71	50.30	10:29

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 14:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.81	11.44	3.63	50.32	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.0753 ppm (PASS)	0.0000 ppm	0%	2019/09/28 15:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0753	250.7528	179.67	183.23	3.55	50.30	10:29

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.2501 ppm	0.0000 ppm	0.0000%	2019/09/28 15:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2501	2.5009	10.56	14.23	3.66	50.30	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1908565-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 15:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.58	11.26	3.69	50.29	10:29
2	TOC	0.0000	0.0000	7.41	11.00	3.59	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1908565-002.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 16:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.02	10.62	3.60	50.29	10:28
2	TOC	0.0000	0.0000	7.67	11.32	3.65	50.28	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	T1901580-097.04 doc	3.5395 ppm	0.0058 ppm	0.1600%	2019/09/28 16:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5353	35.3533	32.86	36.21	3.34	50.27	10:27
2	TOC	3.5436	35.4358	32.92	36.49	3.57	50.28	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	T1901580-097.04 ms doc	29.9600 ppm	0.0000 ppm	0.0000%	2019/09/28 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.9600	299.5999	212.23	215.66	3.43	50.26	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 17:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.17	11.65	3.48	50.24	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	T1901580-098.04 doc	3.4118 ppm	0.0286 ppm	0.8400%	2019/09/28 17:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.4321	34.3206	32.16	35.43	3.27	50.26	10:29
2	TOC	3.3915	33.9155	31.89	35.44	3.55	50.26	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	T1901580-099.04 doc	3.3888 ppm	0.0070 ppm	0.2100%	2019/09/28 18:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3938	33.9376	31.90	35.31	3.41	50.25	10:30
2	TOC	3.3839	33.8389	31.83	35.40	3.57	50.27	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration	Dil	Sample ID	Min / Max	Result	Std. Dev.	RSD	Start Time

			(ppm)			(% dev)				
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1483 ppm (PASS)	0.0000 ppm	0%	2019/09/28 18:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1483	241.4834	173.38	176.96	3.58	50.28	10:30

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

Sample Type: Check Standard --> CCB

From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/28 18:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.59	11.12	3.53	50.30	10:31

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

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	T1901580-100.04 doc	2.4845 ppm	0.0829 ppm	3.3400%	2019/09/28 19:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5431	25.4313	26.13	29.79	3.66	50.30	10:31
2	TOC	2.4259	24.2586	25.33	28.94	3.61	50.30	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	T1901580-101.04 doc	3.3329 ppm	0.0285 ppm	0.8600%	2019/09/28 19:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3127	33.1273	31.35	34.97	3.62	50.34	10:24
2	TOC	3.3531	33.5310	31.63	35.15	3.53	50.36	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC)	CAS_salt_010711	CAS_salt_010711

(v1300) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	T1901580-102.04 doc	2.9232 ppm	0.0321 ppm	1.1000%	2019/09/28 19:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9005	29.0053	28.55	31.99	3.44	50.37	10:27
2	TOC	2.9459	29.4590	28.86	32.36	3.49	50.40	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	T1901580-103.04 doc	3.3879 ppm	0.0334 ppm	0.9900%	2019/09/28 20:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3643	33.6429	31.70	35.28	3.58	50.41	10:29
2	TOC	3.4116	34.1158	32.02	35.57	3.55	50.43	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	T1901580-104.04 doc	2.9933 ppm	0.0016 ppm	0.0500%	2019/09/28 20:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9944	29.9437	29.19	32.78	3.59	50.45	10:30
2	TOC	2.9922	29.9216	29.18	32.89	3.71	50.46	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1908525-009.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 21:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.26	10.88	3.62	50.48	10:32
2	TOC	0.0000	0.0000	7.40	10.98	3.58	50.49	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1908525-009.02 ms	25.0660 ppm	0.0000 ppm	0.0000%	2019/09/28 21:51

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

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	25.0660	250.6602	179.01	182.61	3.59	50.50	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 22:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.43	11.11	3.67	50.54	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1908546-001.01	3.1128 ppm	0.0052 ppm	0.1700%	2019/09/28 22:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1091	31.0914	29.97	33.54	3.57	50.54	10:30
2	TOC	3.1165	31.1650	30.02	33.56	3.54	50.55	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1908546-002.01	1.6535 ppm	0.0289 ppm	1.7500%	2019/09/28 22:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6331	16.3314	19.95	23.34	3.39	50.57	10:30
2	TOC	1.6739	16.7394	20.23	23.70	3.47	50.57	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9163 ppm (PASS)	0.0000 ppm	0%	2019/09/28 23:17

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9163	239.1631	171.80	175.48	3.67	50.58	10:34

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/28 23:31

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.13	10.65	3.51	50.59	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/28 23:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.25	9.82	3.57	50.61	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.3882 ppm (PASS)	0.0000 ppm	0%	2019/09/29 00:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.3882	243.8818	175.01	178.50	3.49	50.60	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1908683-001.01	1.2332 ppm	0.0922 ppm	7.4800%	2019/09/29 00:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2984	12.9842	17.68	21.23	3.55	50.61	10:29
2	TOC	1.1680	11.6805	16.79	20.43	3.64	50.60	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1908683-002.01	1.9951 ppm	0.0313 ppm	1.5700%	2019/09/29 00:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9730	19.7300	22.26	25.92	3.66	50.58	10:28
2	TOC	2.0172	20.1720	22.56	26.05	3.49	50.54	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/29 01:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.99	9.67	3.68	50.50	10:29
2	TOC	0.0000	0.0000	6.19	9.74	3.55	50.49	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1908707-001.01	1.1622 ppm	0.0303 ppm	2.6100%	2019/09/29 01:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1408	11.4079	16.61	20.06	3.45	50.49	10:26
2	TOC	1.1837	11.8366	16.90	20.37	3.47	50.48	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1909004-001.01	1.1686 ppm	0.0335 ppm	2.8700%	2019/09/29 02:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1924	11.9235	16.96	20.41	3.45	50.48	10:30

2	TOC	1.1449	11.4492	16.64	20.28	3.64	50.47	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K1908491-003.01 100x	6.1668 ppm	0.0399 ppm	0.6500%	2019/09/29 02:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1386	61.3863	50.53	54.19	3.66	50.55	10:27
2	TOC	6.1950	61.9505	50.92	54.49	3.58	50.48	10:25

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K1908491-004.01 100x	4.8006 ppm	0.0439 ppm	0.9100%	2019/09/29 03:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.8316	48.3160	41.66	45.40	3.74	50.51	10:27
2	TOC	4.7696	47.6958	41.24	44.88	3.64	50.53	10:24

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K1908491-005.01 100x	4.5981 ppm	0.0017 ppm	0.0400%	2019/09/29 03:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5993	45.9928	40.08	43.61	3.52	50.55	10:28
2	TOC	4.5969	45.9692	40.07	43.68	3.61	50.55	10:24

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.5411 ppm (PASS)	0.0000 ppm	0%	2019/09/29 04:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.5411	235.4109	169.26	172.83	3.58	50.54	10:31

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/29 04:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.96	10.49	3.53	50.57	10:34

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1908754-001.01	1.3679 ppm	0.0216 ppm	1.5800%	2019/09/29 04:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3526	13.5264	18.05	21.74	3.69	50.60	10:26
2	TOC	1.3831	13.8313	18.25	21.85	3.60	50.61	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1908714-022.09 doc	2.1610 ppm	0.1135 ppm	5.2500%	2019/09/29 04:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0088	20.0880	22.50	26.11	3.60	50.61	10:31
2	TOC	2.1485	21.4846	23.45	26.98	3.53	50.65	10:27
3	TOC	2.2134	22.1343	23.89	27.49	3.60	50.63	10:25
4	TOC	2.2732	22.7324	24.30	27.82	3.53	50.61	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1908714-022.09 ms 4x doc	24.9857 ppm	0.1246 ppm	0.5000%	2019/09/29 05:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.9650	249.6495	178.33	181.93	3.61	50.63	10:25
2	TOC	25.0775	250.7751	179.09	182.83	3.74	50.62	10:27
3	TOC	25.0827	250.8266	179.12	182.77	3.65	50.63	10:27
4	TOC	24.8175	248.1749	177.32	181.08	3.76	50.65	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/29 06:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.83	11.43	3.60	50.65	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1908714-023.09 doc	9.1032 ppm	0.0162 ppm	0.1800%	2019/09/29 07:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.1086	91.0860	70.69	74.31	3.62	50.64	10:27
2	TOC	9.0812	90.8120	70.51	74.15	3.64	50.66	10:28
3	TOC	9.1033	91.0329	70.66	74.35	3.69	50.67	10:28
4	TOC	9.1198	91.1979	70.77	74.41	3.64	50.67	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1908714-024.09 doc	0.5584 ppm	0.0322 ppm	5.7700%	2019/09/29 07:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6006	6.0057	12.94	16.53	3.59	50.68	10:27
2	TOC	0.5505	5.5048	12.60	16.22	3.62	50.68	10:28
3	TOC	0.5599	5.5991	12.67	16.30	3.63	50.67	10:28
4	TOC	0.5228	5.2278	12.41	15.88	3.47	50.66	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1908714-026.09 doc	4.4932 ppm	0.0342 ppm	0.7600%	2019/09/29 08:54

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	4.4995	44.9954	39.41	42.82	3.42	50.67	10:30
2	TOC	4.4624	44.6242	39.16	42.71	3.56	50.67	10:28
3	TOC	4.4721	44.7214	39.22	42.90	3.67	50.66	10:31
4	TOC	4.5387	45.3873	39.67	43.22	3.55	50.66	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1908714-027.09 doc	1.1416 ppm	0.0208 ppm	1.8200%	2019/09/29 09:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1670	11.6701	16.79	20.40	3.61	50.68	10:28
2	TOC	1.1458	11.4580	16.64	20.24	3.60	50.67	10:27
3	TOC	1.1368	11.3681	16.58	20.23	3.65	50.66	10:28
4	TOC	1.1169	11.1693	16.45	20.06	3.61	50.66	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1908802-001.04 doc	4.1264 ppm	0.0500 ppm	1.2100%	2019/09/29 10:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.0834	40.8336	36.58	40.28	3.70	50.66	10:30
2	TOC	4.0840	40.8395	36.59	40.11	3.52	50.64	10:30
3	TOC	4.1594	41.5938	37.10	40.73	3.63	50.65	10:28
4	TOC	4.1790	41.7897	37.23	40.95	3.72	50.64	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1908802-002.04 doc	7.9303 ppm	0.0575 ppm	0.7300%	2019/09/29 11:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.8655	78.6551	62.26	65.80	3.54	50.64	10:28
2	TOC	7.9047	79.0470	62.52	66.18	3.65	50.62	10:29
3	TOC	7.9535	79.5346	62.85	66.64	3.79	50.70	10:23
4	TOC	7.9977	79.9766	63.15	66.89	3.73	50.63	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.6660 ppm (PASS)	0.0000 ppm	0%	2019/09/29 12:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6660	236.6602	170.11	173.63	3.52	50.61	10:30

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/29 12:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.76	10.37	3.60	50.60	10:32

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/29 13:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.96	9.51	3.55	50.61	10:29
2	TOC	0.0000	0.0000	6.34	10.00	3.66	50.59	10:27
3	TOC	0.0000	0.0000	5.80	9.43	3.63	50.59	10:28
4	TOC	0.0000	0.0000	6.23	9.55	3.33	50.58	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈										

	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.1799 ppm (PASS)	0.1223 ppm	0.51%	2019/09/29 14:02

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.3247	243.2468	174.58	178.00	3.43	50.58	10:27
C	TOC	25.0 ppm	2	24.0557	240.5568	172.75	176.37	3.62	50.58	10:27
C	TOC	25.0 ppm	3	24.1052	241.0518	173.09	176.77	3.69	50.58	10:28
C	TOC	25.0 ppm	4	24.2339	242.3393	173.96	177.71	3.75	50.57	10:29

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1908802-003.04 doc	0.9652 ppm	0.0272 ppm	2.8200%	2019/09/29 14:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0030	10.0305	15.67	19.13	3.45	50.57	10:28
2	TOC	0.9653	9.6533	15.42	19.00	3.58	50.56	10:25
3	TOC	0.9516	9.5163	15.32	18.95	3.62	50.58	10:30
4	TOC	0.9407	9.4073	15.25	18.93	3.68	50.55	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1908802-004.04 doc	0.6956 ppm	0.0325 ppm	4.6700%	2019/09/29 15:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6717	6.7172	13.42	17.11	3.68	50.56	10:26
2	TOC	0.6638	6.6377	13.37	17.02	3.65	50.56	10:28
3	TOC	0.7268	7.2682	13.80	17.34	3.54	50.56	10:30
4	TOC	0.7202	7.2019	13.75	17.33	3.57	50.54	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1908802-005.04 doc	0.6900 ppm	0.0253 ppm	3.6700%	2019/09/29 16:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6887	6.8867	13.54	17.14	3.60	50.54	10:29
2	TOC	0.7088	7.0885	13.68	17.30	3.63	50.54	10:29

3	TOC	0.7077	7.0767	13.67	17.17	3.50	50.55	10:27
4	TOC	0.6546	6.5464	13.31	16.92	3.61	50.56	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1908802-008.04 doc	0.5987 ppm	0.0174 ppm	2.9000%	2019/09/29 17:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5989	5.9895	12.93	16.51	3.58	50.59	10:27
2	TOC	0.5774	5.7744	12.78	16.43	3.65	50.59	10:25
3	TOC	0.6200	6.2002	13.07	16.64	3.57	50.58	10:25
4	TOC	0.5985	5.9851	12.93	16.52	3.59	50.61	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1908802-009.04 doc	3.8040 ppm	0.0438 ppm	1.1500%	2019/09/29 18:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7457	37.4571	34.29	37.96	3.67	50.61	10:29
2	TOC	3.8048	38.0478	34.69	38.29	3.59	50.62	10:29
3	TOC	3.8516	38.5163	35.01	38.47	3.46	50.63	10:28
4	TOC	3.8139	38.1391	34.75	38.37	3.62	50.62	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1908802-011.04 doc	0.7525 ppm	0.0185 ppm	2.4600%	2019/09/29 19:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7743	7.7426	14.12	17.65	3.52	50.65	10:30
2	TOC	0.7595	7.5953	14.02	17.57	3.55	50.65	10:24
3	TOC	0.7449	7.4494	13.92	17.55	3.62	50.68	10:25
4	TOC	0.7314	7.3139	13.83	17.45	3.62	50.69	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1908802-014.04 doc	0.8208 ppm	0.0164 ppm	2.0000%	2019/09/29 20:32

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

1	TOC	0.8280	8.2803	14.49	18.17	3.68	50.71	10:29
2	TOC	0.7964	7.9636	14.27	17.86	3.58	50.71	10:29
3	TOC	0.8267	8.2671	14.48	18.12	3.64	50.73	10:25
4	TOC	0.8320	8.3201	14.51	17.94	3.43	50.73	10:30

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	K1908802-015.04 doc	0.8409 ppm	0.0286 ppm	3.4000%	2019/09/29 21:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8246	8.2464	14.46	18.10	3.64	50.77	10:26
2	TOC	0.8777	8.7768	14.82	18.37	3.55	50.75	10:28
3	TOC	0.8484	8.4836	14.62	17.99	3.37	50.79	10:28
4	TOC	0.8130	8.1300	14.38	17.93	3.54	50.81	10:26

Dilution 1:10 | **Blank Contribution** (TC) 8.8654 (IC) (v1300) | **Method** CAS_salt_010711 (v4) | **Calibration** CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.0947 ppm (PASS)	0.0000 ppm	0%	2019/09/29 22:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.0947	230.9471	166.23	169.88	3.66	50.84	10:33

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

Sample Type: Check Standard --> CCB — From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/29 22:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.64	9.32	3.68	50.85	10:31

Completion State Success - Criteria | **Success Action** Do Nothing | **Method** CAS_salt_010711 | **Calibration** CAS_salt_010711 | **STD Conc - Pos D** 0 ppmC

met.	(v4)	(v30)

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1908802-017.04 doc	0.7321 ppm	0.0239 ppm	3.2700%	2019/09/29 22:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7461	7.4612	13.93	17.48	3.55	50.85	10:29
2	TOC	0.7446	7.4465	13.92	17.45	3.53	50.87	10:27
3	TOC	0.7413	7.4126	13.90	17.60	3.71	50.88	10:26
4	TOC	0.6963	6.9633	13.59	17.20	3.60	50.88	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1908802-018.04 doc	1.1014 ppm	0.0232 ppm	2.1100%	2019/09/29 23:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0780	10.7803	16.18	19.75	3.57	50.91	10:30
2	TOC	1.1328	11.3284	16.56	19.95	3.40	50.90	10:31
3	TOC	1.0922	10.9218	16.28	19.73	3.45	50.92	10:28
4	TOC	1.1026	11.0264	16.35	19.78	3.43	50.91	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1908802-019.04 doc	0.4967 ppm	0.0174 ppm	3.5000%	2019/09/30 00:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4812	4.8124	12.13	15.67	3.53	50.91	10:30
2	TOC	0.4821	4.8212	12.14	15.77	3.63	50.90	10:24
3	TOC	0.5131	5.1306	12.35	15.79	3.45	50.93	10:29
4	TOC	0.5104	5.1041	12.33	15.87	3.54	50.95	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1908802-020.04 doc	0.5235 ppm	0.0193 ppm	3.6800%	2019/09/30 01:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5004	5.0039	12.26	15.78	3.52	50.96	10:29

2	TOC	0.5287	5.2868	12.45	16.05	3.60	50.95	10:30
3	TOC	0.5185	5.1851	12.39	15.89	3.50	50.99	10:29
4	TOC	0.5465	5.4650	12.58	16.16	3.59	50.97	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1908802-022.04 doc	1.4025 ppm	0.0300 ppm	2.1400%	2019/09/30 02:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3615	13.6148	18.11	21.68	3.58	51.00	10:27
2	TOC	1.4337	14.3366	18.60	22.14	3.54	51.03	10:26
3	TOC	1.4079	14.0788	18.42	21.95	3.53	51.03	10:29
4	TOC	1.4070	14.0700	18.42	21.99	3.57	51.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1908714-022.08	2.7362 ppm	0.2302 ppm	8.4100%	2019/09/30 03:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4038	24.0377	25.18	28.89	3.70	51.04	10:28
2	TOC	2.7628	27.6279	27.62	31.01	3.39	51.04	10:27
3	TOC	2.8664	28.6635	28.32	31.84	3.52	51.05	10:29
4	TOC	2.9119	29.1187	28.63	32.15	3.52	51.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1908714-022.08 ms 4x	25.0279 ppm	0.0798 ppm	0.3200%	2019/09/30 04:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.1201	251.2008	179.38	183.00	3.62	51.05	10:31
2	TOC	25.0293	250.2933	178.76	182.32	3.56	51.04	10:28
3	TOC	25.0370	250.3699	178.82	182.57	3.76	51.04	10:24
4	TOC	24.9253	249.2532	178.06	181.67	3.61	51.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/30 05:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.74	10.29	3.55	51.07	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1908714-023.08	9.0020 ppm	0.0441 ppm	0.4900%	2019/09/30 05:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.0472	90.4717	70.28	73.90	3.63	51.05	10:28
2	TOC	8.9424	89.4242	69.57	73.11	3.55	51.06	10:30
3	TOC	9.0005	90.0047	69.96	73.63	3.67	51.06	10:29
4	TOC	9.0178	90.1785	70.08	73.83	3.75	51.08	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1908714-024.08	0.4320 ppm	0.0507 ppm	11.7500%	2019/09/30 06:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5025	5.0245	12.28	15.88	3.60	51.08	10:28
2	TOC	0.4298	4.2982	11.78	15.33	3.55	51.08	10:26
3	TOC	0.4124	4.1244	11.66	15.30	3.64	51.09	10:29
4	TOC	0.3833	3.8327	11.47	15.11	3.65	51.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	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)	22.8404 ppm (PASS)	0.0000 ppm	0%	2019/09/30 07:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	22.8404	228.4043	164.50	168.07	3.57	51.09	10:34

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/30 07:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.62	9.30	3.67	51.07	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/30 07:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.75	8.43	3.68	51.07	10:27
2	TOC	0.0000	0.0000	5.35	9.01	3.66	51.08	10:25
3	TOC	0.0000	0.0000	4.96	8.66	3.70	51.07	10:27
4	TOC	0.0000	0.0000	4.80	8.54	3.74	51.04	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	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)	23.3622 ppm (PASS)	0.0567 ppm	0.24%	2019/09/30 08:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	23.2831	232.8313	167.51	171.16	3.65	51.05	10:27
C	TOC	25.0 ppm	2	23.4162	234.1616	168.41	171.98	3.57	51.04	10:27
C	TOC	25.0 ppm	3	23.3655	233.6548	168.07	171.75	3.69	51.02	10:26
C	TOC	25.0 ppm	4	23.3840	233.8404	168.19	171.80	3.61	51.00	10:26

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1908714-026.08	4.4625 ppm	0.0605 ppm	1.3600%	2019/09/30 09:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5178	45.1781	39.53	43.16	3.63	50.99	10:27
2	TOC	4.3762	43.7624	38.57	42.25	3.68	50.97	10:27
3	TOC	4.4807	44.8069	39.28	42.82	3.54	50.96	10:26
4	TOC	4.4752	44.7523	39.24	42.72	3.48	50.93	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1908714-027.08	1.0228 ppm	0.0174 ppm	1.7000%	2019/09/30 10:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0000	9.9995	15.65	19.30	3.65	50.91	10:30
2	TOC	1.0416	10.4165	15.94	19.38	3.45	50.91	10:29
3	TOC	1.0218	10.2176	15.80	19.21	3.41	50.89	10:32
4	TOC	1.0278	10.2780	15.84	19.37	3.53	50.87	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1908714-029.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/30 11:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.10	9.68	3.58	50.85	10:26
2	TOC	0.0000	0.0000	6.11	9.61	3.51	50.84	10:28
3	TOC	0.0000	0.0000	6.11	9.66	3.55	50.84	10:31
4	TOC	0.0000	0.0000	6.16	9.50	3.35	50.83	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1908802-001.03	4.0381 ppm	0.0567 ppm	1.4000%	2019/09/30 12:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9571	39.5711	35.73	39.31	3.58	50.79	10:25
2	TOC	4.0418	40.4182	36.30	39.90	3.60	50.80	10:26
3	TOC	4.0697	40.6966	36.49	39.93	3.44	50.78	10:27
4	TOC	4.0837	40.8366	36.58	40.08	3.50	50.77	10:29

Dilution	Blank Contribution	Method	Calibration

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	63	TOC	K1908802-002.03	7.9429 ppm	0.0271 ppm	0.3400%	2019/09/30 13:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.9100	79.1000	62.56	66.07	3.52	50.75	10:31
2	TOC	7.9328	79.3284	62.71	66.38	3.67	50.73	10:29
3	TOC	7.9716	79.7158	62.98	66.41	3.44	50.70	10:28
4	TOC	7.9570	79.5700	62.88	66.41	3.53	50.67	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	64	TOC	K1908802-003.03	0.9130 ppm	0.0177 ppm	1.9400%	2019/09/30 14:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8979	8.9786	14.96	18.49	3.53	50.65	10:27
2	TOC	0.9331	9.3307	15.20	18.77	3.57	50.61	10:26
3	TOC	0.8983	8.9830	14.96	18.50	3.54	50.59	10:24
4	TOC	0.9226	9.2261	15.13	18.56	3.43	50.58	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	65	TOC	K1908802-004.03	0.5541 ppm	0.0231 ppm	4.1600%	2019/09/30 15:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5577	5.5770	12.65	16.12	3.47	50.57	10:26
2	TOC	0.5850	5.8495	12.84	16.31	3.47	50.57	10:27
3	TOC	0.5324	5.3236	12.48	16.04	3.56	50.57	10:27
4	TOC	0.5415	5.4149	12.54	16.10	3.56	50.56	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	66	TOC	K1908802-005.03	0.5819 ppm	0.0248 ppm	4.2700%	2019/09/30 16:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6175	6.1751	13.06	16.42	3.36	50.56	10:26
2	TOC	0.5804	5.8039	12.81	16.32	3.51	50.56	10:24
3	TOC	0.5642	5.6418	12.70	16.29	3.59	50.55	10:25

4	TOC	0.5657	5.6565	12.70	16.27	3.56	50.56	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.6831 ppm (PASS)	0.0000 ppm	0%	2019/09/30 17:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6831	236.8310	170.22	173.76	3.53	50.56	10:33

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/30 17:31

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.56	9.14	3.58	50.55	10:33

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1908802-008.03	0.5729 ppm	0.0236 ppm	4.1200%	2019/09/30 17:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5913	5.9129	12.88	16.52	3.65	50.56	10:29
2	TOC	0.5901	5.9011	12.87	16.45	3.58	50.56	10:30
3	TOC	0.5695	5.6948	12.73	16.15	3.42	50.55	10:28
4	TOC	0.5409	5.4090	12.54	16.20	3.66	50.57	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC)	CAS_salt_010711	CAS_salt_010711

(v1300) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1908802-009.03	3.8658 ppm	0.0240 ppm	0.6200%	2019/09/30 18:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.8482	38.4824	34.99	38.59	3.61	50.56	10:30
2	TOC	3.8665	38.6651	35.11	38.67	3.56	50.57	10:25
3	TOC	3.8490	38.4898	34.99	38.61	3.62	50.58	10:26
4	TOC	3.8995	38.9951	35.34	38.88	3.54	50.60	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1908802-010.03	1.4332 ppm	0.0359 ppm	2.5000%	2019/09/30 19:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4273	14.2733	18.55	22.16	3.61	50.62	10:28
2	TOC	1.4855	14.8552	18.95	22.52	3.57	50.64	10:27
3	TOC	1.4076	14.0759	18.42	22.14	3.72	50.65	10:24
4	TOC	1.4123	14.1230	18.45	22.05	3.60	50.68	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1908802-011.03	0.6701 ppm	0.0152 ppm	2.2600%	2019/09/30 20:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6894	6.8940	13.55	17.16	3.61	50.69	10:29
2	TOC	0.6720	6.7202	13.43	16.98	3.55	50.71	10:25
3	TOC	0.6661	6.6613	13.39	16.82	3.44	50.72	10:29
4	TOC	0.6529	6.5287	13.30	16.83	3.54	50.74	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1908802-013.03	0.4016 ppm	0.0235 ppm	5.8600%	2019/09/30 21:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3734	3.7340	11.40	15.11	3.71	50.75	10:25
2	TOC	0.4079	4.0787	11.63	15.03	3.40	50.77	10:27
3	TOC	0.4297	4.2968	11.78	15.17	3.38	50.78	10:28
4	TOC	0.3954	3.9535	11.55	15.11	3.56	50.81	10:30

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	72	TOC	K1908802-015.03	0.6605 ppm	0.0201 ppm	3.0500%	2019/09/30 22:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6428	6.4285	13.23	16.85	3.63	50.83	10:28
2	TOC	0.6863	6.8631	13.52	16.94	3.41	50.84	10:25
3	TOC	0.6666	6.6657	13.39	16.78	3.39	50.83	10:26
4	TOC	0.6462	6.4624	13.25	16.72	3.47	50.86	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	73	TOC	K1908802-017.03	0.6642 ppm	0.0170 ppm	2.5600%	2019/09/30 23:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6658	6.6583	13.38	16.87	3.48	50.88	10:28
2	TOC	0.6736	6.7364	13.44	17.04	3.60	50.89	10:31
3	TOC	0.6775	6.7747	13.46	17.06	3.59	50.89	10:24
4	TOC	0.6398	6.3976	13.21	16.74	3.54	50.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	74	TOC	K1908802-018.03	0.8862 ppm	0.0305 ppm	3.4400%	2019/10/01 00:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8621	8.6206	14.72	18.27	3.55	50.91	10:25
2	TOC	0.8758	8.7576	14.81	18.43	3.62	50.93	10:29
3	TOC	0.9309	9.3086	15.18	18.63	3.44	50.92	10:27
4	TOC	0.8762	8.7620	14.81	18.45	3.63	50.95	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	75	TOC	K1908802-019.03	0.4572 ppm	0.0202 ppm	4.4100%	2019/10/01 01:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4381	4.3807	11.84	15.43	3.59	50.96	10:28
2	TOC	0.4419	4.4191	11.86	15.46	3.59	50.97	10:28

3	TOC	0.4781	4.7815	12.11	15.47	3.36	50.97	10:28
4	TOC	0.4706	4.7063	12.06	15.50	3.44	50.97	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.8654 (IC) (v1300)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	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)	22.8422 ppm (PASS)	0.0000 ppm	0%	2019/10/01 02:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	22.8422	228.4220	164.51	168.00	3.49	50.99	10:30

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/10/01 02:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.09	8.59	3.50	51.00	10:27

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

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1299	1.0837	0.9200	0.0000	0.0000	0.0000	2019/09/26 14:18	Fusion1 (Fusion1)
v1300	1.7457	1.2940	0.0000	0.0000	0.0000	2019/09/28 14:15	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

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

Basic Analysis Type: TOC

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

Methods

Name: CAS_salt_010711 (TOC)

Version:	v4	Operator:	Fusion1 (Fusion1)
Ver Creation:	2019/02/21 17:57		
Comment:			

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

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

SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/10/01 02:37

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September 25, 2019

Analytical Report for Service Request No: K1908452

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

RE: HS19090511

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory September 13, 2019
For your reference, these analyses have been assigned our service request number **K1908452.**

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

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager

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Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

Client: ALS Environmental - US
Project: HS19090511
Sample Matrix: Water

Service Request: K1908452
Date Received: 09/13/2019

CASE NARRATIVE

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

Sample Receipt:

Seven water samples were received for analysis at ALS Environmental on 09/13/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

Method SM 5310 C, 09/16/2019: The Relative Percent Difference (RPD) for the replicate analysis of Total Organic Carbon in sample 35WW11_091119 was outside the normal ALS control limits. The associated QA/QC results (e.g. control sample, matrix spike, method blank, calibration standards, etc.) indicate the analysis was in control. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 09/25/2019

Chain of Custody

ALS Environmental—Kelso Laboratory
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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12161**

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:	HS19090511
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19090511-02**	**35AWW20_091119**	**Groundwater**	**11 Sep 2019 08:10**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
2.	**HS19090511-03**	**LHSMW07_091119**	**Groundwater**	**11 Sep 2019 09:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
3.	**HS19090511-04**	**35AWW06_091119**	**Groundwater**	**11 Sep 2019 10:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
4.	**HS19090511-05**	**35AWW06_091119_a**	**Groundwater**	**11 Sep 2019 10:15**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
5.	**HS19090511-06**	**35AWW23_091119**	**Groundwater**	**11 Sep 2019 11:25**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019
6.	**HS19090511-07**	**35AWW11_091119**	**Groundwater**	**11 Sep 2019 12:35**
	TOC Analysis for DOD Level IV/Excel EDD			26 Sep 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.
HS19090511-02 MS/MSD

QC Level: DOD IV (DoD Data Package)

Received: ALS
Cody Graves 9/13/19
1000

EIGHT MOUNTAINS | RIGHT PARTNER

K4908452

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **12161**

Relinquished By: _____ Date/Time: 9/12/19 1800.

Received By: _____ Date/Time: 9/13/19 1000

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

PC KL

Cooler Receipt and Preservation Form

Client ALS, Houston Service Request K19 08452

Received: 9/13/19 Opened: 9/13/19 By: CG Unloaded: 9/13/19 By: CG

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

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.5	-0.4	0.8	0.9	+0.1	360	12161	4809 7837 8955	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: Received 2 vials for HS19090511-01 (35AWW19_091119) collected 9/11/19 @ 0710. Not listed on COC.

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1908452
Project:	HS19090511	**Date Collected:**	09/11/19
Sample Matrix:	Water	**Date Received:**	09/13/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW20_091119	K1908452-001	**15.0**	0.50	0.20	0.07	1	09/16/19 06:01	
LHSMW07_091119	K1908452-002	**3.42**	0.50	0.20	0.07	1	09/16/19 07:42	
35AWW06_091119	K1908452-003	**84.9**	0.50	0.20	0.07	1	09/16/19 08:11	
35AWW06_091119_a	K1908452-004	**83.8**	0.50	0.20	0.07	1	09/16/19 08:39	
35AWW23_091119	K1908452-005	**108**	0.50	0.20	0.07	1	09/16/19 09:07	
35AWW11_091119	K1908452-006	**28.0**	0.50	0.20	0.07	1	09/16/19 09:35	
Method Blank	K1908452-MB	ND U	0.50	0.20	0.07	1	09/16/19 07:13	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1908452
Project	HS19090511	**Date Collected:**	09/11/19
Sample Matrix:	Water	**Date Received:**	09/13/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
35AWW20_091119	K1908452-001DUP	0.50	0.20	0.07	15.0	14.1	14.6	6	10	09/16/19
LHSMW07_091119	K1908452-002DUP	0.50	0.20	0.07	3.42	3.28	3.35	4	10	09/16/19
35AWW06_091119	K1908452-003DUP	0.50	0.20	0.07	84.9	86.0	85.4	1	10	09/16/19
35AWW06_091119_a	K1908452-004DUP	0.50	0.20	0.07	83.8	83.9	83.9	<1	10	09/16/19
35AWW23_091119	K1908452-005DUP	0.50	0.20	0.07	108	105	106	4	10	09/16/19
35AWW11_091119	K1908452-006DUP	0.50	0.20	0.07	28.0	23.5	25.8	18 *	10	09/16/19

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1908452
Project:	HS19090511	**Date Collected:**	09/11/19
Sample Matrix:	Water	**Date Received:**	09/13/19
		Date Analyzed:	09/16/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	35AWW20_091119	**Units:**	mg/L
Lab Code:	K1908452-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1908452-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	15.0	65.6	50.0	101	83-117

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

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

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1908452
Project:	HS19090511	**Date Analyzed:**	09/16/19
Sample Matrix:	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:	651374

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1908452-LCS	24.6	25.0	99	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1908452
Project: HS19090511

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	651374	KQ1913246-01	09/15/19 23:01	25.0	23.9	95	90-110
CCV2	651374	KQ1913246-02	09/16/19 06:43	25.0	24.3	97	90-110
CCV3	651374	KQ1913246-03	09/16/19 11:27	25.0	24.2	97	90-110
CCV4	651374	KQ1913246-04	09/16/19 16:37	25.0	23.8	95	90-110
CCV5	651374	KQ1913246-05	09/16/19 21:48	25.0	23.6	94	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1908452
Project: HS19090511

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	651374	KQ1913246-06	09/15/19 23:16	0.50	0.20	0.07	ND	U
CCB2	651374	KQ1913246-07	09/16/19 06:58	0.50	0.20	0.07	ND	U
CCB3	651374	KQ1913246-08	09/16/19 11:42	0.50	0.20	0.07	ND	U
CCB4	651374	KQ1913246-09	09/16/19 16:52	0.50	0.20	0.07	ND	U
CCB5	651374	KQ1913246-10	09/16/19 22:03	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) KP08230,8234,8307,8311,8366,8388,8353,8379,8403,8440,8452,8068,8231,8310,8439
IV IV IV IV IV IV II I II II IV IV II II II

Tier:

Date Analyzed: 9/14/19

Analyst: KD

Analysis: TOC/DOC

Run # TOC:651372, 651373, 651374, 651375, DOC:651376

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: KP08452-3/3d, 8452-4/4d, 8452-5/5d sent to RA due to being above calibration.
KP08452-6/6d sent for RA due to previous sample carry-over.
KP08230-3/3d/3f, report a high %RSD, However, these samples are less than 5x the MRL.
KP08439-1/1d, 8068-7/7d report a high %RSD due to non-homogenous sample.

Final Approved by: [signature] Date: 09/18/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651372 **Method/Testcode:** 9060/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
K1908230-002	Carbon, Total Organic	N/A		Ground Water	0.43 mg/L	10 mL	0.43 mg/L J	1	0.07	0.50			9/14/19 22:21:00	N	IV
K1908230-003	Carbon, Total Organic	N/A		Ground Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50			9/14/19 23:17:00	N	IV
K1908230-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 00:12:00	N	IV
K1908230-005	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50			9/15/19 01:08:00	N	IV
K1908230-006	Carbon, Total Organic	N/A		Ground Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 02:04:00	N	IV
K1908234-002	Carbon, Total Organic	N/A		Ground Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50			9/15/19 03:00:00	N	IV
K1908234-003	Carbon, Total Organic	N/A		Ground Water	0.66 mg/L	10 mL	0.66 mg/L	1	0.07	0.50			9/15/19 03:55:00	N	IV
K1908234-004	Carbon, Total Organic	N/A		Ground Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			9/15/19 05:20:00	N	IV
K1908234-005	Carbon, Total Organic	N/A		Ground Water	0.05 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 06:16:00	N	IV
K1908234-006	Carbon, Total Organic	N/A		Ground Water	1.44 mg/L	10 mL	1.44 mg/L	1	0.07	0.50			9/15/19 07:12:00	N	IV
K1908234-008	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 08:08:00	N	IV
K1908307-001	Carbon, Total Organic	N/A		Ground Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50			9/15/19 09:04:00	Y	IV
K1908307-002	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 11:09:00	N	IV
K1908307-003	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 12:05:00	N	IV
K1908307-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 13:01:00	N	IV
KQ1913245-01	Carbon, Total Organic	CCV		Ground Water	24.39 mg/L	10 mL	24.4 mg/L	1					9/14/19 19:45:00	N	IV
KQ1913245-02	Carbon, Total Organic	CCV		Ground Water	24.44 mg/L	10 mL	24.4 mg/L	1					9/15/19 04:51:00	N	IV
KQ1913245-03	Carbon, Total Organic	CCV		Ground Water	24.13 mg/L	10 mL	24.1 mg/L	1					9/15/19 13:56:00	N	IV
KQ1913245-04	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/14/19 20:00:00	N	IV
KQ1913245-05	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 05:06:00	N	IV
KQ1913245-06	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:11:00	N	IV
KQ1913245-07	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/14/19 20:15:00	N	IV
KQ1913245-08	Carbon, Total Organic	LCS		Ground Water	24.96 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		9/14/19 21:11:00	N	IV

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

09/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651372 **Method/Testcode:** 9060/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
KQ1913245-09	Carbon, Total Organic	MS	K1908307-001	Ground Water	29.26 mg/L	10 mL	29.3 mg/L	1	0.07	0.50	104		9/15/19 09:59:00	N	IV
KQ1913245-10	Carbon, Total Organic	MS	K1908307-001	Ground Water	29.42 mg/L	10 mL	29.4 mg/L	1	0.07	0.50	105		9/15/19 09:59:00	N	IV
KQ1913245-11	Carbon, Total Organic	MS	K1908307-001	Ground Water	29.21 mg/L	10 mL	29.2 mg/L	1	0.07	0.50	104		9/15/19 09:59:00	N	IV
KQ1913245-12	Carbon, Total Organic	MS	K1908307-001	Ground Water	29.54 mg/L	10 mL	29.5 mg/L	1	0.07	0.50	105		9/15/19 09:59:00	N	IV
KQ1913245-13	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/14/19 20:15:00	N	IV
KQ1913245-14	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/14/19 20:15:00	N	IV
KQ1913245-15	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/14/19 20:15:00	N	IV
KQ1913245-16	Carbon, Total Organic	LCS		Ground Water	24.88 mg/L	10 mL	24.9 mg/L	1	0.07	0.50	100		9/14/19 21:11:00	N	IV
KQ1913245-17	Carbon, Total Organic	LCS		Ground Water	24.97 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		9/14/19 21:11:00	N	IV
KQ1913245-18	Carbon, Total Organic	LCS		Ground Water	24.99 mg/L	10 mL	25.0 mg/L	1	0.07	0.50	100		9/14/19 21:11:00	N	IV
KQ1913245-19	Carbon, Total Organic	DUP	K1908230-002	Ground Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50		4	9/14/19 22:21:00	N	IV
KQ1913245-20	Carbon, Total Organic	TRP	K1908230-002	Ground Water	0.42 mg/L	10 mL	0.42 mg/L J	1	0.07	0.50		3	9/14/19 22:21:00	N	IV
KQ1913245-21	Carbon, Total Organic	QUAD	K1908230-002	Ground Water	0.45 mg/L	10 mL	0.45 mg/L J	1	0.07	0.50		4	9/14/19 22:21:00	N	IV
KQ1913245-22	Carbon, Total Organic	DUP	K1908230-003	Ground Water	0.10 mg/L	10 mL	0.10 mg/L J	1	0.07	0.50		43*	9/14/19 23:17:00	N	IV
KQ1913245-23	Carbon, Total Organic	TRP	K1908230-003	Ground Water	0.16 mg/L	10 mL	0.16 mg/L J	1	0.07	0.50		23*	9/14/19 23:17:00	N	IV
KQ1913245-24	Carbon, Total Organic	QUAD	K1908230-003	Ground Water	0.15 mg/L	10 mL	0.15 mg/L J	1	0.07	0.50		19	9/14/19 23:17:00	N	IV
KQ1913245-25	Carbon, Total Organic	DUP	K1908230-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 00:12:00	N	IV
KQ1913245-26	Carbon, Total Organic	TRP	K1908230-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 00:12:00	N	IV
KQ1913245-27	Carbon, Total Organic	QUAD	K1908230-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 00:12:00	N	IV
KQ1913245-28	Carbon, Total Organic	DUP	K1908230-005	Ground Water	0.54 mg/L	10 mL	0.54 mg/L	1	0.07	0.50		3	9/15/19 01:08:00	N	IV
KQ1913245-29	Carbon, Total Organic	TRP	K1908230-005	Ground Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		4	9/15/19 01:08:00	N	IV
KQ1913245-30	Carbon, Total Organic	QUAD	K1908230-005	Ground Water	0.56 mg/L	10 mL	0.56 mg/L	1	0.07	0.50		3	9/15/19 01:08:00	N	IV
KQ1913245-31	Carbon, Total Organic	DUP	K1908230-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 02:04:00	N	IV

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651372 **Method/Testcode:** 9060/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
KQ1913245-32	Carbon, Total Organic	TRP	K1908230-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 02:04:00	N	IV
KQ1913245-33	Carbon, Total Organic	QUAD	K1908230-006	Ground Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 02:04:00	N	IV
KQ1913245-34	Carbon, Total Organic	DUP	K1908234-002	Ground Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		12	9/15/19 03:00:00	N	IV
KQ1913245-35	Carbon, Total Organic	TRP	K1908234-002	Ground Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		7	9/15/19 03:00:00	N	IV
KQ1913245-36	Carbon, Total Organic	QUAD	K1908234-002	Ground Water	0.36 mg/L	10 mL	0.36 mg/L J	1	0.07	0.50		7	9/15/19 03:00:00	N	IV
KQ1913245-37	Carbon, Total Organic	DUP	K1908234-003	Ground Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50		3	9/15/19 03:55:00	N	IV
KQ1913245-38	Carbon, Total Organic	TRP	K1908234-003	Ground Water	0.67 mg/L	10 mL	0.67 mg/L	1	0.07	0.50		2	9/15/19 03:55:00	N	IV
KQ1913245-39	Carbon, Total Organic	QUAD	K1908234-003	Ground Water	0.65 mg/L	10 mL	0.65 mg/L	1	0.07	0.50		2	9/15/19 03:55:00	N	IV
KQ1913245-40	Carbon, Total Organic	DUP	K1908234-004	Ground Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50		3	9/15/19 05:20:00	N	IV
KQ1913245-41	Carbon, Total Organic	TRP	K1908234-004	Ground Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		2	9/15/19 05:20:00	N	IV
KQ1913245-42	Carbon, Total Organic	QUAD	K1908234-004	Ground Water	0.58 mg/L	10 mL	0.58 mg/L	1	0.07	0.50		4	9/15/19 05:20:00	N	IV
KQ1913245-43	Carbon, Total Organic	DUP	K1908234-005	Ground Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 06:16:00	N	IV
KQ1913245-44	Carbon, Total Organic	TRP	K1908234-005	Ground Water	0.01 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 06:16:00	N	IV
KQ1913245-45	Carbon, Total Organic	QUAD	K1908234-005	Ground Water	0.12 mg/L	10 mL	0.12 mg/L J	1	0.07	0.50		NC	9/15/19 06:16:00	N	IV
KQ1913245-46	Carbon, Total Organic	DUP	K1908234-006	Ground Water	1.52 mg/L	10 mL	1.52 mg/L	1	0.07	0.50		6	9/15/19 07:12:00	N	IV
KQ1913245-47	Carbon, Total Organic	TRP	K1908234-006	Ground Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50		3	9/15/19 07:12:00	N	IV
KQ1913245-48	Carbon, Total Organic	QUAD	K1908234-006	Ground Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50		2	9/15/19 07:12:00	N	IV
KQ1913245-49	Carbon, Total Organic	DUP	K1908234-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 08:08:00	N	IV
KQ1913245-50	Carbon, Total Organic	TRP	K1908234-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 08:08:00	N	IV
KQ1913245-51	Carbon, Total Organic	QUAD	K1908234-008	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 08:08:00	N	IV
KQ1913245-52	Carbon, Total Organic	DUP	K1908307-001	Ground Water	3.10 mg/L	10 mL	3.10 mg/L	1	0.07	0.50		3	9/15/19 09:04:00	N	IV
KQ1913245-53	Carbon, Total Organic	TRP	K1908307-001	Ground Water	3.18 mg/L	10 mL	3.18 mg/L	1	0.07	0.50		2	9/15/19 09:04:00	N	IV
KQ1913245-54	Carbon, Total Organic	QUAD	K1908307-001	Ground Water	3.20 mg/L	10 mL	3.20 mg/L	1	0.07	0.50		1	9/15/19 09:04:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651372 **Method/Testcode:** 9060/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
KQ1913245-55	Carbon, Total Organic	DUP	K1908307-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 11:09:00	N	IV
KQ1913245-56	Carbon, Total Organic	TRP	K1908307-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 11:09:00	N	IV
KQ1913245-57	Carbon, Total Organic	QUAD	K1908307-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 11:09:00	N	IV
KQ1913245-58	Carbon, Total Organic	DUP	K1908307-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 12:05:00	N	IV
KQ1913245-59	Carbon, Total Organic	TRP	K1908307-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 12:05:00	N	IV
KQ1913245-60	Carbon, Total Organic	QUAD	K1908307-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 12:05:00	N	IV
KQ1913245-61	Carbon, Total Organic	DUP	K1908307-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 13:01:00	N	IV
KQ1913245-62	Carbon, Total Organic	TRP	K1908307-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 13:01:00	N	IV
KQ1913245-63	Carbon, Total Organic	QUAD	K1908307-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 13:01:00	N	IV

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651373 **Method/Testcode:** 9060/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
K1908311-001	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 16:17:00	Y	IV
K1908311-002	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 18:23:00	N	IV
K1908311-003	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 19:19:00	N	IV
K1908311-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 20:14:00	N	IV
K1908311-005	Carbon, Total Organic	N/A		Ground Water	9.07 mg/L	10 mL	9.07 mg/L	1	0.07	0.50			9/15/19 21:10:00	N	IV
K1908366-001	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 22:05:00	N	IV
K1908366-002	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 23:31:00	N	IV
K1908366-003	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 00:26:00	N	IV
K1908366-004	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 01:22:00	N	IV
K1908366-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 02:17:00	N	IV
K1908366-006	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 03:13:00	N	IV
K1908388-001	Carbon, Total Organic (TOC)	N/A		Ground Water	1.50 mg/L	10 mL	1.50 mg/L	1		0.50			9/16/19 04:09:00	N	IV
KQ1913110-01	Carbon, Total Organic (TOC)	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 16:17:00	N	IV
KQ1913110-02	Carbon, Total Organic (TOC)	MS	KQ1913110-01	Ground Water	25.85 mg/L	10 mL	25.9 mg/L	1		0.50	103		9/15/19 17:13:00	N	IV
KQ1913110-03	Carbon, Total Organic (TOC)	MS	KQ1913110-01	Ground Water	25.95 mg/L	10 mL	26.0 mg/L	1		0.50	104		9/15/19 17:13:00	N	IV
KQ1913110-04	Carbon, Total Organic (TOC)	MS	KQ1913110-01	Ground Water	25.45 mg/L	10 mL	25.4 mg/L	1		0.50	102		9/15/19 17:13:00	N	IV
KQ1913110-05	Carbon, Total Organic (TOC)	MS	KQ1913110-01	Ground Water	25.91 mg/L	10 mL	25.9 mg/L	1		0.50	104		9/15/19 17:13:00	N	IV
KQ1913110-06	Carbon, Total Organic (TOC)	DUP	KQ1913110-01	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-07	Carbon, Total Organic (TOC)	TRP	KQ1913110-01	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-08	Carbon, Total Organic (TOC)	QUAD	KQ1913110-01	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-09	Carbon, Total Organic (TOC)	DUP	K1908388-001	Ground Water	1.50 mg/L	10 mL	1.50 mg/L	1		0.50		<1	9/16/19 04:09:00	N	IV
KQ1913110-10	Carbon, Total Organic (TOC)	TRP	K1908388-001	Ground Water	1.51 mg/L	10 mL	1.51 mg/L	1		0.50		<1	9/16/19 04:09:00	N	IV
KQ1913110-11	Carbon, Total Organic (TOC)	QUAD	K1908388-001	Ground Water	1.47 mg/L	10 mL	1.47 mg/L	1		0.50		1	9/16/19 04:09:00	N	IV

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09/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651373 **Method/Testcode:** 9060/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
KQ1913110-12	Carbon, Total Organic	DUP	K1908366-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 03:13:00	N	IV
KQ1913110-13	Carbon, Total Organic	TRP	K1908366-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 03:13:00	N	IV
KQ1913110-14	Carbon, Total Organic	QUAD	K1908366-006	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 03:13:00	N	IV
KQ1913110-15	Carbon, Total Organic	DUP	K1908311-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-16	Carbon, Total Organic	TRP	K1908311-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-17	Carbon, Total Organic	QUAD	K1908311-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 16:17:00	N	IV
KQ1913110-18	Carbon, Total Organic	DUP	K1908311-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 18:23:00	N	IV
KQ1913110-19	Carbon, Total Organic	TRP	K1908311-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 18:23:00	N	IV
KQ1913110-20	Carbon, Total Organic	QUAD	K1908311-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 18:23:00	N	IV
KQ1913110-21	Carbon, Total Organic	DUP	K1908311-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 19:19:00	N	IV
KQ1913110-22	Carbon, Total Organic	TRP	K1908311-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 19:19:00	N	IV
KQ1913110-23	Carbon, Total Organic	QUAD	K1908311-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 19:19:00	N	IV
KQ1913110-24	Carbon, Total Organic	DUP	K1908311-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 20:14:00	N	IV
KQ1913110-25	Carbon, Total Organic	TRP	K1908311-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 20:14:00	N	IV
KQ1913110-26	Carbon, Total Organic	QUAD	K1908311-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 20:14:00	N	IV
KQ1913110-27	Carbon, Total Organic	DUP	K1908311-005	Ground Water	9.29 mg/L	10 mL	9.29 mg/L	1	0.07	0.50		2	9/15/19 21:10:00	N	IV
KQ1913110-28	Carbon, Total Organic	TRP	K1908311-005	Ground Water	9.28 mg/L	10 mL	9.28 mg/L	1	0.07	0.50		1	9/15/19 21:10:00	N	IV
KQ1913110-29	Carbon, Total Organic	QUAD	K1908311-005	Ground Water	9.27 mg/L	10 mL	9.27 mg/L	1	0.07	0.50		1	9/15/19 21:10:00	N	IV
KQ1913110-30	Carbon, Total Organic	DUP	K1908366-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 22:05:00	N	IV
KQ1913110-31	Carbon, Total Organic	TRP	K1908366-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 22:05:00	N	IV
KQ1913110-32	Carbon, Total Organic	QUAD	K1908366-001	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 22:05:00	N	IV
KQ1913110-33	Carbon, Total Organic	DUP	K1908366-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 23:31:00	N	IV
KQ1913110-34	Carbon, Total Organic	TRP	K1908366-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 23:31:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651373 **Method/Testcode:** 9060/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
KQ1913110-35	Carbon, Total Organic	QUAD	K1908366-002	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/15/19 23:31:00	N	IV
KQ1913110-36	Carbon, Total Organic	DUP	K1908366-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 00:26:00	N	IV
KQ1913110-37	Carbon, Total Organic	TRP	K1908366-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 00:26:00	N	IV
KQ1913110-38	Carbon, Total Organic	QUAD	K1908366-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 00:26:00	N	IV
KQ1913110-39	Carbon, Total Organic	DUP	K1908366-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 01:22:00	N	IV
KQ1913110-40	Carbon, Total Organic	TRP	K1908366-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 01:22:00	N	IV
KQ1913110-41	Carbon, Total Organic	QUAD	K1908366-004	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 01:22:00	N	IV
KQ1913110-42	Carbon, Total Organic	DUP	K1908366-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 02:17:00	N	IV
KQ1913110-43	Carbon, Total Organic	TRP	K1908366-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 02:17:00	N	IV
KQ1913110-44	Carbon, Total Organic	QUAD	K1908366-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 02:17:00	N	IV
KQ1913110-45	Carbon, Total Organic	MS	K1908311-001	Ground Water	25.85 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	103		9/15/19 17:13:00	N	IV
KQ1913110-46	Carbon, Total Organic	MS	K1908311-001	Ground Water	25.95 mg/L	10 mL	26.0 mg/L	1	0.07	0.50	104		9/15/19 17:13:00	N	IV
KQ1913110-47	Carbon, Total Organic	MS	K1908311-001	Ground Water	25.45 mg/L	10 mL	25.4 mg/L	1	0.07	0.50	102		9/15/19 17:13:00	N	IV
KQ1913110-48	Carbon, Total Organic	MS	K1908311-001	Ground Water	25.91 mg/L	10 mL	25.9 mg/L	1	0.07	0.50	104		9/15/19 17:13:00	N	IV
KQ1913110-49	Carbon, Total Organic	CCV		Ground Water	24.13 mg/L	10 mL	24.1 mg/L	1					9/15/19 13:56:00	N	IV
KQ1913110-49	Carbon, Total Organic (TOC)	CCV		Ground Water	24.13 mg/L	10 mL	24.1 mg/L	1					9/15/19 13:56:00	N	IV
KQ1913110-50	Carbon, Total Organic	CCV		Ground Water	23.87 mg/L	10 mL	23.9 mg/L	1					9/15/19 23:01:00	N	IV
KQ1913110-50	Carbon, Total Organic (TOC)	CCV		Ground Water	23.87 mg/L	10 mL	23.9 mg/L	1					9/15/19 23:01:00	N	IV
KQ1913110-51	Carbon, Total Organic	CCV		Ground Water	24.31 mg/L	10 mL	24.3 mg/L	1					9/16/19 06:43:00	N	IV
KQ1913110-51	Carbon, Total Organic (TOC)	CCV		Ground Water	24.31 mg/L	10 mL	24.3 mg/L	1					9/16/19 06:43:00	N	IV
KQ1913110-52	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:11:00	N	IV
KQ1913110-52	Carbon, Total Organic (TOC)	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 14:11:00	N	IV
KQ1913110-53	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 23:16:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651373 **Method/Testcode:** 9060A/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
KQ1913110-53	Carbon, Total Organic (TOC)	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 23:16:00	N	IV
KQ1913110-54	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 06:58:00	N	IV
KQ1913110-54	Carbon, Total Organic (TOC)	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/16/19 06:58:00	N	IV
KQ1913110-55	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:26:00	N	IV
KQ1913110-55	Carbon, Total Organic (TOC)	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 14:26:00	N	IV
KQ1913110-56	Carbon, Total Organic	LCS		Ground Water	24.66 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-56	Carbon, Total Organic (TOC)	LCS		Ground Water	24.66 mg/L	10 mL	24.7 mg/L	1		0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-57	Carbon, Total Organic	LCS		Ground Water	24.66 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-57	Carbon, Total Organic (TOC)	LCS		Ground Water	24.66 mg/L	10 mL	24.7 mg/L	1		0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-58	Carbon, Total Organic	LCS		Ground Water	24.64 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-58	Carbon, Total Organic (TOC)	LCS		Ground Water	24.64 mg/L	10 mL	24.6 mg/L	1		0.50	99		9/15/19 15:21:00	N	IV
KQ1913110-59	Carbon, Total Organic	LCS		Ground Water	24.46 mg/L	10 mL	24.5 mg/L	1	0.07	0.50	98		9/15/19 15:21:00	N	IV
KQ1913110-59	Carbon, Total Organic (TOC)	LCS		Ground Water	24.46 mg/L	10 mL	24.5 mg/L	1		0.50	98		9/15/19 15:21:00	N	IV
KQ1913110-60	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:26:00	N	IV
KQ1913110-60	Carbon, Total Organic (TOC)	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 14:26:00	N	IV
KQ1913110-61	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:26:00	N	IV
KQ1913110-61	Carbon, Total Organic (TOC)	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 14:26:00	N	IV
KQ1913110-62	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 14:26:00	N	IV
KQ1913110-62	Carbon, Total Organic (TOC)	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			9/15/19 14:26:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651374 **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
K1908353-001	Carbon, Total Organic	N/A		Water	9.49 mg/L	10 mL	949 mg/L	100	7	50			9/16/19 10:03:00	N	II
K1908353-002	Carbon, Total Organic	N/A		Water	7.68 mg/L	10 mL	768 mg/L	100	7	50			9/16/19 10:31:00	N	II
K1908379-001	Carbon, Total Organic	N/A		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 05:33:00	N	I
K1908403-001	Carbon, Total Organic	N/A		Water	3.00 mg/L	10 mL	3.00 mg/L	1	0.07	0.50			9/16/19 05:04:00	N	II
K1908440-001	Carbon, Total Organic	N/A		Water	14.74 mg/L	10 mL	1470 mg/L	100	7	50			9/16/19 15:41:00	N	II
K1908440-002	Carbon, Total Organic	N/A		Water	2.47 mg/L	10 mL	247 mg/L	100	7	50			9/16/19 16:09:00	N	II
K1908440-003	Carbon, Total Organic	N/A		Water	1.84 mg/L	10 mL	1.84 mg/L	1	0.07	0.50			9/16/19 18:03:00	N	II
K1908440-004	Carbon, Total Organic	N/A		Water	6.20 mg/L	10 mL	124 mg/L	20	2	10			9/16/19 18:32:00	N	II
K1908452-001	Carbon, Total Organic	N/A		Water	14.99 mg/L	10 mL	15.0 mg/L	1	0.07	0.50			9/16/19 06:01:00	Y	IV
K1908452-002	Carbon, Total Organic	N/A		Water	3.42 mg/L	10 mL	3.42 mg/L	1	0.07	0.50			9/16/19 07:42:00	N	IV
K1908452-003	Carbon, Total Organic	N/A		Water	84.87 mg/L	10 mL	84.9 mg/L	1	0.07	0.50			9/16/19 08:11:00	N	IV
K1908452-004	Carbon, Total Organic	N/A		Water	83.82 mg/L	10 mL	83.8 mg/L	1	0.07	0.50			9/16/19 08:39:00	N	IV
K1908452-005	Carbon, Total Organic	N/A		Water	108.44 mg/L	10 mL	108 mg/L	1	0.07	0.50			9/16/19 09:07:00	N	IV
K1908452-006	Carbon, Total Organic	N/A		Water	28.04 mg/L	10 mL	28.0 mg/L	1	0.07	0.50			9/16/19 09:35:00	N	IV
KQ1913246-01	Carbon, Total Organic	CCV		Water	23.87 mg/L	10 mL	23.9 mg/L	1					9/15/19 23:01:00	N	II
KQ1913246-02	Carbon, Total Organic	CCV		Water	24.31 mg/L	10 mL	24.3 mg/L	1					9/16/19 06:43:00	N	II
KQ1913246-03	Carbon, Total Organic	CCV		Water	24.25 mg/L	10 mL	24.2 mg/L	1					9/16/19 11:27:00	N	II
KQ1913246-04	Carbon, Total Organic	CCV		Water	23.80 mg/L	10 mL	23.8 mg/L	1					9/16/19 16:37:00	N	II
KQ1913246-05	Carbon, Total Organic	CCV		Water	23.62 mg/L	10 mL	23.6 mg/L	1					9/16/19 21:48:00	N	II
KQ1913246-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/15/19 23:16:00	N	II
KQ1913246-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 06:58:00	N	II
KQ1913246-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 11:42:00	N	II
KQ1913246-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 16:52:00	N	II
KQ1913246-10	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 22:03:00	N	II
KQ1913246-11	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 07:13:00	N	II
KQ1913246-12	Carbon, Total Organic	LCS		Water	24.63 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	99		9/16/19 07:27:00	N	II
KQ1913246-13	Carbon, Total Organic	MS	K1908452-001	Water	32.82 mg/L	10 mL	65.6 mg/L	2	0.2	1.0	101		9/16/19 06:29:00	N	IV
KQ1913246-14	Carbon, Total Organic	DUP	K1908403-001	Water	3.02 mg/L	10 mL	3.02 mg/L	1	0.07	0.50		<1	9/16/19 05:04:00	N	II
KQ1913246-15	Carbon, Total Organic	DUP	K1908379-001	Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 05:33:00	N	I
KQ1913246-16	Carbon, Total Organic	DUP	K1908452-001	Water	14.14 mg/L	10 mL	14.1 mg/L	1	0.07	0.50		6	9/16/19 06:01:00	N	IV
KQ1913246-17	Carbon, Total Organic	DUP	K1908452-002	Water	3.28 mg/L	10 mL	3.28 mg/L	1	0.07	0.50		4	9/16/19 07:42:00	N	IV
KQ1913246-18	Carbon, Total Organic	DUP	K1908452-003	Water	85.97 mg/L	10 mL	86.0 mg/L	1	0.07	0.50		1	9/16/19 08:11:00	N	IV
KQ1913246-19	Carbon, Total Organic	DUP	K1908452-004	Water	83.91 mg/L	10 mL	83.9 mg/L	1	0.07	0.50		<1	9/16/19 08:39:00	N	IV
KQ1913246-20	Carbon, Total Organic	DUP	K1908452-005	Water	104.54 mg/L	10 mL	105 mg/L	1	0.07	0.50		4	9/16/19 09:07:00	N	IV
KQ1913246-21	Carbon, Total Organic	DUP	K1908452-006	Water	23.51 mg/L	10 mL	23.5 mg/L	1	0.07	0.50		18*	9/16/19 09:35:00	N	IV

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

09/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651374 **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
KQ1913246-22	Carbon, Total Organic	DUP	K1908353-001	Water	8.71 mg/L	10 mL	871 mg/L	100	7	50		9	9/16/19 10:03:00	N	II
KQ1913246-23	Carbon, Total Organic	DUP	K1908353-002	Water	7.42 mg/L	10 mL	742 mg/L	100	7	50		3	9/16/19 10:31:00	N	II
KQ1913246-24	Carbon, Total Organic	DUP	K1908440-001	Water	14.88 mg/L	10 mL	1490 mg/L	100	7	50		<1	9/16/19 15:41:00	N	II
KQ1913246-25	Carbon, Total Organic	DUP	K1908440-002	Water	2.31 mg/L	10 mL	231 mg/L	100	7	50		7	9/16/19 16:09:00	N	II
KQ1913246-26	Carbon, Total Organic	DUP	K1908440-003	Water	1.79 mg/L	10 mL	1.79 mg/L	1	0.07	0.50		3	9/16/19 18:03:00	N	II
KQ1913246-27	Carbon, Total Organic	DUP	K1908440-004	Water	6.31 mg/L	10 mL	126 mg/L	20	2	10		2	9/16/19 18:32:00	N	II

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651375 **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
K1908068-006	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 23:43:00	N	IV
K1908068-008	Carbon, Total Organic	N/A		Water	2.26 mg/L	10 mL	2.26 mg/L	1	0.07	0.50			9/17/19 00:11:00	N	IV
K1908231-001	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 19:00:00	N	II
K1908231-002	Carbon, Total Organic	N/A		Water	0.31 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 19:28:00	N	II
K1908231-003	Carbon, Total Organic	N/A		Water	0.14 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 19:56:00	N	II
K1908231-004	Carbon, Total Organic	N/A		Water	0.11 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 20:24:00	N	II
K1908231-005	Carbon, Total Organic	N/A		Water	0.40 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 20:52:00	N	II
K1908231-006	Carbon, Total Organic	N/A		Water	0.12 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 21:20:00	N	II
K1908310-001	Carbon, Total Organic	N/A		Water	2.33 mg/L	10 mL	2.33 mg/L	1	0.07	0.50			9/16/19 22:18:00	N	II
K1908310-002	Carbon, Total Organic	N/A		Water	3.10 mg/L	10 mL	3.10 mg/L	1	0.07	0.50			9/16/19 22:46:00	N	II
K1908310-003	Carbon, Total Organic	N/A		Water	0.42 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 23:15:00	N	II
K1908439-001	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 mL	17 mg/L	20	2	10			9/16/19 10:59:00	Y	II
K1908439-002	Carbon, Total Organic	N/A		Water	1.94 mg/L	10 mL	7.8 mg/L	4	0.3	2.0			9/16/19 12:53:00	N	II
K1908439-003	Carbon, Total Organic	N/A		Water	1.99 mg/L	10 mL	8.0 mg/L	4	0.3	2.0			9/16/19 13:21:00	N	II
K1908439-004	Carbon, Total Organic	N/A		Water	0.30 mg/L	10 mL	0.30 mg/L J	1	0.07	0.50			9/16/19 13:49:00	N	II
K1908439-005	Carbon, Total Organic	N/A		Water	0.19 mg/L	10 mL	0.19 mg/L J	1	0.07	0.50			9/16/19 14:17:00	N	II
K1908439-006	Carbon, Total Organic	N/A		Water	0.49 mg/L	10 mL	0.49 mg/L J	1	0.07	0.50			9/16/19 14:45:00	N	II
K1908439-007	Carbon, Total Organic	N/A		Water	0.53 mg/L	10 mL	5.3 mg/L	10	0.7	5.0			9/16/19 15:13:00	N	II
KQ1913248-01	Carbon, Total Organic	CCV		Water	24.31 mg/L	10 mL	24.3 mg/L	1					9/16/19 06:43:00	N	II
KQ1913248-02	Carbon, Total Organic	CCV		Water	24.25 mg/L	10 mL	24.2 mg/L	1					9/16/19 11:27:00	N	II
KQ1913248-03	Carbon, Total Organic	CCV		Water	23.80 mg/L	10 mL	23.8 mg/L	1					9/16/19 16:37:00	N	II
KQ1913248-04	Carbon, Total Organic	CCV		Water	23.62 mg/L	10 mL	23.6 mg/L	1					9/16/19 21:48:00	N	II
KQ1913248-05	Carbon, Total Organic	CCV		Water	23.70 mg/L	10 mL	23.7 mg/L	1					9/17/19 02:04:00	N	II
KQ1913248-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 06:58:00	N	II
KQ1913248-07	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 11:42:00	N	II
KQ1913248-08	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 16:52:00	N	II
KQ1913248-09	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 22:03:00	N	II
KQ1913248-10	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 02:19:00	N	II
KQ1913248-11	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 17:07:00	N	II
KQ1913248-12	Carbon, Total Organic	LCS		Water	24.45 mg/L	10 mL	24.4 mg/L	1	0.07	0.50	98		9/16/19 17:35:00	N	II
KQ1913248-13	Carbon, Total Organic	MS	K1908439-001	Water	27.22 mg/L	10 mL	544 mg/L	20	2	10	105		9/16/19 11:56:00	N	II
KQ1913248-14	Carbon, Total Organic	DUP	K1908439-001	Water	0.69 mg/L	10 mL	14 mg/L	20	2	10		21*	9/16/19 10:59:00	N	II
KQ1913248-15	Carbon, Total Organic	DUP	K1908439-002	Water	2.04 mg/L	10 mL	8.2 mg/L	4	0.3	2.0		5	9/16/19 12:53:00	N	II
KQ1913248-16	Carbon, Total Organic	DUP	K1908439-003	Water	1.88 mg/L	10 mL	7.5 mg/L	4	0.3	2.0		6	9/16/19 13:21:00	N	II
KQ1913248-17	Carbon, Total Organic	DUP	K1908439-004	Water	0.29 mg/L	10 mL	0.29 mg/L J	1	0.07	0.50		2	9/16/19 13:49:00	N	II
KQ1913248-18	Carbon, Total Organic	DUP	K1908439-005	Water	0.17 mg/L	10 mL	0.17 mg/L J	1	0.07	0.50		10	9/16/19 14:17:00	N	II

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

09/18/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651375 **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
KQ1913248-19	Carbon, Total Organic	DUP	K1908439-006	Water	0.53 mg/L	10 mL	0.53 mg/L	1	0.07	0.50		8	9/16/19 14:45:00	N	II
KQ1913248-20	Carbon, Total Organic	DUP	K1908439-007	Water	0.55 mg/L	10 mL	5.5 mg/L	10	0.7	5.0		5	9/16/19 15:13:00	N	II
KQ1913248-21	Carbon, Total Organic	DUP	K1908231-001	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 19:00:00	N	II
KQ1913248-22	Carbon, Total Organic	DUP	K1908231-002	Water	0.28 mg/L	10 mL	0.28 mg/L J	1	0.07	0.50		NC	9/16/19 19:28:00	N	II
KQ1913248-23	Carbon, Total Organic	DUP	K1908231-003	Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		NC	9/16/19 19:56:00	N	II
KQ1913248-24	Carbon, Total Organic	DUP	K1908231-004	Water	0.09 mg/L	10 mL	0.09 mg/L J	1	0.07	0.50		NC	9/16/19 20:24:00	N	II
KQ1913248-25	Carbon, Total Organic	DUP	K1908231-005	Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		NC	9/16/19 20:52:00	N	II
KQ1913248-26	Carbon, Total Organic	DUP	K1908231-006	Water	0.12 mg/L	10 mL	0.12 mg/L J	1	0.07	0.50		NC	9/16/19 21:20:00	N	II
KQ1913248-27	Carbon, Total Organic	DUP	K1908310-001	Water	2.39 mg/L	10 mL	2.39 mg/L	1	0.07	0.50		3	9/16/19 22:18:00	N	II
KQ1913248-28	Carbon, Total Organic	DUP	K1908310-002	Water	3.17 mg/L	10 mL	3.17 mg/L	1	0.07	0.50		2	9/16/19 22:46:00	N	II
KQ1913248-29	Carbon, Total Organic	DUP	K1908310-003	Water	0.34 mg/L	10 mL	0.34 mg/L J	1	0.07	0.50		NC	9/16/19 23:15:00	N	II
KQ1913248-30	Carbon, Total Organic	DUP	K1908068-006	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/16/19 23:43:00	N	IV
KQ1913248-31	Carbon, Total Organic	DUP	K1908068-008	Water	2.22 mg/L	10 mL	2.22 mg/L	1	0.07	0.50		3	9/17/19 00:11:00	N	IV

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651376 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1908068-005	Carbon, Dissolved Organic (DOC)	N/A		Water	2.08 mg/L	10 mL	2.08 mg/L	1	0.07	0.50			9/17/19 00:39:00	N	IV
K1908068-007	Carbon, Dissolved Organic (DOC)	N/A		Water	24.41 mg/L	10 mL	24.4 mg/L	1	0.07	0.50			9/17/19 01:07:00	N	IV
KQ1913250-01	Carbon, Dissolved Organic (DOC)	CCV		Water	23.62 mg/L	10 mL	23.6 mg/L	1					9/16/19 21:48:00	N	IV
KQ1913250-02	Carbon, Dissolved Organic (DOC)	CCV		Water	23.70 mg/L	10 mL	23.7 mg/L	1					9/17/19 02:04:00	N	IV
KQ1913250-03	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 22:03:00	N	IV
KQ1913250-04	Carbon, Dissolved Organic (DOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 02:19:00	N	IV
KQ1913250-05	Carbon, Dissolved Organic (DOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/16/19 17:07:00	N	IV
KQ1913250-06	Carbon, Dissolved Organic (DOC)	LCS		Water	24.52 mg/L	10 mL	24.5 mg/L	1	0.07	0.50	98		9/16/19 17:35:00	N	IV
KQ1913250-07	Carbon, Dissolved Organic (DOC)	DUP	K1908068-005	Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50		10	9/17/19 00:39:00	N	IV
KQ1913250-08	Carbon, Dissolved Organic (DOC)	MS	K1908068-007	Water	47.57 mg/L	10 mL	47.6 mg/L	1	0.07	0.50	92		9/17/19 01:35:00	N	IV
KQ1913250-09	Carbon, Dissolved Organic (DOC)	DUP	K1908068-007	Water	22.08 mg/L	10 mL	22.1 mg/L	1	0.07	0.50		11*	9/17/19 01:07:00	N	IV

09/18/19

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

TOC: 651372, 651373, 651374, 651375
DOC: 651376

Schedule: 09142019

Version: 7
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/09/14 19:00 - Saturday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1908230-002.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1908230-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
5	Sample	K1908230-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
6	Sample	K1908230-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
7	Sample	K1908230-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
8	Sample	K1908234-002.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
9	Sample	K1908234-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1908234-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
11	Sample	K1908234-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
12	Sample	K1908234-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
13	Sample	K1908234-008.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
14	Sample	K1908307-001.24	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
15	Sample	K1908307-001.24 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
16	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
17	Sample	K1908307-002.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
18	Sample	K1908307-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
19	Sample	K1908307-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
21	Sample	K1908311-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
22	Sample	K1908311-001.08 ms	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
23	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	K1908311-002.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
25	Sample	K1908311-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
26	Sample	K1908311-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
27	Sample	K1908311-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
28	Sample	K1908366-001.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1908366-002.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
30	Sample	K1908366-003.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
31	Sample	K1908366-004.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
32	Sample	K1908366-005.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
33	Sample	K1908366-006.08	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
34	Sample	K1908388-001.01	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
35	Sample	K1908403-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1908379-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1908452-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1908452-001.01 ms 2x	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 09142019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1908452-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1908452-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1908452-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1908452-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1908452-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1908353-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1908353-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1908439-001.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1908439-001.01 ms 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1908439-002.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1908439-003.01 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1908439-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	K1908439-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
54	Sample	K1908439-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1908439-007.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1908440-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1908440-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
59	Sample	K1908440-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1908440-004.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1908231-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1908231-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1908231-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	K1908231-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1908231-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1908231-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1908310-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1908310-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1908310-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
70	Sample	K1908068-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
71	Sample	K1908068-008.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	K1908068-005.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
73	Sample	K1908068-007.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
74	Sample	K1908068-007.01 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
75	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 09142019
Saturday, September 14, 2019 05:16 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/09/17 09:09 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	09142019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v6) Fusion1 (Fusion1) (v7)		
Comment:			

09/18/19

Report Results

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/09/14 17:16

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.62	15.08	3.46	49.69	05:24
2	TC Clean	5.40	8.74	3.34	50.07	04:06
3	TC Clean	2.81	6.37	3.56	50.08	03:54
4	TC Clean	2.15	5.64	3.49	50.06	03:56

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/09/14 17:52

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.02	13.57	3.55	49.64	05:21
2	TC Clean	7.04	10.61	3.57	50.07	04:03
3	TC Clean	3.14	6.69	3.56	50.10	03:47

4	TC Clean	1.98	5.58	3.60	50.08	03:49

Sample Type: Clean

From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/14 18:14

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.96	13.50	3.54	49.67	05:11
2	TC Clean	5.29	8.85	3.57	50.11	04:04
3	TC Clean	3.31	7.06	3.74	50.12	03:55
4	TC Clean	2.57	5.93	3.36	50.13	03:53

Sample Type: Blank (Creating v1295)

From Schedule Version 6

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/09/14 18:57

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	10.09	13.40	3.31	49.76	05:22
2	TC Clean	7.62	11.09	3.47	50.11	04:04
3	TC Clean	2.84	6.34	3.50	50.11	03:48
4	TC Clean	1.88	5.29	3.41	50.08	03:46
5	Reagent Blank	4.11	7.71	3.60	50.07	05:07
6	Acid Blank	1.43	4.80	3.37	49.71	05:29

Sample Type: Sample

From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.3743 ppm	0.0000 ppm	0.0000%	2019/09/14 19:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3743	3.7427	11.33	15.13	3.80	50.16	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3939 ppm (PASS)	0.0000 ppm	0%	2019/09/14 19:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3939	243.9392	175.05	178.56	3.51	50.14	10:34

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/14 20:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.80	11.45	3.64	50.13	10:32

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/14 20:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.00	10.55	3.55	50.10	10:27
2	TOC	0.0000	0.0000	7.33	10.91	3.58	50.10	10:25
3	TOC	0.0000	0.0000	6.81	10.43	3.62	50.08	10:30
4	TOC	0.0000	0.0000	6.52	10.16	3.65	50.10	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.9504 ppm (PASS)	0.0496 ppm	0.20%	2019/09/14 21:11

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.9641	249.6405	178.92	182.21	3.29	50.13	10:26
C	TOC	25.0 ppm	2	24.8771	248.7713	178.33	181.83	3.50	50.11	10:28
C	TOC	25.0 ppm	3	24.9742	249.7422	178.99	182.51	3.52	50.10	10:30
C	TOC	25.0 ppm	4	24.9860	249.8600	179.07	182.67	3.60	50.10	10:26

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.4650 ppm	0.0000 ppm	0.0000%	2019/09/14 22:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4650	4.6501	11.95	15.51	3.57	50.09	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1908230-002.08	0.4387 ppm	0.0157 ppm	3.5700%	2019/09/14 22:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4316	4.3157	11.72	15.32	3.60	50.11	10:28
2	TOC	0.4493	4.4925	11.84	15.35	3.51	50.12	10:27
3	TOC	0.4201	4.2008	11.64	15.17	3.53	50.09	10:27
4	TOC	0.4538	4.5382	11.87	15.40	3.53	50.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1908230-003.08	0.1423 ppm	0.0276 ppm	19.3700%	2019/09/14 23:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1559	1.5594	9.85	13.25	3.40	50.11	10:26
2	TOC	0.1010	1.0099	9.48	13.19	3.71	50.08	10:25
3	TOC	0.1574	1.5741	9.86	13.41	3.55	50.08	10:28
4	TOC	0.1549	1.5491	9.84	13.47	3.63	50.09	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1908230-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 00:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.79	12.40	3.61	50.10	10:29
2	TOC	0.0000	0.0000	8.56	12.11	3.55	50.11	10:29
3	TOC	0.0000	0.0000	8.54	12.23	3.69	50.08	10:25
4	TOC	0.0000	0.0000	8.54	12.18	3.64	50.05	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1908230-005.08	0.5578 ppm	0.0167 ppm	2.9900%	2019/09/15 01:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5519	5.5193	12.54	16.09	3.55	50.01	10:28
2	TOC	0.5382	5.3823	12.44	15.99	3.55	50.01	10:27
3	TOC	0.5774	5.7742	12.71	16.21	3.50	49.99	10:29
4	TOC	0.5634	5.6342	12.61	16.16	3.54	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1908230-006.08	0.0166 ppm	0.0172 ppm	103.7500%	2019/09/15 02:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0248	0.2482	8.96	12.61	3.65	50.00	10:28
2	TOC	0.0000	0.0000	8.76	12.45	3.68	49.99	10:28
3	TOC	0.0048	0.0479	8.82	12.31	3.49	50.00	10:28
4	TOC	0.0368	0.3676	9.04	12.45	3.41	50.01	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1908234-002.08	0.3329 ppm	0.0239 ppm	7.1900%	2019/09/15 03:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2991	2.9913	10.82	14.21	3.39	50.04	10:30
2	TOC	0.3374	3.3744	11.08	14.54	3.46	50.05	10:27

3	TOC	0.3396	3.3965	11.10	14.70	3.61	50.04	10:28
4	TOC	0.3556	3.5556	11.20	14.70	3.50	50.04	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1908234-003.08	0.6573 ppm	0.0129 ppm	1.9600%	2019/09/15 03:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6611	6.6110	13.28	16.81	3.54	50.06	10:28
2	TOC	0.6414	6.4136	13.14	16.63	3.49	50.07	10:27
3	TOC	0.6721	6.7215	13.35	16.89	3.54	50.07	10:29
4	TOC	0.6545	6.5447	13.23	16.74	3.50	50.10	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4381 ppm (PASS)	0.0000 ppm	0%	2019/09/15 04:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4381	244.3812	175.35	178.83	3.48	50.08	10:33

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/15 05:06

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.36	10.07	3.71	50.08	10:30

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1908234-004.08	0.6173 ppm	0.0249 ppm	4.0400%	2019/09/15 05:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6170	6.1705	12.98	16.63	3.65	50.09	10:31
2	TOC	0.6386	6.3856	13.13	16.64	3.51	50.10	10:28
3	TOC	0.6313	6.3134	13.08	16.56	3.49	50.11	10:24
4	TOC	0.5824	5.8243	12.74	16.32	3.57	50.10	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1908234-005.08	0.0565 ppm	0.0430 ppm	76.0100%	2019/09/15 06:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0549	0.5488	9.16	12.67	3.50	50.12	10:30
2	TOC	0.0431	0.4309	9.08	12.64	3.56	50.12	10:27
3	TOC	0.0129	0.1289	8.88	12.48	3.60	50.12	10:26
4	TOC	0.1153	1.1528	9.57	13.22	3.65	50.12	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1908234-006.08	1.4833 ppm	0.0363 ppm	2.4500%	2019/09/15 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4372	14.3718	18.55	22.05	3.50	50.14	10:27
2	TOC	1.5204	15.2042	19.11	22.67	3.56	50.13	10:29
3	TOC	1.5023	15.0230	18.99	22.47	3.48	50.13	10:28
4	TOC	1.4734	14.7342	18.79	22.28	3.48	50.15	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1908234-008.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 08:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.14	10.73	3.60	50.16	10:27
2	TOC	0.0000	0.0000	7.15	10.70	3.55	50.16	10:27
3	TOC	0.0000	0.0000	7.15	10.57	3.42	50.15	10:31
4	TOC	0.0000	0.0000	6.93	10.56	3.63	50.15	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1908307-001.24	3.1634 ppm	0.0466 ppm	1.4700%	2019/09/15 09:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1779	31.7791	30.36	33.89	3.53	50.17	10:25
2	TOC	3.0954	30.9541	29.80	33.47	3.67	50.16	10:26
3	TOC	3.1792	31.7924	30.37	33.80	3.43	50.17	10:28
4	TOC	3.2012	32.0119	30.52	34.07	3.55	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1908307-001.24 ms	29.3556 ppm	0.1536 ppm	0.5200%	2019/09/15 09:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.5382	295.3819	209.29	212.75	3.46	50.19	10:25
2	TOC	29.2050	292.0495	207.03	210.60	3.57	50.15	10:29
3	TOC	29.4240	294.2402	208.52	212.15	3.63	50.16	10:29
4	TOC	29.2552	292.5519	207.37	210.88	3.51	50.16	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 10:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.24	10.78	3.55	50.17	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1908307-002.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 11:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.36	12.05	3.69	50.18	10:29
2	TOC	0.0000	0.0000	8.16	11.58	3.42	50.18	10:28
3	TOC	0.0000	0.0000	8.06	11.48	3.42	50.19	10:23
4	TOC	0.0000	0.0000	8.36	11.96	3.60	50.17	10:26

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1908307-003.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 12:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.36	11.94	3.57	50.18	10:26
2	TOC	0.0000	0.0000	8.32	11.90	3.59	50.18	10:30
3	TOC	0.0000	0.0000	8.38	11.93	3.55	50.15	10:30
4	TOC	0.0000	0.0000	8.00	11.56	3.56	50.15	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1908307-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 13:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.21	10.69	3.47	50.16	10:27
2	TOC	0.0000	0.0000	7.65	11.11	3.45	50.16	10:24
3	TOC	0.0000	0.0000	7.10	10.77	3.66	50.14	10:27
4	TOC	0.0000	0.0000	7.18	10.67	3.49	50.14	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.1258 ppm (PASS)	0.0000 ppm	0%	2019/09/15 13:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1258	241.2580	173.23	176.72	3.49	50.12	10:33

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0	0 / infinity	0.0000	0.0000	0%	2019/09/15 14:11

					ppm]	(NA / NA)	ppm (PASS)	ppm		

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.95	9.55	3.60	50.14	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 14:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.33	8.89	3.56	50.13	10:25
2	TOC	0.0000	0.0000	5.58	9.13	3.55	50.12	10:28
3	TOC	0.0000	0.0000	5.11	8.77	3.66	50.11	10:24
4	TOC	0.0000	0.0000	5.52	8.99	3.47	50.14	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.6045 ppm (PASS)	0.0998 ppm	0.41%	2019/09/15 15:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6629	246.6293	176.87	180.58	3.70	50.14	10:27
C	TOC	25.0 ppm	2	24.6612	246.6116	176.86	180.50	3.64	50.12	10:25
C	TOC	25.0 ppm	3	24.6382	246.3818	176.70	180.31	3.61	50.14	10:30
C	TOC	25.0 ppm	4	24.4558	244.5580	175.47	179.12	3.66	50.14	10:24

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K1908311-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 16:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.60	12.12	3.52	50.15	10:29
2	TOC	0.0000	0.0000	7.74	11.18	3.44	50.15	10:29
3	TOC	0.0000	0.0000	7.24	10.90	3.67	50.15	10:26
4	TOC	0.0000	0.0000	7.52	11.07	3.55	50.16	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1908311-001.08 ms	25.7899 ppm	0.2331 ppm	0.9000%	2019/09/15 17:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.9078	259.0778	184.65	188.23	3.57	50.16	10:31
2	TOC	25.4455	254.4549	181.51	185.09	3.58	50.15	10:30
3	TOC	25.9523	259.5227	184.95	188.48	3.53	50.16	10:27
4	TOC	25.8542	258.5416	184.29	187.88	3.59	50.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 18:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.34	9.91	3.57	50.16	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1908311-002.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 18:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.37	11.99	3.63	50.17	10:29
2	TOC	0.0000	0.0000	8.36	11.86	3.51	50.16	10:28
3	TOC	0.0000	0.0000	7.98	11.64	3.66	50.16	10:26
4	TOC	0.0000	0.0000	8.04	11.62	3.59	50.16	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1908311-003.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 19:19

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	0.0000	0.0000	7.70	11.27	3.57	50.17	10:31
2	TOC	0.0000	0.0000	7.70	11.23	3.53	50.16	10:26
3	TOC	0.0000	0.0000	7.29	10.92	3.63	50.18	10:25
4	TOC	0.0000	0.0000	7.74	11.21	3.46	50.19	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1908311-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 20:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.41	10.98	3.58	50.20	10:27
2	TOC	0.0000	0.0000	7.55	11.26	3.72	50.18	10:24
3	TOC	0.0000	0.0000	7.62	11.17	3.55	50.18	10:30
4	TOC	0.0000	0.0000	7.43	11.07	3.64	50.20	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1908311-005.08	9.2286 ppm	0.1088 ppm	1.1800%	2019/09/15 21:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.0660	90.6600	70.33	73.94	3.61	50.20	10:28
2	TOC	9.2929	92.9288	71.87	75.43	3.56	50.20	10:25
3	TOC	9.2839	92.8389	71.81	75.28	3.47	50.20	10:27
4	TOC	9.2718	92.7181	71.73	75.31	3.59	50.20	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1908366-001.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 22:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.46	10.97	3.50	50.19	10:32
2	TOC	0.0000	0.0000	7.01	10.49	3.49	50.21	10:28
3	TOC	0.0000	0.0000	6.86	10.35	3.50	50.22	10:28
4	TOC	0.0000	0.0000	6.65	10.15	3.50	50.24	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8715 ppm (PASS)	0.0000 ppm	0%	2019/09/15 23:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8715	238.7153	171.50	174.91	3.41	50.24	10:33

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/15 23:16

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.45	8.98	3.53	50.24	10:28

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K1908366-002.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/15 23:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.49	9.95	3.47	50.24	10:29
2	TOC	0.0000	0.0000	6.55	10.05	3.50	50.24	10:27
3	TOC	0.0000	0.0000	6.49	9.98	3.49	50.26	10:26
4	TOC	0.0000	0.0000	6.34	9.86	3.52	50.25	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1908366-003.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 00:26

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

1	TOC	0.0000	0.0000	6.57	10.07	3.50	50.26	10:32
2	TOC	0.0000	0.0000	6.90	10.34	3.44	50.25	10:28
3	TOC	0.0000	0.0000	6.77	10.20	3.43	50.29	10:31
4	TOC	0.0000	0.0000	6.64	10.27	3.63	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1908366-004.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 01:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.05	10.56	3.51	50.31	10:26
2	TOC	0.0000	0.0000	7.00	10.53	3.53	50.30	10:26
3	TOC	0.0000	0.0000	6.95	10.53	3.58	50.29	10:26
4	TOC	0.0000	0.0000	7.08	10.70	3.62	50.24	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1908366-005.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 02:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.94	10.50	3.56	50.20	10:29
2	TOC	0.0000	0.0000	6.95	10.50	3.55	50.22	10:26
3	TOC	0.0000	0.0000	6.98	10.58	3.60	50.26	10:24
4	TOC	0.0000	0.0000	6.82	10.45	3.63	50.28	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1908366-006.08	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 03:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.27	9.78	3.51	50.30	10:30
2	TOC	0.0000	0.0000	6.17	9.81	3.64	50.31	10:28
3	TOC	0.0000	0.0000	6.29	9.80	3.51	50.32	10:27
4	TOC	0.0000	0.0000	6.30	9.81	3.52	50.33	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1908388-001.01	1.4950 ppm	0.0165 ppm	1.1000%	2019/09/16 04:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4958	14.9581	18.94	22.50	3.55	50.34	10:26
2	TOC	1.4996	14.9964	18.97	22.48	3.51	50.33	10:27
3	TOC	1.5120	15.1202	19.05	22.57	3.52	50.32	10:29
4	TOC	1.4725	14.7254	18.79	22.37	3.59	50.33	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1908403-001.02	3.0074 ppm	0.0139 ppm	0.4600%	2019/09/16 05:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9976	29.9759	29.14	32.73	3.59	50.35	10:29
2	TOC	3.0172	30.1719	29.27	32.78	3.51	50.34	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1908379-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 05:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.51	11.99	3.48	50.35	10:28
2	TOC	0.0000	0.0000	8.36	11.85	3.49	50.33	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1908452-001.01	14.5666 ppm	0.6052 ppm	4.1500%	2019/09/16 06:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.9946	149.9461	110.57	114.08	3.51	50.37	10:28
2	TOC	14.1387	141.3868	104.76	108.31	3.54	50.35	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1908452-001.01 ms 2x	32.8223 ppm	0.0000 ppm	0.0000%	2019/09/16 06:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	32.8223	328.2225	231.59	235.14	3.55	50.38	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.3057 ppm (PASS)	0.0000 ppm	0%	2019/09/16 06:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3057	243.0568	174.45	178.10	3.65	50.38	10:31

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/16 06:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.21	9.86	3.64	50.37	10:34

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 07:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.27	8.87	3.60	50.35	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.6339 ppm (PASS)	0.0000 ppm	0%	2019/09/16 07:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6339	246.3391	176.68	180.31	3.63	50.36	10:30

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K1908452-002.01	3.3501 ppm	0.0983 ppm	2.9400%	2019/09/16 07:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.4197	34.1967	32.00	35.67	3.67	50.36	10:27
2	TOC	3.2806	32.8060	31.06	34.54	3.48	50.35	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1908452-003.01	85.4208 ppm	0.7825 ppm	0.9200%	2019/09/16 08:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	84.8675	848.6749	584.87	588.38	3.52	50.36	10:30
2	TOC	85.9742	859.7416	592.38	596.29	3.91	50.34	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K1908452-004.01	83.8667 ppm	0.0616 ppm	0.0700%	2019/09/16 08:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	83.8231	838.2314	577.78	581.64	3.86	50.32	10:27
2	TOC	83.9102	839.1020	578.37	582.43	4.06	50.33	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	43	TOC	K1908452-005.01	106.4911 ppm	2.7567 ppm	2.5900%	2019/09/16 09:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	108.4403	1084.4032	744.88	748.73	3.86	50.28	10:28
2	TOC	104.5418	1045.4179	718.41	723.40	4.98	50.27	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1908452-006.02	25.7725 ppm	3.2007 ppm	12.4200%	2019/09/16 09:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.0357	280.3567	199.10	203.53	4.43	50.28	10:31
2	TOC	23.5093	235.0926	168.37	172.12	3.75	50.27	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1908353-001.01 100x	9.0972 ppm	0.5523 ppm	6.0700%	2019/09/16 10:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.4878	94.8778	73.19	77.08	3.88	50.27	10:28
2	TOC	8.7067	87.0669	67.89	71.71	3.82	50.24	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1908353-002.01 100x	7.5460 ppm	0.1838 ppm	2.4400%	2019/09/16 10:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.6759	76.7589	60.89	64.47	3.57	50.24	10:24
2	TOC	7.4160	74.1602	59.13	62.66	3.53	50.23	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1908439-001.01 20x	0.7709 ppm	0.1123 ppm	14.5700%	2019/09/16 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8503	8.5026	14.56	18.31	3.75	50.19	10:27
2	TOC	0.6914	6.9145	13.48	17.08	3.60	50.18	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2463 ppm (PASS)	0.0000 ppm	0%	2019/09/16 11:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2463	242.4631	174.04	177.52	3.48	50.18	10:30

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/16 11:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.52	11.17	3.64	50.16	10:31

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1908439-001.01 ms 20x	27.3254 ppm	0.1475 ppm	0.5400%	2019/09/16 11:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.2211	272.2114	193.57	197.08	3.51	50.14	10:29
2	TOC	27.4297	274.2975	194.98	198.52	3.54	50.18	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	49	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 12:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.77	10.22	3.45	50.15	10:25
2	TOC	0.0000	0.0000	6.05	9.50	3.44	50.17	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1908439-002.01 4x	1.9915 ppm	0.0672 ppm	3.3700%	2019/09/16 12:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9440	19.4396	21.99	25.32	3.34	50.15	10:31
2	TOC	2.0390	20.3898	22.63	25.99	3.36	50.18	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1908439-003.01 4x	1.9365 ppm	0.0799 ppm	4.1300%	2019/09/16 13:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9930	19.9302	22.32	25.73	3.41	50.18	10:27
2	TOC	1.8800	18.8002	21.55	24.98	3.43	50.19	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1908439-004.01	0.2955 ppm	0.0047 ppm	1.5900%	2019/09/16 13:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2988	2.9884	10.82	14.19	3.37	50.21	10:31
2	TOC	0.2922	2.9221	10.77	13.92	3.15	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	K1908439-005.01	0.1813 ppm	0.0123 ppm	6.7800%	2019/09/16 14:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1900	1.8997	10.08	13.58	3.50	50.16	10:30
2	TOC	0.1726	1.7258	9.96	13.42	3.46	50.15	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	54	TOC	K1908439-006.01	0.5070 ppm	0.0277 ppm	5.4700%	2019/09/16 14:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4874	4.8741	12.10	15.62	3.52	50.09	10:29
2	TOC	0.5266	5.2659	12.36	15.86	3.49	50.16	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	55	TOC	K1908439-007.01 10x	0.5404 ppm	0.0191 ppm	3.5300%	2019/09/16 15:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5269	5.2689	12.37	15.85	3.48	50.15	10:27
2	TOC	0.5538	5.5385	12.55	15.97	3.42	50.11	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	56	TOC	K1908440-001.01 100x	14.8113 ppm	0.1020 ppm	0.6900%	2019/09/16 15:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.7392	147.3915	108.84	112.22	3.38	50.08	10:29
2	TOC	14.8834	148.8338	109.82	113.41	3.60	50.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	57	TOC	K1908440-002.01 100x	2.3915 ppm	0.1121 ppm	4.6900%	2019/09/16 16:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4708	24.7078	25.56	29.02	3.46	50.12	10:30
2	TOC	2.3123	23.1226	24.49	27.98	3.49	50.08	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.8001 ppm (PASS)	0.0000 ppm	0%	2019/09/16 16:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.8001	238.0008	171.02	174.57	3.56	50.13	10:33

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/16 16:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.03	8.62	3.59	50.12	10:32

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 17:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.49	7.96	3.48	50.14	10:25
2	TOC	0.0000	0.0000	4.91	8.34	3.43	50.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.5197 ppm (PASS)	0.1044 ppm	0.43%	2019/09/16 17:35

	Base									

Pos	Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.4459	244.4593	175.40	178.84	3.44	50.13	10:28
C	TOC	25.0 ppm	2	24.5935	245.9354	176.40	180.04	3.63	50.16	10:30

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1908440-003.01	1.8175 ppm	0.0366 ppm	2.0100%	2019/09/16 18:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8433	18.4334	21.30	24.95	3.64	50.18	10:26
2	TOC	1.7916	17.9163	20.95	24.60	3.65	50.18	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1908440-004.01 20x	6.2537 ppm	0.0792 ppm	1.2700%	2019/09/16 18:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.1977	61.9768	50.86	54.46	3.60	50.15	10:31
2	TOC	6.3096	63.0964	51.62	55.13	3.51	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	61	TOC	K1908231-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 19:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.05	11.54	3.49	50.18	10:25
2	TOC	0.0000	0.0000	7.92	11.45	3.53	50.16	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	62	TOC	K1908231-002.01	0.2949 ppm	0.0152 ppm	5.1600%	2019/09/16 19:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3056	3.0561	10.86	14.38	3.51	50.13	10:25

2	TOC	0.2841	2.8411	10.72	14.21	3.49	50.12	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	63	TOC	K1908231-003.01	0.1560 ppm	0.0286 ppm	18.3600%	2019/09/16 19:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1358	1.3575	9.71	13.13	3.42	50.11	10:31
2	TOC	0.1763	1.7627	9.99	13.31	3.33	50.12	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	64	TOC	K1908231-004.01	0.0996 ppm	0.0099 ppm	9.9400%	2019/09/16 20:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1066	1.0659	9.51	12.98	3.46	50.10	10:27
2	TOC	0.0926	0.9259	9.42	13.00	3.58	50.09	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	65	TOC	K1908231-005.01	0.3738 ppm	0.0420 ppm	11.2300%	2019/09/16 20:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4034	4.0344	11.53	15.11	3.58	50.12	10:29
2	TOC	0.3441	3.4407	11.13	14.75	3.62	50.13	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	66	TOC	K1908231-006.01	0.1168 ppm	0.0005 ppm	0.4500%	2019/09/16 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1172	1.1719	9.59	13.08	3.50	50.12	10:26
2	TOC	0.1165	1.1646	9.58	12.96	3.38	50.15	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.6243 ppm (PASS)	0.0000 ppm	0%	2019/09/16 21:48

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6243	236.2432	169.82	173.20	3.38	50.16	10:34

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/16 22:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.00	8.54	3.54	50.17	10:32

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

Sample Type: Sample From Schedule Version 7

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	67	TOC	K1908310-001.01	2.3632 ppm	0.0430 ppm	1.8200%	2019/09/16 22:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3327	23.3274	24.62	28.20	3.58	50.18	10:28
2	TOC	2.3936	23.9358	25.04	28.65	3.61	50.18	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	68	TOC	K1908310-002.01	3.1367 ppm	0.0481 ppm	1.5300%	2019/09/16 22:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.1026	31.0263	29.85	33.39	3.54	50.20	10:28
2	TOC	3.1707	31.7070	30.31	33.72	3.40	50.19	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1908310-003.01	0.3804 ppm	0.0570 ppm	14.9800%	2019/09/16 23:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4207	4.2067	11.65	15.13	3.48	50.21	10:25
2	TOC	0.3401	3.4009	11.10	14.64	3.54	50.20	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1908068-006.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/16 23:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.17	10.68	3.51	50.23	10:28
2	TOC	0.0000	0.0000	6.91	10.44	3.53	50.22	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	71	TOC	K1908068-008.03	2.2419 ppm	0.0276 ppm	1.2300%	2019/09/17 00:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.2614	22.6144	24.14	27.73	3.59	50.22	10:29
2	TOC	2.2224	22.2240	23.88	27.57	3.70	50.24	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1908068-005.01 doc	1.9395 ppm	0.2038 ppm	10.5100%	2019/09/17 00:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0836	20.8362	22.93	26.56	3.63	50.23	10:27
2	TOC	1.7955	17.9546	20.98	24.56	3.58	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1908068-007.01 doc	23.2457 ppm	1.6476 ppm	7.0900%	2019/09/17 01:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.4107	244.1072	174.49	178.06	3.57	50.23	10:30
2	TOC	22.0807	220.8070	158.67	162.37	3.70	50.22	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	74	TOC	K1908068-007.01 ms doc	47.5734 ppm	0.0000 ppm	0.0000%	2019/09/17 01:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	47.5734	475.7341	331.72	335.36	3.65	50.22	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	75	TOC	RB	0.9369 ppm	0.0000 ppm	0.0000%	2019/09/17 01:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9369	9.3688	15.15	18.78	3.63	50.25	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7905 (IC) (v1295)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.6967 ppm (PASS)	0.0000 ppm	0%	2019/09/17 02:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6967	236.9666	170.31	173.94	3.63	50.24	10:32

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

Sample Type: Check Standard --> CCB From Schedule Version 7

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm	0.0000 ppm	0%	2019/09/17 02:19

						(PASS)				

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.06	9.69	3.63	50.25	10:31

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

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1294	2.0193	1.4690	0.0000	0.0000	0.0000	2019/09/12 13:47	Fusion1 (Fusion1)
v1295	1.3713	1.4290	0.0000	0.0000	0.0000	2019/09/14 19:31	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

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

Basic Analysis Type: TOC

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

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/09/17 02:35

ALS Environmental

StarLIMS Run: 651372, 651373, 651374, 651375, 651376

Analysis: DOC/TOC

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

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

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-77J 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-80K

21 % H3PO4: 11-GEN-05-80L

Equipment ID: K-TOC-03

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

FILTER ID: 16967789

Analyzed By: BCD	Date Analyzed: 9/19/19
Reviewed By: [signature]	Date Reviewed: 09/18/19

Original
Work Request # (K1908413, 8423, 8428, 8429, 8431, 8452, 8491, 8424, 8430, 8471

Tier: II III IV III IV IV II IV ~~III~~ I IV
08 9/24/19

Date Analyzed: 9/18/19

Analyst: QB for BCD

Analysis: TOC | DOC

Run # TOC: 651907
651909
DOC: 651910

DATA QUALITY REPORT
INORGANICS

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

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

COMMENTS:

10. K1908452-003/3 dup RPD is 41%
K1908452-004/4 dup RPD is 41%.
K1908471-1/1 dup RPD is 16%.
K1908424-2/2 dup RPD is 55%.
K1908424-4/4 dup RPD is 21%.
K1908424-3/3 dup RPD is 12%.
K1908423-1/1 dup RPD is 14%
- sample concentration is less than 5x MRL

K1908452-005/5 dup RPD is 156%
K1908452-6/6 dup RPD is 23%.
- sample concentration not homogenous.
QB 9/24/19

Final Approved by: [signature] Date: 09/24/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651907 **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
K1908413-001	Carbon, Total Organic	N/A		Water	7.13 mg/L	10 mL	7.13 mg/L	1	0.07	0.50			9/17/19 17:36:00	N	II
K1908423-001	Carbon, Total Organic	N/A		Surface Water	0.14 mg/L	10 mL	0.14 mg/L J	1	0.07	0.50			9/17/19 18:04:00	Y	III
K1908423-002	Carbon, Total Organic	N/A		Surface Water	0.04 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 19:16:00	N	III
K1908428-001	Carbon, Total Organic	N/A		Surface Water	0.08 mg/L	10 mL	0.08 mg/L J	1	0.07	0.50			9/17/19 19:44:00	N	IV
K1908429-001	Carbon, Total Organic	N/A		Surface Water	2.92 mg/L	10 mL	2.92 mg/L	1	0.07	0.50			9/17/19 20:12:00	N	III
K1908429-002	Carbon, Total Organic	N/A		Surface Water	2.82 mg/L	10 mL	2.82 mg/L	1	0.07	0.50			9/17/19 20:40:00	N	III
K1908429-003	Carbon, Total Organic	N/A		Surface Water	0.81 mg/L	10 mL	0.81 mg/L	1	0.07	0.50			9/17/19 21:08:00	N	III
K1908429-004	Carbon, Total Organic	N/A		Surface Water	5.76 mg/L	10 mL	23.0 mg/L	4	0.3	2.0			9/17/19 21:36:00	N	III
K1908429-005	Carbon, Total Organic	N/A		Surface Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50			9/17/19 22:04:00	N	III
K1908429-006	Carbon, Total Organic	N/A		Surface Water	2.71 mg/L	10 mL	2.71 mg/L	1	0.07	0.50			9/17/19 22:32:00	N	III
K1908429-008	Carbon, Total Organic	N/A		Surface Water	3.87 mg/L	10 mL	3.87 mg/L	1	0.07	0.50			9/18/19 00:42:00	N	III
K1908429-009	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 01:10:00	N	III
K1908431-001	Carbon, Total Organic	N/A		Surface Water	4.09 mg/L	10 mL	4.09 mg/L	1	0.07	0.50			9/18/19 01:38:00	N	IV
K1908452-003	Carbon, Total Organic	N/A		Water	6.43 mg/L	10 mL	129 mg/L	20	2	10			9/17/19 15:44:00	N	IV
K1908452-004	Carbon, Total Organic	N/A		Water	6.40 mg/L	10 mL	128 mg/L	20	2	10			9/17/19 16:12:00	N	IV
K1908452-005	Carbon, Total Organic	N/A		Water	44.65 mg/L	10 mL	893 mg/L	20	2	10			9/17/19 16:40:00	N	IV
K1908452-006	Carbon, Total Organic	N/A		Water	18.94 mg/L	10 mL	37.9 mg/L	2	0.2	1.0			9/17/19 17:08:00	N	IV
K1908491-001	Carbon, Total Organic	N/A		Water	7.54 mg/L	10 mL	754 mg/L	100	7	50			9/18/19 02:06:00	N	II
K1908491-002	Carbon, Total Organic	N/A		Water	6.52 mg/L	10 mL	652 mg/L	100	7	50			9/18/19 02:35:00	N	II
KQ1913633-01	Carbon, Total Organic	DUP	K1908413-001	Water	7.03 mg/L	10 mL	7.03 mg/L	1	0.07	0.50		1	9/17/19 17:36:00	N	II
KQ1913633-02	Carbon, Total Organic	DUP	K1908423-002	Surface Water	0.03 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/17/19 19:16:00	N	III
KQ1913633-03	Carbon, Total Organic	DUP	K1908423-001	Surface Water	0.07 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/17/19 18:04:00	N	III
KQ1913633-04	Carbon, Total Organic	DUP	K1908428-001	Surface Water	0.02 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/17/19 19:44:00	N	IV
KQ1913633-05	Carbon, Total Organic	DUP	K1908429-009	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	9/18/19 01:10:00	N	III
KQ1913633-06	Carbon, Total Organic	DUP	K1908429-004	Surface Water	5.76 mg/L	10 mL	23.0 mg/L	4	0.3	2.0		<1	9/17/19 21:36:00	N	III
KQ1913633-07	Carbon, Total Organic	DUP	K1908429-005	Surface Water	1.66 mg/L	10 mL	1.66 mg/L	1	0.07	0.50		3	9/17/19 22:04:00	N	III

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

09/24/19 Received

AB 9/24/19 BrBCD

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651907 **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
KQ1913633-08	Carbon, Total Organic	DUP	K1908429-006	Surface Water	2.73 mg/L	10 mL	2.73 mg/L	1	0.07	0.50		<1	9/17/19 22:32:00	N	III
KQ1913633-09	Carbon, Total Organic	DUP	K1908429-001	Surface Water	2.88 mg/L	10 mL	2.88 mg/L	1	0.07	0.50		1	9/17/19 20:12:00	N	III
KQ1913633-11	Carbon, Total Organic	DUP	K1908429-008	Surface Water	3.78 mg/L	10 mL	3.78 mg/L	1	0.07	0.50		2	9/18/19 00:42:00	N	III
KQ1913633-12	Carbon, Total Organic	DUP	K1908429-002	Surface Water	2.76 mg/L	10 mL	2.76 mg/L	1	0.07	0.50		2	9/17/19 20:40:00	N	III
KQ1913633-13	Carbon, Total Organic	DUP	K1908429-003	Surface Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50		2	9/17/19 21:08:00	N	III
KQ1913633-14	Carbon, Total Organic	DUP	K1908431-001	Surface Water	4.11 mg/L	10 mL	4.11 mg/L	1	0.07	0.50		<1	9/18/19 01:38:00	N	IV
KQ1913633-15	Carbon, Total Organic	DUP	K1908452-003	Water	6.45 mg/L	10 mL	129 mg/L	20	2	10		41*	9/17/19 15:44:00	N	IV
KQ1913633-16	Carbon, Total Organic	DUP	K1908452-004	Water	6.37 mg/L	10 mL	127 mg/L	20	2	10		41*	9/17/19 16:12:00	N	IV
KQ1913633-17	Carbon, Total Organic	DUP	K1908452-005	Water	44.39 mg/L	10 mL	888 mg/L	20	2	10		156*	9/17/19 16:40:00	N	IV
KQ1913633-18	Carbon, Total Organic	DUP	K1908452-006	Water	17.74 mg/L	10 mL	35.5 mg/L	2	0.2	1.0		23*	9/17/19 17:08:00	N	IV
KQ1913633-19	Carbon, Total Organic	DUP	K1908491-001	Water	7.58 mg/L	10 mL	758 mg/L	100	7	50		<1	9/18/19 02:06:00	N	II
KQ1913633-20	Carbon, Total Organic	DUP	K1908491-002	Water	6.61 mg/L	10 mL	661 mg/L	100	7	50		1	9/18/19 02:35:00	N	II
KQ1913633-22	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 15:00:00	N	IV
KQ1913633-23	Carbon, Total Organic	LCS		Water	24.73 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		9/17/19 15:14:00	N	IV
KQ1913633-24	Carbon, Total Organic	CCV		Water	24.08 mg/L	10 mL	24.1 mg/L	1					9/17/19 14:30:00	N	IV
KQ1913633-25	Carbon, Total Organic	CCV		Water	24.50 mg/L	10 mL	24.5 mg/L	1					9/17/19 18:47:00	N	IV
KQ1913633-26	Carbon, Total Organic	CCV		Water	24.07 mg/L	10 mL	24.1 mg/L	1					9/17/19 23:44:00	N	IV
KQ1913633-27	Carbon, Total Organic	CCV		Water	24.00 mg/L	10 mL	24.0 mg/L	1					9/18/19 04:27:00	N	IV
KQ1913633-28	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 14:45:00	N	IV
KQ1913633-29	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 19:01:00	N	IV
KQ1913633-30	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/17/19 23:58:00	N	IV
KQ1913633-31	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 04:41:00	N	IV
KQ1913633-32	Carbon, Total Organic	MS	K1908423-001	Surface Water	26.21 mg/L	10 mL	26.2 mg/L	1	0.07	0.50	104		9/17/19 18:32:00	N	III

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

QB for BCD
9/24/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651909 **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
K1908424-001	Carbon, Total Organic	N/A		Ground Water	62.33 mg/L	10 mL	62.3 mg/L	1	0.07	0.50			9/18/19 03:03:00	N	IV
K1908424-002	Carbon, Total Organic	N/A		Ground Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			9/18/19 03:31:00	N	IV
K1908424-003	Carbon, Total Organic	N/A		Ground Water	0.29 mg/L	10 mL	0.29 mg/L J	1	0.07	0.50			9/18/19 03:59:00	N	IV
K1908424-004	Carbon, Total Organic	N/A		Ground Water	0.22 mg/L	10 mL	0.22 mg/L J	1	0.07	0.50			9/18/19 04:56:00	N	IV
K1908429-007	Carbon, Total Organic	N/A		Surface Water	3.78 mg/L	10 mL	3.78 mg/L	1	0.07	0.50			9/17/19 23:01:00	Y	III
K1908430-002	Carbon, Total Organic	N/A		Water	9.28 mg/L	10 mL	18.6 mg/L	2	0.7	1.0			9/18/19 07:17:00	N	I
K1908471-001	Carbon, Total Organic	N/A		Ground Water	0.41 mg/L	10 mL	0.41 mg/L J	1	0.07	0.50			9/18/19 05:24:00	N	IV
K1908471-002	Carbon, Total Organic	N/A		Ground Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50			9/18/19 05:52:00	N	IV
K1908471-003	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 06:21:00	N	IV
K1908471-004	Carbon, Total Organic	N/A		Ground Water	0.80 mg/L	10 mL	0.80 mg/L	1	0.07	0.50			9/18/19 06:49:00	N	IV
KQ1913640-01	Carbon, Total Organic	DUP	K1908424-001	Ground Water	63.71 mg/L	10 mL	63.7 mg/L	1	0.07	0.50		2	9/18/19 03:03:00	N	IV
KQ1913640-02	Carbon, Total Organic	DUP	K1908471-001	Ground Water	0.49 mg/L	10 mL	0.49 mg/L J	1	0.07	0.50		16*	9/18/19 05:24:00	N	IV
KQ1913640-03	Carbon, Total Organic	DUP	K1908471-004	Ground Water	0.84 mg/L	10 mL	0.84 mg/L	1	0.07	0.50		4	9/18/19 06:49:00	N	IV
KQ1913640-04	Carbon, Total Organic	DUP	K1908424-002	Ground Water	0.86 mg/L	10 mL	0.86 mg/L	1	0.07	0.50		55*	9/18/19 03:31:00	N	IV
KQ1913640-05	Carbon, Total Organic	DUP	K1908424-004	Ground Water	0.18 mg/L	10 mL	0.18 mg/L J	1	0.07	0.50		21*	9/18/19 04:56:00	N	IV
KQ1913640-06	Carbon, Total Organic	DUP	K1908471-002	Ground Water	0.64 mg/L	10 mL	0.64 mg/L	1	0.07	0.50		5	9/18/19 05:52:00	N	IV
KQ1913640-07	Carbon, Total Organic	DUP	K1908471-003	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NA	9/18/19 06:21:00	N	IV
KQ1913640-08	Carbon, Total Organic	DUP	K1908424-003	Ground Water	0.26 mg/L	10 mL	0.26 mg/L J	1	0.07	0.50		12*	9/18/19 03:59:00	N	IV
KQ1913640-09	Carbon, Total Organic	DUP	K1908430-002	Water	9.77 mg/L	10 mL	19.5 mg/L	2	0.7	1.0		5	9/18/19 07:17:00	N	I
KQ1913640-10	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 00:13:00	N	IV
KQ1913640-11	Carbon, Total Organic	LCS		Ground Water	24.71 mg/L	10 mL	24.7 mg/L	1	0.07	0.50	99		9/18/19 00:28:00	N	IV
KQ1913640-12	Carbon, Total Organic	CCV		Ground Water	24.50 mg/L	10 mL	24.5043 mg/L	1					9/17/19 18:47:00	N	IV
KQ1913640-13	Carbon, Total Organic	CCV		Ground Water	24.07 mg/L	10 mL	24.0741 mg/L	1					9/17/19 23:44:00	N	IV
KQ1913640-14	Carbon, Total Organic	CCV		Ground Water	24.00 mg/L	10 mL	23.9991 mg/L	1					9/18/19 04:27:00	N	IV

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

09/24/19 AB 9/24/19 for BLD

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651909 **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
KQ1913640-15	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.0000 mg/L	1					9/17/19 19:01:00	N	IV
KQ1913640-16	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.0000 mg/L	1					9/17/19 23:58:00	N	IV
KQ1913640-17	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.0000 mg/L	1					9/18/19 04:41:00	N	IV
KQ1913640-18	Carbon, Total Organic	MS	K1908429-007	Surface Water	29.70 mg/L	10 mL	29.7 mg/L	1	0.07	0.50	104		9/17/19 23:29:00	N	III
KQ1913640-19	Carbon, Total Organic	DUP	K1908429-007	Surface Water	3.76 mg/L	10 mL	3.76 mg/L	1	0.07	0.50		<1	9/17/19 23:01:00	N	III
KQ1913640-20	Carbon, Total Organic	CCV		Surface Water	23.71 mg/L	10 mL	23.7073 mg/L	1					9/18/19 09:10:00	N	III
KQ1913640-21	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.0000 mg/L	1					9/18/19 09:24:00	N	III

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

AB 9/24/19 for BCD

00996663

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651910 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1908423-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.24 mg/L	10 mL	1.24 mg/L	1	0.07	0.50			9/18/19 07:45:00	Y	III
K1908423-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50			9/18/19 08:42:00	N	III
K1908428-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.47 mg/L	10 mL	1.47 mg/L	1	0.07	0.50			9/18/19 10:09:00	N	IV
K1908429-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.40 mg/L	10 mL	4.40 mg/L	1	0.07	0.50			9/18/19 10:37:00	N	III
K1908429-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	3.91 mg/L	10 mL	3.91 mg/L	1	0.07	0.50			9/18/19 11:05:00	N	III
K1908429-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.43 mg/L	10 mL	4.43 mg/L	1	0.07	0.50			9/18/19 11:33:00	N	III
K1908429-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	6.95 mg/L	10 mL	27.8 mg/L	4	0.3	2.0			9/18/19 12:01:00	N	III
K1908429-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	3.86 mg/L	10 mL	3.86 mg/L	1	0.07	0.50			9/18/19 12:30:00	N	III
K1908429-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.25 mg/L	10 mL	4.25 mg/L	1	0.07	0.50			9/18/19 12:58:00	N	III
K1908429-007	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50			9/18/19 13:26:00	Y	III
K1908429-008	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.28 mg/L	10 mL	4.28 mg/L	1	0.07	0.50			9/18/19 14:52:00	N	III
K1908429-009	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.27 mg/L	10 mL	1.27 mg/L	1	0.07	0.50			9/18/19 15:20:00	N	III
K1908431-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.43 mg/L	10 mL	4.43 mg/L	1	0.07	0.50			9/18/19 15:48:00	N	IV
KQ1913647-01	Carbon, Dissolved Organic (DOC)	DUP	K1908429-009	Surface Water	1.31 mg/L	10 mL	1.31 mg/L	1	0.07	0.50		3	9/18/19 15:20:00	N	III
KQ1913647-02	Carbon, Dissolved Organic (DOC)	DUP	K1908429-004	Surface Water	6.83 mg/L	10 mL	27.3 mg/L	4	0.3	2.0		2	9/18/19 12:01:00	N	III
KQ1913647-03	Carbon, Dissolved Organic (DOC)	DUP	K1908431-001	Surface Water	4.53 mg/L	10 mL	4.53 mg/L	1	0.07	0.50		2	9/18/19 15:48:00	N	IV
KQ1913647-04	Carbon, Dissolved Organic (DOC)	DUP	K1908423-002	Surface Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50		1	9/18/19 08:42:00	N	III
KQ1913647-05	Carbon, Dissolved Organic (DOC)	DUP	K1908429-005	Surface Water	3.79 mg/L	10 mL	3.79 mg/L	1	0.07	0.50		2	9/18/19 12:30:00	N	III
KQ1913647-06	Carbon, Dissolved Organic (DOC)	DUP	K1908429-006	Surface Water	4.23 mg/L	10 mL	4.23 mg/L	1	0.07	0.50		<1	9/18/19 12:58:00	N	III
KQ1913647-07	Carbon, Dissolved Organic (DOC)	DUP	K1908423-001	Surface Water	1.08 mg/L	10 mL	1.08 mg/L	1	0.07	0.50		14*	9/18/19 07:45:00	N	III
KQ1913647-08	Carbon, Dissolved Organic (DOC)	DUP	K1908428-001	Surface Water	1.40 mg/L	10 mL	1.40 mg/L	1	0.07	0.50		5	9/18/19 10:09:00	N	IV
KQ1913647-09	Carbon, Dissolved Organic (DOC)	DUP	K1908429-001	Surface Water	4.40 mg/L	10 mL	4.40 mg/L	1	0.07	0.50		<1	9/18/19 10:37:00	N	III
KQ1913647-10	Carbon, Dissolved Organic (DOC)	DUP	K1908429-007	Surface Water	4.37 mg/L	10 mL	4.37 mg/L	1	0.07	0.50		<1	9/18/19 13:26:00	N	III

09/24/19

QB for BOD
9/24/19

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

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 651910 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1913647-11	Carbon, Dissolved Organic (DOC)	DUP	K1908429-008	Surface Water	4.38 mg/L	10 mL	4.38 mg/L	1	0.07	0.50		2	9/18/19 14:52:00	N	III
KQ1913647-12	Carbon, Dissolved Organic (DOC)	DUP	K1908429-002	Surface Water	3.86 mg/L	10 mL	3.86 mg/L	1	0.07	0.50		1	9/18/19 11:05:00	N	III
KQ1913647-13	Carbon, Dissolved Organic (DOC)	DUP	K1908429-003	Surface Water	4.32 mg/L	10 mL	4.32 mg/L	1	0.07	0.50		2	9/18/19 11:33:00	N	III
KQ1913647-14	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 09:39:00	N	III
KQ1913647-15	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	24.61 mg/L	10 mL	24.6 mg/L	1	0.07	0.50	98		9/18/19 09:54:00	N	III
KQ1913647-16	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.00 mg/L	10 mL	24.0 mg/L	1					9/18/19 04:27:00	N	III
KQ1913647-17	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.71 mg/L	10 mL	23.7 mg/L	1					9/18/19 09:10:00	N	III
KQ1913647-18	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.35 mg/L	10 mL	23.4 mg/L	1					9/18/19 13:54:00	N	III
KQ1913647-19	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.92 mg/L	10 mL	23.9 mg/L	1					9/18/19 16:46:00	N	III
KQ1913647-20	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 04:41:00	N	III
KQ1913647-21	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 09:24:00	N	III
KQ1913647-22	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 14:08:00	N	III
KQ1913647-23	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			9/18/19 17:00:00	N	III
KQ1913647-24	Carbon, Dissolved Organic (DOC)	MS	K1908423-001	Surface Water	26.45 mg/L	10 mL	26.4 mg/L	1	0.07	0.50	101		9/18/19 08:13:00	N	III
KQ1913647-25	Carbon, Dissolved Organic (DOC)	MS	K1908429-007	Surface Water	29.33 mg/L	10 mL	29.3 mg/L	1	0.07	0.50	100		9/18/19 14:23:00	N	III

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

OB for BCD
9/24/19

TOC: 651907, 651991
DOC: 651910

Schedule: 09172019

Version: 5
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/09/17 13:52 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Clean)	Clean	Clean		1	True	Done
(Blank)	Blank	Reagent/Acid Blank		1	True	Running
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Pending
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1908452-003.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1908452-004.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1908452-005.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1908452-006.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1908413-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1908423-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1908423-001.07 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1908423-002.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1908428-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1908429-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1908429-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1908429-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1908429-004.03 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1908429-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1908429-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1908429-007.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1908429-007.03 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1908429-008.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1908429-009.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1908431-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1908491-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1908491-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1908424-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1908424-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1908424-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1908424-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1908471-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1908471-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1908471-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1908471-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1908430-002.18 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1908423-001.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1908423-001.05 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
37	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
38	Sample	K1908423-002.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 09172019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1908428-001.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1908429-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1908429-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1908429-003.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1908429-004.04 4x doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1908429-005.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1908429-006.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1908429-007.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1908429-007.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
49	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
50	Sample	K1908429-008.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1908429-009.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1908431-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Schedule: 09172019

Version: 5
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/09/17 13:52 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1908452-003.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1908452-004.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1908452-005.01 20x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1908452-006.01 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1908413-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1908423-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1908423-001.07 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1908423-002.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1908428-001.07	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1908429-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1908429-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1908429-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1908429-004.03 4x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1908429-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1908429-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1908429-007.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1908429-007.03 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1908429-008.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1908429-009.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1908431-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1908491-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1908491-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1908424-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1908424-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1908424-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1908424-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1908471-001.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1908471-002.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1908471-003.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1908471-004.04	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1908430-002.18 2x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1908423-001.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1908423-001.05 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
37	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
38	Sample	K1908423-002.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 09172019

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1908428-001.05 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1908429-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1908429-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1908429-003.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1908429-004.04 4x doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1908429-005.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1908429-006.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1908429-007.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1908429-007.04 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
49	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
50	Sample	K1908429-008.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1908429-009.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1908431-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 09172019
Tuesday, September 17, 2019 12:16 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/09/19 11:35 - Thursday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	09172019	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2) Fusion1 (Fusion1) (v3) Fusion1 (Fusion1) (v4) Fusion1 (Fusion1) (v5)		
Comment:			

Report Results

09/24/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/17 12:16

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	11.29	15.86	4.57	49.73	05:24
2	TC Clean	7.66	11.28	3.62	50.02	04:07
3	TC Clean	2.46	5.97	3.51	50.04	03:47
4	TC Clean	1.75	5.29	3.54	50.04	03:51

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/09/17 12:38

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.81	4.45	3.63	49.79	05:15
2	TC Clean	6.32	9.85	3.53	49.83	07:18
3	TC Clean	2.42	5.87	3.46	50.01	03:56

4	TC Clean	1.94	5.51	3.57	50.02	03:56

Sample Type: Clean From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/09/17 13:04

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	7.57	11.07	3.50	49.77	05:26
2	TC Clean	4.77	8.15	3.38	49.81	07:15
3	TC Clean	1.92	5.52	3.60	49.83	07:00
4	TC Clean	1.49	5.18	3.69	49.81	07:01

Sample Type: Blank (Creating v1296) From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/09/17 13:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	9.43	13.01	3.58	49.81	05:15
2	TC Clean	4.65	8.18	3.53	49.84	07:18
3	TC Clean	1.88	5.26	3.38	50.10	06:32
4	TC Clean	1.37	5.02	3.65	50.08	03:55
5	Reagent Blank	2.92	6.62	3.69	50.12	05:06
6	Acid Blank	1.00	4.35	3.36	49.68	05:28

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.2141 ppm	0.0000 ppm	0.0000%	2019/09/17 14:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2141	2.1405	10.16	13.75	3.59	50.46	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0767 ppm (PASS)	0.0000 ppm	0%	2019/09/17 14:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0767	240.7674	172.89	176.44	3.54	50.47	10:35

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/17 14:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.24	10.79	3.55	50.49	10:33

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/17 15:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.18	9.84	3.66	50.39	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7295 ppm (PASS)	0.0000 ppm	0%	2019/09/17 15:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7295	247.2952	177.32	180.95	3.63	50.34	10:31

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	1.8788 ppm	0.0000 ppm	0.0000%	2019/09/17 15:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8788	18.7877	21.46	24.97	3.50	50.34	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1908452-003.01 20x	6.4376 ppm	0.0160 ppm	0.2500%	2019/09/17 15:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4262	64.2624	52.33	55.91	3.58	50.30	10:27
2	TOC	6.4489	64.4893	52.49	55.87	3.39	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1908452-004.01 20x	6.3867 ppm	0.0220 ppm	0.3400%	2019/09/17 16:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.4022	64.0223	52.17	55.63	3.46	50.24	10:25
2	TOC	6.3711	63.7115	51.96	55.52	3.56	50.20	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1908452-005.01 20x	44.5206 ppm	0.1888 ppm	0.4200%	2019/09/17 16:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	44.6540	446.5404	311.82	315.47	3.65	50.17	10:27
2	TOC	44.3871	443.8709	310.01	313.55	3.55	50.18	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1908452-006.01 2x	18.3406 ppm	0.8461 ppm	4.6100%	2019/09/17 17:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	18.9389	189.3887	137.27	141.05	3.79	50.18	10:28
2	TOC	17.7423	177.4234	129.15	132.68	3.54	50.15	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1908413-001.01	7.0799 ppm	0.0642 ppm	0.9100%	2019/09/17 17:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1253	71.2528	57.08	60.72	3.64	50.15	10:27
2	TOC	7.0345	70.3453	56.46	60.03	3.57	50.12	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1908423-001.07	0.1060 ppm	0.0530 ppm	50.0300%	2019/09/17 18:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1435	1.4348	9.68	13.28	3.59	50.12	10:27
2	TOC	0.0685	0.6850	9.18	12.63	3.45	50.13	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1908423-001.07 ms	26.2107 ppm	0.0000 ppm	0.0000%	2019/09/17 18:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.2107	262.1074	186.63	190.16	3.53	50.12	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5043 ppm (PASS)	0.0000 ppm	0%	2019/09/17 18:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5043	245.0427	175.80	179.41	3.62	50.12	10:30

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/17 19:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.76	10.40	3.64	50.14	10:31

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1908423-002.07	0.0318 ppm	0.0083 ppm	26.1900%	2019/09/17 19:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0377	0.3771	8.97	12.71	3.75	50.15	10:27
2	TOC	0.0259	0.2592	8.89	12.62	3.73	50.14	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1908428-001.07	0.0496 ppm	0.0471 ppm	94.8500%	2019/09/17 19:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0829	0.8294	9.27	12.83	3.55	50.14	10:30
2	TOC	0.0163	0.1635	8.82	12.45	3.63	50.15	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC)	CAS_salt_010711	CAS_salt_010711

(v1296) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1908429-001.03	2.9015 ppm	0.0260 ppm	0.9000%	2019/09/17 20:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9199	29.1988	28.53	31.99	3.46	50.14	10:28
2	TOC	2.8830	28.8305	28.28	31.80	3.52	50.16	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1908429-002.03	2.7904 ppm	0.0379 ppm	1.3600%	2019/09/17 20:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8172	28.1720	27.83	31.37	3.54	50.16	10:30
2	TOC	2.7636	27.6357	27.47	31.01	3.54	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1908429-003.03	0.8198 ppm	0.0086 ppm	1.0500%	2019/09/17 21:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8136	8.1364	14.23	17.87	3.64	50.18	10:28
2	TOC	0.8259	8.2587	14.32	17.99	3.67	50.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1908429-004.03 4x	5.7585 ppm	0.0011 ppm	0.0200%	2019/09/17 21:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.7577	57.5770	47.79	51.36	3.57	50.22	10:31
2	TOC	5.7593	57.5933	47.80	51.37	3.57	50.19	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1908429-005.03	1.6884 ppm	0.0345 ppm	2.0400%	2019/09/17 22:04

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

#	Analysis Type			(Abs)		(Abs)	(psig)	Time
1	TOC	1.7127	17.1274	20.34	23.97	3.63	50.19	10:31
2	TOC	1.6640	16.6397	20.01	23.53	3.53	50.22	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1908429-006.03	2.7204 ppm	0.0108 ppm	0.4000%	2019/09/17 22:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7127	27.1275	27.12	30.66	3.53	50.21	10:26
2	TOC	2.7281	27.2807	27.23	30.76	3.53	50.19	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1908429-007.03	3.7668 ppm	0.0133 ppm	0.3500%	2019/09/17 23:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.7762	37.7625	34.34	37.95	3.60	50.20	10:30
2	TOC	3.7574	37.5739	34.22	37.90	3.68	50.20	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1908429-007.03 ms	29.6972 ppm	0.0000 ppm	0.0000%	2019/09/17 23:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.6972	296.9722	210.29	213.88	3.59	50.22	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0741 ppm (PASS)	0.0000 ppm	0%	2019/09/17 23:44

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0741	240.7409	172.88	176.43	3.56	50.21	10:31

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/17 23:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.39	10.06	3.67	50.21	10:34

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 00:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.82	9.42	3.60	50.20	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	24.7083 ppm (PASS)	0.0000 ppm	0%	2019/09/18 00:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.7083	247.0831	177.18	180.76	3.58	50.21	10:33

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1908429-008.03	3.8264 ppm	0.0618 ppm	1.6100%	2019/09/18 00:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.8701	38.7009	34.98	38.54	3.55	50.22	10:27
2	TOC	3.7827	37.8273	34.39	37.87	3.48	50.23	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1908429-009.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 01:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.33	9.86	3.52	50.24	10:29
2	TOC	0.0000	0.0000	6.36	9.81	3.45	50.24	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1908431-001.03	4.1037 ppm	0.0129 ppm	0.3100%	2019/09/18 01:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.0946	40.9461	36.51	39.92	3.42	50.26	10:29
2	TOC	4.1129	41.1288	36.63	40.18	3.55	50.27	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1908491-001.01 100x	7.5624 ppm	0.0251 ppm	0.3300%	2019/09/18 02:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.5447	75.4470	59.92	63.42	3.49	50.27	10:30
2	TOC	7.5802	75.8020	60.16	63.81	3.65	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1908491-002.01 100x	6.5678 ppm	0.0635 ppm	0.9700%	2019/09/18 02:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5229	65.2289	52.99	56.60	3.61	50.28	10:29

2	TOC	6.6128	66.1275	53.60	57.12	3.52	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1908424-001.04	63.0184 ppm	0.9751 ppm	1.5500%	2019/09/18 03:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	62.3289	623.2891	431.80	435.34	3.55	50.30	10:27
2	TOC	63.7080	637.0798	441.16	444.90	3.74	50.29	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1908424-002.04	1.1815 ppm	0.4556 ppm	38.5600%	2019/09/18 03:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5037	15.0369	18.92	22.65	3.73	50.30	10:28
2	TOC	0.8593	8.5931	14.54	18.29	3.75	50.30	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1908424-003.04	0.2725 ppm	0.0238 ppm	8.7100%	2019/09/18 03:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2893	2.8933	10.68	14.20	3.53	50.30	10:29
2	TOC	0.2557	2.5574	10.45	14.12	3.67	50.30	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9991 ppm (PASS)	0.0000 ppm	0%	2019/09/18 04:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9991	239.9911	172.37	176.15	3.79	50.29	10:31

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/18 04:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.46	9.89	3.43	50.30	10:30

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	29	TOC	K1908424-004.04	0.2035 ppm	0.0301 ppm	14.7900%	2019/09/18 04:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.2248	2.2480	10.24	13.82	3.59	50.28	10:27
2	TOC	0.1822	1.8223	9.95	13.56	3.61	50.30	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1908471-001.04	0.4492 ppm	0.0523 ppm	11.6400%	2019/09/18 05:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4122	4.1220	11.51	15.25	3.74	50.30	10:30
2	TOC	0.4862	4.8615	12.01	15.56	3.55	50.28	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1908471-002.04	0.6232 ppm	0.0203 ppm	3.2600%	2019/09/18 05:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6089	6.0887	12.84	16.39	3.54	50.30	10:27

2	TOC	0.6376	6.3760	13.04	16.71	3.67	50.30	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1908471-003.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 06:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.93	9.50	3.57	50.29	10:28
2	TOC	0.0000	0.0000	5.66	9.35	3.69	50.28	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1908471-004.04	0.8188 ppm	0.0260 ppm	3.1800%	2019/09/18 06:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8004	8.0038	14.14	17.72	3.57	50.30	10:29
2	TOC	0.8372	8.3721	14.39	17.78	3.38	50.30	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1908430-002.18 2x	9.5219 ppm	0.3442 ppm	3.6100%	2019/09/18 07:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2785	92.7851	71.69	75.23	3.54	50.31	10:31
2	TOC	9.7653	97.6525	75.00	78.41	3.41	50.32	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1908423-001.05 doc	1.1588 ppm	0.1129 ppm	9.7400%	2019/09/18 07:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2387	12.3866	17.12	20.56	3.44	50.30	10:26
2	TOC	1.0790	10.7897	16.04	19.47	3.43	50.29	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	36	TOC	K1908423-001.05 ms doc	26.4484 ppm	0.0000 ppm	0.0000%	2019/09/18 08:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	26.4484	264.4837	188.24	191.74	3.50	50.30	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 08:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.15	10.66	3.51	50.28	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1908423-002.05 doc	1.6233 ppm	0.0165 ppm	1.0100%	2019/09/18 08:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6117	16.1168	19.65	23.35	3.70	50.28	10:28
2	TOC	1.6350	16.3495	19.81	23.36	3.55	50.26	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.7073 ppm (PASS)	0.0000 ppm	0%	2019/09/18 09:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.7073	237.0727	170.39	173.87	3.48	50.25	10:32

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

Sample Type: Check Standard --> CCB

From Schedule Version 5

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/18 09:24

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.26	9.86	3.60	50.24	10:30

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 09:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.46	9.05	3.59	50.23	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.6086 ppm (PASS)	0.0000 ppm	0%	2019/09/18 09:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.6086	246.0857	176.50	180.06	3.55	50.22	10:31

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K1908428-001.05 doc	1.4378 ppm	0.0507 ppm	3.5300%	2019/09/18 10:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4736	14.7364	18.71	22.41	3.70	50.21	10:27
2	TOC	1.4019	14.0189	18.23	21.88	3.65	50.20	10:26

Dilution	Blank Contribution	Method	Calibration

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1908429-001.04 doc	4.3996 ppm	0.0059 ppm	0.1300%	2019/09/18 10:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.3954	43.9544	38.55	42.08	3.54	50.18	10:29
2	TOC	4.4038	44.0383	38.60	42.19	3.58	50.17	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1908429-002.04 doc	3.8832 ppm	0.0394 ppm	1.0100%	2019/09/18 11:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9110	39.1105	35.26	38.86	3.60	50.15	10:27
2	TOC	3.8554	38.5536	34.88	38.43	3.55	50.32	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1908429-003.04 doc	4.3759 ppm	0.0734 ppm	1.6800%	2019/09/18 11:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.4278	44.2785	38.77	42.28	3.52	50.30	10:28
2	TOC	4.3240	43.2399	38.06	41.55	3.49	50.48	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1908429-004.04 4x doc	6.8896 ppm	0.0899 ppm	1.3000%	2019/09/18 12:01

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.9532	69.5321	55.91	59.39	3.48	50.54	10:27
2	TOC	6.8261	68.2607	55.05	58.65	3.60	50.55	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1908429-005.04 doc	3.8207 ppm	0.0488 ppm	1.2800%	2019/09/18 12:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.8552	38.5521	34.88	38.62	3.74	50.63	10:27
2	TOC	3.7863	37.8627	34.41	37.99	3.58	50.65	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	46	TOC	K1908429-006.04 doc	4.2399 ppm	0.0184 ppm	0.4300%	2019/09/18 12:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2530	42.5298	37.58	40.99	3.41	50.71	10:29
2	TOC	4.2269	42.2690	37.40	40.74	3.34	50.72	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	K1908429-007.04 doc	4.3668 ppm	0.0020 ppm	0.0500%	2019/09/18 13:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.3682	43.6818	38.36	41.87	3.51	50.78	10:28
2	TOC	4.3654	43.6538	38.34	41.97	3.63	50.77	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.3528 ppm (PASS)	0.0000 ppm	0%	2019/09/18 13:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.3528	233.5281	167.98	171.61	3.63	50.79	10:27

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/18 14:08

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.70	9.30	3.60	50.79	10:31

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1908429-007.04 ms doc	29.3251 ppm	0.0000 ppm	0.0000%	2019/09/18 14:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	29.3251	293.2509	207.77	211.44	3.67	50.79	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 14:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.99	9.50	3.51	50.74	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	K1908429-008.04 doc	4.3291 ppm	0.0666 ppm	1.5400%	2019/09/18 14:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.2820	42.8200	37.78	41.35	3.58	50.68	10:30
2	TOC	4.3761	43.7614	38.42	41.95	3.53	50.57	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1908429-009.04 doc	1.2886 ppm	0.0277 ppm	2.1500%	2019/09/18 15:20

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

1	TOC	1.2690	12.6901	17.32	20.82	3.50	50.54	10:28
2	TOC	1.3082	13.0820	17.59	21.14	3.55	50.47	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1908431-001.04 doc	4.4827 ppm	0.0707 ppm	1.5800%	2019/09/18 15:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.4327	44.3271	38.80	42.51	3.71	50.46	10:28
2	TOC	4.5327	45.3274	39.48	42.86	3.39	50.43	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	53	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/09/18 16:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.78	9.17	3.39	50.40	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7110 (IC) (v1296)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.5430 ppm (PASS)	0.0000 ppm	0%	2019/09/18 16:31

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.5430	245.4301	176.06	179.68	3.63	50.40	10:31

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9168 ppm (PASS)	0.0000 ppm	0%	2019/09/18 16:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9168	239.1675	171.81	175.33	3.53	50.59	10:29

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/09/18 17:00

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.98	9.48	3.50	50.56	10:36

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

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1295	1.3713	1.4290	0.0000	0.0000	0.0000	2019/09/14 19:31	Fusion1 (Fusion1)
v1296	0.9740	0.9970	0.0000	0.0000	0.0000	2019/09/17 14:16	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

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

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time

DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)

Ver Creation: 2019/02/21 17:57

Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report				

Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date
1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/09/18 17:16

October 09, 2019 Service Request No:R1908938

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

Laboratory Results for: LHAAP

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory September 13, 2019
For your reference, these analyses have been assigned our service request number **R1908938.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro for
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Project Manager

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ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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Client: ALS Environmental - US
Project: LHAAP
Sample Matrix: Water

Service Request: R1908938
Date Received: 09/13/2019

CASE NARRATIVE

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

Sample Receipt:

Seven water samples were received for analysis at ALS Environmental on 09/13/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

No significant anomalies were noted with this analysis.

Approved by _____ Date 10/09/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 35AWW06-091119_a			Lab ID: R1908938-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	36		0.56	4.0	mg/L	Organic Acids
Propionic Acid	170		0.19	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW23-091119			Lab ID: R1908938-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	250		5.6	40	mg/L	Organic Acids
Butanoic Acid (Butyric Acid)	180		3.2	20	mg/L	Organic Acids
Propionic Acid	1100		1.9	20	mg/L	Organic Acids

CLIENT ID: 35AWW11-091119			Lab ID: R1908938-007			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	54		0.56	4.0	mg/L	Organic Acids
Propionic Acid	31		0.19	2.0	mg/L	Organic Acids

Sample Receipt Information

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

Client: ALS Environmental - US **Service Request:**R1908938
Project: LHAAP

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1908938-001	35AWW19-091119	9/11/2019	0710
R1908938-002	35AWW20-091119	9/11/2019	0810
R1908938-003	LHSMW07-091119	9/11/2019	0915
R1908938-005	35AWW06-091119_a	9/11/2019	1015
R1908938-006	35AWW23-091119	9/11/2019	1125
R1908938-007	35AWW11-091119	9/11/2019	1235

bhate

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

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

UMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / LHAAP-58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (20 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VFA										Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AMW19_091119		11Sep2019	0710	-	N		WG	1	X													
35AMW20_091119		11Sep2019	0810	-	N		WG	1	X													
35AMW20_091119_MS		11Sep2019	0810	-	MS		WG	1	X													
35AMW20_091119_MSD		11Sep2019	0810		SD		WG	1	X													
LHSMW07_091119		11Sep2019	0915		N		WG	1	X													
35AMW06_091119		11Sep2019	1015	-	N		WG	1	X													
35AMW06_091119_FD		11Sep2019	1015	-	FD		WG	1	X													
35AMW23_091119		11Sep2019	1125	-	N		WG	1	X													
35AMW11_091119		11Sep2019	1235	-	N		WG	1	X													
				-																		
				-																		

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

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	9/11/19	1330	1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

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

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

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

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

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

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

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

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

R1908938 5
ALS Laboratory Group
LHAAP

Cooler Receipt and Preservation Check Form

R1908938 5
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LHAAP

Project/Client Rhyte Folder Number

Cooler received on 9/13/19 by: [illegible]

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	Y (N)	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 9/13/19 Time: 0938 ID: IR#7 (IR#10) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	7.9						
Correction Factor (°C)	–						
Corrected Temp (°C)	7.9						
Temp from:Type of bottle	–						
Within 0-6°C?	Y (N)	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

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

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

All samples held in storage location: R-002 by C on 9/13/19 at 0940
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 9/16/19 Time: 1730 by: DW

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

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

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

Bottle lot numbers: 060719-IBMC

Explain all Discrepancies/ Other Comments:

Rec'd broken: MSD WW06 Cracked caps. - MS - 35AWW19

COC wet and destroyed

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

Labels secondary reviewed by: DR

PC Secondary Review: [illegible] 9/17/19 *significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

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Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1908938
Project: LHAAP

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
R1908938-001.01					
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-002.01					
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-002.02					
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-003.01					
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-004.01					
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
R1908938-005.01					
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-006.01					
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	
R1908938-007.01					

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Internal Chain of Custody Report

Client: ALS Laboratory Group **Service Request:** R1908938
Project: LHAAP

Bottle ID	Methods	Date	Time	Sample Location / User	Disposed On
	Organic Acids,Organic Acids				
		9/16/2019	1747	SMO / DWARD	
		9/16/2019	1748	R-002 / DWARD	
		9/23/2019	1544	In Lab / BALLGEIER	
		9/23/2019	1632	R-002 / BALLGEIER	

Miscellaneous Forms

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ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

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

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

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

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
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.

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Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP/
Service Request: R1908938

Sample Name: 35AWW19-091119
Lab Code: R1908938-001
Sample Matrix: Water
Date Collected: 09/11/19
Date Received: 09/13/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW20-091119
Lab Code: R1908938-002
Sample Matrix: Water
Date Collected: 09/11/19
Date Received: 09/13/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: LHSMW07-091119
Lab Code: R1908938-003
Sample Matrix: Water
Date Collected: 09/11/19
Date Received: 09/13/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW06-091119_a
Lab Code: R1908938-005
Sample Matrix: Water
Date Collected: 09/11/19
Date Received: 09/13/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

Sample Name: 35AWW23-091119
Lab Code: R1908938-006
Sample Matrix: Water
Date Collected: 09/11/19
Date Received: 09/13/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

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dba ALS Environmental

Analyst Summary report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP/		

Sample Name:	35AWW11-091119	**Date Collected:**	09/11/19
Lab Code:	R1908938-007	**Date Received:**	09/13/19
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		BALLGEIER

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental—Rochester Laboratory
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Semivolatile Organic Compounds by GC

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www.alsglobal.com

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 07:10
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	35AWW19-091119	**Units:**	mg/L
Lab Code:	R1908938-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	09/25/19 19:38	
Acetic Acid	ND	U	4.0	2.0	0.56	1	09/25/19 19:38	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	09/25/19 19:38	
Lactic Acid	ND	U	2.0	1.0	0.14	1	09/25/19 19:38	
Propionic Acid	ND	U	2.0	1.0	0.19	1	09/25/19 19:38	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 08:10
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	35AWW20-091119	**Units:**	mg/L
Lab Code:	R1908938-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	09/25/19 20:11	
Acetic Acid	ND	U	4.0	2.0	0.56	1	09/25/19 20:11	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	09/25/19 20:11	
Lactic Acid	ND	U	2.0	1.0	0.14	1	09/25/19 20:11	
Propionic Acid	ND	U	2.0	1.0	0.19	1	09/25/19 20:11	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 09:15
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	LHSMW07-091119	**Units:**	mg/L
Lab Code:	R1908938-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	09/25/19 21:50	
Acetic Acid	ND	U	4.0	2.0	0.56	1	09/25/19 21:50	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	09/25/19 21:50	
Lactic Acid	ND	U	2.0	1.0	0.14	1	09/25/19 21:50	
Propionic Acid	ND	U	2.0	1.0	0.19	1	09/25/19 21:50	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 10:15
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	35AWW06-091119_a	**Units:**	mg/L
Lab Code:	R1908938-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	09/25/19 22:23	
Acetic Acid	**36**		4.0	2.0	0.56	1	09/25/19 22:23	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	09/25/19 22:23	
Lactic Acid	ND	U	2.0	1.0	0.14	1	09/25/19 22:23	
Propionic Acid	**170**		2.0	1.0	0.19	1	09/25/19 22:23	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 11:25
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	35AWW23-091119	**Units:**	mg/L
Lab Code:	R1908938-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	2.0	1.0	0.16	10	09/26/19 12:13	
Acetic Acid	**250**		40	20	5.6	10	09/26/19 12:13	
Butanoic Acid (Butyric Acid)	**180**		20	10	3.2	10	09/26/19 12:13	
Lactic Acid	ND	U	20	10	1.4	10	09/26/19 12:13	
Propionic Acid	**1100**		20	10	1.9	10	09/26/19 12:13	

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1908938
Project:	LHAAP	**Date Collected:**	09/11/19 12:35
Sample Matrix:	Water	**Date Received:**	09/13/19 09:40
Sample Name:	35AWW11-091119	**Units:**	mg/L
Lab Code:	R1908938-007	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	09/26/19 00:02	
Acetic Acid	**54**		4.0	2.0	0.56	1	09/26/19 00:02	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	09/26/19 00:02	
Lactic Acid	ND	U	2.0	1.0	0.14	1	09/26/19 00:02	
Propionic Acid	**31**		2.0	1.0	0.19	1	09/26/19 00:02	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: R1908938
Date Analyzed: 09/25/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1910951-02			RQ1910951-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	2.13	2.02	105	2.11	2.02	104	73-122	<1	30
Acetic Acid	Organic Acids	19.0	20.1	94	19.1	20.1	95	80-130	<1	30
Butanoic Acid (Butyric Acid)	Organic Acids	18.7	19.9	94	18.2	19.9	91	86-128	3	30
Lactic Acid	Organic Acids	19.2	19.9	96	19.0	19.9	96	75-125	<1	30
Propionic Acid	Organic Acids	18.6	20.3	92	18.5	20.3	91	63-153	<1	30

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www.alsglobal.com

LABORATORY REPORT

October 3, 2019

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

RE: HS19090511

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on September 13, 2019. For your reference, these analyses have been assigned our service request number P1905493.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 9:56 am, Oct 03, 2019

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
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www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19090511

Service Request No: P1905493

CASE NARRATIVE

The samples were received intact under chain of custody on September 13, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

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)
P1905493-002MS	carbon dioxide
P1905493-002MSD	carbon dioxide
P1905493-004	carbon dioxide

The recovery and relative percent difference were outside of the DoD control limits for carbon dioxide for the matrix spike and its duplicate. However all quality control parameters were met for the laboratory control sample and its duplicate.

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Client: ALS Laboratory Group
Project: HS19090511

Service Request No: P1905493

CASE NARRATIVE

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)
P1905493-002	ethane
P1905493-003	ethane

The recovery for methane were outside of the DoD control limits for the matrix spike and its duplicate due to matrix interference. The recovery for ethane was outside of the DoD control limits for the matrix spike duplicate. However all quality control parameters were met for the laboratory control sample and its duplicate.

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.

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ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

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

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19090511

Service Request: P1905493

Date Received: 9/13/2019
Time Received: 09:15

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
35AWW19_091119	P1905493-001	Water	9/11/2019	07:10	X	X
35AWW20_091119	P1905493-002	Water	9/11/2019	08:10	X	X
LHSMW07_091119	P1905493-003	Water	9/11/2019	09:15	X	X
35AWW06_091119	P1905493-004	Water	9/11/2019	10:15	X	X
35AWW06_091119_a	P1905493-005	Water	9/11/2019	10:15	X	X
35AWW23_091119	P1905493-006	Water	9/11/2019	11:25	X	X
35AWW11_091119	P1905493-007	Water	9/11/2019	12:35	X	X

P1905493

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www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12162**

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:	HS19090511
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19090511-01**	**35AWW19_091119**	**Groundwater**	**11 Sep 2019 07:10**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
2.	**HS19090511-02**	**35AWW20_091119**	**Groundwater**	**11 Sep 2019 08:10**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
3.	**HS19090511-03**	**LHSMW07_091119**	**Groundwater**	**11 Sep 2019 09:15**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
4.	**HS19090511-04**	**35AWW06_091119**	**Groundwater**	**11 Sep 2019 10:15**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
5.	**HS19090511-05**	**35AWW06_091119_a**	**Groundwater**	**11 Sep 2019 10:15**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
6.	**HS19090511-06**	**35AWW23_091119**	**Groundwater**	**11 Sep 2019 11:25**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019
7.	**HS19090511-07**	**35AWW11_091119**	**Groundwater**	**11 Sep 2019 12:35**
	MEE plus CO2 Sub to ALS SimiValley			26 Sep 2019

Comments:

P1905493

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **12162**

Please analyze for the analysis listed above.
Send report to the emails shown above.
3 Neat vials & 3 HCL vials
HS19090511-02 MS/MSD

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____

Received By: _____

Cooler ID(s): _____

Date/Time: 9/12/19 1800

Date/Time: 9/13/19 0930

Temperature(s): 1°C uncor 1°C cor

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1905493

Project: HS19090511

Sample(s) received on: 09/13/19 Date opened: 09/13/19 by: ADAVID

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

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

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1905493-001.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-001.02	40mL VOA NP				A	
P1905493-001.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-001.05	40ml VOA HCL				A	
P1905493-002.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-002.02	40mL VOA NP				A	
P1905493-002.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-002.05	40ml VOA HCL				A	
P1905493-002.06	40mL VOA NP		7		A	wh 9/20/19
P1905493-002.07	40mL VOA NP		7		A	wh 9/20/19
P1905493-002.08	40mL VOA NP		7		A	wh 9/20/19
P1905493-002.09	40mL VOA NP				A	
P1905493-002.10	40ml VOA HCL		1		A	wh 9/19/19
P1905493-002.11	40ml VOA HCL		1		A	wh 9/19/19
P1905493-002.12	40ml VOA HCL		1		A	wh 9/19/19

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: P1905493

Project: HS19090511

Sample(s) received on: 09/13/19 Date opened: 09/13/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1905493-002.13	40ml VOA HCL				A	
P1905493-003.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-003.02	40mL VOA NP				A	
P1905493-003.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-003.05	40ml VOA HCL				A	
P1905493-004.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-004.02	40mL VOA NP				A	
P1905493-004.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-004.05	40ml VOA HCL				A	
P1905493-005.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-005.02	40mL VOA NP				A	
P1905493-005.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-005.05	40ml VOA HCL				A	
P1905493-006.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-006.02	40mL VOA NP				A	
P1905493-006.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-006.05	40ml VOA HCL				A	
P1905493-007.01	40mL VOA NP		7		A	wh 9/20/19
P1905493-007.02	40mL VOA NP				A	
P1905493-007.04	40ml VOA HCL		1		A	wh 9/19/19
P1905493-007.05	40ml VOA HCL					

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: **HS19090511** ALS Project ID: P1905493

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 9/11/19
Analyst: Wade Henton Date Received: 9/13/19
Matrix: Water Date Analyzed: 9/20/19
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	**Result µg/L**	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
35AWW19_091119	P1905493-001	0.050	**230,000**	2,000	1,700	740	**B**
35AWW20_091119	P1905493-002	0.050	**290,000**	2,000	1,700	740	**B**
LHSMW07_091119	P1905493-003	0.050	**340,000**	2,000	1,700	740	**B**
35AWW06_091119	P1905493-004	0.050	**320,000**	2,000	1,700	740	**B**
35AWW06_091119_a	P1905493-005	0.050	**350,000**	2,000	1,700	740	**B**
35AWW23_091119	P1905493-006	0.050	**590,000**	2,000	1,700	740	**B**
35AWW11_091119	P1905493-007	0.050	**690,000**	2,000	1,700	740	**B**
Method Control Sample	P190920-MB	0.10	**480**	1,000	860	370	**J**

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.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method control sample.

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW20_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-002MS
P1905493-002DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/20/19
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	45,800	294,000	357,000	328,000	**138**	**74**	80-122	60	30	**N, R**

N = The matrix spike recovery is not within control limits. See case narrative.
R = Duplicate precision not met.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1905493
Client Project ID: **HS19090511** ALS Sample ID: P190920-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 9/20/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	26,100	23,600	**114**	**103**	80-122	10	12	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW19_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**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: **35AWW20_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**640**	1.3	1.0	0.51	
74-85-1	Ethene	**5.9**	1.0	0.55	0.24	
74-84-0	Ethane	**0.24**	0.60	0.47	0.16	**J**

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: **LHSMW07_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**240**	1.3	1.0	0.51	
74-85-1	Ethene	**6.1**	1.0	0.55	0.24	
74-84-0	Ethane	**0.20**	0.60	0.47	0.16	**J**

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: **35AWW06_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2,900**	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: **35AWW06_091119_a**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**3,300**	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: **35AWW23_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2,700**	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: **35AWW11_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-007

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 09/11/19
Date Received: 09/13/19
Date Analyzed: 09/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,300**	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** ALS Project ID: P1905493
Client Project ID: **HS19090511** ALS Sample ID: P190919-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 9/19/19
Matrix: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

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: **35AWW20_091119**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P1905493-002MS
P1905493-002DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 9/11/19
Date Received: 9/13/19
Date Analyzed: 9/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	169	638	679	633	**24**	**0**	73-125	200	30	**N, R**
74-85-1	Ethene	294	5.86	255	239	**85**	**79**	72-133	7	30	
74-84-0	Ethane	317	0.244	242	226	**76**	**71**	74-131	7	30	**N**

N = The matrix spike recovery is not within control limits. See case narrative.
R = Duplicate precision not met.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19090511**

ALS Project ID: P1905493
ALS Sample ID: P190919-LCS
P190919-DLCS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 9/19/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.58	2.52	**102**	**100**	73-125	2	26	
74-85-1	Ethene	4.40	5.04	4.93	**115**	**112**	72-133	3	11	
74-84-0	Ethane	4.72	4.80	4.76	**102**	**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.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:35:21
Operator : WH
Sample : P1905493-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:47:35 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

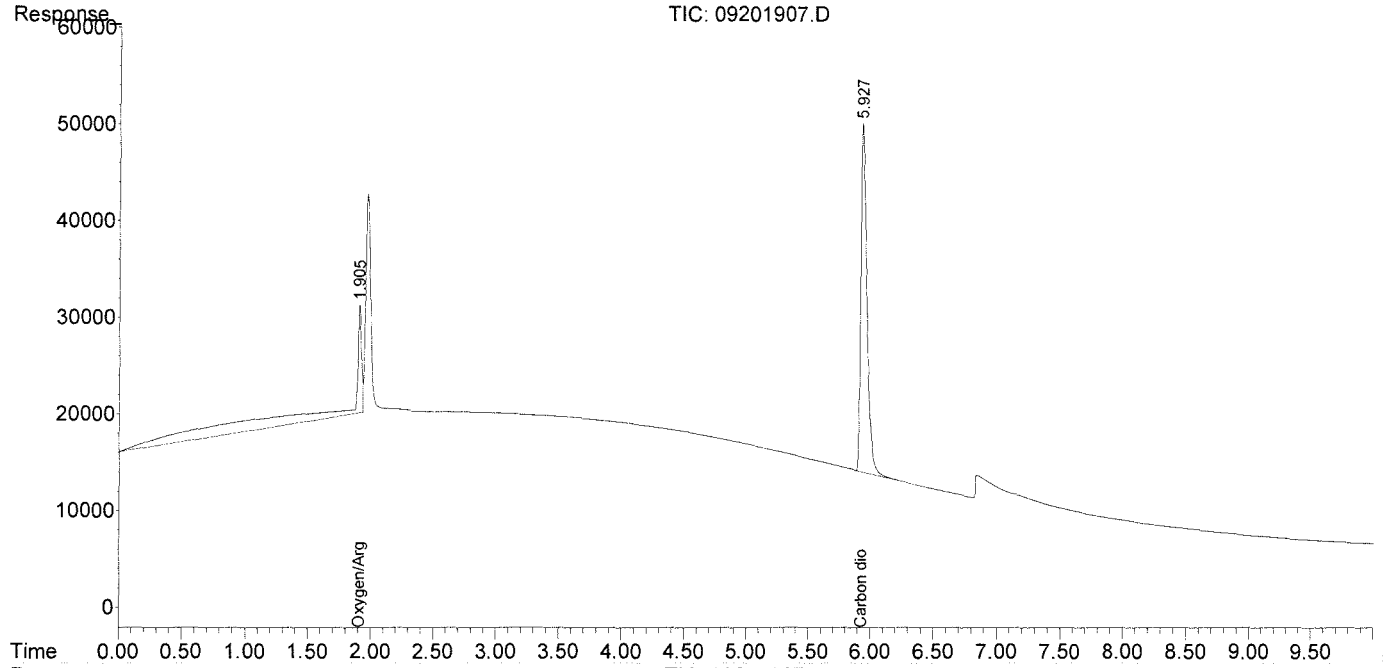
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.906f	1117321	0.235	ppm
2)	Carbon monoxide	1.906f	1117321	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.928f	1211350	5160.628	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	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

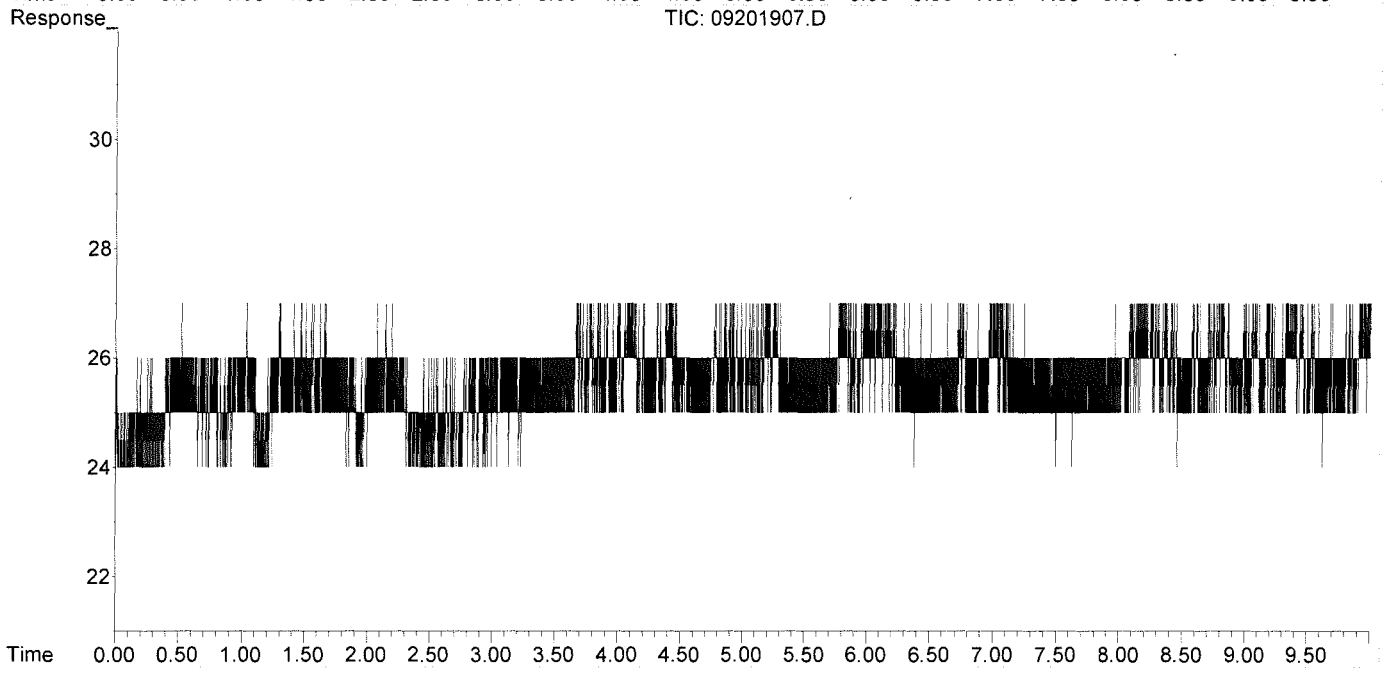
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:35:21
Operator : WH
Sample : P1905493-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:47:35 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:57:00
Operator : WH
Sample : P1905493-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:07:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

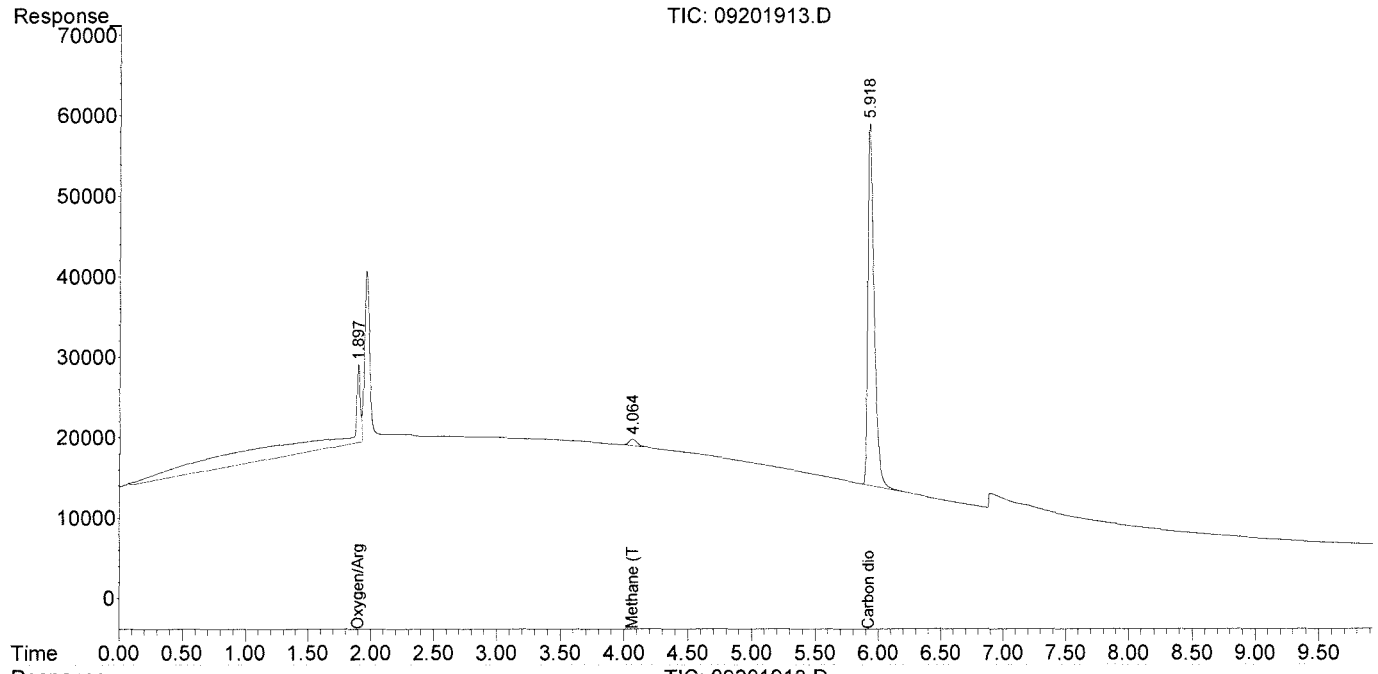
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	1448048	0.304	ppm
2)	Carbon monoxide	1.897	1448048	N.D.	ppm
3)	Methane (TCD)	4.064f	34416	3639.109	ppm
4)	Carbon dioxide	5.918f	1579465	6728.884	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	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

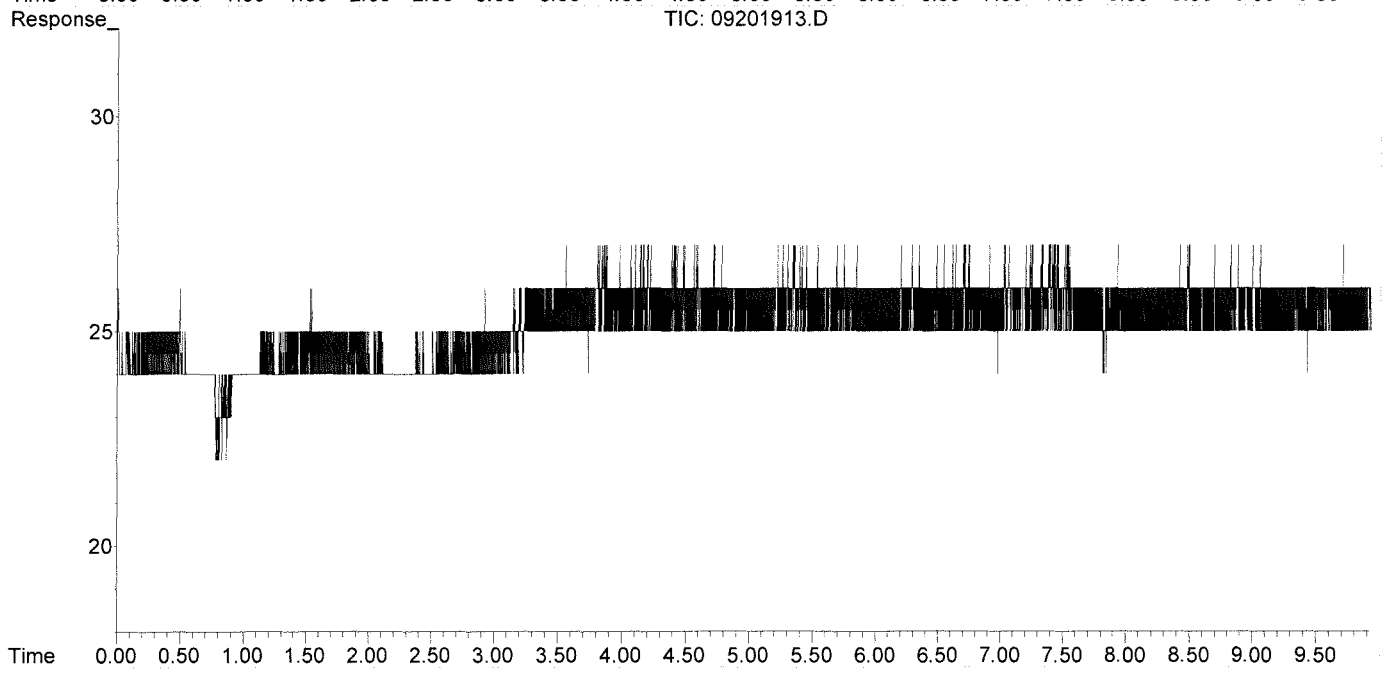
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:57:00
Operator : WH
Sample : P1905493-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:07:01 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:48:38
Operator : WH
Sample : P1905493-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:57:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

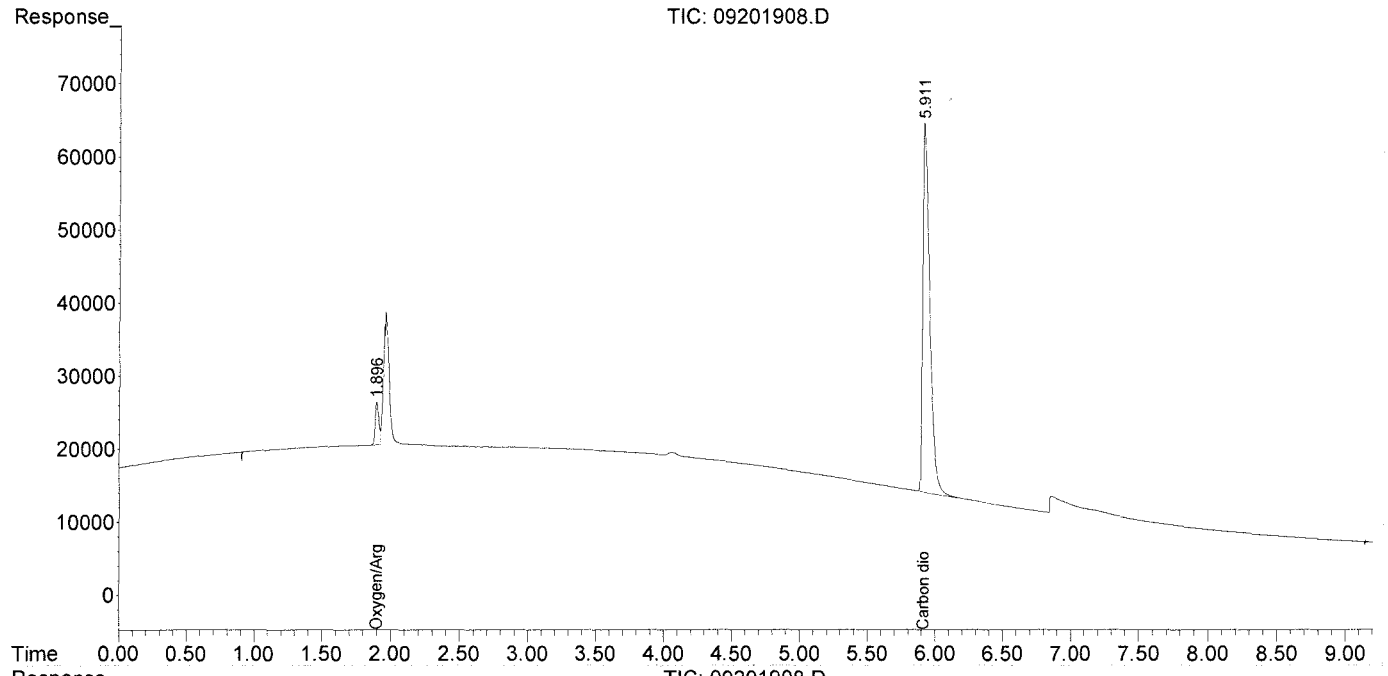
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	102410	0.022	ppm
2)	Carbon monoxide	1.897	102410	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.912f	1827285	7784.652	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

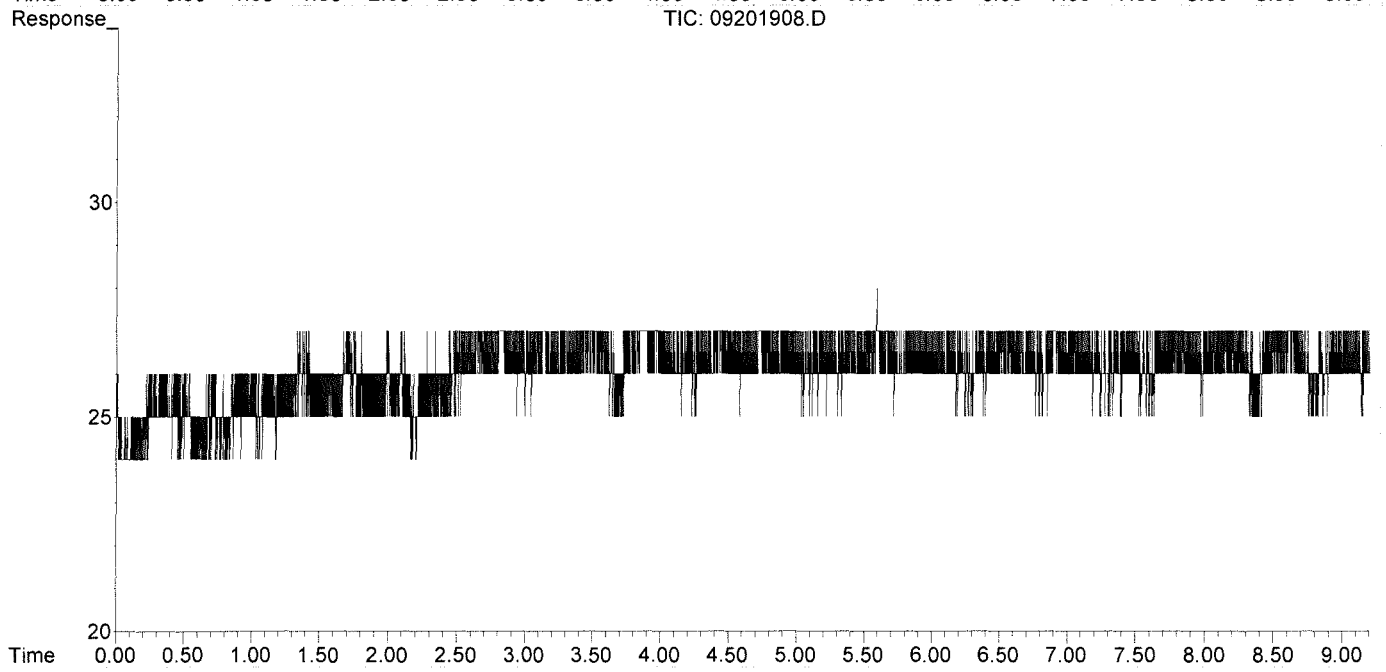
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:48:38
Operator : WH
Sample : P1905493-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:57:55 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:00:21
Operator : WH
Sample : P1905493-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:09:58 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

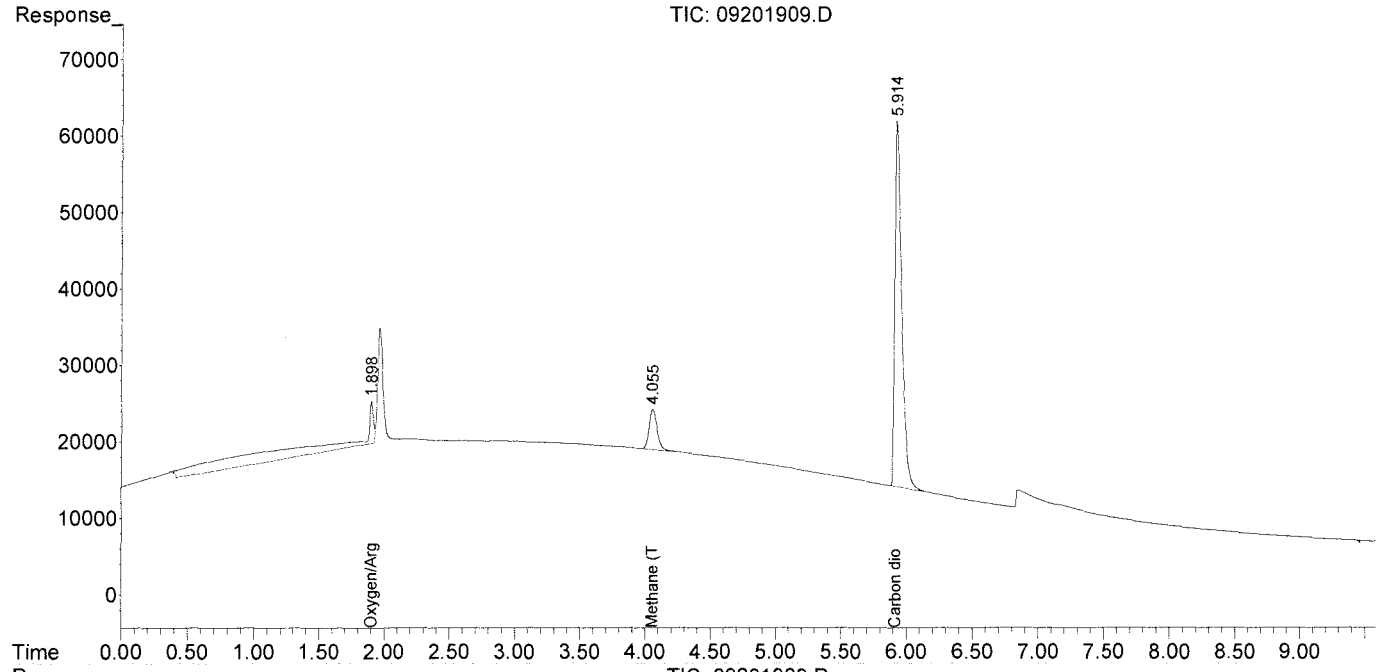
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.899	1031544	0.217	ppm	
2)	Carbon monoxide	1.899	1031544	N.D.	ppm	
3)	Methane (TCD)	4.055f	239703	25345.641	ppm	
4)	Carbon dioxide	5.914f	1707554	7274.572	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
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	

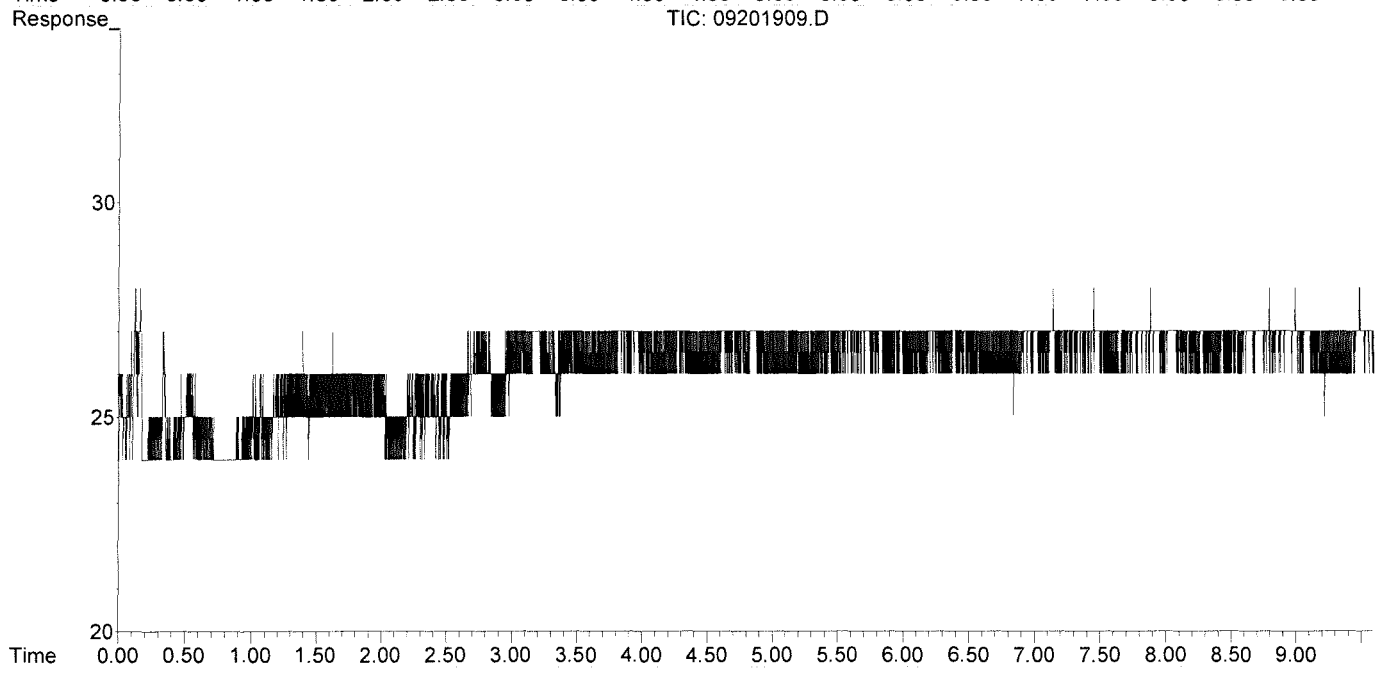
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:00:21
Operator : WH
Sample : P1905493-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:09:58 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

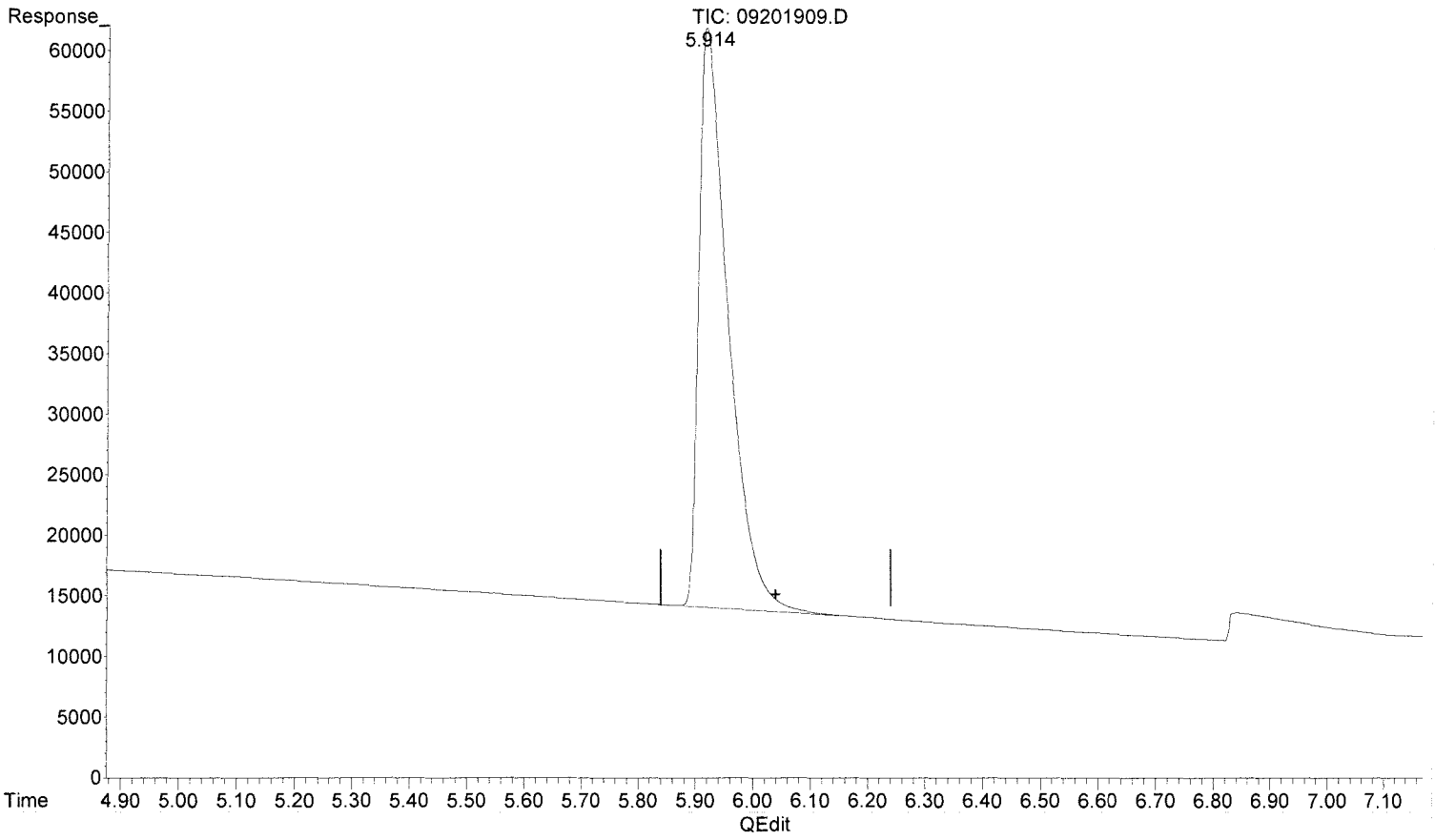




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:00:21
Operator : WH
Sample : P1905493-004 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:09:58 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.914min 7274.572 ppm m

response 1707554

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:12:45
Operator : WH
Sample : P1905493-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:25:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

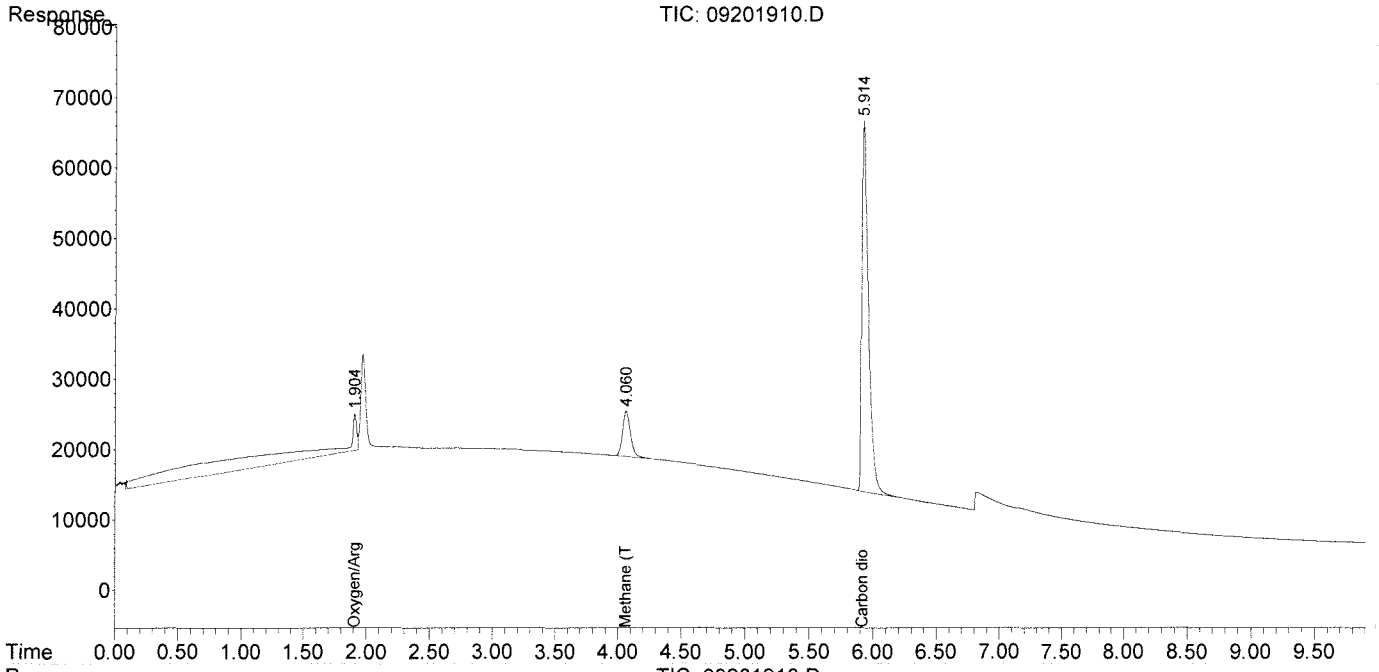
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.905f	1609794	0.338	ppm
2)	Carbon monoxide	1.905f	1609794	N.D.	ppm
3)	Methane (TCD)	4.061f	290586	30725.927	ppm
4)	Carbon dioxide	5.915f	1902241	8103.983	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	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

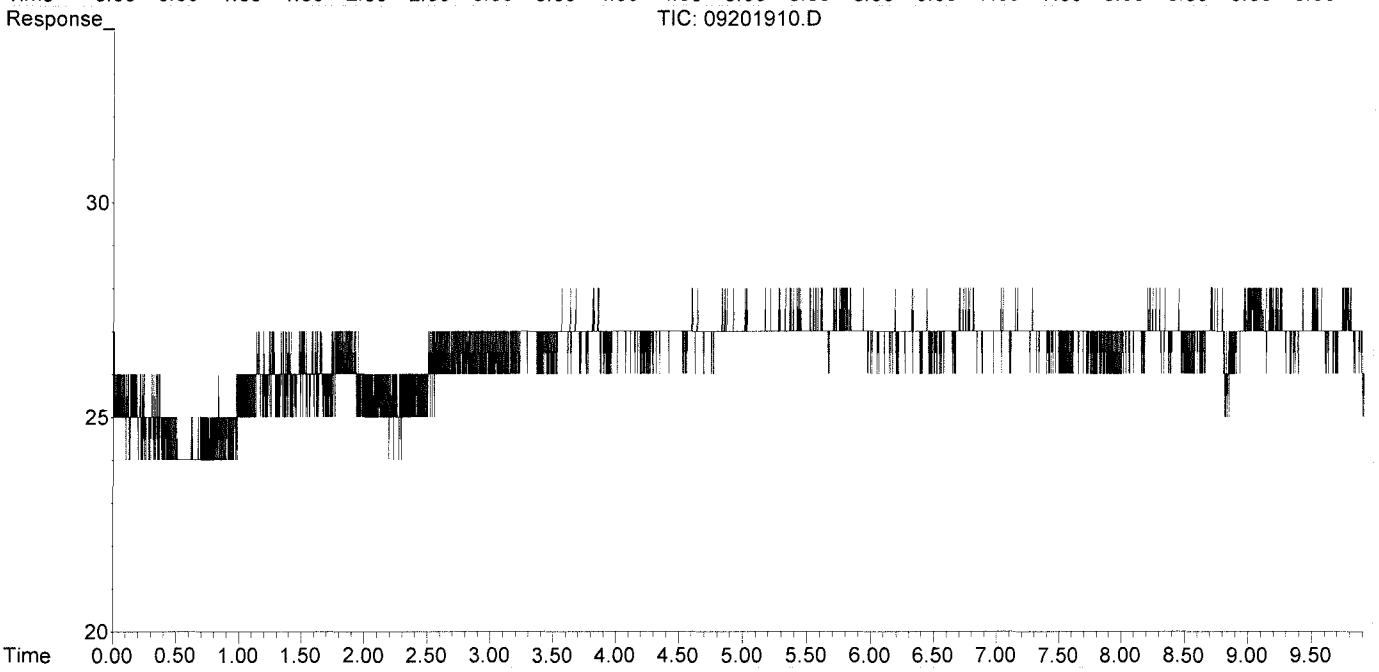
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:12:45
Operator : WH
Sample : P1905493-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:25:26 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:25:11
Operator : WH
Sample : P1905493-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:45:10 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

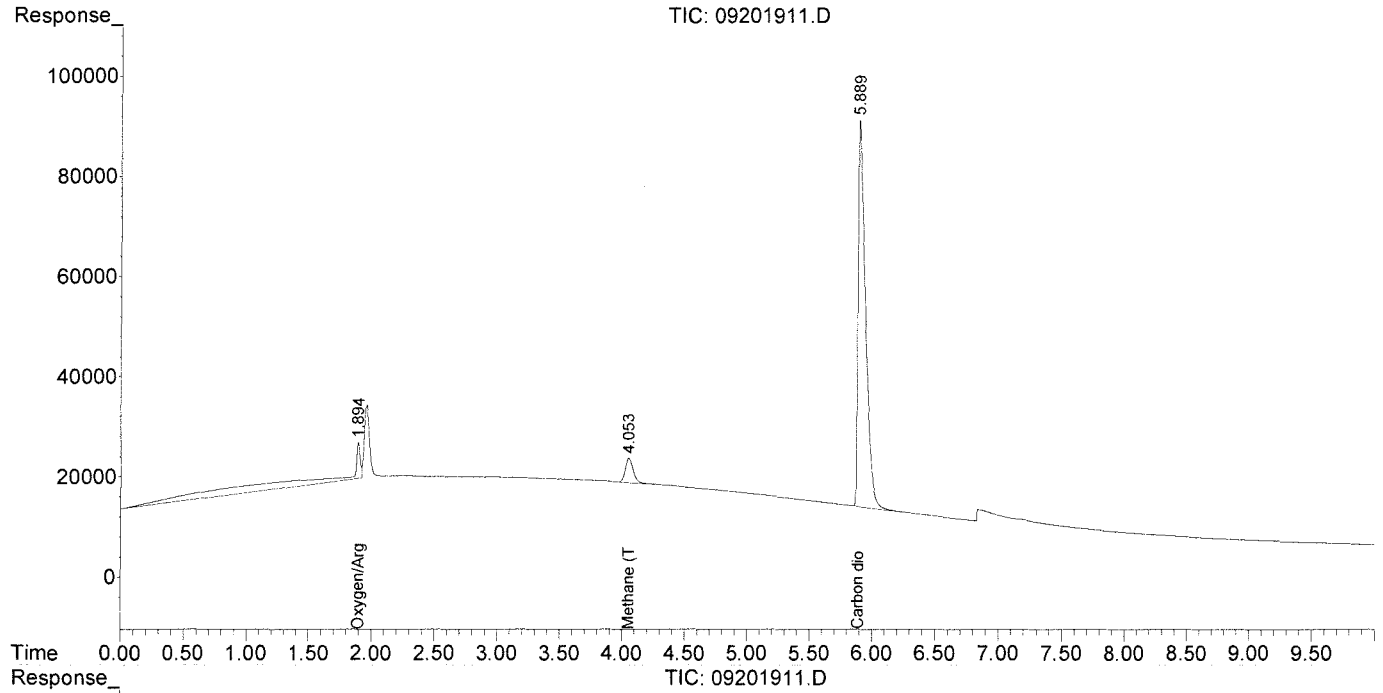
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	1211082	0.254	ppm
2)	Carbon monoxide	1.895	1211082	N.D.	ppm
3)	Methane (TCD)	4.053f	221153	23384.279	ppm
4)	Carbon dioxide	5.891f	3171830	13512.721	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	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

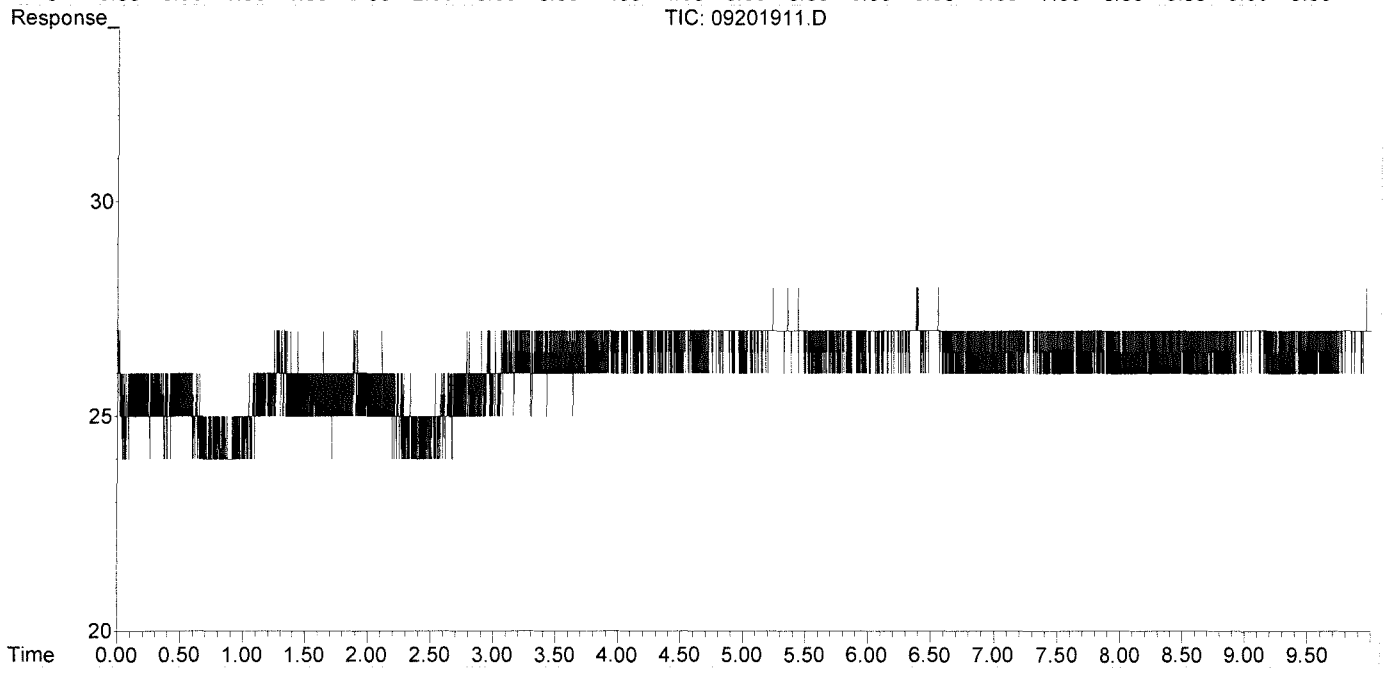
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:25:11
Operator : WH
Sample : P1905493-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:45:10 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:44:22
Operator : WH
Sample : P1905493-007 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:57:04 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

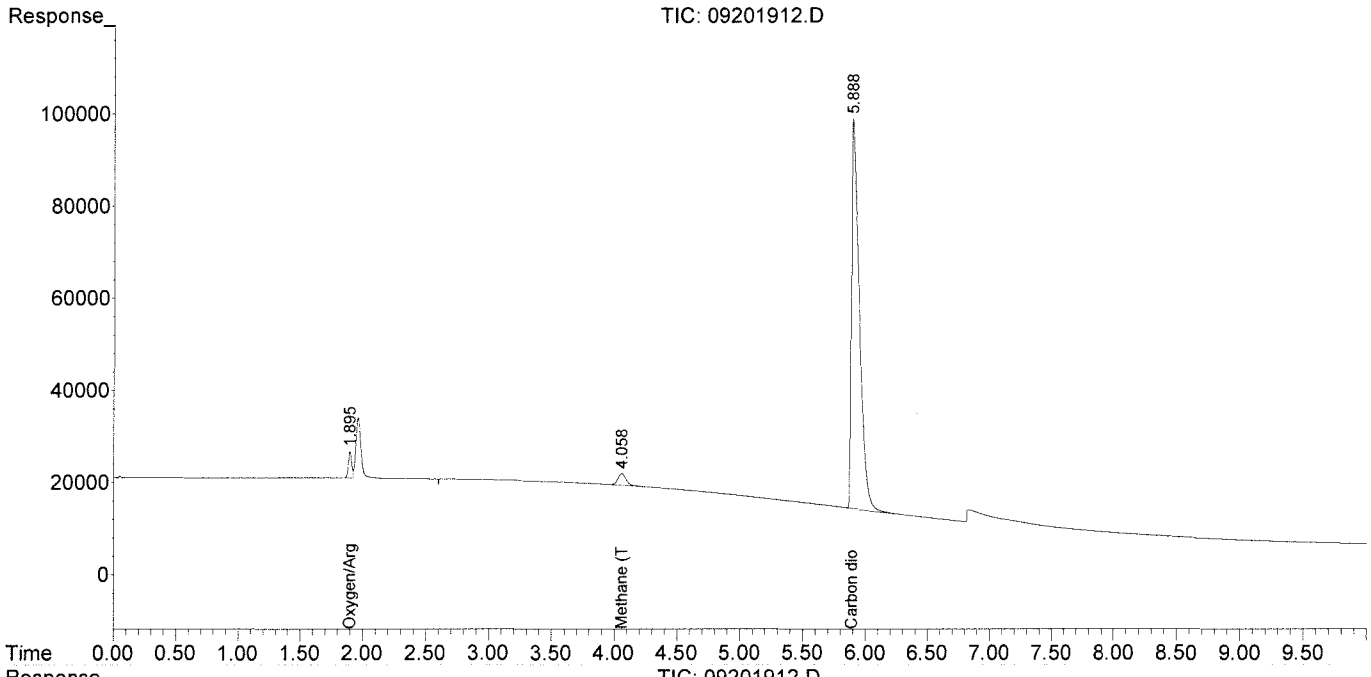
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	103586	0.022	ppm
2)	Carbon monoxide	1.895	103586	N.D.	ppm
3)	Methane (TCD)	4.058f	115536	12216.533	ppm
4)	Carbon dioxide	5.889f	3715224	15827.705	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	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

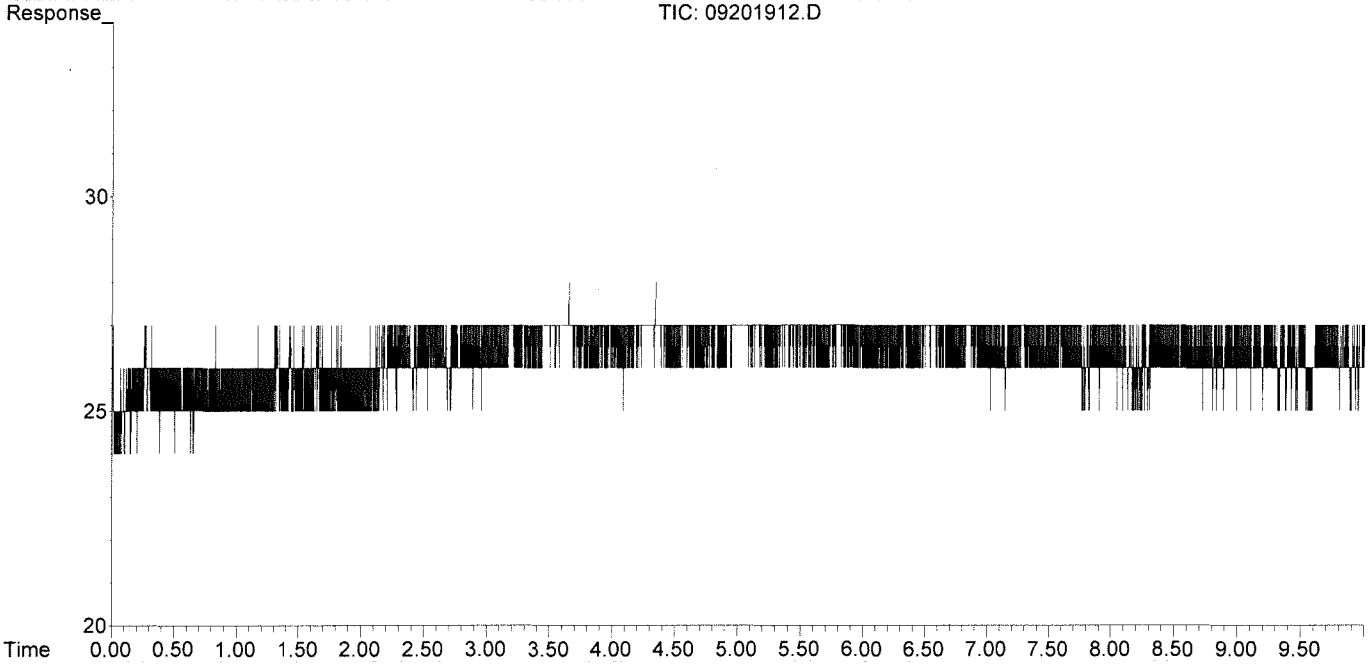
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 15:44:22
Operator : WH
Sample : P1905493-007 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 15:57:04 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:09:38
Operator : WH
Sample : P1905493-002MS 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:20:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

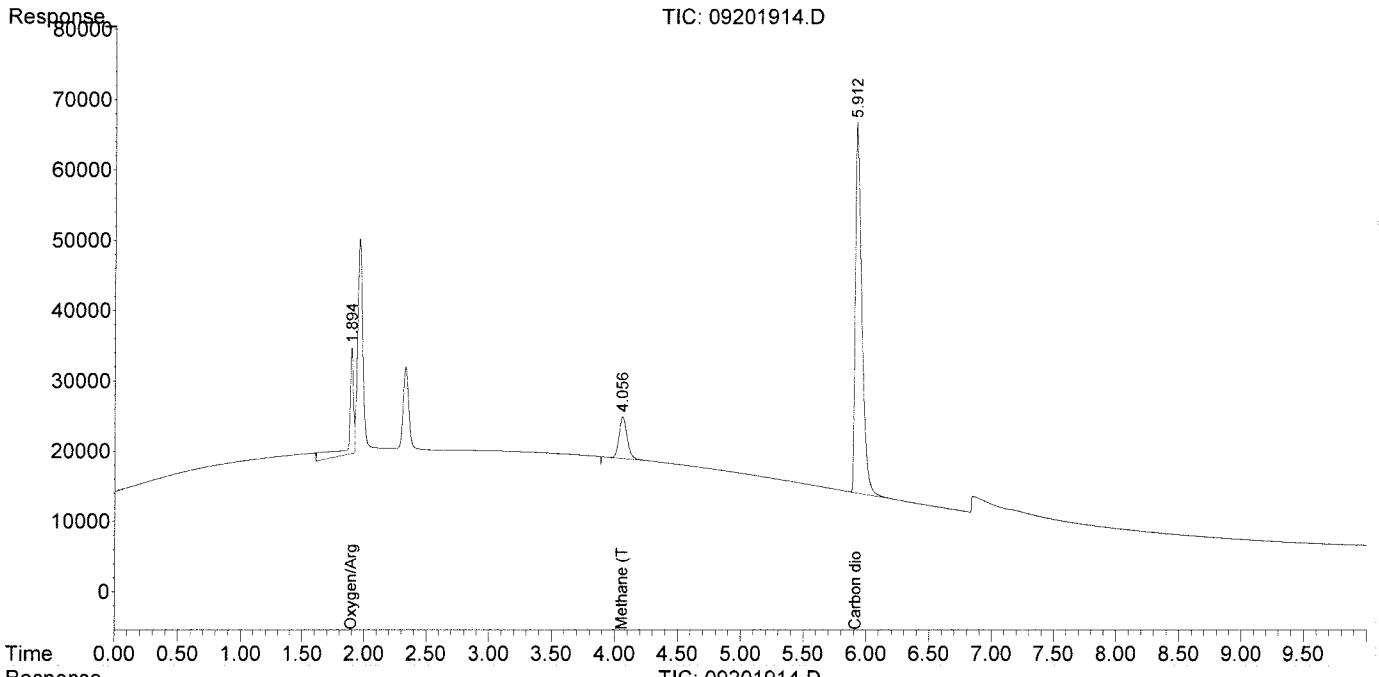
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.895	397517	0.084	ppm	
2)	Carbon monoxide	1.895	397517	N.D.	ppm	
3)	Methane (TCD)	4.057f	267540	28289.116	ppm	
4)	Carbon dioxide	5.912f	1919696	8178.342	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	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	

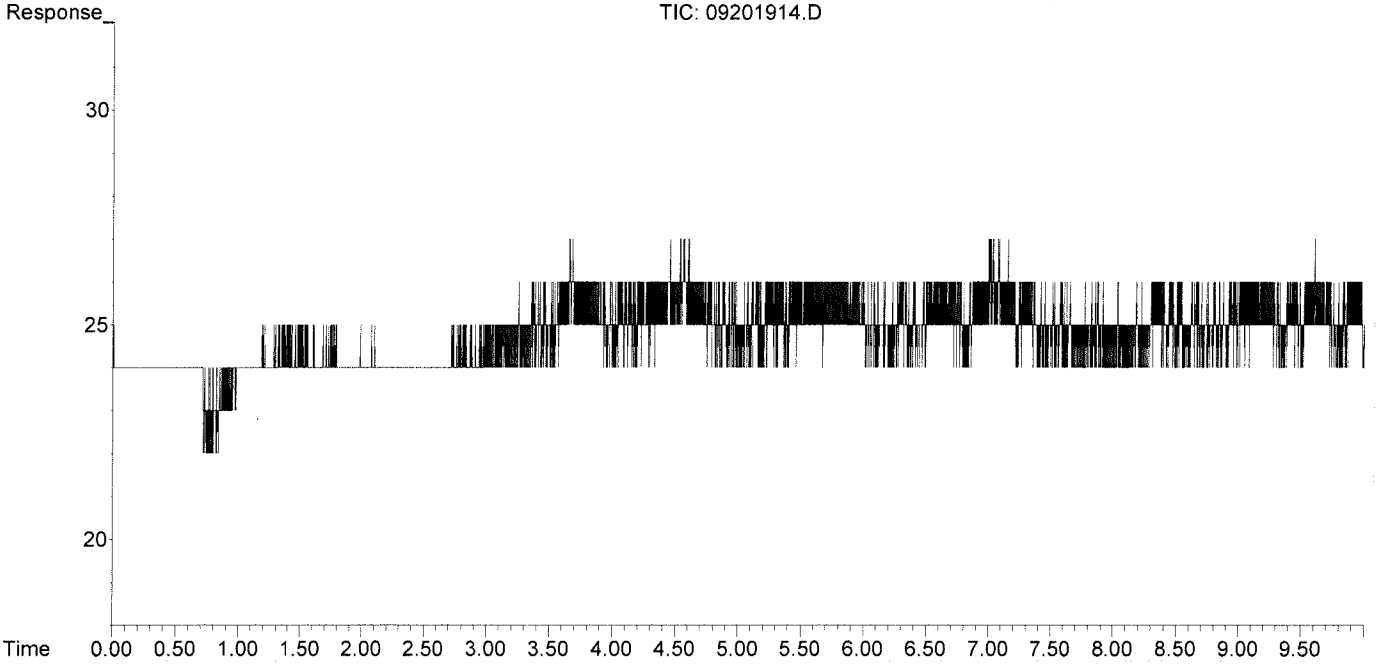
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:09:38
Operator : WH
Sample : P1905493-002MS 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:20:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

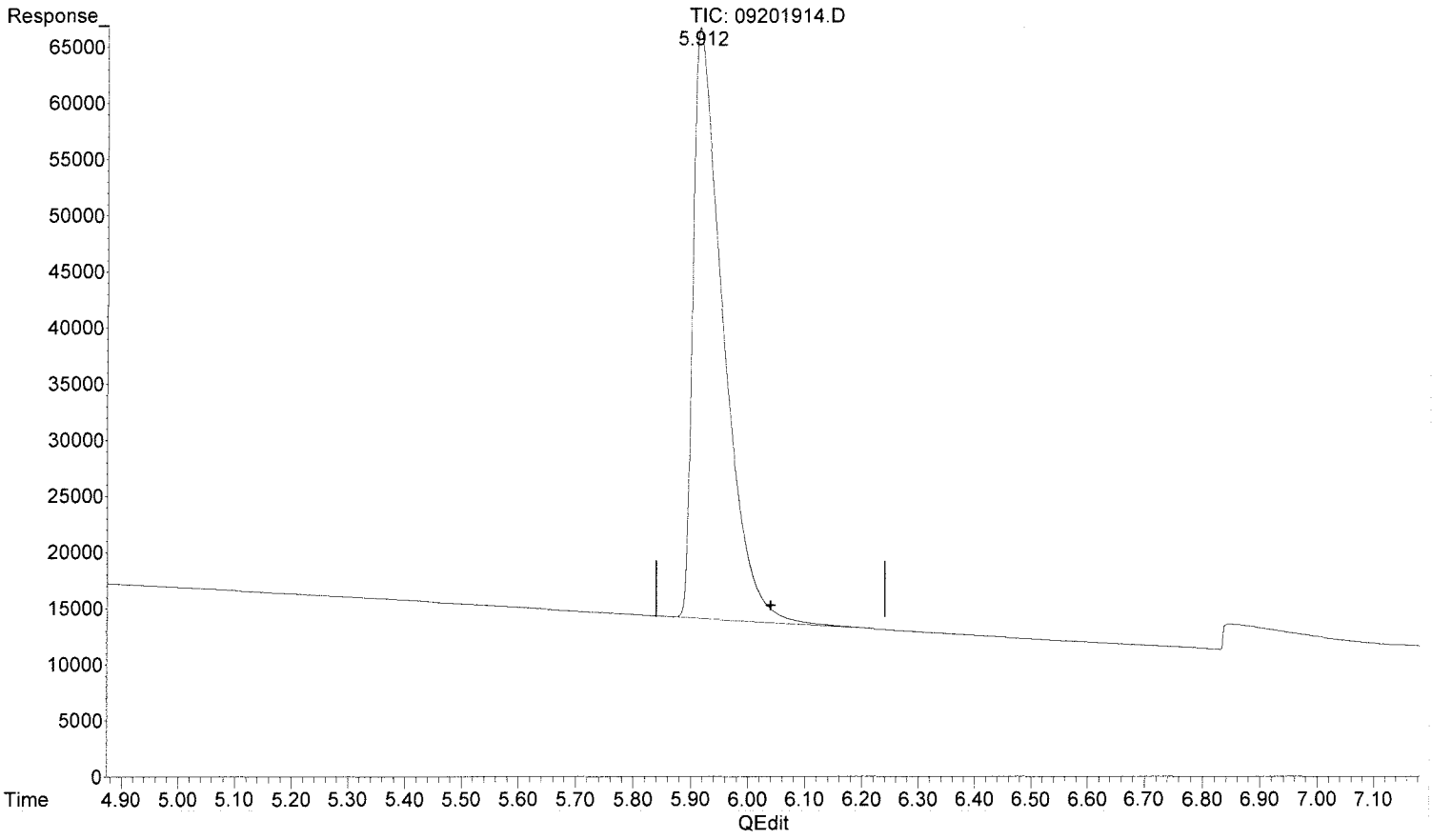




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:09:38
Operator : WH
Sample : P1905493-002MS 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:20:47 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.912min 8178.342 ppm m

response 1919696

MC 9/25/19

WM 9/27/19 Per no previous

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:22:12
Operator : WH
Sample : P1905493-002MSD 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:41:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

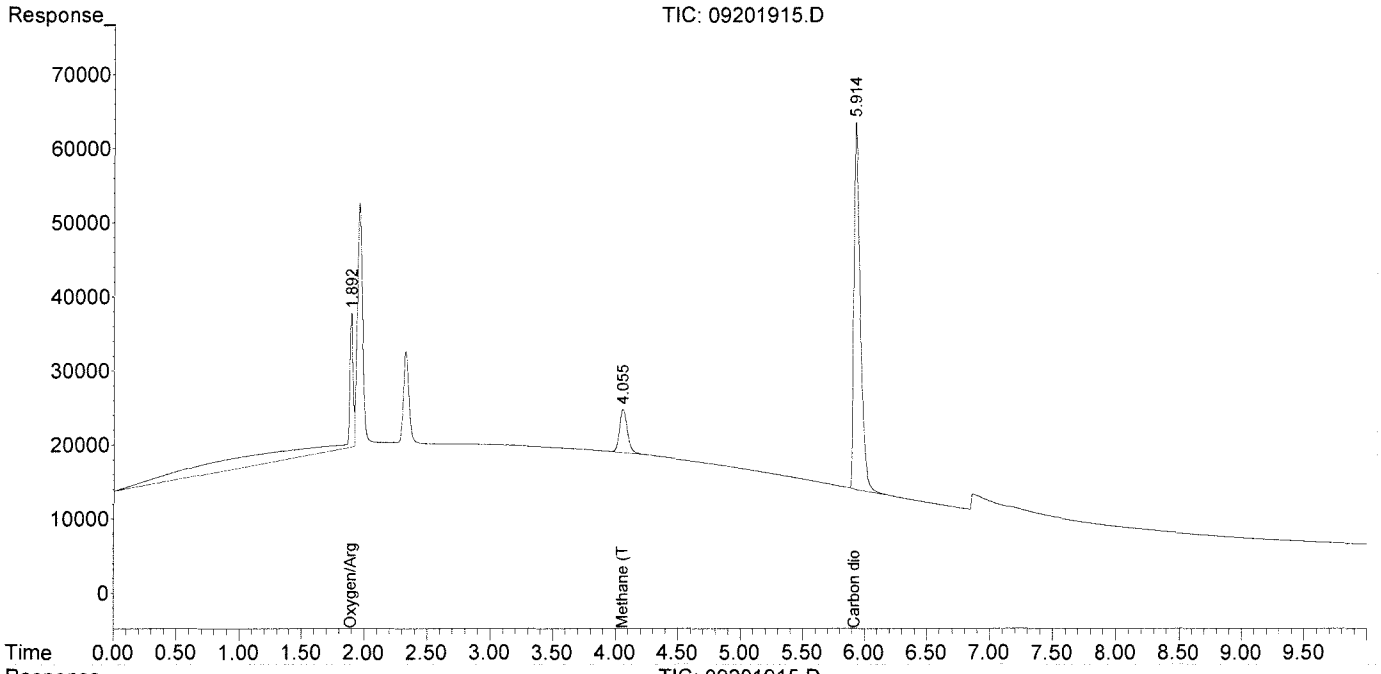
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.893	1434396	0.301	ppm	
2)	Carbon monoxide	1.893	1434396	N.D.	ppm	
3)	Methane (TCD)	4.056f	263827	27896.526	ppm	
4)	Carbon dioxide	5.914f	1761690	7505.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
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	

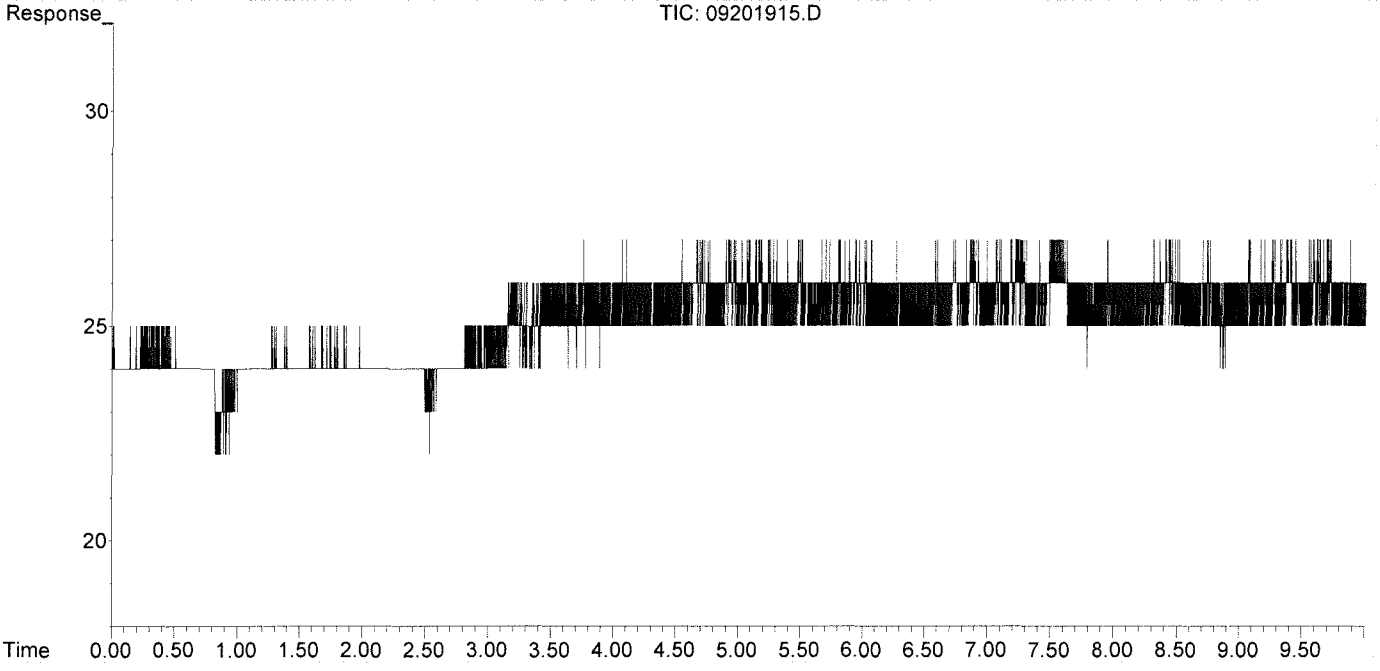
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:22:12
Operator : WH
Sample : P1905493-002MSD 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:41:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

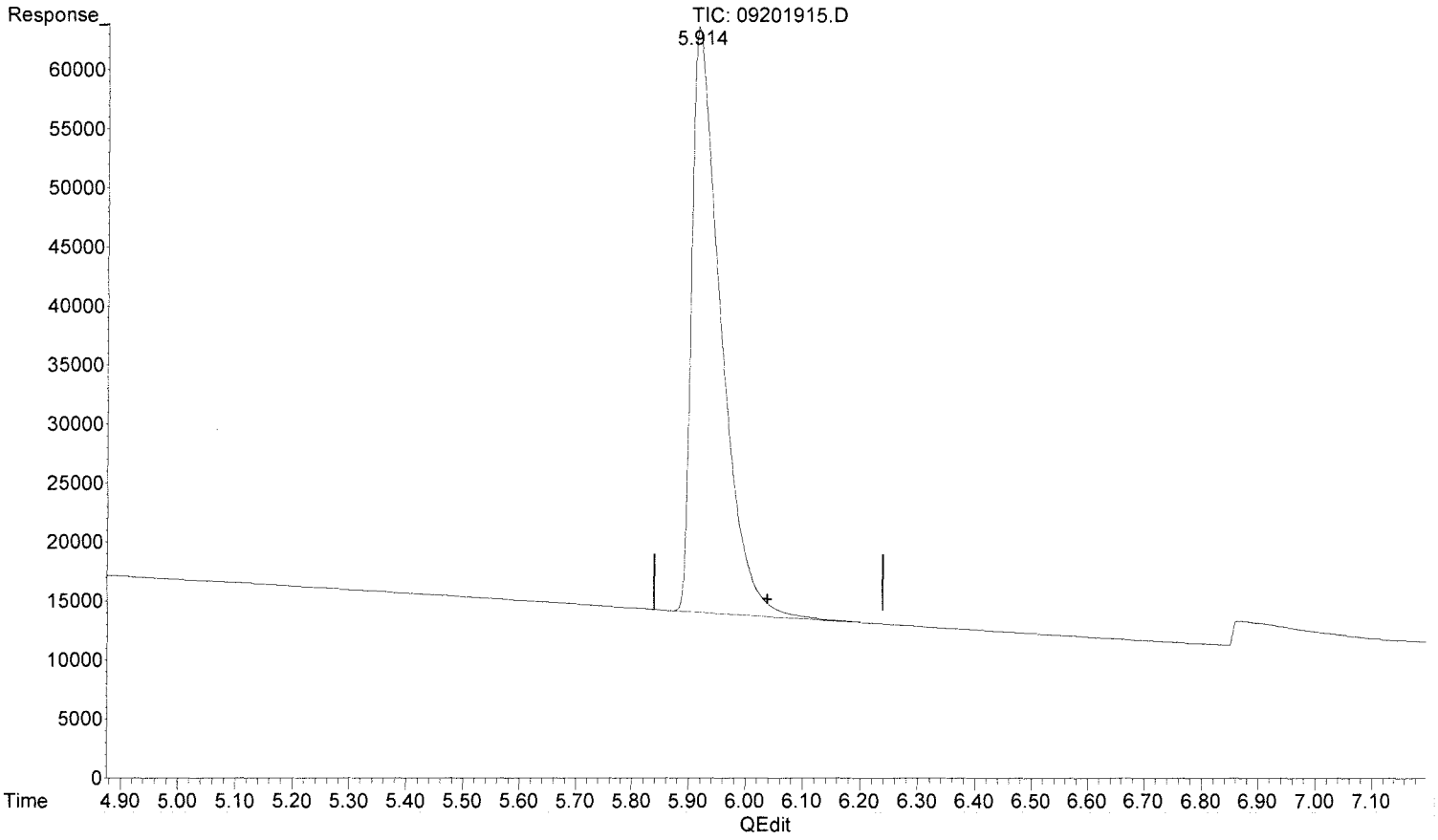




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:22:12
Operator : WH
Sample : P1905493-002MSD 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:41:11 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.914min 7505.204 ppm m

response 1761690

MK 9/25/19

Lm 9/25/19 Acc w previous

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 13:13:38
Operator : WH
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: Sep 22 13:15:32 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

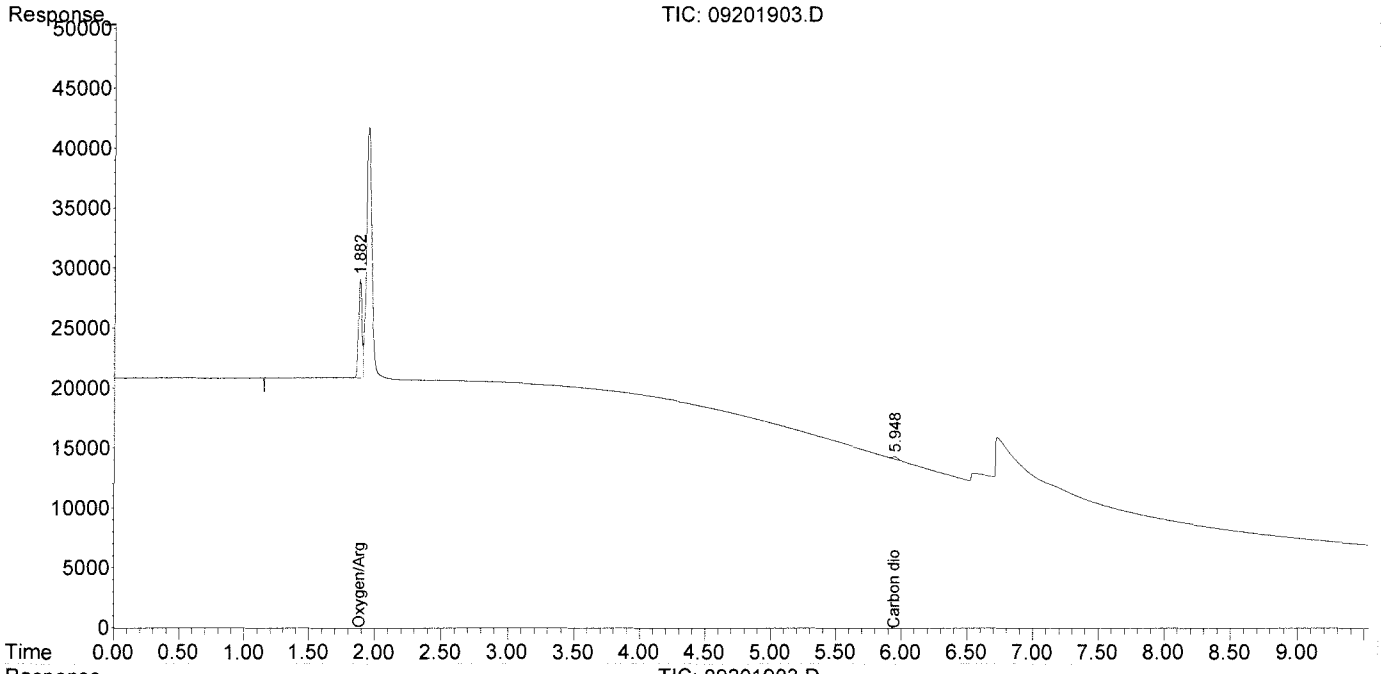
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.883	148361	0.031	ppm	
2)	Carbon monoxide	1.883	148361	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.948	5142	21.905	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

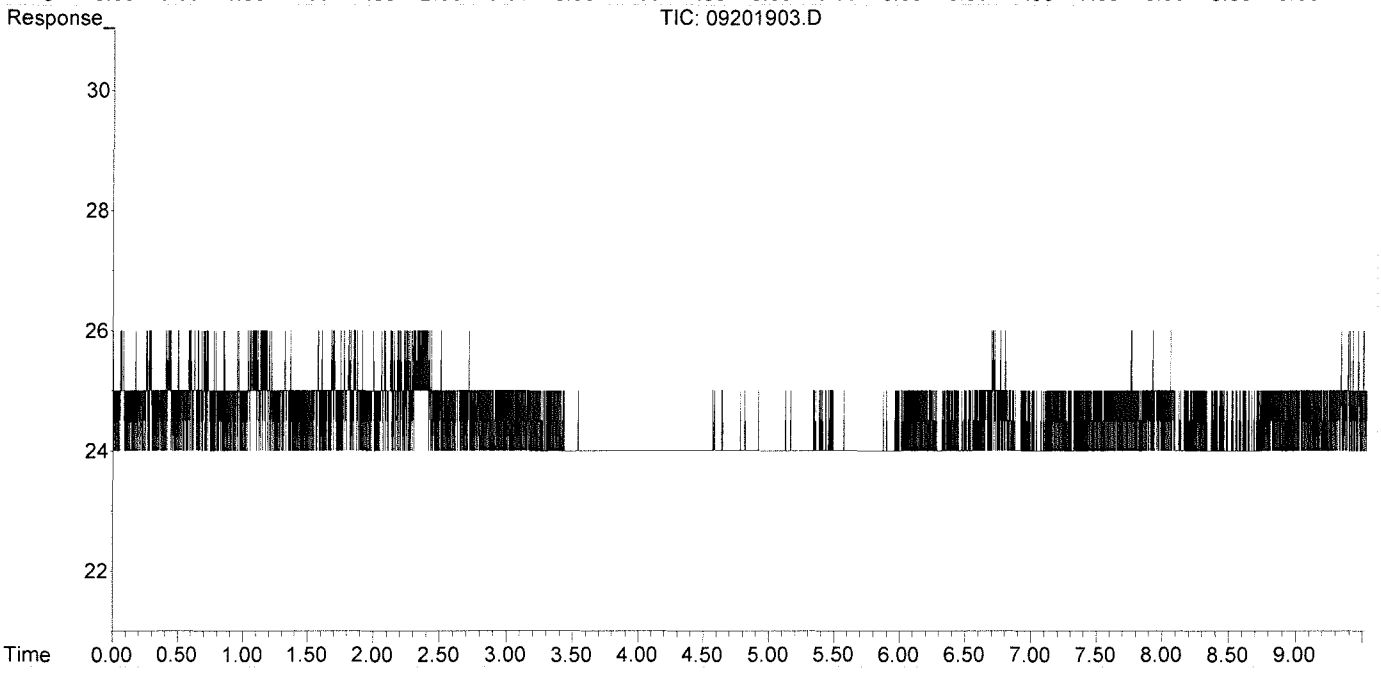
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 13:13:38
Operator : WH
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: Sep 22 13:15:32 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

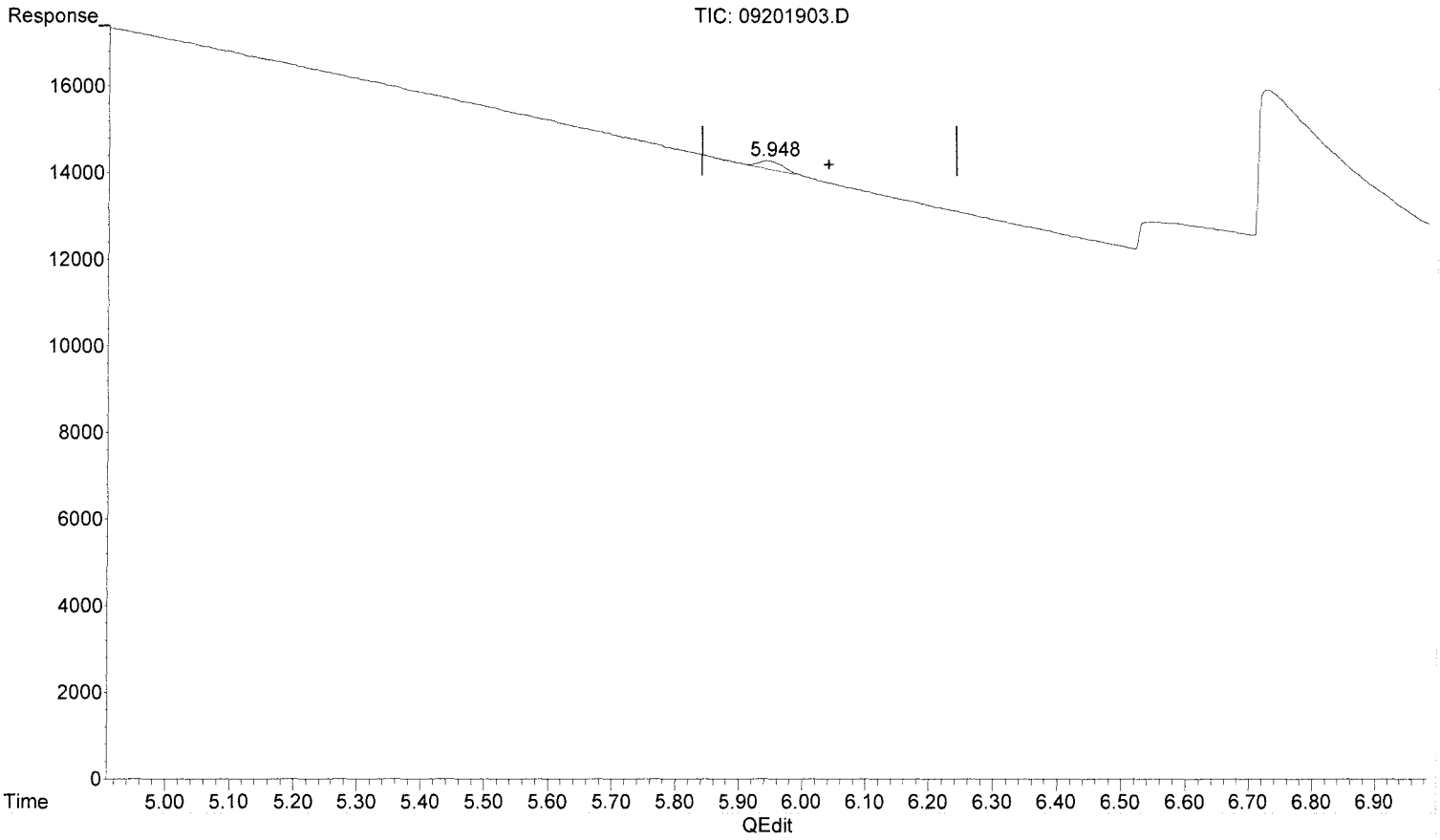




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 13:13:38
Operator : WH
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 13:15:32 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.948min 21.905 ppm m

response 5142

MR 9/25/19 Lm 9/27/19 MP no pressure

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:04:41
Operator : WH
Sample : LCS TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:20:59 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

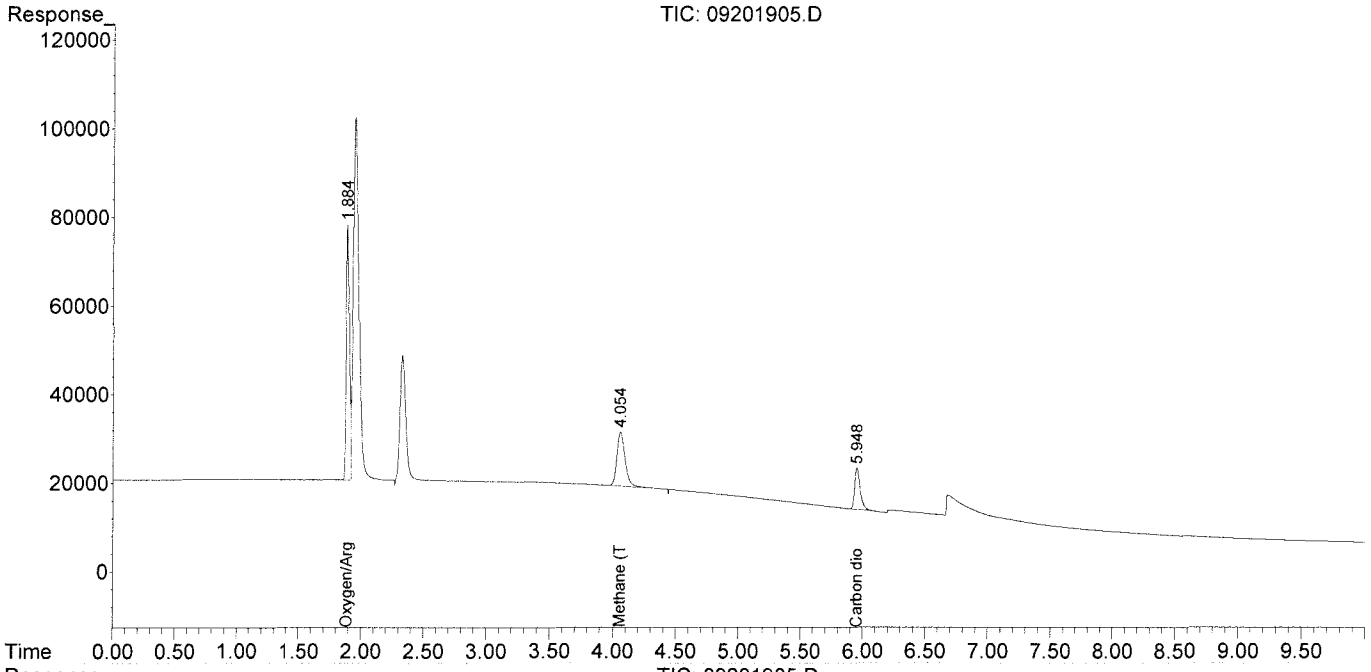
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.885	992919	0.209	ppm	
2)	Carbon monoxide	1.885	992919	N.D.	ppm	
3)	Methane (TCD)	4.054f	559012	59108.756	ppm	
4)	Carbon dioxide	5.948	285762	1217.411	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	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	

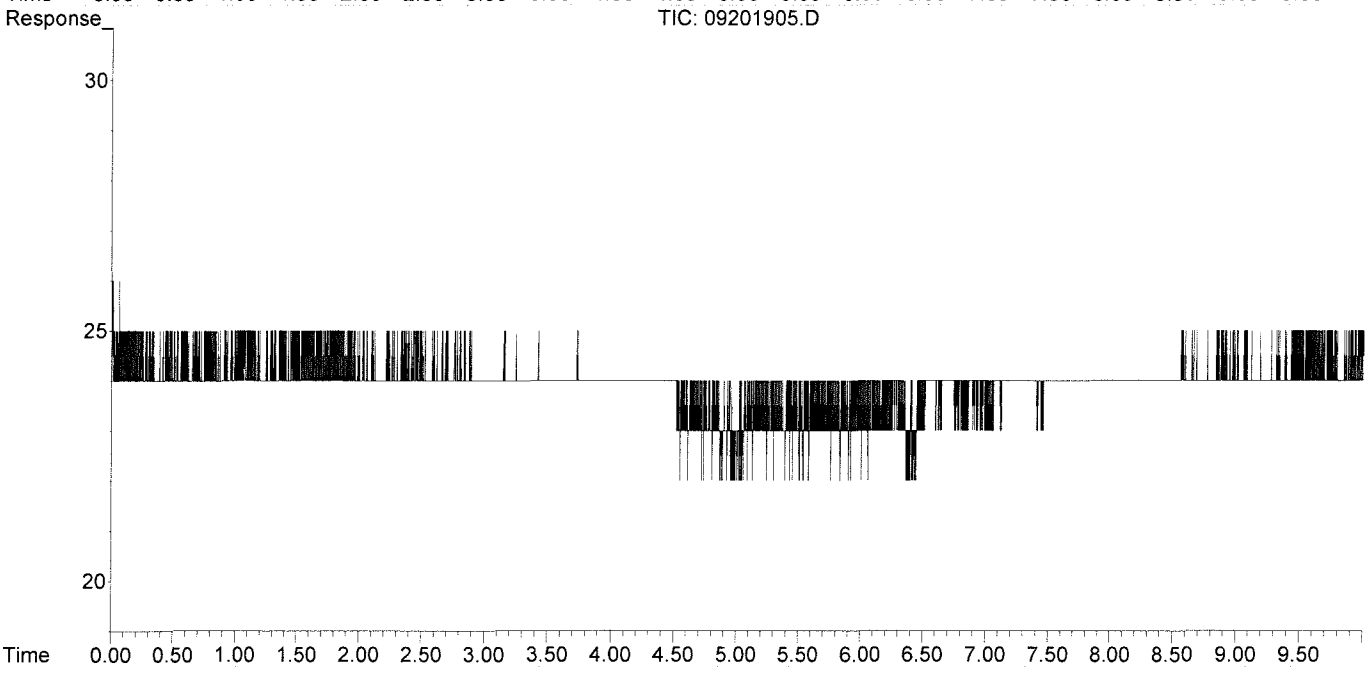
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:04:41
Operator : WH
Sample : LCS TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:20:59 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

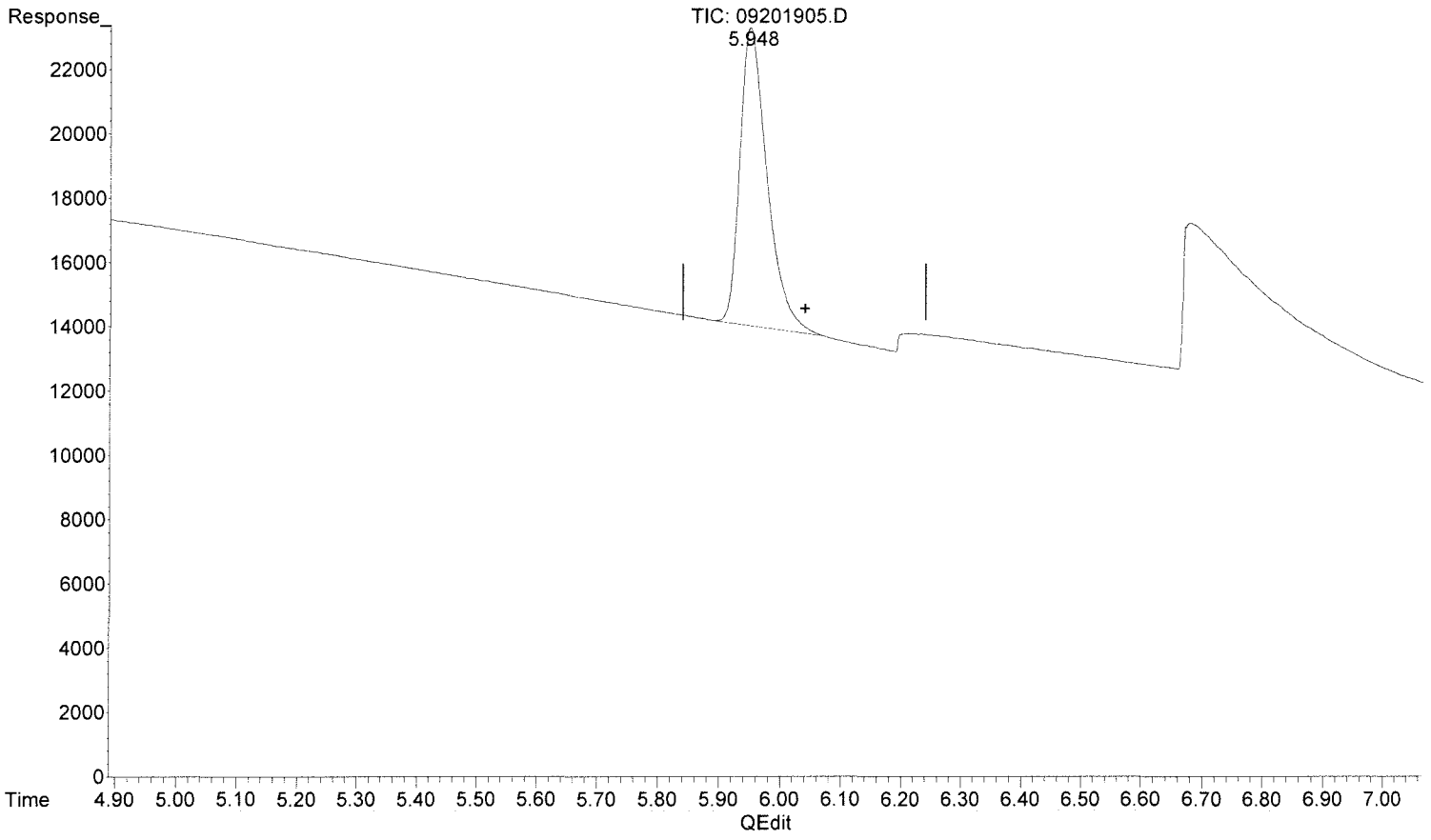




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:04:41
Operator : WH
Sample : LCS TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:20:59 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.948min 1217.411 ppm m

response 285762

MK 9/25/19

Lw 9/25/19 Bkg no pump

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:22:48
Operator : WH
Sample : LCSD TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:32:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

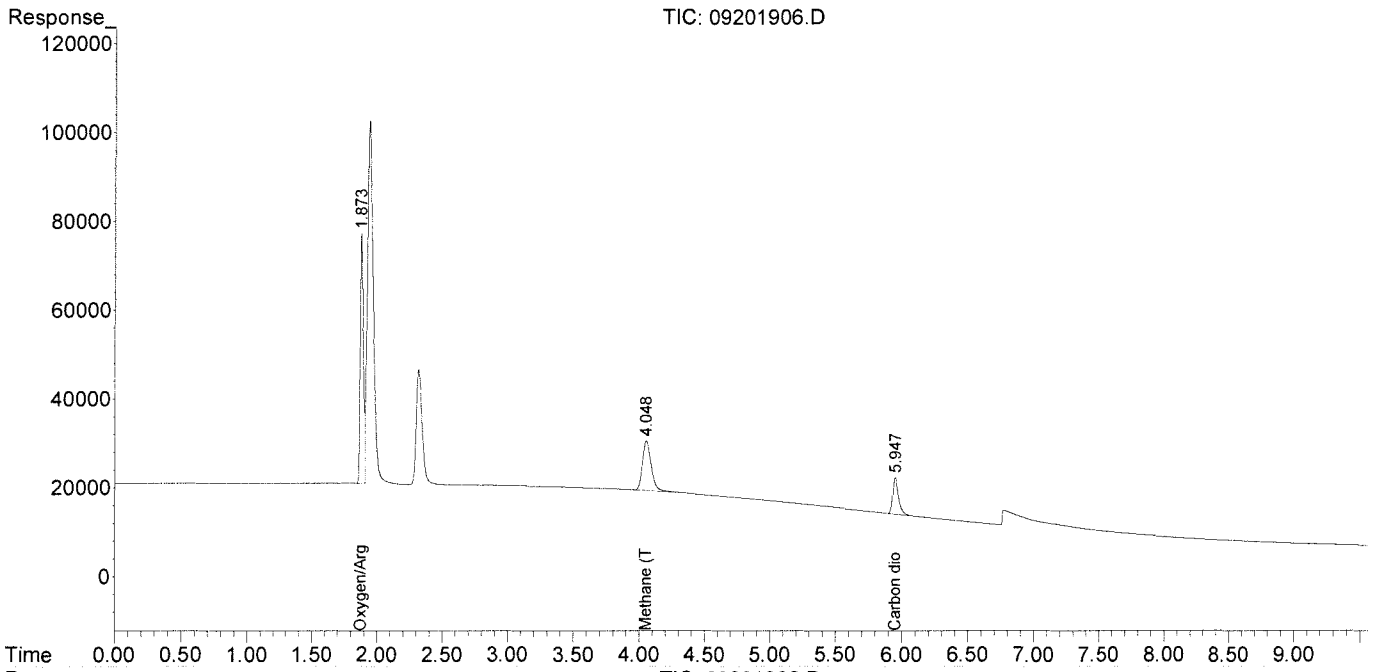
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.874	960850	0.202	ppm	
2)	Carbon monoxide	1.874	960850	N.D.	ppm	
3)	Methane (TCD)	4.049f	516053	54566.360	ppm	
4)	Carbon dioxide	5.947	258951	1103.192	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	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	

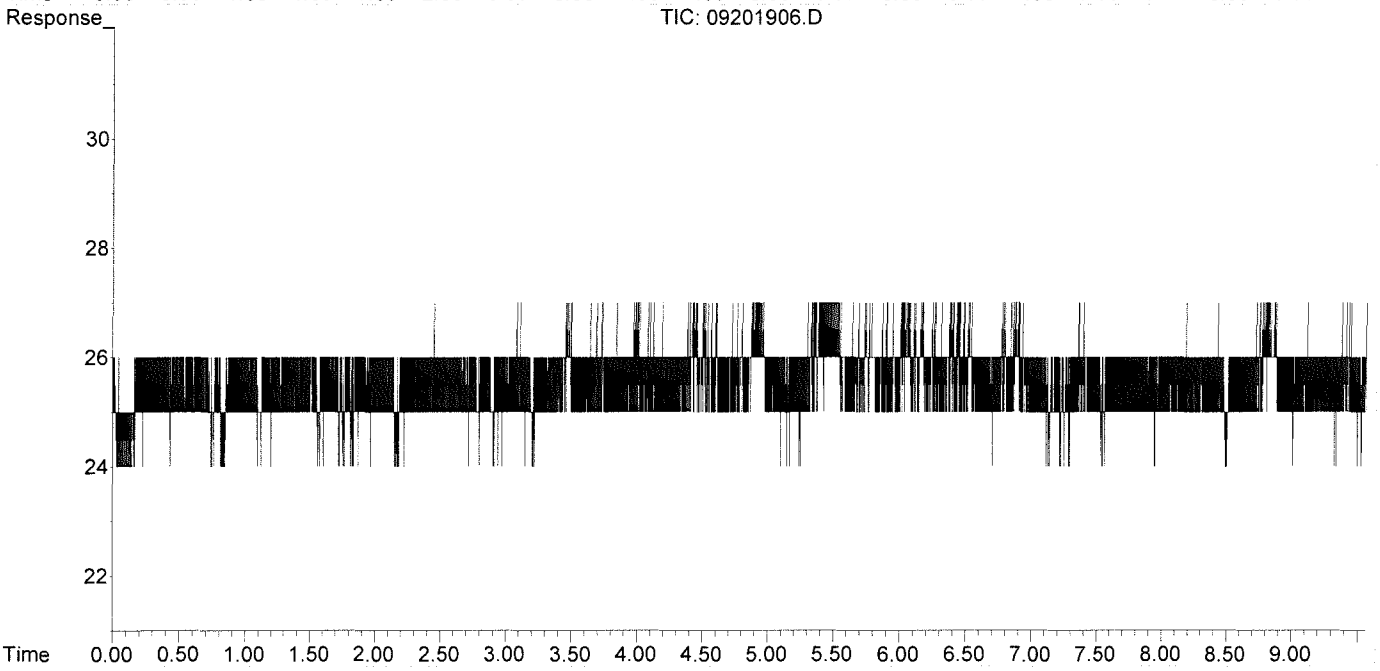
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:22:48
Operator : WH
Sample : LCSD TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:32:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

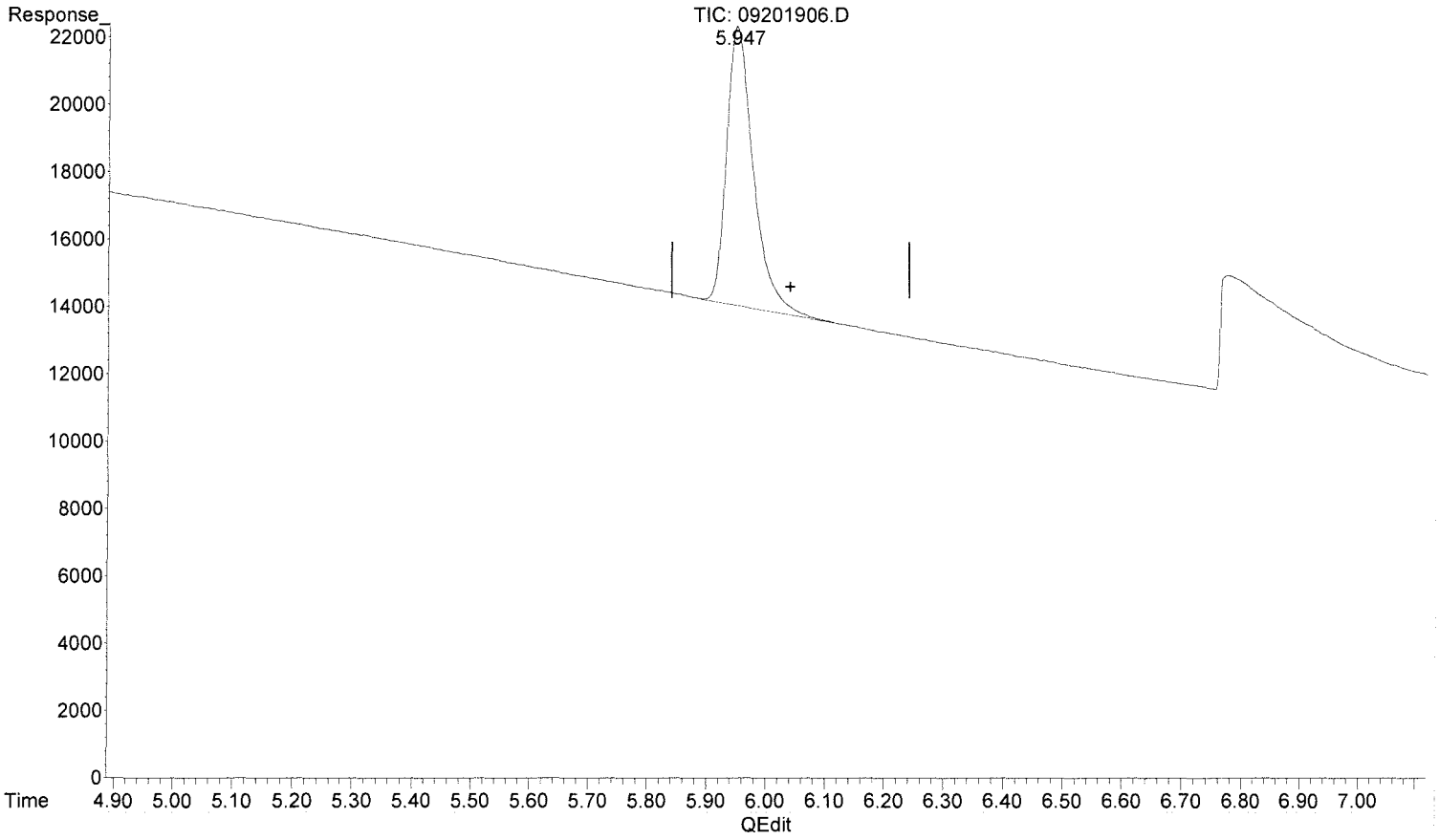




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 14:22:48
Operator : WH
Sample : LCSD TCD
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 14:32:24 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.947min 1103.192 ppm m

response 258951

MK 9/25/19

Lab 9/27/19 Acc no previous

(+) = Expected Retention Time

Response Factor Report HP5890

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

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

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

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

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

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

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

dit Compounds -- Compound #4 -- Carbon dioxide

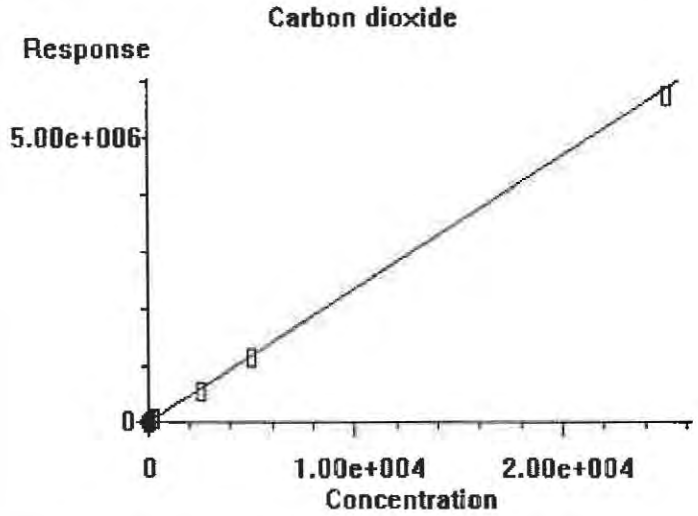
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

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

Lvl ID	Concentration	Response



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

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

Calibration Status Report HP5890

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

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

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

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

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

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

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

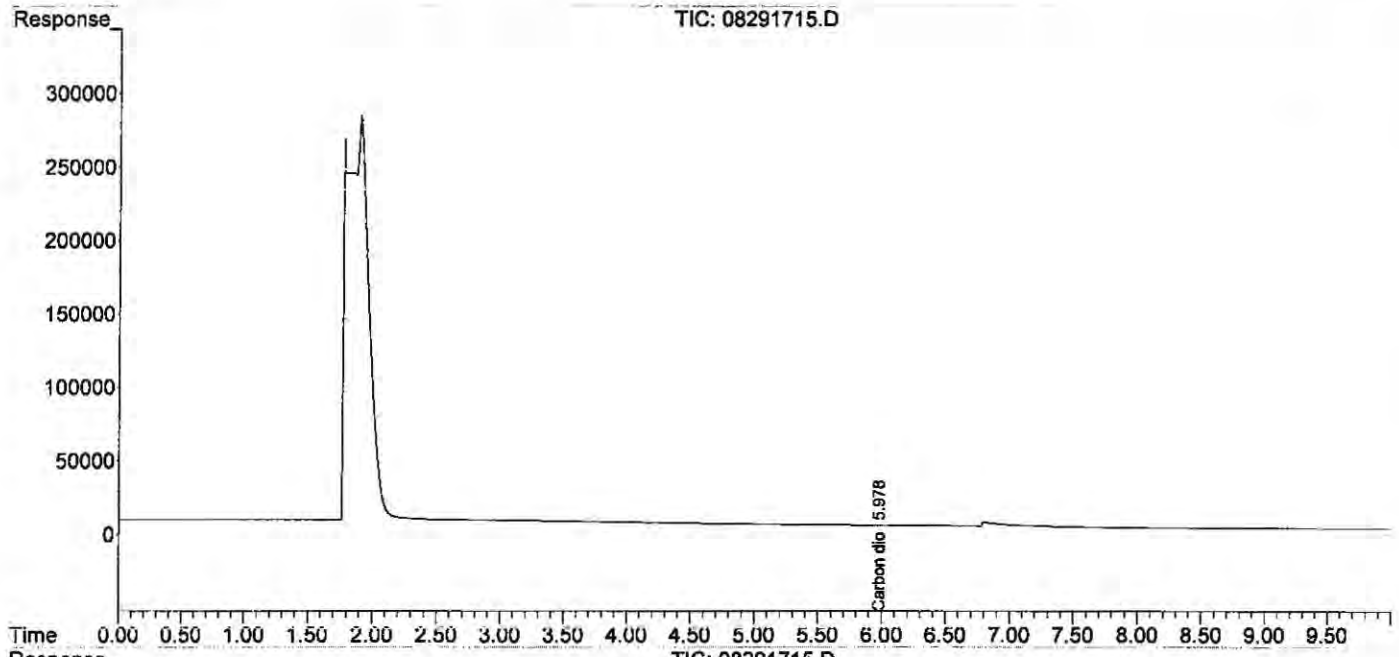
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

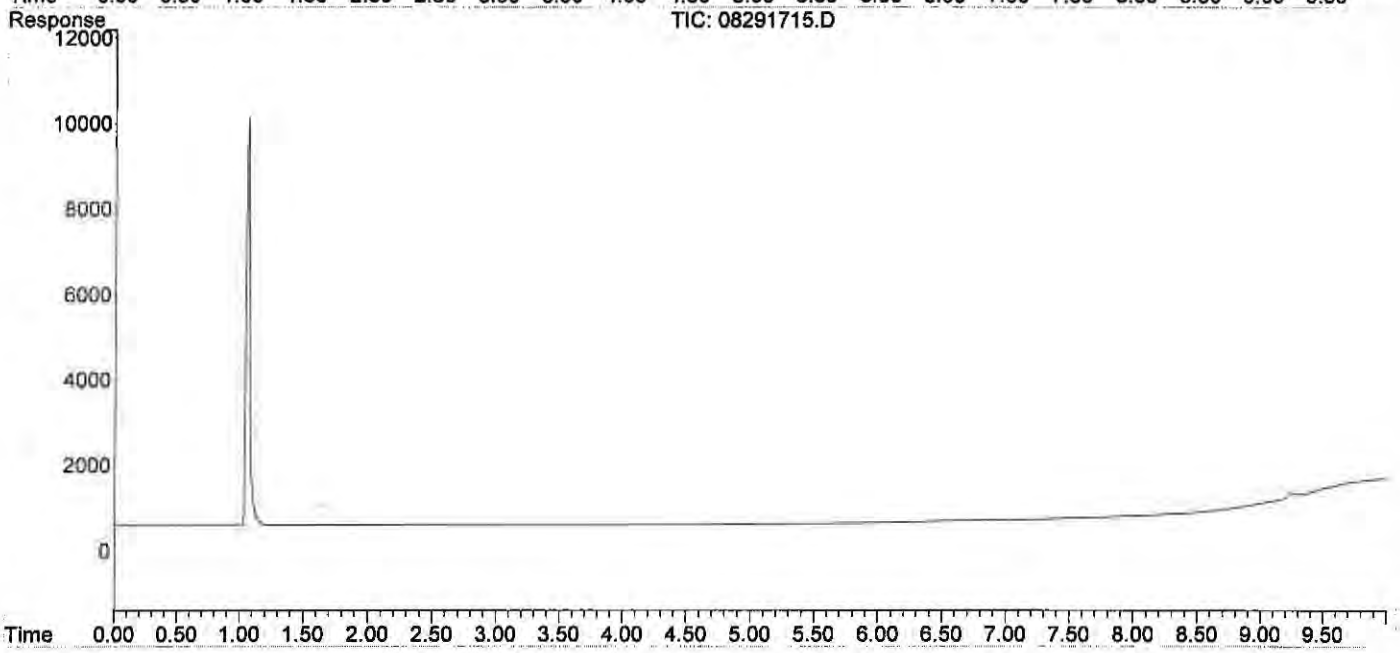
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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



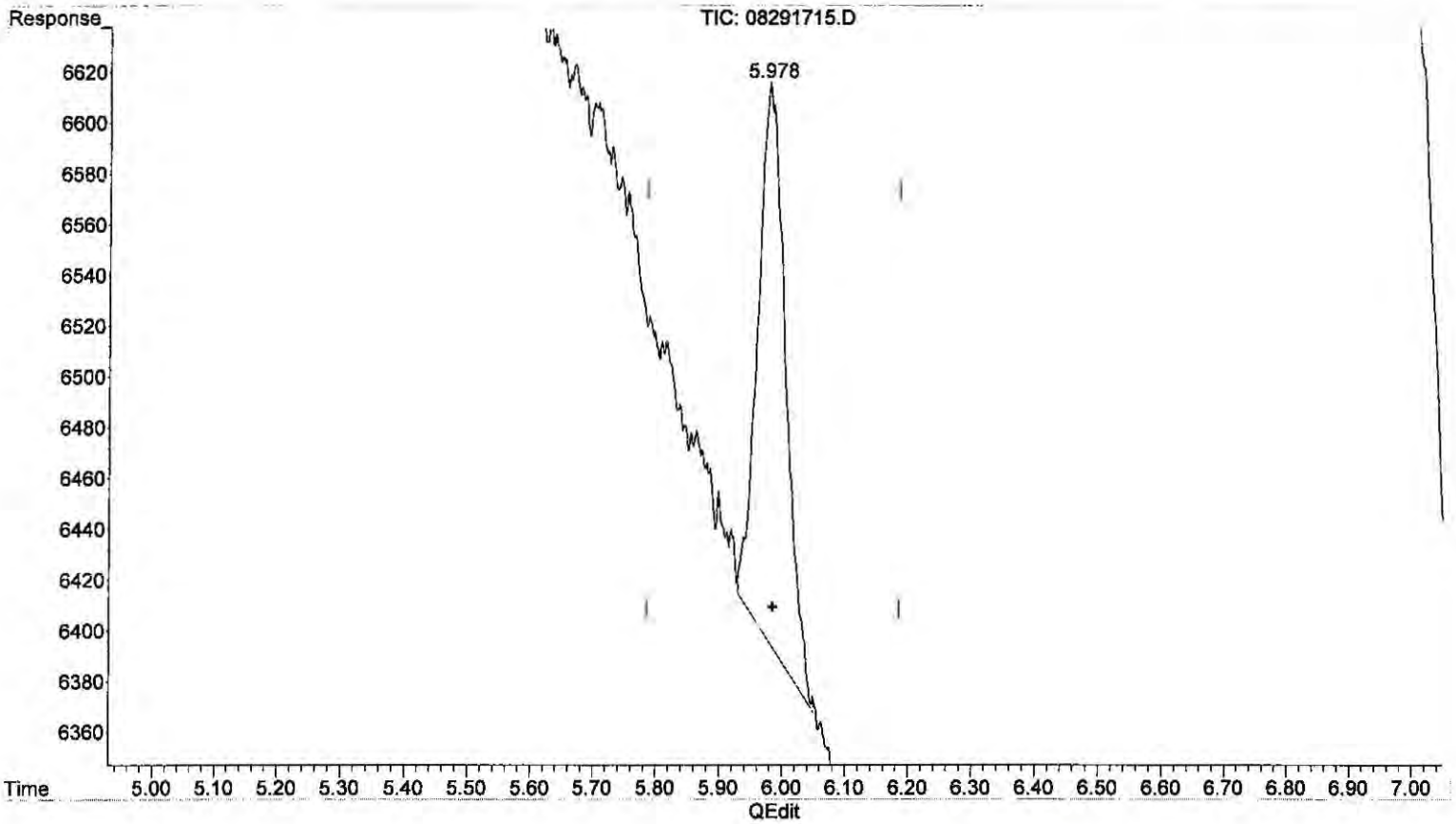


00996775

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

9/30/17
BW
M.
prelim

9/4/17

(+) = Expected Retention Time
RS082817_CO2.M Wed Aug 30 13:17:47 2017

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 :

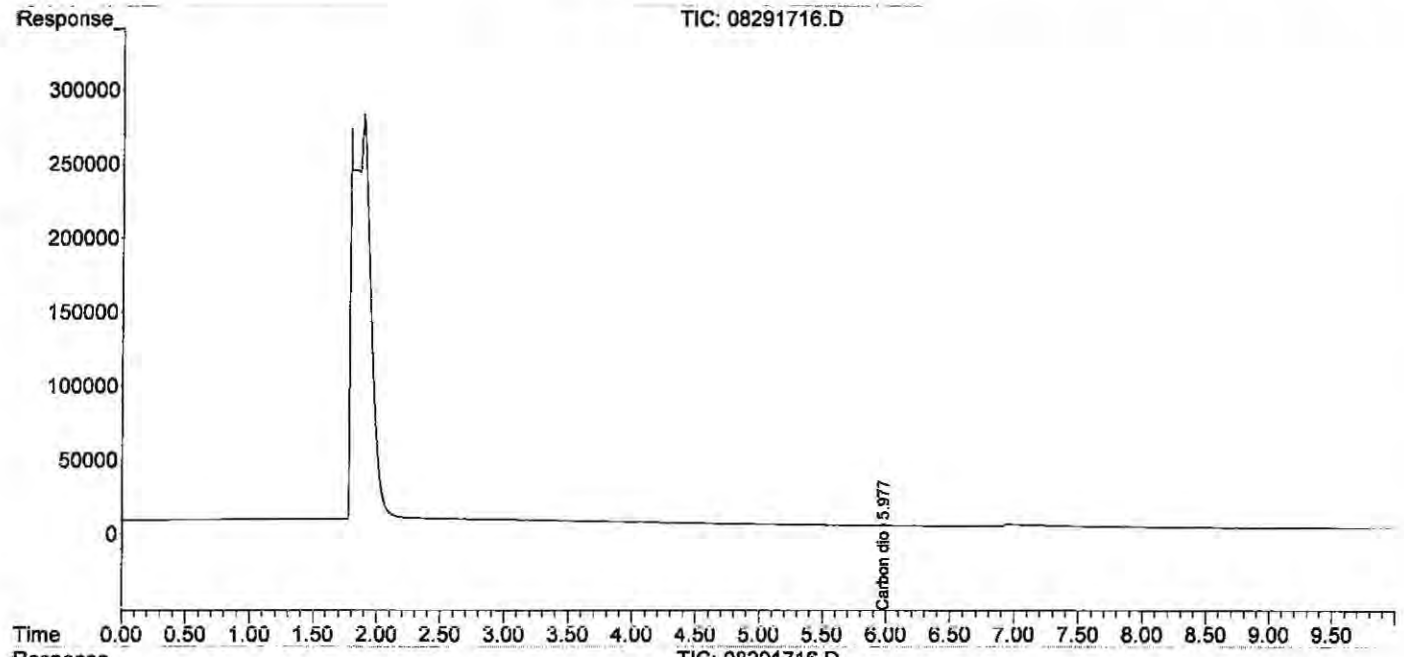
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

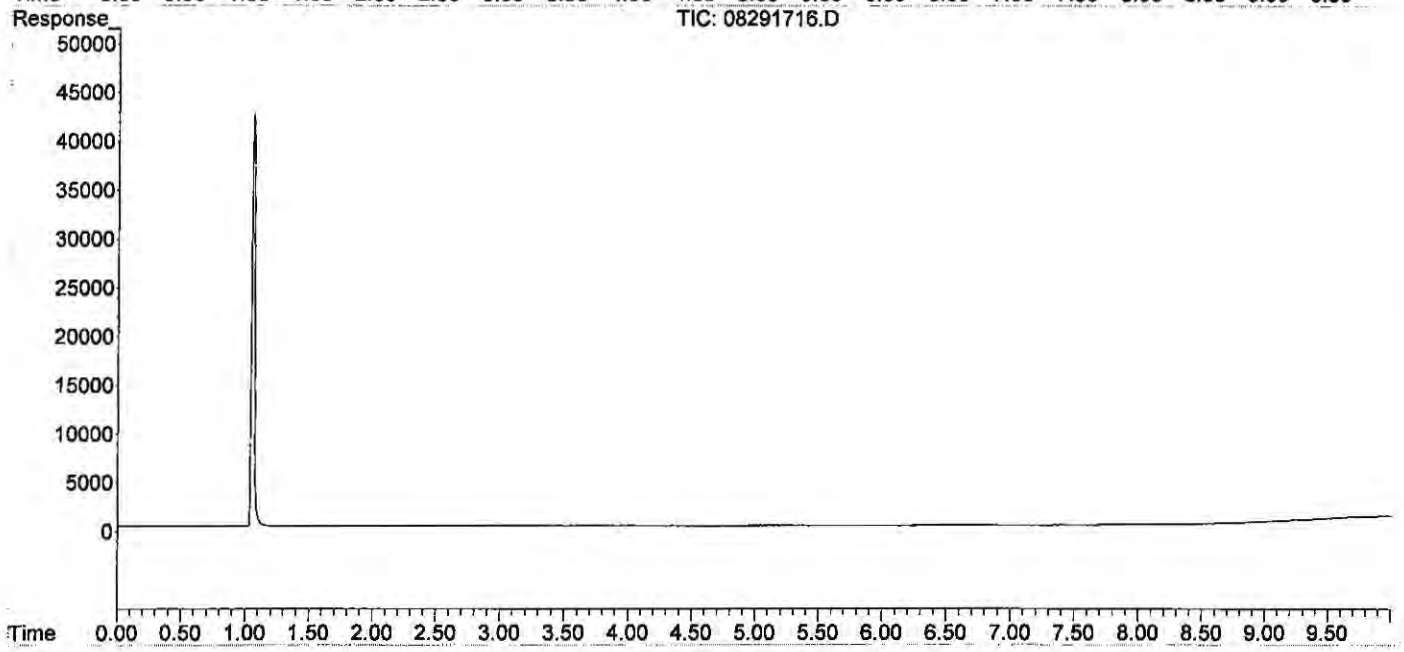
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :





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 :

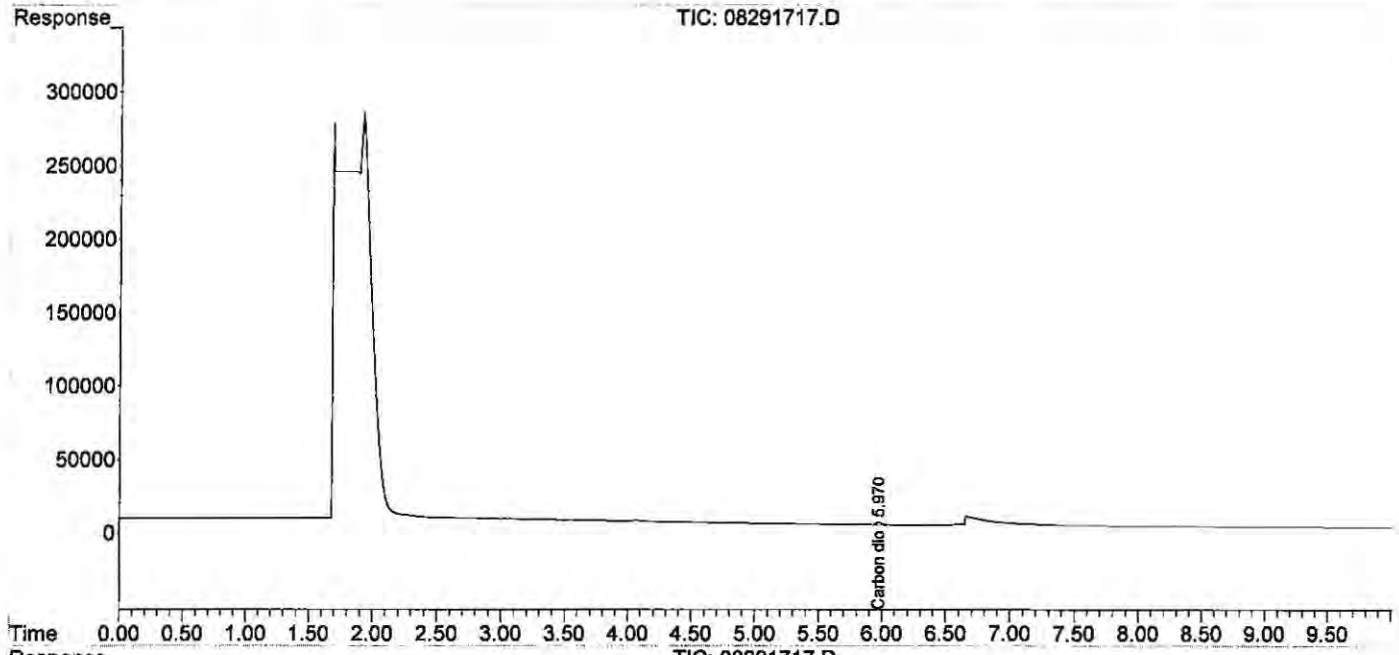
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

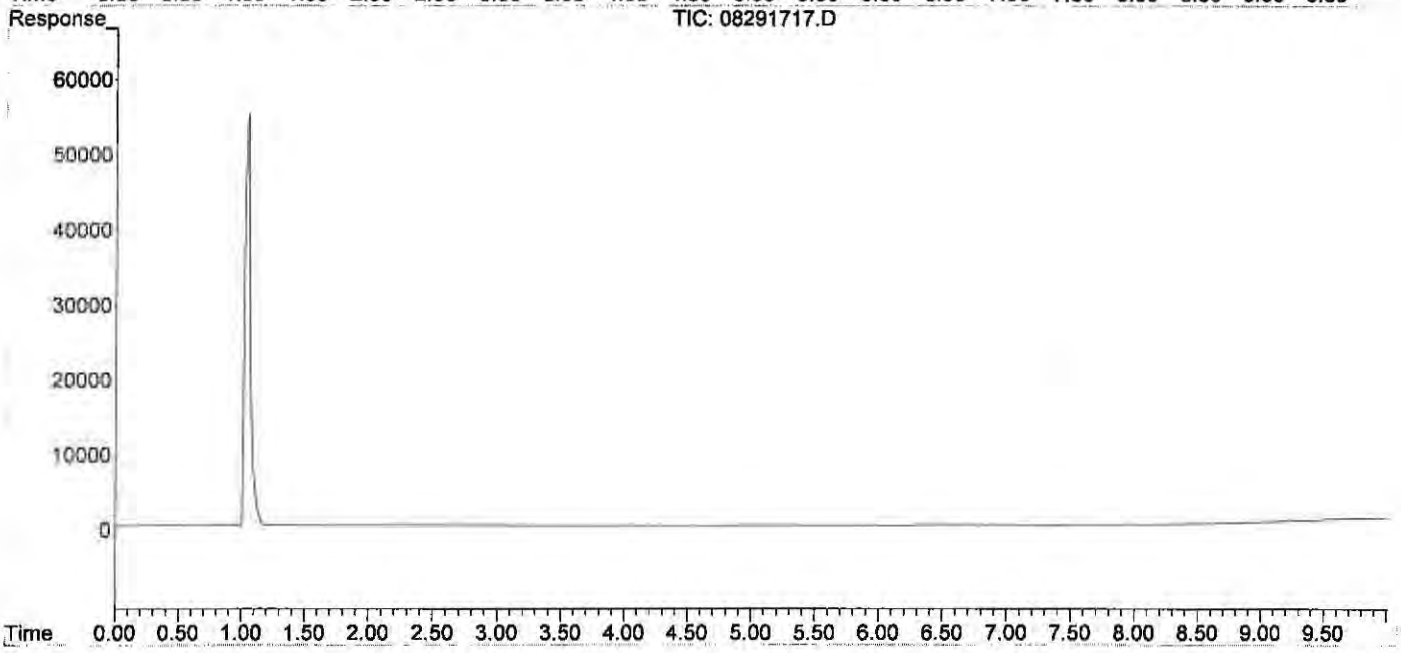
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :



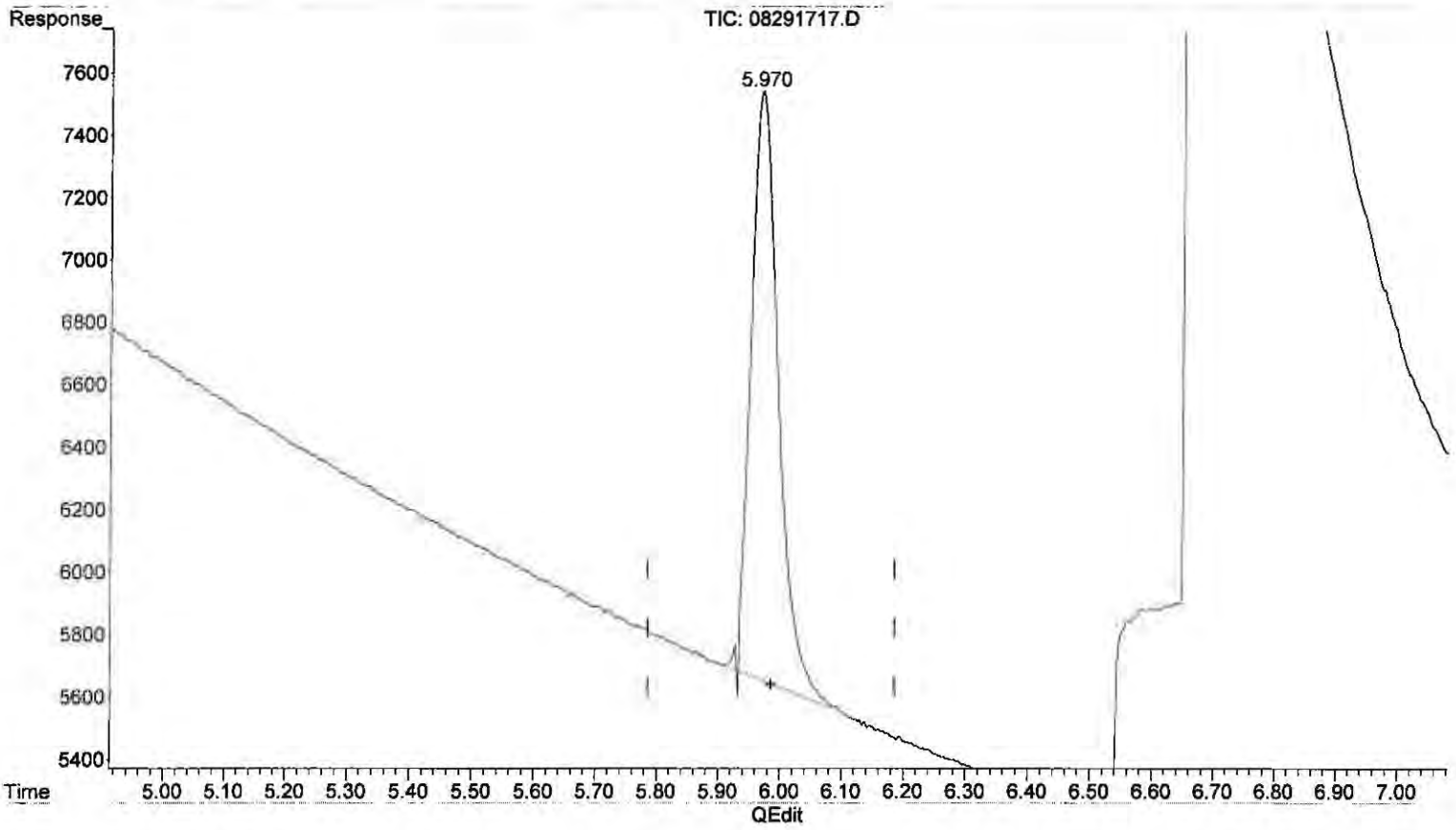


00996780

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

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

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

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

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

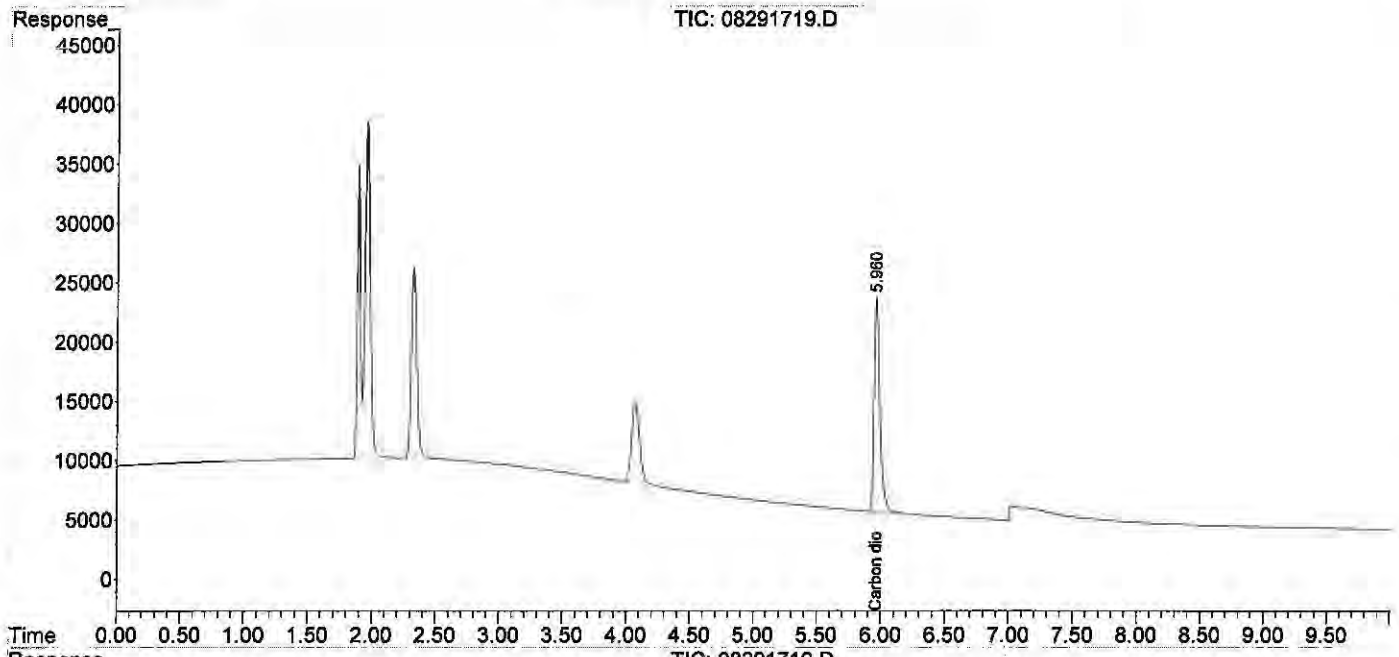
(f)=RT Delta > 1/2 Window (m)=manual int.

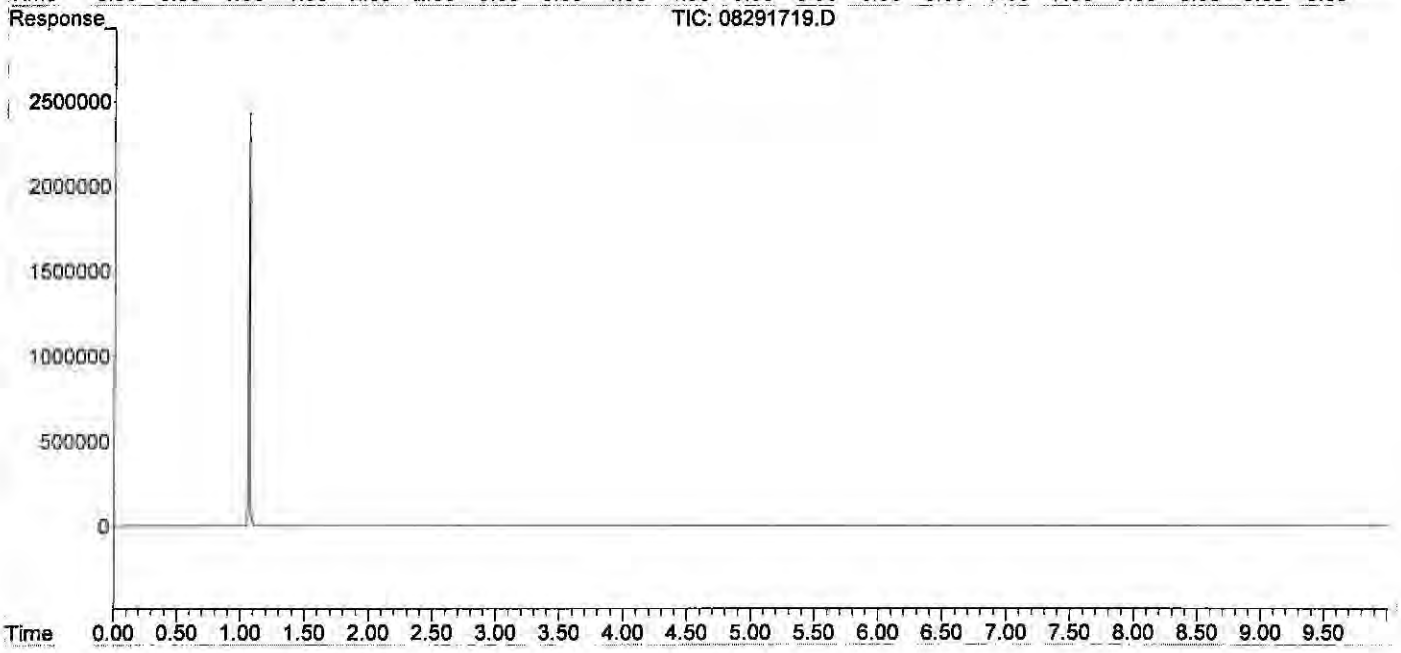
Quantitation Report (QT Reviewed)

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 :





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 :

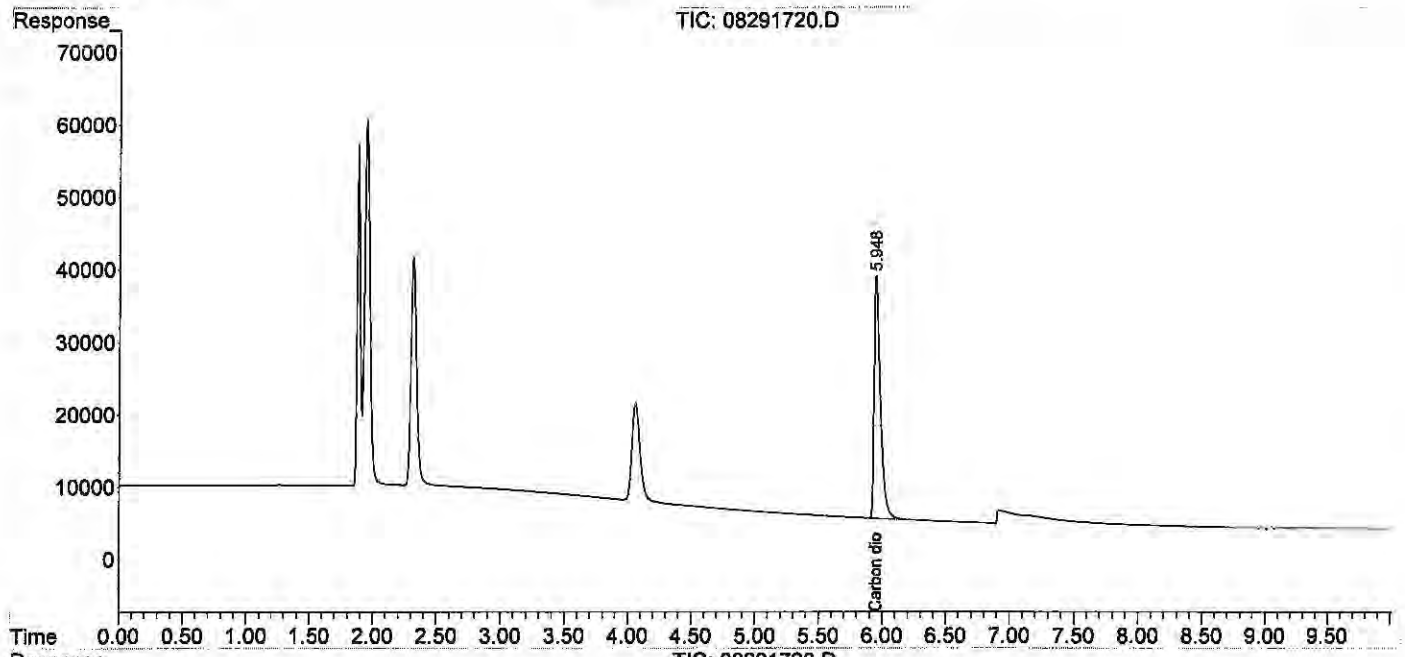
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	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	

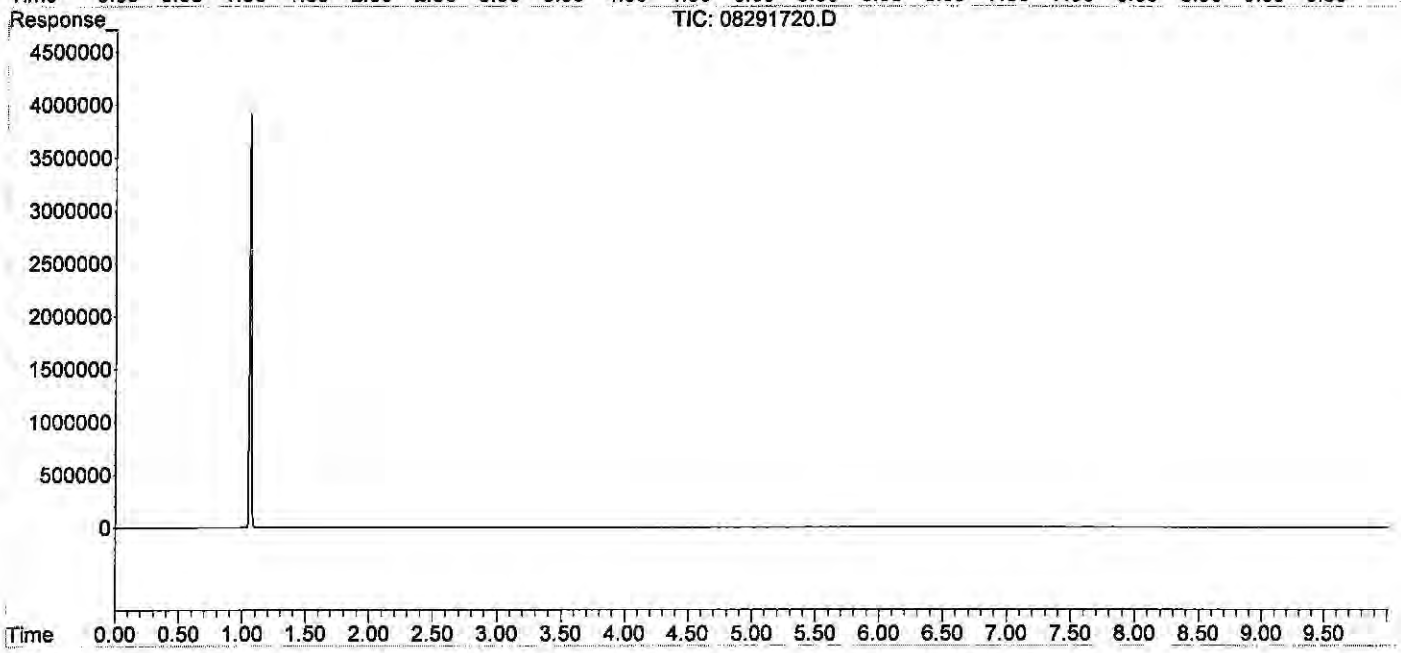
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :

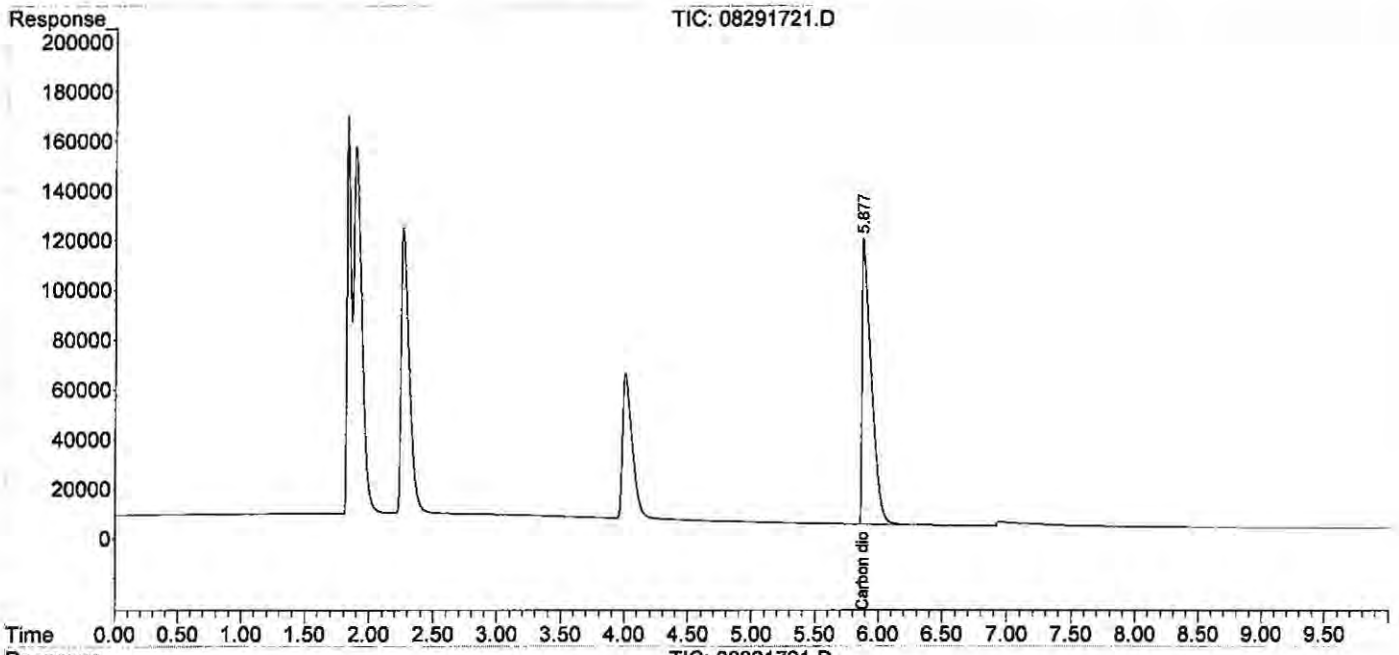
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

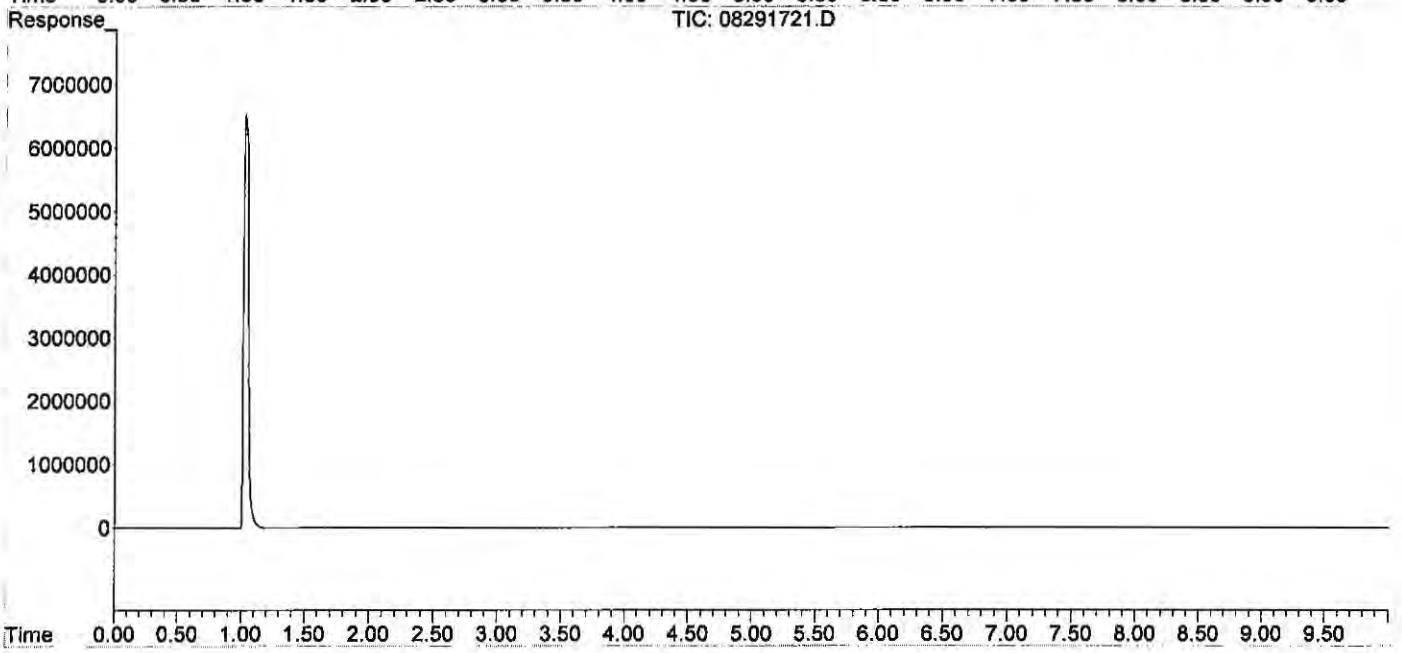
(f)=RT Delta > 1/2 Window (m)=manual int.

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	Actual %D
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	5000 99.16
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	

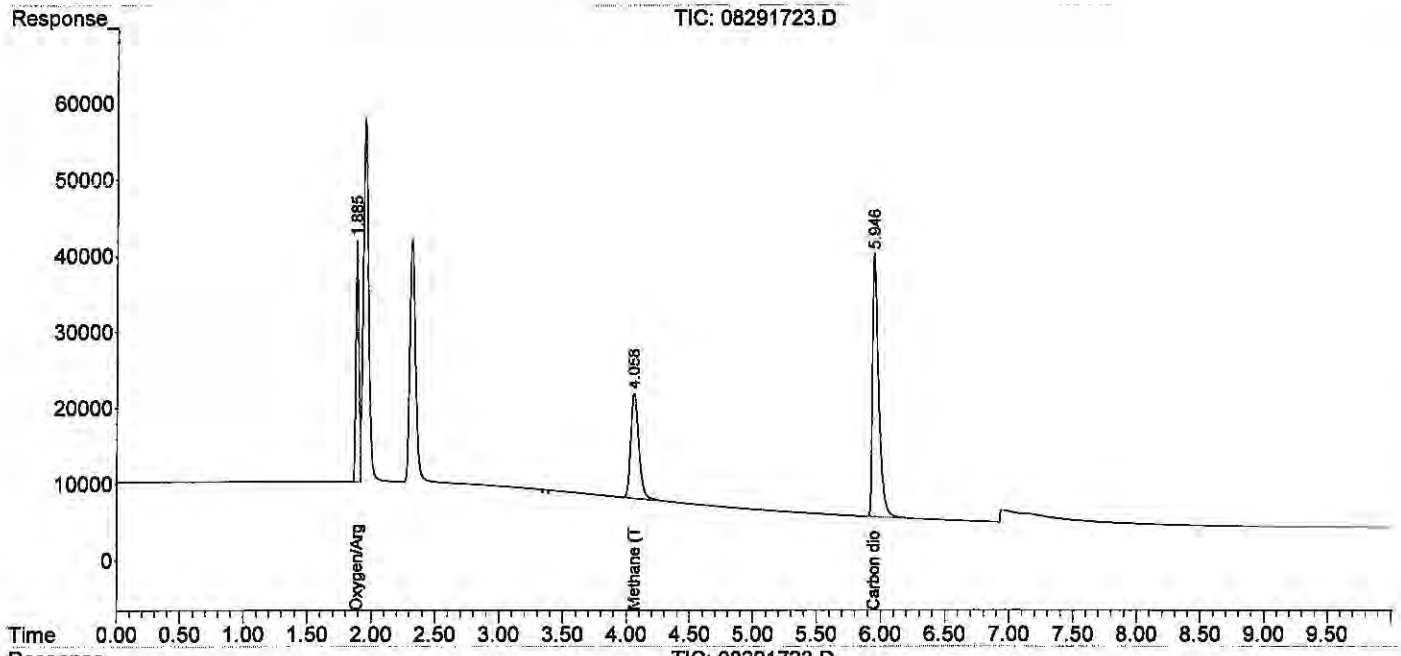
(f)=RT Delta > 1/2 Window (m)=manual int.

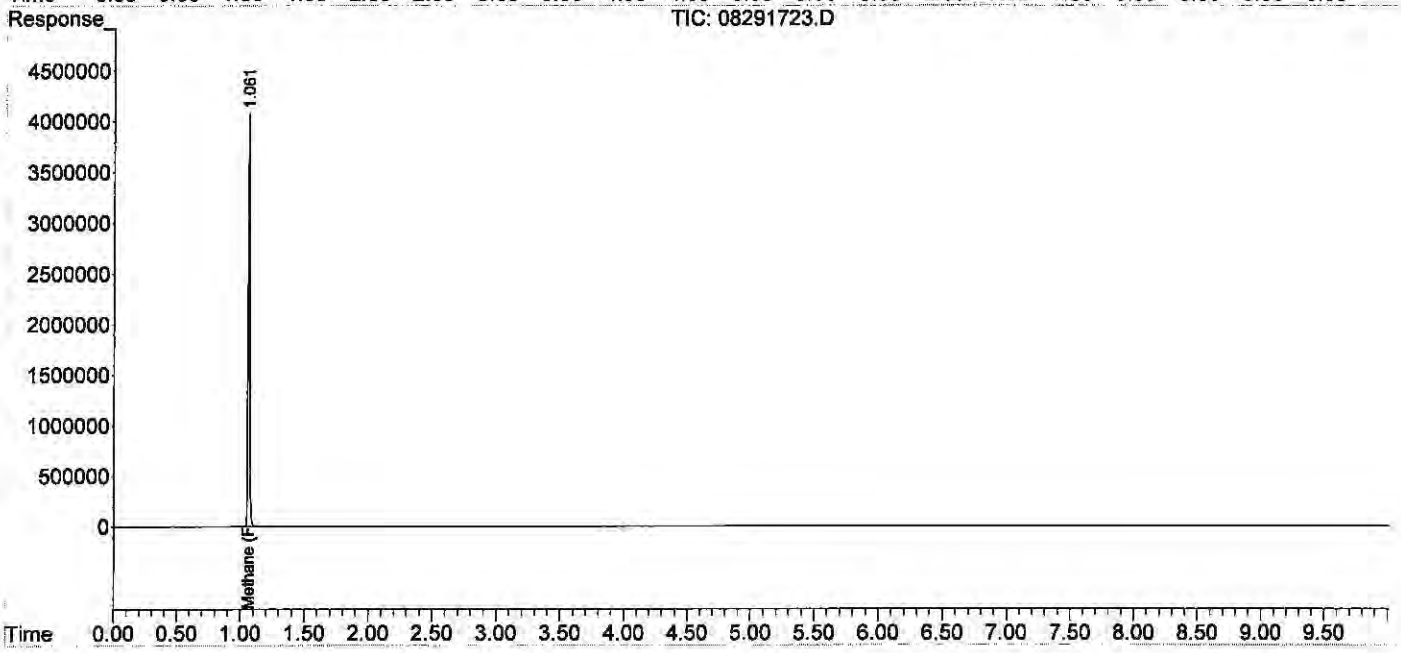
W 9/4/17

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

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

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10
Service Request: P1905493 | Date Analysis : 09/20/19 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-06271901	0.100	4996.526
ACTUAL		5000.00
%Difference		0.1%
MCS 0.1ml	0.100	21.905
RB 0.1ml	0.100	0.000
LCS TCD	0.100	1217.411
LCSD TCD	0.100	1103.192
P1905493-001 50ul	0.050	5160.628
P1905493-002 50ul	0.050	6728.884
P1905493-003 50ul	0.050	7784.652
P1905493-004 50ul	0.050	7274.572
P1905493-005 50ul	0.050	8103.983
P1905493-006 50ul	0.050	13512.72
P1905493-007 50ul	0.050	15827.71
P1905493-002MS 50ul	0.050	8178.342
P1905493-002MSD 50ul	0.050	7505.204
std s32-06271901		5023.543
ACTUAL		5000.00
%Difference		0.5%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
MCS 0.1ml	219.050
LCS TCD	12174.110
LCSD TCD	11031.920
P1905493-001 50ul	103212.56
P1905493-002 50ul	134577.68
P1905493-003 50ul	155693.04
P1905493-004 50ul	145491.44
P1905493-005 50ul	162079.66
P1905493-006 50ul	270254.42
P1905493-007 50ul	316554.10
P1905493-002MS 50ul	163566.84
P1905493-002MSD 50ul	150104.08

00996789

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 12:18:11
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 13:12:40 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

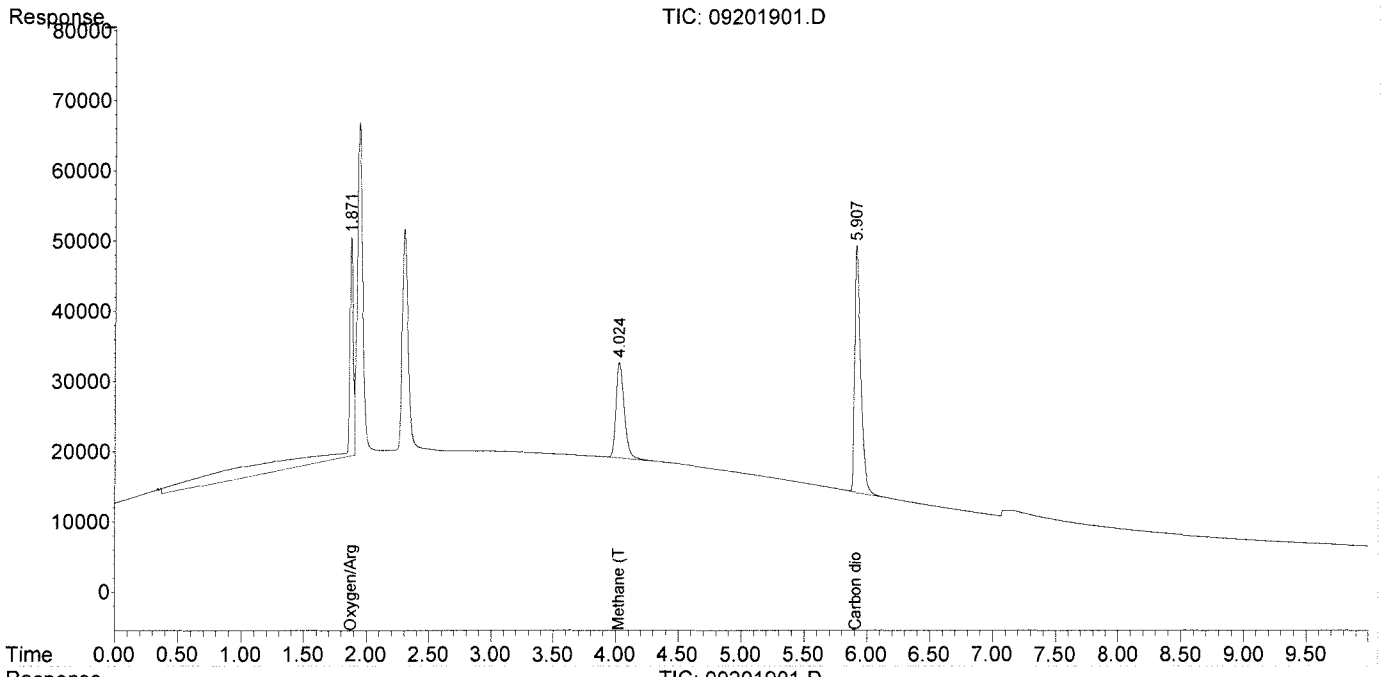
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.872	1577935	0.332	ppm	
2)	Carbon monoxide	1.872	1577935	N.D.	ppm	
3)	Methane (TCD)	4.025f	629333	66544.291	ppm	
4)	Carbon dioxide	5.907f	1172830	4996.526	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
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	

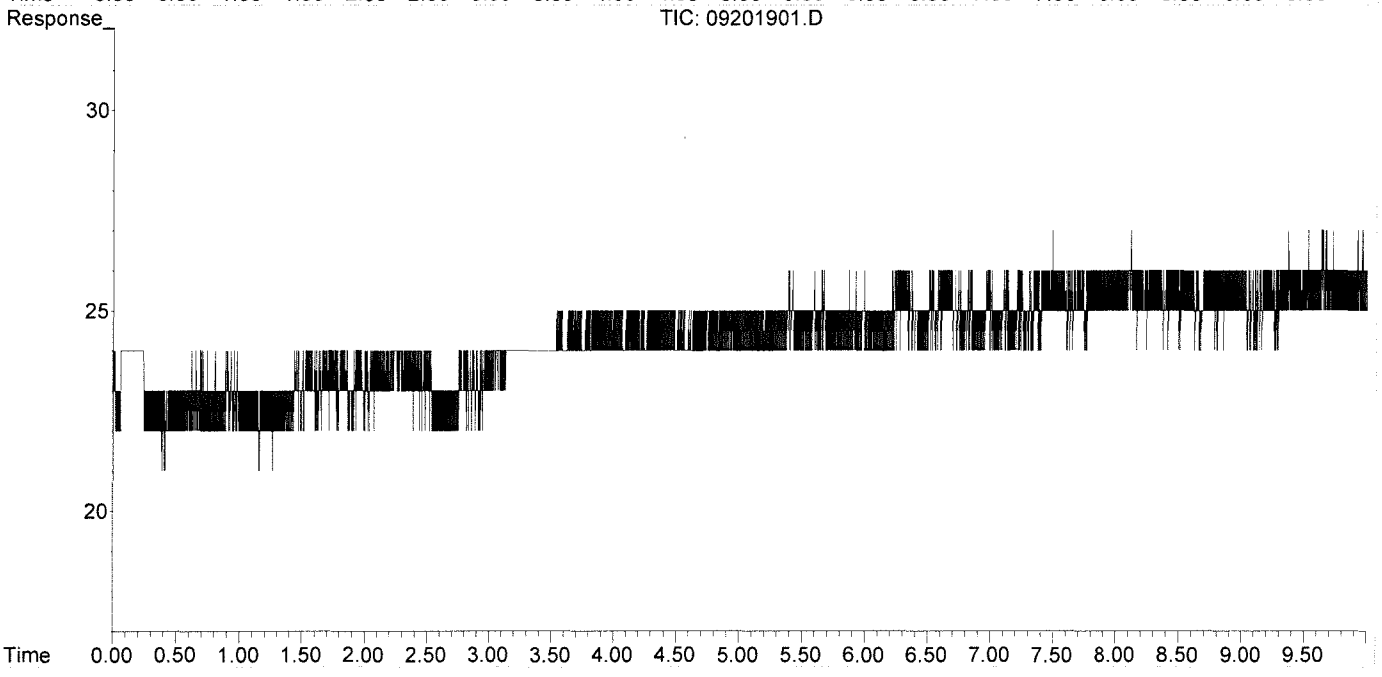
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 12:18:11
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 13:12:40 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

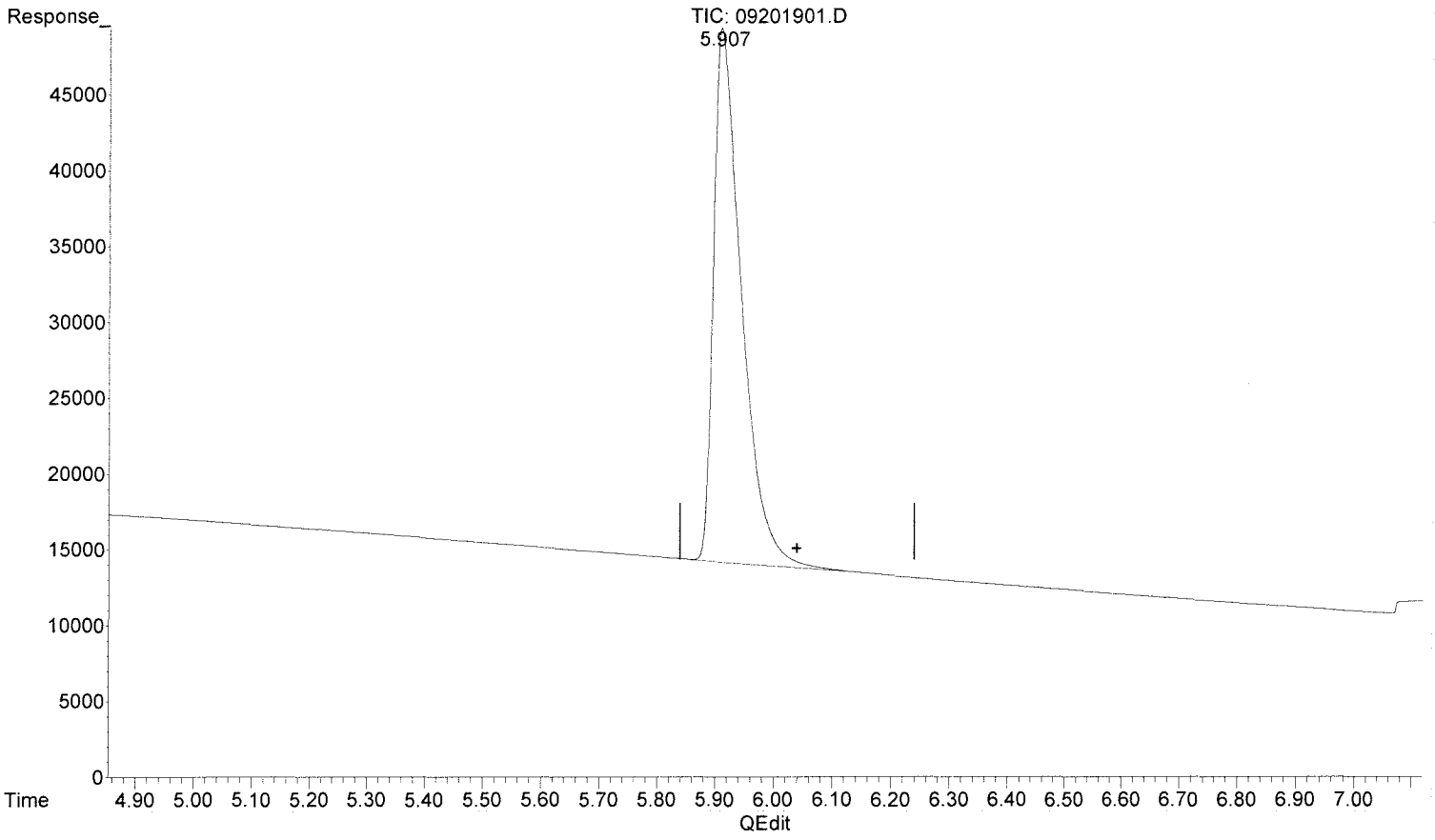




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 12:18:11
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 13:12:40 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.907min 4996.526 ppm m

response 1172830

MK 9/25/19

9/25/19 BLC w/ permission

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:43:12
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:57:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

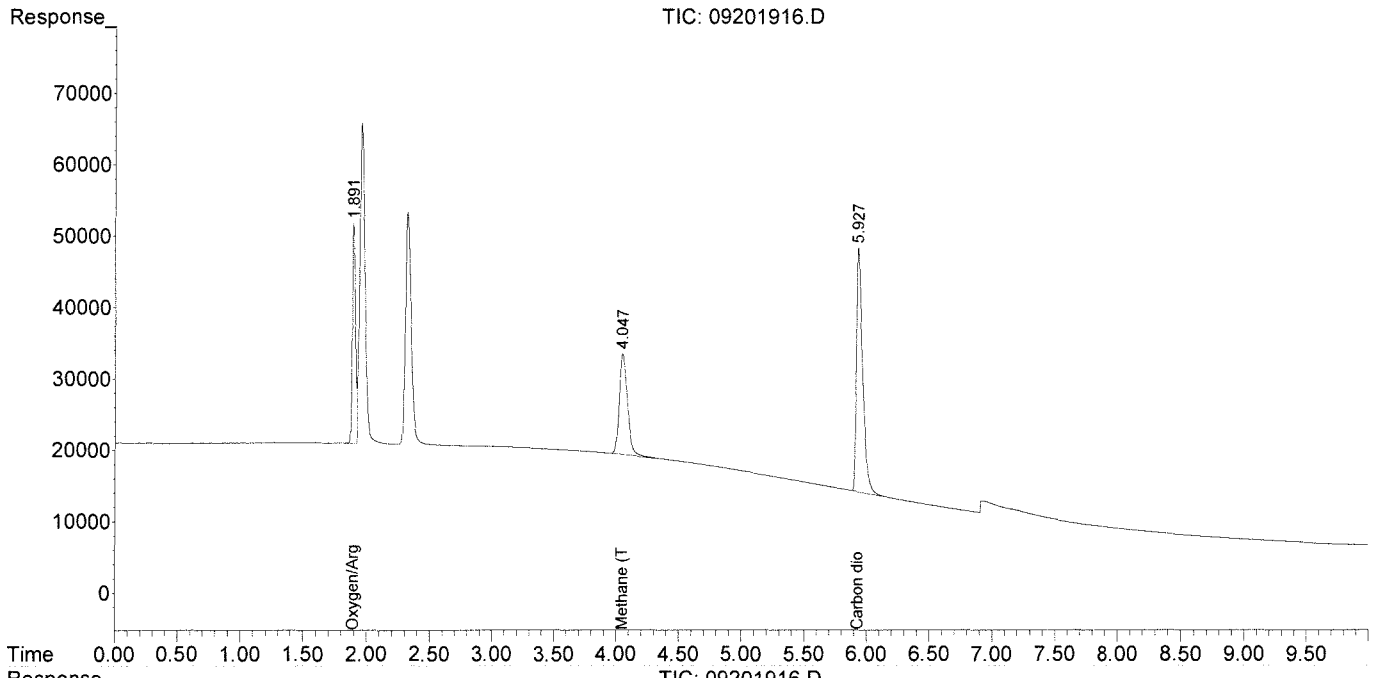
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.891	535387	0.112	ppm	
2)	Carbon monoxide	1.891	535387	N.D.	ppm	
3)	Methane (TCD)	4.048f	648884	68611.621	ppm	
4)	Carbon dioxide	5.927f	1179172	5023.543	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	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	

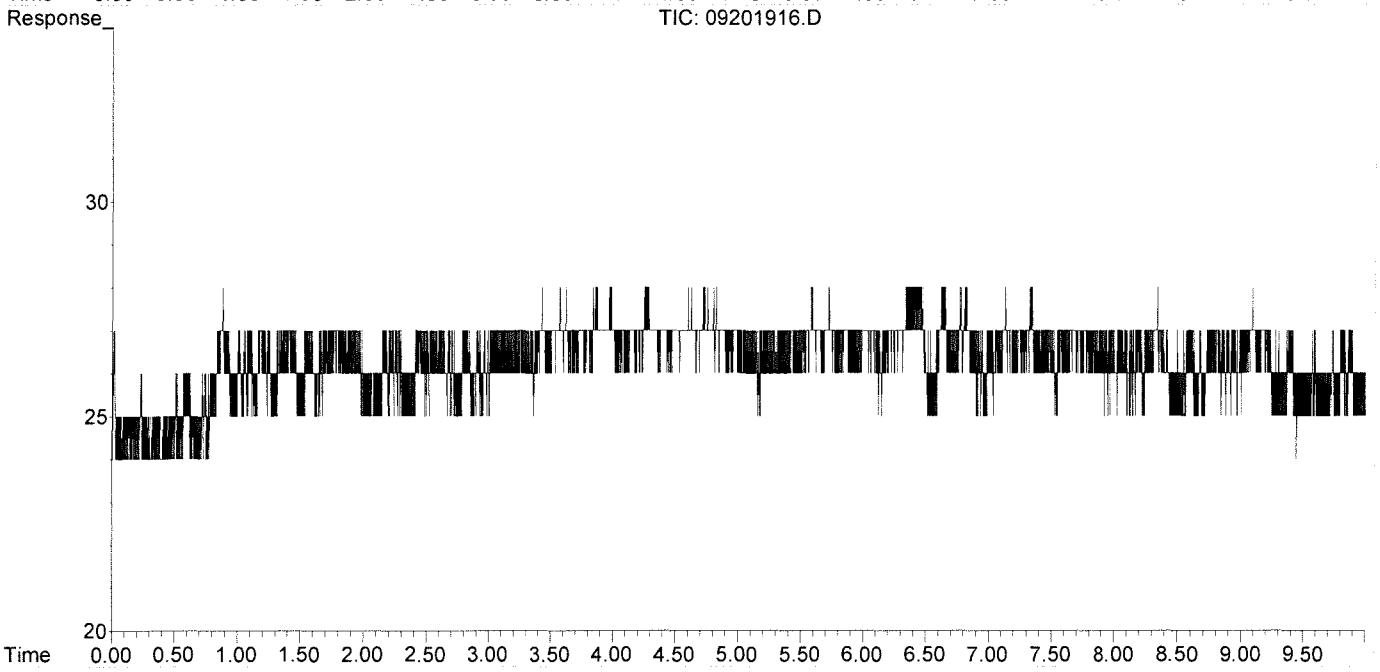
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:43:12
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:57:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

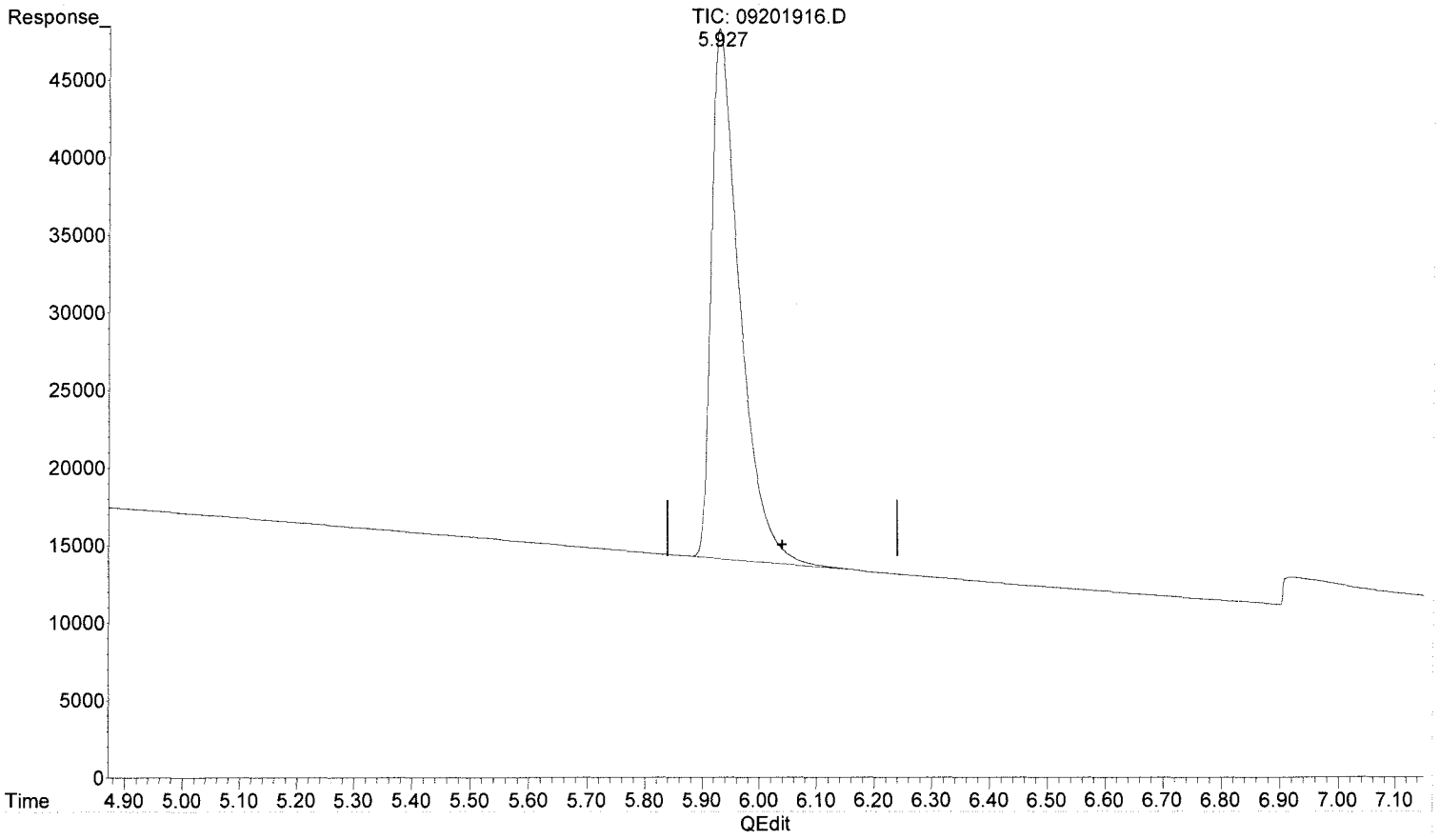




Data Path : J:\GC10\DATA\RSK_TCD\2019_09\20\
Data File : 09201916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 20-Sep-2019, 16:43:12
Operator : WH
Sample : std s32-06271901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 20 16:57:36 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

5.927min 5023.543 ppm m

response 1179172

MR 9/25/19

Lmm 9/25/19 BLL no problem

(+) = Expected Retention Time

Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_09\20\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	20-Sep-19, 12:18:11	09201901.D	std s32-06271901		WH	RSKBOTH.M	
2	20-Sep-19, 12:41:55	09201902.D	RB 0.1ml		WH	RSKBOTH.M	
3	20-Sep-19, 13:13:38	09201903.D	MCS 0.1ml		WH	RSKBOTH.M	
4	20-Sep-19, 13:25:47	09201904.D	xLCS TCD		WH	RSKBOTH.M	
5	20-Sep-19, 14:04:41	09201905.D	LCS TCD		WH	RSKBOTH.M	
6	20-Sep-19, 14:22:48	09201906.D	LCSD TCD		WH	RSKBOTH.M	
7	20-Sep-19, 14:35:21	09201907.D	P1905493-001 50ul		WH	RSKBOTH.M	
8	20-Sep-19, 14:48:38	09201908.D	P1905493-003 50ul		WH	RSKBOTH.M	
9	20-Sep-19, 15:00:21	09201909.D	P1905493-004 50ul		WH	RSKBOTH.M	
10	20-Sep-19, 15:12:45	09201910.D	P1905493-005 50ul		WH	RSKBOTH.M	
11	20-Sep-19, 15:25:11	09201911.D	P1905493-006 50ul		WH	RSKBOTH.M	
12	20-Sep-19, 15:44:22	09201912.D	P1905493-007 50ul		WH	RSKBOTH.M	
13	20-Sep-19, 15:57:00	09201913.D	P1905493-002 50ul		WH	RSKBOTH.M	
14	20-Sep-19, 16:09:38	09201914.D	P1905493-002MS 50ul		WH	RSKBOTH.M	
15	20-Sep-19, 16:22:12	09201915.D	P1905493-002MSD 50ul		WH	RSKBOTH.M	
16	20-Sep-19, 16:43:12	09201916.D	std s32-06271901		WH	RSKBOTH.M	
17	20-Sep-19, 16:59:05	09201917.D	007 50UL		WH	RSKBOTH.M	
18	20-Sep-19, 17:10:43	09201918.D	006 50UL		WH	RSKBOTH.M	
19	20-Sep-19, 17:29:14	09201919.D	std s32-06271901		WH	RSKBOTH.M	

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 11:40:59
Operator : WH
Sample : P1905493-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:49:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

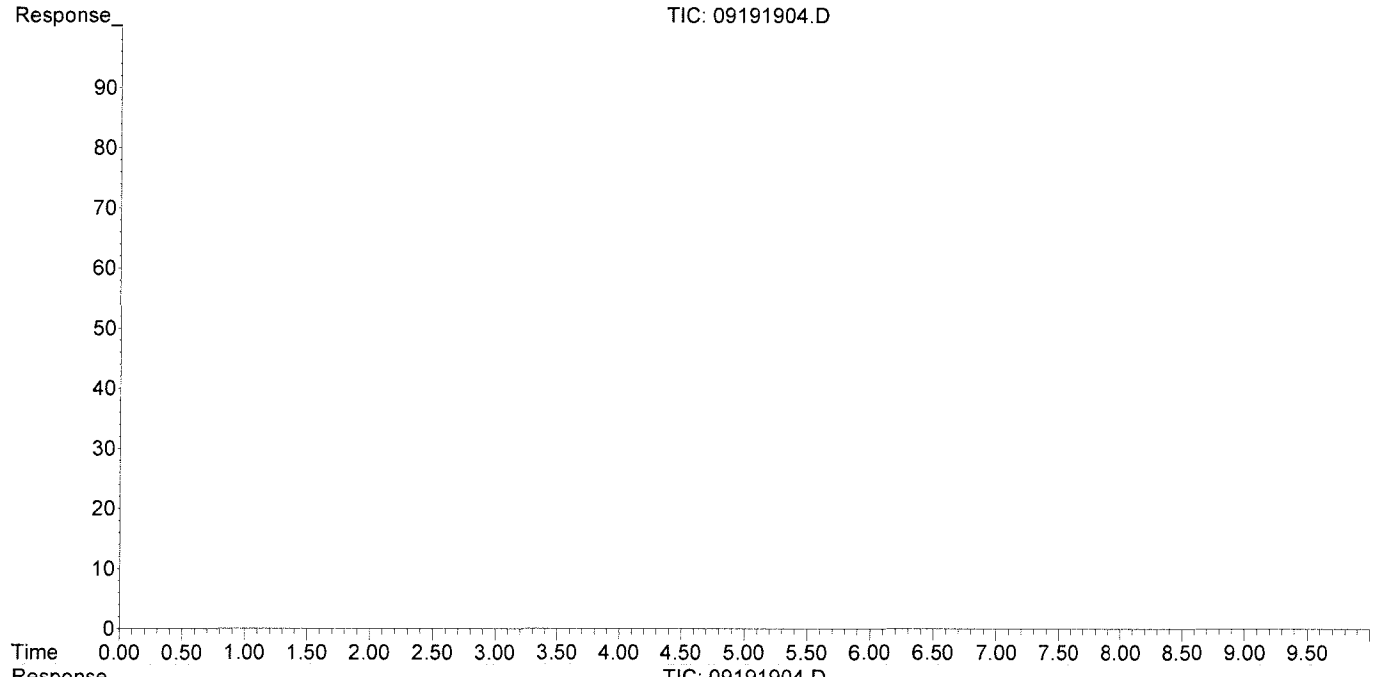
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	14375	1.585	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

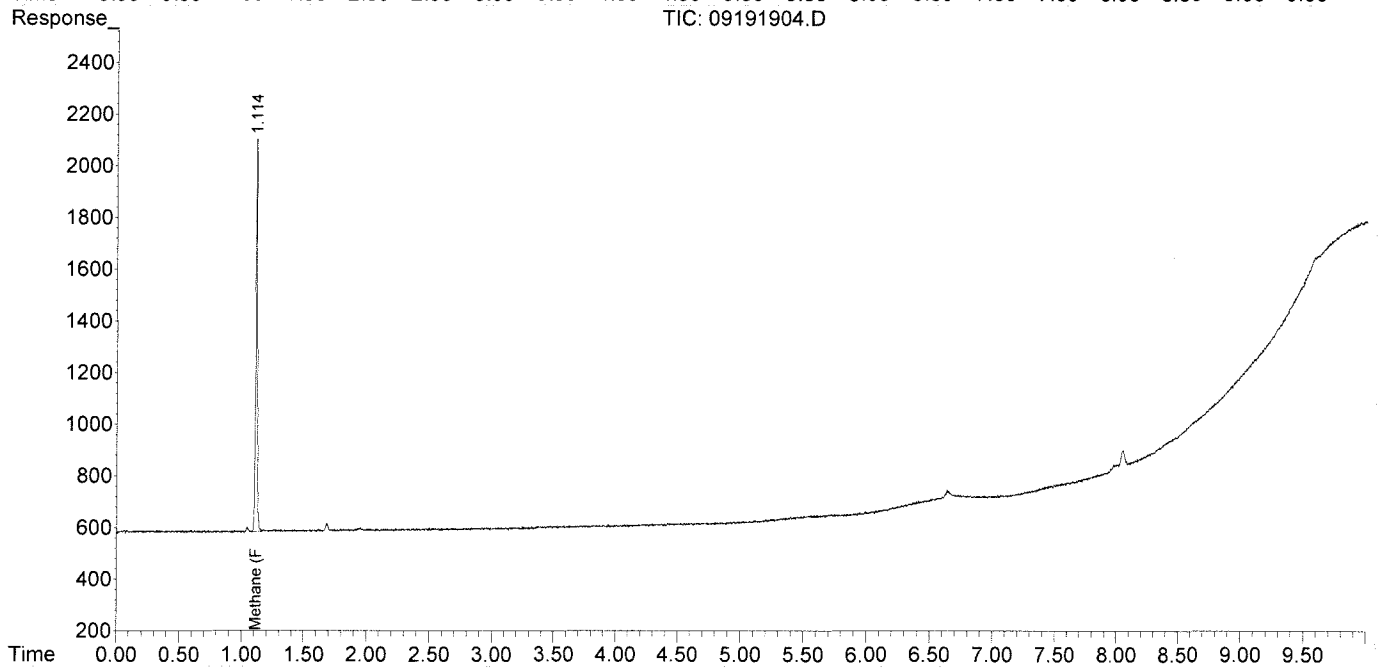
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 11:40:59
Operator : WH
Sample : P1905493-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:49:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 13:26:25
Operator : WH
Sample : P1905493-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:02:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

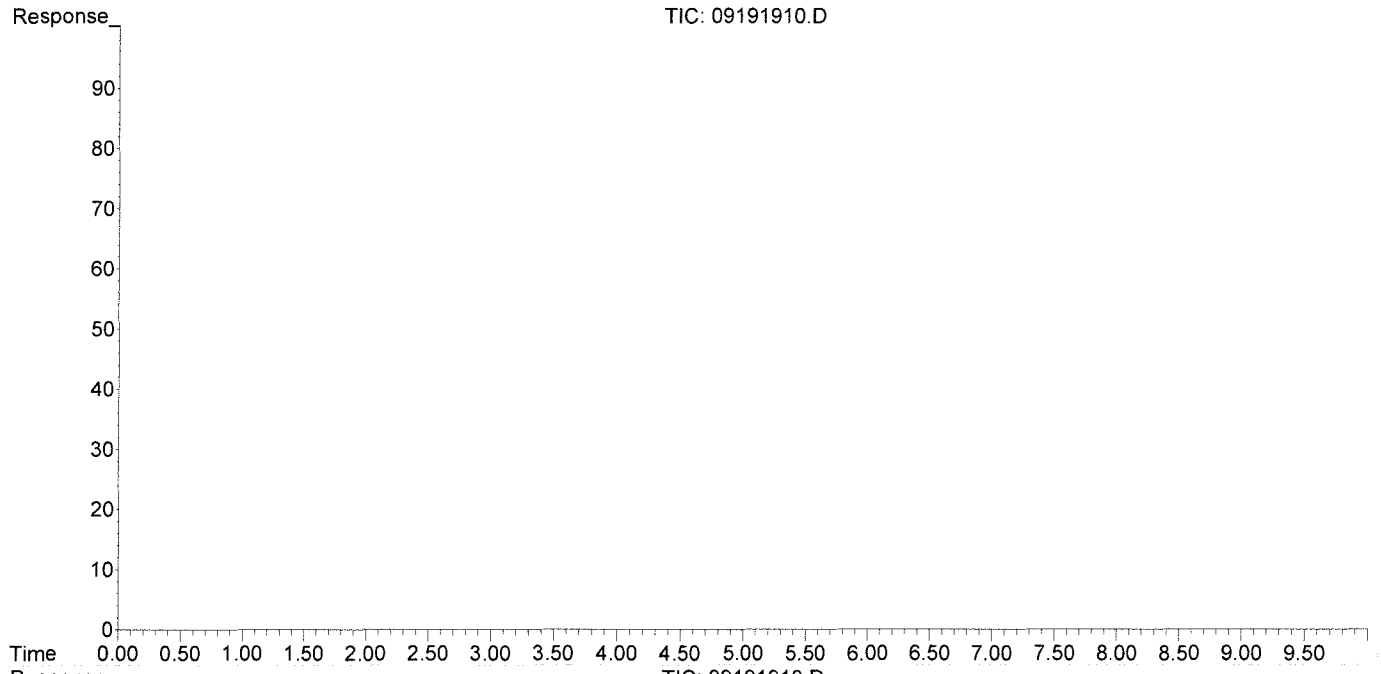
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.115	3039347	335.075	ppm	
7)	Ethylene	1.678	22096	1.320	ppm	
8)	Ethane	1.943	1104	0.065	ppm	m
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	6.204	4861	745.704	ppm	
12)	Isobutane	6.630f	36954	1.388	ppm	
13)	n-Butane	6.630f	36954	1.388	ppm	

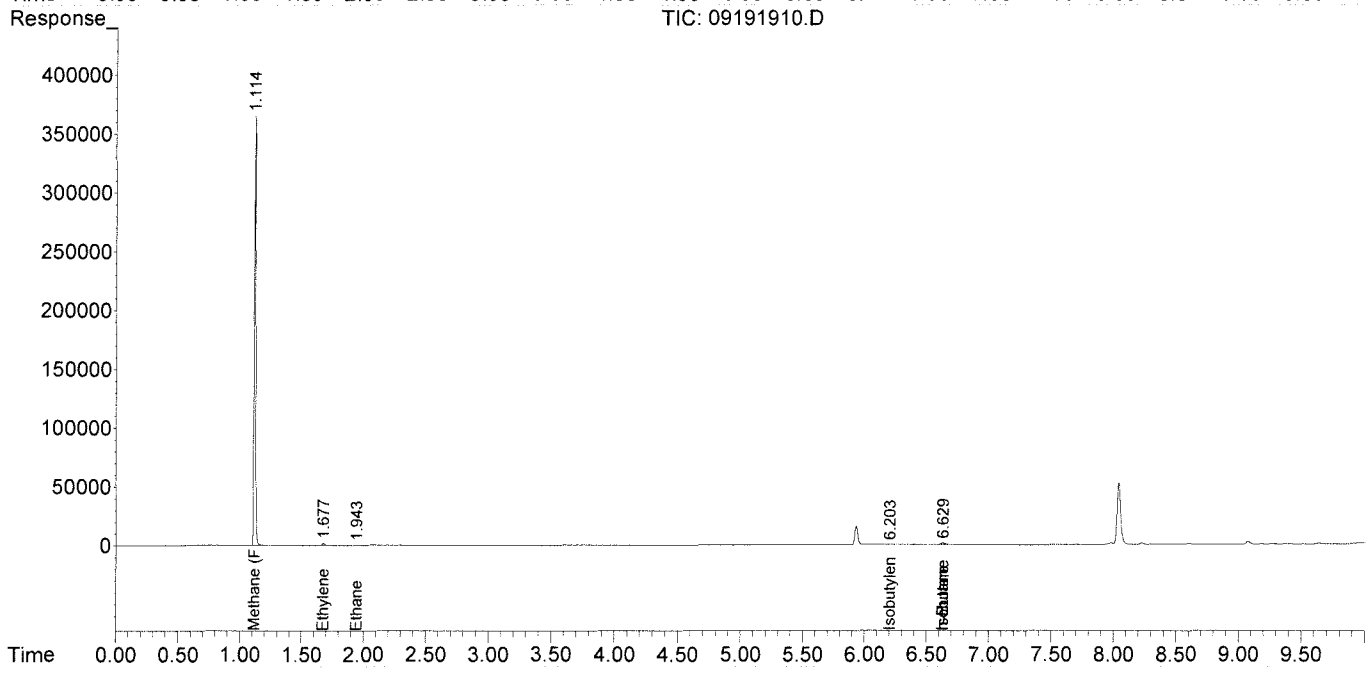
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 13:26:25
Operator : WH
Sample : P1905493-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:02:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

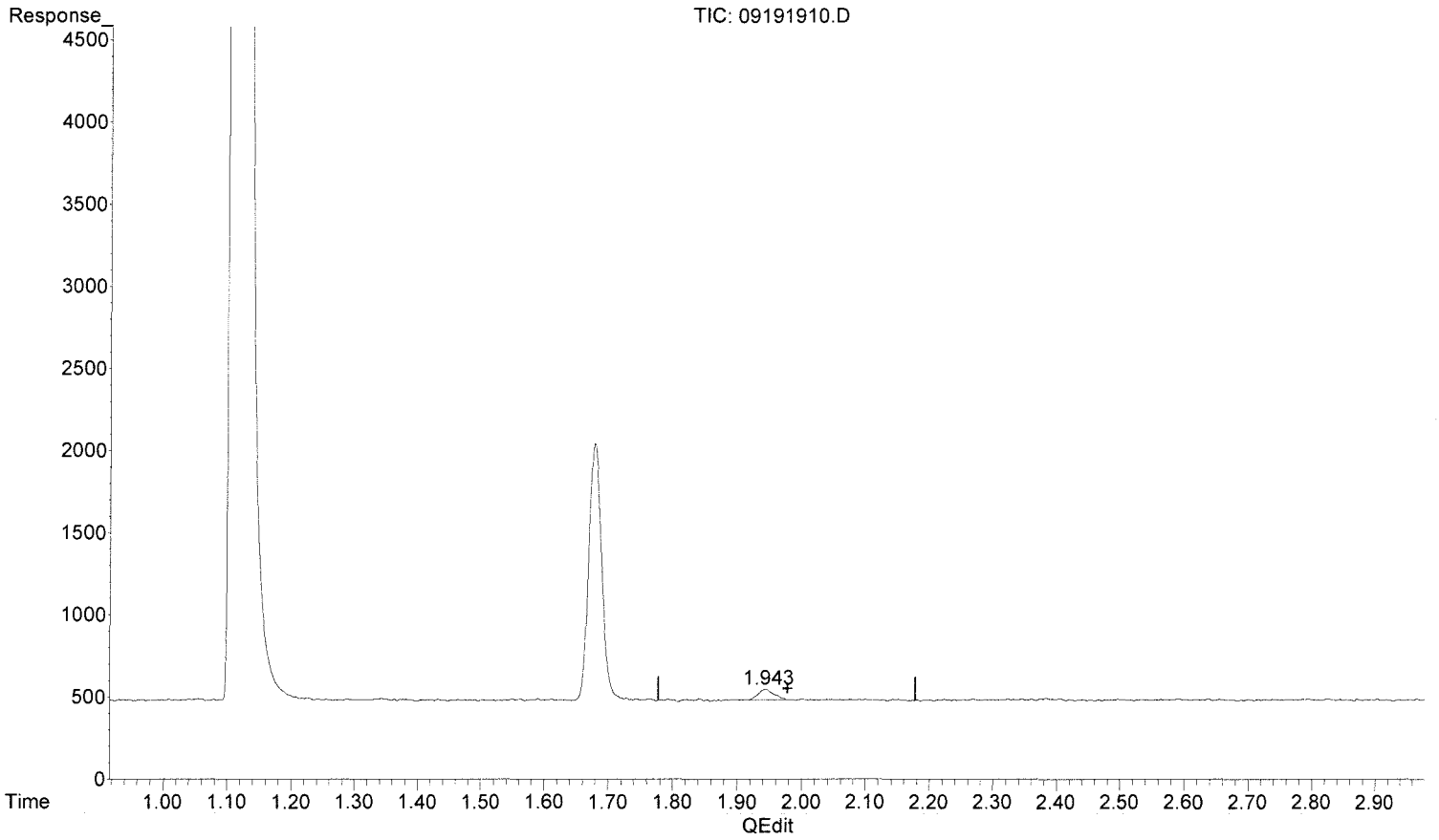




Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 13:26:25
Operator : WH
Sample : P1905493-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:02:39 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(8) Ethane

1.943min 0.065 ppm m

response 1104

MK 9/25/19 lw 9/25/19 ml no prior ID

(+) = Expected Retention Time
RS091217_R.M Wed Sep 25 11:20:11 2019

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:02:04
Operator : WH
Sample : P1905493-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:11 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

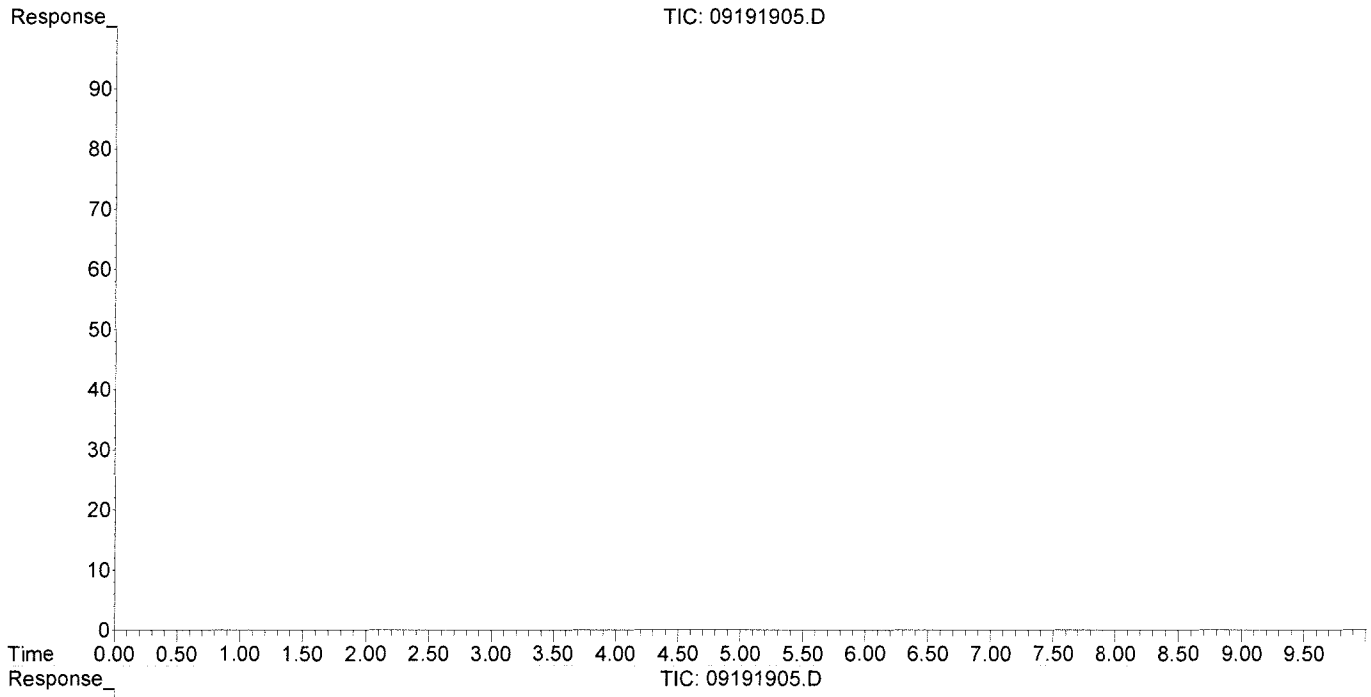
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.118	1128270	124.387	ppm	
7)	Ethylene	1.684	22851	1.366	ppm	
8)	Ethane	1.948	880	0.052	ppm	m
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	6.217	3965	608.257	ppm	
12)	Isobutane	6.635f	41138	1.546	ppm	
13)	n-Butane	6.635f	41138	1.546	ppm	

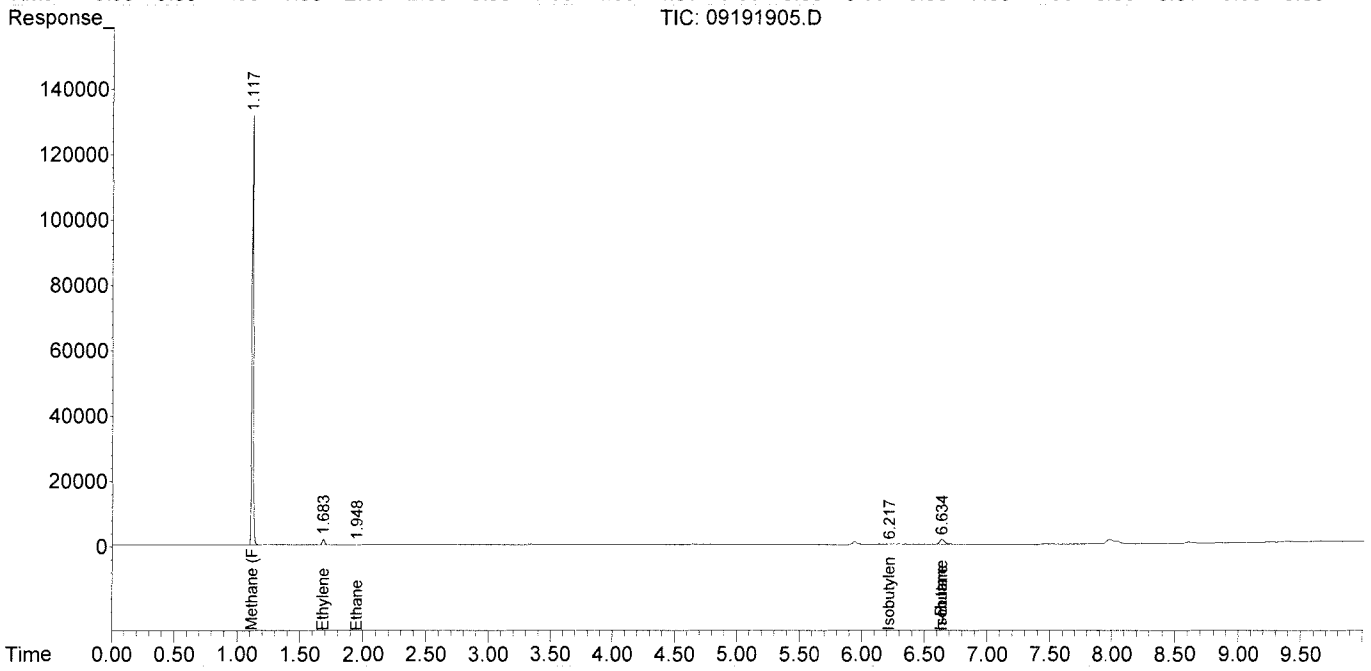
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:02:04
Operator : WH
Sample : P1905493-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:11 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

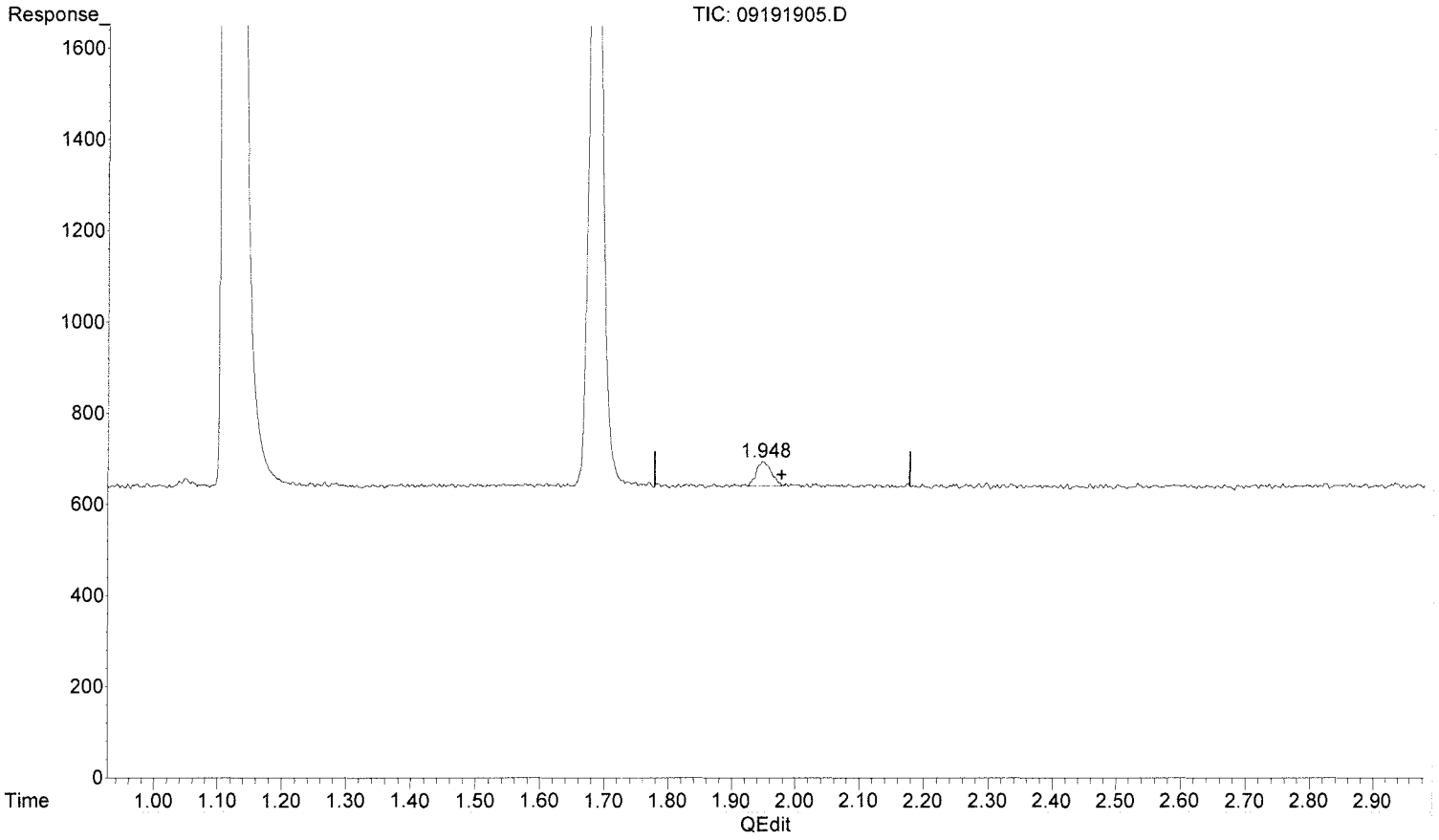




Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:02:04
Operator : WH
Sample : P1905493-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:11 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(8) Ethane

1.948min 0.052 ppm m

response 880

NR 9/25/19

WW 9/25/19 MP no previous

(+) = Expected Retention Time
RS091217_R.M Wed Sep 25 11:18:44 2019

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:14:41
Operator : WH
Sample : P1905493-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:15 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

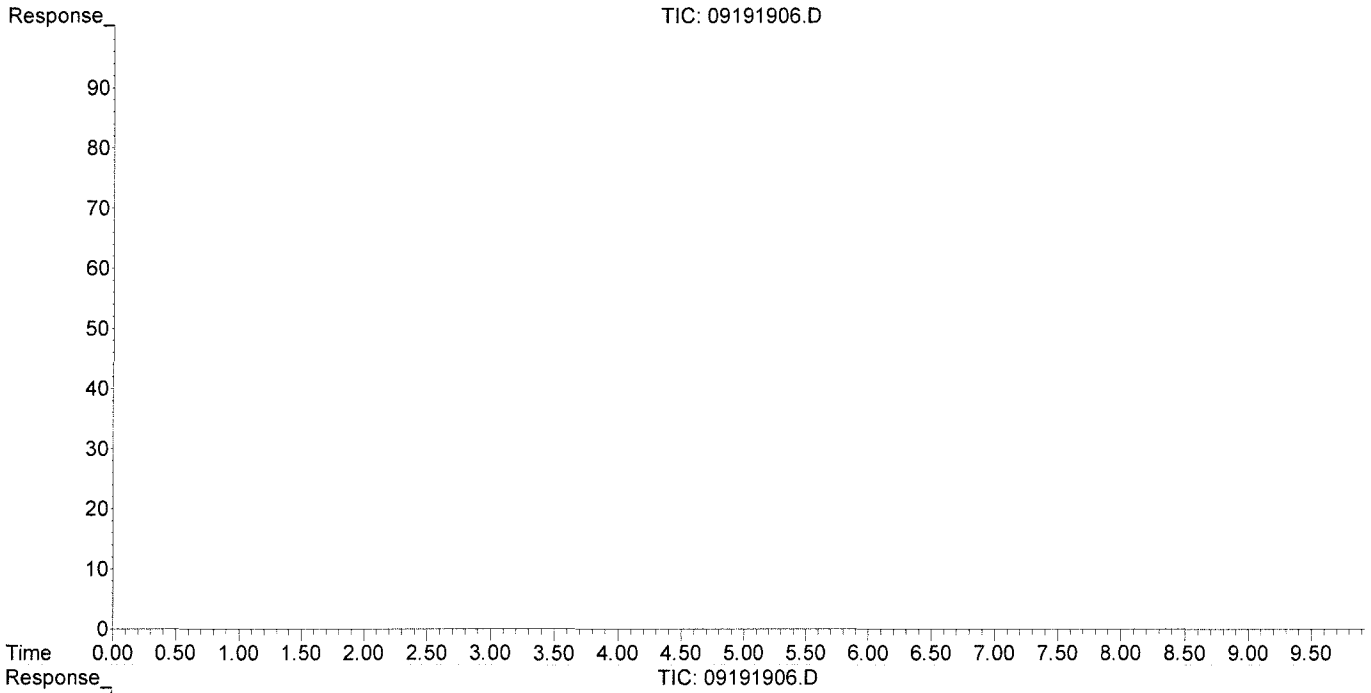
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	13628144	1502.445	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

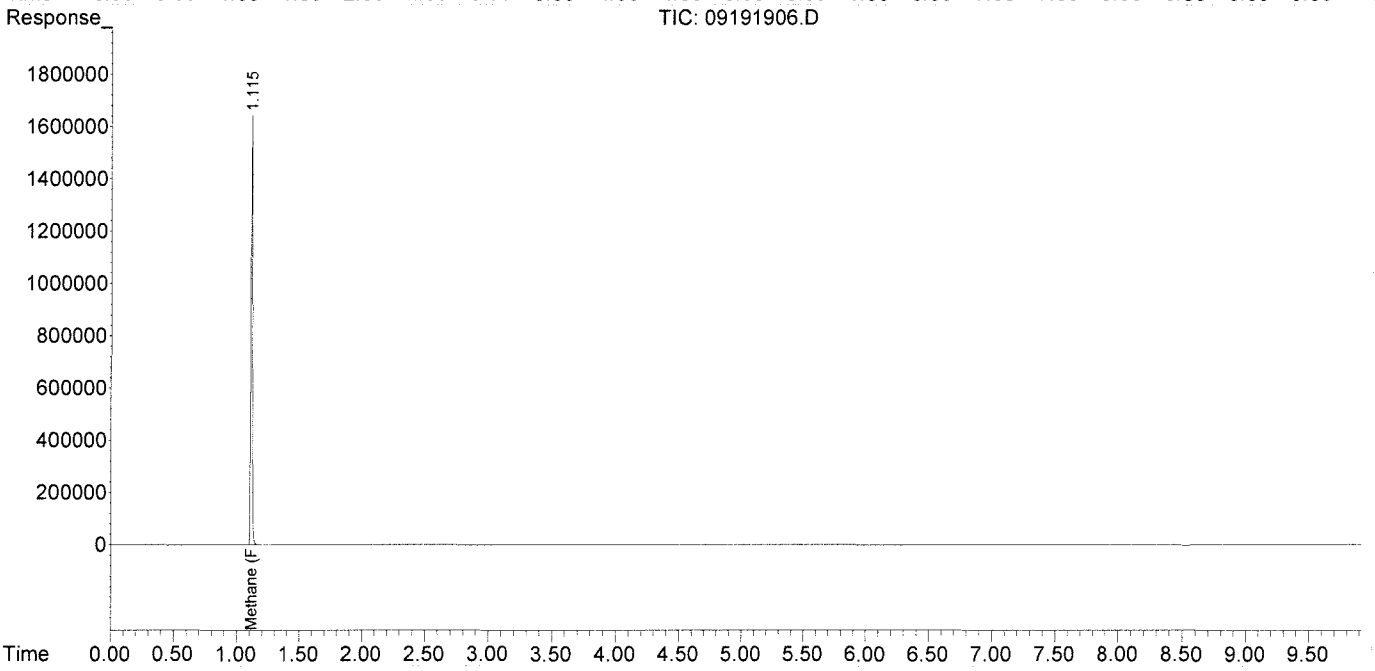
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:14:41
Operator : WH
Sample : P1905493-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:15 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:27:19
Operator : WH
Sample : P1905493-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:19 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

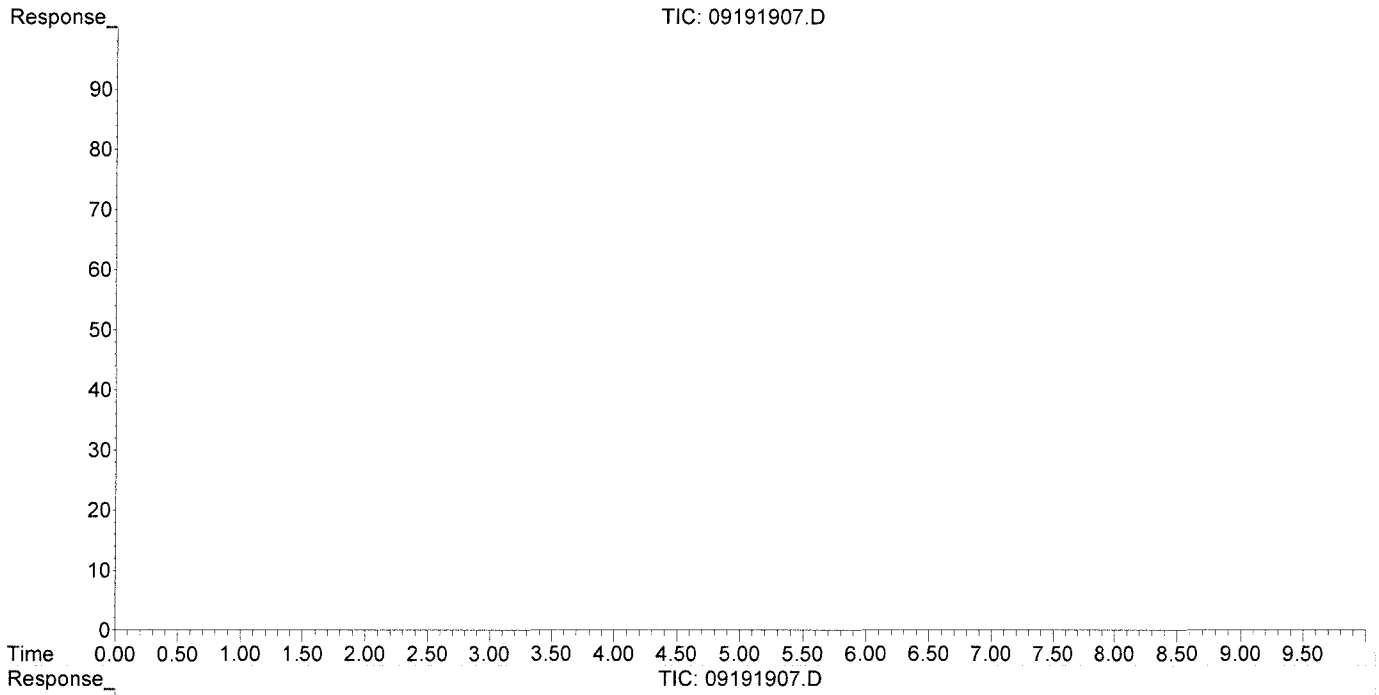
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	15809864	1742.971	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

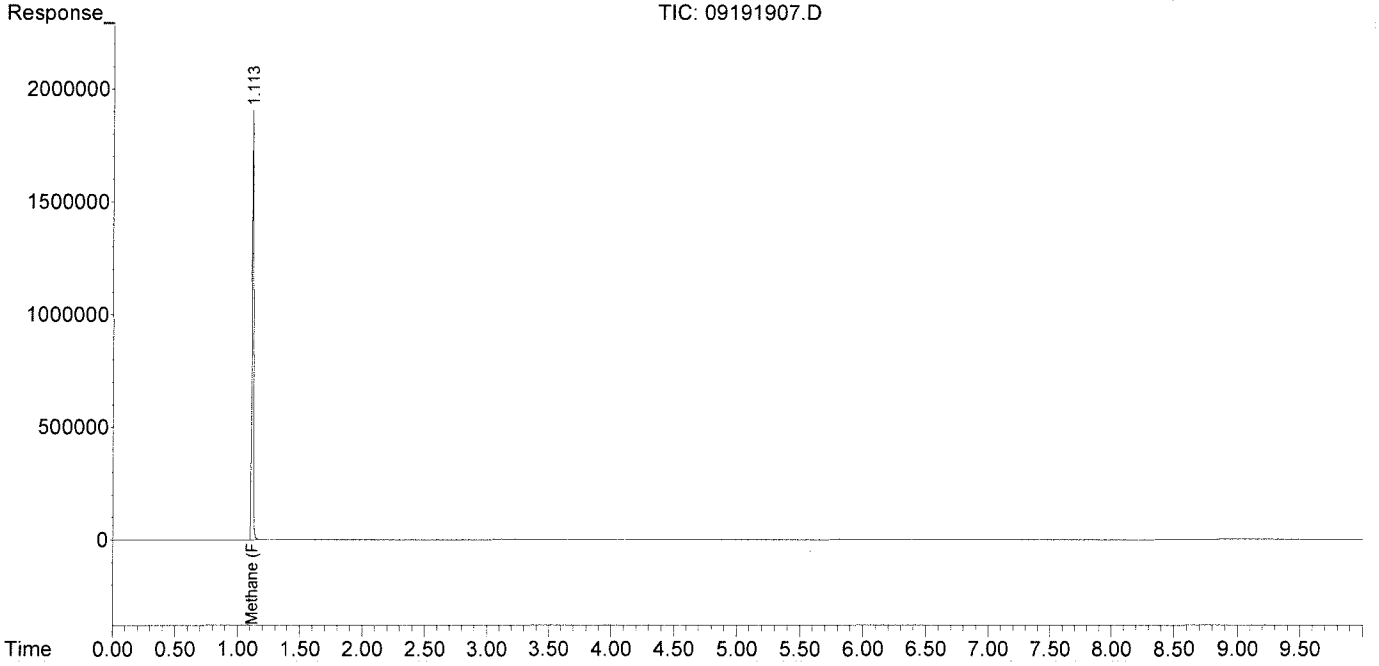
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:27:19
Operator : WH
Sample : P1905493-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:19 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:40:48
Operator : WH
Sample : P1905493-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

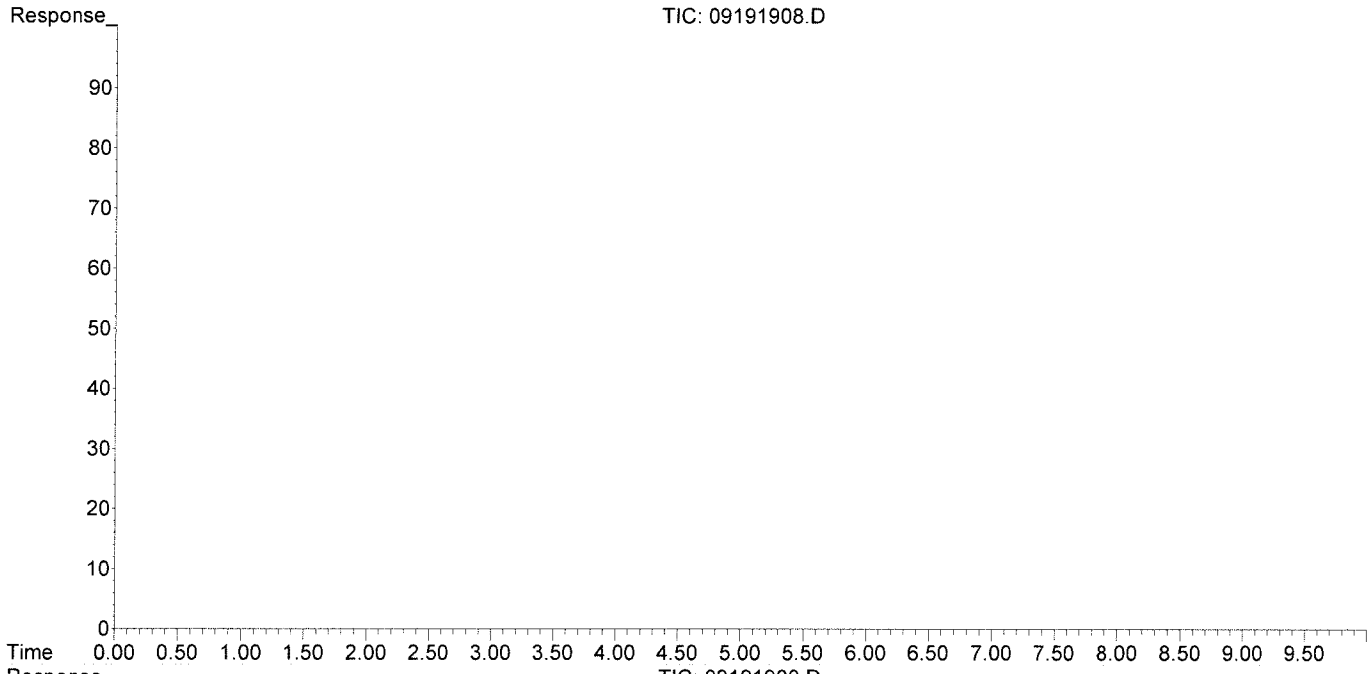
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.117	12775109	1408.402	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

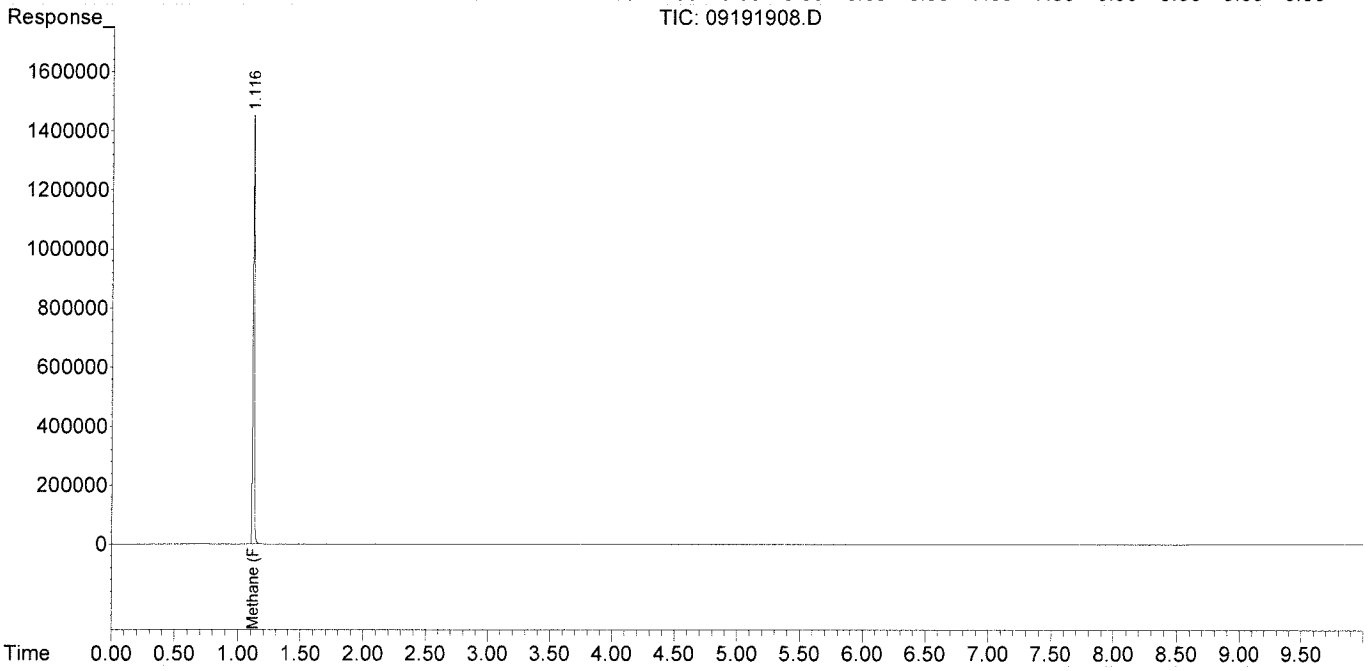
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:40:48
Operator : WH
Sample : P1905493-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:23 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:53:45
Operator : WH
Sample : P1905493-007 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

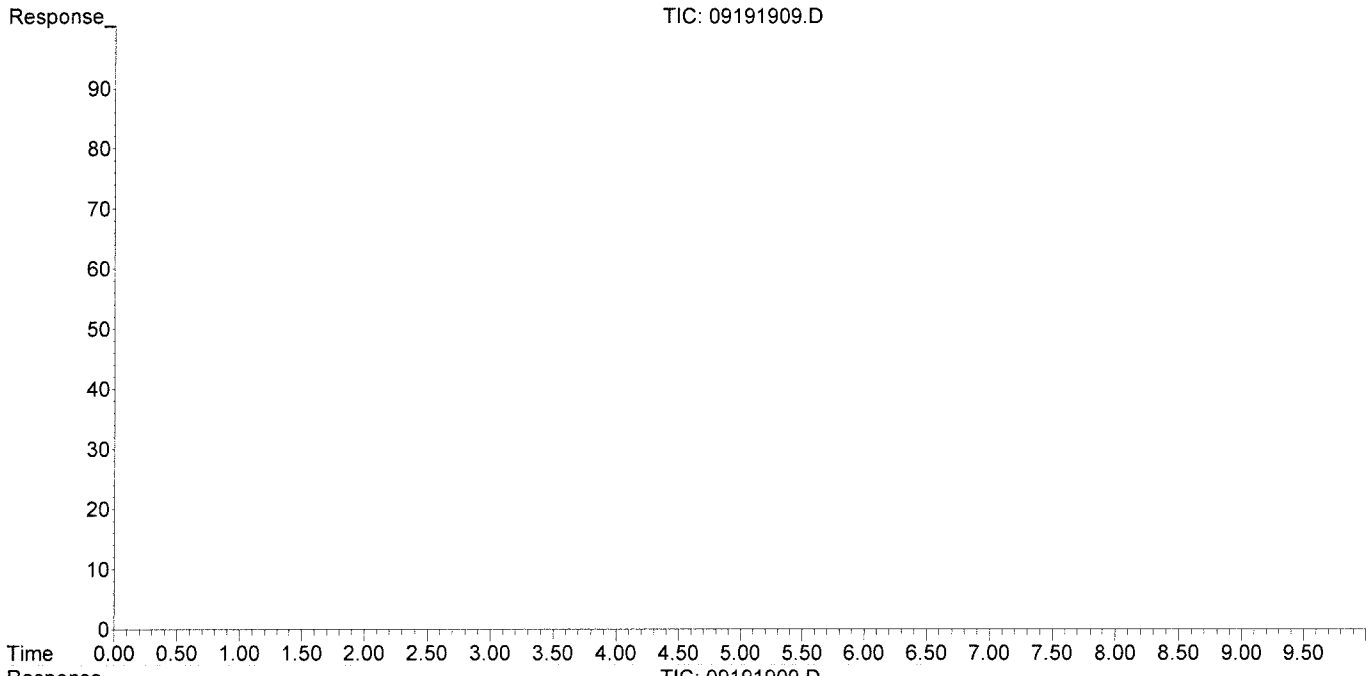
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	6291116	693.569	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

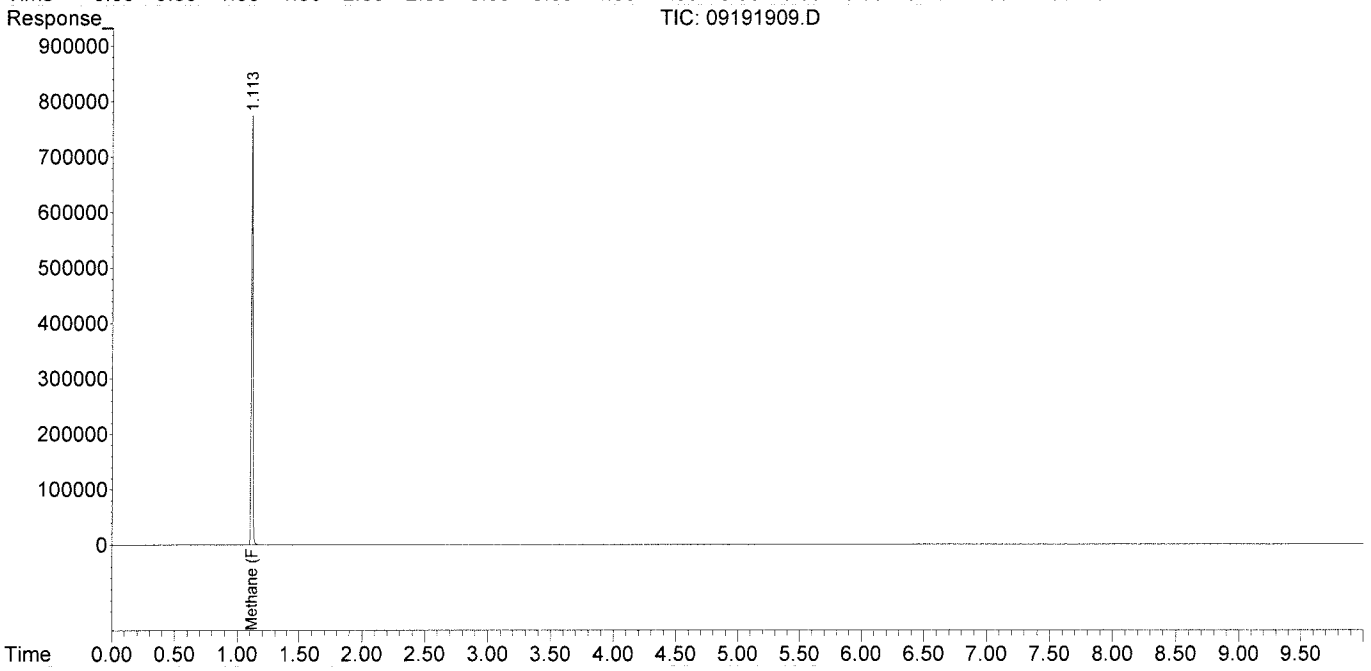
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 12:53:45
Operator : WH
Sample : P1905493-007 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 22 12:50:28 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 13:50:38
Operator : WH
Sample : P1905493-002MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:02:49 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

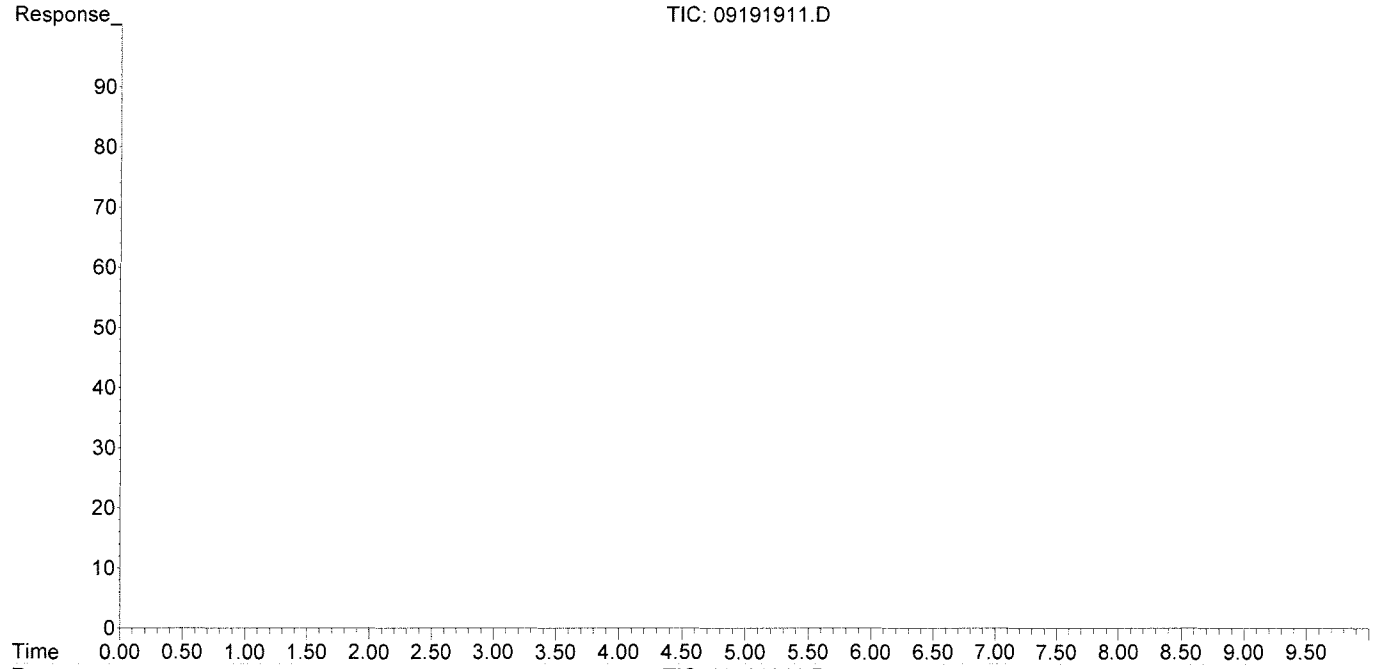
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.116	3237386	356.908	ppm
7)	Ethylene	1.679	962631	57.524	ppm
8)	Ethane	1.942	1089279	64.264	ppm
9)	Propylene	4.302	1354857	57.822	ppm
10)	Propane	4.425	1691464	67.984	ppm
11)	Isobutylene	6.197	3704	568.137	ppm
12)	Isobutane	6.630f	31793	1.194	ppm
13)	n-Butane	6.630f	31793	1.194	ppm

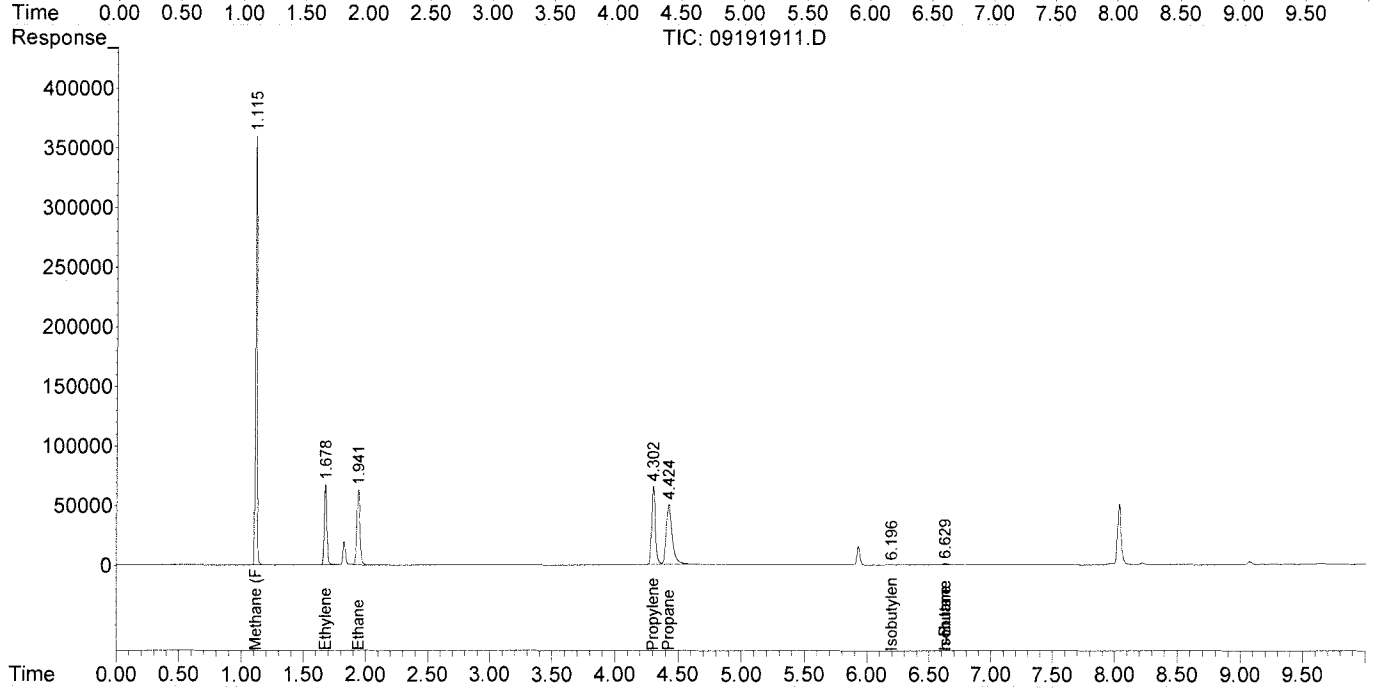
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 13:50:38
Operator : WH
Sample : P1905493-002MS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:02:49 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:04:15
Operator : WH
Sample : P1905493-002MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:21:57 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

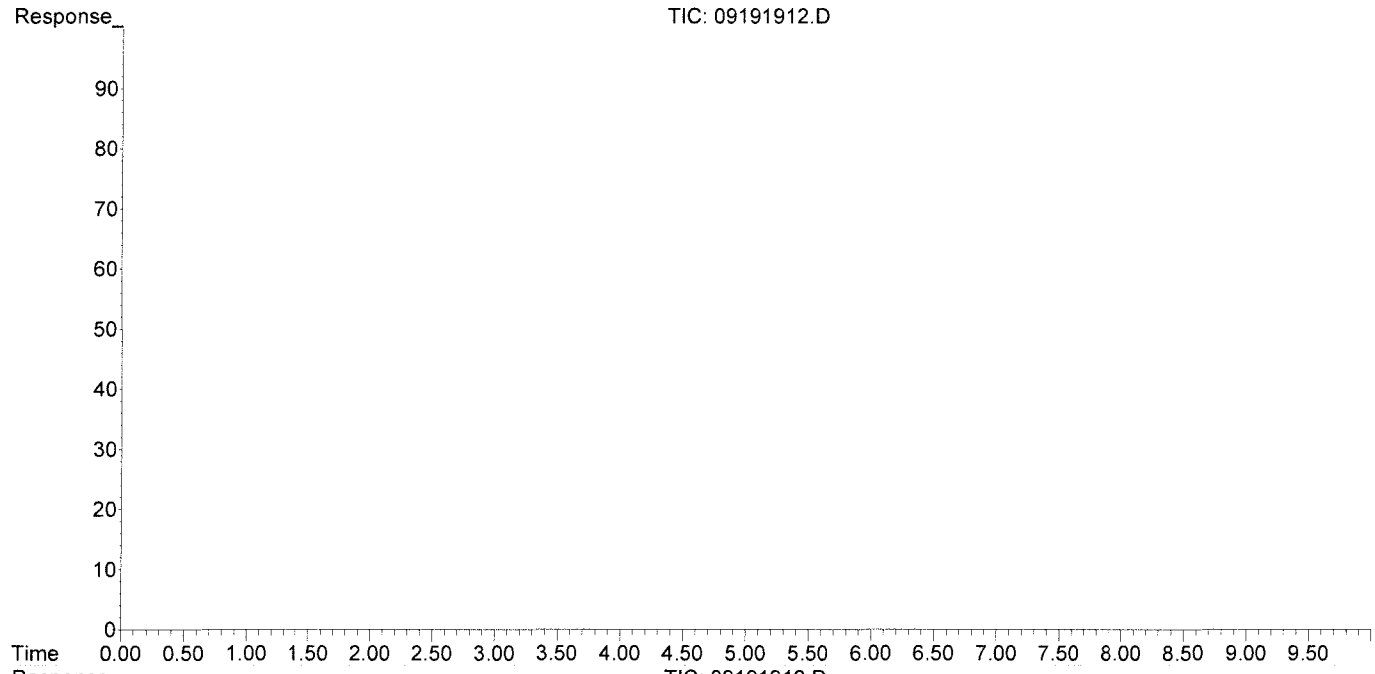
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	3018210	332.745	ppm
7)	Ethylene	1.678	899299	53.740	ppm
8)	Ethane	1.943	1017788	60.046	ppm
9)	Propylene	4.307	1267904	54.111	ppm
10)	Propane	4.429	1585351	63.719	ppm
11)	Isobutylene	6.205	3576	548.467	ppm
12)	Isobutane	6.632f	31406	1.180	ppm
13)	n-Butane	6.632f	31406	1.180	ppm

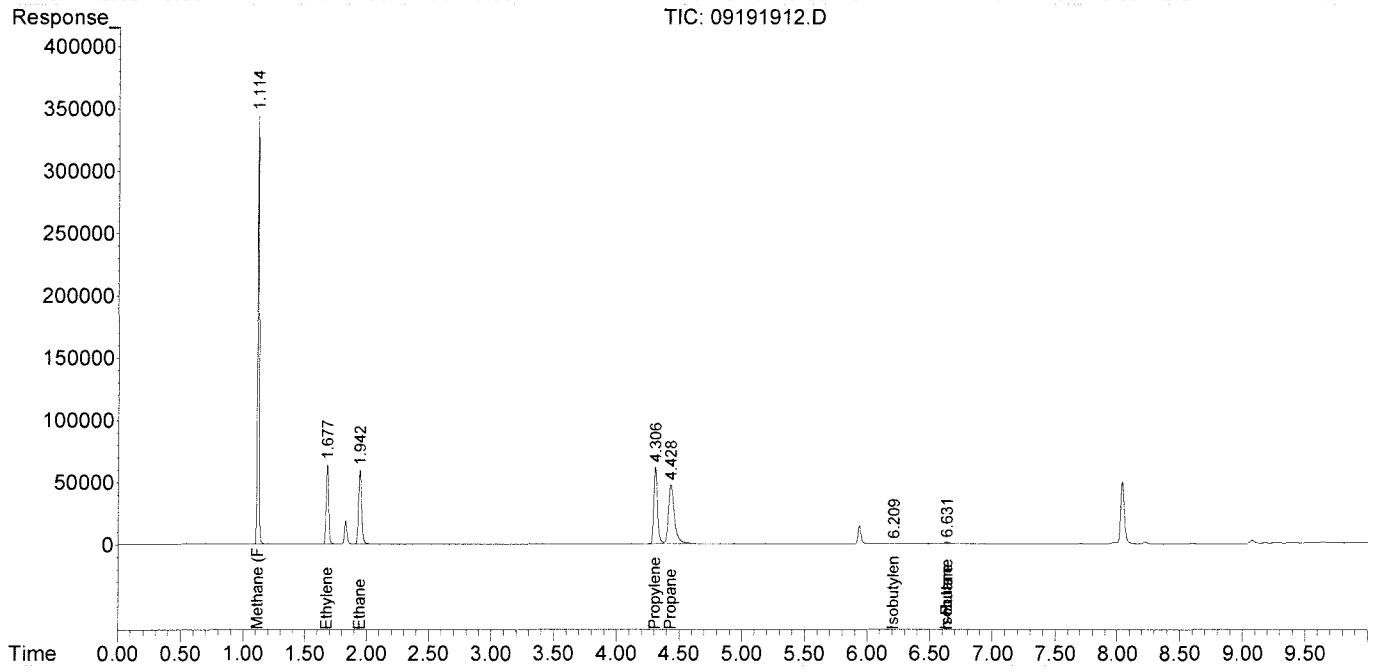
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:04:15
Operator : WH
Sample : P1905493-002MSD 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:21:57 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





00996818

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 11:28:04
Operator : WH
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: Sep 22 12:48:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

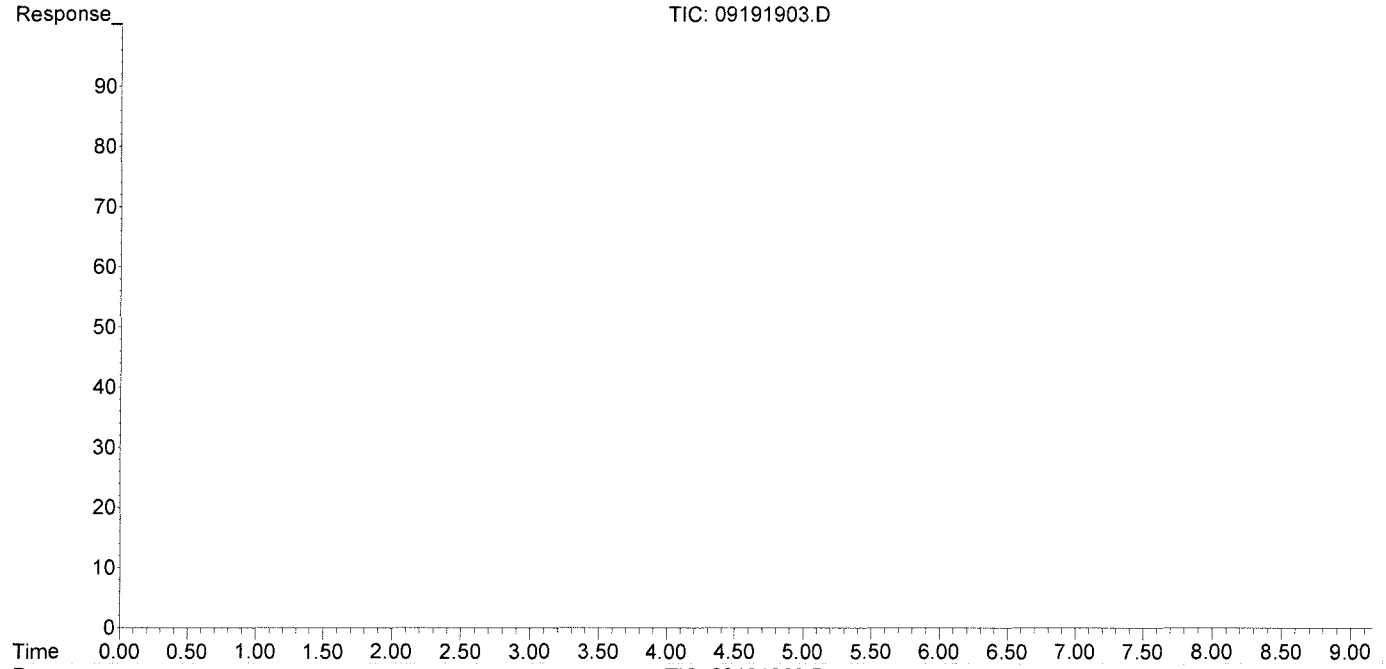
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.123	304	0.034	ppm	m
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	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	

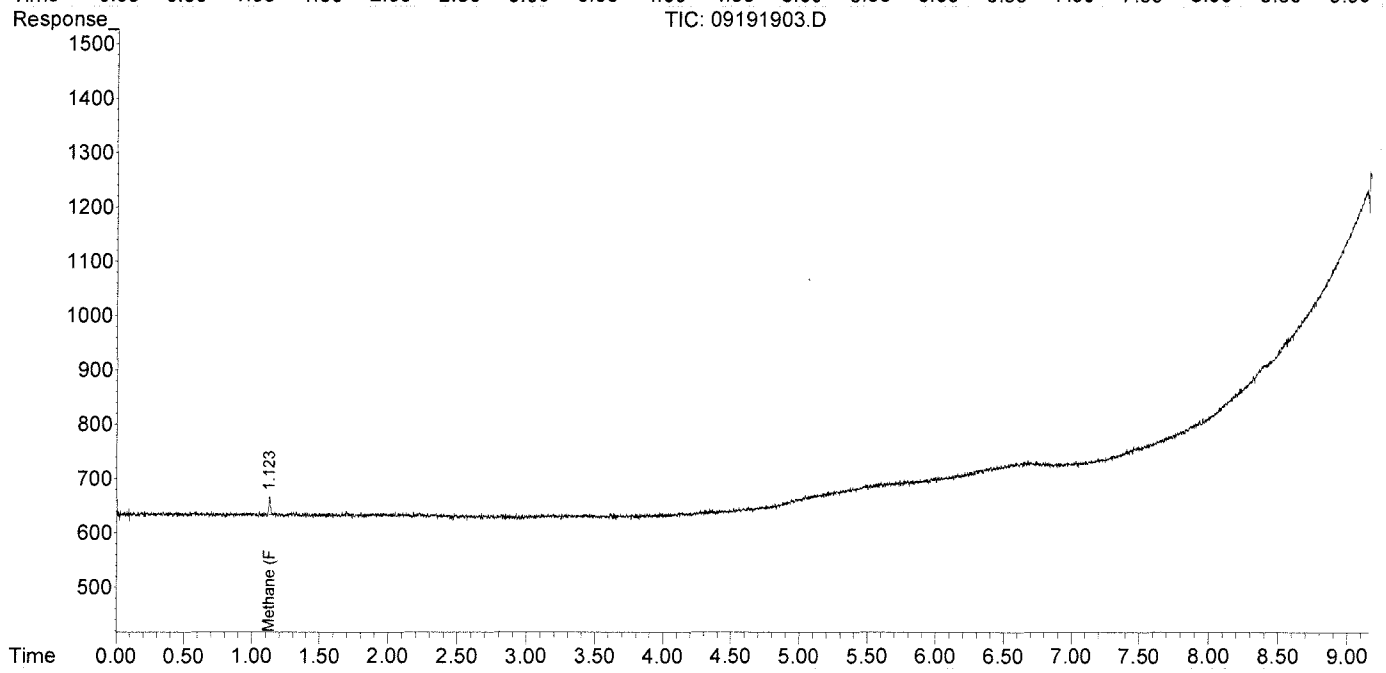
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 11:28:04
Operator : WH
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: Sep 22 12:48:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



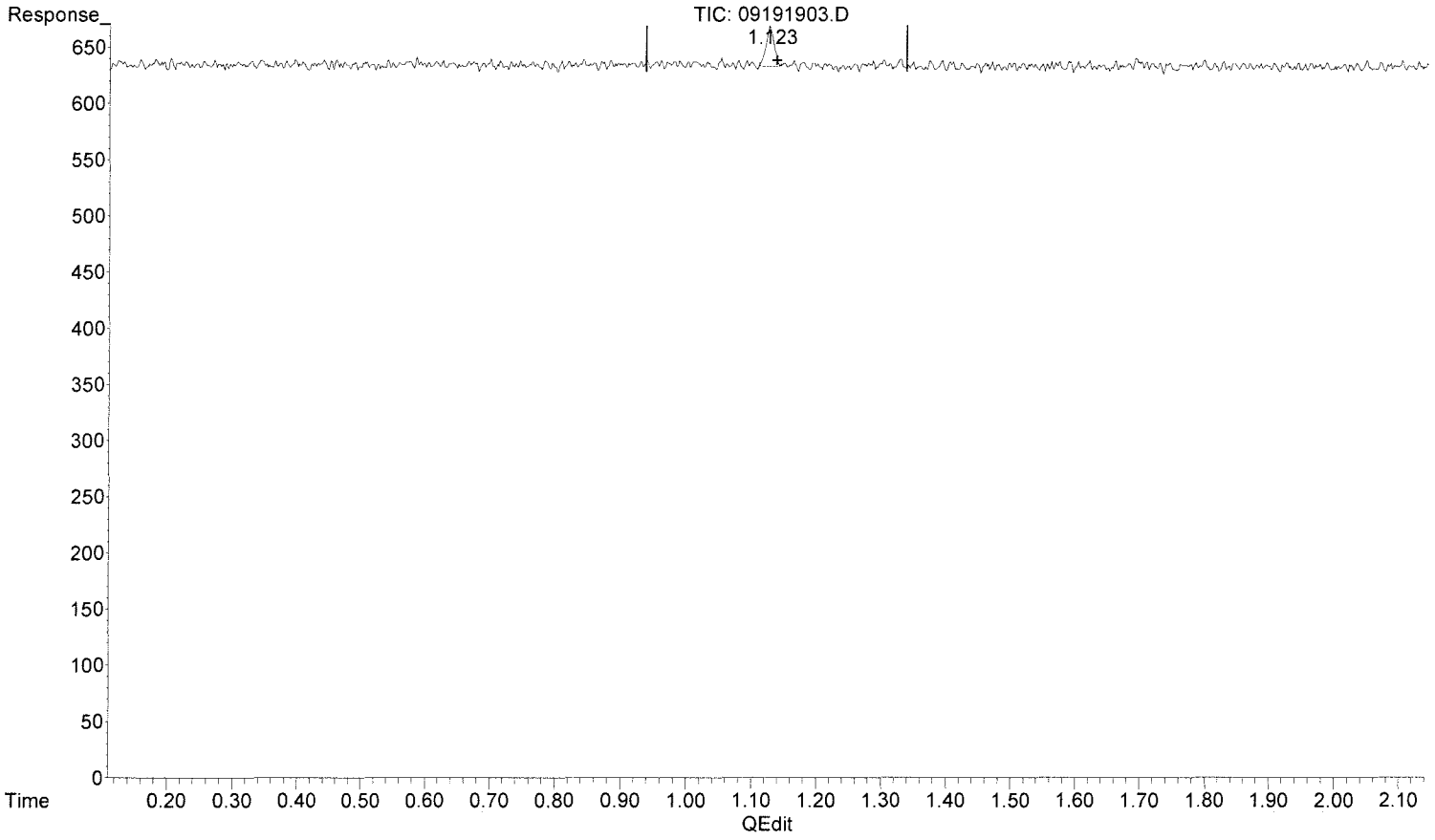


00996820

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 11:28:04
Operator : WH
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: Sep 22 12:48:52 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.123min 0.034 ppm m

response 304

MR 9/25/19

lmw 9/25/19 mf no previous

(+) = Expected Retention Time
RS091217_R.M Wed Sep 25 11:18:06 2019

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:21:20
Operator : WH
Sample : LCS FID
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:40:01 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

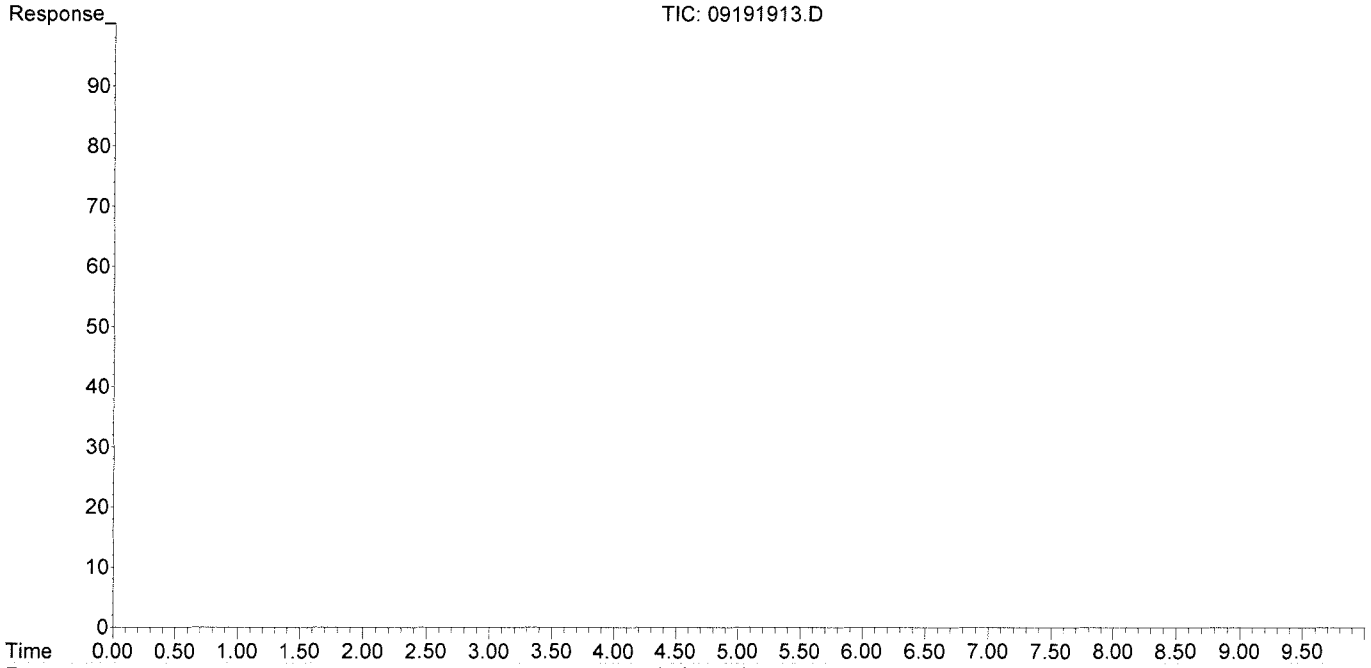
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.118	12617	1.391	ppm
7)	Ethylene	1.684	18991	1.135	ppm
8)	Ethane	1.948	21655	1.278	ppm
9)	Propylene	4.311	25552	1.090	ppm
10)	Propane	4.433	31795	1.278	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.633f	41844	1.572	ppm
13)	n-Butane	6.633f	41844	1.572	ppm

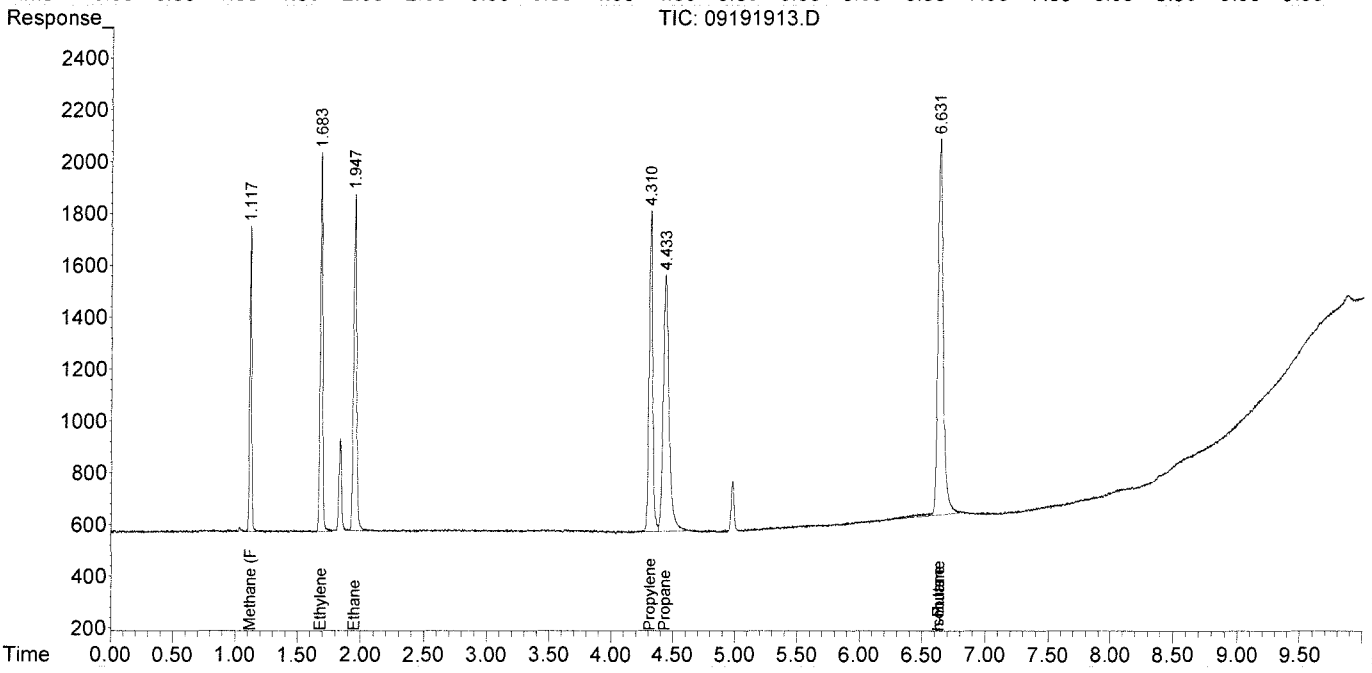
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:21:20
Operator : WH
Sample : LCS FID
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:40:01 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:38:42
Operator : WH
Sample : LCSD FID
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:54:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

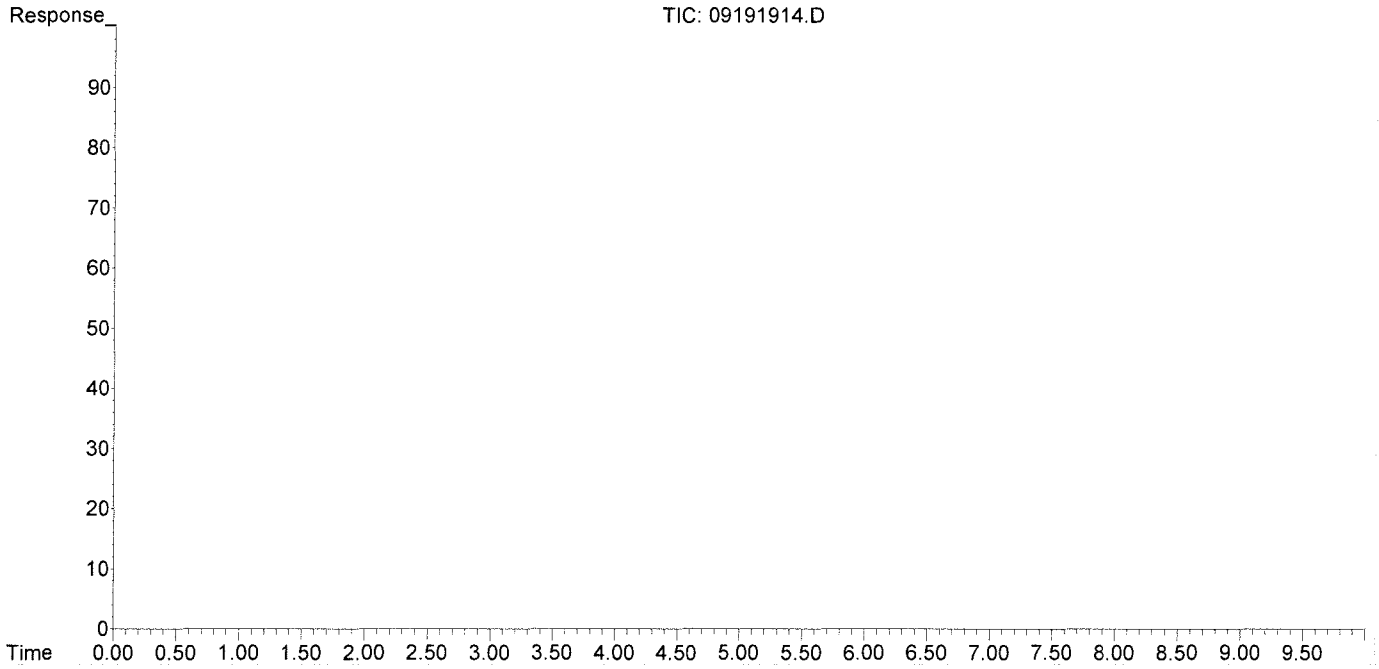
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.118	12333	1.360	ppm
7)	Ethylene	1.684	18581	1.110	ppm
8)	Ethane	1.948	21464	1.266	ppm
9)	Propylene	4.310	25576	1.092	ppm
10)	Propane	4.431	32275	1.297	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.631f	42525	1.598	ppm
13)	n-Butane	6.631f	42525	1.598	ppm

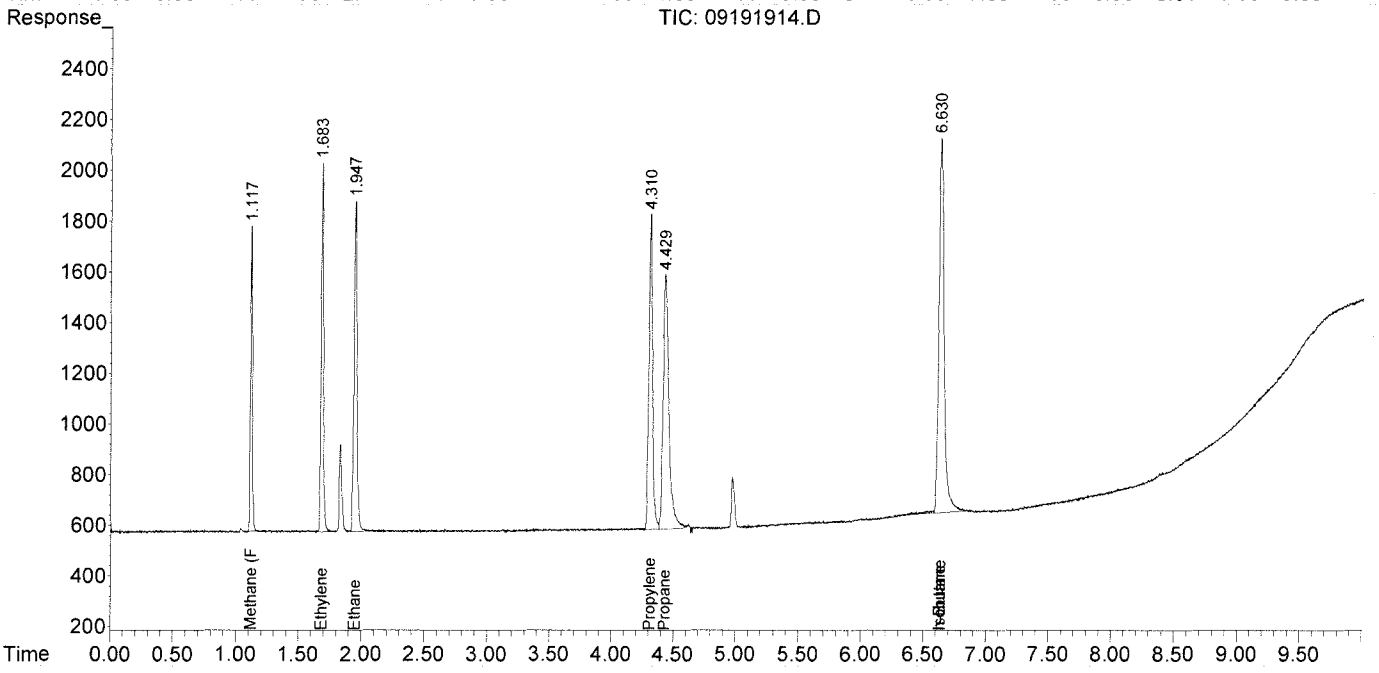
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:38:42
Operator : WH
Sample : LCSD FID
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 14:54:51 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Response Factor Report HP5890

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

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

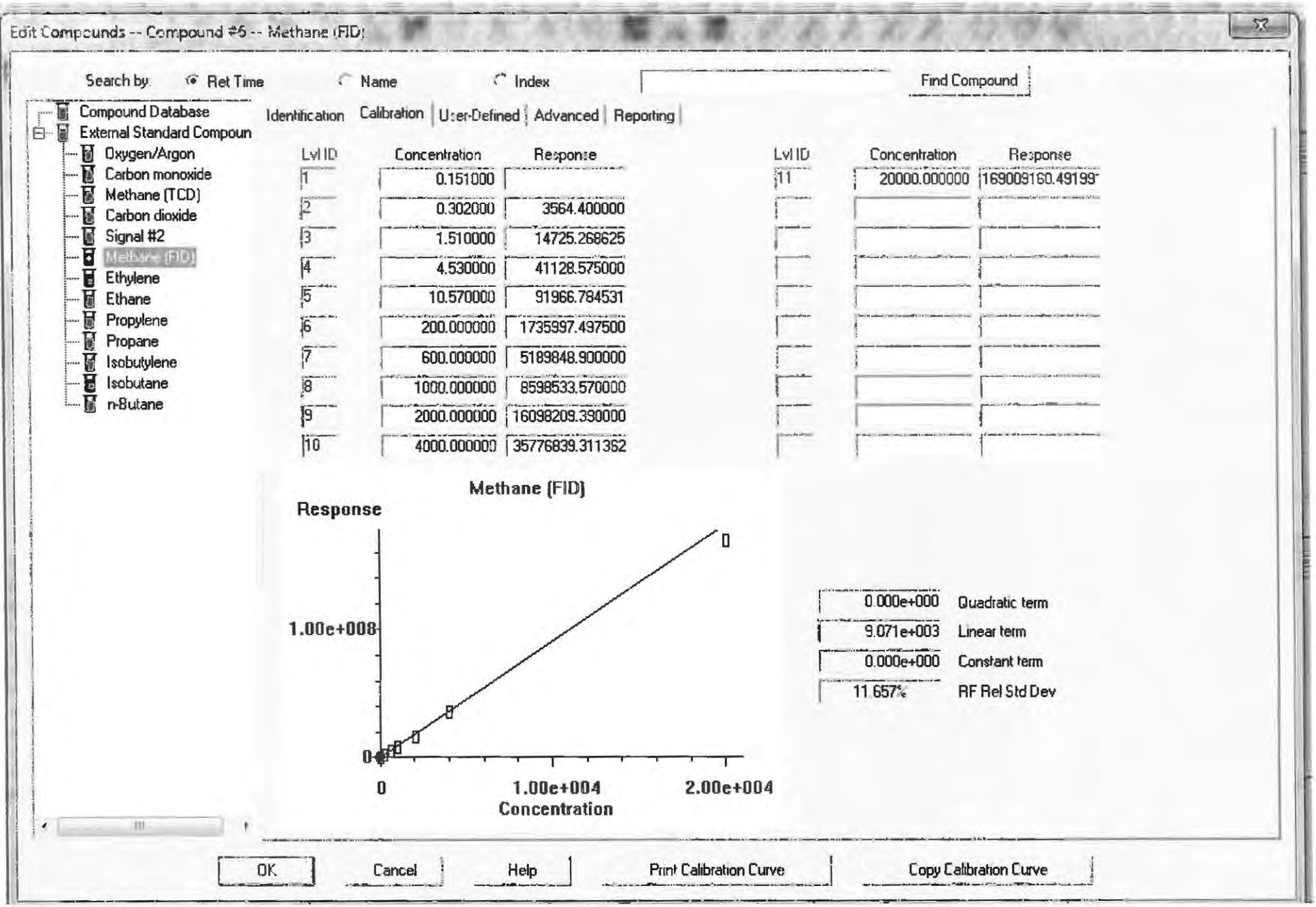
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

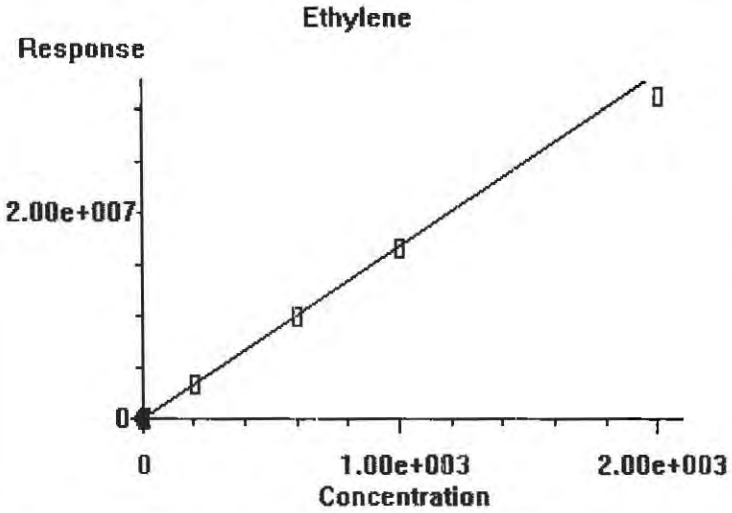
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

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

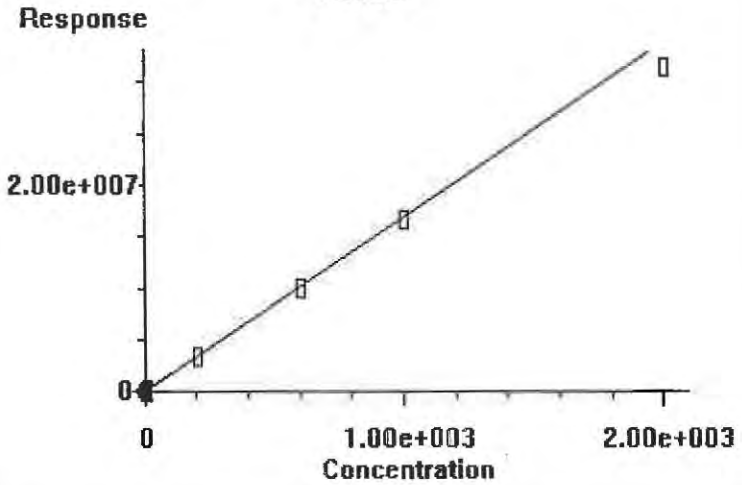
- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

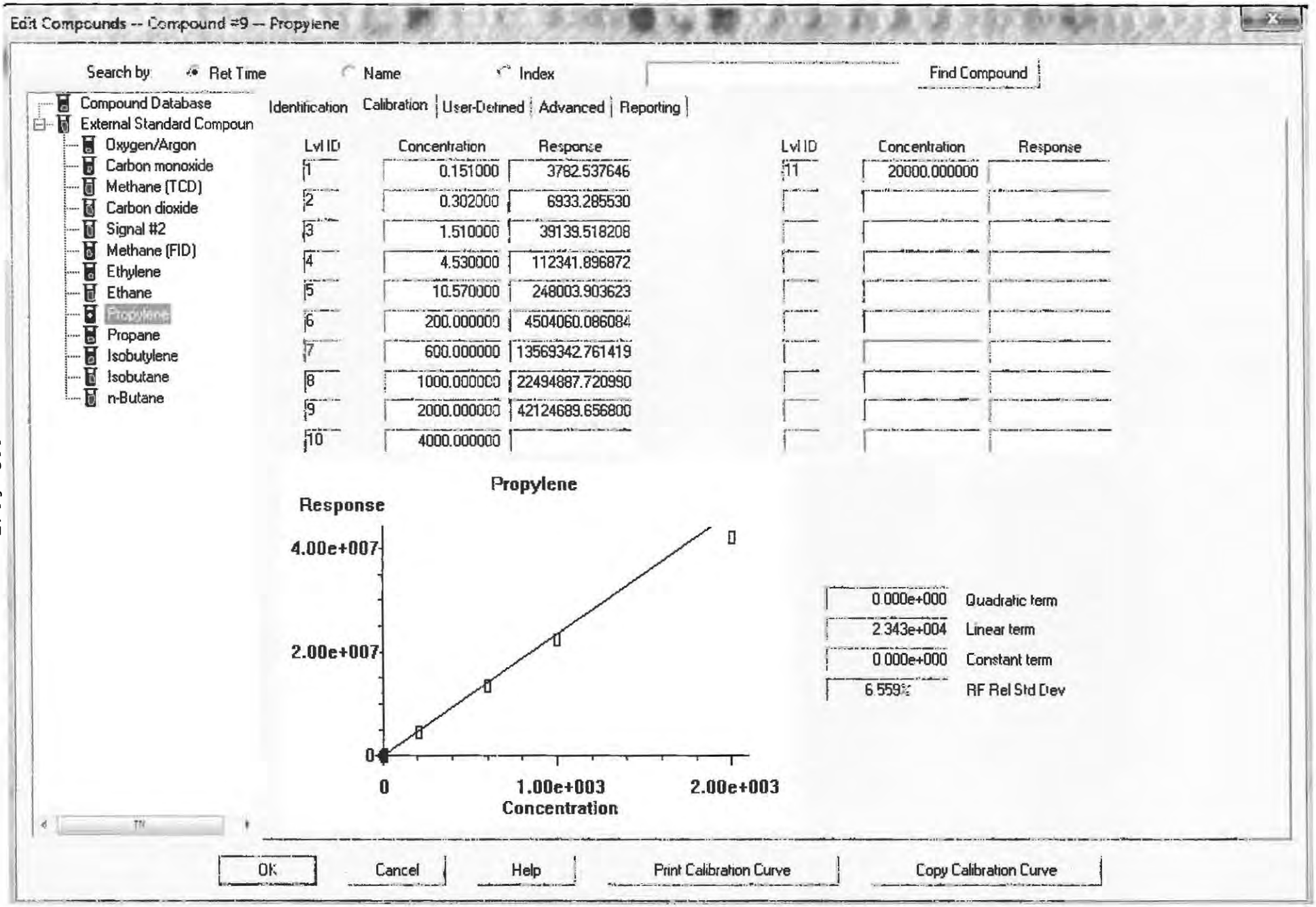
Lvl ID	Concentration	Response
11	20000.000000	

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
11 20000.000000
Propylene
Response
4.00e+007
2.00e+007
0
0
1.00e+003
2.00e+003
Concentration
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

00996829

Edit Compounds -- Compound #10 -- Propane

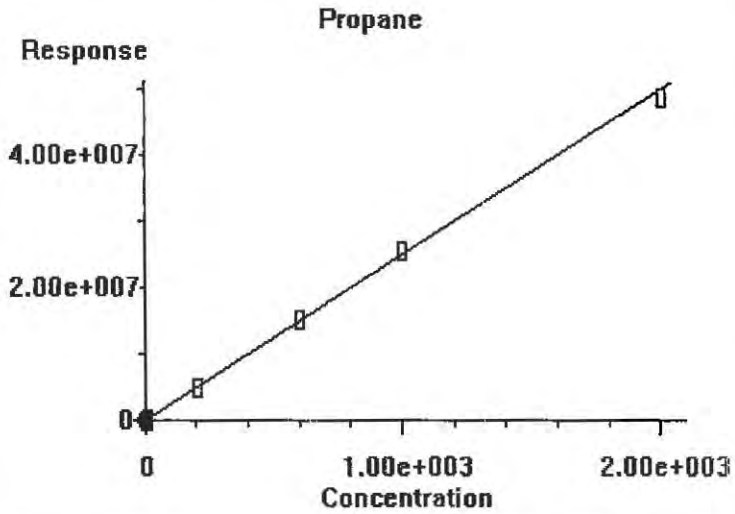
Search by: Ret Time | Name | Index — Find Compound

- 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	

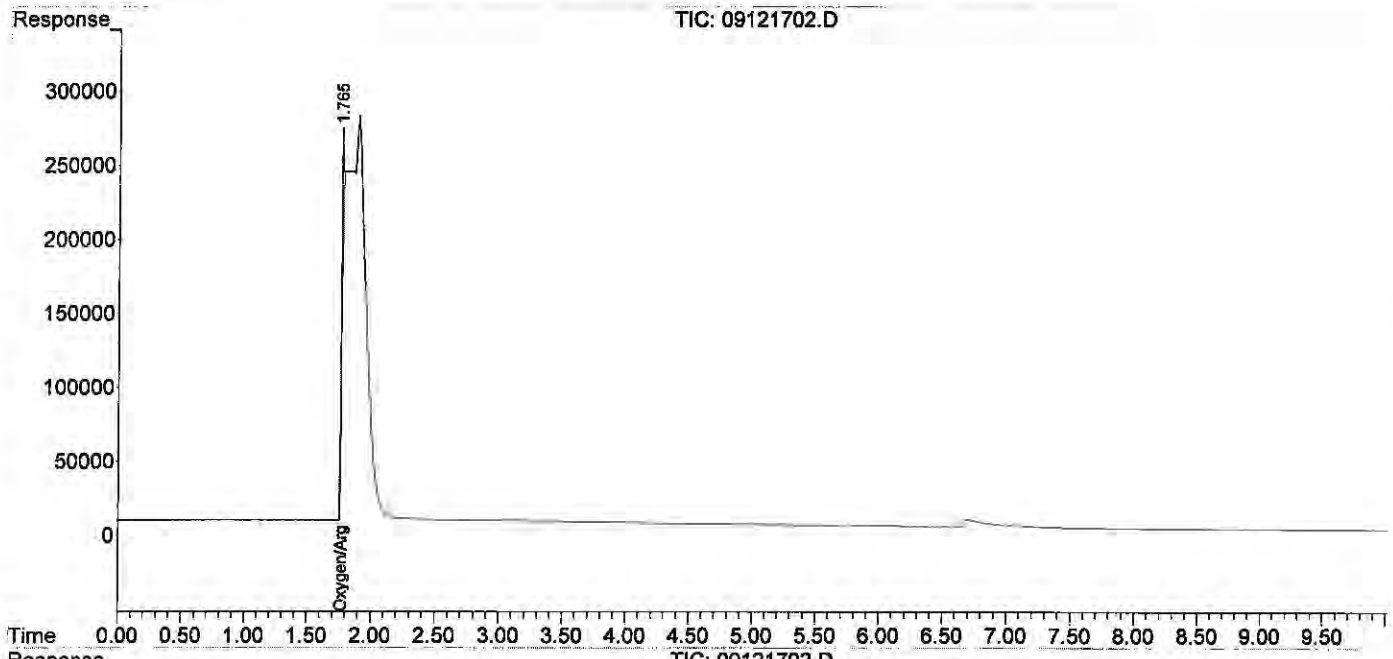
(f)=RT Delta > 1/2 Window (m)=manual int.

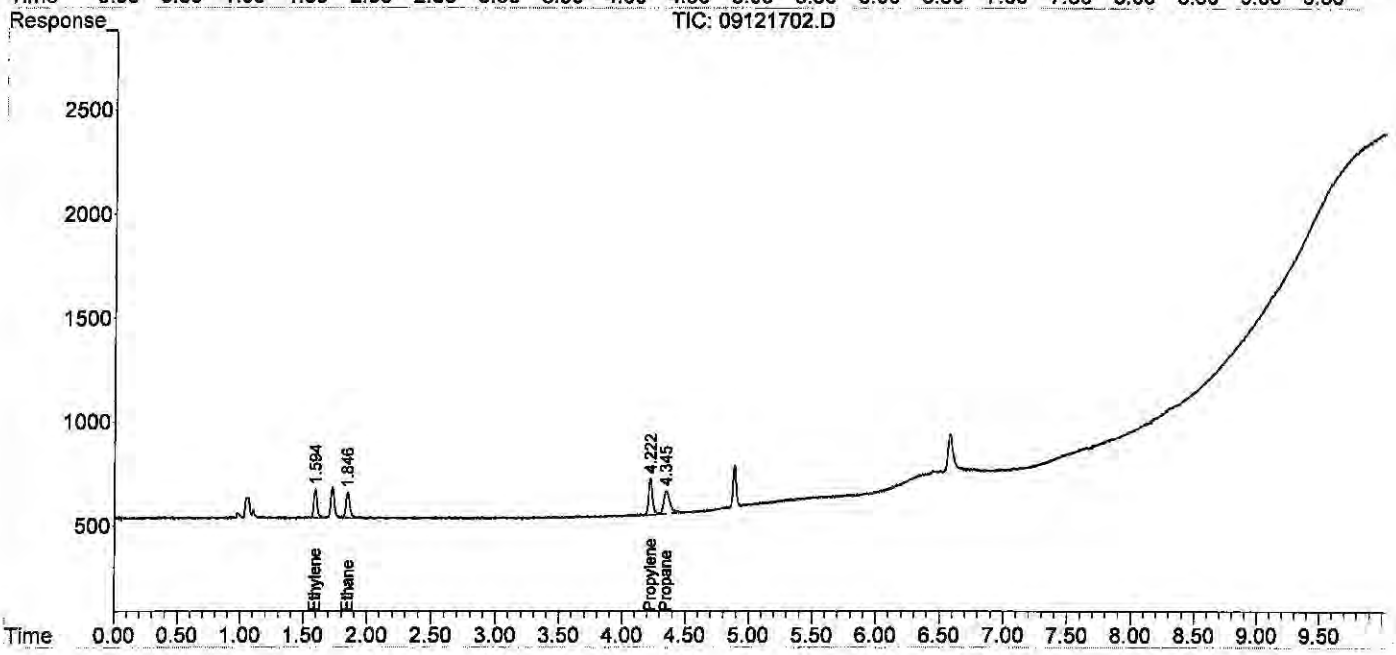
9/13/17

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	

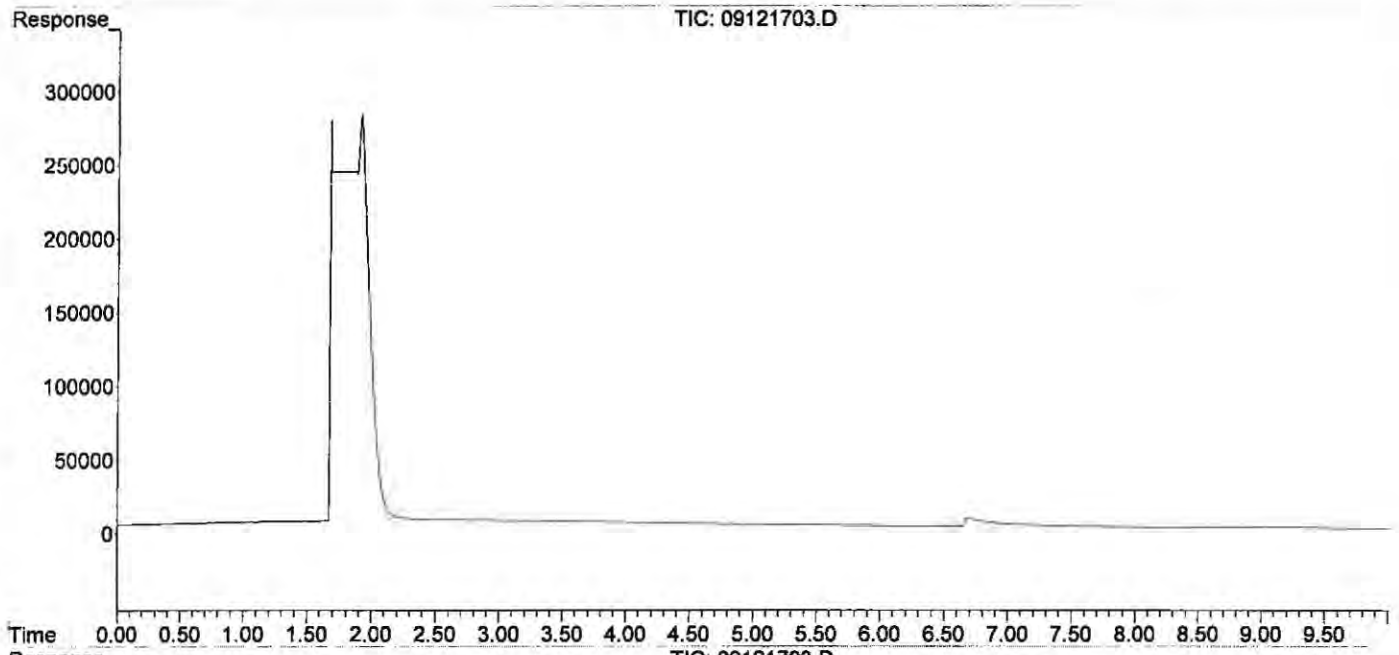
(f)=RT Delta > 1/2 Window (m)=manual int.

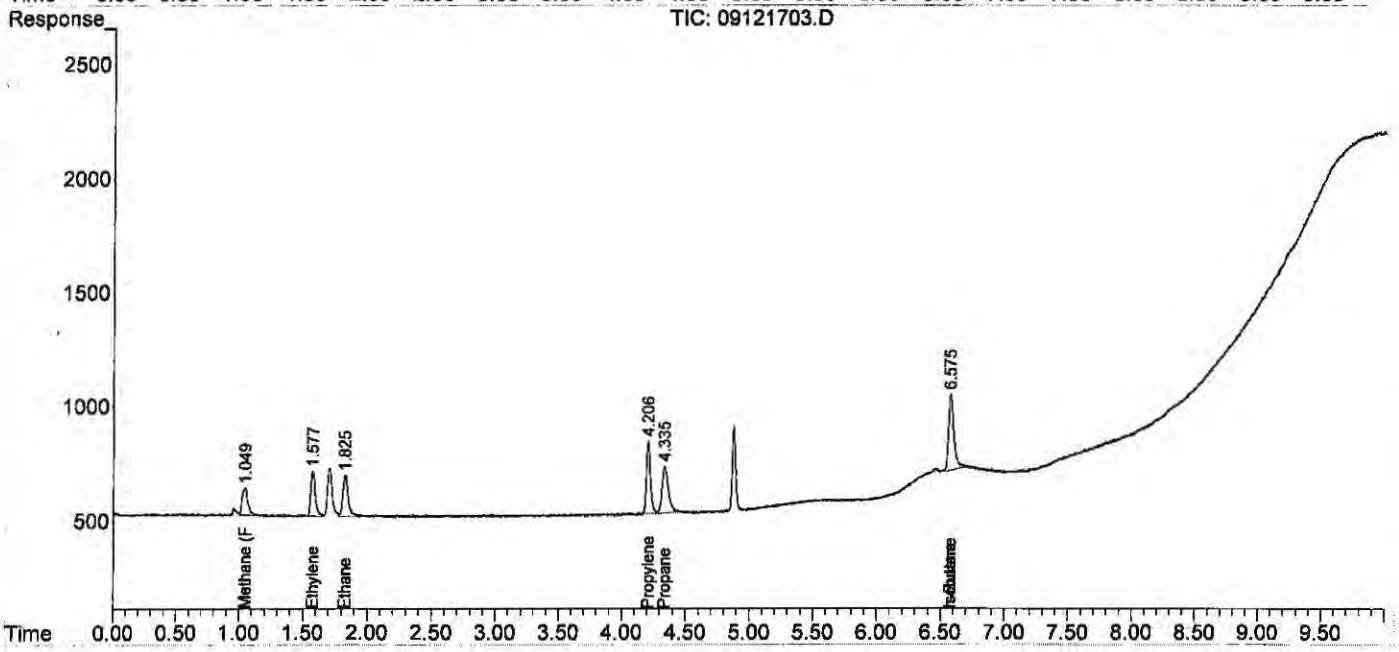
Quantitation Report (QT Reviewed)

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 :



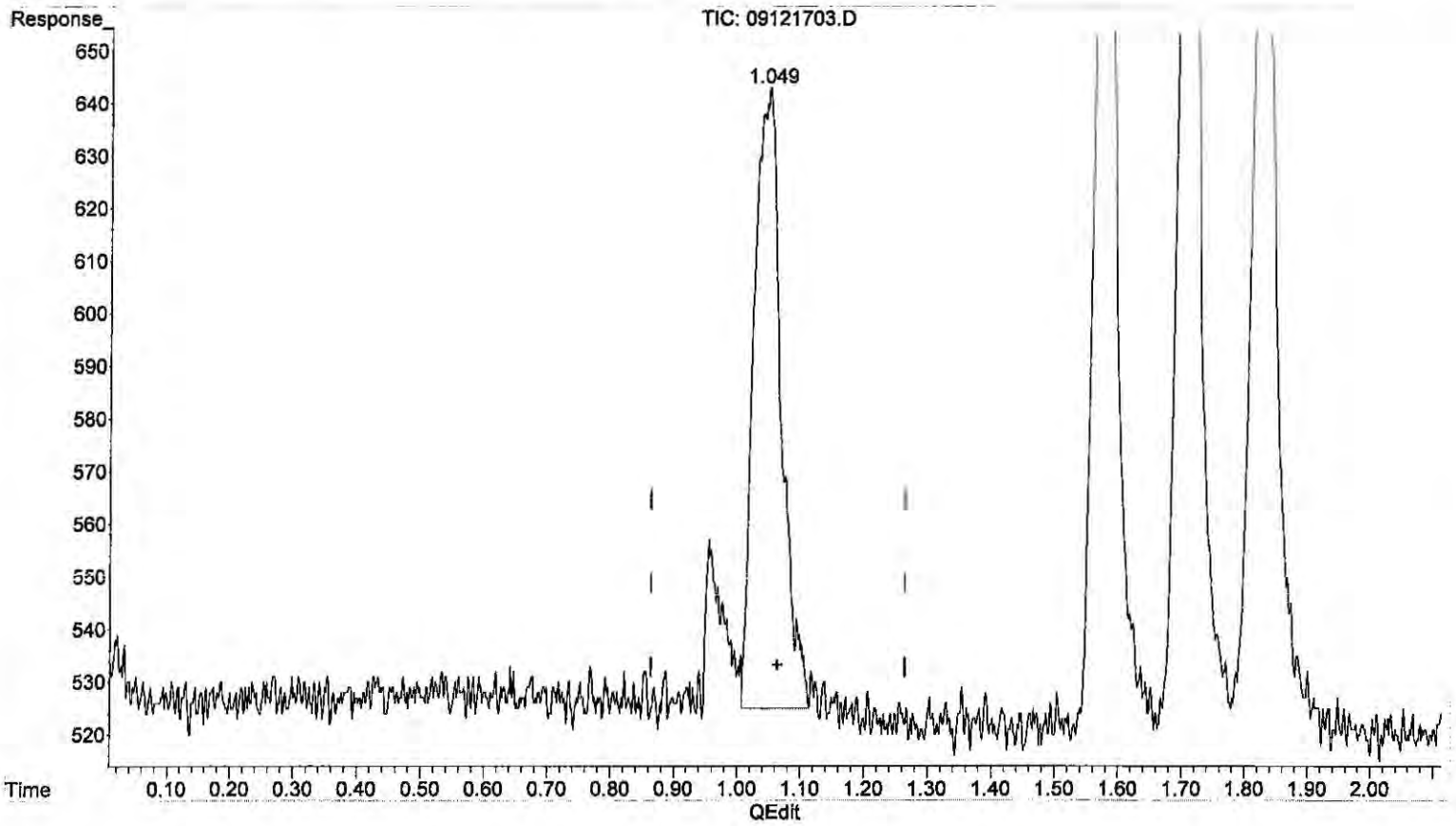


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

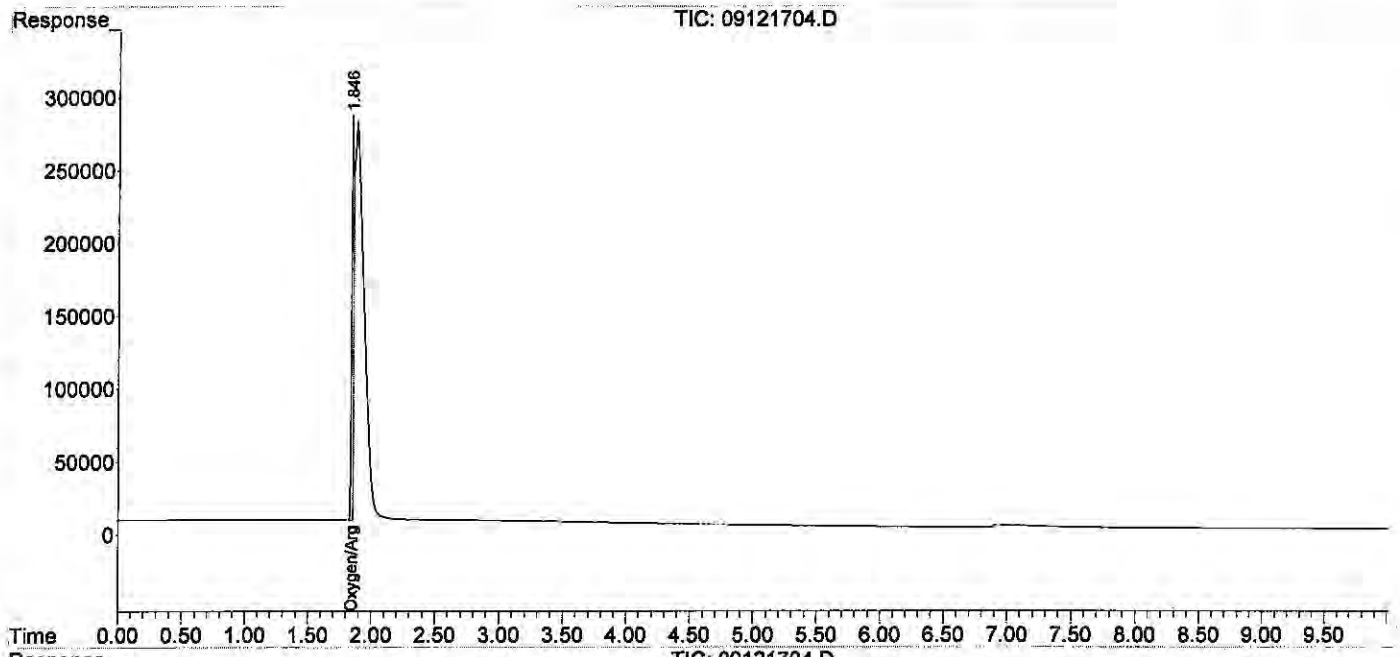
(f)=RT Delta > 1/2 Window (m)=manual int.

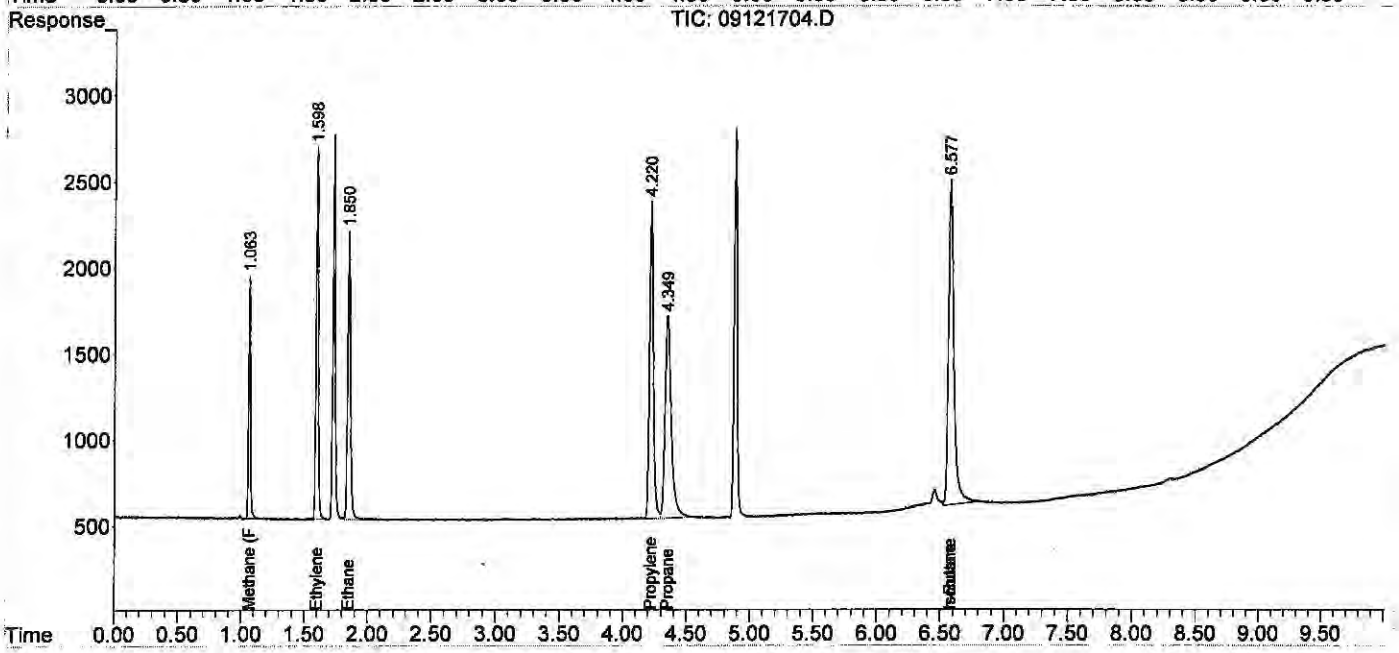
Quantitation Report (QT Reviewed)

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 :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

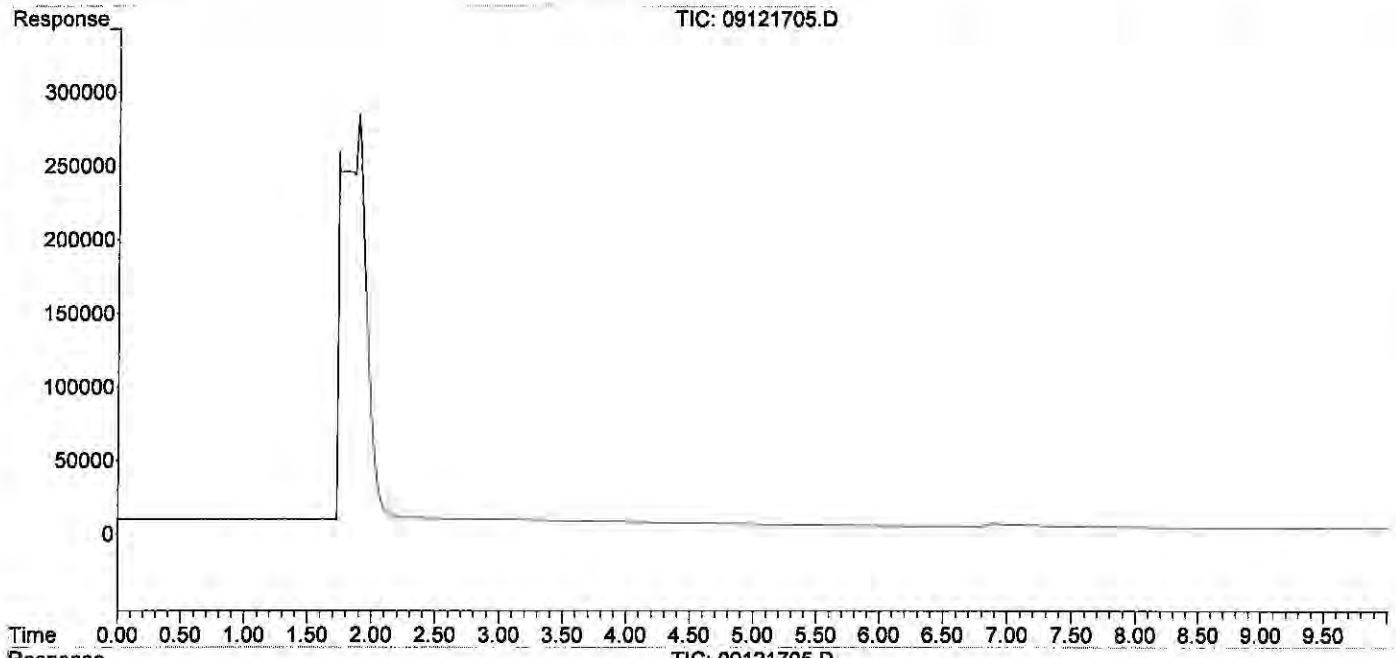
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

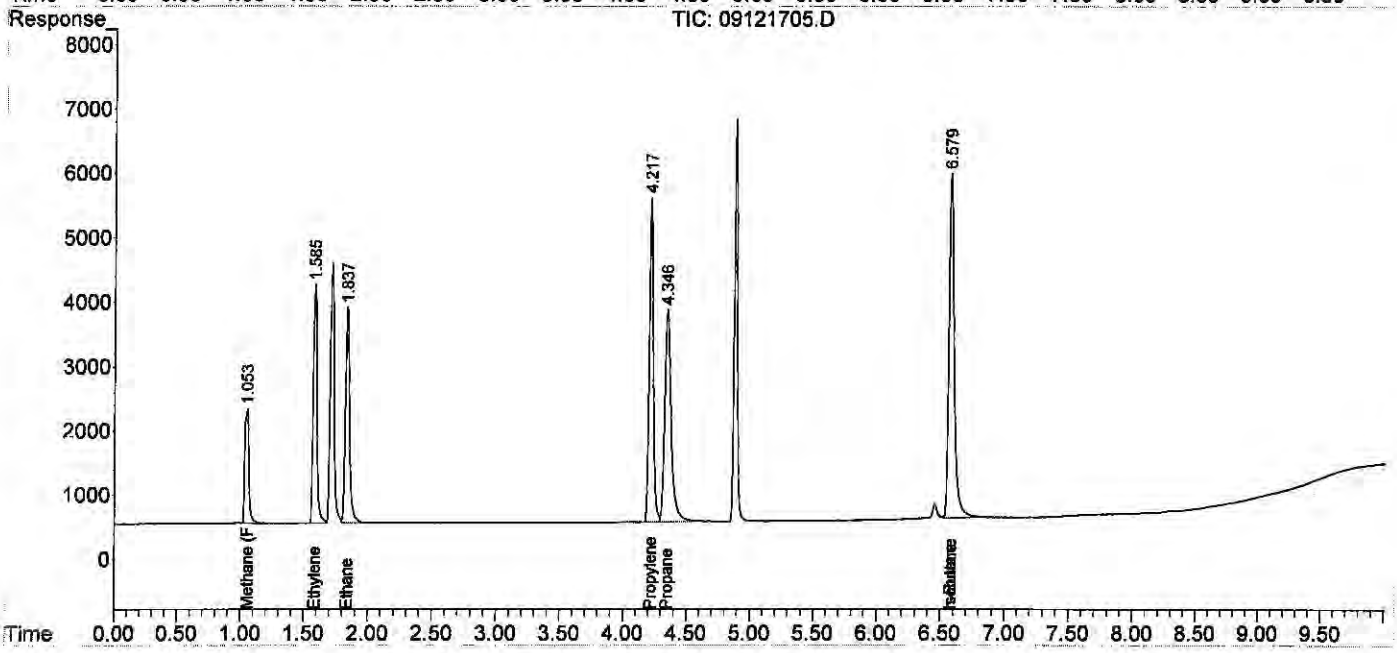
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

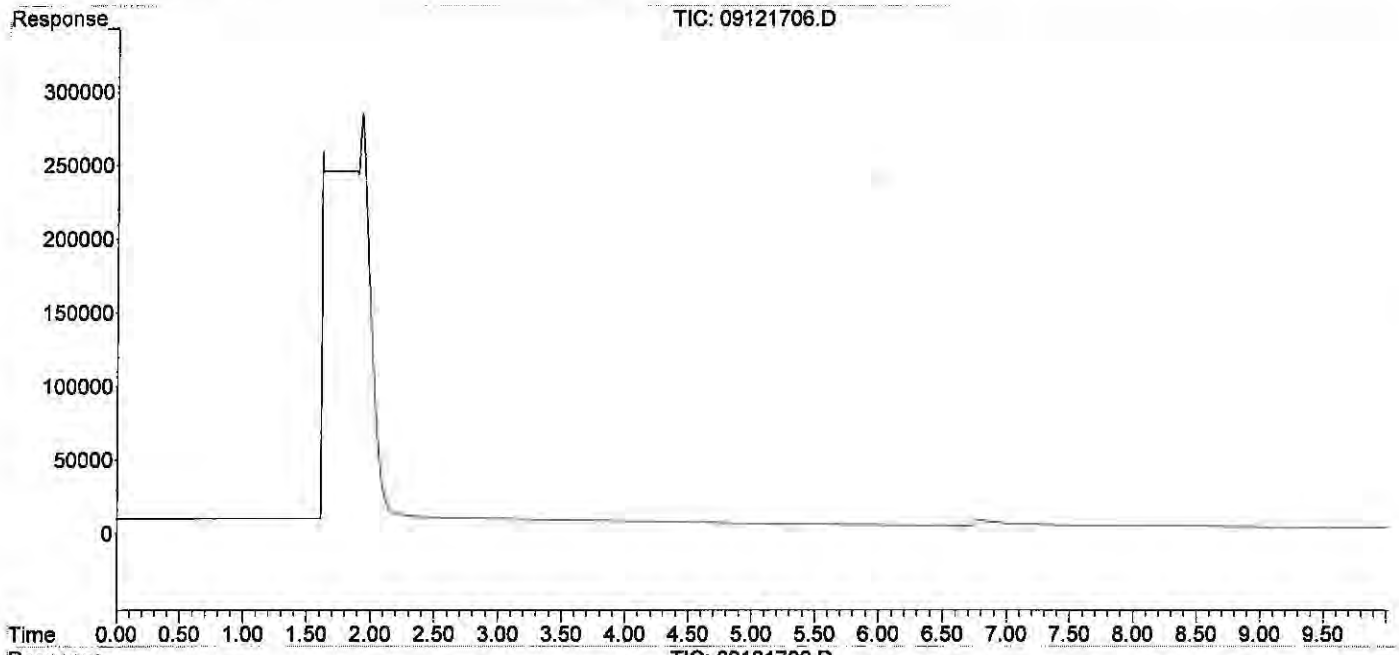
(f)=RT Delta > 1/2 Window (m)=manual int.

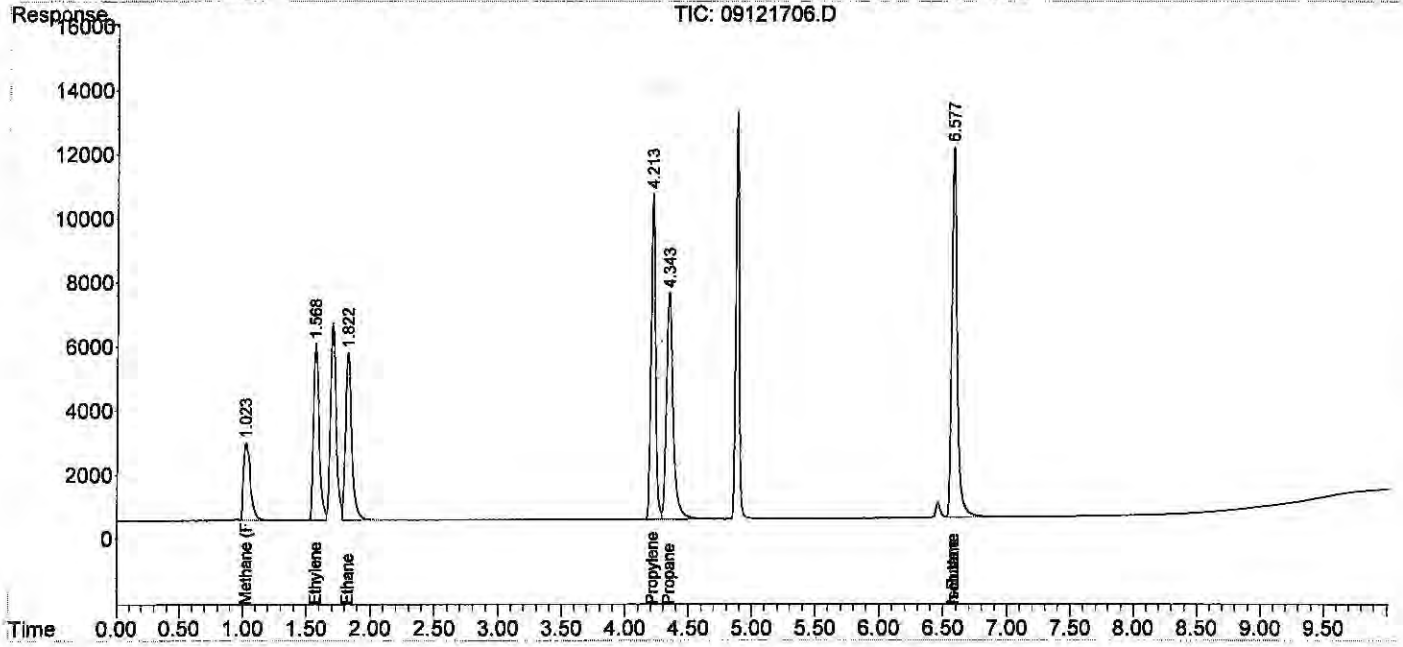
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

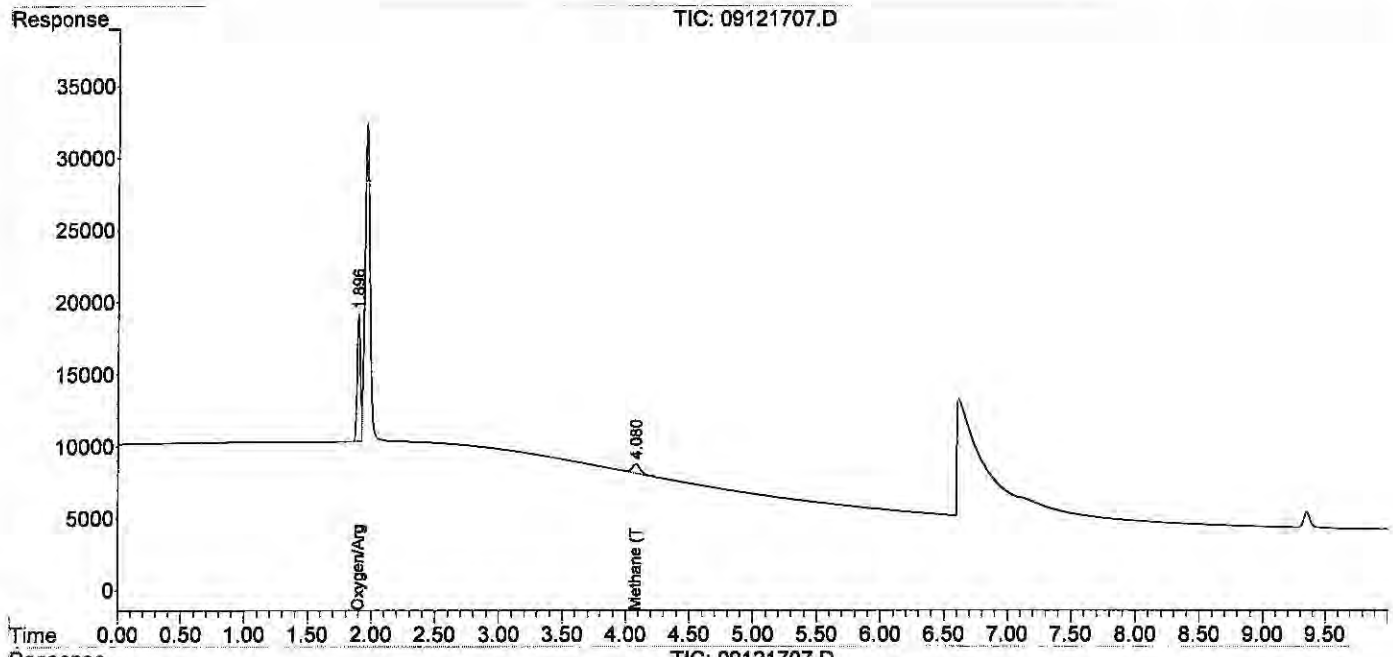
(f)=RT Delta > 1/2 Window (m)=manual int.

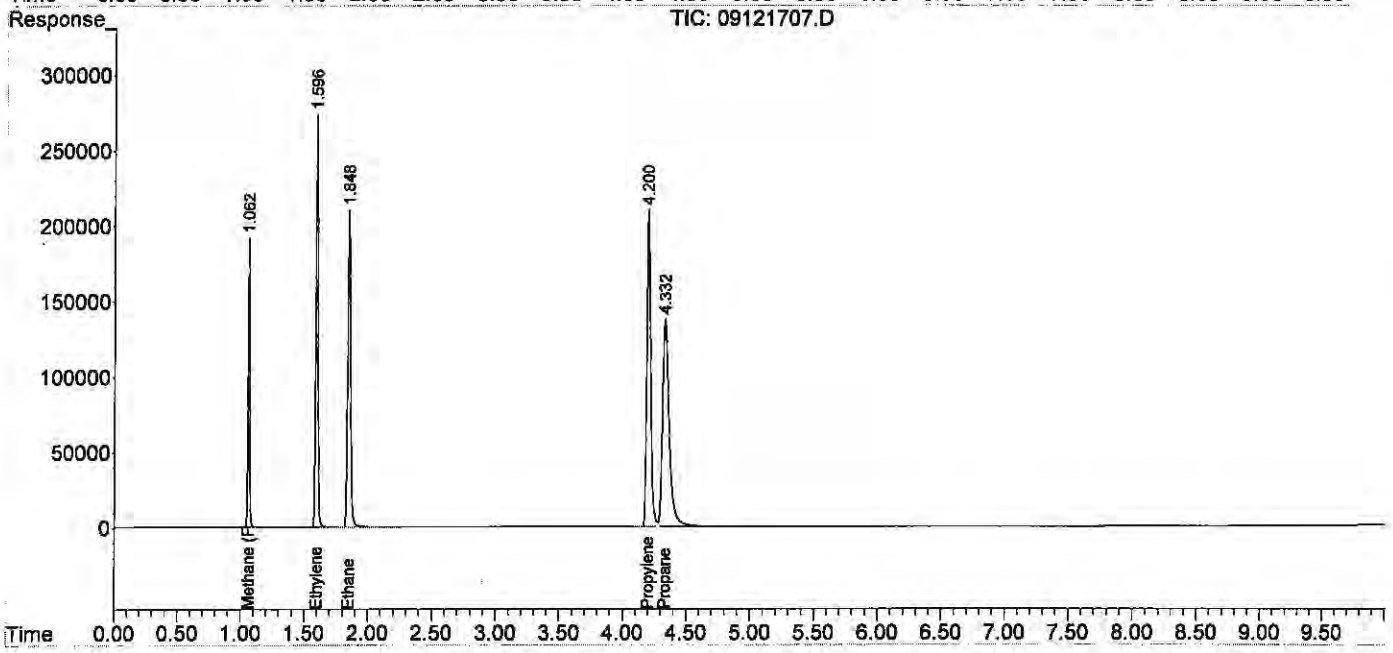
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

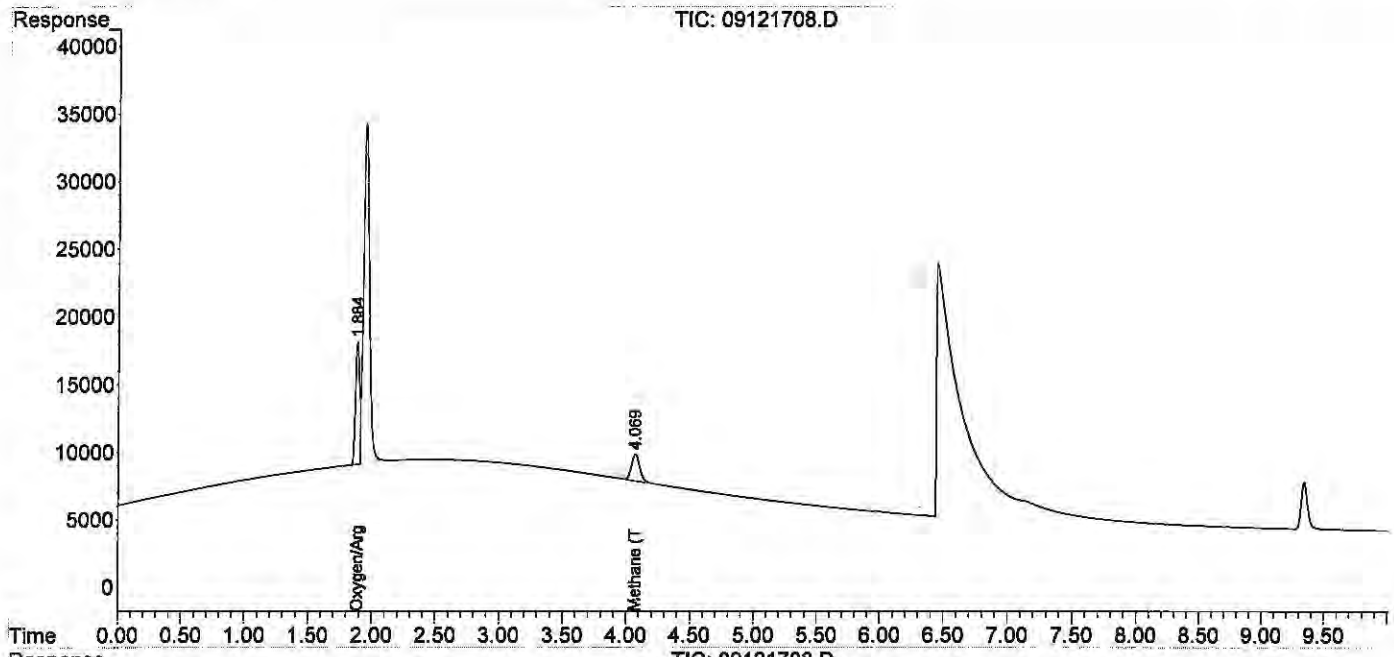
(f)=RT Delta > 1/2 Window (m)=manual int.

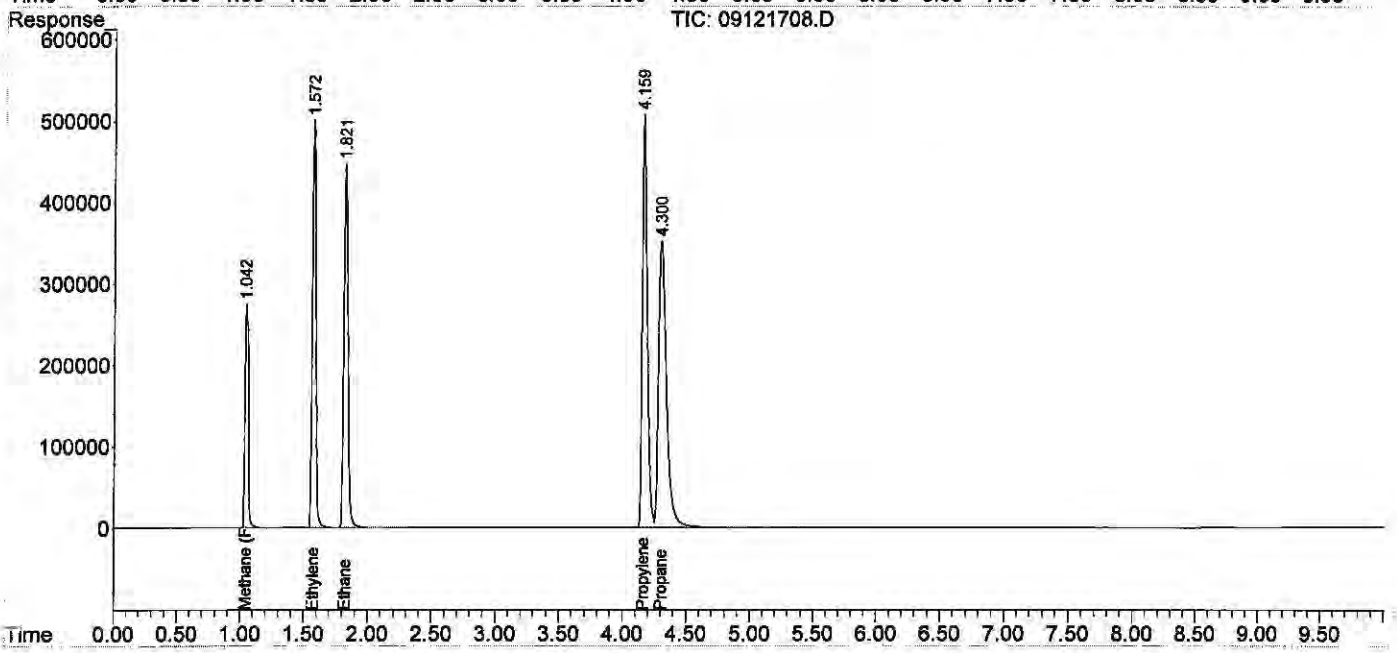
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

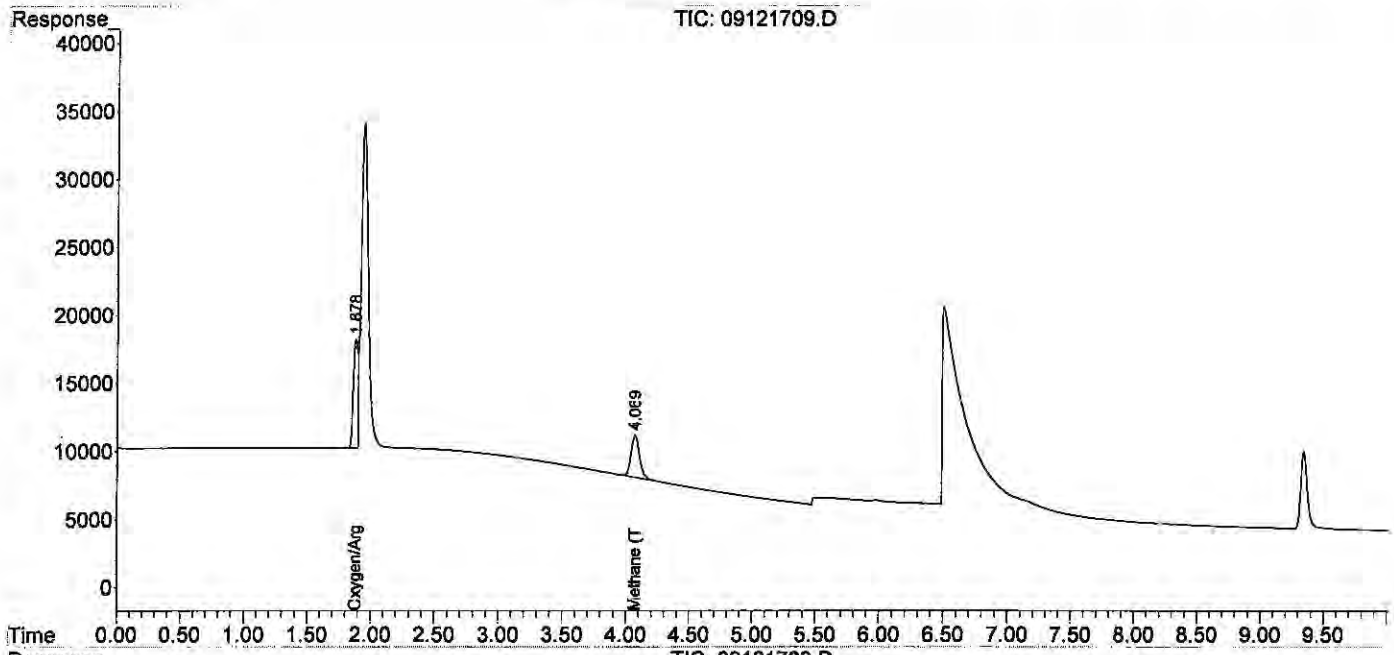
(f)=RT Delta > 1/2 Window (m)=manual int.

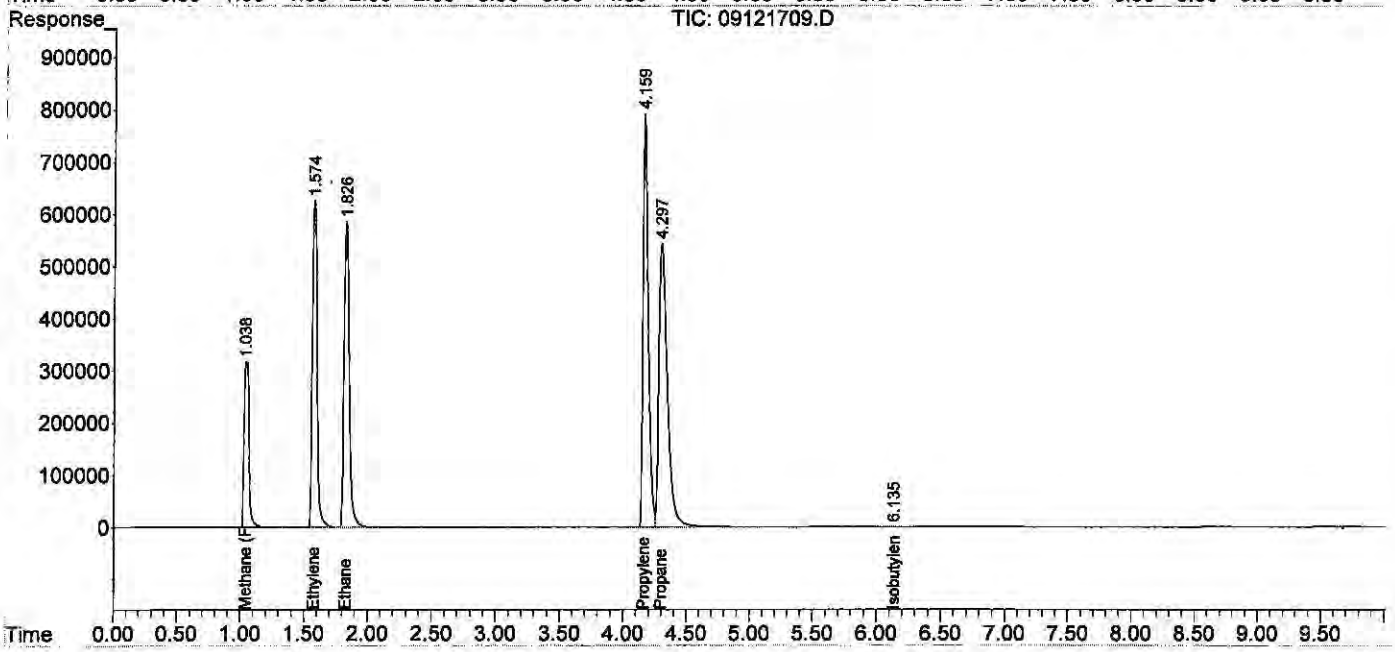
Quantitation Report (QT Reviewed)

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 #1 Info :
Signal #2 Phase:
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 :

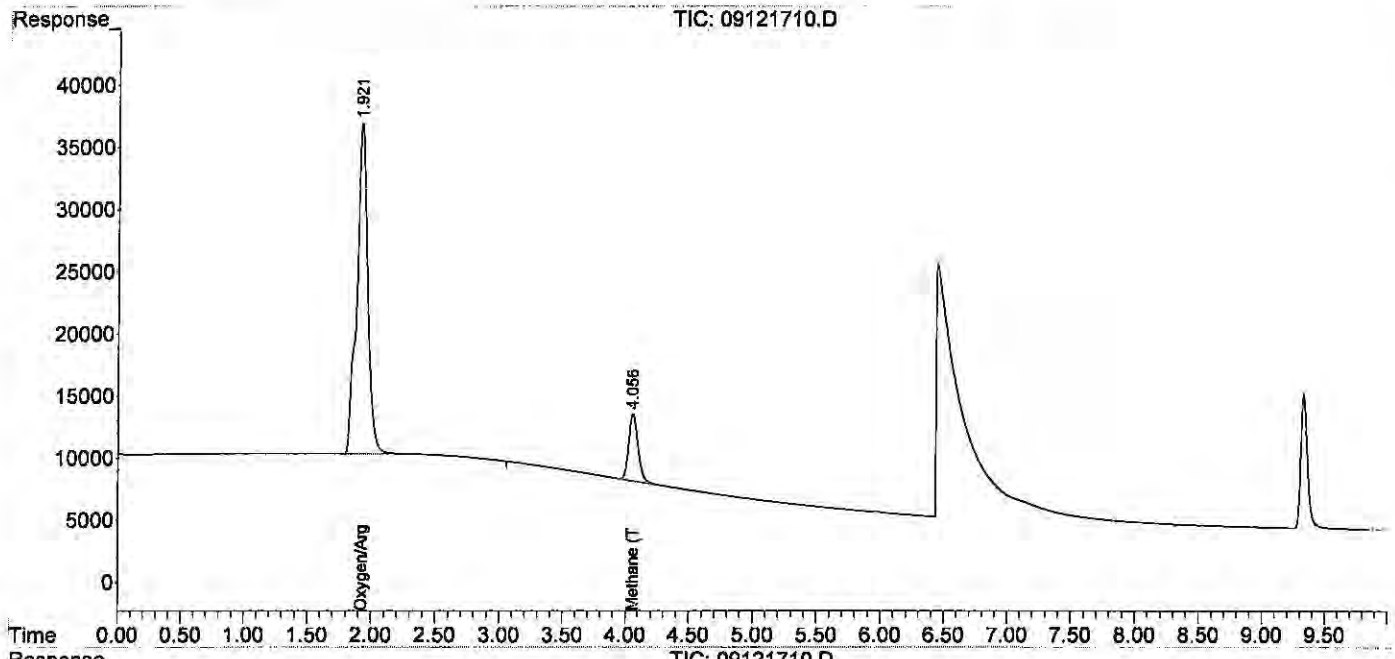
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

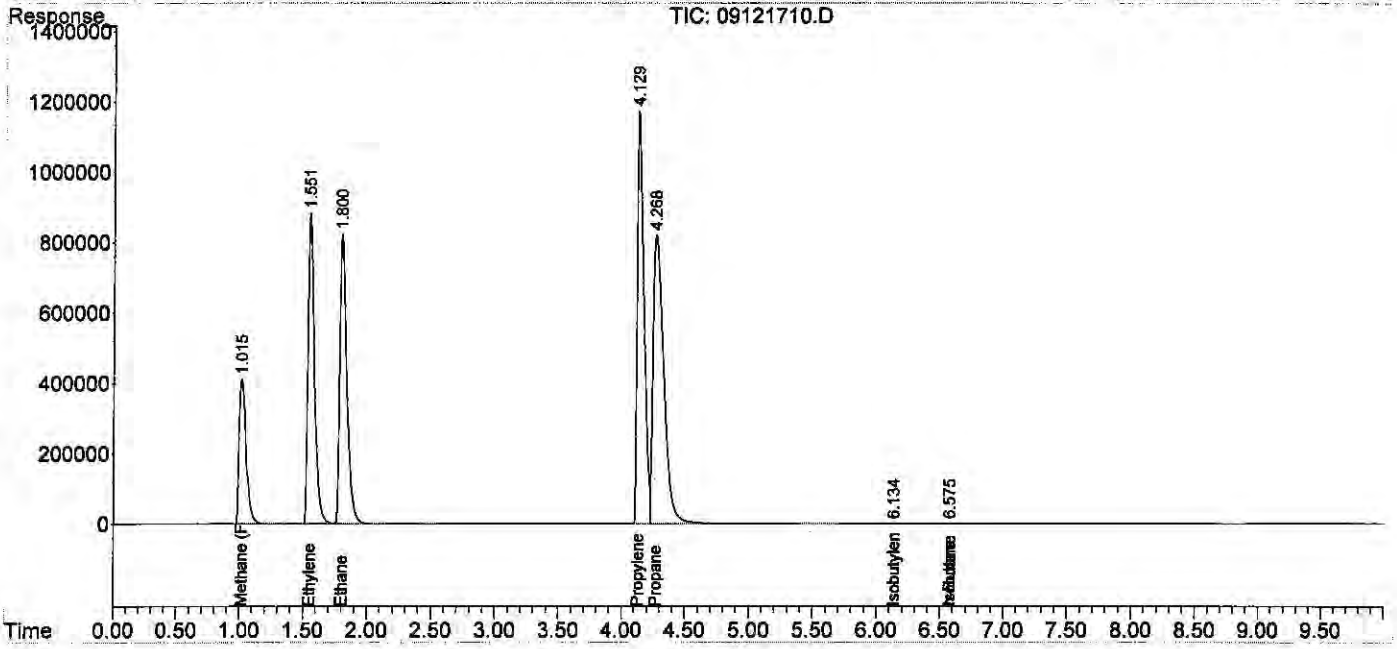
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



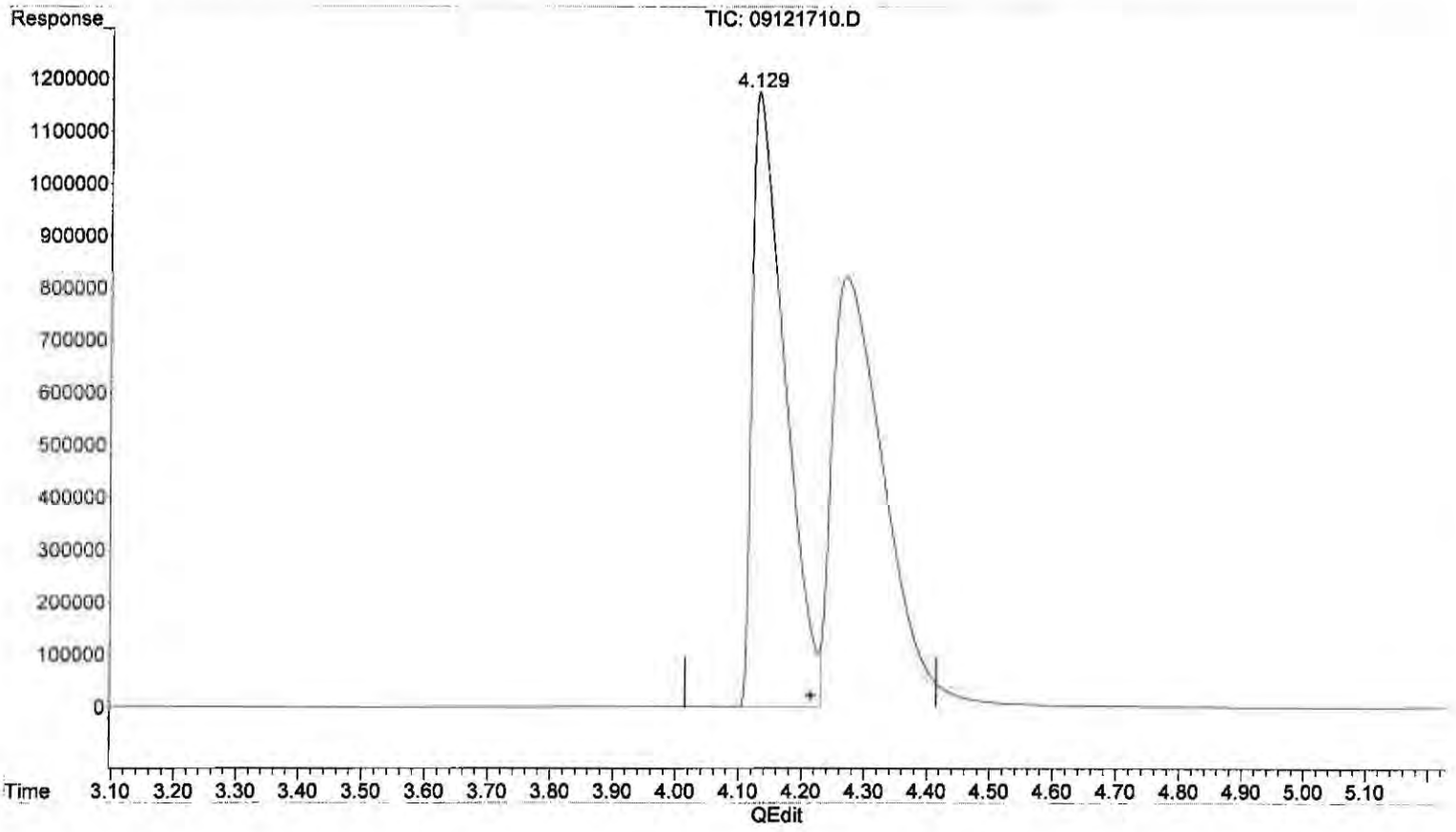


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(9) Propylene

4.129min 1775.341 ppm m

response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

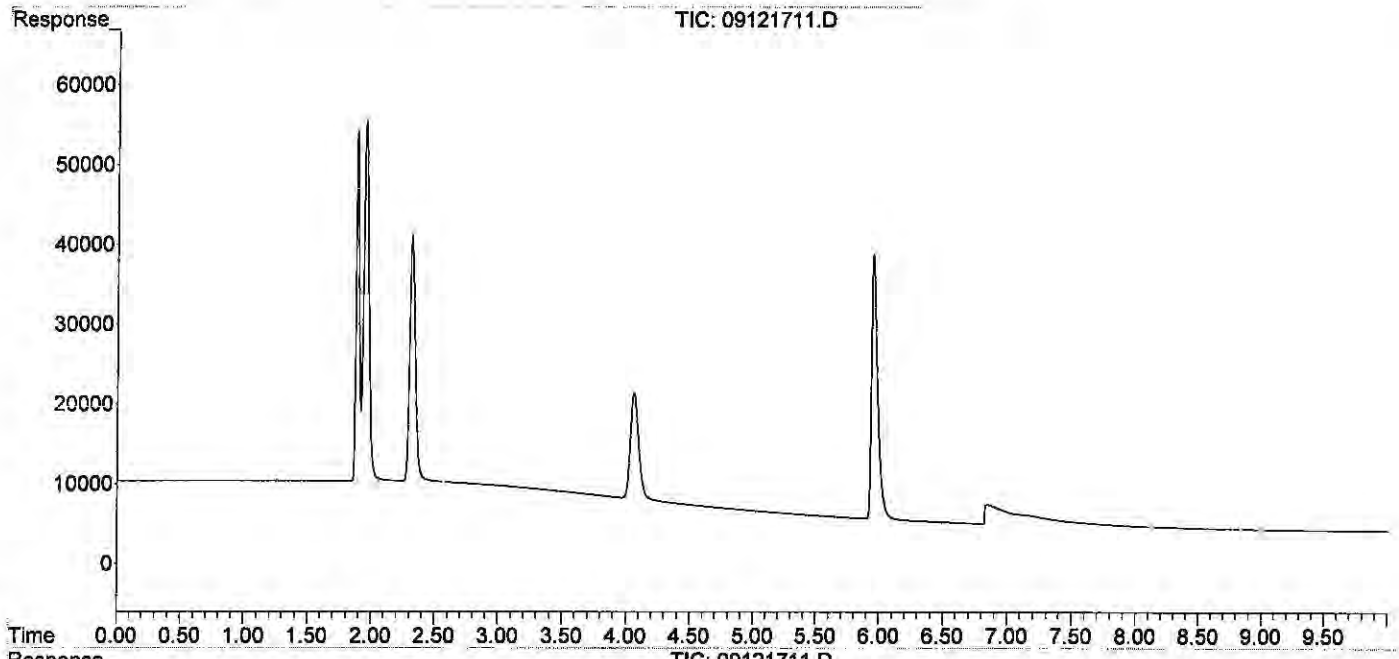
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

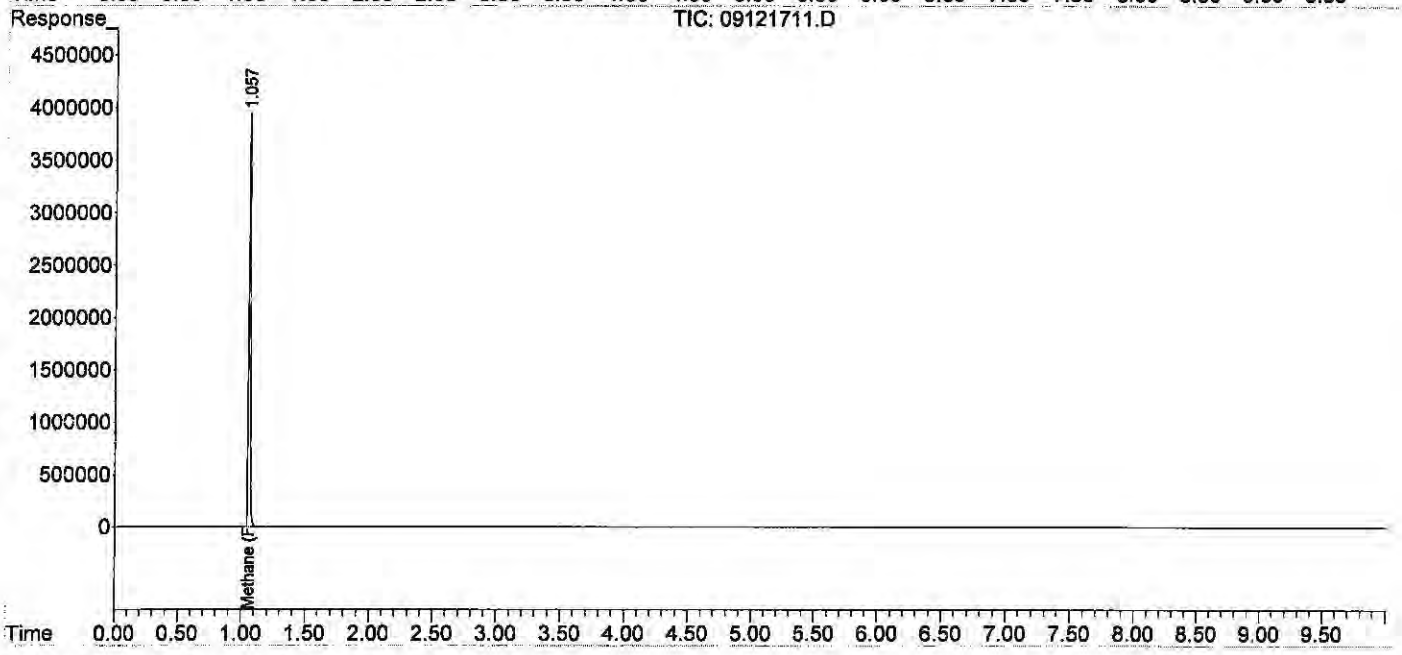
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





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 :

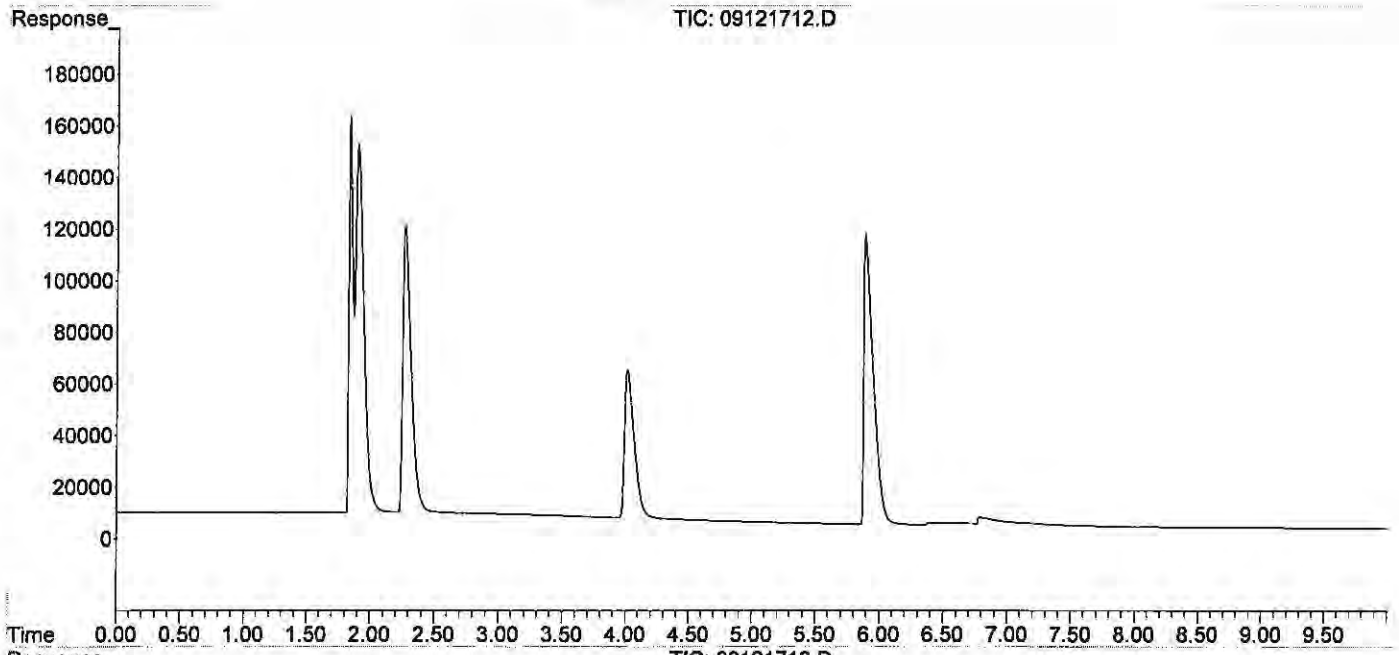
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

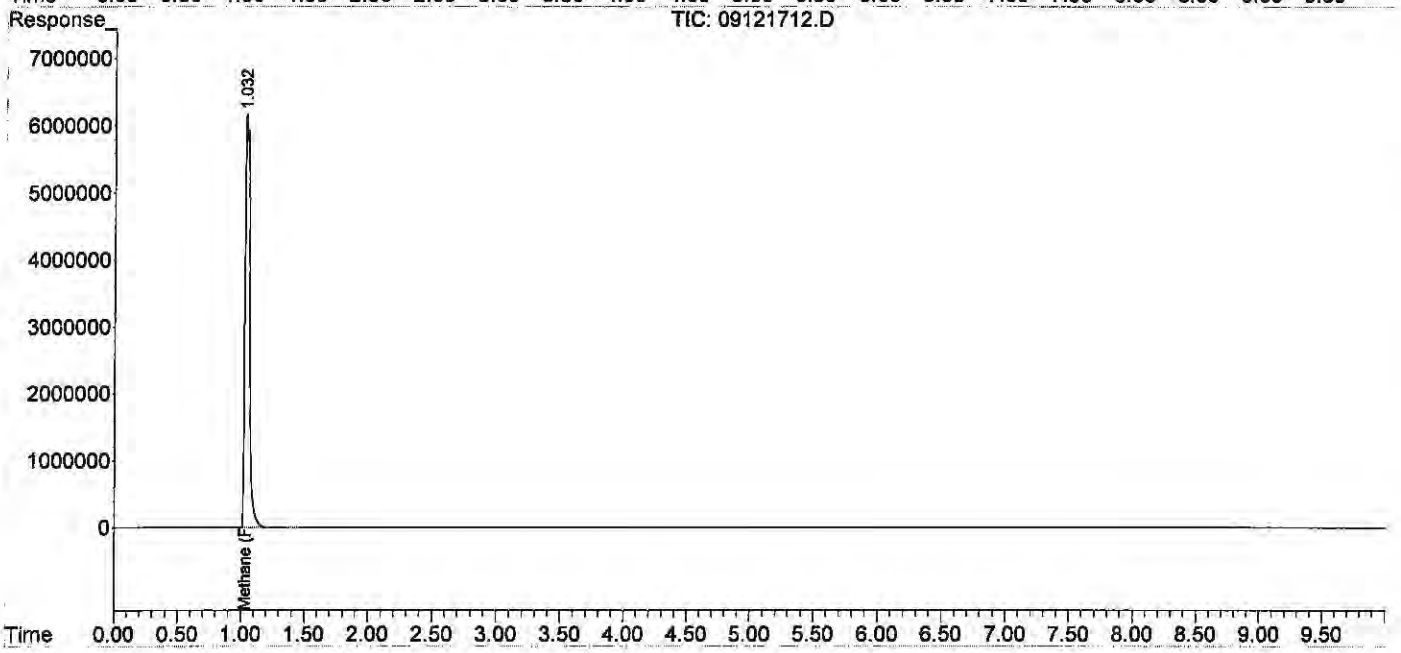
(f)=RT Delta > 1/2 Window (m)=manual int.

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	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

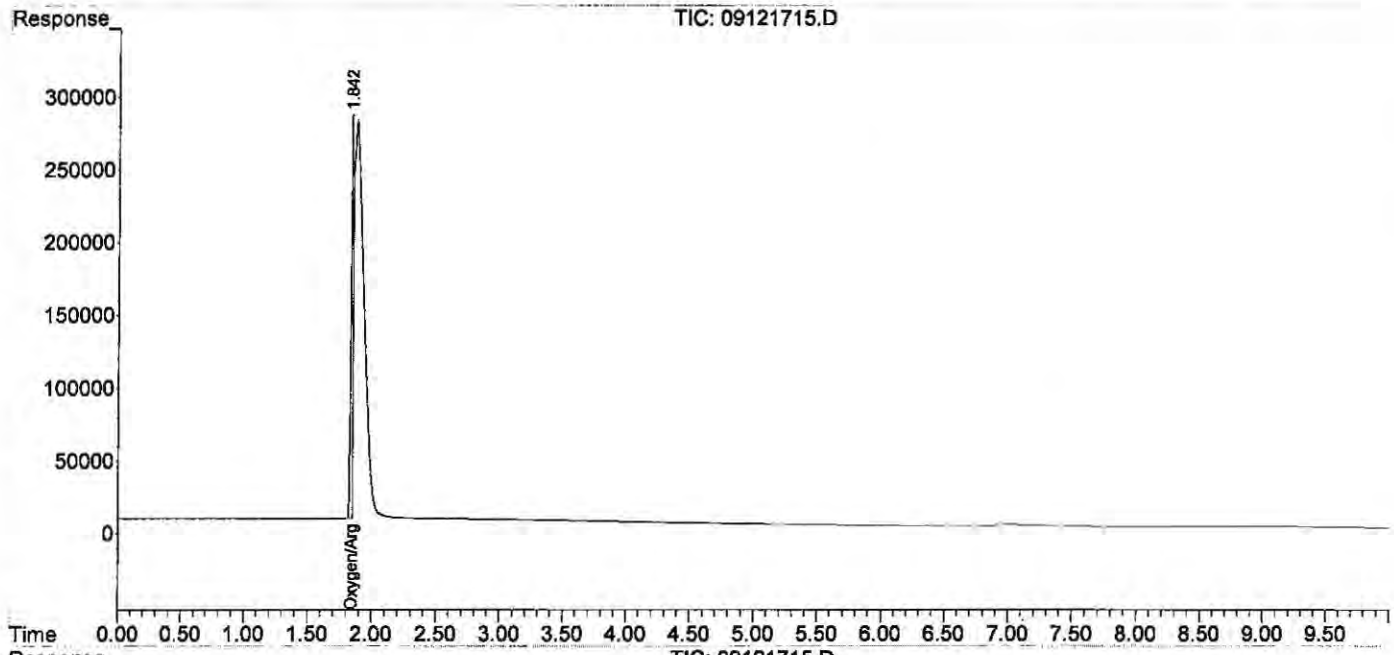
(f)=RT Delta > 1/2 Window (m)=manual int.

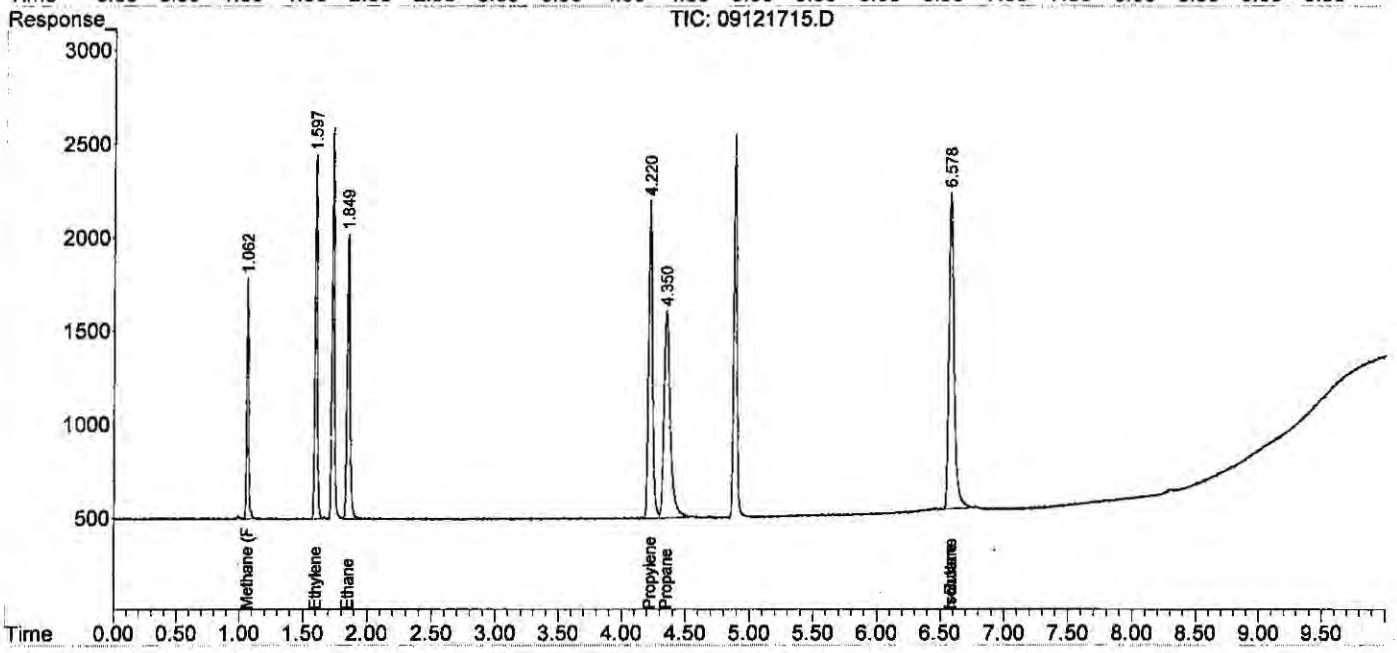
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group | Analyst : WH | Instrument : GC#10
Service Request: P1905493 | Date Analysis : 09/19/19 | Detector : FID#10, TCD#10
Sample Vol. (ml) : 32.00 ml | Head Space Vol.(ml) : 8.00 ml | Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD s32-05221901	0.100	94.544	101.854	101.449
ACTUAL		101.50	100.90	101.40
%Difference		6.9%	0.9%	0.0%
mcs 0.1ml	0.100	0.034	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS FID	0.100	1.391	1.135	1.278
LCSD FID	0.100	1.360	1.110	1.266
P1905493-001 0.1ml	0.100	1.585	0.000	0.000
P1905493-002 0.1ml	0.100	335.075	1.320	0.065
P1905493-003 0.1ml	0.100	124.387	1.366	0.052
P1905493-004 0.1ml	0.100	1502.45	0.000	0.000
P1905493-005 0.1ml	0.100	1742.97	0.000	0.000
P1905493-006 0.1ml	0.100	1408.40	0.000	0.000
P1905493-007 0.1ml	0.100	693.569	0.000	0.000
P1905493-002MS 0.1ml	0.100	356.908	57.524	64.264
P1905493-002MSD 0.1ml	0.100	332.745	53.740	60.046
STD s32-05221901		101.949	108.768	108.050
ACTUAL		101.50	100.90	101.40
%Difference		0.4%	7.8%	6.6%

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
mcs 0.1ml	0.340	0.000	0.000
LCS FID	13.910	11.350	12.780
LCSD FID	13.600	11.100	12.660
P1905493-001 0.1ml	15.850	0.000	0.000
P1905493-002 0.1ml	3350.750	13.200	0.650
P1905493-003 0.1ml	1243.870	13.660	0.520
P1905493-004 0.1ml	15024.45	0.000	0.000
P1905493-005 0.1ml	17429.71	0.000	0.000
P1905493-006 0.1ml	14084.02	0.000	0.000
P1905493-007 0.1ml	6935.690	0.000	0.000
P1905493-002MS 0.1ml	3569.080	575.240	642.640
P1905493-002MSD 0.1ml	3327.450	537.400	600.460

00996858

00996859

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 09:46:53
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 10:01:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

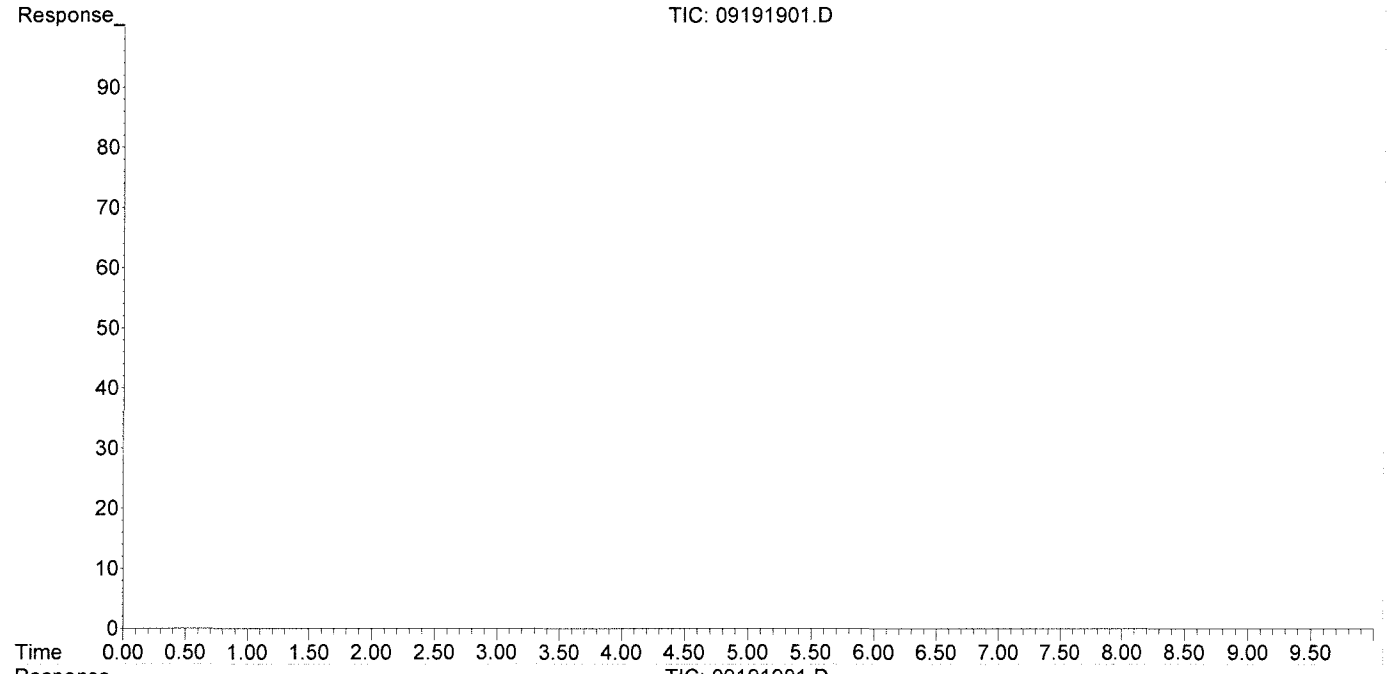
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.116	857578	94.544	ppm
7)	Ethylene	1.680	1704458	101.854	ppm
8)	Ethane	1.943	1719572	101.449	ppm
9)	Propylene	4.302	2529612	107.958	ppm
10)	Propane	4.425	2606105	104.746	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

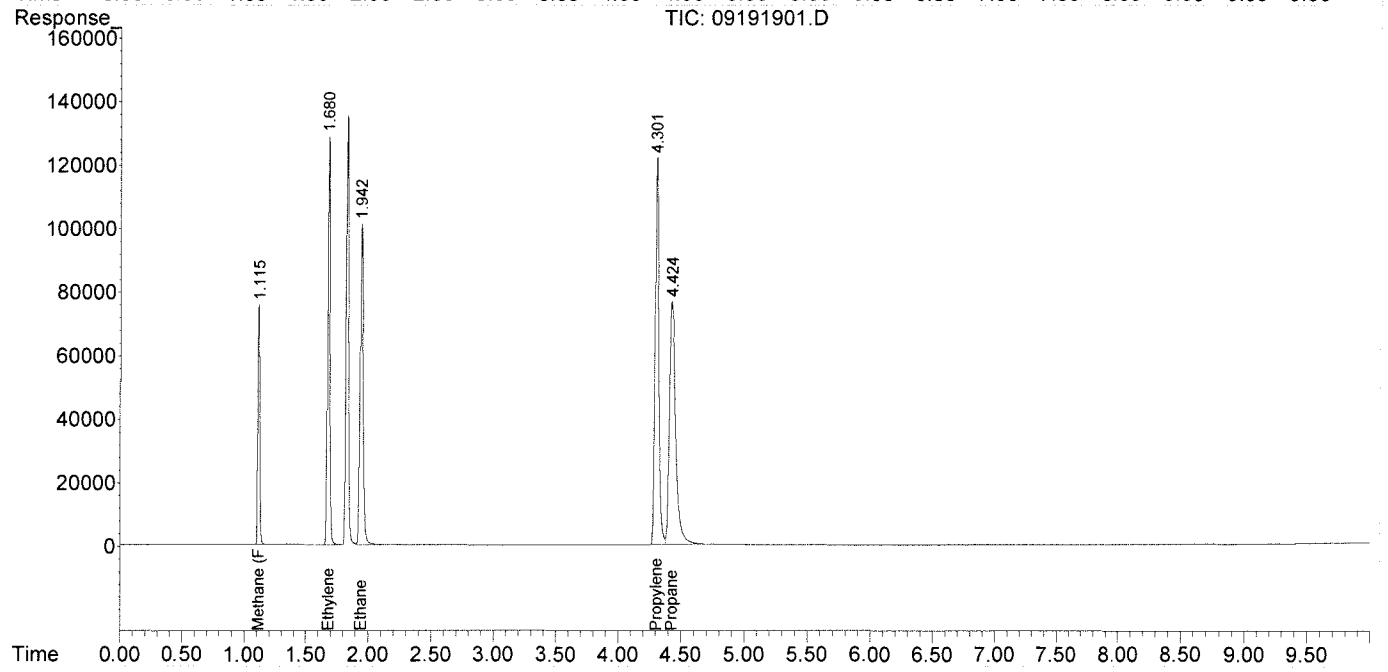
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 09:46:53
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 10:01:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:56:17
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 15:13:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

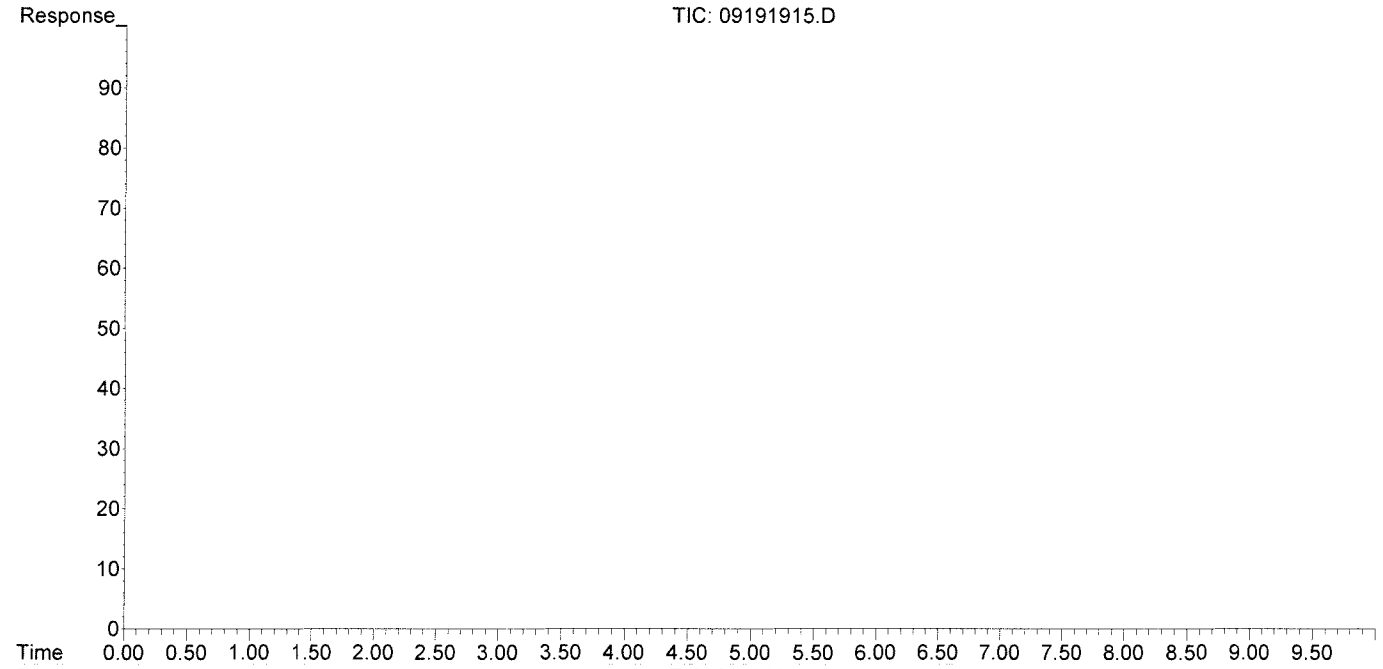
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.117	924745	101.949	ppm
7)	Ethylene	1.682	1820161	108.768	ppm
8)	Ethane	1.945	1831465	108.050	ppm
9)	Propylene	4.305	2686868	114.669	ppm
10)	Propane	4.428	2758067	110.854	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

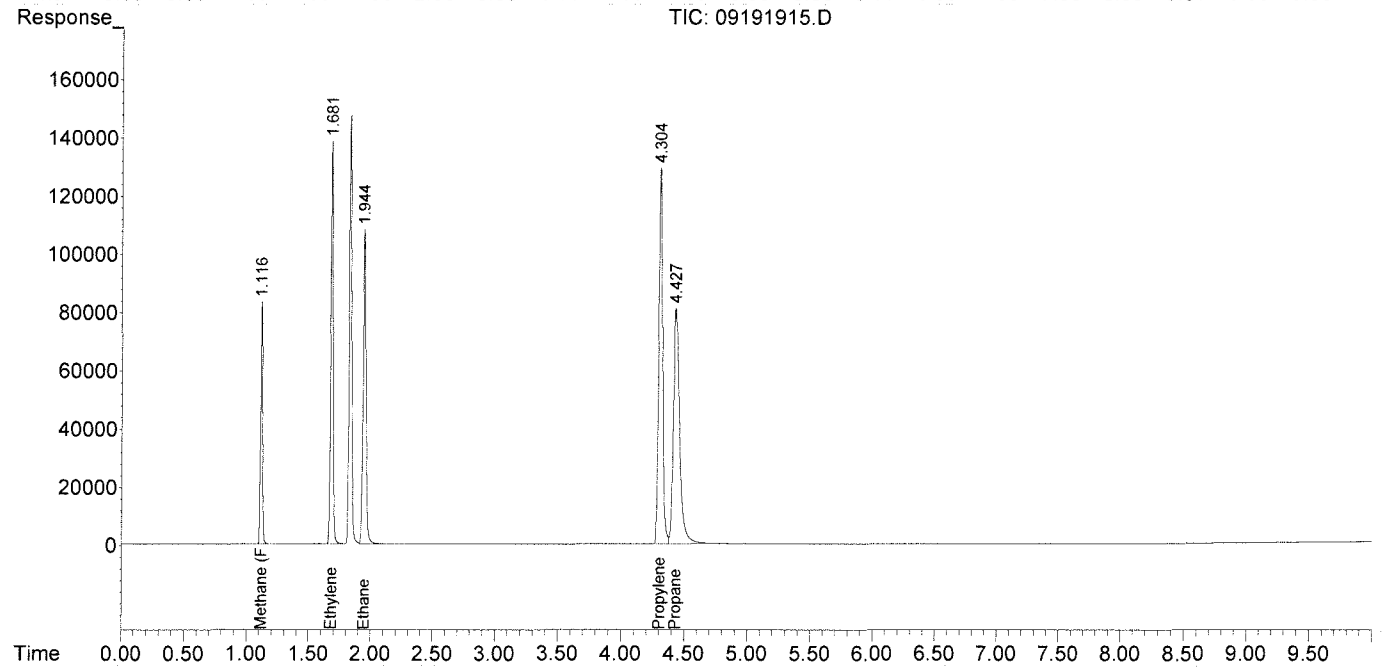
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_09\19\
Data File : 09191915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 19-Sep-2019, 14:56:17
Operator : WH
Sample : STD s32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 19 15:13:02 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2019_09\19\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	19-Sep-19, 09:46:53	09191901.D	STD s32-05221901		WH	RSKBOTH.M	
2	19-Sep-19, 10:12:42	09191902.D	RB 0.1ml		WH	RSKBOTH.M	
3	19-Sep-19, 11:28:04	09191903.D	mcs 0.1ml		WH	RSKBOTH.M	
4	19-Sep-19, 11:40:59	09191904.D	P1905493-001 0.1ml		WH	RSKBOTH.M	
5	19-Sep-19, 12:02:04	09191905.D	P1905493-003 0.1ml		WH	RSKBOTH.M	
6	19-Sep-19, 12:14:41	09191906.D	P1905493-004 0.1ml		WH	RSKBOTH.M	
7	19-Sep-19, 12:27:19	09191907.D	P1905493-005 0.1ml		WH	RSKBOTH.M	
8	19-Sep-19, 12:40:48	09191908.D	P1905493-006 0.1ml		WH	RSKBOTH.M	
9	19-Sep-19, 12:53:45	09191909.D	P1905493-007 0.1ml		WH	RSKBOTH.M	
10	19-Sep-19, 13:26:25	09191910.D	P1905493-002 0.1ml		WH	RSKBOTH.M	
11	19-Sep-19, 13:50:38	09191911.D	P1905493-002MS 0.1ml		WH	RSKBOTH.M	
12	19-Sep-19, 14:04:15	09191912.D	P1905493-002MSD 0.1ml		WH	RSKBOTH.M	
13	19-Sep-19, 14:21:20	09191913.D	LCS FID		WH	RSKBOTH.M	
14	19-Sep-19, 14:38:42	09191914.D	LCSD FID		WH	RSKBOTH.M	
15	19-Sep-19, 14:56:17	09191915.D	STD s32-05221901		WH	RSKBOTH.M	
16	19-Sep-19, 15:14:31	09191916.D	K1908366-001 0.1ml		WH	RSKBOTH.M	
17	19-Sep-19, 15:41:38	09191917.D	K1908366-002 0.1ml		WH	RSKBOTH.M	
18	19-Sep-19, 15:54:10	09191918.D	K1908366-003 0.1ml		WH	RSKBOTH.M	
19	19-Sep-19, 16:11:44	09191919.D	K1908366-004 0.1ml		WH	RSKBOTH.M	
20	19-Sep-19, 16:24:01	09191920.D	K1908366-005 0.1ml		WH	RSKBOTH.M	
21	19-Sep-19, 16:44:38	09191921.D	K1908366-006 0.1ml		WH	RSKBOTH.M	
22	19-Sep-19, 16:58:37	09191922.D	STD s32-05221901		WH	RSKBOTH.M	

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Fax:

Identifier: 034QI **Date Rec:** 09/12/2019 **Report Date:** 09/19/2019

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

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MICROBIAL INSIGHTS, INC.

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **034QI**
Date Received: 09/12/2019

Sample Information

Client Sample ID:		**35AWW19_091119**	**35AWW20_091119**	**LHSMW07_091119**	**35AWW06_091119**	**35AWW23_091119**
Sample Date:		09/11/2019	09/11/2019	09/11/2019	09/11/2019	09/11/2019
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**1.84E+01**	**1.60E+04**	**4.98E+01**	**2.86E+01**	**3.26E+02**
tceA Reductase	TCE	**7.00E-01**	<5.00E-01	**3.00E-01 (J)**	<2.60E+00	**3.40E+00**
BAV1 Vinyl Chloride Reductase	BVC	<5.00E-01	**1.03E+04**	<5.00E-01	**7.00E-01 (J)**	**1.10E+00 (J)**
Vinyl Chloride Reductase	VCR	**1.10E+00**	<5.00E-01	**2.74E+02**	<2.60E+00	**3.21E+01**
Dehalobacter spp.	*DHBt*	**2.36E+04**	**3.86E+02**	**1.32E+03**	<2.56E+01	<1.39E+01

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

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CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **034QI**
Date Received: 09/12/2019

Sample Information

Client Sample ID:	**35AWW11_091119**
Sample Date:	09/11/2019
Units:	cells/mL
Analyst/Reviewer:	HT

Dechlorinating Bacteria

Dehalococcoides	*DHC*	**1.24E+03**
tceA Reductase	TCE	<9.00E-01
BAV1 Vinyl Chloride Reductase	BVC	<9.00E-01
Vinyl Chloride Reductase	VCR	**8.01E+01**
Dehalobacter spp.	*DHBt*	**1.15E+05**

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

Quality Assurance/Quality Control Data

Samples Received **9/12/2019**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	09/12/2019	09/19/2019	1 °C	100%	non-detect	non-detect
TCE	09/12/2019	09/19/2019	1 °C	98%	non-detect	non-detect
VCR	09/12/2019	09/19/2019	1 °C	107%	non-detect	non-detect
DHBt	09/12/2019	09/19/2019	1 °C	105%	non-detect	non-detect
DHC	09/12/2019	09/19/2019	1 °C	107%	non-detect	non-detect

QUALITY CONTROL SUMMARY REPORT
LHAAP-58 DECEMBER 2019
SEMI-ANNUAL SAMPLING EVENT
LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS

February 2020

Prepared For:

Longhorn Army Ammunition Plant
Karnack, Texas

Under Contract To:

U.S. Army Corps of Engineers
Tulsa District
Tulsa, Oklahoma

Contract Number: W9128F-13-D-0012
Task Order Number: W912BV17F0150

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1 INTRODUCTION

Bhate reviewed three data packages from ALS Environmental, Houston, Texas with the analyses for Volatile Fatty Acids (VFAs) subcontracted to ALS Rochester, NY; Total Organic Carbon (TOC) subcontracted to ALS Kelso, WA; and the analyses of dissolved gases to ALS Simi Valley, CA. The dechlorinating bacteria analysis was subcontracted to Microbial Insights in Knoxville, TN. Groundwater samples were collected on December 18-20, 2019, from Site LHAAP-58 at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas. Data were reviewed for conformance to the requirements of the following guidance documents: [United States Environmental Protection Agency] *USEPA Contract Laboratory Program* [CLP] *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, January 2017); *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2017); and the *Final Basewide Uniform Federal Policy (UFP) – Quality Assurance Project Plan (QAPP) Longhorn Army Ammunition Plant* (Bhate, May 2018).

1.1 Intended Use of Data

The objective of sampling at LHAAP-58 in December 2019 was to complete a semi-annual sampling event.

Analyses performed include:

- RSK-175 – Dissolved Gases
- SM5310C – TOC
- SW8260C – Volatile Organic Compounds (VOCs)
- SW9056A – Anions (chloride, nitrate, and sulfate)
- High Performance Liquid Chromatography (HPLC)-METACIDS – VFAs
- CENSUS – Dechlorinating Bacteria (dehalococcoides [DHC]/dehalobacter [DHB])
- SW6020A - Arsenic

Table 1 lists the sample identification (ID) numbers and their associated laboratory package.

Table 2 lists qualified results with the qualification flag and reason code.

The following narrative is a brief synopsis of data that required qualification due to quality control discrepancies.

1.2 Preservation and Holding Times

Sample identification data were evaluated for agreement with the chain-of-custody (COC). All samples were received in appropriate containers, within the proper temperature range, in good condition, and within the required hold time with the following exception. The dilution analysis of sample 35AWW23_121819 was run one day outside hold time. The only compound reported from this run was acetone and it was flagged as estimated “J”.

1.3 Calibrations

All analytes reported must be present in the initial and continuing calibration. The calibrations must meet the acceptance criteria specified in Worksheet 24 (Analytical Instrument Calibration) of the QAPP. All results reported must be within the calibration range. Samples were diluted, if necessary, to bring analyte responses within the calibration range.

1.3.1 Continuing Calibration Verifications

The calibrations must meet the following criteria otherwise the compound is qualified J or UJ: The continuing calibration verification (CCV) criteria are 20 percent difference (%D) for VOCs and 50% for closing CCVs. Metals and general chemistry - 10%D; VFAs, dissolved gases, and TOC - 15%D.

The CCV recovery of chloromethane in package HS19121092 was below control limits. The recovery of 1,2,3-trichlorobenzene and 2-butanone were outside limits for samples 35AWW21_122019 and 35AWW21_122019-a in package HS19121257. Carbon disulfide was outside limits for samples in package HS19121155 along with 35AWW01_122019, LHSMW06_122019, LHSMW06_122019-a and 35AWW15_122019. These compounds were qualified estimated non-detect “UJ”.

Packages HS19121155 and HS19121257 reported instrument autosampler malfunctions that caused the internal standard amount to increase to double the normal amount. This caused the recovery of the majority of compounds to be above control limits in the closing CCV. These compounds were considered estimated and flagged “J/UJ” in the associated samples.

1.4 Blanks

If the analyte result for an associated sample was less than 5x (10x for common laboratory contaminants) the analyte concentration in the blank, that result was qualified “UB” and considered an artifact of blank contamination. Where the sample result for the affected analyte was non-detect or greater than 5x (10x) the amount in the blank, no qualifier was applied.

No data required qualification.

1.5 Surrogates

Surrogates were evaluated using limits defined by each method in the project-specific QAPP Worksheet 28.

No surrogates were reported outside control limits.

1.6 Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

LCS/LCSD recoveries were evaluated using limits defined in the project-specific QAPP Worksheet 15.

1.6.1 VFAs

The LCS recoveries for lactic acid and pyruvic acid were above control limits (117%/123%) in package HS19121092. Only samples 35AWW08_121819 and 03WW01_121819 reported detections for lactic acid and were qualified as estimated, "J".

1.7 Matrix Spike (MS)/Matrix Spike Duplicate Sample (MSD)

MS/MSD recoveries were evaluated using limits defined in Worksheet 15 of the project-specific QAPP. When sample results were greater than 4x the spike amount, control limits were not applicable and require no qualification. Furthermore, if a MS/MSD analyses was performed on a batched (unrelated) sample no qualification was made to the sample data.

No data required qualification.

1.8 Internal Standards

If the percent recovery (%R) for an internal standard in a sample is not within the limit, the associated sample is qualified for those analytes associated with the internal standard(s) outside of the limit.

Internal standards were within acceptance criteria for the associated compounds.

1.9 Precision

Precision is the measure of variability of individual sample measurements. Evaluation of field duplicates for precision was done using the relative percent difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent.

1.9.1 Lab Precision

The laboratory RPD of sample LHSMW07_121919 was exceeded for TOC. This compound was qualified as estimated, "J".

1.9.2 Field Precision

Field duplicate RPD limits were set at <30% for groundwater matrices and all compounds were within control limits.

2.0 DATA USABILITY SUMMARY

The data are usable for the intended purposes of the project (see Table 3). The data quality objectives have been met for the project.

Table 1: Field Sample Identification and Laboratory Packages

Client Sample ID	Lab Package/ID	SM2320B	E365.3	SM5310C	SW6020A	SW8260C	HPLC-METACIDS	SW9056A	RSK-175	SM3500Fe	E376.1	CENSUS	Arsenic 6020A
03WW01_121819	HS19121092			X		X	X	X	X			X	X
35AWW01_122019	HS19121257					X							
35AWW06 _121919	HS19121155			X		X	X	X	X			X	
35AWW08 _121819	HS19121092			X		X	X	X	X				X
35AWW09 _121819	HS19121092			X		X	X	X	X			X	X
35AWW10 _121919	HS19121155			X		X	X	X	X				
35AWW10 _121919_a	HS19121155			X		X	X	X	X				
35AWW11_121819	HS19121092			X		X	X	X	X			X	
35AWW12_121819	HS19121092					X							
35AWW13_121819	HS19121092					X							
35AWW14_121919	HS19121155					X							
35AWW15_122019	HS19121257					X							
35AWW16 _121919	HS19121155					X							
35AWW17 _121819	HS19121092					X							
35AWW18_121819	HS19121092					X							
35AWW19_121819	HS19121092			X		X	X	X	X			X	
35AWW20_121919	HS19121155			X		X	X	X	X			X	
35AWW21_122019	HS19121257					X							
35AWW21_122019_a	HS19121257					X							
35AWW22_121819	HS19121092					X							
35AWW23_121819	HS19121092			X		X	X	X	X			X	
35AWW24_121919	HS19121155					X							
LHSMW06_122019	HS19121257					X							X
LHSMW06_122019-a	HS19121257					X							X
LHSMW07_121919	HS19121155			X		X	X	X	X			X	

Notes:
MW – Monitoring Well; SM – Standard Method; SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.
E – USEPA Method; HS - Houston

Table 2: Qualified Analytical Data

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
03WW01_121819	HS19121092	Lactic Acid Chloromethane	1.8 J 5.0 UJ	LCS > CCV
35AWW08_121819	HS19121092	Lactic Acid Chloromethane	7.7 J 5.0 UJ	LCS > CCV
35AWW09_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW11_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW12_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW13_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW17_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW18_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW19_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW22_121819	HS19121092	Chloromethane	0.5 UJ	CCV
35AWW23_121819	HS19121092	Acetone Chloromethane	480 J 0.5 UJ	HT CCV
35AWW06_121919	HS19121155	1,1,1,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethene 1,1-Dichloropropene 1,2,4-Trimethylbenzene 1,2-Dibromo-3-chloropropane	0.5 UJ 0.5 UJ 0.5 UJ 0.5 UJ 0.5 UJ 0.5 UJ 0.5 UJ	CCV CCV CCV CCV CCV CCV CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
35AWW10_121919	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
35AWW10_121919-a	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
35AWW14_121919	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	15 J	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	3.7 J	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	11 J	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.75 J	CCV
35AWW16_121919	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
35AWW20_121919	HS19121155	1,1,1,2-Tetrachloroethane	5 UJ	CCV
		1,1,1-Trichloroethane	5 UJ	CCV
		1,1,2-Trichloroethane	75 J	CCV
		1,1-Dichloroethene	970 J	CCV
		1,1-Dichloropropene	5 UJ	CCV
		1,2,4-Trimethylbenzene	5 UJ	CCV
		1,2-Dibromo-3-chloropropane	5 UJ	CCV
		1,2-Dibromoethane	5 UJ	CCV
		1,2-Dichlorobenzene	17 J	CCV
		1,2-Dichloroethane	19 J	CCV
		1,2-Dichloropropane	5 UJ	CCV
		1,3-Dichlorobenzene	5 UJ	CCV
		1,3-Dichloropropane	5 UJ	CCV
		1,4-Dichlorobenzene	5 UJ	CCV
		2,2-Dichloropropane	5 UJ	CCV
		2-Butanone	10 UJ	CCV
		2-Hexanone	10 UJ	CCV
		4-Isopropyltoluene	5 UJ	CCV
		4-Methyl-2-pentanone	10 UJ	CCV
		Acetone	10 UJ	CCV
		Benzene	9 J	CCV
		Bromobenzene	5 UJ	CCV
		Bromochloromethane	5 UJ	CCV
		Bromodichloromethane	5 UJ	CCV
		Bromoform	5 UJ	CCV
		Bromomethane	5 UJ	CCV
		Carbon disulfide	10 UJ	CCV
		Carbon tetrachloride	5 UJ	CCV
		Chlorobenzene	5 UJ	CCV
		Chloroethane	5 UJ	CCV
		Chloroform	5 UJ	CCV
		Chloromethane	5 UJ	CCV
		cis-1,2-Dichloroethene	70 J	CCV
		cis-1,3-Dichloropropene	5 UJ	CCV
		Dibromochloromethane	5 UJ	CCV
		Dibromomethane	5 UJ	CCV
		Dichlorodifluoromethane	5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		Ethylbenzene	5 UJ	CCV
		Hexachlorobutadiene	5 UJ	CCV
		Isopropylbenzene	5 UJ	CCV
		m,p-Xylene	10 UJ	CCV
		Methylene chloride	10 UJ	CCV
		n-Butylbenzene	5 UJ	CCV
		o-Xylene	5 UJ	CCV
		sec-Butylbenzene	5 UJ	CCV
		Styrene	5 UJ	CCV
		tert-Butylbenzene	5 UJ	CCV
		Tetrachloroethene	5 UJ	CCV
		Toluene	5 UJ	CCV
		trans-1,2-Dichloroethene	9.1 J	CCV
		trans-1,3-Dichloropropene	5 UJ	CCV
		Trichloroethene	99 J	CCV
		Trichlorofluoromethane	5 UJ	CCV
		Vinyl chloride	2,800 J	CCV
35AWW24_121919	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
LHSMW07_121919	HS19121155	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	46 J	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.64 J	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	1.2 J	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	3.1 J	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	42 J	CCV
		Total Organic Carbon (TOC) (mg/L)	3.48 J	Lab Dup RPD
35AWW01_122019	HS19121257	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
35AWW15_122019	HS19121257	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	0.5 UJ	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	0.5 UJ	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	0.5 UJ	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	0.5 UJ	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	0.5 UJ	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	0.5 UJ	CCV
35AWW21_122019	HS19121257	1,2,3-Trichlorobenzene	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
35AWW21_122019-a	HS19121257	1,2,3-Trichlorobenzene	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
LHSMW06_122019	HS19121257	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	19 J	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	68 J	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	1.9 J	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	1.4 J	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	17 J	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	5.7 J	CCV
LHSMW06_122019-a	HS19121257	1,1,1,2-Tetrachloroethane	0.5 UJ	CCV
		1,1,1-Trichloroethane	0.5 UJ	CCV
		1,1,2-Trichloroethane	0.5 UJ	CCV
		1,1-Dichloroethene	20 J	CCV
		1,1-Dichloropropene	0.5 UJ	CCV
		1,2,4-Trimethylbenzene	0.5 UJ	CCV
		1,2-Dibromo-3-chloropropane	0.5 UJ	CCV
		1,2-Dibromoethane	0.5 UJ	CCV

Client Sample ID Laboratory	Laboratory Package	Analyte Name	Result and Qualifier (µg/L)	Reason for Qualification
		1,2-Dichlorobenzene	0.5 UJ	CCV
		1,2-Dichloroethane	0.5 UJ	CCV
		1,2-Dichloropropane	0.5 UJ	CCV
		1,3-Dichlorobenzene	0.5 UJ	CCV
		1,3-Dichloropropane	0.5 UJ	CCV
		1,4-Dichlorobenzene	0.5 UJ	CCV
		2,2-Dichloropropane	0.5 UJ	CCV
		2-Butanone	1.0 UJ	CCV
		2-Hexanone	1.0 UJ	CCV
		4-Isopropyltoluene	0.5 UJ	CCV
		4-Methyl-2-pentanone	1.0 UJ	CCV
		Acetone	1.0 UJ	CCV
		Benzene	0.5 UJ	CCV
		Bromobenzene	0.5 UJ	CCV
		Bromochloromethane	0.5 UJ	CCV
		Bromodichloromethane	0.5 UJ	CCV
		Bromoform	0.5 UJ	CCV
		Bromomethane	0.5 UJ	CCV
		Carbon disulfide	1.0 UJ	CCV
		Carbon tetrachloride	0.5 UJ	CCV
		Chlorobenzene	0.5 UJ	CCV
		Chloroethane	0.5 UJ	CCV
		Chloroform	0.5 UJ	CCV
		Chloromethane	0.5 UJ	CCV
		cis-1,2-Dichloroethene	68 J	CCV
		cis-1,3-Dichloropropene	0.5 UJ	CCV
		Dibromochloromethane	0.5 UJ	CCV
		Dibromomethane	0.5 UJ	CCV
		Dichlorodifluoromethane	0.5 UJ	CCV
		Ethylbenzene	0.5 UJ	CCV
		Hexachlorobutadiene	0.5 UJ	CCV
		Isopropylbenzene	0.5 UJ	CCV
		m,p-Xylene	1.0 UJ	CCV
		Methylene chloride	1.0 UJ	CCV
		n-Butylbenzene	0.5 UJ	CCV
		o-Xylene	0.5 UJ	CCV
		sec-Butylbenzene	0.5 UJ	CCV
		Styrene	0.5 UJ	CCV
		tert-Butylbenzene	0.5 UJ	CCV
		Tetrachloroethene	1.9 J	CCV
		Toluene	0.5 UJ	CCV
		trans-1,2-Dichloroethene	1.5 J	CCV
		trans-1,3-Dichloropropene	0.5 UJ	CCV
		Trichloroethene	17 J	CCV
		Trichlorofluoromethane	0.5 UJ	CCV
		Vinyl chloride	5.6 J	CCV

Notes:
µg/L – micrograms per liter; mg/L – milligrams per liter
J – Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ – The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
Lab dup RPD – the relative percent difference between sample and laboratory duplicate was outside control limits
LCS > – laboratory control sample recoveries were above control limits
CCV – continuing calibration verification recovery outside control limits
HT – hold time exceedance

Table 3: Completeness by Method

Method	No. of Rejected Results	% Completeness
SM5310C	0	100
SW8260C	0	100
HPLC-METACIDS	0	100
SW9056A	0	100
RSK-175	0	100
CENSUS	0	100
SW6020A	0	100

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
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January 10, 2020

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

Work Order: **HS19121092**

Laboratory Results for: **LHAAP-58**

Dear Marcia,

ALS Environmental received 12 sample(s) on Dec 19, 2019 for the analysis presented in the following report.

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

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

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

Sincerely,

Generated By: DAYNA.FISHER
RJ Modashia
Project Manager

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19121092

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19121092-01	35AWW09_121819	Groundwater		18-Dec-2019 08:00	19-Dec-2019 10:20	☐
HS19121092-02	03WW01_121819	Groundwater		18-Dec-2019 09:00	19-Dec-2019 10:20	☐
HS19121092-03	35AWW08_121819	Groundwater		18-Dec-2019 09:55	19-Dec-2019 10:20	☐
HS19121092-04	35AWW11_121819	Groundwater		18-Dec-2019 10:50	19-Dec-2019 10:20	☐
HS19121092-05	35AWW23_121819	Groundwater		18-Dec-2019 11:45	19-Dec-2019 10:20	☐
HS19121092-06	35AWW19_121819	Groundwater		18-Dec-2019 12:40	19-Dec-2019 10:20	☐
HS19121092-07	35AWW13_121819	Groundwater		18-Dec-2019 13:30	19-Dec-2019 10:20	☐
HS19121092-08	35AWW17_121819	Groundwater		18-Dec-2019 08:45	19-Dec-2019 10:20	☐
HS19121092-09	35AWW18_121819	Groundwater		18-Dec-2019 10:00	19-Dec-2019 10:20	☐
HS19121092-10	35AWW22_121819	Groundwater		18-Dec-2019 11:20	19-Dec-2019 10:20	☐
HS19121092-11	35AWW12_121819	Groundwater		18-Dec-2019 12:30	19-Dec-2019 10:20	☐
HS19121092-12	Trip Blank	Groundwater		18-Dec-2019 00:00	19-Dec-2019 10:20	☐

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19121092

CASE NARRATIVE

Work Order Comments

- The analysis for VFA was subcontracted to ALS Rochester, NY. Final report attached.
- The analysis for MEE plus CO2 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for DHC/DHB were subcontracted to Microbial Insights in Knoxville TN. Final report attached.
- The analysis for TOC was subcontracted to ALS Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R353768

Sample ID: 35AWW23_121819 (HS19121092-05)

- Dilution for sample HS19121092-05 run out of hold.

Sample ID: HS19121497-01MSD

- MSD is for an unrelated sample

Batch ID: R353710

Sample ID: 03WW01_121819 (HS19121092-02)

- Lowest practical dilution for sample HS19121092-02. Sample is foamy.

Sample ID: 35AWW08_121819 (HS19121092-03)

- Lowest practical dilution for sample HS19121092-03. Sample is foamy.

Sample ID: Sample HS19121092-01 through -12

- Samples were analyzed on day zero of hold time on an instrument that did not have a full multipoint calibration for surrogates and internal standards. The designated DOD instrument was inoperable due to a broken syringe."

Sample ID: VSTD050

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

Metals by Method SW6020

Batch ID: 149161

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

WetChemistry by Method SW9056

Batch ID: R353865,R353906

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

Batch ID: R353227

Sample ID: 03WW01_121819 (HS19121092-02)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW08_121819 (HS19121092-03)

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Work Order: HS19121092

CASE NARRATIVE

WetChemistry by Method SW9056

Batch ID: R353227

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Sulfate)

Sample ID: 35AWW09_121819 (HS19121092-01)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW11_121819 (HS19121092-04)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW19_121819 (HS19121092-06)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N))

Sample ID: 35AWW23_121819 (HS19121092-05)

- The reporting limit is elevated due to dilution for high concentrations of non-target analytes. (Nitrogen, Nitrate (As N),Sulfate)

Sample ID: HS19121044-01MS

- MS and MSD are for an unrelated sample (Sulfate)

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_121819
Collection Date: 18-Dec-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,1-Dichloroethane	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 17:53
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 17:53
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 17:53
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 17:53
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 17:53
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 17:53
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW09_121819
Collection Date: 18-Dec-2019 08:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
cis-1,2-Dichloroethene	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 17:53
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 17:53
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 17:53
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 17:53
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 17:53
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Tetrachloroethene	**500**		**7.5**	**12**	**25**	**UG/L**	25	01-Jan-2020 18:17
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Trichloroethene	**160**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 17:53
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 17:53
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 17:53*
Surr: 1,2-Dichloroethane-d4	*91.9*			**0**	*81-118*	*%REC*	*25*	*01-Jan-2020 18:17*
Surr: 4-Bromofluorobenzene	*96.2*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 17:53*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*25*	*01-Jan-2020 18:17*
Surr: Dibromofluoromethane	*92.1*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 17:53*
Surr: Dibromofluoromethane	*93.5*			**0**	*80-119*	*%REC*	*25*	*01-Jan-2020 18:17*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 17:53*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*25*	*01-Jan-2020 18:17*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 27-Dec-2019		Analyst: JHD
Arsenic	**0.000606**	J	**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	03-Jan-2020 12:41
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1,310**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jan-2020 22:48
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Dec-2019 03:12
Sulfate	**940**		**10.0**	**25.0**	**25.0**	**mg/L**	50	06-Jan-2020 13:01

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

ALS Houston, US

Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP-58

WorkOrder:HS19121092

Sample ID: 35AWW09_121819

Lab ID:HS19121092-01

Collection Date: 18-Dec-2019 08:00

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121819
Collection Date: 18-Dec-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
2-Butanone	10	U	5.0	10	20	UG/L	10	01-Jan-2020 17:04
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
2-Hexanone	10	U	10	10	20	UG/L	10	01-Jan-2020 17:04
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	01-Jan-2020 17:04
Acetone	**41**		**4.0**	**20**	**20**	**UG/L**	10	01-Jan-2020 17:04
Benzene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Carbon disulfide	10	U	6.0	10	20	UG/L	10	01-Jan-2020 17:04
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Chloroform	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121819
Collection Date: 18-Dec-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
cis-1,2-Dichloroethene	**14**		**2.0**	**5.0**	**10**	**UG/L**	10	01-Jan-2020 17:04
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	01-Jan-2020 17:04
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
m,p-Xylene	10	U	5.0	10	20	UG/L	10	01-Jan-2020 17:04
Methylene chloride	10	U	4.0	10	20	UG/L	10	01-Jan-2020 17:04
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:04
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Styrene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Toluene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Trichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:04
Vinyl chloride	**5.4**	J	**2.0**	**5.0**	**10**	**UG/L**	10	01-Jan-2020 17:04
Surr: 1,2-Dichloroethane-d4	*92.4*			**0**	*81-118*	*%REC*	*10*	*01-Jan-2020 17:04*
Surr: 4-Bromofluorobenzene	*94.8*			**0**	*85-114*	*%REC*	*10*	*01-Jan-2020 17:04*
Surr: Dibromofluoromethane	*93.1*			**0**	*80-119*	*%REC*	*10*	*01-Jan-2020 17:04*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*10*	*01-Jan-2020 17:04*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 27-Dec-2019		Analyst: JHD
Arsenic	**0.0158**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	03-Jan-2020 12:43
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**940**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jan-2020 23:04
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Dec-2019 03:28
Sulfate	**155**		**1.00**	**2.50**	**2.50**	**mg/L**	5	20-Dec-2019 03:28
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:33

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 03WW01_121819
Collection Date: 18-Dec-2019 09:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121819
Collection Date: 18-Dec-2019 09:55

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1,1-Trichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1,2,2-Tetrachloroethane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1,2-Trichloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,1-Dichloropropene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2,3-Trichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2,3-Trichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2,4-Trichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2,4-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2-Dibromo-3-chloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2-Dibromoethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2-Dichlorobenzene	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2-Dichloroethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,2-Dichloropropane	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,3,5-Trimethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,3-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,3-Dichloropropane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
1,4-Dichlorobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
2,2-Dichloropropane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
2-Butanone	10	U	5.0	10	20	UG/L	10	01-Jan-2020 17:29
2-Chlorotoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
2-Hexanone	10	U	10	10	20	UG/L	10	01-Jan-2020 17:29
4-Chlorotoluene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
4-Isopropyltoluene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
4-Methyl-2-pentanone	10	U	7.0	10	20	UG/L	10	01-Jan-2020 17:29
Acetone	**55**		**4.0**	**20**	**20**	**UG/L**	10	01-Jan-2020 17:29
Benzene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Bromobenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Bromochloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Bromodichloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Bromoform	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Bromomethane	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Carbon disulfide	10	U	6.0	10	20	UG/L	10	01-Jan-2020 17:29
Carbon tetrachloride	5.0	U	5.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Chlorobenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Chloroethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Chloroform	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW08_121819
Collection Date: 18-Dec-2019 09:55

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
cis-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
cis-1,3-Dichloropropene	5.0	U	1.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Dibromochloromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Dibromomethane	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Dichlorodifluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Ethylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Hexachlorobutadiene	10	U	10	10	10	UG/L	10	01-Jan-2020 17:29
Isopropylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
m,p-Xylene	10	U	5.0	10	20	UG/L	10	01-Jan-2020 17:29
Methylene chloride	10	U	4.0	10	20	UG/L	10	01-Jan-2020 17:29
n-Butylbenzene	5.0	U	4.0	5.0	10	UG/L	10	01-Jan-2020 17:29
n-Propylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Naphthalene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
o-Xylene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
sec-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Styrene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
tert-Butylbenzene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Tetrachloroethene	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Toluene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
trans-1,2-Dichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
trans-1,3-Dichloropropene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Trichloroethene	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Trichlorofluoromethane	5.0	U	3.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Vinyl chloride	5.0	U	2.0	5.0	10	UG/L	10	01-Jan-2020 17:29
Surr: 1,2-Dichloroethane-d4	*93.2*			**0**	*81-118*	*%REC*	*10*	*01-Jan-2020 17:29*
Surr: 4-Bromofluorobenzene	*96.0*			**0**	*85-114*	*%REC*	*10*	*01-Jan-2020 17:29*
Surr: Dibromofluoromethane	*92.5*			**0**	*80-119*	*%REC*	*10*	*01-Jan-2020 17:29*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*10*	*01-Jan-2020 17:29*
METALS BY ICPMS BY SW6020A		**Method:SW6020**				Prep:SW3010A / 27-Dec-2019		Analyst: JHD
Arsenic	**0.0253**		**0.000400**	**0.000500**	**0.00500**	**mg/L**	1	03-Jan-2020 12:49
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**2,290**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jan-2020 23:21
Nitrogen, Nitrate (As N)	**0.704**		**0.150**	**0.500**	**0.500**	**mg/L**	5	20-Dec-2019 03:45
Sulfate	2.50	U	1.00	2.50	2.50	mg/L	5	20-Dec-2019 03:45
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:33

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

ALS Houston, US

Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP-58

WorkOrder:HS19121092

Sample ID: 35AWW08_121819

Lab ID:HS19121092-03

Collection Date: 18-Dec-2019 09:55

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_121819
Collection Date: 18-Dec-2019 10:50

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
2-Butanone	**29**		**0.50**	**1.0**	**2.0**	**UG/L**	1	01-Jan-2020 14:14
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 14:14
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 14:14
Acetone	**38**		**0.40**	**2.0**	**2.0**	**UG/L**	1	01-Jan-2020 14:14
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 14:14
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_121819
Collection Date: 18-Dec-2019 10:50

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 14:14
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 14:14
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 14:14
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:14
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:14
Surr: 1,2-Dichloroethane-d4	*93.5*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 14:14*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 14:14*
Surr: Dibromofluoromethane	*95.5*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 14:14*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 14:14*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**2,080**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jan-2020 23:38
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Dec-2019 04:02
Sulfate	**192**		**1.00**	**2.50**	**2.50**	**mg/L**	5	20-Dec-2019 04:02
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:33
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW11_121819
Collection Date: 18-Dec-2019 10:50

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_121819
Collection Date: 18-Dec-2019 11:45

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
2-Butanone	**390**		**0.50**	**1.0**	**2.0**	**UG/L**	1	01-Jan-2020 14:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 14:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 14:38
Acetone	**480**	H	**2.0**	**10**	**10**	**UG/L**	5	02-Jan-2020 14:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 14:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW23_121819
Collection Date: 18-Dec-2019 11:45

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
cis-1,2-Dichloroethene	**7.6**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 14:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 14:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 14:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 14:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 14:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Naphthalene	**1.6**		**0.30**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 14:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Trichloroethene	**2.7**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 14:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 14:38
Vinyl chloride	**1.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 14:38
Surr: 1,2-Dichloroethane-d4	*91.7*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 14:38*
Surr: 1,2-Dichloroethane-d4	*91.0*			**0**	*81-118*	*%REC*	*5*	*02-Jan-2020 14:26*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 14:38*
Surr: 4-Bromofluorobenzene	*96.3*			**0**	*85-114*	*%REC*	*5*	*02-Jan-2020 14:26*
Surr: Dibromofluoromethane	*94.8*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 14:38*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*5*	*02-Jan-2020 14:26*
Surr: Toluene-d8	*99.4*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 14:38*
Surr: Toluene-d8	*98.6*			**0**	*89-112*	*%REC*	*5*	*02-Jan-2020 14:26*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**868**		**10.0**	**25.0**	**25.0**	**mg/L**	50	04-Jan-2020 23:54
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Dec-2019 04:18
Sulfate	**1.62**	J	**1.00**	**2.50**	**2.50**	**mg/L**	5	20-Dec-2019 04:18
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:33

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

ALS Houston, US

Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.

ANALYTICAL REPORT

Project: LHAAP-58

WorkOrder:HS19121092

Sample ID: 35AWW23_121819

Lab ID:HS19121092-05

Collection Date: 18-Dec-2019 11:45

Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_121819
Collection Date: 18-Dec-2019 12:40

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,1-Dichloroethane	**0.98**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 15:03
1,1-Dichloroethene	**4.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 15:03
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,2-Dichloroethane	**1.0**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 15:03
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:03
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 15:03
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 15:03
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 15:03
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 15:03
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_121819
Collection Date: 18-Dec-2019 12:40

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 15:03
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:03
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 15:03
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:03
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:03
Surr: 1,2-Dichloroethane-d4	*92.5*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 15:03*
Surr: 4-Bromofluorobenzene	*95.3*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 15:03*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 15:03*
Surr: Toluene-d8	*99.8*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 15:03*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**979**		**10.0**	**25.0**	**25.0**	**mg/L**	50	05-Jan-2020 00:11
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	20-Dec-2019 04:35
Sulfate	**997**		**10.0**	**25.0**	**25.0**	**mg/L**	50	06-Jan-2020 13:18
SUBCONTRACT ANALYSIS - DHC/DHB		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:33
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	07-Jan-2020 09:12

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW19_121819
Collection Date: 18-Dec-2019 12:40

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	09-Jan-2020 15:54
SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	31-Dec-2019 10:18

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_121819
Collection Date: 18-Dec-2019 13:30

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:27
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 15:27
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 15:27
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 15:27
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 15:27
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW13_121819
Collection Date: 18-Dec-2019 13:30

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-07
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 15:27
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:27
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 15:27
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:27
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:27
Surr: 1,2-Dichloroethane-d4	*92.1*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 15:27*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 15:27*
Surr: Dibromofluoromethane	*92.9*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 15:27*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 15:27*

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121819
Collection Date: 18-Dec-2019 08:45

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:51
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 15:51
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 15:51
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 15:51
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 15:51
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW17_121819
Collection Date: 18-Dec-2019 08:45

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-08
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 15:51
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 15:51
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 15:51
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 15:51
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 15:51
Surr: 1,2-Dichloroethane-d4	*92.2*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 15:51*
Surr: 4-Bromofluorobenzene	*96.5*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 15:51*
Surr: Dibromofluoromethane	*94.2*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 15:51*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 15:51*

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121819
Collection Date: 18-Dec-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,1-Dichloroethane	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 13:50
1,1-Dichloroethene	**4.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	01-Jan-2020 13:50
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 13:50
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 13:50
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 13:50
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 13:50
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 13:50
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW18_121819
Collection Date: 18-Dec-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-09
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 13:50
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 13:50
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 13:50
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:50
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:50
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 13:50*
Surr: 4-Bromofluorobenzene	*95.6*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 13:50*
Surr: Dibromofluoromethane	*94.1*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 13:50*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 13:50*

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121819
Collection Date: 18-Dec-2019 11:20

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 16:16
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 16:16
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 16:16
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 16:16
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 16:16
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW22_121819
Collection Date: 18-Dec-2019 11:20

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-10
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 16:16
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 16:16
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 16:16
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:16
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:16
Surr: 1,2-Dichloroethane-d4	*92.3*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 16:16*
Surr: 4-Bromofluorobenzene	*96.6*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 16:16*
Surr: Dibromofluoromethane	*93.9*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 16:16*
Surr: Toluene-d8	*100*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 16:16*

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121819
Collection Date: 18-Dec-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 16:40
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 16:40
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 16:40
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 16:40
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 16:40
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: 35AWW12_121819
Collection Date: 18-Dec-2019 12:30

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-11
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 16:40
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 16:40
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 16:40
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 16:40
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 16:40
Surr: 1,2-Dichloroethane-d4	*92.6*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 16:40*
Surr: 4-Bromofluorobenzene	*95.1*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 16:40*
Surr: Dibromofluoromethane	*94.3*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 16:40*
Surr: Toluene-d8	*101*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 16:40*

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 18-Dec-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 13:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	01-Jan-2020 13:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	01-Jan-2020 13:25
Acetone	2.0	U	0.40	2.0	2.0	UG/L	1	01-Jan-2020 13:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	01-Jan-2020 13:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
Sample ID: Trip Blank
Collection Date: 18-Dec-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19121092
Lab ID:HS19121092-12
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	01-Jan-2020 13:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	01-Jan-2020 13:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	01-Jan-2020 13:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	01-Jan-2020 13:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	01-Jan-2020 13:25
Surr: 1,2-Dichloroethane-d4	*92.7*			**0**	*81-118*	*%REC*	*1*	*01-Jan-2020 13:25*
Surr: 4-Bromofluorobenzene	*94.8*			**0**	*85-114*	*%REC*	*1*	*01-Jan-2020 13:25*
Surr: Dibromofluoromethane	*92.0*			**0**	*80-119*	*%REC*	*1*	*01-Jan-2020 13:25*
Surr: Toluene-d8	*99.9*			**0**	*89-112*	*%REC*	*1*	*01-Jan-2020 13:25*

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

ALS Houston, US

Date: 10-Jan-20

Weight / Prep Log

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

Batch ID: 149161 **Start Date:** 27 Dec 2019 09:00 **End Date:** 27 Dec 2019 13:00
Method: WATER - SW3010A **Prep Code:** 3010A

Sample ID	Container	Sample Wt/Vol	Final Volume	Prep Factor
HS19121092-01		10 (mL)	10 (mL)	1
HS19121092-02		10 (mL)	10 (mL)	1
HS19121092-03		10 (mL)	10 (mL)	1

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: 149161 (0)	**Test Name :** METALS BY ICPMS BY SW6020A				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00		27 Dec 2019 13:00	03 Jan 2020 12:41	1
HS19121092-02	03WW01_121819	18 Dec 2019 09:00		27 Dec 2019 13:00	03 Jan 2020 12:43	1
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55		27 Dec 2019 13:00	03 Jan 2020 12:49	1
Batch ID: R353227 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			20 Dec 2019 03:12	5
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			20 Dec 2019 03:28	5
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			20 Dec 2019 03:45	5
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			20 Dec 2019 04:02	5
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			20 Dec 2019 04:18	5
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			20 Dec 2019 04:35	5
Batch ID: R353574 (0)	**Test Name :** SUBCONTRACT ANALYSIS - VOLATILE FATTY ACIDS				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			31 Dec 2019 10:18	1
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			31 Dec 2019 10:18	1
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			31 Dec 2019 10:18	1
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			31 Dec 2019 10:18	1
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			31 Dec 2019 10:18	1
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			31 Dec 2019 10:18	1
Batch ID: R353580 (0)	**Test Name :** SUBCONTRACT ANALYSIS - DHC/DHB				**Matrix:** Groundwater	
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			31 Dec 2019 10:33	1
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			31 Dec 2019 10:33	1
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			31 Dec 2019 10:33	1
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			31 Dec 2019 10:33	1
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			31 Dec 2019 10:33	1
Batch ID: R353710 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			01 Jan 2020 18:17	25
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			01 Jan 2020 17:53	1
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			01 Jan 2020 17:04	10
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			01 Jan 2020 17:29	10
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			01 Jan 2020 14:14	1
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			01 Jan 2020 14:38	1
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			01 Jan 2020 15:03	1
HS19121092-07	35AWW13_121819	18 Dec 2019 13:30			01 Jan 2020 15:27	1
HS19121092-08	35AWW17_121819	18 Dec 2019 08:45			01 Jan 2020 15:51	1
HS19121092-09	35AWW18_121819	18 Dec 2019 10:00			01 Jan 2020 13:50	1
HS19121092-10	35AWW22_121819	18 Dec 2019 11:20			01 Jan 2020 16:16	1
HS19121092-11	35AWW12_121819	18 Dec 2019 12:30			01 Jan 2020 16:40	1
HS19121092-12	Trip Blank	18 Dec 2019 00:00			01 Jan 2020 13:25	1

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

DATES REPORT

Sample ID	Client Samp ID	Collection Date	Leachate Date	Prep Date	Analysis Date	DF
Batch ID: R353768 (0)	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			02 Jan 2020 14:26	5
Batch ID: R353865 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			04 Jan 2020 22:48	50
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			04 Jan 2020 23:04	50
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			04 Jan 2020 23:21	50
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			04 Jan 2020 23:38	50
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			04 Jan 2020 23:54	50
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			05 Jan 2020 00:11	50
Batch ID: R353906 (0)	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			06 Jan 2020 13:01	50
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			06 Jan 2020 13:18	50
Batch ID: R353925 (0)	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			07 Jan 2020 09:12	1
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			07 Jan 2020 09:12	1
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			07 Jan 2020 09:12	1
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			07 Jan 2020 09:12	1
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			07 Jan 2020 09:12	1
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			07 Jan 2020 09:12	1
Batch ID: R354153 (0)	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19121092-01	35AWW09_121819	18 Dec 2019 08:00			09 Jan 2020 15:54	1
HS19121092-02	03WW01_121819	18 Dec 2019 09:00			09 Jan 2020 15:54	1
HS19121092-03	35AWW08_121819	18 Dec 2019 09:55			09 Jan 2020 15:54	1
HS19121092-04	35AWW11_121819	18 Dec 2019 10:50			09 Jan 2020 15:54	1
HS19121092-05	35AWW23_121819	18 Dec 2019 11:45			09 Jan 2020 15:54	1
HS19121092-06	35AWW19_121819	18 Dec 2019 12:40			09 Jan 2020 15:54	1

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: 149161 (0) **Instrument: ICPMS05** **Method: METALS BY ICPMS BY SW6020A**

MBLK Sample ID: **MBLK-149161** Units: **mg/L** Analysis Date: **03-Jan-2020 12:00**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423038** PrepDate: **27-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.000500	0.00500								U

LCS Sample ID: **LCS-149161** Units: **mg/L** Analysis Date: **03-Jan-2020 12:03**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423039** PrepDate: **27-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05072	0.00500	0.05	0	101	84 - 116				

MS Sample ID: **HS19121036-01MS** Units: **mg/L** Analysis Date: **03-Jan-2020 12:14**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423044** PrepDate: **27-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04954	0.00500	0.05	0	99.1	84 - 116				

MSD Sample ID: **HS19121036-01MSD** Units: **mg/L** Analysis Date: **03-Jan-2020 12:17**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423045** PrepDate: **27-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04823	0.00500	0.05	0	96.5	84 - 116	0.04954	2.68	20	

PDS Sample ID: **HS19121036-01PDS** Units: **mg/L** Analysis Date: **03-Jan-2020 12:19**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423046** PrepDate: **27-Dec-2019** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.09811	0.00500	0.1	0	98.1	80 - 120				

SD Sample ID: **HS19121036-01SD** Units: **mg/L** Analysis Date: **03-Jan-2020 12:12**
Client ID: Run ID: **ICPMS05_353764** SeqNo: **5423043** PrepDate: **27-Dec-2019** DF: **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Arsenic	0.00250	0.0250					0.000238	0	10	U

The following samples were analyzed in this batch: HS19121092-01 HS19121092-02 HS19121092-03

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument: VOA9** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-200101** Units: **UG/L** Analysis Date: **01-Jan-2020 13:01**
Client ID: Run ID: **VOA9_353710** SeqNo: **5420564** PrepDate: DF: **1**

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

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-200101** Units: **UG/L** Analysis Date: **01-Jan-2020 13:01**
Client ID: Run ID: **VOA9_353710** SeqNo: **5420564** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	1.0	1.0								U
Isopropylbenzene	0.50	1.0								U
m,p-Xylene	1.0	2.0								U
Methylene chloride	1.0	2.0								U
Naphthalene	0.50	1.0								U
n-Butylbenzene	0.50	1.0								U
n-Propylbenzene	0.50	1.0								U
o-Xylene	0.50	1.0								U
sec-Butylbenzene	0.50	1.0								U
Styrene	0.50	1.0								U
tert-Butylbenzene	0.50	1.0								U
Tetrachloroethene	0.50	1.0								U
Toluene	0.50	1.0								U
trans-1,2-Dichloroethene	0.50	1.0								U
trans-1,3-Dichloropropene	0.50	1.0								U
Trichloroethene	0.50	1.0								U
Trichlorofluoromethane	0.50	1.0								U
Vinyl chloride	0.50	1.0								U
Surr: 1,2-Dichloroethane-d4	*45.98*	*1.0*	*50*	*0*	*92.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*46.96*	*1.0*	*50*	*0*	*93.9*	*85 - 114*				
Surr: Dibromofluoromethane	*47.25*	*1.0*	*50*	*0*	*94.5*	*80 - 119*				
Surr: Toluene-d8	*50.04*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument: VOA9** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-200101** Units: **UG/L** Analysis Date: **01-Jan-2020 12:12**
Client ID: Run ID: **VOA9_353710** SeqNo: **5420563** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	20.7	1.0	20	0	103	78 - 124				
1,1,1-Trichloroethane	16.73	1.0	20	0	83.6	74 - 131				
1,1,2,2-Tetrachloroethane	20.51	1.0	20	0	103	71 - 121				
1,1,2-Trichloroethane	19.5	1.0	20	0	97.5	80 - 119				
1,1-Dichloroethane	17.99	1.0	20	0	90.0	77 - 125				
1,1-Dichloroethene	16.4	1.0	20	0	82.0	71 - 131				
1,1-Dichloropropene	16.52	1.0	20	0	82.6	78 - 125				
1,2,3-Trichlorobenzene	17.52	1.0	20	0	87.6	69 - 129				
1,2,3-Trichloropropane	20	1.0	20	0	100	73 - 122				
1,2,4-Trichlorobenzene	17.48	1.0	20	0	87.4	69 - 130				
1,2,4-Trimethylbenzene	17.36	1.0	20	0	86.8	76 - 124				
1,2-Dibromo-3-chloropropane	18.63	1.0	20	0	93.1	62 - 128				
1,2-Dibromoethane	21.14	1.0	20	0	106	77 - 121				
1,2-Dichlorobenzene	19.19	1.0	20	0	95.9	80 - 119				
1,2-Dichloroethane	17.56	1.0	20	0	87.8	73 - 128				
1,2-Dichloropropane	19.48	1.0	20	0	97.4	78 - 122				
1,3,5-Trimethylbenzene	17.32	1.0	20	0	86.6	75 - 124				
1,3-Dichlorobenzene	18.52	1.0	20	0	92.6	80 - 119				
1,3-Dichloropropane	20.2	1.0	20	0	101	80 - 119				
1,4-Dichlorobenzene	19.11	1.0	20	0	95.5	79 - 118				
2,2-Dichloropropane	18.41	1.0	20	0	92.0	60 - 139				
2-Butanone	37.31	2.0	40	0	93.3	56 - 143				
2-Chlorotoluene	18.22	1.0	20	0	91.1	79 - 122				
2-Hexanone	41.55	2.0	40	0	104	57 - 139				
4-Chlorotoluene	18.25	1.0	20	0	91.2	78 - 122				
4-Isopropyltoluene	16.07	1.0	20	0	80.3	77 - 127				
4-Methyl-2-pentanone	41.06	2.0	40	0	103	67 - 130				
Acetone	43.74	2.0	40	0	109	39 - 160				
Benzene	18.66	1.0	20	0	93.3	79 - 120				
Bromobenzene	19.79	1.0	20	0	98.9	80 - 120				
Bromochloromethane	19.71	1.0	20	0	98.6	78 - 123				
Bromodichloromethane	18.91	1.0	20	0	94.6	79 - 125				
Bromoform	17.57	1.0	20	0	87.9	66 - 130				
Bromomethane	22.19	1.0	20	0	111	53 - 141				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument: VOA9** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-200101** Units: **UG/L** Analysis Date: **01-Jan-2020 12:12**
Client ID: Run ID: **VOA9_353710** SeqNo: **5420563** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	33.27	2.0	40	0	83.2	64 - 133				
Carbon tetrachloride	15.92	1.0	20	0	79.6	72 - 136				
Chlorobenzene	19.35	1.0	20	0	96.8	82 - 118				
Chloroethane	16.5	1.0	20	0	82.5	60 - 138				
Chloroform	17.99	1.0	20	0	90.0	79 - 124				
Chloromethane	23.44	1.0	20	0	117	50 - 139				
cis-1,2-Dichloroethene	18.34	1.0	20	0	91.7	78 - 123				
cis-1,3-Dichloropropene	17.9	1.0	20	0	89.5	75 - 124				
Dibromochloromethane	18.39	1.0	20	0	91.9	74 - 126				
Dibromomethane	19.45	1.0	20	0	97.2	79 - 123				
Dichlorodifluoromethane	15	1.0	20	0	75.0	32 - 152				
Ethylbenzene	18.35	1.0	20	0	91.7	79 - 121				
Hexachlorobutadiene	16.96	1.0	20	0	84.8	66 - 134				
Isopropylbenzene	17.56	1.0	20	0	87.8	72 - 131				
m,p-Xylene	37.91	2.0	40	0	94.8	80 - 121				
Methylene chloride	18.45	2.0	20	0	92.3	74 - 124				
Naphthalene	18.04	1.0	20	0	90.2	61 - 128				
n-Butylbenzene	16.14	1.0	20	0	80.7	75 - 128				
n-Propylbenzene	16.79	1.0	20	0	84.0	76 - 126				
o-Xylene	19.2	1.0	20	0	96.0	78 - 122				
sec-Butylbenzene	15.78	1.0	20	0	78.9	77 - 126				
Styrene	19.2	1.0	20	0	96.0	78 - 123				
tert-Butylbenzene	16.17	1.0	20	0	80.8	78 - 124				
Tetrachloroethene	18.63	1.0	20	0	93.2	74 - 129				
Toluene	19.27	1.0	20	0	96.3	80 - 121				
trans-1,2-Dichloroethene	17.9	1.0	20	0	89.5	75 - 124				
trans-1,3-Dichloropropene	17.6	1.0	20	0	88.0	73 - 127				
Trichloroethene	17.73	1.0	20	0	88.7	79 - 123				
Trichlorofluoromethane	15.05	1.0	20	0	75.3	65 - 141				
Vinyl chloride	15.83	1.0	20	0	79.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.74*	*1.0*	*50*	*0*	*89.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.46*	*1.0*	*50*	*0*	*98.9*	*85 - 114*				
Surr: Dibromofluoromethane	*47.85*	*1.0*	*50*	*0*	*95.7*	*80 - 119*				
Surr: Toluene-d8	*50.77*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19121092-09MS** Units: **UG/L** Analysis Date: **01-Jan-2020 18:42**
Client ID: **35AWW18_121819** Run ID: **VOA9_353710** SeqNo: **5420578** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	24	1.0	20	0	120	78 - 124				
1,1,1-Trichloroethane	20.72	1.0	20	0	104	74 - 131				
1,1,2,2-Tetrachloroethane	23.28	1.0	20	0	116	71 - 121				
1,1,2-Trichloroethane	23.17	1.0	20	0	116	80 - 119				
1,1-Dichloroethane	22.32	1.0	20	1.151	106	77 - 125				
1,1-Dichloroethene	24.17	1.0	20	4.078	100	71 - 131				
1,1-Dichloropropene	20.59	1.0	20	0	103	78 - 125				
1,2,3-Trichlorobenzene	20.68	1.0	20	0	103	69 - 129				
1,2,3-Trichloropropane	22.22	1.0	20	0	111	73 - 122				
1,2,4-Trichlorobenzene	19.99	1.0	20	0	100.0	69 - 130				
1,2,4-Trimethylbenzene	19.42	1.0	20	0	97.1	76 - 124				
1,2-Dibromo-3-chloropropane	21.16	1.0	20	0	106	62 - 128				
1,2-Dibromoethane	23.77	1.0	20	0	119	77 - 121				
1,2-Dichlorobenzene	22.18	1.0	20	0	111	80 - 119				
1,2-Dichloroethane	20.42	1.0	20	0	102	73 - 128				
1,2-Dichloropropane	22.03	1.0	20	0	110	78 - 122				
1,3,5-Trimethylbenzene	20.72	1.0	20	0	104	75 - 124				
1,3-Dichlorobenzene	21.65	1.0	20	0	108	80 - 119				
1,3-Dichloropropane	23.25	1.0	20	0	116	80 - 119				
1,4-Dichlorobenzene	21.69	1.0	20	0	108	79 - 118				
2,2-Dichloropropane	17.88	1.0	20	0	89.4	60 - 139				
2-Butanone	42.06	2.0	40	0	105	56 - 143				
2-Chlorotoluene	21.45	1.0	20	0	107	79 - 122				
2-Hexanone	48.12	2.0	40	0	120	57 - 139				
4-Chlorotoluene	21.24	1.0	20	0	106	78 - 122				
4-Isopropyltoluene	19.38	1.0	20	0	96.9	77 - 127				
4-Methyl-2-pentanone	48.51	2.0	40	0	121	67 - 130				
Acetone	42.63	2.0	40	0	107	39 - 160				
Benzene	22.09	1.0	20	0	110	79 - 120				
Bromobenzene	22.56	1.0	20	0	113	80 - 120				
Bromochloromethane	23.12	1.0	20	0	116	78 - 123				
Bromodichloromethane	21.8	1.0	20	0	109	79 - 125				
Bromoform	19.48	1.0	20	0	97.4	66 - 130				
Bromomethane	23.96	1.0	20	0	120	53 - 141				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19121092-09MS** Units: **UG/L** Analysis Date: **01-Jan-2020 18:42**
Client ID: **35AWW18_121819** Run ID: **VOA9_353710** SeqNo: **5420578** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Carbon disulfide	38.62	2.0	40	0	96.6	64 - 133				
Carbon tetrachloride	20.69	1.0	20	0	103	72 - 136				
Chlorobenzene	22.47	1.0	20	0	112	82 - 118				
Chloroethane	20.17	1.0	20	0	101	60 - 138				
Chloroform	20.8	1.0	20	0	104	79 - 124				
Chloromethane	24.94	1.0	20	0	125	50 - 139				
cis-1,2-Dichloroethene	21.59	1.0	20	0	108	78 - 123				
cis-1,3-Dichloropropene	19.52	1.0	20	0	97.6	75 - 124				
Dibromochloromethane	20.58	1.0	20	0	103	74 - 126				
Dibromomethane	21.25	1.0	20	0	106	79 - 123				
Dichlorodifluoromethane	16.38	1.0	20	0	81.9	32 - 152				
Ethylbenzene	21.94	1.0	20	0	110	79 - 121				
Hexachlorobutadiene	17.92	1.0	20	0	89.6	66 - 134				
Isopropylbenzene	21.71	1.0	20	0	109	72 - 131				
m,p-Xylene	44.46	2.0	40	0	111	80 - 121				
Methylene chloride	22.04	2.0	20	0	110	74 - 124				
Naphthalene	21.04	1.0	20	0	105	61 - 128				
n-Butylbenzene	18.41	1.0	20	0	92.0	75 - 128				
n-Propylbenzene	20.32	1.0	20	0	102	76 - 126				
o-Xylene	22.31	1.0	20	0	112	78 - 122				
sec-Butylbenzene	19.52	1.0	20	0	97.6	77 - 126				
Styrene	22.12	1.0	20	0	111	78 - 123				
tert-Butylbenzene	20.83	1.0	20	0	104	78 - 124				
Tetrachloroethene	23.61	1.0	20	0	118	74 - 129				
Toluene	22.48	1.0	20	0	112	80 - 121				
trans-1,2-Dichloroethene	21.07	1.0	20	0	105	75 - 124				
trans-1,3-Dichloropropene	18.86	1.0	20	0	94.3	73 - 127				
Trichloroethene	21.13	1.0	20	0	106	79 - 123				
Trichlorofluoromethane	18.41	1.0	20	0	92.0	65 - 141				
Vinyl chloride	19.13	1.0	20	0	95.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.09*	*1.0*	*50*	*0*	*90.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.17*	*1.0*	*50*	*0*	*98.3*	*85 - 114*				
Surr: Dibromofluoromethane	*48.15*	*1.0*	*50*	*0*	*96.3*	*80 - 119*				
Surr: Toluene-d8	*50.15*	*1.0*	*50*	*0*	*100*	*89 - 112*				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19121092-09MSD** Units: **UG/L** Analysis Date: **01-Jan-2020 19:06**
Client ID: **35AWW18_121819** Run ID: **VOA9_353710** SeqNo: **5420579** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	22.65	1.0	20	0	113	78 - 124	24	5.82	20	
1,1,1-Trichloroethane	20.25	1.0	20	0	101	74 - 131	20.72	2.3	20	
1,1,2,2-Tetrachloroethane	22.9	1.0	20	0	115	71 - 121	23.28	1.6	20	
1,1,2-Trichloroethane	22.16	1.0	20	0	111	80 - 119	23.17	4.47	20	
1,1-Dichloroethane	21.37	1.0	20	1.151	101	77 - 125	22.32	4.37	20	
1,1-Dichloroethene	23.2	1.0	20	4.078	95.6	71 - 131	24.17	4.1	20	
1,1-Dichloropropene	20.16	1.0	20	0	101	78 - 125	20.59	2.12	20	
1,2,3-Trichlorobenzene	20.94	1.0	20	0	105	69 - 129	20.68	1.3	20	
1,2,3-Trichloropropane	21.77	1.0	20	0	109	73 - 122	22.22	2.03	20	
1,2,4-Trichlorobenzene	20.33	1.0	20	0	102	69 - 130	19.99	1.67	20	
1,2,4-Trimethylbenzene	19.33	1.0	20	0	96.7	76 - 124	19.42	0.486	20	
1,2-Dibromo-3-chloropropane	21.06	1.0	20	0	105	62 - 128	21.16	0.488	20	
1,2-Dibromoethane	23.39	1.0	20	0	117	77 - 121	23.77	1.64	20	
1,2-Dichlorobenzene	21.82	1.0	20	0	109	80 - 119	22.18	1.63	20	
1,2-Dichloroethane	19.49	1.0	20	0	97.4	73 - 128	20.42	4.68	20	
1,2-Dichloropropane	21.38	1.0	20	0	107	78 - 122	22.03	3	20	
1,3,5-Trimethylbenzene	20.28	1.0	20	0	101	75 - 124	20.72	2.15	20	
1,3-Dichlorobenzene	21.23	1.0	20	0	106	80 - 119	21.65	1.94	20	
1,3-Dichloropropane	22.39	1.0	20	0	112	80 - 119	23.25	3.74	20	
1,4-Dichlorobenzene	21.77	1.0	20	0	109	79 - 118	21.69	0.395	20	
2,2-Dichloropropane	16.84	1.0	20	0	84.2	60 - 139	17.88	5.99	20	
2-Butanone	40.73	2.0	40	0	102	56 - 143	42.06	3.22	20	
2-Chlorotoluene	20.91	1.0	20	0	105	79 - 122	21.45	2.54	20	
2-Hexanone	48.26	2.0	40	0	121	57 - 139	48.12	0.292	20	
4-Chlorotoluene	20.63	1.0	20	0	103	78 - 122	21.24	2.93	20	
4-Isopropyltoluene	19.29	1.0	20	0	96.4	77 - 127	19.38	0.464	20	
4-Methyl-2-pentanone	47.51	2.0	40	0	119	67 - 130	48.51	2.08	20	
Acetone	42.51	2.0	40	0	106	39 - 160	42.63	0.279	20	
Benzene	21.06	1.0	20	0	105	79 - 120	22.09	4.76	20	
Bromobenzene	22.1	1.0	20	0	111	80 - 120	22.56	2.03	20	
Bromochloromethane	22.47	1.0	20	0	112	78 - 123	23.12	2.87	20	
Bromodichloromethane	21.19	1.0	20	0	106	79 - 125	21.8	2.88	20	
Bromoform	19.29	1.0	20	0	96.4	66 - 130	19.48	1.03	20	
Bromomethane	23.88	1.0	20	0	119	53 - 141	23.96	0.369	20	

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19121092-09MSD** Units: **UG/L** Analysis Date: **01-Jan-2020 19:06**
Client ID: **35AWW18_121819** Run ID: **VOA9_353710** SeqNo: **5420579** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Carbon disulfide	38.41	2.0	40	0	96.0	64 - 133	38.62	0.559	20	
Carbon tetrachloride	20.33	1.0	20	0	102	72 - 136	20.69	1.77	20	
Chlorobenzene	21.67	1.0	20	0	108	82 - 118	22.47	3.64	20	
Chloroethane	19.42	1.0	20	0	97.1	60 - 138	20.17	3.75	20	
Chloroform	20.12	1.0	20	0	101	79 - 124	20.8	3.35	20	
Chloromethane	24.34	1.0	20	0	122	50 - 139	24.94	2.46	20	
cis-1,2-Dichloroethene	20.09	1.0	20	0	100	78 - 123	21.59	7.22	20	
cis-1,3-Dichloropropene	19.1	1.0	20	0	95.5	75 - 124	19.52	2.18	20	
Dibromochloromethane	20.14	1.0	20	0	101	74 - 126	20.58	2.15	20	
Dibromomethane	20.64	1.0	20	0	103	79 - 123	21.25	2.92	20	
Dichlorodifluoromethane	16.14	1.0	20	0	80.7	32 - 152	16.38	1.5	20	
Ethylbenzene	21.16	1.0	20	0	106	79 - 121	21.94	3.63	20	
Hexachlorobutadiene	18.66	1.0	20	0	93.3	66 - 134	17.92	4.04	20	
Isopropylbenzene	21.22	1.0	20	0	106	72 - 131	21.71	2.26	20	
m,p-Xylene	43.19	2.0	40	0	108	80 - 121	44.46	2.9	20	
Methylene chloride	20.79	2.0	20	0	104	74 - 124	22.04	5.84	20	
Naphthalene	21.28	1.0	20	0	106	61 - 128	21.04	1.13	20	
n-Butylbenzene	18.78	1.0	20	0	93.9	75 - 128	18.41	2.02	20	
n-Propylbenzene	20.1	1.0	20	0	100	76 - 126	20.32	1.12	20	
o-Xylene	21.83	1.0	20	0	109	78 - 122	22.31	2.15	20	
sec-Butylbenzene	19.59	1.0	20	0	97.9	77 - 126	19.52	0.343	20	
Styrene	21.64	1.0	20	0	108	78 - 123	22.12	2.16	20	
tert-Butylbenzene	20.3	1.0	20	0	102	78 - 124	20.83	2.58	20	
Tetrachloroethene	22.51	1.0	20	0	113	74 - 129	23.61	4.77	20	
Toluene	21.75	1.0	20	0	109	80 - 121	22.48	3.26	20	
trans-1,2-Dichloroethene	20.55	1.0	20	0	103	75 - 124	21.07	2.52	20	
trans-1,3-Dichloropropene	18.62	1.0	20	0	93.1	73 - 127	18.86	1.26	20	
Trichloroethene	20.74	1.0	20	0	104	79 - 123	21.13	1.87	20	
Trichlorofluoromethane	17.98	1.0	20	0	89.9	65 - 141	18.41	2.34	20	
Vinyl chloride	18.7	1.0	20	0	93.5	58 - 137	19.13	2.28	20	
Surr: 1,2-Dichloroethane-d4	*44.95*	*1.0*	*50*	*0*	*89.9*	*81 - 118*	*45.09*	*0.3*	*20*	
Surr: 4-Bromofluorobenzene	*48.7*	*1.0*	*50*	*0*	*97.4*	*85 - 114*	*49.17*	*0.974*	*20*	
Surr: Dibromofluoromethane	*47.82*	*1.0*	*50*	*0*	*95.6*	*80 - 119*	*48.15*	*0.675*	*20*	
Surr: Toluene-d8	*50.17*	*1.0*	*50*	*0*	*100*	*89 - 112*	*50.15*	*0.0327*	*20*	

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353710 (0) **Instrument: VOA9** **Method: VOLATILES ORGANICS BY METHOD 8260C**

The following samples were analyzed in this batch:

HS19121092-01	HS19121092-02	HS19121092-03	HS19121092-04
HS19121092-05	HS19121092-06	HS19121092-07	HS19121092-08
HS19121092-09	HS19121092-10	HS19121092-11	HS19121092-12

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353768 (0) **Instrument: VOA9** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MBLK Sample ID: **VBLKW-200102** Units: **UG/L** Analysis Date: **02-Jan-2020 12:59**
Client ID: Run ID: **VOA9_353768** SeqNo: **5422454** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	2.0	2.0								U
Surr: 1,2-Dichloroethane-d4	*45.45*	*1.0*	*50*	*0*	*90.9*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*47.69*	*1.0*	*50*	*0*	*95.4*	*85 - 114*				
Surr: Dibromofluoromethane	*46.14*	*1.0*	*50*	*0*	*92.3*	*80 - 119*				
Surr: Toluene-d8	*49.92*	*1.0*	*50*	*0*	*99.8*	*89 - 112*				

LCS Sample ID: **VLCSW-200102** Units: **UG/L** Analysis Date: **02-Jan-2020 12:35**
Client ID: Run ID: **VOA9_353768** SeqNo: **5422453** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	41.21	2.0	40	0	103	39 - 160				
Surr: 1,2-Dichloroethane-d4	*44.6*	*1.0*	*50*	*0*	*89.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*49.07*	*1.0*	*50*	*0*	*98.1*	*85 - 114*				
Surr: Dibromofluoromethane	*48*	*1.0*	*50*	*0*	*96.0*	*80 - 119*				
Surr: Toluene-d8	*50.03*	*1.0*	*50*	*0*	*100*	*89 - 112*				

MS Sample ID: **HS19121497-01MS** Units: **UG/L** Analysis Date: **02-Jan-2020 15:39**
Client ID: Run ID: **VOA9_353768** SeqNo: **5422457** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	60.66	2.0	40	3.817	142	39 - 160				
Surr: 1,2-Dichloroethane-d4	*43.48*	*1.0*	*50*	*0*	*87.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.9*	*1.0*	*50*	*0*	*97.8*	*85 - 114*				
Surr: Dibromofluoromethane	*46.88*	*1.0*	*50*	*0*	*93.8*	*80 - 119*				
Surr: Toluene-d8	*50.43*	*1.0*	*50*	*0*	*101*	*89 - 112*				

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353768 (0) **Instrument:** VOA9 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19121497-01MSD** Units: **UG/L** Analysis Date: **02-Jan-2020 16:04**
Client ID: Run ID: **VOA9_353768** SeqNo: **5422458** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	45.42	2.0	40	3.817	104	39 - 160	60.66	28.7	20	R
Surr: 1,2-Dichloroethane-d4	*44.32*	*1.0*	*50*	*0*	*88.6*	*81 - 118*	*43.48*	*1.91*	*20*	
Surr: 4-Bromofluorobenzene	*48.77*	*1.0*	*50*	*0*	*97.5*	*85 - 114*	*48.9*	*0.262*	*20*	
Surr: Dibromofluoromethane	*47.34*	*1.0*	*50*	*0*	*94.7*	*80 - 119*	*46.88*	*0.969*	*20*	
Surr: Toluene-d8	*50.55*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.43*	*0.232*	*20*	

The following samples were analyzed in this batch: HS19121092-05

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353227 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-121919** Units: **mg/L** Analysis Date: **19-Dec-2019 22:46**
Client ID: Run ID: **ICS-Integrion_353227** SeqNo: **5407931** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-121919** Units: **mg/L** Analysis Date: **19-Dec-2019 23:03**
Client ID: Run ID: **ICS-Integrion_353227** SeqNo: **5407932** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.062	0.100	4	0	102	80 - 120				
Sulfate	19.25	0.500	20	0	96.3	80 - 120				

LCSD Sample ID: **WLCSDW1-121919** Units: **mg/L** Analysis Date: **19-Dec-2019 23:19**
Client ID: Run ID: **ICS-Integrion_353227** SeqNo: **5407933** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	4.034	0.100	4	0	101	80 - 120	4.062	0.689	20	
Sulfate	19.16	0.500	20	0	95.8	80 - 120	19.25	0.496	20	

MS Sample ID: **HS19121044-01MS** Units: **mg/L** Analysis Date: **19-Dec-2019 23:52**
Client ID: Run ID: **ICS-Integrion_353227** SeqNo: **5407935** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.989	0.100	2	0	99.5	80 - 120				
Sulfate	337.8	0.500	10	336.3	14.7	80 - 120				SEO

MSD Sample ID: **HS19121044-01MSD** Units: **mg/L** Analysis Date: **20-Dec-2019 00:09**
Client ID: Run ID: **ICS-Integrion_353227** SeqNo: **5407936** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Nitrogen, Nitrate (As N)	1.966	0.100	2	0	98.3	80 - 120	1.989	1.17	20	
Sulfate	339.9	0.500	10	336.3	36.1	80 - 120	337.8	0.631	20	SEO

The following samples were analyzed in this batch: HS19121092-01 HS19121092-02 HS19121092-03 HS19121092-04 HS19121092-05 HS19121092-06

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353865 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW3-010320** Units: **mg/L** Analysis Date: **04-Jan-2020 18:39**
Client ID: Run ID: **ICS-Integrion_353865** SeqNo: **5424754** 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

LCS Sample ID: **WLCSW3-010320** Units: **mg/L** Analysis Date: **04-Jan-2020 18:55**
Client ID: Run ID: **ICS-Integrion_353865** SeqNo: **5424755** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.76	0.500	20	0	98.8	80 - 120				

LCSD Sample ID: **WLCSDW3-010320** Units: **mg/L** Analysis Date: **04-Jan-2020 19:12**
Client ID: Run ID: **ICS-Integrion_353865** SeqNo: **5424756** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.54	0.500	20	0	97.7	80 - 120	19.76	1.08	20	

MS Sample ID: **HS19121121-01MS** Units: **mg/L** Analysis Date: **04-Jan-2020 19:45**
Client ID: Run ID: **ICS-Integrion_353865** SeqNo: **5424758** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.1	0.500	10	25.83	92.7	80 - 120				

MSD Sample ID: **HS19121121-01MSD** Units: **mg/L** Analysis Date: **04-Jan-2020 20:02**
Client ID: Run ID: **ICS-Integrion_353865** SeqNo: **5424759** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	35.26	0.500	10	25.83	94.3	80 - 120	35.1	0.475	20	

The following samples were analyzed in this batch: HS19121092-01 HS19121092-02 HS19121092-03 HS19121092-04 HS19121092-05 HS19121092-06

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: HS19121092

QC BATCH REPORT

Batch ID: R353906 (0) **Instrument: ICS-Integrion** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW3-010320** Units: **mg/L** Analysis Date: **06-Jan-2020 11:22**
Client ID: Run ID: **ICS-Integrion_353906** SeqNo: **5425528** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW3-010320** Units: **mg/L** Analysis Date: **06-Jan-2020 11:38**
Client ID: Run ID: **ICS-Integrion_353906** SeqNo: **5425529** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.3	0.500	20	0	96.5	80 - 120				

LCSD Sample ID: **WLCSDW3-010320** Units: **mg/L** Analysis Date: **06-Jan-2020 11:55**
Client ID: Run ID: **ICS-Integrion_353906** SeqNo: **5425530** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	19.03	0.500	20	0	95.2	80 - 120	19.3	1.39	20	

MS Sample ID: **HS19121121-01MS** Units: **mg/L** Analysis Date: **06-Jan-2020 12:28**
Client ID: Run ID: **ICS-Integrion_353906** SeqNo: **5425532** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	36.04	0.500	10	27.17	88.7	80 - 120				

MSD Sample ID: **HS19121121-01MSD** Units: **mg/L** Analysis Date: **06-Jan-2020 12:45**
Client ID: Run ID: **ICS-Integrion_353906** SeqNo: **5425533** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	36.27	0.500	10	27.17	91.0	80 - 120	36.04	0.634	20	

The following samples were analyzed in this batch: HS19121092-01 HS19121092-06

ALS Houston, US Date: 10-Jan-20

Client: Bhate Environmental Associates, Inc.
Project: LHAAP-58
WorkOrder: **HS19121092**

QUALIFIERS, ACRONYMS, UNITS

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

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

Unit Reported	Description
mg/L	Milligrams per Liter

ALS Houston, US Date: 10-Jan-20

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Florida	E87611-28	30-Jun-2020
Illinois	2000322019-2	09-May-2020
Kansas	E-10352 2019-2020	31-Jul-2020
Kentucky	123043, 2019-2020	30-Apr-2020
Louisiana	03087, 2019-2020	30-Jun-2020
Maryland	343, 2019-2020	30-Jun-2020
North Dakota	R-193 2019-2020	30-Apr-2020
Oklahoma	2019-067	31-Aug-2020
Texas	TX104704231-19-23	30-Apr-2020

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ALS Houston, US Date: 10-Jan-20

Sample Receipt Checklist

Client Name: Bhate Environmental
Work Order: HS19121092
Date/Time Received: **19-Dec-2019 10:20**
Received by: **NDR**

Checklist completed by: *Paresh M. Giga* eSignature 19-Dec-2019 Date
Reviewed by: *Corey Grandits* eSignature 20-Dec-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	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):	0.2c U/C	IR25
Cooler(s)/Kit(s):	44488	
Date/Time sample(s) sent to storage:	12/19/19 18:30	

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

Login Notes: 03WW01_121819 & 35AWW08_121819
Metals pH >2 (7) Preserved with 0.5ml HNO3
12/19/19 @ 14:15. Final pH (1)
.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

00996942

bhate

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

Chain of Custody and Analytical Request

Page: ____ of ____
Project/Phase No: NWO1312.0150
COC Number(1): ____
LIMS Number: ____

Facility/Base I.D.: LHAAP
Project/Site Name: LHAAP / Site 58
Client Name:
Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Arsenic	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW09_121819	18 Dec 2019	0800	-	N		WG	12	X	X	X	X	X	X				
03WW01_121819	18 Dec 2019	0900	-	N		WG	12	X	X	X	X	X	X				
35AWW08_121819	18 Dec 2019	0955	-	N		WG	12	X	X	X	X	X	X				
35AWW11_121819	18 Dec 2019	1050		N		WG	11	X	X	X	X	X					
35AWW23_121819	18 Dec 2019	1145		N		WG	11	X	X	X	X	X					
35AWW19_121819	18 Dec 2019	1240	-	N		WG	11	X	X	X	X	X					
35AWW13_121819	18 Dec 2019	1330	-	N		WG	3	X									
35AWW17_121819	18 Dec 2019	0845	-	N		WG	3	X									
35AWW18_121819	18 Dec 2019	1000	-	N		WG	3	X									
35AWW18_121819_MS	18 Dec 2019	1000	-	MS		WG	3	X									
35AWW18_121819_MSD	18 Dec 2019	1000	-	SD		WG	3	X									

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

HS19121092
Bhate Environmental Associates, Inc.
LHAAP-58

COMMENTS:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/18/19	1430	1. NU	12/19/19	10:20
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: ____ Shipped ____ No.:
Method of Shipment: ____
Fed Ex ____ Airbill ____ Number:
Analytical Lab: ALS 10450 Stanchiff Rd. Suite 210 Houston, TX 77099 (281) 530-5656
ATTN: SONIA WEST Lab Recipient: Delivery Date/Time:

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01)
2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Samples, FR = Field Replicate (-b) Samples, EB = Equipment Blank (-d) Samples, MS = Matrix Spike, SD = Matrix Spike Duplicate, AB = Ambient Blank (-e)
3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.)
4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, WQ = Aqueous Blank Samples (trip, equipment, ambient, etc), SQ = Solf Blanks
5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.
6.) Quality assurance samples are assigned by date (ddmmyy) and the sample number associated with the sample (01, 02, etc) (e.g. Equipment blank collected in association with MW-1 on 10/10/99 will be designated 10109901 in the Equipment Blank Lot Control

UCH 85 TCW 0.2

1X XX 25

bhate

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

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Number of containers	VOC	MEE	TOC	Carbon Dioxide	Anions	Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AWW22_121819	18 Dec 2019	1120	-	N	-	WG	3	X								
35AWW12_121819	18 Dec 2019	1230	-	N		WG	3	X								
TRIP BLANK	18 Dec 2019		-	TB		WG	3	X								
			-													
			-													
			-													
			-													
			-													
			-													
			-													
			-													

Sample Analysis Requested (5)

Quality Assurance Samples (6)

HS19121092

Bhate Environmental Associates, Inc.

LHAAP-58

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/18/19	1430	1. N/A	12/19/19	10:20
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

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

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

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

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

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

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

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

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

9448

Tim 0.2

00996944

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5687

44488

CUSTODY SEAL

Date: 12/18/19 Time: 1430
Name: Scott Beesinger
Company: BHATE

Seal Broken By: SM
Date: 12/19/19

44488 DEC 19 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

44488

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

SHIP DATE: 27NOV19
ACTWGT: 1.00 LB MAN
CAD: 3001307CAFE3211
DIMS: 26x14x14 IN

TO **CLIENT SERVICES**
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP-58 - BO 68898 - RJ

RMA:

FedEx Express

FedEx.
TRK# 0221 1251 0292 3773

THU - 19 DEC 10:30A
PRIORITY OVERNIGHT

77099
TX-US
IAH

AB SGRA

ITD 5898257 18DEC19 GGGA 56AC2/18DD/85A2

January 10, 2020 Service Request No:R1912433

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

Laboratory Results for: LHAAP / Site 58

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 19, 2019
For your reference, these analyses have been assigned our service request number **R1912433.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

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

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

CC: Joni Blankfield

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

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

1565 Jefferson Rd, Building 300, Rochester, NY 14623 | 585-288-5380 | www.alsglobal.com

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

Service Request: R1912433
Date Received: 12/19/2019

CASE NARRATIVE

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

Sample Receipt:

Six water samples were received for analysis at ALS Environmental on 12/19/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Semivoa GC:

Method Organic Acids, 12/24/2019: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) above the MRL in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate. Analyte affected: Pyruvic Acid.
Method Organic Acids, 12/24/2019: Due to shifting retention times, Propionic Acid could not be reported on the first run. All samples and QC were run again on another column with more stable retention times for only Propionic Acid. The results of the two runs were merged.

Please note: This report has been revised to add the LOD and MDL.

Approved by _____ Date 12/30/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: 03WW01_121819			Lab ID: R1912433-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	3.1	J	0.56	4.0	mg/L	Organic Acids
Lactic Acid	1.8	J	0.14	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW08_121819			Lab ID: R1912433-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	29		0.56	4.0	mg/L	Organic Acids
Lactic Acid	7.7		0.14	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW11_121819			Lab ID: R1912433-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	26		0.56	4.0	mg/L	Organic Acids
Propionic Acid	4.1		0.19	2.0	mg/L	Organic Acids

CLIENT ID: 35AWW23_121819			Lab ID: R1912433-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Acetic Acid	140		0.56	4.0	mg/L	Organic Acids

Sample Receipt Information

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

Client: ALS Environmental - US **Service Request:**R1912433
Project: LHAAP / Site 58

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1912433-001	35AWW09_121819	12/18/2019	0800
R1912433-002	03WW01_121819	12/18/2019	0900
R1912433-003	35AWW08_121819	12/18/2019	0955
R1912433-004	35AWW11_121819	12/18/2019	1050
R1912433-005	35AWW23_121819	12/18/2019	1145
R1912433-006	35AWW19_121819	12/18/2019	1240

bhate ENVIRONMENTAL CONSTRUCTION ENERGY

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

Chain of Custody and Analytical Request

Page: _____ of _____

Project/Phase No: NWO1312.0150

COC Number(1): _____

LIMS Number: _____

Facility/Base I.D.: LHAAP

Project/Site Name: LHAAP / Site 58

Client Name:

Collected by: Scott Beesinger

Field Sample ID (30 Characters Max)	Date Collected (dd-mmm-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code (2)	Sample Number (3)	Sample Matrix (4)	Sample Analysis Requested (5): Number of containers	Volatile Fatty Acids										Quality Assurance Samples (6): Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
35AMW09_121819	18 DEC 2019	0800	-	N		WG	1	X													
03WW01_121819	18 DEC 2019	0900	-	N		WG	1	X													
35AWW08_121819	18 DEC 2019	0955	-	N		WG	1	X													
35AWW11_121819	18 DEC 2019	1050		N		WG	1	X													
35AWW23_121819	18 DEC 2019	1145		N		WG	1	X													
35AWW19_121819	18 DEC 2019	1240	-	N		WG	1	X													
			-																		
			-																		
			-																		
			-																		
			-																		

COMMENTS: _____

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1. Scott Beesinger	12/18/19	1430	1.	12-19-19	11:15
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: _____ Shipped No.:

_____ Method of Shipment: _____

_____ Fed Ex _____ Airbill Number:

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

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

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

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

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

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

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

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

R1912433 5
ALS Laboratory Group
LHAAP / Site 68

00996952

Cooler Receipt and Preservation Check Form

R1912433 5
ALS Laboratory Group
LHAAP / Site 68

Project/Client Bhate Folder Number

Cooler received on 12-19-19 by: KE

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y N (NA)
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (**Wet Ice**) **Dry Ice** **Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

3. Temperature Readings Date: 12-19-19 Time: 11:46 ID: IR#7 (IR#10) From (Temp Blank) Sample Bottle

Observed Temp (°C)	2.3						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

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

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

All samples held in storage location: R-002 by KE on 12-19-19 at 11:50
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 12/19/19 Time: 1755 by: DW

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

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

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

Bottle lot numbers: Client label
Explain all Discrepancies/ Other Comments:

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: DW
PC Secondary Review: M

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

Miscellaneous Forms

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

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

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

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

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

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
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.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: ALS Environmental - US
Project: LHAAP / Site 58/
Service Request: R1912433

Sample Name: 35AWW09_121819
Lab Code: R1912433-001
Sample Matrix: Water
Date Collected: 12/18/19
Date Received: 12/19/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 03WW01_121819
Lab Code: R1912433-002
Sample Matrix: Water
Date Collected: 12/18/19
Date Received: 12/19/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW08_121819
Lab Code: R1912433-003
Sample Matrix: Water
Date Collected: 12/18/19
Date Received: 12/19/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW11_121819
Lab Code: R1912433-004
Sample Matrix: Water
Date Collected: 12/18/19
Date Received: 12/19/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

Sample Name: 35AWW23_121819
Lab Code: R1912433-005
Sample Matrix: Water
Date Collected: 12/18/19
Date Received: 12/19/19

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58/		

Sample Name:	35AWW19_121819	**Date Collected:**	12/18/19
Lab Code:	R1912433-006	**Date Received:**	12/19/19
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
Organic Acids		AFELSER

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7199	3060A
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction
For analytical methods not listed, the preparation method is the same as the analytical method reference.	

Sample Results

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Semivolatile Organic Compounds by GC

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 08:00
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	35AWW09_121819	**Units:**	mg/L
Lab Code:	R1912433-001	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/24/19 23:34	
Acetic Acid	ND	U	4.0	2.0	0.56	1	12/24/19 23:34	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/24/19 23:34	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/24/19 23:34	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/26/19 23:43	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 09:00
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	03WW01_121819	**Units:**	mg/L
Lab Code:	R1912433-002	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/25/19 00:14	
Acetic Acid	**3.1**	**J**	4.0	2.0	0.56	1	12/25/19 00:14	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/25/19 00:14	
Lactic Acid	**1.8**	**J**	2.0	1.0	0.14	1	12/25/19 00:14	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/27/19 00:26	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 09:55
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	35AWW08_121819	**Units:**	mg/L
Lab Code:	R1912433-003	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/25/19 01:00	
Acetic Acid	**29**		4.0	2.0	0.56	1	12/25/19 01:00	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/25/19 01:00	
Lactic Acid	**7.7**		2.0	1.0	0.14	1	12/25/19 01:00	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/27/19 01:09	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 10:50
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	35AWW11_121819	**Units:**	mg/L
Lab Code:	R1912433-004	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/25/19 01:42	
Acetic Acid	**26**		4.0	2.0	0.56	1	12/25/19 01:42	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/25/19 01:42	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/25/19 01:42	
Propionic Acid	**4.1**		2.0	1.0	0.19	1	12/27/19 01:51	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 11:45
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	35AWW23_121819	**Units:**	mg/L
Lab Code:	R1912433-005	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/25/19 03:51	
Acetic Acid	**140**		4.0	2.0	0.56	1	12/25/19 03:51	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/25/19 03:51	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/25/19 03:51	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/27/19 03:57	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19 12:40
Sample Matrix:	Water	**Date Received:**	12/19/19 11:15
Sample Name:	35AWW19_121819	**Units:**	mg/L
Lab Code:	R1912433-006	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND U	0.20	0.10	0.016	1	12/30/00 03:48	
Acetic Acid	ND U	4.0	2.0	0.56	1	12/30/00 03:48	
Butanoic Acid (Butyric Acid)	ND U	2.0	1.0	0.32	1	12/30/00 03:48	
Lactic Acid	ND U	2.0	1.0	0.14	1	12/30/00 03:48	
Propionic Acid	ND U	2.0	1.0	0.19	1	12/31/00 03:48	

QC Summary Forms

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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	12/18/19
Sample Matrix:	Water	**Date Received:**	12/19/19
		Date Analyzed:	12/25/19 - 12/27/19

Duplicate Matrix Spike Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Sample Name:	35AWW11_121819	**Units:**	mg/L
Lab Code:	R1912433-004	**Basis:**	NA
Analysis Method:	Organic Acids		

		Matrix Spike RQ1915097-08			Duplicate Matrix Spike RQ1915097-09					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	ND U	1.86	2.02	92	1.89	2.02	93	73-122	1	30
Acetic Acid	26	42.4	20.1	83	42.6	20.1	84	80-130	<1	30
Butanoic Acid (Butyric Acid)	ND U	20.7	19.9	104	25.8	19.9	129 *	86-128	22	30
Lactic Acid	ND U	19.7	19.9	99	20.0	19.9	100	81-114	1	30
Propionic Acid	4.1	23.4	20.3	95	23.1	20.3	94	63-153	1	30

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.

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Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1912433
Project:	LHAAP / Site 58	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	mg/L
Lab Code:	RQ1915097-02	**Basis:**	NA

Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Analysis Method: Organic Acids

Analyte Name	Result		LOQ	LOD	MDL	Dil.	Date Analyzed	Q
Pyruvic Acid	ND	U	0.20	0.10	0.016	1	12/24/19 13:32	
Acetic Acid	ND	U	4.0	2.0	0.56	1	12/24/19 13:32	
Butanoic Acid (Butyric Acid)	ND	U	2.0	1.0	0.32	1	12/24/19 13:32	
Lactic Acid	ND	U	2.0	1.0	0.14	1	12/24/19 13:32	
Propionic Acid	ND	U	2.0	1.0	0.19	1	12/26/19 13:41	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

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

Service Request: R1912433
Date Analyzed: 12/24/19 - 12/26/19

Duplicate Lab Control Sample Summary
Organic Acids in Aqueous Matrices by High Performance Liquid Chromatography (HPLC) 28 Day Hold Time

Units:mg/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1915097-03			RQ1915097-04					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Pyruvic Acid	Organic Acids	2.49	2.02	123 *	2.31	2.02	114	73-122	7	30
Acetic Acid	Organic Acids	21.9	20.1	109	19.7	20.1	98	80-130	10	30
Butanoic Acid (Butyric Acid)	Organic Acids	19.8	19.9	99	18.8	19.9	94	86-128	5	30
Lactic Acid	Organic Acids	23.2	19.9	117 *	21.3	19.9	107	81-114	9	30
Propionic Acid	Organic Acids	21.1	20.3	104	20.3	20.3	100	63-153	4	30

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LABORATORY REPORT

January 6, 2020

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

RE: HS19121092

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on December 21, 2019. For your reference, these analyses have been assigned our service request number P1907801.

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 3:04 pm, Jan 06, 2020

Hayden Akers
Project Manager

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www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19121092

Service Request No: P1907801

CASE NARRATIVE

The samples were received intact under chain of custody on December 21, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

Methane, Ethene and Ethane Analysis

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

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

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

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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	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlabs.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

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

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

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: ALS Laboratory Group
Project ID: HS19121092

Service Request: P1907801

Date Received: 12/21/2019
Time Received: 10:30

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - Gases	RSK 175 - CO2
35AWW09_121819	P1907801-001	Water	12/18/2019	08:00	X	X
03WW01_121819	P1907801-002	Water	12/18/2019	09:00	X	X
35AWW08_121819	P1907801-003	Water	12/18/2019	09:55	X	X
35AWW11_121819	P1907801-004	Water	12/18/2019	10:50	X	X
35AWW23_121819	P1907801-005	Water	12/18/2019	11:45	X	X
35AWW19_121819	P1907801-006	Water	12/18/2019	12:40	X	X

PW07801

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F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: Texas

COC ID: 12919

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:	HS19121092
TSR:	Danielle Winnings

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS19121092-01**	**35AWW09_121819**	**Groundwater**	**18 Dec 2019 08:00**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019
2.	**HS19121092-02**	**03WW01_121819**	**Groundwater**	**18 Dec 2019 09:00**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019
3.	**HS19121092-03**	**35AWW08_121819**	**Groundwater**	**18 Dec 2019 09:55**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019
4.	**HS19121092-04**	**35AWW11_121819**	**Groundwater**	**18 Dec 2019 10:50**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019
5.	**HS19121092-05**	**35AWW23_121819**	**Groundwater**	**18 Dec 2019 11:45**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019
6.	**HS19121092-06**	**35AWW19_121819**	**Groundwater**	**18 Dec 2019 12:40**
	MEE plus CO2 Sub to ALS SimiValley			30 Dec 2019

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

QC Level: DOD IV (DoD Data Package)

RIGHT SOLUTIONS | RIGHT PARTNER

P190780

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **12919**

Relinquished By: _____ Date/Time: 12/20/12 1800.

Received By: _____ Date/Time: 12-21-19 1030

Cooler ID(s): _____ Temperature(s): 2° NOT Frz

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1907801

Project: HS19121092

Sample(s) received on: 12/21/19 Date opened: 12/21/19 by: ADAVID

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

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

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907801-001.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-001.02	40ml VOA HCL				A	
P1907801-001.03	40ml VOA HCL				A	
P1907801-001.04	40mL VOA NP		7		A	LD 12/26/2019
P1907801-001.05	40mL VOA NP				A	
P1907801-002.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-002.02	40ml VOA HCL				A	
P1907801-002.03	40ml VOA HCL				A	
P1907801-002.04	40mL VOA NP		7		A	LD 12/26/2019
P1907801-002.05	40mL VOA NP				A	
P1907801-003.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-003.02	40ml VOA HCL				A	
P1907801-003.03	40ml VOA HCL				A	
P1907801-003.04	40mL VOA NP		7		A	LD 12/26/2019
P1907801-003.05	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: P1907801

Project: HS19121092

Sample(s) received on: 12/21/19 Date opened: 12/21/19 by: ADAVID

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1907801-004.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-004.02	40ml VOA HCL				A	
P1907801-004.03	40ml VOA HCL				A	
P1907801-004.04	40mL VOA NP		6		A	LD 12/26/2019
P1907801-004.05	40mL VOA NP				A	
P1907801-005.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-005.02	40ml VOA HCL				A	
P1907801-005.03	40ml VOA HCL				A	
P1907801-005.04	40mL VOA NP		7		A	LD 12/26/2019
P1907801-005.05	40mL VOA NP				A	
P1907801-006.01	40ml VOA HCL		1		A	LD 12/27/2019
P1907801-006.02	40ml VOA HCL				A	
P1907801-006.03	40ml VOA HCL				A	
P1907801-006.04	40mL VOA NP		6		A	LD 12/26/2019
P1907801-006.05	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

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19121092** ALS Project ID: P1907801

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD Date(s) Collected: 12/18/19
Analyst: Li Donghao Date Received: 12/21/19
Matrix: Water Date Analyzed: 12/26/19
Test Notes:

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	**Result µg/L**	MRL µg/L	MDL µg/L	Data Qualifier
35AWW09_121819	P1907801-001	0.10	**120,000**	1,000	370	
03WW01_121819	P1907801-002	0.10	**340,000**	1,000	370	
35AWW08_121819	P1907801-003	0.10	**240,000**	1,000	370	
35AWW11_121819	P1907801-004	0.10	**330,000**	1,000	370	
35AWW23_121819	P1907801-005	0.10	**360,000**	1,000	370	
35AWW19_121819	P1907801-006	0.10	**160,000**	1,000	370	
Method Control Sample	P191226-MB	0.10	ND	1,000	370	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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** ALS Project ID: P1907801
Client Project ID: **HS19121092** ALS Sample ID: P191226-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Li Donghao Date Analyzed: 12/26/19
Matrix: Water Volume(s) Analyzed: 0.10 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	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	20,000	19,400	**87**	**85**	56-105	2	12	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **35AWW09_121819**
Client Project ID: **HS19121092**

ALS Project ID: P1907801
ALS Sample ID: P1907801-001

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

Date Collected: 12/18/19
Date Received: 12/21/19
Date Analyzed: 12/27/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.6**	1.3	0.51	
74-85-1	Ethene	ND	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **03WW01_121819** ALS Project ID: P1907801
Client Project ID: **HS19121092** ALS Sample ID: P1907801-002

Test Code: RSK 175 Date Collected: 12/18/19
Instrument ID: HP5890A/GC10/FID Date Received: 12/21/19
Analyst: Li Donghao Date Analyzed: 12/27/19
Sample Type: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**540**	1.3	0.51	
74-85-1	Ethene	**0.61**	1.0	0.24	**J**
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **35AWW08_121819** ALS Project ID: P1907801
Client Project ID: **HS19121092** ALS Sample ID: P1907801-003

Test Code: RSK 175 Date Collected: 12/18/19
Instrument ID: HP5890A/GC10/FID Date Received: 12/21/19
Analyst: Li Donghao Date Analyzed: 12/27/19
Sample Type: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**760**	1.3	0.51	
74-85-1	Ethene	**6.2**	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **35AWW11_121819**
Client Project ID: **HS19121092**

ALS Project ID: P1907801
ALS Sample ID: P1907801-004

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

Date Collected: 12/18/19
Date Received: 12/21/19
Date Analyzed: 12/27/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**750**	1.3	0.51	
74-85-1	Ethene	ND	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **35AWW23_121819**
Client Project ID: **HS19121092**

ALS Project ID: P1907801
ALS Sample ID: P1907801-005

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

Date Collected: 12/18/19
Date Received: 12/21/19
Date Analyzed: 12/27/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**1,400**	1.3	0.51	
74-85-1	Ethene	ND	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **35AWW19_121819**
Client Project ID: **HS19121092**

ALS Project ID: P1907801
ALS Sample ID: P1907801-006

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

Date Collected: 12/18/19
Date Received: 12/21/19
Date Analyzed: 12/27/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	**2.0**	1.3	0.51	
74-85-1	Ethene	ND	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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** ALS Project ID: P1907801
Client Project ID: **HS19121092** ALS Sample ID: P191227-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Li Donghao Date Analyzed: 12/27/19
Sample Type: Water Volume(s) Analyzed: 0.10 ml(s)
Test Notes:

CAS #	Compound	Result µg/L	MRL µg/L	MDL µg/L	Data Qualifier
74-82-8	Methane	ND	1.3	0.51	
74-85-1	Ethene	ND	1.0	0.24	
74-84-0	Ethane	ND	0.60	0.16	

The Method Control Sample is laboratory water carried through the entire analytical process.
ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = 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: **HS19121092**

ALS Project ID: P1907801
ALS Sample ID: P191227-LCS
P191227-DLCS

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

Date Collected: NA
Date Received: NA
Date Analyzed: 12/27/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount LCS / DLCS µg/L	Result$_1$ LCS µg/L	Result$_1$ DLCS µg/L	% Recovery LCS	% Recovery DLCS	ALS Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	2.40	2.44	**95**	**97**	65-129	2	26	
74-85-1	Ethene	4.40	4.49	4.46	**102**	**101**	80-122	1	11	
74-84-0	Ethane	4.72	4.73	4.75	**100**	**101**	78-119	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 : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 12:36:53
Operator : LD
Sample : P1907801-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:35 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

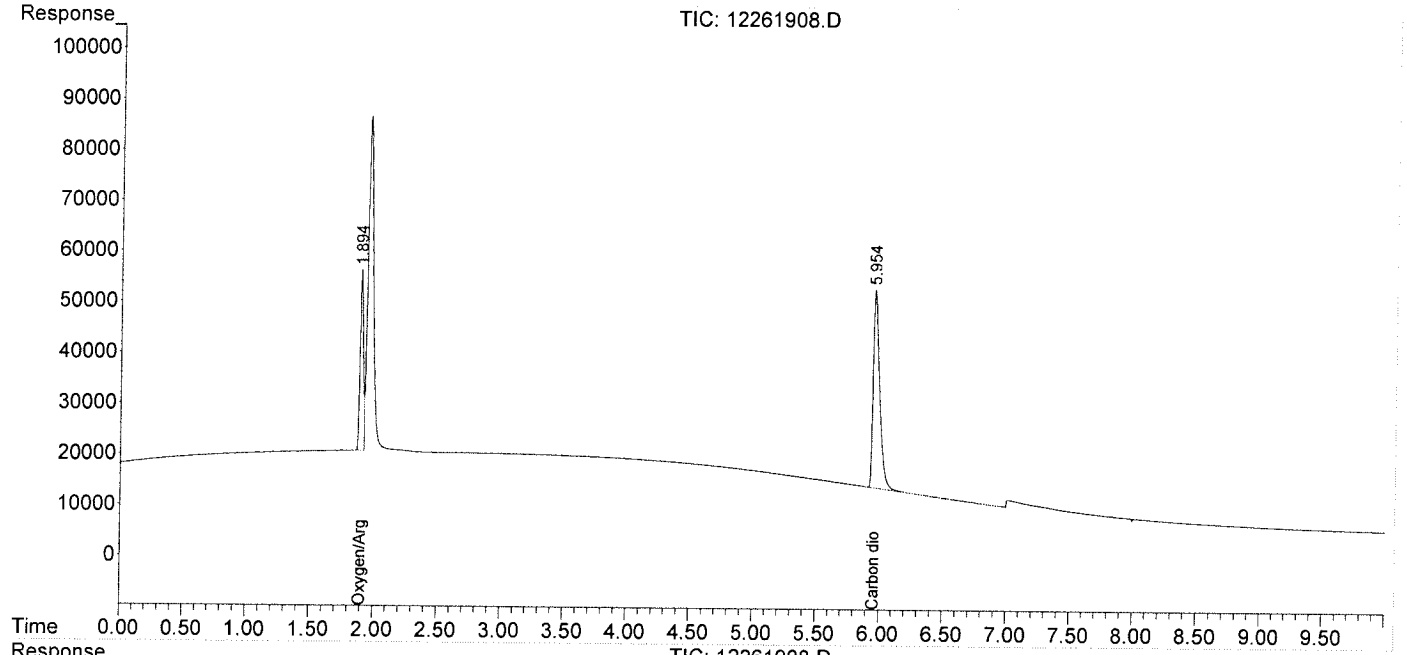
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.895	607428	0.128	ppm
2)	Carbon monoxide	1.895	607428	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.954	1340607	5711.293	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

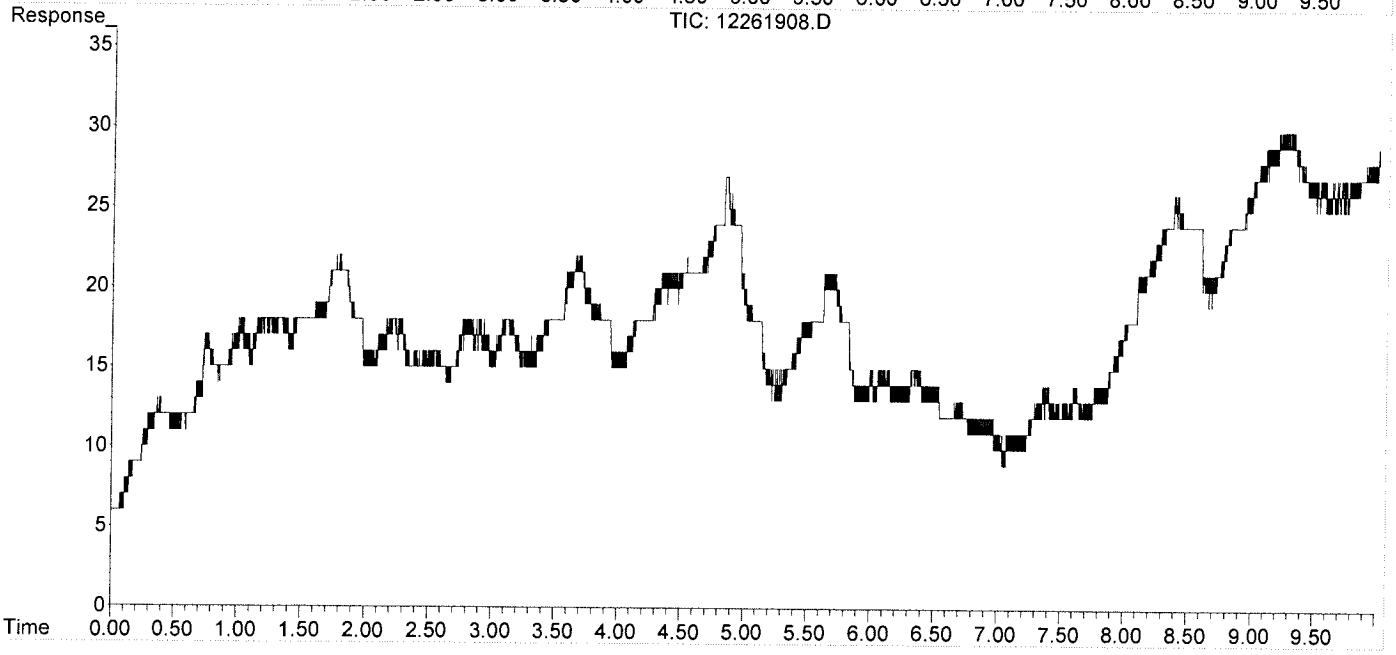
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 12:36:53
Operator : LD
Sample : P1907801-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:35 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 12:50:07
Operator : LD
Sample : P1907801-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:48 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.900	1330112	0.279	ppm
2)	Carbon monoxide	1.900	1330112	N.D.	ppm
3)	Methane (TCD)	4.087f	82124	8683.610	ppm
4)	Carbon dioxide	5.920	3661120	15597.206	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

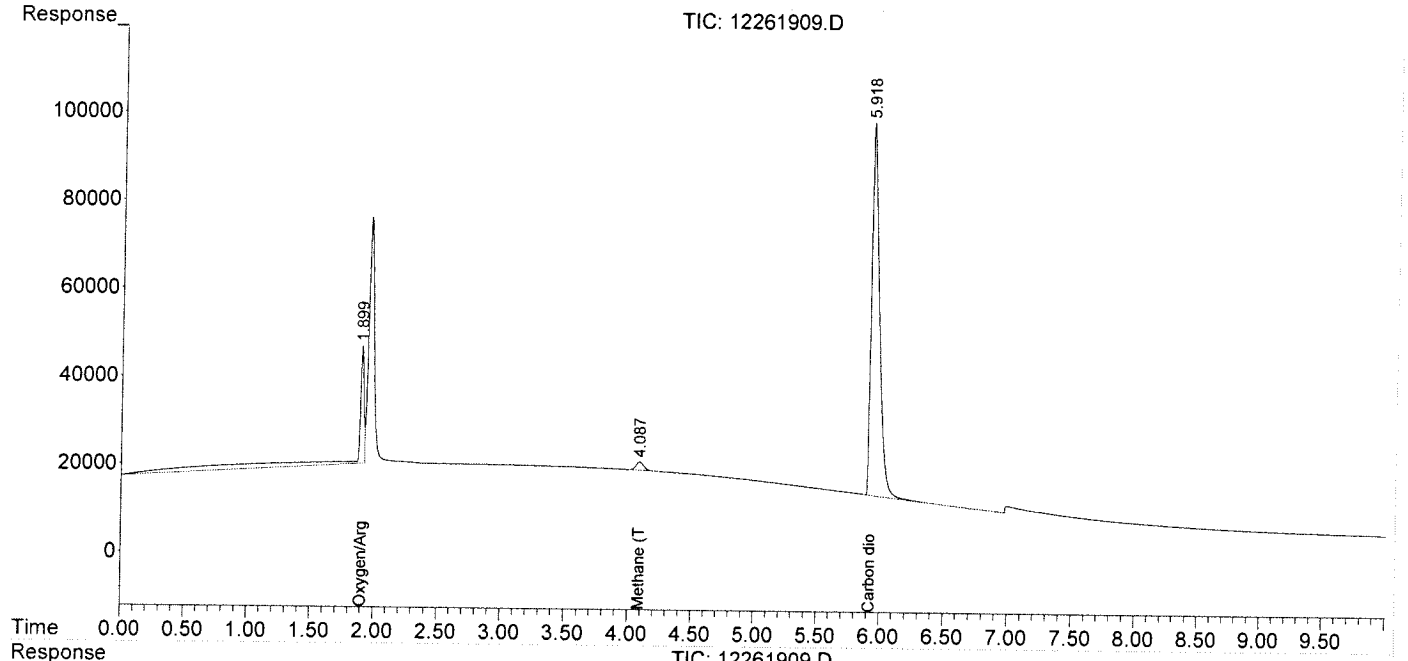
(f)=RT Delta > 1/2 Window (m)=manual int.

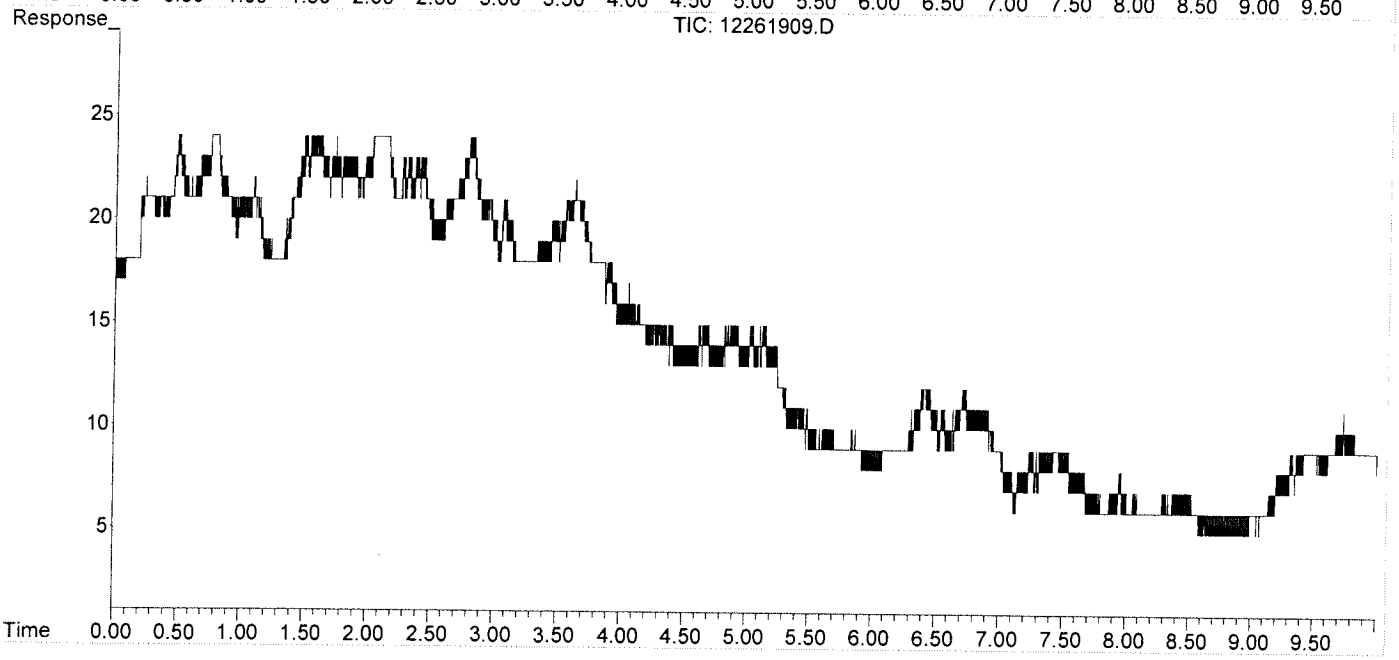
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 12:50:07
Operator : LD
Sample : P1907801-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:48 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:03:25
Operator : LD
Sample : P1907801-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:58 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

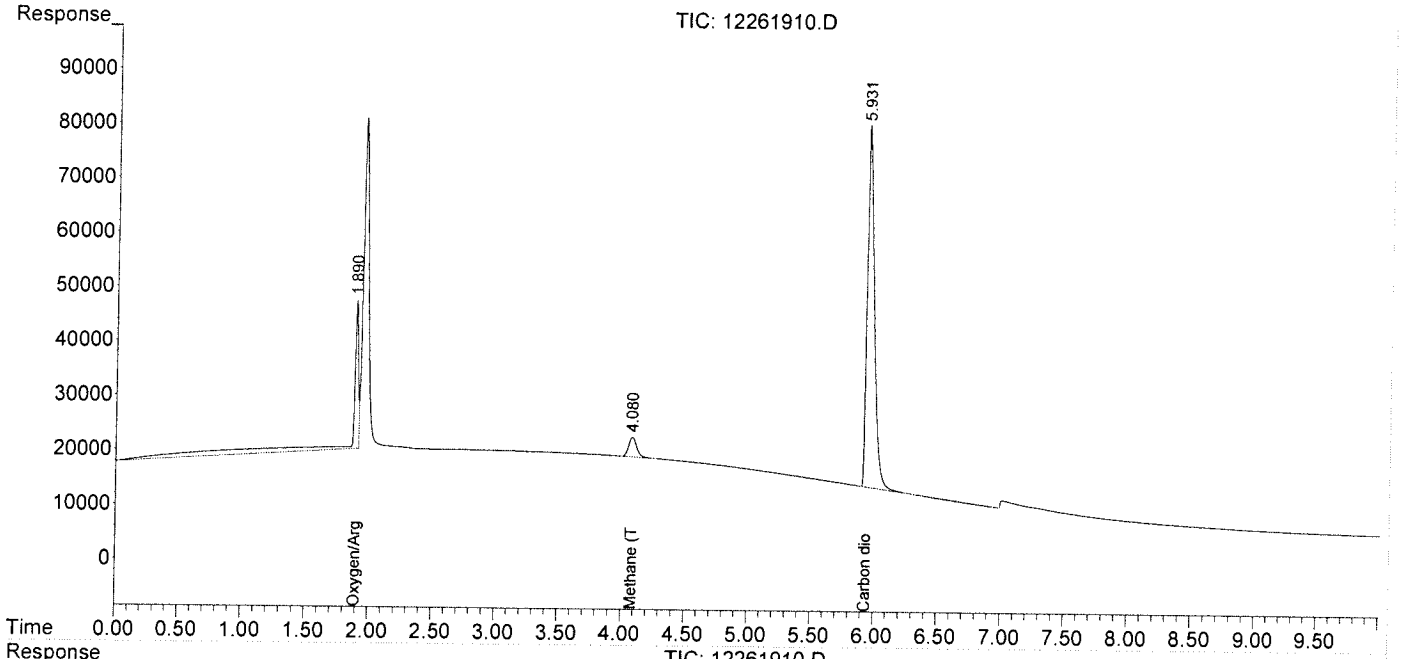
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.891	1184594	0.249	ppm
2)	Carbon monoxide	1.891	1184594	N.D.	ppm
3)	Methane (TCD)	4.081f	161163	17040.981	ppm
4)	Carbon dioxide	5.933	2623716	11177.631	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	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

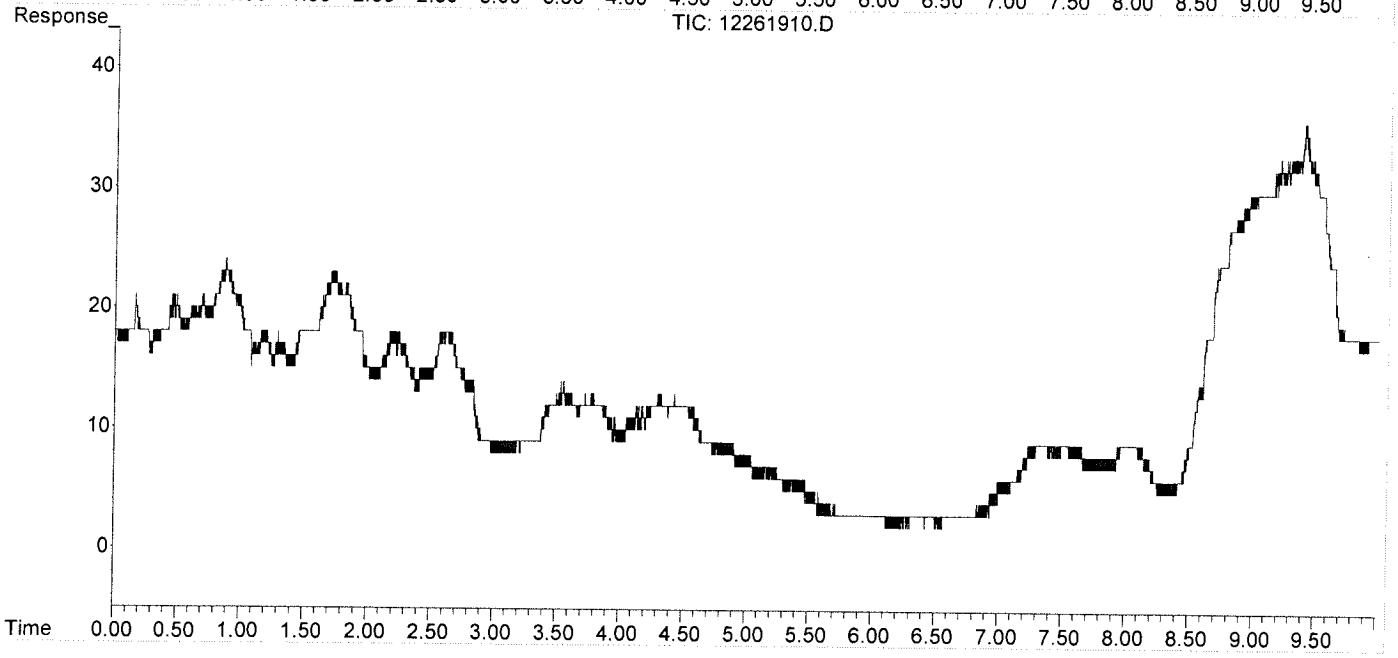
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:03:25
Operator : LD
Sample : P1907801-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:18:58 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:17:04
Operator : LD
Sample : P1907801-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:08 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

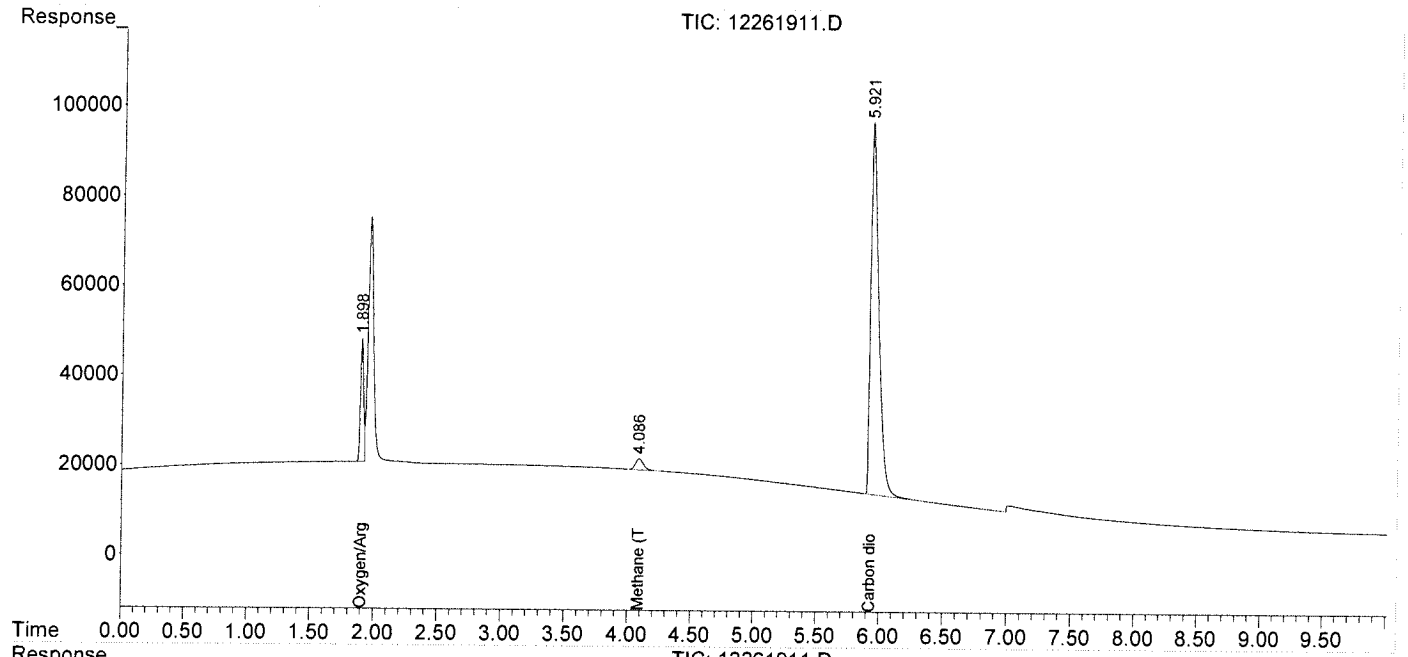
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.898	469736	0.099	ppm
2)	Carbon monoxide	1.898	469736	N.D.	ppm
3)	Methane (TCD)	4.087f	109180	11544.468	ppm
4)	Carbon dioxide	5.922	3590766	15297.483	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	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

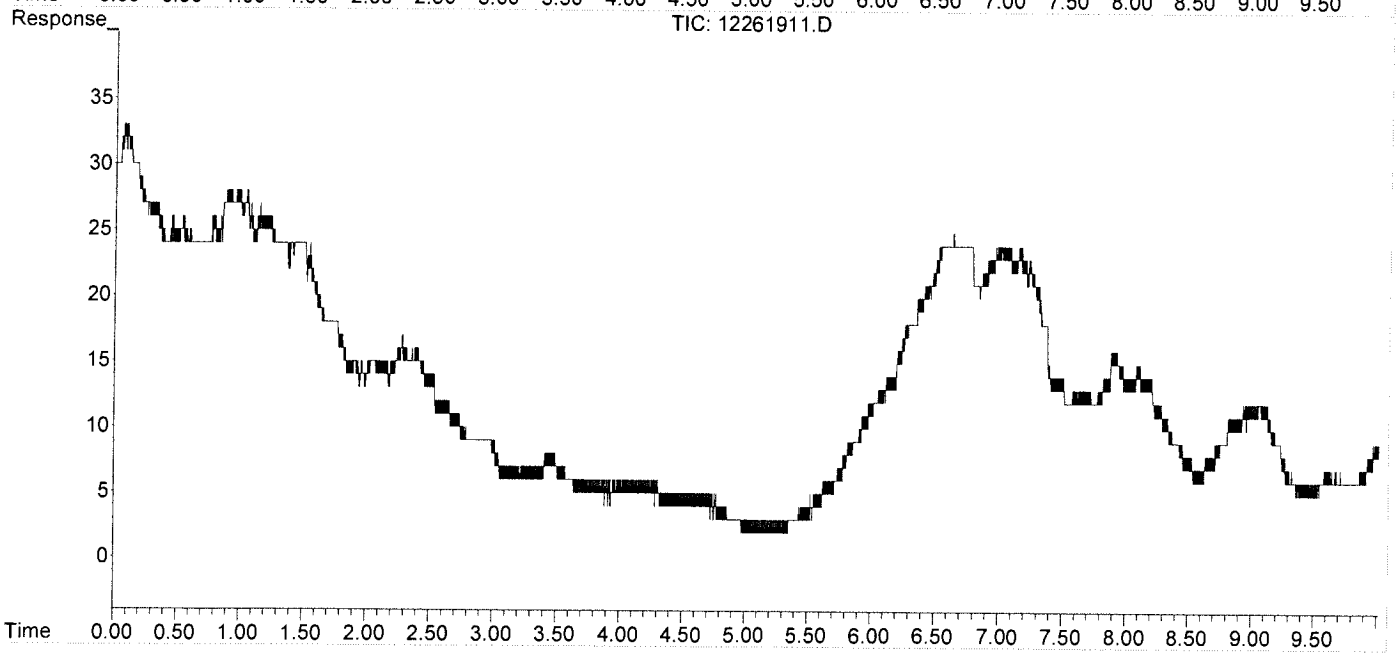
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:17:04
Operator : LD
Sample : P1907801-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:08 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:30:29
Operator : LD
Sample : P1907801-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:17 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

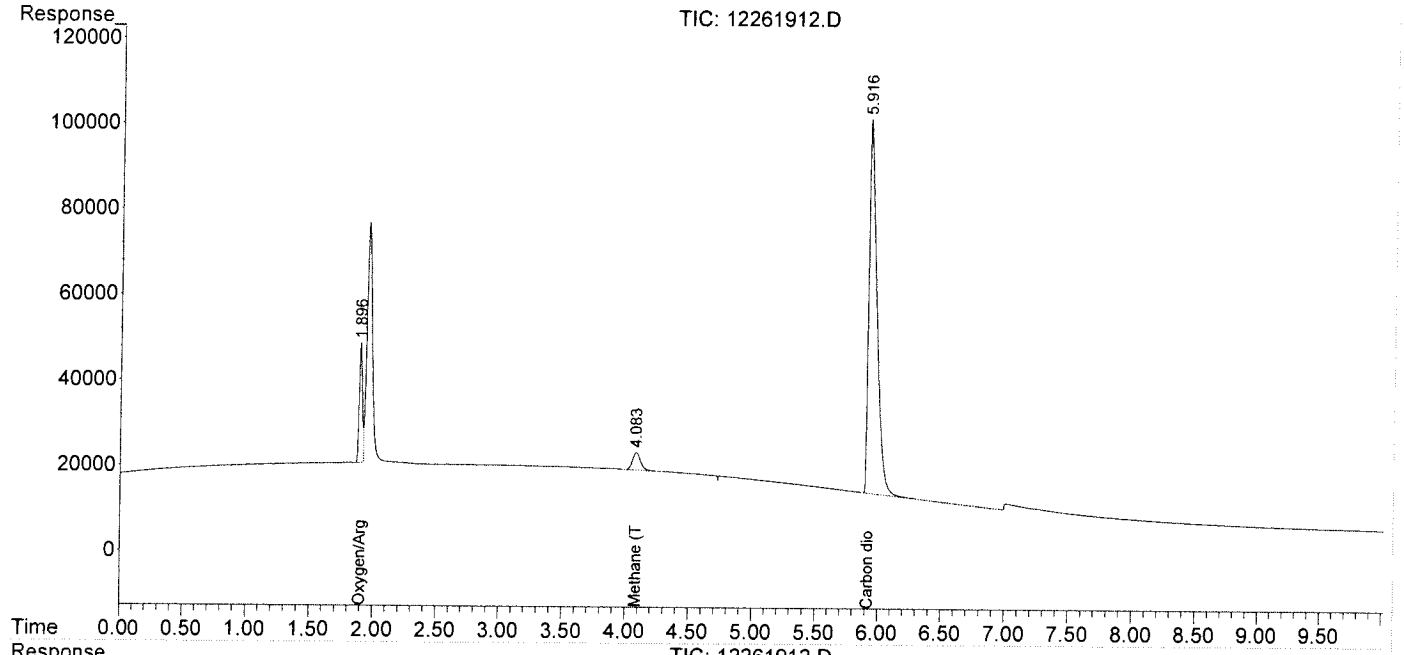
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.896	475788	0.100	ppm
2)	Carbon monoxide	1.896	475788	N.D.	ppm
3)	Methane (TCD)	4.084f	182293	19275.314	ppm
4)	Carbon dioxide	5.917	3876719	16515.710	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	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

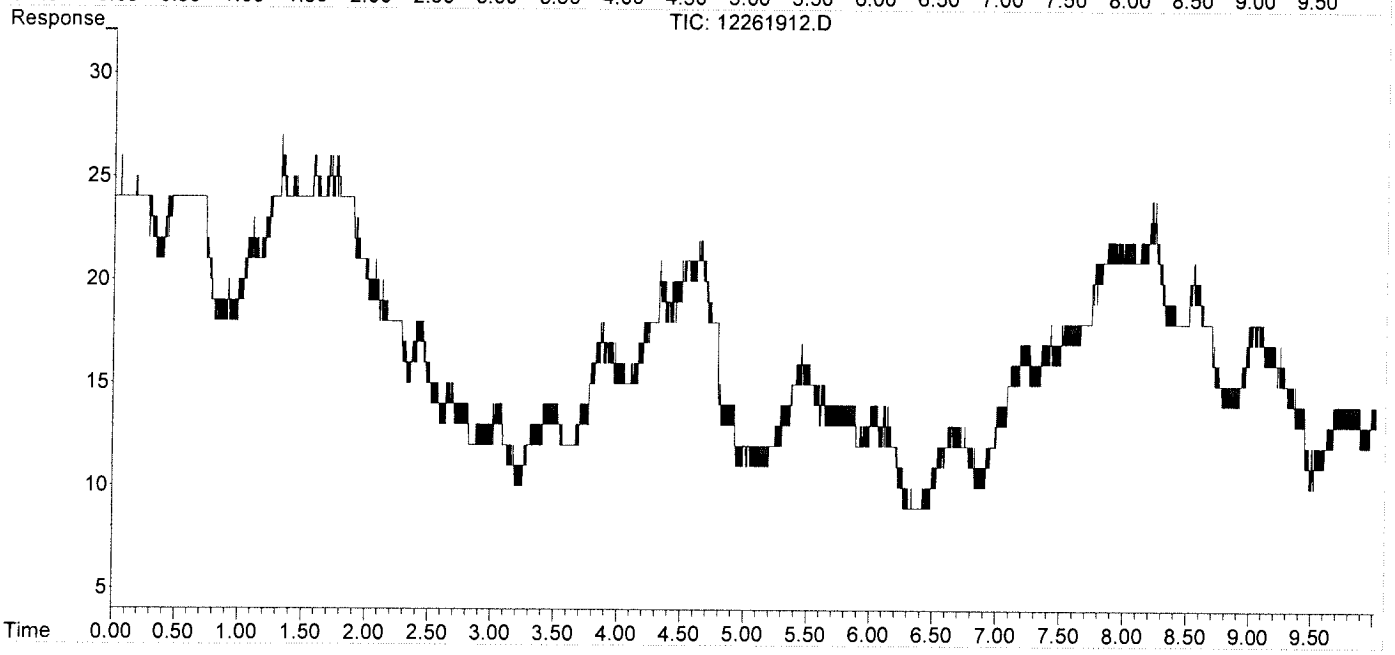
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:30:29
Operator : LD
Sample : P1907801-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:17 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:43:47
Operator : LD
Sample : P1907801-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:27 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

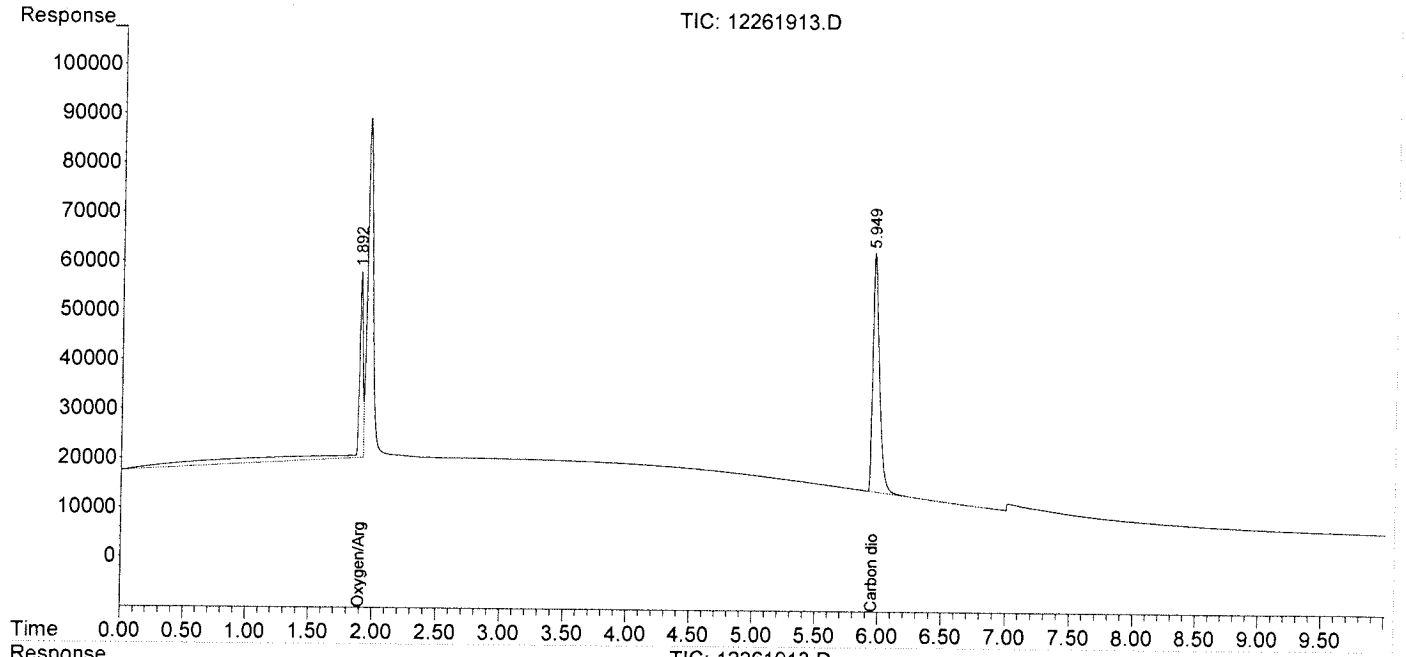
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.893	1425236	0.299	ppm
2)	Carbon monoxide	1.893	1425236	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	5.950	1755473	7478.716	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

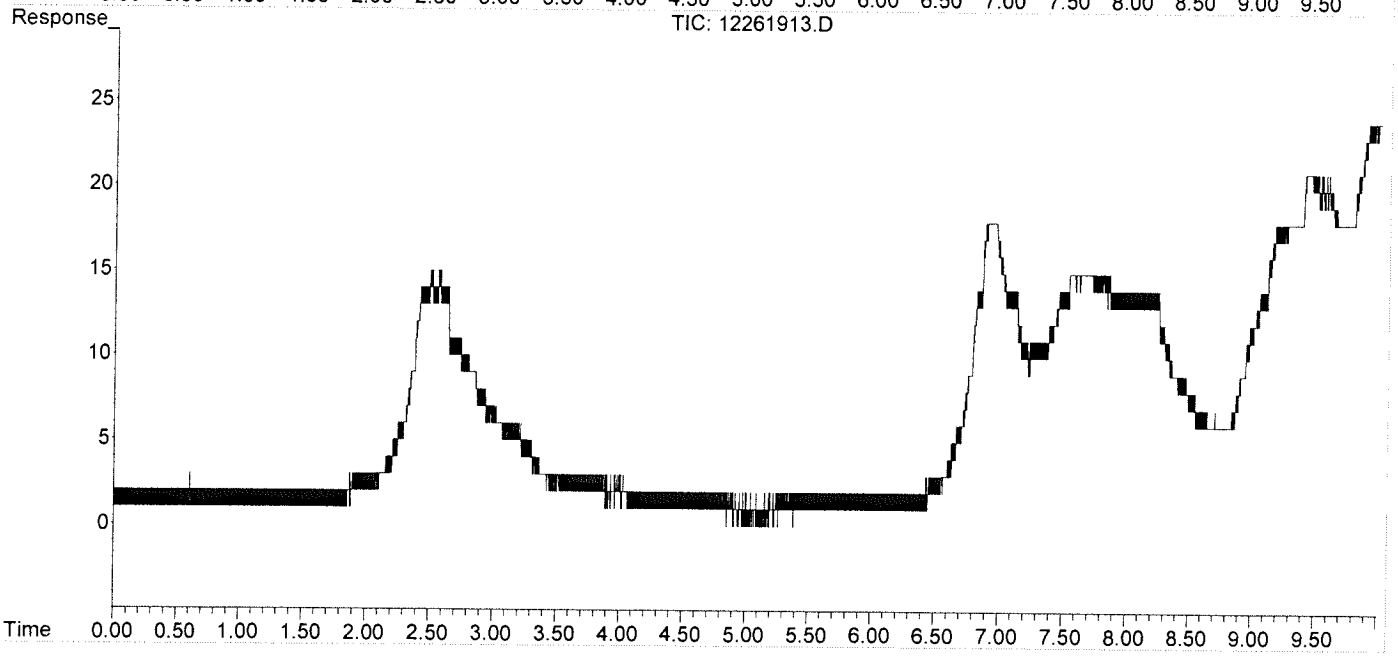
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 13:43:47
Operator : LD
Sample : P1907801-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:19:27 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 11:27:12
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 11:40:19 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

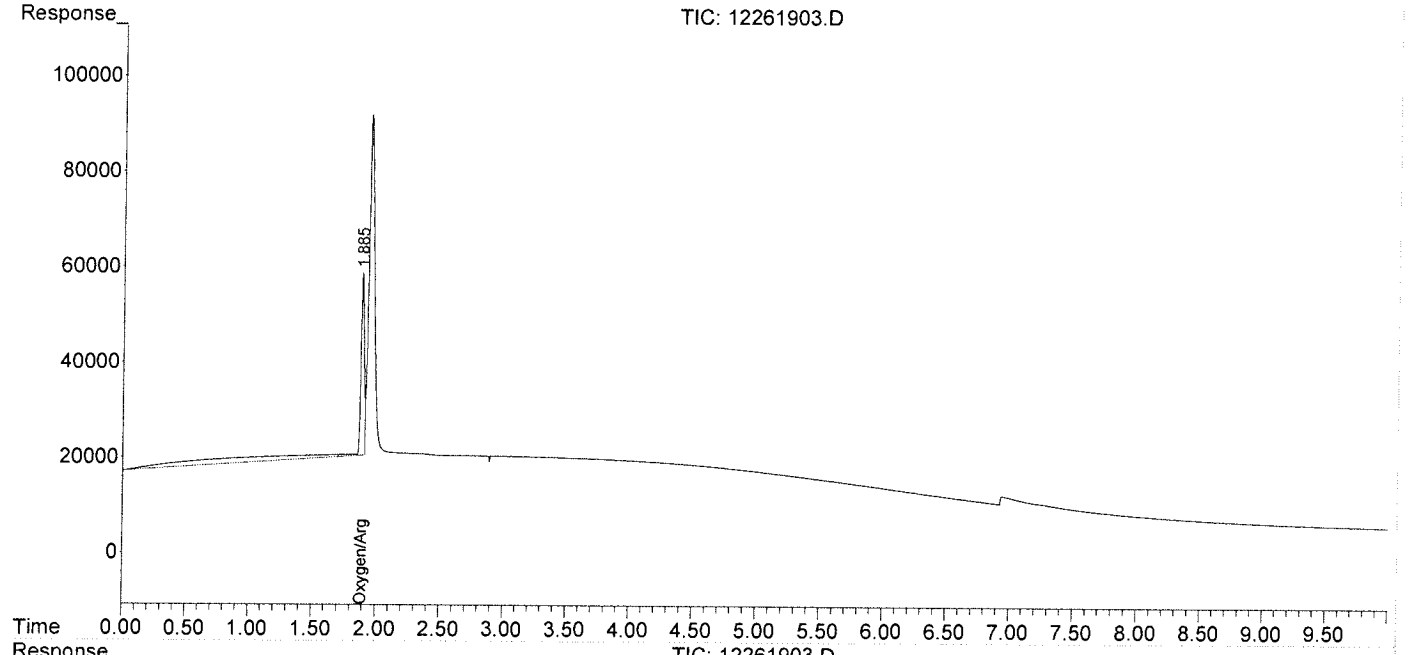
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.885	1447047	0.304	ppm
2)	Carbon monoxide	1.885	1447047	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

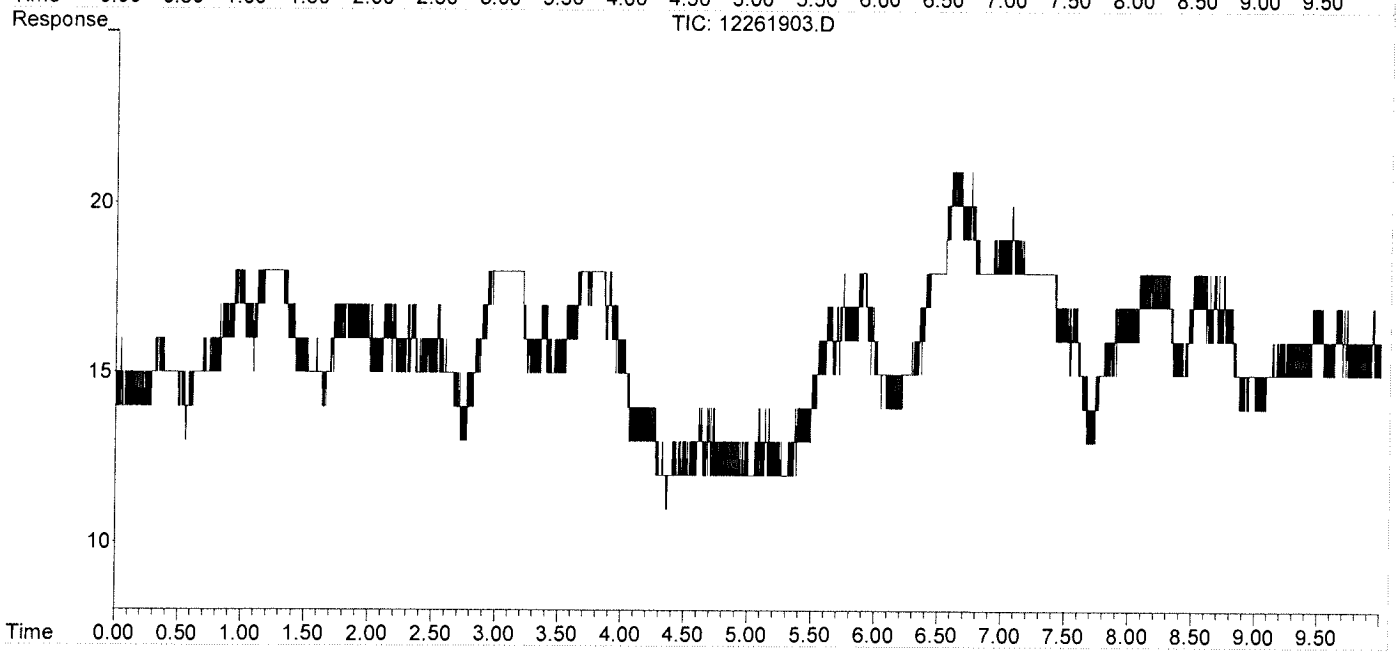
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 11:27:12
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 11:40:19 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 15:58:59
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:09:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.872	2342022	0.492	ppm	
2)	Carbon monoxide	1.872	2342022	N.D.	ppm	
3)	Methane (TCD)	4.092f	614956	65024.173	ppm	
4)	Carbon dioxide	5.995	215418	917.730	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.

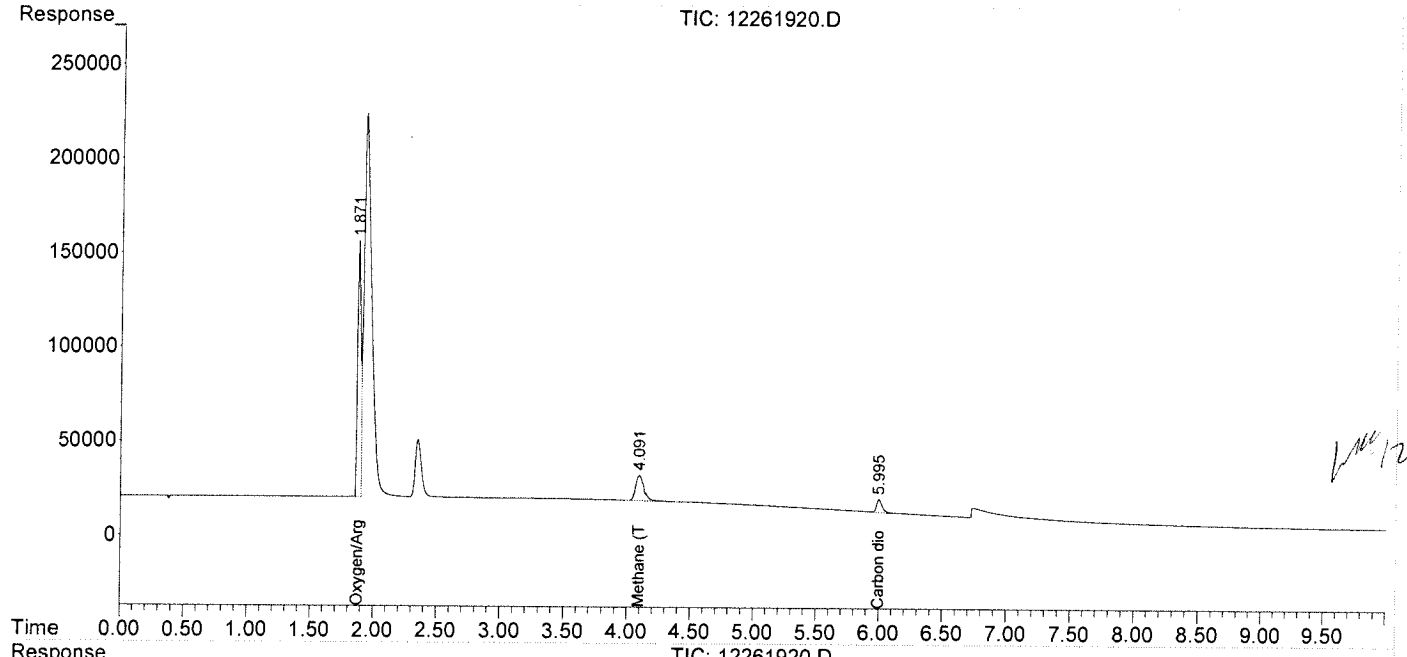
Quantitation Report (QT Reviewed)

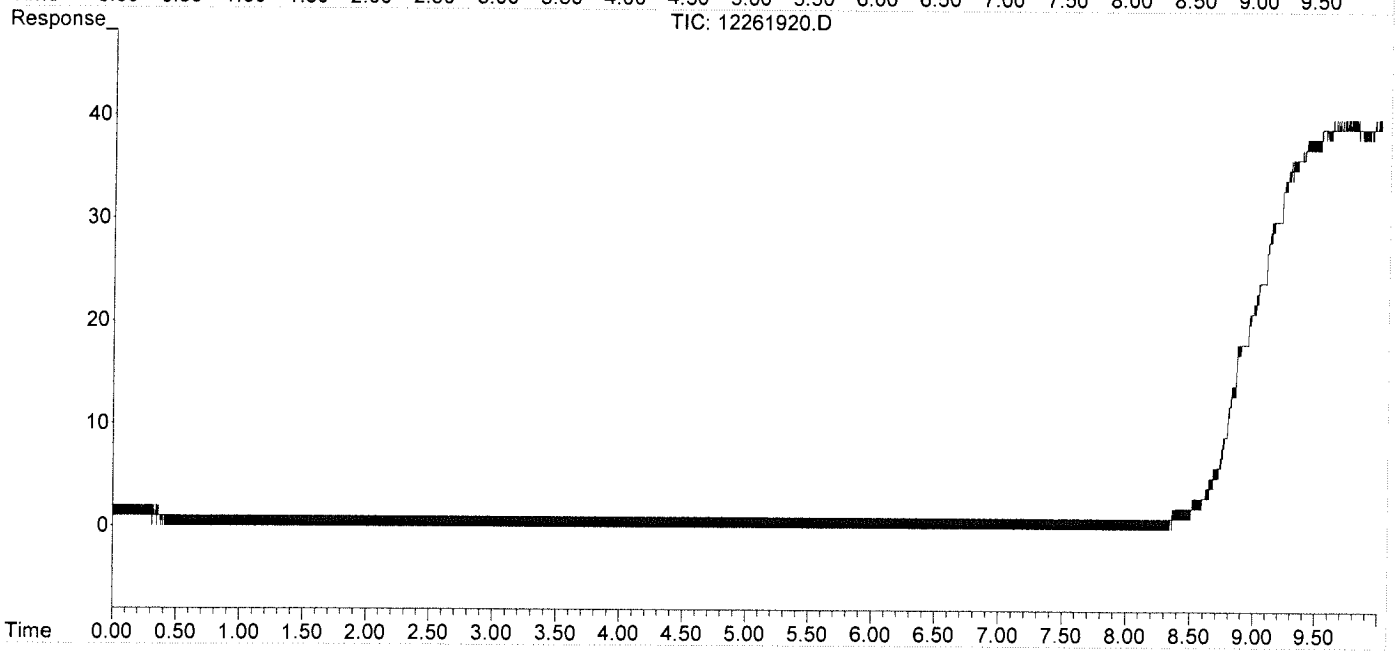
Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 15:58:59
Operator : LD
Sample : LCS S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:09:53 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LP
BLC
no previous
12/27

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 16:11:50
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:20:39 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.871	4178770	0.878	ppm	
2)	Carbon monoxide	1.871	4178770	N.D.	ppm	
3)	Methane (TCD)	4.095f	598607	63295.457	ppm	
4)	Carbon dioxide	5.996	208562	888.523	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	

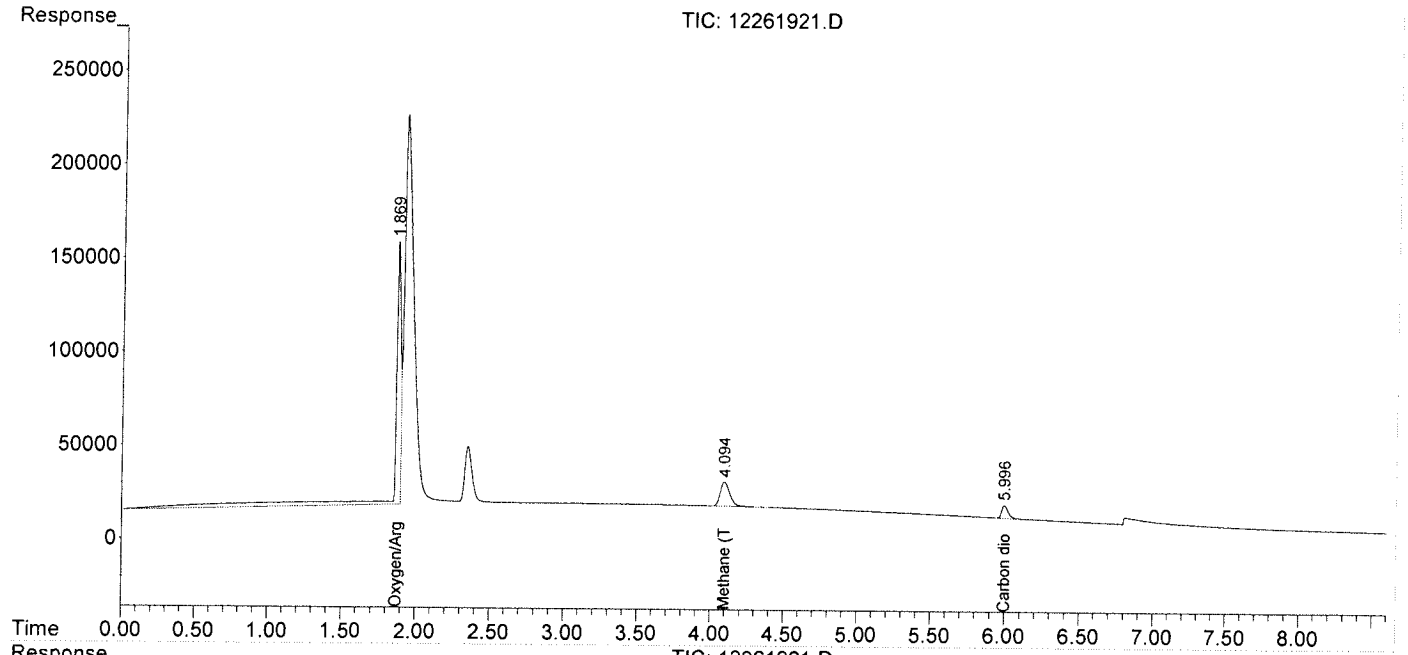
(f)=RT Delta > 1/2 Window (m)=manual int.

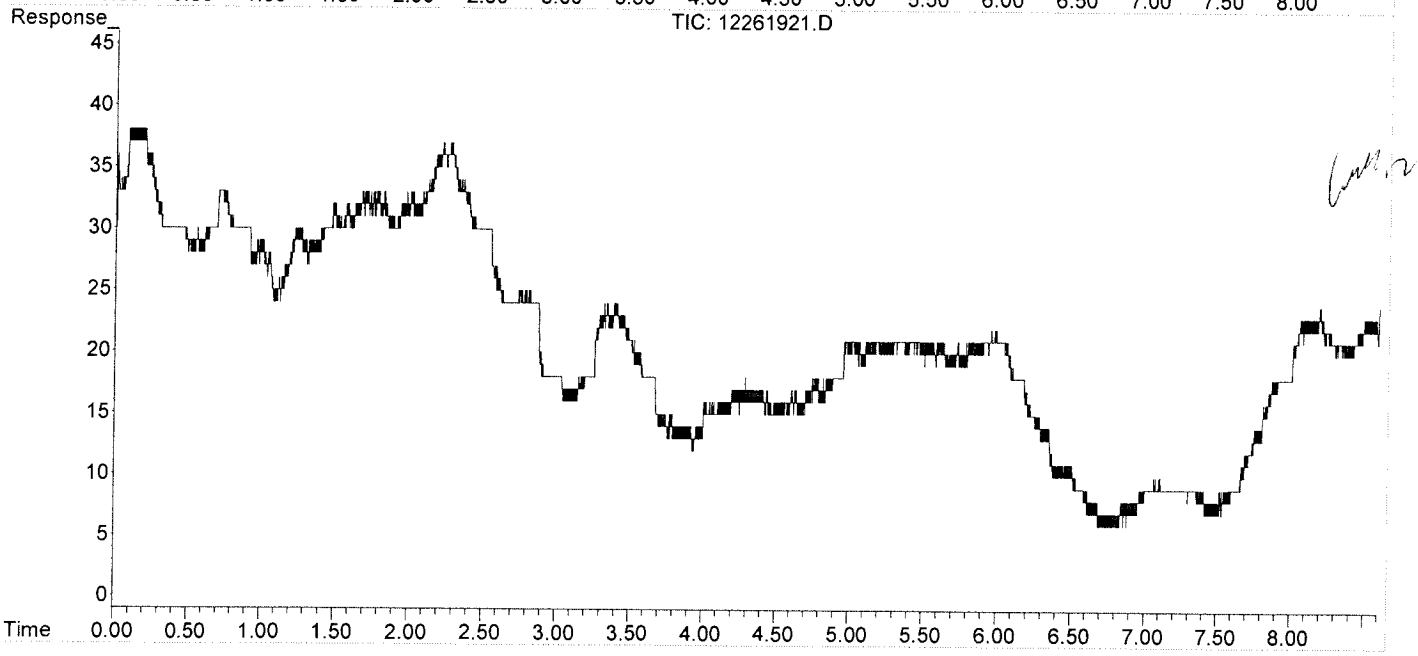
Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 16:11:50
Operator : LD
Sample : LCSD S32-08141901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:20:39 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
NO previous
12/27

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Can't read

Response Factor Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	4.760						4.760	E6	0.00
2)	Carbon monoxide	2.775		1.066	0.043	0.033	0.027	0.657	E6	170.12
3)	Methane (TCD)							9.457		0.00
4)	Carbon dioxide	2.717	2.193	2.338	2.272	2.265	2.298	2.347	E2	7.99

Signal #2 Calibration Files
1 =08291715.D 2 =08291716.D 3 =08291717.D
4 =08291719.D 5 =08291720.D 6 =08291721.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)	1.253	1.160	1.005	0.927	0.848	0.848	0.945	E4	15.85
7)	Ethylene	1.677	1.605	1.900	1.749	1.597	1.579	1.684	E4	7.30
8)	Ethane	1.769	1.631	1.866	1.767	1.639	1.667	1.723	E4	5.40
9)	Propylene	2.402	2.309	2.767	2.551	2.331	2.333	2.449	E4	7.32
10)	Propane	2.906	2.737	2.817	2.639	2.410	2.420	2.655	E4	7.75
11)	Isobutylene							0.000		-1.00
12)	Isobutane							0.000		-1.00
13)	n-Butane							0.000		-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS082817_CO2.M Wed Aug 30 13:24:19 2017

dit Compounds -- Compound #4 -- Carbon dioxide

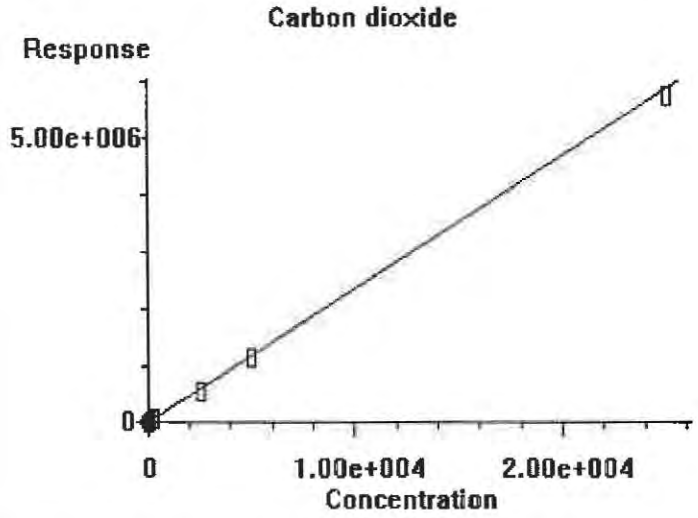
Search by: Ret Time | Name | Index | Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	25.000000	6793.665186
2	100.000000	21932.418000
3	250.000000	58460.642510
4	2500.000000	568043.388750
5	5000.000000	1132363.215937
6	25000.000000	5744294.891563
7	25000.000000	
8	25000.000000	
9	2000.000000	
10	30000.000000	

Lvl ID	Concentration	Response



0.000e+000	Quadratic term
2.347e+002	Linear term
0.000e+000	Constant term
7.987%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Calibration Status Report HP5890

Method Path : I:\GC10\METHODS\
Method File : RS082817_CO2.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Tue Aug 29 16:13:13 2017
Response Via : Initial Calibration

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291715.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291716.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291717.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291719.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291720.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_08\29\08291721.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_08\24\08241711.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Aug 29 14:21 2017	Aug 29 14:20 2017	29-Aug-2017, 14:07
2	2	Aug 29 14:52 2017	Aug 29 14:51 2017	29-Aug-2017, 14:22
3	3	Aug 29 15:04 2017	Aug 29 15:04 2017	29-Aug-2017, 14:53
4	4	Aug 29 15:36 2017	Aug 29 15:36 2017	29-Aug-2017, 15:23
5	5	Aug 29 15:57 2017	Aug 29 15:57 2017	29-Aug-2017, 15:44
6	6	Aug 29 16:13 2017	Aug 29 16:13 2017	29-Aug-2017, 16:00
7	7	Aug 25 09:05 2017	Aug 24 16:00 2017	24-Aug-2017, 15:44
8	8	Aug 25 09:06 2017	Aug 24 16:13 2017	24-Aug-2017, 16:02
9	9	Aug 25 09:06 2017	Aug 24 16:31 2017	24-Aug-2017, 16:16
10	10	Aug 25 09:07 2017	Aug 24 16:42 2017	24-Aug-2017, 16:33

RS082817_CO2.M Wed Aug 30 13:24:30 2017

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

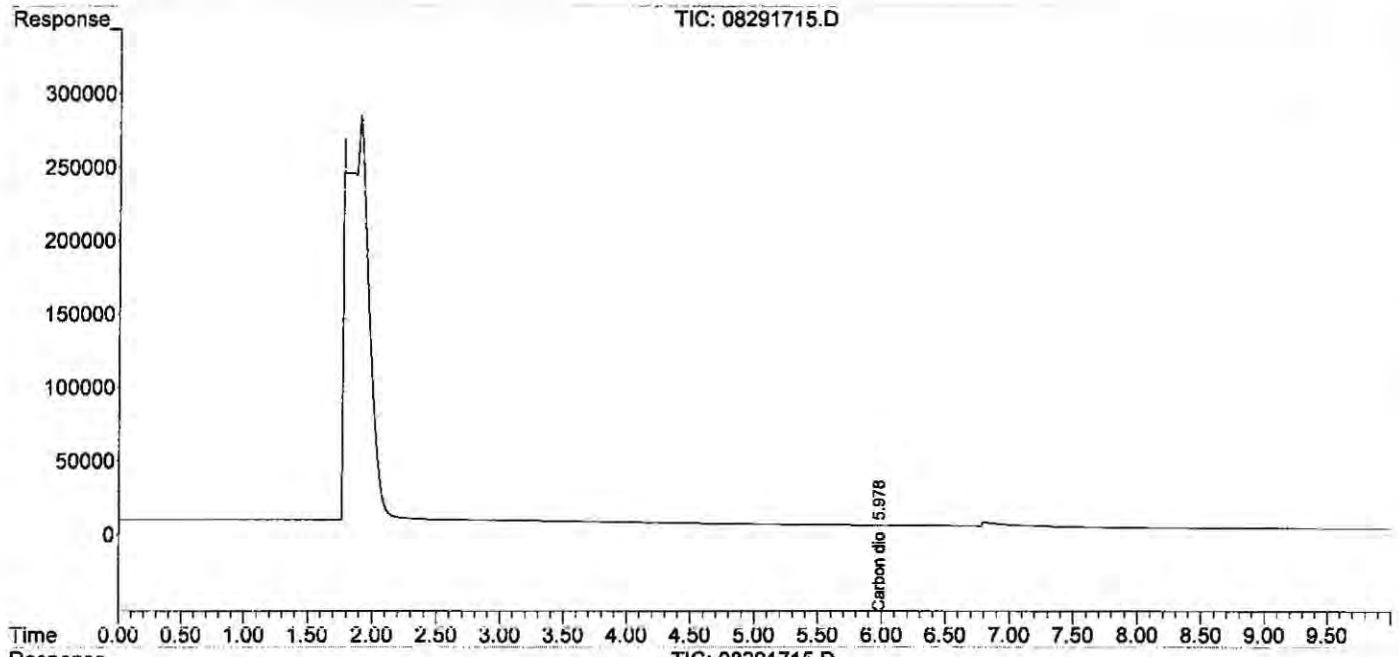
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

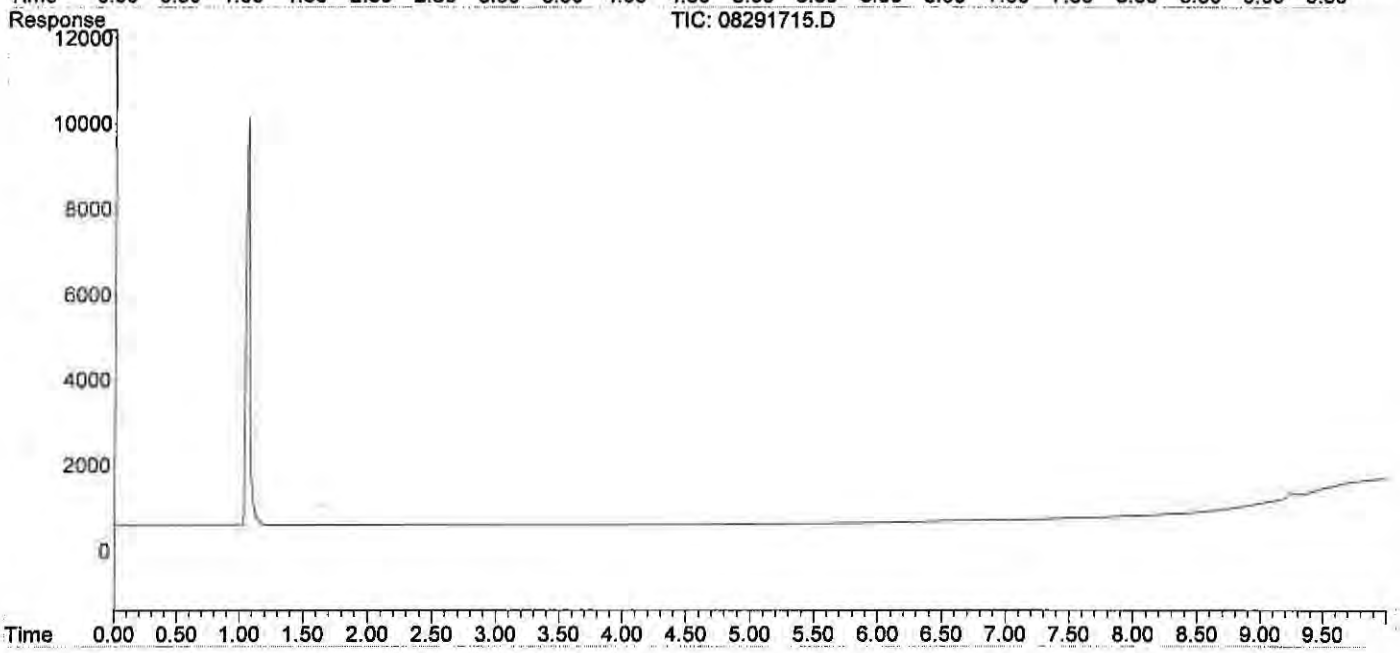
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 14:20:06 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



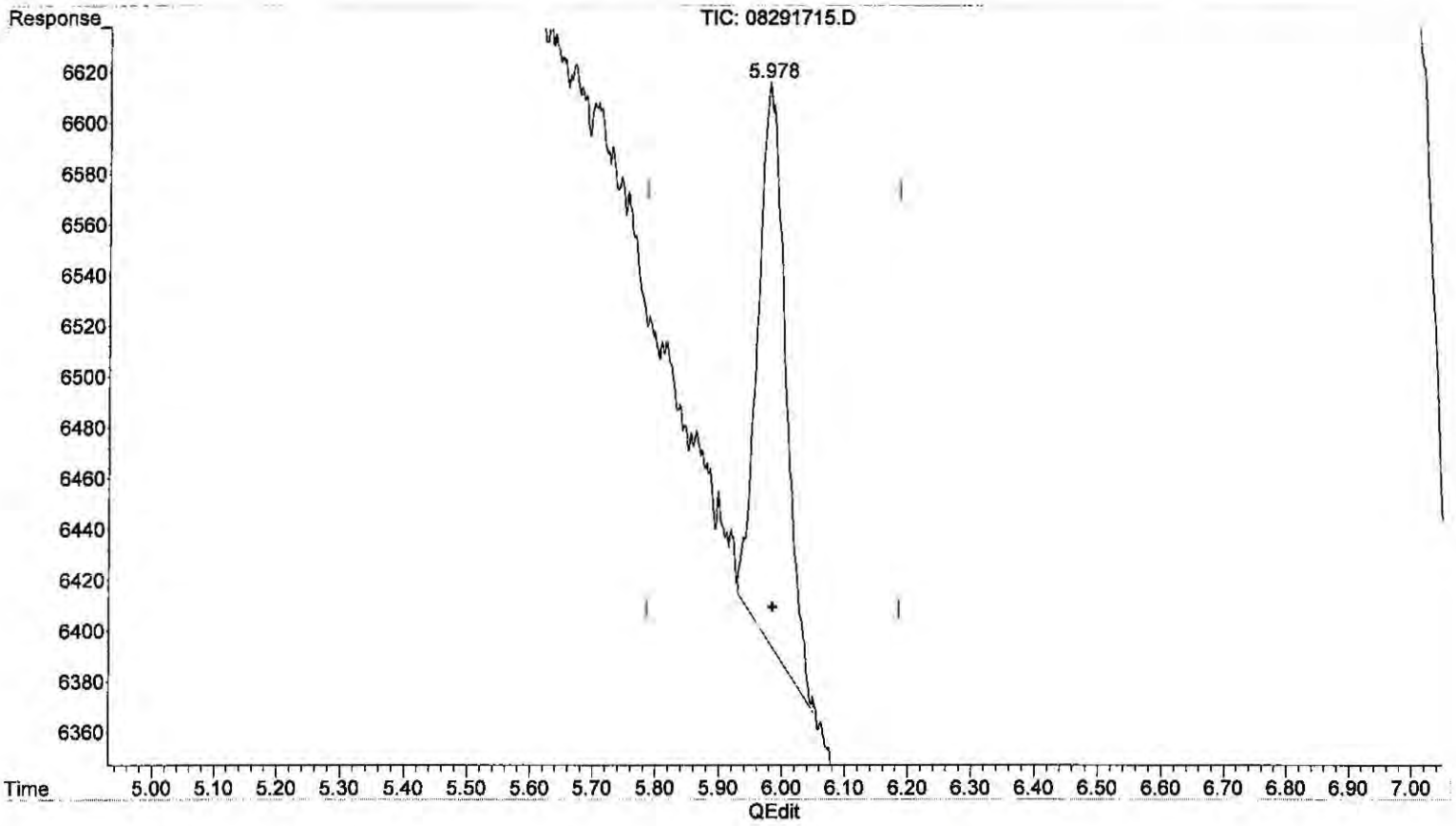


Quantitation Report (Qedit)

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

RS082817_CO2.M Wed Aug 30 13:17:47 2017

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 :

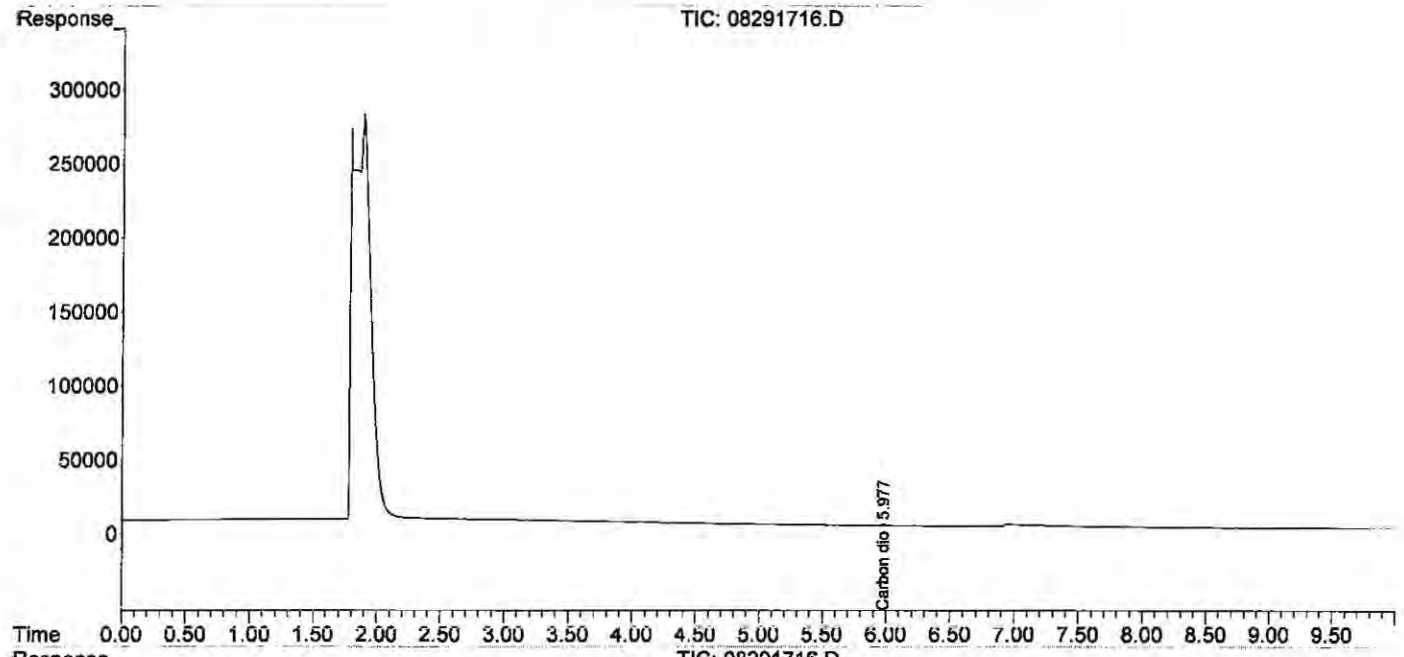
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.790	-598962	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	21932	87.858	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

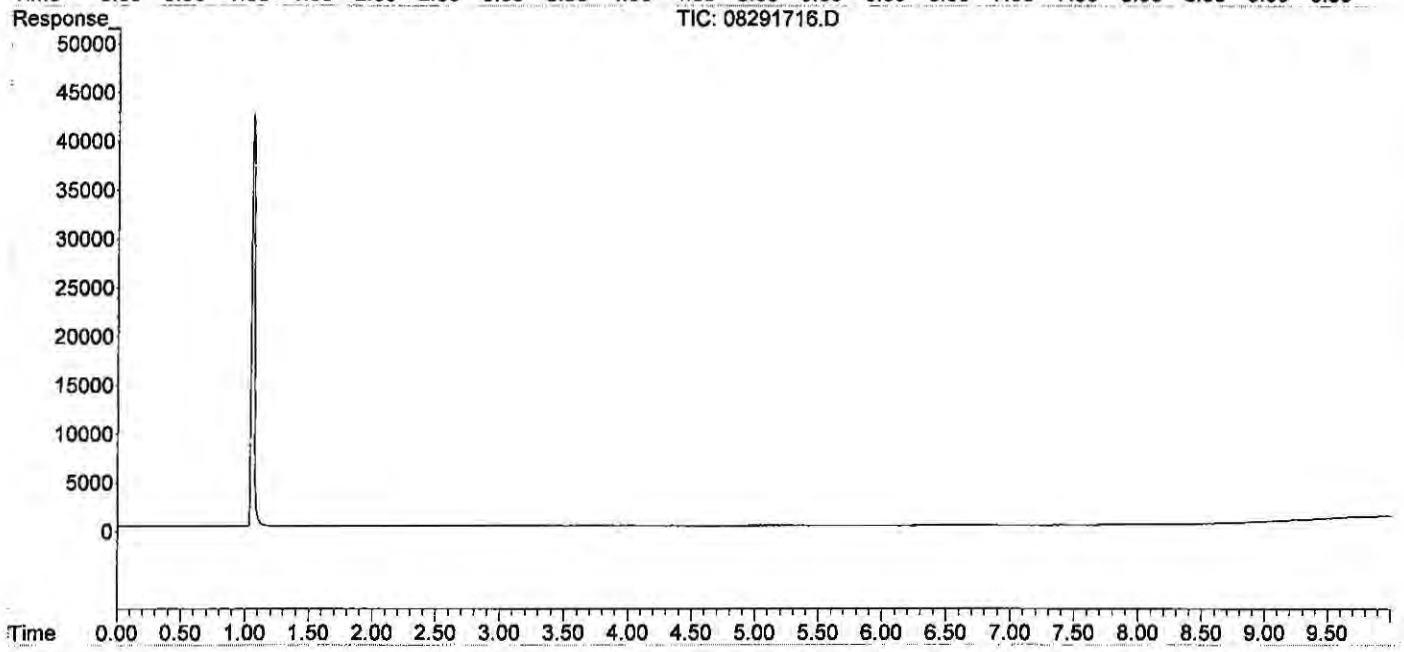
(f)=RT Delta > 1/2 Window (m)=manual int.

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	

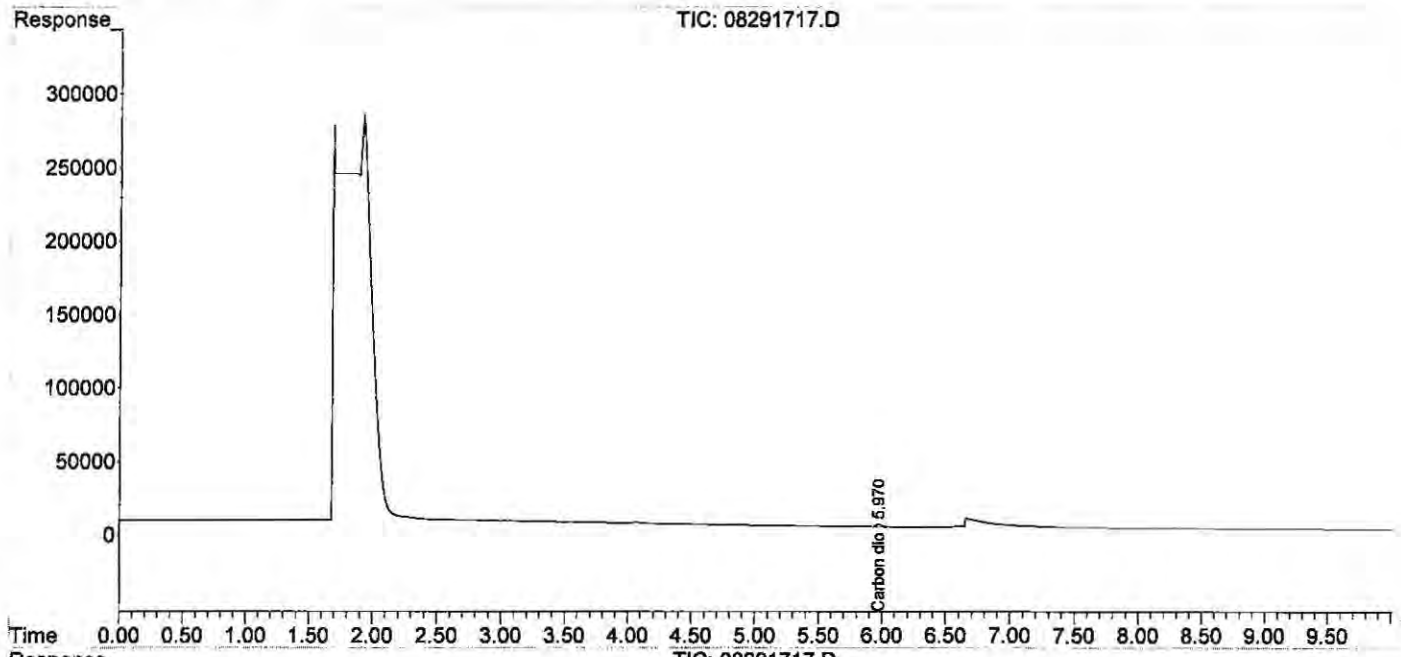
(f)=RT Delta > 1/2 Window (m)=manual int.

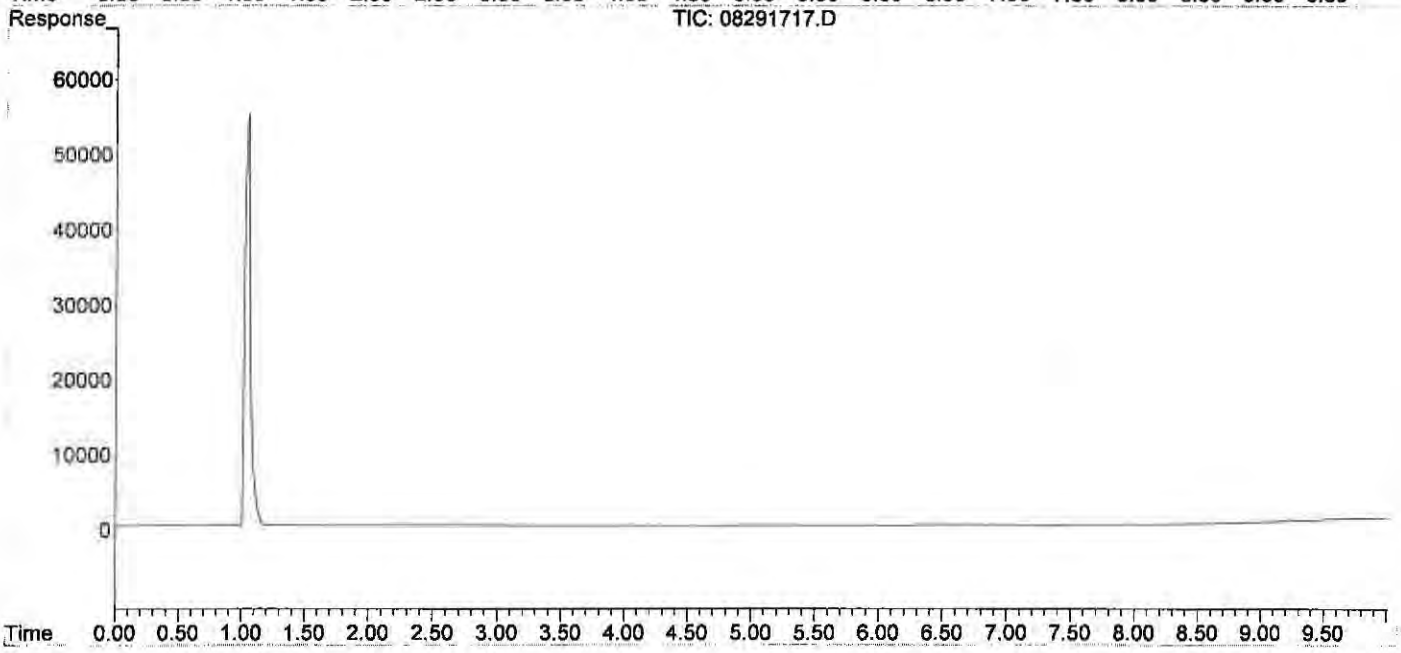
Quantitation Report (QT Reviewed)

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 :

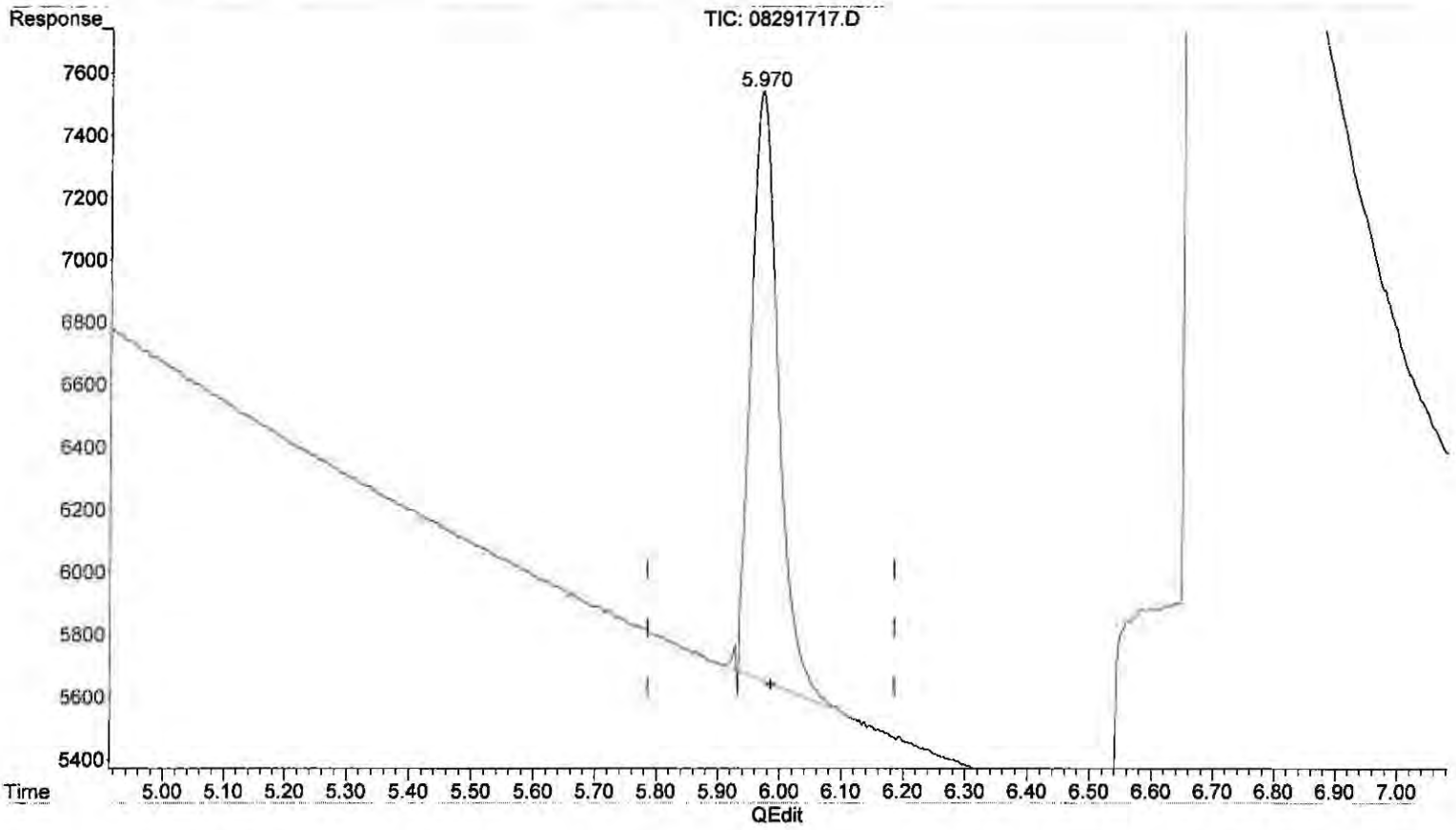




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291717.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:53
Operator : MC
Sample : 250ppm s32-08291702 0.5ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

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
RS082817_CO2.M Wed Aug 30 13:19:20 2017

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	

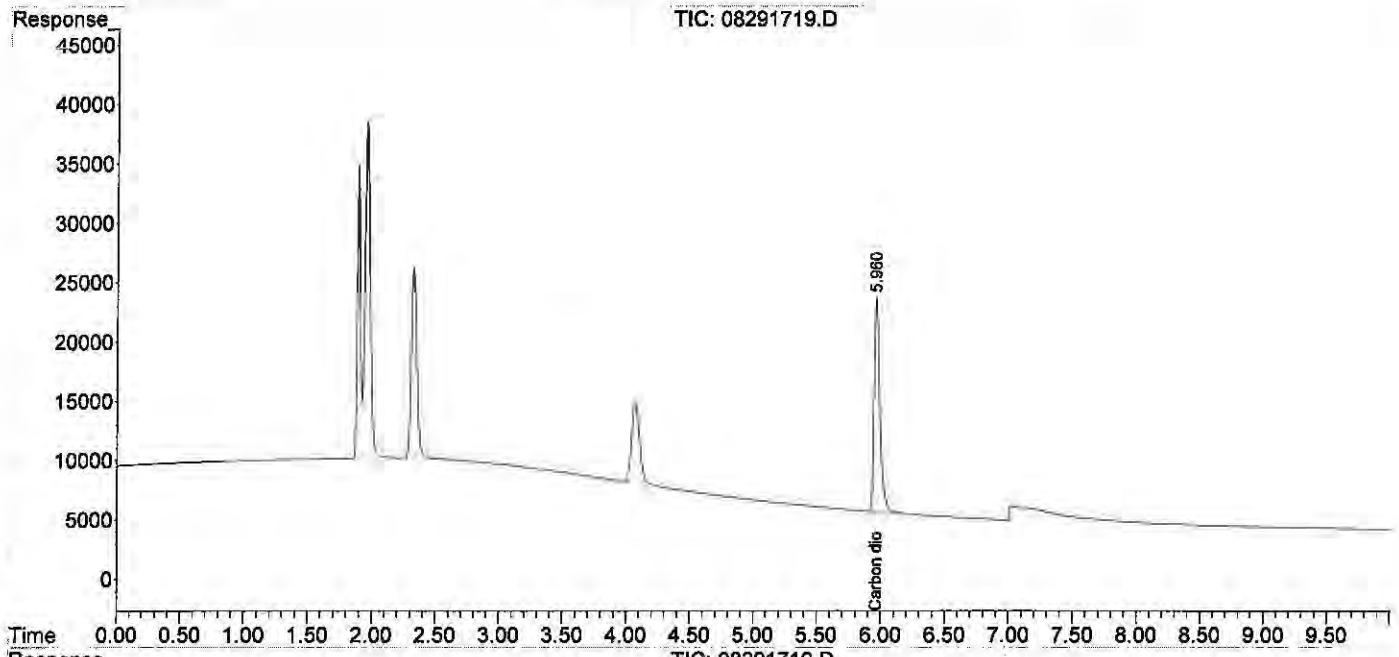
(f)=RT Delta > 1/2 Window (m)=manual int.

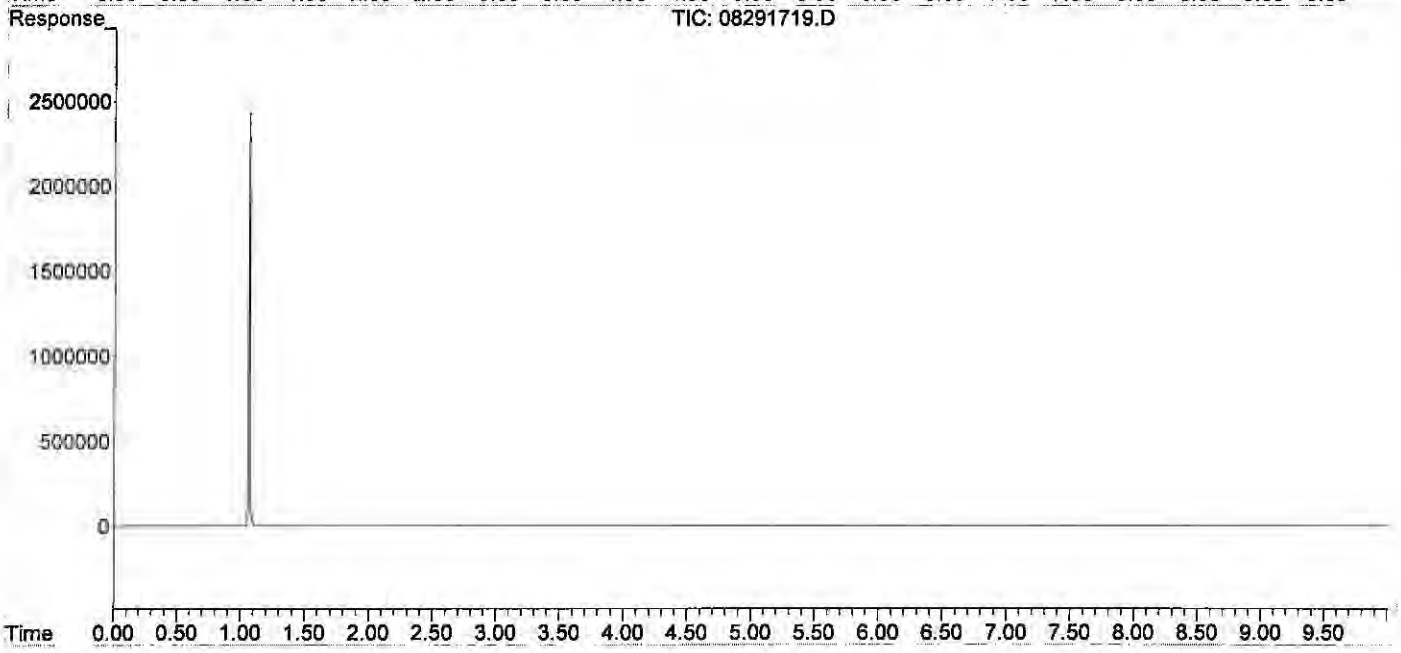
Quantitation Report (QT Reviewed)

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 :





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 :

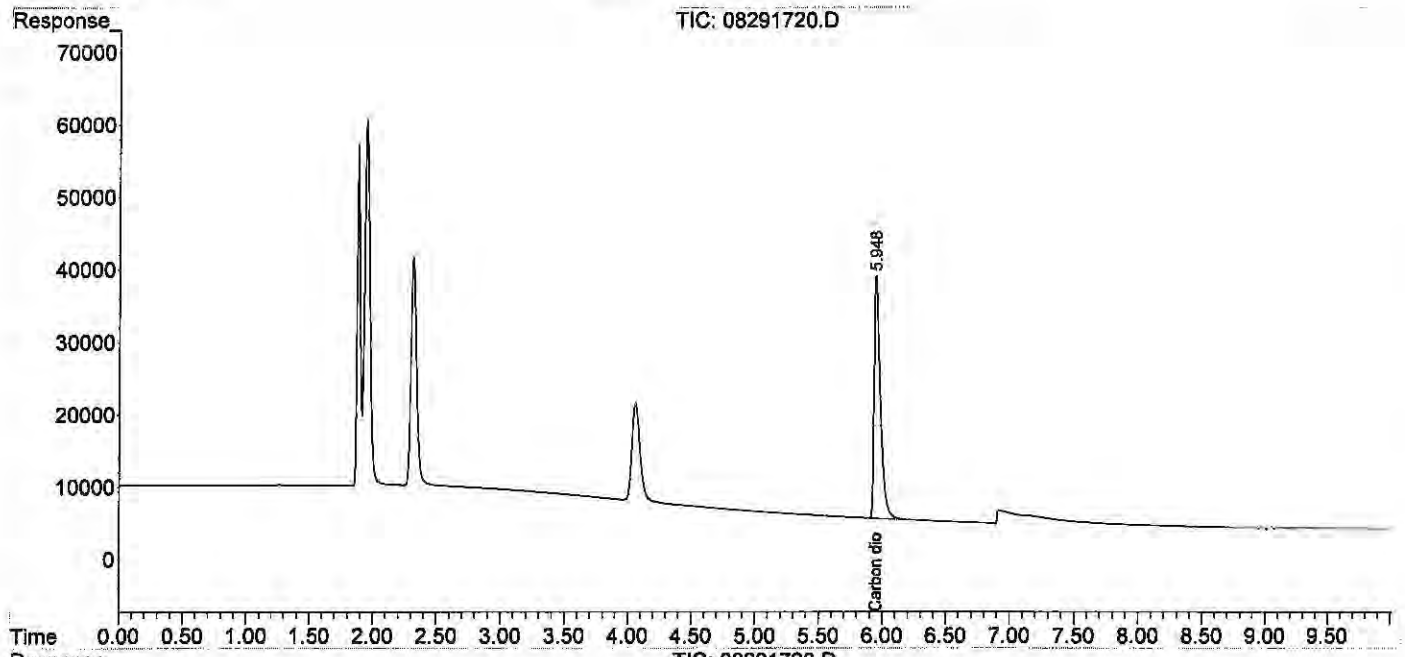
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.880	819221	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.948	1132363	4753.126	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	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	

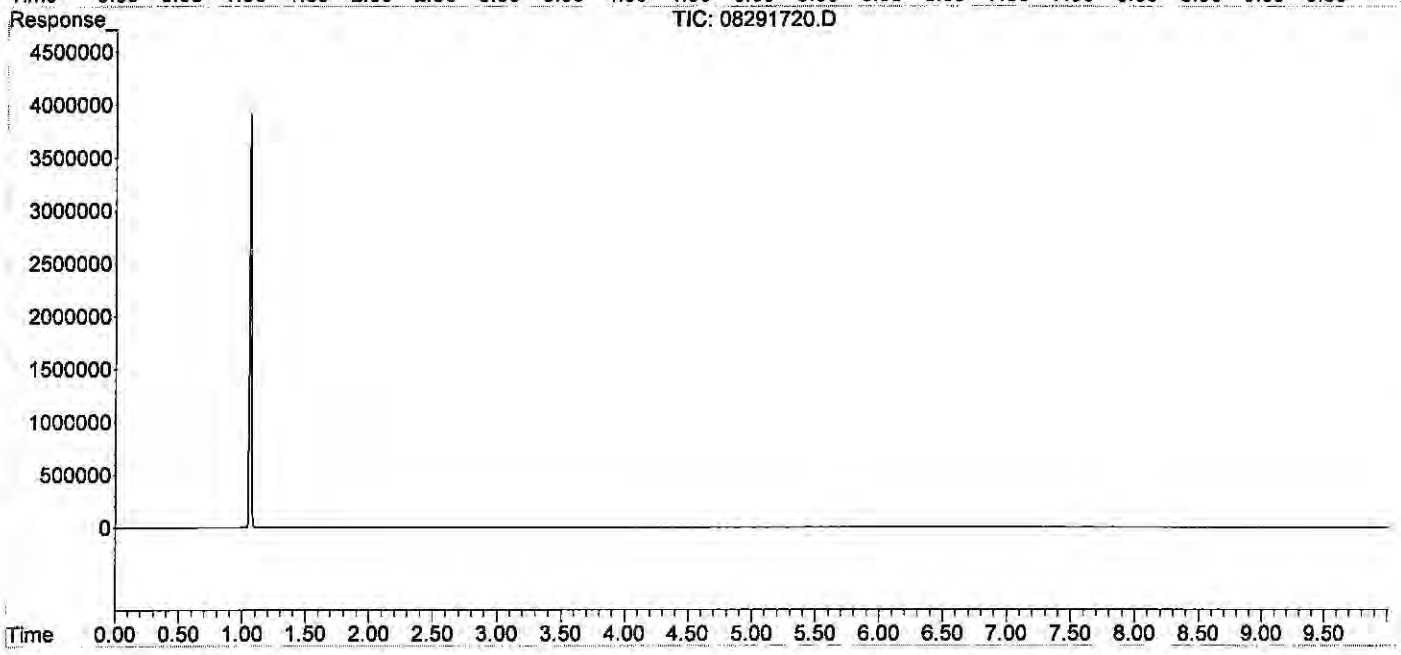
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :





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	

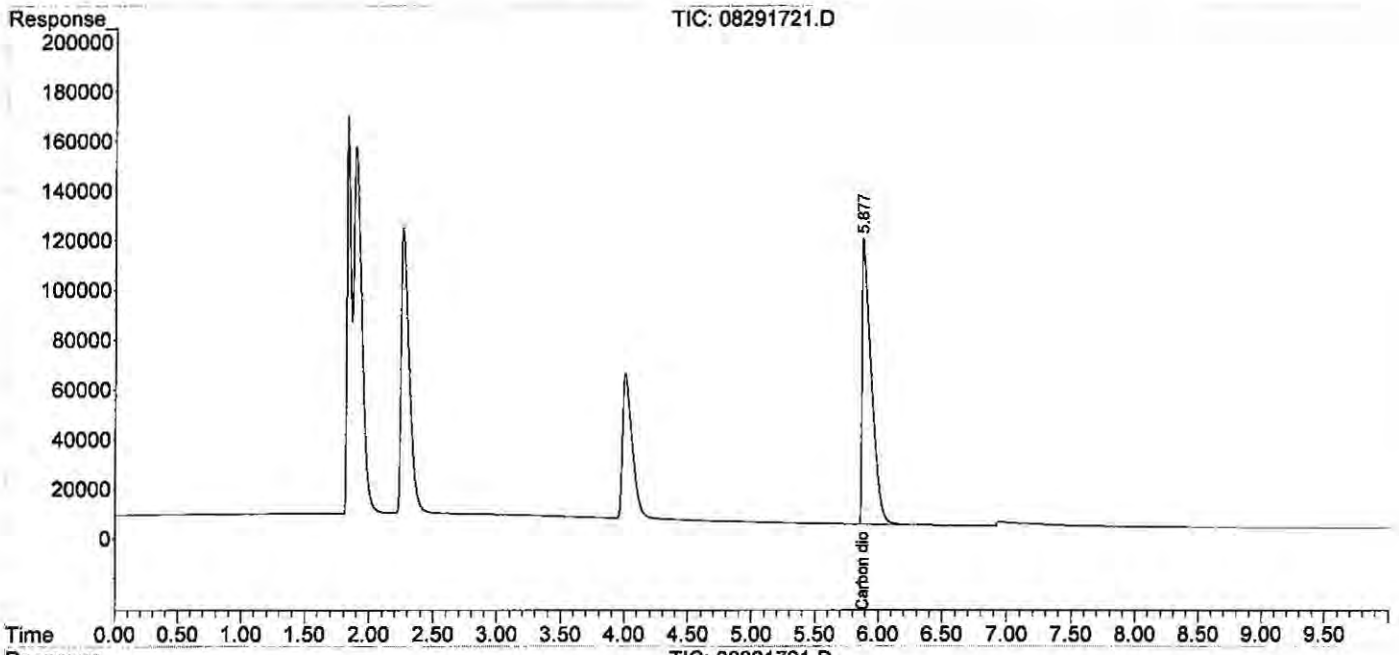
(f)=RT Delta > 1/2 Window (m)=manual int.

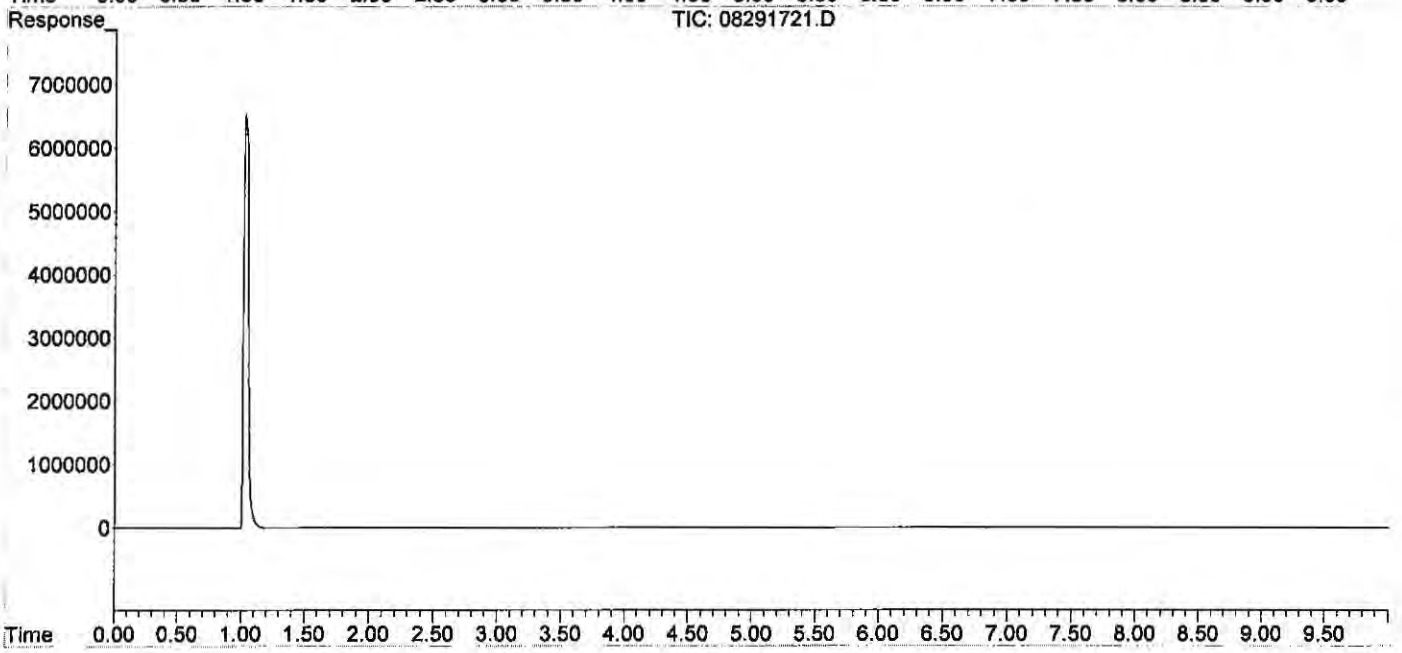
Quantitation Report (QT Reviewed)

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 :





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	Actual %D
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	5000 99.16
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	

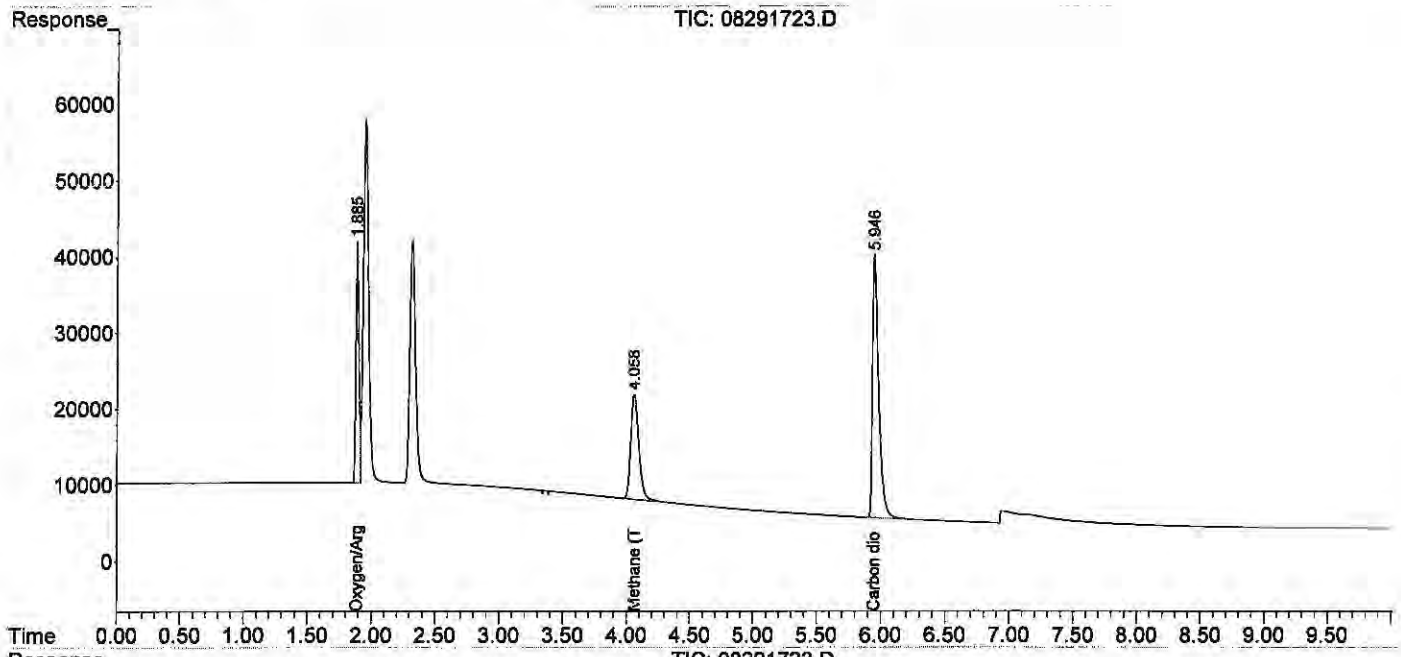
(f)=RT Delta > 1/2 Window (m)=manual int.

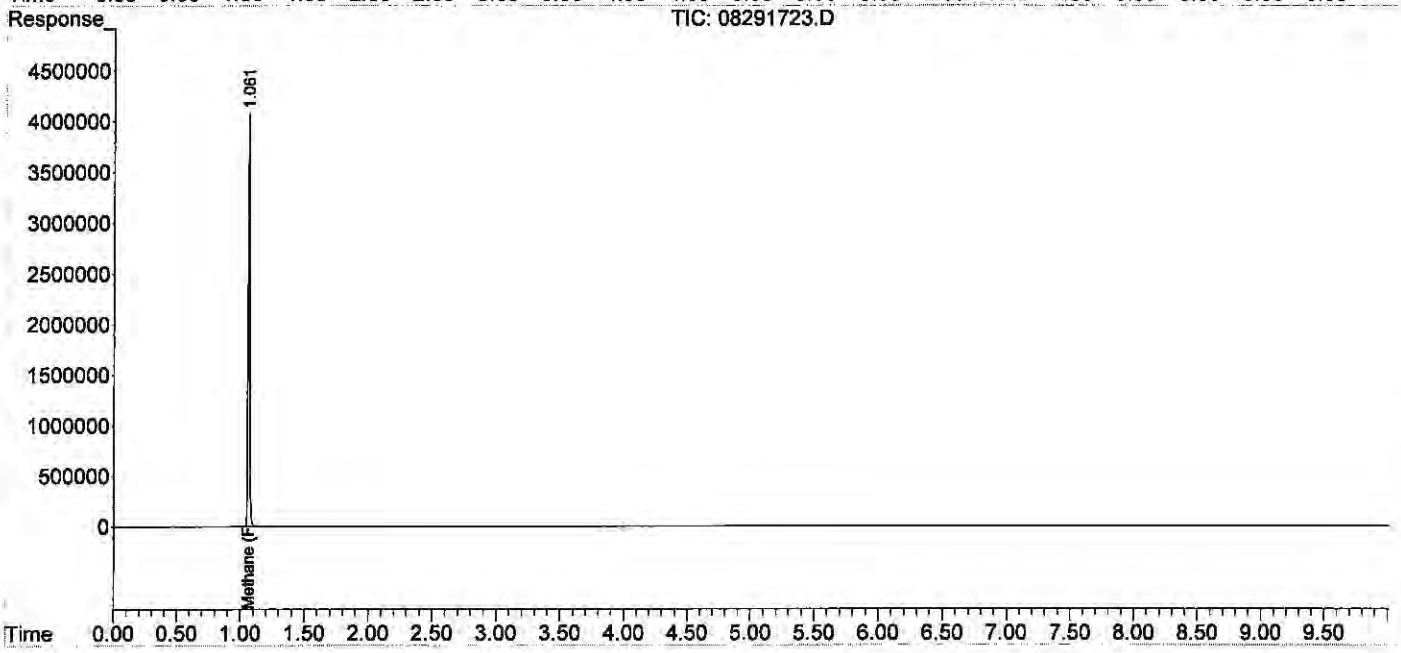
W 9/4/17

Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291723.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 16:35
Operator : MC
Sample : icv s30-07071701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Aug 29 16:54:07 2017
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1907801
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 12/26/19
Head Space Vol.(ml) : 8.00 ml

Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Carbon Dioxide
STD S32-10291901	4967.457
ACTUAL	5000.00
%Difference	0.7%
MCS 0.1ml	0.000
RB 0.1ml	0.000
LCS S32-08141901	917.730
LCSD S32-08141901	888.523
P1907801-001 0.1ml	5711.293
P1907801-002 0.1ml	15597.21
P1907801-003 0.1ml	11177.63
P1907801-004 0.1ml	15297.48
P1907801-005 0.1ml	16515.71
P1907801-006 0.1ml	7478.716
STD S32-10291901	5239.520

WWt. HENRY'S CONSTANT RL
MCS 0.1ml
LCS S32-08141901
LCSD S32-08141901
P1907801-001 0.1ml
P1907801-002 0.1ml
P1907801-003 0.1ml
P1907801-004 0.1ml
P1907801-005 0.1ml
P1907801-006 0.1ml
STD S32-10291901

FINAL HEAD SPACE RESULT (ppm)

Carbon Dioxide
44.10
1.42E+03
100.00
0.000
9177.300
8885.230
57112.930
155972.06
111776.31
152974.83
165157.10
74787.160
52395.200

STD S32-10291901	5071.627	13:43:47
ACTUAL	5000.00	
%Difference	1.4%	

12/27

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 09:10:35
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 09:22:21 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/27

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

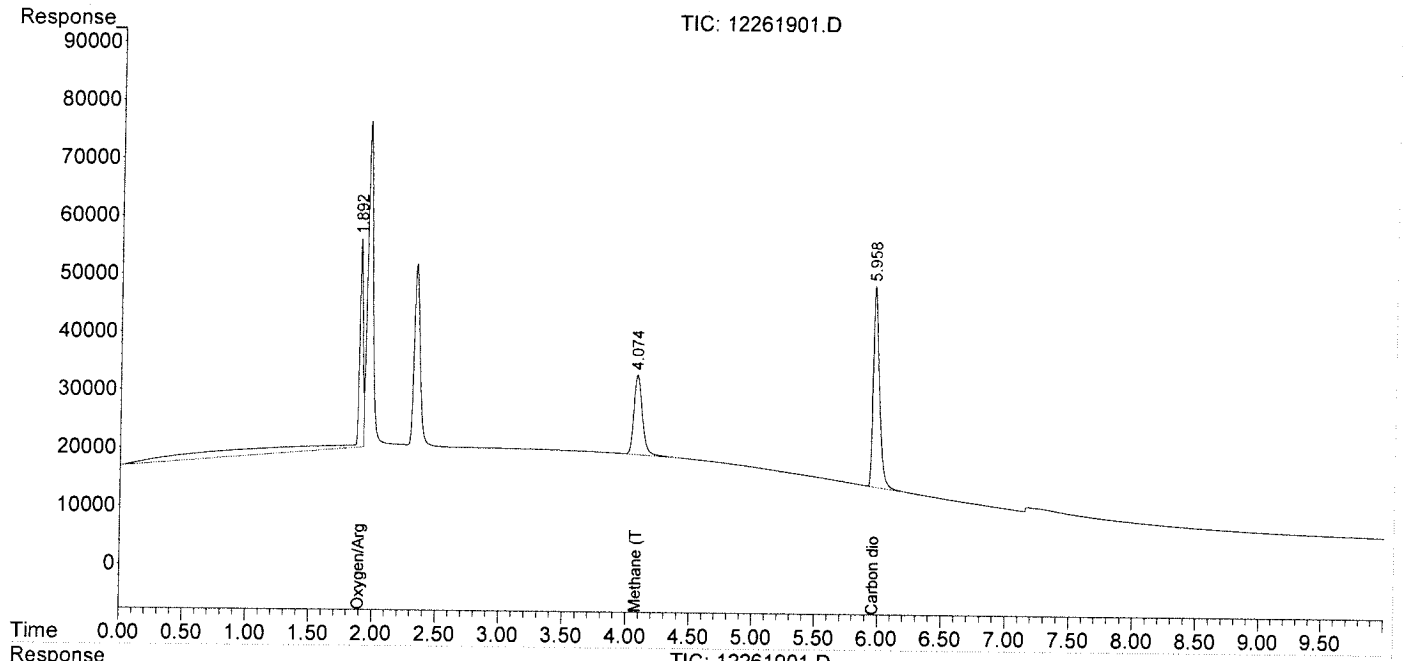
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.893	1510660	0.317	ppm	
2)	Carbon monoxide	1.893	1510660	N.D.	ppm	
3)	Methane (TCD)	4.074f	633311	66964.949	ppm	
4)	Carbon dioxide	5.958	1166007	4967.457	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	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	

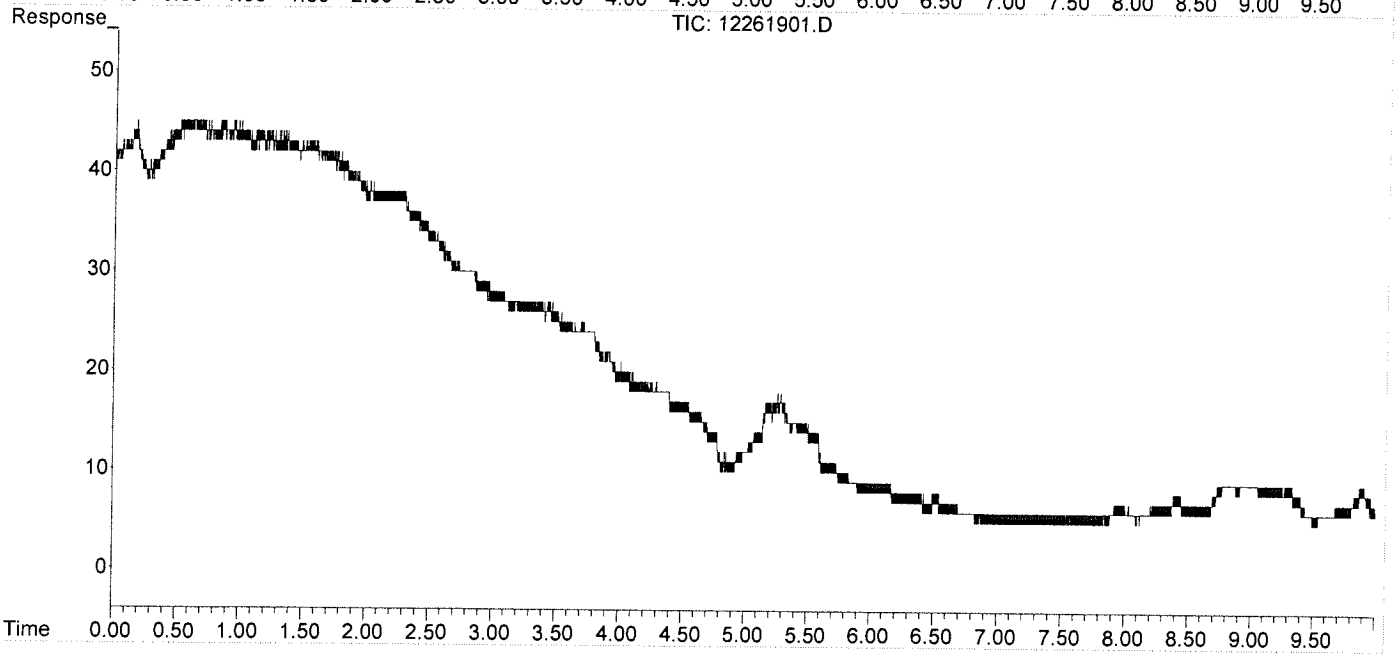
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 09:10:35
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 09:22:21 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :

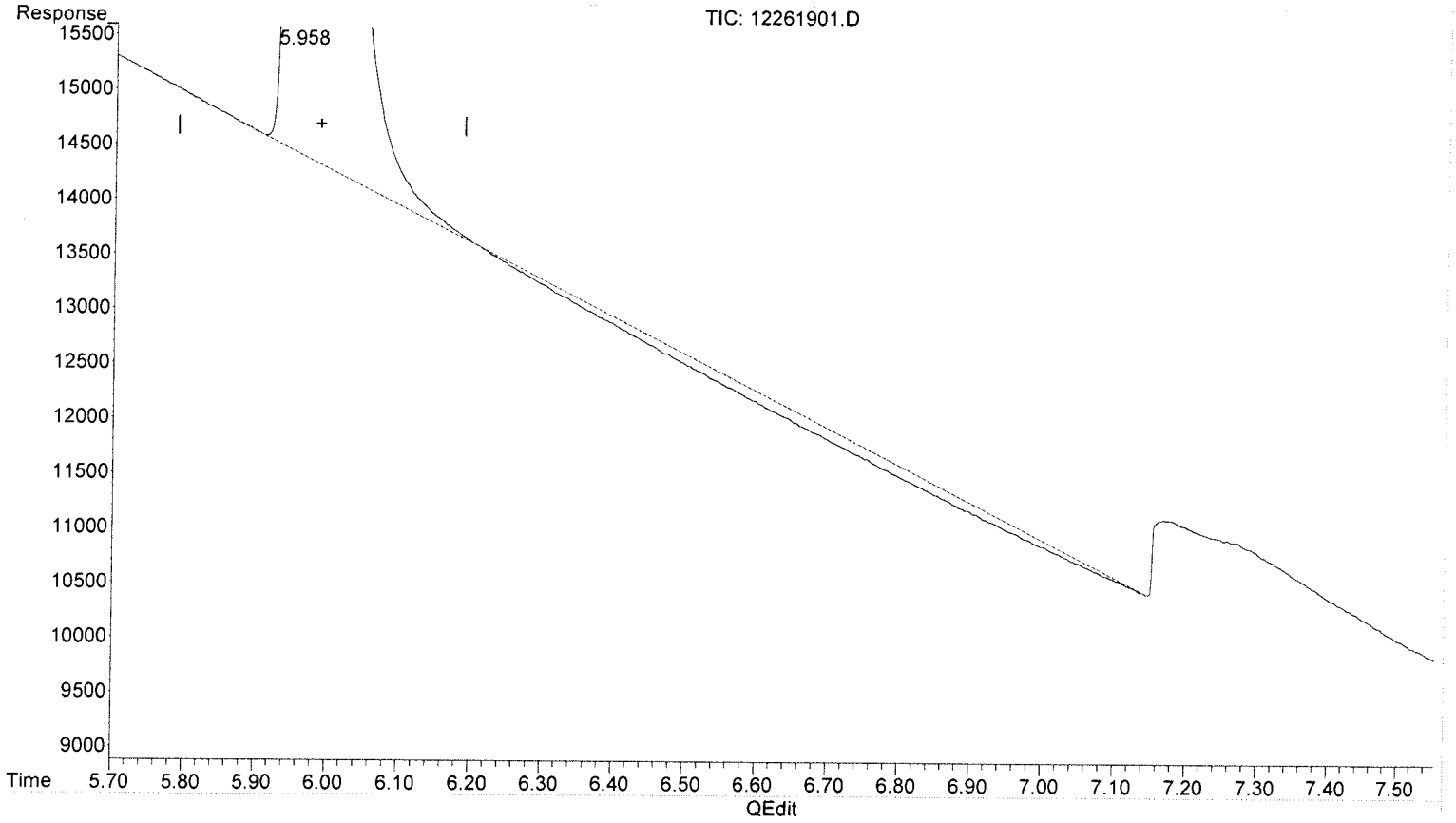




Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 09:10:35
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 09:22:21 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.959min 4796.457 ppm

response 1125868

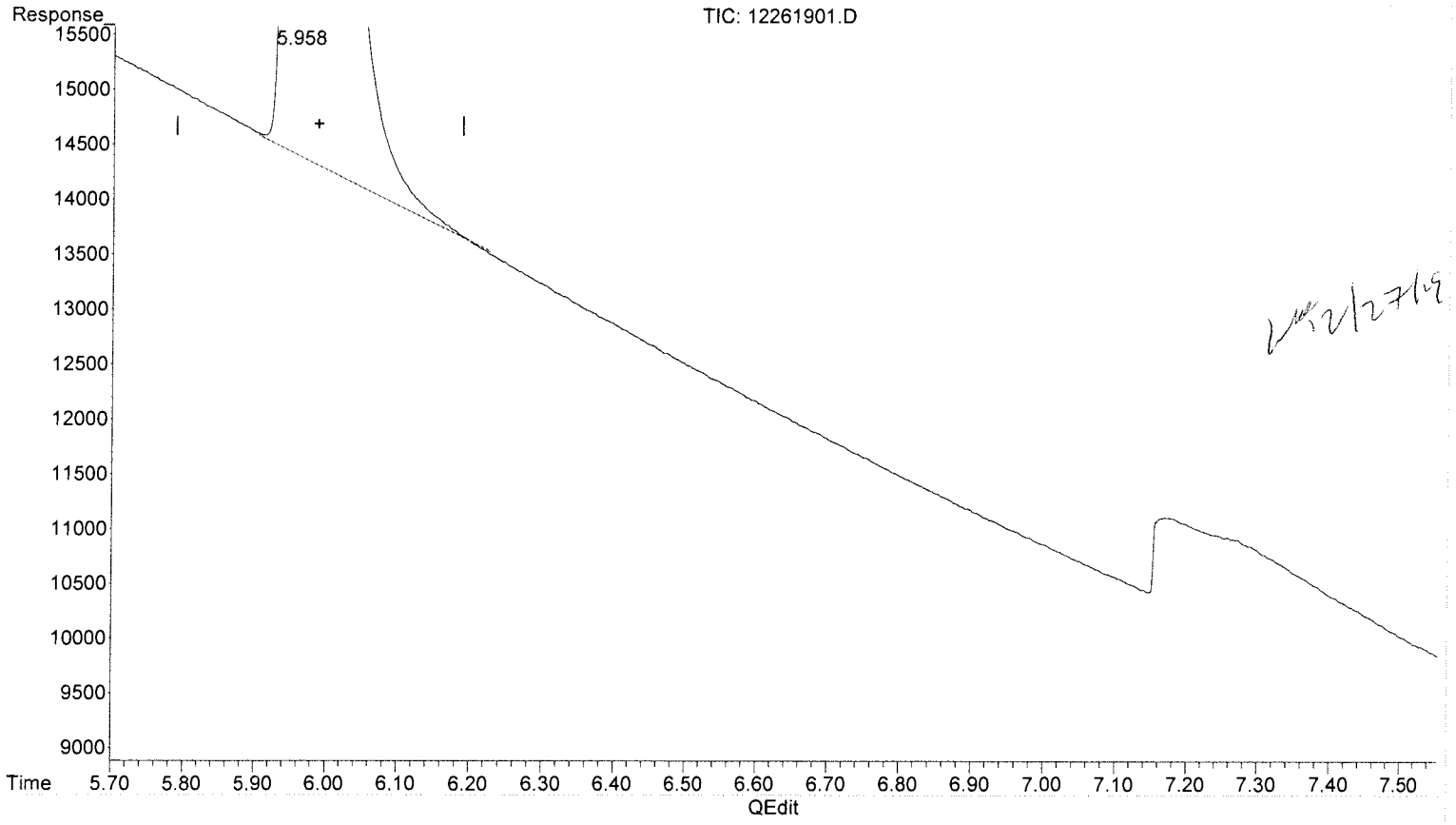
(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 09:10:35
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 09:22:21 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
12/27

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



12/27/19

(4) Carbon dioxide

5.958min 4967.457 ppm m

response 1166007

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 14:51:43
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:08:44 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

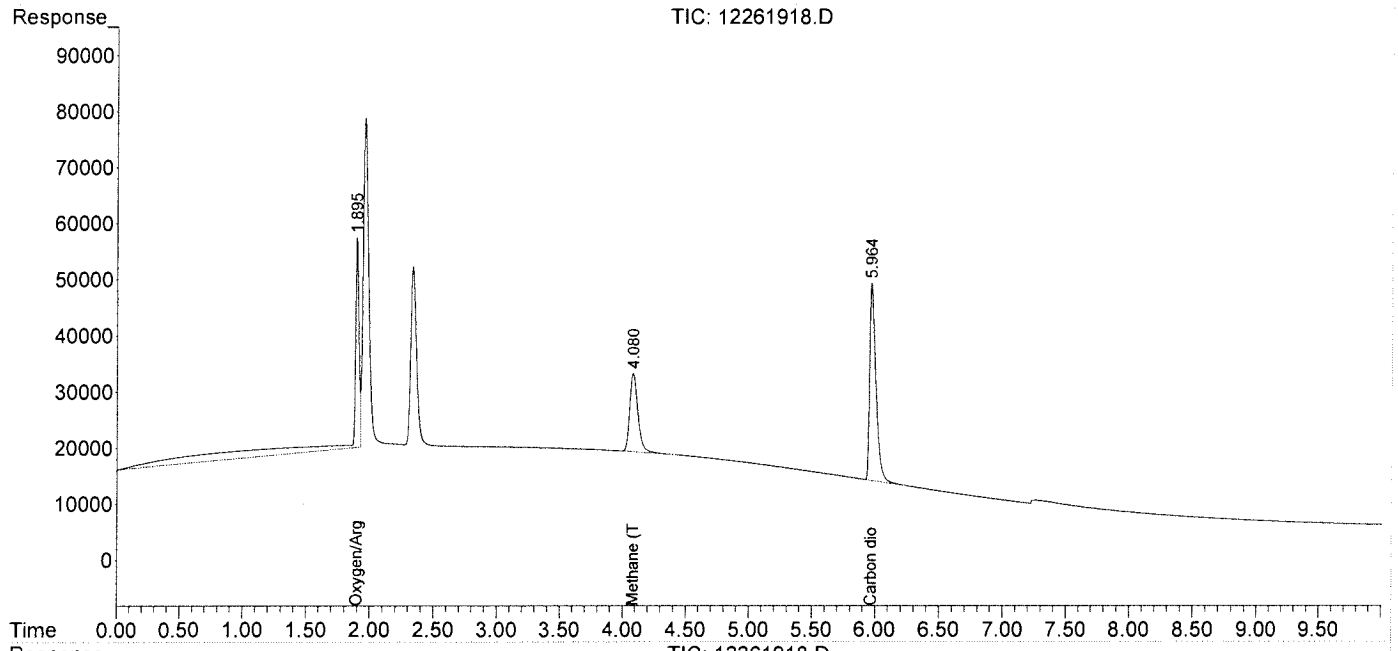
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.896	1726658	0.363	ppm	
2)	Carbon monoxide	1.896	1726658	N.D.	ppm	
3)	Methane (TCD)	4.080f	643404	68032.103	ppm	
4)	Carbon dioxide	5.964	1190459	5071.627	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	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	

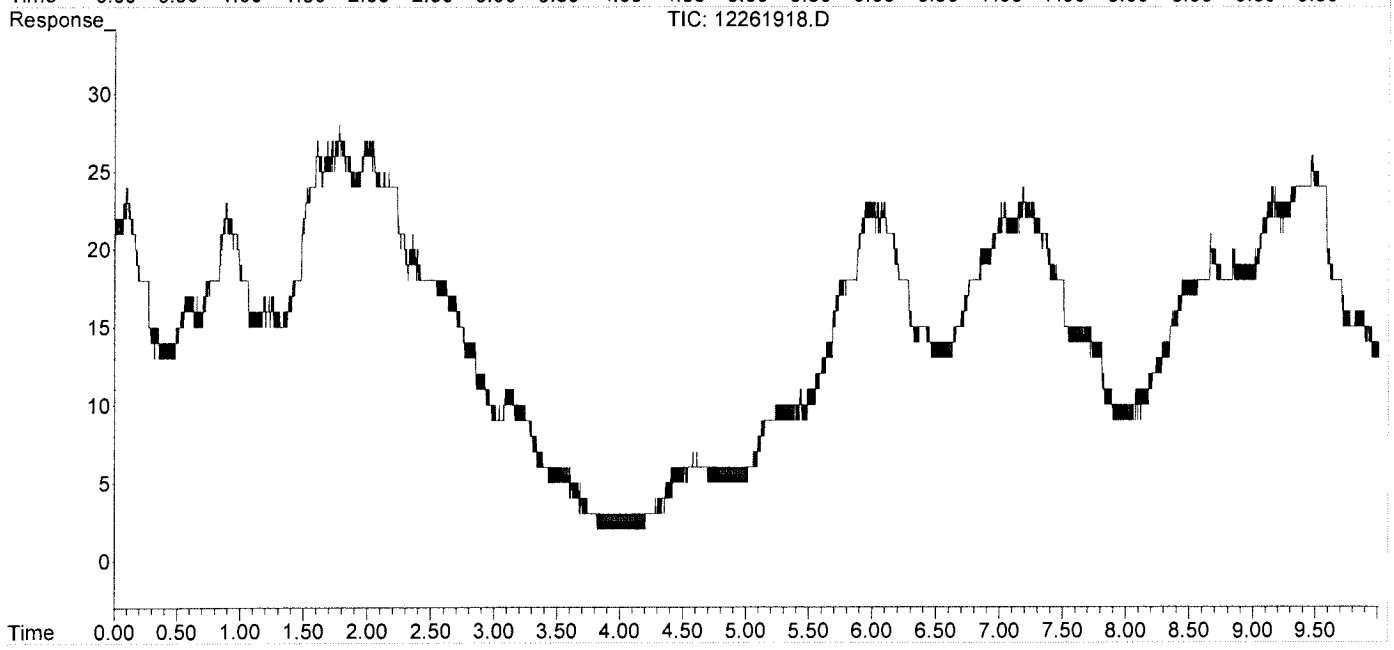
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 14:51:43
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:08:44 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

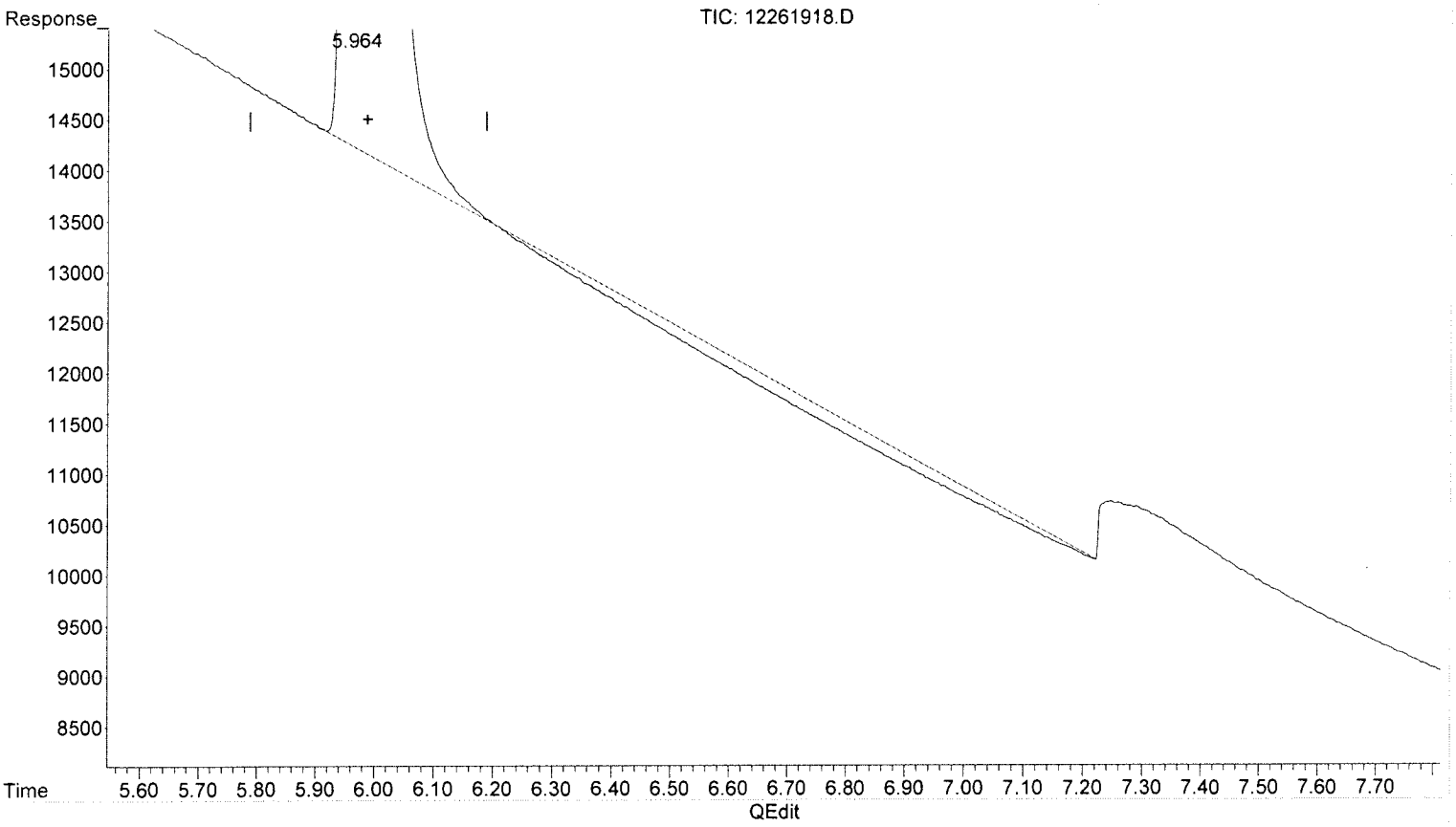




Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 14:51:43
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:08:44 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(4) Carbon dioxide

5.965min 4826.613 ppm

response 1132947

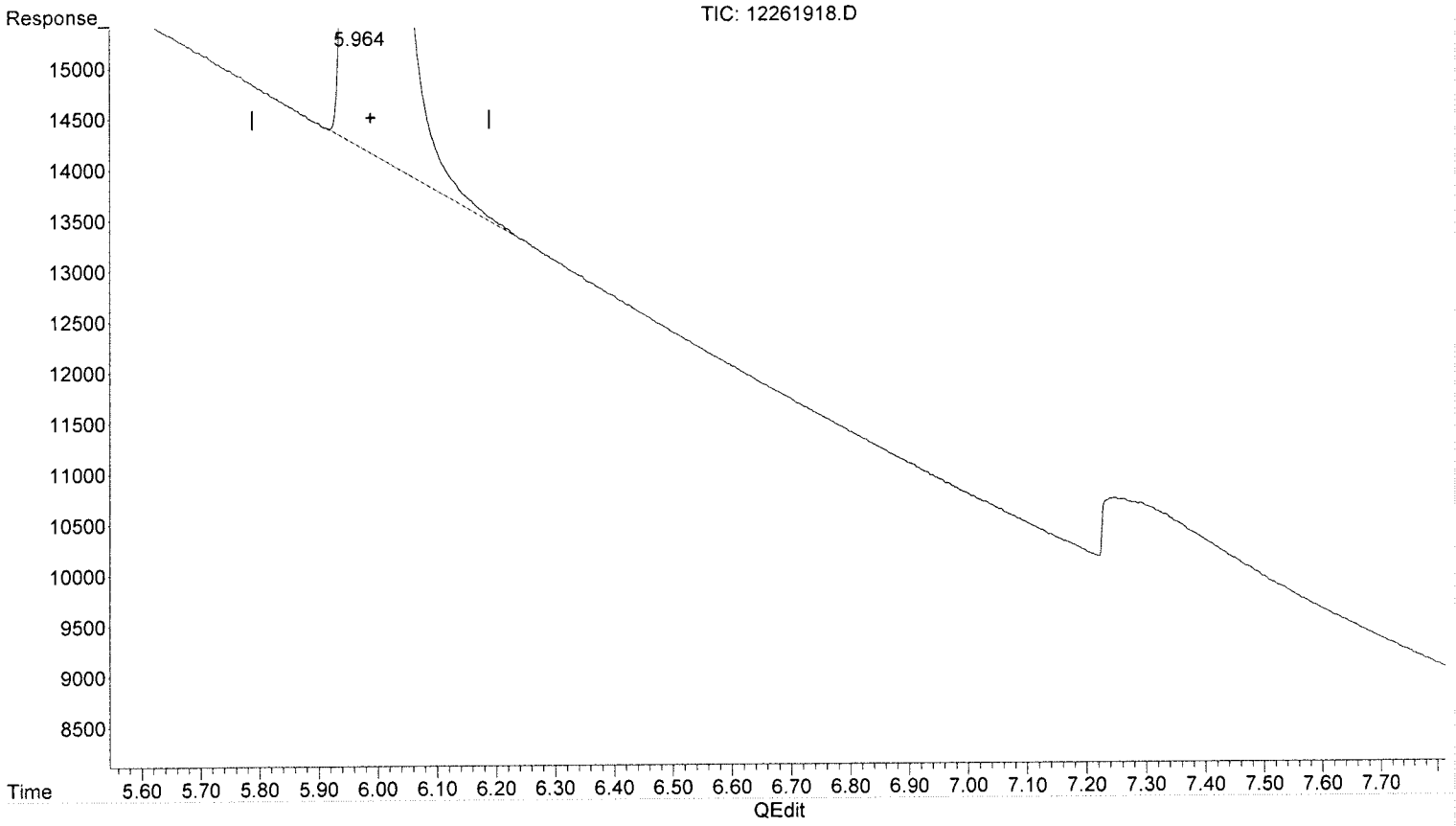
(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 14:51:43
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 15:08:44 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
12/27

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :



(4) Carbon dioxide

5.964min 5071.627 ppm m

response 1190459

12/27/19

(+) = Expected Retention Time
RS082817_CO2.M Fri Dec 27 10:13:02 2019

Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 16:27:10
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:42:43 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.919f	563019	0.118	ppm	
2)	Carbon monoxide	1.919f	563019	N.D.	ppm	
3)	Methane (TCD)	4.092f	678747	71769.206	ppm	
4)	Carbon dioxide	5.973	1229868	5239.520	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	

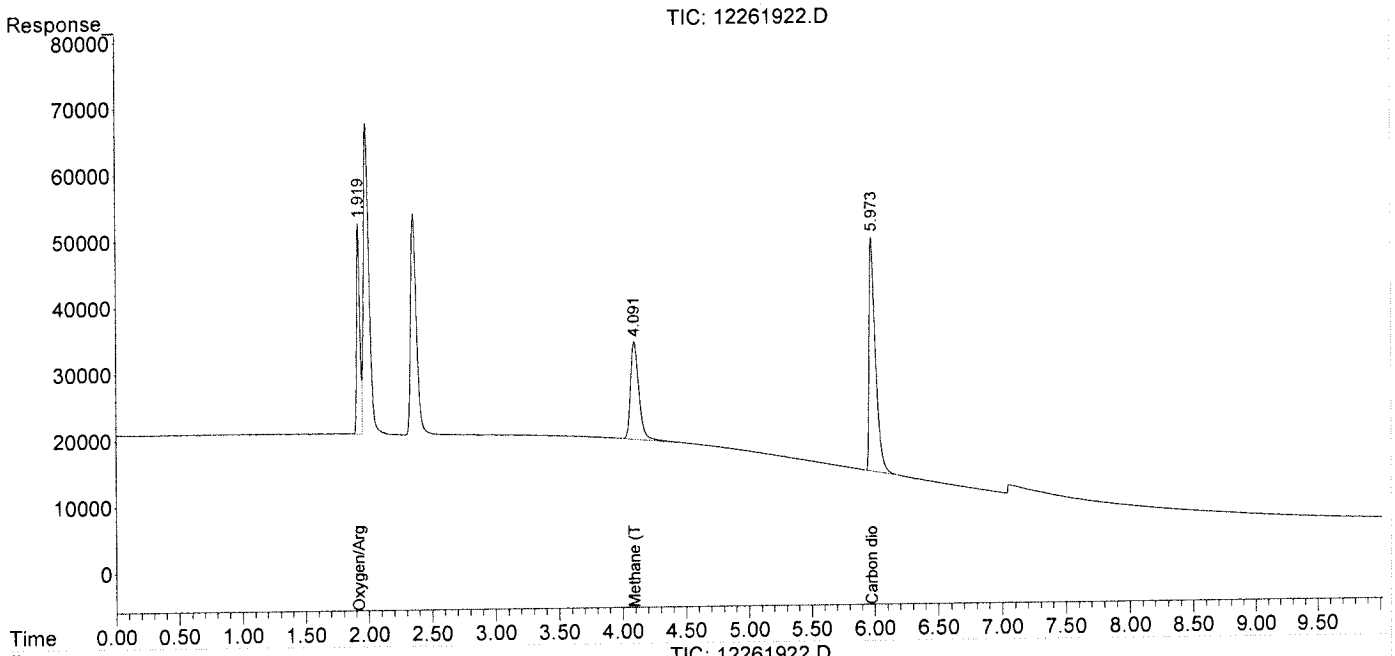
(f)=RT Delta > 1/2 Window (m)=manual int.

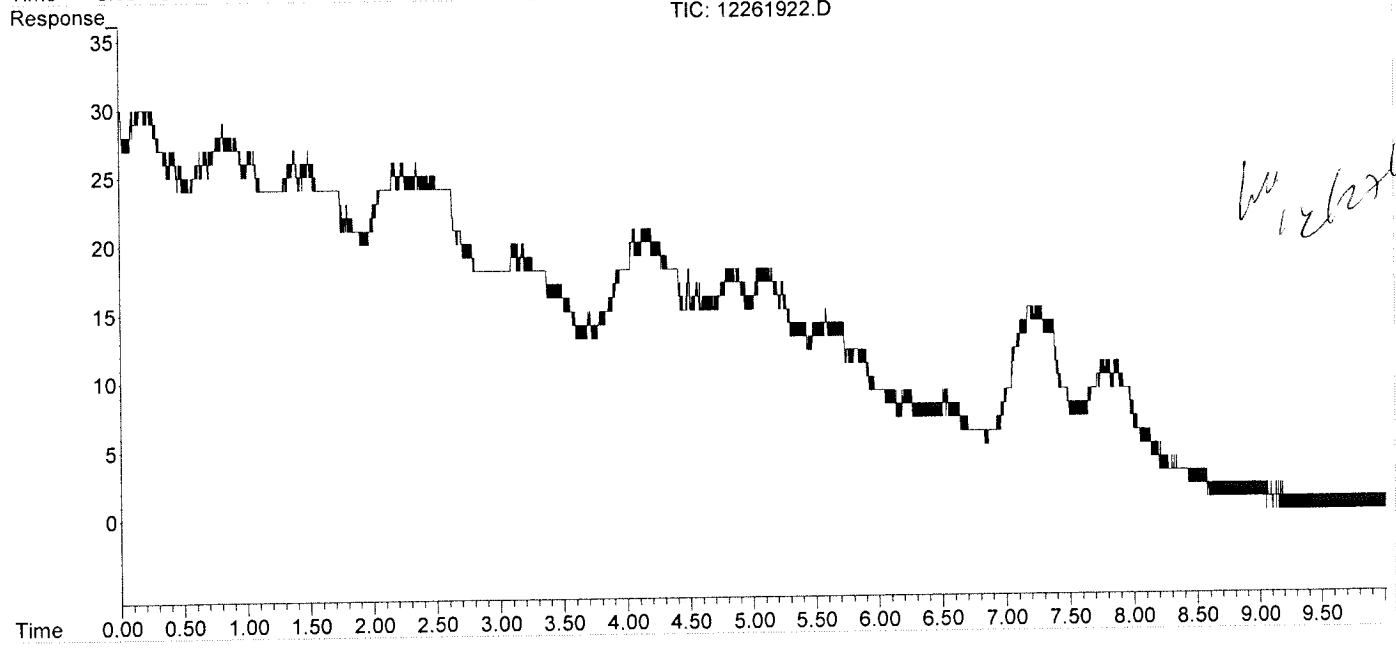
Data Path : J:\GC10\DATA\RSK_TCD\2019_12\26\
Data File : 12261922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 26-Dec-2019, 16:27:10
Operator : LD
Sample : STD S32-10291901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 26 16:42:43 2019
Quant Method : I:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
BLC
NO peaks
12/27

Volume Inj. :
Signal #1 Phase :
Signal #1 Info :
Signal #2 Phase:
Signal #2 Info :





W, 12/27/19

Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_08\29\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	29-Aug-17, 07:58:00	08291701.D	std s30-06161601		MC	RSKBOTH.M	Pass
2	29-Aug-17, 08:11:02	08291702.D	mb 0.5ml		MC	RSKBOTH.M	Pass
3	29-Aug-17, 08:24:13	08291703.D	4089-001 0.5ml		MC	RSKBOTH.M	
4	29-Aug-17, 08:39:29	08291704.D	4089-002 0.5ml		MC	RSKBOTH.M	
5	29-Aug-17, 08:53:38	08291705.D	4089-003 0.5ml		MC	RSKBOTH.M	
6	29-Aug-17, 09:33:52	08291706.D	4089-004 0.5ml		MC	RSKBOTH.M	
7	29-Aug-17, 09:50:51	08291707.D	4089-005 0.5ml		MC	RSKBOTH.M	
8	29-Aug-17, 10:07:54	08291708.D	4089-006 0.5ml		MC	RSKBOTH.M	
9	29-Aug-17, 10:42:34	08291709.D	4089-007 0.5ml		MC	RSKBOTH.M	
10	29-Aug-17, 11:06:01	08291710.D	4089-008 0.5ml		MC	RSKBOTH.M	
11	29-Aug-17, 11:23:53	08291711.D	4089-009 0.5ml		MC	RSKBOTH.M	
12	29-Aug-17, 11:37:17	08291712.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
13	29-Aug-17, 11:50:31	08291713.D	lcs s30-05241604		MC	RSKBOTH.M	Pass
14	29-Aug-17, 12:29:45	08291714.D	std s30-06161601		MC	RSKBOTH.M	Pass
15	29-Aug-17, 14:07:01	08291715.D	25ppm s32-08291701 0.25ml		MC	RSKBOTH.M	Curve
16	29-Aug-17, 14:22:12	08291716.D	100ppm s32-08291702 0.2ml		MC	RSKBOTH.M	Curve
17	29-Aug-17, 14:53:00	08291717.D	250ppm s32-08291702 0.5ml		MC	RSKBOTH.M	Curve
18	29-Aug-17, 15:07:43	08291718.D	mls inject		MC	RSKBOTH.M	
19	29-Aug-17, 15:23:21	08291719.D	2500ppm s32-08231701 50ul		MC	RSKBOTH.M	Curve
20	29-Aug-17, 15:44:54	08291720.D	5000ppm s32-08231701 0.1ml		MC	RSKBOTH.M	Curve
21	29-Aug-17, 16:00:09	08291721.D	25000ppm s32-08231701 0.5ml		MC	RSKBOTH.M	Curve
22	29-Aug-17, 16:15:43	08291722.D	mb 0.1ml		MC	RSKBOTH.M	Pass
23	29-Aug-17, 16:35:37	08291723.D	lcv s30-07071701		MC	RSKBOTH.M	Pass

Injection Log

12/31/19

Directory: I:\GC10\DATA\RSK_TCD\2019_12\26\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	26-Dec-19, 09:10:35	12261901.D	STD S32-10291901		LD	RSKBOTH.M	PASS
2	26-Dec-19, 09:24:53	12261902.D	RB 0.1ml		LD	RSKBOTH.M	PASS
3	26-Dec-19, 11:27:12	12261903.D	MCS 0.1ml		LD	RSKBOTH.M	PASS
4	26-Dec-19, 11:41:15	12261904.D	xxxxLCS S32-08141901		LD	RSKBOTH.M	FAIL
5	26-Dec-19, 11:55:02	12261905.D	xxxxLCS S32-08141901		LD	RSKBOTH.M	FAIL
6	26-Dec-19, 12:08:56	12261906.D	xxxxxLCS S32-08141901		LD	RSKBOTH.M	FAIL
7	26-Dec-19, 12:23:26	12261907.D	xxxxxLCS S32-08141901		LD	RSKBOTH.M	FAIL
8	26-Dec-19, 12:36:53	12261908.D	P1907801-001 0.1ml		LD	RSKBOTH.M	
9	26-Dec-19, 12:50:07	12261909.D	P1907801-002 0.1ml		LD	RSKBOTH.M	
10	26-Dec-19, 13:03:25	12261910.D	P1907801-003 0.1ml		LD	RSKBOTH.M	
11	26-Dec-19, 13:17:04	12261911.D	P1907801-004 0.1ml		LD	RSKBOTH.M	
12	26-Dec-19, 13:30:29	12261912.D	P1907801-005 0.1ml		LD	RSKBOTH.M	
13	26-Dec-19, 13:43:47	12261913.D	P1907801-006 0.1ml		LD	RSKBOTH.M	
14	26-Dec-19, 13:56:40	12261914.D	P1907802-001 0.1ml		LD	RSKBOTH.M	
15	26-Dec-19, 14:09:49	12261915.D	P1907802-002 0.1ml		LD	RSKBOTH.M	
16	26-Dec-19, 14:25:42	12261916.D	P1907802-003 0.1ml		LD	RSKBOTH.M	
17	26-Dec-19, 14:38:40	12261917.D	P1907802-004 0.1ml		LD	RSKBOTH.M	
18	26-Dec-19, 14:51:43	12261918.D	STD S32-10291901		LD	RSKBOTH.M	PASS
19	26-Dec-19, 15:09:48	12261919.D	P1907802-005 0.1ml		LD	RSKBOTH.M	
20	26-Dec-19, 15:58:59	12261920.D	LCS S32-08141901		LD	RSKBOTH.M	PASS
21	26-Dec-19, 16:11:50	12261921.D	LCSD S32-08141901		LD	RSKBOTH.M	PASS
22	26-Dec-19, 16:27:10	12261922.D	STD S32-10291901		LD	RSKBOTH.M	PASS

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:00:50
Operator : LD
Sample : P1907801-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:03 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

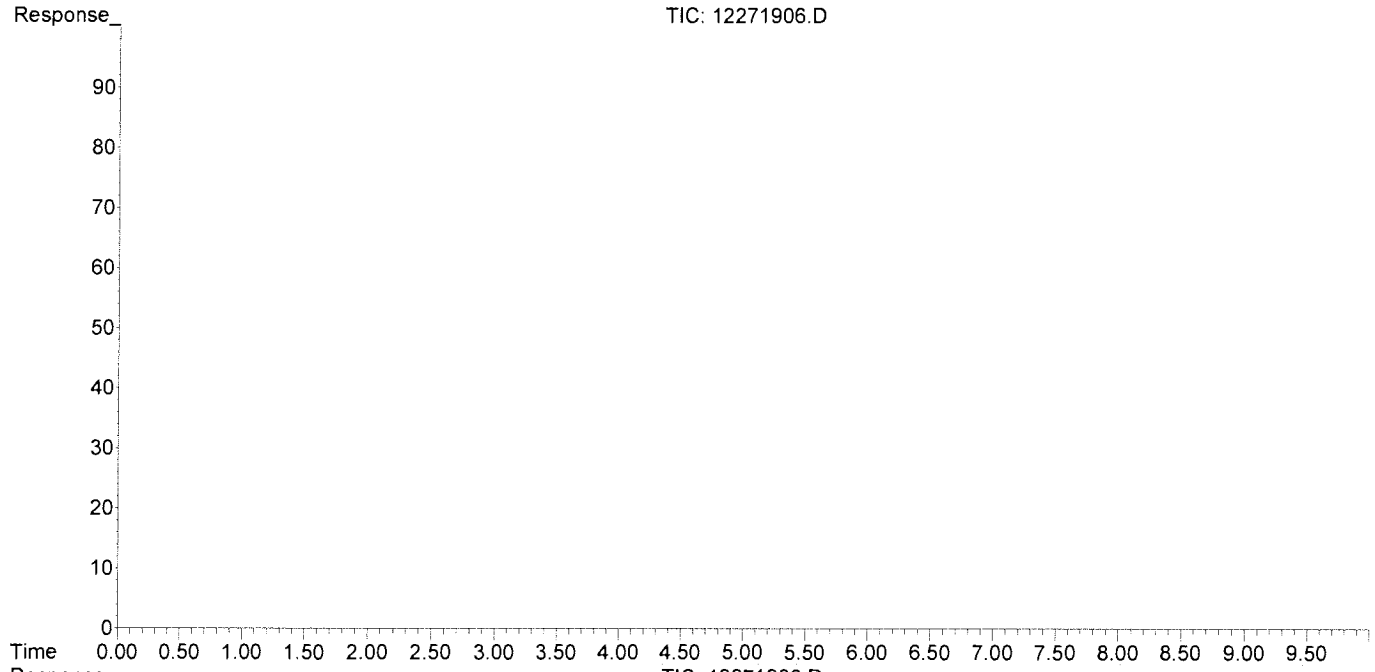
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	12313	1.357	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

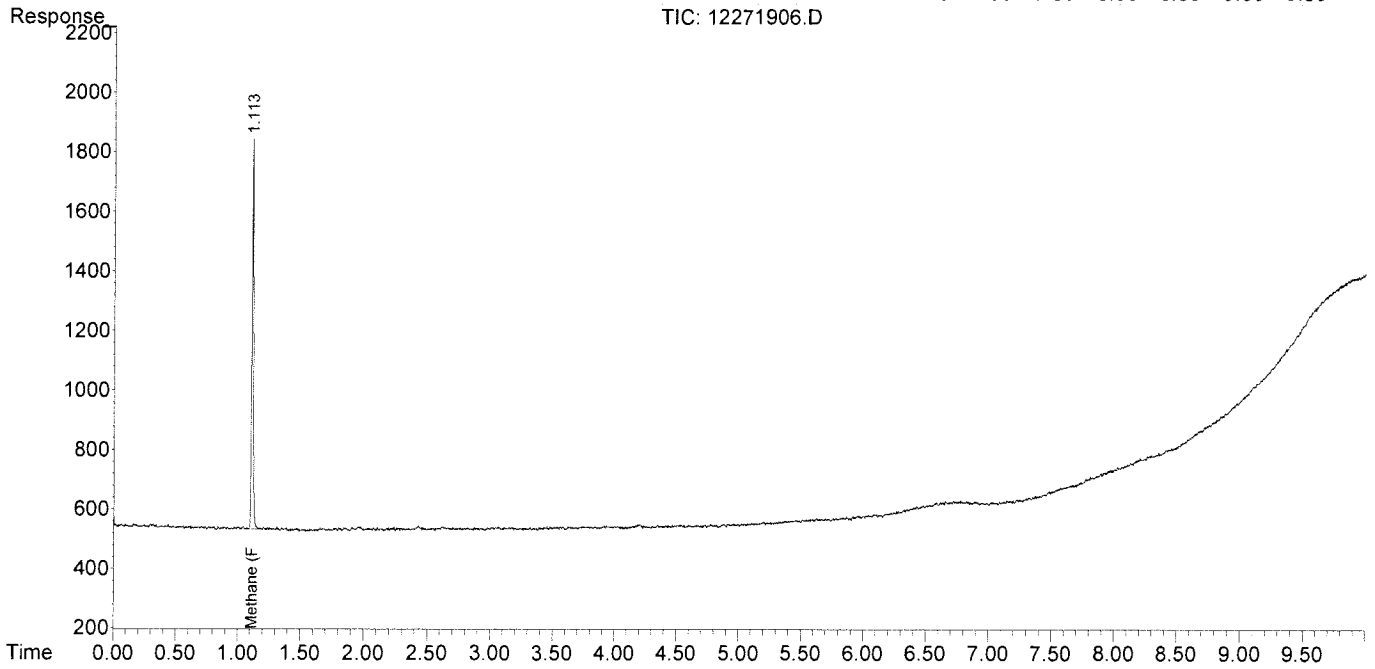
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:00:50
Operator : LD
Sample : P1907801-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:03 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:15:29
Operator : LD
Sample : P1907801-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

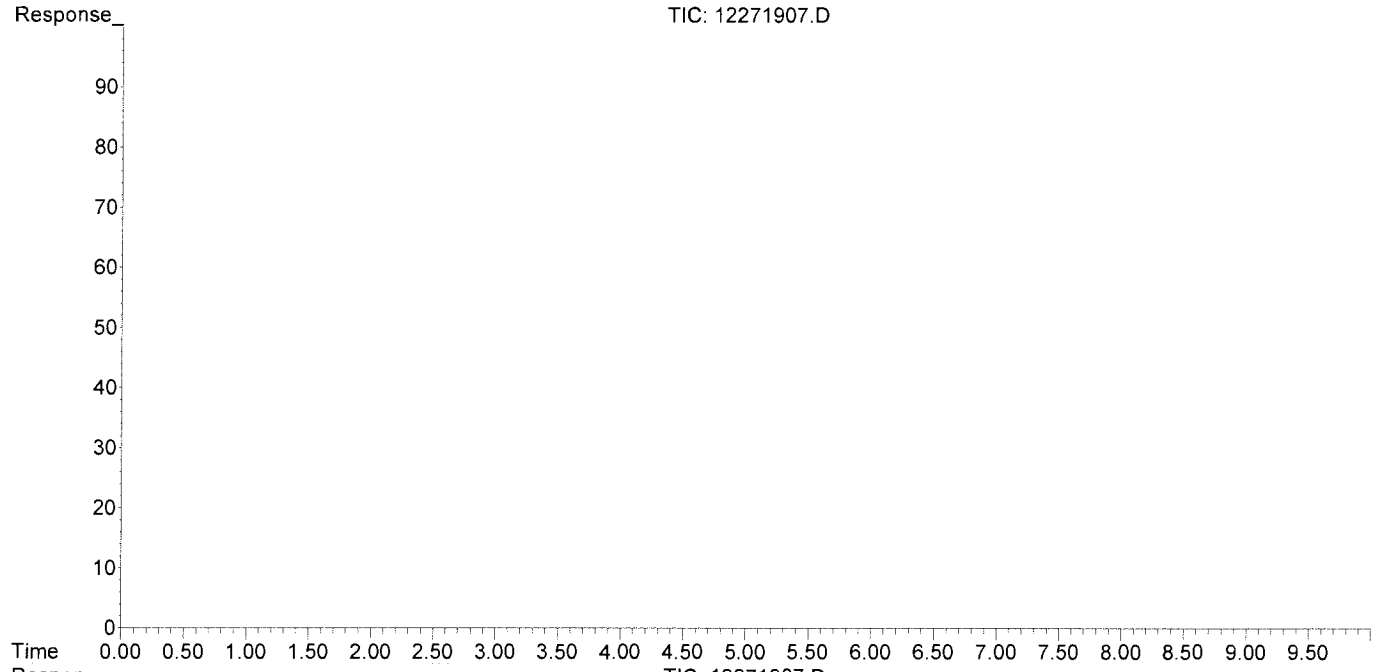
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	2581675	284.619	ppm
7)	Ethylene	1.691	2299	0.137	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

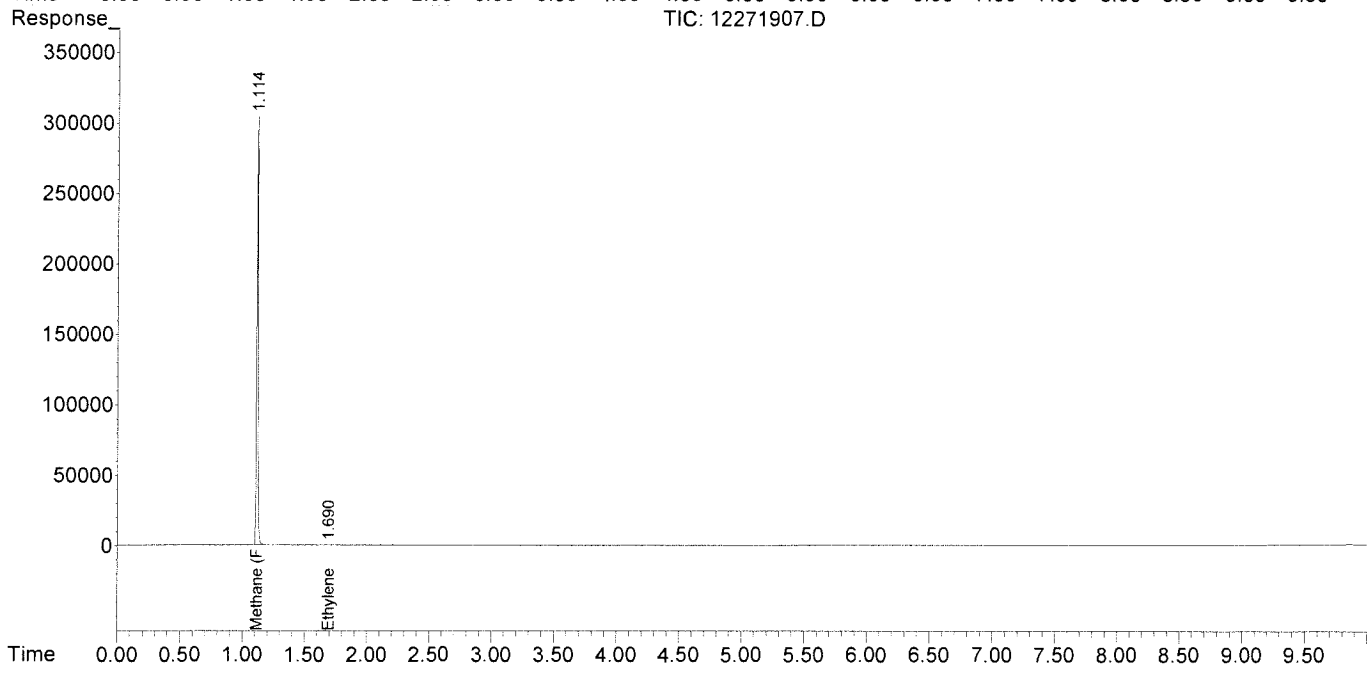
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:15:29
Operator : LD
Sample : P1907801-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:29:32
Operator : LD
Sample : P1907801-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

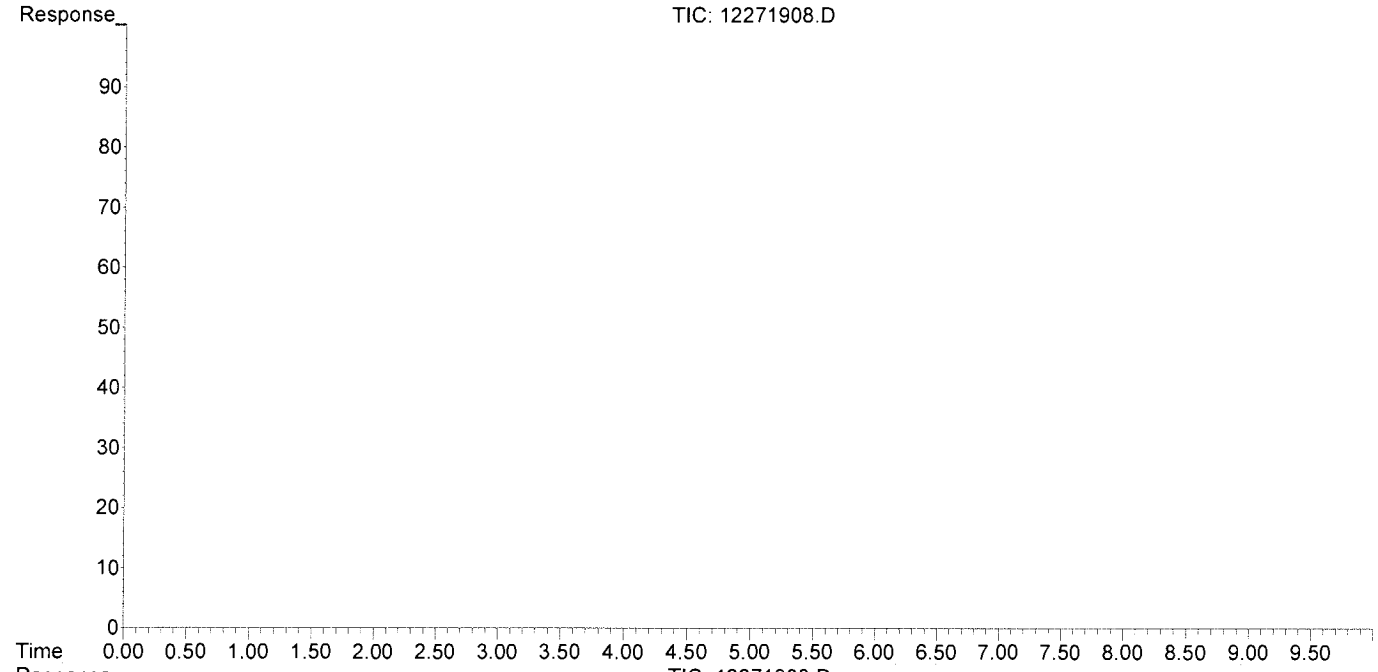
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	3605206	397.459	ppm
7)	Ethylene	1.690	23412	1.399	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

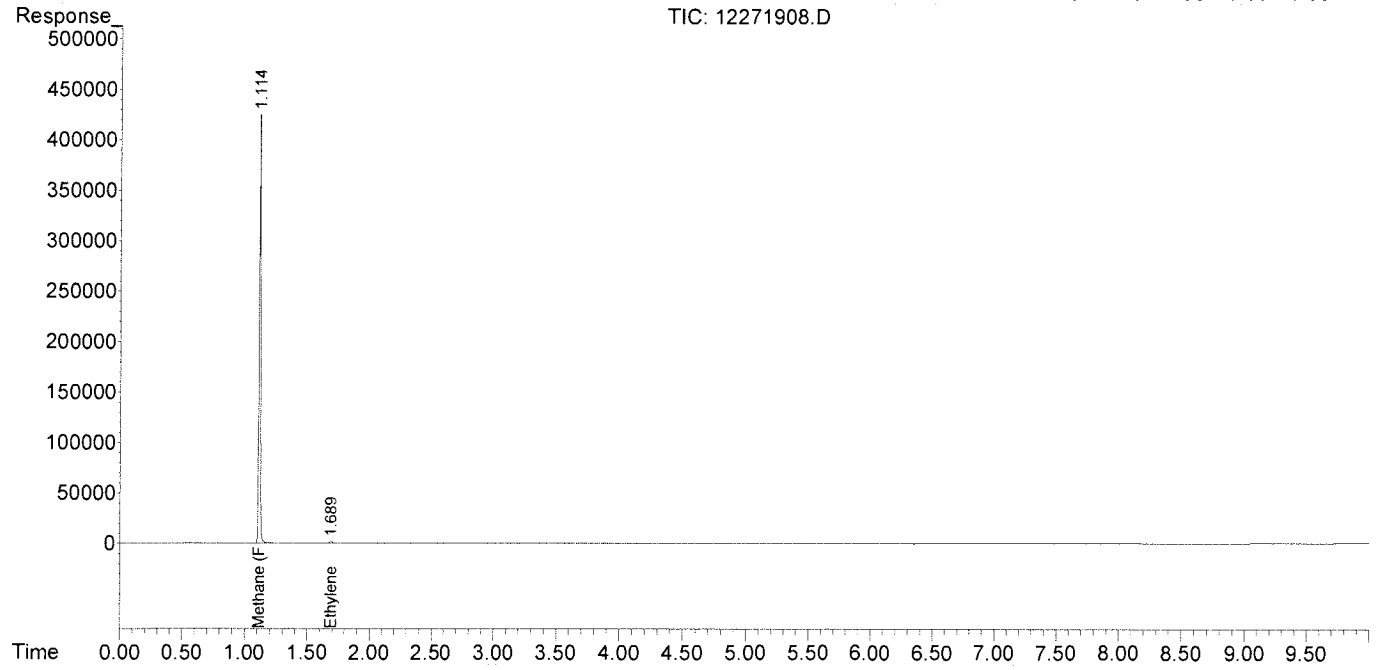
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:29:32
Operator : LD
Sample : P1907801-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:26 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:42:33
Operator : LD
Sample : P1907801-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

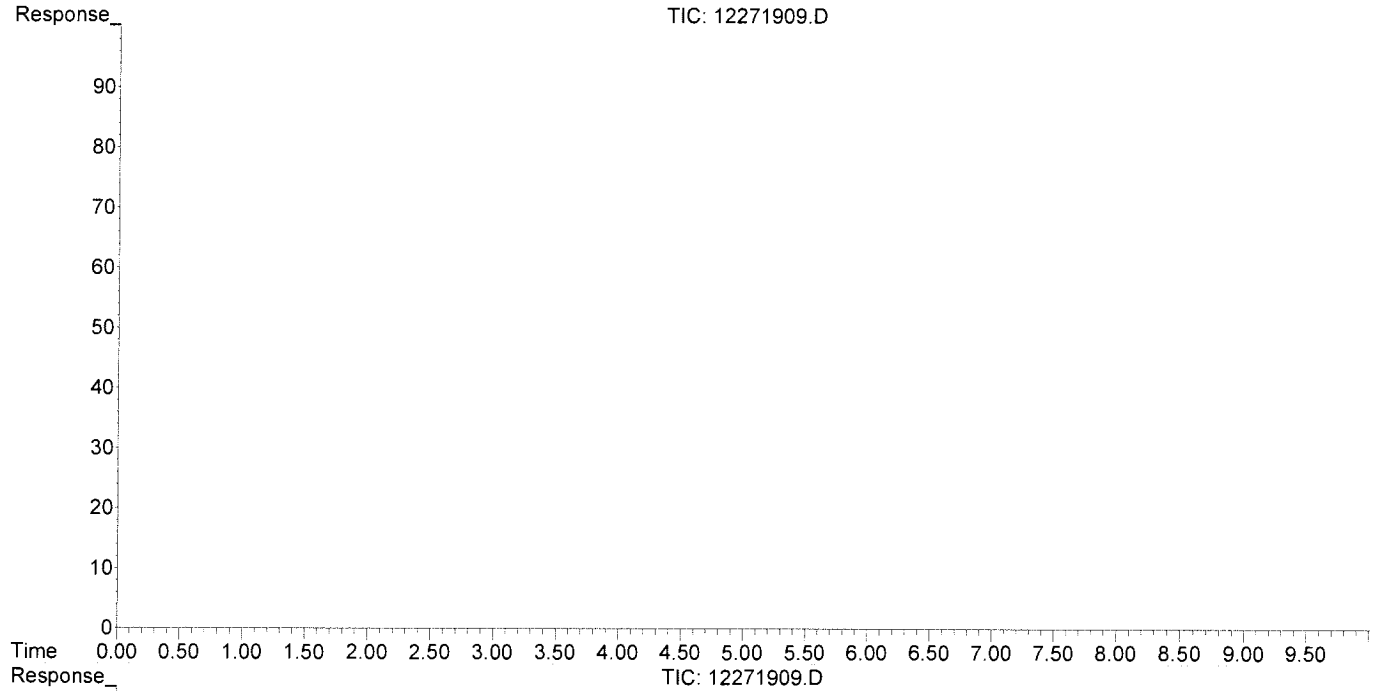
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	3584870	395.217	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

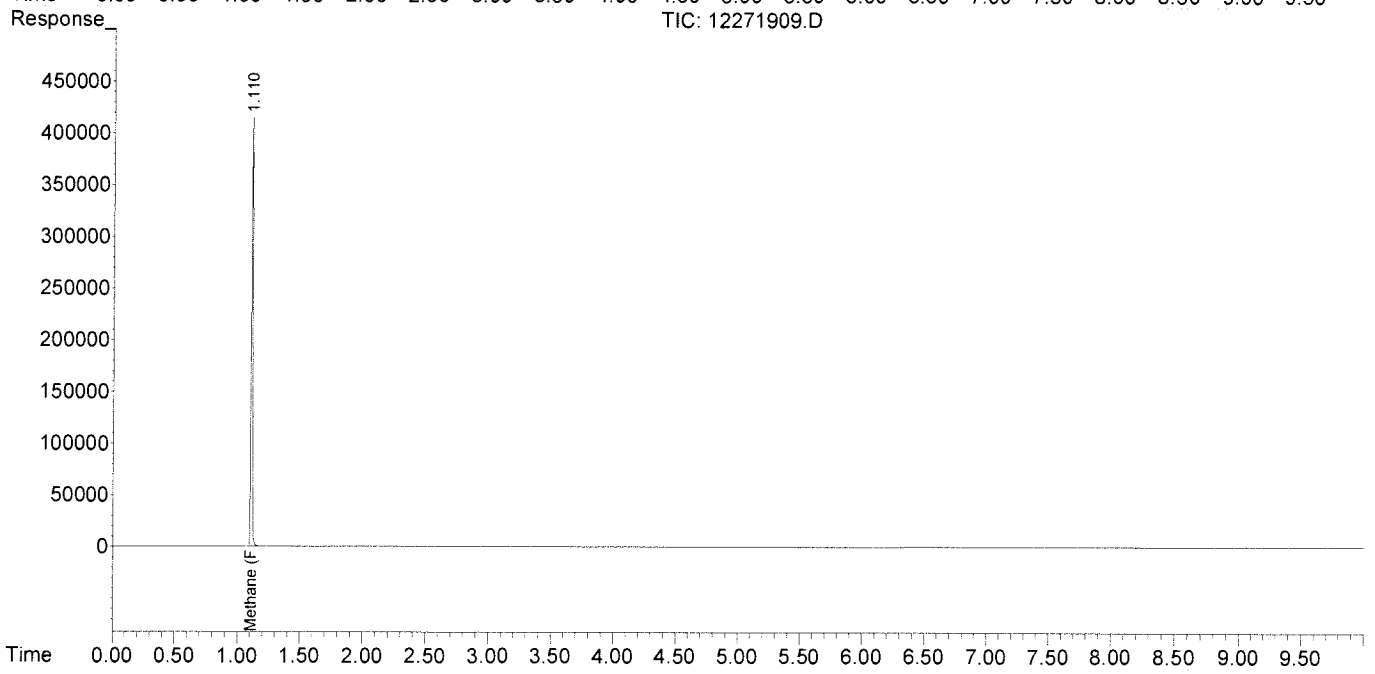
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:42:33
Operator : LD
Sample : P1907801-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:36 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:56:28
Operator : LD
Sample : P1907801-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:46 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

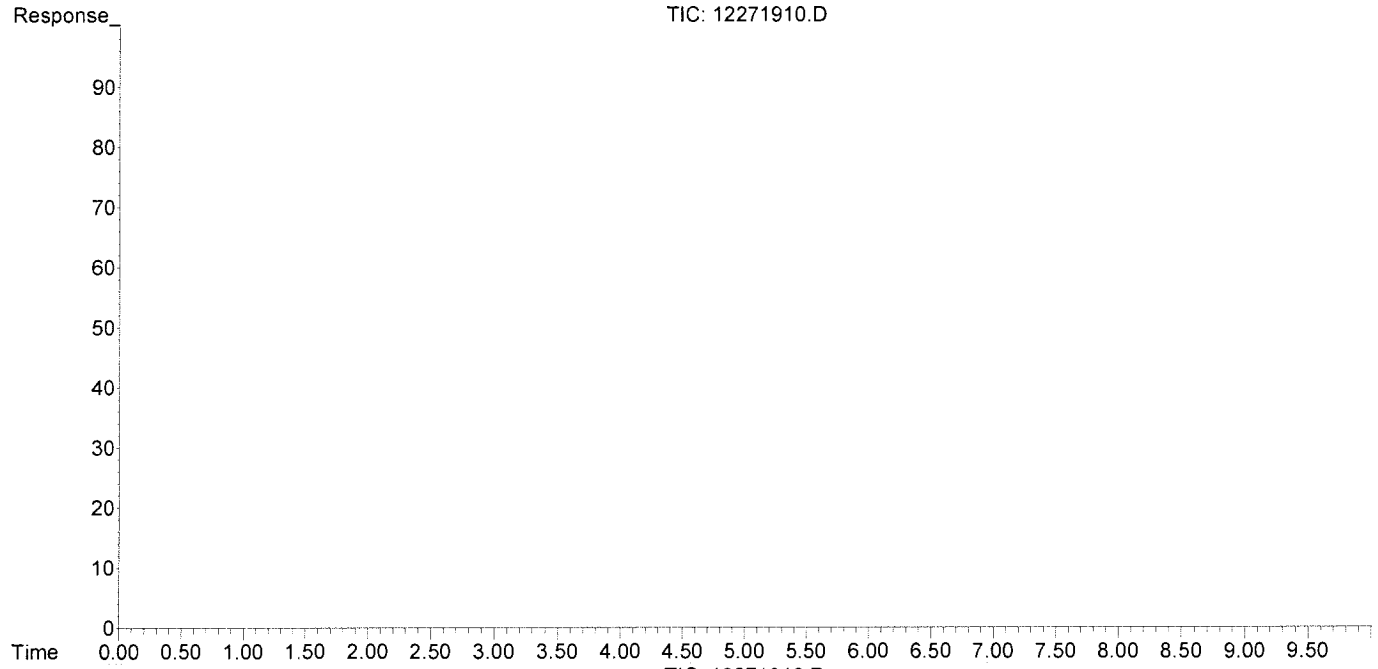
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	6432493	709.155	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

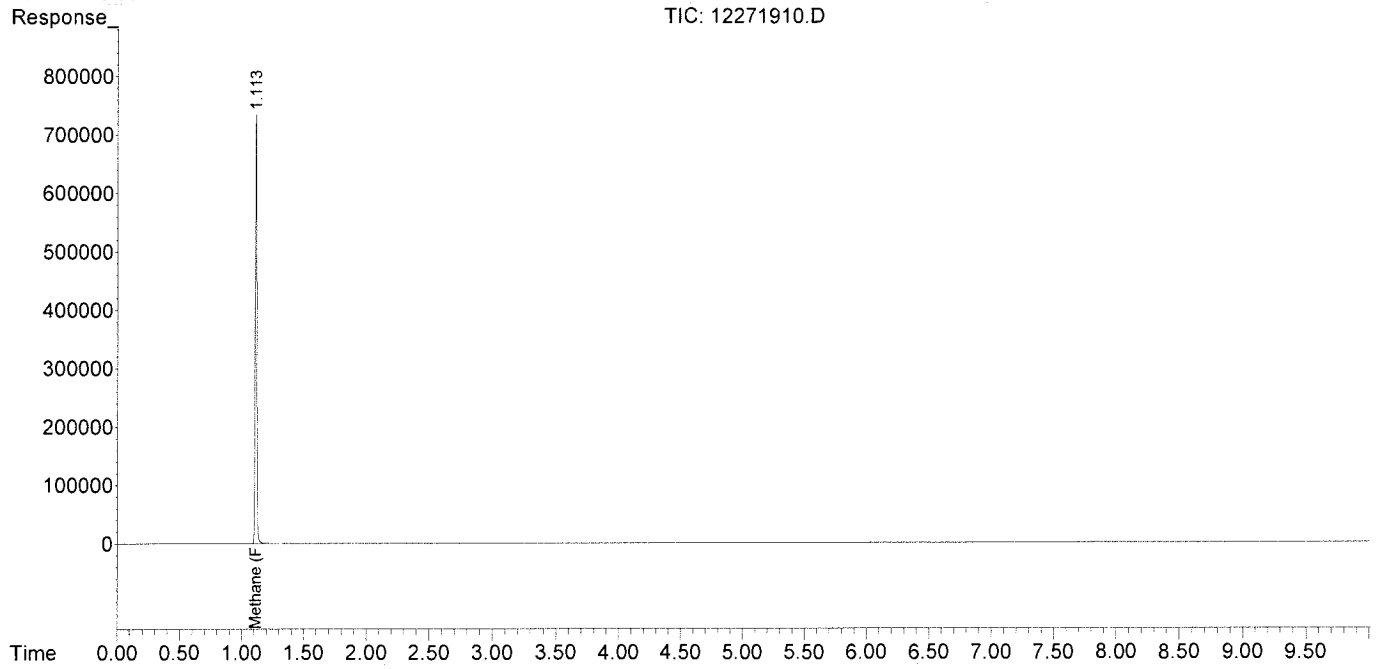
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 12:56:28
Operator : LD
Sample : P1907801-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:46 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 13:09:49
Operator : LD
Sample : P1907801-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:57 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

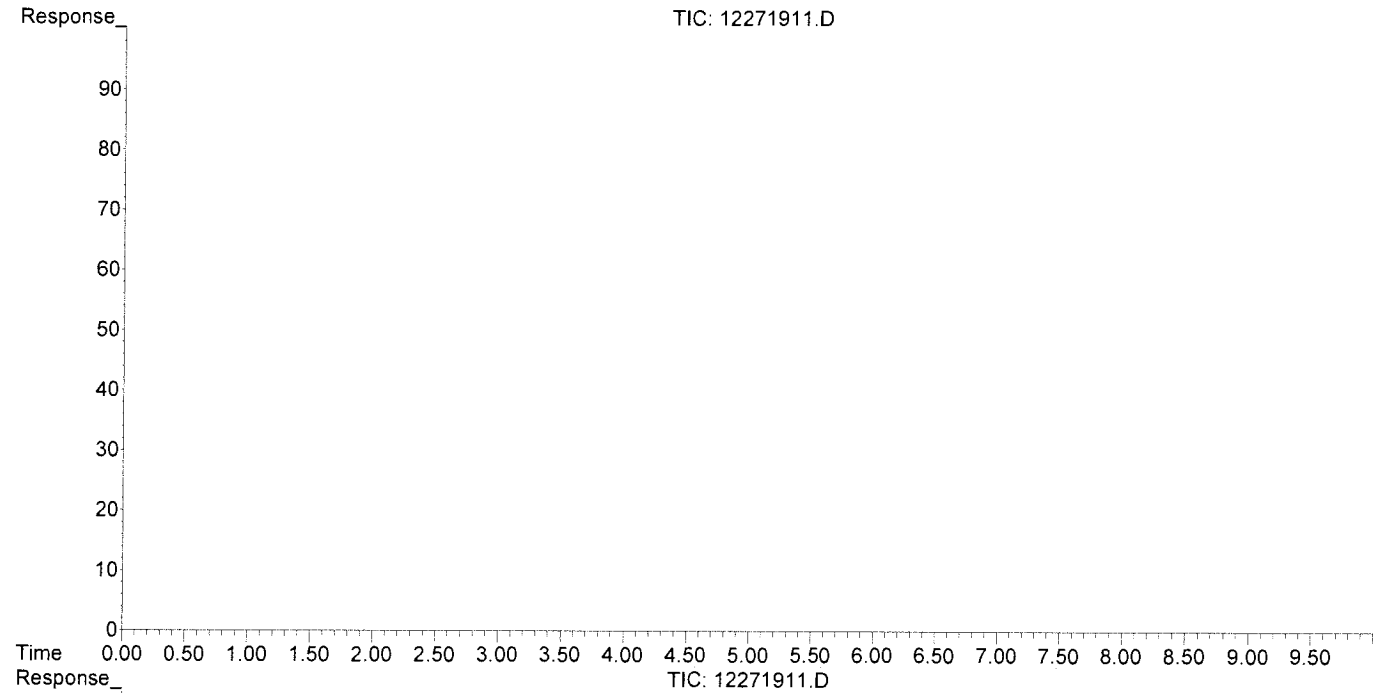
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.114	9488	1.046	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

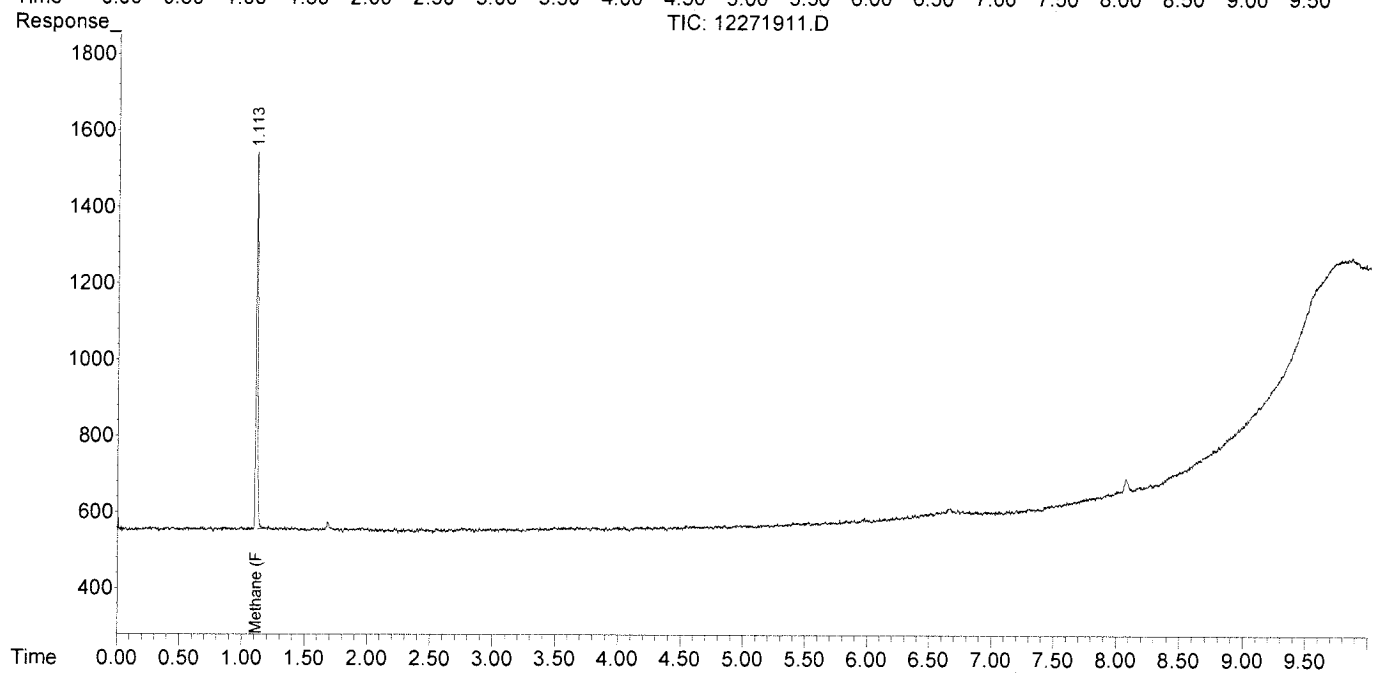
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 13:09:49
Operator : LD
Sample : P1907801-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:36:57 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:17:39
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 11:35:58 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

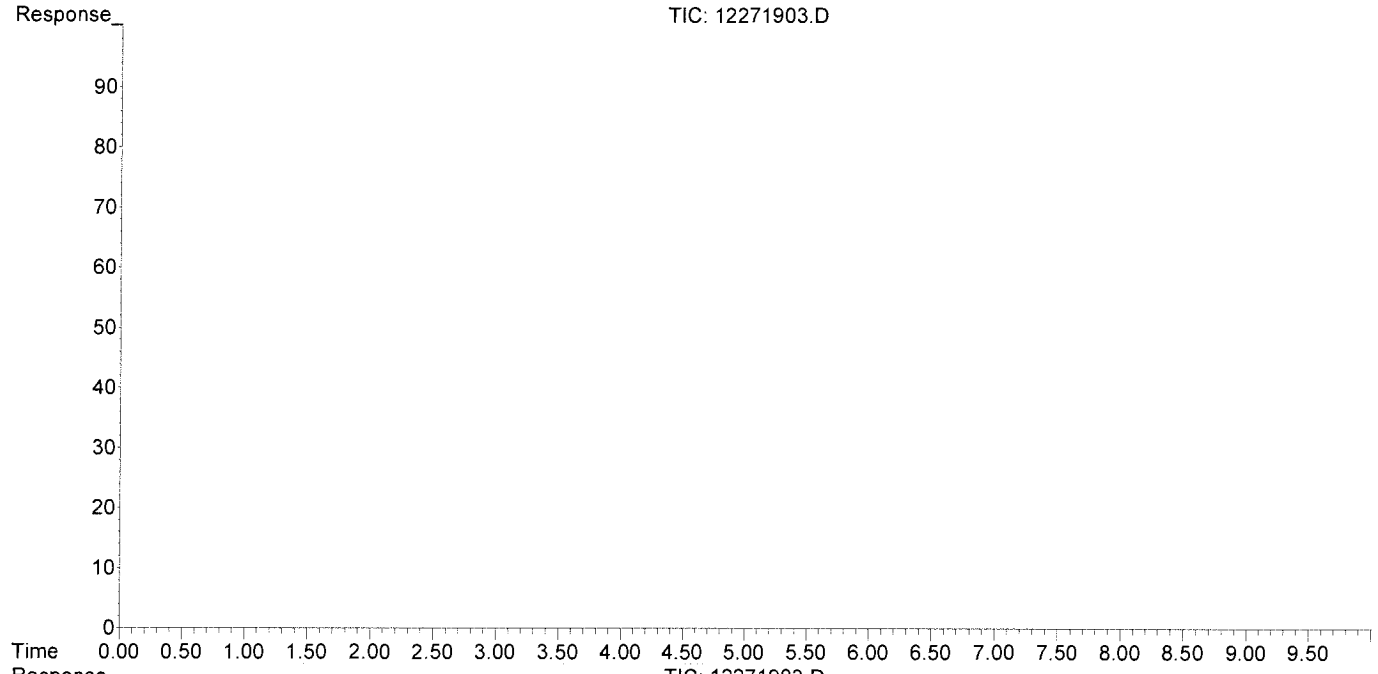
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.120	1191	0.131	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.713	7250	0.272	ppm
13)	n-Butane	6.713	7250	0.272	ppm

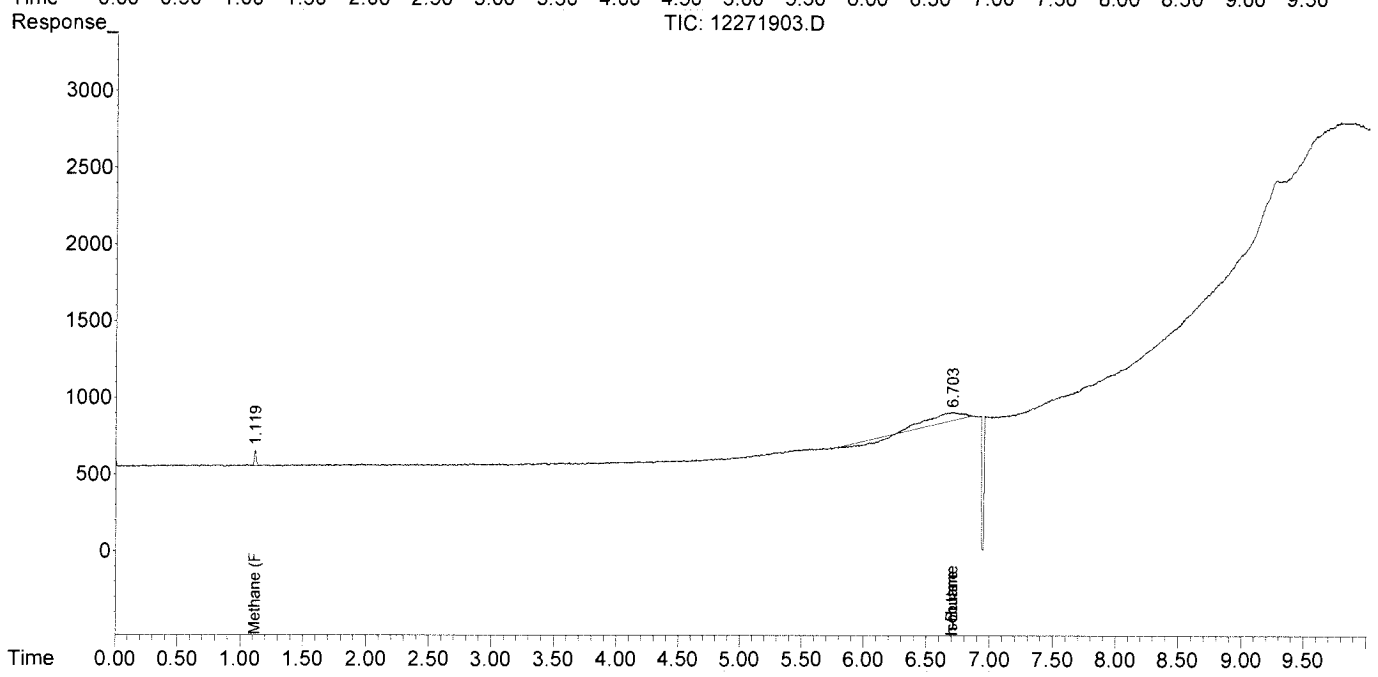
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:17:39
Operator : LD
Sample : MCS 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 11:35:58 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:32:18
Operator : LD
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: Dec 27 12:26:59 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

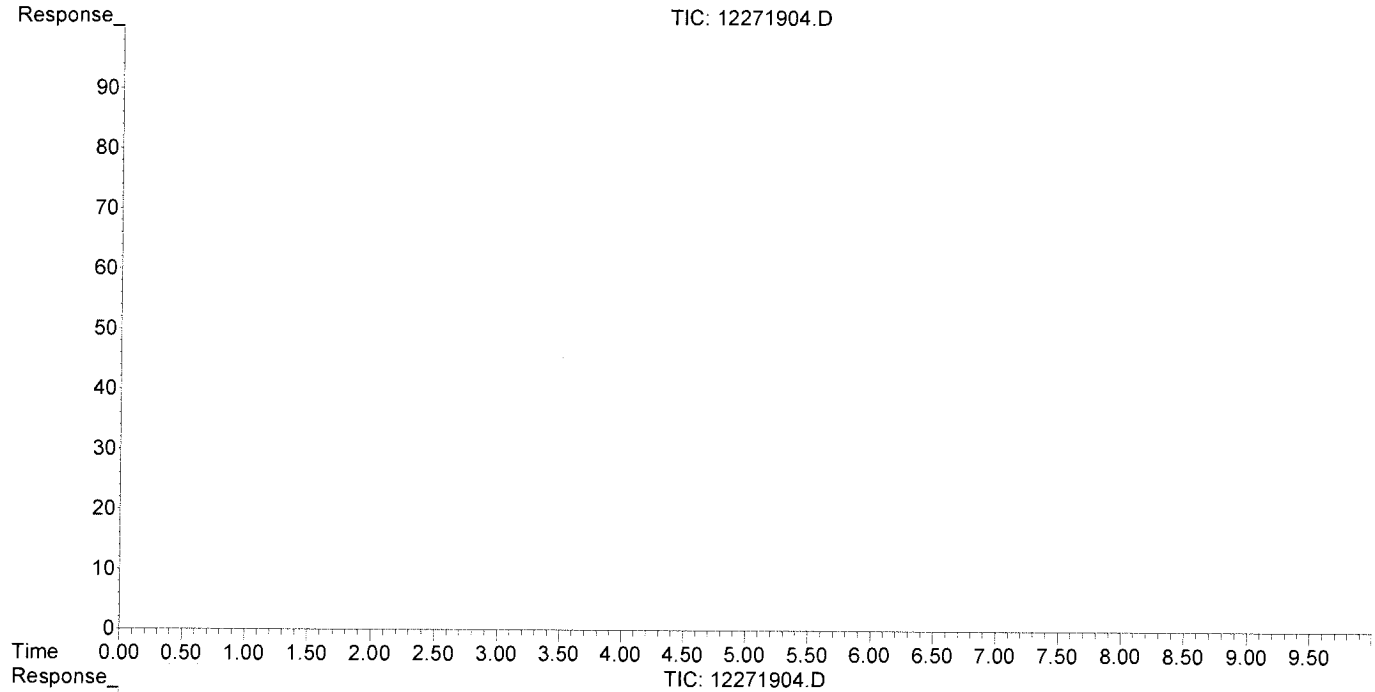
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.118	12636	1.393	ppm
7)	Ethylene	1.695	16931	1.012	ppm
8)	Ethane	1.964	21308	1.257	ppm
9)	Propylene	4.347	22646	0.966	ppm
10)	Propane	4.469	32754	1.316	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.668	263402	9.896	ppm
13)	n-Butane	6.668	263402	9.896	ppm

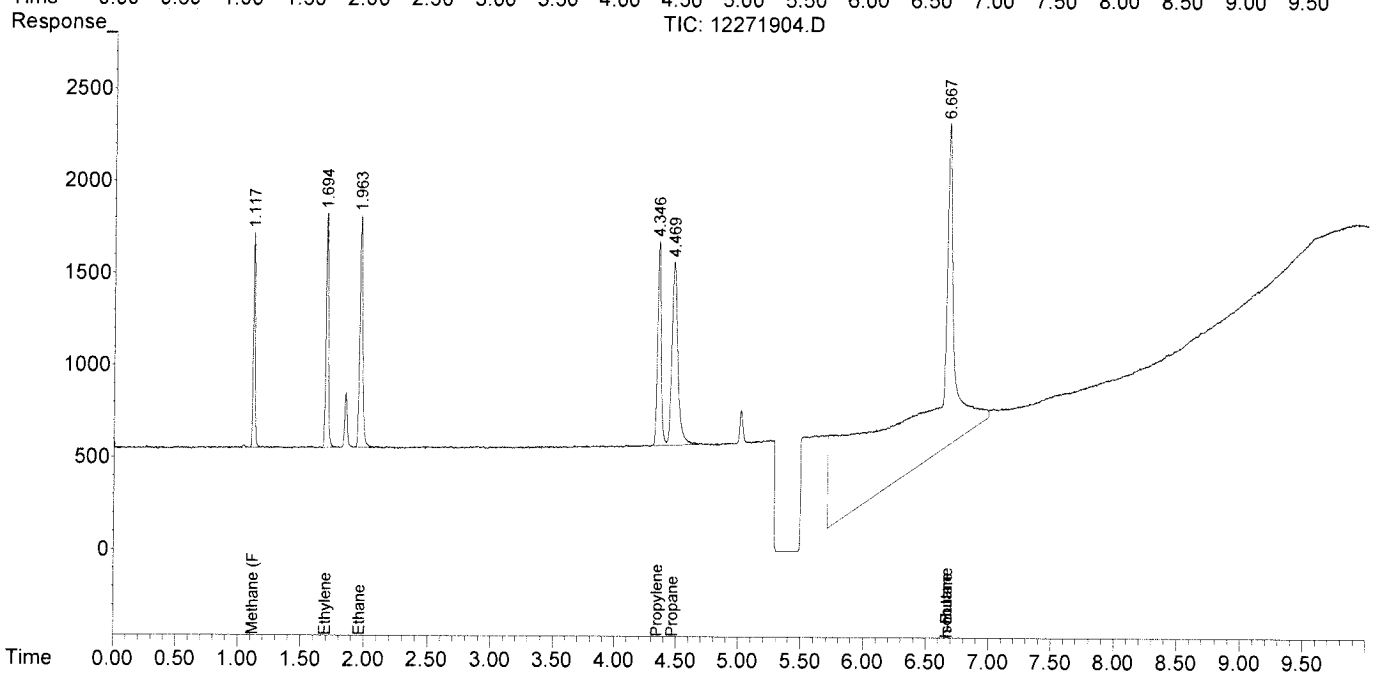
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:32:18
Operator : LD
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: Dec 27 12:26:59 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:45:51
Operator : LD
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: Dec 27 12:27:32 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

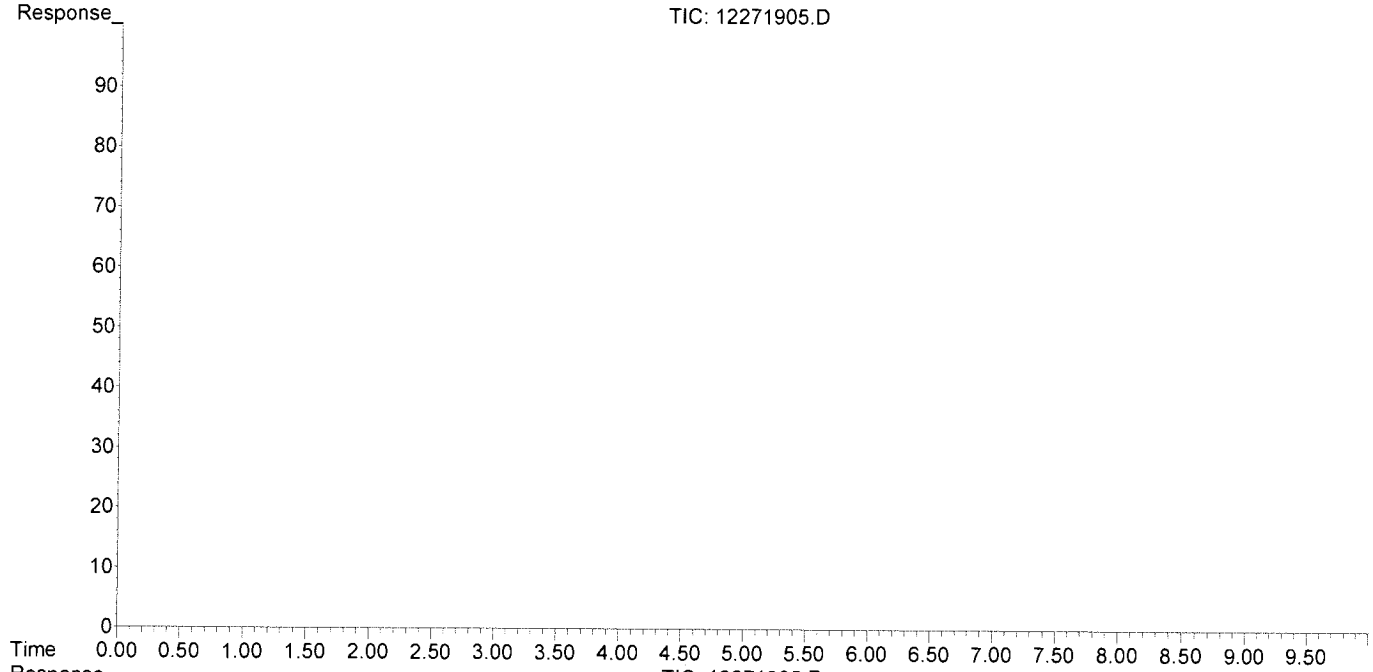
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	12814	1.413	ppm
7)	Ethylene	1.690	16812	1.005	ppm
8)	Ethane	1.958	21419	1.264	ppm
9)	Propylene	4.344	22887	0.977	ppm
10)	Propane	4.467	32984	1.326	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.668	44613	1.676	ppm
13)	n-Butane	6.668	44613	1.676	ppm

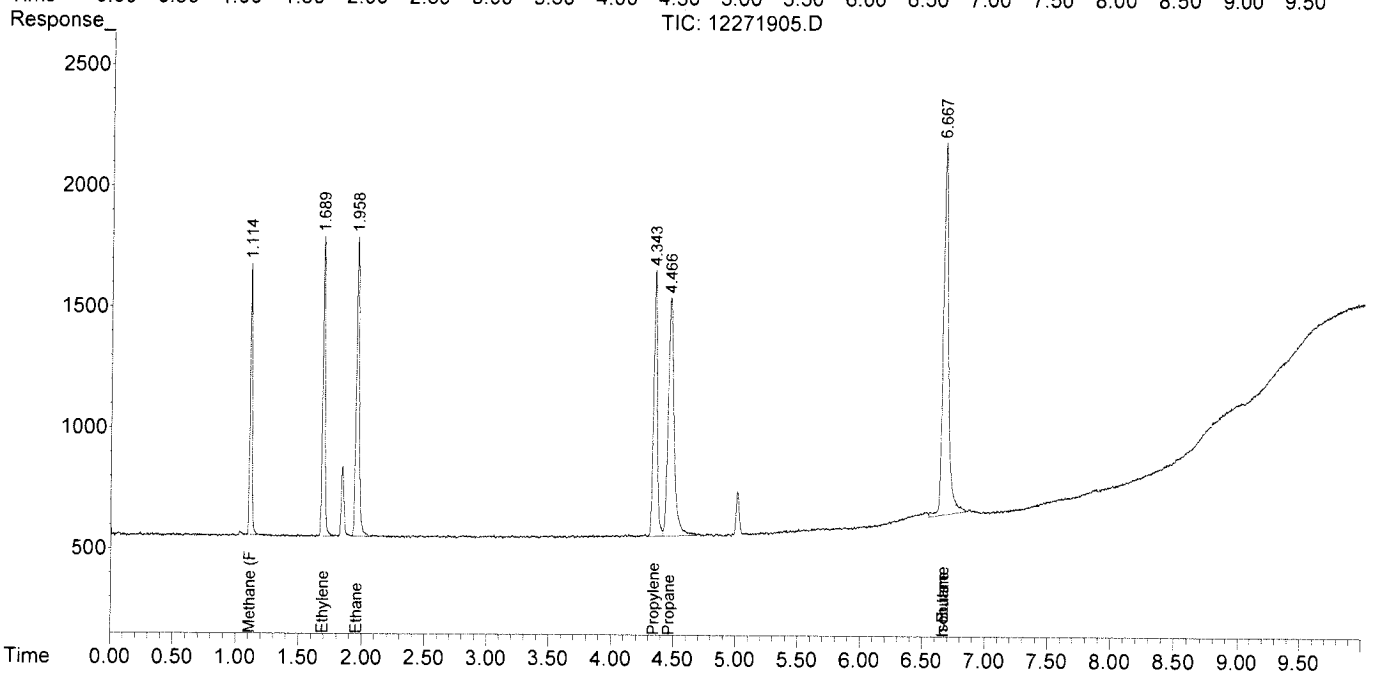
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 11:45:51
Operator : LD
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: Dec 27 12:27:32 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Response Factor Report HP5890

Method Path : J:\GC10\METHODS\
Method File : RS091217_R.M
Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
Last Update : Wed Sep 13 11:14:47 2017
Response Via : Initial Calibration

Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

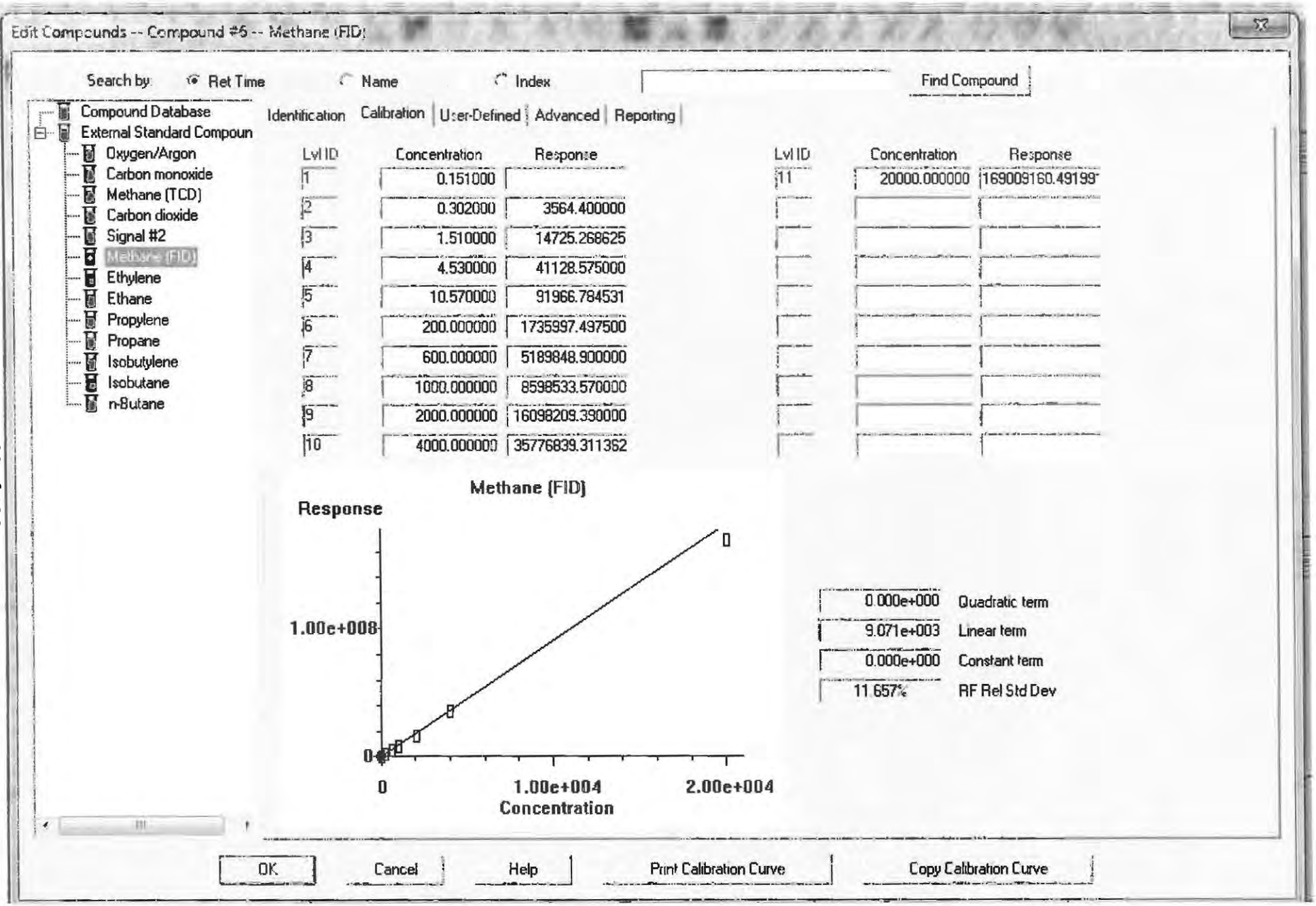
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

Signal #2 Calibration Files
1 =09121702.D 2 =09121703.D 3 =09121704.D
4 =09121705.D 5 =09121706.D 6 =09121707.D

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

(#) = Out of Range ### Number of calibration levels exceeded format ###

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification
Calibration
User-Defined
Advanced
Reporting
Lvl ID
Concentration
Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

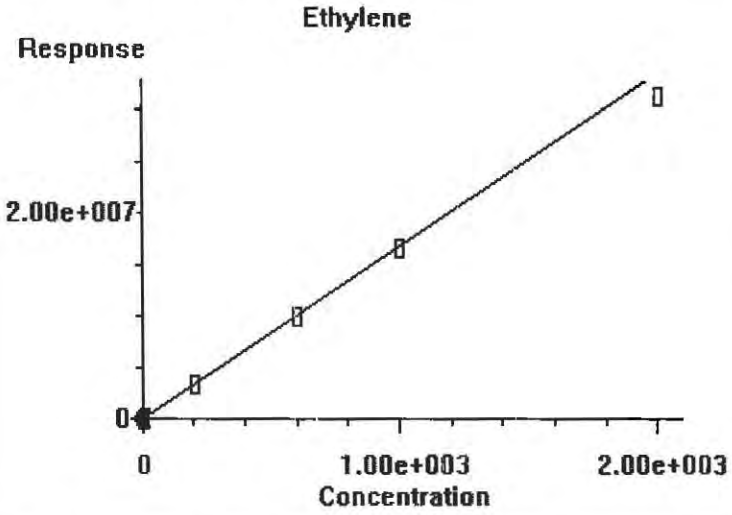
Search by: Ret Time | Name | Index | Find Compound

Compound Database
External Standard Compoun
- Oxygen/Argon
- Carbon monoxide
- Methane (TCD)
- Carbon dioxide
- Signal #2
- Methane (FID)
- Ethylene
- Ethane
- Propylene
- Propane
- Isobutylene
- Isobutane
- n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

Edit Compounds -- Compound #8 -- Ethane

Search by: Ret Time | Name | Index — Find Compound

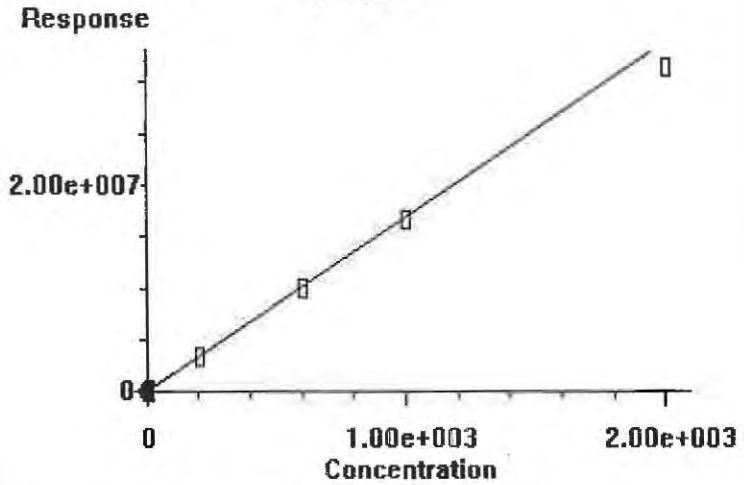
- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

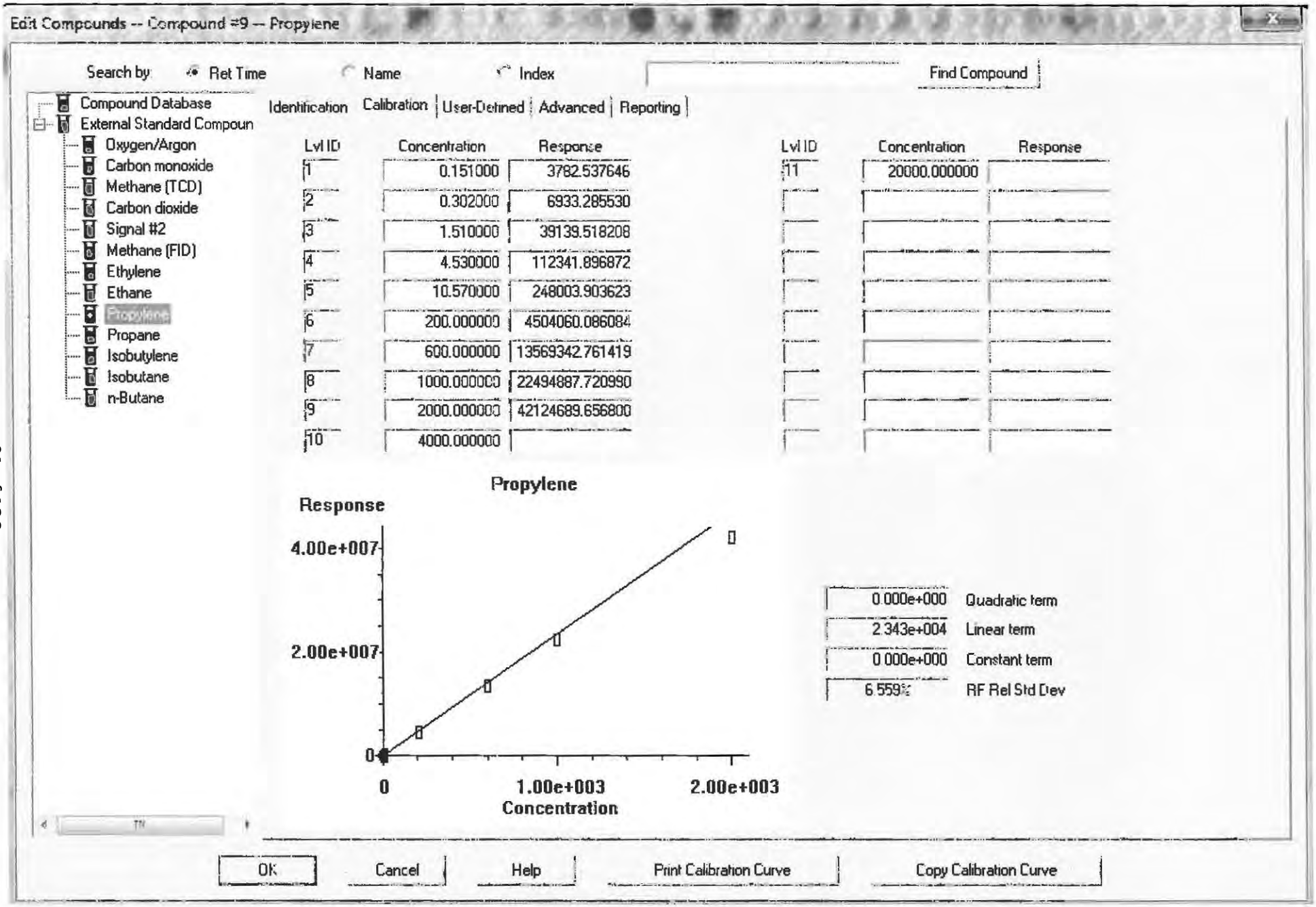
Lvl ID	Concentration	Response
11	20000.000000	

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
11 20000.000000
Propylene
Response
4.00e+007
2.00e+007
0
0
1.00e+003
2.00e+003
Concentration
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

00997062

Edit Compounds -- Compound #10 -- Propane

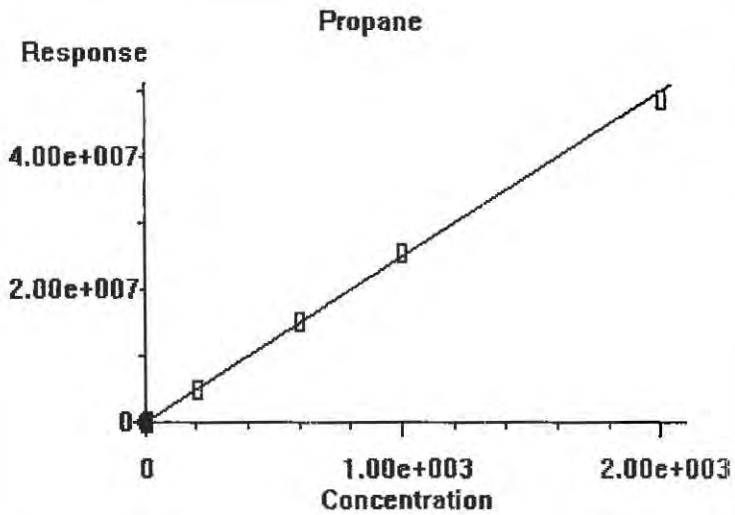
Search by ◉ Ret Time ○ Name ○ Index [ ] Find Compound

- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

OK | Cancel | Help | Print Calibration Curve | Copy Calibration Curve

00097063

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.

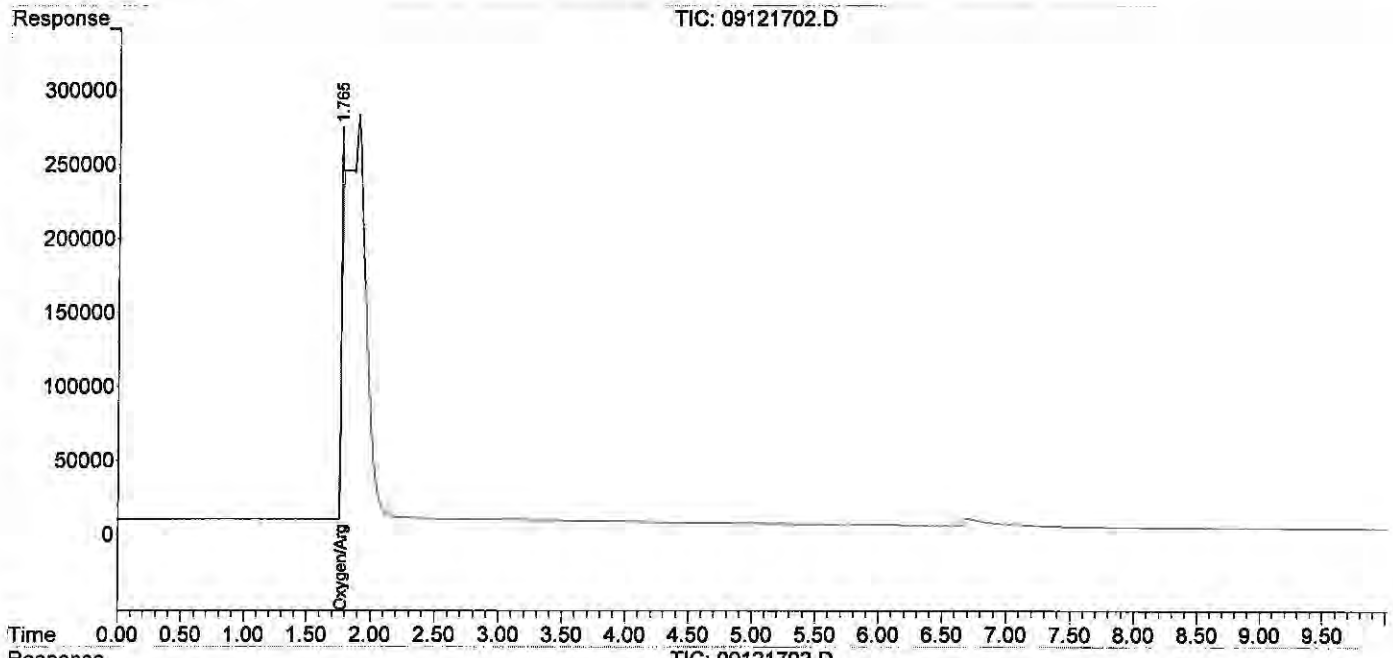
9/13/17

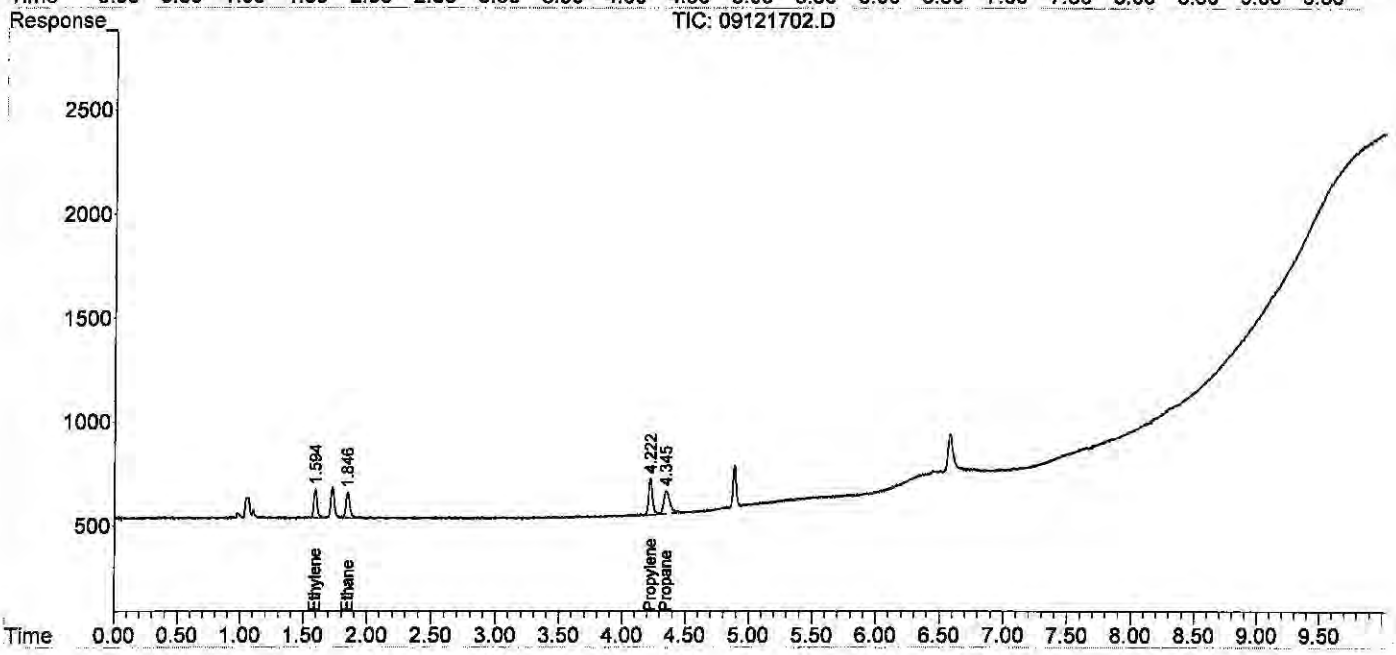
Quantitation Report (QT Reviewed)

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 :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

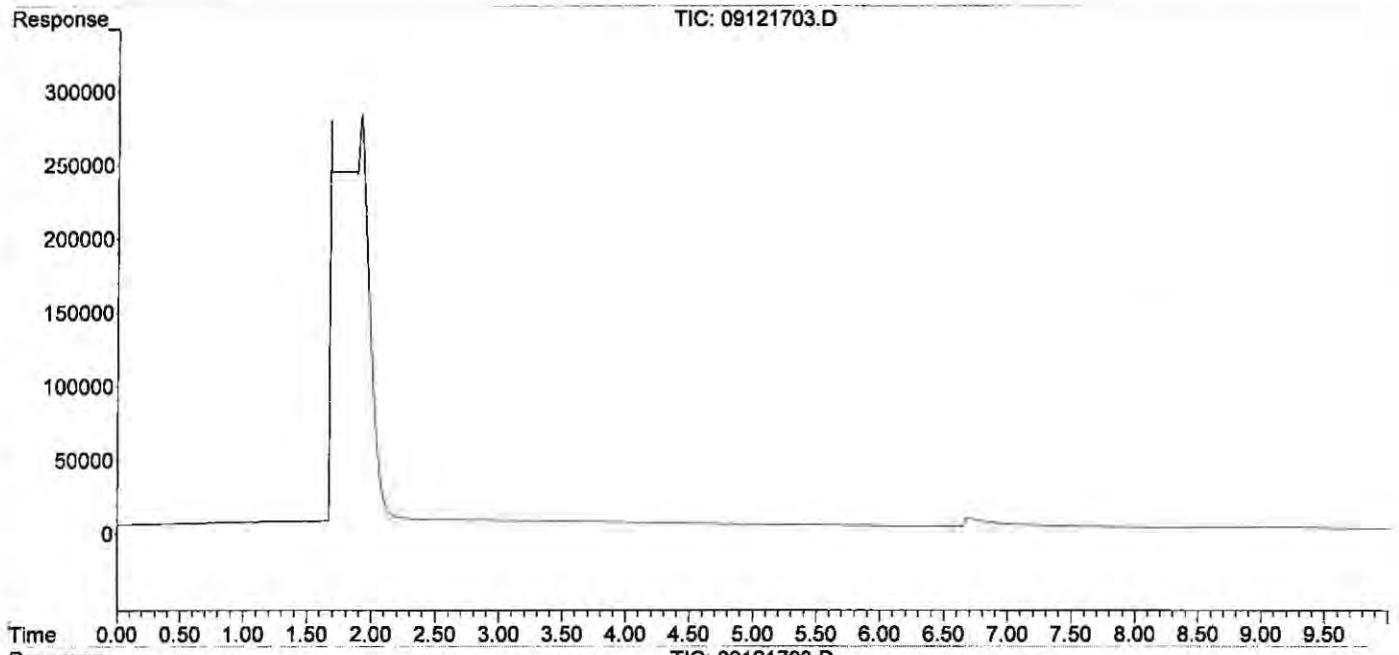
(f)=RT Delta > 1/2 Window (m)=manual int.

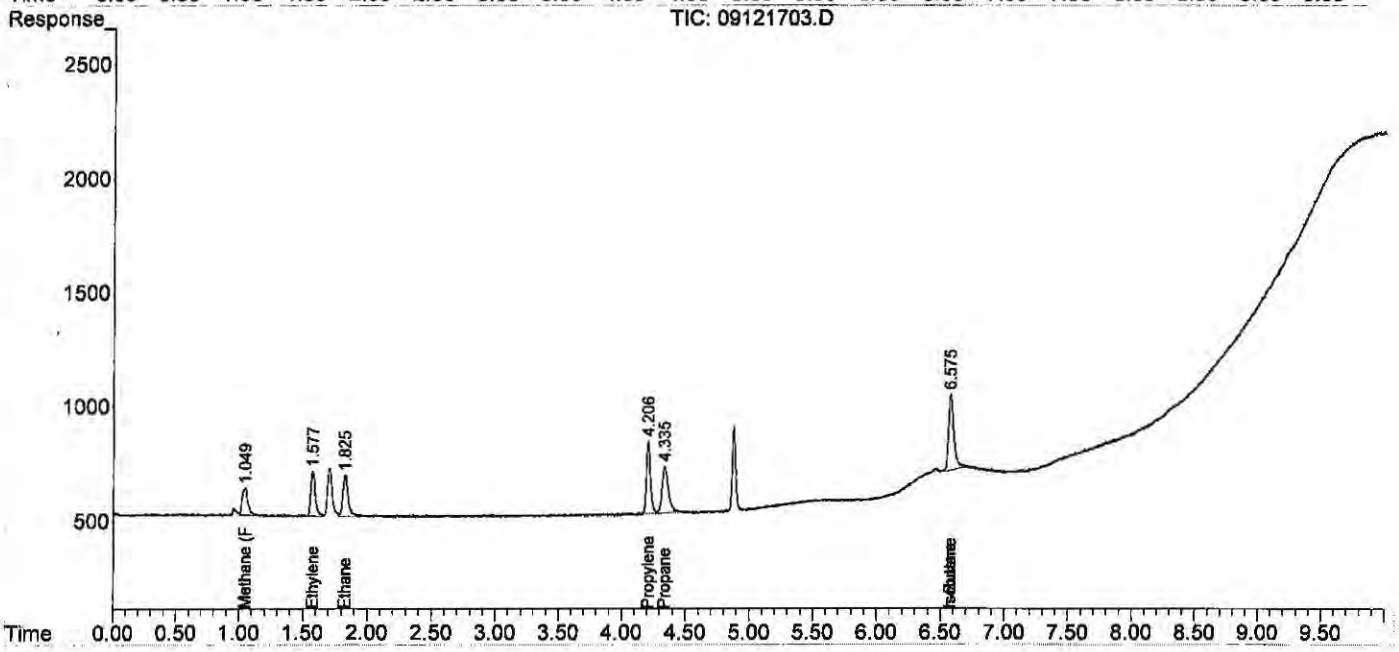
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



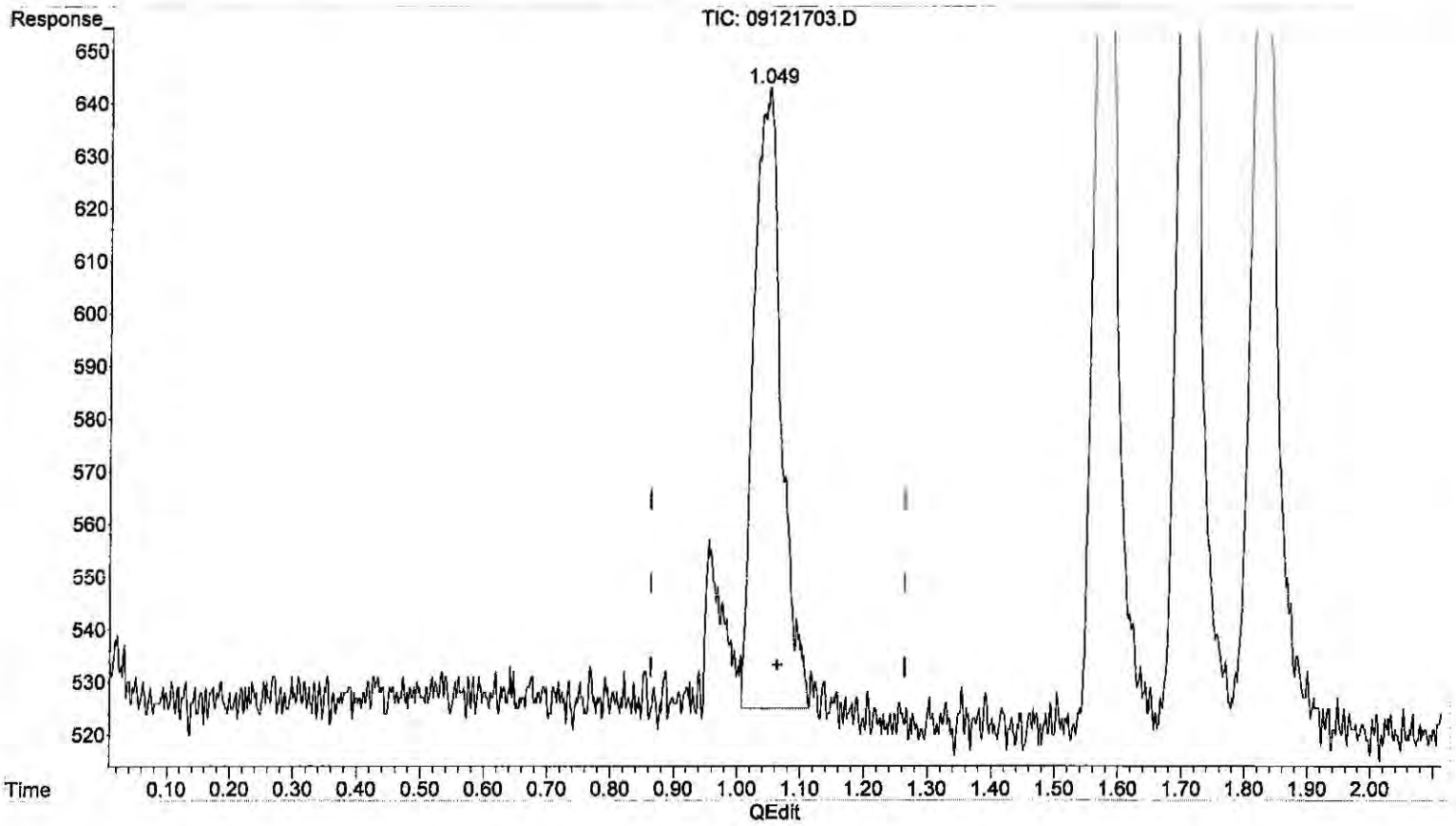


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(6) Methane (FID)

1.049min 0.391 ppm m

response 3564

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121704.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:45
Operator : MC
Sample : 1.51ppm 0.1ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:55 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	1.555	ppm
9)	Propylene	4.220	39140	1.589	ppm
10)	Propane	4.349	39934	1.596	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	55348	1.020	ppm
13)	n-Butane	6.578f	55348	1.020	ppm

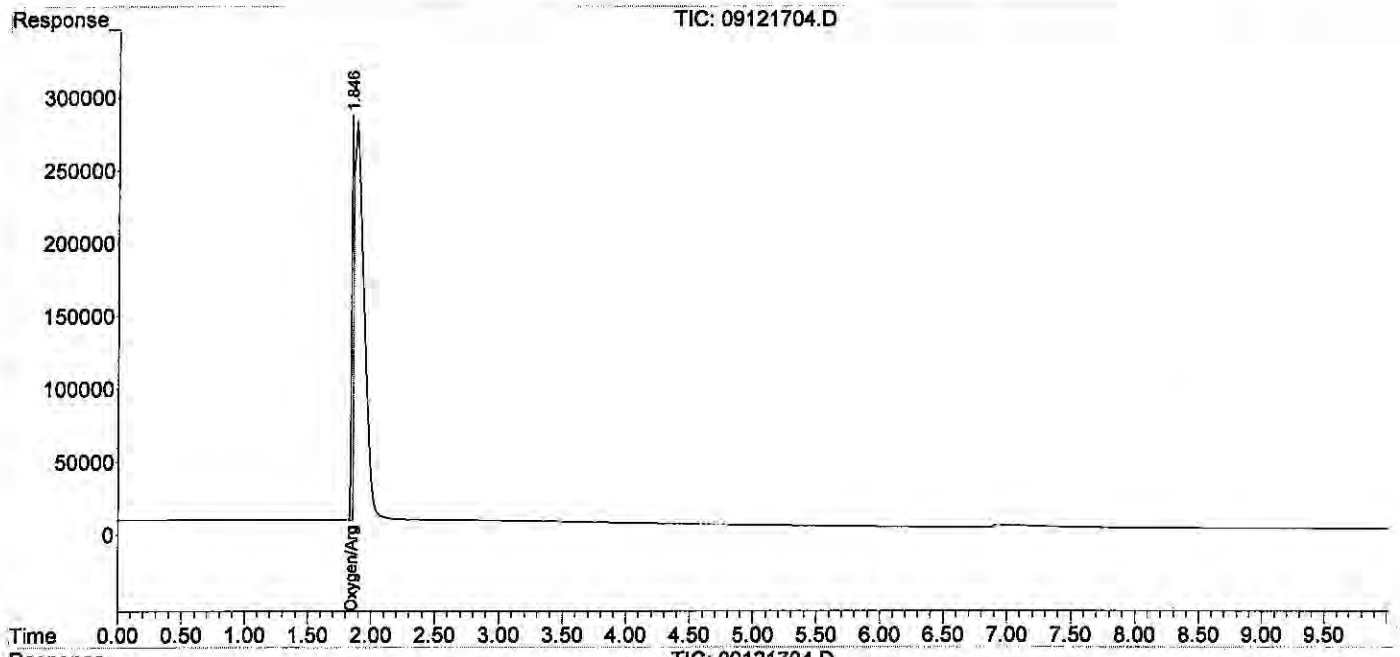
(f)=RT Delta > 1/2 Window (m)=manual int.

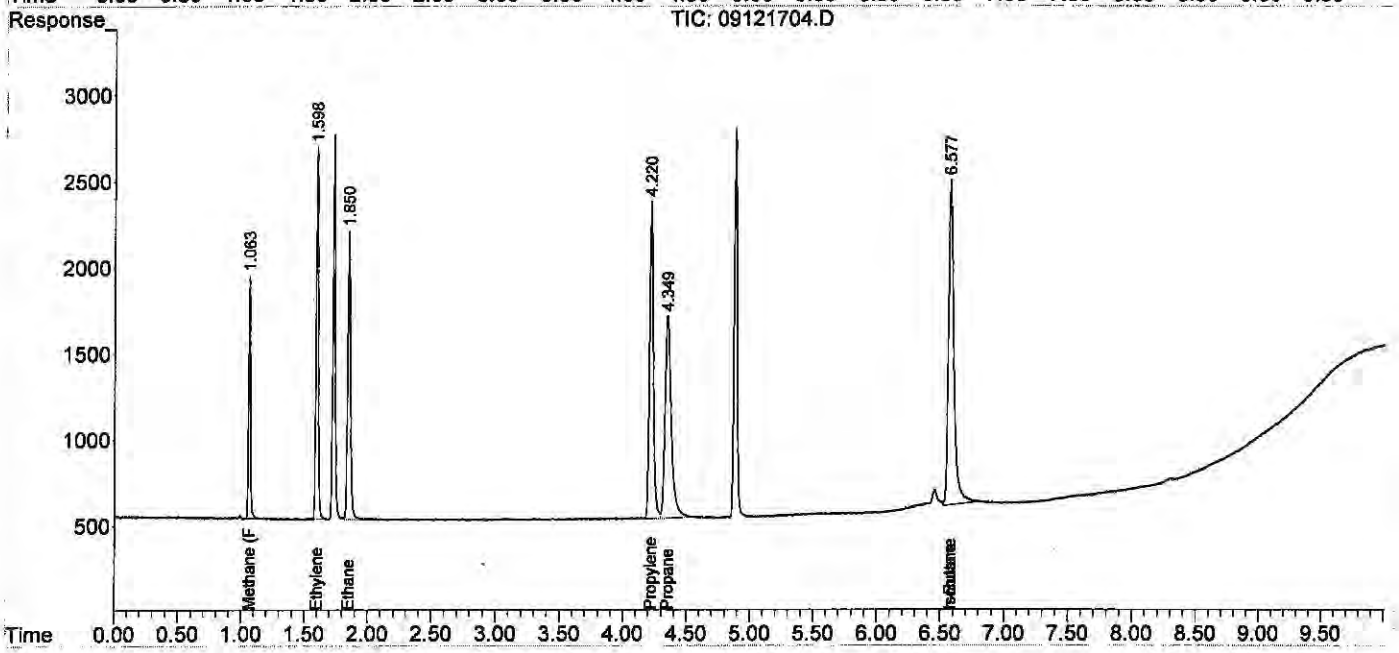
Quantitation Report (QT Reviewed)

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 :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

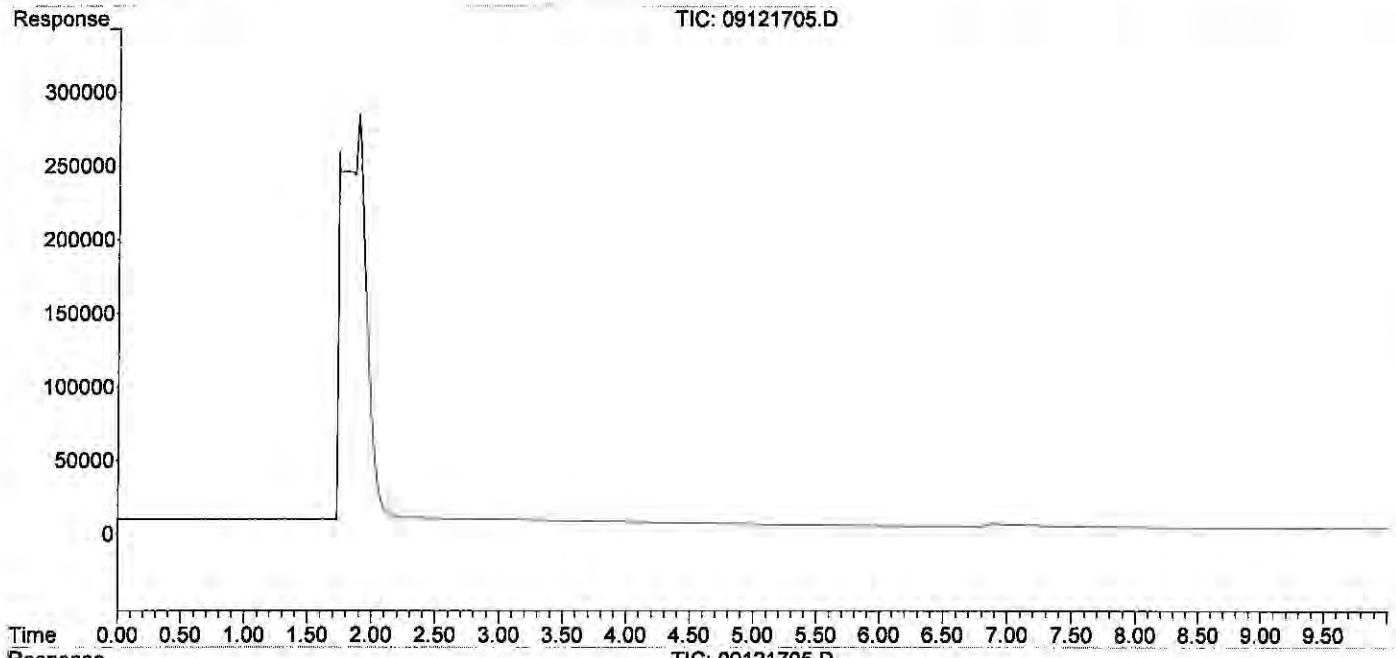
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.738	-331216	N.D.	ppm
2)	Carbon monoxide	1.738	-331216	0.019	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.052	41129	4.522	ppm
7)	Ethylene	1.586	77903	4.637	ppm
8)	Ethane	1.838	78354	4.558	ppm
9)	Propylene	4.218	112342	4.614	ppm
10)	Propane	4.347	115723	4.680	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.580f	155256	3.565	ppm
13)	n-Butane	6.580f	155256	3.565	ppm

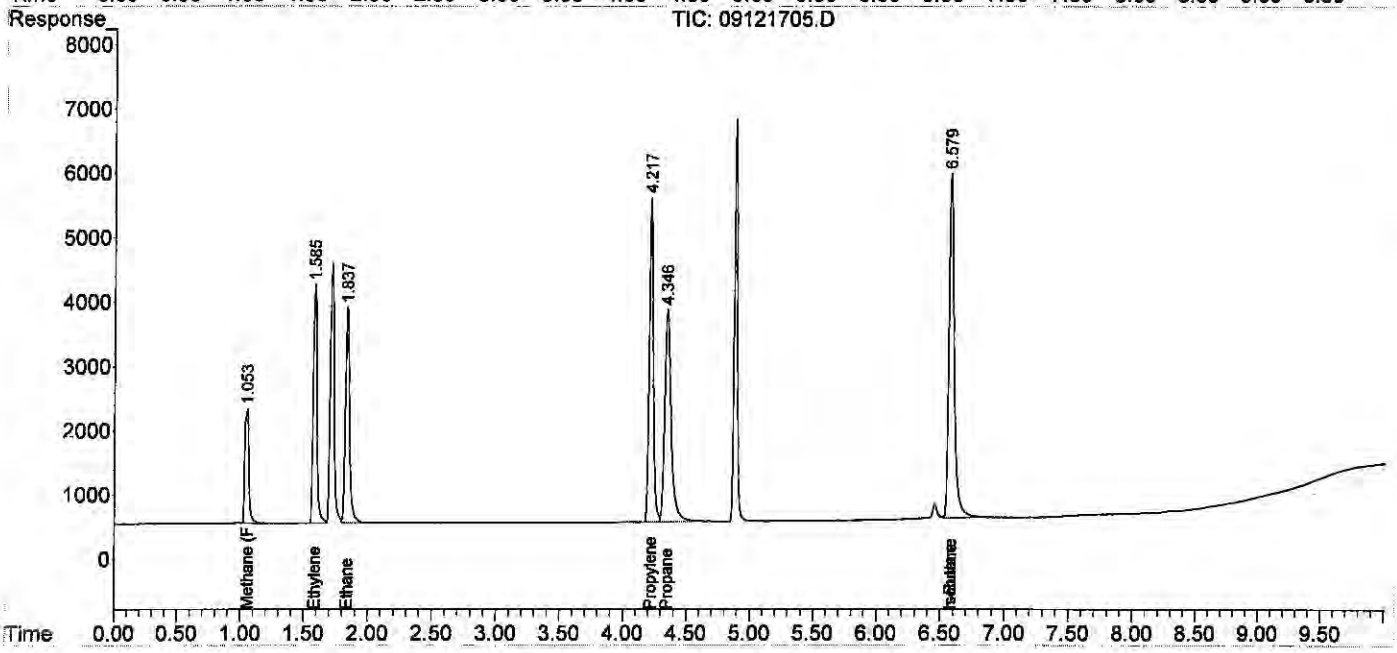
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121705.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:09
Operator : MC
Sample : 4.53ppm 0.3ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:06:32 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.929f	-31871242	N.D.	ppm
2)	Carbon monoxide	1.929f	-31871242	1.818	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.025	91967	10.135	ppm
7)	Ethylene	1.568	172086	10.273	ppm
8)	Ethane	1.822	178841	10.441	ppm
9)	Propylene	4.214	248004	10.236	ppm
10)	Propane	4.344	257124	10.458	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.578f	338181	9.254	ppm
13)	n-Butane	6.578f	338181	9.254	ppm

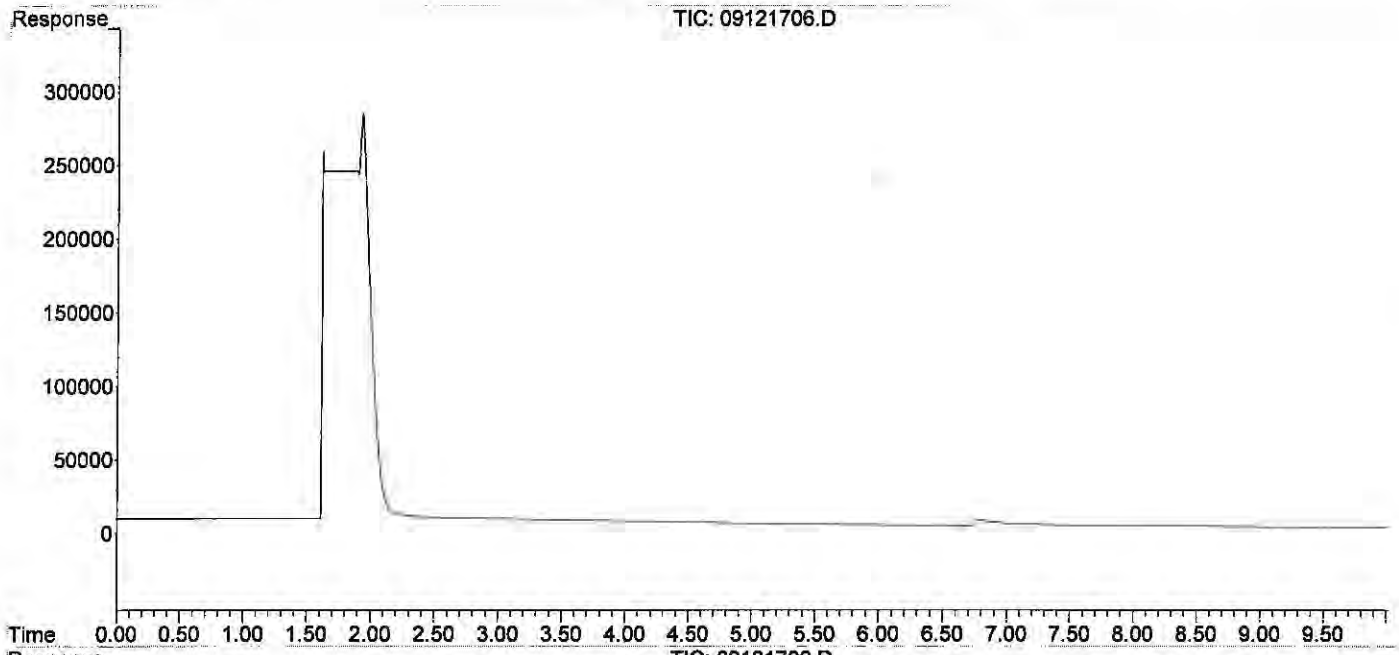
(f)=RT Delta > 1/2 Window (m)=manual int.

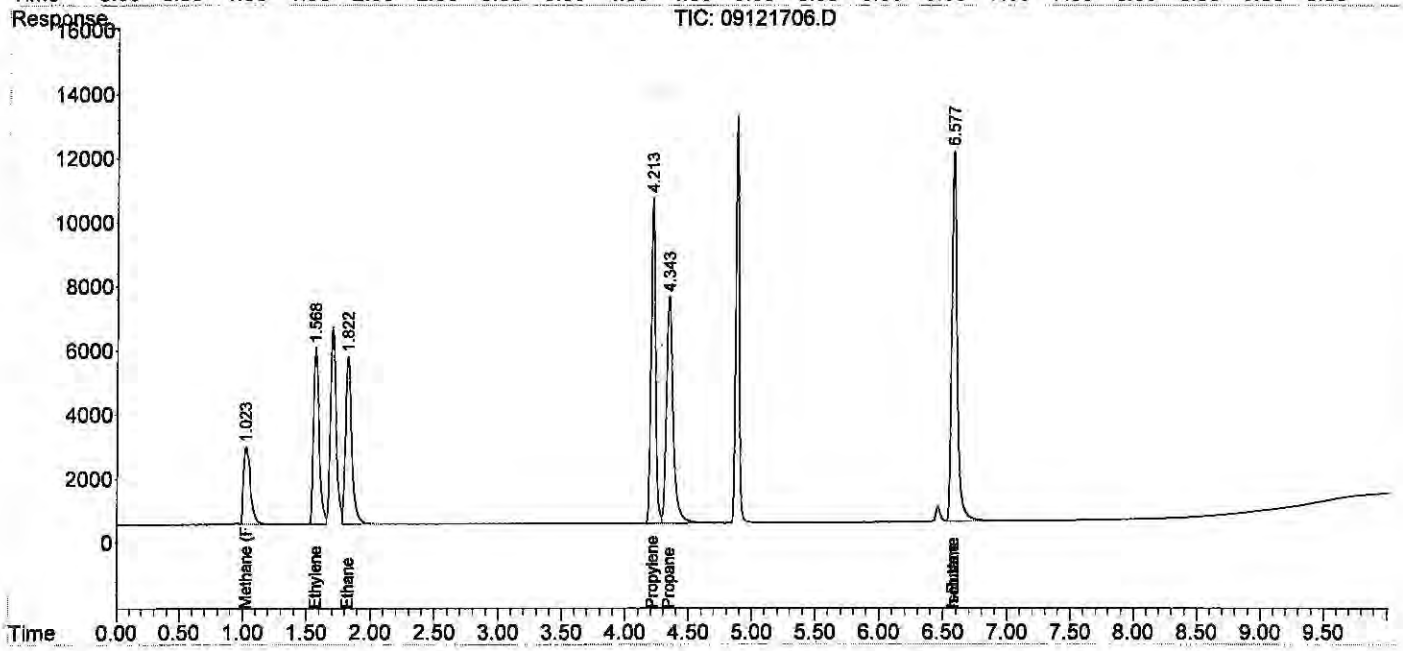
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121706.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:30
Operator : MC
Sample : 10.57ppm 0.7ml s32-09051701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:24 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

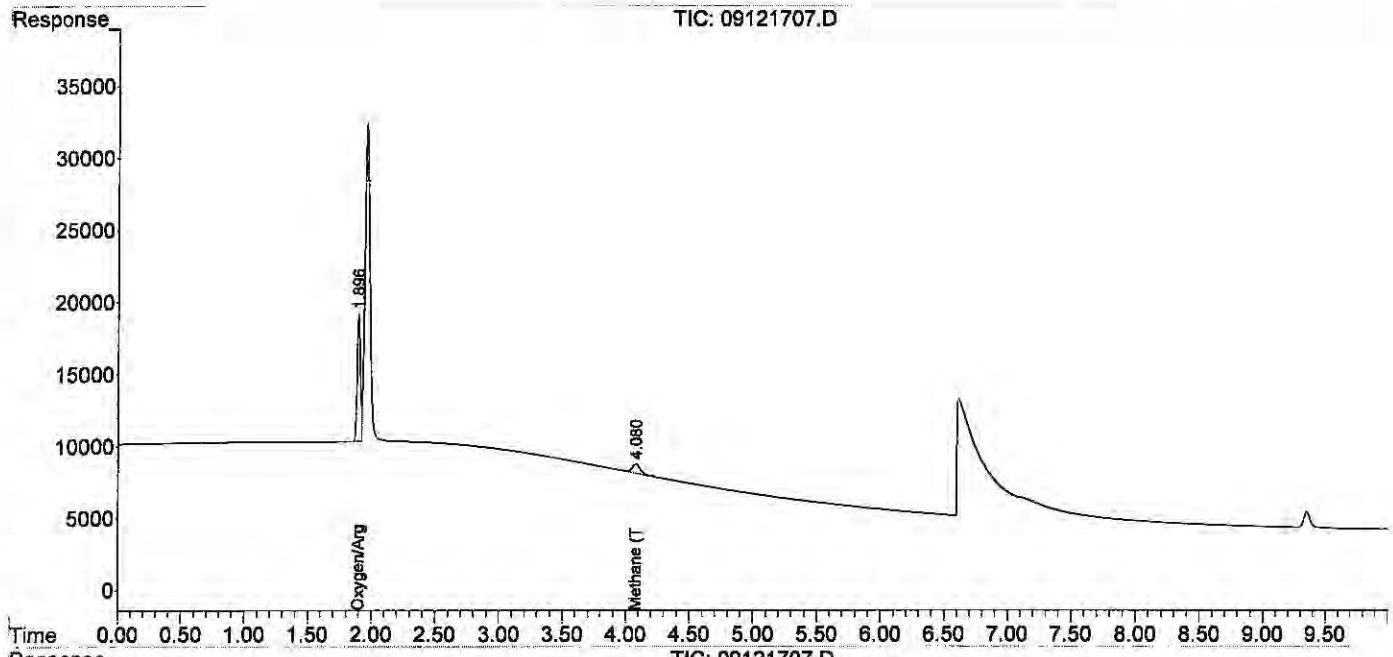
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	1.849	3350442	194.597	ppm
9)	Propylene	4.201	4504060	185.706	ppm
10)	Propane	4.333	5043036	204.809	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

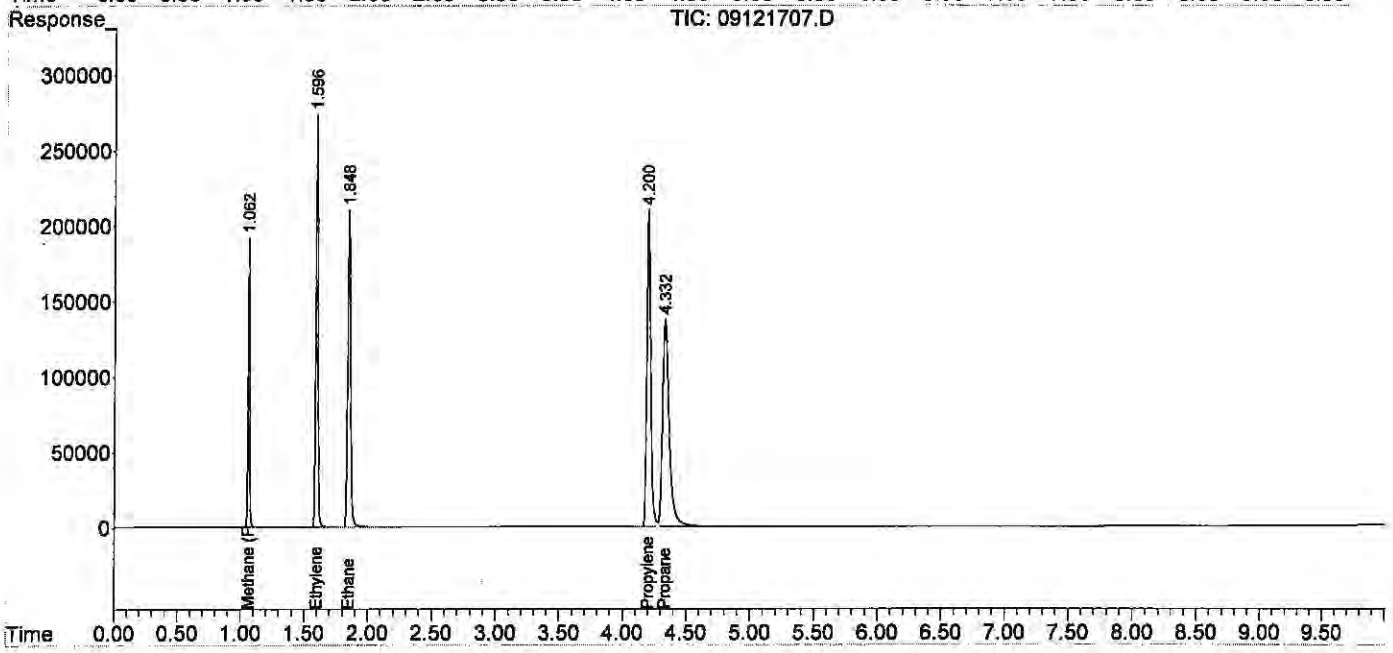
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121707.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 12:47
Operator : MC
Sample : 200ppm 0.1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:09:59 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.884	196022	0.124	ppm
2)	Carbon monoxide	1.884	196022	N.D.	ppm
3)	Methane (TCD)	4.070f	88282	782.730	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.044	5189849	539.759	ppm
7)	Ethylene	1.573	10007759	590.286	ppm
8)	Ethane	1.822	10048964	583.213	ppm
9)	Propylene	4.160	13569343	562.612	ppm
10)	Propane	4.300	15251326	615.171	ppm
11)	Isobutylene	6.143	9815	NoCal	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

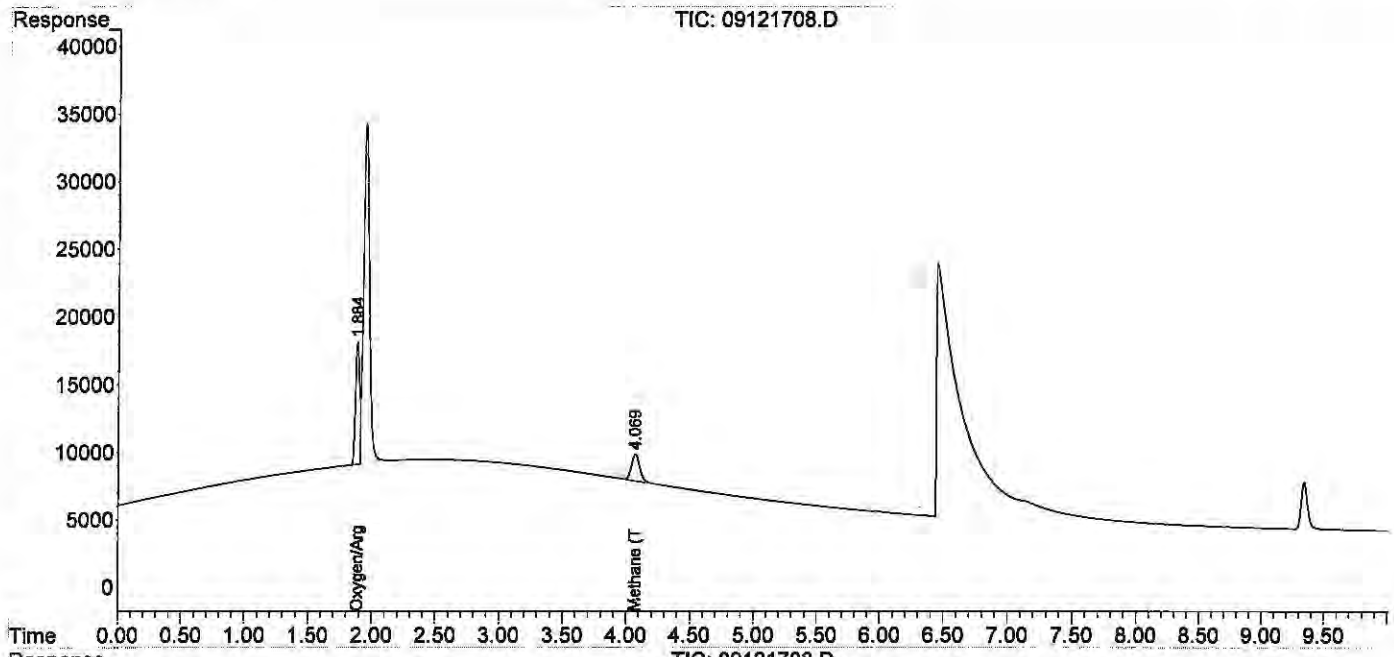
(f)=RT Delta > 1/2 Window (m)=manual int.

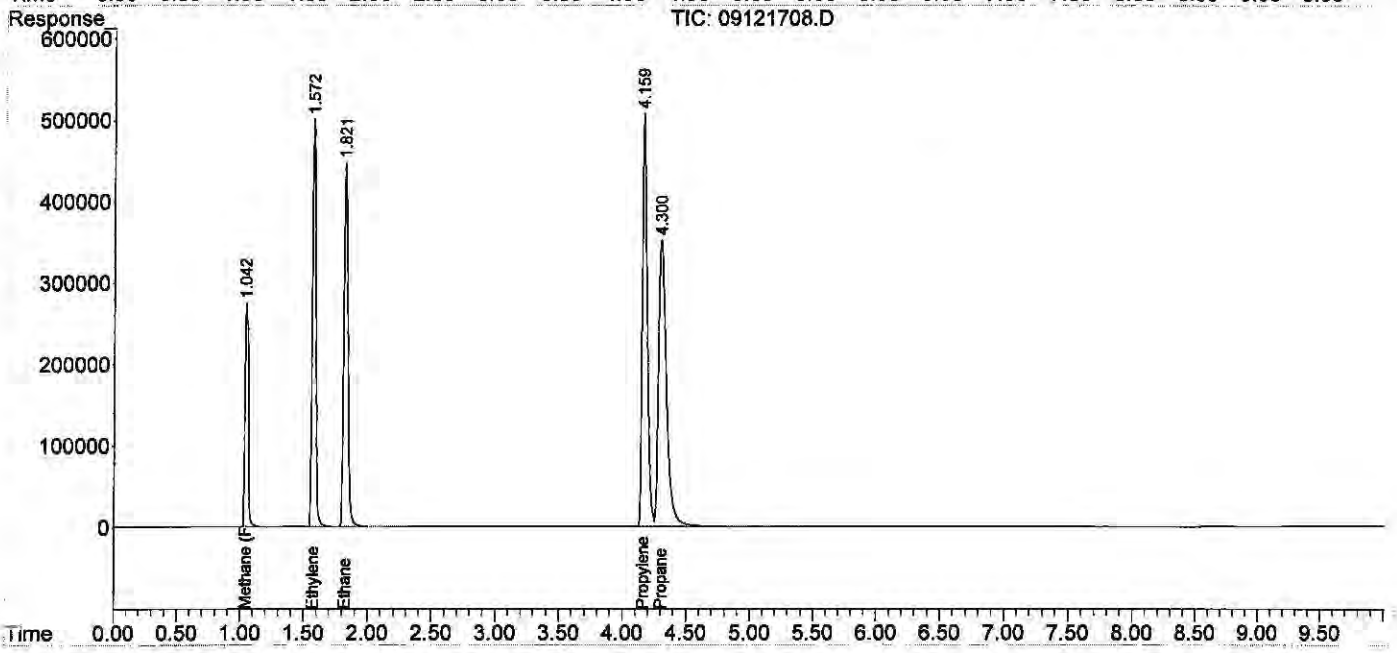
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121708.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:00
Operator : MC
Sample : 600ppm 0.3ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:10:57 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:10:50 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

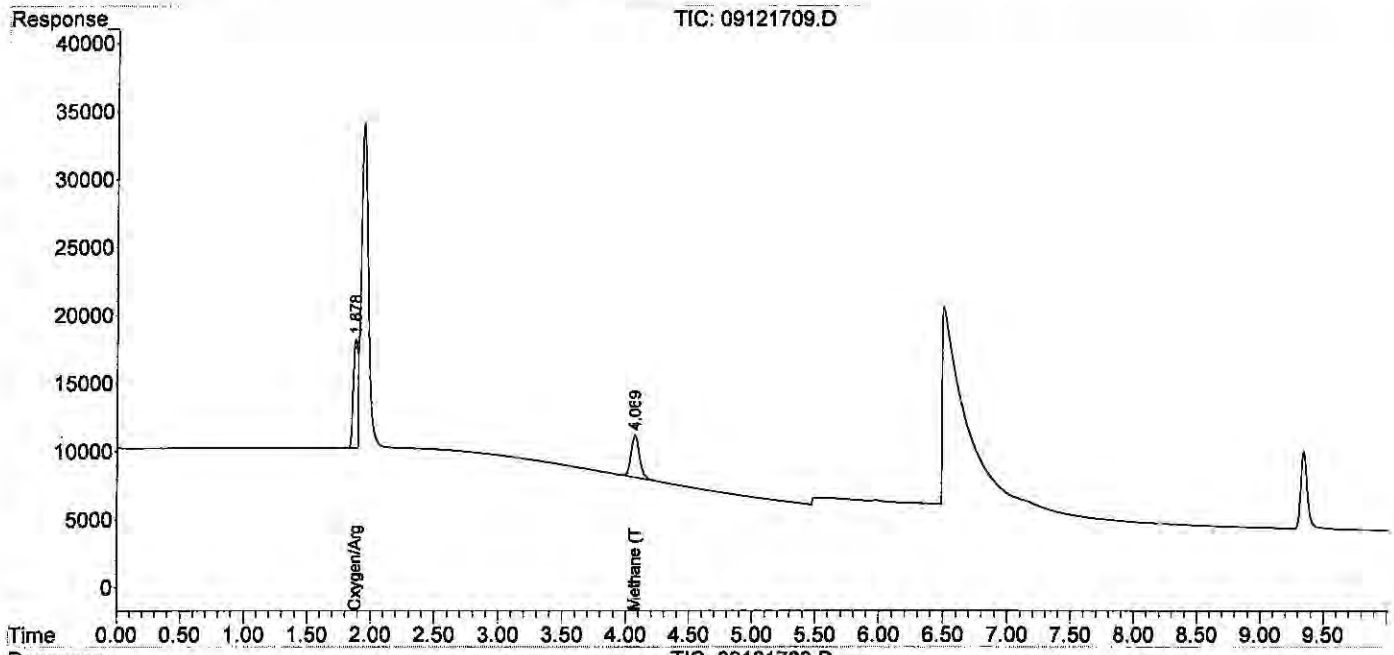
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	1.827	16709165	973.644	ppm
9)	Propylene	4.161	22494888	941.060	ppm
10)	Propane	4.298	25459411	1023.223	ppm
11)	Isobutylene	6.138	16970	8645.243	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

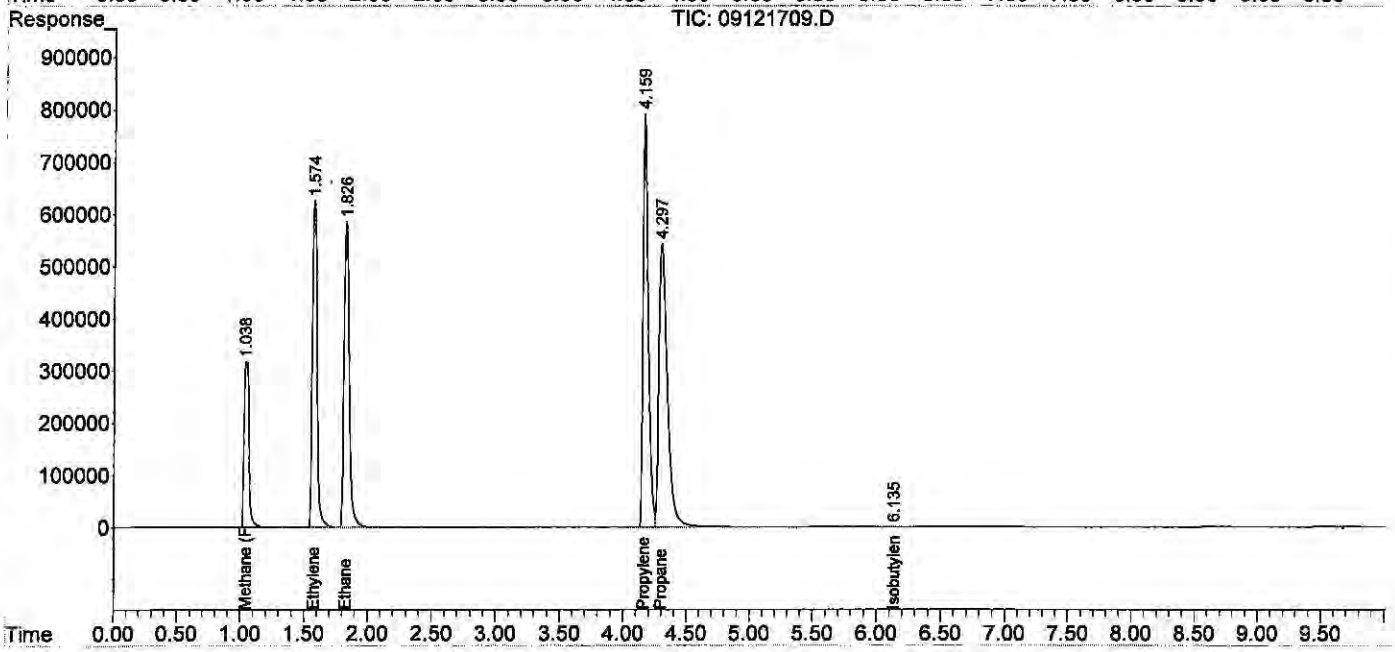
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121709.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 13:47
Operator : MC
Sample : 1000ppm 0.5ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:11:46 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:11:38 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

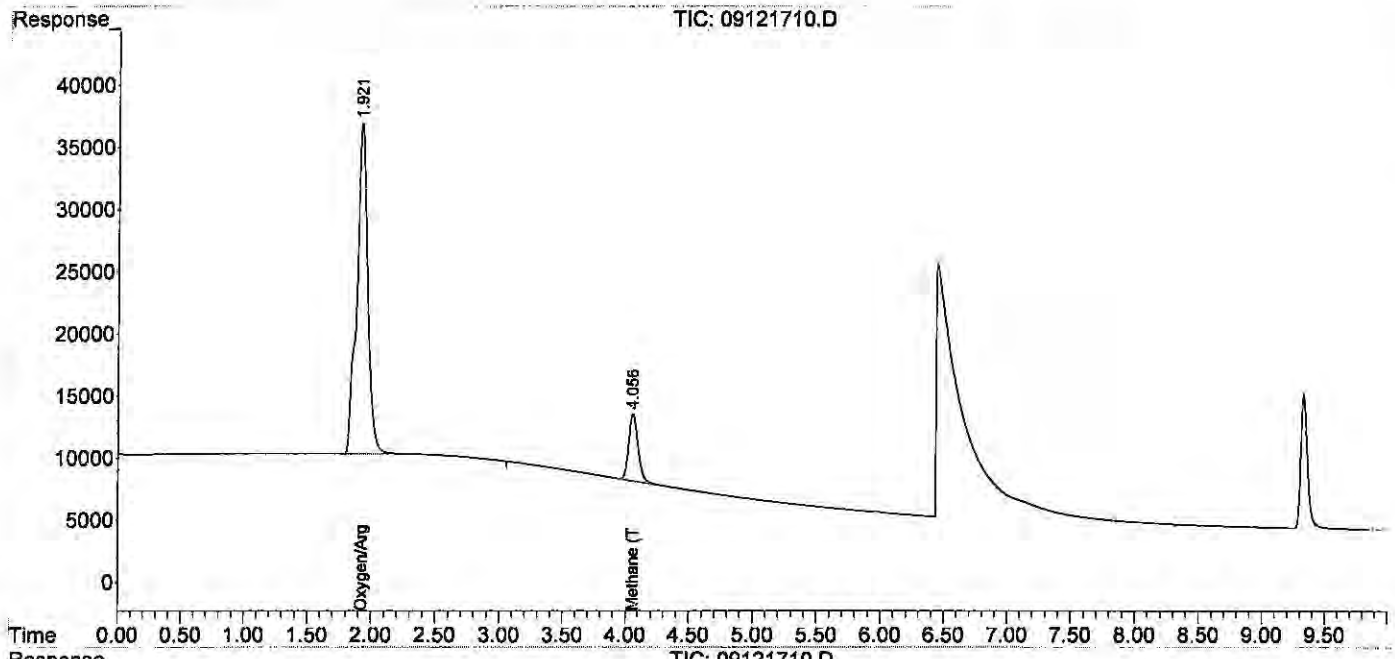
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	ppm	
8)	Ethane	1.801	31424218	1837.143	ppm	
9)	Propylene	4.129	42124690	1775.341	ppm	m
10)	Propane	4.269	48583085	1946.921	ppm	
11)	Isobutylene	6.136	33832	25613.603	ppm	
12)	Isobutane	6.576f	3845	0.120	ppm	
13)	n-Butane	6.576f	3845	0.120	ppm	

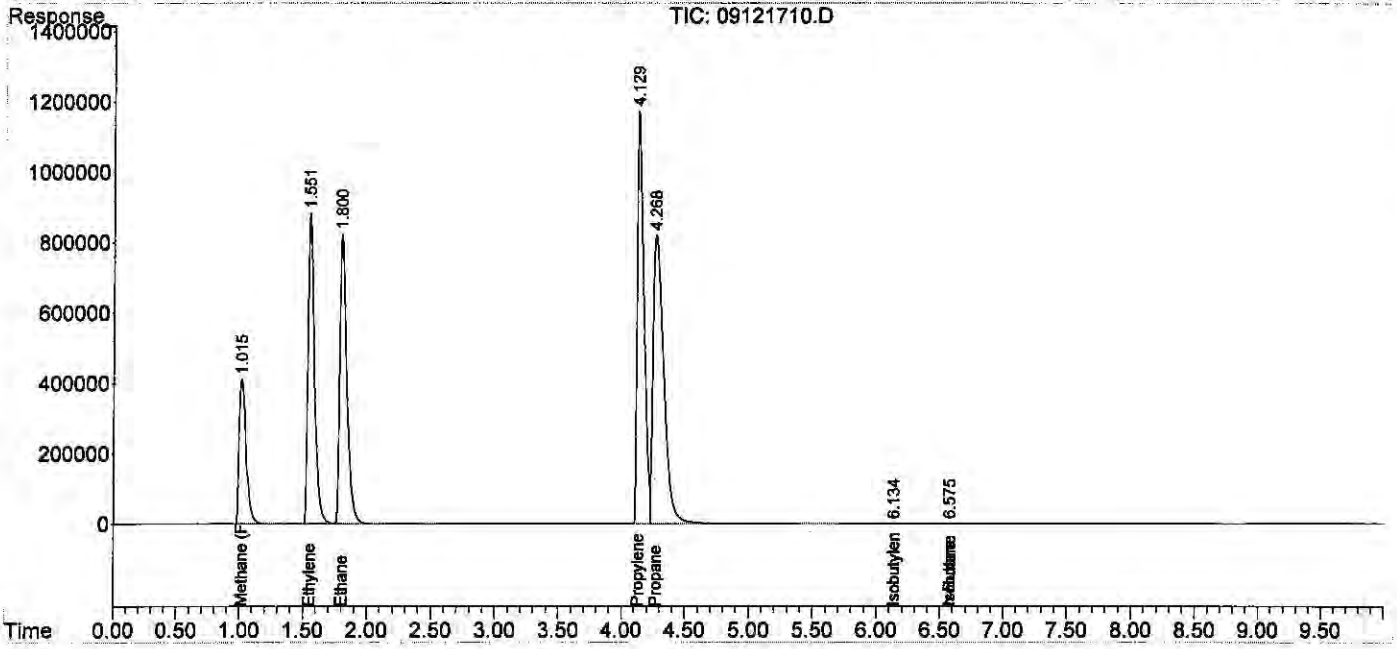
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



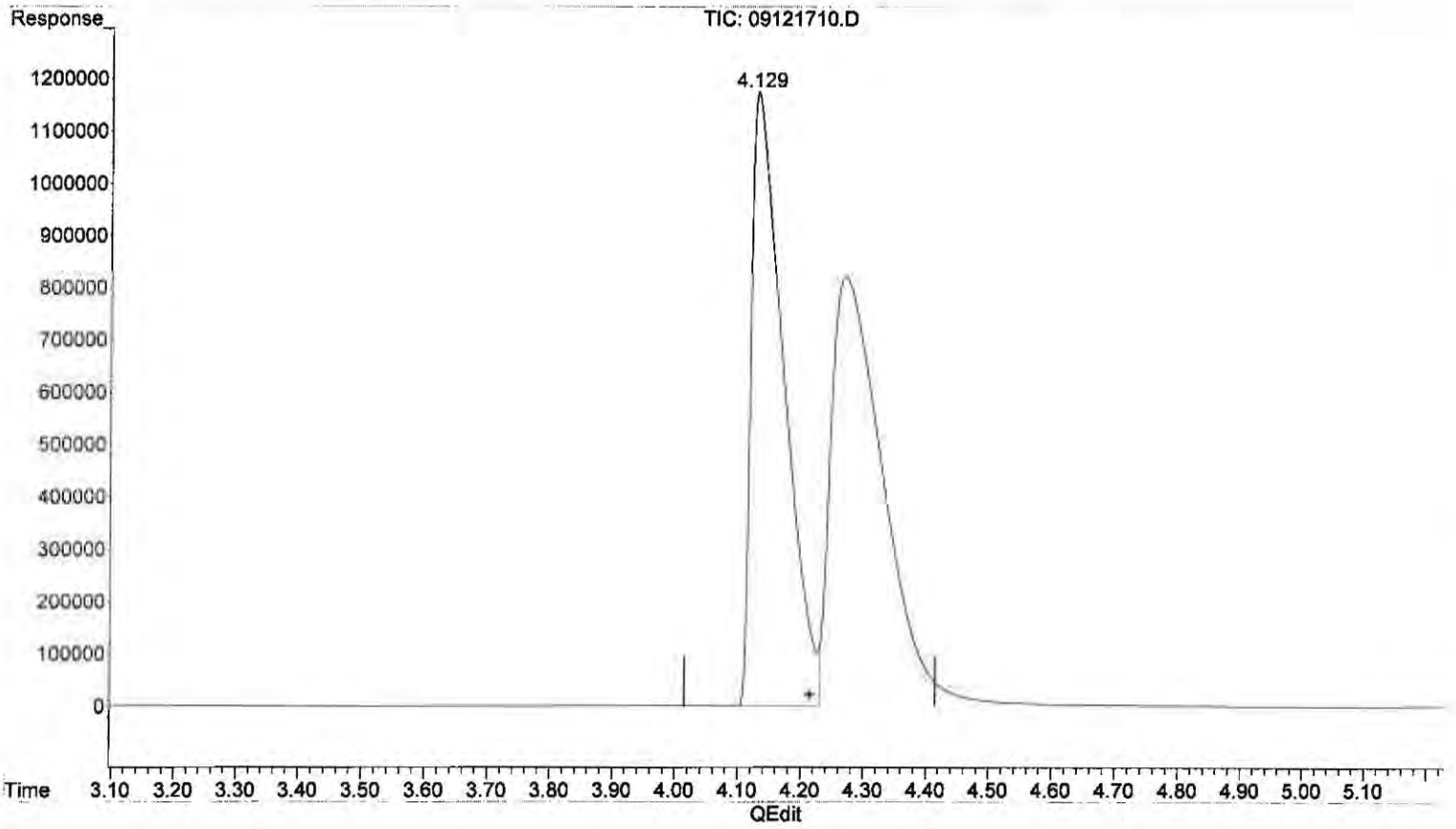


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time
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 :

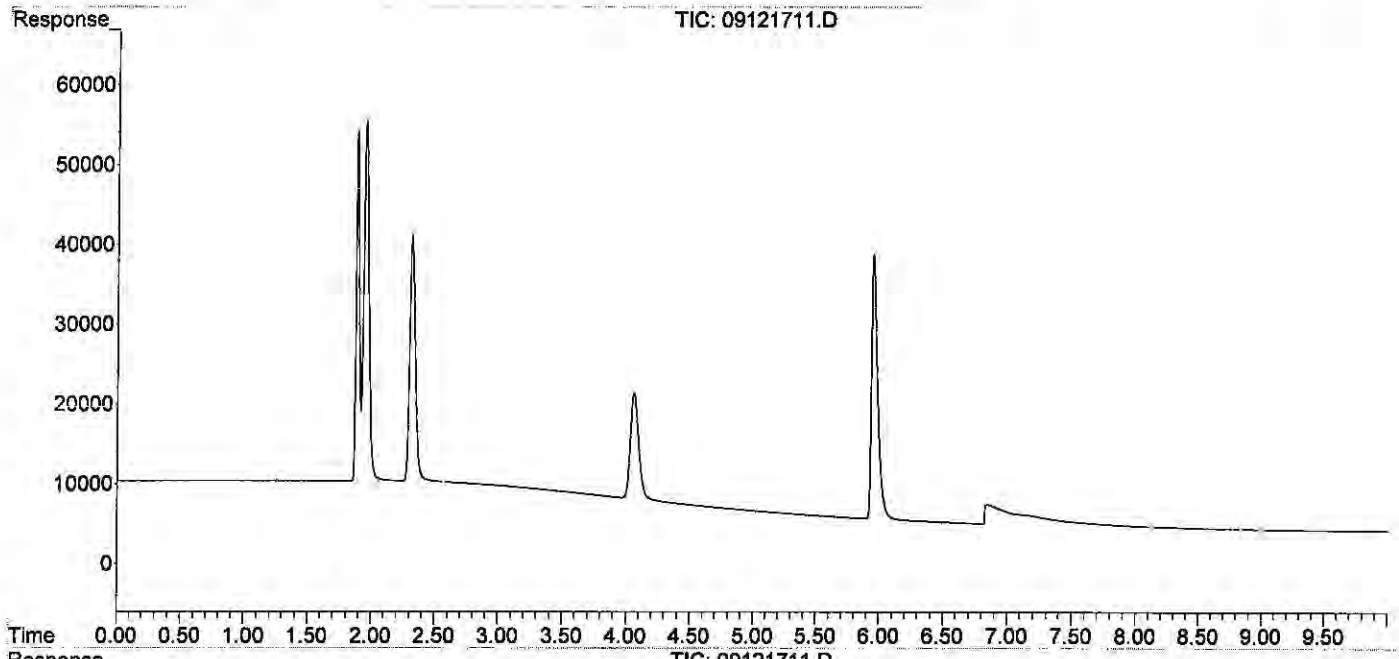
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

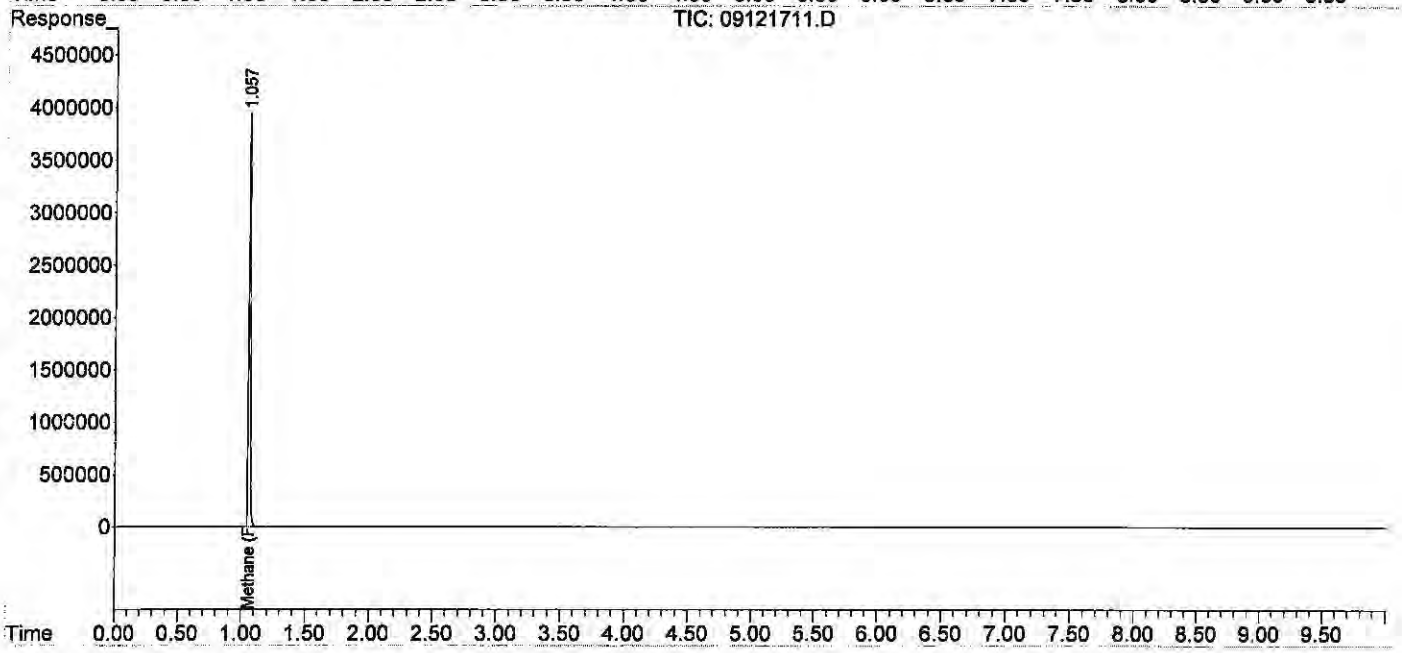
(f)=RT Delta > 1/2 Window (m)=manual int.

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 #1 Info :
Signal #2 Phase:
Signal #2 Info :





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 :

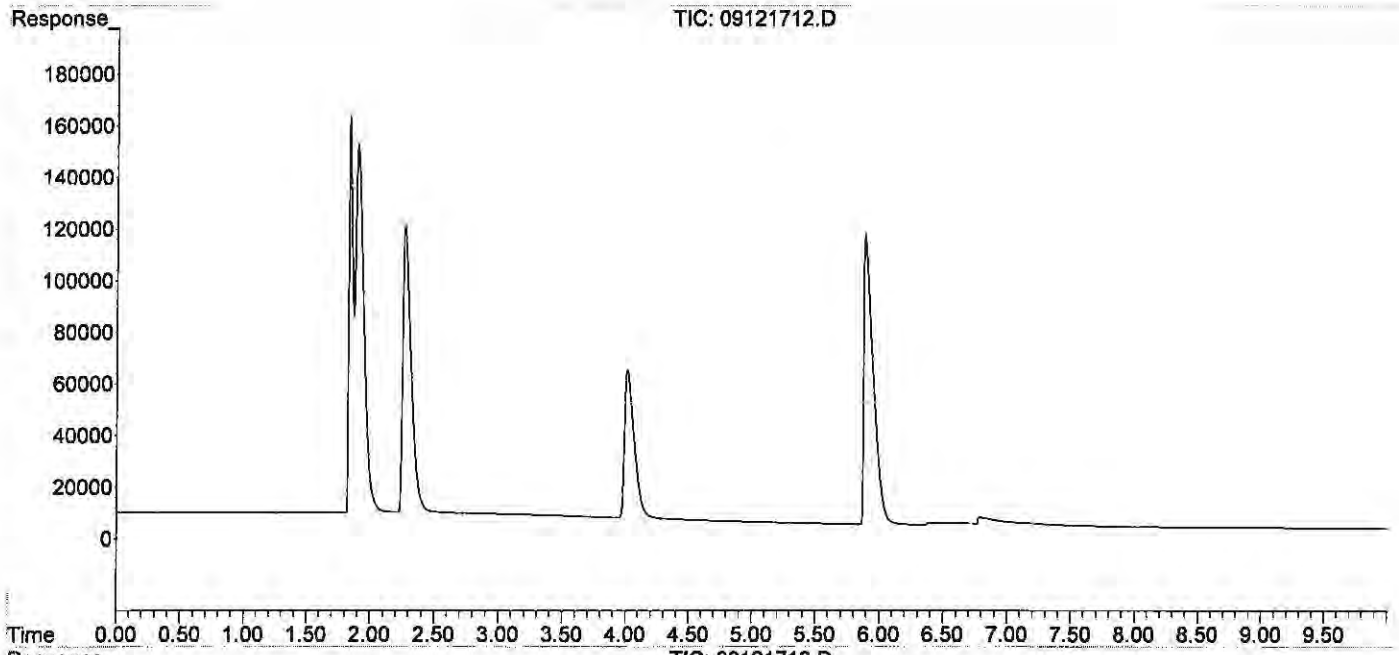
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

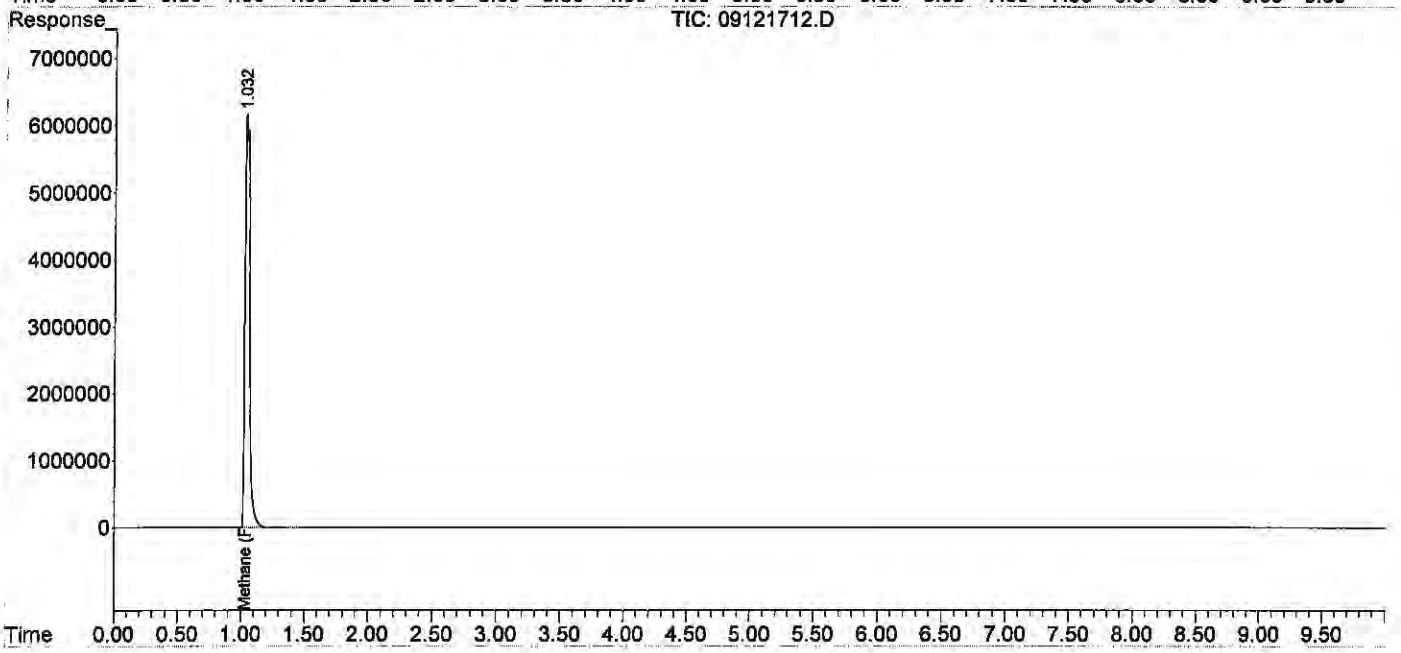
(f)=RT Delta > 1/2 Window (m)=manual int.

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	1.50 101.1
7)	Ethylene	1.598	24153	1.443	ppm	1.50 96.2
8)	Ethane	1.850	24488	1.445	ppm	1.50 96.3
9)	Propylene	4.221	36004	1.537	ppm	1.50 102.5
10)	Propane	4.350	37738	1.517	ppm	1.51 100.5
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	48019	1.804	ppm	9/14/2
13)	n-Butane	6.579f	48019	1.804	ppm	

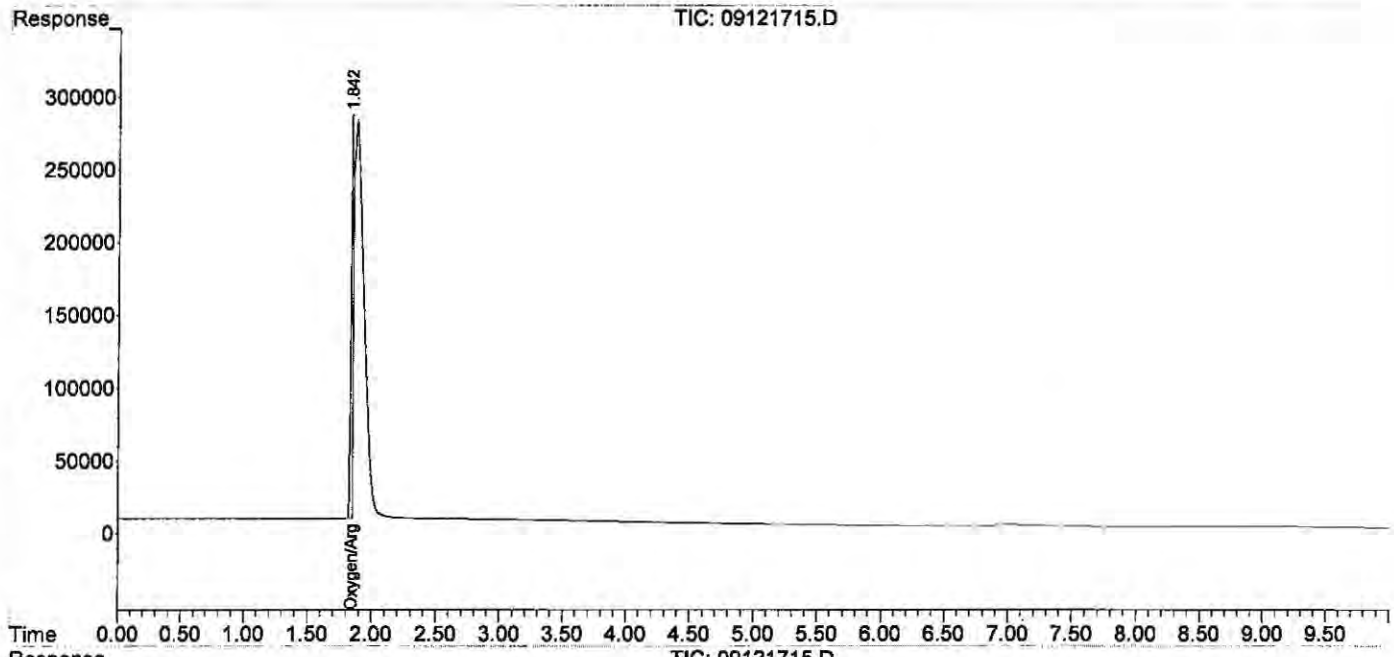
(f)=RT Delta > 1/2 Window (m)=manual int.

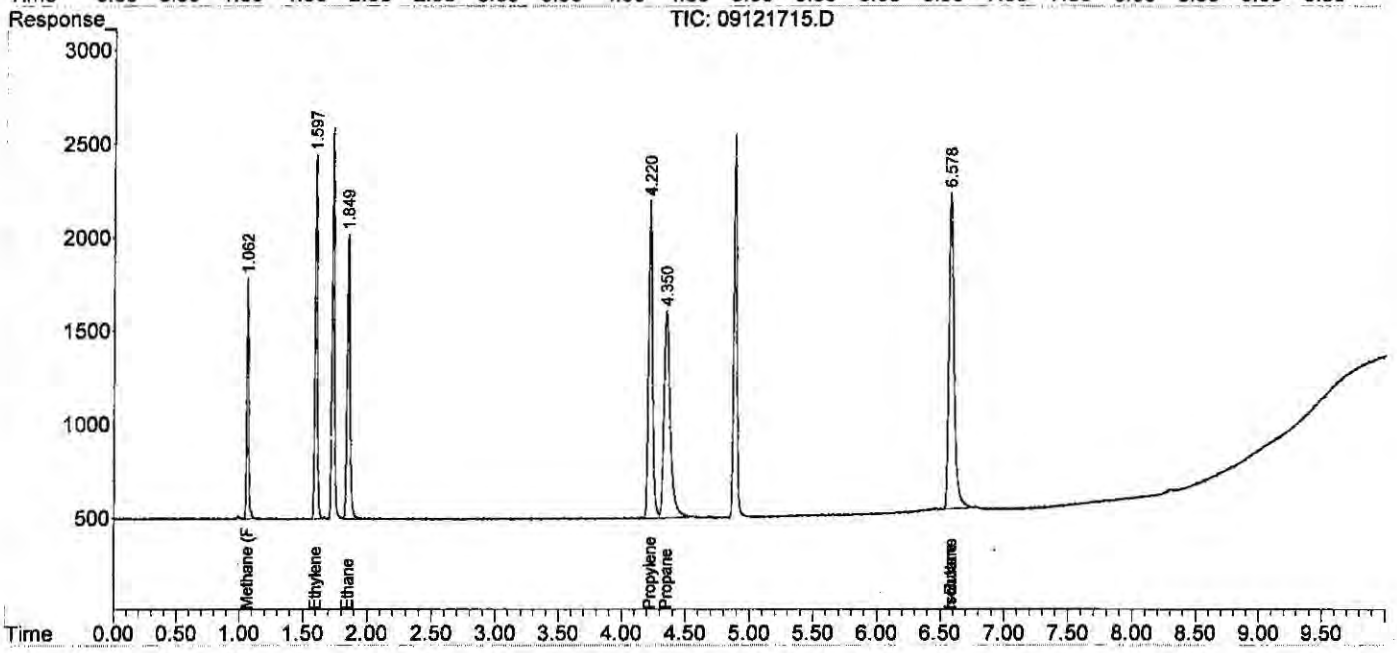
9/14/2017

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1907801
Sample Vol. (ml) : 32.00 ml
Analyst : LD
Date Analysis : 12/27/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Methane	Ethylene	Ethane
STD S32-05221901	0.100	93.081	98.801	97.915
ACTUAL		101.50	100.90	101.40
%Difference		8.3%	2.1%	3.4%
MCS 0.1ml	0.100	0.131	0.000	0.000
RB 0.1ml	0.100	0.000	0.000	0.000
LCS S32-07231801	0.100	1.393	1.012	1.257
LCSD S32-07231801	0.100	1.413	1.005	1.264
P1907801-001 0.1ml	0.100	1.357	0.000	0.000
P1907801-002 0.1ml	0.100	284.619	0.137	0.000
P1907801-003 0.1ml	0.100	397.459	1.399	0.000
P1907801-004 0.1ml	0.100	395.217	0.000	0.000
P1907801-005 0.1ml	0.100	709.155	0.000	0.000
P1907801-006 0.1ml	0.100	1.046	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	1.310	0.000	0.000
LCS S32-07231801	13.930	10.120	12.570
LCSD S32-07231801	14.130	10.050	12.640
P1907801-001 0.1ml	13.570	0.000	0.000
P1907801-002 0.1ml	2846.190	1.370	0.000
P1907801-003 0.1ml	3974.590	13.990	0.000
P1907801-004 0.1ml	3952.170	0.000	0.000
P1907801-005 0.1ml	7091.550	0.000	0.000
P1907801-006 0.1ml	10.460	0.000	0.000

LP
12/27

STD S32-05221901		89.407	95.301	95.003	13:09:49	1.05	0.00	0.00
ACTUAL		101.50	100.90	101.40				
%Difference		11.9%	5.5%	6.3%				

00097091

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 09:48:42
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 10:00:50 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

LD
12/27

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

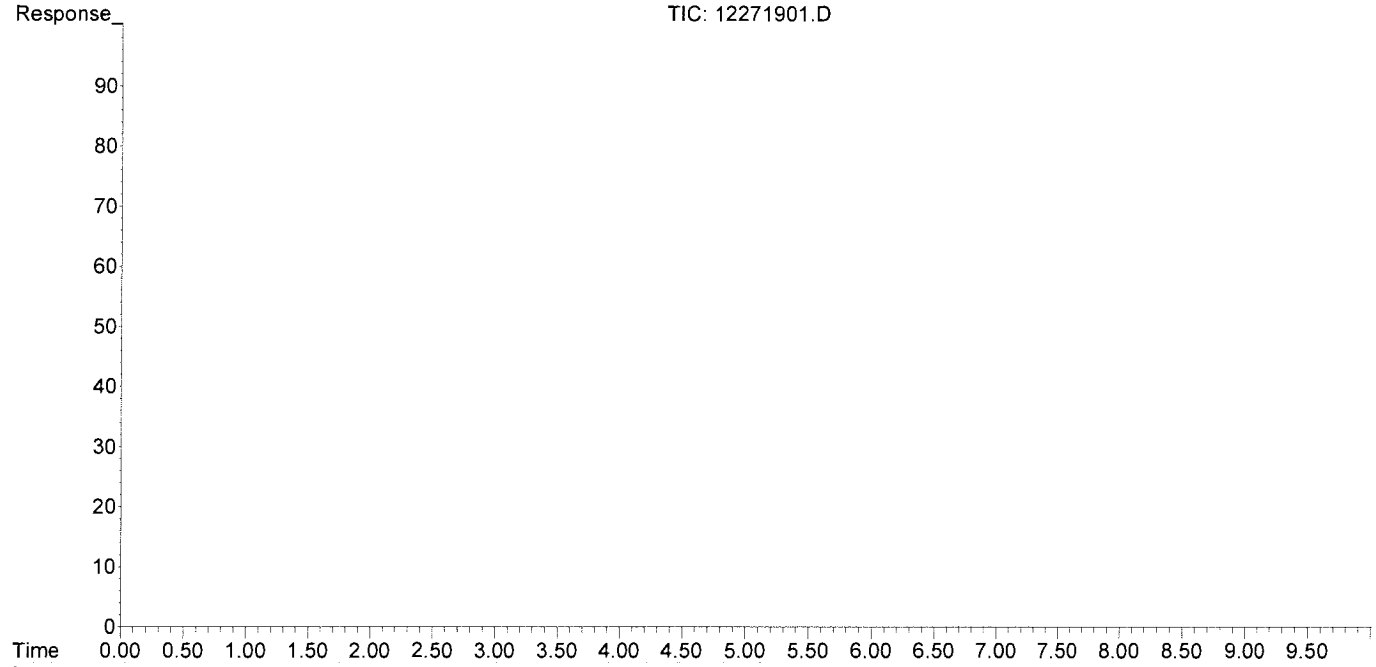
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.115	844300	93.081	ppm
7)	Ethylene	1.688	1653369	98.801	ppm
8)	Ethane	1.954	1659675	97.915	ppm
9)	Propylene	4.328	2406501	102.704	ppm
10)	Propane	4.451	2462578	98.977	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

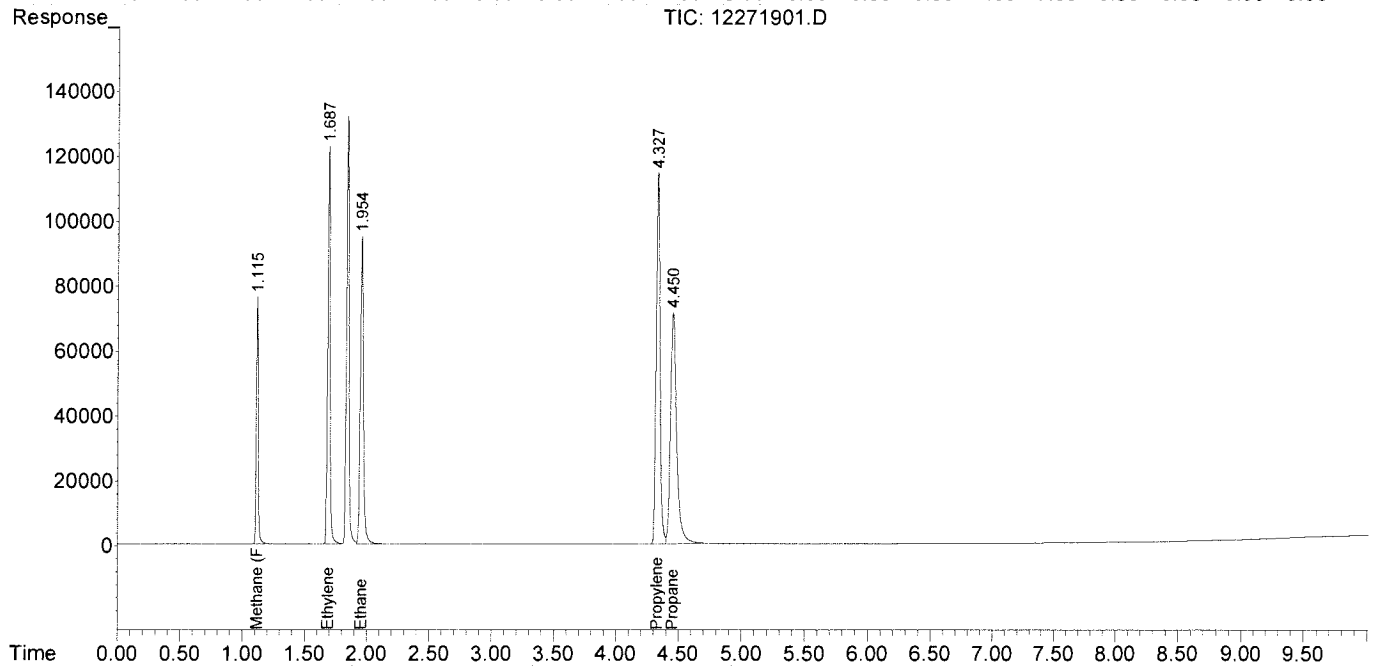
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 09:48:42
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 10:00:50 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 14:20:24
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:42:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

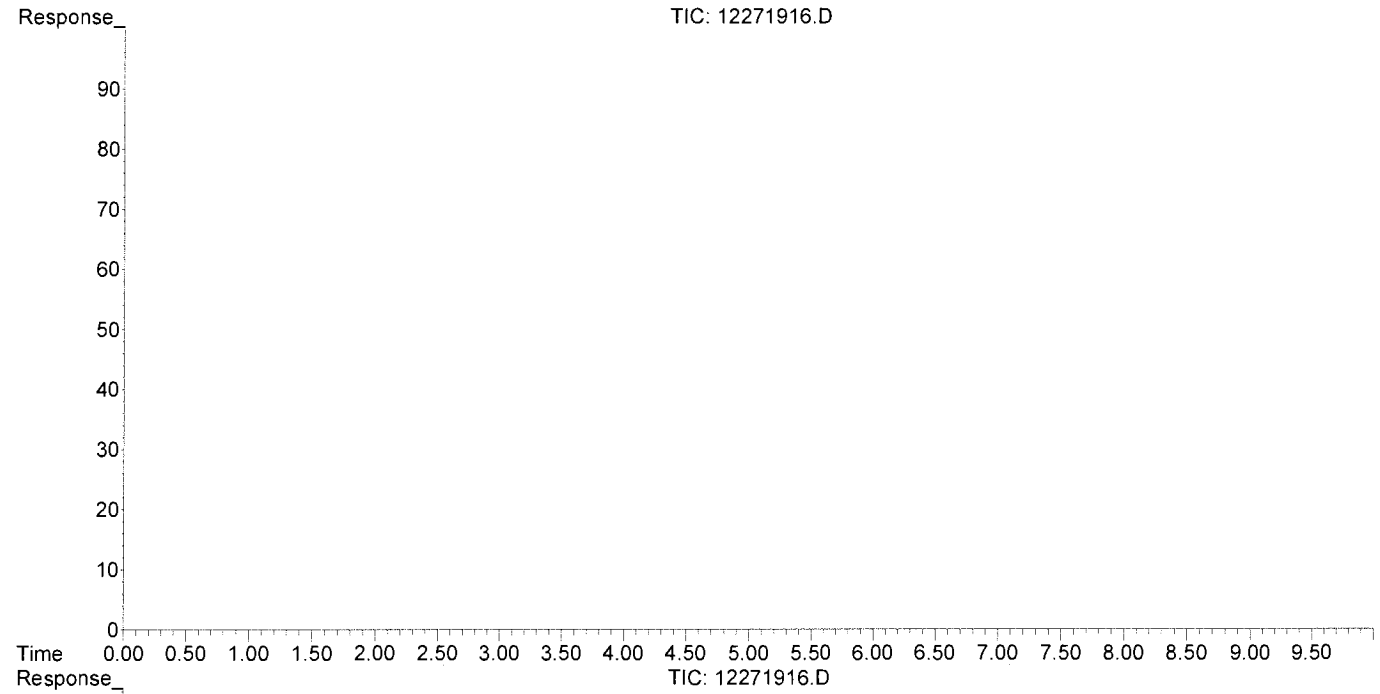
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	810977	89.407	ppm
7)	Ethylene	1.677	1594791	95.301	ppm
8)	Ethane	1.944	1610319	95.003	ppm
9)	Propylene	4.330	2329836	99.432	ppm
10)	Propane	4.454	2396821	96.334	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

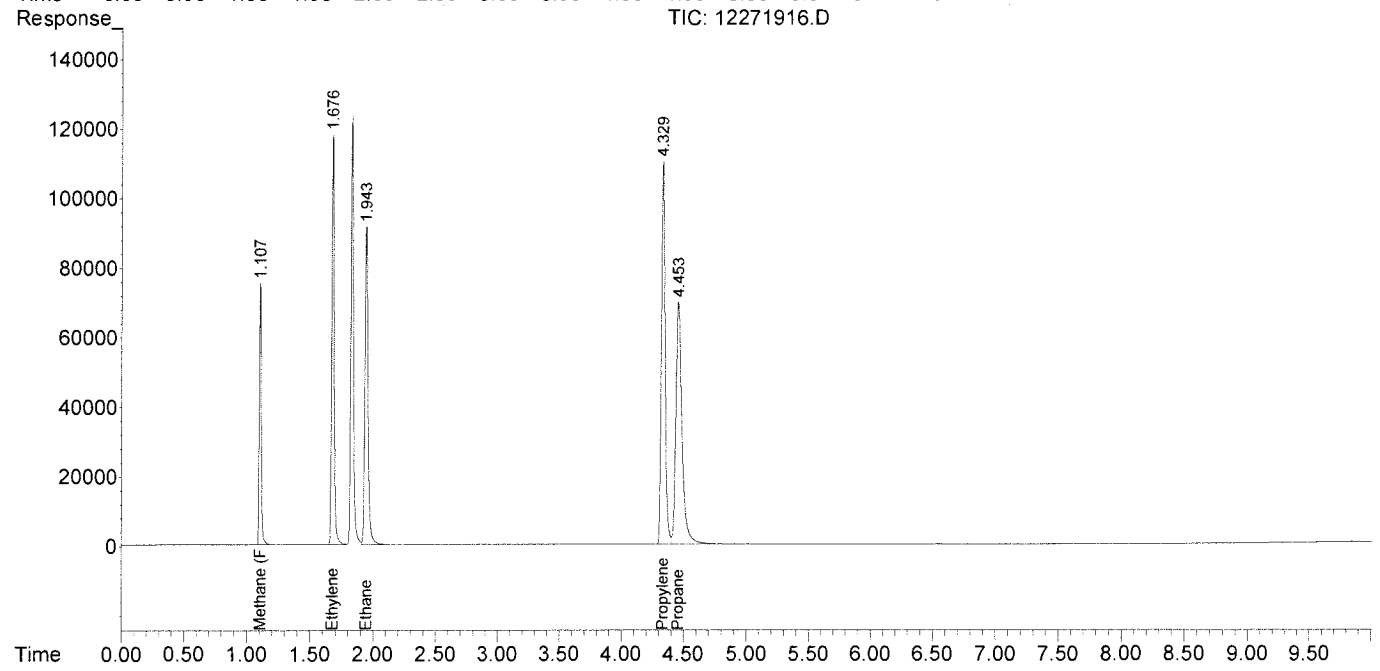
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_12\27\
Data File : 12271916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 27-Dec-2019, 14:20:24
Operator : LD
Sample : STD S32-05221901
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Dec 27 14:42:13 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :





Injection Log

Directory: I:\GC10\DATA\RSK_FID\2017_09\12\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	12-Sep-17, 08:38:08	09121701.D	test		MC	RSKBOTH.M	
2	12-Sep-17, 10:52:40	09121702.D	0.151ppm 0.250ml s32-09121702		MC	RSKBOTH.M	Curve
3	12-Sep-17, 11:05:49	09121703.D	0.302ppm 0.5ml s32-09121702		MC	RSKBOTH.M	Curve
4	12-Sep-17, 11:45:34	09121704.D	1.51ppm 0.1ml s32-09051701		MC	RSKBOTH.M	Curve
5	12-Sep-17, 12:09:33	09121705.D	4.53ppm 0.3ml s32-09051701		MC	RSKBOTH.M	Curve
6	12-Sep-17, 12:30:23	09121706.D	10.57ppm 0.7ml s32-09051701		MC	RSKBOTH.M	Curve
7	12-Sep-17, 12:47:18	09121707.D	200ppm 0.1ml s32-09121701		MC	RSKBOTH.M	Curve
8	12-Sep-17, 13:00:22	09121708.D	600ppm 0.3ml s32-09121701		MC	RSKBOTH.M	Curve
9	12-Sep-17, 13:47:48	09121709.D	1000ppm 0.5ml s32-09121701		MC	RSKBOTH.M	Curve
10	12-Sep-17, 14:07:58	09121710.D	2000ppm 1ml s32-09121701		MC	RSKBOTH.M	Curve
11	12-Sep-17, 14:48:48	09121711.D	4000ppm 0.1ml s32-08231701		MC	RSKBOTH.M	Curve
12	12-Sep-17, 15:21:51	09121712.D	20000ppm 0.5ml s32-08231701		MC	RSKBOTH.M	Curve
13	12-Sep-17, 15:38:59	09121713.D	mb 0.5ml		MC	RSKBOTH.M	Pass
14	12-Sep-17, 15:55:35	09121714.D	mb 0.1ml		MC	RSKBOTH.M	Pass
15	12-Sep-17, 16:15:26	09121715.D	icv s30-05241604		MC	RSKBOTH.M	Pass

Injection Log

12/31/19

Directory: I:\GC10\DATA\RSK_FID\2019_12\27\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	27-Dec-19, 09:48:42	12271901.D	STD S32-05221901		LD	RSKBOTH.M	pass
2	27-Dec-19, 10:03:03	12271902.D	RB 0.1ml		LD	RSKBOTH.M	pass
3	27-Dec-19, 11:17:39	12271903.D	MCS 0.1ml		LD	RSKBOTH.M	pass
4	27-Dec-19, 11:32:18	12271904.D	LCS S32-07231801		LD	RSKBOTH.M	pass
5	27-Dec-19, 11:45:51	12271905.D	LCSD S32-07231801		LD	RSKBOTH.M	pass
6	27-Dec-19, 12:00:50	12271906.D	P1907801-001 0.1ml		LD	RSKBOTH.M	
7	27-Dec-19, 12:15:29	12271907.D	P1907801-002 0.1ml		LD	RSKBOTH.M	
8	27-Dec-19, 12:29:32	12271908.D	P1907801-003 0.1ml		LD	RSKBOTH.M	
9	27-Dec-19, 12:42:33	12271909.D	P1907801-004 0.1ml		LD	RSKBOTH.M	
10	27-Dec-19, 12:56:28	12271910.D	P1907801-005 0.1ml		LD	RSKBOTH.M	
11	27-Dec-19, 13:09:49	12271911.D	P1907801-006 0.1ml		LD	RSKBOTH.M	
12	27-Dec-19, 13:26:26	12271912.D	P1907802-001 0.1ml		LD	RSKBOTH.M	
13	27-Dec-19, 13:40:35	12271913.D	P1907802-002 0.1ml		LD	RSKBOTH.M	
14	27-Dec-19, 13:54:12	12271914.D	P1907802-003 0.1ml		LD	RSKBOTH.M	
15	27-Dec-19, 14:07:18	12271915.D	P1907802-004 0.1ml		LD	RSKBOTH.M	
16	27-Dec-19, 14:20:24	12271916.D	STD S32-05221901		LD	RSKBOTH.M	pass
17	27-Dec-19, 14:33:31	12271917.D	P1907802-005 0.1ml		LD	RSKBOTH.M	
18	27-Dec-19, 14:46:47	12271918.D	xxxxSTD S32-05221901		LD	RSKBOTH.M	fail
19	27-Dec-19, 15:04:44	12271919.D	STD S32-05221901		LD	RSKBOTH.M	pass

00997098

REPORT TO:

Name: MARCIA OLIVE
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Project Manager: Kim Nemmers
Project Name: LHAAP-58
Project No.: NW01312.0150

INVOICE TO: (For Invoices paid by a third party it is imperative that all information be provided)

Name:
Company:
Address:
email:
Phone:
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Purchase Order No.
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MI Quote No.

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Please Check One:
☑ More samples to follow
☐ No Additional Samples

Report Type: ☑ Standard (default) ☐ Microbial Insights Level III raw data(15% surcharge) ☐ Microbial Insights Level IV (25% surcharge) ☐ Comprehensive Interpretive(15%) ☐ Historical Interpretive (30%)

EDD type: ☐ Microbial Insights Standard (default) ☐ All other available EDDs (5% surcharge) Specify EDD Type:

Please contact us with any questions about the analyses or filling out the COC at (865) 573-8188 (9:00 am to 5:00 pm EST, M-F). After hours email: customerservice@microbe.com

Sample Information					Analyses					CENSUS: Please select the target organism/gene																						
MI ID (Laboratory Use Only)	Sample Name	Date Sampled	Time Sampled	Matrix	PLFA	DGGE+3ID	DGGE+5ID	QuantArray Chlor	QuantArray Petro	DHC (Dehalococcoides)	DHC Functional genes (vcr, tca, ver)	DHBt (Dehalobacter)	DSM (Desulfuromonas)	DSB (Desulfitobacterium)	EBAC (Total)	SRB (Sulfate Reducing Bacteria-APS)	MGN (Methanogens)	MOB (Methanotrophs)	SMMO	DNF (Denitrifiers-nirS and nirK)	AOB (ammonia oxidizing bacteria)	PM1 (MTBE aerobic)	RMO (Toluene Monooxygenase)	RDEG (Toluene Monooxygenase)	PHE (Phenol Hydroxylase)	NAH (Napthalene-aerobic)	BSSA (Toluene/Xylene-Anaerobic)	add. qPCR:	add. qPCR:	RNA (Expression Option)*	Other:	Other:	Other:
084QL 1	03MW01_121819	12/18/19	0900	WG							X	X																				
2	35AMW09_121819	12/18/19	0955	WG							X	X																				
3	35AMW11_121819	12/18/19	1050	WG							X	X																				
4	35AMW23_121819	12/18/19	1145	WG							X	X																				
5	35AMW19_121819	12/18/19	1240	WG							X	X																				

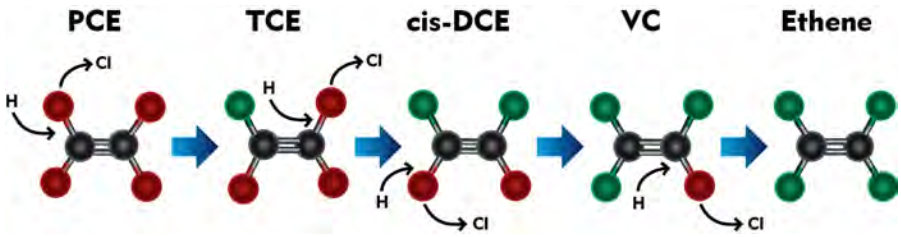
Relinquished by: Sean Bessing 12/18/19 1430 Received by: [signature] Date 12/19/19

It is vital that chain of custody is filled out correctly & that all relative information is provided.
Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable.

DHC Interpretation

Dehalococcoides 16S rRNA gene (qDHC)

Under anaerobic conditions, tetrachloroethene (PCE) and trichloroethene (TCE) can undergo sequential reductive dechlorination through the daughter products *cis*-dichloroethene (*cis*-DCE) and vinyl chloride to nontoxic ethene (1,2).



While a number of bacterial cultures capable of utilizing PCE and TCE as growth supporting electron acceptors have been isolated (3-7), *Dehalococcoides* spp. may be the most important because they are the only bacterial group that has been isolated to date which is capable of complete reductive dechlorination of PCE to ethene (8). In fact, the presence of *Dehalococcoides* spp. has been associated with complete dechlorination to ethene at sites across North America and Europe (9).

Status	*Dehalococcoides spp.*	Observation
	≥ 10^4 (cells/mL)	Lu et al. proposed that a concentration of 1 x 10^4 DHC cells/mL could be used as a screening criterion to identify sites where reductive dechlorination will yield a generally useful biodegradation rate (10). Similarly, in an internal study conducted with nearly 1000 groundwater samples obtained from sites across the US, ethene production was observed in approximately 80% of samples in which CENSUS® qDHC results were greater than or equal to 10^4 DHC cells/mL.
	10^1 to < 10^4 (cells/mL)	When vinyl chloride reductase genes (See DHC functional genes discussion below) are also detected, complete reductive dechlorination of PCE and TCE to ethene may still occur even with moderate DHC concentrations. When the DHC population is below the 10^4 cells/mL criterion proposed by Lu et al. (10), project managers should carefully consider other site-specific data to determine whether subsurface conditions may be limiting reductive dechlorination. For example, the addition of an electron donor may be able to stimulate DHC growth and enhance anaerobic bioremediation.
	< 10^1 (cells/mL)	DHC concentrations are low suggesting that complete reductive dechlorination of PCE and TCE to ethene is unlikely to occur under existing conditions. Enhanced anaerobic bioremediation options (biostimulation or bioaugmentation) may need to be considered.

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DHC Interpretation

DHC Functional Genes (*tce*A, *bvc*A, *vcr*A)

A "stall" where daughter products *cis*-DCE and vinyl chloride accumulate can occur at PCE- and TCE-impacted sites especially under MNA conditions. The accumulation of vinyl chloride, generally considered more carcinogenic than the parent compounds, is particularly problematic. Although elevated *Dehalococcoides* concentrations correspond to ethene production in numerous studies, the range of chlorinated ethenes metabolized and cometabolized varies among species and strains within the *Dehalococcoides* genus. For example, *Dehalococcoides ethenogenes* str. 195 metabolizes PCE, TCE, and *cis*-DCE and cometabolizes vinyl chloride (8) to produce ethene. Conversely, *Dehalococcoides* sp. CBDB1 utilizes PCE and TCE but does not cometabolize additional chloroethenes (11). Other *Dehalococcoides* strains, such as BAV1, GT and VS, are known to fully dechlorinate cis-DCE and VC to ethene (14,16,19). Quantification of reductive dehalogenase genes is used to more definitively confirm the potential for reductive dechlorination of TCE, cis-DCE, and vinyl chloride (12-15).

Functional Gene	Observation
TCE Reductase	
***tce*A gene**	The *tce*A gene encodes the enzyme responsible for reductive dechlorination of TCE to *cis*-DCE in some strains of *Dehalococcoides*. Absence of *tce*A does not preclude the potential for reductive dechlorination of TCE in the field since the *tce*A gene is not universally distributed among all DHC and is not present in other microorganisms capable of reductive dechlorination of TCE (e.g. *Dehalobacter*). Detection of the *tce*A gene provides an additional line of evidence indicating the potential for dechlorination of TCE.
Vinyl Chloride Reductase	
***bvc*A gene**	The *bvc*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of vinyl chloride to ethene by *Dehalococcoides* sp. str. BAV1 (16). Presence of *bvc*A gene indicates the potential for reductive dechlorination of VC to ethene. Absence of both *bvc*A and *vcr*A genes suggests VC may accumulate. An internal study with ~1,000 samples showed ethene production was observed in 80% of the samples that the DHC population was greater than or equal to 10^4 cells/mL. The *bvc*A gene was detected in over 50% of these samples. Van Der Zaan et al (17) noted that the bvcA gene was the only VC reductase gene detected at three of their sites. Alfred Spormann's laboratory at Stanford University (18) reported that the *bvc*A gene was the most abundant and active at the outflow of a PCE fed column study. This section of the column was in the DCE to VC stages of reductive dechlorination thus confirming the importance of the *bvc*A gene for complete reductive dechlorination.
***vcr*A gene**	The *vcr*A gene encodes the vinyl chloride reductase enzyme responsible for reductive dechlorination of *cis*-DCE and vinyl chloride by *Dehalococcoides* sp. strain VS (14). Presence of *vcr*A gene indicates the potential for reductive dechlorination of DCE and/or VC to ethene. Absence of both *bvc*A and *vcr*A genes suggest VC may accumulate. As with the *bvc*A gene, detection of the *vcr*A gene is associated with ethene production in internal studies (67%) and vinyl chloride reduction in independent studies (14, 17).

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DHC Interpretation

Reporting

Microbial Insights can provide a variety of data packages and reporting levels to suit the needs of any project. Data packages range from simple analytical reports with results only to more complex data packages that include a report narrative, analytical results, QC data, and supporting materials including all raw data and chain-of-custody documentation. The figure below shows our standard report and explains the way values are reported.

Microbial Insights, Inc.

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CENSUS

Client: Company Name
Project: Your Project Name

MI Project Number: Unique Laboratory Identifier
Date Received: Date Samples Arrived

Sample Information

Client Sample ID:		Sample A	Sample B	Sample C
Sample Date:		00/00/0000	00/00/0000	00/00/0000
Units:		cells/mL	cells/mL	cells/mL
Analyst:		Intials	Intials	Intials
Dechlorinating Bacteria				
Dehalococcoides spp.	DHC	**1.84E+05**	**2.76E+02**	**2.28E+01 (J)**
Functional Genes				
tceA Reductase	TCE	**6.00E+01**	**3.23E+01**	<4.00E-01
bvcA Reductase	BVC	**1.17E+04**	**1.81E+01**	<4.00E-01
vcrA Reducatase	VCR	**8.42E+04**	**1.74E+02**	<4.00E-01

"J" value
Result is an estimated value. This data qualifier (flag) is used when the target gene is detected but at a concentration or abundance below the practical quantification limit (PQL).

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

< value
The target gene was not detected at the limit of quantitation (LOQ) reported for that sample.

"I" value
QA Procedure indicated that the sample may have exhibited PCR inhibition. Although relatively rare, PCR inhibition can occur due to the presence of metals or humic acids at high concentrations in the sample.

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Quality Assurance

Microbial Insights' comprehensive Quality Assurance (QA) Program is the foundation of all laboratory analyses, ensuring that our clients receive high-quality analytical services that are timely, reliable, and meet their intended purpose in a cost effective manner. MI is committed to providing quality data that surpasses regulatory and industry standards, thus enabling the client to make well-informed decisions. MI maintains strict standard operating procedures and QA/QC measures throughout all of the analyses offered. The following Table details specific QA/QC procedures that are used for CENSUS.

QA/QC	Description
Date of Extraction	DNA and RNA extractions are performed the day the samples are received by MI to minimize the possibility of any changes to the microbial community prior to analysis.
Laboratory Method Blanks	An extraction blank (no sample added) is processed alongside each set of field samples from DNA extraction through CENSUS® analysis to ensure that cross contamination has not occurred. Although MI has never experienced this issue, the detection of the CENSUS® target (e.g. *Dehalococcoides*) in an extraction blank is direct evidence of cross contamination with a sample or contamination of a reagent and would invalidate the results. If this were to occur, MI would re-extract the sample. If not possible to re-extract, MI would contact the client immediately and notate it on the laboratory report.
Laboratory Control Samples (LCS)	A laboratory control sample (LCS) or positive control (target DNA) is included with each CENSUS® plate to confirm amplification and as a continuing calibration check.
Negative Controls	A negative control (no DNA) is included with each CENSUS plate to ensure that cross contamination has not occurred during amplification. As with the extraction blank, detection of CENSUS target (e.g. DHC) in a negative control is direct evidence of contamination and would invalidate the results. If this were to occur, MI would rerun the analysis.

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How to Retrieve and Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database

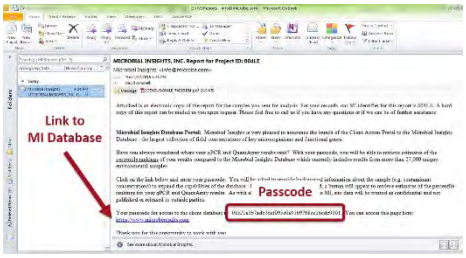
The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 40,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide.

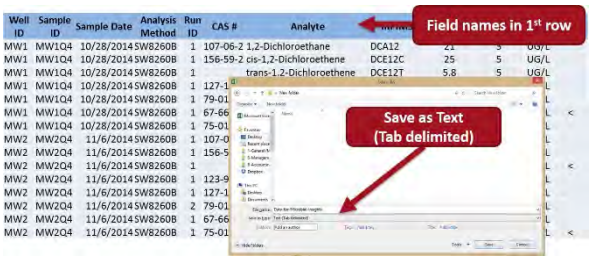
Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. The estimated percentile ranks retrieved from the MI Database answer the question "Is that low, medium or high?" by comparing your results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Retrieving Estimated Percentile Ranks

With your report, you were emailed a passcode and link enabling you to login to the Client Portal. Just enter basic information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations and you can retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge.





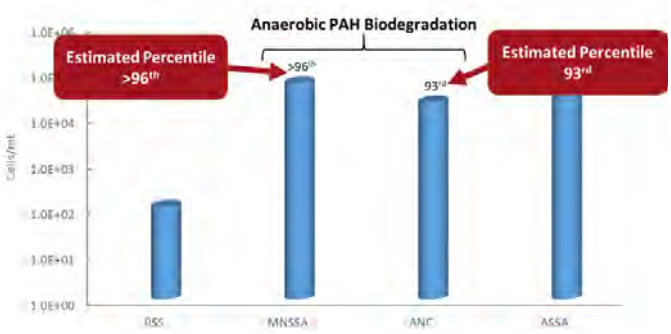
All site specific data will be treated as confidential and uploading is easy.

You can even upload chemical and geochemical data from EDDs. Just save as a Tab Delimited text file.

Example - Using Estimated Percentile for MNA Assessment at an MGP Site

CENSUS® qPCR was performed to quantify anaerobic naphthalene carboxylase (ANC) and naphthyl-2-methylsuccinate synthase (MNSSA) to assess anaerobic biodegradation of naphthalene and methyl-naphthalene under existing site conditions.

- Not only were ANC and MNSSA genes detected, but these functional genes responsible for anaerobic biodegradation of PAHs were present at concentrations "far better than average" based on the estimated percentile ranks.
- Demonstrating high concentrations of ANC and MNSSA gave an additional line of evidence indicating growth substantial populations of anaerobic PAH degraders and suggested a greater probability that monitored natural attenuation (MNA) will be successful.



How to Use Estimated Percentile Ranks from the Microbial Insights Database

The MI Database and Client Portal

The Microbial Insights Database is the largest collection of field concentrations of key microorganisms and functional genes currently containing qPCR and QuantArray results for more than 32,000 unique groundwater, soil, and sediment samples from all 50 states and 33 countries worldwide. Driven by field samples, the database reflects the impacts of common contaminants, geochemical conditions, and site management practices on critical microbial populations.

With your report, you received a passcode enabling you to retrieve estimates of the percentile ranks of your results based on those compiled in the MI database at no additional charge. When accessing the database, you will be asked to provide background information about the sample (e.g. contaminant concentrations) to aid in understanding the links between environmental conditions and microbial populations. As with all client information provided to MI, site specific data will be treated as confidential.

Is that low, medium or high?

In practice, biodegradation depends not just on the presence but the actual concentrations of the contaminant degrading microorganisms. Simply put, qPCR and QuantArray results demonstrating high concentrations of target microorganisms or functional genes suggest in situ selection, enrichment and growth of those specific contaminant degraders and therefore a greater probability that monitored natural attenuation (MNA) or bioremediation will be successful.

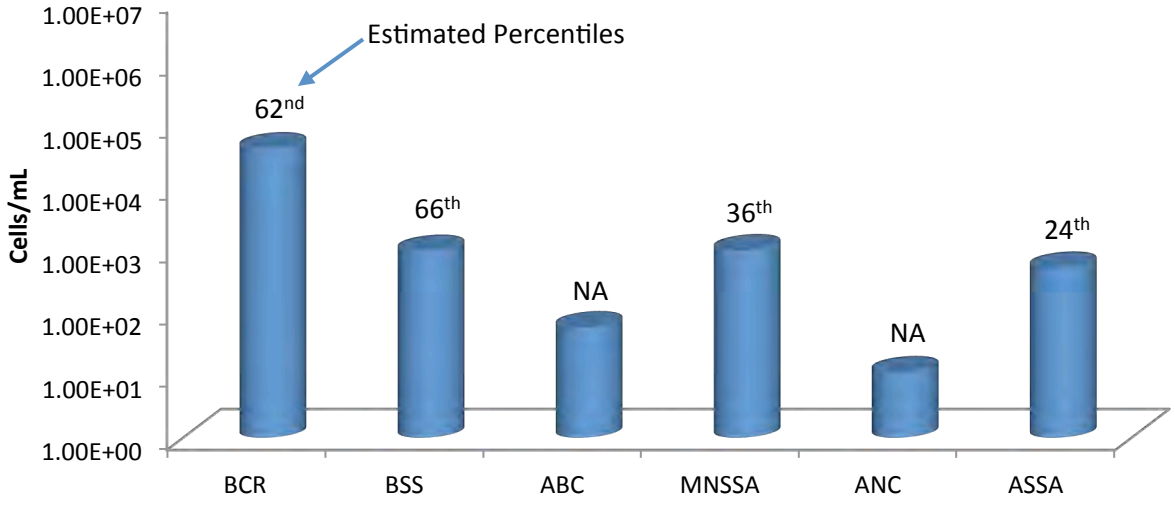
Is that a low, medium, or high concentration? The estimated percentile ranks retrieved from the MI Database answer that question by comparing your qPCR and QuantArray results to those of the literally thousands of other environmental samples submitted to MI for analysis over the last 20+ years.

Using the Estimated Percentile - Interpretation Examples

MNA Assessment – Petroleum Hydrocarbon Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between samples obtained from background and impacted wells. The estimated percentile ranks however provide an additional avenue for comparison and evaluation of treatment options as shown below.

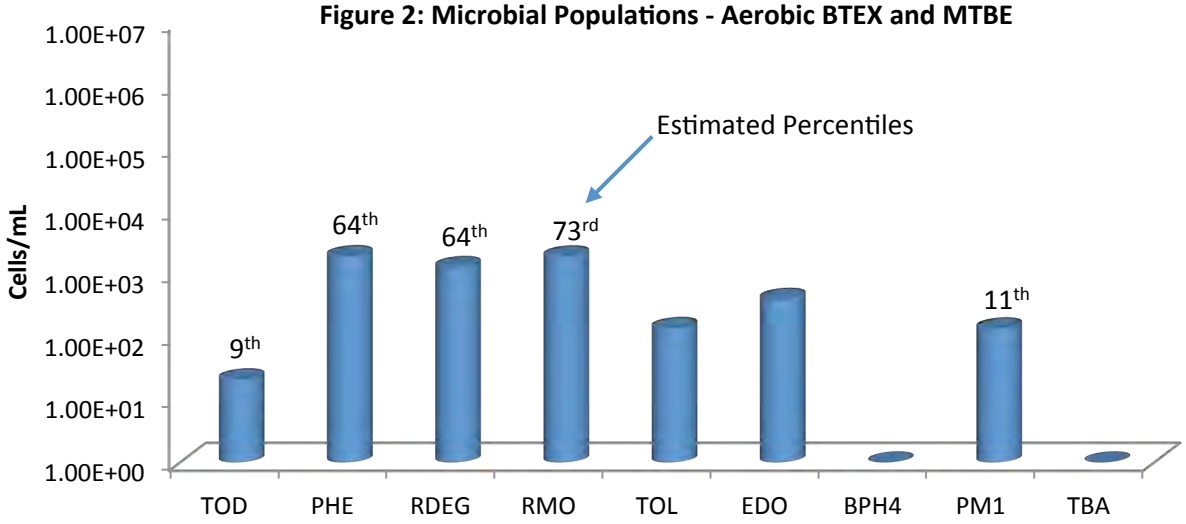
Figure 1: Microbial Populations - Anaerobic BTEX and PAHs



Anaerobic BTEX and PAH Biodegradation (Figure 1):

- With moderate concentrations of functional genes involved in anaerobic BTEX metabolism detected, the QuantArray-Petro® results were encouraging in terms of evaluating biodegradation potential under existing site conditions.
- More specifically, benzylsuccinate synthase (BSS) was detected on the order of nearly 10^3 cells/mL indicating the presence of a substantial population (66^{th} percentile) capable of anaerobic biodegradation of toluene and other alkyl substituted benzenes.
- Naphthyl-2-methylsuccinate synthase (MNSSA) and alkylsuccinate synthase (ASSA) genes were also detected indicating the potential for anaerobic biodegradation of 2-methylnaphthalene and normal alkanes.
- The concentration of MNSSA genes would be considered modest with an estimated percentile of 36^{th}.
- While the percentile rank for MNSSA would be "below average", a number of additional factors should be considered.
    - First, anaerobic hydrocarbon degraders are less prevalent than aerobic BTEX degraders and overall detection frequencies for many genes involved in anaerobic hydrocarbon biodegradation are less than 50%.
    - Therefore, the detection of genes like BSS, MNSSA, ASSA, anaerobic benzene carboxylase (ABC), and anaerobic naphthalene carboxylase (ANC) even at low concentrations is certainly noteworthy and inherently "better than average".
    - The estimated percentiles for all assays are based only on samples where the concentration of the target gene was greater than the practical quantitation limit (PQL).
    - For less commonly detected targets like many of the genes involved in anaerobic hydrocarbon biodegradation this is an especially important consideration.
    - Excluding samples where a gene target is below the PQL ensured that the median concentrations of less commonly detected targets would not be unduly biased low by the fact that the gene is not detected in most samples.
- Anaerobic benzene carboxylase (ABC) and naphthalene carboxylase (ANC) genes were also detected indicating the presence of bacterial populations capable of anaerobic biodegradation of benzene and naphthalene.
- For newly identified genes like ABC and ANC, estimated percentile ranks are not yet available due to the limited number of field samples that have been analyzed to date.
- However, like MNSSA and other genes involved in anaerobic hydrocarbon biodegradation, ABC and ANC detection frequencies are relatively low so the detection of these genes even at low concentrations should be considered when evaluating biodegradation potential under existing site conditions.

Figure 2: Microbial Populations - Aerobic BTEX and MTBE



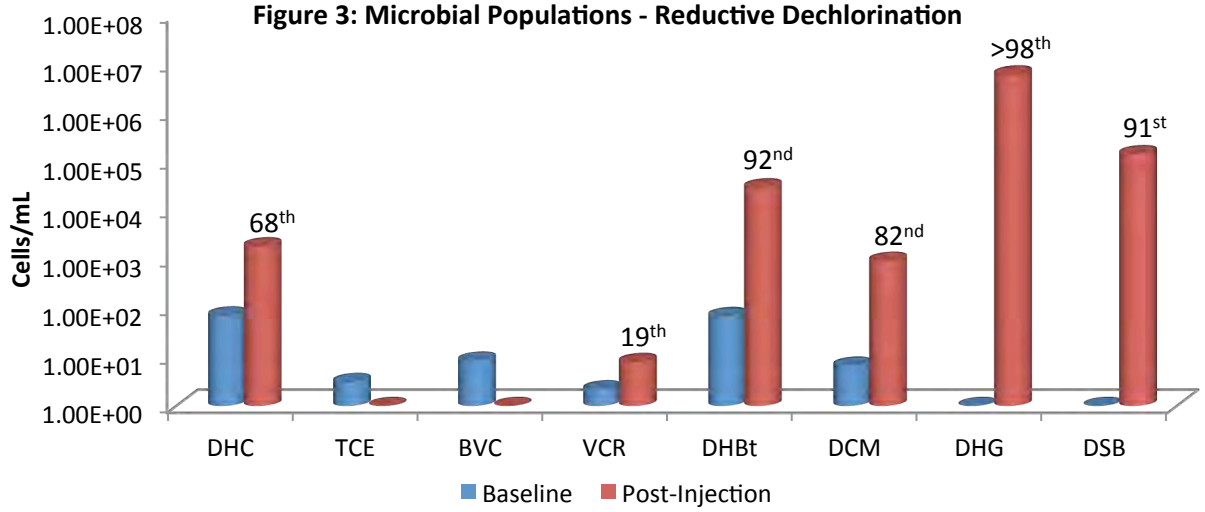
Aerobic BTEX and MTBE Biodegradation (Figure 2):

- With growing evidence that aromatic oxygenases function at low dissolved oxygen concentrations, aerobic BTEX biodegradation pathways should also be evaluated when considering MNA.
- Again, the QuantArray-Petro results were encouraging – genes encoding the first step in multiple pathways for aerobic BTEX biodegradation were detected indicating the presence of a diverse population of aerobic BTEX degraders.
- However, aerobic BTEX degraders are often considered ubiquitous. Therefore answering the question "Is that low, medium or high?" becomes especially important when evaluating aerobic BTEX biodegradation at petroleum hydrocarbon sites.
- In this case, the estimated percentile ranks of the concentrations of toluene/benzene monooxygenase (RMO and RDEG) and phenol hydroxylase (PHE) genes ranged from the 64th to 73rd percentile.
- In other words, the concentrations of RMO, RDEG, and PHE detected in this groundwater sample were greater than the concentrations detected in 64% to 73% of all other groundwater samples where these genes were analyzed and detected above the PQL.
- Aerobic BTEX degraders are common in the environment, but in this sample concentrations of toluene/benzene monooxygenase genes could be viewed as "better than average" when compared to the MI Database.

Biostimulation – Chlorinated Solvent Site:

Whenever possible, interpretation of qPCR and QuantArray results should include comparisons between baseline and post-injection monitoring events as shown below (Figure 3). The estimated percentile ranks however provide an additional avenue for comparison and evaluation of remedy performance.

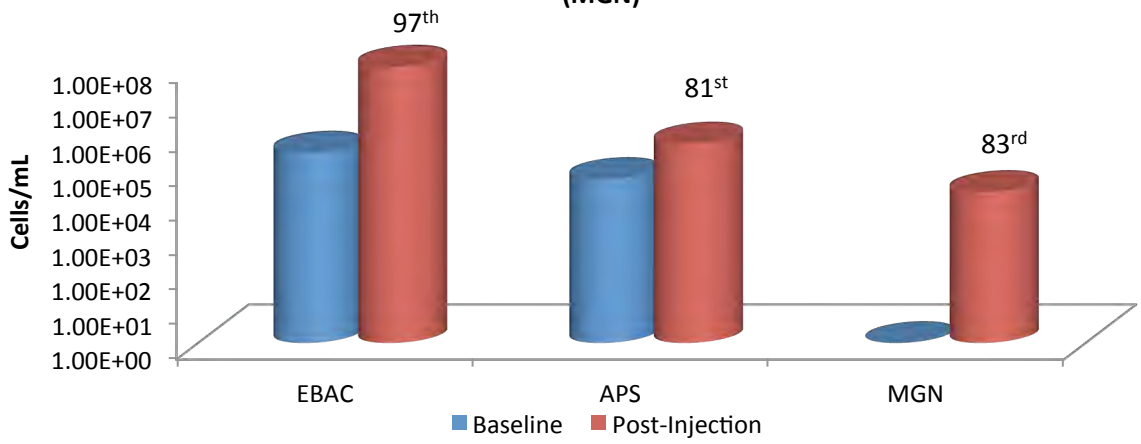
Figure 3: Microbial Populations - Reductive Dechlorination



- During the baseline groundwater sampling event, *Dehalococcoides* and vinyl chloride reductase genes were detected indicating the potential for complete reductive dechlorination of PCE and TCE to ethene.
- However, the *Dehalococcoides* concentration was well below the 10^4 cells/mL recommended by Lu et al. (2006) for generally effective rates of reductive dechlorination.
- Based on qPCR results as well as traditional groundwater monitoring, biostimulation with electron donor addition was selected as the site management plan.
- By the first monitoring event after injection, populations of halorespiring bacteria had increased substantially in response to electron donor addition.
    - *Dehalobacter* populations increased by more than two orders of magnitude to post-injection concentrations greater than 10^4 cells/mL (92^{nd} percentile).
    - *Dehalogenimonas* (10^6 cells/mL) and *Desulfitobacterium* (10^5 cells/mL) which had not been detected prior electron donor addition were present at concentrations greater than observed in over 90% of other groundwater samples where these halorespiring bacteria were detected.
- After injection, *Dehalococcoides* populations increased by more than an order of magnitude to a concentration of over 10^3 cells/mL (68^{th} percentile) demonstrating growth of this key group of halorespiring bacteria.
- Despite a substantial increase and a "better than average" concentration, the *Dehalococcoides* population was still below the 10^4 cells/mL threshold and vinyl chloride reductase gene copies were low (19^{th} percentile).
    - In terms of electron donors and acceptors, the metabolic capabilities of *Dehalococcoides* are rather specialized (hydrogen utilizing obligate halorespiring bacteria) so the median concentration is low. With a low median concentration across the database, a "better than average" *Dehalococcoides* concentration in a given sample may not exceed the 10^4 cells/mL threshold established for effective reductive dechlorination (Lu et al. 2006) and ethene production (Microbial Insights, unpublished data).

- In this case, the initial growth of *Dehalococcoides* was substantial but may have been somewhat hindered by competition with sulfate reducing bacteria (Figure 4 below).
    - The baseline population of sulfate reducing bacteria was moderate (10^4 cells/mL; 63rd percentile). Consistent with an observed decreased in dissolved sulfate concentrations, populations of sulfate reducing bacteria increased and were detected at a relatively high concentration (81st percentile) after electron donor addition.
    - After injection, methanogen populations also increased to a relatively high concentration (83rd percentile) suggesting generation of methanogenic conditions.
- With sulfate depletion and generation of highly anaerobic conditions more conducive to reductive dechlorination, *Dehalococcoides* populations may continue to increase and exceed the 10^4 *Dehalococcoides* cells/mL threshold in subsequent monitoring events.
- Overall, QuantArray analysis conclusively demonstrated that electron donor addition stimulated growth of halorespiring bacteria with the estimated percentiles retrieved from the MI Database providing the "low, medium or high" perspective to the observed changes in microbial populations.

Figure 4: Total Bacteria (EBAC), Sulfate Reducering Bacteria (APS) and Methanogens (MGN)



References

Lu, X., J.T. Wilson, and D.H. Kampbell. 2006. Relationship between *Dehalococcoides* DNA in ground water and rates of reductive dechlorination at field scale. *Water Research* 40 no. 16: 3131-3140.

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Knoxville, TN 37932
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Fax: (865) 573-8133

Client: RJ Modashia
ALS Laboratory Group
10450 Stancliff Rd
Suite 210
Houston, TX 77040

Phone: 281-575-2279

Fax:

Identifier: 084QL **Date Rec:** 12/19/2019 **Report Date:** 12/26/2019

Client Project #: NW01312.0150 **Client Project Name:** LHAAP-58

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **ALS Laboratory Group**
Project: LHAAP-58

MI Project Number: **084QL**
Date Received: 12/19/2019

Sample Information

Client Sample ID:		**03WW01_121819**	**35AWW09_121819**	**35AWW11_121819**	**35AWW23_121819**	**35AWW19_121819**
Sample Date:		12/18/2019	12/18/2019	12/18/2019	12/18/2019	12/18/2019
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst/Reviewer:		HT	HT	HT	HT	HT
Dechlorinating Bacteria						
Dehalococcoides	*DHC*	**2.22E+04**	**2.40E+06**	**9.00E+02**	**6.89E+02**	**1.48E+01**
tceA Reductase	TCE	**5.95E+02**	**3.77E+05**	**6.70E+00**	**2.96E+01**	**3.00E-01 (J)**
BAV1 Vinyl Chloride Reductase	BVC	**7.00E-01**	<2.60E+00	<6.00E-01	**4.00E-01 (J)**	<5.00E-01
Vinyl Chloride Reductase	VCR	**6.08E+03**	**3.30E+05**	**9.97E+01**	**6.98E+01**	**6.00E-01**
Dehalobacter spp.	*DHBt*	**2.48E+03**	**4.25E+04**	**2.13E+05**	<5.60E+00	**1.22E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

Quality Assurance/Quality Control Data

Samples Received **12/19/2019**

Component	Date Prepared	Date Analyzed	Arrival Temperature	Positive Control	Extraction Blank	Negative Control
BVC	12/19/2019	12/26/2019	0 °C	109%	non-detect	non-detect
DHBt	12/19/2019	12/26/2019	0 °C	115%	non-detect	non-detect
DHC	12/19/2019	12/26/2019	0 °C	114%	non-detect	non-detect
TCE	12/19/2019	12/26/2019	0 °C	105%	non-detect	non-detect
VCR	12/19/2019	12/26/2019	0 °C	108%	non-detect	non-detect

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January 09, 2020

Analytical Report for Service Request No: K1911998

RJ Modashia
ALS Laboratory Group
10450 Stancliff Road
Suite 210
Houston, TX 77099-4338

RE: HS19121092

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory December 20, 2019
For your reference, these analyses have been assigned our service request number **K1911998.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy

Kelley Lovejoy
Project Manager

RIGHT SOLUTIONS | RIGHT PARTNER

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    General Chemistry

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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Client: ALS Environmental - US
Project: HS19121092
Sample Matrix: Ground Water

Service Request: K1911998
Date Received: 12/20/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Six ground water samples were received for analysis at ALS Environmental on 12/20/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

Method SM 5310 C, 01/01/2020:The Relative Percent Difference (RPD) for the analysis of Total Organic Carbon in sample batch QC K1912042-005 was outside the normal ALS control limits (14% RPD versus a control limit of 10%). The associated QA/QC results (e.g. control sample, method blank, calibration standards, etc.) indicate the analysis was in control. No further corrective action was appropriate.

Approved by Kelley Lovejoy Date 01/09/2020

Chain of Custody

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ALS Copy.

KL1911998

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Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **12918**

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:	HS19121092
TSR:	Danielle Winnings

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19121092-01**	**35AWW09_121819**	**Groundwater**	**18 Dec 2019 08:00**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019
2.	**HS19121092-02**	**03WW01_121819**	**Groundwater**	**18 Dec 2019 09:00**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019
3.	**HS19121092-03**	**35AWW08_121819**	**Groundwater**	**18 Dec 2019 09:55**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019
4.	**HS19121092-04**	**35AWW11_121819**	**Groundwater**	**18 Dec 2019 10:50**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019
5.	**HS19121092-05**	**35AWW23_121819**	**Groundwater**	**18 Dec 2019 11:45**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019
6.	**HS19121092-06**	**35AWW19_121819**	**Groundwater**	**18 Dec 2019 12:40**
	TOC Analysis for DOD Level IV/Excel EDD			30 Dec 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Recd 12/20/19 1000

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **12918**

Relinquished By: _____ Date/Time: 12.19.19 18:00

Received By: _____ Date/Time: 12/20/19 1000

Cooler ID(s): _____ Temperature(s): _____

PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request K19 11998

Received: 12/20/19 Opened: 12/20/19 By: CG Unloaded: 12/20/19 By: CG

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 Front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.1	-0.2	1.0	0.9	-0.1	374	12918	1251 0293 0639	

4. Packing material: *Inserts* (*Baggies*) *Bubble Wrap* *Gel Packs* (*Wet Ice*) *Dry Ice* *Sleeves*
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

RUSH

General Chemistry

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project:	HS19121092	**Date Collected:**	12/18/19
Sample Matrix:	Ground Water	**Date Received:**	12/20/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Carbon, Total Organic

Sample Name	Lab Code	Result	LOQ	LOD	MDL	Dil.	Date Analyzed	Q
35AWW09_121819	K1911998-001	**2.96**	0.50	0.20	0.07	1	12/31/19 22:45	
03WW01_121819	K1911998-002	**92**	50	20	7	100	12/31/19 23:14	
35AWW08_121819	K1911998-003	**291**	25	10	4	50	01/07/20 19:36	
35AWW11_121819	K1911998-004	**9.94**	0.50	0.20	0.07	1	01/01/20 00:10	
35AWW23_121819	K1911998-005	**127**	25	10	4	50	01/01/20 01:07	
35AWW19_121819	K1911998-006	**1.75**	0.50	0.20	0.07	1	01/01/20 01:35	
Method Blank	K1911998-MB1	ND U	0.50	0.20	0.07	1	12/31/19 21:04	
Method Blank	K1911998-MB2	ND U	0.50	0.20	0.07	1	01/07/20 18:52	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project	HS19121092	**Date Collected:**	12/18/19
Sample Matrix:	Ground Water	**Date Received:**	12/20/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	LOQ	LOD	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
Batch QC	K1911934-002DUP	0.50	0.20	0.07	0.80	0.63	0.715	23 #	10	01/01/20
Batch QC	K1911980-001DUP	0.50	0.20	0.07	3.94	3.92	3.93	<1	10	01/01/20
Batch QC	K1911981-001DUP	0.50	0.20	0.07	3.51	3.50	3.50	<1	10	01/01/20
Batch QC	K1911995-001DUP	0.50	0.20	0.07	2.19	2.23	2.21	2	10	12/31/19
35AWW09_121819	K1911998-001DUP	0.50	0.20	0.07	2.96	2.86	2.91	3	10	12/31/19
03WW01_121819	K1911998-002DUP	50	20	7	92	88	89.6	5	10	12/31/19
35AWW08_121819	K1911998-003DUP	25	10	4	291	288	290	<1	10	01/07/20
35AWW11_121819	K1911998-004DUP	0.50	0.20	0.07	9.94	9.77	9.86	2	10	01/01/20
35AWW23_121819	K1911998-005DUP	25	10	4	127	125	126	2	10	01/01/20
35AWW19_121819	K1911998-006DUP	0.50	0.20	0.07	1.75	1.77	1.76	1	10	01/01/20
Batch QC	K1912042-001DUP	0.50	0.20	0.07	4.44	4.41	4.42	<1	10	01/01/20
Batch QC	K1912042-002DUP	0.50	0.20	0.07	4.10	4.01	4.05	2	10	01/01/20
Batch QC	K1912042-003DUP	0.50	0.20	0.07	13.1	13.4	13.2	3	10	01/01/20
Batch QC	K1912042-004DUP	0.50	0.20	0.07	13.8	14.5	14.1	5	10	01/01/20
Batch QC	K1912042-005DUP	0.50	0.20	0.07	3.48	3.01	3.24	14 *	10	01/01/20
Batch QC	K1912140-002DUP	50	20	7	631	648	639	3	10	01/07/20
Batch QC	K1912140-003DUP	50	20	7	734	733	733	<1	10	01/07/20
Batch QC	K1912140-004DUP	50	20	7	721	716	718	<1	10	01/07/20
Batch QC	K1912160-001DUP	0.50	0.20	0.07	2.70	2.59	2.64	4	10	01/07/20
Batch QC	K2000034-001DUP	0.50	0.20	0.07	2.13	2.11	2.12	<1	10	01/07/20
Batch QC	K2000035-001DUP	0.50	0.20	0.07	0.24 J	0.18 J	0.208	29 #	10	01/07/20
Batch QC	K2000035-002DUP	0.50	0.20	0.07	0.37 J	0.47 J	0.420	25 #	10	01/07/20
Batch QC	K2000090-001DUP	0.50	0.20	0.07	0.99	0.89	0.939	11 #	10	01/08/20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project:	HS19121092	**Date Collected:**	N/A
Sample Matrix:	Ground Water	**Date Received:**	N/A
		Date Analyzed:	12/31/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1911995-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1911995-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	2.19	28.3	25.0	104	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project:	HS19121092	**Date Collected:**	N/A
Sample Matrix:	Ground Water	**Date Received:**	N/A
		Date Analyzed:	01/7/20
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1912160-001	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1912160-001MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	2.70	29.9	25.0	109	83-117

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project:	HS19121092	**Date Analyzed:**	12/31/19
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	665302

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911998-LCS1	25.1	25.0	100	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1911998
Project:	HS19121092	**Date Analyzed:**	01/07/20
Sample Matrix:	Ground Water	**Date Extracted:**	NA

Lab Control Sample Summary
Carbon, Total Organic

Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA
		Analysis Lot:	665574

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1911998-LCS2	26.5	25.0	106	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1911998
Project: HS19121092

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	665302	KQ1919248-01	12/31/19 20:35	25.0	24.0	96	90-110
CCV2	665302	KQ1919248-02	01/01/20 00:38	25.0	25.1	100	90-110
CCV3	665302	KQ1919248-03	01/01/20 05:48	25.0	24.0	96	90-110
CCV4	665574	KQ2000092-01	01/07/20 18:23	25.0	25.5	102	90-110
CCV5	665574	KQ2000092-02	01/07/20 22:26	25.0	25.4	102	90-110
CCV6	665574	KQ2000092-03	01/08/20 02:14	25.0	25.3	101	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1911998
Project: HS19121092

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	665302	KQ1919248-04	12/31/19 20:49	0.50	0.20	0.07	ND	U
CCB2	665302	KQ1919248-05	01/01/20 00:53	0.50	0.20	0.07	ND	U
CCB3	665302	KQ1919248-06	01/01/20 06:03	0.50	0.20	0.07	ND	U
CCB4	665574	KQ2000092-04	01/07/20 18:38	0.50	0.20	0.07	ND	U
CCB5	665574	KQ2000092-05	01/07/20 22:40	0.50	0.20	0.07	ND	U
CCB6	665574	KQ2000092-06	01/08/20 02:28	0.50	0.20	0.07	ND	U

Raw Data

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General Chemistry

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Work Request # Original ( ) KP11762, 11807, 11895, 11934, 11980, 1198, 11995, 11998, 12042, 11810, 11868, 11909, 11910, 11960, 12004
Tier: II II I I II II IV IV IV II IV IV II I II
Date Analyzed: 12/27/2019
Analyst: BCP
Analysis: TOC
Run # TOC: 664898, 664900, 664901, 664902

11914, 11968, 11970, 12040, 12074
IV IV IV IV II

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: KP11995-1, 1998-1/2/3/4/5/6, 12042-1/2/3/4/5, 11934-2, 11980-1, 11981-1 sent for RA due to contaminated CCBs.
KP11807-4MD, 11868-4MD, 11914-4A, 11970-5,6 report a high %RSD. However, these samples are less than 5x the MRL

Final Approved by: QC Date: 12/31/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664898 **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
K1911762-003	Carbon, Total Organic	N/A		Water	4.08 mg/L	10 ml	408 mg/L	100	7	50			12/28/19 08:10	N	II
K1911762-004	Carbon, Total Organic	N/A		Water	5.35 mg/L	10 ml	535 mg/L	100	7	50			12/28/19 08:38	N	II
K1911762-005	Carbon, Total Organic	N/A		Water	5.51 mg/L	10 ml	551 mg/L	100	7	50			12/28/19 09:06	N	II
K1911807-004	Carbon, Total Organic	N/A		Water	0.66 mg/L	10 ml	0.66 mg/L	1	0.07	0.50			12/28/19 09:34	N	II
K1911895-001	Carbon, Total Organic	N/A		Drinking Water	0.45 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 07:42	N	I
K1911934-002	Carbon, Total Organic	N/A		Drinking Water	1.04 mg/L	10 ml	1.04 mg/L	1	0.07	0.50			12/28/19 05:19	N	I
K1911980-001	Carbon, Total Organic	N/A		Water	4.22 mg/L	10 ml	4.22 mg/L	1	0.07	0.50			12/28/19 05:47	N	II
K1911981-001	Carbon, Total Organic	N/A		Water	3.74 mg/L	10 ml	3.74 mg/L	1	0.07	0.50			12/28/19 06:15	N	II
K1911995-001	Carbon, Total Organic	N/A		Water	2.64 mg/L	10 ml	2.64 mg/L	1	0.07	0.50			12/27/19 22:43	N	IV
K1911998-001	Carbon, Total Organic	N/A		Ground Water	3.35 mg/L	10 ml	3.35 mg/L	1	0.07	0.50			12/27/19 23:40	N	IV
K1911998-002	Carbon, Total Organic	N/A		Ground Water	1.31 mg/L	10 ml	131 mg/L	100	7	50			12/28/19 00:08	N	IV
K1911998-003	Carbon, Total Organic	N/A		Ground Water	0.32 mg/L	10 ml	320 mg/L J	1000	70	500			12/28/19 00:37	N	IV
K1911998-004	Carbon, Total Organic	N/A		Ground Water	10.95 mg/L	10 ml	10.9 mg/L	1	0.07	0.50			12/28/19 01:05	N	IV
K1911998-005	Carbon, Total Organic	N/A		Ground Water	94.31 mg/L	10 ml	94.3 mg/L	1	0.07	0.50			12/28/19 02:02	N	IV
K1911998-006	Carbon, Total Organic	N/A		Ground Water	6.19 mg/L	10 ml	6.19 mg/L	1	0.07	0.50			12/28/19 02:30	N	IV
K1912042-001	Carbon, Total Organic	N/A		Ground Water	6.24 mg/L	10 ml	6.24 mg/L	1	0.07	0.50			12/28/19 02:59	N	IV
K1912042-002	Carbon, Total Organic	N/A		Ground Water	5.13 mg/L	10 ml	5.13 mg/L	1	0.07	0.50			12/28/19 03:27	N	IV
K1912042-003	Carbon, Total Organic	N/A		Ground Water	14.04 mg/L	10 ml	14.0 mg/L	1	0.07	0.50			12/28/19 03:55	N	IV
K1912042-004	Carbon, Total Organic	N/A		Ground Water	14.68 mg/L	10 ml	14.7 mg/L	1	0.07	0.50			12/28/19 04:23	N	IV
K1912042-005	Carbon, Total Organic	N/A		Ground Water	4.14 mg/L	10 ml	4.14 mg/L	1	0.07	0.50			12/28/19 04:51	N	IV
KQ1919209-01	Carbon, Total Organic	CCV		Water	24.92 mg/L	10 ml	24.9 mg/L	1					12/27/19 21:30	N	IV
KQ1919209-02	Carbon, Total Organic	CCV		Water	26.02 mg/L	10 ml	26.0 mg/L	1					12/28/19 01:33	N	IV
KQ1919209-03	Carbon, Total Organic	CCV		Water	24.62 mg/L	10 ml	24.6 mg/L	1					12/28/19 06:43	N	IV
KQ1919209-04	Carbon, Total Organic	CCV		Water	24.84 mg/L	10 ml	24.8 mg/L	1					12/28/19 11:12	N	IV
KQ1919209-05	Carbon, Total Organic	CCB		Water	0.58 mg/L	10 ml	0.58 mg/L	1	0.07	0.50			12/27/19 21:45	N	IV
KQ1919209-06	Carbon, Total Organic	CCB		Water	0.54 mg/L	10 ml	0.54 mg/L	1	0.07	0.50			12/28/19 01:47	N	IV
KQ1919209-07	Carbon, Total Organic	CCB		Water	0.16 mg/L	10 ml	0.16 mg/L J	1	0.07	0.50			12/28/19 06:58	N	IV
KQ1919209-08	Carbon, Total Organic	CCB		Water	0.15 mg/L	10 ml	0.15 mg/L J	1	0.07	0.50			12/28/19 11:27	N	IV
KQ1919209-09	Carbon, Total Organic	MB		Water	0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/27/19 21:59	N	IV
KQ1919209-10	Carbon, Total Organic	LCS		Water	26.17 mg/L	10 ml	26.2 mg/L	1	0.07	0.50	105		12/27/19 22:14	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664898 **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
KQ1919209-11	Carbon, Total Organic	MS	K1911995-001	Water	28.07 mg/L	10 ml	28.1 mg/L	1	0.07	0.50	102		12/27/19 23:11	N	IV
KQ1919209-12	Carbon, Total Organic	DUP	K1911807-004	Water	0.56 mg/L	10 ml	0.56 mg/L	1	0.07	0.50		16*	12/28/19 09:34	N	II
KQ1919209-13	Carbon, Total Organic	DUP	K1911762-003	Water	4.12 mg/L	10 ml	412 mg/L	100	7	50		<1	12/28/19 08:10	N	II
KQ1919209-14	Carbon, Total Organic	DUP	K1911895-001	Drinking Water	0.30 mg/L	10 ml	0.30 mg/L J	1	0.07	0.50		NC	12/28/19 07:42	N	I
KQ1919209-15	Carbon, Total Organic	DUP	K1911762-004	Water	5.35 mg/L	10 ml	535 mg/L	100	7	50		<1	12/28/19 08:38	N	II
KQ1919209-16	Carbon, Total Organic	DUP	K1911934-002	Drinking Water	0.87 mg/L	10 ml	0.87 mg/L	1	0.07	0.50		17*	12/28/19 05:19	N	I
KQ1919209-17	Carbon, Total Organic	DUP	K1911762-005	Water	5.43 mg/L	10 ml	543 mg/L	100	7	50		2	12/28/19 09:06	N	II
KQ1919209-18	Carbon, Total Organic	DUP	K1911980-001	Water	4.17 mg/L	10 ml	4.17 mg/L	1	0.07	0.50		1	12/28/19 05:47	N	II
KQ1919209-19	Carbon, Total Organic	DUP	K1911981-001	Water	3.66 mg/L	10 ml	3.66 mg/L	1	0.07	0.50		2	12/28/19 06:15	N	II
KQ1919209-20	Carbon, Total Organic	DUP	K1911995-001	Water	2.63 mg/L	10 ml	2.63 mg/L	1	0.07	0.50		<1	12/27/19 22:43	N	IV
KQ1919209-21	Carbon, Total Organic	DUP	K1911998-002	Ground Water	1.23 mg/L	10 ml	123 mg/L	100	7	50		6	12/28/19 00:08	N	IV
KQ1919209-22	Carbon, Total Organic	DUP	K1911998-001	Ground Water	3.35 mg/L	10 ml	3.35 mg/L	1	0.07	0.50		<1	12/27/19 23:40	N	IV
KQ1919209-23	Carbon, Total Organic	DUP	K1911998-003	Ground Water	0.30 mg/L	10 ml	300 mg/L J	1000	70	500		5	12/28/19 00:37	N	IV
KQ1919209-24	Carbon, Total Organic	DUP	K1911998-004	Ground Water	10.80 mg/L	10 ml	10.8 mg/L	1	0.07	0.50		1	12/28/19 01:05	N	IV
KQ1919209-25	Carbon, Total Organic	DUP	K1911998-005	Ground Water	94.83 mg/L	10 ml	94.8 mg/L	1	0.07	0.50		<1	12/28/19 02:02	N	IV
KQ1919209-26	Carbon, Total Organic	DUP	K1911998-006	Ground Water	3.61 mg/L	10 ml	3.61 mg/L	1	0.07	0.50		53*	12/28/19 02:30	N	IV
KQ1919209-27	Carbon, Total Organic	DUP	K1912042-002	Ground Water	4.85 mg/L	10 ml	4.84 mg/L	1	0.07	0.50		6	12/28/19 03:27	N	IV
KQ1919209-28	Carbon, Total Organic	DUP	K1912042-001	Ground Water	5.79 mg/L	10 ml	5.79 mg/L	1	0.07	0.50		7	12/28/19 02:59	N	IV
KQ1919209-29	Carbon, Total Organic	DUP	K1912042-003	Ground Water	13.92 mg/L	10 ml	13.9 mg/L	1	0.07	0.50		<1	12/28/19 03:55	N	IV
KQ1919209-30	Carbon, Total Organic	DUP	K1912042-004	Ground Water	14.90 mg/L	10 ml	14.9 mg/L	1	0.07	0.50		1	12/28/19 04:23	N	IV
KQ1919209-31	Carbon, Total Organic	DUP	K1912042-005	Ground Water	3.58 mg/L	10 ml	3.58 mg/L	1	0.07	0.50		14*	12/28/19 04:51	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664900 **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
K1911810-001	Carbon, Total Organic	N/A		Water	2.42 mg/L	10 ml	2.42 mg/L	1	0.07	0.50			12/28/19 10:02	N	II
K1911810-002	Carbon, Total Organic	N/A		Water	2.24 mg/L	10 ml	2.24 mg/L	1	0.07	0.50			12/28/19 10:30	N	II
K1911868-001	Carbon, Total Organic	N/A		Ground Water	0.72 mg/L	10 ml	0.72 mg/L	1	0.07	0.50			12/28/19 11:42	N	IV
K1911868-002	Carbon, Total Organic	N/A		Ground Water	0.75 mg/L	10 ml	0.75 mg/L	1	0.07	0.50			12/28/19 12:10	N	IV
K1911868-003	Carbon, Total Organic	N/A		Ground Water	7.88 mg/L	10 ml	7.88 mg/L	1	0.07	0.50			12/28/19 12:38	N	IV
K1911868-004	Carbon, Total Organic	N/A		Ground Water	0.14 mg/L	10 ml	0.14 mg/L J	1	0.07	0.50			12/28/19 13:06	N	IV
K1911909-001	Carbon, Total Organic	N/A		Water	-0.15 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 13:34	N	IV
K1911910-001	Carbon, Total Organic	N/A		Water	9.84 mg/L	10 ml	98.4 mg/L	10	0.7	5.0			12/28/19 14:02	N	II
K1911960-001	Carbon, Total Organic	N/A		Water	8.94 mg/L	10 ml	8.94 mg/L	1	0.07	0.50			12/28/19 14:59	N	I
K1911960-002	Carbon, Total Organic	N/A		Water	12.64 mg/L	10 ml	12.6 mg/L	1	0.07	0.50			12/28/19 15:27	N	I
K1911960-003	Carbon, Total Organic	N/A		Water	1.80 mg/L	10 ml	1.80 mg/L	1	0.07	0.50			12/28/19 15:55	N	I
K1911960-004	Carbon, Total Organic	N/A		Water	23.35 mg/L	10 ml	23.3 mg/L	1	0.07	0.50			12/28/19 17:22	N	I
K1911960-005	Carbon, Total Organic	N/A		Water	8.92 mg/L	10 ml	8.92 mg/L	1	0.07	0.50			12/28/19 17:50	N	I
K1911960-006	Carbon, Total Organic	N/A		Water	15.47 mg/L	10 ml	15.5 mg/L	1	0.07	0.50			12/28/19 18:18	N	I
K1911960-007	Carbon, Total Organic	N/A		Water	4.86 mg/L	10 ml	38.9 mg/L	8	0.6	4.0			12/28/19 18:46	N	I
K1911960-008	Carbon, Total Organic	N/A		Water	11.31 mg/L	10 ml	11.3 mg/L	1	0.07	0.50			12/28/19 19:14	N	I
K1911960-009	Carbon, Total Organic	N/A		Water	15.59 mg/L	10 ml	15.6 mg/L	1	0.07	0.50			12/28/19 19:42	N	I
K1912004-001	Carbon, Total Organic	N/A		Water	-0.26 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 14:31	N	II
KQ1919210-01	Carbon, Total Organic	CCV		Water	24.62 mg/L	10 ml	24.6 mg/L	1					12/28/19 06:43	N	II
KQ1919210-02	Carbon, Total Organic	CCV		Water	24.84 mg/L	10 ml	24.8 mg/L	1					12/28/19 11:12	N	II
KQ1919210-03	Carbon, Total Organic	CCV		Water	24.79 mg/L	10 ml	24.8 mg/L	1					12/28/19 16:23	N	II
KQ1919210-04	Carbon, Total Organic	CCV		Water	24.27 mg/L	10 ml	24.3 mg/L	1					12/28/19 21:07	N	II
KQ1919210-05	Carbon, Total Organic	CCB		Water	0.16 mg/L	10 ml	0.16 mg/L J	1	0.07	0.50			12/28/19 06:58	N	II
KQ1919210-06	Carbon, Total Organic	CCB		Water	0.15 mg/L	10 ml	0.15 mg/L J	1	0.07	0.50			12/28/19 11:27	N	II
KQ1919210-07	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 16:38	N	II
KQ1919210-08	Carbon, Total Organic	CCB		Water	-0.25 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 21:21	N	II
KQ1919210-09	Carbon, Total Organic	MB		Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 07:12	N	II
KQ1919210-10	Carbon, Total Organic	LCS		Water	25.86 mg/L	10 ml	25.9 mg/L	1	0.07	0.50	103		12/28/19 07:27	N	II
KQ1919210-11	Carbon, Total Organic	MS	K1911810-001	Water	28.47 mg/L	10 ml	28.5 mg/L	1	0.07	0.50	104		12/28/19 10:58	N	II
KQ1919210-12	Carbon, Total Organic	DUP	K1911810-001	Water	2.38 mg/L	10 ml	2.38 mg/L	1	0.07	0.50		2	12/28/19 10:02	N	II
KQ1919210-13	Carbon, Total Organic	DUP	K1911810-002	Water	2.24 mg/L	10 ml	2.24 mg/L	1	0.07	0.50		<1	12/28/19 10:30	N	II
KQ1919210-14	Carbon, Total Organic	DUP	K1911868-001	Ground Water	0.70 mg/L	10 ml	0.70 mg/L	1	0.07	0.50		3	12/28/19 11:42	N	IV
KQ1919210-15	Carbon, Total Organic	DUP	K1911868-002	Ground Water	0.71 mg/L	10 ml	0.71 mg/L	1	0.07	0.50		5	12/28/19 12:10	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664900 **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
KQ1919210-16	Carbon, Total Organic	DUP	K1911868-003	Ground Water	7.92 mg/L	10 ml	7.92 mg/L	1	0.07	0.50		<1	12/28/19 12:38	N	IV
KQ1919210-17	Carbon, Total Organic	DUP	K1911868-004	Ground Water	0.09 mg/L	10 ml	0.09 mg/L J	1	0.07	0.50		47*	12/28/19 13:06	N	IV
KQ1919210-18	Carbon, Total Organic	DUP	K1911910-001	Water	9.71 mg/L	10 ml	97.1 mg/L	10	0.7	5.0		1	12/28/19 14:02	N	II
KQ1919210-19	Carbon, Total Organic	DUP	K1911909-001	Water	-0.20 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/28/19 13:34	N	IV
KQ1919210-20	Carbon, Total Organic	DUP	K1911960-001	Water	8.96 mg/L	10 ml	8.96 mg/L	1	0.07	0.50		<1	12/28/19 14:59	N	I
KQ1919210-21	Carbon, Total Organic	DUP	K1911960-002	Water	12.32 mg/L	10 ml	12.3 mg/L	1	0.07	0.50		3	12/28/19 15:27	N	I
KQ1919210-22	Carbon, Total Organic	DUP	K1911960-003	Water	1.67 mg/L	10 ml	1.67 mg/L	1	0.07	0.50		7	12/28/19 15:55	N	I
KQ1919210-23	Carbon, Total Organic	DUP	K1911960-004	Water	23.44 mg/L	10 ml	23.4 mg/L	1	0.07	0.50		<1	12/28/19 17:22	N	I
KQ1919210-24	Carbon, Total Organic	DUP	K1911960-005	Water	8.85 mg/L	10 ml	8.85 mg/L	1	0.07	0.50		<1	12/28/19 17:50	N	I
KQ1919210-25	Carbon, Total Organic	DUP	K1911960-006	Water	15.42 mg/L	10 ml	15.4 mg/L	1	0.07	0.50		<1	12/28/19 18:18	N	I
KQ1919210-26	Carbon, Total Organic	DUP	K1911960-007	Water	4.68 mg/L	10 ml	37.4 mg/L	8	0.6	4.0		4	12/28/19 18:46	N	I
KQ1919210-27	Carbon, Total Organic	DUP	K1911960-008	Water	11.04 mg/L	10 ml	11.0 mg/L	1	0.07	0.50		2	12/28/19 19:14	N	I
KQ1919210-28	Carbon, Total Organic	DUP	K1911960-009	Water	15.45 mg/L	10 ml	15.4 mg/L	1	0.07	0.50		<1	12/28/19 19:42	N	I
KQ1919210-29	Carbon, Total Organic	DUP	K1912004-001	Water	-0.07 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/28/19 14:31	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664901 **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
K1911914-001	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 ml	0.55 mg/L	1	0.07	0.50			12/28/19 23:00	Y	IV
K1911914-002	Carbon, Total Organic	N/A		Ground Water	1.54 mg/L	10 ml	1.54 mg/L	1	0.07	0.50			12/28/19 23:57	N	IV
K1911914-003	Carbon, Total Organic	N/A		Ground Water	3.20 mg/L	10 ml	3.20 mg/L	1	0.07	0.50			12/29/19 00:25	N	IV
K1911914-004	Carbon, Total Organic	N/A		Ground Water	0.52 mg/L	10 ml	0.52 mg/L	1	0.07	0.50			12/29/19 00:53	N	IV
K1911914-005	Carbon, Total Organic	N/A		Ground Water	5.68 mg/L	10 ml	5.68 mg/L	1	0.07	0.50			12/29/19 01:22	N	IV
K1911914-006	Carbon, Total Organic	N/A		Ground Water	9.50 mg/L	10 ml	9.50 mg/L	1	0.07	0.50			12/29/19 02:48	N	IV
K1911914-007	Carbon, Total Organic	N/A		Ground Water	0.33 mg/L	10 ml	0.33 mg/L J	1	0.07	0.50			12/29/19 03:17	N	IV
K1911914-008	Carbon, Total Organic	N/A		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 03:45	N	IV
K1911914-009	Carbon, Total Organic	N/A		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 04:13	N	IV
K1911968-001	Carbon, Total Organic	N/A		Water	1.23 mg/L	10 ml	1.23 mg/L	1	0.07	0.50			12/28/19 20:11	N	IV
K1911968-002	Carbon, Total Organic	N/A		Water	1.15 mg/L	10 ml	1.15 mg/L	1	0.07	0.50			12/28/19 20:39	N	IV
K1911968-003	Carbon, Total Organic	N/A		Water	0.70 mg/L	10 ml	0.70 mg/L	1	0.07	0.50			12/28/19 21:36	N	IV
KQ1919211-01	Carbon, Total Organic	CCV		Water	24.79 mg/L	10 ml	24.8 mg/L	1					12/28/19 16:23	N	IV
KQ1919211-02	Carbon, Total Organic	CCV		Water	24.27 mg/L	10 ml	24.3 mg/L	1					12/28/19 21:07	N	IV
KQ1919211-03	Carbon, Total Organic	CCV		Water	24.10 mg/L	10 ml	24.1 mg/L	1					12/29/19 01:50	N	IV
KQ1919211-04	Carbon, Total Organic	CCV		Water	23.91 mg/L	10 ml	23.9 mg/L	1					12/29/19 06:21	N	IV
KQ1919211-05	Carbon, Total Organic	CCB		Water	-0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 16:38	N	IV
KQ1919211-06	Carbon, Total Organic	CCB		Water	-0.25 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 21:21	N	IV
KQ1919211-07	Carbon, Total Organic	CCB		Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 02:04	N	IV
KQ1919211-08	Carbon, Total Organic	CCB		Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 06:35	N	IV
KQ1919211-09	Carbon, Total Organic	MB		Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/28/19 16:53	N	IV
KQ1919211-10	Carbon, Total Organic	LCS		Water	25.70 mg/L	10 ml	25.7 mg/L	1	0.07	0.50	103		12/28/19 17:07	N	IV
KQ1919211-11	Carbon, Total Organic	MS	K1911914-001	Ground Water	27.35 mg/L	10 ml	27.3 mg/L	1	0.07	0.50	107		12/28/19 23:28	N	IV
KQ1919211-12	Carbon, Total Organic	DUP	K1911914-001	Ground Water	0.55 mg/L	10 ml	0.55 mg/L	1	0.07	0.50		<1	12/28/19 23:00	N	IV
KQ1919211-13	Carbon, Total Organic	DUP	K1911914-002	Ground Water	1.47 mg/L	10 ml	1.47 mg/L	1	0.07	0.50		5	12/28/19 23:57	N	IV
KQ1919211-14	Carbon, Total Organic	DUP	K1911914-003	Ground Water	3.11 mg/L	10 ml	3.11 mg/L	1	0.07	0.50		3	12/29/19 00:25	N	IV
KQ1919211-15	Carbon, Total Organic	DUP	K1911914-004	Ground Water	0.48 mg/L	10 ml	0.48 mg/L J	1	0.07	0.50		8	12/29/19 00:53	N	IV
KQ1919211-16	Carbon, Total Organic	DUP	K1911914-005	Ground Water	5.66 mg/L	10 ml	5.66 mg/L	1	0.07	0.50		<1	12/29/19 01:22	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664901 **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
KQ1919211-17	Carbon, Total Organic	DUP	K1911914-006	Ground Water	9.42 mg/L	10 ml	9.42 mg/L	1	0.07	0.50		<1	12/29/19 02:48	N	IV
KQ1919211-18	Carbon, Total Organic	DUP	K1911914-007	Ground Water	0.24 mg/L	10 ml	0.24 mg/L J	1	0.07	0.50		32*	12/29/19 03:17	N	IV
KQ1919211-19	Carbon, Total Organic	DUP	K1911914-008	Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/29/19 03:45	N	IV
KQ1919211-20	Carbon, Total Organic	DUP	K1911914-009	Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/29/19 04:13	N	IV
KQ1919211-21	Carbon, Total Organic	DUP	K1911968-001	Water	1.15 mg/L	10 ml	1.15 mg/L	1	0.07	0.50		7	12/28/19 20:11	N	IV
KQ1919211-22	Carbon, Total Organic	DUP	K1911968-002	Water	1.20 mg/L	10 ml	1.20 mg/L	1	0.07	0.50		4	12/28/19 20:39	N	IV
KQ1919211-23	Carbon, Total Organic	DUP	K1911968-003	Water	0.63 mg/L	10 ml	0.63 mg/L	1	0.07	0.50		10	12/28/19 21:36	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664902 **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
K1911970-001	Carbon, Total Organic	N/A		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 04:41	N	IV
K1911970-002	Carbon, Total Organic	N/A		Ground Water	0.67 mg/L	10 ml	0.67 mg/L	1	0.07	0.50			12/29/19 05:09	N	IV
K1911970-003	Carbon, Total Organic	N/A		Ground Water	0.05 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 05:38	N	IV
K1911970-004	Carbon, Total Organic	N/A		Ground Water	17.01 mg/L	10 ml	17.0 mg/L	1	0.07	0.50			12/29/19 06:50	N	IV
K1911970-005	Carbon, Total Organic	N/A		Ground Water	0.85 mg/L	10 ml	0.85 mg/L	1	0.07	0.50			12/29/19 07:18	N	IV
K1912040-001	Carbon, Total Organic	N/A		Water	1.23 mg/L	10 ml	1.23 mg/L	1	0.07	0.50			12/29/19 08:43	N	IV
K1912040-002	Carbon, Total Organic	N/A		Water	16.08 mg/L	10 ml	16.1 mg/L	1	0.07	0.50			12/29/19 09:11	N	IV
K1912040-003	Carbon, Total Organic	N/A		Water	2.94 mg/L	10 ml	2.94 mg/L	1	0.07	0.50			12/29/19 09:39	N	IV
K1912074-001	Carbon, Total Organic	N/A		Water	8.38 mg/L	10 ml	838 mg/L	100	7	50			12/29/19 07:46	N	II
K1912074-002	Carbon, Total Organic	N/A		Water	6.55 mg/L	10 ml	655 mg/L	100	7	50			12/29/19 08:15	N	II
KQ1919213-01	Carbon, Total Organic	CCV		Ground Water	24.10 mg/L	10 ml	24.1 mg/L	1					12/29/19 01:50	N	IV
KQ1919213-02	Carbon, Total Organic	CCV		Ground Water	23.91 mg/L	10 ml	23.9 mg/L	1					12/29/19 06:21	N	IV
KQ1919213-03	Carbon, Total Organic	CCV		Ground Water	23.95 mg/L	10 ml	23.9 mg/L	1					12/29/19 10:07	N	IV
KQ1919213-04	Carbon, Total Organic	CCB		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 02:04	N	IV
KQ1919213-05	Carbon, Total Organic	CCB		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 06:35	N	IV
KQ1919213-06	Carbon, Total Organic	CCB		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 10:22	N	IV
KQ1919213-07	Carbon, Total Organic	MB		Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			12/29/19 02:19	N	IV
KQ1919213-08	Carbon, Total Organic	LCS		Ground Water	25.40 mg/L	10 ml	25.4 mg/L	1	0.07	0.50	102		12/29/19 02:34	N	IV
KQ1919213-09	Carbon, Total Organic	MS	K1911970-003	Ground Water	26.71 mg/L	10 ml	26.7 mg/L	1	0.07	0.50	107		12/29/19 06:06	N	IV
KQ1919213-10	Carbon, Total Organic	DUP	K1911970-001	Ground Water	-0.32 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50		NC	12/29/19 04:41	N	IV
KQ1919213-11	Carbon, Total Organic	DUP	K1911970-005	Ground Water	0.75 mg/L	10 ml	0.75 mg/L	1	0.07	0.50		12*	12/29/19 07:18	N	IV
KQ1919213-12	Carbon, Total Organic	DUP	K1911970-002	Ground Water	0.64 mg/L	10 ml	0.64 mg/L	1	0.07	0.50		5	12/29/19 05:09	N	IV
KQ1919213-13	Carbon, Total Organic	DUP	K1911970-003	Ground Water	0.08 mg/L	10 ml	0.08 mg/L J	1	0.07	0.50		NC	12/29/19 05:38	N	IV
KQ1919213-14	Carbon, Total Organic	DUP	K1911970-004	Ground Water	17.18 mg/L	10 ml	17.2 mg/L	1	0.07	0.50		<1	12/29/19 06:50	N	IV
KQ1919213-15	Carbon, Total Organic	DUP	K1912040-002	Water	15.96 mg/L	10 ml	16.0 mg/L	1	0.07	0.50		<1	12/29/19 09:11	N	IV
KQ1919213-16	Carbon, Total Organic	DUP	K1912040-001	Water	1.14 mg/L	10 ml	1.14 mg/L	1	0.07	0.50		7	12/29/19 08:43	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 664902 **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
KQ1919213-17	Carbon, Total Organic	DUP	K1912040-003	Water	2.87 mg/L	10 ml	2.87 mg/L	1	0.07	0.50		2	12/29/19 09:39	N	IV
KQ1919213-18	Carbon, Total Organic	DUP	K1912074-001	Water	8.44 mg/L	10 ml	844 mg/L	100	7	50		<1	12/29/19 07:46	N	II
KQ1919213-19	Carbon, Total Organic	DUP	K1912074-002	Water	6.51 mg/L	10 ml	651 mg/L	100	7	50		<1	12/29/19 08:15	N	II

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0.901				OBSERVATIONS	13	ABOVE
0.345	0.345	0.345	0.345	STD Deviation	0.33082	0.3446
0.862				AVERAGE	0.26252	ABOVE
0.481	0.481			UCL	0.59335	0.4808
0.000				LCL	-0.06830	0
0.464	0.464					0.4641
0.291	0.291	0.291	0.291			0.2909
0.000				OBSERVATIONS	5	0
0.070	0.070			STD Deviation	0.12251	0.0696
0.000				AVERAGE	0.33000	0
0.000				UCL	0.45251	0
0.000				LCL	0.20749	0
0.000						0
						0
				OBSERVATIONS	2	0
				STD Deviation	0.08838	0
				AVERAGE	0.31775	0
				UCL	0.40613	0
				LCL	0.22937	0
						0
						0
				OBSERVATIONS	2	0
				STD Deviation	0.05370	0
				AVERAGE	0.31775	0
						0
						0
						0
						0
						0
						0

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.241	0.3178	24.9233	24.92325	24.9	12/27/2019
3	ccb	1	0.901	0.3178	0.5831	0.58305	0.6	12/27/2019
4	mb	1	0.345	0.3178	0.0269	0.02685	<0.5	12/27/2019
5	lcs	1	26.489	0.3178	26.1708	26.17075	26.2	12/27/2019
6	K1911995-001	1	2.955	0.3178	2.6369	2.63685	2.64	12/27/2019
7	K1911995-001	1	2.948	0.3178	2.6302	2.63015	2.6	12/27/2019
8	KQ1919209-11	1	28.386	0.3178	28.0678	28.06775	28	12/27/2019
9	K1911998-001	1	3.672	0.3178	3.3540	3.35395	3.35	12/27/2019
10	K1911998-001	1	3.668	0.3178	3.3502	3.35015	3.35	12/27/2019
11	K1911998-002	100	1.625	0.3178	1.3077	130.765	130.8	12/28/2019
12	K1911998-002	100	1.551	0.3178	1.2329	123.285	123.29	12/28/2019
13	K1911998-003	1000	0.637	0.3178	0.3194	319.35	319.35	12/28/2019
14	K1911998-003	1000	0.621	0.3178	0.3030	302.95	302.95	12/28/2019
15	K1911998-004	1	11.265	0.3178	10.9472	10.94715	10.9	12/28/2019
16	K1911998-004	1	11.121	0.3178	10.8035	10.80345	10.8	12/28/2019
17	ccv	1	26.337	0.3178	26.0197	26.01965	26.02	12/28/2019
18	ccb	1	0.862	0.3178	0.5443	0.54425	0.5	12/28/2019
19	K1911998-005	1	94.630	0.3178	94.3122	94.31215	94.3	12/28/2019
20	K1911998-005	1	95.146	0.3178	94.8286	94.82855	94.83	12/28/2019
21	K1911998-006	1	6.508	0.3178	6.1905	6.19045	6.19	12/28/2019
22	K1911998-006	1	3.924	0.3178	3.6058	3.60575	3.6	12/28/2019
23	K1912042-001	1	6.555	0.3178	6.2375	6.23745	6.2	12/28/2019
24	K1912042-001	1	6.107	0.3178	5.7892	5.78915	5.79	12/28/2019
25	K1912042-002	1	5.452	0.3178	5.1345	5.13445	5.13	12/28/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: KCV	Date Analyzed	12/27/19	
Reviewed By: JC	Date Reviewed	12/31/19	

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1912042-002	1	5.163	0.3178	4.8450	4.84495	4.84	12/28/2019
27	K1912042-003	1	14.359	0.3178	14.0413	14.04125	14.04	12/28/2019
28	K1912042-003	1	14.240	0.3178	13.9223	13.92225	13.9	12/28/2019
29	K1912042-004	1	14.997	0.3178	14.6791	14.67905	14.7	12/28/2019
30	K1912042-004	1	15.218	0.3178	14.9001	14.90005	14.9	12/28/2019
31	K1912042-005	1	4.455	0.3178	4.1372	4.13715	4.1	12/28/2019
32	K1912042-005	1	3.898	0.3178	3.5806	3.58055	3.6	12/28/2019
33	K1911934-002	1	1.353	0.3178	1.0353	1.03525	1.0	12/28/2019
34	K1911934-002	1	1.192	0.3178	0.8746	0.87455	0.9	12/28/2019
35	K1911980-001	1	4.533	0.3178	4.2155	4.21545	4.2	12/28/2019
36	K1911980-001	1	4.484	0.3178	4.1659	4.16585	4.2	12/28/2019
37	K1911981-001	1	4.055	0.3178	3.7372	3.73715	3.7	12/28/2019
38	K1911981-001	1	3.976	0.3178	3.6578	3.65775	3.7	12/28/2019
39	ccv	1	24.936	0.3178	24.6181	24.61805	24.6	12/28/2019
40	ccb	1	0.481	0.3178	0.1631	0.16305	<0.5	12/28/2019
41	K1911895-001	1	0.768	0.3178	0.4502	0.45015	<0.5	12/28/2019
42	K1911895-001	1	0.614	0.3178	0.2964	0.29635	<0.5	12/28/2019
43	K1911762-003	100	4.396	0.3178	4.0784	407.835	407.8	12/28/2019
44	K1911762-003	100	4.433	0.3178	4.1152	411.515	411.5	12/28/2019
45	K1911762-004	100	5.663	0.3178	5.3455	534.545	534.5	12/28/2019
46	K1911762-004	100	5.668	0.3178	5.3498	534.975	535.0	12/28/2019
47	K1911762-005	100	5.831	0.3178	5.5134	551.335	551.3	12/28/2019
48	K1911762-005	100	5.749	0.3178	5.4308	543.075	543.1	12/28/2019
49	K1911807-004	1	0.976	0.3178	0.6581	0.65805	0.7	12/28/2019
50	K1911807-004	1	0.878	0.3178	0.5605	0.56045	0.6	12/28/2019

Analyzed By:	KP	Date Analyzed	12/27/19
Reviewed By:	JC	Date Reviewed	12/31/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
51	ccv	1	25.159	0.3178	24.8417	24.84165	24.84	12/28/2019
52	ccb	1	0.464	0.3178	0.1464	0.14635	<0.5	12/28/2019
53		1		0.0000	0.0000	0	<0.5	
54		1		0.0000	0.0000	0	<0.5	
55		1		0.0000	0.0000	0	<0.5	
56		1		0.0000	0.0000	0	<0.5	
57		1		0.0000	0.0000	0	<0.5	
58		1		0.0000	0.0000	0	<0.5	
59		1		0.0000	0.0000	0	<0.5	
60		1		0.0000	0.0000	0	<0.5	
61		1		0.0000	0.0000	0	<0.5	
62		1		0.0000	0.0000	0	<0.5	
63		1		0.0000	0.0000	0	<0.5	
64		1		0.0000	0.0000	0	<0.5	
65		1		0.0000	0.0000	0	<0.5	
66		1		0.0000	0.0000	0	<0.5	
67		1		0.0000	0.0000	0	<0.5	
68		1		0.0000	0.0000	0	<0.5	
69		1		0.0000	0.0000	0	<0.5	
70		1		0.0000	0.0000	0	<0.5	
71		1		0.0000	0.0000	0	<0.5	
72		1		0.0000	0.0000	0	<0.5	
73		1		0.0000	0.0000	0	<0.5	
74		1		0.0000	0.0000	0	<0.5	
75		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCP	Date Analyzed 12/27/19
Reviewed By: JC	Date Reviewed 12/31/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.936	0.3178	24.6181	24.61805	24.6	12/28/2019
3	ccb	1	0.481	0.3178	0.1631	0.16305	<0.5	12/28/2019
4	mb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/28/2019
5	lcs	1	26.176	0.3178	25.8584	25.85835	25.9	12/28/2019
6	K1911810-001	1	2.742	0.3178	2.4243	2.42425	2.42	12/28/2019
7	K1911810-001	1	2.703	0.3178	2.3848	2.38475	2.4	12/28/2019
8	K1911810-002	1	2.561	0.3178	2.2434	2.24335	2	12/28/2019
9	K1911810-002	1	2.553	0.3178	2.2354	2.23535	2.24	12/28/2019
10	KQ1919210-11	1	28.785	0.3178	28.4677	28.46765	28.47	12/28/2019
11	ccv	1	25.159	0.3178	24.8417	24.84165	24.8	12/28/2019
12	ccb	1	0.464	0.3178	0.1464	0.14635	<0.5	12/28/2019
13	K1911868-001	1	1.037	0.3178	0.7189	0.71885	0.72	12/28/2019
14	K1911868-001	1	1.014	0.3178	0.6965	0.69645	0.70	12/28/2019
15	K1911868-002	1	1.065	0.3178	0.7476	0.74755	0.7	12/28/2019
16	K1911868-002	1	1.031	0.3178	0.7129	0.71285	0.7	12/28/2019
17	K1911868-003	1	8.200	0.3178	7.8822	7.88215	7.88	12/28/2019
18	K1911868-003	1	8.241	0.3178	7.9237	7.92365	7.9	12/28/2019
19	K1911868-004	1	0.455	0.3178	0.1376	0.13755	<0.5	12/28/2019
20	K1911868-004	1	0.403	0.3178	0.0856	0.08555	<0.5	12/28/2019
21	K1911909-001	1	0.164	0.3178	-0.1542	-0.15415	<0.5	12/28/2019
22	K1911909-001	1	0.113	0.3178	-0.2046	-0.20455	<0.5	12/28/2019
23	K1911910-001	10	10.159	0.3178	9.8411	98.4105	98.4	12/28/2019
24	K1911910-001	10	10.027	0.3178	9.7092	97.0915	97.09	12/28/2019
25	K1912004-001	1	0.056	0.3178	-0.2621	-0.26205	<0.5	12/28/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: KP	Date Analyzed 12/27/19		
Reviewed By: JC	Date Reviewed 12/31/19		

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ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1912004-001	1	0.250	0.3178	-0.0683	-0.06825	<0.5	12/28/2019
27	K1911960-001	1	9.254	0.3178	8.9358	8.93575	8.94	12/28/2019
28	K1911960-001	1	9.274	0.3178	8.9559	8.95585	9.0	12/28/2019
29	K1911960-002	1	12.963	0.3178	12.6449	12.64485	12.6	12/28/2019
30	K1911960-002	1	12.640	0.3178	12.3218	12.32175	12.3	12/28/2019
31	K1911960-003	1	2.117	0.3178	1.7992	1.79915	1.8	12/28/2019
32	K1911960-003	1	1.991	0.3178	1.6728	1.67275	1.7	12/28/2019
33	ccv	1	25.104	0.3178	24.7865	24.78645	24.8	12/28/2019
34	ccb	1	0.291	0.3178	-0.0269	-0.02685	<0.5	12/28/2019
35	K1911960-004	1	23.664	0.3178	23.3464	23.34635	23.3	12/28/2019
36	K1911960-004	1	23.753	0.3178	23.4351	23.43505	23.4	12/28/2019
37	K1911960-005	1	9.239	0.3178	8.9215	8.92145	8.9	12/28/2019
38	K1911960-005	1	9.171	0.3178	8.8533	8.85325	8.9	12/28/2019
39	K1911960-006	1	15.788	0.3178	15.4703	15.47025	15.5	12/28/2019
40	K1911960-006	1	15.741	0.3178	15.4229	15.42285	15.4	12/28/2019
41	K1911960-007	8	5.175	0.3178	4.8576	38.8604	38.9	12/28/2019
42	K1911960-007	8	4.998	0.3178	4.6805	37.4436	37.4	12/28/2019
43	K1911960-008	1	11.627	0.3178	11.3094	11.30935	11.3	12/28/2019
44	K1911960-008	1	11.358	0.3178	11.0407	11.04065	11.0	12/28/2019
45	K1911960-009	1	15.908	0.3178	15.5904	15.59035	15.6	12/28/2019
46	K1911960-009	1	15.767	0.3178	15.4491	15.44905	15.4	12/28/2019
47	ccv	1	24.588	0.3178	24.2698	24.26975	24.3	12/28/2019
48	ccb	1	0.070	0.3178	-0.2482	-0.24815	<0.5	12/28/2019
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By:	BCP	Date Analyzed	12/27/19
Reviewed By:	JC	Date Reviewed	12/31/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.104	0.3178	24.7865	24.78645	24.8	12/28/2019
3	ccb	1	0.291	0.3178	-0.0269	-0.02685	<0.5	12/28/2019
4	mb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/28/2019
5	lcs	1	26.014	0.3178	25.6966	25.69655	25.7	12/28/2019
6	K1911968-001	1	1.551	0.3178	1.2336	1.23355	1.23	12/28/2019
7	K1911968-001	1	1.469	0.3178	1.1508	1.15075	1.2	12/28/2019
8	K1911968-002	1	1.466	0.3178	1.1482	1.14815	1	12/28/2019
9	K1911968-002	1	1.513	0.3178	1.1955	1.19545	1.20	12/28/2019
10	ccv	1	24.588	0.3178	24.2698	24.26975	24.27	12/28/2019
11	ccb	1	0.070	0.3178	-0.2482	-0.24815	<0.5	12/28/2019
12	K1911968-003	1	1.018	0.3178	0.7005	0.70045	0.70	12/28/2019
13	K1911968-003	1	0.949	0.3178	0.6315	0.63145	0.63	12/28/2019
14	K1911968-004	1	1.361	0.3178	1.0430	1.04295	1.04	12/28/2019
15	K1911968-004	1	1.318	0.3178	1.0003	1.00025	1.0	12/28/2019
16	K1911968-005	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/28/2019
17	K1911968-005	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/28/2019
18	K1911914-001	1	0.868	0.3178	0.5501	0.55005	0.6	12/28/2019
19	K1911914-001	1	0.869	0.3178	0.5512	0.55115	0.6	12/28/2019
20	KQ1919211-11	1	27.664	0.3178	27.3458	27.34575	27.35	12/28/2019
21	K1911914-002	1	1.861	0.3178	1.5430	1.54295	1.54	12/28/2019
22	K1911914-002	1	1.788	0.3178	1.4704	1.47035	1.5	12/28/2019
23	K1911914-003	1	3.520	0.3178	3.2018	3.20175	3.2	12/29/2019
24	K1911914-003	1	3.427	0.3178	3.1096	3.10955	3.11	12/29/2019
25	K1911914-004	1	0.839	0.3178	0.5213	0.52125	0.52	12/29/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By:	Date Analyzed	12/27/19
Reviewed By:	Date Reviewed	12/31/19

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ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1911914-004	1	0.800	0.3178	0.4826	0.48255	<0.5	12/29/2019
27	K1911914-005	1	5.996	0.3178	5.6786	5.67855	5.68	12/29/2019
28	K1911914-005	1	5.978	0.3178	5.6600	5.65995	5.7	12/29/2019
29	ccv	1	24.413	0.3178	24.0955	24.09545	24.1	12/29/2019
30	ccb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
31	K1911914-006	1	9.818	0.3178	9.4999	9.49985	9.5	12/29/2019
32	K1911914-006	1	9.738	0.3178	9.4199	9.41985	9.4	12/29/2019
33	K1911914-007	1	0.649	0.3178	0.3317	0.33165	<0.5	12/29/2019
34	K1911914-007	1	0.559	0.3178	0.2408	0.24075	<0.5	12/29/2019
35	K1911914-008	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
36	K1911914-008	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
37	K1911914-009	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
38	K1911914-009	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
39	ccv	1	24.226	0.3178	23.9078	23.90775	23.9	12/29/2019
40	ccb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BCB	Date Analyzed 12/27/19
Reviewed By: JC	Date Reviewed 12/31/19

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	24.413	0.3178	24.0955	24.09545	24.1	12/29/2019
3	ccb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
4	mb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
5	lcs	1	25.715	0.3178	25.3971	25.39705	25.4	12/29/2019
6	K1911970-001	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
7	K1911970-001	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
8	K1911970-002	1	0.990	0.3178	0.6720	0.67195	1	12/29/2019
9	K1911970-002	1	0.959	0.3178	0.6414	0.64135	0.64	12/29/2019
10	K1911970-003	1	0.373	0.3178	0.0548	0.05475	<0.5	12/29/2019
11	K1911970-003	1	0.398	0.3178	0.0800	0.07995	<0.5	12/29/2019
12	KQ1919213-09	1	27.031	0.3178	26.7129	26.71285	26.71	12/29/2019
13	ccv	1	24.226	0.3178	23.9078	23.90775	23.91	12/29/2019
14	ccb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
15	K1911970-004	1	17.332	0.3178	17.0143	17.01425	17.0	12/29/2019
16	K1911970-004	1	17.495	0.3178	17.1771	17.17705	17.2	12/29/2019
17	K1911970-005	1	1.164	0.3178	0.8466	0.84655	0.85	12/29/2019
18	K1911970-005	1	1.069	0.3178	0.7513	0.75125	0.8	12/29/2019
19	K1912074-001	100	8.699	0.3178	8.3813	838.125	838.1	12/29/2019
20	K1912074-001	100	8.760	0.3178	8.4421	844.205	844.21	12/29/2019
21	K1912074-002	100	6.870	0.3178	6.5525	655.245	655.25	12/29/2019
22	K1912074-002	100	6.824	0.3178	6.5065	650.645	650.6	12/29/2019
23	K1912040-001	1	1.543	0.3178	1.2254	1.22535	1.2	12/29/2019
24	K1912040-001	1	1.461	0.3178	1.1433	1.14325	1.14	12/29/2019
25	K1912040-002	1	16.394	0.3178	16.0760	16.07595	16.08	12/29/2019

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date	time
Analyzed By: BCB	Date Analyzed	12/27/19	
Reviewed By:	Date Reviewed	12/31/19	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K1912040-002	1	16.273	0.3178	15.9556	15.95555	15.96	12/29/2019
27	K1912040-003	1	3.257	0.3178	2.9392	2.93915	2.94	12/29/2019
28	K1912040-003	1	3.192	0.3178	2.8743	2.87425	2.9	12/29/2019
29	ccv	1	24.267	0.3178	23.9497	23.94965	23.9	12/29/2019
30	ccb	1	0.000	0.3178	-0.3178	-0.31775	<0.5	12/29/2019
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By:	Date Analyzed 12/27/19
Reviewed By:	Date Reviewed 12/31/19

TOC: 664898, 664900, 664901, 664902

Schedule: 12272019b

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/12/27 17:30 - Friday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	10	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1911995-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1911995-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1911998-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1911998-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911998-003.01 1000x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1911998-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911998-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911998-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1912042-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1912042-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1912042-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1912042-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1912042-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911934-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911980-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911981-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1911895-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1911762-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1911762-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1911762-005.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911807-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1911810-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1911810-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1911810-001.02 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1911868-001.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1911868-002.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1911868-003.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1911868-004.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1911909-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1911910-001.04 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1912004-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1911960-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1911960-002.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1911960-003.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

Schedule: 12272019b

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1911960-004.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1911960-005.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1911960-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1911960-007.02 8x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1911960-008.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1911960-009.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1911968-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1911968-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
48	Sample	K1911968-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1911968-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
50	Sample	K1911968-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
51	Sample	K1911914-001.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1911914-001.15 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
53	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
54	Sample	K1911914-002.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
55	Sample	K1911914-003.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
56	Sample	K1911914-004.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
57	Sample	K1911914-005.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
58	Sample	MB4	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
59	Sample	K1911914-006.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
60	Sample	K1911914-007.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
61	Sample	K1911914-008.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
62	Sample	K1911914-009.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
63	Sample	K1911970-001.17	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
64	Sample	K1911970-002.17	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
65	Sample	K1911970-003.17	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
66	Sample	K1911970-003.17 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
67	Sample	K1911970-004.17	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
68	Sample	K1911970-005.17	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
69	Sample	K1912074-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
70	Sample	K1912074-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
71	Sample	K1912040-001.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
72	Sample	K1912040-002.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
73	Sample	K1912040-003.15	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - 12272019b
Friday, December 27, 2019 05:30 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/12/31 09:22 - Tuesday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	12272019b	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) Fusion1 (Fusion1) (v2)		
Comment:			

Report Results

Sample Type: Clean — From Schedule Version 1

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/12/27 17:30

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.29	16.86	4.57	49.49	05:21
2	TC Clean	6.57	10.18	3.61	49.94	04:02
3	TC Clean	2.92	6.53	3.61	50.03	03:47
4	TC Clean	1.77	5.39	3.62	50.00	03:54

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/12/27 17:52

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.81	4.38	3.57	49.51	05:21
2	TC Clean	6.44	10.21	3.77	50.03	04:04
3	TC Clean	3.63	7.20	3.57	49.98	03:49
4	TC Clean	2.71	6.27	3.56	49.94	03:53

Sample Type: Clean From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/12/27 18:14

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.97	4.54	3.57	49.41	05:22
2	TC Clean	8.19	11.96	3.77	50.04	04:00
3	TC Clean	4.38	8.04	3.66	50.03	03:47
4	TC Clean	2.72	6.39	3.67	50.01	03:46

Sample Type: Blank (Creating v1332) From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/12/27 18:36

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.17	4.75	3.57	49.60	05:23
2	TC Clean	8.55	12.23	3.68	49.94	04:00
3	TC Clean	5.26	8.93	3.67	50.02	03:45
4	TC Clean	3.21	7.06	3.85	49.92	03:44
5	Reagent Blank	18.61	22.61	4.00	49.93	05:04
6	Acid Blank	2.58	6.18	3.60	49.49	05:26

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	D	TOC	RB	0.5662 ppm	0.2739 ppm	48.3700%	2019/12/27 19:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.2975	12.9750	21.21	25.07	3.85	49.99	10:27
2	TOC	0.7216	7.2162	17.30	21.09	3.79	50.03	10:26
3	TOC	0.5472	5.4720	16.12	19.94	3.82	50.01	10:26
4	TOC	0.4790	4.7899	15.66	19.61	3.95	50.01	10:30
5	TOC	0.4326	4.3258	15.34	19.13	3.79	50.00	10:26
6	TOC	0.4862	4.8621	15.71	19.40	3.69	50.00	10:26
7	TOC	0.4528	4.5276	15.48	19.18	3.70	49.99	10:30

8	TOC	0.4206	4.2065	15.26	18.88	3.62	50.01	10:29
9	TOC	0.4489	4.4893	15.45	18.99	3.54	49.98	10:28
10	TOC	0.3759	3.7586	14.96	18.62	3.67	49.98	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.2410 ppm (PASS)	0.0000 ppm	0%	2019/12/27 21:30

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.2410	252.4101	180.80	184.44	3.64	49.96	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.9008 ppm (PASS)	0.0000 ppm	0%	2019/12/27 21:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.9008	9.0079	15.58	19.24	3.66	49.96	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.3446 ppm	0.0000 ppm	0.0000%	2019/12/27 21:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3446	3.4463	14.75	18.44	3.70	49.97	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.4885 ppm (PASS)	0.0000 ppm	0%	2019/12/27 22:14

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.4885	264.8852	189.26	192.85	3.59	49.94	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	1.0163 ppm	0.0000 ppm	0.0000%	2019/12/27 22:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0163	10.1626	19.30	22.94	3.64	49.96	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1911995-001.01	2.9512 ppm	0.0047 ppm	0.1600%	2019/12/27 22:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9546	29.5455	32.46	36.12	3.66	49.94	10:26
2	TOC	2.9479	29.4792	32.42	36.25	3.83	49.93	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1911995-001.01 ms	28.3855 ppm	0.0000 ppm	0.0000%	2019/12/27 23:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.3855	283.8554	205.09	208.77	3.69	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	5	TOC	RB	0.5110 ppm	0.0000 ppm	0.0000%	2019/12/27 23:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5110	5.1096	15.88	19.70	3.82	49.93	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1911998-001.01	3.6698 ppm	0.0027 ppm	0.0700%	2019/12/27 23:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.6717	36.7171	37.33	41.13	3.80	49.91	10:26
2	TOC	3.6679	36.6788	37.30	41.00	3.69	49.93	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1911998-002.01 100x	1.5880 ppm	0.0529 ppm	3.3300%	2019/12/28 00:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6254	16.2543	23.44	27.14	3.70	49.93	10:27
2	TOC	1.5506	15.5059	22.93	26.59	3.65	49.92	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1911998-003.01 1000x	0.6289 ppm	0.0116 ppm	1.8400%	2019/12/28 00:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6371	6.3706	16.73	20.36	3.63	49.91	10:27
2	TOC	0.6207	6.2071	16.62	20.38	3.76	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1911998-004.01	11.1931 ppm	0.1016 ppm	0.9100%	2019/12/28 01:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.2649	112.6488	88.87	92.56	3.68	49.90	10:27
2	TOC	11.1212	111.2124	87.90	91.68	3.78	49.90	10:26

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	26.3374 ppm (PASS)	0.0000 ppm	0%	2019/12/28 01:33

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	26.3374	263.3737	188.24	191.98	3.74	49.92	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.8620 ppm (PASS)	0.0000 ppm	0%	2019/12/28 01:47

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.8620	8.6205	15.31	18.91	3.60	49.89	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K1911998-005.01	94.8881 ppm	0.3651 ppm	0.3800%	2019/12/28 02:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	94.6299	946.2993	654.75	658.45	3.70	49.86	10:28
2	TOC	95.1463	951.4628	658.25	662.80	4.54	49.87	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K1911998-006.01	5.2158 ppm	1.8277 ppm	35.0400%	2019/12/28 02:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5082	65.0821	56.58	60.95	4.37	49.89	10:28
2	TOC	3.9235	39.2348	39.04	42.79	3.75	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K1912042-001.01	6.3311 ppm	0.3170 ppm	5.0100%	2019/12/28 02:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5552	65.5520	56.90	60.70	3.79	49.92	10:27
2	TOC	6.1069	61.0691	53.86	57.52	3.66	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K1912042-002.01	5.3075 ppm	0.2047 ppm	3.8600%	2019/12/28 03:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.4522	54.5222	49.42	52.92	3.51	49.91	10:26
2	TOC	5.1627	51.6273	47.45	50.87	3.42	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K1912042-003.01	14.2995 ppm	0.0842 ppm	0.5900%	2019/12/28 03:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.3590	143.5904	109.88	113.45	3.57	49.87	10:28
2	TOC	14.2400	142.4001	109.07	112.55	3.48	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K1912042-004.01	15.1073 ppm	0.1563 ppm	1.0300%	2019/12/28 04:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	14.9968	149.9679	114.20	117.83	3.62	49.88	10:27
2	TOC	15.2178	152.1777	115.70	119.33	3.63	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC)	CAS_salt_010711	CAS_salt_010711

(v1332) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1912042-005.01	4.1766 ppm	0.3936 ppm	9.4200%	2019/12/28 04:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.4549	44.5486	42.65	46.32	3.67	49.90	10:27
2	TOC	3.8983	38.9829	38.87	42.52	3.66	49.87	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1911934-002.01	1.2727 ppm	0.1137 ppm	8.9300%	2019/12/28 05:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3530	13.5304	21.59	25.06	3.46	49.88	10:31
2	TOC	1.1923	11.9231	20.50	24.01	3.51	49.89	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1911980-001.01	4.5084 ppm	0.0351 ppm	0.7800%	2019/12/28 05:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.5332	45.3324	43.18	46.80	3.62	49.88	10:28
2	TOC	4.4836	44.8359	42.84	46.35	3.51	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1911981-001.01	4.0152 ppm	0.0561 ppm	1.4000%	2019/12/28 06:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.0549	40.5489	39.93	43.50	3.57	49.90	10:29
2	TOC	3.9755	39.7548	39.39	42.97	3.58	49.88	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.9358 ppm (PASS)	0.0000 ppm	0%	2019/12/28 06:43

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9358	249.3577	178.72	182.40	3.68	49.90	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.4808 ppm (PASS)	0.0000 ppm	0%	2019/12/28 06:58

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.4808	4.8078	12.73	16.46	3.74	49.90	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/28 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	12.27	15.90	3.63	49.90	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	26.1761 ppm (PASS)	0.0000 ppm	0%	2019/12/28 07:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.1761	261.7606	187.14	190.88	3.74	49.91	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K1911895-001.01	0.6910 ppm	0.1088 ppm	15.7400%	2019/12/28 07:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7679	7.6788	17.62	21.33	3.71	49.90	10:31
2	TOC	0.6141	6.1408	16.58	20.39	3.81	49.90	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K1911762-003.01 100x	4.4145 ppm	0.0260 ppm	0.5900%	2019/12/28 08:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.3961	43.9608	42.25	46.00	3.76	49.90	10:29
2	TOC	4.4329	44.3291	42.50	46.24	3.74	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K1911762-004.01 100x	5.6653 ppm	0.0030 ppm	0.0500%	2019/12/28 08:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.6632	56.6318	50.85	54.53	3.68	49.90	10:27
2	TOC	5.6675	56.6745	50.88	54.47	3.59	49.93	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K1911762-005.01 100x	5.7898 ppm	0.0584 ppm	1.0100%	2019/12/28 09:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.8311	58.3113	51.99	55.60	3.61	49.91	10:26
2	TOC	5.7485	57.4848	51.43	55.18	3.75	49.91	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1911807-004.03	0.9270 ppm	0.0690 ppm	7.4400%	2019/12/28 09:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9758	9.7575	19.03	22.67	3.64	49.90	10:26
2	TOC	0.8782	8.7822	18.37	22.03	3.66	49.89	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1911810-001.02	2.7222 ppm	0.0279 ppm	1.0300%	2019/12/28 10:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.7420	27.4197	31.02	34.71	3.69	49.89	10:27
2	TOC	2.7025	27.0249	30.75	34.34	3.59	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1911810-002.02	2.5571 ppm	0.0056 ppm	0.2200%	2019/12/28 10:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5611	25.6106	29.79	33.53	3.74	49.90	10:26
2	TOC	2.5531	25.5311	29.74	33.46	3.73	49.92	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1911810-001.02 ms	28.7854 ppm	0.0000 ppm	0.0000%	2019/12/28 10:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.7854	287.8536	207.80	211.55	3.75	49.91	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1594 ppm (PASS)	0.0000 ppm	0%	2019/12/28 11:12

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1594	251.5940	180.24	184.00	3.76	49.92	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.4641 ppm (PASS)	0.0000 ppm	0%	2019/12/28 11:27

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.4641	4.6413	12.61	16.27	3.66	49.93	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K1911868-001.15	1.0254 ppm	0.0158 ppm	1.5400%	2019/12/28 11:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0366	10.3659	19.44	23.20	3.76	49.92	10:30
2	TOC	1.0142	10.1420	19.29	22.99	3.70	49.95	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1911868-002.15	1.0479 ppm	0.0246 ppm	2.3500%	2019/12/28 12:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0653	10.6532	19.64	23.28	3.64	49.98	10:31
2	TOC	1.0306	10.3055	19.40	22.93	3.52	49.96	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K1911868-003.15	8.2207 ppm	0.0294 ppm	0.3600%	2019/12/28 12:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.1999	81.9989	68.07	71.60	3.53	49.98	10:28
2	TOC	8.2414	82.4143	68.35	71.85	3.50	49.96	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K1911868-004.15	0.4293 ppm	0.0368 ppm	8.5700%	2019/12/28 13:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4553	4.5527	15.50	19.14	3.65	49.99	10:28
2	TOC	0.4033	4.0326	15.14	18.65	3.50	50.01	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K1911909-001.02	0.1384 ppm	0.0356 ppm	25.7400%	2019/12/28 13:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1636	1.6357	13.52	17.00	3.48	50.00	10:29
2	TOC	0.1132	1.1319	13.18	16.76	3.59	50.04	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K1911910-001.04 10x	10.0929 ppm	0.0932 ppm	0.9200%	2019/12/28 14:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.1588	101.5880	81.36	84.88	3.51	49.99	10:28
2	TOC	10.0269	100.2695	80.47	84.18	3.71	50.00	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K1912004-001.02	0.1526 ppm	0.1370 ppm	89.7700%	2019/12/28 14:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0557	0.5574	12.78	16.33	3.55	50.03	10:28
2	TOC	0.2495	2.4946	14.10	17.67	3.57	49.99	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC)	CAS_salt_010711	CAS_salt_010711

(v1332) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1911960-001.02	9.2635 ppm	0.0142 ppm	0.1500%	2019/12/28 14:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2535	92.5352	75.22	78.74	3.52	49.98	10:28
2	TOC	9.2736	92.7355	75.36	79.02	3.67	50.01	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1911960-002.02	12.8011 ppm	0.2284 ppm	1.7800%	2019/12/28 15:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	12.9626	129.6260	100.40	104.17	3.77	49.97	10:29
2	TOC	12.6395	126.3952	98.20	101.92	3.72	49.99	10:22

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	K1911960-003.02	2.0537 ppm	0.0894 ppm	4.3500%	2019/12/28 15:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1169	21.1689	26.78	30.53	3.76	49.94	10:30
2	TOC	1.9905	19.9049	25.92	29.64	3.73	49.99	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	25.1042 ppm (PASS)	0.0000 ppm	0%	2019/12/28 16:23

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.1042	251.0415	179.87	183.48	3.61	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.2909 ppm (PASS)	0.0000 ppm	0%	2019/12/28 16:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.2909	2.9089	11.44	15.05	3.61	49.99	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/28 16:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	10.91	14.46	3.55	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	26.0143 ppm (PASS)	0.0000 ppm	0%	2019/12/28 17:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	26.0143	260.1430	186.05	189.61	3.56	50.03	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	40	TOC	K1911960-004.02	23.7084 ppm	0.0627 ppm	0.2600%	2019/12/28 17:22

Rep	Base			Adjusted		Baseline	Pressure	Run

#	Analysis Type	ppm	µg	(Abs)	NDIR (Abs)	(Abs)	(psig)	Time
1	TOC	23.6641	236.6407	173.04	176.72	3.69	50.01	10:27
2	TOC	23.7528	237.5276	173.64	177.22	3.58	50.01	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	41	TOC	K1911960-005.02	9.2051 ppm	0.0482 ppm	0.5200%	2019/12/28 17:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.2392	92.3923	75.12	78.86	3.74	49.98	10:29
2	TOC	9.1710	91.7102	74.66	78.30	3.65	50.00	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1911960-006.02	15.7643 ppm	0.0335 ppm	0.2100%	2019/12/28 18:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.7880	157.8805	119.58	123.29	3.71	49.98	10:30
2	TOC	15.7406	157.4061	119.25	122.89	3.63	49.97	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1911960-007.02 8x	5.0867 ppm	0.1252 ppm	2.4600%	2019/12/28 18:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.1753	51.7526	47.54	51.13	3.59	49.98	10:26
2	TOC	4.9982	49.9818	46.33	50.08	3.75	49.97	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	K1911960-008.02	11.4928 ppm	0.1900 ppm	1.6500%	2019/12/28 19:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.6271	116.2714	91.33	95.12	3.79	49.94	10:27
2	TOC	11.3584	113.5843	89.51	93.31	3.80	49.94	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.9081	159.0811	120.39	124.14	3.75	49.96	10:25
2	TOC	15.7668	157.6683	119.43	123.27	3.84	49.97	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	46	TOC	K1911968-001.01	1.5099 ppm	0.0585 ppm	3.8800%	2019/12/28 20:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5513	15.5133	22.94	26.64	3.70	49.94	10:27
2	TOC	1.4685	14.6854	22.38	26.13	3.75	49.94	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	47	TOC	K1911968-002.01	1.4895 ppm	0.0334 ppm	2.2400%	2019/12/28 20:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4659	14.6588	22.36	26.08	3.73	49.93	10:25
2	TOC	1.5132	15.1317	22.68	26.43	3.75	49.92	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.5875 ppm (PASS)	0.0000 ppm	0%	2019/12/28 21:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.5875	245.8750	176.36	180.03	3.67	49.92	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0696 ppm (PASS)	0.0000 ppm	0%	2019/12/28 21:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0696	0.6961	9.94	13.73	3.80	49.92	10:35

Completion State: Success - Criteria met.
Success Action: Do Nothing
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)
STD Conc - Pos D: 0 ppmC

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	48	TOC	K1911968-003.01	0.9837 ppm	0.0488 ppm	4.9600%	2019/12/28 21:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0182	10.1818	19.32	22.91	3.59	49.90	10:28
2	TOC	0.9492	9.4923	18.85	22.61	3.76	49.91	10:27

Dilution: 1:10
Blank Contribution: (TC) 12.4067 (IC) (v1332)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	49	TOC	K1911968-004.01	1.3393 ppm	0.0302 ppm	2.2600%	2019/12/28 22:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3607	13.6070	21.64	25.30	3.65	49.91	10:28
2	TOC	1.3180	13.1797	21.35	25.07	3.72	49.90	10:26

Dilution: 1:10
Blank Contribution: (TC) 12.4067 (IC) (v1332)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	50	TOC	K1911968-005.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/28 22:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	9.84	13.63	3.79	49.92	10:25
2	TOC	0.0000	0.0000	9.88	13.46	3.58	49.91	10:25

Dilution: 1:10
Blank Contribution: (TC) 12.4067 (IC) (v1332)
Method: CAS_salt_010711 (v4)
Calibration: CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	51	TOC	K1911914-001.15	0.8684 ppm	0.0008 ppm	0.1000%	2019/12/28 23:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8678	8.6776	18.30	21.91	3.62	49.91	10:26
2	TOC	0.8689	8.6894	18.30	21.90	3.60	49.92	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	52	TOC	K1911914-001.15 ms	27.6635 ppm	0.0000 ppm	0.0000%	2019/12/28 23:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.6635	276.6352	200.18	203.73	3.54	49.90	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	53	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/28 23:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	9.34	13.06	3.73	49.90	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	K1911914-002.15	1.8244 ppm	0.0514 ppm	2.8100%	2019/12/28 23:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8607	18.6070	25.04	28.69	3.65	49.91	10:26
2	TOC	1.7881	17.8807	24.54	28.23	3.69	49.89	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	55	TOC	K1911914-003.15	3.4734 ppm	0.0652 ppm	1.8800%	2019/12/29 00:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5195	35.1953	36.30	39.92	3.63	49.92	10:27
2	TOC	3.4273	34.2730	35.67	39.10	3.43	49.89	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8390	8.3904	18.10	21.56	3.46	49.89	10:29
2	TOC	0.8003	8.0029	17.84	21.44	3.60	49.89	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	57	TOC	K1911914-005.15	5.9870 ppm	0.0131 ppm	0.2200%	2019/12/29 01:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.9963	59.9627	53.11	56.59	3.48	49.85	10:29
2	TOC	5.9777	59.7771	52.98	56.57	3.58	49.86	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.4132 ppm (PASS)	0.0000 ppm	0%	2019/12/29 01:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4132	244.1322	175.18	178.89	3.71	49.83	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/29 02:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.80	12.34	3.55	49.79	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D

Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	58	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/29 02:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.16	11.78	3.61	49.79	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	25.7148 ppm (PASS)	0.0000 ppm	0%	2019/12/29 02:34

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.7148	257.1480	184.01	187.45	3.44	49.78	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	59	TOC	K1911914-006.15	9.7776 ppm	0.0566 ppm	0.5800%	2019/12/29 02:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.8176	98.1761	79.05	82.68	3.63	49.78	10:25
2	TOC	9.7376	97.3761	78.50	82.20	3.70	49.79	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	60	TOC	K1911914-007.15	0.6040 ppm	0.0643 ppm	10.6400%	2019/12/29 03:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	0.6494	6.4944	16.81	20.50	3.68	49.78	10:26
2	TOC	0.5585	5.5854	16.20	19.77	3.57	49.77	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	61	TOC	K1911914-008.15	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/29 03:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.95	12.59	3.64	49.78	10:26
2	TOC	0.0000	0.0000	8.91	12.36	3.45	49.80	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	62	TOC	K1911914-009.15	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/29 04:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.15	11.75	3.60	49.81	10:25
2	TOC	0.0000	0.0000	8.11	11.69	3.58	49.80	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	63	TOC	K1911970-001.17	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/29 04:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.88	11.51	3.63	49.83	10:30
2	TOC	0.0000	0.0000	7.73	11.42	3.69	49.84	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	64	TOC	K1911970-002.17	0.9744 ppm	0.0217 ppm	2.2200%	2019/12/29 05:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9897	9.8975	19.12	22.79	3.67	49.84	10:30
2	TOC	0.9591	9.5910	18.92	22.49	3.58	49.84	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	65	TOC	K1911970-003.17	0.3851 ppm	0.0178 ppm	4.6300%	2019/12/29 05:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3725	3.7247	14.94	18.63	3.70	49.83	10:29
2	TOC	0.3977	3.9767	15.11	18.56	3.46	49.86	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	66	TOC	K1911970-003.17 ms	27.0306 ppm	0.0000 ppm	0.0000%	2019/12/29 06:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.0306	270.3063	195.89	199.51	3.62	49.85	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2255 ppm (PASS)	0.0000 ppm	0%	2019/12/29 06:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2255	242.2554	173.90	177.52	3.62	49.84	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/29 06:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.48	11.18	3.69	49.86	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	0 ppmC

met.	(v4)	(v30)

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	67	TOC	K1911970-004.17	17.4134 ppm	0.1151 ppm	0.6600%	2019/12/29 06:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	17.3320	173.3196	130.06	133.74	3.69	49.86	10:30
2	TOC	17.4948	174.9475	131.16	134.76	3.60	49.86	10:23

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	68	TOC	K1911970-005.17	1.1167 ppm	0.0674 ppm	6.0400%	2019/12/29 07:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1643	11.6432	20.31	23.95	3.64	49.87	10:28
2	TOC	1.0690	10.6900	19.66	23.22	3.56	49.86	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	69	TOC	K1912074-001.01 100x	8.7294 ppm	0.0430 ppm	0.4900%	2019/12/29 07:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.6990	86.9901	71.46	75.03	3.58	49.89	10:31
2	TOC	8.7598	87.5985	71.87	75.53	3.66	49.87	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	70	TOC	K1912074-002.01 100x	6.8472 ppm	0.0325 ppm	0.4700%	2019/12/29 08:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.8702	68.7017	59.04	62.60	3.55	49.87	10:28
2	TOC	6.8242	68.2421	58.73	62.52	3.79	49.89	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◈	71	TOC	K1912040-001.15	1.5021 ppm	0.0580 ppm	3.8600%	2019/12/29 08:43

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5431	15.4308	22.88	26.63	3.75	49.87	10:31
2	TOC	1.4610	14.6102	22.32	25.86	3.53	49.86	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	72	TOC	K1912040-002.15	16.3335 ppm	0.0851 ppm	0.5200%	2019/12/29 09:11

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.3937	163.9368	123.69	127.23	3.54	49.87	10:27
2	TOC	16.2733	162.7332	122.87	126.56	3.69	49.87	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	73	TOC	K1912040-003.15	3.2244 ppm	0.0458 ppm	1.4200%	2019/12/29 09:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.2569	32.5685	34.51	38.15	3.64	49.87	10:31
2	TOC	3.1920	31.9203	34.07	37.70	3.62	49.88	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 12.4067 (IC) (v1332)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.2674 ppm (PASS)	0.0000 ppm	0%	2019/12/29 10:07

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.2674	242.6738	174.19	177.71	3.52	49.88	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 2

			Concentration			Min / Max				

	Pos	BAT	(ppm)	Dil	Sample ID	(% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/29 10:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.26	10.83	3.57	49.86	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1331	6.0703	3.0960	0.0000	0.0000	0.0000	2019/12/27 15:34	Fusion1 (Fusion1)
v1332	6.2033	2.5850	0.0000	0.0000	0.0000	2019/12/27 19:09	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v30

Ver Creation: 2019/03/05 17:42

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type: TOC

Calibration curve formula: TOC: y = 6.788x + 9.463

r^2 value: TOC: r^2 = 0.99963

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date

1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2019/12/29 10:37

ALS Environmental

StarLIMS Run: 664898, 664900, 664901, 664902

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83H

21 % H3PO4: 11-GEN-05-83G

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: BCP	Date Analyzed: 12/27/19
Reviewed By:	Date Reviewed: 12/31/19

Work Request # Original ( ) K1911934, 11980, 11981, 11995, 11998, 12042, 11912, 11968, 12074, 12105, 12140, 11963

Tier: I II II IV IV IV II IV II IV II II

Date Analyzed: 12/31/19

Analyst: BCP

Analysis: TOC/DOC

TOC: 665302, 665303

Run # DOC: 665304

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: K1911934-2/2d report a high %RSD. However, these samples are less than 5x the MRL.
K1912042-5/5d report a high %RSD due to suspected non-homogenous sample.
K1911998-3 Sent for RA due to being overdiluted.

Final Approved by: _____ Date: 01/23/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665302 **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
K1911934-002	Carbon, Total Organic	N/A		Drinking Water	0.80 mg/L	10 mL	0.80 mg/L	1	0.07	0.50			1/1/20 04:24:00	N	I
K1911980-001	Carbon, Total Organic	N/A		Water	3.94 mg/L	10 mL	3.94 mg/L	1	0.07	0.50			1/1/20 04:52:00	N	II
K1911981-001	Carbon, Total Organic	N/A		Water	3.51 mg/L	10 mL	3.51 mg/L	1	0.07	0.50			1/1/20 05:20:00	N	II
K1911995-001	Carbon, Total Organic	N/A		Water	2.19 mg/L	10 mL	2.19 mg/L	1	0.07	0.50			12/31/19 21:48:00	N	IV
K1911998-001	Carbon, Total Organic	N/A		Ground Water	2.96 mg/L	10 mL	2.96 mg/L	1	0.07	0.50			12/31/19 22:45:00	N	IV
K1911998-002	Carbon, Total Organic	N/A		Ground Water	0.92 mg/L	10 mL	92 mg/L	100	7	50			12/31/19 23:14:00	N	IV
K1911998-003	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	500 mg/L U	1000	70	500			12/31/19 23:42:00	N	IV
K1911998-004	Carbon, Total Organic	N/A		Ground Water	9.94 mg/L	10 mL	9.94 mg/L	1	0.07	0.50			1/1/20 00:10:00	N	IV
K1911998-005	Carbon, Total Organic	N/A		Ground Water	2.54 mg/L	10 mL	127 mg/L	50	4	25			1/1/20 01:07:00	N	IV
K1911998-006	Carbon, Total Organic	N/A		Ground Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50			1/1/20 01:35:00	N	IV
K1912042-001	Carbon, Total Organic	N/A		Ground Water	4.44 mg/L	10 mL	4.44 mg/L	1	0.07	0.50			1/1/20 02:03:00	N	IV
K1912042-002	Carbon, Total Organic	N/A		Ground Water	4.10 mg/L	10 mL	4.10 mg/L	1	0.07	0.50			1/1/20 02:32:00	N	IV
K1912042-003	Carbon, Total Organic	N/A		Ground Water	13.05 mg/L	10 mL	13.1 mg/L	1	0.07	0.50			1/1/20 03:00:00	N	IV
K1912042-004	Carbon, Total Organic	N/A		Ground Water	13.77 mg/L	10 mL	13.8 mg/L	1	0.07	0.50			1/1/20 03:28:00	N	IV
K1912042-005	Carbon, Total Organic	N/A		Ground Water	3.48 mg/L	10 mL	3.48 mg/L	1	0.07	0.50			1/1/20 03:56:00	N	IV
KQ1919248-01	Carbon, Total Organic	CCV		Water	23.98 mg/L	10 mL	24.0 mg/L	1					12/31/19 20:35:00	N	IV
KQ1919248-02	Carbon, Total Organic	CCV		Water	25.08 mg/L	10 mL	25.1 mg/L	1					1/1/20 00:38:00	N	IV
KQ1919248-03	Carbon, Total Organic	CCV		Water	24.03 mg/L	10 mL	24.0 mg/L	1					1/1/20 05:48:00	N	IV
KQ1919248-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/31/19 20:49:00	N	IV
KQ1919248-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 00:53:00	N	IV
KQ1919248-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 06:03:00	N	IV
KQ1919248-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			12/31/19 21:04:00	N	IV
KQ1919248-08	Carbon, Total Organic	LCS		Water	25.12 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		12/31/19 21:19:00	N	IV
KQ1919248-09	Carbon, Total Organic	MS	K1911995-001	Water	28.29 mg/L	10 mL	28.3 mg/L	1	0.07	0.50	104		12/31/19 22:16:00	N	IV
KQ1919248-10	Carbon, Total Organic	DUP	K1911934-002	Drinking Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		23*	1/1/20 04:24:00	N	I
KQ1919248-11	Carbon, Total Organic	DUP	K1911980-001	Water	3.92 mg/L	10 mL	3.92 mg/L	1	0.07	0.50		<1	1/1/20 04:52:00	N	II
KQ1919248-12	Carbon, Total Organic	DUP	K1911981-001	Water	3.50 mg/L	10 mL	3.50 mg/L	1	0.07	0.50		<1	1/1/20 05:20:00	N	II
KQ1919248-13	Carbon, Total Organic	DUP	K1911995-001	Water	2.23 mg/L	10 mL	2.23 mg/L	1	0.07	0.50		2	12/31/19 21:48:00	N	IV
KQ1919248-14	Carbon, Total Organic	DUP	K1911998-002	Ground Water	0.88 mg/L	10 mL	88 mg/L	100	7	50		5	12/31/19 23:14:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

01/03/20

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665302 **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
KQ1919248-15	Carbon, Total Organic	DUP	K1911998-001	Ground Water	2.86 mg/L	10 mL	2.86 mg/L	1	0.07	0.50		3	12/31/19 22:45:00	N	IV
KQ1919248-16	Carbon, Total Organic	DUP	K1911998-003	Ground Water	0.00 mg/L	10 mL	500 mg/L U	1000	70	500		NC	12/31/19 23:42:00	N	IV
KQ1919248-17	Carbon, Total Organic	DUP	K1911998-004	Ground Water	9.77 mg/L	10 mL	9.77 mg/L	1	0.07	0.50		2	1/1/20 00:10:00	N	IV
KQ1919248-18	Carbon, Total Organic	DUP	K1911998-005	Ground Water	2.50 mg/L	10 mL	125 mg/L	50	4	25		2	1/1/20 01:07:00	N	IV
KQ1919248-19	Carbon, Total Organic	DUP	K1911998-006	Ground Water	1.77 mg/L	10 mL	1.77 mg/L	1	0.07	0.50		1	1/1/20 01:35:00	N	IV
KQ1919248-20	Carbon, Total Organic	DUP	K1912042-002	Ground Water	4.01 mg/L	10 mL	4.01 mg/L	1	0.07	0.50		2	1/1/20 02:32:00	N	IV
KQ1919248-21	Carbon, Total Organic	DUP	K1912042-001	Ground Water	4.41 mg/L	10 mL	4.41 mg/L	1	0.07	0.50		<1	1/1/20 02:03:00	N	IV
KQ1919248-22	Carbon, Total Organic	DUP	K1912042-003	Ground Water	13.43 mg/L	10 mL	13.4 mg/L	1	0.07	0.50		3	1/1/20 03:00:00	N	IV
KQ1919248-23	Carbon, Total Organic	DUP	K1912042-004	Ground Water	14.50 mg/L	10 mL	14.5 mg/L	1	0.07	0.50		5	1/1/20 03:28:00	N	IV
KQ1919248-24	Carbon, Total Organic	DUP	K1912042-005	Ground Water	3.01 mg/L	10 mL	3.01 mg/L	1	0.07	0.50		14*	1/1/20 03:56:00	N	IV

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665303 **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
K1911912-001	Carbon, Total Organic	N/A		Water	1.32 mg/L	10 mL	1.32 mg/L	1	0.07	0.50			1/1/20 07:44:00	N	II
K1911912-002	Carbon, Total Organic	N/A		Water	0.42 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 08:12:00	N	II
K1911912-003	Carbon, Total Organic	N/A		Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50			1/1/20 08:40:00	N	II
K1911912-004	Carbon, Total Organic	N/A		Water	0.35 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 09:08:00	N	II
K1911968-004	Carbon, Total Organic	N/A		Water	1.15 mg/L	10 mL	1.15 mg/L	1	0.07	0.50			1/1/20 09:36:00	N	IV
K1911968-005	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 10:34:00	N	IV
K1912074-003	Carbon, Total Organic	N/A		Water	7.12 mg/L	10 mL	7.12 mg/L	1	0.07	0.50			1/1/20 11:02:00	N	II
K1912105-001	Carbon, Total Organic	N/A		Water	2.46 mg/L	10 mL	2.46 mg/L	1	0.07	0.50			1/1/20 06:47:00	N	IV
K1912140-001	Carbon, Total Organic	N/A		Water	7.36 mg/L	10 mL	7.36 mg/L	1	0.07	0.50			1/1/20 11:30:00	N	II
KQ1919247-01	Carbon, Total Organic	CCV		Water	24.03 mg/L	10 mL	24.0 mg/L	1					1/1/20 05:48:00	N	IV
KQ1919247-02	Carbon, Total Organic	CCV		Water	23.99 mg/L	10 mL	24.0 mg/L	1					1/1/20 10:04:00	N	IV
KQ1919247-03	Carbon, Total Organic	CCV		Water	23.70 mg/L	10 mL	23.7 mg/L	1					1/1/20 15:01:00	N	IV
KQ1919247-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 06:03:00	N	IV
KQ1919247-05	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 10:19:00	N	IV
KQ1919247-06	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 15:15:00	N	IV
KQ1919247-07	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 06:18:00	N	IV
KQ1919247-08	Carbon, Total Organic	LCS		Water	25.08 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		1/1/20 06:32:00	N	IV
KQ1919247-09	Carbon, Total Organic	MS	K1912105-001	Water	28.13 mg/L	10 mL	28.1 mg/L	1	0.07	0.50	103		1/1/20 07:15:00	N	IV
KQ1919247-10	Carbon, Total Organic	DUP	K1911912-001	Water	1.28 mg/L	10 mL	1.28 mg/L	1	0.07	0.50		3	1/1/20 07:44:00	N	II
KQ1919247-11	Carbon, Total Organic	DUP	K1911912-002	Water	0.40 mg/L	10 mL	0.40 mg/L J	1	0.07	0.50		NC	1/1/20 08:12:00	N	II
KQ1919247-12	Carbon, Total Organic	DUP	K1911912-003	Water	0.63 mg/L	10 mL	0.63 mg/L	1	0.07	0.50		2	1/1/20 08:40:00	N	II
KQ1919247-13	Carbon, Total Organic	DUP	K1911912-004	Water	0.35 mg/L	10 mL	0.35 mg/L J	1	0.07	0.50		NC	1/1/20 09:08:00	N	II
KQ1919247-14	Carbon, Total Organic	DUP	K1911968-004	Water	1.21 mg/L	10 mL	1.21 mg/L	1	0.07	0.50		5	1/1/20 09:36:00	N	IV
KQ1919247-15	Carbon, Total Organic	DUP	K1911968-005	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	1/1/20 10:34:00	N	IV
KQ1919247-16	Carbon, Total Organic	DUP	K1912074-003	Water	7.18 mg/L	10 mL	7.18 mg/L	1	0.07	0.50		<1	1/1/20 11:02:00	N	II
KQ1919247-17	Carbon, Total Organic	DUP	K1912105-001	Water	2.33 mg/L	10 mL	2.33 mg/L	1	0.07	0.50		5	1/1/20 06:47:00	N	IV
KQ1919247-18	Carbon, Total Organic	DUP	K1912140-001	Water	7.35 mg/L	10 mL	7.35 mg/L	1	0.07	0.50		<1	1/1/20 11:30:00	N	II

01/03/20

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Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665304 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1911963-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.40 mg/L	10 mL	2.40 mg/L	1	0.07	0.50			1/1/20 12:13:00	N	II
K1911963-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.38 mg/L	10 mL	2.38 mg/L	1	0.07	0.50			1/1/20 12:41:00	N	II
K1911963-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.51 mg/L	10 mL	0.51 mg/L	1	0.07	0.50			1/1/20 13:09:00	N	II
K1911963-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.57 mg/L	10 mL	1.57 mg/L	1	0.07	0.50			1/1/20 13:37:00	N	II
K1911963-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.50 mg/L	10 mL	1.50 mg/L	1	0.07	0.50			1/1/20 14:05:00	N	II
K1911963-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.96 mg/L	10 mL	1.96 mg/L	1	0.07	0.50			1/1/20 14:33:00	N	II
K1911963-007	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.14 mg/L	10 mL	2.14 mg/L	1	0.07	0.50			1/1/20 16:00:00	N	II
K1911963-008	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.92 mg/L	10 mL	1.92 mg/L	1	0.07	0.50			1/1/20 16:28:00	N	II
K1911963-009	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.95 mg/L	10 mL	1.95 mg/L	1	0.07	0.50			1/1/20 16:56:00	N	II
K1911963-010	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	2.04 mg/L	10 mL	2.04 mg/L	1	0.07	0.50			1/1/20 17:25:00	N	II
K1911963-011	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50			1/1/20 17:53:00	N	II
K1911963-012	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50			1/1/20 18:21:00	N	II
KQ1919246-01	Carbon, Dissolved Organic (DOC)	MS	K1911963-012	Surface Water	27.18 mg/L	10 mL	27.2 mg/L	1	0.07	0.50	107		1/1/20 18:49:00	N	II
KQ1919246-02	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.99 mg/L	10 mL	24.0 mg/L	1					1/1/20 10:04:00	N	II
KQ1919246-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.70 mg/L	10 mL	23.7 mg/L	1					1/1/20 15:01:00	N	II
KQ1919246-04	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	23.80 mg/L	10 mL	23.8 mg/L	1					1/1/20 19:32:00	N	II
KQ1919246-05	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 10:19:00	N	II
KQ1919246-06	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 15:15:00	N	II
KQ1919246-07	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 19:46:00	N	II
KQ1919246-08	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			1/1/20 15:30:00	N	II
KQ1919246-09	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	24.87 mg/L	10 mL	24.9 mg/L	1	0.07	0.50	99		1/1/20 15:45:00	N	II
KQ1919246-10	Carbon, Dissolved Organic (DOC)	DUP	K1911963-001	Surface Water	2.35 mg/L	10 mL	2.35 mg/L	1	0.07	0.50		2	1/1/20 12:13:00	N	II
KQ1919246-11	Carbon, Dissolved Organic (DOC)	DUP	K1911963-002	Surface Water	2.35 mg/L	10 mL	2.35 mg/L	1	0.07	0.50		1	1/1/20 12:41:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

01/03/20

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665304 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ1919246-12	Carbon, Dissolved Organic (DOC)	DUP	K1911963-003	Surface Water	0.51 mg/L	10 mL	0.51 mg/L	1	0.07	0.50		1	1/1/20 13:09:00	N	II
KQ1919246-13	Carbon, Dissolved Organic (DOC)	DUP	K1911963-004	Surface Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50		3	1/1/20 13:37:00	N	II
KQ1919246-14	Carbon, Dissolved Organic (DOC)	DUP	K1911963-005	Surface Water	1.40 mg/L	10 mL	1.40 mg/L	1	0.07	0.50		7	1/1/20 14:05:00	N	II
KQ1919246-15	Carbon, Dissolved Organic (DOC)	DUP	K1911963-006	Surface Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50		1	1/1/20 14:33:00	N	II
KQ1919246-16	Carbon, Dissolved Organic (DOC)	DUP	K1911963-007	Surface Water	2.00 mg/L	10 mL	2.00 mg/L	1	0.07	0.50		6	1/1/20 16:00:00	N	II
KQ1919246-17	Carbon, Dissolved Organic (DOC)	DUP	K1911963-008	Surface Water	1.89 mg/L	10 mL	1.89 mg/L	1	0.07	0.50		2	1/1/20 16:28:00	N	II
KQ1919246-18	Carbon, Dissolved Organic (DOC)	DUP	K1911963-009	Surface Water	1.82 mg/L	10 mL	1.82 mg/L	1	0.07	0.50		7	1/1/20 16:56:00	N	II
KQ1919246-19	Carbon, Dissolved Organic (DOC)	DUP	K1911963-010	Surface Water	1.90 mg/L	10 mL	1.90 mg/L	1	0.07	0.50		7	1/1/20 17:25:00	N	II
KQ1919246-20	Carbon, Dissolved Organic (DOC)	DUP	K1911963-011	Surface Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50		2	1/1/20 17:53:00	N	II
KQ1919246-21	Carbon, Dissolved Organic (DOC)	DUP	K1911963-012	Surface Water	0.46 mg/L	10 mL	0.46 mg/L J	1	0.07	0.50		<1	1/1/20 18:21:00	N	II

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TOC: 665302, 665303
DOC: 665304

Schedule: Daily Run Method 010711

Version: 80
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/12/31 16:45 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
D	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	10	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1911995-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1911995-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1911998-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1911998-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1911998-003.01 1000x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1911998-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1911998-005.01 50x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1911998-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1912042-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1912042-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1912042-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1912042-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1912042-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1911934-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1911980-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1911981-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
20	Sample	MB2	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
21	Sample	K1912105-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1912105-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
23	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
24	Sample	K1911912-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1911912-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1911912-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1911912-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
28	Sample	K1911968-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
29	Sample	K1911968-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1912074-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1912140-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	FB 12/20/19 1501	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
33	Sample	K1911963-001.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1911963-002.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1911963-003.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1911963-004.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1911963-005.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1911963-006.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready

01/03/20

Schedule: Daily Run Method 010711

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
39	Sample	MB3	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [25.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
40	Sample	K1911963-007.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1911963-008.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1911963-009.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1911963-010.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1911963-011.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1911963-012.01 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1911963-012.01 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
47	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

Fusion Report - Daily Run Method 010711
Tuesday, December 31, 2019 04:35 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2020/01/03 09:21 - Friday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	Daily Run Method 010711	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) (v79) Fusion1 (Fusion1) (v80)		
Comment:			

Report Results

01/03/20

Sample Type: Clean — From Schedule Version 79

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/12/31 16:35

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.71	19.28	5.58	49.47	05:23
2	TC Clean	14.29	17.33	3.04	50.01	04:04
3	TC Clean	2.88	6.69	3.81	49.97	03:47
4	TC Clean	2.31	6.12	3.80	50.02	03:53

Sample Type: Clean — From Schedule Version 80

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/12/31 16:57

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.21	5.09	3.88	49.61	05:24
2	TC Clean	5.91	9.66	3.76	50.10	04:01
3	TC Clean	2.51	6.24	3.73	50.04	03:45
4	TC Clean	2.01	5.82	3.81	49.94	03:47

Sample Type: Clean From Schedule Version 80

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/12/31 17:19

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.28	5.01	3.73	49.37	05:20
2	TC Clean	6.29	10.12	3.84	50.05	04:01
3	TC Clean	2.28	6.27	3.99	50.05	03:44
4	TC Clean	2.20	5.97	3.77	50.08	03:46

Sample Type: Blank (Creating v1333) From Schedule Version 80

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/12/31 17:40

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	1.32	5.05	3.72	49.64	05:13
2	TC Clean	5.58	9.42	3.84	49.99	04:01
3	TC Clean	2.53	6.30	3.78	50.09	03:47
4	TC Clean	2.36	6.26	3.90	49.92	03:51
5	Reagent Blank	4.25	8.29	4.04	50.14	05:02
6	Acid Blank	1.36	5.20	3.84	49.53	05:26

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.0441 ppm	0.1394 ppm	316.2300%	2019/12/31 18:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4407	4.4075	11.79	15.74	3.95	50.07	10:28
2	TOC	0.0000	0.0000	7.58	11.48	3.89	50.07	10:27
3	TOC	0.0000	0.0000	6.95	10.79	3.84	50.09	10:25
4	TOC	0.0000	0.0000	7.18	11.14	3.96	50.11	10:27
5	TOC	0.0000	0.0000	6.53	10.27	3.73	50.09	10:27
6	TOC	0.0000	0.0000	6.62	10.19	3.57	50.12	10:27
7	TOC	0.0000	0.0000	6.43	10.02	3.58	50.08	10:26

8	TOC	0.0000	0.0000	6.52	10.04	3.52	50.11	10:28
9	TOC	0.0000	0.0000	6.12	9.81	3.70	50.09	10:29
10	TOC	0.0000	0.0000	6.26	10.07	3.82	50.10	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm — From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9773 ppm (PASS)	0.0000 ppm	0%	2019/12/31 20:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9773	239.7730	172.22	176.04	3.82	50.08	10:30

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB — From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/12/31 20:49

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.78	10.54	3.76	50.08	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample — From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/31 21:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.94	9.79	3.85	50.09	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.1165 ppm (PASS)	0.0000 ppm	0%	2019/12/31 21:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1165	251.1653	179.95	183.84	3.89	50.07	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0636 ppm	0.0000 ppm	0.0000%	2019/12/31 21:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0636	0.6361	9.23	13.06	3.83	50.09	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1911995-001.01	2.2088 ppm	0.0314 ppm	1.4200%	2019/12/31 21:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1866	21.8664	23.64	27.48	3.83	50.06	10:27
2	TOC	2.2310	22.3098	23.94	27.71	3.76	50.06	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1911995-001.01 ms	28.2887 ppm	0.0000 ppm	0.0000%	2019/12/31 22:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.2887	282.8866	200.82	204.62	3.80	50.05	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

◆	5	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/31 22:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.43	11.35	3.92	50.02	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K1911998-001.01	2.9073 ppm	0.0683 ppm	2.3500%	2019/12/31 22:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9556	29.5565	28.86	32.62	3.76	50.06	10:29
2	TOC	2.8590	28.5901	28.21	31.99	3.78	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	7	TOC	K1911998-002.01 100x	0.8965 ppm	0.0303 ppm	3.3800%	2019/12/31 23:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9179	9.1792	15.03	18.91	3.88	50.07	10:27
2	TOC	0.8750	8.7505	14.74	18.37	3.63	50.05	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K1911998-003.01 1000x	0.0000 ppm	0.0000 ppm	0.0000%	2019/12/31 23:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.30	12.03	3.73	50.06	10:27
2	TOC	0.0000	0.0000	7.79	11.74	3.94	50.07	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K1911998-004.01	9.8591 ppm	0.1210 ppm	1.2300%	2020/01/01 00:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.9447	99.4466	76.30	80.14	3.84	50.03	10:31
2	TOC	9.7735	97.7347	75.14	79.02	3.87	50.08	10:29

Dilution	Blank Contribution	Method	Calibration

1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 80

	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)	25.0809 ppm (PASS)	0.0000 ppm	0%	2020/01/01 00:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0809	250.8088	179.71	183.63	3.92	50.04	10:34

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/01/01 00:53

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.54	11.40	3.87	50.02	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	10	TOC	K1911998-005.01 50x	2.5177 ppm	0.0309 ppm	1.2300%	2020/01/01 01:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5396	25.3962	26.04	29.64	3.60	50.04	10:30
2	TOC	2.4959	24.9586	25.74	29.62	3.88	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	11	TOC	K1911998-006.01	1.7592 ppm	0.0168 ppm	0.9500%	2020/01/01 01:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7473	17.4733	20.66	24.42	3.76	50.04	10:29
2	TOC	1.7710	17.7105	20.82	24.62	3.79	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1912042-001.01	4.4235 ppm	0.0222 ppm	0.5000%	2020/01/01 02:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.4392	44.3916	38.93	42.78	3.85	50.07	10:30
2	TOC	4.4078	44.0778	38.72	42.49	3.77	50.03	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1912042-002.01	4.0549 ppm	0.0614 ppm	1.5100%	2020/01/01 02:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.0983	40.9826	36.62	40.28	3.66	50.04	10:28
2	TOC	4.0115	40.1149	36.03	39.76	3.73	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1912042-003.01	13.2410 ppm	0.2666 ppm	2.0100%	2020/01/01 03:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.0525	130.5252	97.40	101.21	3.82	50.04	10:26
2	TOC	13.4295	134.2952	99.96	103.63	3.67	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1912042-004.01	14.1339 ppm	0.5156 ppm	3.6500%	2020/01/01 03:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	13.7692	137.6924	102.26	106.01	3.75	50.01	10:24
2	TOC	14.4985	144.9847	107.21	111.01	3.80	50.04	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC)	CAS_salt_010711	CAS_salt_010711

(v1333) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1912042-005.01	3.2440 ppm	0.3311 ppm	10.2100%	2020/01/01 03:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.4780	34.7804	32.41	36.29	3.88	50.01	10:27
2	TOC	3.0099	30.0986	29.23	33.20	3.97	50.04	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1911934-002.01	0.7151 ppm	0.1165 ppm	16.2900%	2020/01/01 04:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7974	7.9741	14.21	17.98	3.77	50.03	10:28
2	TOC	0.6327	6.3270	13.09	16.84	3.74	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1911980-001.01	3.9289 ppm	0.0122 ppm	0.3100%	2020/01/01 04:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.9375	39.3754	35.53	39.23	3.70	50.03	10:28
2	TOC	3.9203	39.2030	35.41	39.09	3.68	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1911981-001.01	3.5048 ppm	0.0034 ppm	0.1000%	2020/01/01 05:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.5072	35.0721	32.61	36.21	3.61	50.02	10:30
2	TOC	3.5024	35.0235	32.57	36.34	3.77	50.01	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time

◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	24.0346 ppm (PASS)	0.0000 ppm	0%	2020/01/01 05:48

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.0346	240.3461	172.61	176.27	3.66	50.03	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/01/01 06:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.34	9.85	3.50	50.01	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 06:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.53	9.23	3.70	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.0849 ppm (PASS)	0.0000 ppm	0%	2020/01/01 06:32

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0849	250.8486	179.74	183.47	3.74	50.04	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	21	TOC	K1912105-001.01	2.3905 ppm	0.0923 ppm	3.8600%	2020/01/01 06:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4558	24.5579	25.47	29.13	3.66	50.00	10:28
2	TOC	2.3253	23.2526	24.58	28.29	3.70	50.01	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K1912105-001.01 ms	28.1332 ppm	0.0000 ppm	0.0000%	2020/01/01 07:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	28.1332	281.3324	199.77	203.34	3.58	50.01	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 07:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.30	10.96	3.66	50.03	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K1911912-001.01	1.3018 ppm	0.0289 ppm	2.2200%	2020/01/01 07:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3222	13.2216	17.77	21.47	3.70	50.03	10:28
2	TOC	1.2814	12.8135	17.50	21.26	3.76	50.02	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1911912-002.01	0.4133 ppm	0.0138 ppm	3.3300%	2020/01/01 08:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4231	4.2307	11.67	15.28	3.60	50.04	10:26
2	TOC	0.4036	4.0362	11.54	15.27	3.73	50.03	10:27

Dilution 1:10

Blank Contribution (TC) 8.7992 (IC) (v1333)

Method CAS_salt_010711 (v4)

Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1911912-003.01	0.6258 ppm	0.0079 ppm	1.2700%	2020/01/01 08:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.6202	6.2018	13.01	16.67	3.66	50.04	10:28
2	TOC	0.6314	6.3138	13.08	16.79	3.70	50.02	10:27

Dilution 1:10

Blank Contribution (TC) 8.7992 (IC) (v1333)

Method CAS_salt_010711 (v4)

Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1911912-004.01	0.3476 ppm	0.0006 ppm	0.1800%	2020/01/01 09:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3481	3.4808	11.16	14.86	3.70	50.03	10:26
2	TOC	0.3472	3.4720	11.16	14.61	3.45	50.01	10:28

Dilution 1:10

Blank Contribution (TC) 8.7992 (IC) (v1333)

Method CAS_salt_010711 (v4)

Calibration CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1911968-004.01	1.1812 ppm	0.0446 ppm	3.7700%	2020/01/01 09:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1497	11.4965	16.60	20.31	3.71	50.03	10:30
2	TOC	1.2127	12.1270	17.03	20.61	3.57	50.02	10:25

Dilution 1:10

Blank Contribution (TC) 8.7992 (IC) (v1333)

Method CAS_salt_010711 (v4)

Calibration CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm

From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.9870 ppm (PASS)	0.0000 ppm	0%	2020/01/01 10:04

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.9870	239.8703	172.28	176.01	3.73	50.03	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/01/01 10:19

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.23	10.09	3.86	50.04	10:33

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	29	TOC	K1911968-005.01	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 10:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.30	10.10	3.80	50.04	10:30
2	TOC	0.0000	0.0000	6.26	9.91	3.66	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1912074-003.01	7.1478 ppm	0.0402 ppm	0.5600%	2020/01/01 11:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1194	71.1935	57.12	60.83	3.70	50.03	10:28
2	TOC	7.1762	71.7622	57.51	61.16	3.65	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K1912140-001.01	7.3546 ppm	0.0080 ppm	0.1100%	2020/01/01 11:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.3602	73.6022	58.76	62.25	3.49	50.02	10:30
2	TOC	7.3489	73.4888	58.68	62.37	3.69	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	FB 12/20/19 1501	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 11:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.83	10.55	3.72	50.02	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1911963-001.01 doc	2.3762 ppm	0.0331 ppm	1.3900%	2020/01/01 12:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3997	23.9966	25.09	28.67	3.58	50.02	10:25
2	TOC	2.3528	23.5281	24.77	28.44	3.67	50.03	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1911963-002.01 doc	2.3673 ppm	0.0236 ppm	1.0000%	2020/01/01 12:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.3840	23.8405	24.98	28.84	3.86	50.04	10:27
2	TOC	2.3506	23.5060	24.76	28.37	3.61	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1911963-003.01 doc	0.5096 ppm	0.0047 ppm	0.9200%	2020/01/01 13:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5063	5.0630	12.24	16.00	3.76	50.02	10:29
2	TOC	0.5129	5.1293	12.28	15.83	3.55	50.02	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K1911963-004.01 doc	1.5474 ppm	0.0310 ppm	2.0100%	2020/01/01 13:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5694	15.6937	19.45	23.25	3.80	50.02	10:26
2	TOC	1.5255	15.2546	19.15	22.81	3.66	50.03	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K1911963-005.01 doc	1.4530 ppm	0.0733 ppm	5.0500%	2020/01/01 14:05

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5048	15.0484	19.01	22.69	3.68	50.05	10:30
2	TOC	1.4011	14.0113	18.31	22.18	3.87	50.03	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K1911963-006.01 doc	1.9425 ppm	0.0184 ppm	0.9500%	2020/01/01 14:33

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9555	19.5549	22.07	25.96	3.89	50.07	10:27
2	TOC	1.9294	19.2942	21.90	25.73	3.84	50.03	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.6980 ppm (PASS)	0.0000 ppm	0%	2020/01/01 15:01

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.6980	236.9798	170.32	174.08	3.75	50.05	10:32

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/01/01 15:15

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.31	10.01	3.71	50.03	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 15:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.21	9.12	3.91	50.03	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> LCS From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	C	TOC	25.0000	1:1	[TOC] LCS [25.0 ppm]	0 / infinity (NA / NA)	24.8695 ppm (PASS)	0.0000 ppm	0%	2020/01/01 15:45

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.8695	248.6947	178.28	182.07	3.80	50.03	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos C
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	25 ppmC

Sample Type: Sample From Schedule Version 80

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	40	TOC	K1911963-007.01 doc	2.0700 ppm	0.0933 ppm	4.5100%	2020/01/01 16:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time

1	TOC	2.1360	21.3596	23.30	27.18	3.88	50.03	10:29
2	TOC	2.0040	20.0396	22.40	26.30	3.90	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1911963-008.01 doc	1.9025 ppm	0.0215 ppm	1.1300%	2020/01/01 16:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9176	19.1763	21.82	25.60	3.79	50.04	10:30
2	TOC	1.8873	18.8728	21.61	25.29	3.68	50.05	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K1911963-009.01 doc	1.8852 ppm	0.0954 ppm	5.0600%	2020/01/01 16:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9527	19.5269	22.05	25.78	3.72	50.07	10:27
2	TOC	1.8177	18.1775	21.14	24.92	3.79	50.08	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K1911963-010.01 doc	1.9715 ppm	0.0951 ppm	4.8200%	2020/01/01 17:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0387	20.3873	22.64	26.35	3.71	50.05	10:24
2	TOC	1.9042	19.0422	21.72	25.60	3.87	50.04	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	K1911963-011.01 doc	1.9039 ppm	0.0315 ppm	1.6500%	2020/01/01 17:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9262	19.2617	21.87	25.48	3.60	50.05	10:29
2	TOC	1.8817	18.8168	21.57	25.40	3.83	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1911963-012.01 doc	0.4572 ppm	0.0020 ppm	0.4300%	2020/01/01 18:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4558	4.5577	11.89	15.63	3.73	50.04	10:26
2	TOC	0.4586	4.5857	11.91	15.54	3.63	50.04	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1911963-012.01 ms doc	27.1795 ppm	0.0000 ppm	0.0000%	2020/01/01 18:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.1795	271.7949	193.29	197.03	3.73	50.05	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2020/01/01 19:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.24	10.00	3.76	50.05	10:28
2	TOC	0.0000	0.0000	6.14	9.84	3.70	50.05	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7992 (IC) (v1333)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

Sample Type: Check Standard --> CCV 25 ppm From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	B	TOC	25.0000	1:2	[TOC] CCV 25 ppm [25 ppm]	0 / infinity (NA / NA)	23.7970 ppm (PASS)	0.0000 ppm	0%	2020/01/01 19:32

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	23.7970	237.9698	170.99	174.59	3.59	50.06	10:29

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	50 ppmC

Sample Type: Check Standard --> CCB From Schedule Version 80

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2020/01/01 19:46

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.81	9.46	3.65	50.06	10:35

Completion State	Success Action	Method	Calibration	STD Conc - Pos D
Success - Criteria met.	Do Nothing	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)	0 ppmC

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1332	6.2033	2.5850	0.0000	0.0000	0.0000	2019/12/27 19:09	Fusion1 (Fusion1)
v1333	1.4150	1.3570	0.0000	0.0000	0.0000	2019/12/31 18:14	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version:	v30	Calibration curve formula:	TOC: y = 6.788x + 9.463
Ver Creation:	2019/03/05 17:42	r^2 value:	TOC: r^2 = 0.99963
Comment:			
Operator:	Fusion1 (Fusion1)		
Basic Analysis Type	TOC		

Basic Analysis Type: TOC

Sample ID	Y Raw Value	X Expected	Message	End Time
DI Water	7.8970	0.0000		2019/03/05 16:15
0.500 ppm	11.5280	0.5000		2019/03/05 16:29
1.0 ppm	14.9760	1.0000		2019/03/05 16:44
5.0 ppm	43.6500	5.0000		2019/03/05 16:58
10 ppm	79.6020	10.0000		2019/03/05 17:12
25 ppm	183.3580	25.0000		2019/03/05 17:26
50 ppm	346.3230	50.0000		2019/03/05 17:40

Methods

Name: CAS_salt_010711 (TOC)

Version: v4 Operator: Fusion1 (Fusion1)
Ver Creation: 2019/02/21 17:57
Comment:

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins
DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

Advanced Parameter	Value
NeedleRinseVolume	5.0 ml
VialPrimeVolume	2.0 ml
ICSamplePrimeVolume	2.0 ml
ICSpargeRinseVolume	12.0 ml
BaselineStabilizeTime	0.70 min
DetectorPressureFlow	150 ml/min
SyringeSpeedWaste	10
SyringeSpeedAcid	7
SyringeSpeedReagent	7
SyringeSpeedDIWater	7
NDIRPressurization	60 psig
SyringeSpeedSampleDispense	5
SyringeSpeedSampleAspirate	4
SyringeSpeedUVDispense	5
SyringeSpeedUVAspirate	5
SyringeSpeedICDispense	5
SyringeSpeedICAspirate	5
NDIRPressureStabilize	1.75 min
SampleMixing	Off
SampleMixingCycles	1
SampleMixingVolume	10.0
LowLevelFilterNDIR	Off

Acceptance / Approval

Electronic Signatures

Report Version	User Name	Acceptance	Reason	Date

Report History

Report History

Report Version	User Name	System Reason	User Reason	Date

1	Fusion1 (Fusion1)	Schedule completed	Schedule completed	2020/01/01 20:01

ALS Environmental

StarLIMS Run: 665302, 665303, 665304

Analysis: DOC/TOC

Method: SM 5310 C, 9060A, 415.1, 9060

CCV: 11-GEN-05-82C 50 ppm LCS: 11-GEN-05-79J 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-78M

ICS TV: 25.0 ppm ICS % R < 1

Spike ID: 11-GEN-05-82C 0.05 ml of 5000 ppm stock ---> 10.0 ml = 25.0 ppm x dilution factor

Sodium Persulfate: 11-GEN-05-83H

21 % H3PO4: 11-GEN-05-83I

Equipment ID: K-TOC-03

PIPETTE ID: 124276B, 129001F, N11314F, Marge

FILTER ID: 16967789

Analyzed By: BCD	Date Analyzed: 12/31/19
Reviewed By:	Date Reviewed: ~~12~~/01/03/20 TH

Work Request # Original ( ) K1911998, 2140, 2160, K2000034, 35, 90, T1901631

Tier: IV II II IV IV IV IV

Date Analyzed: 1/7/2020

Analyst: BCP

Analysis: TOC/DOC

TOC: 665574

DOC: 665575

Run #

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: K2000035-1/1d, 35-2/2d, 90-1/1d report on high %RSD. However these samples are less than 5x the MRL.

Final Approved by: [signature] Date: 01/08/20

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665574 **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
K1911998-003	Carbon, Total Organic	N/A		Ground Water	5.81 mg/L	10 ml	291 mg/L	50	4	25			1/7/20 19:36	N	IV
K1912140-002	Carbon, Total Organic	N/A		Water	6.31 mg/L	10 ml	631 mg/L	100	7	50			1/7/20 20:05	N	II
K1912140-003	Carbon, Total Organic	N/A		Water	7.34 mg/L	10 ml	734 mg/L	100	7	50			1/7/20 20:33	N	II
K1912140-004	Carbon, Total Organic	N/A		Water	7.21 mg/L	10 ml	721 mg/L	100	7	50			1/7/20 21:01	N	II
K1912160-001	Carbon, Total Organic	N/A		Water	2.70 mg/L	10 ml	2.70 mg/L	1	0.07	0.50			1/7/20 21:29	N	II
K2000034-001	Carbon, Total Organic	N/A		Water	2.13 mg/L	10 ml	2.13 mg/L	1	0.07	0.50			1/7/20 22:55	N	IV
K2000035-001	Carbon, Total Organic	N/A		Water	0.24 mg/L	10 ml	0.24 mg/L J	1	0.07	0.50			1/7/20 23:23	N	IV
K2000035-002	Carbon, Total Organic	N/A		Water	0.37 mg/L	10 ml	0.37 mg/L J	1	0.07	0.50			1/7/20 23:51	N	IV
K2000090-001	Carbon, Total Organic	N/A		Water	0.99 mg/L	10 ml	0.99 mg/L	1	0.07	0.50			1/8/20 01:46	N	IV
KQ2000092-01	Carbon, Total Organic	CCV		Ground Water	25.47 mg/L	10 ml	25.5 mg/L	1					1/7/20 18:23	N	IV
KQ2000092-02	Carbon, Total Organic	CCV		Ground Water	25.44 mg/L	10 ml	25.4 mg/L	1					1/7/20 22:26	N	IV
KQ2000092-03	Carbon, Total Organic	CCV		Ground Water	25.32 mg/L	10 ml	25.3 mg/L	1					1/8/20 02:14	N	IV
KQ2000092-04	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/7/20 18:38	N	IV
KQ2000092-05	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/7/20 22:40	N	IV
KQ2000092-06	Carbon, Total Organic	CCB		Ground Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/8/20 02:28	N	IV
KQ2000092-07	Carbon, Total Organic	MB		Ground Water	0.03 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/7/20 18:52	N	IV
KQ2000092-08	Carbon, Total Organic	LCS		Ground Water	26.49 mg/L	10 ml	26.5 mg/L	1	0.07	0.50	106		1/7/20 19:07	N	IV
KQ2000092-09	Carbon, Total Organic	MS	K1912160-001	Water	29.87 mg/L	10 ml	29.9 mg/L	1	0.07	0.50	109		1/7/20 21:57	N	II
KQ2000092-10	Carbon, Total Organic	DUP	K1911998-003	Ground Water	5.77 mg/L	10 ml	288 mg/L	50	4	25		<1	1/7/20 19:36	N	IV
KQ2000092-11	Carbon, Total Organic	DUP	K1912160-001	Water	2.59 mg/L	10 ml	2.59 mg/L	1	0.07	0.50		4	1/7/20 21:29	N	II
KQ2000092-12	Carbon, Total Organic	DUP	K1912140-002	Water	6.48 mg/L	10 ml	648 mg/L	100	7	50		3	1/7/20 20:05	N	II
KQ2000092-13	Carbon, Total Organic	DUP	K1912140-003	Water	7.33 mg/L	10 ml	733 mg/L	100	7	50		<1	1/7/20 20:33	N	II
KQ2000092-14	Carbon, Total Organic	DUP	K1912140-004	Water	7.16 mg/L	10 ml	716 mg/L	100	7	50		<1	1/7/20 21:01	N	II
KQ2000092-15	Carbon, Total Organic	DUP	K2000034-001	Water	2.11 mg/L	10 ml	2.11 mg/L	1	0.07	0.50		<1	1/7/20 22:55	N	IV
KQ2000092-16	Carbon, Total Organic	DUP	K2000035-001	Water	0.18 mg/L	10 ml	0.18 mg/L J	1	0.07	0.50		29*	1/7/20 23:23	N	IV
KQ2000092-17	Carbon, Total Organic	DUP	K2000035-002	Water	0.47 mg/L	10 ml	0.47 mg/L J	1	0.07	0.50		25*	1/7/20 23:51	N	IV
KQ2000092-18	Carbon, Total Organic	DUP	K2000090-001	Water	0.89 mg/L	10 ml	0.89 mg/L	1	0.07	0.50		11*	1/8/20 01:46	N	IV

01/08/20

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 665575 **Method/Testcode:** SM 5310 C/TOC D

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2000093-01	Carbon, Dissolved Organic (DOC)	CCV		Water	25.44 mg/L	10 ml	25.4 mg/L	1					1/7/20 22:26	N	IV
KQ2000093-02	Carbon, Dissolved Organic (DOC)	CCV		Water	25.32 mg/L	10 ml	25.3 mg/L	1					1/8/20 02:14	N	IV
KQ2000093-03	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/7/20 22:40	N	IV
KQ2000093-04	Carbon, Dissolved Organic (DOC)	CCB		Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/8/20 02:28	N	IV
KQ2000093-05	Carbon, Dissolved Organic (DOC)	MB		Water	-0.01 mg/L	10 ml	0.50 mg/L U	1	0.07	0.50			1/8/20 01:16	N	IV
KQ2000093-06	Carbon, Dissolved Organic (DOC)	LCS		Water	26.28 mg/L	10 ml	26.3 mg/L	1	0.07	0.50	105		1/8/20 01:31	N	IV
KQ2000093-07	Carbon, Dissolved Organic (DOC)	MS	T1901631-001	Water	31.46 mg/L	10 ml	31.5 mg/L	1	0.07	0.50	112		1/8/20 00:47	N	IV
KQ2000093-08	Carbon, Dissolved Organic (DOC)	DUP	T1901631-001	Water	3.55 mg/L	10 ml	3.55 mg/L	1	0.07	0.50		1	1/8/20 00:19	N	IV
T1901631-001	Carbon, Dissolved Organic (DOC)	N/A		Water	3.51 mg/L	10 ml	3.51 mg/L	1	0.07	0.50			1/8/20 00:19	Y	IV

01/08/20

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

0.036	OBSERVATIONS	5	ABOVE
0.000	STD Deviation	0.01628	0
0.000	AVERAGE	0.00728	0
0.000	UCL	0.02356	0
0.000	LCL	-0.00900	0
			0
			0
	OBSERVATIONS	0	0
	STD Deviation	0.00000	0
	AVERAGE	#DIV/0!	0
	UCL	#DIV/0!	0
	LCL	#DIV/0!	0
			0
			0
	OBSERVATIONS	0	0
	STD Deviation	0.00000	0
	AVERAGE	#DIV/0!	0
	UCL	#DIV/0!	0
	LCL	#DIV/0!	0
			0
			0
	OBSERVATIONS	0	0
	STD Deviation	#DIV/0!	0
	AVERAGE	#DIV/0!	0
			0
			0
			0
			0
			0
			0

BCD 1/8/2020

01/08/20

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.476	0.0073	25.4682	25.46822	25.5	1/7/2020
3	ccb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/7/2020
4	mb	1	0.036	0.0073	0.0291	0.02912	<0.5	1/7/2020
5	lcs	1	26.501	0.0073	26.4935	26.49352	26.5	1/7/2020
6	K1911998-003	50	5.821	0.0073	5.8137	290.686	290.69	1/7/2020
7	K1911998-003	50	5.777	0.0073	5.7699	288.496	288.5	1/7/2020
8	K1912140-002	100	6.313	0.0073	6.3059	630.592	631	1/7/2020
9	K1912140-002	100	6.486	0.0073	6.4783	647.832	647.83	1/7/2020
10	K1912140-003	100	7.343	0.0073	7.3358	733.582	733.58	1/7/2020
11	K1912140-003	100	7.333	0.0073	7.3260	732.602	732.6	1/7/2020
12	K1912140-004	100	7.217	0.0073	7.2096	720.962	720.96	1/7/2020
13	K1912140-004	100	7.163	0.0073	7.1552	715.522	715.52	1/7/2020
14	K1912160-001	1	2.708	0.0073	2.7008	2.70082	2.70	1/7/2020
15	K1912160-001	1	2.595	0.0073	2.5878	2.58782	2.6	1/7/2020
16	KQ2000092-09	1	29.873	0.0073	29.8656	29.86562	29.9	1/7/2020
17	ccv	1	25.451	0.0073	25.4432	25.44322	25.44	1/7/2020
18	ccb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/7/2020
19	K2000034-001	1	2.133	0.0073	2.1255	2.12552	2.1	1/7/2020
20	K2000034-001	1	2.118	0.0073	2.1104	2.11042	2.11	1/7/2020
21	K2000035-001	1	0.246	0.0073	0.2382	0.23822	<0.5	1/7/2020
22	K2000035-001	1	0.184	0.0073	0.1770	0.17702	<0.5	1/7/2020
23	K2000035-002	1	0.374	0.0073	0.3668	0.36682	<0.5	1/7/2020
24	K2000035-002	1	0.480	0.0073	0.4727	0.47272	<0.5	1/7/2020
25	K2000090-001	1	0.998	0.0073	0.9908	0.99082	0.99	1/8/2020

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BCD	Date Analyzed	1/7/2020
Reviewed By:	Date Reviewed	01/08/20

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
26	K2000090-001	1	0.895	0.0073	0.8879	0.88792	0.89	1/8/2020
27	ccv	1	25.331	0.0073	25.3234	25.32342	25.32	1/8/2020
28	ccb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/8/2020
29		1		0.0000	0.0000	0	<0.5	
30		1		0.0000	0.0000	0	<0.5	
31		1		0.0000	0.0000	0	<0.5	
32		1		0.0000	0.0000	0	<0.5	
33		1		0.0000	0.0000	0	<0.5	
34		1		0.0000	0.0000	0	<0.5	
35		1		0.0000	0.0000	0	<0.5	
36		1		0.0000	0.0000	0	<0.5	
37		1		0.0000	0.0000	0	<0.5	
38		1		0.0000	0.0000	0	<0.5	
39		1		0.0000	0.0000	0	<0.5	
40		1		0.0000	0.0000	0	<0.5	
41		1		0.0000	0.0000	0	<0.5	
42		1		0.0000	0.0000	0	<0.5	
43		1		0.0000	0.0000	0	<0.5	
44		1		0.0000	0.0000	0	<0.5	
45		1		0.0000	0.0000	0	<0.5	
46		1		0.0000	0.0000	0	<0.5	
47		1		0.0000	0.0000	0	<0.5	
48		1		0.0000	0.0000	0	<0.5	
49		1		0.0000	0.0000	0	<0.5	
50		1		0.0000	0.0000	0	<0.5	

Analyzed By: BAP	Date Analyzed 1/7/2020
Reviewed By:	Date Reviewed 01/08/20

ALS ENVIRONMENTAL

Matrix: WATER

Analysis: Total Organic Carbon (WATER) Method:Oxidation EPA 415.1/9060/5310C

Printout	Sample #	Dil. Factor	Solution Conc.,mg/L	Blank Correction, mg/L	Net mg/L	TOC mg/L	Reported TOC mg/L	
CBA	RB	1			0.0000	0	<0.5	
2	ccv	1	25.451	0.0073	25.4432	25.44322	25.4	1/7/2020
3	ccb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/7/2020
4	T1901631-001	1	3.522	0.0073	3.5147	3.51472	3.5	1/8/2020
5	T1901631-001	1	3.562	0.0073	3.5546	3.55462	3.6	1/8/2020
6	T1901631-001 ms	1	31.468	0.0073	31.4609	31.46092	31.46	1/8/2020
7	mb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/8/2020
8	lcs	1	26.283	0.0073	26.2760	26.27602	26	1/8/2020
9	ccv	1	25.331	0.0073	25.3234	25.32342	25.32	1/8/2020
10	ccb	1	0.000	0.0073	-0.0073	-0.00728	<0.5	1/8/2020
11		1		0.0000	0.0000	0	<0.5	
12		1		0.0000	0.0000	0	<0.5	
13		1		0.0000	0.0000	0	<0.5	
14		1		0.0000	0.0000	0	<0.5	
15		1		0.0000	0.0000	0	<0.5	
16		1		0.0000	0.0000	0	<0.5	
17		1		0.0000	0.0000	0	<0.5	
18		1		0.0000	0.0000	0	<0.5	
19		1		0.0000	0.0000	0	<0.5	
20		1		0.0000	0.0000	0	<0.5	
21		1		0.0000	0.0000	0	<0.5	
22		1		0.0000	0.0000	0	<0.5	
23		1		0.0000	0.0000	0	<0.5	
24		1		0.0000	0.0000	0	<0.5	
25		1		0.0000	0.0000	0	<0.5	

ICAL Date 10/20/16 ICAL ID#:11-GEN-05-51A

LCS =24.0 ppm APG 4013 Lot #010615 (REF# 11-GEN-05-50N)

CCV = 25.0 ppm (Ref.#11-GEN-05-52E)

Spike: 0.05 ml of 5000 ppm stock ----> 10.0 ml =25.0 ppm x Dilution Factor (Ref.# 11-GEN-05-51M)

		date time
Analyzed By: BW	Date Analyzed	1/7/2020
Reviewed By:	Date Reviewed	01/08/20

TOC:665574
ROC:665575

Schedule: 01072020

Version: 3
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2020/01/07 16:38 - Tuesday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
17	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
1	Sample	MB1	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
C	Check Standard	[TOC] LCS [24.0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
2	Sample	ICS	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
3	Sample	K1911998-003.02 50x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1912140-002.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1912140-003.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1912140-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1912160-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1912160-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
9	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K2000034-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K2000035-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K2000035-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	T1901631-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	T1901631-001.02 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
15	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
16	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
18	Sample	K2000090-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
					False	

01/08/20