LONGHORN ARMY AMMUNITION PLANT KARNACK, TEXAS

ADMINISTRATIVE RECORD

Volume 10

2020

Bate Stamp Numbers
00966319 – 00968275

Prepared for

Department of the Army
Longhorn Army Ammunition Plant

1976–2020

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

VOLUME 10

2020

A. Title: (cont'd) Report – Appendix D to Final Fifth Annual Remedial Action Operation Report, LHAAP-50, Former Sump Water Tank, Longhorn Army Ammunition Plant, Karnack, Texas, June 2020
Author(s): Department of the Army
Recipient: U.S. Environmental Protection Agency and Texas Commission on Environmental Quality
Date: June 4, 2020
Bate Stamp: 00966319 – 00968275

Sample Report

Mo	95	1	nogas	0.372	0.372	84.17	2709	0.01	2000	
Sn	118	1	nogas	0.027	0.027	28.46	1433	0.00	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Ba	137	1	nogas	29.288	29.288	2.81	134133	0.02	2000	
Sb	121	2	He	0.221	0.221	10.81	1770	0.01	2000	
La	139	1	nogas	2920.253	2920.253	14.02	10849	26.92	2000	>LDR
Au	197	1	nogas	158.285	158.285	330.04	27	593.57	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1134716	1.66	1229805	92.27	70	125	
Ge	72	1	nogas	3694681	3.41	3541557	104.32	70	125	
In	115	1	nogas	3227783	2.59	3006327	107.37	70	125	
Bi	209	1	nogas	2186549	2.00	2153140	101.55	70	125	
Ge	72	2	He	968153	0.83	993327	97.47	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	121_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T20:57:29-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	019CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.453	2.139	715199	0.55	100	96.5	90	110	
Na	23	1	nogas	10959.459	4.109	259099772	2.10	10000	109.6	90	110	
Mg	24	1	nogas	10082.589	3.415	153486933	0.38	10000	100.8	90	110	
Al	27	1	nogas	97.953	1.554	1906094	2.66	100	98.0	90	110	
K	39	1	nogas	10093.231	2.546	205640150	1.42	10000	100.9	90	110	
Ti	47	1	nogas	96.795	0.602	190201	1.80	100	96.8	90	110	
V	51	1	nogas	102.897	1.021	2917663	2.49	100	102.9	90	110	
Cr	52	1	nogas	95.066	2.436	2190587	0.84	100	95.1	90	110	
Mn	55	1	nogas	97.625	2.658	2752072	0.93	100	97.6	90	110	
Co	59	1	nogas	94.673	2.760	2329114	1.02	100	94.7	90	110	
Ni	60	1	nogas	95.365	3.235	528257	1.48	100	95.4	90	110	
Cu	63	1	nogas	89.147	2.479	1266744	1.29	100	89.1	90	110	CCV Main CR1-2 Failed
Zn	66	1	nogas	100.225	1.547	445702	1.67	100	100.2	90	110	
As	75	1	nogas	101.433	1.770	620556	0.93	100	101.4	90	110	
Sr	88	1	nogas	102.907	1.590	2917942	0.32	100	102.9	90	110	
Ag	107	1	nogas	97.884	3.598	1399197	2.10	100	97.9	90	110	
Cd	111	1	nogas	96.665	1.819	306423	0.59	100	96.7	90	110	
Sb	121	1	nogas	101.729	3.210	1292383	1.95	100	101.7	90	110	
Tl	205	1	nogas	100.844	6.376	1893917	5.69	100	100.8	90	110	
Pb	208	1	nogas	100.427	1.197	2558847	1.19	100	100.4	90	110	
U	238	1	nogas	105.152	1.953	2619777	0.82	100	105.2	90	110	
[Pb]	206	1	nogas	100.622	4.226	643101	3.34	100	100.6	90	110	
[Pb]	207	1	nogas	98.526	2.645	563488	1.31	100	98.5	90	110	
Na	23	2	He	10574.949	2.044	15523230	1.22	10000	105.7	90	110	
Mg	24	2	He	9796.298	3.257	8033579	2.09	10000	98.0	90	110	
Al	27	2	He	97.392	3.461	46153	2.84	100	97.4	90	110	
K	39	2	He	9102.344	0.228	8692931	0.22	10000	91.0	90	110	
Ca	43	2	He	10026.309	3.919	24643	2.85	10000	100.3	90	110	
Ca	44	2	He	9916.817	2.325	417845	1.49	10000	99.2	90	110	
V	51	2	He	99.013	0.740	601604	1.12	100	99.0	90	110	
Cr	52	2	He	100.570	1.375	655414	1.57	100	100.6	90	110	
Mn	55	2	He	97.804	2.990	461429	2.62	100	97.8	90	110	
Fe	56	2	He	9913.873	3.298	56808189	2.42	10000	99.1	90	110	
Co	59	2	He	100.473	3.001	904148	2.26	100	100.5	90	110	
Ni	60	2	He	100.744	1.485	232192	0.33	100	100.7	90	110	
Cu	63	2	He	94.674	2.699	584595	1.70	100	94.7	90	110	
Zn	66	2	He	96.363	1.045	139764	0.74	100	96.4	90	110	
As	75	2	He	101.008	2.005	143034	1.39	100	101.0	90	110	
Se	78	2	He	97.073	1.727	11256	1.34	100	97.1	90	110	
B	11	1	nogas	560.097	1.327	2481446	2.52	500	112.0	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4905.002	2.853	6715519	0.98	5000	98.1	90	110	
Ca	43	1	nogas	10018.531	2.178	369020	1.83	10000	100.2	90	110	
Ca	44	1	nogas	9919.917	2.336	6248565	2.40	10000	99.2	90	110	
Fe	56	1	nogas	9545.600	1.446	233678547	2.22	10000	95.5	90	110	
Se	77	1	nogas	126.312	2.845	48545	2.40	100	126.3	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.721	1.831	28366	0.12	100	96.7	90	110	
Mo	95	1	nogas	98.106	2.136	579666	1.69	100	98.1	90	110	
Sn	118	1	nogas	96.399	0.585	820184	0.68	100	96.4	90	110	
Ba	137	1	nogas	97.285	1.830	400074	1.32	100	97.3	90	110	
Sb	121	2	He	99.552	3.239	473603	2.63	100	99.6	90	110	
Li	7	1	nogas	97.965	5.098	1616512	2.96	100	98.0	90	110	
P	31	1	nogas	453.271	2.050	933747	0.51	500	90.7	90	110	
La	139	1	nogas	223.997	71.570	777	68.67	100	224.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	188.562	297.953	27	78.06	100	188.6	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1055374	2.49	1229805	85.82	70	125	
Ge	72	1	nogas	3335671	1.79	3541557	94.19	70	125	
In	115	1	nogas	2902955	1.26	3006327	96.56	70	125	
Bi	209	1	nogas	2108148	1.71	2153140	97.91	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	816833	1.18	993327	82.23	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	122_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T20:59:34-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	019CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.046	34.2	423	32.2	1	
Na	23	1	nogas	230.614	6.9	6308068	1.0	100	CCB Main CR1 Failed
Mg	24	1	nogas	12.014	20.8	200523	14.6	100	
Al	27	1	nogas	-0.594	-16.8	26028	5.4	5	
K	39	1	nogas	3.041	330.0	8111079	1.0	100	
Ti	47	1	nogas	0.005	978.1	470	22.2	2.5	
V	51	1	nogas	2.990	8.5	291764	0.9	2.5	CCB Main CR1 Failed
Cr	52	1	nogas	-0.046	-187.3	39576	2.9	2.5	
Mn	55	1	nogas	0.206	33.3	29307	4.5	2.5	
Co	59	1	nogas	0.043	49.6	2477	19.6	2.5	
Ni	60	1	nogas	0.556	8.3	2337	12.4	2.5	
Cu	63	1	nogas	-4.973	-0.5	8482	4.8	2.5	
Zn	66	1	nogas	0.569	7.5	2707	8.1	2.5	
As	75	1	nogas	2.472	11.9	64675	1.5	2.5	
Sr	88	1	nogas	0.303	15.1	9776	11.5	2.5	
Ag	107	1	nogas	0.028	30.4	543	21.6	2.5	
Cd	111	1	nogas	0.040	40.8	153	35.9	1	
Sb	121	1	nogas	1.022	24.3	14663	20.0	2.5	
Tl	205	1	nogas	0.542	52.0	11298	51.7	1	
Pb	208	1	nogas	-0.021	-142.0	3477	22.2	2.5	
U	238	1	nogas	0.165	64.5	4438	65.2	2.5	
[Pb]	206	1	nogas	-0.035	-133.7	953	35.0	2.5	
[Pb]	207	1	nogas	-0.020	-23.9	787	6.3	2.5	
Na	23	2	He	249.835	1.6	434100	0.4	100	CCB Main CR1 Failed
Mg	24	2	He	10.930	6.9	9626	5.1	100	
Al	27	2	He	-0.602	-20.6	623	8.8	5	
K	39	2	He	-25.860	-7.2	201773	0.9	100	
Ca	43	2	He	36.284	27.5	100	26.5	100	
Ca	44	2	He	24.610	28.0	4784	6.3	100	
V	51	2	He	-0.255	-4.2	3502	3.1	2.5	
Cr	52	2	He	-0.016	-373.5	5051	5.8	2.5	
Mn	55	2	He	-0.027	-172.7	2287	8.1	2.5	
Fe	56	2	He	4.347	2.3	38377	3.3	100	
Co	59	2	He	0.038	34.5	707	15.5	2.5	
Ni	60	2	He	-0.467	-5.0	237	24.4	2.5	
Cu	63	2	He	-3.486	-1.5	2740	10.6	2.5	
Zn	66	2	He	-0.254	-27.0	650	14.8	2.5	
As	75	2	He	0.073	5.6	398	3.2	2.5	
Se	78	2	He	0.353	87.9	219	17.3	2.5	
B	11	1	nogas	45.279	2.4	235203	3.1	10	CCB Main CR1 Failed
Si	28	1	nogas	-40.857	-55.9	1476874	0.9	5	
Ca	43	1	nogas	52.811	11.3	2904	5.5	100	
Ca	44	1	nogas	-294.188	-8.4	389920	1.7	100	
Fe	56	1	nogas	15.654	70.3	2571482	8.5	100	
Se	77	1	nogas	14.569	9.7	20745	1.0	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.013	554.9	363	7.9	2.5	
Mo	95	1	nogas	0.252	40.9	1823	31.8	2.5	
Sn	118	1	nogas	0.256	14.6	3417	11.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.043	13.5	533	5.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.601	9.5	3384	9.3	2.5	
P	31	1	nogas	-9.374	-20.4	90395	2.1	10	
La	139	1	nogas	14.909	46.3	87	29.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-20.525	-68.5	20	0.0	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	nogas	1193515	1.01	1229805	97.05	70	125	
Ge	72	1	nogas	3439553	2.22	3541557	97.12	70	125	
In	115	1	nogas	3063882	1.13	3006327	101.91	70	125	
Bi	209	1	nogas	2234904	2.75	2153140	103.80	70	125	
Ge	72	2	He	836160	1.81	993327	84.18	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	127_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:09:56-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	019CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.883	5.414	687543	0.49	100	94.9	90	110	
Na	23	1	nogas	10503.197	2.018	238904322	1.67	10000	105.0	90	110	
Mg	24	1	nogas	10293.178	4.718	150650120	1.96	10000	102.9	90	110	
Al	27	1	nogas	101.831	4.205	1854474	2.77	100	101.8	90	110	
K	39	1	nogas	10230.289	1.924	195206696	0.47	10000	102.3	90	110	
Ti	47	1	nogas	100.040	3.791	184094	1.87	100	100.0	90	110	
V	51	1	nogas	105.300	4.081	2792038	2.58	100	105.3	90	110	
Cr	52	1	nogas	102.194	5.032	2202992	3.13	100	102.2	90	110	
Mn	55	1	nogas	107.865	4.687	2846480	3.22	100	107.9	90	110	
Co	59	1	nogas	100.062	4.691	2305954	2.79	100	100.1	90	110	
Ni	60	1	nogas	98.381	3.315	510648	1.42	100	98.4	90	110	
Cu	63	1	nogas	92.061	2.132	1223550	1.67	100	92.1	90	110	
Zn	66	1	nogas	99.601	1.191	415065	2.23	100	99.6	90	110	
As	75	1	nogas	100.044	2.084	574104	0.99	100	100.0	90	110	
Sr	88	1	nogas	103.765	3.027	2757468	3.55	100	103.8	90	110	
Ag	107	1	nogas	103.561	5.684	1387018	4.81	100	103.6	90	110	
Cd	111	1	nogas	96.918	1.842	296614	2.73	100	96.9	90	110	
Sb	121	1	nogas	106.833	3.003	1271661	1.60	100	106.8	90	110	
Tl	205	1	nogas	102.854	0.884	1853401	1.37	100	102.9	90	110	
Pb	208	1	nogas	97.739	0.623	2490452	0.62	100	97.7	90	110	
U	238	1	nogas	103.663	2.372	2477424	2.03	100	103.7	90	110	
[Pb]	206	1	nogas	102.225	1.849	626787	1.55	100	102.2	90	110	
[Pb]	207	1	nogas	100.063	1.838	549008	1.80	100	100.1	90	110	
Na	23	2	He	10189.196	2.943	14149079	2.98	10000	101.9	90	110	
Mg	24	2	He	9906.923	2.000	7685222	2.00	10000	99.1	90	110	
Al	27	2	He	96.196	1.994	43133	2.51	100	96.2	90	110	
K	39	2	He	8632.386	0.189	8255772	0.18	10000	86.3	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10029.144	1.104	23318	0.57	10000	100.3	90	110	
Ca	44	2	He	9805.633	2.061	390804	1.49	10000	98.1	90	110	
V	51	2	He	100.422	1.919	576957	1.46	100	100.4	90	110	
Cr	52	2	He	102.747	1.737	633140	1.40	100	102.7	90	110	
Mn	55	2	He	100.520	1.319	448486	1.22	100	100.5	90	110	
Fe	56	2	He	10059.449	1.328	54525074	1.36	10000	100.6	90	110	
Co	59	2	He	101.639	1.688	865129	1.54	100	101.6	90	110	
Ni	60	2	He	101.388	1.972	220999	1.59	100	101.4	90	110	
Cu	63	2	He	95.362	2.949	556762	2.27	100	95.4	90	110	
Zn	66	2	He	98.239	1.766	134732	1.18	100	98.2	90	110	
As	75	2	He	99.630	0.643	133443	0.07	100	99.6	90	110	
Se	78	2	He	94.225	1.434	10338	1.13	100	94.2	90	110	
B	11	1	nogas	514.622	5.677	2227925	1.21	500	102.9	90	110	
Si	28	1	nogas	4830.276	2.276	6217884	0.52	5000	96.6	90	110	
Ca	43	1	nogas	10195.923	3.584	351776	1.66	10000	102.0	90	110	
Ca	44	1	nogas	9876.418	3.162	5829775	0.92	10000	98.8	90	110	
Fe	56	1	nogas	10335.634	3.272	236820189	1.22	10000	103.4	90	110	
Se	77	1	nogas	104.834	0.905	40368	1.72	100	104.8	90	110	
Se	82	1	nogas	98.354	3.524	27040	5.43	100	98.4	90	110	
Mo	95	1	nogas	100.797	2.261	558000	1.11	100	100.8	90	110	
Sn	118	1	nogas	97.685	4.133	801779	0.59	100	97.7	90	110	
Ba	137	1	nogas	98.296	4.967	389906	1.40	100	98.3	90	110	
Sb	121	2	He	100.715	2.417	453163	1.90	100	100.7	90	110	
Li	7	1	nogas	99.910	4.405	1610694	1.65	100	99.9	90	110	
P	31	1	nogas	466.250	2.542	897140	1.20	500	93.3	90	110	
La	139	1	nogas	86.252	27.522	307	21.71	100	86.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-153.291	-209.130	13	86.60	100	-153.3	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1033109	5.68	1229805	84.01	70	125	
Ge	72	1	nogas	3125617	2.02	3541557	88.26	70	125	
In	115	1	nogas	2803726	4.39	3006327	93.26	70	125	
Bi	209	1	nogas	2021944	0.49	2153140	93.91	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	772499	0.58	993327	77.77	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	128_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:12:00-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	019CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.050	46.1	413	34.9	1	
Na	23	1	nogas	94.466	5.8	2664505	2.4	100	
Mg	24	1	nogas	8.110	20.3	127729	17.1	100	
Al	27	1	nogas	-0.613	-11.3	23839	5.3	5	
K	39	1	nogas	8.253	56.0	7625610	0.4	100	
Ti	47	1	nogas	0.030	66.6	483	7.8	2.5	
V	51	1	nogas	1.164	18.9	224774	3.5	2.5	
Cr	52	1	nogas	-0.206	-34.6	33280	5.2	2.5	
Mn	55	1	nogas	1.145	4.5	52344	1.7	2.5	
Co	59	1	nogas	0.051	42.9	2500	20.4	2.5	
Ni	60	1	nogas	0.381	3.7	1240	6.5	2.5	
Cu	63	1	nogas	-4.662	-1.3	11844	6.0	2.5	
Zn	66	1	nogas	0.519	5.8	2300	5.8	2.5	
As	75	1	nogas	0.887	43.7	51463	3.1	2.5	
Sr	88	1	nogas	0.192	4.9	6061	3.2	2.5	
Ag	107	1	nogas	0.032	23.3	557	18.0	2.5	
Cd	111	1	nogas	0.056	23.8	193	20.9	1	
Sb	121	1	nogas	1.038	26.2	13856	24.3	2.5	
Tl	205	1	nogas	0.558	50.9	10771	49.5	1	
Pb	208	1	nogas	-0.020	-141.6	3504	20.9	2.5	
U	238	1	nogas	0.170	58.6	4234	58.3	2.5	
[Pb]	206	1	nogas	-0.036	-86.7	877	22.9	2.5	
[Pb]	207	1	nogas	-0.021	-148.6	727	24.2	2.5	
Na	23	2	He	114.942	2.4	217177	0.5	100	CCB Main CR1 Failed
Mg	24	2	He	6.997	4.7	5921	4.3	100	
Al	27	2	He	-0.586	-28.7	590	11.7	5	
K	39	2	He	-36.940	-0.2	191466	0.0	100	
Ca	43	2	He	29.106	32.5	77	30.1	100	
Ca	44	2	He	5.517	89.0	3710	4.5	100	
V	51	2	He	-0.355	-6.6	2697	4.2	2.5	
Cr	52	2	He	-0.017	-251.2	4724	6.7	2.5	
Mn	55	2	He	0.919	5.8	6395	3.6	2.5	
Fe	56	2	He	4.875	10.2	38765	5.9	100	
Co	59	2	He	0.040	15.0	677	8.9	2.5	
Ni	60	2	He	-0.444	-3.9	270	14.8	2.5	
Cu	63	2	He	-3.149	-1.0	4481	5.2	2.5	
Zn	66	2	He	-0.264	-25.5	593	14.3	2.5	
As	75	2	He	0.031	133.4	314	16.3	2.5	
Se	78	2	He	0.316	99.3	201	16.0	2.5	
B	11	1	nogas	32.827	10.6	159291	3.0	10	CCB Main CR1 Failed
Si	28	1	nogas	6.937	383.0	1419309	0.8	5	CCB Main CR1 Failed
Ca	43	1	nogas	32.993	3.1	2000	1.0	100	
Ca	44	1	nogas	-297.313	-1.9	360253	1.0	100	
Fe	56	1	nogas	10.356	70.5	2266876	7.8	100	
Se	77	1	nogas	3.308	93.2	16508	3.6	2.5	CCB Main CR1 Failed
Se	82	1	nogas	0.421	28.0	450	8.0	2.5	
Mo	95	1	nogas	0.255	39.9	1720	33.7	2.5	
Sn	118	1	nogas	0.247	26.3	3104	18.2	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.076	44.0	627	19.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.624	13.7	3267	12.1	2.5	
P	31	1	nogas	-4.244	-6.3	92893	0.6	10	
La	139	1	nogas	115.380	148.7	407	137.0	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-73.336	-215.3	17	34.6	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	nogas	1104108	7.03	1229805	89.78	70	125	
Ge	72	1	nogas	3191404	1.11	3541557	90.11	70	125	
In	115	1	nogas	2848650	2.84	3006327	94.76	70	125	
Bi	209	1	nogas	2082868	0.93	2153140	96.74	70	125	
Ge	72	2	He	782135	1.35	993327	78.74	70	125	

Calibration Blank Report

Sample Table

Sample Name	CAL BLK
Data File Name	132CALB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:20:18-06:00
Sample Type	CalBlk
Level	1
Dilution	1
Comment	

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	50	40.00
Na	23	1	nogas	1656557	0.00
Mg	24	1	nogas	41989	0.03
Al	27	1	nogas	20989	0.01
K	39	1	nogas	7714378	0.00
Ti	47	1	nogas	437	1.32
V	51	1	nogas	230344	0.00
Cr	52	1	nogas	33153	0.00
Mn	55	1	nogas	35551	0.01
Co	59	1	nogas	1110	0.57
Ni	60	1	nogas	810	0.40
Cu	63	1	nogas	15116	0.03
Zn	66	1	nogas	1340	0.28
As	75	1	nogas	50721	0.01
Sr	88	1	nogas	3567	0.10
Ag	107	1	nogas	83	8.31
Cd	111	1	nogas	30	111.11
Sb	121	1	nogas	1053	0.76
Tl	205	1	nogas	417	4.62
Pb	208	1	nogas	1603	0.56
[Pb]	206	1	nogas	380	5.41
[Pb]	207	1	nogas	363	3.15
Na	23	2	He	152547	0.00
Mg	24	2	He	2397	0.28
Al	27	2	He	577	1.06
K	39	2	He	190057	0.00
Ca	43	2	He	70	40.82
Ca	44	2	He	3160	0.35
V	51	2	He	2636	0.11
Cr	52	2	He	4597	0.05
Mn	55	2	He	3757	0.10
Fe	56	2	He	13091	0.05
Co	59	2	He	310	3.75
Ni	60	2	He	103	53.25
Cu	63	2	He	5818	0.06
Zn	66	2	He	343	11.58
As	75	2	He	266	4.92
Se	78	2	He	217	3.23
B	11	1	nogas	118775	0.00
Si	28	1	nogas	1375551	0.00
Ca	43	1	nogas	1570	1.04
Ca	44	1	nogas	346445	0.00

Calibration Blank Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	1956414	0.00
Se	77	1	nogas	16564	0.03
Se	82	1	nogas	480	2.64
Mo	95	1	nogas	150	23.52
Sn	118	1	nogas	1000	0.70
Ba	137	1	nogas	727	1.70
Sb	121	2	He	380	6.04
Li	7	1	nogas	98157	0.00
P	31	1	nogas	98907	0.00
La	139	1	nogas	43	134.02

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Li	6	1	nogas	1171766	2.42
Ge	72	1	nogas	3233065	0.97
In	115	1	nogas	2958353	2.40
Bi	209	1	nogas	2061475	3.55
Ge	72	2	He	810035	0.70

Calibration Standard Report

Sample Table

Sample Name	2/10/200
Data File Name	133CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:22:20-06:00
Sample Type	CalStd
Level	2
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	13375	0.02
Na	23	1	nogas	6369549	0.00
Mg	24	1	nogas	3260445	0.00
Al	27	1	nogas	54395	0.00
K	39	1	nogas	11651533	0.00
Ti	47	1	nogas	4010	0.08
V	51	1	nogas	274564	0.00
Cr	52	1	nogas	77756	0.00
Mn	55	1	nogas	91652	0.00
Co	59	1	nogas	48424	0.00
Ni	60	1	nogas	11384	0.04
Cu	63	1	nogas	41895	0.01
Zn	66	1	nogas	10180	0.02
As	75	1	nogas	61908	0.00
Sr	88	1	nogas	60018	0.00
Ag	107	1	nogas	28710	0.00
Cd	111	1	nogas	6195	0.05
Sb	121	1	nogas	27475	0.01
Tl	205	1	nogas	37504	0.01
Pb	208	1	nogas	52381	0.00
[Pb]	206	1	nogas	12935	0.02
[Pb]	207	1	nogas	11264	0.03
Na	23	2	He	443743	0.00
Mg	24	2	He	168330	0.00
Al	27	2	He	1317	0.15
K	39	2	He	363906	0.00
Ca	43	2	He	520	2.43
Ca	44	2	He	10993	0.02
V	51	2	He	14390	0.02
Cr	52	2	He	17258	0.01
Mn	55	2	He	12791	0.03
Fe	56	2	He	1161662	0.00
Co	59	2	He	18389	0.01
Ni	60	2	He	4781	0.11
Cu	63	2	He	17682	0.00
Zn	66	2	He	3204	0.05
As	75	2	He	3046	0.07
Se	78	2	He	401	2.52
B	11	1	nogas	155757	0.00
Si	28	1	nogas	1516523	0.00

Calibration Standard Report

Ca	43	1	nogas	8499	0.06
Ca	44	1	nogas	464419	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	6643367	0.00
Se	77	1	nogas	17072	0.01
Se	82	1	nogas	837	1.15
Mo	95	1	nogas	11607	0.03
Sn	118	1	nogas	17506	0.02
Ba	137	1	nogas	8285	0.04
Sb	121	2	He	9763	0.04
P	31	1	nogas	114597	0.00
La	139	1	nogas	53	101.49

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1148787	4.67	1171766	98.04	70	125	
Ge	72	1	nogas	3290283	2.66	3233065	101.77	70	125	
In	115	1	nogas	2997832	2.44	2958353	101.33	70	125	
Bi	209	1	nogas	2126686	5.16	2061475	103.16	70	125	
Ge	72	2	He	804889	1.09	810035	99.36	70	125	

Calibration Standard Report

Sample Table

Sample Name	5/25/500
Data File Name	134CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:24:24-06:00
Sample Type	CalStd
Level	3
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	34832	0.01
Na	23	1	nogas	13348913	0.00
Mg	24	1	nogas	7899016	0.00
Al	27	1	nogas	112157	0.00
K	39	1	nogas	17375545	0.00
Ti	47	1	nogas	10827	0.11
V	51	1	nogas	358841	0.00
Cr	52	1	nogas	148632	0.00
Mn	55	1	nogas	172193	0.00
Co	59	1	nogas	117743	0.00
Ni	60	1	nogas	27327	0.00
Cu	63	1	nogas	79210	0.00
Zn	66	1	nogas	22157	0.01
As	75	1	nogas	79255	0.00
Sr	88	1	nogas	145268	0.00
Ag	107	1	nogas	69336	0.00
Cd	111	1	nogas	15097	0.01
Sb	121	1	nogas	65500	0.00
Tl	205	1	nogas	92531	0.00
Pb	208	1	nogas	131803	0.00
[Pb]	206	1	nogas	32025	0.01
[Pb]	207	1	nogas	29150	0.01
Na	23	2	He	894829	0.00
Mg	24	2	He	422787	0.00
Al	27	2	He	2800	0.18
K	39	2	He	619491	0.00
Ca	43	2	He	1110	1.62
Ca	44	2	He	23669	0.01
V	51	2	He	32247	0.00
Cr	52	2	He	37114	0.01
Mn	55	2	He	26586	0.01
Fe	56	2	He	2808440	0.00
Co	59	2	He	44962	0.00
Ni	60	2	He	11577	0.03
Cu	63	2	He	35247	0.00
Zn	66	2	He	7265	0.04
As	75	2	He	6981	0.04
Se	78	2	He	736	0.30
B	11	1	nogas	211892	0.00
Si	28	1	nogas	1673937	0.00

Calibration Standard Report

Ca	43	1	nogas	21573	0.11
Ca	44	1	nogas	640199	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	13592324	0.00
Se	77	1	nogas	18263	0.01
Se	82	1	nogas	1760	0.14
Mo	95	1	nogas	28874	0.01
Sn	118	1	nogas	42255	0.01
Ba	137	1	nogas	19852	0.01
Sb	121	2	He	22788	0.00
P	31	1	nogas	142256	0.00
La	139	1	nogas	73	42.94

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1162133	2.42	1171766	99.18	70	125	
Ge	72	1	nogas	3279639	1.90	3233065	101.44	70	125	
In	115	1	nogas	2943060	3.20	2958353	99.48	70	125	
Bi	209	1	nogas	2155140	4.78	2061475	104.54	70	125	
Ge	72	2	He	808101	1.44	810035	99.76	70	125	

Calibration Standard Report

Sample Table

Sample Name	10/50/1000
Data File Name	135CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:26:28-06:00
Sample Type	CalStd
Level	4
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	67130	0.00
Na	23	1	nogas	24792705	0.00
Mg	24	1	nogas	15278293	0.00
Al	27	1	nogas	209579	0.00
K	39	1	nogas	27168466	0.00
Ti	47	1	nogas	18226	0.00
V	51	1	nogas	491727	0.00
Cr	52	1	nogas	252244	0.00
Mn	55	1	nogas	330636	0.00
Co	59	1	nogas	231885	0.00
Ni	60	1	nogas	53318	0.01
Cu	63	1	nogas	140775	0.00
Zn	66	1	nogas	43923	0.00
As	75	1	nogas	105469	0.00
Sr	88	1	nogas	286095	0.00
Ag	107	1	nogas	142153	0.00
Cd	111	1	nogas	30236	0.01
Sb	121	1	nogas	125700	0.00
Tl	205	1	nogas	182926	0.00
Pb	208	1	nogas	257144	0.00
[Pb]	206	1	nogas	62458	0.00
[Pb]	207	1	nogas	56646	0.00
Na	23	2	He	1617547	0.00
Mg	24	2	He	812313	0.00
Al	27	2	He	5001	0.09
K	39	2	He	1066041	0.00
Ca	43	2	He	2314	0.49
Ca	44	2	He	42776	0.00
V	51	2	He	62291	0.00
Cr	52	2	He	68286	0.00
Mn	55	2	He	52237	0.00
Fe	56	2	He	5530173	0.00
Co	59	2	He	88516	0.00
Ni	60	2	He	22871	0.01
Cu	63	2	He	64527	0.00
Zn	66	2	He	14699	0.04
As	75	2	He	13963	0.01
Se	78	2	He	1233	0.39
B	11	1	nogas	313967	0.00
Si	28	1	nogas	1904501	0.00

Calibration Standard Report

Ca	43	1	nogas	36840	0.00
Ca	44	1	nogas	916610	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	24853691	0.00
Se	77	1	nogas	20198	0.01
Se	82	1	nogas	2990	0.27
Mo	95	1	nogas	56343	0.01
Sn	118	1	nogas	81259	0.00
Ba	137	1	nogas	40358	0.01
Sb	121	2	He	45780	0.00
P	31	1	nogas	186095	0.00
La	139	1	nogas	87	33.51

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1141882	2.78	1171766	97.45	70	125	
Ge	72	1	nogas	3303478	3.55	3233065	102.18	70	125	
In	115	1	nogas	2901413	3.19	2958353	98.08	70	125	
Bi	209	1	nogas	2144168	3.55	2061475	104.01	70	125	
Ge	72	2	He	813900	0.93	810035	100.48	70	125	

Calibration Standard Report

Sample Table

Sample Name	100/500/10K
Data File Name	136CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:28:31-06:00
Sample Type	CalStd
Level	5
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	708918	0.00
Na	23	1	nogas	239318264	0.00
Mg	24	1	nogas	154747316	0.00
Al	27	1	nogas	1913956	0.00
K	39	1	nogas	201423455	0.00
Ti	47	1	nogas	189011	0.00
V	51	1	nogas	2778563	0.00
Cr	52	1	nogas	2183332	0.00
Mn	55	1	nogas	2768287	0.00
Co	59	1	nogas	2277159	0.00
Ni	60	1	nogas	510058	0.00
Cu	63	1	nogas	1250824	0.00
Zn	66	1	nogas	428575	0.00
As	75	1	nogas	582611	0.00
Sr	88	1	nogas	2869078	0.00
Ag	107	1	nogas	1379275	0.00
Cd	111	1	nogas	300914	0.00
Sb	121	1	nogas	1270308	0.00
Tl	205	1	nogas	1889794	0.00
Pb	208	1	nogas	2541099	0.00
[Pb]	206	1	nogas	634318	0.00
[Pb]	207	1	nogas	559409	0.00
Na	23	2	He	14853822	0.00
Mg	24	2	He	8216399	0.00
Al	27	2	He	44112	0.00
K	39	2	He	8638587	0.00
Ca	43	2	He	23936	0.00
Ca	44	2	He	406490	0.00
V	51	2	He	602343	0.00
Cr	52	2	He	671834	0.00
Mn	55	2	He	464117	0.00
Fe	56	2	He	55464134	0.00
Co	59	2	He	891455	0.00
Ni	60	2	He	227321	0.00
Cu	63	2	He	584011	0.00
Zn	66	2	He	141569	0.00
As	75	2	He	138886	0.00
Se	78	2	He	10844	0.03
B	11	1	nogas	2242263	0.00
Si	28	1	nogas	6461019	0.00

Calibration Standard Report

Ca	43	1	nogas	360667	0.00
Ca	44	1	nogas	6066129	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	232052289	0.00
Se	77	1	nogas	41097	0.01
Se	82	1	nogas	28953	0.00
Mo	95	1	nogas	570258	0.00
Sn	118	1	nogas	801582	0.00
Ba	137	1	nogas	394072	0.00
Sb	121	2	He	467969	0.00
P	31	1	nogas	934022	0.00
La	139	1	nogas	380	4.99

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1076082	5.70	1171766	91.83	70	125	
Ge	72	1	nogas	3250742	2.71	3233065	100.55	70	125	
In	115	1	nogas	2793850	3.47	2958353	94.44	70	125	
Bi	209	1	nogas	2094723	2.41	2061475	101.61	70	125	
Ge	72	2	He	806515	0.80	810035	99.57	70	125	

Calibration Standard Report

Sample Table

Sample Name	200/1000/20K
Data File Name	137CALS.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:30:36-06:00
Sample Type	CalStd
Level	6
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Be	9	1	nogas	1380233	0.00
Na	23	1	nogas	469382227	0.00
Mg	24	1	nogas	303328815	0.00
Al	27	1	nogas	3591851	0.00
K	39	1	nogas	378799533	0.00
Ti	47	1	nogas	370955	0.00
V	51	1	nogas	5226243	0.00
Cr	52	1	nogas	4337629	0.00
Mn	55	1	nogas	5412668	0.00
Co	59	1	nogas	4463821	0.00
Ni	60	1	nogas	1017117	0.00
Cu	63	1	nogas	2464249	0.00
Zn	66	1	nogas	833502	0.00
As	75	1	nogas	1113067	0.00
Sr	88	1	nogas	5595267	0.00
Ag	107	1	nogas	2686315	0.00
Cd	111	1	nogas	578781	0.00
Sb	121	1	nogas	2589195	0.00
Tl	205	1	nogas	3701900	0.00
Pb	208	1	nogas	5023409	0.00
[Pb]	206	1	nogas	1247924	0.00
[Pb]	207	1	nogas	1103283	0.00
Na	23	2	He	28601453	0.00
Mg	24	2	He	15719288	0.00
Al	27	2	He	87066	0.00
K	39	2	He	16782509	0.00
Ca	43	2	He	46702	0.00
Ca	44	2	He	782865	0.00
V	51	2	He	1191175	0.00
Cr	52	2	He	1281351	0.00
Mn	55	2	He	880471	0.00
Fe	56	2	He	107109075	0.00
Co	59	2	He	1791767	0.00
Ni	60	2	He	450978	0.00
Cu	63	2	He	1140342	0.00
Zn	66	2	He	273886	0.00
As	75	2	He	276043	0.00
Se	78	2	He	21561	0.01
B	11	1	nogas	4305824	0.00
Si	28	1	nogas	11340207	0.00

Calibration Standard Report

Ca	43	1	nogas	702064	0.00
Ca	44	1	nogas	11360077	0.00
Name	Mass	Tune Step	Tune Mode	CPS	%RSD
Fe	56	1	nogas	470600377	0.00
Se	77	1	nogas	66812	0.00
Se	82	1	nogas	54810	0.00
Mo	95	1	nogas	1119556	0.00
Sn	118	1	nogas	1667640	0.00
Ba	137	1	nogas	780756	0.00
Sb	121	2	He	956851	0.00
P	31	1	nogas	1758777	0.00
La	139	1	nogas	613	1.62

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	975980	4.46	1171766	83.29	70	125	
Ge	72	1	nogas	3169936	2.57	3233065	98.05	70	125	
In	115	1	nogas	2770190	0.14	2958353	93.64	70	125	
Bi	209	1	nogas	2022181	2.47	2061475	98.09	70	125	
Ge	72	2	He	794815	1.98	810035	98.12	70	125	

Initial Calibration Verification (ICV) Report

Sample Table

Sample Name	ICCV
Data File Name	138_ICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:32:42-06:00
Sample Type	ICV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	97.438	0.729	699995	0.97	100	97.4	90	110	
Na	23	1	nogas	9988.377	2.167	245334747	0.65	10000	99.9	90	110	
Mg	24	1	nogas	9938.051	2.893	157344954	1.45	10000	99.4	90	110	
Al	27	1	nogas	103.918	1.585	1906100	0.78	100	103.9	90	110	
K	39	1	nogas	10526.700	0.892	205447805	0.21	10000	105.3	90	110	
Ti	47	1	nogas	101.236	2.141	189344	2.21	100	101.2	90	110	
V	51	1	nogas	99.140	1.264	2725907	1.92	100	99.1	90	110	
Cr	52	1	nogas	101.264	0.479	2220685	1.26	100	101.3	90	110	
Mn	55	1	nogas	100.661	4.909	2762592	4.91	100	100.7	90	110	
Co	59	1	nogas	103.765	1.460	2335581	2.24	100	103.8	90	110	
Ni	60	1	nogas	102.878	0.863	525681	1.65	100	102.9	90	110	
Cu	63	1	nogas	100.263	1.038	1250305	1.55	100	100.3	90	110	
Zn	66	1	nogas	100.623	1.323	423737	1.77	100	100.6	90	110	
As	75	1	nogas	99.897	0.982	582669	0.76	100	99.9	90	110	
Sr	88	1	nogas	98.817	1.104	2791110	1.81	100	98.8	90	110	
Ag	107	1	nogas	106.276	1.627	1440872	1.92	100	106.3	90	110	
Cd	111	1	nogas	103.925	1.459	306987	0.39	100	103.9	90	110	
Sb	121	1	nogas	103.053	2.414	1334974	2.00	100	103.1	90	110	
Tl	205	1	nogas	101.969	1.609	1971832	1.89	100	102.0	90	110	
Pb	208	1	nogas	102.511	2.583	2581537	2.58	100	102.5	90	110	
U	238	1	nogas	104.054	3.218	2566553	3.12	100	104.1	90	110	
[Pb]	206	1	nogas	101.152	0.768	659000	1.00	100	101.2	90	110	
[Pb]	207	1	nogas	96.992	0.800	558410	0.90	100	97.0	90	110	
Na	23	2	He	10087.057	0.683	14898063	0.50	10000	100.9	90	110	
Mg	24	2	He	10221.451	1.095	8274930	1.49	10000	102.2	90	110	
Al	27	2	He	102.291	2.116	45775	2.51	100	102.3	90	110	
K	39	2	He	10447.143	2.553	8890135	2.50	10000	104.5	90	110	
Ca	43	2	He	10214.093	1.684	24493	2.25	10000	102.1	90	110	
Ca	44	2	He	10342.728	2.421	417557	1.72	10000	103.4	90	110	
V	51	2	He	98.953	1.044	603696	0.49	100	99.0	90	110	
Cr	52	2	He	98.692	0.563	653524	1.04	100	98.7	90	110	
Mn	55	2	He	101.305	1.677	461639	1.85	100	101.3	90	110	
Fe	56	2	He	10364.522	2.744	57059781	2.54	10000	103.6	90	110	
Co	59	2	He	97.825	1.781	893843	1.51	100	97.8	90	110	
Ni	60	2	He	98.593	1.411	227296	1.94	100	98.6	90	110	
Cu	63	2	He	99.499	0.628	584626	1.30	100	99.5	90	110	
Zn	66	2	He	101.394	1.077	142931	0.88	100	101.4	90	110	
As	75	2	He	99.759	0.815	140823	0.27	100	99.8	90	110	
Se	78	2	He	99.530	0.753	11031	1.32	100	99.5	90	110	
B	11	1	nogas	502.526	1.389	2301317	0.47	500	100.5	90	110	
Si	28	1	nogas	5352.194	2.072	6747588	1.08	5000	107.0	90	110	
Ca	43	1	nogas	10466.918	0.821	371450	0.75	10000	104.7	90	110	
Ca	44	1	nogas	10590.543	2.495	6243783	1.97	10000	105.9	90	110	
Fe	56	1	nogas	10064.944	3.235	237897030	2.86	10000	100.6	90	110	
Se	77	1	nogas	81.358	3.883	36911	2.50	100	81.4	90	110	ICV Main CR1 Failed
Se	82	1	nogas	102.278	4.761	28616	3.90	100	102.3	90	110	
Mo	95	1	nogas	98.496	0.807	555738	1.07	100	98.5	90	110	
Sn	118	1	nogas	95.250	0.506	798518	1.31	100	95.2	90	110	
Ba	137	1	nogas	101.629	1.749	402782	0.50	100	101.6	90	110	
Sb	121	2	He	100.567	1.493	489105	1.13	100	100.6	90	110	
Li	7	1	nogas	106.443	3.503	1739938	4.00	100	106.4	90	110	
P	31	1	nogas	511.297	1.340	951690	0.48	500	102.3	90	110	
La	139	1	nogas	151.090	1.628	497	3.08	100	151.1	90	110	ICV Main CR1 Failed
Au	197	1	nogas	-63.299	-276.050	17	124.90	100	-63.3	90	110	ICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1029828	1.11	1171766	87.89	70	125	
Ge	72	1	nogas	3197054	0.79	3233065	98.89	70	125	
In	115	1	nogas	2810505	1.77	2958353	95.00	70	125	
Bi	209	1	nogas	2118262	0.28	2061475	102.75	70	125	

Initial Calibration Verification (ICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	813508	0.69	810035	100.43	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	139SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:34:46-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	132CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.771	1.771	4.64	13892	0.01	2000	
Na	23	1	nogas	183.391	183.391	6.76	6023329	0.00	200000	
Mg	24	1	nogas	204.609	204.609	5.43	3225413	0.01	200000	
Al	27	1	nogas	1.808	1.808	2.12	55489	0.00	2000	
K	39	1	nogas	181.876	181.876	2.92	11442276	0.00	200000	
Ti	47	1	nogas	1.932	1.932	3.16	4181	0.05	2000	
V	51	1	nogas	0.003	0.003	10094.18	235942	0.00	2000	
Cr	52	1	nogas	1.928	1.928	6.12	77091	0.00	2000	
Mn	55	1	nogas	1.657	1.657	3.76	82909	0.00	2000	
Co	59	1	nogas	2.037	2.037	1.54	48604	0.00	2000	
Ni	60	1	nogas	2.131	2.131	2.64	10947	0.02	2000	
Cu	63	1	nogas	1.939	1.939	1.37	40234	0.00	2000	
Zn	66	1	nogas	2.100	2.100	1.67	10236	0.02	2000	
As	75	1	nogas	1.134	1.134	24.70	56447	0.00	2000	
Sr	88	1	nogas	1.941	1.941	3.12	60345	0.00	2000	
Ag	107	1	nogas	1.971	1.971	1.37	27759	0.01	2000	
Cd	111	1	nogas	1.889	1.889	6.78	5801	0.03	2000	
Sb	121	1	nogas	2.255	2.255	1.14	31312	0.01	2000	
Tl	205	1	nogas	2.388	2.388	8.57	47443	0.01	2000	
Pb	208	1	nogas	2.134	2.134	0.95	55311	0.00	2000	
U	238	1	nogas	2.111	2.111	1.91	53130	0.00	2000	
[Pb]	206	1	nogas	2.047	2.047	3.53	13946	0.01	2000	
[Pb]	207	1	nogas	2.033	2.033	4.24	12275	0.02	2000	
Na	23	2	He	177.240	177.240	2.64	415544	0.04	200000	
Mg	24	2	He	198.949	198.949	2.09	164718	0.12	200000	
Al	27	2	He	1.828	1.828	4.92	1337	0.14	2000	
K	39	2	He	207.420	207.420	0.09	362790	0.06	200000	
Ca	43	2	He	171.985	171.985	29.88	487	35.34	200000	
Ca	44	2	He	193.697	193.697	2.09	11023	1.76	200000	
V	51	2	He	2.011	2.011	1.14	14165	0.01	2000	
Cr	52	2	He	2.062	2.062	11.11	18309	0.01	2000	
Mn	55	2	He	1.686	1.686	8.55	11480	0.01	2000	
Fe	56	2	He	208.916	208.916	1.70	1172233	0.02	200000	
Co	59	2	He	2.002	2.002	1.89	18743	0.01	2000	
Ni	60	2	He	2.101	2.101	2.64	4791	0.04	2000	
Cu	63	2	He	1.858	1.858	1.26	17372	0.01	2000	
Zn	66	2	He	1.605	1.605	9.79	2940	0.05	2000	
As	75	2	He	1.911	1.911	7.39	2984	0.06	2000	
Se	78	2	He	2.291	2.291	5.21	421	0.54	2000	
B	11	1	nogas	16.422	16.422	9.71	191735	0.01	2000	
Si	28	1	nogas	112.656	112.656	32.12	1526204	0.01	2000	
Ca	43	1	nogas	188.155	188.155	8.42	8492	2.22	200000	

Sample Report

Ca	44	1	nogas	184.272	184.272	6.37	461171	0.04	200000	
Fe	56	1	nogas	187.789	187.789	4.51	6563454	0.00	200000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Se	77	1	nogas	-6.173	-6.173	-38.63	15347	-0.04	2000	
Se	82	1	nogas	1.482	1.482	15.21	913	0.16	2000	
Mo	95	1	nogas	2.271	2.271	11.62	13412	0.02	2000	
Sn	118	1	nogas	2.192	2.192	7.20	19962	0.01	2000	
Ba	137	1	nogas	1.870	1.870	9.12	8366	0.02	2000	
Sb	121	2	He	2.303	2.303	4.32	11661	0.02	2000	
La	139	1	nogas	6.636	6.636	64.65	63	10.48	2000	
Au	197	1	nogas	17.858	17.858	988.47	27	66.97	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1121388	3.06	1171766	95.70	70	125	
Ge	72	1	nogas	3311616	1.42	3233065	102.43	70	125	
In	115	1	nogas	2911810	4.41	2958353	98.43	70	125	
Bi	209	1	nogas	2154941	2.58	2061475	104.53	70	125	
Ge	72	2	He	820041	1.62	810035	101.24	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	140LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:36:51-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.265	7.820	33570	2.49	5	85.3	70	130	
Na	23	1	nogas	470.946	4.980	12863929	2.06	500	94.2	70	130	
Mg	24	1	nogas	501.487	3.597	7812636	1.05	500	100.3	70	130	
Al	27	1	nogas	4.982	2.960	112189	1.32	5	99.6	70	130	
K	39	1	nogas	512.584	2.044	17424367	0.59	500	102.5	70	130	
Ti	47	1	nogas	4.873	7.315	9609	5.84	5	97.5	70	130	
V	51	1	nogas	3.271	18.003	312942	3.52	5	65.4	70	130	LLICV Main CR1 Failed
Cr	52	1	nogas	4.941	4.645	140823	2.73	5	98.8	70	130	
Mn	55	1	nogas	4.779	2.501	166196	1.71	5	95.6	70	130	
Co	59	1	nogas	5.188	1.944	118911	1.15	5	103.8	70	130	
Ni	60	1	nogas	5.316	1.775	27104	0.90	5	106.3	70	130	
Cu	63	1	nogas	5.129	2.290	78872	0.75	5	102.6	70	130	
Zn	66	1	nogas	5.009	2.794	22307	1.82	5	100.2	70	130	
As	75	1	nogas	4.447	5.939	72885	0.77	5	88.9	70	130	
Sr	88	1	nogas	4.968	0.912	145012	1.28	5	99.4	70	130	
Ag	107	1	nogas	5.119	2.428	70133	2.02	5	102.4	70	130	
Cd	111	1	nogas	4.841	3.665	14957	3.53	5	96.8	70	130	
Sb	121	1	nogas	5.065	0.770	67240	1.96	5	101.3	70	130	
Tl	205	1	nogas	4.870	2.966	93261	2.10	5	97.4	70	130	
Pb	208	1	nogas	5.049	0.630	128669	0.62	5	101.0	70	130	
U	238	1	nogas	4.965	3.393	120903	1.56	5	99.3	70	130	
[Pb]	206	1	nogas	4.934	5.460	32055	4.33	5	98.7	70	130	
[Pb]	207	1	nogas	5.043	2.586	28983	1.09	5	100.9	70	130	
Na	23	2	He	467.496	2.630	843270	0.83	500	93.5	70	130	
Mg	24	2	He	492.286	3.198	403987	1.94	500	98.5	70	130	
Al	27	2	He	4.686	8.142	2610	5.18	5	93.7	70	130	
K	39	2	He	519.302	0.806	622516	0.56	500	103.9	70	130	
Ca	43	2	He	453.210	0.311	1163	1.31	500	90.6	70	130	
Ca	44	2	He	474.049	1.514	22350	1.35	500	94.8	70	130	
V	51	2	He	4.885	3.661	31783	2.20	5	97.7	70	130	
Cr	52	2	He	4.695	4.557	35778	4.52	5	93.9	70	130	
Mn	55	2	He	4.676	2.032	25114	2.87	5	93.5	70	130	
Fe	56	2	He	520.890	2.181	2903399	1.46	500	104.2	70	130	
Co	59	2	He	4.995	1.161	46305	0.26	5	99.9	70	130	
Ni	60	2	He	5.073	5.985	11697	4.79	5	101.5	70	130	
Cu	63	2	He	4.864	2.257	34983	1.71	5	97.3	70	130	
Zn	66	2	He	4.549	9.508	7105	8.63	5	91.0	70	130	
As	75	2	He	4.843	3.598	7146	2.21	5	96.9	70	130	
Se	78	2	He	5.325	6.064	755	4.86	5	106.5	70	130	
B	11	1	nogas	23.499	14.558	226685	2.02	25	94.0	70	130	
Si	28	1	nogas	297.914	15.264	1675577	1.50	25	1191.7	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	490.212	2.410	19053	1.00	500	98.0	70	130	
Ca	44	1	nogas	502.667	2.481	628552	0.54	500	100.5	70	130	
Fe	56	1	nogas	481.556	1.025	13349975	0.76	500	96.3	70	130	
Se	77	1	nogas	-1.134	-227.864	16237	2.90	5	-22.7	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.797	13.552	1810	8.77	5	95.9	70	130	
Mo	95	1	nogas	5.041	2.370	28850	2.21	5	100.8	70	130	
Sn	118	1	nogas	4.677	3.266	41864	0.39	5	93.5	70	130	
Ba	137	1	nogas	4.736	4.726	20272	2.12	5	94.7	70	130	
Sb	121	2	He	4.983	2.429	24798	2.27	5	99.7	70	130	
Li	7	1	nogas	4.365	9.600	168841	3.23	5	87.3	70	130	
P	31	1	nogas	27.616	6.316	145272	0.91	25	110.5	70	130	
La	139	1	nogas	0.093	11515.726	43	81.04	5	1.9	70	130	LLICV Main CR1 Failed
Au	197	1	nogas	-145.673	-34.076	7	86.60	5	-2913.5	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1129836	5.43	1171766	96.42	70	125	
Ge	72	1	nogas	3227352	1.30	3233065	99.82	70	125	
In	115	1	nogas	2934755	3.00	2958353	99.20	70	125	
Bi	209	1	nogas	2089612	2.41	2061475	101.36	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Ge	72	2	He	820154	1.34	810035	101.25	70	125	

Initial Calibration Blank (ICB) Report

Sample Table

Sample Name	ICCB
Data File Name	141_ICB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:38:55-06:00
Sample Type	ICB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.012	30.7	143	21.3	1	
Na	23	1	nogas	-23.075	-12.3	1070804	2.4	100	
Mg	24	1	nogas	-0.593	-47.9	32066	14.4	100	
Al	27	1	nogas	-0.256	-25.9	16701	5.6	5	
K	39	1	nogas	-15.278	-95.9	7614174	0.6	100	
Ti	47	1	nogas	-0.077	-51.1	297	21.9	2.5	
V	51	1	nogas	-2.202	-3.5	178737	2.9	2.5	
Cr	52	1	nogas	-0.114	-34.5	31450	3.2	2.5	
Mn	55	1	nogas	-0.325	-12.4	27320	1.2	2.5	
Co	59	1	nogas	0.018	65.8	1550	13.9	2.5	
Ni	60	1	nogas	0.167	14.5	547	23.2	2.5	
Cu	63	1	nogas	-0.065	-19.8	14673	2.9	2.5	
Zn	66	1	nogas	-0.034	-45.2	950	4.6	2.5	
As	75	1	nogas	-1.271	-24.2	43171	0.2	2.5	
Sr	88	1	nogas	-0.037	-23.7	2580	6.5	2.5	
Ag	107	1	nogas	0.010	8.2	233	8.9	2.5	
Cd	111	1	nogas	-0.003	-111.5	20	50.0	1	
Sb	121	1	nogas	0.128	14.8	2790	5.6	2.5	
Tl	205	1	nogas	0.064	33.6	1687	25.7	1	
Pb	208	1	nogas	0.038	27.1	2560	10.1	2.5	
U	238	1	nogas	0.018	78.2	610	58.5	2.5	
[Pb]	206	1	nogas	0.041	18.0	667	7.7	2.5	
[Pb]	207	1	nogas	0.027	25.4	537	7.8	2.5	
Na	23	2	He	-29.613	-6.8	109559	2.1	100	
Mg	24	2	He	-0.475	-76.5	2020	16.1	100	
Al	27	2	He	-0.163	-76.5	443	10.7	5	
K	39	2	He	4.871	52.5	194114	1.1	100	
Ca	43	2	He	-16.866	-42.6	30	57.7	100	
Ca	44	2	He	-5.999	-76.8	2927	7.3	100	
V	51	2	He	0.075	30.8	2266	3.7	2.5	
Cr	52	2	He	-0.008	-281.2	4547	1.0	2.5	
Mn	55	2	He	-0.380	-10.9	2047	6.5	2.5	
Fe	56	2	He	0.615	13.5	16471	0.4	100	
Co	59	2	He	0.013	5.8	427	1.4	2.5	
Ni	60	2	He	0.092	27.0	120	50.0	2.5	
Cu	63	2	He	-0.111	-59.0	5771	4.6	2.5	
Zn	66	2	He	-0.279	-12.2	273	20.1	2.5	
As	75	2	He	0.014	64.0	287	7.3	2.5	
Se	78	2	He	-0.115	-194.8	154	13.6	2.5	
B	11	1	nogas	-0.032	-758.0	115463	0.7	10	
Si	28	1	nogas	5.400	1101.6	1416206	1.5	5	ICB Main CR1 Failed
Ca	43	1	nogas	-9.606	-41.7	1257	8.0	100	
Ca	44	1	nogas	-7.975	-214.0	350768	1.6	100	
Fe	56	1	nogas	-5.743	-68.1	1866287	1.8	100	

Initial Calibration Blank (ICB) Report

Se	77	1	nogas	-12.595	-17.0	13709	7.1	2.5	
Se	82	1	nogas	-0.489	-30.6	353	14.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Mo	95	1	nogas	0.043	34.8	403	17.6	2.5	
Sn	118	1	nogas	0.912	8.5	8882	5.7	5	
Ba	137	1	nogas	-0.107	-6.9	277	12.7	2.5	
Sb	121	2	He	0.131	4.3	1017	2.0	2.5	
P	31	1	nogas	-0.597	-430.2	100388	1.7	10	
La	139	1	nogas	2.507	230.5	50	34.6	2.5	ICB Main CR1 Failed
Au	197	1	nogas	-92.685	-137.0	13	114.6	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	nogas	1140366	1.63	1171766	97.32	70	125	
Ge	72	1	nogas	3318721	3.95	3233065	102.65	70	125	
In	115	1	nogas	2909978	2.00	2958353	98.36	70	125	
Bi	209	1	nogas	2148885	0.82	2061475	104.24	70	125	
Ge	72	2	He	811091	2.80	810035	100.13	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	150_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:57:43-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	95.145	1.191	668950	1.80	100	95.1	90	110	
Na	23	1	nogas	9986.877	4.742	234375314	4.25	10000	99.9	90	110	
Mg	24	1	nogas	9801.065	1.766	148295445	1.60	10000	98.0	90	110	
Al	27	1	nogas	103.992	3.205	1855741	1.21	100	104.0	90	110	
K	39	1	nogas	9949.552	2.624	189464425	4.54	10000	99.5	90	110	
Ti	47	1	nogas	99.641	3.029	181326	1.99	100	99.6	90	110	
V	51	1	nogas	96.665	0.539	2592181	2.33	100	96.7	90	110	
Cr	52	1	nogas	95.950	2.958	2049453	3.55	100	95.9	90	110	
Mn	55	1	nogas	96.771	0.966	2586409	3.06	100	96.8	90	110	
Co	59	1	nogas	102.012	1.183	2234178	1.03	100	102.0	90	110	
Ni	60	1	nogas	101.216	1.965	503201	0.99	100	101.2	90	110	
Cu	63	1	nogas	99.786	2.913	1210623	1.07	100	99.8	90	110	
Zn	66	1	nogas	101.510	1.644	415923	0.48	100	101.5	90	110	
As	75	1	nogas	98.243	0.813	558430	1.39	100	98.2	90	110	
Sr	88	1	nogas	99.807	3.576	2742291	2.09	100	99.8	90	110	
Ag	107	1	nogas	101.320	1.667	1336604	0.70	100	101.3	90	110	
Cd	111	1	nogas	100.107	1.367	296167	2.09	100	100.1	90	110	
Sb	121	1	nogas	101.953	1.828	1285270	1.49	100	102.0	90	110	
Tl	205	1	nogas	97.201	1.511	1859453	0.65	100	97.2	90	110	
Pb	208	1	nogas	99.631	2.008	2509052	2.01	100	99.6	90	110	
U	238	1	nogas	99.746	2.750	2433958	2.31	100	99.7	90	110	
[Pb]	206	1	nogas	96.667	0.870	623134	1.84	100	96.7	90	110	
[Pb]	207	1	nogas	96.829	1.032	551592	2.08	100	96.8	90	110	
Na	23	2	He	10137.511	0.831	13937705	1.31	10000	101.4	90	110	
Mg	24	2	He	10122.552	1.195	7628839	1.91	10000	101.2	90	110	
Al	27	2	He	104.003	7.763	43334	8.54	100	104.0	90	110	
K	39	2	He	9436.293	2.670	8048328	2.61	10000	94.4	90	110	
Ca	43	2	He	10282.768	3.528	22948	2.75	10000	102.8	90	110	
Ca	44	2	He	10076.270	3.581	378694	2.06	10000	100.8	90	110	
V	51	2	He	98.400	1.498	558831	0.91	100	98.4	90	110	
Cr	52	2	He	100.969	0.648	622288	0.90	100	101.0	90	110	
Mn	55	2	He	102.954	1.856	436619	0.68	100	103.0	90	110	
Fe	56	2	He	10240.425	2.912	52476631	2.27	10000	102.4	90	110	
Co	59	2	He	98.316	2.675	836154	1.71	100	98.3	90	110	
Ni	60	2	He	99.485	3.604	213429	2.09	100	99.5	90	110	
Cu	63	2	He	100.134	3.034	547511	1.50	100	100.1	90	110	
Zn	66	2	He	101.559	2.274	133279	2.71	100	101.6	90	110	
As	75	2	He	98.384	2.046	129273	0.54	100	98.4	90	110	
Se	78	2	He	98.735	3.535	10186	2.76	100	98.7	90	110	
B	11	1	nogas	486.990	3.535	2185333	2.23	500	97.4	90	110	
Si	28	1	nogas	5050.085	3.630	6269021	0.79	5000	101.0	90	110	
Ca	43	1	nogas	10093.415	1.049	348679	2.45	10000	100.9	90	110	
Ca	44	1	nogas	10097.997	2.987	5810321	3.69	10000	101.0	90	110	
Fe	56	1	nogas	9683.304	2.242	222781847	0.96	10000	96.8	90	110	
Se	77	1	nogas	91.761	2.921	38474	2.22	100	91.8	90	110	
Se	82	1	nogas	98.746	3.331	26904	2.55	100	98.7	90	110	
Mo	95	1	nogas	104.401	1.932	573167	1.28	100	104.4	90	110	
Sn	118	1	nogas	95.172	0.954	799080	2.42	100	95.2	90	110	
Ba	137	1	nogas	97.811	2.710	388239	2.43	100	97.8	90	110	
Sb	121	2	He	100.322	4.726	454030	3.21	100	100.3	90	110	
Li	7	1	nogas	95.302	2.785	1533851	4.56	100	95.3	90	110	
P	31	1	nogas	485.132	0.841	883662	1.38	500	97.0	90	110	
La	139	1	nogas	111.984	20.946	380	20.55	100	112.0	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-6.374	-2741.415	23	89.21	100	-6.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1007928	2.09	1171766	86.02	70	125	
Ge	72	1	nogas	3111524	2.14	3233065	96.24	70	125	
In	115	1	nogas	2814689	2.39	2958353	95.14	70	125	
Bi	209	1	nogas	2095772	1.08	2061475	101.66	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	757331	1.48	810035	93.49	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	151_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T21:59:46-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.066	32.0	517	30.6	1	
Na	23	1	nogas	-1.498	-248.7	1471668	6.4	100	
Mg	24	1	nogas	6.171	29.1	126895	18.7	100	
Al	27	1	nogas	0.115	64.2	21790	5.5	5	
K	39	1	nogas	5.917	401.9	7376519	2.9	100	
Ti	47	1	nogas	0.020	97.6	447	3.4	2.5	
V	51	1	nogas	-1.832	-5.0	173537	8.2	2.5	
Cr	52	1	nogas	-0.083	-119.7	29537	5.2	2.5	
Mn	55	1	nogas	-0.284	-20.9	26192	6.3	2.5	
Co	59	1	nogas	0.068	20.0	2500	4.5	2.5	
Ni	60	1	nogas	0.257	9.7	947	15.1	2.5	
Cu	63	1	nogas	0.080	83.7	15190	3.6	2.5	
Zn	66	1	nogas	0.294	12.9	2187	5.3	2.5	
As	75	1	nogas	-0.645	-64.5	42894	4.6	2.5	
Sr	88	1	nogas	0.065	25.9	5127	10.4	2.5	
Ag	107	1	nogas	0.070	18.5	977	9.2	2.5	
Cd	111	1	nogas	0.082	48.2	260	40.7	1	
Sb	121	1	nogas	1.272	25.1	16618	21.0	2.5	
Tl	205	1	nogas	0.681	53.1	13053	52.2	1	
Pb	208	1	nogas	0.084	26.1	3707	14.8	2.5	
U	238	1	nogas	0.166	58.9	4084	57.7	2.5	
[Pb]	206	1	nogas	0.088	31.6	920	17.8	2.5	
[Pb]	207	1	nogas	0.075	37.7	773	18.9	2.5	
Na	23	2	He	-4.243	-85.1	128557	4.9	100	
Mg	24	2	He	4.334	2.8	5181	7.8	100	
Al	27	2	He	0.017	1397.0	463	25.9	5	
K	39	2	He	-13.583	-78.4	178745	5.0	100	
Ca	43	2	He	-10.572	-80.1	40	50.0	100	
Ca	44	2	He	14.629	87.4	3274	7.9	100	
V	51	2	He	0.119	11.3	2226	8.4	2.5	
Cr	52	2	He	0.006	286.6	4074	5.6	2.5	
Mn	55	2	He	-0.282	-18.4	2180	4.1	2.5	
Fe	56	2	He	5.310	6.8	37175	11.6	100	
Co	59	2	He	0.063	34.6	780	24.7	2.5	
Ni	60	2	He	0.139	4.9	200	0.0	2.5	
Cu	63	2	He	0.051	102.6	5891	6.4	2.5	
Zn	66	2	He	-0.097	-23.4	463	13.2	2.5	
As	75	2	He	0.055	26.8	301	2.3	2.5	
Se	78	2	He	0.467	46.2	192	17.3	2.5	
B	11	1	nogas	9.255	20.8	144016	2.4	10	
Si	28	1	nogas	115.756	119.9	1404861	3.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	5.150	69.1	1653	4.2	100	
Ca	44	1	nogas	32.787	152.7	343496	1.1	100	
Fe	56	1	nogas	2.854	391.7	1905466	10.8	100	
Se	77	1	nogas	-8.278	-25.1	13639	6.3	2.5	
Se	82	1	nogas	-0.352	-90.9	357	15.4	2.5	
Mo	95	1	nogas	0.966	16.2	5324	13.3	2.5	
Sn	118	1	nogas	0.282	39.4	3197	25.8	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.013	-137.3	620	10.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.875	6.9	4064	11.8	2.5	
P	31	1	nogas	-1.133	-145.3	91558	5.7	10	
La	139	1	nogas	11.618	50.1	73	20.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-174.324	-28.5	3	173.2	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	nogas	1025417	4.74	1171766	87.51	70	125	
Ge	72	1	nogas	3056551	8.50	3233065	94.54	70	125	
In	115	1	nogas	2724134	4.75	2958353	92.08	70	125	
Bi	209	1	nogas	2037955	5.77	2061475	98.86	70	125	
Ge	72	2	He	712315	7.13	810035	87.94	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	162_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T22:22:40-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.178	7.271	677060	1.69	100	94.2	90	110	
Na	23	1	nogas	10299.714	1.921	234210539	1.37	10000	103.0	90	110	
Mg	24	1	nogas	10234.097	3.267	150021612	1.82	10000	102.3	90	110	
Al	27	1	nogas	103.346	3.017	1795334	1.15	100	103.3	90	110	
K	39	1	nogas	10272.614	2.488	190069846	1.72	10000	102.7	90	110	
Ti	47	1	nogas	99.308	1.072	175953	1.78	100	99.3	90	110	
V	51	1	nogas	101.113	1.490	2628898	1.18	100	101.1	90	110	
Cr	52	1	nogas	101.678	5.984	2110602	4.15	100	101.7	90	110	
Mn	55	1	nogas	102.748	2.962	2670173	2.64	100	102.7	90	110	
Co	59	1	nogas	103.411	3.006	2205277	4.34	100	103.4	90	110	
Ni	60	1	nogas	103.206	2.287	499419	0.74	100	103.2	90	110	
Cu	63	1	nogas	101.287	1.938	1196093	0.74	100	101.3	90	110	
Zn	66	1	nogas	100.633	0.312	401432	1.66	100	100.6	90	110	
As	75	1	nogas	99.906	0.975	551975	1.01	100	99.9	90	110	
Sr	88	1	nogas	100.046	4.425	2675322	2.64	100	100.0	90	110	
Ag	107	1	nogas	101.433	1.768	1302472	0.53	100	101.4	90	110	
Cd	111	1	nogas	100.253	2.282	285173	4.28	100	100.3	90	110	
Sb	121	1	nogas	100.201	2.020	1229470	0.46	100	100.2	90	110	
Tl	205	1	nogas	99.196	1.812	1815608	1.78	100	99.2	90	110	
Pb	208	1	nogas	98.884	1.908	2490267	1.91	100	98.9	90	110	
U	238	1	nogas	105.323	4.706	2457897	2.85	100	105.3	90	110	
[Pb]	206	1	nogas	101.276	2.158	624593	2.80	100	101.3	90	110	
[Pb]	207	1	nogas	100.022	1.275	545132	2.39	100	100.0	90	110	
Na	23	2	He	10088.780	3.070	14236746	0.59	10000	100.9	90	110	
Mg	24	2	He	10024.802	2.330	7754968	0.89	10000	100.2	90	110	
Al	27	2	He	103.627	1.710	44309	1.24	100	103.6	90	110	
K	39	2	He	9628.457	1.405	8208357	1.37	10000	96.3	90	110	
Ca	43	2	He	9882.517	2.785	22644	0.89	10000	98.8	90	110	
Ca	44	2	He	10090.599	2.971	389342	0.44	10000	100.9	90	110	
V	51	2	He	97.002	1.987	565594	1.28	100	97.0	90	110	
Cr	52	2	He	98.351	1.809	622378	0.80	100	98.4	90	110	
Mn	55	2	He	101.083	2.799	440120	0.36	100	101.1	90	110	
Fe	56	2	He	10153.735	3.322	53410099	1.31	10000	101.5	90	110	
Co	59	2	He	96.814	3.756	845115	1.24	100	96.8	90	110	
Ni	60	2	He	97.344	4.230	214365	1.95	100	97.3	90	110	
Cu	63	2	He	97.065	3.161	545057	1.33	100	97.1	90	110	
Zn	66	2	He	98.767	2.057	133071	1.44	100	98.8	90	110	
As	75	2	He	97.507	1.686	131553	1.30	100	97.5	90	110	
Se	78	2	He	96.627	2.766	10238	1.19	100	96.6	90	110	
B	11	1	nogas	495.039	5.621	2272066	0.73	500	99.0	90	110	
Si	28	1	nogas	5198.939	1.393	6245824	1.34	5000	104.0	90	110	
Ca	43	1	nogas	10081.013	1.185	338921	0.76	10000	100.8	90	110	
Ca	44	1	nogas	10166.942	2.183	5690222	0.33	10000	101.7	90	110	
Fe	56	1	nogas	9945.528	3.942	222634605	2.35	10000	99.5	90	110	
Se	77	1	nogas	94.653	2.692	38147	2.93	100	94.7	90	110	
Se	82	1	nogas	99.141	2.642	26289	0.99	100	99.1	90	110	
Mo	95	1	nogas	102.247	1.830	546414	1.30	100	102.2	90	110	
Sn	118	1	nogas	96.310	3.568	776773	1.31	100	96.3	90	110	
Ba	137	1	nogas	99.197	3.331	378334	1.47	100	99.2	90	110	
Sb	121	2	He	97.804	2.862	454519	1.01	100	97.8	90	110	
Li	7	1	nogas	94.932	7.811	1561964	1.92	100	94.9	90	110	
P	31	1	nogas	506.697	1.628	894169	0.47	500	101.3	90	110	
La	139	1	nogas	103.849	24.880	343	26.27	100	103.8	90	110	
Au	197	1	nogas	30.976	582.239	27	78.06	100	31.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1033427	5.78	1171766	88.19	70	125	
Ge	72	1	nogas	3028634	1.90	3233065	93.68	70	125	
In	115	1	nogas	2706701	4.62	2958353	91.49	70	125	
Bi	209	1	nogas	2005241	1.82	2061475	97.27	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	777636	2.48	810035	96.00	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	163_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T22:24:42-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.049	35.6	417	33.1	1	
Na	23	1	nogas	30.835	7.3	2246289	1.6	100	
Mg	24	1	nogas	5.116	28.9	114981	19.7	100	
Al	27	1	nogas	0.192	24.0	23081	2.5	5	
K	39	1	nogas	9.641	69.5	7439469	0.6	100	
Ti	47	1	nogas	-0.006	-227.2	400	7.5	2.5	
V	51	1	nogas	-1.810	-13.7	173526	4.4	2.5	
Cr	52	1	nogas	-0.020	-389.4	30813	4.4	2.5	
Mn	55	1	nogas	-0.222	-12.6	27764	1.8	2.5	
Co	59	1	nogas	0.071	19.9	2557	11.0	2.5	
Ni	60	1	nogas	0.287	7.9	1090	11.1	2.5	
Cu	63	1	nogas	-0.234	-23.0	11490	6.5	2.5	
Zn	66	1	nogas	0.230	7.2	1930	3.2	2.5	
As	75	1	nogas	-0.474	-30.5	43723	2.7	2.5	
Sr	88	1	nogas	0.035	39.5	4287	7.9	2.5	
Ag	107	1	nogas	0.051	24.9	730	21.4	2.5	
Cd	111	1	nogas	0.051	48.0	173	38.4	1	
Sb	121	1	nogas	0.883	24.7	11868	21.7	2.5	
Tl	205	1	nogas	0.556	48.1	10758	48.8	1	
Pb	208	1	nogas	0.071	20.8	3394	11.0	2.5	
U	238	1	nogas	0.152	54.5	3764	55.2	2.5	
[Pb]	206	1	nogas	0.080	34.7	870	21.1	2.5	
[Pb]	207	1	nogas	0.069	15.1	740	8.9	2.5	
Na	23	2	He	21.202	10.4	174381	0.6	100	
Mg	24	2	He	3.139	9.4	4684	4.1	100	
Al	27	2	He	0.185	96.9	567	11.7	5	
K	39	2	He	-4.463	-78.4	186341	1.6	100	
Ca	43	2	He	-1.423	-211.4	63	9.1	100	
Ca	44	2	He	-0.652	-641.2	2984	6.8	100	
V	51	2	He	0.133	20.8	2490	5.1	2.5	
Cr	52	2	He	0.022	156.6	4514	6.7	2.5	
Mn	55	2	He	-0.251	-20.3	2497	8.2	2.5	
Fe	56	2	He	5.083	7.6	38925	4.2	100	
Co	59	2	He	0.044	12.8	673	8.7	2.5	
Ni	60	2	He	0.167	5.7	277	7.5	2.5	
Cu	63	2	He	-0.269	-15.3	4614	3.7	2.5	
Zn	66	2	He	-0.032	-144.4	587	10.0	2.5	
As	75	2	He	0.041	72.4	307	11.3	2.5	
Se	78	2	He	0.219	73.7	181	11.0	2.5	
B	11	1	nogas	16.768	4.6	186333	3.2	10	CCB Main CR1 Failed
Si	28	1	nogas	154.672	26.6	1443948	1.9	5	CCB Main CR1 Failed
Ca	43	1	nogas	6.848	29.6	1710	3.1	100	
Ca	44	1	nogas	22.638	31.4	338344	0.4	100	
Fe	56	1	nogas	3.638	223.1	1923368	8.6	100	
Se	77	1	nogas	-5.360	-44.3	14313	4.3	2.5	
Se	82	1	nogas	-0.058	-499.7	437	17.5	2.5	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.282	27.2	1653	24.0	2.5	
Sn	118	1	nogas	0.262	25.3	3050	15.1	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.003	-1230.5	660	18.4	2.5	
Sb	121	2	He	0.558	12.7	2930	11.7	2.5	
P	31	1	nogas	0.507	262.8	93965	1.3	10	
La	139	1	nogas	19.456	30.9	97	15.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	30.851	444.4	27	57.3	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1079580	2.17	1171766	92.13	70	125	
Ge	72	1	nogas	3045493	1.00	3233065	94.20	70	125	
In	115	1	nogas	2738002	2.91	2958353	92.55	70	125	
Bi	209	1	nogas	2027203	3.11	2061475	98.34	70	125	
Ge	72	2	He	770274	1.84	810035	95.09	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	171_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T22:41:25-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.847	4.040	669799	2.38	100	94.8	90	110	
Na	23	1	nogas	10342.700	6.449	233945897	3.18	10000	103.4	90	110	
Mg	24	1	nogas	9987.701	5.594	145693257	2.43	10000	99.9	90	110	
Al	27	1	nogas	105.445	2.742	1892475	4.66	100	105.4	90	110	
K	39	1	nogas	9975.401	2.628	190786296	1.04	10000	99.8	90	110	
Ti	47	1	nogas	97.203	1.005	177880	2.97	100	97.2	90	110	
V	51	1	nogas	101.110	0.891	2714847	1.98	100	101.1	90	110	
Cr	52	1	nogas	99.202	2.642	2127923	0.68	100	99.2	90	110	
Mn	55	1	nogas	99.236	2.643	2663688	0.72	100	99.2	90	110	
Co	59	1	nogas	102.374	3.708	2252766	1.65	100	102.4	90	110	
Ni	60	1	nogas	99.344	2.019	496401	0.55	100	99.3	90	110	
Cu	63	1	nogas	96.651	3.187	1178991	1.09	100	96.7	90	110	
Zn	66	1	nogas	98.405	1.729	405295	0.68	100	98.4	90	110	
As	75	1	nogas	98.334	0.707	561790	1.80	100	98.3	90	110	
Sr	88	1	nogas	100.149	2.525	2766247	1.71	100	100.1	90	110	
Ag	107	1	nogas	99.434	3.766	1318044	1.76	100	99.4	90	110	
Cd	111	1	nogas	100.258	1.254	293972	1.34	100	100.3	90	110	
Sb	121	1	nogas	98.201	1.747	1244355	1.48	100	98.2	90	110	
Tl	205	1	nogas	97.714	3.871	1811496	2.45	100	97.7	90	110	
Pb	208	1	nogas	98.618	1.298	2483573	1.30	100	98.6	90	110	
U	238	1	nogas	104.444	5.914	2468886	3.76	100	104.4	90	110	
[Pb]	206	1	nogas	99.272	4.270	619996	2.55	100	99.3	90	110	
[Pb]	207	1	nogas	99.141	4.163	547126	1.95	100	99.1	90	110	
Na	23	2	He	10332.458	0.706	14350725	1.41	10000	103.3	90	110	
Mg	24	2	He	9884.567	0.464	7526681	1.22	10000	98.8	90	110	
Al	27	2	He	101.228	2.046	42615	2.82	100	101.2	90	110	
K	39	2	He	9445.282	0.803	8055814	0.78	10000	94.5	90	110	
Ca	43	2	He	10138.935	1.770	22868	2.17	10000	101.4	90	110	
Ca	44	2	He	10143.766	1.139	385270	0.88	10000	101.4	90	110	
V	51	2	He	99.291	0.535	569785	1.31	100	99.3	90	110	
Cr	52	2	He	98.386	0.994	612813	1.70	100	98.4	90	110	
Mn	55	2	He	101.031	0.097	433034	0.86	100	101.0	90	110	
Fe	56	2	He	10132.344	0.849	52468788	1.04	10000	101.3	90	110	
Co	59	2	He	98.629	2.350	847687	2.67	100	98.6	90	110	
Ni	60	2	He	99.645	2.544	216055	2.58	100	99.6	90	110	
Cu	63	2	He	100.713	1.336	556460	0.64	100	100.7	90	110	
Zn	66	2	He	99.657	1.512	132137	0.82	100	99.7	90	110	
As	75	2	He	99.667	1.991	132329	1.76	100	99.7	90	110	
Se	78	2	He	99.032	1.644	10324	1.13	100	99.0	90	110	
B	11	1	nogas	477.536	5.095	2154319	2.11	500	95.5	90	110	
Si	28	1	nogas	5085.829	3.589	6336431	1.03	5000	101.7	90	110	
Ca	43	1	nogas	9807.787	0.835	340567	1.92	10000	98.1	90	110	
Ca	44	1	nogas	9822.155	2.165	5687970	0.96	10000	98.2	90	110	
Fe	56	1	nogas	9739.144	2.625	225186980	0.84	10000	97.4	90	110	
Se	77	1	nogas	92.041	7.293	38721	2.39	100	92.0	90	110	
Se	82	1	nogas	98.132	4.179	26874	3.07	100	98.1	90	110	
Mo	95	1	nogas	100.594	2.747	555017	1.01	100	100.6	90	110	
Sn	118	1	nogas	96.932	1.281	806619	2.33	100	96.9	90	110	
Ba	137	1	nogas	98.757	3.228	388517	2.86	100	98.8	90	110	
Sb	121	2	He	98.896	0.811	452415	1.04	100	98.9	90	110	
Li	7	1	nogas	98.660	1.449	1591996	2.36	100	98.7	90	110	
P	31	1	nogas	489.098	3.297	894382	0.79	500	97.8	90	110	
La	139	1	nogas	87.638	9.522	303	10.60	100	87.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	0.797	6523.070	23	24.74	100	0.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1013037	3.45	1171766	86.45	70	125	
Ge	72	1	nogas	3127476	2.19	3233065	96.73	70	125	
In	115	1	nogas	2789868	2.49	2958353	94.30	70	125	
Bi	209	1	nogas	2031780	2.28	2061475	98.56	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	765158	0.81	810035	94.46	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	172_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T22:43:29-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.059	17.3	500	16.4	1	
Na	23	1	nogas	9.637	15.7	1790454	0.5	100	
Mg	24	1	nogas	5.128	23.9	116722	14.8	100	
Al	27	1	nogas	0.147	28.8	23021	1.8	5	
K	39	1	nogas	6.413	113.2	7620339	1.1	100	
Ti	47	1	nogas	0.036	140.2	490	17.7	2.5	
V	51	1	nogas	-1.438	-30.8	188273	5.5	2.5	
Cr	52	1	nogas	-0.066	-47.9	30843	1.8	2.5	
Mn	55	1	nogas	-0.288	-2.3	26900	1.2	2.5	
Co	59	1	nogas	0.067	5.6	2567	4.3	2.5	
Ni	60	1	nogas	0.258	16.9	977	22.5	2.5	
Cu	63	1	nogas	0.044	59.7	15226	2.4	2.5	
Zn	66	1	nogas	0.304	9.5	2300	6.8	2.5	
As	75	1	nogas	-0.362	-50.5	45728	3.1	2.5	
Sr	88	1	nogas	0.067	21.6	5314	7.5	2.5	
Ag	107	1	nogas	0.047	13.3	707	10.6	2.5	
Cd	111	1	nogas	0.050	18.6	177	14.2	1	
Sb	121	1	nogas	0.857	26.0	11938	23.8	2.5	
Tl	205	1	nogas	0.781	48.3	15486	50.0	1	
Pb	208	1	nogas	0.075	40.3	3500	21.9	2.5	
U	238	1	nogas	0.146	53.3	3764	54.0	2.5	
[Pb]	206	1	nogas	0.086	47.4	940	31.4	2.5	
[Pb]	207	1	nogas	0.084	30.2	847	19.8	2.5	
Na	23	2	He	5.680	18.5	155003	1.6	100	
Mg	24	2	He	3.932	17.4	5364	10.1	100	
Al	27	2	He	0.182	126.5	573	16.6	5	
K	39	2	He	3.355	19.9	192851	0.3	100	
Ca	43	2	He	15.828	96.3	103	31.1	100	
Ca	44	2	He	2.898	115.3	3160	5.5	100	
V	51	2	He	0.134	16.6	2526	3.7	2.5	
Cr	52	2	He	0.012	280.1	4507	3.8	2.5	
Mn	55	2	He	-0.291	-7.4	2357	2.2	2.5	
Fe	56	2	He	5.258	7.9	40361	3.5	100	
Co	59	2	He	0.059	20.6	813	10.7	2.5	
Ni	60	2	He	0.159	6.2	263	7.9	2.5	
Cu	63	2	He	-0.130	-33.5	5451	4.7	2.5	
Zn	66	2	He	-0.008	-1512.5	630	26.4	2.5	
As	75	2	He	0.043	69.9	314	14.7	2.5	
Se	78	2	He	0.287	30.2	191	3.2	2.5	
B	11	1	nogas	8.920	16.2	154140	2.9	10	
Si	28	1	nogas	141.193	18.9	1477333	0.8	5	CCB Main CR1 Failed
Ca	43	1	nogas	9.907	56.9	1870	8.9	100	
Ca	44	1	nogas	-0.013	-55968.6	336872	0.8	100	
Fe	56	1	nogas	4.031	182.3	1995271	8.2	100	
Se	77	1	nogas	-4.849	-40.6	14900	3.0	2.5	
Se	82	1	nogas	-0.035	-694.9	457	13.2	2.5	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.353	20.0	2103	18.5	2.5	
Sn	118	1	nogas	0.585	24.4	5914	18.8	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	0.045	46.2	880	9.0	2.5	
Sb	121	2	He	0.563	6.2	2990	2.9	2.5	
P	31	1	nogas	0.056	1022.0	96277	1.4	10	
La	139	1	nogas	11.764	183.8	77	83.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	17.985	1163.3	27	94.4	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1107536	3.13	1171766	94.52	70	125	
Ge	72	1	nogas	3144094	1.61	3233065	97.25	70	125	
In	115	1	nogas	2846886	1.58	2958353	96.23	70	125	
Bi	209	1	nogas	2090052	4.29	2061475	101.39	70	125	
Ge	72	2	He	780823	2.45	810035	96.39	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	183_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T23:06:20-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.905	3.317	709941	0.10	100	92.9	90	110	
Na	23	1	nogas	9838.130	1.061	240551180	1.39	10000	98.4	90	110	
Mg	24	1	nogas	9576.027	2.324	150929749	2.72	10000	95.8	90	110	
Al	27	1	nogas	97.662	2.684	1835934	4.19	100	97.7	90	110	
K	39	1	nogas	9896.578	2.781	198210996	2.77	10000	99.0	90	110	
Ti	47	1	nogas	97.679	1.936	187019	0.31	100	97.7	90	110	
V	51	1	nogas	96.970	1.911	2734683	2.38	100	97.0	90	110	
Cr	52	1	nogas	97.356	3.880	2186366	2.81	100	97.4	90	110	
Mn	55	1	nogas	96.230	2.155	2704824	0.56	100	96.2	90	110	
Co	59	1	nogas	102.817	0.769	2369206	1.89	100	102.8	90	110	
Ni	60	1	nogas	99.839	1.079	522224	1.21	100	99.8	90	110	
Cu	63	1	nogas	97.227	1.903	1241494	0.26	100	97.2	90	110	
Zn	66	1	nogas	98.600	0.798	425085	0.92	100	98.6	90	110	
As	75	1	nogas	96.448	0.608	577643	1.11	100	96.4	90	110	
Sr	88	1	nogas	97.994	1.029	2833917	2.50	100	98.0	90	110	
Ag	107	1	nogas	99.691	4.988	1383670	5.08	100	99.7	90	110	
Cd	111	1	nogas	98.573	3.229	302892	1.91	100	98.6	90	110	
Sb	121	1	nogas	98.257	1.125	1303462	2.68	100	98.3	90	110	
Tl	205	1	nogas	99.395	2.753	1891703	1.35	100	99.4	90	110	
Pb	208	1	nogas	102.760	2.976	2587808	2.97	100	102.8	90	110	
U	238	1	nogas	103.008	1.957	2500922	0.53	100	103.0	90	110	
[Pb]	206	1	nogas	100.292	3.271	643046	1.75	100	100.3	90	110	
[Pb]	207	1	nogas	100.241	4.077	567936	2.72	100	100.2	90	110	
Na	23	2	He	9950.161	0.882	14937930	0.77	10000	99.5	90	110	
Mg	24	2	He	9924.521	1.758	8165949	2.18	10000	99.2	90	110	
Al	27	2	He	99.997	2.053	45492	2.51	100	100.0	90	110	
K	39	2	He	10268.160	1.121	8741084	1.10	10000	102.7	90	110	
Ca	43	2	He	9803.686	2.180	23896	2.65	10000	98.0	90	110	
Ca	44	2	He	9883.166	1.528	405736	2.23	10000	98.8	90	110	
V	51	2	He	98.336	2.048	609710	1.40	100	98.3	90	110	
Cr	52	2	He	98.246	2.997	661126	2.32	100	98.2	90	110	
Mn	55	2	He	99.843	1.781	462422	1.15	100	99.8	90	110	
Fe	56	2	He	10062.185	0.497	56304424	1.20	10000	100.6	90	110	
Co	59	2	He	97.405	1.584	904644	2.28	100	97.4	90	110	
Ni	60	2	He	99.148	1.618	232315	2.32	100	99.1	90	110	
Cu	63	2	He	98.665	1.437	589235	1.68	100	98.7	90	110	
Zn	66	2	He	99.300	1.420	142276	1.05	100	99.3	90	110	
As	75	2	He	99.960	0.622	143417	1.07	100	100.0	90	110	
Se	78	2	He	101.073	2.791	11381	2.10	100	101.1	90	110	
B	11	1	nogas	456.268	2.437	2233477	1.33	500	91.3	90	110	
Si	28	1	nogas	4964.232	1.598	6508045	0.37	5000	99.3	90	110	
Ca	43	1	nogas	9910.259	1.501	360106	0.32	10000	99.1	90	110	
Ca	44	1	nogas	9915.994	3.279	6006115	1.49	10000	99.2	90	110	
Fe	56	1	nogas	9563.794	1.273	231523014	0.37	10000	95.6	90	110	
Se	77	1	nogas	83.797	3.703	38411	0.77	100	83.8	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	100.642	2.778	28850	4.03	100	100.6	90	110	
Mo	95	1	nogas	100.173	0.591	578663	1.79	100	100.2	90	110	
Sn	118	1	nogas	94.723	2.213	826106	1.90	100	94.7	90	110	
Ba	137	1	nogas	97.646	3.833	402503	0.80	100	97.6	90	110	
Sb	121	2	He	98.225	0.243	485546	0.75	100	98.2	90	110	
Li	7	1	nogas	97.838	4.270	1708032	0.67	100	97.8	90	110	
P	31	1	nogas	487.339	0.898	933413	1.49	500	97.5	90	110	
La	139	1	nogas	116.594	27.850	407	22.04	100	116.6	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	21.068	1206.990	27	114.56	100	21.1	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1096195	3.31	1171766	93.55	70	125	
Ge	72	1	nogas	3273180	1.62	3233065	101.24	70	125	
In	115	1	nogas	2925384	4.16	2958353	98.89	70	125	
Bi	209	1	nogas	2085444	1.63	2061475	101.16	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	826791	0.72	810035	102.07	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	184_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T23:08:24-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.072	27.0	647	21.9	1	
Na	23	1	nogas	7.470	29.3	1851405	3.1	100	
Mg	24	1	nogas	3.942	37.6	105320	22.7	100	
Al	27	1	nogas	-0.080	-49.4	20445	1.5	5	
K	39	1	nogas	-1.718	-753.2	8044221	1.1	100	
Ti	47	1	nogas	0.090	65.0	633	16.4	2.5	
V	51	1	nogas	-2.308	-9.8	179551	1.4	2.5	
Cr	52	1	nogas	0.062	197.4	36099	5.1	2.5	
Mn	55	1	nogas	-0.237	-30.1	30409	3.7	2.5	
Co	59	1	nogas	0.066	34.6	2740	18.2	2.5	
Ni	60	1	nogas	0.249	9.7	1003	13.8	2.5	
Cu	63	1	nogas	0.083	23.6	16918	1.8	2.5	
Zn	66	1	nogas	0.176	26.5	1900	8.1	2.5	
As	75	1	nogas	-0.881	-38.0	46283	2.1	2.5	
Sr	88	1	nogas	0.022	126.2	4374	16.7	2.5	
Ag	107	1	nogas	0.048	19.9	777	15.7	2.5	
Cd	111	1	nogas	0.054	35.4	200	27.8	1	
Sb	121	1	nogas	1.217	25.5	17730	21.9	2.5	
Tl	205	1	nogas	0.705	37.9	15162	40.6	1	
Pb	208	1	nogas	0.072	35.3	3414	18.7	2.5	
U	238	1	nogas	0.136	48.6	3804	50.2	2.5	
[Pb]	206	1	nogas	0.065	45.8	873	27.9	2.5	
[Pb]	207	1	nogas	0.051	15.3	717	10.3	2.5	
Na	23	2	He	0.662	496.6	153357	1.8	100	
Mg	24	2	He	2.294	32.3	4237	12.7	100	
Al	27	2	He	-0.018	-159.0	507	2.3	5	
K	39	2	He	10.906	28.4	199140	1.3	100	
Ca	43	2	He	2.874	348.3	77	30.1	100	
Ca	44	2	He	-5.027	-122.5	2957	7.0	100	
V	51	2	He	0.116	9.5	2514	4.0	2.5	
Cr	52	2	He	0.066	34.3	5027	3.2	2.5	
Mn	55	2	He	-0.202	-10.2	2847	4.5	2.5	
Fe	56	2	He	4.641	2.3	38497	2.6	100	
Co	59	2	He	0.051	17.3	777	11.0	2.5	
Ni	60	2	He	0.150	27.3	253	37.5	2.5	
Cu	63	2	He	-0.056	-63.5	6081	3.5	2.5	
Zn	66	2	He	-0.089	-113.5	537	26.5	2.5	
As	75	2	He	0.052	44.6	338	8.4	2.5	
Se	78	2	He	0.372	76.3	207	13.8	2.5	
B	11	1	nogas	-0.426	-399.9	119024	4.1	10	
Si	28	1	nogas	97.199	41.0	1544126	0.7	5	CCB Main CR1 Failed
Ca	43	1	nogas	3.372	89.2	1770	3.5	100	
Ca	44	1	nogas	-35.499	-60.8	341758	0.6	100	
Fe	56	1	nogas	-2.129	-393.6	1994185	8.7	100	
Se	77	1	nogas	-7.319	-2.7	15393	2.8	2.5	
Se	82	1	nogas	-0.328	-34.7	407	7.5	2.5	
Mo	95	1	nogas	0.305	41.3	1970	36.6	2.5	
Sn	118	1	nogas	0.349	29.2	4124	20.1	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.047	-43.6	537	14.0	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.883	1.6	4647	0.1	2.5	
P	31	1	nogas	5.694	45.6	113615	1.3	10	
La	139	1	nogas	10.341	79.4	77	32.8	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-123.122	-64.6	10	100.0	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	nogas	1196915	3.07	1171766	102.15	70	125	
Ge	72	1	nogas	3387392	3.17	3233065	104.77	70	125	
In	115	1	nogas	2999763	2.18	2958353	101.40	70	125	
Bi	209	1	nogas	2263409	3.76	2061475	109.80	70	125	
Ge	72	2	He	809386	1.34	810035	99.92	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	195_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T23:31:22-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	98.145	3.285	759827	1.62	100	98.1	90	110	
Na	23	1	nogas	9896.205	3.990	258337689	1.42	10000	99.0	90	110	
Mg	24	1	nogas	9770.217	5.908	164298908	1.12	10000	97.7	90	110	
Al	27	1	nogas	99.408	5.422	2023636	2.77	100	99.4	90	110	
K	39	1	nogas	9778.360	3.346	212383088	1.49	10000	97.8	90	110	
Ti	47	1	nogas	96.545	2.887	200404	1.10	100	96.5	90	110	
V	51	1	nogas	96.015	1.631	2938135	1.55	100	96.0	90	110	
Cr	52	1	nogas	97.396	1.954	2371825	0.79	100	97.4	90	110	
Mn	55	1	nogas	96.945	2.308	2954171	0.77	100	96.9	90	110	
Co	59	1	nogas	102.296	4.605	2554149	2.13	100	102.3	90	110	
Ni	60	1	nogas	97.703	2.506	553982	0.20	100	97.7	90	110	
Cu	63	1	nogas	95.128	3.691	1317043	1.33	100	95.1	90	110	
Zn	66	1	nogas	97.573	2.583	456052	1.78	100	97.6	90	110	
As	75	1	nogas	96.158	2.418	624513	1.43	100	96.2	90	110	
Sr	88	1	nogas	96.164	3.772	3014087	2.55	100	96.2	90	110	
Ag	107	1	nogas	97.630	1.717	1469108	1.09	100	97.6	90	110	
Cd	111	1	nogas	99.805	3.220	324954	3.36	100	99.8	90	110	
Sb	121	1	nogas	97.368	2.834	1399939	1.37	100	97.4	90	110	
Tl	205	1	nogas	95.893	3.401	1984203	2.53	100	95.9	90	110	
Pb	208	1	nogas	109.504	0.919	2757551	0.92	100	109.5	90	110	
U	238	1	nogas	103.380	3.854	2728169	2.07	100	103.4	90	110	
[Pb]	206	1	nogas	97.273	2.142	678280	2.38	100	97.3	90	110	
[Pb]	207	1	nogas	97.310	2.377	599524	1.52	100	97.3	90	110	
Na	23	2	He	9823.545	2.560	15718255	2.18	10000	98.2	90	110	
Mg	24	2	He	9793.081	0.234	8586868	0.40	10000	97.9	90	110	
Al	27	2	He	99.658	2.040	48312	1.40	100	99.7	90	110	
K	39	2	He	11105.898	1.115	9438728	1.09	10000	111.1	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9951.290	3.620	25848	3.95	10000	99.5	90	110	
Ca	44	2	He	9976.902	0.289	436431	0.65	10000	99.8	90	110	
V	51	2	He	98.378	1.284	650070	0.66	100	98.4	90	110	
Cr	52	2	He	98.667	0.221	707657	0.82	100	98.7	90	110	
Mn	55	2	He	100.340	1.059	495255	0.61	100	100.3	90	110	
Fe	56	2	He	10152.363	1.854	60535724	1.27	10000	101.5	90	110	
Co	59	2	He	98.004	1.702	969869	1.08	100	98.0	90	110	
Ni	60	2	He	99.007	2.283	247187	1.76	100	99.0	90	110	
Cu	63	2	He	98.333	1.390	625821	0.76	100	98.3	90	110	
Zn	66	2	He	98.786	0.735	150845	0.28	100	98.8	90	110	
As	75	2	He	99.637	0.351	152344	0.45	100	99.6	90	110	
Se	78	2	He	103.219	0.904	12384	1.45	100	103.2	90	110	
B	11	1	nogas	467.993	2.975	2317603	1.14	500	93.6	90	110	
Si	28	1	nogas	4916.391	5.598	6999542	1.88	5000	98.3	90	110	
Ca	43	1	nogas	9741.677	2.254	383807	0.90	10000	97.4	90	110	
Ca	44	1	nogas	9666.065	2.972	6357559	0.69	10000	96.7	90	110	
Fe	56	1	nogas	9497.481	1.151	249358056	2.52	10000	95.0	90	110	
Se	77	1	nogas	76.966	1.274	39744	2.13	100	77.0	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.039	2.559	30172	2.80	100	97.0	90	110	
Mo	95	1	nogas	98.277	2.022	615417	0.72	100	98.3	90	110	
Sn	118	1	nogas	96.240	3.082	889074	2.56	100	96.2	90	110	
Ba	137	1	nogas	97.733	4.599	426686	1.10	100	97.7	90	110	
Sb	121	2	He	97.154	1.647	511777	1.04	100	97.2	90	110	
Li	7	1	nogas	98.101	4.020	1735071	2.27	100	98.1	90	110	
P	31	1	nogas	493.648	3.484	1023399	1.01	500	98.7	90	110	
La	139	1	nogas	121.306	15.077	447	8.48	100	121.3	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	187.874	3.749	50	0.00	100	187.9	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1110184	1.71	1171766	94.74	70	125	
Ge	72	1	nogas	3549444	2.60	3233065	109.79	70	125	
In	115	1	nogas	3100416	5.59	2958353	104.80	70	125	
Bi	209	1	nogas	2267301	1.78	2061475	109.98	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	881115	0.61	810035	108.77	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	196_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T23:33:27-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.070	31.9	623	27.3	1	
Na	23	1	nogas	5.430	37.0	1790450	3.3	100	
Mg	24	1	nogas	5.483	32.5	129178	22.2	100	
Al	27	1	nogas	0.140	17.1	24072	1.7	5	
K	39	1	nogas	26.883	26.1	8408513	0.6	100	
Ti	47	1	nogas	0.058	68.8	557	12.2	2.5	
V	51	1	nogas	-2.195	-15.0	178175	3.5	2.5	
Cr	52	1	nogas	0.164	35.2	37548	2.3	2.5	
Mn	55	1	nogas	-0.094	-46.9	33708	2.8	2.5	
Co	59	1	nogas	0.086	34.1	3120	21.1	2.5	
Ni	60	1	nogas	0.278	12.1	1130	15.4	2.5	
Cu	63	1	nogas	0.140	20.9	17235	3.2	2.5	
Zn	66	1	nogas	0.294	22.9	2370	11.0	2.5	
As	75	1	nogas	-0.706	-7.8	46162	1.0	2.5	
Sr	88	1	nogas	0.055	38.7	5248	10.9	2.5	
Ag	107	1	nogas	0.056	17.7	867	15.0	2.5	
Cd	111	1	nogas	0.059	61.3	217	50.6	1	
Sb	121	1	nogas	1.044	26.8	15024	24.2	2.5	
Tl	205	1	nogas	0.724	51.6	15546	49.2	1	
Pb	208	1	nogas	0.087	30.3	3797	17.5	2.5	
U	238	1	nogas	0.143	43.6	3961	40.9	2.5	
[Pb]	206	1	nogas	0.080	16.8	980	9.2	2.5	
[Pb]	207	1	nogas	0.065	74.0	807	36.1	2.5	
Na	23	2	He	-10.720	-25.7	147434	1.3	100	
Mg	24	2	He	2.729	14.6	4947	6.1	100	
Al	27	2	He	0.173	32.1	637	3.6	5	
K	39	2	He	22.200	5.1	208545	0.4	100	
Ca	43	2	He	-7.394	-75.7	57	27.0	100	
Ca	44	2	He	-4.903	-186.0	3190	10.6	100	
V	51	2	He	0.099	4.9	2598	1.1	2.5	
Cr	52	2	He	0.019	349.8	5087	9.6	2.5	
Mn	55	2	He	-0.191	-5.2	3120	3.1	2.5	
Fe	56	2	He	4.948	10.0	43268	5.0	100	
Co	59	2	He	0.047	39.5	793	22.4	2.5	
Ni	60	2	He	0.146	21.2	263	29.5	2.5	
Cu	63	2	He	-0.143	-19.5	6011	1.3	2.5	
Zn	66	2	He	-0.061	-40.1	620	4.3	2.5	
As	75	2	He	0.051	97.6	363	20.7	2.5	
Se	78	2	He	0.096	206.2	191	11.5	2.5	
B	11	1	nogas	-6.198	-13.2	88554	3.2	10	
Si	28	1	nogas	117.121	56.9	1527691	3.4	5	CCB Main CR1 Failed
Ca	43	1	nogas	9.660	33.0	1960	7.2	100	
Ca	44	1	nogas	-14.543	-119.9	345705	1.5	100	
Fe	56	1	nogas	4.661	121.4	2112445	5.7	100	
Se	77	1	nogas	-9.606	-19.1	14423	3.1	2.5	
Se	82	1	nogas	0.105	94.0	520	3.8	2.5	
Mo	95	1	nogas	0.277	45.4	1763	41.0	2.5	
Sn	118	1	nogas	0.300	21.5	3720	14.0	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.010	-612.3	697	34.7	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.688	8.1	3991	5.9	2.5	
P	31	1	nogas	12.282	17.3	122288	1.5	10	CCB Main CR1 Failed
La	139	1	nogas	15.146	100.3	93	53.9	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-150.948	-59.7	7	173.2	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	nogas	1180096	2.60	1171766	100.71	70	125	
Ge	72	1	nogas	3305257	1.59	3233065	102.23	70	125	
In	115	1	nogas	3024791	2.16	2958353	102.25	70	125	
Bi	209	1	nogas	2289681	1.03	2061475	111.07	70	125	
Ge	72	2	He	872311	1.79	810035	107.69	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	206_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-10T23:54:16-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.067	51.6	630	44.5	1	
Na	23	1	nogas	-23.391	-13.8	1164603	4.9	100	
Mg	24	1	nogas	4.884	41.6	128116	24.7	100	
Al	27	1	nogas	-0.018	-205.7	22404	1.9	5	
K	39	1	nogas	-2.278	-877.4	8314310	0.8	100	
Ti	47	1	nogas	0.050	15.4	577	6.6	2.5	
V	51	1	nogas	-2.575	-7.8	178774	6.2	2.5	
Cr	52	1	nogas	0.018	633.3	36346	4.7	2.5	
Mn	55	1	nogas	-0.213	-21.3	32208	0.4	2.5	
Co	59	1	nogas	0.072	40.1	2960	19.8	2.5	
Ni	60	1	nogas	0.235	9.9	957	10.7	2.5	
Cu	63	1	nogas	0.049	70.9	17065	6.0	2.5	
Zn	66	1	nogas	0.205	20.1	2103	5.2	2.5	
As	75	1	nogas	-1.293	-17.4	45524	1.7	2.5	
Sr	88	1	nogas	0.017	155.1	4364	14.1	2.5	
Ag	107	1	nogas	0.050	17.5	837	11.5	2.5	
Cd	111	1	nogas	0.060	51.1	230	42.8	1	
Sb	121	1	nogas	0.972	28.5	14840	22.3	2.5	
Tl	205	1	nogas	0.660	46.3	14611	45.7	1	
Pb	208	1	nogas	0.082	44.0	3677	24.8	2.5	
U	238	1	nogas	0.130	54.8	3717	53.1	2.5	
[Pb]	206	1	nogas	0.068	33.9	920	19.2	2.5	
[Pb]	207	1	nogas	0.063	58.7	817	30.0	2.5	
Na	23	2	He	-35.691	-7.2	110018	1.5	100	
Mg	24	2	He	2.574	7.2	4891	1.8	100	
Al	27	2	He	-0.126	-86.4	503	11.6	5	
K	39	2	He	20.607	5.7	207218	0.5	100	
Ca	43	2	He	1.295	300.5	80	12.5	100	
Ca	44	2	He	-10.178	-33.6	3014	3.6	100	
V	51	2	He	0.094	10.7	2602	1.5	2.5	
Cr	52	2	He	0.028	213.6	5227	6.2	2.5	
Mn	55	2	He	-0.237	-10.0	2944	1.7	2.5	
Fe	56	2	He	4.693	5.2	42482	5.5	100	
Co	59	2	He	0.050	28.3	833	15.2	2.5	
Ni	60	2	He	0.122	6.5	207	10.1	2.5	
Cu	63	2	He	-0.185	-10.1	5838	3.4	2.5	
Zn	66	2	He	-0.092	-13.2	583	5.2	2.5	
As	75	2	He	0.048	77.3	363	13.9	2.5	
Se	78	2	He	0.209	35.9	207	6.4	2.5	
B	11	1	nogas	-10.720	-8.6	68991	3.3	10	
Si	28	1	nogas	4.521	1715.7	1495478	1.5	5	
Ca	43	1	nogas	0.115	2520.6	1707	3.7	100	
Ca	44	1	nogas	-66.204	-42.8	335010	1.2	100	
Fe	56	1	nogas	0.038	24259.8	2117724	7.1	100	
Se	77	1	nogas	-11.355	-5.4	14830	4.8	2.5	
Se	82	1	nogas	-0.390	-73.4	403	22.2	2.5	

Continuing Calibration Blank (CCB) Report

Mo	95	1	nogas	0.279	44.9	1870	37.3	2.5	
Sn	118	1	nogas	0.267	33.8	3570	23.6	5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Ba	137	1	nogas	-0.015	-152.1	707	14.2	2.5	
Sb	121	2	He	0.598	5.0	3580	4.6	2.5	
P	31	1	nogas	10.349	27.7	126163	0.4	10	CCB Main CR1 Failed
La	139	1	nogas	1.154	410.5	50	34.6	2.5	
Au	197	1	nogas	-0.843	-5350.2	27	21.7	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	nogas	1237108	5.17	1171766	105.58	70	125	
Ge	72	1	nogas	3509032	4.62	3233065	108.54	70	125	
In	115	1	nogas	3153382	2.18	2958353	106.59	70	125	
Bi	209	1	nogas	2340428	1.42	2061475	113.53	70	125	
Ge	72	2	He	886277	2.21	810035	109.41	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	208_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:02:39-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.289	3.533	752632	0.97	100	91.3	90	110	
Na	23	1	nogas	10139.757	7.373	256520931	2.36	10000	101.4	90	110	
Mg	24	1	nogas	9839.533	9.513	160278474	1.40	10000	98.4	90	110	
Al	27	1	nogas	100.122	6.890	2084019	7.04	100	100.1	90	110	
K	39	1	nogas	9781.373	2.920	217104738	2.10	10000	97.8	90	110	
Ti	47	1	nogas	95.942	1.108	203552	1.75	100	95.9	90	110	
V	51	1	nogas	90.626	6.320	2847499	5.21	100	90.6	90	110	
Cr	52	1	nogas	91.469	5.261	2278200	4.83	100	91.5	90	110	
Mn	55	1	nogas	94.524	3.575	2944122	2.85	100	94.5	90	110	
Co	59	1	nogas	98.702	4.767	2519218	4.45	100	98.7	90	110	
Ni	60	1	nogas	96.778	0.655	560805	0.91	100	96.8	90	110	
Cu	63	1	nogas	96.258	1.710	1362156	2.49	100	96.3	90	110	
Zn	66	1	nogas	97.143	1.863	463987	1.87	100	97.1	90	110	
As	75	1	nogas	94.447	2.005	627755	1.35	100	94.4	90	110	
Sr	88	1	nogas	94.594	0.838	3030315	1.21	100	94.6	90	110	
Ag	107	1	nogas	94.957	4.013	1459878	3.45	100	95.0	90	110	
Cd	111	1	nogas	101.890	0.691	331716	1.13	100	101.9	90	110	
Sb	121	1	nogas	100.487	3.180	1476461	3.10	100	100.5	90	110	
Tl	205	1	nogas	95.498	5.221	1983565	4.20	100	95.5	90	110	
Pb	208	1	nogas	108.173	0.593	2724030	0.59	100	108.2	90	110	
U	238	1	nogas	104.538	3.159	2771252	4.14	100	104.5	90	110	
[Pb]	206	1	nogas	98.543	0.331	689842	0.99	100	98.5	90	110	
[Pb]	207	1	nogas	97.085	0.939	600636	2.00	100	97.1	90	110	
Na	23	2	He	9616.876	2.742	15732919	2.06	10000	96.2	90	110	
Mg	24	2	He	9803.993	3.149	8786793	2.57	10000	98.0	90	110	
Al	27	2	He	102.768	1.378	50916	1.71	100	102.8	90	110	
K	39	2	He	10989.336	2.012	9341658	1.97	10000	109.9	90	110	
Ca	43	2	He	9895.416	1.926	26272	1.39	10000	99.0	90	110	
Ca	44	2	He	9931.023	1.847	444086	1.41	10000	99.3	90	110	
V	51	2	He	96.596	1.254	652568	1.19	100	96.6	90	110	
Cr	52	2	He	97.745	1.846	716650	1.39	100	97.7	90	110	
Mn	55	2	He	99.111	1.337	500124	0.60	100	99.1	90	110	
Fe	56	2	He	9829.612	1.909	59916171	1.29	10000	98.3	90	110	
Co	59	2	He	95.121	2.544	962337	2.38	100	95.1	90	110	
Ni	60	2	He	96.926	1.760	247385	1.43	100	96.9	90	110	
Cu	63	2	He	97.890	1.450	636909	1.00	100	97.9	90	110	
Zn	66	2	He	100.497	0.926	156862	0.76	100	100.5	90	110	
As	75	2	He	98.417	0.400	153835	0.78	100	98.4	90	110	
Se	78	2	He	100.390	1.097	12318	1.11	100	100.4	90	110	
B	11	1	nogas	446.841	2.287	2363392	3.63	500	89.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4696.105	2.648	6903535	1.18	5000	93.9	90	110	
Ca	43	1	nogas	9540.466	2.537	384111	1.81	10000	95.4	90	110	
Ca	44	1	nogas	9534.556	4.047	6413521	3.20	10000	95.3	90	110	
Fe	56	1	nogas	9340.308	3.931	250509989	2.96	10000	93.4	90	110	
Se	77	1	nogas	75.190	3.611	40094	1.83	100	75.2	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	97.488	4.851	30960	3.95	100	97.5	90	110	
Mo	95	1	nogas	96.977	1.024	620556	0.59	100	97.0	90	110	
Sn	118	1	nogas	96.654	0.427	892907	0.50	100	96.7	90	110	
Ba	137	1	nogas	97.956	1.991	427869	1.23	100	98.0	90	110	
Sb	121	2	He	96.308	2.253	518611	1.75	100	96.3	90	110	
Li	7	1	nogas	95.534	2.096	1803897	4.89	100	95.5	90	110	
P	31	1	nogas	483.118	2.280	1025943	1.23	500	96.6	90	110	
La	139	1	nogas	92.617	33.011	353	29.46	100	92.6	90	110	
Au	197	1	nogas	-48.196	-319.192	20	100.00	100	-48.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1182604	2.91	1171766	100.92	70	125	
Ge	72	1	nogas	3625992	0.96	3233065	112.15	70	125	
In	115	1	nogas	3097029	0.92	2958353	104.69	70	125	
Bi	209	1	nogas	2276123	1.06	2061475	110.41	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	900735	0.73	810035	111.20	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	218_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:23:17-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.283	5.166	779490	3.69	100	96.3	90	110	
Na	23	1	nogas	10027.597	2.694	264950373	0.85	10000	100.3	90	110	
Mg	24	1	nogas	9959.523	4.274	169593370	1.70	10000	99.6	90	110	
Al	27	1	nogas	102.925	4.600	2080150	1.97	100	102.9	90	110	
K	39	1	nogas	10657.078	2.115	229193188	2.77	10000	106.6	90	110	
Ti	47	1	nogas	100.807	1.210	207840	1.90	100	100.8	90	110	
V	51	1	nogas	102.325	1.819	3094147	3.85	100	102.3	90	110	
Cr	52	1	nogas	102.125	3.331	2468289	3.48	100	102.1	90	110	
Mn	55	1	nogas	102.871	1.133	3111474	2.30	100	102.9	90	110	
Co	59	1	nogas	103.762	3.001	2573545	1.42	100	103.8	90	110	
Ni	60	1	nogas	102.660	3.849	577913	0.99	100	102.7	90	110	
Cu	63	1	nogas	101.327	0.860	1393204	3.80	100	101.3	90	110	
Zn	66	1	nogas	101.649	0.362	471926	2.76	100	101.6	90	110	
As	75	1	nogas	101.407	1.610	651172	1.54	100	101.4	90	110	
Sr	88	1	nogas	100.874	4.460	3138735	2.20	100	100.9	90	110	
Ag	107	1	nogas	103.504	3.689	1546080	0.68	100	103.5	90	110	
Cd	111	1	nogas	102.253	1.114	329453	1.17	100	102.3	90	110	
Sb	121	1	nogas	104.743	3.930	1495368	2.88	100	104.7	90	110	
Tl	205	1	nogas	96.902	5.970	2065558	1.26	100	96.9	90	110	
Pb	208	1	nogas	112.171	2.926	2824650	2.92	100	112.2	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	102.227	4.616	2783393	5.48	100	102.2	90	110	
[Pb]	206	1	nogas	96.146	5.812	690554	1.60	100	96.1	90	110	
[Pb]	207	1	nogas	97.791	5.649	620797	2.68	100	97.8	90	110	
Na	23	2	He	10187.379	1.423	16121514	1.79	10000	101.9	90	110	
Mg	24	2	He	10213.699	2.347	8860315	2.73	10000	102.1	90	110	
Al	27	2	He	101.889	0.800	48857	0.93	100	101.9	90	110	
K	39	2	He	11441.069	1.769	9717848	1.73	10000	114.4	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	10419.838	2.540	26769	2.40	10000	104.2	90	110	
Ca	44	2	He	10415.786	1.543	450618	1.87	10000	104.2	90	110	
V	51	2	He	100.781	1.947	658777	1.61	100	100.8	90	110	
Cr	52	2	He	101.228	1.223	718105	1.08	100	101.2	90	110	
Mn	55	2	He	104.855	0.408	511835	0.37	100	104.9	90	110	
Fe	56	2	He	10373.839	1.099	61196679	0.74	10000	103.7	90	110	
Co	59	2	He	101.000	1.396	988856	1.11	100	101.0	90	110	
Ni	60	2	He	103.941	0.841	256750	0.59	100	103.9	90	110	
Cu	63	2	He	102.668	1.498	646138	1.40	100	102.7	90	110	
Zn	66	2	He	102.762	1.519	155218	1.88	100	102.8	90	110	
As	75	2	He	102.891	0.794	155624	0.44	100	102.9	90	110	
Se	78	2	He	104.322	0.662	12380	0.55	100	104.3	90	110	
B	11	1	nogas	464.305	2.579	2405915	1.05	500	92.9	90	110	
Si	28	1	nogas	5418.429	4.922	7507971	1.03	5000	108.4	90	110	
Ca	43	1	nogas	10253.317	2.564	401098	2.21	10000	102.5	90	110	
Ca	44	1	nogas	10193.265	2.611	6637961	1.64	10000	101.9	90	110	
Fe	56	1	nogas	9956.528	0.425	259502847	2.61	10000	99.6	90	110	
Se	77	1	nogas	97.646	3.572	45210	1.01	100	97.6	90	110	
Se	82	1	nogas	102.829	3.734	31705	1.24	100	102.8	90	110	
Mo	95	1	nogas	101.418	2.773	630633	1.67	100	101.4	90	110	
Sn	118	1	nogas	99.107	0.899	906109	1.22	100	99.1	90	110	
Ba	137	1	nogas	101.196	1.732	437438	0.91	100	101.2	90	110	
Sb	121	2	He	102.241	1.599	532816	1.53	100	102.2	90	110	
Li	7	1	nogas	96.323	2.033	1783906	0.39	100	96.3	90	110	
P	31	1	nogas	527.009	3.488	1077678	1.09	500	105.4	90	110	
La	139	1	nogas	136.366	27.542	493	25.18	100	136.4	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-2.001	-4106.545	27	43.30	100	-2.0	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1161104	1.57	1171766	99.09	70	125	
Ge	72	1	nogas	3525021	3.00	3233065	109.03	70	125	
In	115	1	nogas	3065391	2.02	2958353	103.62	70	125	
Bi	209	1	nogas	2339423	4.77	2061475	113.48	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	871683	0.38	810035	107.61	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	219_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:25:20-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.078	3.3	757	5.3	1	
Na	23	1	nogas	8.289	73.0	2078181	6.1	100	
Mg	24	1	nogas	33.908	13.5	648219	10.6	100	
Al	27	1	nogas	-0.025	-141.5	23585	2.6	5	
K	39	1	nogas	91.231	32.0	10843941	1.9	100	
Ti	47	1	nogas	0.059	87.2	627	14.7	2.5	
V	51	1	nogas	-0.632	-66.7	245880	2.5	2.5	
Cr	52	1	nogas	0.068	97.3	39776	2.1	2.5	
Mn	55	1	nogas	0.975	18.6	71417	4.0	2.5	
Co	59	1	nogas	0.111	26.8	4157	14.5	2.5	
Ni	60	1	nogas	0.427	3.9	2153	0.7	2.5	
Cu	63	1	nogas	-0.119	-11.4	15674	5.1	2.5	
Zn	66	1	nogas	0.275	11.8	2570	6.0	2.5	
As	75	1	nogas	0.043	568.0	56538	3.6	2.5	
Sr	88	1	nogas	0.316	15.4	14406	7.0	2.5	
Ag	107	1	nogas	0.075	24.9	1267	21.1	2.5	
Cd	111	1	nogas	0.073	18.4	290	15.0	1	
Sb	121	1	nogas	1.267	21.4	20169	16.1	2.5	
Tl	205	1	nogas	0.759	47.2	16980	43.9	1	
Pb	208	1	nogas	0.097	22.5	4050	13.6	2.5	
U	238	1	nogas	0.152	40.9	4397	37.3	2.5	
[Pb]	206	1	nogas	0.082	29.9	1040	15.3	2.5	
[Pb]	207	1	nogas	0.067	46.9	853	21.8	2.5	
Na	23	2	He	-11.283	-23.6	156438	1.6	100	
Mg	24	2	He	28.197	2.3	28869	1.2	100	
Al	27	2	He	0.000	96450.4	593	21.1	5	
K	39	2	He	133.316	1.8	301078	0.7	100	CCB Main CR1 Failed
Ca	43	2	He	43.542	44.9	200	27.8	100	
Ca	44	2	He	24.129	38.0	4737	7.6	100	
V	51	2	He	0.196	5.0	3448	0.6	2.5	
Cr	52	2	He	0.011	113.5	5368	2.2	2.5	
Mn	55	2	He	0.795	7.4	8432	4.1	2.5	
Fe	56	2	He	6.992	6.2	59075	3.7	100	
Co	59	2	He	0.078	14.0	1170	9.2	2.5	
Ni	60	2	He	0.258	8.9	577	11.5	2.5	
Cu	63	2	He	-0.263	-10.5	5621	4.3	2.5	
Zn	66	2	He	-0.057	-94.8	670	14.2	2.5	
As	75	2	He	0.096	11.8	460	3.3	2.5	
Se	78	2	He	0.072	223.1	201	10.6	2.5	
B	11	1	nogas	-8.006	-7.2	87194	2.3	10	
Si	28	1	nogas	10.225	615.2	1591244	1.0	5	CCB Main CR1 Failed
Ca	43	1	nogas	38.469	14.7	3384	6.6	100	
Ca	44	1	nogas	-73.524	-45.8	350011	2.3	100	
Fe	56	1	nogas	5.836	115.1	2403172	3.6	100	
Se	77	1	nogas	-4.217	-97.3	17776	4.8	2.5	
Se	82	1	nogas	-0.056	-211.2	533	7.8	2.5	
Mo	95	1	nogas	0.367	30.7	2557	25.0	2.5	
Sn	118	1	nogas	0.293	28.7	4061	19.4	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.003	-314.0	810	4.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.850	10.2	5157	8.2	2.5	
P	31	1	nogas	10.059	35.3	133035	1.5	10	CCB Main CR1 Failed
La	139	1	nogas	2.114	321.7	57	44.4	2.5	
Au	197	1	nogas	-53.656	-281.8	20	100.0	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	nogas	1294101	2.42	1171766	110.44	70	125	
Ge	72	1	nogas	3715996	3.90	3233065	114.94	70	125	
In	115	1	nogas	3361493	1.48	2958353	113.63	70	125	
Bi	209	1	nogas	2395128	1.90	2061475	116.19	70	125	
Ge	72	2	He	931073	1.39	810035	114.94	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	220_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:27:23-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	94.133	3.482	764444	1.44	100	94.1	90	110	
Na	23	1	nogas	9722.091	4.057	262542573	1.62	10000	97.2	90	110	
Mg	24	1	nogas	9735.550	4.139	169433283	0.71	10000	97.4	90	110	
Al	27	1	nogas	98.958	2.075	2082894	1.62	100	99.0	90	110	
K	39	1	nogas	9808.657	0.890	220163105	1.36	10000	98.1	90	110	
Ti	47	1	nogas	98.115	2.796	210499	3.36	100	98.1	90	110	
V	51	1	nogas	97.982	2.177	3092569	1.88	100	98.0	90	110	
Cr	52	1	nogas	97.372	3.050	2450225	2.79	100	97.4	90	110	
Mn	55	1	nogas	98.158	1.718	3090293	0.83	100	98.2	90	110	
Co	59	1	nogas	100.767	1.023	2601209	1.71	100	100.8	90	110	
Ni	60	1	nogas	97.722	1.623	572694	2.49	100	97.7	90	110	
Cu	63	1	nogas	96.758	1.864	1384522	2.63	100	96.8	90	110	
Zn	66	1	nogas	98.491	1.602	475715	2.04	100	98.5	90	110	
As	75	1	nogas	97.873	0.595	655853	0.72	100	97.9	90	110	
Sr	88	1	nogas	97.724	1.943	3165252	1.10	100	97.7	90	110	
Ag	107	1	nogas	100.548	1.520	1563572	2.39	100	100.5	90	110	
Cd	111	1	nogas	99.458	1.495	340073	2.54	100	99.5	90	110	
Sb	121	1	nogas	98.704	2.912	1466641	3.08	100	98.7	90	110	
Tl	205	1	nogas	96.968	4.530	2089169	2.74	100	97.0	90	110	
Pb	208	1	nogas	112.387	1.410	2830087	1.41	100	112.4	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	102.906	4.305	2828586	3.35	100	102.9	90	110	
[Pb]	206	1	nogas	95.030	3.570	689890	1.70	100	95.0	90	110	
[Pb]	207	1	nogas	95.092	2.322	610151	1.00	100	95.1	90	110	
Na	23	2	He	9678.230	2.608	15862979	1.65	10000	96.8	90	110	
Mg	24	2	He	9806.402	2.104	8806090	0.63	10000	98.1	90	110	
Al	27	2	He	98.494	2.846	48907	1.31	100	98.5	90	110	
K	39	2	He	11167.787	1.886	9490267	1.85	10000	111.7	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9946.807	1.832	26459	0.57	10000	99.5	90	110	
Ca	44	2	He	9931.163	2.834	444899	1.37	10000	99.3	90	110	
V	51	2	He	98.183	1.047	664551	0.69	100	98.2	90	110	
Cr	52	2	He	96.947	2.838	712128	1.32	100	96.9	90	110	
Mn	55	2	He	99.510	2.776	503033	1.27	100	99.5	90	110	
Fe	56	2	He	10078.685	2.880	61546896	1.48	10000	100.8	90	110	
Co	59	2	He	97.160	2.600	984779	1.54	100	97.2	90	110	
Ni	60	2	He	99.397	3.770	254144	2.65	100	99.4	90	110	
Cu	63	2	He	98.557	3.536	642329	2.16	100	98.6	90	110	
Zn	66	2	He	100.120	2.227	156567	1.04	100	100.1	90	110	
As	75	2	He	99.023	1.658	155071	0.66	100	99.0	90	110	
Se	78	2	He	99.784	1.942	12267	1.11	100	99.8	90	110	
B	11	1	nogas	453.040	7.002	2354582	2.04	500	90.6	90	110	
Si	28	1	nogas	4783.361	2.578	7081805	1.21	5000	95.7	90	110	
Ca	43	1	nogas	9753.157	0.671	397093	1.12	10000	97.5	90	110	
Ca	44	1	nogas	9742.767	2.225	6620220	2.78	10000	97.4	90	110	
Fe	56	1	nogas	9519.412	1.112	258186872	0.83	10000	95.2	90	110	
Se	77	1	nogas	87.082	1.115	43987	0.31	100	87.1	90	110	CCV Main CR1-2 Failed
Se	82	1	nogas	96.509	1.825	31007	1.98	100	96.5	90	110	
Mo	95	1	nogas	98.308	0.753	636158	1.10	100	98.3	90	110	
Sn	118	1	nogas	94.535	1.244	917585	3.94	100	94.5	90	110	
Ba	137	1	nogas	96.142	2.601	440969	0.76	100	96.1	90	110	
Sb	121	2	He	98.514	2.378	531494	1.35	100	98.5	90	110	
Li	7	1	nogas	94.838	2.634	1763823	3.74	100	94.8	90	110	
P	31	1	nogas	493.067	1.058	1056576	0.13	500	98.6	90	110	
La	139	1	nogas	95.189	10.976	380	11.47	100	95.2	90	110	
Au	197	1	nogas	25.652	1080.245	30	120.19	100	25.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1165442	5.00	1171766	99.46	70	125	
Ge	72	1	nogas	3666674	0.87	3233065	113.41	70	125	
In	115	1	nogas	3253086	2.78	2958353	109.96	70	125	
Bi	209	1	nogas	2361399	1.91	2061475	114.55	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	902562	1.49	810035	111.42	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	221_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:29:27-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.090	11.6	817	8.3	1	
Na	23	1	nogas	-11.343	-17.0	1514133	3.5	100	
Mg	24	1	nogas	21.713	17.1	424647	15.2	100	
Al	27	1	nogas	0.004	659.0	23188	2.9	5	
K	39	1	nogas	48.652	12.6	9513922	1.6	100	
Ti	47	1	nogas	0.075	19.7	637	4.0	2.5	
V	51	1	nogas	-1.070	-25.7	223519	2.5	2.5	
Cr	52	1	nogas	0.108	51.0	39091	3.0	2.5	
Mn	55	1	nogas	0.501	5.8	54266	1.9	2.5	
Co	59	1	nogas	0.107	12.0	3900	8.3	2.5	
Ni	60	1	nogas	0.382	9.9	1810	11.8	2.5	
Cu	63	1	nogas	0.030	121.5	17051	2.3	2.5	
Zn	66	1	nogas	0.271	23.6	2447	11.4	2.5	
As	75	1	nogas	-0.130	-363.0	53138	4.4	2.5	
Sr	88	1	nogas	0.196	16.2	10103	10.4	2.5	
Ag	107	1	nogas	0.078	17.0	1263	16.2	2.5	
Cd	111	1	nogas	0.096	27.9	360	25.5	1	
Sb	121	1	nogas	1.087	21.1	16849	20.2	2.5	
Tl	205	1	nogas	0.716	47.7	15916	45.2	1	
Pb	208	1	nogas	0.106	23.5	4277	14.7	2.5	
U	238	1	nogas	0.158	42.9	4531	40.1	2.5	
[Pb]	206	1	nogas	0.090	35.9	1090	20.8	2.5	
[Pb]	207	1	nogas	0.069	53.0	860	26.2	2.5	
Na	23	2	He	-27.484	-7.6	127878	1.8	100	
Mg	24	2	He	17.036	6.5	18319	4.7	100	
Al	27	2	He	0.075	254.2	623	15.4	5	
K	39	2	He	77.523	2.3	254616	0.6	100	
Ca	43	2	He	13.579	124.8	117	40.5	100	
Ca	44	2	He	6.625	38.4	3894	3.4	100	
V	51	2	He	0.167	10.2	3210	2.7	2.5	
Cr	52	2	He	0.012	335.4	5311	5.7	2.5	
Mn	55	2	He	0.326	25.9	5934	6.5	2.5	
Fe	56	2	He	7.230	8.6	59874	5.5	100	
Co	59	2	He	0.088	17.3	1260	13.3	2.5	
Ni	60	2	He	0.219	7.4	467	10.1	2.5	
Cu	63	2	He	-0.125	-13.1	6461	2.4	2.5	
Zn	66	2	He	-0.074	-106.8	633	19.7	2.5	
As	75	2	He	0.087	63.2	440	19.1	2.5	
Se	78	2	He	0.054	560.7	196	18.6	2.5	
B	11	1	nogas	-8.360	-1.1	80241	3.2	10	
Si	28	1	nogas	-14.785	-70.9	1498213	0.6	5	
Ca	43	1	nogas	31.748	46.0	2980	19.5	100	
Ca	44	1	nogas	-73.124	-10.9	336114	1.5	100	
Fe	56	1	nogas	6.511	95.6	2325083	7.5	100	
Se	77	1	nogas	-5.895	-19.6	16578	1.0	2.5	
Se	82	1	nogas	-0.441	-56.4	393	19.7	2.5	
Mo	95	1	nogas	0.319	18.2	2167	17.2	2.5	
Sn	118	1	nogas	0.302	22.1	4004	15.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.012	217.0	850	13.4	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.693	7.3	4241	5.7	2.5	
P	31	1	nogas	10.777	7.3	128952	0.4	10	CCB Main CR1 Failed
La	139	1	nogas	13.285	66.1	93	32.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-153.139	-56.4	7	173.2	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	nogas	1217401	2.67	1171766	103.89	70	125	
Ge	72	1	nogas	3560142	0.92	3233065	110.12	70	125	
In	115	1	nogas	3238876	1.29	2958353	109.48	70	125	
Bi	209	1	nogas	2370337	1.12	2061475	114.98	70	125	
Ge	72	2	He	920480	1.03	810035	113.63	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	232_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:52:30-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	91.987	2.874	752329	0.79	100	92.0	90	110	
Na	23	1	nogas	9931.300	3.723	257547639	2.93	10000	99.3	90	110	
Mg	24	1	nogas	9808.005	2.700	163950099	0.75	10000	98.1	90	110	
Al	27	1	nogas	102.198	0.478	2046366	3.65	100	102.2	90	110	
K	39	1	nogas	10061.621	4.052	214487046	0.41	10000	100.6	90	110	
Ti	47	1	nogas	98.783	1.904	201581	2.54	100	98.8	90	110	
V	51	1	nogas	100.512	4.364	3010298	2.70	100	100.5	90	110	
Cr	52	1	nogas	96.947	3.113	2320026	0.81	100	96.9	90	110	
Mn	55	1	nogas	95.771	6.282	2866115	2.78	100	95.8	90	110	
Co	59	1	nogas	99.696	6.220	2445607	3.55	100	99.7	90	110	
Ni	60	1	nogas	100.713	3.969	561087	1.21	100	100.7	90	110	
Cu	63	1	nogas	95.244	7.787	1294765	4.67	100	95.2	90	110	
Zn	66	1	nogas	98.496	3.064	452357	0.60	100	98.5	90	110	
As	75	1	nogas	101.804	2.468	646719	1.63	100	101.8	90	110	
Sr	88	1	nogas	97.246	3.706	2995909	3.13	100	97.2	90	110	
Ag	107	1	nogas	97.095	6.251	1434491	2.79	100	97.1	90	110	
Cd	111	1	nogas	99.431	2.940	318332	2.18	100	99.4	90	110	
Sb	121	1	nogas	97.911	1.815	1383804	1.79	100	97.9	90	110	
Tl	205	1	nogas	97.850	1.846	2010177	2.72	100	97.9	90	110	
Pb	208	1	nogas	109.045	1.523	2745975	1.52	100	109.0	90	110	
U	238	1	nogas	107.079	2.665	2806202	3.71	100	107.1	90	110	
[Pb]	206	1	nogas	99.918	0.831	691617	2.62	100	99.9	90	110	
[Pb]	207	1	nogas	99.378	0.794	607757	1.04	100	99.4	90	110	
Na	23	2	He	9981.512	0.396	15932810	0.74	10000	99.8	90	110	
Mg	24	2	He	9712.212	1.415	8496823	1.85	10000	97.1	90	110	
Al	27	2	He	98.952	1.754	47871	2.34	100	99.0	90	110	
K	39	2	He	10857.288	1.325	9231693	1.30	10000	108.6	90	110	
Ca	43	2	He	10110.759	2.769	26202	3.36	10000	101.1	90	110	
Ca	44	2	He	9903.513	0.072	432254	0.68	10000	99.0	90	110	
V	51	2	He	97.976	1.238	645944	0.75	100	98.0	90	110	
Cr	52	2	He	97.042	2.349	694419	1.76	100	97.0	90	110	
Mn	55	2	He	98.678	1.672	485989	1.05	100	98.7	90	110	
Fe	56	2	He	9722.227	2.005	57846396	2.50	10000	97.2	90	110	
Co	59	2	He	96.312	1.941	951027	2.16	100	96.3	90	110	
Ni	60	2	He	97.244	0.986	242240	0.68	100	97.2	90	110	
Cu	63	2	He	96.955	1.026	615775	1.32	100	97.0	90	110	
Zn	66	2	He	98.212	0.346	149631	0.27	100	98.2	90	110	
As	75	2	He	99.027	0.830	151063	0.51	100	99.0	90	110	
Se	78	2	He	99.851	1.086	11958	0.86	100	99.9	90	110	
B	11	1	nogas	473.833	2.973	2477781	2.53	500	94.8	90	110	
Si	28	1	nogas	5121.190	2.304	7108412	2.49	5000	102.4	90	110	
Ca	43	1	nogas	10060.493	4.388	389337	1.58	10000	100.6	90	110	
Ca	44	1	nogas	9986.305	5.764	6438845	1.91	10000	99.9	90	110	
Fe	56	1	nogas	9678.845	2.740	249612089	0.89	10000	96.8	90	110	
Se	77	1	nogas	103.887	4.500	46460	1.71	100	103.9	90	110	
Se	82	1	nogas	101.289	2.903	30920	0.74	100	101.3	90	110	
Mo	95	1	nogas	100.414	2.732	618189	3.70	100	100.4	90	110	
Sn	118	1	nogas	97.427	3.444	884917	1.22	100	97.4	90	110	
Ba	137	1	nogas	100.305	3.254	430814	1.44	100	100.3	90	110	
Sb	121	2	He	97.347	2.201	511638	2.13	100	97.3	90	110	
Li	7	1	nogas	94.146	3.123	1763601	3.17	100	94.1	90	110	
P	31	1	nogas	505.040	3.158	1026680	1.77	500	101.0	90	110	
La	139	1	nogas	124.653	12.098	453	15.02	100	124.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-19.373	-229.365	23	24.74	100	-19.4	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1172845	2.12	1171766	100.09	70	125	
Ge	72	1	nogas	3489100	3.58	3233065	107.92	70	125	
In	115	1	nogas	3048154	4.62	2958353	103.04	70	125	
Bi	209	1	nogas	2250347	1.80	2061475	109.16	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	879094	0.61	810035	108.53	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	233_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T00:54:33-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.082	30.5	780	22.5	1	
Na	23	1	nogas	30.568	5.1	2662793	1.2	100	
Mg	24	1	nogas	10.940	11.7	238606	7.1	100	
Al	27	1	nogas	0.032	16.5	23622	1.9	5	
K	39	1	nogas	23.581	39.5	8938071	0.5	100	
Ti	47	1	nogas	0.035	47.2	550	7.9	2.5	
V	51	1	nogas	1.355	54.5	289756	5.3	2.5	
Cr	52	1	nogas	0.236	7.9	41958	1.0	2.5	
Mn	55	1	nogas	-0.094	-32.9	36122	1.8	2.5	
Co	59	1	nogas	0.100	12.9	3704	10.4	2.5	
Ni	60	1	nogas	0.341	4.8	1573	6.8	2.5	
Cu	63	1	nogas	-0.131	-53.7	14753	4.7	2.5	
Zn	66	1	nogas	0.266	10.3	2414	7.1	2.5	
As	75	1	nogas	1.580	36.1	62952	3.6	2.5	
Sr	88	1	nogas	0.101	20.7	7068	8.2	2.5	
Ag	107	1	nogas	0.057	11.9	947	12.3	2.5	
Cd	111	1	nogas	0.097	45.1	360	36.7	1	
Sb	121	1	nogas	0.993	21.0	15424	21.3	2.5	
Tl	205	1	nogas	0.754	50.2	17151	49.2	1	
Pb	208	1	nogas	0.101	35.9	4144	22.0	2.5	
U	238	1	nogas	0.177	55.3	5181	53.9	2.5	
[Pb]	206	1	nogas	0.082	48.0	1053	28.2	2.5	
[Pb]	207	1	nogas	0.076	30.2	927	16.8	2.5	
Na	23	2	He	26.219	7.6	205028	0.2	100	
Mg	24	2	He	12.164	4.8	13118	4.4	100	
Al	27	2	He	0.145	83.7	623	10.4	5	
K	39	2	He	55.674	6.4	236420	1.2	100	
Ca	43	2	He	-7.278	-33.4	57	10.2	100	
Ca	44	2	He	-4.123	-107.0	3224	6.7	100	
V	51	2	He	0.291	8.5	3843	2.7	2.5	
Cr	52	2	He	0.059	3.8	5358	1.6	2.5	
Mn	55	2	He	-0.139	-11.7	3367	1.2	2.5	
Fe	56	2	He	5.973	8.0	49246	4.3	100	
Co	59	2	He	0.085	26.3	1167	19.6	2.5	
Ni	60	2	He	0.182	6.7	350	7.6	2.5	
Cu	63	2	He	-0.314	-13.2	4941	6.2	2.5	
Zn	66	2	He	-0.075	-112.9	600	22.0	2.5	
As	75	2	He	0.085	36.8	413	10.1	2.5	
Se	78	2	He	0.183	6.9	201	2.1	2.5	
B	11	1	nogas	2.330	147.7	141678	6.6	10	
Si	28	1	nogas	28.793	252.4	1538100	4.3	5	CCB Main CR1 Failed
Ca	43	1	nogas	20.842	28.4	2534	7.4	100	
Ca	44	1	nogas	-122.697	-8.8	303619	0.5	100	
Fe	56	1	nogas	14.881	35.0	2530797	7.1	100	
Se	77	1	nogas	6.925	48.1	20061	2.8	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.323	-74.7	427	16.5	2.5	
Mo	95	1	nogas	0.336	46.6	2274	45.0	2.5	
Sn	118	1	nogas	0.305	24.8	4024	13.3	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	0.043	73.7	990	11.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.579	15.1	3424	14.1	2.5	
P	31	1	nogas	4.860	14.3	117300	0.9	10	
La	139	1	nogas	5.755	214.9	67	60.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	66.062	170.3	37	41.7	2.5	CCB Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1280951	7.13	1171766	109.32	70	125	
Ge	72	1	nogas	3540785	1.85	3233065	109.52	70	125	
In	115	1	nogas	3249571	5.17	2958353	109.84	70	125	
Bi	209	1	nogas	2417001	0.46	2061475	117.25	70	125	
Ge	72	2	He	870924	1.47	810035	107.52	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	242_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:13:03-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	102.024	1.949	725892	1.01	100	102.0	90	110	
Na	23	1	nogas	10004.515	2.965	265310431	1.61	10000	100.0	90	110	
Mg	24	1	nogas	9786.170	2.946	167299512	1.62	10000	97.9	90	110	
Al	27	1	nogas	99.707	3.591	2053234	3.12	100	99.7	90	110	
K	39	1	nogas	10013.417	0.689	219741105	1.03	10000	100.1	90	110	
Ti	47	1	nogas	99.027	3.144	207846	2.91	100	99.0	90	110	
V	51	1	nogas	100.616	1.136	3100652	1.43	100	100.6	90	110	
Cr	52	1	nogas	98.004	1.626	2412811	1.14	100	98.0	90	110	
Mn	55	1	nogas	97.165	3.083	2993885	3.16	100	97.2	90	110	
Co	59	1	nogas	99.318	1.397	2508626	1.90	100	99.3	90	110	
Ni	60	1	nogas	99.302	0.797	569389	1.31	100	99.3	90	110	
Cu	63	1	nogas	97.243	1.416	1361238	1.01	100	97.2	90	110	
Zn	66	1	nogas	99.178	0.734	468707	1.20	100	99.2	90	110	
As	75	1	nogas	98.641	1.041	646356	1.21	100	98.6	90	110	
Sr	88	1	nogas	101.395	5.880	3213001	5.35	100	101.4	90	110	
Ag	107	1	nogas	101.800	1.489	1548816	1.59	100	101.8	90	110	
Cd	111	1	nogas	101.934	3.846	331948	0.33	100	101.9	90	110	
Sb	121	1	nogas	102.495	2.258	1490059	1.98	100	102.5	90	110	
Tl	205	1	nogas	99.294	0.443	2021255	0.68	100	99.3	90	110	
Pb	208	1	nogas	109.415	1.910	2755311	1.91	100	109.4	90	110	
U	238	1	nogas	103.382	3.515	2684280	3.29	100	103.4	90	110	
[Pb]	206	1	nogas	99.995	2.196	685811	2.41	100	100.0	90	110	
[Pb]	207	1	nogas	100.190	2.093	607224	2.29	100	100.2	90	110	
Na	23	2	He	10094.779	1.450	16003968	2.45	10000	100.9	90	110	
Mg	24	2	He	9876.854	2.572	8582750	3.25	10000	98.8	90	110	
Al	27	2	He	96.907	1.046	46571	1.38	100	96.9	90	110	
K	39	2	He	10593.351	1.856	9011893	1.82	10000	105.9	90	110	
Ca	43	2	He	9671.940	3.293	24887	1.45	10000	96.7	90	110	
Ca	44	2	He	9718.049	2.539	421266	1.32	10000	97.2	90	110	
V	51	2	He	97.351	1.329	637461	0.75	100	97.4	90	110	
Cr	52	2	He	97.795	1.334	695031	0.69	100	97.8	90	110	
Mn	55	2	He	97.977	1.740	479272	0.72	100	98.0	90	110	
Fe	56	2	He	9746.941	1.329	57594536	1.34	10000	97.5	90	110	
Co	59	2	He	97.092	3.511	951914	2.02	100	97.1	90	110	
Ni	60	2	He	99.856	2.907	247014	1.63	100	99.9	90	110	
Cu	63	2	He	99.729	3.793	628666	2.09	100	99.7	90	110	
Zn	66	2	He	99.910	2.087	151149	0.08	100	99.9	90	110	
As	75	2	He	97.756	1.458	148106	0.56	100	97.8	90	110	
Se	78	2	He	98.562	3.664	11723	2.48	100	98.6	90	110	
B	11	1	nogas	669.332	3.182	3001017	0.81	500	133.9	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4913.337	2.949	7076413	1.84	5000	98.3	90	110	
Ca	43	1	nogas	9963.644	1.449	396878	1.18	10000	99.6	90	110	
Ca	44	1	nogas	9755.292	2.510	6484659	2.11	10000	97.6	90	110	
Fe	56	1	nogas	9440.985	2.008	250571922	1.96	10000	94.4	90	110	
Se	77	1	nogas	95.331	4.228	45373	2.00	100	95.3	90	110	
Se	82	1	nogas	99.863	3.488	31374	3.33	100	99.9	90	110	
Mo	95	1	nogas	97.456	1.462	617038	0.95	100	97.5	90	110	
Sn	118	1	nogas	97.471	3.417	900806	0.37	100	97.5	90	110	
Ba	137	1	nogas	101.001	2.331	441511	2.07	100	101.0	90	110	
Sb	121	2	He	96.756	2.262	505002	0.76	100	96.8	90	110	
Li	7	1	nogas	96.185	1.984	1566070	4.30	100	96.2	90	110	
P	31	1	nogas	477.863	1.447	1005346	0.82	500	95.6	90	110	
La	139	1	nogas	115.726	14.313	430	12.95	100	115.7	90	110	CCV Main CR1-2 Failed
Au	197	1	nogas	-44.154	-179.558	20	50.00	100	-44.2	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1020278	2.88	1171766	87.07	70	125	
Ge	72	1	nogas	3587727	0.51	3233065	110.97	70	125	
In	115	1	nogas	3100722	3.61	2958353	104.81	70	125	
Bi	209	1	nogas	2229901	0.31	2061475	108.17	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	873220	2.03	810035	107.80	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	243_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:15:08-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.075	18.7	627	15.1	1	
Na	23	1	nogas	85.023	10.5	4018580	3.5	100	
Mg	24	1	nogas	10.139	26.3	217783	18.2	100	
Al	27	1	nogas	-0.005	-606.8	23318	3.3	5	
K	39	1	nogas	-13.472	-29.0	8319407	0.5	100	
Ti	47	1	nogas	0.043	122.5	577	19.0	2.5	
V	51	1	nogas	0.209	199.4	262752	3.9	2.5	
Cr	52	1	nogas	0.042	59.4	38002	1.3	2.5	
Mn	55	1	nogas	-0.237	-11.2	32415	1.7	2.5	
Co	59	1	nogas	0.061	12.0	2777	7.4	2.5	
Ni	60	1	nogas	0.462	3.4	2297	4.8	2.5	
Cu	63	1	nogas	-0.338	-5.3	12158	2.5	2.5	
Zn	66	1	nogas	0.502	12.6	3574	8.5	2.5	
As	75	1	nogas	0.358	110.8	56768	3.3	2.5	
Sr	88	1	nogas	0.167	14.9	9309	9.1	2.5	
Ag	107	1	nogas	0.056	33.1	947	30.6	2.5	
Cd	111	1	nogas	0.044	13.9	180	9.6	1	
Sb	121	1	nogas	1.274	14.8	19788	14.6	2.5	
Tl	205	1	nogas	0.764	46.2	16991	44.6	1	
Pb	208	1	nogas	0.067	46.1	3294	23.7	2.5	
U	238	1	nogas	0.138	52.5	3991	49.9	2.5	
[Pb]	206	1	nogas	0.063	68.3	893	34.8	2.5	
[Pb]	207	1	nogas	0.041	42.7	683	16.3	2.5	
Na	23	2	He	76.666	1.4	283688	1.3	100	
Mg	24	2	He	8.965	9.8	10326	5.8	100	
Al	27	2	He	-0.037	-420.1	537	15.5	5	
K	39	2	He	24.184	12.7	210197	1.2	100	
Ca	43	2	He	1.859	913.4	80	54.5	100	
Ca	44	2	He	-4.094	-88.5	3220	4.9	100	
V	51	2	He	0.177	6.5	3100	2.9	2.5	
Cr	52	2	He	0.016	102.4	5054	3.0	2.5	
Mn	55	2	He	-0.222	-29.3	2957	8.8	2.5	
Fe	56	2	He	5.013	4.2	43558	1.9	100	
Co	59	2	He	0.048	32.4	807	19.8	2.5	
Ni	60	2	He	0.171	3.2	323	4.7	2.5	
Cu	63	2	He	-0.432	-4.2	4201	3.6	2.5	
Zn	66	2	He	-0.053	-59.0	630	5.7	2.5	
As	75	2	He	0.080	20.9	406	5.0	2.5	
Se	78	2	He	0.253	49.1	209	8.2	2.5	
B	11	1	nogas	98.632	7.9	573741	2.2	10	CCB Main CR1 Failed
Si	28	1	nogas	-67.556	-57.2	1457523	2.6	5	
Ca	43	1	nogas	76.032	5.2	4784	4.1	100	
Ca	44	1	nogas	-112.556	-1.0	315669	0.7	100	
Fe	56	1	nogas	3.929	112.9	2286615	5.7	100	
Se	77	1	nogas	0.291	1545.9	18550	6.4	2.5	
Se	82	1	nogas	-0.383	-47.5	417	14.5	2.5	
Mo	95	1	nogas	0.359	35.0	2457	33.4	2.5	
Sn	118	1	nogas	0.257	29.2	3534	15.9	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.015	-234.8	720	20.6	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.877	3.4	4964	2.2	2.5	
P	31	1	nogas	-1.168	-95.7	108110	1.0	10	
La	139	1	nogas	11.675	63.2	87	26.6	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-153.294	-28.1	7	86.6	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	nogas	1104958	4.07	1171766	94.30	70	125	
Ge	72	1	nogas	3606069	0.93	3233065	111.54	70	125	
In	115	1	nogas	3221972	4.13	2958353	108.91	70	125	
Bi	209	1	nogas	2367875	1.10	2061475	114.86	70	125	
Ge	72	2	He	870009	1.87	810035	107.40	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	254_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:37:45-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	92.786	1.796	793890	2.36	100	92.8	90	110	
Na	23	1	nogas	9619.936	1.878	284311648	1.59	10000	96.2	90	110	
Mg	24	1	nogas	9574.556	2.536	182357196	1.91	10000	95.7	90	110	
Al	27	1	nogas	98.098	2.054	2246181	2.18	100	98.1	90	110	
K	39	1	nogas	9778.312	3.005	238724155	2.45	10000	97.8	90	110	
Ti	47	1	nogas	97.860	1.754	228349	2.35	100	97.9	90	110	
V	51	1	nogas	99.382	2.998	3407662	2.68	100	99.4	90	110	
Cr	52	1	nogas	95.339	0.725	2610318	0.69	100	95.3	90	110	
Mn	55	1	nogas	95.641	2.884	3276142	2.50	100	95.6	90	110	
Co	59	1	nogas	99.957	0.488	2806355	0.80	100	100.0	90	110	
Ni	60	1	nogas	97.978	0.104	624462	0.52	100	98.0	90	110	
Cu	63	1	nogas	94.573	2.276	1472117	2.16	100	94.6	90	110	
Zn	66	1	nogas	97.483	1.900	512092	1.70	100	97.5	90	110	
As	75	1	nogas	98.178	3.008	715334	2.42	100	98.2	90	110	
Sr	88	1	nogas	96.786	0.900	3410136	1.49	100	96.8	90	110	
Ag	107	1	nogas	98.284	2.130	1662082	1.81	100	98.3	90	110	
Cd	111	1	nogas	98.427	0.781	369294	3.76	100	98.4	90	110	
Sb	121	1	nogas	96.815	2.064	1564545	1.50	100	96.8	90	110	
Tl	205	1	nogas	97.876	3.058	2220834	1.21	100	97.9	90	110	
Pb	208	1	nogas	119.290	0.460	3003823	0.46	100	119.3	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	101.436	5.938	2934927	4.26	100	101.4	90	110	
[Pb]	206	1	nogas	98.779	2.678	755169	0.84	100	98.8	90	110	
[Pb]	207	1	nogas	98.610	3.198	666152	1.36	100	98.6	90	110	
Na	23	2	He	9890.632	1.373	17244147	2.05	10000	98.9	90	110	
Mg	24	2	He	9592.861	0.339	9164899	0.81	10000	95.9	90	110	
Al	27	2	He	94.595	1.026	50003	1.79	100	94.6	90	110	
K	39	2	He	11607.027	1.057	9856053	1.04	10000	116.1	90	110	CCV Main CR1-2 Failed
Ca	43	2	He	9671.331	1.439	27370	1.10	10000	96.7	90	110	
Ca	44	2	He	9882.518	1.080	471036	0.32	10000	98.8	90	110	
V	51	2	He	98.251	1.826	707418	1.89	100	98.3	90	110	
Cr	52	2	He	98.191	0.469	767360	1.16	100	98.2	90	110	
Mn	55	2	He	99.233	1.446	533732	1.50	100	99.2	90	110	
Fe	56	2	He	9899.631	0.807	64319024	0.32	10000	99.0	90	110	
Co	59	2	He	97.326	0.758	1049500	0.78	100	97.3	90	110	
Ni	60	2	He	99.283	1.008	270091	0.57	100	99.3	90	110	
Cu	63	2	He	97.777	1.179	678067	0.66	100	97.8	90	110	
Zn	66	2	He	100.133	1.024	166600	1.77	100	100.1	90	110	
As	75	2	He	98.908	1.033	164773	0.65	100	98.9	90	110	
Se	78	2	He	97.809	1.635	12796	1.40	100	97.8	90	110	
B	11	1	nogas	591.585	4.261	3203473	2.67	500	118.3	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4590.880	1.650	7462001	1.83	5000	91.8	90	110	
Ca	43	1	nogas	9776.573	0.784	432926	0.88	10000	97.8	90	110	
Ca	44	1	nogas	9566.997	1.003	7077944	1.56	10000	95.7	90	110	
Fe	56	1	nogas	9443.498	3.806	278577098	3.35	10000	94.4	90	110	
Se	77	1	nogas	102.907	4.181	52827	2.76	100	102.9	90	110	
Se	82	1	nogas	99.626	0.636	34794	0.00	100	99.6	90	110	
Mo	95	1	nogas	97.440	1.245	685832	1.73	100	97.4	90	110	
Sn	118	1	nogas	94.259	2.057	1003141	2.09	100	94.3	90	110	
Ba	137	1	nogas	95.827	2.339	482177	1.24	100	95.8	90	110	
Sb	121	2	He	96.335	1.431	552964	1.75	100	96.3	90	110	
Li	7	1	nogas	103.919	3.277	2025448	3.89	100	103.9	90	110	
P	31	1	nogas	468.633	1.426	1098319	1.19	500	93.7	90	110	
La	139	1	nogas	104.766	7.040	453	7.75	100	104.8	90	110	
Au	197	1	nogas	-38.691	-412.991	23	98.97	100	-38.7	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1226490	1.61	1171766	104.67	70	125	
Ge	72	1	nogas	3988047	0.62	3233065	123.35	70	125	
In	115	1	nogas	3569030	3.49	2958353	120.64	70	125	
Bi	209	1	nogas	2486520	1.88	2061475	120.62	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	960044	0.79	810035	118.52	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	255_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:39:49-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.059	37.0	570	35.0	1	
Na	23	1	nogas	82.670	17.3	4282269	4.8	100	
Mg	24	1	nogas	9.080	26.4	215850	15.3	100	
Al	27	1	nogas	-0.020	-293.7	26209	5.5	5	
K	39	1	nogas	-30.933	-23.8	9055825	1.0	100	
Ti	47	1	nogas	1.713	158.1	4645	139.1	2.5	
V	51	1	nogas	1.501	27.0	341254	4.1	2.5	
Cr	52	1	nogas	0.120	29.7	45463	1.5	2.5	
Mn	55	1	nogas	0.028	113.9	46161	1.5	2.5	
Co	59	1	nogas	0.060	14.5	3130	7.4	2.5	
Ni	60	1	nogas	0.529	8.3	3054	8.7	2.5	
Cu	63	1	nogas	-0.191	-11.3	16177	2.8	2.5	
Zn	66	1	nogas	0.479	13.1	3944	7.9	2.5	
As	75	1	nogas	0.976	31.3	68943	3.3	2.5	
Sr	88	1	nogas	0.187	4.2	11304	2.3	2.5	
Ag	107	1	nogas	0.049	22.2	957	19.3	2.5	
Cd	111	1	nogas	0.058	39.9	253	33.6	1	
Sb	121	1	nogas	0.897	26.1	16245	23.3	2.5	
Tl	205	1	nogas	0.735	48.6	18353	47.9	1	
Pb	208	1	nogas	0.079	37.7	3594	20.9	2.5	
U	238	1	nogas	0.158	61.7	5074	59.8	2.5	
[Pb]	206	1	nogas	0.059	30.9	967	15.1	2.5	
[Pb]	207	1	nogas	0.042	54.8	767	22.4	2.5	
Na	23	2	He	72.652	4.8	308085	0.9	100	
Mg	24	2	He	7.624	4.0	10186	1.5	100	
Al	27	2	He	-0.042	-307.5	593	13.1	5	
K	39	2	He	39.213	5.2	222712	0.8	100	
Ca	43	2	He	15.163	11.2	127	4.6	100	
Ca	44	2	He	-16.732	-17.3	2977	6.1	100	
V	51	2	He	0.264	10.1	4068	4.0	2.5	
Cr	52	2	He	-0.008	-134.1	5421	3.2	2.5	
Mn	55	2	He	0.082	33.0	4924	3.6	2.5	
Fe	56	2	He	4.850	2.2	47334	3.0	100	
Co	59	2	He	0.037	15.6	770	8.1	2.5	
Ni	60	2	He	0.160	11.0	330	13.2	2.5	
Cu	63	2	He	-0.322	-6.9	5421	4.2	2.5	
Zn	66	2	He	-0.023	-373.1	750	17.3	2.5	
As	75	2	He	0.067	16.3	430	5.4	2.5	
Se	78	2	He	-0.067	-615.4	190	27.5	2.5	
B	11	1	nogas	103.302	4.0	670112	2.6	10	CCB Main CR1 Failed
Si	28	1	nogas	-230.217	-3.3	1450322	1.4	5	
Ca	43	1	nogas	94.148	6.5	6271	4.0	100	
Ca	44	1	nogas	-175.647	-4.9	314423	1.0	100	
Fe	56	1	nogas	6.655	127.9	2685715	8.9	100	
Se	77	1	nogas	6.389	39.0	23118	3.9	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.630	-36.1	387	20.7	2.5	
Mo	95	1	nogas	0.356	40.2	2764	36.9	2.5	
Sn	118	1	nogas	0.272	30.5	4101	20.6	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.017	-110.4	790	12.5	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.543	3.1	3590	3.2	2.5	
P	31	1	nogas	-3.314	-25.0	118565	0.8	10	
La	139	1	nogas	7.364	66.8	80	21.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-113.370	-68.5	13	86.6	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	nogas	1241620	3.26	1171766	105.96	70	125	
Ge	72	1	nogas	4108358	1.02	3233065	127.07	70	125	ISTD Failed
In	115	1	nogas	3573576	1.97	2958353	120.80	70	125	
Bi	209	1	nogas	2644695	1.99	2061475	128.29	70	125	ISTD Failed
Ge	72	2	He	966318	1.60	810035	119.29	70	125	

Continuing Calibration Verification (CCV) Report

Sample Table

Sample Name	CCV
Data File Name	256_CCV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:41:54-06:00
Sample Type	CCV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High2	QC Flag
Be	9	1	nogas	96.838	4.003	743961	4.86	100	96.8	90	110	
Na	23	1	nogas	9684.649	4.497	267003381	3.54	10000	96.8	90	110	
Mg	24	1	nogas	9656.405	6.246	171569341	5.28	10000	96.6	90	110	
Al	27	1	nogas	98.506	4.304	2125784	6.55	100	98.5	90	110	
K	39	1	nogas	9820.236	0.485	226021280	6.00	10000	98.2	90	110	
Ti	47	1	nogas	97.450	3.160	214263	5.34	100	97.4	90	110	
V	51	1	nogas	100.865	3.966	3255201	5.70	100	100.9	90	110	
Cr	52	1	nogas	96.601	3.099	2495014	8.19	100	96.6	90	110	
Mn	55	1	nogas	97.558	2.224	3147723	4.09	100	97.6	90	110	
Co	59	1	nogas	98.207	4.646	2595556	3.17	100	98.2	90	110	
Ni	60	1	nogas	97.695	3.008	586363	2.98	100	97.7	90	110	
Cu	63	1	nogas	93.960	4.826	1376498	1.27	100	94.0	90	110	
Zn	66	1	nogas	96.229	2.812	476146	3.47	100	96.2	90	110	
As	75	1	nogas	99.296	1.753	681151	4.68	100	99.3	90	110	
Sr	88	1	nogas	97.241	5.731	3222903	0.86	100	97.2	90	110	
Ag	107	1	nogas	99.934	3.208	1591507	2.98	100	99.9	90	110	
Cd	111	1	nogas	99.228	1.759	347942	3.67	100	99.2	90	110	
Sb	121	1	nogas	96.931	4.170	1475793	5.24	100	96.9	90	110	
Tl	205	1	nogas	96.123	5.658	2117096	2.39	100	96.1	90	110	
Pb	208	1	nogas	115.995	4.316	2920895	4.31	100	116.0	90	110	CCV Main CR1-2 Failed
U	238	1	nogas	100.156	3.515	2816467	3.80	100	100.2	90	110	
[Pb]	206	1	nogas	97.815	3.798	726294	2.61	100	97.8	90	110	
[Pb]	207	1	nogas	98.572	1.795	647479	5.28	100	98.6	90	110	
Na	23	2	He	9825.205	3.564	15675542	0.83	10000	98.3	90	110	
Mg	24	2	He	9672.650	0.395	8464283	4.06	10000	96.7	90	110	
Al	27	2	He	96.952	3.615	46939	6.28	100	97.0	90	110	
K	39	2	He	10671.591	5.928	9077049	5.80	10000	106.7	90	110	
Ca	43	2	He	9850.020	1.761	25541	5.45	10000	98.5	90	110	
Ca	44	2	He	9781.222	3.697	427112	5.77	10000	97.8	90	110	
V	51	2	He	97.426	1.940	642693	5.26	100	97.4	90	110	
Cr	52	2	He	96.643	2.832	692151	6.18	100	96.6	90	110	
Mn	55	2	He	98.904	3.985	487704	7.71	100	98.9	90	110	
Fe	56	2	He	9954.743	4.563	59280926	7.60	10000	99.5	90	110	
Co	59	2	He	97.181	3.624	959844	5.46	100	97.2	90	110	
Ni	60	2	He	98.253	4.257	244672	3.95	100	98.3	90	110	
Cu	63	2	He	99.292	3.102	630529	4.71	100	99.3	90	110	
Zn	66	2	He	99.240	0.974	151206	3.41	100	99.2	90	110	
As	75	2	He	97.743	3.300	149167	5.55	100	97.7	90	110	
Se	78	2	He	95.998	3.524	11517	7.39	100	96.0	90	110	
B	11	1	nogas	586.959	7.489	2851251	3.09	500	117.4	90	110	CCV Main CR1-2 Failed
Si	28	1	nogas	4677.262	3.859	7131930	4.61	5000	93.5	90	110	
Ca	43	1	nogas	9904.277	3.060	413006	3.13	10000	99.0	90	110	
Ca	44	1	nogas	9543.968	4.833	6645987	1.52	10000	95.4	90	110	
Fe	56	1	nogas	9540.750	1.241	265236298	4.79	10000	95.4	90	110	
Se	77	1	nogas	103.516	2.581	49995	6.64	100	103.5	90	110	
Se	82	1	nogas	100.209	3.245	32954	2.98	100	100.2	90	110	
Mo	95	1	nogas	97.552	5.941	645921	2.23	100	97.6	90	110	
Sn	118	1	nogas	95.826	4.430	953214	4.56	100	95.8	90	110	
Ba	137	1	nogas	95.363	0.855	448661	2.78	100	95.4	90	110	
Sb	121	2	He	97.430	2.063	512283	4.93	100	97.4	90	110	
Li	7	1	nogas	103.111	5.060	1804975	5.39	100	103.1	90	110	
P	31	1	nogas	473.048	2.051	1043642	4.71	500	94.6	90	110	
La	139	1	nogas	102.949	8.403	417	6.04	100	102.9	90	110	
Au	197	1	nogas	-155.832	-26.207	7	86.60	100	-155.8	90	110	CCV Main CR1-2 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1103083	7.64	1171766	94.14	70	125	
Ge	72	1	nogas	3760109	6.04	3233065	116.30	70	125	
In	115	1	nogas	3335107	2.28	2958353	112.74	70	125	
Bi	209	1	nogas	2418001	6.25	2061475	117.29	70	125	

Continuing Calibration Verification (CCV) Report

Ge	72	2	He	879401	4.29	810035	108.56	70	125	

Continuing Calibration Blank (CCB) Report

Sample Table

Sample Name	CCB
Data File Name	257_CCB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:43:58-06:00
Sample Type	CCB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.061	20.6	600	10.9	1	
Na	23	1	nogas	56.790	12.0	3591299	3.2	100	
Mg	24	1	nogas	7.733	23.6	194028	15.5	100	
Al	27	1	nogas	-0.012	-365.4	26115	3.0	5	
K	39	1	nogas	-27.472	-12.5	9047246	0.8	100	
Ti	47	1	nogas	0.029	152.7	617	16.2	2.5	
V	51	1	nogas	1.778	17.0	346641	3.1	2.5	
Cr	52	1	nogas	0.071	36.9	43655	1.2	2.5	
Mn	55	1	nogas	0.013	193.5	45158	1.1	2.5	
Co	59	1	nogas	0.050	24.8	2830	12.5	2.5	
Ni	60	1	nogas	0.430	5.2	2384	5.5	2.5	
Cu	63	1	nogas	-0.134	-40.5	16915	5.1	2.5	
Zn	66	1	nogas	0.391	6.5	3437	3.1	2.5	
As	75	1	nogas	1.066	34.0	68850	3.7	2.5	
Sr	88	1	nogas	0.153	17.0	9966	9.1	2.5	
Ag	107	1	nogas	0.053	13.6	1023	11.7	2.5	
Cd	111	1	nogas	0.056	33.8	250	28.0	1	
Sb	121	1	nogas	0.938	24.9	16755	22.3	2.5	
Tl	205	1	nogas	0.661	45.1	16663	44.0	1	
Pb	208	1	nogas	0.065	27.5	3234	13.9	2.5	
U	238	1	nogas	0.127	52.6	4161	50.7	2.5	
[Pb]	206	1	nogas	0.046	43.9	867	19.5	2.5	
[Pb]	207	1	nogas	0.042	24.9	773	7.8	2.5	
Na	23	2	He	44.784	3.1	259948	1.0	100	
Mg	24	2	He	5.678	2.1	8325	2.2	100	
Al	27	2	He	-0.028	-425.7	600	8.7	5	
K	39	2	He	37.480	1.5	221269	0.2	100	
Ca	43	2	He	-6.010	-166.4	67	43.3	100	
Ca	44	2	He	-13.468	-20.6	3134	4.6	100	
V	51	2	He	0.269	6.3	4106	3.9	2.5	
Cr	52	2	He	-0.020	-113.8	5328	2.2	2.5	
Mn	55	2	He	0.036	51.6	4681	3.3	2.5	
Fe	56	2	He	4.358	5.1	44133	2.8	100	
Co	59	2	He	0.045	19.8	860	10.1	2.5	
Ni	60	2	He	0.160	4.5	330	5.2	2.5	
Cu	63	2	He	-0.219	-7.7	6138	2.1	2.5	
Zn	66	2	He	-0.136	-14.6	563	5.1	2.5	
As	75	2	He	0.069	33.8	433	10.0	2.5	
Se	78	2	He	-0.081	-184.1	189	11.6	2.5	
B	11	1	nogas	67.648	12.5	502348	0.9	10	CCB Main CR1 Failed
Si	28	1	nogas	-213.356	-15.4	1457114	3.0	5	
Ca	43	1	nogas	83.176	3.3	5714	1.3	100	
Ca	44	1	nogas	-177.123	-4.4	310183	0.9	100	
Fe	56	1	nogas	2.036	338.4	2521178	7.7	100	
Se	77	1	nogas	3.935	77.6	22090	4.0	2.5	CCB Main CR1 Failed
Se	82	1	nogas	-0.724	-32.0	350	22.9	2.5	
Mo	95	1	nogas	0.283	39.7	2217	35.9	2.5	
Sn	118	1	nogas	0.219	30.0	3600	18.5	5	

Continuing Calibration Blank (CCB) Report

Ba	137	1	nogas	-0.024	-150.6	770	22.8	2.5	
Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Sb	121	2	He	0.580	7.1	3804	6.9	2.5	
P	31	1	nogas	-1.030	-62.1	122218	1.0	10	
La	139	1	nogas	4.387	104.7	70	24.7	2.5	CCB Main CR1 Failed
Au	197	1	nogas	-71.246	-89.8	20	50.0	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	nogas	1299409	8.41	1171766	110.89	70	125	
Ge	72	1	nogas	4066536	0.92	3233065	125.78	70	125	ISTD Failed
In	115	1	nogas	3642715	1.23	2958353	123.13	70	125	
Bi	209	1	nogas	2673338	2.04	2061475	129.68	70	125	ISTD Failed
Ge	72	2	He	967118	1.58	810035	119.39	70	125	

Low Level Initial Calibration Verification (LLICV) Report

Sample Table

Sample Name	LLCCV5
Data File Name	258LICV.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:46:01-06:00
Sample Type	LLICV
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	4.589	9.228	40303	4.18	5	91.8	70	130	
Na	23	1	nogas	501.735	4.012	17022063	1.43	500	100.3	70	130	
Mg	24	1	nogas	491.697	2.725	9595167	4.37	500	98.3	70	130	
Al	27	1	nogas	4.640	2.686	133084	2.15	5	92.8	70	130	
K	39	1	nogas	463.085	7.276	20701210	0.87	500	92.6	70	130	
Ti	47	1	nogas	4.799	3.229	11904	2.77	5	96.0	70	130	
V	51	1	nogas	6.407	5.322	493553	2.87	5	128.1	70	130	
Cr	52	1	nogas	4.918	2.695	176306	1.32	5	98.4	70	130	
Mn	55	1	nogas	4.730	7.569	206934	3.04	5	94.6	70	130	
Co	59	1	nogas	5.038	4.734	145031	1.70	5	100.8	70	130	
Ni	60	1	nogas	5.304	3.450	33965	1.72	5	106.1	70	130	
Cu	63	1	nogas	4.759	3.732	93276	0.29	5	95.2	70	130	
Zn	66	1	nogas	5.177	2.417	28916	1.95	5	103.5	70	130	
As	75	1	nogas	5.983	8.623	101953	0.84	5	119.7	70	130	
Sr	88	1	nogas	4.974	4.122	182321	1.89	5	99.5	70	130	
Ag	107	1	nogas	4.974	4.330	85581	2.00	5	99.5	70	130	
Cd	111	1	nogas	4.815	2.649	18480	2.44	5	96.3	70	130	
Sb	121	1	nogas	5.102	1.868	85077	1.25	5	102.0	70	130	
Tl	205	1	nogas	4.872	5.194	115974	0.91	5	97.4	70	130	
Pb	208	1	nogas	6.237	1.565	158572	1.55	5	124.7	70	130	
U	238	1	nogas	4.932	6.739	149223	1.19	5	98.6	70	130	
[Pb]	206	1	nogas	4.865	6.778	39278	1.53	5	97.3	70	130	
[Pb]	207	1	nogas	4.925	7.118	35172	2.80	5	98.5	70	130	
Na	23	2	He	507.742	1.335	1084091	1.24	500	101.5	70	130	
Mg	24	2	He	491.209	0.686	484211	0.54	500	98.2	70	130	
Al	27	2	He	4.984	9.283	3297	8.04	5	99.7	70	130	
K	39	2	He	651.000	1.234	732191	0.91	500	130.2	70	130	LLICV Main CR1 Failed
Ca	43	2	He	473.744	8.526	1457	8.30	500	94.7	70	130	
Ca	44	2	He	441.042	1.066	25241	1.28	500	88.2	70	130	
V	51	2	He	5.023	1.696	39190	1.58	5	100.5	70	130	
Cr	52	2	He	4.746	0.880	43371	0.67	5	94.9	70	130	
Mn	55	2	He	4.632	2.215	29918	2.43	5	92.6	70	130	
Fe	56	2	He	502.871	2.093	3367285	2.55	500	100.6	70	130	
Co	59	2	He	4.862	1.671	54147	2.22	5	97.2	70	130	
Ni	60	2	He	5.071	2.600	14046	2.11	5	101.4	70	130	
Cu	63	2	He	4.626	3.357	40331	2.22	5	92.5	70	130	
Zn	66	2	He	4.739	9.178	8852	7.97	5	94.8	70	130	
As	75	2	He	4.894	1.884	8672	2.04	5	97.9	70	130	
Se	78	2	He	4.474	8.384	794	6.71	5	89.5	70	130	
B	11	1	nogas	80.320	11.596	556293	3.44	25	321.3	70	130	LLICV Main CR1 Failed
Si	28	1	nogas	43.042	56.050	1780193	2.42	25	172.2	70	130	LLICV Main CR1 Failed
Ca	43	1	nogas	560.147	3.771	27063	0.88	500	112.0	70	130	
Ca	44	1	nogas	308.291	8.145	652164	0.96	500	61.7	70	130	LLICV Main CR1 Failed
Fe	56	1	nogas	468.635	7.508	16373194	3.94	500	93.7	70	130	
Se	77	1	nogas	9.863	15.583	23929	3.29	5	197.3	70	130	LLICV Main CR1 Failed
Se	82	1	nogas	4.221	6.537	2073	1.55	5	84.4	70	130	
Mo	95	1	nogas	4.925	3.338	35409	1.21	5	98.5	70	130	
Sn	118	1	nogas	4.789	3.383	53212	2.15	5	95.8	70	130	
Ba	137	1	nogas	4.667	2.335	24838	1.07	5	93.3	70	130	
Sb	121	2	He	4.792	4.901	28660	5.35	5	95.8	70	130	
Li	7	1	nogas	10.399	8.817	302963	0.65	5	208.0	70	130	LLICV Main CR1 Failed
P	31	1	nogas	24.181	10.416	175193	0.05	25	96.7	70	130	
La	139	1	nogas	3.509	47.648	67	8.66	5	70.2	70	130	
Au	197	1	nogas	51.122	229.212	37	41.66	5	1022.4	70	130	LLICV Main CR1 Failed

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1261761	5.72	1171766	107.68	70	125	
Ge	72	1	nogas	4055496	3.05	3233065	125.44	70	125	ISTD Failed
In	115	1	nogas	3644026	1.22	2958353	123.18	70	125	
Bi	209	1	nogas	2601427	5.65	2061475	126.19	70	125	ISTD Failed

Low Level Initial Calibration Verification (LLICV) Report

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Ge	72	2	He	984911	0.56	810035	121.59	70	125	

Sample Report

Sample Table

Sample Name	LLCCV2
Data File Name	259SMPL.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:48:05-06:00
Sample Type	Sample
Dilution	1
Comment	
ISTD Ref FileName	132CALB.d
Sample QC Pass/Fail	Pass
ISTD Pass/Fail	Fail

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Be	9	1	nogas	1.780	1.780	7.15	15857	0.01	2000	
Na	23	1	nogas	206.462	206.462	2.20	8178375	0.00	200000	
Mg	24	1	nogas	203.364	203.364	3.05	3987138	0.01	200000	
Al	27	1	nogas	1.755	1.755	8.48	66899	0.00	2000	
K	39	1	nogas	180.349	180.349	8.57	14019148	0.00	200000	
Ti	47	1	nogas	1.975	1.975	4.41	5237	0.04	2000	
V	51	1	nogas	3.677	3.677	10.83	407713	0.00	2000	
Cr	52	1	nogas	2.049	2.049	6.92	98012	0.00	2000	
Mn	55	1	nogas	1.764	1.764	4.42	105559	0.00	2000	
Co	59	1	nogas	2.068	2.068	1.72	60607	0.00	2000	
Ni	60	1	nogas	2.368	2.368	2.25	14993	0.02	2000	
Cu	63	1	nogas	1.818	1.818	4.86	47525	0.00	2000	
Zn	66	1	nogas	2.077	2.077	7.15	12444	0.02	2000	
As	75	1	nogas	2.958	2.958	9.15	81766	0.00	2000	
Sr	88	1	nogas	2.032	2.032	3.74	77394	0.00	2000	
Ag	107	1	nogas	2.102	2.102	4.51	36348	0.01	2000	
Cd	111	1	nogas	1.896	1.896	5.53	7362	0.03	2000	
Sb	121	1	nogas	2.097	2.097	4.62	35854	0.01	2000	
Tl	205	1	nogas	1.944	1.944	3.56	46989	0.00	2000	
Pb	208	1	nogas	2.512	2.512	0.73	64832	0.00	2000	
U	238	1	nogas	1.952	1.952	0.77	59697	0.00	2000	
[Pb]	206	1	nogas	1.964	1.964	4.12	16272	0.01	2000	
[Pb]	207	1	nogas	1.961	1.961	6.30	14393	0.01	2000	
Na	23	2	He	197.631	197.631	1.86	541513	0.04	200000	
Mg	24	2	He	199.651	199.651	0.98	200837	0.10	200000	
Al	27	2	He	1.746	1.746	3.14	1580	0.11	2000	
K	39	2	He	285.442	285.442	0.33	427765	0.07	200000	
Ca	43	2	He	189.992	189.992	19.66	643	29.53	200000	
Ca	44	2	He	179.855	179.855	3.10	12714	1.41	200000	
V	51	2	He	2.184	2.184	1.13	18501	0.01	2000	
Cr	52	2	He	1.787	1.787	2.90	20045	0.01	2000	
Mn	55	2	He	1.812	1.812	7.75	14646	0.01	2000	
Fe	56	2	He	195.956	195.956	2.43	1337122	0.01	200000	
Co	59	2	He	1.918	1.918	3.44	21843	0.01	2000	
Ni	60	2	He	2.149	2.149	6.84	5961	0.04	2000	
Cu	63	2	He	1.672	1.672	6.33	19778	0.01	2000	
Zn	66	2	He	1.815	1.815	4.28	3934	0.05	2000	
As	75	2	He	1.908	1.908	2.13	3620	0.05	2000	
Se	78	2	He	1.808	1.808	9.45	447	0.40	2000	
B	11	1	nogas	59.612	59.612	8.23	451408	0.01	2000	
Si	28	1	nogas	-126.870	-126.870	-34.91	1567992	-0.01	2000	
Ca	43	1	nogas	282.938	282.938	3.24	14707	1.92	200000	
Ca	44	1	nogas	13.307	13.307	113.58	445344	0.00	200000	
Fe	56	1	nogas	187.265	187.265	4.68	8047015	0.00	200000	

Sample Report

Se	77	1	nogas	5.260	5.260	40.95	22524	0.02	2000	
Se	82	1	nogas	1.460	1.460	35.49	1113	0.13	2000	
Name	Mass	Tune Step	Tune Mode	Conc	FinalConc	Conc %RSD	CPS	%RSD	LDR	QC Flag
Mo	95	1	nogas	1.967	1.967	2.56	14309	0.01	2000	
Sn	118	1	nogas	1.887	1.887	3.25	21907	0.01	2000	
Ba	137	1	nogas	1.857	1.857	3.11	10510	0.02	2000	
Sb	121	2	He	2.024	2.024	2.03	12511	0.02	2000	
La	139	1	nogas	1.611	1.611	402.79	60	2.68	2000	
Au	197	1	nogas	-22.202	-22.202	-356.49	27	-83.26	2000	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1275158	3.69	1171766	108.82	70	125	
Ge	72	1	nogas	4069770	2.96	3233065	125.88	70	125	ISTD Failed
In	115	1	nogas	3674762	1.19	2958353	124.22	70	125	
Bi	209	1	nogas	2617752	2.35	2061475	126.98	70	125	ISTD Failed
Ge	72	2	He	996381	1.20	810035	123.00	70	125	

Interference Check Solution A (ICS-A) Report

Sample Table

Sample Name	ICSA
Data File Name	260ICSA.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:50:11-06:00
Sample Type	ICSA
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Upper Limit	QC Flag
Be	9	1	nogas	0.003	178.0	73	51.6	0	ICSA Main CR1 Failed
Na	23	1	nogas	97369.000	3.9	2800552129	3.4	0	
Mg	24	1	nogas	95712.912	1.3	1785455640	2.5	0	
Al	27	1	nogas	93385.081	4.4	2106294155	0.4	0	
K	39	1	nogas	97335.947	6.9	2281618251	2.1	0	
Ti	47	1	nogas	1951.882	7.3	4524255	2.5	0	
V	51	1	nogas	0.268	298.2	291202	5.1	0	ICSA Main CR1 Failed
Cr	52	1	nogas	0.894	17.1	64719	1.5	0	ICSA Main CR1 Failed
Mn	55	1	nogas	-0.305	-29.8	33377	4.9	0	ICSA Main CR1 Failed
Co	59	1	nogas	0.411	6.1	12861	0.7	0	ICSA Main CR1 Failed
Ni	60	1	nogas	1.590	4.6	9699	1.6	0	ICSA Main CR1 Failed
Cu	63	1	nogas	0.420	9.6	25027	2.3	0	ICSA Main CR1 Failed
Zn	66	1	nogas	1.901	3.0	11250	2.1	0	ICSA Main CR1 Failed
As	75	1	nogas	3.610	22.4	84150	1.9	0	ICSA Main CR1 Failed
Sr	88	1	nogas	0.803	10.7	32560	8.6	0	ICSA Main CR1 Failed
Ag	107	1	nogas	0.059	10.9	1087	5.1	0	ICSA Main CR1 Failed
Cd	111	1	nogas	1.863	0.5	6721	4.5	0	ICSA Main CR1 Failed
Sb	121	1	nogas	0.232	7.0	5034	2.5	0	ICSA Main CR1 Failed
Tl	205	1	nogas	0.044	39.5	1490	25.5	0	ICSA Main CR1 Failed
Pb	208	1	nogas	0.074	9.9	3474	5.3	0	ICSA Main CR1 Failed
[Pb]	206	1	nogas	0.048	8.5	820	2.4	0	ICSA Main CR1 Failed
[Pb]	207	1	nogas	0.043	12.2	727	3.5	0	ICSA Main CR1 Failed
Na	23	2	He	97981.037	2.3	166567398	1.5	0	
Mg	24	2	He	97117.199	3.9	91300342	3.0	0	
Al	27	2	He	93342.694	1.9	47977431	1.3	0	
K	39	2	He	114743.746	1.0	95745329	1.0	0	
Ca	43	2	He	95373.433	0.5	265018	0.8	0	
Ca	44	2	He	96646.872	1.8	4502556	0.9	0	
V	51	2	He	0.177	3.9	3364	2.1	0	ICSA Main CR1 Failed
Cr	52	2	He	0.194	7.8	6848	0.9	0	ICSA Main CR1 Failed
Mn	55	2	He	-0.157	-16.1	3560	3.7	0	ICSA Main CR1 Failed
Fe	56	2	He	100332.252	2.5	641658110	2.6	0	
Co	59	2	He	0.261	0.7	3127	1.3	0	ICSA Main CR1 Failed
Ni	60	2	He	0.344	11.8	813	12.4	0	ICSA Main CR1 Failed
Cu	63	2	He	-0.365	-14.6	5014	7.5	0	ICSA Main CR1 Failed
Zn	66	2	He	0.211	57.8	1117	18.5	0	ICSA Main CR1 Failed
As	75	2	He	0.119	16.3	506	7.3	0	ICSA Main CR1 Failed
Se	78	2	He	0.054	241.5	201	8.1	0	ICSA Main CR1 Failed
B	11	1	nogas	45.389	3.0	359125	0.8	0	
Si	28	1	nogas	243.540	36.5	1995040	0.8	0	
Ca	43	1	nogas	97229.770	3.5	4274724	1.7	0	
Ca	44	1	nogas	97493.968	3.2	67989066	1.8	0	
Fe	56	1	nogas	95635.347	4.3	2790294262	2.4	0	
Se	77	1	nogas	23.128	32.4	27578	3.7	0	
Se	82	1	nogas	-0.634	-60.8	370	32.8	0	ICSA Main CR1 Failed
Mo	95	1	nogas	1911.729	5.3	13404042	2.4	0	
Sn	118	1	nogas	0.091	37.5	2070	12.6	0	ICSA Main CR1 Failed
Ba	137	1	nogas	0.119	33.6	1413	16.3	0	ICSA Main CR1 Failed
Sb	121	2	He	0.242	2.0	1810	0.6	0	ICSA Main CR1 Failed

Interference Check Solution A (ICS-A) Report

P	31	1	nogas	92844.168	6.3	192765257	1.5	0	
La	139	1	nogas	44.722	4.6	213	2.7	0	

QC ISTD Table

Name	Mass	Tune Step	Tune Mode	CPS	%RSD	Ref CPS	%Rec	%QC Low	%QC High	QC Flag
Li	6	1	nogas	1221334	1.49	1171766	104.23	70	125	
Ge	72	1	nogas	3979676	4.70	3233065	123.09	70	125	
In	115	1	nogas	3414393	4.74	2958353	115.42	70	125	
Bi	209	1	nogas	2477747	1.98	2061475	120.19	70	125	
Ge	72	2	He	945180	0.98	810035	116.68	70	125	

Interference Check Solution AB (ICS-AB) Report

Sample Table

Sample Name	ICSAB
Data File Name	261ICSB.d
Data Path Name	C:\Agilent\ICPMH\1\DATA\121
Acq Date Time	2018-12-11T01:52:19-06:00
Sample Type	ICSB
Dilution	1
Comment	
ISTD Ref File Name	132CALB.d
Sample QC Pass/Fail	Fail
ISTD Pass/Fail	Pass

QC Analyte Table

Name	Mass	Tune Step	Tune Mode	Conc	Conc %RSD	CPS	CPS %RSD	Exp Value	%Rec	%Low	%High	QC Flag
Be	9	1	nogas	108.380	1.704	848545	0.53	100	108.4	80	120	
Na	23	1	nogas	105661.204	2.922	3015503267	1.10	100	105661.2	80	120	
Mg	24	1	nogas	106518.615	3.629	1970925244	1.08	100	106518.6	80	120	
Al	27	1	nogas	93450.228	3.840	2075126956	1.64	100	93450.2	80	120	ICSB Main CR1 Failed
K	39	1	nogas	109913.407	3.833	2537295857	1.64	100	109913.4	80	120	ICSB Main CR1 Failed
Ti	47	1	nogas	2109.133	0.807	4819824	2.05	100	2109.1	80	120	ICSB Main CR1 Failed
V	51	1	nogas	107.679	3.455	3599506	0.86	100	107.7	80	120	
Cr	52	1	nogas	105.919	1.153	2843113	3.76	100	105.9	80	120	
Mn	55	1	nogas	104.935	3.128	3524219	3.22	100	104.9	80	120	
Co	59	1	nogas	107.231	2.579	2954269	1.27	100	107.2	80	120	
Ni	60	1	nogas	105.790	1.749	661772	1.21	100	105.8	80	120	
Cu	63	1	nogas	104.266	2.972	1591250	3.26	100	104.3	80	120	
Zn	66	1	nogas	108.750	2.586	560477	1.08	100	108.7	80	120	
As	75	1	nogas	109.817	2.691	778200	0.37	100	109.8	80	120	
Sr	88	1	nogas	106.493	2.992	3681141	0.70	100	106.5	80	120	
Ag	107	1	nogas	103.861	3.280	1723662	2.20	100	103.9	80	120	
Cd	111	1	nogas	112.821	1.948	392262	1.30	100	112.8	80	120	
Sb	121	1	nogas	107.715	2.958	1708075	1.29	100	107.7	80	120	
Tl	205	1	nogas	104.044	4.721	2300523	5.54	100	104.0	80	120	
Pb	208	1	nogas	129.514	0.804	3261135	0.80	100	129.5	80	120	ICSB Main CR1 Failed
U	238	1	nogas	113.390	1.842	3196870	0.67	100	113.4	80	120	
[Pb]	206	1	nogas	108.487	1.017	807942	1.46	100	108.5	80	120	
[Pb]	207	1	nogas	108.958	1.379	717015	1.02	100	109.0	80	120	
Na	23	2	He	106098.753	1.373	181702617	1.71	100	106098.8	80	120	
Mg	24	2	He	103852.459	1.814	98360735	0.45	100	103852.5	80	120	ICSB Main CR1 Failed
Al	27	2	He	91613.570	2.291	47435379	1.92	100	91613.6	80	120	ICSB Main CR1 Failed
K	39	2	He	126463.654	0.726	105505328	0.73	100	126463.7	80	120	
Ca	43	2	He	103849.167	2.869	290631	1.77	100	103849.2	80	120	
Ca	44	2	He	103159.067	4.300	4840746	3.72	100	103159.1	80	120	ICSB Main CR1 Failed
V	51	2	He	105.943	1.749	756260	0.33	100	105.9	80	120	
Cr	52	2	He	106.017	1.577	821167	0.64	100	106.0	80	120	
Mn	55	2	He	106.751	1.215	569230	3.01	100	106.8	80	120	
Fe	56	2	He	109818.907	2.818	707587723	3.55	100	109818.9	80	120	
Co	59	2	He	103.509	3.314	1107145	4.06	100	103.5	80	120	
Ni	60	2	He	104.108	2.451	280873	2.01	100	104.1	80	120	
Cu	63	2	He	104.131	4.402	715456	2.92	100	104.1	80	120	
Zn	66	2	He	108.051	2.693	178208	2.33	100	108.1	80	120	
As	75	2	He	108.618	1.363	179419	0.43	100	108.6	80	120	
Se	78	2	He	107.953	0.889	13987	1.26	100	108.0	80	120	
B	11	1	nogas	586.779	1.475	2909768	0.62	100	586.8	80	120	
Si	28	1	nogas	5401.616	4.215	8320391	1.62	100	5401.6	80	120	ICSB Main CR1 Failed
Ca	43	1	nogas	108089.874	3.447	4677215	1.37	100	108089.9	80	120	
Ca	44	1	nogas	107927.342	1.425	74054672	1.38	100	107927.3	80	120	
Fe	56	1	nogas	108702.975	1.169	3123015403	1.89	100	108703.0	80	120	ICSB Main CR1 Failed
Se	77	1	nogas	119.051	2.344	56835	1.26	100	119.1	80	120	
Se	82	1	nogas	111.954	1.607	38304	1.40	100	112.0	80	120	
Mo	95	1	nogas	2068.824	2.247	14285598	0.54	100	2068.8	80	120	ICSB Main CR1 Failed
Sn	118	1	nogas	108.596	1.845	1071270	0.65	100	108.6	80	120	
Ba	137	1	nogas	110.359	1.782	514851	2.51	100	110.4	80	120	
Sb	121	2	He	108.695	2.292	618619	1.45	100	108.7	80	120	
La	139	1	nogas	160.960	10.953	620	11.17	100	161.0	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	nogas	1122479	1.33	1171766	95.79	70	125	
Ge	72	1	nogas	3915209	2.71	3233065	121.10	70	125	
In	115	1	nogas	3307980	1.50	2958353	111.82	70	125	
Bi	209	1	nogas	2421591	1.34	2061475	117.47	70	125	
Ge	72	2	He	952202	1.80	810035	117.55	70	125	

Tune Report

Batch Folder C:\Agilent\ICPMH\1\DATA\121018B.b
Report Comment
Instrument Name G3281A JP11080910

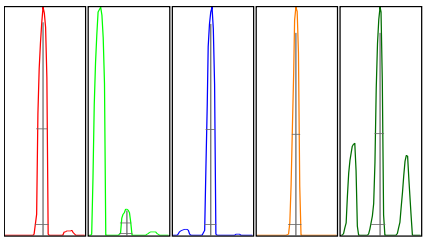
[nogas]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		16595				NaN	-	
24		38290				NaN	-	
59		46234				NaN	-	
115		28041				NaN	-	
208		20209				NaN	-	

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	0.37	5.00				
24	0.56	5.00				
59	0.80	5.00				
115	1.51	5.00				
208	1.71	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	16647	16597	16654	16572	16503
24	38476	38129	38064	38229	38553
59	46623	46531	46065	46247	45706
115	28025	27627	28754	27901	27900
208	20020	20210	20331	19780	20704

Integration Time [sec] 0.1



Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	4605.49	8.95	8.9 - 9.1		0.37	0.473	0.750	
24	10713.44	23.95	23.9 - 24.1		0.37	0.458	0.750	
59	13838.50	58.95	58.9 - 59.1		0.34	0.442	0.750	
115	9219.73	115.00	114.9 - 115.1		0.29	0.449	0.750	
208	6251.17	208.00	207.9 - 208.1		0.30	0.508	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 168.5 **Y Axis** Linear

Tune Parameters
Plasma Paramters

RF Power	1600 W	Carrier Gas	0.36 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	15.0 V
Extract 2	-200.0 V	Cell Entrance	-30 V	Plate Bias	-50 V
Omega Bias	-100 V	Cell Exit	-58 V		

Cell Parameters

OctP Bias	-8.0 V	He Flow	0.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

[He]

Mass	Range	Count (Actual)	Response (Actual) [cps/ug/l]	Response (Required) [cps/ug/l]	Response (Flag)	Resp Ratio (Actual)	Resp Ratio (Required)	Resp Ratio (Flag)
9		332				NaN	-	
24		2381				NaN	-	
59		18960				NaN	-	

Tune Report

Mass	RSD% (Actual)	RSD% (Required)	RSD% (Flag)	Background (Actual)	Background (Required)	Background (Flag)
9	4.90	5.00				
24	1.82	5.00				
59	0.62	5.00				

Mass	Replicate 1 Count	Replicate 2 Count	Replicate 3 Count	Replicate 4 Count	Replicate 5 Count
9	310	354	340	327	333
24	2411	2312	2389	2422	2369
59	19110	19016	18952	18792	18933

Integration Time [sec] 0.1

Mass	Peak Height	Axis (Actual)	Axis (Required)	Axis (Flag)	W-50%	W-X% (Actual)	W-X% (Required)	W-X% (Flag)
9	91.40	8.95	8.9 - 9.1		0.37	0.483	0.750	
24	654.00	23.95	23.9 - 24.1		0.38	0.446	0.750	
59	5805.22	58.95	58.9 - 59.1		0.32	0.439	0.750	

X = 5 **Integration Time [sec]** 0.1 **Acquisition Time [sec]** 100.6 **Y Axis** Linear

Tune Parameters

Plasma Paramters

RF Power	1600 W	Carrier Gas	0.36 L/min	S/C Temp	2 ℃
RF Matching	1.70 V	Option Gas	0.0 %	Makeup/Dilution Gas	0.40 L/min
Smpl Depth	8.0 mm	Nebulizer Pump	0.10 rps	Gas Switch	Dilution Gas

Lenses Parameters

Extract 1	0.0 V	Omega Lens	8.0 V	Deflect	2.0 V
Extract 2	-200.0 V	Cell Entrance	-32 V	Plate Bias	-60 V
Omega Bias	-100 V	Cell Exit	-70 V		

Cell Parameters

OctP Bias	-18.0 V	He Flow	4.0 mL/min	Energy Discrimination	5.0 V
OctP RF	190 V	H2 Flow	0.0 mL/min		
Use Gas	true	3rd Gas Flow	0 %		

HS18120114 Wet chem Raw Data

ALS WO# HS18120114

PREP BATCH REPORT

Batch ID: **135291**

Prep Code: **P_TW_PR4500**

InitSampWt/Vol 0

FinSampVol: 50

Start Date: **06-Dec-18 09:30 am**

End Date: **06-Dec-18 12:30 pm**

OriginalFac: 1

Technician:

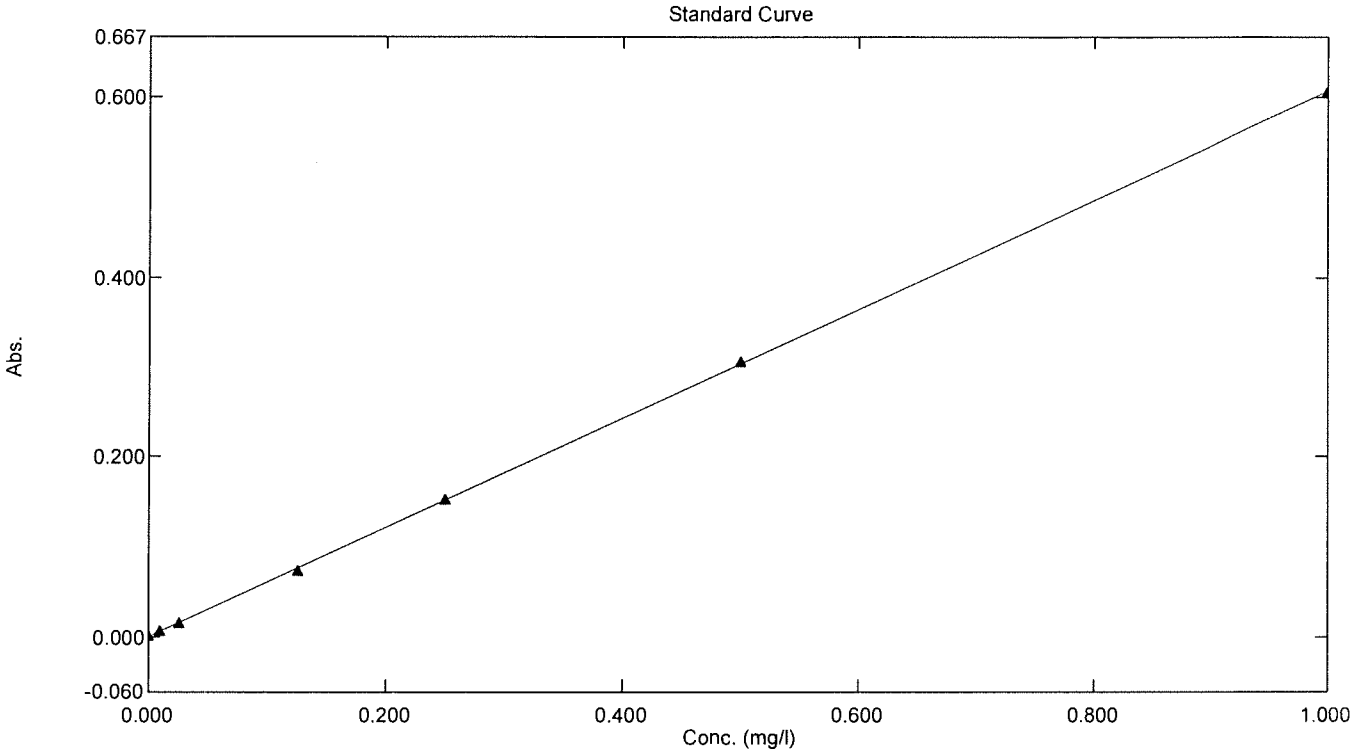
PrepUnitFac: 1

SampID	Frac	Matrix	pH	Init Wt/Vol	FinalVol (mL)	PrepFac	SpkFac	Comments
HS18111440-01	I	Groundwater		5	50	10	10	
HS18111440-01MS	A			5	50	10	10	
HS18111440-01MSD	A			5	50	10	10	
HS18120097-01	F	Water		50	50	1	1	
HS18120113-01	E	Water		50	50	1	1	
HS18120114-06	I	Groundwater		50	50	1	1	
HS18120114-07	I	Groundwater		50	50	1	1	
HS18120231-01	E	Water		50	50	1	1	
LCS-135291	A			50	50	1	1	
MBLK-135291	A			50	50	1	1	

Standard Table Report

01/21/2019 04:57:15 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181206_P_TW_.pho



Correlation Coefficient r2 = 0.99993

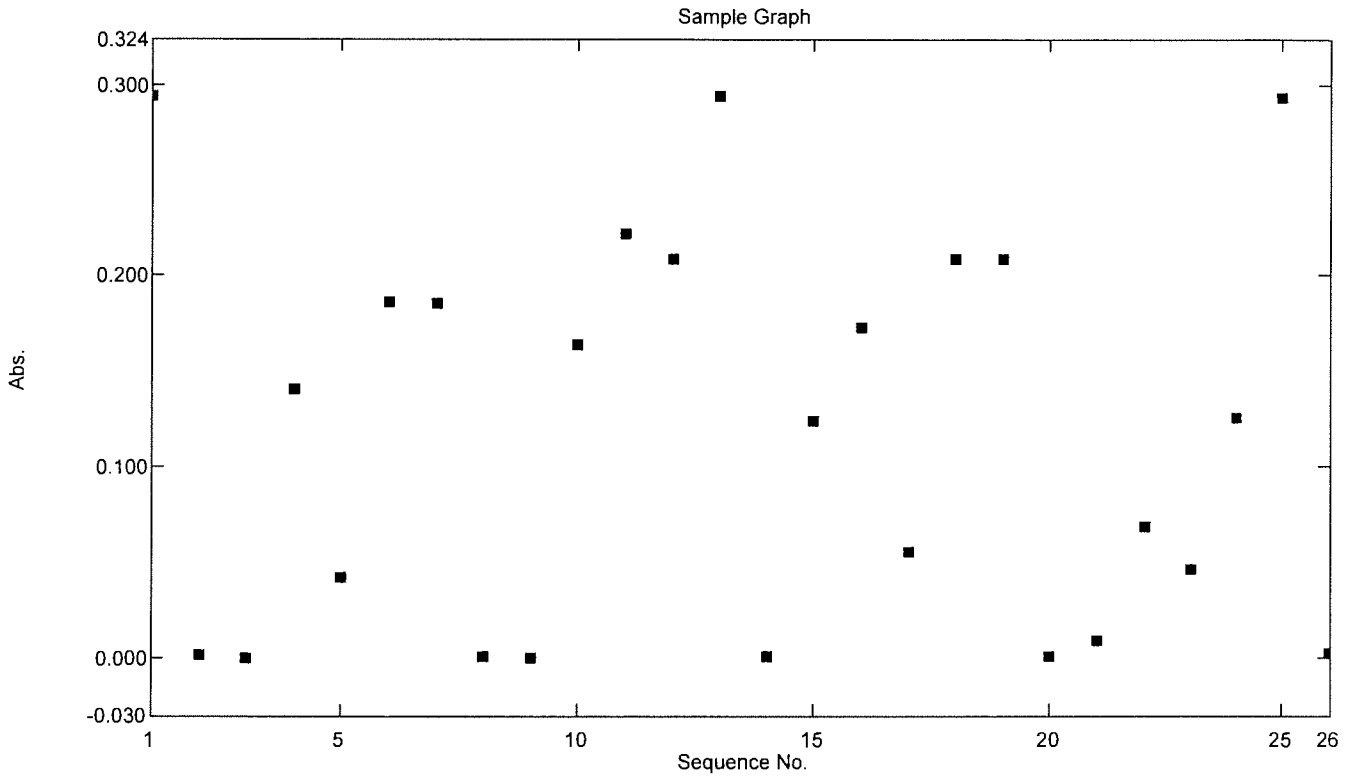
Standard Table

	Sample ID	Type	Ex	Conc	WL880.0	Wgt.Facto	Comments
1	STD1	Standard		0.000	0.001	1.000	
2	STD2	Standard		0.010	0.007	1.000	
3	STD3	Standard		0.025	0.016	1.000	
4	STD4	Standard		0.125	0.073	1.000	
5	STD5	Standard		0.250	0.153	1.000	
6	STD6	Standard		0.500	0.307	1.000	
7	STD7	Standard		1.000	0.606	1.000	
8							

Sample Table Report

01/21/2019 04:57:18 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181206_P_TW_.pho



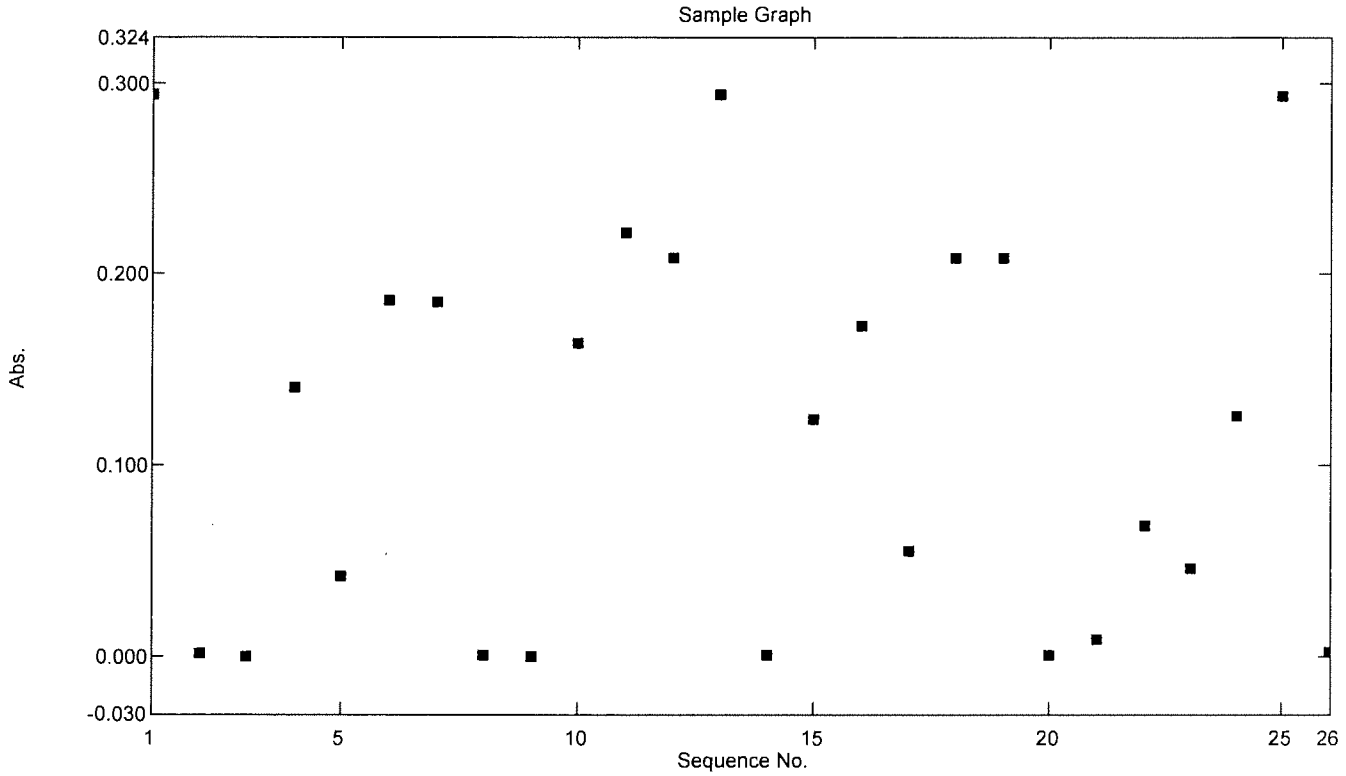
Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
1	CCV	Unknown		0.484	0.294	
2	CCB	Unknown		0.002	0.002	
3	MBLK	Unknown		-0.001	0.000	
4	LCS	Unknown		0.230	0.141	
5	18111496.01	Unknown		0.069	0.042	
6	18111496.01MS	Unknown		0.306	0.186	
7	18111496.01MSD	Unknown		0.305	0.186	
8	18111496.03	Unknown		-0.000	0.001	
9	18120002.01	Unknown		-0.002	-0.000	
10	18120002.02	Unknown		0.269	0.164	DF:10X
11	18120002.03	Unknown		0.364	0.222	DF:10X
12	18120002.04	Unknown		0.343	0.209	DF:10X
13	CCV2	Unknown		0.483	0.294	
14	CCB3	Unknown		0.000	0.001	
15	18120112.01	Unknown		0.203	0.124	
16	18120112.02	Unknown		0.285	0.173	
17	18111440.01	Unknown		0.091	0.056	PF:10X
18	18111440.01MS	Unknown		0.343	0.209	PF:10X
19	18111440.01MSD	Unknown		0.342	0.208	PF:10X

Sample Table Report

01/21/2019 04:57:18 PM

File Name: C:\Program Files (x86)\Shimadzu\UVProbe\Data\T_PO4_UNKNOWN\2018P_TW\181206_P_TW_.pho



Sample Table

	Sample ID	Type	Ex	Conc	WL880.0	Comments
20	181200097.01	Unknown		0.000	0.001	
21	18120113.01	Unknown		0.014	0.009	
22	18120114.06	Unknown		0.112	0.069	
23	18120114.07	Unknown		0.075	0.046	
24	18120231.01	Unknown		0.207	0.126	
25	CCV3	Unknown		0.481	0.293	
26	CCB3.	Unknown		0.002	0.002	
27						

Report Date: 12/11/2018 : 7:40 PM

PC-TitratION PLUS
Calibration Report

H518120114

Calibration Record # 2057

Calibration Settings

Calibration ID	PH CAL 4-7-10	Date	12/11/2018
Channel	1	Time	7:40 PM
Probe Type	pH	Temperature	295.57 K 22.42 C
Probe ID	PH ELECTRODE	Analysis Type	Single Line Fit

Calibration Results

Slope	-57.615	CorrCoeff	0.9997
Intercept	3.460	Equation:	Y = (-57.615) X + (3.460)

Calibration Validity True Operator

	Result	Minimum	Maximum
Slope	-57.615	-65.00	-53.00
Intercept	3.460	-100.00	100.00
Correlation Coefficient	0.9997	0.99	1.00

A: 329027

B: 329028

C: 329029

Note: "True" means the calibration was within the specified ranges
"False" means the calibration was NOT within the specified ranges

Calibration Data	Standard	Reading
	4.00	178.58
	7.00	-1.09
	10.00	-167.11

Report Date: 12/12/2018 : 6:04 AM

PC-TitratION PLUS
Water Analysis Report

Run Number 3433 **Order Number** 20181211-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
ICV-PH	12/11/2018	7:44 PM	22.37	-1.00	6.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
TAP WATER	12/11/2018	7:51 PM	22.46	-1.00	7.79	.00	362.54	362.54	.00	.00	.00	3.45	3.45
WBLKW1-181211	12/11/2018	7:56 PM	22.42	-1.00	5.74	.00	.60	.60	.00	.00	.00	.02	.02
LCS1-181211	12/11/2018	8:04 PM	22.49	-1.00	10.93	552.72	1,070.04	.00	1,034.64	35.41	5.26	10.19	10.19
LCSD1-181211	12/11/2018	8:13 PM	22.46	-1.00	10.93	552.20	1,071.71	.00	1,039.01	32.70	5.26	10.21	10.21
HS18111440-01	12/11/2018	8:19 PM	22.52	-1.00	6.79	.00	118.23	118.23	.00	.00	.00	1.13	1.13
HS18111440-01DUP	12/11/2018	8:25 PM	22.35	-1.00	6.81	.00	114.72	114.72	.00	.00	.00	1.09	1.09
HS18111440-02	12/11/2018	8:31 PM	22.31	-1.00	6.69	.00	312.35	312.35	.00	.00	.00	2.97	2.97
HS18111440-03	12/11/2018	8:37 PM	22.31	-1.00	6.95	.00	313.08	313.08	.00	.00	.00	2.98	2.98
HS18111440-04	12/11/2018	8:43 PM	22.31	-1.00	6.61	.00	239.40	239.40	.00	.00	.00	2.28	2.28
HS18111440-05	12/11/2018	8:49 PM	22.43	-1.00	6.93	.00	434.87	434.87	.00	.00	.00	4.14	4.14
CCV-PH	12/11/2018	8:51 PM	22.54	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/11/2018	9:00 PM	22.32	-1.00	10.90	542.04	1,055.06	.00	1,026.04	29.02	5.16	10.05	10.05
DI RINSE	12/11/2018	9:05 PM	22.63	-1.00	5.91	.00	.34	.34	.00	.00	.00	.02	.02
HS18111491-10DF2	12/11/2018	9:14 PM	22.55	-1.00	7.53	.00	1,037.44	1,037.44	.00	.00	.00	9.88	9.88
HS18111491-11DF2	12/11/2018	9:23 PM	22.81	-1.00	7.84	.00	1,174.83	1,174.83	.00	.00	.00	11.19	11.19
HS18111491-12DF2	12/11/2018	9:31 PM	22.78	-1.00	7.35	.00	642.43	642.43	.00	.00	.00	6.12	6.12
HS18111491-13DF2	12/11/2018	9:38 PM	22.83	-1.00	7.40	.00	652.82	652.82	.00	.00	.00	6.22	6.22
HS18111491-14DF2	12/11/2018	9:44 PM	22.89	-1.00	7.83	.00	238.13	238.13	.00	.00	.00	2.27	2.27
HS18111491-15	12/11/2018	9:51 PM	23.06	-1.00	7.47	.00	602.01	602.01	.00	.00	.00	5.73	5.73
HS18111528-01	12/11/2018	9:58 PM	23.19	-1.00	7.92	.00	437.22	437.22	.00	.00	.00	4.16	4.16
HS18111497-01	12/11/2018	10:05 PM	22.93	-1.00	7.89	.00	88.56	88.56	.00	.00	.00	.84	.84
HS18111497-02	12/11/2018	10:12 PM	22.96	-1.00	7.62	.00	356.67	356.67	.00	.00	.00	3.40	3.40
CCV-PH	12/11/2018	10:14 PM	22.92	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/11/2018	10:22 PM	22.63	-1.00	10.87	534.42	1,049.29	.00	1,029.74	19.55	5.09	9.99	9.99
DI RINSE	12/11/2018	10:27 PM	22.95	-1.00	6.02	.00	.61	.61	.00	.00	.00	.02	.02
HS18111497-03	12/11/2018	10:33 PM	22.93	-1.00	7.46	.00	265.42	265.42	.00	.00	.00	2.53	2.53

Run Number 3433 **Order Number** 20181211-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120114-06	12/11/2018	10:39 PM	23.09	-1.00	6.69	.00	273.00	273.00	.00	.00	.00	2.60	2.60
HS18120114-07	12/11/2018	10:45 PM	23.25	-1.00	6.72	.00	417.00	417.00	.00	.00	.00	3.97	3.97
HS18120113-01	12/11/2018	10:53 PM	23.17	-1.00	6.98	.00	8.43	8.43	.00	.00	.00	.10	.10
HS18120545-01	12/11/2018	11:01 PM	23.14	-1.00	8.20	.00	488.40	488.40	.00	.00	.00	4.65	4.65
HS18120545-02	12/11/2018	11:07 PM	22.95	-1.00	8.75	12.37	216.24	191.50	24.75	.00	.12	2.06	2.06
WBLKW2-181211	12/11/2018	11:12 PM	22.99	-1.00	5.93	.00	.45	.45	.00	.00	.00	.02	.02
WLCS2-181211	12/11/2018	11:21 PM	22.84	-1.00	10.85	536.34	1,060.05	.00	1,047.40	12.64	5.11	10.10	10.10
WLCSD2-181211	12/11/2018	11:30 PM	23.07	-1.00	10.84	536.00	1,061.71	.00	1,051.42	10.29	5.10	10.11	10.11
CCV-PH	12/11/2018	11:32 PM	23.11	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/11/2018	11:41 PM	23.03	-1.00	10.83	537.82	1,065.50	.00	1,055.36	10.14	5.12	10.15	10.15
DI RINSE	12/11/2018	11:46 PM	23.43	-1.00	5.98	.00	.49	.49	.00	.00	.00	.02	.02
HS18120166-01	12/11/2018	11:53 PM	23.23	-1.00	7.78	.00	278.58	278.58	.00	.00	.00	2.65	2.65
HS18120166-01DUP	12/11/2018	11:59 PM	23.20	-1.00	7.80	.00	282.09	282.09	.00	.00	.00	2.69	2.69
HS18120166-02	12/12/2018	12:06 AM	23.15	-1.00	7.24	.00	322.38	322.38	.00	.00	.00	3.07	3.07
HS18120166-03	12/12/2018	12:12 AM	23.17	-1.00	7.42	.00	311.75	311.75	.00	.00	.00	2.97	2.97
HS18120166-04	12/12/2018	12:19 AM	23.22	-1.00	7.60	.00	432.55	432.55	.00	.00	.00	4.12	4.12
HS18120166-05	12/12/2018	12:26 AM	23.20	-1.00	7.66	.00	420.24	420.24	.00	.00	.00	4.00	4.00
HS18120166-06	12/12/2018	12:33 AM	23.35	-1.00	7.45	.00	524.74	524.74	.00	.00	.00	5.00	5.00
HS18120166-07	12/12/2018	12:39 AM	23.57	-1.00	6.93	.00	183.61	183.61	.00	.00	.00	1.75	1.75
HS18120166-08	12/12/2018	12:46 AM	23.43	-1.00	7.72	.00	552.16	552.16	.00	.00	.00	5.26	5.26
CCV-PH	12/12/2018	12:48 AM	23.25	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/12/2018	12:57 AM	22.92	-1.00	10.80	524.09	1,045.81	.00	1,043.43	2.38	4.99	9.96	9.96
DI RINSE	12/12/2018	1:02 AM	23.28	-1.00	5.98	.00	.44	.44	.00	.00	.00	.02	.02
HS18120166-09	12/12/2018	1:08 AM	23.20	-1.00	7.76	.00	286.26	286.26	.00	.00	.00	2.73	2.73
HS18120166-10	12/12/2018	1:14 AM	23.31	-1.00	6.59	.00	264.45	264.45	.00	.00	.00	2.52	2.52
HS18120166-11	12/12/2018	1:20 AM	23.41	-1.00	7.55	.00	343.27	343.27	.00	.00	.00	3.27	3.27
HS18120166-12	12/12/2018	1:26 AM	23.52	-1.00	7.15	.00	164.38	164.38	.00	.00	.00	1.57	1.57
HS18120166-13	12/12/2018	1:33 AM	23.56	-1.00	7.50	.00	175.88	175.88	.00	.00	.00	1.68	1.68
HS18120166-14	12/12/2018	1:39 AM	23.47	-1.00	7.41	.00	179.89	179.89	.00	.00	.00	1.71	1.71
HS18120166-15	12/12/2018	1:45 AM	23.39	-1.00	7.42	.00	260.69	260.69	.00	.00	.00	2.48	2.48

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT.SRW

Run Number 3433 **Order Number** 20181211-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120166-16	12/12/2018	1:52 AM	23.36	-1.00	7.37	.00	292.13	292.13	.00	.00	.00	2.78	2.78
HS18120166-17	12/12/2018	1:58 AM	23.23	-1.00	7.13	.00	262.71	262.71	.00	.00	.00	2.50	2.50
CCV-PH	12/12/2018	2:00 AM	23.15	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/12/2018	2:09 AM	22.99	-1.00	10.79	528.43	1,057.43	.58	1,056.85	.00	5.03	10.07	10.07
DI RINSE	12/12/2018	2:14 AM	23.56	-1.00	5.99	.00	.41	.41	.00	.00	.00	.02	.02
HS18120166-18	12/12/2018	2:20 AM	23.76	-1.00	7.34	.00	268.11	268.11	.00	.00	.00	2.55	2.55
HS18120166-19	12/12/2018	2:27 AM	23.64	-1.00	7.58	.00	304.07	304.07	.00	.00	.00	2.90	2.90
HS18120166-20	12/12/2018	2:33 AM	23.41	-1.00	7.15	.00	279.20	279.20	.00	.00	.00	2.66	2.66
WBLKW3-180714	12/12/2018	2:38 AM	23.39	-1.00	5.95	.00	.52	.52	.00	.00	.00	.02	.02
LCS3-180714	12/12/2018	2:48 AM	23.30	-1.00	10.77	523.28	1,051.59	5.02	1,046.57	.00	4.98	10.02	10.02
LCSD3-180714	12/12/2018	2:56 AM	23.33	-1.00	10.78	523.33	1,049.15	2.50	1,046.65	.00	4.98	9.99	9.99
HS18120166-21	12/12/2018	3:02 AM	23.52	-1.00	7.55	.00	376.78	376.78	.00	.00	.00	3.59	3.59
HS18120166-21DUP	12/12/2018	3:09 AM	23.57	-1.00	7.55	.00	374.64	374.64	.00	.00	.00	3.57	3.57
HS18120166-22	12/12/2018	3:15 AM	23.57	-1.00	7.64	.00	306.07	306.07	.00	.00	.00	2.91	2.91
CCV-PH	12/12/2018	3:18 AM	23.67	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/12/2018	3:27 AM	23.39	-1.00	10.75	517.52	1,044.19	9.15	1,035.04	.00	4.93	9.94	9.94
DI RINSE	12/12/2018	3:32 AM	23.54	-1.00	6.02	.00	.53	.53	.00	.00	.00	.02	.02
HS18120166-23	12/12/2018	3:38 AM	23.44	-1.00	7.55	.00	366.43	366.43	.00	.00	.00	3.49	3.49
HS18120166-24	12/12/2018	3:44 AM	23.52	-1.00	7.56	.00	152.56	152.56	.00	.00	.00	1.45	1.45
HS18120166-25	12/12/2018	3:51 AM	23.47	-1.00	7.66	.00	320.35	320.35	.00	.00	.00	3.05	3.05
HS18120166-26	12/12/2018	3:57 AM	23.56	-1.00	7.45	.00	206.04	206.04	.00	.00	.00	1.96	1.96
HS18120166-27	12/12/2018	4:04 AM	23.56	-1.00	7.38	.00	259.22	259.22	.00	.00	.00	2.47	2.47
HS18120166-28	12/12/2018	4:10 AM	23.89	-1.00	7.31	.00	327.16	327.16	.00	.00	.00	3.12	3.12
HS18120166-29	12/12/2018	4:16 AM	23.75	-1.00	7.66	.00	212.43	212.43	.00	.00	.00	2.02	2.02
HS18120166-30	12/12/2018	4:23 AM	23.70	-1.00	7.78	.00	149.71	149.71	.00	.00	.00	1.43	1.43
HS18120166-31	12/12/2018	4:30 AM	23.60	-1.00	7.73	.00	156.64	156.64	.00	.00	.00	1.49	1.49
CCV-PH	12/12/2018	4:32 AM	23.49	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/12/2018	4:40 AM	23.33	-1.00	10.73	516.68	1,050.46	17.10	1,033.36	.00	4.92	10.00	10.00
DI RINSE	12/12/2018	4:45 AM	23.59	-1.00	6.00	.00	.56	.56	.00	.00	.00	.02	.02
HS18120166-32	12/12/2018	4:52 AM	23.62	-1.00	7.86	.00	309.51	309.51	.00	.00	.00	2.95	2.95

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT.SRW

Run Number 3433 **Order Number** 20181211-2

SampleID	RunDate	RunTime	Temp	cond (uS)	pH	palk-ppm	talk-ppm	bcarb-ppm	carb-ppm	hydr-ppm	mLs @ 8.3	mLs @ 4.5	mLs @ 4.2
HS18120166-33	12/12/2018	4:59 AM	23.59	-1.00	7.85	.00	232.62	232.62	.00	.00	.00	2.22	2.22
HS18120166-39	12/12/2018	5:05 AM	23.83	-1.00	6.50	.00	425.07	425.07	.00	.00	.00	4.05	4.05
HS18120166-40	12/12/2018	5:12 AM	23.76	-1.00	7.79	.00	285.47	285.47	.00	.00	.00	2.72	2.72
HS18120166-41	12/12/2018	5:19 AM	23.73	-1.00	8.08	.00	186.69	186.69	.00	.00	.00	1.78	1.78
HS18120166-42	12/12/2018	5:25 AM	23.73	-1.00	8.00	.00	164.93	164.93	.00	.00	.00	1.57	1.57
HS18120166-43	12/12/2018	5:32 AM	23.59	-1.00	7.62	.00	601.51	601.51	.00	.00	.00	5.73	5.73
HS18111500-01	12/12/2018	5:39 AM	23.67	-1.00	8.29	.00	295.77	295.77	.00	.00	.00	2.82	2.82
HS18120490-01	12/12/2018	5:47 AM	23.62	-1.00	8.14	.00	92.47	92.47	.00	.00	.00	.88	.88
CCV-PH	12/12/2018	5:49 AM	23.65	-1.00	7.04	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
CCV-ALK	12/12/2018	5:58 AM	23.80	-1.00	10.69	514.02	1,061.57	33.54	1,028.03	.00	4.90	10.11	10.11
DI RINSE	12/12/2018	6:02 AM	23.86	-1.00	6.00	.00	.51	.51	.00	.00	.00	.02	.02

PC-TitratION PLUS by Man-Tech Associates, Inc.

GENERAL RESULTS REPORT SRW

Sequence: 120518
Operator: ALSHS.NoUser

HS18120114

Printed: 1/21/2019 7:01:25 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
1	STD1		Standard	91	1.0000	10.0	1.00	1.00
2	STD2		Standard	92	1.0000	10.0	1.00	1.00
3	STD3		Standard	93	1.0000	10.0	1.00	1.00
4	STD4		Standard	94	1.0000	10.0	1.00	1.00
5	STD5		Standard	95	1.0000	10.0	1.00	1.00
6	STD6		Standard	96	1.0000	10.0	1.00	1.00
7	ICV		Unknown	97	1.0000	10.0	1.00	1.00
8	ICB		Unknown	98	1.0000	10.0	1.00	1.00
9	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
10	CCB		Unknown	4	1.0000	10.0	1.00	1.00
11	HS18120088-01MS		Unknown	97	1.0000	10.0	1.00	1.00
12	HS18120067-05DF2		Unknown	11	2.0000	10.0	1.00	1.00
13	HS18120067-03DF2		Unknown	12	2.0000	10.0	1.00	1.00
14	HS18120067-04DF2		Unknown	13	2.0000	10.0	1.00	1.00
15	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
16	CCV		Unknown	1	1.0000	10.0	1.00	1.00
17	CCB		Unknown	2	1.0000	10.0	1.00	1.00
18	CCV		Unknown	1	1.0000	10.0	1.00	1.00
19	CCB		Unknown	2	1.0000	10.0	1.00	1.00
20	DI H2O		Unknown	5	1.0000	10.0	1.00	1.00
21	WLCSW1-120518		Unknown	6	1.0000	10.0	1.00	1.00
22	WLCSDW1-120518		Unknown	7	1.0000	10.0	1.00	1.00
23	WBLKW1-120518		Unknown	5	1.0000	10.0	1.00	1.00
24	HS18120103-01DF5		Unknown	11	5.0000	10.0	1.00	1.00
25	HS18120103-02DF5		Unknown	12	5.0000	10.0	1.00	1.00
26	HS18120103-03DF5		Unknown	13	5.0000	10.0	1.00	1.00
27	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
28	HS18120112-02		Unknown	14	1.0000	10.0	1.00	1.00
29	HS18120112-02DF10		Unknown	15	10.0000	10.0	1.00	1.00
30	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
31	CCB		Unknown	4	1.0000	10.0	1.00	1.00
32	HS18120193-08DF2		Unknown	50	2.0000	10.0	1.00	1.00
33	HS18120193-01		Unknown	64	1.0000	10.0	1.00	1.00
34	HS18120193-09		Unknown	51	1.0000	10.0	1.00	1.00
35	HS18120193-09MS		Unknown	52	1.0000	10.0	1.00	1.00
36	HS18120193-09MSD		Unknown	53	1.0000	10.0	1.00	1.00
37	HS18120193-02		Unknown	70	1.0000	10.0	1.00	1.00
38	HS18120193-03		Unknown	72	1.0000	10.0	1.00	1.00
39	HS18120193-04		Unknown	74	1.0000	10.0	1.00	1.00
40	HS18120193-05		Unknown	75	1.0000	10.0	1.00	1.00
41	HS18120193-06		Unknown	79	1.0000	10.0	1.00	1.00
42	CCV		Unknown	1	1.0000	10.0	1.00	1.00

Sequence: 120518
Operator: ALSHS.NoUser

Printed: 1/21/2019 7:01:25 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
1	STD1	112918	Finished	11/30/2018 12:30:55 AM	Anions Gradient Program
2	STD2	112918	Finished	11/30/2018 12:45:28 AM	Anions Gradient Program
3	STD3	112918	Finished	11/30/2018 1:00:01 AM	Anions Gradient Program
4	STD4	112918	Finished	11/30/2018 1:14:34 AM	Anions Gradient Program
5	STD5	112918	Finished	11/30/2018 1:29:07 AM	Anions Gradient Program
6	STD6	112918	Finished	11/30/2018 1:43:40 AM	Anions Gradient Program
7	ICV	112918	Finished	11/30/2018 1:58:12 AM	Anions Gradient Program
8	ICB	112918	Finished	11/30/2018 2:12:45 AM	Anions Gradient Program
9	CCV1	112918	Finished	12/5/2018 3:18:57 PM	Anions Gradient Program
10	CCB	112918	Finished	12/5/2018 3:33:30 PM	Anions Gradient Program
11	HS18120088-01MS	112918	Finished	12/5/2018 3:48:02 PM	Anions Gradient Program
12	HS18120067-05DF2	112918	Finished	12/5/2018 4:02:35 PM	Anions Gradient Program
13	HS18120067-03DF2	112918	Finished	12/5/2018 4:17:08 PM	Anions Gradient Program
14	HS18120067-04DF2	112918	Finished	12/5/2018 4:31:41 PM	Anions Gradient Program
15	DI H2O	112918	Finished	12/5/2018 4:53:28 PM	Anions Gradient Program
16	CCV	112918	Finished	12/5/2018 5:08:00 PM	Anions Gradient Program
17	CCB	112918	Finished	12/5/2018 5:22:33 PM	Anions Gradient Program
18	CCV	112918	Finished	12/5/2018 5:51:39 PM	Anions Gradient Program
19	CCB	112918	Finished	12/5/2018 6:32:06 PM	Anions Gradient Program
20	DI H2O	112918	Finished	12/5/2018 6:46:39 PM	Anions Gradient Program
21	WLCSW1-120518	112918	Finished	12/5/2018 7:01:12 PM	Anions Gradient Program
22	WLCSDW1-120518	112918	Finished	12/5/2018 7:15:45 PM	Anions Gradient Program
23	WBLKW1-120518	112918	Finished	12/5/2018 7:30:18 PM	Anions Gradient Program
24	HS18120103-01DF5	112918	Finished	12/5/2018 7:44:50 PM	Anions Gradient Program
25	HS18120103-02DF5	112918	Finished	12/5/2018 7:59:23 PM	Anions Gradient Program
26	HS18120103-03DF5	112918	Finished	12/5/2018 8:25:13 PM	Anions Gradient Program
27	DI H2O	112918	Finished	12/5/2018 8:39:46 PM	Anions Gradient Program
28	HS18120112-02	112918	Finished	12/5/2018 8:54:19 PM	Anions Gradient Program
29	HS18120112-02DF10	112918	Finished	12/5/2018 9:08:52 PM	Anions Gradient Program
30	CCV1	112918	Finished	12/5/2018 9:23:25 PM	Anions Gradient Program
31	CCB	112918	Finished	12/5/2018 9:37:57 PM	Anions Gradient Program
32	HS18120193-08DF2	112918	Finished	12/5/2018 9:52:30 PM	Anions Gradient Program
33	HS18120193-01	112918	Finished	12/5/2018 10:07:03 PM	Anions Gradient Program
34	HS18120193-09	112918	Finished	12/5/2018 10:21:36 PM	Anions Gradient Program
35	HS18120193-09MS	112918	Finished	12/5/2018 10:36:09 PM	Anions Gradient Program
36	HS18120193-09MSD	112918	Finished	12/5/2018 10:50:41 PM	Anions Gradient Program
37	HS18120193-02	112918	Finished	12/5/2018 11:05:14 PM	Anions Gradient Program
38	HS18120193-03	112918	Finished	12/5/2018 11:19:46 PM	Anions Gradient Program
39	HS18120193-04	112918	Finished	12/5/2018 11:34:19 PM	Anions Gradient Program
40	HS18120193-05	112918	Finished	12/5/2018 11:48:52 PM	Anions Gradient Program
41	HS18120193-06	112918	Finished	12/6/2018 12:03:25 AM	Anions Gradient Program
42	CCV	112918	Finished	12/6/2018 12:17:58 AM	Anions Gradient Program

Sequence: 120518
Operator: ALSHS.NoUser

Printed: 1/21/2019 7:01:25 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382
Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	GUID
1	STD1	5c4dd191-f469-11e8-b6da-a24899608423
2	STD2	64993f7d-f46b-11e8-b6da-a24899608423
3	STD3	6cdfe8bf-f46d-11e8-b6da-a24899608423
4	STD4	7534dfff-f46f-11e8-b6da-a24899608423
5	STD5	7d687699-f471-11e8-b6da-a24899608423
6	STD6	85cbbbd7-f473-11e8-b6da-a24899608423
7	ICV	8e126519-f475-11e8-b6da-a24899608423
8	ICB	96485e08-f477-11e8-b6da-a24899608423
9	CCV1	3eca7727-f8d3-11e8-b6da-a24899608423
10	CCB	470c7afb-f8d5-11e8-b6da-a24899608423
11	HS18120088-01MS	4f44d63f-f8d7-11e8-b6da-a24899608423
12	HS18120067-05DF2	577d3183-f8d9-11e8-b6da-a24899608423
13	HS18120067-03DF2	5fd6ed6d-f8db-11e8-b6da-a24899608423
14	HS18120067-04DF2	67fe985e-f8dd-11e8-b6da-a24899608423
15	DI H2O	1381ed78-f8e0-11e8-b6da-a24899608423
16	CCV	7b342cb8-f8e2-11e8-b6da-a24899608423
17	CCB	834b2756-f8e4-11e8-b6da-a24899608423
18	CCV	93cc8e31-f8e8-11e8-b6da-a24899608423
19	CCB	db64c038-f8ed-11e8-b6da-a24899608423
20	DI H2O	4308b17a-f8f0-11e8-b6da-a24899608423
21	WLCSW1-120518	4b410cbe-f8f2-11e8-b6da-a24899608423
22	WLCSDW1-120518	53986653-f8f4-11e8-b6da-a24899608423
23	WBLKW1-120518	5bd0c197-f8f6-11e8-b6da-a24899608423
24	HS18120103-01DF5	63bcd23b-f8f8-11e8-b6da-a24899608423
25	HS18120103-02DF5	6c0d04d1-f8fa-11e8-b6da-a24899608423
26	HS18120103-03DF5	a8a19ff8-f8fd-11e8-b6da-a24899608423
27	DI H2O	103c07e6-f900-11e8-b6da-a24899608423
28	HS18120112-02	187200d5-f902-11e8-b6da-a24899608423
29	HS18120112-02DF10	20cbbcbf-f904-11e8-b6da-a24899608423
30	CCV1	28ec40b1-f906-11e8-b6da-a24899608423
31	CCB	31439a46-f908-11e8-b6da-a24899608423
32	HS18120193-08DF2	397bf58a-f90a-11e8-b6da-a24899608423
33	HS18120193-01	41b450ce-f90c-11e8-b6da-a24899608423
34	HS18120193-09	49ecac12-f90e-11e8-b6da-a24899608423
35	HS18120193-09MS	52250756-f910-11e8-b6da-a24899608423
36	HS18120193-09MSD	5a5d629a-f912-11e8-b6da-a24899608423
37	HS18120193-02	62a66e31-f914-11e8-b6da-a24899608423
38	HS18120193-03	6a8dba2b-f916-11e8-b6da-a24899608423
39	HS18120193-04	72ec3abf-f918-11e8-b6da-a24899608423
40	HS18120193-05	7afe70b3-f91a-11e8-b6da-a24899608423
41	HS18120193-06	837bff0f-f91c-11e8-b6da-a24899608423
42	CCV	8bdbffc7-f91e-11e8-b6da-a24899608423

Sequence: 120518
Operator: ALSHS.NoUser

Printed: 1/21/2019 7:01:33 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
85	HS18120166-16		Unknown	48	1.0000	10.0	1.00	1.00
86	HS18120166-08		Unknown	49	1.0000	10.0	1.00	1.00
87	HS18120166-11DF2		Unknown	54	2.0000	10.0	1.00	1.00
88	HS18120166-40		Unknown	55	1.0000	10.0	1.00	1.00
89	HS18120166-09		Unknown	56	1.0000	10.0	1.00	1.00
90	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
91	CCB		Unknown	4	1.0000	10.0	1.00	1.00
92	HS18120166-15		Unknown	57	1.0000	10.0	1.00	1.00
93	HS18120166-26		Unknown	58	1.0000	10.0	1.00	1.00
94	HS18120166-01		Unknown	60	1.0000	10.0	1.00	1.00
95	HS18120166-03		Unknown	69	1.0000	10.0	1.00	1.00
96	HS18120166-29		Unknown	76	1.0000	10.0	1.00	1.00
97	HS18120251-03		Unknown	90	1.0000	10.0	1.00	1.00
98	HS18120166-02		Unknown	77	1.0000	10.0	1.00	1.00
99	HS18120166-13		Unknown	78	1.0000	10.0	1.00	1.00
100	HS18120166-28		Unknown	81	1.0000	10.0	1.00	1.00
101	HS18120251-06		Unknown	91	1.0000	10.0	1.00	1.00
102	CCV		Unknown	1	1.0000	10.0	1.00	1.00
103	CCB		Unknown	2	1.0000	10.0	1.00	1.00
104	WBLKW3-120518		Unknown	66	1.0000	10.0	1.00	1.00
105	WLCSW3-120518		Unknown	67	1.0000	10.0	1.00	1.00
106	WLCSDW3-120518		Unknown	68	1.0000	10.0	1.00	1.00
107	HS18120251-07		Unknown	92	1.0000	10.0	1.00	1.00
108	HS18120166-18		Unknown	59	1.0000	10.0	1.00	1.00
109	HS18120166-41		Unknown	63	1.0000	10.0	1.00	1.00
110	HS18120166-43		Unknown	65	1.0000	10.0	1.00	1.00
111	HS18120166-01		Unknown	60	1.0000	10.0	1.00	1.00
112	HS18120166-01MS		Unknown	61	1.0000	10.0	1.00	1.00
113	HS18120166-01MSD		Unknown	62	1.0000	10.0	1.00	1.00
114	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
115	CCB		Unknown	4	1.0000	10.0	1.00	1.00
116	WBLKW1-120618		Unknown	5	1.0000	10.0	1.00	1.00
117	WLCSW1-120618		Unknown	6	1.0000	10.0	1.00	1.00
118	WLCSDW1-120618		Unknown	7	1.0000	10.0	1.00	1.00
119	HS18120114-06		Unknown	84	1.0000	10.0	1.00	1.00
120	HS18120114-06DF50		Unknown	85	50.0000	10.0	1.00	1.00
121	HS18120114-07		Unknown	86	1.0000	10.0	1.00	1.00
122	HS18120114-07DF50		Unknown	87	50.0000	10.0	1.00	1.00
123	HS18120251-02		Unknown	93	1.0000	10.0	1.00	1.00
124	HS18120251-05		Unknown	94	1.0000	10.0	1.00	1.00
125	HS18120199-01DF10		Unknown	29	10.0000	10.0	1.00	1.00
126	CCV		Unknown	1	1.0000	10.0	1.00	1.00

Sequence: 120518
Operator: ALSHS.NoUser

Printed: 1/21/2019 7:01:33 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
85	HS18120166-16	112918	Finished	12/6/2018 10:46:53 AM	Anions Gradient Program
86	HS18120166-08	112918	Finished	12/6/2018 11:01:25 AM	Anions Gradient Program
87	HS18120166-11DF2	112918	Finished	12/6/2018 11:24:24 AM	Anions Gradient Program
88	HS18120166-40	112918	Finished	12/6/2018 11:42:13 AM	Anions Gradient Program
89	HS18120166-09	112918	Finished	12/6/2018 11:56:45 AM	Anions Gradient Program
90	CCV1	112918	Finished	12/6/2018 12:11:18 PM	Anions Gradient Program
91	CCB	112918	Finished	12/6/2018 12:25:51 PM	Anions Gradient Program
92	HS18120166-15	112918	Finished	12/6/2018 12:40:23 PM	Anions Gradient Program
93	HS18120166-26	112918	Finished	12/6/2018 12:54:56 PM	Anions Gradient Program
94	HS18120166-01	112918	Finished	12/6/2018 1:09:28 PM	Anions Gradient Program
95	HS18120166-03	112918	Finished	12/6/2018 1:24:01 PM	Anions Gradient Program
96	HS18120166-29	112918	Finished	12/6/2018 1:38:34 PM	Anions Gradient Program
97	HS18120251-03	112918	Finished	12/6/2018 1:53:07 PM	Anions Gradient Program
98	HS18120166-02	112918	Finished	12/6/2018 2:07:39 PM	Anions Gradient Program
99	HS18120166-13	112918	Finished	12/6/2018 2:22:12 PM	Anions Gradient Program
100	HS18120166-28	112918	Finished	12/6/2018 2:36:45 PM	Anions Gradient Program
101	HS18120251-06	112918	Finished	12/6/2018 2:51:18 PM	Anions Gradient Program
102	CCV	112918	Finished	12/6/2018 3:05:51 PM	Anions Gradient Program
103	CCB	112918	Finished	12/6/2018 3:20:24 PM	Anions Gradient Program
104	WBLKW3-120518	112918	Finished	12/6/2018 3:34:57 PM	Anions Gradient Program
105	WLCSW3-120518	112918	Finished	12/6/2018 3:49:29 PM	Anions Gradient Program
106	WLCSDW3-120518	112918	Finished	12/6/2018 4:04:03 PM	Anions Gradient Program
107	HS18120251-07	112918	Finished	12/6/2018 4:18:36 PM	Anions Gradient Program
108	HS18120166-18	112918	Finished	12/6/2018 4:48:06 PM	Anions Gradient Program
109	HS18120166-41	112918	Finished	12/6/2018 5:02:38 PM	Anions Gradient Program
110	HS18120166-43	112918	Finished	12/6/2018 5:17:11 PM	Anions Gradient Program
111	HS18120166-01	112918	Finished	12/6/2018 5:31:44 PM	Anions Gradient Program
112	HS18120166-01MS	112918	Finished	12/6/2018 5:46:17 PM	Anions Gradient Program
113	HS18120166-01MSD	112918	Finished	12/6/2018 6:00:50 PM	Anions Gradient Program
114	CCV1	112918	Finished	12/6/2018 6:23:30 PM	Anions Gradient Program
115	CCB	112918	Finished	12/6/2018 6:38:02 PM	Anions Gradient Program
116	WBLKW1-120618	112918	Finished	12/6/2018 6:57:35 PM	Anions Gradient Program
117	WLCSW1-120618	112918	Finished	12/6/2018 7:12:08 PM	Anions Gradient Program
118	WLCSDW1-120618	112918	Finished	12/6/2018 7:26:41 PM	Anions Gradient Program
119	HS18120114-06	112918	Finished	12/6/2018 7:41:14 PM	Anions Gradient Program
120	HS18120114-06DF50	112918	Finished	12/6/2018 7:55:46 PM	Anions Gradient Program
121	HS18120114-07	112918	Finished	12/6/2018 8:10:19 PM	Anions Gradient Program
122	HS18120114-07DF50	112918	Finished	12/6/2018 8:24:52 PM	Anions Gradient Program
123	HS18120251-02	112918	Finished	12/6/2018 8:39:24 PM	Anions Gradient Program
124	HS18120251-05	112918	Finished	12/6/2018 8:53:57 PM	Anions Gradient Program
125	HS18120199-01DF10	112918	Finished	12/6/2018 9:08:30 PM	Anions Gradient Program
126	CCV	112918	Finished	12/6/2018 9:23:03 PM	Anions Gradient Program

Sequence: 120518
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	GUID
85	HS18120166-16	678d353f-f976-11e8-b6da-a24899608423
86	HS18120166-08	6f82cf37-f978-11e8-b6da-a24899608423
87	HS18120166-11DF2	45daa954-f97b-11e8-b6da-a24899608423
88	HS18120166-40	c2b3389f-f97d-11e8-b6da-a24899608423
89	HS18120166-09	2a382b90-f980-11e8-b6da-a24899608423
90	CCV1	324cc3d9-f982-11e8-b6da-a24899608423
91	CCB	3a82bcc8-f984-11e8-b6da-a24899608423
92	HS18120166-15	427856c0-f986-11e8-b6da-a24899608423
93	HS18120166-26	4ab31459-f988-11e8-b6da-a24899608423
94	HS18120166-01	52a8ae51-f98a-11e8-b6da-a24899608423
95	HS18120166-03	5ad9e296-f98c-11e8-b6da-a24899608423
96	HS18120166-29	63255082-f98e-11e8-b6da-a24899608423
97	HS18120251-03	6b6e5c19-f990-11e8-b6da-a24899608423
98	HS18120166-02	7398695f-f992-11e8-b6da-a24899608423
99	HS18120166-13	7c0537f1-f994-11e8-b6da-a24899608423
100	HS18120166-28	842ce2e2-f996-11e8-b6da-a24899608423
101	HS18120251-06	8c62dbd1-f998-11e8-b6da-a24899608423
102	CCV	94befa10-f99a-11e8-b6da-a24899608423
103	CCB	9d05a352-f99c-11e8-b6da-a24899608423
104	WBLKW3-120518	a549ea3f-f99e-11e8-b6da-a24899608423
105	WLCSW3-120518	ad84a7d8-f9a0-11e8-b6da-a24899608423
106	WLCSDW3-120518	b5bd031c-f9a2-11e8-b6da-a24899608423
107	HS18120251-07	be6c92fa-f9a4-11e8-b6da-a24899608423
108	HS18120166-18	7e23d376-f9a8-11e8-b6da-a24899608423
109	HS18120166-41	e593516a-f9aa-11e8-b6da-a24899608423
110	HS18120166-43	edd53602-f9ac-11e8-b6da-a24899608423
111	HS18120166-01	f60b2ef1-f9ae-11e8-b6da-a24899608423
112	HS18120166-01MS	fe569cdd-f9b0-11e8-b6da-a24899608423
113	HS18120166-01MSD	06915a76-f9b3-11e8-b6da-a24899608423
114	CCV1	d17be72c-f9b5-11e8-b6da-a24899608423
115	CCB	39591066-f9b8-11e8-b6da-a24899608423
116	WBLKW1-120618	94eff802-f9ba-11e8-b6da-a24899608423
117	WLCSW1-120618	fc964b99-f9bc-11e8-b6da-a24899608423
118	WLCSDW1-120618	04df5730-f9bf-11e8-b6da-a24899608423
119	HS18120114-06	0d17b274-f9c1-11e8-b6da-a24899608423
120	HS18120114-06DF50	14fc9c19-f9c3-11e8-b6da-a24899608423
121	HS18120114-07	1d4f3104-f9c5-11e8-b6da-a24899608423
122	HS18120114-07DF50	258529f3-f9c7-11e8-b6da-a24899608423
123	HS18120251-02	2dce358a-f9c9-11e8-b6da-a24899608423
124	HS18120251-05	35f5e07b-f9cb-11e8-b6da-a24899608423
125	HS18120199-01DF10	3e2e3bbf-f9cd-11e8-b6da-a24899608423
126	CCV	4668f958-f9cf-11e8-b6da-a24899608423

Sequence: 120518
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Inj. Vol.	*Initial_Vol_Wt	*Final_Volume
127	CCB		Unknown	2	1.0000	10.0	1.00	1.00
128	HS18120166-05		Unknown	71	1.0000	10.0	1.00	1.00
129	HS18120166-19		Unknown	73	1.0000	10.0	1.00	1.00
130	DI H2O		Unknown	10	1.0000	10.0	1.00	1.00
131	HS18120266-01		Unknown	11	1.0000	10.0	1.00	1.00
132	HS18120266-01MS		Unknown	12	1.0000	10.0	1.00	1.00
133	HS18120266-01MSD		Unknown	13	1.0000	10.0	1.00	1.00
134	HS18120266-02		Unknown	14	1.0000	10.0	1.00	1.00
135	HS18120266-03		Unknown	15	1.0000	10.0	1.00	1.00
136	HS18120266-04		Unknown	16	1.0000	10.0	1.00	1.00
137	HS18120266-05		Unknown	17	1.0000	10.0	1.00	1.00
138	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
139	CCB		Unknown	4	1.0000	10.0	1.00	1.00
140	HS18120280-01		Unknown	18	1.0000	10.0	1.00	1.00
141	HS18120280-01MS		Unknown	19	1.0000	10.0	1.00	1.00
142	HS18120280-01MSD		Unknown	20	1.0000	10.0	1.00	1.00
143	HS18120280-02		Unknown	21	1.0000	10.0	1.00	1.00
144	HS18120280-03		Unknown	22	1.0000	10.0	1.00	1.00
145	HS18120280-04DF2		Unknown	23	2.0000	10.0	1.00	1.00
146	HS18120280-05DF2		Unknown	24	2.0000	10.0	1.00	1.00
147	HS18120280-06		Unknown	25	1.0000	10.0	1.00	1.00
148	HS18120280-07		Unknown	26	1.0000	10.0	1.00	1.00
149	HS18120280-08		Unknown	27	1.0000	10.0	1.00	1.00
150	CCV		Unknown	1	1.0000	10.0	1.00	1.00
151	CCB		Unknown	2	1.0000	10.0	1.00	1.00
152	HS18120092-01		Unknown	30	1.0000	10.0	1.00	1.00
153	HS18120092-02		Unknown	31	1.0000	10.0	1.00	1.00
154	HS18120291-01DF10		Unknown	28	10.0000	10.0	1.00	1.00
155	HS18120097-01		Unknown	9	1.0000	10.0	1.00	1.00
156	HS18120112-01		Unknown	82	1.0000	10.0	1.00	1.00
157	HS18120094-01		Unknown	32	1.0000	10.0	1.00	1.00
158	HS18120094-02		Unknown	33	1.0000	10.0	1.00	1.00
159	HS18120094-03		Unknown	34	1.0000	10.0	1.00	1.00
160	HS18120094-04		Unknown	35	1.0000	10.0	1.00	1.00
161	CCV1		Unknown	3	1.0000	10.0	1.00	1.00
162	CCB		Unknown	4	1.0000	10.0	1.00	1.00
163	CCV		Unknown	1	1.0000	10.0	1.00	1.00
164	CCB		Unknown	2	1.0000	10.0	1.00	1.00
165	HS18120092-01		Unknown	30	1.0000	10.0	1.00	1.00
166	CCV		Unknown	1	1.0000	10.0	1.00	1.00
167	CCB		Unknown	2	1.0000	10.0	1.00	1.00
168	WBLKW1-120718		Unknown	36	1.0000	10.0	1.00	1.00

Sequence: 120518
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382

Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Status	Inj. Date/Time	Program
127	CCB	112918	Finished	12/6/2018 9:37:36 PM	Anions Gradient Program
128	HS18120166-05	112918	Finished	12/6/2018 9:52:08 PM	Anions Gradient Program
129	HS18120166-19	112918	Finished	12/6/2018 10:06:41 PM	Anions Gradient Program
130	DI H2O	112918	Finished	12/6/2018 10:21:14 PM	Anions Gradient Program
131	HS18120266-01	112918	Finished	12/6/2018 10:35:47 PM	Anions Gradient Program
132	HS18120266-01MS	112918	Finished	12/6/2018 10:50:20 PM	Anions Gradient Program
133	HS18120266-01MSD	112918	Finished	12/6/2018 11:04:52 PM	Anions Gradient Program
134	HS18120266-02	112918	Finished	12/6/2018 11:19:25 PM	Anions Gradient Program
135	HS18120266-03	112918	Finished	12/6/2018 11:33:58 PM	Anions Gradient Program
136	HS18120266-04	112918	Finished	12/6/2018 11:48:31 PM	Anions Gradient Program
137	HS18120266-05	112918	Finished	12/7/2018 12:03:04 AM	Anions Gradient Program
138	CCV1	112918	Finished	12/7/2018 12:17:36 AM	Anions Gradient Program
139	CCB	112918	Finished	12/7/2018 12:32:09 AM	Anions Gradient Program
140	HS18120280-01	112918	Finished	12/7/2018 12:46:43 AM	Anions Gradient Program
141	HS18120280-01MS	112918	Finished	12/7/2018 1:01:16 AM	Anions Gradient Program
142	HS18120280-01MSD	112918	Finished	12/7/2018 1:15:48 AM	Anions Gradient Program
143	HS18120280-02	112918	Finished	12/7/2018 1:30:21 AM	Anions Gradient Program
144	HS18120280-03	112918	Finished	12/7/2018 1:44:54 AM	Anions Gradient Program
145	HS18120280-04DF2	112918	Finished	12/7/2018 1:59:27 AM	Anions Gradient Program
146	HS18120280-05DF2	112918	Finished	12/7/2018 2:13:59 AM	Anions Gradient Program
147	HS18120280-06	112918	Finished	12/7/2018 2:28:32 AM	Anions Gradient Program
148	HS18120280-07	112918	Finished	12/7/2018 2:43:05 AM	Anions Gradient Program
149	HS18120280-08	112918	Finished	12/7/2018 2:57:38 AM	Anions Gradient Program
150	CCV	112918	Finished	12/7/2018 3:12:11 AM	Anions Gradient Program
151	CCB	112918	Finished	12/7/2018 3:26:44 AM	Anions Gradient Program
152	HS18120092-01	112918	Finished	12/7/2018 3:41:17 AM	Anions Gradient Program
153	HS18120092-02	112918	Finished	12/7/2018 3:55:50 AM	Anions Gradient Program
154	HS18120291-01DF10	112918	Finished	12/7/2018 4:10:23 AM	Anions Gradient Program
155	HS18120097-01	112918	Finished	12/7/2018 4:24:56 AM	Anions Gradient Program
156	HS18120112-01	112918	Finished	12/7/2018 4:39:29 AM	Anions Gradient Program
157	HS18120094-01	112918	Finished	12/7/2018 4:54:01 AM	Anions Gradient Program
158	HS18120094-02	112918	Finished	12/7/2018 5:08:35 AM	Anions Gradient Program
159	HS18120094-03	112918	Finished	12/7/2018 5:23:08 AM	Anions Gradient Program
160	HS18120094-04	112918	Finished	12/7/2018 5:37:40 AM	Anions Gradient Program
161	CCV1	112918	Finished	12/7/2018 5:52:13 AM	Anions Gradient Program
162	CCB	112918	Finished	12/7/2018 6:06:46 AM	Anions Gradient Program
163	CCV	112918	Finished	12/7/2018 9:30:40 AM	Anions Gradient Program
164	CCB	112918	Finished	12/7/2018 9:45:13 AM	Anions Gradient Program
165	HS18120092-01	112918	Finished	12/7/2018 9:59:46 AM	Anions Gradient Program
166	CCV	112918	Finished	12/7/2018 11:08:01 AM	Anions Gradient Program
167	CCB	112918	Finished	12/7/2018 11:22:33 AM	Anions Gradient Program
168	WBLKW1-120718	112918	Finished	12/7/2018 11:37:06 AM	Anions Gradient Program

Sequence: 120518
Operator: ALSHS.NoUser

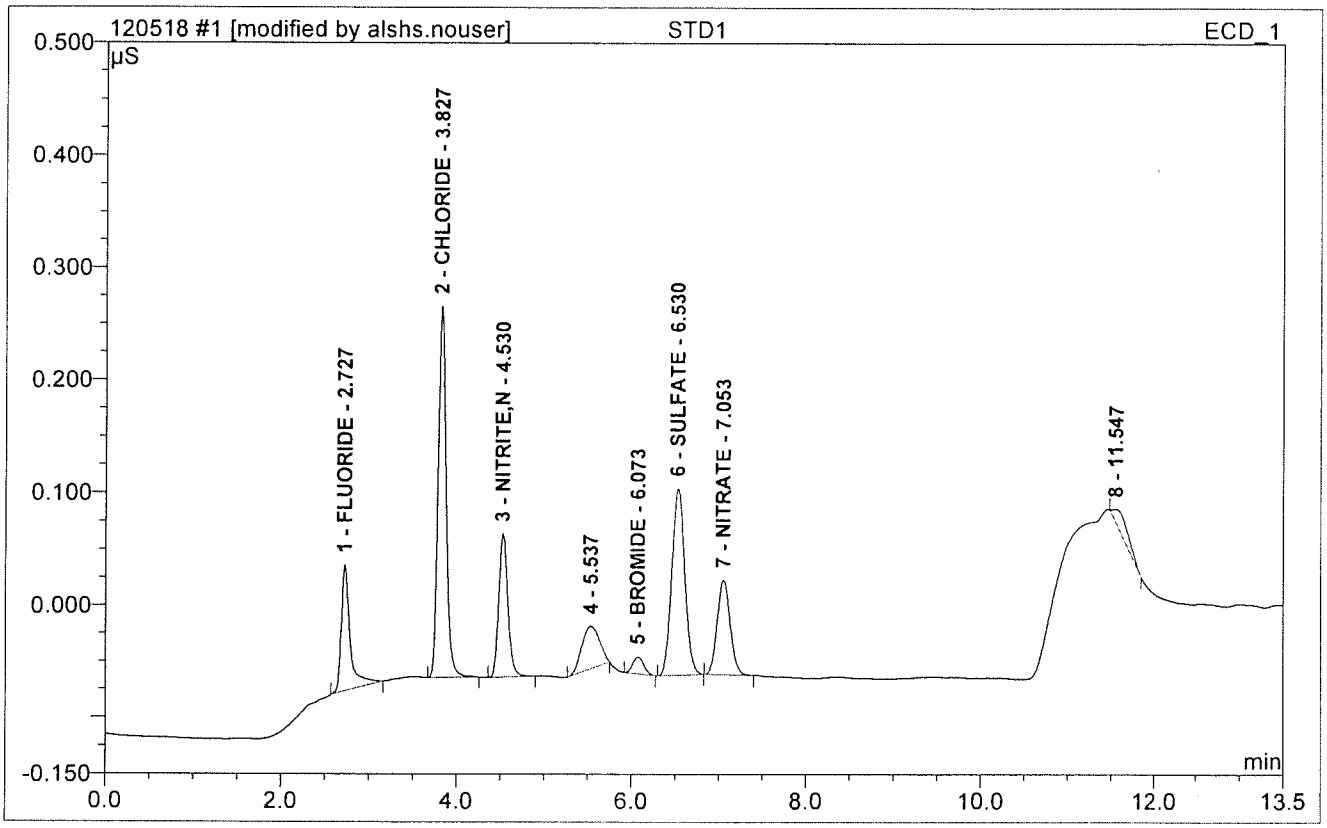
Printed: 1/21/2019 7:01:33 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\01-2018
Timebase: ICS2100
#Samples: 382
Created: 12/6/2018 11:20:39 AM by alshs.nouser
(Modified, not saved)

No.	Name	GUID
127	CCB	4eafa29a-f9d1-11e8-b6da-a24899608423
128	HS18120166-05	56e7fdde-f9d3-11e8-b6da-a24899608423
129	HS18120166-19	5f205922-f9d5-11e8-b6da-a24899608423
130	DI H2O	676964b9-f9d7-11e8-b6da-a24899608423
131	HS18120266-01	6fb27050-f9d9-11e8-b6da-a24899608423
132	HS18120266-01MS	77eacb94-f9db-11e8-b6da-a24899608423
133	HS18120266-01MSD	7fbf04e6-f9dd-11e8-b6da-a24899608423
134	HS18120266-02	8808107d-f9df-11e8-b6da-a24899608423
135	HS18120266-03	907c060e-f9e1-11e8-b6da-a24899608423
136	HS18120266-04	989a27ab-f9e3-11e8-b6da-a24899608423
137	HS18120266-05	a0e33342-f9e5-11e8-b6da-a24899608423
138	CCV1	a92c3ed9-f9e7-11e8-b6da-a24899608423
139	CCB	b1649a1d-f9e9-11e8-b6da-a24899608423
140	HS18120280-01	b9d88fae-f9eb-11e8-b6da-a24899608423
141	HS18120280-01MS	c23e3741-f9ed-11e8-b6da-a24899608423
142	HS18120280-01MSD	ca90cc2c-f9ef-11e8-b6da-a24899608423
143	HS18120280-02	d2f4116a-f9f1-11e8-b6da-a24899608423
144	HS18120280-03	db2c6cae-f9f3-11e8-b6da-a24899608423
145	HS18120280-04DF2	e36e5146-f9f5-11e8-b6da-a24899608423
146	HS18120280-05DF2	eb6fd6e7-f9f7-11e8-b6da-a24899608423
147	HS18120280-06	f3951f83-f9f9-11e8-b6da-a24899608423
148	HS18120280-07	fbdbc8c5-f9fb-11e8-b6da-a24899608423
149	HS18120280-08	040f5f5f-f9fe-11e8-b6da-a24899608423
150	CCV	0c72a49d-fa00-11e8-b6da-a24899608423
151	CCB	14c2d733-fa02-11e8-b6da-a24899608423
152	HS18120092-01	1c9bd52f-fa04-11e8-b6da-a24899608423
153	HS18120092-02	255c1560-fa06-11e8-b6da-a24899608423
154	HS18120291-01DF10	2dcb4647-fa08-11e8-b6da-a24899608423
155	HS18120097-01	360f8d34-fa0a-11e8-b6da-a24899608423
156	HS18120112-01	3e5fbfca-fa0c-11e8-b6da-a24899608423
157	HS18120094-01	469cdfb8-fa0e-11e8-b6da-a24899608423
158	HS18120094-02	4ed79d51-fa10-11e8-b6da-a24899608423
159	HS18120094-03	5778df31-fa12-11e8-b6da-a24899608423
160	HS18120094-04	5faed820-fa14-11e8-b6da-a24899608423
161	CCV1	67f7e3b7-fa16-11e8-b6da-a24899608423
162	CCB	704351a3-fa18-11e8-b6da-a24899608423
163	CCV	8c98547c-fa34-11e8-b6da-a24899608423
164	CCB	f47f070a-fa36-11e8-b6da-a24899608423
165	HS18120092-01	fcc812a1-fa38-11e8-b6da-a24899608423
166	CCV	25f1c213-fa42-11e8-b6da-a24899608423
167	CCB	8d9cda54-fa44-11e8-b6da-a24899608423
168	WBLKW1-120718	95e12141-fa46-11e8-b6da-a24899608423

1 STD1

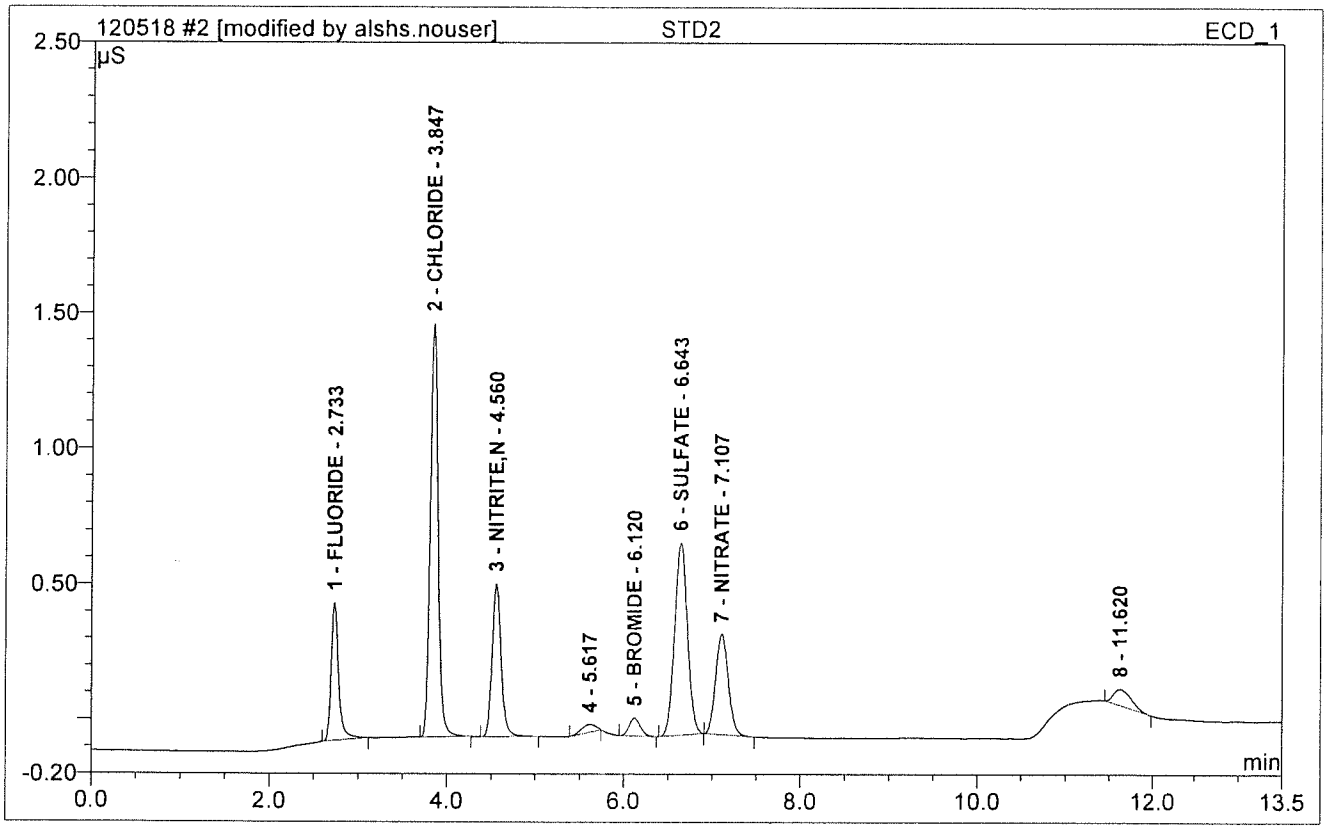
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 0:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.113	0.013	10.61	0.103	1.
2	3.83	CHLORIDE	0.330	0.035	28.86	0.527	1.
3	4.53	NITRITE,N	0.128	0.016	12.77	0.094	1.
5	6.07	BROMIDE	0.015	0.002	1.81	0.137	1.
6	6.53	SULFATE	0.167	0.029	23.73	0.511	1.
7	7.05	NITRATE	0.085	0.015	12.09	0.122	1.
Total:			0.838	0.110	89.88	1.493	

2 STD2

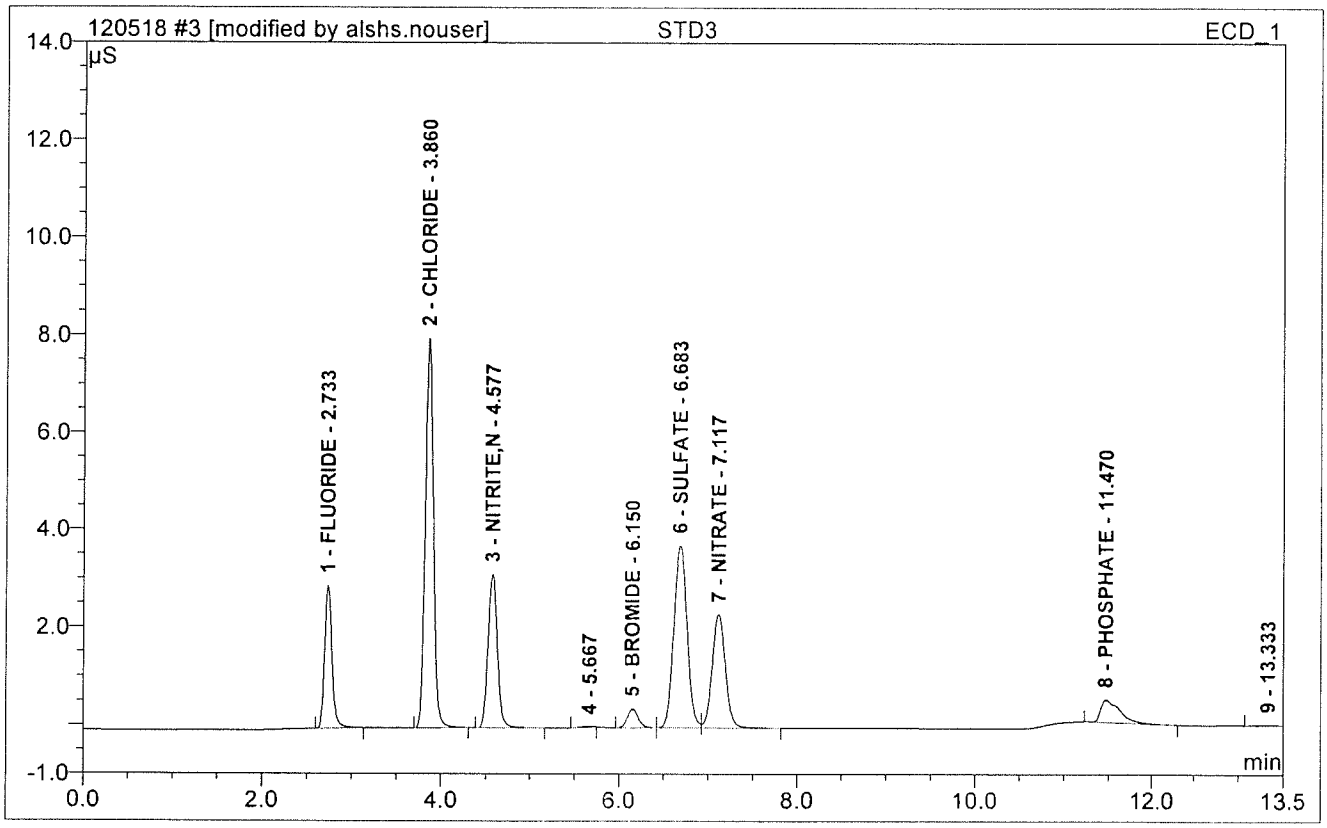
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 0:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.511	0.050	10.23	0.372	1.
2	3.85	CHLORIDE	1.527	0.157	32.29	1.939	1.
3	4.56	NITRITE,N	0.567	0.067	13.79	0.380	1.
5	6.12	BROMIDE	0.066	0.010	1.99	0.356	1.
6	6.64	SULFATE	0.712	0.120	24.70	1.977	1.
7	7.11	NITRATE	0.374	0.063	12.92	0.346	1.
Total:			3.756	0.468	95.91	5.370	

3 STD3

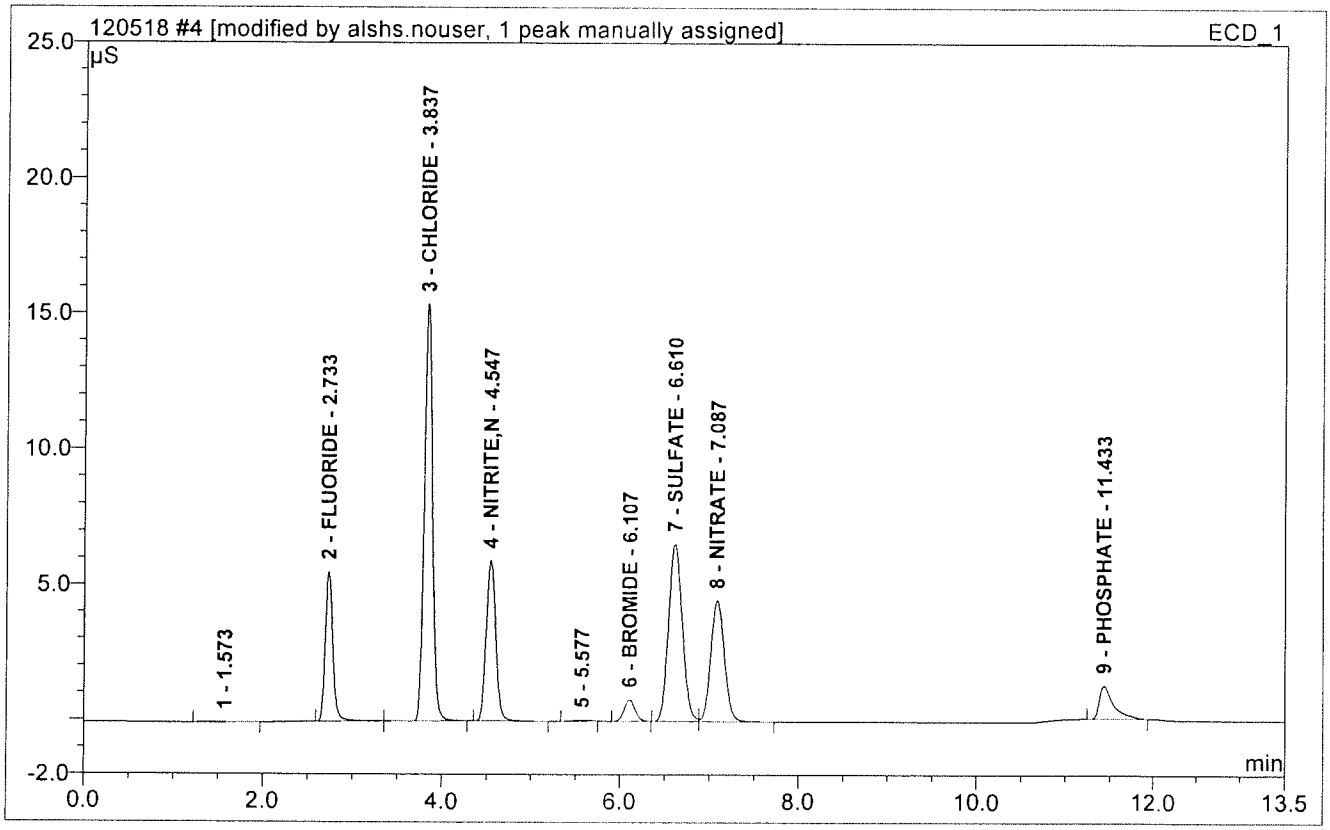
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.919	0.281	10.29	2.060	1.
2	3.86	CHLORIDE	7.994	0.856	31.29	10.001	1.
3	4.58	NITRITE,N	3.141	0.386	14.10	2.145	1.
5	6.15	BROMIDE	0.386	0.055	2.01	1.681	1.
6	6.68	SULFATE	3.729	0.638	23.33	10.269	1.
7	7.12	NITRATE	2.320	0.399	14.59	1.909	1.
8	11.47	PHOSPHATE	0.463	0.115	4.21	2.191	1.
Total:			20.953	2.730	99.83	30.257	

4 STD4

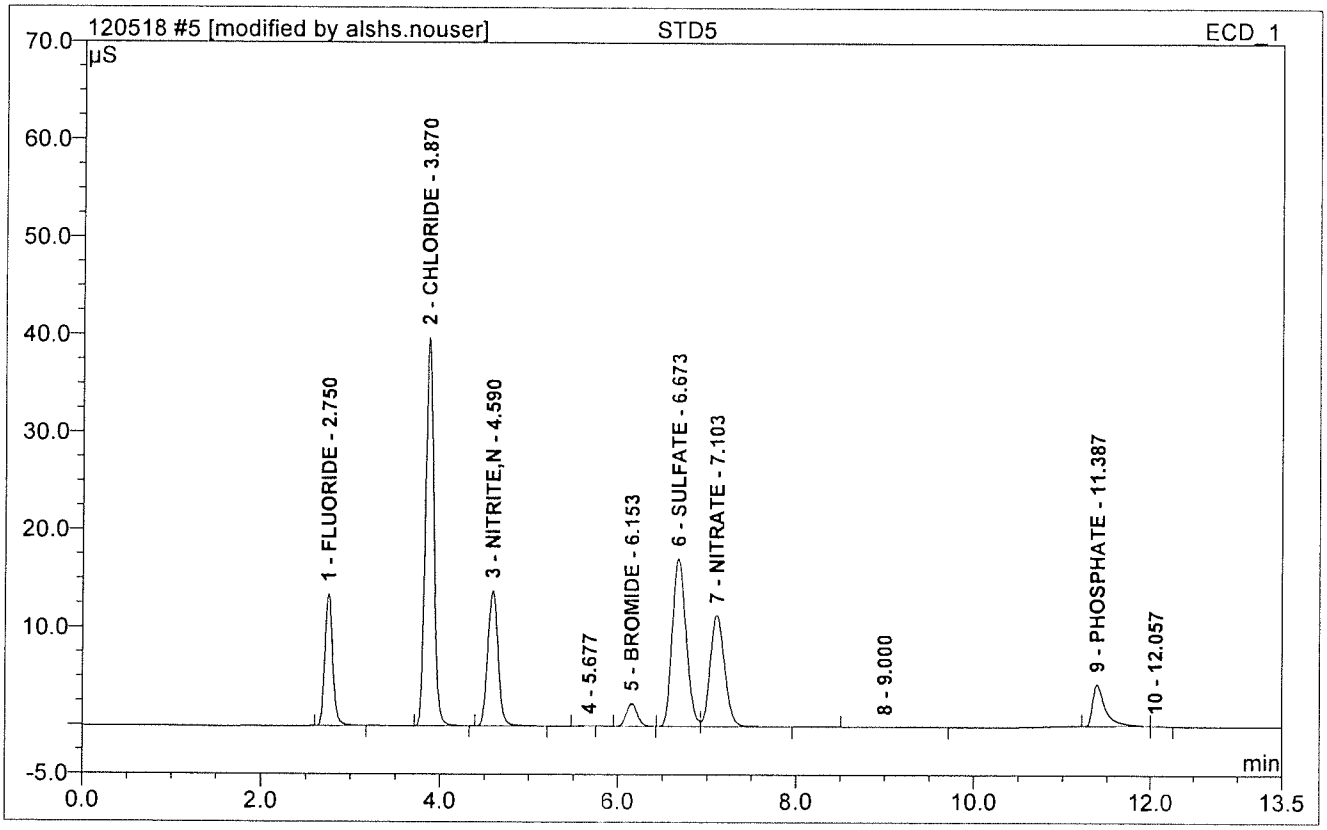
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	2.73	FLUORIDE	5.555	0.551	10.40	4.024	1.
3	3.84	CHLORIDE	15.400	1.661	31.38	19.294	1.
4	4.55	NITRITE,N	5.971	0.745	14.08	4.139	1.
6	6.11	BROMIDE	0.804	0.115	2.17	3.434	1.
7	6.61	SULFATE	6.583	1.187	22.43	19.076	1.
8	7.09	NITRATE	4.511	0.797	15.06	3.760	1.
9	11.43	PHOSPHATE	1.231	0.227	4.28	3.629	1.
Total:			40.055	5.282	99.81	57.357	

5 STD5

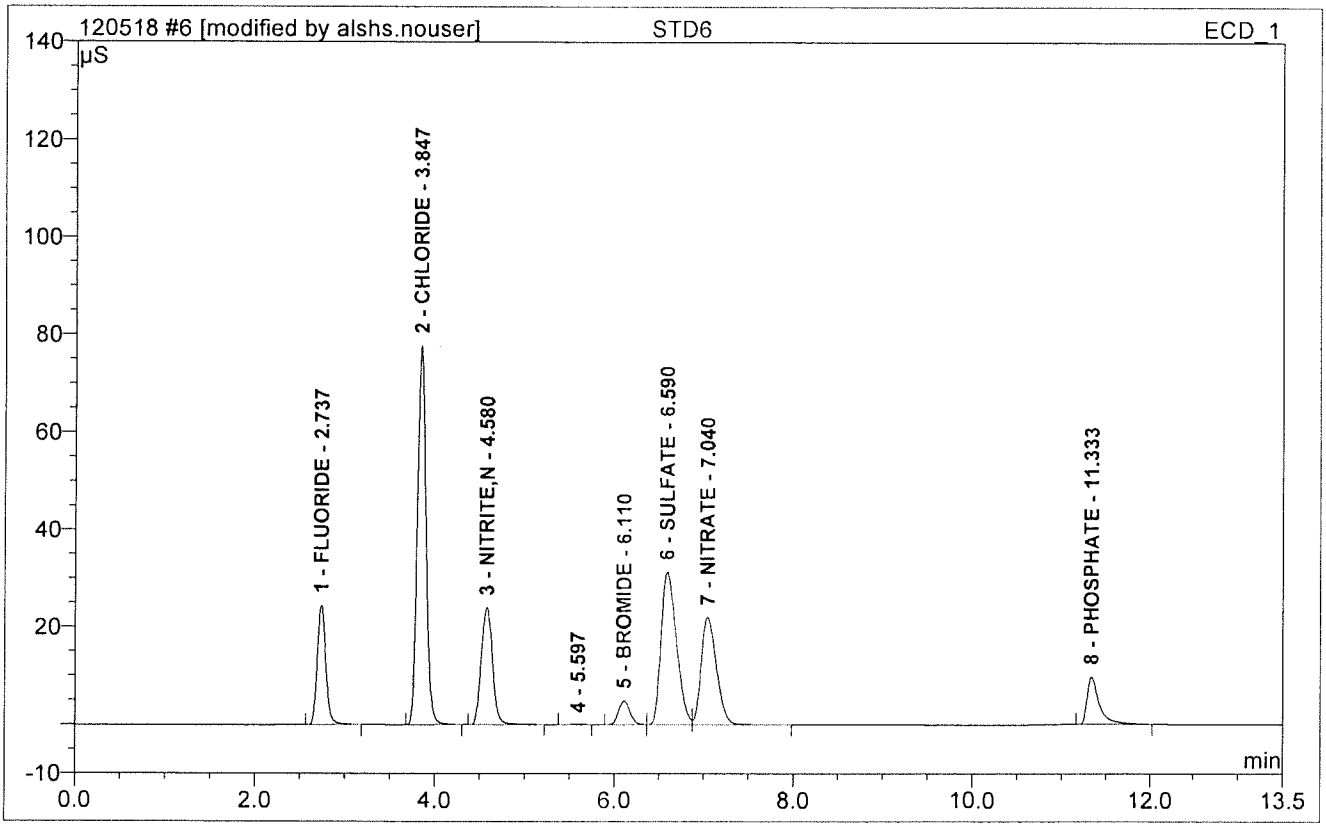
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.75	FLUORIDE	13.504	1.402	10.04	10.233	1.
2	3.87	CHLORIDE	39.822	4.351	31.16	50.359	1.
3	4.59	NITRITE,N	13.840	1.870	13.39	10.376	1.
5	6.15	BROMIDE	2.349	0.339	2.43	9.983	1.
6	6.67	SULFATE	17.177	3.130	22.42	50.213	1.
7	7.10	NITRATE	11.440	2.156	15.44	10.082	1.
9	11.39	PHOSPHATE	4.268	0.702	5.03	9.761	1.
Total:			102.400	13.951	99.92	151.006	

6 STD6

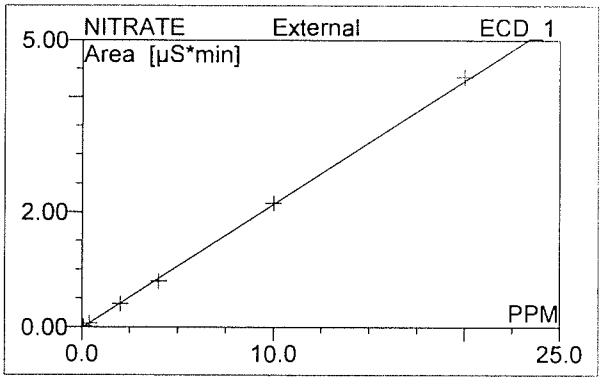
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:43**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

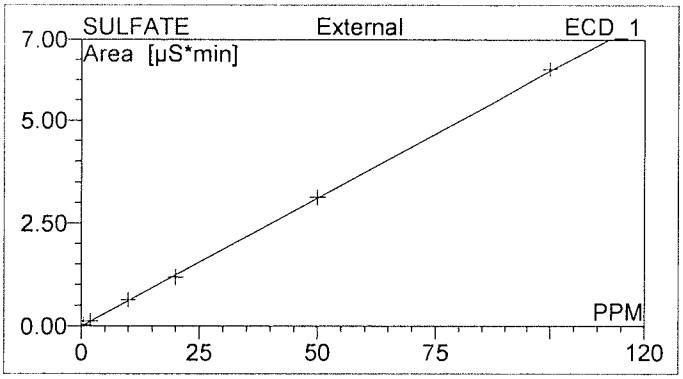


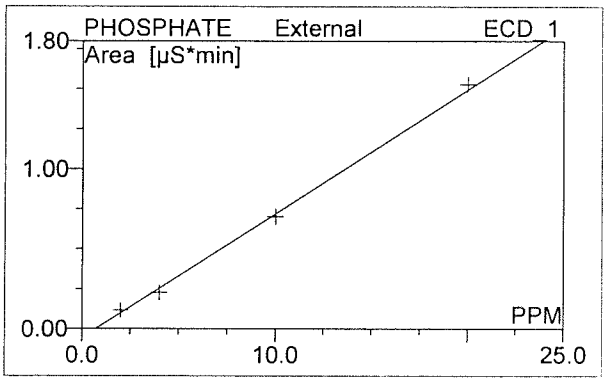
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	24.575	2.701	9.74	19.708	1.
2	3.85	CHLORIDE	77.742	8.684	31.30	100.380	1.
3	4.58	NITRITE,N	24.093	3.492	12.59	19.366	1.
5	6.11	BROMIDE	4.849	0.713	2.57	20.909	1.
6	6.59	SULFATE	31.447	6.265	22.59	100.454	1.
7	7.04	NITRATE	22.139	4.350	15.68	20.282	1.
8	11.33	PHOSPHATE	9.718	1.528	5.51	20.419	1.
Total:			194.562	27.732	99.97	301.517	

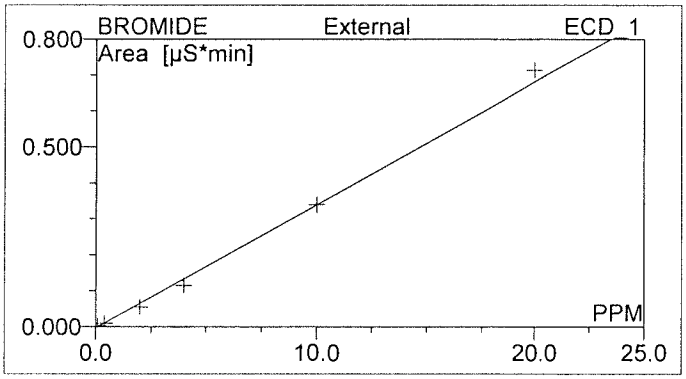
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:43**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

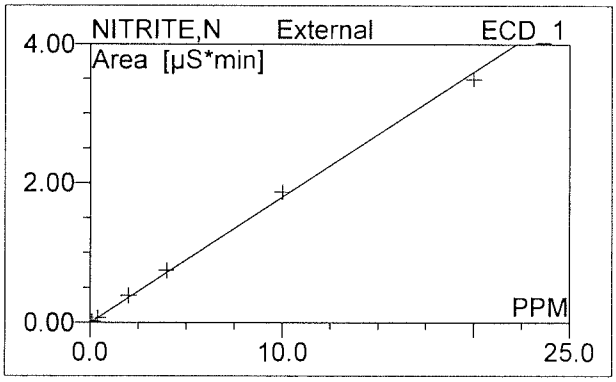
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

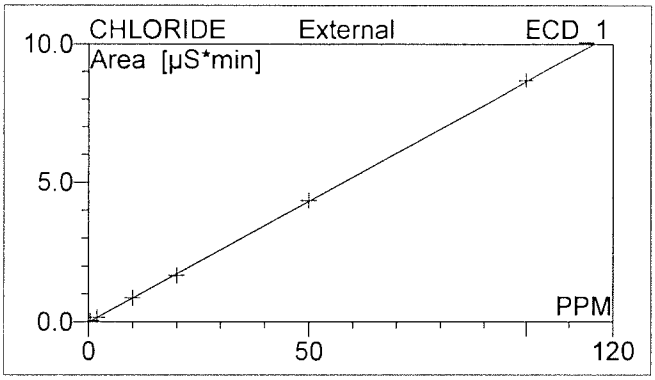
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.74	FLUORIDE	XLOff	6	99.959	-0.0011	0.1371	0.000
2	3.85	CHLORIDE	XLOff	6	99.981	-0.0105	0.0866	0.000
3	4.58	NITRITE,N	XLOff	6	99.849	-0.0013	0.1804	0.000
5	6.11	BROMIDE	XLOff	6	99.439	-0.0025	0.0342	0.000
6	6.59	SULFATE	XLOff	6	99.968	-0.0030	0.0624	0.000
7	7.04	NITRATE	XLOff	6	99.896	-0.0115	0.2150	0.000
8	11.33	PHOSPHATE	XLOff	4	99.633	-0.0546	0.0775	0.000
Average:					99.8181	-0.0121	0.1133	0.0000

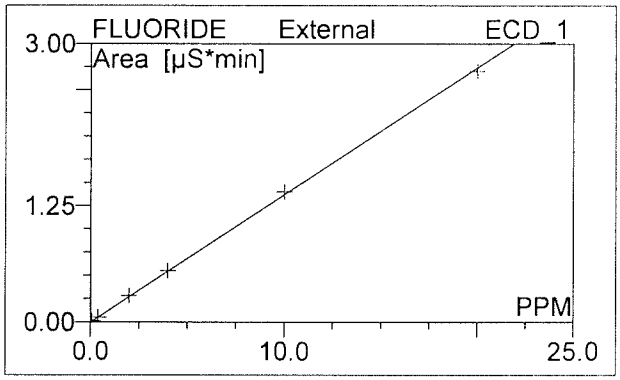
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.74	FLUORIDE	XLOff	6	99.980	7.294	0.005	8.913
2	3.85	CHLORIDE	XLOff	6	99.990	11.546	0.012	6.346
3	4.58	NITRITE,N	XLOff	6	99.925	5.544	0.014	17.158
5	6.11	BROMIDE	XLOff	6	99.719	29.222	0.005	38.898
6	6.59	SULFATE	XLOff	6	99.984	16.026	0.011	7.890
7	7.04	NITRATE	XLOff	6	99.948	4.651	0.014	15.919
8	11.33	PHOSPHATE	XLOff	4	99.816	12.905	0.030	10.327
Average:					99.9090	12.4553	0.0128	15.0647

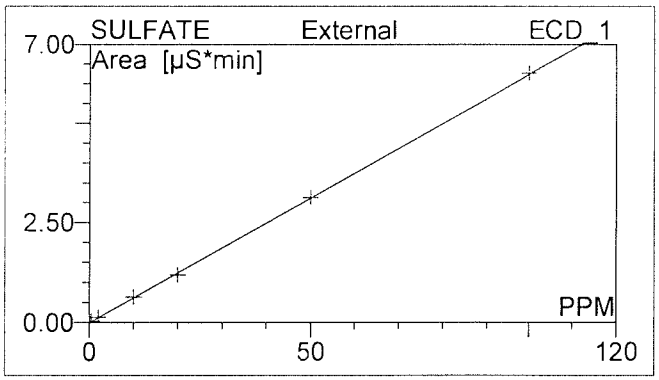
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.000**
Recording Time:	**11/30/2018 1:43**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

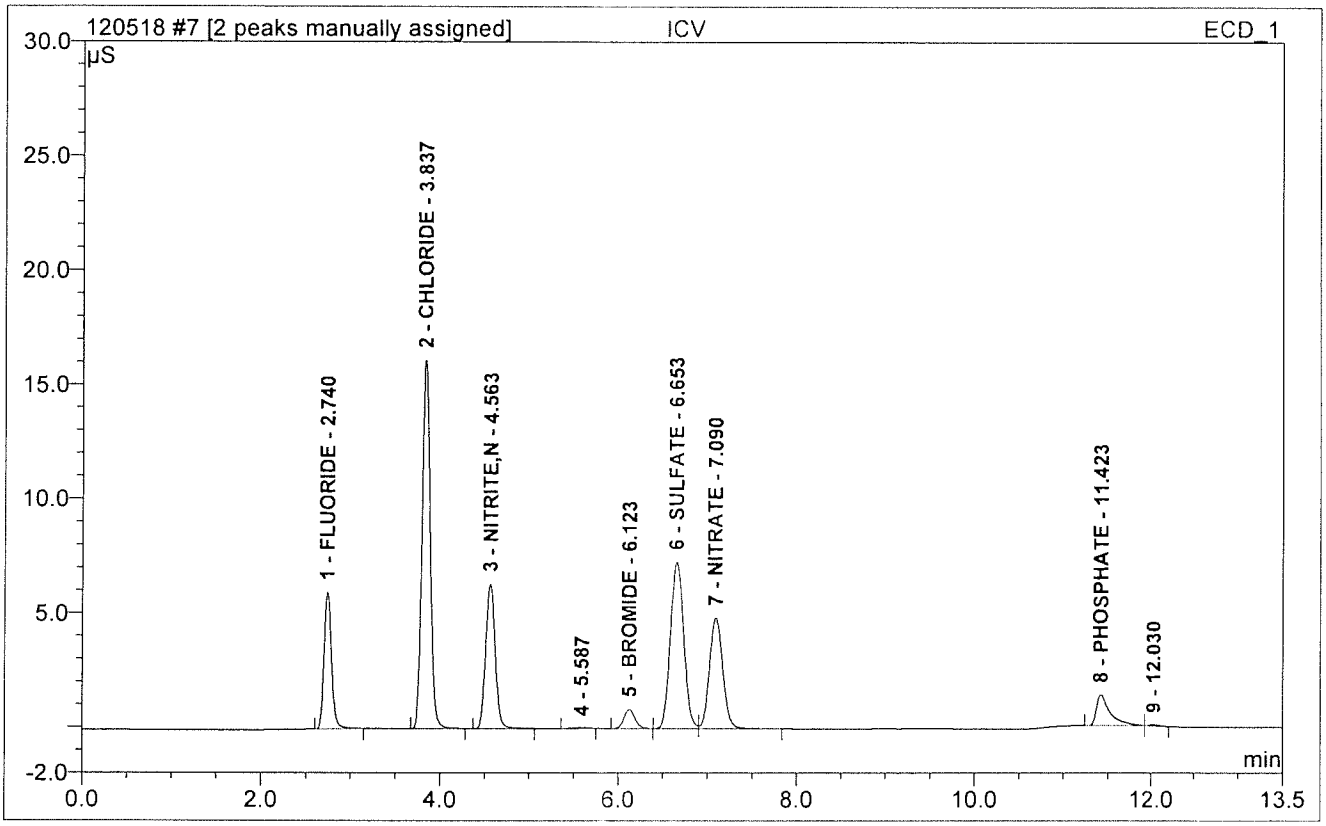
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\01-2018\120518.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.74	FLUORIDE	XLOff	6	99.9595	-0.0011	0.1371	0.000
2	3.85	CHLORIDE	XLOff	6	99.9809	-0.0105	0.0866	0.000
3	4.58	NITRITE,N	XLOff	6	99.8494	-0.0013	0.1804	0.000
5	6.11	BROMIDE	XLOff	6	99.4394	-0.0025	0.0342	0.000
6	6.59	SULFATE	XLOff	6	99.9684	-0.0030	0.0624	0.000
7	7.04	NITRATE	XLOff	6	99.8959	-0.0115	0.2150	0.000
8	11.33	PHOSPHATE	XLOff	4	99.6330	-0.0546	0.0775	0.000
Average:					99.8181	-0.0121	0.1133	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.74	FLUORIDE	XLOff	6	99.980	7.294	0.005	8.913
2	3.85	CHLORIDE	XLOff	6	99.990	11.546	0.012	6.346
3	4.58	NITRITE,N	XLOff	6	99.925	5.544	0.014	17.158
5	6.11	BROMIDE	XLOff	6	99.719	29.222	0.005	38.898
6	6.59	SULFATE	XLOff	6	99.984	16.026	0.011	7.890
7	7.04	NITRATE	XLOff	6	99.948	4.651	0.014	15.919
8	11.33	PHOSPHATE	XLOff	4	99.816	12.905	0.030	10.327
Average:					99.9090	12.455	0.013	15.065

7 ICV

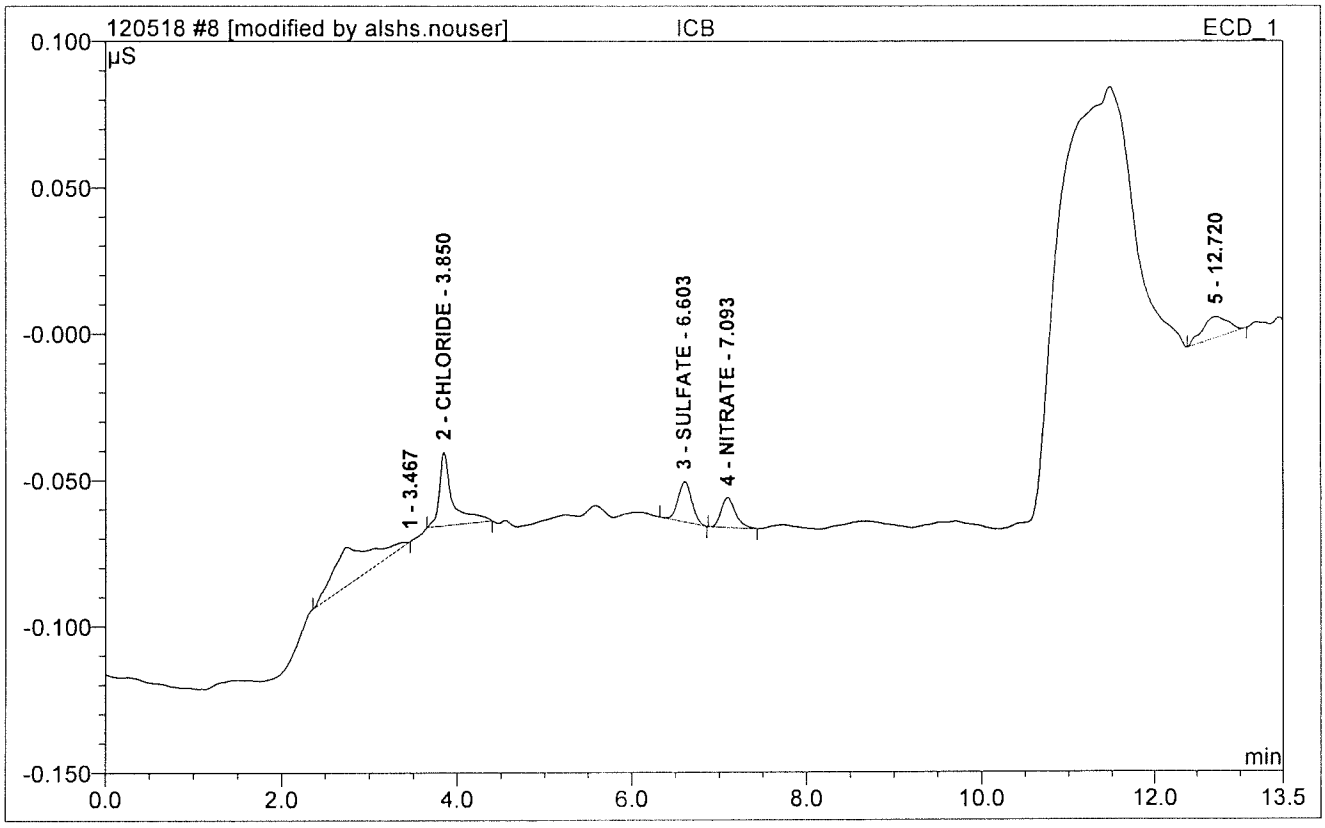
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 1:58**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	5.989	0.586	10.41	4.279	1.
2	3.84	CHLORIDE	16.148	1.743	30.98	20.239	1.
3	4.56	NITRITE,N	6.333	0.791	14.07	4.395	1.
5	6.12	BROMIDE	0.855	0.123	2.19	3.673	1.
6	6.65	SULFATE	7.305	1.276	22.69	20.501	1.
7	7.09	NITRATE	4.880	0.850	15.11	4.006	1.
8	11.42	PHOSPHATE	1.372	0.242	4.30	3.828	1.
Total:			42.881	5.611	99.76	60.921	

8 ICB

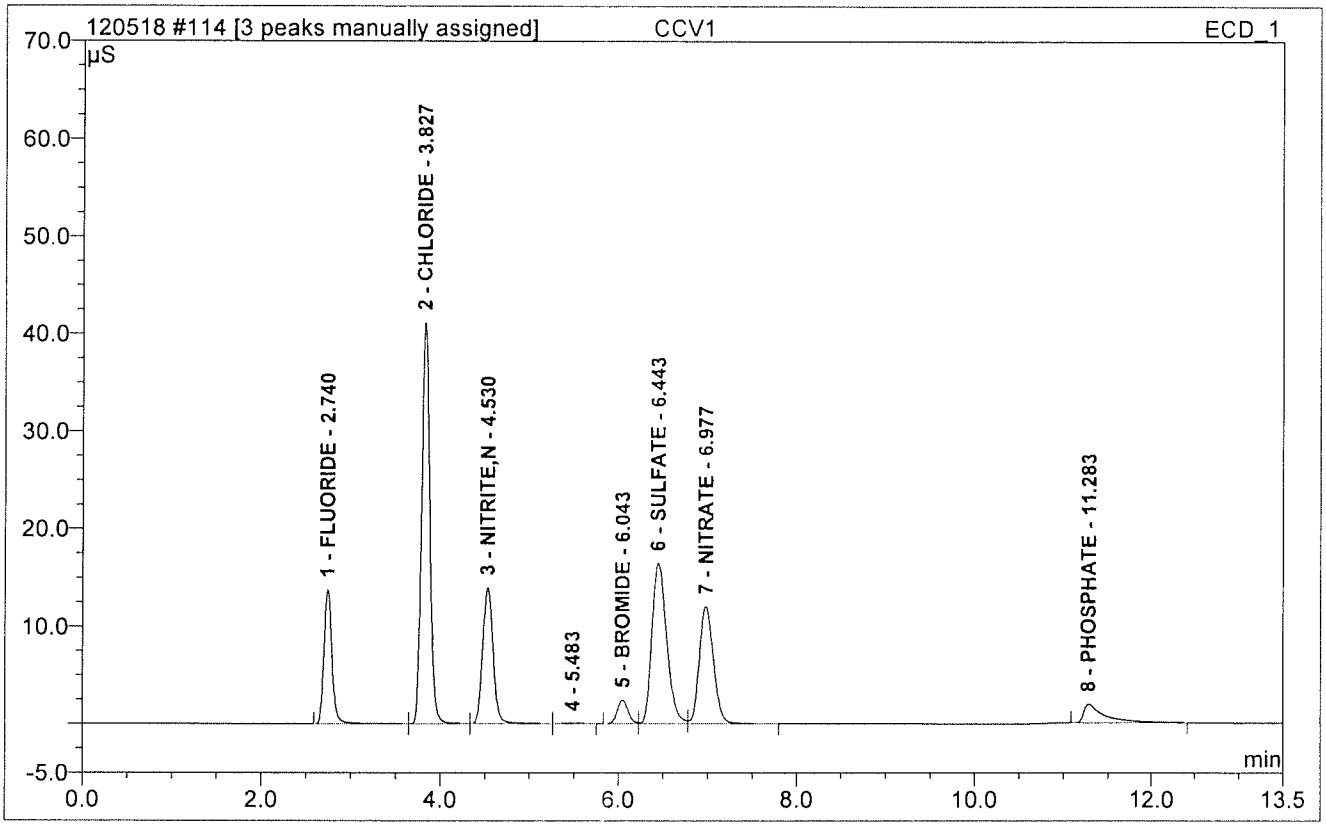
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**11/30/2018 2:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	3.85	CHLORIDE	0.025	0.005	24.96	0.173	1.
3	6.60	SULFATE	0.014	0.003	14.12	0.088	1.
4	7.09	NITRATE	0.010	0.002	10.89	0.062	1.
Total:			0.050	0.009	49.97	0.324	

114 CCV1

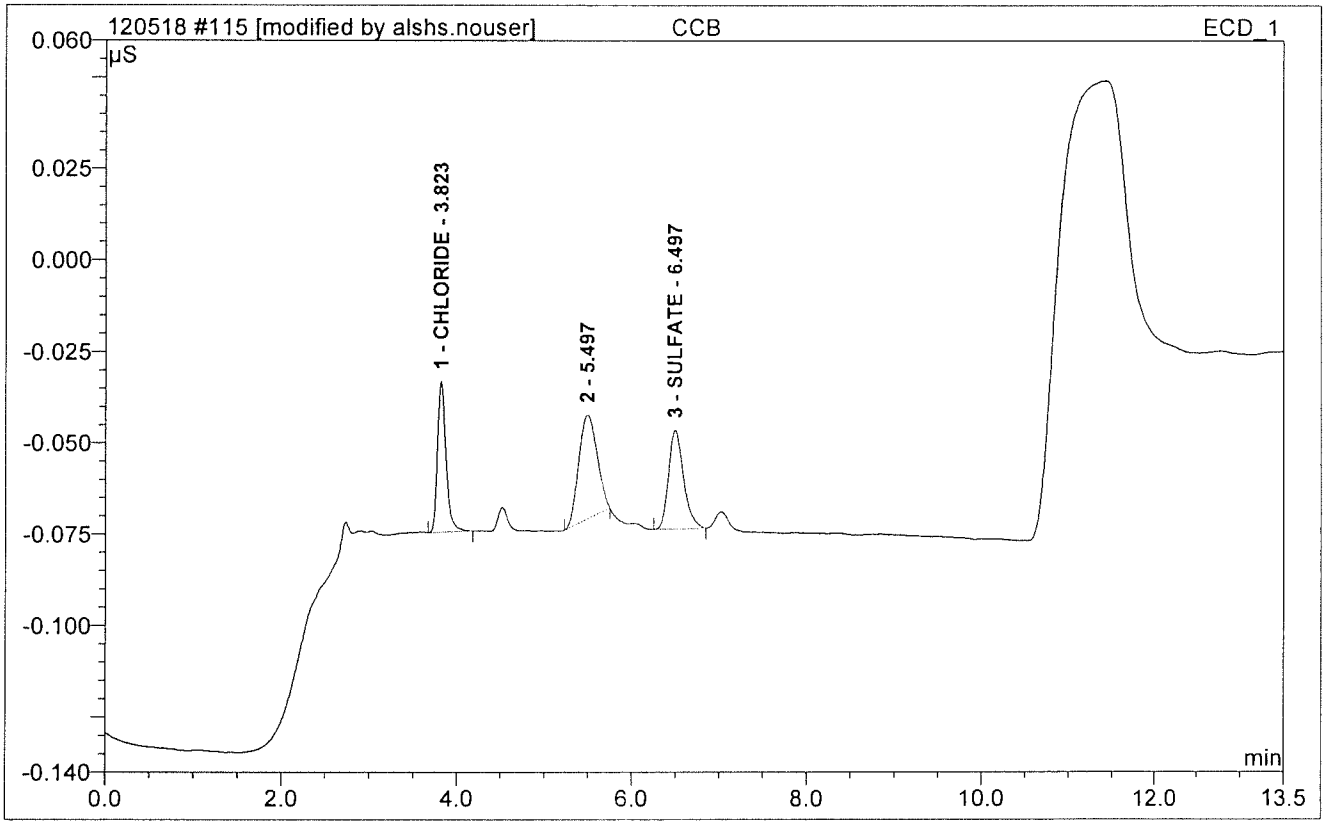
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 18:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	13.799	1.449	10.23	10.578	1.
2	3.83	CHLORIDE	41.174	4.498	31.74	52.049	1.
3	4.53	NITRITE,N	14.015	1.930	13.62	10.706	1.
5	6.04	BROMIDE	2.448	0.347	2.45	10.225	1.
6	6.44	SULFATE	16.520	3.191	22.52	51.185	1.
7	6.98	NITRATE	12.111	2.240	15.81	10.471	1.
8	11.28	PHOSPHATE	1.912	0.507	3.58	7.254	1.
Total:			101.979	14.162	99.93	152.468	

115 CCB

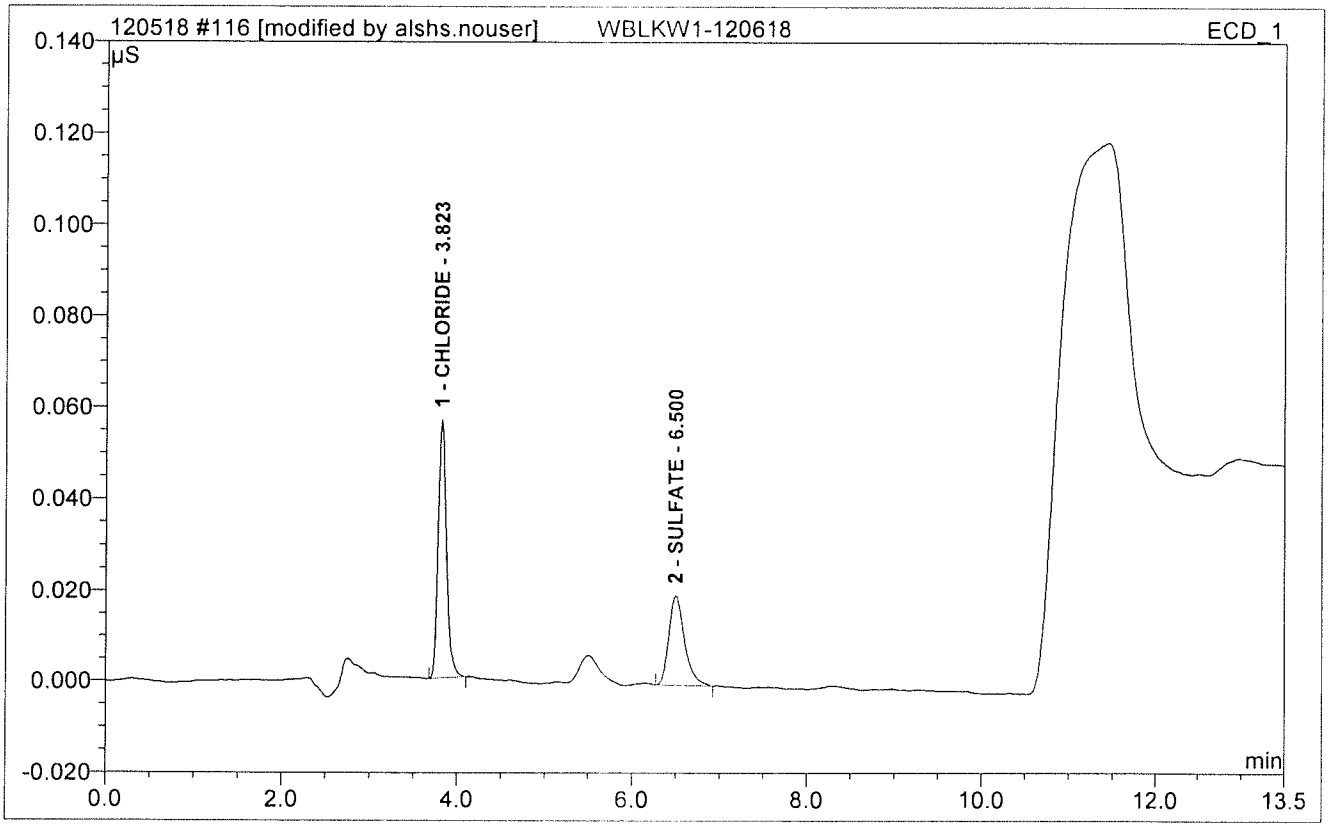
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 18:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.82	CHLORIDE	0.041	0.005	27.43	0.175	1.
3	6.50	SULFATE	0.027	0.005	31.78	0.135	1.
Total:			0.069	0.010	59.21	0.310	

116 WBLKW1-120618

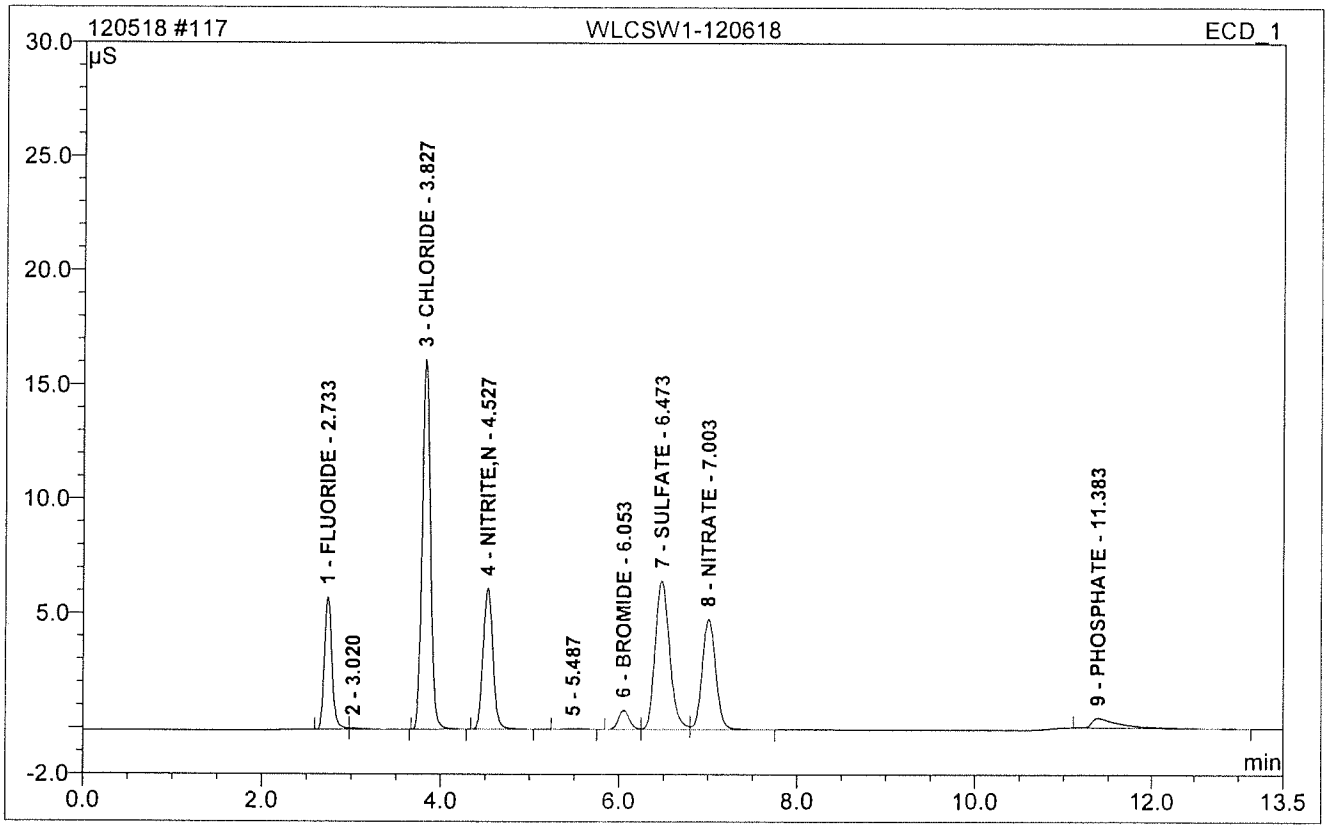
Sample Name:	**WBLKW1-120618**	*Injection Volume:*	**10.0**
Vial Number:	**5**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 18:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.82	CHLORIDE	0.057	0.006	60.19	0.194	1.
2	6.50	SULFATE	0.020	0.004	39.81	0.114	1.
Total:			0.077	0.010	100.00	0.308	

117 WLCSW1-120618

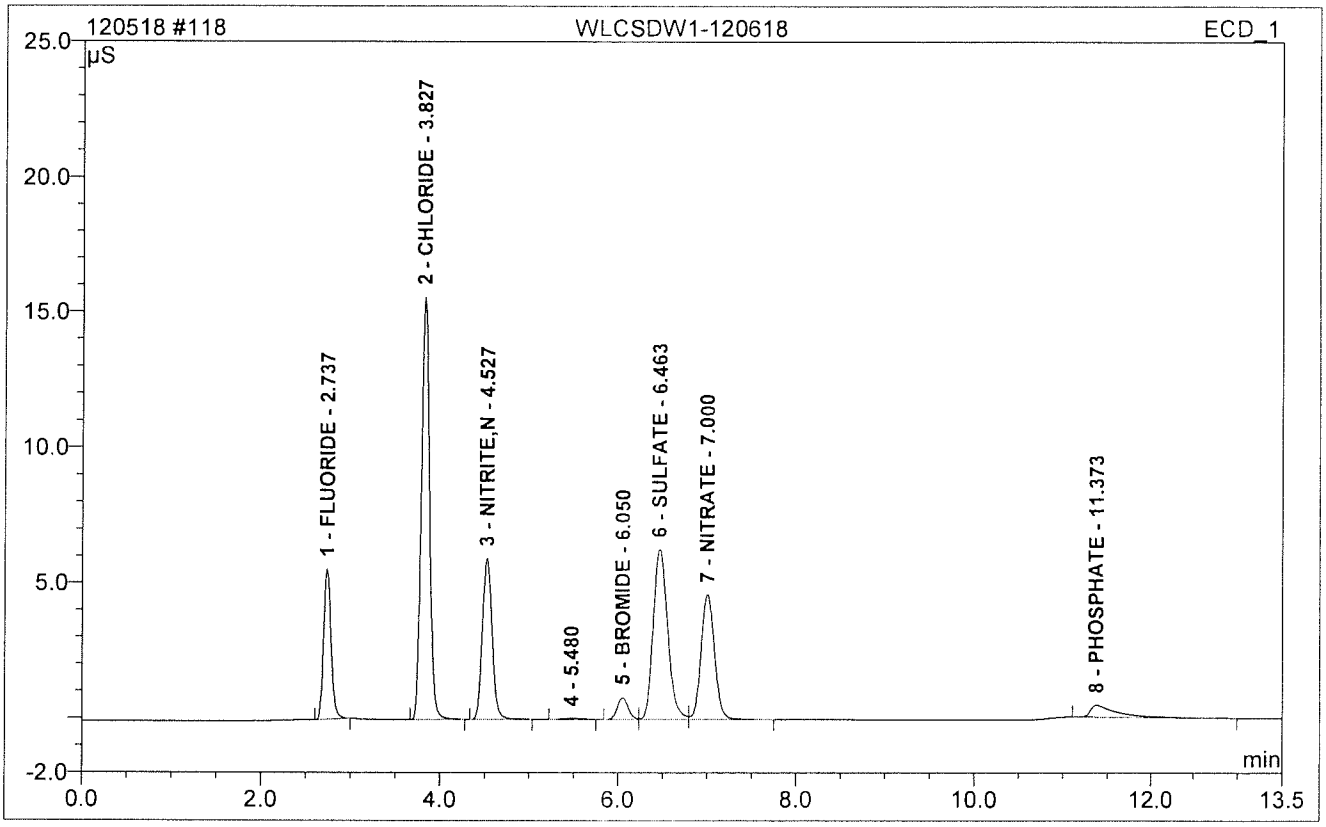
Sample Name:	**WLCSW1-120618**	*Injection Volume:*	**10.0**
Vial Number:	**6**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 19:12**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.779	0.570	10.42	4.166	1.
3	3.83	CHLORIDE	16.165	1.748	31.96	20.303	1.
4	4.53	NITRITE,N	6.155	0.784	14.33	4.353	1.
6	6.05	BROMIDE	0.848	0.120	2.20	3.581	1.
7	6.47	SULFATE	6.496	1.231	22.50	19.776	1.
8	7.00	NITRATE	4.819	0.852	15.57	4.015	1.
9	11.38	PHOSPHATE	0.417	0.148	2.70	2.610	1.
Total:			40.678	5.452	99.68	58.805	

118 WLCSDW1-120618

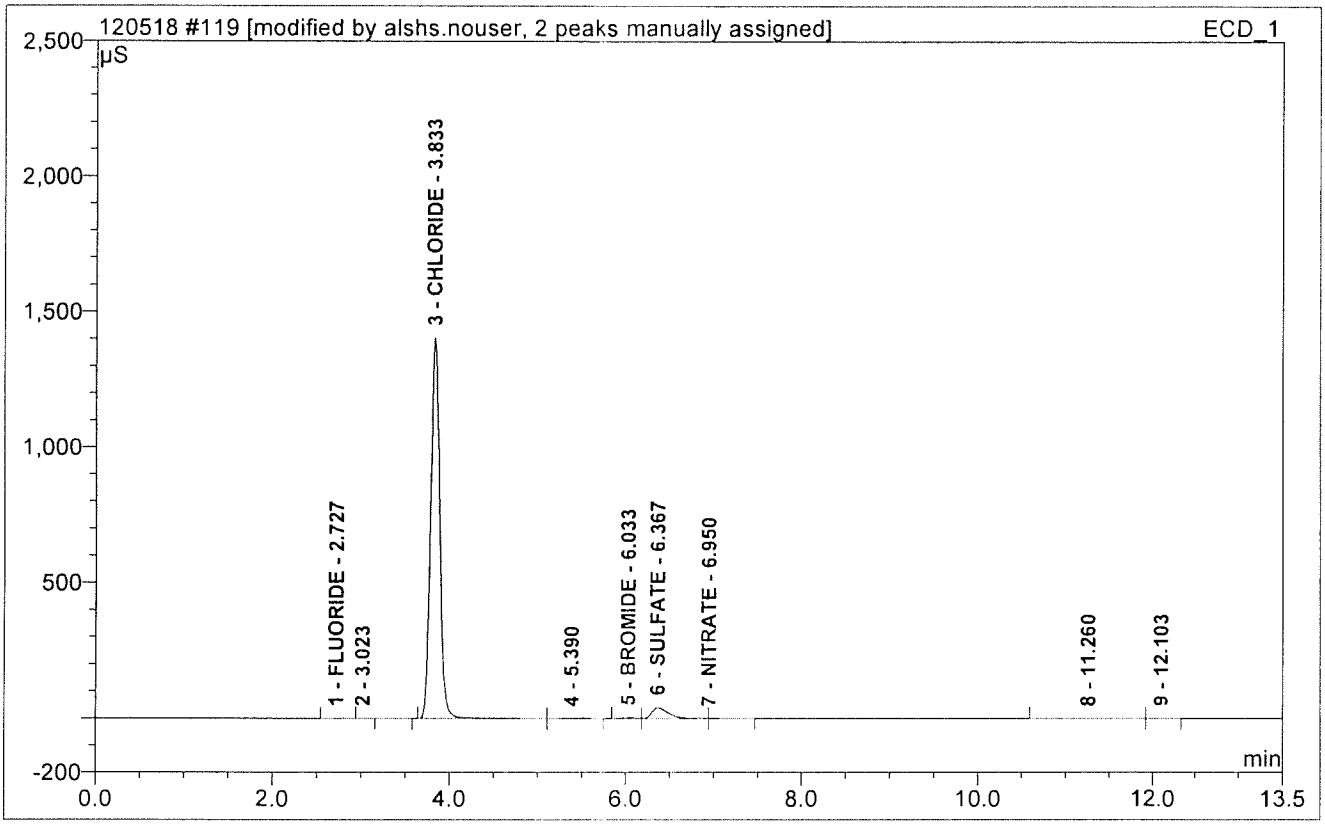
Sample Name:	**WLCSDW1-120618**	*Injection Volume:*	**10.0**
Vial Number:	**7**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 19:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	5.561	0.541	10.27	3.956	1.
2	3.83	CHLORIDE	15.586	1.686	32.00	19.585	1.
3	4.53	NITRITE,N	5.962	0.759	14.40	4.215	1.
5	6.05	BROMIDE	0.812	0.115	2.18	3.430	1.
6	6.46	SULFATE	6.305	1.190	22.58	19.115	1.
7	7.00	NITRATE	4.645	0.820	15.57	3.867	1.
8	11.37	PHOSPHATE	0.436	0.147	2.78	2.597	1.
Total:			39.306	5.257	99.79	56.764	

119 HS18120114-06

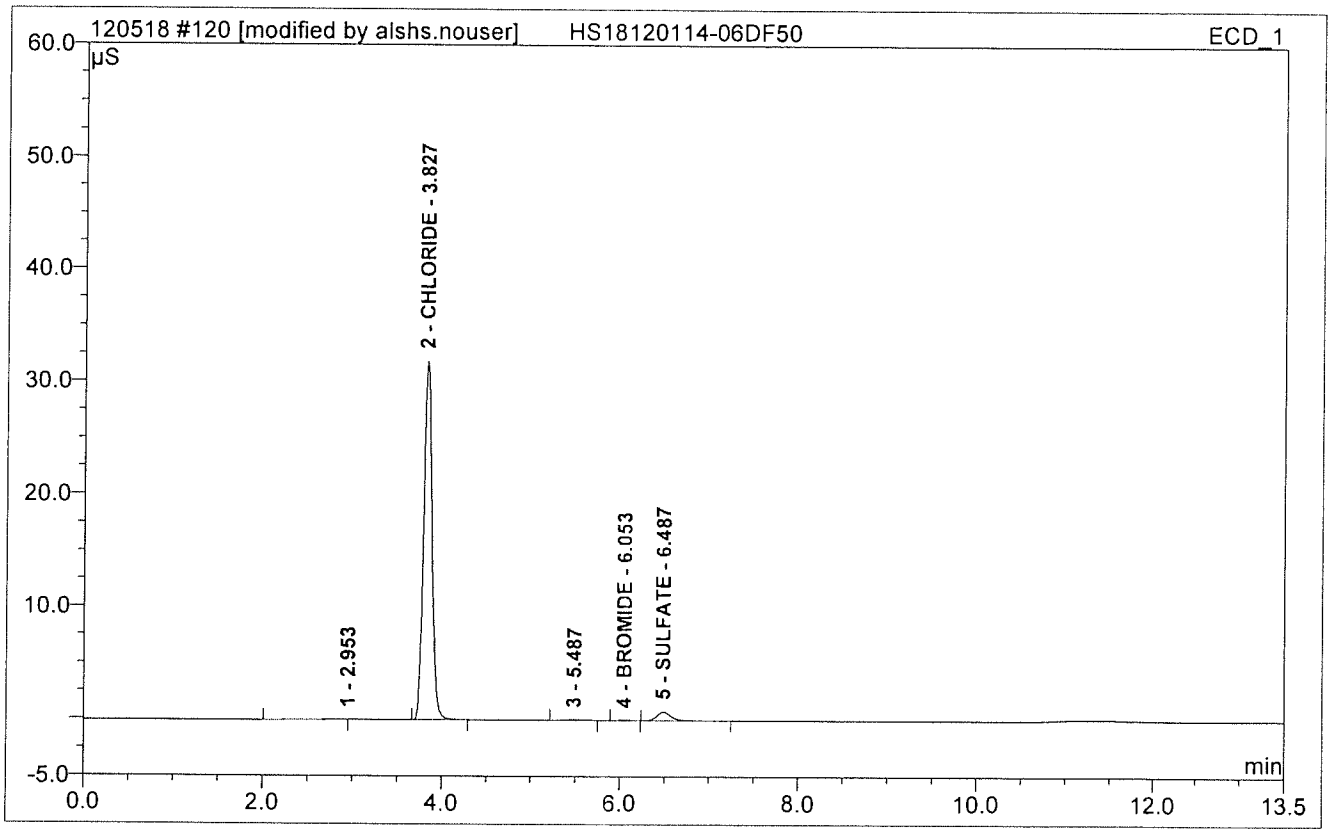
Sample Name:	**HS18120114-06**	*Injection Volume:*	**10.0**
Vial Number:	**84**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 19:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.139	0.024	0.01	0.182	1.
3	3.83	CHLORIDE	1404.766	166.837	94.87	1926.343	1.
5	6.03	BROMIDE	2.352	0.330	0.19	9.709	1.
6	6.37	SULFATE	39.510	8.480	4.82	135.951	1.
7	6.95	NITRATE	0.163	0.030	0.02	0.192	1.
Total:			1446.931	175.701	99.91	2072.377	

120 HS18120114-06DF50

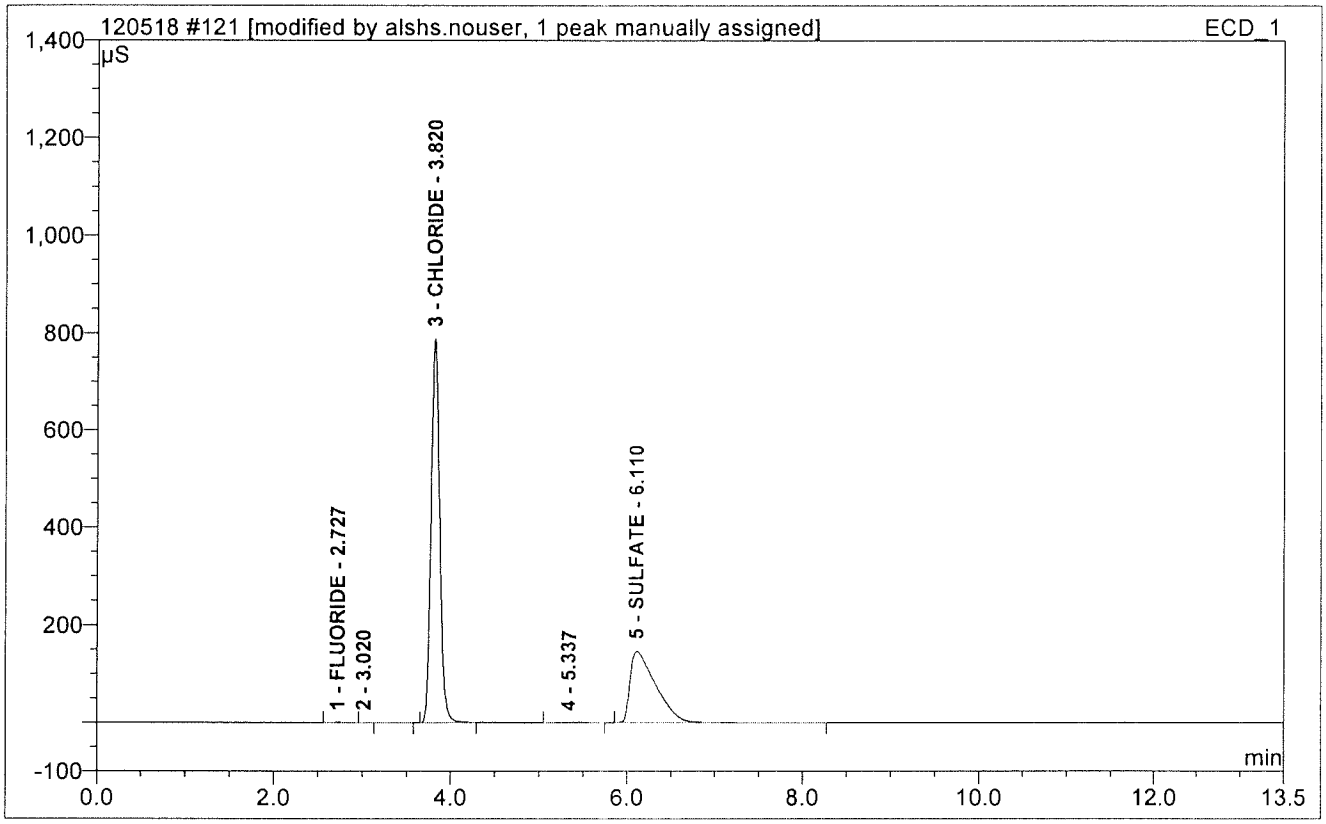
Sample Name:	**HS18120114-06DF50**	*Injection Volume:*	**10.0**
Vial Number:	**85**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**50.**
Recording Time:	**12/6/2018 19:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	3.83	CHLORIDE	31.876	3.487	95.41	2018.785	50.
4	6.05	BROMIDE	0.030	0.004	0.12	9.790	50.
5	6.49	SULFATE	0.768	0.145	3.97	118.612	50.
Total:			32.673	3.636	99.49	2147.187	

121 HS18120114-07

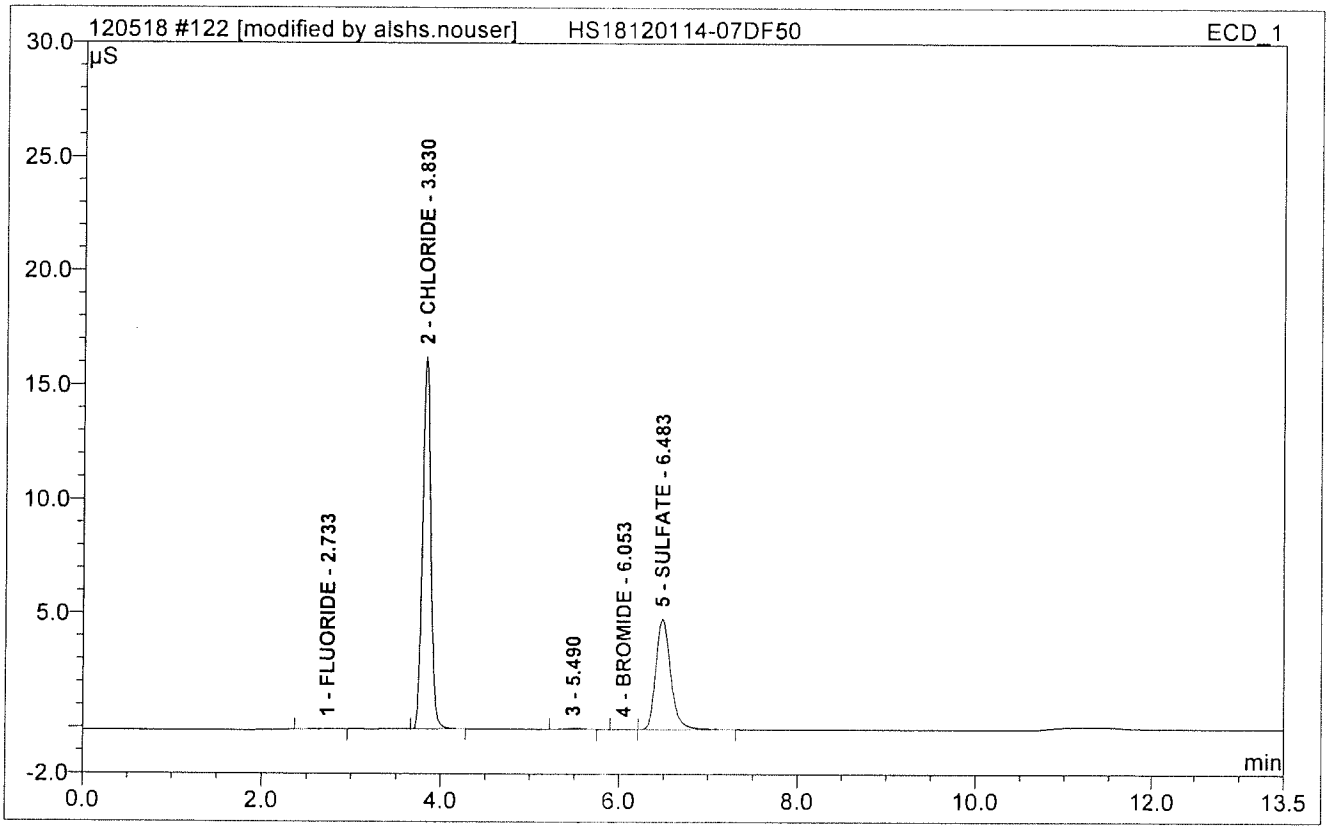
Sample Name:	**HS18120114-07**	*Injection Volume:*	**10.0**
Vial Number:	**86**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 20:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.246	0.034	0.02	0.253	1.
3	3.82	CHLORIDE	788.976	89.777	64.66	1036.647	1.
5	6.11	SULFATE	146.458	48.945	35.25	784.440	1.
Total:			935.680	138.756	99.94	1821.340	

122 HS18120114-07DF50

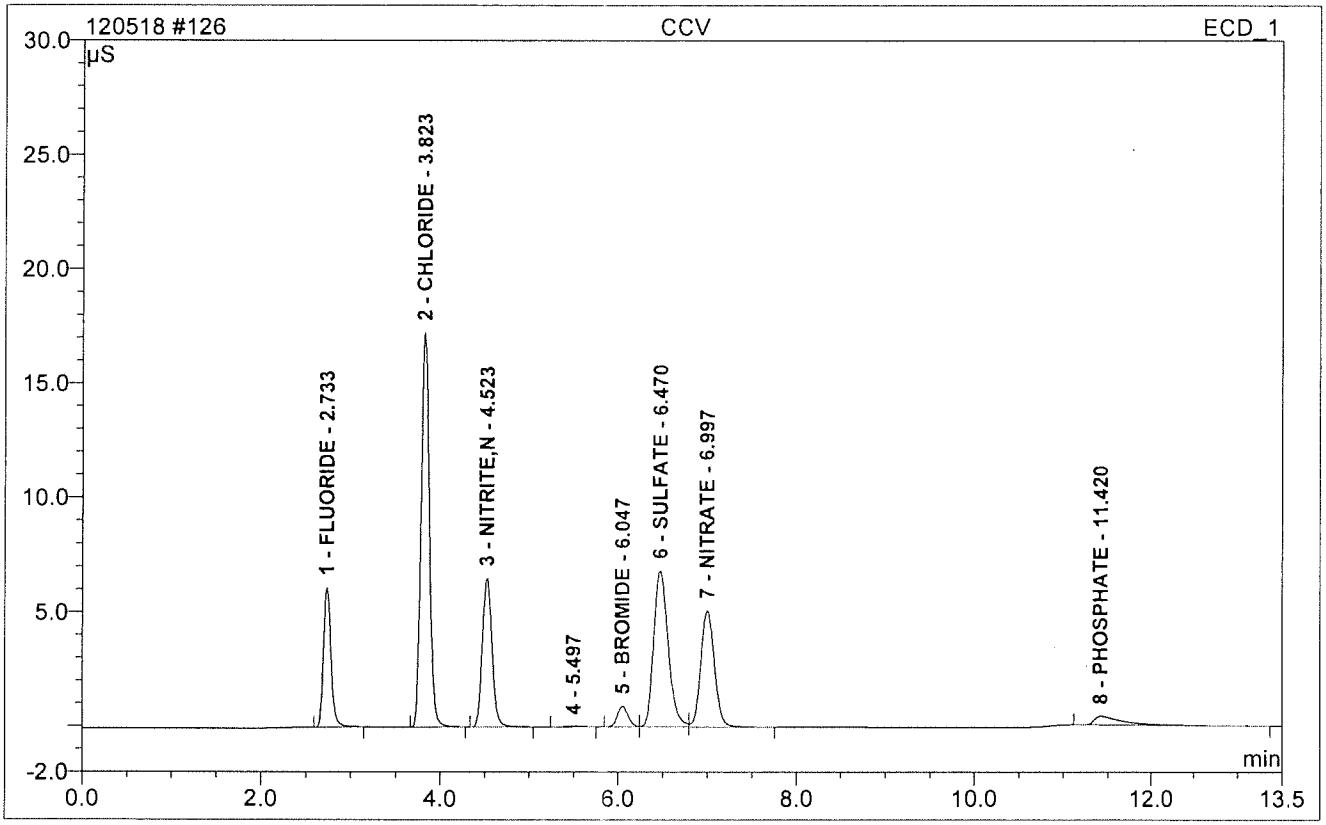
Sample Name:	**HS18120114-07DF50**	*Injection Volume:*	**10.0**
Vial Number:	**87**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**50.**
Recording Time:	**12/6/2018 20:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	0.009	0.002	0.07	1.068	50.
2	3.83	CHLORIDE	16.291	1.769	64.94	1027.406	50.
4	6.05	BROMIDE	0.016	0.002	0.08	6.871	50.
5	6.48	SULFATE	4.828	0.940	34.52	755.915	50.
Total:			21.144	2.714	99.61	1791.261	

126 CCV

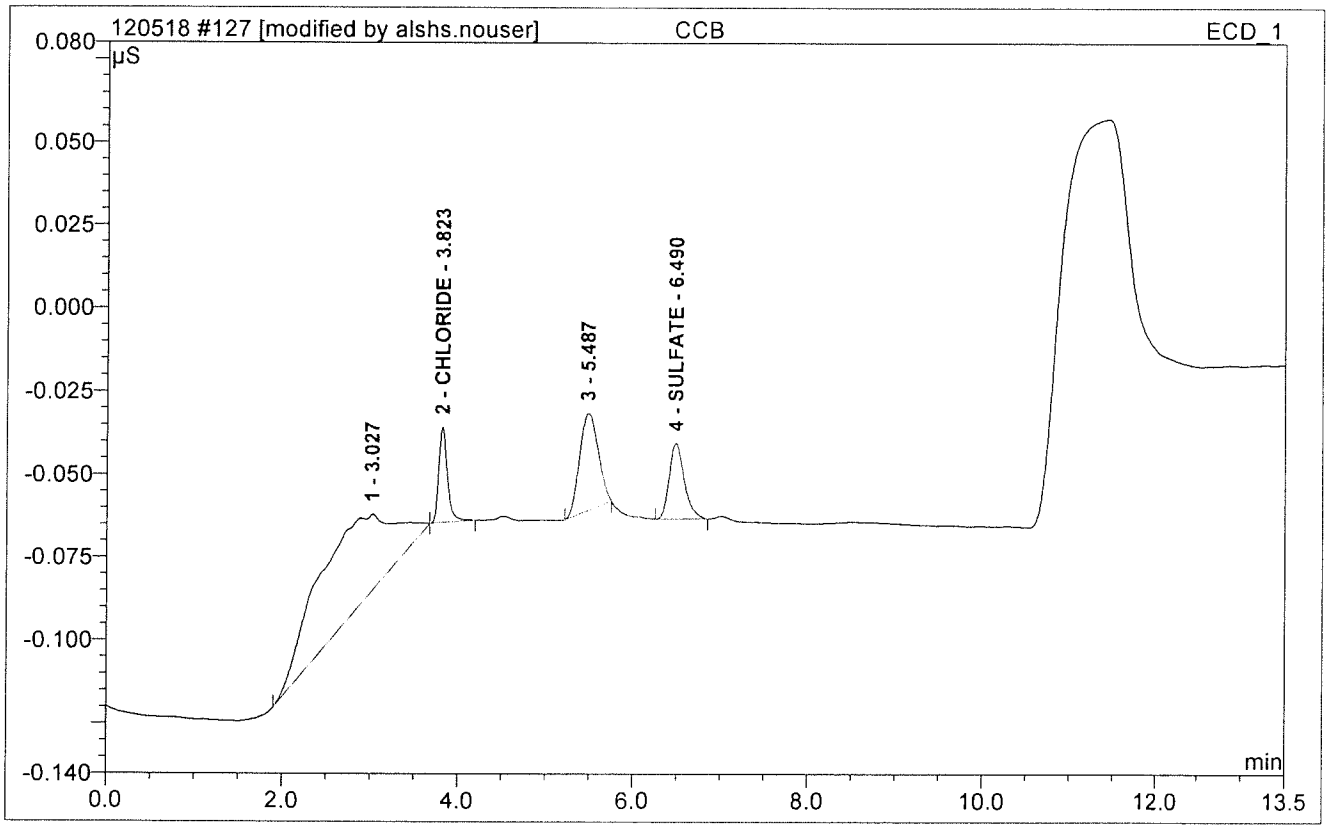
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**1**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 21:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	6.125	0.609	10.50	4.449	1.
2	3.82	CHLORIDE	17.254	1.870	32.25	21.717	1.
3	4.52	NITRITE,N	6.517	0.833	14.37	4.628	1.
5	6.05	BROMIDE	0.905	0.128	2.20	3.799	1.
6	6.47	SULFATE	6.841	1.303	22.46	20.921	1.
7	7.00	NITRATE	5.116	0.909	15.67	4.279	1.
8	11.42	PHOSPHATE	0.382	0.141	2.43	2.521	1.
Total:			43.140	5.792	99.86	62.314	

127 CCB

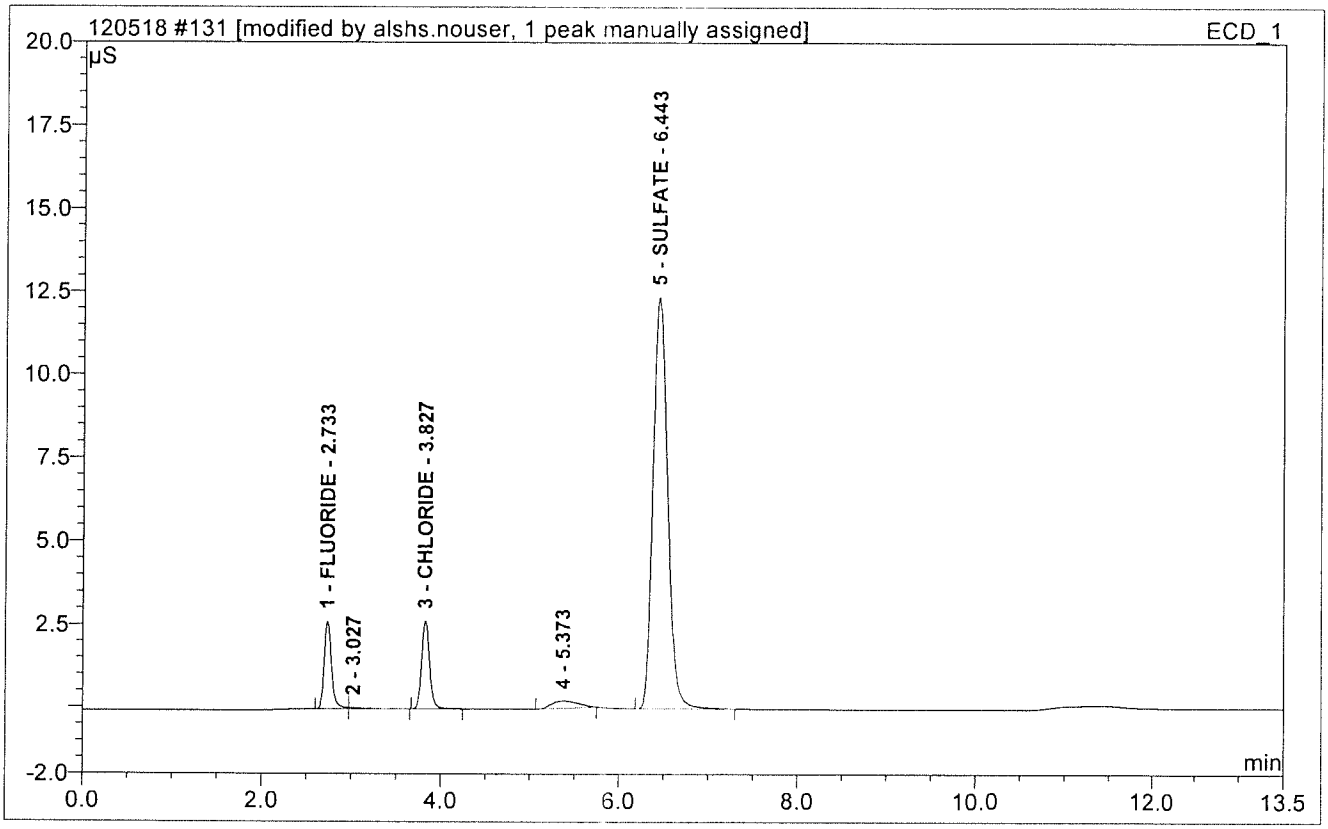
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**2**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 21:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
2	3.82	CHLORIDE	0.029	0.003	7.72	0.159	1.
4	6.49	SULFATE	0.023	0.005	10.79	0.121	1.
Total:			0.052	0.008	18.51	0.281	

131 HS18120266-01

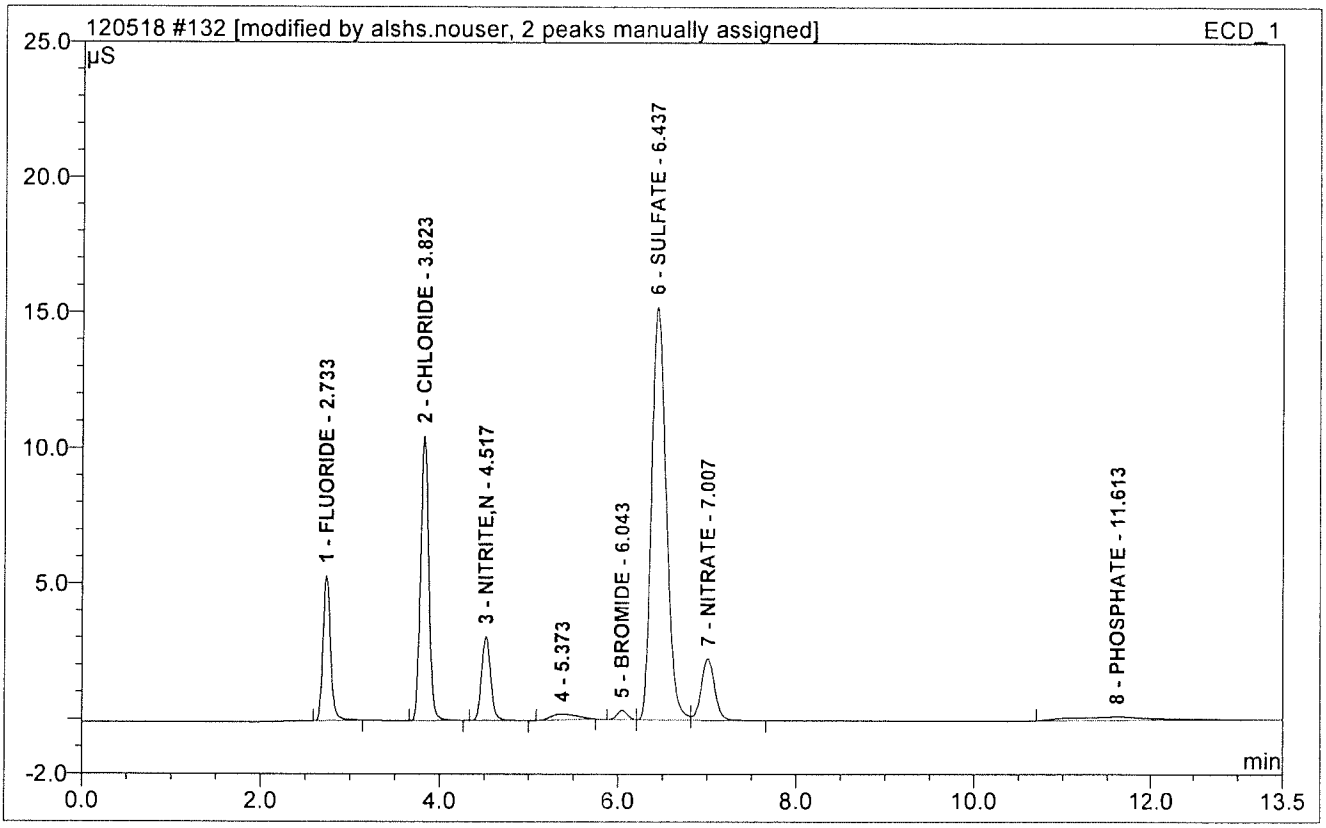
Sample Name:	**HS18120266-01**	*Injection Volume:*	**10.0**
Vial Number:	**11**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 22:35**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	2.661	0.256	8.59	1.877	1.
3	3.83	CHLORIDE	2.668	0.276	9.24	3.302	1.
5	6.44	SULFATE	12.396	2.369	79.43	38.010	1.
Total:			17.725	2.901	97.26	43.189	

132 HS18120266-01MS

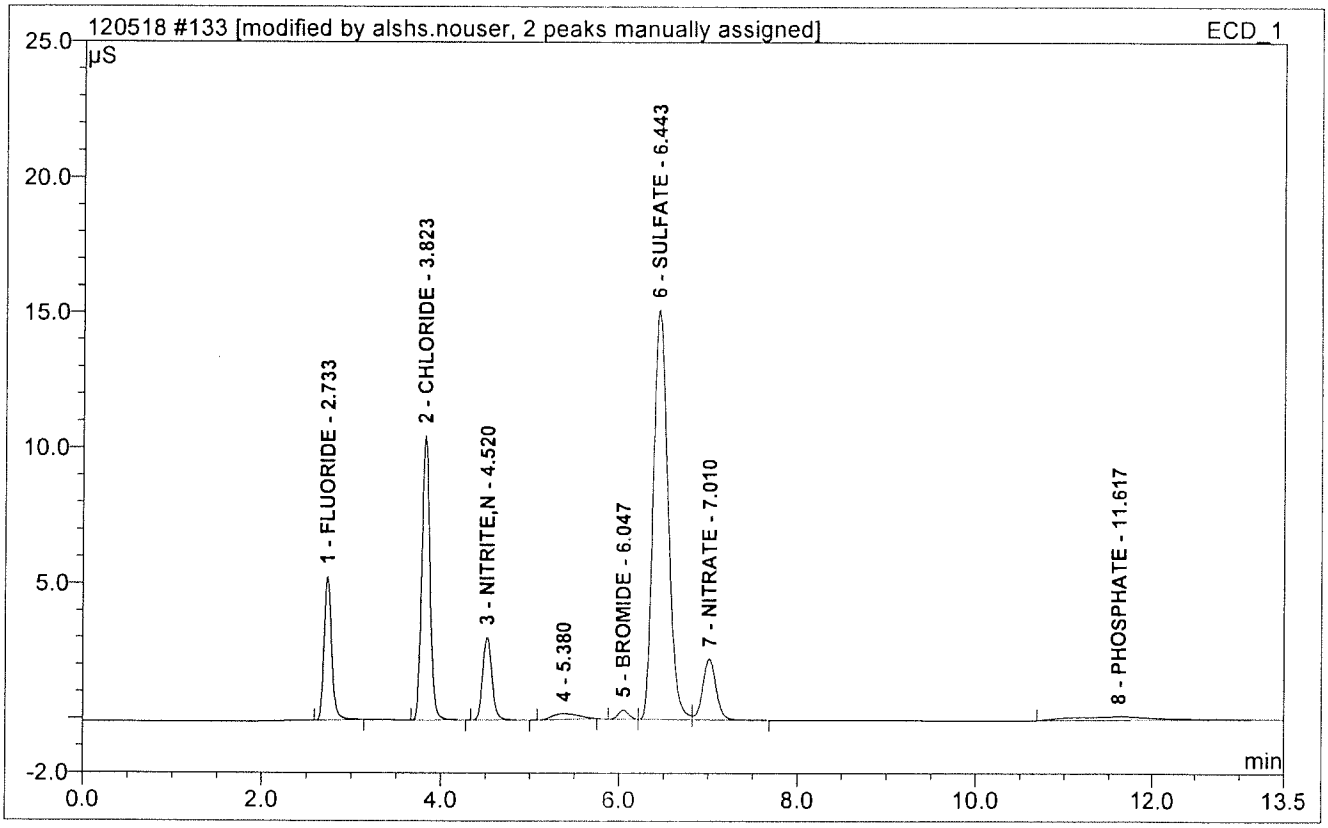
Sample Name:	**HS18120266-01MS**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 22:50**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.362	0.533	9.48	3.894	1.
2	3.82	CHLORIDE	10.516	1.124	20.01	13.095	1.
3	4.52	NITRITE,N	3.090	0.370	6.59	2.061	1.
5	6.04	BROMIDE	0.339	0.046	0.82	1.415	1.
6	6.44	SULFATE	15.220	2.917	51.94	46.800	1.
7	7.01	NITRATE	2.268	0.396	7.06	1.897	1.
8	11.61	PHOSPHATE	0.137	0.157	2.80	2.733	1.
Total:			36.933	5.544	98.69	71.894	

133 HS18120266-01MSD

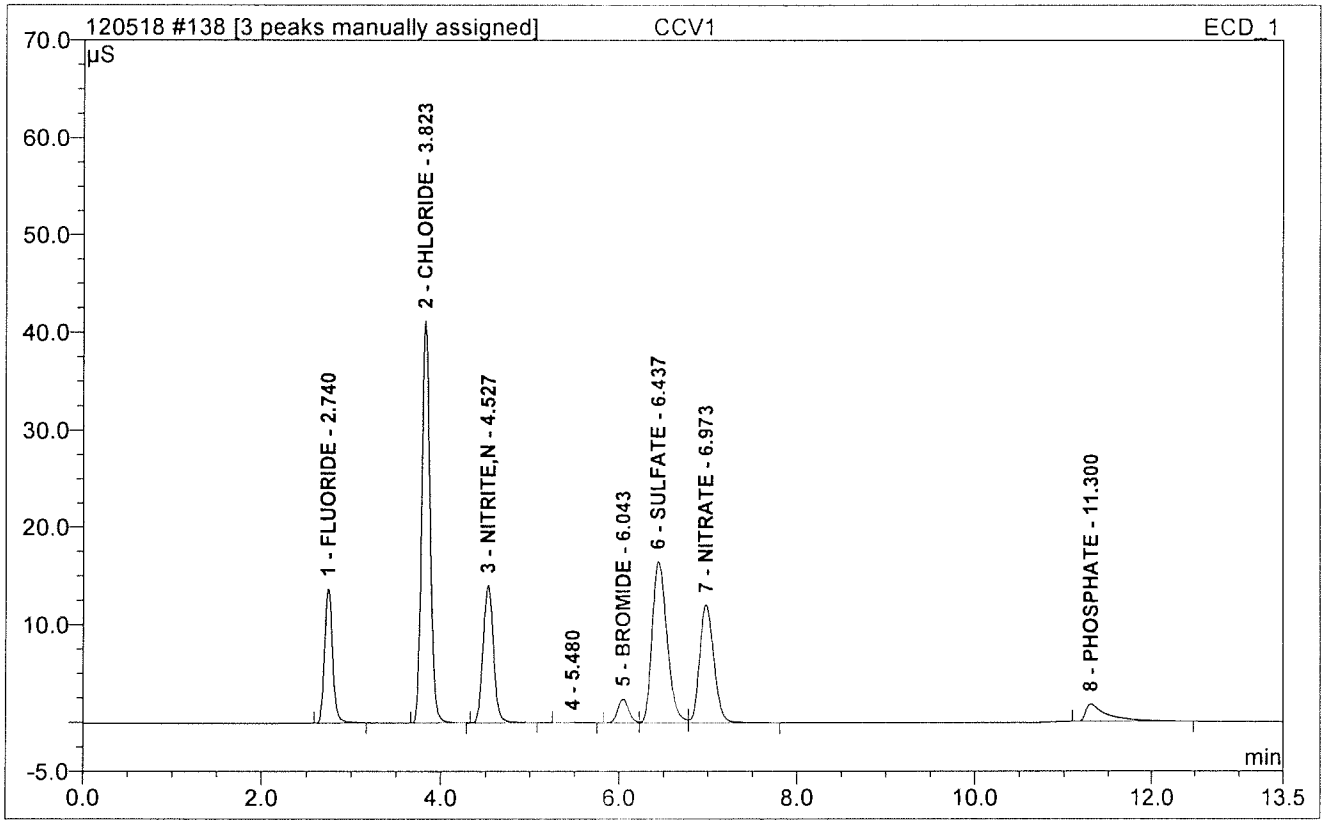
Sample Name:	**HS18120266-01MSD**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/6/2018 23:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.73	FLUORIDE	5.333	0.530	9.47	3.877	1.
2	3.82	CHLORIDE	10.510	1.124	20.07	13.095	1.
3	4.52	NITRITE,N	3.081	0.370	6.60	2.057	1.
5	6.05	BROMIDE	0.339	0.046	0.82	1.415	1.
6	6.44	SULFATE	15.152	2.899	51.78	46.512	1.
7	7.01	NITRATE	2.257	0.395	7.05	1.888	1.
8	11.62	PHOSPHATE	0.140	0.163	2.92	2.811	1.
Total:			36.811	5.527	98.71	71.656	

138 CCV1

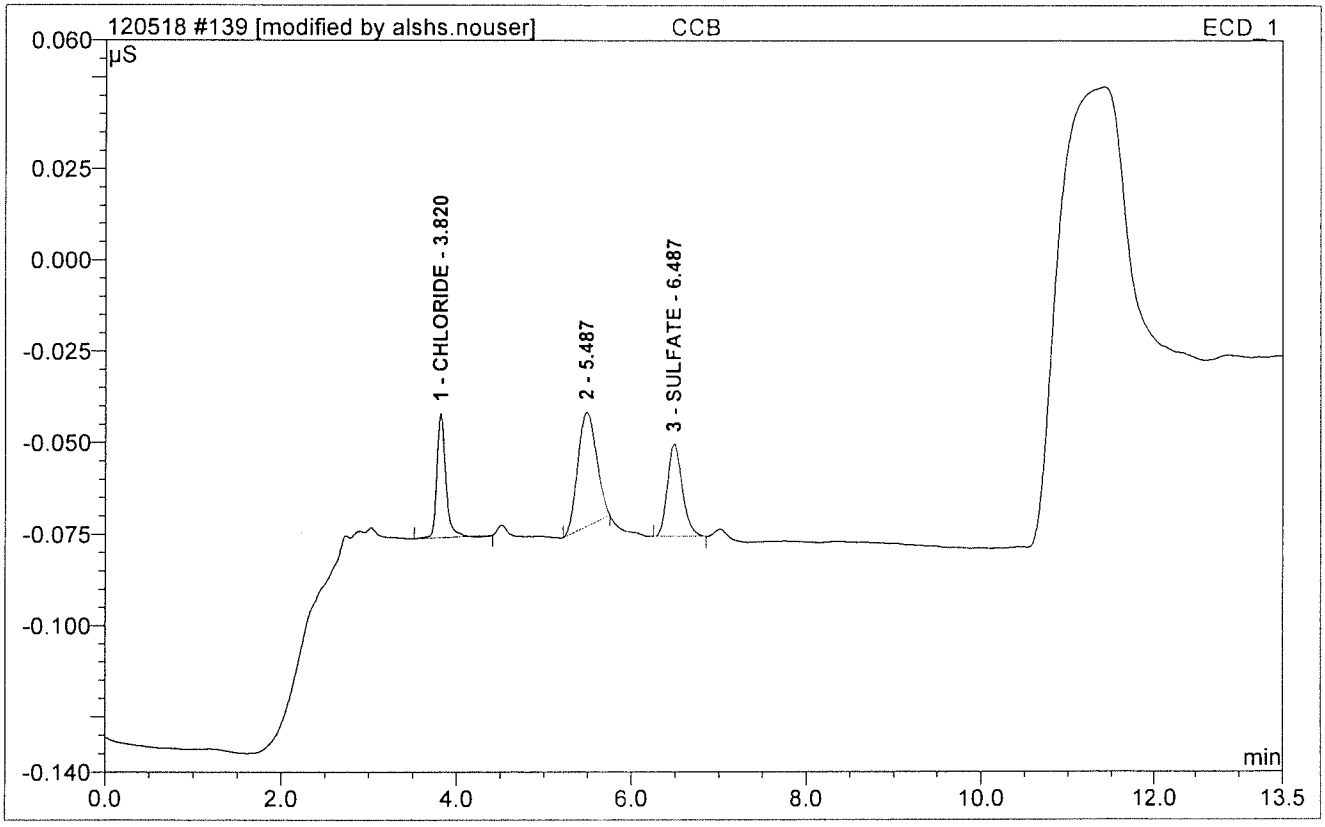
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**3**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/7/2018 0:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	2.74	FLUORIDE	13.770	1.437	10.14	10.493	1.
2	3.82	CHLORIDE	41.220	4.515	31.86	52.249	1.
3	4.53	NITRITE,N	14.078	1.923	13.57	10.669	1.
5	6.04	BROMIDE	2.439	0.347	2.45	10.221	1.
6	6.44	SULFATE	16.541	3.208	22.63	51.460	1.
7	6.97	NITRATE	12.089	2.239	15.80	10.466	1.
8	11.30	PHOSPHATE	1.780	0.495	3.49	7.096	1.
Total:			101.917	14.165	99.94	152.654	

139 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**4**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**112918**	*Dilution Factor:*	**1.**
Recording Time:	**12/7/2018 0:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount PPM	Dil.Fac.
1	3.82	CHLORIDE	0.034	0.004	23.55	0.166	1.
3	6.49	SULFATE	0.025	0.005	29.96	0.127	1.
Total:			0.059	0.009	53.50	0.293	

Sequence: 121718 HS18120114 Page 1 of 9
Operator: alshs.nouser Printed: 12/19/2018 3:42:45 PM

Title: Temporary sequence for manual data acquisition
Datasource: HP0307B_local
Location: ICS3000_2\2_Data\02-2018
Timebase: ICS3000_2 Created: 12/18/2018 3:20:30 PM by alshs.nouser
#Samples: 85 (Modified, not saved)

No.	Name	Comment	Pos.	Type	Dil. Factor	Program
1	STD1		91	Standard	1.0000	anions3
2	STD2		92	Standard	1.0000	anions3
3	STD3		93	Standard	1.0000	anions3
4	STD4		94	Standard	1.0000	anions3
5	STD5		95	Standard	1.0000	anions3
6	STD6		96	Standard	1.0000	anions3
7	ICV		97	Unknown	1.0000	anions3
8	ICB		98	Unknown	1.0000	anions3
9	CCV		1	Unknown	1.0000	anions3
10	CCB		2	Unknown	1.0000	anions3
11	MBLK-135666		11	Unknown	1.0000	anions3
12	LCS-135666		12	Unknown	1.0000	anions3
13	LCSD-135666		13	Unknown	1.0000	anions3
14	HS18120469-01		17	Unknown	1.0000	anions3
15	HS18111522-09DF10		14	Unknown	10.0000	anions3
16	HS18111522-10		15	Unknown	1.0000	anions3
17	HS18111522-11		16	Unknown	1.0000	anions3
18	CCV1		3	Unknown	1.0000	anions3
19	CCB		4	Unknown	1.0000	anions3
20	WBLKW1-121818		37	Unknown	1.0000	anions3
21	WLCSW1-121818		38	Unknown	1.0000	anions3
22	WLCSDW1-121818		39	Unknown	1.0000	anions3
23	HS18120114-06DF5	9056_W PRESERVED	40	Unknown	5.0000	anions3
24	HS18120114-06MSDF5		41	Unknown	5.0000	anions3
25	HS18120114-06MSDDF5		42	Unknown	5.0000	anions3
26	HS18120114-07DF5		43	Unknown	5.0000	anions3
27	HS18111344-01DF10		44	Unknown	10.0000	anions3
28	HS18111344-01MSDF10		45	Unknown	10.0000	anions3
29	HS18111344-01MSDDF10		46	Unknown	10.0000	anions3
30	CCV		1	Unknown	1.0000	anions3
31	CCB		2	Unknown	1.0000	anions3
32	HS18111344-02DF10		47	Unknown	10.0000	anions3
33	HS18111344-03DF10		48	Unknown	10.0000	anions3
34	HS18111344-04DF10		49	Unknown	10.0000	anions3

Sequence: 121718
Operator: alshs.nouser

Printed: 12/19/2018 3:42:45 PM

Title: Temporary sequence for manual data acquisition
Datasource: HP0307B_local
Location: ICS3000_2\2_Data\02-2018
Timebase: ICS3000_2
#Samples: 85

Created: 12/18/2018 3:20:30 PM by alshs.nouser
(Modified, not saved)

No.	Name	Method	Inj. Vol.	Status	Inj. Date/Time	Weight
1	STD1	121218	20.0	Finished	12/12/2018 5:31:31 PM	1.0000
2	STD2	121218	20.0	Finished	12/12/2018 5:53:06 PM	1.0000
3	STD3	121218	20.0	Finished	12/12/2018 6:14:40 PM	1.0000
4	STD4	121218	20.0	Finished	12/12/2018 6:36:14 PM	1.0000
5	STD5	121218	20.0	Finished	12/12/2018 6:57:48 PM	1.0000
6	STD6	121218	20.0	Finished	12/12/2018 7:19:22 PM	1.0000
7	ICV	121218	20.0	Finished	12/12/2018 7:40:56 PM	1.0000
8	ICB	121218	20.0	Finished	12/12/2018 8:02:31 PM	1.0000
9	CCV	121218	20.0	Finished	12/18/2018 3:51:32 PM	1.0000
10	CCB	121218	20.0	Finished	12/18/2018 4:13:06 PM	1.0000
11	MBLK-135666	121218	20.0	Finished	12/18/2018 4:34:40 PM	1.0000
12	LCS-135666	121218	20.0	Finished	12/18/2018 4:56:15 PM	1.0000
13	LCSD-135666	121218	20.0	Finished	12/18/2018 5:17:49 PM	1.0000
14	HS18120469-01	121218	20.0	Finished	12/18/2018 5:39:23 PM	1.0000
15	HS18111522-09DF10	121218	20.0	Finished	12/18/2018 6:14:27 PM	1.0000
16	HS18111522-10	121218	20.0	Finished	12/18/2018 6:36:02 PM	1.0000
17	HS18111522-11	121218	20.0	Finished	12/18/2018 6:57:38 PM	1.0000
18	CCV1	121218	20.0	Finished	12/18/2018 7:27:26 PM	1.0000
19	CCB	121218	20.0	Finished	12/18/2018 7:49:00 PM	1.0000
20	WBLKW1-121818	121218	20.0	Finished	12/18/2018 8:10:34 PM	1.0000
21	WLCSW1-121818	121218	20.0	Finished	12/18/2018 8:32:09 PM	1.0000
22	WLCSDW1-121818	121218	20.0	Finished	12/18/2018 8:53:43 PM	1.0000
23	HS18120114-06DF5	121218	20.0	Finished	12/18/2018 9:15:17 PM	1.0000
24	HS18120114-06MSDF5	121218	20.0	Finished	12/18/2018 9:36:52 PM	1.0000
25	HS18120114-06MSDDF5	121218	20.0	Finished	12/18/2018 9:58:26 PM	1.0000
26	HS18120114-07DF5	121218	20.0	Finished	12/18/2018 10:20:00 PM	1.0000
27	HS18111344-01DF10	121218	20.0	Finished	12/18/2018 10:41:34 PM	1.0000
28	HS18111344-01MSDF10	121218	20.0	Finished	12/18/2018 11:03:08 PM	1.0000
29	HS18111344-01MSDDF10	121218	20.0	Finished	12/18/2018 11:24:42 PM	1.0000
30	CCV	121218	20.0	Finished	12/18/2018 11:46:16 PM	1.0000
31	CCB	121218	20.0	Finished	12/19/2018 12:07:51 AM	1.0000
32	HS18111344-02DF10	121218	20.0	Finished	12/19/2018 12:29:25 AM	1.0000
33	HS18111344-03DF10	121218	20.0	Finished	12/19/2018 12:50:59 AM	1.0000
34	HS18111344-04DF10	121218	20.0	Finished	12/19/2018 1:12:34 AM	1.0000

Sequence: 121718
Operator: alshs.nouser

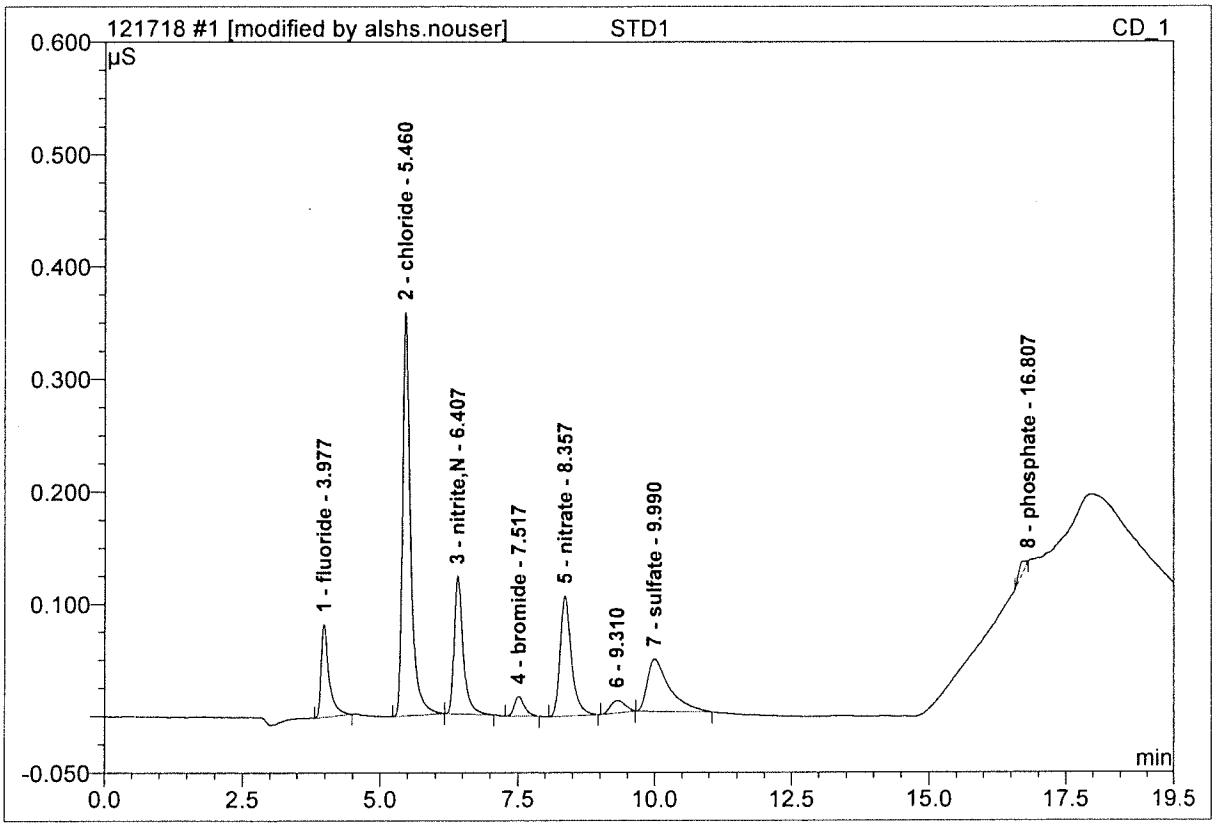
Title: Temporary sequence for manual data acquisition
Datasource: HP0307B_local
Location: ICS3000_2\2_Data\02-2018
Timebase: ICS3000_2
#Samples: 85

Created: 12/18/2018 3:20:30 PM by alshs.nouser
(Modified, not saved)

No.	Name	ISTD Amount	Sample ID	Replicate ID
1	STD1	1.0000		01
2	STD2	1.0000		01
3	STD3	1.0000		01
4	STD4	1.0000		01
5	STD5	1.0000		01
6	STD6	1.0000		01
7	ICV	1.0000		01
8	ICB	1.0000		01
9	CCV	1.0000		01
10	CCB	1.0000		01
11	MBLK-135666	1.0000		01
12	LCS-135666	1.0000		01
13	LCSD-135666	1.0000		01
14	HS18120469-01	1.0000		01
15	HS18111522-09DF10	1.0000		01
16	HS18111522-10	1.0000		01
17	HS18111522-11	1.0000		01
18	CCV1	1.0000		01
19	CCB	1.0000		01
20	WBLKW1-121818	1.0000		01
21	WLCSW1-121818	1.0000		01
22	WLCSDW1-121818	1.0000		01
23	HS18120114-06DF5	1.0000		01
24	HS18120114-06MSDF5	1.0000		01
25	HS18120114-06MSDDF5	1.0000		01
26	HS18120114-07DF5	1.0000		01
27	HS18111344-01DF10	1.0000		01
28	HS18111344-01MSDF10	1.0000		01
29	HS18111344-01MSDDF10	1.0000		01
30	CCV	1.0000		01
31	CCB	1.0000		01
32	HS18111344-02DF10	1.0000		01
33	HS18111344-03DF10	1.0000		01
34	HS18111344-04DF10	1.0000		01

1 STD1

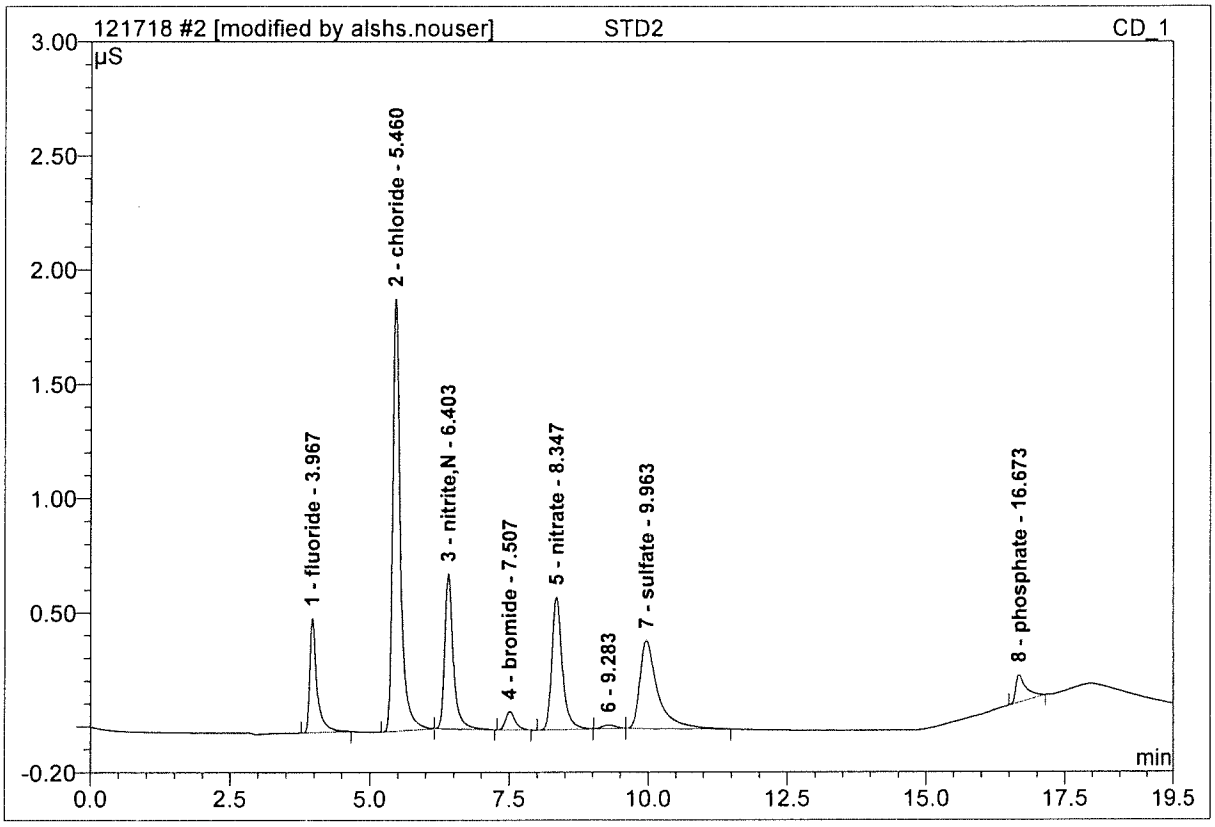
Sample Name:	**STD1**	*Injection Volume:*	**20.0**
Vial Number:	**91**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 17:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.98	fluoride	0.083	0.014	9.04	0.120	1.
2	5.46	chloride	0.359	0.060	39.24	0.572	1.
3	6.41	nitrite,N	0.123	0.024	15.35	0.098	1.
4	7.52	bromide	0.018	0.004	2.40	0.135	1.
5	8.36	nitrate	0.107	0.026	16.63	0.127	1.
7	9.99	sulfate	0.047	0.022	14.13	0.696	1.
8	16.81	phosphate	0.000	0.001	0.95	0.162	1.
Total:			0.736	0.150	97.73	1.911	

2 STD2

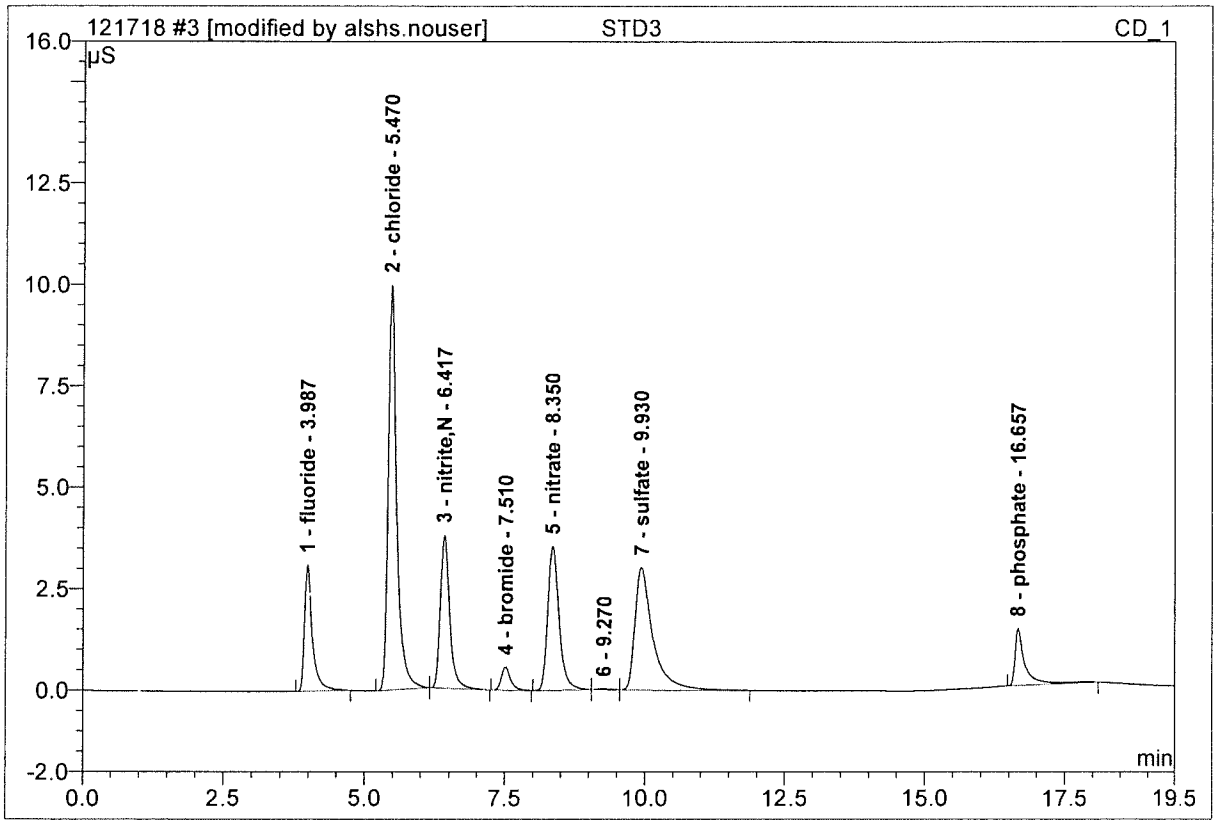
Sample Name:	**STD2**	*Injection Volume:*	**20.0**
Vial Number:	**92**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 17:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.97	fluoride	0.503	0.075	9.14	0.340	1.
2	5.46	chloride	1.895	0.305	37.27	1.859	1.
3	6.40	nitrite,N	0.680	0.120	14.71	0.370	1.
4	7.51	bromide	0.081	0.016	1.97	0.322	1.
5	8.35	nitrate	0.583	0.127	15.54	0.340	1.
7	9.96	sulfate	0.387	0.145	17.69	1.584	1.
8	16.67	phosphate	0.121	0.026	3.12	0.275	1.
Total:			4.251	0.814	99.44	5.090	

3 STD3

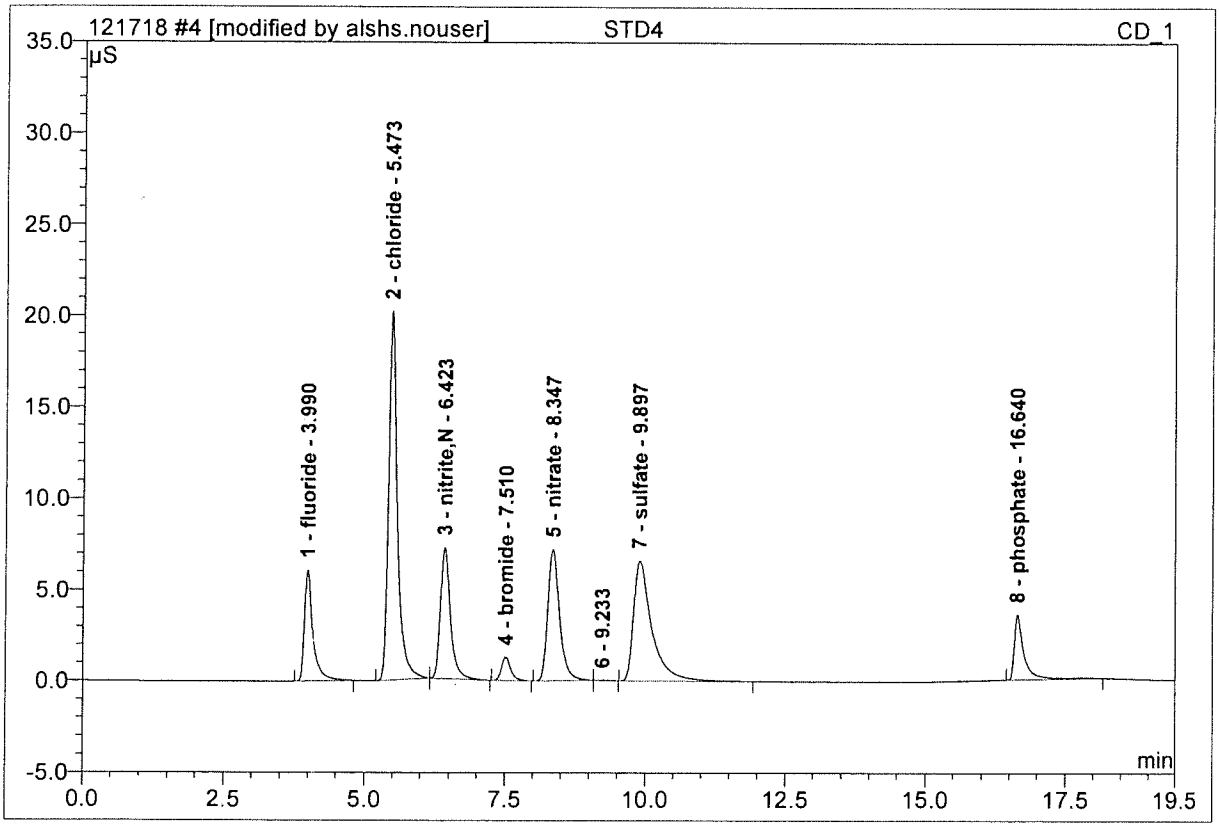
Sample Name:	**STD3**	*Injection Volume:*	**20.0**
Vial Number:	**93**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 18:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.99	fluoride	3.105	0.508	9.49	1.904	1.
2	5.47	chloride	9.975	1.754	32.77	9.470	1.
3	6.42	nitrite,N	3.761	0.731	13.67	2.085	1.
4	7.51	bromide	0.566	0.107	2.00	1.686	1.
5	8.35	nitrate	3.545	0.834	15.58	1.824	1.
7	9.93	sulfate	3.016	1.119	20.92	8.608	1.
8	16.66	phosphate	1.396	0.292	5.45	1.526	1.
Total:			25.364	5.345	99.88	27.104	

4 STD4

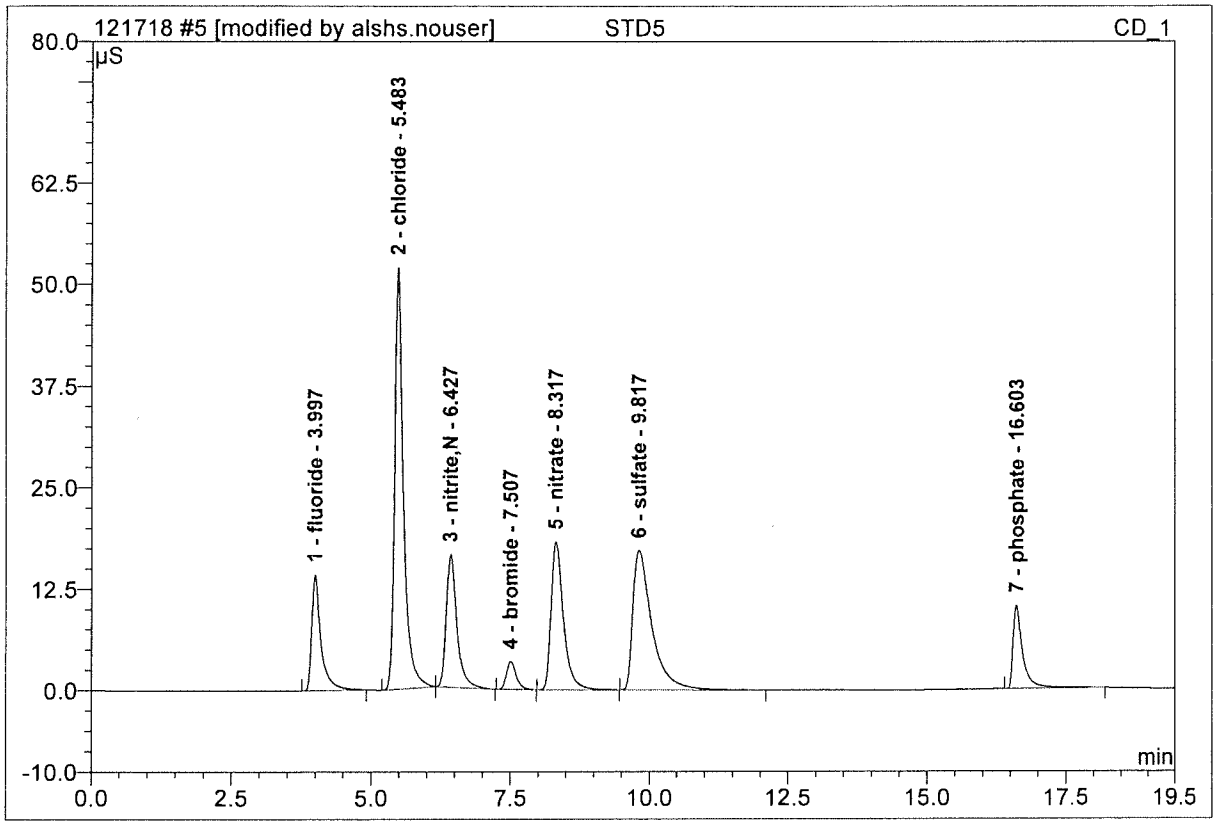
Sample Name:	**STD4**	*Injection Volume:*	**20.0**
Vial Number:	**94**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 18:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.99	fluoride	6.121	1.072	9.36	3.941	1.
2	5.47	chloride	20.190	3.647	31.83	19.417	1.
3	6.42	nitrite,N	7.216	1.495	13.05	4.229	1.
4	7.51	bromide	1.290	0.247	2.16	3.782	1.
5	8.35	nitrate	7.232	1.772	15.47	3.793	1.
7	9.90	sulfate	6.630	2.501	21.83	18.569	1.
8	16.64	phosphate	3.590	0.719	6.28	3.535	1.
Total:			52.269	11.453	99.96	57.267	

5 STD5

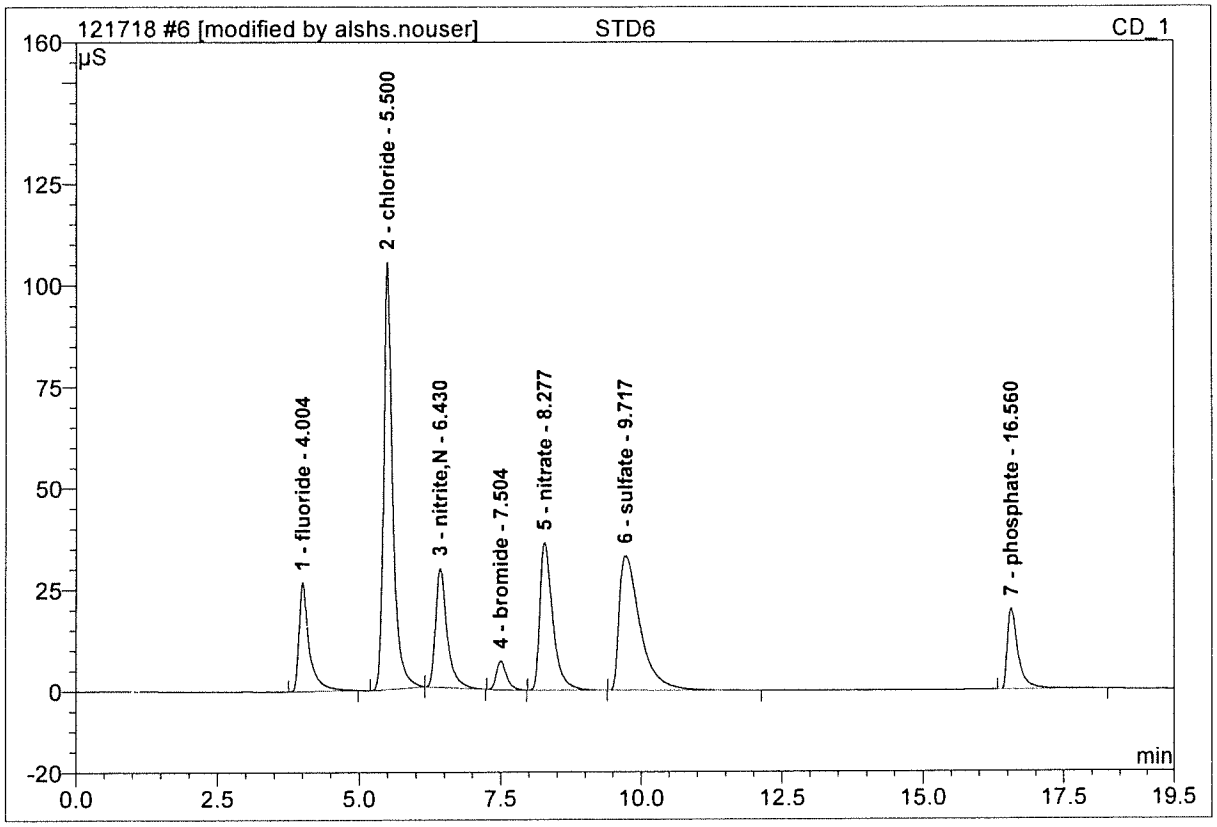
Sample Name:	**STD5**	*Injection Volume:*	**20.0**
Vial Number:	**95**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 18:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	4.00	fluoride	14.293	2.754	9.16	10.018	1.
2	5.48	chloride	51.905	9.390	31.23	49.599	1.
3	6.43	nitrite,N	16.341	3.641	12.11	10.254	1.
4	7.51	bromide	3.458	0.701	2.33	10.575	1.
5	8.32	nitrate	18.213	4.709	15.66	9.957	1.
6	9.82	sulfate	17.178	6.809	22.65	49.627	1.
7	16.60	phosphate	10.249	2.065	6.87	9.858	1.
Total:			131.637	30.069	100.00	149.888	

6 STD6

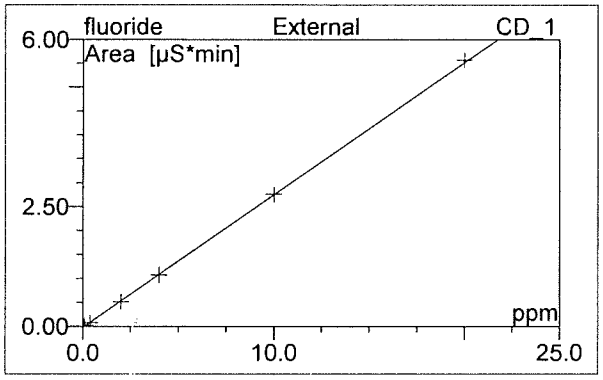
Sample Name:	**STD6**	*Injection Volume:*	**20.0**
Vial Number:	**96**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 19:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**

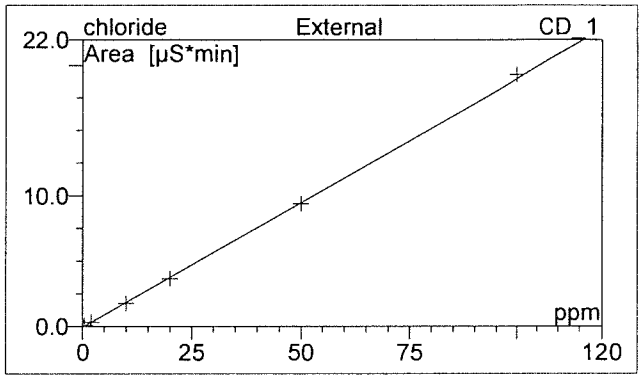


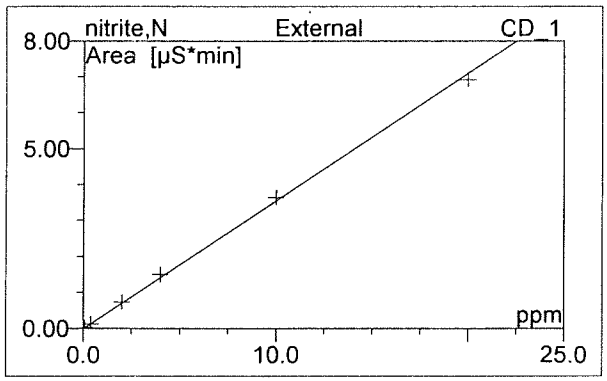
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	4.00	fluoride	26.757	5.567	9.02	20.177	1.
2	5.50	chloride	105.320	19.283	31.25	101.582	1.
3	6.43	nitrite,N	29.269	6.921	11.22	19.464	1.
4	7.50	bromide	7.113	1.488	2.41	22.358	1.
5	8.28	nitrate	36.289	9.712	15.74	20.459	1.
6	9.72	sulfate	33.122	14.271	23.13	103.416	1.
7	16.56	phosphate	19.850	4.466	7.24	21.144	1.
Total:			257.719	61.708	100.00	308.599	

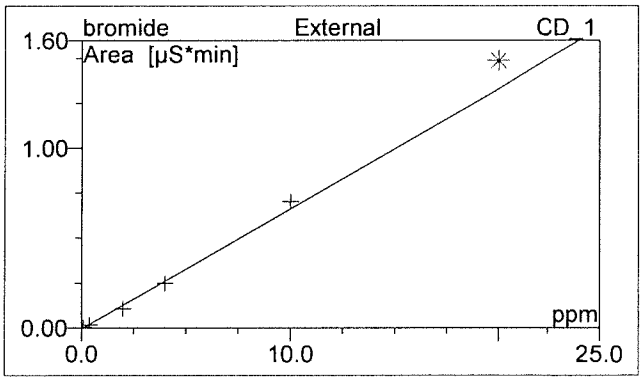
6 STD6

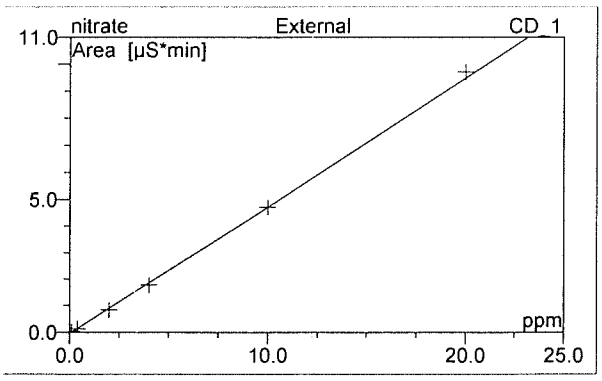
Sample Name:	**STD6**	*Injection Volume:*	**20.0**
Vial Number:	**96**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.0000**
Recording Time:	**###############**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**

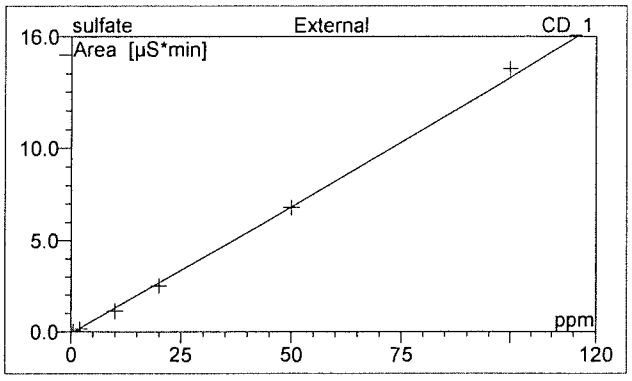


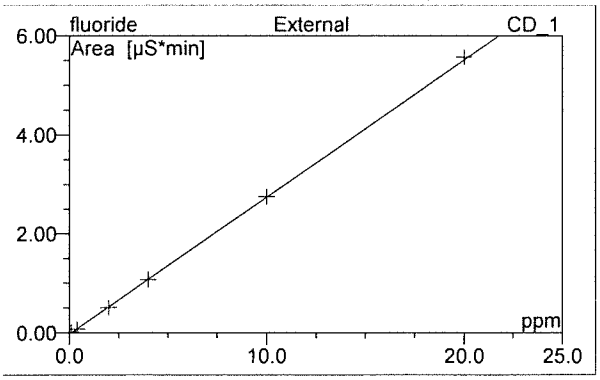


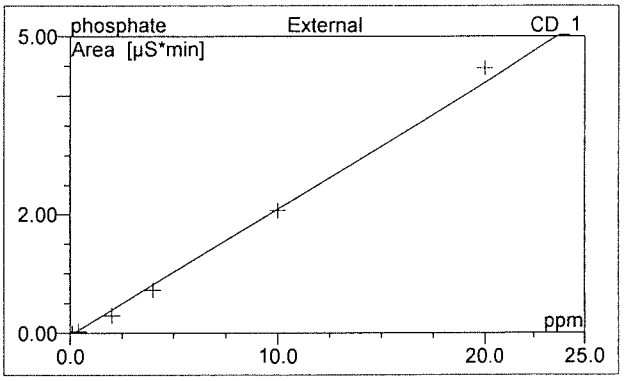










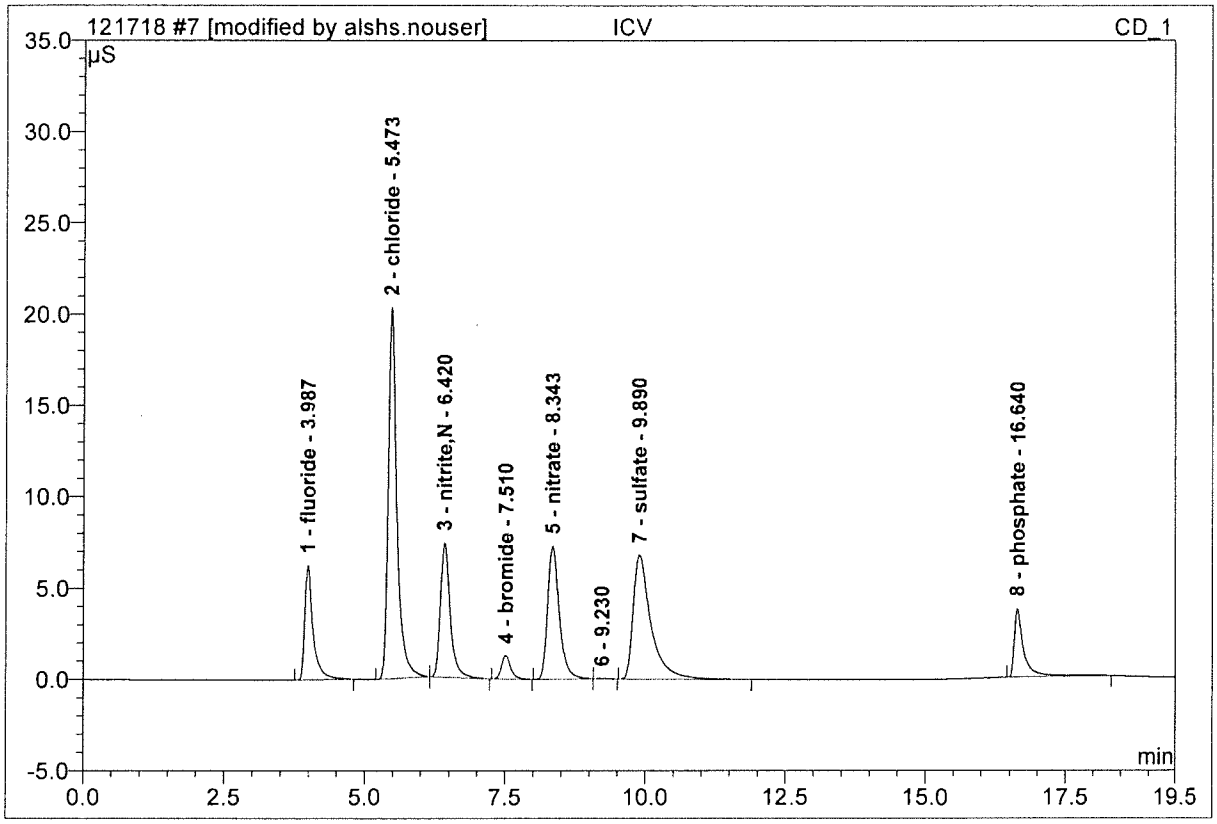


No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	4.00	fluoride	XLOff	6	99.9404	-0.0194	0.2769	0.000
2	5.50	chloride	XLOff	6	99.9446	-0.0487	0.1903	0.000
3	6.43	nitrite,N	XLOff	6	99.8820	-0.0113	0.3562	0.000
4	7.50	bromide	XLOff	5	99.1756	-0.0053	0.0668	0.000
5	8.28	nitrate	XLOff	6	99.8432	-0.0350	0.4764	0.000
6	9.72	sulfate	XLOff	6	99.6586	-0.0749	0.1387	0.000
7	16.56	phosphate	XLOff	6	99.0875	-0.0331	0.2128	0.000
Average:					99.6474	-0.0325	0.2454	0.0000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	4.00	fluoride	XLOff	6	99.970	3.612	0.013	12.576
2	5.50	chloride	XLOff	6	99.972	5.255	0.044	11.554
3	6.43	nitrite,N	XLOff	6	99.941	2.808	0.024	16.071
4	7.50	bromide	XLOff	5	99.587	14.974	0.008	41.816
5	8.28	nitrate	XLOff	6	99.922	2.099	0.037	20.598
6	9.72	sulfate	XLOff	6	99.829	7.209	0.079	33.514
7	16.56	phosphate	XLOff	6	99.543	4.700	0.040	63.846
Average:					99.8234	5.8079	0.0349	28.5679

7 ICV

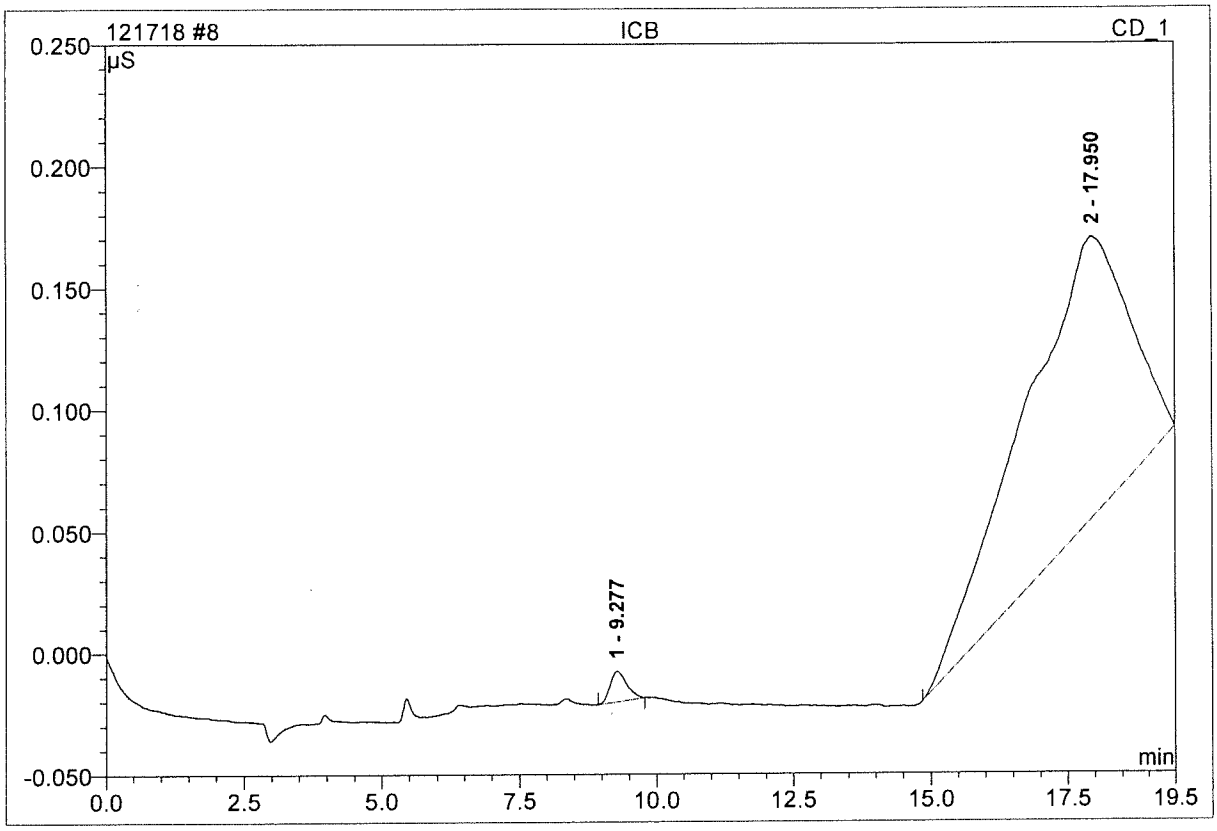
Sample Name:	**ICV**	*Injection Volume:*	**20.0**
Vial Number:	**97**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 19:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.99	fluoride	6.264	1.082	9.39	3.979	1.
2	5.47	chloride	20.324	3.635	31.54	19.356	1.
3	6.42	nitrite,N	7.358	1.511	13.11	4.274	1.
4	7.51	bromide	1.290	0.247	2.15	3.785	1.
5	8.34	nitrate	7.268	1.763	15.30	3.775	1.
7	9.89	sulfate	6.805	2.522	21.89	18.723	1.
8	16.64	phosphate	3.745	0.758	6.58	3.717	1.
Total:			53.054	11.519	99.96	57.610	

8 ICB

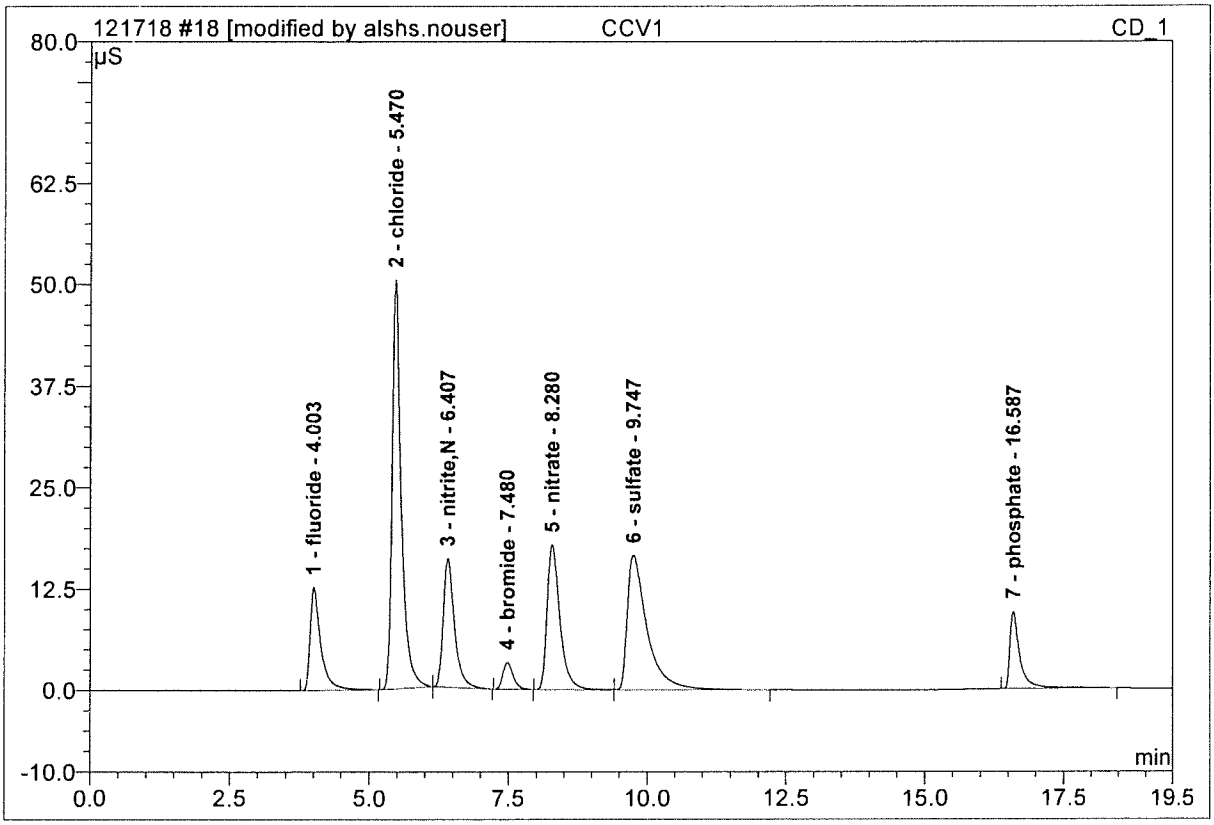
Sample Name:	**ICB**	*Injection Volume:*	**20.0**
Vial Number:	**98**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/12/2018 20:02**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



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

18 CCV1

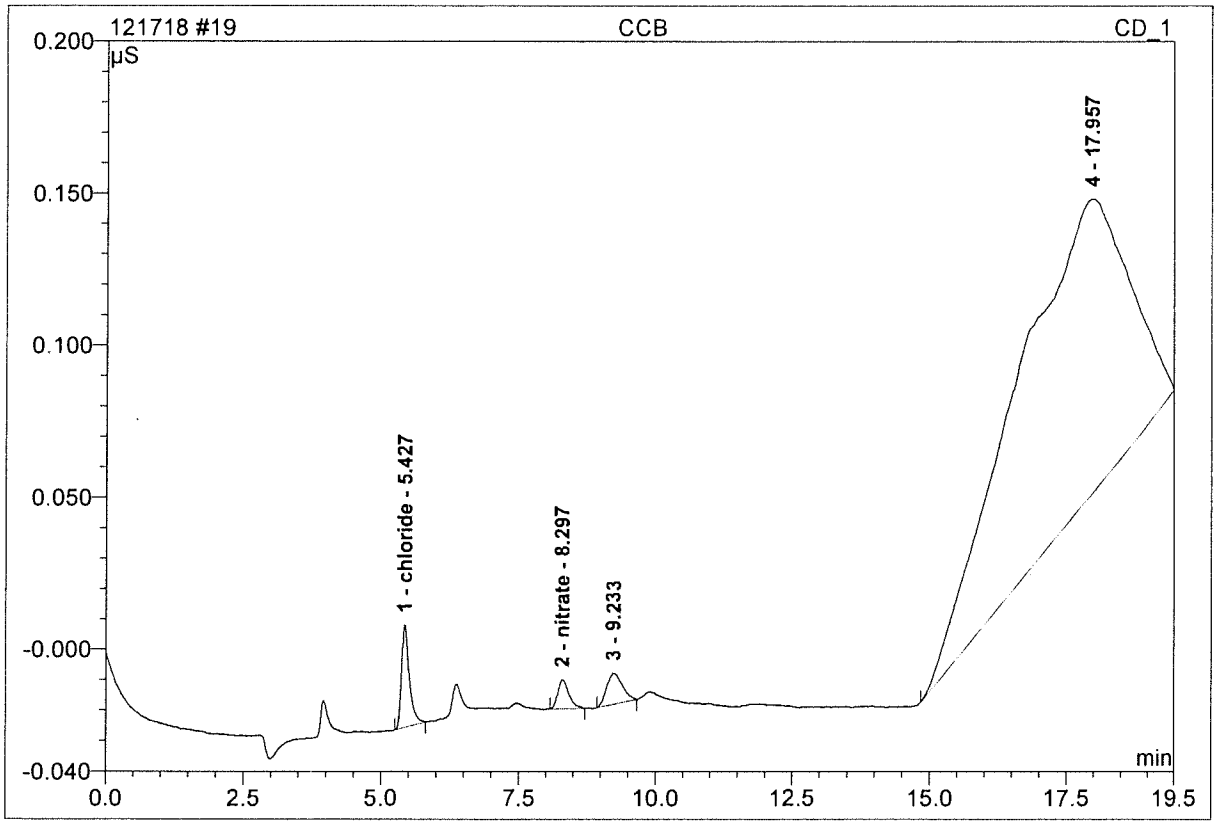
Sample Name:	**CCV1**	*Injection Volume:*	**20.0**
Vial Number:	**3**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 19:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	4.00	fluoride	12.708	2.823	9.28	10.264	1.
2	5.47	chloride	50.375	9.501	31.24	50.179	1.
3	6.41	nitrite,N	15.883	3.735	12.28	10.519	1.
4	7.48	bromide	3.346	0.717	2.36	10.818	1.
5	8.28	nitrate	17.865	4.765	15.67	10.076	1.
6	9.75	sulfate	16.559	6.840	22.49	49.849	1.
7	16.59	phosphate	9.534	2.035	6.69	9.718	1.
Total:			126.271	30.416	100.00	151.422	

19 CCB

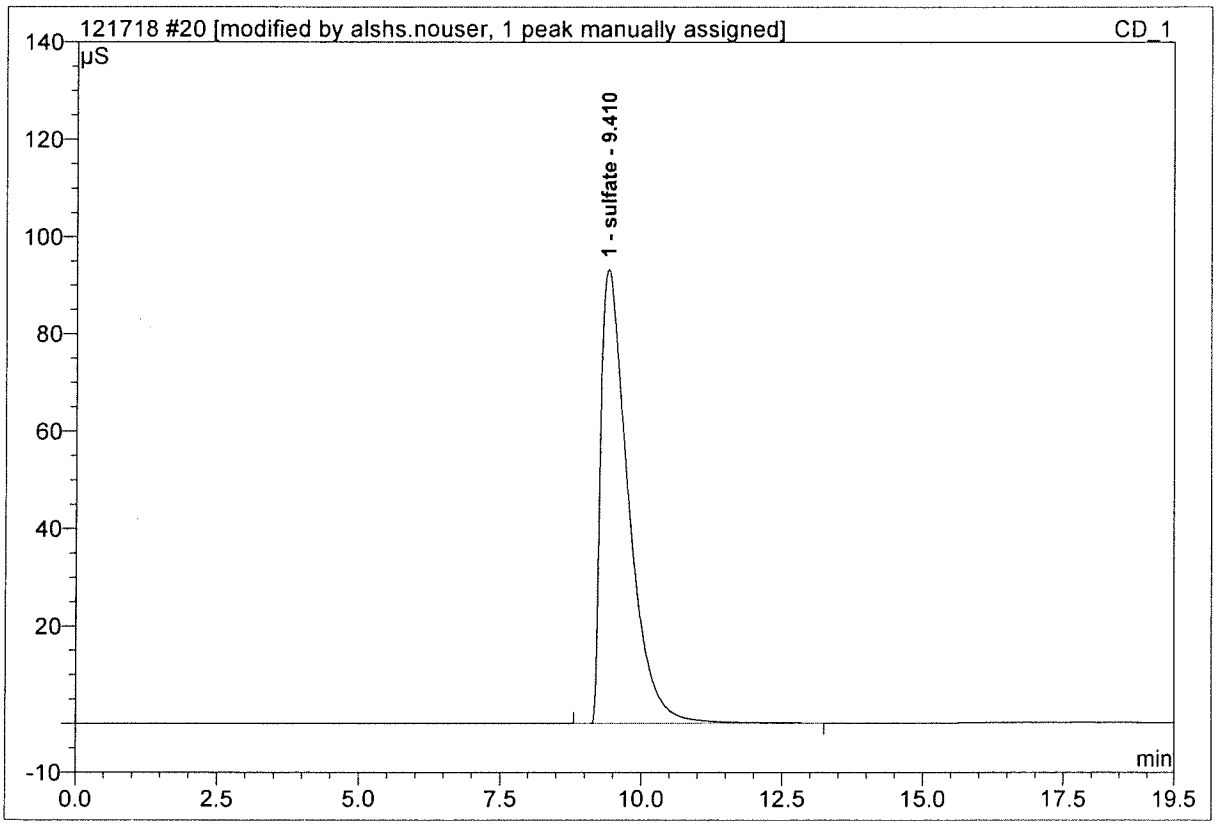
Sample Name:	**CCB**	*Injection Volume:*	**20.0**
Vial Number:	**4**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 19:49**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	5.43	chloride	0.034	0.005	2.15	0.285	1.
2	8.30	nitrate	0.010	0.002	0.88	0.078	1.
Total:			0.043	0.008	3.03	0.363	

20 WBLKW1-121818

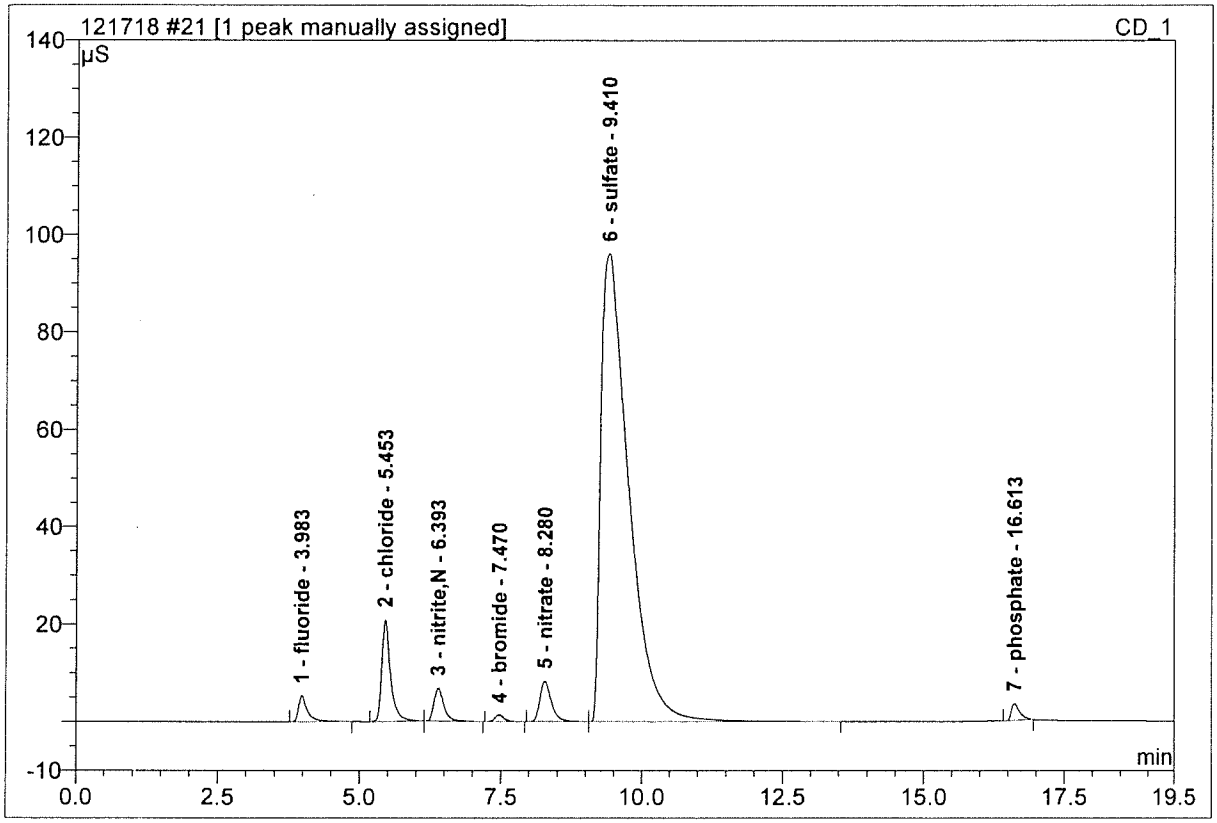
Sample Name:	**WBLKW1-121818**	*Injection Volume:*	**20.0**
Vial Number:	**37**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 20:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	9.41	sulfate	93.376	53.168	100.00	383.815	1.
Total:			93.376	53.168	100.00	383.815	

21 WLCSW1-121818

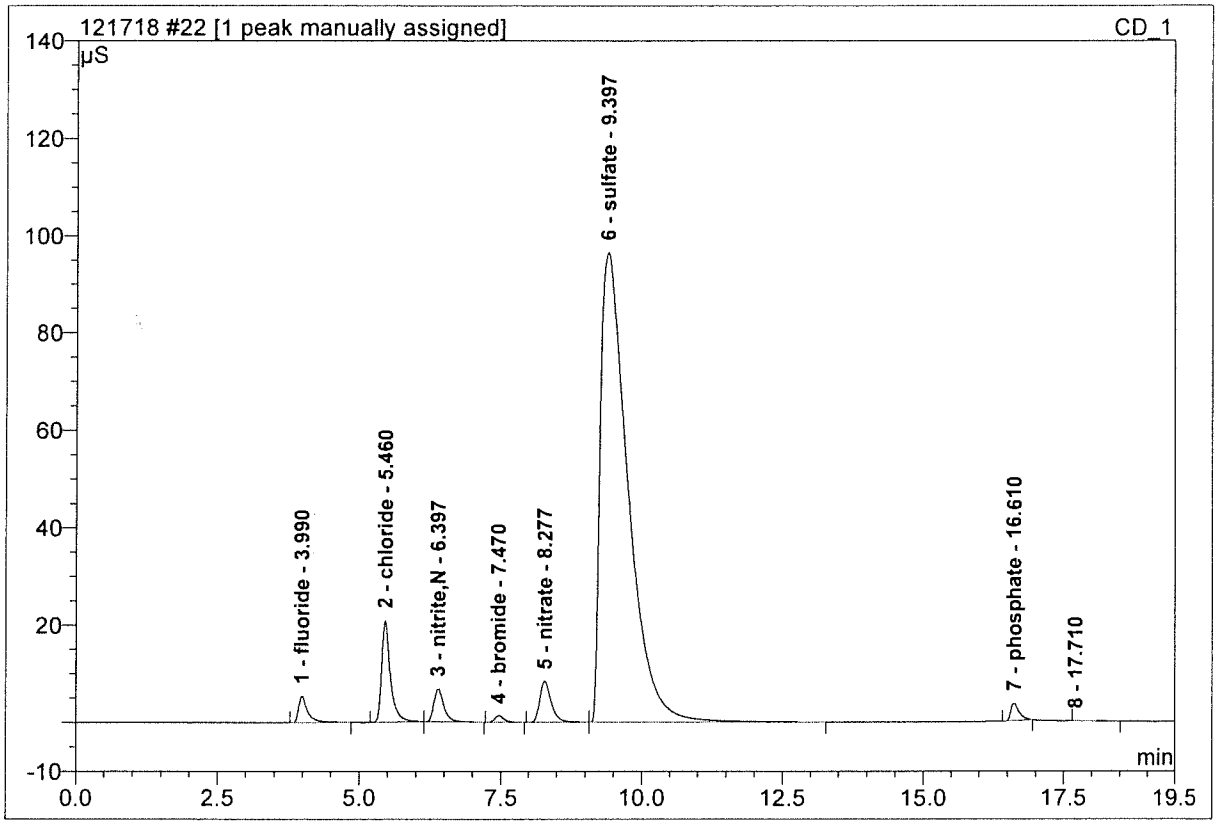
Sample Name:	**WLCSW1-121818**	*Injection Volume:*	**20.0**
Vial Number:	**38**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 20:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.98	fluoride	5.314	0.971	1.53	3.577	1.
2	5.45	chloride	20.871	3.751	5.89	19.967	1.
3	6.39	nitrite,N	6.774	1.381	2.17	3.909	1.
4	7.47	bromide	1.369	0.260	0.41	3.980	1.
5	8.28	nitrate	8.276	1.951	3.07	4.168	1.
6	9.41	sulfate	96.034	54.754	86.03	395.251	1.
7	16.61	phosphate	3.466	0.580	0.91	2.879	1.
Total:			142.103	63.648	100.00	433.731	

22 WLCSDW1-121818

Sample Name:	**WLCSDW1-121818**	*Injection Volume:*	**20.0**
Vial Number:	**39**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 20:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**

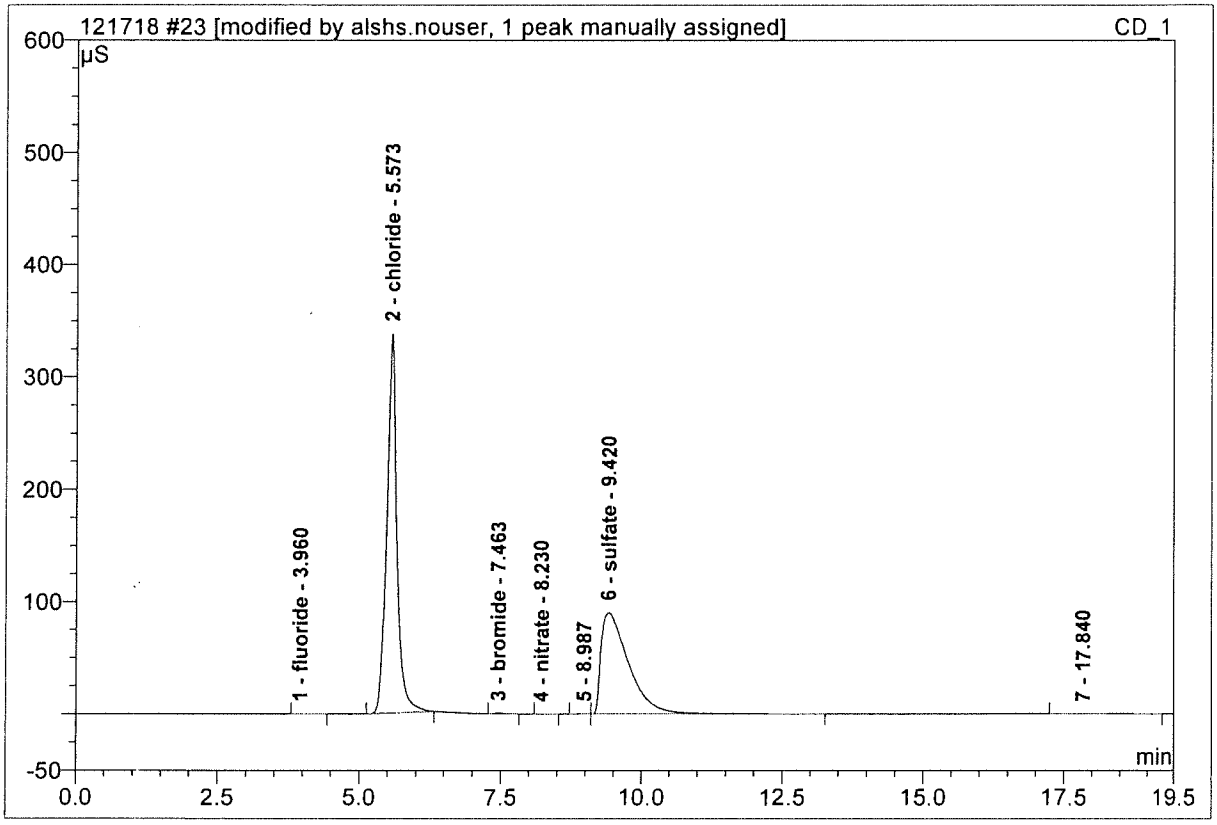


No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.99	fluoride	5.504	1.003	1.58	3.693	1.
2	5.46	chloride	20.957	3.739	5.87	19.904	1.
3	6.40	nitrite,N	6.783	1.381	2.17	3.910	1.
4	7.47	bromide	1.367	0.262	0.41	4.000	1.
5	8.28	nitrate	8.386	1.973	3.10	4.215	1.
6	9.40	sulfate	96.545	54.693	85.92	394.812	1.
7	16.61	phosphate	3.597	0.599	0.94	2.971	1.
Total:			143.139	63.651	99.99	433.504	

23 HS18120114-06DF5

9056_W PRESERVED

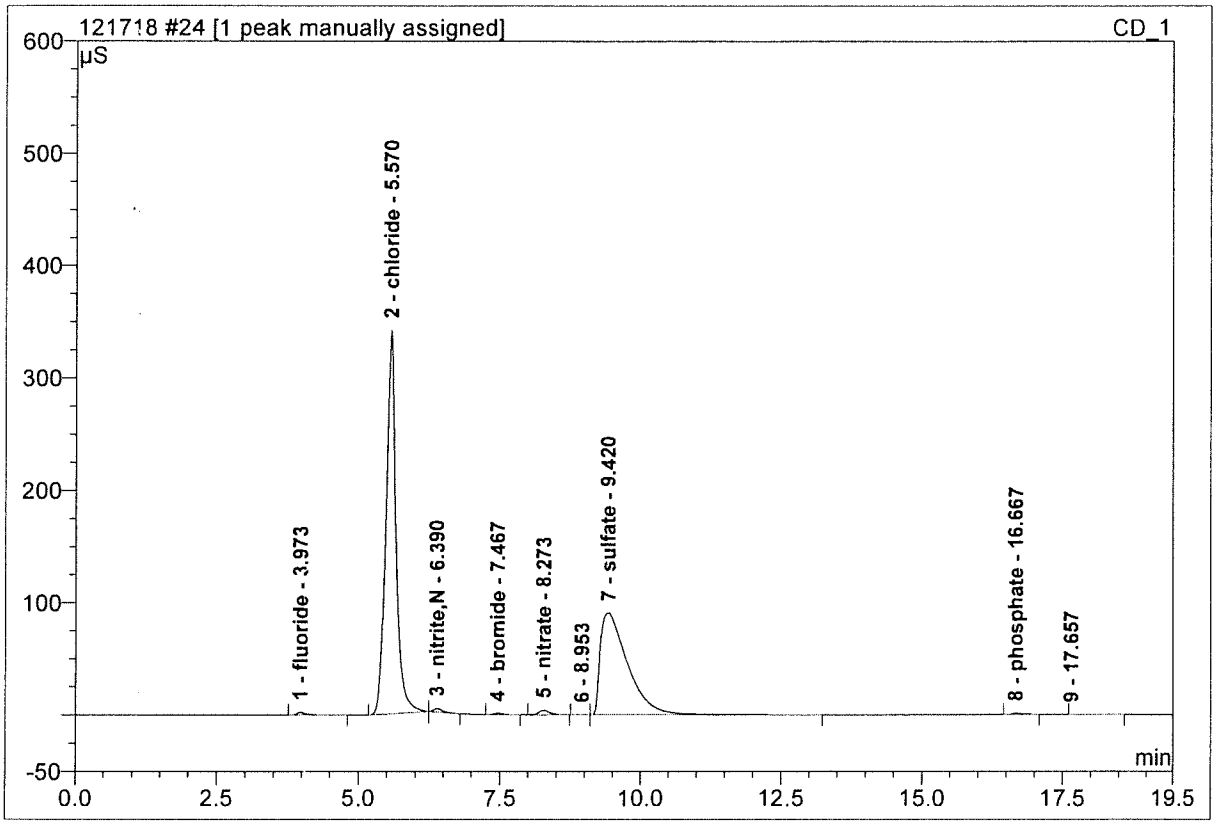
Sample Name:	**HS18120114-06DF5**	*Injection Volume:*	**20.0**
Vial Number:	**40**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**5.**
Recording Time:	**12/18/2018 21:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.96	fluoride	0.062	0.012	0.01	0.565	5.
2	5.57	chloride	337.686	70.044	58.03	1841.570	5.
3	7.46	bromide	0.581	0.106	0.09	8.373	5.
4	8.23	nitrate	0.012	0.002	0.00	0.393	5.
6	9.42	sulfate	90.060	50.483	41.82	1822.297	5.
Total:			428.401	120.648	99.96	3673.199	

24 HS18120114-06MSDF5

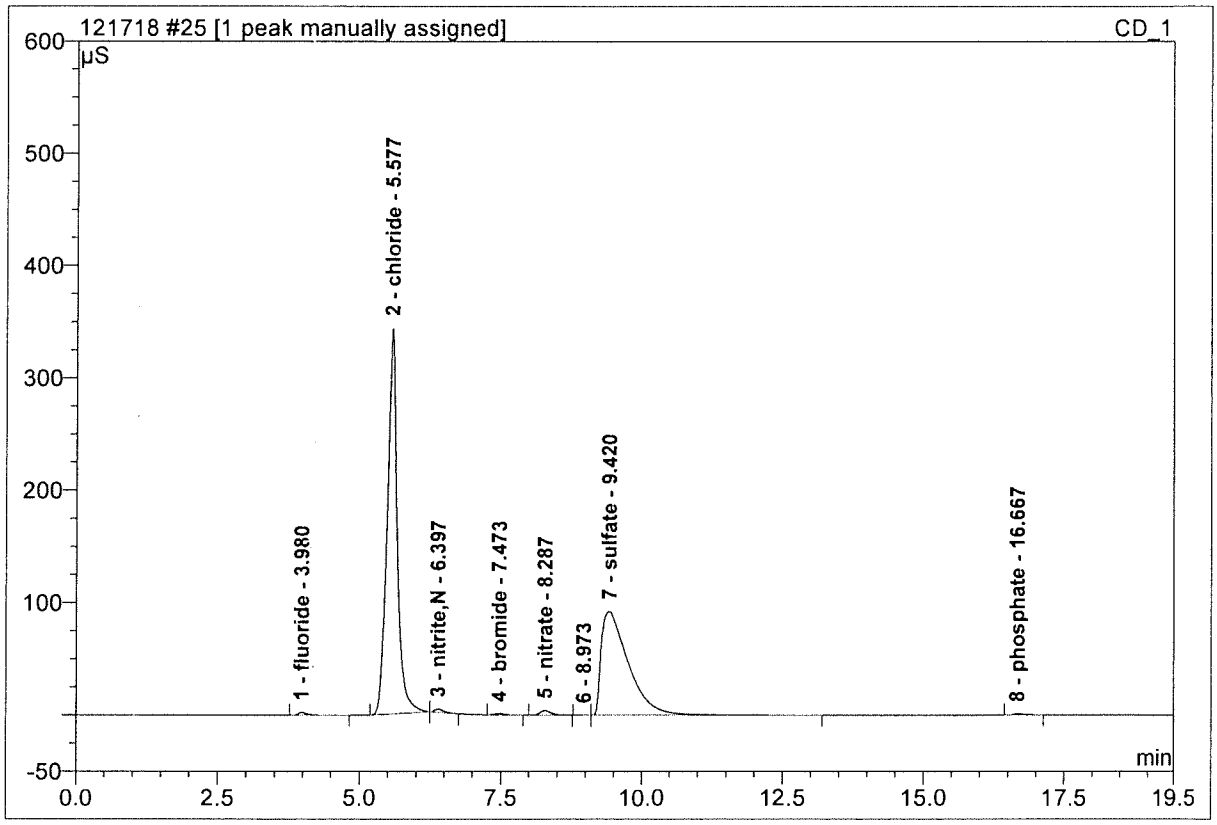
Sample Name:	**HS18120114-06MSDF5**	*Injection Volume:*	**20.0**
Vial Number:	**41**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**5.**
Recording Time:	**12/18/2018 21:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.97	fluoride	2.492	0.442	0.36	8.332	5.
2	5.57	chloride	341.146	70.546	56.91	1854.767	5.
3	6.39	nitrite,N	3.213	0.572	0.46	8.190	5.
4	7.47	bromide	1.302	0.250	0.20	19.093	5.
5	8.27	nitrate	3.993	0.888	0.72	9.682	5.
7	9.42	sulfate	90.802	51.023	41.16	1841.750	5.
8	16.67	phosphate	1.111	0.226	0.18	6.095	5.
Total:			444.058	123.947	99.99	3747.911	

25 HS18120114-06MSDDF5

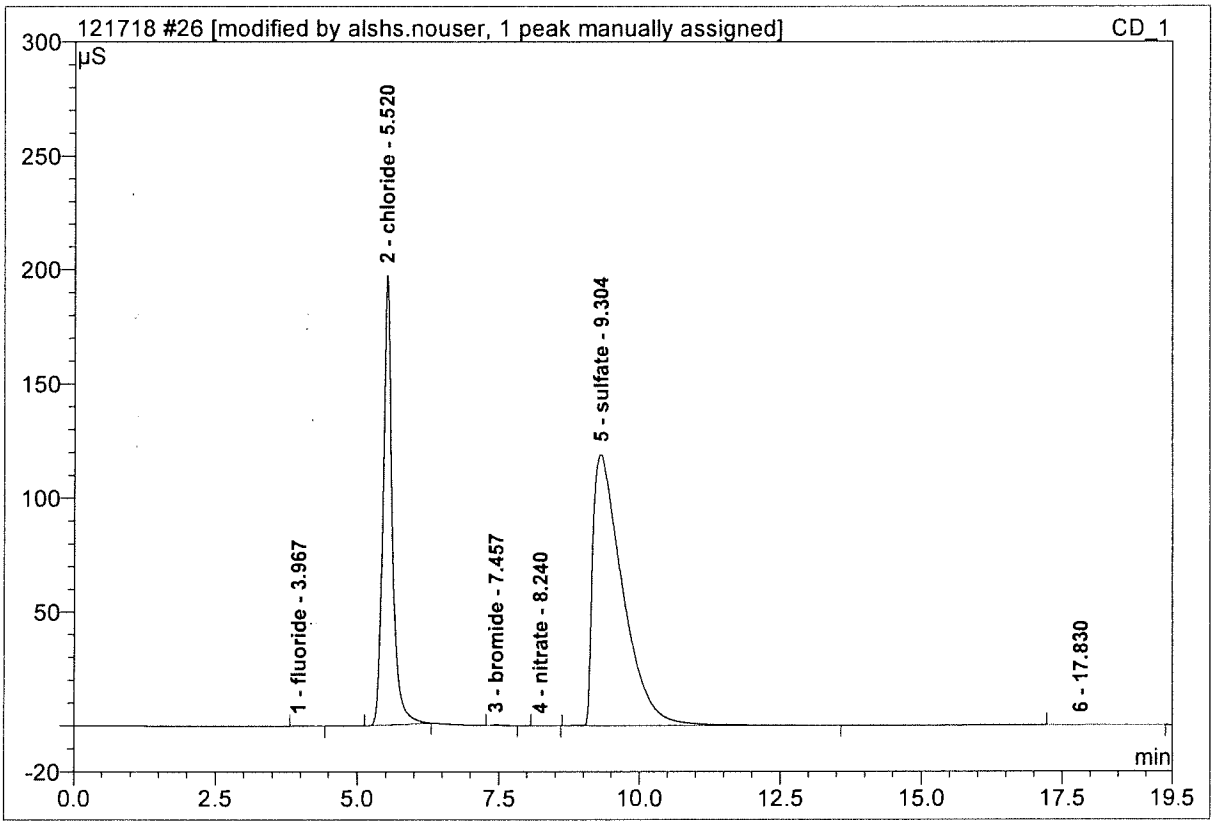
Sample Name:	**HS18120114-06MSDDF5**	*Injection Volume:*	**20.0**
Vial Number:	**42**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**5.**
Recording Time:	**12/18/2018 21:58**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.98	fluoride	2.540	0.454	0.36	8.542	5.
2	5.58	chloride	343.518	70.905	56.78	1864.192	5.
3	6.40	nitrite,N	3.058	0.539	0.43	7.728	5.
4	7.47	bromide	1.304	0.249	0.20	19.052	5.
5	8.29	nitrate	4.035	0.898	0.72	9.795	5.
7	9.42	sulfate	92.358	51.585	41.31	1862.032	5.
8	16.67	phosphate	1.105	0.238	0.19	6.369	5.
Total:			447.918	124.869	100.00	3777.710	

26 HS18120114-07DF5

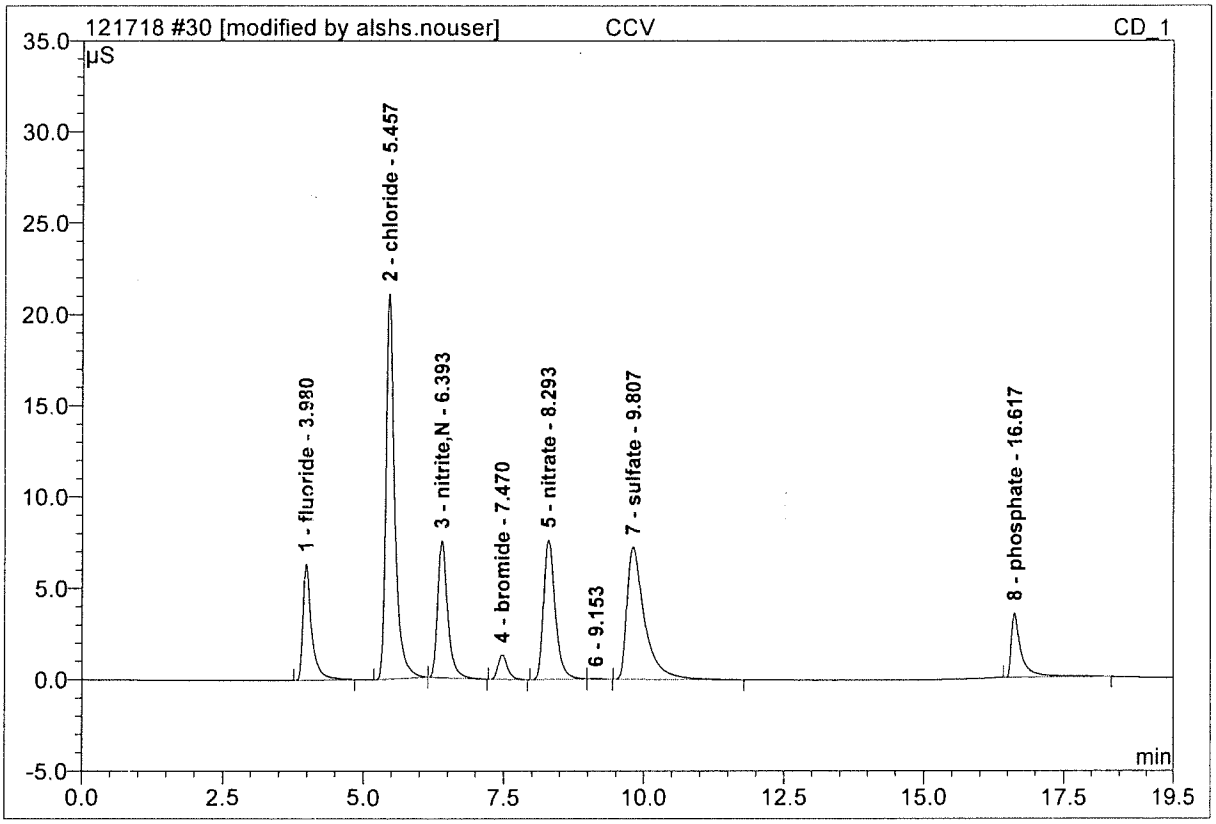
Sample Name:	**HS18120114-07DF5**	*Injection Volume:*	**20.0**
Vial Number:	**43**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**5.**
Recording Time:	**12/18/2018 22:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.97	fluoride	0.068	0.015	0.01	0.614	5.
2	5.52	chloride	197.109	37.331	33.70	982.094	5.
3	7.46	bromide	0.319	0.059	0.05	4.783	5.
4	8.24	nitrate	0.020	0.004	0.00	0.410	5.
5	9.30	sulfate	119.208	73.335	66.19	2645.966	5.
Total:			316.724	110.743	99.96	3633.867	

30 CCV

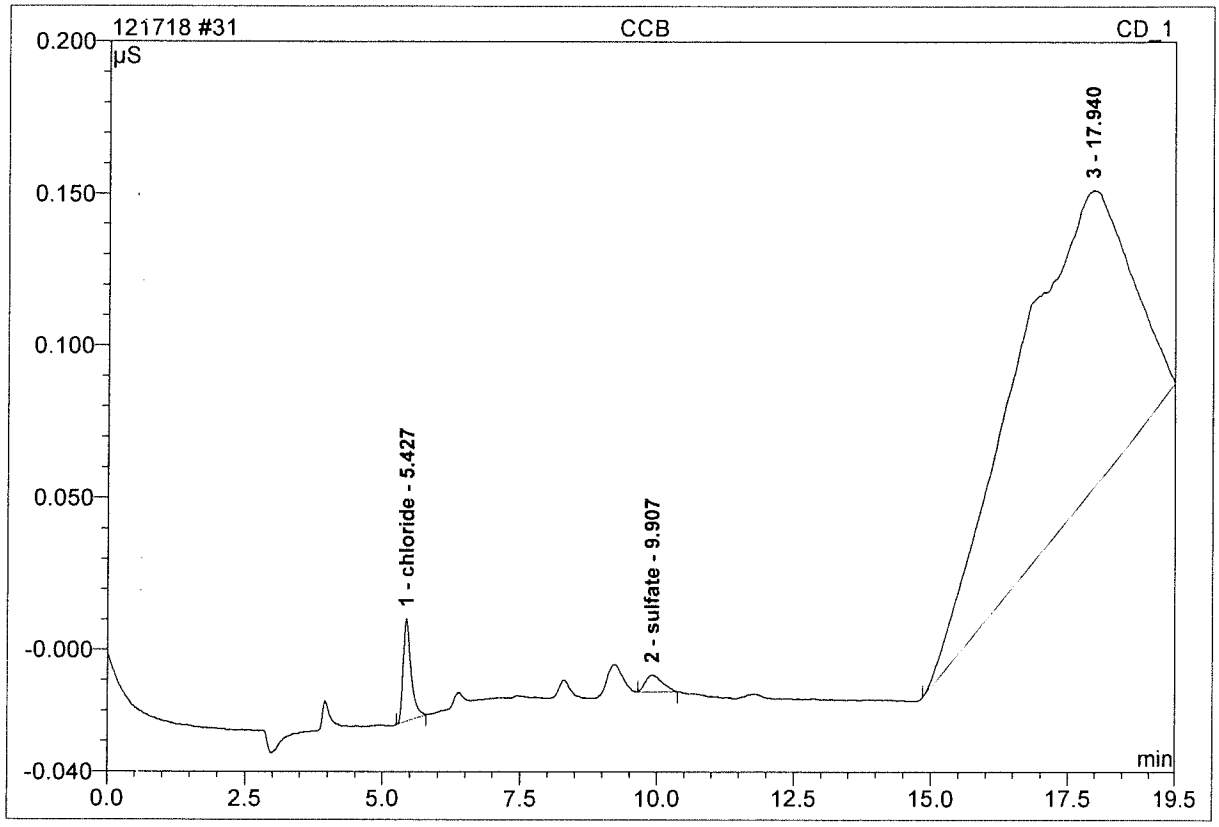
Sample Name:	**CCV**	*Injection Volume:*	**20.0**
Vial Number:	**1**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/18/2018 23:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	3.98	fluoride	6.356	1.142	9.51	4.196	1.
2	5.46	chloride	21.098	3.784	31.51	20.141	1.
3	6.39	nitrite,N	7.494	1.541	12.84	4.359	1.
4	7.47	bromide	1.359	0.263	2.19	4.023	1.
5	8.29	nitrate	7.614	1.853	15.43	3.963	1.
7	9.81	sulfate	7.226	2.664	22.18	19.744	1.
8	16.62	phosphate	3.528	0.755	6.29	3.704	1.
Total:			54.674	12.003	99.96	60.130	

31 CCB

Sample Name:	**CCB**	*Injection Volume:*	**20.0**
Vial Number:	**2**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**anions3**	*Bandwidth:*	**n.a.**
Quantif. Method:	**121218**	*Dilution Factor:*	**1.**
Recording Time:	**12/19/2018 0:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**19.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount ppm	Dil.Fac.
1	5.43	chloride	0.034	0.006	2.14	0.285	1.
2	9.91	sulfate	0.005	0.002	0.77	0.554	1.
Total:			0.039	0.008	2.92	0.840	

HS19050374 Longhorn Army Ammunition Plant
LHAAP50 Cover Page

ALS WO# HS19050374

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

Table of Contents

Table of Contents (continued)

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

WorkOrder: HS19050374

Longhorn Army Ammunition Plant LHAAP-50

Aptim Environmental & Infrastucture, Inc.

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

12-Jun-2019

HS19050374 Longhorn Army Ammunition Plant
LHAAP50 Final

ALS WO# HS19050374

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

May 21, 2019

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

Work Order: **HS19050374**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-50**

Dear Susan,

ALS Environmental received 7 sample(s) on May 07, 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: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order: HS19050374

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19050374-01	50WW06-190506	Groundwater		06-May-2019 08:25	07-May-2019 15:30	☐
HS19050374-02	50WW11-190506	Groundwater		06-May-2019 09:25	07-May-2019 15:30	☐
HS19050374-03	50WW14-190506	Groundwater		06-May-2019 10:25	07-May-2019 15:30	☐
HS19050374-04	50WW13-190506	Groundwater		06-May-2019 11:20	07-May-2019 15:30	☐
HS19050374-05	50WW22-190506	Groundwater		06-May-2019 12:20	07-May-2019 15:30	☐
HS19050374-06	50WW16-190506	Groundwater		06-May-2019 13:20	07-May-2019 15:30	☐
HS19050374-07	Trip Blank	Water	CG 040119 -116	06-May-2019 00:00	07-May-2019 15:30	☐

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order:

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

Work Order Comments

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

GCMS Volatiles by Method SW8260

Batch ID: R338430

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

Batch ID: R338572

Sample ID: 50WW22-190506 (HS19050374-05)

- MS and MSD are for an unrelated sample

WetChemistry by Method SW9056

Batch ID: R338458

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

Batch ID: R338208

Sample ID: 50WW06-190506 (HS19050374-01)

- Sample was analyzed outside of the holding time due to instrument problems. Results should be considered estimated.

Sample ID: 50WW11-190506 (HS19050374-02)

- Sample was analyzed outside of the holding time due to instrument problems. Results should be considered estimated.

Sample ID: 50WW13-190506 (HS19050374-04)

- Sample was analyzed outside of the holding time due to instrument problems. Results should be considered estimated.

Sample ID: 50WW14-190506 (HS19050374-03)

- Sample was analyzed outside of the holding time due to instrument problems. Results should be considered estimated.

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW06-190506
Collection Date: 06-May-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-01
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	14-May-2019 19:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 19:14
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	14-May-2019 19:14
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	14-May-2019 19:14
Acetone	**2.1**		**0.40**	**1.0**	**2.0**	**UG/L**	1	14-May-2019 19:14
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2019 19:14
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:14
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW06-190506
Collection Date: 06-May-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2019 19:14
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2019 19:14
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 19:14
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 19:14
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:14
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Trichloroethene	**1.4**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 19:14
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:14
Surr: 1,2-Dichloroethane-d4	*87.2*			**0**	*81-118*	*%REC*	*1*	*14-May-2019 19:14*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*14-May-2019 19:14*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*14-May-2019 19:14*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*14-May-2019 19:14*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**1.36**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2019 13:22
Nitrogen, Nitrate (As N)	**0.432**	JH	**0.150**	**0.500**	**0.500**	**mg/L**	5	08-May-2019 15:00
Sulfate	**8.74**		**0.200**	**0.500**	**0.500**	**mg/L**	1	14-May-2019 13:22
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2019 09:52

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW06-190506
Collection Date: 06-May-2019 08:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-01
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	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW11-190506 Lab ID:HS19050374-02
Collection Date: 06-May-2019 09:25 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,2-Dichloroethane	**0.75**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 19:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 19:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	14-May-2019 19:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	14-May-2019 19:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 19:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2019 19:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 19:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW11-190506 Lab ID:HS19050374-02
Collection Date: 06-May-2019 09:25 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
cis-1,2-Dichloroethene	**3.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 19:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2019 19:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2019 19:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 19:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 19:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 19:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Trichloroethene	**95**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 19:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 19:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 19:38
Surr: 1,2-Dichloroethane-d4	*86.9*			**0**	*81-118*	*%REC*	*1*	*14-May-2019 19:38*
Surr: 4-Bromofluorobenzene	*96.7*			**0**	*85-114*	*%REC*	*1*	*14-May-2019 19:38*
Surr: Dibromofluoromethane	*87.4*			**0**	*80-119*	*%REC*	*1*	*14-May-2019 19:38*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*14-May-2019 19:38*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**269**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 15:14
Nitrogen, Nitrate (As N)	**1.21**	H	**0.300**	**1.00**	**1.00**	**mg/L**	10	08-May-2019 15:14
Sulfate	**280**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 15:14
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2019 09:52

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW11-190506
Collection Date: 06-May-2019 09:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-02
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	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW14-190506
Collection Date: 06-May-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-03
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	14-May-2019 20:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 20:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	14-May-2019 20:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	14-May-2019 20:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 20:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2019 20:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW14-190506 Lab ID:HS19050374-03
Collection Date: 06-May-2019 10:25 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
cis-1,2-Dichloroethene	**1.9**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 20:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2019 20:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2019 20:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 20:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 20:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Trichloroethene	**27**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 20:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:02
Surr: 1,2-Dichloroethane-d4	*86.4*			**0**	*81-118*	*%REC*	*1*	*14-May-2019 20:02*
Surr: 4-Bromofluorobenzene	*100.0*			**0**	*85-114*	*%REC*	*1*	*14-May-2019 20:02*
Surr: Dibromofluoromethane	*88.3*			**0**	*80-119*	*%REC*	*1*	*14-May-2019 20:02*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-May-2019 20:02*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**354**		**2.00**	**5.00**	**5.00**	**mg/L**	10	09-May-2019 14:57
Nitrogen, Nitrate (As N)	0.500	HU	0.150	0.500	0.500	mg/L	5	08-May-2019 15:59
Sulfate	**383**		**1.00**	**2.50**	**2.50**	**mg/L**	5	08-May-2019 15:59
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2019 09:52

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW14-190506
Collection Date: 06-May-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-03
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	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW13-190506 Lab ID:HS19050374-04
Collection Date: 06-May-2019 11:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
1,1-Dichloroethene	**0.57**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 20:26
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,2-Dichloroethane	**1.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 20:26
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 20:26
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	14-May-2019 20:26
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	14-May-2019 20:26
Acetone	**6.9**		**0.40**	**1.0**	**2.0**	**UG/L**	1	14-May-2019 20:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	14-May-2019 20:26
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	14-May-2019 20:26
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW13-190506 Lab ID:HS19050374-04
Collection Date: 06-May-2019 11:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
cis-1,2-Dichloroethene	**12**		**0.20**	**0.50**	**1.0**	**UG/L**	1	14-May-2019 20:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	14-May-2019 20:26
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	14-May-2019 20:26
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	14-May-2019 20:26
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	14-May-2019 20:26
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	14-May-2019 20:26
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Trichloroethene	**250**		**1.0**	**2.5**	**5.0**	**UG/L**	5	16-May-2019 16:51
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	14-May-2019 20:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	14-May-2019 20:26
Surr: 1,2-Dichloroethane-d4	*87.3*			**0**	*81-118*	*%REC*	*1*	*14-May-2019 20:26*
Surr: 1,2-Dichloroethane-d4	*86.0*			**0**	*81-118*	*%REC*	*5*	*16-May-2019 16:51*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*1*	*14-May-2019 20:26*
Surr: 4-Bromofluorobenzene	*97.6*			**0**	*85-114*	*%REC*	*5*	*16-May-2019 16:51*
Surr: Dibromofluoromethane	*88.8*			**0**	*80-119*	*%REC*	*1*	*14-May-2019 20:26*
Surr: Dibromofluoromethane	*87.7*			**0**	*80-119*	*%REC*	*5*	*16-May-2019 16:51*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*14-May-2019 20:26*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*16-May-2019 16:51*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**379**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 11:33
Nitrogen, Nitrate (As N)	**1.27**	H	**0.300**	**1.00**	**1.00**	**mg/L**	10	08-May-2019 11:33
Sulfate	**332**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 11:33

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW13-190506
Collection Date: 06-May-2019 11:20

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2019 09:52
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW22-190506
Collection Date: 06-May-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-05
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	16-May-2019 19:17
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
1,1,2-Trichlor-1,2,2-trifluoroethane	**1.9**		**0.50**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 19:17
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 19:17
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 19:17
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 19:17
Acetone	**3.2**		**0.40**	**1.0**	**2.0**	**UG/L**	1	16-May-2019 19:17
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 19:17
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:17
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW22-190506 Lab ID:HS19050374-05
Collection Date: 06-May-2019 12:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 19:17
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 19:17
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 19:17
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 19:17
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:17
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:17
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:17
Surr: 1,2-Dichloroethane-d4	*87.7*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 19:17*
Surr: 4-Bromofluorobenzene	*98.3*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 19:17*
Surr: Dibromofluoromethane	*89.1*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 19:17*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 19:17*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**795**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 11:48
Nitrogen, Nitrate (As N)	1.00	U	0.300	1.00	1.00	mg/L	10	08-May-2019 11:48
Sulfate	**609**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 11:48
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW22-190506
Collection Date: 06-May-2019 12:20

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-05
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	21-May-2019 09:52
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: 50WW16-190506 Lab ID:HS19050374-06
Collection Date: 06-May-2019 13:20 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 19:41
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 19:41
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 19:41
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 19:41
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 19:41
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 19:41
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW16-190506
Collection Date: 06-May-2019 13:20

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 19:41
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 19:41
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 19:41
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 19:41
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 19:41
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Trichloroethene	**0.61**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 19:41
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 19:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 19:41
Surr: 1,2-Dichloroethane-d4	*85.6*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 19:41*
Surr: 4-Bromofluorobenzene	*99.3*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 19:41*
Surr: Dibromofluoromethane	*87.1*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 19:41*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 19:41*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	0.500	U	0.200	0.500	0.500	mg/L	1	08-May-2019 12:03
Nitrogen, Nitrate (As N)	0.100	U	0.0300	0.100	0.100	mg/L	1	08-May-2019 12:03
Sulfate	**19.2**		**0.200**	**0.500**	**0.500**	**mg/L**	1	08-May-2019 12:03
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	17-May-2019 09:27
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	21-May-2019 09:52

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW16-190506
Collection Date: 06-May-2019 13:20

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-06
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	14-May-2019 18:59

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: Trip Blank
Collection Date: 06-May-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19050374
Lab ID:HS19050374-07
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 13:36
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 13:36
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 13:36
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 13:36
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 13:36
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:36
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050374
Sample ID: Trip Blank Lab ID:HS19050374-07
Collection Date: 06-May-2019 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 13:36
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 13:36
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 13:36
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 13:36
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:36
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:36
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:36
Surr: 1,2-Dichloroethane-d4	*86.7*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 13:36*
Surr: 4-Bromofluorobenzene	*99.9*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 13:36*
Surr: Dibromofluoromethane	*87.8*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 13:36*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 13:36*

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

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R338208	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19050374-01	50WW06-190506	06 May 2019 08:25			08 May 2019 15:00	5
HS19050374-02	50WW11-190506	06 May 2019 09:25			08 May 2019 15:14	10
HS19050374-03	50WW14-190506	06 May 2019 10:25			09 May 2019 14:57	10
HS19050374-03	50WW14-190506	06 May 2019 10:25			08 May 2019 15:59	5
HS19050374-04	50WW13-190506	06 May 2019 11:20			08 May 2019 11:33	10
HS19050374-05	50WW22-190506	06 May 2019 12:20			08 May 2019 11:48	10
HS19050374-06	50WW16-190506	06 May 2019 13:20			08 May 2019 12:03	1
Batch ID R338415	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19050374-01	50WW06-190506	06 May 2019 08:25			14 May 2019 18:59	1
HS19050374-02	50WW11-190506	06 May 2019 09:25			14 May 2019 18:59	1
HS19050374-03	50WW14-190506	06 May 2019 10:25			14 May 2019 18:59	1
HS19050374-04	50WW13-190506	06 May 2019 11:20			14 May 2019 18:59	1
HS19050374-05	50WW22-190506	06 May 2019 12:20			14 May 2019 18:59	1
HS19050374-06	50WW16-190506	06 May 2019 13:20			14 May 2019 18:59	1
Batch ID R338430	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19050374-01	50WW06-190506	06 May 2019 08:25			14 May 2019 19:14	1
HS19050374-02	50WW11-190506	06 May 2019 09:25			14 May 2019 19:38	1
HS19050374-03	50WW14-190506	06 May 2019 10:25			14 May 2019 20:02	1
HS19050374-04	50WW13-190506	06 May 2019 11:20			14 May 2019 20:26	1
Batch ID R338458	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19050374-01	50WW06-190506	06 May 2019 08:25			14 May 2019 13:22	1
Batch ID R338572	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19050374-07	Trip Blank	06 May 2019 00:00			16 May 2019 13:36	1
Batch ID R338572	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19050374-04	50WW13-190506	06 May 2019 11:20			16 May 2019 16:51	5
HS19050374-05	50WW22-190506	06 May 2019 12:20			16 May 2019 19:17	1
HS19050374-06	50WW16-190506	06 May 2019 13:20			16 May 2019 19:41	1
Batch ID R338598	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19050374-01	50WW06-190506	06 May 2019 08:25			17 May 2019 09:27	1
HS19050374-02	50WW11-190506	06 May 2019 09:25			17 May 2019 09:27	1
HS19050374-03	50WW14-190506	06 May 2019 10:25			17 May 2019 09:27	1
HS19050374-04	50WW13-190506	06 May 2019 11:20			17 May 2019 09:27	1
HS19050374-05	50WW22-190506	06 May 2019 12:20			17 May 2019 09:27	1
HS19050374-06	50WW16-190506	06 May 2019 13:20			17 May 2019 09:27	1

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R338779	**Test Name :** SUBCONTRACT ANALYSIS - RSK			**Matrix:** Groundwater		
HS19050374-01	50WW06-190506	06 May 2019 08:25			21 May 2019 09:52	1
HS19050374-02	50WW11-190506	06 May 2019 09:25			21 May 2019 09:52	1
HS19050374-03	50WW14-190506	06 May 2019 10:25			21 May 2019 09:52	1
HS19050374-04	50WW13-190506	06 May 2019 11:20			21 May 2019 09:52	1
HS19050374-05	50WW22-190506	06 May 2019 12:20			21 May 2019 09:52	1
HS19050374-06	50WW16-190506	06 May 2019 13:20			21 May 2019 09:52	1

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190514** Units: **UG/L** Analysis Date: **14-May-2019 11:37**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075195** PrepDate: DF: **1**

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190514** Units: **UG/L** Analysis Date: **14-May-2019 11:37**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075195** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	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	*42.59*	*1.0*	*50*	*0*	*85.2*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.97*	*1.0*	*50*	*0*	*97.9*	*85 - 114*				
Surr: Dibromofluoromethane	*43.89*	*1.0*	*50*	*0*	*87.8*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190514** Units: **UG/L** Analysis Date: **14-May-2019 11:37**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075195** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.89*	*1.0*	*50*	*0*	*106*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190514** Units: **UG/L** Analysis Date: **14-May-2019 10:49**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075194** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.65	1.0	20	0	98.3	78 - 124				
1,1,1-Trichloroethane	19.21	1.0	20	0	96.0	74 - 131				
1,1,2,2-Tetrachloroethane	19.94	1.0	20	0	99.7	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	20.17	1.0	20	0	101	70 - 136				
1,1,2-Trichloroethane	19.79	1.0	20	0	98.9	80 - 119				
1,1-Dichloroethane	19.1	1.0	20	0	95.5	77 - 125				
1,1-Dichloroethene	19.64	1.0	20	0	98.2	71 - 131				
1,1-Dichloropropene	19.1	1.0	20	0	95.5	78 - 125				
1,2,3-Trichlorobenzene	22.8	1.0	20	0	114	69 - 129				
1,2,3-Trichloropropane	19.99	1.0	20	0	99.9	73 - 122				
1,2,4-Trichlorobenzene	20.95	1.0	20	0	105	69 - 130				
1,2,4-Trimethylbenzene	19.27	1.0	20	0	96.3	76 - 124				
1,2-Dibromo-3-chloropropane	20.82	1.0	20	0	104	62 - 128				
1,2-Dibromoethane	19.76	1.0	20	0	98.8	77 - 121				
1,2-Dichlorobenzene	19.39	1.0	20	0	96.9	80 - 119				
1,2-Dichloroethane	19.2	1.0	20	0	96.0	73 - 128				
1,2-Dichloropropane	20.1	1.0	20	0	100	78 - 122				
1,3,5-Trimethylbenzene	19.23	1.0	20	0	96.2	75 - 124				
1,3-Dichlorobenzene	19.33	1.0	20	0	96.7	80 - 119				
1,3-Dichloropropane	19.66	1.0	20	0	98.3	80 - 119				
1,4-Dichlorobenzene	19.64	1.0	20	0	98.2	79 - 118				
2,2-Dichloropropane	19.71	1.0	20	0	98.6	60 - 139				
2-Butanone	41.52	2.0	40	0	104	56 - 143				
2-Chlorotoluene	18.51	1.0	20	0	92.5	79 - 122				
2-Hexanone	40.58	2.0	40	0	101	57 - 139				
4-Chlorotoluene	18.69	1.0	20	0	93.4	78 - 122				
4-Isopropyltoluene	18.93	1.0	20	0	94.6	77 - 127				
4-Methyl-2-pentanone	39.72	2.0	40	0	99.3	67 - 130				
Acetone	44.55	2.0	40	0	111	39 - 160				
Benzene	19.69	1.0	20	0	98.4	79 - 120				
Bromobenzene	19.68	1.0	20	0	98.4	80 - 120				
Bromochloromethane	19.96	1.0	20	0	99.8	78 - 123				
Bromodichloromethane	20.01	1.0	20	0	100	79 - 125				
Bromoform	21	1.0	20	0	105	66 - 130				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190514** Units: **UG/L** Analysis Date: **14-May-2019 10:49**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075194** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	22.76	1.0	20	0	114	53 - 141				
Carbon disulfide	39.51	2.0	40	0	98.8	64 - 133				
Carbon tetrachloride	18.82	1.0	20	0	94.1	72 - 136				
Chlorobenzene	19.91	1.0	20	0	99.5	82 - 118				
Chloroethane	18.27	1.0	20	0	91.3	60 - 138				
Chloroform	19.45	1.0	20	0	97.2	79 - 124				
Chloromethane	18.59	1.0	20	0	93.0	50 - 139				
cis-1,2-Dichloroethene	19.06	1.0	20	0	95.3	78 - 123				
cis-1,3-Dichloropropene	20.18	1.0	20	0	101	75 - 124				
Dibromochloromethane	19.83	1.0	20	0	99.2	74 - 126				
Dibromomethane	20.15	1.0	20	0	101	79 - 123				
Dichlorodifluoromethane	21.17	1.0	20	0	106	32 - 152				
Ethylbenzene	19.47	1.0	20	0	97.3	79 - 121				
Hexachlorobutadiene	20.77	1.0	20	0	104	66 - 134				
Isopropylbenzene	19.15	1.0	20	0	95.7	72 - 131				
m,p-Xylene	38.81	2.0	40	0	97.0	80 - 121				
Methylene chloride	20.12	2.0	20	0	101	74 - 124				
Naphthalene	20.78	1.0	20	0	104	61 - 128				
n-Butylbenzene	19.23	1.0	20	0	96.1	75 - 128				
n-Propylbenzene	18.85	1.0	20	0	94.2	76 - 126				
o-Xylene	19.46	1.0	20	0	97.3	78 - 122				
sec-Butylbenzene	18.62	1.0	20	0	93.1	77 - 126				
Styrene	20.18	1.0	20	0	101	78 - 123				
tert-Butylbenzene	18.7	1.0	20	0	93.5	78 - 124				
Tetrachloroethene	19.22	1.0	20	0	96.1	74 - 129				
Toluene	19.42	1.0	20	0	97.1	80 - 121				
trans-1,2-Dichloroethene	19.89	1.0	20	0	99.5	75 - 124				
trans-1,3-Dichloropropene	20.67	1.0	20	0	103	73 - 127				
Trichloroethene	19.92	1.0	20	0	99.6	79 - 123				
Trichlorofluoromethane	19.39	1.0	20	0	96.9	65 - 141				
Vinyl chloride	19.64	1.0	20	0	98.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*49.83*	*1.0*	*50*	*0*	*99.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.82*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*48.75*	*1.0*	*50*	*0*	*97.5*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190514** Units: **UG/L** Analysis Date: **14-May-2019 10:49**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075194** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.69*	*1.0*	*50*	*0*	*97.4*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050304-05MS** Units: **UG/L** Analysis Date: **14-May-2019 14:26**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075202** 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	17.96	1.0	20	0	89.8	78 - 124				
1,1,1-Trichloroethane	17.27	1.0	20	0	86.4	74 - 131				
1,1,2,2-Tetrachloroethane	19.07	1.0	20	0	95.4	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.02	1.0	20	0	95.1	70 - 136				
1,1,2-Trichloroethane	18.35	1.0	20	0	91.8	80 - 119				
1,1-Dichloroethane	16.46	1.0	20	0	82.3	77 - 125				
1,1-Dichloroethene	17.19	1.0	20	0	86.0	71 - 131				
1,1-Dichloropropene	18.19	1.0	20	0	91.0	78 - 125				
1,2,3-Trichlorobenzene	21.91	1.0	20	0	110	69 - 129				
1,2,3-Trichloropropane	18.51	1.0	20	0	92.6	73 - 122				
1,2,4-Trichlorobenzene	20.05	1.0	20	0	100	69 - 130				
1,2,4-Trimethylbenzene	17.85	1.0	20	0	89.3	76 - 124				
1,2-Dibromo-3-chloropropane	20.62	1.0	20	0	103	62 - 128				
1,2-Dibromoethane	18.37	1.0	20	0	91.9	77 - 121				
1,2-Dichlorobenzene	18.43	1.0	20	0	92.2	80 - 119				
1,2-Dichloroethane	16.81	1.0	20	0	84.1	73 - 128				
1,2-Dichloropropane	17.63	1.0	20	0	88.2	78 - 122				
1,3,5-Trimethylbenzene	18.57	1.0	20	0	92.8	75 - 124				
1,3-Dichlorobenzene	18.44	1.0	20	0	92.2	80 - 119				
1,3-Dichloropropane	18.25	1.0	20	0	91.3	80 - 119				
1,4-Dichlorobenzene	18.41	1.0	20	0	92.1	79 - 118				
2,2-Dichloropropane	17.18	1.0	20	0	85.9	60 - 139				
2-Butanone	36.74	2.0	40	0	91.9	56 - 143				
2-Chlorotoluene	18.14	1.0	20	0	90.7	79 - 122				
2-Hexanone	36.41	2.0	40	0	91.0	57 - 139				
4-Chlorotoluene	18.02	1.0	20	0	90.1	78 - 122				
4-Isopropyltoluene	19.4	1.0	20	0	97.0	77 - 127				
4-Methyl-2-pentanone	37.53	2.0	40	0	93.8	67 - 130				
Acetone	41.3	2.0	40	5.033	90.7	39 - 160				
Benzene	17.22	1.0	20	0	86.1	79 - 120				
Bromobenzene	17.54	1.0	20	0	87.7	80 - 120				
Bromochloromethane	16.53	1.0	20	0	82.6	78 - 123				
Bromodichloromethane	17.16	1.0	20	0	85.8	79 - 125				
Bromoform	18.69	1.0	20	0	93.5	66 - 130				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050304-05MS** Units: **UG/L** Analysis Date: **14-May-2019 14:26**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075202** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	14.83	1.0	20	0	74.1	53 - 141				
Carbon disulfide	34.64	2.0	40	0	86.6	64 - 133				
Carbon tetrachloride	17.45	1.0	20	0	87.2	72 - 136				
Chlorobenzene	18.68	1.0	20	0	93.4	82 - 118				
Chloroethane	16.04	1.0	20	0	80.2	60 - 138				
Chloroform	16.36	1.0	20	0	81.8	79 - 124				
Chloromethane	14.06	1.0	20	0	70.3	50 - 139				
cis-1,2-Dichloroethene	16.27	1.0	20	0	81.4	78 - 123				
cis-1,3-Dichloropropene	18.73	1.0	20	0	93.7	75 - 124				
Dibromochloromethane	18.41	1.0	20	0	92.0	74 - 126				
Dibromomethane	17.7	1.0	20	0	88.5	79 - 123				
Dichlorodifluoromethane	15.98	1.0	20	0	79.9	32 - 152				
Ethylbenzene	18.41	1.0	20	0	92.1	79 - 121				
Hexachlorobutadiene	21.25	1.0	20	0	106	66 - 134				
Isopropylbenzene	18.73	1.0	20	0	93.7	72 - 131				
m,p-Xylene	37.34	2.0	40	0	93.4	80 - 121				
Methylene chloride	16.74	2.0	20	0	83.7	74 - 124				
Naphthalene	20.25	1.0	20	0	101	61 - 128				
n-Butylbenzene	19.47	1.0	20	0	97.4	75 - 128				
n-Propylbenzene	19.15	1.0	20	0	95.8	76 - 126				
o-Xylene	19.15	1.0	20	0	95.7	78 - 122				
sec-Butylbenzene	19.76	1.0	20	0	98.8	77 - 126				
Styrene	18.13	1.0	20	0	90.7	78 - 123				
tert-Butylbenzene	19.35	1.0	20	0	96.8	78 - 124				
Tetrachloroethene	18.9	1.0	20	0	94.5	74 - 129				
Toluene	18.38	1.0	20	0	91.9	80 - 121				
trans-1,2-Dichloroethene	17.28	1.0	20	0	86.4	75 - 124				
trans-1,3-Dichloropropene	17.81	1.0	20	0	89.1	73 - 127				
Trichloroethene	18.37	1.0	20	0	91.9	79 - 123				
Trichlorofluoromethane	16.85	1.0	20	0	84.3	65 - 141				
Vinyl chloride	17.11	1.0	20	0	85.5	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.63*	*1.0*	*50*	*0*	*87.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.27*	*1.0*	*50*	*0*	*101*	*85 - 114*				
Surr: Dibromofluoromethane	*45.19*	*1.0*	*50*	*0*	*90.4*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050304-05MS** Units: **UG/L** Analysis Date: **14-May-2019 14:26**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075202** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050304-05MSD** Units: **UG/L** Analysis Date: **14-May-2019 14:50**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	18.05	1.0	20	0	90.3	78 - 124	17.96	0.499	20	
1,1,1-Trichloroethane	16.75	1.0	20	0	83.7	74 - 131	17.27	3.11	20	
1,1,2,2-Tetrachloroethane	20.62	1.0	20	0	103	71 - 121	19.07	7.82	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	18.76	1.0	20	0	93.8	70 - 136	19.02	1.38	20	
1,1,2-Trichloroethane	18.77	1.0	20	0	93.9	80 - 119	18.35	2.27	20	
1,1-Dichloroethane	15.96	1.0	20	0	79.8	77 - 125	16.46	3.1	20	
1,1-Dichloroethene	16.38	1.0	20	0	81.9	71 - 131	17.19	4.84	20	
1,1-Dichloropropene	17.86	1.0	20	0	89.3	78 - 125	18.19	1.86	20	
1,2,3-Trichlorobenzene	24.61	1.0	20	0	123	69 - 129	21.91	11.6	20	
1,2,3-Trichloropropane	20.12	1.0	20	0	101	73 - 122	18.51	8.29	20	
1,2,4-Trichlorobenzene	21.58	1.0	20	0	108	69 - 130	20.05	7.37	20	
1,2,4-Trimethylbenzene	19.04	1.0	20	0	95.2	76 - 124	17.85	6.43	20	
1,2-Dibromo-3-chloropropane	23.37	1.0	20	0	117	62 - 128	20.62	12.5	20	
1,2-Dibromoethane	18.7	1.0	20	0	93.5	77 - 121	18.37	1.8	20	
1,2-Dichlorobenzene	20.02	1.0	20	0	100	80 - 119	18.43	8.27	20	
1,2-Dichloroethane	16.81	1.0	20	0	84.1	73 - 128	16.81	0.00614	20	
1,2-Dichloropropane	17.42	1.0	20	0	87.1	78 - 122	17.63	1.19	20	
1,3,5-Trimethylbenzene	19.67	1.0	20	0	98.3	75 - 124	18.57	5.76	20	
1,3-Dichlorobenzene	19.64	1.0	20	0	98.2	80 - 119	18.44	6.33	20	
1,3-Dichloropropane	18.61	1.0	20	0	93.0	80 - 119	18.25	1.94	20	
1,4-Dichlorobenzene	19.37	1.0	20	0	96.8	79 - 118	18.41	5.05	20	
2,2-Dichloropropane	16.54	1.0	20	0	82.7	60 - 139	17.18	3.8	20	
2-Butanone	36.99	2.0	40	0	92.5	56 - 143	36.74	0.672	20	
2-Chlorotoluene	19.27	1.0	20	0	96.3	79 - 122	18.14	6	20	
2-Hexanone	38.67	2.0	40	0	96.7	57 - 139	36.41	6.02	20	
4-Chlorotoluene	19.19	1.0	20	0	96.0	78 - 122	18.02	6.3	20	
4-Isopropyltoluene	20.54	1.0	20	0	103	77 - 127	19.4	5.71	20	
4-Methyl-2-pentanone	38.72	2.0	40	0	96.8	67 - 130	37.53	3.12	20	
Acetone	42.23	2.0	40	5.033	93.0	39 - 160	41.3	2.22	20	
Benzene	17.15	1.0	20	0	85.7	79 - 120	17.22	0.446	20	
Bromobenzene	18.86	1.0	20	0	94.3	80 - 120	17.54	7.22	20	
Bromochloromethane	15.89	1.0	20	0	79.5	78 - 123	16.53	3.91	20	
Bromodichloromethane	16.76	1.0	20	0	83.8	79 - 125	17.16	2.31	20	
Bromoform	19.5	1.0	20	0	97.5	66 - 130	18.69	4.22	20	

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050304-05MSD** Units: **UG/L** Analysis Date: **14-May-2019 14:50**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	14.44	1.0	20	0	72.2	53 - 141	14.83	2.67	20	
Carbon disulfide	33.71	2.0	40	0	84.3	64 - 133	34.64	2.72	20	
Carbon tetrachloride	17.32	1.0	20	0	86.6	72 - 136	17.45	0.729	20	
Chlorobenzene	18.86	1.0	20	0	94.3	82 - 118	18.68	0.95	20	
Chloroethane	15.18	1.0	20	0	75.9	60 - 138	16.04	5.54	20	
Chloroform	15.86	1.0	20	0	79.3	79 - 124	16.36	3.15	20	
Chloromethane	13.31	1.0	20	0	66.6	50 - 139	14.06	5.44	20	
cis-1,2-Dichloroethene	15.91	1.0	20	0	79.6	78 - 123	16.27	2.26	20	
cis-1,3-Dichloropropene	18.59	1.0	20	0	92.9	75 - 124	18.73	0.759	20	
Dibromochloromethane	18.51	1.0	20	0	92.5	74 - 126	18.41	0.558	20	
Dibromomethane	17.47	1.0	20	0	87.4	79 - 123	17.7	1.28	20	
Dichlorodifluoromethane	15.52	1.0	20	0	77.6	32 - 152	15.98	2.93	20	
Ethylbenzene	18.16	1.0	20	0	90.8	79 - 121	18.41	1.34	20	
Hexachlorobutadiene	21.15	1.0	20	0	106	66 - 134	21.25	0.477	20	
Isopropylbenzene	19.08	1.0	20	0	95.4	72 - 131	18.73	1.81	20	
m,p-Xylene	37.75	2.0	40	0	94.4	80 - 121	37.34	1.1	20	
Methylene chloride	16.03	2.0	20	0	80.1	74 - 124	16.74	4.31	20	
Naphthalene	22.61	1.0	20	0	113	61 - 128	20.25	11	20	
n-Butylbenzene	20.47	1.0	20	0	102	75 - 128	19.47	5.02	20	
n-Propylbenzene	20.31	1.0	20	0	102	76 - 126	19.15	5.87	20	
o-Xylene	19.03	1.0	20	0	95.1	78 - 122	19.15	0.637	20	
sec-Butylbenzene	20.71	1.0	20	0	104	77 - 126	19.76	4.7	20	
Styrene	17.96	1.0	20	0	89.8	78 - 123	18.13	0.935	20	
tert-Butylbenzene	20.46	1.0	20	0	102	78 - 124	19.35	5.56	20	
Tetrachloroethene	19.07	1.0	20	0	95.4	74 - 129	18.9	0.914	20	
Toluene	18.07	1.0	20	0	90.4	80 - 121	18.38	1.68	20	
trans-1,2-Dichloroethene	17.11	1.0	20	0	85.5	75 - 124	17.28	0.993	20	
trans-1,3-Dichloropropene	17.87	1.0	20	0	89.3	73 - 127	17.81	0.302	20	
Trichloroethene	17.81	1.0	20	0	89.1	79 - 123	18.37	3.1	20	
Trichlorofluoromethane	16.6	1.0	20	0	83.0	65 - 141	16.85	1.52	20	
Vinyl chloride	16.44	1.0	20	0	82.2	58 - 137	17.11	3.99	20	
Surr: 1,2-Dichloroethane-d4	*43.69*	*1.0*	*50*	*0*	*87.4*	*81 - 118*	*43.63*	*0.13*	*20*	
Surr: 4-Bromofluorobenzene	*49.42*	*1.0*	*50*	*0*	*98.8*	*85 - 114*	*50.27*	*1.71*	*20*	
Surr: Dibromofluoromethane	*44.57*	*1.0*	*50*	*0*	*89.1*	*80 - 119*	*45.19*	*1.39*	*20*	

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338430 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050304-05MSD** Units: **UG/L** Analysis Date: **14-May-2019 14:50**
Client ID: Run ID: **VOA6_338430** SeqNo: **5075203** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.58*	*1.0*	*50*	*0*	*105*	*89 - 112*	*52*	*1.12*	*20*	

The following samples were analyzed in this batch: HS19050374-01 HS19050374-02 HS19050374-03 HS19050374-04

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

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

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	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	*42.73*	*1.0*	*50*	*0*	*85.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.78*	*1.0*	*50*	*0*	*97.6*	*85 - 114*				
Surr: Dibromofluoromethane	*44.41*	*1.0*	*50*	*0*	*88.8*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.44*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.33	1.0	20	0	96.7	78 - 124				
1,1,1-Trichloroethane	18.05	1.0	20	0	90.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.82	1.0	20	0	99.1	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.93	1.0	20	0	89.6	70 - 136				
1,1,2-Trichloroethane	20.5	1.0	20	0	103	80 - 119				
1,1-Dichloroethane	18.89	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	18.07	1.0	20	0	90.3	71 - 131				
1,1-Dichloropropene	17.64	1.0	20	0	88.2	78 - 125				
1,2,3-Trichlorobenzene	23.48	1.0	20	0	117	69 - 129				
1,2,3-Trichloropropane	20.08	1.0	20	0	100	73 - 122				
1,2,4-Trichlorobenzene	21.68	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	19.71	1.0	20	0	98.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.96	1.0	20	0	105	62 - 128				
1,2-Dibromoethane	20.19	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	19.69	1.0	20	0	98.5	80 - 119				
1,2-Dichloroethane	19.31	1.0	20	0	96.5	73 - 128				
1,2-Dichloropropane	20.22	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	19.54	1.0	20	0	97.7	75 - 124				
1,3-Dichlorobenzene	19.74	1.0	20	0	98.7	80 - 119				
1,3-Dichloropropane	19.97	1.0	20	0	99.8	80 - 119				
1,4-Dichlorobenzene	19.78	1.0	20	0	98.9	79 - 118				
2,2-Dichloropropane	18.64	1.0	20	0	93.2	60 - 139				
2-Butanone	41.27	2.0	40	0	103	56 - 143				
2-Chlorotoluene	19.11	1.0	20	0	95.5	79 - 122				
2-Hexanone	40.32	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.18	1.0	20	0	95.9	78 - 122				
4-Isopropyltoluene	19.2	1.0	20	0	96.0	77 - 127				
4-Methyl-2-pentanone	40.53	2.0	40	0	101	67 - 130				
Acetone	41.09	2.0	40	0	103	39 - 160				
Benzene	19.55	1.0	20	0	97.7	79 - 120				
Bromobenzene	19.41	1.0	20	0	97.0	80 - 120				
Bromochloromethane	20.26	1.0	20	0	101	78 - 123				
Bromodichloromethane	19.73	1.0	20	0	98.6	79 - 125				
Bromoform	20.84	1.0	20	0	104	66 - 130				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.06	1.0	20	0	105	53 - 141				
Carbon disulfide	37.69	2.0	40	0	94.2	64 - 133				
Carbon tetrachloride	17.42	1.0	20	0	87.1	72 - 136				
Chlorobenzene	20.11	1.0	20	0	101	82 - 118				
Chloroethane	17.45	1.0	20	0	87.3	60 - 138				
Chloroform	19.05	1.0	20	0	95.3	79 - 124				
Chloromethane	18.97	1.0	20	0	94.8	50 - 139				
cis-1,2-Dichloroethene	18.92	1.0	20	0	94.6	78 - 123				
cis-1,3-Dichloropropene	20.01	1.0	20	0	100	75 - 124				
Dibromochloromethane	19.68	1.0	20	0	98.4	74 - 126				
Dibromomethane	19.84	1.0	20	0	99.2	79 - 123				
Dichlorodifluoromethane	18.23	1.0	20	0	91.1	32 - 152				
Ethylbenzene	19.46	1.0	20	0	97.3	79 - 121				
Hexachlorobutadiene	20.24	1.0	20	0	101	66 - 134				
Isopropylbenzene	19.32	1.0	20	0	96.6	72 - 131				
m,p-Xylene	39.35	2.0	40	0	98.4	80 - 121				
Methylene chloride	19.41	2.0	20	0	97.1	74 - 124				
Naphthalene	21.31	1.0	20	0	107	61 - 128				
n-Butylbenzene	19.39	1.0	20	0	96.9	75 - 128				
n-Propylbenzene	18.95	1.0	20	0	94.8	76 - 126				
o-Xylene	19.92	1.0	20	0	99.6	78 - 122				
sec-Butylbenzene	18.5	1.0	20	0	92.5	77 - 126				
Styrene	20.13	1.0	20	0	101	78 - 123				
tert-Butylbenzene	18.87	1.0	20	0	94.3	78 - 124				
Tetrachloroethene	18.83	1.0	20	0	94.1	74 - 129				
Toluene	19.5	1.0	20	0	97.5	80 - 121				
trans-1,2-Dichloroethene	18.8	1.0	20	0	94.0	75 - 124				
trans-1,3-Dichloropropene	20.45	1.0	20	0	102	73 - 127				
Trichloroethene	19.34	1.0	20	0	96.7	79 - 123				
Trichlorofluoromethane	17.14	1.0	20	0	85.7	65 - 141				
Vinyl chloride	17.75	1.0	20	0	88.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.73*	*1.0*	*50*	*0*	*95.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.29*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*48.01*	*1.0*	*50*	*0*	*96.0*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.97*	*1.0*	*50*	*0*	*97.9*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078634** 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	17.38	1.0	20	0	86.9	78 - 124				
1,1,1-Trichloroethane	16.49	1.0	20	0	82.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.99	1.0	20	0	95.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.86	1.0	20	0	89.3	70 - 136				
1,1,2-Trichloroethane	17.76	1.0	20	0	88.8	80 - 119				
1,1-Dichloroethane	15.93	1.0	20	0	79.7	77 - 125				
1,1-Dichloroethene	16.11	1.0	20	0	80.5	71 - 131				
1,1-Dichloropropene	17.77	1.0	20	0	88.9	78 - 125				
1,2,3-Trichlorobenzene	22.58	1.0	20	0	113	69 - 129				
1,2,3-Trichloropropane	18.51	1.0	20	0	92.6	73 - 122				
1,2,4-Trichlorobenzene	20.3	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	17.85	1.0	20	0	89.3	76 - 124				
1,2-Dibromo-3-chloropropane	22.14	1.0	20	0	111	62 - 128				
1,2-Dibromoethane	17.52	1.0	20	0	87.6	77 - 121				
1,2-Dichlorobenzene	18.38	1.0	20	0	91.9	80 - 119				
1,2-Dichloroethane	16.38	1.0	20	0	81.9	73 - 128				
1,2-Dichloropropane	17.46	1.0	20	0	87.3	78 - 122				
1,3,5-Trimethylbenzene	18.5	1.0	20	0	92.5	75 - 124				
1,3-Dichlorobenzene	18.16	1.0	20	0	90.8	80 - 119				
1,3-Dichloropropane	17.54	1.0	20	0	87.7	80 - 119				
1,4-Dichlorobenzene	18.11	1.0	20	0	90.6	79 - 118				
2,2-Dichloropropane	16.08	1.0	20	0	80.4	60 - 139				
2-Butanone	38.78	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	18.2	1.0	20	0	91.0	79 - 122				
2-Hexanone	36.29	2.0	40	0	90.7	57 - 139				
4-Chlorotoluene	17.92	1.0	20	0	89.6	78 - 122				
4-Isopropyltoluene	19.44	1.0	20	0	97.2	77 - 127				
4-Methyl-2-pentanone	36.07	2.0	40	0	90.2	67 - 130				
Acetone	33.68	2.0	40	0	84.2	39 - 160				
Benzene	16.85	1.0	20	0	84.3	79 - 120				
Bromobenzene	17.22	1.0	20	0	86.1	80 - 120				
Bromochloromethane	16.06	1.0	20	0	80.3	78 - 123				
Bromodichloromethane	16.52	1.0	20	0	82.6	79 - 125				
Bromoform	18.18	1.0	20	0	90.9	66 - 130				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078634** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	14.08	1.0	20	0	70.4	53 - 141				
Carbon disulfide	33.58	2.0	40	0	83.9	64 - 133				
Carbon tetrachloride	16.59	1.0	20	0	82.9	72 - 136				
Chlorobenzene	17.79	1.0	20	0	88.9	82 - 118				
Chloroethane	15.6	1.0	20	0	78.0	60 - 138				
Chloroform	15.69	1.0	20	0	78.4	79 - 124				S
Chloromethane	15.75	1.0	20	0	78.7	50 - 139				
cis-1,2-Dichloroethene	15.73	1.0	20	0	78.7	78 - 123				
cis-1,3-Dichloropropene	17.73	1.0	20	0	88.6	75 - 124				
Dibromochloromethane	17.28	1.0	20	0	86.4	74 - 126				
Dibromomethane	16.98	1.0	20	0	84.9	79 - 123				
Dichlorodifluoromethane	14.43	1.0	20	0	72.2	32 - 152				
Ethylbenzene	17.69	1.0	20	0	88.5	79 - 121				
Hexachlorobutadiene	19.99	1.0	20	0	100.0	66 - 134				
Isopropylbenzene	18.04	1.0	20	0	90.2	72 - 131				
m,p-Xylene	36.03	2.0	40	0	90.1	80 - 121				
Methylene chloride	16.26	2.0	20	0	81.3	74 - 124				
Naphthalene	20.54	1.0	20	0	103	61 - 128				
n-Butylbenzene	19.17	1.0	20	0	95.8	75 - 128				
n-Propylbenzene	19.21	1.0	20	0	96.0	76 - 126				
o-Xylene	18.2	1.0	20	0	91.0	78 - 122				
sec-Butylbenzene	19.72	1.0	20	0	98.6	77 - 126				
Styrene	17.21	1.0	20	0	86.0	78 - 123				
tert-Butylbenzene	19.17	1.0	20	0	95.9	78 - 124				
Tetrachloroethene	18.43	1.0	20	0	92.1	74 - 129				
Toluene	17.53	1.0	20	0	87.7	80 - 121				
trans-1,2-Dichloroethene	16.62	1.0	20	0	83.1	75 - 124				
trans-1,3-Dichloropropene	16.93	1.0	20	0	84.6	73 - 127				
Trichloroethene	18.38	1.0	20	0	91.9	79 - 123				
Trichlorofluoromethane	16.18	1.0	20	0	80.9	65 - 141				
Vinyl chloride	16.52	1.0	20	0	82.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.54*	*1.0*	*50*	*0*	*89.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.21*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*44.89*	*1.0*	*50*	*0*	*89.8*	*80 - 119*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078634** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.77*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.04	1.0	20	0	85.2	78 - 124	17.38	1.98	20	
1,1,1-Trichloroethane	16.02	1.0	20	0	80.1	74 - 131	16.49	2.89	20	
1,1,2,2-Tetrachloroethane	18.99	1.0	20	0	94.9	71 - 121	18.99	0.0336	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.54	1.0	20	0	87.7	70 - 136	17.86	1.81	20	
1,1,2-Trichloroethane	17.88	1.0	20	0	89.4	80 - 119	17.76	0.703	20	
1,1-Dichloroethane	15.32	1.0	20	0	76.6	77 - 125	15.93	3.92	20	S
1,1-Dichloroethene	15.48	1.0	20	0	77.4	71 - 131	16.11	3.97	20	
1,1-Dichloropropene	17.1	1.0	20	0	85.5	78 - 125	17.77	3.87	20	
1,2,3-Trichlorobenzene	23.43	1.0	20	0	117	69 - 129	22.58	3.69	20	
1,2,3-Trichloropropane	18.17	1.0	20	0	90.8	73 - 122	18.51	1.89	20	
1,2,4-Trichlorobenzene	20.43	1.0	20	0	102	69 - 130	20.3	0.654	20	
1,2,4-Trimethylbenzene	17.22	1.0	20	0	86.1	76 - 124	17.85	3.59	20	
1,2-Dibromo-3-chloropropane	21.29	1.0	20	0	106	62 - 128	22.14	3.88	20	
1,2-Dibromoethane	17.4	1.0	20	0	87.0	77 - 121	17.52	0.69	20	
1,2-Dichlorobenzene	17.92	1.0	20	0	89.6	80 - 119	18.38	2.51	20	
1,2-Dichloroethane	16.21	1.0	20	0	81.0	73 - 128	16.38	1.08	20	
1,2-Dichloropropane	16.35	1.0	20	0	81.8	78 - 122	17.46	6.57	20	
1,3,5-Trimethylbenzene	17.62	1.0	20	0	88.1	75 - 124	18.5	4.88	20	
1,3-Dichlorobenzene	17.68	1.0	20	0	88.4	80 - 119	18.16	2.67	20	
1,3-Dichloropropane	17.29	1.0	20	0	86.4	80 - 119	17.54	1.43	20	
1,4-Dichlorobenzene	17.7	1.0	20	0	88.5	79 - 118	18.11	2.29	20	
2,2-Dichloropropane	15.19	1.0	20	0	76.0	60 - 139	16.08	5.67	20	
2-Butanone	36.7	2.0	40	0	91.8	56 - 143	38.78	5.51	20	
2-Chlorotoluene	17.16	1.0	20	0	85.8	79 - 122	18.2	5.89	20	
2-Hexanone	36.87	2.0	40	0	92.2	57 - 139	36.29	1.6	20	
4-Chlorotoluene	17.16	1.0	20	0	85.8	78 - 122	17.92	4.38	20	
4-Isopropyltoluene	18.45	1.0	20	0	92.2	77 - 127	19.44	5.27	20	
4-Methyl-2-pentanone	36.18	2.0	40	0	90.5	67 - 130	36.07	0.302	20	
Acetone	33.39	2.0	40	0	83.5	39 - 160	33.68	0.868	20	
Benzene	16.25	1.0	20	0	81.2	79 - 120	16.85	3.66	20	
Bromobenzene	16.84	1.0	20	0	84.2	80 - 120	17.22	2.23	20	
Bromochloromethane	15.27	1.0	20	0	76.4	78 - 123	16.06	5.06	20	S
Bromodichloromethane	16.16	1.0	20	0	80.8	79 - 125	16.52	2.18	20	
Bromoform	18.11	1.0	20	0	90.5	66 - 130	18.18	0.379	20	

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	12.97	1.0	20	0	64.9	53 - 141	14.08	8.21	20	
Carbon disulfide	32.28	2.0	40	0	80.7	64 - 133	33.58	3.94	20	
Carbon tetrachloride	15.94	1.0	20	0	79.7	72 - 136	16.59	3.95	20	
Chlorobenzene	17.34	1.0	20	0	86.7	82 - 118	17.79	2.53	20	
Chloroethane	14.74	1.0	20	0	73.7	60 - 138	15.6	5.62	20	
Chloroform	15.35	1.0	20	0	76.8	79 - 124	15.69	2.14	20	S
Chloromethane	14.33	1.0	20	0	71.6	50 - 139	15.75	9.46	20	
cis-1,2-Dichloroethene	15.32	1.0	20	0	76.6	78 - 123	15.73	2.65	20	S
cis-1,3-Dichloropropene	17.64	1.0	20	0	88.2	75 - 124	17.73	0.507	20	
Dibromochloromethane	17.51	1.0	20	0	87.5	74 - 126	17.28	1.3	20	
Dibromomethane	16.81	1.0	20	0	84.0	79 - 123	16.98	1.01	20	
Dichlorodifluoromethane	13.86	1.0	20	0	69.3	32 - 152	14.43	4.03	20	
Ethylbenzene	17.08	1.0	20	0	85.4	79 - 121	17.69	3.51	20	
Hexachlorobutadiene	19.55	1.0	20	0	97.8	66 - 134	19.99	2.22	20	
Isopropylbenzene	17.4	1.0	20	0	87.0	72 - 131	18.04	3.6	20	
m,p-Xylene	35.36	2.0	40	0	88.4	80 - 121	36.03	1.87	20	
Methylene chloride	15.69	2.0	20	0	78.5	74 - 124	16.26	3.6	20	
Naphthalene	21	1.0	20	0	105	61 - 128	20.54	2.21	20	
n-Butylbenzene	18.58	1.0	20	0	92.9	75 - 128	19.17	3.13	20	
n-Propylbenzene	18.26	1.0	20	0	91.3	76 - 126	19.21	5.05	20	
o-Xylene	17.81	1.0	20	0	89.1	78 - 122	18.2	2.15	20	
sec-Butylbenzene	18.94	1.0	20	0	94.7	77 - 126	19.72	4.02	20	
Styrene	17.04	1.0	20	0	85.2	78 - 123	17.21	0.96	20	
tert-Butylbenzene	18.73	1.0	20	0	93.6	78 - 124	19.17	2.36	20	
Tetrachloroethene	17.57	1.0	20	0	87.8	74 - 129	18.43	4.79	20	
Toluene	16.73	1.0	20	0	83.7	80 - 121	17.53	4.69	20	
trans-1,2-Dichloroethene	15.99	1.0	20	0	80.0	75 - 124	16.62	3.82	20	
trans-1,3-Dichloropropene	17.08	1.0	20	0	85.4	73 - 127	16.93	0.901	20	
Trichloroethene	17.29	1.0	20	0	86.5	79 - 123	18.38	6.08	20	
Trichlorofluoromethane	15.67	1.0	20	0	78.4	65 - 141	16.18	3.16	20	
Vinyl chloride	15.72	1.0	20	0	78.6	58 - 137	16.52	4.97	20	
Surr: 1,2-Dichloroethane-d4	*43.59*	*1.0*	*50*	*0*	*87.2*	*81 - 118*	*44.54*	*2.16*	*20*	
Surr: 4-Bromofluorobenzene	*50.17*	*1.0*	*50*	*0*	*100*	*85 - 114*	*50.21*	*0.0837*	*20*	
Surr: Dibromofluoromethane	*44.59*	*1.0*	*50*	*0*	*89.2*	*80 - 119*	*44.89*	*0.687*	*20*	

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.69*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.77*	*0.163*	*20*	

The following samples were analyzed in this batch: HS19050374-04 HS19050374-05 HS19050374-06 HS19050374-07

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338208 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **MBLK1-050619** Units: **mg/L** Analysis Date: **08-May-2019 14:16**
Client ID: Run ID: **ICS2100_338208** SeqNo: **5070331** PrepDate: DF: **1**

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

LCS Sample ID: **LCS1-050619** Units: **mg/L** Analysis Date: **08-May-2019 14:30**
Client ID: Run ID: **ICS2100_338208** SeqNo: **5070332** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.24	0.500	20	0	101	80 - 120				
Nitrogen, Nitrate (As N)	4.006	0.100	4	0	100	80 - 120				
Sulfate	20.15	0.500	20	0	101	80 - 120				

LCSD Sample ID: **LCSD1-050619** Units: **mg/L** Analysis Date: **08-May-2019 14:45**
Client ID: Run ID: **ICS2100_338208** SeqNo: **5070333** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.95	0.500	20	0	99.7	80 - 120	20.24	1.45	20	
Nitrogen, Nitrate (As N)	3.937	0.100	4	0	98.4	80 - 120	4.006	1.74	20	
Sulfate	19.6	0.500	20	0	98.0	80 - 120	20.15	2.8	20	

MS Sample ID: **HS19050374-06MS** Units: **mg/L** Analysis Date: **08-May-2019 12:18**
Client ID: **50WW16-190506** Run ID: **ICS2100_338208** SeqNo: **5070323** 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)	1.897	0.100	2	0	94.8	80 - 120				
Sulfate	28.94	0.500	10	19.24	97.0	80 - 120				

MSD Sample ID: **HS19050374-06MSD** Units: **mg/L** Analysis Date: **08-May-2019 12:32**
Client ID: **50WW16-190506** Run ID: **ICS2100_338208** SeqNo: **5070324** 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)	2.031	0.100	2	0	102	80 - 120	1.897	6.82	20	
Sulfate	30.73	0.500	10	19.24	115	80 - 120	28.94	6.01	20	

The following samples were analyzed in this batch: HS19050374-01 HS19050374-02 HS19050374-03 HS19050374-04 HS19050374-05 HS19050374-06

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338458 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-051419** Units: **mg/L** Analysis Date: **14-May-2019 12:26**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075791** 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: **WLCSW1-051419** Units: **mg/L** Analysis Date: **14-May-2019 12:41**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075792** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.5	0.500	20	0	97.5	80 - 120				
Sulfate	19.13	0.500	20	0	95.6	80 - 120				

LCSD Sample ID: **WLCSDW1-051419** Units: **mg/L** Analysis Date: **14-May-2019 12:55**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075793** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.59	0.500	20	0	98.0	80 - 120	19.5	0.471	20	
Sulfate	19.26	0.500	20	0	96.3	80 - 120	19.13	0.688	20	

MS Sample ID: **HS19050544-06MS** Units: **mg/L** Analysis Date: **14-May-2019 14:06**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075796** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	252.9	5.00	100	161.8	91.1	80 - 120				
Sulfate	390.3	5.00	100	301.5	88.8	80 - 120				

MS Sample ID: **HS19050531-01MS** Units: **mg/L** Analysis Date: **14-May-2019 17:31**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075801** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	425.4	5.00	100	325.1	100	80 - 120				
Sulfate	238.2	5.00	100	134	104	80 - 120				

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050374

QC BATCH REPORT

Batch ID: R338458 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MSD Sample ID: **HS19050544-06MSD** Units: **mg/L** Analysis Date: **14-May-2019 14:20**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075797** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	251.4	5.00	100	161.8	89.6	80 - 120	252.9	0.599	20	
Sulfate	388	5.00	100	301.5	86.5	80 - 120	390.3	0.601	20	

MSD Sample ID: **HS19050531-01MSD** Units: **mg/L** Analysis Date: **14-May-2019 17:45**
Client ID: Run ID: **ICS2100_338458** SeqNo: **5075802** PrepDate: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	414.7	5.00	100	325.1	89.6	80 - 120	425.4	2.54	20	
Sulfate	230.6	5.00	100	134	96.6	80 - 120	238.2	3.22	20	

The following samples were analyzed in this batch: HS19050374-01

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: **HS19050374**

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
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 21-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order: HS19050374

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19050374-01	50WW06-190506	Login	5/7/2019 4:56:44 PM	JRM	WET357
HS19050374-01	50WW06-190506	Login	5/7/2019 4:56:44 PM	JRM	VOA111
HS19050374-01	50WW06-190506	Login	5/7/2019 4:56:44 PM	JRM	Sub
HS19050374-01	50WW06-190506	Login	5/7/2019 4:56:44 PM	JRM	Sub
HS19050374-01	50WW06-190506	Login	5/7/2019 4:56:44 PM	JRM	Sub

ALS Houston, US Date: 21-May-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19050374

Date/Time Received: **07-May-2019 15:30**
Received by: **NDR**

Checklist completed by: *Jared R. Makan* eSignature 7-May-2019 Date

Reviewed by: *RJ Modashia* eSignature 7-May-2019 Date

Matrices: **Water**

Carrier name: **UPS**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	2.3c/2.3c UC/C	IR11	
Cooler(s)/Kit(s):	43942		
Date/Time sample(s) sent to storage:	05/07/2019 18:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of ____

COC ID: LHAAP50-MAY2019-ALS | TURNAROUND TIME: | RUSH:

PROJECT/CLIENT INFO

Facility Name	Longhorn AAP
Project Number	501032
	LHAAP-50
Address	1203-B East Grand Avenue
	PMB 202
City	Marshall
State	TX
Postal Code	75670
Country	USA
Phone Number	713.243.7264
Project Manager	Praveen Srivastav

LABORATORY

Lab Name	ALS Laboratories
Lab Contact	RJ Modashia
Email	RJ.Modashia@alsglobal.com
Address	10450 Stancliff Rd., Suite 210
City	Houston
State	TX
Postal Code	77099
Country	USA
Phone Number	281.575.2279 or 281.530.5656

OTHER INFO

Email Invoice To	FedInvoices@aptim.com
Email Report To	Susan.Huang@aptim.com
Mail Reports To	Susan Huang
Address	4005 Port Chicago Highway, Suite 200
City	Concord
State	CA
Postal Code	94520
Country	USA
Shipping Company	

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml /Cool to 6 deg C	1-125ml /Cool to 6 deg C
								ANALYSIS		Vocs by 8260B	MEE by RSK175	CO2 by RSK175	TOC by Sm5310C	Anions (chloride/sulfate/nitrate) by 9056	Perchlorate by 6850
50wwo6-190506	LHAAP 50	16.47	16.70		WG	5/6/19	0825	13		X	X	X	X	X	X
50wwll-190506	LHAAP50	18.65	18.88		WG	5/6/19	0925	13		X	X	X	X	X	X
50wwl4-190506	LHAAP 50	19.05	19.25		WG	5/6/19	1025	13		X	X	X	X	X	X
50wwl3-190506	LHAAP 50	8.94	19.18		WG	5/6/19	1120	13		X	X	X	X	X	X
50wwl2-190506	LHAAP 50	23.70	23.91		WG	5/6/19	1220	13		X	X	X	X	X	X
50wwl6-190506	LHAAP 50	18.05	18.29		WG	5/6/19	1320	13		X	X	X	X	X	X
Trip Blank	LHAAP50				W	5/6/19		2		X					

HS19050374

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant LHAAP-50

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sam Bellegia / 3HATS	5/6/19 1530	NL	5.7.19 09.35

43942 2.3° IR # 11 CF 9

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

43942

CUSTODY SEAL

Date: 5/6/19 Time: 1530
Name: Scott Beals - NGPL
Company: B HATS

Seal Broken By: SM
Date: 05/07/19

43942 MAY 07 2019

UPS Next Day Air®
UPS Worldwide Express®
Shipping Document

WEIGHT | LTR | PAK | WEIGHT | DIMENSIONAL WEIGHT | LARGE PACKAGE | SHIPPER RELEASE

EXPRESS (INT'L)
DOCUMENTS ONLY

SATURDAY DELIVERY

SHIPMENT FROM
UPS ACCOUNT NO.
REFERENCE NUMBER
TELEPHONE

J461 688 029 4
J461 688 029 4
EXPORT

43942

DELIVER TO
TELEPHONE

UPS Next Day Air® 1

J461 688 029 4
J461 688 029 4
DELIVERY

TRACKING NUMBER
DATE OF SHIPMENT
5/7/19

010191120 6/14 RRD
United Parcel Service, Louisville, KY

DWS — ID
J4616880294

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

May 14, 2019

Analytical Report for Service Request No: K1904159

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

RE: HS19050374

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 09, 2019
For your reference, these analyses have been assigned our service request number **K1904159.**

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

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

Table of Contents

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

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

Client: ALS Environmental - US
Project: HS19050374
Sample Matrix: Ground Water

Service Request: K1904159
Date Received: 05/09/2019

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 05/09/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by Noe D. Dan Date 05/14/2019

Chain of Custody

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

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

K1904159

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11266**

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:	HS19050374
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19050374-01**	**50WW06-190506**	**Groundwater**	**06 May 2019 08:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019
2.	**HS19050374-02**	**50WW11-190506**	**Groundwater**	**06 May 2019 09:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019
3.	**HS19050374-03**	**50WW14-190506**	**Groundwater**	**06 May 2019 10:25**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019
4.	**HS19050374-04**	**50WW13-190506**	**Groundwater**	**06 May 2019 11:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019
5.	**HS19050374-05**	**50WW22-190506**	**Groundwater**	**06 May 2019 12:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019
6.	**HS19050374-06**	**50WW16-190506**	**Groundwater**	**06 May 2019 13:20**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			15 May 2019

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11266**

Relinquished By: J. MALCOLM Date/Time: 5/8/19 18:00

Received By: N Pedersen Date/Time: 5.9.19 10:00

Cooler ID(s): Temperature(s):

PC KL

Cooler Receipt and Preservation Form

Client ALS Houston Service Request *K19* 04159

Received: 5·9·19 Opened: 5·9·19 By: NP Unloaded: 5·9·19 By: NP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 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
-0.1	0.0	2.2	2.1	-0.1	377	11266	449978336227	
						11268		
						11277		

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

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1904159
Project:	HS19050374	**Date Collected:**	05/6/19
Sample Matrix:	Ground Water	**Date Received:**	05/9/19
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
50WW06-190506	K1904159-001	**1.74**	0.50	0.20	0.07	1	05/10/19 00:07	
50WW11-190506	K1904159-002	**1.80**	0.50	0.20	0.07	1	05/10/19 00:35	
50WW14-190506	K1904159-003	**1.13**	0.50	0.20	0.07	1	05/10/19 01:32	
50WW13-190506	K1904159-004	**1.93**	0.50	0.20	0.07	1	05/10/19 02:00	
50WW22-190506	K1904159-005	**1.10**	0.50	0.20	0.07	1	05/10/19 02:28	
50WW16-190506	K1904159-006	**1.98**	0.50	0.20	0.07	1	05/10/19 02:56	
Method Blank	K1904159-MB	ND U	0.50	0.20	0.07	1	05/10/19 06:42	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1904159
Project	HS19050374	**Date Collected:**	05/06/19
Sample Matrix:	Ground Water	**Date Received:**	05/09/19
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
50WW06-190506	K1904159-001DUP	0.50	0.20	0.07	1.74	1.69	1.72	3	10	05/10/19
50WW11-190506	K1904159-002DUP	0.50	0.20	0.07	1.80	1.87	1.83	4	10	05/10/19
50WW14-190506	K1904159-003DUP	0.50	0.20	0.07	1.13	1.08	1.11	5	10	05/10/19
50WW13-190506	K1904159-004DUP	0.50	0.20	0.07	1.93	1.78	1.86	8	10	05/10/19
50WW22-190506	K1904159-005DUP	0.50	0.20	0.07	1.10	1.06	1.08	4	10	05/10/19
50WW16-190506	K1904159-006DUP	0.50	0.20	0.07	1.98	2.05	2.02	3	10	05/10/19

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:**	K1904159
Project:	HS19050374	**Date Analyzed:**	05/10/19
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:	635076

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1904159-LCS	25.3	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1904159
Project: HS19050374

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	635076	KQ1906237-05	05/09/19 19:10	25.0	24.9	100	90-110
CCV2	635076	KQ1906237-06	05/10/19 01:03	25.0	25.0	100	90-110
CCV3	635076	KQ1906237-07	05/10/19 06:13	25.0	24.7	99	90-110
CCV4	635076	KQ1906237-08	05/10/19 10:29	25.0	24.9	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1904159
Project: HS19050374

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	635076	KQ1906237-01	05/09/19 19:25	0.50	0.20	0.07	ND	U
CCB2	635076	KQ1906237-02	05/10/19 01:17	0.50	0.20	0.07	ND	U
CCB3	635076	KQ1906237-03	05/10/19 06:28	0.50	0.20	0.07	ND	U
CCB4	635076	KQ1906237-04	05/10/19 10:44	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original ( ) K1903942, 4032, 4074, 4115, 4158, 4159, 4161, 4181, 4182, 4195, 4065, 4071, 4094, 4133, 4160, 4058

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

Date Analyzed: 5/9/19 TOC: 635076 635077

Analyst: BCD Run # 635075

Analysis: TOC/DOC DOC: 635078

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: BCD 5/11/19
K1904032-2/2d, ~~and K190~~ reports a high %RSD, However, this Sample is less than 5x the MRL.
K1904094 reports a high %RSD due to dirty/turbid non-homogenous sample.
K1904071-1 TOC sent for RA. Sample requires a dup.

Final Approved by: [signature] Date: 05/13/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635075 **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
K1903942-004	Carbon, Total Organic (TOC)	N/A		Water	7.20 mg/L	10 mL	28.8 mg/L	4		2.0			5/9/19 21:46:00	N	I
KQ1906235-01	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:25:00	N	I
KQ1906235-02	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 01:17:00	N	I
KQ1906235-03	Carbon, Total Organic (TOC)	CCV		Water	24.93 mg/L	10 mL	24.9 mg/L	1					5/9/19 19:10:00	N	I
KQ1906235-04	Carbon, Total Organic (TOC)	CCV		Water	25.03 mg/L	10 mL	25.0 mg/L	1					5/9/19 01:03:00	N	I
KQ1906235-05	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-06	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-07	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-08	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-09	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-10	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-11	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-12	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-13	Carbon, Total Organic (TOC)	DUP	K1903942-004	Water	7.22 mg/L	10 mL	28.9 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I
KQ1906235-14	Carbon, Total Organic (TOC)	TRP	K1903942-004	Water	7.26 mg/L	10 mL	29.0 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I
KQ1906235-15	Carbon, Total Organic (TOC)	QUAD	K1903942-004	Water	7.24 mg/L	10 mL	29.0 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I

05/13/19

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

Printed 5/11/19 12:00

Results Summary

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635076 **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
K1904032-001	Carbon, Total Organic	N/A		Water	16.99 mg/L	10 mL	17.0 mg/L	1	0.07	0.50			5/10/19 09:04:00	N	II
K1904032-002	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			5/10/19 09:32:00	N	II
K1904074-001	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 03:53:00	N	III
K1904115-001	Carbon, Total Organic	N/A		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 04:21:00	N	I
K1904158-001	Carbon, Total Organic	N/A		Water	1.46 mg/L	10 mL	1.46 mg/L	1	0.07	0.50			5/10/19 03:25:00	N	IV
K1904159-001	Carbon, Total Organic	N/A		Ground Water	1.74 mg/L	10 mL	1.74 mg/L	1	0.07	0.50			5/10/19 00:07:00	N	IV
K1904159-002	Carbon, Total Organic	N/A		Ground Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50			5/10/19 00:35:00	N	IV
K1904159-003	Carbon, Total Organic	N/A		Ground Water	1.13 mg/L	10 mL	1.13 mg/L	1	0.07	0.50			5/10/19 01:32:00	N	IV
K1904159-004	Carbon, Total Organic	N/A		Ground Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50			5/10/19 02:00:00	N	IV
K1904159-005	Carbon, Total Organic	N/A		Ground Water	1.10 mg/L	10 mL	1.10 mg/L	1	0.07	0.50			5/10/19 02:28:00	N	IV
K1904159-006	Carbon, Total Organic	N/A		Ground Water	1.98 mg/L	10 mL	1.98 mg/L	1	0.07	0.50			5/10/19 02:56:00	N	IV
K1904161-001	Carbon, Total Organic	N/A		Ground Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50			5/9/19 22:41:00	N	IV
K1904161-002	Carbon, Total Organic	N/A		Ground Water	0.98 mg/L	10 mL	0.98 mg/L	1	0.07	0.50			5/9/19 23:09:00	Y	IV
K1904181-001	Carbon, Total Organic	N/A		Water	0.97 mg/L	10 mL	0.97 mg/L	1	0.07	0.50			5/10/19 04:49:00	N	II
K1904182-001	Carbon, Total Organic	N/A		Water	0.31 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 05:17:00	N	II
K1904195-001	Carbon, Total Organic	N/A		Water	2.14 mg/L	10 mL	2.14 mg/L	1	0.07	0.50			5/10/19 05:45:00	N	II
K1904195-002	Carbon, Total Organic	N/A		Water	3.34 mg/L	10 mL	3.34 mg/L	1	0.07	0.50			5/10/19 07:12:00	N	II
K1904195-003	Carbon, Total Organic	N/A		Water	1.36 mg/L	10 mL	1.36 mg/L	1	0.07	0.50			5/10/19 07:40:00	N	II
K1904195-004	Carbon, Total Organic	N/A		Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50			5/10/19 08:08:00	N	II
K1904195-005	Carbon, Total Organic	N/A		Water	1.57 mg/L	10 mL	1.57 mg/L	1	0.07	0.50			5/10/19 08:36:00	N	II
KQ1906237-01	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/9/19 19:25:00	N	IV
KQ1906237-02	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 01:17:00	N	IV
KQ1906237-03	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:28:00	N	IV
KQ1906237-04	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:44:00	N	IV
KQ1906237-05	Carbon, Total Organic	CCV		Ground Water	24.93 mg/L	10 mL	24.9 mg/L	1					5/9/19 19:10:00	N	IV
KQ1906237-06	Carbon, Total Organic	CCV		Ground Water	25.03 mg/L	10 mL	25.0 mg/L	1					5/10/19 01:03:00	N	IV
KQ1906237-07	Carbon, Total Organic	CCV		Ground Water	24.68 mg/L	10 mL	24.7 mg/L	1					5/10/19 06:13:00	N	IV

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

Printed 5/11/19 12:19

Results Summary

05/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635076 **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
KQ1906237-08	Carbon, Total Organic	CCV		Ground Water	24.85 mg/L	10 mL	24.9 mg/L	1					5/10/19 10:29:00	N	IV
KQ1906237-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:42:00	N	IV
KQ1906237-10	Carbon, Total Organic	LCS		Ground Water	25.28 mg/L	10 mL	25.3 mg/L	1	0.07	0.50	101		5/10/19 06:57:00	N	IV
KQ1906237-11	Carbon, Total Organic	MS	K1904161-002	Ground Water	24.54 mg/L	10 mL	24.5 mg/L	1	0.07	0.50	94		5/9/19 23:38:00	N	IV
KQ1906237-12	Carbon, Total Organic	DUP	K1904161-001	Ground Water	2.00 mg/L	10 mL	2.00 mg/L	1	0.07	0.50		5	5/9/19 22:41:00	N	IV
KQ1906237-13	Carbon, Total Organic	DUP	K1904161-002	Ground Water	1.05 mg/L	10 mL	1.05 mg/L	1	0.07	0.50		7	5/9/19 23:09:00	N	IV
KQ1906237-14	Carbon, Total Organic	DUP	K1904159-001	Ground Water	1.69 mg/L	10 mL	1.69 mg/L	1	0.07	0.50		3	5/10/19 00:07:00	N	IV
KQ1906237-15	Carbon, Total Organic	DUP	K1904159-002	Ground Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		4	5/10/19 00:35:00	N	IV
KQ1906237-16	Carbon, Total Organic	DUP	K1904159-003	Ground Water	1.08 mg/L	10 mL	1.08 mg/L	1	0.07	0.50		5	5/10/19 01:32:00	N	IV
KQ1906237-17	Carbon, Total Organic	DUP	K1904159-004	Ground Water	1.78 mg/L	10 mL	1.78 mg/L	1	0.07	0.50		8	5/10/19 02:00:00	N	IV
KQ1906237-18	Carbon, Total Organic	DUP	K1904159-005	Ground Water	1.06 mg/L	10 mL	1.06 mg/L	1	0.07	0.50		4	5/10/19 02:28:00	N	IV
KQ1906237-19	Carbon, Total Organic	DUP	K1904159-006	Ground Water	2.05 mg/L	10 mL	2.05 mg/L	1	0.07	0.50		3	5/10/19 02:56:00	N	IV
KQ1906237-20	Carbon, Total Organic	DUP	K1904158-001	Water	1.42 mg/L	10 mL	1.42 mg/L	1	0.07	0.50		3	5/10/19 03:25:00	N	II
KQ1906237-21	Carbon, Total Organic	DUP	K1904074-001	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 03:53:00	N	II
KQ1906237-22	Carbon, Total Organic	DUP	K1904115-001	Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 04:21:00	N	I
KQ1906237-23	Carbon, Total Organic	DUP	K1904181-001	Water	0.99 mg/L	10 mL	0.99 mg/L	1	0.07	0.50		2	5/10/19 04:49:00	N	II
KQ1906237-24	Carbon, Total Organic	DUP	K1904182-001	Water	0.35 mg/L	10 mL	0.35 mg/L J	1	0.07	0.50		NC	5/10/19 05:17:00	N	II
KQ1906237-25	Carbon, Total Organic	DUP	K1904195-001	Water	2.13 mg/L	10 mL	2.13 mg/L	1	0.07	0.50		<1	5/10/19 05:45:00	N	II
KQ1906237-26	Carbon, Total Organic	DUP	K1904195-002	Water	3.25 mg/L	10 mL	3.25 mg/L	1	0.07	0.50		3	5/10/19 07:12:00	N	II
KQ1906237-27	Carbon, Total Organic	DUP	K1904195-003	Water	1.30 mg/L	10 mL	1.30 mg/L	1	0.07	0.50		4	5/10/19 07:40:00	N	II
KQ1906237-28	Carbon, Total Organic	DUP	K1904195-004	Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50		2	5/10/19 08:08:00	N	II
KQ1906237-29	Carbon, Total Organic	DUP	K1904195-005	Water	1.58 mg/L	10 mL	1.58 mg/L	1	0.07	0.50		<1	5/10/19 08:36:00	N	II
KQ1906237-30	Carbon, Total Organic	DUP	K1904032-001	Water	17.34 mg/L	10 mL	17.3 mg/L	1	0.07	0.50		2	5/10/19 09:04:00	N	II
KQ1906237-31	Carbon, Total Organic	DUP	K1904032-002	Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50		34*	5/10/19 09:32:00	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:** 635077 **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
K1904065-001	Carbon, Total Organic	N/A		Water	7.02 mg/L	10 mL	702 mg/L	100	7	50			5/10/19 10:59:00	N	II
K1904071-001	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:00:00	N	III
K1904094-001	Carbon, Total Organic	N/A		Ground Water	10.84 mg/L	10 mL	10.8 mg/L	1	0.07	0.50			5/10/19 11:27:00	N	II
K1904094-002	Carbon, Total Organic	N/A		Ground Water	7.99 mg/L	10 mL	7.99 mg/L	1	0.07	0.50			5/10/19 11:55:00	N	II
K1904094-003	Carbon, Total Organic	N/A		Ground Water	2.62 mg/L	10 mL	2.62 mg/L	1	0.07	0.50			5/10/19 12:23:00	N	II
K1904094-004	Carbon, Total Organic	N/A		Ground Water	1.57 mg/L	10 mL	1.57 mg/L	1	0.07	0.50			5/10/19 12:51:00	N	II
K1904094-005	Carbon, Total Organic	N/A		Ground Water	0.89 mg/L	10 mL	0.89 mg/L	1	0.07	0.50			5/10/19 13:19:00	N	II
K1904094-006	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50			5/10/19 13:47:00	N	II
K1904094-007	Carbon, Total Organic	N/A		Ground Water	2.60 mg/L	10 mL	2.60 mg/L	1	0.07	0.50			5/10/19 14:15:00	N	II
K1904133-001	Carbon, Total Organic	N/A		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 14:44:00	N	I
K1904163-001	Carbon, Total Organic	N/A		Ground Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			5/10/19 17:06:00	N	II
K1904163-002	Carbon, Total Organic	N/A		Ground Water	0.47 mg/L	10 mL	0.47 mg/L J	1	0.07	0.50			5/10/19 17:34:00	N	II
K1904163-003	Carbon, Total Organic	N/A		Ground Water	1.45 mg/L	10 mL	1.45 mg/L	1	0.07	0.50			5/10/19 18:02:00	N	II
K1904163-004	Carbon, Total Organic	N/A		Ground Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			5/10/19 18:30:00	N	II
K1904163-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 18:58:00	N	II
K1904205-001	Carbon, Total Organic	N/A		Water	35.34 mg/L	10 mL	35.3 mg/L	1	0.07	0.50			5/10/19 19:26:00	N	IV
K1904205-002	Carbon, Total Organic	N/A		Water	11.17 mg/L	10 mL	11.2 mg/L	1	0.07	0.50			5/10/19 19:55:00	N	IV
KQ1906238-01	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:28:00	N	III
KQ1906238-02	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:44:00	N	III
KQ1906238-03	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 16:22:00	N	III
KQ1906238-04	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:05:00	N	III
KQ1906238-05	Carbon, Total Organic	CCV		Surface Water	24.68 mg/L	10 mL	24.7 mg/L	1					5/10/19 06:13:00	N	III
KQ1906238-06	Carbon, Total Organic	CCV		Surface Water	24.85 mg/L	10 mL	24.9 mg/L	1					5/10/19 10:29:00	N	III
KQ1906238-07	Carbon, Total Organic	CCV		Surface Water	24.02 mg/L	10 mL	24.0 mg/L	1					5/10/19 16:07:00	N	III

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

Printed 5/11/19 12:43

Results Summary

05/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635077 **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
KQ1906238-08	Carbon, Total Organic	CCV		Surface Water	24.34 mg/L	10 mL	24.3 mg/L	1					5/10/19 20:51:00	N	III
KQ1906238-09	Carbon, Total Organic	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 16:37:00	N	III
KQ1906238-10	Carbon, Total Organic	LCS		Surface Water	24.84 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		5/10/19 16:51:00	N	III
KQ1906238-11	Carbon, Total Organic	MS	K1904071-001	Surface Water	25.61 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	102		5/10/19 10:15:00	N	III
KQ1906238-13	Carbon, Total Organic	DUP	K1904065-001	Water	7.10 mg/L	10 mL	710 mg/L	100	7	50		1	5/10/19 10:59:00	N	II
KQ1906238-14	Carbon, Total Organic	DUP	K1904094-001	Ground Water	10.73 mg/L	10 mL	10.7 mg/L	1	0.07	0.50		1	5/10/19 11:27:00	N	II
KQ1906238-15	Carbon, Total Organic	DUP	K1904094-002	Ground Water	7.72 mg/L	10 mL	7.72 mg/L	1	0.07	0.50		3	5/10/19 11:55:00	N	II
KQ1906238-16	Carbon, Total Organic	DUP	K1904094-003	Ground Water	2.19 mg/L	10 mL	2.19 mg/L	1	0.07	0.50		18*	5/10/19 12:23:00	N	II
KQ1906238-17	Carbon, Total Organic	DUP	K1904094-004	Ground Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50		<1	5/10/19 12:51:00	N	II
KQ1906238-18	Carbon, Total Organic	DUP	K1904094-005	Ground Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50		7	5/10/19 13:19:00	N	II
KQ1906238-19	Carbon, Total Organic	DUP	K1904094-006	Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		1	5/10/19 13:47:00	N	II
KQ1906238-20	Carbon, Total Organic	DUP	K1904094-007	Ground Water	2.38 mg/L	10 mL	2.38 mg/L	1	0.07	0.50		9	5/10/19 14:15:00	N	II
KQ1906238-21	Carbon, Total Organic	DUP	K1904133-001	Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 14:44:00	N	II
KQ1906238-22	Carbon, Total Organic	DUP	K1904163-001	Ground Water	1.27 mg/L	10 mL	1.27 mg/L	1	0.07	0.50		6	5/10/19 17:06:00	N	II
KQ1906238-23	Carbon, Total Organic	DUP	K1904163-002	Ground Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		8	5/10/19 17:34:00	N	II
KQ1906238-24	Carbon, Total Organic	DUP	K1904163-003	Ground Water	1.33 mg/L	10 mL	1.33 mg/L	1	0.07	0.50		9	5/10/19 18:02:00	N	II
KQ1906238-25	Carbon, Total Organic	DUP	K1904163-004	Ground Water	0.77 mg/L	10 mL	0.77 mg/L	1	0.07	0.50		4	5/10/19 18:30:00	N	II
KQ1906238-26	Carbon, Total Organic	DUP	K1904163-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 18:58:00	N	II
KQ1906238-27	Carbon, Total Organic	DUP	K1904205-001	Water	35.34 mg/L	10 mL	35.3 mg/L	1	0.07	0.50		<1	5/10/19 19:26:00	N	IV
KQ1906238-28	Carbon, Total Organic	DUP	K1904205-002	Water	10.89 mg/L	10 mL	10.9 mg/L	1	0.07	0.50		3	5/10/19 19:55:00	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:** 635078 **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
K1904058-001	Carbon, Dissolved Organic (DOC)	N/A		Water	5.20 mg/L	10 mL	5.20 mg/L U	1	0.07	0.50			5/10/19 22:18:00	N	II
K1904058-002	Carbon, Dissolved Organic (DOC)	N/A		Water	2.04 mg/L	10 mL	2.04 mg/L	1	0.07	0.50			5/10/19 22:46:00	N	II
K1904071-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:20:00	N	III
KQ1906239-01	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:05:00	N	III
KQ1906239-02	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 23:57:00	N	III
KQ1906239-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.18 mg/L	10 mL	24.2 mg/L	1					5/10/19 23:42:00	N	III
KQ1906239-04	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.47 mg/L	10 mL	24.5 mg/L	1					5/11/19 00:41:00	N	III
KQ1906239-05	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/11/19 00:12:00	N	III
KQ1906239-06	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	25.12 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		5/11/19 00:26:00	N	III
KQ1906239-07	Carbon, Dissolved Organic (DOC)	MS	K1904071-001	Surface Water	24.79 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		5/10/19 21:49:00	N	III
KQ1906239-08	Carbon, Dissolved Organic (DOC)	DUP	K1904071-001	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 21:20:00	N	III
KQ1906239-09	Carbon, Dissolved Organic (DOC)	DUP	K1904058-001	Water	5.13 mg/L	10 mL	5.13 mg/L	1	0.07	0.50		1	5/10/19 22:18:00	N	II
KQ1906239-10	Carbon, Dissolved Organic (DOC)	DUP	K1904058-002	Water	2.09 mg/L	10 mL	2.09 mg/L	1	0.07	0.50		2	5/10/19 22:46:00	N	II
KQ1906239-11	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/11/19 00:56:00	N	III
KQ1906239-12	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.34 mg/L	10 mL	24.3 mg/L	1					5/10/19 20:51:00	N	III

05/13/19

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

Printed 5/11/19 12:54

Results Summary

TOC: 635075, 635076, 635077
DOC: 635078

Schedule: 05092019

Version: 5
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/05/09 18:20 - Thursday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
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	K1903942-004.01 4x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1904161-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1904161-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1904161-002.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	K1904159-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1904159-002.01	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
10	Sample	K1904159-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1904159-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1904159-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1904159-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1904158-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1904074-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1904115-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1904181-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1904182-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1904195-001.01	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	K1904195-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1904195-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1904195-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1904195-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1904032-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1904032-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1904071-001.04	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
28	Sample	K1904071-001.04 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	K1904065-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1904094-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1904094-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1904094-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1904094-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1904094-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1904094-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1904094-007.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1904133-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	RB	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

Printed on: May 11, 2019 10:32:21

05/13/19

Schedule: 05092019

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	K1904163-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1904163-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1904163-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1904163-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1904163-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1904205-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1904205-002.01	CAS_salt_010711 (CAS_salt_010711)	2	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
48	Sample	K1904071-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1904071-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
50	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
51	Sample	K1904058-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1904058-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	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
54	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	

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	C] CCV 25 ppm [25 p	1	24.926	0.0000	24.9255	24.9255	24.9	5/9/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
5	MB1d	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
6	MB1t	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
7	MB1q	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
8	[TOC] LCS [24ppm]	1	25.023	0.0000	25.0234	25.0234	25	5/9/2019
9	[TOC] LCS [24ppm]d	1	25.037	0.0000	25.0368	25.0368	25.04	5/9/2019
10	[TOC] LCS [24ppm]t	1	25.510	0.0000	25.5102	25.5102	25.51	5/9/2019
11	[TOC] LCS [24ppm]q	1	25.466	0.0000	25.4658	25.4658	25.5	5/9/2019
12	K1903942-004	1	7.196	0.0000	7.1956	7.1956	7.20	5/9/2019
13	K1903942-004d	1	7.224	0.0000	7.2244	7.2244	7.22	5/9/2019
14	K1903942-004t	1	7.260	0.0000	7.2600	7.26	7.26	5/9/2019
15	K1903942-004q	1	7.240	0.0000	7.2403	7.2403	7.2	5/9/2019
16	C] CCV 25 ppm [25 p	1	25.032	0.0000	25.0320	25.032	25.0	5/10/2019
17	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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: BCD	Date Analyzed 5/9/19		
Reviewed By: [signature]	Date Reviewed 05/13/19		

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	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.926	0.0000	24.9255	24.9255	24.9	5/9/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
4	K1904161-001	1	2.097	0.0000	2.0968	2.0968	2.1	5/9/2019
5	K1904161-001d	1	1.998	0.0000	1.9982	1.9982	2.0	5/9/2019
6	K1904161-002	1	0.981	0.0000	0.9807	0.9807	0.98	5/9/2019
7	K1904161-002d	1	1.055	0.0000	1.0549	1.0549	1.1	5/9/2019
8	K1904161-002ms	1	24.540	0.0000	24.5398	24.5398	25	5/9/2019
9	K1904159-001	1	1.741	0.0000	1.7408	1.7408	1.74	5/10/2019
10	K1904159-001d	1	1.691	0.0000	1.6907	1.6907	1.69	5/10/2019
11	K1904159-002	1	1.801	0.0000	1.8009	1.8009	1.8	5/10/2019
12	K1904159-002d	1	1.867	0.0000	1.8665	1.8665	1.87	5/10/2019
13	C] CCV 25 ppm [25 p	1	25.032	0.0000	25.0320	25.032	25.03	5/10/2019
14	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
15	K1904159-003	1	1.134	0.0000	1.1342	1.1342	1.1	5/10/2019
16	K1904159-003d	1	1.081	0.0000	1.0813	1.0813	1.1	5/10/2019
17	K1904159-004	1	1.932	0.0000	1.9323	1.9323	1.93	5/10/2019
18	K1904159-004d	1	1.783	0.0000	1.7833	1.7833	1.8	5/10/2019
19	K1904159-005	1	1.103	0.0000	1.1028	1.1028	1.1	5/10/2019
20	K1904159-005d	1	1.055	0.0000	1.0552	1.0552	1.06	5/10/2019
21	K1904159-006	1	1.984	0.0000	1.9835	1.9835	1.98	5/10/2019
22	K1904159-006d	1	2.051	0.0000	2.0509	2.0509	2.1	5/10/2019
23	K1904158-001	1	1.456	0.0000	1.4556	1.4556	1.5	5/10/2019
24	K1904158-001d	1	1.420	0.0000	1.4195	1.4195	1.42	5/10/2019
25	K1904074-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019

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: BB	Date Analyzed 5/9/19
Reviewed By:	Date Reviewed 05/13/19

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	K1904074-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
27	K1904115-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
28	K1904115-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
29	K1904181-001	1	0.967	0.0000	0.9668	0.9668	1.0	5/10/2019
30	K1904181-001d	1	0.988	0.0000	0.9879	0.9879	1.0	5/10/2019
31	K1904182-001	1	0.307	0.0000	0.3070	0.307	<0.5	5/10/2019
32	K1904182-001d	1	0.349	0.0000	0.3492	0.3492	<0.5	5/10/2019
33	K1904195-001	1	2.139	0.0000	2.1392	2.1392	2.1	5/10/2019
34	K1904195-001d	1	2.130	0.0000	2.1302	2.1302	2.1	5/10/2019
35	C] CCV 25 ppm [25 p	1	24.678	0.0000	24.6781	24.6781	24.7	5/10/2019
36	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
37	MB2	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
38	[TOC] LCS [24ppm]	1	25.280	0.0000	25.2799	25.2799	25.3	5/10/2019
39	K1904195-002	1	3.342	0.0000	3.3419	3.3419	3.3	5/10/2019
40	K1904195-002d	1	3.252	0.0000	3.2522	3.2522	3.3	5/10/2019
41	K1904195-003	1	1.359	0.0000	1.3590	1.359	1.4	5/10/2019
42	K1904195-003d	1	1.303	0.0000	1.3034	1.3034	1.3	5/10/2019
43	K1904195-004	1	1.560	0.0000	1.5595	1.5595	1.6	5/10/2019
44	K1904195-004d	1	1.529	0.0000	1.5285	1.5285	1.5	5/10/2019
45	K1904195-005	1	1.572	0.0000	1.5717	1.5717	1.6	5/10/2019
46	K1904195-005d	1	1.576	0.0000	1.5758	1.5758	1.6	5/10/2019
47	K1904032-001	1	16.993	0.0000	16.9929	16.9929	17.0	5/10/2019
48	K1904032-001d	1	17.339	0.0000	17.3388	17.3388	17.3	5/10/2019
49	K1904032-002	1	0.853	0.0000	0.8526	0.8526	0.9	5/10/2019
50	K1904032-002d	1	0.607	0.0000	0.6072	0.6072	0.6	5/10/2019

Analyzed By: BCP	Date Analyzed 5/9/19
Reviewed By: [signature]	Date Reviewed 05/13/19

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	C] CCV 25 ppm [25 p	1	24.678	0.0000	24.6781	24.6781	24.7	5/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
4	K1904071-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
5	K1904071-001ms	1	25.607	0.0000	25.6068	25.6068	25.6	5/10/2019
6	C] CCV 25 ppm [25 p	1	24.850	0.0000	24.8503	24.8503	24.85	5/10/2019
7	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
8	K1904065-001	100	7.024	0.0000	7.0242	702.42	702	5/10/2019
9	K1904065-001d	100	7.101	0.0000	7.1012	710.12	710.12	5/10/2019
10	K1904094-001	1	10.841	0.0000	10.8408	10.8408	10.84	5/10/2019
11	K1904094-001d	1	10.730	0.0000	10.7297	10.7297	10.7	5/10/2019
12	K1904094-002	1	7.994	0.0000	7.9937	7.9937	7.99	5/10/2019
13	K1904094-002d	1	7.722	0.0000	7.7217	7.7217	7.72	5/10/2019
14	K1904094-003	1	2.623	0.0000	2.6225	2.6225	2.62	5/10/2019
15	K1904094-003d	1	2.194	0.0000	2.1943	2.1943	2.2	5/10/2019
16	K1904094-004	1	1.569	0.0000	1.5686	1.5686	1.6	5/10/2019
17	K1904094-004d	1	1.562	0.0000	1.5615	1.5615	1.56	5/10/2019
18	K1904094-005	1	0.893	0.0000	0.8930	0.893	0.9	5/10/2019
19	K1904094-005d	1	0.833	0.0000	0.8325	0.8325	0.8	5/10/2019
20	K1904094-006	1	0.547	0.0000	0.5466	0.5466	0.55	5/10/2019
21	K1904094-006d	1	0.555	0.0000	0.5545	0.5545	0.55	5/10/2019
22	K1904094-007	1	2.595	0.0000	2.5951	2.5951	2.6	5/10/2019
23	K1904094-007d	1	2.383	0.0000	2.3830	2.383	2.4	5/10/2019
24	K1904133-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
25	K1904133-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019

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

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

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

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

	date	time
Analyzed By: BCP	Date Analyzed 5/9/19	
Reviewed By: [signature]	Date Reviewed 05/13/19	

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	C] CCV 25 ppm [25 p	1	24.021	0.0000	24.0206	24.0206	24.02	5/10/2019
27	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
28	MB3	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
29	[TOC] LCS [25ppm]	1	24.837	0.0000	24.8366	24.8366	24.8	5/10/2019
30	K1904163-001	1	1.347	0.0000	1.3470	1.347	1.3	5/10/2019
31	K1904163-001d	1	1.270	0.0000	1.2703	1.2703	1.3	5/10/2019
32	K1904163-002	1	0.473	0.0000	0.4733	0.4733	<0.5	5/10/2019
33	K1904163-002d	1	0.435	0.0000	0.4353	0.4353	<0.5	5/10/2019
34	K1904163-003	1	1.451	0.0000	1.4509	1.4509	1.5	5/10/2019
35	K1904163-003d	1	1.326	0.0000	1.3264	1.3264	1.3	5/10/2019
36	K1904163-004	1	0.743	0.0000	0.7433	0.7433	0.7	5/10/2019
37	K1904163-004d	1	0.771	0.0000	0.7707	0.7707	0.8	5/10/2019
38	K1904163-005	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
39	K1904163-005d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
40	K1904205-001	1	35.335	0.0000	35.3351	35.3351	35.3	5/10/2019
41	K1904205-001d	1	35.343	0.0000	35.3429	35.3429	35.3	5/10/2019
42	K1904205-002	1	11.166	0.0000	11.1655	11.1655	11.2	5/10/2019
43	K1904205-002d	1	10.888	0.0000	10.8882	10.8882	10.9	5/10/2019
44	C] CCV 25 ppm [25 p	1	24.341	0.0000	24.3410	24.341	24.3	5/10/2019
45	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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: BCP	Date Analyzed 5/9/19
Reviewed By: [signature]	Date Reviewed 05/13/19

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	C] CCV 25 ppm [25 p	1	24.341	0.0000	24.3410	24.341	24.3	5/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
4	K1904071-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
5	K1904071-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
6	K1904071-001ms	1	24.793	0.0000	24.7933	24.7933	24.79	5/10/2019
7	K1904058-001	1	5.199	0.0000	5.1992	5.1992	5.2	5/10/2019
8	K1904058-001d	1	5.131	0.0000	5.1305	5.1305	5	5/10/2019
9	K1904058-002	1	2.041	0.0000	2.0408	2.0408	2.04	5/10/2019
10	K1904058-002d	1	2.087	0.0000	2.0873	2.0873	2.09	5/10/2019
11	C] CCV 25 ppm [25 p	1	24.183	0.0000	24.1833	24.1833	24.2	5/10/2019
12	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
13	MB4	1	0.000	0.0000	0.0000	0	<0.5	5/11/2019
14	[TOC] LCS [25ppm]	1	25.116	0.0000	25.1159	25.1159	25.12	5/11/2019
15	C] CCV 25 ppm [25 p	1	24.467	0.0000	24.4668	24.4668	24.5	5/11/2019
16	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/11/2019
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: BCD		Date Analyzed 5/9/19	
Reviewed By: [signature]		Date Reviewed 05/13/19	

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	
51	C] CCV 25 ppm [25 p	1	24.850	0.0000	24.8503	24.8503	24.85	5/10/2019
52	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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	5/9/19
Reviewed By:		Date Reviewed	05/13/19

Fusion Report - 05092019
Thursday, May 09, 2019 05:16 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/05/11 10:32 - Saturday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05092019	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

05/13/19

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/05/09 17:16

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.44	18.05	4.61	49.62	05:23
2	TC Clean	12.76	15.75	2.98	50.07	04:06
3	TC Clean	3.34	6.39	3.05	50.05	03:47
4	TC Clean	2.50	5.39	2.89	50.09	03:49

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/05/09 17:38

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.82	15.92	3.10	49.61	05:12
2	TC Clean	6.95	9.93	2.98	50.09	04:04
3	TC Clean	2.20	5.33	3.13	50.11	03:48

4	TC Clean	1.56	4.76	3.20	50.10	03:47

Sample Type: Clean

From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/05/09 18:00

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.57	15.67	3.10	49.61	05:13
2	TC Clean	4.30	7.43	3.13	50.09	04:07
3	TC Clean	1.51	4.69	3.18	50.10	03:48
4	TC Clean	1.08	4.23	3.15	50.09	03:47

Sample Type: Blank (Creating v1254)

From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/05/09 18:22

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.85	3.84	2.99	49.57	05:13
2	TC Clean	3.42	6.48	3.06	50.09	04:05
3	TC Clean	1.50	4.35	2.85	50.10	03:48
4	TC Clean	1.24	4.27	3.02	50.06	03:47
5	Reagent Blank	2.93	5.90	2.97	50.07	05:06
6	Acid Blank	1.16	4.17	3.01	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	0.0113 ppm	0.0000 ppm	0.0000%	2019/05/09 18:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0113	0.1129	8.79	11.90	3.12	50.02	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.9255 ppm (PASS)	0.0000 ppm	0%	2019/05/09 19:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9255	249.2546	178.66	181.55	2.89	49.97	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/09 19:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.20	9.26	3.06	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 (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%	2019/05/09 19:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.18	9.22	3.04	49.93	10:28
2	TOC	0.0000	0.0000	6.23	9.32	3.10	50.00	10:30
3	TOC	0.0000	0.0000	6.19	9.09	2.90	49.98	10:27
4	TOC	0.0000	0.0000	6.08	8.93	2.85	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

			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)	25.2591 ppm (PASS)	0.2650 ppm	1.05%	2019/05/09 20:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0234	250.2342	179.32	182.28	2.96	49.97	10:28
C	TOC	25.0 ppm	2	25.0368	250.3683	179.41	182.30	2.89	50.03	10:29
C	TOC	25.0 ppm	3	25.5102	255.1017	182.62	185.61	2.99	49.95	10:27
C	TOC	25.0 ppm	4	25.4658	254.6583	182.32	185.36	3.04	49.95	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 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/09 21:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.68	10.55	2.87	49.97	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1903942-004.01	7.2301 ppm	0.0272 ppm	0.3800%	2019/05/09 21:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1956	71.9565	57.56	60.57	3.02	49.90	10:25
2	TOC	7.2244	72.2437	57.75	60.87	3.12	49.86	10:27
3	TOC	7.2600	72.6003	57.99	61.03	3.03	49.83	10:26
4	TOC	7.2403	72.4029	57.86	60.80	2.94	49.83	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1904161-001.01	2.0475 ppm	0.0697 ppm	3.4000%	2019/05/09 22:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0968	20.9675	22.94	25.83	2.89	49.81	10:32
2	TOC	1.9982	19.9819	22.28	25.18	2.90	49.79	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC)	CAS_salt_010711	CAS_salt_010711

(v1254) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	5	TOC	K1904161-002.01	1.0178 ppm	0.0525 ppm	5.1600%	2019/05/09 23:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9807	9.8065	15.37	18.28	2.91	49.78	10:29
2	TOC	1.0549	10.5490	15.87	18.77	2.90	49.78	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	6	TOC	K1904161-002.01 ms	24.5398 ppm	0.0000 ppm	0.0000%	2019/05/09 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.5398	245.3979	175.29	178.28	2.99	49.97	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/09 23:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.00	9.93	2.93	49.84	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	8	TOC	K1904159-001.01	1.7158 ppm	0.0354 ppm	2.0600%	2019/05/10 00:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7408	17.4083	20.53	23.49	2.96	49.82	10:27
2	TOC	1.6907	16.9074	20.19	23.18	2.99	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	9	TOC	K1904159-002.01	1.8337 ppm	0.0464 ppm	2.5300%	2019/05/10 00:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8009	18.0093	20.94	23.83	2.89	49.85	10:25
2	TOC	1.8665	18.6649	21.38	24.33	2.95	49.81	10:28

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)	25.0320 ppm (PASS)	0.0000 ppm	0%	2019/05/10 01:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0320	250.3197	179.38	182.41	3.03	49.81	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%	2019/05/10 01:17

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.33	8.36	3.03	49.81	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
◆	10	TOC	K1904159-003.01	1.1077 ppm	0.0374 ppm	3.3800%	2019/05/10 01:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1342	11.3416	16.41	19.31	2.90	49.84	10:27
2	TOC	1.0813	10.8127	16.05	18.92	2.87	49.84	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	11	TOC	K1904159-004.01	1.8578 ppm	0.1054 ppm	5.6700%	2019/05/10 02:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9323	19.3234	21.83	24.60	2.77	49.87	10:28
2	TOC	1.7833	17.8325	20.82	23.69	2.88	49.88	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	12	TOC	K1904159-005.01	1.0790 ppm	0.0336 ppm	3.1200%	2019/05/10 02:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1028	11.0278	16.20	19.19	2.99	49.91	10:26
2	TOC	1.0552	10.5520	15.87	18.88	3.01	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1904159-006.01	2.0172 ppm	0.0477 ppm	2.3700%	2019/05/10 02:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9835	19.8346	22.18	25.24	3.07	49.94	10:28
2	TOC	2.0509	20.5094	22.63	25.44	2.81	49.94	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1904158-001.01	1.4376 ppm	0.0255 ppm	1.7800%	2019/05/10 03:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4556	14.5561	18.59	21.55	2.96	49.95	10:25
2	TOC	1.4195	14.1952	18.35	21.36	3.01	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1904074-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 03:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.25	8.10	2.85	49.99	10:26
2	TOC	0.0000	0.0000	5.00	7.99	2.99	50.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1904115-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 04:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.08	10.91	2.83	50.02	10:29
2	TOC	0.0000	0.0000	7.91	10.91	3.00	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1904181-001.02	0.9773 ppm	0.0149 ppm	1.5200%	2019/05/10 04:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9668	9.6681	15.27	18.24	2.96	50.04	10:27
2	TOC	0.9879	9.8787	15.42	18.17	2.75	50.07	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1904182-001.01	0.3281 ppm	0.0299 ppm	9.1100%	2019/05/10 05:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3070	3.0696	10.80	13.58	2.78	50.07	10:27
2	TOC	0.3492	3.4924	11.08	13.90	2.82	50.08	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1904195-001.01	2.1347 ppm	0.0064 ppm	0.3000%	2019/05/10 05:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1392	21.3918	23.23	26.05	2.81	50.12	10:28
2	TOC	2.1302	21.3019	23.17	26.10	2.93	50.16	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.6781 ppm (PASS)	0.0000 ppm	0%	2019/05/10 06:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6781	246.7810	176.98	179.94	2.96	50.08	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%	2019/05/10 06:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.32	8.14	2.81	50.00	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%	2019/05/10 06:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.45	7.30	2.85	49.96	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.2799 ppm (PASS)	0.0000 ppm	0%	2019/05/10 06:57

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

	Type									
C	TOC	25.0 ppm	1	25.2799	252.7991	181.06	184.05	2.99	49.92	10:30

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1904195-002.01	3.2970 ppm	0.0634 ppm	1.9200%	2019/05/10 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3419	33.4190	31.40	34.35	2.96	49.87	10:30
2	TOC	3.2522	32.5218	30.79	33.64	2.85	49.85	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1904195-003.01	1.3312 ppm	0.0393 ppm	2.9500%	2019/05/10 07:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3590	13.5897	17.94	20.69	2.76	49.83	10:30
2	TOC	1.3034	13.0343	17.56	20.31	2.75	49.79	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1904195-004.01	1.5440 ppm	0.0219 ppm	1.4200%	2019/05/10 08:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5595	15.5948	19.30	22.12	2.82	49.78	10:31
2	TOC	1.5285	15.2854	19.09	21.94	2.86	49.83	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1904195-005.01	1.5738 ppm	0.0029 ppm	0.1900%	2019/05/10 08:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5717	15.7170	19.38	22.17	2.79	49.81	10:26
2	TOC	1.5758	15.7583	19.41	22.15	2.75	49.82	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K1904032-001.01	17.1658 ppm	0.2446 ppm	1.4200%	2019/05/10 09:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.9929	169.9287	124.06	126.97	2.91	49.81	10:25
2	TOC	17.3388	173.3878	126.41	129.43	3.03	49.80	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	26	TOC	K1904032-002.01	0.7299 ppm	0.1735 ppm	23.7800%	2019/05/10 09:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8526	8.5263	14.50	17.57	3.08	49.83	10:29
2	TOC	0.6072	6.0720	12.83	15.74	2.91	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	27	TOC	K1904071-001.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 10:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.03	8.16	3.13	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	28	TOC	K1904071-001.04 ms	25.6068 ppm	0.0000 ppm	0.0000%	2019/05/10 10:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.6068	256.0683	182.53	185.41	2.88	49.75	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.8503 ppm (PASS)	0.0000 ppm	0%	2019/05/10 10:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8503	248.5032	178.14	181.05	2.91	49.75	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/10 10:44

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	8.36	2.75	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 (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	K1904065-001.01 100x	7.0627 ppm	0.0545 ppm	0.7700%	2019/05/10 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.0242	70.2417	56.39	59.23	2.84	49.99	10:29
2	TOC	7.1012	71.0121	56.91	59.88	2.97	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1904094-001.03	10.7852 ppm	0.0785 ppm	0.7300%	2019/05/10 11:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.8408	108.4079	82.30	85.29	2.99	50.10	10:27
2	TOC	10.7297	107.2971	81.54	84.48	2.93	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1904094-002.03	7.8577 ppm	0.1923 ppm	2.4500%	2019/05/10 11:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.9937	79.9368	62.97	65.86	2.89	50.12	10:29
2	TOC	7.7217	77.2173	61.13	64.13	3.01	50.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	32	TOC	K1904094-003.03	2.4084 ppm	0.3028 ppm	12.5700%	2019/05/10 12:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6225	26.2254	26.51	29.25	2.74	50.15	10:30
2	TOC	2.1943	21.9428	23.61	26.59	2.99	50.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1904094-004.03	1.5651 ppm	0.0050 ppm	0.3200%	2019/05/10 12:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5686	15.6861	19.36	22.35	2.99	50.15	10:27
2	TOC	1.5615	15.6154	19.31	22.14	2.83	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1904094-005.03	0.8627 ppm	0.0428 ppm	4.9600%	2019/05/10 13:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8930	8.9300	14.77	17.56	2.79	50.19	10:26
2	TOC	0.8325	8.3245	14.36	17.24	2.88	50.24	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1904094-006.03	0.5506 ppm	0.0055 ppm	1.0000%	2019/05/10 13:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5466	5.4665	12.42	15.15	2.72	50.17	10:29

2	TOC	0.5545	5.5446	12.48	15.29	2.82	50.27	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1904094-007.03	2.4891 ppm	0.1500 ppm	6.0300%	2019/05/10 14:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5951	25.9514	26.33	29.18	2.86	50.24	10:32
2	TOC	2.3830	23.8299	24.89	27.81	2.93	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	37	TOC	K1904133-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 14:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.06	9.93	2.87	50.18	10:30
2	TOC	0.0000	0.0000	6.79	9.66	2.87	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 15:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.10	6.93	2.84	50.17	10:26
2	TOC	0.0000	0.0000	4.38	7.17	2.79	50.20	10:26
3	TOC	0.0000	0.0000	3.94	6.84	2.90	50.29	10:27
4	TOC	0.0000	0.0000	4.00	6.84	2.84	50.18	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.0206 ppm (PASS)	0.0000 ppm	0%	2019/05/10 16:07

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

B	TOC	25 ppm	1	24.0206	240.2062	172.51	175.43	2.91	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%	2019/05/10 16:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.58	7.57	2.99	50.28	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
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 16:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	3.74	6.63	2.89	50.29	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.8366 ppm (PASS)	0.0000 ppm	0%	2019/05/10 16:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.8366	248.3662	178.05	181.00	2.95	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	K1904163-001.03	1.3087 ppm	0.0543 ppm	4.1500%	2019/05/10 17:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3470	13.4704	17.85	20.81	2.96	50.24	10:27
2	TOC	1.2703	12.7029	17.33	20.14	2.80	50.32	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1904163-002.03	0.4543 ppm	0.0269 ppm	5.9200%	2019/05/10 17:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4733	4.7328	11.92	14.78	2.86	50.30	10:27
2	TOC	0.4353	4.3528	11.67	14.56	2.89	50.26	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K1904163-003.03	1.3887 ppm	0.0880 ppm	6.3400%	2019/05/10 18:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4509	14.5090	18.56	21.11	2.55	50.25	10:25
2	TOC	1.3264	13.2641	17.72	20.82	3.11	50.38	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K1904163-004.03	0.7570 ppm	0.0194 ppm	2.5600%	2019/05/10 18:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7433	7.4332	13.76	16.65	2.89	50.30	10:31
2	TOC	0.7707	7.7072	13.94	16.96	3.02	50.15	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	K1904163-005.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 18:58

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

1	TOC	0.0000	0.0000	6.58	9.46	2.88	50.19	10:31
2	TOC	0.0000	0.0000	6.58	9.46	2.88	50.17	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1904205-001.01	35.3390 ppm	0.0055 ppm	0.0200%	2019/05/10 19:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.3351	353.3511	248.56	251.48	2.91	50.19	10:29
2	TOC	35.3429	353.4292	248.62	251.54	2.92	50.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1904205-002.01	11.0269 ppm	0.1960 ppm	1.7800%	2019/05/10 19:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.1655	111.6548	84.50	87.46	2.96	50.23	10:29
2	TOC	10.8882	108.8823	82.62	85.63	3.01	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/10 20:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.84	9.73	2.89	50.28	10:25
2	TOC	0.0000	0.0000	5.94	8.90	2.96	50.30	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.3410 ppm (PASS)	0.0000 ppm	0%	2019/05/10 20:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3410	243.4104	174.69	177.57	2.88	50.20	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%	2019/05/10 21:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.28	8.13	2.85	50.21	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	K1904071-001.03 doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.64	7.58	2.95	50.27	10:27
2	TOC	0.0000	0.0000	4.26	7.41	3.14	50.11	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	49	TOC	K1904071-001.03 ms doc	24.7933 ppm	0.0000 ppm	0.0000%	2019/05/10 21:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.7933	247.9333	177.01	180.01	3.00	50.13	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	50	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 22:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.08	8.09	3.01	50.14	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	51	TOC	K1904058-001.02 doc	5.1648 ppm	0.0485 ppm	0.9400%	2019/05/10 22:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.1992	51.9917	44.00	46.91	2.91	50.03	10:29
2	TOC	5.1305	51.3051	43.54	46.51	2.97	50.13	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	52	TOC	K1904058-002.02 doc	2.0640 ppm	0.0329 ppm	1.5900%	2019/05/10 22:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0408	20.4077	22.56	25.53	2.97	49.97	10:28
2	TOC	2.0873	20.8732	22.88	25.74	2.86	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/10 23:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.02	7.87	2.85	49.96	10:28
2	TOC	0.0000	0.0000	5.13	8.18	3.05	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.1833 ppm (PASS)	0.0000 ppm	0%	2019/05/10 23:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1833	241.8326	173.62	176.53	2.91	50.03	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v30)

Sample Type: Check Standard --> CCB From Schedule Version 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%	2019/05/10 23:57

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.18	7.99	2.81	49.93	10:29

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/11 00:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.23	7.15	2.92	49.89	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	25.1159 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1159	251.1594	179.95	182.90	2.96	49.87	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: 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)	24.4668 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4668	244.6685	175.54	178.68	3.14	49.84	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.96	7.91	2.94	49.84	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
v1253	1.3423	1.1900	0.0000	0.0000	0.0000	2019/05/07 15:06	Fusion1 (Fusion1)
v1254	0.9757	1.1630	0.0000	0.0000	0.0000	2019/05/09 18:55	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	2019/05/11 01:13

StarLIMS Run: 635075, 635076, 635077, 635078

Analysis: TOC

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

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

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-05-77M

21 % H3PO4: 11-GEN-05-77O

Equipment ID: K-TOC-03

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

FILTER ID: NA

Analyzed By: BCD	Date Analyzed: 5/11/19-5/10/19-5/9/19
Reviewed By: [signature]	Date Reviewed: 05/13/19

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1912778, 1913240

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2246 (238759)

General Set Information: There were 7 field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1913240002/004 were analyzed and reported from 1:10 dilutions. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 652190) was less than 1/2 the CRDL. The recovery for the LCS (652191) was within acceptable parameters.

MS/MSD Analysis: MS/MSD (652192/93) was performed on samples 1912778001. 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 652188) is reported from the analysis of the Laboratory Control Sample (LCS – 652191) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03).

Stephen Brose — May 16, 2019
Analyst — Date

ANALYTICAL REPORT

Report Date: May 16, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1913240**
Project ID: HS19050374
Purchase Order: HS19050374
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
50WW06-190506	1913240001	05/06/19	05/08/19	
50WW11-190506	1913240002	05/06/19	05/08/19	
50WW14-190506	1913240003	05/06/19	05/08/19	
50WW13-190506	1913240004	05/06/19	05/08/19	
50WW22-190506	1913240005	05/06/19	05/08/19	
50WW16-190506	1913240006	05/06/19	05/08/19	

ANALYTICAL REPORT

Workorder: 34-1913240
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW06-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240001 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 16:18 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**4.3**	1.0	2.0	4.0	1	

Sample ID: **50WW11-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240002 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 16:31 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**450**	10	20	40	10	

Sample ID: **50WW14-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240003 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 16:44 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW13-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240004 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 16:58 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**160**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-1913240
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW22-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240005 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 17:11 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW16-190506** | Sampling Site: NA | Collected: 05/06/2019
Lab ID: 1913240006 | Media: 125 mL Nalgene | Received: 05/08/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2246 (HBN: 238759) | **Percent Solid:** NA
Analyzed: 05/11/2019 17:25 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: **EPA 6850, DoD QSM - (HBN: 238759)**

Field samples 1913240002/004 were analyzed and reported from 1:10 dilutions. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Stephen Brose 05/16/2019 10:41	/S/ Thomas T. McKay 05/16/2019 14:26

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1913240
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1913240

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2246 (HBN: 238759)
		Prepared By:	NA	**Analyzed By:**	Stephen Brose

Blank

LMB: 652190
Analyzed: 05/11/2019 15:24
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 652191
Analyzed: 05/11/2019 14:57
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	3.79	4.00	94.6	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1912778001	**MS:**	652192
Analyzed:	05/11/2019 15:37	**Analyzed:**	05/11/2019 15:51
Dilution:	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L

MSD:	652193										
Analyzed:	05/11/2019 16:04										
Dilution:	1										
Units:	ug/L										

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	1.10	3.47	4	86.8	78.8	123.8	3.38	84.4	2.84	0.0	20.0

Comments

Field samples 1913240002/004 were analyzed and reported from 1:10 dilutions. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas T. McKay
05/16/2019 10:45	05/16/2019 14:26

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

Subcontract Chain of Custody

20847/#
18698/#2

SAMPLING STATE: **Texas**

COC ID: **11267**

1913240

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19050374
TSR:	Sonia West

	LAB SAMPLE ID / ANALYSIS REQUESTED	CLIENT SAMPLE ID	MATRIX	COLLECT DATE / DUE DATE
1.	**HS19050374-01**	**50WW06-190506**	**Groundwater**	**06 May 2019 08:25**
	SUB_Perch-6850			15 May 2019
2.	**HS19050374-02**	**50WW11-190506**	**Groundwater**	**06 May 2019 09:25**
	SUB_Perch-6850			15 May 2019
3.	**HS19050374-03**	**50WW14-190506**	**Groundwater**	**06 May 2019 10:25**
	SUB_Perch-6850			15 May 2019
4.	**HS19050374-04**	**50WW13-190506**	**Groundwater**	**06 May 2019 11:20**
	SUB_Perch-6850			15 May 2019
5.	**HS19050374-05**	**50WW22-190506**	**Groundwater**	**06 May 2019 12:20**
	SUB_Perch-6850			15 May 2019
6.	**HS19050374-06**	**50WW16-190506**	**Groundwater**	**06 May 2019 13:20**
	SUB_Perch-6850			15 May 2019

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11267**

Relinquished By: J. Mathews Date/Time: 5/7/19 18:00

Received By: [signature] Date/Time: 5-8-19 0928

Cooler ID(s): Temperature(s):

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19050374		***Split:***	**Workorder ID:** 1913240	**Level:** ENV_LVL4	**Requested Analysis**
Client: ALS Environmental (Houston)			**Account:** 8101	**Type:** 125Poly	
Comments:				**Preservatives**	
				COOL	
				Containers	

Item	Collect Date/Time	Sample ID		Lab ID	QC	Matrix	ID(s)	Count	EPA 6850, DoD QSM												
1	05/06/2019 08:25	50WW06-190506		1913240001		Water	A	1	A												
2	05/06/2019 09:25	50WW11-190506		1913240002		Water	A	1	A												
3	05/06/2019 10:25	50WW14-190506		1913240003		Water	A	1	A												
4	05/06/2019 11:20	50WW13-190506		1913240004		Water	A	1	A												
5	05/06/2019 12:20	50WW22-190506		1913240005		Water	A	1	A												
6	05/06/2019 13:20	50WW16-190506		1913240006		Water	A	1	A												
7																					
8																					
9																					
10																					

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Wrath, Julie	05/08/2019 09:28	ALS Sample Receiving	Sample Login
Julie Wrath 5/8/19 1500		STB	Storage
STB 5/9/19 STB	5/9/19 7:30		Clay Analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS HOUSTON

Project/Task/Site: HS1905037 4 191324

Date/Time of Receipt: 5.8.19 0928

Number of Coolers Received: (1)

Condition of Coolers:	(Acceptable)/Unacceptable	Temperature Control:	(Present)/Not Included
Cooler Custody Seals:	(Present)/Absent/NA		
	(Intact)/Broken/NA	Location Temp Taken:	(Control)/Between Samples
Container Custody Seals:	(Present)/Absent/NA		
	(Intact)/Broken/NA	Are all temperatures within project specific guidelines?	(Yes)/No/NA
Ice Present:	(Yes)/No/NA		
	(Frozen)/Melted/NA	VOA Headspace Present?	Yes/No/(NA)

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9385	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: [signature] (Signature) GAYLEEN COATES (Printed Name) 5.8.19 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

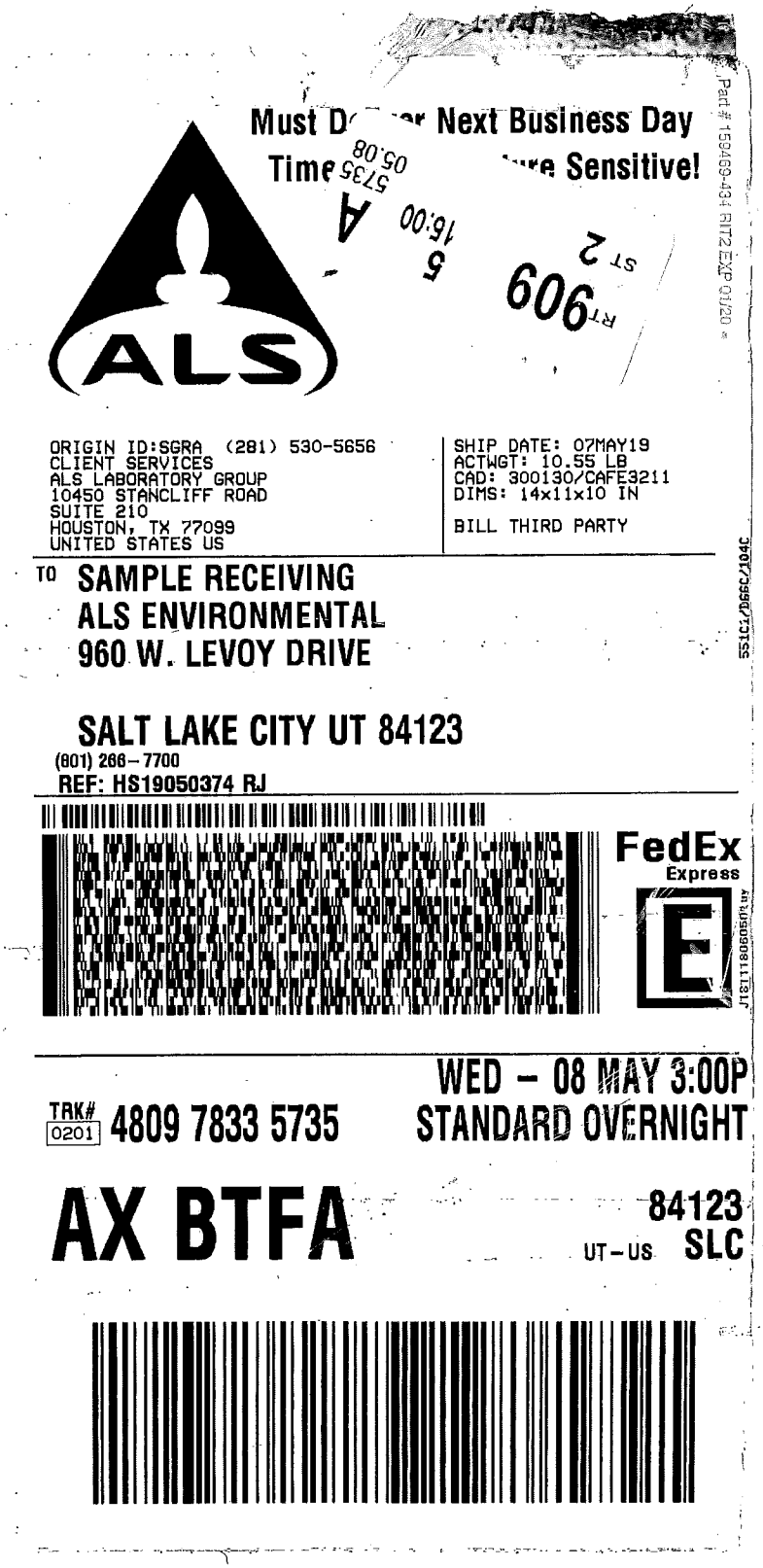
PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc

Revised 01/01/2018



Must D[illegible]r Next Business Day
Time [illegible]ve Sensitive!

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 07MAY19
ACTWGT: 10.55 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19050374 RJ

FedEx Express

TRK# 0201 4809 7833 5735

WED - 08 MAY 3:00P
STANDARD OVERNIGHT

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2246
Rule: EPA 6850, DoD QSM Water

Created: 5/9/2019 11:22
Analyst: S. Brose

Instrument:
Status: WP

HBN: 238759

Workorder: 1912778 [ENV_LVL4]
Workorder: 1913240 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	652187	CCV for HBN 238759 [ELMS/2246]				CCV	3		E685041C3Q	6214		5/16/2019	
2	652188	RLVS for HBN 238759 [ELMS/2246				RLVS	3		E685041C3Q	6214		5/16/2019	
3	652189	ICS for HBN 238759 [ELMS/2246]				ICS	3		E6850..D3Q	6214		5/16/2019	
4	652190	LMB for HBN 238759 [ELMS/2246]				LMB	3		E6850Q413Q	6214		5/16/2019	
5	652191	LCS for HBN 238759 [ELMS/2246]				LCS	3		E6850Q413Q	6214		5/16/2019	
6	1912778001	LH18/24-SP650_050119_BIX Water				SAMPLE	3	1912778001-A	E6850Q41.3	5480	5/29/2019	5/16/2019	
7	652192	LH18/24-SP650...(1912778001MS)				MS	3		E6850Q413Q	6214		5/16/2019	
8	652193	LH18/24-SP65...(1912778001MSD)				MSD	3		E6850Q413Q	6214		5/16/2019	
9	1913240001	50WW06-190506				SAMPLE	3	1913240001-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
10	1913240002	50WW11-190506				SAMPLE	3	1913240002-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
11	1913240003	50WW14-190506				SAMPLE	3	1913240003-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
12	1913240004	50WW13-190506				SAMPLE	3	1913240004-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
13	1913240005	50WW22-190506				SAMPLE	3	1913240005-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
14	1913240006	50WW16-190506				SAMPLE	3	1913240006-A	E6850Q41.3	5480	6/3/2019	5/21/2019	
15	652194	CCV for HBN 238759 [ELMS/2246]				CCV	3		E685041C3Q	6214		5/16/2019	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1912778(001), 1913240(001-006)
ELMS Batch/HBN ID: 2246 (238759)
Prep Date: 05/11/2019 Analysis Date: 05/11/2019 Analyst: S. Brose
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\MAY\11MAY19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:
Water: Samples were prepared by SAB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: **LCMS04** Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 652191; Target = 4.0µg/L. ASTM type II water was used for LMB 652190.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1912778001 (Client ID: LH18/24-SP650_050119_BIX Water). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:
1) Results reported in µg/L. Field samples 1913240002/004 were analyzed and reported from 1:10 dilutions. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\MAY\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\238759-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 652188) is reported from the analysis of the Laboratory Control Sample (LCS – 652191) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03).

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2246 HBN 238759 Sample Set IDs if Applicable: 1912778, 1913240	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	SB	
Standards traceability checked and meets criteria	SB	
Standard curve coefficients evaluated and meet criteria	SB	
ICVs analyzed and meet acceptance criteria	SB	
CCVs analyzed and meet acceptance criteria	SB	
Retention Time Windows checked	SB	
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	
Surrogate recoveries checked and appropriately addressed	SB	
Method Preparation Blanks analyzed and meet acceptance criteria	SB	
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	SB	
RLVS analyzed	SB	
Preparation and analysis hold times met	SB	
Preparation deviations and re-preparations noted when performed	SB	
Analysis deviations and re-analyses noted when performed	SB	
Sample dilution factors noted on reports	SB	
Electronic records in HBN transcription accuracy and completeness checked	SB	
Preparation and analysis calculations checked	SB	
NCRs are completed as necessary NC/CAR#	—	
Report forms are complete and accurate	SB	
Manual integrations checked	SB	

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 43702	**Created By:** Thomas Bosch	**Amount:** 10 mL
MFG: ALS/SLC	**Create Date:** 09/18/2018 02:09PM	**Expires:** 09/18/2019
MFG Lot: TNB: 09/18/2018		**Usable:** Yes
Pipette ID: Not Provided		**Lab Lot:** CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** No
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 1000 L
MFG: DCL In House	**Create Date:** 10/06/2005 09:10AM	**Expires:** 11/07/2025
MFG Lot: Not Provided		**Usable:** Yes
Part ID: Not Provided		**Lab Lot:** LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT	Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701 **Created By:** Thomas Bosch **Amount:** 10 mL
MFG: ALS/SLC **Create Date:** 09/18/2018 02:09PM **Expires:** 09/18/2019
MFG Lot: TNB: 09/18/2018 **Usable:** Yes
Pipette ID: Not Provided **Lab Lot:** CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC INT

CLO4 QC INT	Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 1000 L	
MFG: DCL In House	**Create Date:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 1000 L	
MFG: DCL In House	**Create Date:** 10/06/2005 09:10AM	**Expires:** 11/07/2025	
MFG Lot: Not Provided		**Usable:** Yes	
Part ID: Not Provided		**Lab Lot:** LAB 109	

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		Description - 6850 QC Stock STD 1,000ug/mL
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — **Description - 6850 QC Intrmdt Std-QC 10ug/mL**

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK		Description - 6850 QC Stock STD 1,000ug/mL
Standard: 36748	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: Ultra Scientific	**Create Date:** 05/11/2017 01:05PM	**Expires:** 03/31/2020
MFG Lot: CP-0860		**Usable:** Yes
Part ID: ICC-013		**Lab Lot:** CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — Description - 6850 QC Stock STD 1,000ug/mL

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L
Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Included on ISO/IEC 17025 Scope of Accreditation: Yes

Included on ISO 17034 Scope of Accreditation: Yes

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.

The final solution was checked against an independent standard to verify its concentration.

We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.

All solutions are filtered through a 0.2 µm filter prior to being bottled.

All glassware used in preparation is Class A and calibrated regularly.

All weights are traceable through NIST, Test No. 822-275872-11

All bottles are triple rinsed with deionized water prior to use.

Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.

We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary

Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

AccuStandard is accredited to ISO 17034, ISO/IEC 17025 and certified to ISO 9001:2015

QR-ORG/INO-001
Rev. 5/18

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	652187 CCV@25	Vial 71	1	Control	1	1.94996e6	8.885	24.87225
*	652191 QC@4.0	Vial 72	1	Control	2	3.64428e5	9.007	3.78501
*	652189 ICS@4.0	Vial 73	1	Control	3	2.68113e5	8.748	3.44195
*	652190 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1912778001	Vial 75	1	Sample	5	7.53303e4	8.536	1.10946
*	652192 MS	Vial 76	1	Sample	6	2.69491e5	8.479	3.47235
*	652193 SD	Vial 77	1	Sample	7	2.70470e5	8.544	3.37509
*	1913240001	Vial 78	1	Sample	8	4.01114e5	8.877	4.25158
*	1913240002 10X	Vial 79	1	Sample	9	3.90096e6	8.822	453.25091
*	1913240003	Vial 80	1	Sample	10	3.55168e4	8.432	5.69921e-1
*	1913240004 10X	Vial 81	1	Sample	11	1.24291e6	8.724	157.85203
*	1913240005	Vial 82	1	Sample	12	4.25340e4	8.340	8.04157e-1
*	1913240006	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	652194 CCV@25	Vial 71	1	Control	14	1.88465e6	8.932	24.16769

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	652187 CCV@25	Vial 71	1	Control	1	5.91244e5	8.900	25.24495
*	652191 QC@4.0	Vial 72	1	Control	2	1.17923e5	9.031	4.01248
*	652189 ICS@4.0	Vial 73	1	Control	3	9.96403e4	8.769	4.18546
*	652190 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1912778001	Vial 75	1	Sample	5	2.69706e4	8.555	1.24500
*	652192 MS	Vial 76	1	Sample	6	8.93023e4	8.504	3.76346
*	652193 SD	Vial 77	1	Sample	7	9.34108e4	8.562	3.81120
*	1913240001	Vial 78	1	Sample	8	1.31381e5	8.892	4.57235
*	1913240002 10X	Vial 79	1	Sample	9	1.17056e6	8.839	458.01109
*	1913240003	Vial 80	1	Sample	10	1.43885e4	8.420	6.86391e-1
*	1913240004 10X	Vial 81	1	Sample	11	3.77433e5	8.743	159.87183
*	1913240005	Vial 82	1	Sample	12	1.70179e4	8.352	9.89957e-1
*	1913240006	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	652194 CCV@25	Vial 71	1	Control	14	5.69187e5	8.947	24.43230

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	652187 CCV@25	Vial 71	1	Control	1	2.40557e5	8.905	5.00000
*	652191 QC@4.0	Vial 72	1	Control	2	3.12971e5	9.026	5.00000
*	652189 ICS@4.0	Vial 73	1	Control	3	2.53565e5	8.771	5.00000
*	652190 LMB	Vial 74	1	Control	4	2.93417e5	9.141	5.00000
*	1912778001	Vial 75	1	Sample	5	2.25140e5	8.555	5.00000
*	652192 MS	Vial 76	1	Sample	6	2.52604e5	8.502	5.00000
*	652193 SD	Vial 77	1	Sample	7	2.60936e5	8.566	5.00000
*	1913240001	Vial 78	1	Sample	8	3.06124e5	8.903	5.00000
*	1913240002 10X	Vial 79	1	Sample	9	2.51361e5	8.840	50.00000
*	1913240003	Vial 80	1	Sample	10	2.10601e5	8.453	5.00000
*	1913240004 10X	Vial 81	1	Sample	11	2.47229e5	8.744	50.00000
*	1913240005	Vial 82	1	Sample	12	1.76759e5	8.364	5.00000
*	1913240006	Vial 83	1	Sample	13	2.28541e5	8.741	5.00000
*	652194 CCV@25	Vial 71	1	Control	14	2.39698e5	8.955	5.00000

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	652187 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	652191 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	652189 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	652190 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1912778001	CLO4-AQN	1	Sample		
6	Vial 76	652192 MS	CLO4-AQN	1	Sample		
7	Vial 77	652193 SD	CLO4-AQN	1	Sample		
8	Vial 78	1913240001	CLO4-AQN	1	Sample		
9	Vial 79	1913240002 10X	CLO4-AQN	1	Sample		
10	Vial 80	1913240003	CLO4-AQN	1	Sample		
11	Vial 81	1913240004 10X	CLO4-AQN	1	Sample		
12	Vial 82	1913240005	CLO4-AQN	1	Sample		
13	Vial 83	1913240006	CLO4-AQN	1	Sample		
14	Vial 71	652194 CCV@25	CLO4-AQN	1	Ctrl Samp		

Sequence Table:

Method and Injection Info Part:

Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	652187 CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	652191 QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	652189 ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	652190 LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1912778001	CLO4-AQN	1	Sample		
6	Vial 76	652192 MS	CLO4-AQN	1	Sample		
7	Vial 77	652193 SD	CLO4-AQN	1	Sample		
8	Vial 78	1913240001	CLO4-AQN	1	Sample		
9	Vial 79	1913240002 10X	CLO4-AQN	1	Sample		
10	Vial 80	1913240003	CLO4-AQN	1	Sample		
11	Vial 81	1913240004 10X	CLO4-AQN	1	Sample		
12	Vial 82	1913240005	CLO4-AQN	1	Sample		
13	Vial 83	1913240006	CLO4-AQN	1	Sample		
14	Vial 71	652194 CCV@25	CLO4-AQN	1	Ctrl Samp		

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#*	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount	
	CCV@25	Vial 71	1	Control	1	1.91635e6	8.882	24.97443	
1912778001	100	Vial 72	1	Sample	2	0.00000	0.000	0.00000	lx
1913240001	100	Vial 73	1	Sample	3	2.10623e4	9.044	2.62221e-1	lx
1913240002	100	Vial 74	1	Sample	4	3.40575e5	9.004	3.82326	ωx
1913240003	100	Vial 75	1	Sample	5	2.45169e4	9.019	2.94033e-1	lx
1913240004	100	Vial 76	1	Sample	6	1.26007e5	9.014	1.47512	ωx
1913240005	100	Vial 77	1	Sample	7	0.00000	0.000	0.00000	lx
1913240006	100	Vial 78	1	Sample	8	0.00000	0.000	0.00000	lx

#*	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
	CCV@25	Vial 71	1	Control	1	5.80696e5	8.899	25.33477
1912778001	100	Vial 72	1	Sample	2	0.00000	0.000	0.00000
1913240001	100	Vial 73	1	Sample	3	0.00000	0.000	0.00000
1913240002	100	Vial 74	1	Sample	4	1.08556e5	9.016	3.99291
1913240003	100	Vial 75	1	Sample	5	0.00000	0.000	0.00000
1913240004	100	Vial 76	1	Sample	6	4.48596e4	9.034	1.67221
1913240005	100	Vial 77	1	Sample	7	0.00000	0.000	0.00000
1913240006	100	Vial 78	1	Sample	8	0.00000	0.000	0.00000

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
	CCV@25	Vial 71	1	Control	1	2.35383e5	8.903	5.00000
1912778001	100	Vial 72	1	Sample	2	3.22725e5	9.015	5.00000
1913240001	100	Vial 73	1	Sample	3	2.83809e5	9.044	5.00000
1913240002	100	Vial 74	1	Sample	4	2.89515e5	9.027	5.00000
1913240003	100	Vial 75	1	Sample	5	2.91977e5	8.997	5.00000
1913240004	100	Vial 76	1	Sample	6	2.81689e5	9.037	5.00000
1913240005	100	Vial 77	1	Sample	7	2.91318e5	8.988	5.00000
1913240006	100	Vial 78	1	Sample	8	2.72875e5	9.099	5.00000

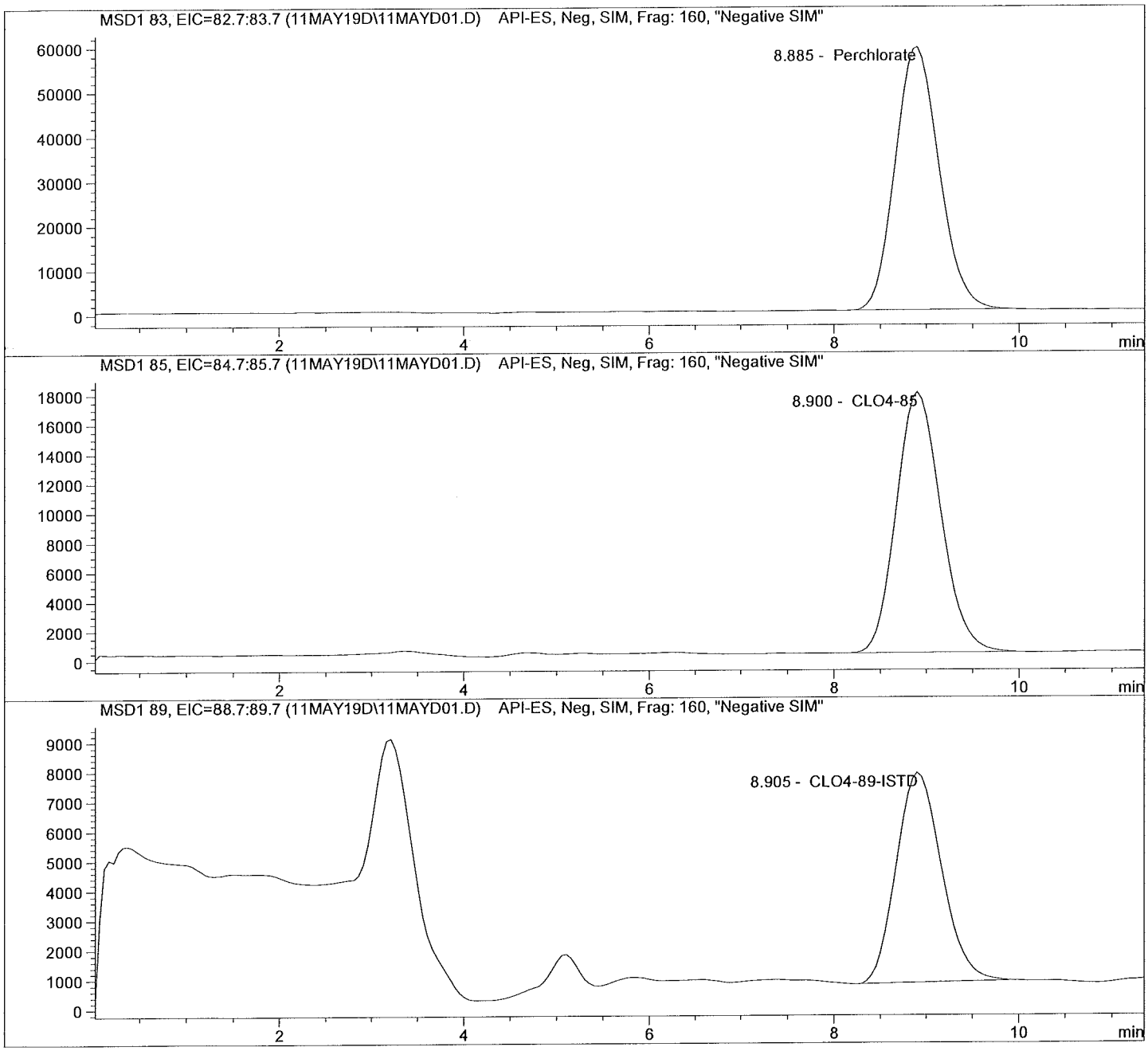
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD01.D Sample Name: 652187 CCV@25

Injection Date:	5/11/2019 14:44:14	Seq Line:	1
Sample Name:	652187 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLQ4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD01.D Sample Name: 652187 CCV@25

Injection Date:	5/11/2019 14:44:14	Seq Line:	1
Sample Name:	652187 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.885	PBA	1949964.1	24.8722	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.900	PBA	591243.8	25.2450	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.905	PBA	240557.2	5.0000	CLO4-89-ISTD

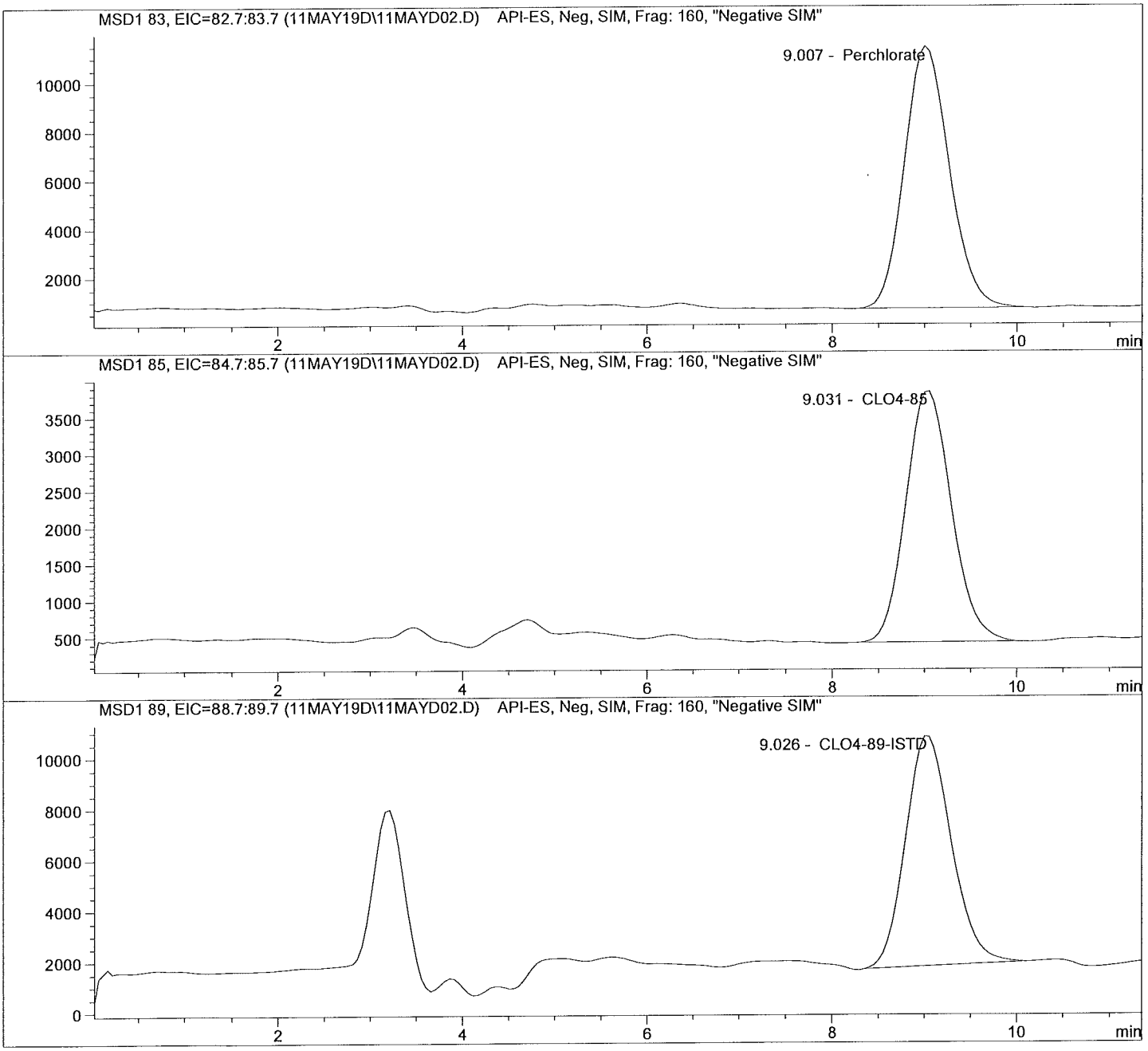
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD02.D Sample Name: 652191 QC@4.0

Injection Date:	5/11/2019 14:57:36	Seq Line:	2
Sample Name:	652191 QC@4.0	Location:	Vial 72
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD02.D Sample Name: 652191 QC@4.0

Injection Date:	5/11/2019 14:57:36	Seq Line:	2
Sample Name:	652191 QC@4.0	Location:	Vial 72
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.007	PBA	364428.2	3.7850	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.031	PBA	117922.8	4.0125	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.026	PBA	312970.7	5.0000	CLO4-89-ISTD

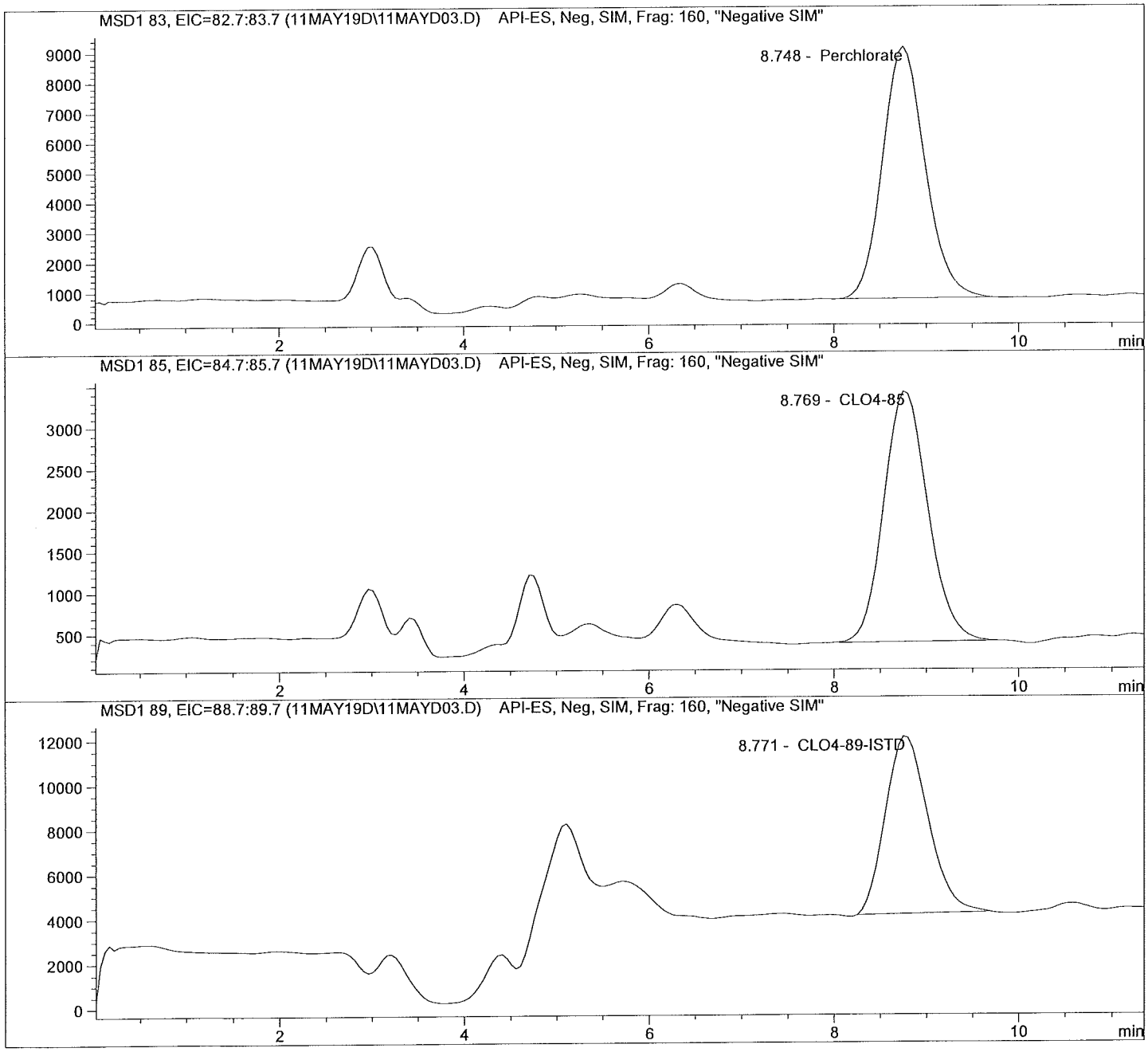
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD03.D Sample Name: 652189 ICS@4.0

Injection Date:	5/11/2019 15:10:58	Seq Line:	3
Sample Name:	652189 ICS@4.0	Location:	Vial 73
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD03.D Sample Name: 652189 ICS@4.0

Injection Date:	5/11/2019 15:10:58	Seq Line:	3
Sample Name:	652189 ICS@4.0	Location:	Vial 73
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 33, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.748	BBA	268113.1	3.4419	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.769	BBA	99640.3	4.1855	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.771	PBA	253564.8	5.0000	CLO4-89-ISTD

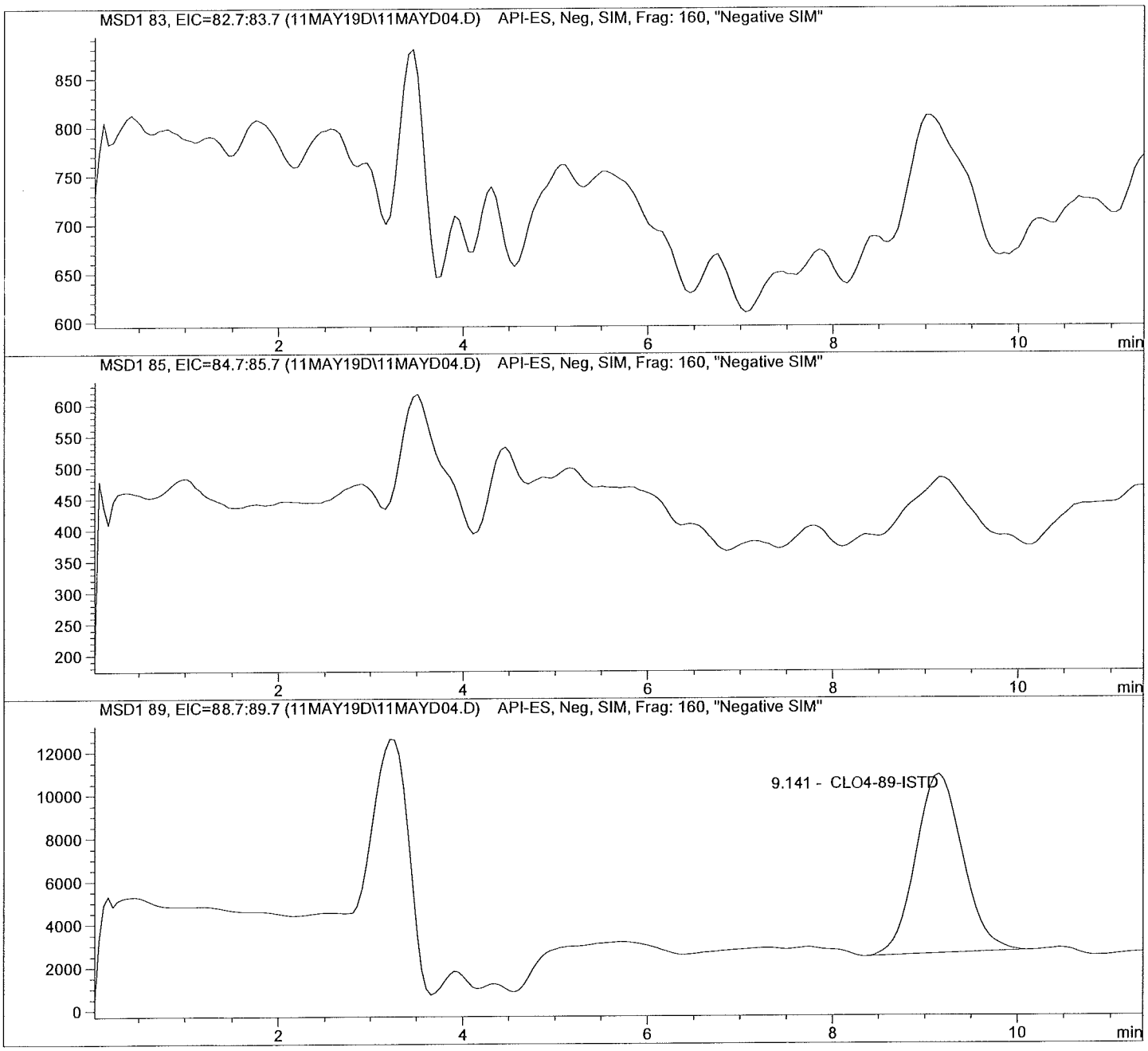
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD04.D Sample Name: 652190 LMB

Injection Date:	5/11/2019 15:24:33	Seq Line:	4
Sample Name:	652190 LMB	Location:	Vial 74
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD04.D Sample Name: 652190 LMB

Injection Date:	5/11/2019 15:24:33	Seq Line:	4
Sample Name:	652190 LMB	Location:	Vial 74
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.141	PBA	293417.4	5.0000	CLO4-89-ISTD

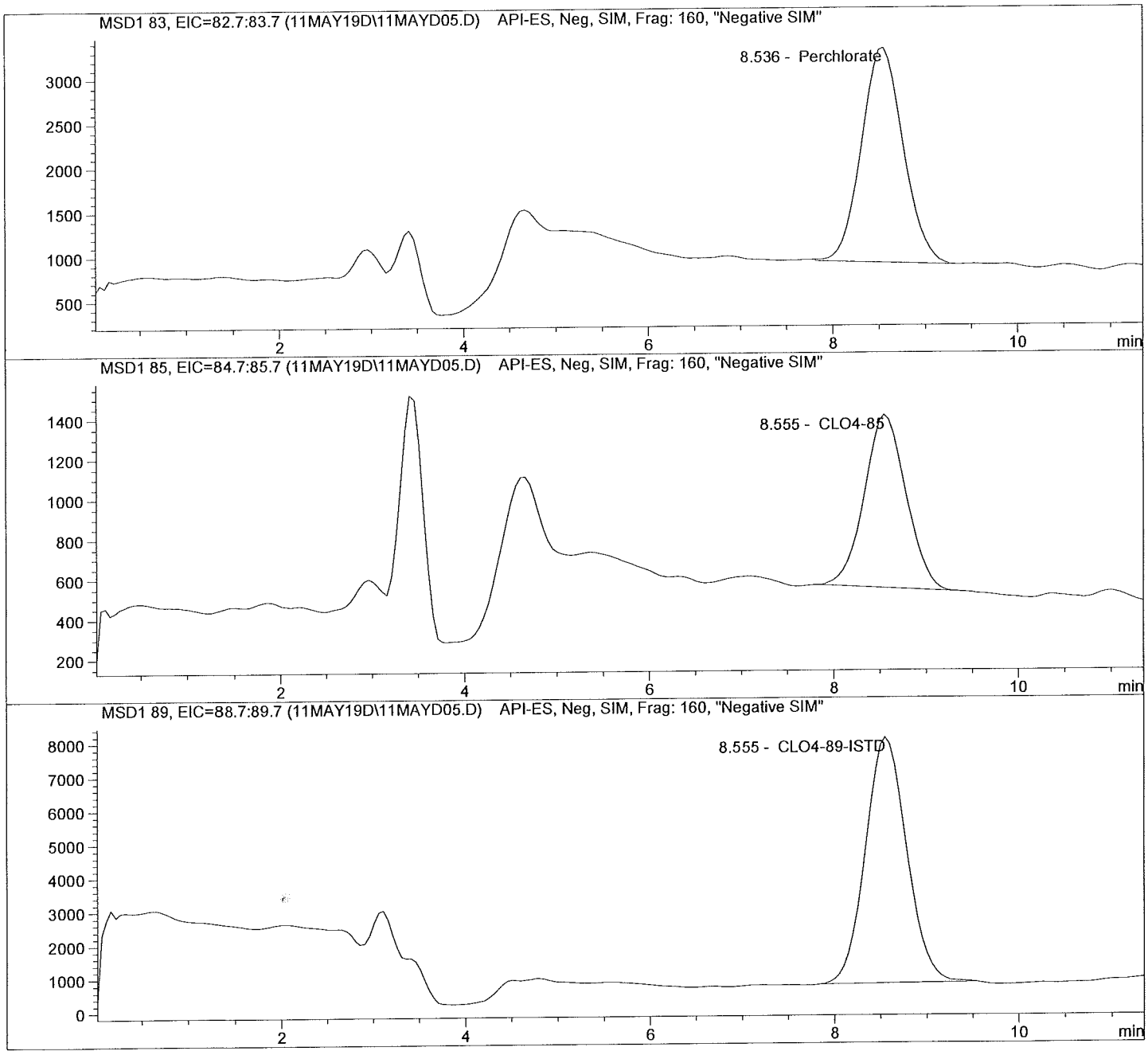
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD05.D Sample Name: 1912778001

Injection Date:	5/11/2019 15:37:55	Seq Line:	5
Sample Name:	1912778001	Location:	Vial 75
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD05.D Sample Name: 1912778001

Injection Date:	5/11/2019 15:37:55	Seq Line:	5
Sample Name:	1912778001	Location:	Vial 75
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.536	BBA	75330.3	1.1095	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.555	PBA	26970.6	1.2450	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.555	PBA	225139.6	5.0000	CLO4-89-ISTD

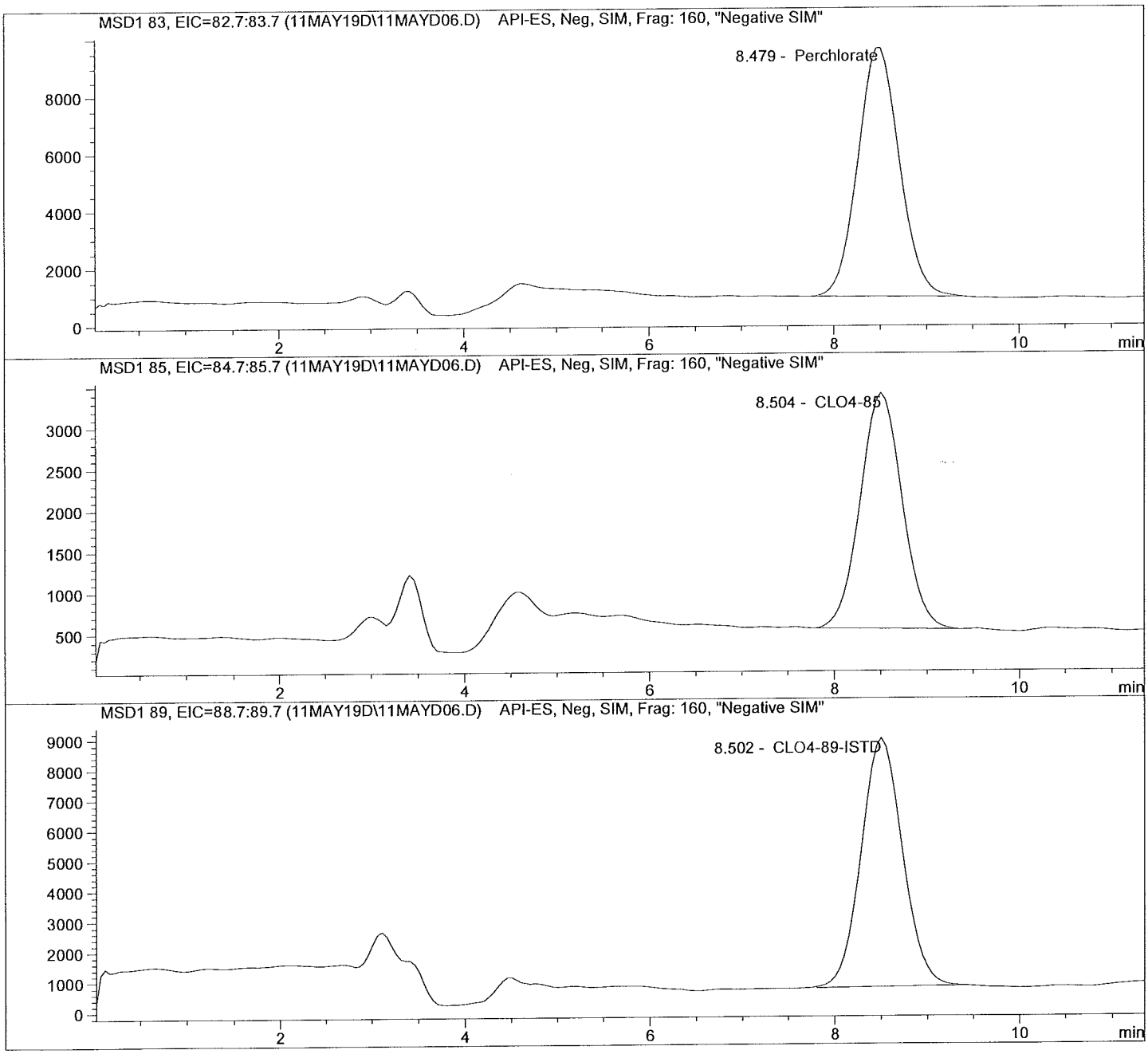
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD06.D Sample Name: 652192 MS

Injection Date:	5/11/2019 15:51:17	Seq Line:	6
Sample Name:	652192 MS	Location:	Vial 76
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD06.D Sample Name: 652192 MS

Injection Date:	5/11/2019 15:51:17	Seq Line:	6
Sample Name:	652192 MS	Location:	Vial 76
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.479	PBA	269491.3	3.4723	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.504	PBA	89302.3	3.7635	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	BBA	252603.7	5.0000	CLO4-89-ISTD

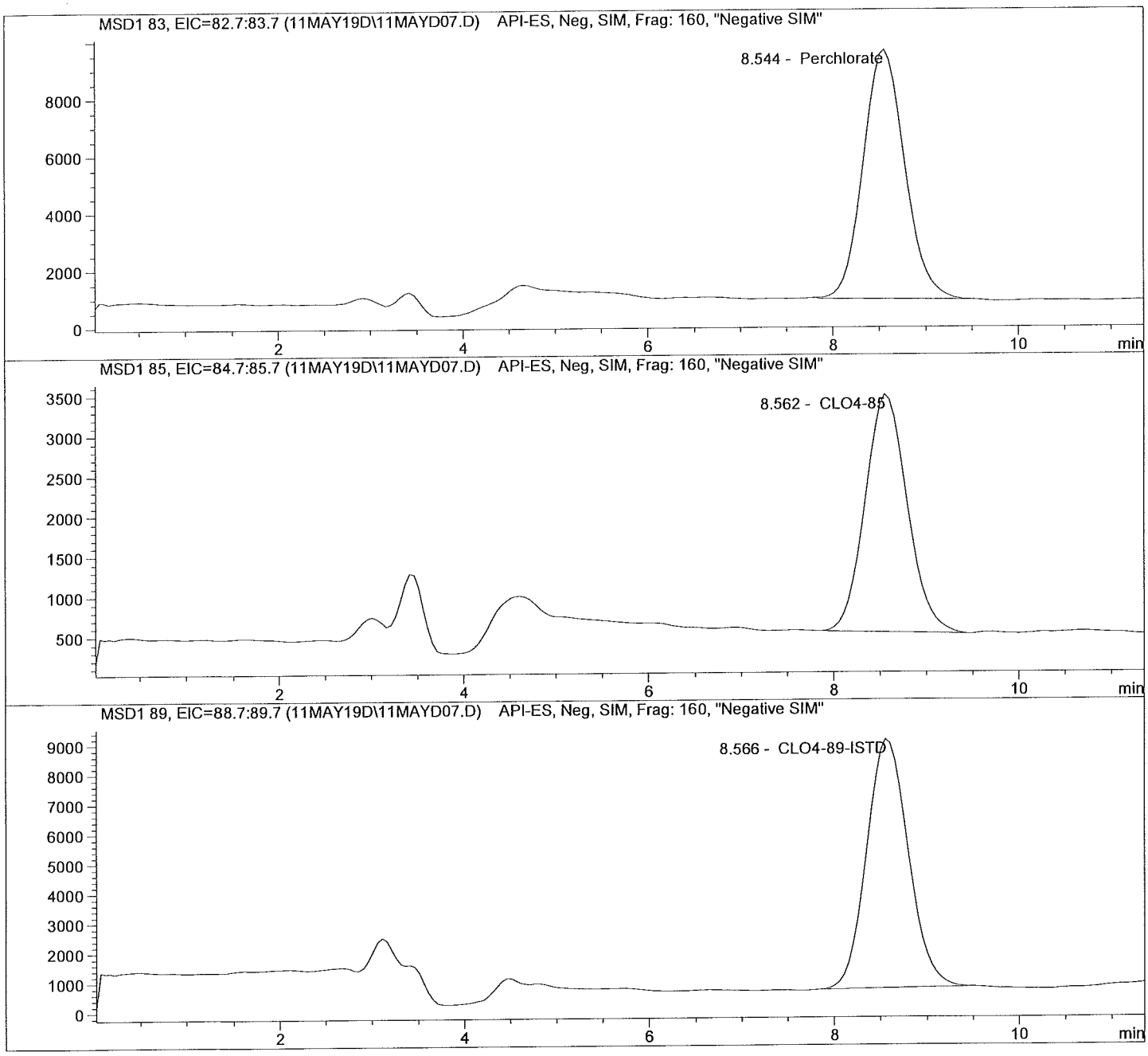
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD07.D Sample Name: 652193 SD

Injection Date:	5/11/2019 16:04:48	Seq Line:	7
Sample Name:	652193 SD	Location:	Vial 77
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD07.D Sample Name: 652193 SD

Injection Date:	5/11/2019 16:04:48	Seq Line:	7
Sample Name:	652193 SD	Location:	Vial 77
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.544	BBA	270469.7	3.3751	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.562	PBA	93410.8	3.8112	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.566	PBA	260935.7	5.0000	CLO4-89-ISTD

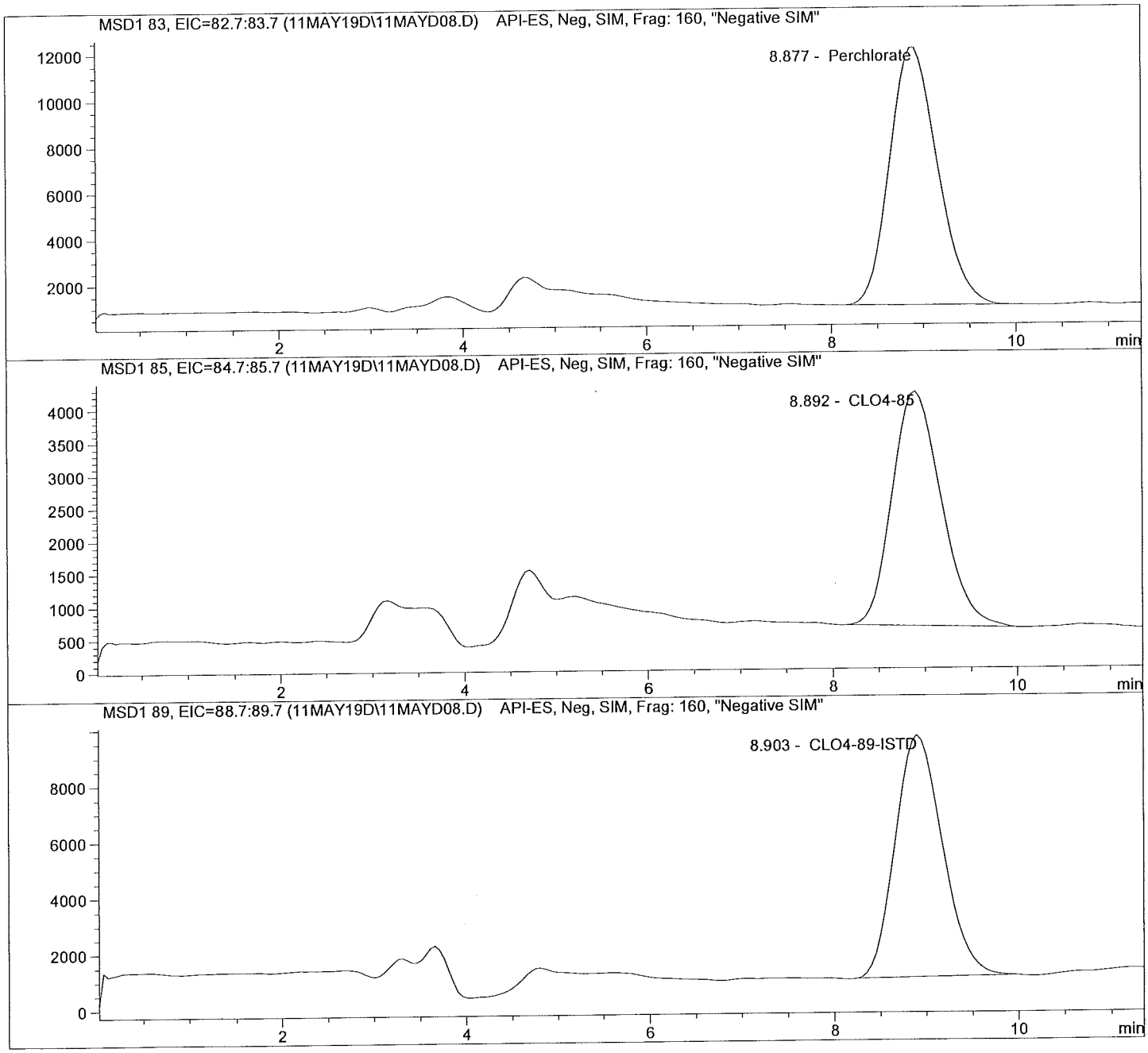
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD08.D Sample Name: 1913240001

Injection Date:	5/11/2019 16:18:10	Seq Line:	8
Sample Name:	1913240001	Location:	Vial 78
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD08.D Sample Name: 1913240001

Injection Date:	5/11/2019 16:18:10	Seq Line:	8
Sample Name:	1913240001	Location:	Vial 78
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,03:02:18 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.877	PBA	401113.9	4.2516	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.892	PBA	131380.7	4.5723	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.903	PBA	306123.7	5.0000	CLO4-89-ISTD

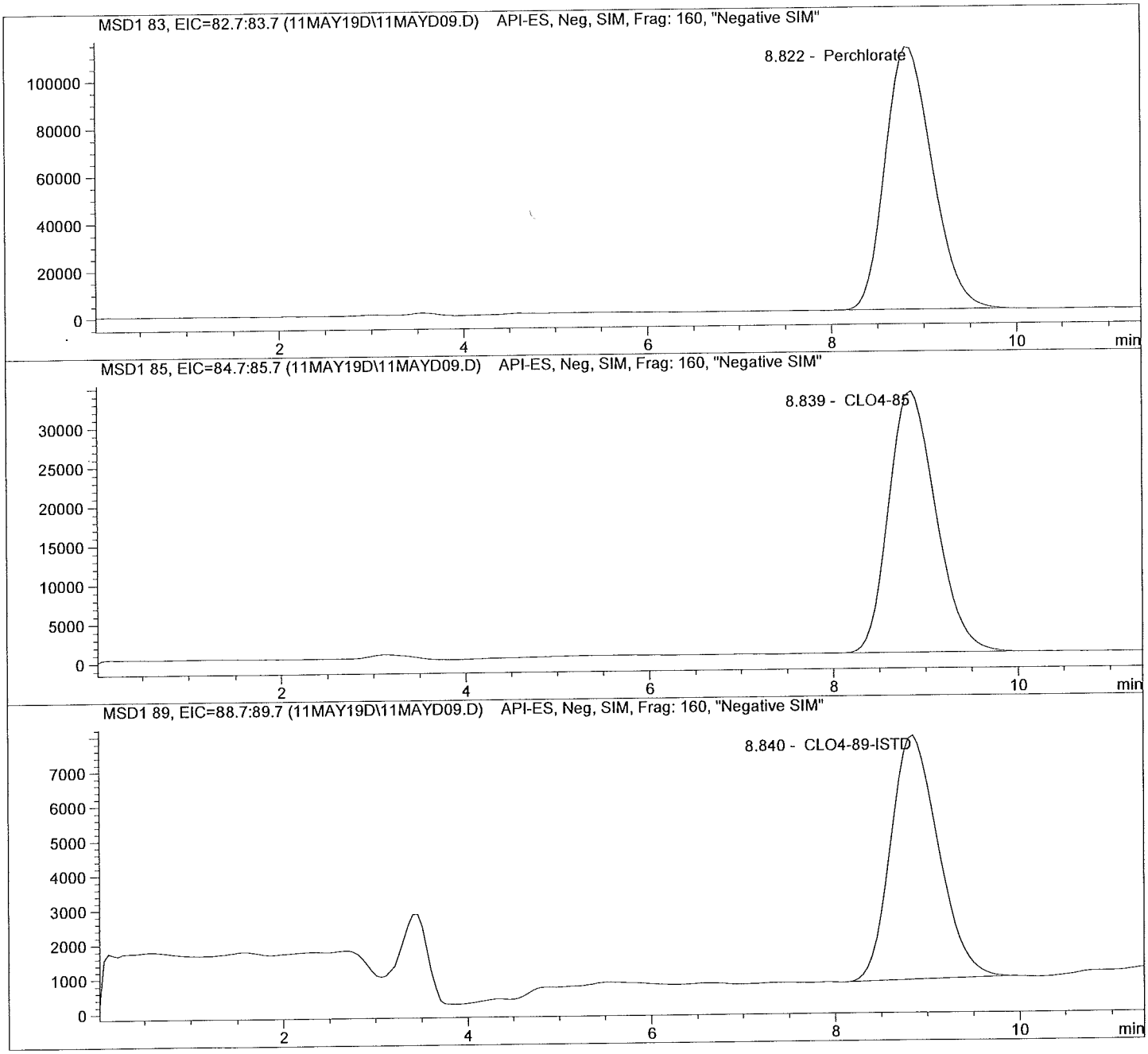
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD09.D Sample Name: 1913240002 10X

Injection Date:	5/11/2019 16:31:33	Seq Line:	9
Sample Name:	1913240002 10X	Location:	Vial 79
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD09.D Sample Name: 1913240002 10X

Injection Date:	5/11/2019 16:31:33	Seq Line:	9
Sample Name:	1913240002 10X	Location:	Vial 79
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.822	PBA	3900960.2	453.2509	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.839	PBA	1170561.0	458.0111	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.840	PBA	251360.6	50.0000	CLO4-89-ISTD

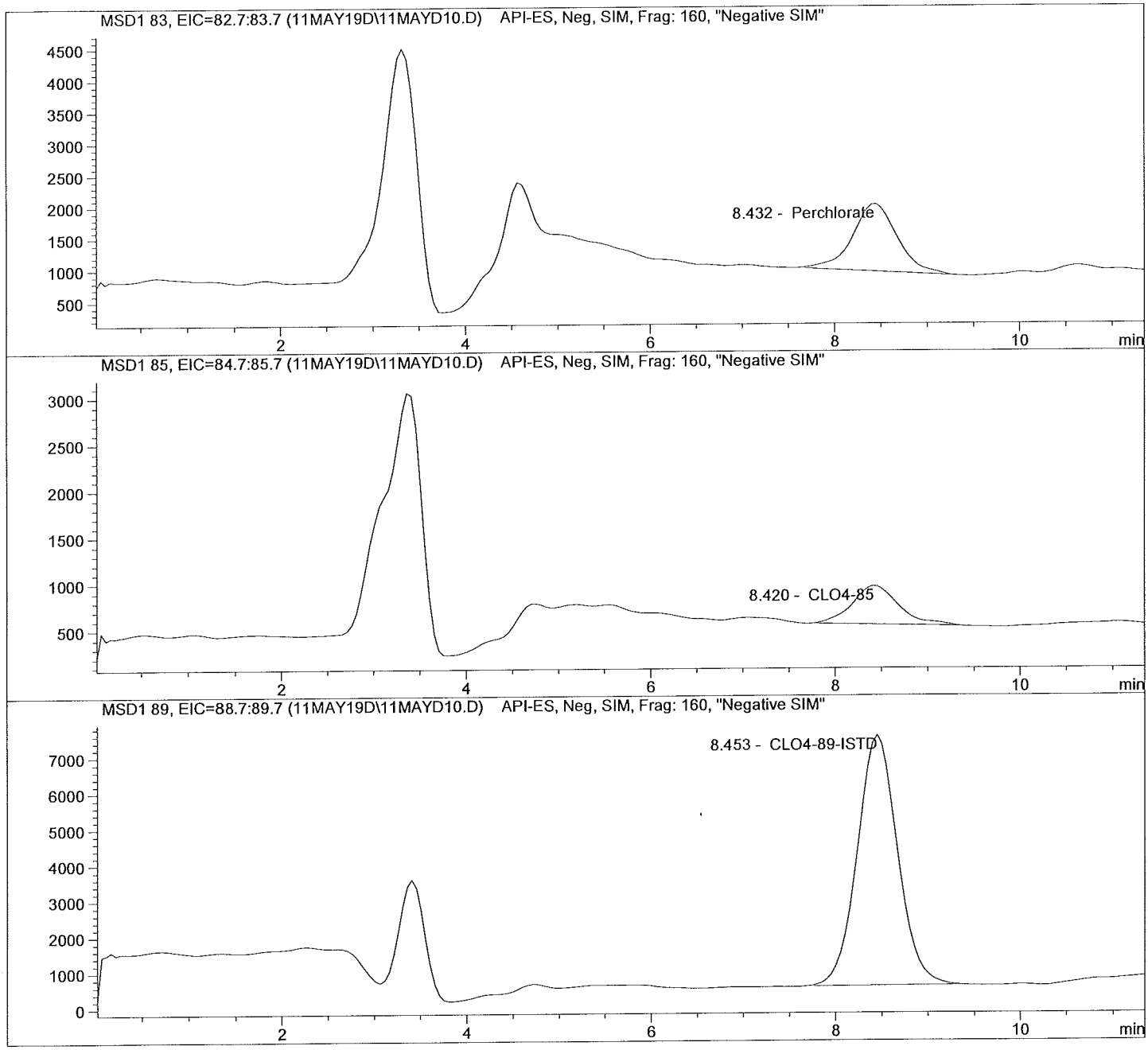
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD10.D Sample Name: 1913240003

Injection Date:	5/11/2019 16:44:58	Seq Line:	10
Sample Name:	1913240003	Location:	Vial 80
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD10.D Sample Name: 1913240003

Injection Date:	5/11/2019 16:44:58	Seq Line:	10
Sample Name:	1913240003	Location:	Vial 80
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.432	BBA	35516.8	0.5699	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.420	PBA	14388.5	0.6864	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.453	BBA	210600.8	5.0000	CLO4-89-ISTD

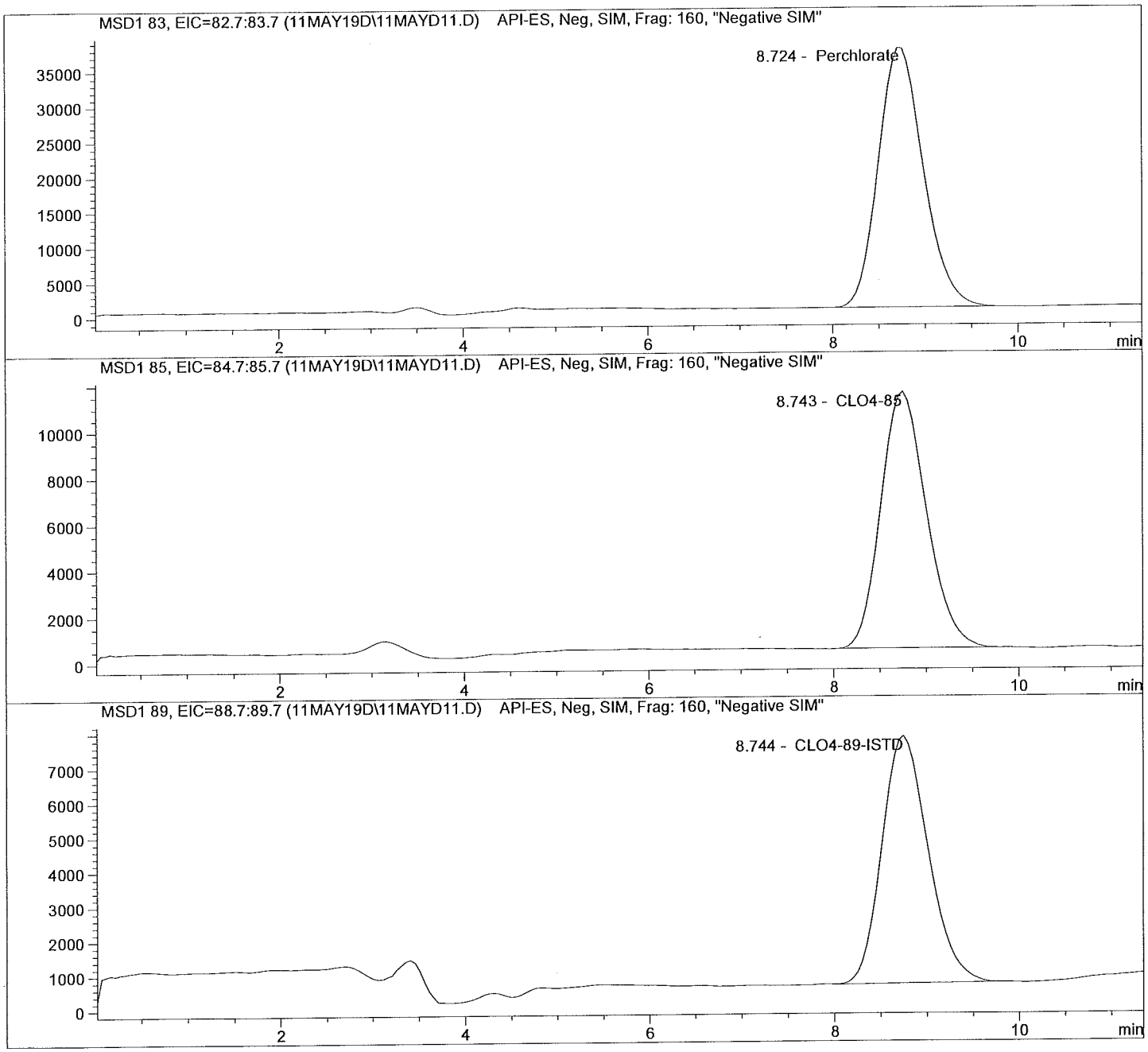
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD11.D Sample Name: 1913240004 10X

Injection Date:	5/11/2019 16:58:21	Seq Line:	11
Sample Name:	1913240004 10X	Location:	Vial 81
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD11.D Sample Name: 1913240004 10X

Injection Date:	5/11/2019 16:58:21	Seq Line:	11
Sample Name:	1913240004 10X	Location:	Vial 81
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.724	PBA	1242909.1	157.8520	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.743	PBA	377432.6	159.8718	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	247229.1	50.0000	CLO4-89-ISTD

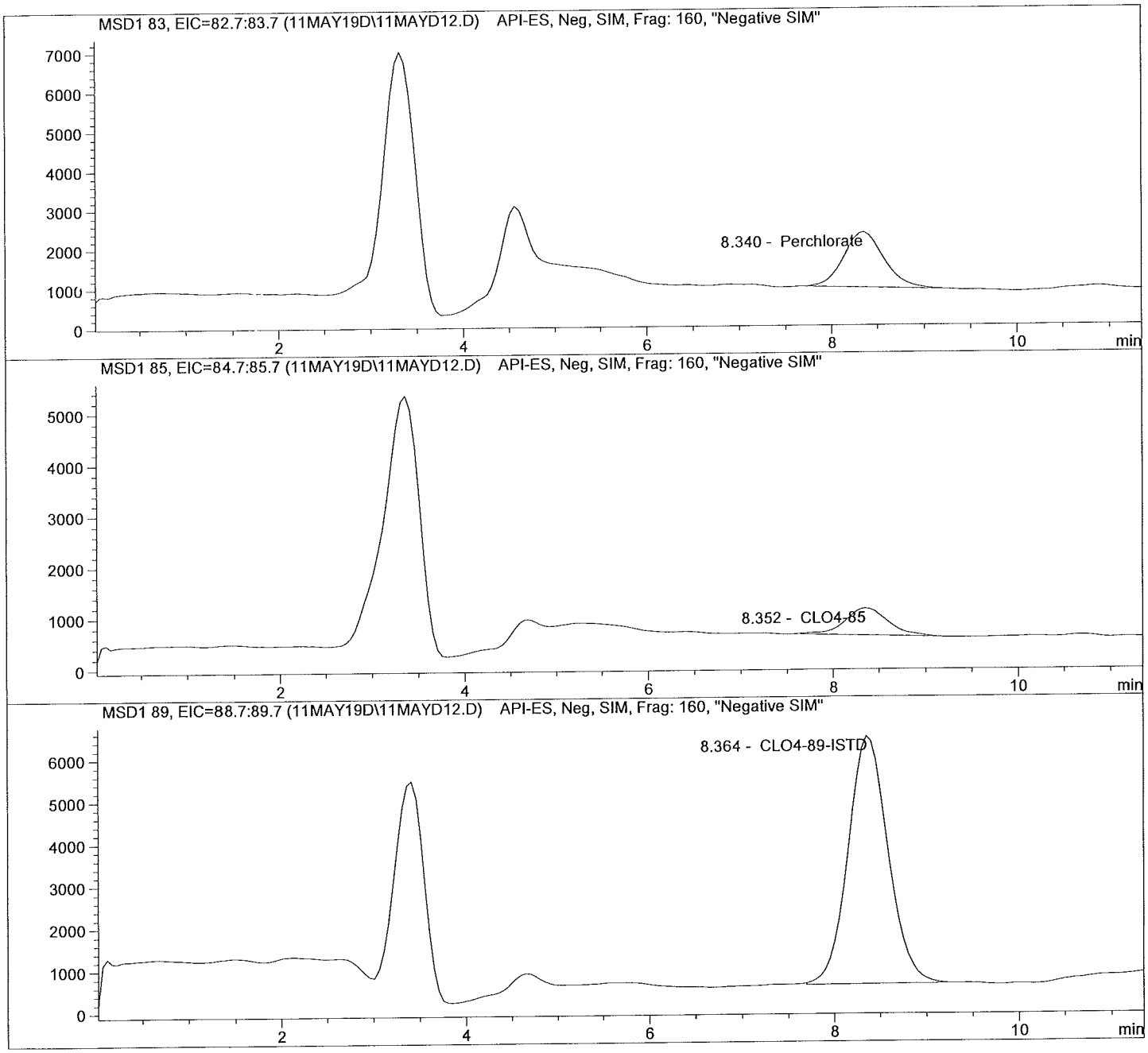
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD12.D Sample Name: 1913240005

Injection Date:	5/11/2019 17:11:40	Seq Line:	12
Sample Name:	1913240005	Location:	Vial 82
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD12.D Sample Name: 1913240005

Injection Date:	5/11/2019 17:11:40	Seq Line:	12
Sample Name:	1913240005	Location:	Vial 82
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.340	BBA	42534.0	0.8042	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.352	BBA	17017.9	0.9900	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.364	BBA	176758.8	5.0000	CLO4-89-ISTD

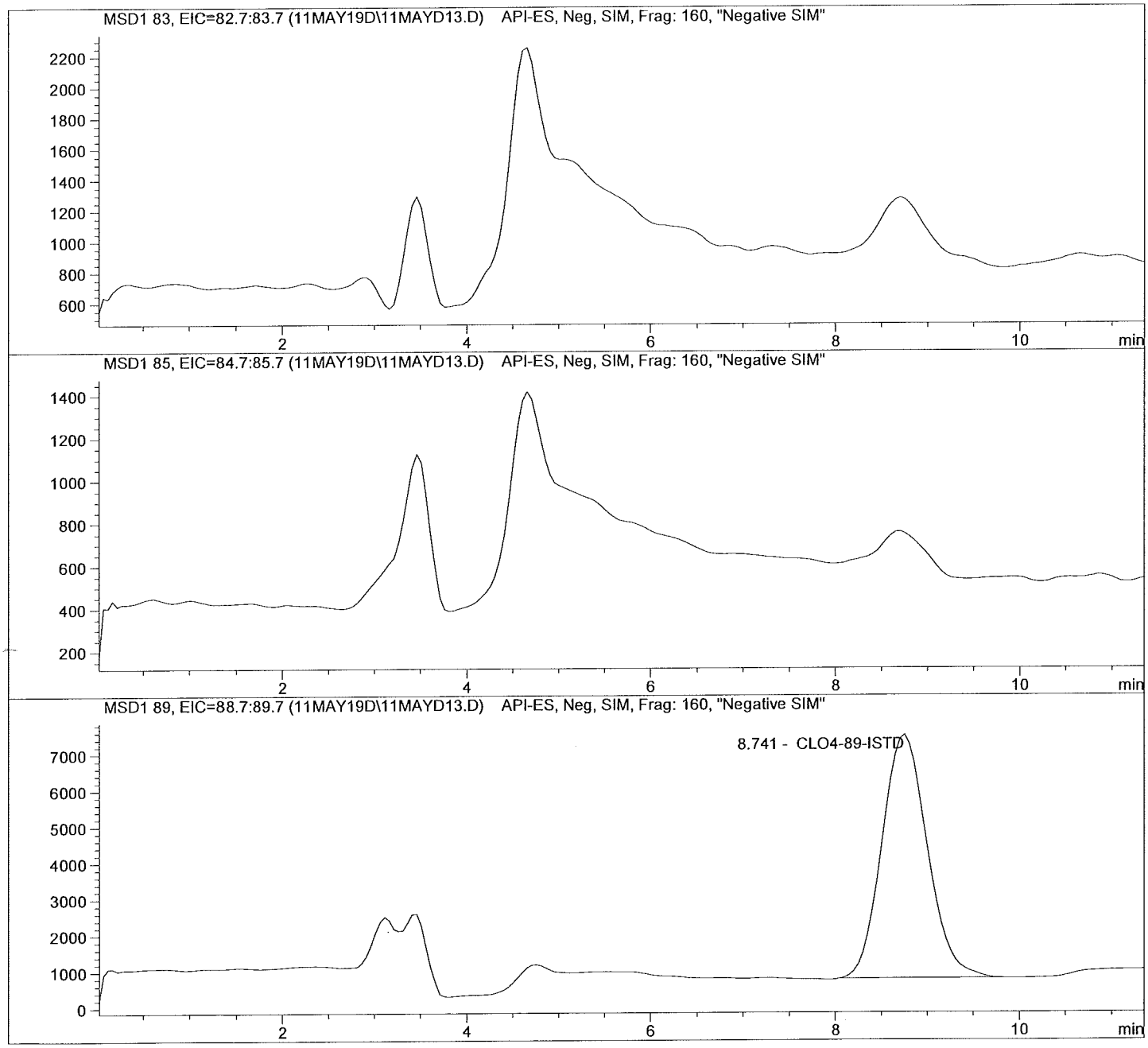
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD13.D Sample Name: 1913240006

Injection Date:	5/11/2019 17:25:01	Seq Line:	13
Sample Name:	1913240006	Location:	Vial 83
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD13.D Sample Name: 1913240006

Injection Date:	5/11/2019 17:25:01	Seq Line:	13
Sample Name:	1913240006	Location:	Vial 83
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.741	BBA	228540.6	5.0000	CLO4-89-ISTD

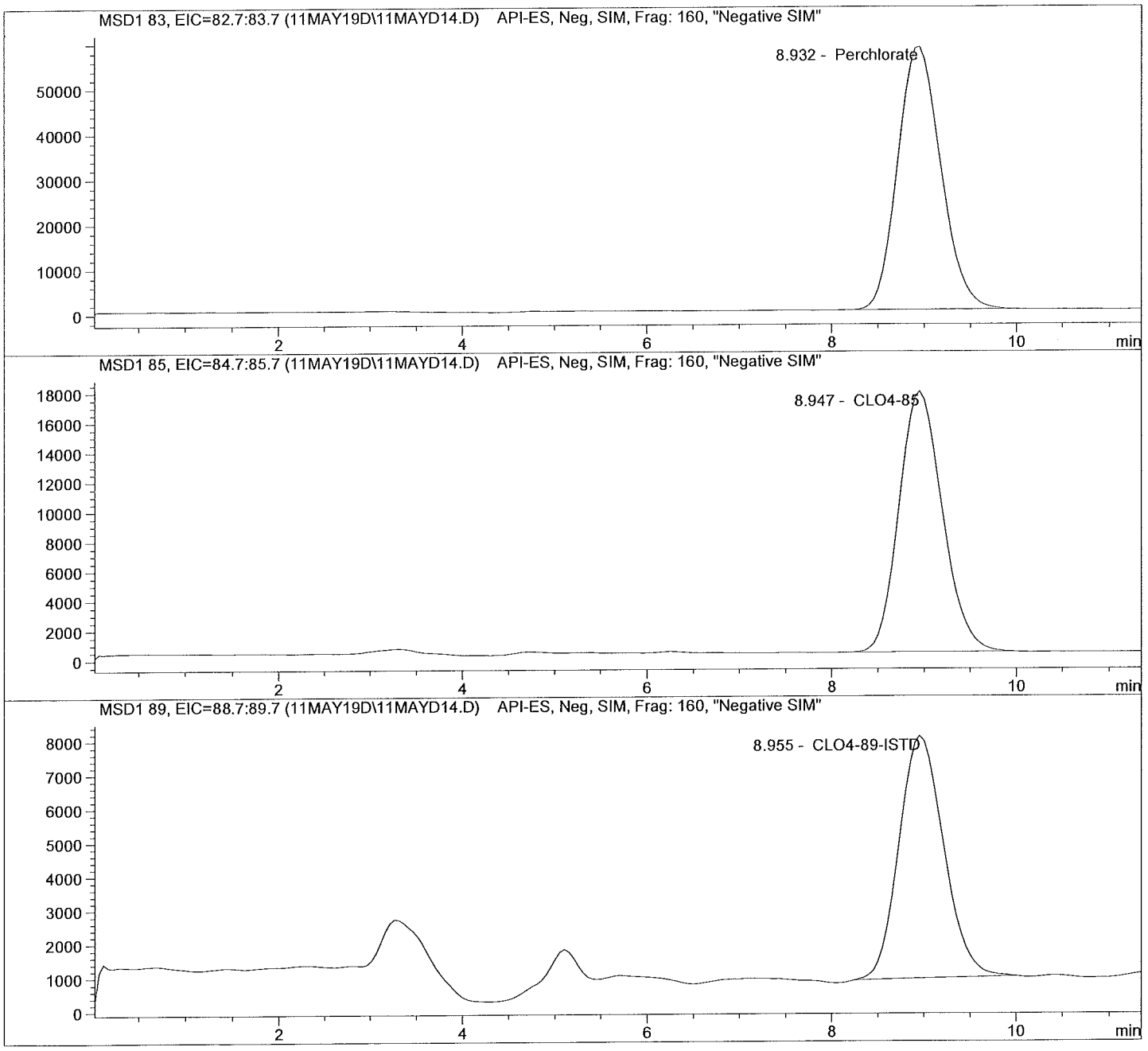
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD14.D Sample Name: 652194 CCV@25

Injection Date:	5/11/2019 17:38:23	Seq Line:	14
Sample Name:	652194 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\11MAY19D\11MAYD14.D Sample Name: 652194 CCV@25

Injection Date:	5/11/2019 17:38:23	Seq Line:	14
Sample Name:	652194 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.932	BBA	1884651.9	24.1677	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.947	BBA	569187.4	24.4323	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.955	PBA	239698.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 3:02:18 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.851	1	1	2.00000e-1	1.81450e4	1.10223e-5		1	Perchlorate
		2	5.00000e-1	3.21972e4	1.55293e-5			
		3	1.00000	7.76263e4	1.28822e-5			
		4	2.00000	1.35273e5	1.47849e-5			
		5	5.00000	3.37764e5	1.48033e-5			
		6	10.00000	6.83454e5	1.46316e-5			
		7	25.00000	2.08433e6	1.19943e-5			
		8	50.00000	4.13334e6	1.20968e-5			
		9	75.00000	5.99313e6	1.25143e-5			
8.865	2	1	2.00000e-1	6104.14795	3.27646e-5		1	CLO4-85
		2	5.00000e-1	1.30663e4	3.82665e-5			
		3	1.00000	2.36911e4	4.22099e-5			
		4	2.00000	4.69486e4	4.25998e-5			
		5	5.00000	1.06124e5	4.71147e-5			
		6	10.00000	2.13523e5	4.68335e-5			
		7	25.00000	6.14295e5	4.06971e-5			
		8	50.00000	1.19814e6	4.17315e-5			
		9	75.00000	1.78355e6	4.20509e-5			
8.871	3	1	5.00000	2.49686e5	2.00252e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.51653e5	1.98686e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		3	5.00000	2.73208e5	1.83011e-5			
		4	5.00000	2.24886e5	2.22335e-5			
		5	5.00000	2.33196e5	2.14412e-5			
		6	5.00000	2.34454e5	2.13262e-5			
		7	5.00000	2.50568e5	1.99547e-5			
		8	5.00000	2.30977e5	2.16472e-5			
		9	5.00000	2.21509e5	2.25725e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 4.682 min To 11.682 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.4
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.008
  - Level 8 : 0.004
  - Level 9 : 0.002667

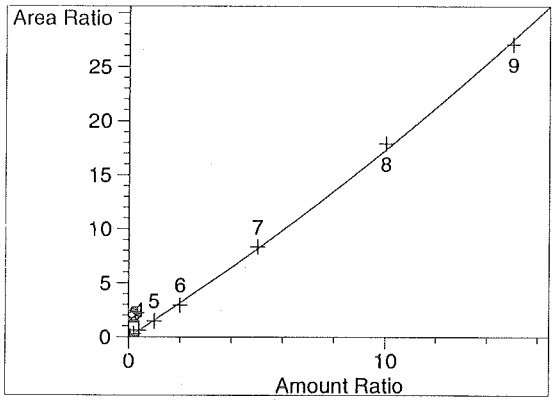
Compound: CLO4-85
- Time Window : From 4.688 min To 11.688 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.4
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.008
  - Level 8 : 0.004
  - Level 9 : 0.002667

Compound: CLO4-89-ISTD
- Time Window : From 4.685 min To 11.685 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1
  - Level 8 : 1
  - Level 9 : 1

Peak Sum Table

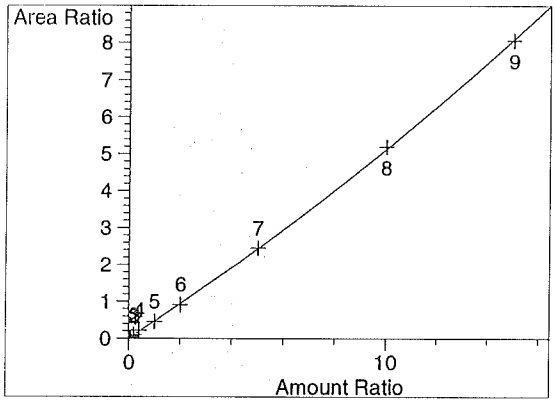
No Entries in table

Calibration Curves



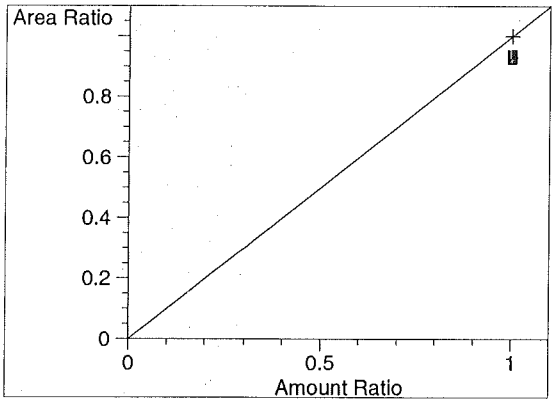
Perchlorate at exp. RT: 8.851
MSD1 83, EIC=82.7:83.7
Correlation: 0.99950
Residual Std. Dev.: 0.29306
Formula: $y = ax^2 + bx + c$
a: 2.00258e-2
b: 1.53115
c: -6.14208e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:

Level 1	: 1
Level 2	: 0.4
Level 3	: 0.2
Level 4	: 0.1
Level 5	: 0.04
Level 6	: 0.02
Level 7	: 0.008
Level 8	: 0.004
Level 9	: 0.002667



CLO4-85 at exp. RT: 8.865
MSD1 85, EIC=84.7:85.7
Correlation: 0.99984
Residual Std. Dev.: 0.03219
Formula: $y = ax^2 + bx + c$
a: 5.36525e-3
b: 4.58662e-1
c: 5.25596e-3
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:

Level 1	: 1
Level 2	: 0.4
Level 3	: 0.2
Level 4	: 0.1
Level 5	: 0.04
Level 6	: 0.02
Level 7	: 0.008
Level 8	: 0.004
Level 9	: 0.002667



CLO4-89-ISTD at exp. RT: 8.871
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:

Level 1	: 1
Level 2	: 1
Level 3	: 1
Level 4	: 1
Level 5	: 1
Level 6	: 1
Level 7	: 1
Level 8	: 1
Level 9	: 1

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-PR2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 0.2ug/L	Vial 71	1	Control	1	1.81450e4	8.851	2.57194e-1
#*	CLO4@ 0.5ug/L	Vial 72	1	Control	2	3.21972e4	8.907	4.37356e-1
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76263e4	8.744	9.45547e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	1.97413
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.69227
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.31250
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.48505
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.51493
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.03431
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.29435

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 0.2ug/L	Vial 71	1	Control	1	2.49686e5	8.871	5.00000
#*	CLO4@ 0.5ug/L	Vial 72	1	Control	2	2.51653e5	8.924	5.00000
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21509e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 0.2ug/L	Vial 71	1	Control	1	6104.14795	8.865	2.09108e-1
#*	CLO4@ 0.5ug/L	Vial 72	1	Control	2	1.30663e4	8.952	5.08112e-1
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36911e4	8.755	8.86167e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.20712
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.84870
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.65276
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.18450
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.51944
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.67276
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54934

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

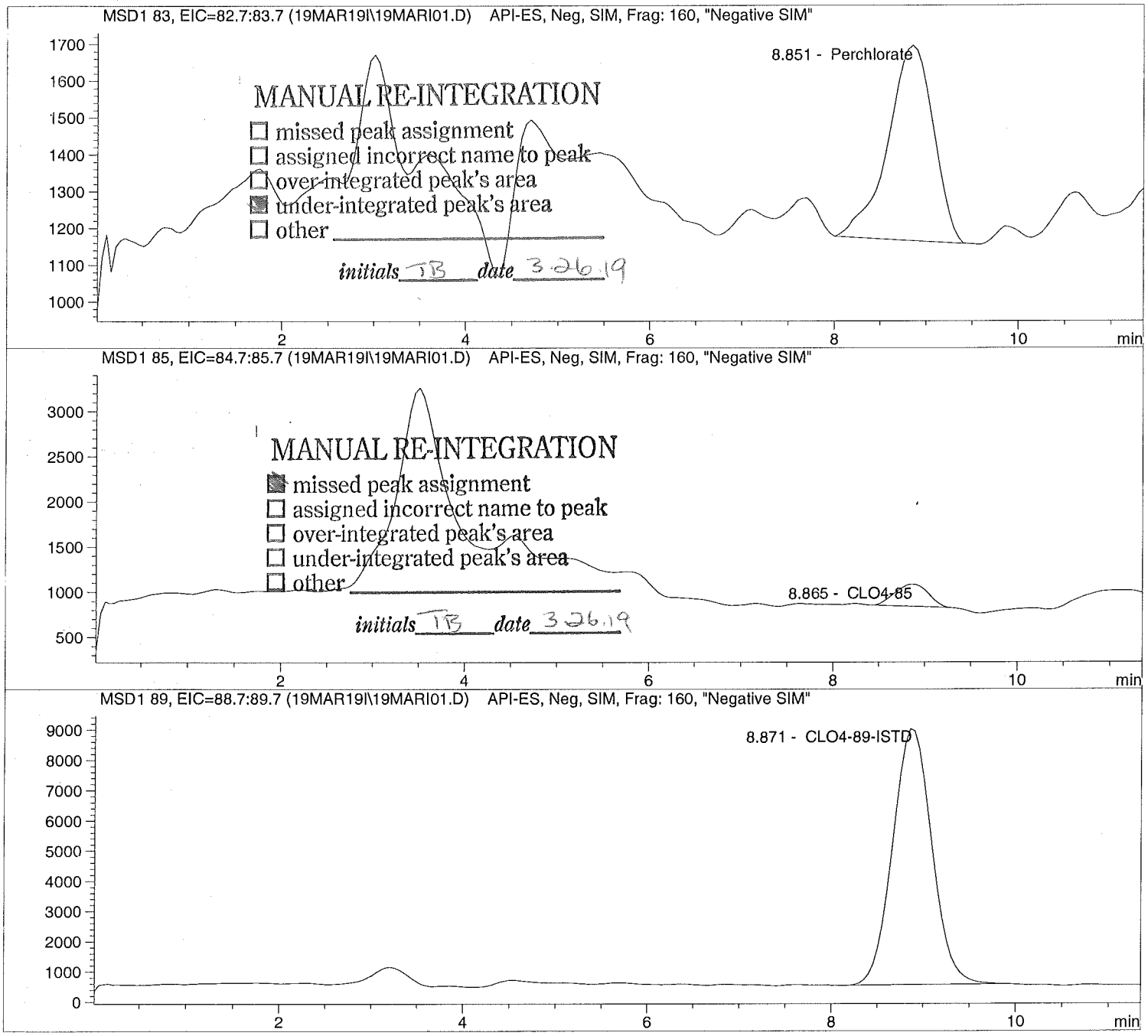
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI01.D Sample Name: CLO4@ 0.2ug/L

Injection Date:	3/19/2019 09:13:09	Seq Line:	1
Sample Name:	CLO4@ 0.2ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI01.D Sample Name: CLO4@ 0.2ug/L

Injection Date:	3/19/2019 09:13:09	Seq Line:	1
Sample Name:	CLO4@ 0.2ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.200

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.851	MM	18145.0	0.2572	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.865	MM	6104.1	0.2091	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.871	PBA	249685.7	5.0000	CLO4-89-ISTD

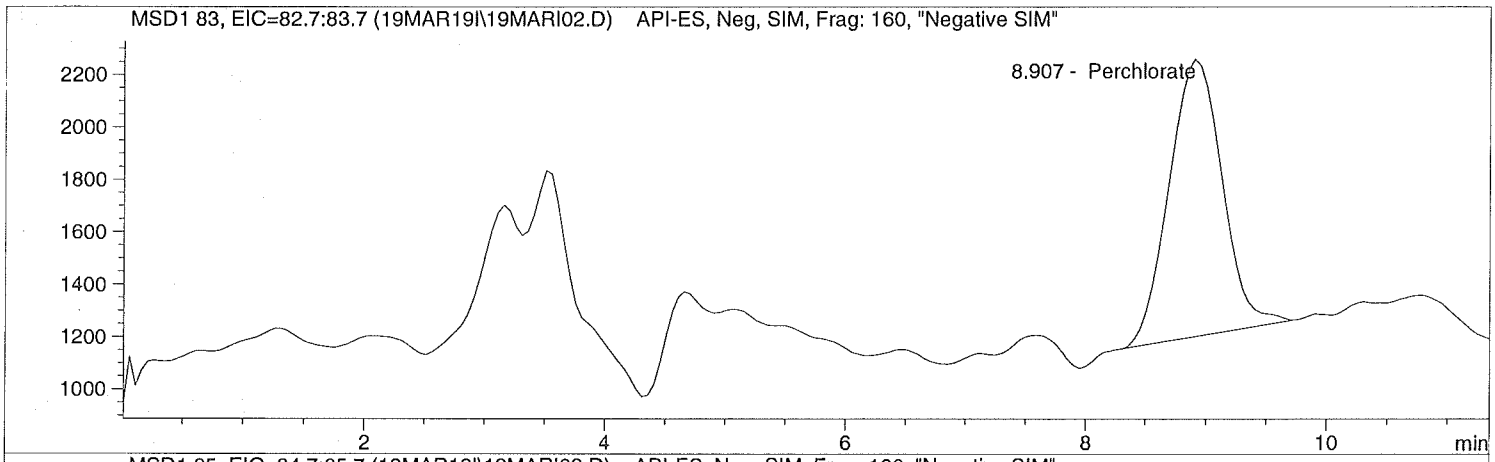
*** End of Report ***

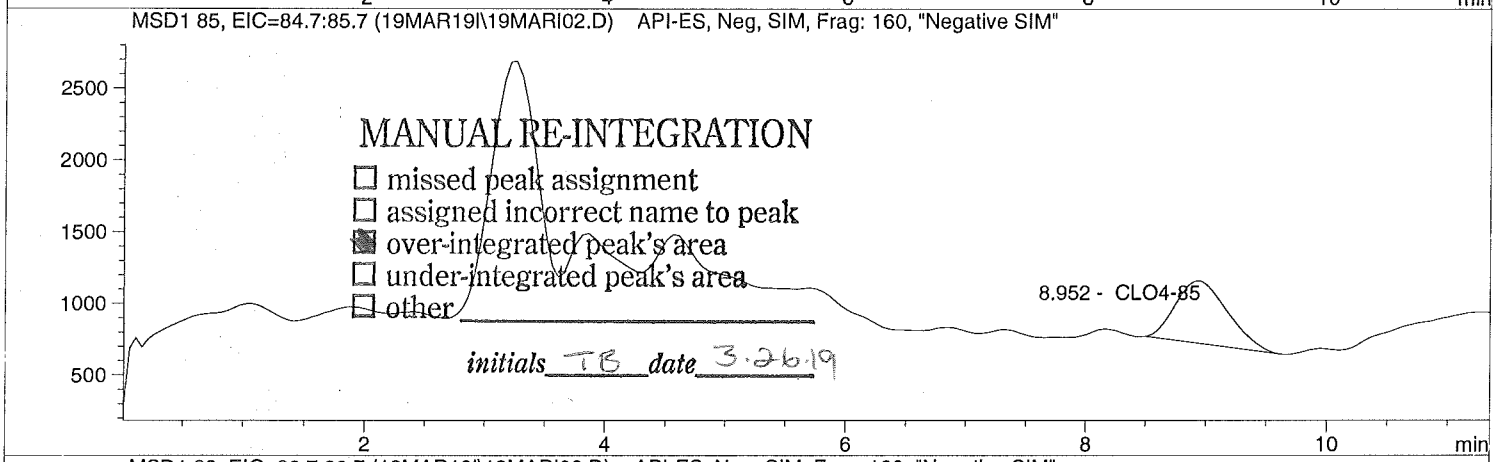
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI02.D Sample Name: CLO4@ 0.5ug/L

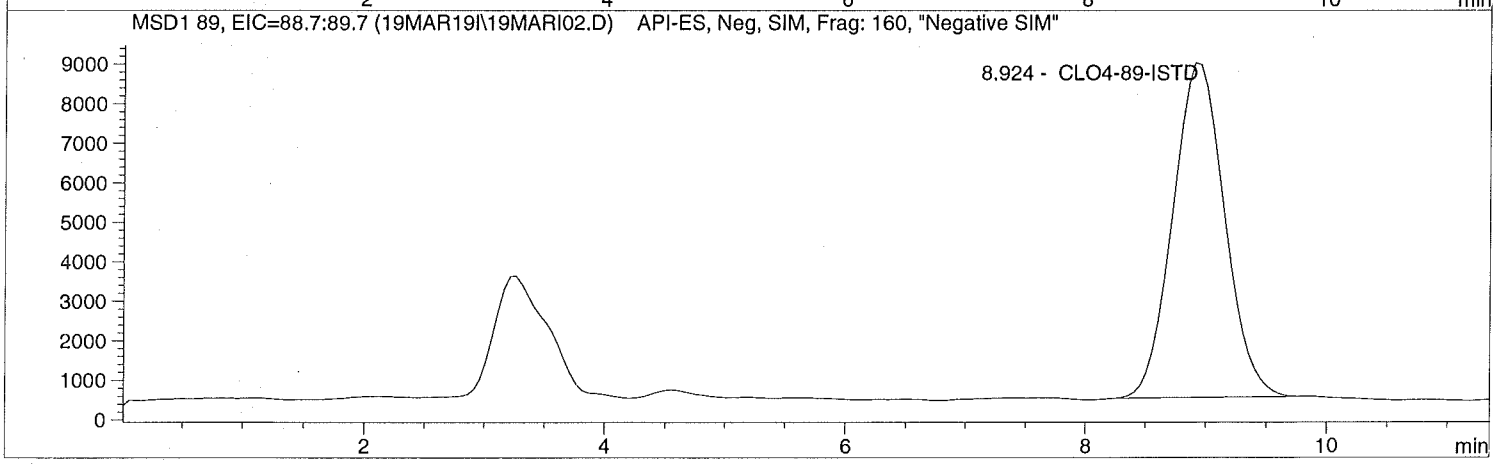
Injection Date:	3/19/2019 09:26:25	Seq Line:	2
Sample Name:	CLO4@ 0.5ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI02.D Sample Name: CLO4@ 0.5ug/L

Injection Date:	3/19/2019 09:26:25	Seq Line:	2
Sample Name:	CLO4@ 0.5ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.500

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.907	PBA	32197.2	0.4374	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.952	MM	13066.3	0.5081	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.924	PBA	251653.1	5.0000	CLO4-89-ISTD

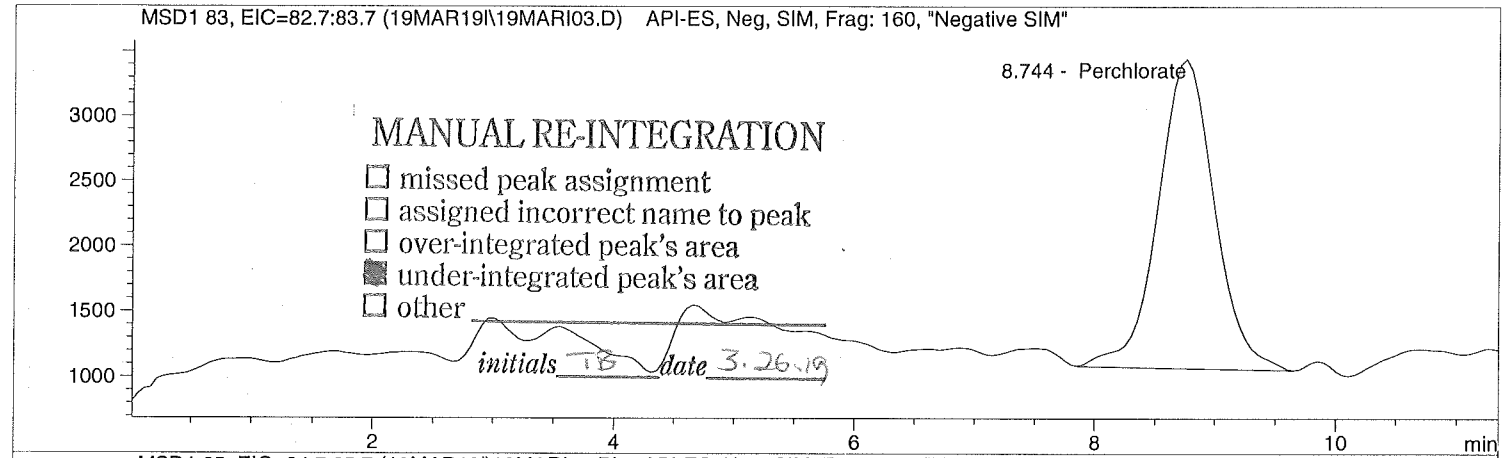
*** End of Report ***

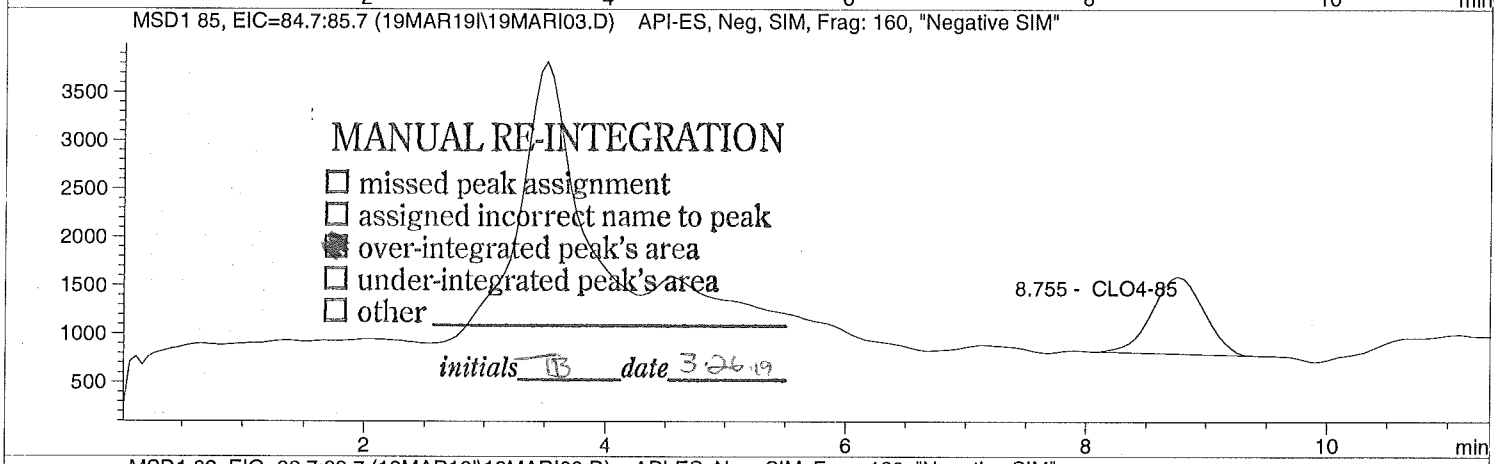
Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

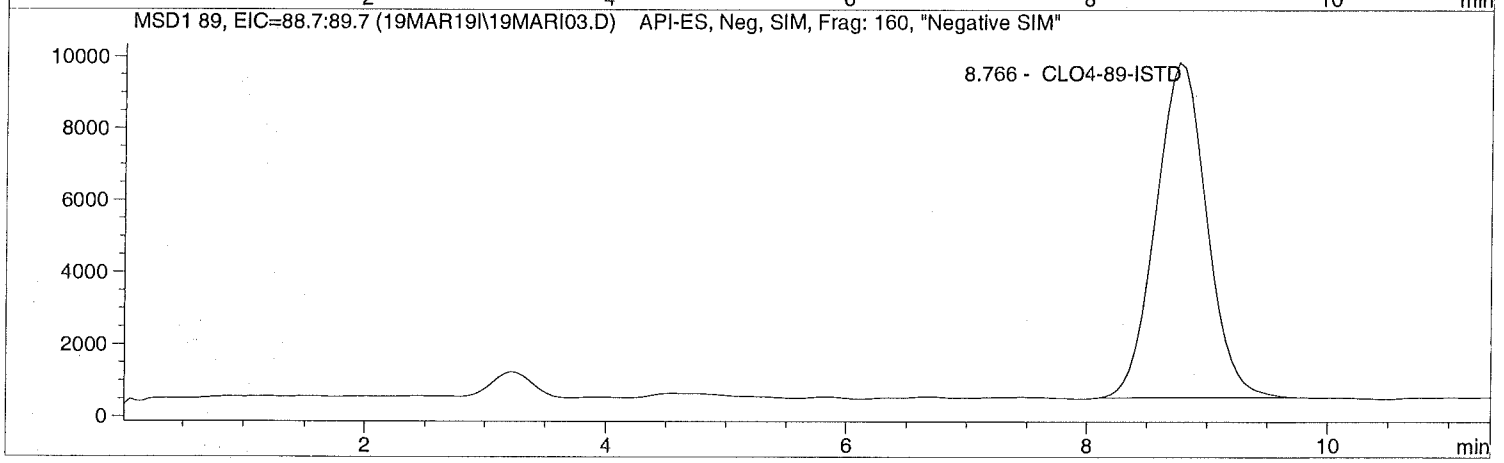
Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77626.3	0.9455	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23691.1	0.8862	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

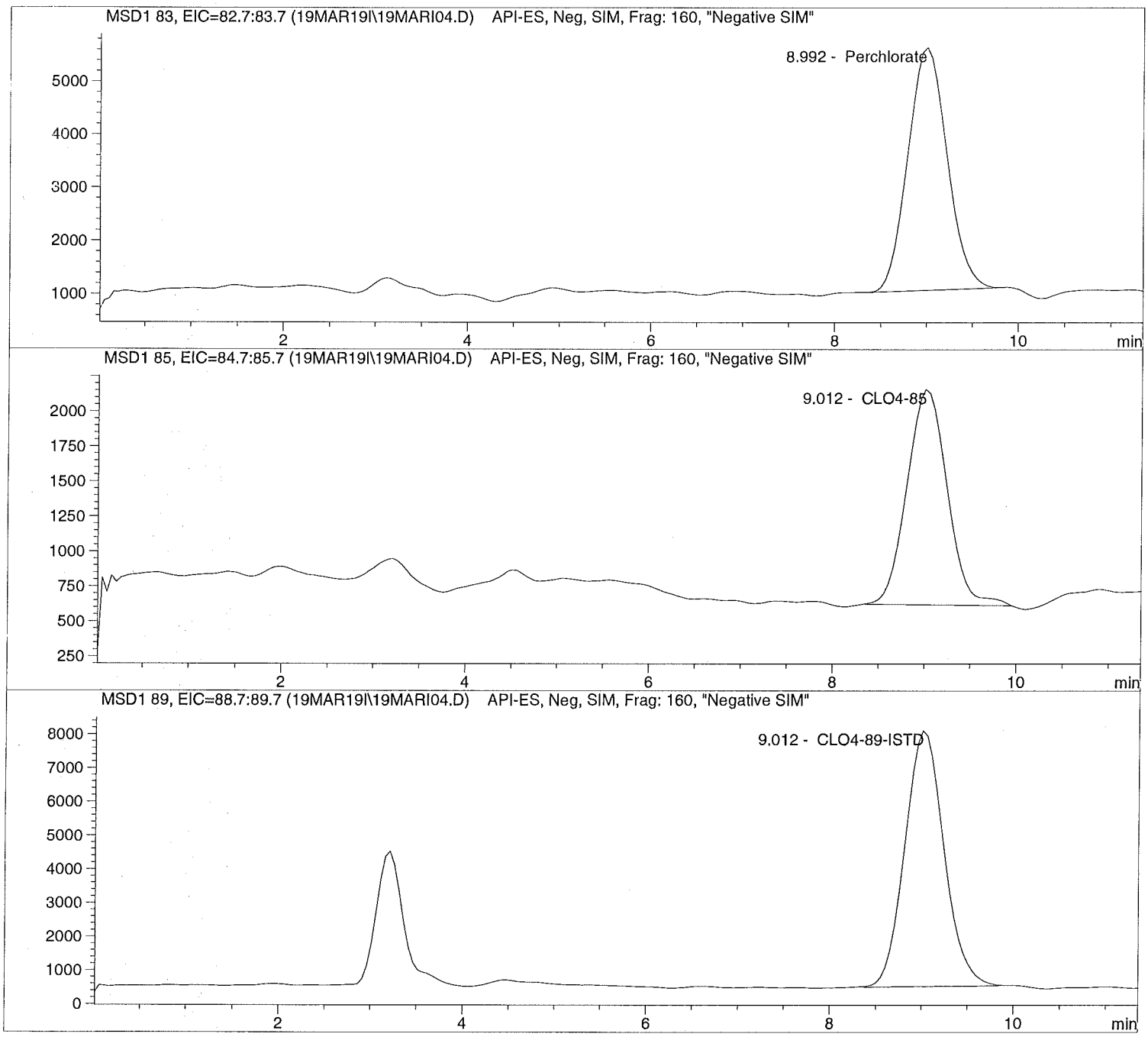
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	1.9741	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2071	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

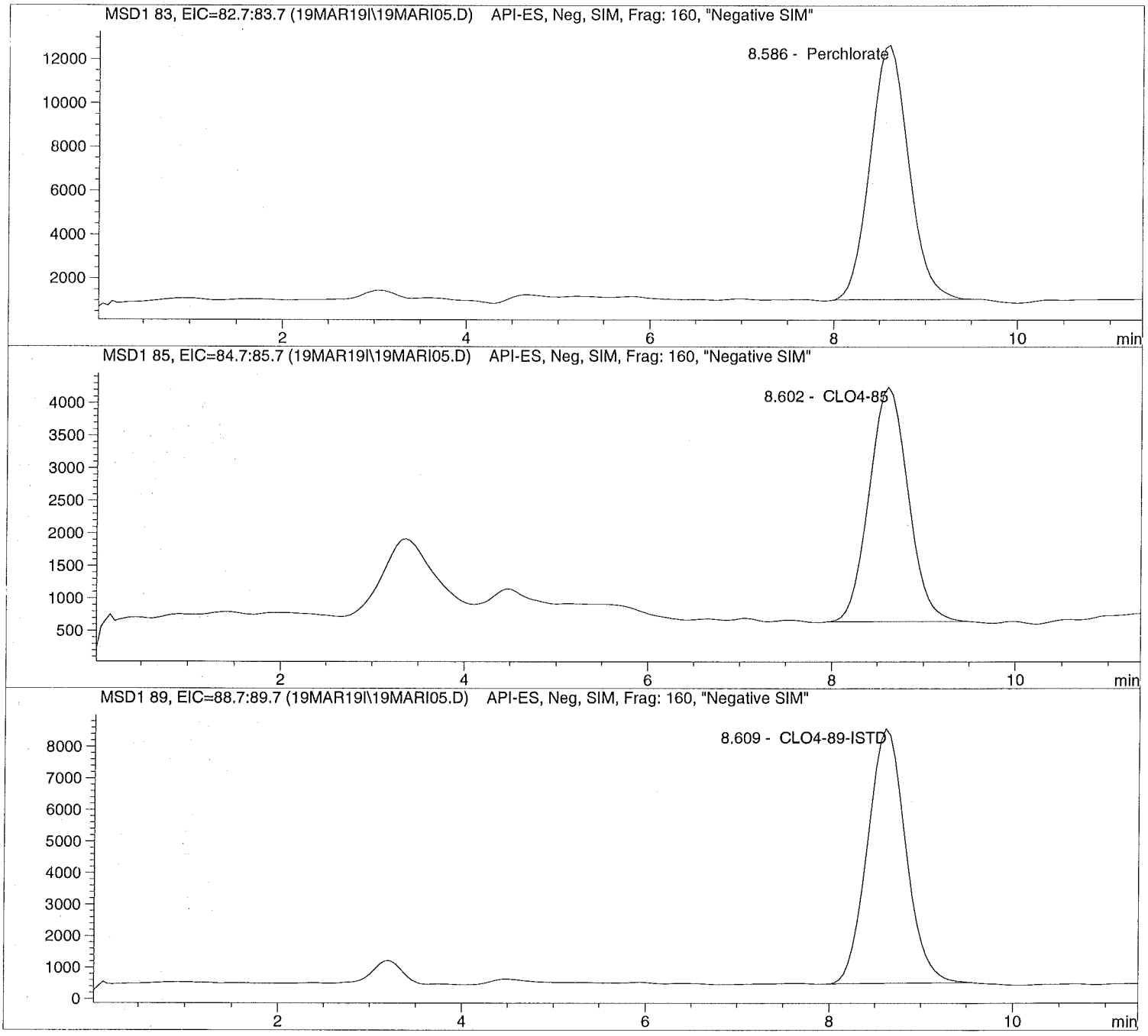
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.6923	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

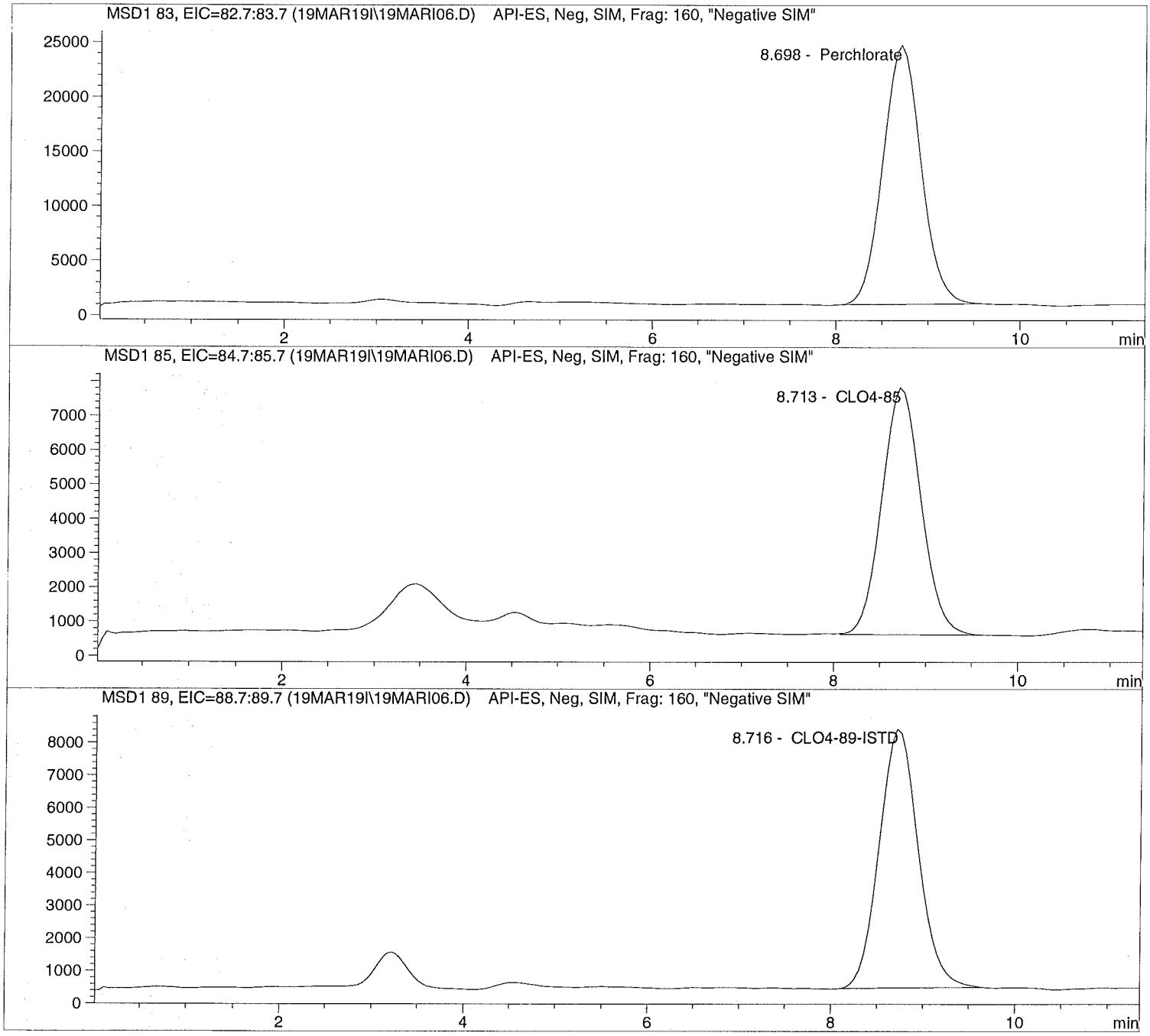
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.3125	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6528	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

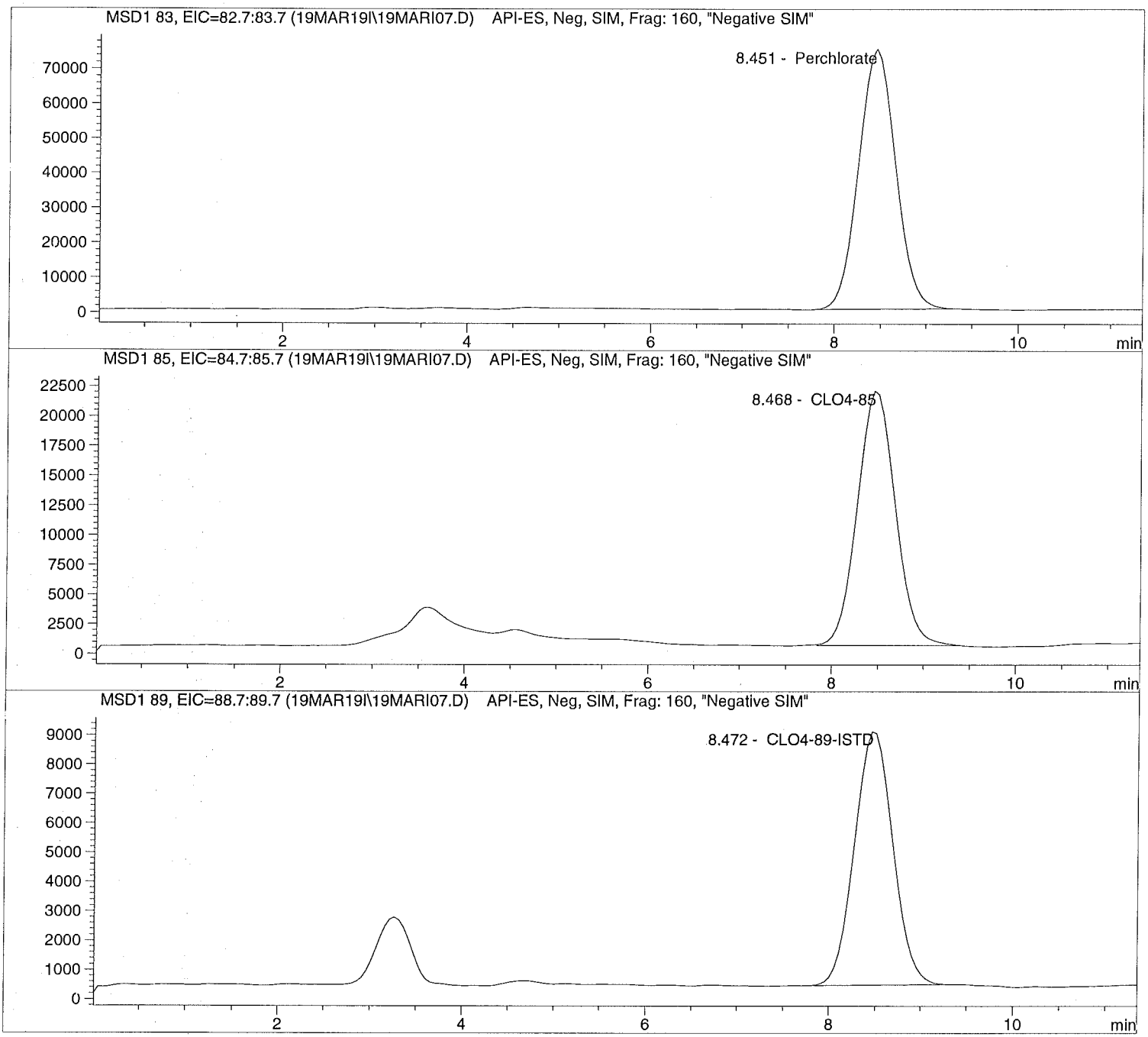
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.4851	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1845	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

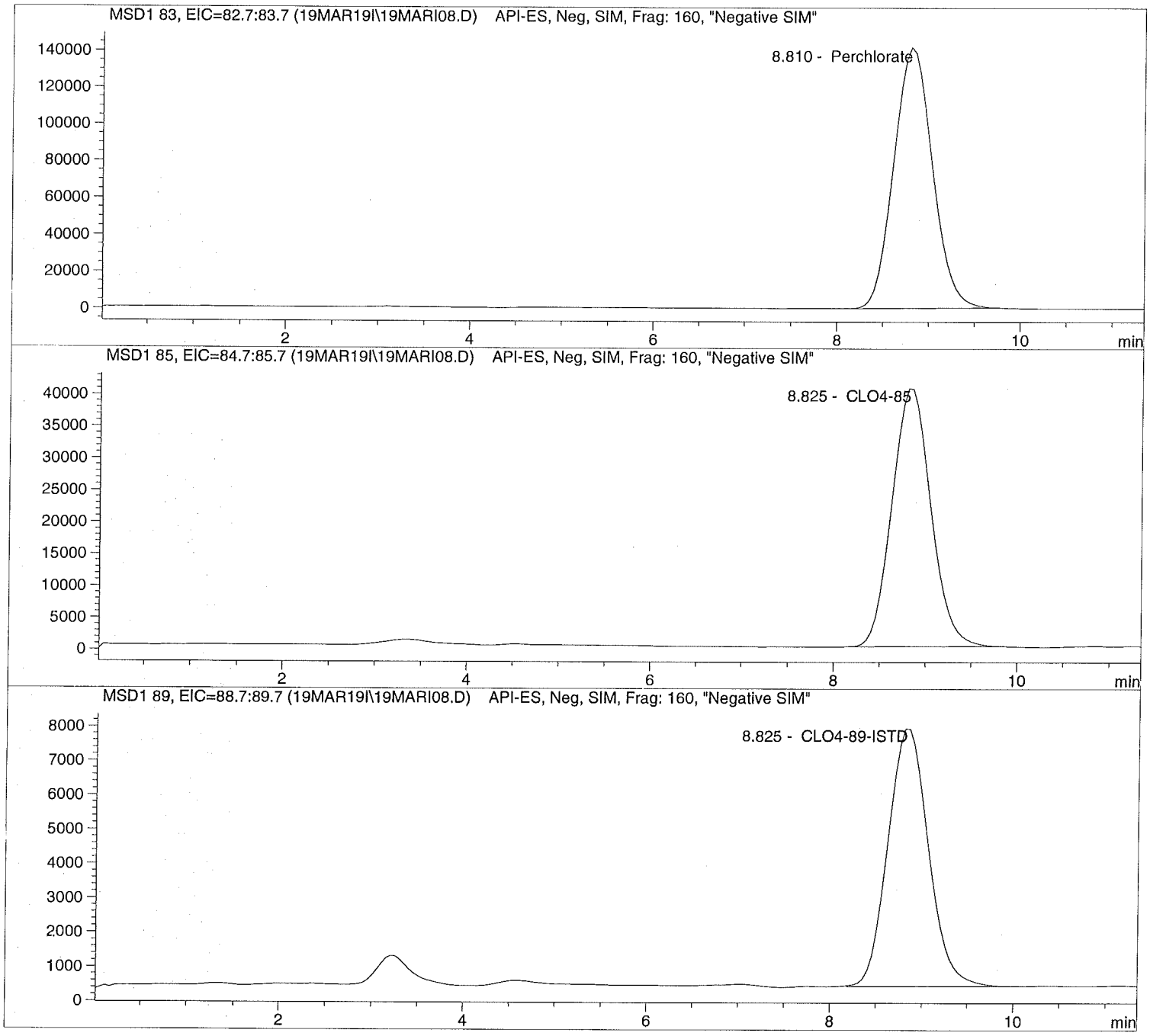
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.3	51.5149	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.5194	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

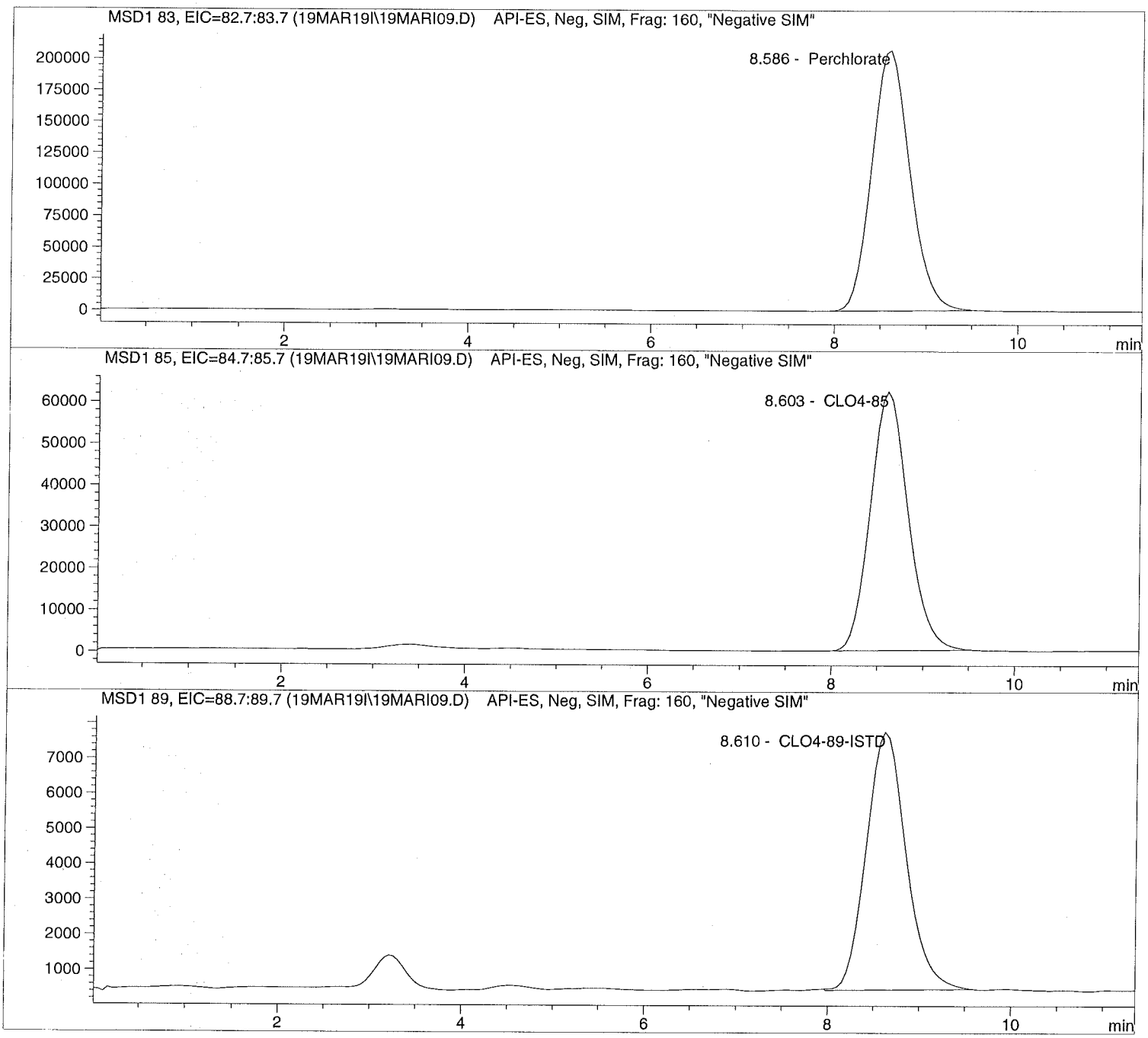
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.0343	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.6728	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221508.9	5.0000	CLO4-89-ISTD

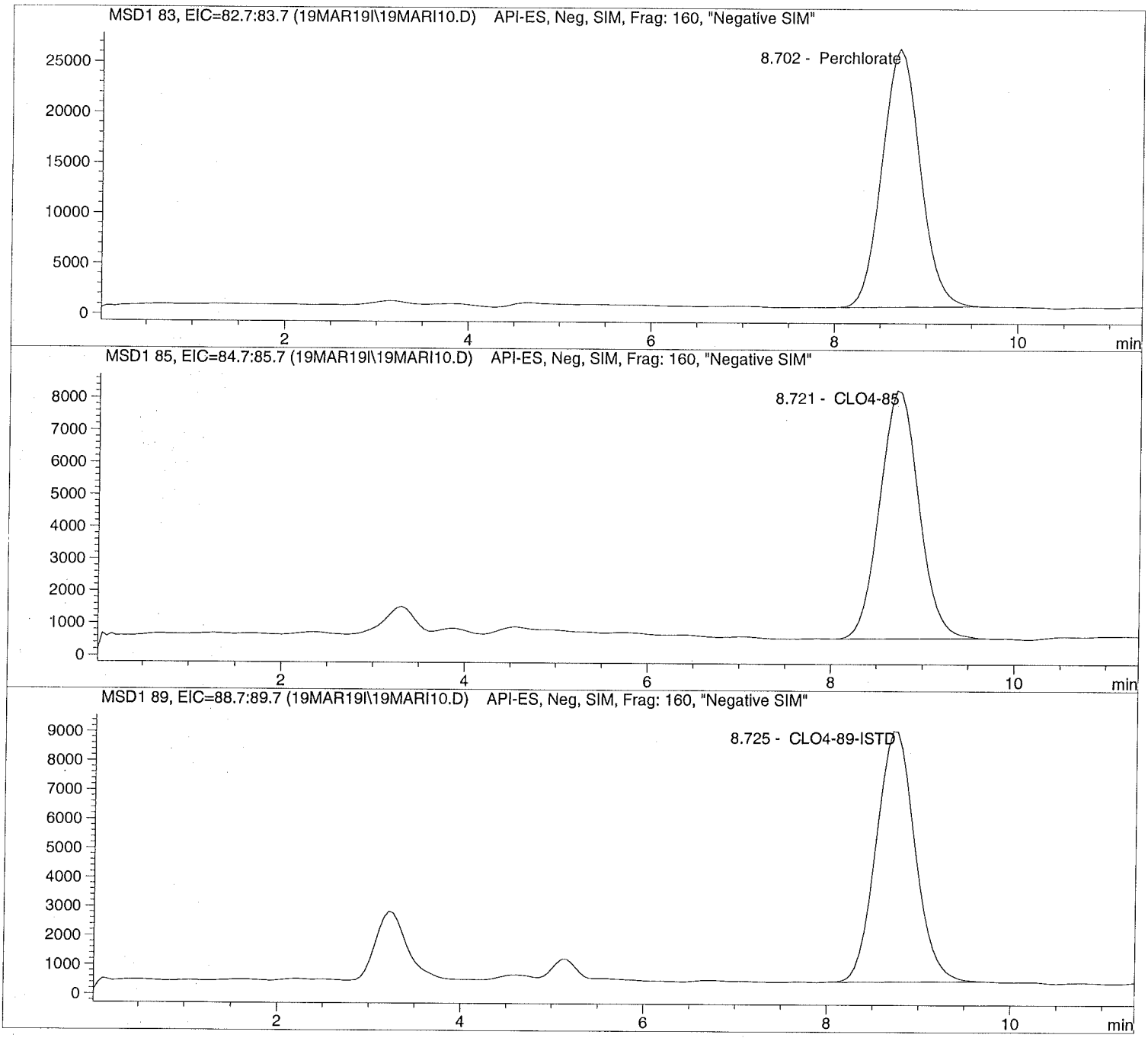
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2944	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

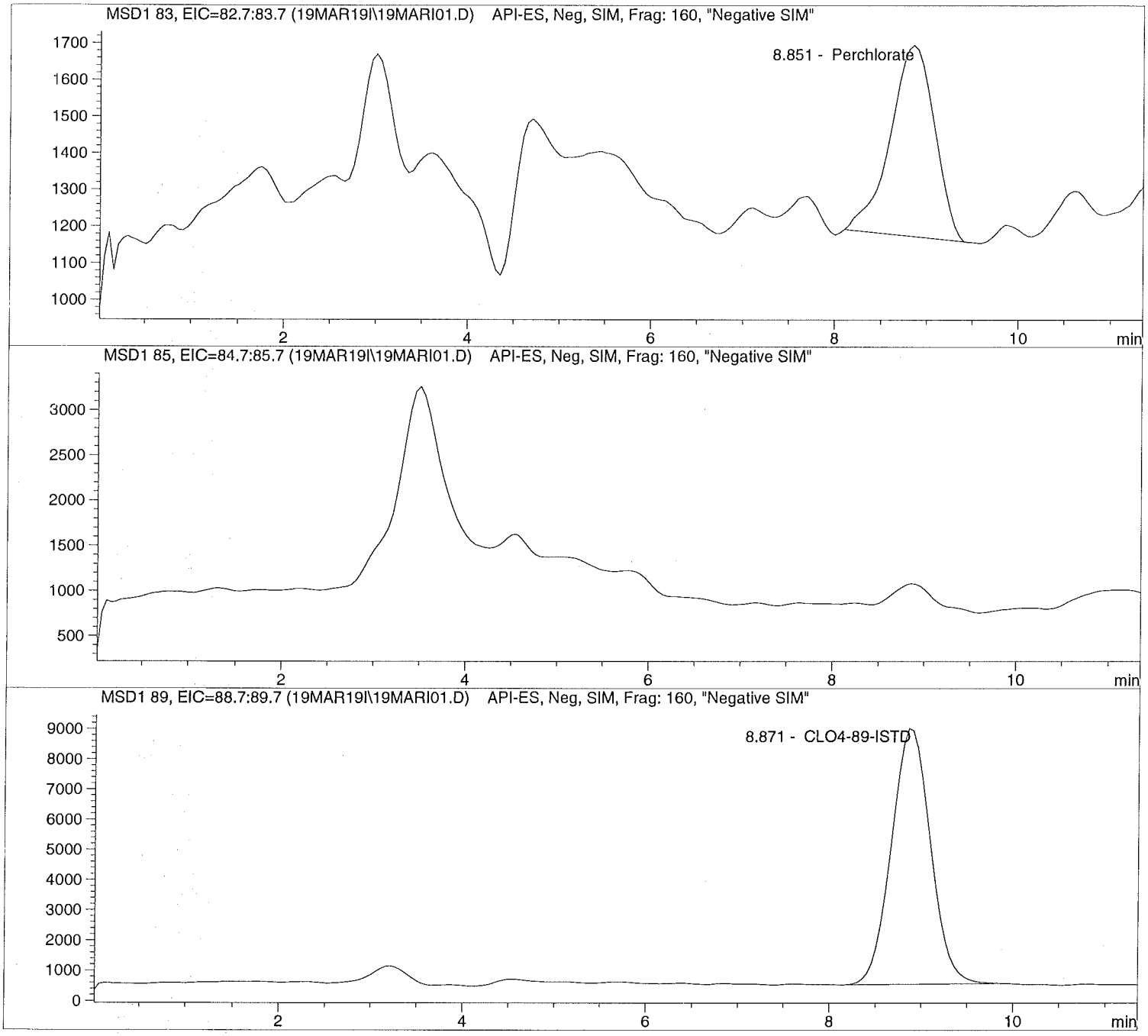
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI01.D Sample Name: CLO4@ 0.2ug/L

Injection Date:	3/19/2019 09:13:09	Seq Line:	1
Sample Name:	CLO4@ 0.2ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI01.D Sample Name: CLO4@ 0.2ug/L

Injection Date:	3/19/2019 09:13:09	Seq Line:	1
Sample Name:	CLO4@ 0.2ug/L	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.200

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.851	PBA	17375.8	0.2471	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.871	PBA	249685.7	5.0000	CLO4-89-ISTD

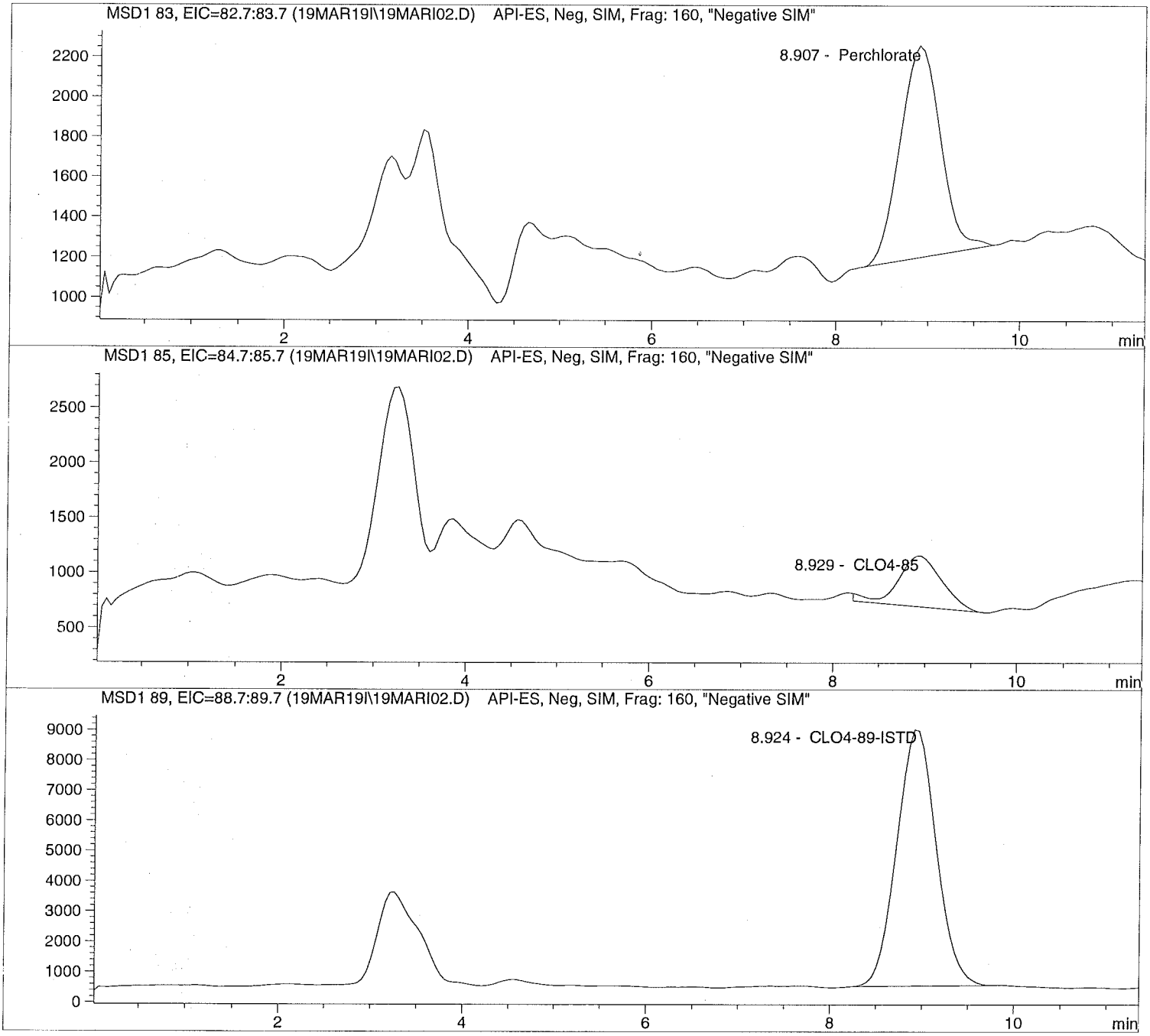
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI02.D Sample Name: CLO4@ 0.5ug/L

Injection Date:	3/19/2019 09:26:25	Seq Line:	2
Sample Name:	CLO4@ 0.5ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI02.D Sample Name: CLO4@ 0.5ug/L

Injection Date:	3/19/2019 09:26:25	Seq Line:	2
Sample Name:	CLO4@ 0.5ug/L	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.500

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.907	PBA	32197.2	0.4374	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.929	BBA	15150.0	0.5981	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.924	PBA	251653.1	5.0000	CLO4-89-ISTD

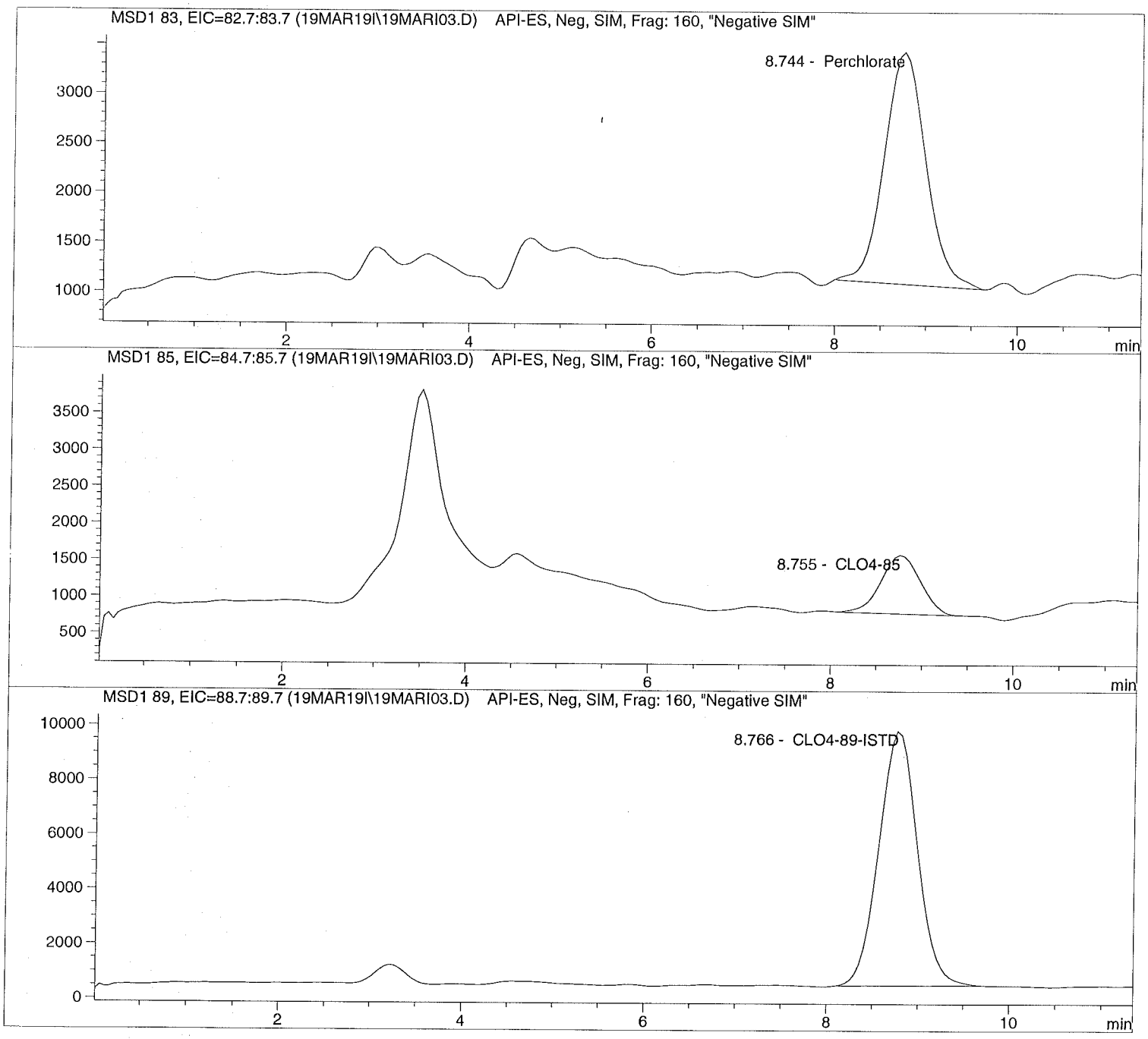
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed: 3/19/2019 15:02:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-PR2.M
Last Changed:	3/19/2019 15:02:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,03:02:18 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.4	0.9044	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9039	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

May 20, 2019

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

RE: HS19050374

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on May 8, 2019. For your reference, these analyses have been assigned our service request number P1902701.

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

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

Respectfully submitted,

ALS | Environmental

By Hayden Akers at 4:23, May 20, 2019

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19050374

Service Request No: P1902701

CASE NARRATIVE

The samples were received intact under chain of custody on May 8, 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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

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	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: HS19050374

Service Request: P1902701

Date Received: 5/8/2019
Time Received: 09:28

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW06-190506	P1902701-001	Water	5/6/2019	08:25	X	X
50WW11-190506	P1902701-002	Water	5/6/2019	09:25	X	X
50WW14-190506	P1902701-003	Water	5/6/2019	10:25	X	X
50WW13-190506	P1902701-004	Water	5/6/2019	11:20	X	X
50WW22-190506	P1902701-005	Water	5/6/2019	12:20	X	X
50WW16-190506	P1902701-006	Water	5/6/2019	13:20	X	X

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11265**

SUBCONTRACT TO:

P1902701

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19050374
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19050374-01**	**50WW06-190506**	**Groundwater**	**06 May 2019 08:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019
2.	**HS19050374-02**	**50WW11-190506**	**Groundwater**	**06 May 2019 09:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019
3.	**HS19050374-03**	**50WW14-190506**	**Groundwater**	**06 May 2019 10:25**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019
4.	**HS19050374-04**	**50WW13-190506**	**Groundwater**	**06 May 2019 11:20**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019
5.	**HS19050374-05**	**50WW22-190506**	**Groundwater**	**06 May 2019 12:20**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019
6.	**HS19050374-06**	**50WW16-190506**	**Groundwater**	**06 May 2019 13:20**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			15 May 2019

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11265**

Relinquished By: J. Maynard

Date/Time: 5/7/19 18:00

Received By: Sue Underhill

Date/Time: 5/8/19 0928

Cooler ID(s):

Temperature(s): 4°C Temp Blank

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1902701

Project: HS19050374

Sample(s) received on: 5/8/19 Date opened: 5/8/19 by: SANDERSON

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 4° C Thermometer ID CO907034581 Wet Ice			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
9	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☒	☐	☐
	Is there a client indication that the submitted samples are **pH** preserved?	☒	☐	☐
	Were **VOA vials** checked for presence/absence of air bubbles?	☒	☐	☐
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☒	☐
10	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
11	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1902701-001.01	40mL VOA NP		6		A	wh 5/13/19
P1902701-001.02	40mL VOA NP				A	
P1902701-001.03	40mL VOA NP				A	
P1902701-001.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-001.05	40ml VOA HCL				A	
P1902701-001.06	40ml VOA HCL				A	
P1902701-002.01	40mL VOA NP		6		A	wh 5/13/19
P1902701-002.02	40mL VOA NP				A	
P1902701-002.03	40mL VOA NP				A	
P1902701-002.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-002.05	40ml VOA HCL				A	
P1902701-002.06	40ml VOA HCL				A	
P1902701-003.01	40mL VOA NP		6		A	wh 5/13/19
P1902701-003.02	40mL VOA NP				A	
P1902701-003.03	40mL VOA NP				A	

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

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

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1902701

Project: HS19050374

Sample(s) received on: 5/8/19 Date opened: 5/8/19 by: SANDERSON

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1902701-003.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-003.05	40ml VOA HCL				A	
P1902701-003.06	40ml VOA HCL				A	
P1902701-004.01	40mL VOA NP		7		A	wh 5/13/19
P1902701-004.02	40mL VOA NP				A	
P1902701-004.03	40mL VOA NP				A	
P1902701-004.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-004.05	40ml VOA HCL				A	
P1902701-004.06	40ml VOA HCL				A	
P1902701-005.01	40mL VOA NP		7		A	wh 5/13/19
P1902701-005.02	40mL VOA NP				A	
P1902701-005.03	40mL VOA NP				A	
P1902701-005.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-005.05	40ml VOA HCL				A	
P1902701-005.06	40ml VOA HCL				A	
P1902701-006.01	40mL VOA NP		6		A	wh 5/13/19
P1902701-006.02	40mL VOA NP				A	
P1902701-006.03	40mL VOA NP				A	
P1902701-006.04	40ml VOA HCL		1		A	wh 5/14/19
P1902701-006.05	40ml VOA HCL				A	
P1902701-006.06	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19050374** ALS Project ID: P1902701

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/13/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW06-190506	P1902701-001	0.050	**150,000**	2,000	1,700	740	
50WW11-190506	P1902701-002	0.050	**570,000**	2,000	1,700	740	
50WW14-190506	P1902701-003	0.050	**210,000**	2,000	1,700	740	
50WW13-190506	P1902701-004	0.050	**360,000**	2,000	1,700	740	
50WW22-190506	P1902701-005	0.050	**70,000**	2,000	1,700	740	
50WW16-190506	P1902701-006	0.050	**440,000**	2,000	1,700	740	
Method Control Sample	P190513-MB	0.10	860	1,000	860	370	**U**

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1902701
Client Project ID: **HS19050374** ALS Sample ID: P190513-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 5/13/19
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	19,300	20,200	**84**	**88**	80-122	5	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: **50WW06-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
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	**0.56**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW11-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
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	**7.0**	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: **50WW14-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-003

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
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	**3.8**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: **ALS Laboratory Group**
Client Sample ID: **50WW13-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-004

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
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	**4.5**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW22-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-005

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW16-190506**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P1902701-006

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/6/19
Date Received: 5/8/19
Date Analyzed: 5/14/19
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	**3.1**	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: P1902701
Client Project ID: **HS19050374** ALS Sample ID: P190514-MB

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/FID Date Received: NA
Analyst: Wade Henton Date Analyzed: 5/14/19
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

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19050374**

ALS Project ID: P1902701
ALS Sample ID: P190514-LCS
P190514-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: 5/14/19
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	2.50	2.17	2.10	**87**	**84**	73-125	4	26	
74-85-1	Ethene	4.37	4.02	4.38	**92**	**100**	72-133	8	11	
74-84-0	Ethane	4.69	4.26	4.60	**91**	**98**	74-131	7	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_FID\2019_05\13\
Data File : 05131911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 13:03:32
Operator : WH
Sample : P1902701-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:07 2019
Quant Method : J:\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 :

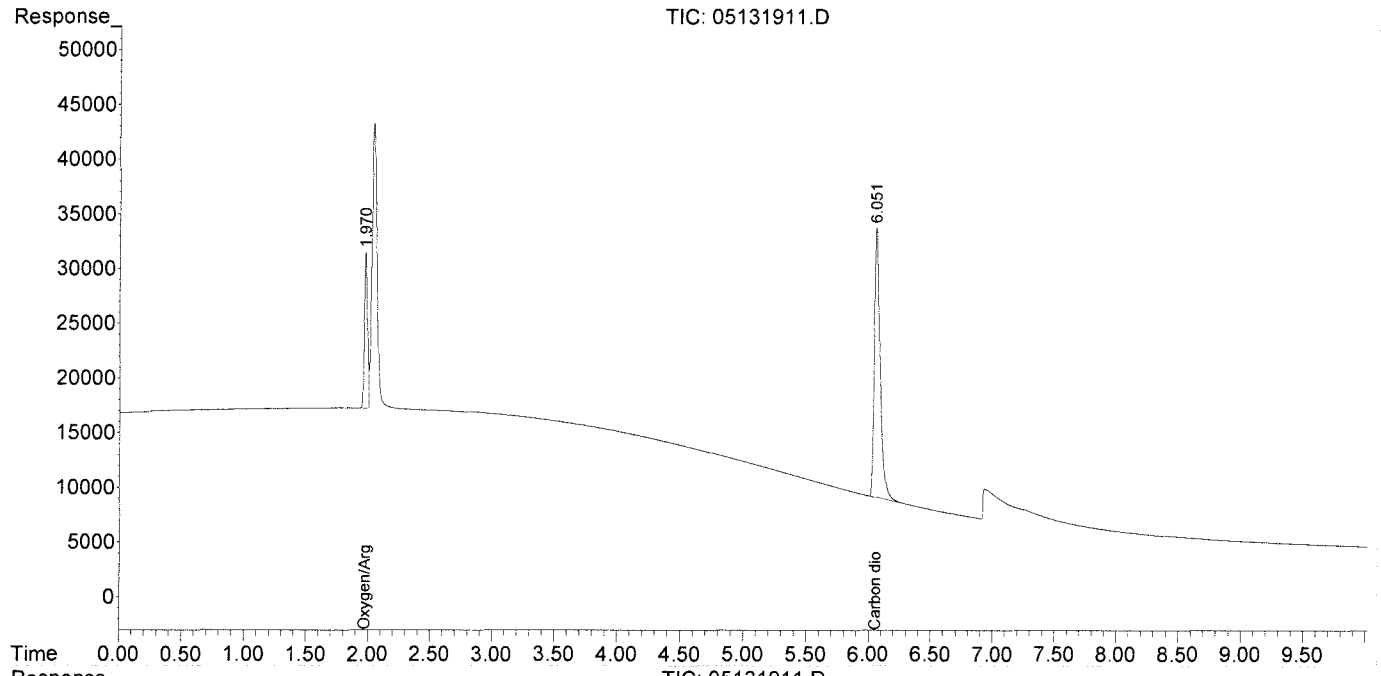
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.971f	253807	0.053	ppm
2)	Carbon monoxide	1.971f	253807	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.052	804287	3426.445	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

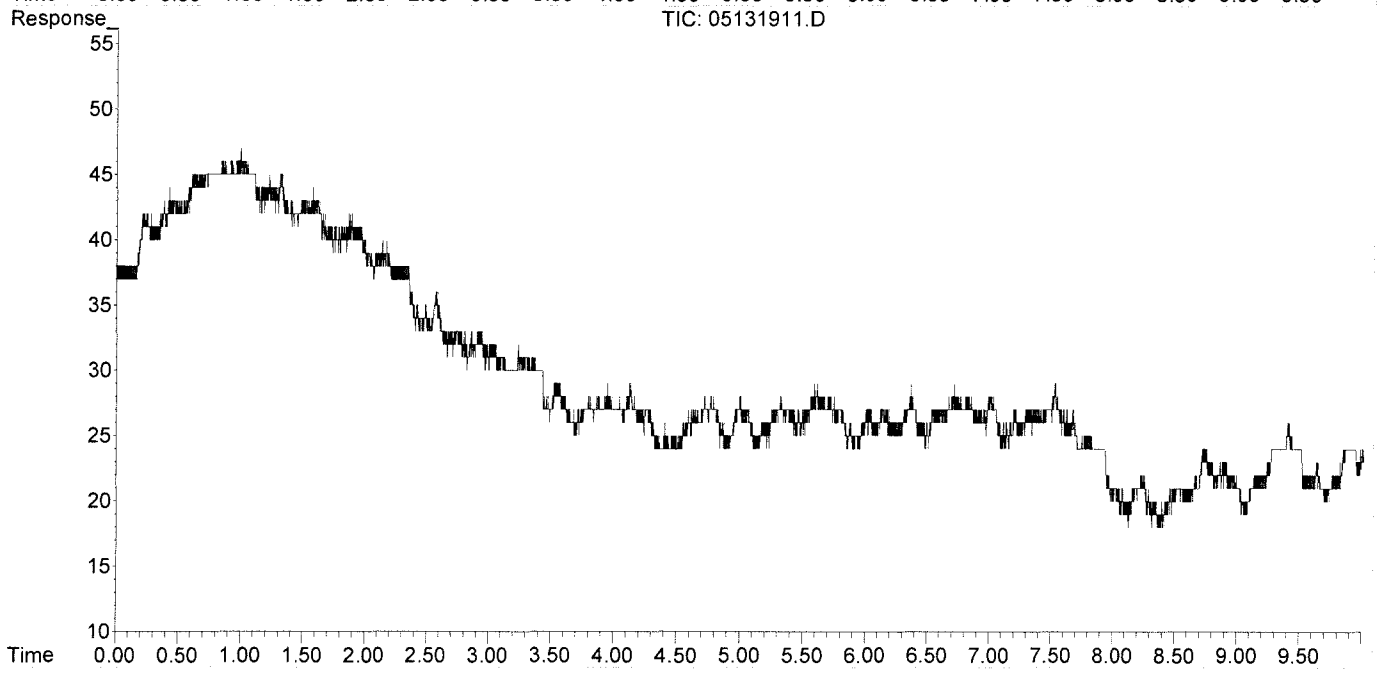
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 13:03:32
Operator : WH
Sample : P1902701-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:07 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 13:33:30
Operator : WH
Sample : P1902701-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:06:54 2019
Quant Method : J:\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 :

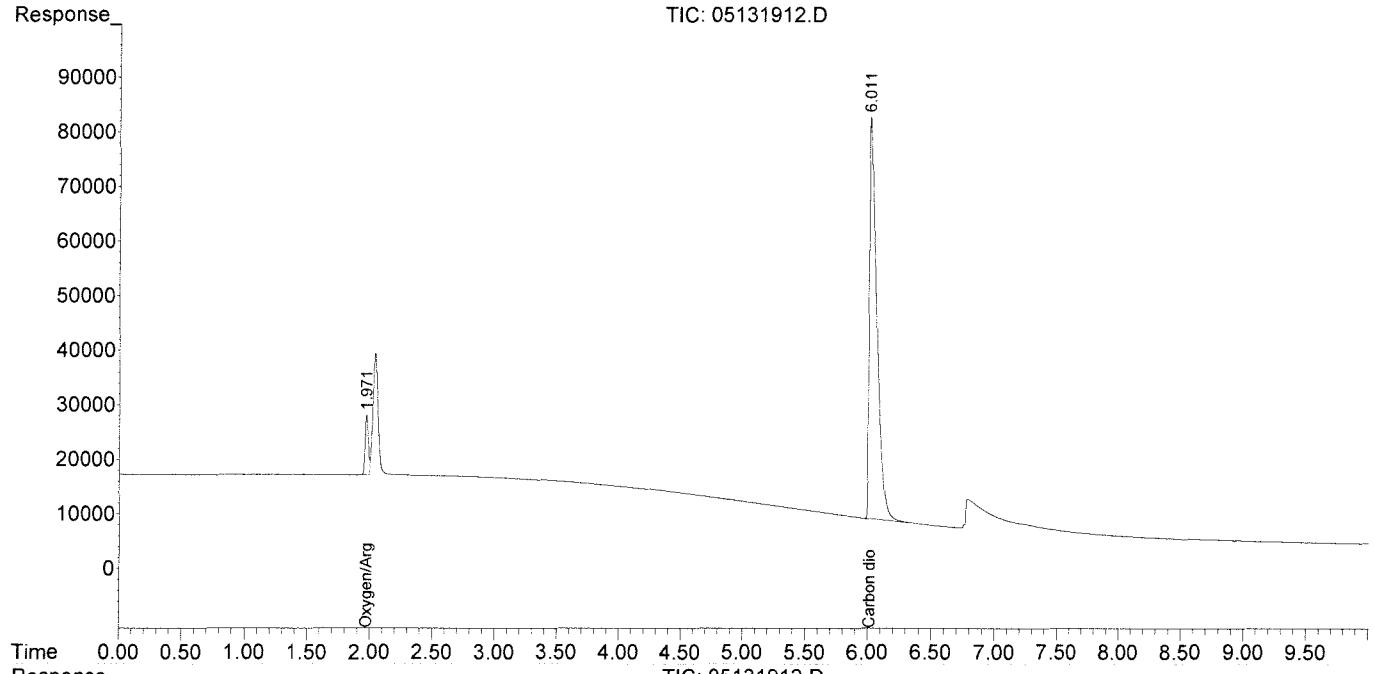
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.972f	197169	0.041	ppm
2)	Carbon monoxide	1.972f	197169	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.012	3063094	13049.479	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

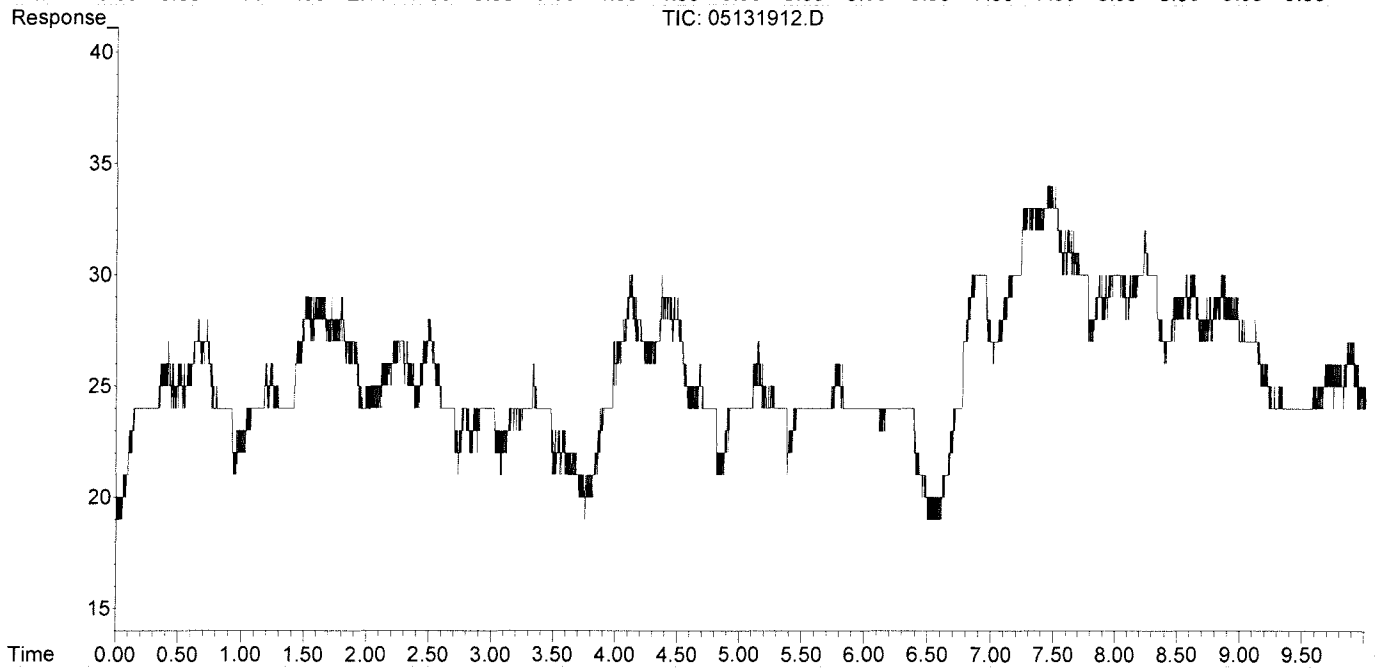
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 13:33:30
Operator : WH
Sample : P1902701-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:06:54 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:04:20
Operator : WH
Sample : P1902701-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:34 2019
Quant Method : J:\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 :

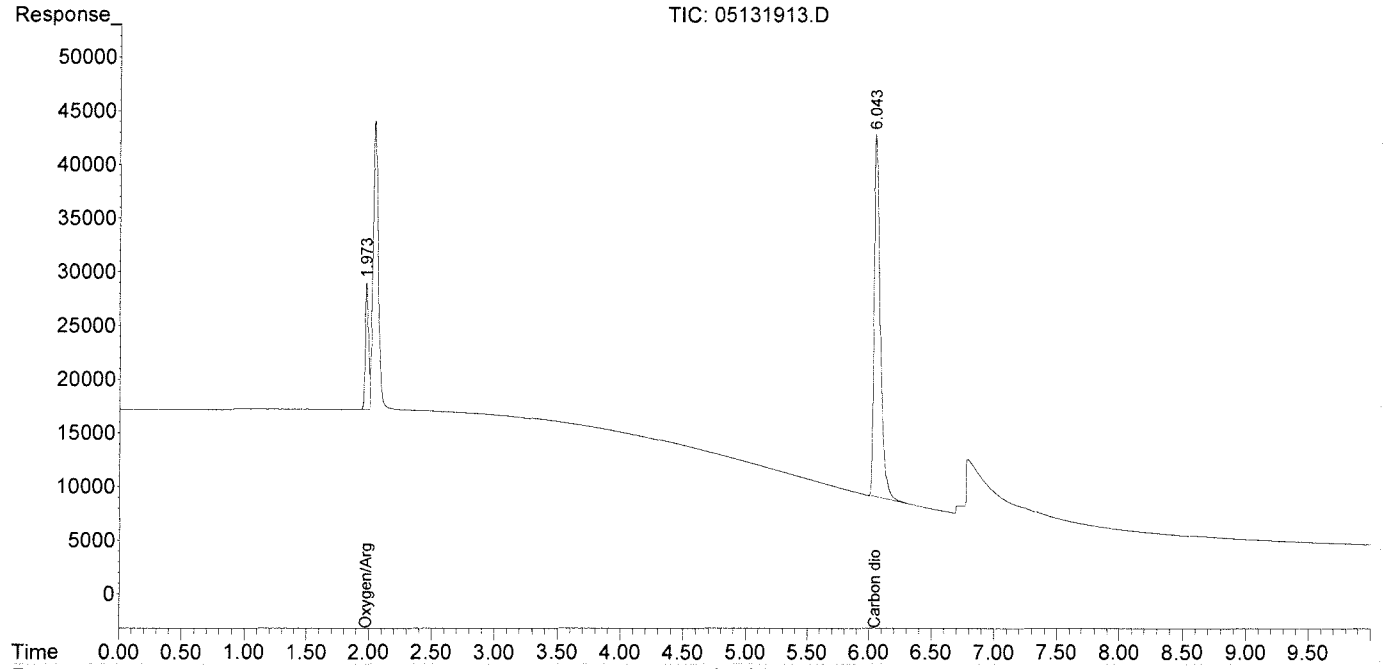
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.973f	211088	0.044	ppm
2)	Carbon monoxide	1.973f	211088	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.044	1152794	4911.165	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

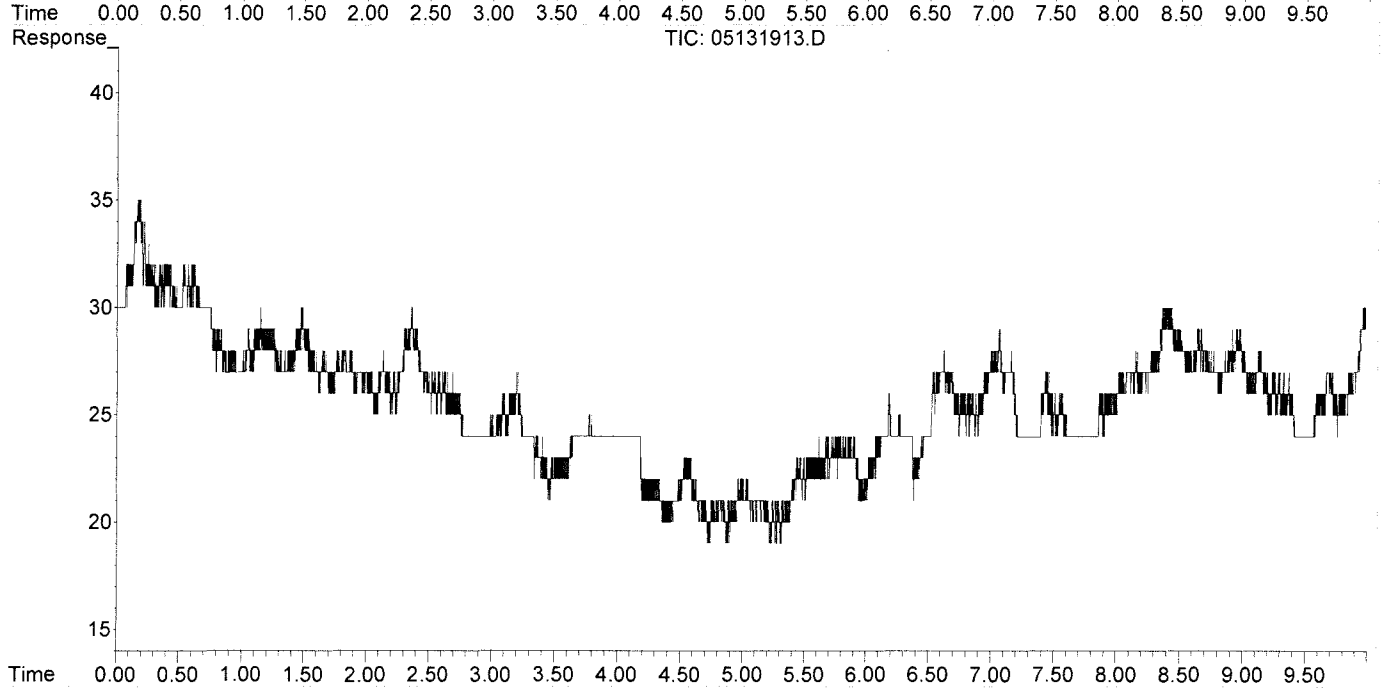
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:04:20
Operator : WH
Sample : P1902701-003 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:34 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:19:29
Operator : WH
Sample : P1902701-004 50u
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:54 2019
Quant Method : J:\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 :

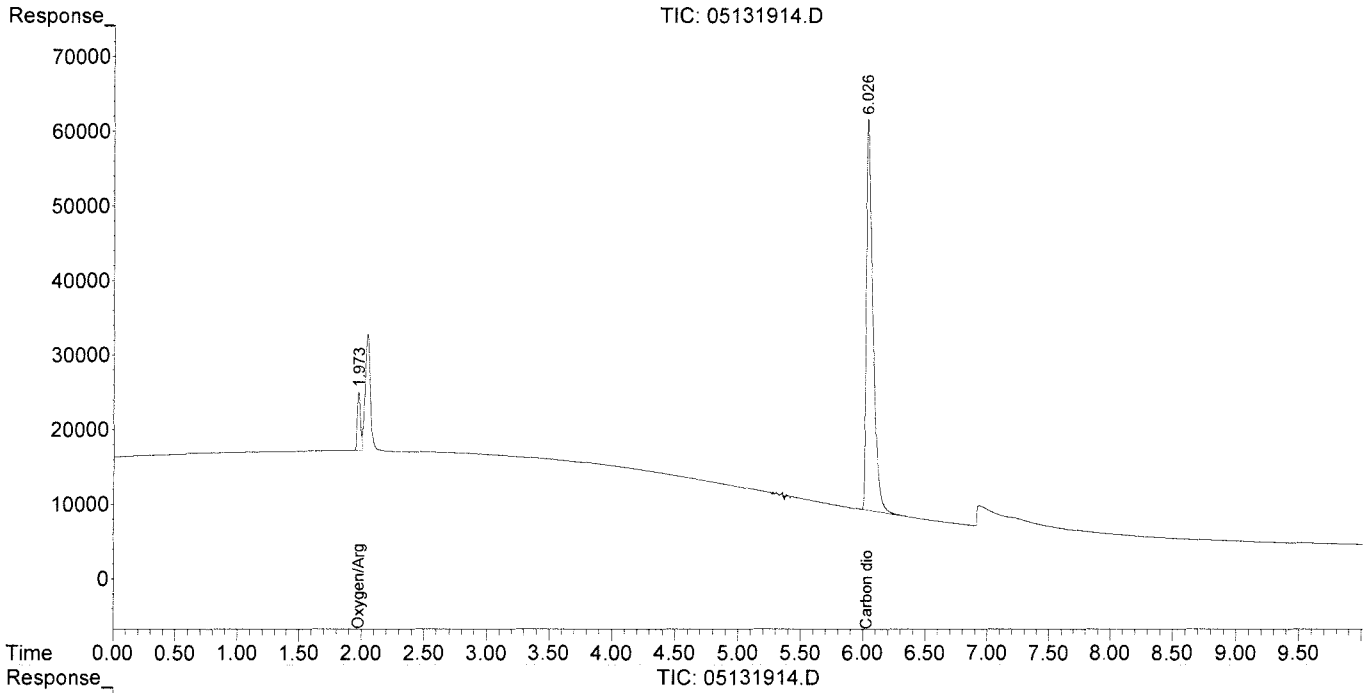
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.973f	142375	0.030	ppm
2)	Carbon monoxide	1.973f	142375	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.027	1930227	8223.210	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

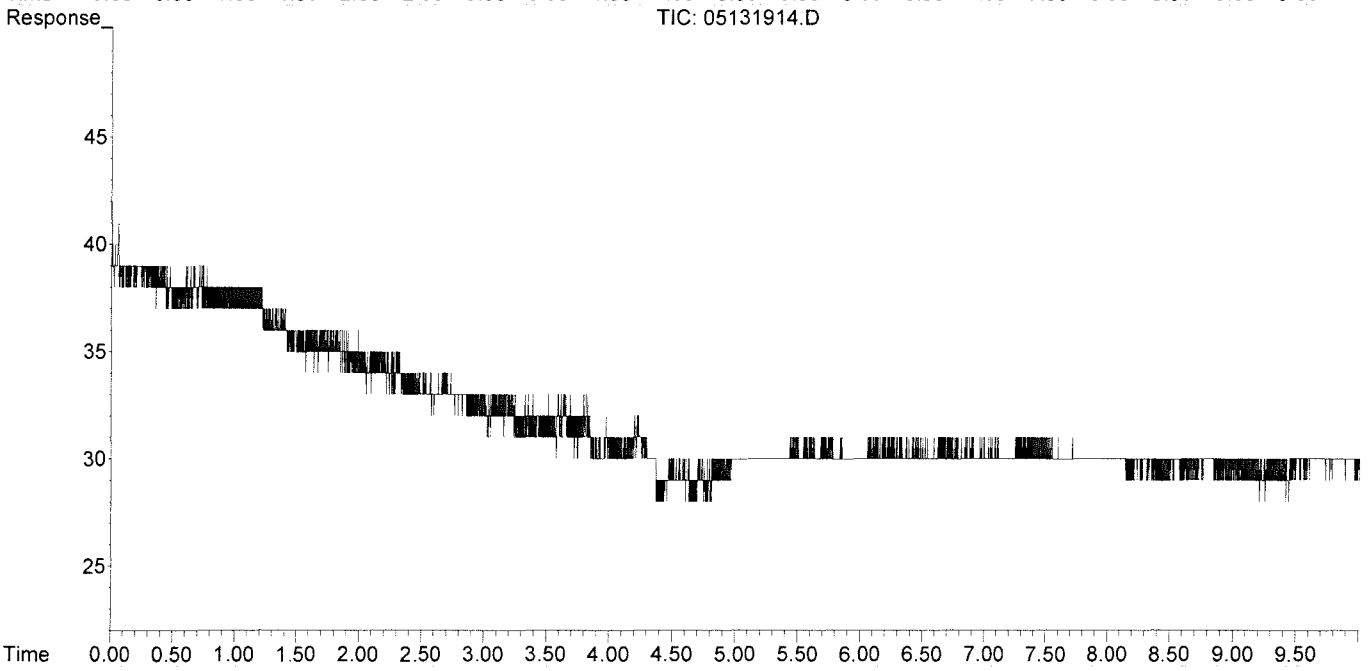
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:19:29
Operator : WH
Sample : P1902701-004 50u
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:47:54 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:42:38
Operator : WH
Sample : P1902701-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:48:21 2019
Quant Method : J:\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 :

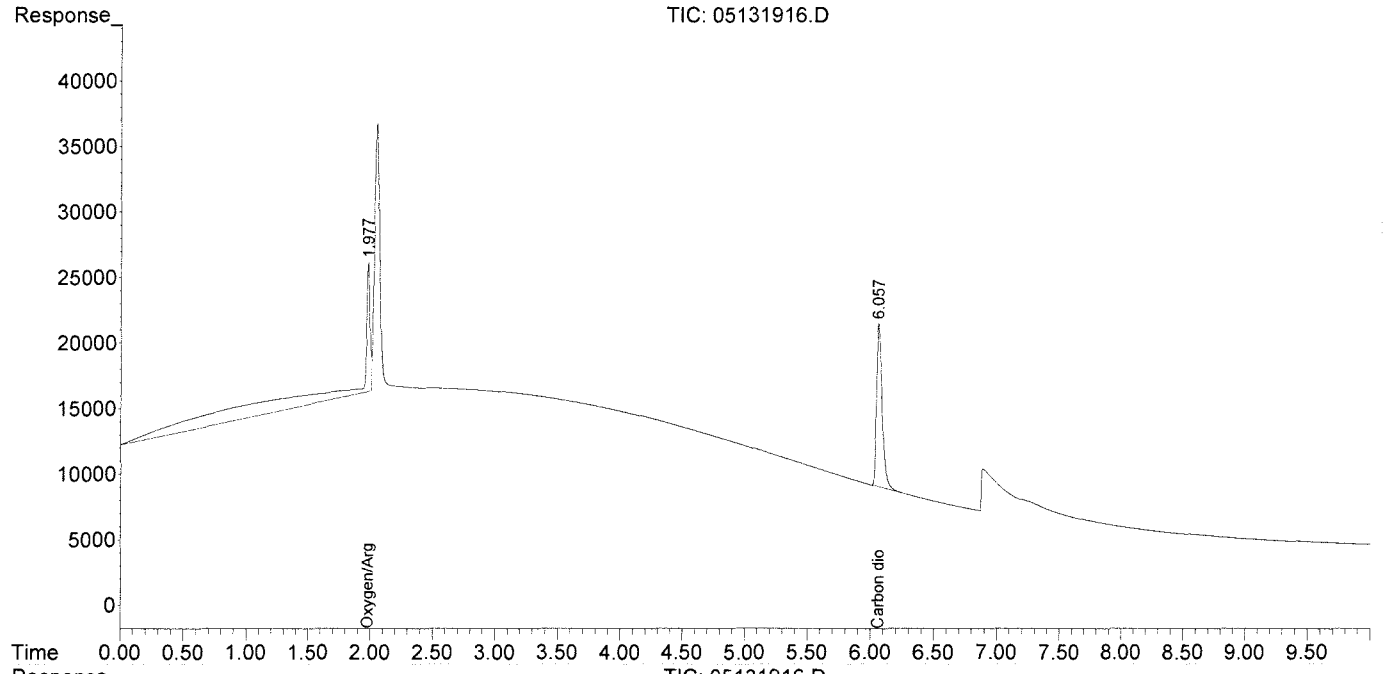
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.977f	1005204	0.211	ppm
2)	Carbon monoxide	1.977f	1005204	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.058	378768	1613.638	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

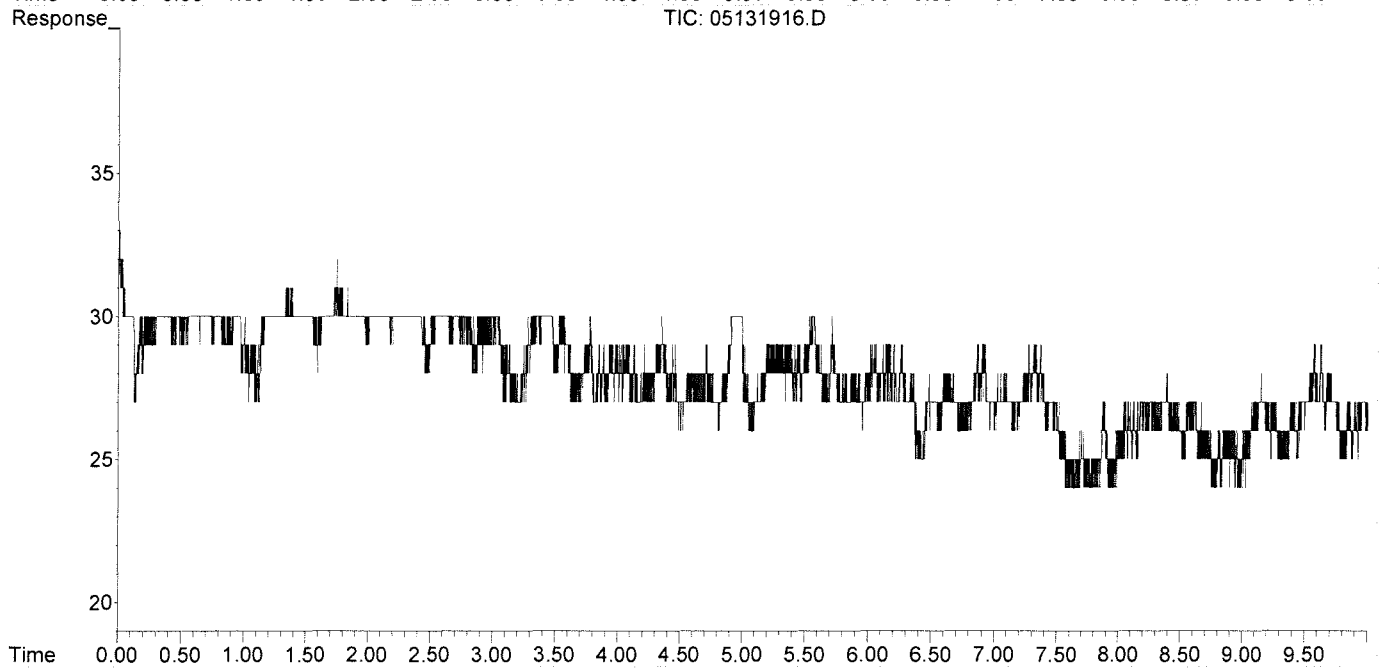
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:42:38
Operator : WH
Sample : P1902701-005 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:48:21 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:04:14
Operator : WH
Sample : P1902701-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:50:29 2019
Quant Method : J:\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 :

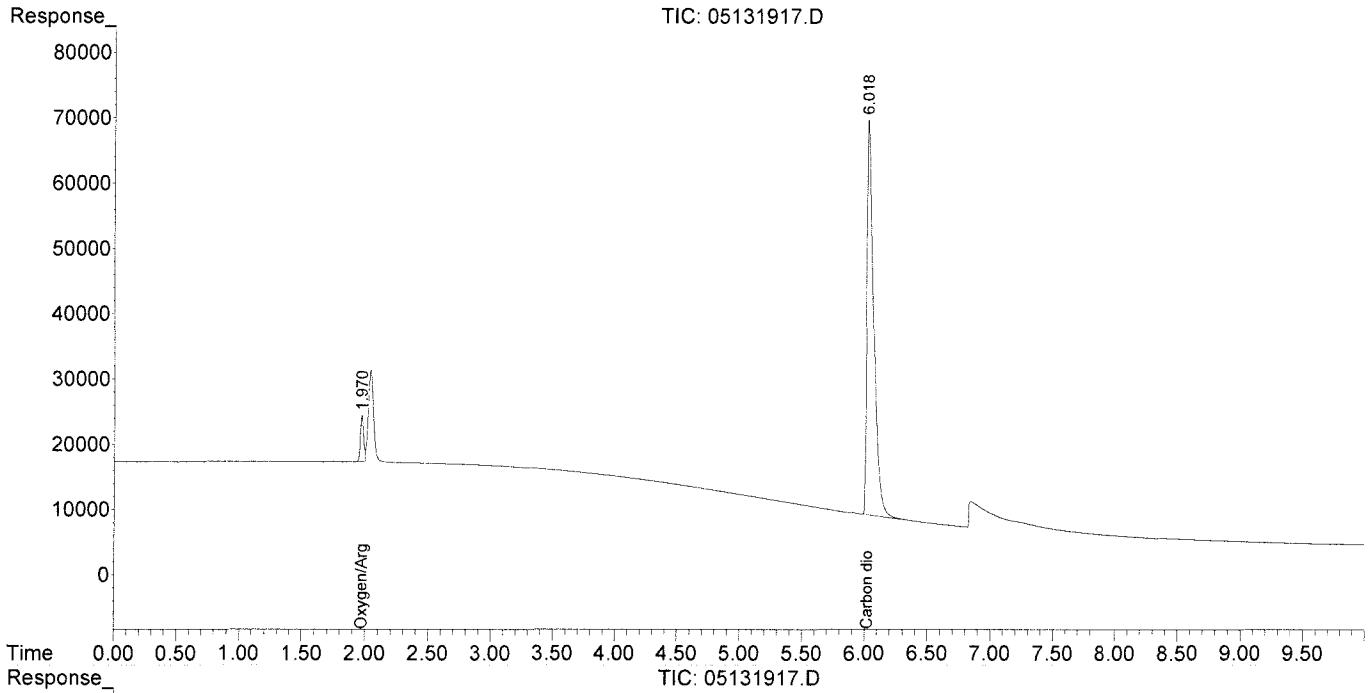
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.971f	129356	0.027	ppm
2)	Carbon monoxide	1.971f	129356	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.019	2346284	9995.706	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

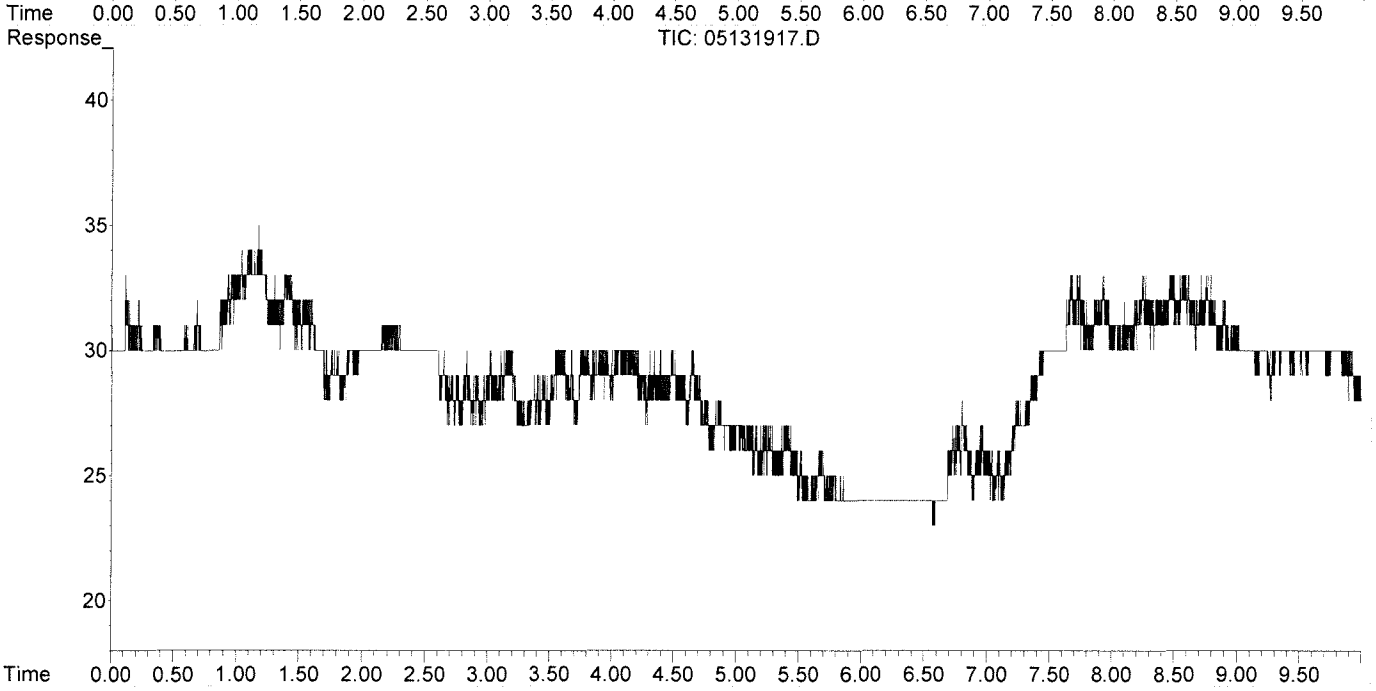
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131917.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:04:14
Operator : WH
Sample : P1902701-006 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:50:29 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:08:12
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: May 14 10:48:07 2019
Quant Method : J:\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 :

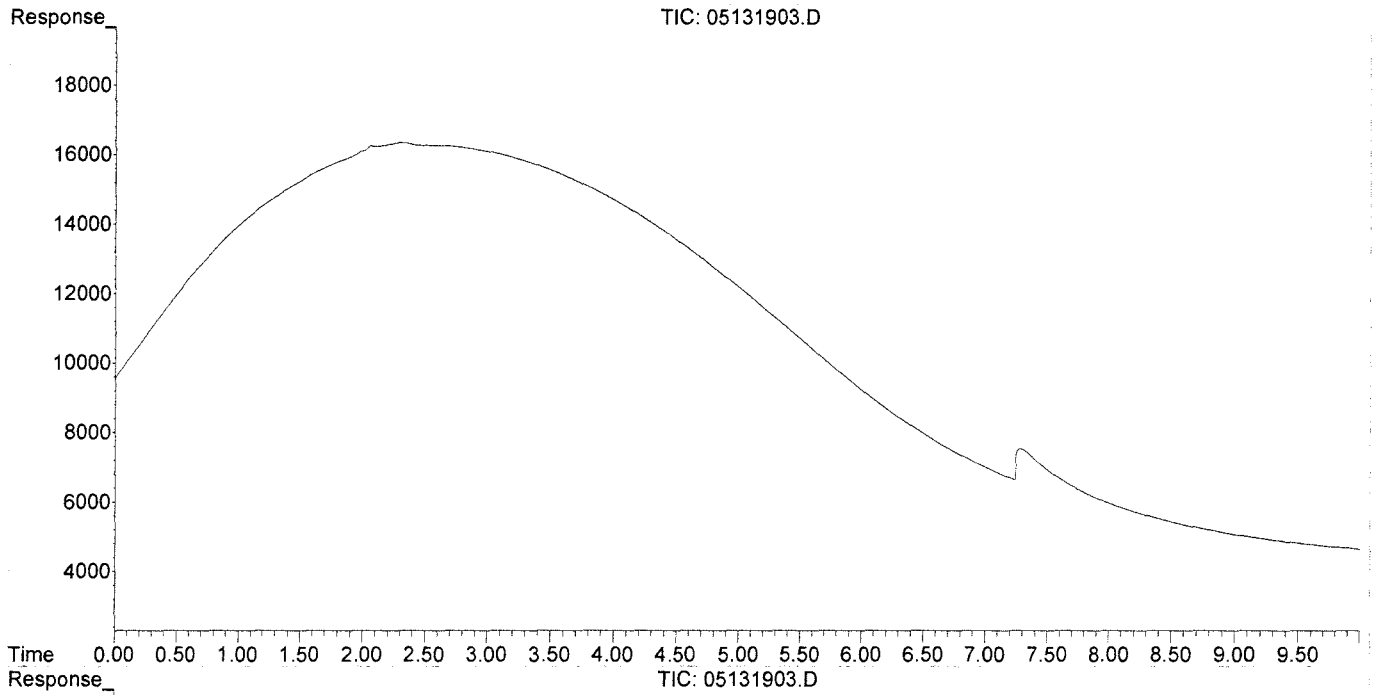
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000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

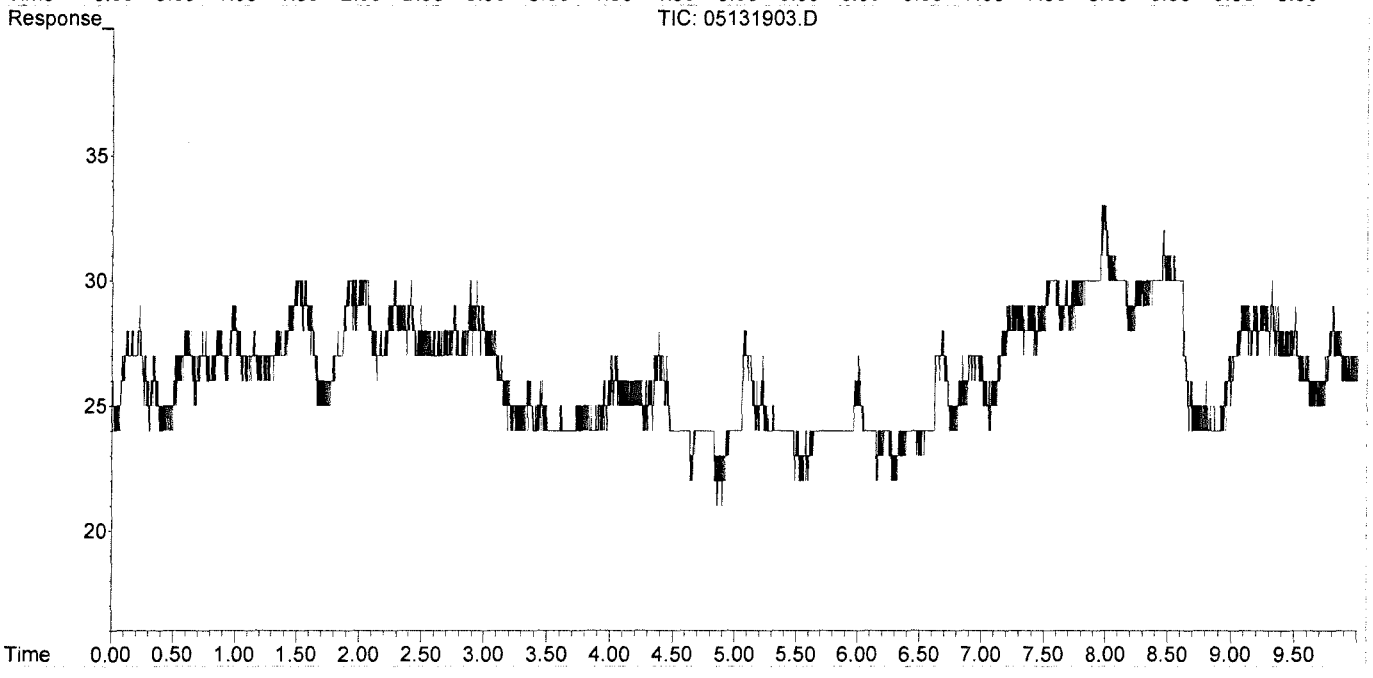
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:08:12
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: May 14 10:48:07 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:26:21
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

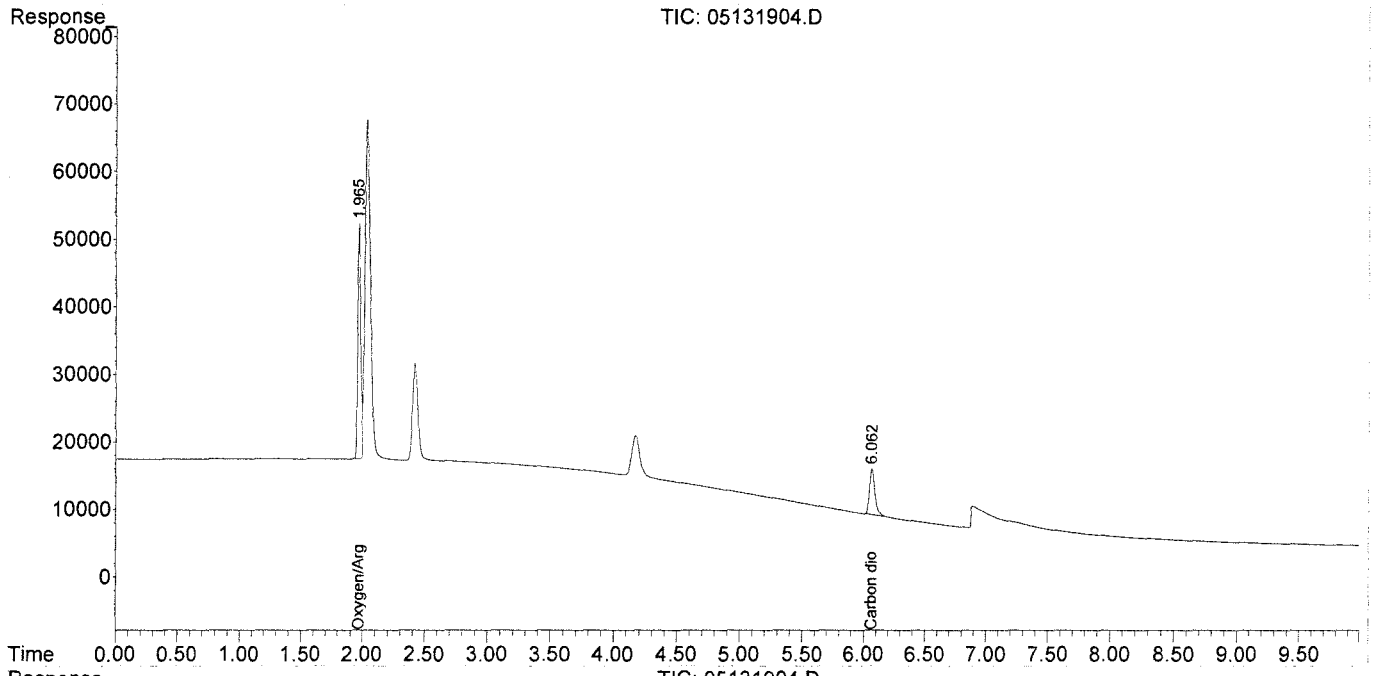
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.965f	612499	0.129	ppm	
2)	Carbon monoxide	1.965f	612499	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.062	207232	882.856	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

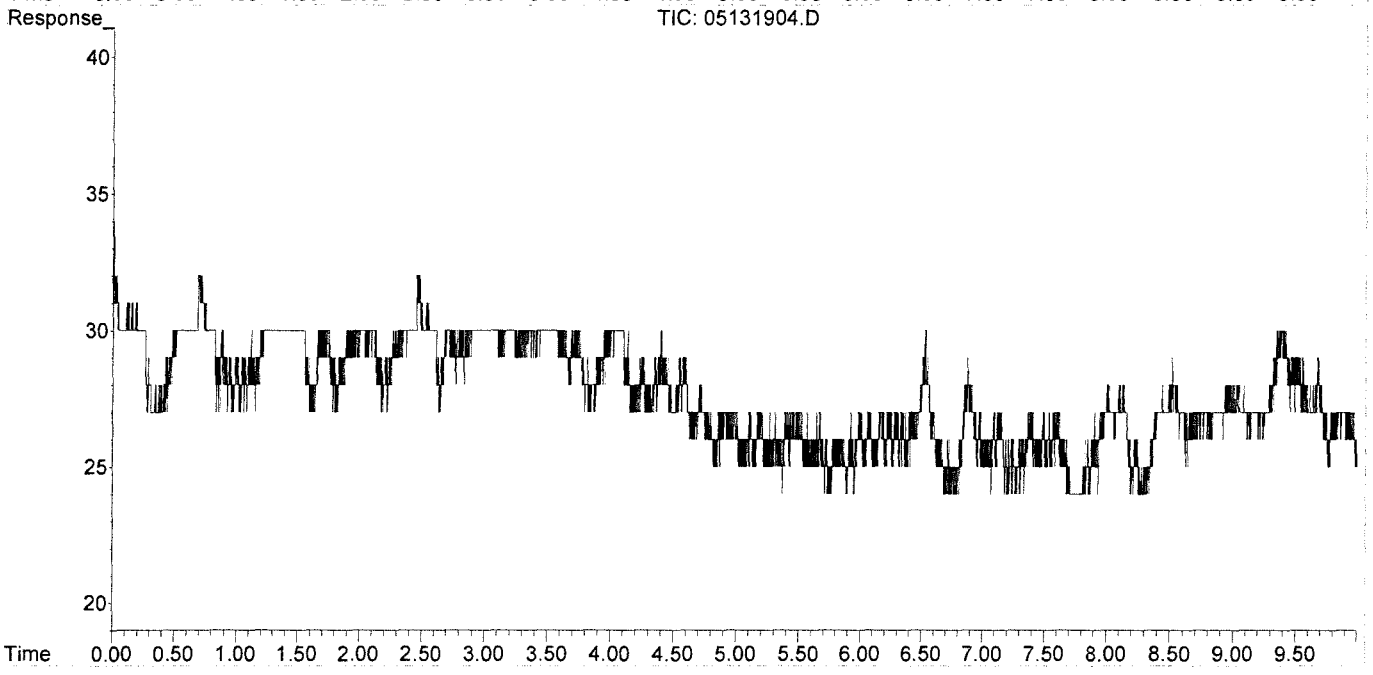
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:26:21
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\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 :

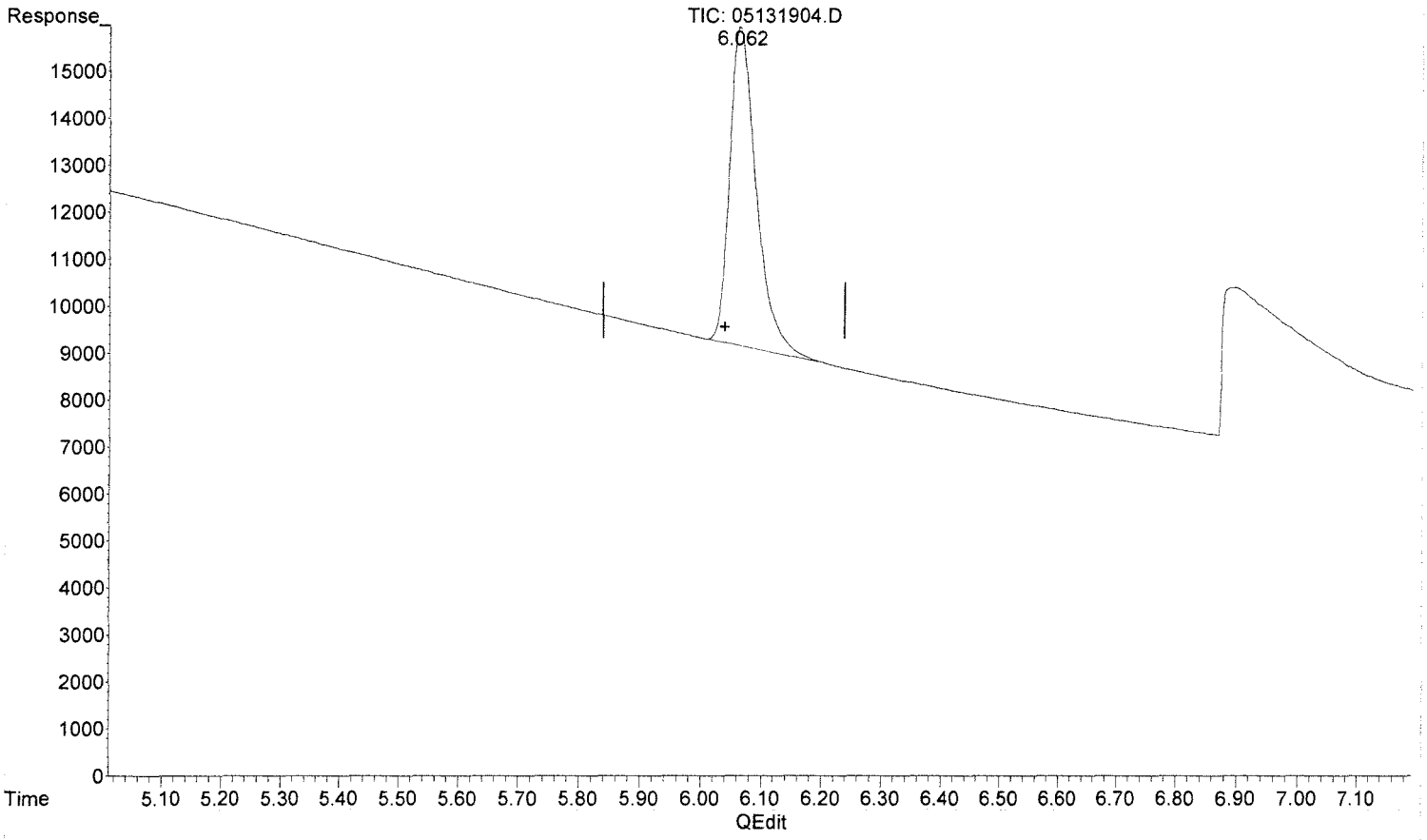




Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:26:21
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.062min 882.856 ppm m

response 207232

MK 5/14/19

LK 5/14/19 BLC no problems

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

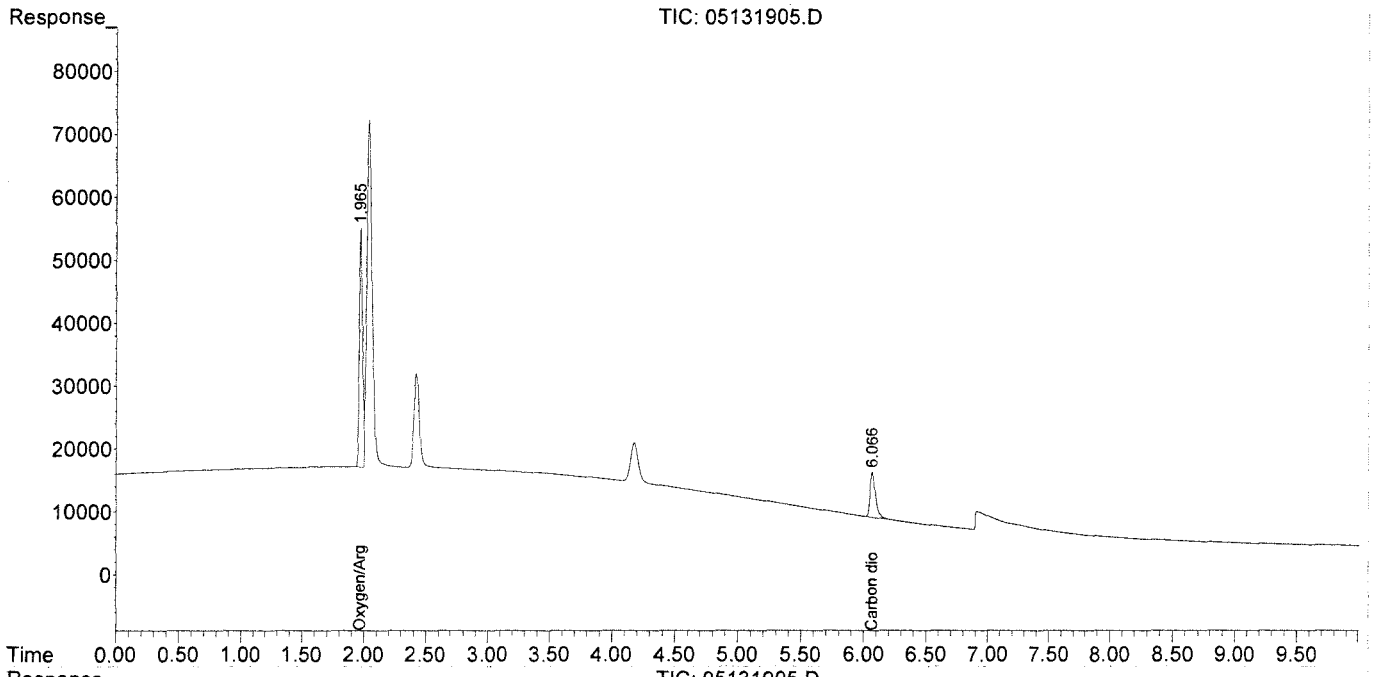
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.966f	665150	0.140	ppm	
2)	Carbon monoxide	1.966f	665150	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.066	217080	924.812	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

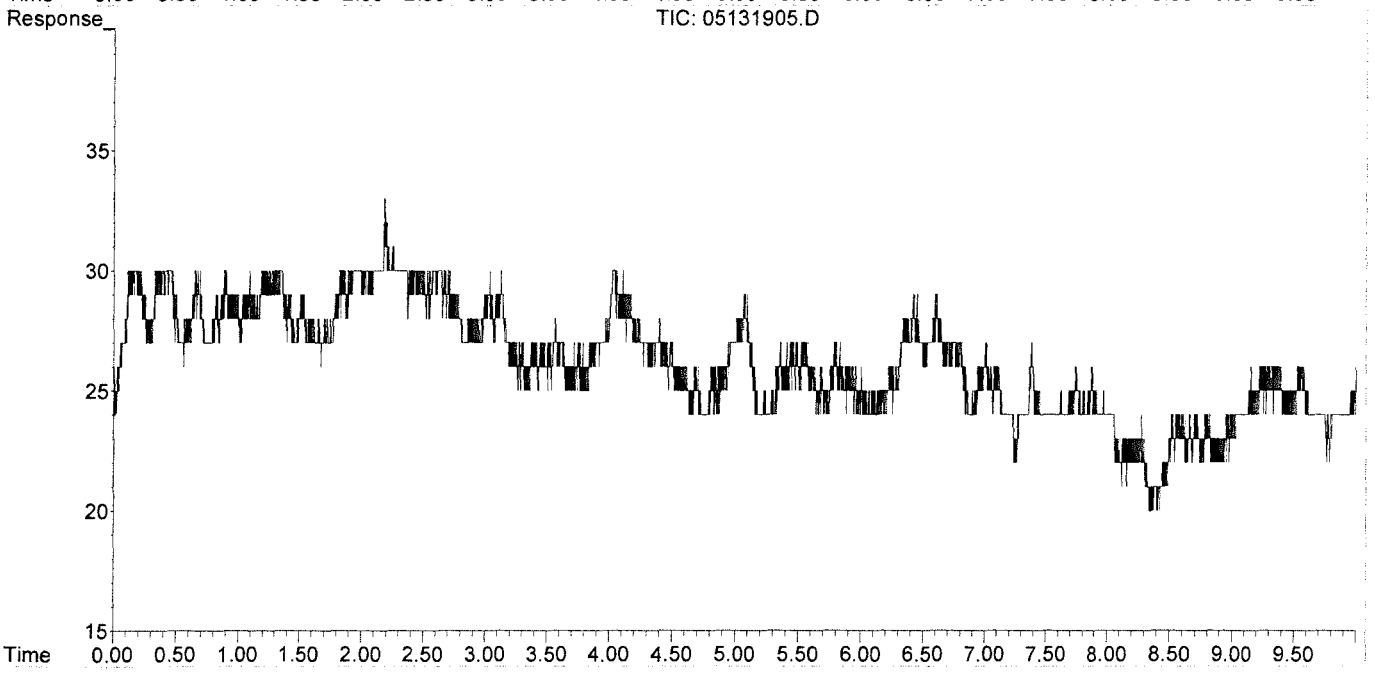
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\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 :

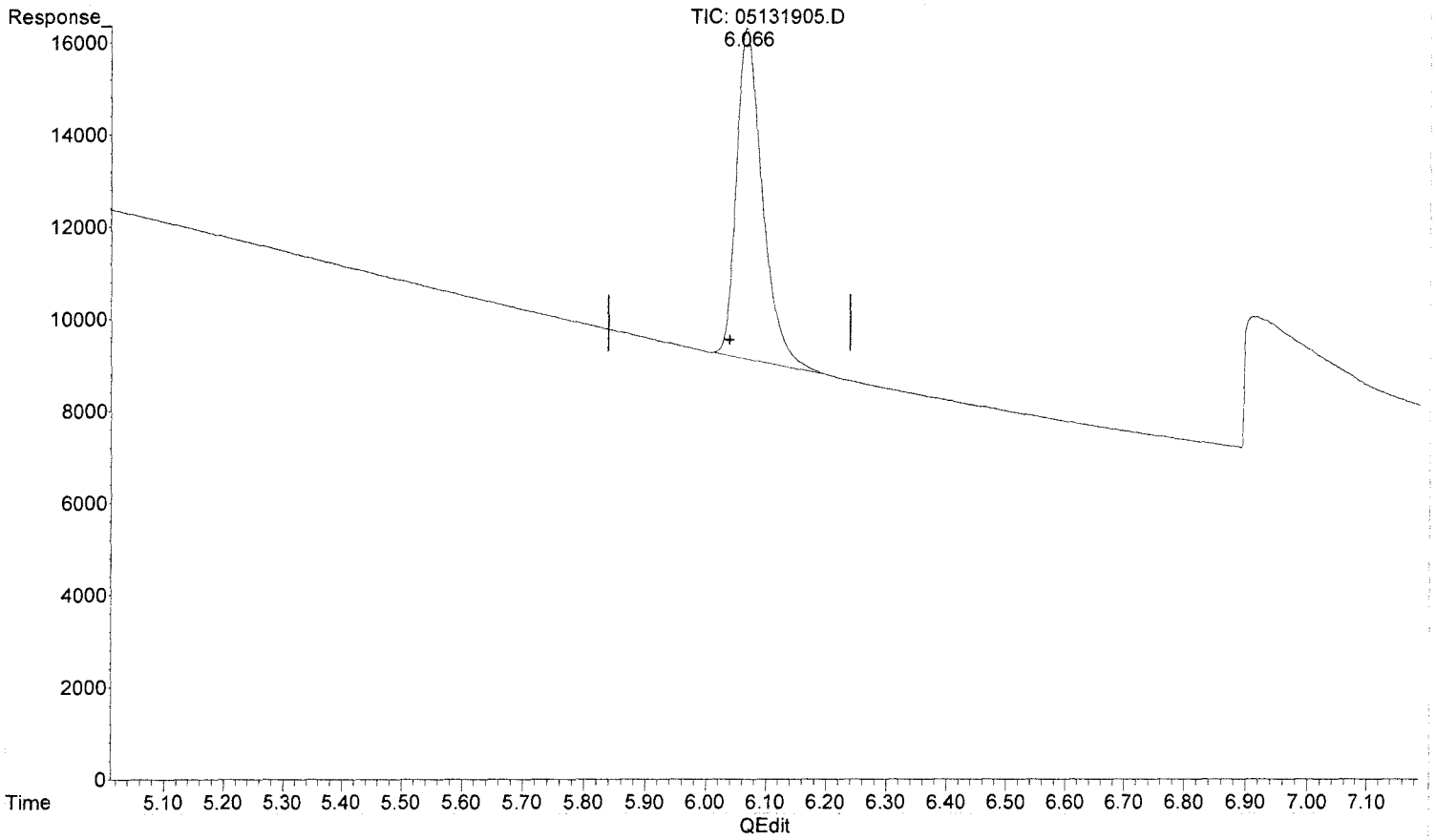




Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.066min 924.812 ppm m

response 217080

MR 5/14/19

Cdr 5/14/19 BLC no problems

(+) = 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

Compounds -- Compound #4 -- Carbon dioxide

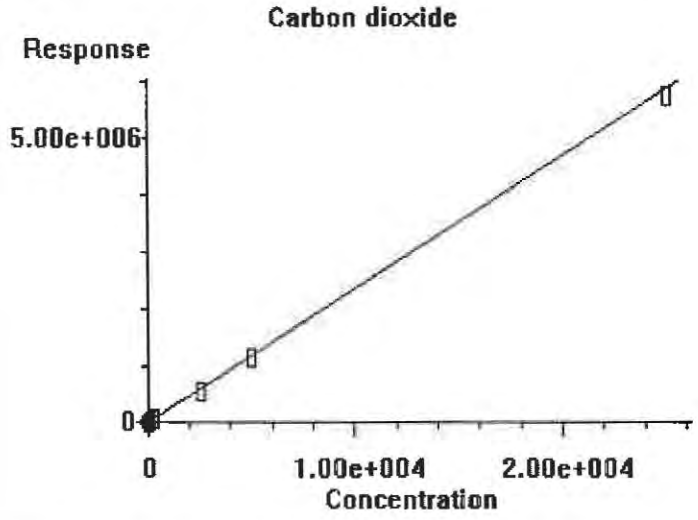
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

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

Lvl ID	Concentration	Response



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

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

Calibration Status Report HP5890

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

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

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

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

Quantitation Report (QT Reviewed)

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

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

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

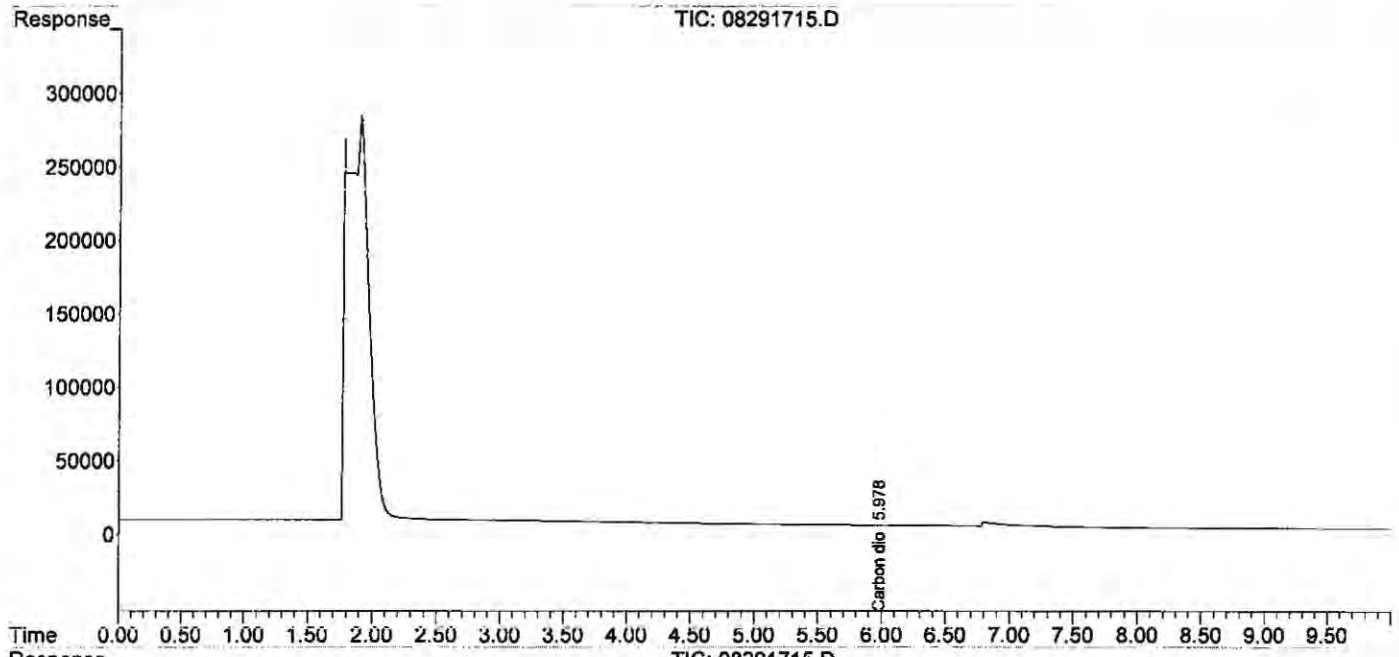
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

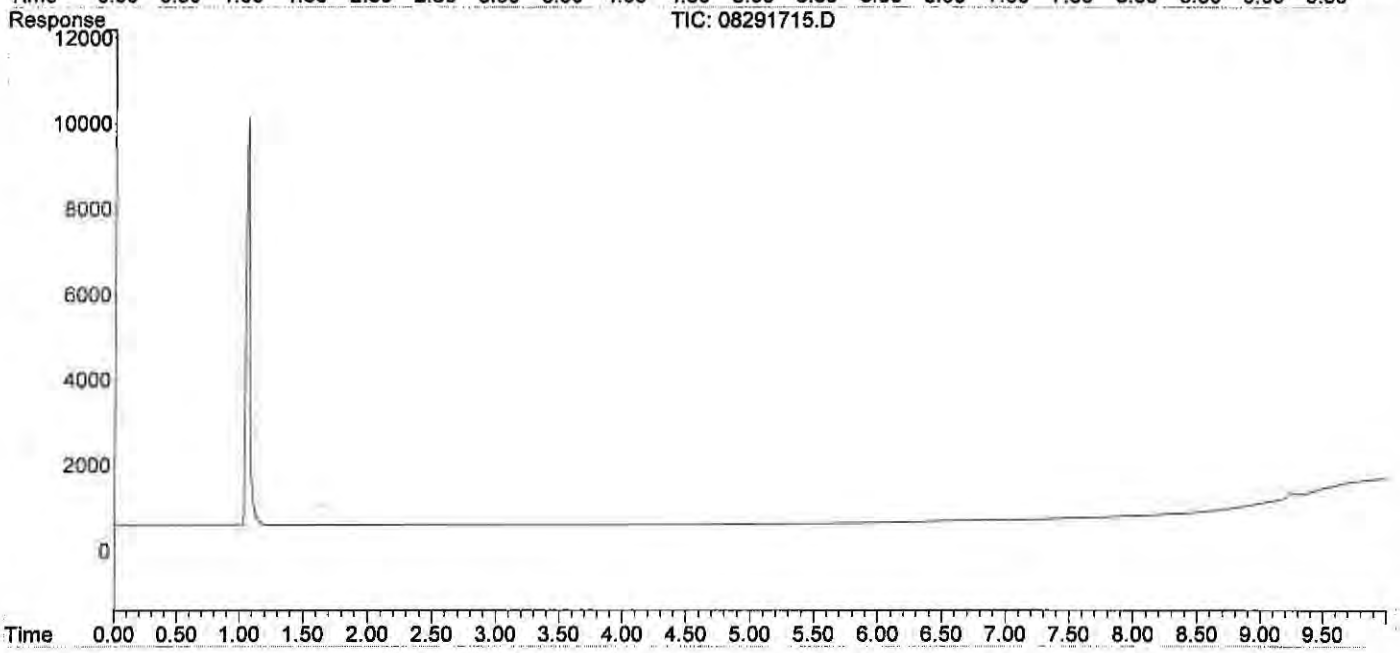
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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



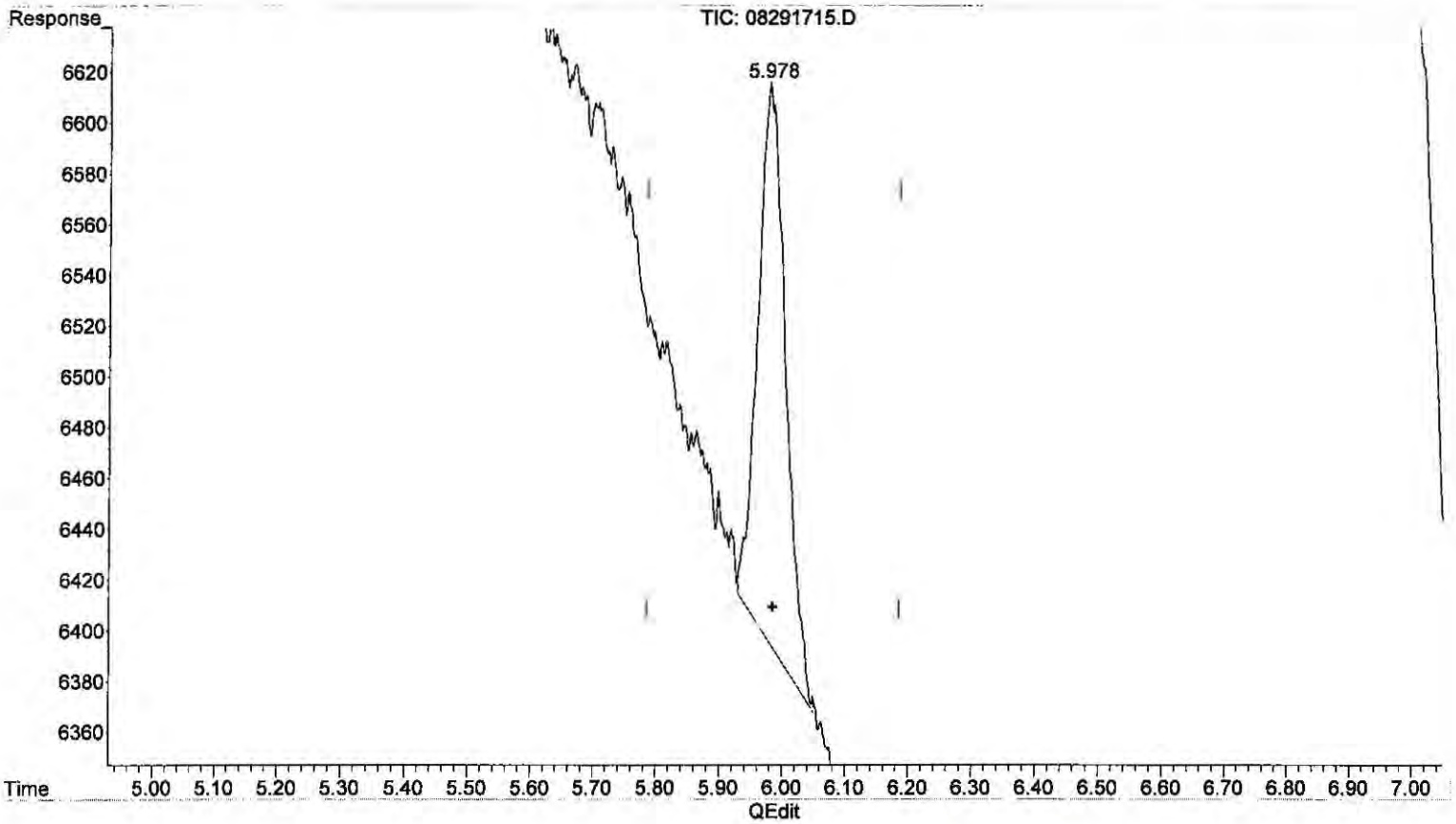


Quantitation Report (Qedit)

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

Quantitation Report (QT Reviewed)

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

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

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

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

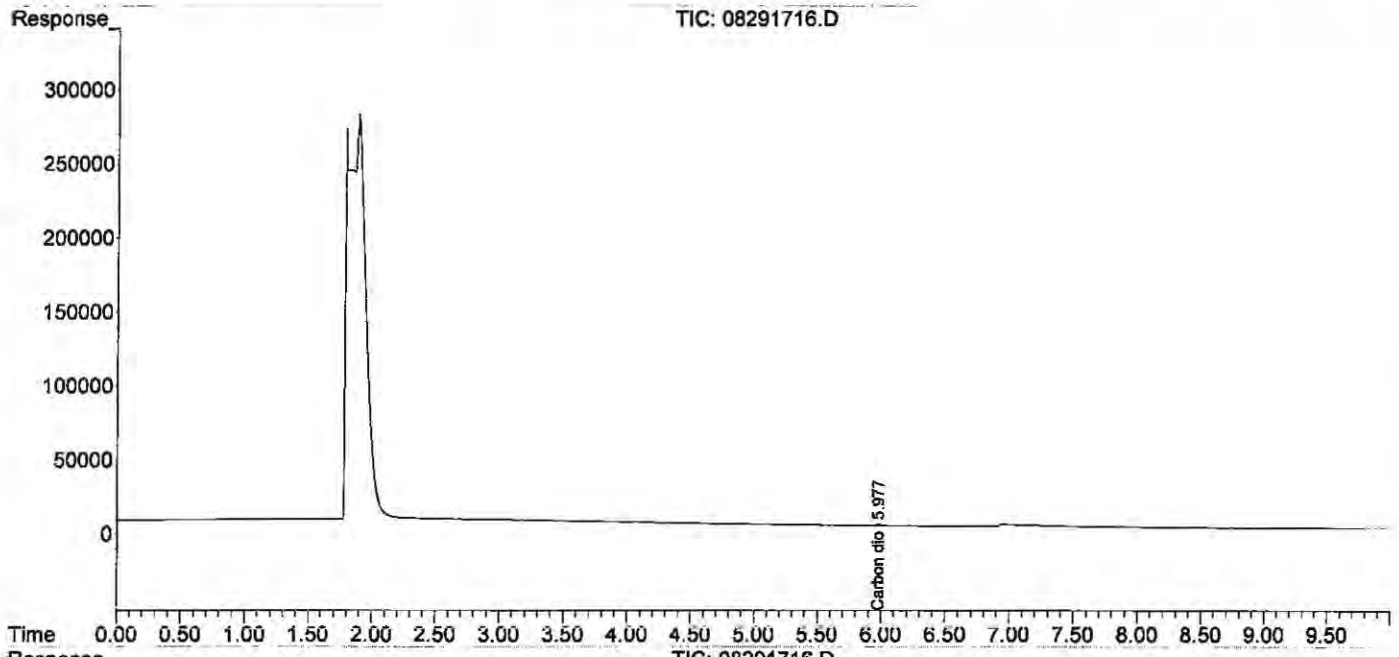
(f)=RT Delta > 1/2 Window (m)=manual int.

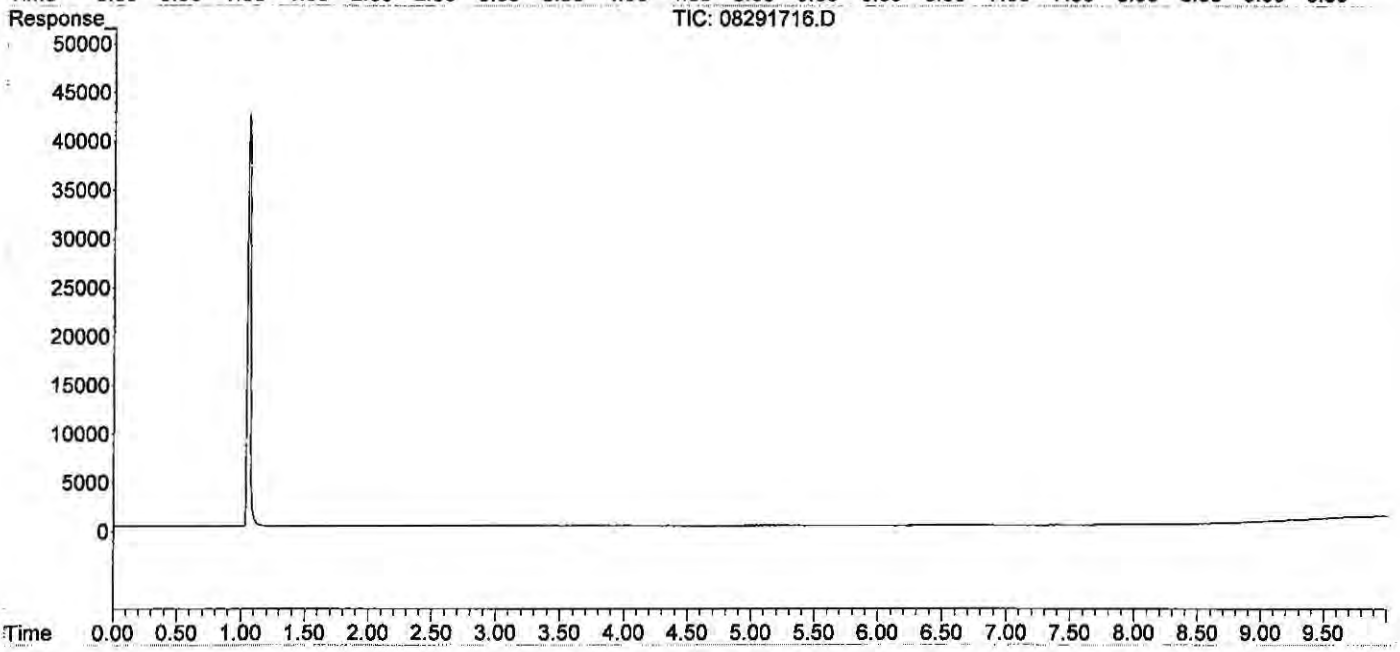
Quantitation Report (QT Reviewed)

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

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

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





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 :

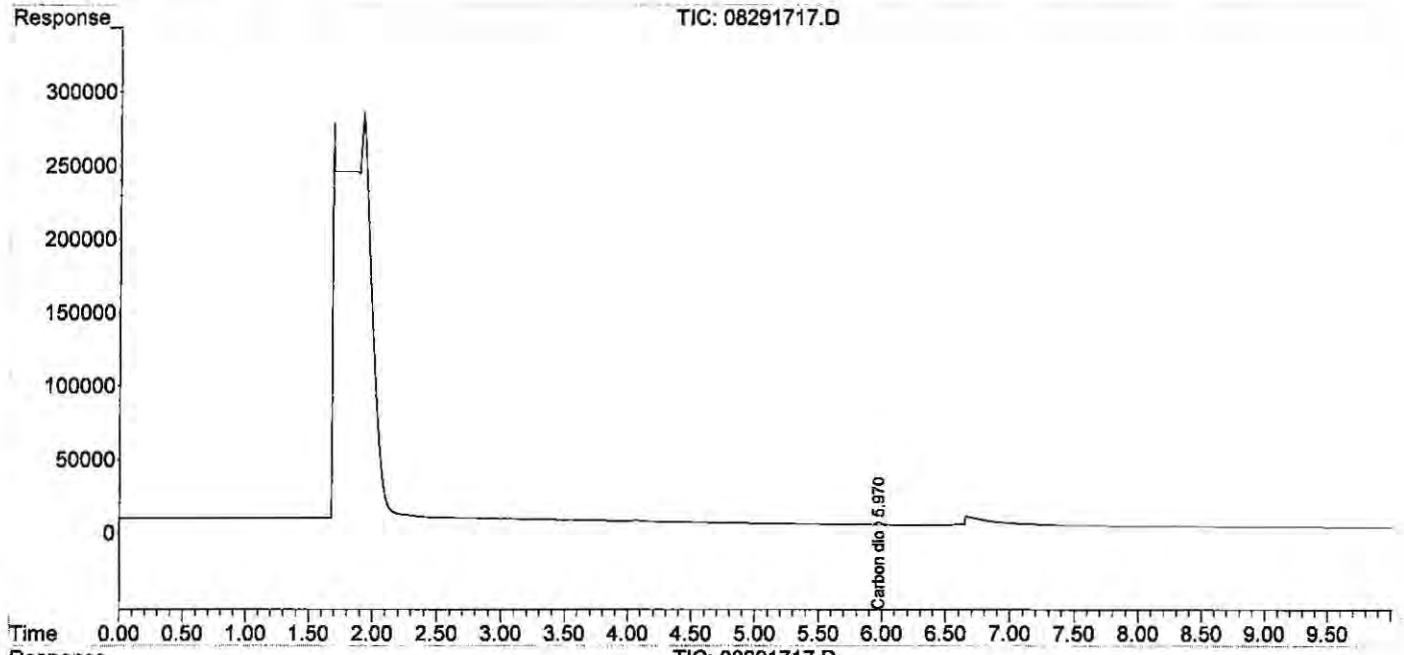
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.920f	-30716454	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.970	58461	240.204	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

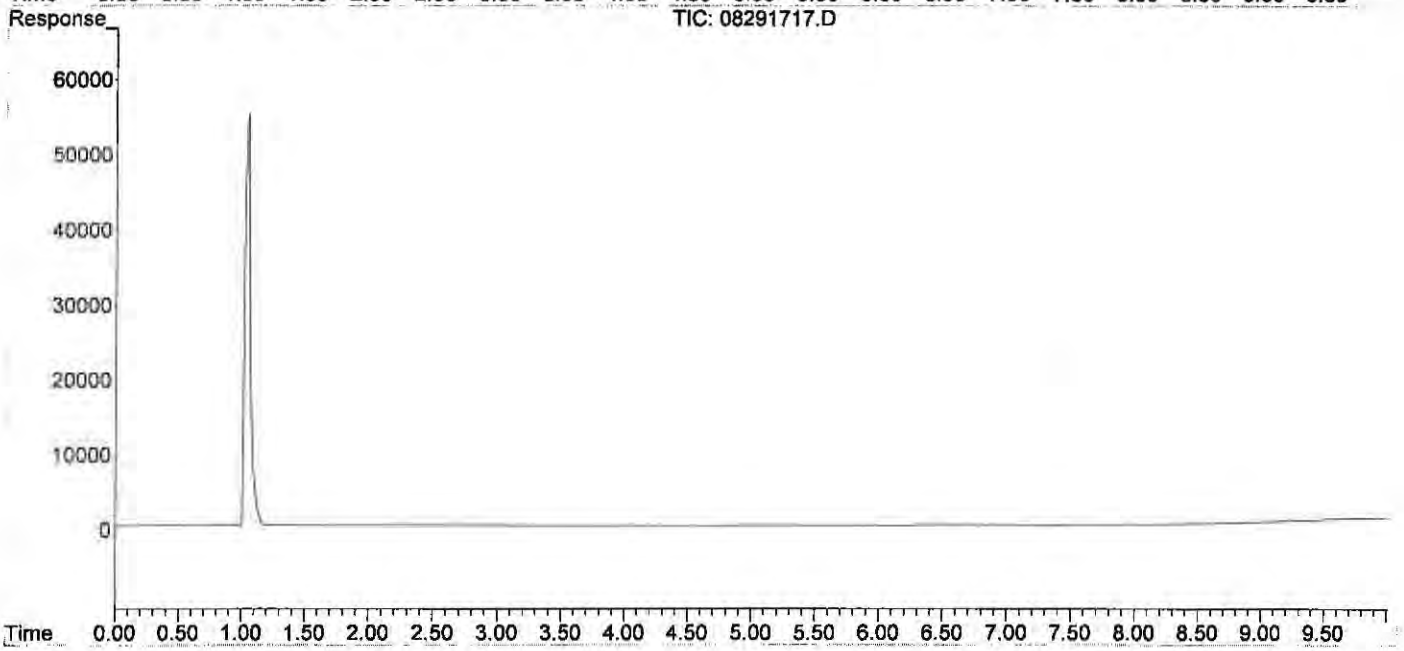
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :



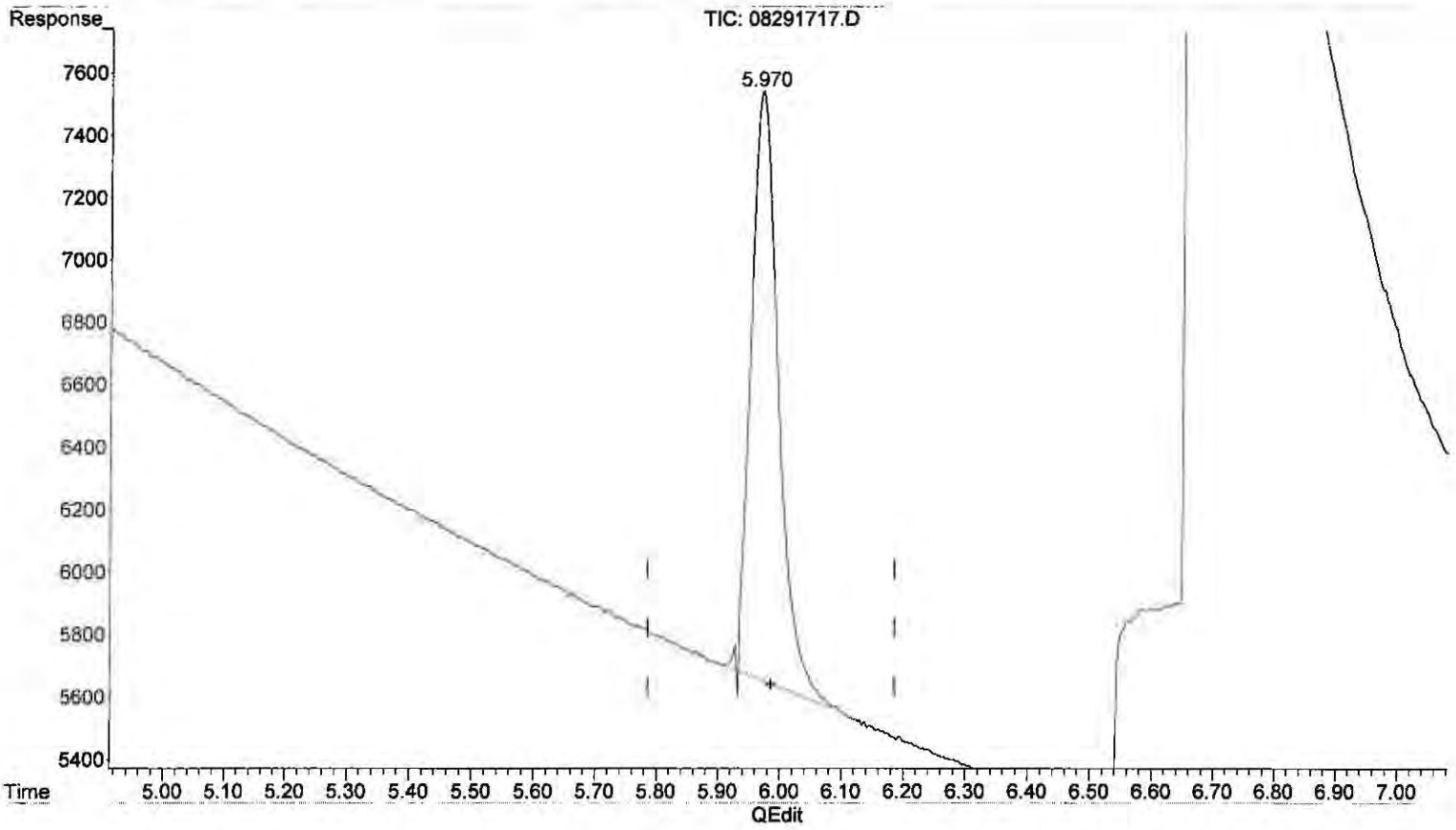


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

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

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

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

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

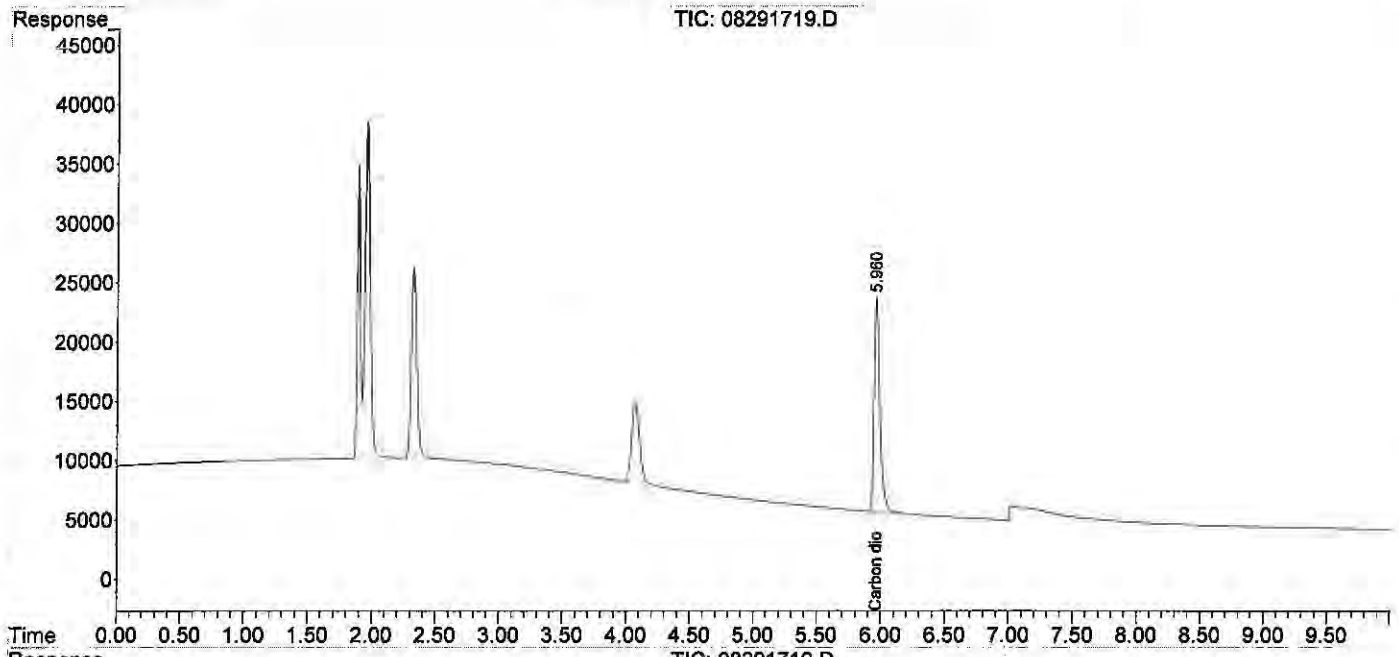
(f)=RT Delta > 1/2 Window (m)=manual int.

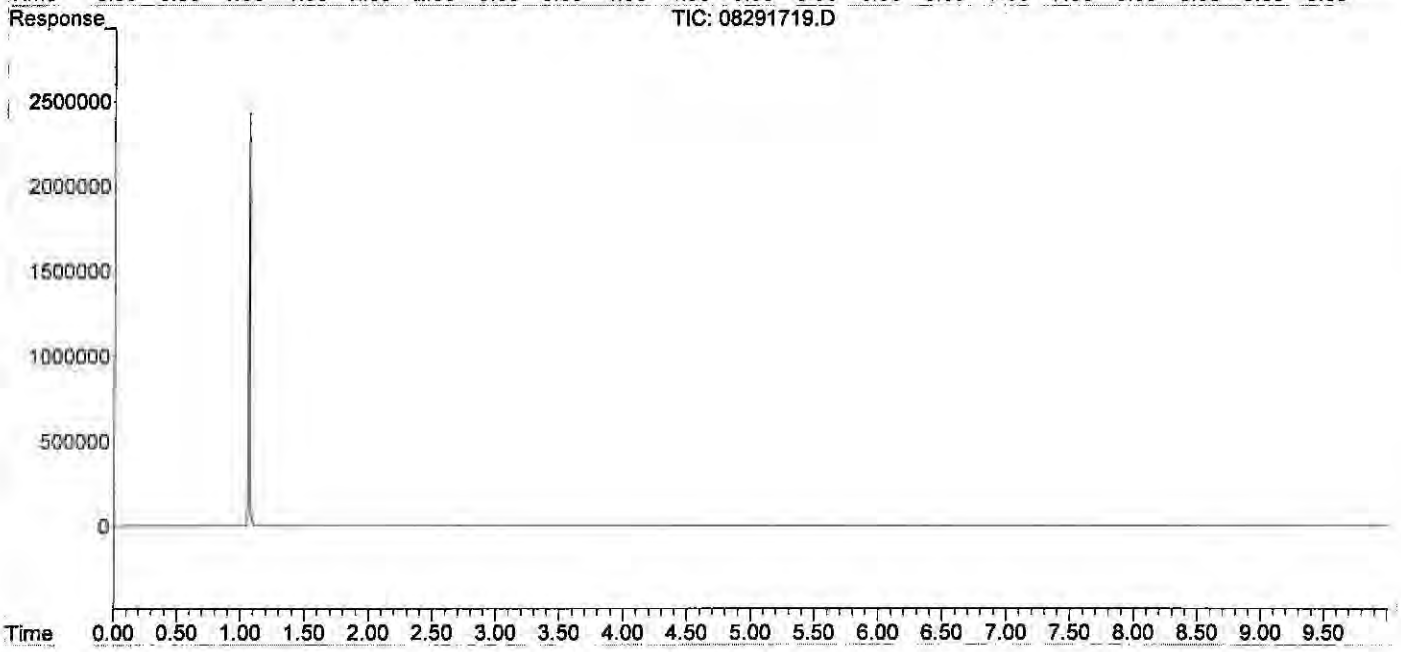
Quantitation Report (QT Reviewed)

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	

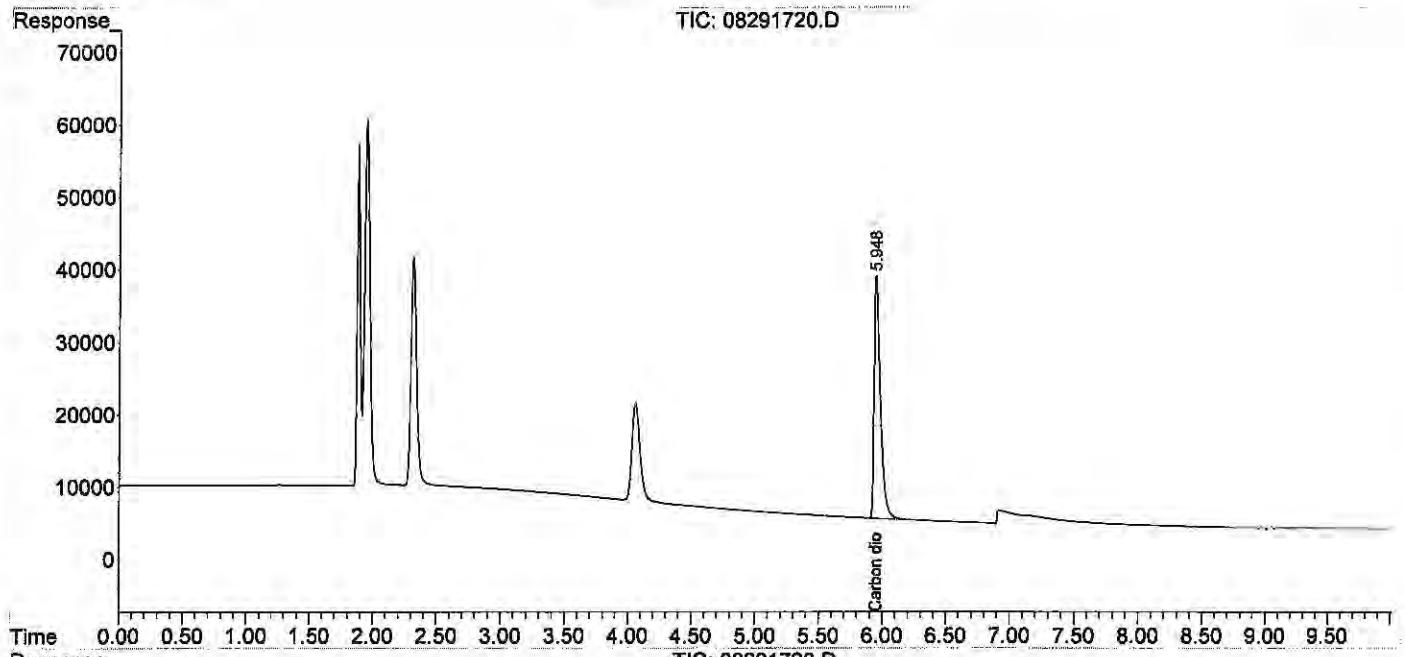
(f)=RT Delta > 1/2 Window (m)=manual int.

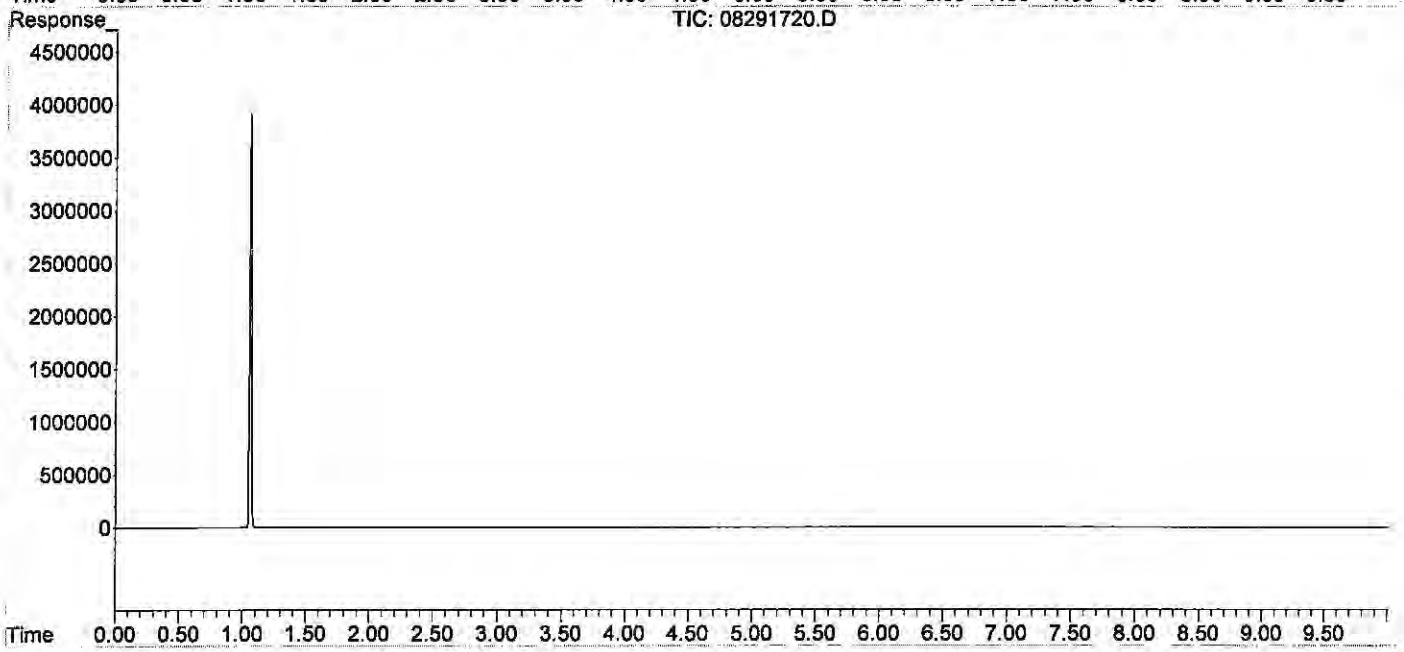
Quantitation Report (QT Reviewed)

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 :





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 :

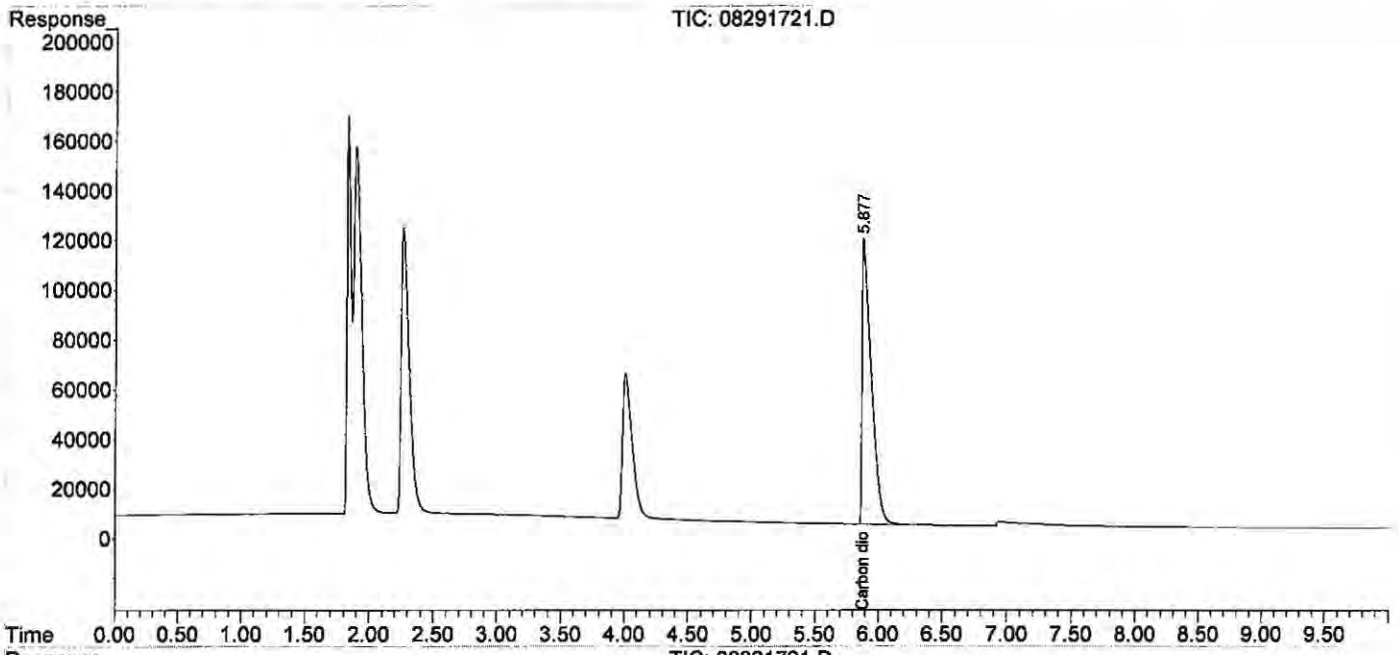
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

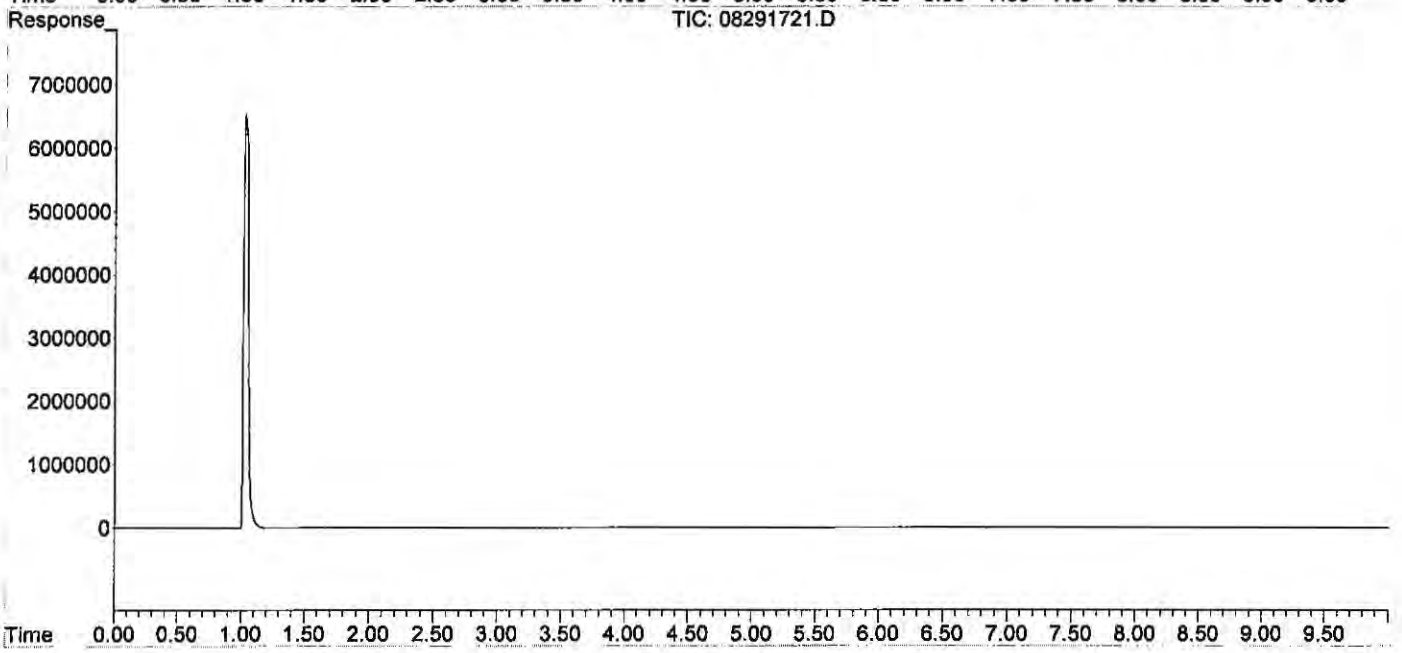
(f)=RT Delta > 1/2 Window (m)=manual int.

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	

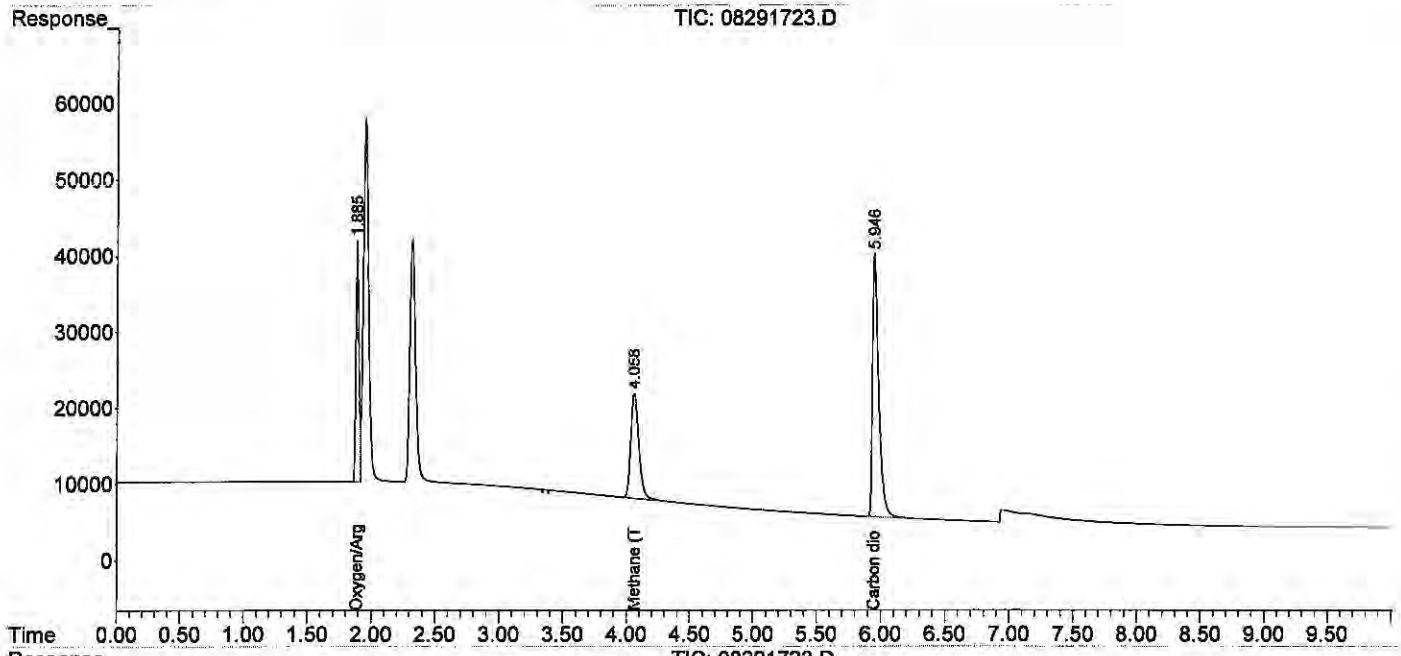
(f)=RT Delta > 1/2 Window (m)=manual int.

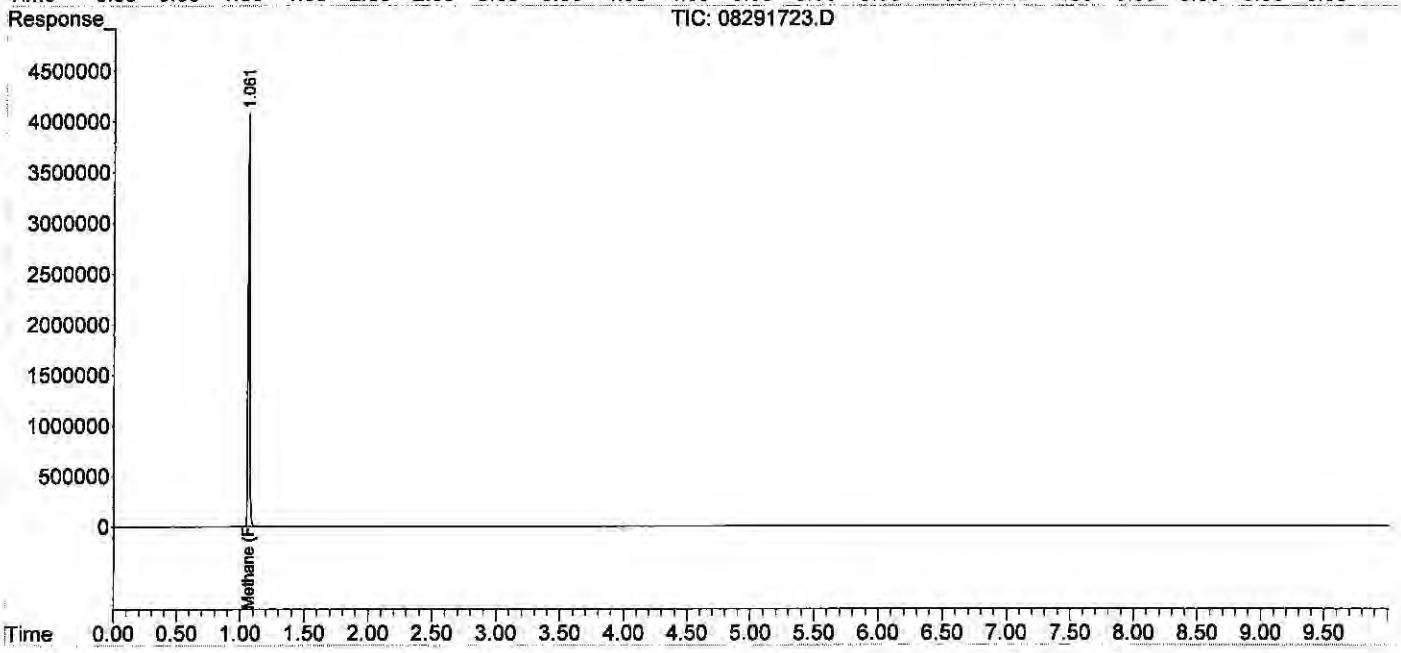
W 9/4/17

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
Service Request: P1902701
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 05/13/19
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	Ini. Vol.	Carbon Dioxide
std s32-04251903	0.100	4880.961
ACTUAL		5000.00
%Difference		2.4%
mcs 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
lcs tcd 0.1ml	0.100	882.856
lcsd tcd 0.1ml	0.100	924.812
P1902701-001 50ul	0.050	3426.45
P1902701-002 50ul	0.050	13049.48
P1902701-003 50ul	0.050	4911.17
P1902701-004 50u	0.050	8223.21
P1902701-005 50ul	0.050	1613.64
P1902701-006 50ul	0.050	9995.71

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
mcs 0.1ml	0.000
lcs tcd 0.1ml	8828.560
lcsd tcd 0.1ml	9248.120
P1902701-001 50ul	68528.90
P1902701-002 50ul	260989.58
P1902701-003 50ul	98223.30
P1902701-004 50u	164464.20
P1902701-005 50ul	32272.76
P1902701-006 50ul	199914.12

std s32-04251903	4686.707
ACTUAL	5000.00
%Difference	6.3%

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

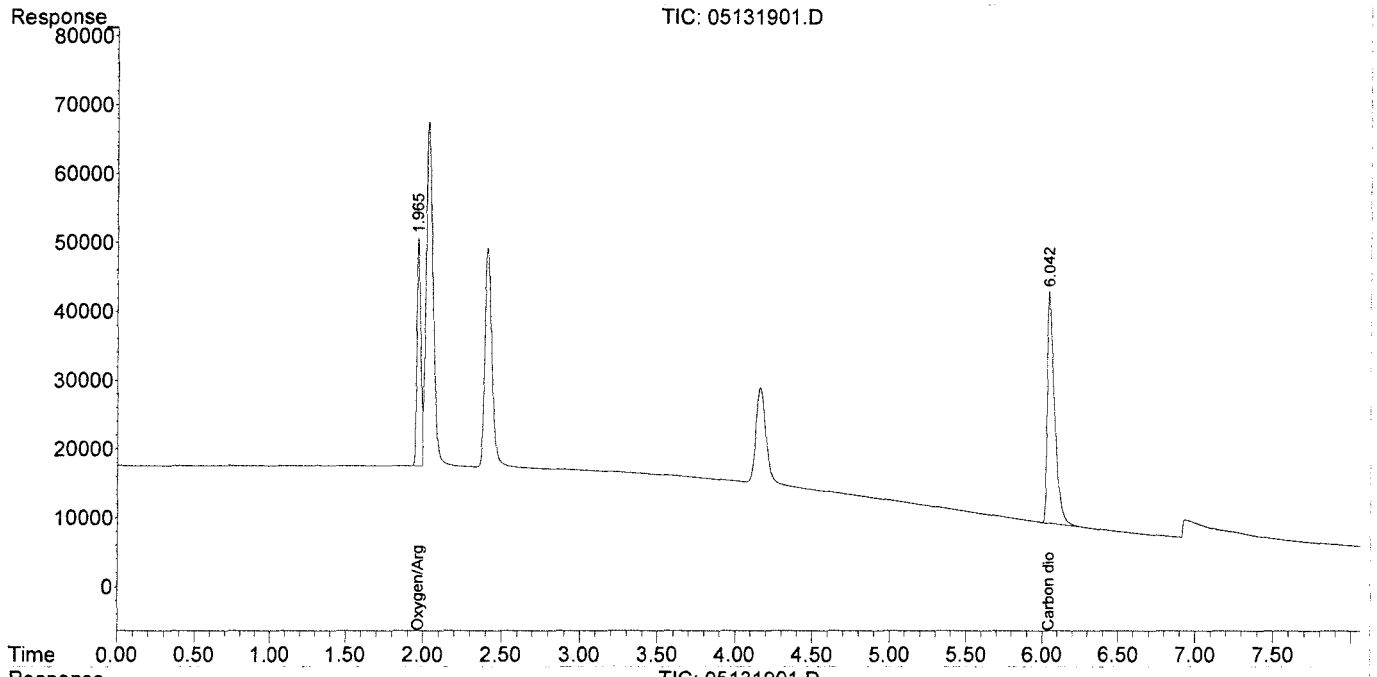
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.965f	585039	0.123	ppm	
2)	Carbon monoxide	1.965f	585039	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.042	1145704	4880.961	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

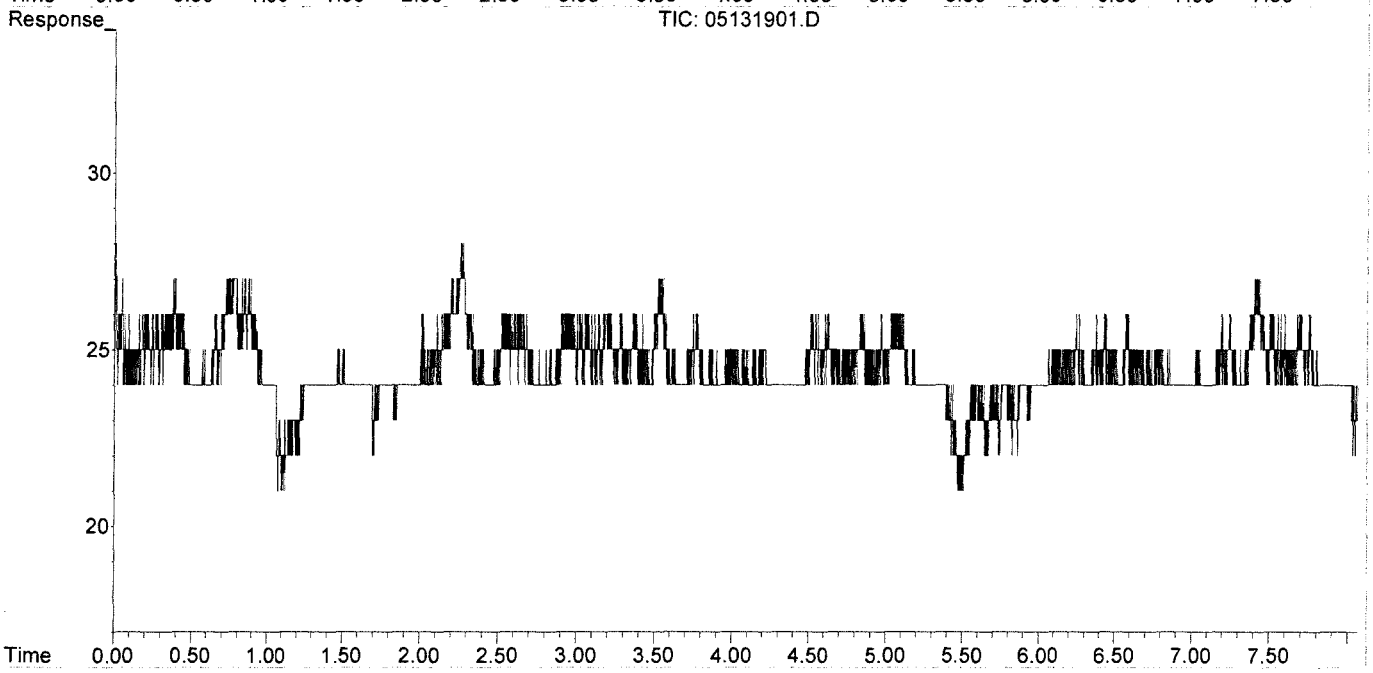
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\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 :

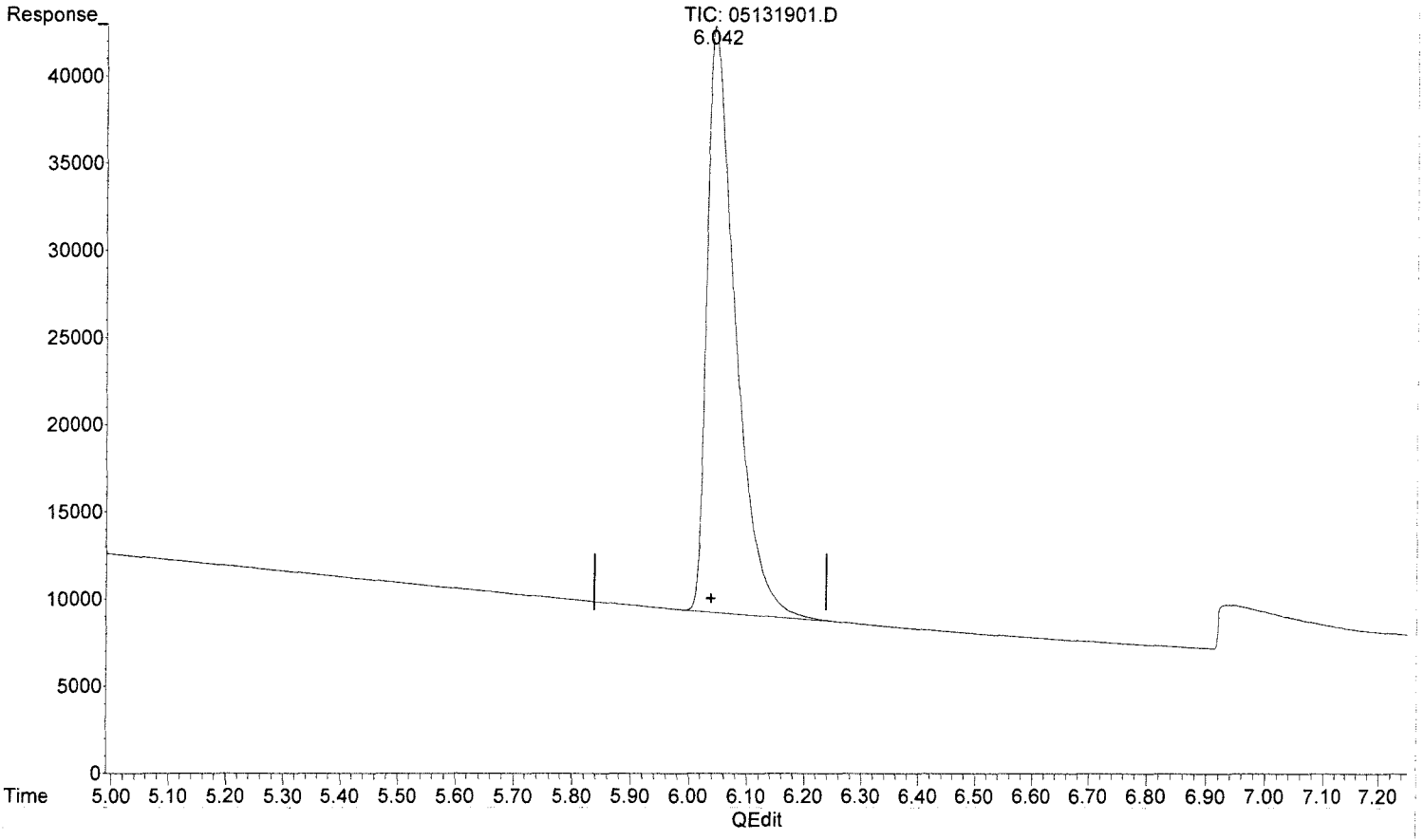




Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.042min 4880.961 ppm m

response 1145704

ME 5/14/19

Low spiking Blk no previous

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:32:20
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:41:16 2019
Quant Method : J:\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 :

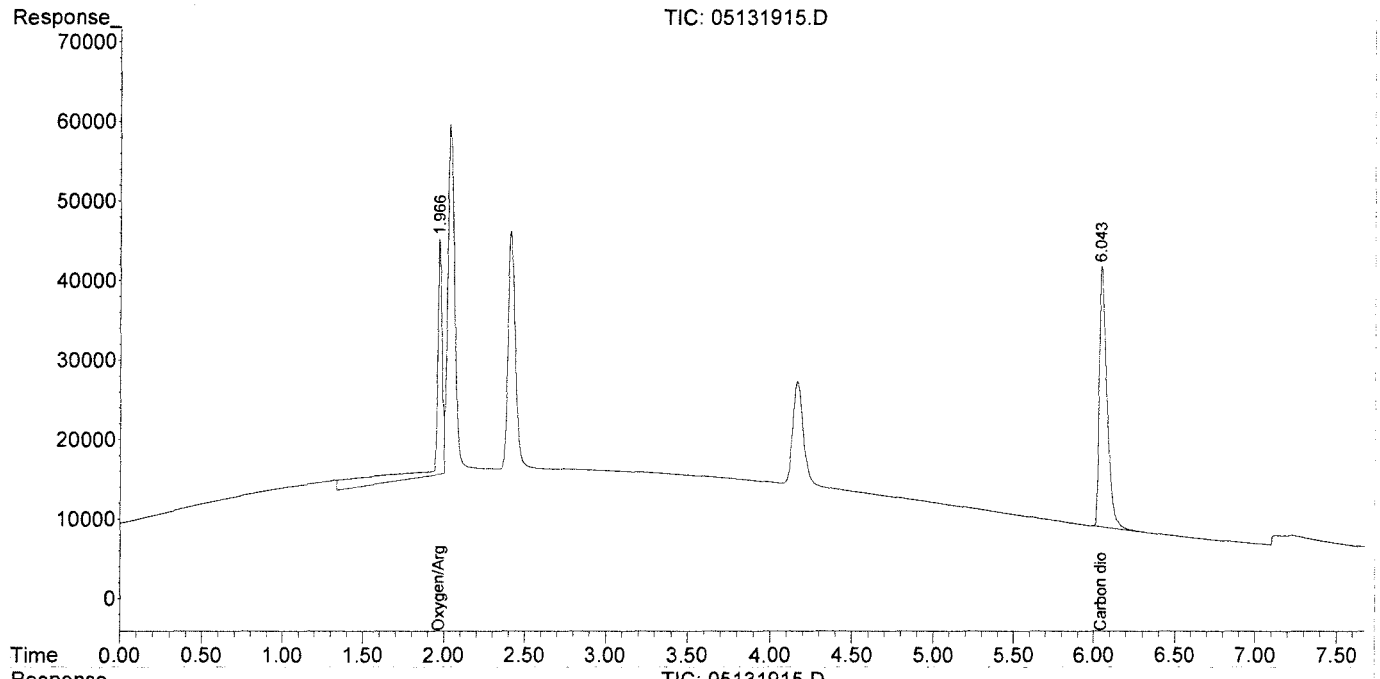
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.967f	853084	0.179	ppm
2)	Carbon monoxide	1.967f	853084	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.044	1078881	4596.279	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

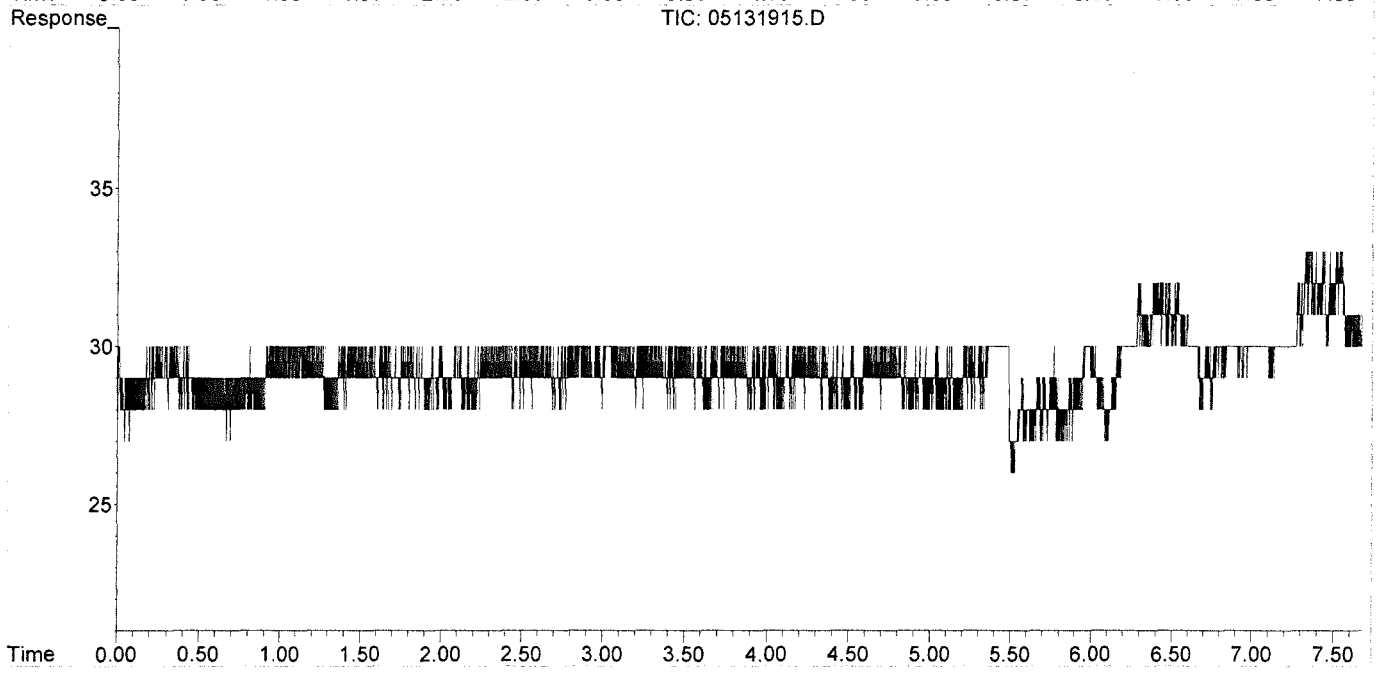
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:32:20
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:41:16 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 16:11:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:23:56 2019
Quant Method : J:\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 :

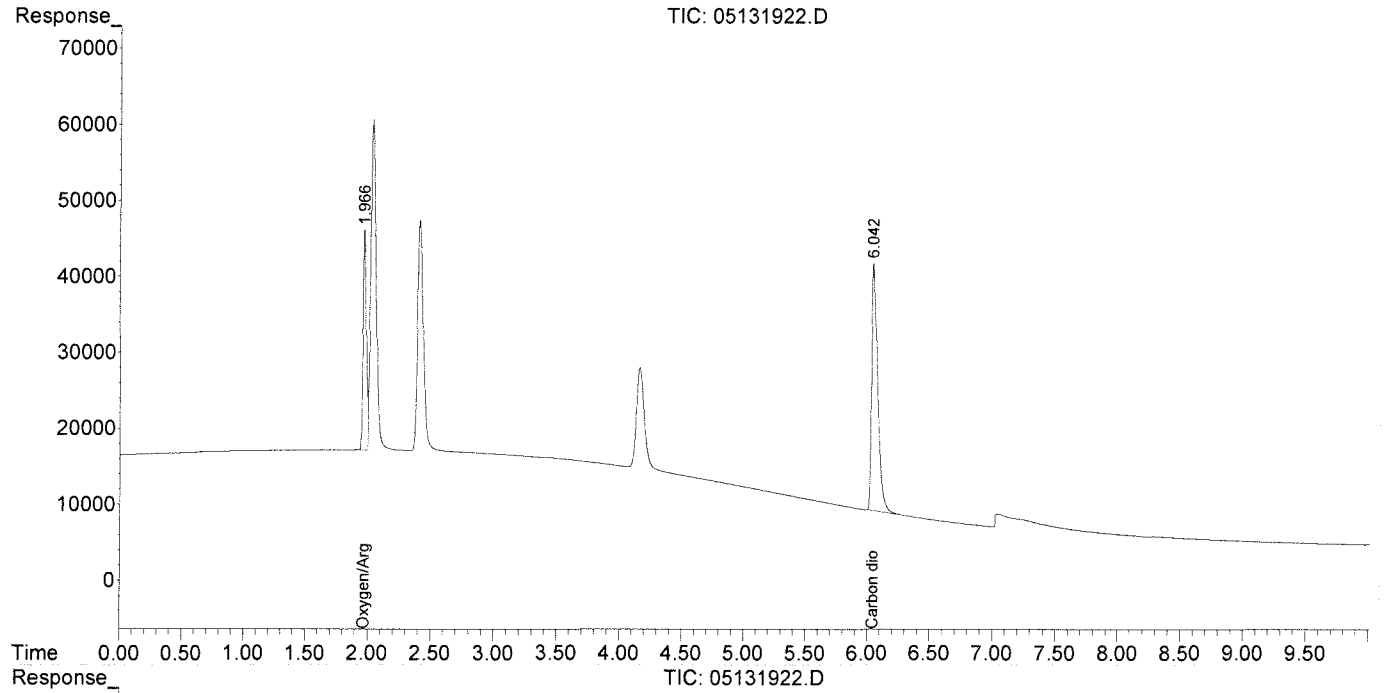
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.967f	514288	0.108	ppm
2)	Carbon monoxide	1.967f	514288	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.042	1100107	4686.707	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

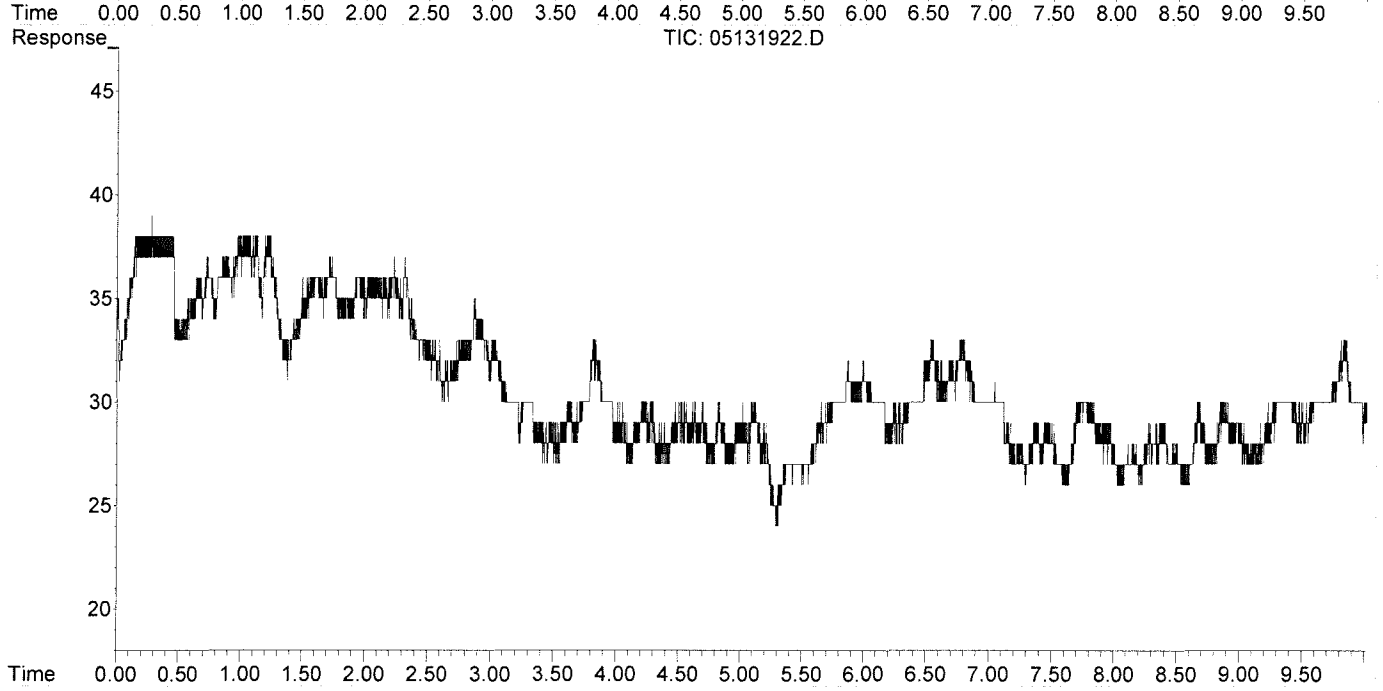
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 16:11:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:23:56 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_05\13\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	13-May-19, 10:39:51	05131901.D	std s32-04251903		WH	RSKBOTH.M	pass
2	13-May-19, 10:55:14	05131902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	13-May-19, 11:08:12	05131903.D	mcs 0.1ml		WH	RSKBOTH.M	pass
4	13-May-19, 11:26:21	05131904.D	lcs tcd 0.1ml		WH	RSKBOTH.M	pass
5	13-May-19, 11:41:14	05131905.D	lcsd tcd 0.1ml		WH	RSKBOTH.M	pass
6	13-May-19, 12:02:10	05131906.D	P1902518-001 0.1		WH	RSKBOTH.M	
7	13-May-19, 12:13:16	05131907.D	P1902518-001 50ul		WH	RSKBOTH.M	
8	13-May-19, 12:26:26	05131908.D	P1902518-002 50ul		WH	RSKBOTH.M	
9	13-May-19, 12:36:10	05131909.D	P1902518-003 50ul		WH	RSKBOTH.M	
10	13-May-19, 12:47:39	05131910.D	P1902501-001 0.1ml		WH	RSKBOTH.M	
11	13-May-19, 13:03:32	05131911.D	P1902701-001 50ul		WH	RSKBOTH.M	
12	13-May-19, 13:33:30	05131912.D	P1902701-002 50ul		WH	RSKBOTH.M	
13	13-May-19, 14:04:20	05131913.D	P1902701-003 50ul		WH	RSKBOTH.M	
14	13-May-19, 14:19:29	05131914.D	P1902701-004 50u		WH	RSKBOTH.M	
15	13-May-19, 14:32:20	05131915.D	std s32-04251903		WH	RSKBOTH.M	pass
16	13-May-19, 14:42:38	05131916.D	P1902701-005 50ul		WH	RSKBOTH.M	
17	13-May-19, 15:04:14	05131917.D	P1902701-006 50ul		WH	RSKBOTH.M	
18	13-May-19, 15:17:18	05131918.D	P1902700-001 50ul		WH	RSKBOTH.M	
19	13-May-19, 15:28:07	05131919.D	P1902700-002 50ul		WH	RSKBOTH.M	
20	13-May-19, 15:48:03	05131920.D	P1902700-002ms 50ul		WH	RSKBOTH.M	
21	13-May-19, 15:58:06	05131921.D	P1902700-002msd 50ul		WH	RSKBOTH.M	
22	13-May-19, 16:11:51	05131922.D	std s32-04251903		WH	RSKBOTH.M	pass

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:54:16
Operator : WH
Sample : P1902701-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:01 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 :

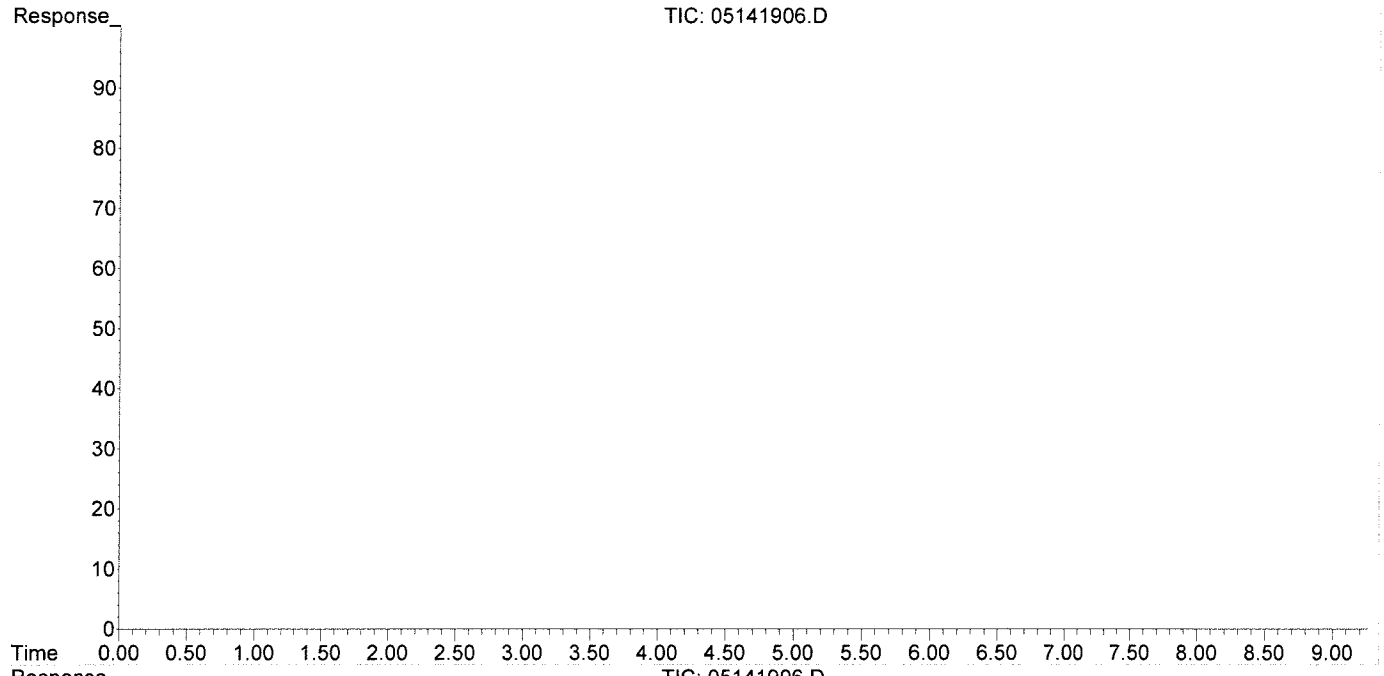
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	2666	0.294	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

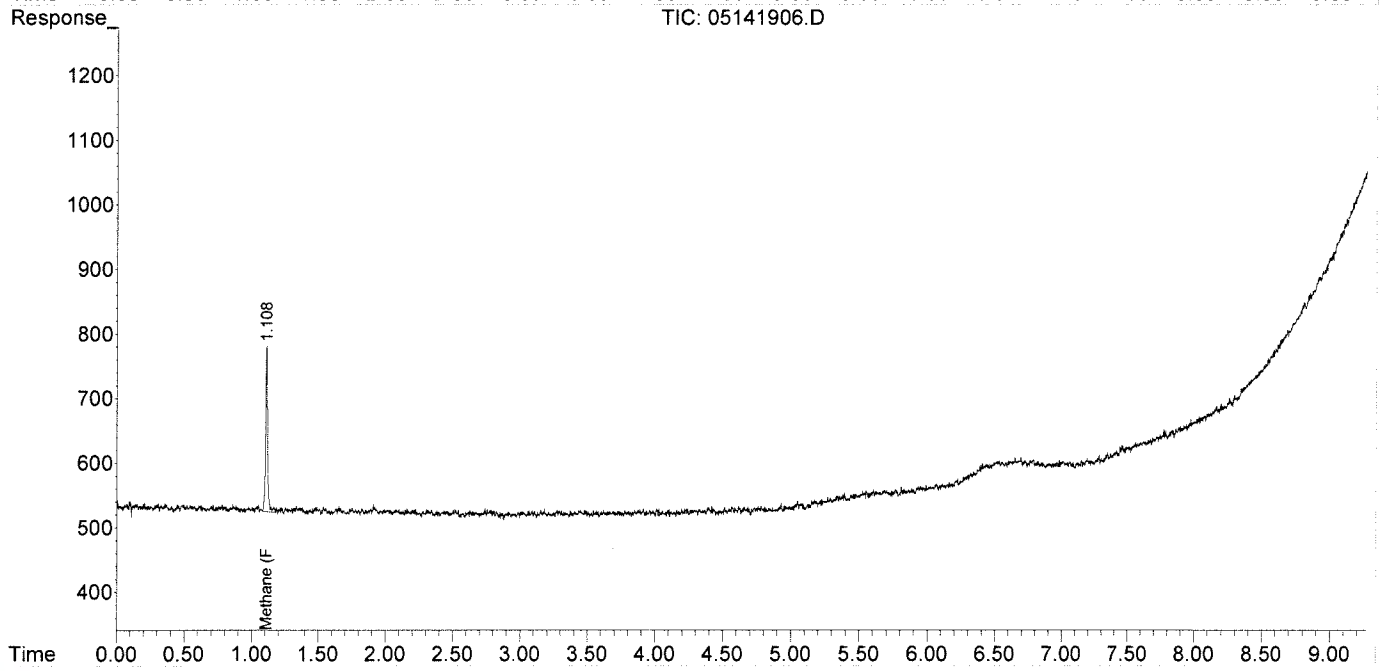
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:54:16
Operator : WH
Sample : P1902701-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:01 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_05\14\
Data File : 05141907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:07:25
Operator : WH
Sample : P1902701-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:24 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 :

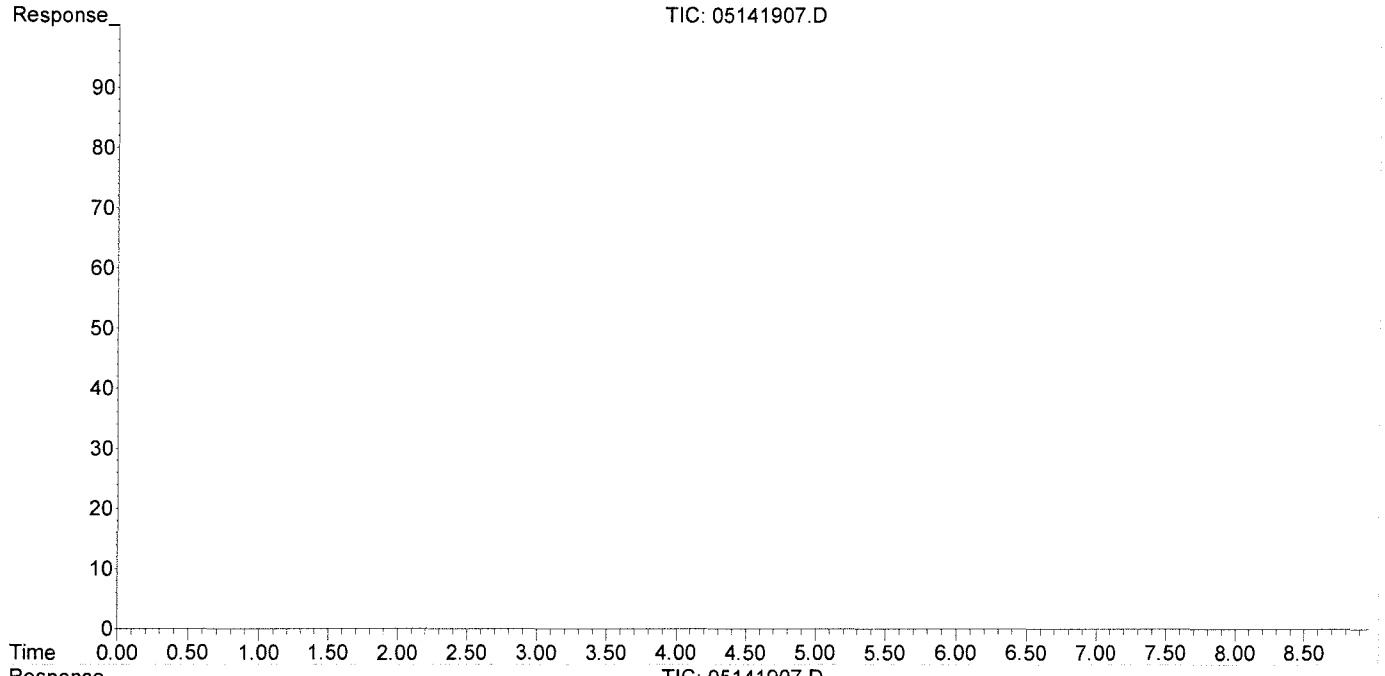
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	33449	3.688	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

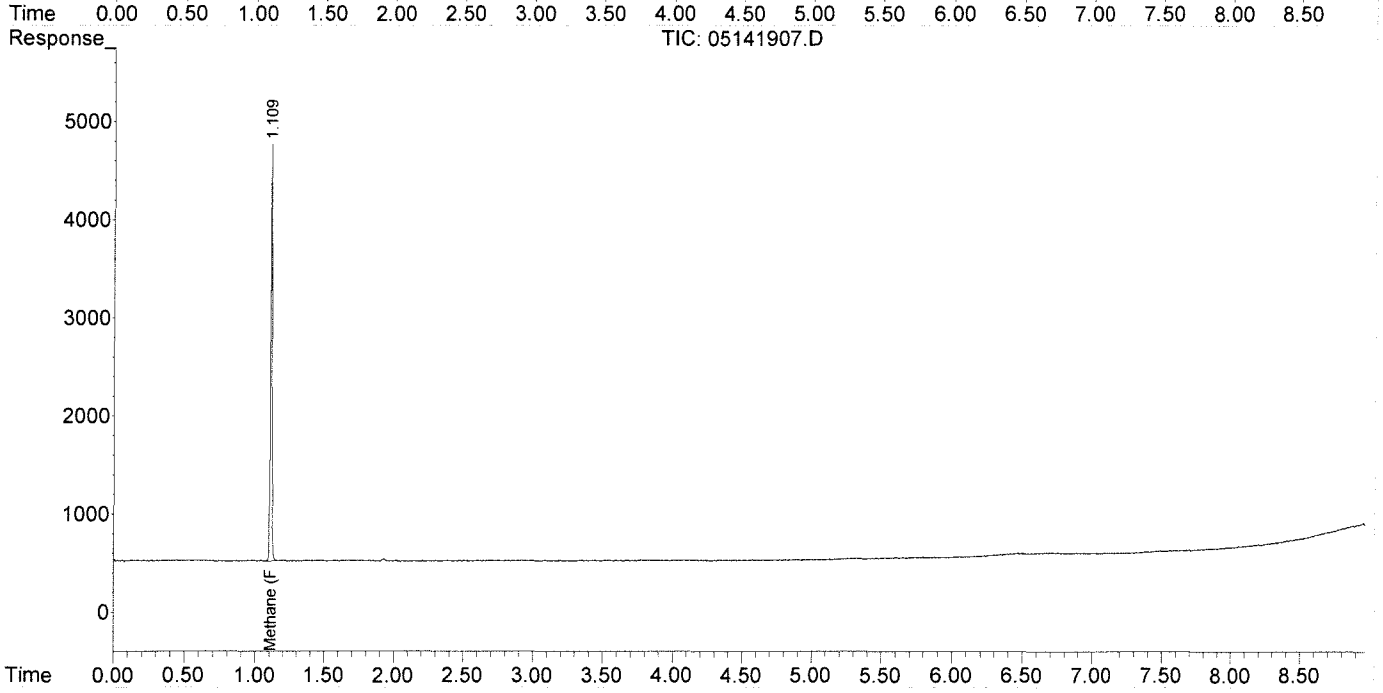
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:07:25
Operator : WH
Sample : P1902701-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:24 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_05\14\
Data File : 05141908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:20:09
Operator : WH
Sample : P1902701-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:46 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 :

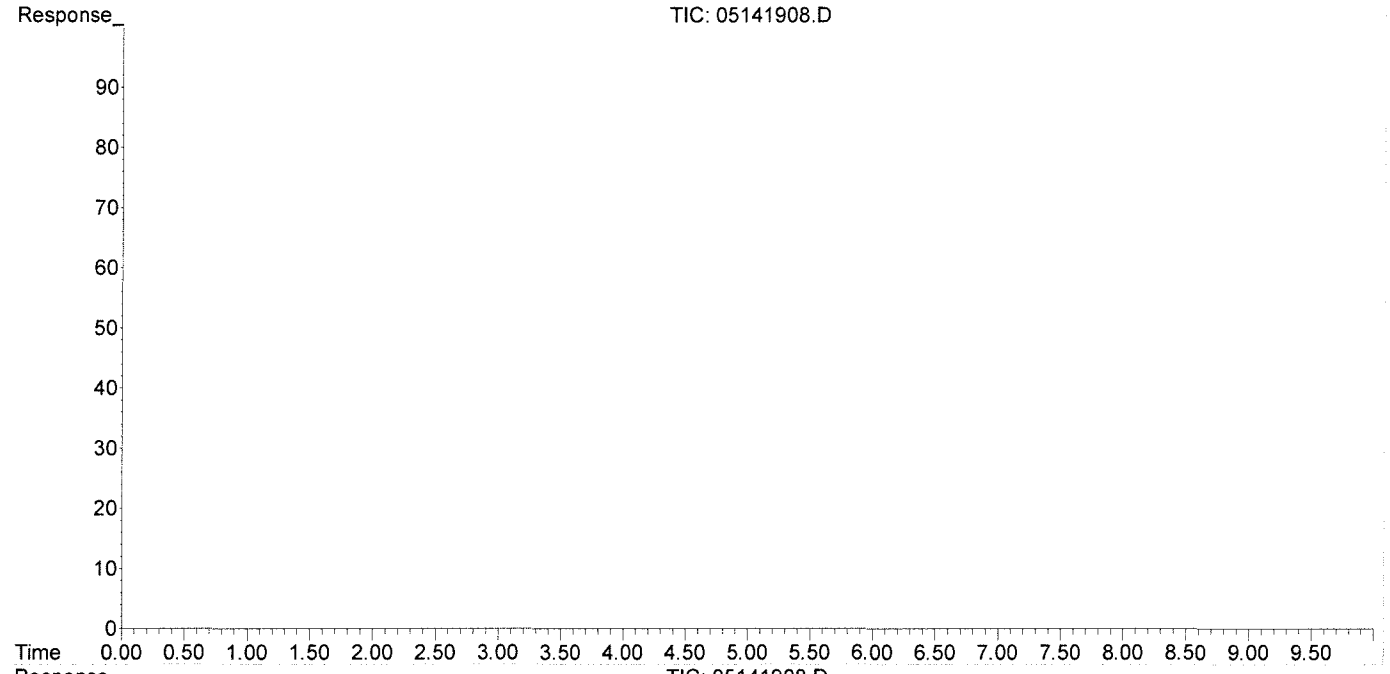
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	18129	1.999	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

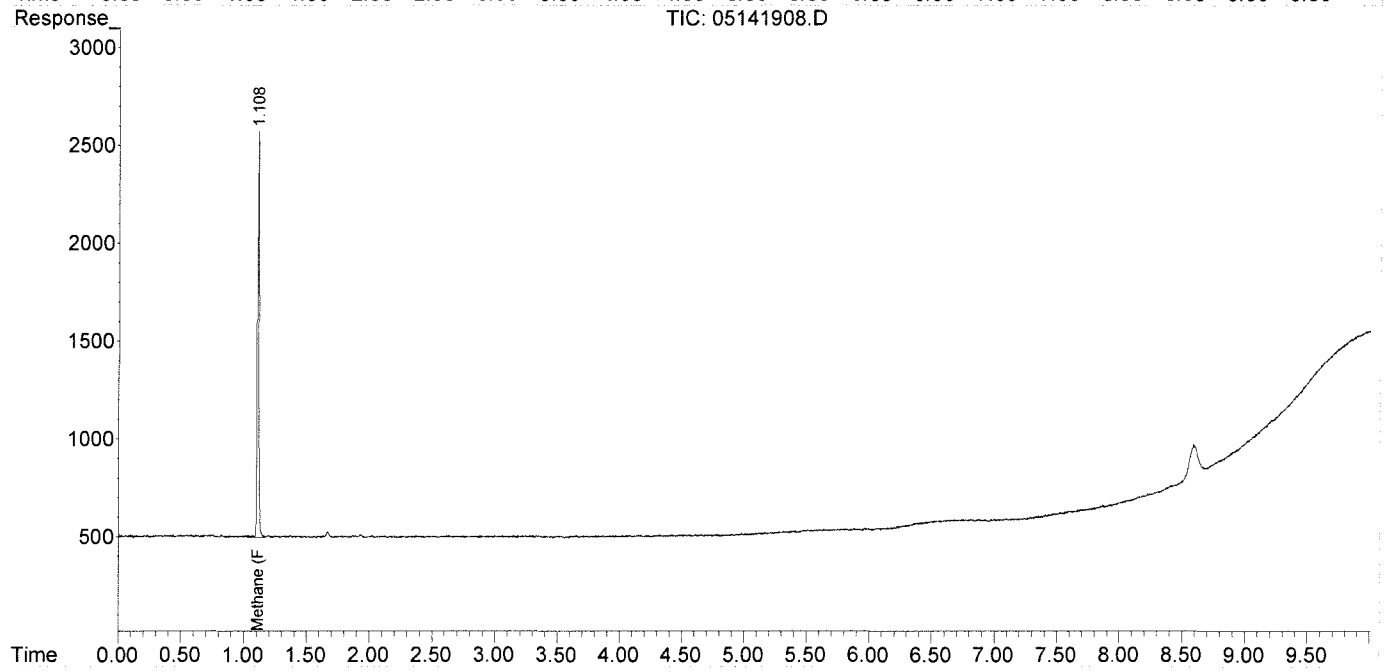
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:20:09
Operator : WH
Sample : P1902701-003 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:46:46 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_05\14\
Data File : 05141909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:35:42
Operator : WH
Sample : P1902701-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:47:15 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 :

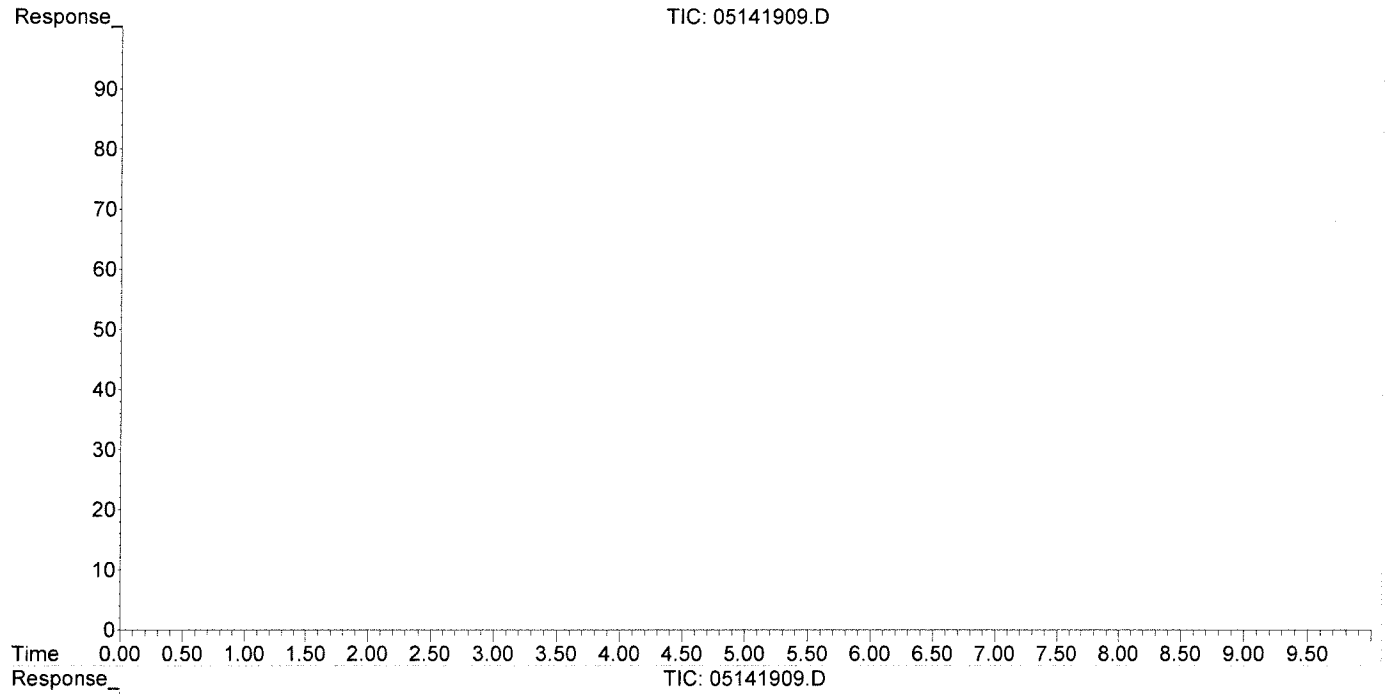
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	21443	2.364	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

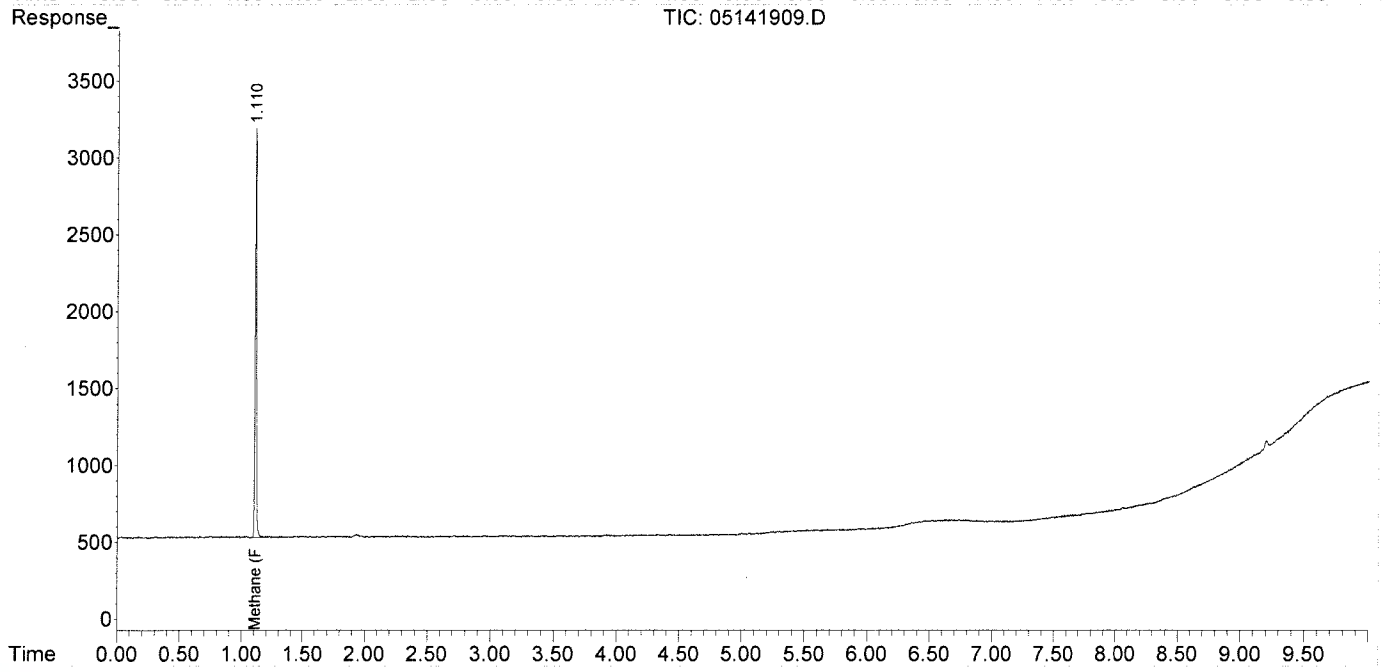
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141909.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:35:42
Operator : WH
Sample : P1902701-004 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:47:15 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_05\14\
Data File : 05141910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:48:39
Operator : WH
Sample : P1902701-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:47:42 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

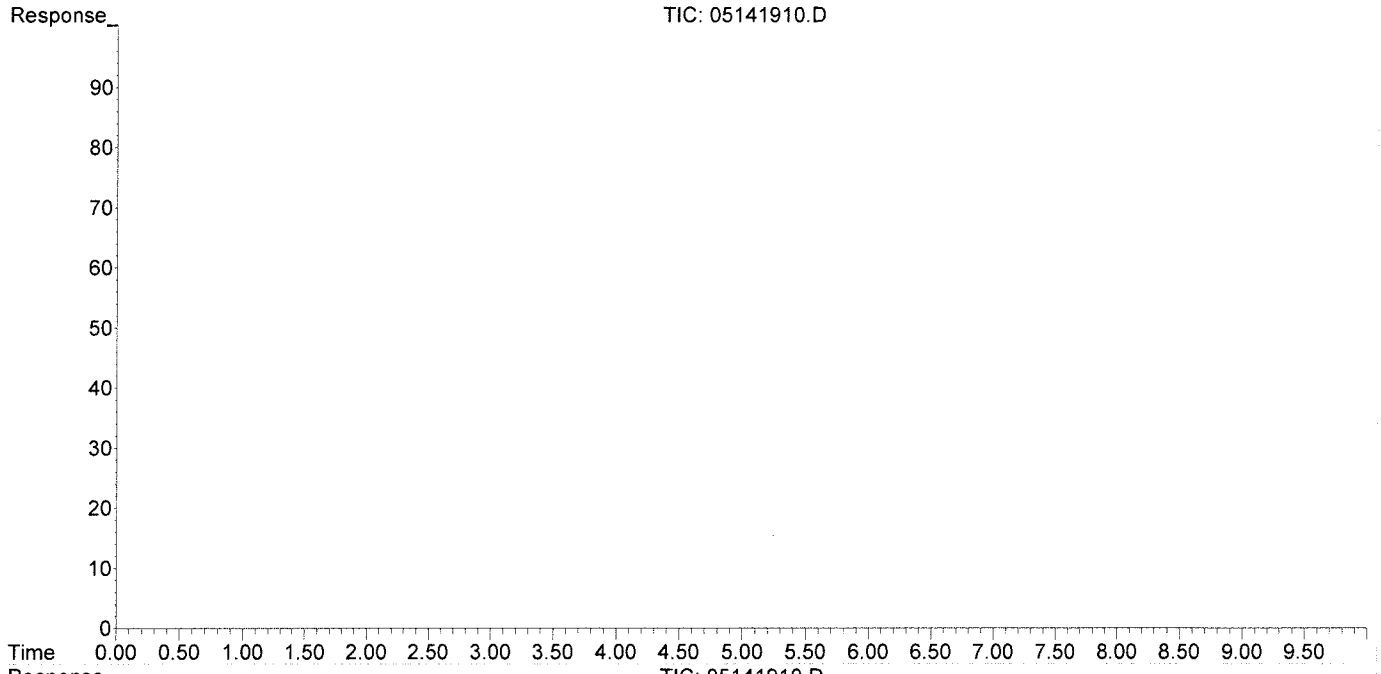
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000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

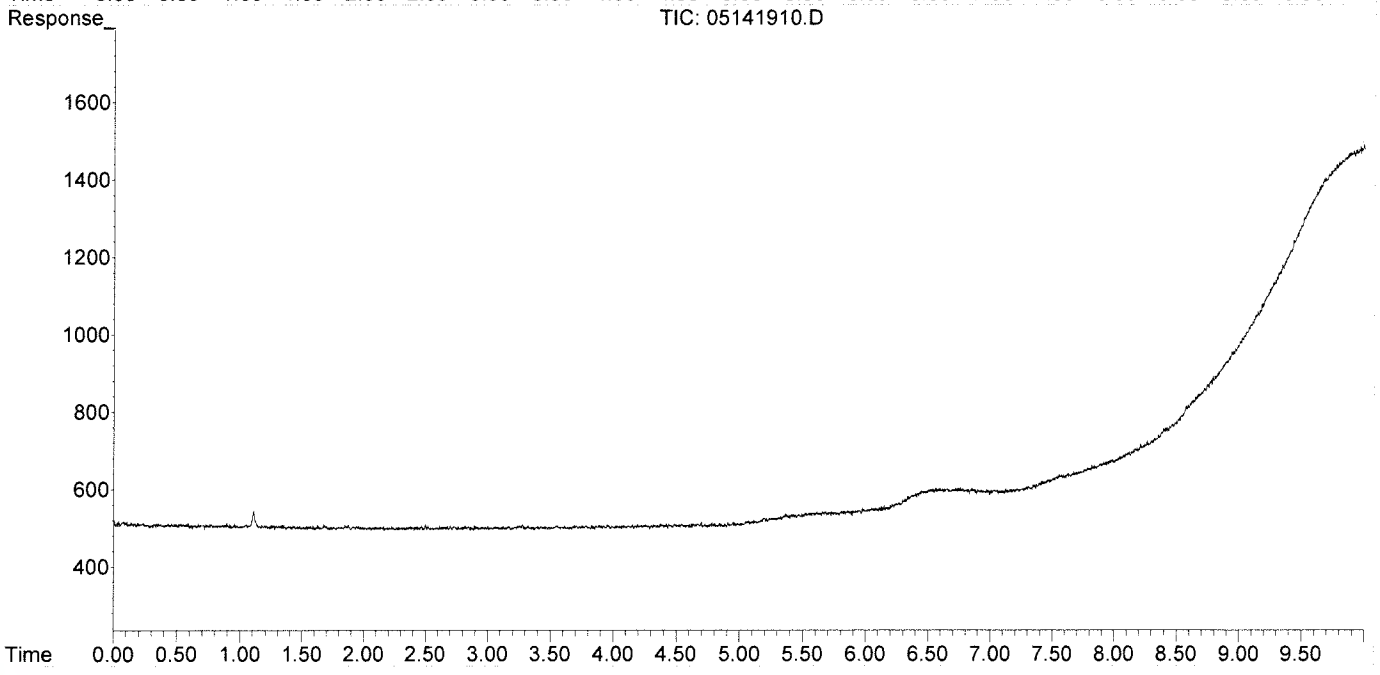
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141910.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 12:48:39
Operator : WH
Sample : P1902701-005 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:47:42 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_05\14\
Data File : 05141911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:08:06
Operator : WH
Sample : P1902701-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:48:01 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 :

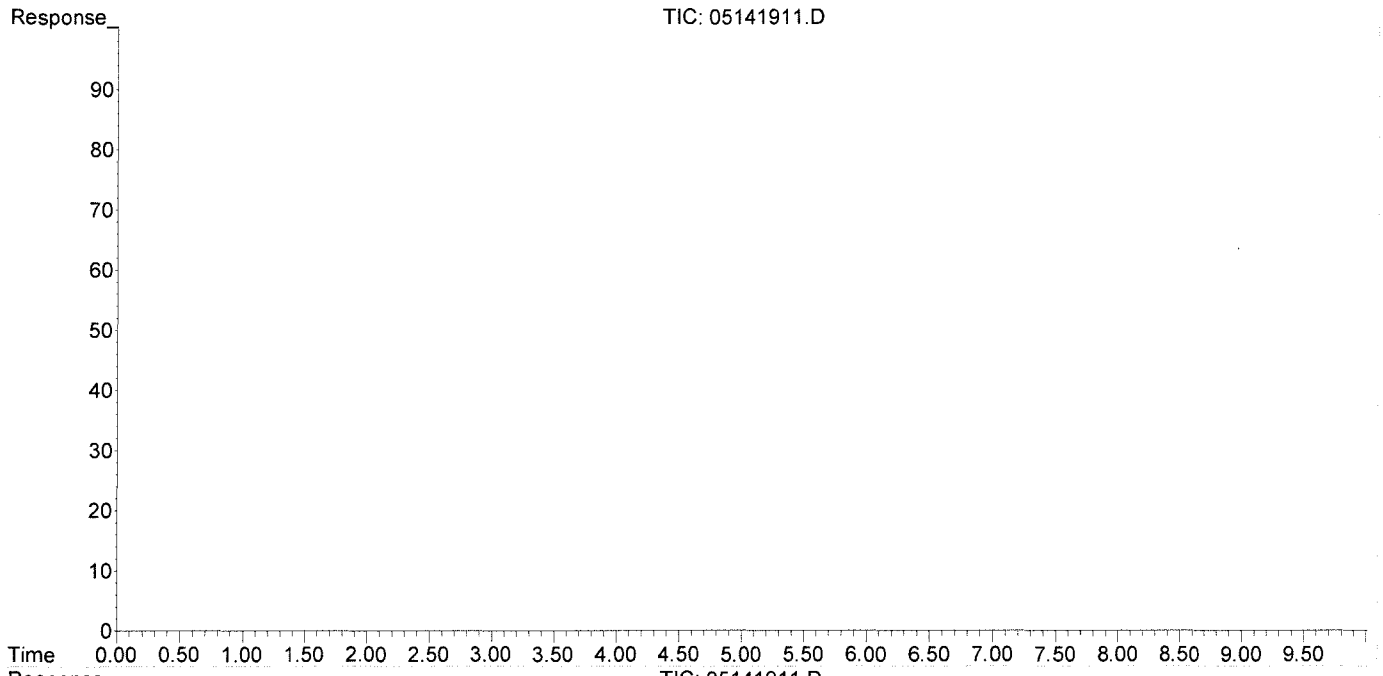
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	14637	1.614	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

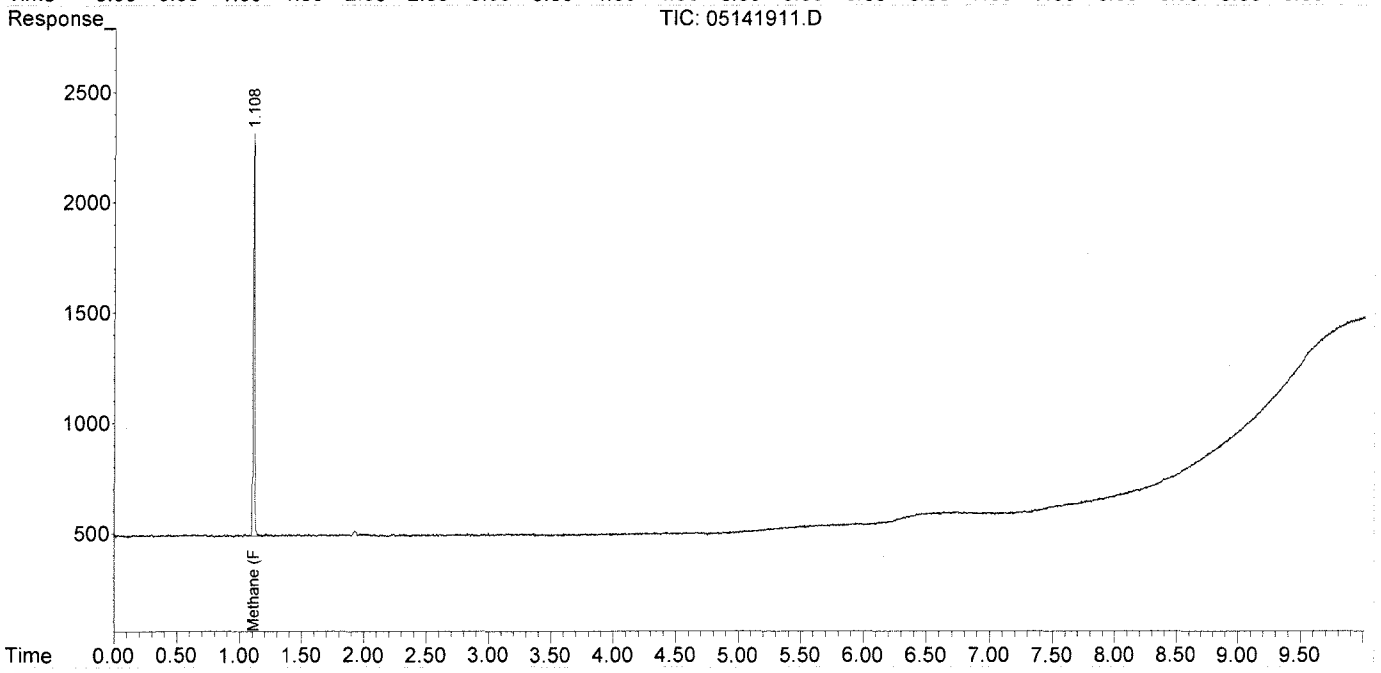
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:08:06
Operator : WH
Sample : P1902701-006 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 10:48:01 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_05\14\
Data File : 05141903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:09:41
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: May 14 11:26:59 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 :

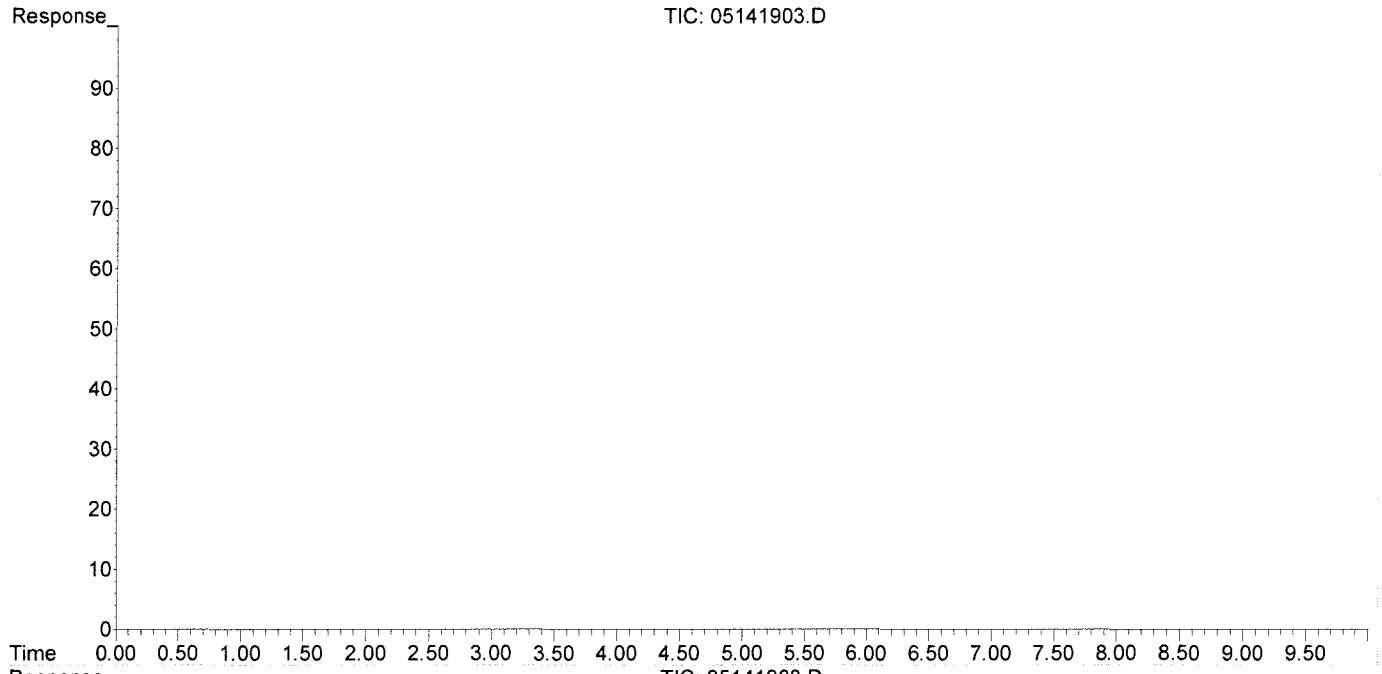
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.103	1880	0.207	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

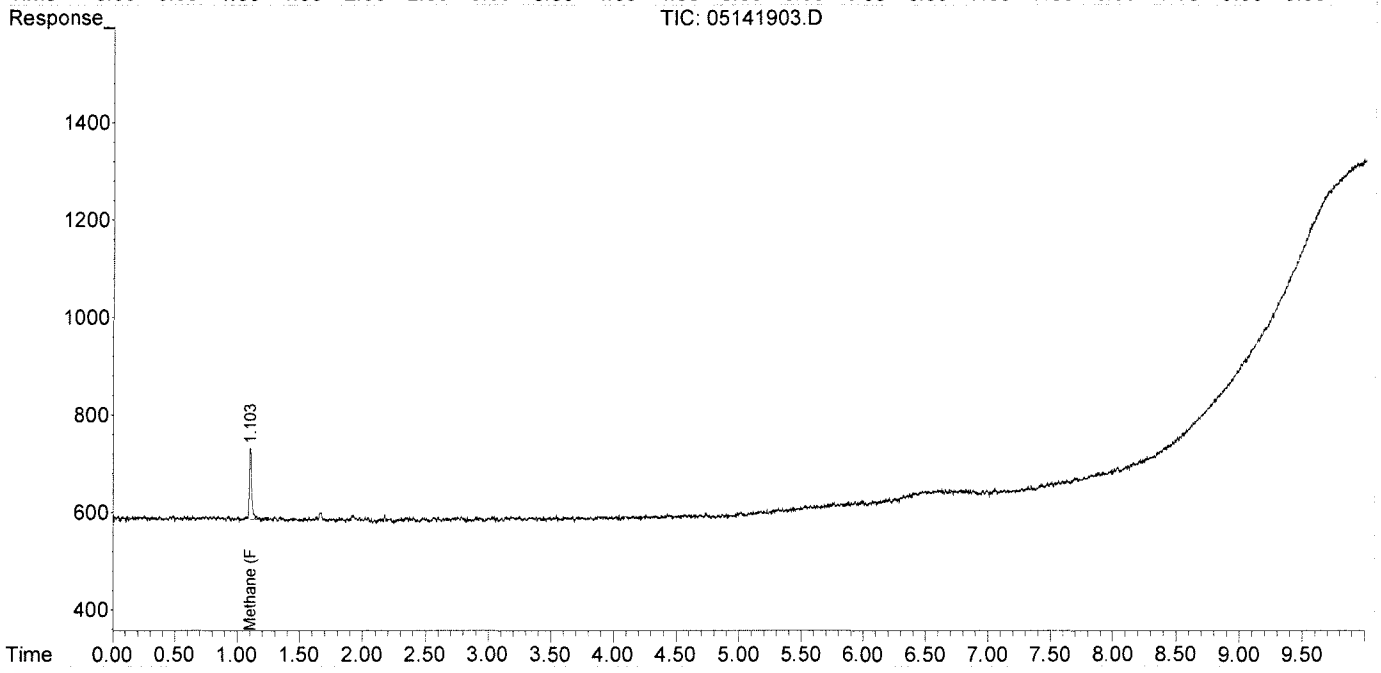
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:09:41
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: May 14 11:26:59 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 :





Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :

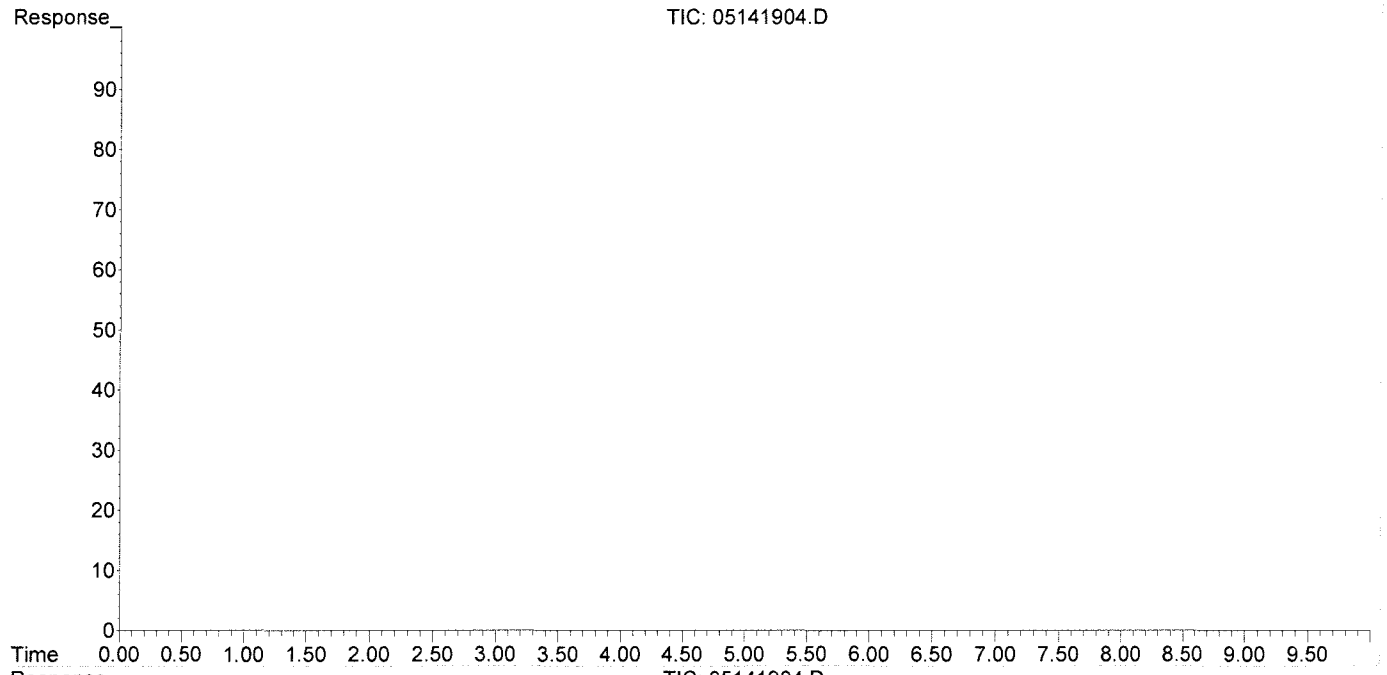
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.107	12224	1.348	ppm	
7)	Ethylene	1.667	15157	0.906	ppm	m
8)	Ethane	1.929	19194	1.132	ppm	
9)	Propylene	4.306	20915	0.893	ppm	
10)	Propane	4.428	29491	1.185	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.644f	39735	1.493	ppm	
13)	n-Butane	6.644f	39735	1.493	ppm	

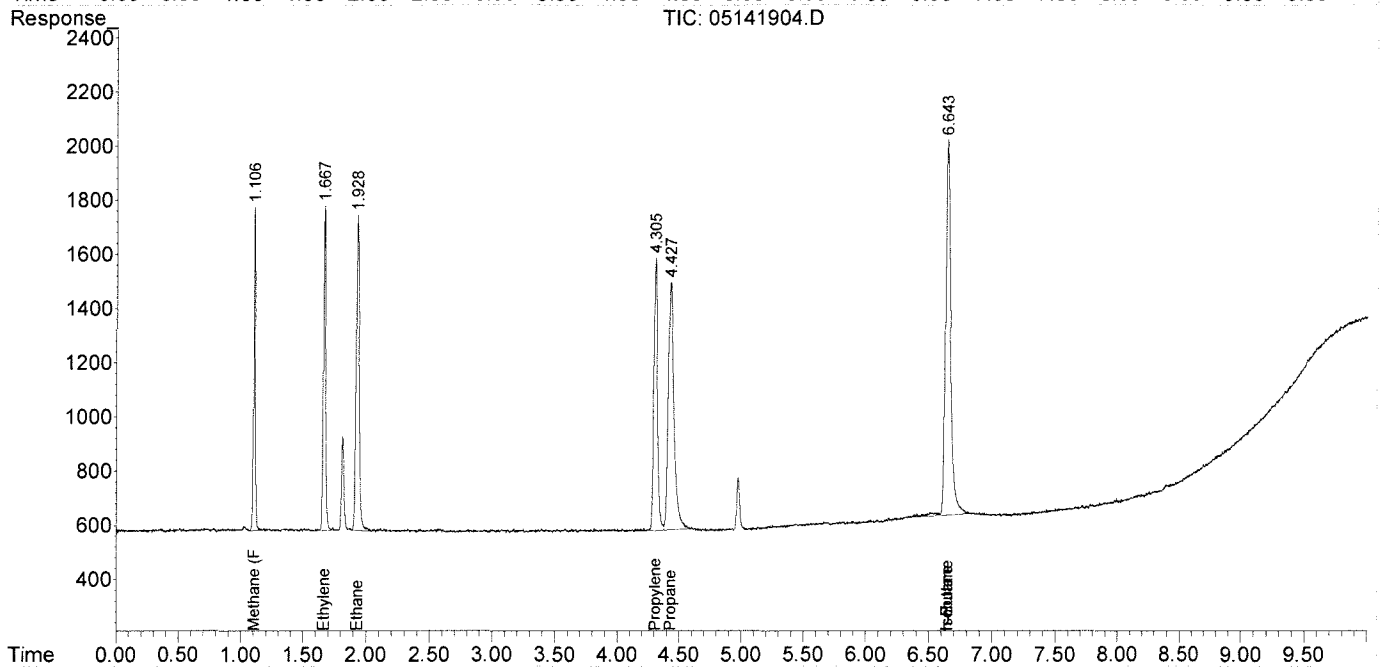
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :

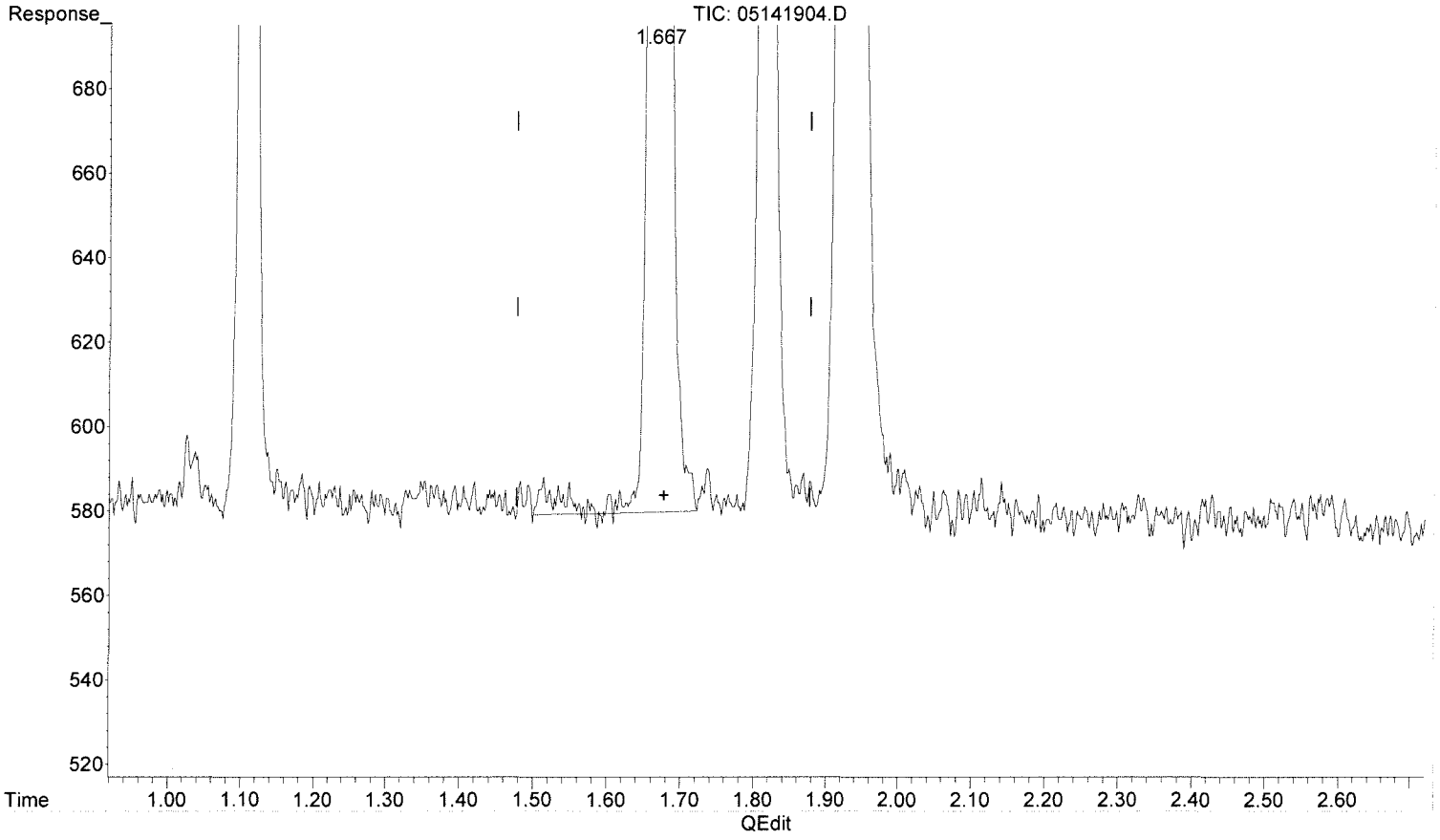




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :



(7) Ethylene

1.667min 0.918 ppm

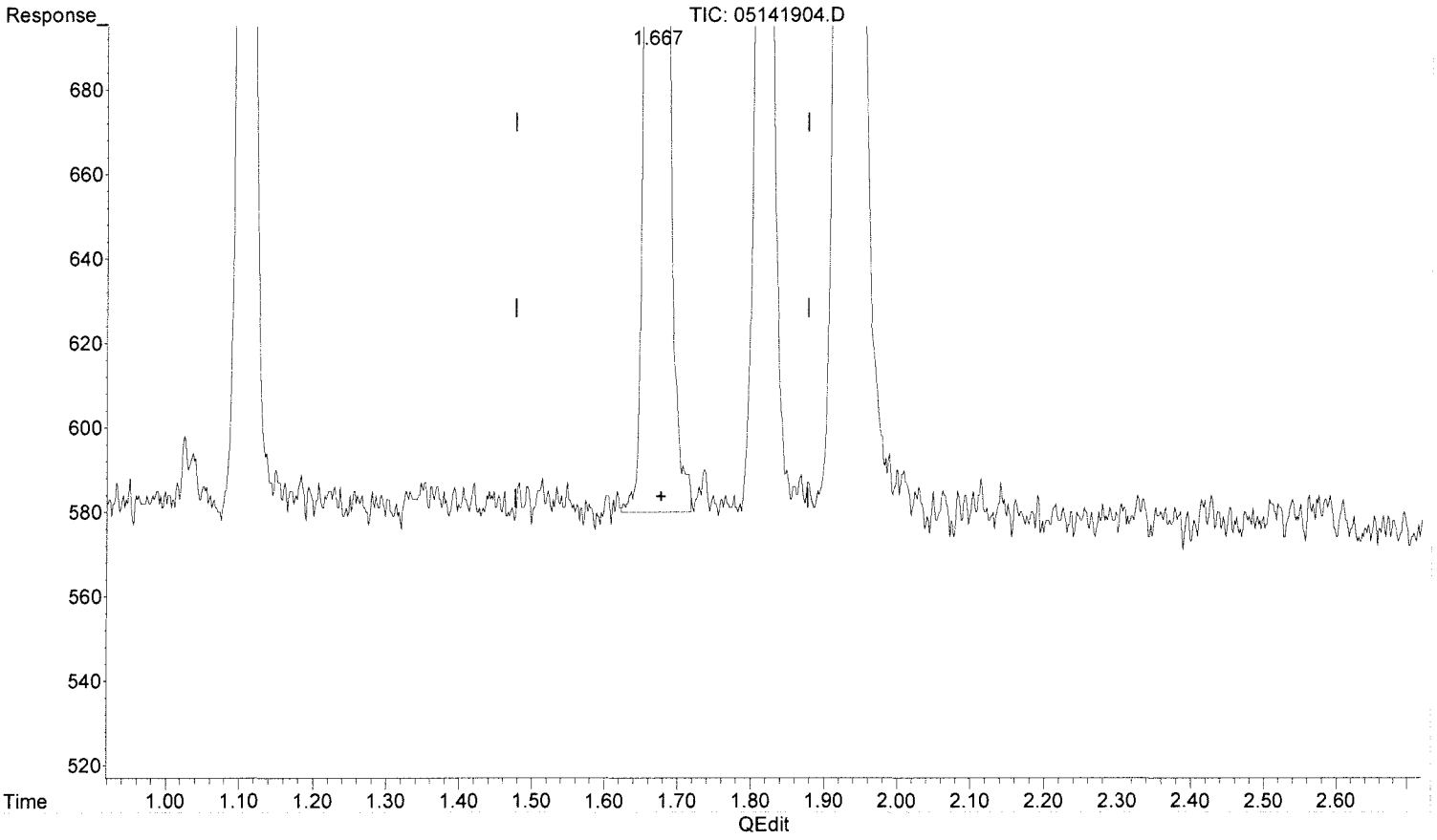
response 15369

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :



(7) Ethylene

1.667min 0.906 ppm m

response 15157

MR 5/15/19

5/15/19

(+) = Expected Retention Time

RS091217_R.M Wed May 15 10:39:51 2019

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

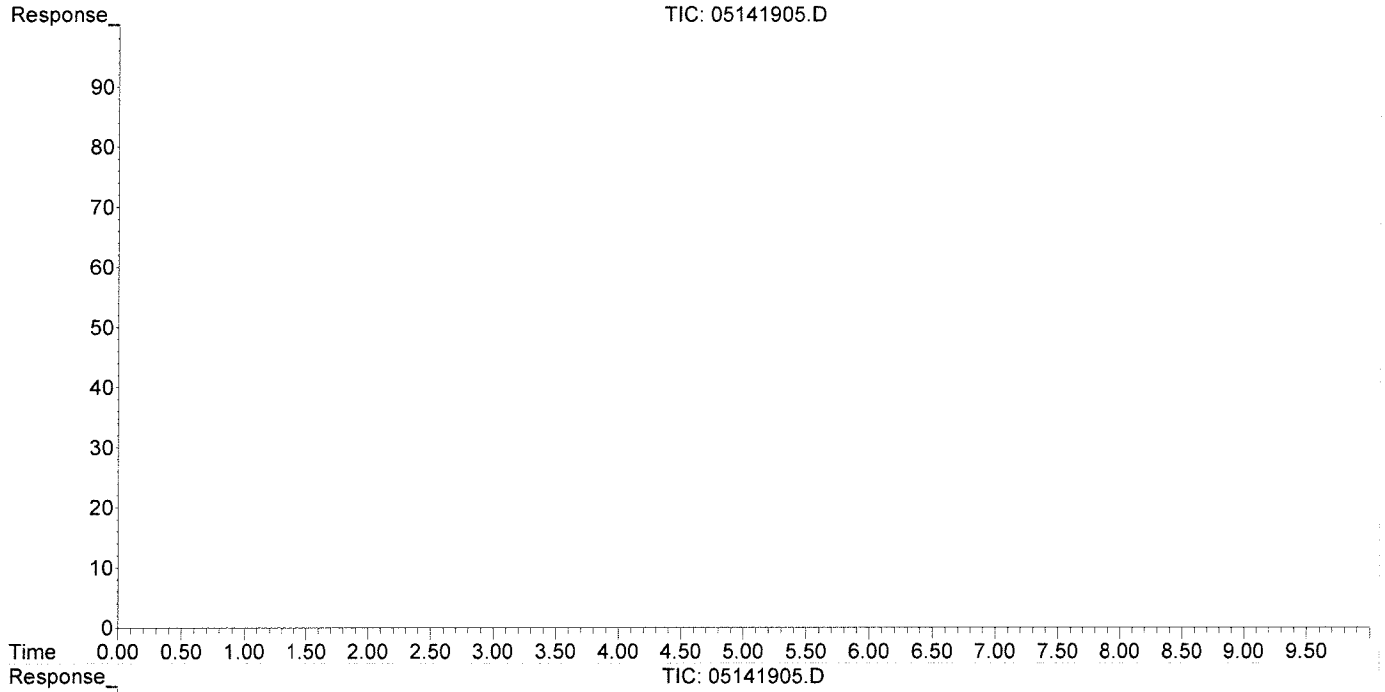
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.108	11902	1.312	ppm	m
7)	Ethylene	1.666	16523	0.987	ppm	
8)	Ethane	1.927	20726	1.223	ppm	
9)	Propylene	4.305	22478	0.959	ppm	
10)	Propane	4.426	32273	1.297	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.645f	43539	1.636	ppm	
13)	n-Butane	6.645f	43539	1.636	ppm	

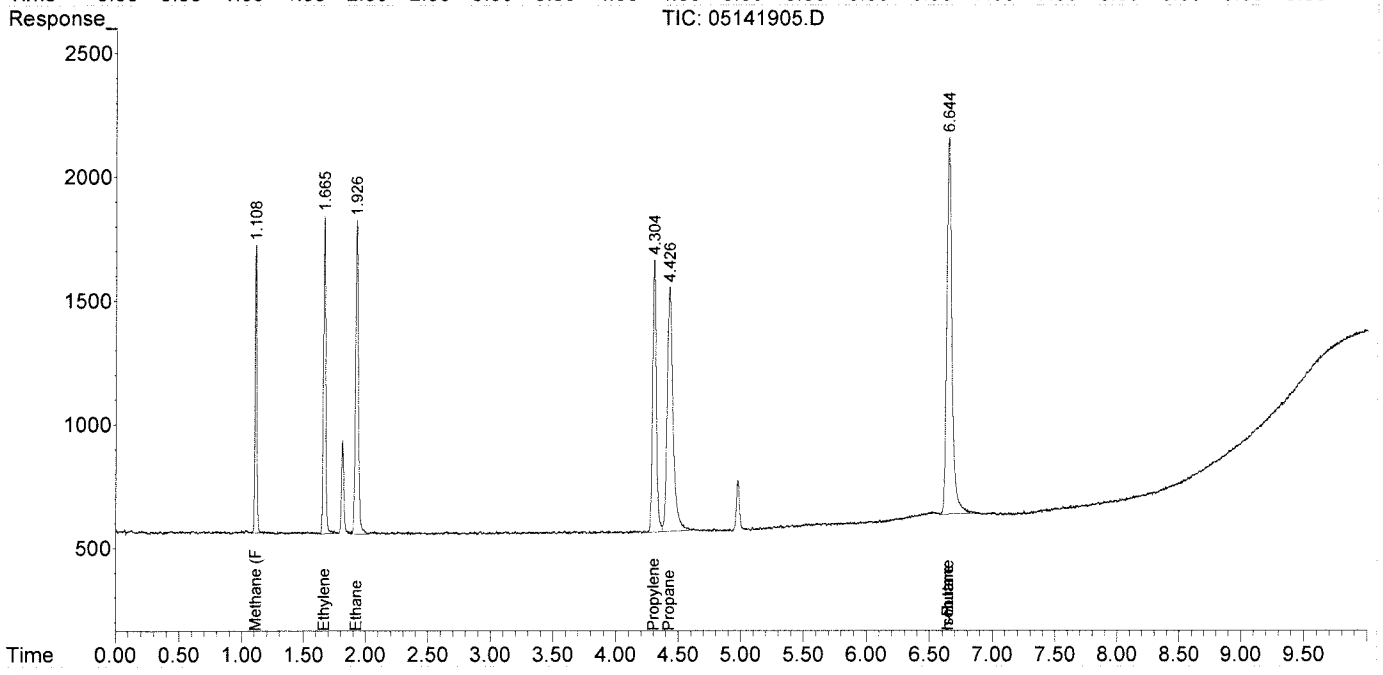
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

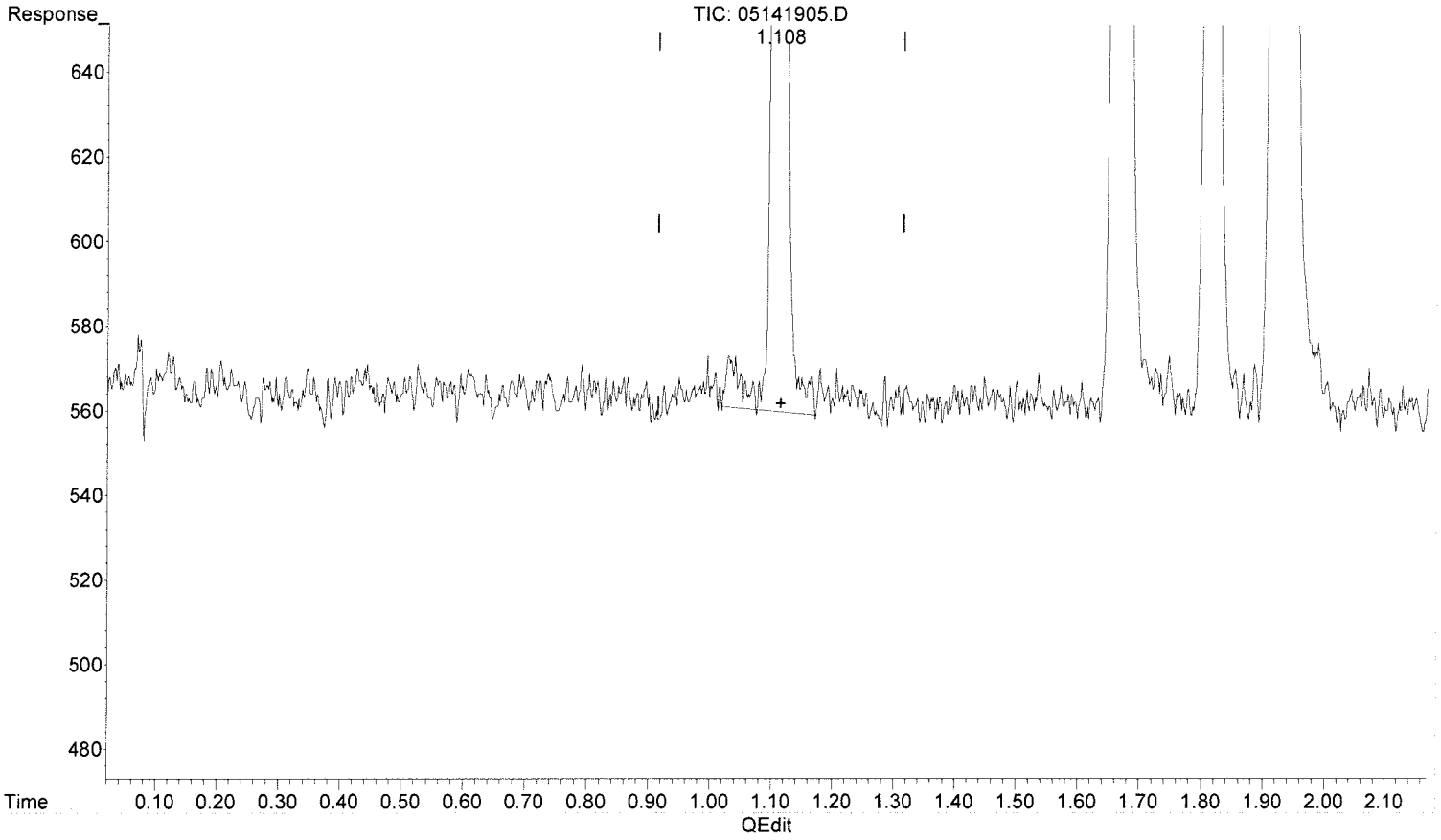




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.109min 1.351 ppm

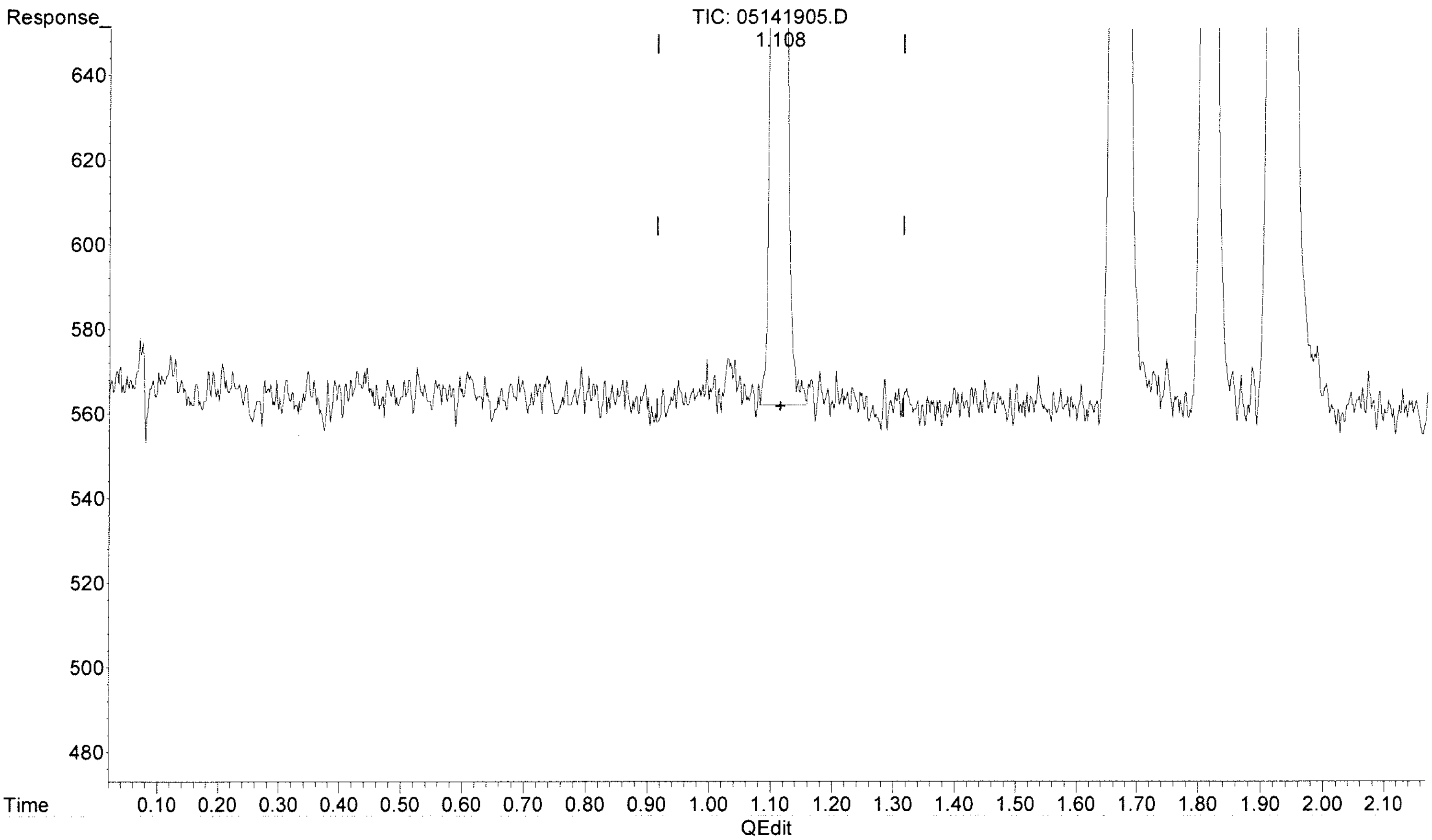
response 12251

(+) = Expected Retention Time

```
Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On    : 14-May-2019, 11:41:20
Operator  : WH
Sample    : lcsd fid 0.1ml
Misc      :
ALS Vial  : 1   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title  : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.108min 1.312 ppm m

response 11902

MR 5/15/19

W 5/15/19 BLC

(+) = Expected Retention Time

Response Factor Report HP5890

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

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

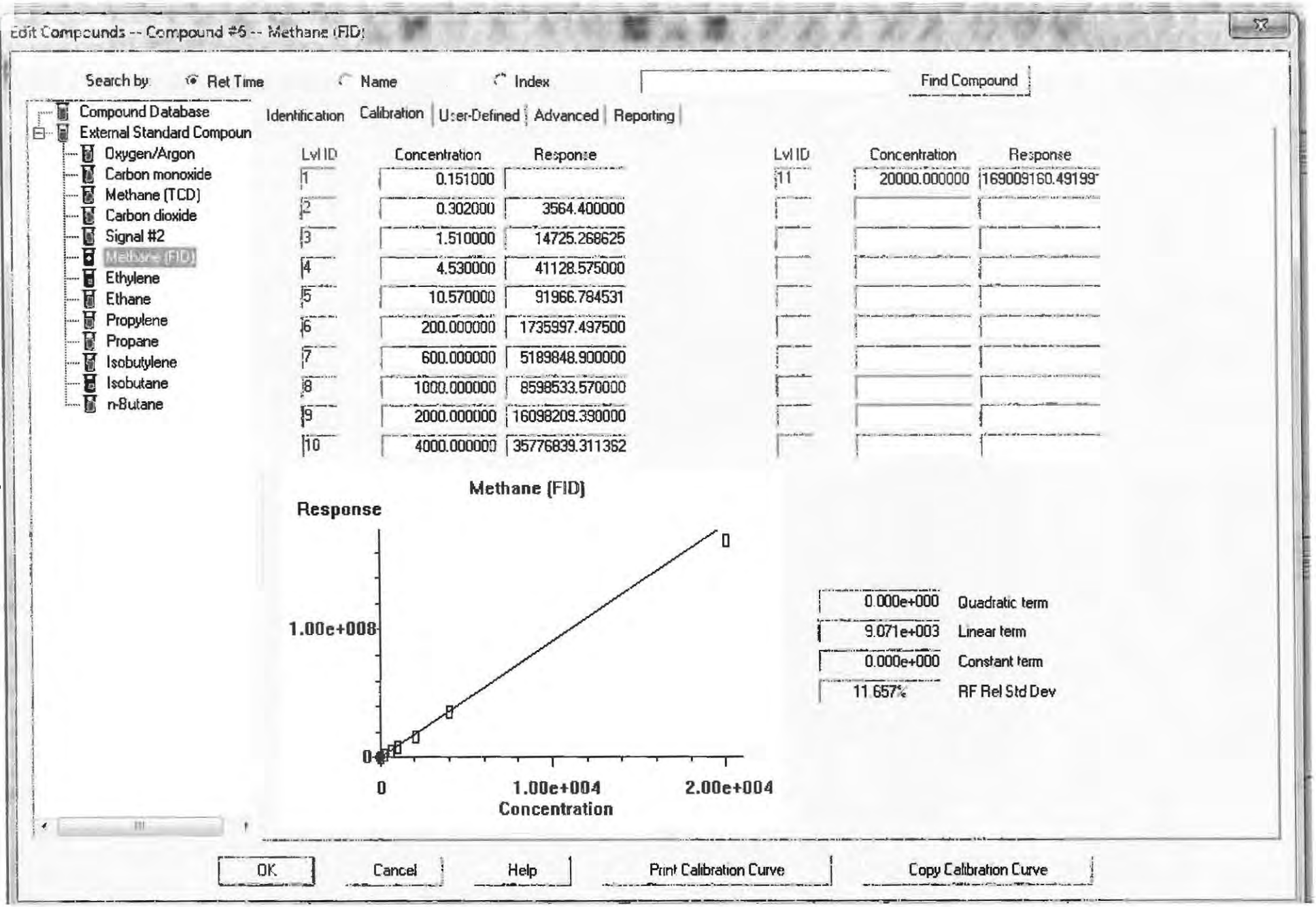
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

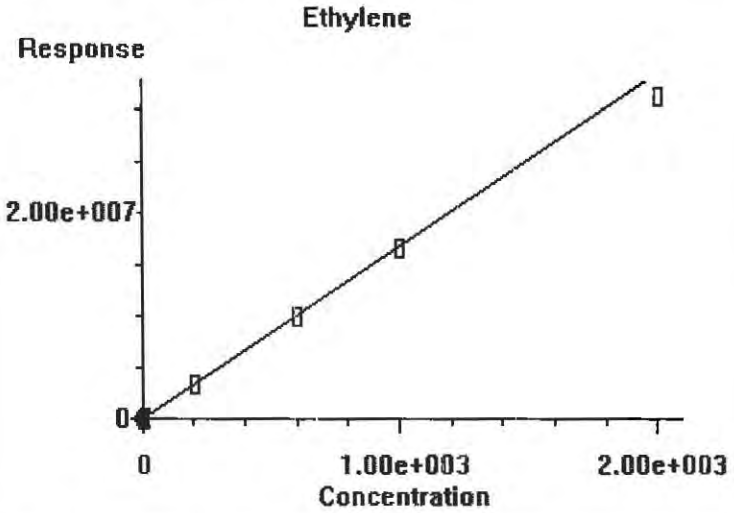
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

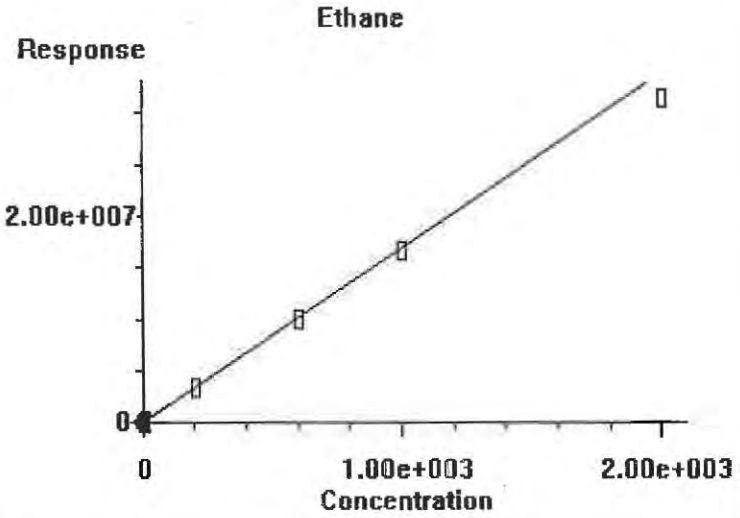
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

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

Edit Compounds -- Compound #9 -- Propylene

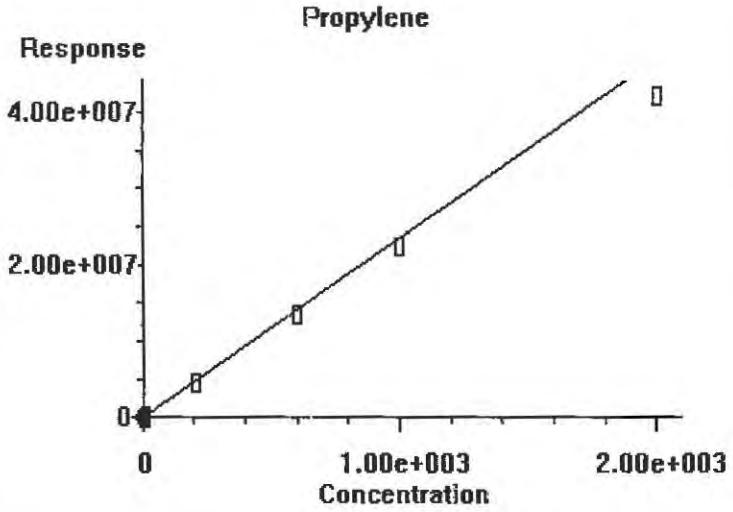
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

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

Edit Compounds -- Compound #10 -- Propane

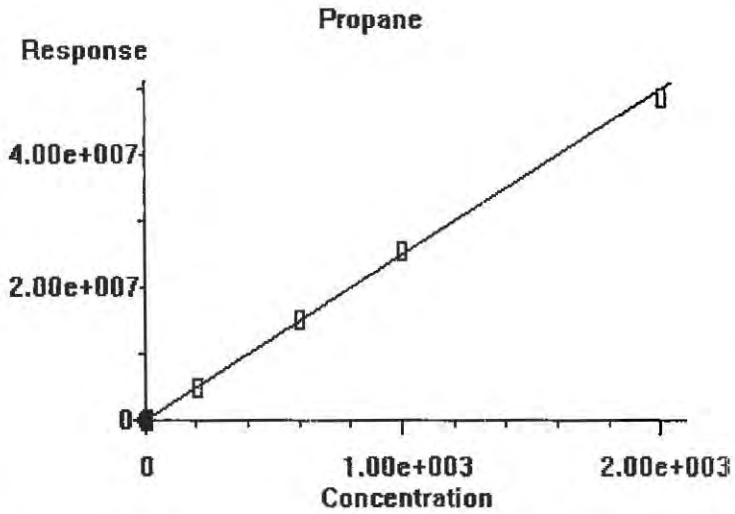
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
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.

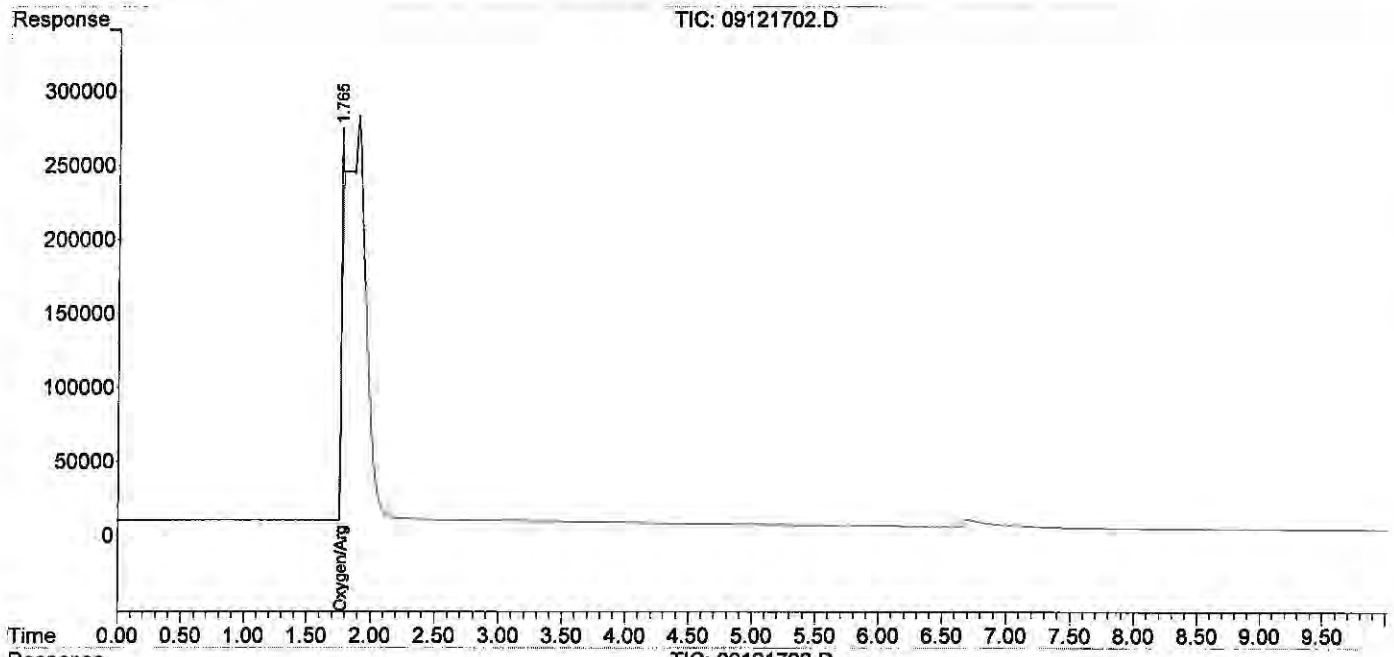
9/13/17

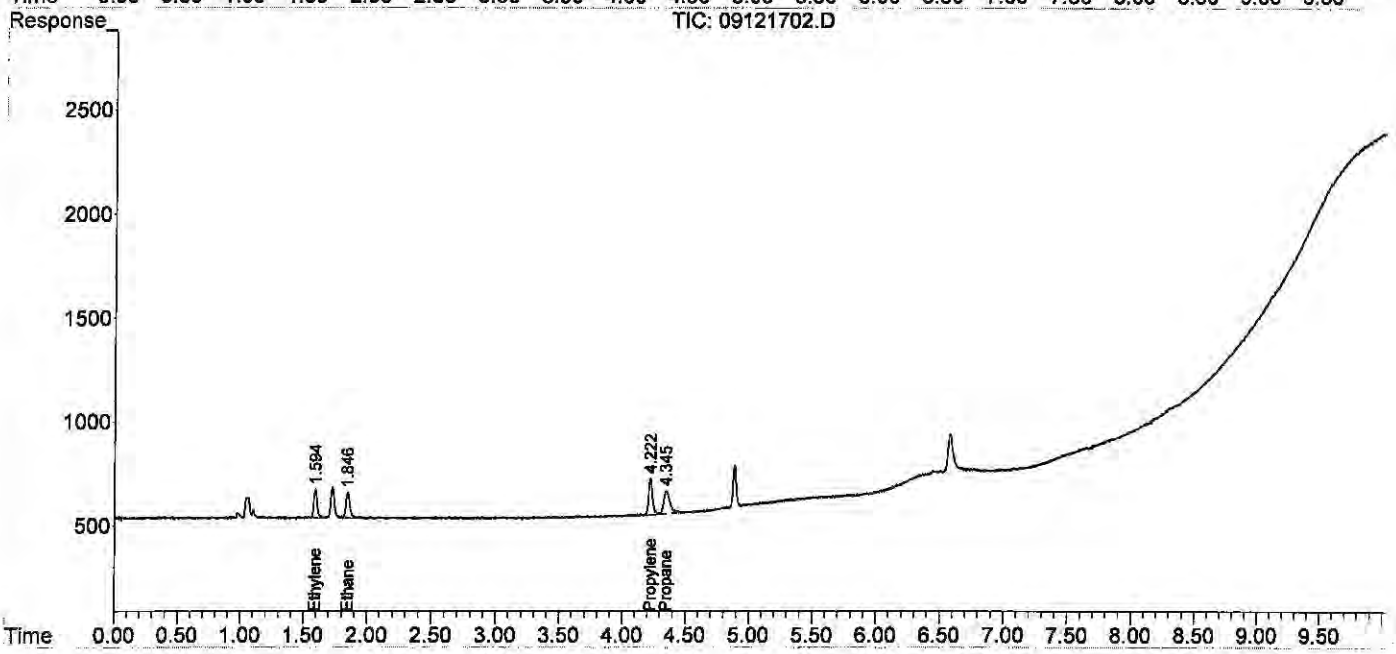
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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





RS091217_R.M Wed Sep 13 14:58:18 2017 98 of 131 Page: 2

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	

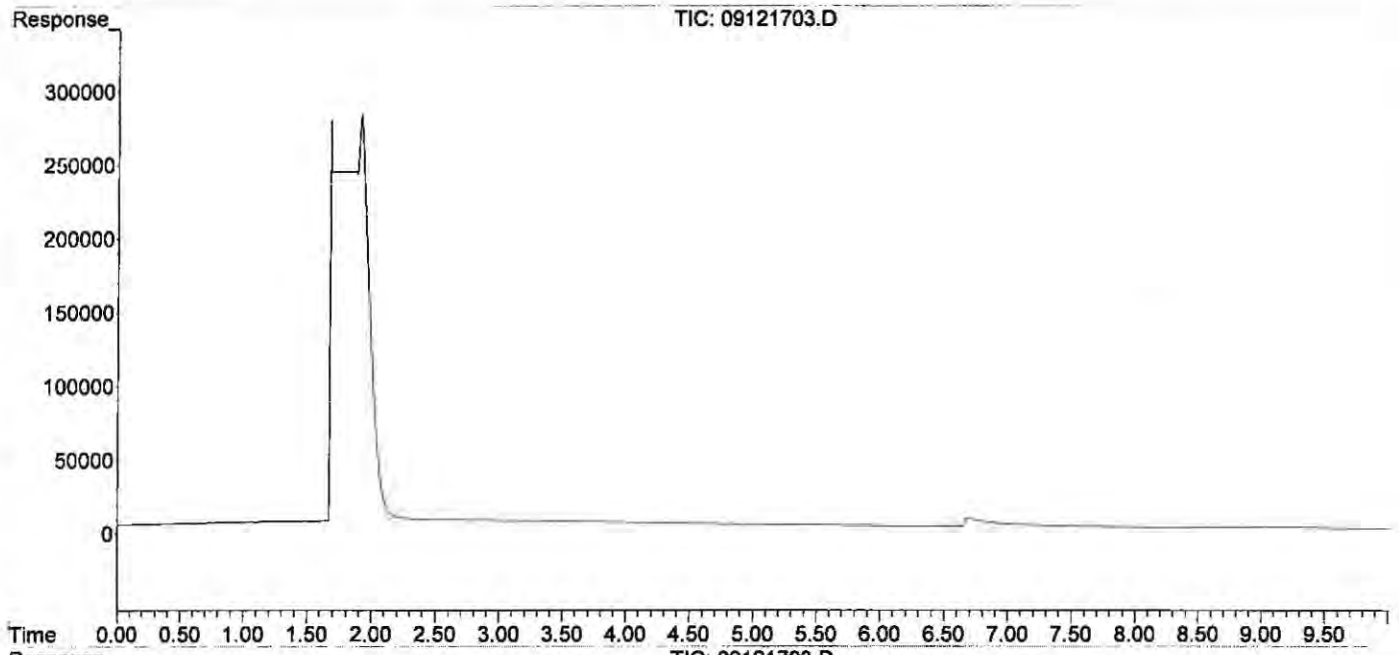
(f)=RT Delta > 1/2 Window (m)=manual int.

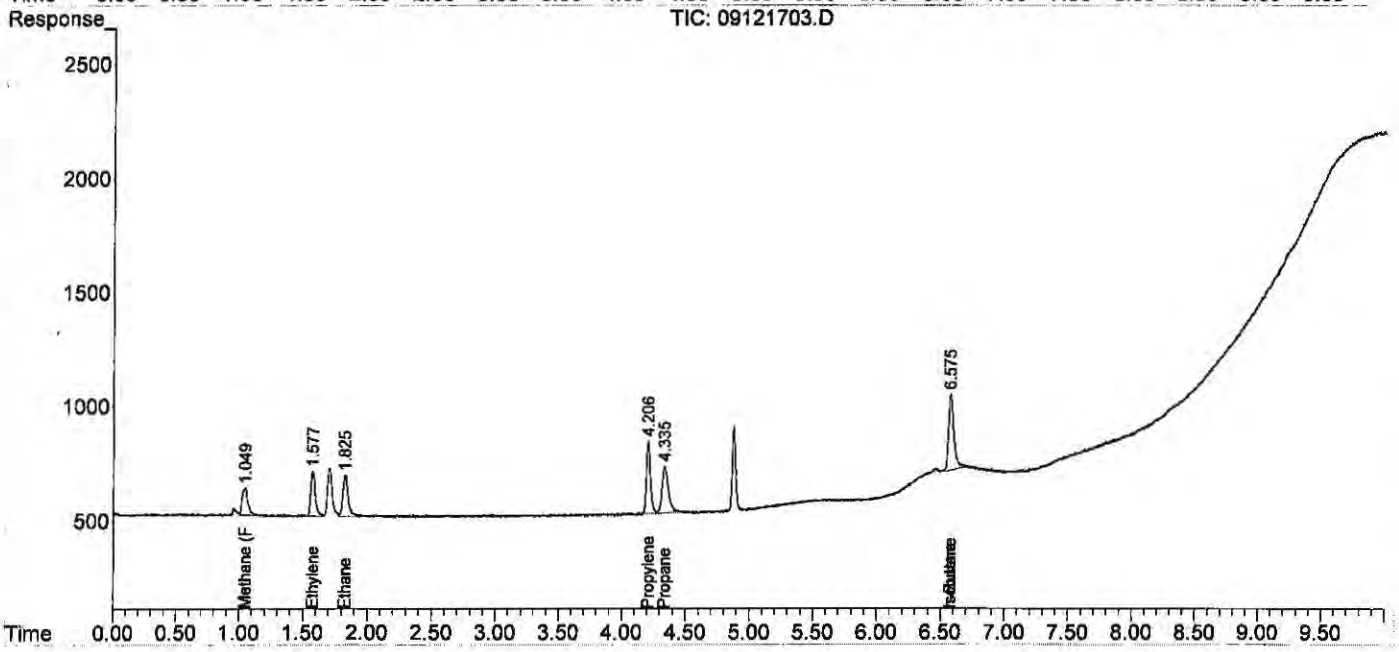
Quantitation Report (QT Reviewed)

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 :



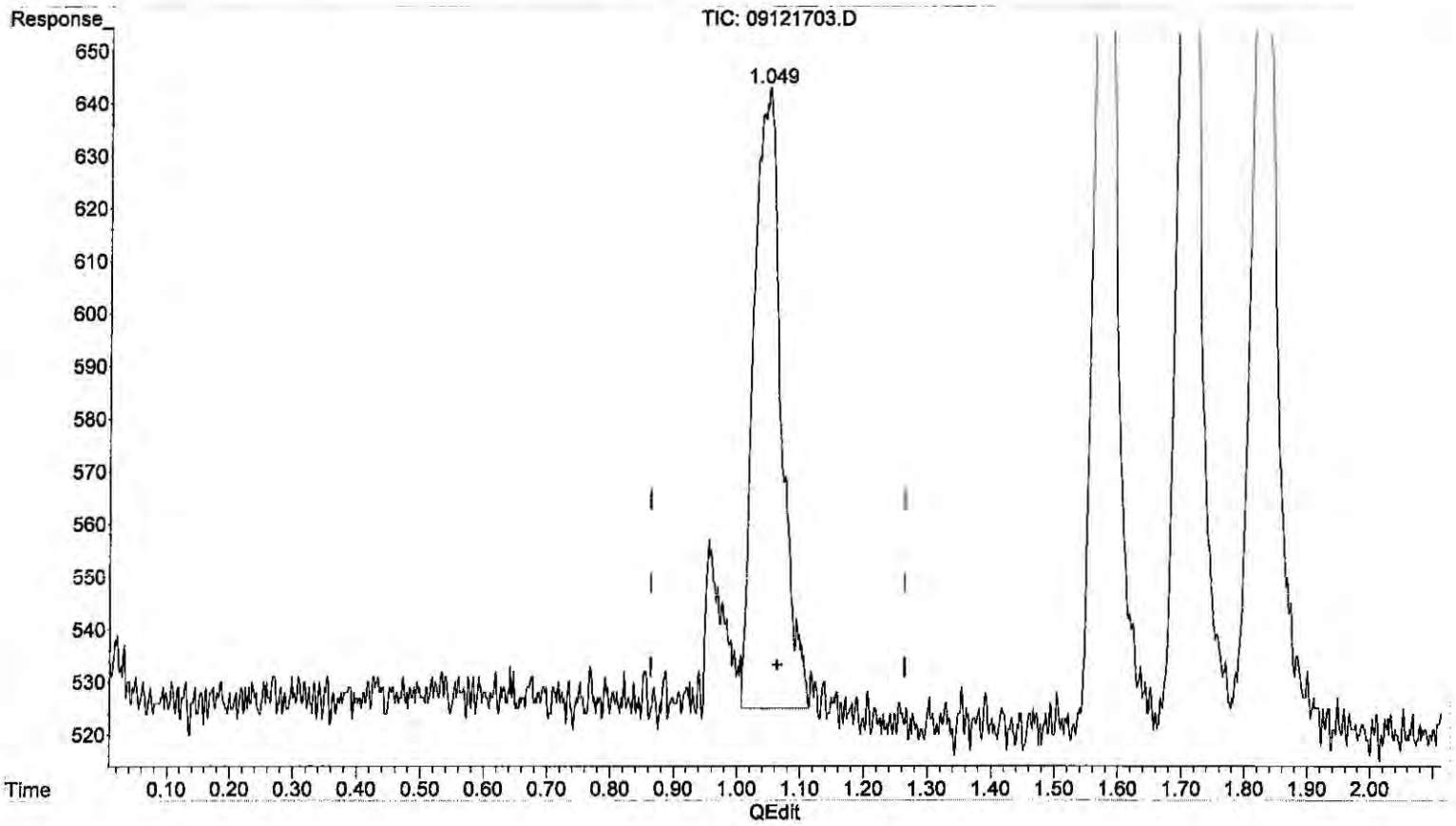


Quantitation Report (Qedit)

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 :

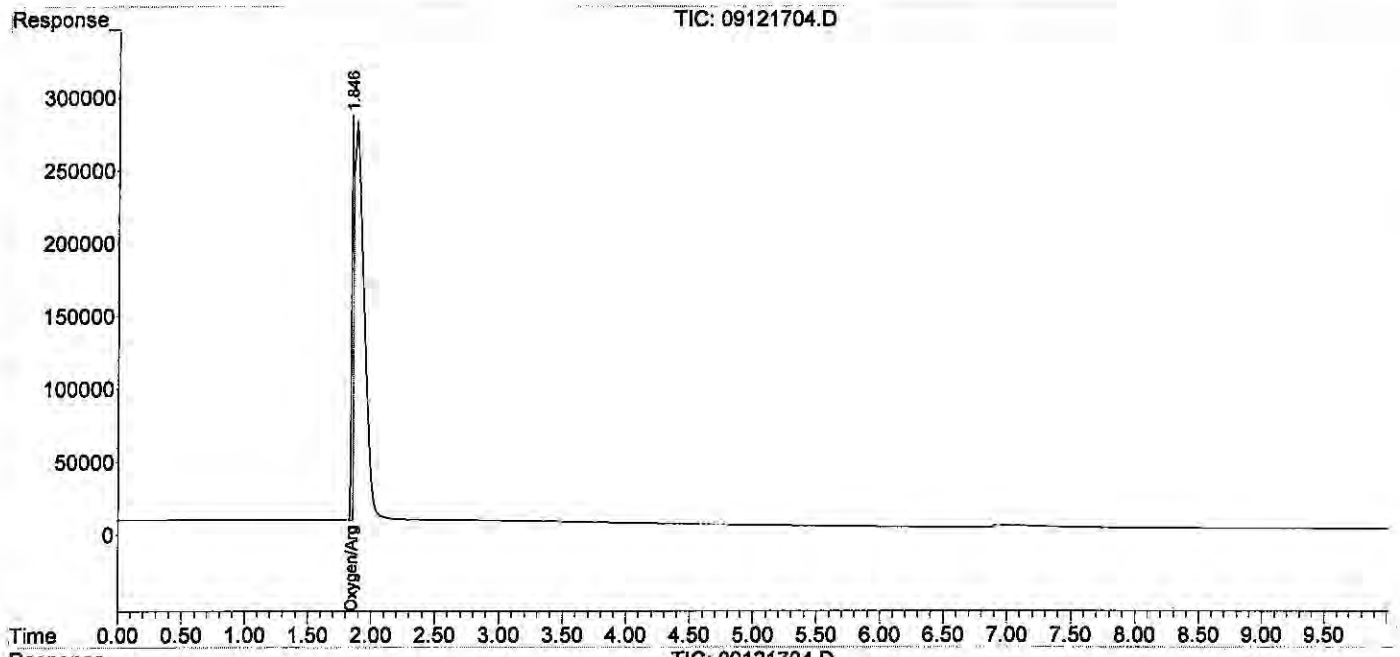
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	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

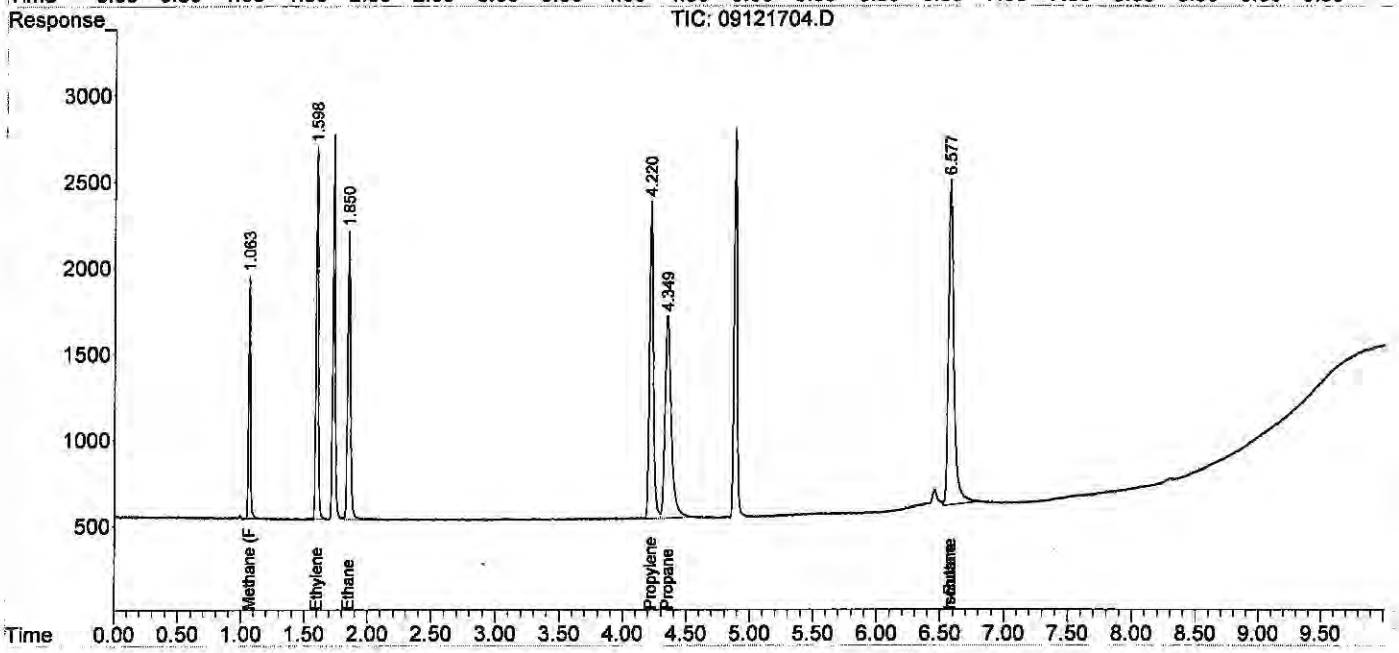
(f)=RT Delta > 1/2 Window (m)=manual int.

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

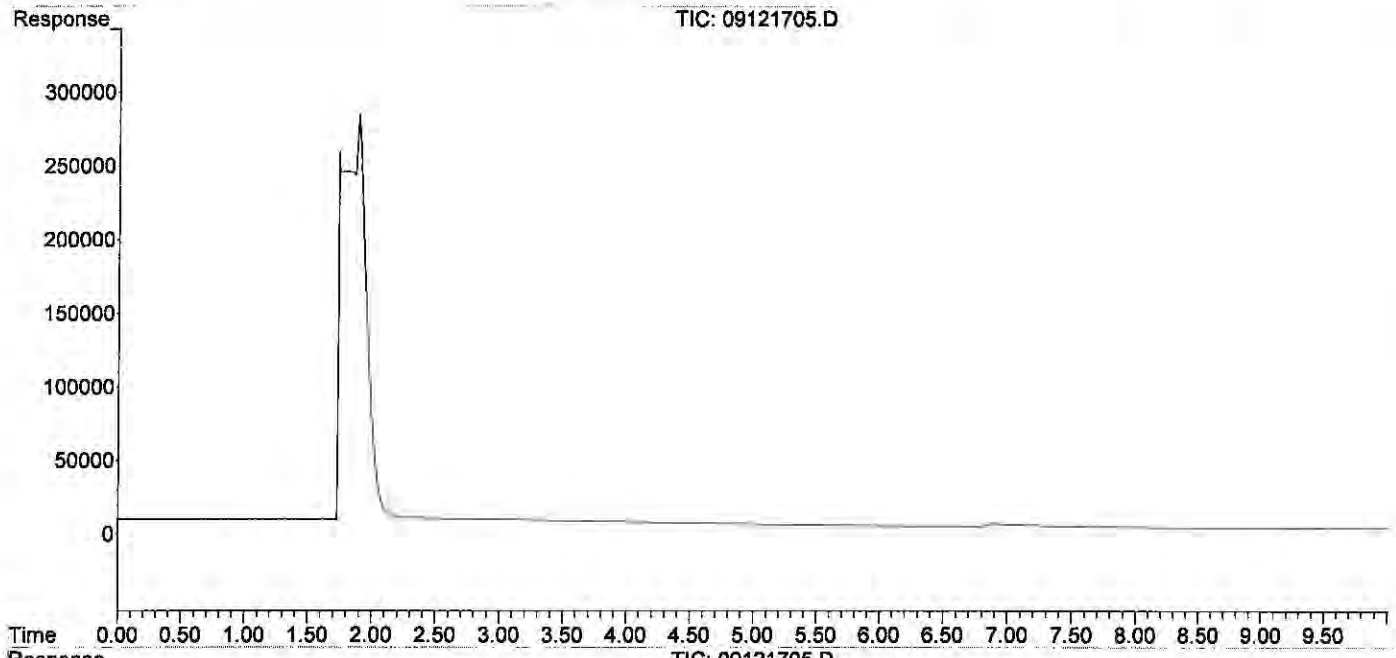
(f)=RT Delta > 1/2 Window (m)=manual int.

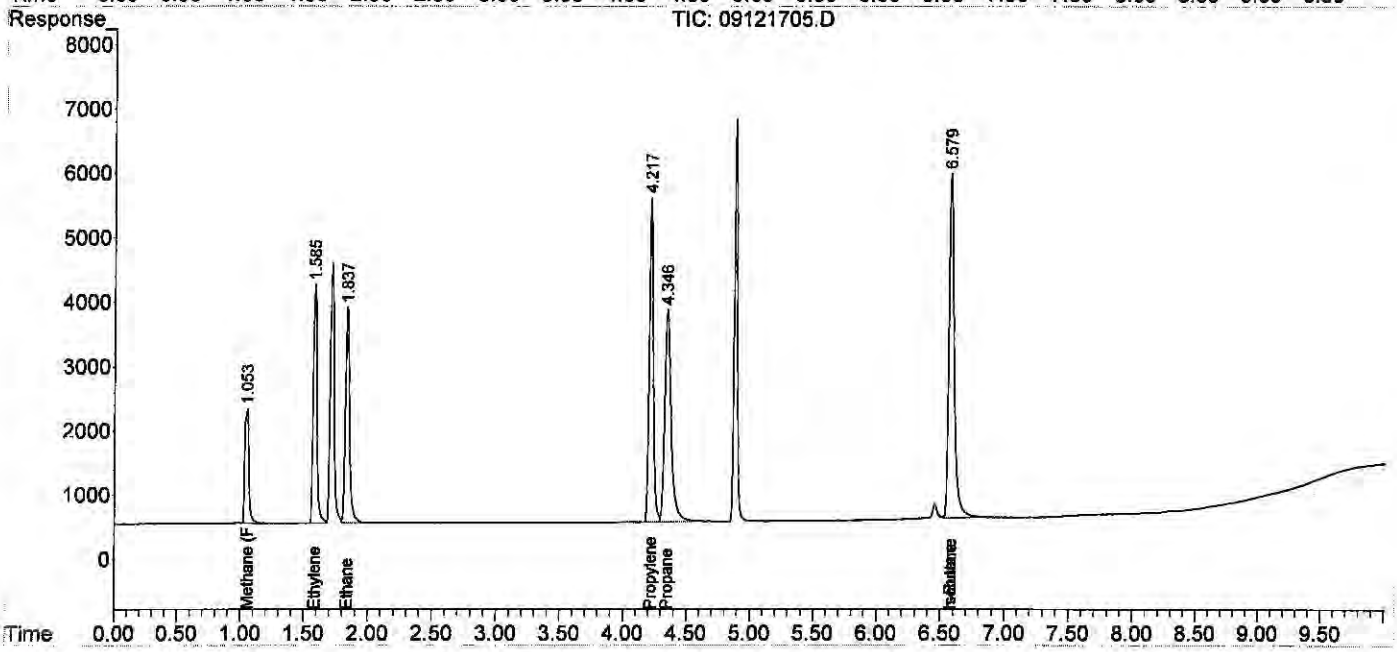
Quantitation Report (QT Reviewed)

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 :





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

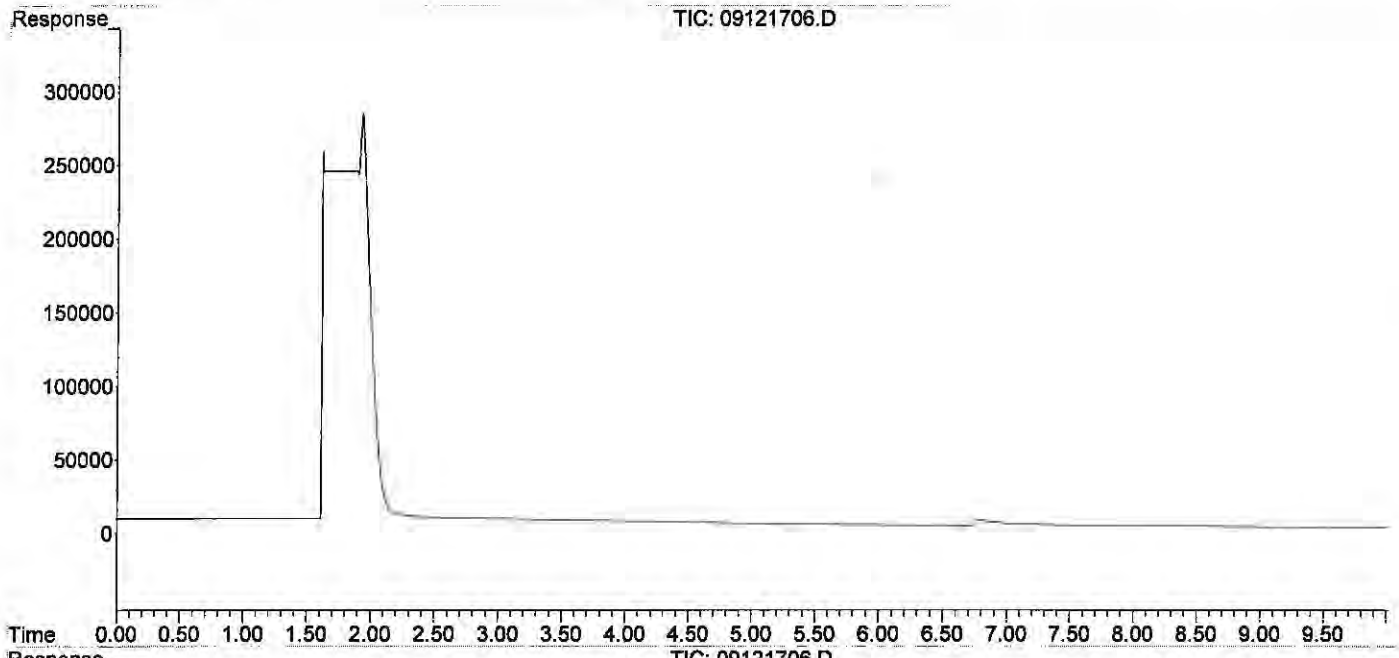
(f)=RT Delta > 1/2 Window (m)=manual int.

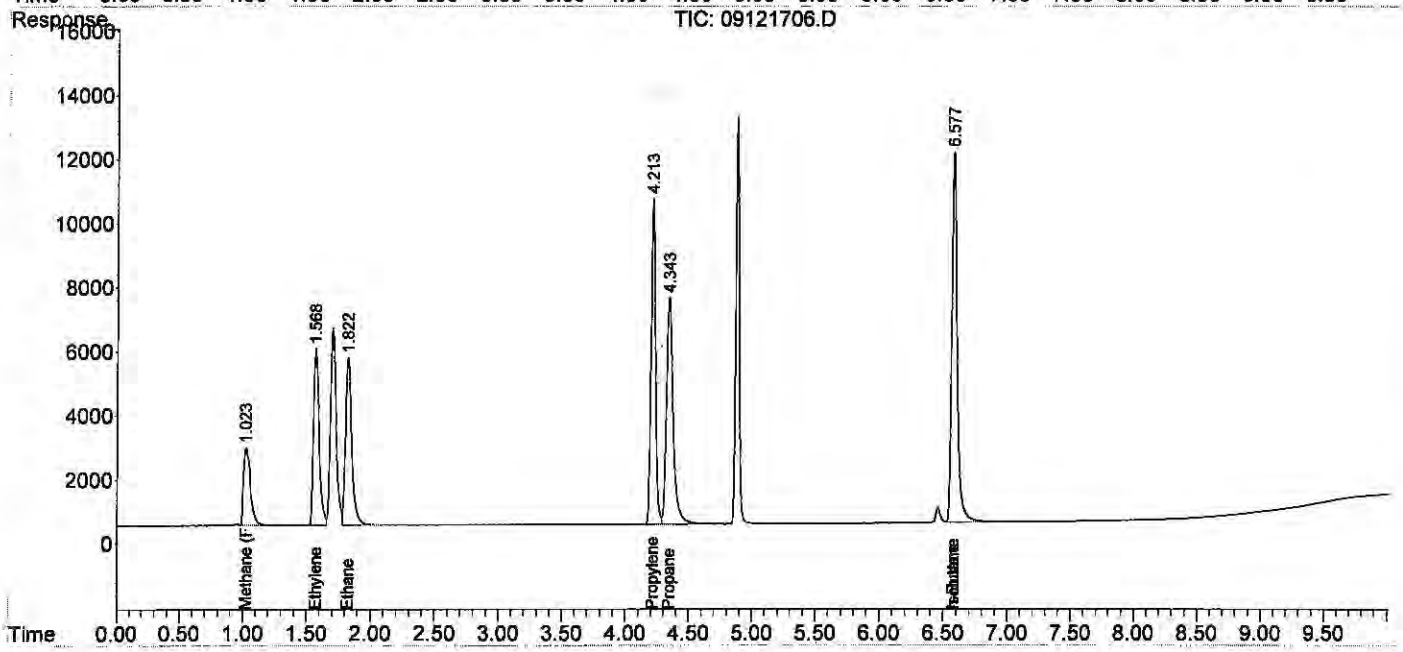
Quantitation Report (QT Reviewed)

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 :

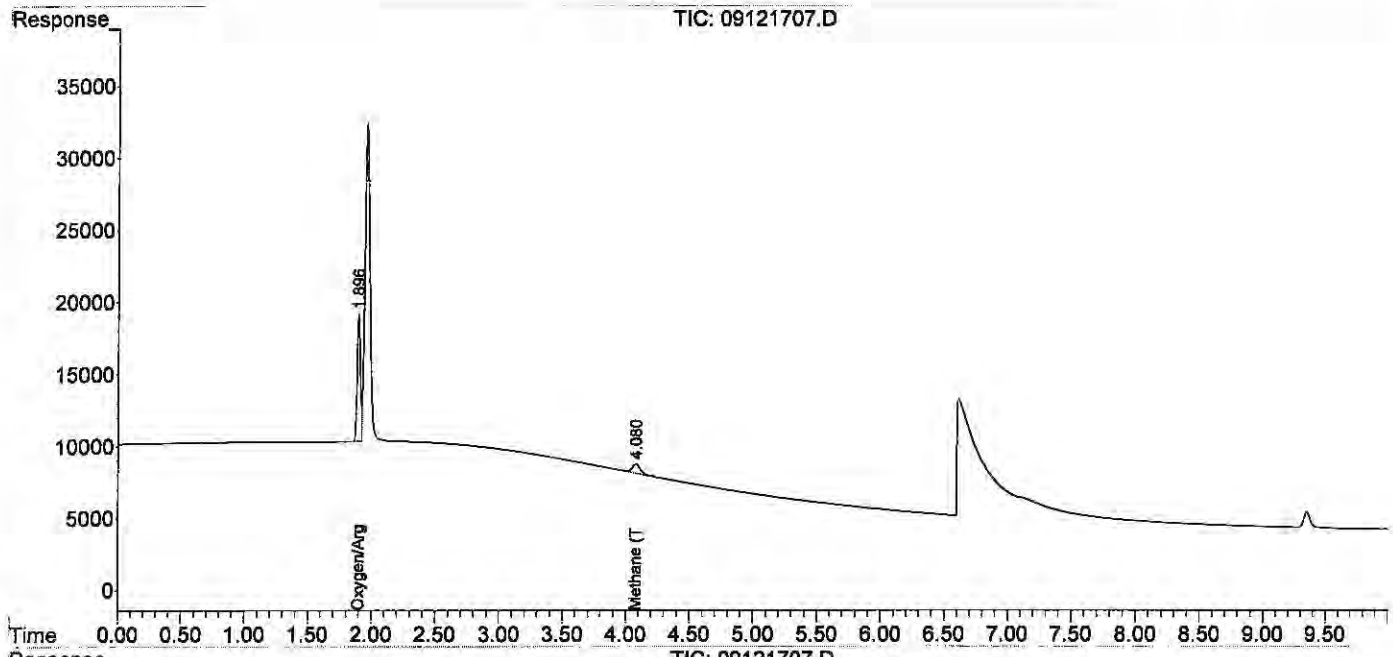
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	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

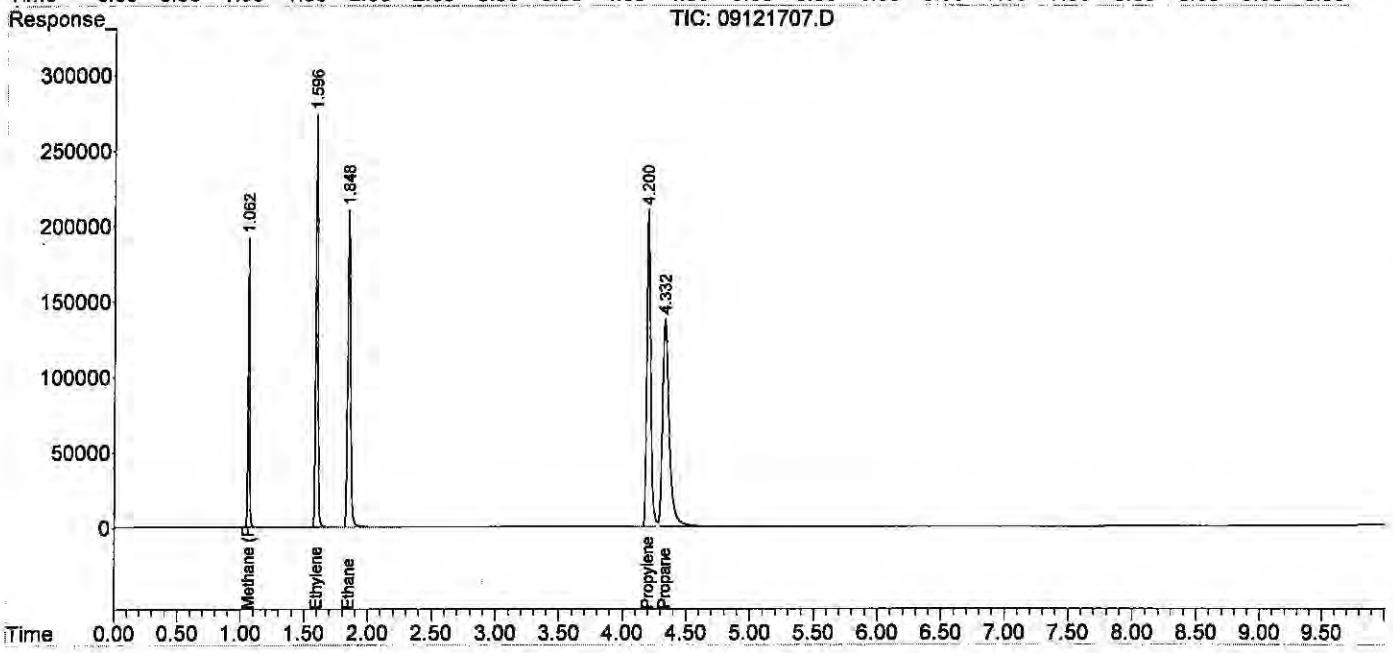
(f)=RT Delta > 1/2 Window (m)=manual int.

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

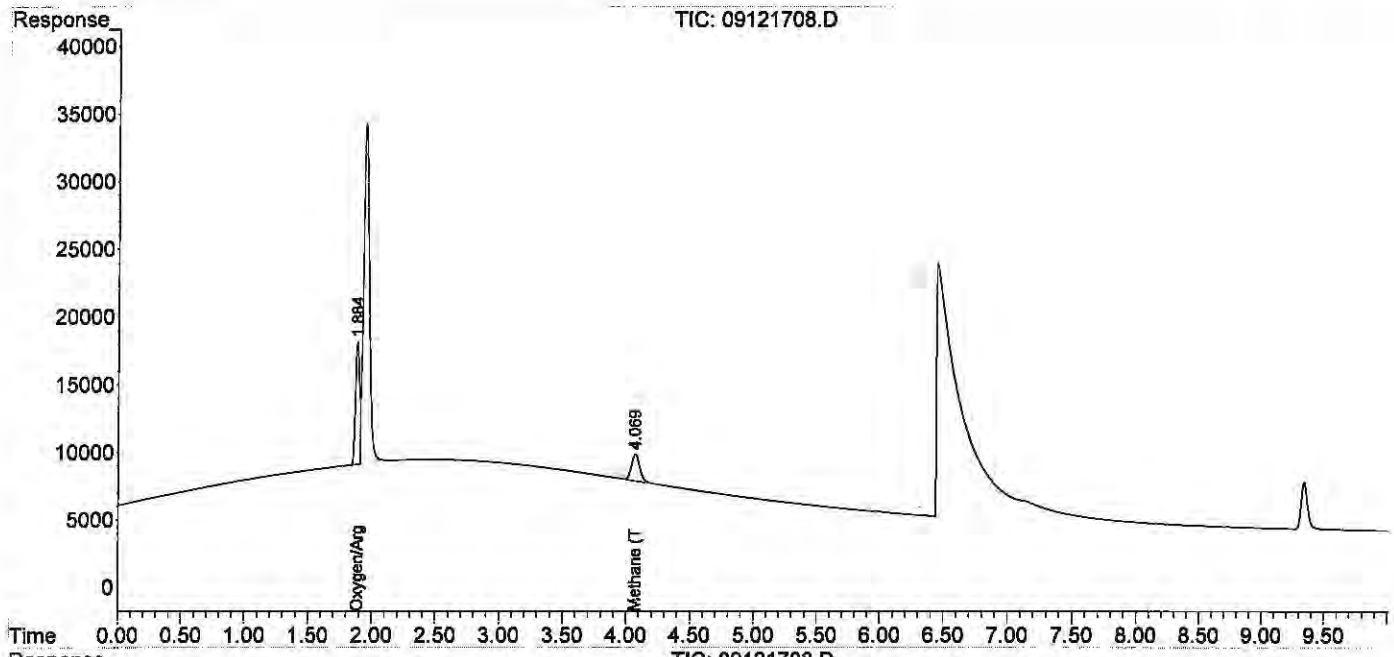
(f)=RT Delta > 1/2 Window (m)=manual int.

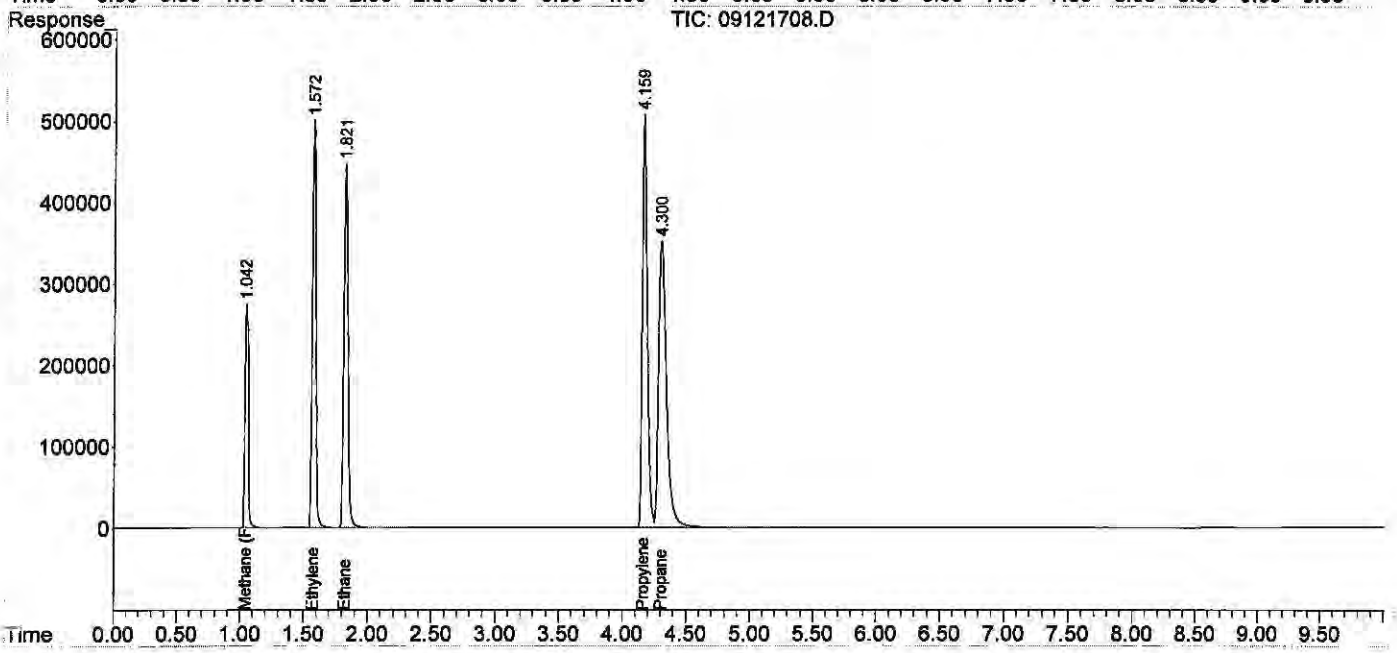
Quantitation Report (QT Reviewed)

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 :

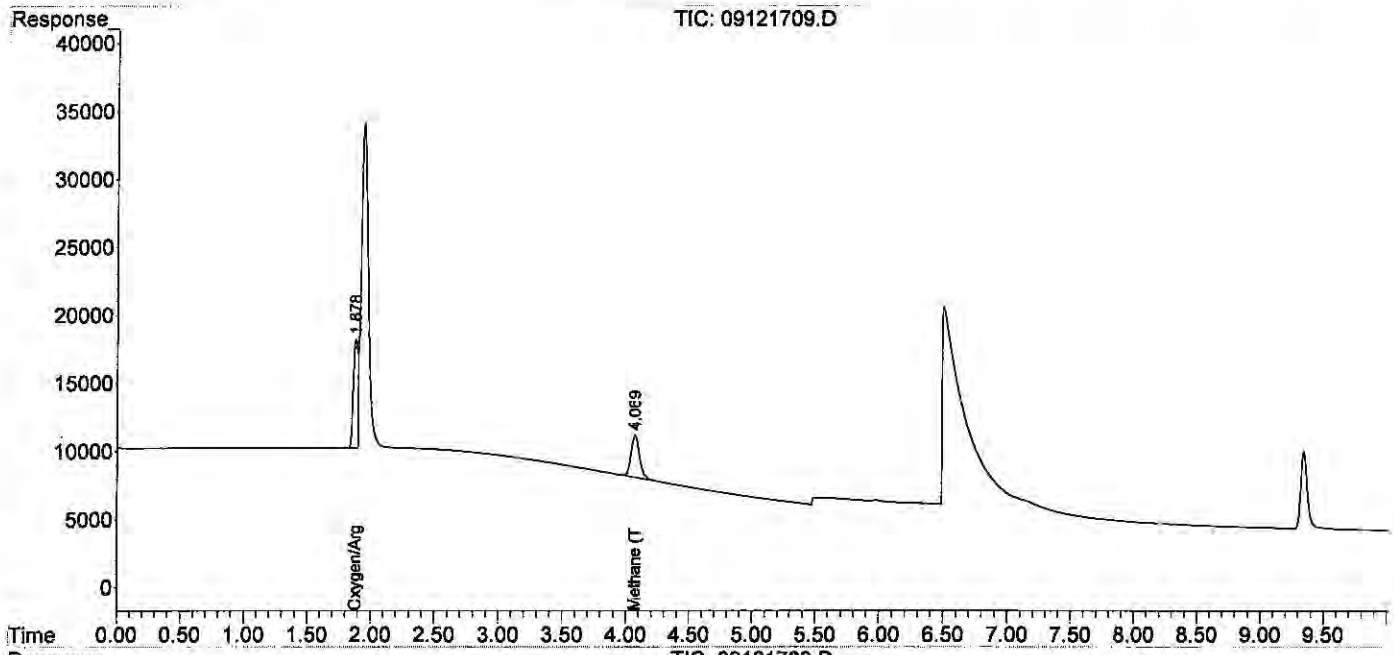
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	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

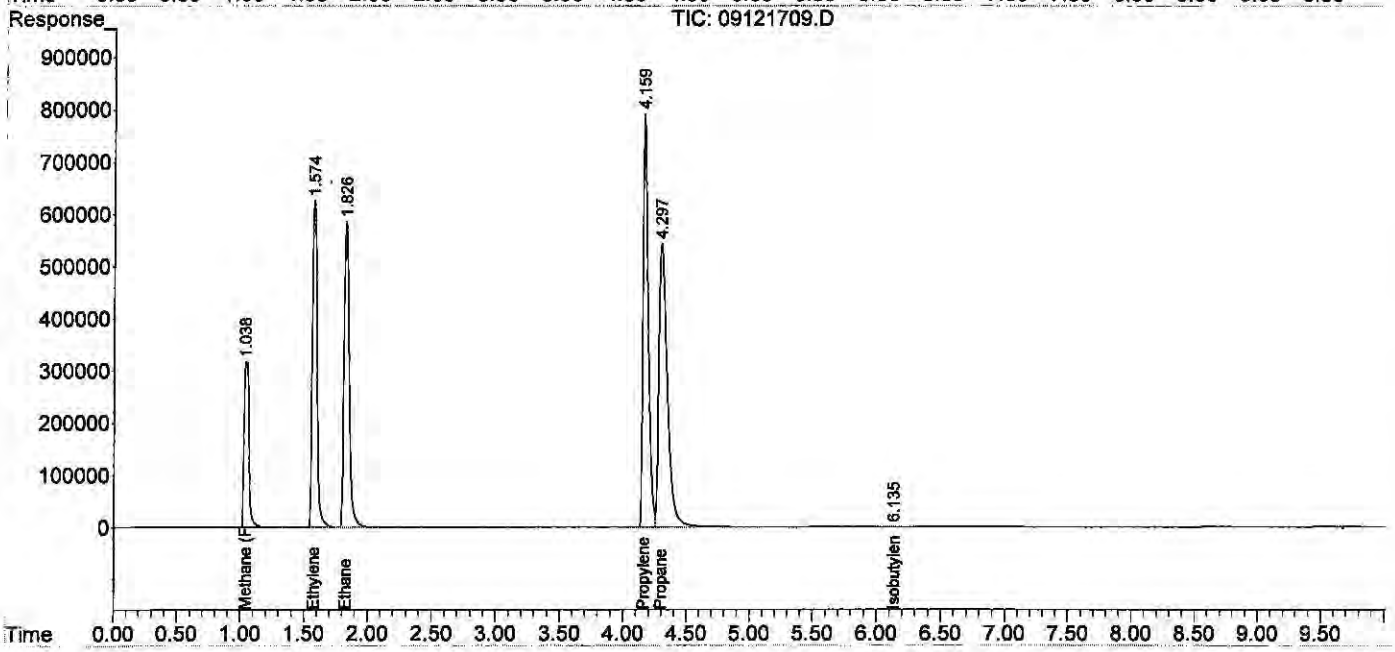
(f)=RT Delta > 1/2 Window (m)=manual int.

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	

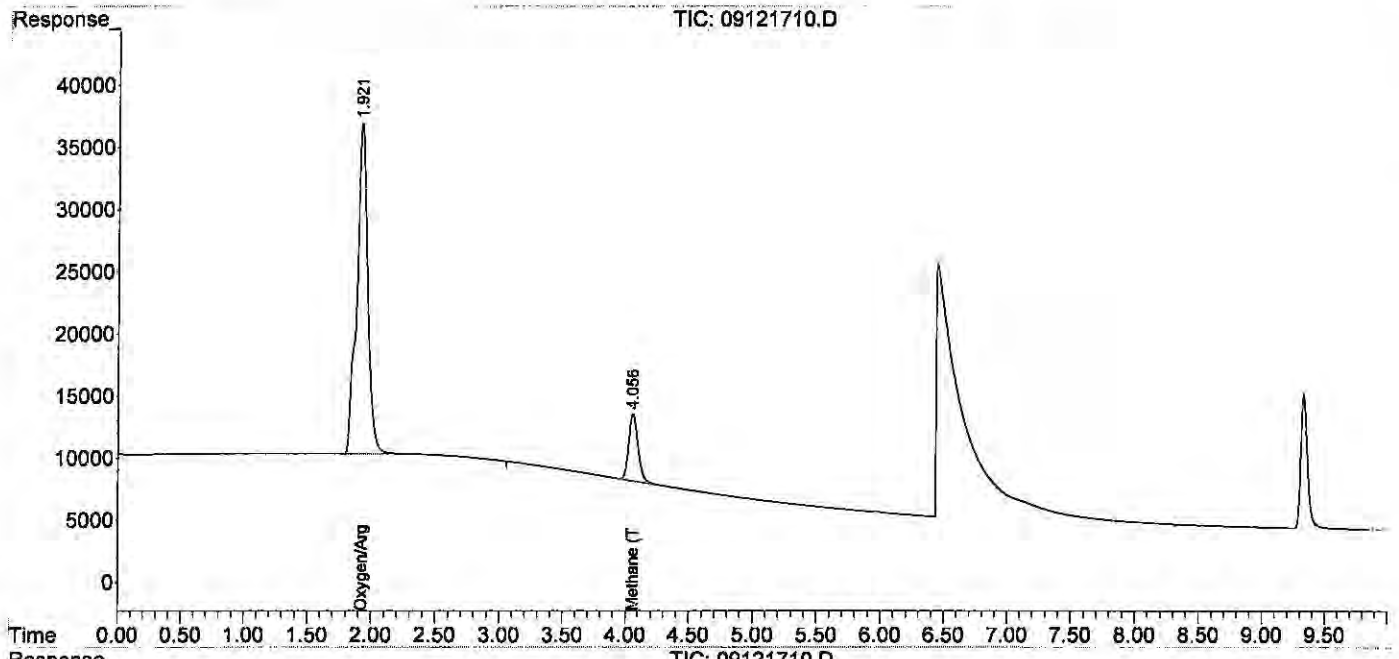
(f)=RT Delta > 1/2 Window (m)=manual int.

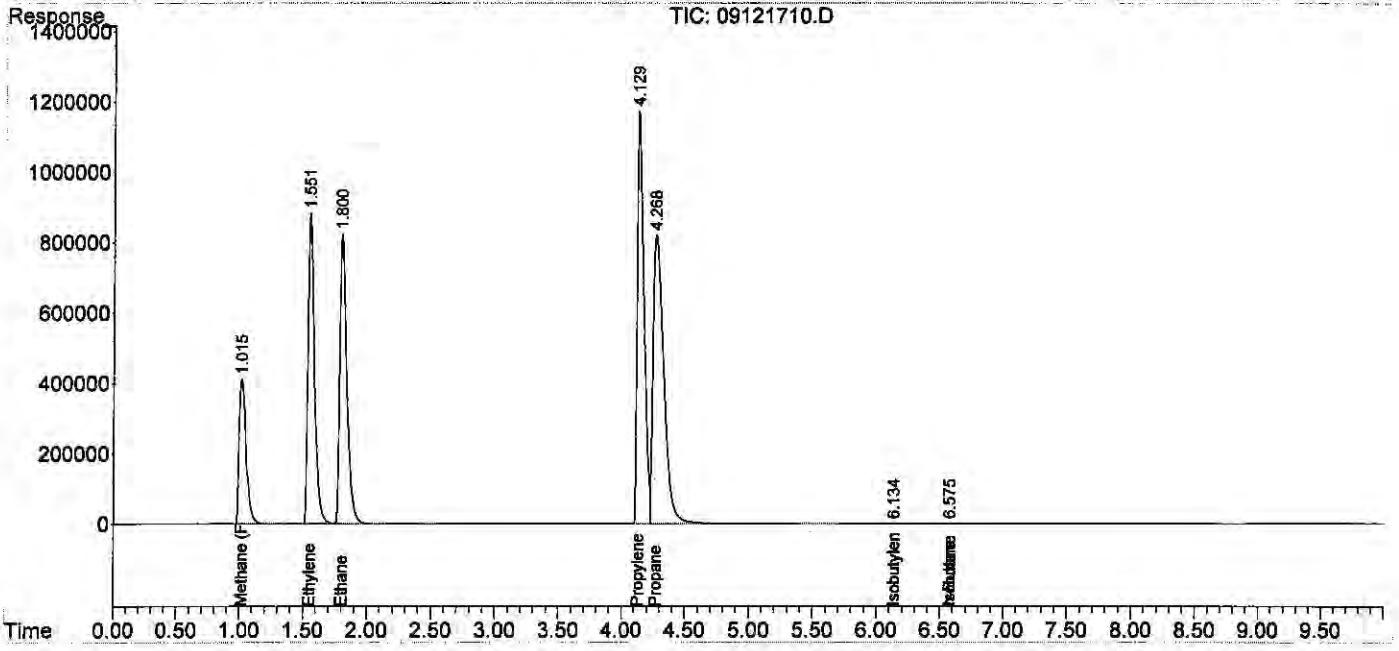
Quantitation Report (QT Reviewed)

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 :



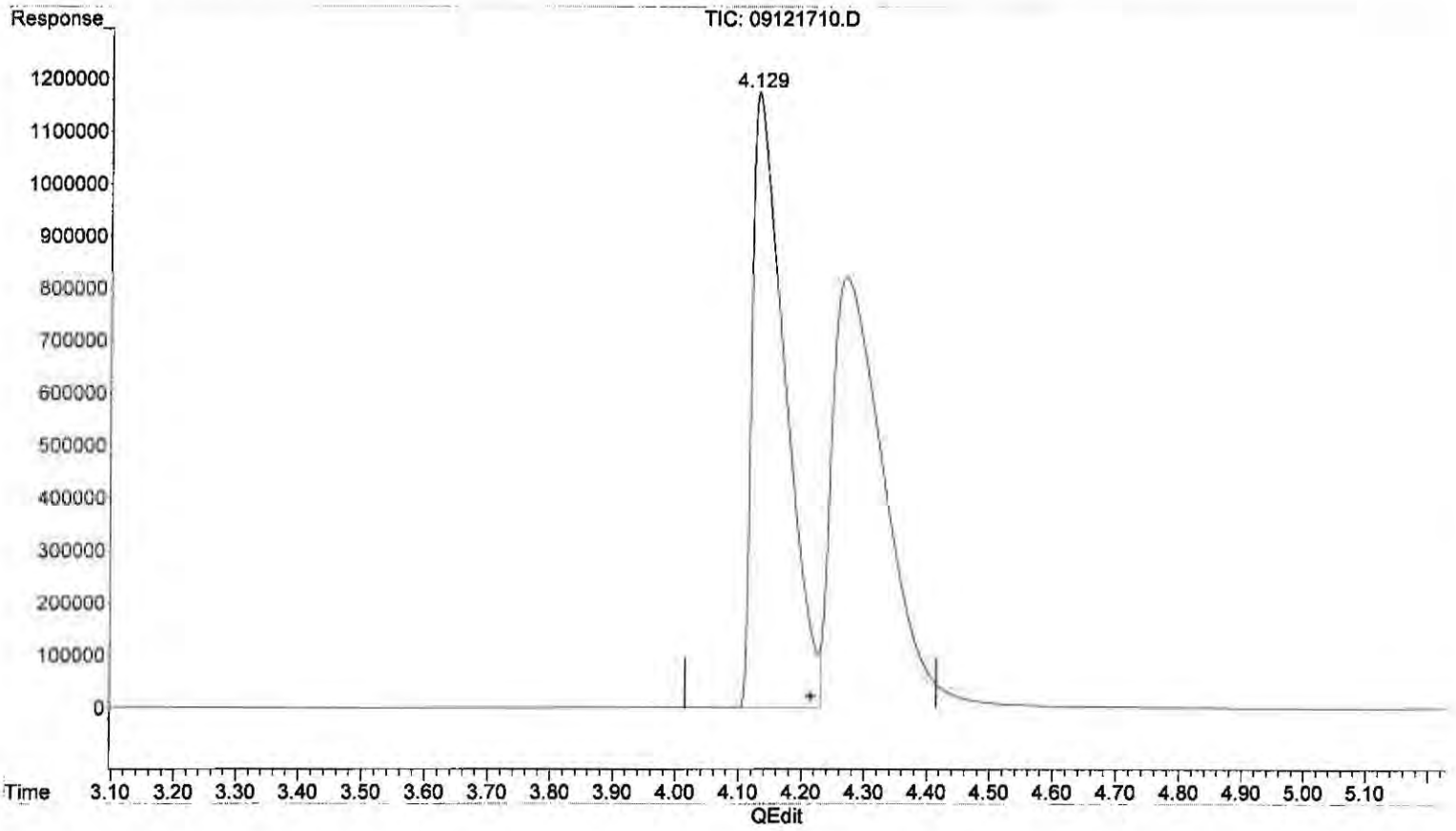


Quantitation Report (Qedit)

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 :

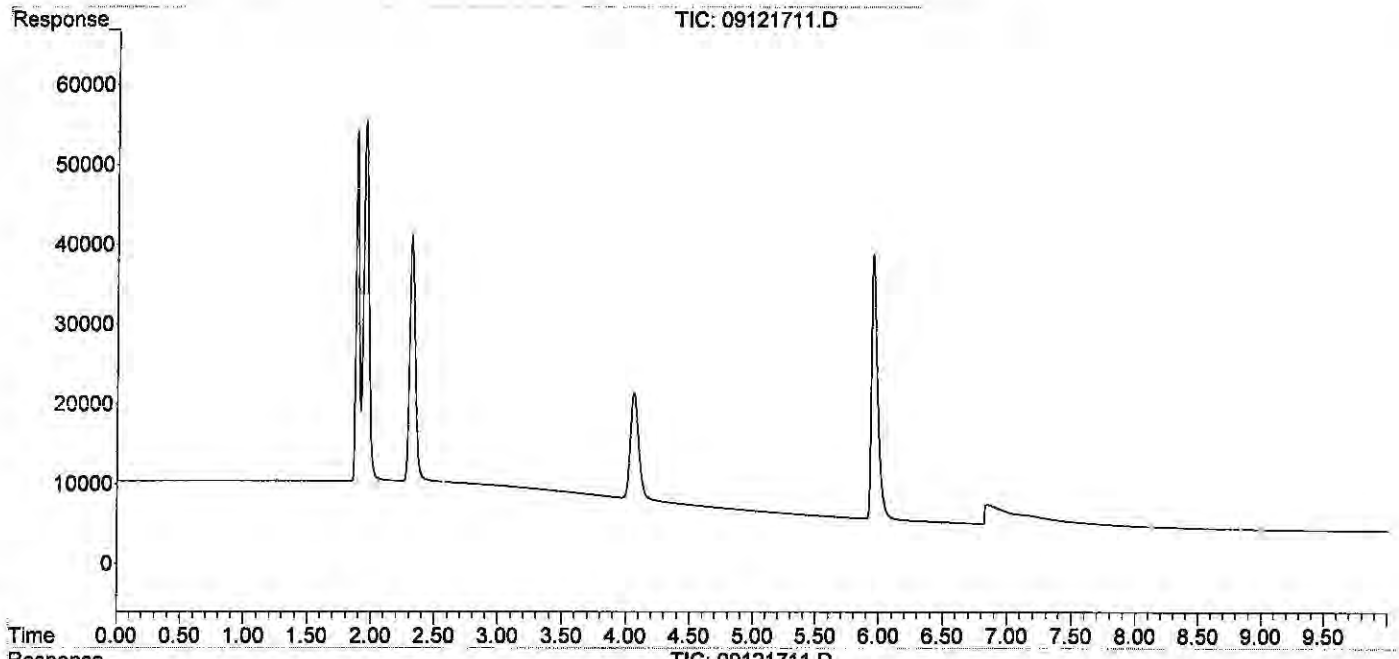
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

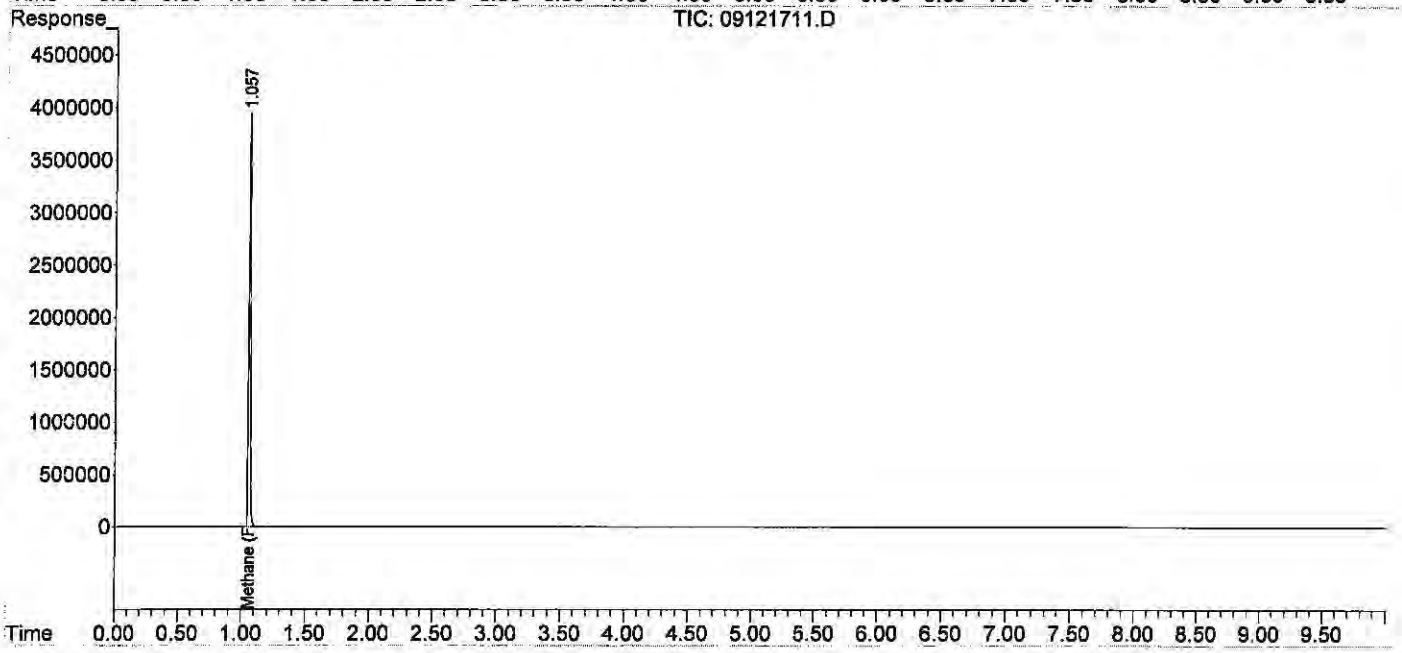
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

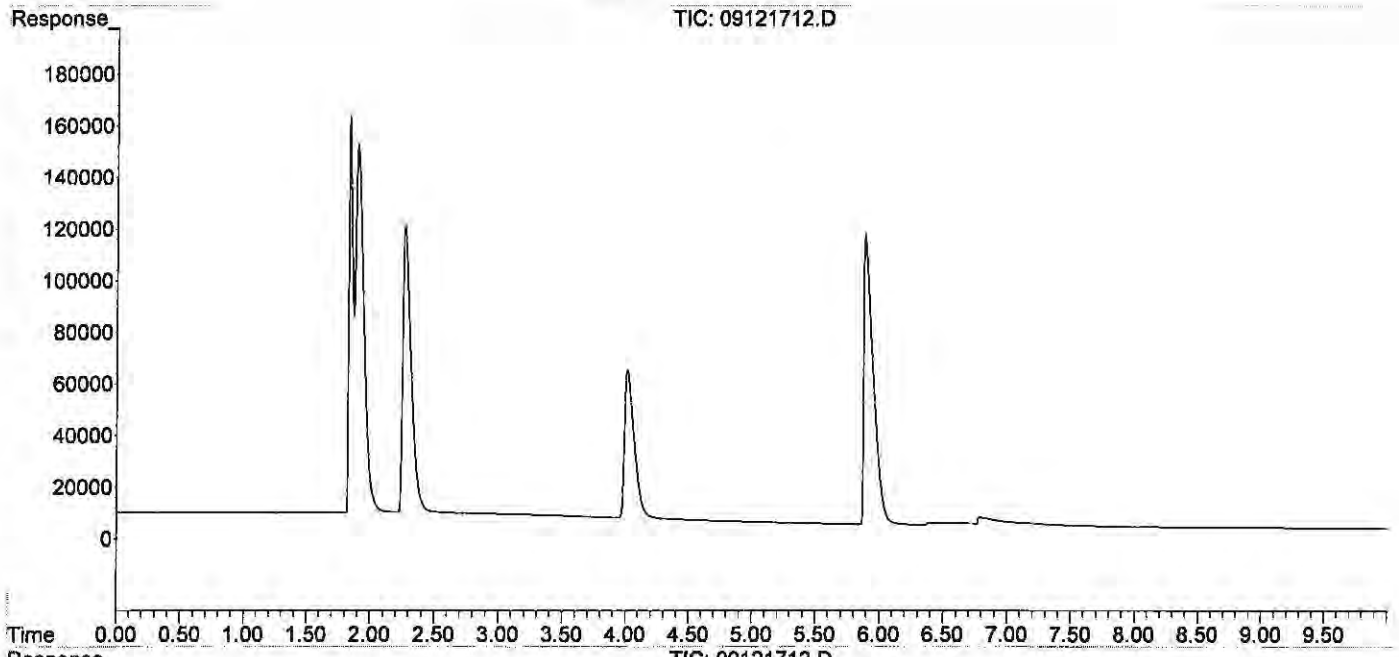
(f)=RT Delta > 1/2 Window (m)=manual int.

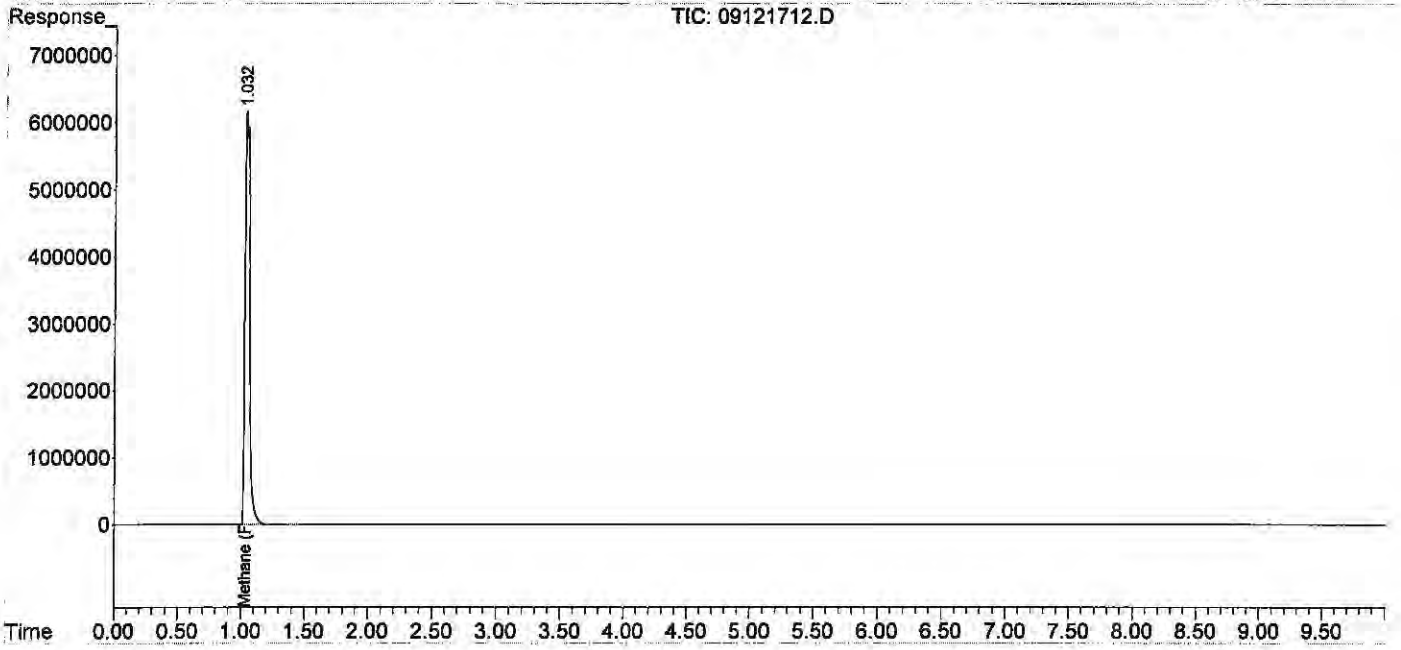
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





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	

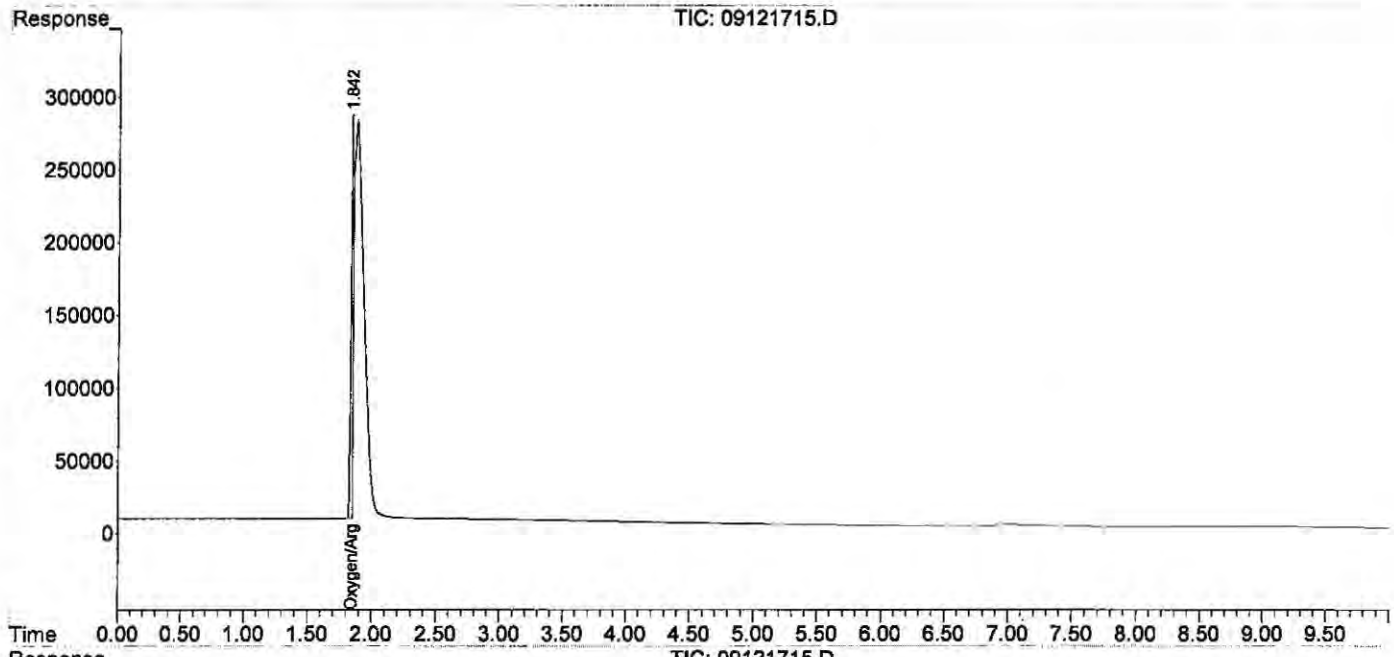
(f)=RT Delta > 1/2 Window (m)=manual int.

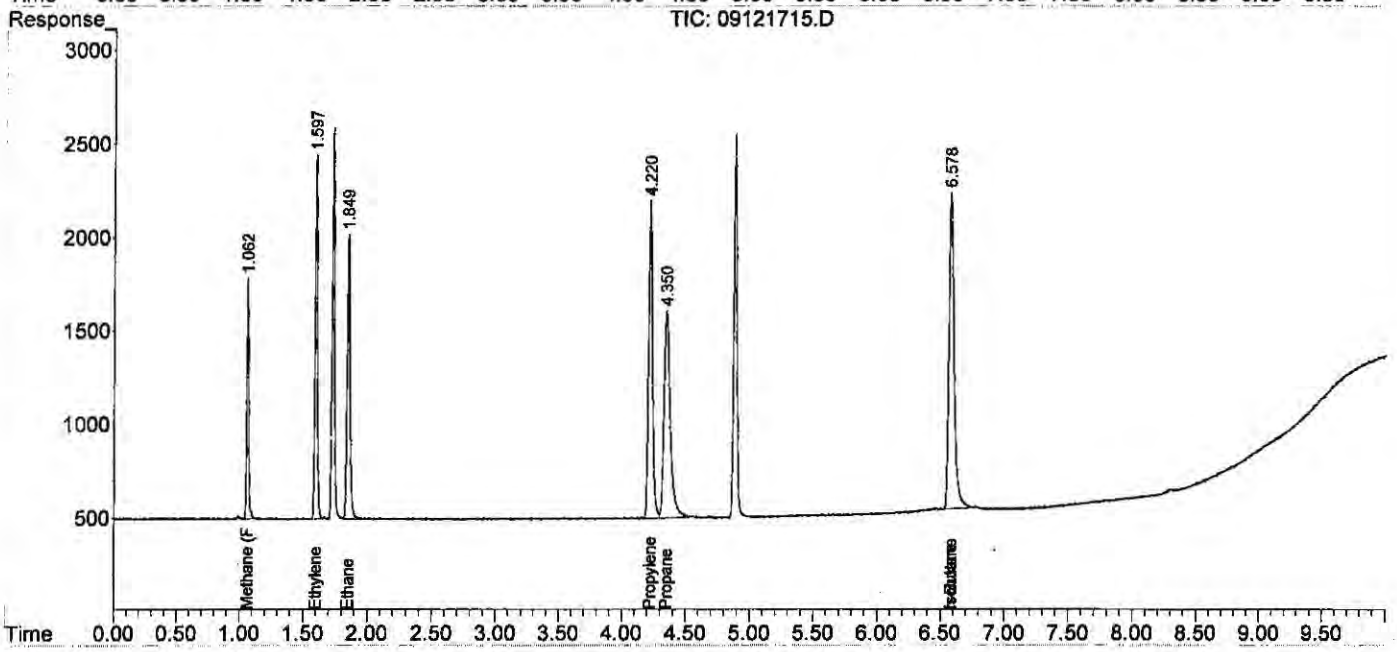
9/14/2017

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: P1902701
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 05/14/19
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 s32-07231801	0.100	1.521	1.526	1.502
ACTUAL		1.51	1.51	1.51
%Difference		0.7%	1.1%	0.5%
mcs 0.1ml	0.100	0.207	0.000	0.000
rb 0.1ml	0.100	0.000	0.000	0.000
lcs fid 0.1ml	0.100	1.348	0.906	1.132
lcsd fid 0.1ml	0.100	1.312	0.987	1.223
P1902701-001 0.1ml	0.100	0.294	0.000	0.000
P1902701-002 0.1ml	0.100	3.688	0.000	0.000
P1902701-003 0.1ml	0.100	1.999	0.000	0.000
P1902701-004 0.1ml	0.100	2.364	0.000	0.000
P1902701-005 0.1ml	0.100	0.000	0.000	0.000
P1902701-006 0.1ml	0.100	1.614	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	2.070	0.000	0.000
lcs fid 0.1ml	13.480	9.060	11.320
lcsd fid 0.1ml	13.120	9.870	12.230
P1902701-001 0.1ml	2.940	0.000	0.000
P1902701-002 0.1ml	36.880	0.000	0.000
P1902701-003 0.1ml	19.990	0.000	0.000
P1902701-004 0.1ml	23.640	0.000	0.000
P1902701-005 0.1ml	0.000	0.000	0.000
P1902701-006 0.1ml	16.140	0.000	0.000

std s32-07231801	1.480	1.528	1.512
ACTUAL	1.51	1.51	1.51
%Difference	2.0%	1.2%	0.1%

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 10:44:25
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 10:54:02 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 :

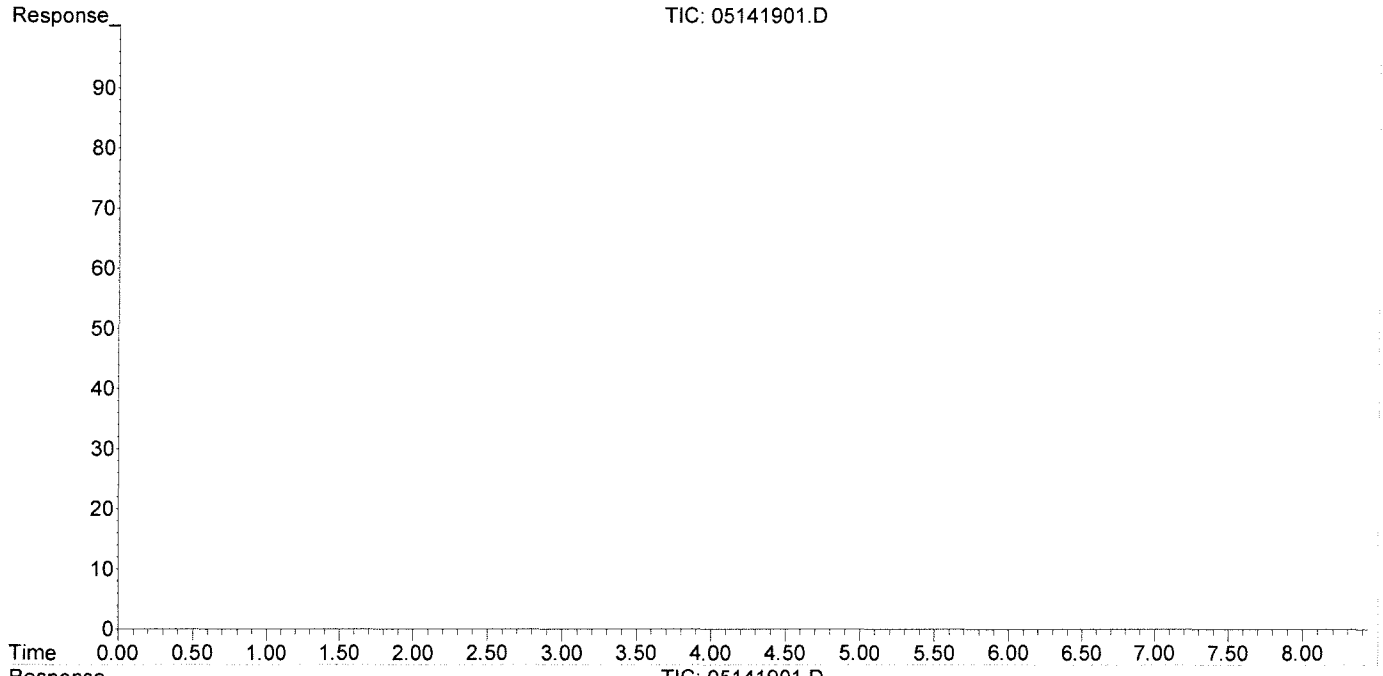
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	13794	1.521	ppm
7)	Ethylene	1.670	25538	1.526	ppm
8)	Ethane	1.932	25457	1.502	ppm
9)	Propylene	4.310	37042	1.581	ppm
10)	Propane	4.433	38239	1.537	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.646	50679	1.904	ppm
13)	n-Butane	6.646	50679	1.904	ppm

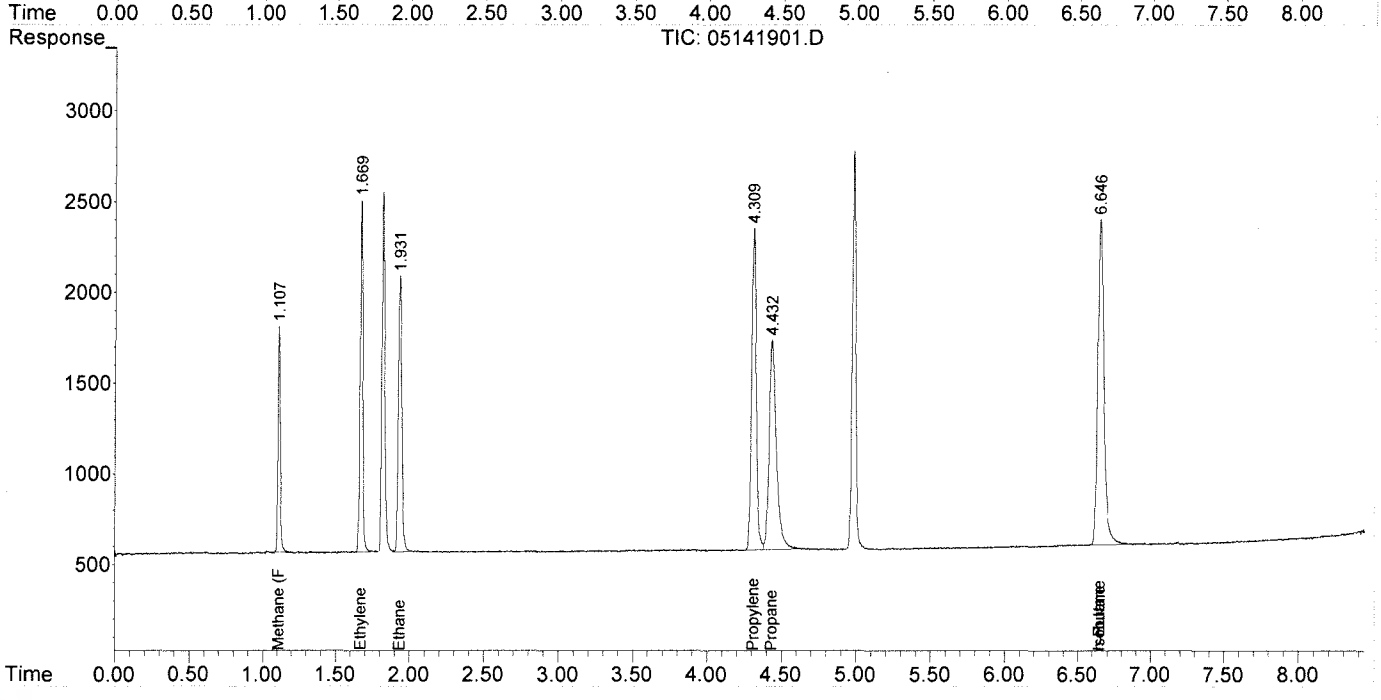
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 10:44:25
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 10:54:02 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_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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 :

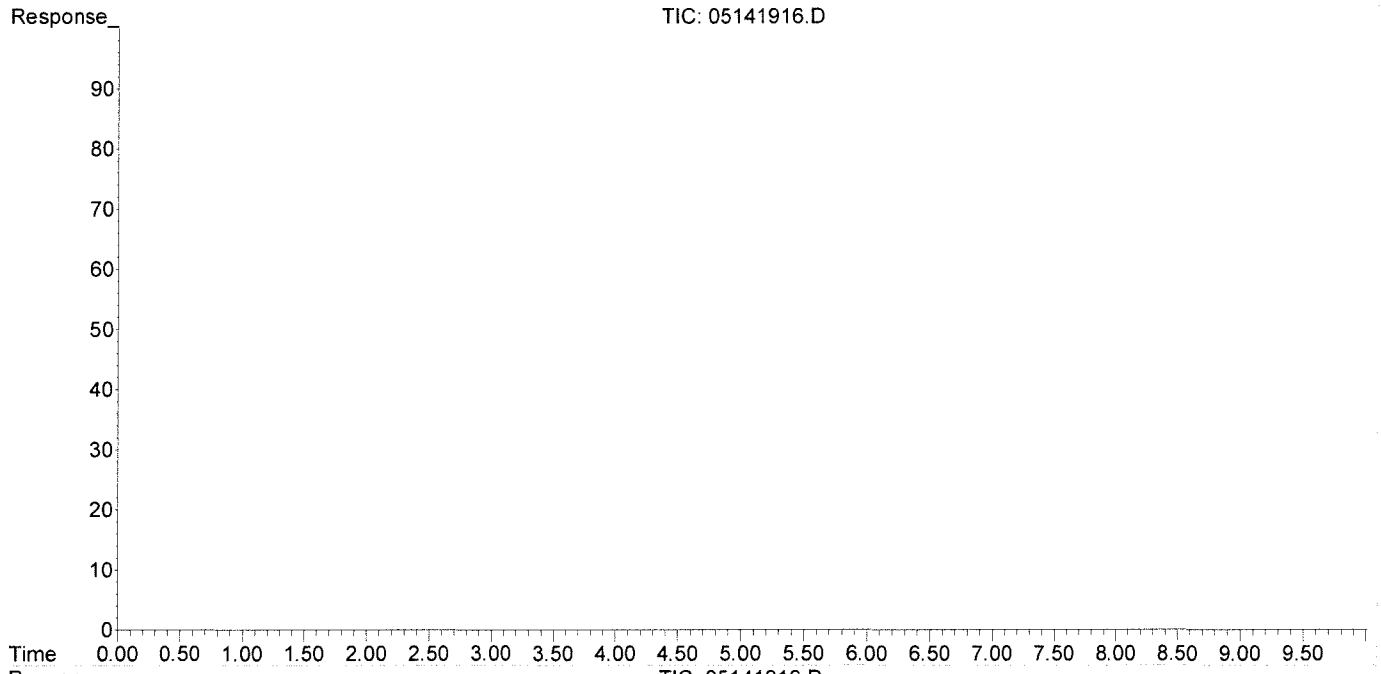
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.106	13422	1.480	ppm	m
7)	Ethylene	1.642	25578	1.528	ppm	
8)	Ethane	1.895	25637	1.512	ppm	
9)	Propylene	4.281	36620	1.563	ppm	
10)	Propane	4.407	37014	1.488	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.640f	50655	1.903	ppm	
13)	n-Butane	6.640f	50655	1.903	ppm	

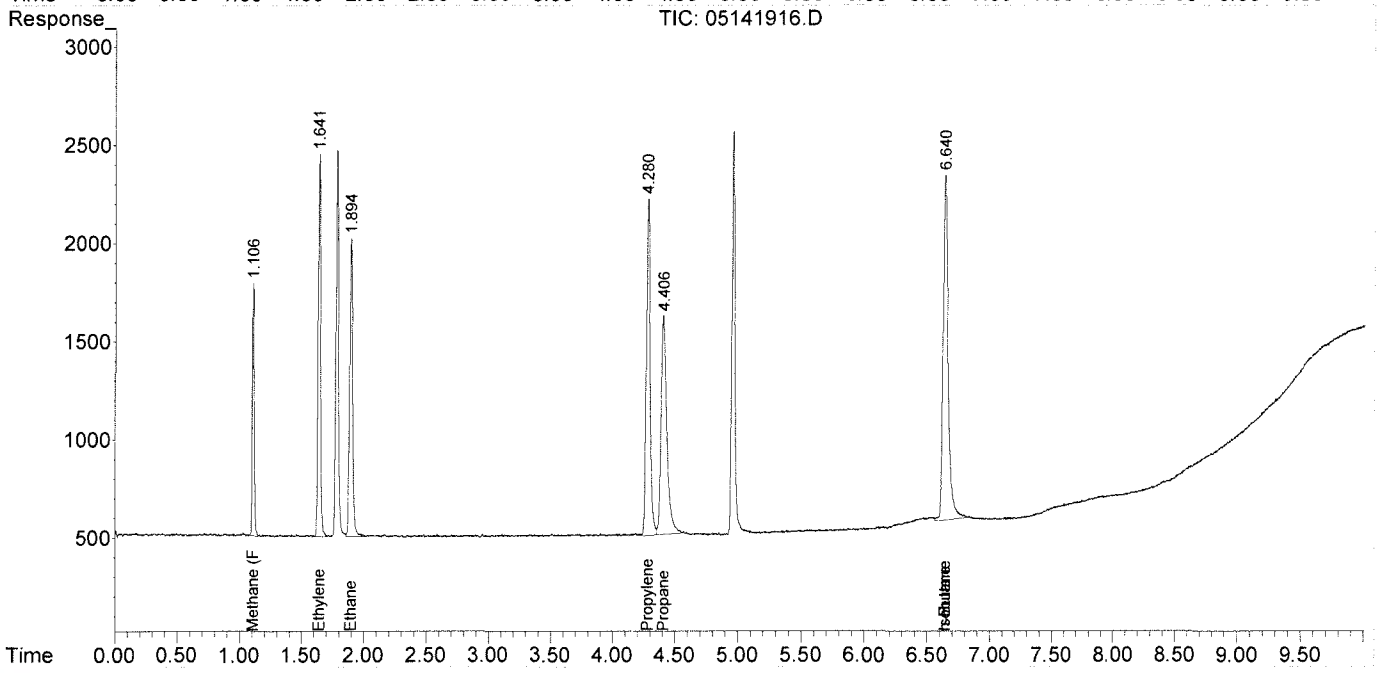
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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 :

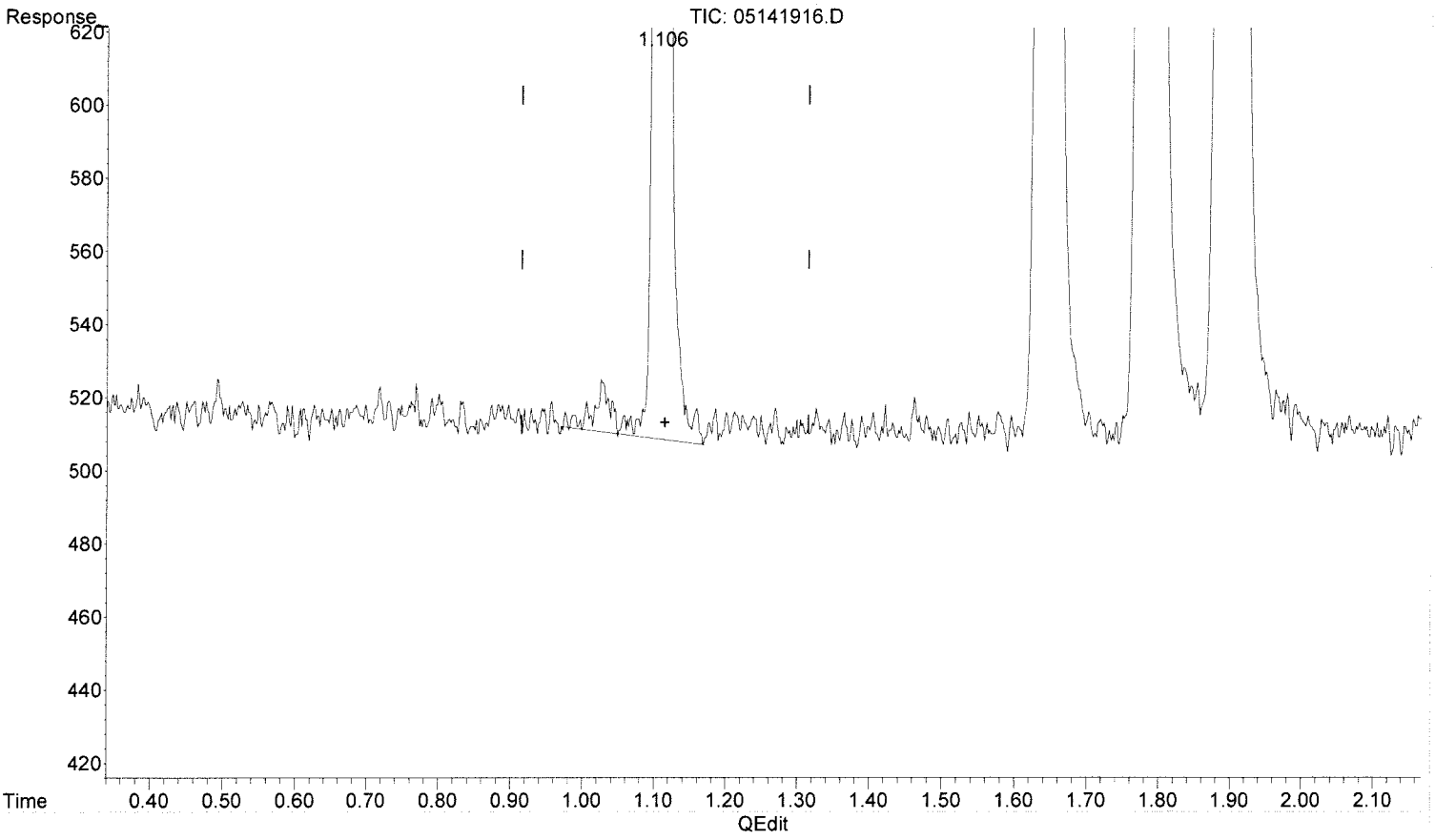




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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)

1.107min 1.523 ppm

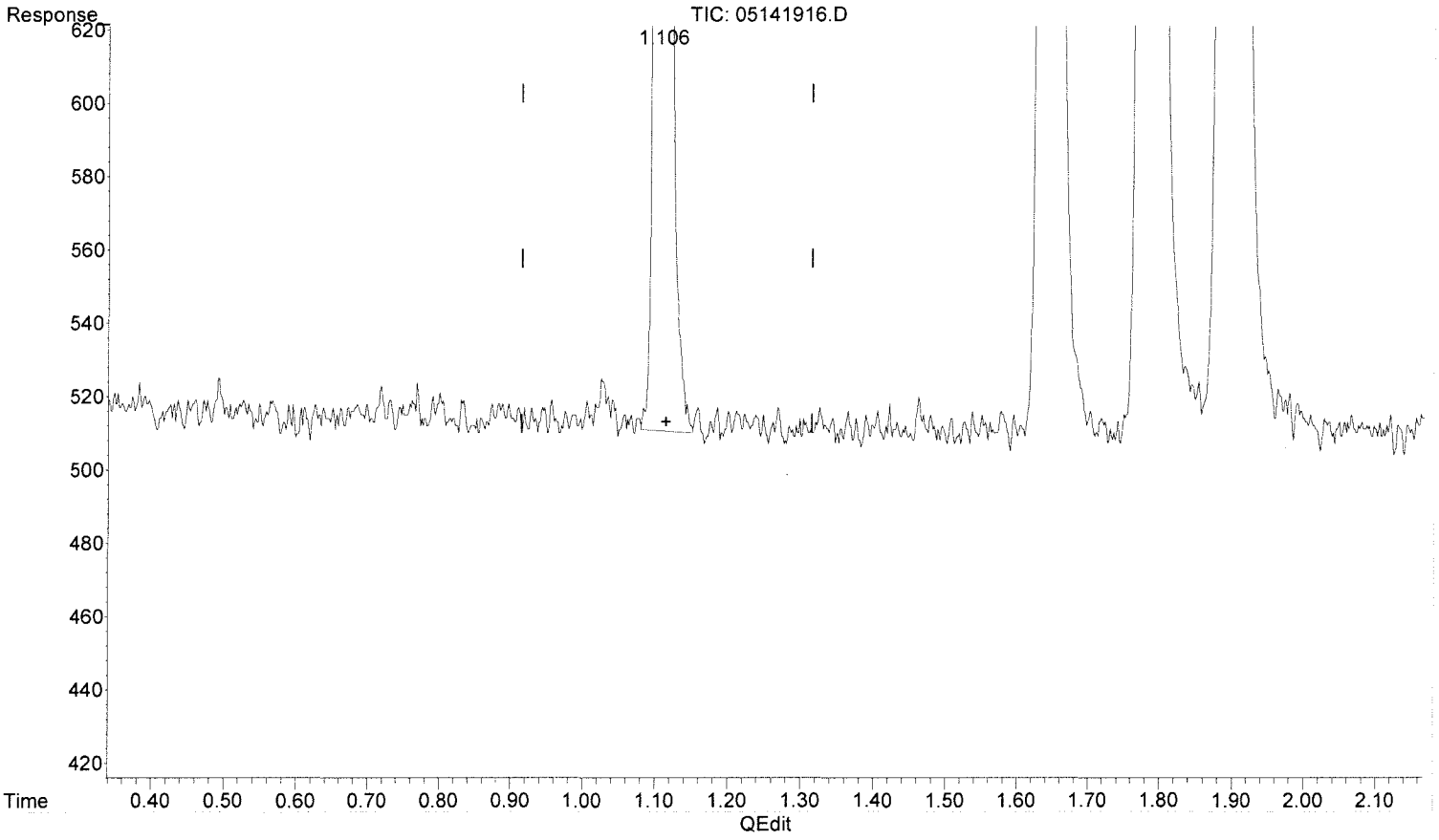
response 13812

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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)

1.106min 1.480 ppm m

response 13422

MK 5/15/19

(+) = Expected Retention Time

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_05\14\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	14-May-19, 10:44:25	05141901.D	std s32-07231801		WH	RSKBOTH.M	pass
2	14-May-19, 10:56:00	05141902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	14-May-19, 11:09:41	05141903.D	mcs 0.1ml		WH	RSKBOTH.M	pass
4	14-May-19, 11:28:14	05141904.D	lcs fid 0.1ml		WH	RSKBOTH.M	pass
5	14-May-19, 11:41:20	05141905.D	lcsd fid 0.1ml		WH	RSKBOTH.M	pass
6	14-May-19, 11:54:16	05141906.D	P1902701-001 0.1ml		WH	RSKBOTH.M	
7	14-May-19, 12:07:25	05141907.D	P1902701-002 0.1ml		WH	RSKBOTH.M	
8	14-May-19, 12:20:09	05141908.D	P1902701-003 0.1ml		WH	RSKBOTH.M	
9	14-May-19, 12:35:42	05141909.D	P1902701-004 0.1ml		WH	RSKBOTH.M	
10	14-May-19, 12:48:39	05141910.D	P1902701-005 0.1ml		WH	RSKBOTH.M	
11	14-May-19, 13:08:06	05141911.D	P1902701-006 0.1ml		WH	RSKBOTH.M	
12	14-May-19, 13:34:27	05141912.D	P1902700-001 0.1ml		WH	RSKBOTH.M	
13	14-May-19, 13:57:59	05141913.D	P1902700-002 0.1ml		WH	RSKBOTH.M	
14	14-May-19, 14:12:33	05141914.D	P1902700-002ms 0.1ml		WH	RSKBOTH.M	
15	14-May-19, 14:26:48	05141915.D	P1902700-002msd 0.1ml		WH	RSKBOTH.M	
16	14-May-19, 14:39:35	05141916.D	std s32-07231801		WH	RSKBOTH.M	pass
17	14-May-19, 14:52:42	05141917.D	mb 0.5ml		WH	RSKBOTH.M	pass
18	14-May-19, 15:06:36	05141918.D	lcs		WH	RSKBOTH.M	pass
19	14-May-19, 15:22:57	05141919.D	lcs		WH	RSKBOTH.M	pass
20	14-May-19, 15:38:15	05141920.D	P1902457-014 0.5		WH	RSKBOTH.M	
21	14-May-19, 15:49:26	05141921.D	P1902457-015 0.5		WH	RSKBOTH.M	
22	14-May-19, 16:05:27	05141922.D	P1902458-003 0.5		WH	RSKBOTH.M	
23	14-May-19, 16:28:00	05141923.D	P1902458-004 0.5		WH	RSKBOTH.M	
24	14-May-19, 16:56:31	05141924.D	P1902458-023 0.5		WH	RSKBOTH.M	
25	14-May-19, 17:11:01	05141925.D	P1902458-024 0.5		WH	RSKBOTH.M	
26	14-May-19, 17:24:36	05141926.D	P1902459-012 0.5		WH	RSKBOTH.M	
27	14-May-19, 17:38:47	05141927.D	P1902459-013 0.5		WH	RSKBOTH.M	
28	14-May-19, 17:52:17	05141928.D	std s32-07231801		WH	RSKBOTH.M	pass

HS19050374 8260 Raw Data

ALS WO# HS19050374

MSVOA06 -Logbook

Batch: 35391 **Analyst:** Presenta Cabascango

Date: 05-13-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments: Target Sequence 190513

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-13-2019 10:57 am	1.00	0.00 mL	0.00 mL	X051301.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD000.25	ICAL1	05-13-2019 11:21 am	1.00	5.00 mL	0.00 mL	X051302.D	Liquid	Y	NA
	0.1 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	05-13-2019 12:09 pm	1.00	5.00 mL	0.00 mL	X051303.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	05-13-2019 12:33 pm	1.00	5.00 mL	0.00 mL	X051304.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	05-13-2019 12:57 pm	1.00	5.00 mL	0.00 mL	X051305.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	05-13-2019 01:21 pm	1.00	5.00 mL	0.00 mL	X051306.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	05-13-2019 01:45 pm	1.00	5.00 mL	0.00 mL	X051307.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	05-13-2019 02:09 pm	1.00	5.00 mL	0.00 mL	X051308.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	05-13-2019 02:33 pm	1.00	5.00 mL	0.00 mL	X051309.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	05-13-2019 02:56 pm	1.00	5.00 mL	0.00 mL	X051310.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	05-13-2019 03:20 pm	1.00	5.00 mL	0.00 mL	X051311.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	05-13-2019 03:44 pm	1.00	5.00 mL	0.00 mL	X051312.D	Liquid	Y	NA
	clean up blank									
13	CCV	CCV	05-13-2019 04:08 pm	1.00	5.00 mL	0.00 mL	X051313.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
14	BLANK	SAMP	05-13-2019 04:32 pm	1.00	5.00 mL	0.00 mL	X051314.D	Liquid	Y	NA
15	VLCSW-190513	LCS	05-13-2019 04:56 pm	1.00	5.00 mL	0.00 mL	X051315.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
16	BLANK	SAMP	05-13-2019 05:20 pm	1.00	5.00 mL	0.00 mL	X051316.D	Liquid	Y	NA
17	VBLKW-190513	MBLK	05-13-2019 05:44 pm	1.00	5.00 mL	0.00 mL	X051317.D	Liquid	Y	NA
18	HS19050082-07	SAMP	05-13-2019 06:08 pm	1.00	5.00 mL	0.00 mL	X051318.D	Liquid	Y	<2
19	HS19050082-04	SAMP	05-13-2019 06:32 pm	1.00	5.00 mL	0.00 mL	X051319.D	Liquid	Y	<2
20	HS19050082-05	SAMP	05-13-2019 06:57 pm	1.00	5.00 mL	0.00 mL	X051320.D	Liquid	Y	<2
21	HS19050082-01	SAMP	05-13-2019 07:21 pm	1.00	5.00 mL	0.00 mL	X051321.D	Liquid	Y	<2
22	HS19050082-01	SAMP	05-13-2019 07:45 pm	5.00	5.00 mL	0.00 mL	X051322.D	Liquid	Y	<2
23	HS19050082-02	SAMP	05-13-2019 08:09 pm	1.00	5.00 mL	0.00 mL	X051323.D	Liquid	Y	<2
24	HS19050082-02	SAMP	05-13-2019 08:33 pm	5.00	5.00 mL	0.00 mL	X051324.D	Liquid	Y	<2
25	HS19050082-03	SAMP	05-13-2019 08:57 pm	1.00	5.00 mL	0.00 mL	X051325.D	Liquid	Y	<2
26	HS19050082-06	SAMP	05-13-2019 09:21 pm	1.00	5.00 mL	0.00 mL	X051326.D	Liquid	Y	<2
27	HS19050082-04MS	MS	05-13-2019 09:45 pm	1.00	5.00 mL	0.00 mL	X051327.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
28	HS19050082-04MSD	MSD	05-13-2019 10:09 pm	1.00	5.00 mL	0.00 mL	X051328.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
29	CCV-END	CCV	05-13-2019 10:33 pm	1.00	5.00 mL	0.00 mL	X051329.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	50.01	100	80-120
trans-1,3-Dichloroprope	50.00	51.68	103	80-120
1,3-Dichlorobenzene	50.00	46.37	93	80-120
2,2-Dichloropropane	50.00	45.93	92	80-120
1,1-Dichloropropene	50.00	43.82	88	80-120
Dibromomethane	50.00	48.95	98	80-120
1,2-Dibromoethane	50.00	48.28	96	80-120
trans-1,2-Dichloroethen	50.00	47.69	95	80-120
1,1,1,2-Tetrachloroetha	50.00	47.56	95	80-120
1,1,1-Trichloroethane	50.00	44.43	89	80-120
1,1,2,2-Tetrachloroetha	50.00	48.28	96	80-120
Toluene	50.00	46.68	93	80-120
1,1,2-Trichloroethane	50.00	49.04	98	80-120
1,1-Dichloroethane	50.00	46.29	92	80-120
1,1-Dichloroethene	50.00	46.44	93	80-120
Trichlorofluoromethane	50.00	43.25	86	80-120
1,2,3-Trichlorobenzene	50.00	53.04	106	80-120
Tetrachloroethene	50.00	44.01	88	80-120
1,2,4-Trichlorobenzene	50.00	50.78	102	80-120
1,2,4-Trimethylbenzene	50.00	45.13	90	80-120
tert-Butylbenzene	50.00	42.78	86	80-120
Trichloroethene	50.00	46.44	93	80-120
1,2-Dichlorobenzene	50.00	46.42	93	80-120
1,2-Dichloroethane	50.00	46.67	93	80-120
1,2-Dichloropropane	50.00	47.58	95	80-120
1,3,5-Trimethylbenzene	50.00	44.43	89	80-120
1,3-Dichloropropane	50.00	47.38	95	80-120
1,4-Dichlorobenzene	50.00	46.57	93	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.28	104	80-120
2-Chlorotoluene	50.00	44.20	88	80-120
2-Hexanone	100.00	97.69	98	80-120
4-Chlorotoluene	50.00	45.04	90	80-120
Styrene	50.00	47.56	95	80-120
4-Methyl-2-Pentanone	100.00	96.71	97	80-120
Acetone	100.00	107.18	107	80-120
Benzene	50.00	47.57	95	80-120
Bromobenzene	50.00	46.95	94	80-120
Bromochloromethane	50.00	48.56	97	80-120
Bromodichloromethane	50.00	48.97	98	80-120
Bromoform	50.00	52.87	106	80-120
Bromomethane	50.00	54.33	109	80-120
Carbon Disulfide	100.00	94.44	94	80-120
Carbon Tetrachloride	50.00	43.48	87	80-120
Chlorobenzene	50.00	47.18	94	80-120
Chloroethane	50.00	46.61	93	80-120
Chloroform	50.00	46.67	93	80-120
Chloromethane	50.00	46.27	92	80-120
cis-1,2-Dichloroethene	50.00	46.49	93	80-120
Dibromochloromethane	50.00	48.94	98	80-120
Dichlorodifluoromethane	50.00	47.02	94	80-120
Ethylbenzene	50.00	44.87	90	80-120
Hexachlorobutadiene	50.00	48.39	97	80-120
Isopropylbenzene	50.00	43.60	87	80-120
m,p-Xylenes	100.00	91.59	92	80-120
Methylene Chloride	50.00	48.68	97	80-120
n-Butylbenzene	50.00	43.74	87	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	43.25	86	80-120
Naphthalene	50.00	52.72	105	80-120
o-Xylene	50.00	46.57	93	80-120
sec-Butylbenzene	50.00	42.06	84	80-120
Vinyl Chloride	50.00	46.68	93	80-120
1,2,3-Trichloropropane	50.00	49.73	99	80-120
p-Isopropyltoluene	50.00	43.49	87	80-120
1,2-Dibromo-3-Chloropro	50.00	54.38	109	80-120
Freon TF	50.00	41.23	82	80-120

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

* Values outside of QC limits

COMMENTS: _____

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID: X051301 BFB Injection Date: 05/13/19

Instrument ID: VOA6 BFB Injection Time: 1057

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.7
75	30.0 - 60.0% of mass 95	49.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	84.2
175	5.0 - 9.0% of mass 174	6.8 (8.1)1
176	95.0 - 101.0% of mass 174	81.4 (96.6)1
177	5.0 - 9.0% of mass 176	5.8 (7.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X051302	05/13/19	1121
02	VSTD000.5	VSTD000.5	X051303	05/13/19	1209
03	VSTD001	VSTD001	X051304	05/13/19	1233
04	VSTD002	VSTD002	X051305	05/13/19	1257
05	VSTD005	VSTD005	X051306	05/13/19	1321
06	VSTD020	VSTD020	X051307	05/13/19	1345
07	VSTD050	VSTD050	X051308	05/13/19	1409
08	VSTD100	VSTD100	X051309	05/13/19	1433
09	VSTD150	VSTD150	X051310	05/13/19	1456
10	VSTD200	VSTD200	X051311	05/13/19	1520
11	CCV	CCV	X051313	05/13/19	1608
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.566	0.473	0.477	0.478	0.483
trans-1,3-Dichloropropene		0.484	0.410	0.404	0.406	0.418
1,3-Dichlorobenzene		1.892	1.592	1.511	1.462	1.402
2,2-Dichloropropane		0.732	0.645	0.688	0.579	0.577
1,1-Dichloropropene		0.543	0.470	0.413	0.374	0.369
Dibromomethane		0.242	0.210	0.207	0.206	0.204
1,2-Dibromoethane		0.441	0.353	0.324	0.338	0.333
trans-1,2-Dichloroethene		0.475	0.418	0.412	0.380	0.391
1,1,1,2-Tetrachloroethane		0.502	0.401	0.363	0.369	0.359
1,1,1-Trichloroethane		0.743	0.674	0.648	0.642	0.614
1,1,2,2-Tetrachloroethane		0.825	0.718	0.660	0.677	0.658
Toluene		1.888	1.480	1.426	1.395	1.389
1,1,2-Trichloroethane		0.313	0.253	0.253	0.259	0.250
1,1-Dichloroethane		0.854	0.736	0.722	0.662	0.651
1,1-Dichloroethene		0.466	0.416	0.364	0.353	0.361
Trichlorofluoromethane		0.873	0.761	0.716	0.659	0.682
1,2,3-Trichlorobenzene		1200	1624	3642	9007	35984
Tetrachloroethene		0.467	0.354	0.380	0.344	0.337
1,2,4-Trichlorobenzene		0.894	0.667	0.649	0.665	0.666
1,2,4-Trimethylbenzene		2.914	2.499	2.352	2.326	2.127
tert-Butylbenzene		2.439	2.082	1.967	1.816	1.751
Trichloroethene		0.467	0.391	0.378	0.372	0.362
1,2-Dichlorobenzene		1.820	1.465	1.405	1.391	1.325
1,2-Dichloroethane		0.566	0.441	0.412	0.397	0.390
1,2-Dichloropropane		0.355	0.305	0.303	0.277	0.276
1,3,5-Trimethylbenzene		2.626	2.321	2.263	2.159	2.064
1,3-Dichloropropane		0.625	0.539	0.514	0.514	0.492
1,4-Dichlorobenzene		1.989	1.589	1.472	1.482	1.404
2-Butanone		0.133	0.109	0.104	0.112	0.122
2-Chlorotoluene		2.375	1.972	1.843	1.717	1.672
2-Hexanone		0.219	0.179	0.171	0.166	0.164
4-Chlorotoluene		2.778	2.271	2.053	2.022	1.896
Styrene		1.272	1.070	1.025	1.031	1.004
4-Methyl-2-Pentanone		0.314	0.258	0.240	0.243	0.243
Acetone		2338	2678	4305	8696	29211
Benzene		1.563	1.227	1.167	1.141	1.122
Bromobenzene		1.112	0.929	0.931	0.900	0.870
Bromochloromethane		1373	2379	4001	8842	34144
Bromodichloromethane		0.475	0.430	0.405	0.391	0.391
Bromoform		0.328	0.259	0.240	0.272	0.290
Bromomethane		1971	3476	6441	14764	52051
Carbon Disulfide		1.410	1.177	1.072	1.017	1.037
Carbon Tetrachloride		0.597	0.499	0.444	0.409	0.413
Chlorobenzene		1.176	1.012	1.001	0.968	0.947

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.331	0.332	0.276	0.278	0.261
Chloroform		0.902	0.773	0.743	0.724	0.709
Chloromethane		2738	4458	8492	19144	77890
cis-1,2-Dichloroethene		0.585	0.525	0.467	0.466	0.457
Dibromochloromethane		0.525	0.397	0.352	0.361	0.375
Dichlorodifluoromethane		1776	2995	5725	12226	54883
Ethylbenzene		0.666	0.515	0.498	0.488	0.479
Hexachlorobutadiene		0.533	0.452	0.416	0.387	0.401
Isopropylbenzene		1.947	1.536	1.544	1.455	1.364
m,p-Xylenes		0.760	0.636	0.603	0.606	0.572
Methylene Chloride		3718	5114	7584	15292	55968
n-Butylbenzene		2.409	1.878	1.926	1.784	1.748
n-Propylbenzene		3.644	3.123	3.076	2.904	2.718
Naphthalene		1.187	0.947	0.940	0.965	0.953
o-Xylene		0.752	0.612	0.594	0.596	0.563
sec-Butylbenzene		3.284	2.775	2.674	2.458	2.354
Vinyl Chloride		0.460	0.549	0.441	0.397	0.408
1,2,3-Trichloropropane		0.911	0.748	0.735	0.752	0.755
p-Isopropyltoluene		3.032	2.443	2.420	2.247	2.185
1,2-Dibromo-3-Chloropropane		0.110	0.103	0.099	0.103	0.109
Freon TF		1794	2736	5416	11785	47474
4-Bromofluorobenzene		3387	3897	8070	18579	69486
Dibromofluoromethane		2068	2821	6109	15275	57130
Toluene-d8		8111	10173	21875	51458	202820
1,2-Dichloroethane-d4		2751	2924	6793	14382	56761

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.480	0.512	0.498	0.512
trans-1,3-Dichloropropene	0.427	0.457	0.447	0.461
1,3-Dichlorobenzene	1.370	1.542	1.505	1.563
2,2-Dichloropropane	0.568	0.627	0.586	0.616
1,1-Dichloropropene	0.359	0.408	0.390	0.416
Dibromomethane	0.201	0.212	0.204	0.207
1,2-Dibromoethane	0.332	0.351	0.337	0.342
trans-1,2-Dichloroethene	0.382	0.413	0.391	0.415
1,1,1,2-Tetrachloroethane	0.362	0.394	0.375	0.386
1,1,1-Trichloroethane	0.606	0.690	0.647	0.693
1,1,2,2-Tetrachloroethane	0.632	0.653	0.650	0.658
Toluene	1.345	1.458	1.380	1.428
1,1,2-Trichloroethane	0.241	0.252	0.239	0.245
1,1-Dichloroethane	0.664	0.703	0.657	0.693
1,1-Dichloroethene	0.361	0.411	0.379	0.404
Trichlorofluoromethane	0.661	0.802	0.735	0.795
1,2,3-Trichlorobenzene	82821	193390	278559	405059
Tetrachloroethene	0.323	0.380	0.354	0.370
1,2,4-Trichlorobenzene	0.659	0.800	0.796	0.838
1,2,4-Trimethylbenzene	2.063	2.398	2.329	2.423
tert-Butylbenzene	1.641	2.029	1.938	2.027
Trichloroethene	0.358	0.391	0.373	0.392
1,2-Dichlorobenzene	1.296	1.437	1.418	1.434
1,2-Dichloroethane	0.381	0.407	0.393	0.402
1,2-Dichloropropane	0.271	0.283	0.275	0.283
1,3,5-Trimethylbenzene	1.976	2.346	2.301	2.385
1,3-Dichloropropane	0.483	0.506	0.480	0.496
1,4-Dichlorobenzene	1.377	1.547	1.510	1.563
2-Butanone	0.119	0.130	0.117	0.125
2-Chlorotoluene	1.590	1.813	1.805	1.856
2-Hexanone	0.161	0.173	0.164	0.171
4-Chlorotoluene	1.864	2.126	2.100	2.172
Styrene	0.999	1.072	1.026	1.058
4-Methyl-2-Pentanone	0.237	0.252	0.242	0.250
Acetone	66437	125003		
Benzene	1.118	1.188	1.146	1.190
Bromobenzene	0.854	0.926	0.922	0.942
Bromochloromethane	84393	161297	232598	307407
Bromodichloromethane	0.401	0.428	0.418	0.431
Bromoform	0.296	0.317	0.307	0.315
Bromomethane	129857	273924	399907	526501
Carbon Disulfide	1.039	1.160	1.082	1.147
Carbon Tetrachloride	0.396	0.475	0.451	0.478
Chlorobenzene	0.929	0.994	0.962	0.987

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.258	0.285	0.270	0.276
Chloroform	0.713	0.769	0.717	0.749
Chloromethane	171914	321283	438543	547031
cis-1,2-Dichloroethene	0.456	0.488	0.458	0.479
Dibromochloromethane	0.388	0.411	0.398	0.407
Dichlorodifluoromethane	129152	289308	401283	559973
Ethylbenzene	0.462	0.519	0.496	0.518
Hexachlorobutadiene	0.354	0.470	0.459	0.478
Isopropylbenzene	1.313	1.574	1.491	1.555
m,p-Xylenes	0.561	0.628	0.603	0.620
Methylene Chloride	132351	252013	359557	480088
n-Butylbenzene	1.636	2.041	1.985	2.081
n-Propylbenzene	2.612	3.169	3.138	3.263
Naphthalene	0.934	1.130	1.132	1.212
o-Xylene	0.554	0.615	0.578	0.604
sec-Butylbenzene	2.210	2.793	2.672	2.826
Vinyl Chloride	0.421	0.488	0.455	0.493
1,2,3-Trichloropropane	0.738	0.785	0.783	0.804
p-Isopropyltoluene	2.058	2.584	2.482	2.626
1,2-Dibromo-3-Chloropropane	0.105	0.120	0.114	0.121
Freon TF	105816	255344	356261	492637
4-Bromofluorobenzene	164393	308874	453043	597336
Dibromofluoromethane	138429	259811	375096	491615
Toluene-d8	475062	904394	1314423	1723420
1,2-Dichloroethane-d4	140206	264049	382028	502886

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.49771918		5.915	15.000
trans-1,3-Dichloropropene	AVRG		0.43489503		6.516	15.000
1,3-Dichlorobenzene	AVRG		1.53778202		9.830	15.000
2,2-Dichloropropane	AVRG		0.62425653		8.970	15.000
1,1-Dichloropropene	AVRG		0.41585091		13.985	15.000
Dibromomethane	AVRG		0.21030722		5.868	15.000
1,2-Dibromoethane	AVRG		0.35009458		10.051	15.000
trans-1,2-Dichloroethene	AVRG		0.40859806		7.082	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39008119		11.412	15.000
1,1,1-Trichloroethane	AVRG		0.66203536		6.481	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.68127906		8.678	15.000
Toluene	AVRG		1.46558205		11.175	15.000
1,1,2-Trichloroethane	AVRG		0.25610066		8.667	15.000
1,1-Dichloroethane	AVRG		0.70472897		9.010	15.000
1,1-Dichloroethene	AVRG		0.39074385		9.430	15.000
Trichlorofluoromethane	AVRG		0.74266153		9.738	15.000
1,2,3-Trichlorobenzene	2ORDR	1.51e-002	2.41455480	-0.2430485	0.9984984	0.9900000
Tetrachloroethene	AVRG		0.36759966		11.394	15.000
1,2,4-Trichlorobenzene	AVRG		0.73723146		12.797	15.000
1,2,4-Trimethylbenzene	AVRG		2.38128040		10.205	15.000
tert-Butylbenzene	AVRG		1.96560319		11.656	15.000
Trichloroethene	AVRG		0.38716276		8.358	15.000
1,2-Dichlorobenzene	AVRG		1.44345711		10.476	15.000
1,2-Dichloroethane	AVRG		0.42106536		13.512	15.000
1,2-Dichloropropane	AVRG		0.29197973		9.098	15.000
1,3,5-Trimethylbenzene	AVRG		2.27127443		8.393	15.000
1,3-Dichloropropane	AVRG		0.51664479		8.620	15.000
1,4-Dichlorobenzene	AVRG		1.54811621		11.602	15.000
2-Butanone	AVRG		0.11919462		7.992	15.000
2-Chlorotoluene	AVRG		1.84916500		12.264	15.000
2-Hexanone	AVRG		0.17416142		10.062	15.000
4-Chlorotoluene	AVRG		2.14249997		12.623	15.000
Styrene	AVRG		1.06204057		7.834	15.000
4-Methyl-2-Pentanone	AVRG		0.25352116		9.380	15.000
Acetone	LINR	-3.53e-002	9.50178516		0.9995835	0.9900000
Benzene	AVRG		1.20687793		11.441	15.000
Bromobenzene	AVRG		0.93182068		7.938	15.000
Bromochloromethane	LINR	-1.06e-003	3.74852050		0.9993055	0.9900000
Bromodichloromethane	AVRG		0.41901017		6.336	15.000
Bromoform	AVRG		0.29158923		10.027	15.000
Bromomethane	LINR	2.187e-002	2.17898988		0.9987964	0.9900000
Carbon Disulfide	AVRG		1.12671521		10.734	15.000
Carbon Tetrachloride	AVRG		0.46245484		13.244	15.000
Chlorobenzene	AVRG		0.99733730		7.218	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.28538895		9.650	15.000
Chloroform	AVRG		0.75567055		7.908	15.000
Chloromethane	LINR	-4.95e-002	2.05623096		0.9961119	0.9900000
cis-1,2-Dichloroethene	AVRG		0.48700328		8.796	15.000
Dibromochloromethane	AVRG		0.40176813		12.536	15.000
Dichlorodifluoromethane	2ORDR	1.15e-002	2.30394197	-0.1305998	0.9971369	0.9900000
Ethylbenzene	AVRG		0.51555123		11.524	15.000
Hexachlorobutadiene	AVRG		0.43899485		12.402	15.000
Isopropylbenzene	AVRG		1.53111578		11.742	15.000
m,p-Xylenes	AVRG		0.62096278		9.244	15.000
Methylene Chloride	LINR	-1.26e-002	2.41541641		0.9990138	0.9900000
n-Butylbenzene	AVRG		1.94329244		11.644	15.000
n-Propylbenzene	AVRG		3.07188810		9.932	15.000
Naphthalene	AVRG		1.04448277		11.277	15.000
o-Xylene	AVRG		0.60751184		9.569	15.000
sec-Butylbenzene	AVRG		2.67178311		11.718	15.000
Vinyl Chloride	AVRG		0.45697874		10.461	15.000
1,2,3-Trichloropropane	AVRG		0.77905637		7.039	15.000
p-Isopropyltoluene	AVRG		2.45293099		11.664	15.000
1,2-Dibromo-3-Chloropropane	AVRG		0.10920891		7.013	15.000
Freon TF	2ORDR	1.665e-002	2.62304412	-0.1766315	0.9965538	0.9900000
4-Bromofluorobenzene	LINR	-1.15e-002	2.40600521		0.9997462	0.9900000
Dibromofluoromethane	LINR	-7.36e-003	2.33872517		0.9994280	0.9900000
Toluene-d8	LINR	-1.15e-002	0.83071157		0.9996002	0.9900000
1,2-Dichloroethane-d4	LINR	-3.58e-003	2.28937081		0.9994182	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

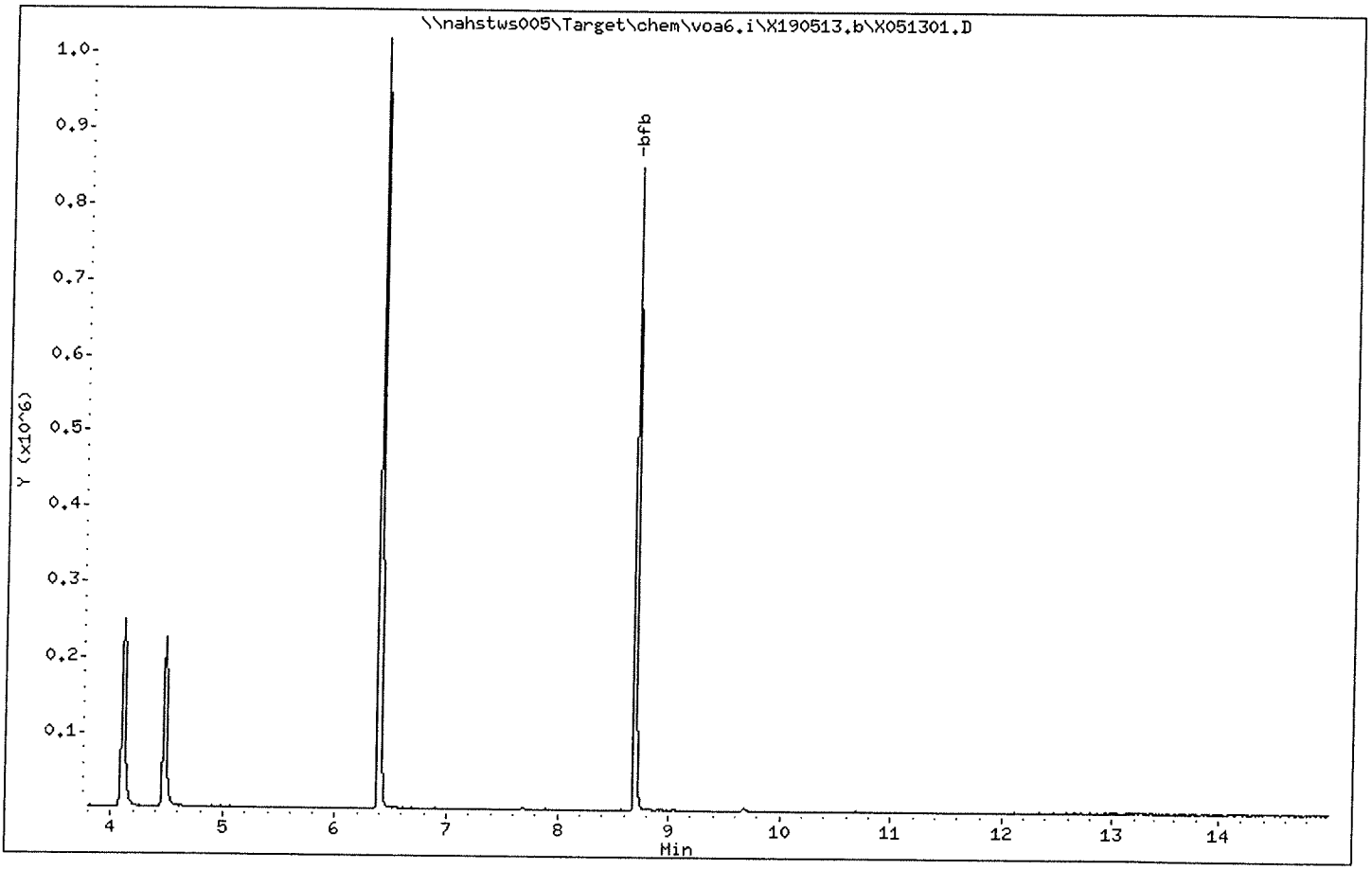
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

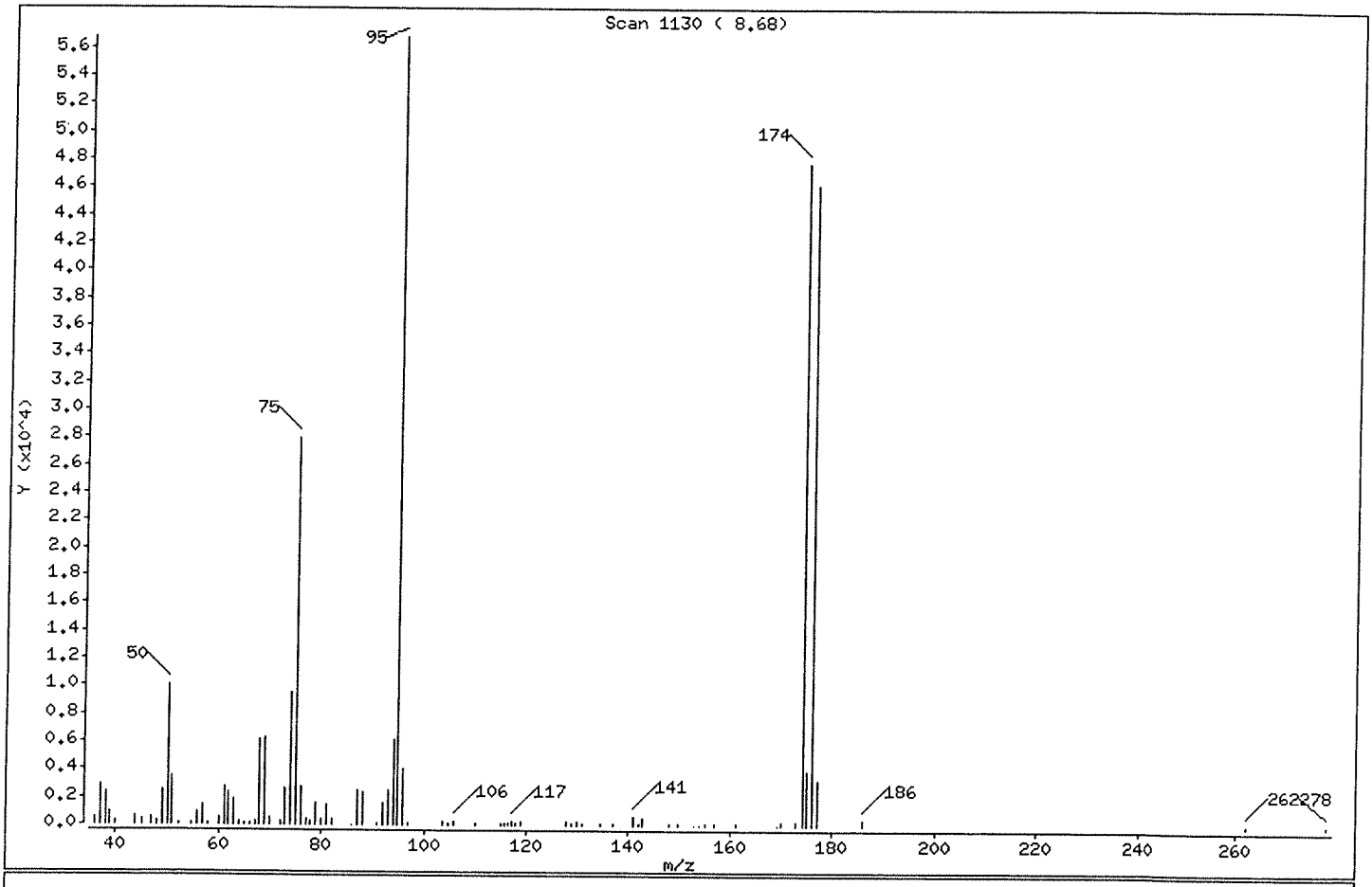
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.74
75	30.00 - 60.00% of mass 95	49.24
96	5.00 - 9.00% of mass 95	7.17
173	Less than 2.00% of mass 174	0.51 (0.61)
174	Greater than 50.00% of mass 95	84.25
175	5.00 - 9.00% of mass 174	6.85 (8.13)
176	95.00 - 101.00% of mass 174	81.36 (96.57)
177	5.00 - 9.00% of mass 176	5.85 (7.19)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

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: X051301.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 85

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	499	65.10	118	93.10	2482	142.10	90
37.10	2826	66.00	81	94.00	6130	142.80	493
38.10	2373	67.10	215	95.00	56736	147.80	141
39.00	976	68.00	6194	96.00	4066	149.90	72
40.10	309	69.00	6198	97.00	85	152.90	59
44.00	623	70.00	553	103.80	217	154.00	52
45.10	455	72.10	254	104.80	70	154.90	137
47.00	582	73.00	2655	105.80	230	156.90	179
48.00	304	74.10	9574	109.90	86	161.10	101
49.00	2490	75.00	27936	115.10	163	169.10	63
50.10	10063	76.10	2714	115.80	146	170.00	243
51.10	3473	77.00	426	116.40	155	172.90	291
52.20	138	77.80	222	117.00	280	174.00	47800
55.00	164	78.90	1585	118.00	150	175.00	3885
56.00	913	79.90	401	118.90	272	176.00	46160
57.10	1397	81.00	1467	127.90	257	177.00	3318
58.00	81	82.00	393	129.00	158	185.90	337
60.10	522	85.90	64	130.00	243	262.10	143
61.10	2794	87.10	2505	130.90	156	278.00	75
62.00	2349	88.00	2334	134.60	73		
63.10	1839	91.10	183	137.00	147		
64.10	270	92.00	1588	141.00	681		

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 13-MAY-2019 11:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 11:21 Cal File: X051302.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1	Pentafluorobenzene	168	4.189	4.189	(1.000)	380640	50.0000	
* 36	1,4-Difluorobenzene	114	4.970	4.970	(1.000)	493303	50.0000	
* 47	Chlorobenzene-d5	117	7.670	7.671	(1.000)	438880	50.0000	
* 70	1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	241847	50.0000	
$ 35	1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	1121	0.25000	0.15(Ta)
$ 69	4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3820	0.25000	0.47(a)
$ 30	Dibromofluoromethane	113	4.118	4.111	(0.983)	964	0.25000	(a)
$ 48	Toluene-d8	98	6.395	6.388	(0.834)	5074	0.25000	(Ta)
60	1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1053	0.25000	0.30(a)
31	1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	1398	0.25000	0.27(a)
68	1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	935	0.25000	0.28(aM)
138	Freon TF	101	1.919	1.919	(0.458)	841	0.25000	1.12(a)
53	1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	563	0.25000	0.25(aM)
22	1,1-Dichloroethane	63	2.929	2.929	(0.699)	2111	0.25000	0.39(aM)
11	1,1-Dichloroethene	96	1.919	1.919	(0.458)	959	0.25000	0.32(aM)
32	1,1-Dichloropropene	75	4.297	4.290	(0.865)	1440	0.25000	0.35(a)
93	1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	448	0.25000	0.97(aM)
71	1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	929	0.25000	0.24(a)
90	1,2,4-Trichlorobenzene	180	11.359	11.338	(1.175)	967	0.25000	0.27(aM)
79	1,2,4-Trimethylbenzene	105	9.390	9.383	(0.971)	3604	0.25000	0.31(a)
89	1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	89	0.25000	0.16(aM)
57	1,2-Dibromoethane	107	7.269	7.262	(0.948)	767	0.25000	0.24(a)
88	1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	2087	0.25000	0.29(a)

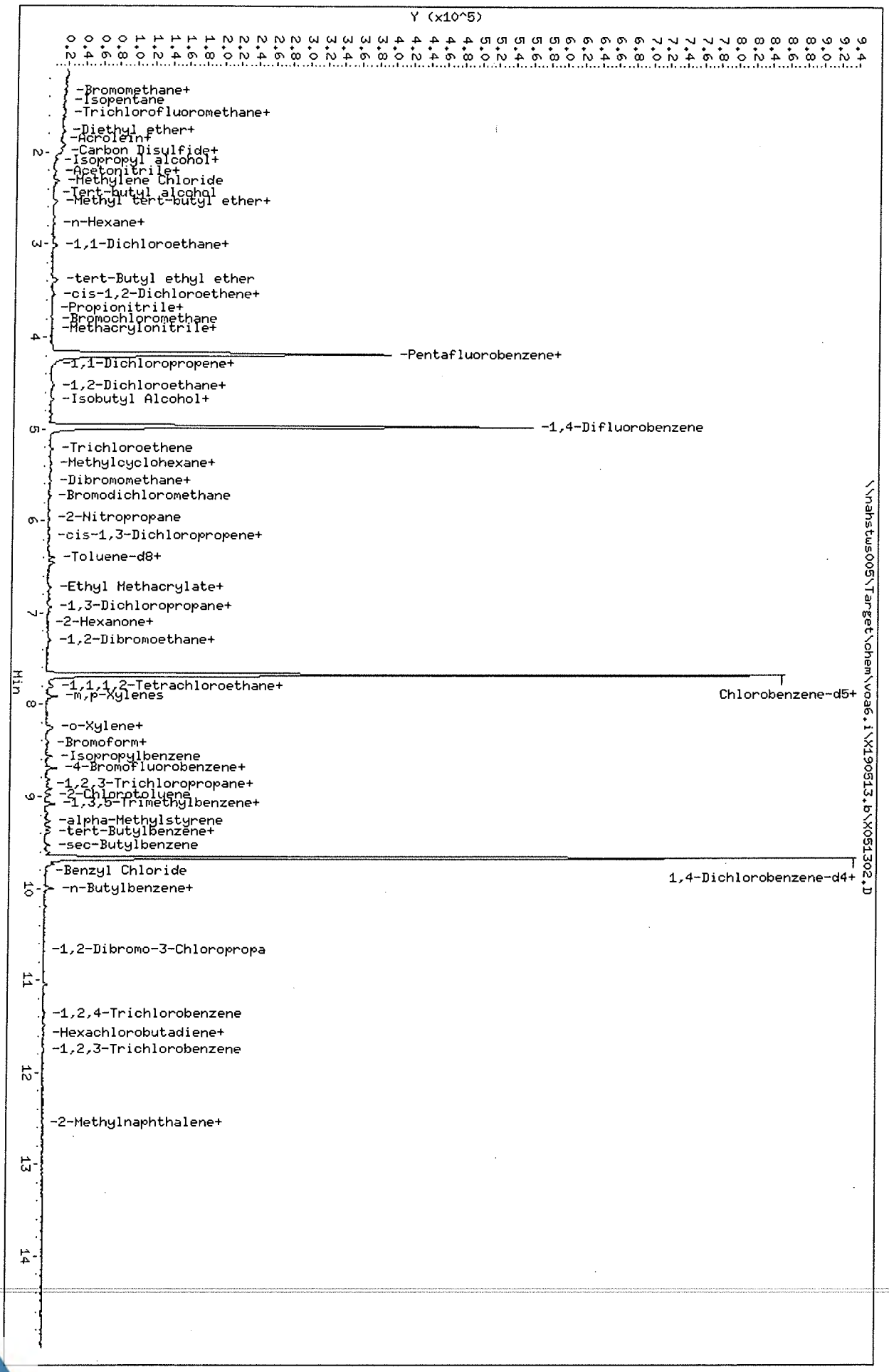
a File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
ort Date: 06-Jun-2019 10:44

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	4.562	(0.919)	1271	0.25000	0.30 (a)
42 1,2-Dichloropropane	63	5.450	5.443	(1.097)	768	0.25000	0.26 (aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	3592	0.25000	0.32 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2204	0.25000	0.29 (a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	1311	0.25000	0.28 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	2372	0.25000	0.31 (a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	1358	0.25000	0.28 (aM)
24 2-Butanone	43	3.623	3.581	(0.865)	314	0.50000	0.34 (aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3094	0.25000	0.34 (a)
52 2-Hexanone	43	7.105	7.090	(0.926)	746	0.50000	0.48 (Ta)
77 4-Chlorotoluene	91	9.082	9.075	(0.939)	3064	0.25000	0.29 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	3961	0.25000	0.33 (a)
45 4-Methyl-2-Pentanone	43	6.345	6.331	(0.827)	1342	0.50000	0.60 (aM)
10 Acetone	43	1.983	1.976	(0.473)	1372	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3582	0.25000	0.30 (a)
74 Bromobenzene	156	8.817	8.810	(0.912)	1360	0.25000	0.30 (a)
29 Bromochloromethane	128	3.802	3.803	(0.908)	871	0.25000	0.37 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1213	0.25000	0.29 (aM)
66 Bromoform	173	8.415	8.416	(1.097)	645	0.25000	0.25 (aM)
6 Bromomethane	94	1.338	1.339	(0.320)	1482	0.25000	1.51 (aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	5105	0.50000	0.59 (a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1602	0.25000	0.35 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	2791	0.25000	0.31 (a)
7 Chloroethane	64	1.410	1.403	(0.337)	506	0.25000	0.23 (aM)
28 Chloroform	83	3.910	3.917	(0.933)	1650	0.25000	0.28 (a)
3 Chloromethane	50	1.081	1.081	(0.258)	1663	0.25000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1225	0.25000	0.33 (a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	1356	0.25000	0.27 (a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	1243	0.25000	0.35 (a)
44 Dibromomethane	93	5.565	5.558	(1.120)	635	0.25000	0.30 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	819	0.25000	0.82 (aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1392	0.25000	0.30 (a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	676	0.25000	0.31 (aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	4156	0.25000	0.30 (a)
62 m,p-Xylenes	106	7.914	7.907	(1.032)	3220	0.50000	0.59 (a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	1896	0.25000	(aM)
87 n-Butylbenzene	91	10.006	9.999	(1.035)	2998	0.25000	0.31 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	4469	0.25000	0.30 (a)
92 Naphthalene	128	11.567	11.546	(1.196)	1115	0.25000	0.22 (aM)
63 o-Xylene	106	8.251	8.244	(1.076)	1474	0.25000	0.27 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	4062	0.25000	0.31 (a)
64 Styrene	104	8.272	8.265	(1.078)	2684	0.25000	0.28 (a)
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	3014	0.25000	0.31 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1012	0.25000	0.31 (a)
50 Toluene	91	6.453	6.453	(0.841)	4377	0.25000	0.34 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1043	0.25000	0.33 (Ta)
51 trans-1,3-Dichloropropene	75	6.696	6.682	(1.347)	1116	0.25000	0.26 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1299	0.25000	0.34 (a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	1532	0.25000	0.27 (a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1101	0.25000	0.31 (aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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


Y (x10^5)
Min
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Carbon Disulfide+
-Isopropyl alcohol+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Methyl tert-butyl ether+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-cis-1,2-Dichloroethene+
-Propionitrile+
-Bromochloromethane
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Nitropropane
-cis-1,3-Dichloropropene+
-Toluene-d8+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene+
\\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Date : 13-MAY-2019 11:21
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 13-MAY-2019 12:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:09 Cal File: X051303.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	339150	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	450290	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	414823	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	230908	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2751	0.50000	0.74(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3387	0.50000	0.40(a)
$	30 Dibromofluoromethane	113	4.110	4.111	(0.981)	2068	0.50000	0.34(a)
$	48 Toluene-d8	98	6.395	6.388	(0.834)	8111	0.50000	0.23(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2082	0.50000	0.64(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	2521	0.50000	0.56(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1906	0.50000	0.60(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	1794	0.50000	1.52(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1298	0.50000	0.61(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2895	0.50000	0.60(Ta)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1580	0.50000	0.59(aM)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2446	0.50000	0.65(aM)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1200	0.50000	1.38(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	2104	0.50000	0.58(a)
	90 1,2,4-Trichlorobenzene	180	11.352	11.338	(1.174)	2065	0.50000	0.60(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	6729	0.50000	0.61(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	253	0.50000	0.50(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	1828	0.50000	0.62(a)
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	4202	0.50000	0.63(a)

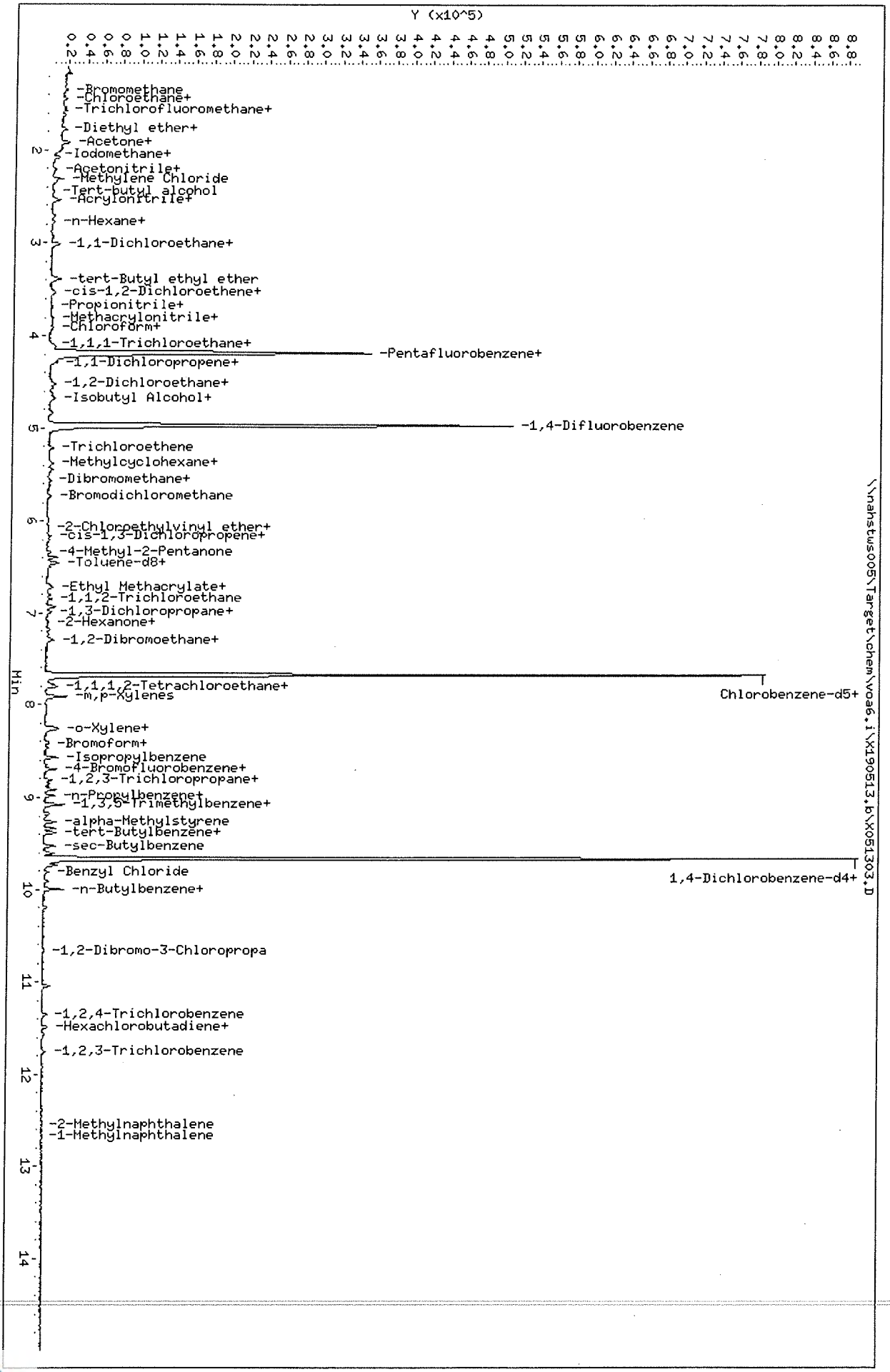
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

	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	4.562	(0.919)	2548	0.50000	0.67(aM)
42	1,2-Dichloropropane	63	5.450	5.443	(1.097)	1600	0.50000	0.60(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	6064	0.50000	0.57(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	4368	0.50000	0.61(a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	2593	0.50000	0.60(a)
84	1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	4593	0.50000	0.64(a)
26	2,2-Dichloropropane	77	3.523	3.516	(0.841)	2483	0.50000	0.58(aM)
24	2-Butanone	43	3.616	3.581	(0.863)	904	1.00000	1.11(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	5485	0.50000	0.64(a)
52	2-Hexanone	43	7.105	7.090	(0.926)	1814	1.00000	1.25(a)
77	4-Chlorotoluene	91	9.082	9.075	(0.939)	6416	0.50000	0.64(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	7002	0.50000	0.61(a)
45	4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	2610	1.00000	1.24(a)
10	Acetone	43	1.976	1.976	(0.472)	2338	1.00000	1.50(a)
37	Benzene	78	4.519	4.519	(0.909)	7038	0.50000	0.64(a)
74	Bromobenzene	156	8.817	8.810	(0.912)	2569	0.50000	0.59(a)
29	Bromochloromethane	128	3.810	3.803	(0.909)	1373	0.50000	0.70(aM)
39	Bromodichloromethane	83	5.736	5.729	(1.154)	2141	0.50000	0.56(aM)
66	Bromoform	173	8.415	8.416	(1.097)	1360	0.50000	0.56(Ta)
6	Bromomethane	94	1.346	1.339	(0.321)	1971	0.50000	1.72(aM)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	9564	1.00000	1.25(a)
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	2687	0.50000	0.64(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	4877	0.50000	0.58(a)
7	Chloroethane	64	1.410	1.403	(0.337)	1123	0.50000	0.58(aM)
28	Chloroform	83	3.917	3.917	(0.935)	3060	0.50000	0.59(a)
3	Chloromethane	50	1.081	1.081	(0.258)	2738	0.50000	(aM)
27	cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1985	0.50000	0.60(a)
46	cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	2547	0.50000	0.56(a)
55	Dibromochloromethane	129	7.183	7.184	(0.937)	2177	0.50000	0.65(a)
44	Dibromomethane	93	5.557	5.558	(1.118)	1090	0.50000	0.57(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1776	0.50000	1.17(aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	2761	0.50000	0.64(a)
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	1230	0.50000	0.60(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	8078	0.50000	0.63(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	6302	1.00000	1.22(a)
17	Methylene Chloride	84	2.313	2.306	(0.552)	3718	0.50000	0.69(a)
87	n-Butylbenzene	91	9.998	9.999	(1.034)	5563	0.50000	0.61(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	8414	0.50000	0.59(a)
92	Naphthalene	128	11.560	11.546	(1.196)	2741	0.50000	0.56(a)
63	o-Xylene	106	8.251	8.244	(1.076)	3120	0.50000	0.61(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	7583	0.50000	0.61(a)
64	Styrene	104	8.265	8.265	(1.078)	5278	0.50000	0.59(a)
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	5631	0.50000	0.62(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1936	0.50000	0.63(a)
50	Toluene	91	6.453	6.453	(0.841)	7833	0.50000	0.64(a)
20	trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	1611	0.50000	0.58(a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	2179	0.50000	0.55(a)
38	Trichloroethene	130	5.221	5.214	(1.050)	2102	0.50000	0.60(a)
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	2962	0.50000	0.58(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	1560	0.50000	0.50(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

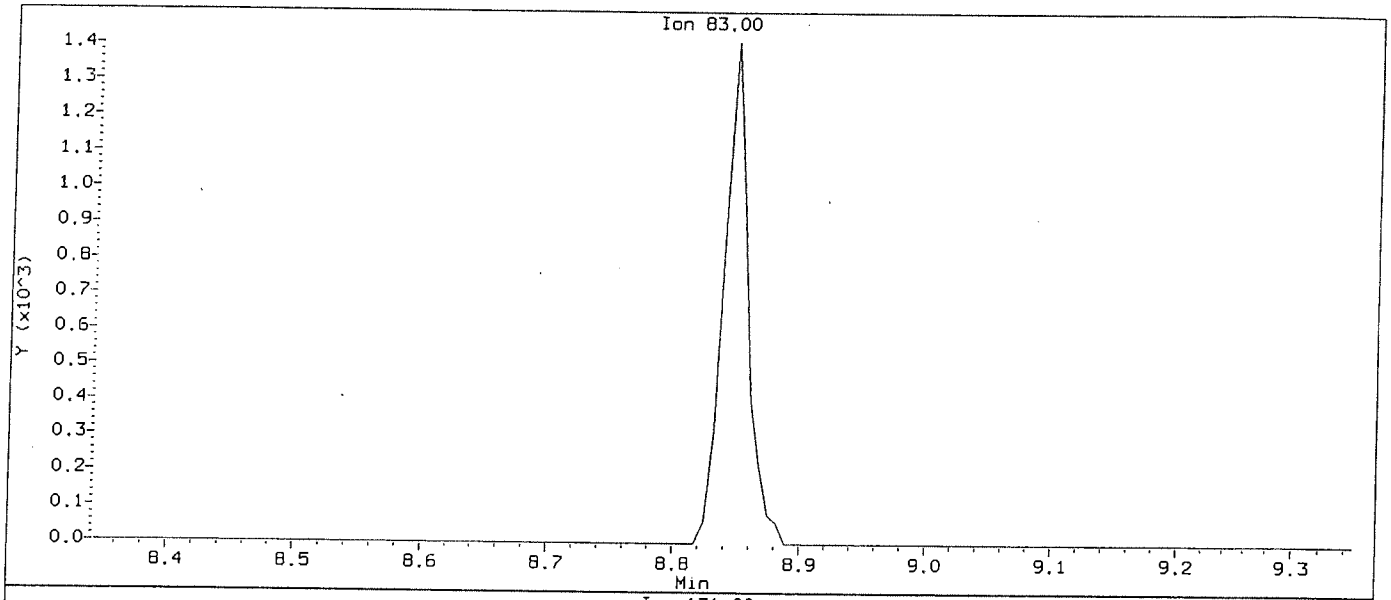
QC Flag Legend

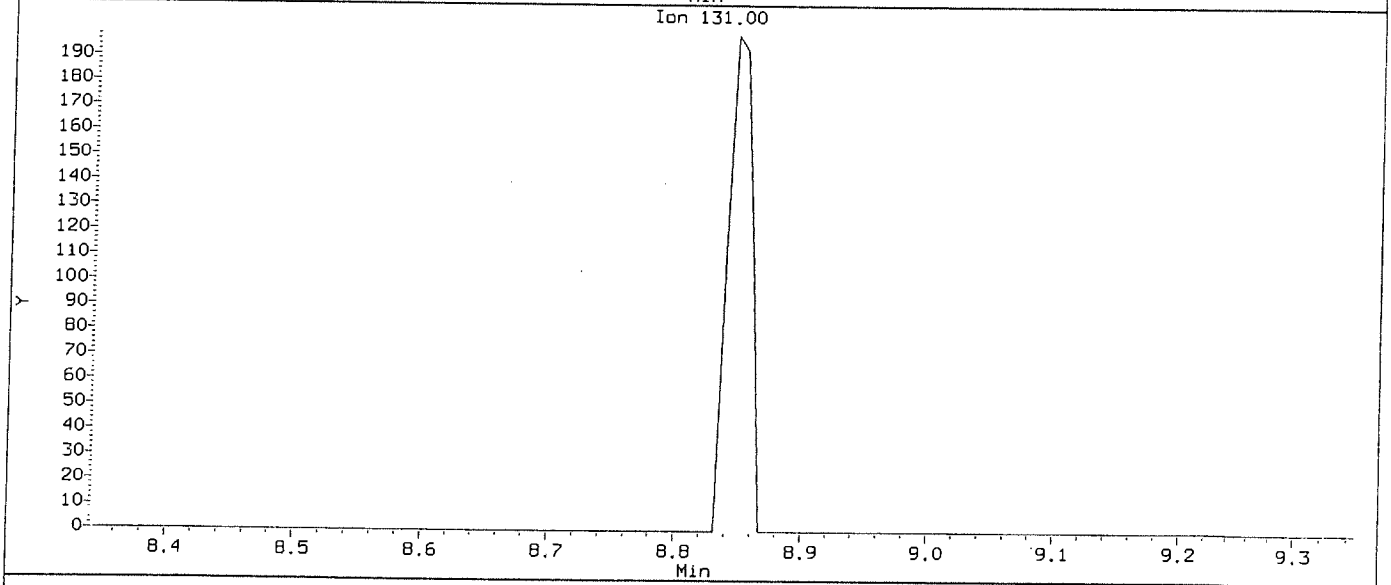
T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

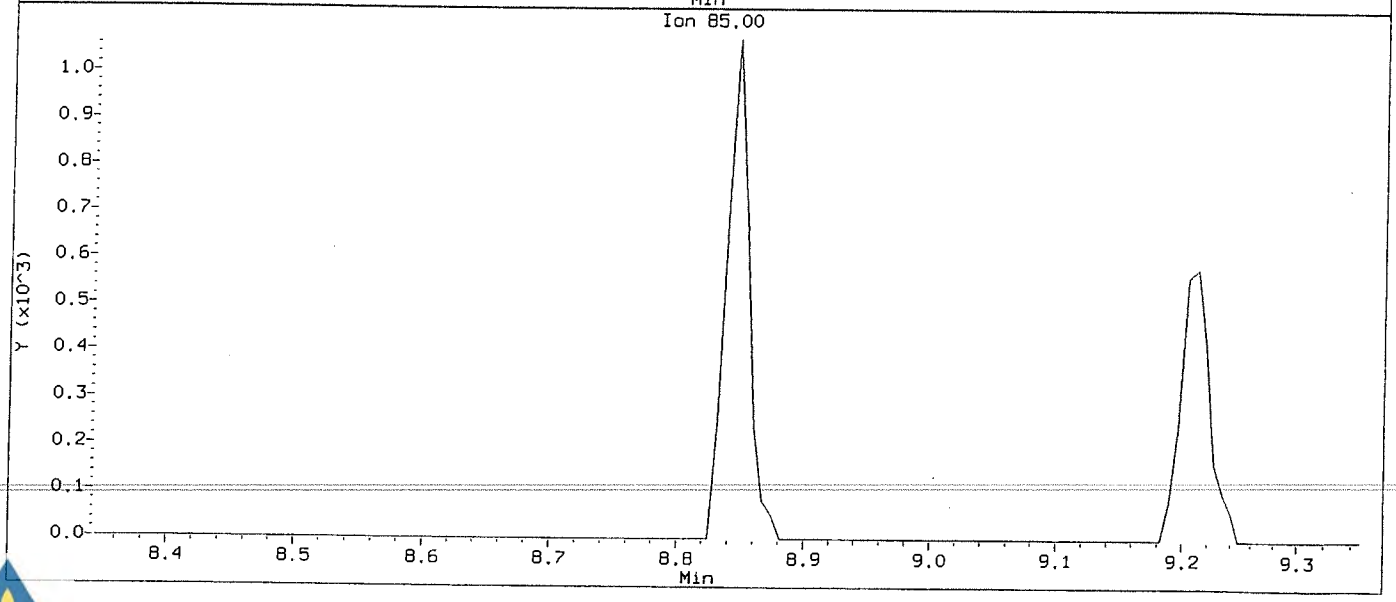

Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-cis-1,2-Dichloroethene+
-Propionitrile+
-Methacrylonitrile+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Date : 13-MAY-2019 12:09
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
\\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

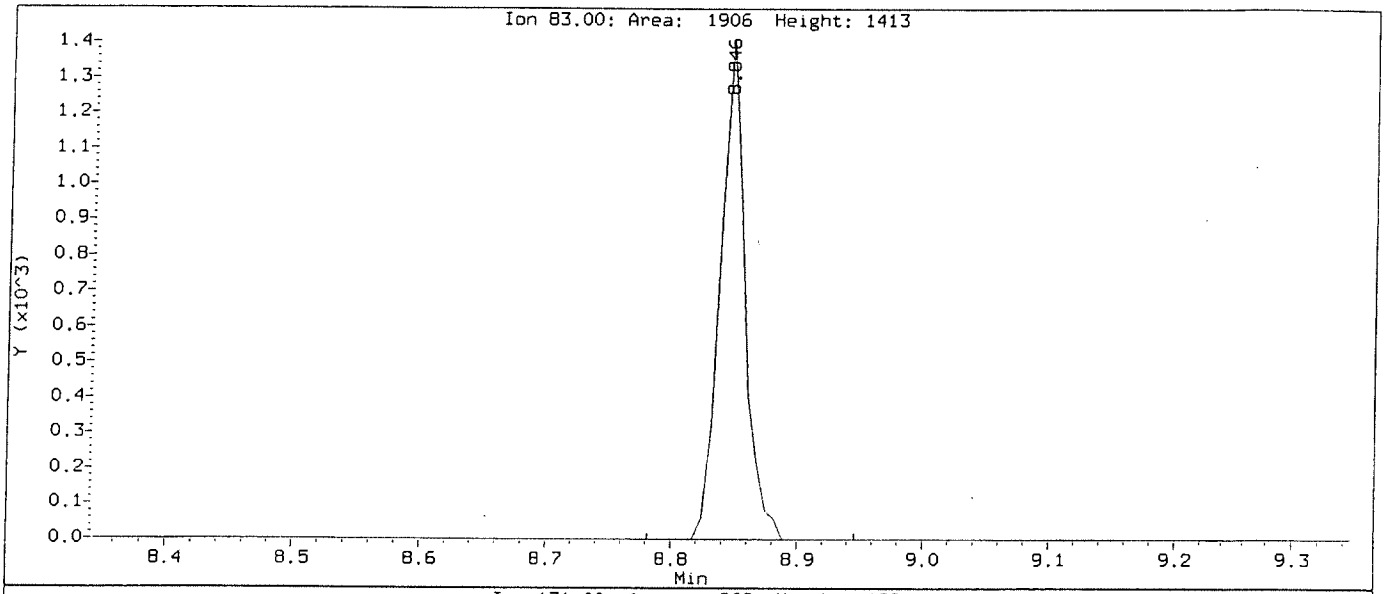


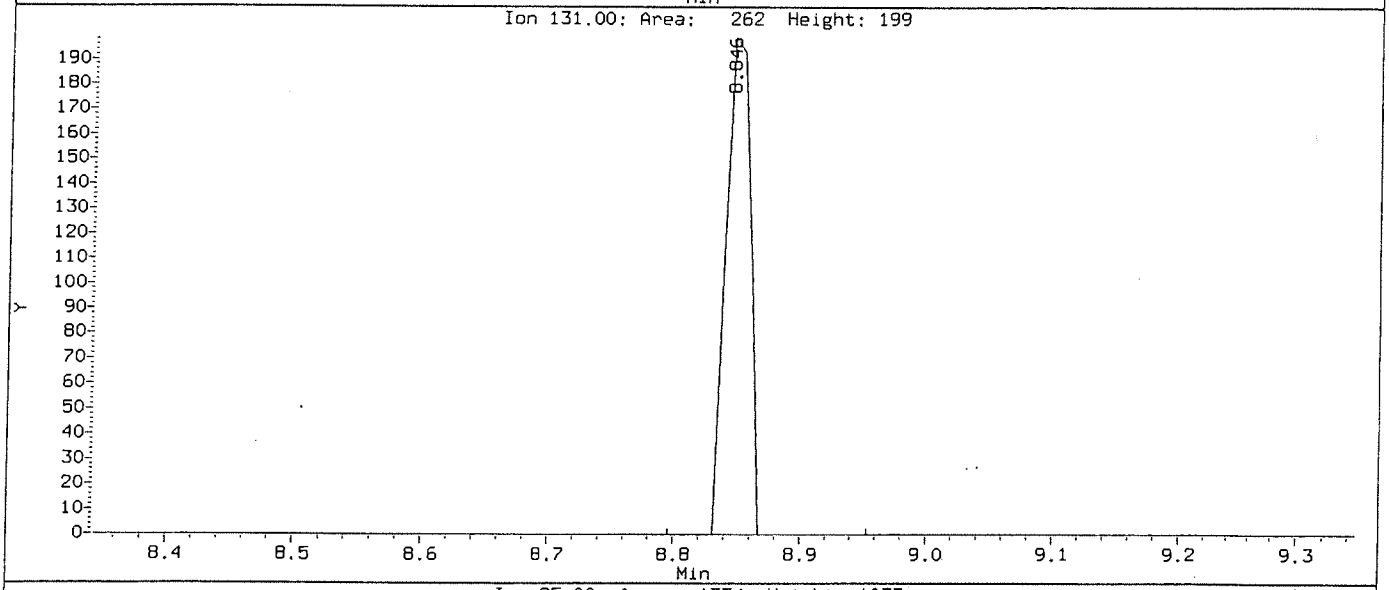


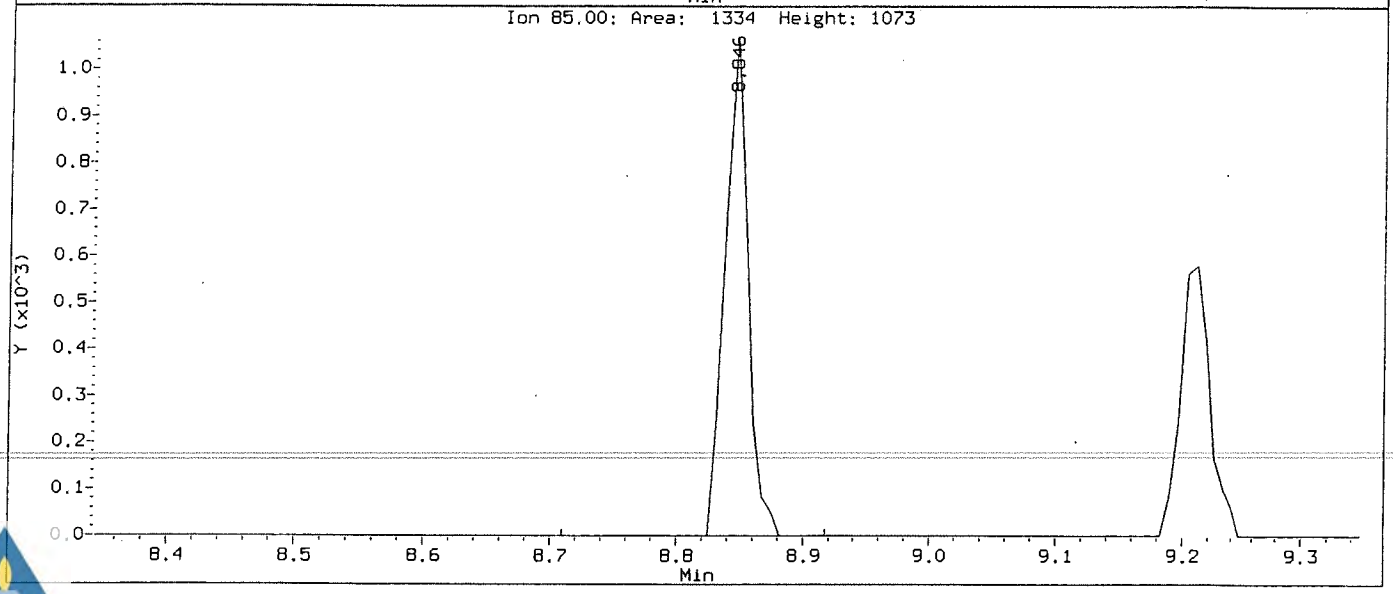


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

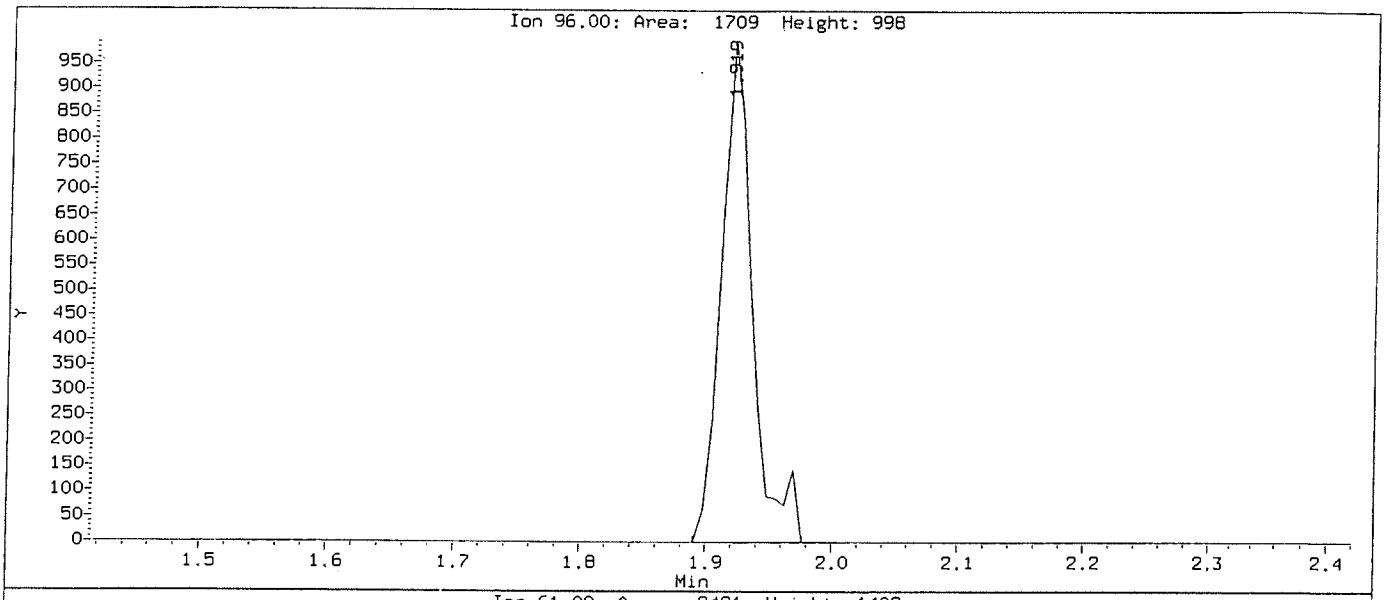


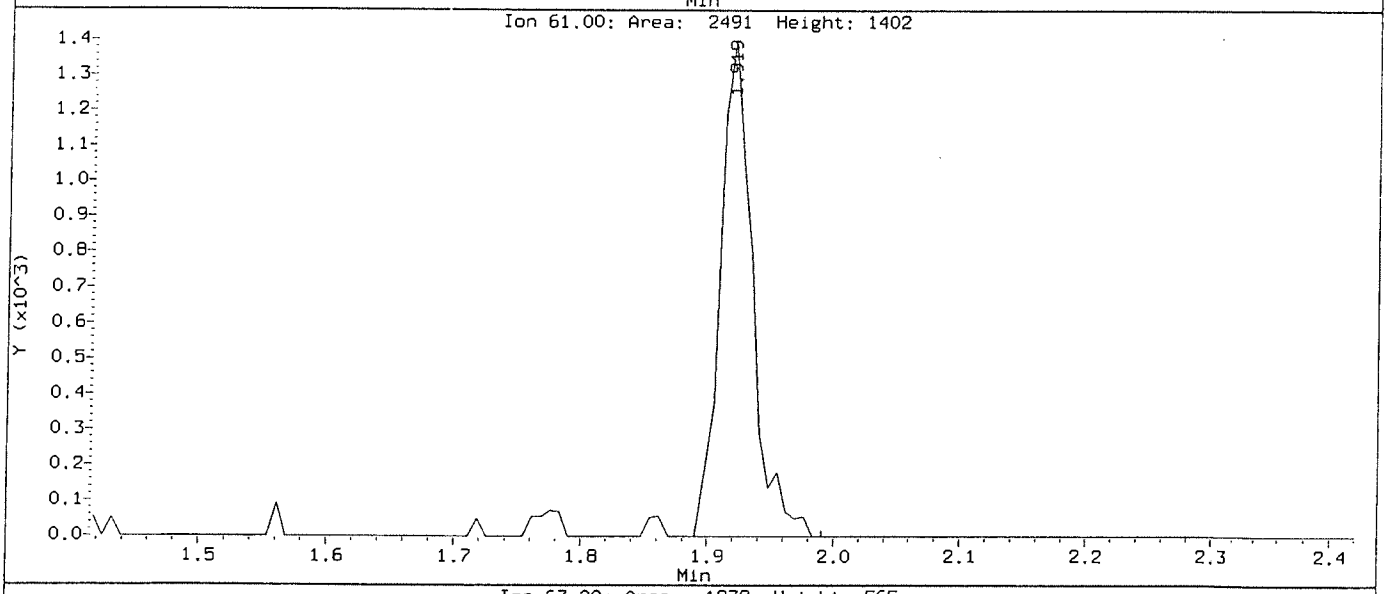


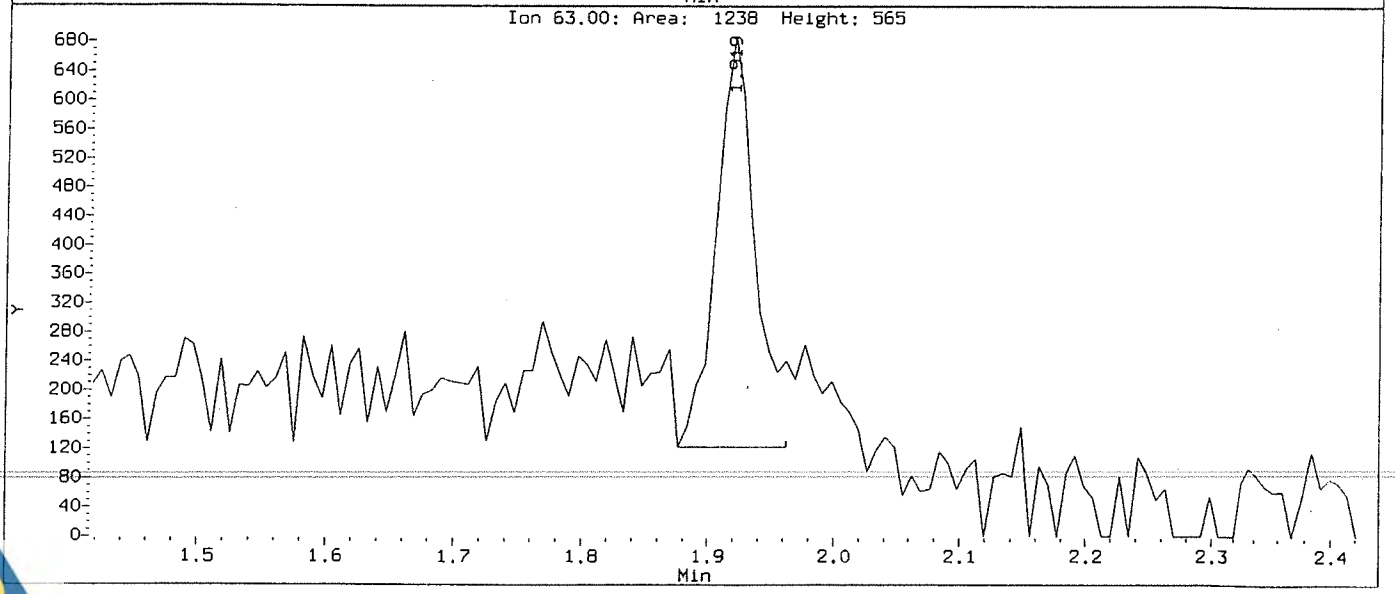


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

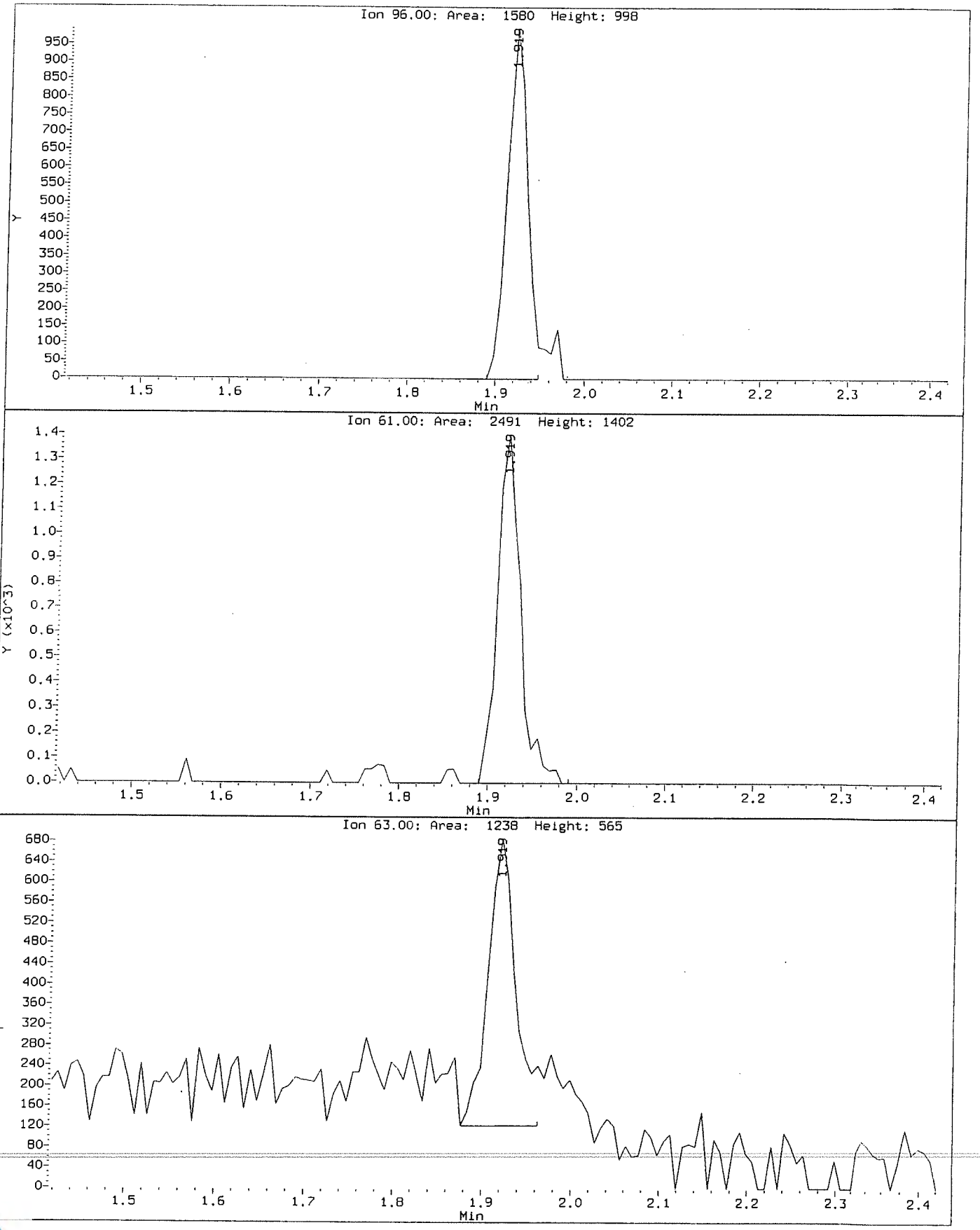






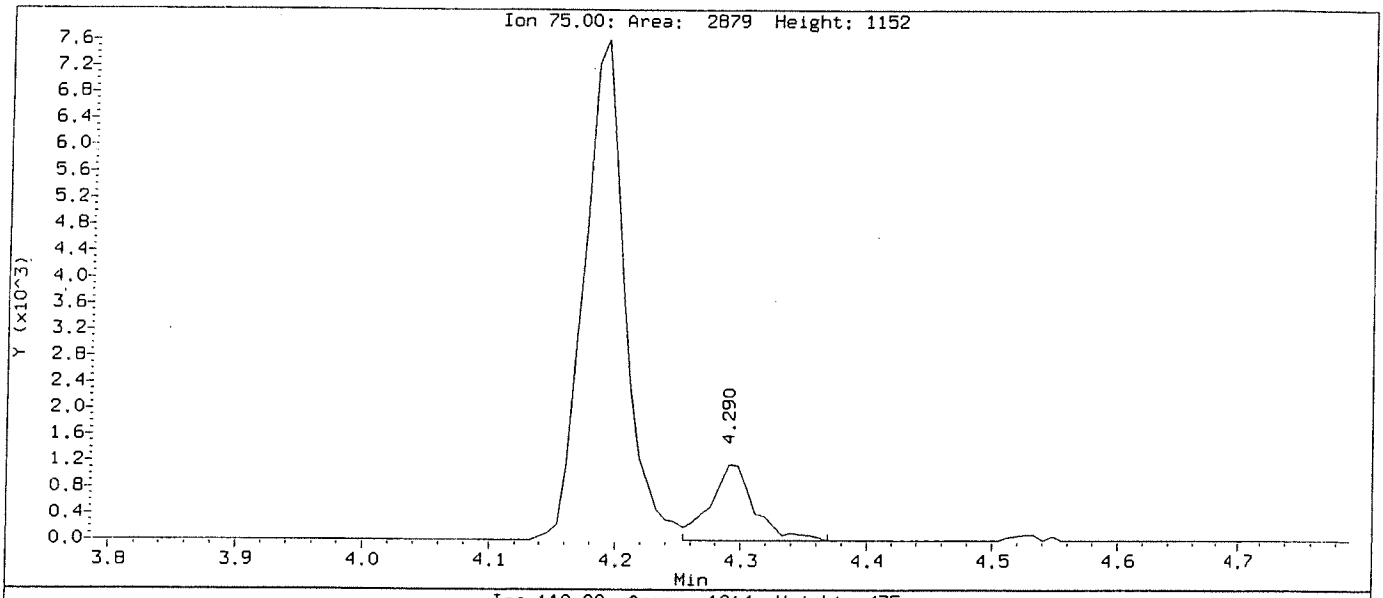
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

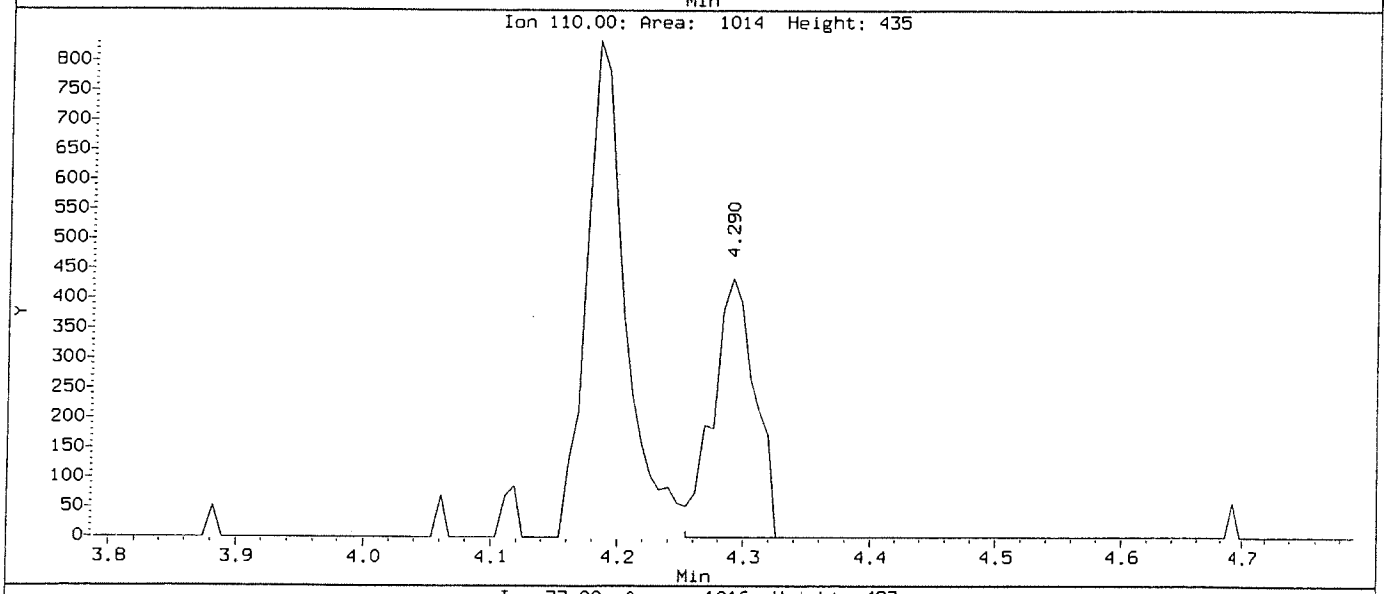
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

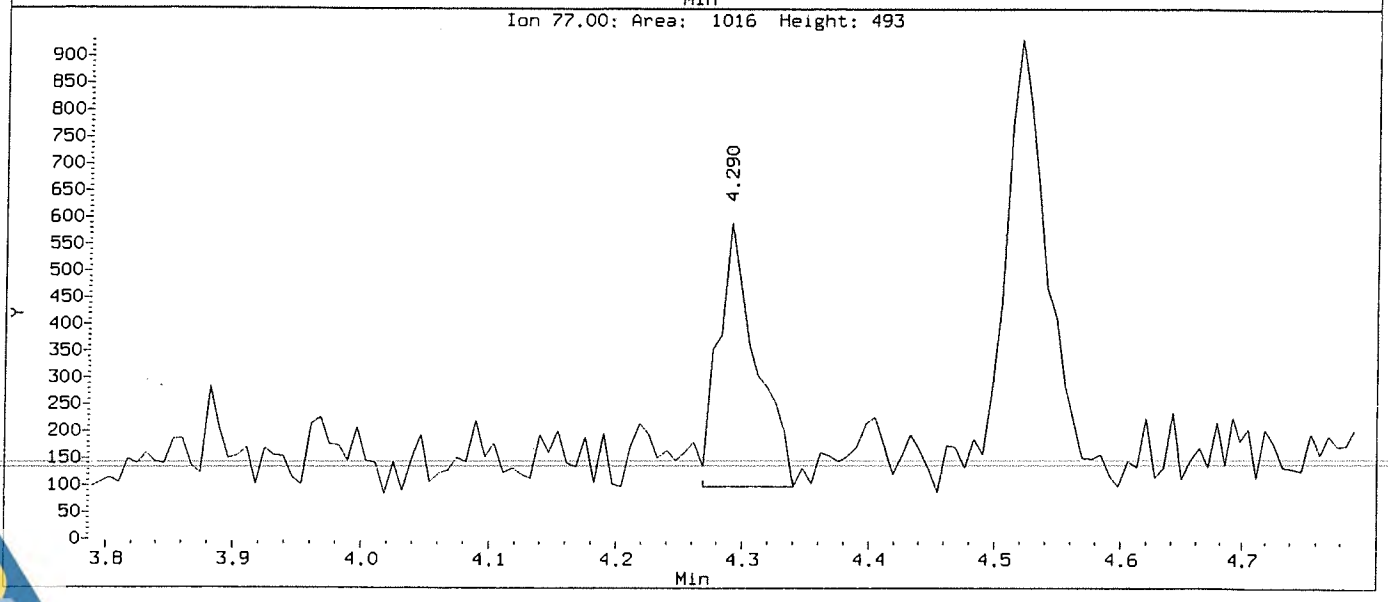


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6

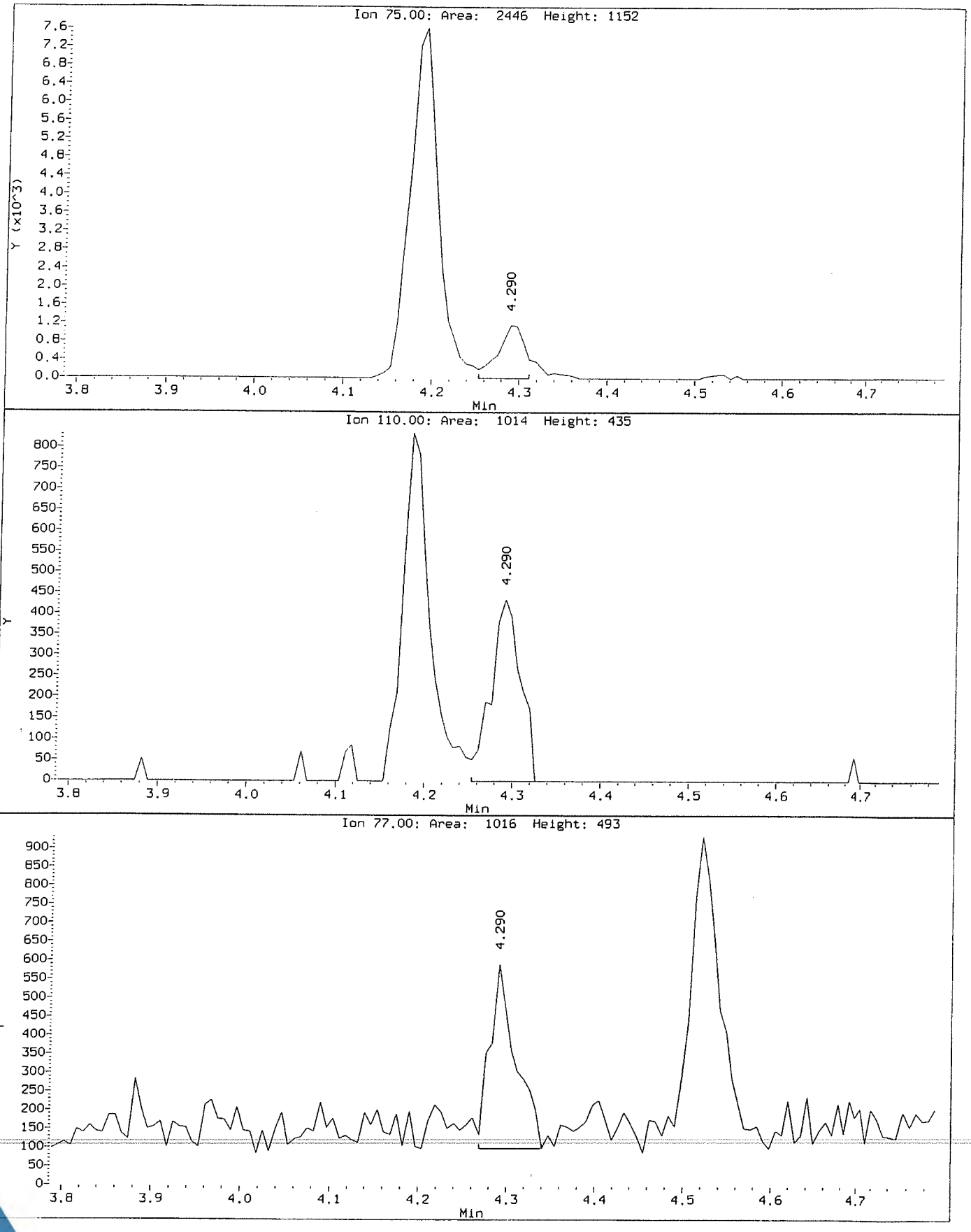






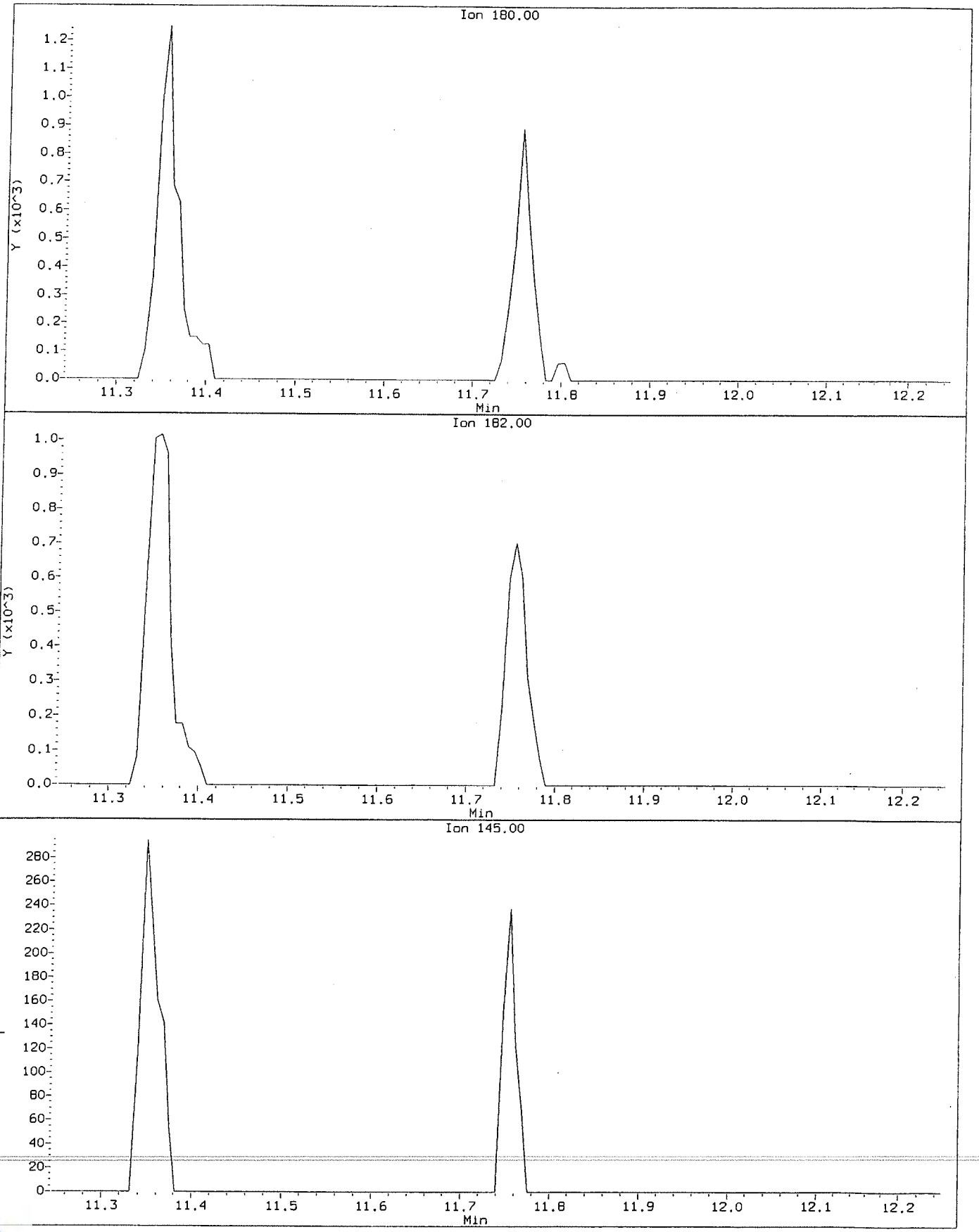
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



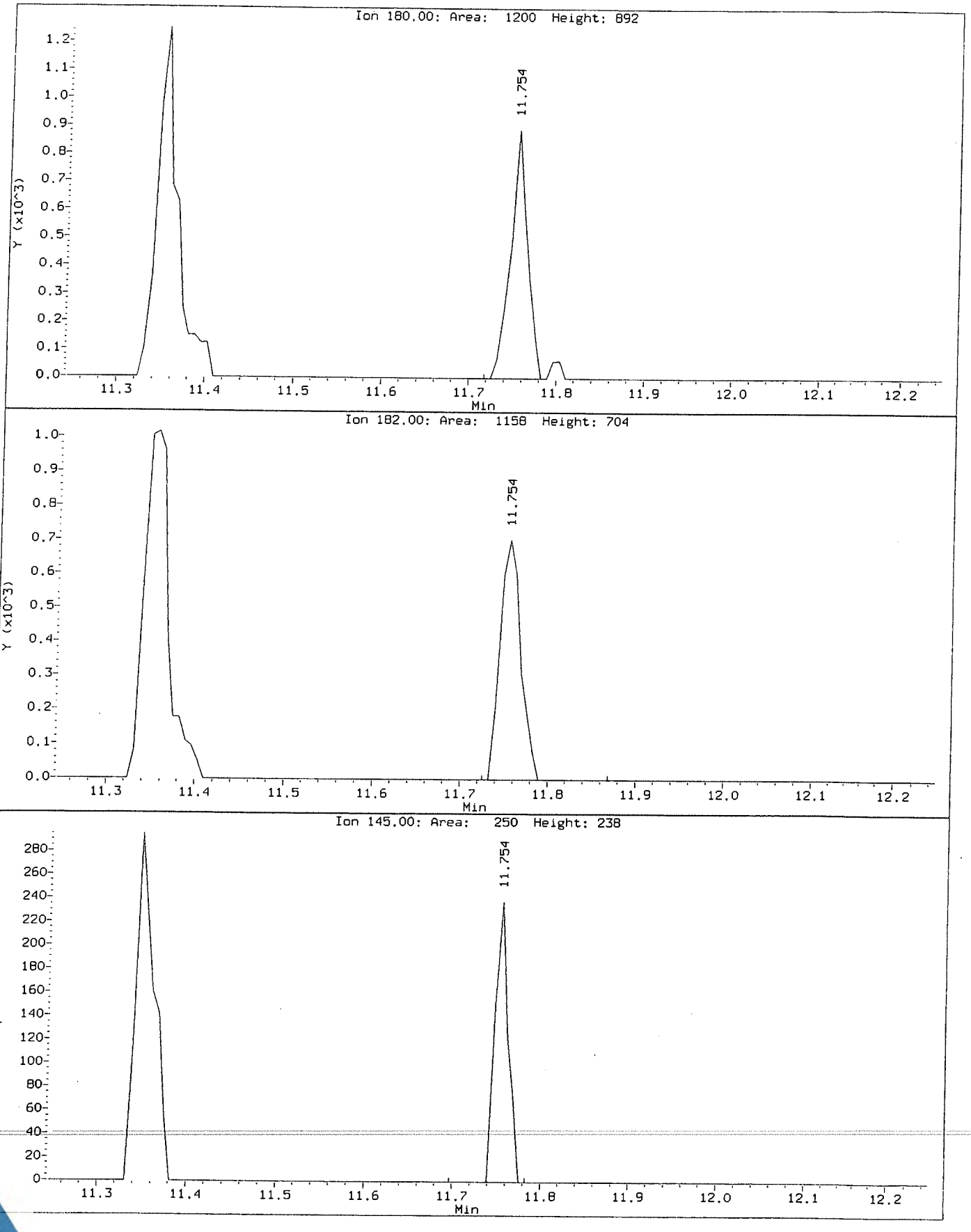
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



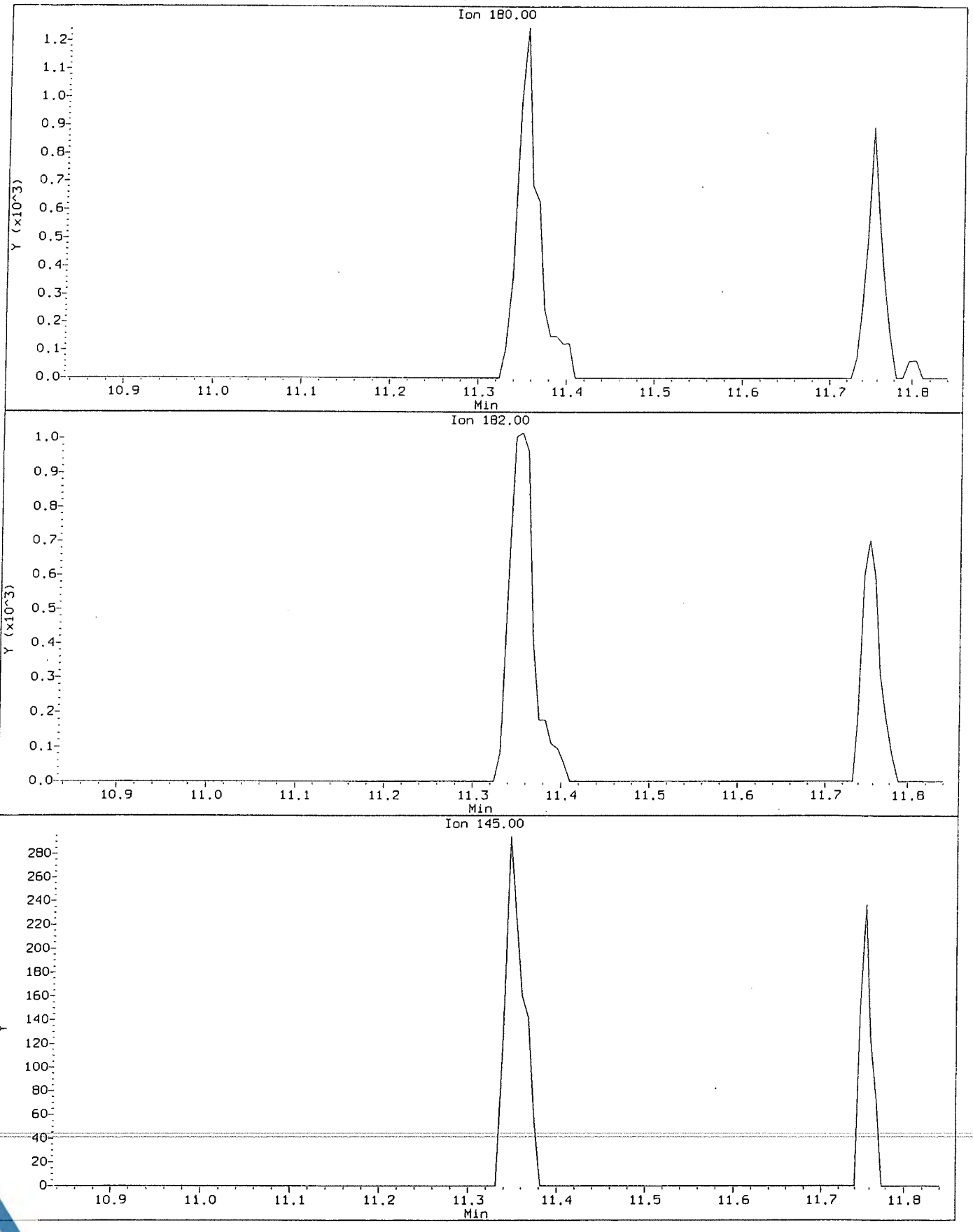
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



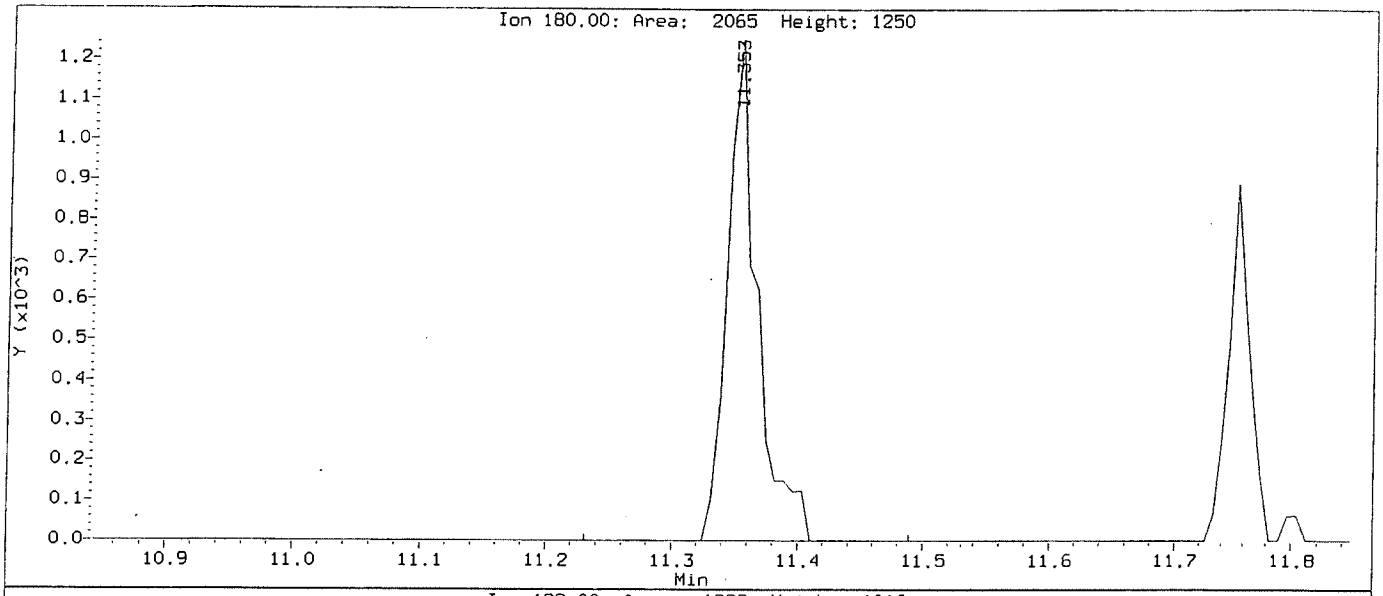
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

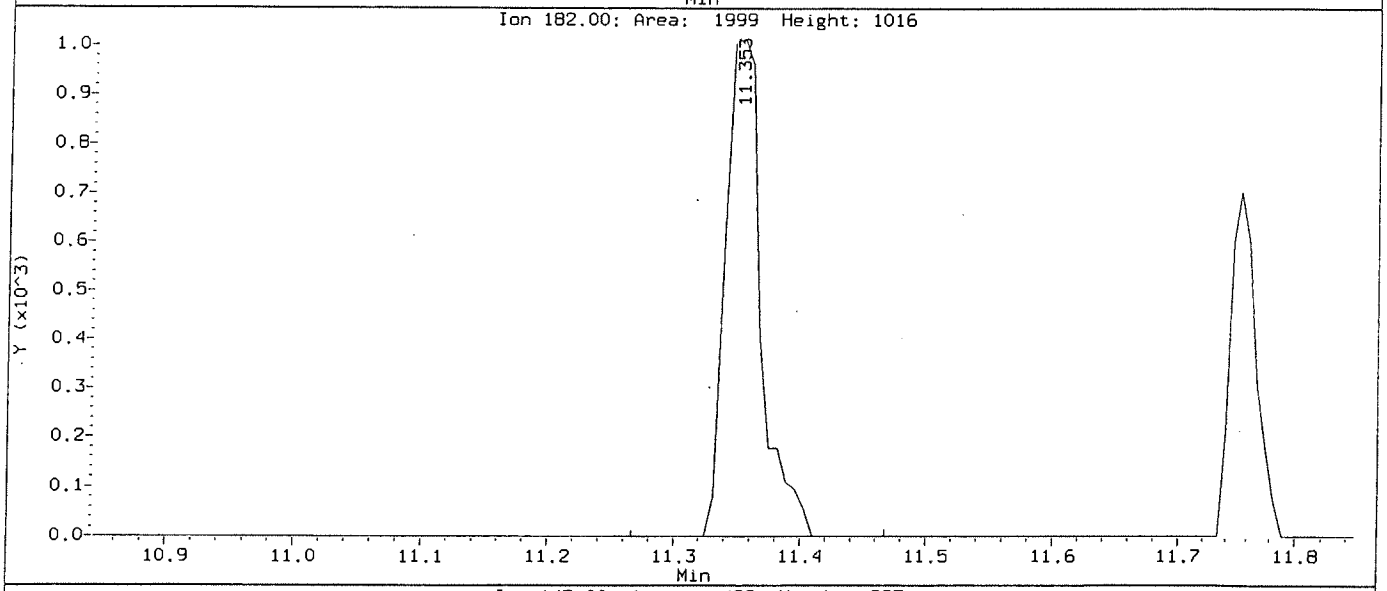
Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1

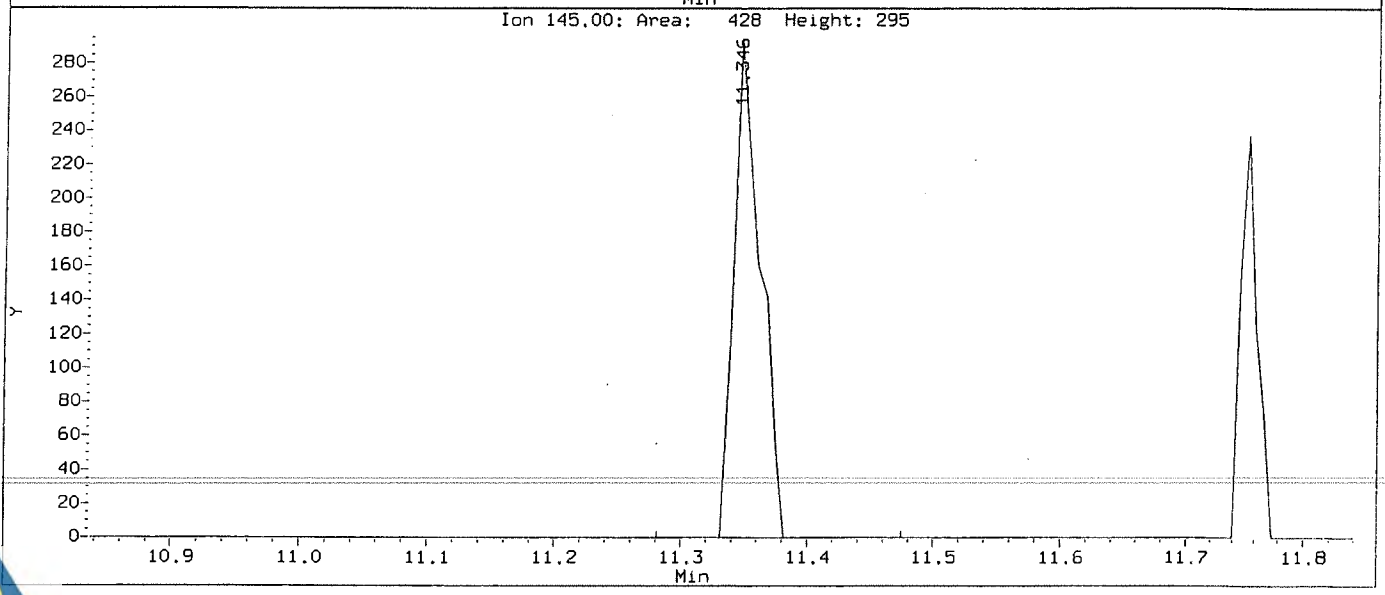


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1

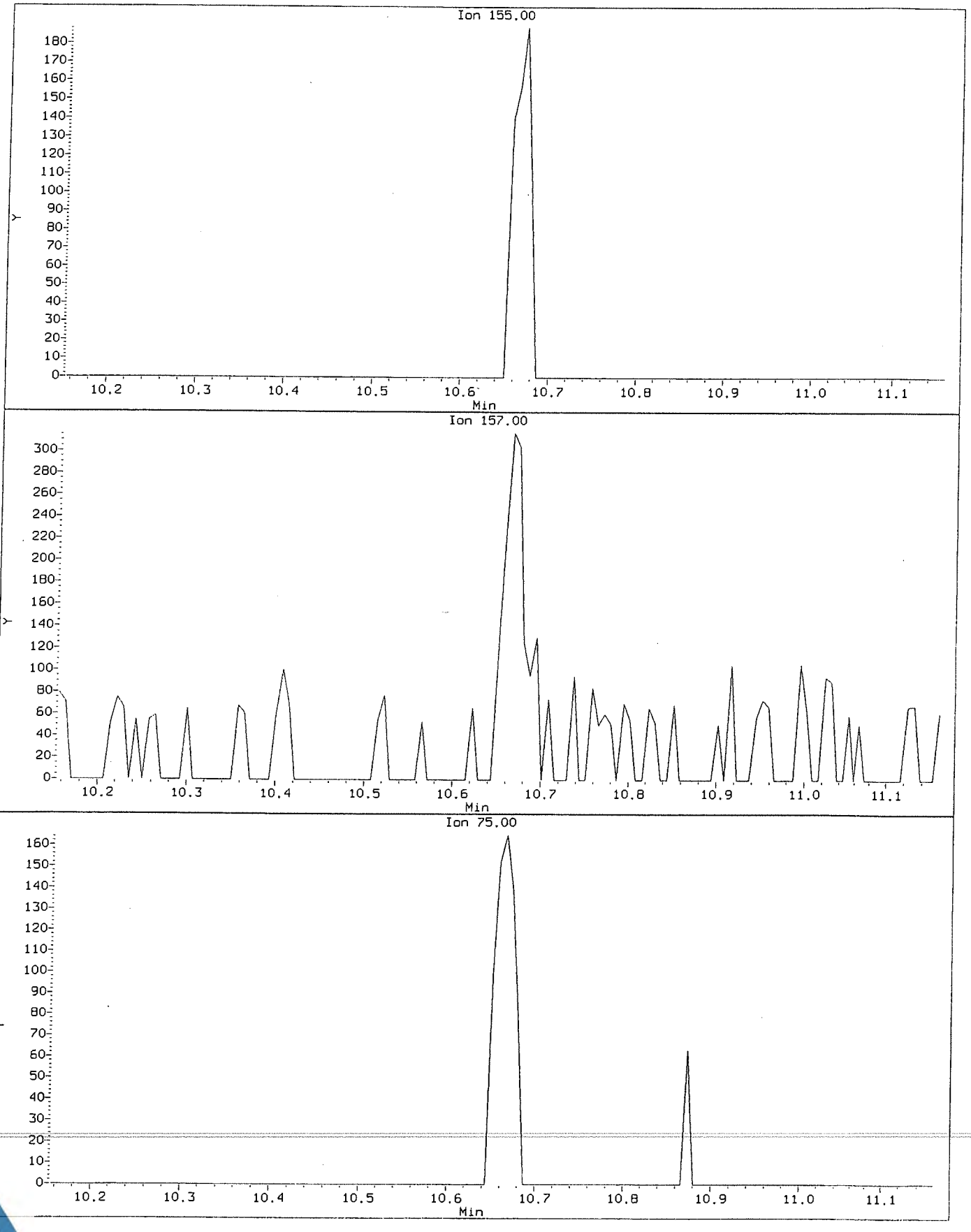






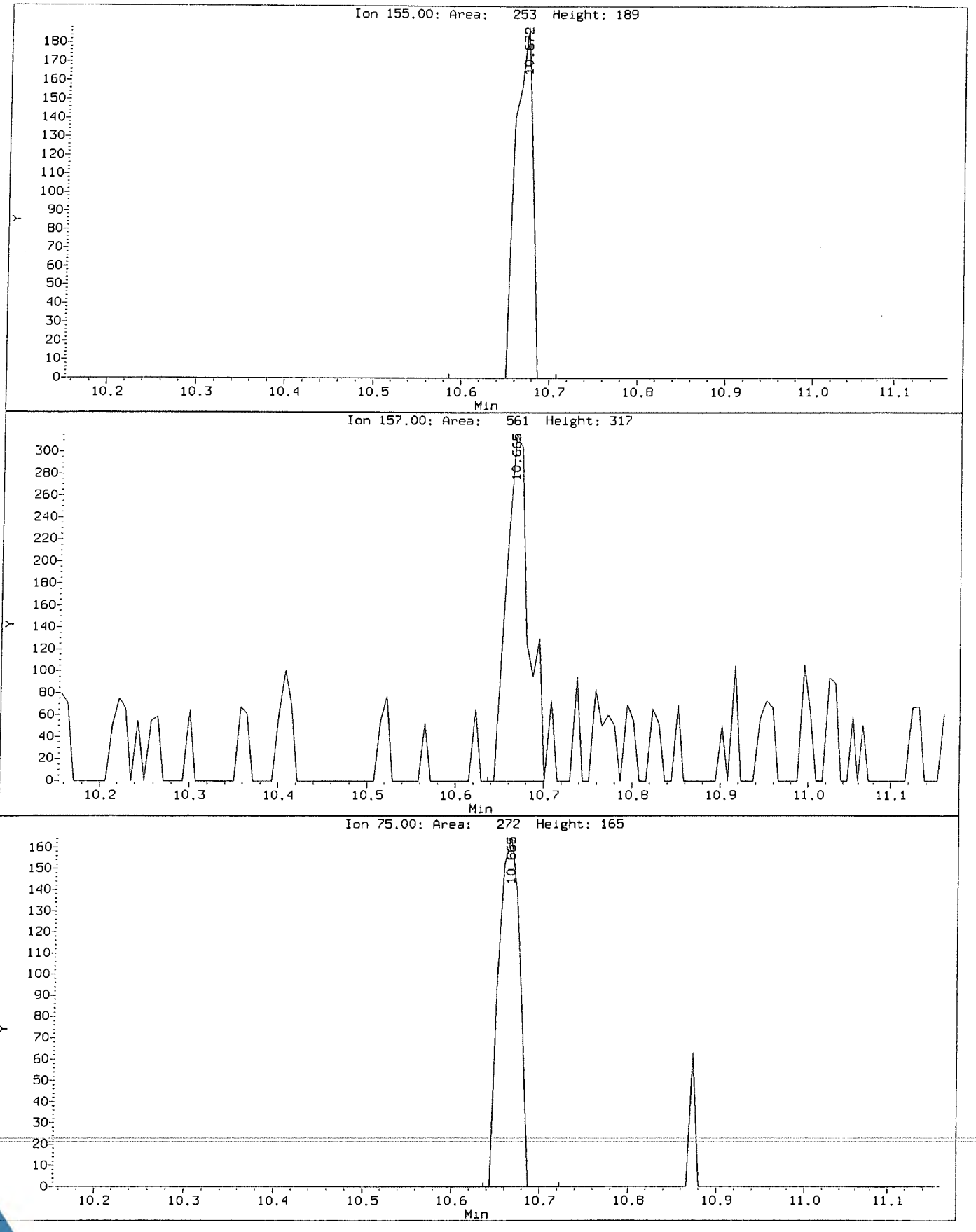
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



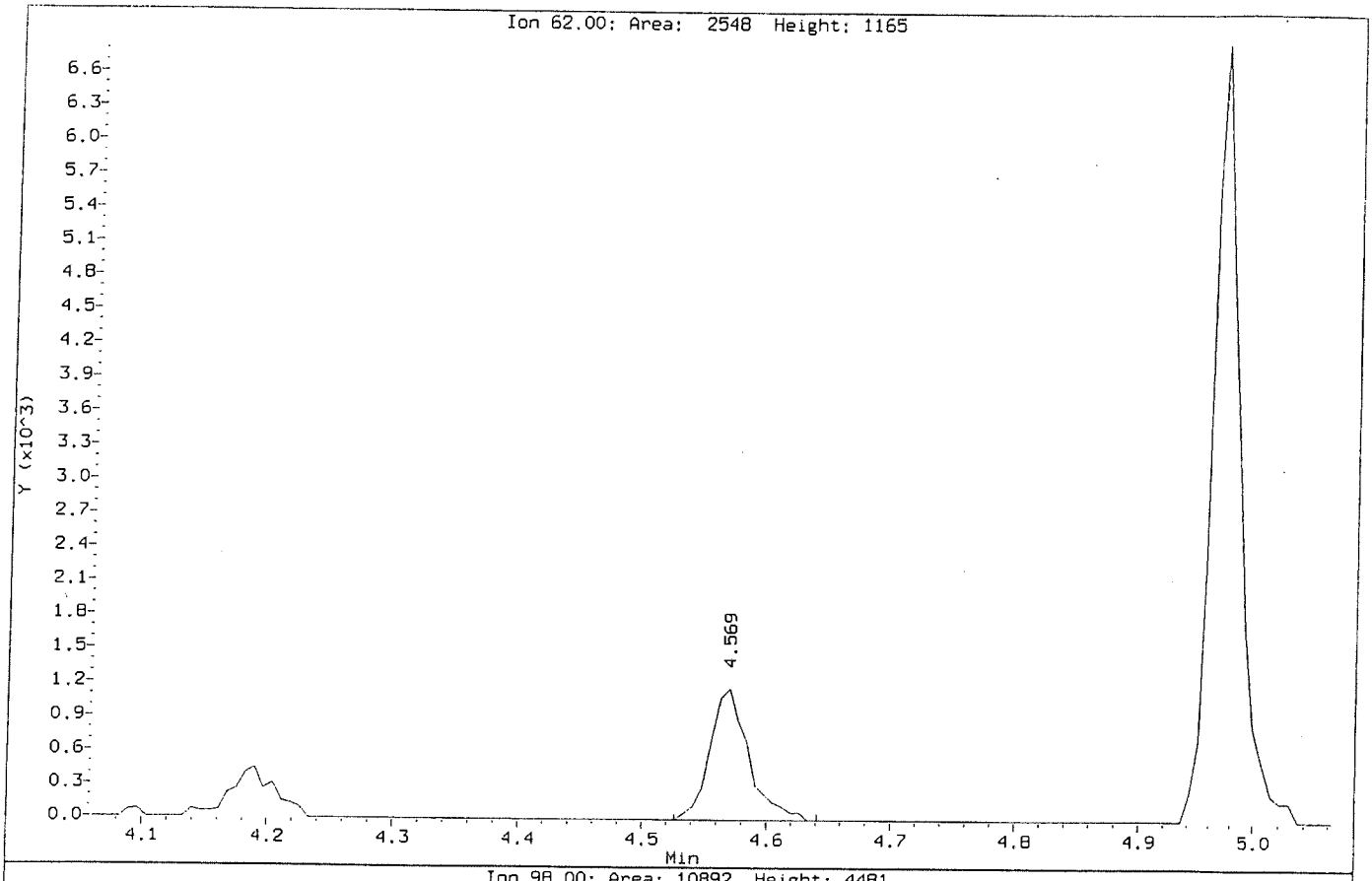
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

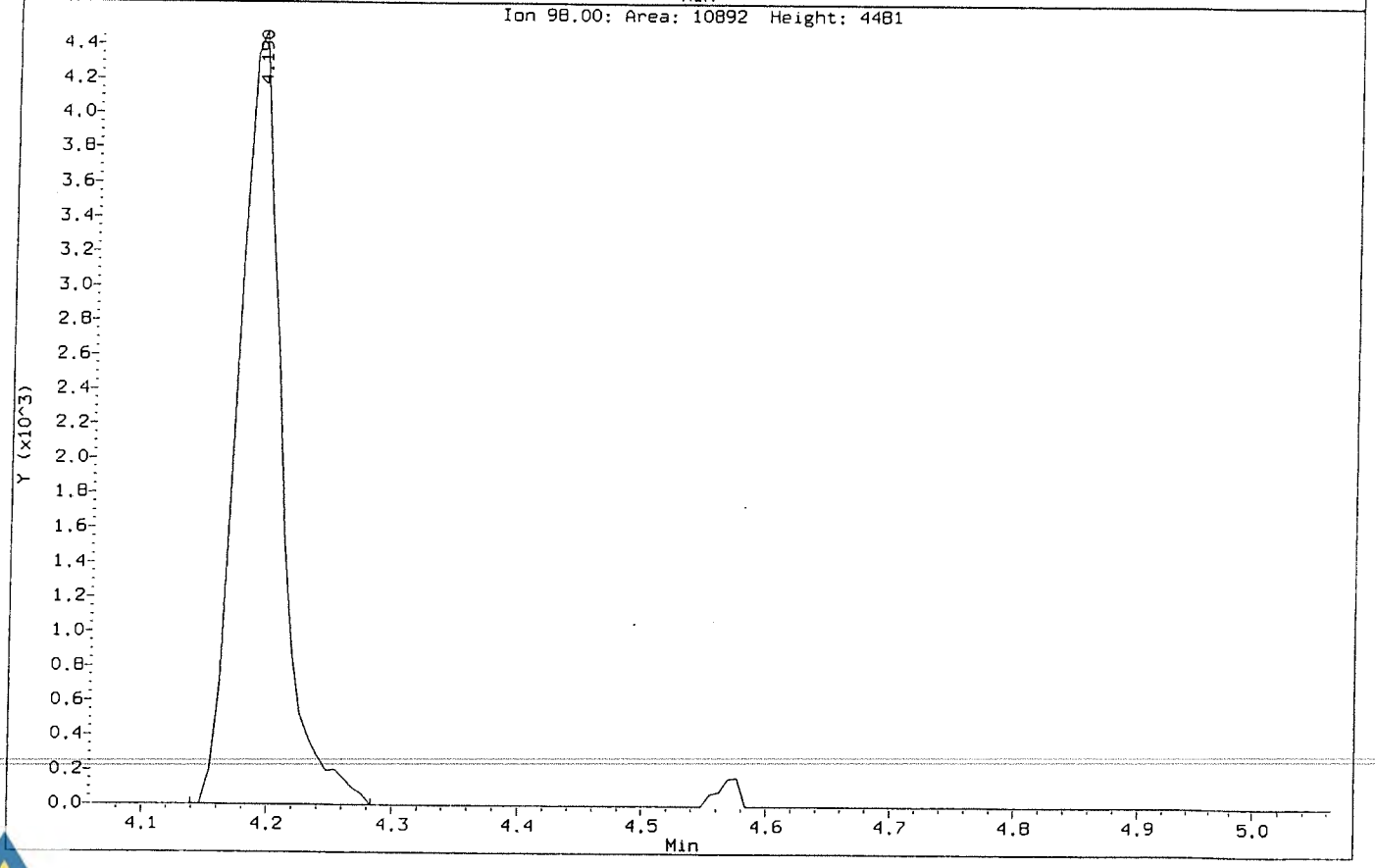
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

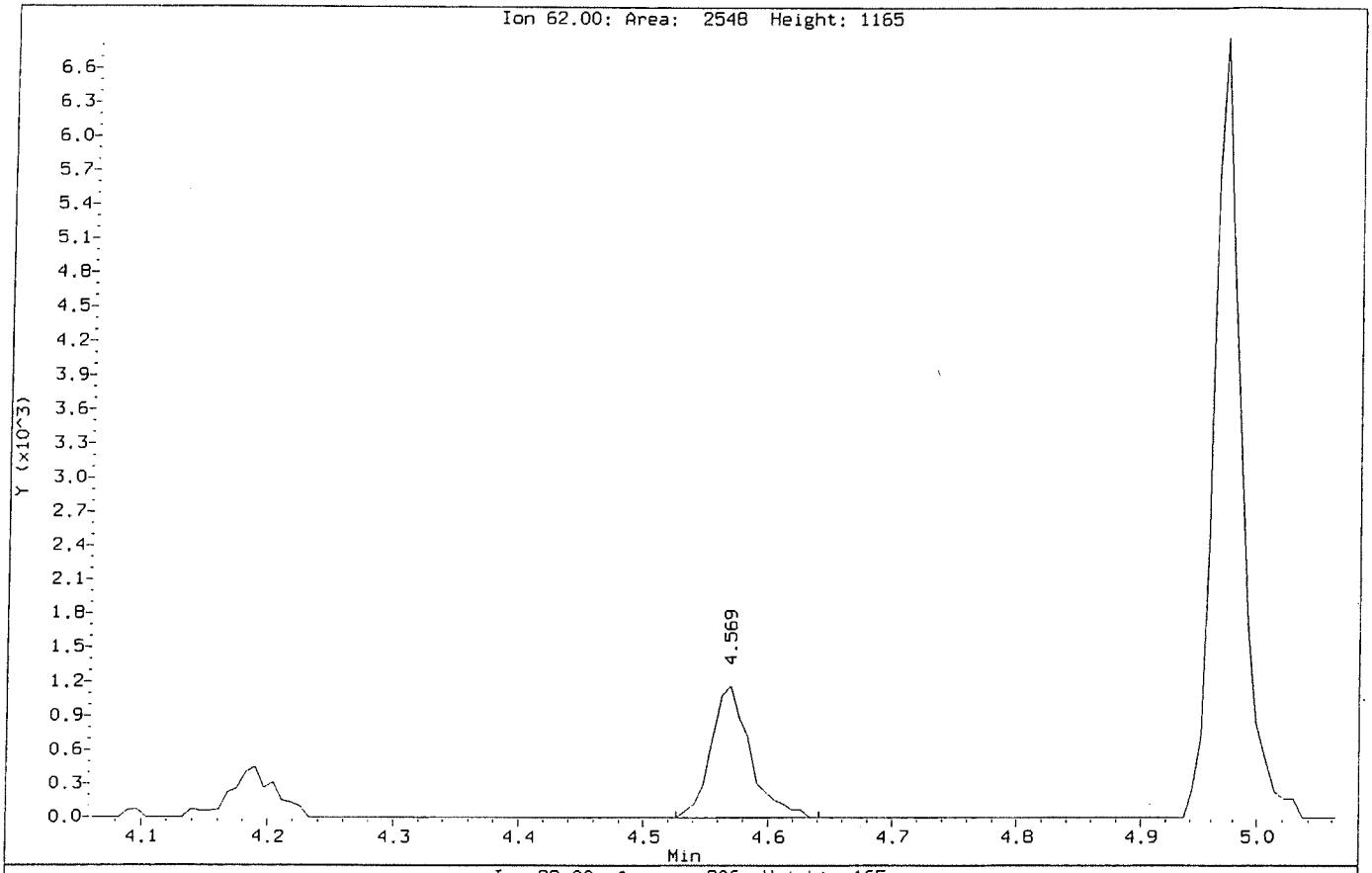
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

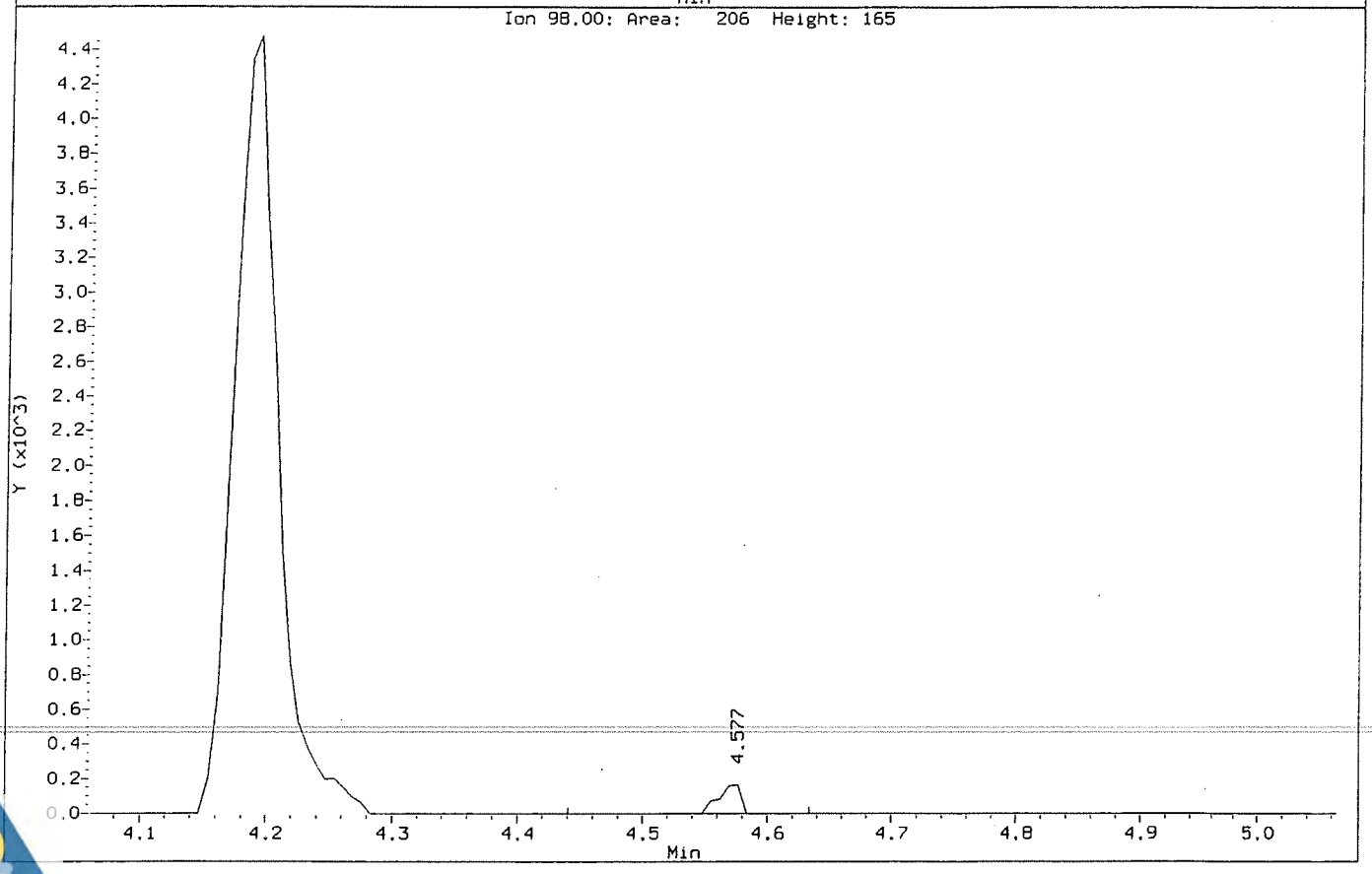




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

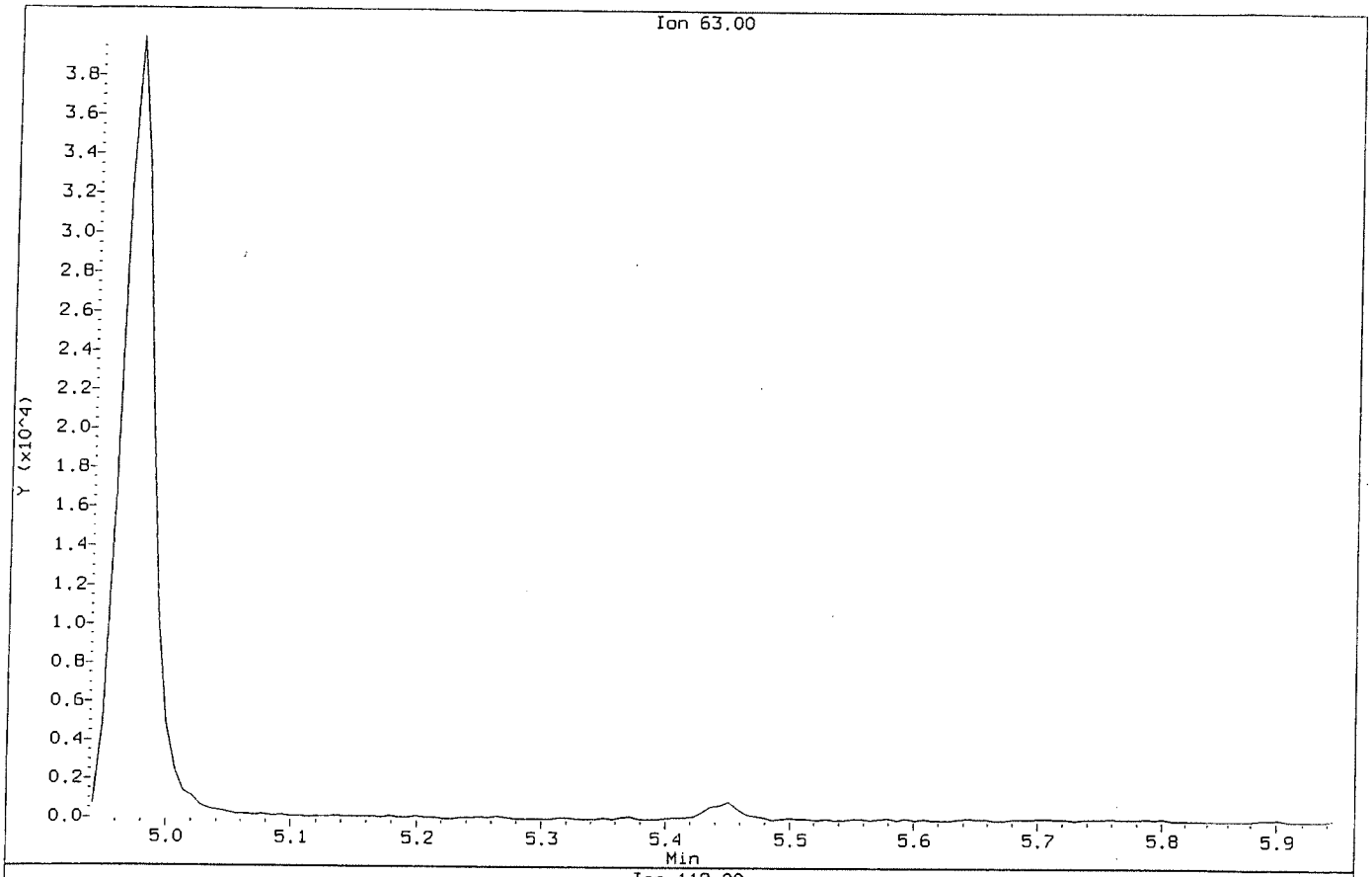
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

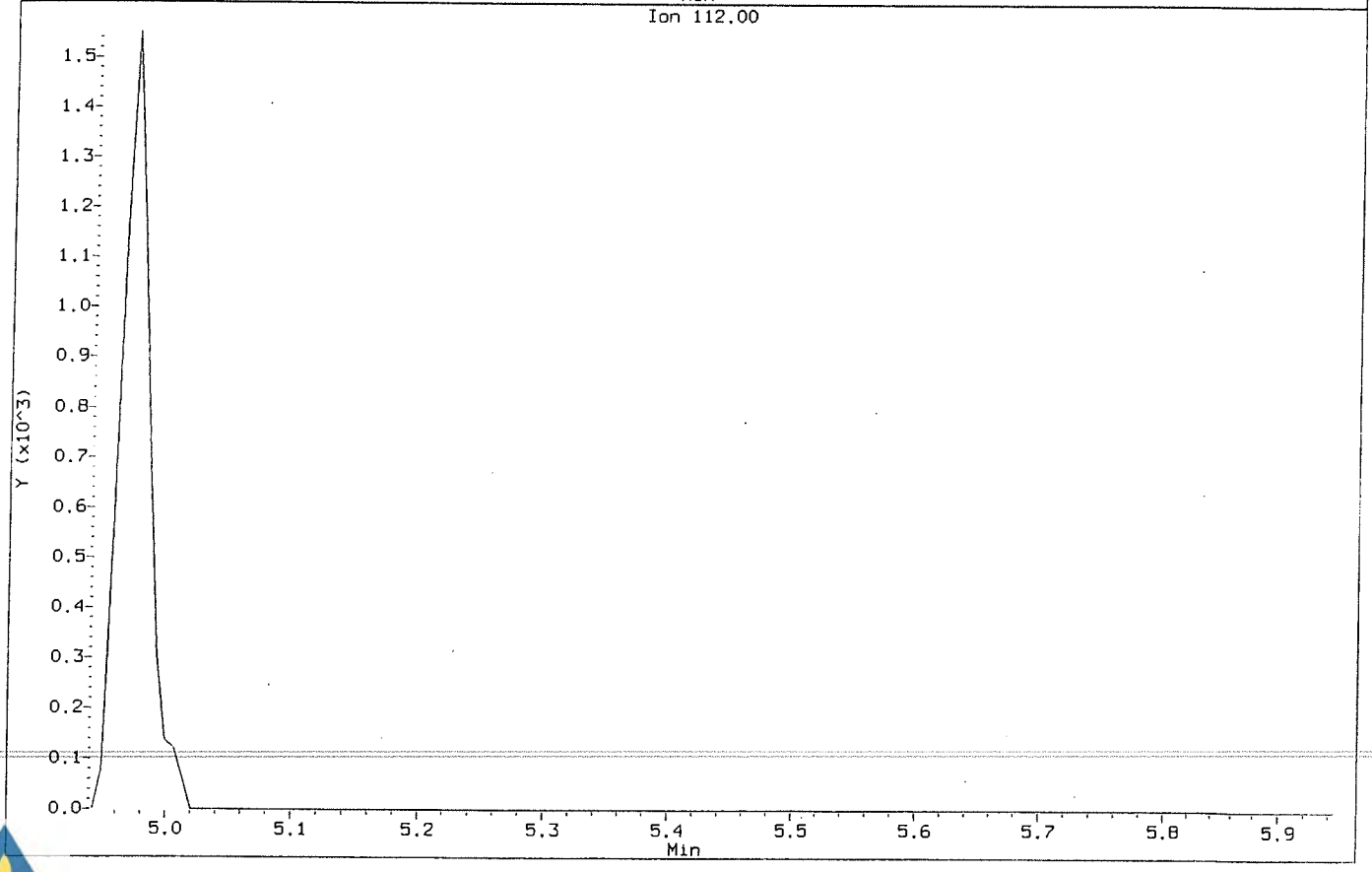




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

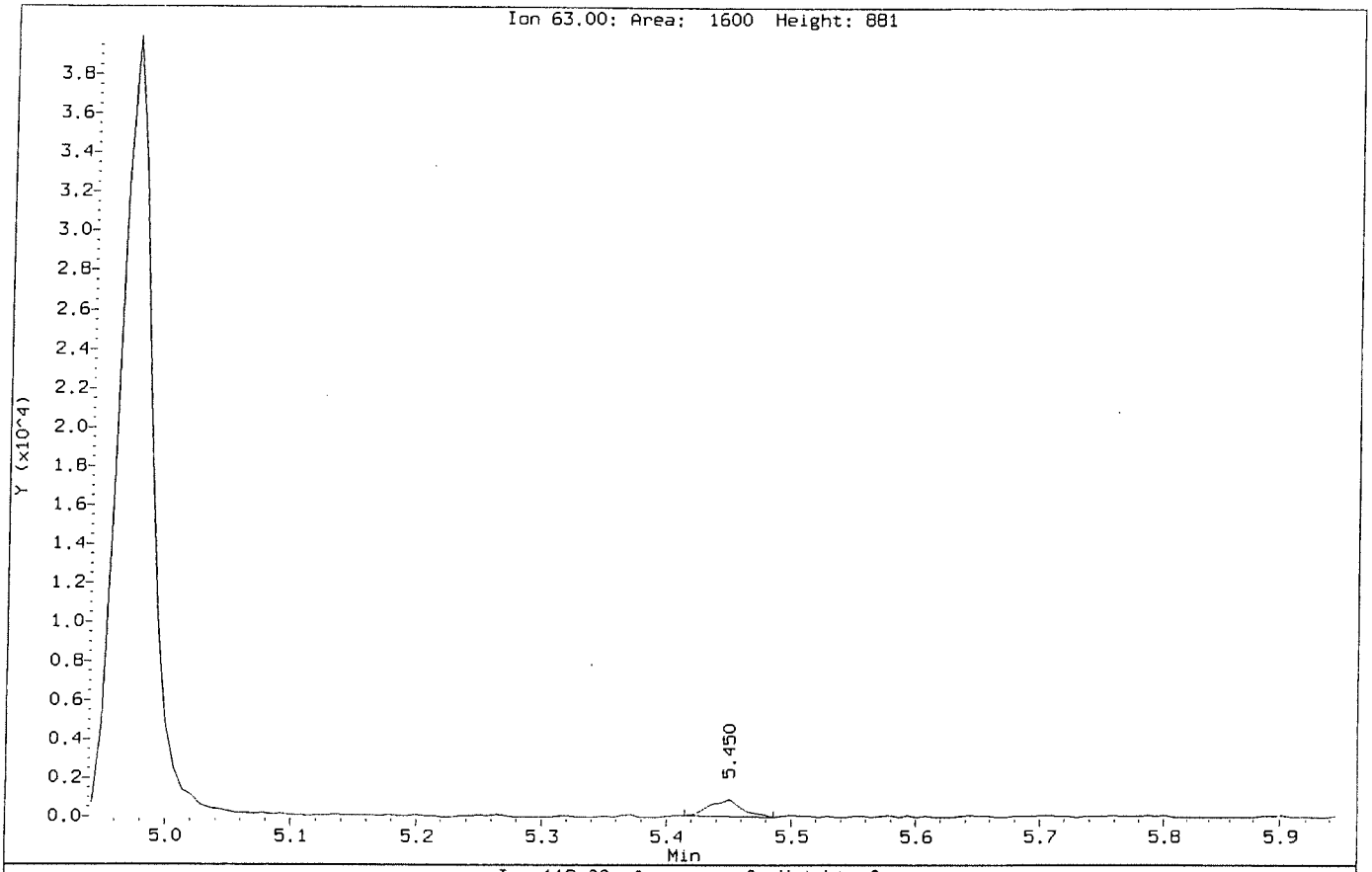
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

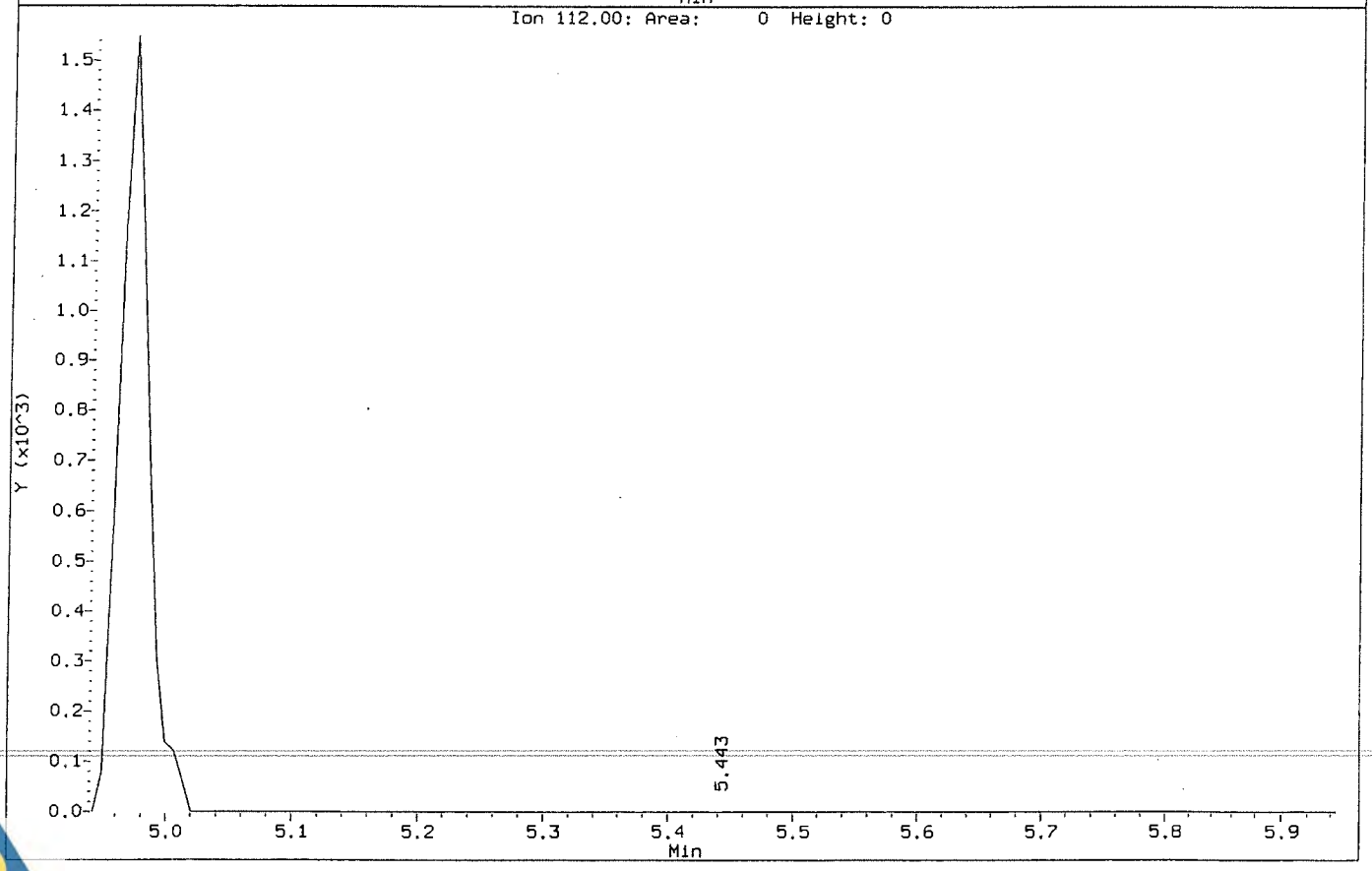




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

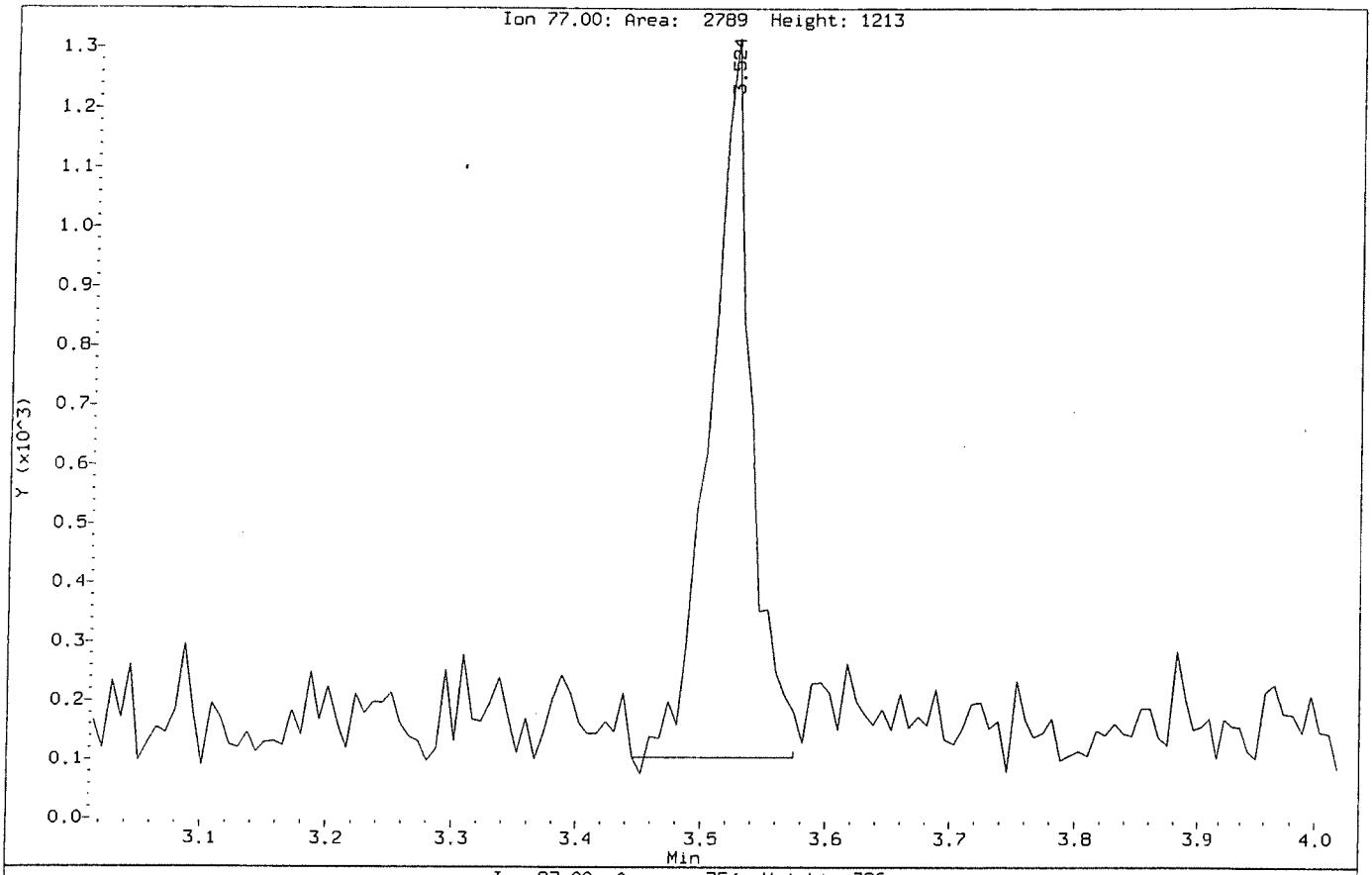
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

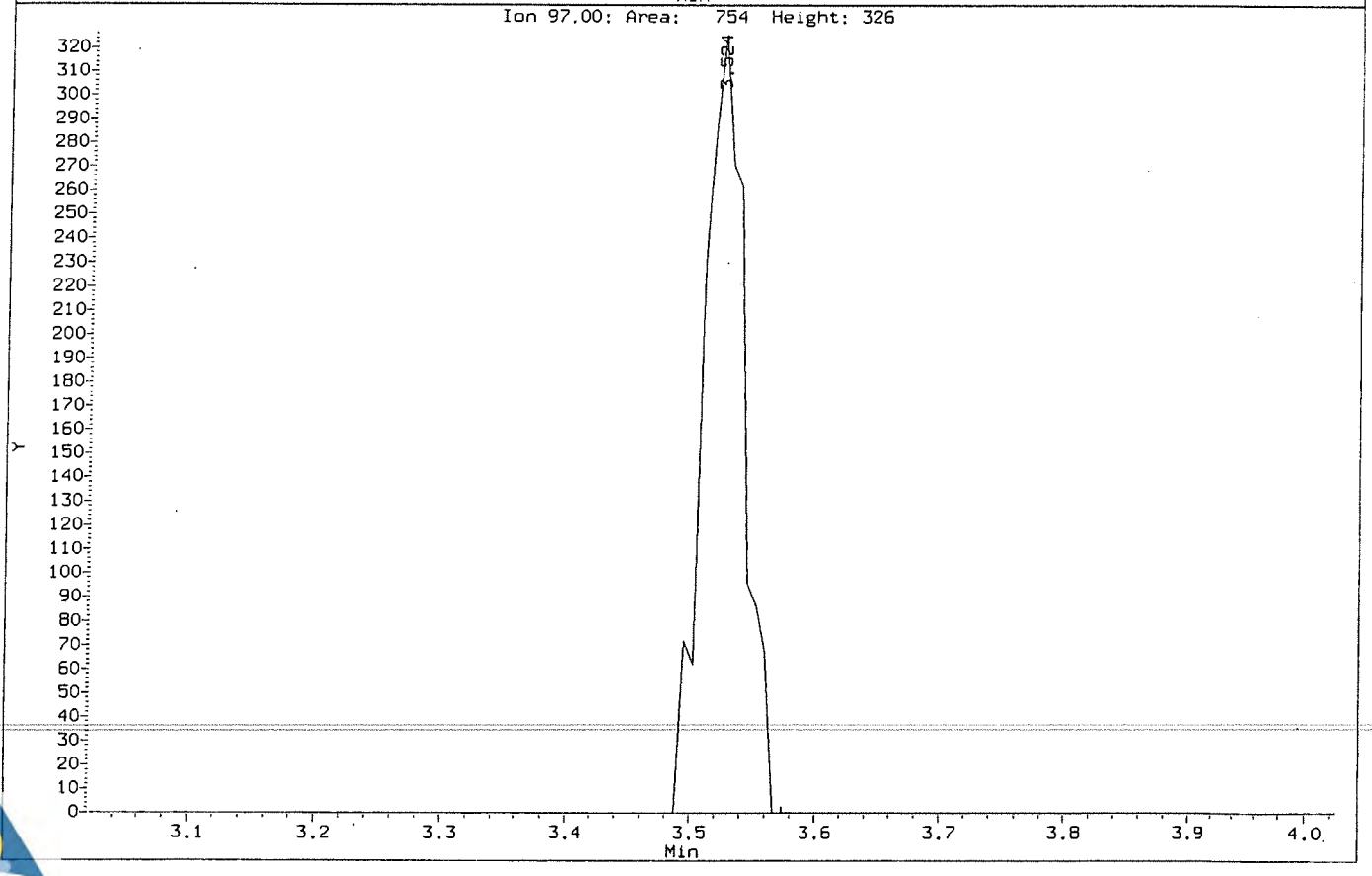




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

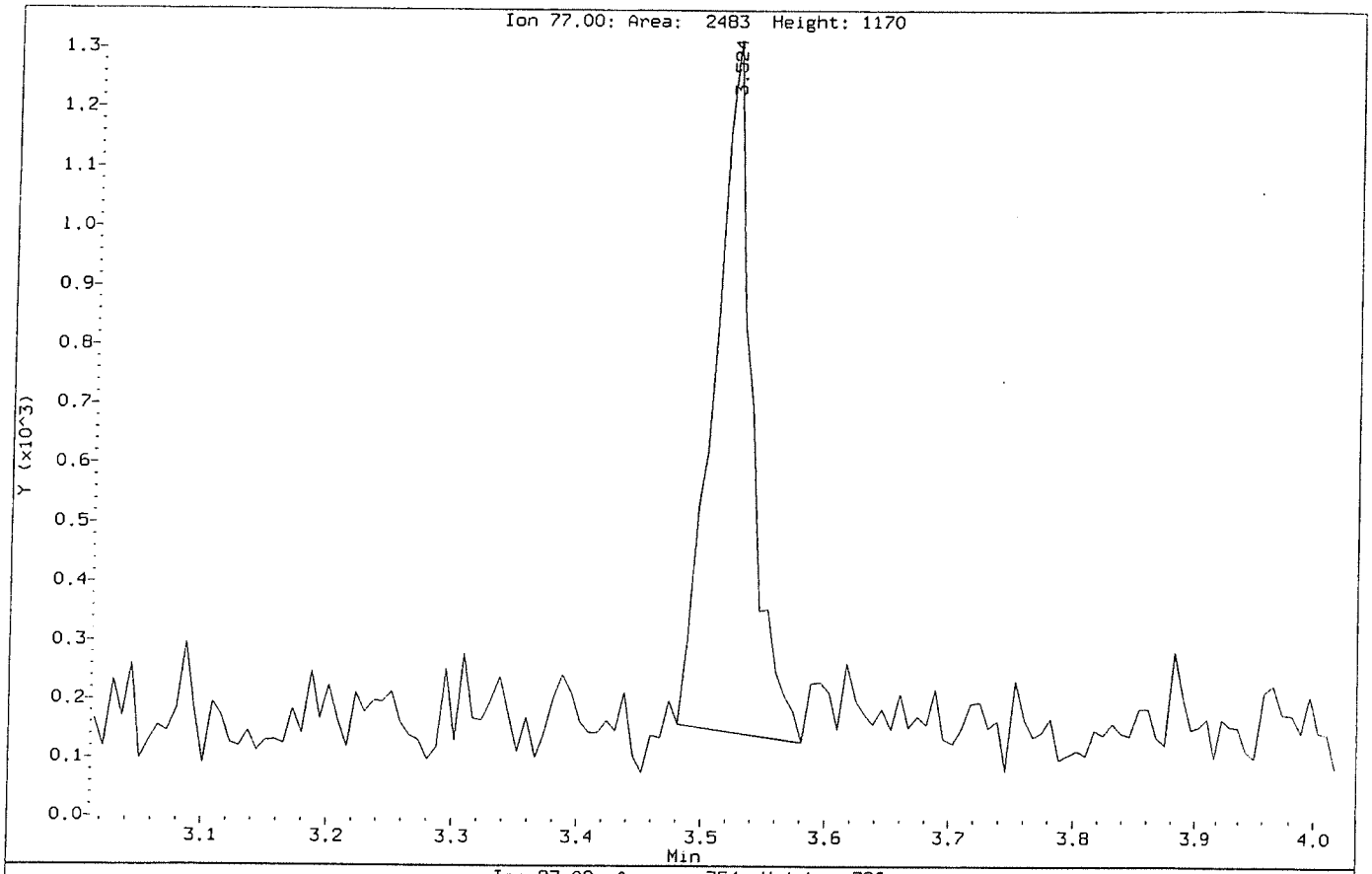
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

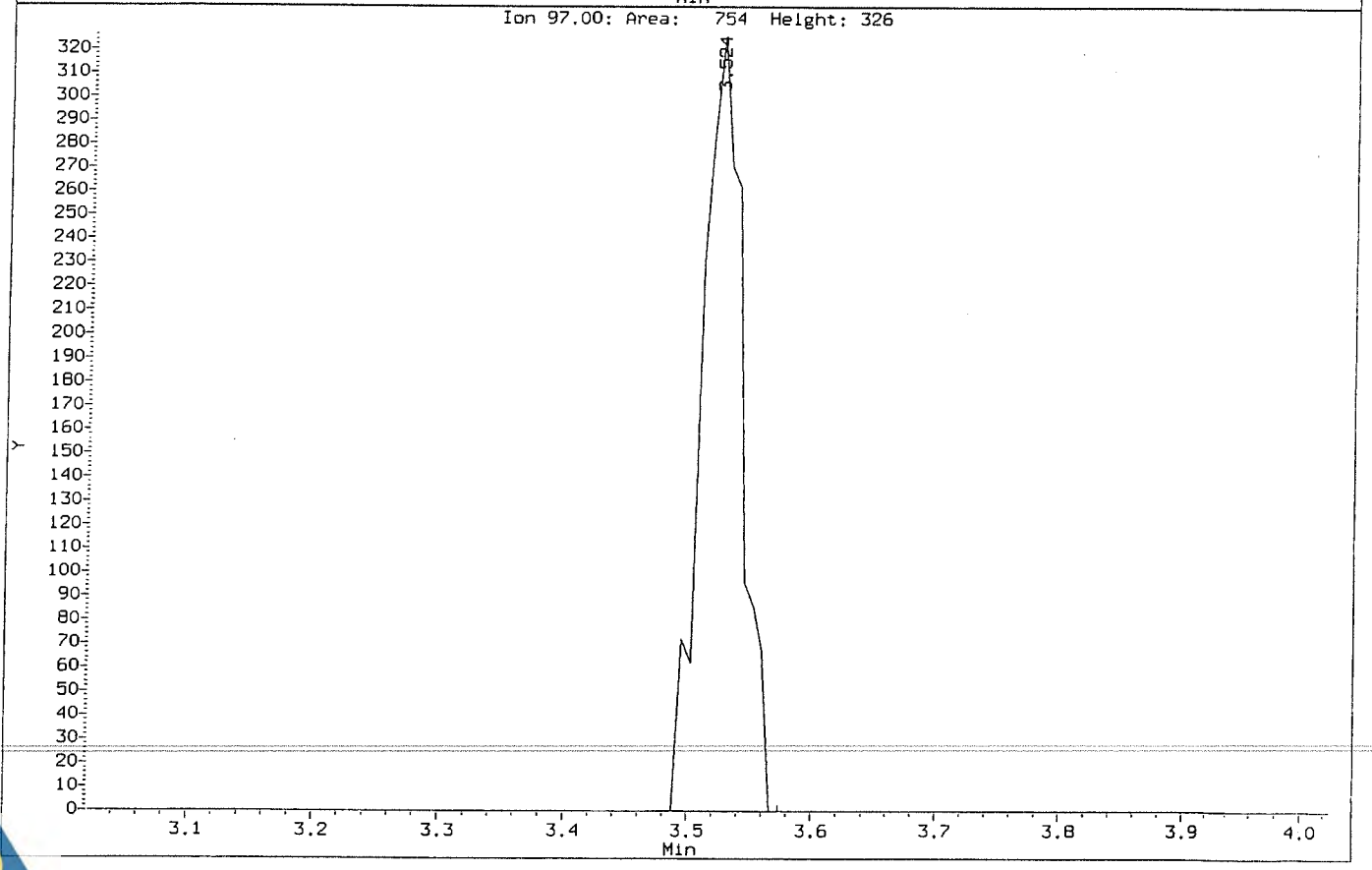




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

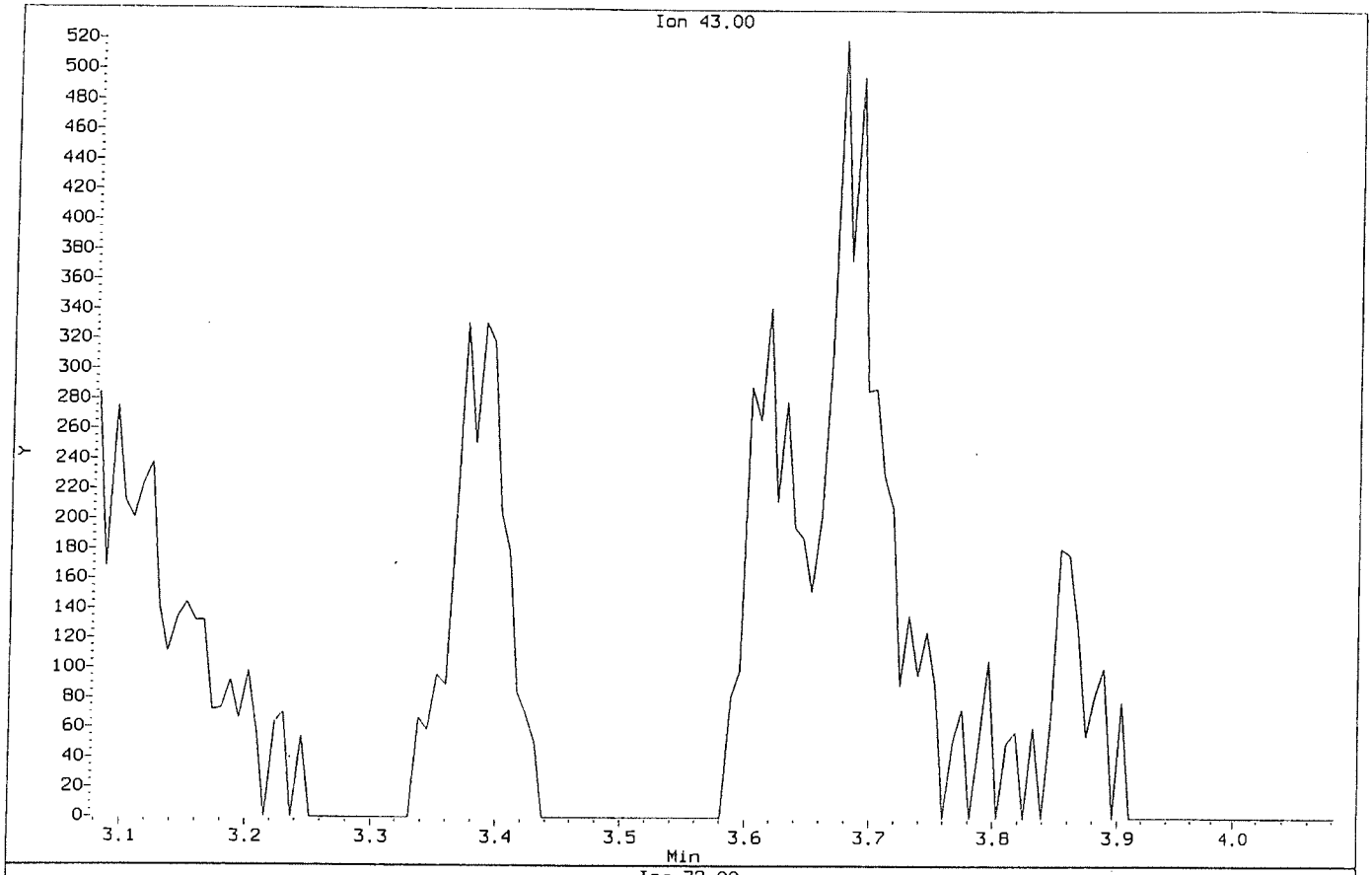
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

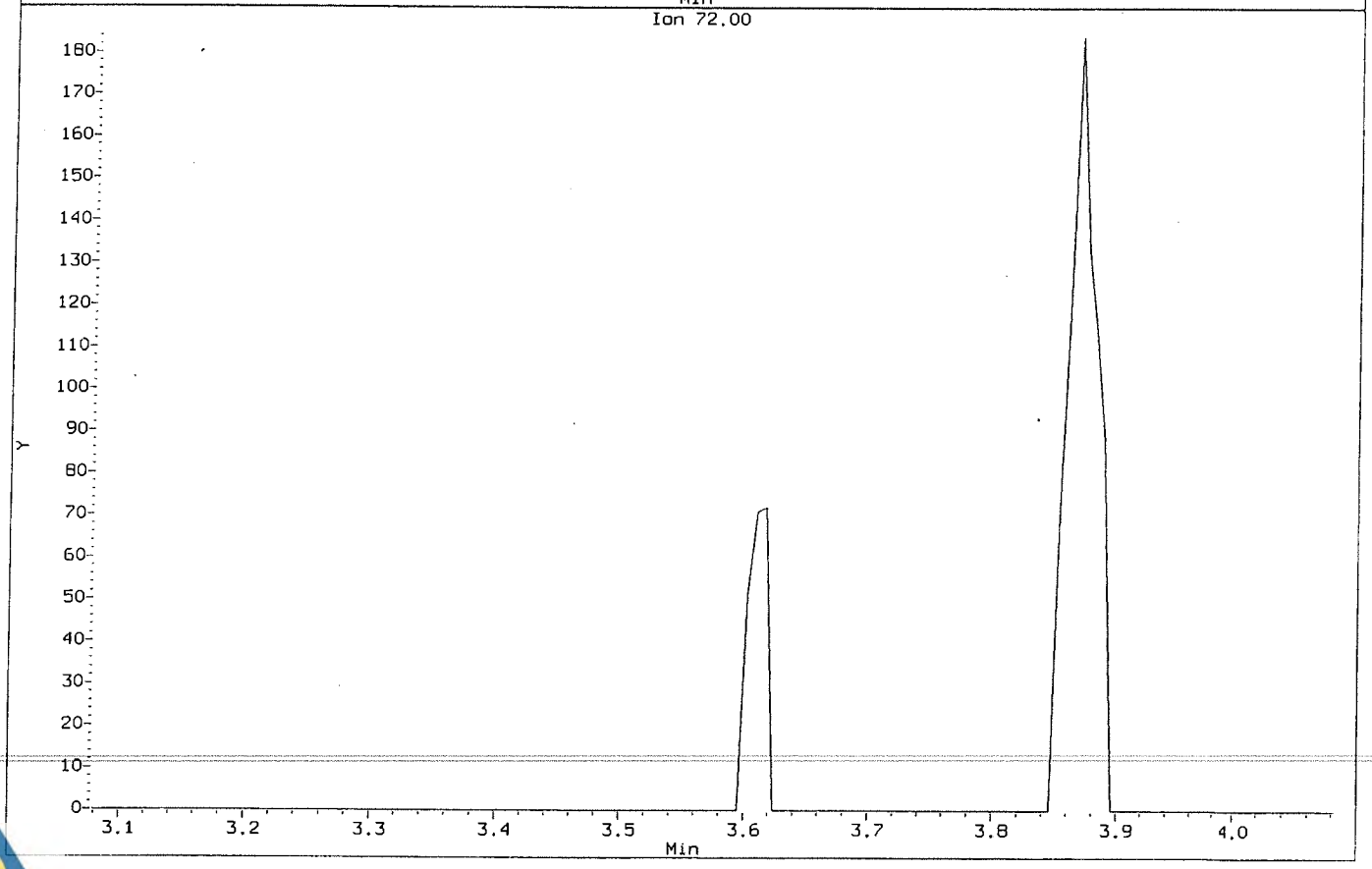




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

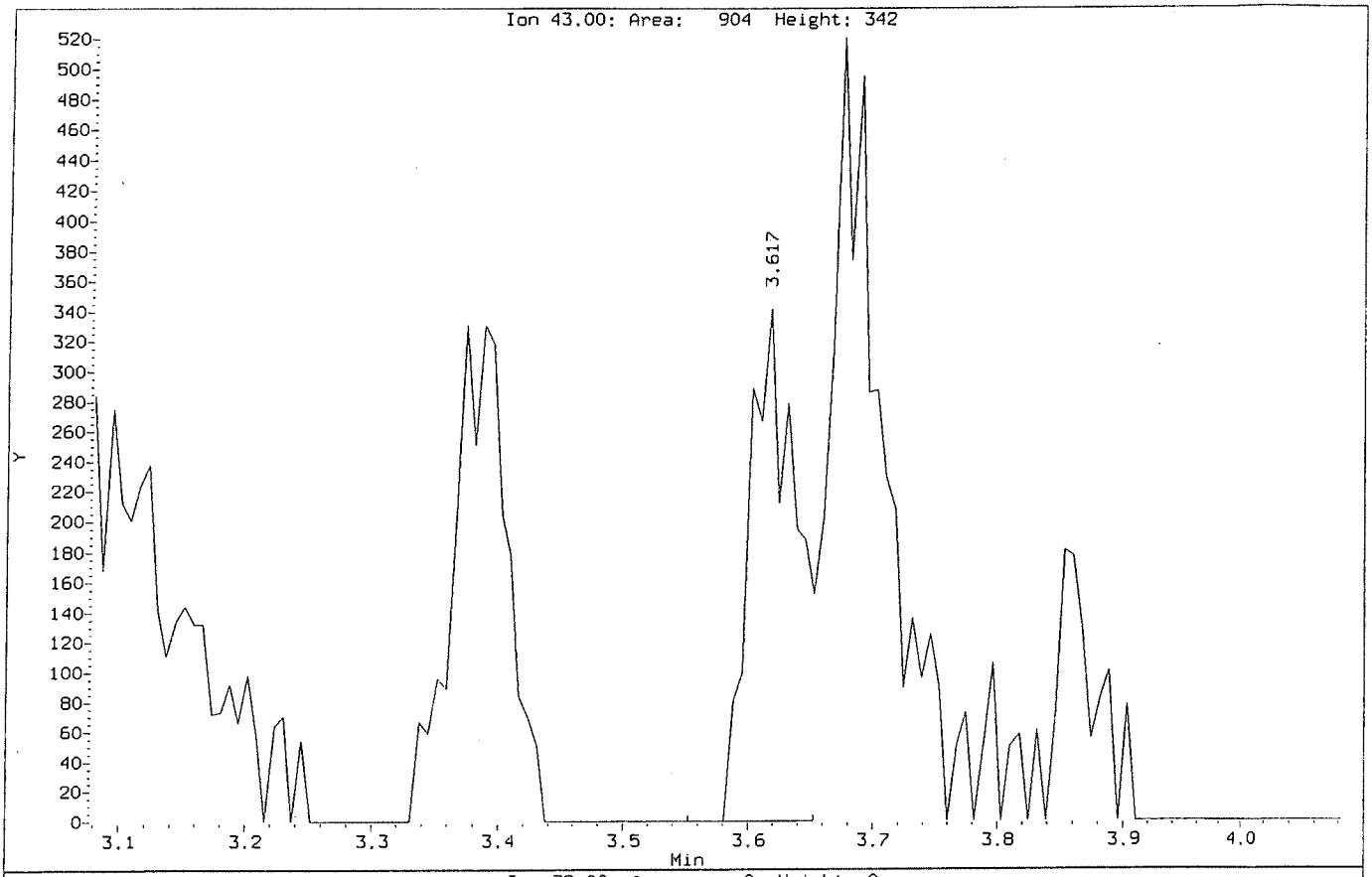
Compound: 2-Butanone
CAS Number: 78-93-3

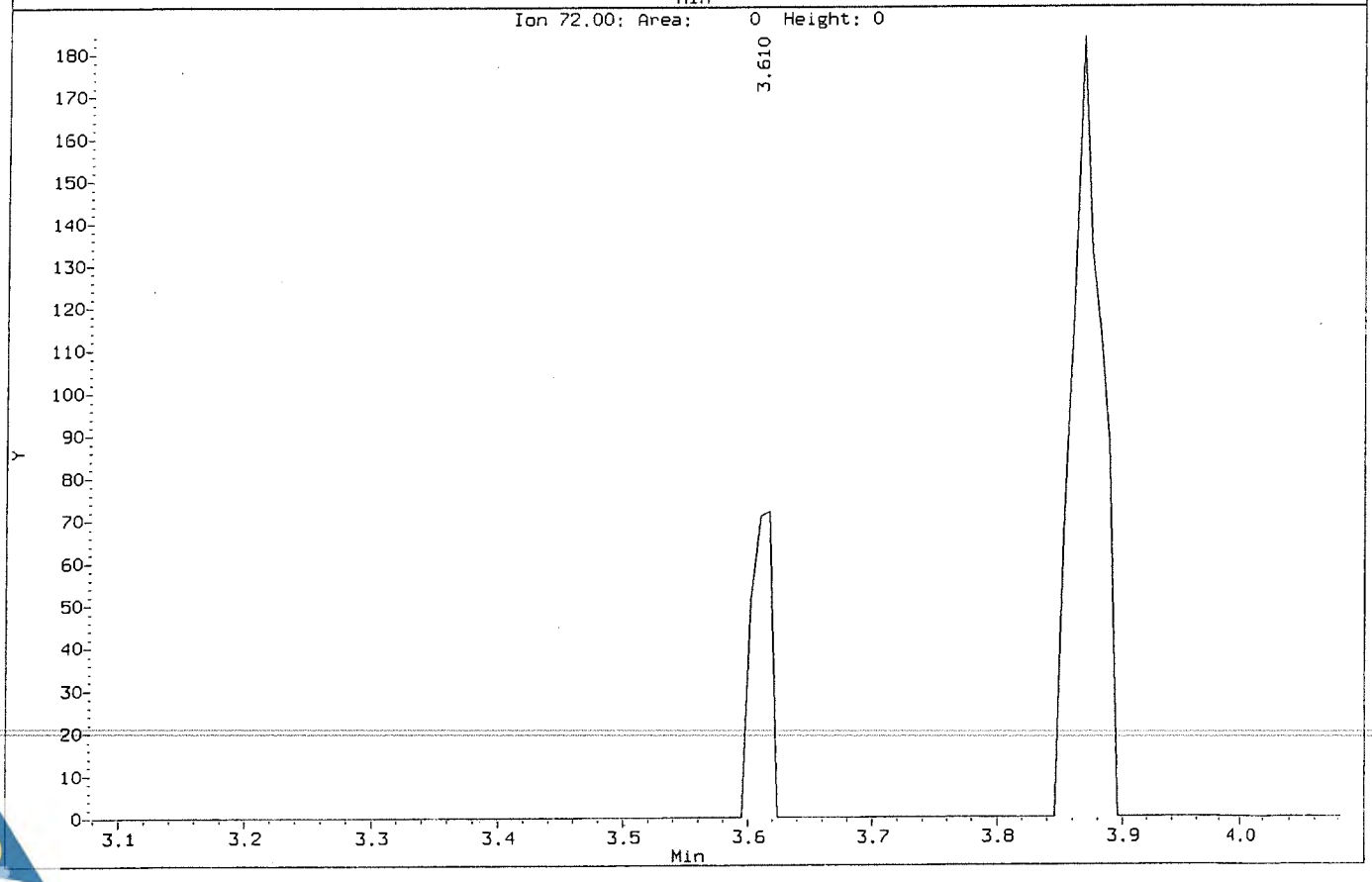




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

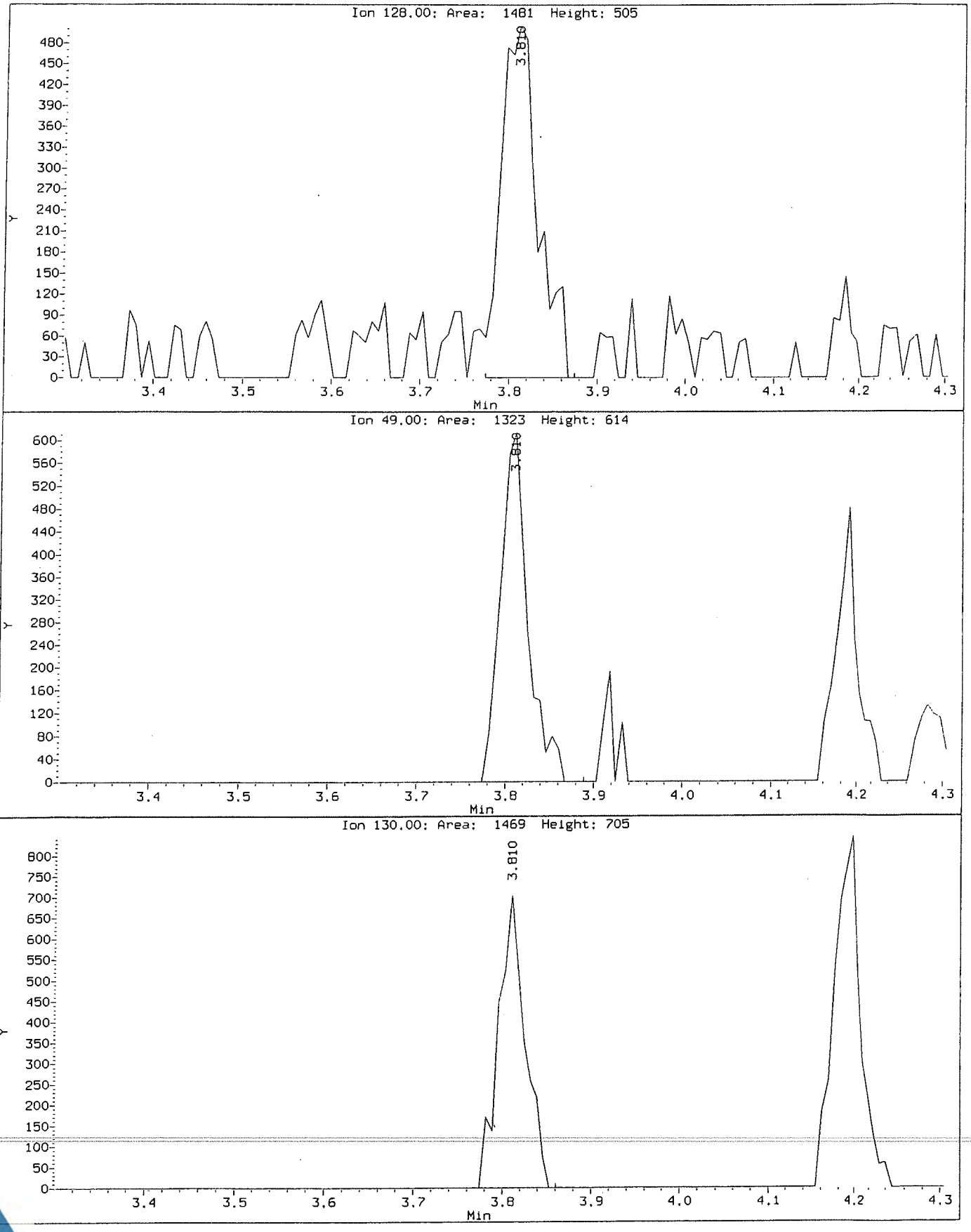
Compound: 2-Butanone
CAS Number: 78-93-3





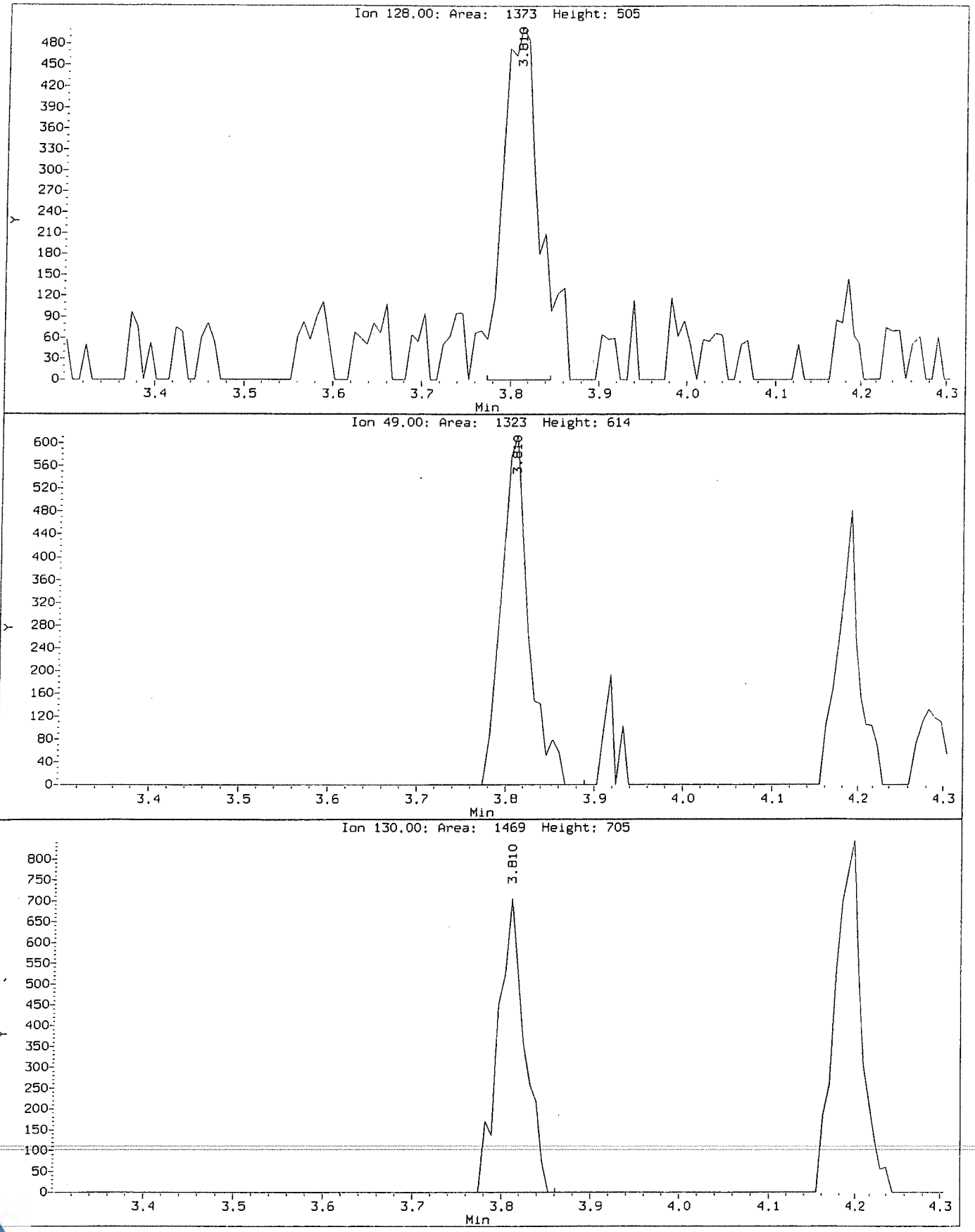
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5



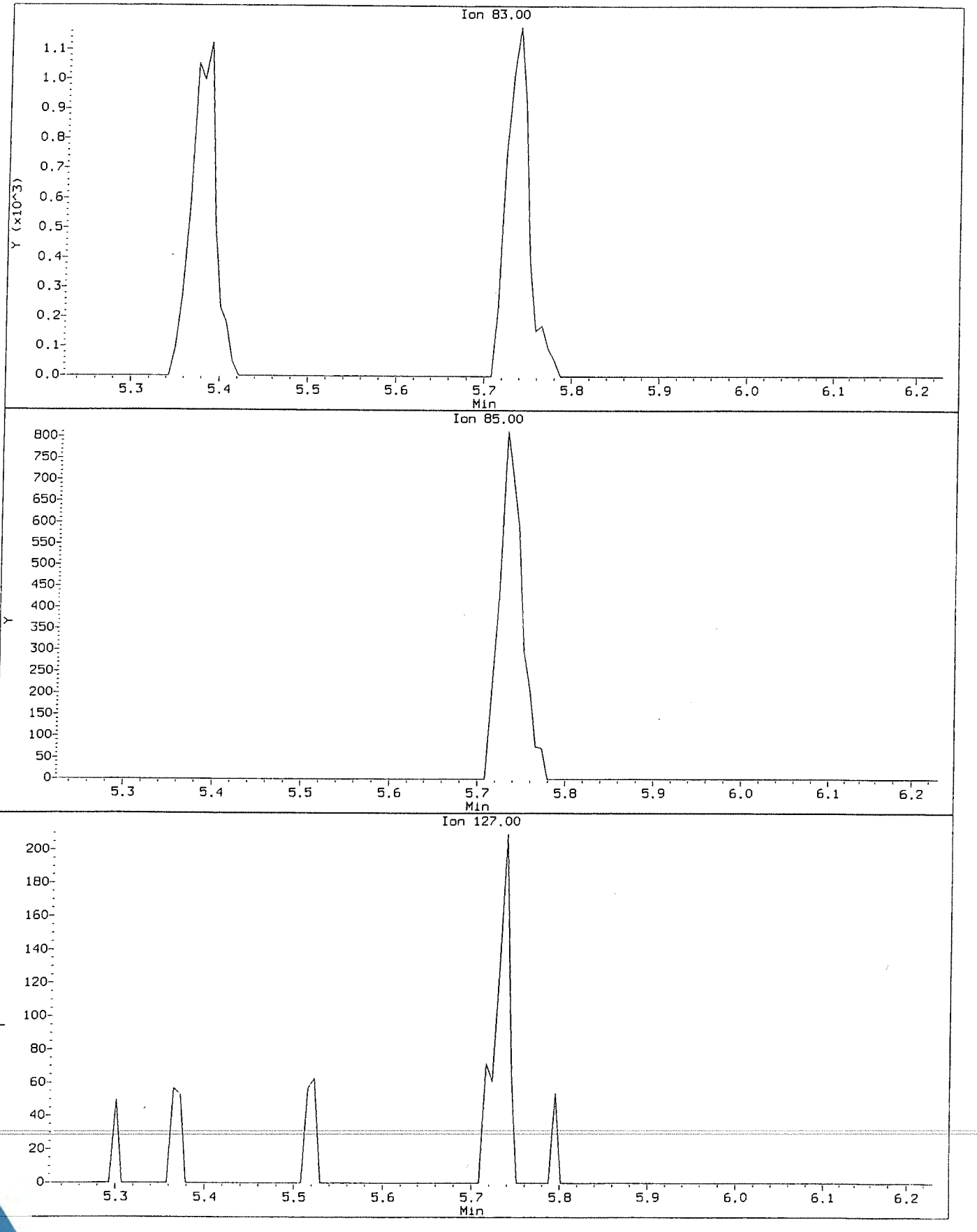
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5



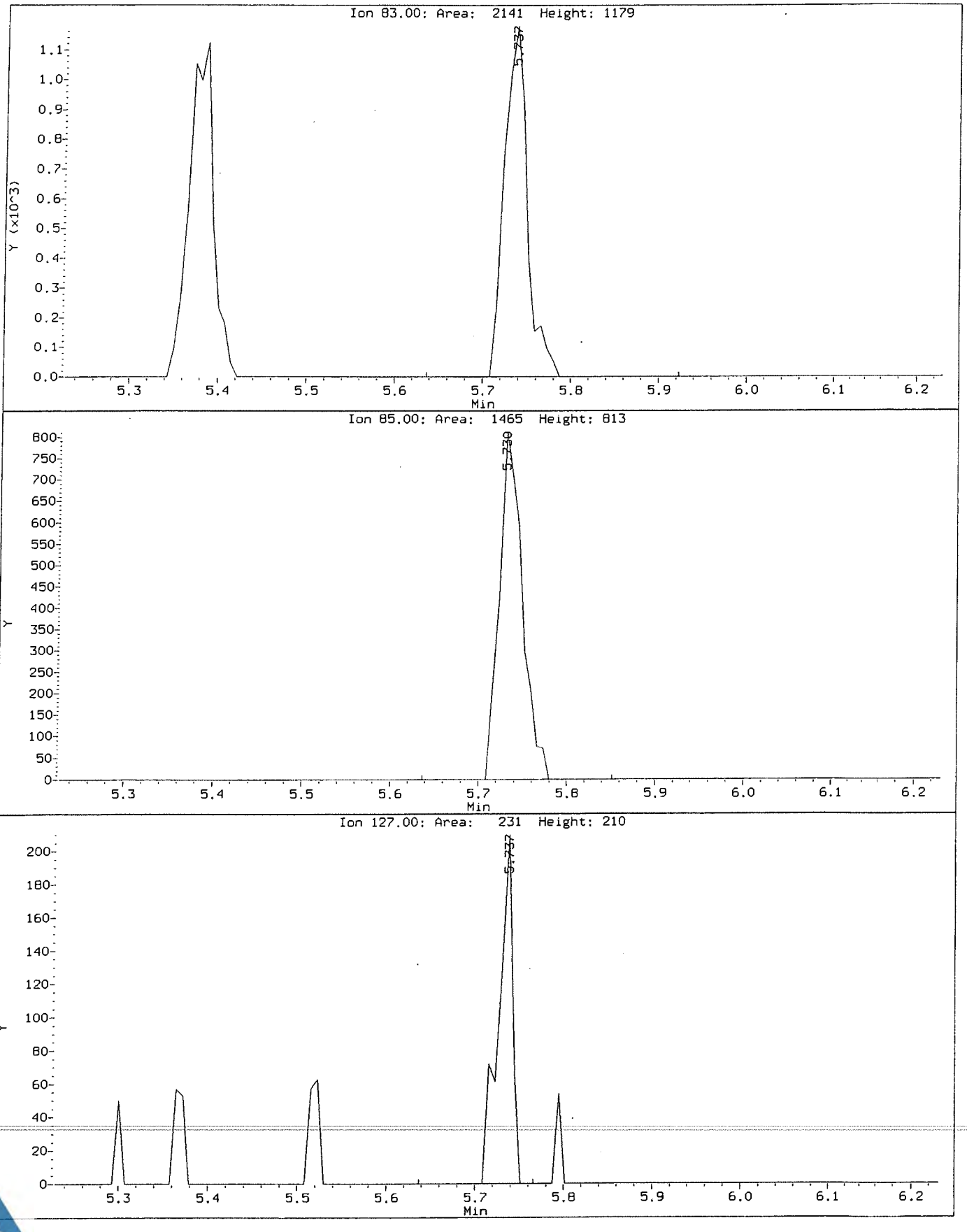
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



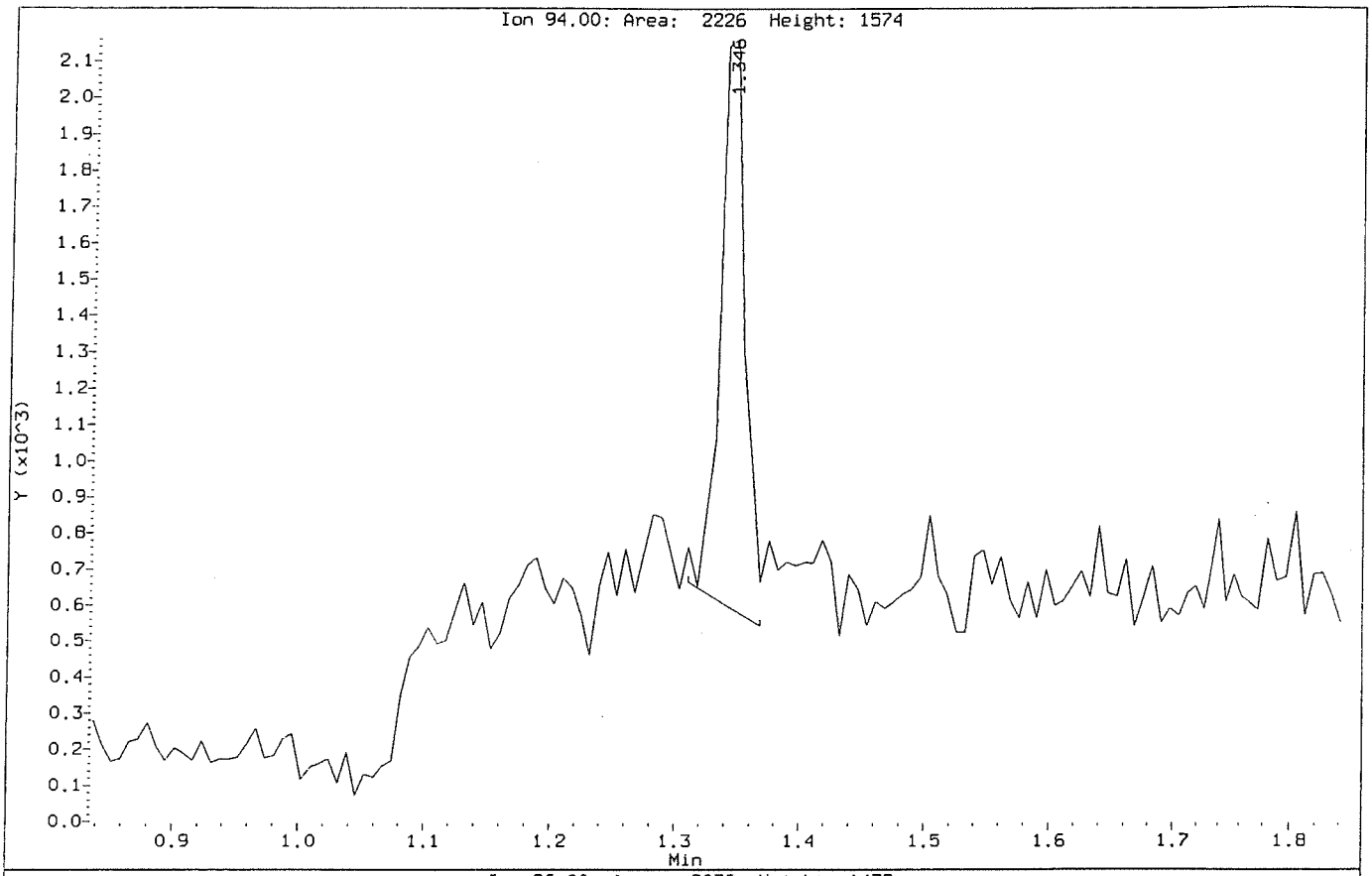
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

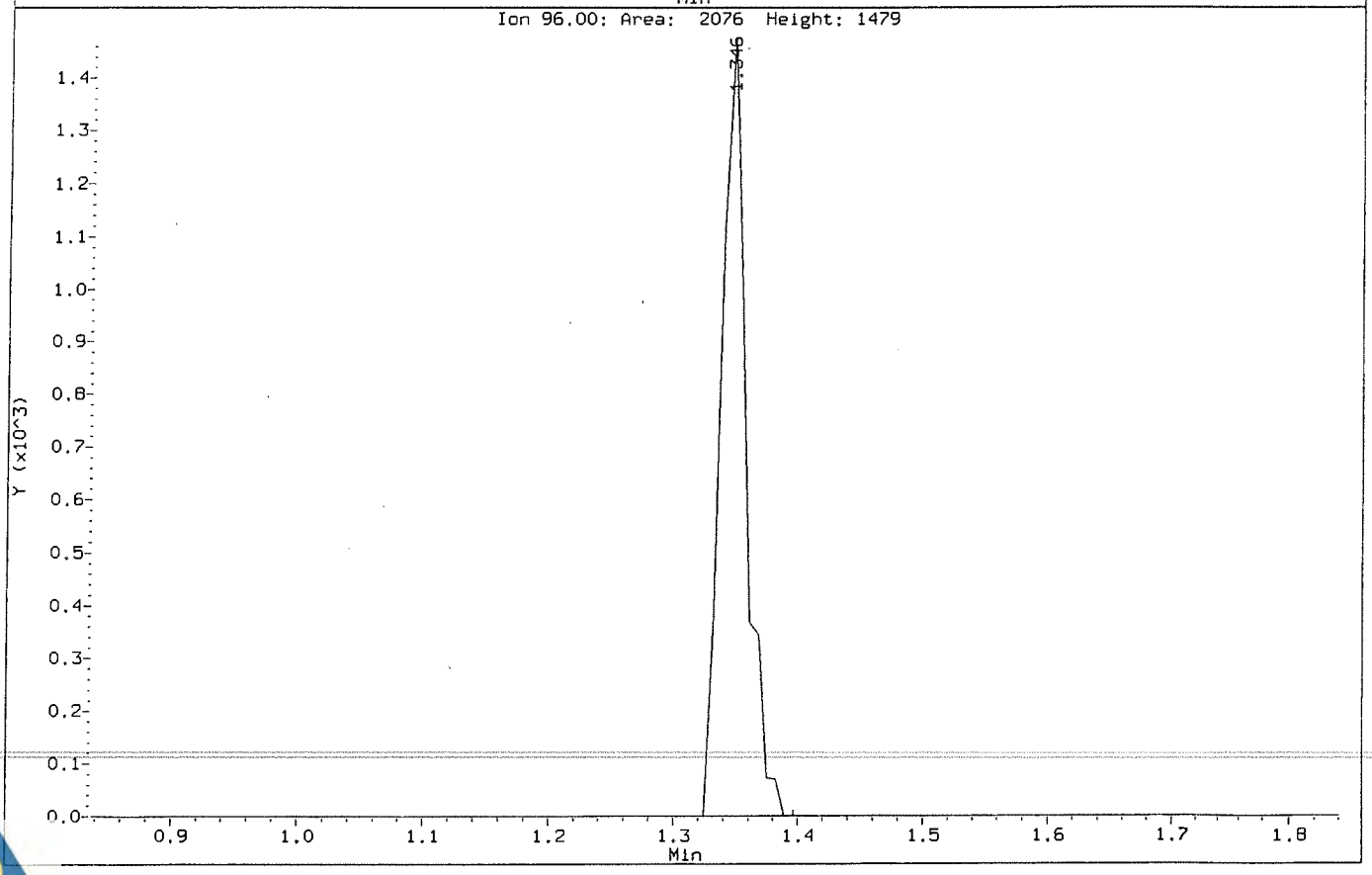
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

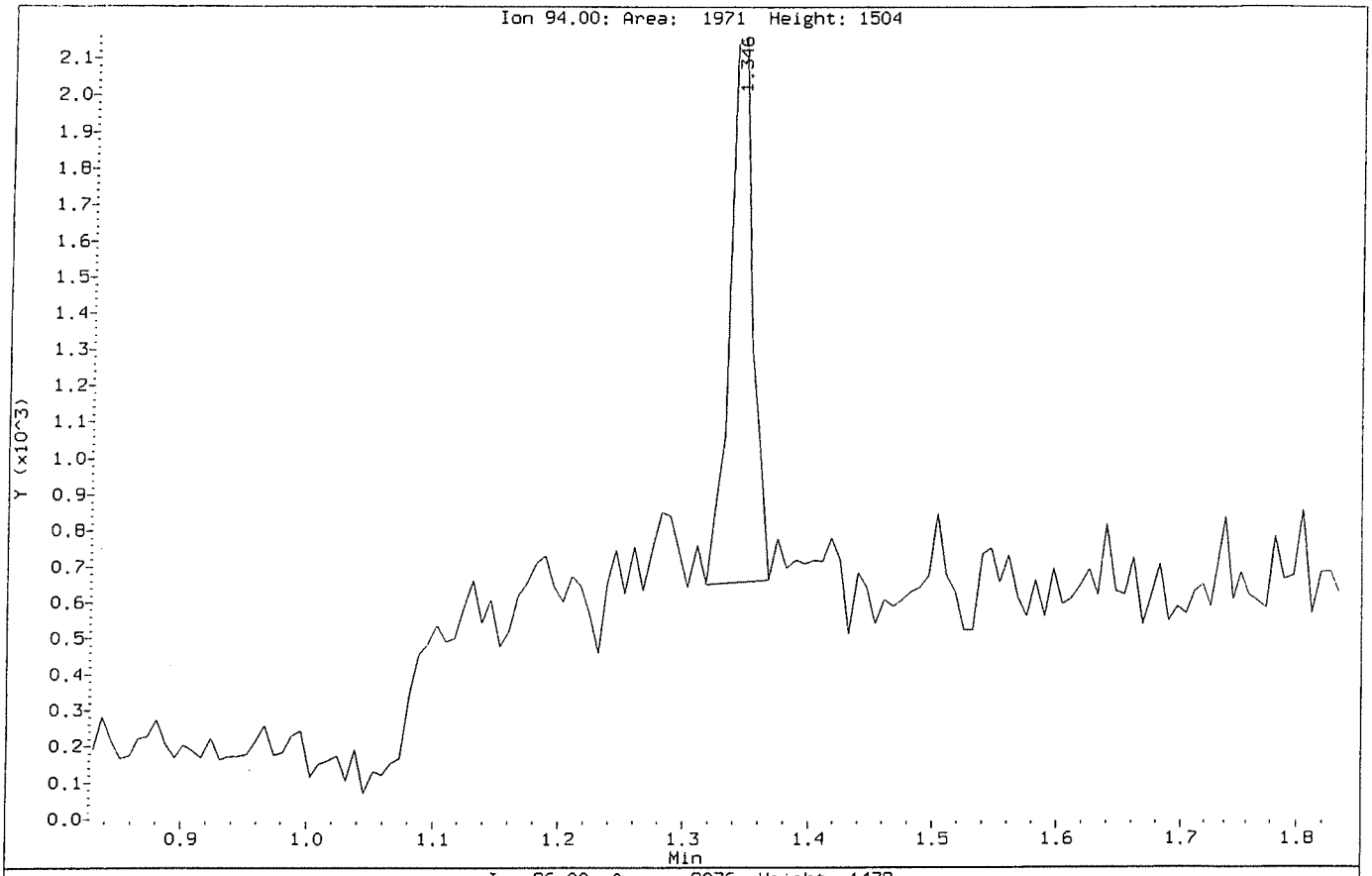
Compound: Bromomethane
CAS Number: 74-83-9

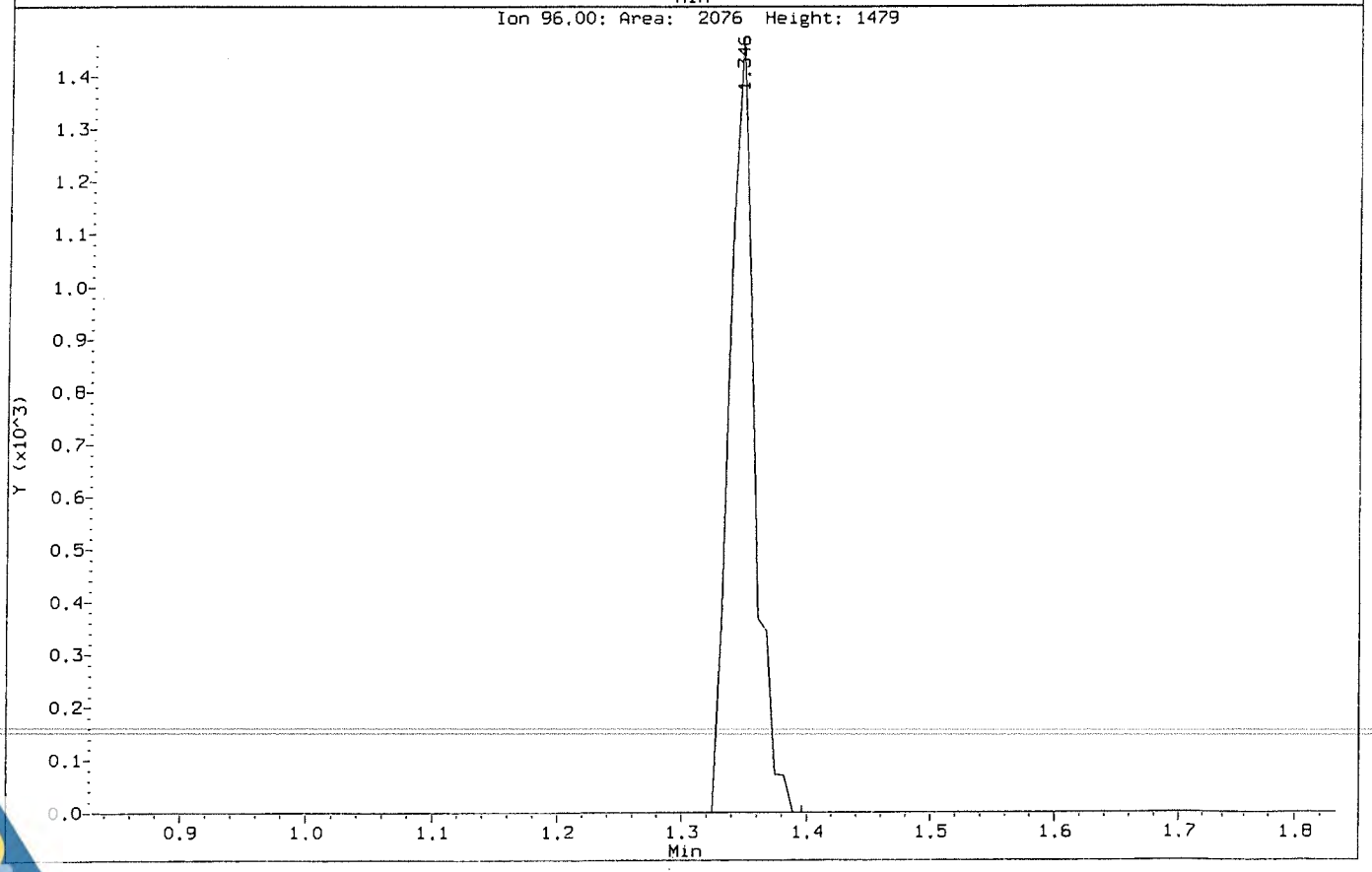




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

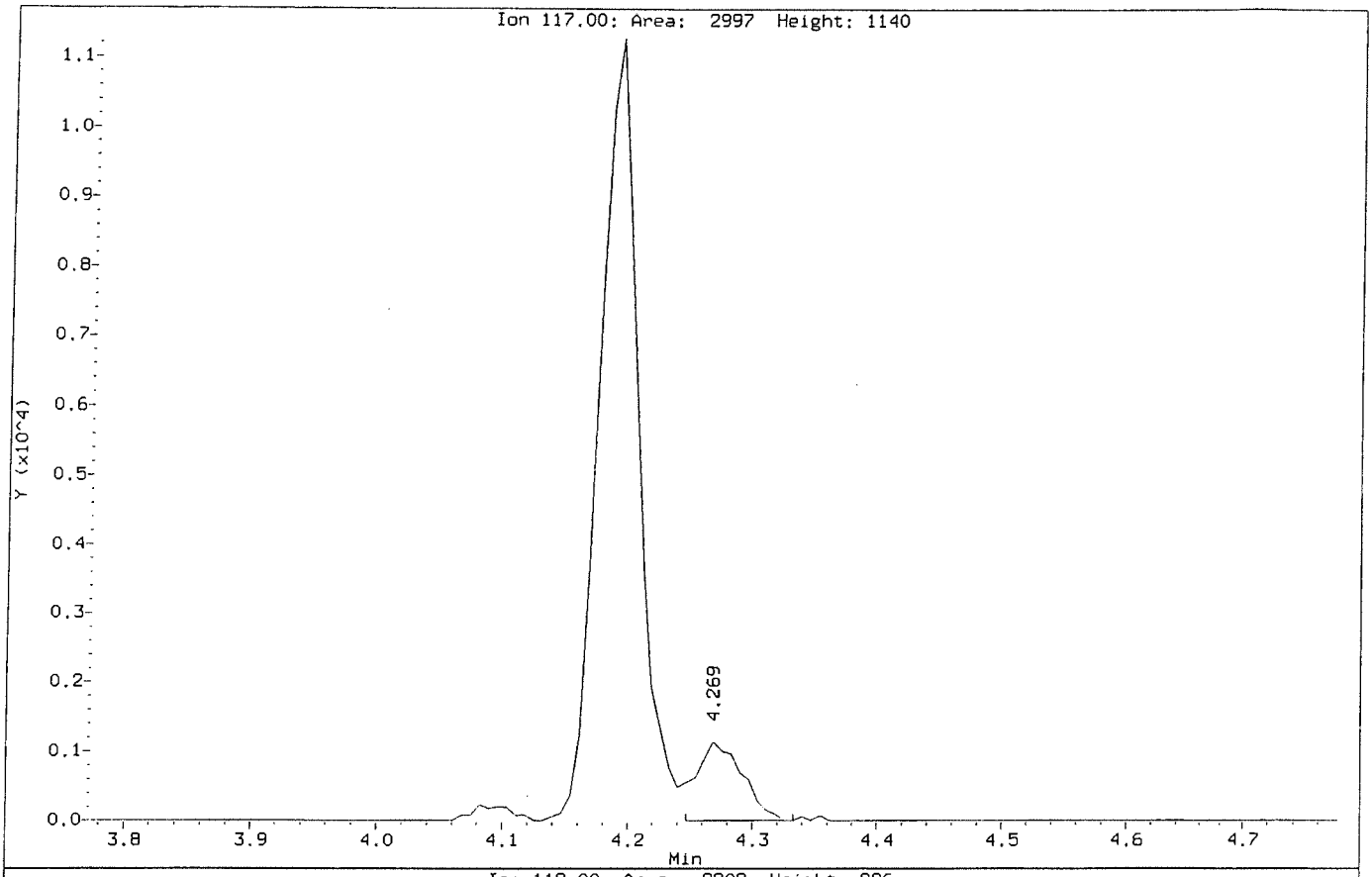
Compound: Bromomethane
CAS Number: 74-83-9

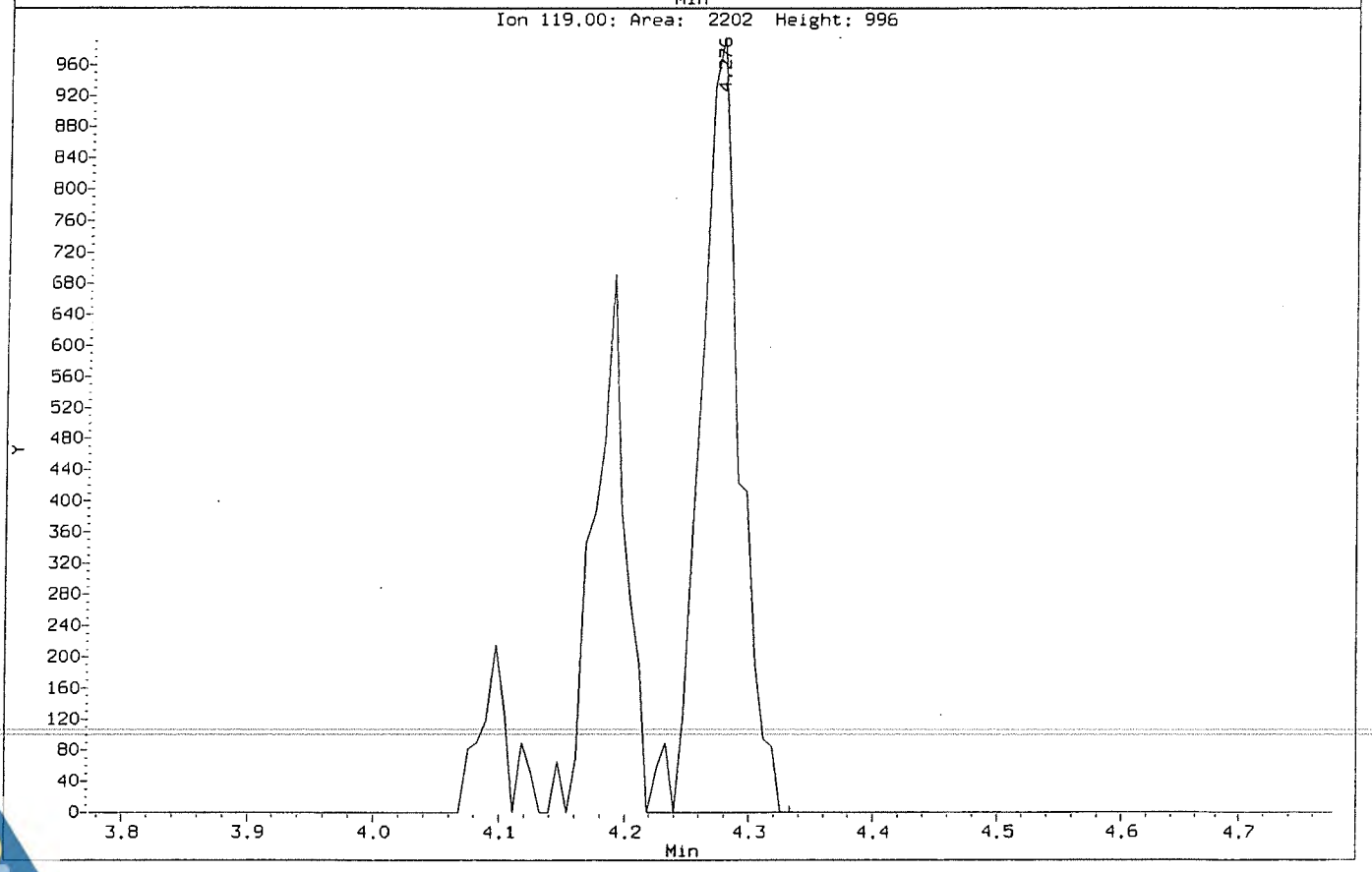




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

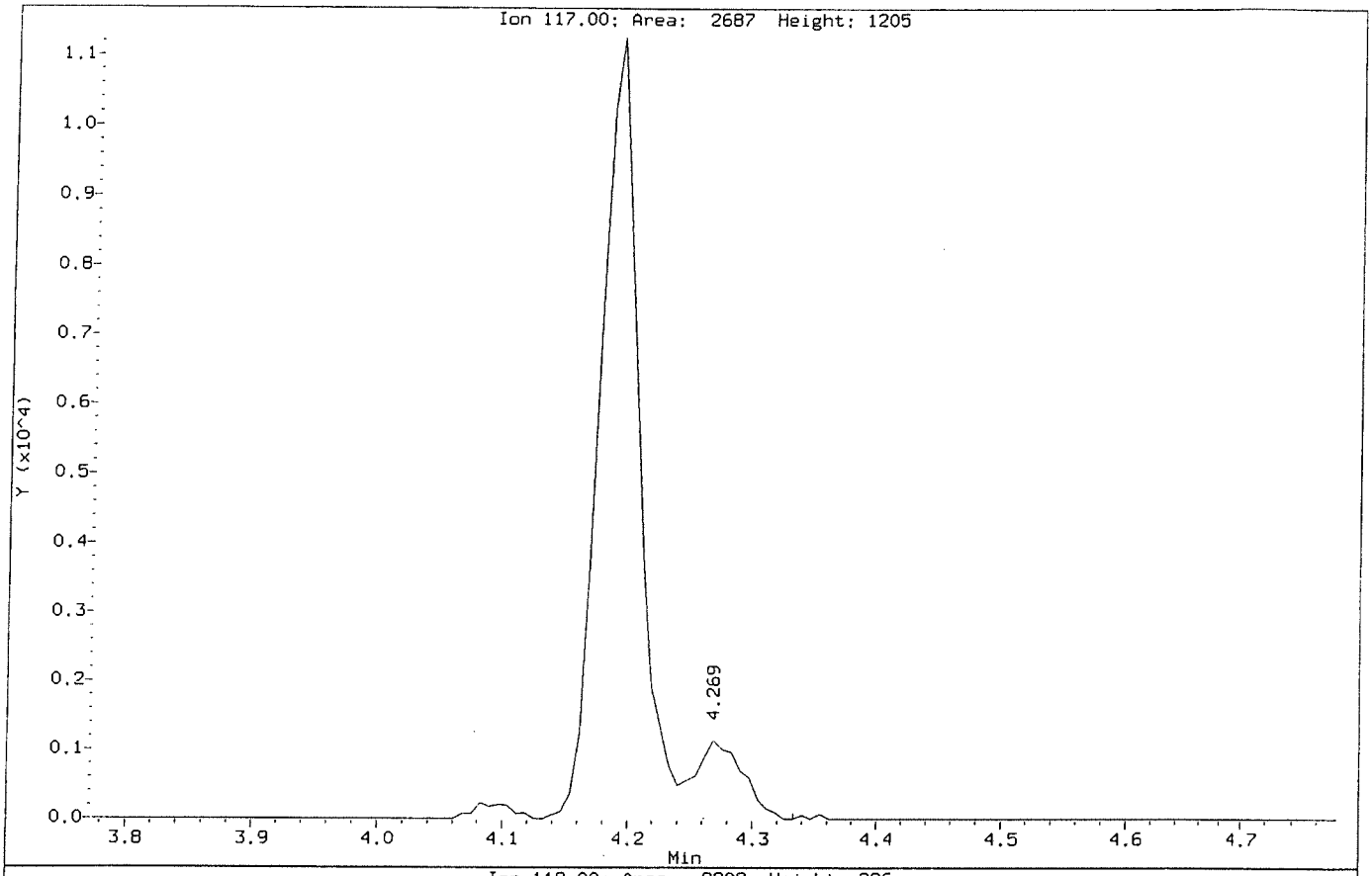
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

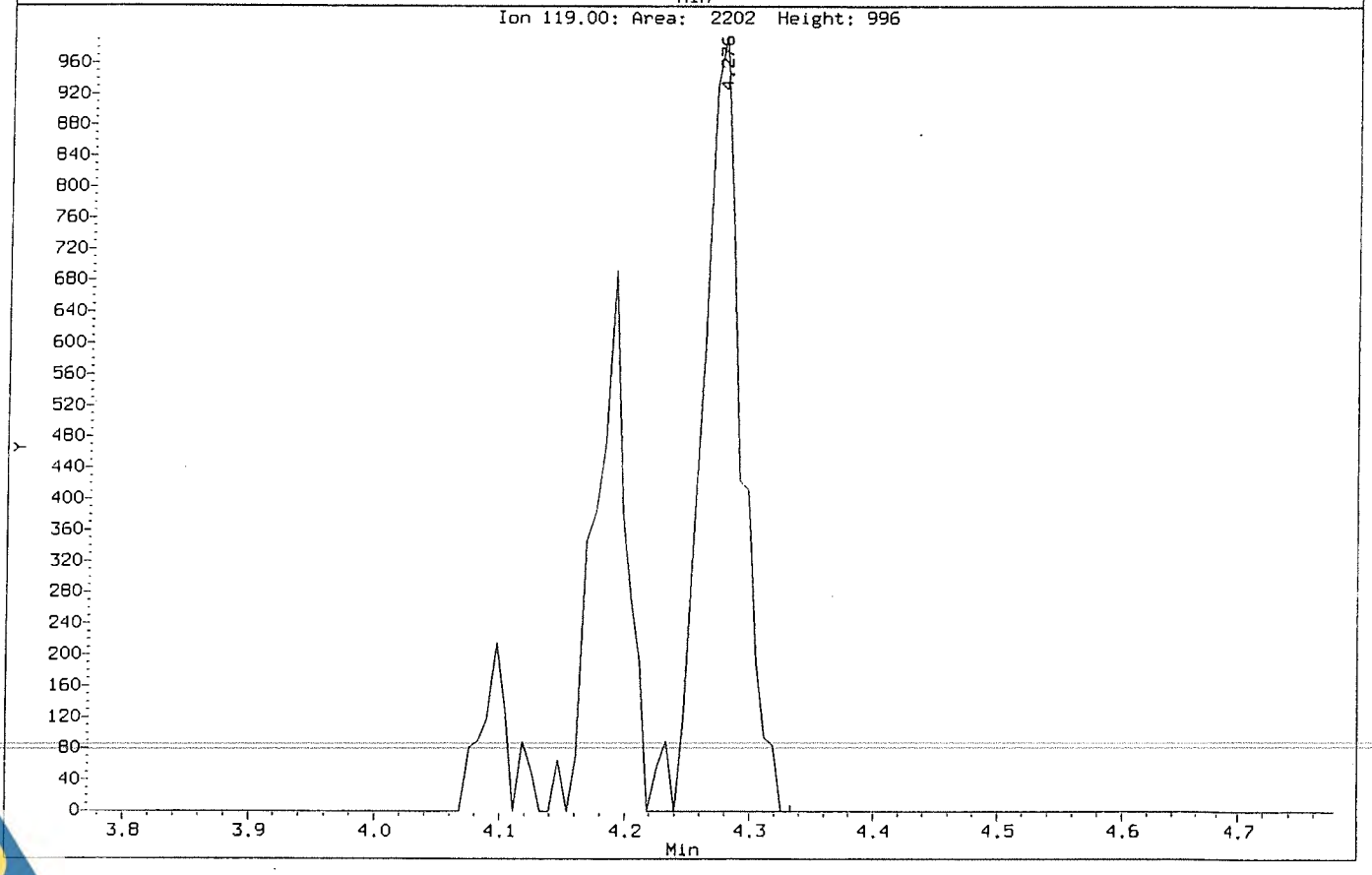




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

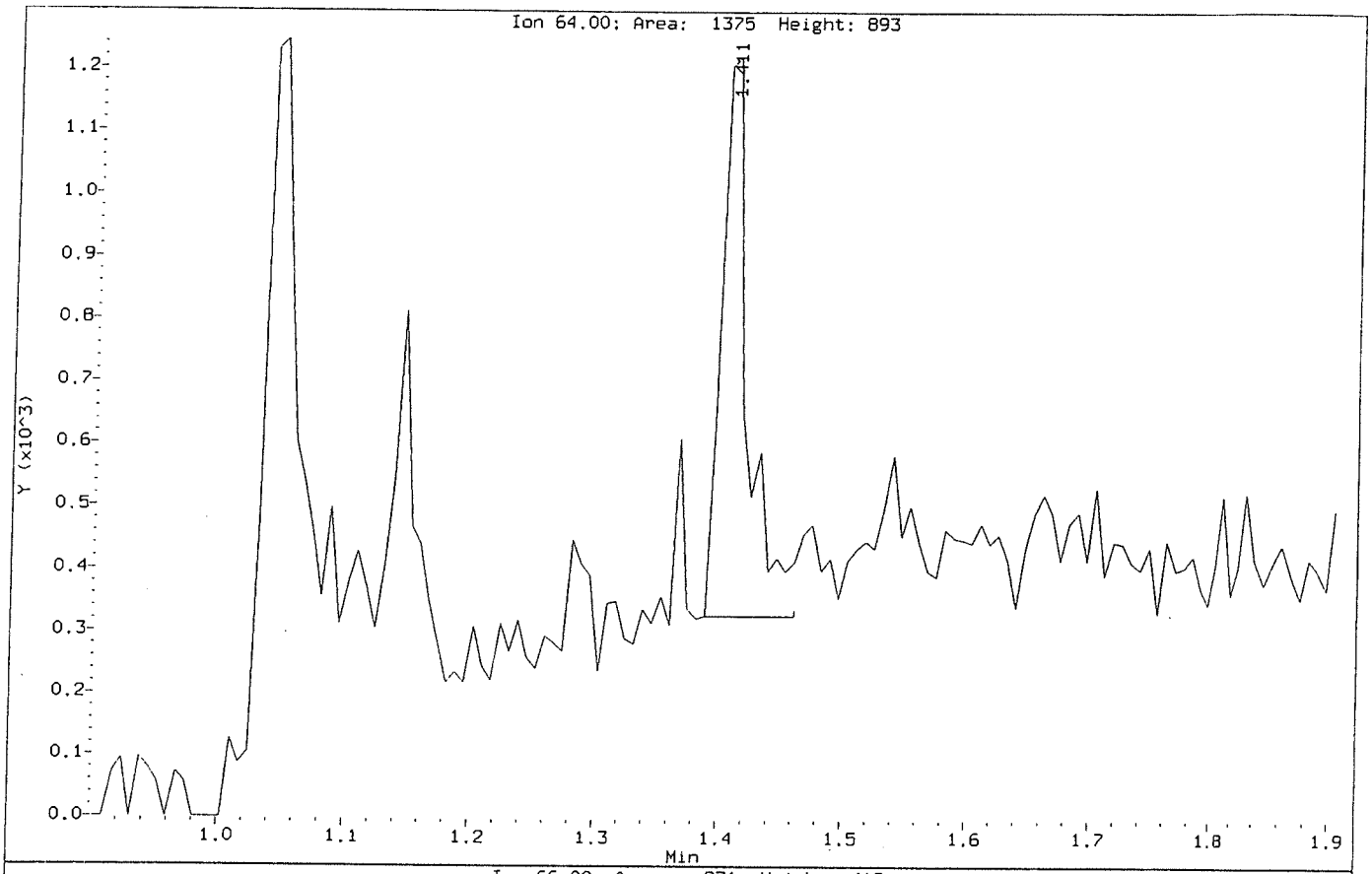
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

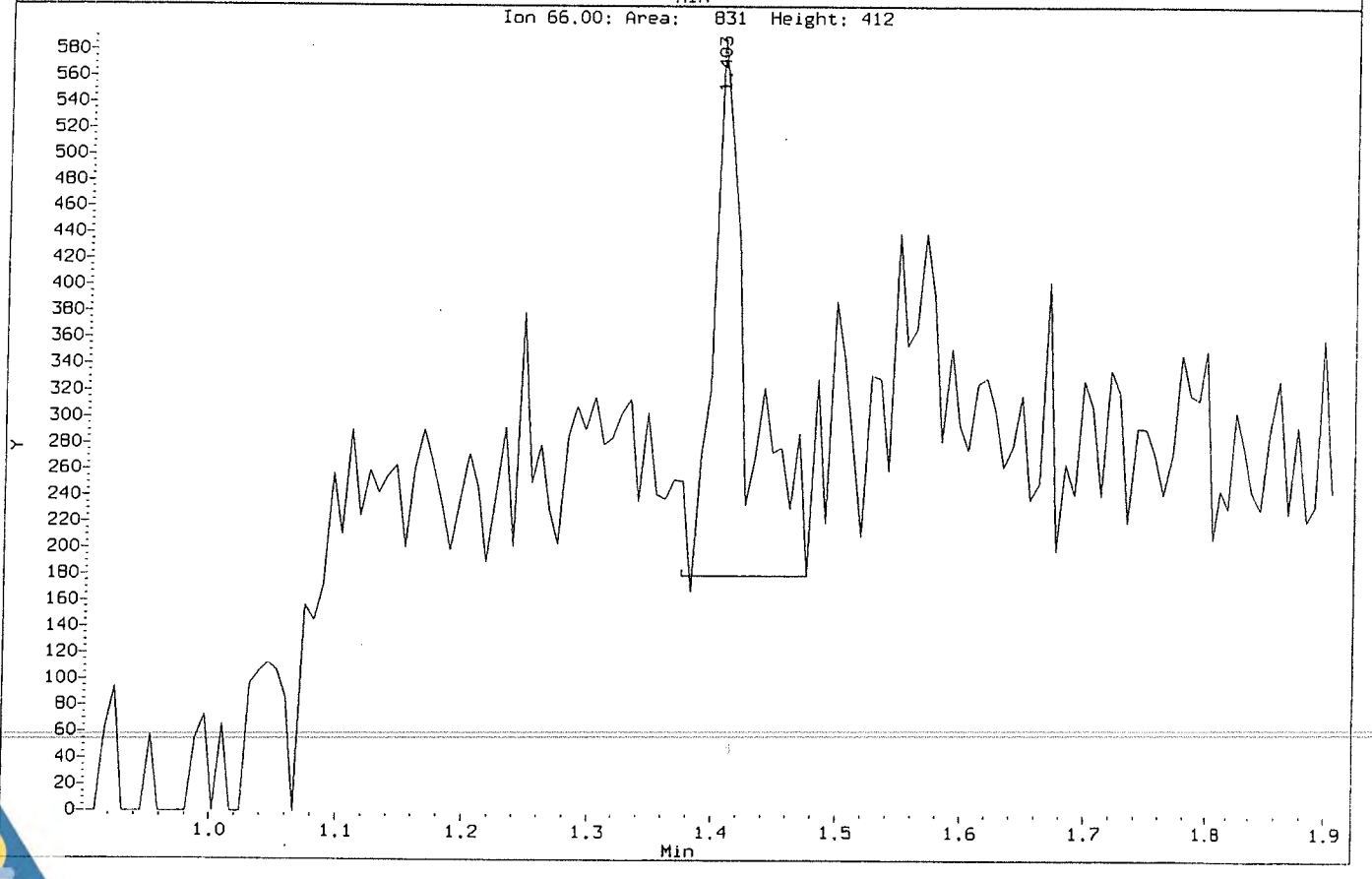




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

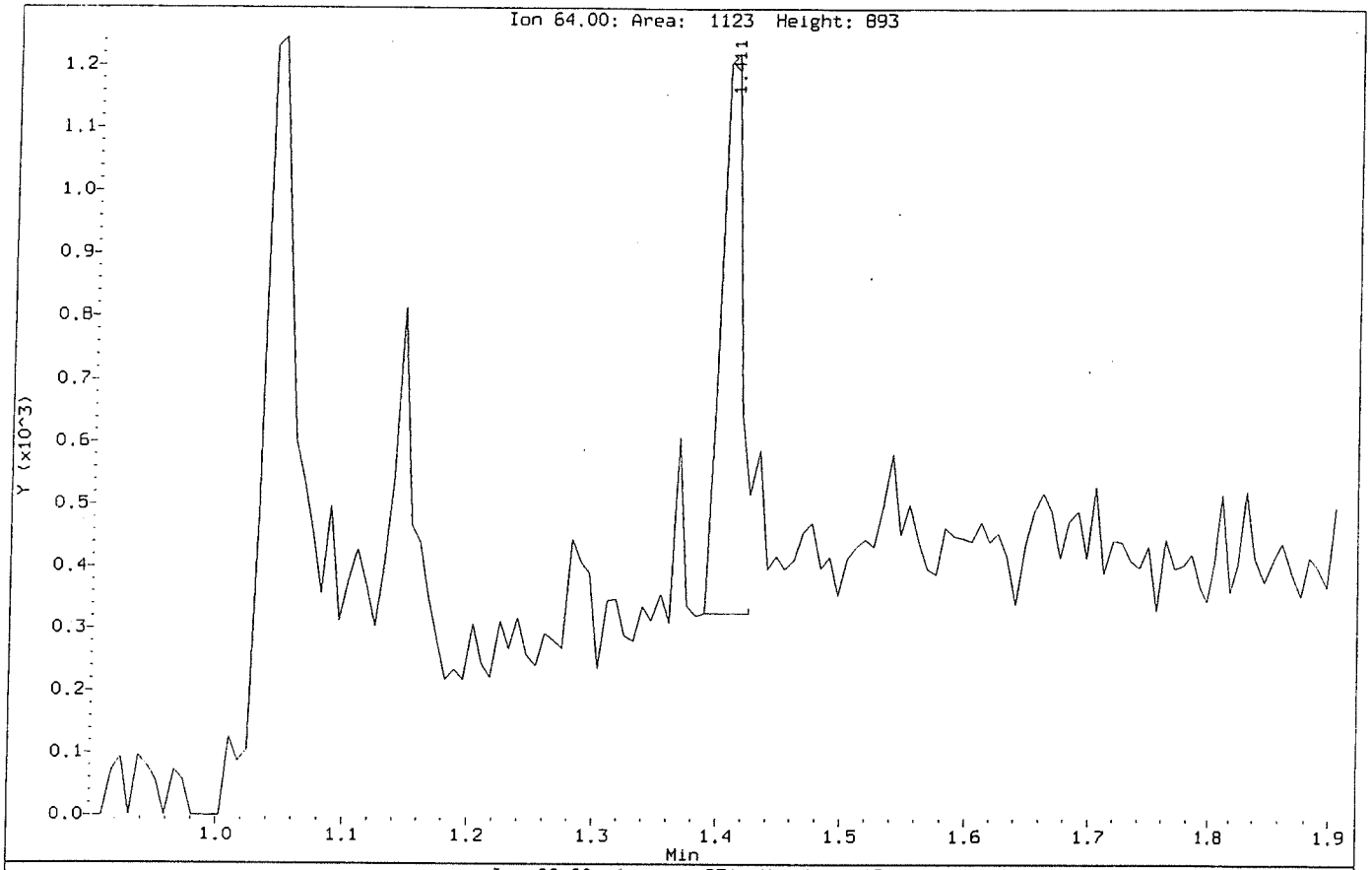
Compound: Chloroethane
CAS Number: 75-00-3

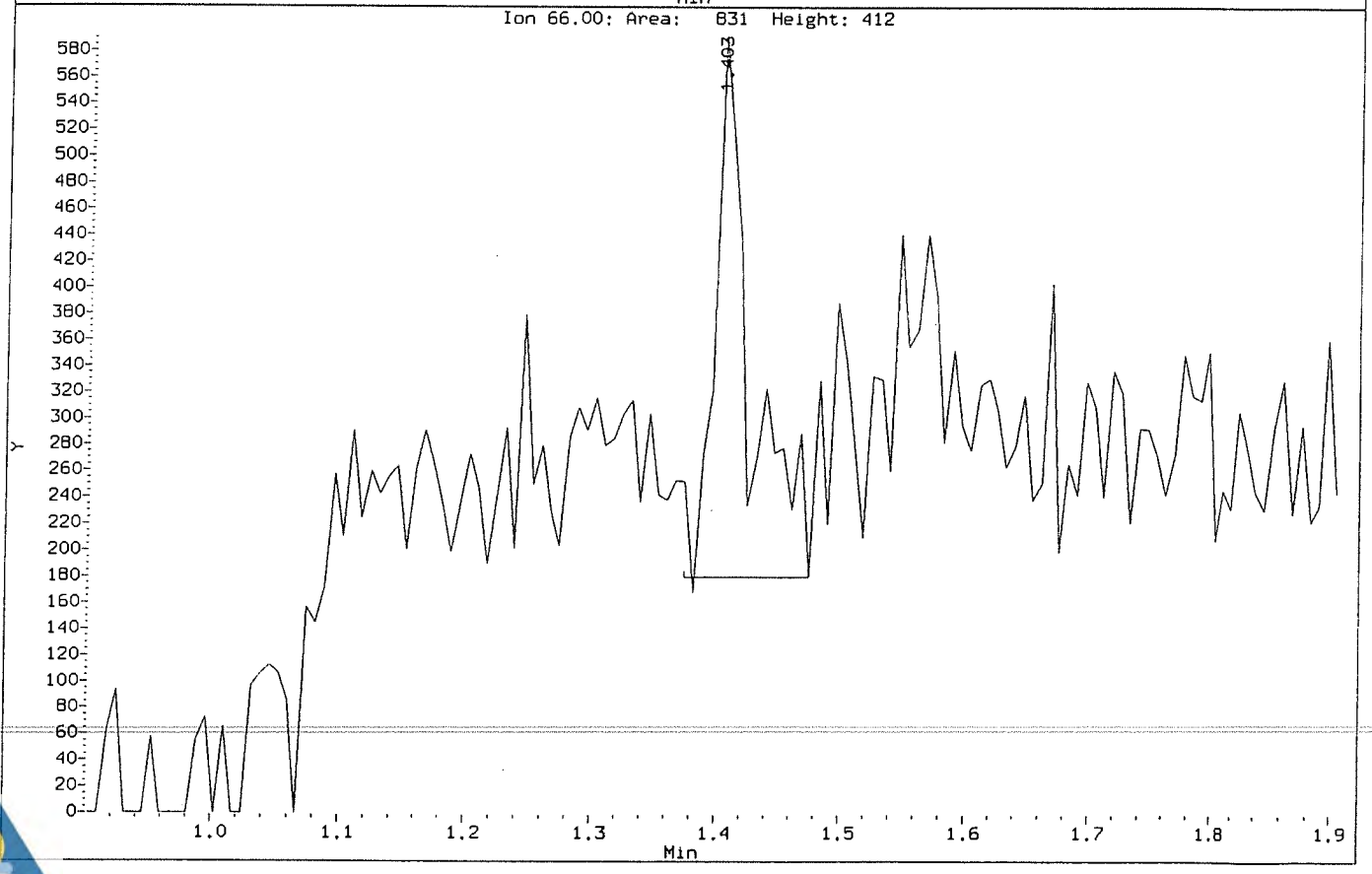




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

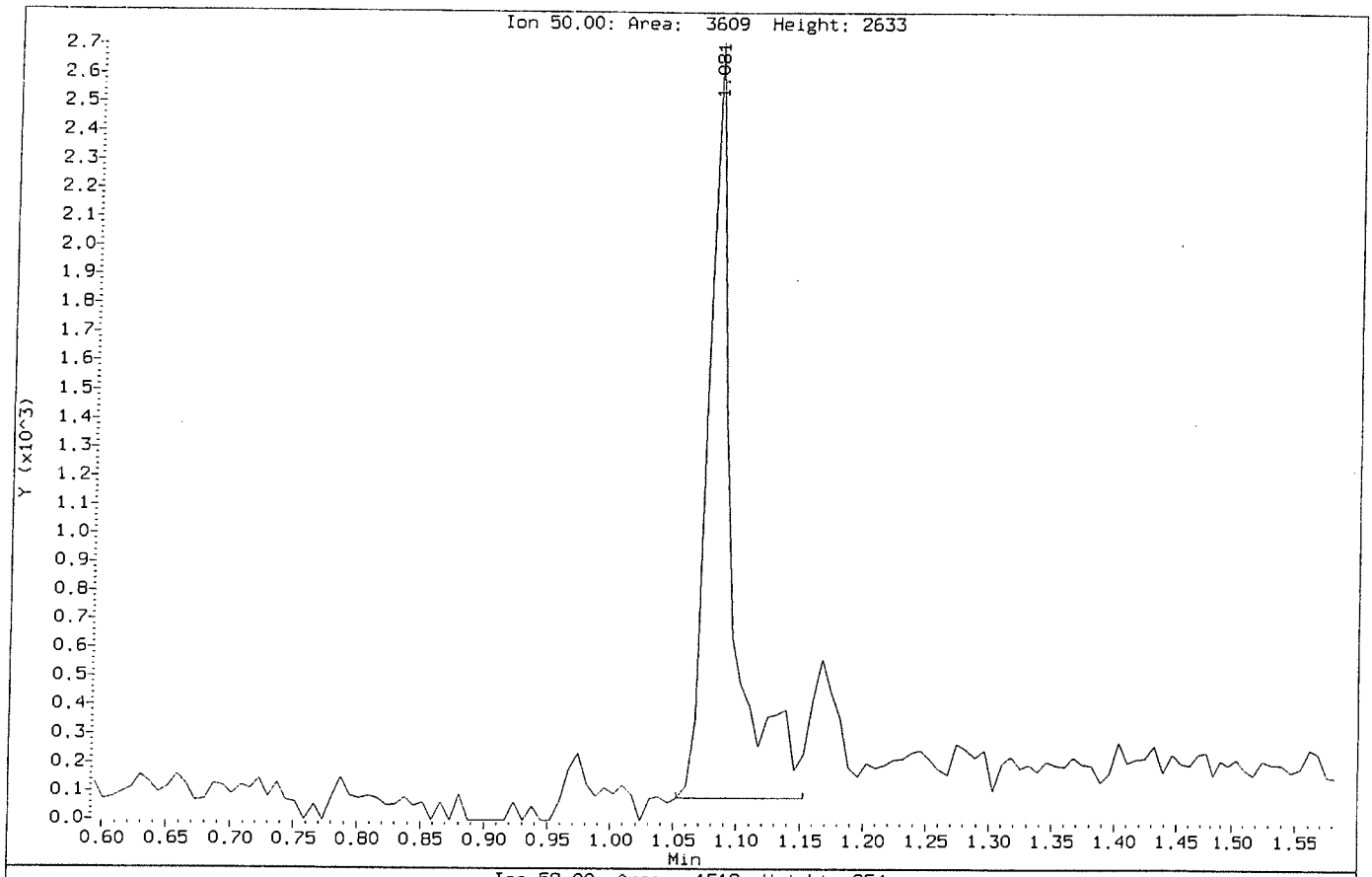
Compound: Chloroethane
CAS Number: 75-00-3

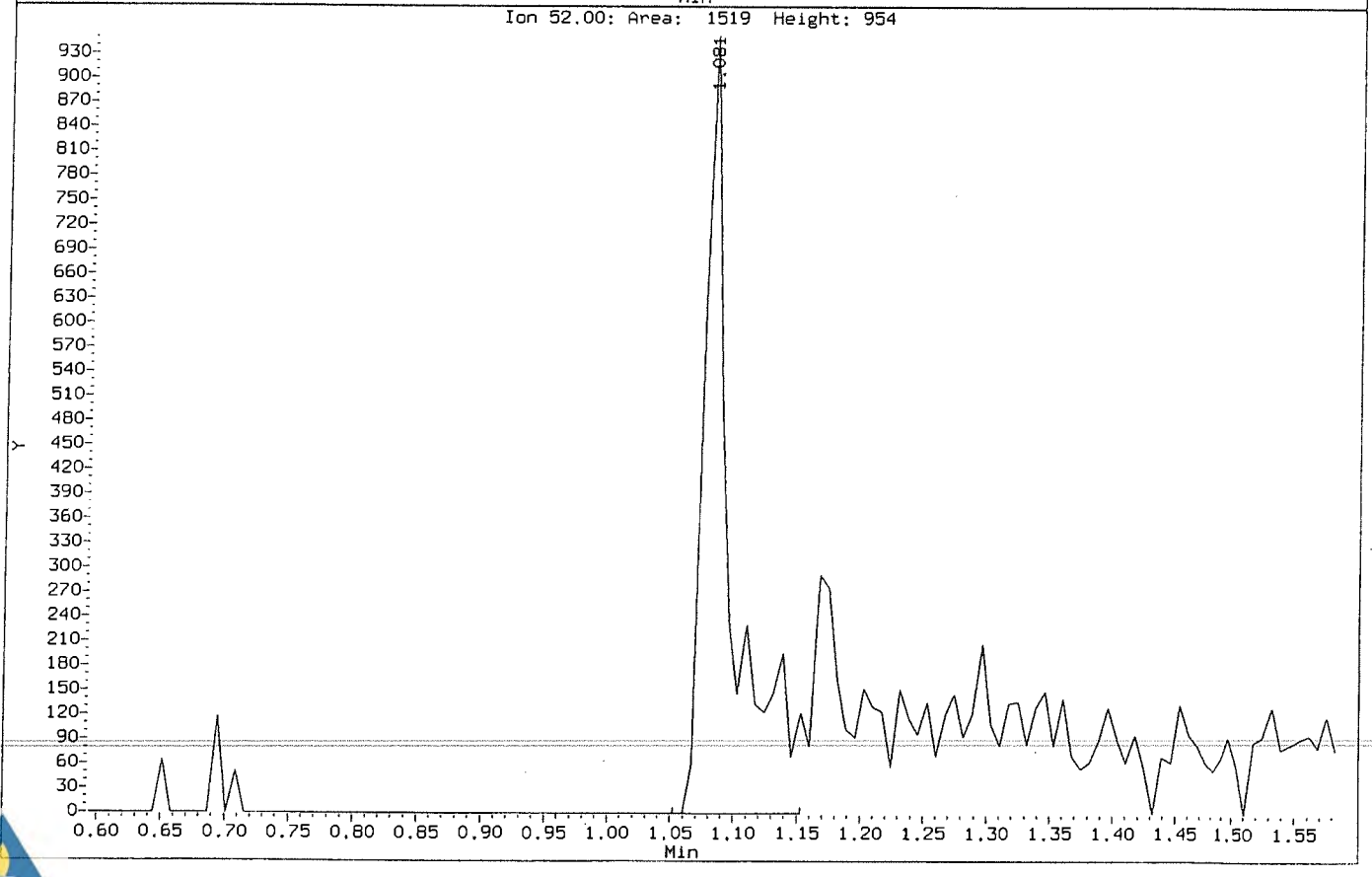




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

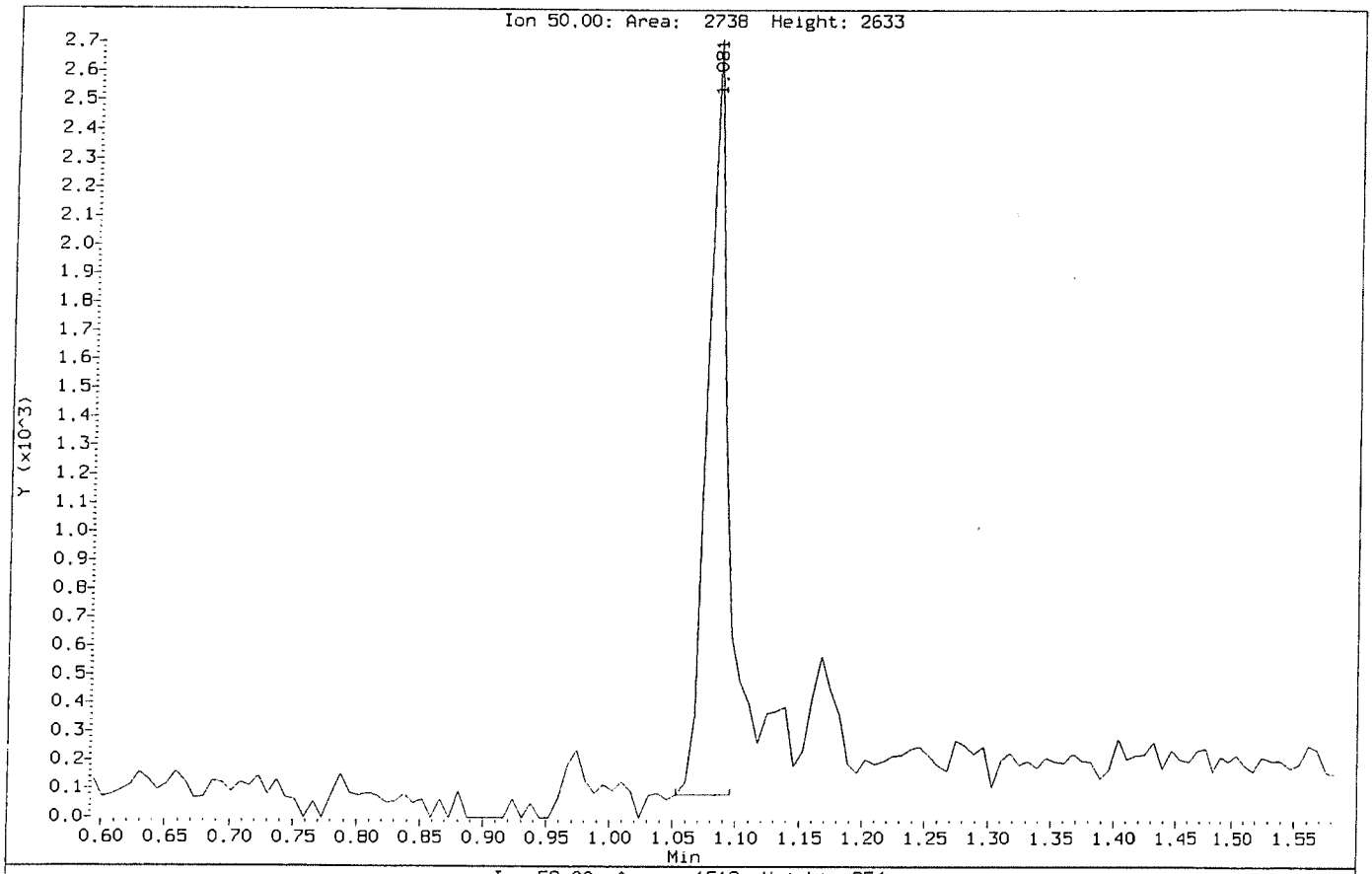
Compound: Chloromethane
CAS Number: 74-87-3

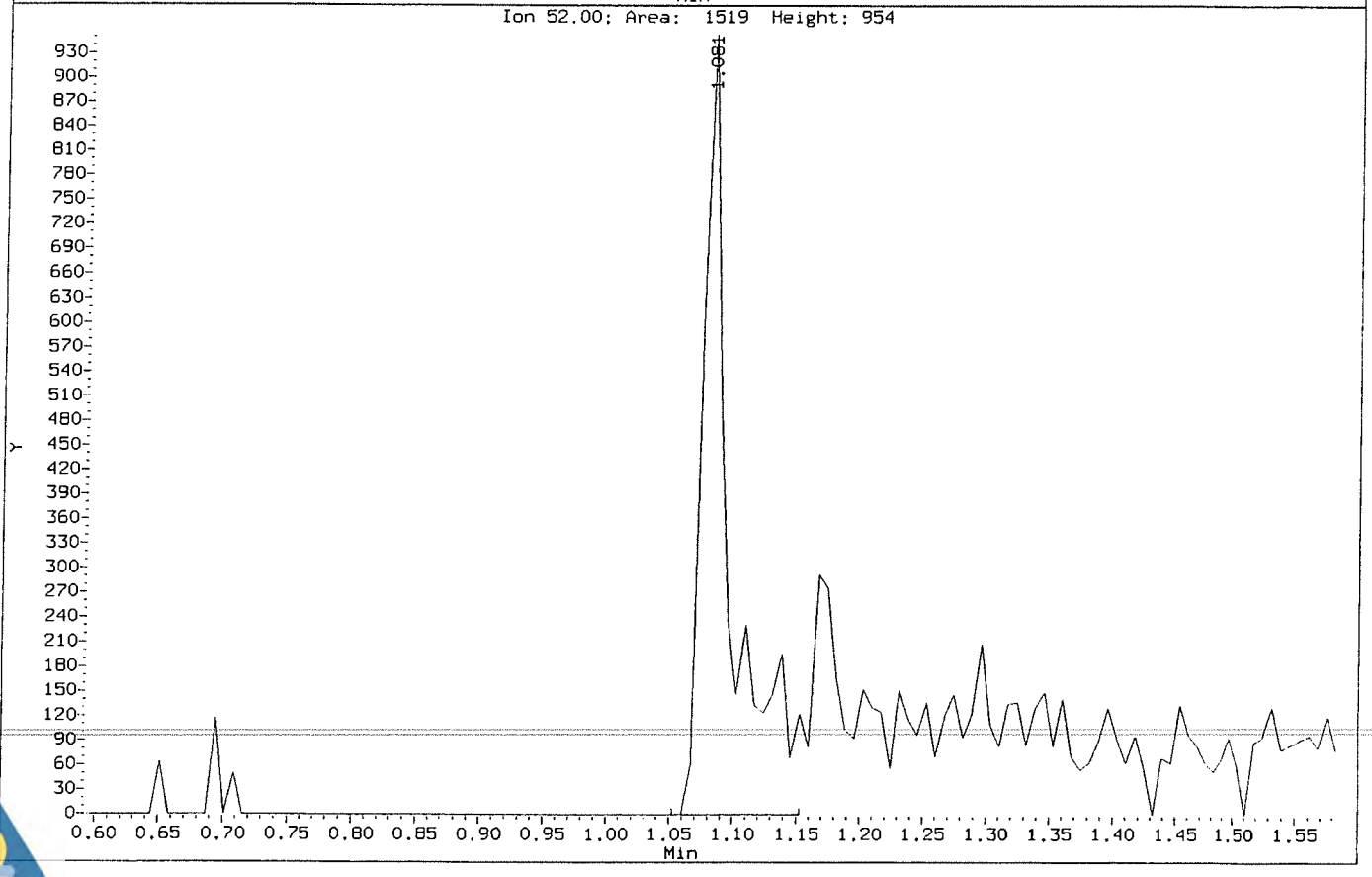




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

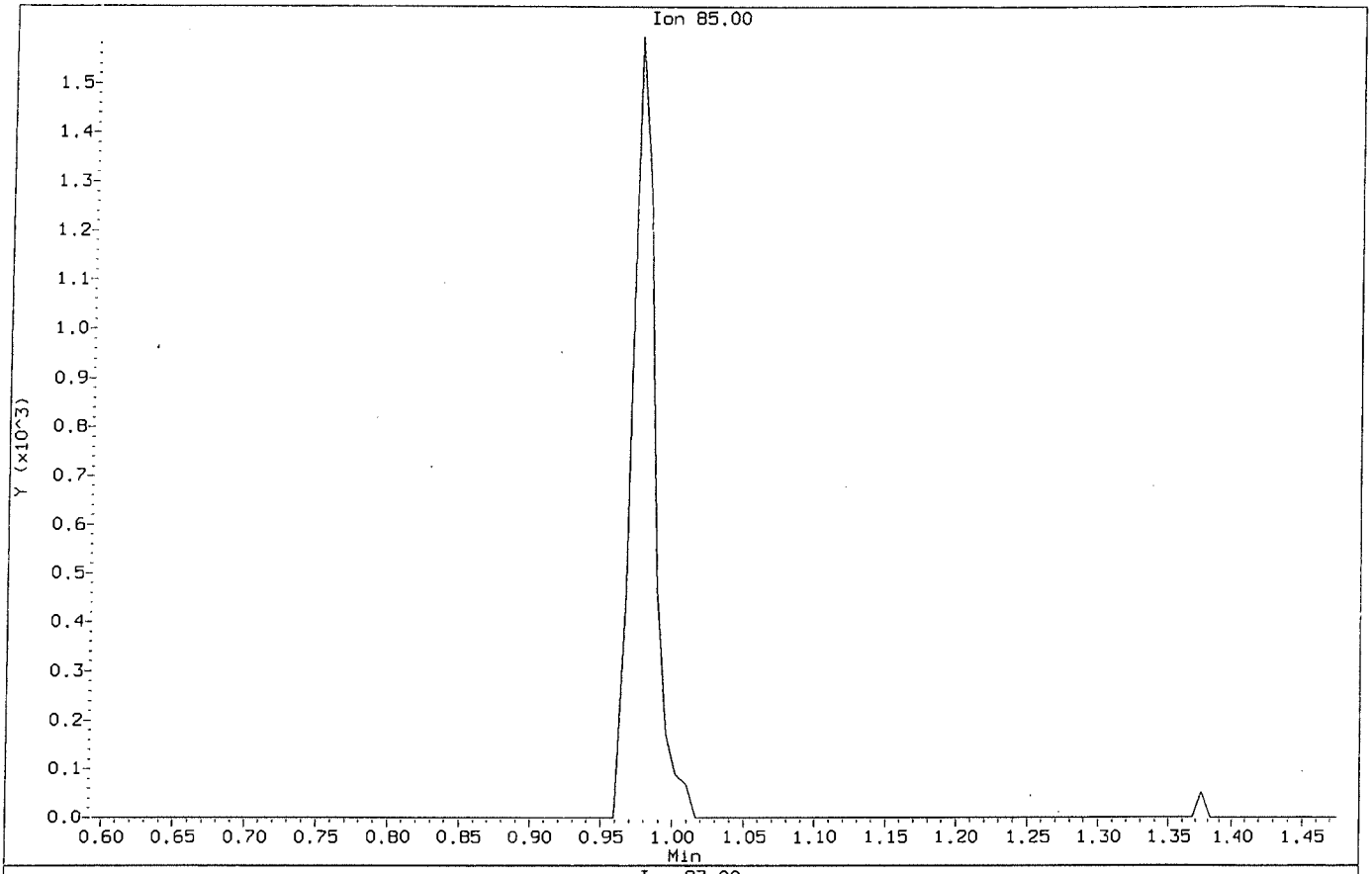
Compound: Chloromethane
CAS Number: 74-87-3

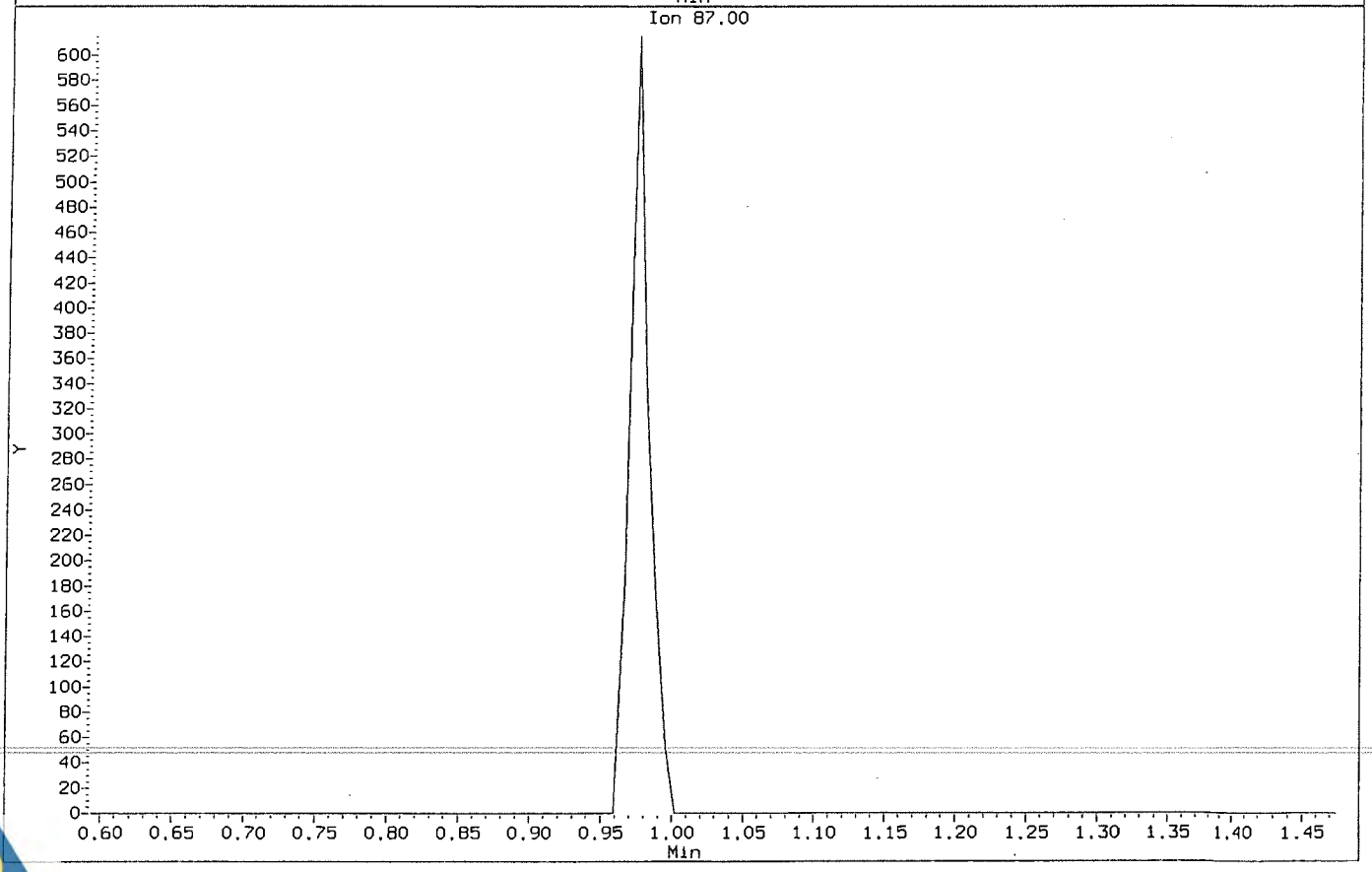




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

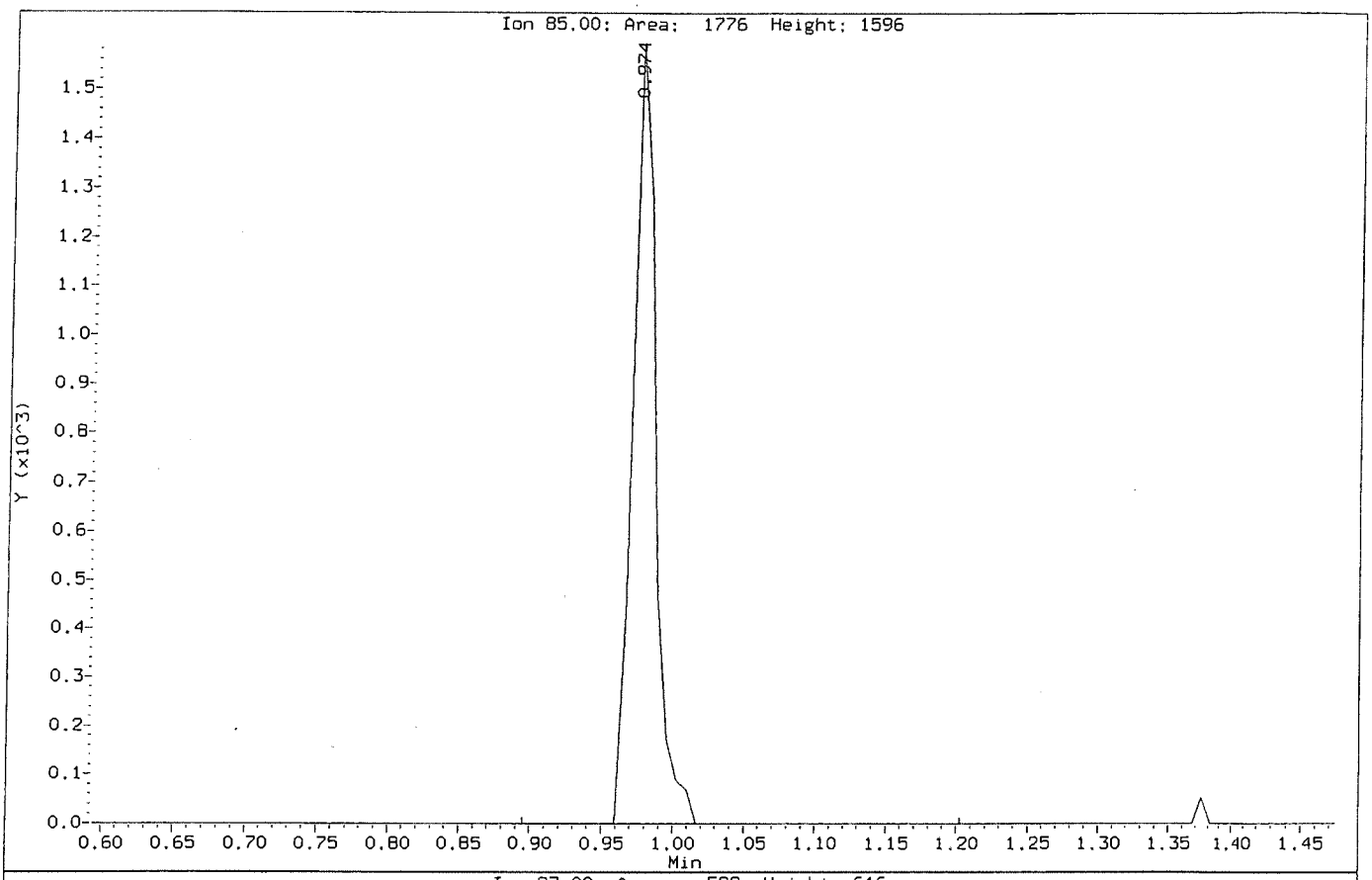
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

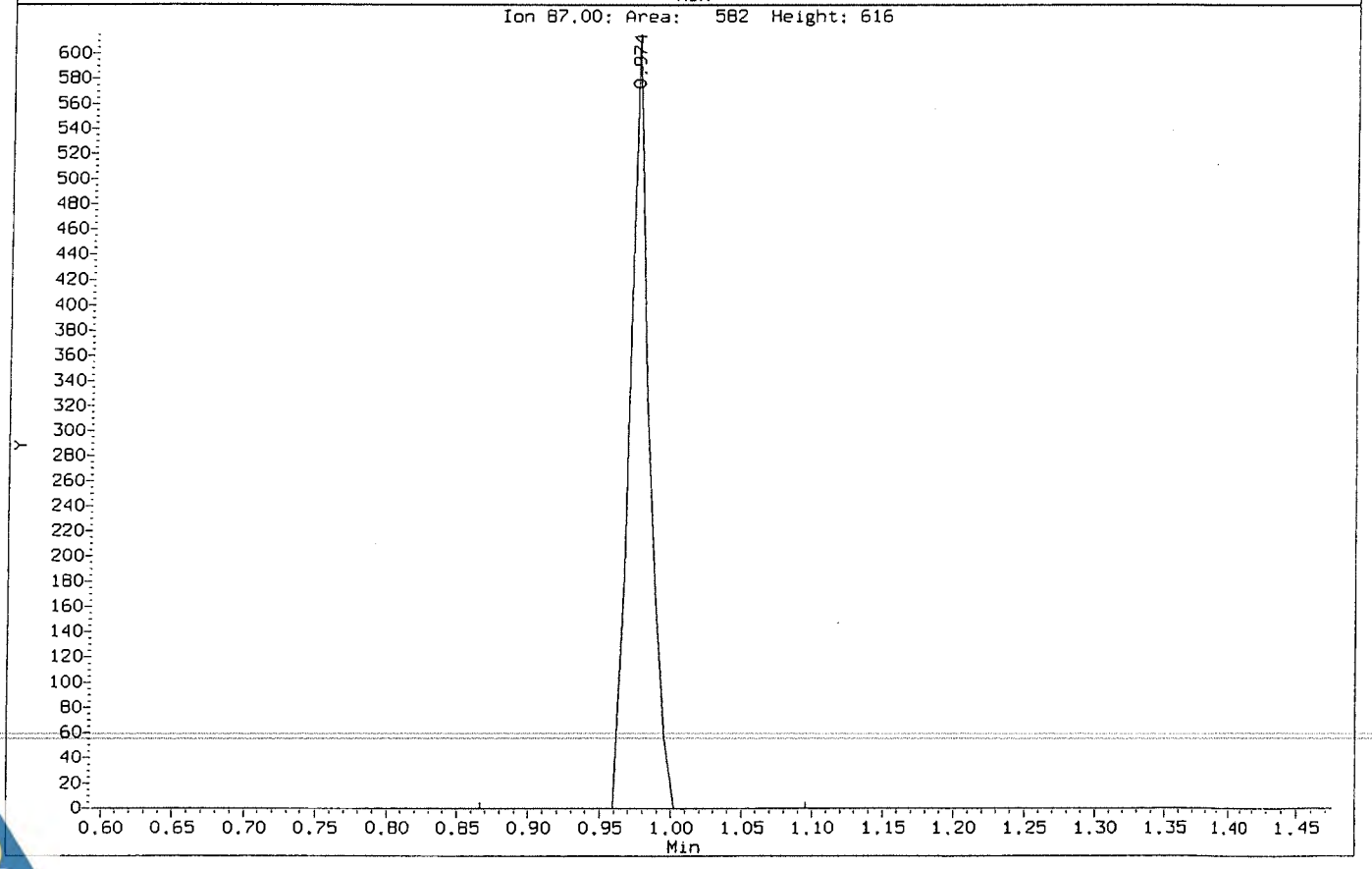




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 13-MAY-2019 12:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:33 Cal File: X051304.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	317314	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436509	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	405959	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	226209	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2924	1.00000	0.87(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3897	1.00000	0.57(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	2821	1.00000	0.67(a)
$	48 Toluene-d8	98	6.396	6.388	(0.834)	10173	1.00000	0.46(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	3257	1.00000	1.02(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	4281	1.00000	1.01(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	3251	1.00000	1.05(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	2736	1.00000	1.96(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2056	1.00000	0.98(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	4674	1.00000	1.04(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2641	1.00000	1.06(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	4103	1.00000	1.13(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1624	1.00000	1.62(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	3382	1.00000	0.95(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	3018	1.00000	0.90(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	11308	1.00000	1.04(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	465	1.00000	0.94(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	2866	1.00000	1.00(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	6630	1.00000	1.01(a)

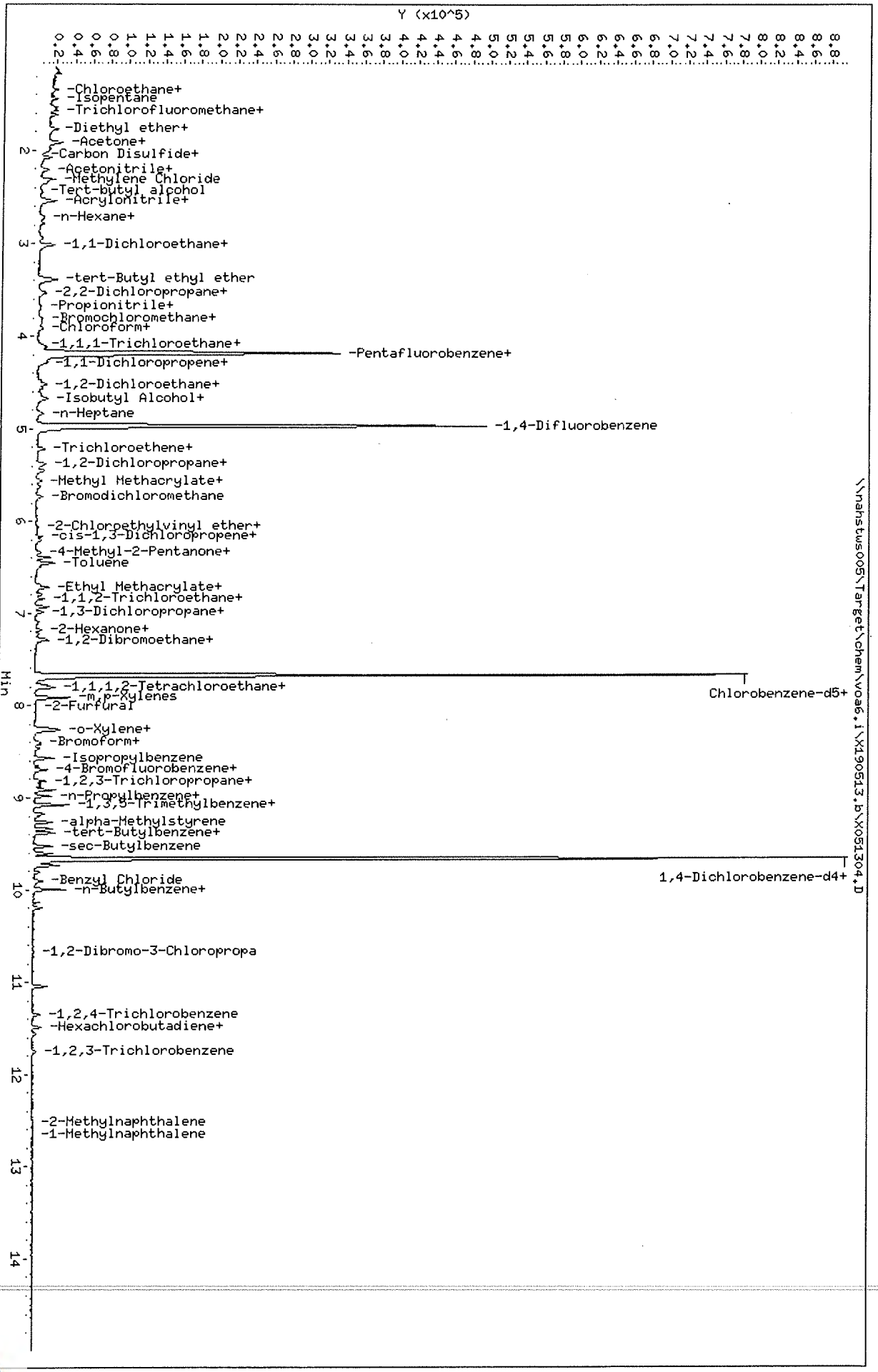
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

	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	4.562	(0.919)	3849	1.00000	1.04 (aM)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	2660	1.00000	1.04 (aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	10502	1.00000	1.02 (a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	7204	1.00000	1.03 (a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	4373	1.00000	1.04 (a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	7189	1.00000	1.02 (a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	4095	1.00000	1.03 (a)
24	2-Butanone	43	3.616	3.581	(0.863)	1388	2.00000	1.83 (aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	8920	1.00000	1.06 (a)
52	2-Hexanone	43	7.097	7.090	(0.925)	2901	2.00000	2.05 (a)
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	10275	1.00000	1.06 (a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	11053	1.00000	0.99 (a)
45	4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	4184	2.00000	2.03 (a)
10	Acetone	43	1.983	1.976	(0.473)	2678	2.00000	2.24 (a)
37	Benzene	78	4.526	4.519	(0.911)	10709	1.00000	1.01 (a)
74	Bromobenzene	156	8.809	8.810	(0.911)	4202	1.00000	0.99 (a)
29	Bromochloromethane	128	3.810	3.803	(0.909)	2379	1.00000	1.35 (a)
39	Bromodichloromethane	83	5.737	5.729	(1.154)	3754	1.00000	1.02 (aM)
66	Bromoform	173	8.423	8.416	(1.098)	2104	1.00000	0.88 (Ta)
6	Bromomethane	94	1.346	1.339	(0.321)	3476	1.00000	2.28 (aM)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	14936	2.00000	2.08 (a)
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	4360	1.00000	1.07 (a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	8218	1.00000	1.01 (a)
7	Chloroethane	64	1.410	1.403	(0.337)	2109	1.00000	1.16 (a)
28	Chloroform	83	3.917	3.917	(0.935)	4905	1.00000	1.02 (a)
3	Chloromethane	50	1.081	1.081	(0.258)	4458	1.00000	(aM)
27	cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	3334	1.00000	1.07 (a)
46	cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	4133	1.00000	0.95 (a)
55	Dibromochloromethane	129	7.183	7.184	(0.937)	3225	1.00000	0.98 (a)
44	Dibromomethane	93	5.557	5.558	(1.118)	1829	1.00000	0.99 (a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	2995	1.00000	1.66 (a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	4183	1.00000	0.99 (a)
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	2046	1.00000	1.03 (a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	12473	1.00000	1.00 (a)
62	m,p-Xylenes	106	7.914	7.907	(1.032)	10328	2.00000	2.04 (a)
17	Methylene Chloride	84	2.313	2.306	(0.552)	5114	1.00000	1.31 (a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	8499	1.00000	0.96 (a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	14130	1.00000	1.01 (a)
92	Naphthalene	128	11.553	11.546	(1.195)	4284	1.00000	0.90 (a)
63	o-Xylene	106	8.251	8.244	(1.076)	4970	1.00000	1.00 (a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	12554	1.00000	1.03 (a)
64	Styrene	104	8.265	8.265	(1.078)	8687	1.00000	1.00 (a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	9421	1.00000	1.05 (a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	2871	1.00000	0.96 (a)
50	Toluene	91	6.453	6.453	(0.841)	12021	1.00000	1.01 (a)
20	trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	2652	1.00000	1.02 (a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	3578	1.00000	0.94 (a)
38	Trichloroethene	130	5.221	5.214	(1.050)	3417	1.00000	1.01 (a)
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	4828	1.00000	1.02 (a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	3486	1.00000	1.20 (aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

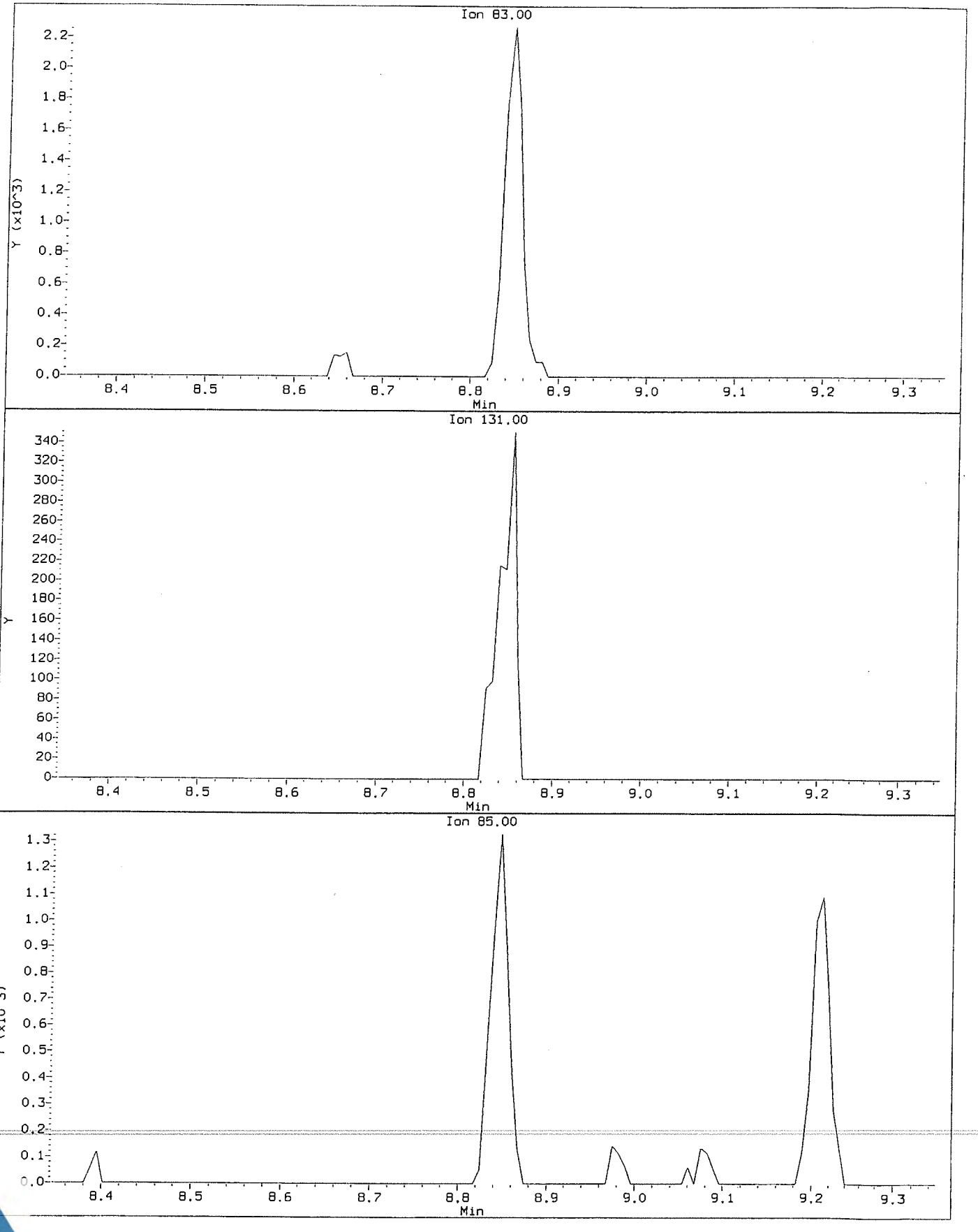
QC Flag Legend

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


Y (x10^5)
-Chloroethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Carbon Disulfide+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
Min
\\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Date : 13-MAY-2019 12:33
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

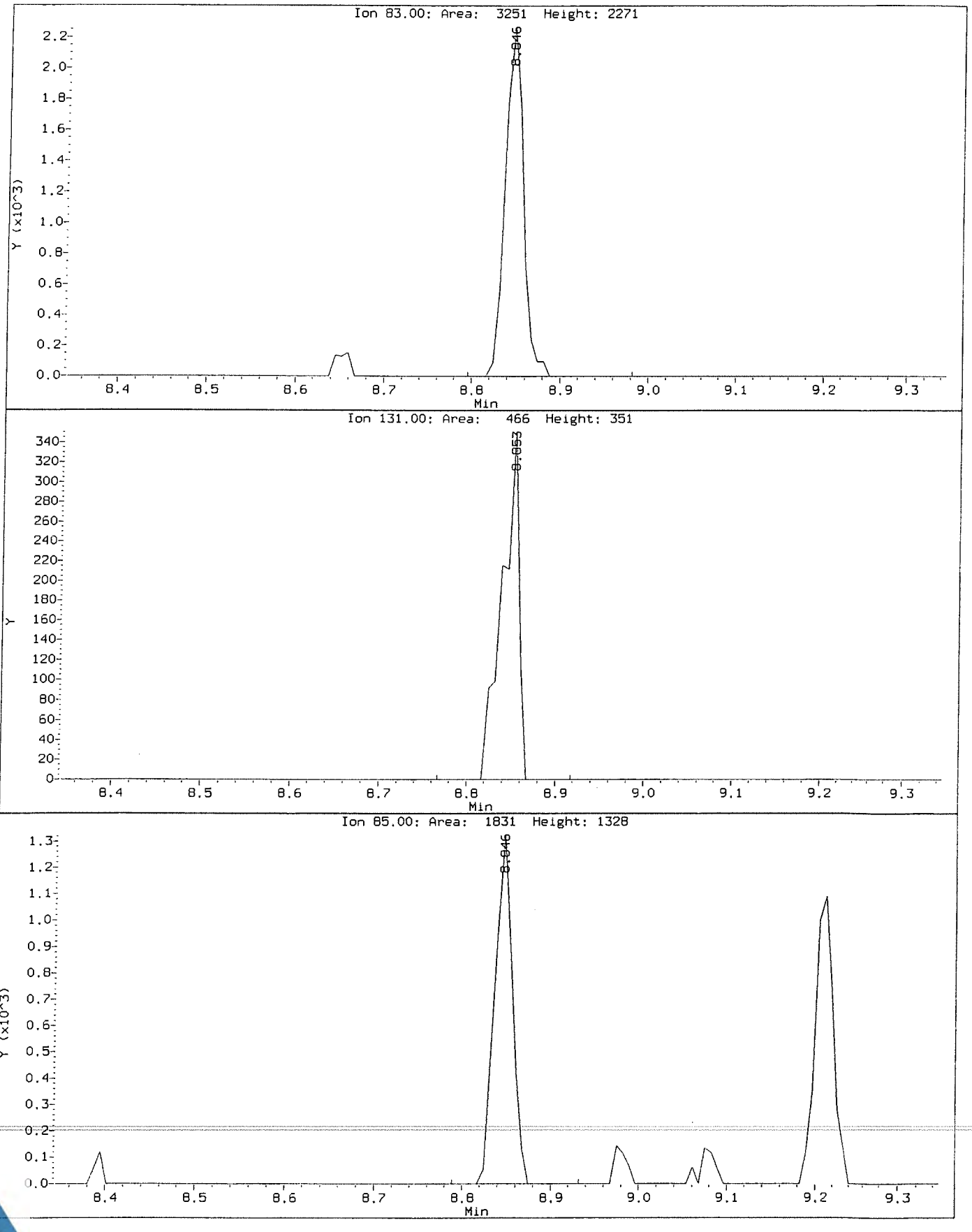
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



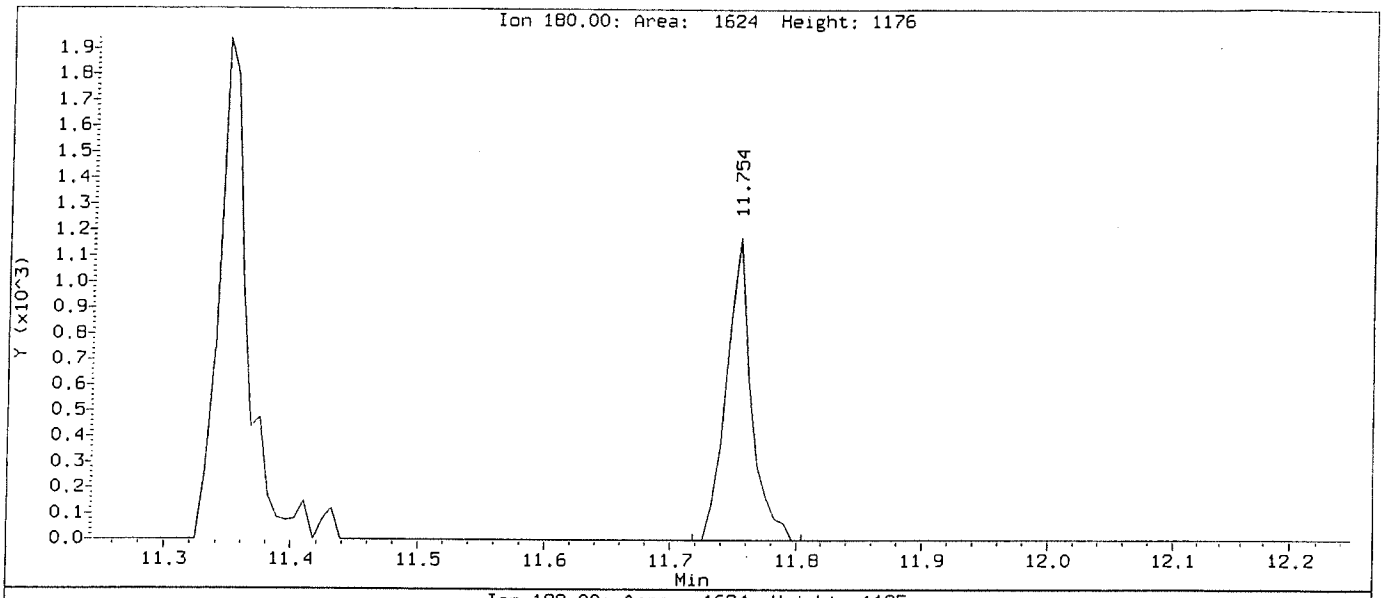
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

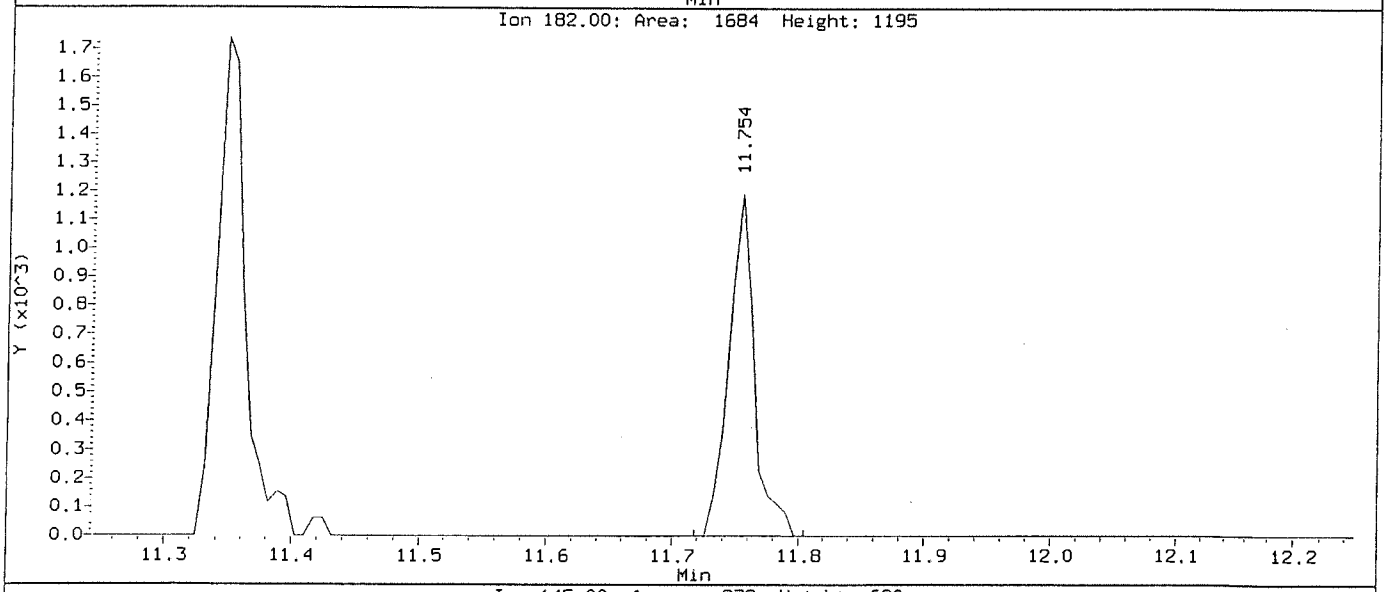
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

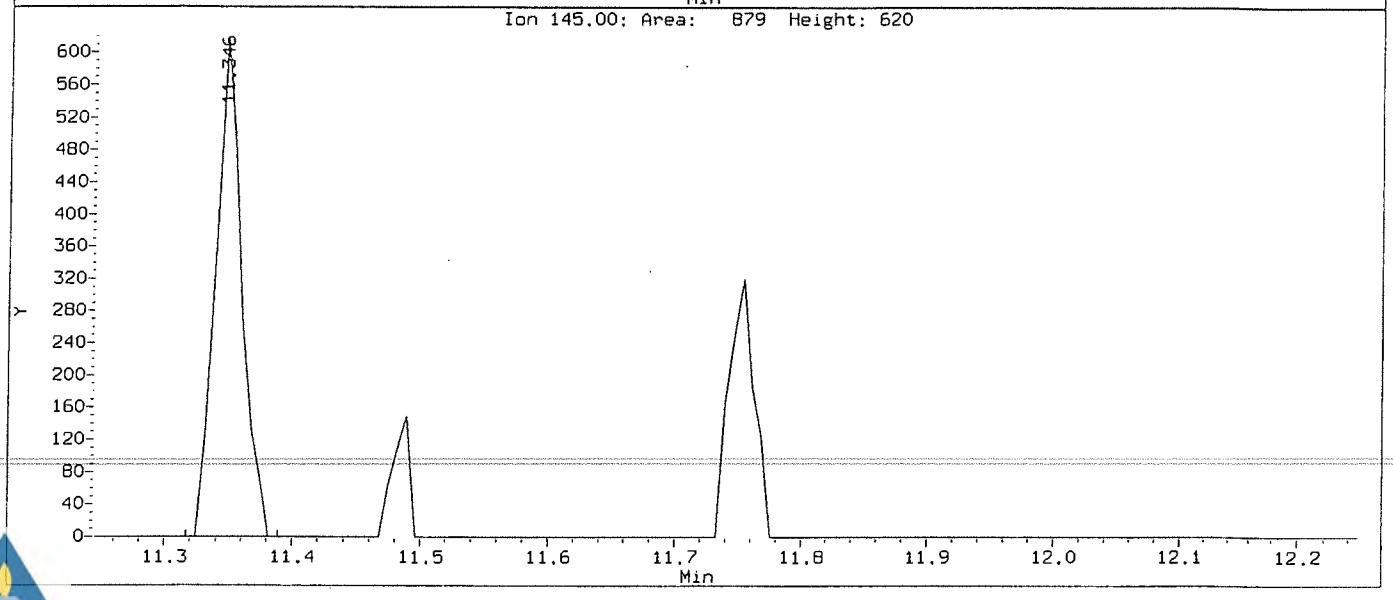


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

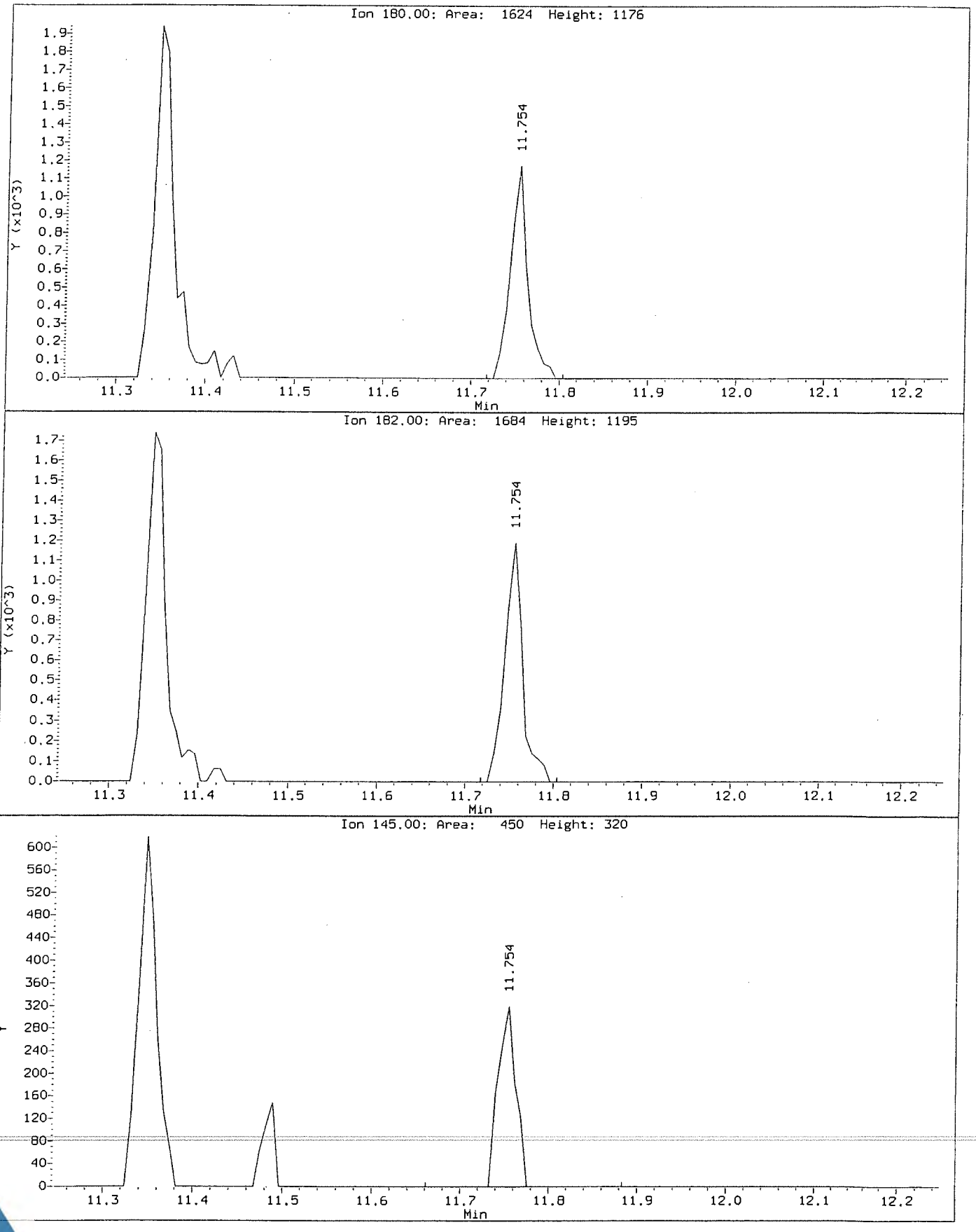






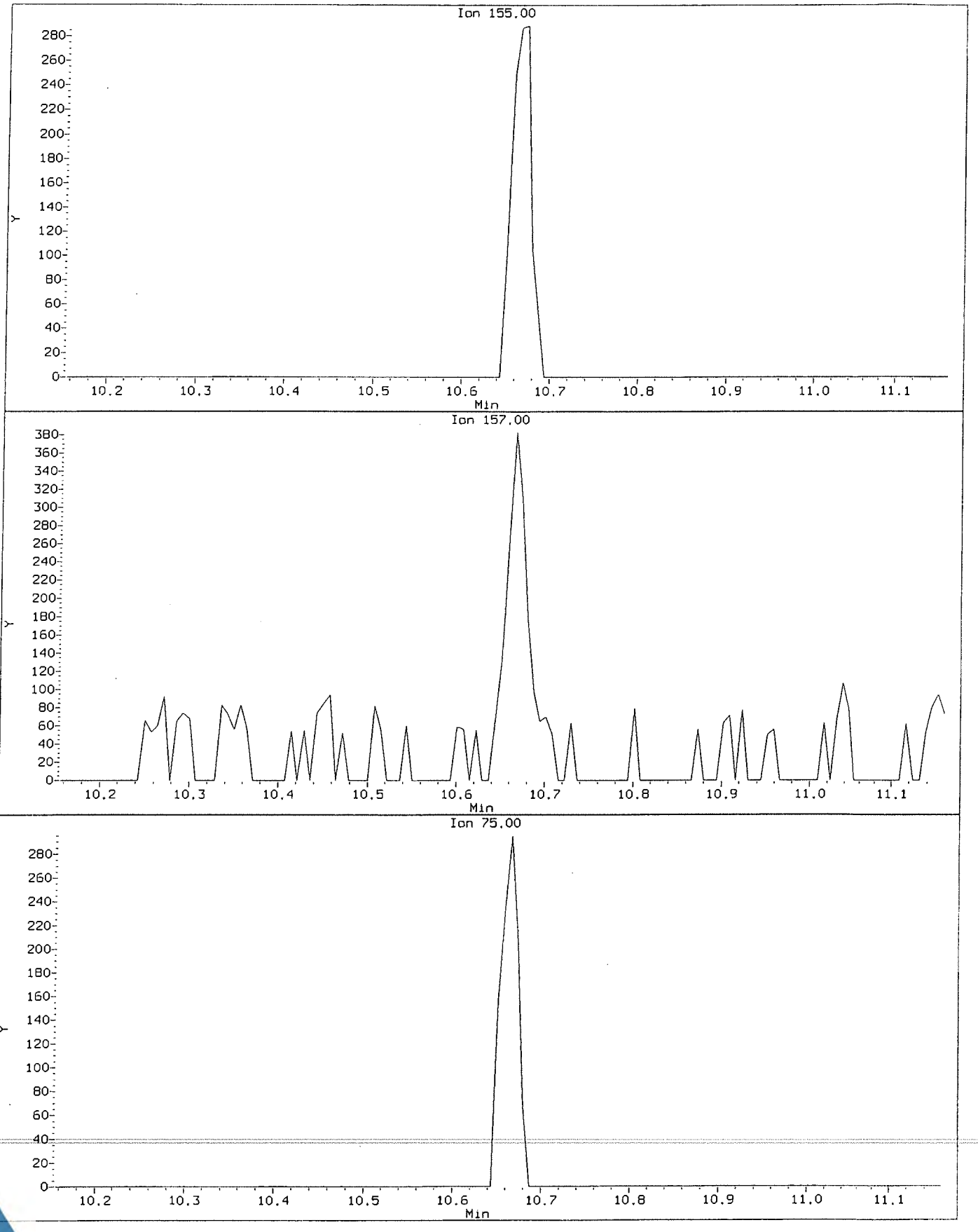
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



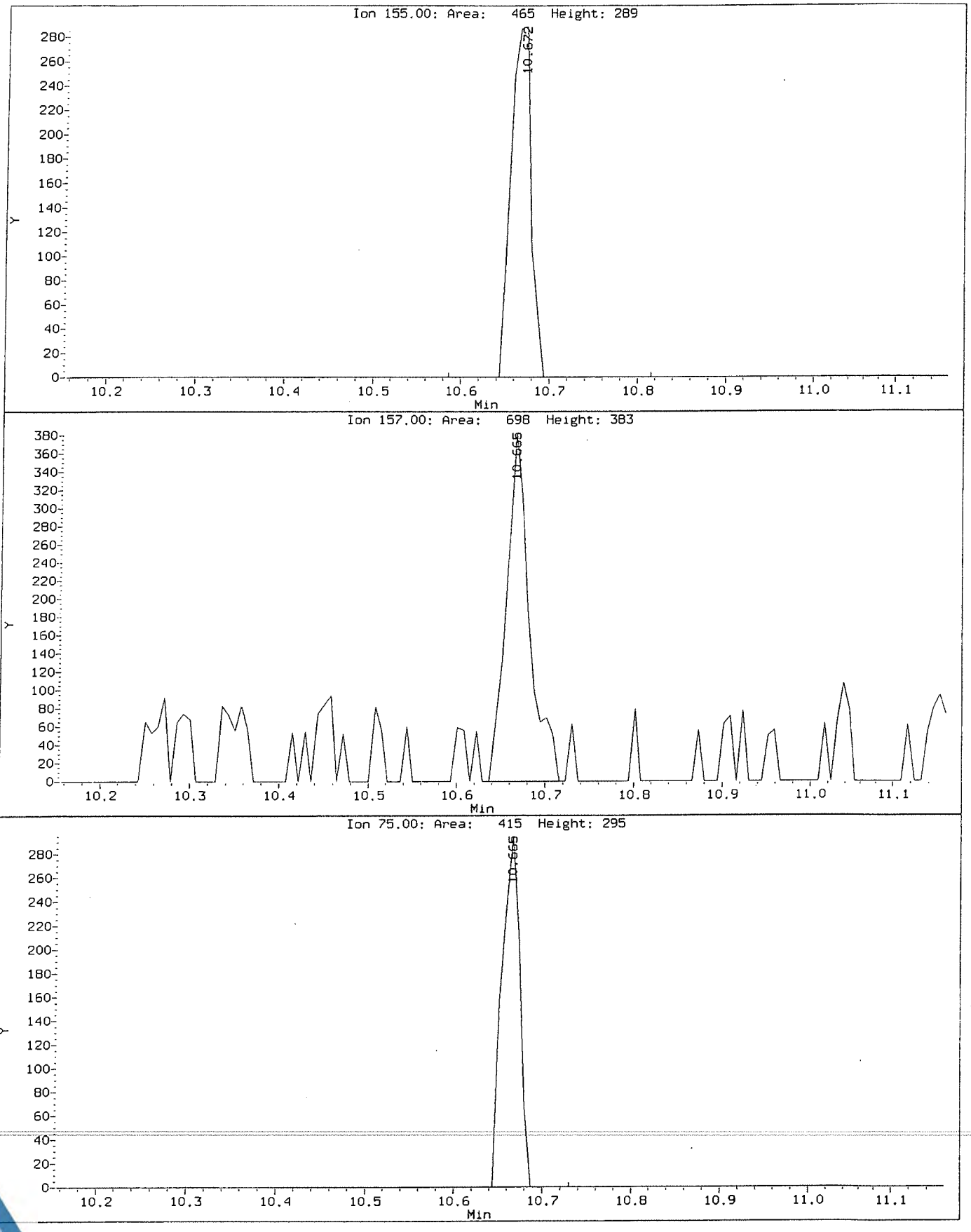
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



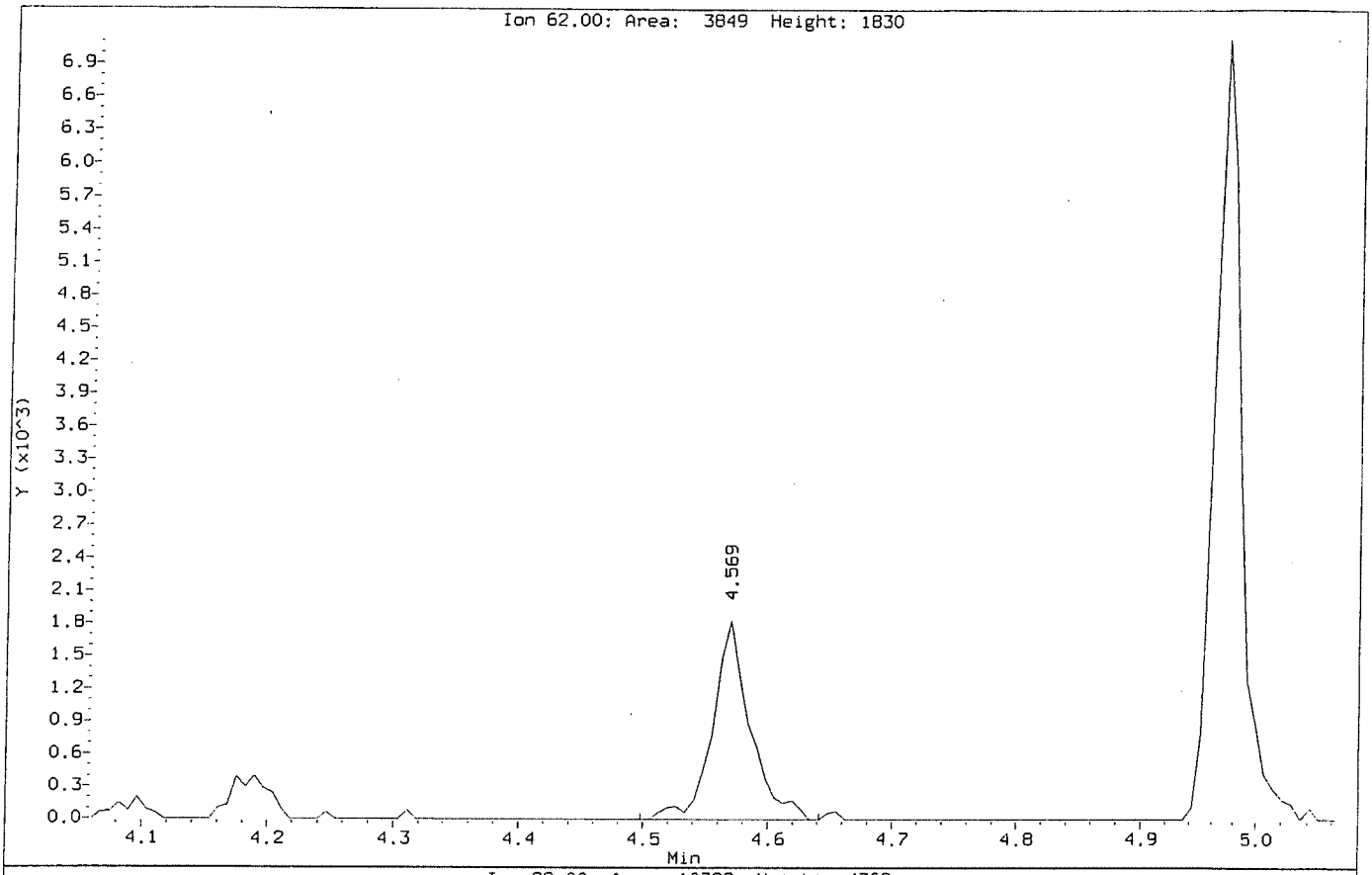
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

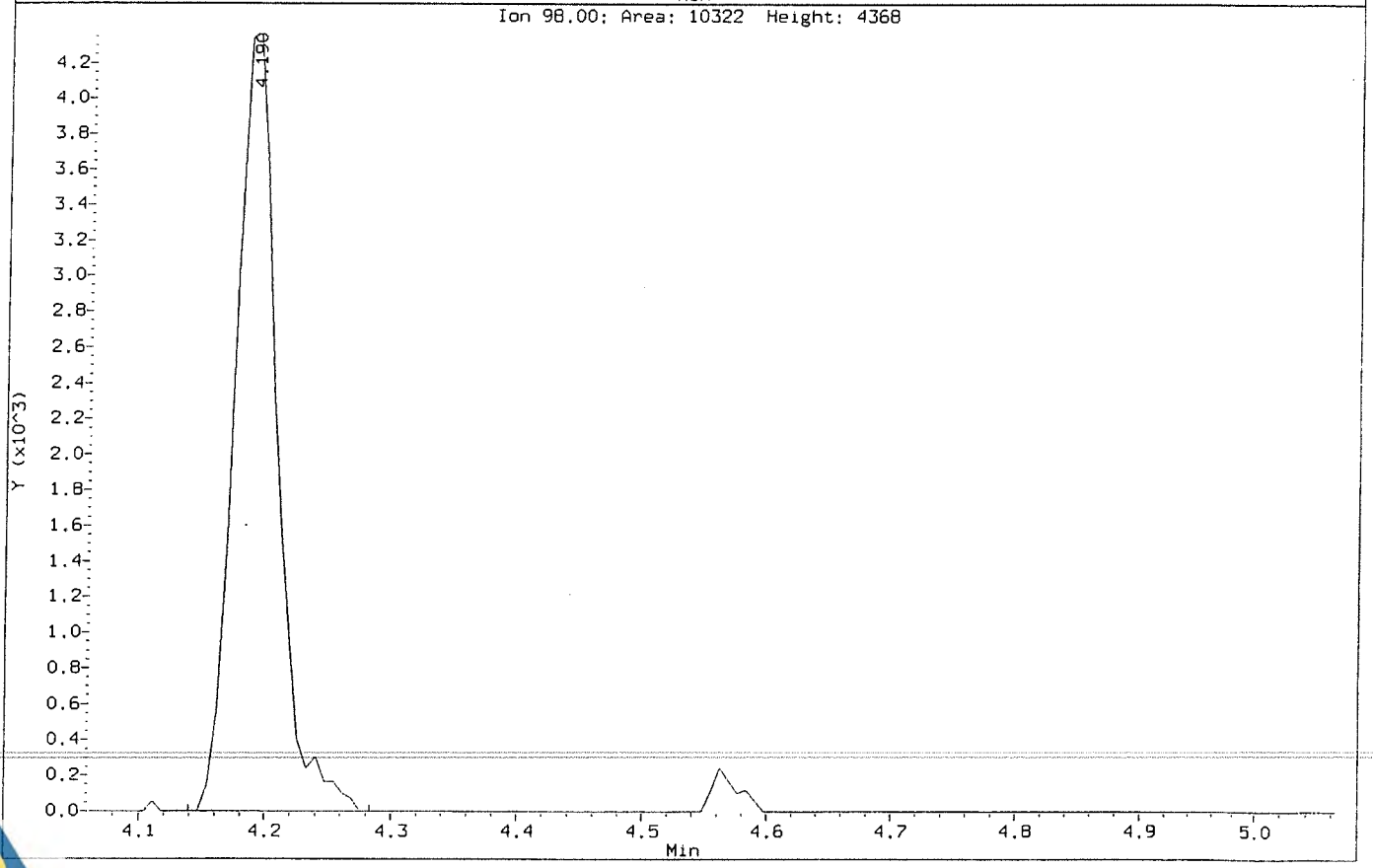
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

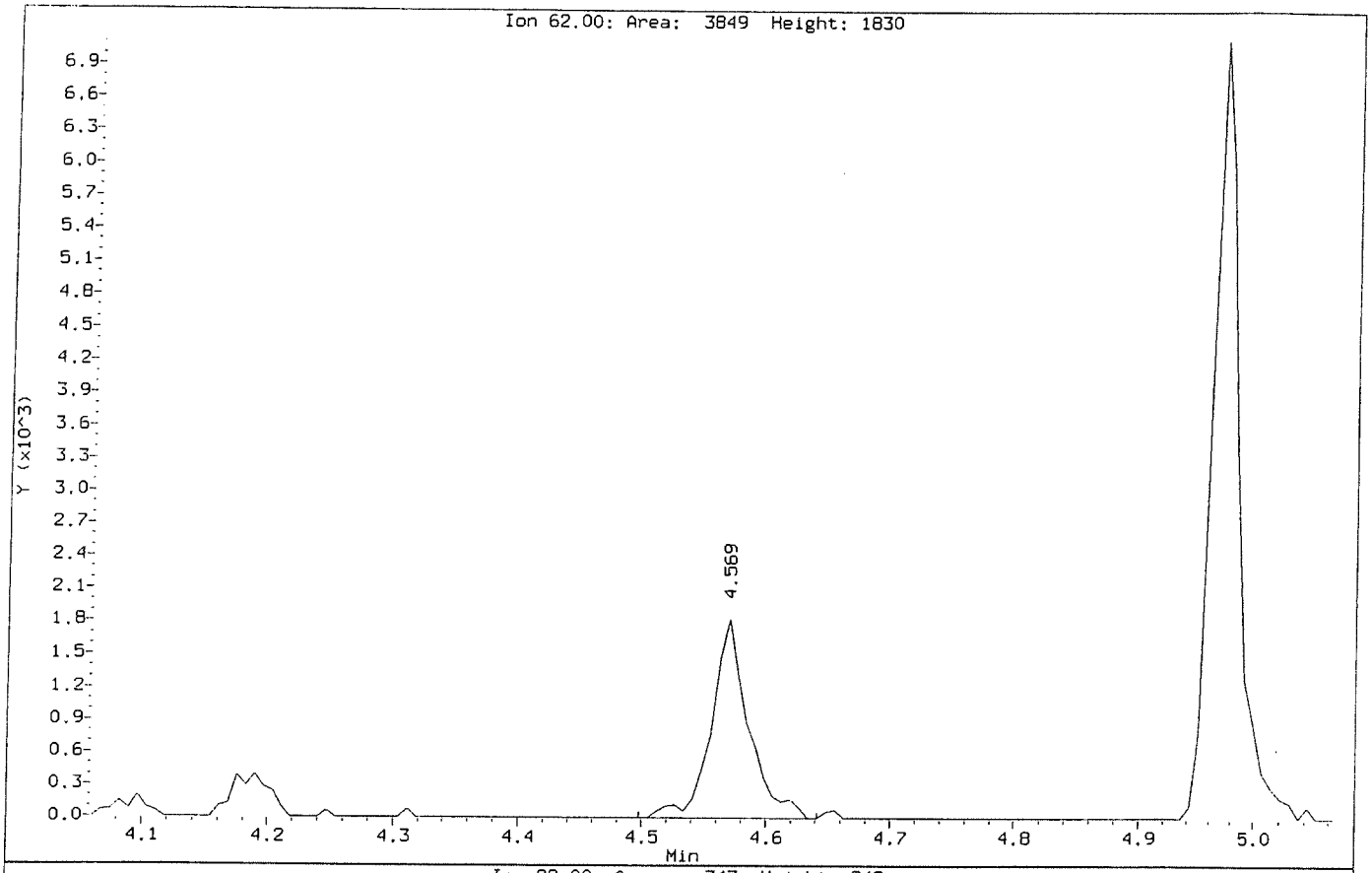
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

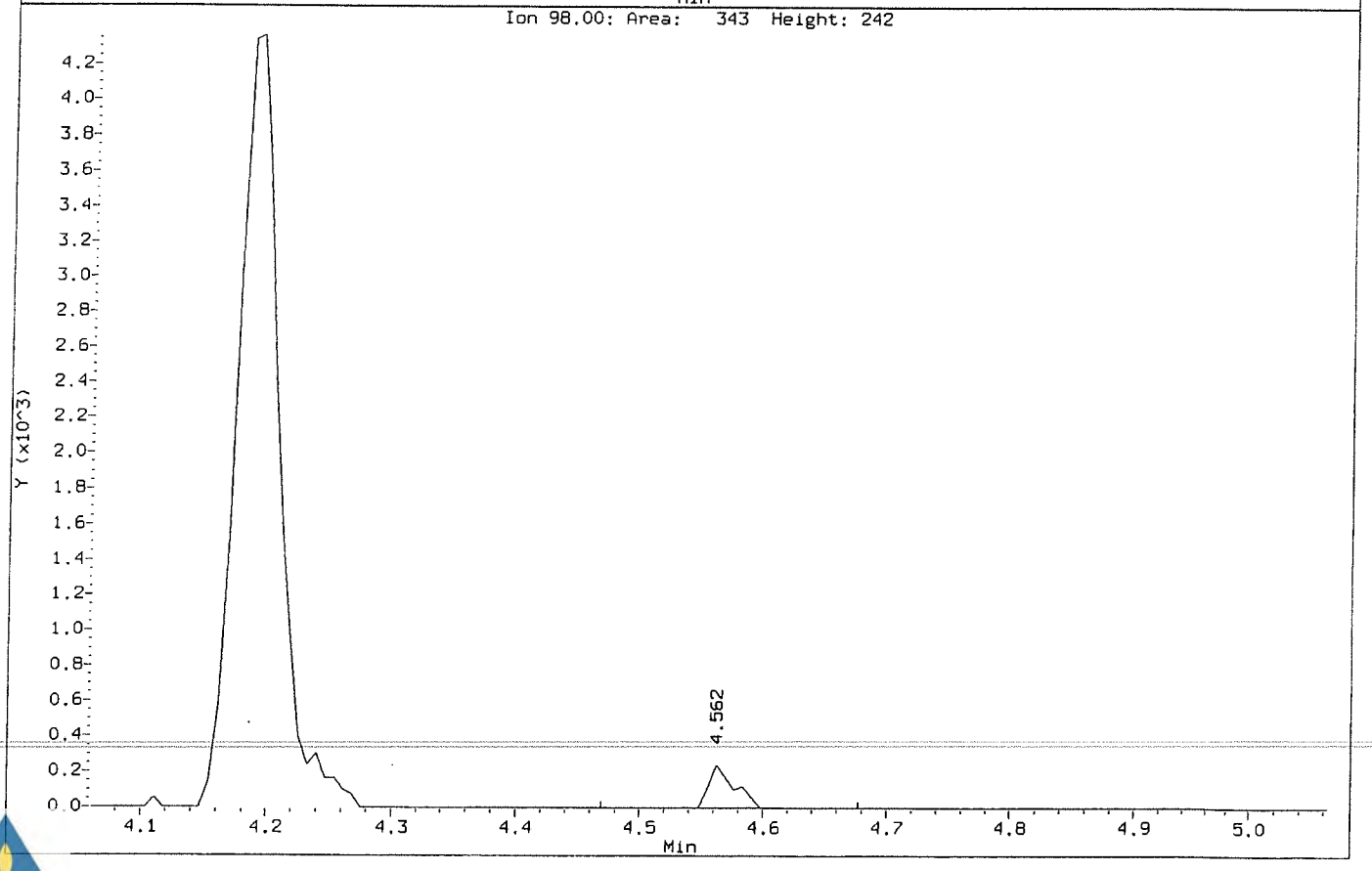




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

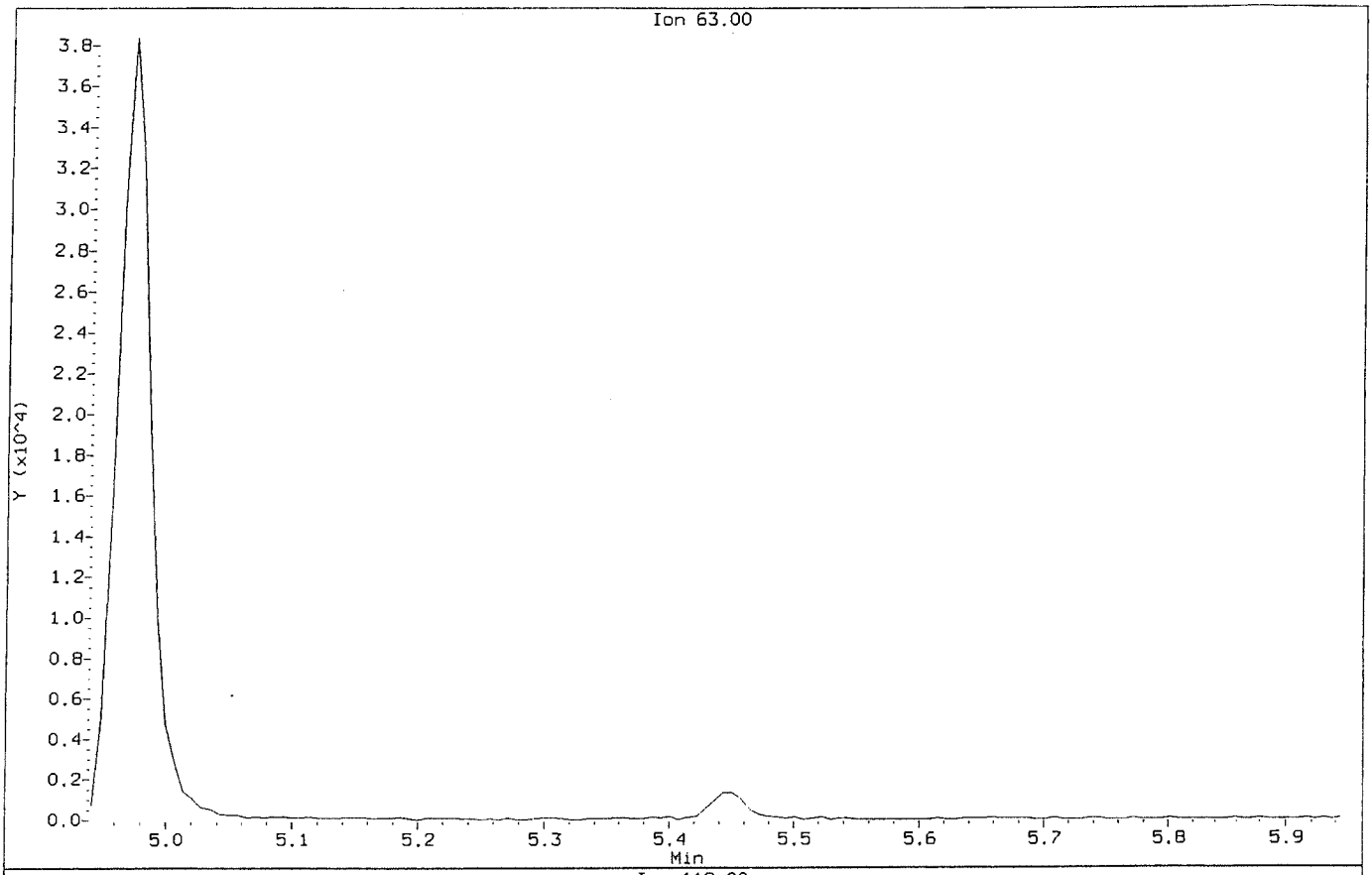
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

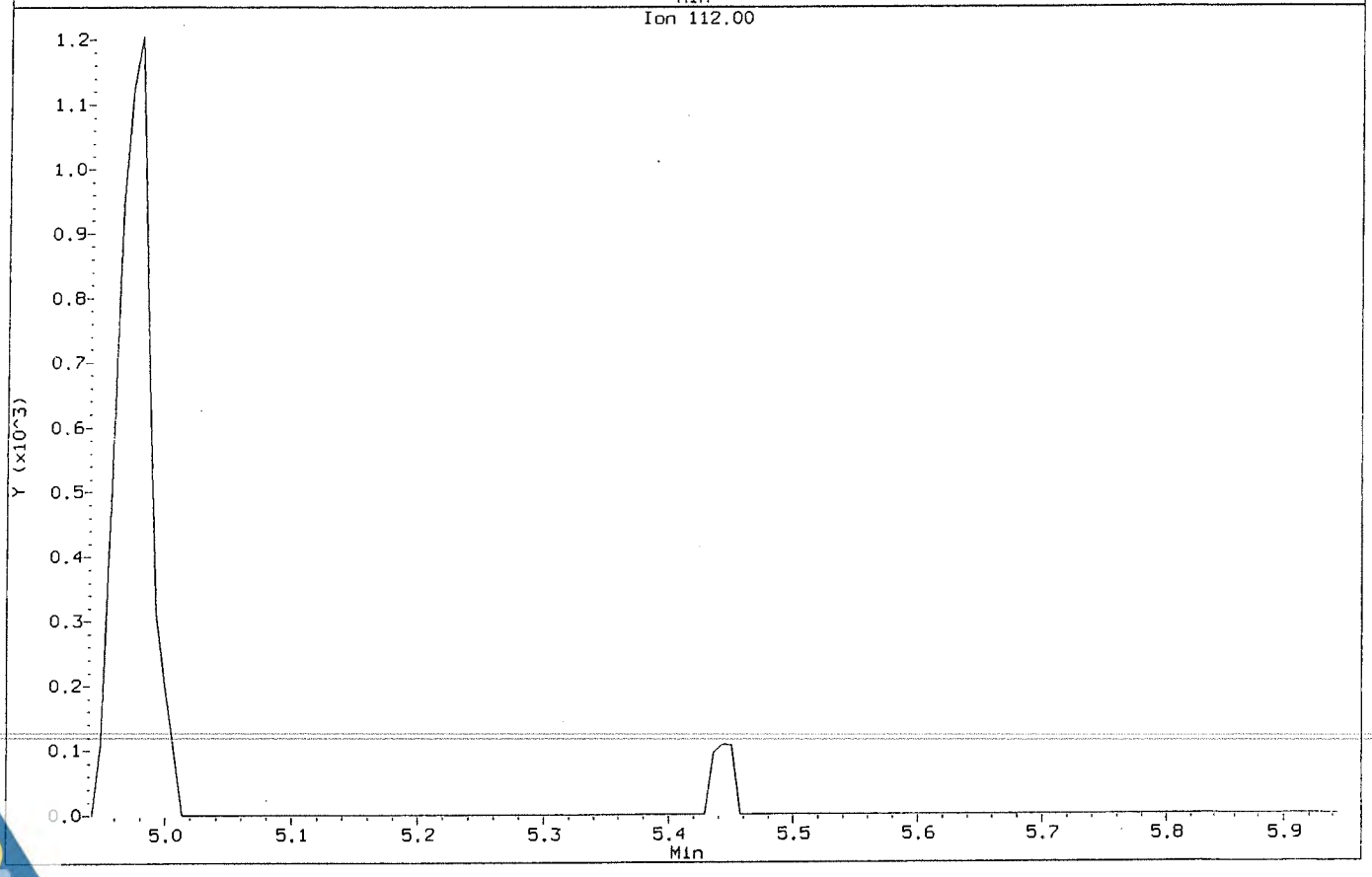




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

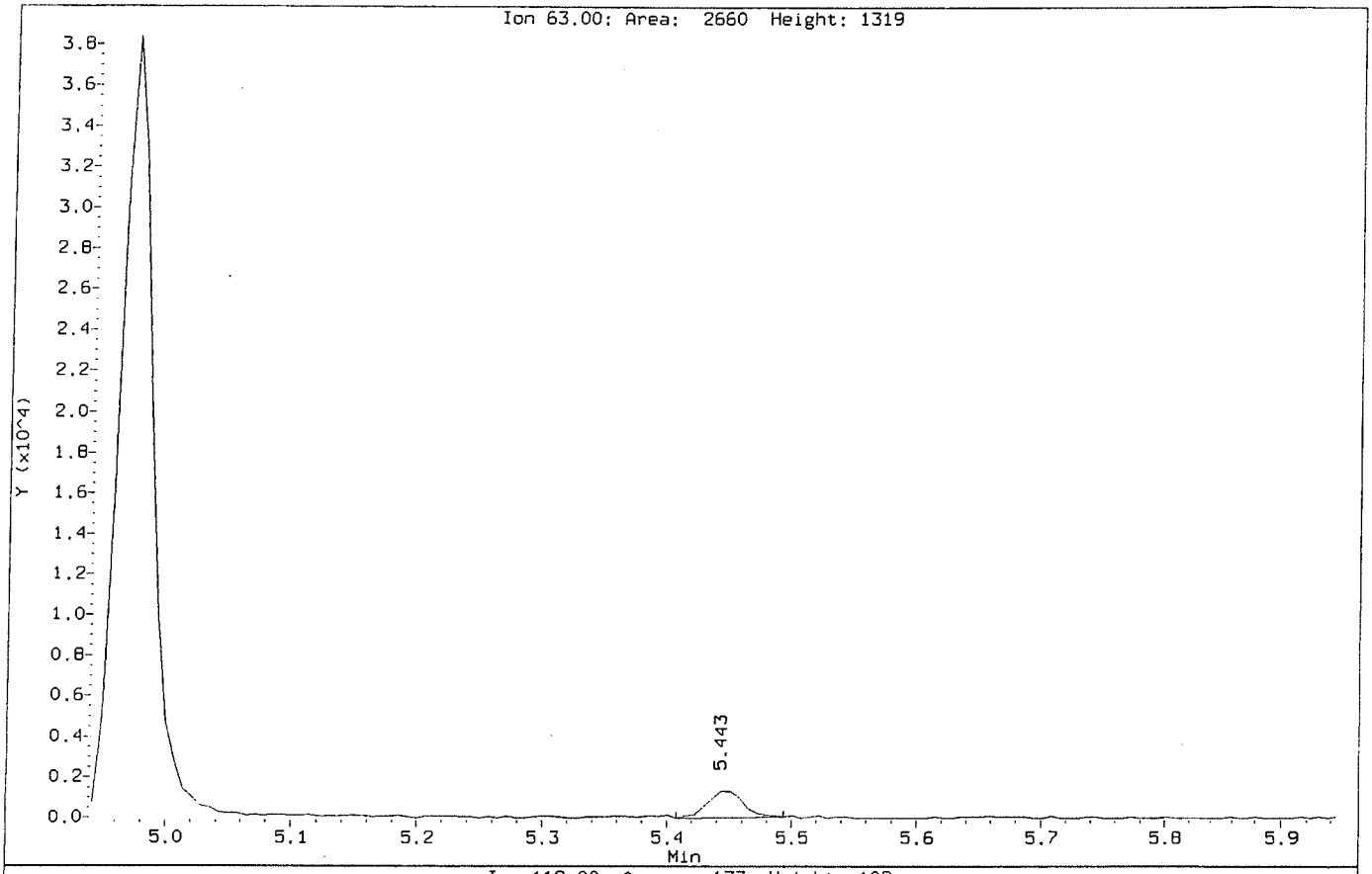
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

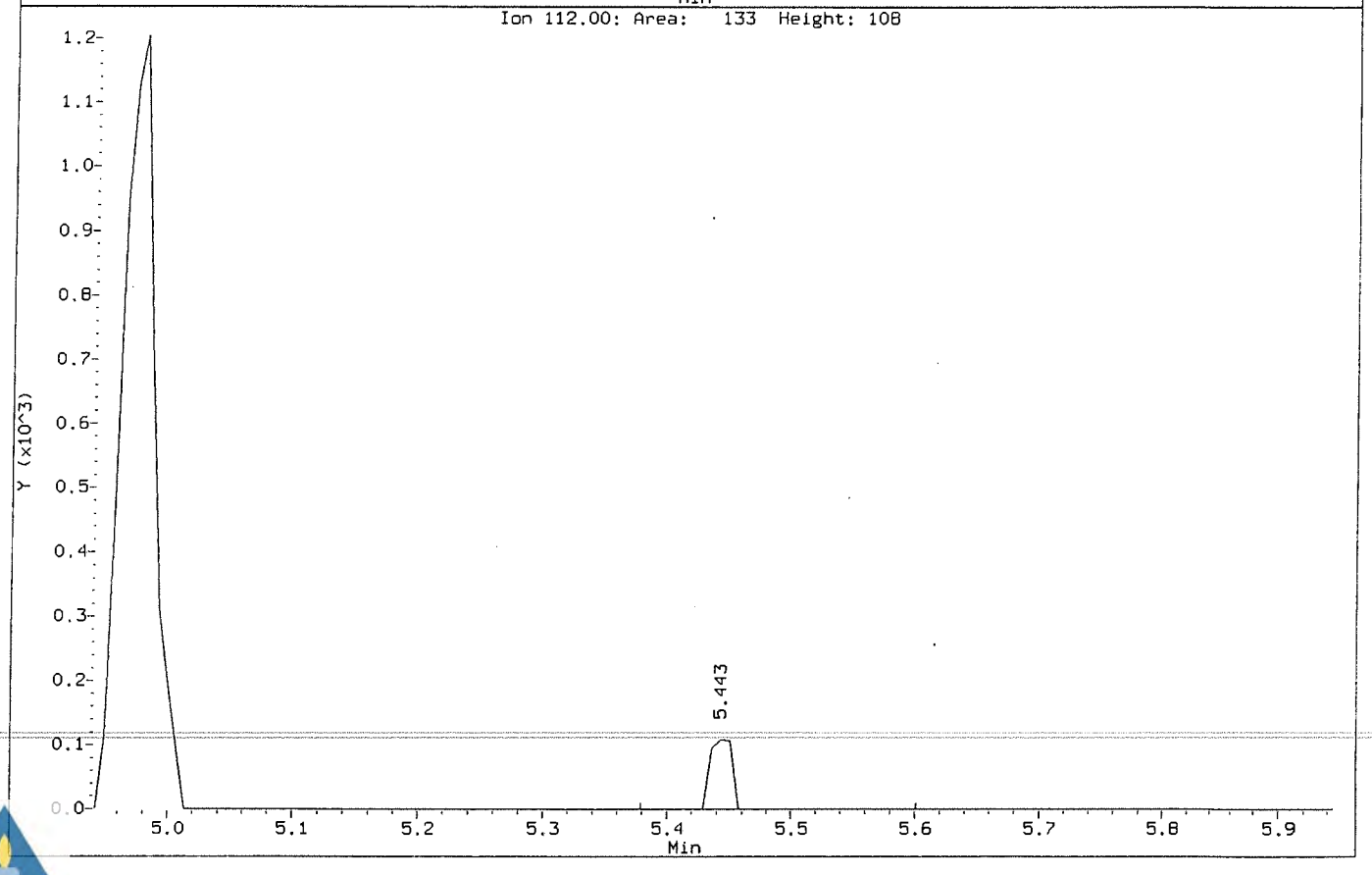




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

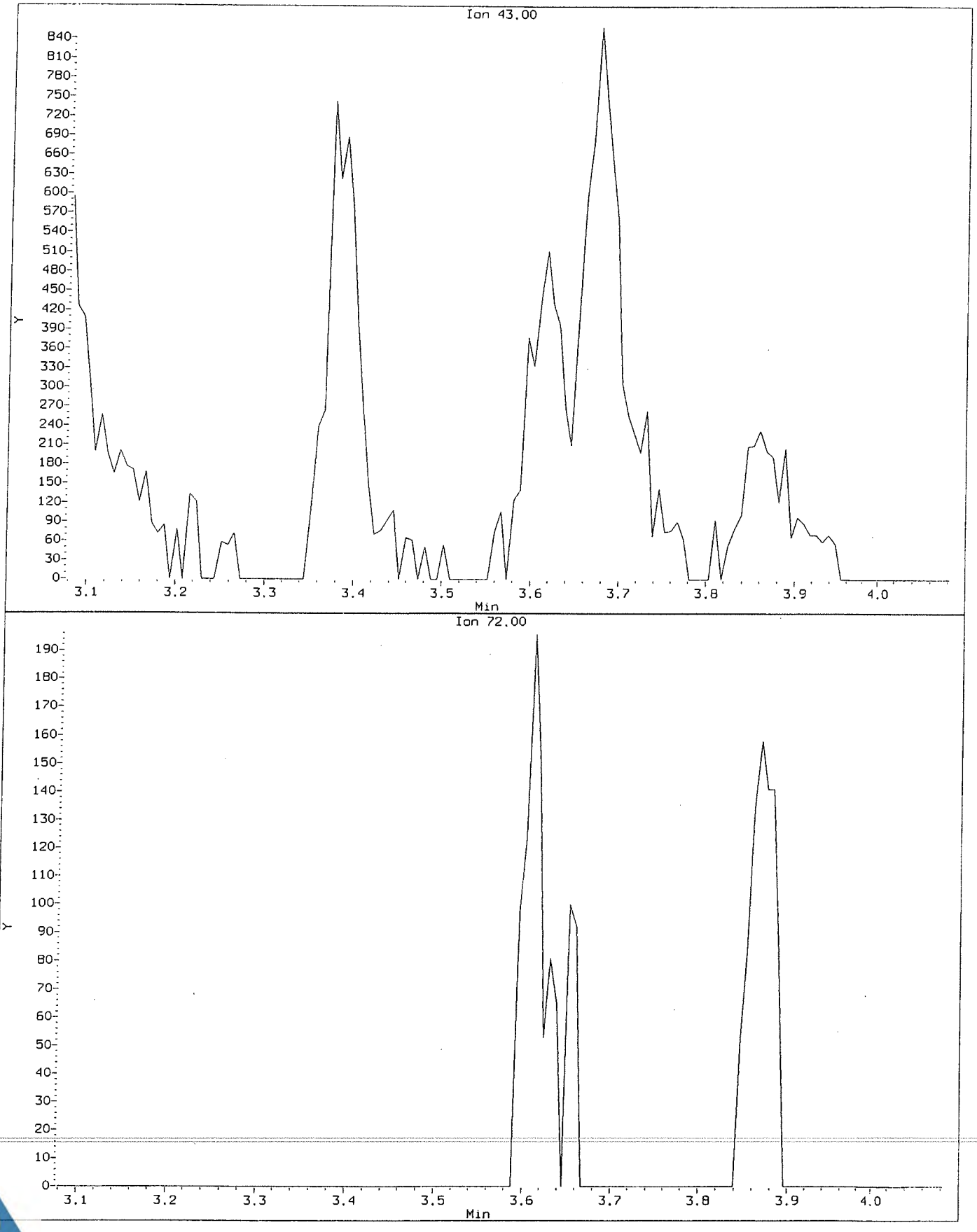
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





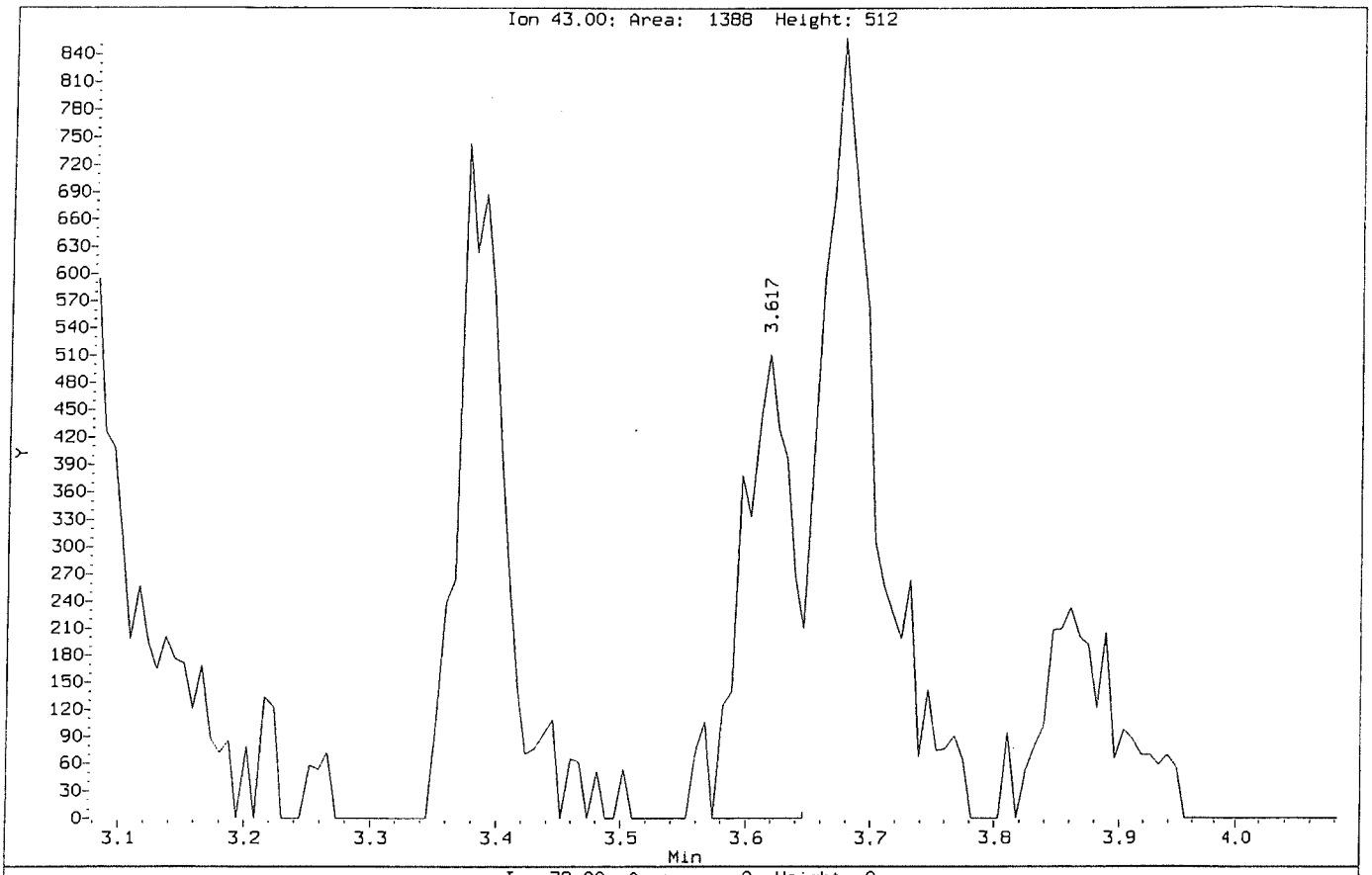
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

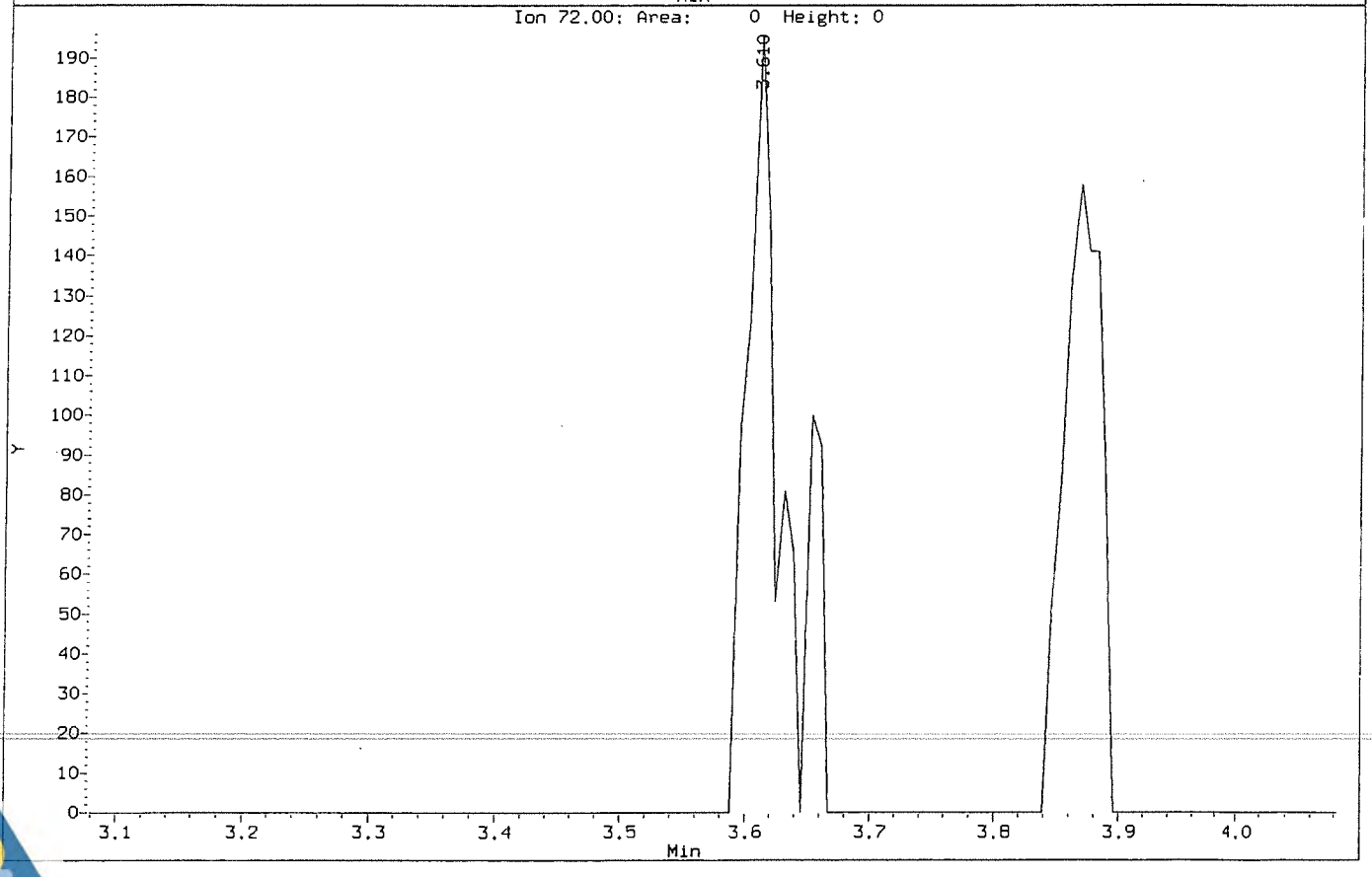
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

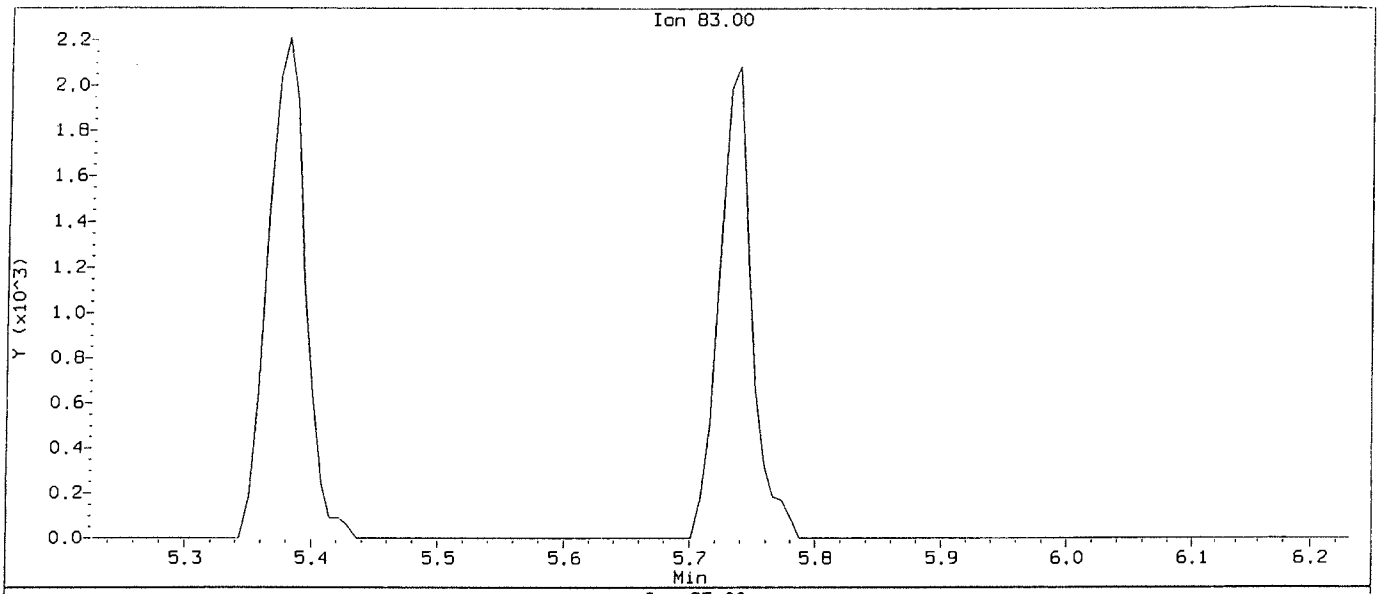
Compound: 2-Butanone
CAS Number: 78-93-3

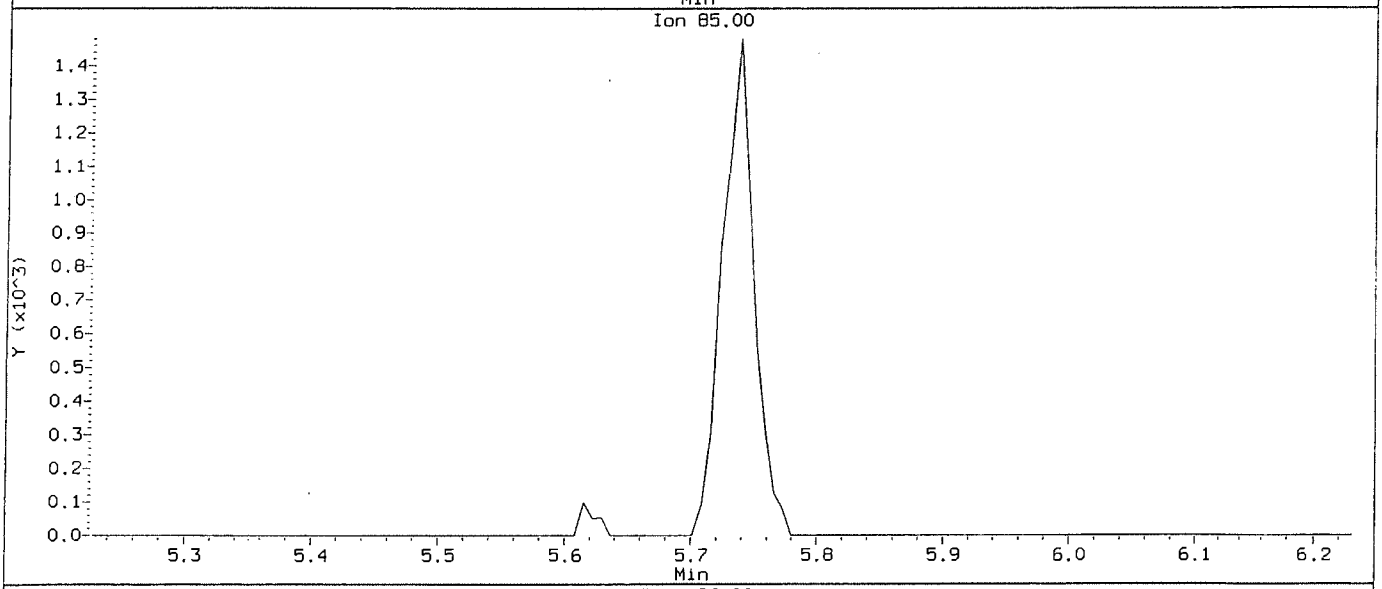


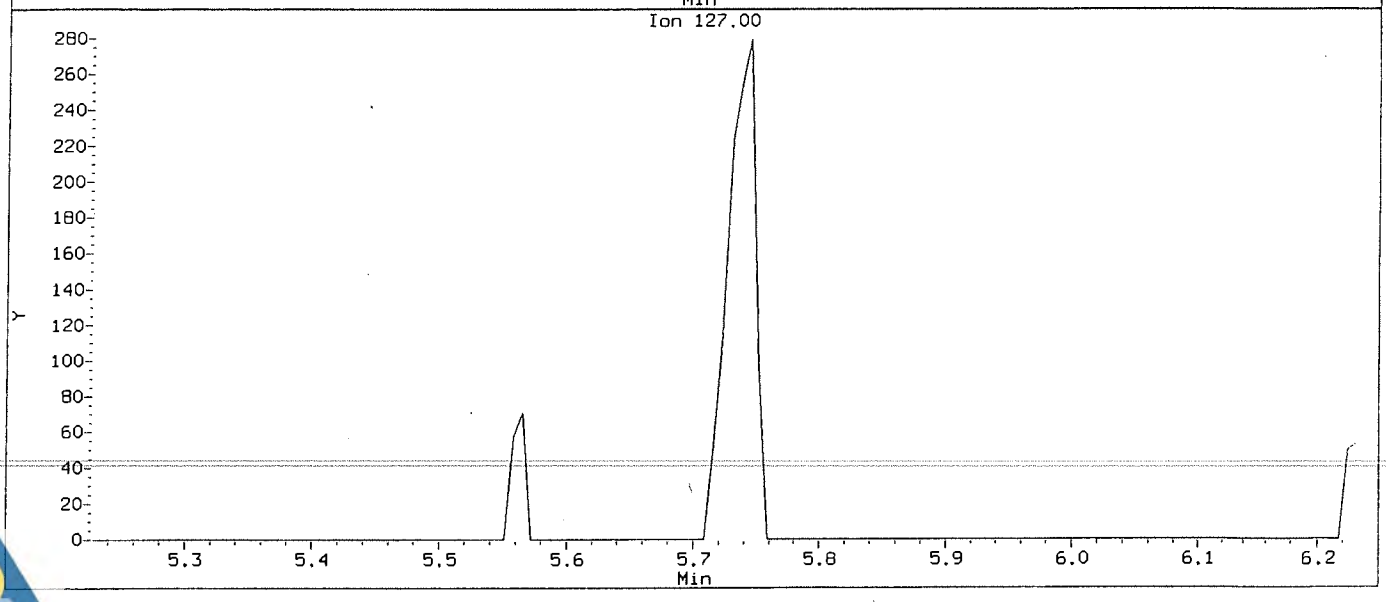


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4

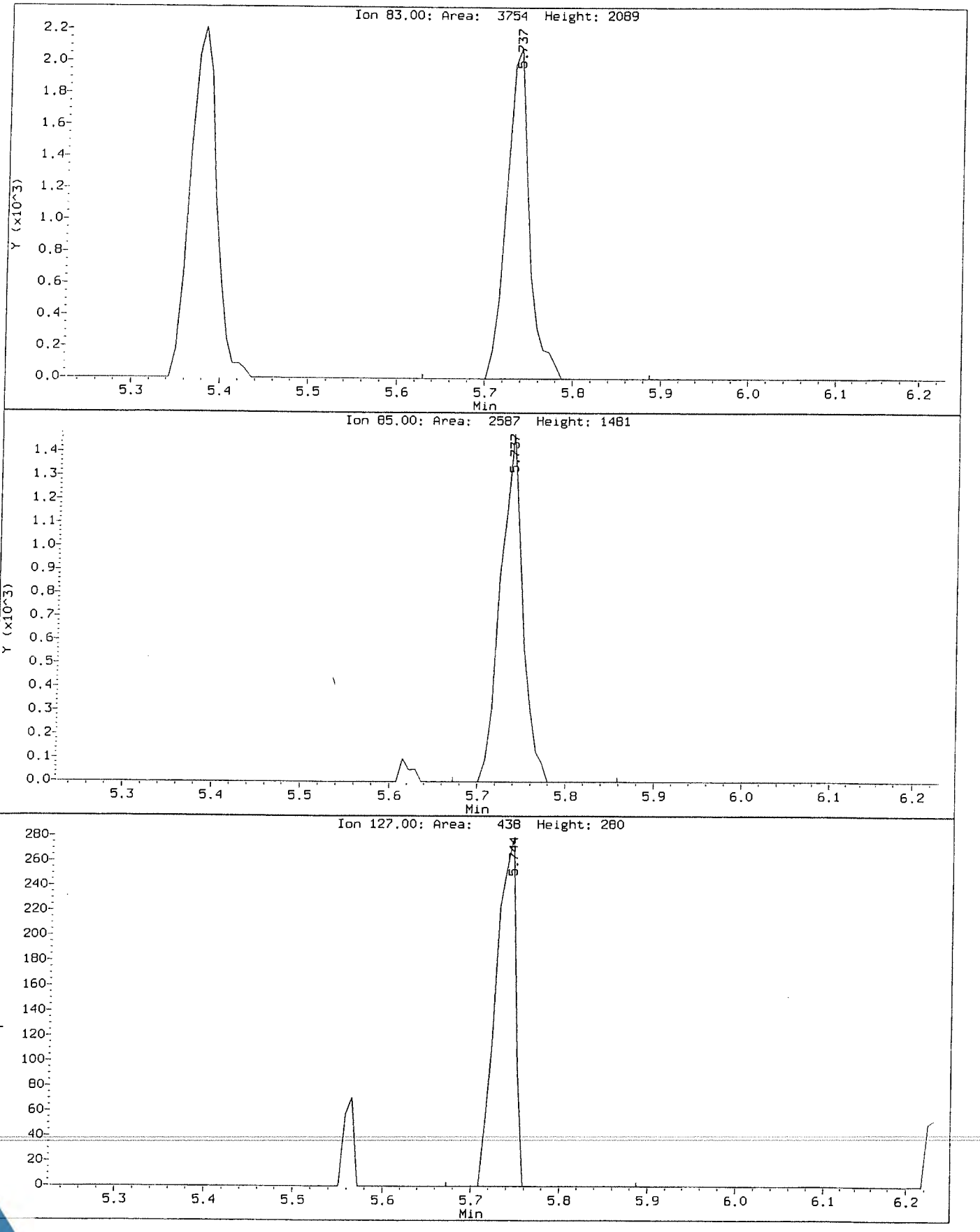






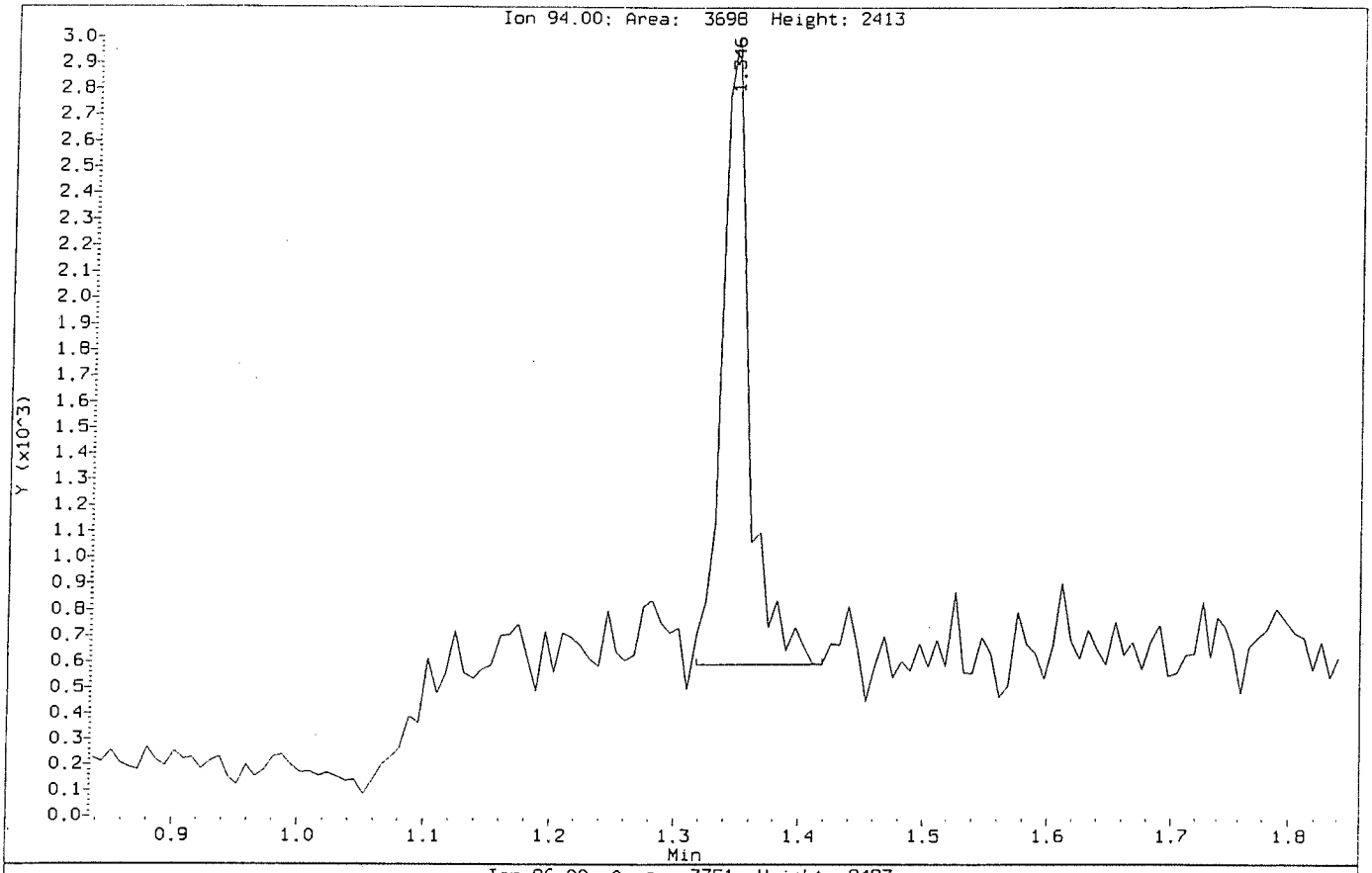
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

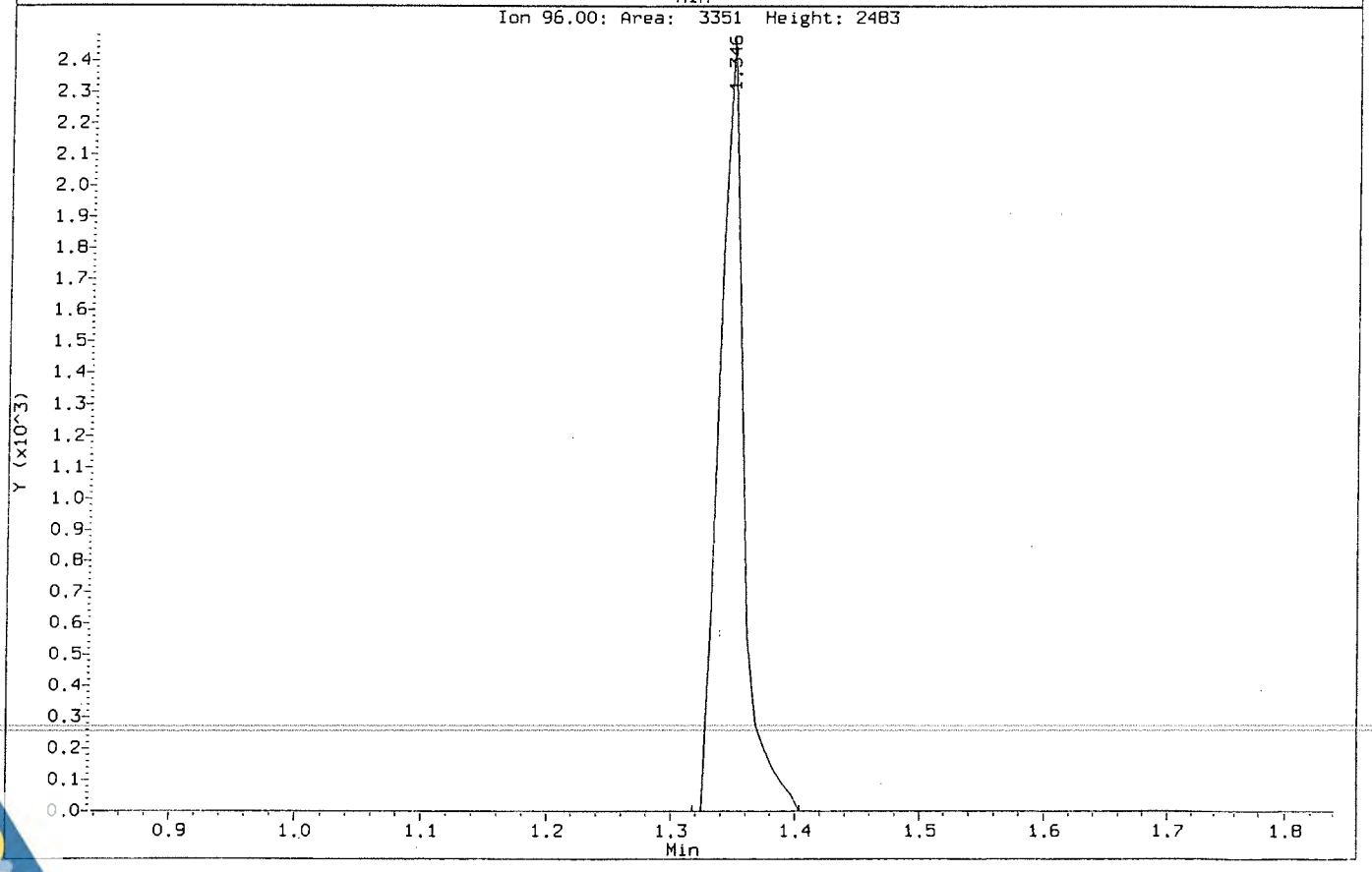
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

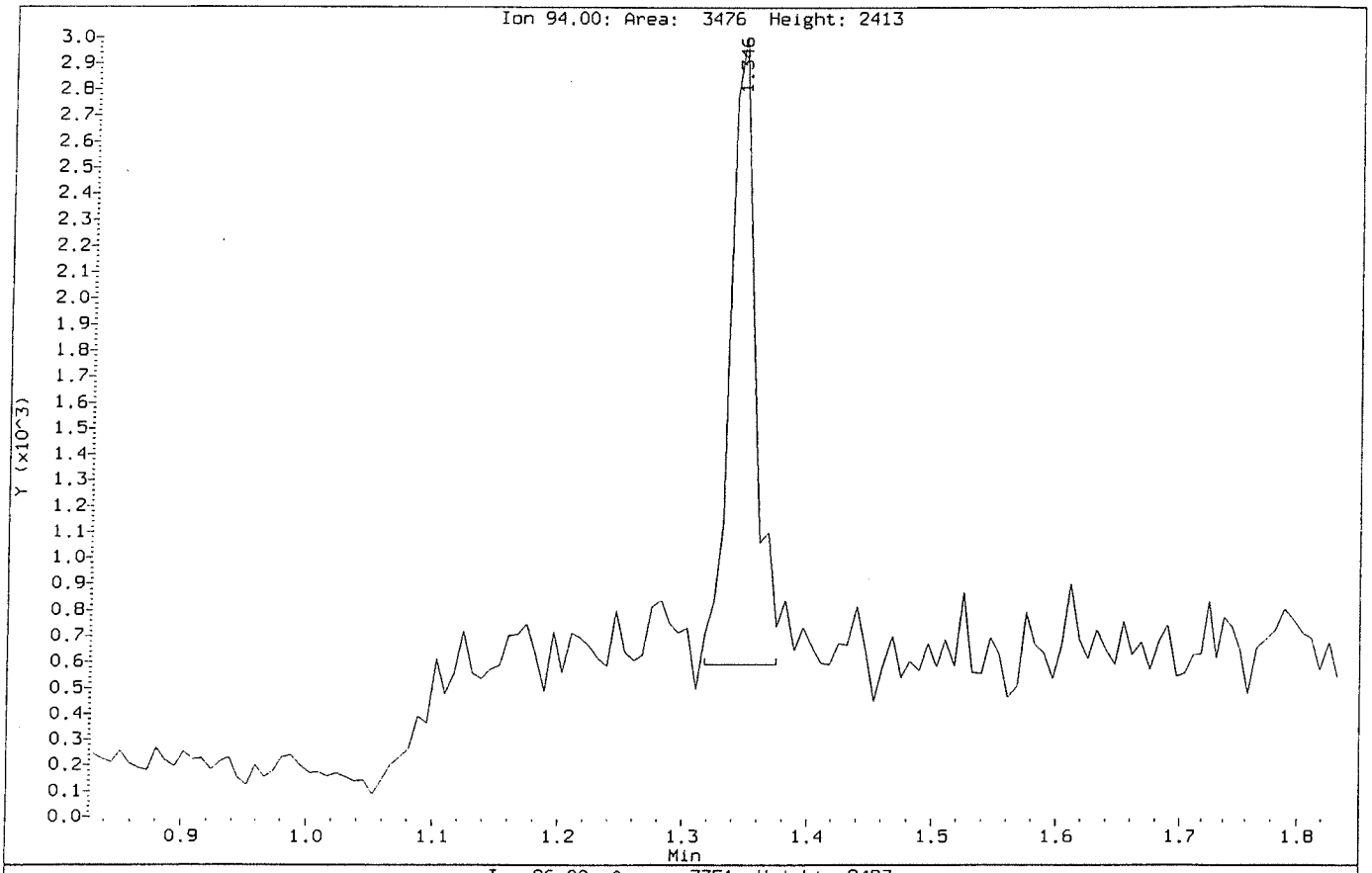
Compound: Bromomethane
CAS Number: 74-83-9

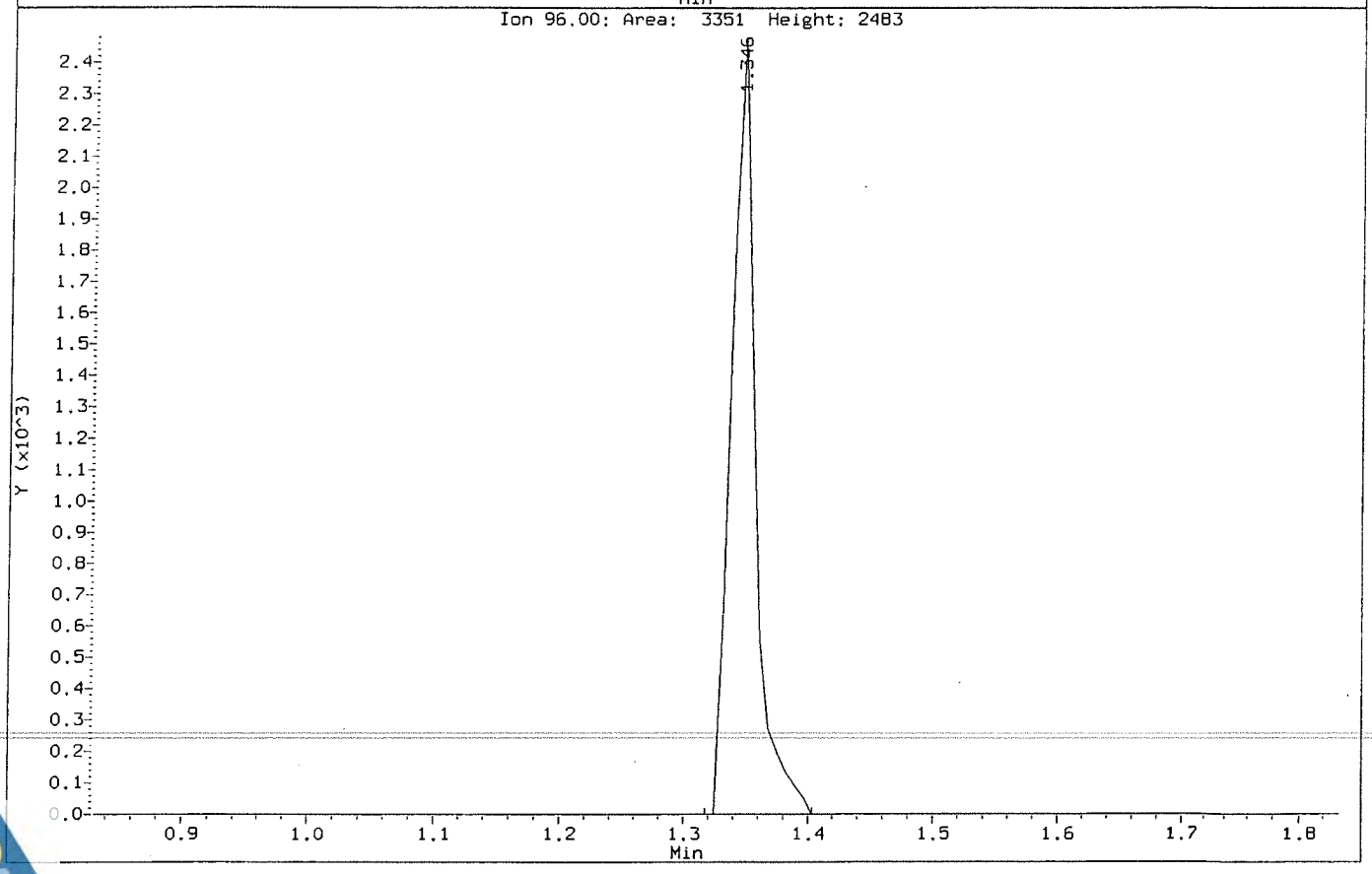




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

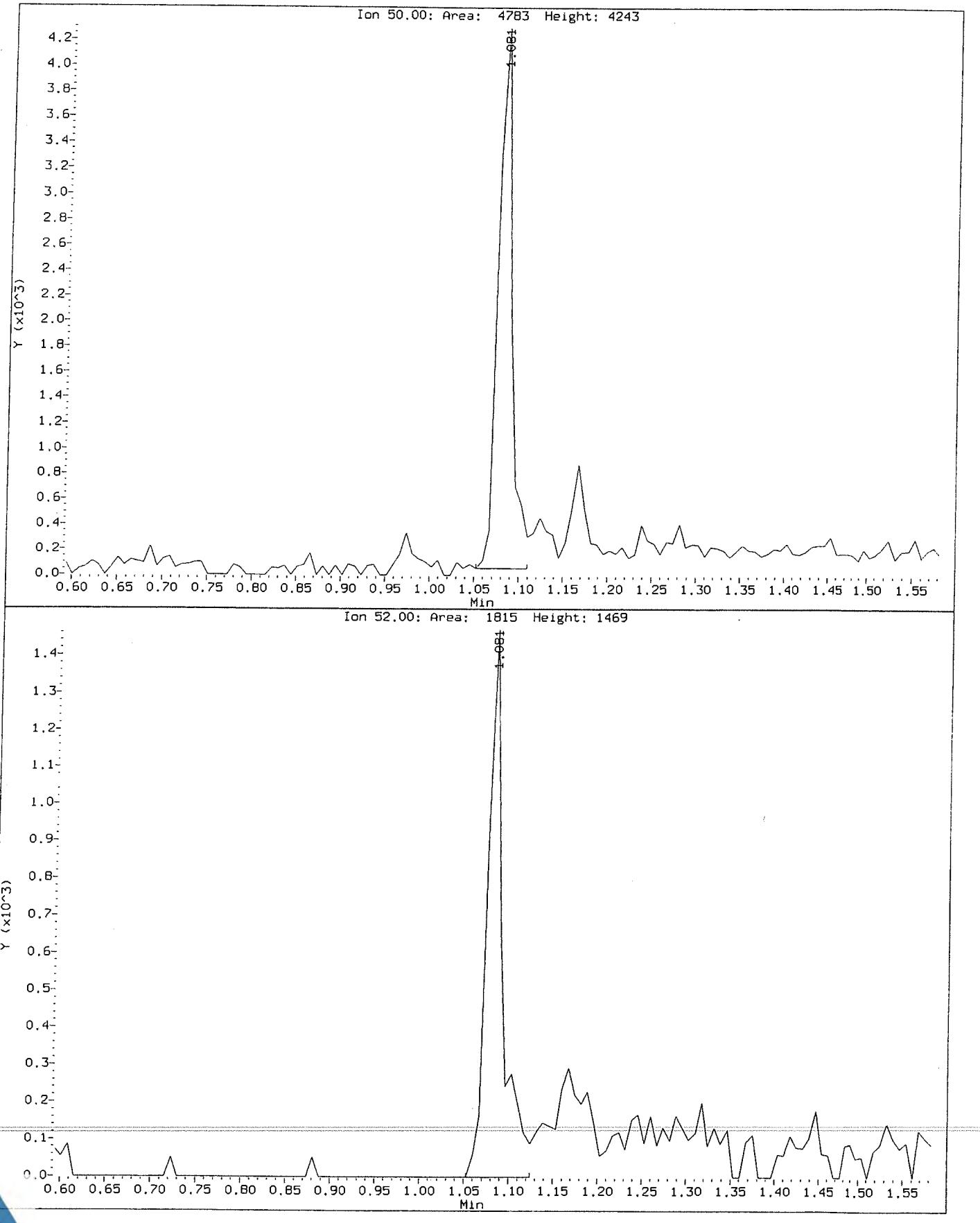
Compound: Bromomethane
CAS Number: 74-83-9





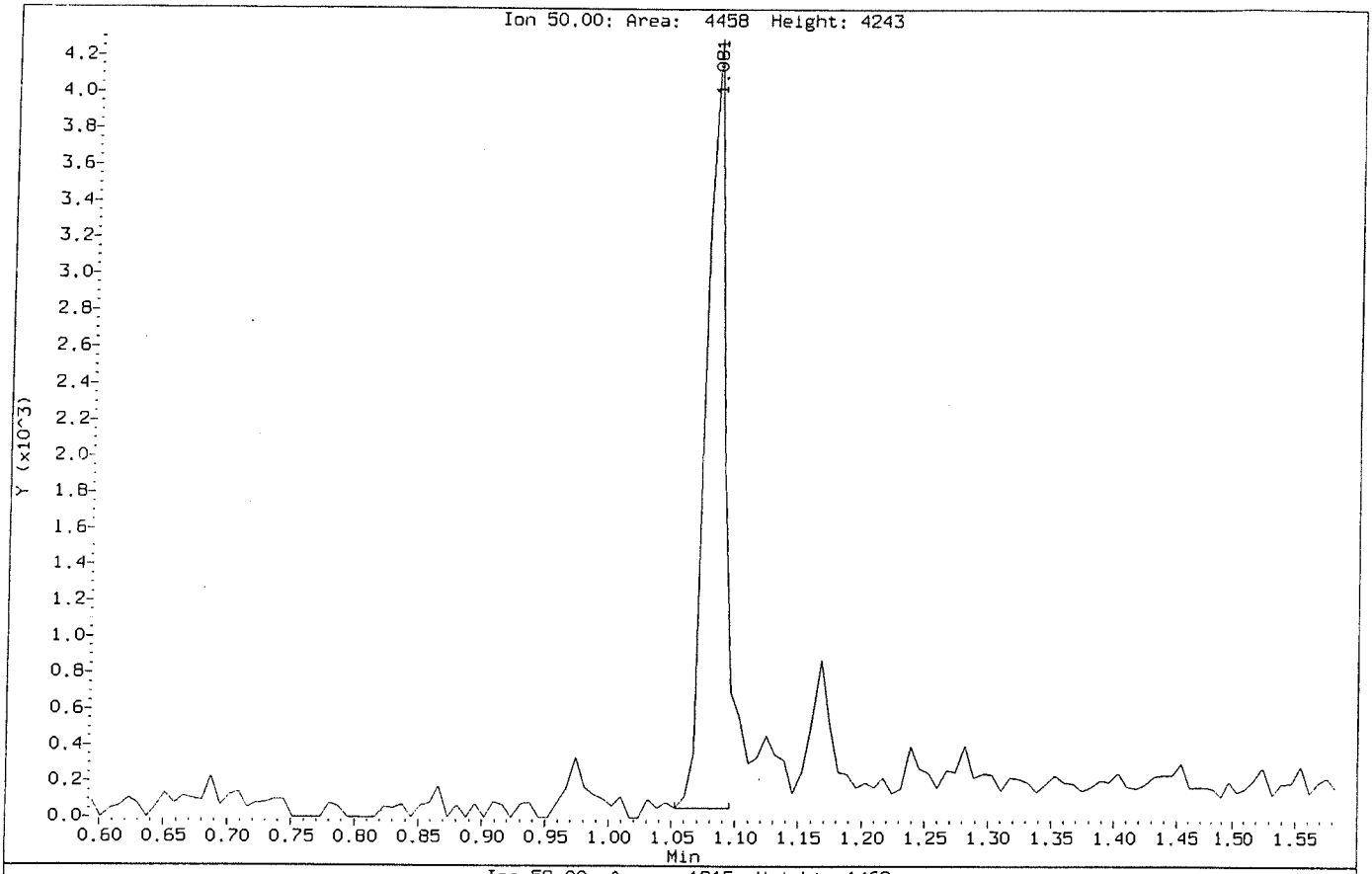
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

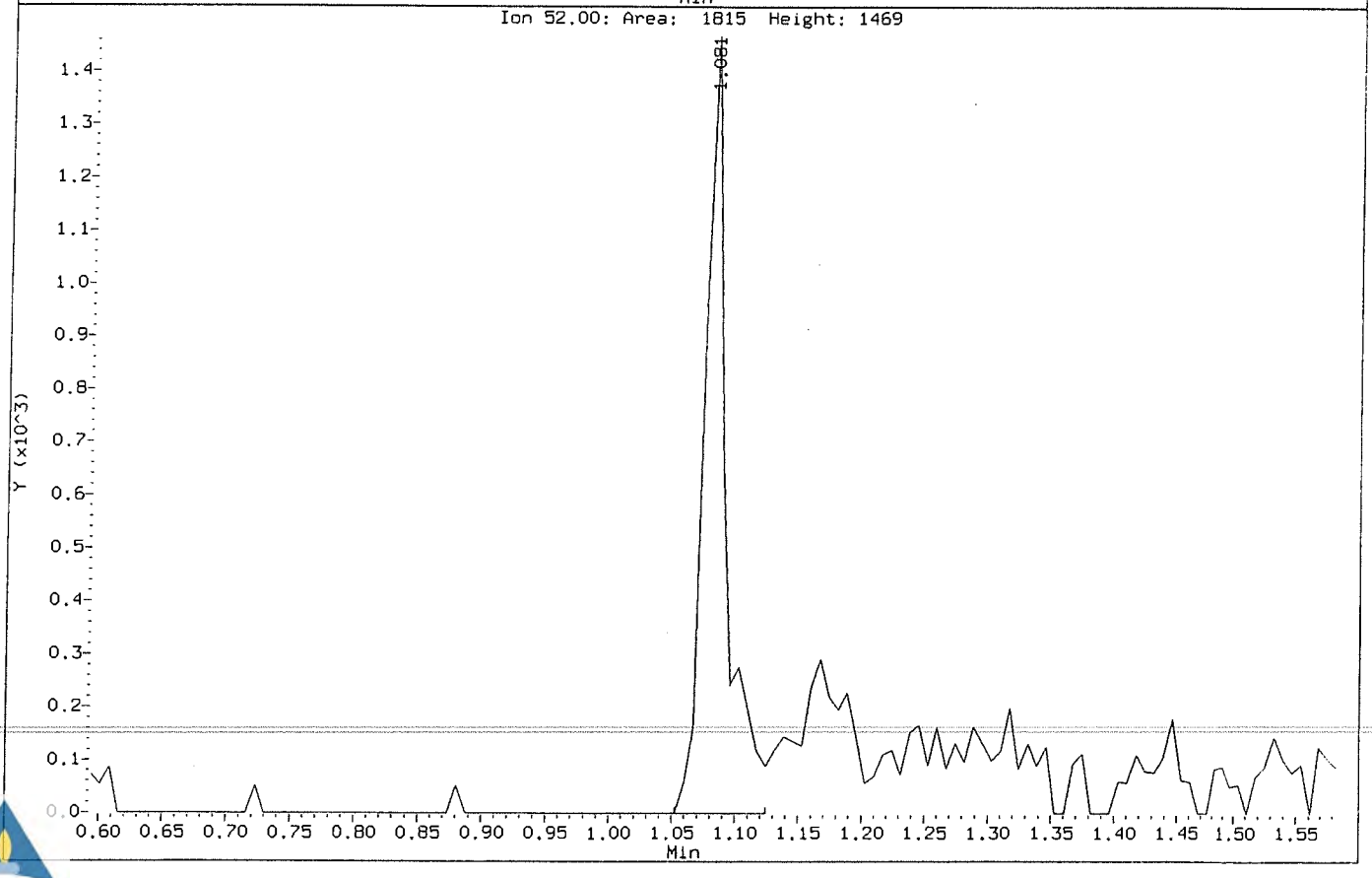
Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

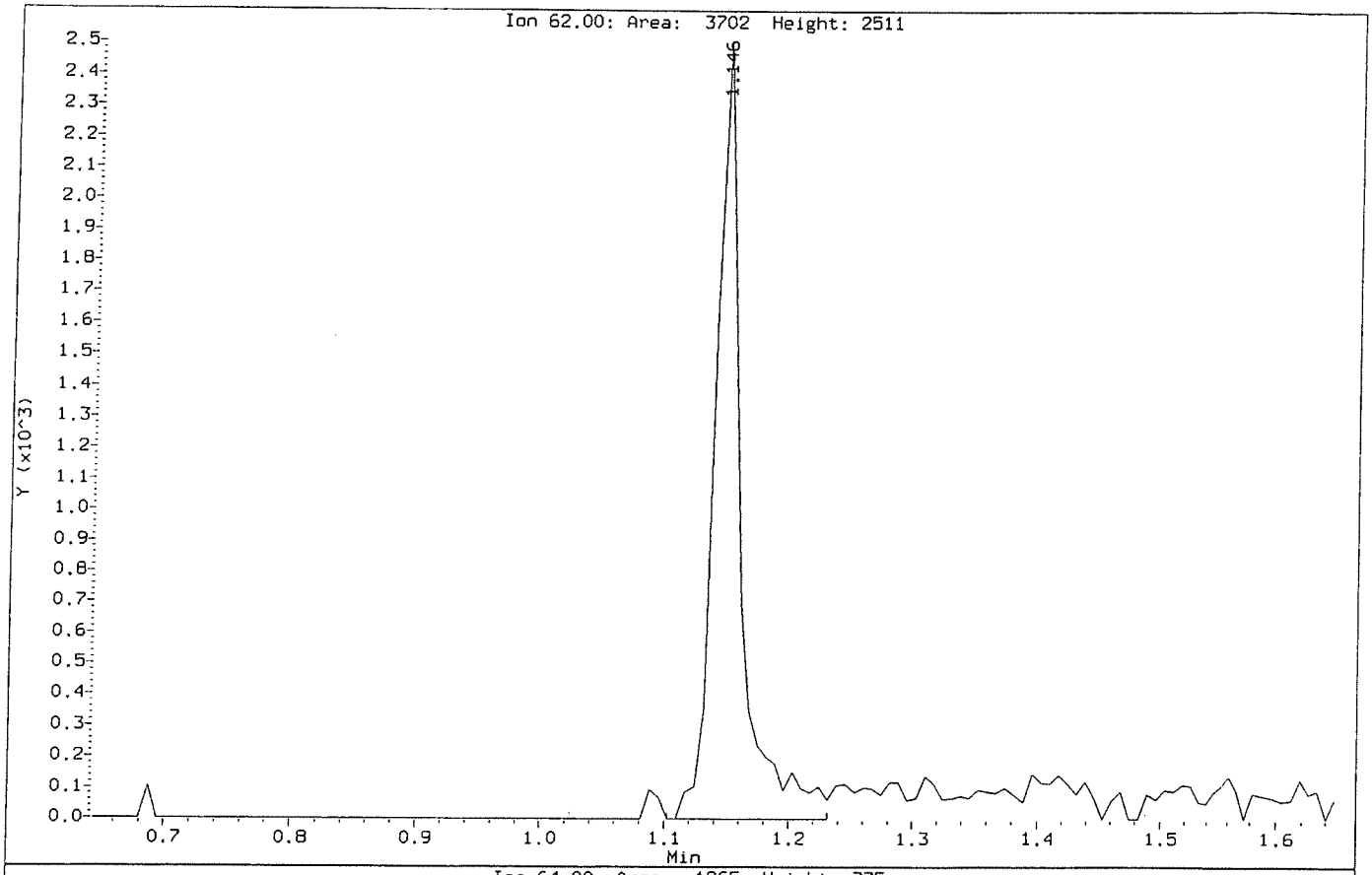
Compound: Chloromethane
CAS Number: 74-87-3

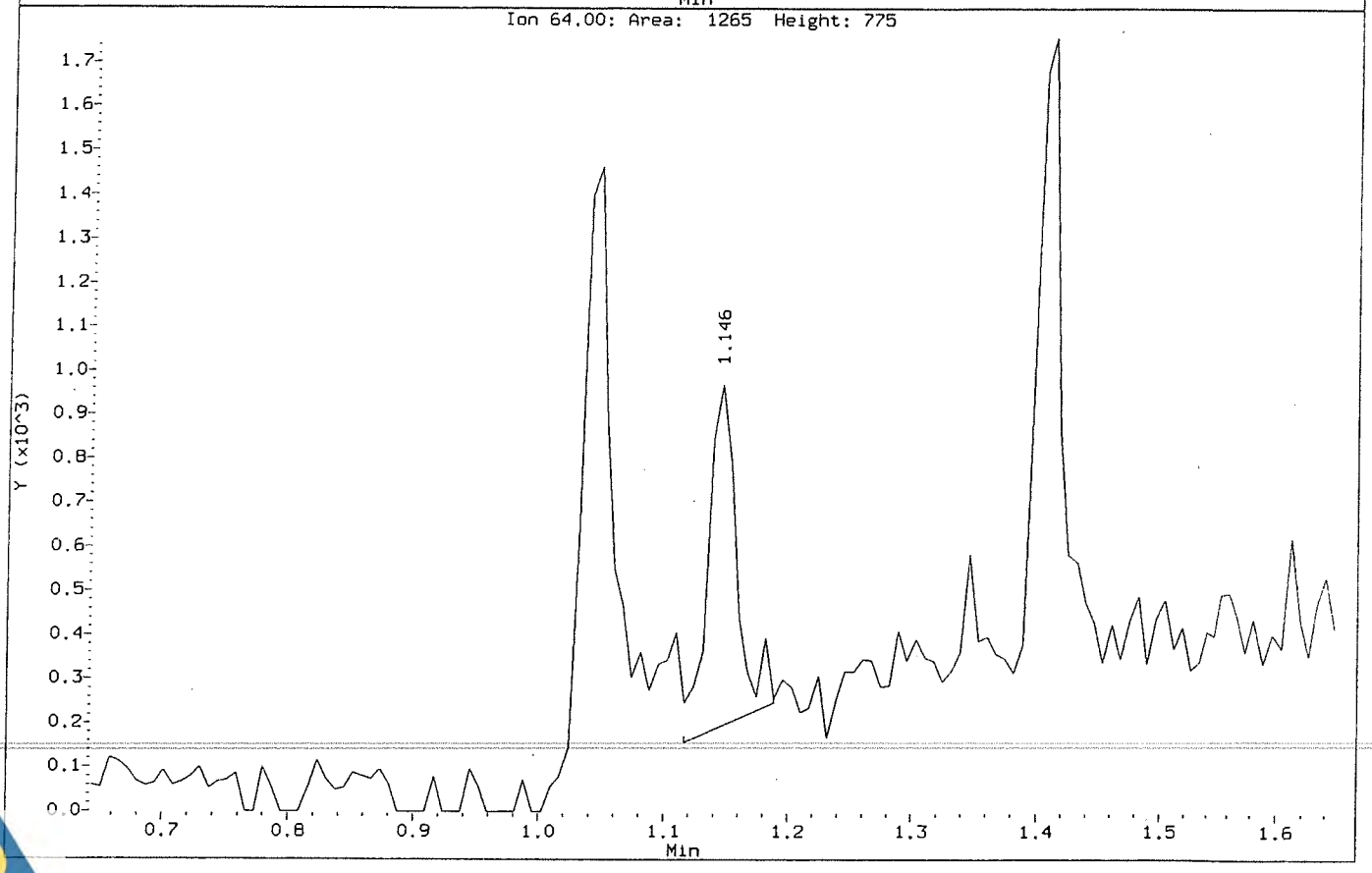




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

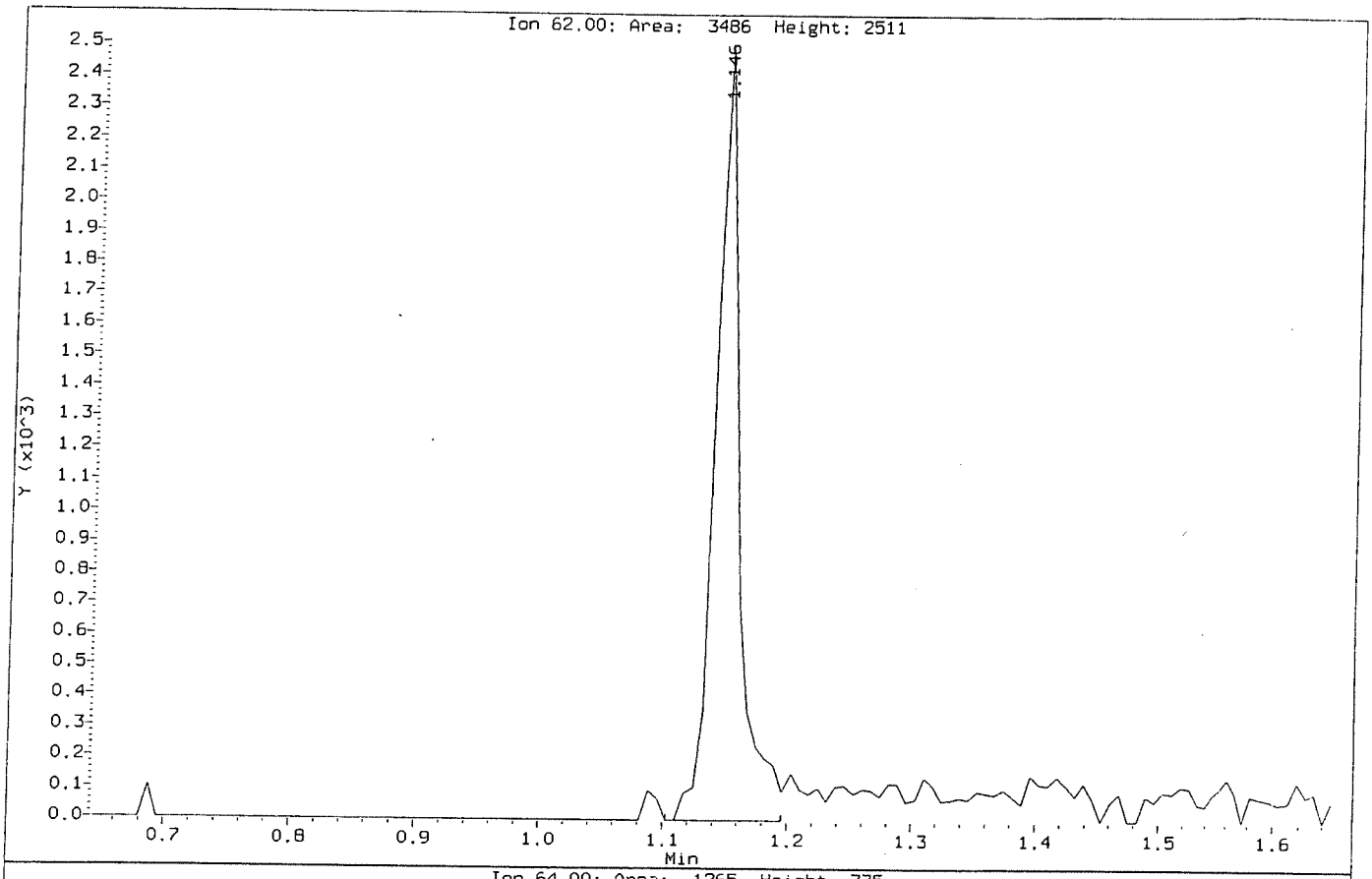
Compound: Vinyl Chloride
CAS Number: 75-01-4

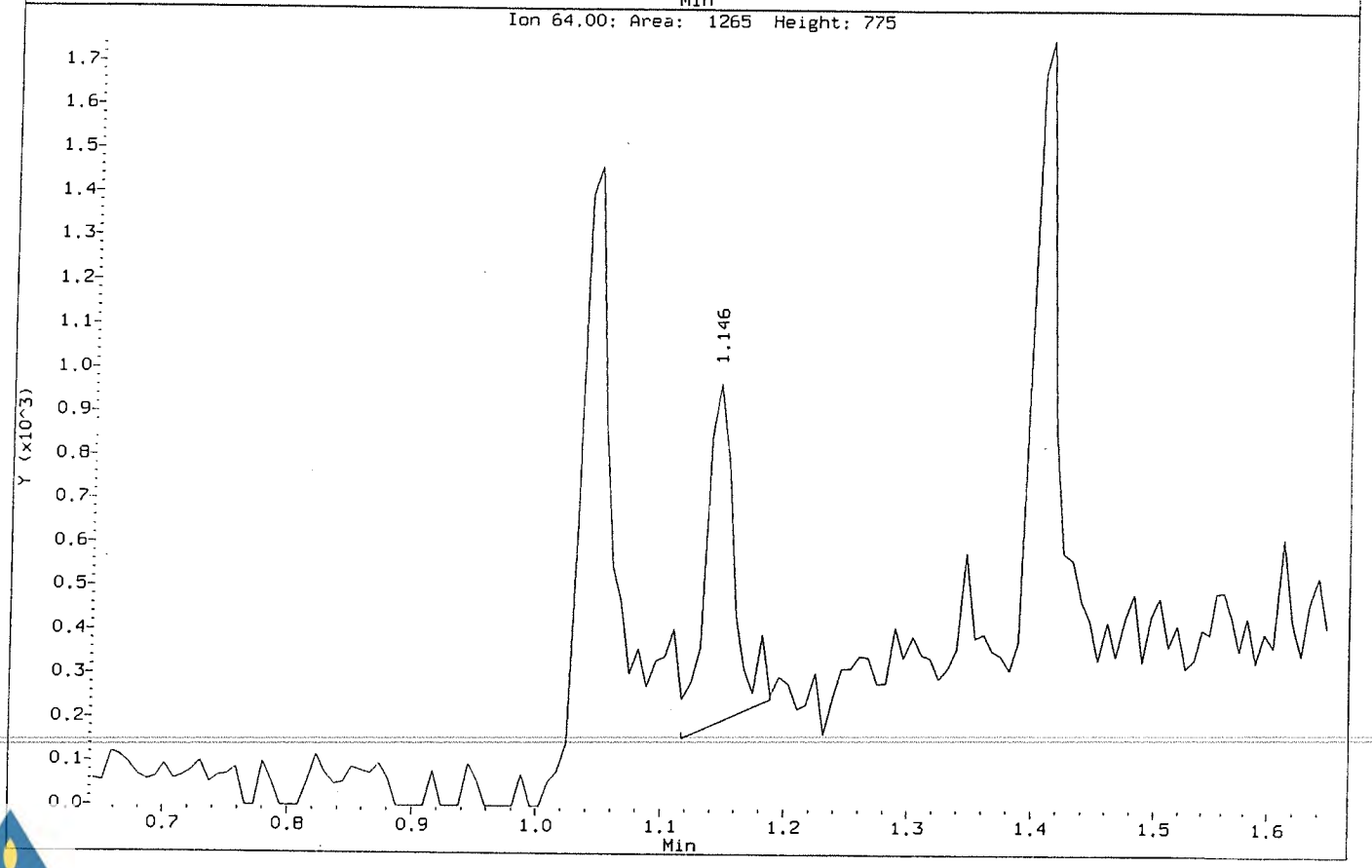




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 13-MAY-2019 12:57
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:57 Cal File: X051305.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	336590	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	454217	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	422960	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	237025	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	6793	2.00000	2.13(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8070	2.00000	1.71(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	6109	2.00000	1.75(a)
$	48 Toluene-d8	98	6.396	6.388	(0.834)	21875	2.00000	1.57(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	6140	2.00000	1.86(a)
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	8721	2.00000	1.95(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6256	2.00000	1.93(a)
	138 Freon TF	101	1.919	1.919	(0.458)	5416	2.00000	2.94(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4275	2.00000	1.97(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	9725	2.00000	2.04(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4908	2.00000	1.86(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	7510	2.00000	1.98(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3642	2.00000	2.60(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	6967	2.00000	1.88(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	6157	2.00000	1.76(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	22295	2.00000	1.97(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	940	2.00000	1.81(a)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.948)	5474	2.00000	1.84(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	13318	2.00000	1.94(a)

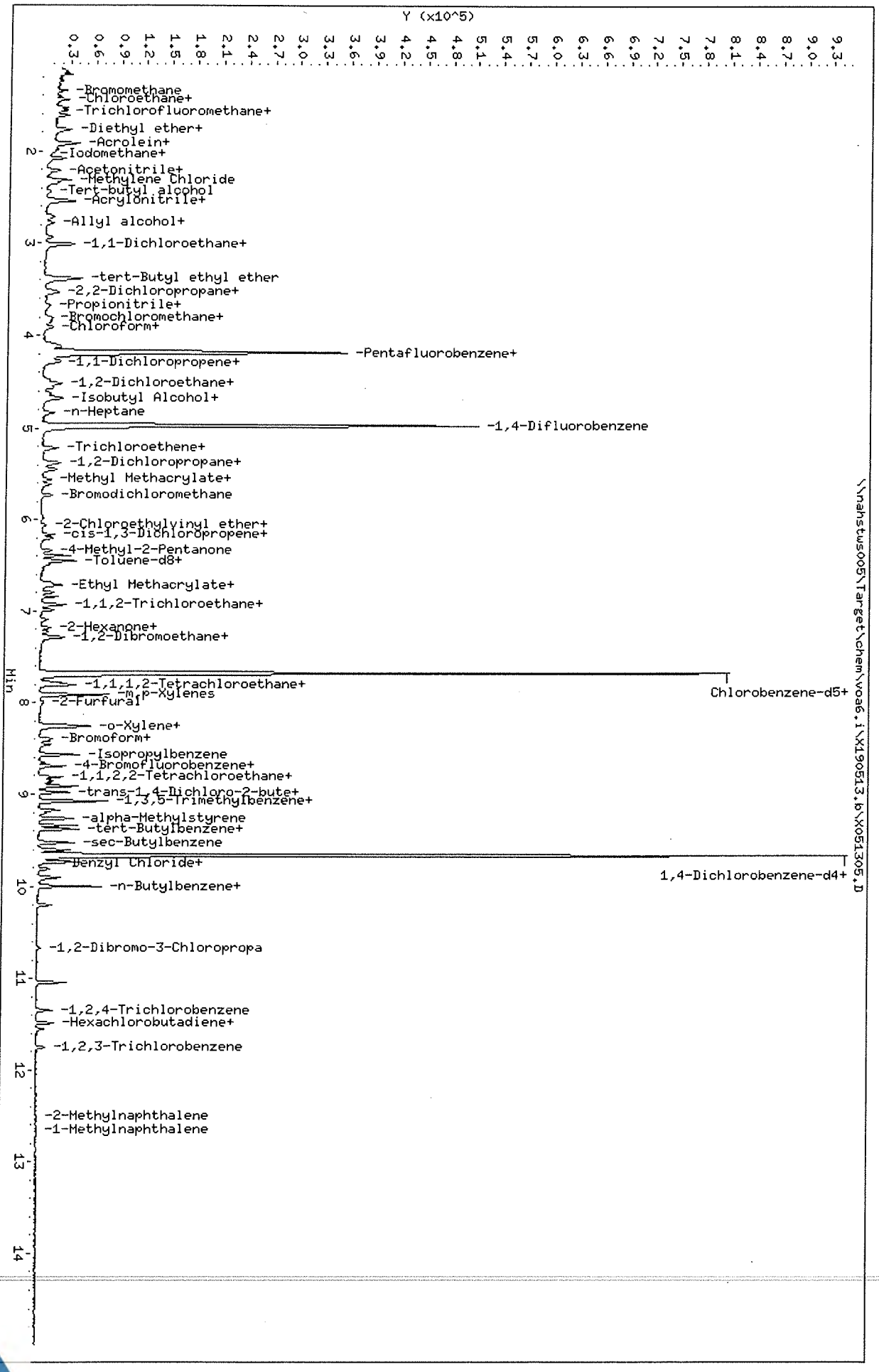
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

	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)	7487	2.00000	1.95(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	5499	2.00000	2.07(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	21457	2.00000	1.99(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	14323	2.00000	1.96(a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	8704	2.00000	1.99(a)
84	1,4-Dichlorobenzene	146	9.684	9.683	(1.001)	13952	2.00000	1.90(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	9260	2.00000	2.20(a)
24	2-Butanone	43	3.602	3.581	(0.860)	2801	4.00000	3.49(aM)
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	17473	2.00000	1.99(a)
52	2-Hexanone	43	7.098	7.090	(0.925)	5786	4.00000	3.92(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	19468	2.00000	1.91(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	22940	2.00000	1.97(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	8131	4.00000	3.79(a)
10	Acetone	43	1.976	1.976	(0.472)	4305	4.00000	4.30(a)
37	Benzene	78	4.519	4.519	(0.909)	21199	2.00000	1.93(a)
74	Bromobenzene	156	8.810	8.810	(0.911)	8824	2.00000	1.99(a)
29	Bromochloromethane	128	3.803	3.803	(0.908)	4001	2.00000	2.17(a)
39	Bromodichloromethane	83	5.737	5.729	(1.154)	7354	2.00000	1.93(a)
66	Bromoform	173	8.416	8.416	(1.097)	4068	2.00000	1.64(Ta)
6	Bromomethane	94	1.346	1.339	(0.321)	6441	2.00000	3.17(a)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	28853	4.00000	3.80(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	8060	2.00000	1.91(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	16936	2.00000	2.00(a)
7	Chloroethane	64	1.410	1.403	(0.337)	3713	2.00000	1.93(a)
28	Chloroform	83	3.917	3.917	(0.935)	10007	2.00000	1.96(a)
3	Chloromethane	50	1.081	1.081	(0.258)	8492	2.00000	0.11(a)
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	6292	2.00000	1.91(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8666	2.00000	1.91(a)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	5957	2.00000	1.75(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	3766	2.00000	1.97(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	5725	2.00000	2.53(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	8423	2.00000	1.93(a)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	3941	2.00000	1.89(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	26124	2.00000	2.01(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	20416	4.00000	3.88(a)
17	Methylene Chloride	84	2.313	2.306	(0.552)	7584	2.00000	2.09(a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	18266	2.00000	1.98(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	29163	2.00000	2.00(a)
92	Naphthalene	128	11.553	11.546	(1.195)	8910	2.00000	1.79(a)
63	o-Xylene	106	8.244	8.244	(1.075)	10049	2.00000	1.95(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	25351	2.00000	2.00(a)
64	Styrene	104	8.265	8.265	(1.078)	17337	2.00000	1.92(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	18653	2.00000	2.00(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	6434	2.00000	2.06(a)
50	Toluene	91	6.453	6.453	(0.841)	24123	2.00000	1.94(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	5545	2.00000	2.01(a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	7344	2.00000	1.85(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	6876	2.00000	1.95(a)
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	9638	2.00000	1.92(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	5938	2.00000	1.93(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

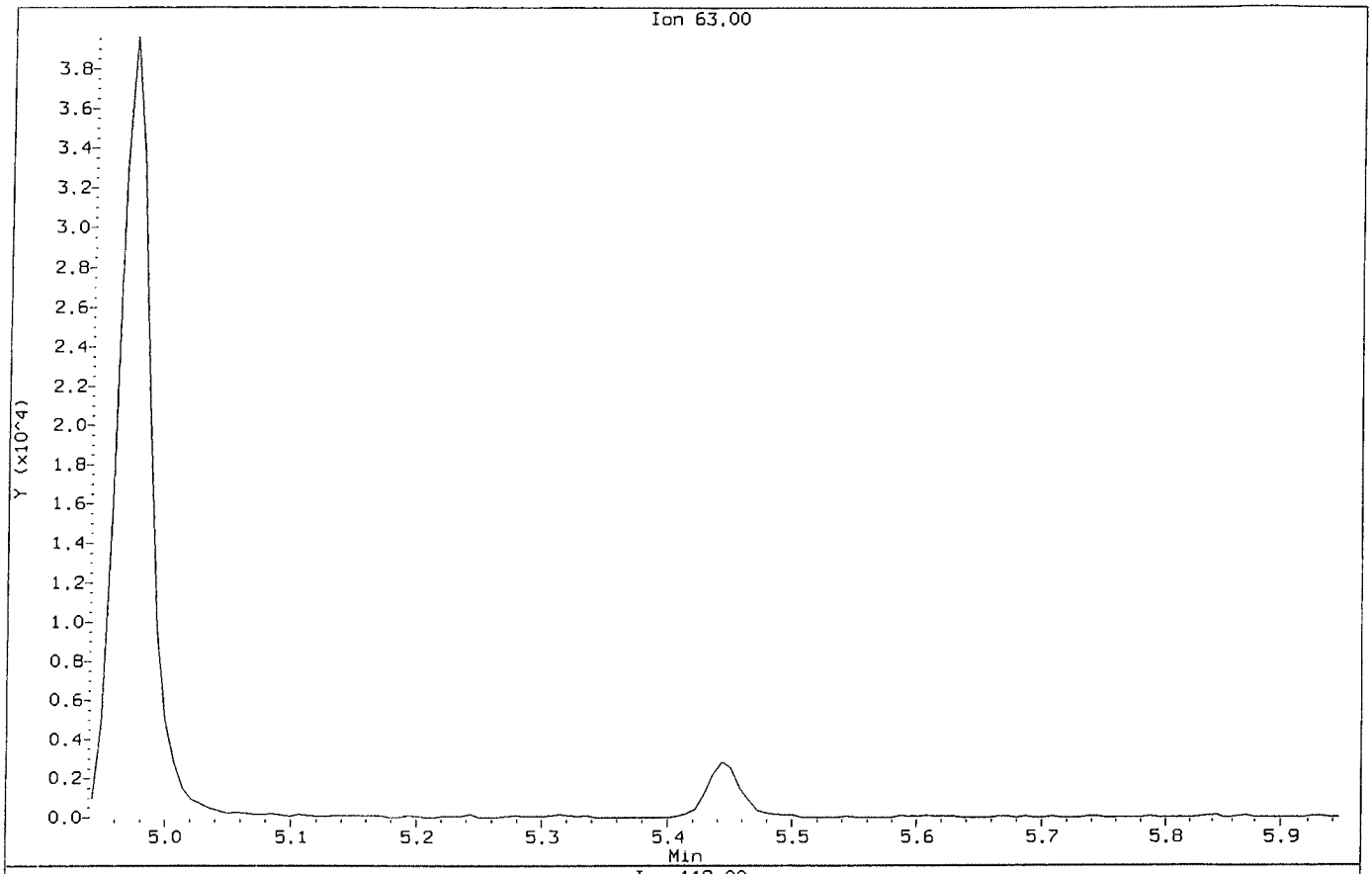
QC Flag Legend

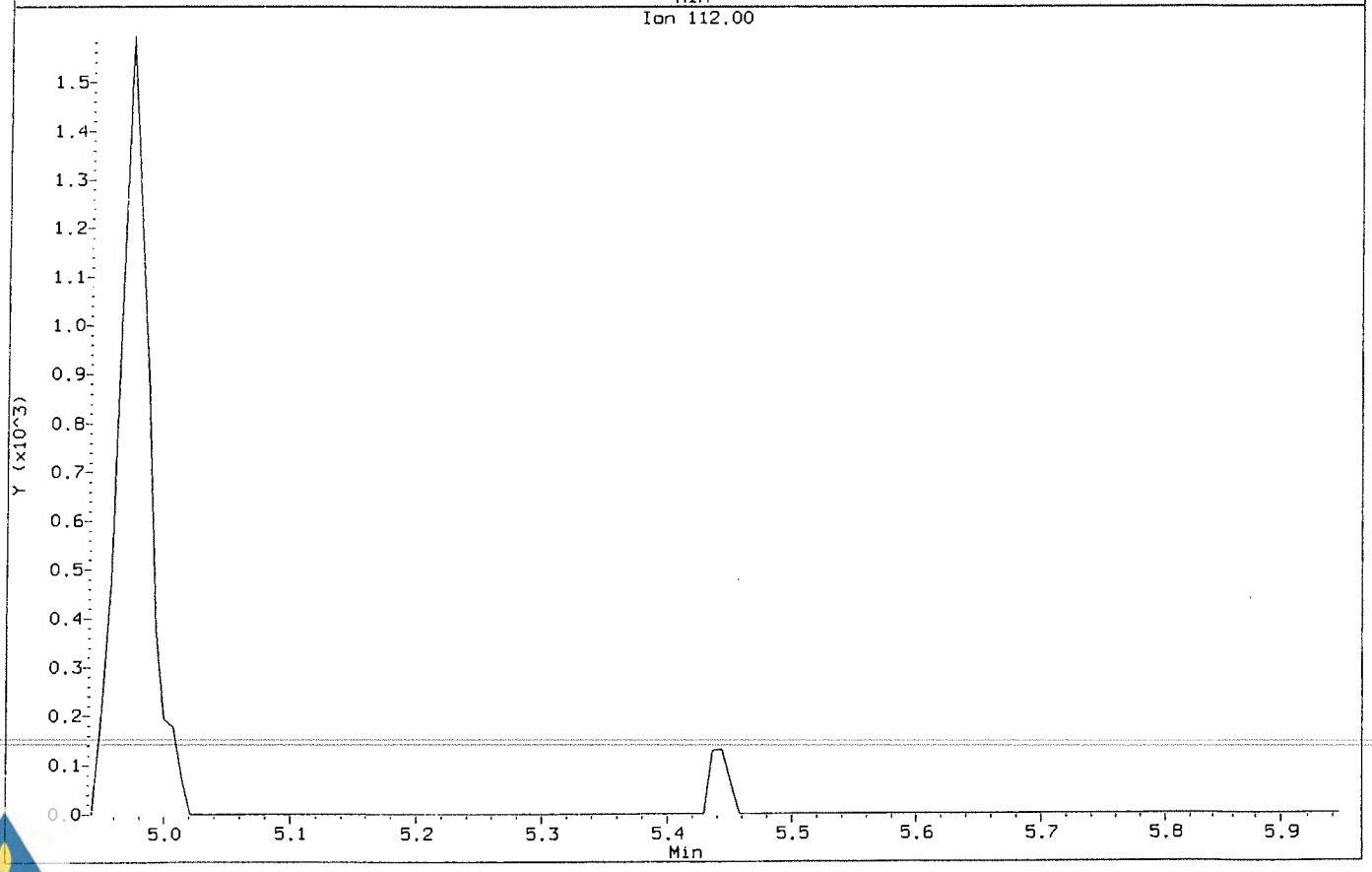
T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Allyl alcohol+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chlorgethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Date : 13-MAY-2019 12:57
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\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

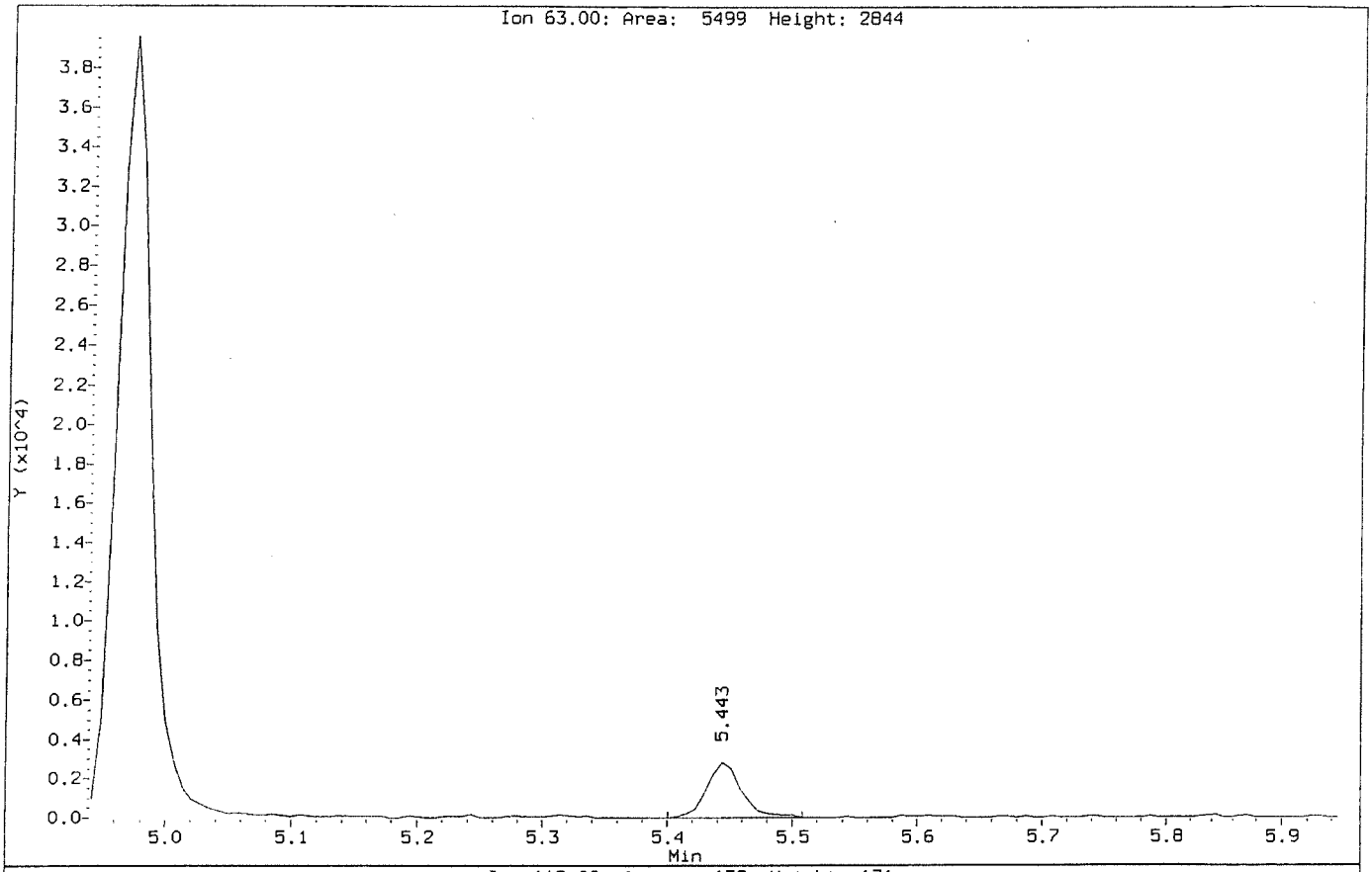
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

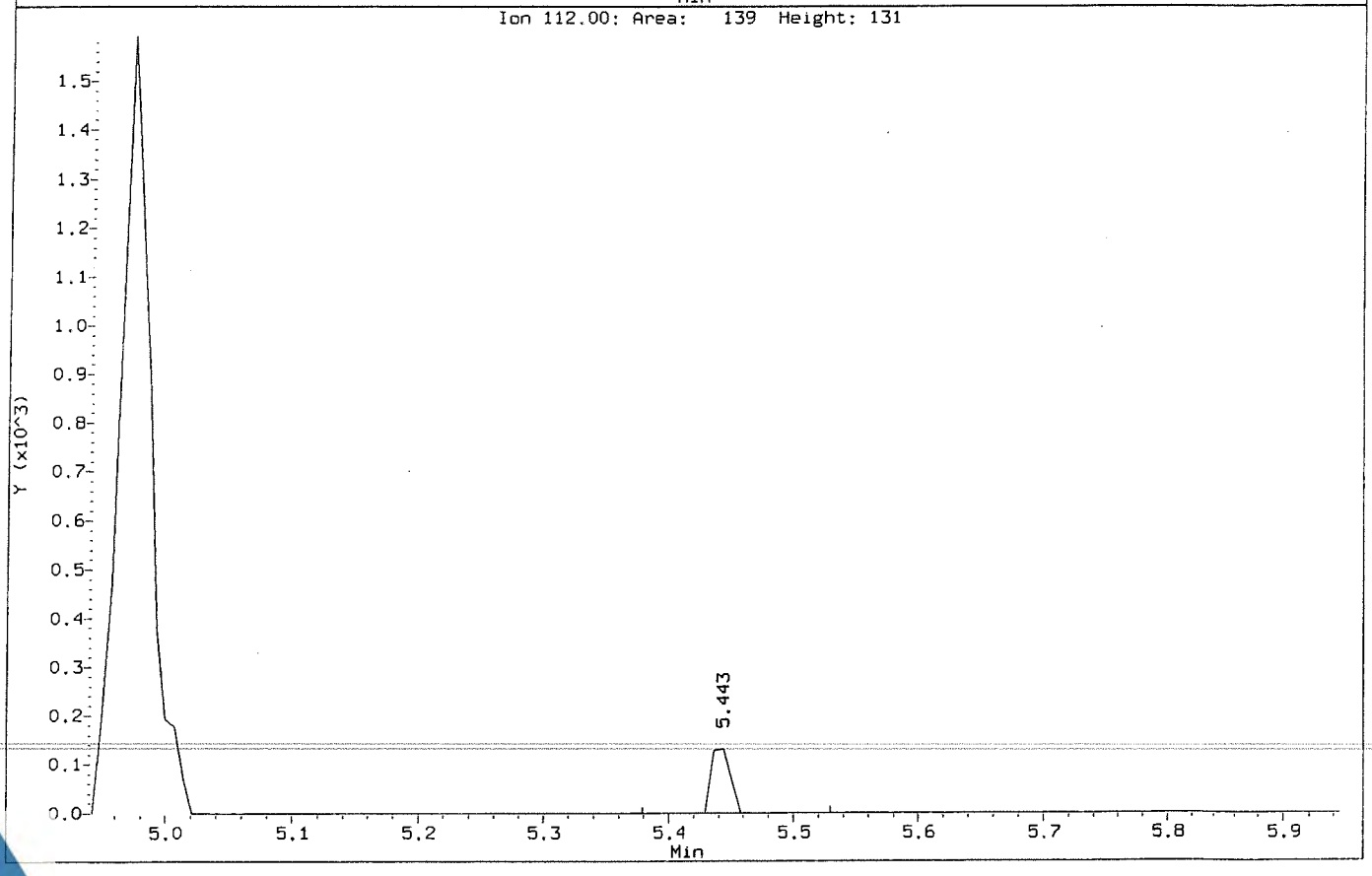




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

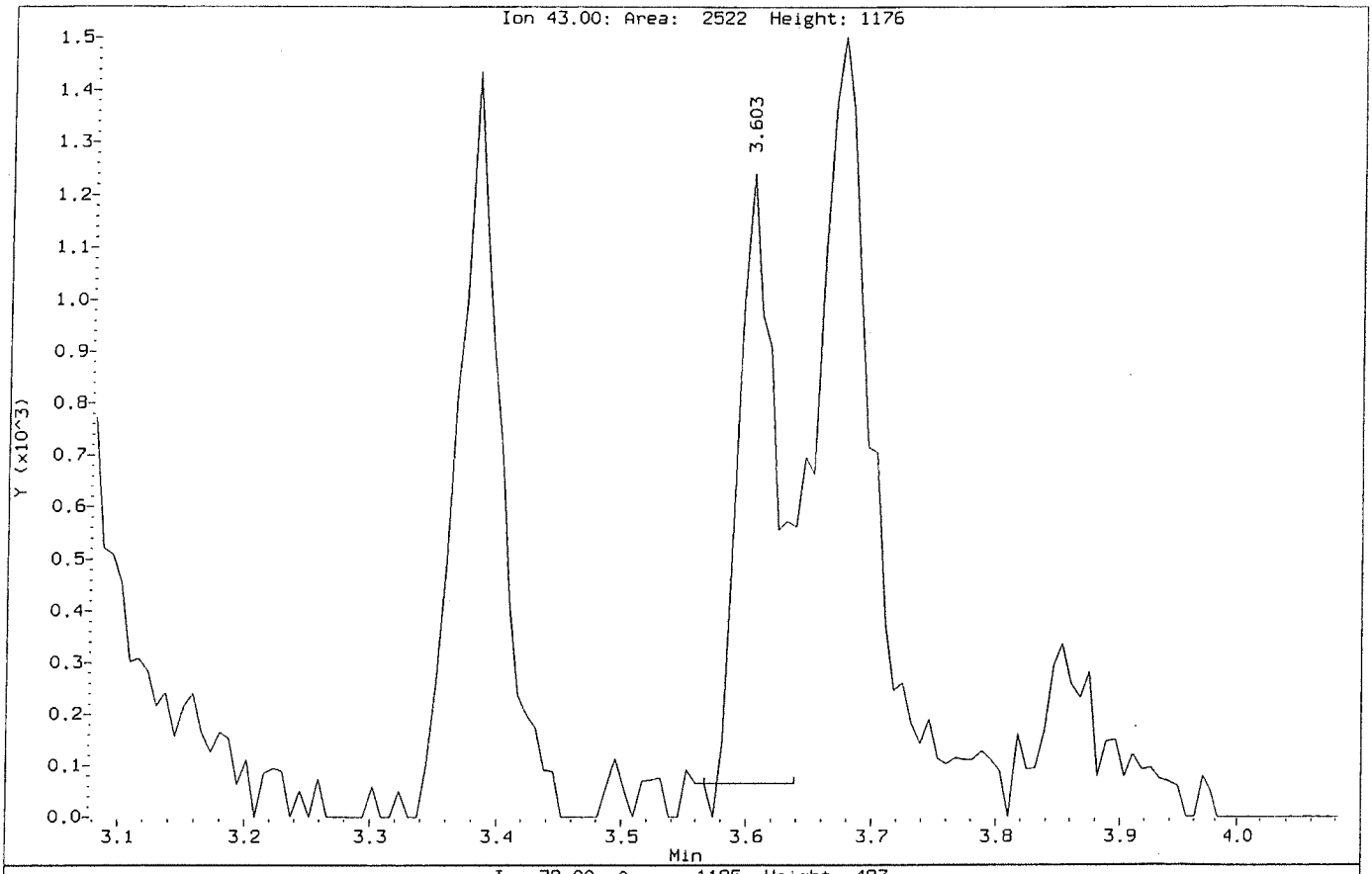
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

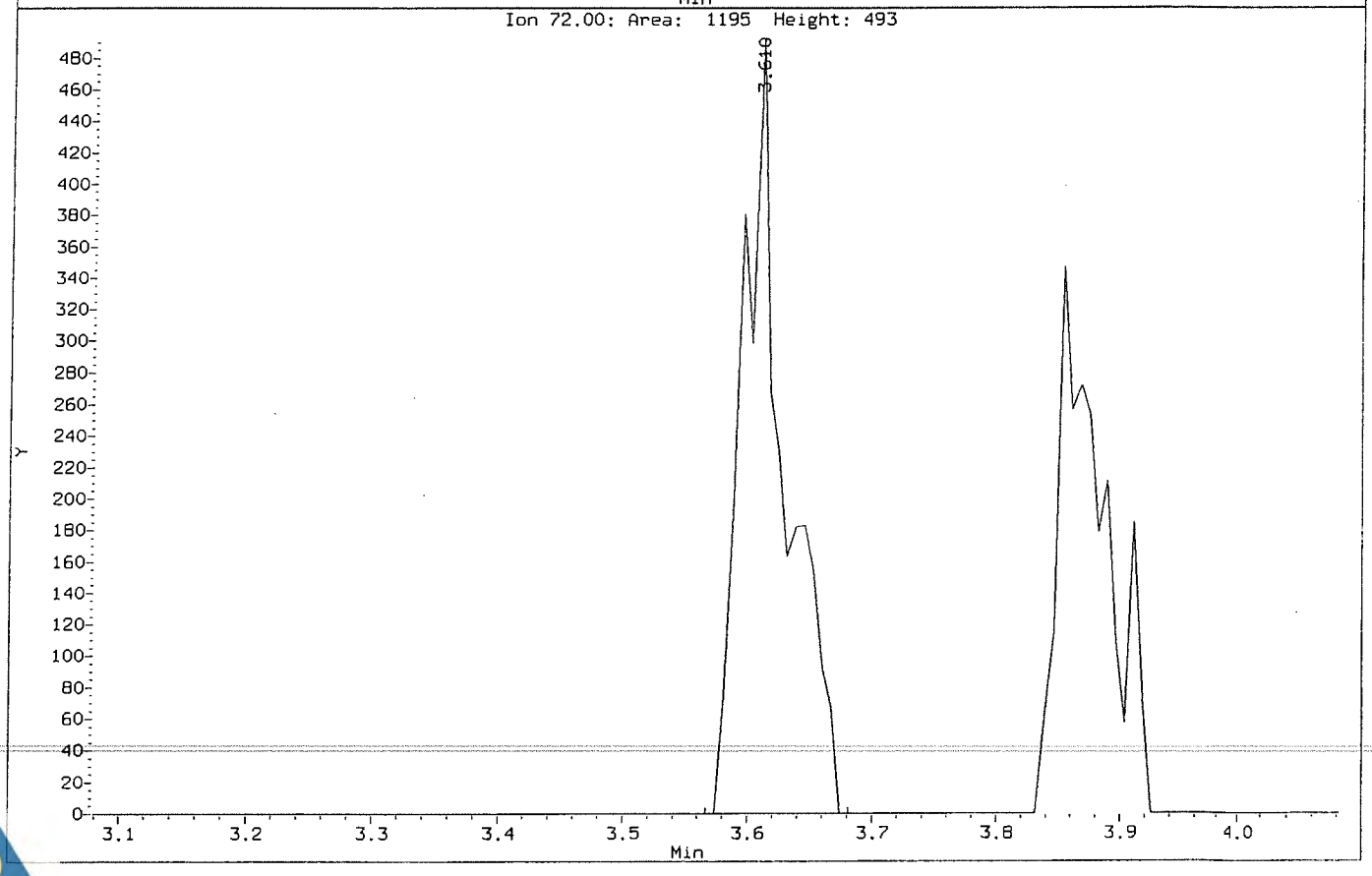




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

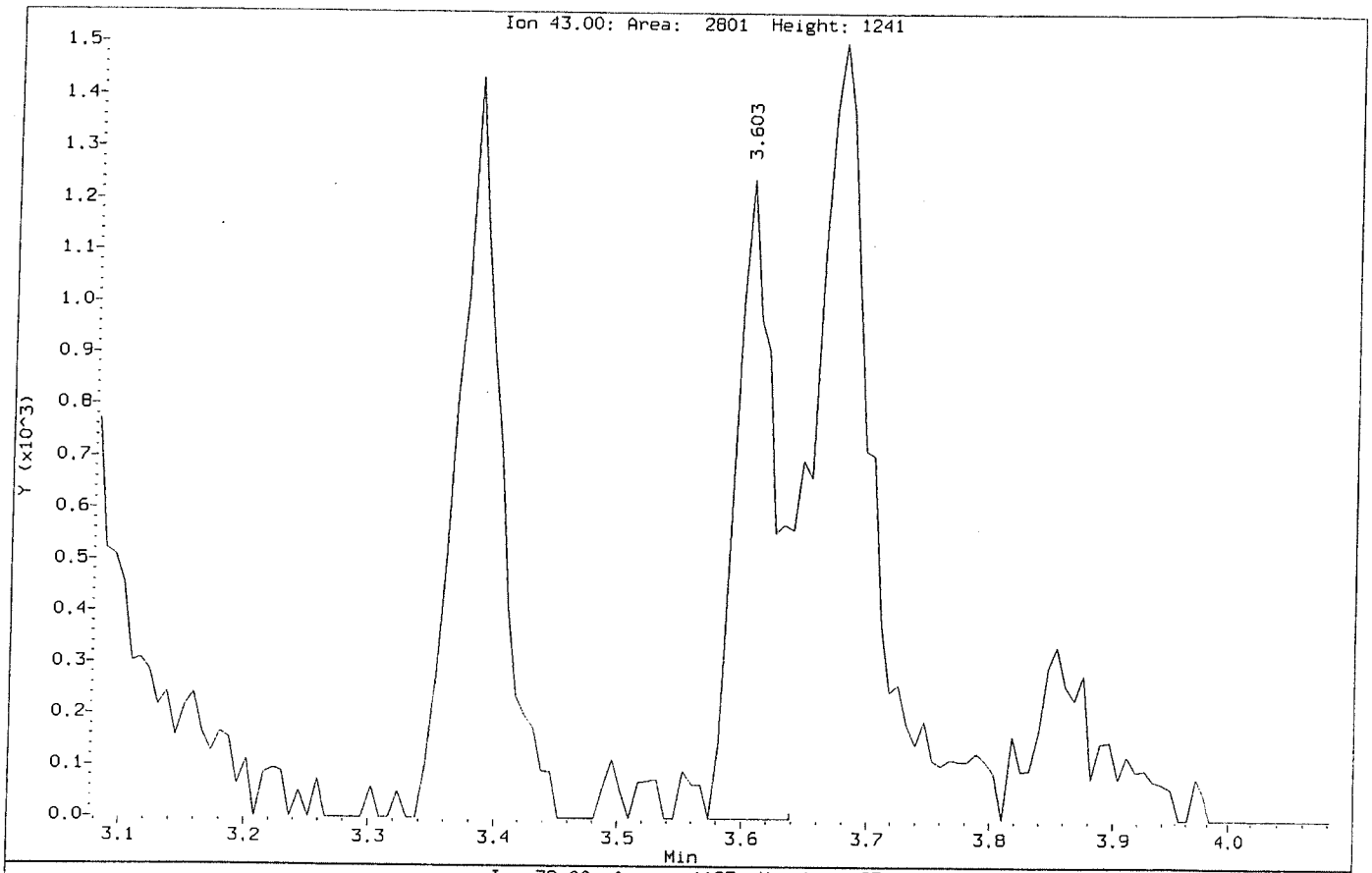
Compound: 2-Butanone
CAS Number: 78-93-3

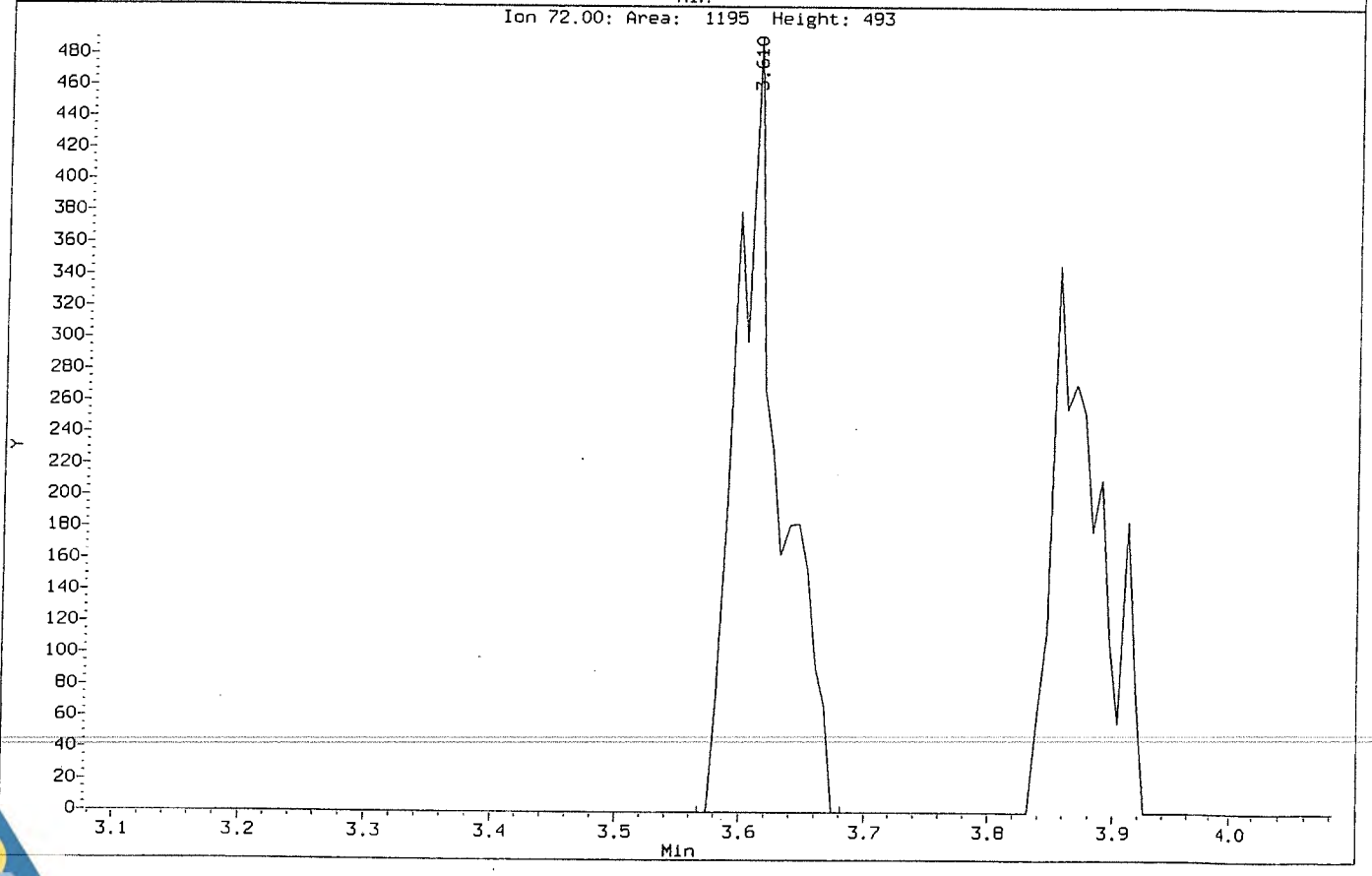




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 2-Butanone
CAS Number: 78-93-3





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 13-MAY-2019 13:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:21 Cal File: X051306.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324585	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436431	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	402955	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	223443	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	14382	5.00000	4.89(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	18579	5.00000	4.97(a)
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	15275	5.00000	5.13
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	51458	5.00000	4.73(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	14863	5.00000	4.72(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	20850	5.00000	4.85(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	15131	5.00000	4.96(a)
138 Freon TF	101	1.919	1.919	(0.458)	11785	5.00000	5.58
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10440	5.00000	5.05
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	21478	5.00000	4.69(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11459	5.00000	4.51(a)
32 1,1-Dichloropropene	75	4.283	4.290	(0.862)	16303	5.00000	4.49(a)
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	9007	5.00000	5.60
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	16814	5.00000	4.82(a)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	14864	5.00000	4.51(a)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	51976	5.00000	4.88(a)
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2301	5.00000	4.71(a)
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	13618	5.00000	4.82(a)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	31085	5.00000	4.81(a)

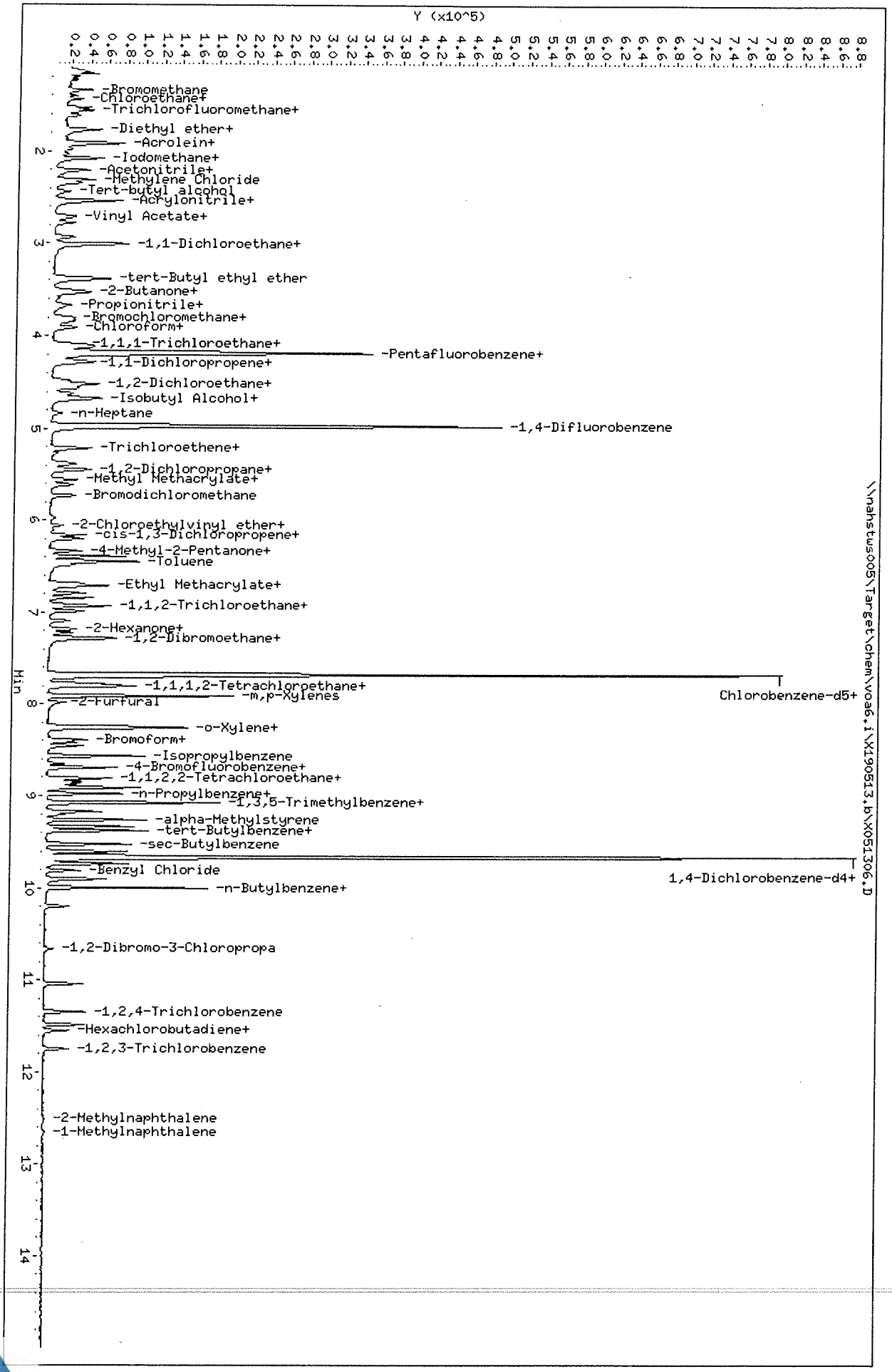
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

	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)	17311	5.00000	4.71(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	12106	5.00000	4.75(a)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	48243	5.00000	4.75(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	32676	5.00000	4.75(a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	20732	5.00000	4.97(a)
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	33108	5.00000	4.78(a)
26	2,2-Dichloropropane	77	3.523	3.516	(0.841)	18793	5.00000	4.63(a)
24	2-Butanone	43	3.588	3.581	(0.856)	7300	10.0000	9.43
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	38371	5.00000	4.64(a)
52	2-Hexanone	43	7.090	7.090	(0.924)	13397	10.0000	9.54
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	45182	5.00000	4.71(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	50199	5.00000	4.57(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	19592	10.0000	9.58
10	Acetone	43	1.976	1.976	(0.472)	8696	10.0000	10.96
37	Benzene	78	4.519	4.519	(0.909)	49788	5.00000	4.72(a)
74	Bromobenzene	156	8.810	8.810	(0.911)	20106	5.00000	4.82(a)
29	Bromochloromethane	128	3.803	3.803	(0.908)	8842	5.00000	5.05
39	Bromodichloromethane	83	5.737	5.729	(1.154)	17064	5.00000	4.66(a)
66	Bromoform	173	8.416	8.416	(1.097)	10950	5.00000	4.65(a)
6	Bromomethane	94	1.346	1.339	(0.321)	14764	5.00000	6.04
19	Carbon Disulfide	76	2.076	2.076	(0.496)	66015	10.0000	9.02
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	17860	5.00000	4.42(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	38992	5.00000	4.85(a)
7	Chloroethane	64	1.403	1.403	(0.335)	9030	5.00000	4.87(a)
28	Chloroform	83	3.917	3.917	(0.935)	23515	5.00000	4.79(a)
3	Chloromethane	50	1.081	1.081	(0.258)	19144	5.00000	3.58(a)
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	15135	5.00000	4.78(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	20875	5.00000	4.80(a)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	14546	5.00000	4.49(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	8994	5.00000	4.89(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	12226	5.00000	4.90(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	19652	5.00000	4.72(a)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	8648	5.00000	4.40(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	58617	5.00000	4.75(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	48815	10.0000	9.75
17	Methylene Chloride	84	2.313	2.306	(0.552)	15292	5.00000	5.06
87	n-Butylbenzene	91	9.999	9.999	(1.034)	39856	5.00000	4.58(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	64885	5.00000	4.72(a)
92	Naphthalene	128	11.546	11.546	(1.194)	21563	5.00000	4.61(a)
63	o-Xylene	106	8.244	8.244	(1.075)	24009	5.00000	4.90(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	54917	5.00000	4.59(a)
64	Styrene	104	8.265	8.265	(1.078)	41545	5.00000	4.85(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	40573	5.00000	4.61(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	13854	5.00000	4.67(a)
50	Toluene	91	6.453	6.453	(0.841)	56231	5.00000	4.76(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	12329	5.00000	4.64(a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	17740	5.00000	4.67(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	16216	5.00000	4.79(a)
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	21396	5.00000	4.43(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	12897	5.00000	4.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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


Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chlorpethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachlorpethane+
Chlorobenzene-d5+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Date : 13-MAY-2019 13:21
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\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 13-MAY-2019 13:45
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:45 Cal File: X051307.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

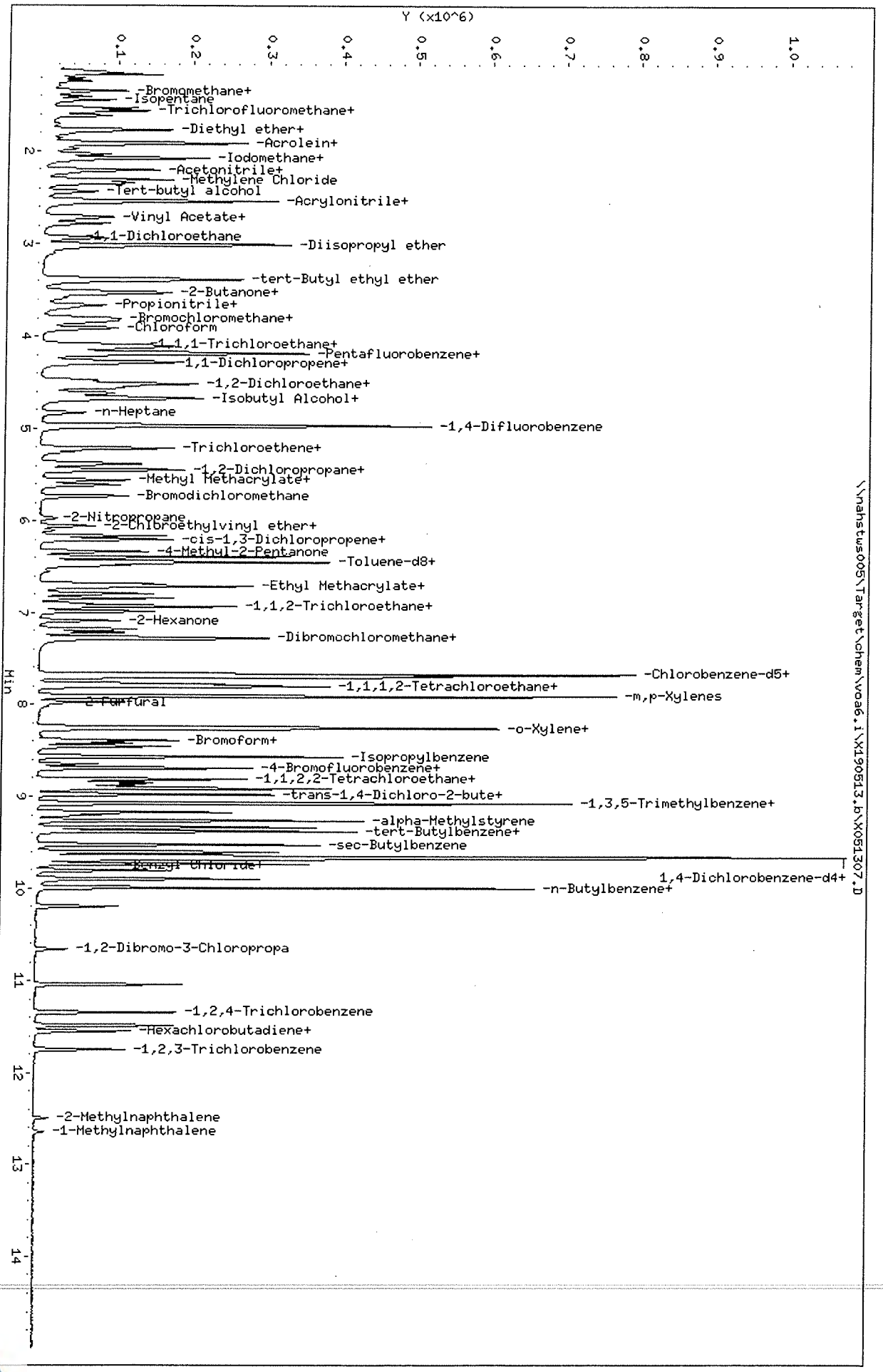
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	335326	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	443439	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	406589	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	228906	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	56761	20.0000	19.19
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	69486	20.0000	19.98
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	57130	20.0000	19.55
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	202820	20.0000	20.14
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	58332	20.0000	18.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	82433	20.0000	18.56
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	60222	20.0000	19.30
138 Freon TF	101	1.919	1.919	(0.458)	47474	20.0000	19.22
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	40688	20.0000	19.53
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	87365	20.0000	18.48
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	48461	20.0000	18.49
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	65531	20.0000	17.76
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	35984	20.0000	19.43
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	69145	20.0000	19.38
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	60996	20.0000	18.07
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	194727	20.0000	17.86
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	9949	20.0000	19.89
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	54190	20.0000	19.03
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	121292	20.0000	18.35

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

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)	69224	20.0000	18.53
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	48958	20.0000	18.90
75 1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	189002	20.0000	18.17
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	128382	20.0000	18.23
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	79936	20.0000	19.02
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	128527	20.0000	18.13
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	77380	20.0000	18.48
24 2-Butanone	43	3.580	3.581	(0.855)	32748	40.0000	40.96
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	153069	20.0000	18.08
52 2-Hexanone	43	7.090	7.090	(0.924)	53463	40.0000	37.74
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	173574	20.0000	17.69
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	200044	20.0000	17.81
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	79192	40.0000	38.41
10 Acetone	43	1.976	1.976	(0.472)	29211	40.0000	39.61
37 Benzene	78	4.519	4.519	(0.909)	199074	20.0000	18.59
74 Bromobenzene	156	8.810	8.810	(0.911)	79677	20.0000	18.67
29 Bromochloromethane	128	3.803	3.803	(0.908)	34144	20.0000	19.03
39 Bromodichloromethane	83	5.729	5.729	(1.153)	69363	20.0000	18.66
66 Bromoform	173	8.416	8.416	(1.097)	47140	20.0000	19.88
6 Bromomethane	94	1.346	1.339	(0.321)	52051	20.0000	18.00
19 Carbon Disulfide	76	2.076	2.076	(0.496)	278177	40.0000	36.81
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	73303	20.0000	17.87
59 Chlorobenzene	112	7.699	7.699	(1.004)	154044	20.0000	18.99
7 Chloroethane	64	1.403	1.403	(0.335)	34994	20.0000	18.28
28 Chloroform	83	3.917	3.917	(0.935)	95150	20.0000	18.77
3 Chloromethane	50	1.081	1.081	(0.258)	77890	20.0000	21.40
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	61324	20.0000	18.77
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	85647	20.0000	19.40
55 Dibromochloromethane	129	7.184	7.184	(0.937)	61054	20.0000	18.68
44 Dibromomethane	93	5.557	5.558	(1.118)	36222	20.0000	19.42
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	54883	20.0000	19.25
61 Ethylbenzene	106	7.807	7.807	(1.018)	77957	20.0000	18.59
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	36741	20.0000	18.28
67 Isopropylbenzene	105	8.566	8.566	(1.117)	221892	20.0000	17.82
62 m,p-Xylenes	106	7.907	7.907	(1.031)	186249	40.0000	36.88
17 Methylene Chloride	84	2.305	2.306	(0.550)	55968	20.0000	19.52
87 n-Butylbenzene	91	9.999	9.999	(1.034)	160071	20.0000	17.99
73 n-Propylbenzene	91	8.917	8.917	(0.922)	248854	20.0000	17.69
92 Naphthalene	128	11.546	11.546	(1.194)	87285	20.0000	18.25
63 o-Xylene	106	8.244	8.244	(1.075)	91643	20.0000	18.55
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	215560	20.0000	17.62
64 Styrene	104	8.265	8.265	(1.078)	163278	20.0000	18.90
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	160317	20.0000	17.81
56 Tetrachloroethene	164	6.933	6.933	(0.904)	54764	20.0000	18.32
50 Toluene	91	6.453	6.453	(0.841)	225977	20.0000	18.96
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52426	20.0000	19.13
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	74135	20.0000	19.22
38 Trichloroethene	130	5.214	5.214	(1.049)	64301	20.0000	18.72
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	91451	20.0000	18.36
5 Vinyl Chloride	62	1.145	1.145	(0.273)	54724	20.0000	17.85



Data File: \\nahstus005\Target\chem\voa6.i\X190513.b\X051307.D
Date : 13-MAY-2019 13:45
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\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 13-MAY-2019 14:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

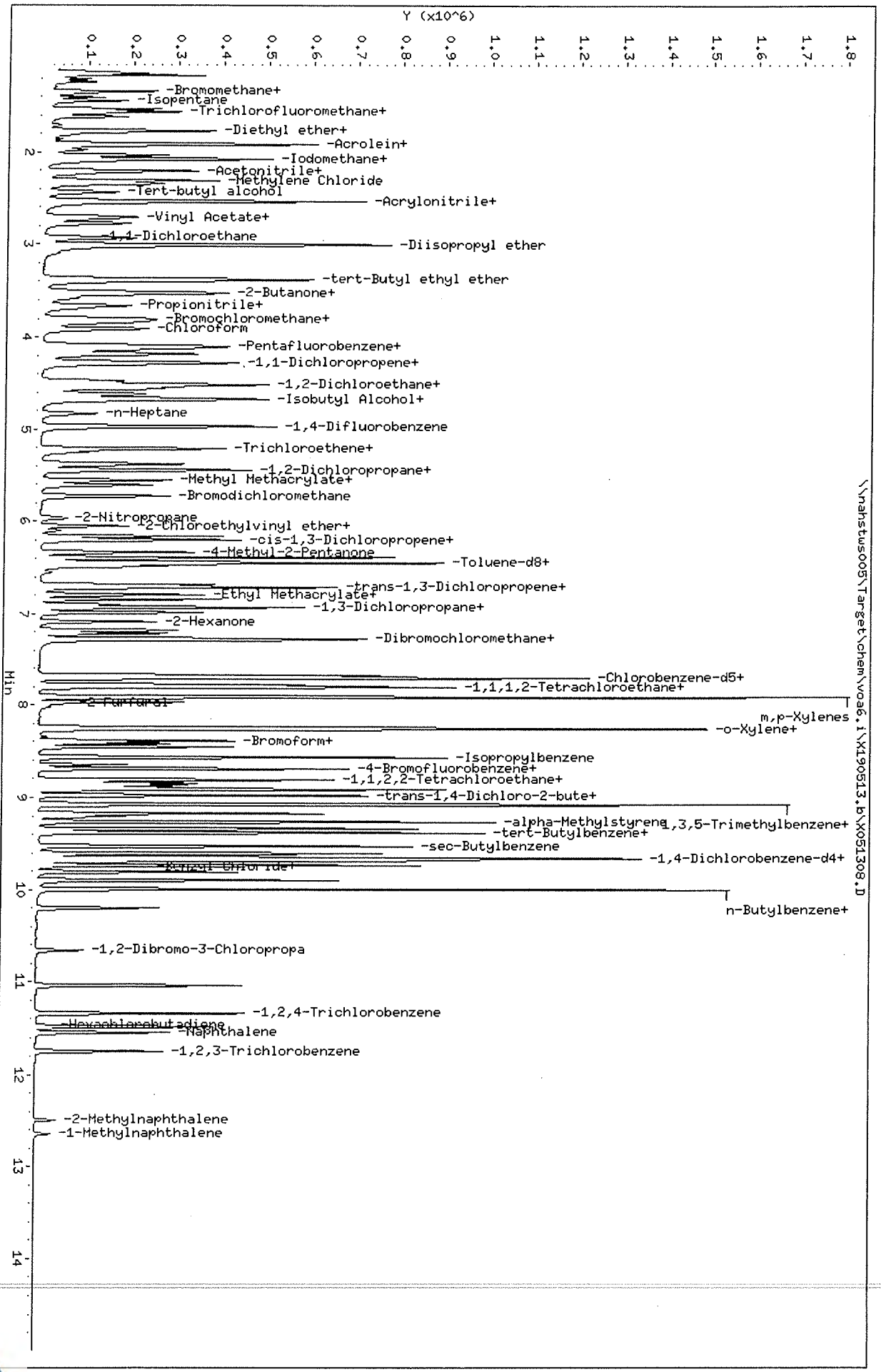
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	320160	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	425107	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	389348	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	218628	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	140206	50.0000	49.94
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	164393	50.0000	50.21
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	138429	50.0000	50.19
$	48 Toluene-d8	98	6.388	6.388	(0.833)	475062	50.0000	50.10
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140889	50.0000	46.38
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	194014	50.0000	45.76
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	138186	50.0000	46.38
	138 Freon TF	101	1.919	1.919	(0.458)	105816	50.0000	43.21
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	93933	50.0000	47.10
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	212520	50.0000	47.09
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	115616	50.0000	46.20
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	152541	50.0000	43.14
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82821	50.0000	44.74
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	161346	50.0000	47.36
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	144062	50.0000	44.68
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	451083	50.0000	43.32
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	23010	50.0000	48.18
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	129337	50.0000	47.44
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	283359	50.0000	44.89

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

	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)	162013	50.0000	45.25
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	115394	50.0000	46.48
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	431958	50.0000	43.49
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	299593	50.0000	44.55
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	188132	50.0000	46.76
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	301160	50.0000	44.48
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	181858	50.0000	45.49
24	2-Butanone	43	3.580	3.581	(0.855)	76503	100.000	100.23
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	347555	50.0000	42.98
52	2-Hexanone	43	7.090	7.090	(0.924)	125616	100.000	92.62
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	407466	50.0000	43.49
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	450042	50.0000	41.95
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	184906	100.000	93.66
10	Acetone	43	1.976	1.976	(0.472)	66437	100.000	96.82
37	Benzene	78	4.519	4.519	(0.909)	475353	50.0000	46.32
74	Bromobenzene	156	8.809	8.810	(0.911)	186716	50.0000	45.82
29	Bromochloromethane	128	3.802	3.803	(0.908)	84393	50.0000	49.35
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170552	50.0000	47.87
66	Bromoform	173	8.415	8.416	(1.097)	115291	50.0000	50.77
6	Bromomethane	94	1.338	1.339	(0.320)	129857	50.0000	45.28
19	Carbon Disulfide	76	2.076	2.076	(0.496)	665469	100.000	92.23
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	168134	50.0000	42.76
59	Chlorobenzene	112	7.699	7.699	(1.004)	361678	50.0000	46.57
7	Chloroethane	64	1.403	1.403	(0.335)	82737	50.0000	45.27
28	Chloroform	83	3.917	3.917	(0.935)	228368	50.0000	47.19
3	Chloromethane	50	1.081	1.081	(0.258)	171914	50.0000	52.72
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146016	50.0000	46.82
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	204302	50.0000	48.27
55	Dibromochloromethane	129	7.183	7.184	(0.937)	151217	50.0000	48.33
44	Dibromomethane	93	5.557	5.558	(1.118)	85360	50.0000	47.73
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	129152	50.0000	45.98
61	Ethylbenzene	106	7.799	7.807	(1.017)	179699	50.0000	44.76
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	77466	50.0000	40.35
67	Isopropylbenzene	105	8.566	8.566	(1.117)	511302	50.0000	42.88
62	m,p-Xylenes	106	7.907	7.907	(1.031)	436547	100.000	90.28
17	Methylene Chloride	84	2.305	2.306	(0.550)	132351	50.0000	49.29
87	n-Butylbenzene	91	9.998	9.999	(1.034)	357730	50.0000	42.09
73	n-Propylbenzene	91	8.917	8.917	(0.922)	571181	50.0000	42.52
92	Naphthalene	128	11.546	11.546	(1.194)	204108	50.0000	44.69
63	o-Xylene	106	8.244	8.244	(1.075)	215613	50.0000	45.57
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	483107	50.0000	41.35
64	Styrene	104	8.265	8.265	(1.078)	389051	50.0000	47.04
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	358769	50.0000	41.74
56	Tetrachloroethene	164	6.933	6.933	(0.904)	125799	50.0000	43.94
50	Toluene	91	6.453	6.453	(0.841)	523576	50.0000	45.87
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	122447	50.0000	46.80
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	181537	50.0000	49.09
38	Trichloroethene	130	5.214	5.214	(1.049)	152179	50.0000	46.23
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	211545	50.0000	44.48
5	Vinyl Chloride	62	1.145	1.145	(0.273)	134828	50.0000	46.07



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Date : 13-MAY-2019 14:09
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 13-MAY-2019 14:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:33 Cal File: X051309.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	292113	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	391306	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360434	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	201373	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	264049	100.000	103.29
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	308874	100.000	102.51
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	259811	100.000	103.63
$	48 Toluene-d8	98	6.388	6.388	(0.833)	904394	100.000	103.64
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	284109	100.000	101.03
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	402925	100.000	104.17
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	262985	100.000	95.84
	138 Freon TF	101	1.919	1.919	(0.458)	255344	100.000	108.72
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	181306	100.000	98.20
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	410624	100.000	99.73
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	240073	100.000	105.16
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	319383	100.000	98.13
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	193390	100.000	105.48
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	316012	100.000	100.71
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	322239	100.000	108.52
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	965815	100.000	100.70
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	48132	100.000	109.43
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	252995	100.000	100.24
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	578801	100.000	99.56

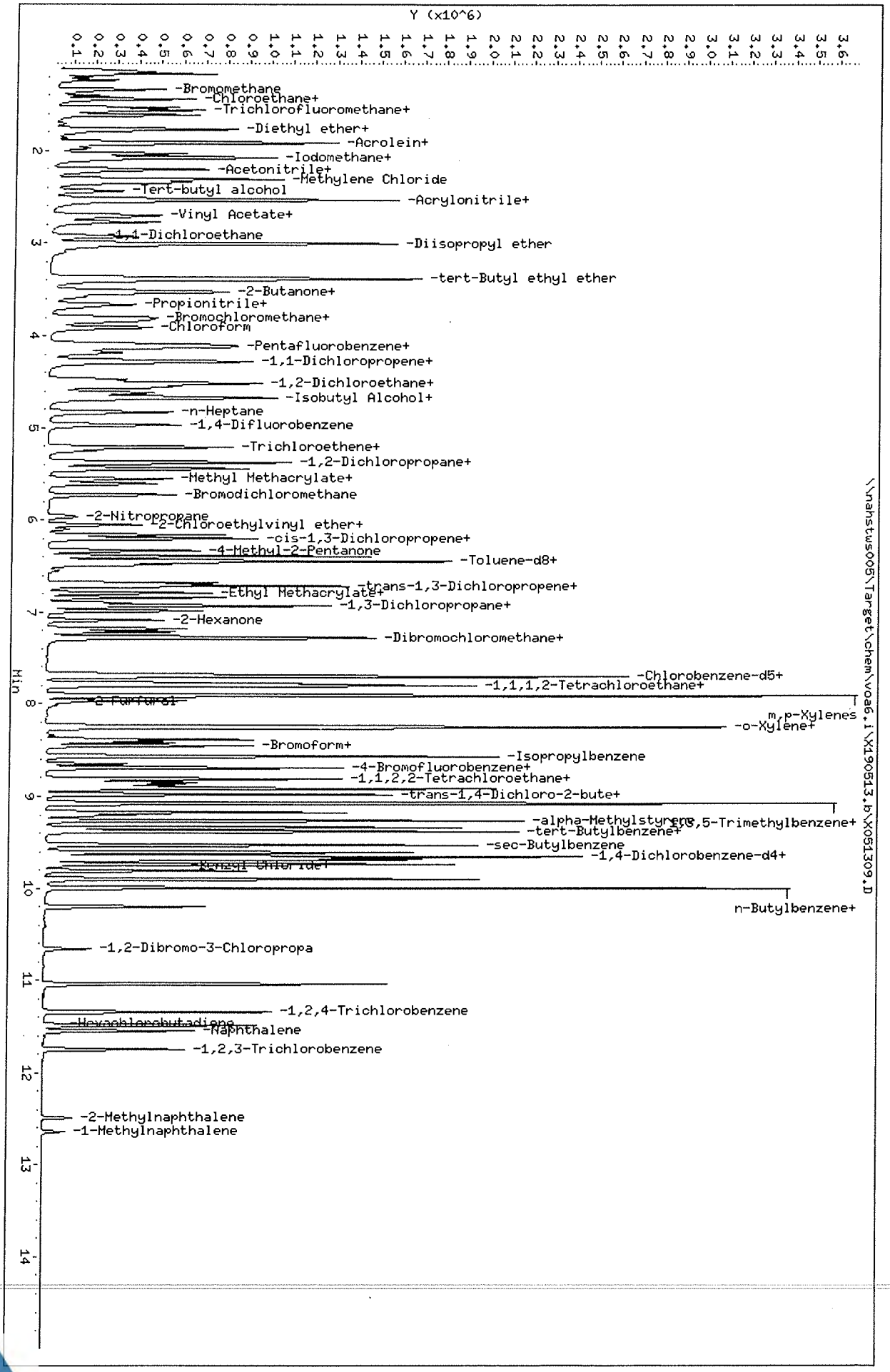
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

	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)	318635	100.000	96.69
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	221211	100.000	96.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	944978	100.000	103.30
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	621092	100.000	100.28
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	364879	100.000	97.97
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	623098	100.000	99.93
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	366161	100.000	100.39
24	2-Butanone	43	3.581	3.581	(0.855)	151605	200.000	217.70(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	730229	100.000	98.05
52	2-Hexanone	43	7.090	7.090	(0.924)	248919	200.000	198.26
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	856339	100.000	99.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1040512	100.000	105.32
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	364057	200.000	199.20
10	Acetone	43	1.976	1.976	(0.472)	125003	200.000	201.53(A)
37	Benzene	78	4.519	4.519	(0.909)	929993	100.000	98.46
74	Bromobenzene	156	8.810	8.810	(0.911)	372863	100.000	99.35
29	Bromochloromethane	128	3.803	3.803	(0.908)	161297	100.000	103.43
39	Bromodichloromethane	83	5.729	5.729	(1.153)	335305	100.000	102.25
66	Bromoform	173	8.416	8.416	(1.097)	228526	100.000	108.71
6	Bromomethane	94	1.339	1.339	(0.320)	273924	100.000	103.25
19	Carbon Disulfide	76	2.069	2.076	(0.494)	1355119	200.000	205.86(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	371502	100.000	102.64
59	Chlorobenzene	112	7.699	7.699	(1.004)	716462	100.000	99.65
7	Chloroethane	64	1.403	1.403	(0.335)	166381	100.000	99.78
28	Chloroform	83	3.917	3.917	(0.935)	449421	100.000	101.79
3	Chloromethane	50	1.081	1.081	(0.258)	321283	100.000	110.60
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	285342	100.000	100.28
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	400420	100.000	102.79
55	Dibromochloromethane	129	7.184	7.184	(0.937)	296437	100.000	102.35
44	Dibromomethane	93	5.558	5.558	(1.118)	165723	100.000	100.68
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	289308	100.000	108.26
61	Ethylbenzene	106	7.807	7.807	(1.018)	374397	100.000	100.74
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	189523	100.000	107.19
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1134655	100.000	102.80
62	m,p-Xylenes	106	7.907	7.907	(1.031)	905742	200.000	202.34(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	252013	100.000	103.56
87	n-Butylbenzene	91	9.999	9.999	(1.034)	822059	100.000	105.03
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1276228	100.000	103.15
92	Naphthalene	128	11.546	11.546	(1.194)	455338	100.000	108.24
63	o-Xylene	106	8.244	8.244	(1.075)	443200	100.000	101.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1124737	100.000	104.52
64	Styrene	104	8.265	8.265	(1.078)	773201	100.000	100.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	817269	100.000	103.23
56	Tetrachloroethene	164	6.933	6.933	(0.904)	274348	100.000	103.53
50	Toluene	91	6.453	6.453	(0.841)	1051135	100.000	99.49
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	241565	100.000	101.19
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	357359	100.000	104.99
38	Trichloroethene	130	5.214	5.214	(1.049)	305934	100.000	100.96
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	468589	100.000	107.99
5	Vinyl Chloride	62	1.145	1.145	(0.273)	285285	100.000	106.85

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Date : 13-MAY-2019 14:33
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 13-MAY-2019 14:56
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	298394	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	392493	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	367164	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	196596	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	382028	150.000	146.37
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	453043	150.000	147.86
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	375096	150.000	146.62
$	48 Toluene-d8	98	6.388	6.388	(0.832)	1314423	150.000	148.12
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	413165	150.000	144.23
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	578942	150.000	146.53
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	383243	150.000	143.06
	138 Freon TF	101	1.919	1.919	(0.458)	356261	150.000	144.82
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	263755	150.000	140.24
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	588315	150.000	139.88
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	339654	150.000	145.65
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	459688	150.000	140.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	278559	150.000	147.41
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	461977	150.000	150.81
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	469429	150.000	161.94
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	1373893	150.000	146.73
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	67079	150.000	156.21
	57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	370924	150.000	144.28
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	836202	150.000	147.33

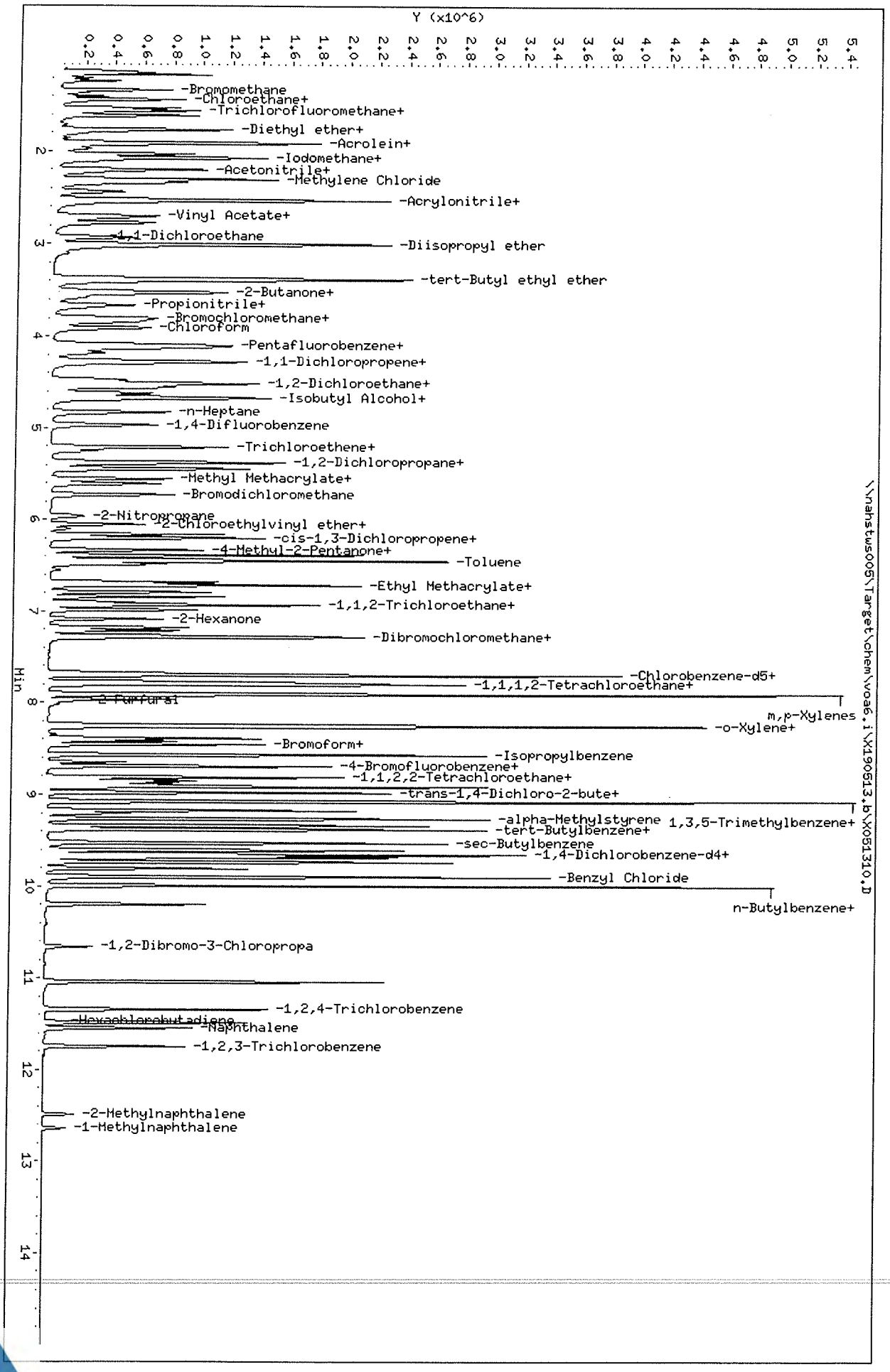
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

	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)	463119	150.000	140.11
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	323443	150.000	141.11
75	1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	1356920	150.000	151.94
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	887747	150.000	146.82
54	1,3-Dichloropropane	76	6.990	6.983	(0.910)	528778	150.000	139.37
84	1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	890539	150.000	146.30
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	524778	150.000	140.86
24	2-Butanone	43	3.580	3.581	(0.855)	210306	300.000	295.64(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	1064600	150.000	146.42
52	2-Hexanone	43	7.090	7.090	(0.924)	360424	300.000	281.81(A)
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	1238528	150.000	147.02
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1463745	150.000	151.76
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	534100	300.000	286.89(A)
10	Acetone	43	1.976	1.976	(0.472)	171031	300.000	270.54(A)
37	Benzene	78	4.519	4.519	(0.909)	1349541	150.000	142.44
74	Bromobenzene	156	8.809	8.810	(0.911)	544122	150.000	148.51
29	Bromochloromethane	128	3.802	3.803	(0.908)	232598	150.000	146.04
39	Bromodichloromethane	83	5.729	5.729	(1.153)	492012	150.000	149.58
66	Bromoform	173	8.415	8.416	(1.096)	338199	150.000	157.94
6	Bromomethane	94	1.331	1.339	(0.318)	399907	150.000	147.10
19	Carbon Disulfide	76	2.076	2.076	(0.496)	1937979	300.000	288.21(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	531383	150.000	146.37
59	Chlorobenzene	112	7.699	7.699	(1.003)	1060069	150.000	144.74
7	Chloroethane	64	1.403	1.403	(0.335)	242091	150.000	142.14
28	Chloroform	83	3.917	3.917	(0.935)	641887	150.000	142.33
3	Chloromethane	50	1.080	1.081	(0.258)	438543	150.000	148.62
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	410338	150.000	141.18
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	586004	150.000	149.98
55	Dibromochloromethane	129	7.183	7.184	(0.936)	438854	150.000	148.74
44	Dibromomethane	93	5.557	5.558	(1.118)	239830	150.000	145.27
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	401283	150.000	143.68
61	Ethylbenzene	106	7.807	7.807	(1.017)	546077	150.000	144.24
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	270771	150.000	156.86
67	Isopropylbenzene	105	8.566	8.566	(1.116)	1642258	150.000	146.06
62	m,p-Xylenes	106	7.907	7.907	(1.030)	1327636	300.000	291.15(A)
17	Methylene Chloride	84	2.305	2.306	(0.550)	359557	150.000	144.89
87	n-Butylbenzene	91	9.998	9.999	(1.034)	1170649	150.000	153.20
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1850611	150.000	153.21
92	Naphthalene	128	11.546	11.546	(1.194)	667369	150.000	162.50
63	o-Xylene	106	8.244	8.244	(1.074)	636382	150.000	142.65
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1576169	150.000	150.03
64	Styrene	104	8.265	8.265	(1.076)	1130376	150.000	144.94
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	1142864	150.000	147.87
56	Tetrachloroethene	164	6.933	6.933	(0.903)	389913	150.000	144.44
50	Toluene	91	6.453	6.453	(0.840)	1519978	150.000	141.23
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	350188	150.000	143.61
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	526477	150.000	154.21
38	Trichloroethene	130	5.214	5.214	(1.049)	439206	150.000	144.51
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	658059	150.000	148.47
5	Vinyl Chloride	62	1.145	1.145	(0.273)	407406	150.000	149.38

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Date : 13-MAY-2019 14:56
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\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 13-MAY-2019 15:20
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 15:20 Cal File: X051311.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	286080	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	381865	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	357837	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	193530	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	502886	200.000	201.03(A)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	597336	200.000	200.24(A)
$	30 Dibromofluoromethane	113	4.104	4.111	(0.979)	491615	200.000	200.58(A)
$	48 Toluene-d8	98	6.389	6.388	(0.832)	1723420	200.000	199.47
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	552744	200.000	197.99
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	793411	200.000	209.45(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	509307	200.000	193.14
	138 Freon TF	101	1.919	1.919	(0.458)	492637	200.000	200.49(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	350115	200.000	191.02
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	793297	200.000	196.74
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	462688	200.000	206.95(A)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	635112	200.000	199.97
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	405059	200.000	200.20(A)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	622664	200.000	206.49(A)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	648664	200.000	227.32(A)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1875483	200.000	203.48(A)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	93868	200.000	222.06(A)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.947)	490366	200.000	195.71
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1110311	200.000	198.72

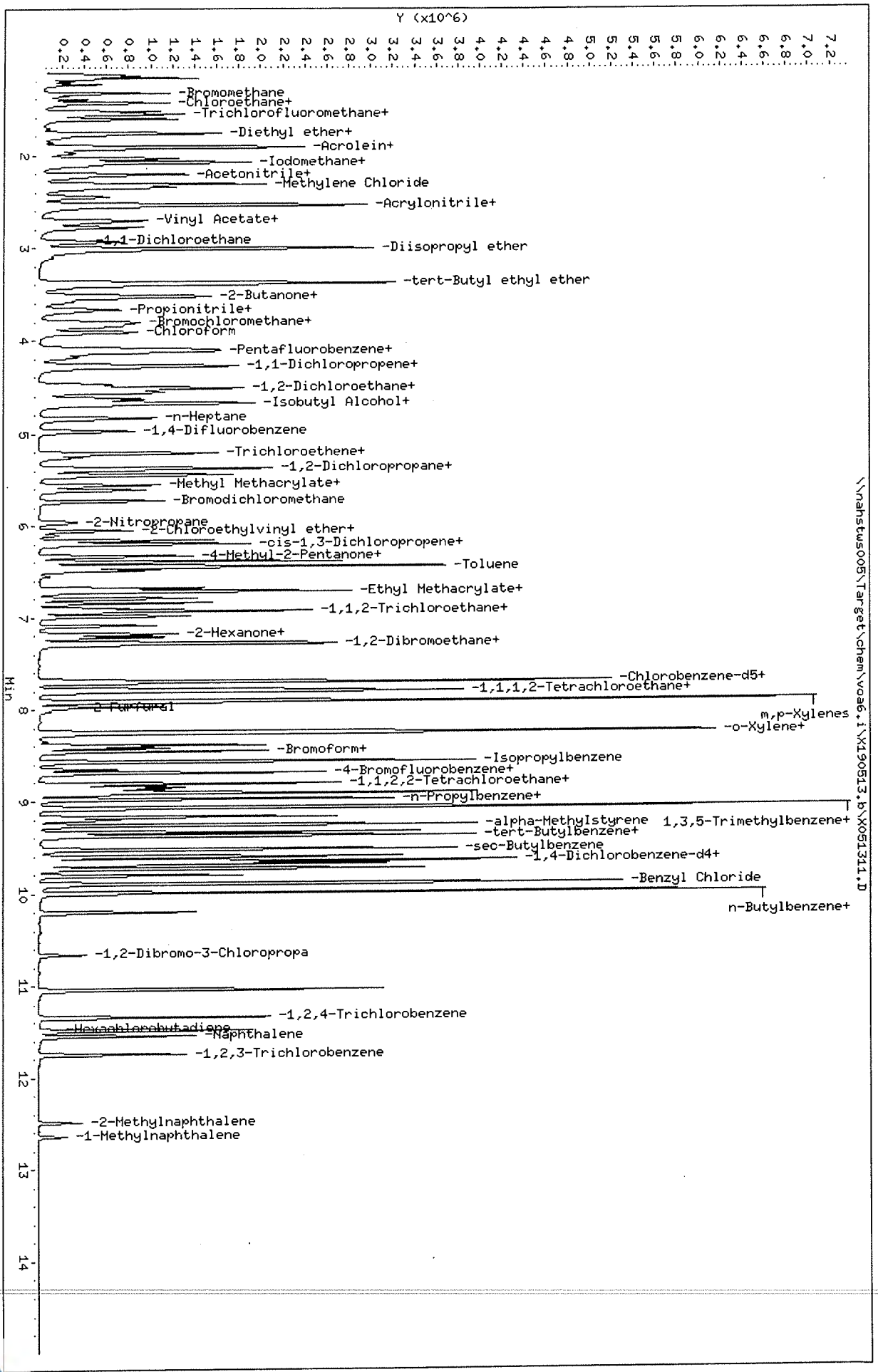
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

	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)	614464	200.000	191.07
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	432183	200.000	193.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	1846118	200.000	209.99(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1210068	200.000	203.29(A)
54	1,3-Dichloropropane	76	6.990	6.983	(0.910)	710269	200.000	192.09
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	1210233	200.000	201.97(A)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	705204	200.000	197.43
24	2-Butanone	43	3.581	3.581	(0.855)	285814	400.000	419.09(A)
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	1436462	200.000	200.69(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	489472	400.000	392.69(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1681145	200.000	202.72(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2032911	200.000	214.11(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	716118	400.000	394.68(A)
10	Acetone	43	1.976	1.976	(0.472)	227028	400.000	375.25(A)
37	Benzene	78	4.519	4.519	(0.909)	1817195	200.000	197.15
74	Bromobenzene	156	8.810	8.810	(0.911)	729145	200.000	202.16(A)
29	Bromochloromethane	128	3.803	3.803	(0.908)	307407	200.000	201.34(A)
39	Bromodichloromethane	83	5.730	5.729	(1.153)	658825	200.000	205.87(A)
66	Bromoform	173	8.416	8.416	(1.096)	451027	200.000	216.13(A)
6	Bromomethane	94	1.331	1.339	(0.318)	526501	200.000	201.60(A)
19	Carbon Disulfide	76	2.069	2.076	(0.494)	2624636	400.000	407.13(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	730650	200.000	206.87(A)
59	Chlorobenzene	112	7.699	7.699	(1.003)	1412889	200.000	197.94
7	Chloroethane	64	1.403	1.403	(0.335)	316439	200.000	193.79
28	Chloroform	83	3.917	3.917	(0.935)	857297	200.000	198.28
3	Chloromethane	50	1.081	1.081	(0.258)	547031	200.000	194.11
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	547797	200.000	196.59
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	782620	200.000	205.88(A)
55	Dibromochloromethane	129	7.184	7.184	(0.936)	583116	200.000	202.79(A)
44	Dibromomethane	93	5.558	5.558	(1.118)	316781	200.000	197.22
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	559973	200.000	201.04(A)
61	Ethylbenzene	106	7.807	7.807	(1.017)	740886	200.000	200.80(A)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	370075	200.000	217.79(A)
67	Isopropylbenzene	105	8.566	8.566	(1.116)	2225949	200.000	203.13(A)
62	m,p-Xylenes	106	7.907	7.907	(1.030)	1774491	400.000	399.29(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	480088	200.000	202.04(A)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1611019	200.000	214.18(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2526016	200.000	212.44(A)
92	Naphthalene	128	11.546	11.546	(1.194)	938681	200.000	232.18(A)
63	o-Xylene	106	8.244	8.244	(1.074)	864147	200.000	198.75
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2188038	200.000	211.58(A)
64	Styrene	104	8.265	8.265	(1.076)	1514827	200.000	199.29
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1569380	200.000	206.27(A)
56	Tetrachloroethene	164	6.933	6.933	(0.903)	529001	200.000	201.07(A)
50	Toluene	91	6.453	6.453	(0.840)	2043661	200.000	194.84
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	474680	200.000	203.04(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	703964	200.000	211.94(A)
38	Trichloroethene	130	5.214	5.214	(1.049)	598505	200.000	202.41(A)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	909806	200.000	214.11(A)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	563712	200.000	215.59(A)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Date : 13-MAY-2019 15:20
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\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 13-MAY-2019 16:08
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324291	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	414601	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	379195	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	212130	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	134880	47.4310	47.43
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	161981	50.8133	50.81(R)
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	133114	47.6318	47.63(R)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	470125	50.9220	50.92
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140712	47.5646	47.56
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	190780	44.4311	44.43
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	139566	48.2861	48.28
	138 Freon TF	101	1.919	1.919	(0.458)	102076	41.2399	41.23
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	95263	49.0480	49.04
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	211611	46.2968	46.29
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	117717	46.4496	46.44
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	151129	43.8278	43.82
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	96286	53.0497	53.04
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	164395	49.7379	49.73
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	158836	50.7824	50.78
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	455951	45.1311	45.13
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	25198	54.3846	54.38
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	128201	48.2851	48.28
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	284337	46.4299	46.42

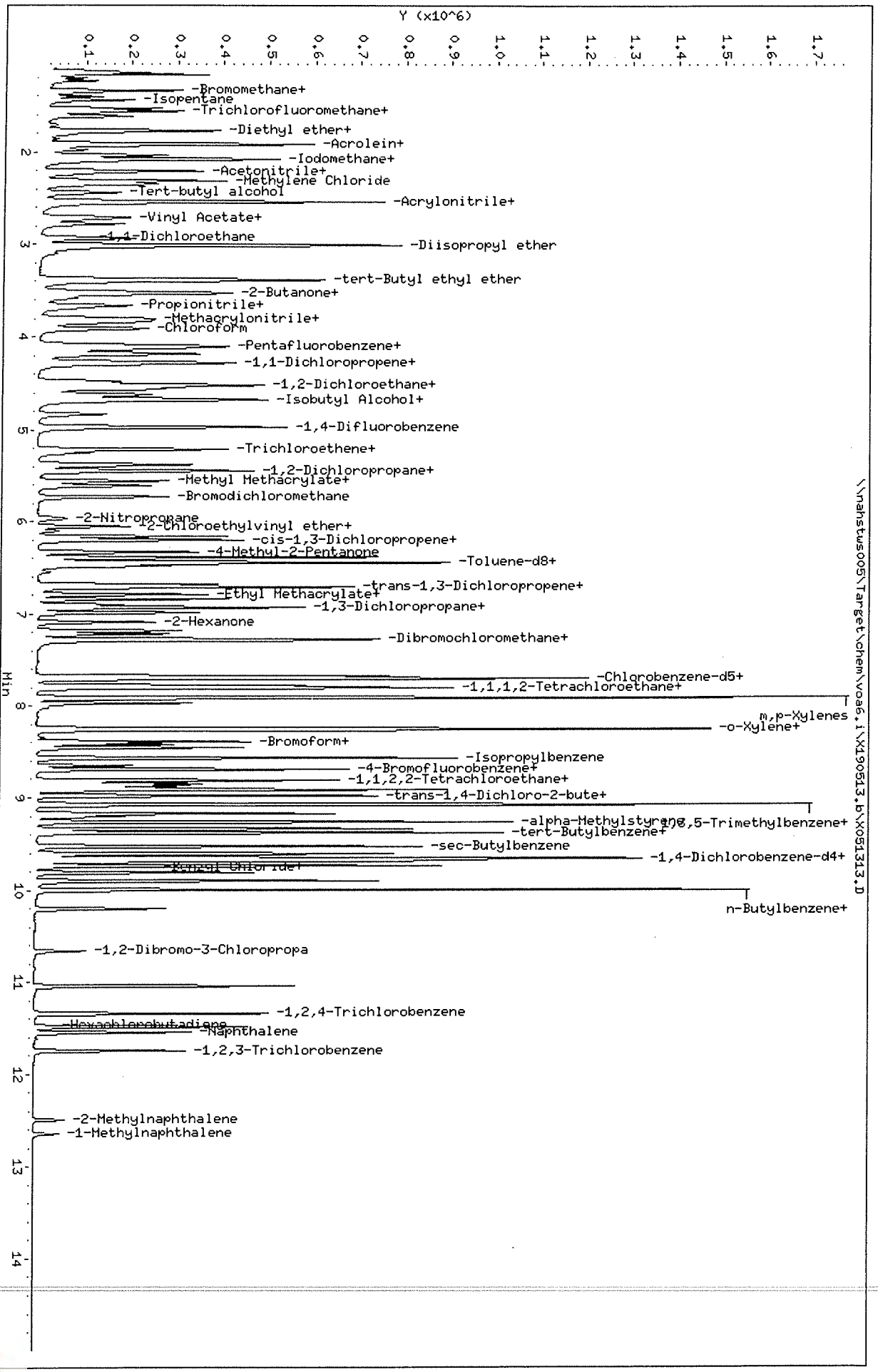
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

	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)	162952	46.6713	46.67
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	115220	47.5899	47.58
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	428136	44.4304	44.43
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	302566	46.3760	46.37
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	185679	47.3891	47.38
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	305934	46.5792	46.57
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	185973	45.9327	45.93
24	2-Butanone	43	3.580	3.581	(0.855)	80623	104.289	104.28
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	346767	44.2008	44.20
52	2-Hexanone	43	7.090	7.090	(0.924)	129040	97.6967	97.69
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	409428	45.0427	45.04
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	452692	43.4996	43.49
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	185950	96.7140	96.71
10	Acetone	43	1.976	1.976	(0.472)	74372	107.189	107.18
37	Benzene	78	4.519	4.519	(0.909)	476104	47.5749	47.57
74	Bromobenzene	156	8.810	8.810	(0.911)	185617	46.9519	46.95
29	Bromochloromethane	128	3.803	3.803	(0.908)	84124	48.5672	48.56
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170160	48.9748	48.97
66	Bromoform	173	8.416	8.416	(1.097)	116937	52.8796	52.87
6	Bromomethane	94	1.338	1.339	(0.320)	158469	54.3331	54.33
19	Carbon Disulfide	76	2.076	2.076	(0.496)	690201	94.4488	94.44
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	166746	43.4836	43.48
59	Chlorobenzene	112	7.699	7.699	(1.004)	356926	47.1893	47.18
7	Chloroethane	64	1.403	1.403	(0.335)	86291	46.6191	46.61
28	Chloroform	83	3.917	3.917	(0.935)	228760	46.6748	46.67
3	Chloromethane	50	1.081	1.081	(0.258)	153758	46.2700	46.27
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146864	46.4963	46.49
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	206431	50.0184	50.01
55	Dibromochloromethane	129	7.184	7.184	(0.937)	149124	48.9417	48.94
44	Dibromomethane	93	5.557	5.558	(1.118)	85374	48.9566	48.95
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	133900	47.0266	47.02
61	Ethylbenzene	106	7.807	7.807	(1.018)	175446	44.8724	44.87
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	90131	48.3930	48.39
67	Isopropylbenzene	105	8.566	8.566	(1.117)	506288	43.6011	43.60
62	m,p-Xylenes	106	7.907	7.907	(1.031)	431344	91.5937	91.59
17	Methylene Chloride	84	2.305	2.306	(0.550)	132416	48.6854	48.68
87	n-Butylbenzene	91	9.999	9.999	(1.034)	360691	43.7487	43.74
73	n-Propylbenzene	91	8.917	8.917	(0.922)	563787	43.2591	43.25
92	Naphthalene	128	11.546	11.546	(1.194)	233649	52.7267	52.72
63	o-Xylene	106	8.244	8.244	(1.075)	214602	46.5786	46.57
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	476834	42.0663	42.06
64	Styrene	104	8.265	8.265	(1.078)	383116	47.5660	47.56
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	356817	42.7876	42.78
56	Tetrachloroethene	164	6.933	6.933	(0.904)	122715	44.0180	44.01
50	Toluene	91	6.453	6.453	(0.841)	518873	46.6830	46.68
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	126392	47.6934	47.69
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	186372	51.6816	51.68
38	Trichloroethene	130	5.214	5.214	(1.049)	149121	46.4499	46.44
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	208348	43.2547	43.25
5	Vinyl Chloride	62	1.145	1.145	(0.273)	138377	46.6878	46.68

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

R - Spike/Surrogate failed recovery limits.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Date : 13-MAY-2019 16:08
Client ID: CCV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 35390 **Analyst:** Presenta Cabascango

Date: 05-14-2019 **Reviewer:**

Method: 8260 **Laboratory:** Houston

Comments: Target Sequence 190514

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-14-2019 09:13 am	1.00	0.00 mL	0.00 mL	X051401.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	05-14-2019 09:37 am	1.00	5.00 mL	0.00 mL	X051402a.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	CCV	CCV	05-14-2019 10:01 am	1.00	5.00 mL	0.00 mL	X051403.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
4	CCB	SAMP	05-14-2019 10:25 am	1.00	5.00 mL	0.00 mL	X051404.D	Liquid	Y	NA
	CCB									
5	VLCSW-190514	LCS	05-14-2019 10:49 am	1.00	5.00 mL	0.00 mL	X051405.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
6	BLANK	SAMP	05-14-2019 11:13 am	1.00	5.00 mL	0.00 mL	X051406.D	Liquid	Y	NA
7	VBLKW-190514	MBLK	05-14-2019 11:37 am	1.00	5.00 mL	0.00 mL	X051407.D	Liquid	Y	NA
8	HS19050138-02	SAMP	05-14-2019 12:01 pm	1.00	5.00 mL	0.00 mL	X051408.D	Liquid	Y	<2
9	HS19050304-10	SAMP	05-14-2019 12:25 pm	1.00	5.00 mL	0.00 mL	X051409.D	Liquid	Y	<2
10	HS19050138-01	SAMP	05-14-2019 12:49 pm	1.00	5.00 mL	0.00 mL	X051410.D	Liquid	Y	<2
11	HS19050304-05	SAMP	05-14-2019 01:14 pm	1.00	5.00 mL	0.00 mL	X051411.D	Liquid	Y	<2
12	HS19050304-06	SAMP	05-14-2019 01:38 pm	1.00	5.00 mL	0.00 mL	X051412.D	Liquid	Y	<2
13	HS19050304-07	SAMP	05-14-2019 02:02 pm	1.00	5.00 mL	0.00 mL	X051413.D	Liquid	Y	<2
14	HS19050304-05MS	MS	05-14-2019 02:26 pm	1.00	5.00 mL	0.00 mL	X051414.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
15	HS19050304-05MSD	MSD	05-14-2019 02:50 pm	1.00	5.00 mL	0.00 mL	X051415.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
16	HS19050304-06	SAMP	05-14-2019 03:14 pm	5.00	5.00 mL	0.00 mL	X051416.D	Liquid	Y	<2
17	HS19050304-07	SAMP	05-14-2019 03:38 pm	5.00	5.00 mL	0.00 mL	X051417.D	Liquid	Y	<2
18	HS19050398-03	SAMP	05-14-2019 04:02 pm	1.00	5.00 mL	0.00 mL	X051418.D	Liquid	Y	<2
19	HS19050398-01	SAMP	05-14-2019 04:26 pm	1.00	5.00 mL	0.00 mL	X051419.D	Liquid	Y	<2
20	HS19050304-01	SAMP	05-14-2019 04:50 pm	1.00	5.00 mL	0.00 mL	X051420.D	Liquid	Y	<2
21	HS19050304-02	SAMP	05-14-2019 05:14 pm	1.00	5.00 mL	0.00 mL	X051421.D	Liquid	Y	<2
22	HS19050304-03	SAMP	05-14-2019 05:38 pm	1.00	5.00 mL	0.00 mL	X051422.D	Liquid	Y	<2
23	HS19050304-04	SAMP	05-14-2019 06:02 pm	1.00	5.00 mL	0.00 mL	X051423.D	Liquid	Y	<2
24	HS19050304-08	SAMP	05-14-2019 06:26 pm	1.00	5.00 mL	0.00 mL	X051424.D	Liquid	Y	<2
25	HS19050304-09	SAMP	05-14-2019 06:50 pm	1.00	5.00 mL	0.00 mL	X051425.D	Liquid	Y	<2
26	HS19050374-01	SAMP	05-14-2019 07:14 pm	1.00	5.00 mL	0.00 mL	X051426.D	Liquid	Y	<2
27	HS19050374-02	SAMP	05-14-2019 07:38 pm	1.00	5.00 mL	0.00 mL	X051427.D	Liquid	Y	<2
28	HS19050374-03	SAMP	05-14-2019 08:02 pm	1.00	5.00 mL	0.00 mL	X051428.D	Liquid	Y	<2
29	HS19050374-04	SAMP	05-14-2019 08:26 pm	1.00	5.00 mL	0.00 mL	X051429.D	Liquid	Y	<2
30	CCV-END	CCV	05-14-2019 08:50 pm	1.00	5.00 mL	0.00 mL	X051430.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL)#	OTHER (DCE)#	TOT OUT
01	VLCSW-190514	102	97	97	100	0
02	VBLKW-190514	98	88	106	85	0
03	HS19050304-0	100	90	104	87	0
04	HS19050304-0	99	89	105	87	0
05	HS19050374-0	99	88	103	87	0
06	HS19050374-0	97	87	107	87	0
07	HS19050374-0	100	88	104	86	0
08	HS19050374-0	101	89	104	87	0
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-190514

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID: X051407 Lab Sample ID: VBLKW-190514

Date Analyzed: 05/14/19 Time Analyzed: 1137

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-190514	VLCSW-190514	X051405	1049
02	HS19050304-0	HS19050304-05M	X051414	1426
03	HS19050304-0	HS19050304-05M	X051415	1450
04	HS19050374-0	HS19050374-01	X051426	1914
05	HS19050374-0	HS19050374-02	X051427	1938
06	HS19050374-0	HS19050374-03	X051428	2002
07	HS19050374-0	HS19050374-04	X051429	2026
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID: X051401 BFB Injection Date: 05/14/19

Instrument ID: VOA6 BFB Injection Time: 0913

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.3
75	30.0 - 60.0% of mass 95	48.5
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.6 (0.7)1
174	Greater than 50.0% of mass 95	84.1
175	5.0 - 9.0% of mass 174	6.2 (7.4)1
176	95.0 - 101.0% of mass 174	81.2 (96.5)1
177	5.0 - 9.0% of mass 176	6.1 (7.5)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X051403	05/14/19	1001
02	VLCSW-190514	VLCSW-190514	X051405	05/14/19	1049
03	VBLKW-190514	VBLKW-190514	X051407	05/14/19	1137
04	HS19050304-0	HS19050304-05M	X051414	05/14/19	1426
05	HS19050304-0	HS19050304-05M	X051415	05/14/19	1450
06	HS19050374-0	HS19050374-01	X051426	05/14/19	1914
07	HS19050374-0	HS19050374-02	X051427	05/14/19	1938
08	HS19050374-0	HS19050374-03	X051428	05/14/19	2002
09	HS19050374-0	HS19050374-04	X051429	05/14/19	2026
10	CCV-END	CCV-END	X051430	05/14/19	2050
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Instrument ID: VOA6 Calibration Date: 05/14/19 Time: 1001

Lab File ID: X051403 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4929703	0.4929703	0.2	1.01	20.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4343831	0.4343831	0.1	0.14	20.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3913692	1.3913692	0.6	9.53	20.00	AVRG
2,2-Dichloropropane	0.6240000	0.5197382	0.5197382	0.1	16.71	20.00	AVRG
1,1-Dichloropropene	0.4160000	0.3541170	0.3541170	0.1	14.88	20.00	AVRG
Dibromomethane	0.2100000	0.2083415	0.2083415	0.1	0.79	20.00	AVRG
1,2-Dibromoethane	0.3500000	0.3497624	0.3497624	0.1	0.07	20.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3855151	0.3855151	0.1	5.51	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3676277	0.3676277	0.1	5.74	20.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5933721	0.5933721	0.1	10.37	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6708179	0.6708179	0.3	1.50	20.00	AVRG
Toluene	1.4650000	1.3551164	1.3551164	0.4	7.50	20.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2541493	0.2541493	0.1	0.72	20.00	AVRG
1,1-Dichloroethane	0.7050000	0.6648821	0.6648821	0.2	5.69	20.00	AVRG
1,1-Dichloroethene	0.3900000	0.3484736	0.3484736	0.1	10.65	20.00	AVRG
Trichlorofluoromethane	0.7430000	0.6298513	0.6298513	0.1	15.23	20.00	AVRG
1,2,3-Trichlorobenzene	50.843919	50.000000	0.4196651	0.1	-1.69	20.00	2RDR
Tetrachloroethene	0.3680000	0.3204744	0.3204744	0.2	12.91	20.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.7067225	0.7067225	0.2	4.11	20.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.1277718	2.1277718	0.1	10.64	20.00	AVRG
tert-Butylbenzene	1.9660000	1.6572677	1.6572677	0.1	15.70	20.00	AVRG
Trichloroethene	0.3870000	0.3588428	0.3588428	0.2	7.28	20.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3194700	1.3194700	0.4	8.56	20.00	AVRG
1,2-Dichloroethane	0.4210000	0.3917914	0.3917914	0.1	6.94	20.00	AVRG
1,2-Dichloropropane	0.2920000	0.2749502	0.2749502	0.1	5.84	20.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.0144580	2.0144580	0.1	11.30	20.00	AVRG
1,3-Dichloropropane	0.5160000	0.5035057	0.5035057	0.1	2.42	20.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4134765	1.4134765	0.4	8.69	20.00	AVRG
2-Butanone	0.1190000	0.1286606	0.1286606	0.1	-8.12	20.00	AVRG
2-Chlorotoluene	1.8490000	1.6288819	1.6288819	0.1	11.90	20.00	AVRG
2-Hexanone	0.1740000	0.1757419	0.1757419	0.1	-1.00	20.00	AVRG
4-Chlorotoluene	2.1420000	1.9013869	1.9013869	0.1	11.23	20.00	AVRG
Styrene	1.0620000	1.0244105	1.0244105	0.3	3.54	20.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2590319	0.2590319	0.1	-2.38	20.00	AVRG
Acetone	102.21698	100.00000	0.1038861	0.1	-2.22	20.00	LINR
Benzene	1.2070000	1.1276380	1.1276380	0.5	6.58	20.00	AVRG
Bromobenzene	0.9320000	0.8681204	0.8681204	0.1	6.85	20.00	AVRG
Bromochloromethane	48.741530	50.000000	0.2663757	0.1	2.52	20.00	LINR
Bromodichloromethane	0.4190000	0.4126238	0.4126238	0.2	1.52	20.00	AVRG
Bromoform	0.2920000	0.3113112	0.3113112	0.1	-6.61	20.00	AVRG
Bromomethane	50.452853	50.000000	0.4375713	0.1	-0.90	20.00	LINR
Carbon Disulfide	1.1270000	1.0288588	1.0288588	0.1	8.71	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date: 05/14/19 Time: 1001

Lab File ID: X051403 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3881790	0.3881790	0.1	15.98	20.00	AVRG
Chlorobenzene	0.9970000	0.9431660	0.9431660	0.5	5.40	20.00	AVRG
Chloroethane	0.2850000	0.2524388	0.2524388	0.1	11.42	20.00	AVRG
Chloroform	0.7550000	0.7135452	0.7135452	0.2	5.49	20.00	AVRG
Chloromethane	46.822640	50.000000	0.4962503	0.1	6.35	20.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4600099	0.4600099	0.1	5.54	20.00	AVRG
Dibromochloromethane	0.4020000	0.3995184	0.3995184	0.1	0.62	20.00	AVRG
Dichlorodifluoromethane	48.843455	50.000000	0.3901241	0.1	2.31	20.00	2RDR
Ethylbenzene	0.5160000	0.4676726	0.4676726	0.1	9.36	20.00	AVRG
Hexachlorobutadiene	0.4390000	0.3600982	0.3600982	0.1	17.97	20.00	AVRG
Isopropylbenzene	1.5310000	1.3310235	1.3310235	0.1	13.06	20.00	AVRG
m,p-Xylenes	0.6210000	0.5647881	0.5647881	0.1	9.05	20.00	AVRG
Methylene Chloride	49.402186	50.000000	0.4148562	0.1	1.20	20.00	LINR
n-Butylbenzene	1.9430000	1.6308459	1.6308459	0.5	16.06	20.00	AVRG
n-Propylbenzene	3.0720000	2.6269584	2.6269584	0.1	14.49	20.00	AVRG
Naphthalene	1.0440000	1.0308171	1.0308171	0.2	1.26	20.00	AVRG
o-Xylene	0.6080000	0.5644282	0.5644282	0.3	7.17	20.00	AVRG
sec-Butylbenzene	2.6720000	2.2127583	2.2127583	0.1	17.19	20.00	AVRG
Vinyl Chloride	0.4570000	0.4075956	0.4075956	0.1	10.81	20.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7724466	0.7724466	0.1	0.84	20.00	AVRG
p-Isopropyltoluene	2.4530000	2.1208372	2.1208372	0.1	13.54	20.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1165631	0.1165631	0.05	-6.94	20.00	AVRG
Freon TF	48.752576	50.000000	0.3222743	0.1	2.49	20.00	2RDR
4-Bromofluorobenzene	50.385155	50.000000	0.4265828	0.1	-0.77	20.00	LINR
Dibromofluoromethane	49.694079	50.000000	0.4289691	0.1	0.61	20.00	LINR
Toluene-d8	49.970383	50.000000	1.2101469	0.1	0.06	20.00	LINR
1,2-Dichloroethane-d4	49.846496	50.000000	0.4369618	0.1	0.31	20.00	LINR

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Instrument ID: VOA6 Calibration Date: 05/14/19 Time: 2050

Lab File ID: X051430 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4929703	0.4929703	0.2	1.01	50.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4343831	0.4343831	0.1	0.14	50.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3913692	1.3913692	0.6	9.53	50.00	AVRG
2,2-Dichloropropane	0.6240000	0.5197382	0.5197382	0.1	16.71	50.00	AVRG
1,1-Dichloropropene	0.4160000	0.3541170	0.3541170	0.1	14.88	50.00	AVRG
Dibromomethane	0.2100000	0.2083415	0.2083415	0.1	0.79	50.00	AVRG
1,2-Dibromoethane	0.3500000	0.3497624	0.3497624	0.1	0.07	50.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3855151	0.3855151	0.1	5.51	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3676277	0.3676277	0.1	5.74	50.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5933721	0.5933721	0.1	10.37	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6708179	0.6708179	0.3	1.50	50.00	AVRG
Toluene	1.4650000	1.3551164	1.3551164	0.4	7.50	50.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2541493	0.2541493	0.1	0.72	50.00	AVRG
1,1-Dichloroethane	0.7050000	0.6648821	0.6648821	0.2	5.69	50.00	AVRG
1,1-Dichloroethene	0.3900000	0.3484736	0.3484736	0.1	10.65	50.00	AVRG
Trichlorofluoromethane	0.7430000	0.6298513	0.6298513	0.1	15.23	50.00	AVRG
1,2,3-Trichlorobenzene	49.279949	50.000000	0.4196651	0.1	1.44	50.00	2RDR
Tetrachloroethene	0.3680000	0.3204744	0.3204744	0.2	12.91	50.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.7067225	0.7067225	0.2	4.11	50.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.1277718	2.1277718	0.1	10.64	50.00	AVRG
tert-Butylbenzene	1.9660000	1.6572677	1.6572677	0.1	15.70	50.00	AVRG
Trichloroethene	0.3870000	0.3588428	0.3588428	0.2	7.28	50.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3194700	1.3194700	0.4	8.56	50.00	AVRG
1,2-Dichloroethane	0.4210000	0.3917914	0.3917914	0.1	6.94	50.00	AVRG
1,2-Dichloropropane	0.2920000	0.2749502	0.2749502	0.1	5.84	50.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.0144580	2.0144580	0.1	11.30	50.00	AVRG
1,3-Dichloropropane	0.5160000	0.5035057	0.5035057	0.1	2.42	50.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4134765	1.4134765	0.4	8.69	50.00	AVRG
2-Butanone	0.1190000	0.1286606	0.1286606	0.1	-8.12	50.00	AVRG
2-Chlorotoluene	1.8490000	1.6288819	1.6288819	0.1	11.90	50.00	AVRG
2-Hexanone	0.1740000	0.1757419	0.1757419	0.1	-1.00	50.00	AVRG
4-Chlorotoluene	2.1420000	1.9013869	1.9013869	0.1	11.23	50.00	AVRG
Styrene	1.0620000	1.0244105	1.0244105	0.3	3.54	50.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2590319	0.2590319	0.1	-2.38	50.00	AVRG
Acetone	96.943811	100.00000	0.1038861	0.1	3.06	50.00	LINR
Benzene	1.2070000	1.1276380	1.1276380	0.5	6.58	50.00	AVRG
Bromobenzene	0.9320000	0.8681204	0.8681204	0.1	6.85	50.00	AVRG
Bromochloromethane	49.872935	50.000000	0.2663757	0.1	0.25	50.00	LINR
Bromodichloromethane	0.4190000	0.4126238	0.4126238	0.2	1.52	50.00	AVRG
Bromoform	0.2920000	0.3113112	0.3113112	0.1	-6.61	50.00	AVRG
Bromomethane	48.766655	50.000000	0.4375713	0.1	2.47	50.00	LINR
Carbon Disulfide	1.1270000	1.0288588	1.0288588	0.1	8.71	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date: 05/14/19 Time: 2050

Lab File ID: X051430 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3881790	0.3881790	0.1	15.98	50.00	AVRG
Chlorobenzene	0.9970000	0.9431660	0.9431660	0.5	5.40	50.00	AVRG
Chloroethane	0.2850000	0.2524388	0.2524388	0.1	11.42	50.00	AVRG
Chloroform	0.7550000	0.7135452	0.7135452	0.2	5.49	50.00	AVRG
Chloromethane	48.543644	50.000000	0.4962503	0.1	2.91	50.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4600099	0.4600099	0.1	5.54	50.00	AVRG
Dibromochloromethane	0.4020000	0.3995184	0.3995184	0.1	0.62	50.00	AVRG
Dichlorodifluoromethane	44.522189	50.000000	0.3901241	0.1	10.96	50.00	2RDR
Ethylbenzene	0.5160000	0.4676726	0.4676726	0.1	9.36	50.00	AVRG
Hexachlorobutadiene	0.4390000	0.3600982	0.3600982	0.1	17.97	50.00	AVRG
Isopropylbenzene	1.5310000	1.3310235	1.3310235	0.1	13.06	50.00	AVRG
m,p-Xylenes	0.6210000	0.5647881	0.5647881	0.1	9.05	50.00	AVRG
Methylene Chloride	49.474233	50.000000	0.4148562	0.1	1.05	50.00	LINR
n-Butylbenzene	1.9430000	1.6308459	1.6308459	0.5	16.06	50.00	AVRG
n-Propylbenzene	3.0720000	2.6269584	2.6269584	0.1	14.49	50.00	AVRG
Naphthalene	1.0440000	1.0308171	1.0308171	0.2	1.26	50.00	AVRG
o-Xylene	0.6080000	0.5644282	0.5644282	0.3	7.17	50.00	AVRG
sec-Butylbenzene	2.6720000	2.2127583	2.2127583	0.1	17.19	50.00	AVRG
Vinyl Chloride	0.4570000	0.4075956	0.4075956	0.1	10.81	50.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7724466	0.7724466	0.1	0.84	50.00	AVRG
p-Isopropyltoluene	2.4530000	2.1208372	2.1208372	0.1	13.54	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1165631	0.1165631	0.05	-6.94	50.00	AVRG
Freon TF	42.182334	50.000000	0.3222743	0.1	15.64	50.00	2RDR
4-Bromofluorobenzene	50.742615	50.000000	0.4265828	0.1	-1.48	50.00	LINR
Dibromofluoromethane	49.794222	50.000000	0.4289691	0.1	0.41	50.00	LINR
Toluene-d8	49.690445	50.000000	1.2101469	0.1	0.62	50.00	LINR
1,2-Dichloroethane-d4	49.839261	50.000000	0.4369618	0.1	0.32	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID (Standard): X051403 Date Analyzed: 05/14/19

Instrument ID: VOA6 Time Analyzed: 1001

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

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	213292	9.67	380443	7.67	407677	4.97
	UPPER LIMIT	426584	10.17	760886	8.17	815354	5.47
	LOWER LIMIT	106646	9.17	190222	7.17	203839	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-190514	221417	9.67	390116	7.67	420604	4.97
02	VBLKW-190514	249085	9.67	474909	7.67	552310	4.97
03	HS19050304-0	266616	9.67	470997	7.67	529837	4.97
04	HS19050304-0	245223	9.67	449076	7.67	508842	4.97
05	HS19050374-0	260474	9.67	470403	7.67	536962	4.97
06	HS19050374-0	237328	9.67	456081	7.67	539965	4.97
07	HS19050374-0	268965	9.67	486469	7.67	548564	4.97
08	HS19050374-0	276876	9.67	492042	7.67	559239	4.97
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID (Standard): X051403 Date Analyzed: 05/14/19

Instrument ID: VOA6 Time Analyzed: 1001

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	306431	4.19				
	UPPER LIMIT	612862	4.69				
	LOWER LIMIT	153216	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-190514	324570	4.19				
02	VBLKW-190514	447583	4.19				
03	HS19050304-0	423380	4.19				
04	HS19050304-0	412528	4.19				
05	HS19050374-0	432671	4.19				
06	HS19050374-0	436550	4.19				
07	HS19050374-0	439103	4.19				
08	HS19050374-0	445720	4.19				
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\X190514.b\X051401.D

Page 1

Date : 14-MAY-2019 09:13

Client ID: BFB

Instrument: voa6.i

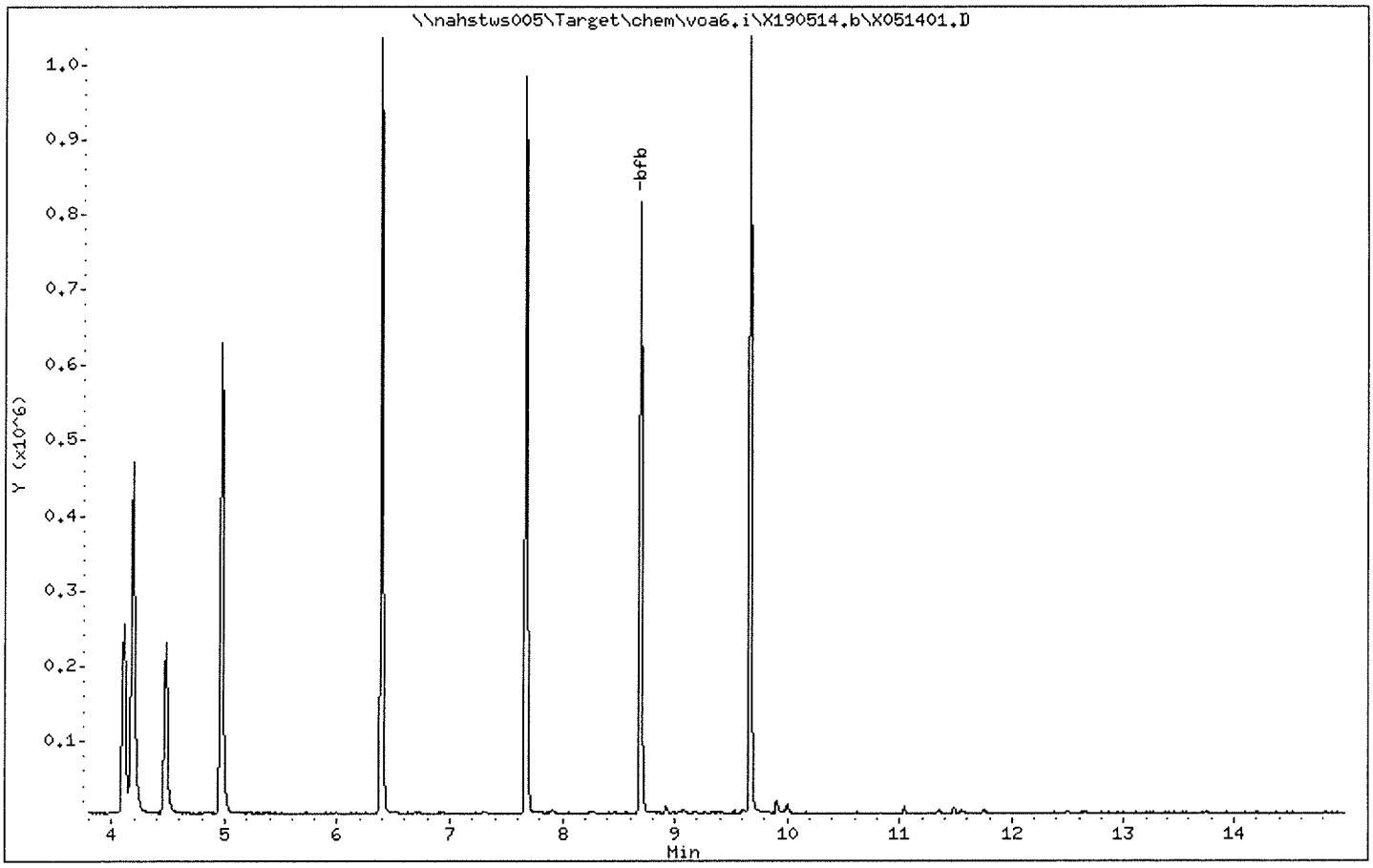
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051401.D

Date : 14-MAY-2019 09:13

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

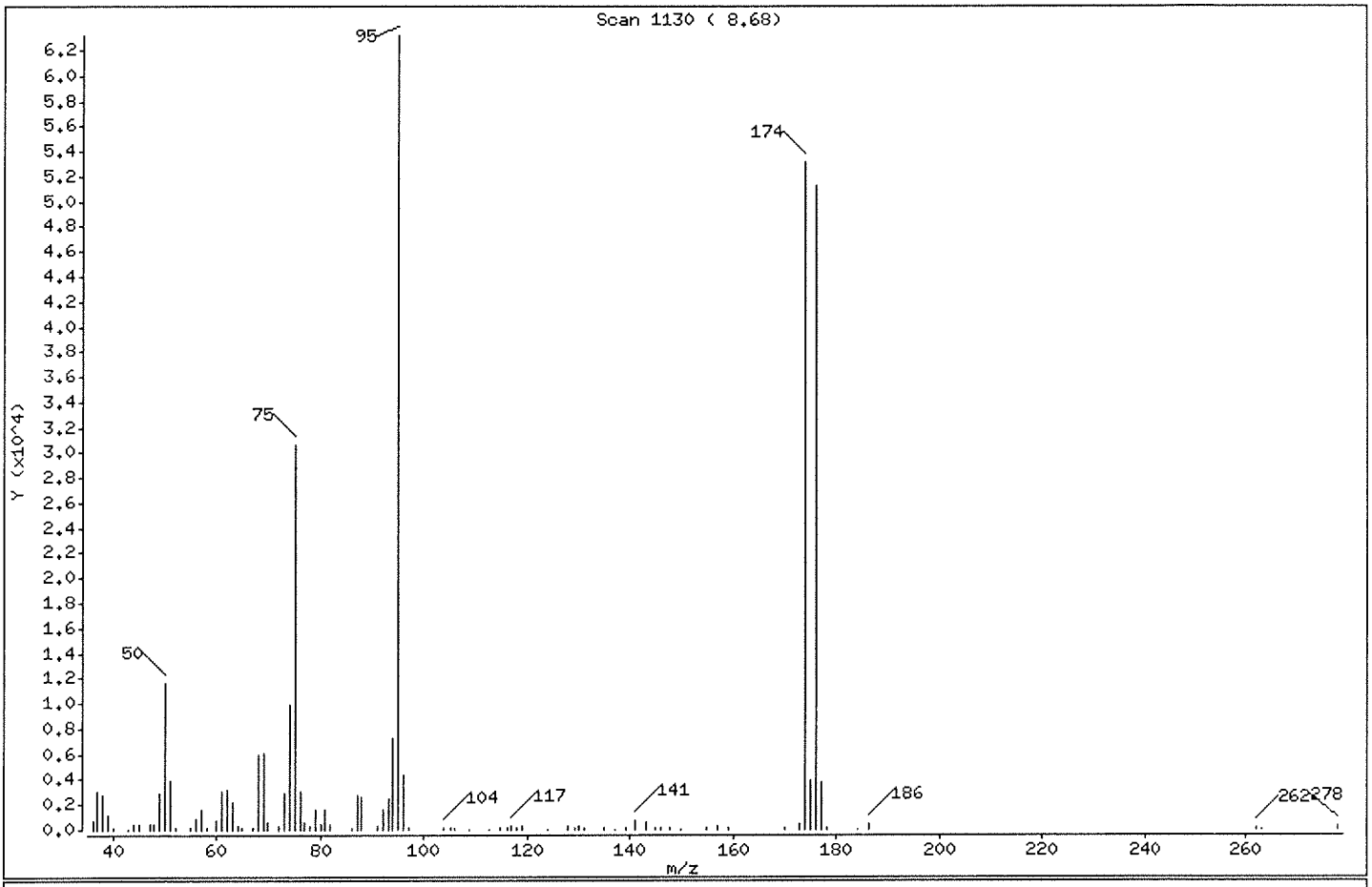
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	18.34
75	30.00 - 60.00% of mass 95	48.49
96	5.00 - 9.00% of mass 95	6.81
173	Less than 2.00% of mass 174	0.62 (0.73)
174	Greater than 50.00% of mass 95	84.12
175	5.00 - 9.00% of mass 174	6.21 (7.38)
176	95.00 - 101.00% of mass 174	81.18 (96.51)
177	5.00 - 9.00% of mass 176	6.07 (7.48)

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051401.D

Date : 14-MAY-2019 09:13

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: X051401.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 89

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	702	65.00	155	95.00	63168	143.10	550
37.00	2980	67.10	168	96.00	4300	144.90	91
38.10	2702	68.00	5899	97.00	127	145.90	77
39.10	1100	69.10	6051	97.20	130	147.80	137
40.10	160	69.90	567	103.80	213	149.80	53
43.00	71	71.80	334	105.10	96	154.90	164
44.00	507	73.00	2882	106.00	176	156.90	220
45.00	508	74.00	9825	108.90	55	159.00	77
47.20	496	75.00	30632	112.80	65	170.10	189
48.00	381	76.10	3036	114.90	157	172.90	390
49.00	2864	77.00	568	116.00	202	174.00	53136
50.10	11587	77.90	292	117.00	363	175.00	3922
51.10	3881	78.90	1538	117.90	211	176.00	51280
52.10	212	80.00	405	118.90	354	176.90	3835
55.10	169	80.90	1579	123.90	54	178.00	95
56.00	935	81.90	424	128.00	333	184.30	51
57.10	1581	86.00	98	129.10	177	186.10	480
58.20	97	87.00	2774	129.90	312	262.10	117
60.00	665	87.90	2588	130.90	153	263.00	56
61.00	3097	90.90	264	134.90	113	278.00	233
62.00	3148	92.00	1557	137.00	68		
63.00	2191	93.00	2483	139.00	88		
64.00	268	94.00	7282	140.90	663		

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051403.D
Report Date: 06-Jun-2019 12:30

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051403.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 14-MAY-2019 10:01
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 3 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

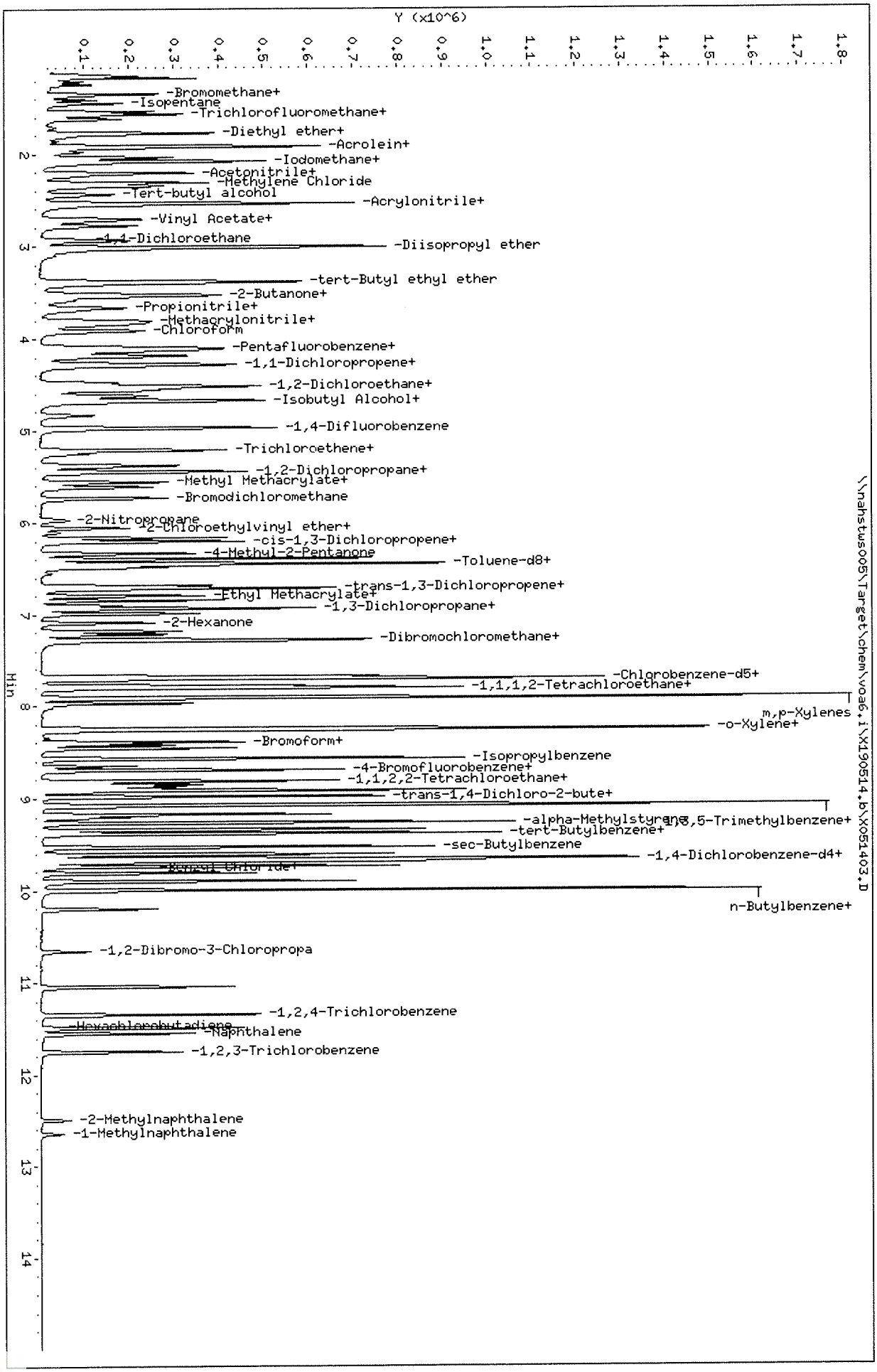
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	306431	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	407677	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	380443	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	213292	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	133918	50.0000	49.84
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	161160	50.0000	50.38
$ 30 Dibromofluoromethane	113	4.103	4.110	(0.979)	131187	50.0000	49.69
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	462956	50.0000	49.97
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	141808	50.0000	47.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	195371	50.0000	48.15
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	141124	50.0000	48.55
138 Freon TF	101	1.919	1.919	(0.458)	114862	50.0000	48.75
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	92991	50.0000	47.72
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	206086	50.0000	47.71
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	115607	50.0000	48.27
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	155369	50.0000	45.82
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	92534	50.0000	50.84
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	165554	50.0000	49.81
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	153727	50.0000	48.88
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	465591	50.0000	45.83
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	24836	50.0000	53.31
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	128684	50.0000	48.30
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	290824	50.0000	47.23

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051403.D
Report Date: 06-Jun-2019 12:30

	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)	158908	50.0000	46.28
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	113769	50.0000	47.78
75	1,3,5-Trimethylbenzene	105	9.075	9.074	(0.939)	449121	50.0000	46.35
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	306051	50.0000	46.65
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	188162	50.0000	47.86
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	310869	50.0000	47.07
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	185729	50.0000	48.54
24	2-Butanone	43	3.580	3.580	(0.855)	76441	100.000	104.64
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	358871	50.0000	45.49
52	2-Hexanone	43	7.090	7.090	(0.924)	127165	100.000	95.96
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	421474	50.0000	46.11
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	475626	50.0000	45.45
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	185913	100.000	96.37
10	Acetone	43	1.976	1.976	(0.472)	67069	100.000	102.21
37	Benzene	78	4.519	4.519	(0.909)	468278	50.0000	47.58
74	Bromobenzene	156	8.809	8.809	(0.911)	190088	50.0000	47.82
29	Bromochloromethane	128	3.803	3.802	(0.908)	79776	50.0000	48.74
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170871	50.0000	50.01
66	Bromoform	173	8.416	8.415	(1.097)	116121	50.0000	52.33
6	Bromomethane	94	1.338	1.338	(0.320)	138828	50.0000	50.45
19	Carbon Disulfide	76	2.076	2.076	(0.496)	661494	100.000	95.79
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	173562	50.0000	46.02
59	Chlorobenzene	112	7.699	7.699	(1.004)	360571	50.0000	47.51
7	Chloroethane	64	1.403	1.403	(0.335)	79041	50.0000	45.19
28	Chloroform	83	3.917	3.917	(0.935)	223122	50.0000	48.17
3	Chloromethane	50	1.081	1.080	(0.258)	146937	50.0000	46.82
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	140233	50.0000	46.98
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	205432	50.0000	50.62
55	Dibromochloromethane	129	7.183	7.183	(0.937)	150124	50.0000	49.10
44	Dibromomethane	93	5.557	5.557	(1.118)	83233	50.0000	48.53
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	131601	50.0000	48.84
61	Ethylbenzene	106	7.800	7.807	(1.017)	183041	50.0000	46.66
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	87509	50.0000	46.72
67	Isopropylbenzene	105	8.566	8.566	(1.117)	529487	50.0000	45.44
62	m,p-Xylenes	106	7.907	7.907	(1.031)	441277	100.000	93.39
17	Methylene Chloride	84	2.305	2.313	(0.550)	126942	50.0000	49.40
87	n-Butylbenzene	91	9.999	9.998	(1.034)	373707	50.0000	45.08
73	n-Propylbenzene	91	8.917	8.917	(0.922)	600819	50.0000	45.84
92	Naphthalene	128	11.546	11.546	(1.194)	229494	50.0000	51.50
63	o-Xylene	106	8.244	8.244	(1.075)	220035	50.0000	47.60
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	501766	50.0000	44.02
64	Styrene	104	8.265	8.265	(1.078)	392235	50.0000	48.53
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	374430	50.0000	44.65
56	Tetrachloroethene	164	6.933	6.933	(0.904)	128545	50.0000	45.95
50	Toluene	91	6.453	6.453	(0.841)	524335	50.0000	47.01
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	119847	50.0000	47.85
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	181142	50.0000	51.08
38	Trichloroethene	130	5.214	5.214	(1.049)	150970	50.0000	47.82
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	216987	50.0000	47.67
5	Vinyl Chloride	62	1.145	1.145	(0.273)	130736	50.0000	46.68


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8
Min
2 3 4 5 6 7 8 9 10 11 12 13 14
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190514.b\X051403.D
Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051403.D
Date : 14-MAY-2019 10:01
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051405.D
Report Date: 06-Jun-2019 12:30

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051405.D
Lab Smp Id: VLCSW-190514 Client Smp ID: VLCSW-190514
Inj Date : 14-MAY-2019 10:49
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-190514;VLCSW-190514;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

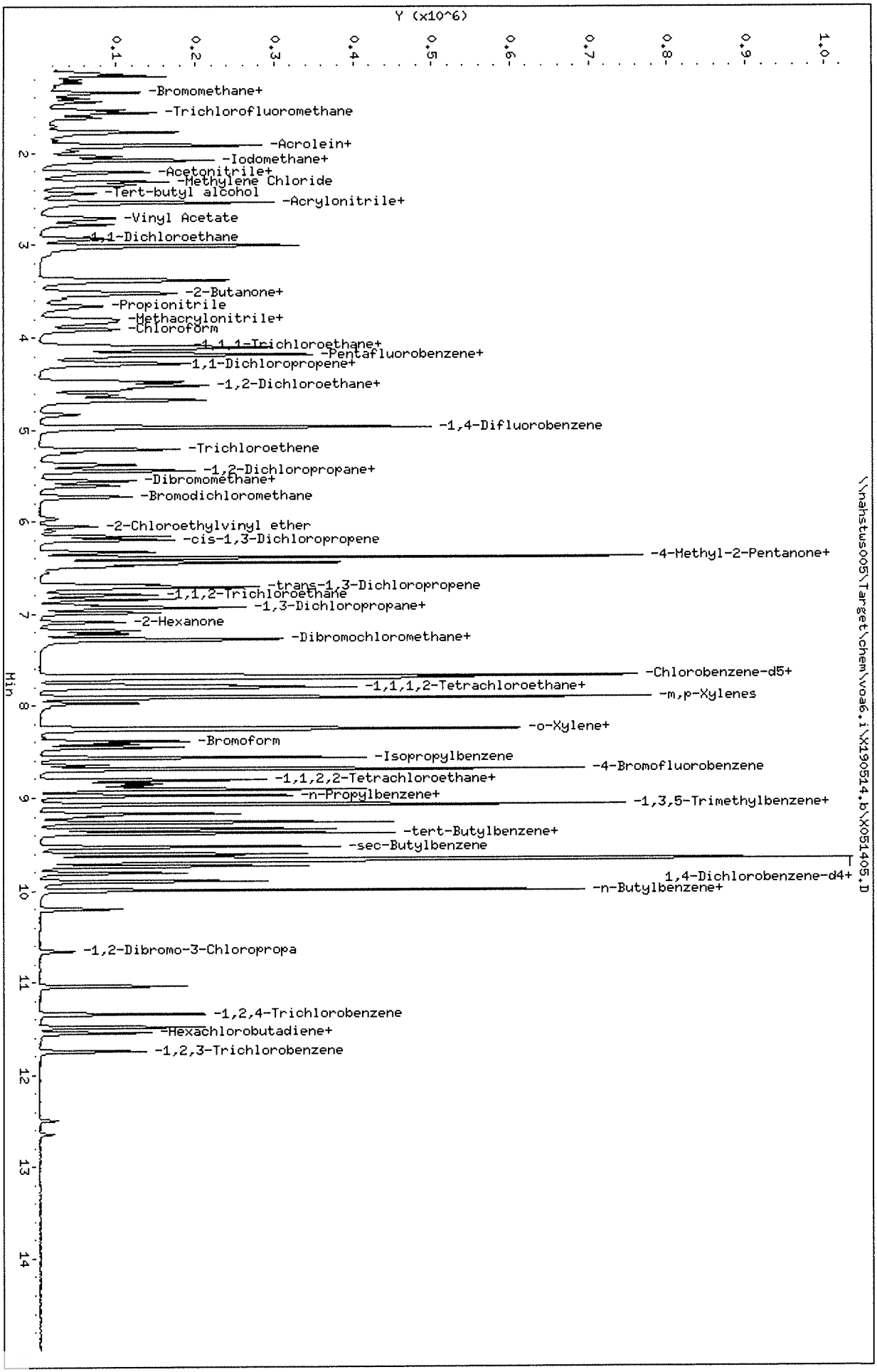
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324570	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	420604	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	390116	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	221417	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	141806	49.8327	49.83
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	166681	50.8241	50.82
$ 30 Dibromofluoromethane	113	4.103	4.110	(0.979)	136327	48.7481	48.74
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	462744	48.6946	48.69
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	59819	19.6544	19.65
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	82546	19.2077	19.20
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	60149	19.9371	19.93
138 Freon TF	101	1.919	1.919	(0.458)	48334	20.1676	20.16
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	39538	19.7870	19.78
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	87369	19.0984	19.09
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	49815	19.6395	19.63
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	66830	19.1043	19.10
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	41195	22.7959	22.79
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	68952	19.9865	19.98
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	68404	20.9525	20.95
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	203194	19.2690	19.26
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	10070	20.8224	20.82
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	53976	19.7602	19.76
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	123927	19.3875	19.38

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051405.D
Report Date: 06-Jun-2019 12:30

	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)	68005	19.1994	19.19
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	49360	20.0964	20.09
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	193455	19.2340	19.23
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	131634	19.3300	19.33
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	79249	19.6597	19.65
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	134670	19.6438	19.64
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	79884	19.7133	19.71
24	2-Butanone	43	3.580	3.580	(0.855)	32124	41.5178	41.51
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	151534	18.5052	18.50
52	2-Hexanone	43	7.090	7.090	(0.924)	55149	40.5847	40.58
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	177284	18.6856	18.68
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	205591	18.9268	18.92
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	78560	39.7158	39.71
10	Acetone	43	1.976	1.976	(0.472)	31640	44.5465	44.54
37	Benzene	78	4.519	4.519	(0.909)	199850	19.6851	19.68
74	Bromobenzene	156	8.809	8.809	(0.911)	81189	19.6754	19.67
29	Bromochloromethane	128	3.802	3.802	(0.908)	34663	19.9637	19.96
39	Bromodichloromethane	83	5.729	5.729	(1.153)	70515	20.0057	20.00
66	Bromoform	173	8.415	8.415	(1.097)	47784	21.0033	21.00
6	Bromomethane	94	1.338	1.338	(0.320)	64549	22.7609	22.76
19	Carbon Disulfide	76	2.076	2.076	(0.496)	288990	39.5121	39.51
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	73231	18.8244	18.82
59	Chlorobenzene	112	7.699	7.699	(1.004)	154922	19.9089	19.90
7	Chloroethane	64	1.403	1.403	(0.335)	33846	18.2697	18.26
28	Chloroform	83	3.917	3.917	(0.935)	95408	19.4497	19.44
3	Chloromethane	50	1.081	1.080	(0.258)	66513	18.5922	18.59
27	cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	60269	19.0644	19.06
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	84498	20.1817	20.18
55	Dibromochloromethane	129	7.183	7.183	(0.937)	62172	19.8333	19.83
44	Dibromomethane	93	5.557	5.557	(1.118)	35648	20.1501	20.15
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	58621	21.1677	21.16
61	Ethylbenzene	106	7.807	7.807	(1.018)	78309	19.4678	19.46
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	40374	20.7683	20.76
67	Isopropylbenzene	105	8.566	8.566	(1.117)	228729	19.1465	19.14
62	m,p-Xylenes	106	7.907	7.907	(1.031)	188009	38.8051	38.80
17	Methylene Chloride	84	2.305	2.313	(0.550)	55771	20.1238	20.12
87	n-Butylbenzene	91	9.999	9.998	(1.034)	165480	19.2294	19.22
73	n-Propylbenzene	91	8.917	8.917	(0.922)	256371	18.8461	18.84
92	Naphthalene	128	11.546	11.546	(1.194)	96095	20.7758	20.77
63	o-Xylene	106	8.244	8.244	(1.075)	92225	19.4567	19.45
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	220253	18.6157	18.61
64	Styrene	104	8.265	8.265	(1.078)	167193	20.1768	20.17
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	162747	18.6972	18.69
56	Tetrachloroethene	164	6.933	6.933	(0.904)	55123	19.2191	19.21
50	Toluene	91	6.453	6.453	(0.841)	222102	19.4231	19.42
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52767	19.8943	19.89
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	75615	20.6690	20.66
38	Trichloroethene	130	5.214	5.214	(1.049)	64880	19.9211	19.92
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	93469	19.3882	19.38
5	Vinyl Chloride	62	1.145	1.145	(0.273)	58247	19.6354	19.63



Data File: \\nahstus005\Target\chem\voa6.i\X190514.b\X051405.D
Date : 14-MAY-2019 10:49
Client ID: VLCSW-190514
Sample Info: VLCSW-190514;VLCSW-190514;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\X190514.b\X051407.D
Report Date: 06-Jun-2019 12:30

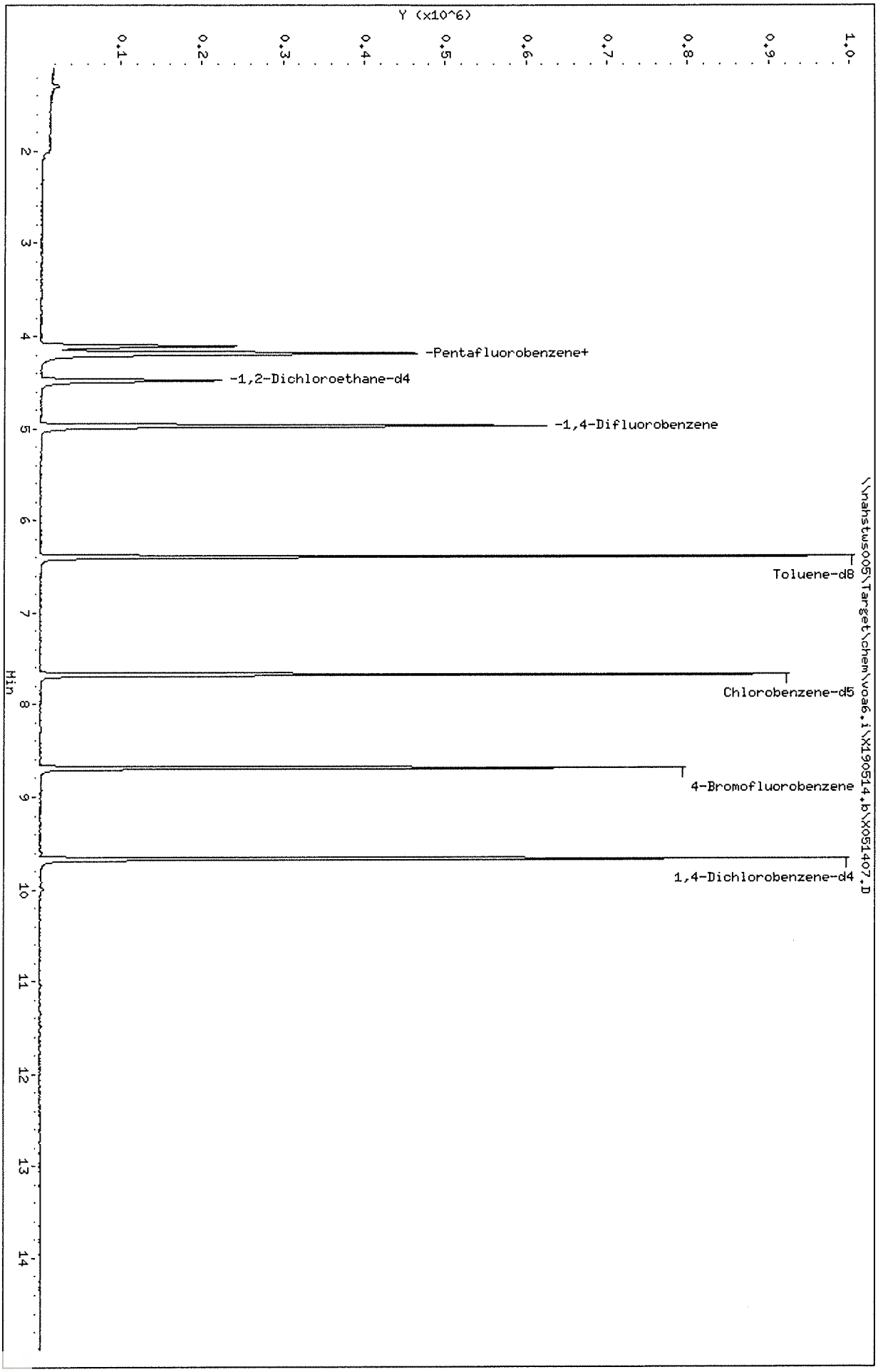
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051407.D
Lab Smp Id: VBLKW-190514 Client Smp ID: VBLKW-190514
Inj Date : 14-MAY-2019 11:37
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-190514;VBLKW-190514;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	447583	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	552310	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	474909	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	249085	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	167214	42.5856	42.58
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	195588	48.9694	48.96
$	30 Dibromofluoromethane	113	4.103	4.110	(0.979)	169386	43.8862	43.88
$	48 Toluene-d8	98	6.388	6.388	(0.833)	611291	52.8899	52.88


Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051407.D
Date : 14-MAY-2019 11:37
Client ID: VBLKW-190514
Sample Info: VBLKW-190514;VBLKW-190514;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190514.b\X051407.D

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051414.D
Report Date: 06-Jun-2019 12:30

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051414.D
Lab Smp Id: HS19050304-05MS Client Smp ID: HS19050304-05MS
Inj Date : 14-MAY-2019 14:26
Operator : PC Inst ID: voa6.i
Smp Info : HS19050304-05MS;HS19050304-05MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 14 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

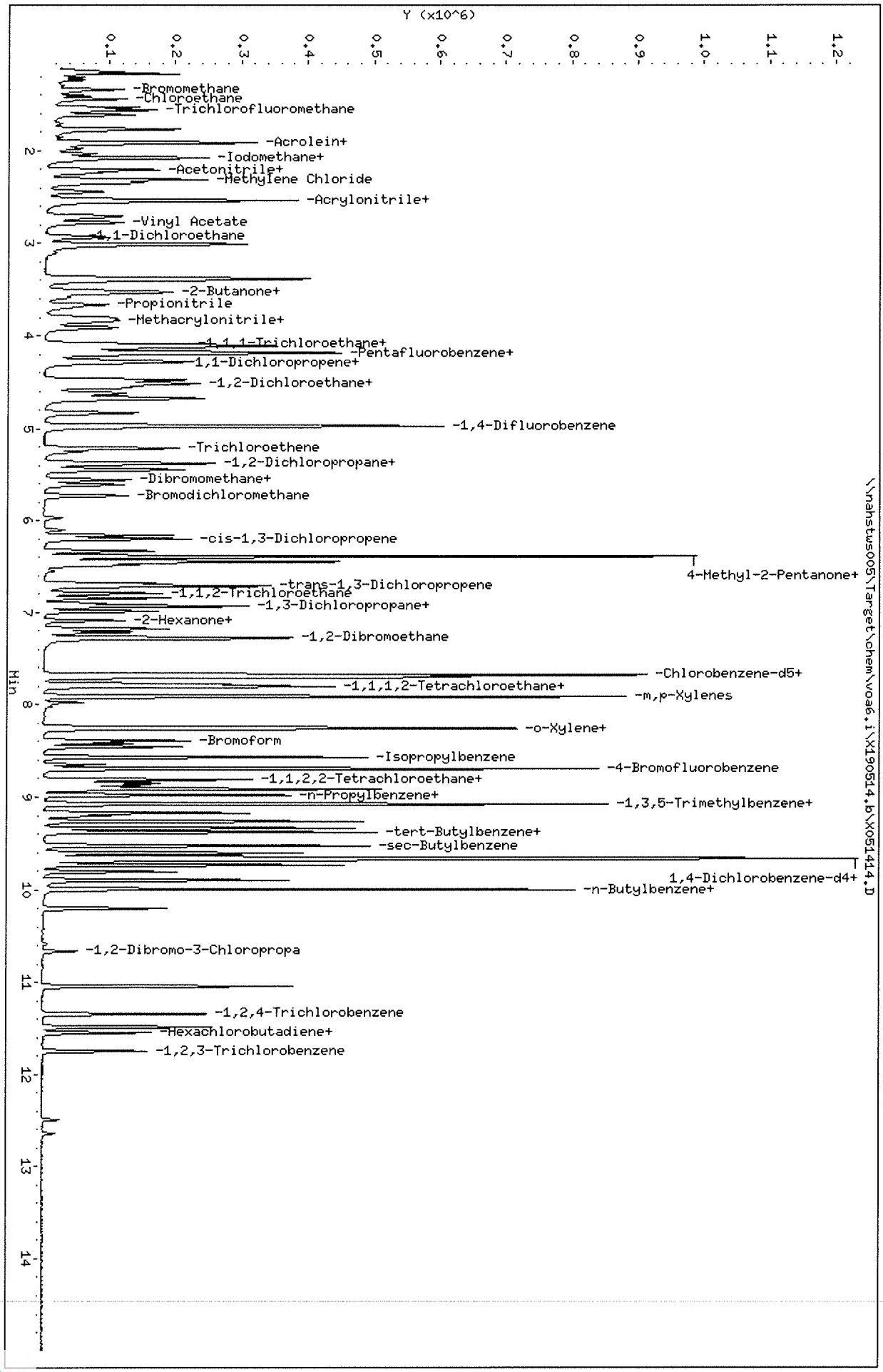
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	423380	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	529837	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	470997	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	266616	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	162029	43.6284	43.62
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	199085	50.2741	50.27
$	30 Dibromofluoromethane	113	4.110	4.110	(0.981)	164964	45.1947	45.19
$	48 Toluene-d8	98	6.388	6.388	(0.833)	596119	51.9959	51.99
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	66004	17.9625	17.96
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	96833	17.2736	17.27
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	69278	19.0701	19.07
	138 Freon TF	101	1.919	1.919	(0.458)	59255	19.0153	19.01
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	44277	18.3535	18.35
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	98216	16.4589	16.45
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	56889	17.1940	17.19
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	80172	18.1934	18.19
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	47575	21.9107	21.91
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	76911	18.5141	18.51
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	78809	20.0473	20.04
	79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	226666	17.8509	17.85
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	12010	20.6238	20.62
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	60582	18.3700	18.37
	88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	141881	18.4333	18.43

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051414.D
Report Date: 06-Jun-2019 12:30

	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)	75017	16.8127	16.81
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	54557	17.6330	17.63
75	1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	224883	18.5682	18.56
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	151180	18.4367	18.43
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	88826	18.2516	18.25
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	151993	18.4121	18.41
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	90793	17.1763	17.17
24	2-Butanone	43	3.588	3.580	(0.856)	37084	36.7426	36.74
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	178908	18.1442	18.14
52	2-Hexanone	43	7.090	7.090	(0.924)	59741	36.4143	36.41
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	205866	18.0197	18.01
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	253732	19.3987	19.39
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	89632	37.5319	37.53
10	Acetone	43	1.976	1.976	(0.472)	38380	41.3010	41.30
37	Benzene	78	4.519	4.519	(0.909)	220277	17.2240	17.22
74	Bromobenzene	156	8.809	8.809	(0.911)	87172	17.5440	17.54
29	Bromochloromethane	128	3.802	3.802	(0.908)	37450	16.5259	16.52
39	Bromodichloromethane	83	5.729	5.729	(1.153)	76176	17.1562	17.15
66	Bromoform	173	8.415	8.415	(1.097)	51338	18.6904	18.69
6	Bromomethane	94	1.338	1.338	(0.320)	53373	14.8281	14.82
19	Carbon Disulfide	76	2.076	2.076	(0.496)	330505	34.6420	34.64
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	85507	17.4486	17.44
59	Chlorobenzene	112	7.699	7.699	(1.004)	175538	18.6845	18.68
7	Chloroethane	64	1.403	1.403	(0.335)	38771	16.0439	16.04
28	Chloroform	83	3.917	3.917	(0.935)	104706	16.3636	16.36
3	Chloromethane	50	1.080	1.080	(0.258)	68084	14.0566	14.05
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	67112	16.2745	16.27
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	98788	18.7304	18.73
55	Dibromochloromethane	129	7.176	7.183	(0.936)	69657	18.4052	18.40
44	Dibromomethane	93	5.557	5.557	(1.118)	39437	17.6961	17.69
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	57042	15.9768	15.97
61	Ethylbenzene	106	7.807	7.807	(1.018)	89410	18.4105	18.41
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	49754	21.2546	21.25
67	Isopropylbenzene	105	8.566	8.566	(1.117)	270181	18.7326	18.73
62	m,p-Xylenes	106	7.907	7.907	(1.031)	218425	37.3412	37.34
17	Methylene Chloride	84	2.313	2.313	(0.552)	60871	16.7354	16.73
87	n-Butylbenzene	91	9.998	9.998	(1.034)	201756	19.4703	19.47
73	n-Propylbenzene	91	8.917	8.917	(0.922)	313724	19.1525	19.15
92	Naphthalene	128	11.546	11.546	(1.194)	112791	20.2515	20.25
63	o-Xylene	106	8.244	8.244	(1.075)	109583	19.1487	19.14
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	281496	19.7585	19.75
64	Styrene	104	8.265	8.265	(1.078)	181408	18.1329	18.13
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	202842	19.3529	19.35
56	Tetrachloroethene	164	6.933	6.933	(0.904)	65450	18.9011	18.90
50	Toluene	91	6.453	6.453	(0.841)	253723	18.3781	18.37
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	59784	17.2794	17.27
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	82089	17.8126	17.81
38	Trichloroethene	130	5.214	5.214	(1.049)	75379	18.3732	18.37
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	105992	16.8547	16.85
5	Vinyl Chloride	62	1.145	1.145	(0.273)	66193	17.1063	17.10



Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051414.D
Date : 14-MAY-2019 14:26
Client ID: HS19050304-05MS
Sample Info: HS19050304-05MS;HS19050304-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051415.D
Report Date: 06-Jun-2019 12:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051415.D
Lab Smp Id: HS19050304-05MSD Client Smp ID: HS19050304-05MSD
Inj Date : 14-MAY-2019 14:50
Operator : PC Inst ID: voa6.i
Smp Info : HS19050304-05MSD;HS19050304-05MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:39 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 14 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

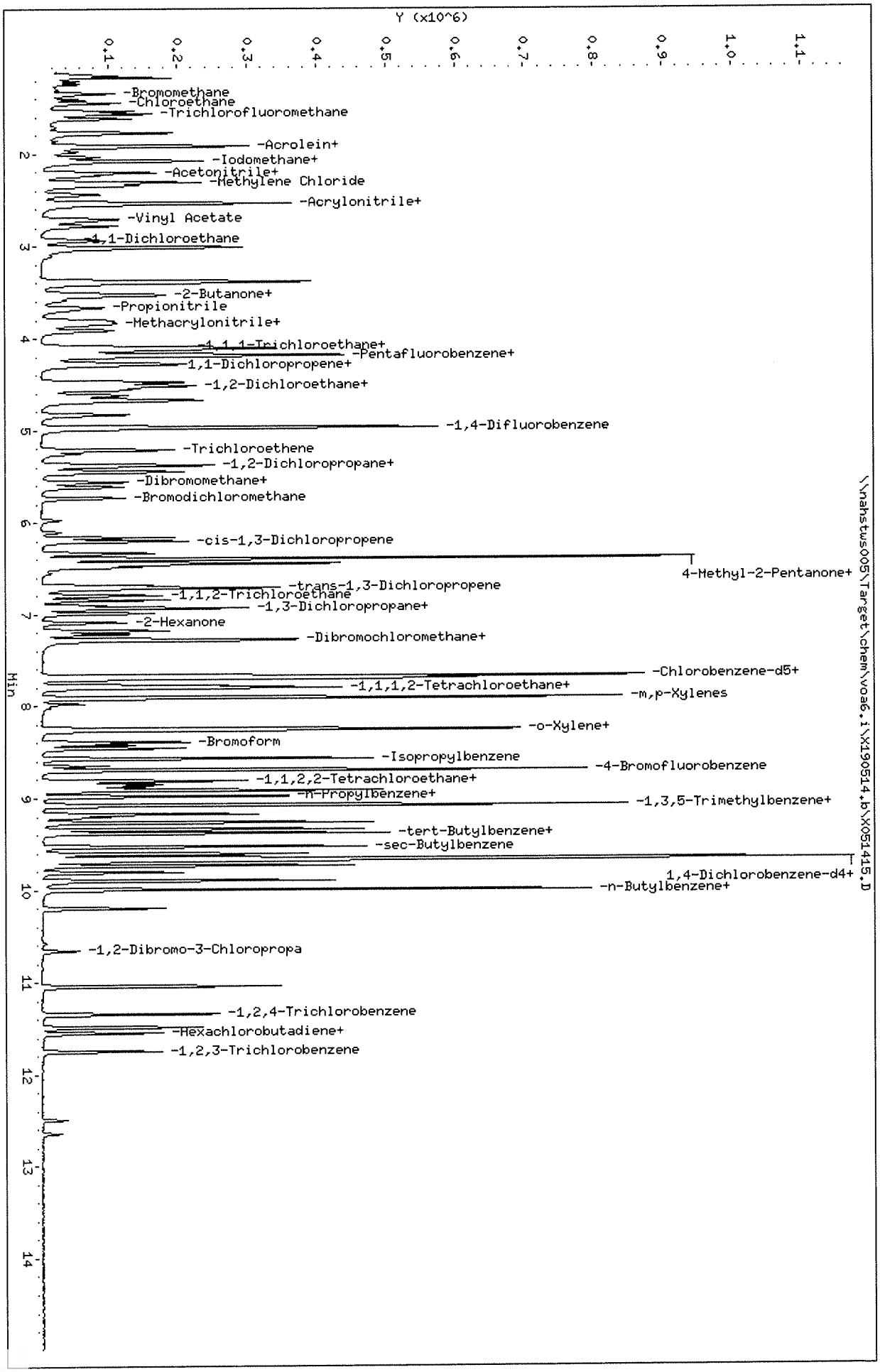
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	412528	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	508842	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	449076	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	245223	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	158080	43.6850	43.68
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	186643	49.4233	49.42
$	30 Dibromofluoromethane	113	4.103	4.110	(0.979)	158531	44.5698	44.56
$	48 Toluene-d8	98	6.388	6.388	(0.833)	574697	52.5807	52.58
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	63247	18.0524	18.05
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	91465	16.7452	16.74
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	68902	20.6213	20.62
	138 Freon TF	101	1.919	1.919	(0.458)	56903	18.7554	18.75
	53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	43184	18.7742	18.77
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	92773	15.9557	15.95
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	52814	16.3822	16.38
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	75580	17.8590	17.85
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	49457	24.6093	24.60
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	76858	20.1154	20.11
	90 1,2,4-Trichlorobenzene	180	11.338	11.345	(1.173)	78032	21.5813	21.58
	79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	222319	19.0360	19.03
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.657	(1.102)	12516	23.3677	23.36
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	58812	18.7038	18.70
	88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	141752	20.0232	20.02

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051415.D
Report Date: 06-Jun-2019 12:40

	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)	72040	16.8117	16.81
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	51774	17.4239	17.42
75	1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	219097	19.6687	19.66
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	148140	19.6420	19.64
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	86351	18.6091	18.60
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	147046	19.3668	19.36
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	85166	16.5356	16.53
24	2-Butanone	43	3.588	3.580	(0.856)	36377	36.9902	36.99
76	2-Chlorotoluene	91	8.974	8.981	(0.928)	174730	19.2664	19.26
52	2-Hexanone	43	7.090	7.090	(0.924)	60496	38.6745	38.67
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	201657	19.1912	19.19
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	247090	20.5390	20.53
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	88172	38.7228	38.72
10	Acetone	43	1.976	1.976	(0.472)	38201	42.2278	42.22
37	Benzene	78	4.519	4.519	(0.909)	210608	17.1474	17.14
74	Bromobenzene	156	8.809	8.809	(0.911)	86183	18.8581	18.85
29	Bromochloromethane	128	3.803	3.802	(0.908)	35096	15.8925	15.89
39	Bromodichloromethane	83	5.729	5.729	(1.153)	71487	16.7645	16.76
66	Bromoform	173	8.416	8.415	(1.097)	51060	19.4966	19.49
6	Bromomethane	94	1.338	1.338	(0.320)	50523	14.4367	14.43
19	Carbon Disulfide	76	2.069	2.076	(0.494)	313378	33.7109	33.71
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	81522	17.3218	17.32
59	Chlorobenzene	112	7.699	7.699	(1.004)	168966	18.8629	18.86
7	Chloroethane	64	1.403	1.403	(0.335)	35740	15.1787	15.17
28	Chloroform	83	3.917	3.917	(0.935)	98863	15.8569	15.85
3	Chloromethane	50	1.081	1.080	(0.258)	63352	13.3122	13.31
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	63929	15.9105	15.91
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	94156	18.5888	18.58
55	Dibromochloromethane	129	7.183	7.183	(0.937)	66787	18.5083	18.50
44	Dibromomethane	93	5.557	5.557	(1.118)	37393	17.4712	17.47
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	53902	15.5153	15.51
61	Ethylbenzene	106	7.807	7.807	(1.018)	84111	18.1648	18.16
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	45544	21.1534	21.15
67	Isopropylbenzene	105	8.566	8.566	(1.117)	262319	19.0753	19.07
62	m,p-Xylenes	106	7.907	7.907	(1.031)	210556	37.7531	37.75
17	Methylene Chloride	84	2.313	2.313	(0.552)	56898	16.0290	16.02
87	n-Butylbenzene	91	9.999	9.998	(1.034)	195124	20.4730	20.47
73	n-Propylbenzene	91	8.917	8.917	(0.922)	305988	20.3099	20.30
92	Naphthalene	128	11.546	11.546	(1.194)	115813	22.6081	22.60
63	o-Xylene	106	8.244	8.244	(1.075)	103819	19.0271	19.02
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	271365	20.7091	20.70
64	Styrene	104	8.265	8.265	(1.078)	171356	17.9642	17.96
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	197238	20.4599	20.45
56	Tetrachloroethene	164	6.933	6.933	(0.904)	62977	19.0747	19.07
50	Toluene	91	6.453	6.453	(0.841)	237882	18.0718	18.07
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	57676	17.1086	17.10
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	79075	17.8666	17.86
38	Trichloroethene	130	5.214	5.214	(1.049)	70180	17.8118	17.81
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	101719	16.6008	16.60
5	Vinyl Chloride	62	1.145	1.145	(0.273)	61972	16.4368	16.43



Data File: \\nahstus005\Target\chem\voa6.i\X190514.b\X051415.D
Date : 14-MAY-2019 14:50
Client ID: HS19050304-05MSD
Sample Info: HS19050304-05MSD;HS19050304-05MSD;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\X190514.b\X051426.D
Report Date: 06-Jun-2019 12:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051426.D
Lab Smp Id: HS19050374-01 Client Smp ID: HS19050374-01
Inj Date : 14-MAY-2019 19:14
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-01;HS19050374-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

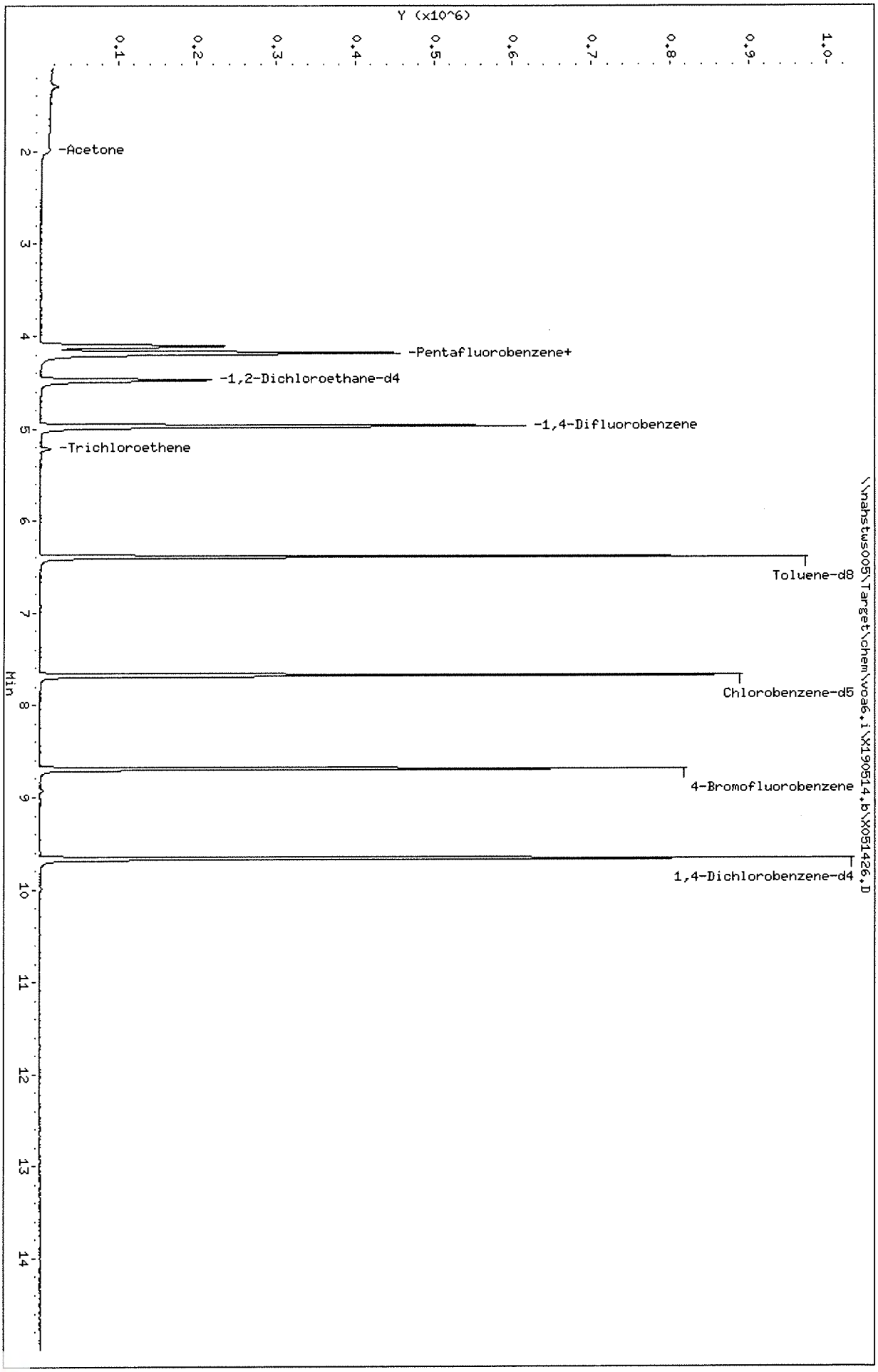
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	432671	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	536962	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	470403	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	260474	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	165461	43.5957	43.59
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	196446	49.6634	49.66
$ 30 Dibromofluoromethane	113	4.111	4.110	(0.981)	164724	44.1515	44.15
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	591061	51.6157	51.61
10 Acetone	43	1.983	1.976	(0.473)	3476	2.05028	2.05(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	5640	1.35648	1.35(a)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051426.D
Date : 14-MAY-2019 19:14
Client ID: HS19050374-01
Sample Info: HS19050374-01;HS19050374-01;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
-Acetone
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190514.b\X051426.D
Min
2
3
4
5
6
7
8
9
10
11
12
13
14

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051426.D

Date : 14-MAY-2019 19:14

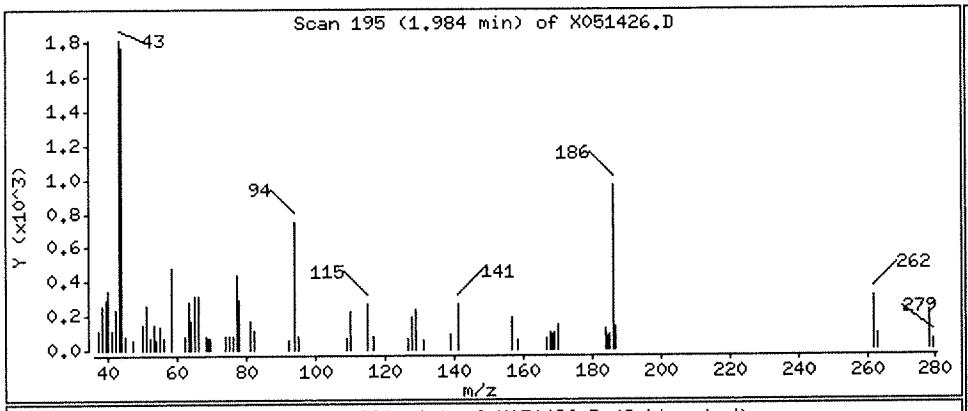
Client ID: HS19050374-01 Instrument: voa6.i

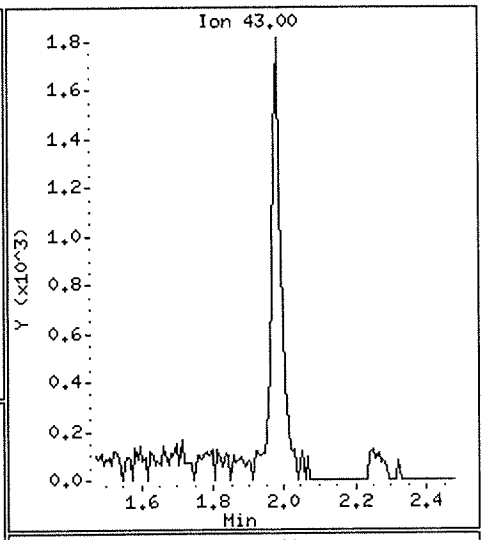
Sample Info: HS19050374-01;HS19050374-01;;;

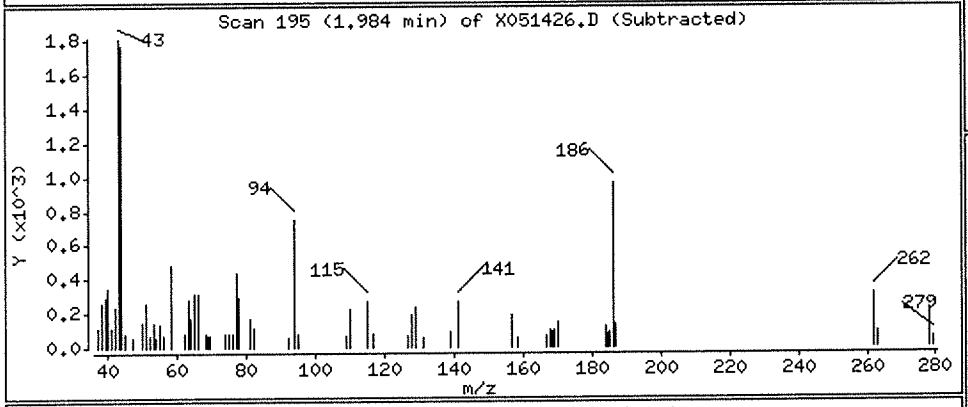
Purge Volume: 5.0 Operator: PC

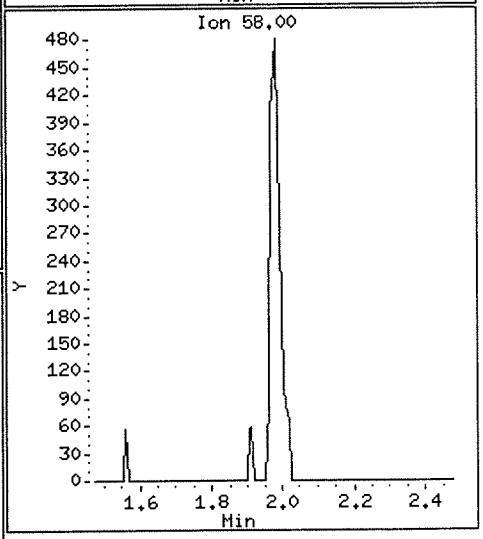
Column phase: DB624 Column diameter: 0.18

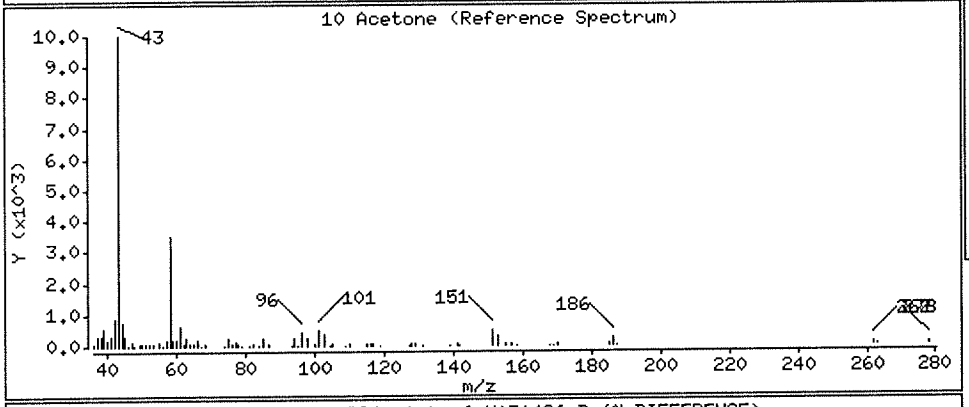
10 Acetone Concentration: 2.05 ug/l

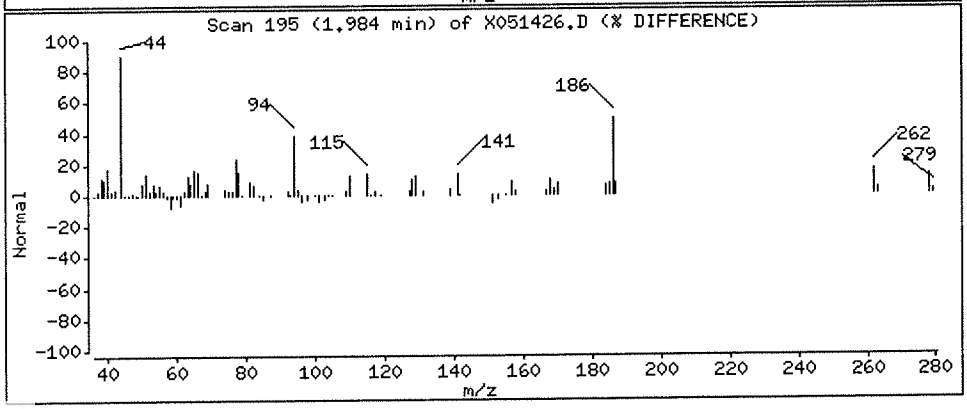












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051426.D

Date : 14-MAY-2019 19:14

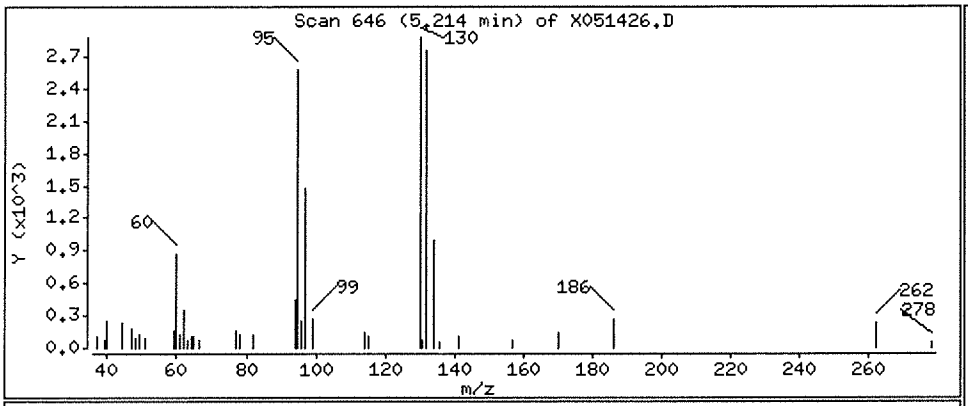
Client ID: HS19050374-01 Instrument: voa6.i

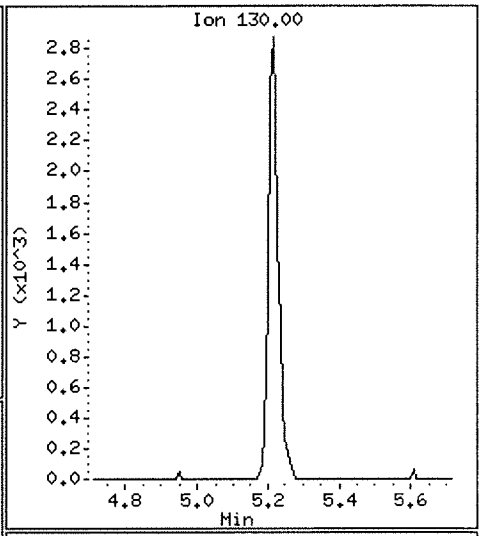
Sample Info: HS19050374-01;HS19050374-01;;;

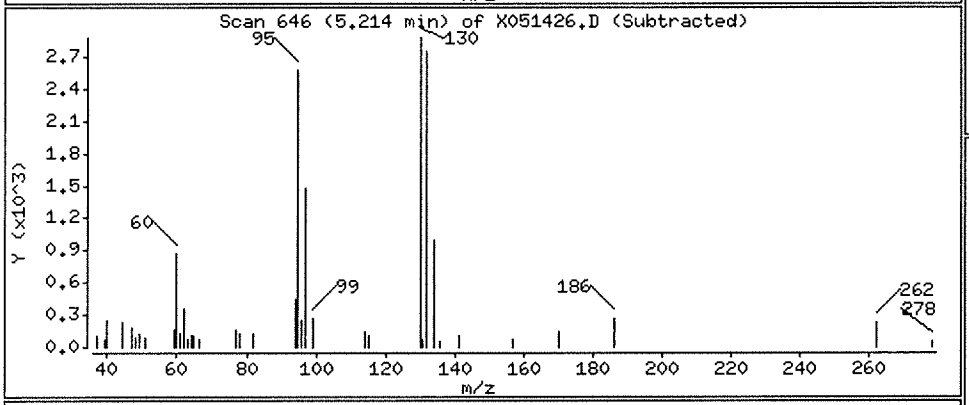
Purge Volume: 5.0 Operator: PC

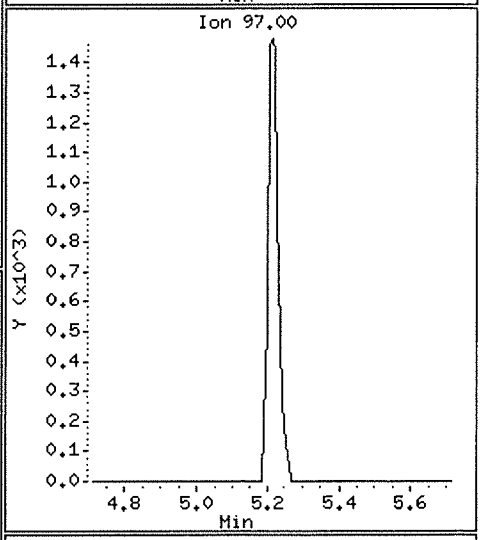
Column phase: DB624 Column diameter: 0.18

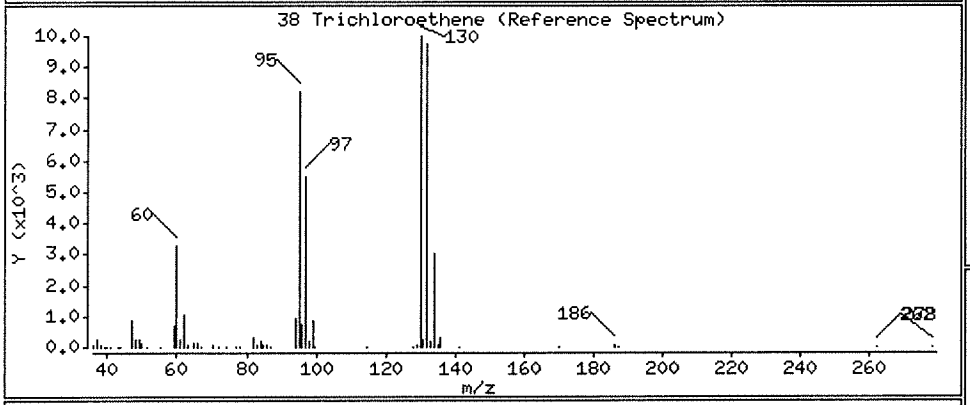
38 Trichloroethene Concentration: 1.35 ug/l

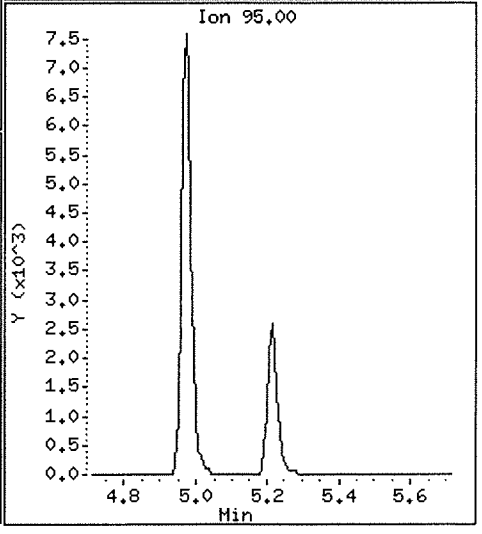


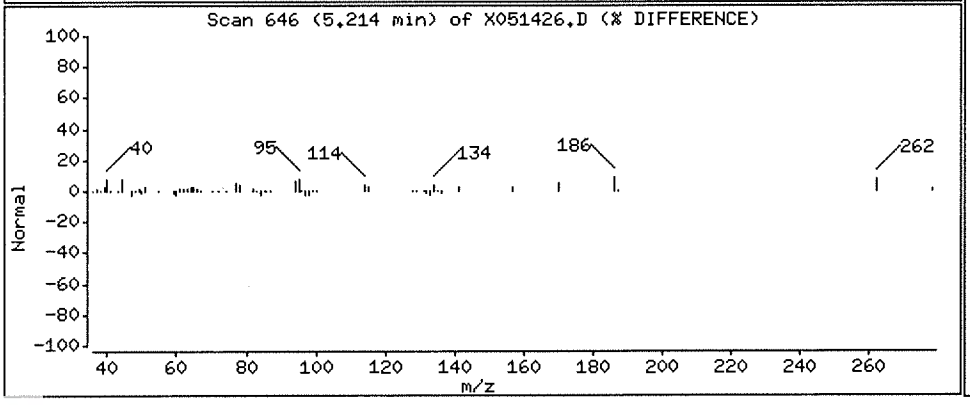












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D
Report Date: 06-Jun-2019 12:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D
Lab Smp Id: HS19050374-02 Client Smp ID: HS19050374-02
Inj Date : 14-MAY-2019 19:38
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-02;HS19050374-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

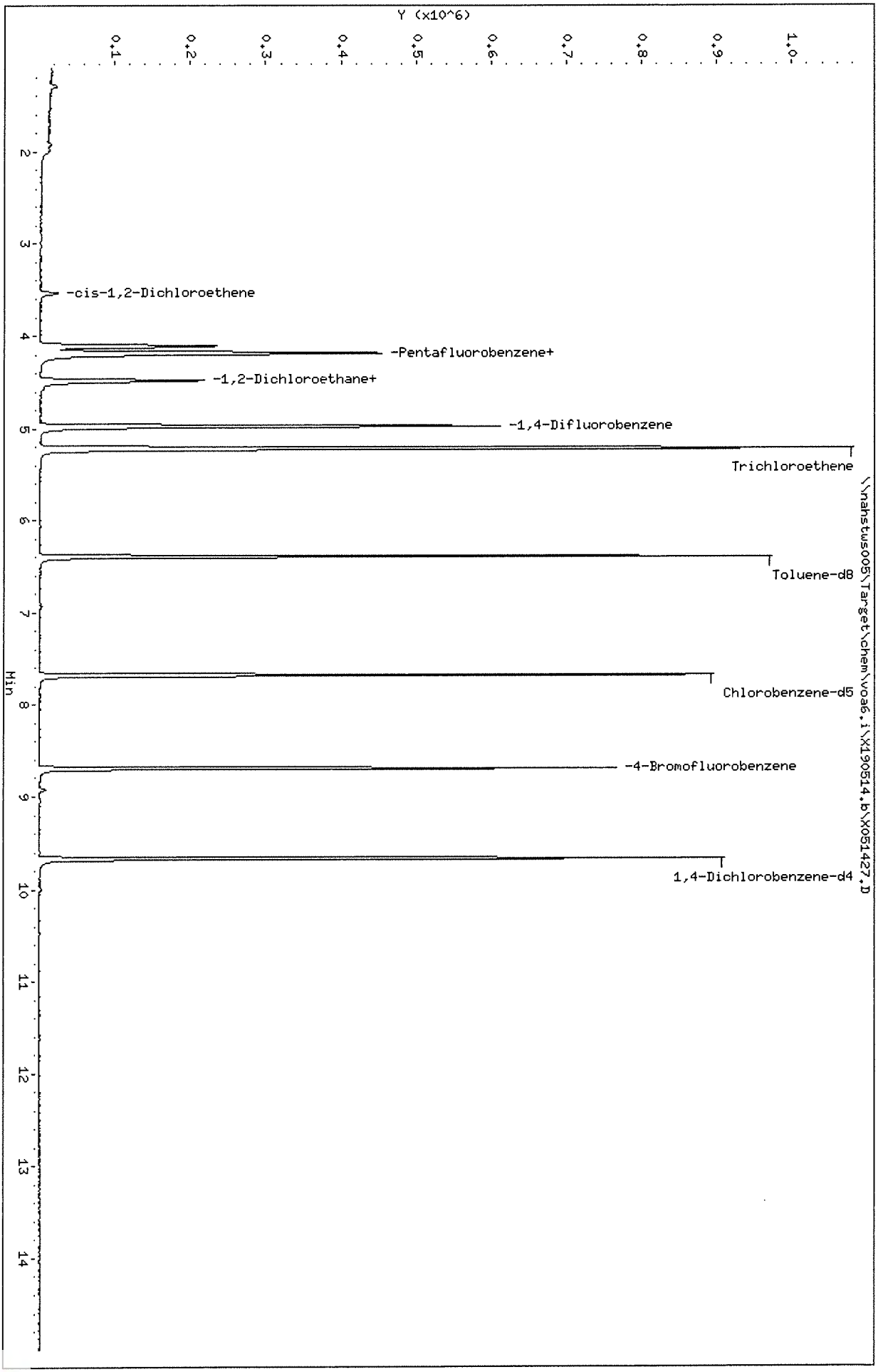
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	436550	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	539965	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	456081	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	237328	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	166394	43.4513	43.45
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	185517	48.3583	48.35
$ 30 Dibromofluoromethane	113	4.104	4.110	(0.979)	164585	43.7187	43.71
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	594176	53.5383	53.53
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	3431	0.75453	0.75(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	13323	3.13333	3.13(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	397938	95.1757	95.17

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D
Date : 14-MAY-2019 19:38
Client ID: HS19050374-02
Sample Info: HS19050374-02;HS19050374-02;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D

Date : 14-MAY-2019 19:38

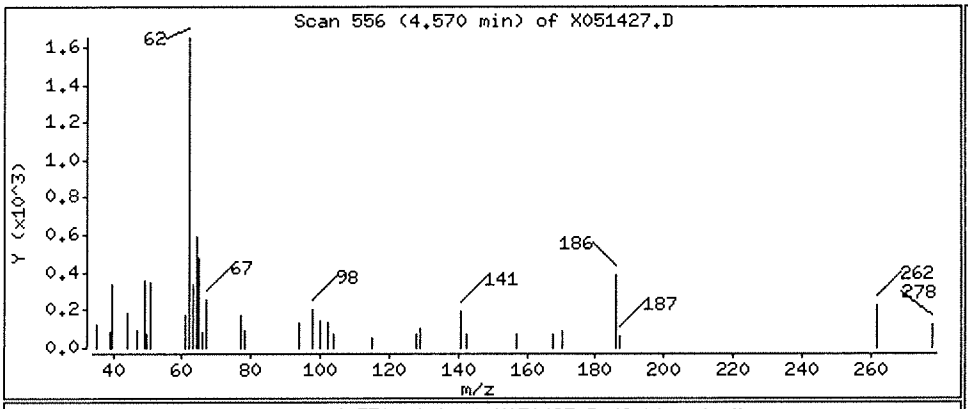
Client ID: HS19050374-02 Instrument: voa6.i

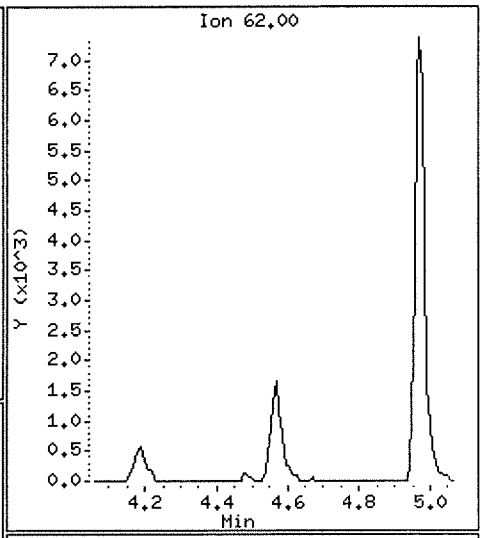
Sample Info: HS19050374-02;HS19050374-02;;;

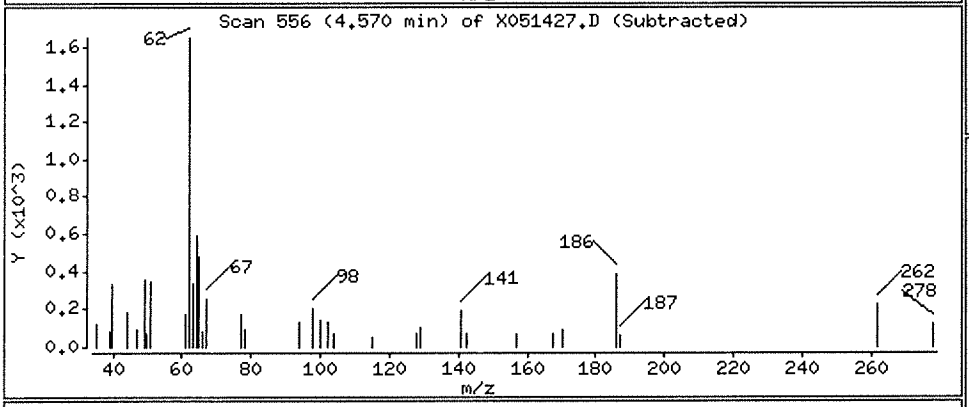
Purge Volume: 5.0 Operator: PC

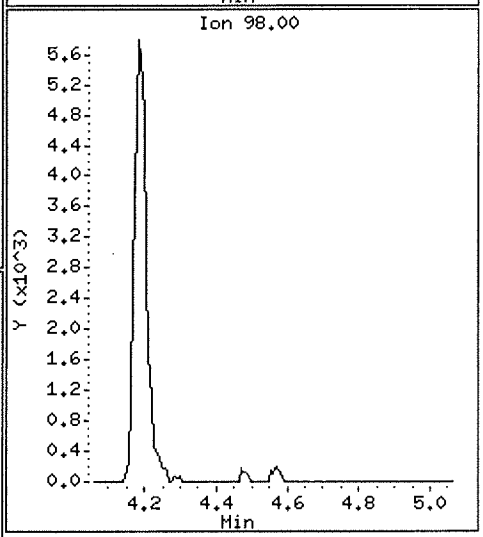
Column phase: DB624 Column diameter: 0.18

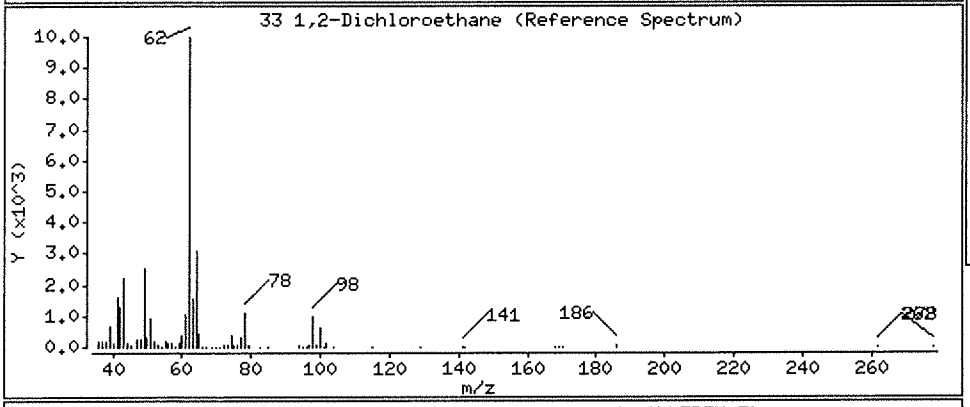
33 1,2-Dichloroethane Concentration: 0.75 ug/l

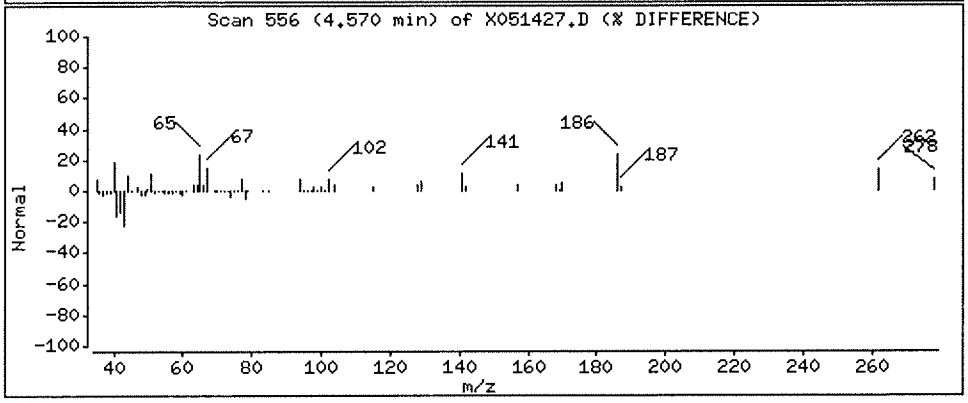












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D

Date : 14-MAY-2019 19:38

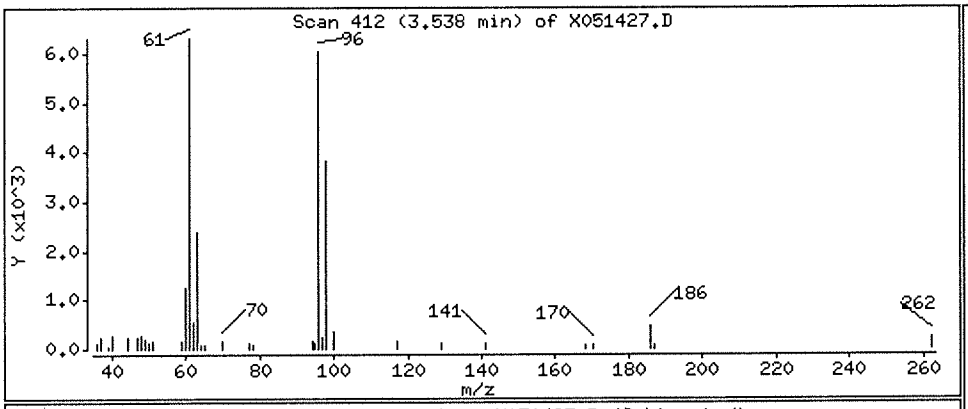
Client ID: HS19050374-02 Instrument: voa6.i

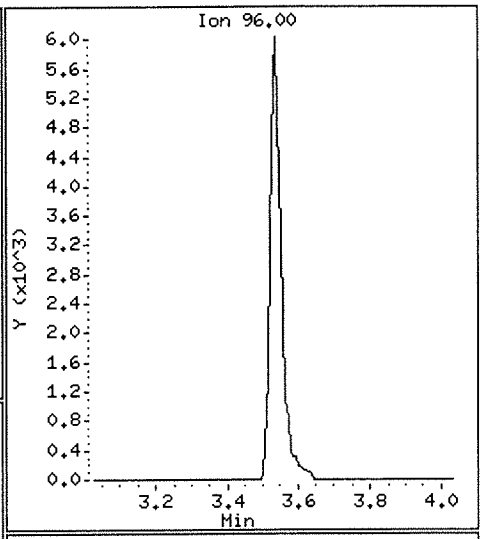
Sample Info: HS19050374-02;HS19050374-02;;;

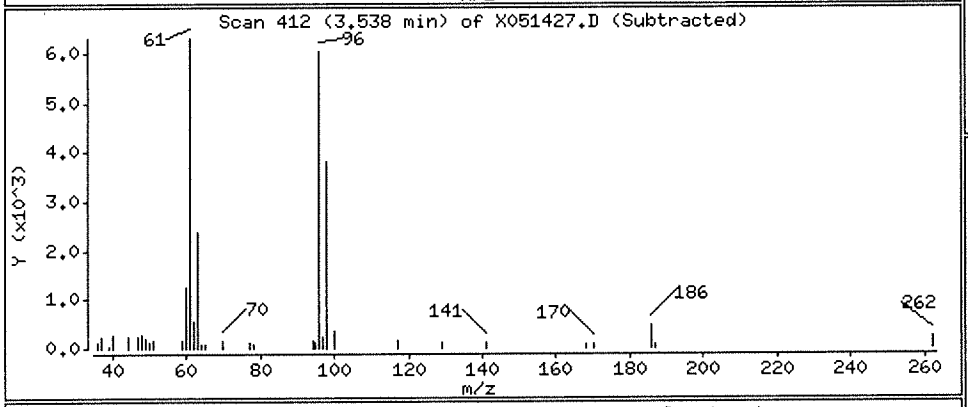
Purge Volume: 5.0 Operator: PC

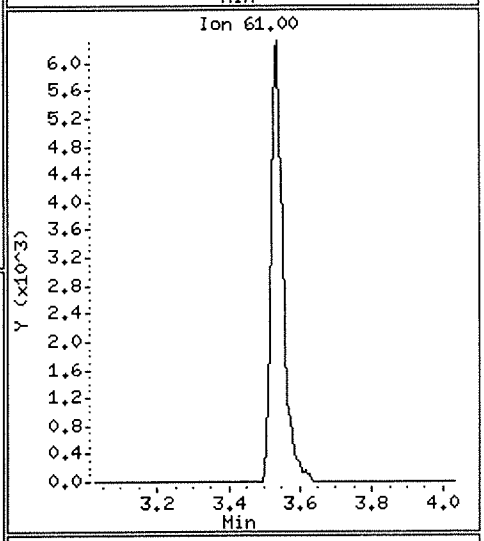
Column phase: DB624 Column diameter: 0.18

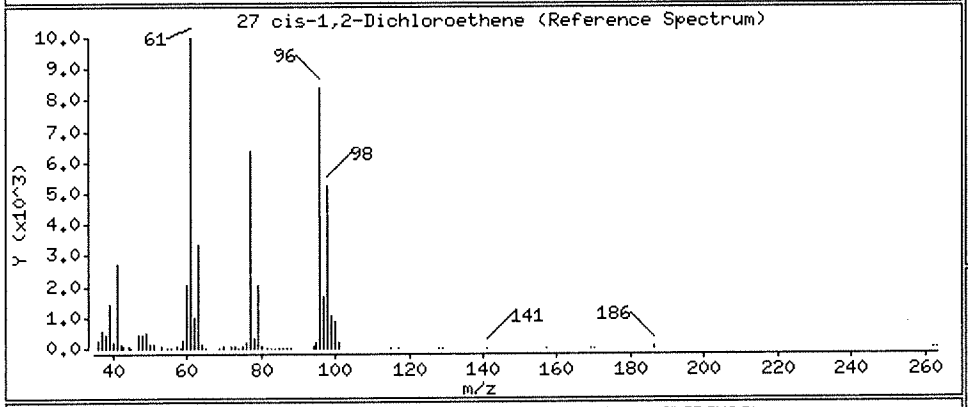
27 cis-1,2-Dichloroethene Concentration: 3.13 ug/l

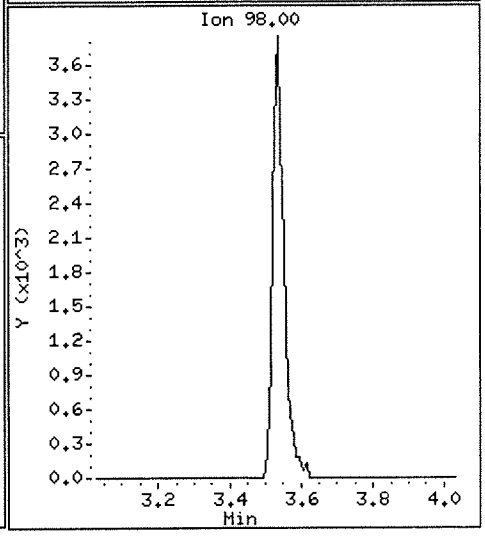


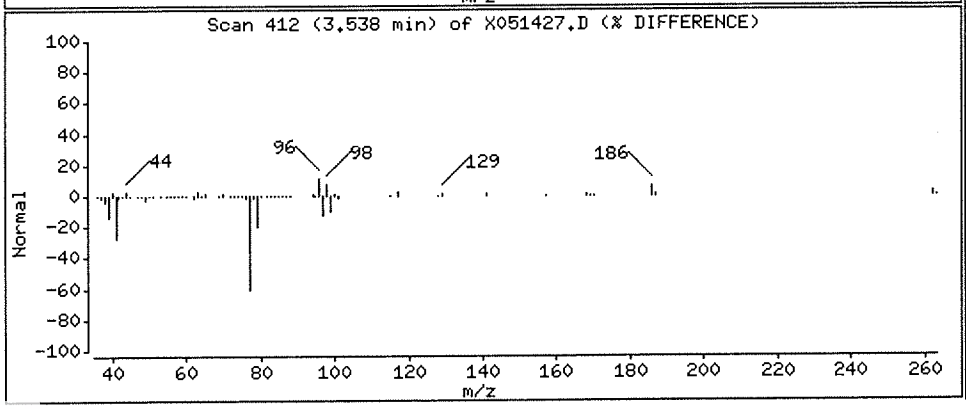












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051427.D

Date : 14-MAY-2019 19:38

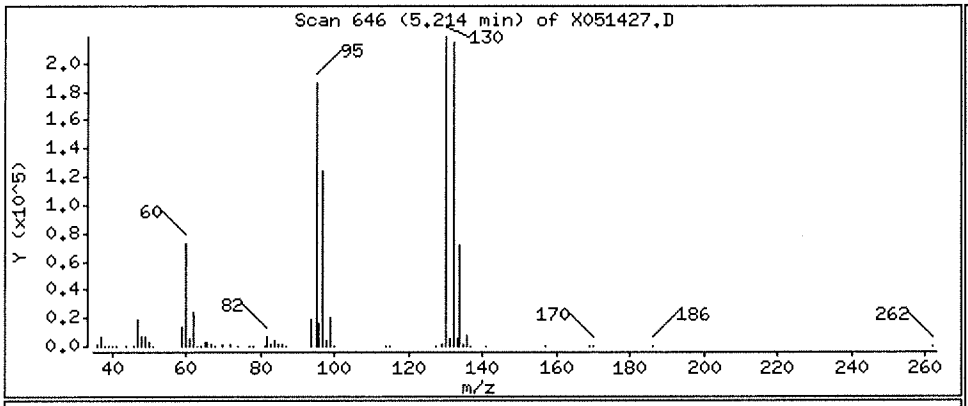
Client ID: HS19050374-02 Instrument: voa6.i

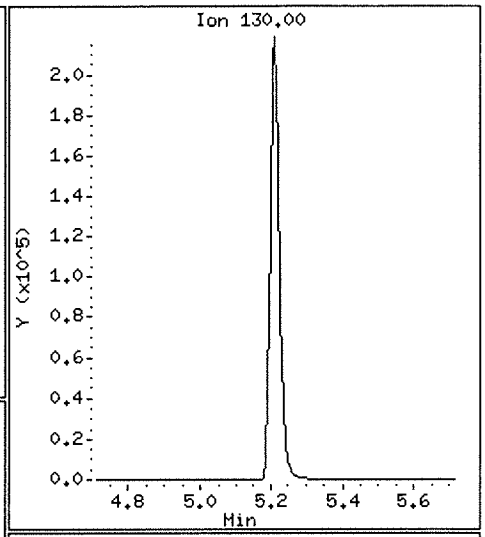
Sample Info: HS19050374-02;HS19050374-02;;;

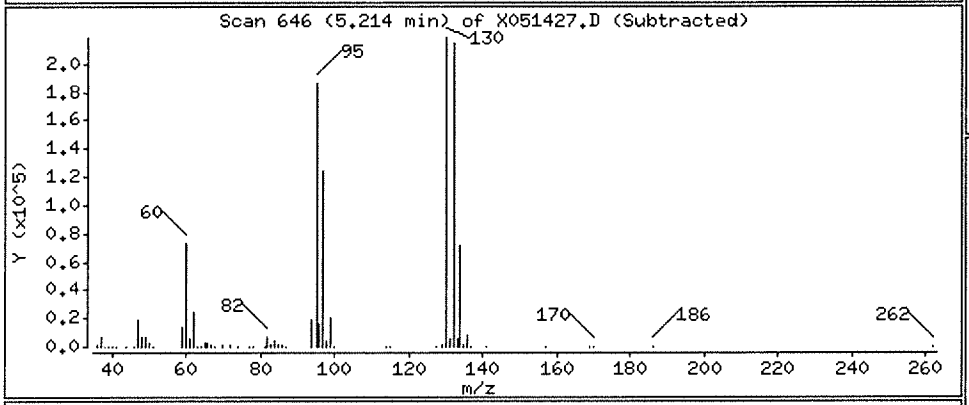
Purge Volume: 5.0 Operator: PC

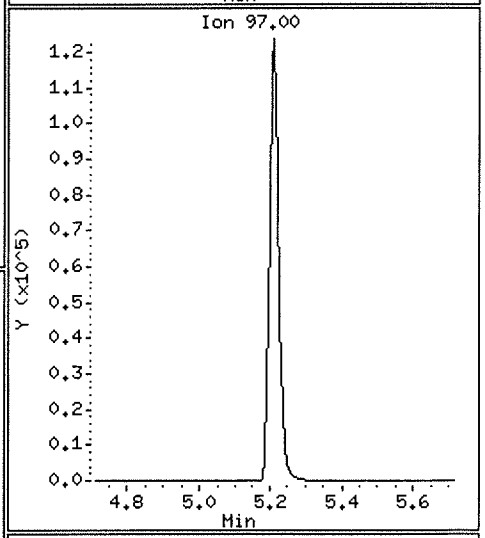
Column phase: DB624 Column diameter: 0.18

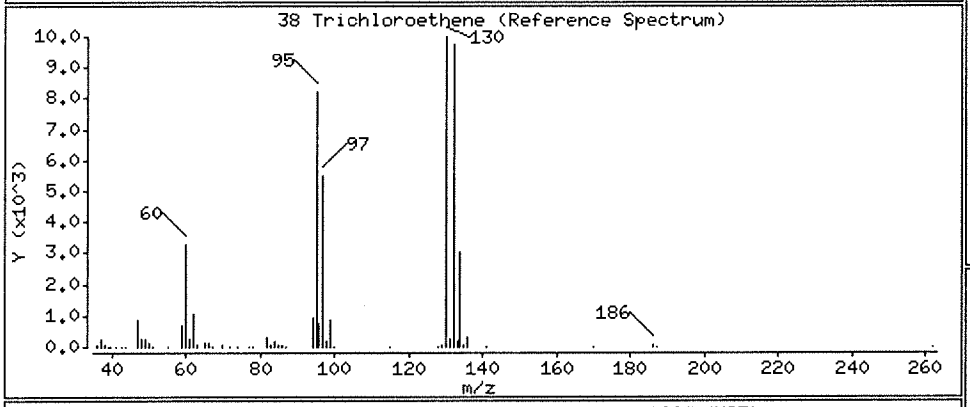
38 Trichloroethene Concentration: 95.17 ug/l

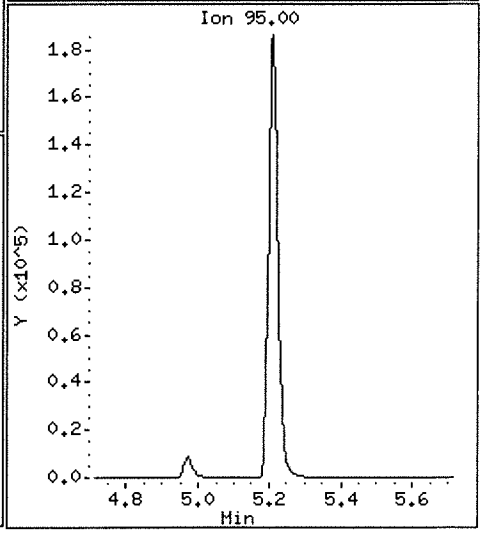


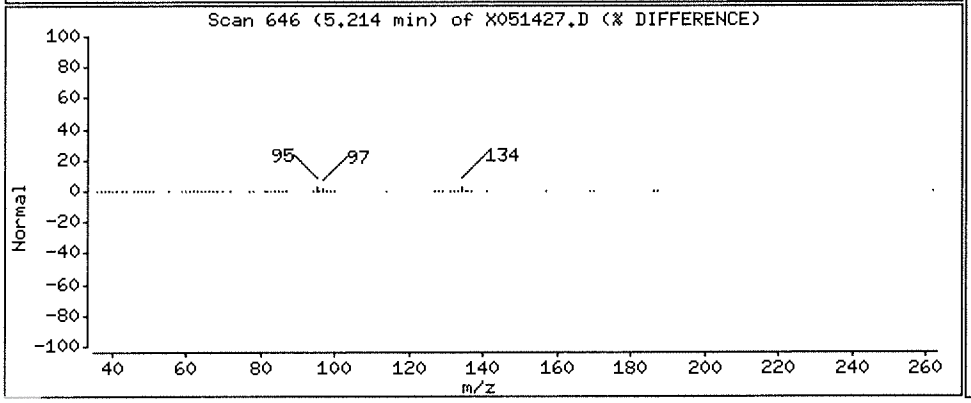












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051428.D
Report Date: 06-Jun-2019 12:43

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051428.D
Lab Smp Id: HS19050374-03 Client Smp ID: HS19050374-03
Inj Date : 14-MAY-2019 20:02
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-03;HS19050374-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

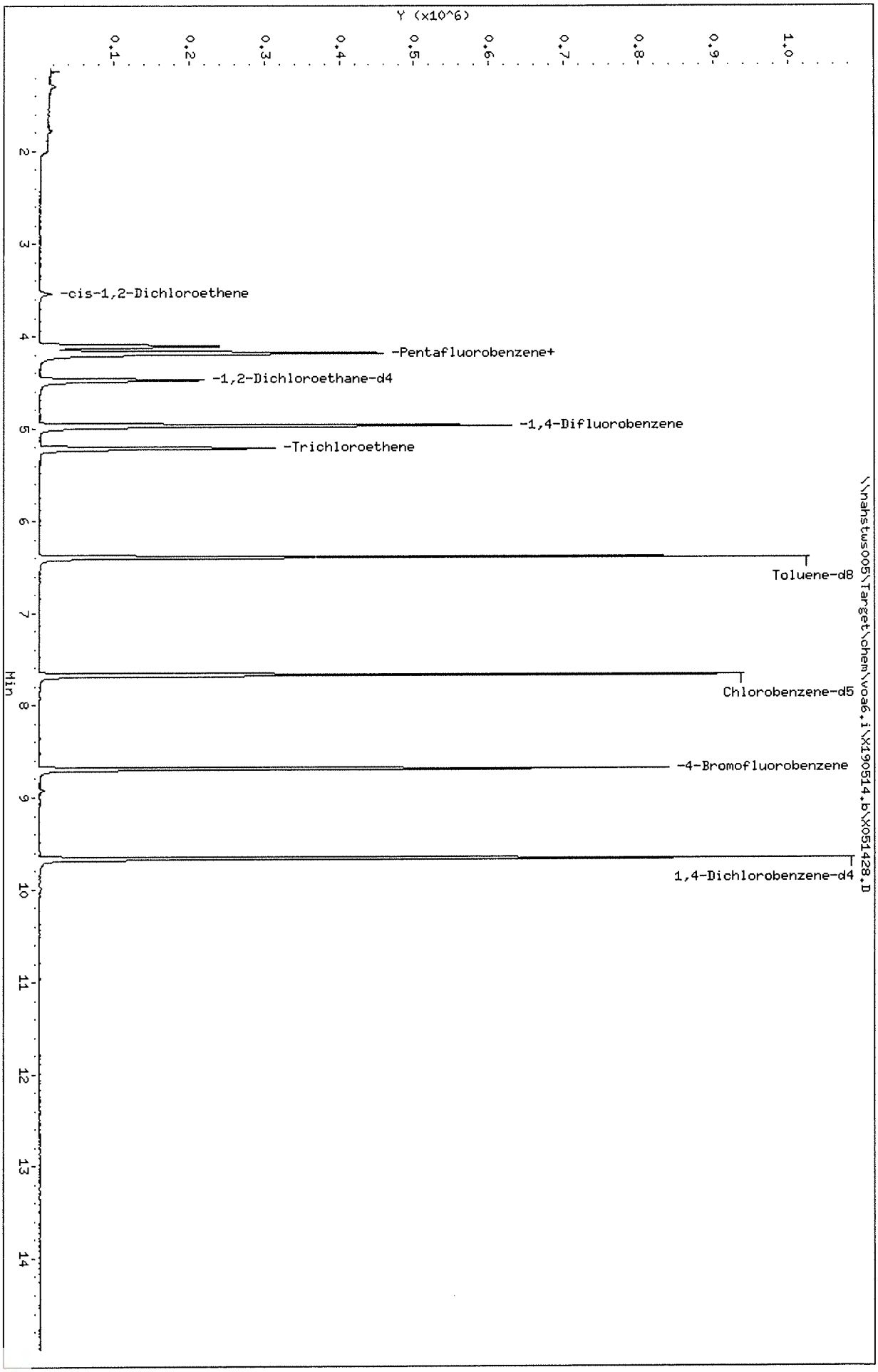
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	439103	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	548564	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	486469	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	268965	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	166401	43.1995	43.19
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	204460	49.9861	49.98
$ 30 Dibromofluoromethane	113	4.111	4.110	(0.981)	167162	44.1486	44.14
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	616202	52.0387	52.03
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	8154	1.90652	1.90(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	116397	27.4025	27.40

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051428.D
Date : 14-MAY-2019 20:02
Client ID: HS19050374-03
Sample Info: HS19050374-03;HS19050374-03;;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051428.D

Date : 14-MAY-2019 20:02

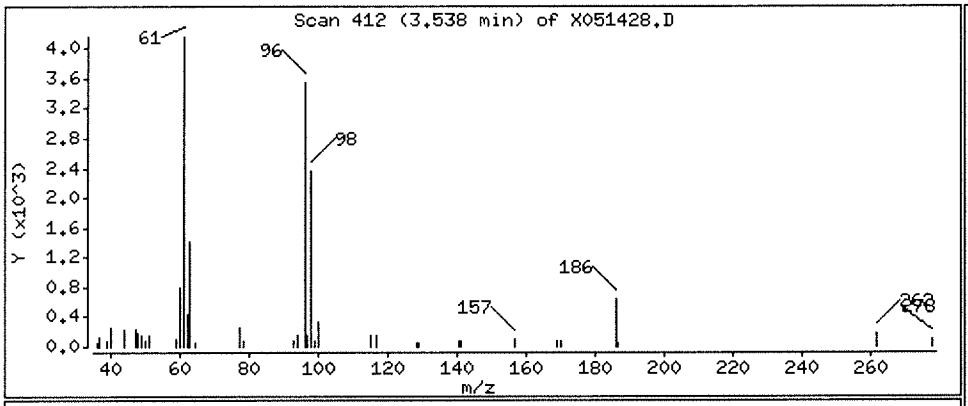
Client ID: HS19050374-03 Instrument: voa6.i

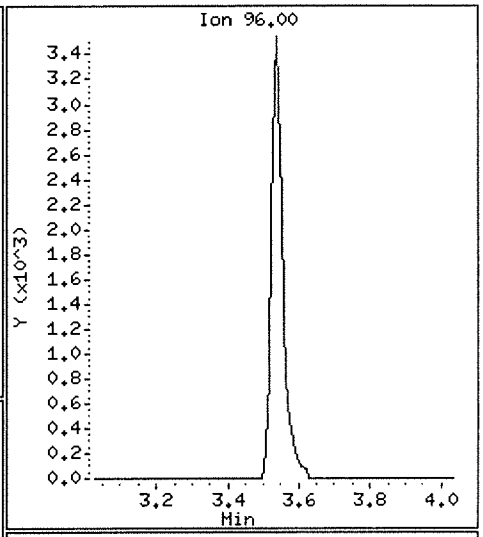
Sample Info: HS19050374-03;HS19050374-03;;;

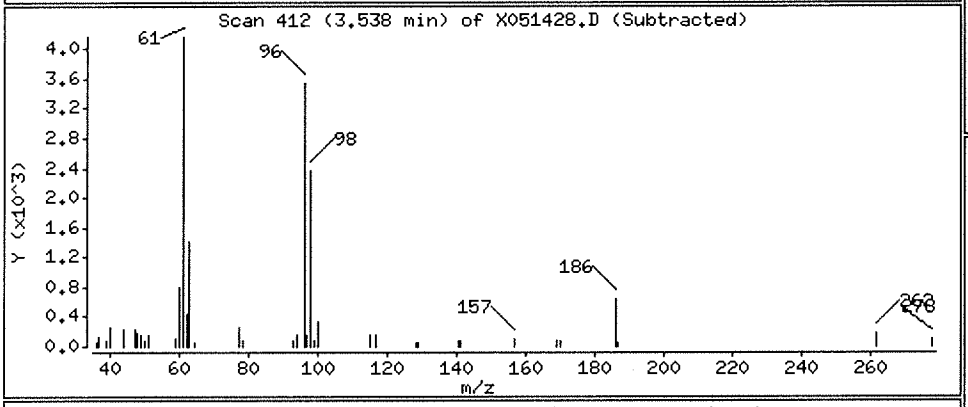
Purge Volume: 5.0 Operator: PC

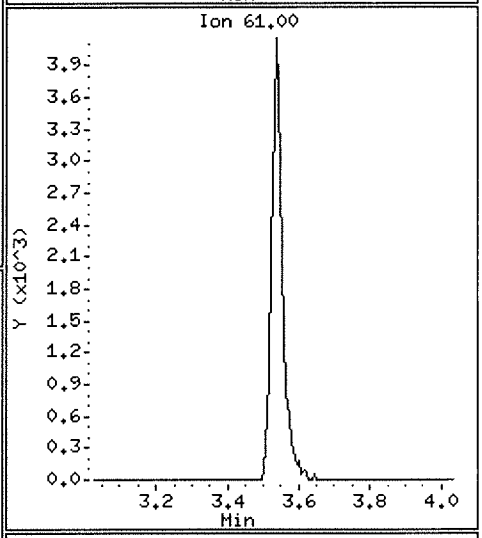
Column phase: DB624 Column diameter: 0.18

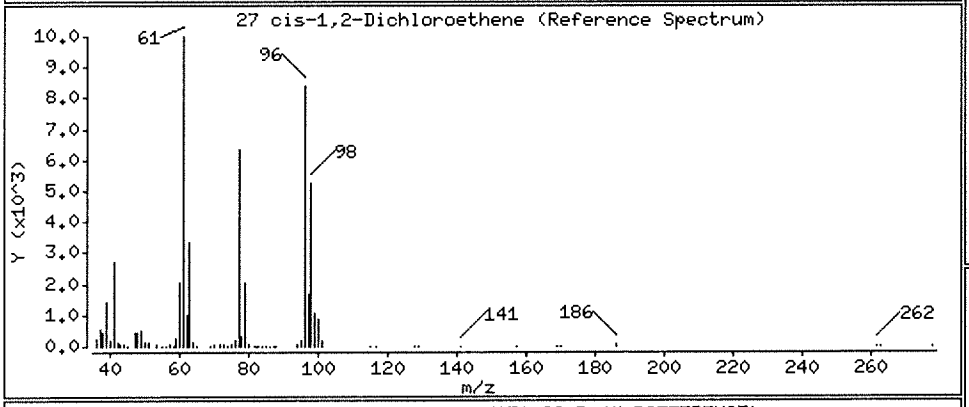
27 cis-1,2-Dichloroethene Concentration: 1.90 ug/l

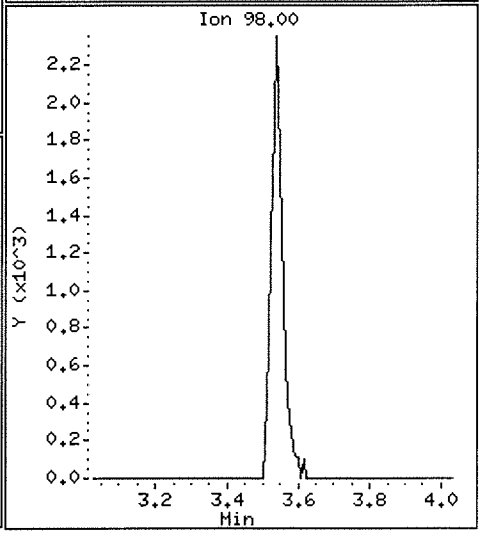


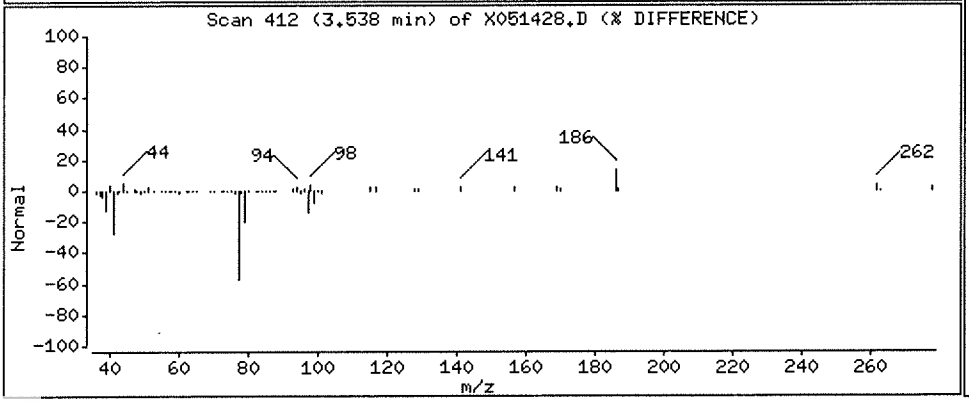












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051428.D

Date : 14-MAY-2019 20:02

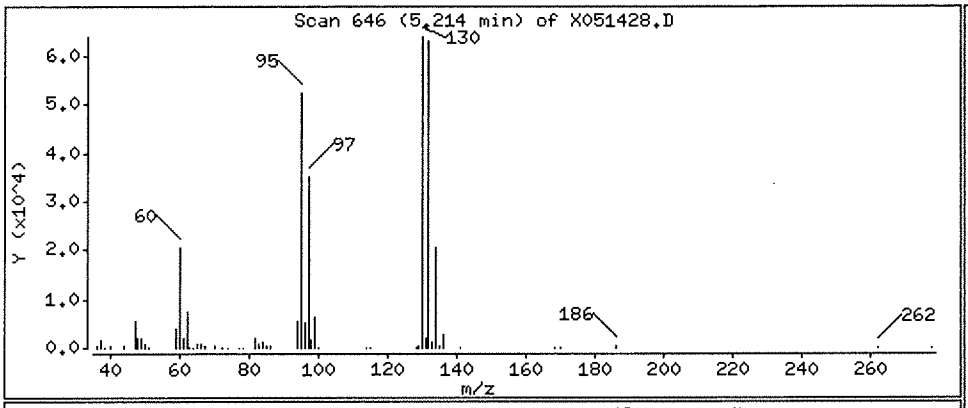
Client ID: HS19050374-03 Instrument: voa6.i

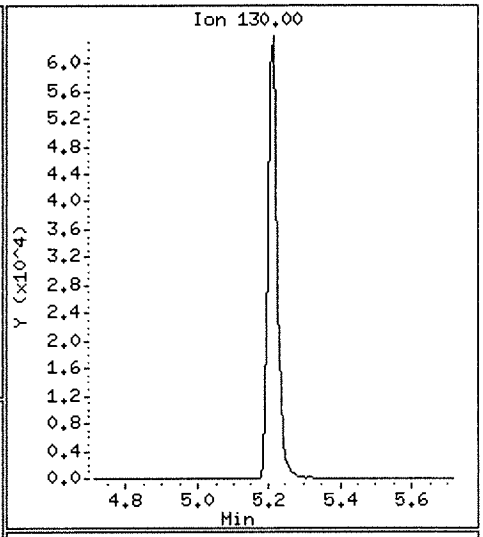
Sample Info: HS19050374-03;HS19050374-03;;;

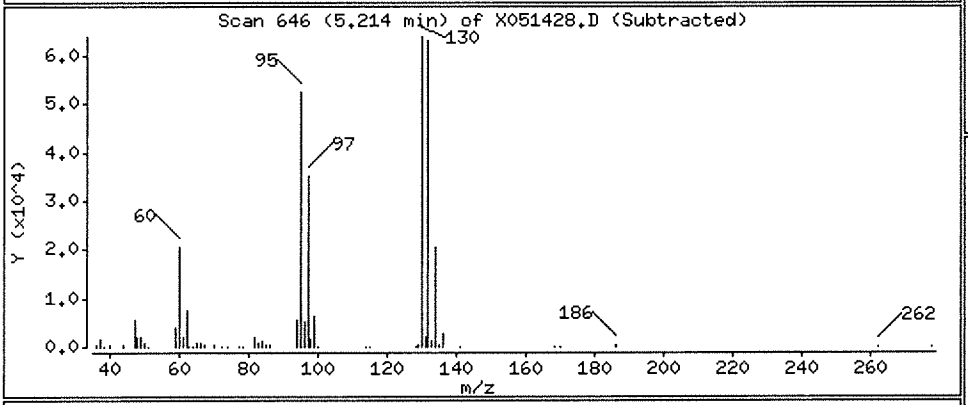
Purge Volume: 5.0 Operator: PC

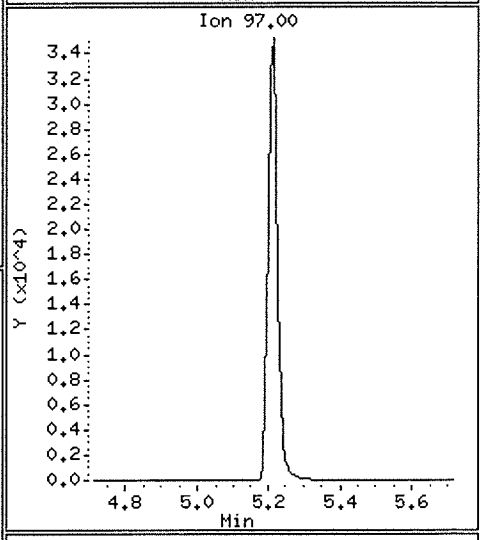
Column phase: DB624 Column diameter: 0.18

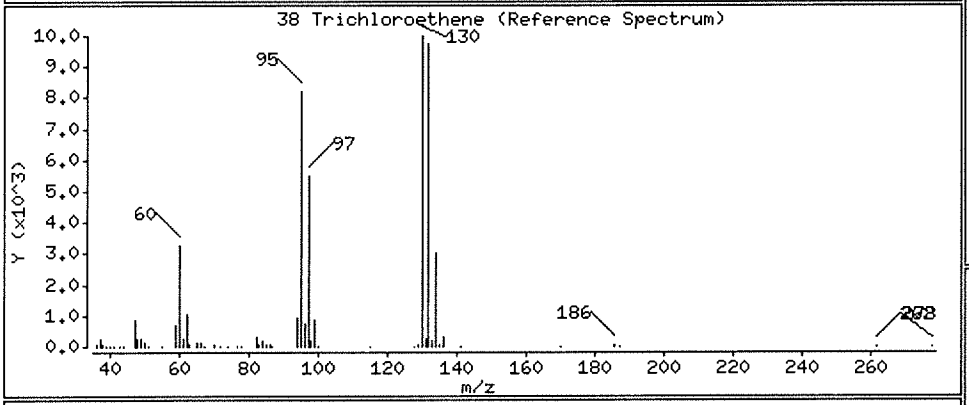
38 Trichloroethene Concentration: 27.40 ug/l

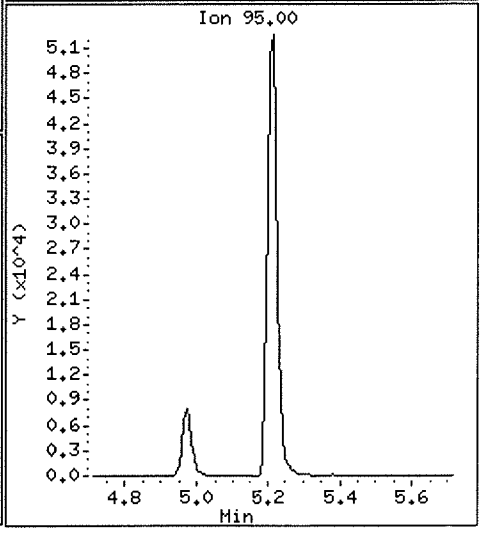


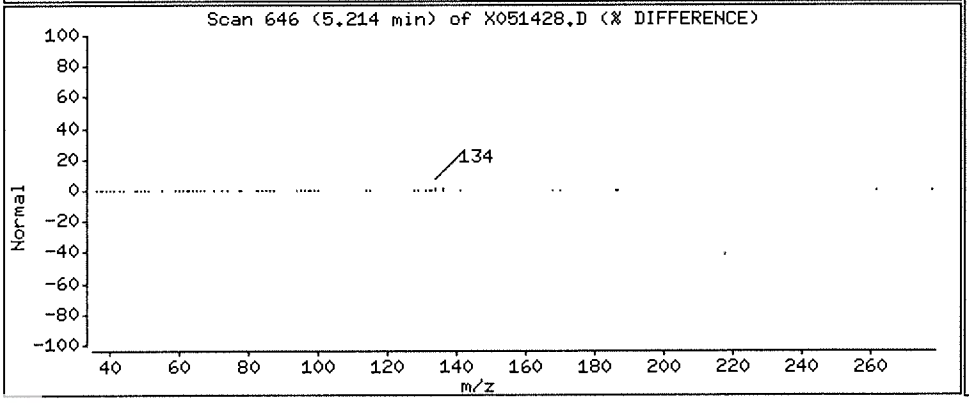












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D
Report Date: 06-Jun-2019 12:31

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D
Lab Smp Id: HS19050374-04 Client Smp ID: HS19050374-04
Inj Date : 14-MAY-2019 20:26
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-04;HS19050374-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 28
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

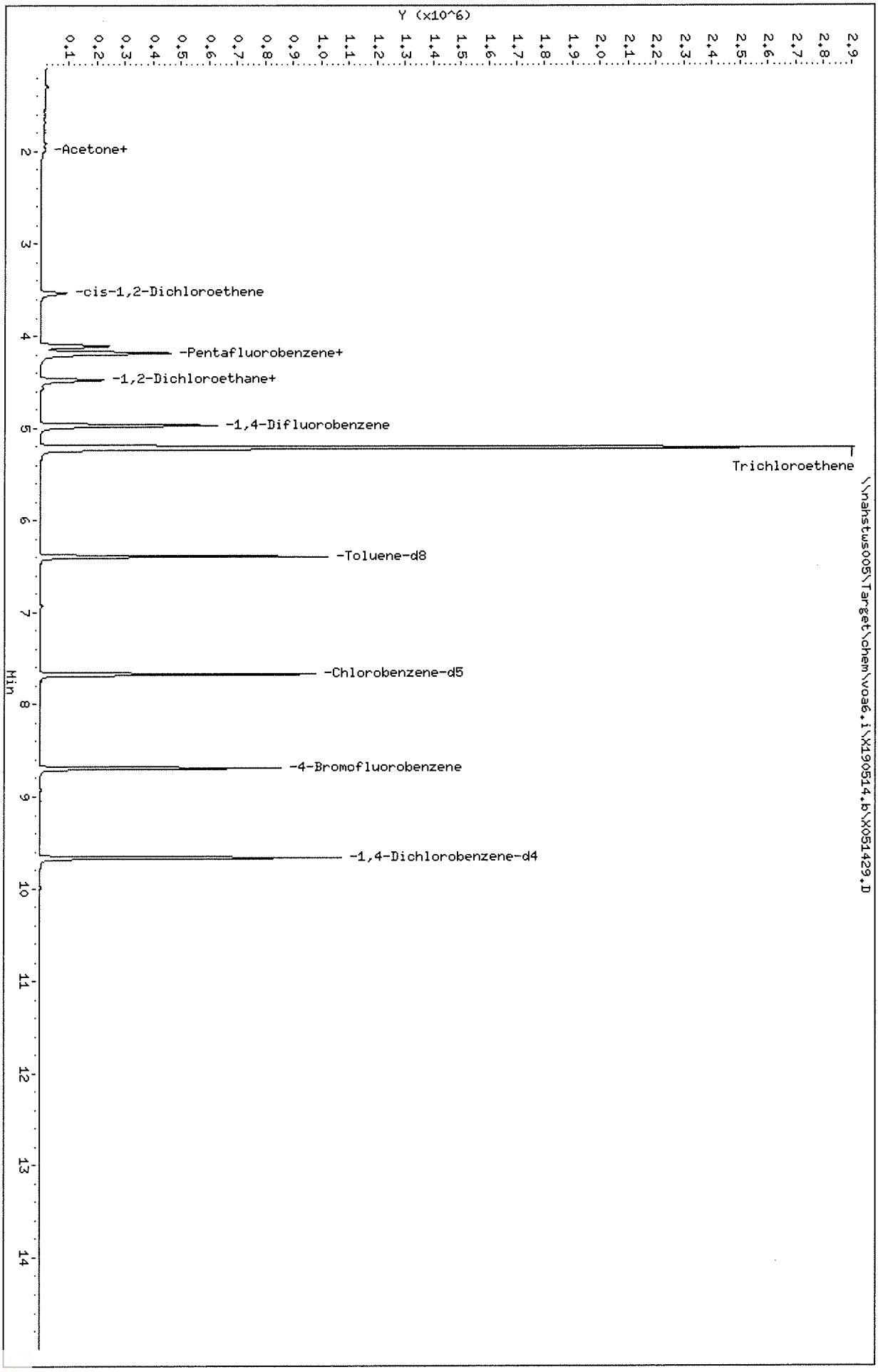
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	445720	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	559239	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.670	(1.000)	492042	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	276876	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	170623	43.6398	43.63
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	208782	50.4701	50.47
$ 30 Dibromofluoromethane	113	4.104	4.110	(0.979)	170713	44.4194	44.41
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	623131	52.0277	52.02
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1985	0.56987	0.56(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	6320	1.34196	1.34(a)
10 Acetone	43	1.983	1.976	(0.473)	8170	6.94184	6.94
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	52286	12.0437	12.04
38 Trichloroethene	130	5.214	5.214	(1.049)	1072514	247.675	247.67(A)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D
Date : 14-MAY-2019 20:26
Client ID: HS19050374-04
Sample Info: HS19050374-04;HS19050374-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Acetone+
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Date : 14-MAY-2019 20:26

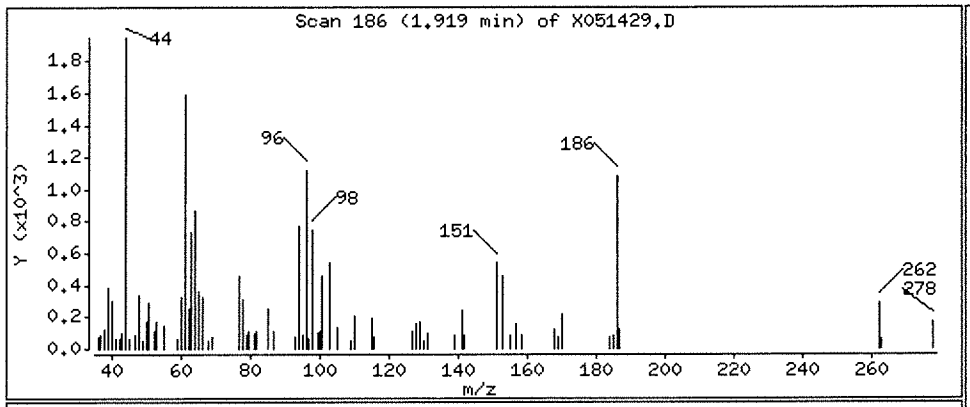
Client ID: HS19050374-04 Instrument: voa6.i

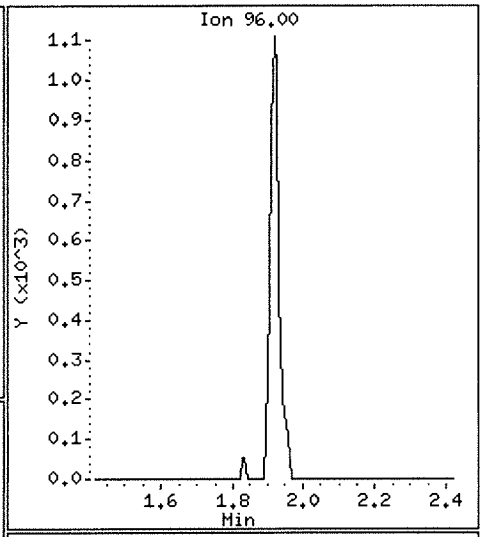
Sample Info: HS19050374-04;HS19050374-04;;;

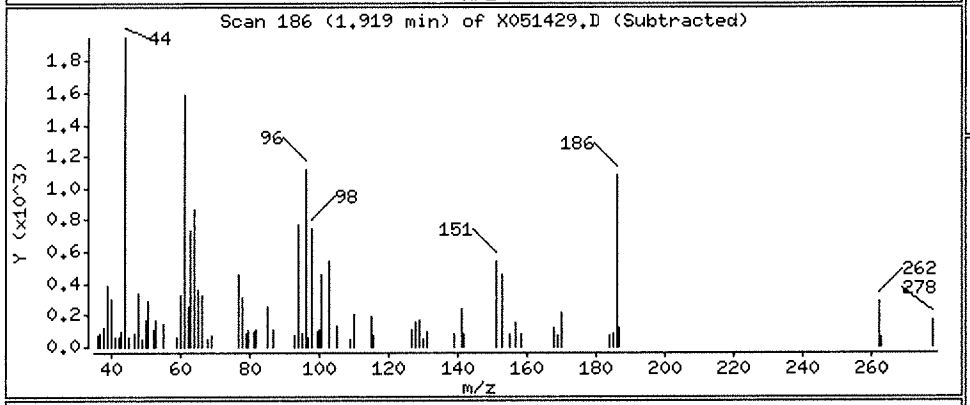
Purge Volume: 5.0 Operator: PC

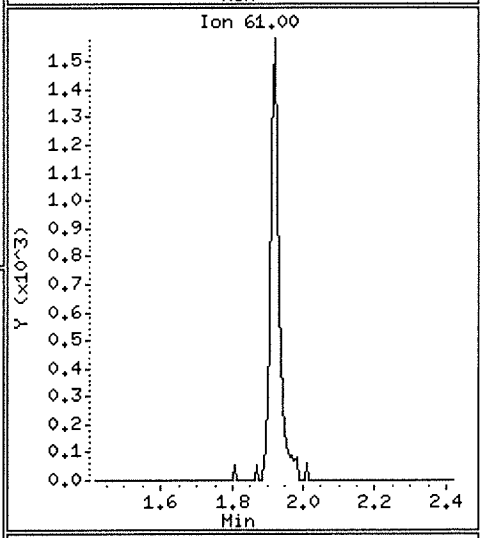
Column phase: DB624 Column diameter: 0.18

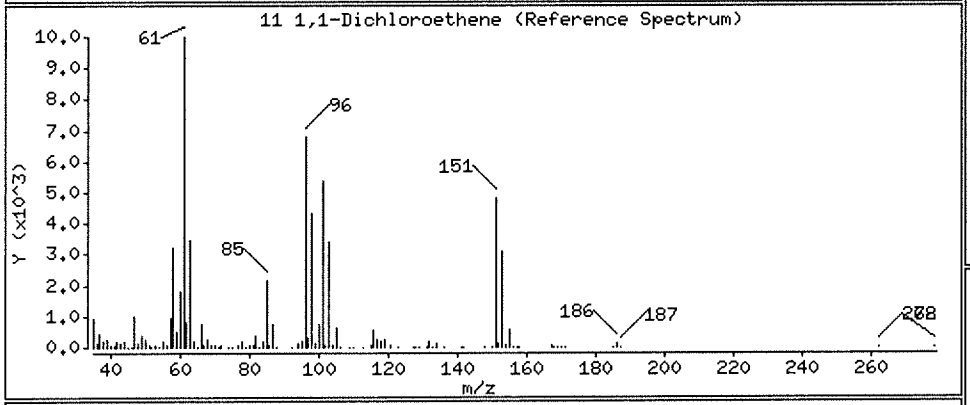
11 1,1-Dichloroethene Concentration: 0.56 ug/l

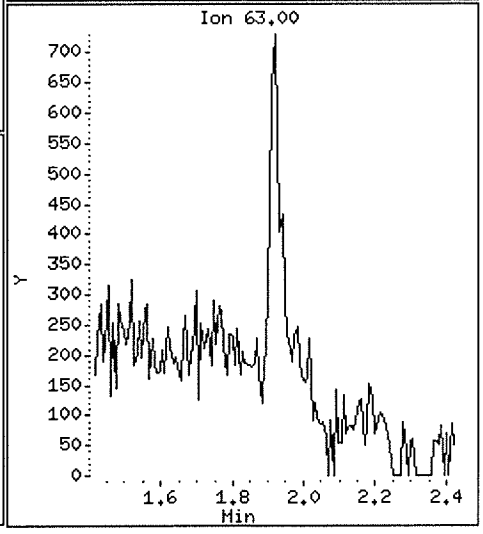


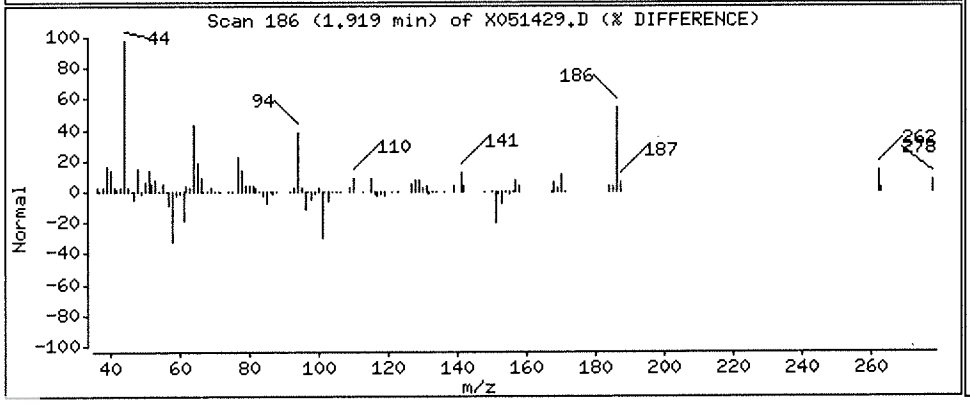












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Date : 14-MAY-2019 20:26

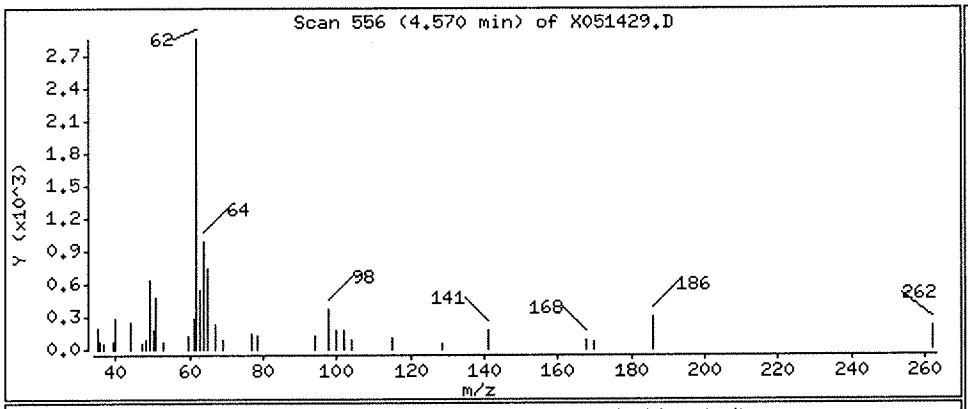
Client ID: HS19050374-04 Instrument: voa6.i

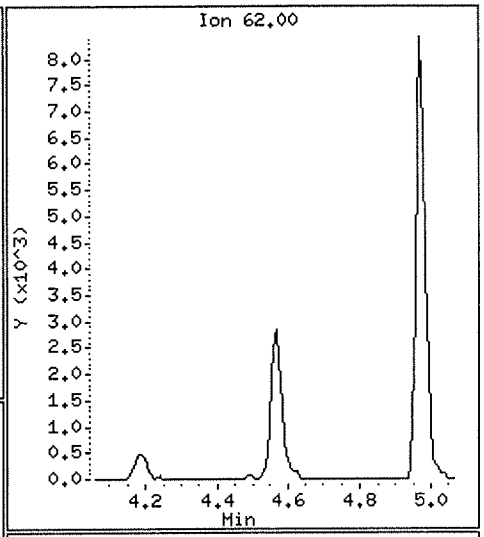
Sample Info: HS19050374-04;HS19050374-04;;;

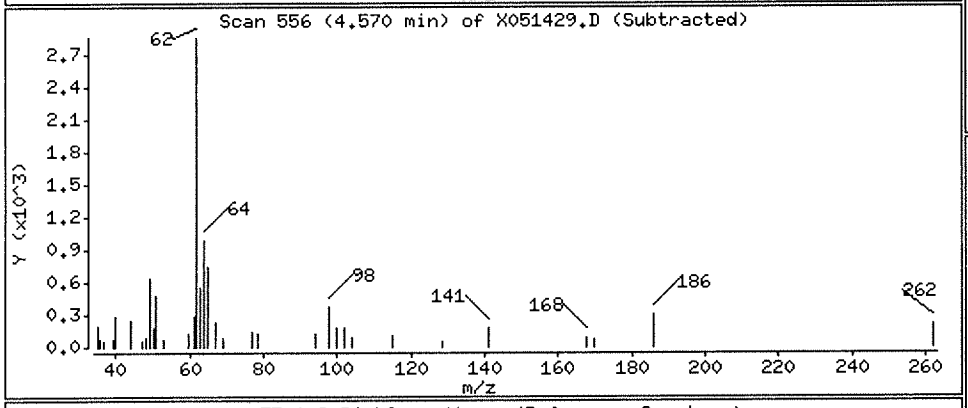
Purge Volume: 5.0 Operator: PC

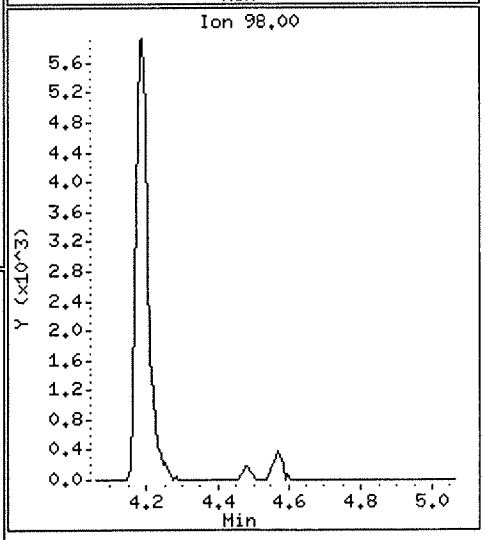
Column phase: DB624 Column diameter: 0.18

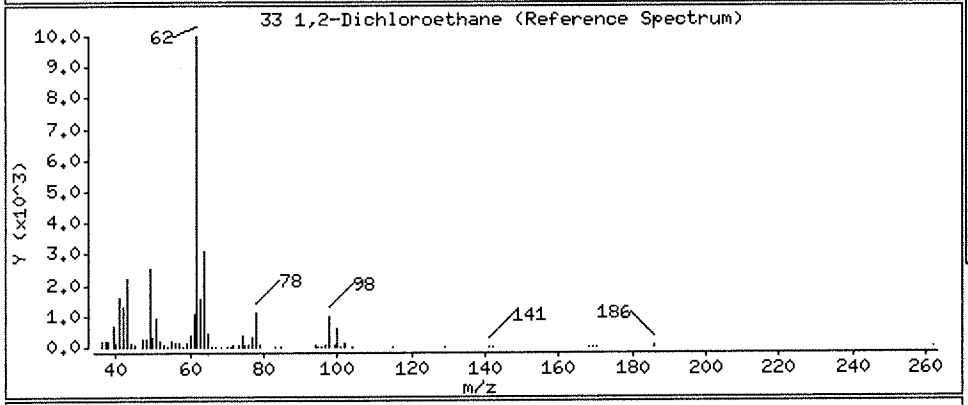
33 1,2-Dichloroethane Concentration: 1.34 ug/l

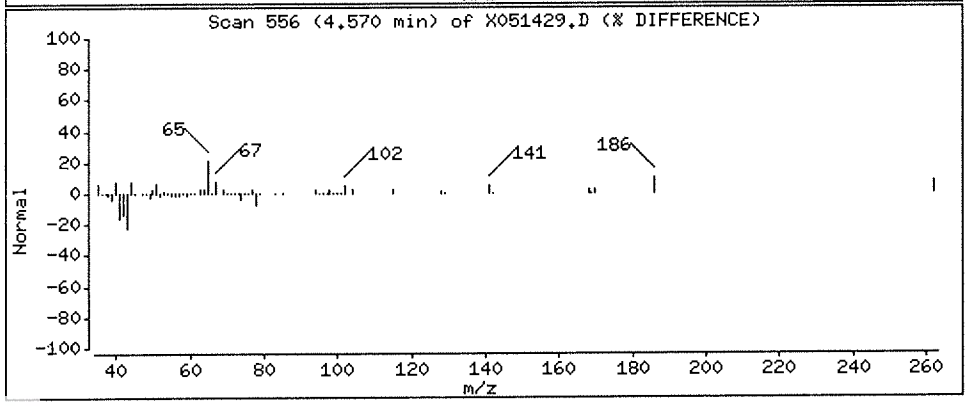












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Date : 14-MAY-2019 20:26

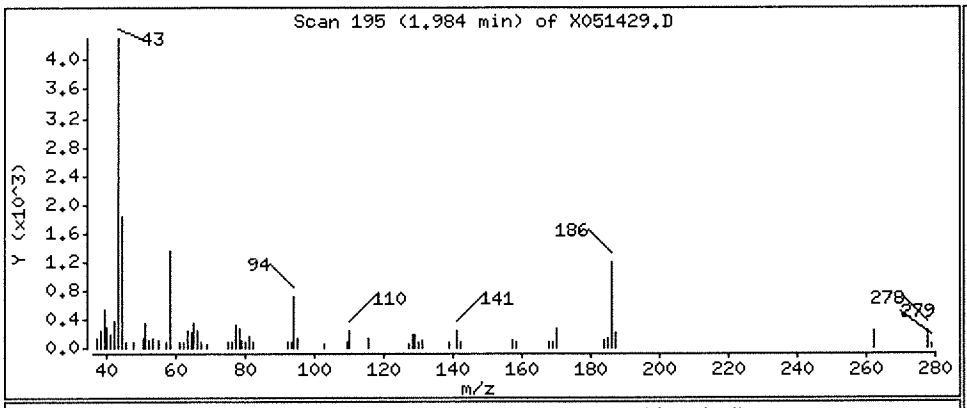
Client ID: HS19050374-04 Instrument: voa6.i

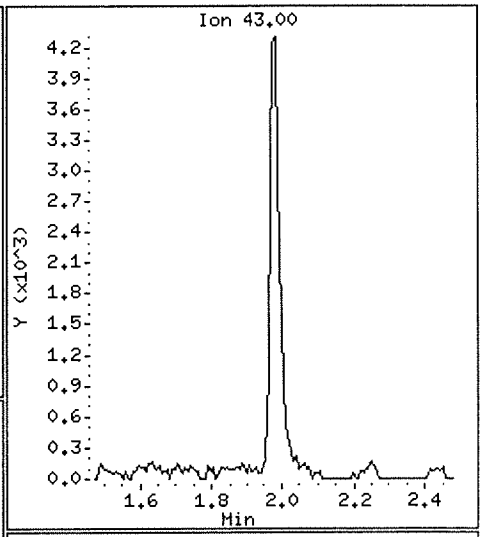
Sample Info: HS19050374-04;HS19050374-04;;;

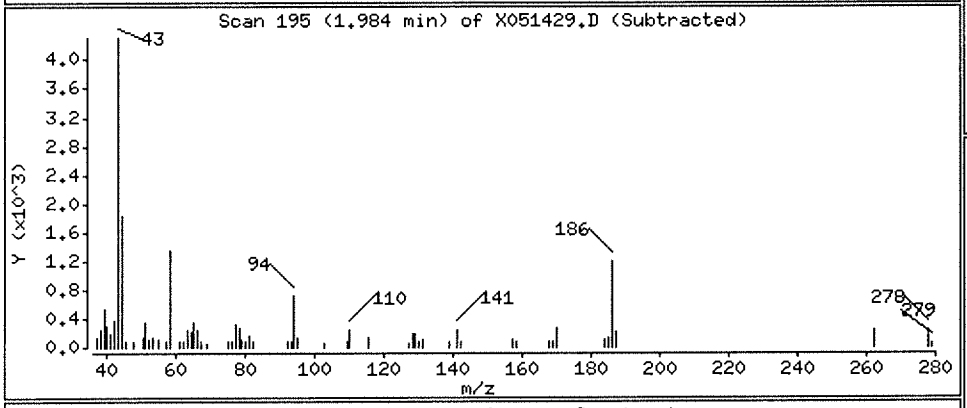
Purge Volume: 5.0 Operator: PC

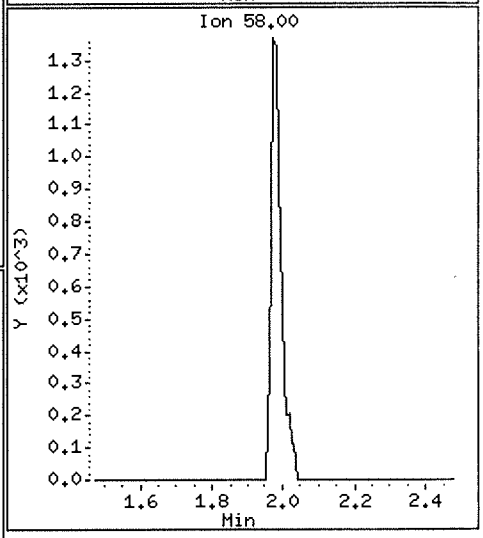
Column phase: DB624 Column diameter: 0.18

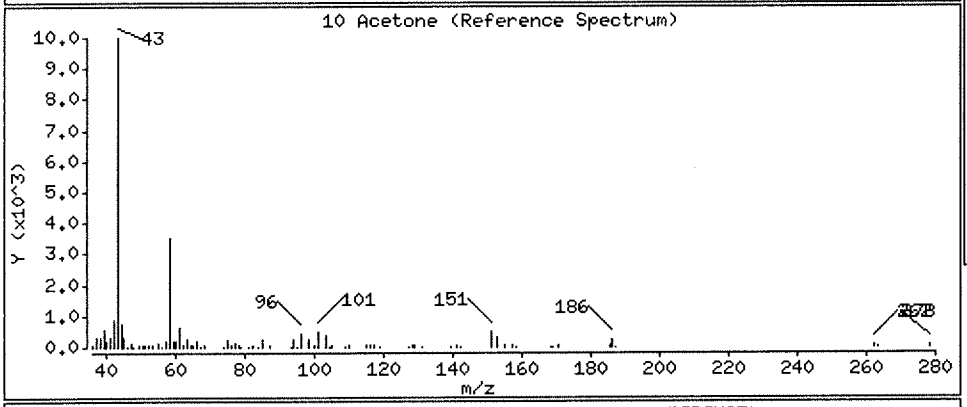
10 Acetone Concentration: 6.94 ug/l

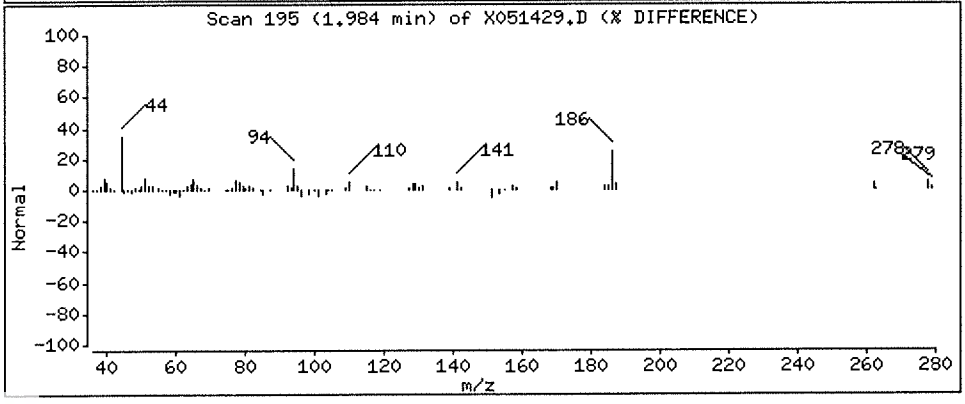












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Date : 14-MAY-2019 20:26

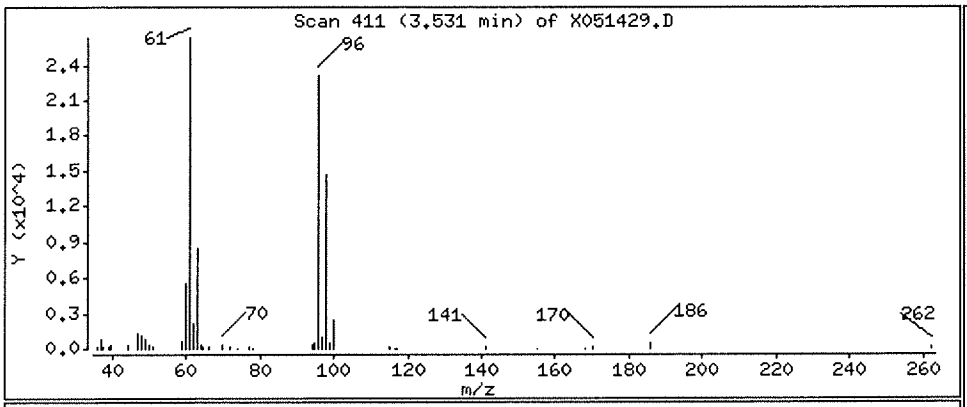
Client ID: HS19050374-04 Instrument: voa6.i

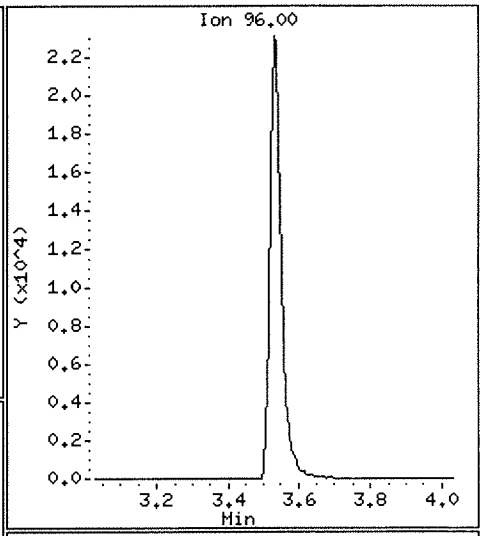
Sample Info: HS19050374-04;HS19050374-04;;;

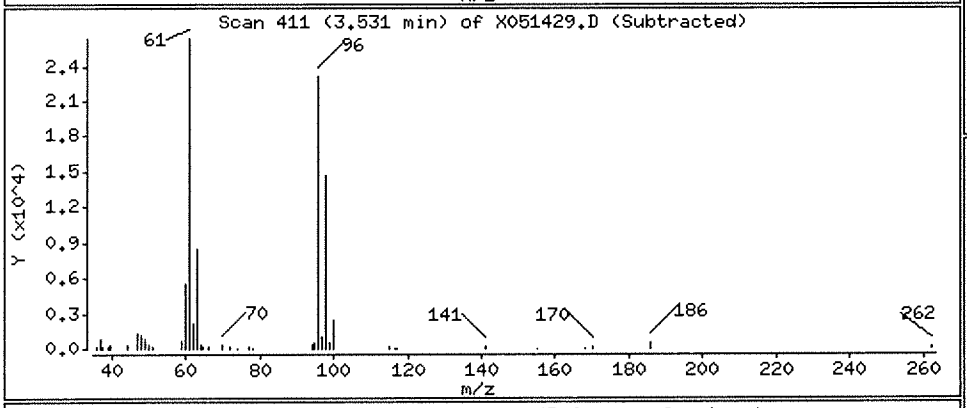
Purge Volume: 5.0 Operator: PC

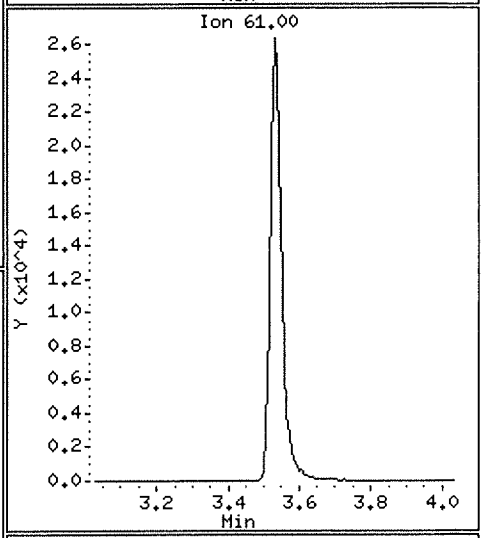
Column phase: DB624 Column diameter: 0.18

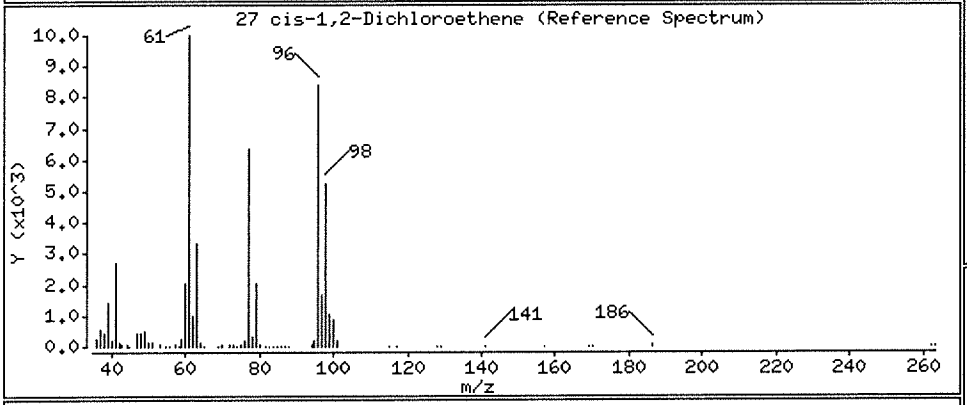
27 cis-1,2-Dichloroethene Concentration: 12.04 ug/l

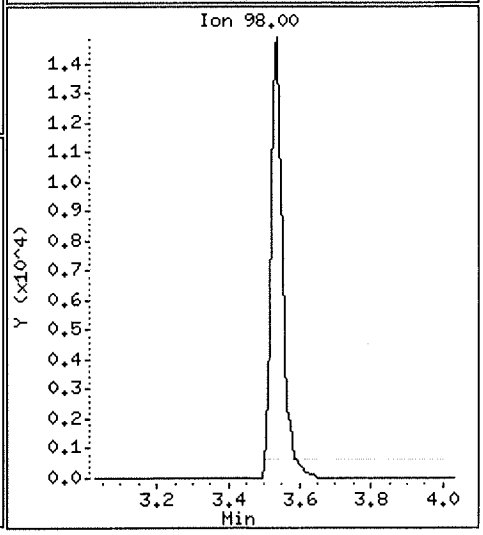


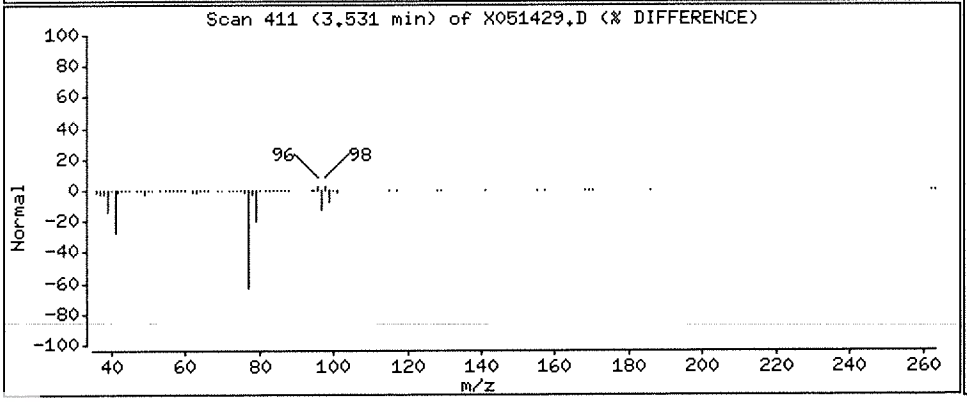












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051429.D

Date : 14-MAY-2019 20:26

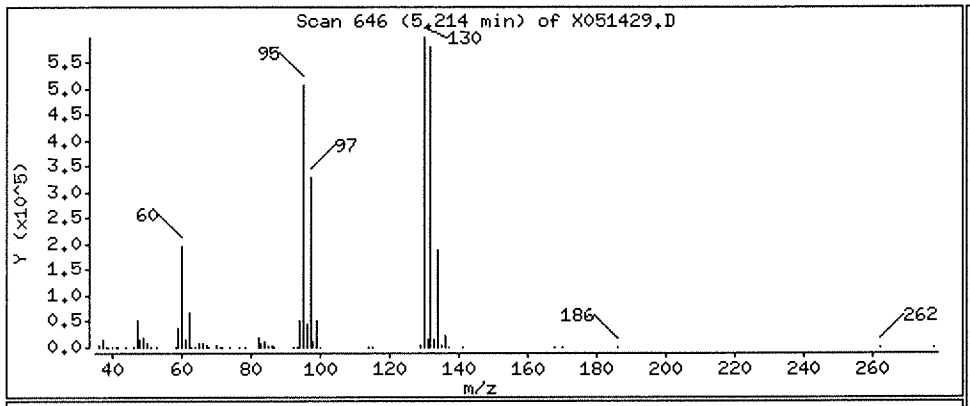
Client ID: HS19050374-04 Instrument: voa6.i

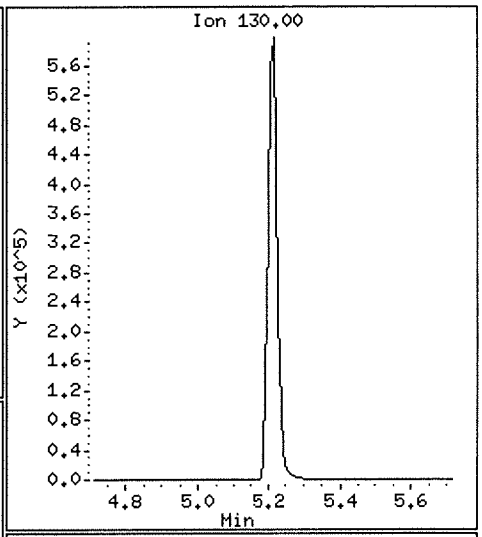
Sample Info: HS19050374-04;HS19050374-04;;;

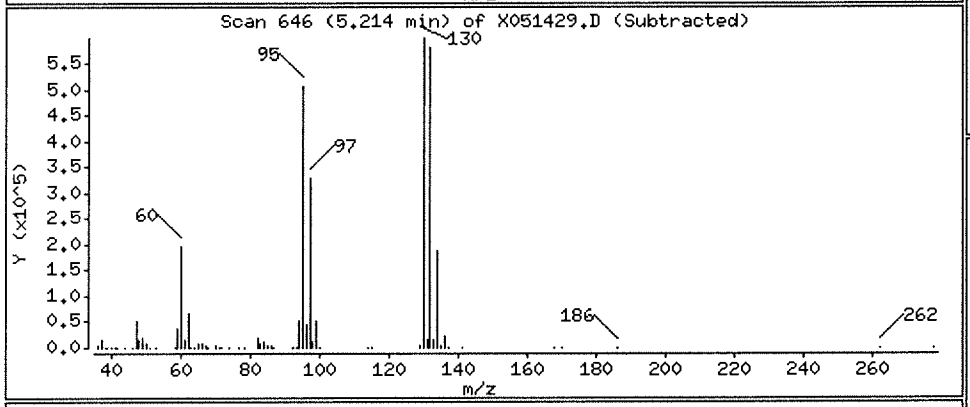
Purge Volume: 5.0 Operator: PC

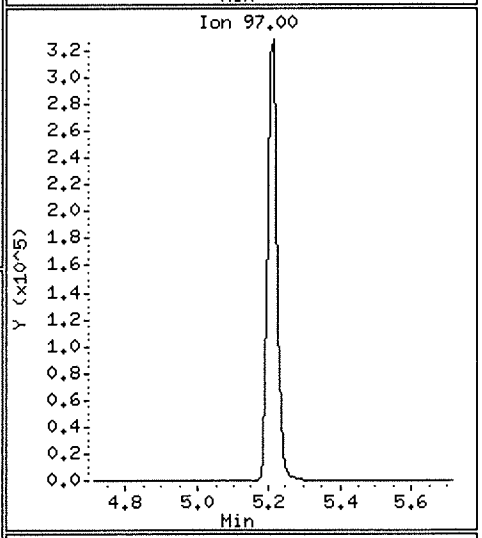
Column phase: DB624 Column diameter: 0.18

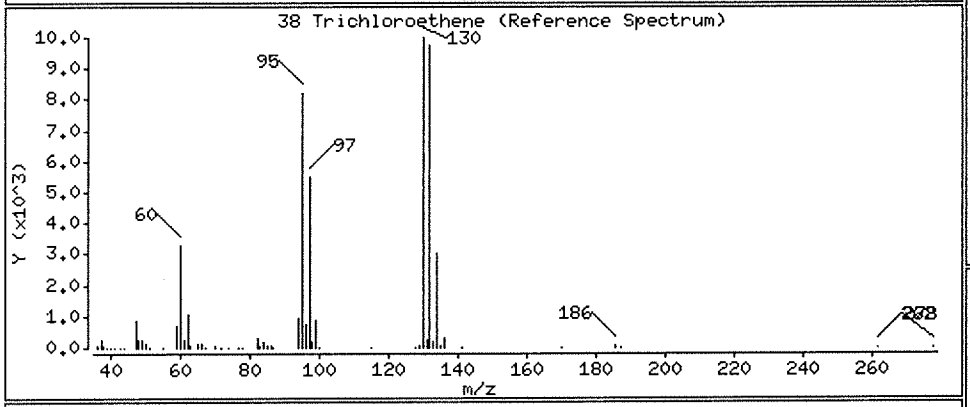
38 Trichloroethene Concentration: 247.67 ug/l

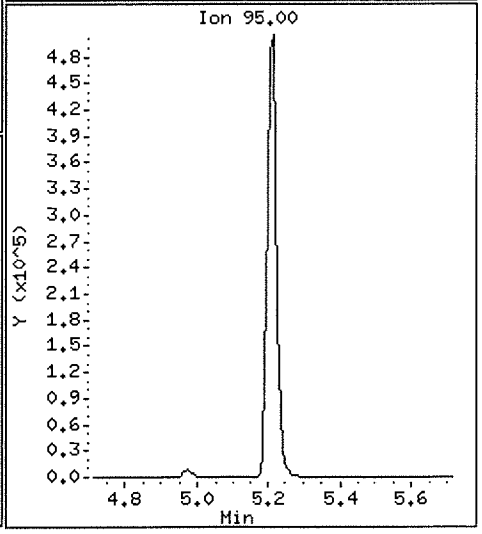


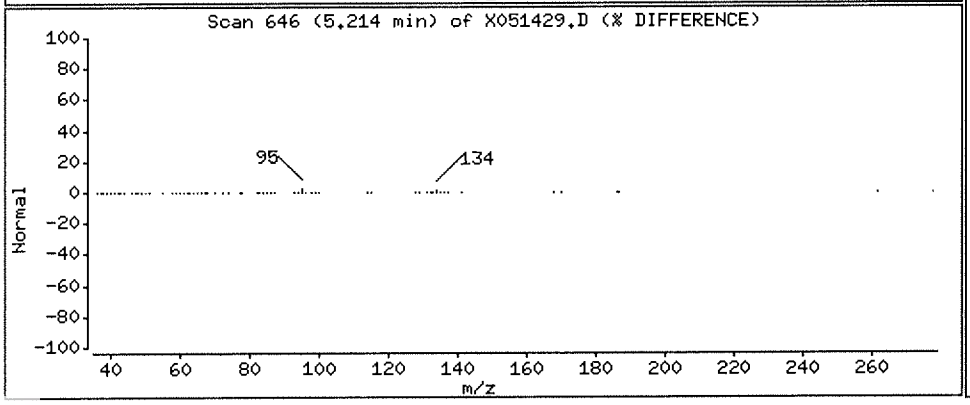












Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051430.D
Report Date: 06-Jun-2019 12:31

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190514.b\X051430.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 14-MAY-2019 20:50
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\X190514.b\8260W.m
Meth Date : 06-Jun-2019 12:29 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

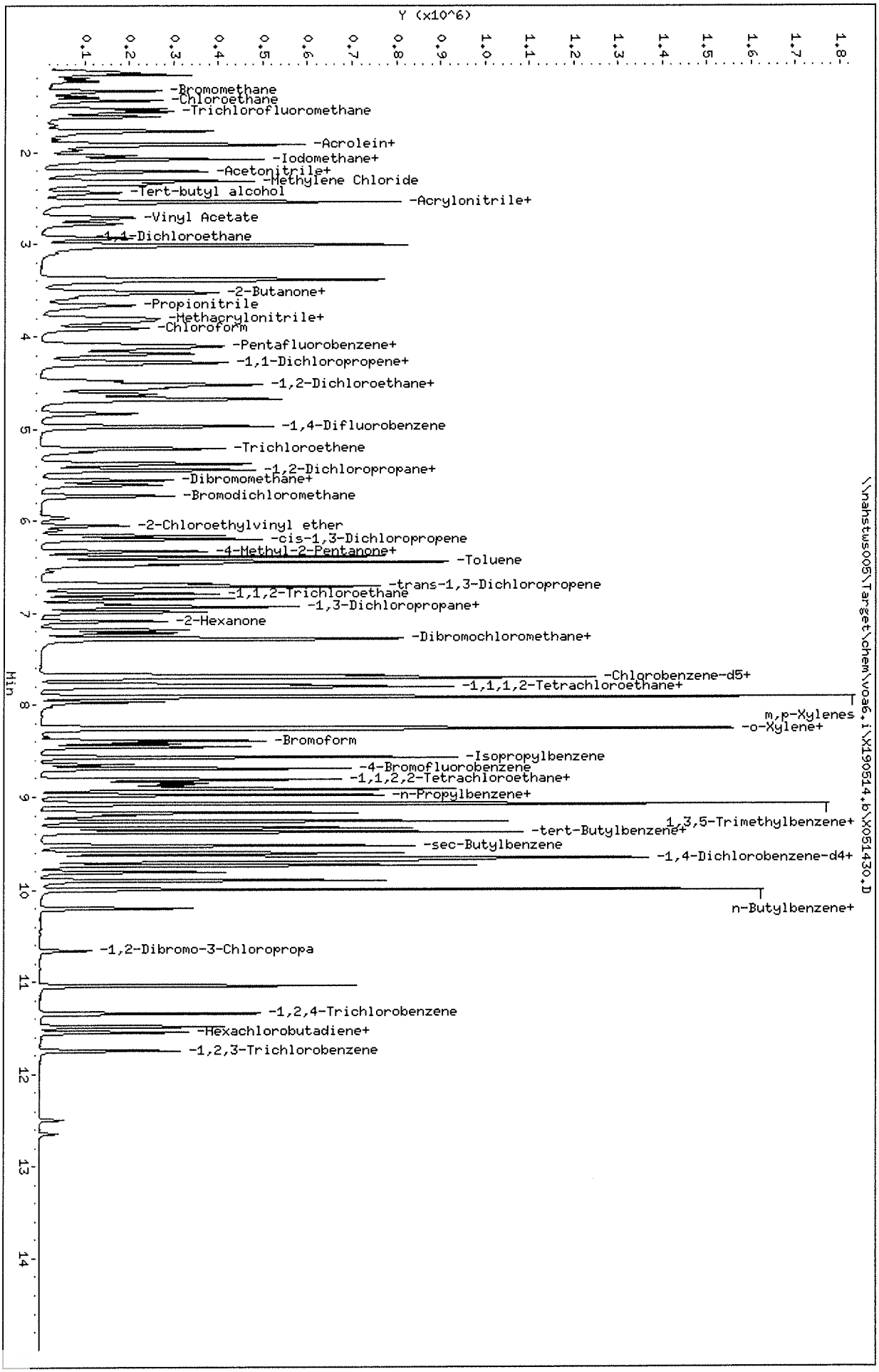
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	318291	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	422993	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.670	(1.000)	390365	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	222506	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	139081	50.0000	49.83
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	166523	50.0000	50.74
$ 30 Dibromofluoromethane	113	4.110	4.110	(0.981)	136537	50.0000	49.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	472399	50.0000	49.69
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	143509	50.0000	47.12
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	188865	50.0000	44.81
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	149261	50.0000	49.23
138 Freon TF	101	1.919	1.919	(0.458)	102577	50.0000	42.18
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	99211	50.0000	49.61
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	211626	50.0000	47.17
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	110916	50.0000	44.59
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	149789	50.0000	42.57
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	93378	50.0000	49.27
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	171874	50.0000	49.57
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	157250	50.0000	47.93
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	473442	50.0000	44.67
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.657	(1.102)	25936	50.0000	53.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	136535	50.0000	49.95
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	293590	50.0000	45.70

Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051430.D
Report Date: 06-Jun-2019 12:31

	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)	165725	50.0000	46.52
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	116302	50.0000	47.08
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	448229	50.0000	44.34
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	309588	50.0000	45.23
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	196551	50.0000	48.72
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	314507	50.0000	45.65
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	165428	50.0000	41.62
24	2-Butanone	43	3.580	3.580	(0.855)	81903	100.000	107.94
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	362436	50.0000	44.04
52	2-Hexanone	43	7.090	7.090	(0.924)	137207	100.000	100.90
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	423070	50.0000	44.37
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	471899	50.0000	43.23
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	202234	100.000	102.17
10	Acetone	43	1.976	1.976	(0.472)	66132	100.000	96.94
37	Benzene	78	4.519	4.519	(0.909)	476983	50.0000	46.71
74	Bromobenzene	156	8.809	8.809	(0.911)	193162	50.0000	46.58
29	Bromochloromethane	128	3.802	3.802	(0.908)	84785	50.0000	49.87
39	Bromodichloromethane	83	5.729	5.729	(1.153)	174537	50.0000	49.23
66	Bromoform	173	8.415	8.415	(1.097)	121525	50.0000	53.38
6	Bromomethane	94	1.338	1.338	(0.320)	139275	50.0000	48.76
19	Carbon Disulfide	76	2.076	2.076	(0.496)	654953	100.000	91.31
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	164197	50.0000	41.96
59	Chlorobenzene	112	7.699	7.699	(1.004)	368179	50.0000	47.28
7	Chloroethane	64	1.403	1.403	(0.335)	80349	50.0000	44.22
28	Chloroform	83	3.917	3.917	(0.935)	227115	50.0000	47.21
3	Chloromethane	50	1.080	1.080	(0.258)	157952	50.0000	48.54
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146417	50.0000	47.22
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	208523	50.0000	49.52
55	Dibromochloromethane	129	7.183	7.183	(0.937)	155958	50.0000	49.72
44	Dibromomethane	93	5.557	5.557	(1.118)	88127	50.0000	49.53
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	124173	50.0000	44.52
61	Ethylbenzene	106	7.807	7.807	(1.018)	182563	50.0000	45.35
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	80124	50.0000	41.01
67	Isopropylbenzene	105	8.566	8.566	(1.117)	519585	50.0000	43.46
62	m,p-Xylenes	106	7.907	7.907	(1.031)	440947	100.000	90.95
17	Methylene Chloride	84	2.313	2.313	(0.552)	132045	50.0000	49.47
87	n-Butylbenzene	91	9.998	9.998	(1.034)	362873	50.0000	41.96
73	n-Propylbenzene	91	8.917	8.917	(0.922)	584514	50.0000	42.75
92	Naphthalene	128	11.546	11.546	(1.194)	229363	50.0000	49.34
63	o-Xylene	106	8.244	8.244	(1.075)	220333	50.0000	46.45
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	492352	50.0000	41.40
64	Styrene	104	8.265	8.265	(1.078)	399894	50.0000	48.22
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	368752	50.0000	42.15
56	Tetrachloroethene	164	6.933	6.933	(0.904)	125102	50.0000	43.59
50	Toluene	91	6.453	6.453	(0.841)	528990	50.0000	46.23
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	122706	50.0000	47.17
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	183741	50.0000	49.94
38	Trichloroethene	130	5.214	5.214	(1.049)	151788	50.0000	46.34
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	200476	50.0000	42.40
5	Vinyl Chloride	62	1.145	1.145	(0.273)	129734	50.0000	44.59



Data File: \\nahstws005\Target\chem\voa6.i\X190514.b\X051430.D
Date : 14-MAY-2019 20:50
Client ID: CCV-END
Sample Info: CCV-END;CCV-END;2;;
Purge Volume: 5.0
Column phase: DB624

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

MSVOA06 -Logbook

Batch: 35469
Date: 05-16-2019
Method: 8260
Comments: Target Sequence 190516

Analyst: Devak Giga
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-16-2019 09:11 am	1.00	0.00 mL	0.00 mL	X051601.D	Liquid	Y	NA
2	*Auto find/purged* CCV	CCV	05-16-2019 09:35 am	1.00	5.00 mL	0.00 mL	X051602.D	Liquid	Y	NA
3	*10 uL cal std/50 mL DI* CCB	SAMP	05-16-2019 09:59 am	1.00	5.00 mL	0.00 mL	X051603.D	Liquid	Y	NA
4	*CCB* VLCSW-190516	LCS	05-16-2019 10:23 am	1.00	5.00 mL	0.00 mL	X051604.D	Liquid	Y	NA
5	*4 uL LCS std/50 mL DI* BLANK	SAMP	05-16-2019 10:47 am	1.00	5.00 mL	0.00 mL	X051605.D	Liquid	Y	NA
6	VBLKW-190516	MBLK	05-16-2019 11:11 am	1.00	5.00 mL	0.00 mL	X051606.D	Liquid	Y	NA
7	HS19050919-11	SAMP	05-16-2019 11:35 am	1.00	5.00 mL	0.00 mL	X051607.D	Liquid	Y	<2
8	HS19050919-12	SAMP	05-16-2019 11:59 am	1.00	5.00 mL	0.00 mL	X051608.D	Liquid	Y	<2
9	HS19050919-13	SAMP	05-16-2019 12:23 pm	1.00	5.00 mL	0.00 mL	X051609.D	Liquid	Y	<2
10	HS19050917-11	SAMP	05-16-2019 12:48 pm	1.00	5.00 mL	0.00 mL	X051610.D	Liquid	Y	<2
11	HS19050403-08	SAMP	05-16-2019 01:12 pm	1.00	5.00 mL	0.00 mL	X051611.D	Liquid	Y	<2
12	HS19050374-07	SAMP	05-16-2019 01:36 pm	1.00	5.00 mL	0.00 mL	X051612.D	Liquid	Y	<2
13	HS19050403-05	SAMP	05-16-2019 02:00 pm	1.00	5.00 mL	0.00 mL	X051613.D	Liquid	Y	<2
14	HS19050403-07	SAMP	05-16-2019 02:24 pm	1.00	5.00 mL	0.00 mL	X051614.D	Liquid	Y	<2
15	HS19050403-04	SAMP	05-16-2019 02:48 pm	1.00	5.00 mL	0.00 mL	X051615.D	Liquid	Y	<2
16	HS19050403-05MS	MS	05-16-2019 03:12 pm	1.00	5.00 mL	0.00 mL	X051616.D	Liquid	Y	<2
17	*3.2 uL cal std/40 mL sample* HS19050403-05MSD	MSD	05-16-2019 03:36 pm	1.00	5.00 mL	0.00 mL	X051617.D	Liquid	Y	<2
18	*3.2 uL cal std/40 mL sample* HS19050917-11MS	MS	05-16-2019 04:00 pm	1.00	5.00 mL	0.00 mL	X051618.D	Liquid	Y	<2
19	*3.2 uL cal std/40 mL sample* HS19050917-11MSD	MSD	05-16-2019 04:24 pm	1.00	5.00 mL	0.00 mL	X051619.D	Liquid	Y	<2
20	*3.2 uL cal std/40 mL sample* HS19050374-04	SAMP	05-16-2019 04:51 pm	5.00	5.00 mL	0.00 mL	X051620.D	Liquid	Y	<2
21	HS19050403-04	SAMP	05-16-2019 05:17 pm	5.00	5.00 mL	0.00 mL	X051621.D	Liquid	Y	<2
22	HS19050403-01	SAMP	05-16-2019 05:41 pm	1.00	5.00 mL	0.00 mL	X051622.D	Liquid	Y	<2
23	HS19050403-02	SAMP	05-16-2019 06:05 pm	1.00	5.00 mL	0.00 mL	X051623.D	Liquid	Y	<2
24	HS19050403-03	SAMP	05-16-2019 06:29 pm	1.00	5.00 mL	0.00 mL	X051624.D	Liquid	Y	<2
25	HS19050403-06	SAMP	05-16-2019 06:53 pm	1.00	5.00 mL	0.00 mL	X051625.D	Liquid	Y	<2
26	HS19050374-05	SAMP	05-16-2019 07:17 pm	1.00	5.00 mL	0.00 mL	X051626.D	Liquid	Y	<2
27	HS19050374-06	SAMP	05-16-2019 07:41 pm	1.00	5.00 mL	0.00 mL	X051627.D	Liquid	Y	<2
28	HS19050592-03	SAMP	05-16-2019 08:05 pm	1.00	5.00 mL	0.00 mL	X051628.D	Liquid	Y	<2
29	HS19050567-01	SAMP	05-16-2019 08:29 pm	1.00	5.00 mL	0.00 mL	X051629.D	Liquid	Y	<2
30	CCV-END	CCV	05-16-2019 08:53 pm	1.00	5.00 mL	0.00 mL	X051630.D	Liquid	Y	NA
31	*10 uL cal std/50 mL DI* BFB	TUNE	05-16-2019 09:18 pm	1.00	0.00 mL	0.00 mL	Y051601.D	Liquid	Y	NA
32	*Auto find/purged* CCV	CCV	05-16-2019 09:41 pm	1.00	5.00 mL	0.00 mL	Y051602.D	Liquid	Y	NA
33	*10 uL cal std/50 mL DI* VLCSW-190516	LCS	05-16-2019 10:05 pm	1.00	5.00 mL	0.00 mL	Y051603.D	Liquid	Y	NA
34	*4 uL LCS std/50 mL DI* BLANK	SAMP	05-16-2019 10:29 pm	1.00	5.00 mL	0.00 mL	Y051604.D	Liquid	Y	NA
35	VBLKW-190516	MBLK	05-16-2019 10:53 pm	1.00	5.00 mL	0.00 mL	Y051605.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	HS19050590-07	SAMP	05-16-2019 11:18 pm	1.00	5.00 mL	0.00 mL	Y051606.D	Liquid	Y	<2
37	HS19050590-08	SAMP	05-16-2019 11:42 pm	1.00	5.00 mL	0.00 mL	Y051607.D	Liquid	Y	<2
38	HS19050590-09	SAMP	05-17-2019 12:06 am	1.00	5.00 mL	0.00 mL	Y051608.D	Liquid	Y	<2
39	HS19050590-16	SAMP	05-17-2019 12:30 am	1.00	5.00 mL	0.00 mL	Y051609.D	Liquid	Y	<2
40	HS19050590-17	SAMP	05-17-2019 12:54 am	1.00	5.00 mL	0.00 mL	Y051610.D	Liquid	Y	<2
41	HS19050590-18	SAMP	05-17-2019 01:18 am	1.00	5.00 mL	0.00 mL	Y051611.D	Liquid	Y	<2
42	HS19050590-02	SAMP	05-17-2019 01:42 am	1.00	5.00 mL	0.00 mL	Y051612.D	Liquid	Y	<2
43	HS19050590-02MS	MS	05-17-2019 02:06 am	1.00	5.00 mL	0.00 mL	Y051613.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
44	HS19050590-02MSD	MSD	05-17-2019 02:30 am	1.00	5.00 mL	0.00 mL	Y051614.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
45	HS19050590-03	SAMP	05-17-2019 02:54 am	1.00	5.00 mL	0.00 mL	Y051615.D	Liquid	Y	<2
46	HS19050590-04	SAMP	05-17-2019 03:18 am	1.00	5.00 mL	0.00 mL	Y051616.D	Liquid	Y	<2
47	HS19050590-05	SAMP	05-17-2019 03:42 am	1.00	5.00 mL	0.00 mL	Y051617.D	Liquid	Y	<2
48	HS19050590-06	SAMP	05-17-2019 04:06 am	1.00	5.00 mL	0.00 mL	Y051618.D	Liquid	Y	<2
49	HS19050590-10	SAMP	05-17-2019 04:30 am	1.00	5.00 mL	0.00 mL	Y051619.D	Liquid	Y	<2
50	HS19050590-11	SAMP	05-17-2019 04:54 am	1.00	5.00 mL	0.00 mL	Y051620.D	Liquid	Y	<2
51	HS19050590-12	SAMP	05-17-2019 05:19 am	1.00	5.00 mL	0.00 mL	Y051621.D	Liquid	Y	<2
52	HS19050590-13	SAMP	05-17-2019 05:43 am	1.00	5.00 mL	0.00 mL	Y051622.D	Liquid	Y	<2
53	HS19050590-14	SAMP	05-17-2019 06:07 am	1.00	5.00 mL	0.00 mL	Y051623.D	Liquid	Y	<2
54	HS19050590-15	SAMP	05-17-2019 06:31 am	1.00	5.00 mL	0.00 mL	Y051624.D	Liquid	Y	<2
55	HS19050837-07	SAMP	05-17-2019 06:55 am	1.00	5.00 mL	0.00 mL	Y051625.D	Liquid	Y	<2
56	HS19050685-02	SAMP	05-17-2019 07:19 am	50.00	5.00 mL	0.00 mL	Y051626.D	Liquid	Y	<2
57	HS19050685-08	SAMP	05-17-2019 07:43 am	50.00	5.00 mL	0.00 mL	Y051627.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-190516	102	96	98	95	0
02	VBLKW-190516	98	89	105	85	0
03	HS19050374-0	100	88	103	87	0
04	HS19050403-0	100	90	102	89	0
05	HS19050403-0	100	89	101	87	0
06	HS19050374-0	98	88	104	86	0
07	HS19050374-0	98	89	106	88	0
08	HS19050374-0	99	87	104	86	0
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-190516

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID: X051606 Lab Sample ID: VBLKW-190516

Date Analyzed: 05/16/19 Time Analyzed: 1111

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-190516	VLCSW-190516	X051604	1023
02	HS19050374-0	HS19050374-07	X051612	1336
03	HS19050403-0	HS19050403-05M	X051616	1512
04	HS19050403-0	HS19050403-05M	X051617	1536
05	HS19050374-0	HS19050374-04	X051620	1651
06	HS19050374-0	HS19050374-05	X051626	1917
07	HS19050374-0	HS19050374-06	X051627	1941
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID: X051601 BFB Injection Date: 05/16/19

Instrument ID: VOA6 BFB Injection Time: 0911

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.9
75	30.0 - 60.0% of mass 95	48.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.7 (0.7)1
174	Greater than 50.0% of mass 95	104.0
175	5.0 - 9.0% of mass 174	7.8 (7.5)1
176	95.0 - 101.0% of mass 174	101.2 (97.4)1
177	5.0 - 9.0% of mass 176	7.5 (7.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X051602	05/16/19	0935
02	VLCSW-190516	VLCSW-190516	X051604	05/16/19	1023
03	VBLKW-190516	VBLKW-190516	X051606	05/16/19	1111
04	HS19050374-0	HS19050374-07	X051612	05/16/19	1336
05	HS19050403-0	HS19050403-05M	X051616	05/16/19	1512
06	HS19050403-0	HS19050403-05M	X051617	05/16/19	1536
07	HS19050374-0	HS19050374-04	X051620	05/16/19	1651
08	HS19050374-0	HS19050374-05	X051626	05/16/19	1917
09	HS19050374-0	HS19050374-06	X051627	05/16/19	1941
10	CCV-END	CCV-END	X051630	05/16/19	2053
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 0935

Lab File ID: X051602 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4800742	0.4800742	0.2	3.60	20.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4261766	0.4261766	0.1	2.03	20.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3808663	1.3808663	0.6	10.22	20.00	AVRG
2,2-Dichloropropane	0.6240000	0.5606745	0.5606745	0.1	10.15	20.00	AVRG
1,1-Dichloropropene	0.4160000	0.3557845	0.3557845	0.1	14.47	20.00	AVRG
Dibromomethane	0.2100000	0.2002086	0.2002086	0.1	4.66	20.00	AVRG
1,2-Dibromoethane	0.3500000	0.3337244	0.3337244	0.1	4.65	20.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3791098	0.3791098	0.1	7.08	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3612895	0.3612895	0.1	7.36	20.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5802022	0.5802022	0.1	12.36	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6302029	0.6302029	0.3	7.46	20.00	AVRG
Toluene	1.4650000	1.3541247	1.3541247	0.4	7.57	20.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2419182	0.2419182	0.1	5.50	20.00	AVRG
1,1-Dichloroethane	0.7050000	0.6544378	0.6544378	0.2	7.17	20.00	AVRG
1,1-Dichloroethene	0.3900000	0.3436935	0.3436935	0.1	11.87	20.00	AVRG
Trichlorofluoromethane	0.7430000	0.6158487	0.6158487	0.1	17.11	20.00	AVRG
1,2,3-Trichlorobenzene	47.438614	50.000000	0.4030360	0.1	5.12	20.00	2RDR
Tetrachloroethene	0.3680000	0.3221367	0.3221367	0.2	12.46	20.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.6898709	0.6898709	0.2	6.39	20.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.0871812	2.0871812	0.1	12.34	20.00	AVRG
tert-Butylbenzene	1.9660000	1.6201682	1.6201682	0.1	17.59	20.00	AVRG
Trichloroethene	0.3870000	0.3509314	0.3509314	0.2	9.32	20.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3133405	1.3133405	0.4	8.98	20.00	AVRG
1,2-Dichloroethane	0.4210000	0.3786514	0.3786514	0.1	10.06	20.00	AVRG
1,2-Dichloropropane	0.2920000	0.2752169	0.2752169	0.1	5.75	20.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.0158908	2.0158908	0.1	11.23	20.00	AVRG
1,3-Dichloropropane	0.5160000	0.4849408	0.4849408	0.1	6.02	20.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4113840	1.4113840	0.4	8.82	20.00	AVRG
2-Butanone	0.1190000	0.1212599	0.1212599	0.1	-1.90	20.00	AVRG
2-Chlorotoluene	1.8490000	1.6229928	1.6229928	0.1	12.22	20.00	AVRG
2-Hexanone	0.1740000	0.1643077	0.1643077	0.1	5.57	20.00	AVRG
4-Chlorotoluene	2.1420000	1.8983493	1.8983493	0.1	11.37	20.00	AVRG
Styrene	1.0620000	1.0018186	1.0018186	0.3	5.67	20.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2421784	0.2421784	0.1	4.28	20.00	AVRG
Acetone	94.219333	100.00000	0.1010187	0.1	5.78	20.00	LINR
Benzene	1.2070000	1.1048238	1.1048238	0.5	8.46	20.00	AVRG
Bromobenzene	0.9320000	0.8579904	0.8579904	0.1	7.94	20.00	AVRG
Bromochloromethane	47.871822	50.000000	0.2556989	0.1	4.26	20.00	LINR
Bromodichloromethane	0.4190000	0.3957337	0.3957337	0.2	5.55	20.00	AVRG
Bromoform	0.2920000	0.2927301	0.2927301	0.1	-0.25	20.00	AVRG
Bromomethane	45.719669	50.000000	0.4096043	0.1	8.56	20.00	LINR
Carbon Disulfide	1.1270000	1.0227727	1.0227727	0.1	9.25	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 0935

Lab File ID: X051602 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3819759	0.3819759	0.1	17.32	20.00	AVRG
Chlorobenzene	0.9970000	0.9347003	0.9347003	0.5	6.25	20.00	AVRG
Chloroethane	0.2850000	0.2458583	0.2458583	0.1	13.73	20.00	AVRG
Chloroform	0.7550000	0.6970405	0.6970405	0.2	7.68	20.00	AVRG
Chloromethane	51.608325	50.000000	0.5260590	0.1	-3.22	20.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4490097	0.4490097	0.1	7.80	20.00	AVRG
Dibromochloromethane	0.4020000	0.3827866	0.3827866	0.1	4.78	20.00	AVRG
Dichlorodifluoromethane	43.384473	50.000000	0.3797972	0.1	13.23	20.00	2RDR
Ethylbenzene	0.5160000	0.4704786	0.4704786	0.1	8.82	20.00	AVRG
Hexachlorobutadiene	0.4390000	0.3753205	0.3753205	0.1	14.50	20.00	AVRG
Isopropylbenzene	1.5310000	1.3230626	1.3230626	0.1	13.58	20.00	AVRG
m,p-Xylenes	0.6210000	0.5702722	0.5702722	0.1	8.17	20.00	AVRG
Methylene Chloride	47.905720	50.000000	0.4018687	0.1	4.19	20.00	LINR
n-Butylbenzene	1.9430000	1.6252058	1.6252058	0.5	16.36	20.00	AVRG
n-Propylbenzene	3.0720000	2.6083614	2.6083614	0.1	15.09	20.00	AVRG
Naphthalene	1.0440000	0.9872667	0.9872667	0.2	5.43	20.00	AVRG
o-Xylene	0.6080000	0.5615349	0.5615349	0.3	7.64	20.00	AVRG
sec-Butylbenzene	2.6720000	2.1522017	2.1522017	0.1	19.45	20.00	AVRG
Vinyl Chloride	0.4570000	0.3980669	0.3980669	0.1	12.90	20.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7380920	0.7380920	0.1	5.25	20.00	AVRG
p-Isopropyltoluene	2.4530000	2.0689021	2.0689021	0.1	15.66	20.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1059911	0.1059911	0.05	2.76	20.00	AVRG
Freon TF	41.890258	50.000000	0.3199466	0.1	16.22	20.00	2RDR
4-Bromofluorobenzene	51.948367	50.000000	0.4366057	0.1	-3.90	20.00	LINR
Dibromofluoromethane	50.746921	50.000000	0.4371162	0.1	-1.49	20.00	LINR
Toluene-d8	50.005633	50.000000	1.2177353	0.1	-0.01	20.00	LINR
1,2-Dichloroethane-d4	49.599833	50.000000	0.4348701	0.1	0.80	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 2053

Lab File ID: X051630 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4605326	0.4605326	0.2	7.52	50.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4136979	0.4136979	0.1	4.90	50.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3446050	1.3446050	0.6	12.57	50.00	AVRG
2,2-Dichloropropane	0.6240000	0.4816399	0.4816399	0.1	22.81	50.00	AVRG
1,1-Dichloropropene	0.4160000	0.3309260	0.3309260	0.1	20.45	50.00	AVRG
Dibromomethane	0.2100000	0.1979636	0.1979636	0.1	5.73	50.00	AVRG
1,2-Dibromoethane	0.3500000	0.3307629	0.3307629	0.1	5.50	50.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3667918	0.3667918	0.1	10.10	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3493073	0.3493073	0.1	10.43	50.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5522392	0.5522392	0.1	16.58	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6532488	0.6532488	0.3	4.08	50.00	AVRG
Toluene	1.4650000	1.2805863	1.2805863	0.4	12.59	50.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2400888	0.2400888	0.1	6.22	50.00	AVRG
1,1-Dichloroethane	0.7050000	0.6392733	0.6392733	0.2	9.32	50.00	AVRG
1,1-Dichloroethene	0.3900000	0.3238314	0.3238314	0.1	16.97	50.00	AVRG
Trichlorofluoromethane	0.7430000	0.5616322	0.5616322	0.1	24.41	50.00	AVRG
1,2,3-Trichlorobenzene	50.139241	50.000000	0.4274462	0.1	-0.28	50.00	2RDR
Tetrachloroethene	0.3680000	0.2942037	0.2942037	0.2	20.05	50.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.6917146	0.6917146	0.2	6.14	50.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.0428412	2.0428412	0.1	14.20	50.00	AVRG
tert-Butylbenzene	1.9660000	1.5743460	1.5743460	0.1	19.92	50.00	AVRG
Trichloroethene	0.3870000	0.3392907	0.3392907	0.2	12.33	50.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.2927593	1.2927593	0.4	10.41	50.00	AVRG
1,2-Dichloroethane	0.4210000	0.3740584	0.3740584	0.1	11.15	50.00	AVRG
1,2-Dichloropropane	0.2920000	0.2696089	0.2696089	0.1	7.67	50.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	1.9436783	1.9436783	0.1	14.41	50.00	AVRG
1,3-Dichloropropane	0.5160000	0.4811713	0.4811713	0.1	6.75	50.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.3490635	1.3490635	0.4	12.85	50.00	AVRG
2-Butanone	0.1190000	0.1257893	0.1257893	0.1	-5.70	50.00	AVRG
2-Chlorotoluene	1.8490000	1.5647820	1.5647820	0.1	15.37	50.00	AVRG
2-Hexanone	0.1740000	0.1703644	0.1703644	0.1	2.09	50.00	AVRG
4-Chlorotoluene	2.1420000	1.8529428	1.8529428	0.1	13.49	50.00	AVRG
Styrene	1.0620000	0.9619903	0.9619903	0.3	9.42	50.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2431524	0.2431524	0.1	3.89	50.00	AVRG
Acetone	95.035522	100.00000	0.1018777	0.1	4.96	50.00	LINR
Benzene	1.2070000	1.0838493	1.0838493	0.5	10.20	50.00	AVRG
Bromobenzene	0.9320000	0.8340291	0.8340291	0.1	10.51	50.00	AVRG
Bromochloromethane	47.588104	50.000000	0.2541852	0.1	4.82	50.00	LINR
Bromodichloromethane	0.4190000	0.3892719	0.3892719	0.2	7.10	50.00	AVRG
Bromoform	0.2920000	0.2947114	0.2947114	0.1	-0.93	50.00	AVRG
Bromomethane	44.566548	50.000000	0.3990203	0.1	10.87	50.00	LINR
Carbon Disulfide	1.1270000	0.9820155	0.9820155	0.1	12.86	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905037

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 2053

Lab File ID: X051630 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3477183	0.3477183	0.1	24.74	50.00	AVRG
Chlorobenzene	0.9970000	0.8978999	0.8978999	0.5	9.94	50.00	AVRG
Chloroethane	0.2850000	0.2428149	0.2428149	0.1	14.80	50.00	AVRG
Chloroform	0.7550000	0.6822218	0.6822218	0.2	9.64	50.00	AVRG
Chloromethane	48.903062	50.000000	0.4997462	0.1	2.19	50.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4385667	0.4385667	0.1	9.94	50.00	AVRG
Dibromochloromethane	0.4020000	0.3729853	0.3729853	0.1	7.22	50.00	AVRG
Dichlorodifluoromethane	38.362303	50.000000	0.3343615	0.1	23.28	50.00	2RDR
Ethylbenzene	0.5160000	0.4400106	0.4400106	0.1	14.73	50.00	AVRG
Hexachlorobutadiene	0.4390000	0.3225615	0.3225615	0.1	26.52	50.00	AVRG
Isopropylbenzene	1.5310000	1.2581036	1.2581036	0.1	17.82	50.00	AVRG
m,p-Xylenes	0.6210000	0.5333061	0.5333061	0.1	14.12	50.00	AVRG
Methylene Chloride	48.060800	50.000000	0.4031528	0.1	3.88	50.00	LINR
n-Butylbenzene	1.9430000	1.4941099	1.4941099	0.5	23.10	50.00	AVRG
n-Propylbenzene	3.0720000	2.4931046	2.4931046	0.1	18.84	50.00	AVRG
Naphthalene	1.0440000	1.0573314	1.0573314	0.2	-1.28	50.00	AVRG
o-Xylene	0.6080000	0.5396107	0.5396107	0.3	11.25	50.00	AVRG
sec-Butylbenzene	2.6720000	2.0631450	2.0631450	0.1	22.79	50.00	AVRG
Vinyl Chloride	0.4570000	0.3759563	0.3759563	0.1	17.73	50.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7576746	0.7576746	0.1	2.74	50.00	AVRG
p-Isopropyltoluene	2.4530000	1.9553054	1.9553054	0.1	20.29	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1138848	0.1138848	0.05	-4.48	50.00	AVRG
Freon TF	36.141071	50.000000	0.2742834	0.1	27.72	50.00	2RDR
4-Bromofluorobenzene	48.649068	50.000000	0.4091801	0.1	2.70	50.00	LINR
Dibromofluoromethane	47.793556	50.000000	0.4118601	0.1	4.41	50.00	LINR
Toluene-d8	47.319568	50.000000	1.1530663	0.1	5.36	50.00	LINR
1,2-Dichloroethane-d4	46.718511	50.000000	0.4096988	0.1	6.56	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID (Standard): X051602 Date Analyzed: 05/16/19

Instrument ID: VOA6 Time Analyzed: 0935

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

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	222330	9.67	392054	7.68	430446	4.97
	UPPER LIMIT	444660	10.17	784108	8.18	860892	5.47
	LOWER LIMIT	111165	9.17	196027	7.18	215223	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-190516	232199	9.67	404747	7.67	441300	4.97
02	VBLKW-190516	261223	9.67	485311	7.67	552726	4.97
03	HS19050374-0	269399	9.67	494705	7.67	559598	4.97
04	HS19050403-0	267138	9.67	486911	7.67	543822	4.97
05	HS19050403-0	268341	9.67	480662	7.67	533046	4.97
06	HS19050374-0	253322	9.67	469702	7.67	535981	4.97
07	HS19050374-0	246998	9.67	471834	7.67	552614	4.97
08	HS19050374-0	272279	9.67	488690	7.67	552885	4.97
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050374

Lab File ID (Standard): X051602 Date Analyzed: 05/16/19

Instrument ID: VOA6 Time Analyzed: 0935

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	325895	4.19				
	UPPER LIMIT	651790	4.69				
	LOWER LIMIT	162948	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-190516	339389	4.19				
02	VBLKW-190516	447265	4.19				
03	HS19050374-0	451099	4.19				
04	HS19050403-0	435585	4.19				
05	HS19050403-0	423339	4.19				
06	HS19050374-0	432898	4.19				
07	HS19050374-0	443779	4.19				
08	HS19050374-0	450619	4.19				
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\X190516.b\X051601.D

Date : 16-MAY-2019 09:11

Client ID: BFB

Instrument: voa6.i

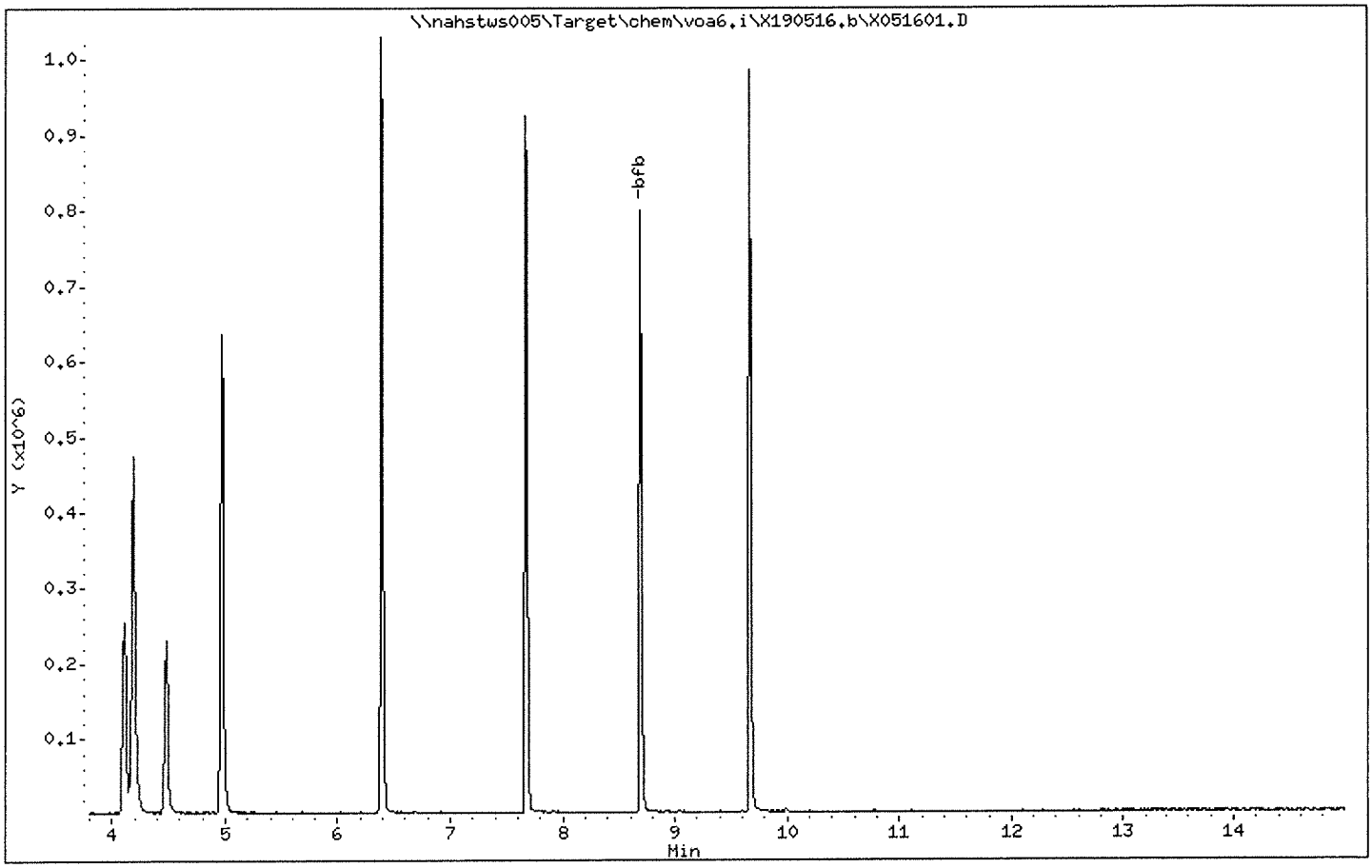
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051601.D

Date : 16-MAY-2019 09:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

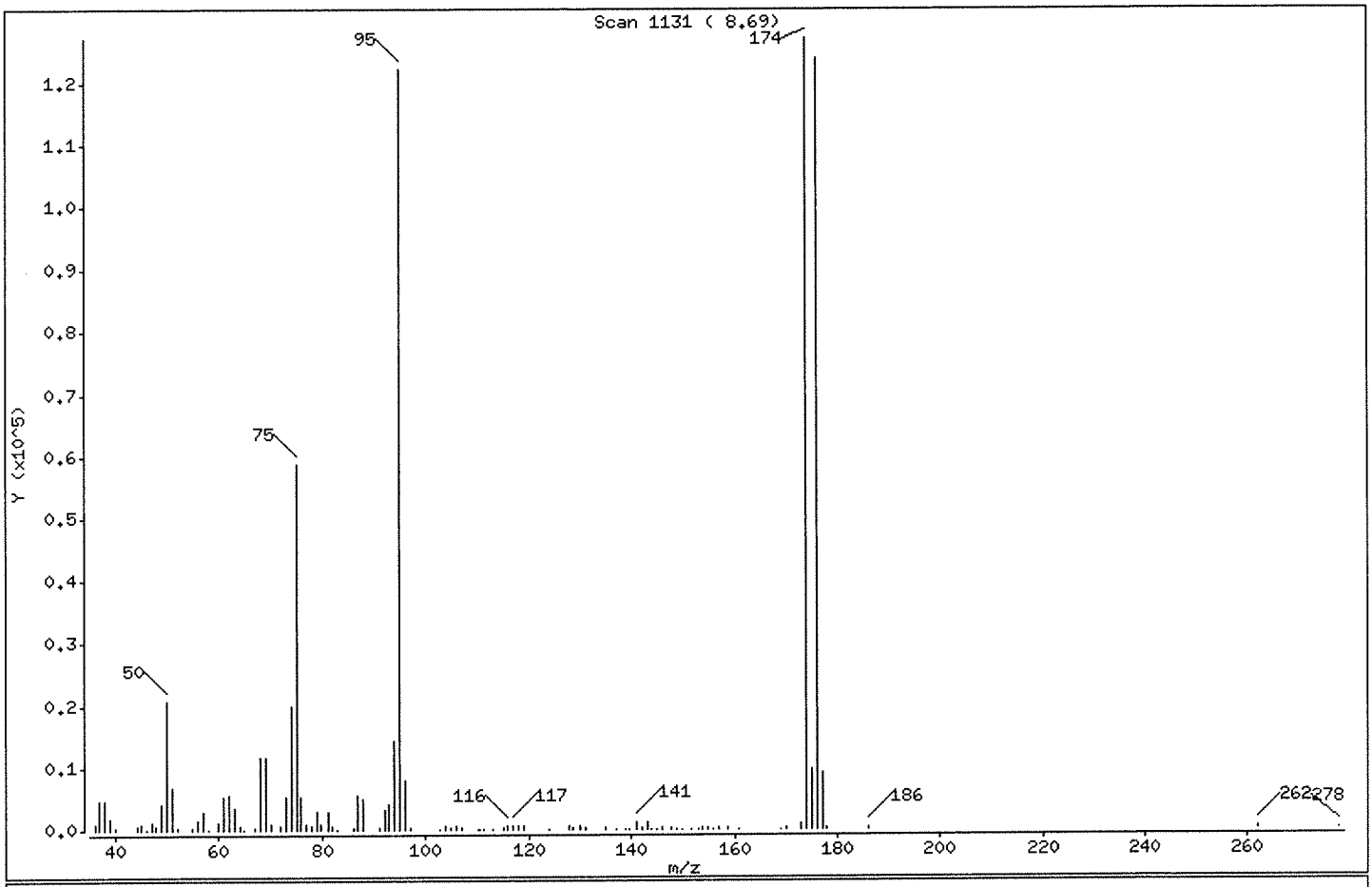
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.87
75	30.00 - 60.00% of mass 95	48.12
96	5.00 - 9.00% of mass 95	6.53
173	Less than 2.00% of mass 174	0.70 (0.67)
174	Greater than 50.00% of mass 95	103.96
175	5.00 - 9.00% of mass 174	7.83 (7.53)
176	95.00 - 101.00% of mass 174	101.24 (97.38)
177	5.00 - 9.00% of mass 176	7.50 (7.40)

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051601.D

Date : 16-MAY-2019 09:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X051601.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 174.00
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	965	69.00	11552	104.90	161	146.10	195
37.00	4753	70.00	971	106.00	543	147.80	280
38.10	4618	71.90	715	107.00	169	148.90	84
39.10	1864	73.10	5349	110.10	142	149.90	145
40.00	336	74.10	19752	110.60	55	151.80	107
44.20	613	75.10	58864	111.10	55	153.00	112
45.00	960	76.00	5401	112.90	94	153.90	155
46.00	63	77.00	843	115.00	229	154.90	359
47.00	1185	78.00	524	116.00	568	156.00	63
48.00	661	78.90	3047	116.90	701	156.80	315
49.00	4211	79.90	958	117.90	586	158.90	168
50.10	20632	81.00	3023	118.90	605	160.70	118
51.10	6622	81.90	561	123.90	80	169.00	65
52.10	300	83.10	69	127.90	568	170.20	153
54.90	291	86.00	202	128.80	252	173.00	857
56.00	1583	87.00	5437	130.00	468	174.00	127168
57.10	2794	88.00	5108	131.00	246	175.00	9582
58.20	109	90.90	413	135.10	216	176.00	123840
60.00	1296	92.00	3344	137.00	141	177.00	9170
61.10	5294	93.00	4094	138.80	87	177.90	207
62.00	5502	94.00	14184	139.60	80	186.20	371
63.00	3573	95.00	122320	140.90	1311	262.10	175
64.00	440	96.10	7984	142.00	161	278.20	104
65.00	130	97.10	353	143.00	1152		
67.00	263	102.90	104	144.00	87		
68.00	11564	104.00	482	144.80	126		

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Report Date: 06-Jun-2019 13:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 16-MAY-2019 09:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:36 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

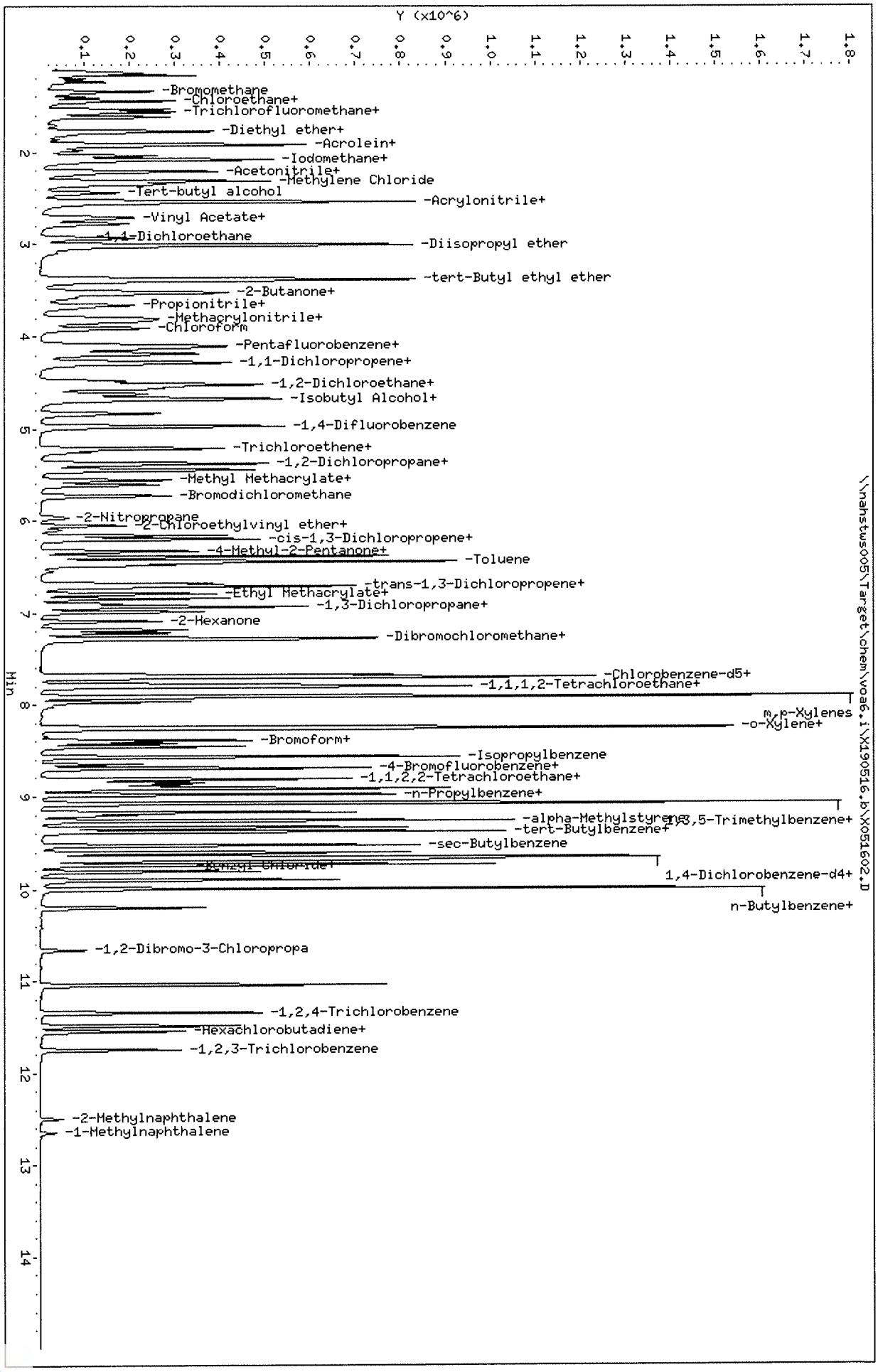
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	325895	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	430446	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	392054	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	222330	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	141722	50.0000	49.59
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	171173	50.0000	51.94
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	142454	50.0000	50.74
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	477418	50.0000	50.00
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	141645	50.0000	46.30
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	189085	50.0000	43.81
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	140113	50.0000	46.25
138 Freon TF	101	1.919	1.919	(0.458)	104269	50.0000	41.89
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	94845	50.0000	47.23
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	213278	50.0000	46.43
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	112008	50.0000	43.97
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	153146	50.0000	42.77
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	89607	50.0000	47.43
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	164100	50.0000	47.37
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	153379	50.0000	46.78
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	464043	50.0000	43.82
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	23565	50.0000	48.52
57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	130838	50.0000	47.66
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	291995	50.0000	45.49

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Report Date: 06-Jun-2019 13:40

	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)	162989	50.0000	44.96
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	118466	50.0000	47.12
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	448193	50.0000	44.37
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	307008	50.0000	44.89
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	190123	50.0000	46.93
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	313793	50.0000	45.58
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	182721	50.0000	44.90
24	2-Butanone	43	3.580	3.580	(0.855)	79036	100.000	101.73
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	360840	50.0000	43.88
52	2-Hexanone	43	7.090	7.090	(0.924)	128835	100.000	94.34
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	422060	50.0000	44.30
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	459979	50.0000	42.17
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	189894	100.000	95.52
10	Acetone	43	1.976	1.976	(0.472)	65843	100.000	94.21
37	Benzene	78	4.519	4.519	(0.909)	475567	50.0000	45.77
74	Bromobenzene	156	8.809	8.809	(0.911)	190757	50.0000	46.03
29	Bromochloromethane	128	3.802	3.802	(0.908)	83331	50.0000	47.87
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170342	50.0000	47.22
66	Bromoform	173	8.415	8.415	(1.096)	114766	50.0000	50.19
6	Bromomethane	94	1.338	1.338	(0.320)	133488	50.0000	45.71
19	Carbon Disulfide	76	2.076	2.076	(0.496)	666633	100.000	90.77
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	164420	50.0000	41.29
59	Chlorobenzene	112	7.699	7.699	(1.003)	366453	50.0000	46.85
7	Chloroethane	64	1.403	1.403	(0.335)	80124	50.0000	43.07
28	Chloroform	83	3.917	3.917	(0.935)	227162	50.0000	46.12
3	Chloromethane	50	1.081	1.081	(0.258)	171440	50.0000	51.60
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	146330	50.0000	46.09
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	206646	50.0000	48.22
55	Dibromochloromethane	129	7.183	7.183	(0.936)	150073	50.0000	47.63
44	Dibromomethane	93	5.557	5.557	(1.118)	86179	50.0000	47.59
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	123774	50.0000	43.38
61	Ethylbenzene	106	7.807	7.807	(1.017)	184453	50.0000	45.62
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	83445	50.0000	42.74
67	Isopropylbenzene	105	8.566	8.566	(1.116)	518712	50.0000	43.20
62	m,p-Xylenes	106	7.907	7.907	(1.030)	447155	100.000	91.83
17	Methylene Chloride	84	2.313	2.313	(0.552)	130967	50.0000	47.90
87	n-Butylbenzene	91	9.998	9.998	(1.034)	361332	50.0000	41.81
73	n-Propylbenzene	91	8.917	8.917	(0.922)	579917	50.0000	42.45
92	Naphthalene	128	11.546	11.546	(1.194)	219499	50.0000	47.26
63	o-Xylene	106	8.244	8.244	(1.074)	220152	50.0000	46.21
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	478499	50.0000	40.27
64	Styrene	104	8.265	8.265	(1.076)	392767	50.0000	47.16
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	360212	50.0000	41.21
56	Tetrachloroethene	164	6.933	6.933	(0.903)	126295	50.0000	43.81
50	Toluene	91	6.453	6.453	(0.840)	530890	50.0000	46.19
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	123550	50.0000	46.39
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	183446	50.0000	48.99
38	Trichloroethene	130	5.214	5.214	(1.049)	151057	50.0000	45.32
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	200702	50.0000	41.46
5	Vinyl Chloride	62	1.145	1.145	(0.273)	129728	50.0000	43.55



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Date : 16-MAY-2019 09:35
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Report Date: 06-Jun-2019 13:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Lab Smp Id: VLCSW-190516 Client Smp ID: VLCSW-190516
Inj Date : 16-MAY-2019 10:23
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-190516;VLCSW-190516;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:36 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

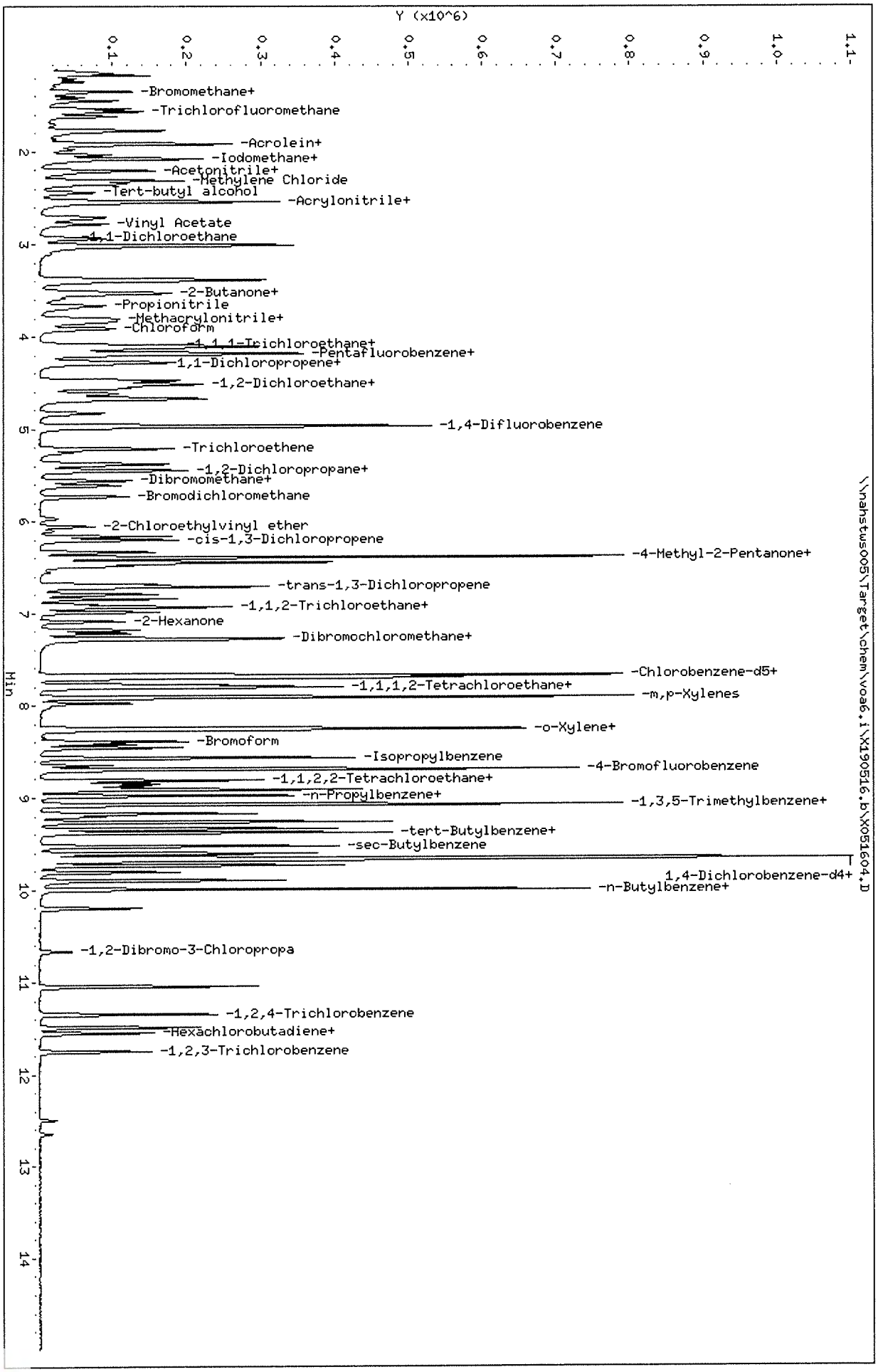
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	339389	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	441300	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	404747	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	232199	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	142059	47.7343	47.73
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	174506	51.2918	51.29
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	140416	48.0124	48.01
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	482815	48.9733	48.97
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	61049	19.3335	19.33
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	81132	18.0544	18.05
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	62713	19.8218	19.82
138 Freon TF	101	1.919	1.919	(0.458)	44629	17.9262	17.92
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	42506	20.5034	20.50
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	90339	18.8854	18.88
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	47920	18.0675	18.06
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	64753	17.6424	17.64
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	44564	23.4776	23.47
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	72656	20.0822	20.08
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	74233	21.6822	21.68
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	217912	19.7052	19.70
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	10629	20.9577	20.95
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	57221	20.1909	20.19
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	132011	19.6932	19.69

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Report Date: 06-Jun-2019 13:40

	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)	71754	19.3078	19.30
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	52117	20.2238	20.22
75	1,3,5-Trimethylbenzene	105	9.067	9.074	(0.938)	206102	19.5399	19.53
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	140960	19.7383	19.73
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	83502	19.9660	19.96
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	142185	19.7770	19.77
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	78987	18.6408	18.64
24	2-Butanone	43	3.588	3.580	(0.856)	33388	41.2673	41.26
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	164103	19.1096	19.10
52	2-Hexanone	43	7.090	7.090	(0.924)	56845	40.3206	40.32
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	190813	19.1777	19.17
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	218709	19.1995	19.19
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	83169	40.5260	40.52
10	Acetone	43	1.976	1.976	(0.472)	30613	41.0867	41.08
37	Benzene	78	4.519	4.519	(0.909)	208233	19.5489	19.54
74	Bromobenzene	156	8.809	8.809	(0.911)	83985	19.4079	19.40
29	Bromochloromethane	128	3.803	3.802	(0.908)	36776	20.2566	20.25
39	Bromodichloromethane	83	5.729	5.729	(1.153)	72952	19.7264	19.72
66	Bromoform	173	8.416	8.415	(1.097)	49186	20.8380	20.83
6	Bromomethane	94	1.346	1.338	(0.321)	62204	21.0620	21.06
19	Carbon Disulfide	76	2.076	2.076	(0.496)	288216	37.6857	37.68
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	71084	17.4156	17.41
59	Chlorobenzene	112	7.699	7.699	(1.004)	162370	20.1118	20.11
7	Chloroethane	64	1.403	1.403	(0.335)	33807	17.4519	17.45
28	Chloroform	83	3.917	3.917	(0.935)	97726	19.0524	19.05
3	Chloromethane	50	1.081	1.081	(0.258)	70781	18.9652	18.96
27	cis-1,2-Dichloroethene	96	3.530	3.537	(0.843)	62548	18.9214	18.92
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	87909	20.0117	20.01
55	Dibromochloromethane	129	7.183	7.183	(0.937)	64021	19.6849	19.68
44	Dibromomethane	93	5.557	5.557	(1.118)	36822	19.8376	19.83
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	52468	18.2277	18.22
61	Ethylbenzene	106	7.807	7.807	(1.018)	81209	19.4589	19.45
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	41261	20.2390	20.23
67	Isopropylbenzene	105	8.566	8.566	(1.117)	239459	19.3201	19.32
62	m,p-Xylenes	106	7.907	7.907	(1.031)	197783	39.3468	39.34
17	Methylene Chloride	84	2.313	2.313	(0.552)	56321	19.4134	19.41
87	n-Butylbenzene	91	9.999	9.998	(1.034)	174955	19.3864	19.38
73	n-Propylbenzene	91	8.917	8.917	(0.922)	270338	18.9501	18.95
92	Naphthalene	128	11.546	11.546	(1.194)	103382	21.3134	21.31
63	o-Xylene	106	8.244	8.244	(1.075)	97965	19.9206	19.92
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	229504	18.4969	18.49
64	Styrene	104	8.265	8.265	(1.078)	173087	20.1331	20.13
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	172204	18.8650	18.86
56	Tetrachloroethene	164	6.933	6.933	(0.904)	56019	18.8255	18.82
50	Toluene	91	6.453	6.453	(0.841)	231348	19.5003	19.50
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52150	18.8031	18.80
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	78484	20.4471	20.44
38	Trichloroethene	130	5.214	5.214	(1.049)	66100	19.3439	19.34
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	86407	17.1408	17.14
5	Vinyl Chloride	62	1.145	1.145	(0.273)	55061	17.7509	17.75



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Date : 16-MAY-2019 10:23
Client ID: VLCSW-190516
Sample Info: VLCSW-190516;VLCSW-190516;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\X190516.b\X051606.D
Report Date: 06-Jun-2019 13:44

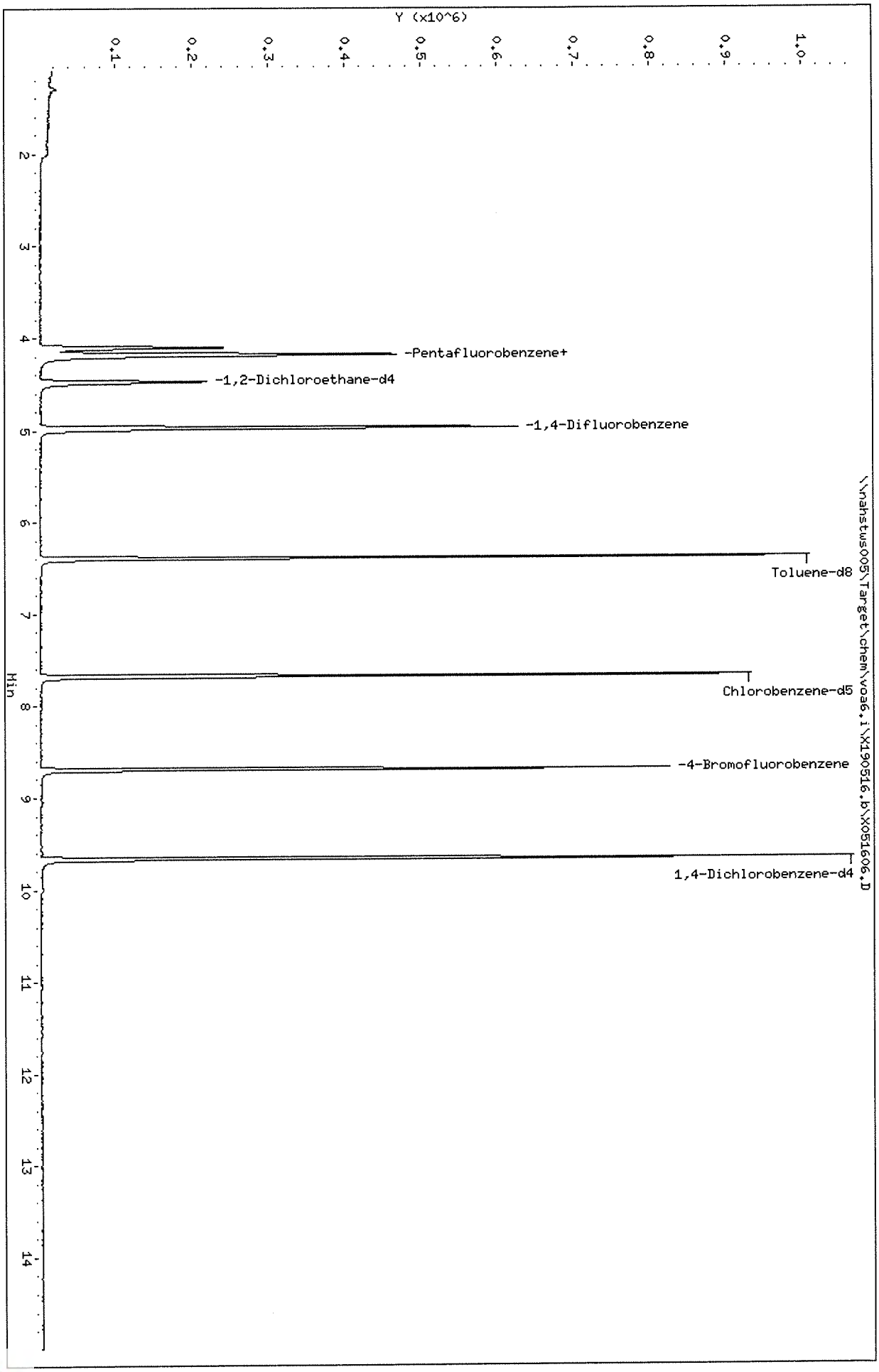
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D
Lab Smp Id: VBLKW-190516 Client Smp ID: VBLKW-190516
Inj Date : 16-MAY-2019 11:11
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-190516;VBLKW-190516;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	447265	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	552726	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.678	(1.000)	485311	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	261223	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	167659	42.7299	42.72
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	199119	48.7828	48.78
$ 30 Dibromofluoromethane	113	4.110	4.103	(0.981)	171267	44.4095	44.40
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	619416	52.4393	52.43


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D
Date : 16-MAY-2019 11:11
Client ID: VBLKW-190516
Sample Info: VBLKW-190516;VBLKW-190516;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051612.D
Report Date: 06-Jun-2019 13:44

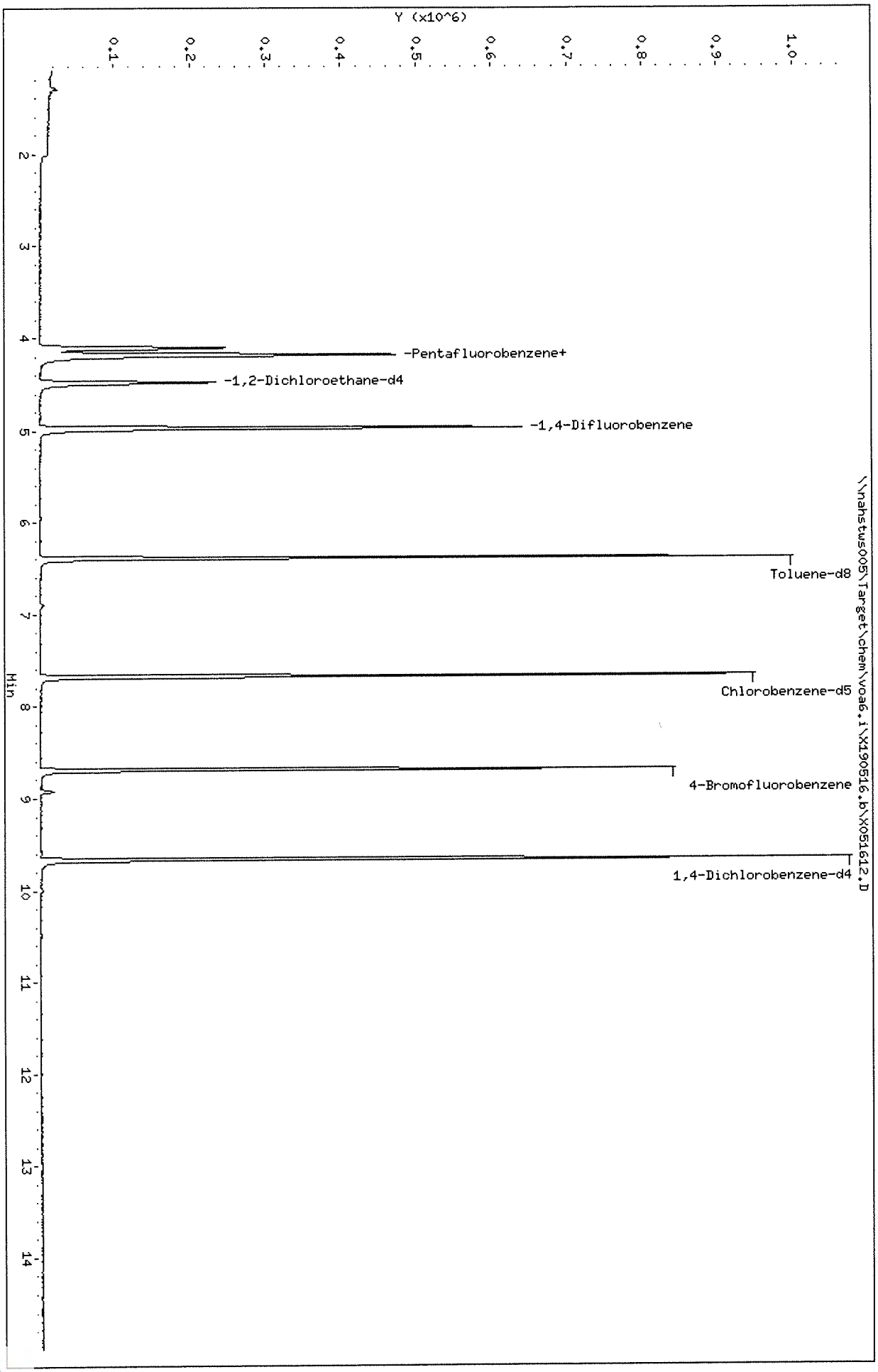
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051612.D
Lab Smp Id: HS19050374-07 Client Smp ID: HS19050374-07
Inj Date : 16-MAY-2019 13:36
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-07;HS19050374-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	451099	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	559598	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	494705	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	269399	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	171486	43.3363	43.33
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	207756	49.9458	49.94
$ 30 Dibromofluoromethane	113	4.104	4.103	(0.979)	170791	43.9055	43.90
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	621933	51.6440	51.64


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051612.D
Date : 16-MAY-2019 13:36
Client ID: HS19050374-07
Sample Info: HS19050374-07;HS19050374-07;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051612.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Report Date: 06-Jun-2019 13:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Lab Smp Id: HS19050403-05MS Client Smp ID: HS19050403-05MS
Inj Date : 16-MAY-2019 15:12
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-05MS;HS19050403-05MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:36 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 16 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

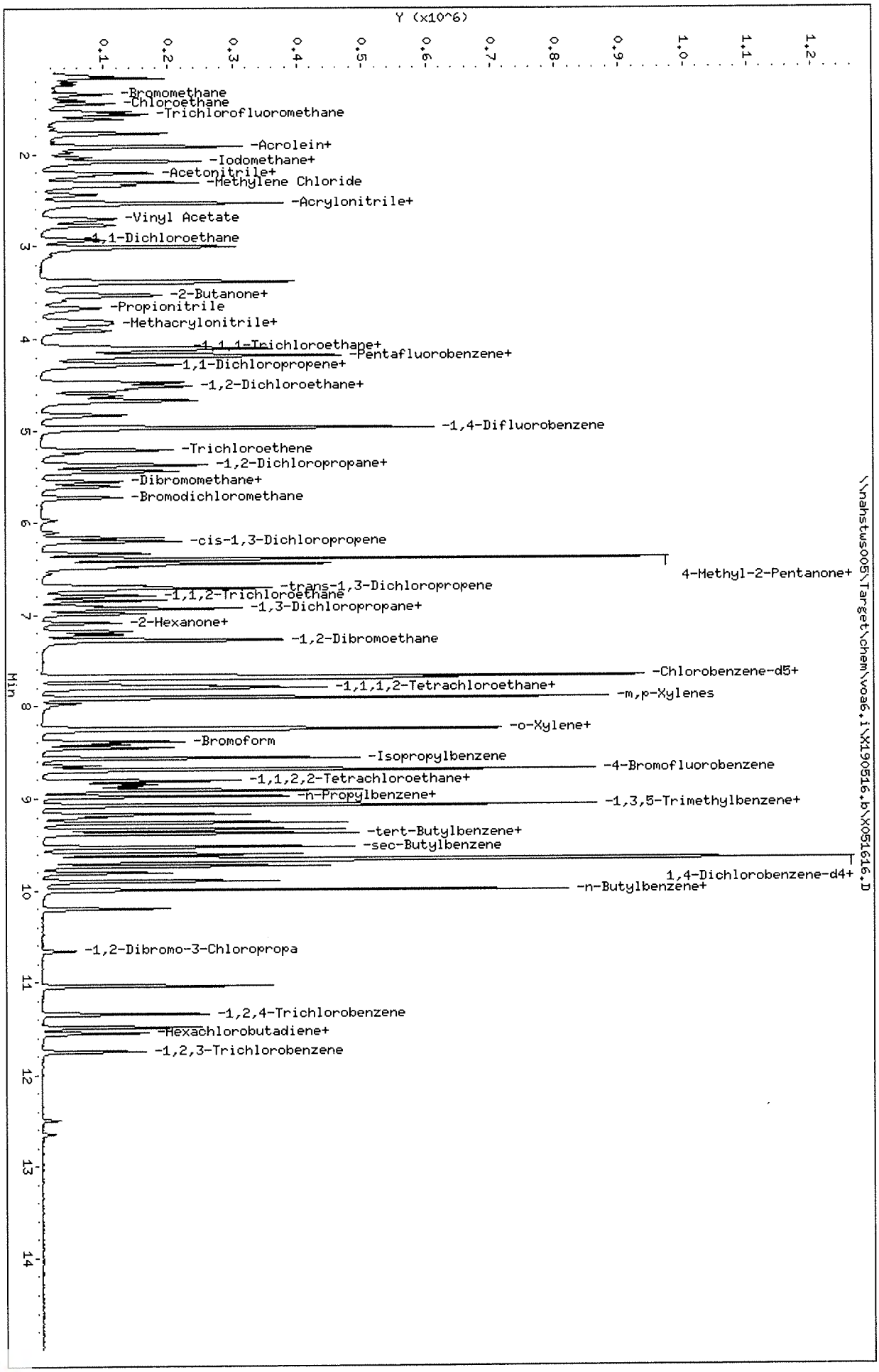
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	435585	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	543822	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	486911	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	267138	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	170160	44.5377	44.53
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	205555	50.2107	50.21
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	168598	44.8937	44.89
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	601942	50.7745	50.77
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	66023	17.3804	17.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	95079	16.4854	16.48
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	69129	18.9920	18.99
138 Freon TF	101	1.919	1.919	(0.458)	57071	17.8648	17.86
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	44291	17.7593	17.75
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	97801	15.9301	15.93
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	54832	16.1079	16.10
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	80389	17.7735	17.77
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	49207	22.5808	22.58
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	77053	18.5121	18.51
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	79945	20.2965	20.29
79 1,2,4-Trimethylbenzene	105	9.382	9.382	(0.970)	227153	17.8543	17.85
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	12917	22.1380	22.13
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	59718	17.5162	17.51
88 1,2-Dichlorobenzene	146	9.998	9.998	(1.034)	141734	18.3783	18.37

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Report Date: 06-Jun-2019 13:40

	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)	75028	16.3828	16.38
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	55455	17.4623	17.46
75	1,3,5-Trimethylbenzene	105	9.074	9.074	(0.939)	224450	18.4963	18.49
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	149193	18.1588	18.15
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	88243	17.5392	17.53
84	1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	149817	18.1131	18.11
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	87460	16.0821	16.08
24	2-Butanone	43	3.588	3.580	(0.856)	40272	38.7832	38.78
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	179838	18.2029	18.20
52	2-Hexanone	43	7.090	7.090	(0.924)	61546	36.2884	36.28
77	4-Chlorotoluene	91	9.074	9.074	(0.939)	205183	17.9248	17.92
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	254817	19.4436	19.44
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	89058	36.0727	36.07
10	Acetone	43	1.976	1.976	(0.472)	32500	33.6810	33.68
37	Benzene	78	4.519	4.519	(0.909)	221215	16.8525	16.85
74	Bromobenzene	156	8.809	8.809	(0.911)	85727	17.2195	17.21
29	Bromochloromethane	128	3.802	3.802	(0.908)	37455	16.0635	16.06
39	Bromodichloromethane	83	5.729	5.729	(1.153)	75291	16.5208	16.52
66	Bromoform	173	8.415	8.415	(1.097)	51611	18.1757	18.17
6	Bromomethane	94	1.338	1.338	(0.320)	51940	14.0848	14.08
19	Carbon Disulfide	76	2.069	2.076	(0.494)	329568	33.5759	33.57
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	83424	16.5857	16.58
59	Chlorobenzene	112	7.699	7.699	(1.004)	172748	17.7865	17.78
7	Chloroethane	64	1.403	1.403	(0.335)	38773	15.5951	15.59
28	Chloroform	83	3.917	3.917	(0.935)	103261	15.6856	15.68
3	Chloromethane	50	1.081	1.081	(0.258)	77216	15.7488	15.74
27	cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	66756	15.7346	15.73
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	95963	17.7269	17.72
55	Dibromochloromethane	129	7.183	7.183	(0.937)	67622	17.2835	17.28
44	Dibromomethane	93	5.557	5.557	(1.118)	38831	16.9761	16.97
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	52761	14.4325	14.43
61	Ethylbenzene	106	7.807	7.807	(1.018)	88822	17.6917	17.69
91	Hexachlorobutadiene	225	11.488	11.488	(1.188)	46886	19.9902	19.99
67	Isopropylbenzene	105	8.566	8.566	(1.117)	269024	18.0428	18.04
62	m,p-Xylenes	106	7.907	7.907	(1.031)	217881	36.0308	36.03
17	Methylene Chloride	84	2.305	2.313	(0.550)	60929	16.2650	16.26
87	n-Butylbenzene	91	9.998	9.998	(1.034)	199020	19.1687	19.16
73	n-Propylbenzene	91	8.917	8.917	(0.922)	315280	19.2099	19.20
92	Naphthalene	128	11.546	11.546	(1.194)	114633	20.5420	20.54
63	o-Xylene	106	8.244	8.244	(1.075)	107677	18.2007	18.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	281432	19.7154	19.71
64	Styrene	104	8.265	8.265	(1.078)	177958	17.2067	17.20
78	tert-Butylbenzene	119	9.339	9.339	(0.966)	201349	19.1729	19.17
56	Tetrachloroethene	164	6.933	6.933	(0.904)	65972	18.4291	18.42
50	Toluene	91	6.453	6.453	(0.841)	250260	17.5348	17.53
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	59149	16.6168	16.61
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	80068	16.9273	16.92
38	Trichloroethene	130	5.214	5.214	(1.049)	77389	18.3780	18.37
8	Trichlorofluoromethane	101	1.560	1.560	(0.373)	104652	16.1754	16.17
5	Vinyl Chloride	62	1.145	1.145	(0.273)	65783	16.5240	16.52



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Date : 16-MAY-2019 15:12
Client ID: HS19050403-05MS
Sample Info: HS19050403-05MS;HS19050403-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Report Date: 06-Jun-2019 13:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Lab Smp Id: HS19050403-05MSD Client Smp ID: HS19050403-05MSD
Inj Date : 16-MAY-2019 15:36
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-05MSD;HS19050403-05MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:36 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 16 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

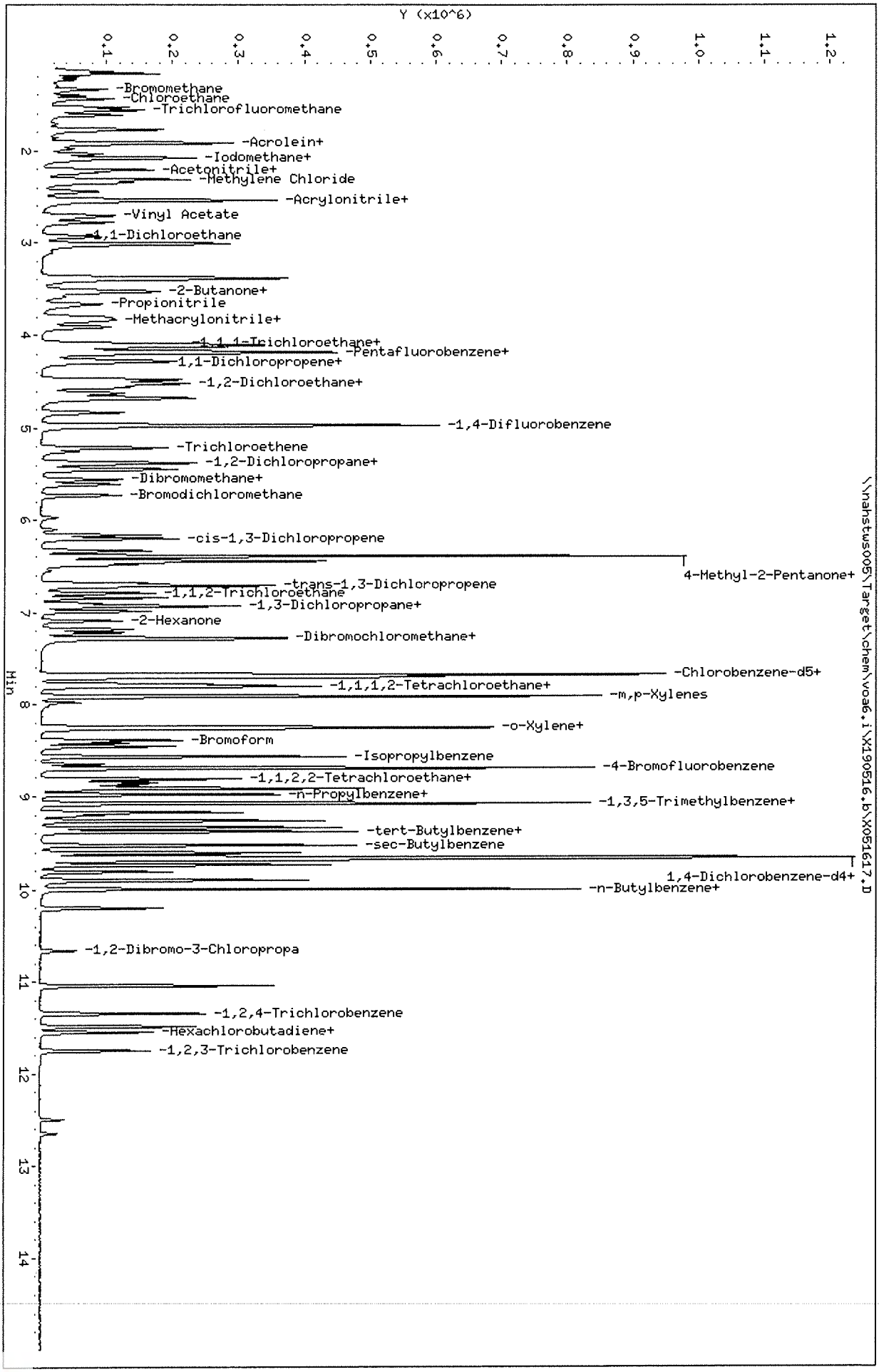
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	423339	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	533046	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	480662	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	268341	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	161854	43.5853	43.58
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	202749	50.1687	50.16
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	162745	44.5862	44.58
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	593257	50.6916	50.69
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	63901	17.0405	17.04
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	89771	16.0154	16.01
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	69417	18.9856	18.98
138 Freon TF	101	1.919	1.919	(0.458)	54411	17.5435	17.54
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	44031	17.8846	17.88
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	91396	15.3175	15.31
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	51217	15.4812	15.48
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	75801	17.0979	17.09
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	51389	23.4294	23.42
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75951	18.1655	18.16
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	80832	20.4297	20.42
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	220126	17.2244	17.22
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	12481	21.2948	21.29
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	58546	17.3957	17.39
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	138844	17.9228	17.92

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Report Date: 06-Jun-2019 13:40

	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)	72749	16.2063	16.20
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	50899	16.3517	16.35
75	1,3,5-Trimethylbenzene	105	9.075	9.074	(0.939)	214729	17.6159	17.61
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	145916	17.6804	17.68
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	85873	17.2900	17.28
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	147078	17.7022	17.70
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	80311	15.1948	15.19
24	2-Butanone	43	3.581	3.580	(0.855)	37042	36.7045	36.70
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	170318	17.1620	17.16
52	2-Hexanone	43	7.090	7.090	(0.924)	61737	36.8743	36.87
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	197282	17.1573	17.15
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	242821	18.4452	18.44
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	88181	36.1819	36.18
10	Acetone	43	1.976	1.976	(0.472)	31327	33.3900	33.39
37	Benzene	78	4.519	4.519	(0.909)	209038	16.2468	16.24
74	Bromobenzene	156	8.810	8.809	(0.911)	84211	16.8391	16.83
29	Bromochloromethane	128	3.803	3.802	(0.908)	34611	15.2706	15.27
39	Bromodichloromethane	83	5.729	5.729	(1.153)	72208	16.1646	16.16
66	Bromoform	173	8.416	8.415	(1.097)	50756	18.1070	18.10
6	Bromomethane	94	1.339	1.338	(0.320)	46162	12.9736	12.97
19	Carbon Disulfide	76	2.069	2.076	(0.494)	307920	32.2779	32.27
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	78600	15.9426	15.94
59	Chlorobenzene	112	7.699	7.699	(1.004)	166267	17.3418	17.34
7	Chloroethane	64	1.403	1.403	(0.335)	35624	14.7430	14.74
28	Chloroform	83	3.917	3.917	(0.935)	98230	15.3530	15.35
3	Chloromethane	50	1.081	1.081	(0.258)	69188	14.3263	14.32
27	cis-1,2-Dichloroethene	96	3.538	3.537	(0.844)	63181	15.3227	15.32
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	93586	17.6373	17.63
55	Dibromochloromethane	129	7.184	7.183	(0.937)	67628	17.5098	17.50
44	Dibromomethane	93	5.558	5.557	(1.118)	37680	16.8059	16.80
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	49154	13.8624	13.86
61	Ethylbenzene	106	7.807	7.807	(1.018)	84659	17.0817	17.08
91	Hexachlorobutadiene	225	11.489	11.488	(1.188)	46061	19.5505	19.55
67	Isopropylbenzene	105	8.566	8.566	(1.117)	256175	17.4044	17.40
62	m,p-Xylenes	106	7.907	7.907	(1.031)	211102	35.3636	35.36
17	Methylene Chloride	84	2.306	2.313	(0.550)	57201	15.6901	15.69
87	n-Butylbenzene	91	9.999	9.998	(1.034)	193762	18.5786	18.57
73	n-Propylbenzene	91	8.917	8.917	(0.922)	301087	18.2629	18.26
92	Naphthalene	128	11.546	11.546	(1.194)	117727	21.0019	21.00
63	o-Xylene	106	8.244	8.244	(1.075)	104031	17.8130	17.81
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	271572	18.9394	18.93
64	Styrene	104	8.265	8.265	(1.078)	173996	17.0423	17.04
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	197548	18.7266	18.72
56	Tetrachloroethene	164	6.933	6.933	(0.904)	62079	17.5671	17.56
50	Toluene	91	6.453	6.453	(0.841)	235736	16.7319	16.73
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	55332	15.9942	15.99
51	trans-1,3-Dichloropropene	75	6.689	6.689	(1.346)	79192	17.0806	17.08
38	Trichloroethene	130	5.214	5.214	(1.049)	71382	17.2942	17.29
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	98547	15.6724	15.67
5	Vinyl Chloride	62	1.145	1.145	(0.273)	60832	15.7224	15.72


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Propionitrile
-Methacrylonitrile+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-cis-1,3-Dichloropropene
4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Date : 16-MAY-2019 15:36
Client ID: HS19050403-05MSD
Sample Info: HS19050403-05MSD;HS19050403-05MSD;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\X190516.b\X051620.D
Report Date: 06-Jun-2019 13:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051620.D
Lab Smp Id: HS19050374-04 Client Smp ID: HS19050374-04
Inj Date : 16-MAY-2019 16:51
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-04;HS19050374-04;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 18
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

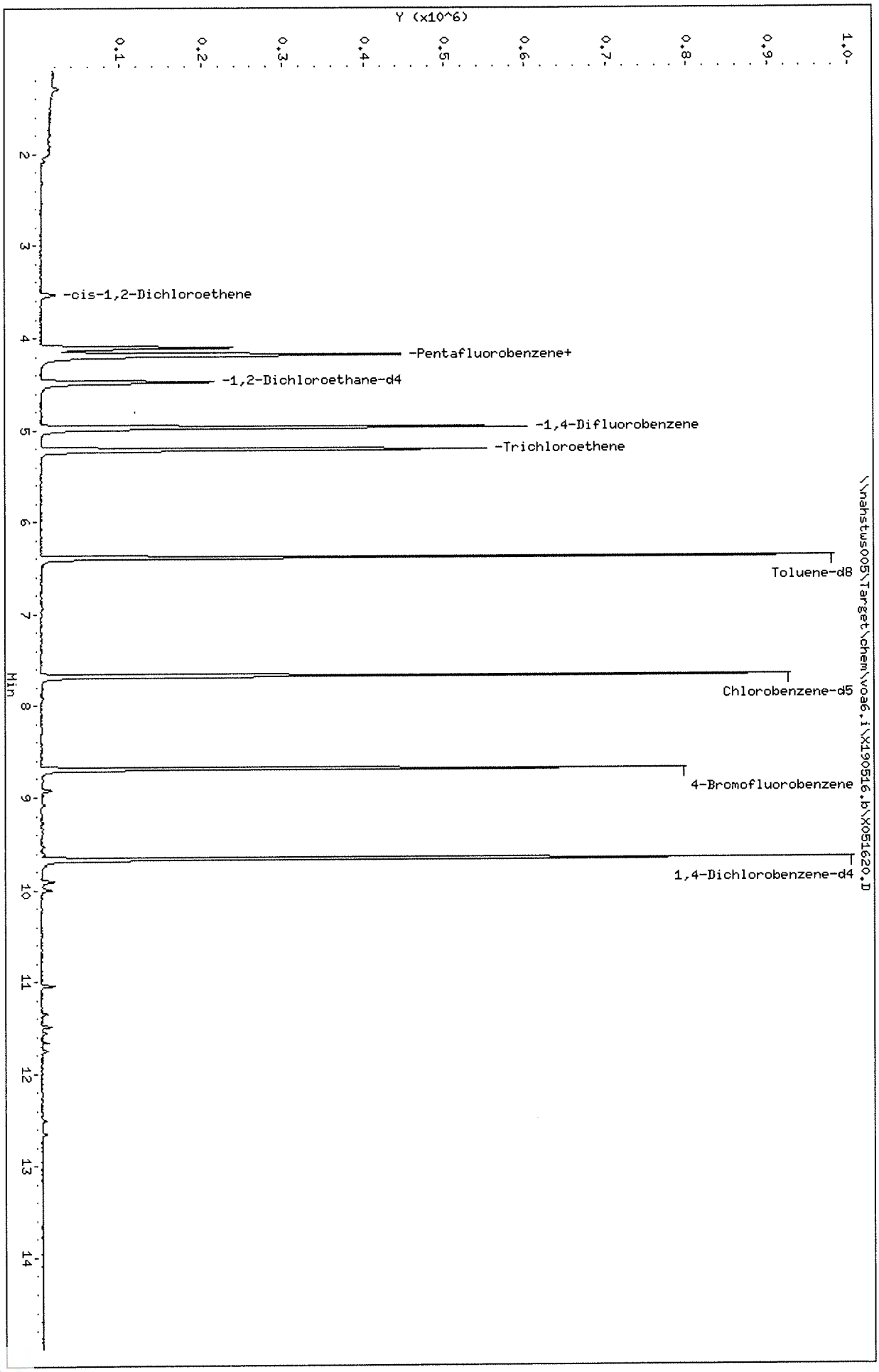
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	432898	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	535981	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	469702	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	253322	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	163277	42.9952	42.99
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	192759	48.7941	48.79
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	163626	43.8315	43.83
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	596402	52.1659	52.16
27 cis-1,2-Dichloroethene	96	3.538	3.537	(0.844)	10326	2.44898	12.24(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	204373	49.2437	246.21

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051620.D
Date : 16-MAY-2019 16:51
Client ID: HS19050374-04
Sample Info: HS19050374-04;HS19050374-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051620.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051620.D

Date : 16-MAY-2019 16:51

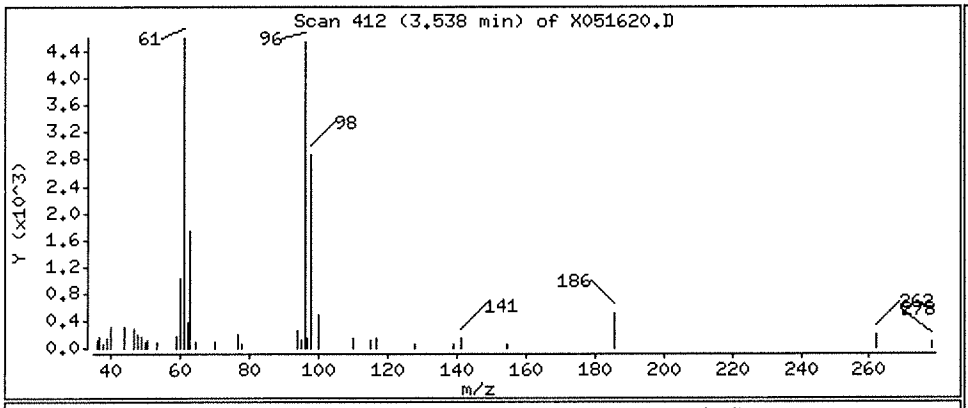
Client ID: HS19050374-04 Instrument: voa6.i

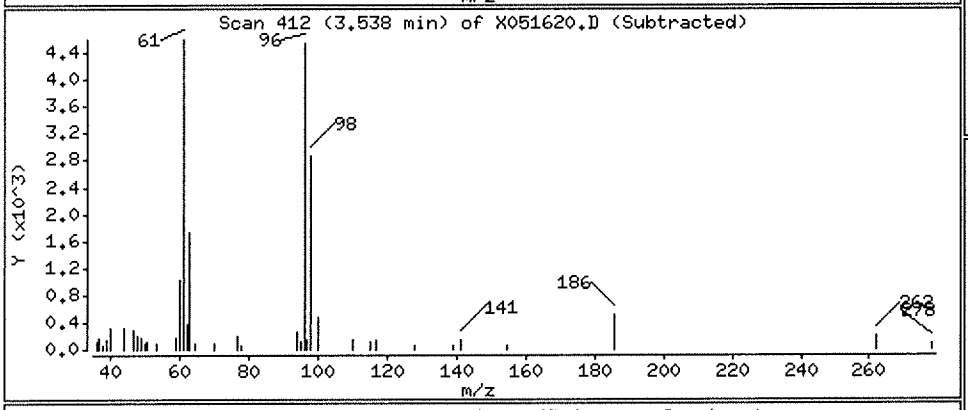
Sample Info: HS19050374-04;HS19050374-04;;;

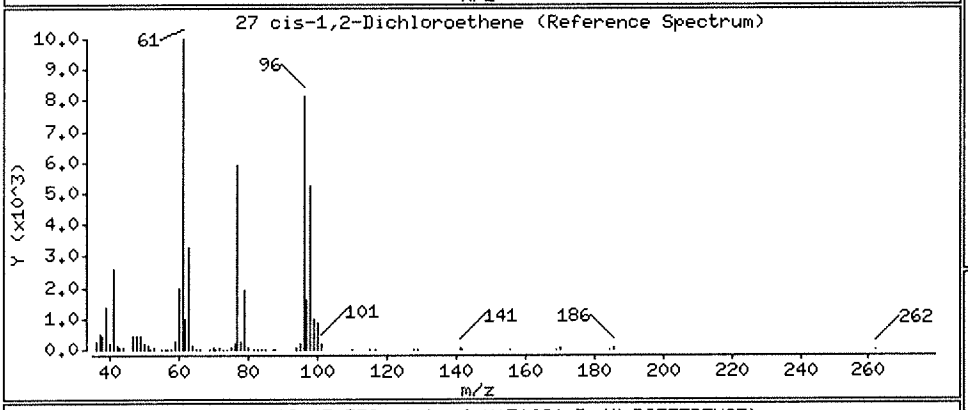
Purge Volume: 5.0 Operator: PC

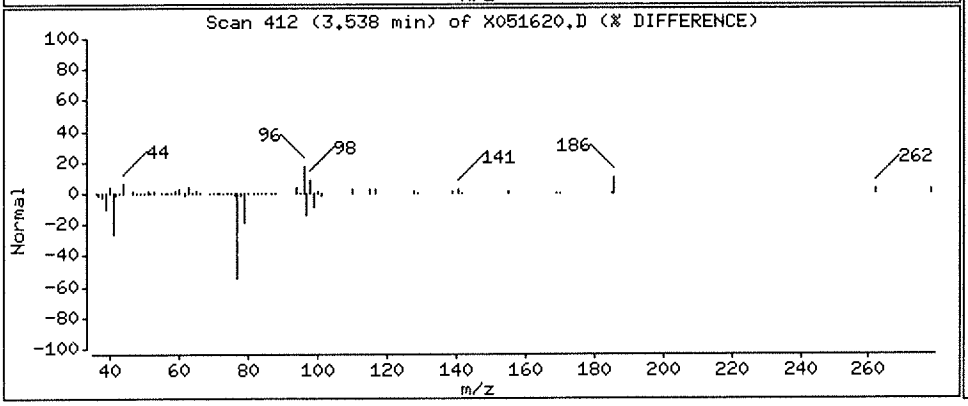
Column phase: DB624 Column diameter: 0.18

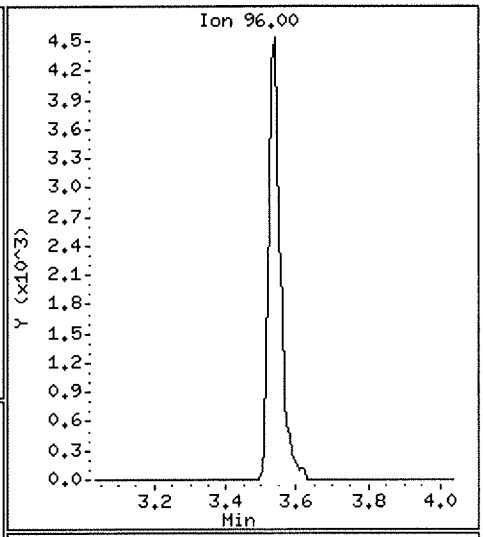
27 cis-1,2-Dichloroethene Concentration: 12.24 ug/l

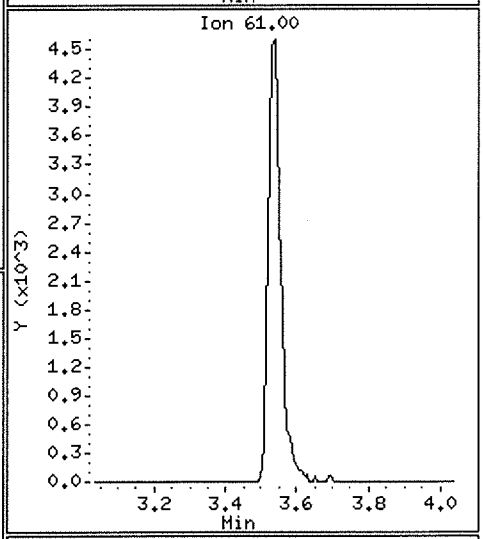


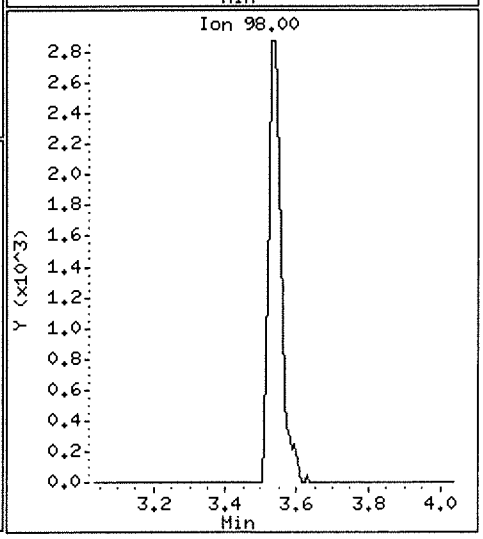












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051620.D

Date : 16-MAY-2019 16:51

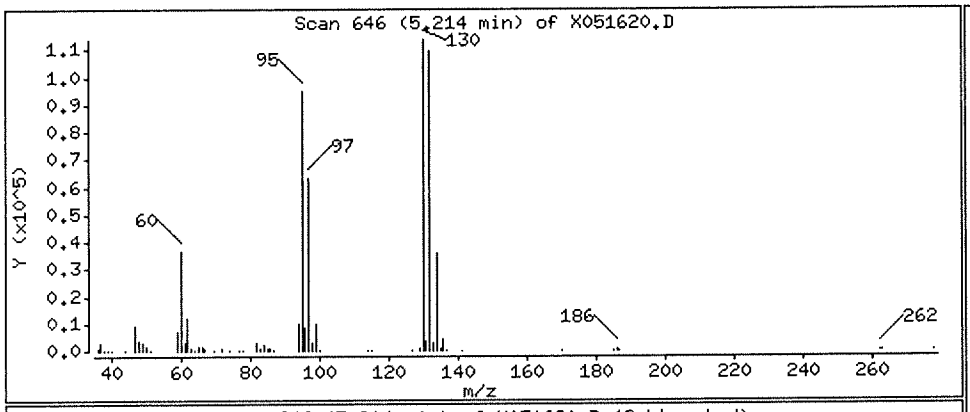
Client ID: HS19050374-04 Instrument: voa6.i

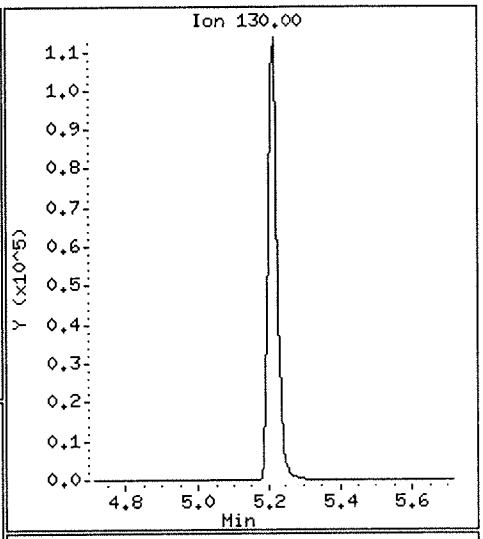
Sample Info: HS19050374-04;HS19050374-04;;;

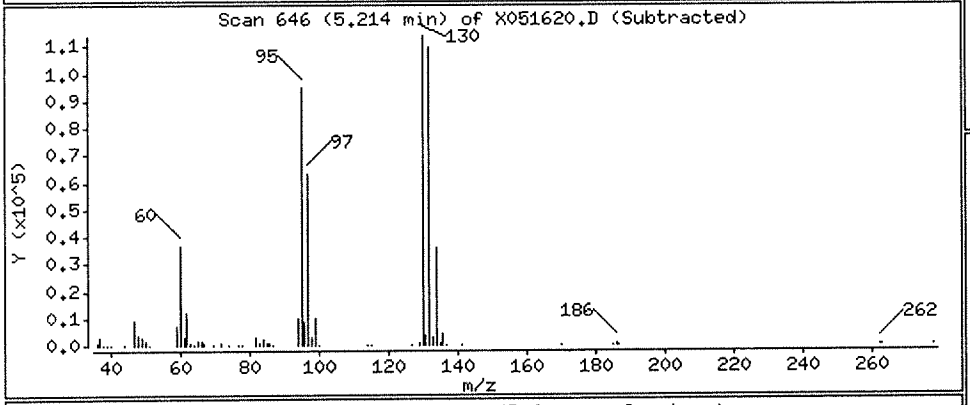
Purge Volume: 5.0 Operator: PC

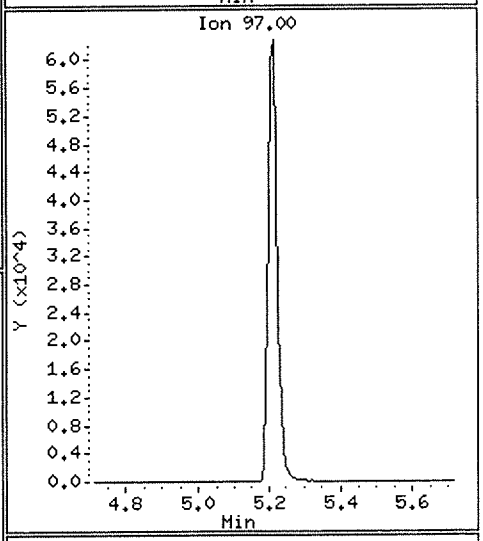
Column phase: DB624 Column diameter: 0.18

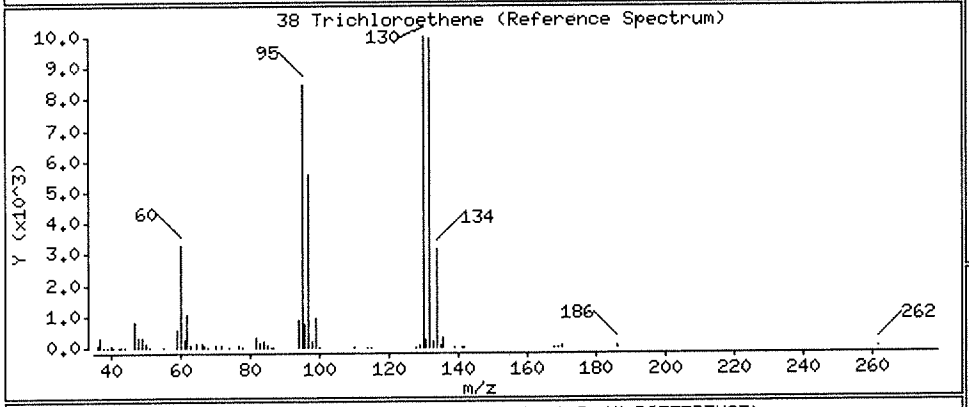
38 Trichloroethene Concentration: 246.21 ug/l

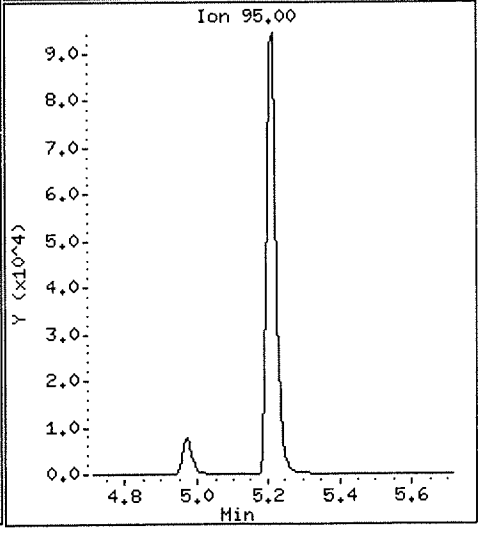


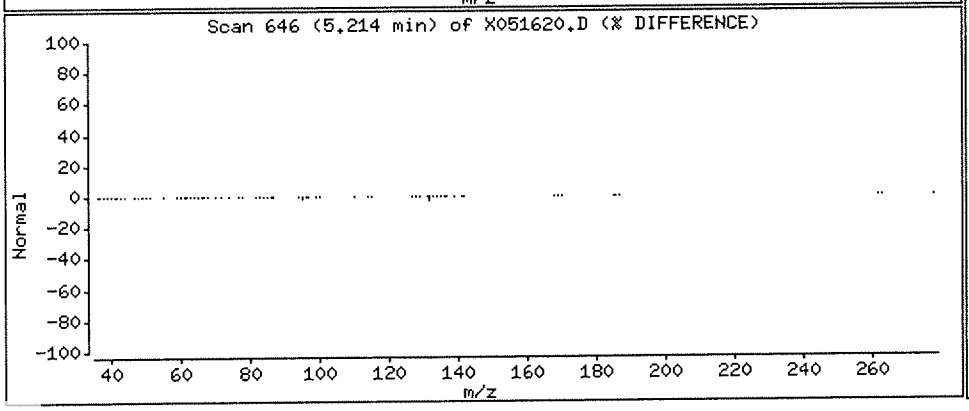












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D
Report Date: 06-Jun-2019 13:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D
Lab Smp Id: HS19050374-05 Client Smp ID: HS19050374-05
Inj Date : 16-MAY-2019 19:17
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-05;HS19050374-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

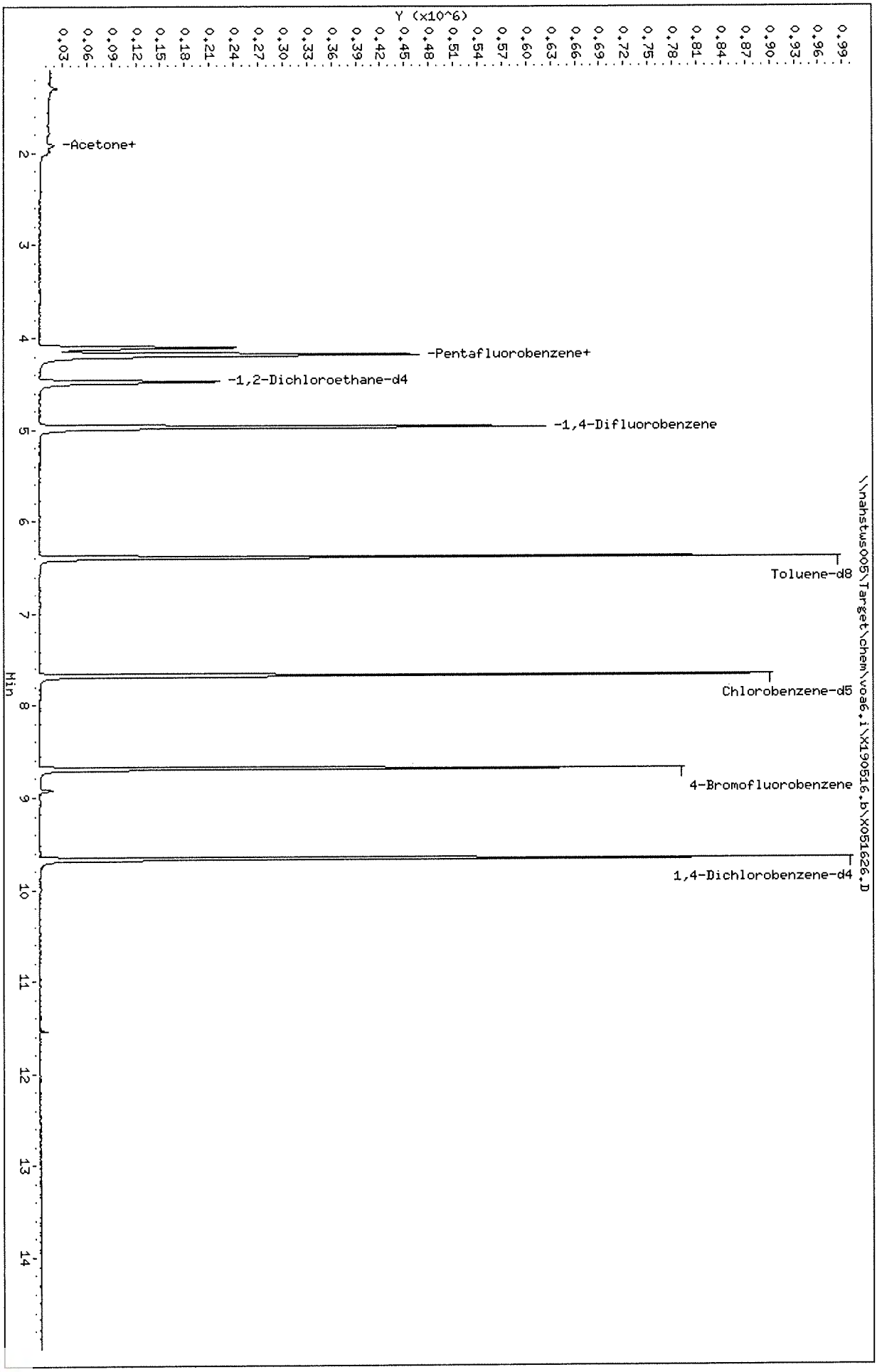
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	443779	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	552614	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	471834	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	246998	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	170748	43.8637	43.86
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	195079	49.1625	49.16
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	170440	44.5433	44.54
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	609307	53.0636	53.06
138 Freon TF	101	1.919	1.919	(0.458)	3448	1.85108	1.85(a)
10 Acetone	43	1.983	1.976	(0.473)	4657	3.21907	3.21(a)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D
Date : 16-MAY-2019 19:17
Client ID: HS19050374-05
Sample Info: HS19050374-05;HS19050374-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.99
0.96
0.93
0.90
0.87
0.84
0.81
0.78
0.75
0.72
0.69
0.66
0.63
0.60
0.57
0.54
0.51
0.48
0.45
0.42
0.39
0.36
0.33
0.30
0.27
0.24
0.21
0.18
0.15
0.12
0.09
0.06
0.03
-Acetone+
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D
Min
2
3
4
5
6
7
8
9
10
11
12
13
14

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D

Date : 16-MAY-2019 19:17

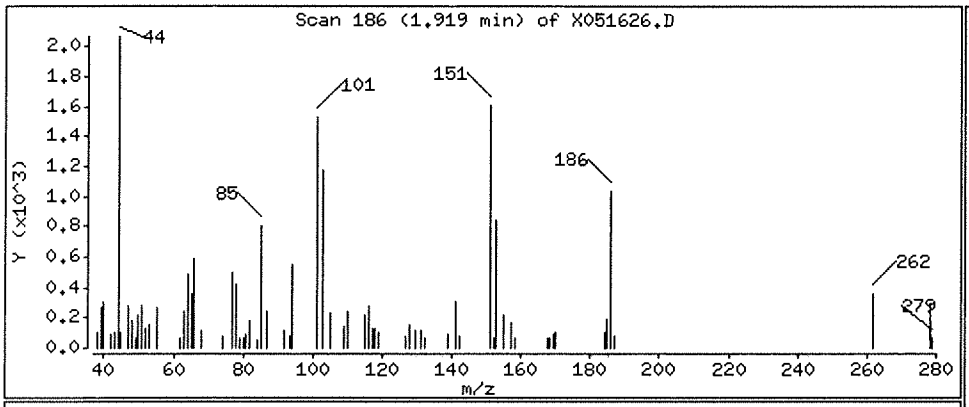
Client ID: HS19050374-05 Instrument: voa6.i

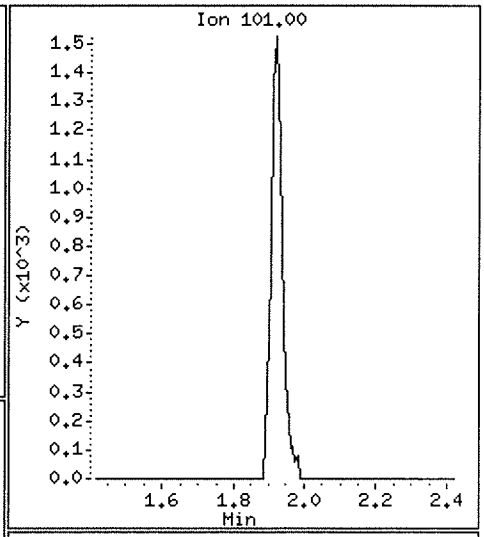
Sample Info: HS19050374-05;HS19050374-05;;;

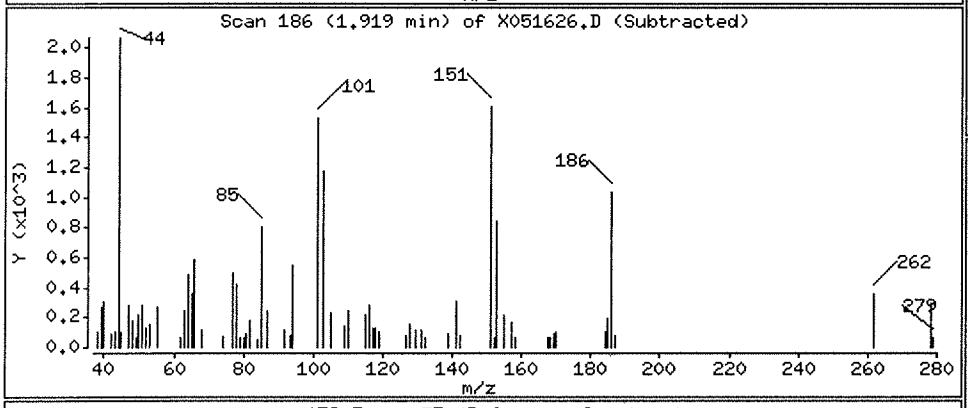
Purge Volume: 5.0 Operator: PC

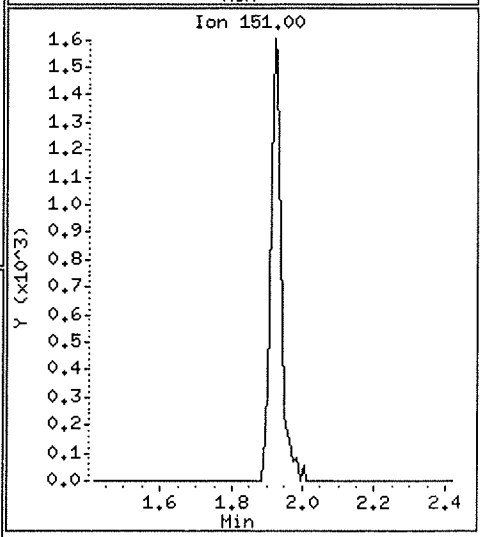
Column phase: DB624 Column diameter: 0.18

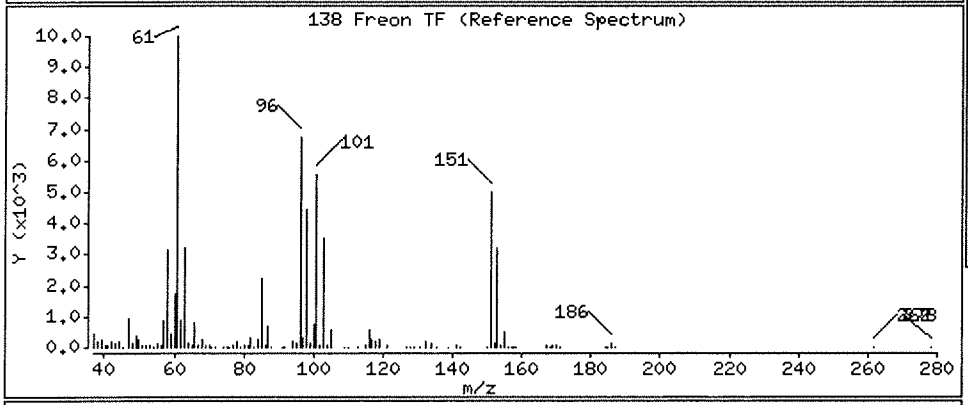
138 Freon TF Concentration: 1.85 ug/l

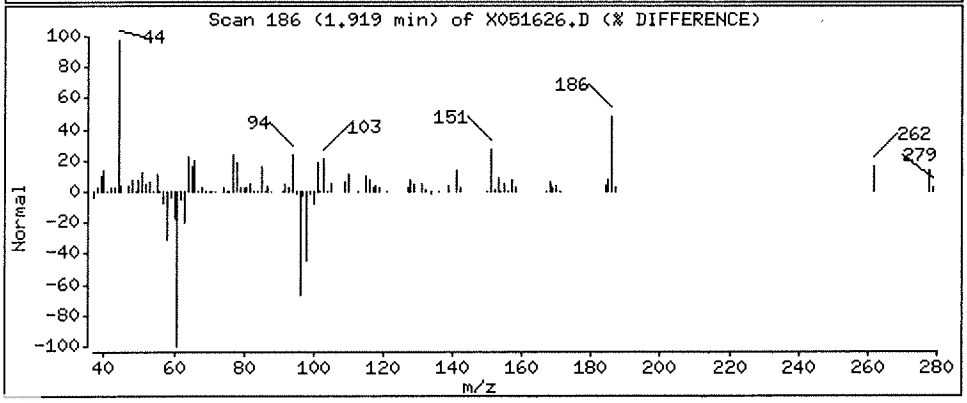












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051626.D

Date : 16-MAY-2019 19:17

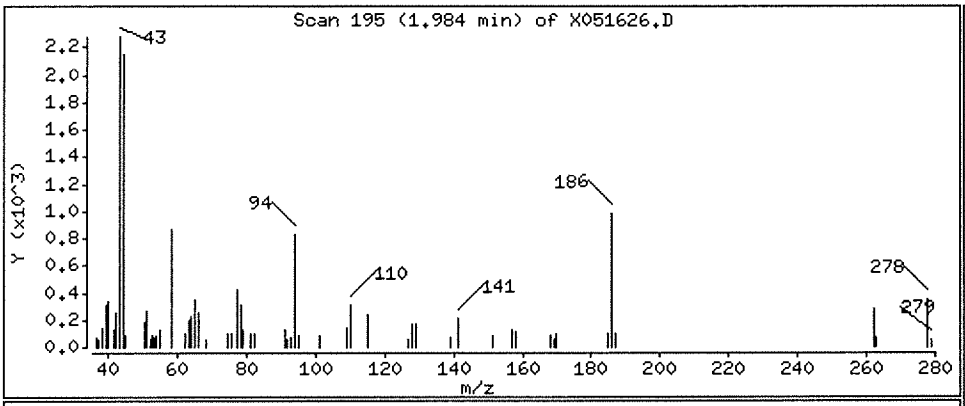
Client ID: HS19050374-05 Instrument: voa6.i

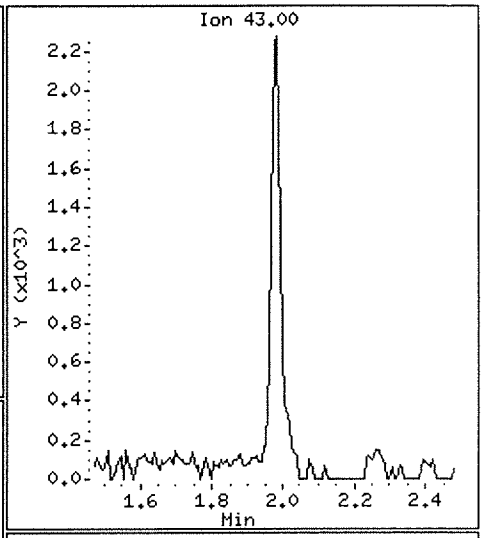
Sample Info: HS19050374-05;HS19050374-05;;;

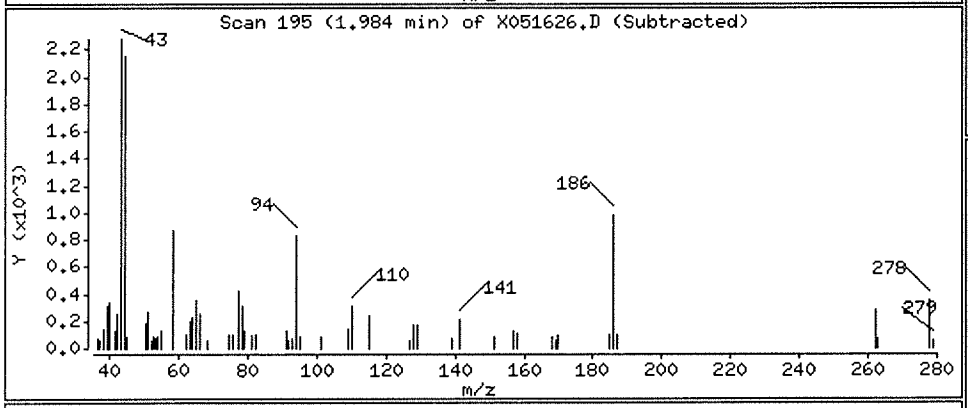
Purge Volume: 5.0 Operator: PC

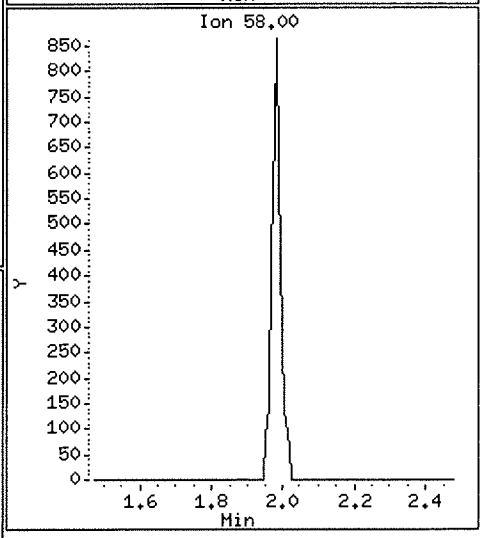
Column phase: DB624 Column diameter: 0.18

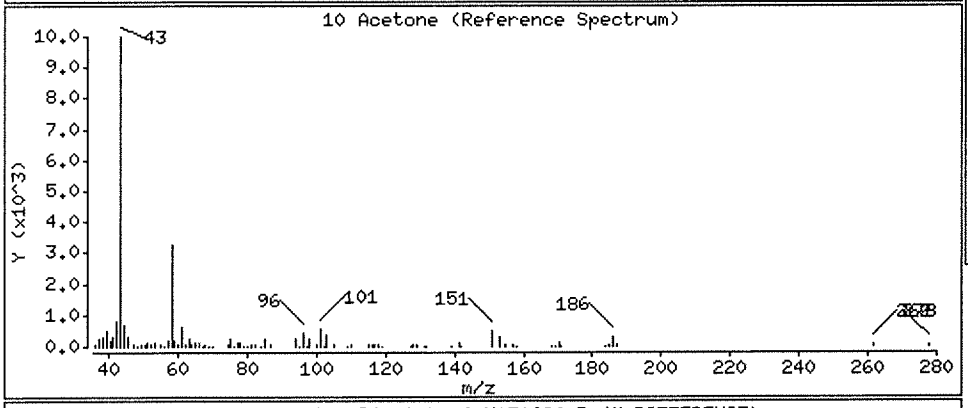
10 Acetone Concentration: 3.21 ug/l

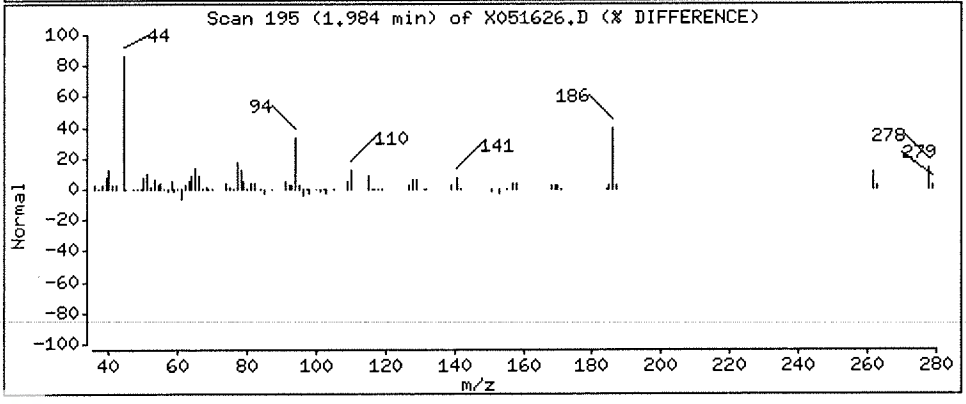












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051627.D
Report Date: 06-Jun-2019 13:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051627.D
Lab Smp Id: HS19050374-06 Client Smp ID: HS19050374-06
Inj Date : 16-MAY-2019 19:41
Operator : PC Inst ID: voa6.i
Smp Info : HS19050374-06;HS19050374-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:42 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

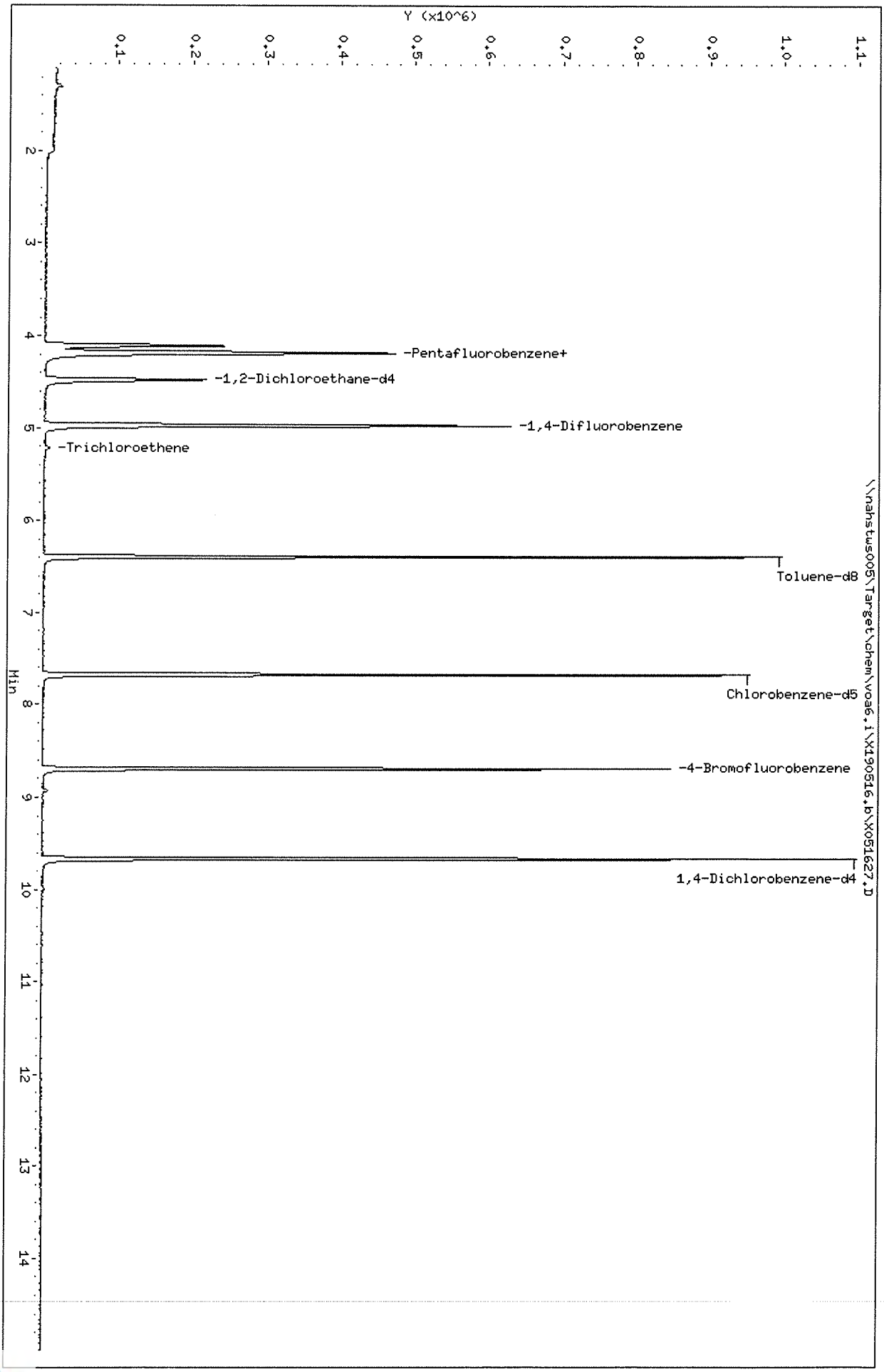
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	450619	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	552885	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	488690	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	272279	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	169270	42.8197	42.81
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	203992	49.6411	49.64
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	169326	43.5725	43.57
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	617502	51.9101	51.91
38 Trichloroethene	130	5.221	5.214	(1.050)	2603	0.60802	0.60(a)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051627.D
Date : 16-MAY-2019 19:41
Client ID: HS19050374-06
Sample Info: HS19050374-06;HS19050374-06;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.1-
1.0-
0.9-
0.8-
0.7-
0.6-
0.5-
0.4-
0.3-
0.2-
0.1-
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051627.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051627.D

Date : 16-MAY-2019 19:41

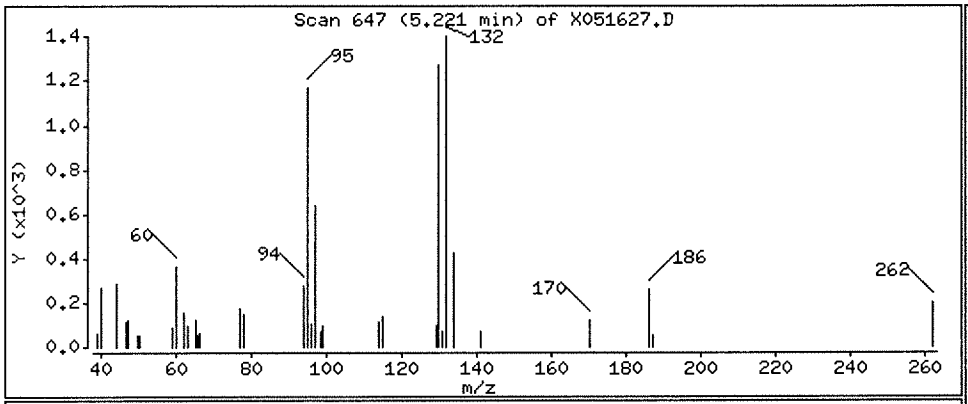
Client ID: HS19050374-06 Instrument: voa6.i

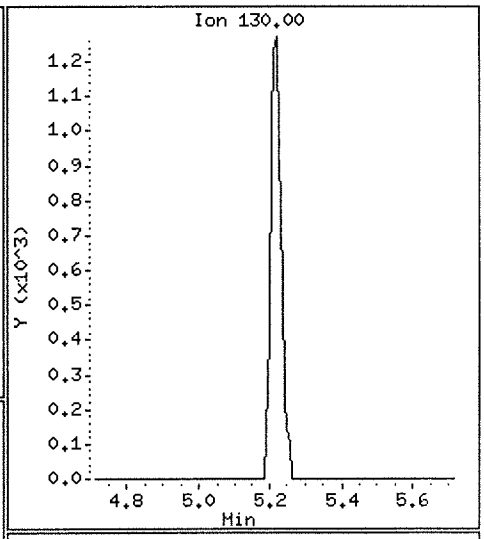
Sample Info: HS19050374-06;HS19050374-06;;;

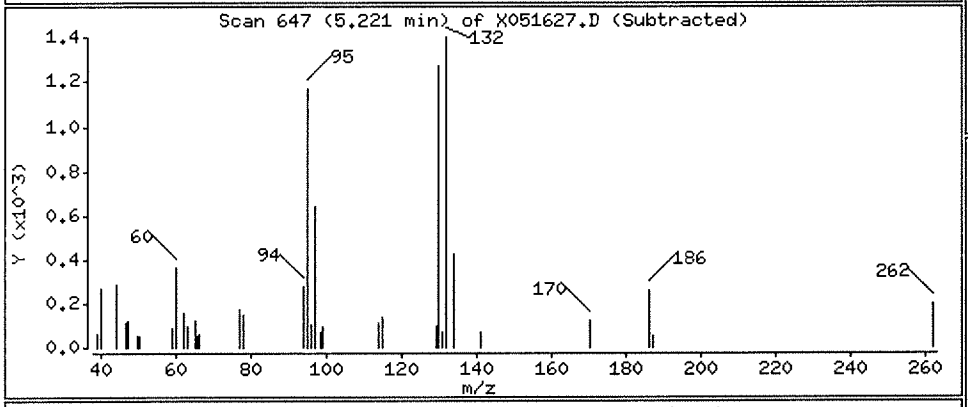
Purge Volume: 5.0 Operator: PC

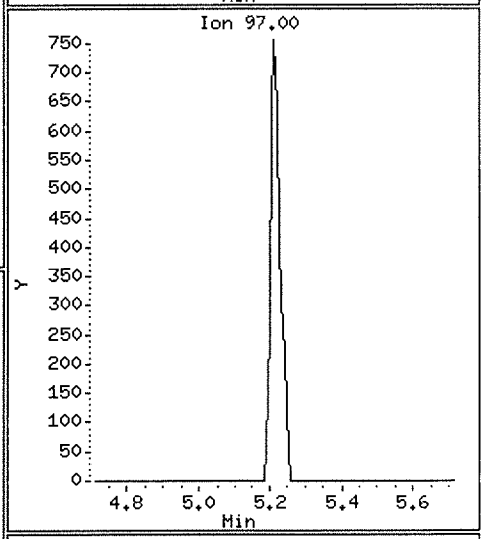
Column phase: DB624 Column diameter: 0.18

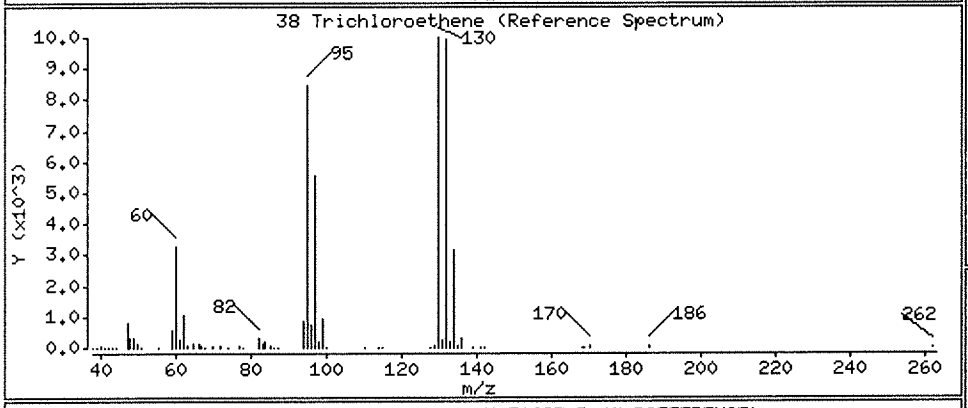
38 Trichloroethene Concentration: 0.60 ug/l

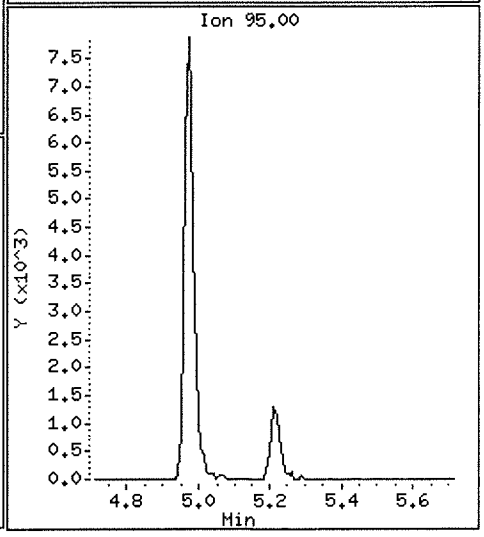


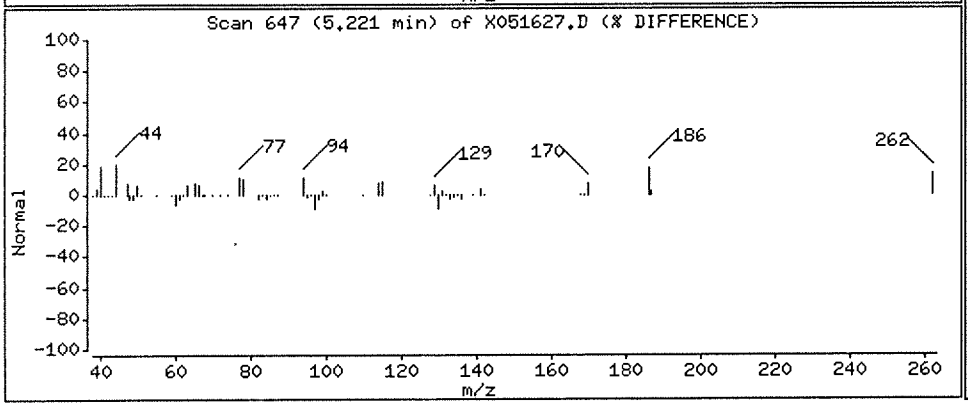












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Report Date: 06-Jun-2019 13:40

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 16-MAY-2019 20:53
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\X190516.b\8260W.m
Meth Date : 06-Jun-2019 13:36 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 28 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

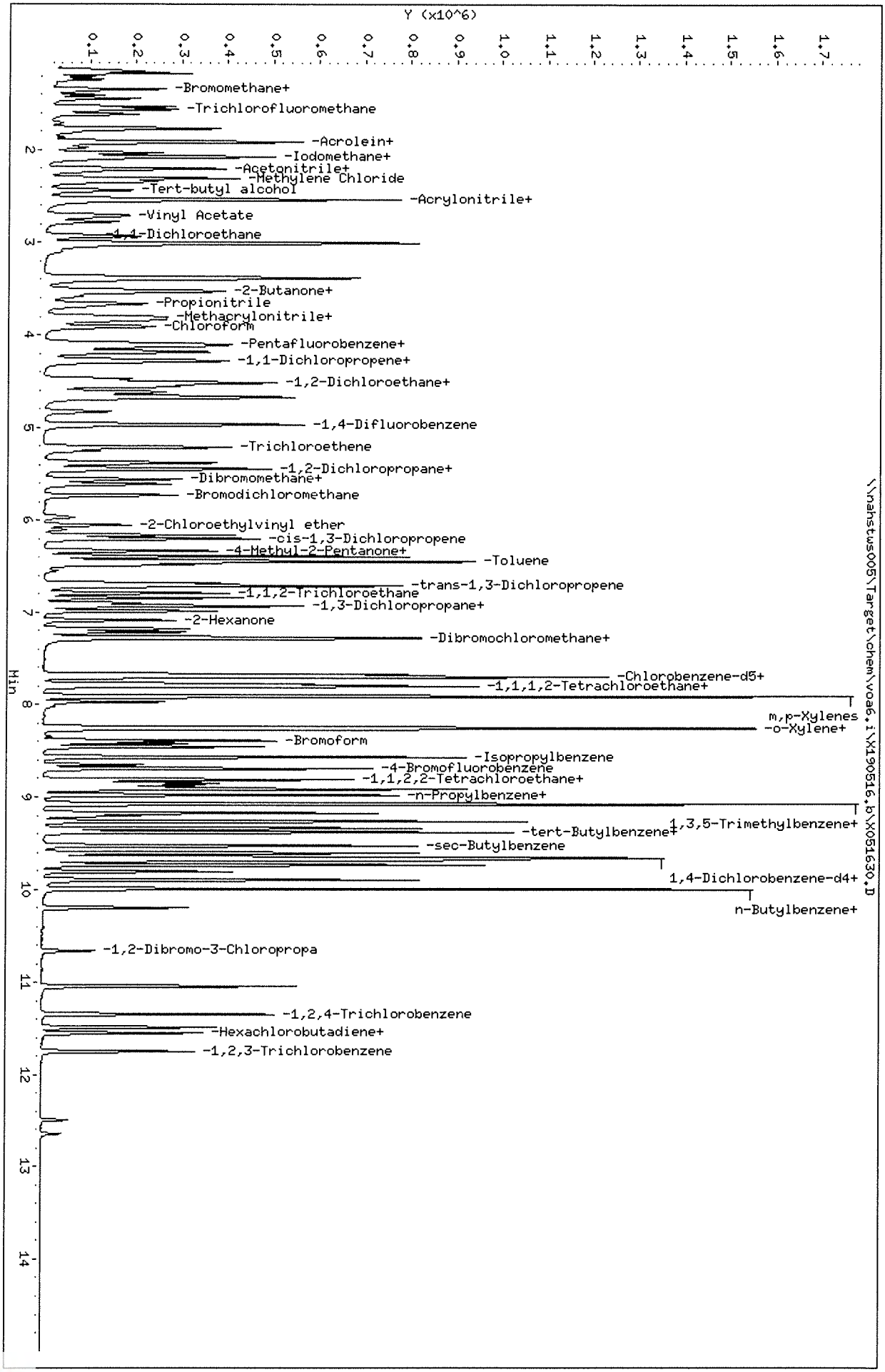
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	336845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	444607	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	411606	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	228775	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	138005	50.0000	46.71
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	168421	50.0000	48.64
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	138733	50.0000	47.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	474609	50.0000	47.31
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	143777	50.0000	44.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	186019	50.0000	41.70
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	149447	50.0000	47.94
138 Freon TF	101	1.919	1.919	(0.458)	92391	50.0000	36.14
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	98822	50.0000	46.87
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	215336	50.0000	45.35
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	109081	50.0000	41.43
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	147132	50.0000	39.78
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	97789	50.0000	50.13
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	173337	50.0000	48.62
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	158247	50.0000	46.91
79 1,2,4-Trimethylbenzene	105	9.383	9.382	(0.970)	467351	50.0000	42.89
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.665	(1.102)	26054	50.0000	52.14
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	136144	50.0000	47.23
88 1,2-Dichlorobenzene	146	9.999	9.998	(1.034)	295751	50.0000	44.77

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Report Date: 06-Jun-2019 13:40

	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)	166309	50.0000	44.41
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	119870	50.0000	46.16
75	1,3,5-Trimethylbenzene	105	9.075	9.074	(0.939)	444665	50.0000	42.78
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	307612	50.0000	43.71
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	198053	50.0000	46.56
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	308632	50.0000	43.57
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	162238	50.0000	38.57
24	2-Butanone	43	3.581	3.580	(0.855)	84743	100.000	105.53
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	357983	50.0000	42.31
52	2-Hexanone	43	7.090	7.090	(0.924)	140246	100.000	97.81
77	4-Chlorotoluene	91	9.075	9.074	(0.939)	423907	50.0000	43.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	447325	50.0000	39.85
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	200166	100.000	95.91
10	Acetone	43	1.976	1.976	(0.472)	68634	100.000	95.03
37	Benzene	78	4.519	4.519	(0.909)	481887	50.0000	44.90
74	Bromobenzene	156	8.810	8.809	(0.911)	190805	50.0000	44.75
29	Bromochloromethane	128	3.803	3.802	(0.908)	85621	50.0000	47.58
39	Bromodichloromethane	83	5.729	5.729	(1.153)	173073	50.0000	46.45
66	Bromoform	173	8.416	8.415	(1.097)	121305	50.0000	50.53
6	Bromomethane	94	1.339	1.338	(0.320)	134408	50.0000	44.56
19	Carbon Disulfide	76	2.076	2.076	(0.496)	661574	100.000	87.15
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	154598	50.0000	37.59
59	Chlorobenzene	112	7.699	7.699	(1.004)	369581	50.0000	45.01
7	Chloroethane	64	1.403	1.403	(0.335)	81791	50.0000	42.54
28	Chloroform	83	3.917	3.917	(0.935)	229803	50.0000	45.14
3	Chloromethane	50	1.081	1.081	(0.258)	168337	50.0000	48.90
27	cis-1,2-Dichloroethene	96	3.530	3.537	(0.843)	147729	50.0000	45.02
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	204756	50.0000	46.26
55	Dibromochloromethane	129	7.184	7.183	(0.937)	153523	50.0000	46.41
44	Dibromomethane	93	5.558	5.557	(1.118)	88016	50.0000	47.06
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	112628	50.0000	38.36
61	Ethylbenzene	106	7.800	7.807	(1.017)	181111	50.0000	42.67
91	Hexachlorobutadiene	225	11.489	11.488	(1.188)	73794	50.0000	36.73
67	Isopropylbenzene	105	8.566	8.566	(1.117)	517843	50.0000	41.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	439024	100.000	85.88
17	Methylene Chloride	84	2.306	2.313	(0.550)	135800	50.0000	48.06
87	n-Butylbenzene	91	9.999	9.998	(1.034)	341815	50.0000	38.44
73	n-Propylbenzene	91	8.917	8.917	(0.922)	570360	50.0000	40.57
92	Naphthalene	128	11.546	11.546	(1.194)	241891	50.0000	50.61
63	o-Xylene	106	8.244	8.244	(1.075)	222107	50.0000	44.41
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	471996	50.0000	38.60
64	Styrene	104	8.265	8.265	(1.078)	395961	50.0000	45.28
78	tert-Butylbenzene	119	9.340	9.339	(0.966)	360171	50.0000	40.04
56	Tetrachloroethene	164	6.933	6.933	(0.904)	121096	50.0000	40.01
50	Toluene	91	6.453	6.453	(0.841)	527097	50.0000	43.68
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	123552	50.0000	44.88
51	trans-1,3-Dichloropropene	75	6.682	6.689	(1.344)	183933	50.0000	47.56
38	Trichloroethene	130	5.214	5.214	(1.049)	150851	50.0000	43.81
8	Trichlorofluoromethane	101	1.561	1.560	(0.373)	189183	50.0000	37.81
5	Vinyl Chloride	62	1.145	1.145	(0.273)	126639	50.0000	41.13



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Date : 16-MAY-2019 20:53
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

HS19050374 Wet Chem Raw Data.

ALS WO# HS19050374

Sequence: 050819_9056_W HS19050374
Operator: alshs.nouser

Printed: 6/4/2019 3:11:45 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	040319CLO3	Finished
2	STD2		Standard	92	1.0000	040319CLO3	Finished
3	STD3		Standard	93	1.0000	040319CLO3	Finished
4	STD4		Standard	94	1.0000	040319CLO3	Finished
5	STD5		Standard	95	1.0000	040319CLO3	Finished
6	STD6		Standard	96	1.0000	040319CLO3	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	040319CLO3	Finished
8	ICB		Unknown	98	1.0000	040319CLO3	Finished
9	CCV1		Unknown	93	1.0000	040319CLO3	Finished
10	CCB		Unknown	94	1.0000	040319CLO3	Finished
11	HS19050374-04DF10		Unknown	58	10.0000	040319CLO3	Finished
12	HS19050374-05DF10		Unknown	59	10.0000	040319CLO3	Finished
13	HS19050374-06		Unknown	60	1.0000	040319CLO3	Finished
14	HS19050374-06MS		Unknown	61	1.0000	040319CLO3	Finished
15	HS19050374-06MSD		Unknown	62	1.0000	040319CLO3	Finished
16	HS19050333-01		Unknown	67	1.0000	040319CLO3	Finished
17	HS19050336-01		Unknown	68	1.0000	040319CLO3	Finished
18	HS19050374-04		Unknown	69	1.0000	040319CLO3	Finished
19	HS19050374-05DF2		Unknown	70	2.0000	040319CLO3	Finished
20	CCV		Unknown	91	1.0000	040319CLO3	Finished
21	CCB		Unknown	92	1.0000	040319CLO3	Finished
22	MBLK1-050619		Unknown	51	1.0000	040319CLO3	Finished
23	LCS1-050619		Unknown	52	1.0000	040319CLO3	Finished
24	LCSD1-050619		Unknown	53	1.0000	040319CLO3	Finished
25	HS19050374-01DF5		Unknown	54	5.0000	040319CLO3	Finished
26	HS19050374-02DF10		Unknown	55	10.0000	040319CLO3	Finished
27	CCV1		Unknown	93	1.0000	040319CLO3	Finished
28	CCB		Unknown	94	1.0000	040319CLO3	Finished
29	HS19050374-03DF5		Unknown	56	5.0000	040319CLO3	Finished
30	HS19050374-03DF10		Unknown	57	10.0000	040319CLO3	Finished
31	HS19050332-01DF5		Unknown	63	5.0000	040319CLO3	Finished
32	HS19050332-02DF5		Unknown	64	5.0000	040319CLO3	Finished
33	HS19050332-03DF5		Unknown	65	5.0000	040319CLO3	Finished
34	HS19050382-01DF50		Unknown	66	50.0000	040319CLO3	Finished
35	CCV		Unknown	91	1.0000	040319CLO3	Finished
36	CCB		Unknown	92	1.0000	040319CLO3	Finished
37	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
38	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
39	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
40	HS19050264-03DF10		Unknown	45	10.0000	040319CLO3	Finished
41	HS19050264-03MSDF10		Unknown	46	10.0000	040319CLO3	Finished
42	HS19050264-03MSDDF10		Unknown	47	10.0000	040319CLO3	Finished

Sequence: 050819_9056_W
Operator: alshs.nouser

Printed: 6/4/2019 3:11:45 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser (Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	4/3/2019 6:56:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	4/3/2019 7:10:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	4/3/2019 7:25:17 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	4/3/2019 7:39:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	4/3/2019 7:54:34 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	4/3/2019 8:09:12 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	4/3/2019 8:23:50 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	4/3/2019 8:38:29 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV1	5/8/2019 11:04:21 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
10	CCB	5/8/2019 11:19:05 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
11	HS19050374-04DF10	5/8/2019 11:33:50 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
12	HS19050374-05DF10	5/8/2019 11:48:35 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
13	HS19050374-06	5/8/2019 12:03:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
14	HS19050374-06MS	5/8/2019 12:18:04 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
15	HS19050374-06MSD	5/8/2019 12:32:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
16	HS19050333-01	5/8/2019 12:47:33 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
17	HS19050336-01	5/8/2019 1:02:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
18	HS19050374-04	5/8/2019 1:17:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
19	HS19050374-05DF2	5/8/2019 1:31:47 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
20	CCV	5/8/2019 1:46:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
21	CCB	5/8/2019 2:01:16 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
22	MBLK1-050619	5/8/2019 2:16:01 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
23	LCS1-050619	5/8/2019 2:30:46 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
24	LCSD1-050619	5/8/2019 2:45:30 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
25	HS19050374-01DF5	5/8/2019 3:00:15 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
26	HS19050374-02DF10	5/8/2019 3:14:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
27	CCV1	5/8/2019 3:29:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
28	CCB	5/8/2019 3:44:29 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
29	HS19050374-03DF5	5/8/2019 3:59:14 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
30	HS19050374-03DF10	5/8/2019 4:13:58 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
31	HS19050332-01DF5	5/8/2019 4:28:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
32	HS19050332-02DF5	5/8/2019 4:43:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
33	HS19050332-03DF5	5/8/2019 4:58:12 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
34	HS19050382-01DF50	5/8/2019 5:12:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
35	CCV	5/8/2019 5:27:41 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
36	CCB	5/8/2019 5:42:26 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
37	DI H2O	5/8/2019 5:57:11 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
38	DI H2O	5/8/2019 6:11:55 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
39	DI H2O	5/8/2019 6:26:40 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
40	HS19050264-03DF10	5/8/2019 6:41:25 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
41	HS19050264-03MSDF10	5/8/2019 6:56:09 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
42	HS19050264-03MSDDF10	5/8/2019 7:10:54 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

Sequence: 050819_9056_W
Operator: alshs.nouser

Printed: 6/4/2019 3:11:45 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	5133bfaf-5607-11e9-b6db-bd957e66751c		
2	STD2	1.00	5ce63c75-5609-11e9-b6db-bd957e66751c		
3	STD3	1.00	687c1d33-560b-11e9-b6db-bd957e66751c		
4	STD4	1.00	742510a1-560d-11e9-b6db-bd957e66751c		
5	STD5	1.00	7fce040f-560f-11e9-b6db-bd957e66751c		
6	STD6	1.00	8b4e6fc7-5611-11e9-b6db-bd957e66751c		
7	ICV	1.00	96e1ee2f-5613-11e9-b6db-bd957e66751c		
8	ICB	1.00	a277ceed-5615-11e9-b6db-bd957e66751c		
9	CCV1	1.00	cf7966bf-71aa-11e9-b6dc-cecc464ab826		
10	CCB	1.00	debebc7f-71ac-11e9-b6dc-cecc464ab826		
11	HS19050374-04DF10	1.00	edfa88df-71ae-11e9-b6dc-cecc464ab826		
12	HS19050374-05DF10	1.00	fd4967ff-71b0-11e9-b6dc-cecc464ab826		
13	HS19050374-06	1.00	0c912017-71b3-11e9-b6dc-cecc464ab826		
14	HS19050374-06MS	1.00	1bd675d7-71b5-11e9-b6dc-cecc464ab826		
15	HS19050374-06MSD	1.00	2b03f427-71b7-11e9-b6dc-cecc464ab826		
16	HS19050333-01	1.00	3a4bac3f-71b9-11e9-b6dc-cecc464ab826		
17	HS19050336-01	1.00	49a414bf-71bb-11e9-b6dc-cecc464ab826		
18	HS19050374-04	1.00	58e4a5cf-71bd-11e9-b6dc-cecc464ab826		
19	HS19050374-05DF2	1.00	683f70a7-71bf-11e9-b6dc-cecc464ab826		
20	CCV	1.00	779a3b7f-71c1-11e9-b6dc-cecc464ab826		
21	CCB	1.00	86d3a587-71c3-11e9-b6dc-cecc464ab826		
22	MBLK1-050619	1.00	9618fb47-71c5-11e9-b6dc-cecc464ab826		
23	LCS1-050619	1.00	a55beeaf-71c7-11e9-b6dc-cecc464ab826		
24	LCSD1-050619	1.00	b49c7fbf-71c9-11e9-b6dc-cecc464ab826		
25	HS19050374-01DF5	1.00	c3e247ab-71cb-11e9-b6dc-cecc464ab826		
26	HS19050374-02DF10	1.00	d32854a7-71cd-11e9-b6dc-cecc464ab826		
27	CCV1	1.00	e280bd27-71cf-11e9-b6dc-cecc464ab826		
28	CCB	1.00	f201ad7f-71d1-11e9-b6dc-cecc464ab826		
29	HS19050374-03DF5	1.00	0144a0e7-71d4-11e9-b6dc-cecc464ab826		
30	HS19050374-03DF10	1.00	108c58ff-71d6-11e9-b6dc-cecc464ab826		
31	HS19050332-01DF5	1.00	1fc8255f-71d8-11e9-b6dc-cecc464ab826		
32	HS19050332-02DF5	1.00	2f08b66f-71da-11e9-b6dc-cecc464ab826		
33	HS19050332-03DF5	1.00	3e52d0df-71dc-11e9-b6dc-cecc464ab826		
34	HS19050382-01DF50	1.00	4d8c3ae7-71de-11e9-b6dc-cecc464ab826		
35	CCV	1.00	5ce96817-71e0-11e9-b6dc-cecc464ab826		
36	CCB	1.00	6c338287-71e2-11e9-b6dc-cecc464ab826		
37	DI H2O	1.00	7b6cec8f-71e4-11e9-b6dc-cecc464ab826		
38	DI H2O	1.00	8aafdff7-71e6-11e9-b6dc-cecc464ab826		
39	DI H2O	1.00	9a084877-71e8-11e9-b6dc-cecc464ab826		
40	HS19050264-03DF10	1.00	a950008f-71ea-11e9-b6dc-cecc464ab826		
41	HS19050264-03MSDF10	1.00	b8a3a45f-71ec-11e9-b6dc-cecc464ab826		
42	HS19050264-03MSDDF10	1.00	c7eb5c77-71ee-11e9-b6dc-cecc464ab826		

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19050264-04DF5		Unknown	48	5.0000	040319CLO3	Finished
44	HS19050342-01		Unknown	49	1.0000	040319CLO3	Finished
45	HS19050342-03		Unknown	50	1.0000	040319CLO3	Finished
46	CCV		Unknown	91	1.0000	040319CLO3	Finished
47	CCB		Unknown	92	1.0000	040319CLO3	Finished
48	WBLKW1-190508		Unknown	12	1.0000	040319CLO3	Finished
49	WLCSW1-190508		Unknown	13	1.0000	040319CLO3	Finished
50	WLCSDW1-190508		Unknown	14	1.0000	040319CLO3	Finished
51	HS19050395-01DF5		Unknown	15	5.0000	040319CLO3	Finished
52	HS19050419-01DF2		Unknown	16	2.0000	040319CLO3	Finished
53	HS19050419-02DF2		Unknown	17	2.0000	040319CLO3	Finished
54	HS19050419-03DF2		Unknown	18	2.0000	040319CLO3	Finished
55	HS19050415-01DF50		Unknown	19	50.0000	040319CLO3	Finished
56	HS19050415-01MSDF50		Unknown	20	50.0000	040319CLO3	Finished
57	HS19050415-01MSDDF50		Unknown	21	50.0000	040319CLO3	Finished
58	CCV1		Unknown	93	50.0000	040319CLO3	Finished
59	CCB		Unknown	94	50.0000	040319CLO3	Finished
60	HS19050403-04DF10		Unknown	22	10.0000	040319CLO3	Finished
61	HS19050403-05DF10		Unknown	23	10.0000	040319CLO3	Finished
62	HS19050403-05DF50		Unknown	24	50.0000	040319CLO3	Finished
63	HS19050403-05MSDF50		Unknown	25	50.0000	040319CLO3	Finished
64	HS19050403-05MSDDF50		Unknown	26	50.0000	040319CLO3	Finished
65	HS19041441-01DF10		Unknown	27	10.0000	040319CLO3	Finished
66	HS19041441-02		Unknown	28	1.0000	040319CLO3	Finished
67	HS19041441-03		Unknown	29	1.0000	040319CLO3	Finished
68	HS19041441-04		Unknown	30	1.0000	040319CLO3	Finished
69	HS19050446-01		Unknown	31	1.0000	040319CLO3	Finished
70	CCV		Unknown	91	1.0000	040319CLO3	Finished
71	CCB		Unknown	92	1.0000	040319CLO3	Finished
72	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
73	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
74	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
75	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
76	CCV		Unknown	91	1.0000	040319CLO3	Finished
77	CCB		Unknown	92	1.0000	040319CLO3	Finished
78	WBLKW1-190508		Unknown	12	1.0000	040319CLO3	Finished
79	HS19041441-04DF5		Unknown	32	1.0000	040319CLO3	Finished
80	HS19041582-24DF5		Unknown	33	5.0000	040319CLO3	Finished
81	CCV1		Unknown	93	1.0000	040319CLO3	Finished
82	CCB		Unknown	94	1.0000	040319CLO3	Finished
83	HS19050264-03DF10		Unknown	34	10.0000	040319CLO3	Finished
84	HS19050264-03MSDF10		Unknown	35	10.0000	040319CLO3	Finished

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19050264-04DF5	5/8/2019 7:25:38 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
44	HS19050342-01	5/8/2019 7:40:23 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
45	HS19050342-03	5/8/2019 7:55:08 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
46	CCV	5/8/2019 8:09:52 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
47	CCB	5/8/2019 8:24:37 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
48	WBLKW1-190508	5/8/2019 8:39:22 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
49	WLCSW1-190508	5/8/2019 8:54:06 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
50	WLCSDW1-190508	5/8/2019 9:08:51 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
51	HS19050395-01DF5	5/8/2019 9:23:36 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
52	HS19050419-01DF2	5/8/2019 9:38:20 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
53	HS19050419-02DF2	5/8/2019 9:53:05 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
54	HS19050419-03DF2	5/8/2019 10:07:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
55	HS19050415-01DF50	5/8/2019 10:22:34 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
56	HS19050415-01MSDF50	5/8/2019 10:37:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
57	HS19050415-01MSDDF50	5/8/2019 10:52:03 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
58	CCV1	5/8/2019 11:06:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
59	CCB	5/8/2019 11:21:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
60	HS19050403-04DF10	5/8/2019 11:36:17 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
61	HS19050403-05DF10	5/8/2019 11:51:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
62	HS19050403-05DF50	5/9/2019 12:05:46 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
63	HS19050403-05MSDF50	5/9/2019 12:20:31 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
64	HS19050403-05MSDDF50	5/9/2019 12:35:15 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
65	HS19041441-01DF10	5/9/2019 12:50:00 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
66	HS19041441-02	5/9/2019 1:04:45 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
67	HS19041441-03	5/9/2019 1:19:29 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
68	HS19041441-04	5/9/2019 1:34:14 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
69	HS19050446-01	5/9/2019 1:48:59 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
70	CCV	5/9/2019 2:03:43 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
71	CCB	5/9/2019 2:18:28 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
72	DI H2O	5/9/2019 2:33:12 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
73	DI H2O	5/9/2019 2:47:57 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
74	DI H2O	5/9/2019 11:16:04 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
75	DI H2O	5/9/2019 11:30:49 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
76	CCV	5/9/2019 11:45:34 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
77	CCB	5/9/2019 12:00:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
78	WBLKW1-190508	5/9/2019 12:15:03 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
79	HS19041441-04DF5	5/9/2019 12:29:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
80	HS19041582-24DF5	5/9/2019 12:44:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
81	CCV1	5/9/2019 12:59:17 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
82	CCB	5/9/2019 1:14:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
83	HS19050264-03DF10	5/9/2019 1:28:46 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
84	HS19050264-03MSDF10	5/9/2019 1:43:31 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19050264-04DF5	1.00	d72728d7-71f0-11e9-b6dc-cecc464ab826		
44	HS19050342-01	1.00	e6714347-71f2-11e9-b6dc-cecc464ab826		
45	HS19050342-03	1.00	f5c7496f-71f4-11e9-b6dc-cecc464ab826		
46	CCV	1.00	0507da7f-71f7-11e9-b6dc-cecc464ab826		
47	CCB	1.00	144acde7-71f9-11e9-b6dc-cecc464ab826		
48	WBLKW1-190508	1.00	23b8ab7f-71fb-11e9-b6dc-cecc464ab826		
49	WLCSW1-190508	1.00	32f21587-71fd-11e9-b6dc-cecc464ab826		
50	WLCSDW1-190508	1.00	422b7f8f-71ff-11e9-b6dc-cecc464ab826		
51	HS19050395-01DF5	1.00	517599ff-7201-11e9-b6dc-cecc464ab826		
52	HS19050419-01DF2	1.00	60b88d67-7203-11e9-b6dc-cecc464ab826		
53	HS19050419-02DF2	1.00	7002a7d7-7205-11e9-b6dc-cecc464ab826		
54	HS19050419-03DF2	1.00	7f47fd97-7207-11e9-b6dc-cecc464ab826		
55	HS19050415-01DF50	1.00	8e8d5357-7209-11e9-b6dc-cecc464ab826		
56	HS19050415-01MSDF50	1.00	9dd2a917-720b-11e9-b6dc-cecc464ab826		
57	HS19050415-01MSDDF50	1.00	ad10d7cf-720d-11e9-b6dc-cecc464ab826		
58	CCV1	1.00	bc562d8f-720f-11e9-b6dc-cecc464ab826		
59	CCB	1.00	cba50caf-7211-11e9-b6dc-cecc464ab826		
60	HS19050403-04DF10	1.00	dae59dbf-7213-11e9-b6dc-cecc464ab826		
61	HS19050403-05DF10	1.00	ea262ecf-7215-11e9-b6dc-cecc464ab826		
62	HS19050403-05DF50	1.00	f9615b8b-7217-11e9-b6dc-cecc464ab826		
63	HS19050403-05MSDF50	1.00	0896de97-721a-11e9-b6dc-cecc464ab826		
64	HS19050403-05MSDDF50	1.00	17f1a96f-721c-11e9-b6dc-cecc464ab826		
65	HS19041441-01DF10	1.00	27264ec7-721e-11e9-b6dc-cecc464ab826		
66	HS19041441-02	1.00	367c54ef-7220-11e9-b6dc-cecc464ab826		
67	HS19041441-03	1.00	45c66f5f-7222-11e9-b6dc-cecc464ab826		
68	HS19041441-04	1.00	55023bbf-7224-11e9-b6dc-cecc464ab826		
69	HS19050446-01	1.00	644eb887-7226-11e9-b6dc-cecc464ab826		
70	CCV	1.00	738ce73f-7228-11e9-b6dc-cecc464ab826		
71	CCB	1.00	82d701af-722a-11e9-b6dc-cecc464ab826		
72	DI H2O	1.00	9212ce0f-722c-11e9-b6dc-cecc464ab826		
73	DI H2O	1.00	a16d98e7-722e-11e9-b6dc-cecc464ab826		
74	DI H2O	1.00	3ddc77af-7275-11e9-b6dc-cecc464ab826		
75	DI H2O	1.00	ac9764df-7277-11e9-b6dc-cecc464ab826		
76	CCV	1.00	bbd3313f-7279-11e9-b6dc-cecc464ab826		
77	CCB	1.00	cb1ae957-727b-11e9-b6dc-cecc464ab826		
78	WBLKW1-190508	1.00	da69c877-727d-11e9-b6dc-cecc464ab826		
79	HS19041441-04DF5	1.00	e9bb09ef-727f-11e9-b6dc-cecc464ab826		
80	HS19041582-24DF5	1.00	f8fdfd57-7281-11e9-b6dc-cecc464ab826		
81	CCV1	1.00	085665d7-7284-11e9-b6dc-cecc464ab826		
82	CCB	1.00	1799593f-7286-11e9-b6dc-cecc464ab826		
83	HS19050264-03DF10	1.00	26e11157-7288-11e9-b6dc-cecc464ab826		
84	HS19050264-03MSDF10	1.00	3628c96f-728a-11e9-b6dc-cecc464ab826		

Sequence: 050819_9056_W
Operator: alshs.nouser
Printed: 6/4/2019 3:11:45 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
85	HS19050264-03MSDDF10		Unknown	36	10.0000	040319CLO3	Finished
86	HS19050264-05DF5		Unknown	37	5.0000	040319CLO3	Finished
87	HS19050342-01		Unknown	38	1.0000	040319CLO3	Finished
88	HS19050342-03		Unknown	39	1.0000	040319CLO3	Finished
89	HS19050374-03DF10		Unknown	40	10.0000	040319CLO3	Finished
90	HS19050382-01DF50		Unknown	41	50.0000	040319CLO3	Finished
91	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
92	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
93	CCV		Unknown	91	1.0000	040319CLO3	Finished
94	CCB		Unknown	92	1.0000	040319CLO3	Finished
95	HS19050415-05DF100		Unknown	42	100.0000	040319CLO3	Finished
96	HS19050415-05MSDF100		Unknown	43	100.0000	040319CLO3	Finished
97	HS19050415-05MSDDF100		Unknown	44	100.0000	040319CLO3	Finished
98	CCV1		Unknown	93	100.0000	040319CLO3	Finished
99	CCB		Unknown	94	100.0000	040319CLO3	Finished

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
85	HS19050264-03MSDDF10	5/9/2019 1:58:16 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
86	HS19050264-05DF5	5/9/2019 2:13:00 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
87	HS19050342-01	5/9/2019 2:27:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
88	HS19050342-03	5/9/2019 2:42:29 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
89	HS19050374-03DF10	5/9/2019 2:57:14 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
90	HS19050382-01DF50	5/9/2019 3:11:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
91	DI H2O	5/9/2019 3:26:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
92	DI H2O	5/9/2019 3:41:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
93	CCV	5/9/2019 3:56:13 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
94	CCB	5/9/2019 4:10:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
95	HS19050415-05DF100	5/9/2019 4:25:42 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
96	HS19050415-05MSDF100	5/9/2019 4:40:27 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
97	HS19050415-05MSDDF100	5/9/2019 4:55:11 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
98	CCV1	5/9/2019 5:09:56 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
99	CCB	5/9/2019 5:24:40 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

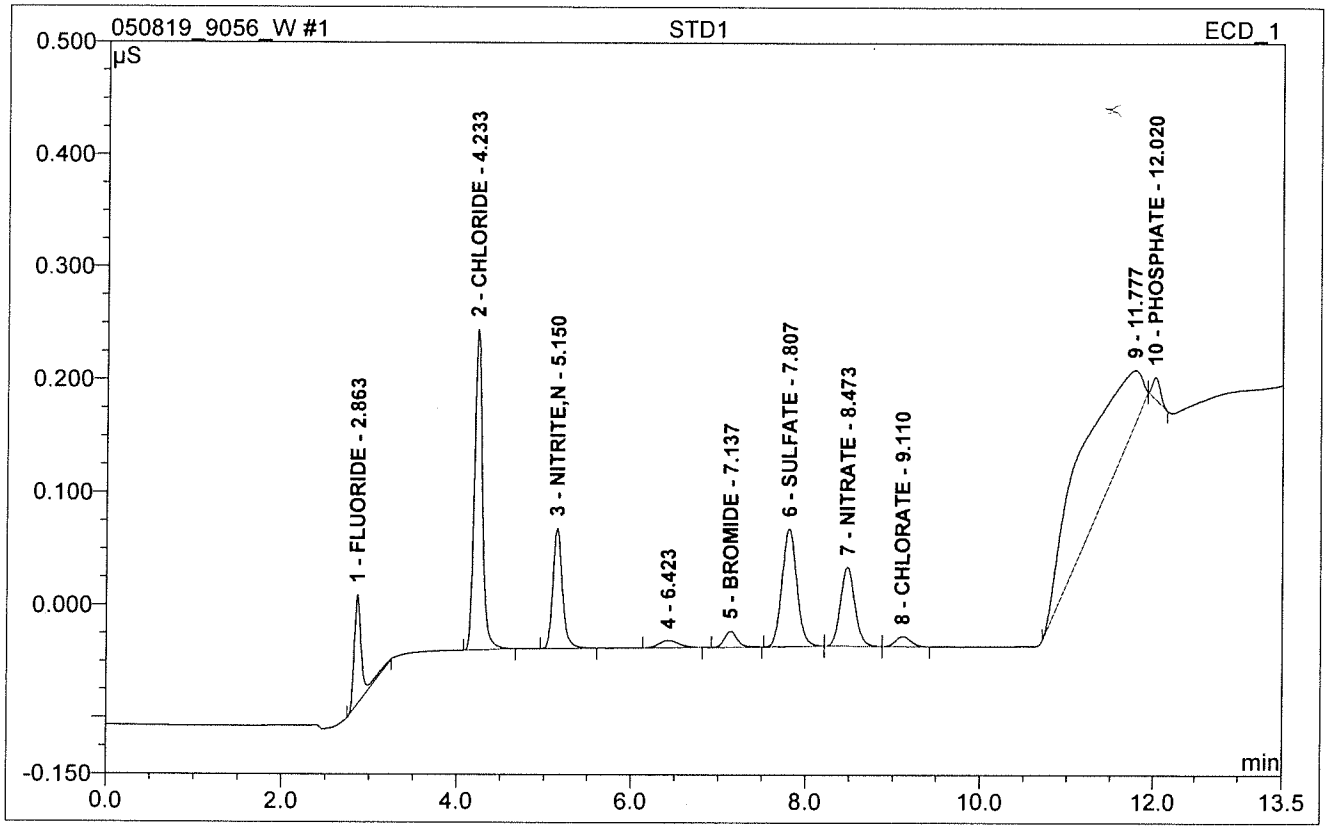
Sequence:	050819_9056_W		Page 9 of 9
Operator:	alshs.nouser		Printed: 6/4/2019 3:11:45 PM
Title:			
Datasource:	DB7CGHK1_local		
Location:	ICS2100\Sequences and Data\2019		
Timebase:	ICS2100	Created:	6/4/2019 3:09:26 PM by alshs.nouser
#Samples:	99		(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
85	HS19050264-03MSDDF10	1.00	4585f69f-728c-11e9-b6dc-cecc464ab826		
86	HS19050264-05DF5	1.00	54c1c2ff-728e-11e9-b6dc-cecc464ab826		
87	HS19050342-01	1.00	640718bf-7290-11e9-b6dc-cecc464ab826		
88	HS19050342-03	1.00	7351332f-7292-11e9-b6dc-cecc464ab826		
89	HS19050374-03DF10	1.00	829688ef-7294-11e9-b6dc-cecc464ab826		
90	HS19050382-01DF50	1.00	91e5680f-7296-11e9-b6dc-cecc464ab826		
91	DI H2O	1.00	a136a987-7298-11e9-b6dc-cecc464ab826		
92	DI H2O	1.00	b08a4d57-729a-11e9-b6dc-cecc464ab826		
93	CCV	1.00	bfd6ca1f-729c-11e9-b6dc-cecc464ab826		
94	CCB	1.00	cf090d1f-729e-11e9-b6dc-cecc464ab826		
95	HS19050415-05DF100	1.00	de4e62df-72a0-11e9-b6dc-cecc464ab826		
96	HS19050415-05MSDF100	1.00	eda6cb5f-72a2-11e9-b6dc-cecc464ab826		
97	HS19050415-05MSDDF100	1.00	fcec211f-72a4-11e9-b6dc-cecc464ab826		
98	CCV1	1.00	0c2f1487-72a7-11e9-b6dc-cecc464ab826		
99	CCB	1.00	1b746a47-72a9-11e9-b6dc-cecc464ab826		

1 STD1

297.020.7208

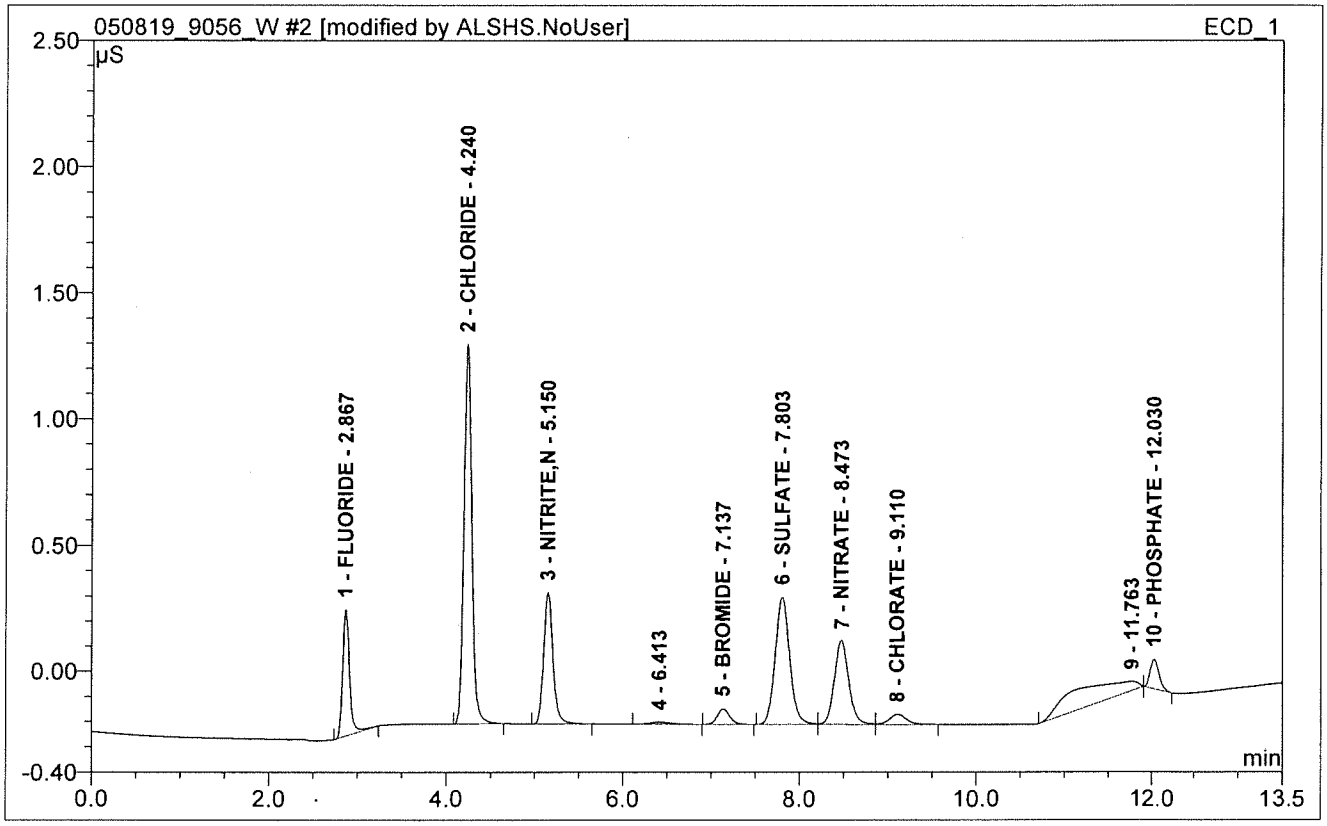
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.098	0.009	5.35	0.107	1.
2	4.23	CHLORIDE	0.284	0.031	17.95	0.536	1.
3	5.15	NITRITE,N	0.107	0.014	8.11	0.101	1.
5	7.14	BROMIDE	0.014	0.002	1.43	0.118	1.
6	7.81	SULFATE	0.105	0.021	12.21	0.593	1.
7	8.47	NITRATE	0.071	0.014	8.03	0.125	1.
8	9.11	CHLORATE	0.009	0.002	1.09	0.111	1.
10	12.02	PHOSPHATE	0.020	0.002	1.24	0.150	1.
Total:			0.709	0.094	55.42	1.842	

2 STD2

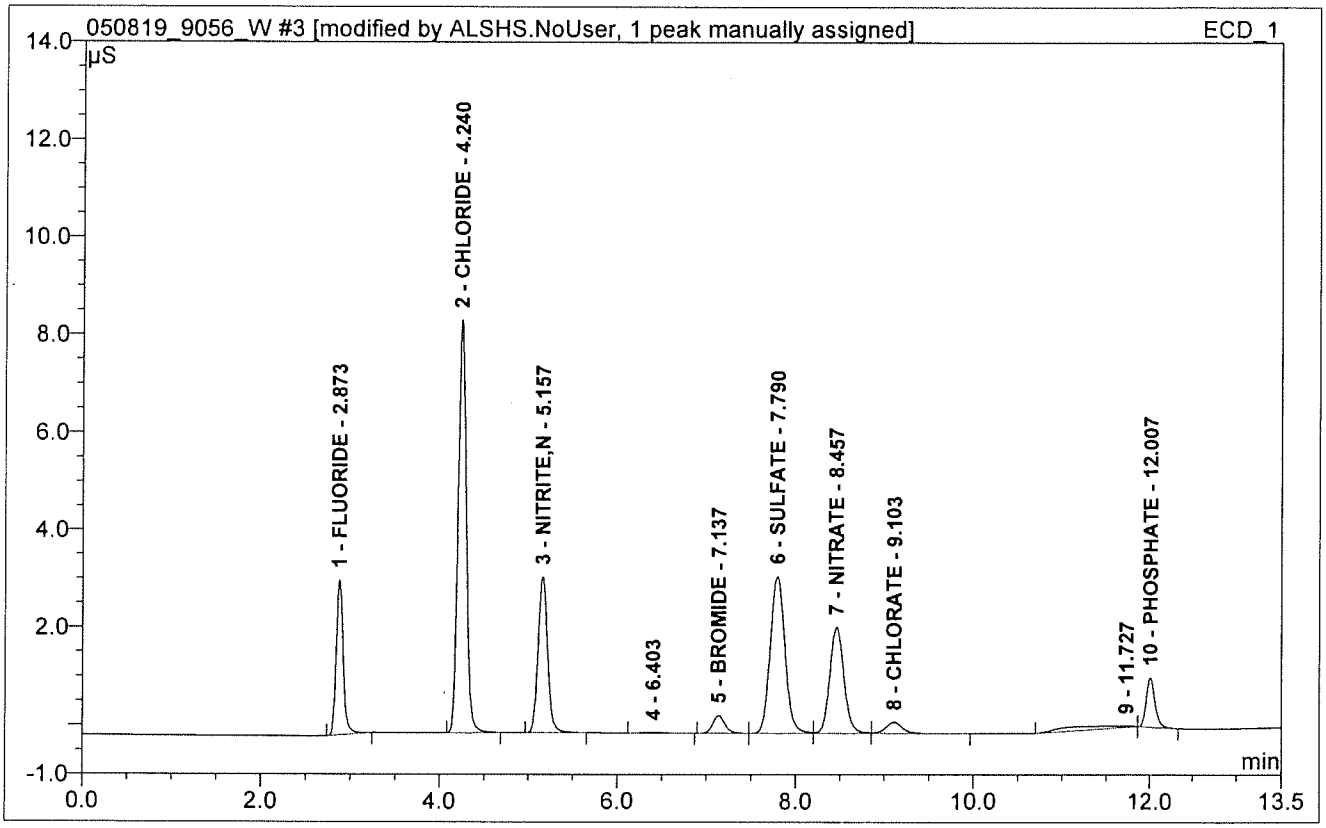
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	0.504	0.045	8.54	0.358	1.
2	4.24	CHLORIDE	1.506	0.155	29.66	1.904	1.
3	5.15	NITRITE,N	0.524	0.065	12.35	0.364	1.
5	7.14	BROMIDE	0.062	0.010	1.93	0.360	1.
6	7.80	SULFATE	0.508	0.097	18.58	1.762	1.
7	8.47	NITRATE	0.336	0.064	12.15	0.348	1.
8	9.11	CHLORATE	0.041	0.009	1.70	0.375	1.
10	12.03	PHOSPHATE	0.120	0.015	2.79	0.306	1.
Total:			3.600	0.459	87.69	5.778	

3 STD3

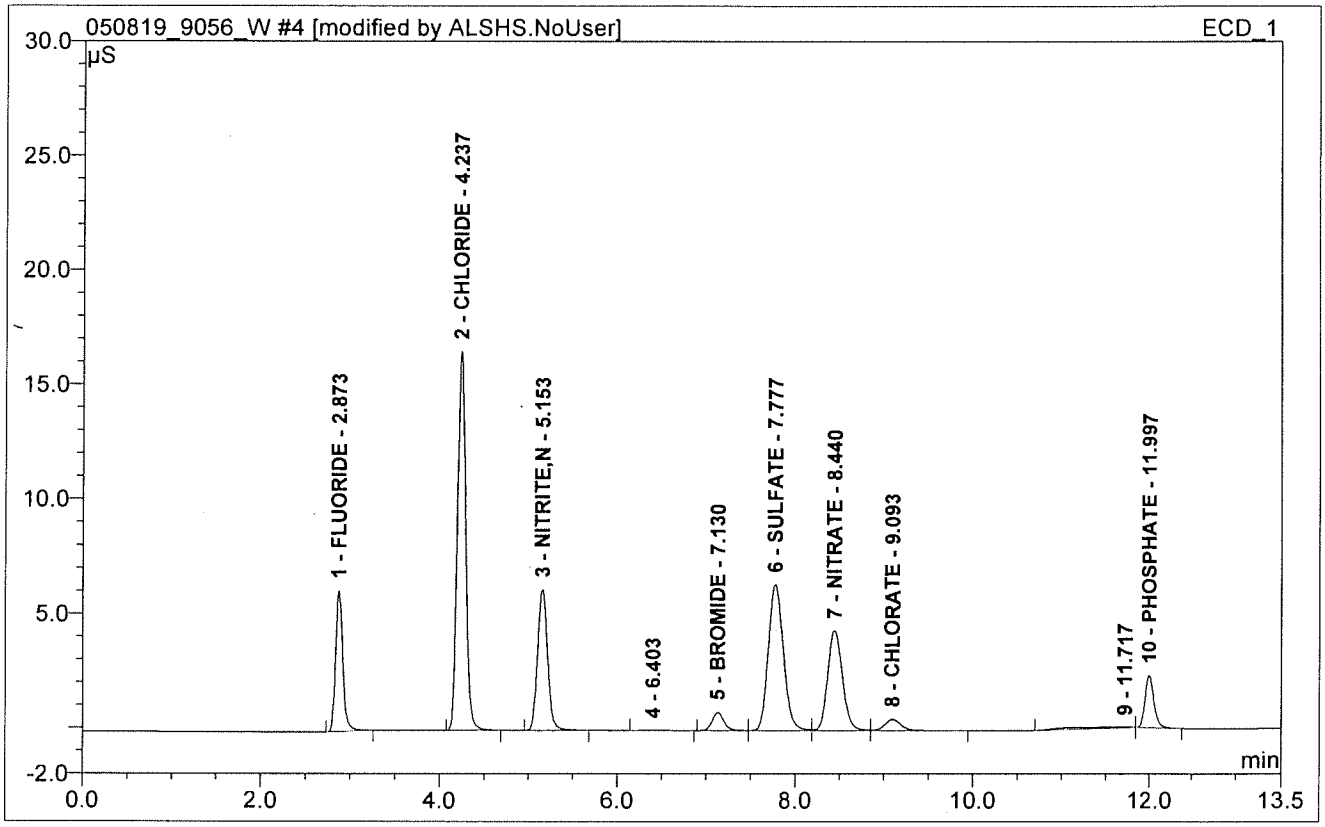
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.165	0.287	9.91	2.068	1.
2	4.24	CHLORIDE	8.444	0.901	31.10	10.080	1.
3	5.16	NITRITE,N	3.193	0.401	13.83	2.101	1.
5	7.14	BROMIDE	0.362	0.057	1.97	1.837	1.
6	7.79	SULFATE	3.210	0.616	21.25	9.683	1.
7	8.46	NITRATE	2.169	0.404	13.93	1.867	1.
8	9.10	CHLORATE	0.229	0.050	1.71	1.900	1.
10	12.01	PHOSPHATE	1.006	0.122	4.22	1.648	1.
Total:			21.778	2.838	97.92	31.183	

4 STD4

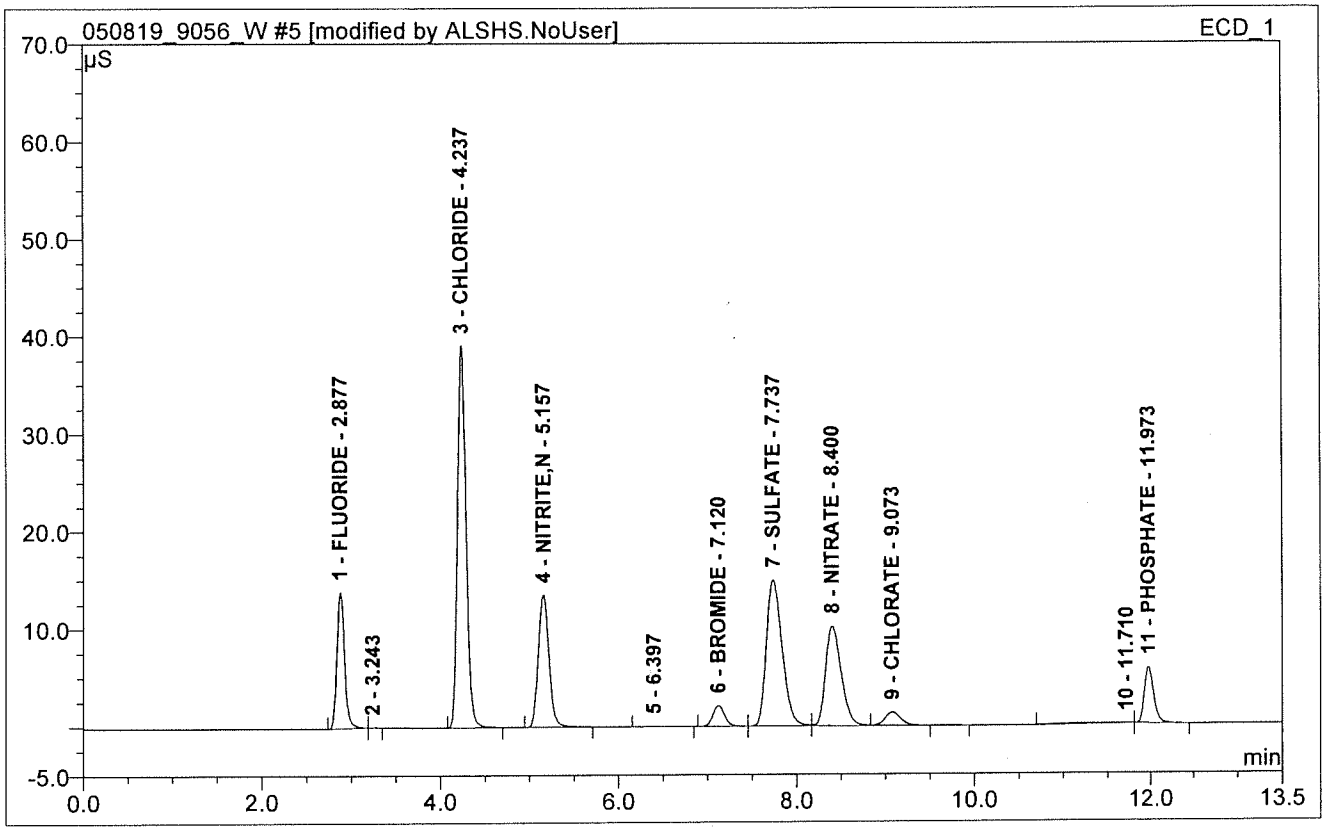
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.167	0.578	9.89	4.120	1.
2	4.24	CHLORIDE	16.548	1.792	30.65	19.847	1.
3	5.15	NITRITE,N	6.168	0.806	13.78	4.192	1.
5	7.13	BROMIDE	0.789	0.122	2.08	3.866	1.
6	7.78	SULFATE	6.411	1.264	21.62	19.589	1.
7	8.44	NITRATE	4.402	0.844	14.42	3.832	1.
8	9.09	CHLORATE	0.490	0.104	1.78	3.943	1.
10	12.00	PHOSPHATE	2.288	0.280	4.79	3.614	1.
Total:			43.263	5.790	99.00	63.003	

5 STD5

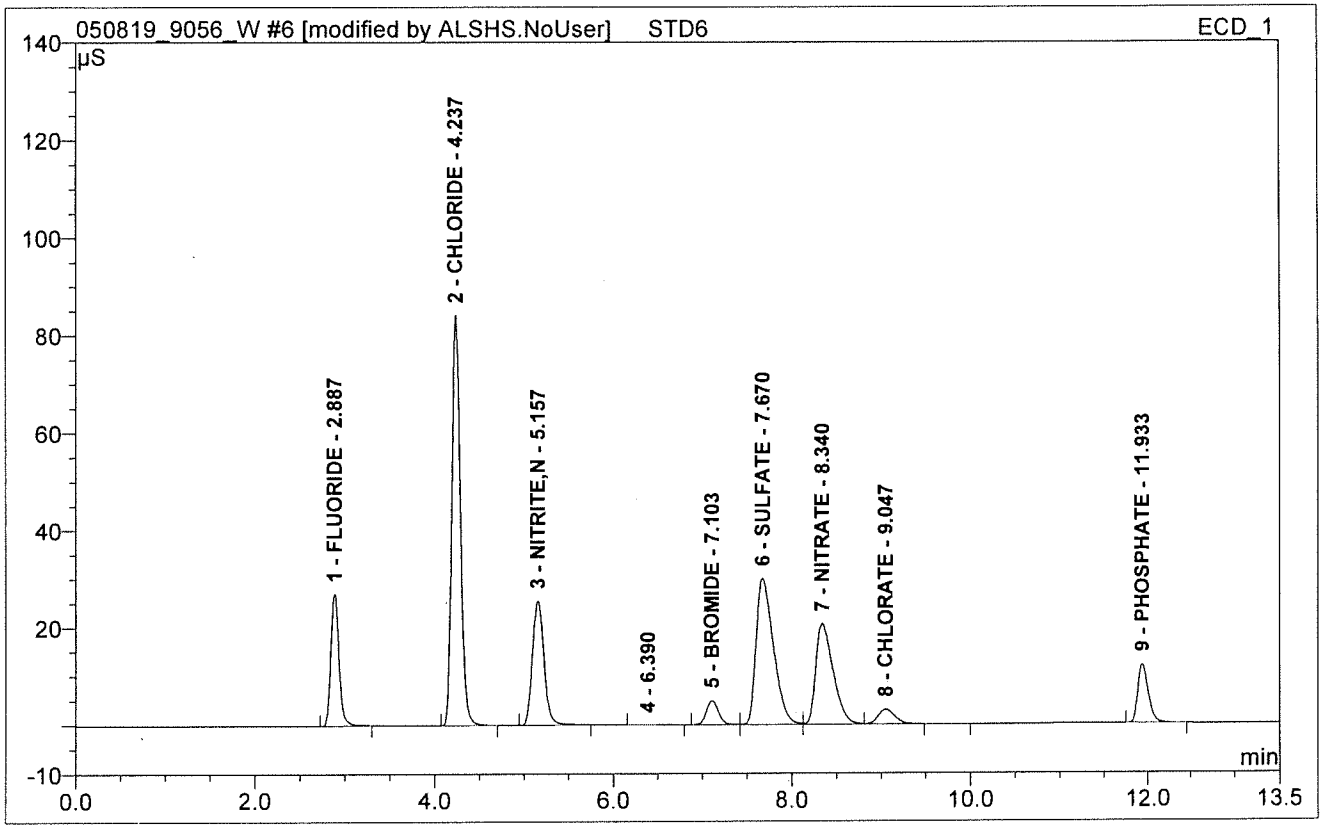
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.88	FLUORIDE	13.911	1.368	9.67	9.690	1.
3	4.24	CHLORIDE	39.139	4.301	30.41	47.342	1.
4	5.16	NITRITE,N	13.545	1.886	13.34	9.771	1.
6	7.12	BROMIDE	2.139	0.326	2.31	10.318	1.
7	7.74	SULFATE	14.998	3.094	21.88	47.543	1.
8	8.40	NITRATE	10.240	2.101	14.86	9.449	1.
9	9.07	CHLORATE	1.339	0.270	1.91	10.172	1.
11	11.97	PHOSPHATE	5.699	0.738	5.22	9.315	1.
Total:			101.010	14.086	99.60	153.600	

6 STD6

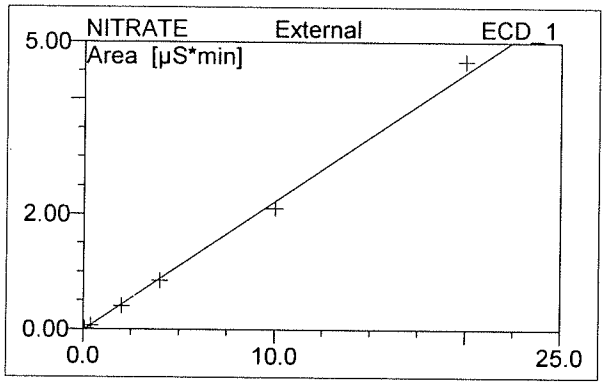
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

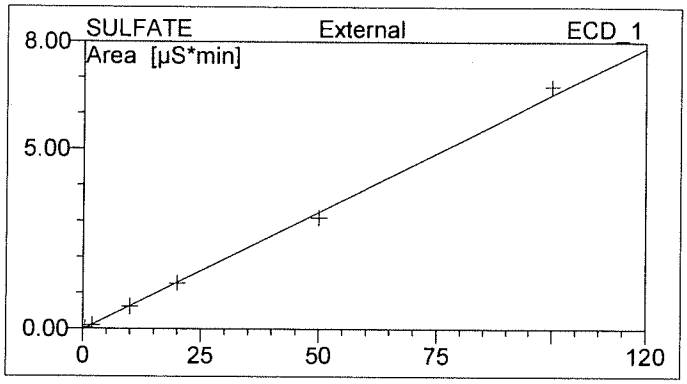


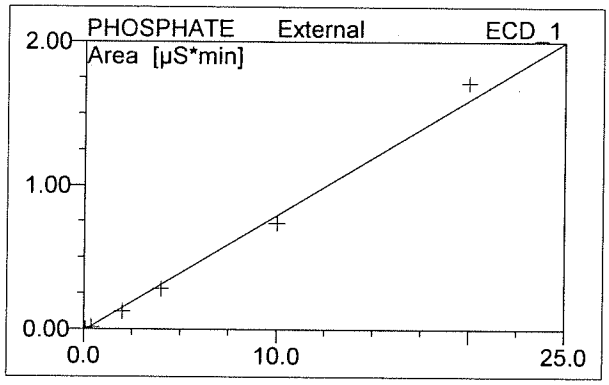
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.89	FLUORIDE	27.202	2.852	9.32	20.158	1.
2	4.24	CHLORIDE	84.194	9.360	30.60	102.790	1.
3	5.16	NITRITE,N	25.559	3.861	12.62	19.970	1.
5	7.10	BROMIDE	4.923	0.763	2.49	24.066	1.
6	7.67	SULFATE	30.095	6.746	22.05	103.329	1.
7	8.34	NITRATE	20.708	4.660	15.23	20.879	1.
8	9.05	CHLORATE	2.949	0.625	2.04	23.464	1.
9	11.93	PHOSPHATE	11.975	1.715	5.60	21.467	1.
Total:			207.605	30.582	99.97	336.123	

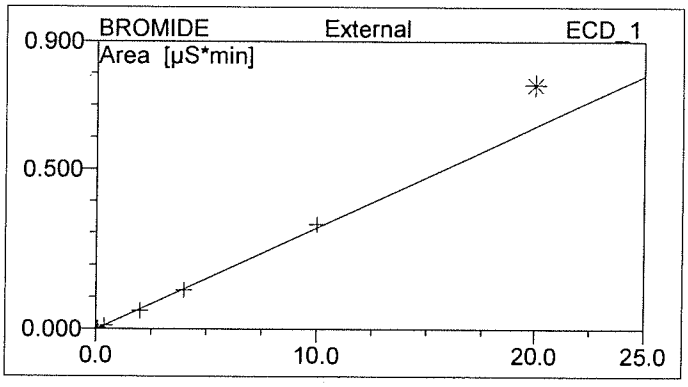
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

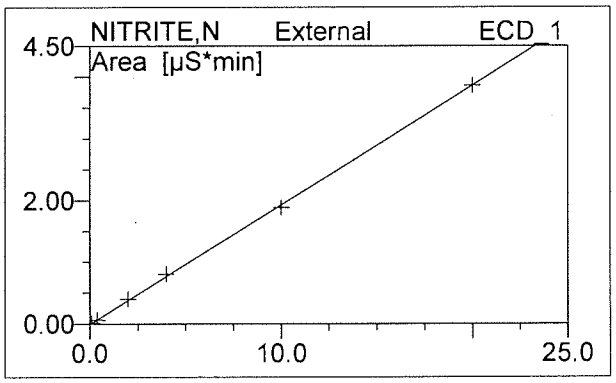
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

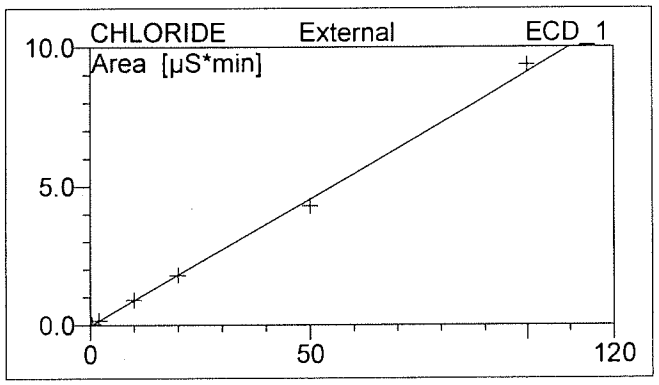
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.936	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.865	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.933	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.761	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.825	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.711	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.921	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.117	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.0000

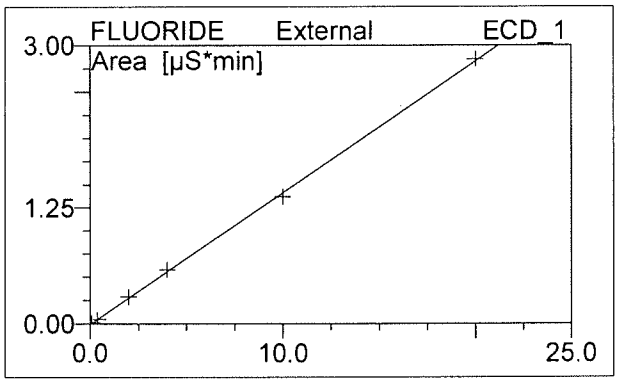
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.5397	0.0147	22.2265

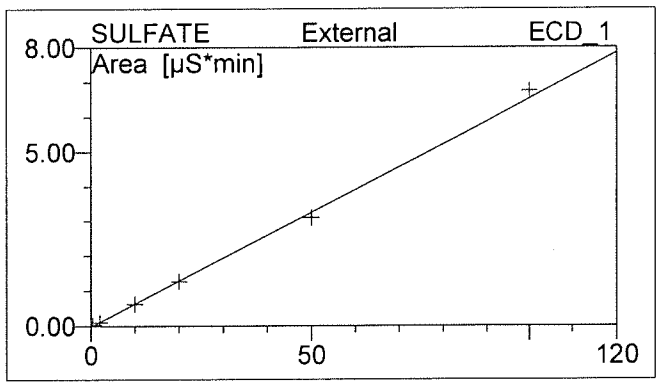
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.000**
Recording Time:	**4/3/2019 8:09**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

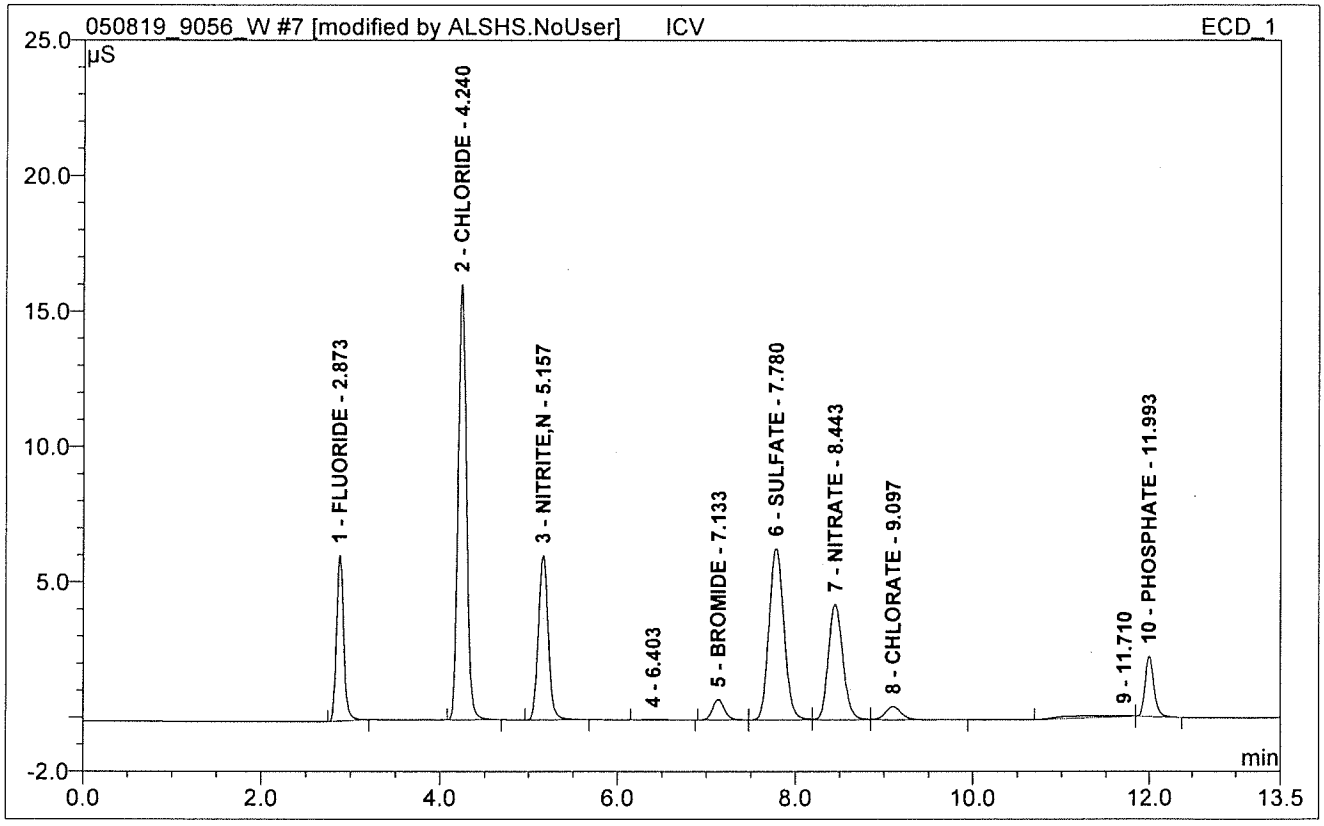
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.9360	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.8652	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.9328	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.7608	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.8254	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.7112	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.9208	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.1166	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.540	0.015	22.226

7 ICV

297.020.6806

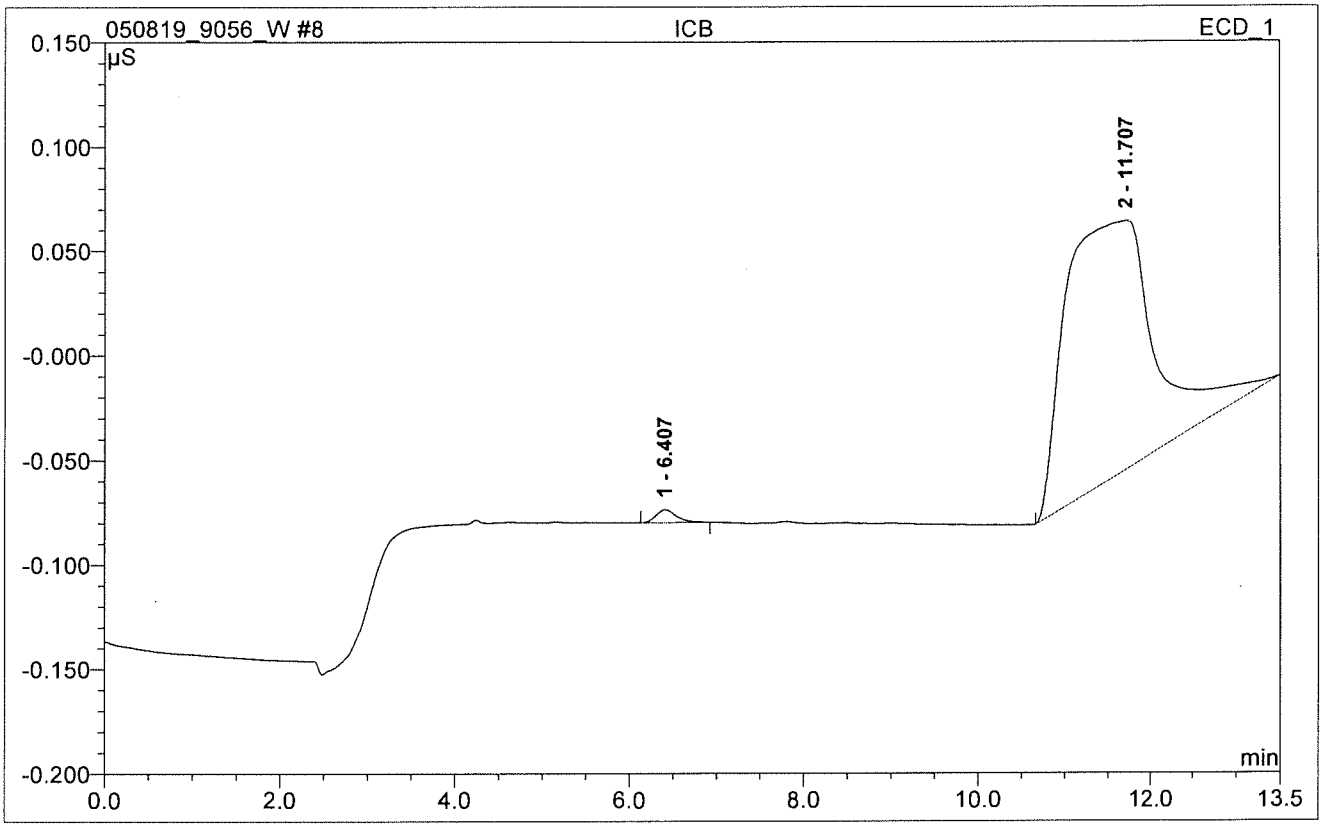
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.120	0.572	10.00	4.075	1.
2	4.24	CHLORIDE	16.070	1.742	30.46	19.294	1.
3	5.16	NITRITE,N	6.066	0.792	13.85	4.120	1.
5	7.13	BROMIDE	0.771	0.119	2.08	3.784	1.
6	7.78	SULFATE	6.333	1.239	21.67	19.210	1.
7	8.44	NITRATE	4.275	0.817	14.29	3.715	1.
8	9.10	CHLORATE	0.498	0.106	1.85	3.999	1.
10	11.99	PHOSPHATE	2.227	0.272	4.77	3.516	1.
Total:			42.362	5.659	98.97	61.712	

8 ICB

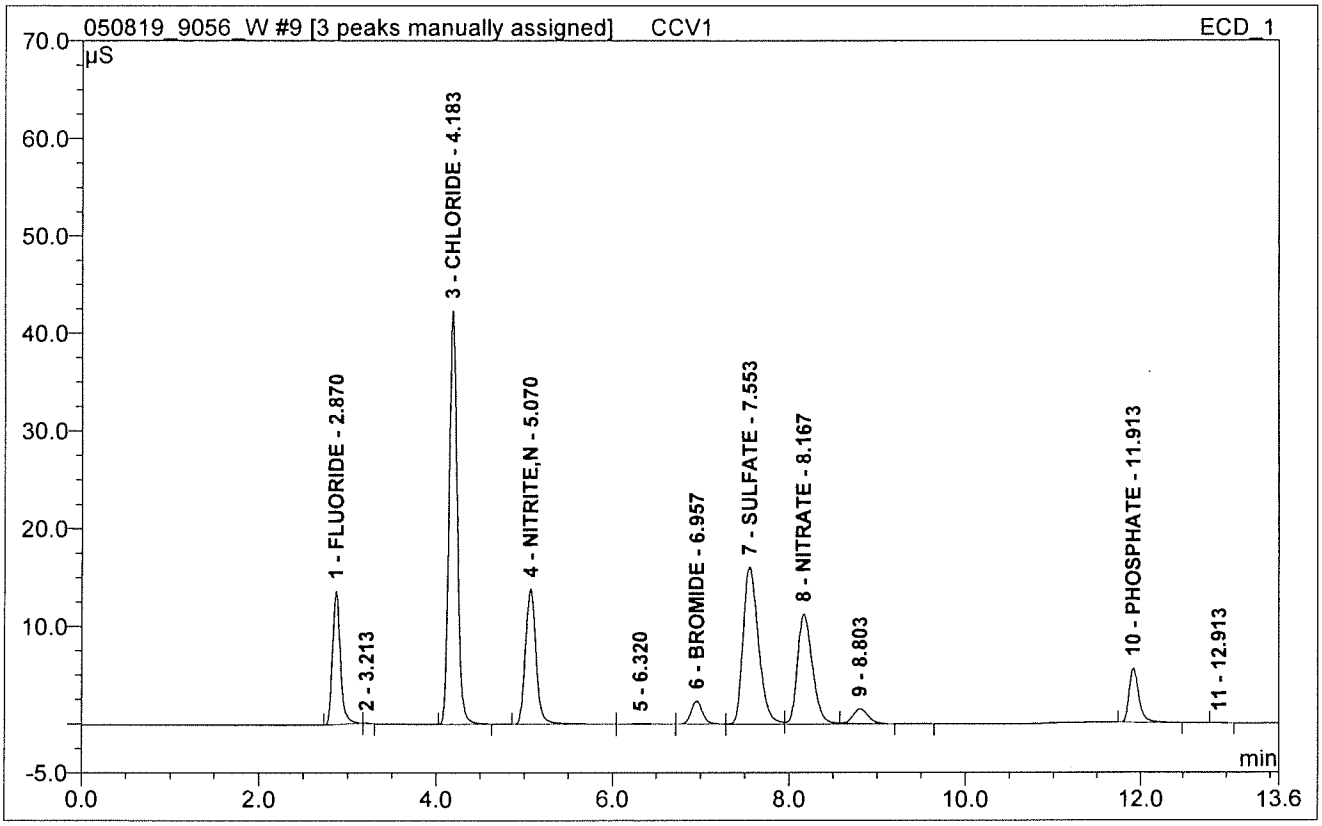
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

9 CCV1

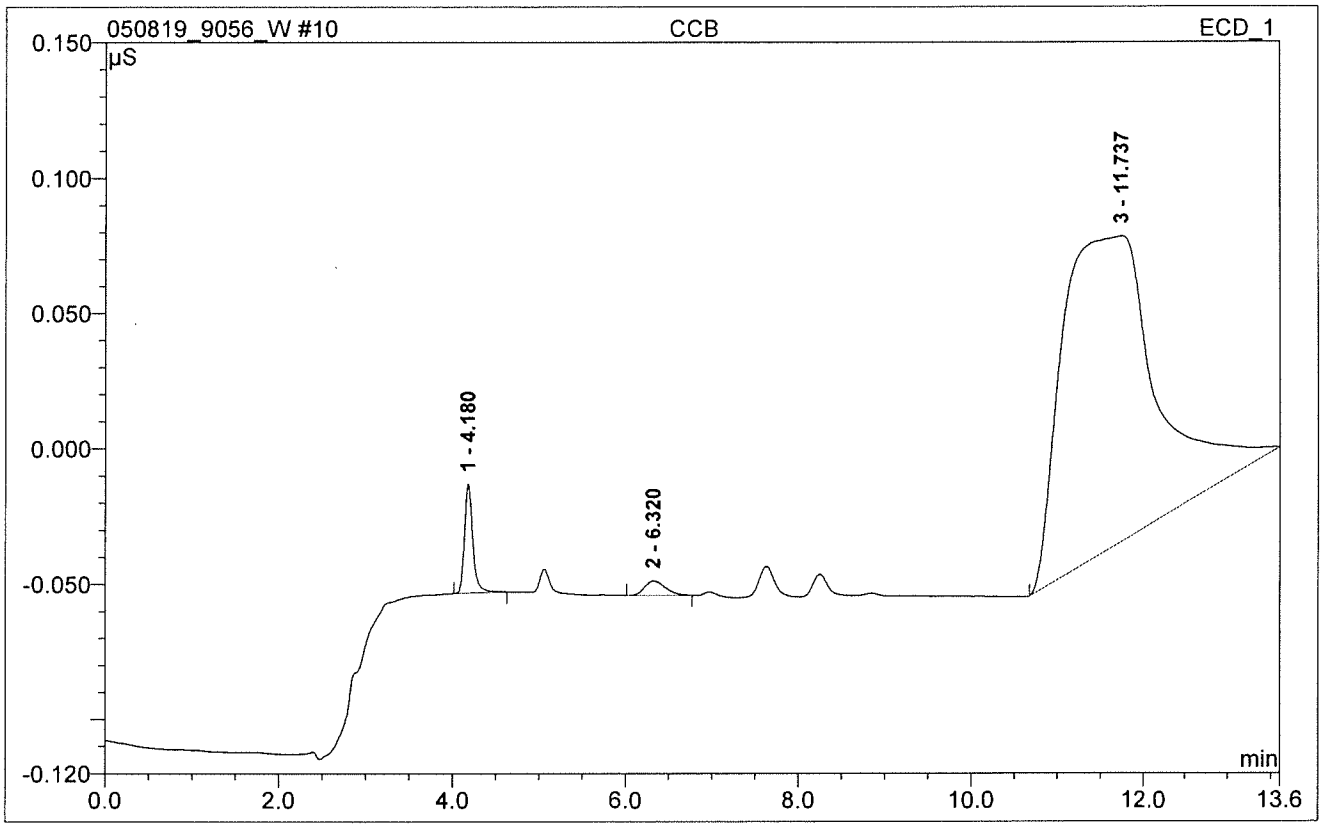
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 11:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	13.681	1.392	9.38	9.859	1.
3	4.18	CHLORIDE	42.353	4.559	30.71	50.162	1.
4	5.07	NITRITE,N	13.879	1.971	13.28	10.211	1.
6	6.96	BROMIDE	2.378	0.353	2.38	11.155	1.
7	7.55	SULFATE	16.139	3.260	21.96	50.078	1.
8	8.17	NITRATE	11.321	2.269	15.28	10.196	1.
10	11.91	PHOSPHATE	5.564	0.736	4.96	9.286	1.
Total:			105.316	14.539	97.96	150.947	

10 CCB

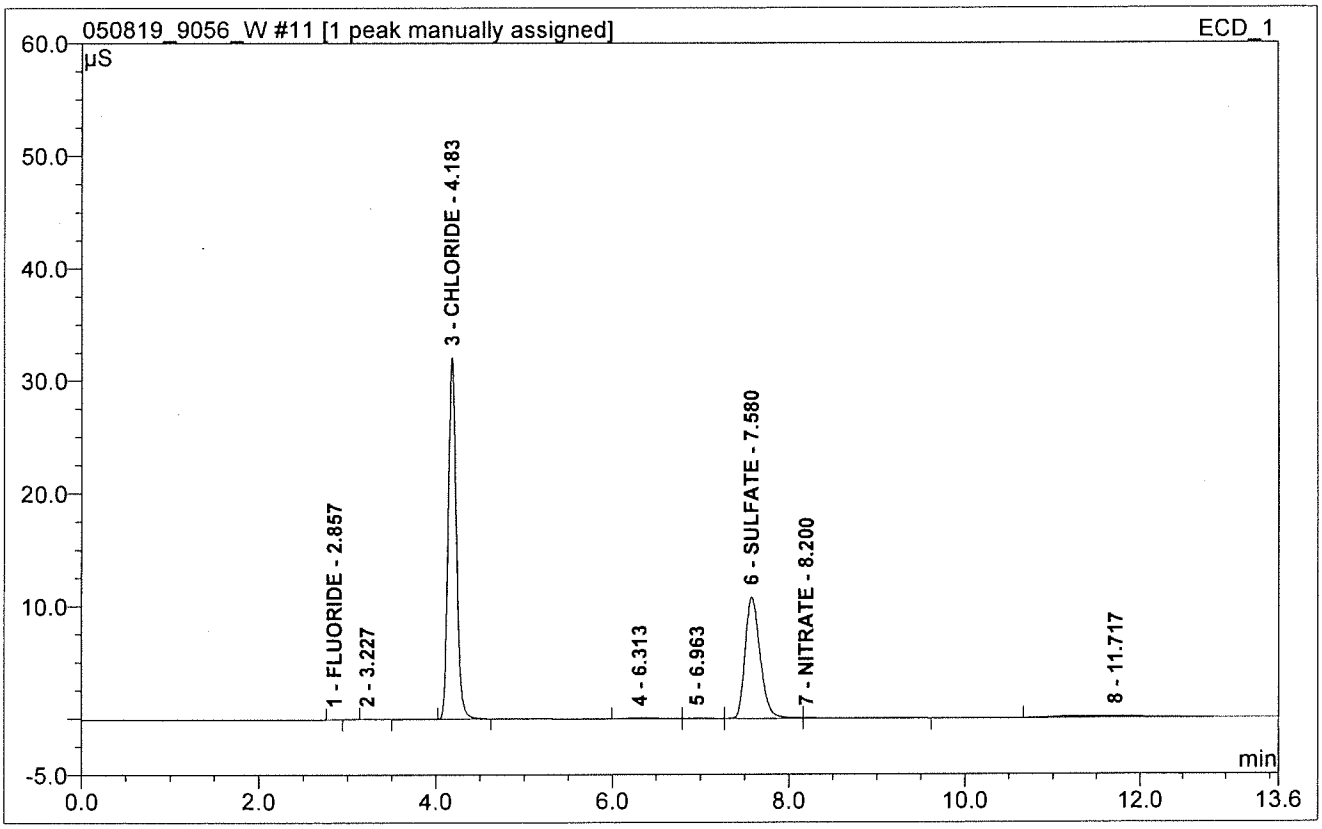
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 11:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



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

11 HS19050374-04DF10

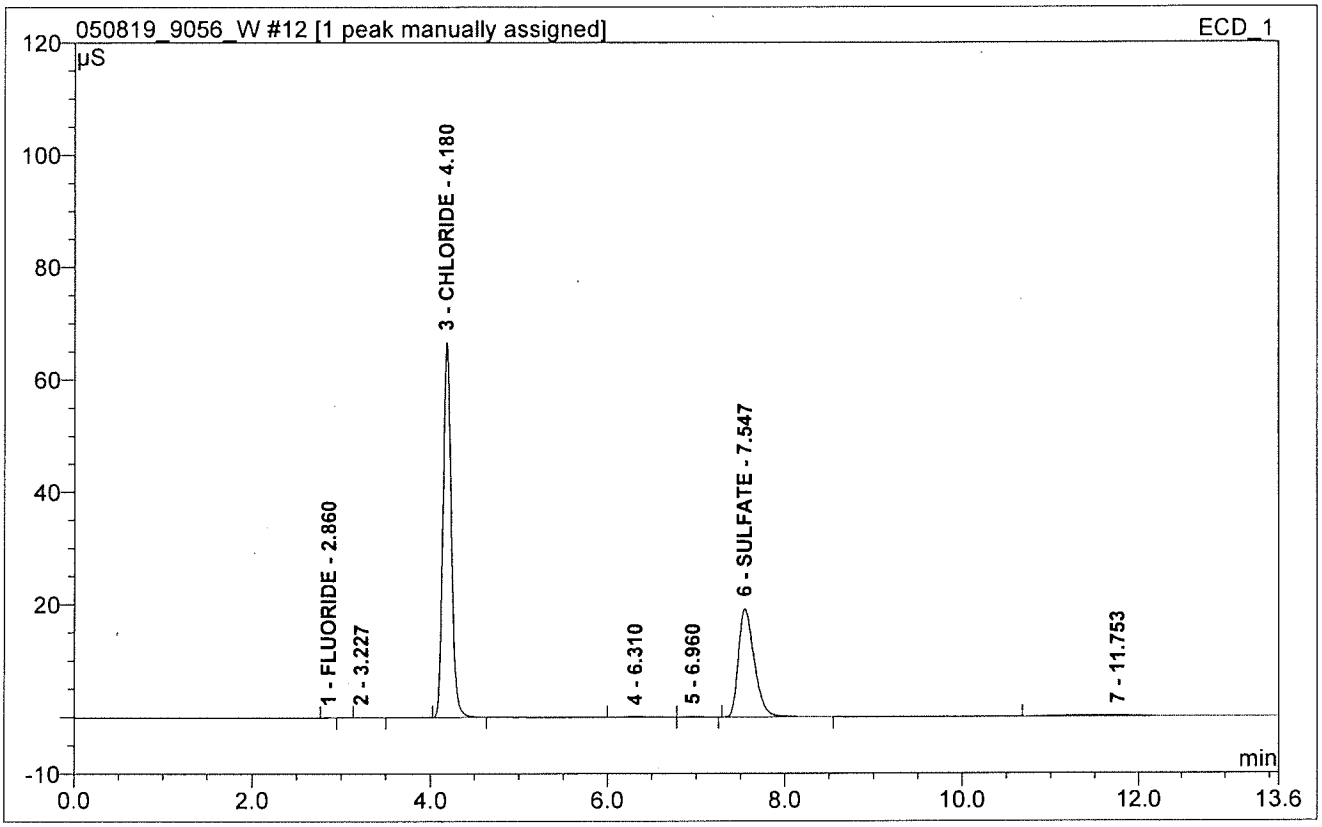
Sample Name:	**HS19050374-04DF10**	*Injection Volume:*	**10.0**
Vial Number:	**58**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 11:33**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.024	0.002	0.03	0.556	10.
3	4.18	CHLORIDE	32.061	3.436	59.30	378.554	10.
6	7.58	SULFATE	10.852	2.154	37.18	331.864	10.
7	8.20	NITRATE	0.044	0.014	0.24	1.267	10.
Total:			42.980	5.606	96.76	712.241	

12 HS19050374-05DF10

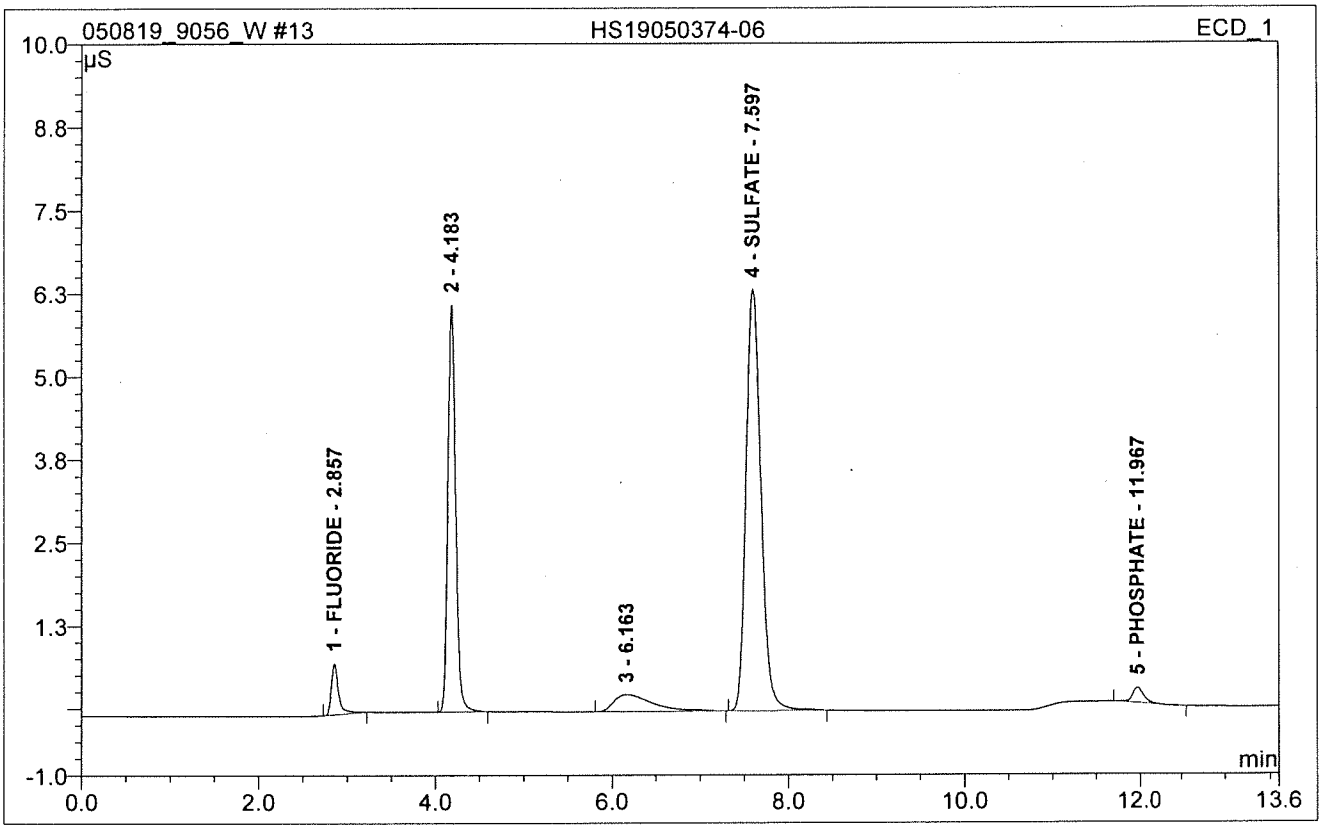
Sample Name:	**HS19050374-05DF10**	*Injection Volume:*	**10.0**
Vial Number:	**59**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 11:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.019	0.002	0.01	0.533	10.
3	4.18	CHLORIDE	66.622	7.235	63.43	794.909	10.
6	7.55	SULFATE	19.154	3.971	34.82	609.425	10.
Total:			85.795	11.207	98.26	1404.868	

13 HS19050374-06

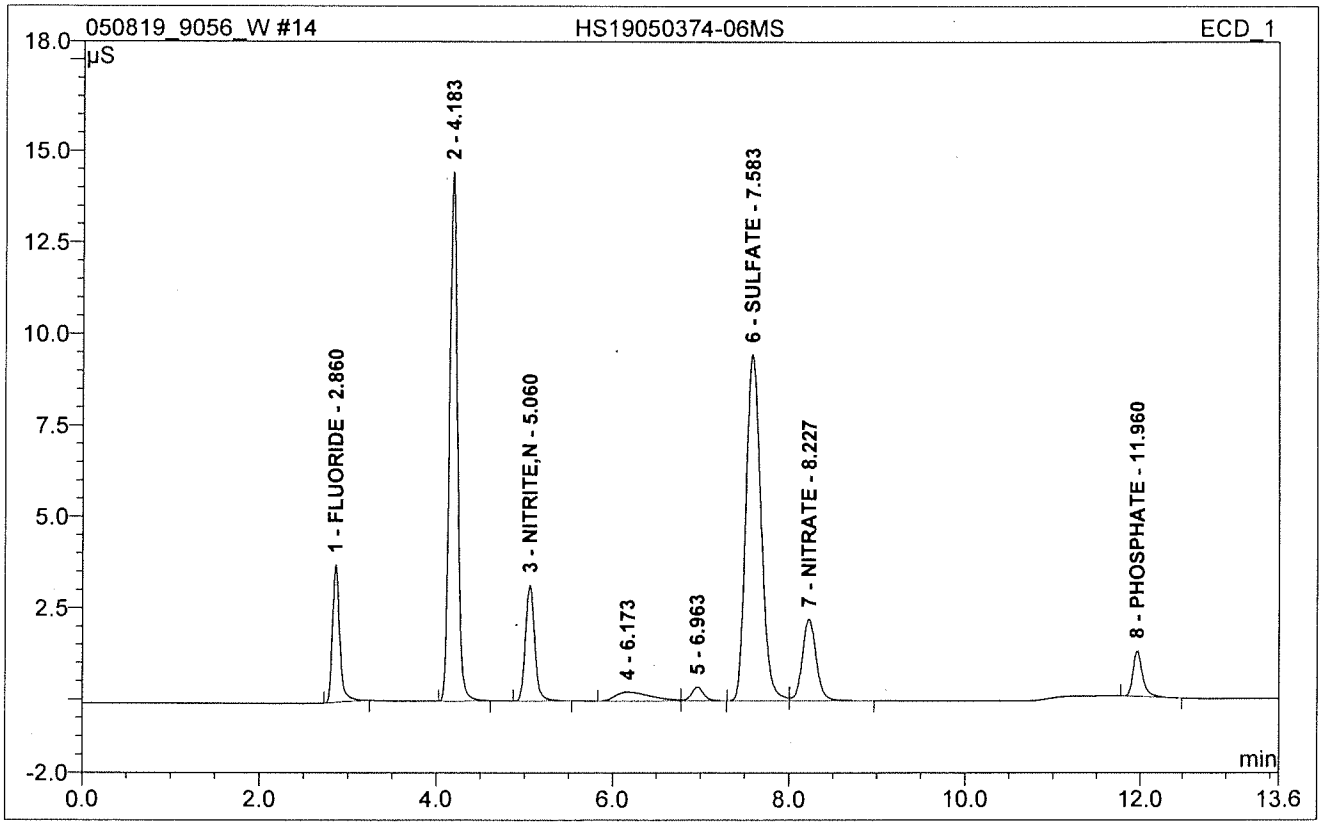
Sample Name:	**HS19050374-06**	*Injection Volume:*	**10.0**
Vial Number:	**60**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 12:03**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.773	0.073	3.46	0.555	1.
4	7.60	SULFATE	6.344	1.241	58.95	19.241	1.
5	11.97	PHOSPHATE	0.231	0.033	1.58	0.538	1.
Total:			7.348	1.347	63.98	20.334	

14 HS19050374-06MS

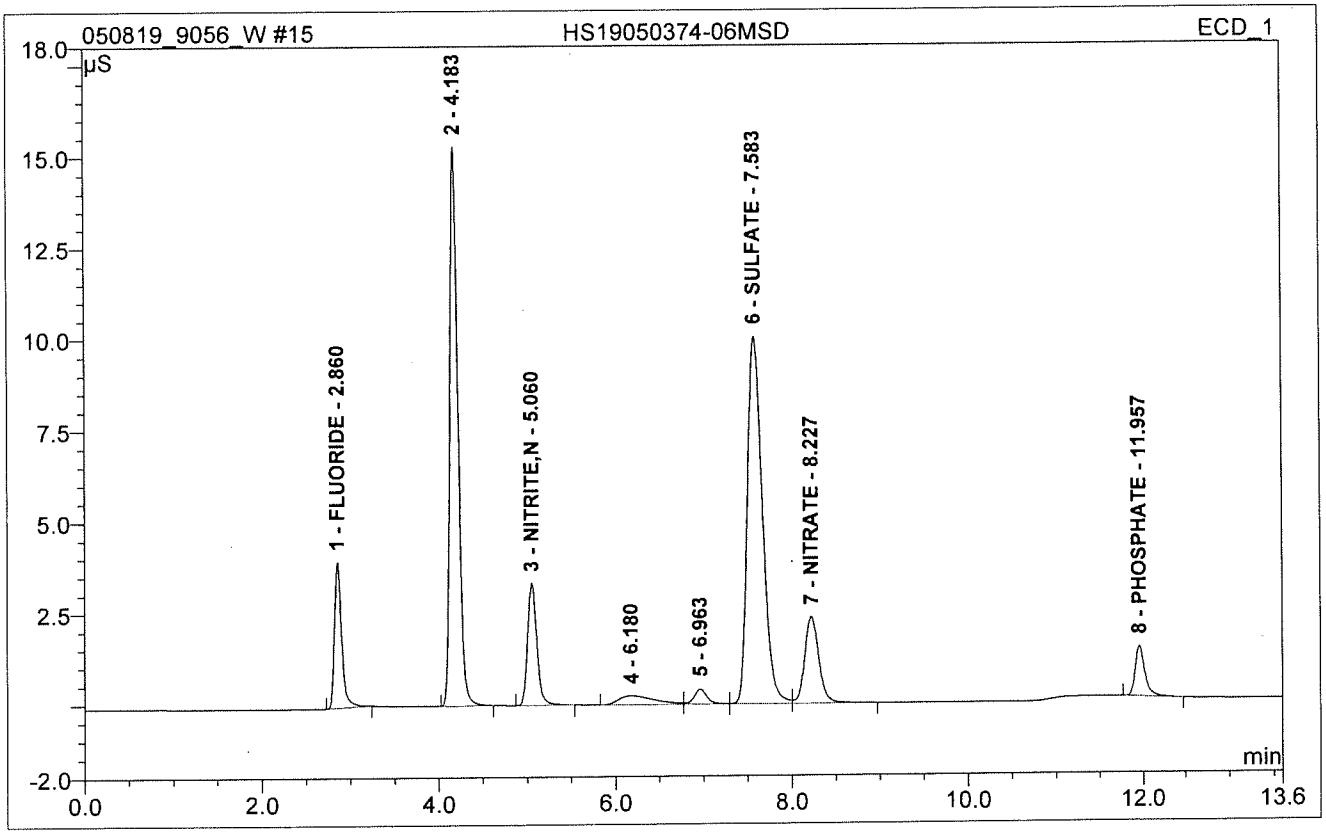
Sample Name:	**HS19050374-06MS**	*Injection Volume:*	**10.0**
Vial Number:	**61**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 12:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	3.751	0.355	7.27	2.546	1.
3	5.06	NITRITE,N	3.159	0.387	7.92	2.029	1.
6	7.58	SULFATE	9.492	1.876	38.42	28.940	1.
7	8.23	NITRATE	2.232	0.410	8.40	1.897	1.
8	11.96	PHOSPHATE	1.244	0.163	3.34	2.157	1.
Total:			19.878	3.192	65.36	37.569	

15 HS19050374-06MSD

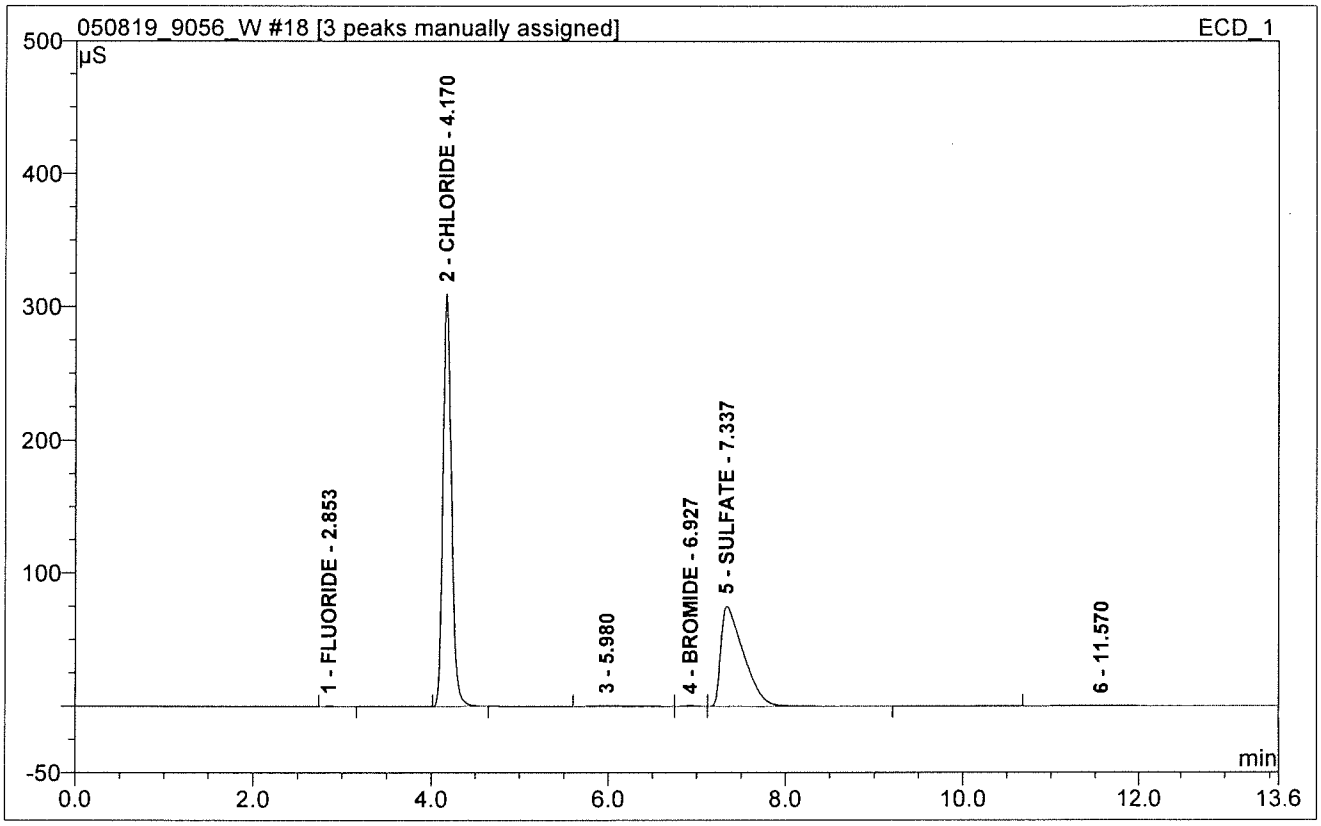
Sample Name:	**HS19050374-06MSD**	*Injection Volume:*	**10.0**
Vial Number:	**62**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 12:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	4.001	0.379	7.29	2.713	1.
3	5.06	NITRITE,N	3.358	0.412	7.93	2.158	1.
6	7.58	SULFATE	10.056	1.994	38.39	30.734	1.
7	8.23	NITRATE	2.385	0.440	8.48	2.031	1.
8	11.96	PHOSPHATE	1.376	0.179	3.45	2.353	1.
Total:			21.177	3.404	65.54	39.989	

18 HS19050374-04

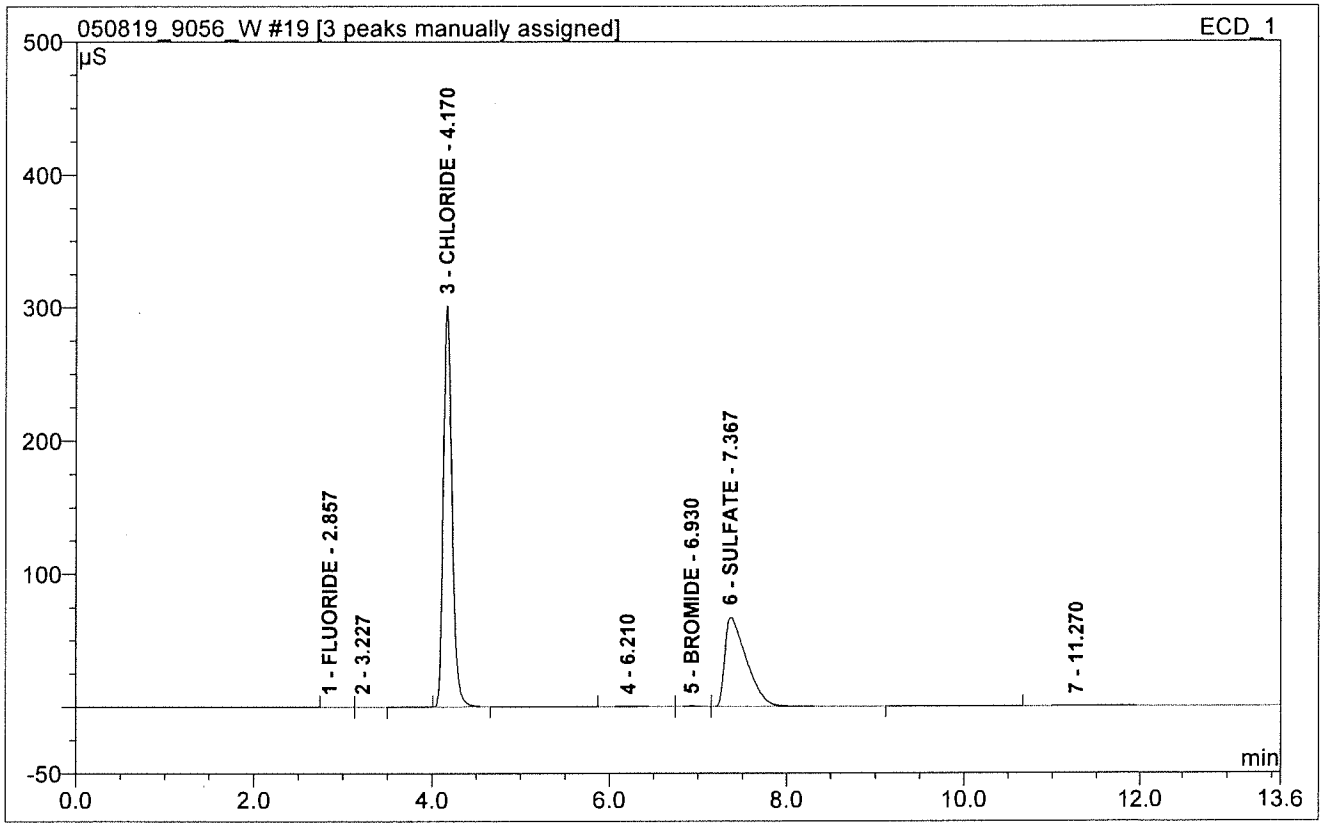
Sample Name:	**HS19050374-04**	*Injection Volume:*	**10.0**
Vial Number:	**69**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 13:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.85	FLUORIDE	0.314	0.032	0.06	0.270	1.
2	4.17	CHLORIDE	309.509	34.357	60.39	376.748	1.
4	6.93	BROMIDE	0.444	0.071	0.13	2.281	1.
5	7.34	SULFATE	75.093	22.041	38.74	337.003	1.
Total:			385.360	56.502	99.32	716.302	

19 HS19050374-05DF2

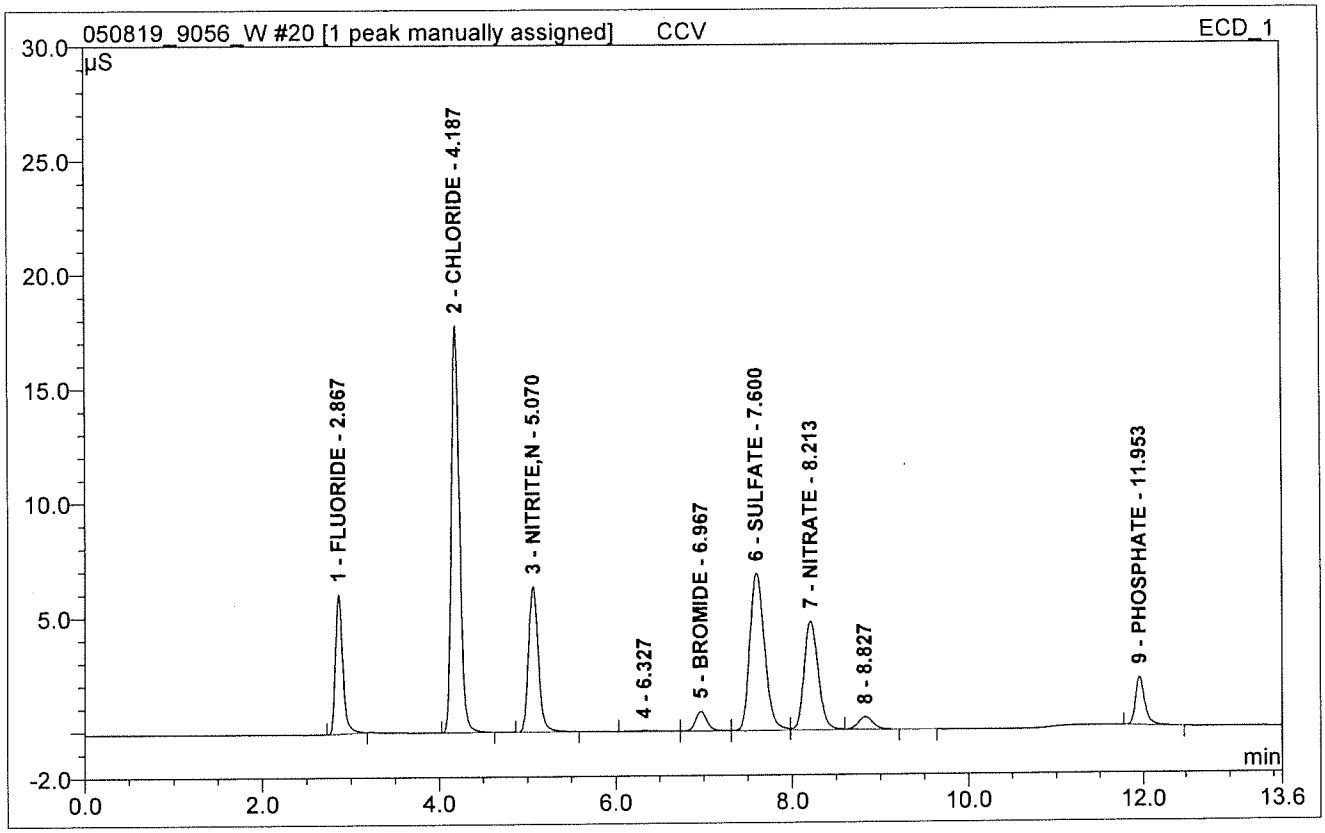
Sample Name:	**HS19050374-05DF2**	*Injection Volume:*	**10.0**
Vial Number:	**70**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**2.**
Recording Time:	**5/8/2019 13:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.110	0.013	0.02	0.266	2.
3	4.17	CHLORIDE	301.220	33.884	63.87	743.137	2.
5	6.93	BROMIDE	0.394	0.058	0.11	3.721	2.
6	7.37	SULFATE	67.486	18.852	35.53	576.546	2.
Total:			369.209	52.807	99.53	1323.669	

20 CCV

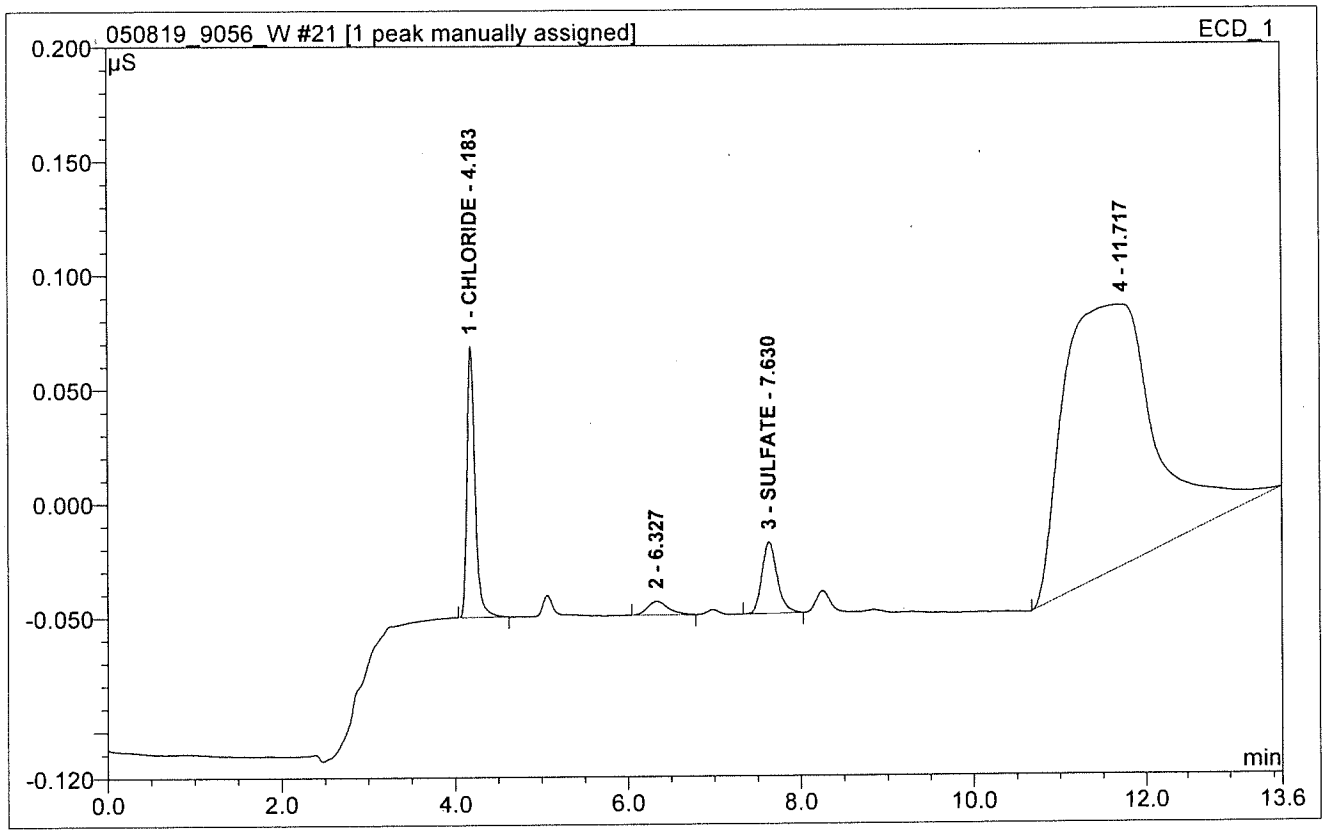
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 13:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.102	0.584	9.65	4.158	1.
2	4.19	CHLORIDE	17.794	1.894	31.31	20.962	1.
3	5.07	NITRITE,N	6.358	0.828	13.69	4.309	1.
5	6.97	BROMIDE	0.864	0.129	2.13	4.105	1.
6	7.60	SULFATE	6.868	1.331	22.00	20.603	1.
7	8.21	NITRATE	4.768	0.903	14.93	4.096	1.
9	11.95	PHOSPHATE	2.107	0.269	4.44	3.468	1.
Total:			44.862	5.937	98.16	61.701	

21 CCB

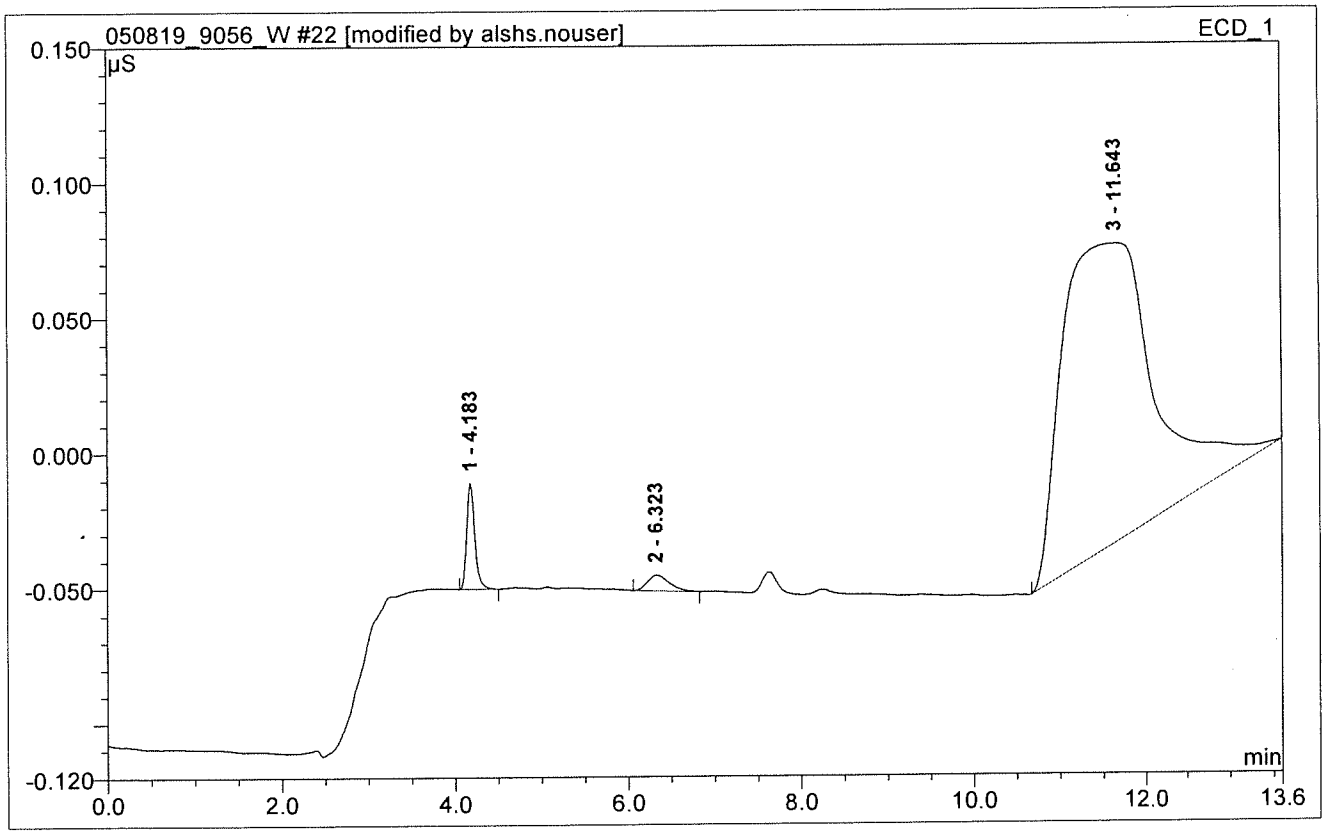
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 14:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.18	CHLORIDE	0.119	0.013	7.70	0.343	1.
3	7.63	SULFATE	0.031	0.006	3.82	0.374	1.
Total:			0.150	0.019	11.53	0.717	

22 MBLK1-050619

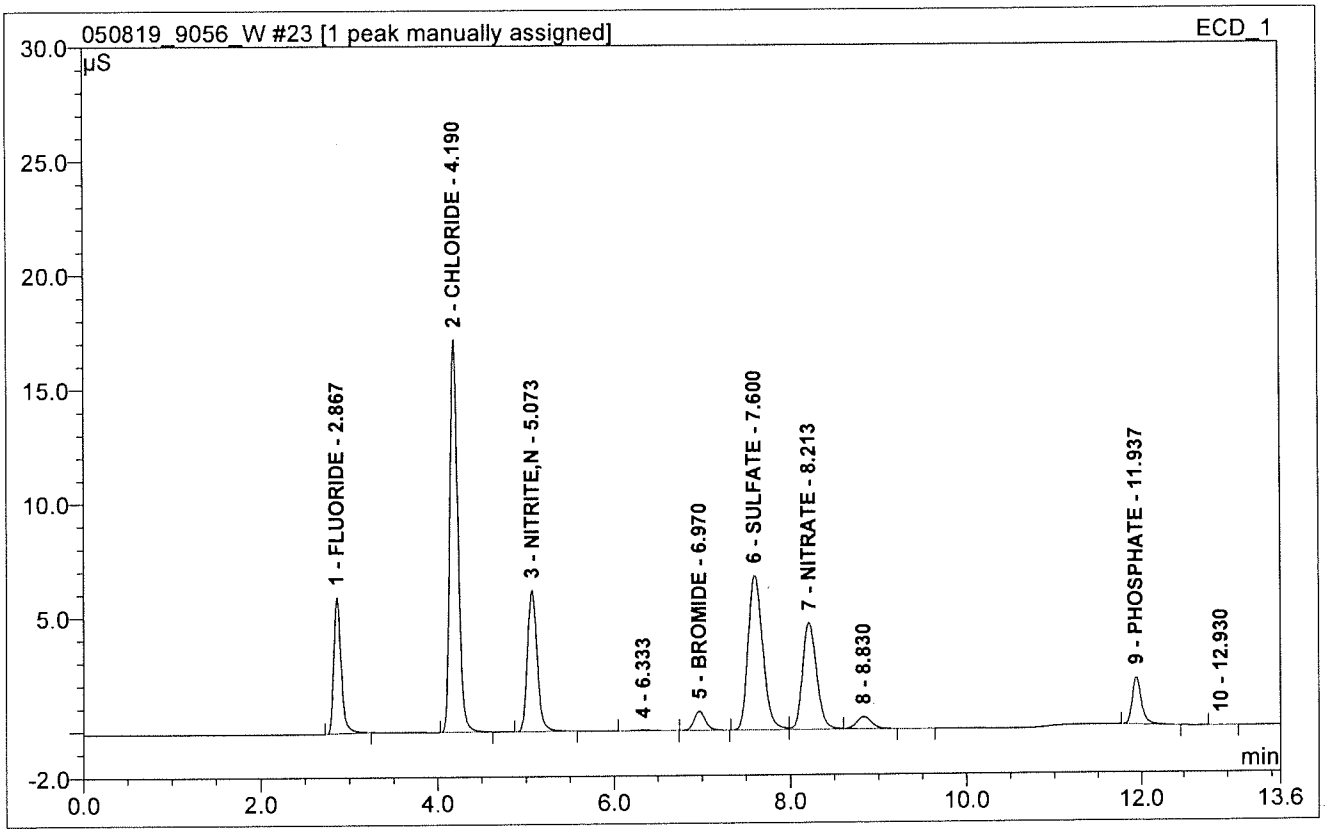
Sample Name:	**MBLK1-050619**	*Injection Volume:*	**10.0**
Vial Number:	**51**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 14:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



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

23 LCS1-050619

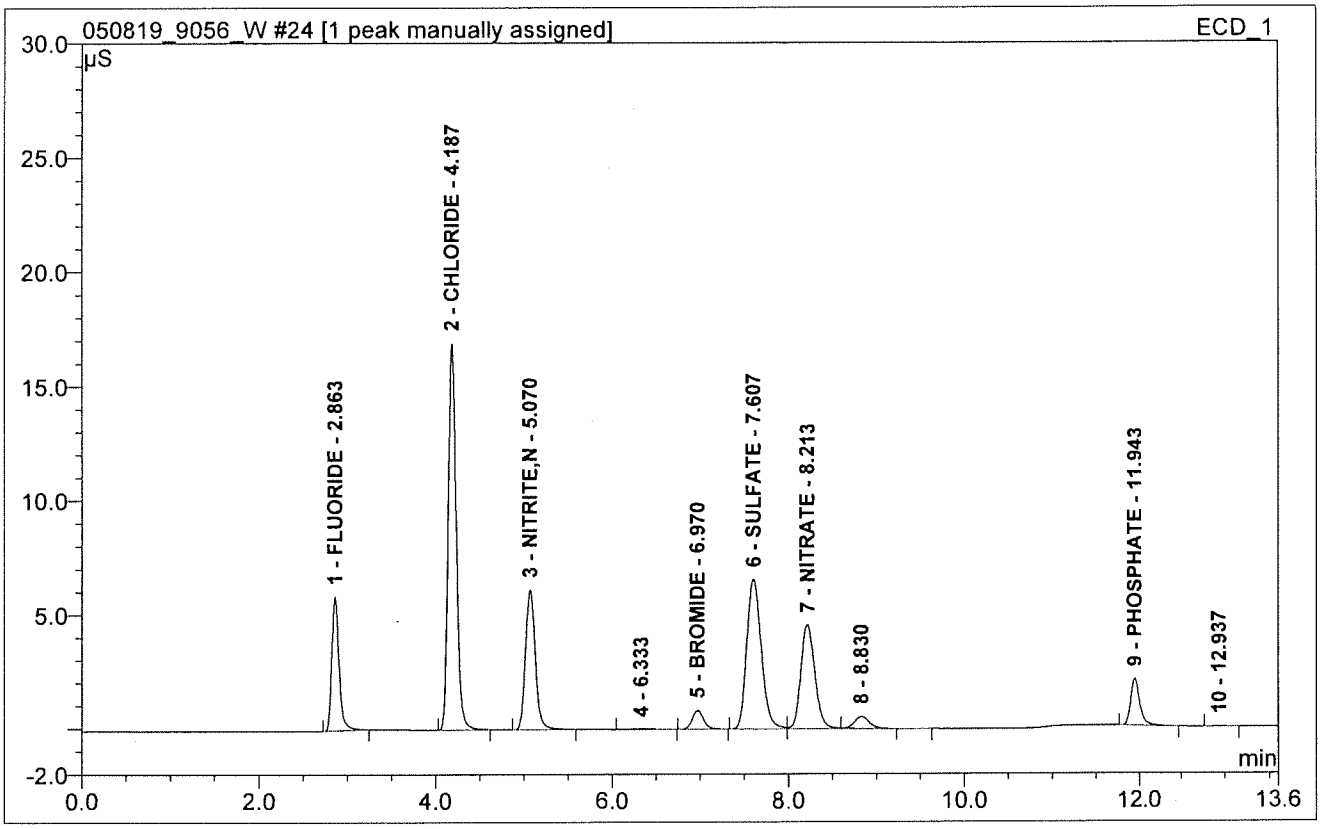
Sample Name:	**LCS1-050619**	*Injection Volume:*	**10.0**
Vial Number:	**52**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 14:30**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.956	0.573	9.73	4.080	1.
2	4.19	CHLORIDE	17.183	1.828	31.09	20.239	1.
3	5.07	NITRITE,N	6.169	0.802	13.63	4.171	1.
5	6.97	BROMIDE	0.842	0.125	2.12	3.969	1.
6	7.60	SULFATE	6.762	1.301	22.12	20.153	1.
7	8.21	NITRATE	4.682	0.883	15.01	4.006	1.
9	11.94	PHOSPHATE	2.059	0.260	4.43	3.364	1.
Total:			43.653	5.771	98.13	59.981	

24 LCSD1-050619

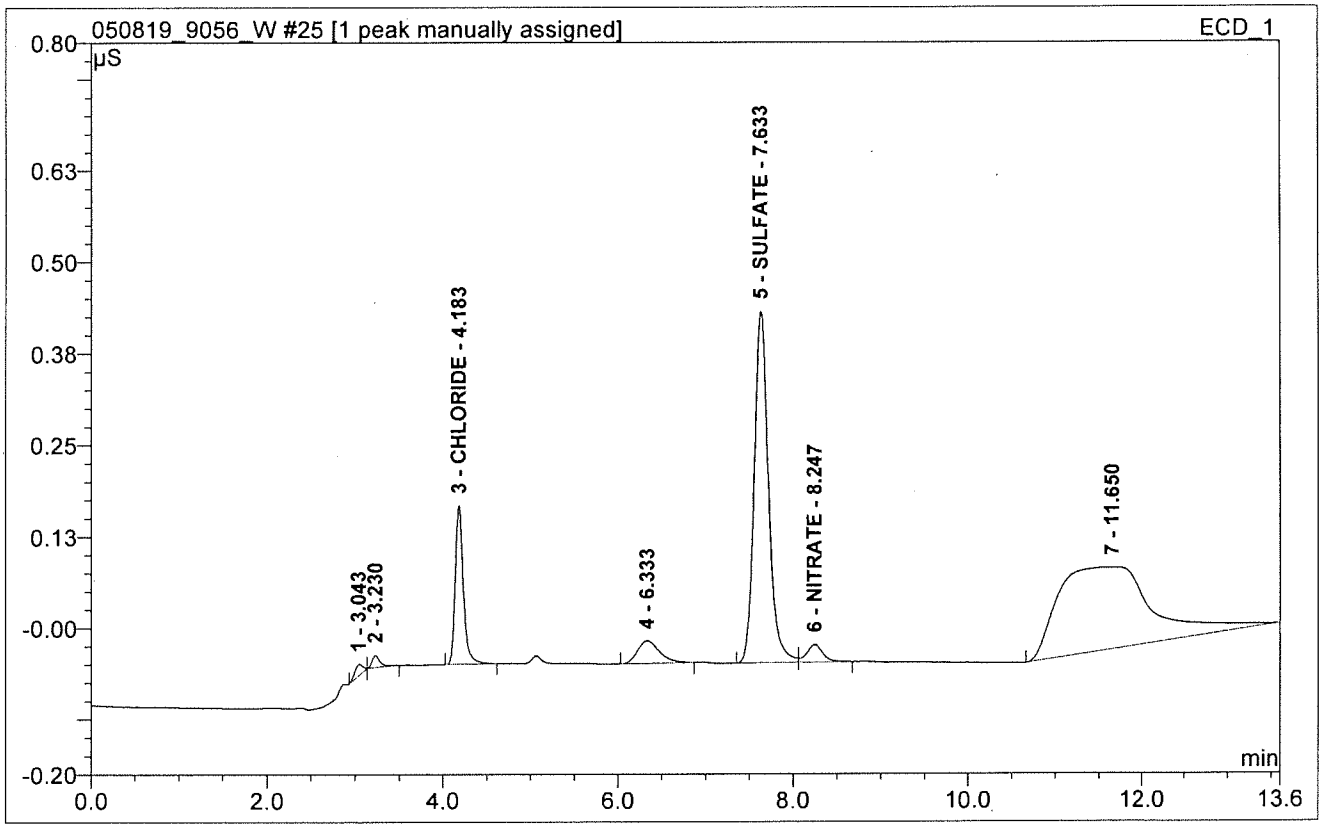
Sample Name:	**LCSD1-050619**	*Injection Volume:*	**10.0**
Vial Number:	**53**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 14:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.891	0.564	9.76	4.023	1.
2	4.19	CHLORIDE	16.917	1.802	31.14	19.947	1.
3	5.07	NITRITE,N	6.140	0.798	13.79	4.152	1.
5	6.97	BROMIDE	0.827	0.122	2.11	3.893	1.
6	7.61	SULFATE	6.573	1.265	21.86	19.597	1.
7	8.21	NITRATE	4.604	0.867	14.99	3.937	1.
9	11.94	PHOSPHATE	2.041	0.258	4.46	3.333	1.
Total:			42.992	5.676	98.11	58.881	

25 HS19050374-01DF5

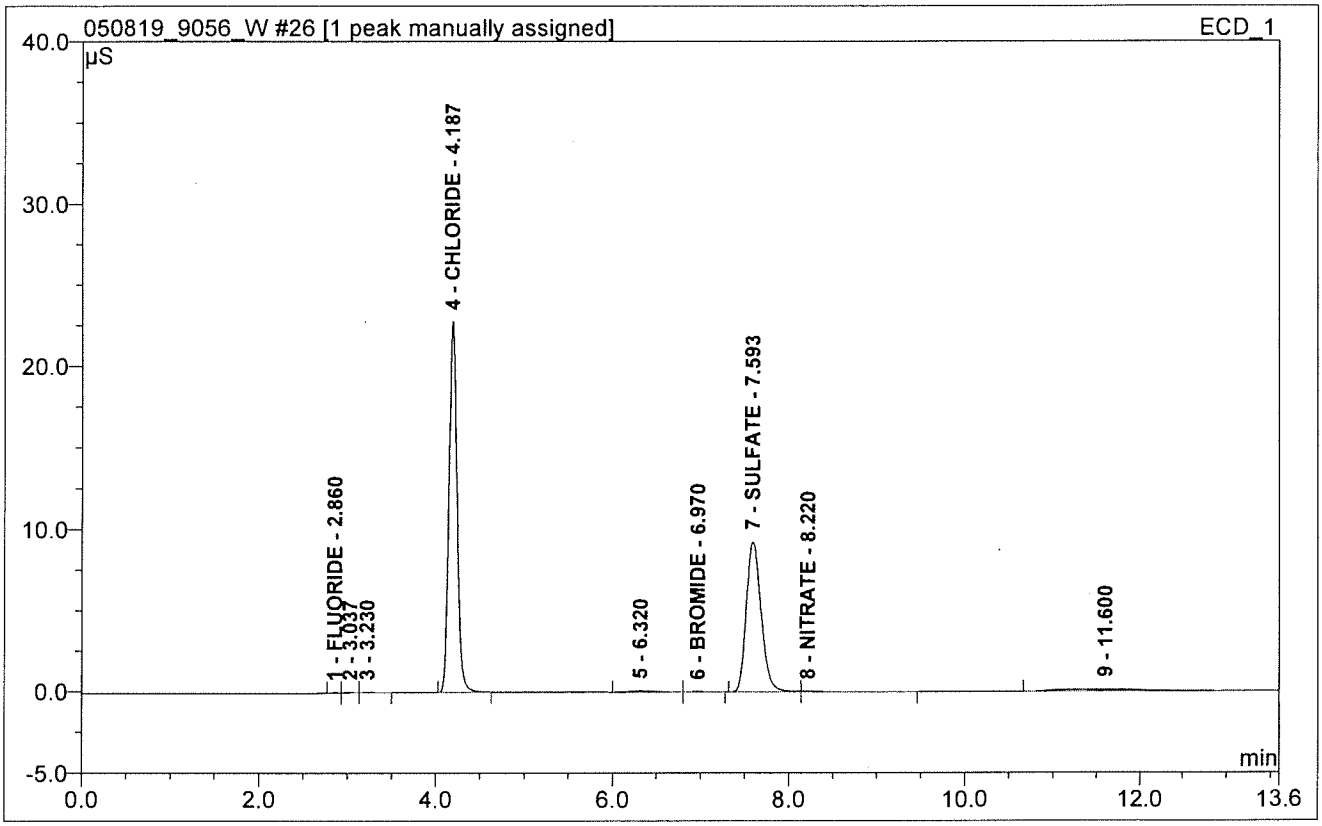
Sample Name:	**HS19050374-01DF5**	*Injection Volume:*	**10.0**
Vial Number:	**54**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**5.**
Recording Time:	**5/8/2019 15:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	4.18	CHLORIDE	0.217	0.023	8.51	2.289	5.
5	7.63	SULFATE	0.481	0.091	33.13	8.327	5.
6	8.25	NITRATE	0.024	0.005	1.83	0.432	5.
Total:			0.722	0.119	43.47	11.048	

26 HS19050374-02DF10

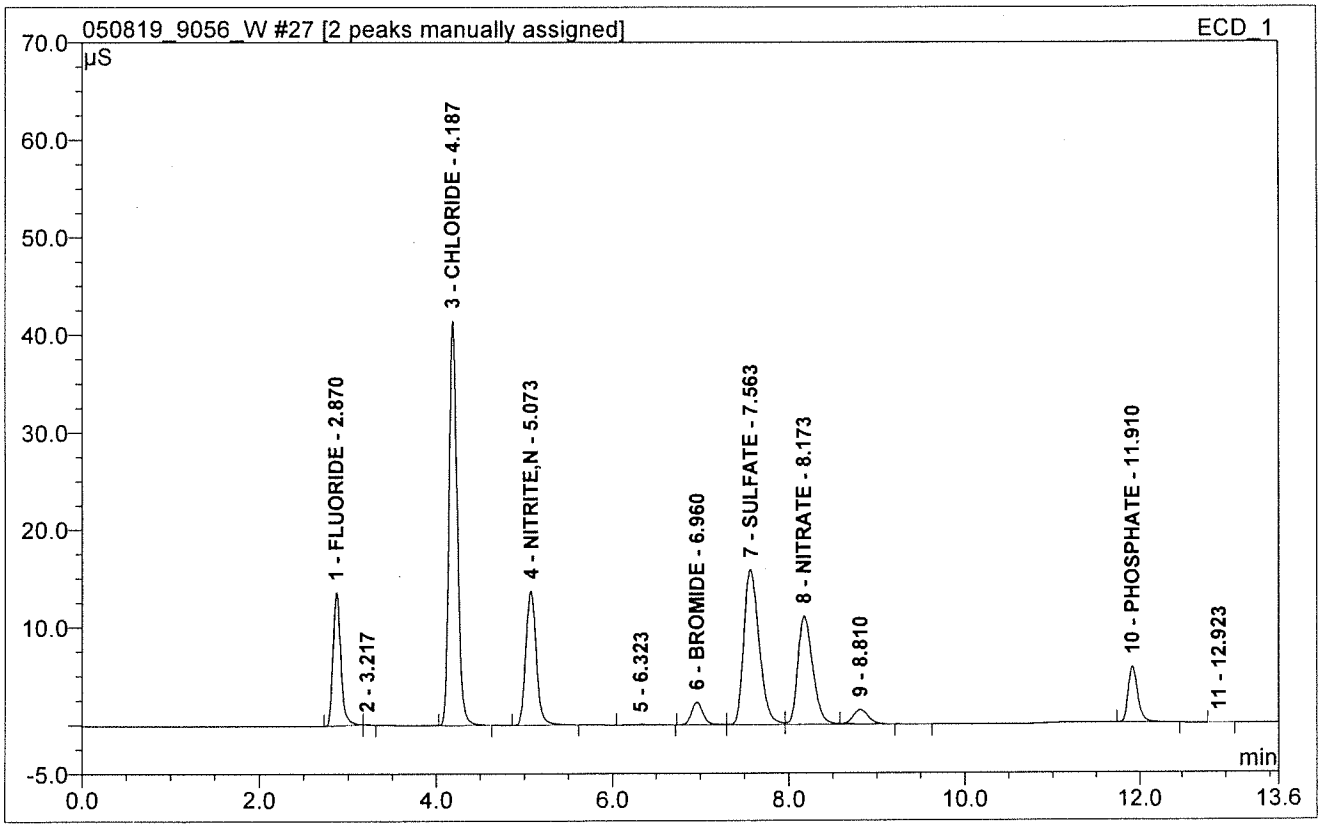
Sample Name:	**HS19050374-02DF10**	*Injection Volume:*	**10.0**
Vial Number:	**55**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 15:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.020	0.002	0.04	0.535	10.
4	4.19	CHLORIDE	22.786	2.433	54.77	268.686	10.
6	6.97	BROMIDE	0.028	0.005	0.11	1.960	10.
7	7.59	SULFATE	9.260	1.815	40.86	280.084	10.
8	8.22	NITRATE	0.041	0.013	0.29	1.212	10.
Total:			32.134	4.268	96.06	552.477	

27 CCV1

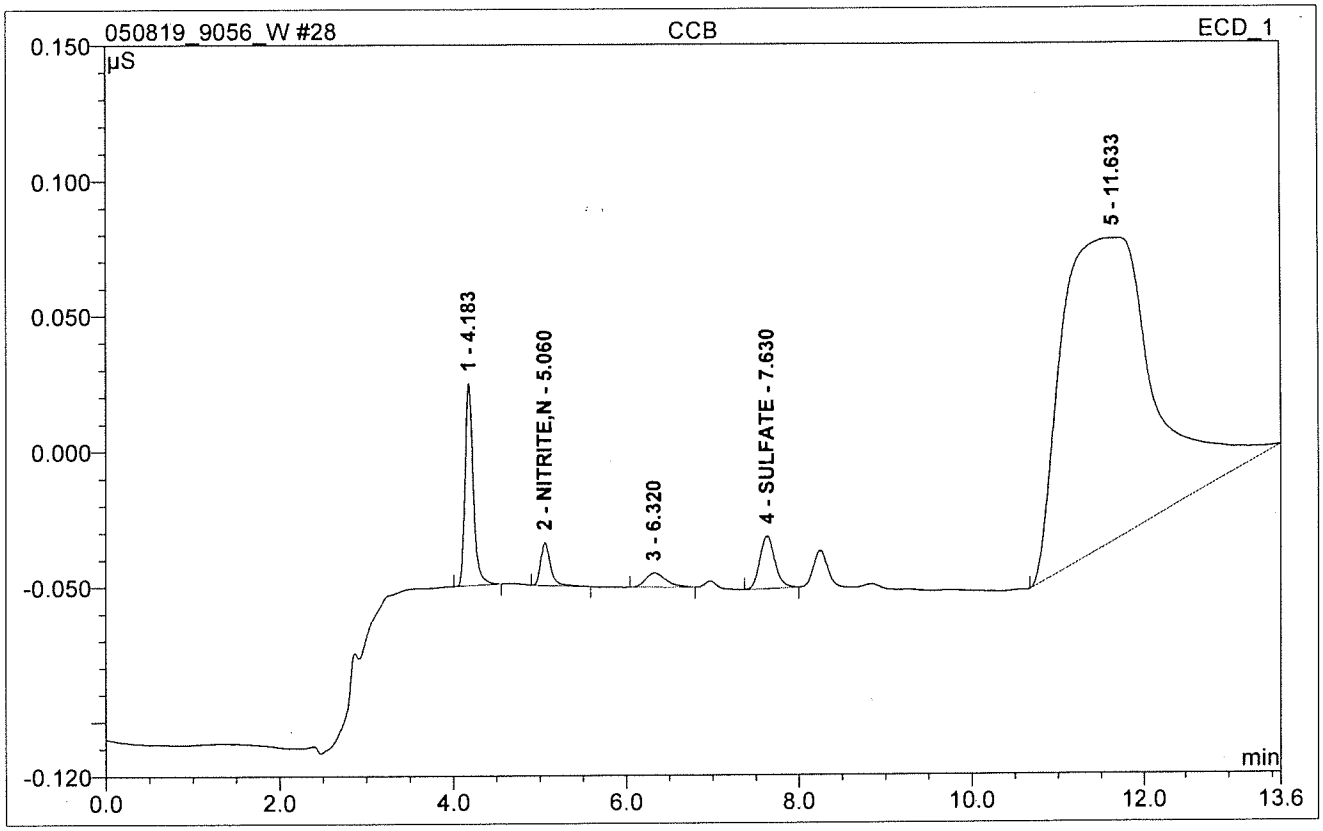
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 15:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	13.624	1.374	9.46	9.735	1.
3	4.19	CHLORIDE	41.470	4.471	30.77	49.201	1.
4	5.07	NITRITE,N	13.686	1.911	13.15	9.901	1.
6	6.96	BROMIDE	2.315	0.343	2.36	10.842	1.
7	7.56	SULFATE	15.849	3.197	22.00	49.122	1.
8	8.17	NITRATE	11.060	2.207	15.19	9.920	1.
10	11.91	PHOSPHATE	5.661	0.735	5.06	9.269	1.
Total:			103.666	14.238	97.99	147.990	

28 CCB

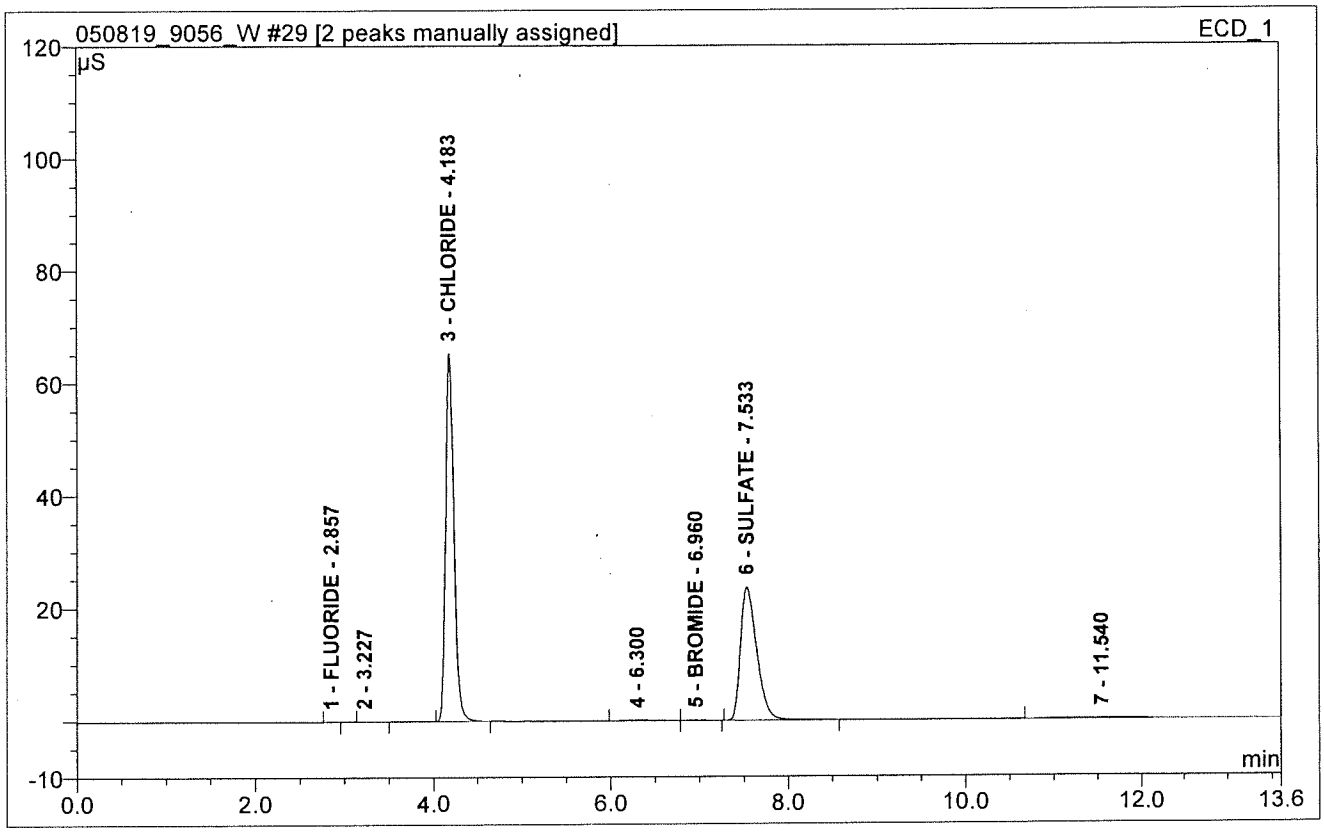
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 15:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	5.06	NITRITE,N	0.016	0.002	1.33	0.041	1.
4	7.63	SULFATE	0.019	0.004	2.47	0.336	1.
Total:			0.035	0.006	3.80	0.377	

29 HS19050374-03DF5

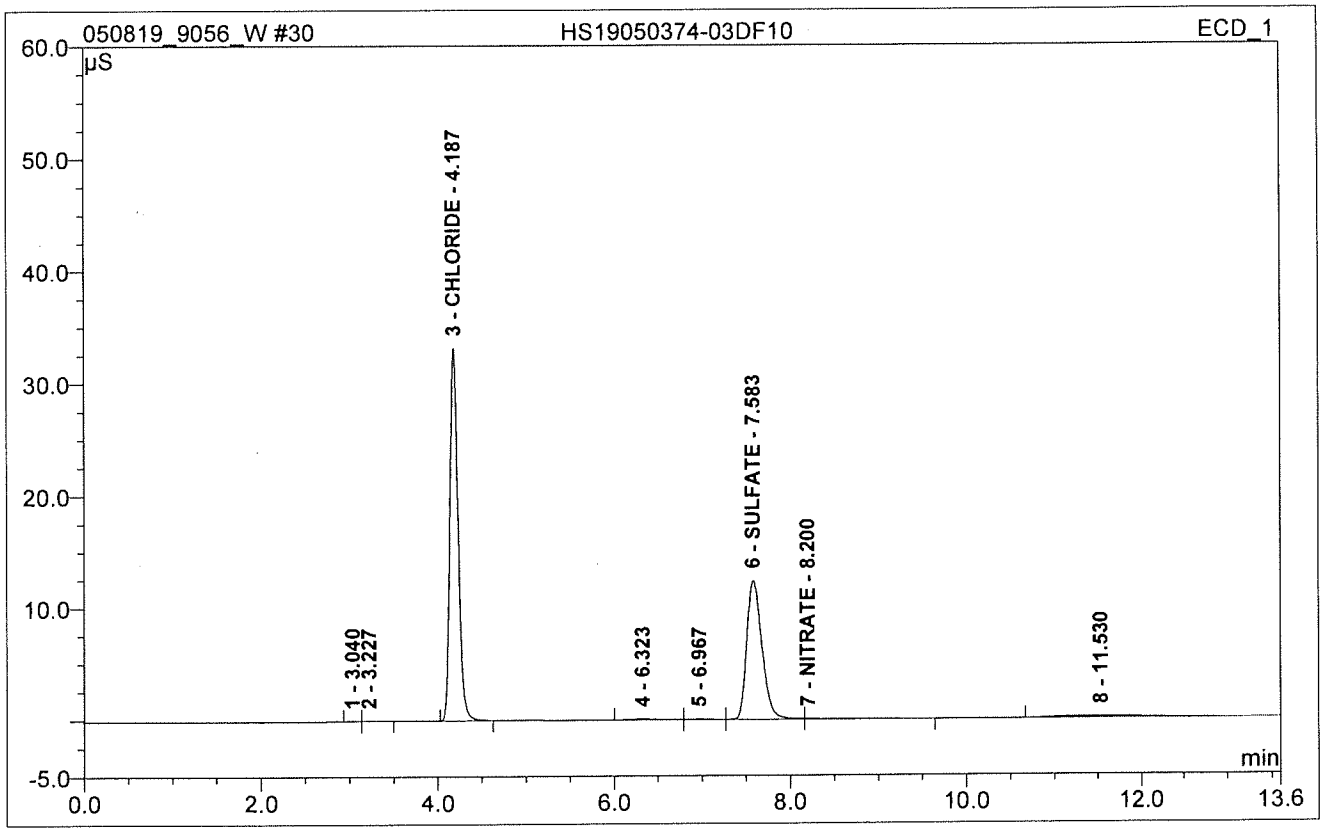
Sample Name:	**HS19050374-03DF5**	*Injection Volume:*	**10.0**
Vial Number:	**56**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**5.**
Recording Time:	**5/8/2019 15:59**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.037	0.003	0.02	0.317	5.
3	4.18	CHLORIDE	65.320	7.116	57.80	390.968	5.
5	6.96	BROMIDE	0.076	0.012	0.10	2.171	5.
6	7.53	SULFATE	23.616	4.992	40.55	382.709	5.
Total:			89.050	12.124	98.48	776.164	

30 HS19050374-03DF10

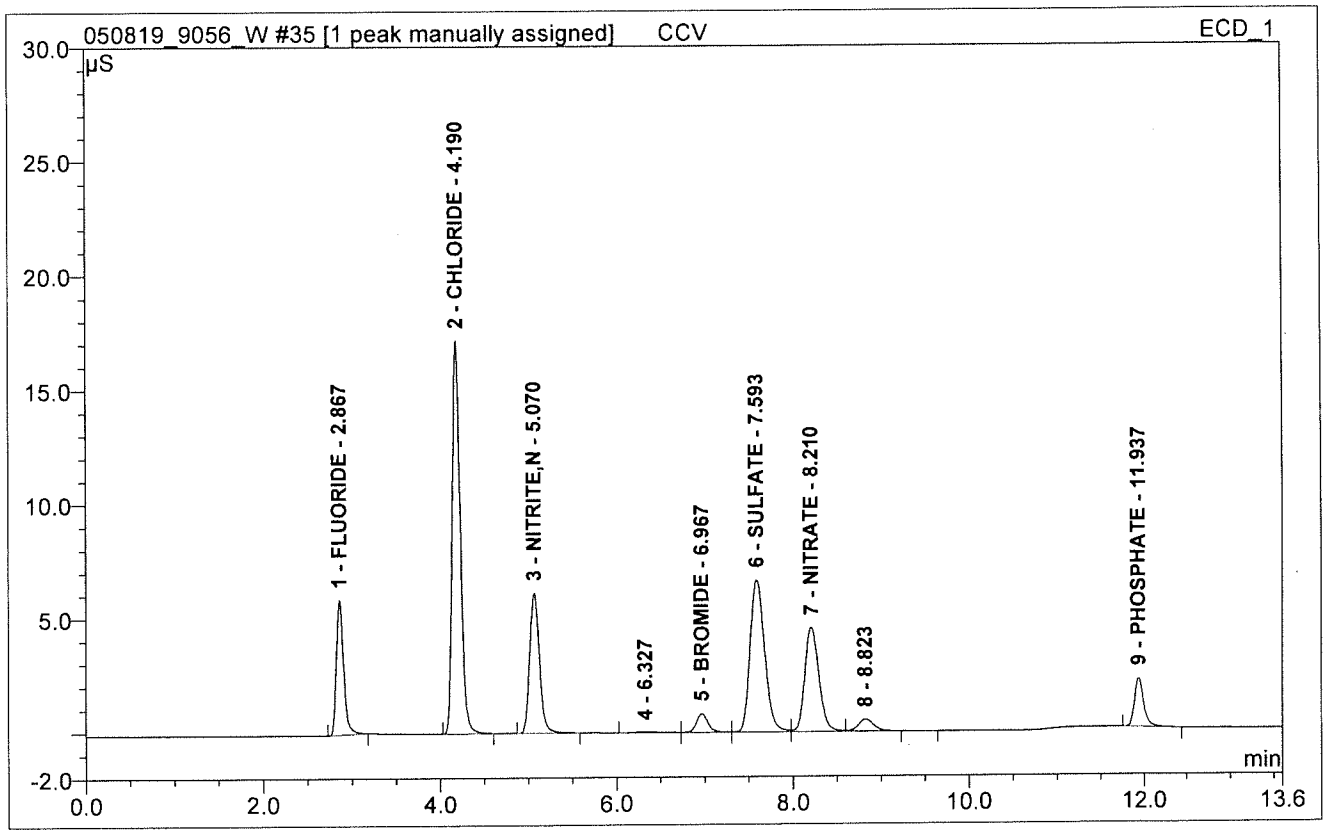
Sample Name:	**HS19050374-03DF10**	*Injection Volume:*	**10.0**
Vial Number:	**57**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 16:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	4.19	CHLORIDE	33.162	3.566	57.16	392.855	10.
6	7.58	SULFATE	12.375	2.478	39.71	381.261	10.
7	8.20	NITRATE	0.047	0.016	0.25	1.343	10.
Total:			45.583	6.059	97.12	775.459	

35 CCV

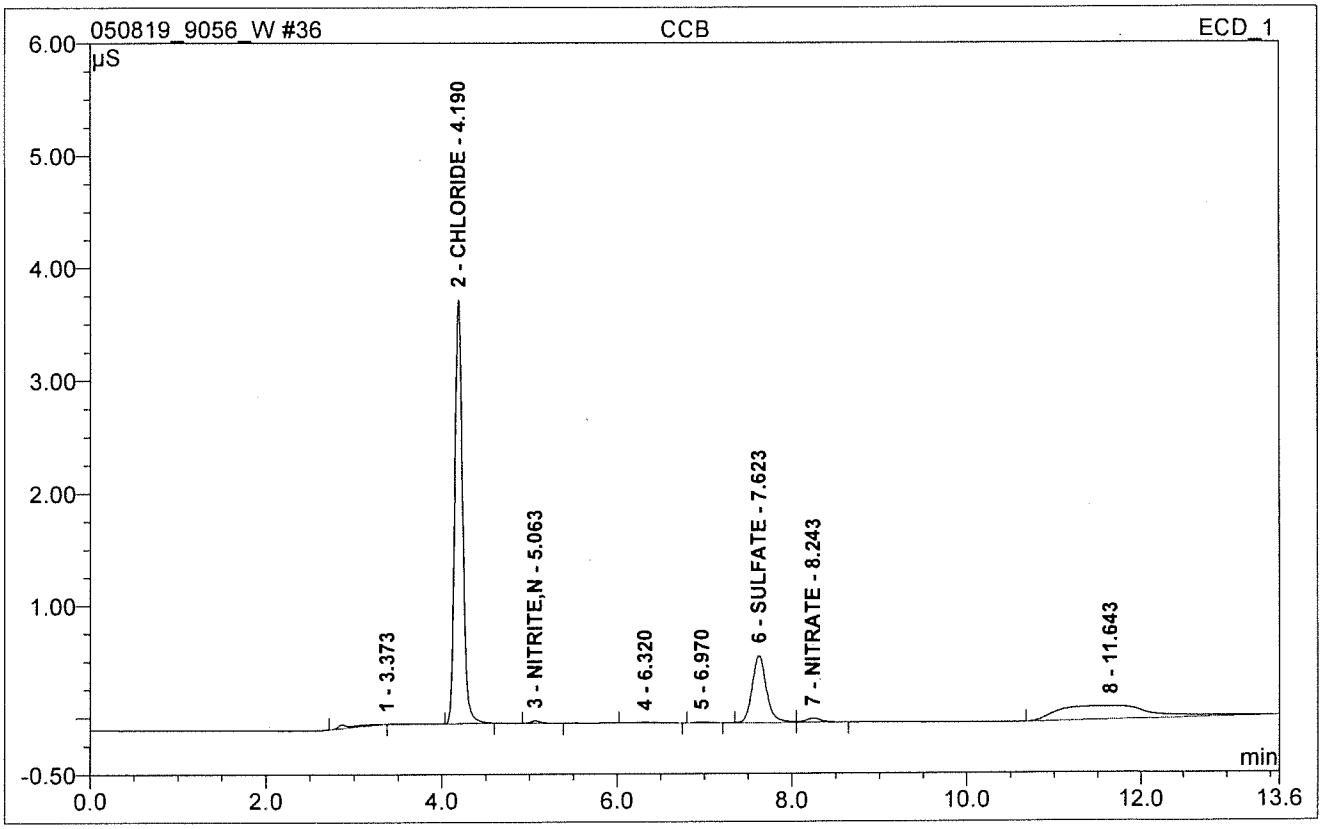
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 17:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.899	0.560	9.64	3.993	1.
2	4.19	CHLORIDE	17.190	1.830	31.48	20.253	1.
3	5.07	NITRITE,N	6.124	0.794	13.66	4.131	1.
5	6.97	BROMIDE	0.824	0.124	2.13	3.946	1.
6	7.59	SULFATE	6.652	1.273	21.90	19.720	1.
7	8.21	NITRATE	4.563	0.860	14.79	3.903	1.
9	11.94	PHOSPHATE	2.112	0.264	4.55	3.414	1.
Total:			43.363	5.704	98.15	59.360	

36 CCB

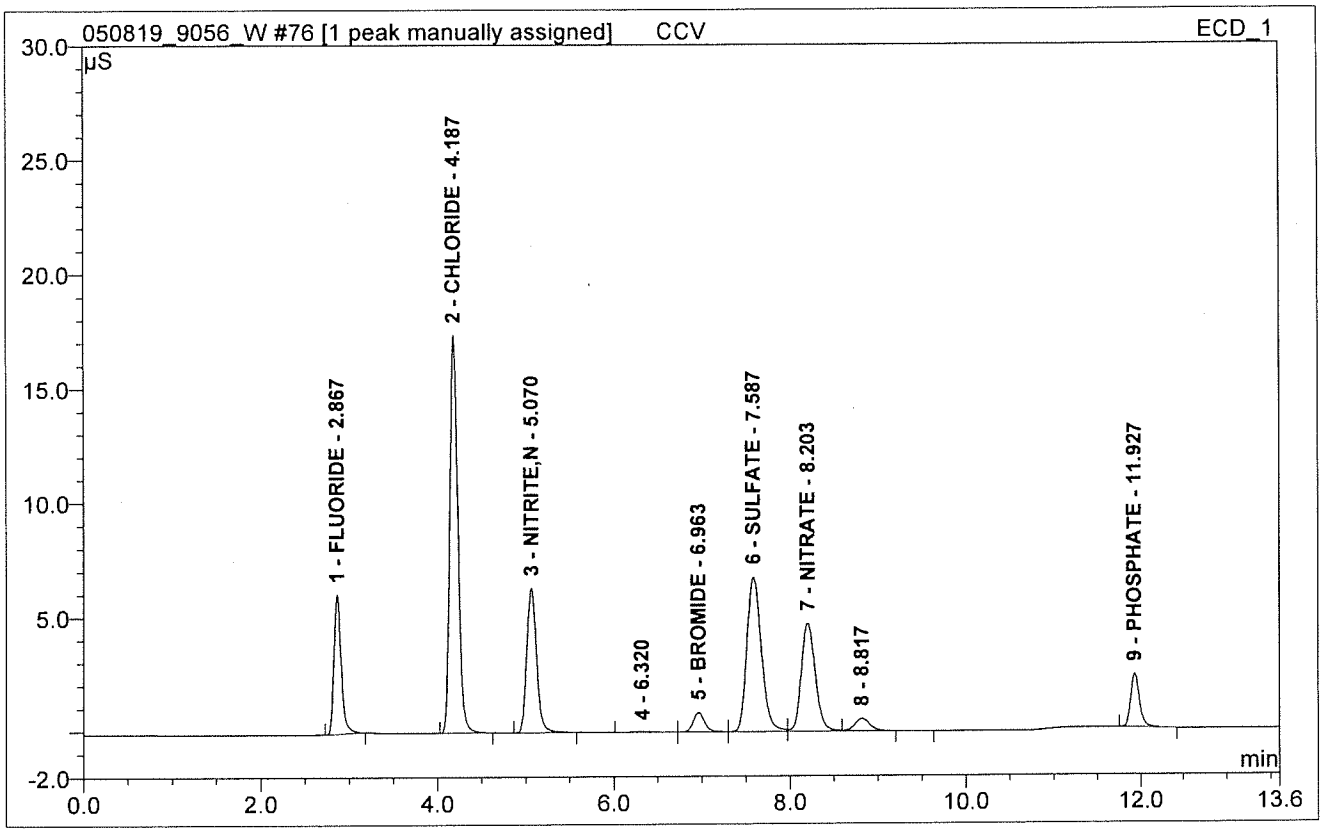
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 17:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	4.19	CHLORIDE	3.768	0.388	58.19	4.458	1.
3	5.06	NITRITE,N	0.022	0.003	0.43	0.045	1.
6	7.62	SULFATE	0.597	0.112	16.78	1.987	1.
7	8.24	NITRATE	0.036	0.007	1.11	0.097	1.
Total:			4.423	0.511	76.52	6.588	

76 CCV

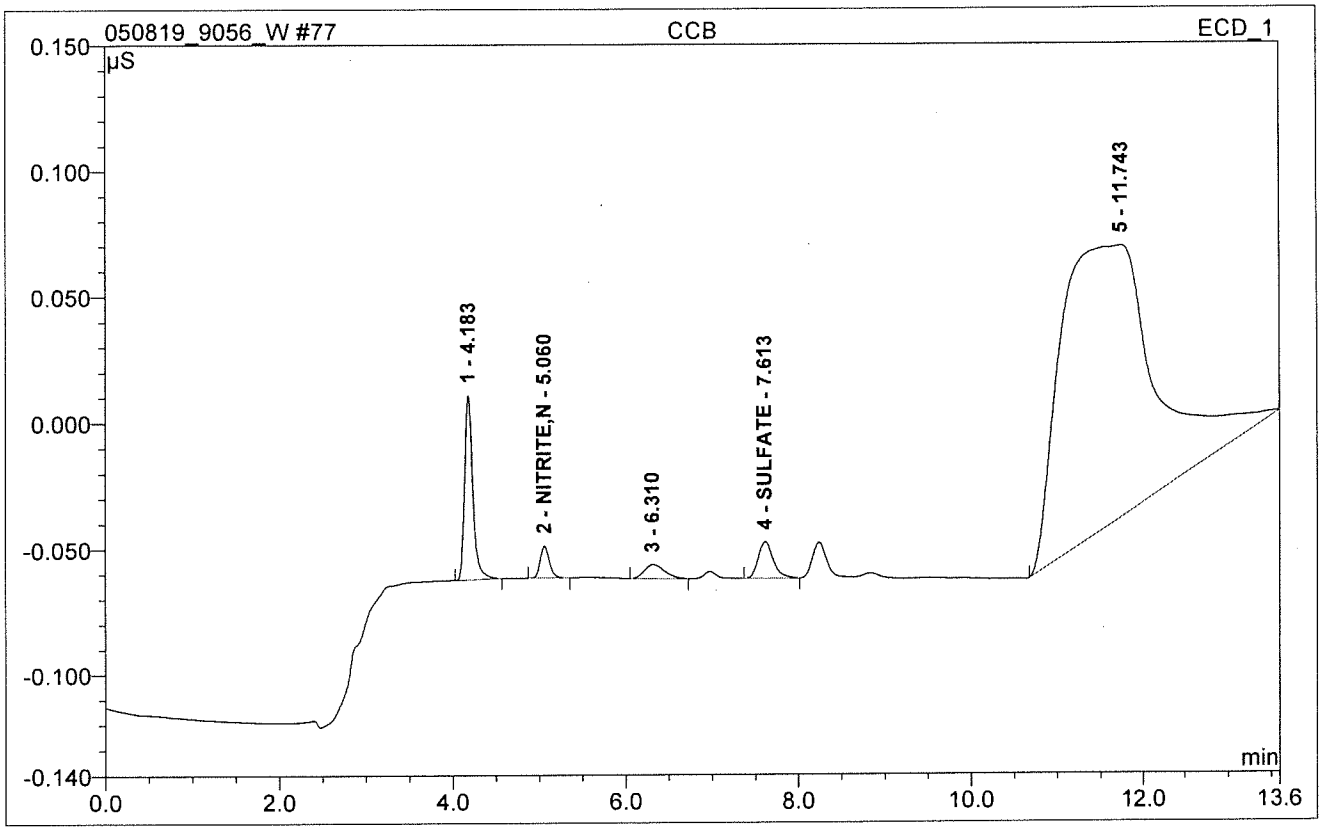
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 11:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.108	0.582	9.71	4.147	1.
2	4.19	CHLORIDE	17.400	1.855	30.95	20.531	1.
3	5.07	NITRITE,N	6.326	0.824	13.75	4.288	1.
5	6.96	BROMIDE	0.863	0.130	2.17	4.139	1.
6	7.59	SULFATE	6.778	1.308	21.82	20.259	1.
7	8.20	NITRATE	4.750	0.900	15.02	4.086	1.
9	11.93	PHOSPHATE	2.332	0.282	4.70	3.629	1.
Total:			44.556	5.881	98.13	61.078	

77 CCB

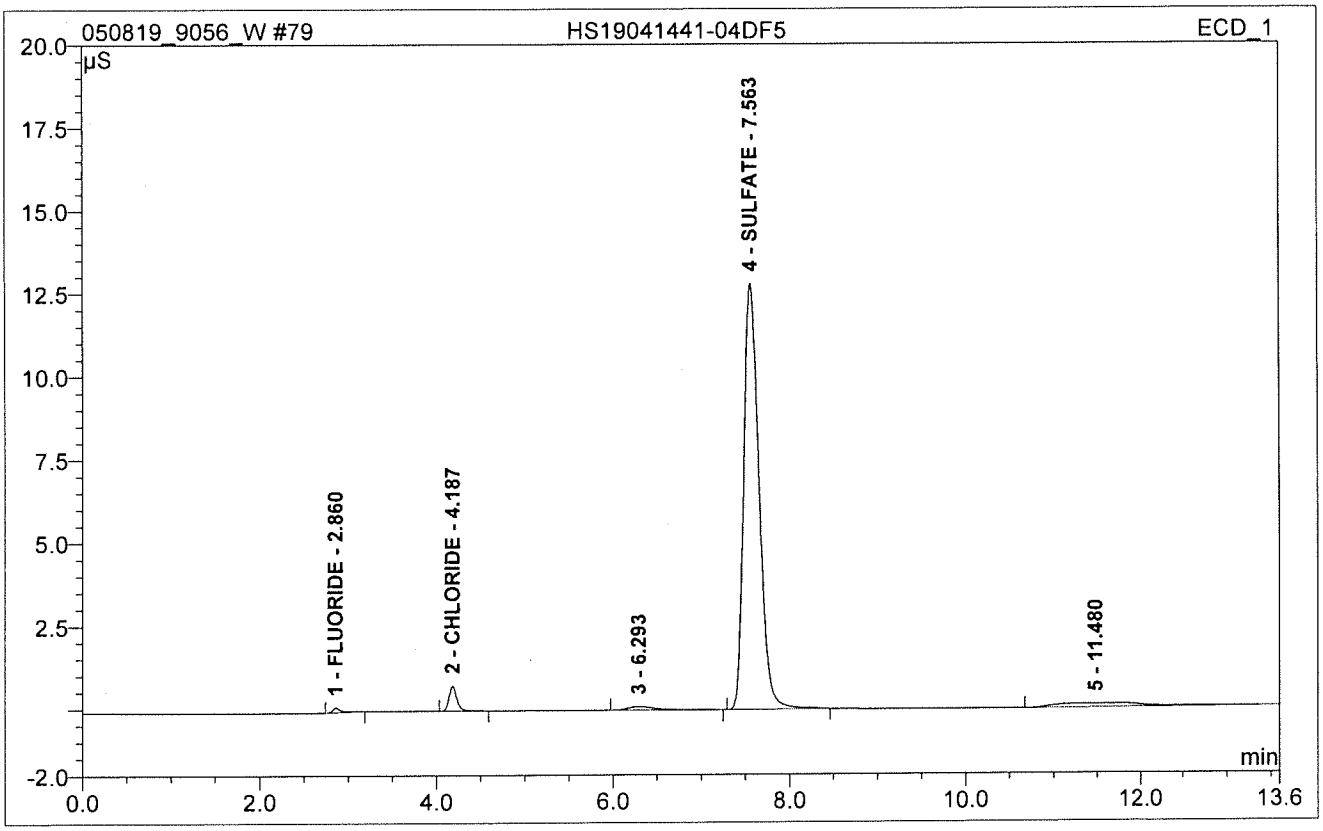
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 12:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	5.06	NITRITE,N	0.013	0.002	1.02	0.039	1.
4	7.61	SULFATE	0.015	0.003	1.90	0.322	1.
Total:			0.028	0.005	2.92	0.360	

79 HS19041441-04DF5

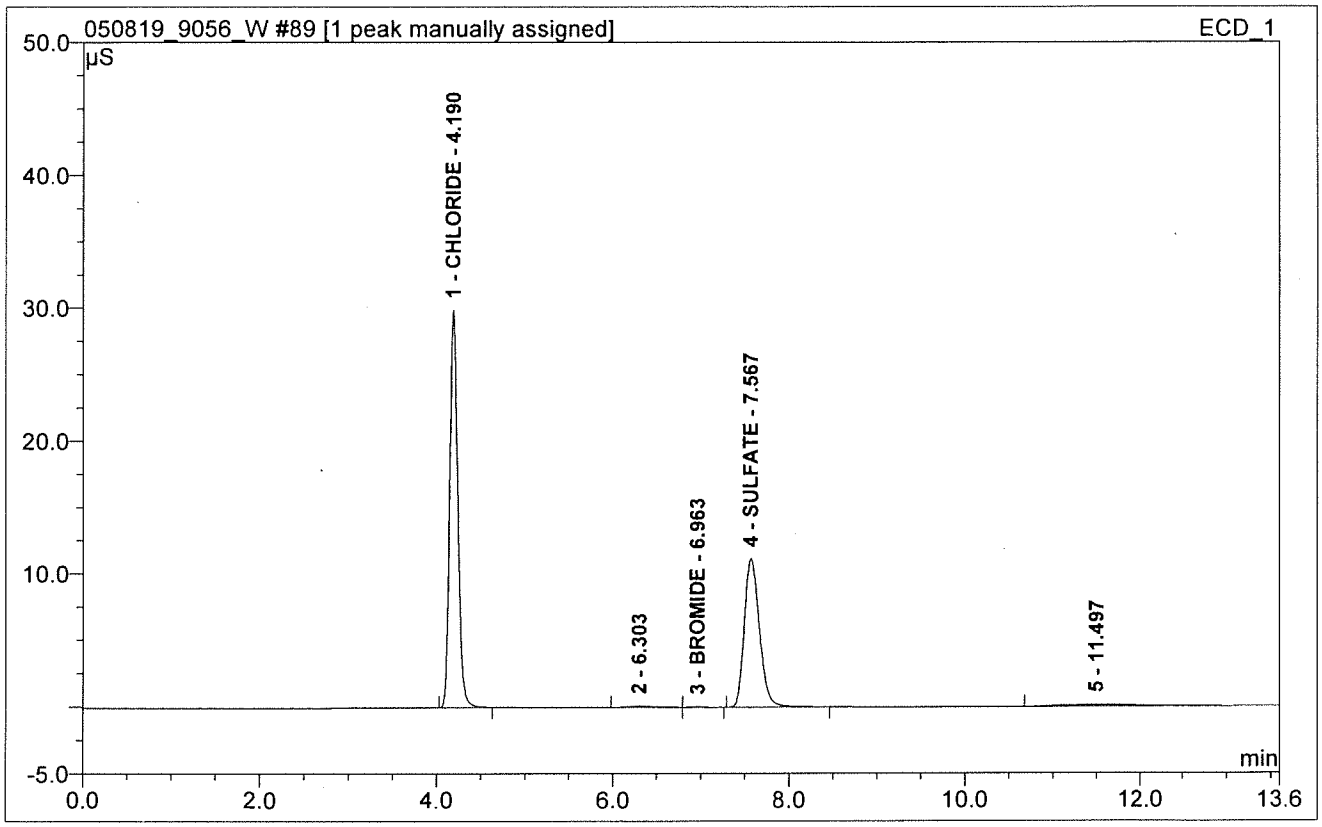
Sample Name:	**HS19041441-04DF5**	*Injection Volume:*	**10.0**
Vial Number:	**32**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 12:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.146	0.015	0.54	0.151	1.
2	4.19	CHLORIDE	0.757	0.078	2.72	1.052	1.
4	7.56	SULFATE	12.844	2.577	90.38	39.647	1.
Total:			13.746	2.670	93.64	40.850	

89 HS19050374-03DF10

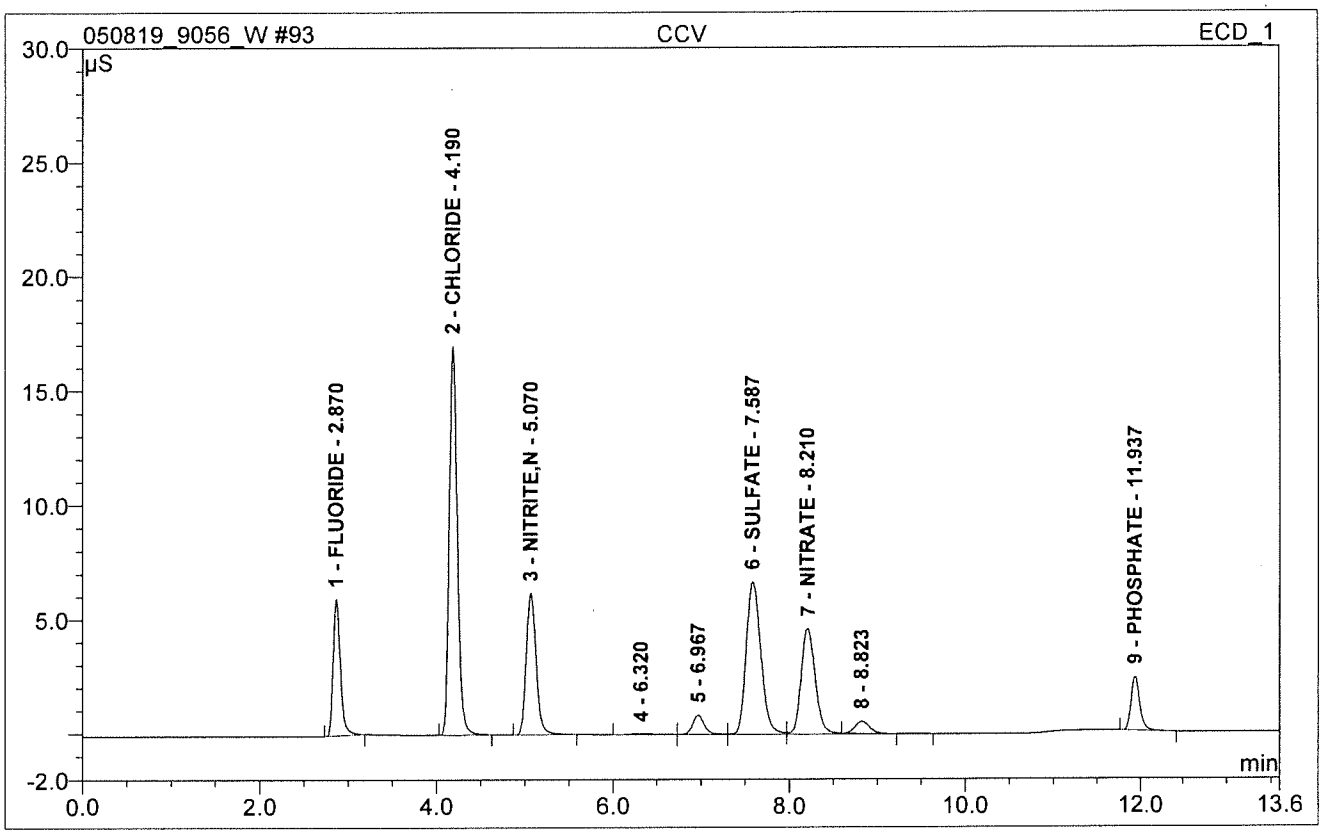
Sample Name:	**HS19050374-03DF10**	*Injection Volume:*	**10.0**
Vial Number:	**40**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/9/2019 14:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.19	CHLORIDE	29.855	3.209	57.17	353.677	10.
3	6.96	BROMIDE	0.034	0.006	0.11	2.273	10.
4	7.57	SULFATE	11.171	2.225	39.64	342.636	10.
Total:			41.060	5.439	96.92	698.585	

93 CCV

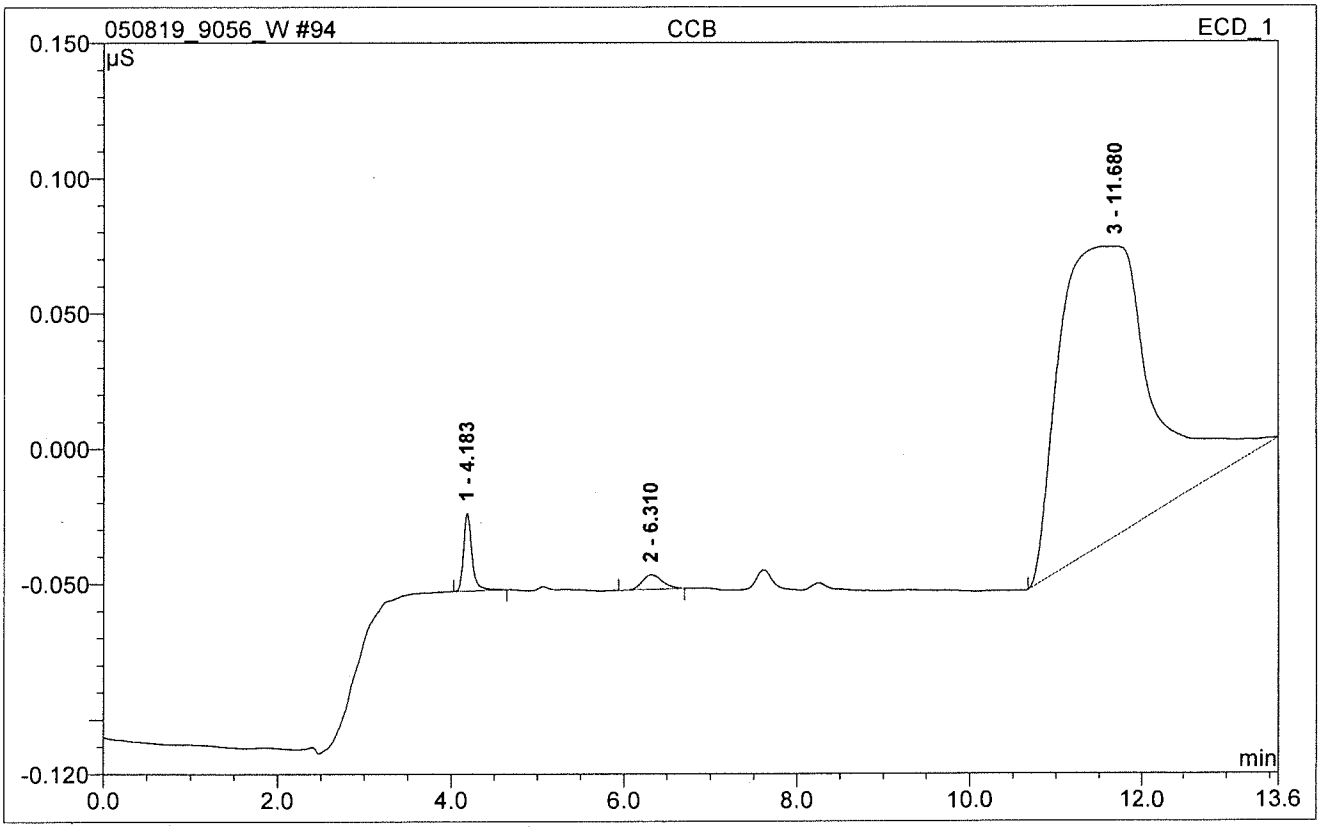
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 15:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.985	0.568	9.70	4.049	1.
2	4.19	CHLORIDE	16.989	1.809	30.87	20.026	1.
3	5.07	NITRITE,N	6.196	0.806	13.76	4.194	1.
6	7.59	SULFATE	6.687	1.285	21.93	19.909	1.
7	8.21	NITRATE	4.638	0.875	14.93	3.971	1.
9	11.94	PHOSPHATE	2.343	0.279	4.75	3.592	1.
Total:			42.837	5.622	95.95	55.741	

94 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 16:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



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

Sequence: 051419
Operator: alshs.nouser

HS19050374

Printed: 6/4/2019 3:15:04 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224

Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	040319CLO3	Finished
2	STD2		Standard	92	1.0000	040319CLO3	Finished
3	STD3		Standard	93	1.0000	040319CLO3	Finished
4	STD4		Standard	94	1.0000	040319CLO3	Finished
5	STD5		Standard	95	1.0000	040319CLO3	Finished
6	STD6		Standard	96	1.0000	040319CLO3	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	040319CLO3	Finished
8	ICB		Unknown	98	1.0000	040319CLO3	Finished
9	CCV		Unknown	91	1.0000	040319CLO3	Finished
10	CCB		Unknown	92	1.0000	040319CLO3	Finished
11	WBLKW1-051419		Unknown	11	1.0000	040319CLO3	Finished
12	WLCSW1-051419		Unknown	12	1.0000	040319CLO3	Finished
13	WLCSDW1-051419		Unknown	13	1.0000	040319CLO3	Finished
14	HS19050374-01		Unknown	14	1.0000	040319CLO3	Finished
15	HS19050544-05DF20		Unknown	15	20.0000	040319CLO3	Finished
16	HS19050544-06DF10		Unknown	16	10.0000	040319CLO3	Finished
17	HS19050544-06MSDF10		Unknown	17	10.0000	040319CLO3	Finished
18	HS19050544-06MSDDF10		Unknown	18	10.0000	040319CLO3	Finished
19	HS19050415-05DF50		Unknown	19	50.0000	040319CLO3	Finished
20	HS19050415-05DF200		Unknown	20	200.0000	040319CLO3	Finished
21	CCV1		Unknown	93	1.0000	040319CLO3	Finished
22	CCB		Unknown	94	1.0000	040319CLO3	Finished
23	HS19050415-06DF10		Unknown	21	10.0000	040319CLO3	Finished
24	HS19050415-07DF10		Unknown	22	10.0000	040319CLO3	Finished
25	HS19050415-08DF10		Unknown	23	10.0000	040319CLO3	Finished
26	HS19050522-01DF50		Unknown	24	50.0000	040319CLO3	Finished
27	HS19050522-01DF500		Unknown	25	500.0000	040319CLO3	Finished
28	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
29	HS19050529-01DF10		Unknown	26	10.0000	040319CLO3	Finished
30	HS19050531-01DF10		Unknown	27	10.0000	040319CLO3	Finished
31	HS19050531-01MSDF10		Unknown	28	10.0000	040319CLO3	Finished
32	HS19050531-01MSDDF10		Unknown	29	10.0000	040319CLO3	Finished
33	CCV		Unknown	91	1.0000	040319CLO3	Finished
34	CCB		Unknown	92	1.0000	040319CLO3	Finished
35	HS19050390-01		Unknown	37	1.0000	040319CLO3	Finished
36	HS19050480-01		Unknown	38	1.0000	040319CLO3	Finished
37	HS19050027-01DF50		Unknown	30	50.0000	040319CLO3	Finished
38	HS19050027-01DF100		Unknown	31	100.0000	040319CLO3	Finished
39	HS19050027-02DF10		Unknown	32	10.0000	040319CLO3	Finished
40	HS19050027-02DF50		Unknown	33	50.0000	040319CLO3	Finished
41	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
42	HS19050453-01DF50		Unknown	35	50.0000	040319CLO3	Finished

Sequence: 051419
Operator: alshs.nouser

Printed: 6/4/2019 3:15:04 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224

Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	4/3/2019 6:56:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	4/3/2019 7:10:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	4/3/2019 7:25:17 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	4/3/2019 7:39:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	4/3/2019 7:54:34 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	4/3/2019 8:09:12 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	4/3/2019 8:23:50 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	4/3/2019 8:38:29 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV	5/14/2019 10:51:29 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
10	CCB	5/14/2019 11:06:08 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
11	WBLKW1-051419	5/14/2019 12:26:32 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
12	WLCSW1-051419	5/14/2019 12:41:10 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
13	WLCSDW1-051419	5/14/2019 12:55:49 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
14	HS19050374-01	5/14/2019 1:22:17 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
15	HS19050544-05DF20	5/14/2019 1:36:55 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
16	HS19050544-06DF10	5/14/2019 1:51:34 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
17	HS19050544-06MSDF10	5/14/2019 2:06:12 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
18	HS19050544-06MSDDF10	5/14/2019 2:20:51 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
19	HS19050415-05DF50	5/14/2019 2:35:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
20	HS19050415-05DF200	5/14/2019 2:50:08 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
21	CCV1	5/14/2019 3:04:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
22	CCB	5/14/2019 3:19:25 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
23	HS19050415-06DF10	5/14/2019 3:34:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
24	HS19050415-07DF10	5/14/2019 3:48:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
25	HS19050415-08DF10	5/14/2019 4:03:21 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
26	HS19050522-01DF50	5/14/2019 4:17:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
27	HS19050522-01DF500	5/14/2019 4:32:37 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
28	DI H2O	5/14/2019 4:47:16 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
29	HS19050529-01DF10	5/14/2019 5:01:54 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
30	HS19050531-01DF10	5/14/2019 5:16:33 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
31	HS19050531-01MSDF10	5/14/2019 5:31:11 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
32	HS19050531-01MSDDF10	5/14/2019 5:45:50 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
33	CCV	5/14/2019 6:00:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
34	CCB	5/14/2019 6:15:06 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
35	HS19050390-01	5/14/2019 6:37:22 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
36	HS19050480-01	5/14/2019 6:52:01 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
37	HS19050027-01DF50	5/14/2019 7:06:40 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
38	HS19050027-01DF100	5/14/2019 7:21:18 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
39	HS19050027-02DF10	5/14/2019 7:35:57 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
40	HS19050027-02DF50	5/14/2019 7:50:35 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
41	DI H2O	5/14/2019 8:05:13 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
42	HS19050453-01DF50	5/14/2019 8:19:52 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00

Sequence: 051419
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224

Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	5133bfaf-5607-11e9-b6db-bd957e66751c		
2	STD2	1.00	5ce63c75-5609-11e9-b6db-bd957e66751c		
3	STD3	1.00	687c1d33-560b-11e9-b6db-bd957e66751c		
4	STD4	1.00	742510a1-560d-11e9-b6db-bd957e66751c		
5	STD5	1.00	7fce040f-560f-11e9-b6db-bd957e66751c		
6	STD6	1.00	8b4e6fc7-5611-11e9-b6db-bd957e66751c		
7	ICV	1.00	96e1ee2f-5613-11e9-b6db-bd957e66751c		
8	ICB	1.00	a277ceed-5615-11e9-b6db-bd957e66751c		
9	CCV	1.00	0206ed27-7660-11e9-b6dc-cecc464ab826		
10	CCB	1.00	0da5ac27-7662-11e9-b6dc-cecc464ab826		
11	WBLKW1-051419	1.00	e962cd47-766c-11e9-b6dc-cecc464ab826		
12	WLCSW1-051419	1.00	548efb27-766f-11e9-b6dc-cecc464ab826		
13	WLCSDW1-051419	1.00	60327ed7-7671-11e9-b6dc-cecc464ab826		
14	HS19050374-01	1.00	b3af6d8f-7674-11e9-b6dc-cecc464ab826		
15	HS19050544-05DF20	1.00	1e8364b7-7677-11e9-b6dc-cecc464ab826		
16	HS19050544-06DF10	1.00	2a294abf-7679-11e9-b6dc-cecc464ab826		
17	HS19050544-06MSDF10	1.00	35ccce6f-767b-11e9-b6dc-cecc464ab826		
18	HS19050544-06MSDDF10	1.00	4162040f-767d-11e9-b6dc-cecc464ab826		
19	HS19050415-05DF50	1.00	4cf012a7-767f-11e9-b6dc-cecc464ab826		
20	HS19050415-05DF200	1.00	58fc7d77-7681-11e9-b6dc-cecc464ab826		
21	CCV1	1.00	648829b7-7683-11e9-b6dc-cecc464ab826		
22	CCB	1.00	701fc1af-7685-11e9-b6dc-cecc464ab826		
23	HS19050415-06DF10	1.00	7bb0329f-7687-11e9-b6dc-cecc464ab826		
24	HS19050415-07DF10	1.00	875153f7-7689-11e9-b6dc-cecc464ab826		
25	HS19050415-08DF10	1.00	92f4d7a7-768b-11e9-b6dc-cecc464ab826		
26	HS19050522-01DF50	1.00	9e854897-768d-11e9-b6dc-cecc464ab826		
27	HS19050522-01DF500	1.00	a9fe09cf-768f-11e9-b6dc-cecc464ab826		
28	DI H2O	1.00	b58e0581-7691-11e9-b6dc-cecc464ab826		
29	HS19050529-01DF10	1.00	c130b79f-7693-11e9-b6dc-cecc464ab826		
30	HS19050531-01DF10	1.00	ccd43b4f-7695-11e9-b6dc-cecc464ab826		
31	HS19050531-01MSDF10	1.00	d86bd347-7697-11e9-b6dc-cecc464ab826		
32	HS19050531-01MSDDF10	1.00	e40f56f7-7699-11e9-b6dc-cecc464ab826		
33	CCV	1.00	ef9d658f-769b-11e9-b6dc-cecc464ab826		
34	CCB	1.00	faefd98f-769d-11e9-b6dc-cecc464ab826		
35	HS19050390-01	1.00	b840474f-76a0-11e9-b6dc-cecc464ab826		
36	HS19050480-01	1.00	23012bb7-76a3-11e9-b6dc-cecc464ab826		
37	HS19050027-01DF50	1.00	2ef0fa67-76a5-11e9-b6dc-cecc464ab826		
38	HS19050027-01DF100	1.00	3a8fb967-76a7-11e9-b6dc-cecc464ab826		
39	HS19050027-02DF10	1.00	46359f6f-76a9-11e9-b6dc-cecc464ab826		
40	HS19050027-02DF50	1.00	51e04a27-76ab-11e9-b6dc-cecc464ab826		
41	DI H2O	1.00	5d6bf667-76ad-11e9-b6dc-cecc464ab826		
42	HS19050453-01DF50	1.00	68c32f17-76af-11e9-b6dc-cecc464ab826		

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224
Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19050453-01DF500		Unknown	36	500.0000	040319CLO3	Finished
44	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
45	CCV1		Unknown	93	1.0000	040319CLO3	Finished
46	CCB		Unknown	94	1.0000	040319CLO3	Finished
47	HS19050553-01DF20		Unknown	34	20.0000	040319CLO3	Finished
48	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
49	HS19050478-02DF10		Unknown	39	10.0000	040319CLO3	Finished
50	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
51	HS19050478-05		Unknown	40	1.0000	040319CLO3	Finished
52	HS19050478-06		Unknown	41	1.0000	040319CLO3	Finished
53	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
54	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
55	CCV		Unknown	91	1.0000	040319CLO3	Finished
56	CCB		Unknown	92	1.0000	040319CLO3	Finished
57	MBLK-140850		Unknown	42	1.0000	040319CLO3	Finished
58	LCS-140850		Unknown	43	1.0000	040319CLO3	Finished
59	LCSD-140850		Unknown	44	1.0000	040319CLO3	Finished
60	HS19050243-03		Unknown	45	1.0000	040319CLO3	Finished
61	HS19050092-01		Unknown	46	1.0000	040319CLO3	Finished
62	HS19050092-01MS		Unknown	47	1.0000	040319CLO3	Finished
63	HS19050092-01MSD		Unknown	48	1.0000	040319CLO3	Finished
64	HS19050415-01		Unknown	49	1.0000	040319CLO3	Finished
65	HS19050415-01DF10		Unknown	50	10.0000	040319CLO3	Finished
66	HS19050415-02		Unknown	51	1.0000	040319CLO3	Finished
67	CCV1		Unknown	93	1.0000	040319CLO3	Finished
68	CCB		Unknown	94	1.0000	040319CLO3	Finished
69	HS19050415-03		Unknown	52	1.0000	040319CLO3	Finished
70	HS19050415-04		Unknown	53	1.0000	040319CLO3	Finished
71	HS19050496-01		Unknown	54	1.0000	040319CLO3	Finished
72	HS19050496-02		Unknown	55	1.0000	040319CLO3	Finished
73	HS19050544-01		Unknown	56	1.0000	040319CLO3	Finished
74	HS19050544-02		Unknown	57	1.0000	040319CLO3	Finished
75	HS19050544-03		Unknown	58	1.0000	040319CLO3	Finished
76	HS19050544-04		Unknown	59	1.0000	040319CLO3	Finished
77	HS19050092-02		Unknown	60	1.0000	040319CLO3	Finished
78	HS19050092-03		Unknown	61	1.0000	040319CLO3	Finished
79	CCV		Unknown	91	1.0000	040319CLO3	Finished
80	CCB		Unknown	92	1.0000	040319CLO3	Finished
81	HS19050092-04		Unknown	62	1.0000	040319CLO3	Finished
82	HS19050092-05		Unknown	63	1.0000	040319CLO3	Finished
83	HS19050092-07		Unknown	64	1.0000	040319CLO3	Finished
84	HS19050092-08		Unknown	65	1.0000	040319CLO3	Finished

Sequence: 051419
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224

Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19050453-01DF500	5/14/2019 8:34:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
44	DI H2O	5/14/2019 8:49:09 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
45	CCV1	5/14/2019 9:03:47 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
46	CCB	5/14/2019 9:18:26 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
47	HS19050553-01DF20	5/14/2019 9:33:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
48	DI H2O	5/14/2019 9:47:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
49	HS19050478-02DF10	5/14/2019 10:02:21 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
50	DI H2O	5/14/2019 10:16:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
51	HS19050478-05	5/14/2019 10:31:38 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
52	HS19050478-06	5/14/2019 10:46:16 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
53	DI H2O	5/14/2019 11:00:55 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
54	DI H2O	5/14/2019 11:15:33 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
55	CCV	5/14/2019 11:30:12 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
56	CCB	5/14/2019 11:44:50 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
57	MBLK-140850	5/14/2019 11:59:29 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
58	LCS-140850	5/15/2019 12:14:07 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
59	LCSD-140850	5/15/2019 12:28:46 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
60	HS19050243-03	5/15/2019 12:43:24 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
61	HS19050092-01	5/15/2019 12:58:03 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
62	HS19050092-01MS	5/15/2019 1:12:41 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
63	HS19050092-01MSD	5/15/2019 1:27:19 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
64	HS19050415-01	5/15/2019 1:41:58 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
65	HS19050415-01DF10	5/15/2019 1:56:36 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
66	HS19050415-02	5/15/2019 2:11:15 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
67	CCV1	5/15/2019 2:25:53 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
68	CCB	5/15/2019 2:40:32 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
69	HS19050415-03	5/15/2019 2:55:10 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
70	HS19050415-04	5/15/2019 3:09:49 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
71	HS19050496-01	5/15/2019 3:24:27 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
72	HS19050496-02	5/15/2019 3:39:06 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
73	HS19050544-01	5/15/2019 3:53:45 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
74	HS19050544-02	5/15/2019 4:08:23 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
75	HS19050544-03	5/15/2019 4:23:02 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
76	HS19050544-04	5/15/2019 4:37:41 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
77	HS19050092-02	5/15/2019 4:52:19 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
78	HS19050092-03	5/15/2019 5:06:58 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
79	CCV	5/15/2019 5:21:36 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
80	CCB	5/15/2019 5:36:15 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
81	HS19050092-04	5/15/2019 5:50:54 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
82	HS19050092-05	5/15/2019 6:05:32 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
83	HS19050092-07	5/15/2019 6:20:10 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
84	HS19050092-08	5/15/2019 6:34:49 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00

Sequence: 051419
Operator: alshs.nouser

Printed: 6/4/2019 3:15:04 PM

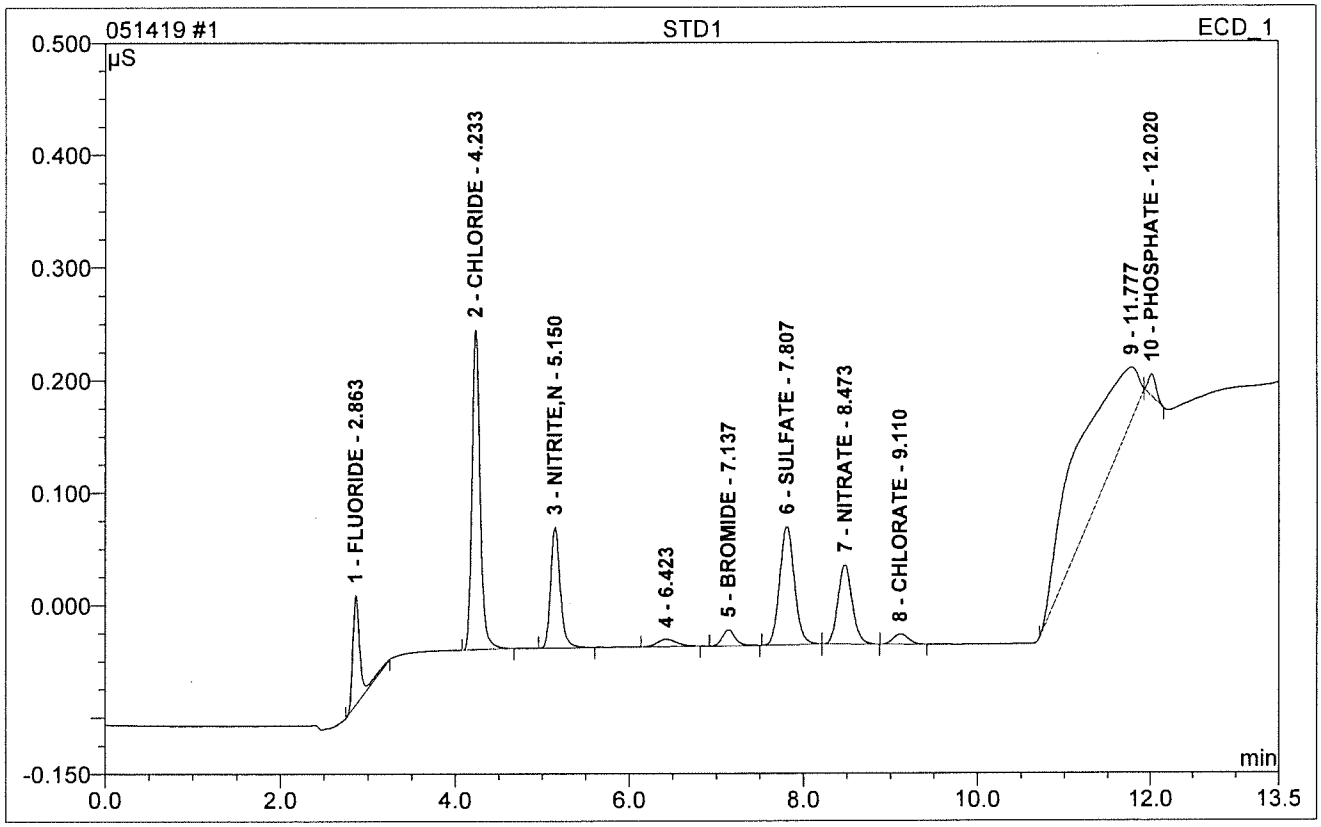
Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 224
Created: 5/14/2019 12:22:44 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19050453-01DF500	1.00	744edb57-76b1-11e9-b6dc-cecc464ab826		
44	DI H2O	1.00	7feb37ff-76b3-11e9-b6dc-cecc464ab826		
45	CCV1	1.00	8b8ebbaf-76b5-11e9-b6dc-cecc464ab826		
46	CCB	1.00	97180597-76b7-11e9-b6dc-cecc464ab826		
47	HS19050553-01DF20	1.00	a2b6c497-76b9-11e9-b6dc-cecc464ab826		
48	DI H2O	1.00	ae5a4847-76bb-11e9-b6dc-cecc464ab826		
49	HS19050478-02DF10	1.00	b9f44297-76bd-11e9-b6dc-cecc464ab826		
50	DI H2O	1.00	c5909f3f-76bf-11e9-b6dc-cecc464ab826		
51	HS19050478-05	1.00	d1368547-76c1-11e9-b6dc-cecc464ab826		
52	HS19050478-06	1.00	dcd7a69f-76c3-11e9-b6dc-cecc464ab826		
53	DI H2O	1.00	e860f087-76c5-11e9-b6dc-cecc464ab826		
54	DI H2O	1.00	f40938e7-76c7-11e9-b6dc-cecc464ab826		
55	CCV	1.00	ffa7f7e7-76c9-11e9-b6dc-cecc464ab826		
56	CCB	1.00	0b44548f-76cc-11e9-b6dc-cecc464ab826		
57	MBLK-140850	1.00	16d98a2f-76ce-11e9-b6dc-cecc464ab826		
58	LCS-140850	1.00	2273847f-76d0-11e9-b6dc-cecc464ab826		
59	LCSD-140850	1.00	2e0b1c77-76d2-11e9-b6dc-cecc464ab826		
60	HS19050243-03	1.00	39a05217-76d4-11e9-b6dc-cecc464ab826		
61	HS19050092-01	1.00	453a4c67-76d6-11e9-b6dc-cecc464ab826		
62	HS19050092-01MS	1.00	50d90b67-76d8-11e9-b6dc-cecc464ab826		
63	HS19050092-01MSD	1.00	5c75680f-76da-11e9-b6dc-cecc464ab826		
64	HS19050415-01	1.00	6804ff37-76dc-11e9-b6dc-cecc464ab826		
65	HS19050415-01DF10	1.00	73b5b8a6-76de-11e9-b6dc-cecc464ab826		
66	HS19050415-02	1.00	7f4151bf-76e0-11e9-b6dc-cecc464ab826		
67	CCV1	1.00	8addae67-76e2-11e9-b6dc-cecc464ab826		
68	CCB	1.00	9677a8b7-76e4-11e9-b6dc-cecc464ab826		
69	HS19050415-03	1.00	a20cde57-76e6-11e9-b6dc-cecc464ab826		
70	HS19050415-04	1.00	ada4764f-76e8-11e9-b6dc-cecc464ab826		
71	HS19050496-01	1.00	b94cbeaf-76ea-11e9-b6dc-cecc464ab826		
72	HS19050496-02	1.00	c4dacd47-76ec-11e9-b6dc-cecc464ab826		
73	HS19050544-01	1.00	d0db4c5f-76ee-11e9-b6dc-cecc464ab826		
74	HS19050544-02	1.00	dc85f717-76f0-11e9-b6dc-cecc464ab826		
75	HS19050544-03	1.00	e80a7c4f-76f2-11e9-b6dc-cecc464ab826		
76	HS19050544-04	1.00	f3b2c4af-76f4-11e9-b6dc-cecc464ab826		
77	HS19050092-02	1.00	ff96a7a7-76f6-11e9-b6dc-cecc464ab826		
78	HS19050092-03	1.00	0b2e3f9f-76f9-11e9-b6dc-cecc464ab826		
79	CCV	1.00	16cf60f7-76fb-11e9-b6dc-cecc464ab826		
80	CCB	1.00	2272e4a7-76fd-11e9-b6dc-cecc464ab826		
81	HS19050092-04	1.00	2e5deea7-76ff-11e9-b6dc-cecc464ab826		
82	HS19050092-05	1.00	39ff0fff-7701-11e9-b6dc-cecc464ab826		
83	HS19050092-07	1.00	459dceff-7703-11e9-b6dc-cecc464ab826		
84	HS19050092-08	1.00	5133049f-7705-11e9-b6dc-cecc464ab826		

1 STD1

297.020.7208

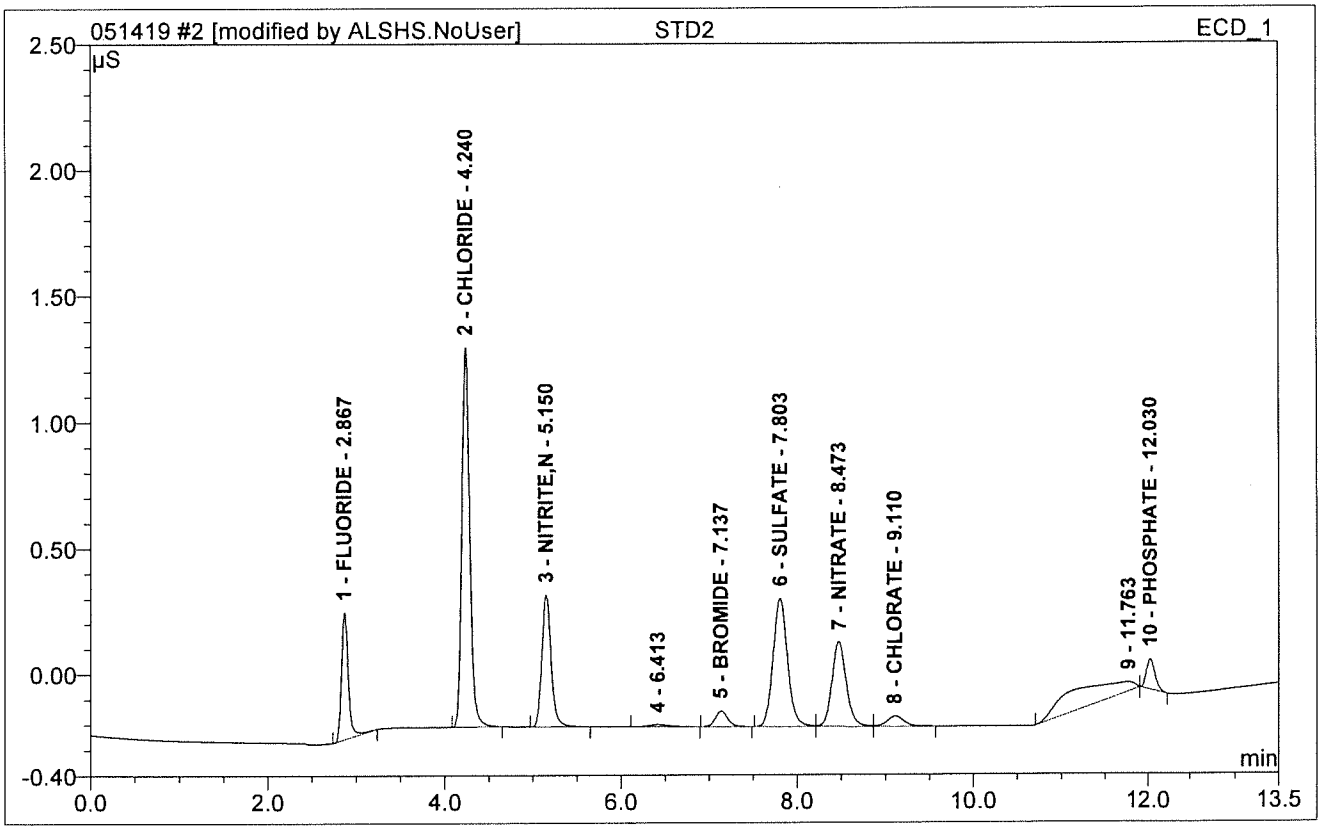
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.098	0.009	5.35	0.107	1.
2	4.23	CHLORIDE	0.284	0.031	17.95	0.536	1.
3	5.15	NITRITE,N	0.107	0.014	8.11	0.101	1.
5	7.14	BROMIDE	0.014	0.002	1.43	0.118	1.
6	7.81	SULFATE	0.105	0.021	12.21	0.593	1.
7	8.47	NITRATE	0.071	0.014	8.03	0.125	1.
8	9.11	CHLORATE	0.009	0.002	1.09	0.111	1.
10	12.02	PHOSPHATE	0.020	0.002	1.24	0.150	1.
Total:			0.709	0.094	55.42	1.842	

2 STD2

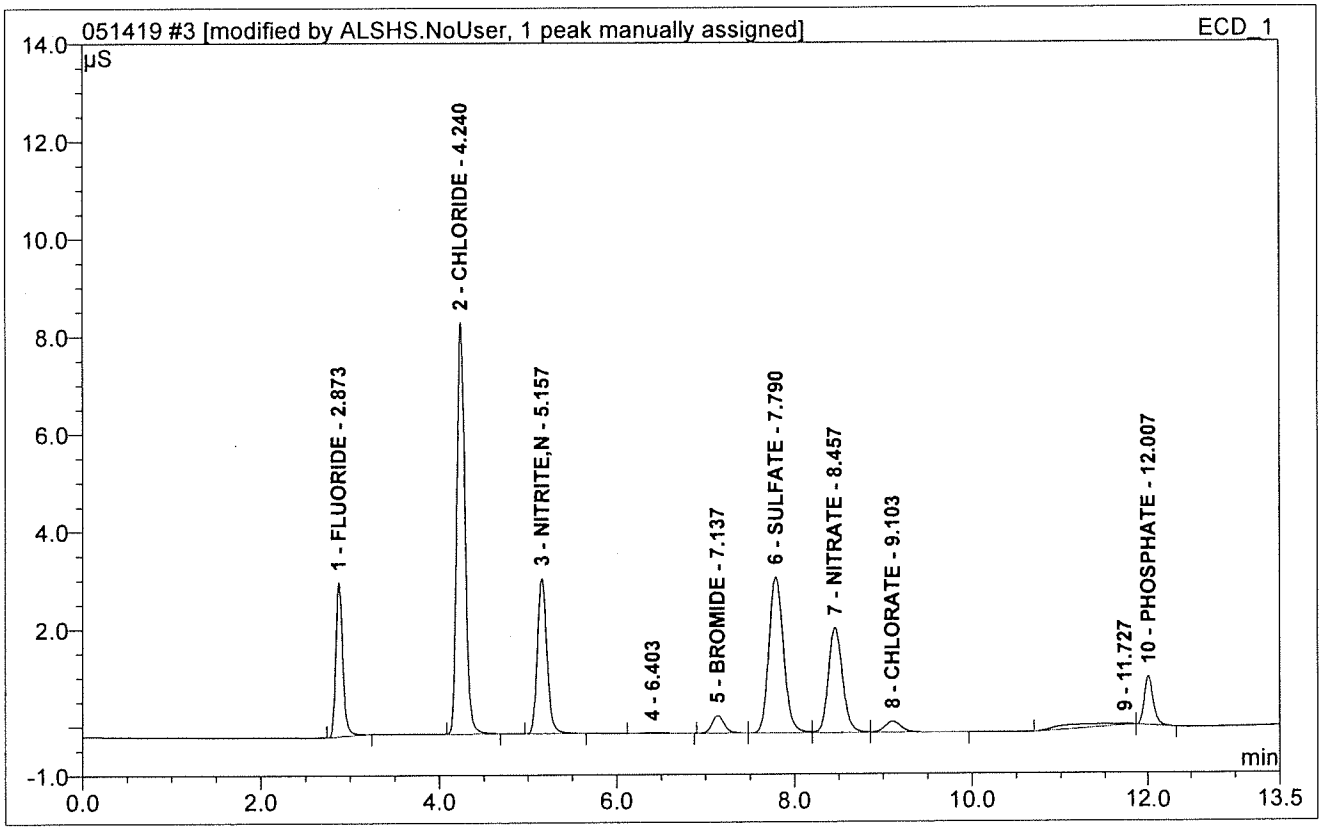
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	0.504	0.045	8.54	0.358	1.
2	4.24	CHLORIDE	1.506	0.155	29.66	1.904	1.
3	5.15	NITRITE,N	0.524	0.065	12.35	0.364	1.
5	7.14	BROMIDE	0.062	0.010	1.93	0.360	1.
6	7.80	SULFATE	0.508	0.097	18.58	1.762	1.
7	8.47	NITRATE	0.336	0.064	12.15	0.348	1.
8	9.11	CHLORATE	0.041	0.009	1.70	0.375	1.
10	12.03	PHOSPHATE	0.120	0.015	2.79	0.306	1.
Total:			3.600	0.459	87.69	5.778	

3 STD3

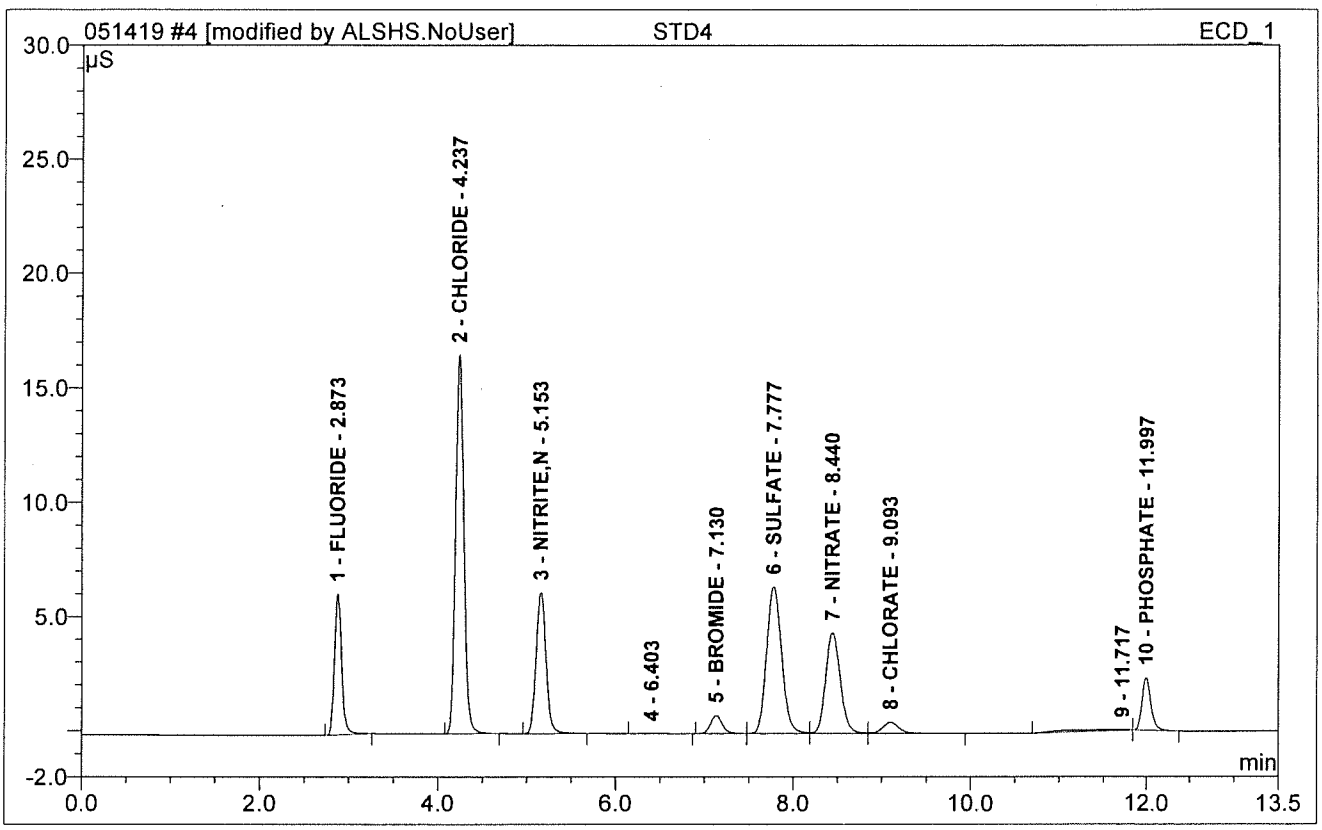
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.165	0.287	9.91	2.068	1.
2	4.24	CHLORIDE	8.444	0.901	31.10	10.080	1.
3	5.16	NITRITE,N	3.193	0.401	13.83	2.101	1.
5	7.14	BROMIDE	0.362	0.057	1.97	1.837	1.
6	7.79	SULFATE	3.210	0.616	21.25	9.683	1.
7	8.46	NITRATE	2.169	0.404	13.93	1.867	1.
8	9.10	CHLORATE	0.229	0.050	1.71	1.900	1.
10	12.01	PHOSPHATE	1.006	0.122	4.22	1.648	1.
Total:			21.778	2.838	97.92	31.183	

4 STD4

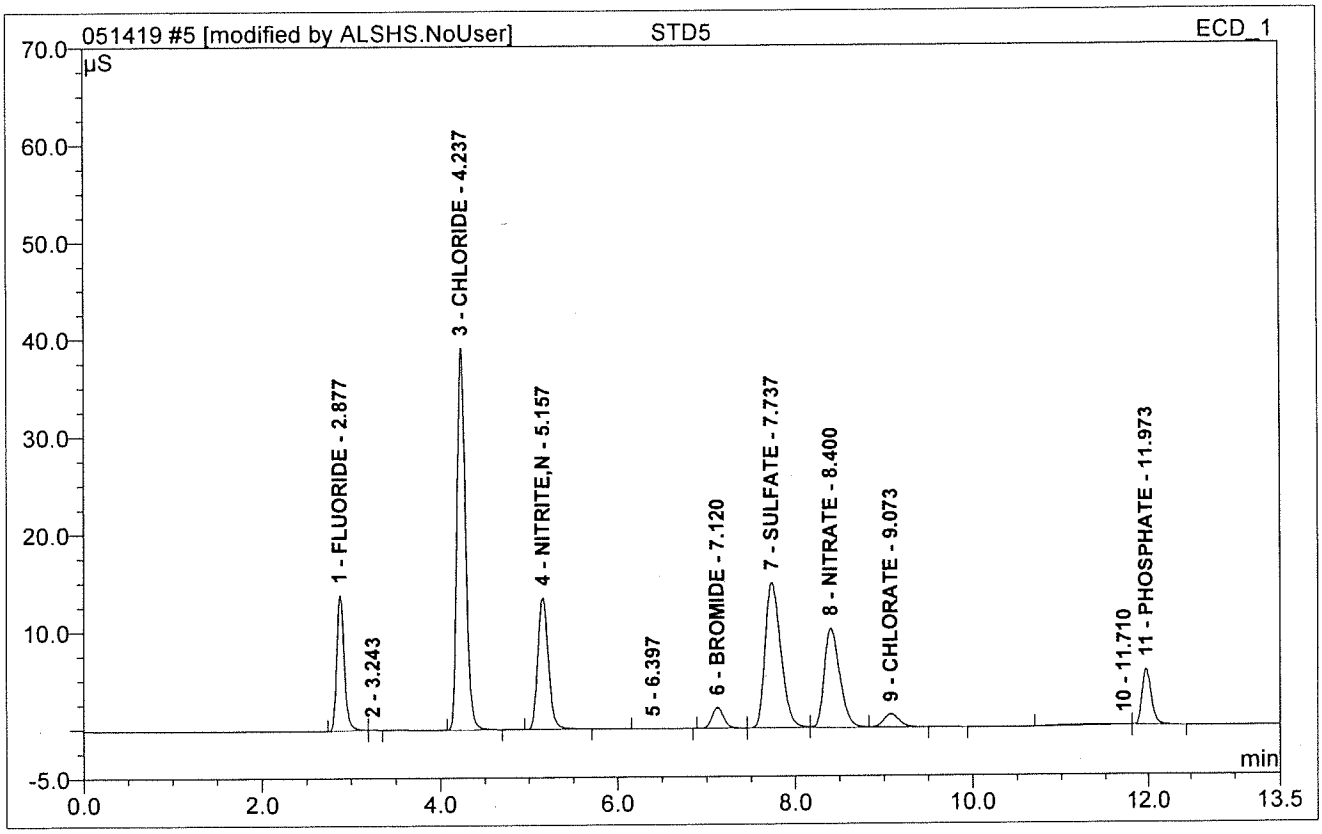
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.167	0.578	9.89	4.120	1.
2	4.24	CHLORIDE	16.548	1.792	30.65	19.847	1.
3	5.15	NITRITE,N	6.168	0.806	13.78	4.192	1.
5	7.13	BROMIDE	0.789	0.122	2.08	3.866	1.
6	7.78	SULFATE	6.411	1.264	21.62	19.589	1.
7	8.44	NITRATE	4.402	0.844	14.42	3.832	1.
8	9.09	CHLORATE	0.490	0.104	1.78	3.943	1.
10	12.00	PHOSPHATE	2.288	0.280	4.79	3.614	1.
Total:			43.263	5.790	99.00	63.003	

5 STD5

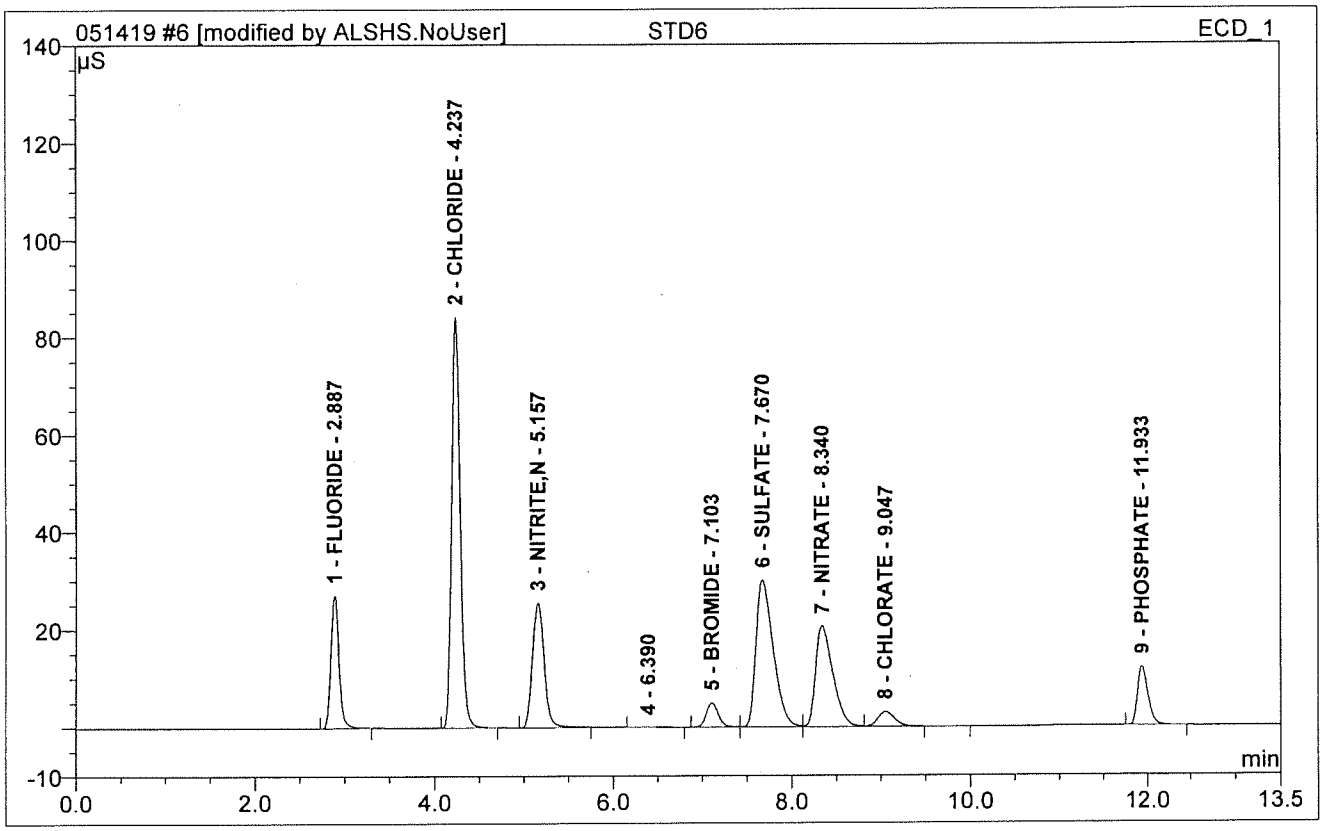
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.88	FLUORIDE	13.911	1.368	9.67	9.690	1.
3	4.24	CHLORIDE	39.139	4.301	30.41	47.342	1.
4	5.16	NITRITE,N	13.545	1.886	13.34	9.771	1.
6	7.12	BROMIDE	2.139	0.326	2.31	10.318	1.
7	7.74	SULFATE	14.998	3.094	21.88	47.543	1.
8	8.40	NITRATE	10.240	2.101	14.86	9.449	1.
9	9.07	CHLORATE	1.339	0.270	1.91	10.172	1.
11	11.97	PHOSPHATE	5.699	0.738	5.22	9.315	1.
Total:			101.010	14.086	99.60	153.600	

6 STD6

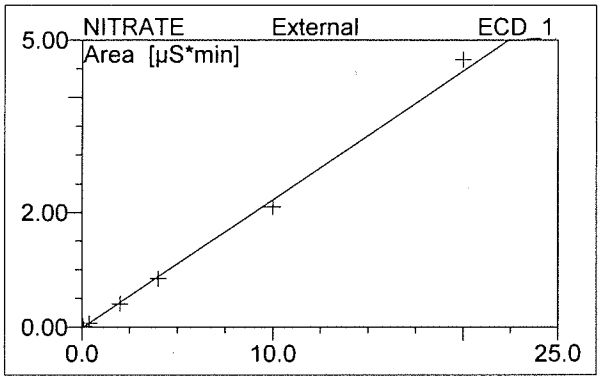
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

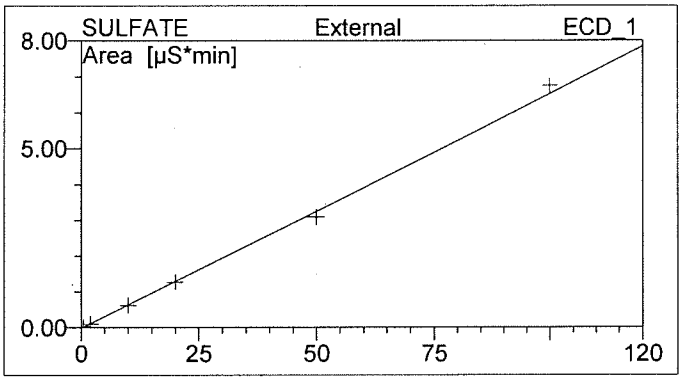


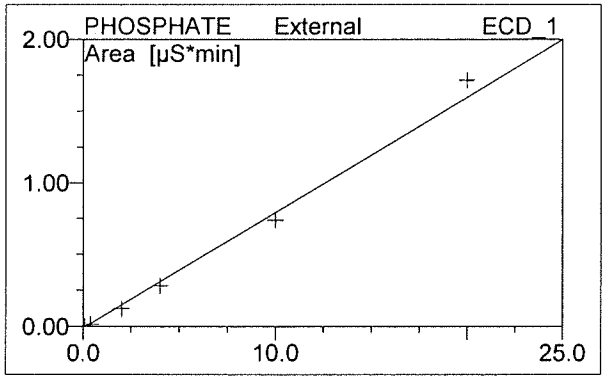
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.89	FLUORIDE	27.202	2.852	9.32	20.158	1.
2	4.24	CHLORIDE	84.194	9.360	30.60	102.790	1.
3	5.16	NITRITE,N	25.559	3.861	12.62	19.970	1.
5	7.10	BROMIDE	4.923	0.763	2.49	24.066	1.
6	7.67	SULFATE	30.095	6.746	22.05	103.329	1.
7	8.34	NITRATE	20.708	4.660	15.23	20.879	1.
8	9.05	CHLORATE	2.949	0.625	2.04	23.464	1.
9	11.93	PHOSPHATE	11.975	1.715	5.60	21.467	1.
Total:			207.605	30.582	99.97	336.123	

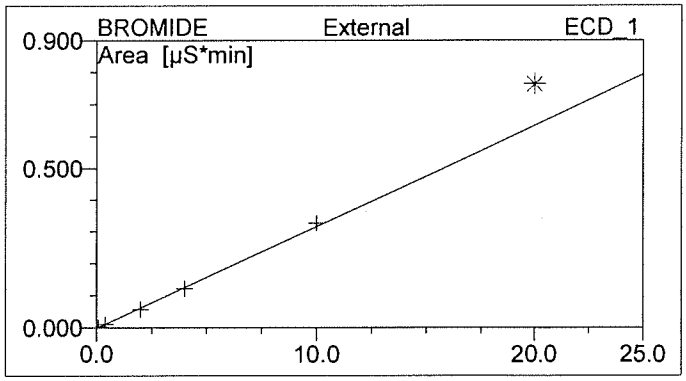
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









Can't open raw data file "C:\Chromel\data\ICS2100\
Sequences and Data\2019\051419.SEQ\CD_1.CHL\
6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences
and Data\2019\051419.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

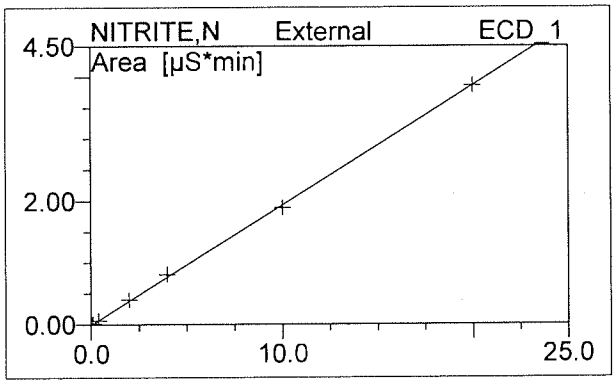
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

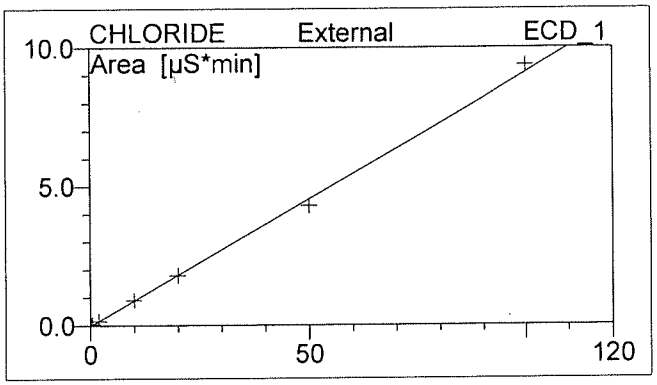
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.936	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.865	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.933	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.761	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.825	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.711	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.921	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.117	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.0000

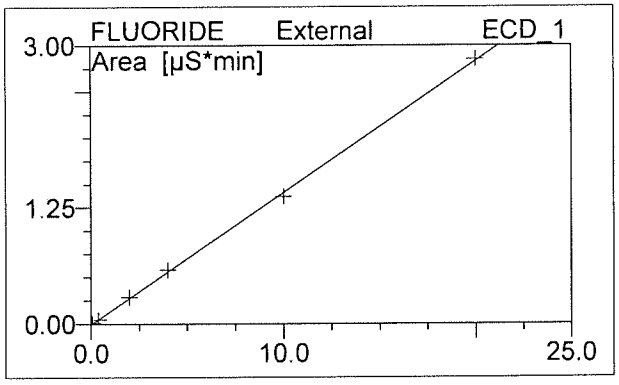
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.5397	0.0147	22.2265

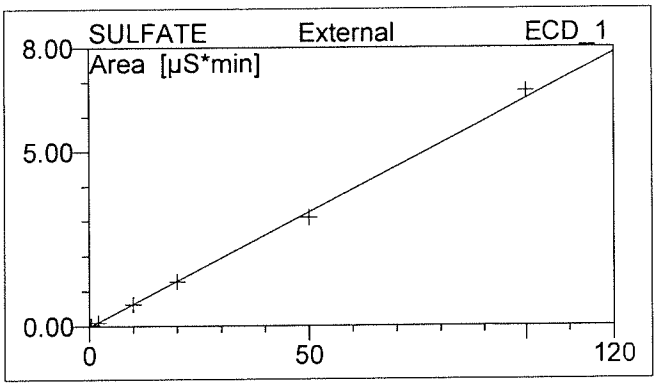
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.000**
Recording Time:	**4/3/2019 8:09**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051419.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

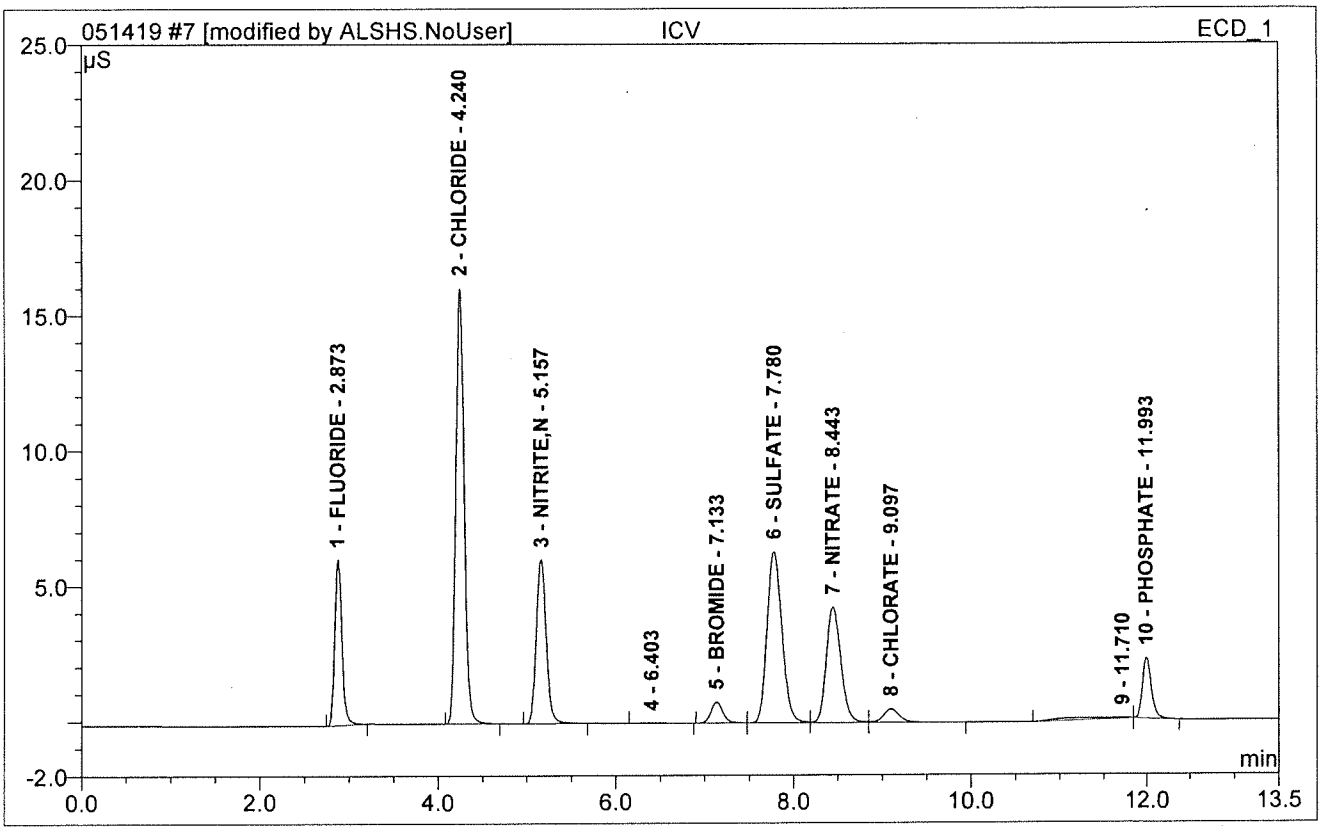
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.9360	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.8652	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.9328	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.7608	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.8254	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.7112	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.9208	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.1166	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.540	0.015	22.226

7 ICV

297.020.6806

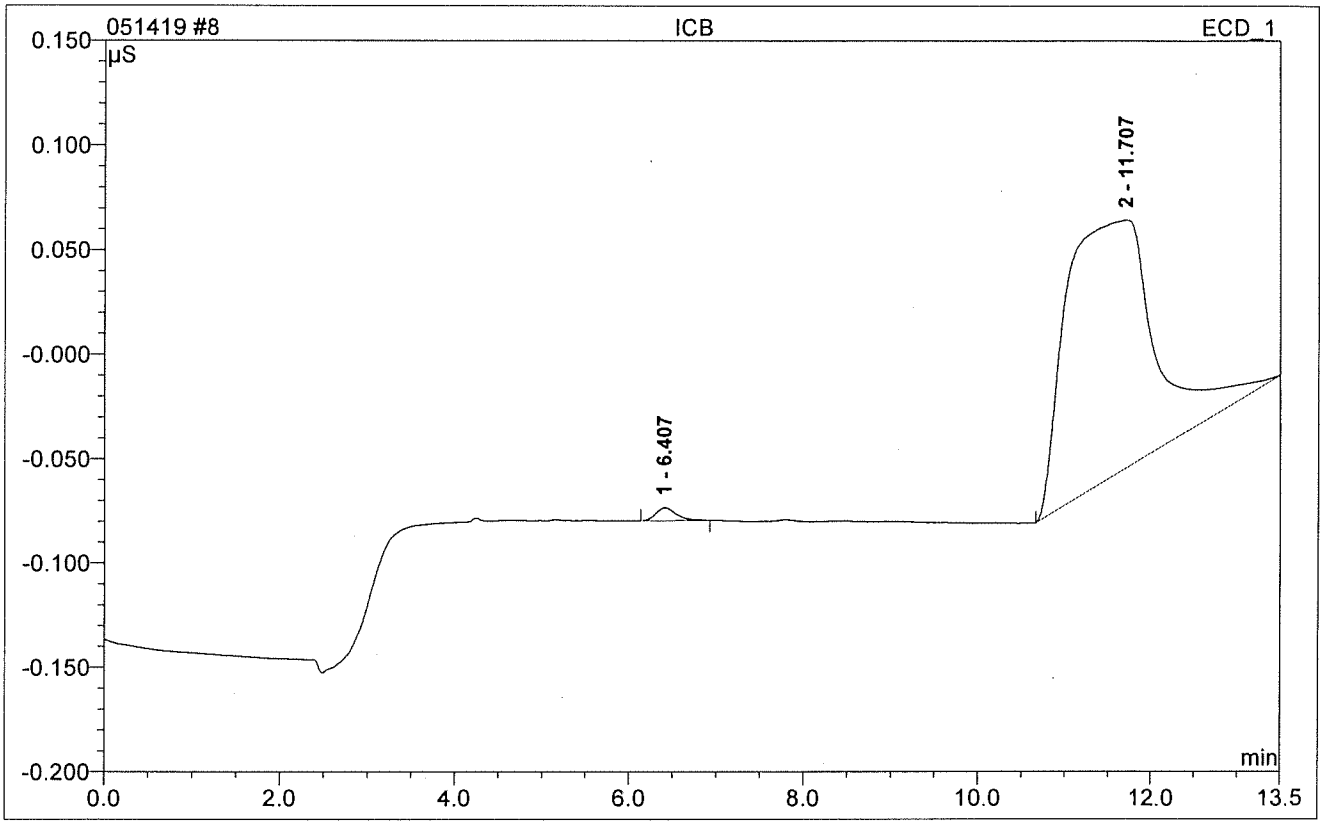
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.120	0.572	10.00	4.075	1.
2	4.24	CHLORIDE	16.070	1.742	30.46	19.294	1.
3	5.16	NITRITE,N	6.066	0.792	13.85	4.120	1.
5	7.13	BROMIDE	0.771	0.119	2.08	3.784	1.
6	7.78	SULFATE	6.333	1.239	21.67	19.210	1.
7	8.44	NITRATE	4.275	0.817	14.29	3.715	1.
8	9.10	CHLORATE	0.498	0.106	1.85	3.999	1.
10	11.99	PHOSPHATE	2.227	0.272	4.77	3.516	1.
Total:			42.362	5.659	98.97	61.712	

8 ICB

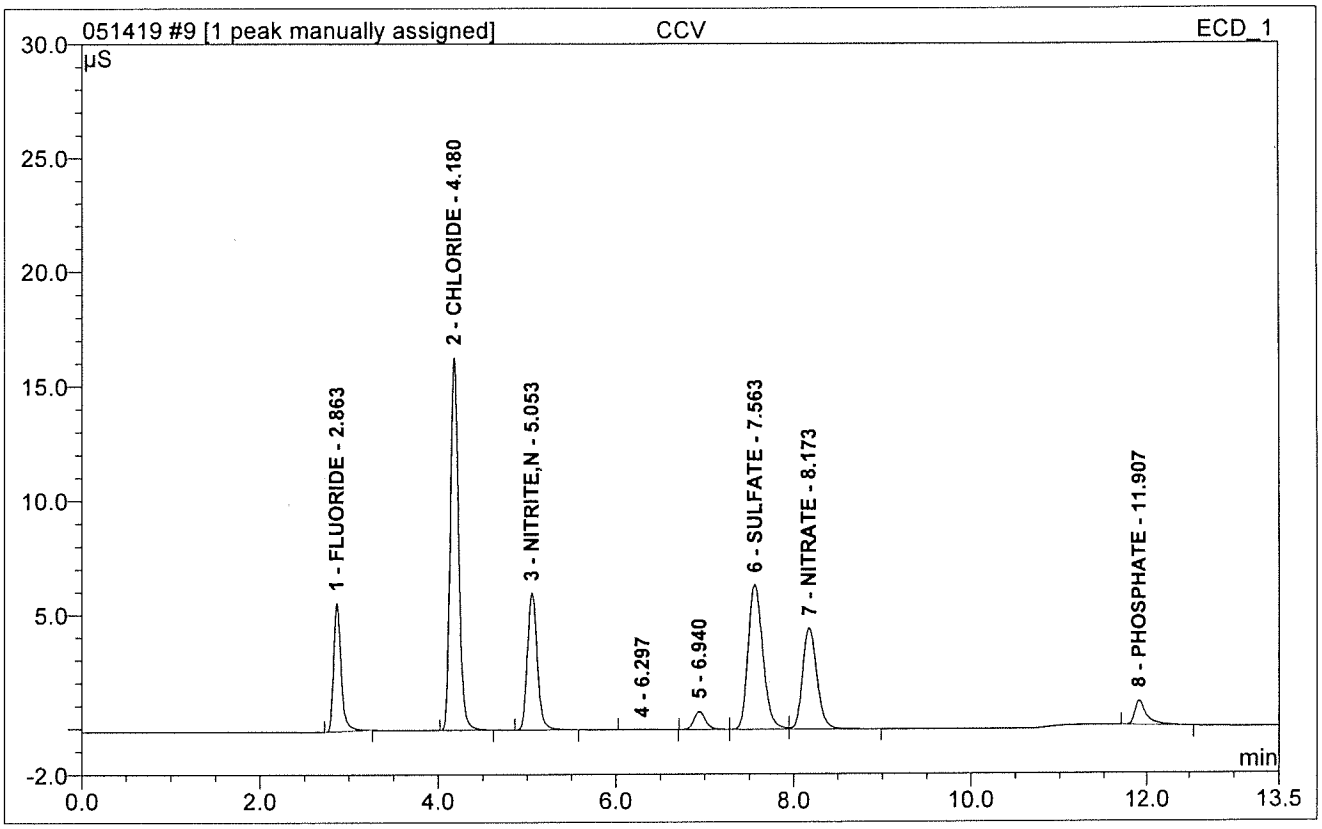
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

9 CCV

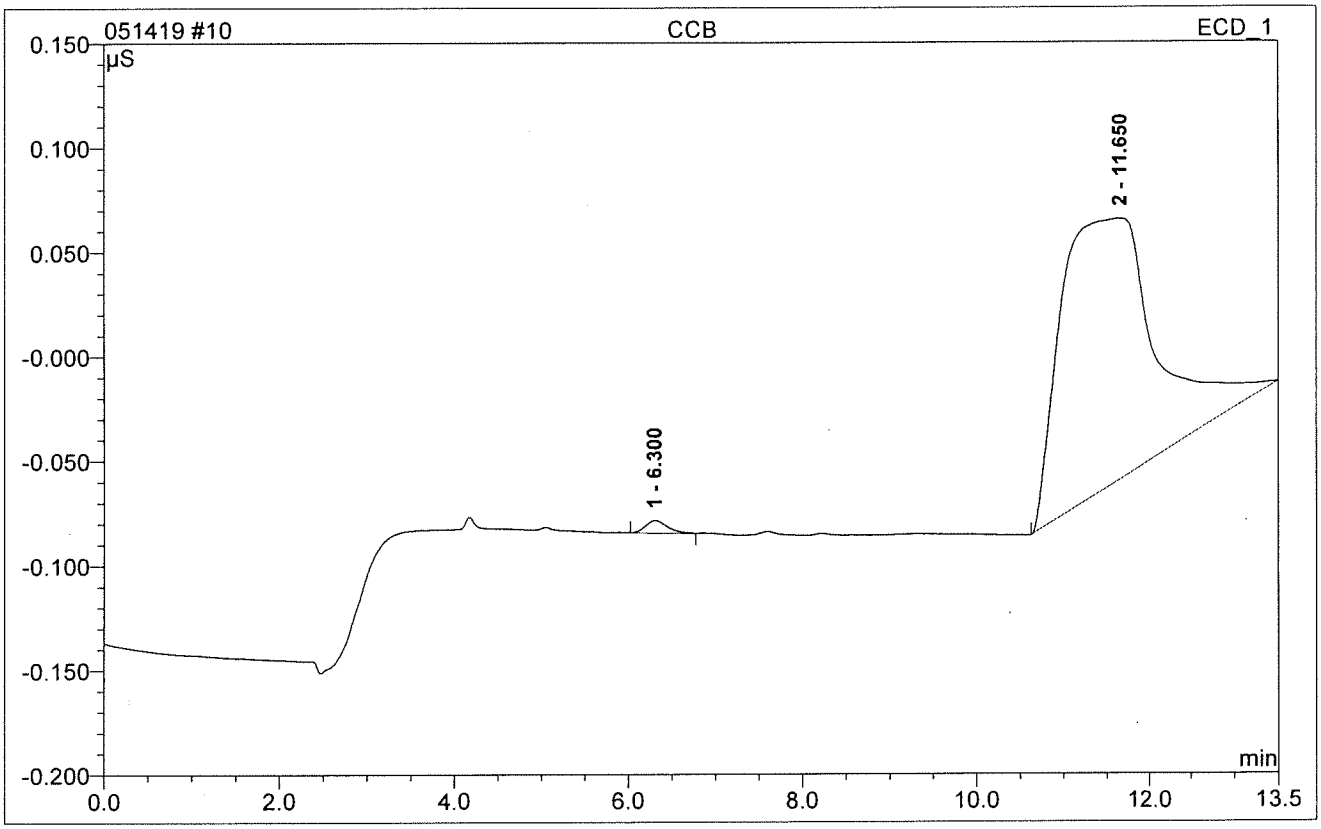
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 10:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.641	0.553	10.15	3.943	1.
2	4.18	CHLORIDE	16.315	1.755	32.20	19.435	1.
3	5.05	NITRITE,N	5.995	0.779	14.30	4.054	1.
6	7.56	SULFATE	6.351	1.231	22.60	19.089	1.
7	8.17	NITRATE	4.437	0.834	15.30	3.788	1.
8	11.91	PHOSPHATE	1.067	0.172	3.16	2.265	1.
Total:			39.807	5.324	97.71	52.574	

10 CCB

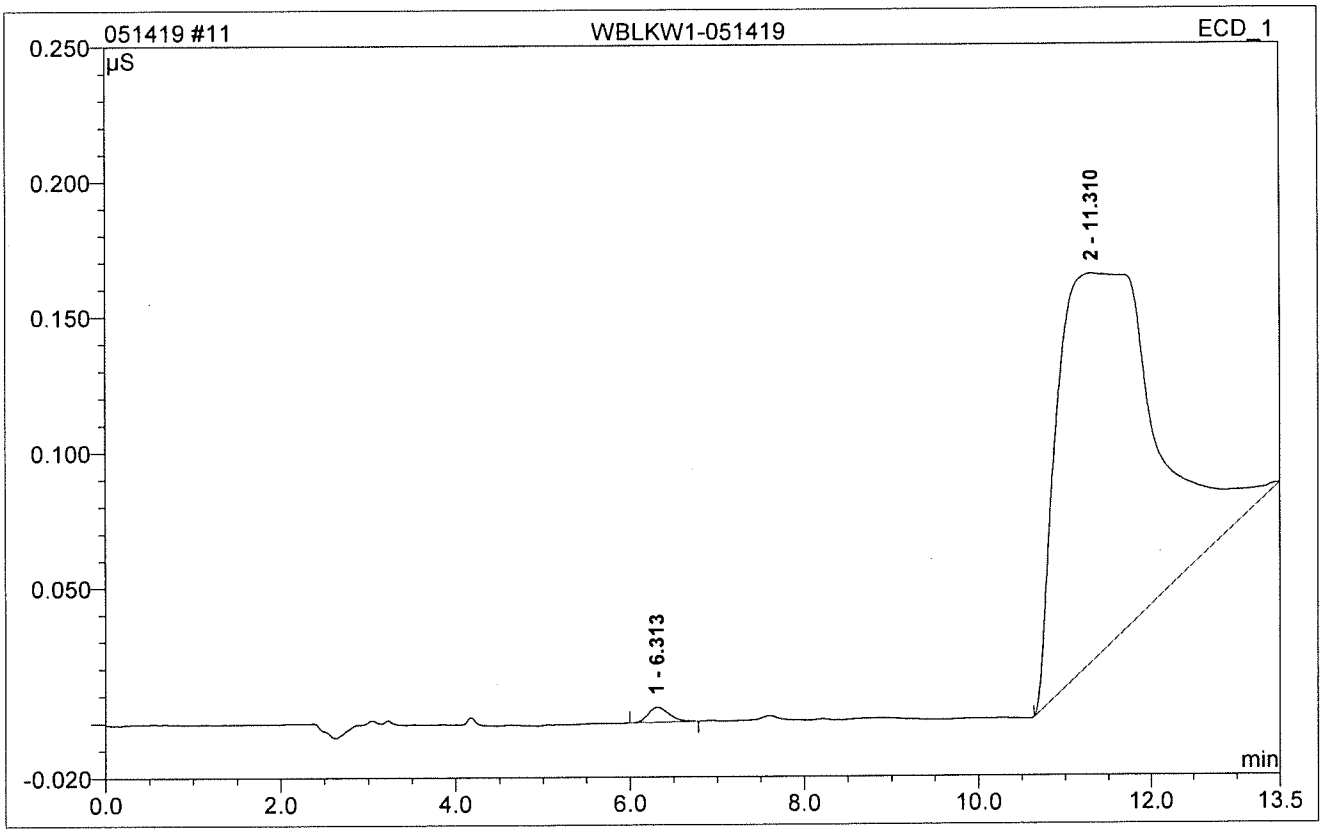
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 11:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

11 WBLKW1-051419

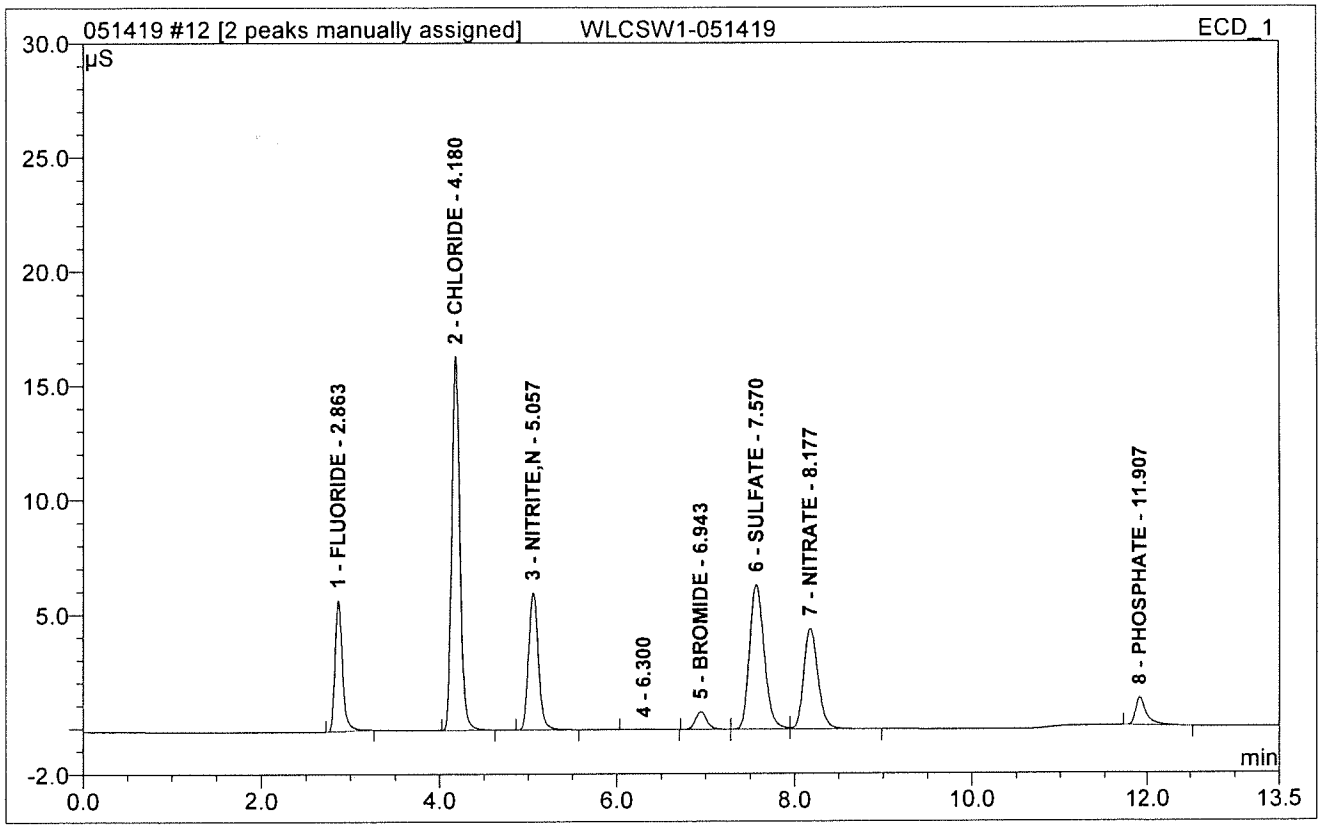
Sample Name:	**WBLKW1-051419**	*Injection Volume:*	**10.0**
Vial Number:	**11**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 12:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

12 WLCSW1-051419

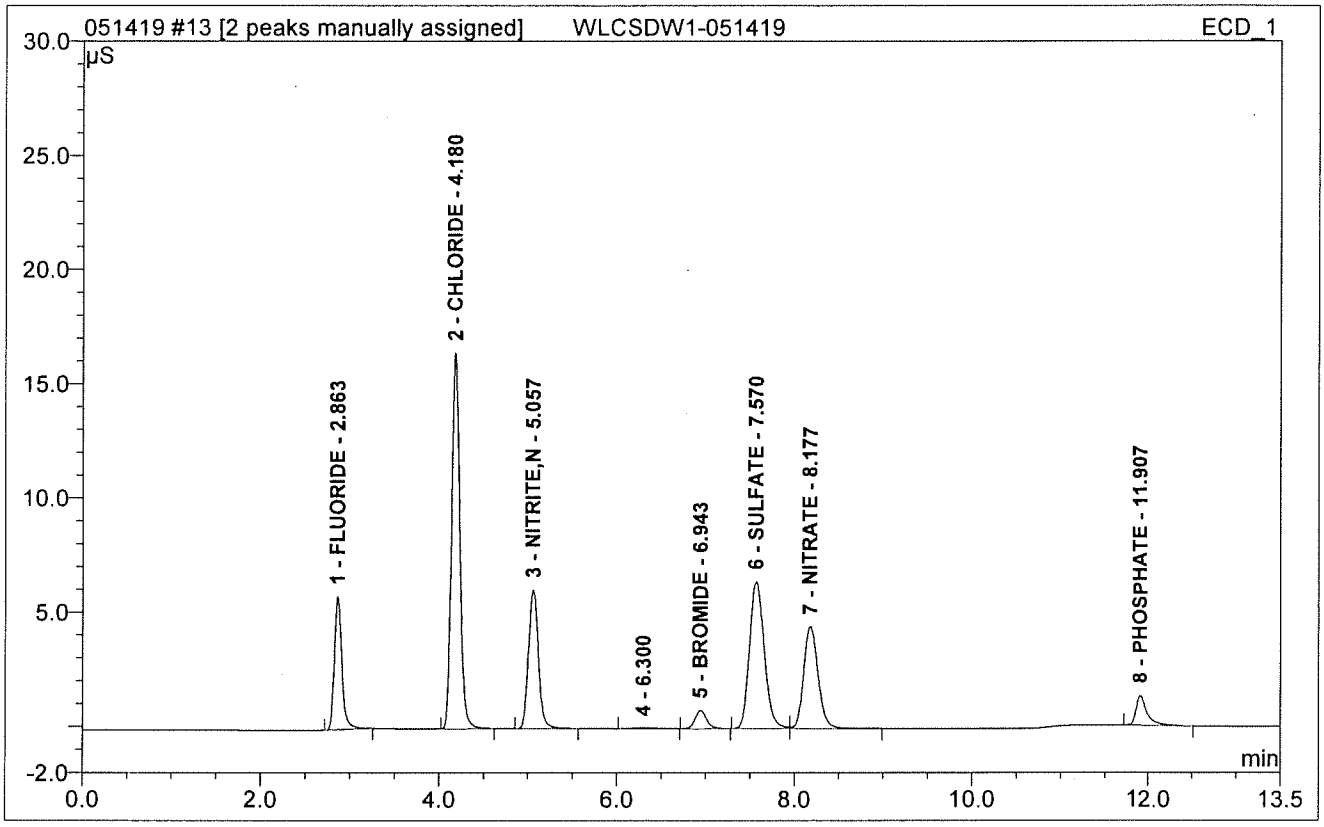
Sample Name:	**WLCSW1-051419**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 12:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.756	0.557	10.16	3.973	1.
2	4.18	CHLORIDE	16.369	1.761	32.11	19.501	1.
3	5.06	NITRITE,N	6.026	0.781	14.24	4.064	1.
5	6.94	BROMIDE	0.794	0.120	2.18	3.810	1.
6	7.57	SULFATE	6.361	1.234	22.51	19.130	1.
7	8.18	NITRATE	4.451	0.836	15.24	3.796	1.
8	11.91	PHOSPHATE	1.234	0.189	3.44	2.474	1.
Total:			40.992	5.477	99.89	56.747	

13 WLCSDW1-051419

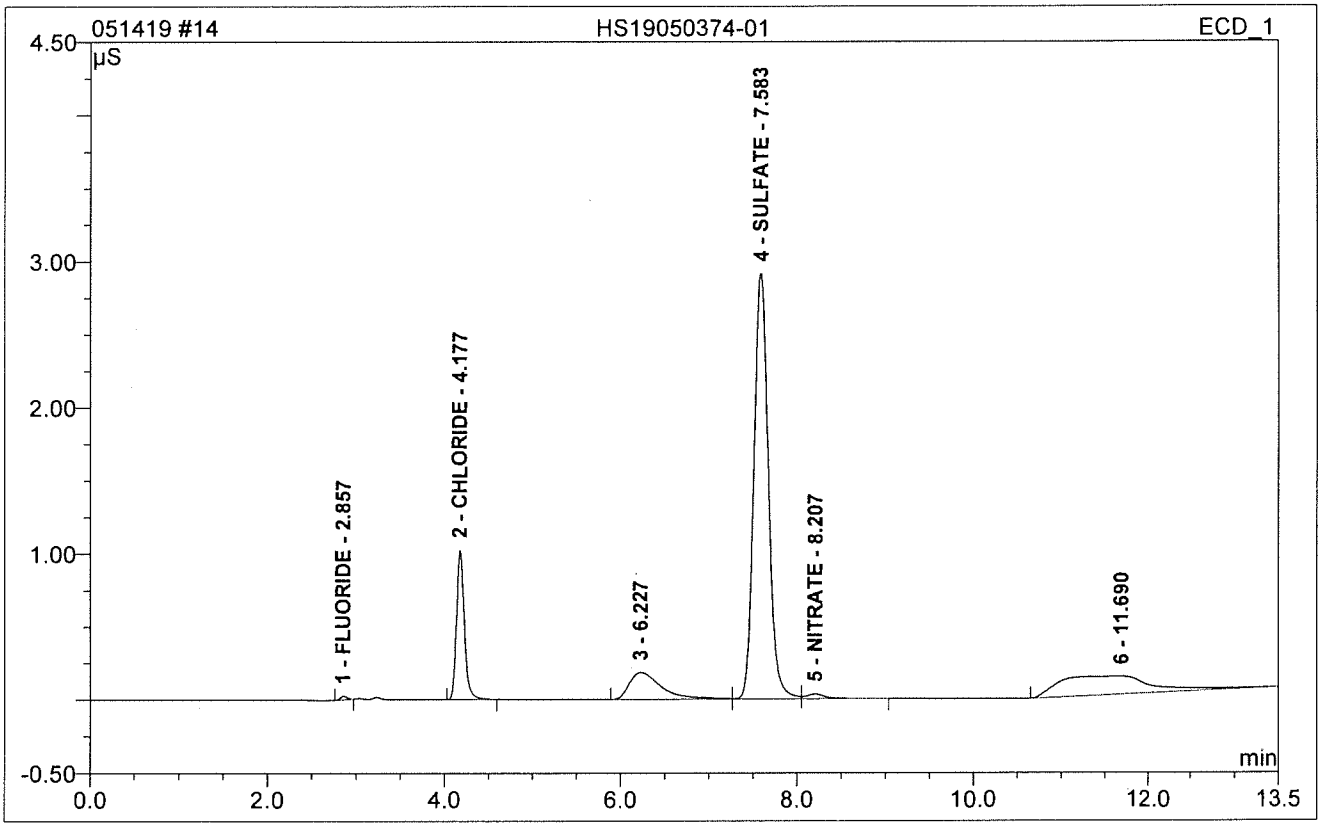
Sample Name:	**WLCSDW1-051419**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 12:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.816	0.562	10.17	4.005	1.
2	4.18	CHLORIDE	16.438	1.769	32.02	19.593	1.
3	5.06	NITRITE,N	6.069	0.787	14.25	4.096	1.
5	6.94	BROMIDE	0.797	0.120	2.17	3.808	1.
6	7.57	SULFATE	6.422	1.243	22.49	19.262	1.
7	8.18	NITRATE	4.471	0.839	15.18	3.809	1.
8	11.91	PHOSPHATE	1.302	0.196	3.55	2.569	1.
Total:			41.315	5.516	99.83	57.141	

14 HS19050374-01

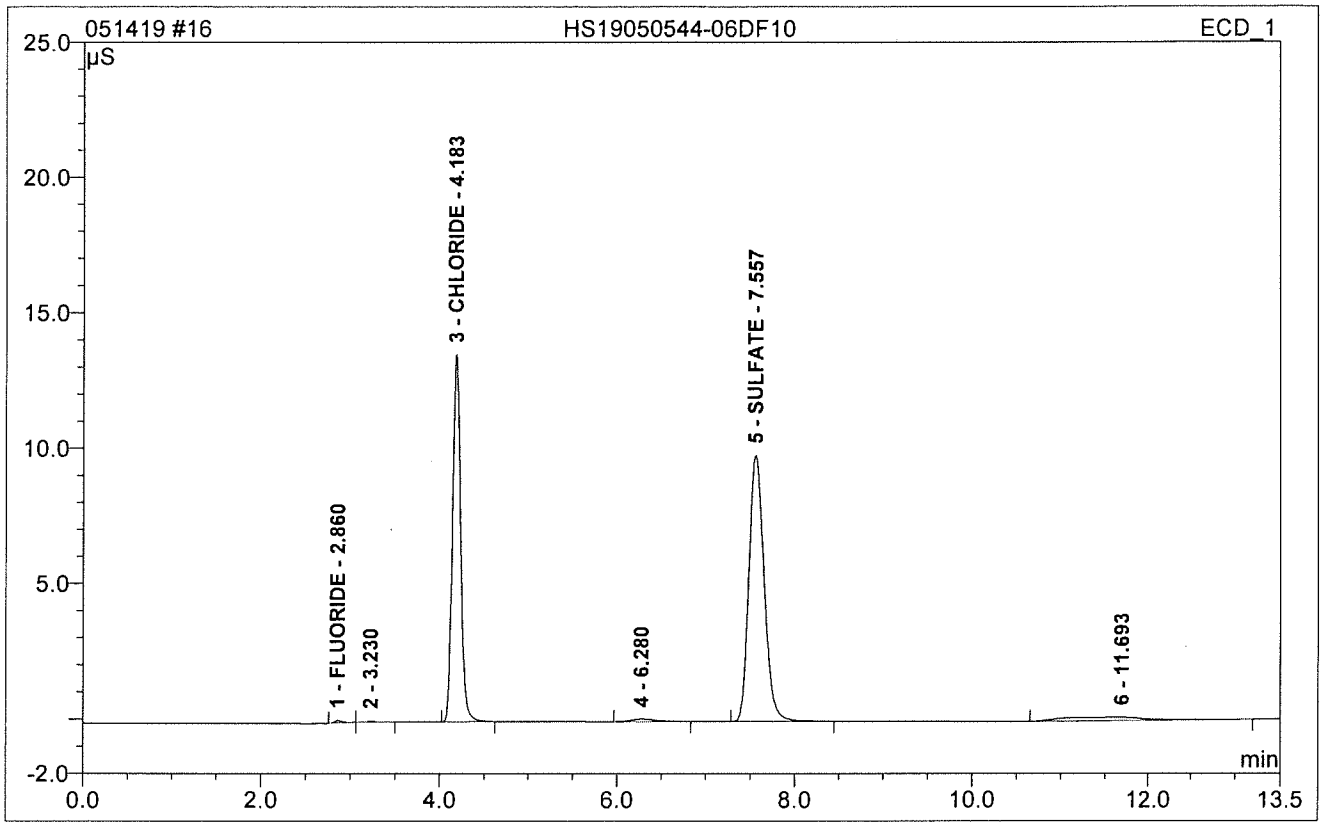
Sample Name:	**HS19050374-01**	*Injection Volume:*	**10.0**
Vial Number:	**14**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 13:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.025	0.002	0.23	0.057	1.
2	4.18	CHLORIDE	1.024	0.105	11.67	1.357	1.
4	7.58	SULFATE	2.913	0.554	61.32	8.738	1.
5	8.21	NITRATE	0.032	0.008	0.90	0.100	1.
Total:			3.995	0.670	74.12	10.253	

16 HS19050544-06DF10

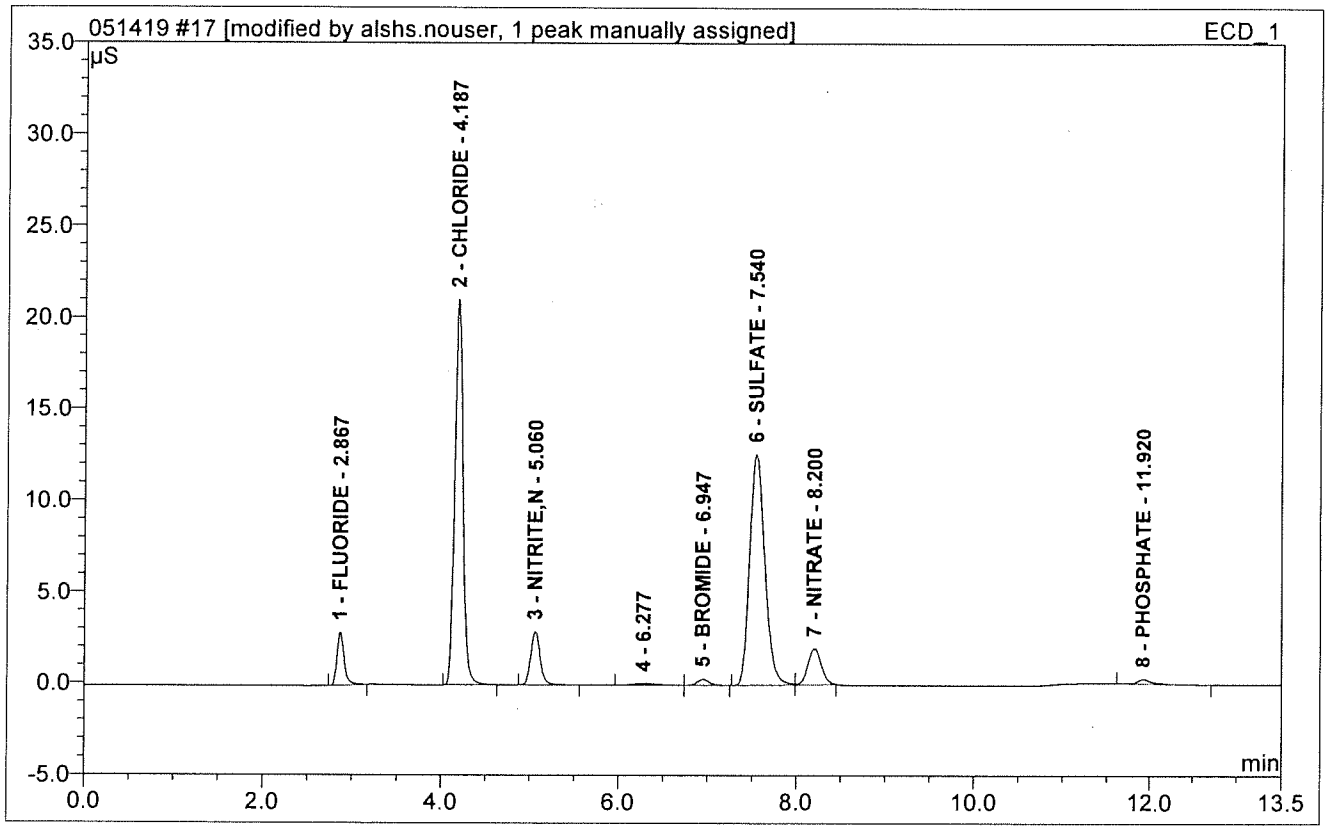
Sample Name:	**HS19050544-06DF10**	*Injection Volume:*	**10.0**
Vial Number:	**16**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 13:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.089	0.008	0.24	1.020	10.
3	4.18	CHLORIDE	13.548	1.458	40.59	161.768	10.
5	7.56	SULFATE	9.827	1.955	54.46	301.490	10.
Total:			23.464	3.421	95.29	464.278	

17 HS19050544-06MSDF10

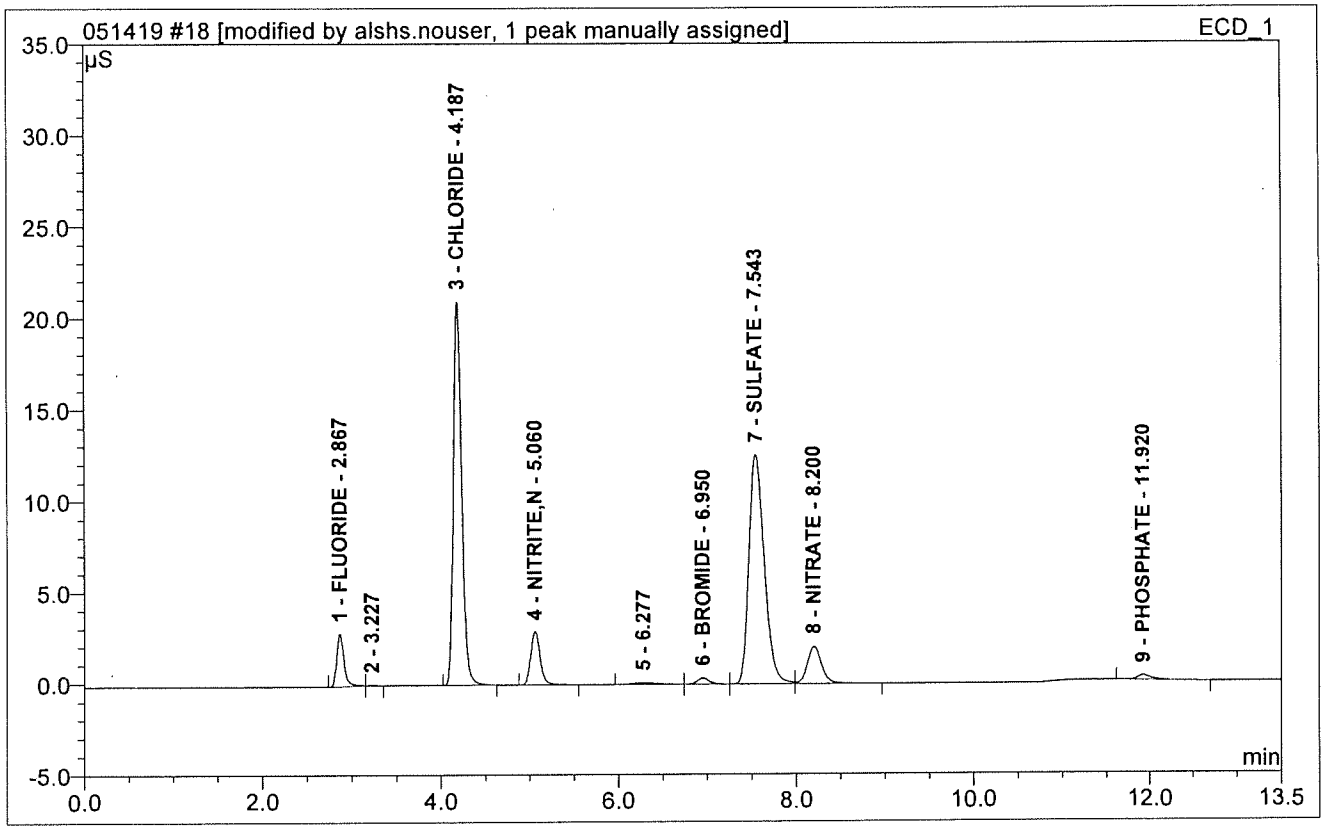
Sample Name:	**HS19050544-06MSDF10**	*Injection Volume:*	**10.0**
Vial Number:	**17**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 14:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	2.896	0.269	4.54	19.407	10.
2	4.19	CHLORIDE	21.085	2.289	38.63	252.887	10.
3	5.06	NITRITE,N	2.916	0.361	6.10	18.963	10.
5	6.95	BROMIDE	0.339	0.052	0.88	16.890	10.
6	7.54	SULFATE	12.614	2.527	42.65	388.809	10.
7	8.20	NITRATE	1.984	0.350	5.91	16.293	10.
8	11.92	PHOSPHATE	0.249	0.046	0.78	7.004	10.
Total:			42.084	5.896	99.50	720.253	

18 HS19050544-06MSDDF10

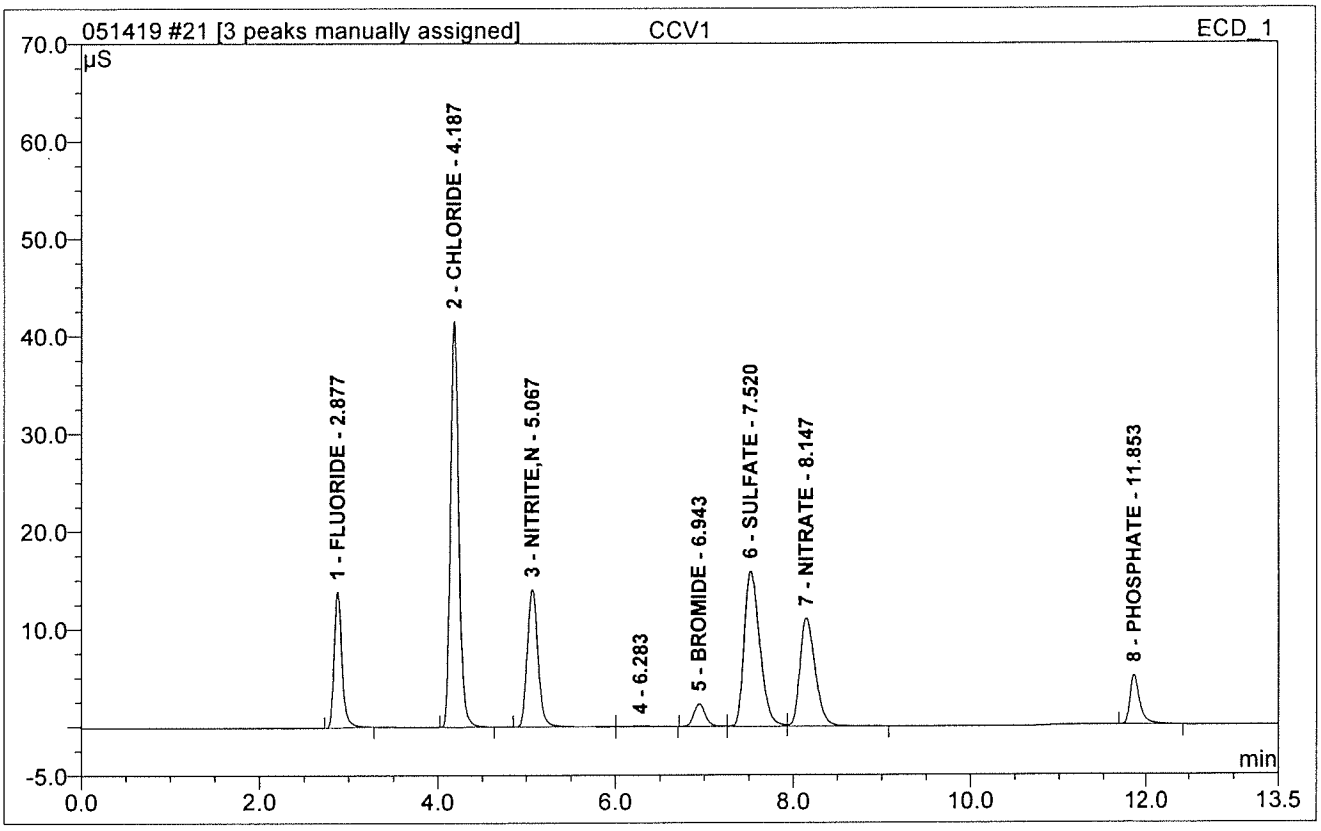
Sample Name:	**HS19050544-06MSDDF10**	*Injection Volume:*	**10.0**
Vial Number:	**18**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 14:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	2.883	0.268	4.52	19.320	10.
3	4.19	CHLORIDE	20.965	2.275	38.34	251.376	10.
4	5.06	NITRITE,N	2.907	0.360	6.07	18.897	10.
6	6.95	BROMIDE	0.339	0.053	0.89	17.050	10.
7	7.54	SULFATE	12.537	2.521	42.49	387.966	10.
8	8.20	NITRATE	2.025	0.377	6.36	17.499	10.
9	11.92	PHOSPHATE	0.261	0.048	0.81	7.239	10.
Total:			41.917	5.903	99.47	719.347	

21 CCV1

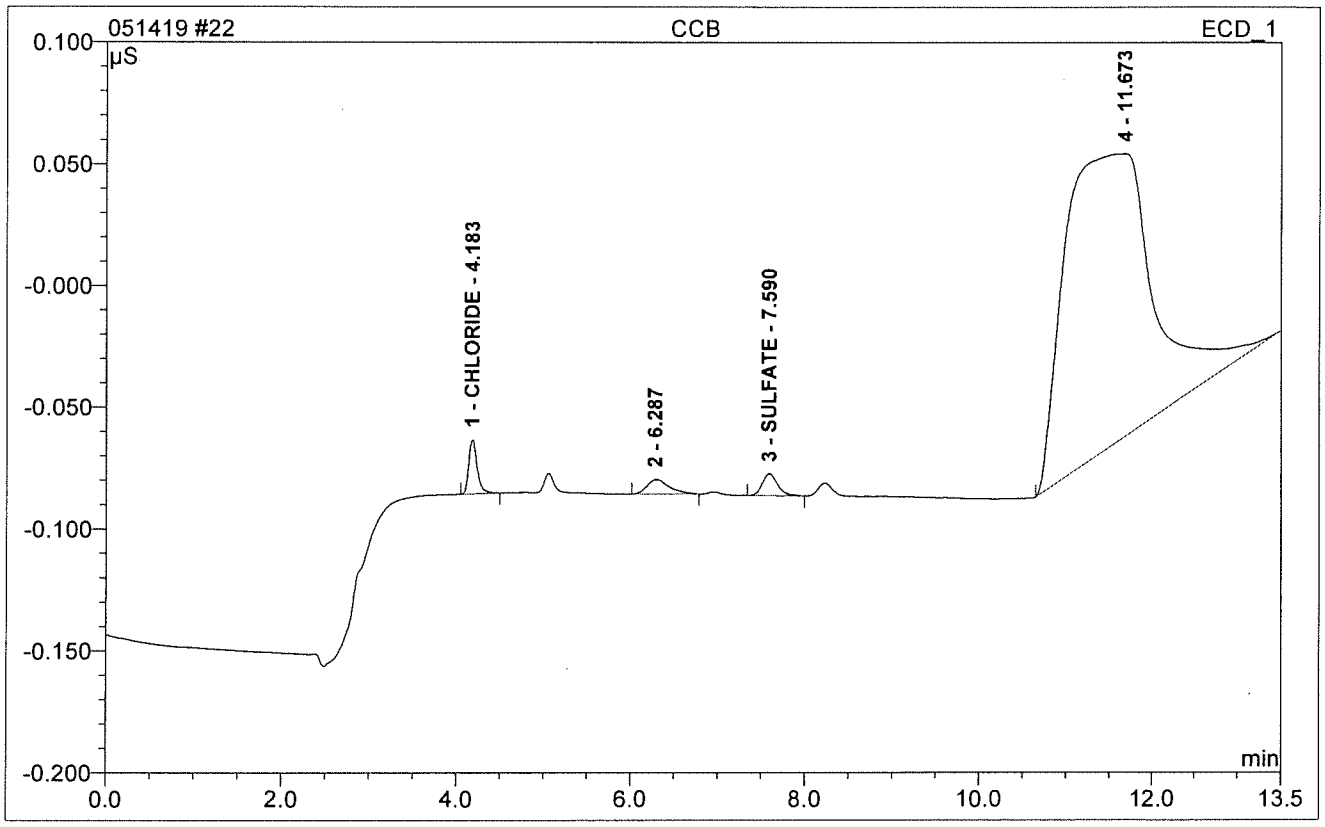
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 15:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.88	FLUORIDE	13.953	1.432	9.86	10.139	1.
2	4.19	CHLORIDE	41.596	4.573	31.49	50.322	1.
3	5.07	NITRITE,N	14.136	1.988	13.69	10.297	1.
5	6.94	BROMIDE	2.315	0.347	2.39	10.959	1.
6	7.52	SULFATE	16.015	3.252	22.40	49.963	1.
7	8.15	NITRATE	11.158	2.232	15.37	10.033	1.
8	11.85	PHOSPHATE	5.024	0.684	4.71	8.637	1.
Total:			104.196	14.508	99.90	150.350	

22 CCB

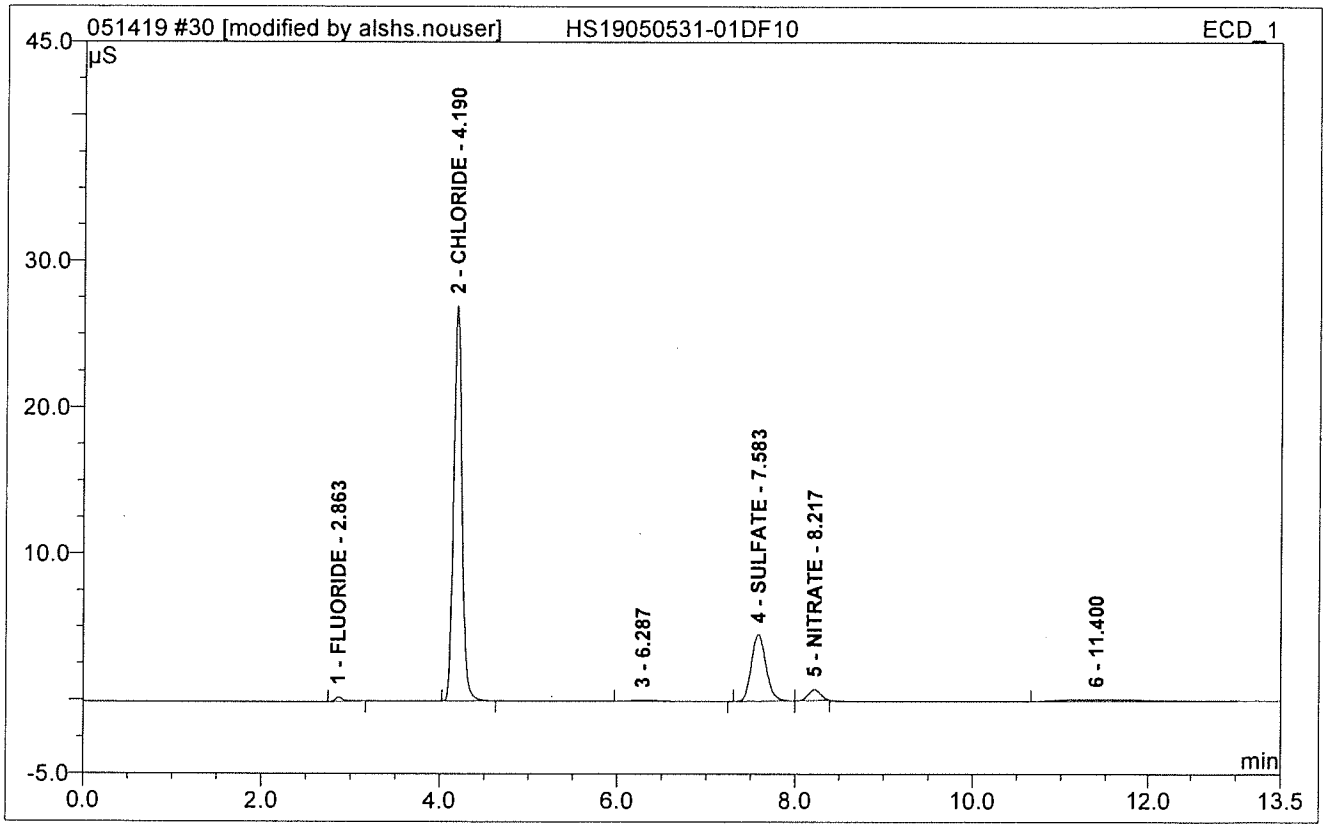
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 15:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.18	CHLORIDE	0.022	0.003	1.67	0.229	1.
3	7.59	SULFATE	0.009	0.002	1.23	0.304	1.
Total:			0.031	0.004	2.89	0.533	

30 HS19050531-01DF10

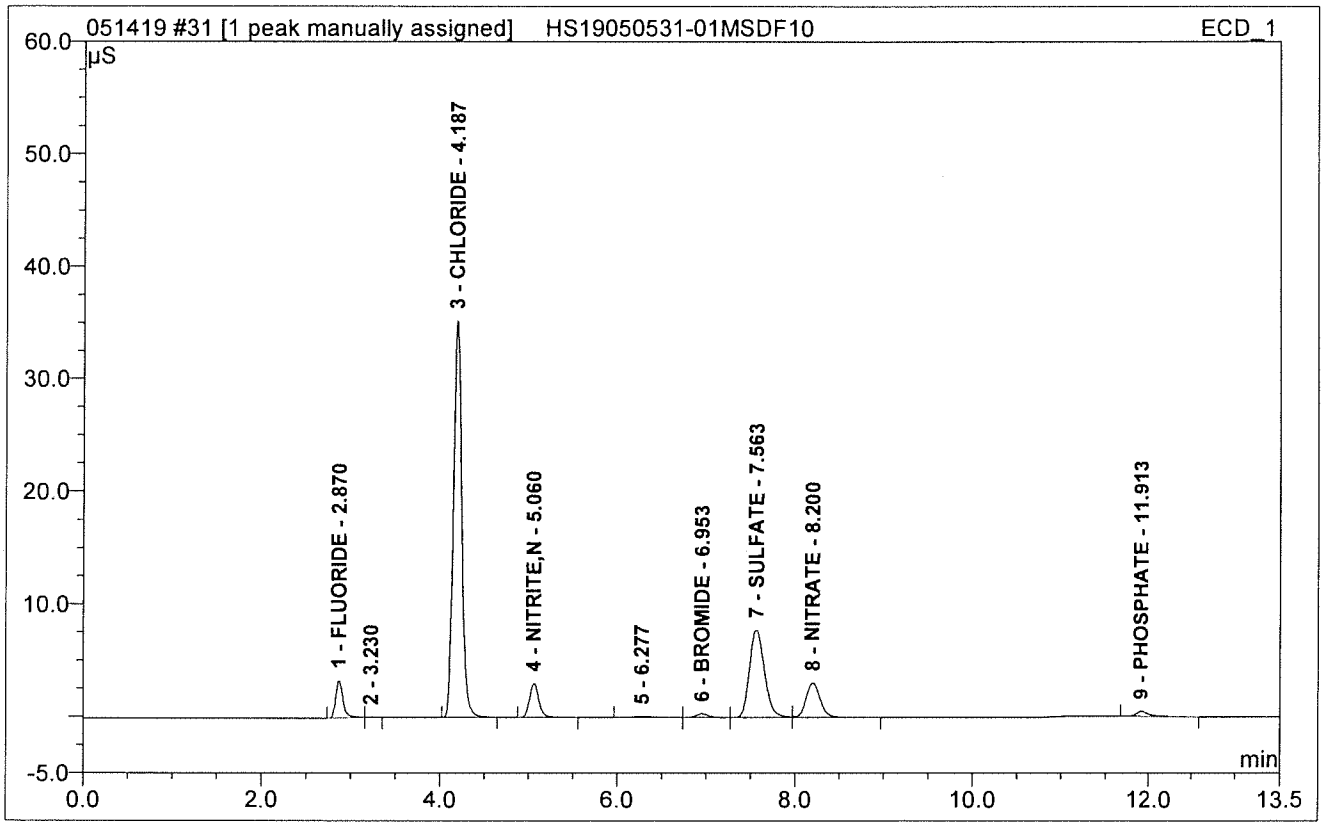
Sample Name:	**HS19050531-01DF10**	*Injection Volume:*	**10.0**
Vial Number:	**27**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 17:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.307	0.031	0.74	2.589	10.
2	4.19	CHLORIDE	26.980	2.947	71.49	325.053	10.
4	7.58	SULFATE	4.527	0.859	20.84	134.016	10.
5	8.22	NITRATE	0.739	0.118	2.87	5.927	10.
Total:			32.553	3.956	95.94	467.585	

31 HS19050531-01MSDF10

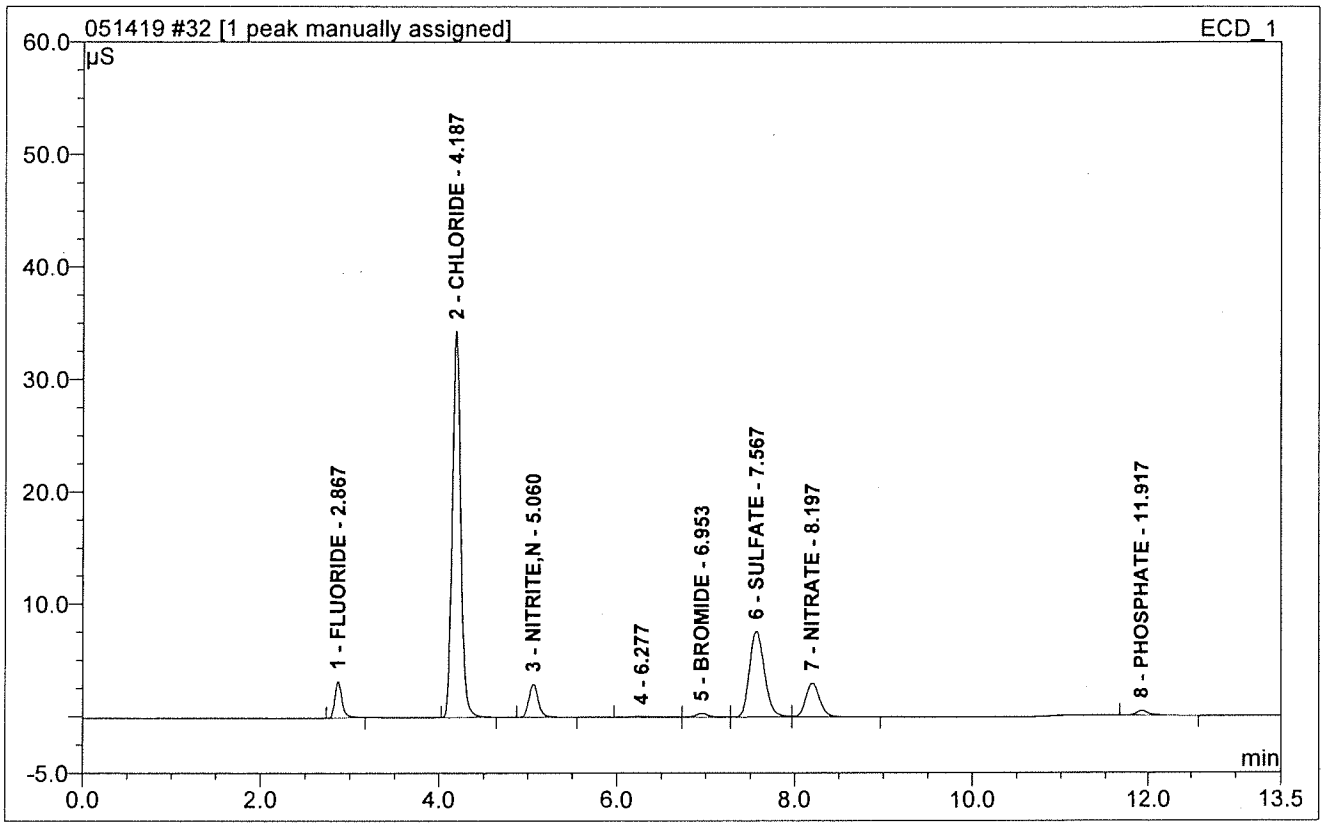
Sample Name:	**HS19050531-01MSDF10**	*Injection Volume:*	**10.0**
Vial Number:	**28**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 17:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.322	0.311	4.56	22.361	10.
3	4.19	CHLORIDE	35.258	3.863	56.66	425.370	10.
4	5.06	NITRITE,N	3.020	0.375	5.50	19.671	10.
6	6.95	BROMIDE	0.345	0.054	0.78	17.260	10.
7	7.56	SULFATE	7.850	1.541	22.60	238.166	10.
8	8.20	NITRATE	3.098	0.577	8.46	26.406	10.
9	11.91	PHOSPHATE	0.451	0.074	1.08	10.436	10.
Total:			53.342	6.794	99.65	759.672	

32 HS19050531-01MSDDF10

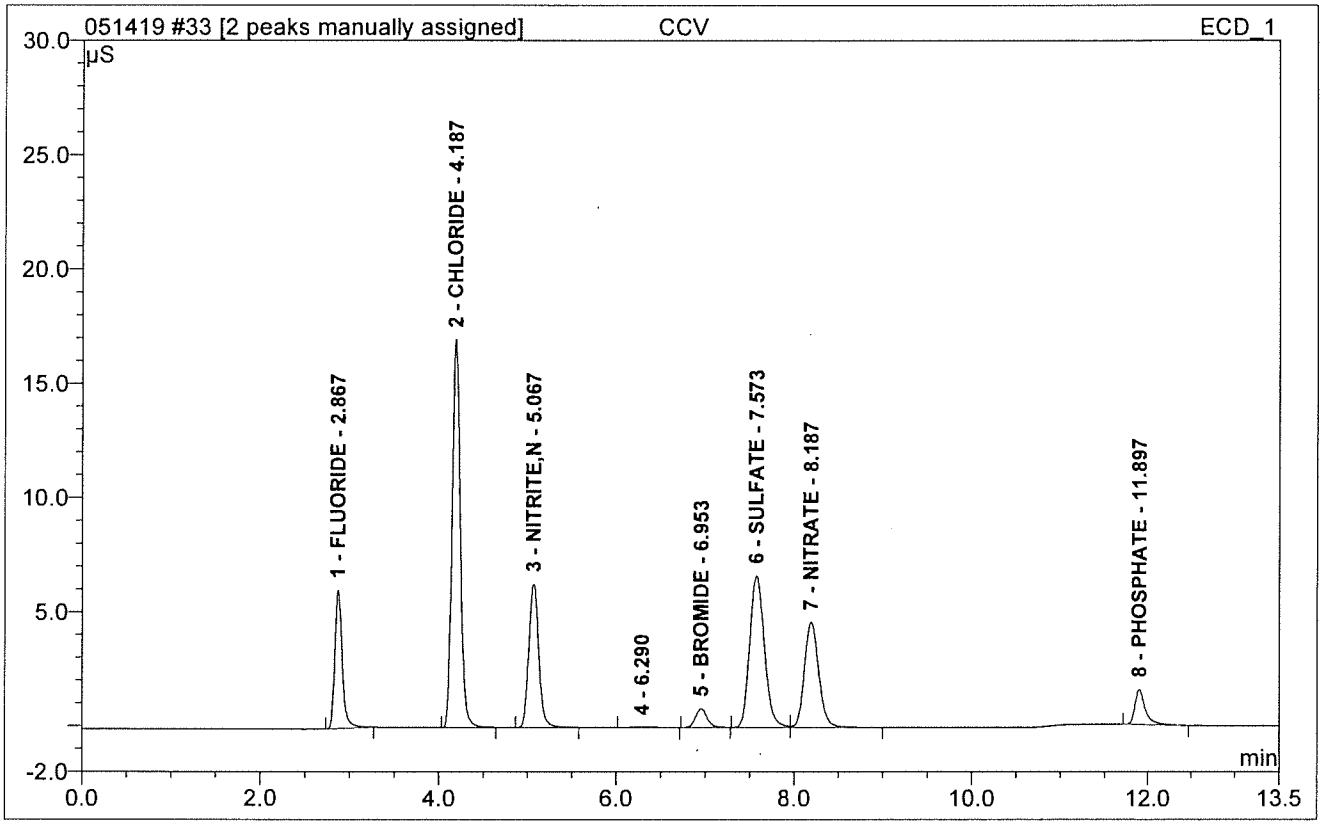
Sample Name:	**HS19050531-01MSDDF10**	*Injection Volume:*	**10.0**
Vial Number:	**29**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/14/2019 17:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.221	0.301	4.54	21.632	10.
2	4.19	CHLORIDE	34.344	3.765	56.85	414.701	10.
3	5.06	NITRITE,N	2.937	0.364	5.50	19.116	10.
5	6.95	BROMIDE	0.335	0.052	0.79	16.838	10.
6	7.57	SULFATE	7.612	1.491	22.52	230.612	10.
7	8.20	NITRATE	3.014	0.559	8.44	25.601	10.
8	11.92	PHOSPHATE	0.423	0.070	1.05	9.928	10.
Total:			51.884	6.603	99.68	738.427	

33 CCV

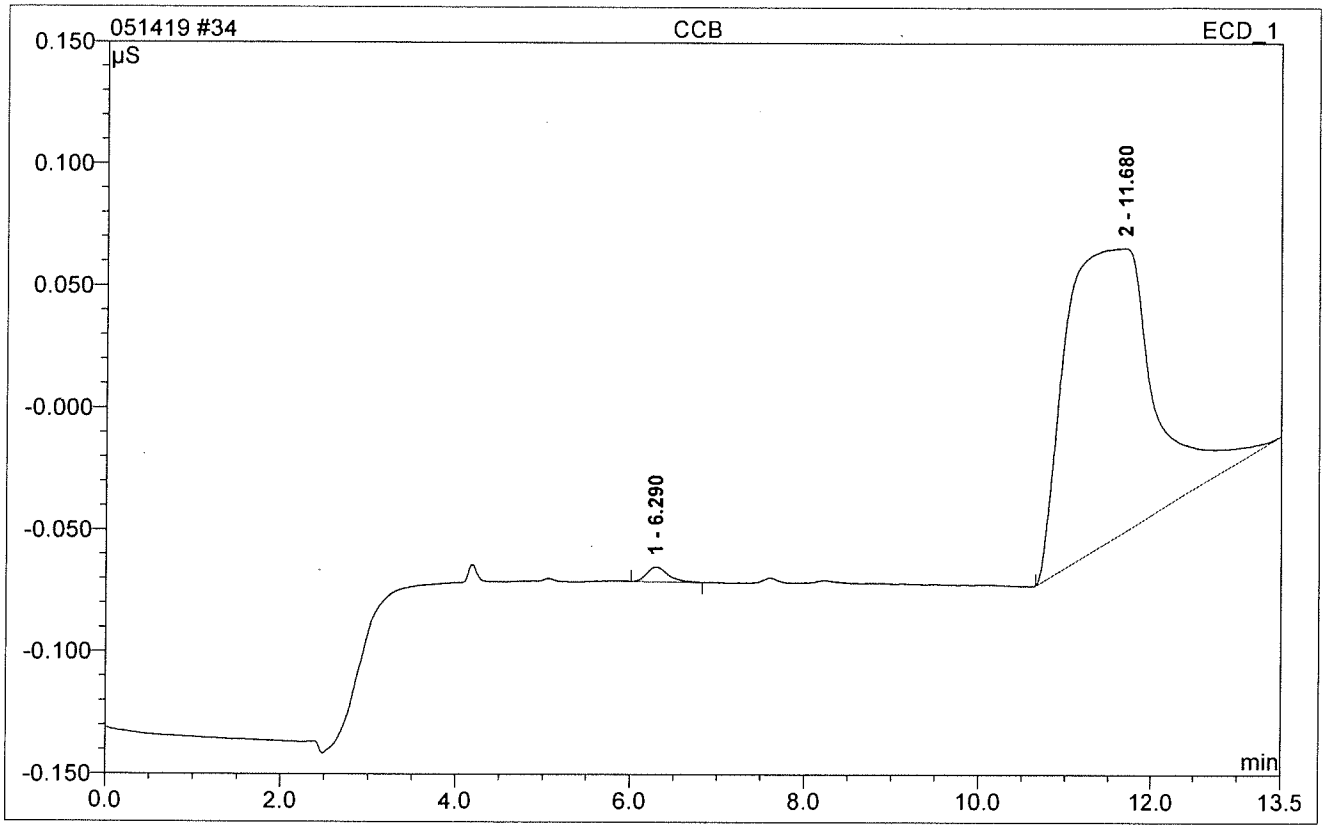
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 18:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.054	0.586	10.19	4.176	1.
2	4.19	CHLORIDE	16.992	1.841	31.99	20.379	1.
3	5.07	NITRITE,N	6.288	0.819	14.23	4.260	1.
5	6.95	BROMIDE	0.826	0.124	2.16	3.954	1.
6	7.57	SULFATE	6.651	1.287	22.37	19.941	1.
7	8.19	NITRATE	4.627	0.871	15.13	3.953	1.
8	11.90	PHOSPHATE	1.554	0.220	3.82	2.861	1.
Total:			42.991	5.748	99.89	59.524	

34 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/14/2019 18:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

HS19050403 Longhorn Army Ammunition Plant
LHAAP50 Cover Page

ALS WO# HS19050403

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

Table of Contents

Table of Contents (continued)

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

WorkOrder: HS19050403

Longhorn Army Ammunition Plant LHAAP-50

Aptim Environmental & Infrastucture, Inc.

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

12-Jun-2019

HS19050403 Longhorn Army Ammunition Plant
LHAAP50 Final

ALS WO# HS19050403

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

May 23, 2019

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

Work Order: **HS19050403**

Laboratory Results for: **Longhorn Army Ammunition Plant LHAAP-50**

Dear Susan,

ALS Environmental received 8 sample(s) on May 08, 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: 23-may-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order: HS19050403

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19050403-01	50WW10-190507	Groundwater		07-May-2019 08:30	08-May-2019 09:30	☐
HS19050403-02	50WW09-190507	Groundwater		07-May-2019 09:20	08-May-2019 09:30	☐
HS19050403-03	50WW09-190507-FD	Groundwater		07-May-2019 09:20	08-May-2019 09:30	☐
HS19050403-04	50WW08-190507	Groundwater		07-May-2019 10:10	08-May-2019 09:30	☐
HS19050403-05	50WW23-190507	Groundwater		07-May-2019 11:10	08-May-2019 09:30	☐
HS19050403-06	50WW24-190507	Groundwater		07-May-2019 12:25	08-May-2019 09:30	☐
HS19050403-07	50WW05-190507	Groundwater		07-May-2019 13:15	08-May-2019 09:30	☐
HS19050403-08	Trip Blank	Water	ALS 090718-79	07-May-2019 00:00	08-May-2019 09:30	☐

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order:

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

Work Order Comments

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

GCMS Volatiles by Method SW8260

Batch ID: R338572

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

Sample ID: 50WW23-190507 (HS19050403-05MS)

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

Sample ID: 50WW23-190507 (HS19050403-05MSD)

- The recovery of the Matrix Spike Duplicate (MSD) associated to this analyte was outside of the established control limits. However, the LCS was within control limits. The failed recovery of the MSD may be due to sample matrix interference (1,1,2-Trichloroethane, Bromochloromethane, Chloroform and cis-1,2-Dichloroethene)

WetChemistry by Method SW9056

Batch ID: R338137

Sample ID: 50WW23-190507 (HS19050403-05MSD)

- The matrix spike duplicate recovery was outside of the control limits. However, the matrix spike recovery and the RPD between the MS and MSD was in control. (Chloride)

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW10-190507
Collection Date: 07-May-2019 08:30

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-01
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	16-May-2019 17:41
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 17:41
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 17:41
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 17:41
Acetone	**2.7**		**0.40**	**1.0**	**2.0**	**UG/L**	1	16-May-2019 17:41
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 17:41
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 17:41
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW10-190507
Collection Date: 07-May-2019 08:30

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 17:41
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 17:41
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 17:41
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 17:41
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 17:41
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 17:41
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 17:41
Surr: 1,2-Dichloroethane-d4	*87.0*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 17:41*
Surr: 4-Bromofluorobenzene	*97.1*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 17:41*
Surr: Dibromofluoromethane	*89.6*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 17:41*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 17:41*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW09-190507
Collection Date: 07-May-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-02
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	16-May-2019 18:05
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:05
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 18:05
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 18:05
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:05
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 18:05
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:05
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW09-190507
Collection Date: 07-May-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
cis-1,2-Dichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 18:05
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 18:05
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 18:05
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:05
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:05
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:05
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Trichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 18:05
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:05
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:05
Surr: 1,2-Dichloroethane-d4	*87.5*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 18:05*
Surr: 4-Bromofluorobenzene	*98.3*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 18:05*
Surr: Dibromofluoromethane	*89.2*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 18:05*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 18:05*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW09-190507-FD
Collection Date: 07-May-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-03
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	16-May-2019 18:29
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:29
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 18:29
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 18:29
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:29
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 18:29
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:29
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW09-190507-FD
Collection Date: 07-May-2019 09:20

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
cis-1,2-Dichloroethene	**2.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 18:29
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 18:29
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 18:29
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:29
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:29
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:29
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Trichloroethene	**16**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 18:29
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:29
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:29
Surr: 1,2-Dichloroethane-d4	*85.9*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 18:29*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 18:29*
Surr: Dibromofluoromethane	*87.0*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 18:29*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 18:29*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW08-190507
Collection Date: 07-May-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-04
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	16-May-2019 14:48
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
1,1-Dichloroethane	**0.46**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:48
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,2-Dichloroethane	**2.1**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:48
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:48
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 14:48
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 14:48
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:48
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 14:48
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:48
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050403
Sample ID: 50WW08-190507 Lab ID:HS19050403-04
Collection Date: 07-May-2019 10:10 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
cis-1,2-Dichloroethene	**20**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:48
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 14:48
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 14:48
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:48
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:48
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:48
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Tetrachloroethene	**0.75**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:48
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Trichloroethene	**210**		**1.0**	**2.5**	**5.0**	**UG/L**	5	16-May-2019 17:17
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:48
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:48
Surr: 1,2-Dichloroethane-d4	*87.3*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 14:48*
Surr: 1,2-Dichloroethane-d4	*87.3*			**0**	*81-118*	*%REC*	*5*	*16-May-2019 17:17*
Surr: 4-Bromofluorobenzene	*101*			**0**	*85-114*	*%REC*	*5*	*16-May-2019 17:17*
Surr: 4-Bromofluorobenzene	*98.2*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 14:48*
Surr: Dibromofluoromethane	*87.2*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 14:48*
Surr: Dibromofluoromethane	*88.6*			**0**	*80-119*	*%REC*	*5*	*16-May-2019 17:17*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*5*	*16-May-2019 17:17*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 14:48*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**354**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 23:36
Nitrogen, Nitrate (As N)	**1.37**		**0.300**	**1.00**	**1.00**	**mg/L**	10	08-May-2019 23:36
Sulfate	**301**		**2.00**	**5.00**	**5.00**	**mg/L**	10	08-May-2019 23:36

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW08-190507
Collection Date: 07-May-2019 10:10

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	23-May-2019 11:42
SUBCONTRACT ANALYSIS - TOC ANALYSIS		**Method:NA**						Analyst: SUBK
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 15:51

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW23-190507
Collection Date: 07-May-2019 11:10

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-05
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	16-May-2019 14:00
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:00
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 14:00
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 14:00
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:00
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 14:00
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:00
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW23-190507
Collection Date: 07-May-2019 11:10

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 14:00
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 14:00
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:00
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:00
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:00
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:00
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:00
Surr: 1,2-Dichloroethane-d4	*86.2*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 14:00*
Surr: 4-Bromofluorobenzene	*98.9*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 14:00*
Surr: Dibromofluoromethane	*87.2*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 14:00*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 14:00*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: AJH
Chloride	**1,060**		**10.0**	**25.0**	**25.0**	**mg/L**	50	09-May-2019 00:05
Nitrogen, Nitrate (As N)	**4.16**	J	**1.50**	**5.00**	**5.00**	**mg/L**	50	09-May-2019 00:05
Sulfate	**150**		**10.0**	**25.0**	**25.0**	**mg/L**	50	09-May-2019 00:05
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	**0**		**0**	**0**	**0**	**NA**	1	23-May-2019 11:42

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW23-190507
Collection Date: 07-May-2019 11:10

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-05
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	23-May-2019 15:51

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW24-190507
Collection Date: 07-May-2019 12:25

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-06
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	16-May-2019 18:53
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:53
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 18:53
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 18:53
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:53
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 18:53
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 18:53
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW24-190507
Collection Date: 07-May-2019 12:25

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-06
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 18:53
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 18:53
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 18:53
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 18:53
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 18:53
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 18:53
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 18:53
Surr: 1,2-Dichloroethane-d4	*86.9*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 18:53*
Surr: 4-Bromofluorobenzene	*98.6*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 18:53*
Surr: Dibromofluoromethane	*87.8*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 18:53*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 18:53*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: 50WW05-190507
Collection Date: 07-May-2019 13:15

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-07
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	16-May-2019 14:24
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
1,1-Dichloroethene	**1.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:24
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,2-Dichloroethane	**0.94**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:24
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:24
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 14:24
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 14:24
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:24
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 14:24
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 14:24
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050403
Sample ID: 50WW05-190507 Lab ID:HS19050403-07
Collection Date: 07-May-2019 13:15 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
cis-1,2-Dichloroethene	**28**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:24
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 14:24
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 14:24
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 14:24
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 14:24
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 14:24
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Trichloroethene	**110**		**0.20**	**0.50**	**1.0**	**UG/L**	1	16-May-2019 14:24
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 14:24
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 14:24
Surr: 1,2-Dichloroethane-d4	*86.4*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 14:24*
Surr: 4-Bromofluorobenzene	*99.8*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 14:24*
Surr: Dibromofluoromethane	*88.4*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 14:24*
Surr: Toluene-d8	*102*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 14:24*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	23-May-2019 14:50

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: Longhorn Army Ammunition Plant LHAAP-50 WorkOrder:HS19050403
Sample ID: Trip Blank Lab ID:HS19050403-08
Collection Date: 07-May-2019 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 13:12
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	16-May-2019 13:12
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	16-May-2019 13:12
Acetone	**2.6**		**0.40**	**1.0**	**2.0**	**UG/L**	1	16-May-2019 13:12
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	16-May-2019 13:12
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	16-May-2019 13:12
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Sample ID: Trip Blank
Collection Date: 07-May-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19050403
Lab ID:HS19050403-08
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	16-May-2019 13:12
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	16-May-2019 13:12
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	16-May-2019 13:12
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	16-May-2019 13:12
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	16-May-2019 13:12
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	16-May-2019 13:12
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	16-May-2019 13:12
Surr: 1,2-Dichloroethane-d4	*86.2*			**0**	*81-118*	*%REC*	*1*	*16-May-2019 13:12*
Surr: 4-Bromofluorobenzene	*100*			**0**	*85-114*	*%REC*	*1*	*16-May-2019 13:12*
Surr: Dibromofluoromethane	*87.6*			**0**	*80-119*	*%REC*	*1*	*16-May-2019 13:12*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*16-May-2019 13:12*

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R338137	**Test Name :** ANIONS BY SW9056A				**Matrix:** Groundwater	
HS19050403-04	50WW08-190507	07 May 2019 10:10			08 May 2019 23:36	10
HS19050403-05	50WW23-190507	07 May 2019 11:10			09 May 2019 00:05	50
Batch ID R338572	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Water	
HS19050403-08	Trip Blank	07 May 2019 00:00			16 May 2019 13:12	1
Batch ID R338572	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C				**Matrix:** Groundwater	
HS19050403-01	50WW10-190507	07 May 2019 08:30			16 May 2019 17:41	1
HS19050403-02	50WW09-190507	07 May 2019 09:20			16 May 2019 18:05	1
HS19050403-03	50WW09-190507-FD	07 May 2019 09:20			16 May 2019 18:29	1
HS19050403-04	50WW08-190507	07 May 2019 10:10			16 May 2019 17:17	5
HS19050403-04	50WW08-190507	07 May 2019 10:10			16 May 2019 14:48	1
HS19050403-05	50WW23-190507	07 May 2019 11:10			16 May 2019 14:00	1
HS19050403-06	50WW24-190507	07 May 2019 12:25			16 May 2019 18:53	1
HS19050403-07	50WW05-190507	07 May 2019 13:15			16 May 2019 14:24	1
Batch ID R339008	**Test Name :** SUBCONTRACT ANALYSIS - RSK				**Matrix:** Groundwater	
HS19050403-04	50WW08-190507	07 May 2019 10:10			23 May 2019 11:42	1
HS19050403-05	50WW23-190507	07 May 2019 11:10			23 May 2019 11:42	1
Batch ID R339032	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)				**Matrix:** Groundwater	
HS19050403-01	50WW10-190507	07 May 2019 08:30			23 May 2019 14:50	1
HS19050403-02	50WW09-190507	07 May 2019 09:20			23 May 2019 14:50	1
HS19050403-03	50WW09-190507-FD	07 May 2019 09:20			23 May 2019 14:50	1
HS19050403-04	50WW08-190507	07 May 2019 10:10			23 May 2019 14:50	1
HS19050403-05	50WW23-190507	07 May 2019 11:10			23 May 2019 14:50	1
HS19050403-06	50WW24-190507	07 May 2019 12:25			23 May 2019 14:50	1
HS19050403-07	50WW05-190507	07 May 2019 13:15			23 May 2019 14:50	1
Batch ID R339045	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS				**Matrix:** Groundwater	
HS19050403-04	50WW08-190507	07 May 2019 10:10			23 May 2019 15:51	1
HS19050403-05	50WW23-190507	07 May 2019 11:10			23 May 2019 15:51	1

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

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

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	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	*42.73*	*1.0*	*50*	*0*	*85.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*48.78*	*1.0*	*50*	*0*	*97.6*	*85 - 114*				
Surr: Dibromofluoromethane	*44.41*	*1.0*	*50*	*0*	*88.8*	*80 - 119*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190516** Units: **UG/L** Analysis Date: **16-May-2019 11:11**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078061** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.44*	*1.0*	*50*	*0*	*105*	*89 - 112*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.33	1.0	20	0	96.7	78 - 124				
1,1,1-Trichloroethane	18.05	1.0	20	0	90.3	74 - 131				
1,1,2,2-Tetrachloroethane	19.82	1.0	20	0	99.1	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.93	1.0	20	0	89.6	70 - 136				
1,1,2-Trichloroethane	20.5	1.0	20	0	103	80 - 119				
1,1-Dichloroethane	18.89	1.0	20	0	94.4	77 - 125				
1,1-Dichloroethene	18.07	1.0	20	0	90.3	71 - 131				
1,1-Dichloropropene	17.64	1.0	20	0	88.2	78 - 125				
1,2,3-Trichlorobenzene	23.48	1.0	20	0	117	69 - 129				
1,2,3-Trichloropropane	20.08	1.0	20	0	100	73 - 122				
1,2,4-Trichlorobenzene	21.68	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	19.71	1.0	20	0	98.5	76 - 124				
1,2-Dibromo-3-chloropropane	20.96	1.0	20	0	105	62 - 128				
1,2-Dibromoethane	20.19	1.0	20	0	101	77 - 121				
1,2-Dichlorobenzene	19.69	1.0	20	0	98.5	80 - 119				
1,2-Dichloroethane	19.31	1.0	20	0	96.5	73 - 128				
1,2-Dichloropropane	20.22	1.0	20	0	101	78 - 122				
1,3,5-Trimethylbenzene	19.54	1.0	20	0	97.7	75 - 124				
1,3-Dichlorobenzene	19.74	1.0	20	0	98.7	80 - 119				
1,3-Dichloropropane	19.97	1.0	20	0	99.8	80 - 119				
1,4-Dichlorobenzene	19.78	1.0	20	0	98.9	79 - 118				
2,2-Dichloropropane	18.64	1.0	20	0	93.2	60 - 139				
2-Butanone	41.27	2.0	40	0	103	56 - 143				
2-Chlorotoluene	19.11	1.0	20	0	95.5	79 - 122				
2-Hexanone	40.32	2.0	40	0	101	57 - 139				
4-Chlorotoluene	19.18	1.0	20	0	95.9	78 - 122				
4-Isopropyltoluene	19.2	1.0	20	0	96.0	77 - 127				
4-Methyl-2-pentanone	40.53	2.0	40	0	101	67 - 130				
Acetone	41.09	2.0	40	0	103	39 - 160				
Benzene	19.55	1.0	20	0	97.7	79 - 120				
Bromobenzene	19.41	1.0	20	0	97.0	80 - 120				
Bromochloromethane	20.26	1.0	20	0	101	78 - 123				
Bromodichloromethane	19.73	1.0	20	0	98.6	79 - 125				
Bromoform	20.84	1.0	20	0	104	66 - 130				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.06	1.0	20	0	105	53 - 141				
Carbon disulfide	37.69	2.0	40	0	94.2	64 - 133				
Carbon tetrachloride	17.42	1.0	20	0	87.1	72 - 136				
Chlorobenzene	20.11	1.0	20	0	101	82 - 118				
Chloroethane	17.45	1.0	20	0	87.3	60 - 138				
Chloroform	19.05	1.0	20	0	95.3	79 - 124				
Chloromethane	18.97	1.0	20	0	94.8	50 - 139				
cis-1,2-Dichloroethene	18.92	1.0	20	0	94.6	78 - 123				
cis-1,3-Dichloropropene	20.01	1.0	20	0	100	75 - 124				
Dibromochloromethane	19.68	1.0	20	0	98.4	74 - 126				
Dibromomethane	19.84	1.0	20	0	99.2	79 - 123				
Dichlorodifluoromethane	18.23	1.0	20	0	91.1	32 - 152				
Ethylbenzene	19.46	1.0	20	0	97.3	79 - 121				
Hexachlorobutadiene	20.24	1.0	20	0	101	66 - 134				
Isopropylbenzene	19.32	1.0	20	0	96.6	72 - 131				
m,p-Xylene	39.35	2.0	40	0	98.4	80 - 121				
Methylene chloride	19.41	2.0	20	0	97.1	74 - 124				
Naphthalene	21.31	1.0	20	0	107	61 - 128				
n-Butylbenzene	19.39	1.0	20	0	96.9	75 - 128				
n-Propylbenzene	18.95	1.0	20	0	94.8	76 - 126				
o-Xylene	19.92	1.0	20	0	99.6	78 - 122				
sec-Butylbenzene	18.5	1.0	20	0	92.5	77 - 126				
Styrene	20.13	1.0	20	0	101	78 - 123				
tert-Butylbenzene	18.87	1.0	20	0	94.3	78 - 124				
Tetrachloroethene	18.83	1.0	20	0	94.1	74 - 129				
Toluene	19.5	1.0	20	0	97.5	80 - 121				
trans-1,2-Dichloroethene	18.8	1.0	20	0	94.0	75 - 124				
trans-1,3-Dichloropropene	20.45	1.0	20	0	102	73 - 127				
Trichloroethene	19.34	1.0	20	0	96.7	79 - 123				
Trichlorofluoromethane	17.14	1.0	20	0	85.7	65 - 141				
Vinyl chloride	17.75	1.0	20	0	88.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.73*	*1.0*	*50*	*0*	*95.5*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.29*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*48.01*	*1.0*	*50*	*0*	*96.0*	*80 - 119*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190516** Units: **UG/L** Analysis Date: **16-May-2019 10:23**
Client ID: Run ID: **VOA6_338572** SeqNo: **5078060** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*48.97*	*1.0*	*50*	*0*	*97.9*	*89 - 112*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078634** 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	17.38	1.0	20	0	86.9	78 - 124				
1,1,1-Trichloroethane	16.49	1.0	20	0	82.4	74 - 131				
1,1,2,2-Tetrachloroethane	18.99	1.0	20	0	95.0	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.86	1.0	20	0	89.3	70 - 136				
1,1,2-Trichloroethane	17.76	1.0	20	0	88.8	80 - 119				
1,1-Dichloroethane	15.93	1.0	20	0	79.7	77 - 125				
1,1-Dichloroethene	16.11	1.0	20	0	80.5	71 - 131				
1,1-Dichloropropene	17.77	1.0	20	0	88.9	78 - 125				
1,2,3-Trichlorobenzene	22.58	1.0	20	0	113	69 - 129				
1,2,3-Trichloropropane	18.51	1.0	20	0	92.6	73 - 122				
1,2,4-Trichlorobenzene	20.3	1.0	20	0	101	69 - 130				
1,2,4-Trimethylbenzene	17.85	1.0	20	0	89.3	76 - 124				
1,2-Dibromo-3-chloropropane	22.14	1.0	20	0	111	62 - 128				
1,2-Dibromoethane	17.52	1.0	20	0	87.6	77 - 121				
1,2-Dichlorobenzene	18.38	1.0	20	0	91.9	80 - 119				
1,2-Dichloroethane	16.38	1.0	20	0	81.9	73 - 128				
1,2-Dichloropropane	17.46	1.0	20	0	87.3	78 - 122				
1,3,5-Trimethylbenzene	18.5	1.0	20	0	92.5	75 - 124				
1,3-Dichlorobenzene	18.16	1.0	20	0	90.8	80 - 119				
1,3-Dichloropropane	17.54	1.0	20	0	87.7	80 - 119				
1,4-Dichlorobenzene	18.11	1.0	20	0	90.6	79 - 118				
2,2-Dichloropropane	16.08	1.0	20	0	80.4	60 - 139				
2-Butanone	38.78	2.0	40	0	97.0	56 - 143				
2-Chlorotoluene	18.2	1.0	20	0	91.0	79 - 122				
2-Hexanone	36.29	2.0	40	0	90.7	57 - 139				
4-Chlorotoluene	17.92	1.0	20	0	89.6	78 - 122				
4-Isopropyltoluene	19.44	1.0	20	0	97.2	77 - 127				
4-Methyl-2-pentanone	36.07	2.0	40	0	90.2	67 - 130				
Acetone	33.68	2.0	40	0	84.2	39 - 160				
Benzene	16.85	1.0	20	0	84.3	79 - 120				
Bromobenzene	17.22	1.0	20	0	86.1	80 - 120				
Bromochloromethane	16.06	1.0	20	0	80.3	78 - 123				
Bromodichloromethane	16.52	1.0	20	0	82.6	79 - 125				
Bromoform	18.18	1.0	20	0	90.9	66 - 130				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078634** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	14.08	1.0	20	0	70.4	53 - 141				
Carbon disulfide	33.58	2.0	40	0	83.9	64 - 133				
Carbon tetrachloride	16.59	1.0	20	0	82.9	72 - 136				
Chlorobenzene	17.79	1.0	20	0	88.9	82 - 118				
Chloroethane	15.6	1.0	20	0	78.0	60 - 138				
Chloroform	15.69	1.0	20	0	78.4	79 - 124				S
Chloromethane	15.75	1.0	20	0	78.7	50 - 139				
cis-1,2-Dichloroethene	15.73	1.0	20	0	78.7	78 - 123				
cis-1,3-Dichloropropene	17.73	1.0	20	0	88.6	75 - 124				
Dibromochloromethane	17.28	1.0	20	0	86.4	74 - 126				
Dibromomethane	16.98	1.0	20	0	84.9	79 - 123				
Dichlorodifluoromethane	14.43	1.0	20	0	72.2	32 - 152				
Ethylbenzene	17.69	1.0	20	0	88.5	79 - 121				
Hexachlorobutadiene	19.99	1.0	20	0	100.0	66 - 134				
Isopropylbenzene	18.04	1.0	20	0	90.2	72 - 131				
m,p-Xylene	36.03	2.0	40	0	90.1	80 - 121				
Methylene chloride	16.26	2.0	20	0	81.3	74 - 124				
Naphthalene	20.54	1.0	20	0	103	61 - 128				
n-Butylbenzene	19.17	1.0	20	0	95.8	75 - 128				
n-Propylbenzene	19.21	1.0	20	0	96.0	76 - 126				
o-Xylene	18.2	1.0	20	0	91.0	78 - 122				
sec-Butylbenzene	19.72	1.0	20	0	98.6	77 - 126				
Styrene	17.21	1.0	20	0	86.0	78 - 123				
tert-Butylbenzene	19.17	1.0	20	0	95.9	78 - 124				
Tetrachloroethene	18.43	1.0	20	0	92.1	74 - 129				
Toluene	17.53	1.0	20	0	87.7	80 - 121				
trans-1,2-Dichloroethene	16.62	1.0	20	0	83.1	75 - 124				
trans-1,3-Dichloropropene	16.93	1.0	20	0	84.6	73 - 127				
Trichloroethene	18.38	1.0	20	0	91.9	79 - 123				
Trichlorofluoromethane	16.18	1.0	20	0	80.9	65 - 141				
Vinyl chloride	16.52	1.0	20	0	82.6	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.54*	*1.0*	*50*	*0*	*89.1*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*50.21*	*1.0*	*50*	*0*	*100*	*85 - 114*				
Surr: Dibromofluoromethane	*44.89*	*1.0*	*50*	*0*	*89.8*	*80 - 119*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19050403-05MS** Units: **UG/L** Analysis Date: **16-May-2019 15:12**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078634** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.77*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	17.04	1.0	20	0	85.2	78 - 124	17.38	1.98	20	
1,1,1-Trichloroethane	16.02	1.0	20	0	80.1	74 - 131	16.49	2.89	20	
1,1,2,2-Tetrachloroethane	18.99	1.0	20	0	94.9	71 - 121	18.99	0.0336	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	17.54	1.0	20	0	87.7	70 - 136	17.86	1.81	20	
1,1,2-Trichloroethane	17.88	1.0	20	0	89.4	80 - 119	17.76	0.703	20	
1,1-Dichloroethane	15.32	1.0	20	0	76.6	77 - 125	15.93	3.92	20	S
1,1-Dichloroethene	15.48	1.0	20	0	77.4	71 - 131	16.11	3.97	20	
1,1-Dichloropropene	17.1	1.0	20	0	85.5	78 - 125	17.77	3.87	20	
1,2,3-Trichlorobenzene	23.43	1.0	20	0	117	69 - 129	22.58	3.69	20	
1,2,3-Trichloropropane	18.17	1.0	20	0	90.8	73 - 122	18.51	1.89	20	
1,2,4-Trichlorobenzene	20.43	1.0	20	0	102	69 - 130	20.3	0.654	20	
1,2,4-Trimethylbenzene	17.22	1.0	20	0	86.1	76 - 124	17.85	3.59	20	
1,2-Dibromo-3-chloropropane	21.29	1.0	20	0	106	62 - 128	22.14	3.88	20	
1,2-Dibromoethane	17.4	1.0	20	0	87.0	77 - 121	17.52	0.69	20	
1,2-Dichlorobenzene	17.92	1.0	20	0	89.6	80 - 119	18.38	2.51	20	
1,2-Dichloroethane	16.21	1.0	20	0	81.0	73 - 128	16.38	1.08	20	
1,2-Dichloropropane	16.35	1.0	20	0	81.8	78 - 122	17.46	6.57	20	
1,3,5-Trimethylbenzene	17.62	1.0	20	0	88.1	75 - 124	18.5	4.88	20	
1,3-Dichlorobenzene	17.68	1.0	20	0	88.4	80 - 119	18.16	2.67	20	
1,3-Dichloropropane	17.29	1.0	20	0	86.4	80 - 119	17.54	1.43	20	
1,4-Dichlorobenzene	17.7	1.0	20	0	88.5	79 - 118	18.11	2.29	20	
2,2-Dichloropropane	15.19	1.0	20	0	76.0	60 - 139	16.08	5.67	20	
2-Butanone	36.7	2.0	40	0	91.8	56 - 143	38.78	5.51	20	
2-Chlorotoluene	17.16	1.0	20	0	85.8	79 - 122	18.2	5.89	20	
2-Hexanone	36.87	2.0	40	0	92.2	57 - 139	36.29	1.6	20	
4-Chlorotoluene	17.16	1.0	20	0	85.8	78 - 122	17.92	4.38	20	
4-Isopropyltoluene	18.45	1.0	20	0	92.2	77 - 127	19.44	5.27	20	
4-Methyl-2-pentanone	36.18	2.0	40	0	90.5	67 - 130	36.07	0.302	20	
Acetone	33.39	2.0	40	0	83.5	39 - 160	33.68	0.868	20	
Benzene	16.25	1.0	20	0	81.2	79 - 120	16.85	3.66	20	
Bromobenzene	16.84	1.0	20	0	84.2	80 - 120	17.22	2.23	20	
Bromochloromethane	15.27	1.0	20	0	76.4	78 - 123	16.06	5.06	20	S
Bromodichloromethane	16.16	1.0	20	0	80.8	79 - 125	16.52	2.18	20	
Bromoform	18.11	1.0	20	0	90.5	66 - 130	18.18	0.379	20	

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	12.97	1.0	20	0	64.9	53 - 141	14.08	8.21	20	
Carbon disulfide	32.28	2.0	40	0	80.7	64 - 133	33.58	3.94	20	
Carbon tetrachloride	15.94	1.0	20	0	79.7	72 - 136	16.59	3.95	20	
Chlorobenzene	17.34	1.0	20	0	86.7	82 - 118	17.79	2.53	20	
Chloroethane	14.74	1.0	20	0	73.7	60 - 138	15.6	5.62	20	
Chloroform	15.35	1.0	20	0	76.8	79 - 124	15.69	2.14	20	S
Chloromethane	14.33	1.0	20	0	71.6	50 - 139	15.75	9.46	20	
cis-1,2-Dichloroethene	15.32	1.0	20	0	76.6	78 - 123	15.73	2.65	20	S
cis-1,3-Dichloropropene	17.64	1.0	20	0	88.2	75 - 124	17.73	0.507	20	
Dibromochloromethane	17.51	1.0	20	0	87.5	74 - 126	17.28	1.3	20	
Dibromomethane	16.81	1.0	20	0	84.0	79 - 123	16.98	1.01	20	
Dichlorodifluoromethane	13.86	1.0	20	0	69.3	32 - 152	14.43	4.03	20	
Ethylbenzene	17.08	1.0	20	0	85.4	79 - 121	17.69	3.51	20	
Hexachlorobutadiene	19.55	1.0	20	0	97.8	66 - 134	19.99	2.22	20	
Isopropylbenzene	17.4	1.0	20	0	87.0	72 - 131	18.04	3.6	20	
m,p-Xylene	35.36	2.0	40	0	88.4	80 - 121	36.03	1.87	20	
Methylene chloride	15.69	2.0	20	0	78.5	74 - 124	16.26	3.6	20	
Naphthalene	21	1.0	20	0	105	61 - 128	20.54	2.21	20	
n-Butylbenzene	18.58	1.0	20	0	92.9	75 - 128	19.17	3.13	20	
n-Propylbenzene	18.26	1.0	20	0	91.3	76 - 126	19.21	5.05	20	
o-Xylene	17.81	1.0	20	0	89.1	78 - 122	18.2	2.15	20	
sec-Butylbenzene	18.94	1.0	20	0	94.7	77 - 126	19.72	4.02	20	
Styrene	17.04	1.0	20	0	85.2	78 - 123	17.21	0.96	20	
tert-Butylbenzene	18.73	1.0	20	0	93.6	78 - 124	19.17	2.36	20	
Tetrachloroethene	17.57	1.0	20	0	87.8	74 - 129	18.43	4.79	20	
Toluene	16.73	1.0	20	0	83.7	80 - 121	17.53	4.69	20	
trans-1,2-Dichloroethene	15.99	1.0	20	0	80.0	75 - 124	16.62	3.82	20	
trans-1,3-Dichloropropene	17.08	1.0	20	0	85.4	73 - 127	16.93	0.901	20	
Trichloroethene	17.29	1.0	20	0	86.5	79 - 123	18.38	6.08	20	
Trichlorofluoromethane	15.67	1.0	20	0	78.4	65 - 141	16.18	3.16	20	
Vinyl chloride	15.72	1.0	20	0	78.6	58 - 137	16.52	4.97	20	
Surr: 1,2-Dichloroethane-d4	*43.59*	*1.0*	*50*	*0*	*87.2*	*81 - 118*	*44.54*	*2.16*	*20*	
Surr: 4-Bromofluorobenzene	*50.17*	*1.0*	*50*	*0*	*100*	*85 - 114*	*50.21*	*0.0837*	*20*	
Surr: Dibromofluoromethane	*44.59*	*1.0*	*50*	*0*	*89.2*	*80 - 119*	*44.89*	*0.687*	*20*	

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338572 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19050403-05MSD** Units: **UG/L** Analysis Date: **16-May-2019 15:36**
Client ID: **50WW23-190507** Run ID: **VOA6_338572** SeqNo: **5078635** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.69*	*1.0*	*50*	*0*	*101*	*89 - 112*	*50.77*	*0.163*	*20*	

The following samples were analyzed in this batch: HS19050403-01 HS19050403-02 HS19050403-03 HS19050403-04 HS19050403-05 HS19050403-06 HS19050403-07 HS19050403-08

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338137 (0) **Instrument: ICS2100** **Method: ANIONS BY SW9056A**

MBLK Sample ID: **WBLKW1-190508** Units: **mg/L** Analysis Date: **09-May-2019 12:15**
Client ID: Run ID: **ICS2100_338137** SeqNo: **5068742** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-190508** Units: **mg/L** Analysis Date: **08-May-2019 20:54**
Client ID: Run ID: **ICS2100_338137** SeqNo: **5068717** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.86	0.500	20	0	104	80 - 120				
Nitrogen, Nitrate (As N)	3.974	0.100	4	0	99.4	80 - 120				
Sulfate	20.02	0.500	20	0	100	80 - 120				

LCSD Sample ID: **WLCSDW1-190508** Units: **mg/L** Analysis Date: **08-May-2019 21:08**
Client ID: Run ID: **ICS2100_338137** SeqNo: **5068718** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.61	0.500	20	0	98.0	80 - 120	20.86	6.2	20	
Nitrogen, Nitrate (As N)	3.886	0.100	4	0	97.2	80 - 120	3.974	2.24	20	
Sulfate	19.39	0.500	20	0	97.0	80 - 120	20.02	3.19	20	

MS Sample ID: **HS19050403-05MS** Units: **mg/L** Analysis Date: **09-May-2019 00:20**
Client ID: **50WW23-190507** Run ID: **ICS2100_338137** SeqNo: **5068731** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1604	25.0	500	1065	108	80 - 120				
Nitrogen, Nitrate (As N)	90.95	5.00	100	4.155	86.8	80 - 120				
Sulfate	643.8	25.0	500	150	98.7	80 - 120				

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: HS19050403

QC BATCH REPORT

Batch ID: R338137 (0) **Instrument:** ICS2100 **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS19050403-05MSD** Units: **mg/L** Analysis Date: **09-May-2019 00:35**
Client ID: **50WW23-190507** Run ID: **ICS2100_338137** SeqNo: **5068732** PrepDate: DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1692	25.0	500	1065	125	80 - 120	1604	5.33	20	S
Nitrogen, Nitrate (As N)	96.55	5.00	100	4.155	92.4	80 - 120	90.95	5.97	20	
Sulfate	685	25.0	500	150	107	80 - 120	643.8	6.21	20	

The following samples were analyzed in this batch: HS19050403-04 HS19050403-05

ALS Houston, US Date: 23-May-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
WorkOrder: **HS19050403**

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
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 23-may-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: Longhorn Army Ammunition Plant LHAAP-50
Work Order: HS19050403

SAMPLE TRACKING

Lab Samp ID	Client Sample ID	Action	Date	Person	New Location
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	WET248
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	VOA262
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-01	50WW10-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	WET248
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	VOA262
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-02	50WW09-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	WET248
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	VOA262
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-03	50WW09-190507-FD	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	WET248
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	VOA262
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-04	50WW08-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	WET248
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	VOA262
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-05	50WW23-190507	Login	08/05/2019 11:58:29	JRM	Sub
HS19050403-08	Trip Blank	Login	08/05/2019 11:58:29	JRM	VOA262

ALS Houston, US Date: 23-May-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19050403
Date/Time Received: **08-May-2019 09:30**
Received by: **NDR**

Checklist completed by: *Jared R. Makan* eSignature 8-May-2019 Date
Reviewed by: *RJ Modashia* eSignature 8-May-2019 Date

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

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:N/A
Samplers name present on COC?	Yes ☐	No ☑	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	1.9c/1.9c UC/C	IR11	
Cooler(s)/Kit(s):	43625		
Date/Time sample(s) sent to storage:	05/08/2019 12:56		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

COC ID: LHAAP50-MAY2019-ALS

TURNAROUND TIME:

RUSH:

Page 1 of

PROJECT/CLIENT INFO			
Facility Name	Longhorn AAP		
Project Number	501032		
	LHAAP-50		
Address	1203-B East Grand Avenue		
	PMB 202		
City	Marshall	State	TX
Postal Code	75670	Country	USA
Phone Number	713.243.7264		
Project Manager	Praveen Srivastav		

LABORATORY			
Lab Name	ALS Laboratories		
Lab Contact	RJ Modashia		
Email	RJ.Modashia@alsglobal.com		
Address	10450 Stancliff Rd., Suite 210		
City	Houston	State	TX
Postal Code	77099	Country	USA
Phone Number	281.575.2279 or 281.530.5656		

OTHER INFO			
Email Invoice To	FedInvoices@aptim.com		
Email Report To	Susan.Huang@aptim.com		
Mail Reports To	Susan Huang		
Address	4005 Port Chicago Highway, Suite 200		
City	Concord	State	CA
Postal Code	94520	Country	USA
Shipping Company			

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont	ANALYSIS	Sample Container and Preservatives	3-40 ml VOA/HCL	3-40 ml VOA/HCL	3-40 ml VOA/Cool to 6 deg C	2-40ml Amber/H2SO4	1-250ml /Cool to 6 deg C	1-125ml /Cool to 6 deg C				
											Vocs by 8260B	MEE by RSK175	CO2 by RSK175	TOC by Sm5310C	Anions (chloride/sulfate/nitrate) by 9056	Perchlorate by 6850				
SDWW10-190507	LHAAP 50	23.22	23.40		WG	5/7/19	0830	4			X					X				
SDWW09-190507	LHAAP50	20.70	20.95		WG	5/7/19	0920	4			X					X				
SDWW09-190507-FD	LHAAP 50	20.70	20.95		WG	5/7/19	0920	4			X					X				
SDWW08-190507	LHAAP 50	21.00	21.26		WG	5/7/19	1010	13			X	X	X	X	X	X				
SDWW23-190507	LHAAP50	22.80	23.04		WG	5/7/19	1110	13			X	X	X	X	X	X				
SDWW23-190507-MS	LHAAP 50	22.80	23.04		WG	5/7/19	1110	13			X	X	X	X	X	X				
SDWW23-190507-MSD	LHAAP50	22.80	23.04		WG	5/7/19	1110	13			X	X	X	X	X	X				
SDWW24-190507	LHAAP 50	23.81	24.04		WG	5/7/19	1225	4			X					X				
SDWW05-190507	LHAAP 50	18.68	19.19		WG	5/7/19	1315	4			X					X				
TRIP BLANK	LHAAP 50				W	5/7/19		2			X									

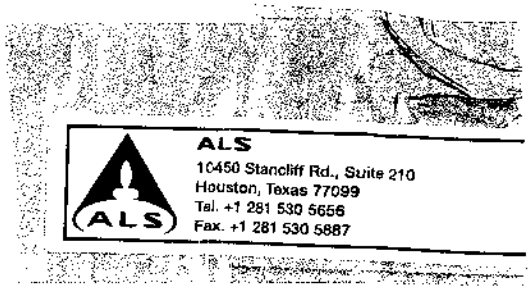
ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Seth Bees / BTAPT	5/7/19 1430	J. Hunnicutt	5/8/19 09:30

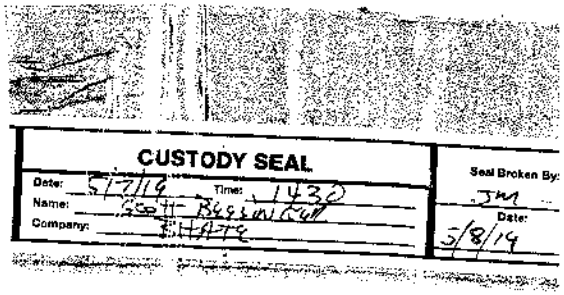
Cooler 43625 Temp 1.9
IR11 CF00

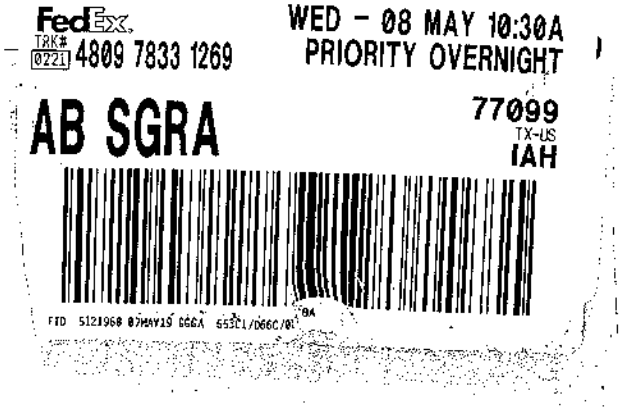
HS19050403

Aptim Environmental & Infrastucture, Inc.

Longhorn Army Ammunition Plant LHAAP-50


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


CUSTODY SEAL
Date: 5/7/14
Time: 1430
Name:
Company:
Seal Broken By:
Date: 5/8/14


FedEx
TRK# 0221 4809 7833 1269
WED - 08 MAY 10:30A
PRIORITY OVERNIGHT
AB SGRA
77099
TX-US
IAH

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

May 15, 2019 **Analytical Report for Service Request No:** K1904161

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

RE: HS19050403

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 09, 2019
For your reference, these analyses have been assigned our service request number **K1904161.**

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

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

Table of Contents

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

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

Client: ALS Environmental - US
Project: HS19050403
Sample Matrix: Ground Water

Service Request: K1904161
Date Received: 05/09/2019

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:

Two ground water samples were received for analysis at ALS Environmental on 05/09/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 05/15/2019

Chain of Custody

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

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11277**

SUBCONTRACT TO:

ALS Environmental Kelso
1317 S. 13th Avenue
Kelso, WA 98626 **Phone:** +1 360 501 3312

KI9041161

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:	HS19050403
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19050403-04**	**50WW08-190507**	**Groundwater**	**07 May 2019 10:10**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			16 May 2019
2.	**HS19050403-05**	**50WW23-190507**	**Groundwater**	**07 May 2019 11:10**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			16 May 2019

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

MS/MSD - HS19050403-05

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: MAY 0 8 2019 18:0

Received By: Naomi Pedersen Date/Time: 5.9.19

Cooler ID(s): _____ Temperature(s): _____

PC KC

Cooler Receipt and Preservation Form

Client ALS Houston Service Request *K19* 041161

Received: 5·9·19 Opened: 5·9·19 By: NP Unloaded: 5·9·19 By: NP

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 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
-0.1	0.0	2.2	2.1	-0.1	377	11266	480978336227	
						11268		
						11277		

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

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1904161
Project:	HS19050403	**Date Collected:**	05/7/19
Sample Matrix:	Ground Water	**Date Received:**	05/9/19
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
50WW08-190507	K1904161-001	**2.10**	0.50	0.20	0.07	1	05/09/19 22:41	
50WW23-190507	K1904161-002	**0.98**	0.50	0.20	0.07	1	05/09/19 23:09	
Method Blank	K1904161-MB	ND U	0.50	0.20	0.07	1	05/10/19 06:42	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1904161
Project	HS19050403	**Date Collected:**	05/07/19
Sample Matrix:	Ground Water	**Date Received:**	05/09/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	LOQ	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
50WW08-190507	K1904161-001DUP	0.50	0.20	0.07	2.10	2.00	2.05	5	10	05/09/19
50WW23-190507	K1904161-002DUP	0.50	0.20	0.07	0.98	1.05	1.02	7	10	05/09/19

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:**	K1904161
Project:	HS19050403	**Date Collected:**	05/07/19
Sample Matrix:	Ground Water	**Date Received:**	05/09/19
		Date Analyzed:	05/9/19
		Date Extracted:	NA

Matrix Spike Summary
Carbon, Total Organic

Sample Name:	50WW23-190507	**Units:**	mg/L
Lab Code:	K1904161-002	**Basis:**	NA
Analysis Method:	SM 5310 C		
Prep Method:	None		

Matrix Spike
K1904161-002MS

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Carbon, Total Organic	0.98	24.5	25.0	94	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:**	K1904161
Project:	HS19050403	**Date Analyzed:**	05/10/19
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:	635076

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1904161-LCS	25.3	25.0	101	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1904161
Project: HS19050403

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	635076	KQ1906237-05	05/09/19 19:10	25.0	24.9	100	90-110
CCV2	635076	KQ1906237-06	05/10/19 01:03	25.0	25.0	100	90-110
CCV3	635076	KQ1906237-07	05/10/19 06:13	25.0	24.7	99	90-110
CCV4	635076	KQ1906237-08	05/10/19 10:29	25.0	24.9	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1904161
Project: HS19050403

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	635076	KQ1906237-01	05/09/19 19:25	0.50	0.20	0.07	ND	U
CCB2	635076	KQ1906237-02	05/10/19 01:17	0.50	0.20	0.07	ND	U
CCB3	635076	KQ1906237-03	05/10/19 06:28	0.50	0.20	0.07	ND	U
CCB4	635076	KQ1906237-04	05/10/19 10:44	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original ( ) KI903942, 4032, 4074, 4115, 4158, 4159, 4161, 4181, 4182, 4195, 4065, 4071, 4094, 4133, 4160, 4204, 4058
Tier: I II III I IV IV IV II II II II II II IV II
TOC: 635076 635077
Date Analyzed: 5/9/19
Analyst: BCD
Run # 635075
DOC: 635078
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: BCD 5/11/19
KI904032-2/2d, ~~and KI90~~ reports a high %RSD, However, this sample is less than 5x the MRL.
KI904094 reports a high %RSD due to dirty/turbid non-homogenous sample.
KI904071-1 TOC sent for RA. Sample requires a dup.

Final Approved by: _____ Date: 05/13/19

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635075 **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
K1903942-004	Carbon, Total Organic (TOC)	N/A		Water	7.20 mg/L	10 mL	28.8 mg/L	4		2.0			5/9/19 21:46:00	N	I
KQ1906235-01	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:25:00	N	I
KQ1906235-02	Carbon, Total Organic (TOC)	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 01:17:00	N	I
KQ1906235-03	Carbon, Total Organic (TOC)	CCV		Water	24.93 mg/L	10 mL	24.9 mg/L	1					5/9/19 19:10:00	N	I
KQ1906235-04	Carbon, Total Organic (TOC)	CCV		Water	25.03 mg/L	10 mL	25.0 mg/L	1					5/9/19 01:03:00	N	I
KQ1906235-05	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-06	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-07	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-08	Carbon, Total Organic (TOC)	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1		0.50			5/9/19 19:40:00	N	I
KQ1906235-09	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-10	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-11	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-12	Carbon, Total Organic (TOC)	LCS		Water	25.26 mg/L	10 mL	25.3 mg/L	1		0.50	101		5/9/19 20:35:00	N	I
KQ1906235-13	Carbon, Total Organic (TOC)	DUP	K1903942-004	Water	7.22 mg/L	10 mL	28.9 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I
KQ1906235-14	Carbon, Total Organic (TOC)	TRP	K1903942-004	Water	7.26 mg/L	10 mL	29.0 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I
KQ1906235-15	Carbon, Total Organic (TOC)	QUAD	K1903942-004	Water	7.24 mg/L	10 mL	29.0 mg/L	4		2.0		<1	5/9/19 21:46:00	N	I

05/13/19

# 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:** 635076 **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
K1904032-001	Carbon, Total Organic	N/A		Water	16.99 mg/L	10 mL	17.0 mg/L	1	0.07	0.50			5/10/19 09:04:00	N	II
K1904032-002	Carbon, Total Organic	N/A		Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50			5/10/19 09:32:00	N	II
K1904074-001	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 03:53:00	N	III
K1904115-001	Carbon, Total Organic	N/A		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 04:21:00	N	I
K1904158-001	Carbon, Total Organic	N/A		Water	1.46 mg/L	10 mL	1.46 mg/L	1	0.07	0.50			5/10/19 03:25:00	N	IV
K1904159-001	Carbon, Total Organic	N/A		Ground Water	1.74 mg/L	10 mL	1.74 mg/L	1	0.07	0.50			5/10/19 00:07:00	N	IV
K1904159-002	Carbon, Total Organic	N/A		Ground Water	1.80 mg/L	10 mL	1.80 mg/L	1	0.07	0.50			5/10/19 00:35:00	N	IV
K1904159-003	Carbon, Total Organic	N/A		Ground Water	1.13 mg/L	10 mL	1.13 mg/L	1	0.07	0.50			5/10/19 01:32:00	N	IV
K1904159-004	Carbon, Total Organic	N/A		Ground Water	1.93 mg/L	10 mL	1.93 mg/L	1	0.07	0.50			5/10/19 02:00:00	N	IV
K1904159-005	Carbon, Total Organic	N/A		Ground Water	1.10 mg/L	10 mL	1.10 mg/L	1	0.07	0.50			5/10/19 02:28:00	N	IV
K1904159-006	Carbon, Total Organic	N/A		Ground Water	1.98 mg/L	10 mL	1.98 mg/L	1	0.07	0.50			5/10/19 02:56:00	N	IV
K1904161-001	Carbon, Total Organic	N/A		Ground Water	2.10 mg/L	10 mL	2.10 mg/L	1	0.07	0.50			5/9/19 22:41:00	N	IV
K1904161-002	Carbon, Total Organic	N/A		Ground Water	0.98 mg/L	10 mL	0.98 mg/L	1	0.07	0.50			5/9/19 23:09:00	Y	IV
K1904181-001	Carbon, Total Organic	N/A		Water	0.97 mg/L	10 mL	0.97 mg/L	1	0.07	0.50			5/10/19 04:49:00	N	II
K1904182-001	Carbon, Total Organic	N/A		Water	0.31 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 05:17:00	N	II
K1904195-001	Carbon, Total Organic	N/A		Water	2.14 mg/L	10 mL	2.14 mg/L	1	0.07	0.50			5/10/19 05:45:00	N	II
K1904195-002	Carbon, Total Organic	N/A		Water	3.34 mg/L	10 mL	3.34 mg/L	1	0.07	0.50			5/10/19 07:12:00	N	II
K1904195-003	Carbon, Total Organic	N/A		Water	1.36 mg/L	10 mL	1.36 mg/L	1	0.07	0.50			5/10/19 07:40:00	N	II
K1904195-004	Carbon, Total Organic	N/A		Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50			5/10/19 08:08:00	N	II
K1904195-005	Carbon, Total Organic	N/A		Water	1.57 mg/L	10 mL	1.57 mg/L	1	0.07	0.50			5/10/19 08:36:00	N	II
KQ1906237-01	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/9/19 19:25:00	N	IV
KQ1906237-02	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 01:17:00	N	IV
KQ1906237-03	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:28:00	N	IV
KQ1906237-04	Carbon, Total Organic	CCB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:44:00	N	IV
KQ1906237-05	Carbon, Total Organic	CCV		Ground Water	24.93 mg/L	10 mL	24.9 mg/L	1					5/9/19 19:10:00	N	IV
KQ1906237-06	Carbon, Total Organic	CCV		Ground Water	25.03 mg/L	10 mL	25.0 mg/L	1					5/10/19 01:03:00	N	IV
KQ1906237-07	Carbon, Total Organic	CCV		Ground Water	24.68 mg/L	10 mL	24.7 mg/L	1					5/10/19 06:13:00	N	IV

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

Printed 5/11/19 12:19

Results Summary

05/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635076 **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
KQ1906237-08	Carbon, Total Organic	CCV		Ground Water	24.85 mg/L	10 mL	24.9 mg/L	1					5/10/19 10:29:00	N	IV
KQ1906237-09	Carbon, Total Organic	MB		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:42:00	N	IV
KQ1906237-10	Carbon, Total Organic	LCS		Ground Water	25.28 mg/L	10 mL	25.3 mg/L	1	0.07	0.50	101		5/10/19 06:57:00	N	IV
KQ1906237-11	Carbon, Total Organic	MS	K1904161-002	Ground Water	24.54 mg/L	10 mL	24.5 mg/L	1	0.07	0.50	94		5/9/19 23:38:00	N	IV
KQ1906237-12	Carbon, Total Organic	DUP	K1904161-001	Ground Water	2.00 mg/L	10 mL	2.00 mg/L	1	0.07	0.50		5	5/9/19 22:41:00	N	IV
KQ1906237-13	Carbon, Total Organic	DUP	K1904161-002	Ground Water	1.05 mg/L	10 mL	1.05 mg/L	1	0.07	0.50		7	5/9/19 23:09:00	N	IV
KQ1906237-14	Carbon, Total Organic	DUP	K1904159-001	Ground Water	1.69 mg/L	10 mL	1.69 mg/L	1	0.07	0.50		3	5/10/19 00:07:00	N	IV
KQ1906237-15	Carbon, Total Organic	DUP	K1904159-002	Ground Water	1.87 mg/L	10 mL	1.87 mg/L	1	0.07	0.50		4	5/10/19 00:35:00	N	IV
KQ1906237-16	Carbon, Total Organic	DUP	K1904159-003	Ground Water	1.08 mg/L	10 mL	1.08 mg/L	1	0.07	0.50		5	5/10/19 01:32:00	N	IV
KQ1906237-17	Carbon, Total Organic	DUP	K1904159-004	Ground Water	1.78 mg/L	10 mL	1.78 mg/L	1	0.07	0.50		8	5/10/19 02:00:00	N	IV
KQ1906237-18	Carbon, Total Organic	DUP	K1904159-005	Ground Water	1.06 mg/L	10 mL	1.06 mg/L	1	0.07	0.50		4	5/10/19 02:28:00	N	IV
KQ1906237-19	Carbon, Total Organic	DUP	K1904159-006	Ground Water	2.05 mg/L	10 mL	2.05 mg/L	1	0.07	0.50		3	5/10/19 02:56:00	N	IV
KQ1906237-20	Carbon, Total Organic	DUP	K1904158-001	Water	1.42 mg/L	10 mL	1.42 mg/L	1	0.07	0.50		3	5/10/19 03:25:00	N	IV
KQ1906237-21	Carbon, Total Organic	DUP	K1904074-001	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 03:53:00	N	III
KQ1906237-22	Carbon, Total Organic	DUP	K1904115-001	Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 04:21:00	N	I
KQ1906237-23	Carbon, Total Organic	DUP	K1904181-001	Water	0.99 mg/L	10 mL	0.99 mg/L	1	0.07	0.50		2	5/10/19 04:49:00	N	II
KQ1906237-24	Carbon, Total Organic	DUP	K1904182-001	Water	0.35 mg/L	10 mL	0.35 mg/L J	1	0.07	0.50		NC	5/10/19 05:17:00	N	II
KQ1906237-25	Carbon, Total Organic	DUP	K1904195-001	Water	2.13 mg/L	10 mL	2.13 mg/L	1	0.07	0.50		<1	5/10/19 05:45:00	N	II
KQ1906237-26	Carbon, Total Organic	DUP	K1904195-002	Water	3.25 mg/L	10 mL	3.25 mg/L	1	0.07	0.50		3	5/10/19 07:12:00	N	II
KQ1906237-27	Carbon, Total Organic	DUP	K1904195-003	Water	1.30 mg/L	10 mL	1.30 mg/L	1	0.07	0.50		4	5/10/19 07:40:00	N	II
KQ1906237-28	Carbon, Total Organic	DUP	K1904195-004	Water	1.53 mg/L	10 mL	1.53 mg/L	1	0.07	0.50		2	5/10/19 08:08:00	N	II
KQ1906237-29	Carbon, Total Organic	DUP	K1904195-005	Water	1.58 mg/L	10 mL	1.58 mg/L	1	0.07	0.50		<1	5/10/19 08:36:00	N	II
KQ1906237-30	Carbon, Total Organic	DUP	K1904032-001	Water	17.34 mg/L	10 mL	17.3 mg/L	1	0.07	0.50		2	5/10/19 09:04:00	N	II
KQ1906237-31	Carbon, Total Organic	DUP	K1904032-002	Water	0.61 mg/L	10 mL	0.61 mg/L	1	0.07	0.50		34*	5/10/19 09:32:00	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:** 635077 **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
K1904065-001	Carbon, Total Organic	N/A		Water	7.02 mg/L	10 mL	702 mg/L	100	7	50			5/10/19 10:59:00	N	II
K1904071-001	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:00:00	N	III
K1904094-001	Carbon, Total Organic	N/A		Ground Water	10.84 mg/L	10 mL	10.8 mg/L	1	0.07	0.50			5/10/19 11:27:00	N	II
K1904094-002	Carbon, Total Organic	N/A		Ground Water	7.99 mg/L	10 mL	7.99 mg/L	1	0.07	0.50			5/10/19 11:55:00	N	II
K1904094-003	Carbon, Total Organic	N/A		Ground Water	2.62 mg/L	10 mL	2.62 mg/L	1	0.07	0.50			5/10/19 12:23:00	N	II
K1904094-004	Carbon, Total Organic	N/A		Ground Water	1.57 mg/L	10 mL	1.57 mg/L	1	0.07	0.50			5/10/19 12:51:00	N	II
K1904094-005	Carbon, Total Organic	N/A		Ground Water	0.89 mg/L	10 mL	0.89 mg/L	1	0.07	0.50			5/10/19 13:19:00	N	II
K1904094-006	Carbon, Total Organic	N/A		Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50			5/10/19 13:47:00	N	II
K1904094-007	Carbon, Total Organic	N/A		Ground Water	2.60 mg/L	10 mL	2.60 mg/L	1	0.07	0.50			5/10/19 14:15:00	N	II
K1904133-001	Carbon, Total Organic	N/A		Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 14:44:00	N	I
K1904163-001	Carbon, Total Organic	N/A		Ground Water	1.35 mg/L	10 mL	1.35 mg/L	1	0.07	0.50			5/10/19 17:06:00	N	II
K1904163-002	Carbon, Total Organic	N/A		Ground Water	0.47 mg/L	10 mL	0.47 mg/L J	1	0.07	0.50			5/10/19 17:34:00	N	II
K1904163-003	Carbon, Total Organic	N/A		Ground Water	1.45 mg/L	10 mL	1.45 mg/L	1	0.07	0.50			5/10/19 18:02:00	N	II
K1904163-004	Carbon, Total Organic	N/A		Ground Water	0.74 mg/L	10 mL	0.74 mg/L	1	0.07	0.50			5/10/19 18:30:00	N	II
K1904163-005	Carbon, Total Organic	N/A		Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 18:58:00	N	II
K1904205-001	Carbon, Total Organic	N/A		Water	35.34 mg/L	10 mL	35.3 mg/L	1	0.07	0.50			5/10/19 19:26:00	N	IV
K1904205-002	Carbon, Total Organic	N/A		Water	11.17 mg/L	10 mL	11.2 mg/L	1	0.07	0.50			5/10/19 19:55:00	N	IV
KQ1906238-01	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 06:28:00	N	III
KQ1906238-02	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 10:44:00	N	III
KQ1906238-03	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 16:22:00	N	III
KQ1906238-04	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:05:00	N	III
KQ1906238-05	Carbon, Total Organic	CCV		Surface Water	24.68 mg/L	10 mL	24.7 mg/L	1					5/10/19 06:13:00	N	III
KQ1906238-06	Carbon, Total Organic	CCV		Surface Water	24.85 mg/L	10 mL	24.9 mg/L	1					5/10/19 10:29:00	N	III
KQ1906238-07	Carbon, Total Organic	CCV		Surface Water	24.02 mg/L	10 mL	24.0 mg/L	1					5/10/19 16:07:00	N	III

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

05/13/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 635077 **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
KQ1906238-08	Carbon, Total Organic	CCV		Surface Water	24.34 mg/L	10 mL	24.3 mg/L	1					5/10/19 20:51:00	N	III
KQ1906238-09	Carbon, Total Organic	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 16:37:00	N	III
KQ1906238-10	Carbon, Total Organic	LCS		Surface Water	24.84 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		5/10/19 16:51:00	N	III
KQ1906238-11	Carbon, Total Organic	MS	K1904071-001	Surface Water	25.61 mg/L	10 mL	25.6 mg/L	1	0.07	0.50	102		5/10/19 10:15:00	N	III
KQ1906238-13	Carbon, Total Organic	DUP	K1904065-001	Water	7.10 mg/L	10 mL	710 mg/L	100	7	50		1	5/10/19 10:59:00	N	II
KQ1906238-14	Carbon, Total Organic	DUP	K1904094-001	Ground Water	10.73 mg/L	10 mL	10.7 mg/L	1	0.07	0.50		1	5/10/19 11:27:00	N	II
KQ1906238-15	Carbon, Total Organic	DUP	K1904094-002	Ground Water	7.72 mg/L	10 mL	7.72 mg/L	1	0.07	0.50		3	5/10/19 11:55:00	N	II
KQ1906238-16	Carbon, Total Organic	DUP	K1904094-003	Ground Water	2.19 mg/L	10 mL	2.19 mg/L	1	0.07	0.50		18*	5/10/19 12:23:00	N	II
KQ1906238-17	Carbon, Total Organic	DUP	K1904094-004	Ground Water	1.56 mg/L	10 mL	1.56 mg/L	1	0.07	0.50		<1	5/10/19 12:51:00	N	II
KQ1906238-18	Carbon, Total Organic	DUP	K1904094-005	Ground Water	0.83 mg/L	10 mL	0.83 mg/L	1	0.07	0.50		7	5/10/19 13:19:00	N	II
KQ1906238-19	Carbon, Total Organic	DUP	K1904094-006	Ground Water	0.55 mg/L	10 mL	0.55 mg/L	1	0.07	0.50		1	5/10/19 13:47:00	N	II
KQ1906238-20	Carbon, Total Organic	DUP	K1904094-007	Ground Water	2.38 mg/L	10 mL	2.38 mg/L	1	0.07	0.50		9	5/10/19 14:15:00	N	II
KQ1906238-21	Carbon, Total Organic	DUP	K1904133-001	Drinking Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 14:44:00	N	I
KQ1906238-22	Carbon, Total Organic	DUP	K1904163-001	Ground Water	1.27 mg/L	10 mL	1.27 mg/L	1	0.07	0.50		6	5/10/19 17:06:00	N	II
KQ1906238-23	Carbon, Total Organic	DUP	K1904163-002	Ground Water	0.44 mg/L	10 mL	0.44 mg/L J	1	0.07	0.50		8	5/10/19 17:34:00	N	II
KQ1906238-24	Carbon, Total Organic	DUP	K1904163-003	Ground Water	1.33 mg/L	10 mL	1.33 mg/L	1	0.07	0.50		9	5/10/19 18:02:00	N	II
KQ1906238-25	Carbon, Total Organic	DUP	K1904163-004	Ground Water	0.77 mg/L	10 mL	0.77 mg/L	1	0.07	0.50		4	5/10/19 18:30:00	N	II
KQ1906238-26	Carbon, Total Organic	DUP	K1904163-005	Ground Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 18:58:00	N	II
KQ1906238-27	Carbon, Total Organic	DUP	K1904205-001	Water	35.34 mg/L	10 mL	35.3 mg/L	1	0.07	0.50		<1	5/10/19 19:26:00	N	IV
KQ1906238-28	Carbon, Total Organic	DUP	K1904205-002	Water	10.89 mg/L	10 mL	10.9 mg/L	1	0.07	0.50		3	5/10/19 19:55:00	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:** 635078 **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
K1904058-001	Carbon, Dissolved Organic (DOC)	N/A		Water	5.20 mg/L	10 mL	5.20 mg/L U	1	0.07	0.50			5/10/19 22:18:00	N	II
K1904058-002	Carbon, Dissolved Organic (DOC)	N/A		Water	2.04 mg/L	10 mL	2.04 mg/L	1	0.07	0.50			5/10/19 22:46:00	N	II
K1904071-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:20:00	N	III
KQ1906239-01	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 21:05:00	N	III
KQ1906239-02	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/10/19 23:57:00	N	III
KQ1906239-03	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.18 mg/L	10 mL	24.2 mg/L	1					5/10/19 23:42:00	N	III
KQ1906239-04	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.47 mg/L	10 mL	24.5 mg/L	1					5/11/19 00:41:00	N	III
KQ1906239-05	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/11/19 00:12:00	N	III
KQ1906239-06	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	25.12 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		5/11/19 00:26:00	N	III
KQ1906239-07	Carbon, Dissolved Organic (DOC)	MS	K1904071-001	Surface Water	24.79 mg/L	10 mL	24.8 mg/L	1	0.07	0.50	99		5/10/19 21:49:00	N	III
KQ1906239-08	Carbon, Dissolved Organic (DOC)	DUP	K1904071-001	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/10/19 21:20:00	N	III
KQ1906239-09	Carbon, Dissolved Organic (DOC)	DUP	K1904058-001	Water	5.13 mg/L	10 mL	5.13 mg/L	1	0.07	0.50		1	5/10/19 22:18:00	N	II
KQ1906239-10	Carbon, Dissolved Organic (DOC)	DUP	K1904058-002	Water	2.09 mg/L	10 mL	2.09 mg/L	1	0.07	0.50		2	5/10/19 22:46:00	N	II
KQ1906239-11	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/11/19 00:56:00	N	III
KQ1906239-12	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.34 mg/L	10 mL	24.3 mg/L	1					5/10/19 20:51:00	N	III

05/13/19

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

TOC: 635075, 635076, 635077
DOC: 635078

Schedule: 05092019

Version: 5
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/05/09 18:20 - Thursday

Position	Sample Type	Sample ID	Method ID (Calibration ID)	Reps	Use	State
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Clean)	Clean	Clean		1	True	Ready
(Blank)	Blank	Reagent/Acid Blank		1	True	Ready
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	K1903942-004.01 4x	CAS_salt_010711 (CAS_salt_010711)	4	True	Ready
4	Sample	K1904161-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
5	Sample	K1904161-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
6	Sample	K1904161-002.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
7	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
8	Sample	K1904159-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1904159-002.01	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
10	Sample	K1904159-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1904159-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1904159-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1904159-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1904158-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1904074-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1904115-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1904181-001.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1904182-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1904195-001.01	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	K1904195-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1904195-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1904195-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1904195-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1904032-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1904032-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1904071-001.04	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
28	Sample	K1904071-001.04 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	K1904065-001.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1904094-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1904094-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1904094-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1904094-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1904094-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1904094-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1904094-007.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1904133-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	RB	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

Printed on: May 11, 2019 10:32:21

05/13/19

Schedule: 05092019

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	K1904163-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1904163-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1904163-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1904163-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
44	Sample	K1904163-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
45	Sample	K1904205-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1904205-002.01	CAS_salt_010711 (CAS_salt_010711)	2	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
48	Sample	K1904071-001.03 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
49	Sample	K1904071-001.03 ms doc	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
50	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
51	Sample	K1904058-001.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
52	Sample	K1904058-002.02 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
53	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
54	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	

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	C] CCV 25 ppm [25 p	1	24.926	0.0000	24.9255	24.9255	24.9	5/9/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
5	MB1d	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
6	MB1t	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
7	MB1q	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
8	[TOC] LCS [24ppm]	1	25.023	0.0000	25.0234	25.0234	25	5/9/2019
9	[TOC] LCS [24ppm]d	1	25.037	0.0000	25.0368	25.0368	25.04	5/9/2019
10	[TOC] LCS [24ppm]t	1	25.510	0.0000	25.5102	25.5102	25.51	5/9/2019
11	[TOC] LCS [24ppm]q	1	25.466	0.0000	25.4658	25.4658	25.5	5/9/2019
12	K1903942-004	1	7.196	0.0000	7.1956	7.1956	7.20	5/9/2019
13	K1903942-004d	1	7.224	0.0000	7.2244	7.2244	7.22	5/9/2019
14	K1903942-004t	1	7.260	0.0000	7.2600	7.26	7.26	5/9/2019
15	K1903942-004q	1	7.240	0.0000	7.2403	7.2403	7.2	5/9/2019
16	C] CCV 25 ppm [25 p	1	25.032	0.0000	25.0320	25.032	25.0	5/10/2019
17	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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: BCD	Date Analyzed 5/9/19		
Reviewed By: [signature]	Date Reviewed 05/13/19		

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	
CBA	RB	1			0.0000	0	<0.5	
2	C] CCV 25 ppm [25 p	1	24.926	0.0000	24.9255	24.9255	24.9	5/9/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/9/2019
4	K1904161-001	1	2.097	0.0000	2.0968	2.0968	2.1	5/9/2019
5	K1904161-001d	1	1.998	0.0000	1.9982	1.9982	2.0	5/9/2019
6	K1904161-002	1	0.981	0.0000	0.9807	0.9807	0.98	5/9/2019
7	K1904161-002d	1	1.055	0.0000	1.0549	1.0549	1.1	5/9/2019
8	K1904161-002ms	1	24.540	0.0000	24.5398	24.5398	25	5/9/2019
9	K1904159-001	1	1.741	0.0000	1.7408	1.7408	1.74	5/10/2019
10	K1904159-001d	1	1.691	0.0000	1.6907	1.6907	1.69	5/10/2019
11	K1904159-002	1	1.801	0.0000	1.8009	1.8009	1.8	5/10/2019
12	K1904159-002d	1	1.867	0.0000	1.8665	1.8665	1.87	5/10/2019
13	C] CCV 25 ppm [25 p	1	25.032	0.0000	25.0320	25.032	25.03	5/10/2019
14	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
15	K1904159-003	1	1.134	0.0000	1.1342	1.1342	1.1	5/10/2019
16	K1904159-003d	1	1.081	0.0000	1.0813	1.0813	1.1	5/10/2019
17	K1904159-004	1	1.932	0.0000	1.9323	1.9323	1.93	5/10/2019
18	K1904159-004d	1	1.783	0.0000	1.7833	1.7833	1.8	5/10/2019
19	K1904159-005	1	1.103	0.0000	1.1028	1.1028	1.1	5/10/2019
20	K1904159-005d	1	1.055	0.0000	1.0552	1.0552	1.06	5/10/2019
21	K1904159-006	1	1.984	0.0000	1.9835	1.9835	1.98	5/10/2019
22	K1904159-006d	1	2.051	0.0000	2.0509	2.0509	2.1	5/10/2019
23	K1904158-001	1	1.456	0.0000	1.4556	1.4556	1.5	5/10/2019
24	K1904158-001d	1	1.420	0.0000	1.4195	1.4195	1.42	5/10/2019
25	K1904074-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019

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: BP	Date Analyzed 5/9/19	
Reviewed By: [signature]	Date Reviewed 05/13/19	

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	K1904074-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
27	K1904115-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
28	K1904115-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
29	K1904181-001	1	0.967	0.0000	0.9668	0.9668	1.0	5/10/2019
30	K1904181-001d	1	0.988	0.0000	0.9879	0.9879	1.0	5/10/2019
31	K1904182-001	1	0.307	0.0000	0.3070	0.307	<0.5	5/10/2019
32	K1904182-001d	1	0.349	0.0000	0.3492	0.3492	<0.5	5/10/2019
33	K1904195-001	1	2.139	0.0000	2.1392	2.1392	2.1	5/10/2019
34	K1904195-001d	1	2.130	0.0000	2.1302	2.1302	2.1	5/10/2019
35	C] CCV 25 ppm [25 p	1	24.678	0.0000	24.6781	24.6781	24.7	5/10/2019
36	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
37	MB2	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
38	[TOC] LCS [24ppm]	1	25.280	0.0000	25.2799	25.2799	25.3	5/10/2019
39	K1904195-002	1	3.342	0.0000	3.3419	3.3419	3.3	5/10/2019
40	K1904195-002d	1	3.252	0.0000	3.2522	3.2522	3.3	5/10/2019
41	K1904195-003	1	1.359	0.0000	1.3590	1.359	1.4	5/10/2019
42	K1904195-003d	1	1.303	0.0000	1.3034	1.3034	1.3	5/10/2019
43	K1904195-004	1	1.560	0.0000	1.5595	1.5595	1.6	5/10/2019
44	K1904195-004d	1	1.529	0.0000	1.5285	1.5285	1.5	5/10/2019
45	K1904195-005	1	1.572	0.0000	1.5717	1.5717	1.6	5/10/2019
46	K1904195-005d	1	1.576	0.0000	1.5758	1.5758	1.6	5/10/2019
47	K1904032-001	1	16.993	0.0000	16.9929	16.9929	17.0	5/10/2019
48	K1904032-001d	1	17.339	0.0000	17.3388	17.3388	17.3	5/10/2019
49	K1904032-002	1	0.853	0.0000	0.8526	0.8526	0.9	5/10/2019
50	K1904032-002d	1	0.607	0.0000	0.6072	0.6072	0.6	5/10/2019

Analyzed By: BCP	Date Analyzed 5/9/19
Reviewed By:	Date Reviewed 05/13/19

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	C] CCV 25 ppm [25 p	1	24.678	0.0000	24.6781	24.6781	24.7	5/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
4	K1904071-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
5	K1904071-001ms	1	25.607	0.0000	25.6068	25.6068	25.6	5/10/2019
6	C] CCV 25 ppm [25 p	1	24.850	0.0000	24.8503	24.8503	24.85	5/10/2019
7	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
8	K1904065-001	100	7.024	0.0000	7.0242	702.42	702	5/10/2019
9	K1904065-001d	100	7.101	0.0000	7.1012	710.12	710.12	5/10/2019
10	K1904094-001	1	10.841	0.0000	10.8408	10.8408	10.84	5/10/2019
11	K1904094-001d	1	10.730	0.0000	10.7297	10.7297	10.7	5/10/2019
12	K1904094-002	1	7.994	0.0000	7.9937	7.9937	7.99	5/10/2019
13	K1904094-002d	1	7.722	0.0000	7.7217	7.7217	7.72	5/10/2019
14	K1904094-003	1	2.623	0.0000	2.6225	2.6225	2.62	5/10/2019
15	K1904094-003d	1	2.194	0.0000	2.1943	2.1943	2.2	5/10/2019
16	K1904094-004	1	1.569	0.0000	1.5686	1.5686	1.6	5/10/2019
17	K1904094-004d	1	1.562	0.0000	1.5615	1.5615	1.56	5/10/2019
18	K1904094-005	1	0.893	0.0000	0.8930	0.893	0.9	5/10/2019
19	K1904094-005d	1	0.833	0.0000	0.8325	0.8325	0.8	5/10/2019
20	K1904094-006	1	0.547	0.0000	0.5466	0.5466	0.55	5/10/2019
21	K1904094-006d	1	0.555	0.0000	0.5545	0.5545	0.55	5/10/2019
22	K1904094-007	1	2.595	0.0000	2.5951	2.5951	2.6	5/10/2019
23	K1904094-007d	1	2.383	0.0000	2.3830	2.383	2.4	5/10/2019
24	K1904133-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
25	K1904133-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019

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

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

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

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

	date	time
Analyzed By: BCP	Date Analyzed 5/9/19	
Reviewed By: [signature]	Date Reviewed 05/13/19	

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	C] CCV 25 ppm [25 p	1	24.021	0.0000	24.0206	24.0206	24.02	5/10/2019
27	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
28	MB3	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
29	[TOC] LCS [25ppm]	1	24.837	0.0000	24.8366	24.8366	24.8	5/10/2019
30	K1904163-001	1	1.347	0.0000	1.3470	1.347	1.3	5/10/2019
31	K1904163-001d	1	1.270	0.0000	1.2703	1.2703	1.3	5/10/2019
32	K1904163-002	1	0.473	0.0000	0.4733	0.4733	<0.5	5/10/2019
33	K1904163-002d	1	0.435	0.0000	0.4353	0.4353	<0.5	5/10/2019
34	K1904163-003	1	1.451	0.0000	1.4509	1.4509	1.5	5/10/2019
35	K1904163-003d	1	1.326	0.0000	1.3264	1.3264	1.3	5/10/2019
36	K1904163-004	1	0.743	0.0000	0.7433	0.7433	0.7	5/10/2019
37	K1904163-004d	1	0.771	0.0000	0.7707	0.7707	0.8	5/10/2019
38	K1904163-005	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
39	K1904163-005d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
40	K1904205-001	1	35.335	0.0000	35.3351	35.3351	35.3	5/10/2019
41	K1904205-001d	1	35.343	0.0000	35.3429	35.3429	35.3	5/10/2019
42	K1904205-002	1	11.166	0.0000	11.1655	11.1655	11.2	5/10/2019
43	K1904205-002d	1	10.888	0.0000	10.8882	10.8882	10.9	5/10/2019
44	C] CCV 25 ppm [25 p	1	24.341	0.0000	24.3410	24.341	24.3	5/10/2019
45	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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: BCP	Date Analyzed 5/9/19
Reviewed By: [signature]	Date Reviewed 05/13/19

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	C] CCV 25 ppm [25 p	1	24.341	0.0000	24.3410	24.341	24.3	5/10/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
4	K1904071-001	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
5	K1904071-001d	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
6	K1904071-001ms	1	24.793	0.0000	24.7933	24.7933	24.79	5/10/2019
7	K1904058-001	1	5.199	0.0000	5.1992	5.1992	5.2	5/10/2019
8	K1904058-001d	1	5.131	0.0000	5.1305	5.1305	5	5/10/2019
9	K1904058-002	1	2.041	0.0000	2.0408	2.0408	2.04	5/10/2019
10	K1904058-002d	1	2.087	0.0000	2.0873	2.0873	2.09	5/10/2019
11	C] CCV 25 ppm [25 p	1	24.183	0.0000	24.1833	24.1833	24.2	5/10/2019
12	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
13	MB4	1	0.000	0.0000	0.0000	0	<0.5	5/11/2019
14	[TOC] LCS [25ppm]	1	25.116	0.0000	25.1159	25.1159	25.12	5/11/2019
15	C] CCV 25 ppm [25 p	1	24.467	0.0000	24.4668	24.4668	24.5	5/11/2019
16	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/11/2019
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: BCD		Date Analyzed 5/9/19	
Reviewed By: [signature]		Date Reviewed 05/13/19	

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	
51	C] CCV 25 ppm [25 p	1	24.850	0.0000	24.8503	24.8503	24.85	5/10/2019
52	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/10/2019
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	5/9/19
Reviewed By:		Date Reviewed	05/13/19

Fusion Report - 05092019
Thursday, May 09, 2019 05:16 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/05/11 10:32 - Saturday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05092019	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

05/13/19 fwwyu

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/05/09 17:16

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	13.44	18.05	4.61	49.62	05:23
2	TC Clean	12.76	15.75	2.98	50.07	04:06
3	TC Clean	3.34	6.39	3.05	50.05	03:47
4	TC Clean	2.50	5.39	2.89	50.09	03:49

Sample Type: Clean — From Schedule Version 3

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/05/09 17:38

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.82	15.92	3.10	49.61	05:12
2	TC Clean	6.95	9.93	2.98	50.09	04:04
3	TC Clean	2.20	5.33	3.13	50.11	03:48

4	TC Clean	1.56	4.76	3.20	50.10	03:47

Sample Type: Clean — From Schedule Version 4

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/05/09 18:00

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.57	15.67	3.10	49.61	05:13
2	TC Clean	4.30	7.43	3.13	50.09	04:07
3	TC Clean	1.51	4.69	3.18	50.10	03:48
4	TC Clean	1.08	4.23	3.15	50.09	03:47

Sample Type: Blank (Creating v1254) — From Schedule Version 5

	Pos	Analysis Type	Sample ID	Start Time
◈	(blank)		Reagent/Acid Blank	2019/05/09 18:22

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.85	3.84	2.99	49.57	05:13
2	TC Clean	3.42	6.48	3.06	50.09	04:05
3	TC Clean	1.50	4.35	2.85	50.10	03:48
4	TC Clean	1.24	4.27	3.02	50.06	03:47
5	Reagent Blank	2.93	5.90	2.97	50.07	05:06
6	Acid Blank	1.16	4.17	3.01	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	0.0113 ppm	0.0000 ppm	0.0000%	2019/05/09 18:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0113	0.1129	8.79	11.90	3.12	50.02	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.9255 ppm (PASS)	0.0000 ppm	0%	2019/05/09 19:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.9255	249.2546	178.66	181.55	2.89	49.97	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/09 19:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.20	9.26	3.06	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 (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%	2019/05/09 19:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.18	9.22	3.04	49.93	10:28
2	TOC	0.0000	0.0000	6.23	9.32	3.10	50.00	10:30
3	TOC	0.0000	0.0000	6.19	9.09	2.90	49.98	10:27
4	TOC	0.0000	0.0000	6.08	8.93	2.85	49.95	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

			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)	25.2591 ppm (PASS)	0.2650 ppm	1.05%	2019/05/09 20:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.0234	250.2342	179.32	182.28	2.96	49.97	10:28
C	TOC	25.0 ppm	2	25.0368	250.3683	179.41	182.30	2.89	50.03	10:29
C	TOC	25.0 ppm	3	25.5102	255.1017	182.62	185.61	2.99	49.95	10:27
C	TOC	25.0 ppm	4	25.4658	254.6583	182.32	185.36	3.04	49.95	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 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/09 21:31

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.68	10.55	2.87	49.97	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1903942-004.01	7.2301 ppm	0.0272 ppm	0.3800%	2019/05/09 21:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1956	71.9565	57.56	60.57	3.02	49.90	10:25
2	TOC	7.2244	72.2437	57.75	60.87	3.12	49.86	10:27
3	TOC	7.2600	72.6003	57.99	61.03	3.03	49.83	10:26
4	TOC	7.2403	72.4029	57.86	60.80	2.94	49.83	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1904161-001.01	2.0475 ppm	0.0697 ppm	3.4000%	2019/05/09 22:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0968	20.9675	22.94	25.83	2.89	49.81	10:32
2	TOC	1.9982	19.9819	22.28	25.18	2.90	49.79	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC)	CAS_salt_010711	CAS_salt_010711

(v1254) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	5	TOC	K1904161-002.01	1.0178 ppm	0.0525 ppm	5.1600%	2019/05/09 23:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9807	9.8065	15.37	18.28	2.91	49.78	10:29
2	TOC	1.0549	10.5490	15.87	18.77	2.90	49.78	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1904161-002.01 ms	24.5398 ppm	0.0000 ppm	0.0000%	2019/05/09 23:38

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.5398	245.3979	175.29	178.28	2.99	49.97	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/09 23:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.00	9.93	2.93	49.84	10:34

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1904159-001.01	1.7158 ppm	0.0354 ppm	2.0600%	2019/05/10 00:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7408	17.4083	20.53	23.49	2.96	49.82	10:27
2	TOC	1.6907	16.9074	20.19	23.18	2.99	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1904159-002.01	1.8337 ppm	0.0464 ppm	2.5300%	2019/05/10 00:35

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8009	18.0093	20.94	23.83	2.89	49.85	10:25
2	TOC	1.8665	18.6649	21.38	24.33	2.95	49.81	10:28

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)	25.0320 ppm (PASS)	0.0000 ppm	0%	2019/05/10 01:03

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0320	250.3197	179.38	182.41	3.03	49.81	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%	2019/05/10 01:17

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.33	8.36	3.03	49.81	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
◆	10	TOC	K1904159-003.01	1.1077 ppm	0.0374 ppm	3.3800%	2019/05/10 01:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1342	11.3416	16.41	19.31	2.90	49.84	10:27
2	TOC	1.0813	10.8127	16.05	18.92	2.87	49.84	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◆	11	TOC	K1904159-004.01	1.8578 ppm	0.1054 ppm	5.6700%	2019/05/10 02:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9323	19.3234	21.83	24.60	2.77	49.87	10:28
2	TOC	1.7833	17.8325	20.82	23.69	2.88	49.88	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	12	TOC	K1904159-005.01	1.0790 ppm	0.0336 ppm	3.1200%	2019/05/10 02:28

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.1028	11.0278	16.20	19.19	2.99	49.91	10:26
2	TOC	1.0552	10.5520	15.87	18.88	3.01	49.90	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	13	TOC	K1904159-006.01	2.0172 ppm	0.0477 ppm	2.3700%	2019/05/10 02:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.9835	19.8346	22.18	25.24	3.07	49.94	10:28
2	TOC	2.0509	20.5094	22.63	25.44	2.81	49.94	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	14	TOC	K1904158-001.01	1.4376 ppm	0.0255 ppm	1.7800%	2019/05/10 03:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4556	14.5561	18.59	21.55	2.96	49.95	10:25
2	TOC	1.4195	14.1952	18.35	21.36	3.01	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	15	TOC	K1904074-001.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 03:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.25	8.10	2.85	49.99	10:26
2	TOC	0.0000	0.0000	5.00	7.99	2.99	50.00	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1904115-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 04:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.08	10.91	2.83	50.02	10:29
2	TOC	0.0000	0.0000	7.91	10.91	3.00	50.02	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1904181-001.02	0.9773 ppm	0.0149 ppm	1.5200%	2019/05/10 04:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9668	9.6681	15.27	18.24	2.96	50.04	10:27
2	TOC	0.9879	9.8787	15.42	18.17	2.75	50.07	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1904182-001.01	0.3281 ppm	0.0299 ppm	9.1100%	2019/05/10 05:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3070	3.0696	10.80	13.58	2.78	50.07	10:27
2	TOC	0.3492	3.4924	11.08	13.90	2.82	50.08	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1904195-001.01	2.1347 ppm	0.0064 ppm	0.3000%	2019/05/10 05:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.1392	21.3918	23.23	26.05	2.81	50.12	10:28
2	TOC	2.1302	21.3019	23.17	26.10	2.93	50.16	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.6781 ppm (PASS)	0.0000 ppm	0%	2019/05/10 06:13

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6781	246.7810	176.98	179.94	2.96	50.08	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%	2019/05/10 06:28

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.32	8.14	2.81	50.00	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%	2019/05/10 06:42

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.45	7.30	2.85	49.96	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	C	TOC	25.0000	1:1	[TOC] LCS [24.0 ppm]	0 / infinity (NA / NA)	25.2799 ppm (PASS)	0.0000 ppm	0%	2019/05/10 06:57

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

	Type									
C	TOC	25.0 ppm	1	25.2799	252.7991	181.06	184.05	2.99	49.92	10:30

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	21	TOC	K1904195-002.01	3.2970 ppm	0.0634 ppm	1.9200%	2019/05/10 07:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.3419	33.4190	31.40	34.35	2.96	49.87	10:30
2	TOC	3.2522	32.5218	30.79	33.64	2.85	49.85	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	22	TOC	K1904195-003.01	1.3312 ppm	0.0393 ppm	2.9500%	2019/05/10 07:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3590	13.5897	17.94	20.69	2.76	49.83	10:30
2	TOC	1.3034	13.0343	17.56	20.31	2.75	49.79	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	23	TOC	K1904195-004.01	1.5440 ppm	0.0219 ppm	1.4200%	2019/05/10 08:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5595	15.5948	19.30	22.12	2.82	49.78	10:31
2	TOC	1.5285	15.2854	19.09	21.94	2.86	49.83	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	24	TOC	K1904195-005.01	1.5738 ppm	0.0029 ppm	0.1900%	2019/05/10 08:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5717	15.7170	19.38	22.17	2.79	49.81	10:26
2	TOC	1.5758	15.7583	19.41	22.15	2.75	49.82	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	25	TOC	K1904032-001.01	17.1658 ppm	0.2446 ppm	1.4200%	2019/05/10 09:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.9929	169.9287	124.06	126.97	2.91	49.81	10:25
2	TOC	17.3388	173.3878	126.41	129.43	3.03	49.80	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1904032-002.01	0.7299 ppm	0.1735 ppm	23.7800%	2019/05/10 09:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8526	8.5263	14.50	17.57	3.08	49.83	10:29
2	TOC	0.6072	6.0720	12.83	15.74	2.91	49.81	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1904071-001.04	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 10:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.03	8.16	3.13	49.84	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	K1904071-001.04 ms	25.6068 ppm	0.0000 ppm	0.0000%	2019/05/10 10:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	25.6068	256.0683	182.53	185.41	2.88	49.75	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.8503 ppm (PASS)	0.0000 ppm	0%	2019/05/10 10:29

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.8503	248.5032	178.14	181.05	2.91	49.75	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◆	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/10 10:44

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	8.36	2.75	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 (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	K1904065-001.01 100x	7.0627 ppm	0.0545 ppm	0.7700%	2019/05/10 10:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.0242	70.2417	56.39	59.23	2.84	49.99	10:29
2	TOC	7.1012	71.0121	56.91	59.88	2.97	49.96	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	30	TOC	K1904094-001.03	10.7852 ppm	0.0785 ppm	0.7300%	2019/05/10 11:27

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.8408	108.4079	82.30	85.29	2.99	50.10	10:27
2	TOC	10.7297	107.2971	81.54	84.48	2.93	49.97	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	31	TOC	K1904094-002.03	7.8577 ppm	0.1923 ppm	2.4500%	2019/05/10 11:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.9937	79.9368	62.97	65.86	2.89	50.12	10:29
2	TOC	7.7217	77.2173	61.13	64.13	3.01	50.14	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	32	TOC	K1904094-003.03	2.4084 ppm	0.3028 ppm	12.5700%	2019/05/10 12:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.6225	26.2254	26.51	29.25	2.74	50.15	10:30
2	TOC	2.1943	21.9428	23.61	26.59	2.99	50.18	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	33	TOC	K1904094-004.03	1.5651 ppm	0.0050 ppm	0.3200%	2019/05/10 12:51

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.5686	15.6861	19.36	22.35	2.99	50.15	10:27
2	TOC	1.5615	15.6154	19.31	22.14	2.83	50.19	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	34	TOC	K1904094-005.03	0.8627 ppm	0.0428 ppm	4.9600%	2019/05/10 13:19

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8930	8.9300	14.77	17.56	2.79	50.19	10:26
2	TOC	0.8325	8.3245	14.36	17.24	2.88	50.24	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	35	TOC	K1904094-006.03	0.5506 ppm	0.0055 ppm	1.0000%	2019/05/10 13:47

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5466	5.4665	12.42	15.15	2.72	50.17	10:29

2	TOC	0.5545	5.5446	12.48	15.29	2.82	50.27	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	36	TOC	K1904094-007.03	2.4891 ppm	0.1500 ppm	6.0300%	2019/05/10 14:15

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5951	25.9514	26.33	29.18	2.86	50.24	10:32
2	TOC	2.3830	23.8299	24.89	27.81	2.93	50.17	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K1904133-001.01	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 14:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.06	9.93	2.87	50.18	10:30
2	TOC	0.0000	0.0000	6.79	9.66	2.87	50.27	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 15:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.10	6.93	2.84	50.17	10:26
2	TOC	0.0000	0.0000	4.38	7.17	2.79	50.20	10:26
3	TOC	0.0000	0.0000	3.94	6.84	2.90	50.29	10:27
4	TOC	0.0000	0.0000	4.00	6.84	2.84	50.18	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.0206 ppm (PASS)	0.0000 ppm	0%	2019/05/10 16:07

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

B	TOC	25 ppm	1	24.0206	240.2062	172.51	175.43	2.91	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%	2019/05/10 16:22

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.58	7.57	2.99	50.28	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
◈	39	TOC	MB3	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 16:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	3.74	6.63	2.89	50.29	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.8366 ppm (PASS)	0.0000 ppm	0%	2019/05/10 16:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.8366	248.3662	178.05	181.00	2.95	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	K1904163-001.03	1.3087 ppm	0.0543 ppm	4.1500%	2019/05/10 17:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3470	13.4704	17.85	20.81	2.96	50.24	10:27
2	TOC	1.2703	12.7029	17.33	20.14	2.80	50.32	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	41	TOC	K1904163-002.03	0.4543 ppm	0.0269 ppm	5.9200%	2019/05/10 17:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.4733	4.7328	11.92	14.78	2.86	50.30	10:27
2	TOC	0.4353	4.3528	11.67	14.56	2.89	50.26	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	42	TOC	K1904163-003.03	1.3887 ppm	0.0880 ppm	6.3400%	2019/05/10 18:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4509	14.5090	18.56	21.11	2.55	50.25	10:25
2	TOC	1.3264	13.2641	17.72	20.82	3.11	50.38	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	43	TOC	K1904163-004.03	0.7570 ppm	0.0194 ppm	2.5600%	2019/05/10 18:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.7433	7.4332	13.76	16.65	2.89	50.30	10:31
2	TOC	0.7707	7.7072	13.94	16.96	3.02	50.15	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	44	TOC	K1904163-005.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 18:58

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

1	TOC	0.0000	0.0000	6.58	9.46	2.88	50.19	10:31
2	TOC	0.0000	0.0000	6.58	9.46	2.88	50.17	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1904205-001.01	35.3390 ppm	0.0055 ppm	0.0200%	2019/05/10 19:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.3351	353.3511	248.56	251.48	2.91	50.19	10:29
2	TOC	35.3429	353.4292	248.62	251.54	2.92	50.19	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1904205-002.01	11.0269 ppm	0.1960 ppm	1.7800%	2019/05/10 19:55

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.1655	111.6548	84.50	87.46	2.96	50.23	10:29
2	TOC	10.8882	108.8823	82.62	85.63	3.01	50.24	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/10 20:23

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.84	9.73	2.89	50.28	10:25
2	TOC	0.0000	0.0000	5.94	8.90	2.96	50.30	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.3410 ppm (PASS)	0.0000 ppm	0%	2019/05/10 20:51

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3410	243.4104	174.69	177.57	2.88	50.20	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%	2019/05/10 21:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.28	8.13	2.85	50.21	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	K1904071-001.03 doc	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 21:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.64	7.58	2.95	50.27	10:27
2	TOC	0.0000	0.0000	4.26	7.41	3.14	50.11	10:24

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	49	TOC	K1904071-001.03 ms doc	24.7933 ppm	0.0000 ppm	0.0000%	2019/05/10 21:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	24.7933	247.9333	177.01	180.01	3.00	50.13	10:35

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	50	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/10 22:03

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.08	8.09	3.01	50.14	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	51	TOC	K1904058-001.02 doc	5.1648 ppm	0.0485 ppm	0.9400%	2019/05/10 22:18

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.1992	51.9917	44.00	46.91	2.91	50.03	10:29
2	TOC	5.1305	51.3051	43.54	46.51	2.97	50.13	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	52	TOC	K1904058-002.02 doc	2.0640 ppm	0.0329 ppm	1.5900%	2019/05/10 22:46

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.0408	20.4077	22.56	25.53	2.97	49.97	10:28
2	TOC	2.0873	20.8732	22.88	25.74	2.86	49.92	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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%	2019/05/10 23:14

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	5.02	7.87	2.85	49.96	10:28
2	TOC	0.0000	0.0000	5.13	8.18	3.05	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	24.1833 ppm (PASS)	0.0000 ppm	0%	2019/05/10 23:42

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.1833	241.8326	173.62	176.53	2.91	50.03	10:28

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v30)

Sample Type: Check Standard --> CCB From Schedule Version 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%	2019/05/10 23:57

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	5.18	7.99	2.81	49.93	10:29

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

Sample Type: Sample From Schedule Version 5

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	54	TOC	MB4	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/11 00:12

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	4.23	7.15	2.92	49.89	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 8.7114 (IC) (v1254)	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)	25.1159 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:26

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1159	251.1594	179.95	182.90	2.96	49.87	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: 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)	24.4668 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.4668	244.6685	175.54	178.68	3.14	49.84	10:33

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

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

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/11 00:56

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	4.96	7.91	2.94	49.84	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
v1253	1.3423	1.1900	0.0000	0.0000	0.0000	2019/05/07 15:06	Fusion1 (Fusion1)
v1254	0.9757	1.1630	0.0000	0.0000	0.0000	2019/05/09 18:55	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	2019/05/11 01:13

StarLIMS Run: 635075, 635076, 635077, 635078

Analysis: TOC

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

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

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-05-77M

21 % H3PO4: 11-GEN-05-77O

Equipment ID: K-TOC-03

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

FILTER ID: NA

Analyzed By: BCD	Date Analyzed: 5/1/19-5/10/19-5/9/19
Reviewed By: [signature]	Date Reviewed: 05/13/19

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1913332, 1913338, 1913342, 1913345

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2253(239553)

General Set Information: There were ten field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field sample 1913338001 was analyzed and reported from a 1:100 dilution. Field sample 1913342004 was analyzed and reported from a 1:10 dilution. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 653683) was less than 1/2 the CRDL. The recovery for the LCS (653684) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on samples 1913342006/007. 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 4.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 653681) is reported from the analysis of the Laboratory Control Sample (LCS – 653684) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03).

Stephen Brose	May 22, 2019
Analyst	Date

ANALYTICAL REPORT

Report Date: May 22, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1913342**
Project ID: HS19050403
Purchase Order: HS19050403
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
50WW10-190507	1913342001	05/07/19	05/09/19	
50WW09-190507	1913342002	05/07/19	05/09/19	
50WW09-190507-FD	1913342003	05/07/19	05/09/19	
50WW08-190507	1913342004	05/07/19	05/09/19	
50WW23-190507	1913342005	05/07/19	05/09/19	
50WW24-190507	1913342008	05/07/19	05/09/19	
50WW05-190507	1913342009	05/07/19	05/09/19	

Client QC ID *	Lab ID	Collect Date	Receive Date	Sampling Site
50WW23-190507MS	1913342006	05/07/19	05/09/19	
50WW23-190507MSD	1913342007	05/07/19	05/09/19	

***Client QC is reported as part of the Quality Control results report, if requested.**

ANALYTICAL REPORT

Workorder: 34-1913342
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW10-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342001 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 09:10 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW09-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342002 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 09:23 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**7.2**	1.0	2.0	4.0	1	

Sample ID: **50WW09-190507-FD** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342003 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 09:36 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**7.8**	1.0	2.0	4.0	1	

Sample ID: **50WW08-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342004 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 09:50 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**230**	10	20	40	10	

ANALYTICAL REPORT

Workorder: 34-1913342
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW23-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342005 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 10:03 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW24-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342008 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 10:43 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW05-190507** | Sampling Site: NA | Collected: 05/07/2019
Lab ID: 1913342009 | Media: 125 mL Nalgene | Received: 05/09/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2253 (HBN: 239553) | **Percent Solid:** NA
Analyzed: 05/21/2019 10:57 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Comments

Quality Control: **EPA 6850, DoD QSM - (HBN: 239553)**

Field sample 1913338001 was analyzed and reported from a 1:100 dilution. Field sample 1913342004 was analyzed and reported from a 1:10 dilution. The reporting limits have been adjusted accordingly.

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Stephen Brose 05/22/2019 06:38	/S/ Thomas Bosch 05/22/2019 11:11

ANALYTICAL REPORT

Workorder: 34-1913342
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

ANALYTICAL REPORT

Workorder: 34-1913342
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1913342

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2253 (HBN: 239553)
		Prepared By:	NA	**Analyzed By:**	Stephen Brose

Blank

LMB: 653683
Analyzed: 05/21/2019 08:29
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 653684
Analyzed: 05/21/2019 08:02
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.08	4.00	102	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1913342005	**MS:**	1913342006	**MSD:**	1913342007
Analyzed:	05/21/2019 10:03	**Analyzed:**	05/21/2019 10:17	**Analyzed:**	05/21/2019 10:30
Dilution:	1	**Dilution:**	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L	**Units:**	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	3.78	4	94.4	78.8	123.8	3.72	93.0	1.51	0.0	20.0

Comments

Field sample 1913338001 was analyzed and reported from a 1:100 dilution. Field sample 1913342004 was analyzed and reported from a 1:10 dilution. The reporting limits have been adjusted accordingly.

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Stephen Brose	/S/ Thomas Bosch
05/22/2019 06:38	05/22/2019 11:11

Symbols and Definitions

- * - Analyte above reporting limit or outside of control limits
- ▲ - Sample result is greater than 4 times the spike added
- ◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
- ● - Result is above the calibration range
- # - The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

W 1913342

Subcontract Chain of Custody

18698/#2

SAMPLING STATE: **Texas**

COC ID: **11275**

1913342

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19050403
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19050403-01**	**50WW10-190507**	**Groundwater**	**07 May 2019 08:30**
	SUB_Perch-6850			16 May 2019
2.	**HS19050403-02**	**50WW09-190507**	**Groundwater**	**07 May 2019 09:20**
	SUB_Perch-6850			16 May 2019
3.	**HS19050403-03**	**50WW09-190507-FD**	**Groundwater**	**07 May 2019 09:20**
	SUB_Perch-6850			16 May 2019
4.	**HS19050403-04**	**50WW08-190507**	**Groundwater**	**07 May 2019 10:10**
	SUB_Perch-6850			16 May 2019
5.	**HS19050403-05**	**50WW23-190507** MS/MSD	**Groundwater**	**07 May 2019 11:10**
	SUB_Perch-6850			16 May 2019
6.	**HS19050403-06**	**50WW24-190507**	**Groundwater**	**07 May 2019 12:25**
	SUB_Perch-6850			16 May 2019
7.	**HS19050403-07**	**50WW05-190507**	**Groundwater**	**07 May 2019 13:15**
	SUB_Perch-6850			16 May 2019

Comments:

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11275**

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

MS/MSD - HS19050403-05

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. Mathews Date/Time: 5/8/19 18:00

Received By: Lily Worden LACS Date/Time: 5/9/19 1018

Cooler ID(s): Temperature(s):

GR Rev 2010

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19050403 | ***Split:*** | **Workorder ID:** 1913342 | **Level:** ENV_LVL4 | **Requested Analysis**

Client: ALS Environmental (Houston) | **Account:** 8101 | **Type:** 125Poly

Comments:

Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	05/07/2019 08:30	50WW10-190507	1913342001		Water	A	1	A
2	05/07/2019 09:20	50WW09-190507	1913342002		Water	A	1	A
3	05/07/2019 09:20	50WW09-190507-FD	1913342003	FLDDUP	Water	A	1	A
4	05/07/2019 10:10	50WW08-190507	1913342004		Water	A	1	A
5	05/07/2019 11:10	50WW23-190507	1913342005		Water	A	1	A
6	05/07/2019 11:10	50WW23-190507MS	1913342006	MS	Water	A	1	A
7	05/07/2019 11:10	50WW23-190507MSD	1913342007	MSD	Water	A	1	A
8	05/07/2019 12:25	50WW24-190507	1913342008		Water	A	1	A
9	05/07/2019 13:15	50WW05-190507	1913342009		Water	A	1	A
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Warath, Julie	05/09/2019 10:18	ALS Sample Receiving	Sample Login
Julie Worrath	5/9/19 1400	14B	Storage
14B	5/9/19 1400	[signature]	Cloy Analysis

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS-SALT LAKE CITY-RELATED INFORMATION REPORT (CRIR)

COOLER OR CONTAINER INFORMATION CHECKLIST (Fill In or Circle)

Client Name: ALS Houston

Project/Task/Site: 1913342

Date/Time of Receipt: 5/9/19 1018

Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA		
	Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA		
	Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 - 9390	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Lisa Worden (Signature) Julie Worden (Printed Name) 5/9/19 (Date)

CLIENT-RELATED INFORMATION

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

BRIEFLY DESCRIBE THE PROBLEM AND THE ACTION TAKEN:

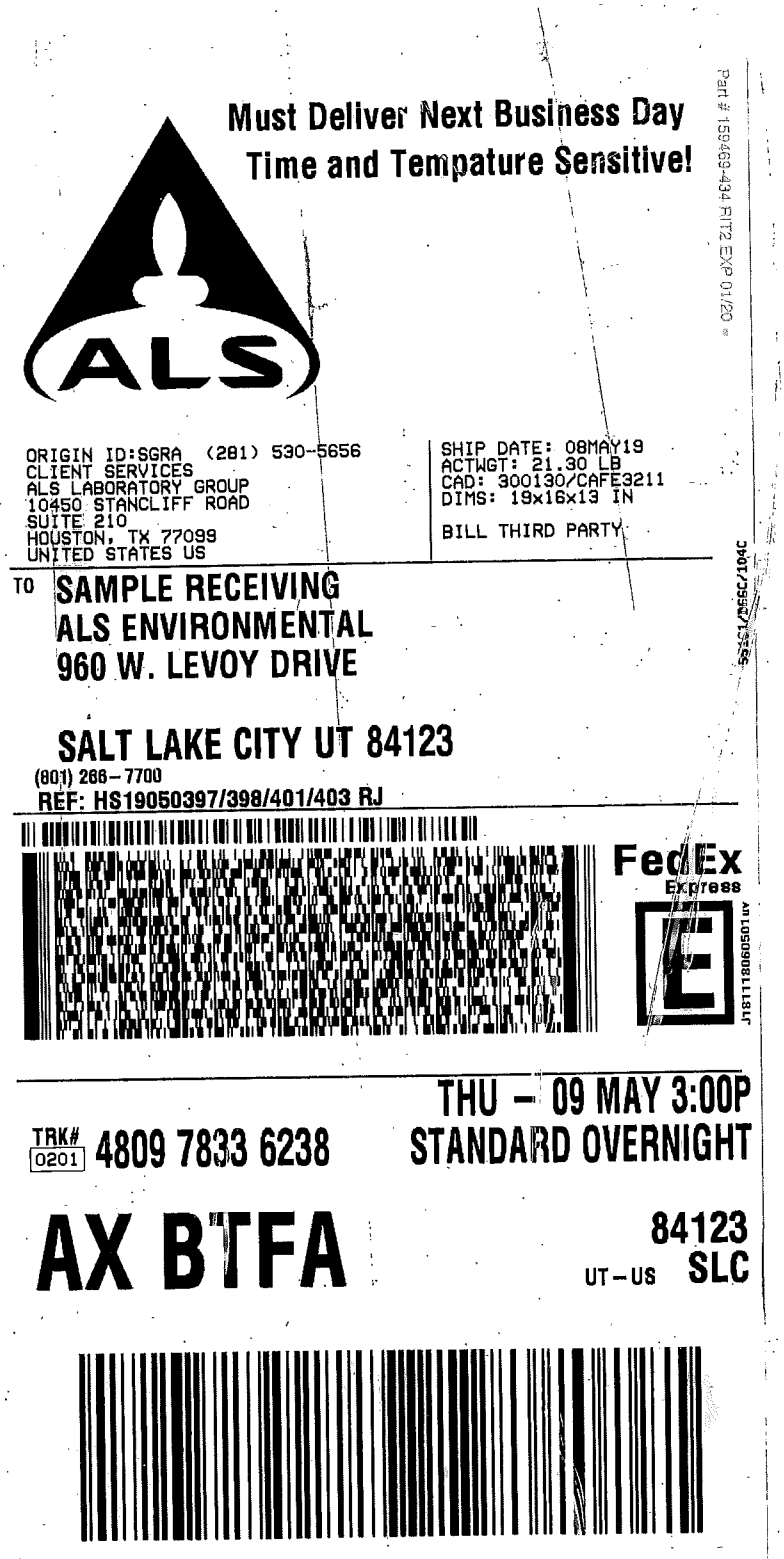
Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

PROJECT MANAGEMENT

PROJECT MANAGER COMMENTS:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____



Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-494 RIT2 EXP 01/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 08MAY19
ACTWGT: 21.30 LB
CAD: 300130/CAFE3211
DIMS: 19x16x13 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19050397/398/401/403 RJ

FedEx Express

THU - 09 MAY 3:00P
STANDARD OVERNIGHT

TRK# 0201 4809 7833 6238

AX BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2253 **Created:** 5/20/2019 06:13 **Instrument:** **HBN:** 239553

Rule: EPA 6850, DoD QSM Water **Analyst:** S. Brose **Status:** WP

Workorder: 1913332 [ENV_LVL4]
Workorder: 1913338 [ENV_LVL4]
Workorder: 1913342 [ENV_LVL4]
Workorder: 1913345 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	653680	CCV for HBN 239553 [ELMS/2253]				CCV	3		E685041C3Q	6214		5/22/2019	
2	653681	RLVS for HBN 239553 [ELMS/2253				RLVS	3		E685041C3Q	6214		5/22/2019	
3	653682	ICS for HBN 239553 [ELMS/2253]				ICS	3		E6850..D3Q	6214		5/22/2019	
4	653683	LMB for HBN 239553 [ELMS/2253]				LMB	3		E6850Q413Q	6214		5/22/2019	
5	653684	LCS for HBN 239553 [ELMS/2253]				LCS	3		E6850Q413Q	6214		5/22/2019	
6	1913332001	LH18/24-SP650_050719_BIX				SAMPLE	3	1913332001-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
7	1913338001	LH18/24-SP140_050719				SAMPLE	3	1913338001-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
8	1913342001	50WW10-190507				SAMPLE	3	1913342001-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
9	1913342002	50WW09-190507				SAMPLE	3	1913342002-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
10	1913342003	50WW09-190507-FD				FLDDUP	3	1913342003-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
11	1913342004	50WW08-190507				SAMPLE	3	1913342004-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
12	1913342005	50WW23-190507				SAMPLE	3	1913342005-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
13	1913342006	50WW23-190507MS				MS	3	1913342006-A	E6850Q413Q	5480		5/22/2019	
14	1913342007	50WW23-190507MSD				MSD	3	1913342007-A	E6850Q413Q	5480		5/22/2019	
15	1913342008	50WW24-190507				SAMPLE	3	1913342008-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
16	1913342009	50WW05-190507				SAMPLE	3	1913342009-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
17	1913345001	LH18-24-SP650_050719_BIX				SAMPLE	3	1913345001-A	E6850Q41.3	5480	6/4/2019	5/22/2019	
18	653685	CCV for HBN 239553 [ELMS/2253]				CCV	3		E685041C3Q	6214		5/22/2019	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1913332(001), 1913338(001), 1913342(001-009), 1913345(001)
ELMS Batch/HBN ID: 2253 (239553)
Prep Date: 05/21/2019 Analysis Date: 05/21/2019 Analyst: S. Brose
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\MAY\21MAY19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by SAB. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: **LCMS04** Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 653684; Target = 4.0µg/L. ASTM type II water was used for LMB 653683.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1913342006/007 (Client ID: 50WW23-190507). 4.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 4.0µg/L.

COMMENTS:
1) Results reported in µg/L. Field samples 1913338001 and 1913342004 required 1:100 and 1:10 dilutions respectively. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\MAY\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\239553-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 653681) is reported from the analysis of the Laboratory Control Sample (LCS – 653684) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, many of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03).

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS/2253 HBN: 238553 Sample Set IDs if Applicable: 19/3332/38/42/45	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	SB	TB
Standards traceability checked and meets criteria	SB	TB
Standard curve coefficients evaluated and meet criteria	SB	TB
ICVs analyzed and meet acceptance criteria	SB	TB
CCVs analyzed and meet acceptance criteria	SB	TB
Retention Time Windows checked	SB	TB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	SB	TB
Method Preparation Blanks analyzed and meet acceptance criteria	SB	TB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	SB	TB
RLVS analyzed	SB	TB
Preparation and analysis hold times met	SB	TB
Preparation deviations and re-preparations noted when performed	SB	TB
Analysis deviations and re-analyses noted when performed	SB	TB
Sample dilution factors noted on reports	SB	TB
Electronic records in HBN transcription accuracy and completeness checked	SB	TB
Preparation and analysis calculations checked	SB	TB
NCRs are completed as necessary NC/CAR#	—	—
Report forms are complete and accurate	SB	TB
Manual integrations checked	SB	TB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK		Description - 6850 WKG Std 100.ug/L
Standard: 43702	Created By: Thomas Bosch	Amount: 10 mL
MFG: ALS/SLC	Create Date: 09/18/2018 02:09PM	Expires: 09/18/2019
MFG Lot: TNB: 09/18/2018		Usable: Yes
Pipette ID: Not Provided		Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK — Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659
MFG: AccuStandard
MFG Lot: 218065075
Part ID: IC-PER-10X-1

Created By: Thomas Bosch
Create Date: 09/17/2018 09:09AM

Amount: 100 mL
Expires: 07/25/2020
Usable: No
Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O	Description - ASTM Type II Water

Standard: 109
MFG: DCL In House
MFG Lot: Not Provided
Part ID: Not Provided

Created By: ALS Support (Lims)
Create Date: 10/06/2005 09:10AM

Amount: 1000 L
Expires: 11/07/2025
Usable: Yes
Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK		Description - Perchlorate ISTD Wrk 1,000ug/L	
Standard: 43730	Created By: Thomas Bosch	Amount: 25 mL	
MFG: ALS/SLC	Create Date: 09/20/2018 09:09AM	Expires: 09/20/2019	
MFG Lot: TNB: 05/09/2018	Verified By: Thomas Bosch	Usable: Yes	
Pipette ID: Not Provided	Verify Date:	Lab Lot: CLO4ISTDWRK	

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK		Description - Perchlorate ISTD Stock
Standard: 43729	Created By: Thomas Bosch	Amount: 1 mL
MFG: Cambridge Isotope	Create Date: 09/20/2018 09:09AM	Expires: 04/28/2026
MFG Lot: SDFF-012A	Verified By: Thomas Bosch	Usable: Yes
Part ID: OLM-7310-S	Verify Date:	Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

AccuStandard®

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safely information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Report: C:\HPCHEM\1\DATA\21MAY19D\21MAY19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	653680 CCV@25	Vial 71	1	Control	1	2.40704e6	8.594	23.99302
*	653684 QC@4.0	Vial 72	1	Control	2	3.96639e5	8.823	4.08274
*	653682 ICS@4.0	Vial 73	1	Control	3	3.14960e5	8.612	3.74421
*	653683 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1913332001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	1913338001 100	Vial 76	1	Sample	6	3.99368e6	8.959	4178.24239
*	1913342001	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	1913342002	Vial 78	1	Sample	8	6.18077e5	8.360	7.21259
*	1913342003	Vial 79	1	Sample	9	6.79913e5	8.381	7.76574
*	1913342004 10X	Vial 80	1	Sample	10	2.09294e6	8.642	226.56793
*	1913342005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	1913342006 MS	Vial 82	1	Sample	12	2.30072e5	8.281	3.77790
*	1913342007 SD	Vial 83	1	Sample	13	2.23456e5	8.296	3.72139
*	1913342008	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1913342009	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1913345001	Vial 86	1	Sample	16	0.00000	0.000	0.00000
*	653685 CCV@25	Vial 71	1	Control	17	1.93838e6	8.628	23.36594

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	653680 CCV@25	Vial 71	1	Control	1	7.14295e5	8.612	23.97986
*	653684 QC@4.0	Vial 72	1	Control	2	1.27284e5	8.838	4.26129
*	653682 ICS@4.0	Vial 73	1	Control	3	1.12778e5	8.627	4.34080
*	653683 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1913332001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	1913338001 100	Vial 76	1	Sample	6	1.20507e6	8.974	4254.41607
*	1913342001	Vial 77	1	Sample	7	0.00000	0.000	0.00000
*	1913342002	Vial 78	1	Sample	8	2.00267e5	8.373	7.73270
*	1913342003	Vial 79	1	Sample	9	2.18020e5	8.395	8.25365
*	1913342004 10X	Vial 80	1	Sample	10	6.29788e5	8.660	229.37195
*	1913342005	Vial 81	1	Sample	11	0.00000	0.000	0.00000
*	1913342006 MS	Vial 82	1	Sample	12	8.05070e4	8.292	4.28262
*	1913342007 SD	Vial 83	1	Sample	13	7.84560e4	8.311	4.22992
*	1913342008	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1913342009	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	1913345001	Vial 86	1	Sample	16	0.00000	0.000	0.00000
*	653685 CCV@25	Vial 71	1	Control	17	5.93941e5	8.647	24.07193

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	653680 CCV@25	Vial 71	1	Control	1	3.05962e5	8.618	5.00000
*	653684 QC@4.0	Vial 72	1	Control	2	3.19796e5	8.842	5.00000
*	653682 ICS@4.0	Vial 73	1	Control	3	2.78118e5	8.629	5.00000
*	653683 LMB	Vial 74	1	Control	4	3.07550e5	8.973	5.00000
*	1913332001	Vial 75	1	Sample	5	2.84011e5	8.455	5.00000
*	1913338001 100	Vial 76	1	Sample	6	2.80006e5	8.979	500.00000
*	1913342001	Vial 77	1	Sample	7	2.92233e5	8.419	5.00000
*	1913342002	Vial 78	1	Sample	8	2.75334e5	8.385	5.00000
*	1913342003	Vial 79	1	Sample	9	2.80514e5	8.402	5.00000
*	1913342004 10X	Vial 80	1	Sample	10	2.82646e5	8.663	50.00000
*	1913342005	Vial 81	1	Sample	11	2.06104e5	8.293	5.00000
*	1913342006 MS	Vial 82	1	Sample	12	2.01255e5	8.301	5.00000
*	1913342007 SD	Vial 83	1	Sample	13	1.98591e5	8.312	5.00000
*	1913342008	Vial 84	1	Sample	14	2.10825e5	8.375	5.00000

Batch Report: C:\HPCHEM\1\DATA\21MAY19D\21MAY19D.B

#*	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	1913342009	Vial 85	1	Sample	15	2.18072e5	8.384	5.00000
*	1913345001	Vial 86	1	Sample	16	2.17961e5	8.508	5.00000
*	653685 CCV@25	Vial 71	1	Control	17	2.53387e5	8.650	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAY\21MAY19D.S

Sequence Table:

Method and Injection Info Part:

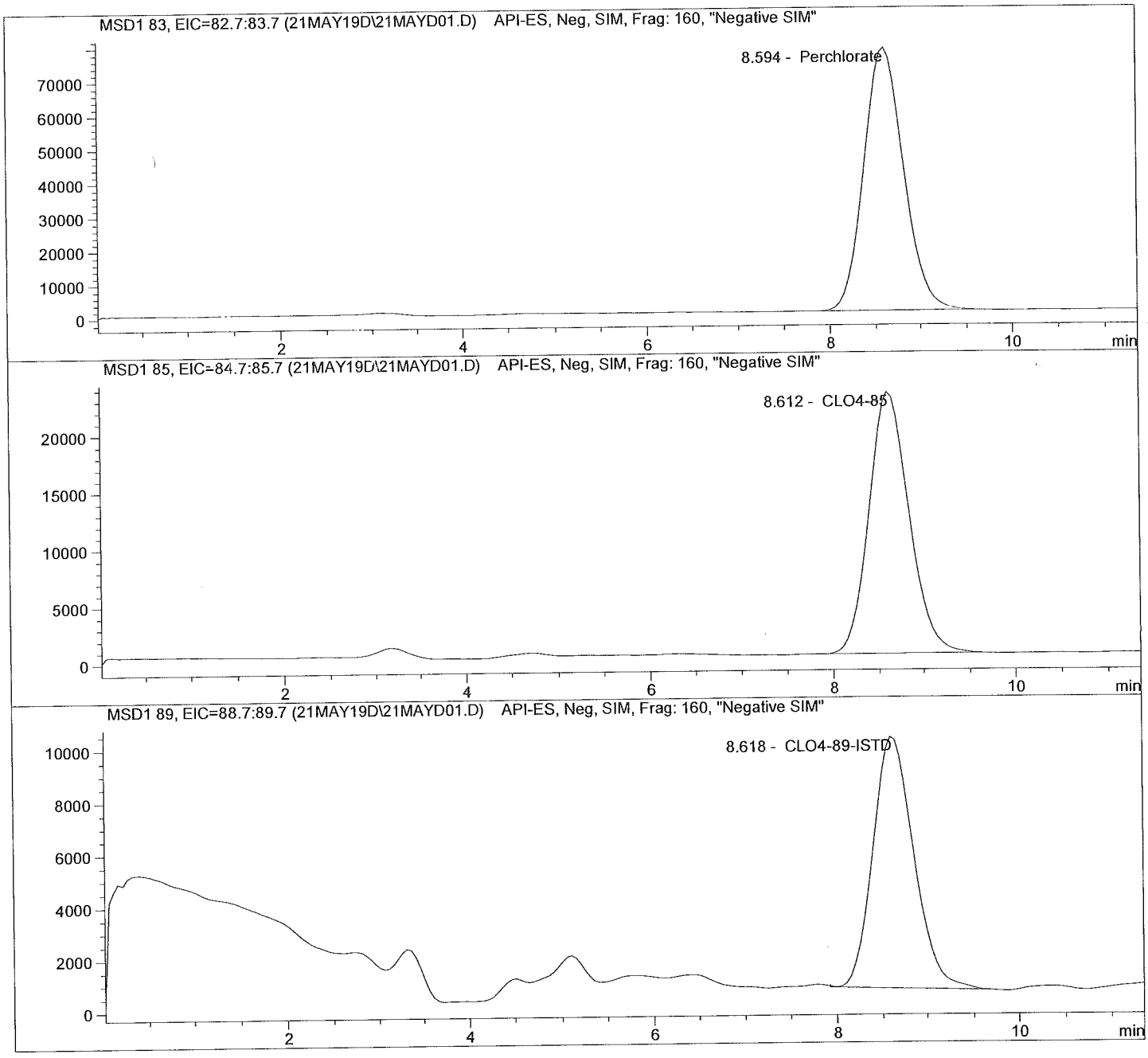
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	653680	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	653684	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	653682	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	653683	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1913332001		CLO4-AQN	1	Sample		
6	Vial 76	1913338001	100	CLO4-AQN	1	Sample		
7	Vial 77	1913342001		CLO4-AQN	1	Sample		
8	Vial 78	1913342002		CLO4-AQN	1	Sample		
9	Vial 79	1913342003		CLO4-AQN	1	Sample		
10	Vial 80	1913342004	10X	CLO4-AQN	1	Sample		
11	Vial 81	1913342005		CLO4-AQN	1	Sample		
12	Vial 82	1913342006	MS	CLO4-AQN	1	Sample		
13	Vial 83	1913342007	SD	CLO4-AQN	1	Sample		
14	Vial 84	1913342008		CLO4-AQN	1	Sample		
15	Vial 85	1913342009		CLO4-AQN	1	Sample		
16	Vial 86	1913345001		CLO4-AQN	1	Sample		
17	Vial 71	653685	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD01.D Sample Name: 653680 CCV@25

Injection Date:	5/21/2019 07:49:32	Seq Line:	1
Sample Name:	653680 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD01.D Sample Name: 653680 CCV@25

Injection Date:	5/21/2019 07:49:32	Seq Line:	1
Sample Name:	653680 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.594	PBA	2407042.7	23.9930	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.612	BBA	714295.0	23.9799	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.618	BBA	305961.9	5.0000	CLO4-89-ISTD

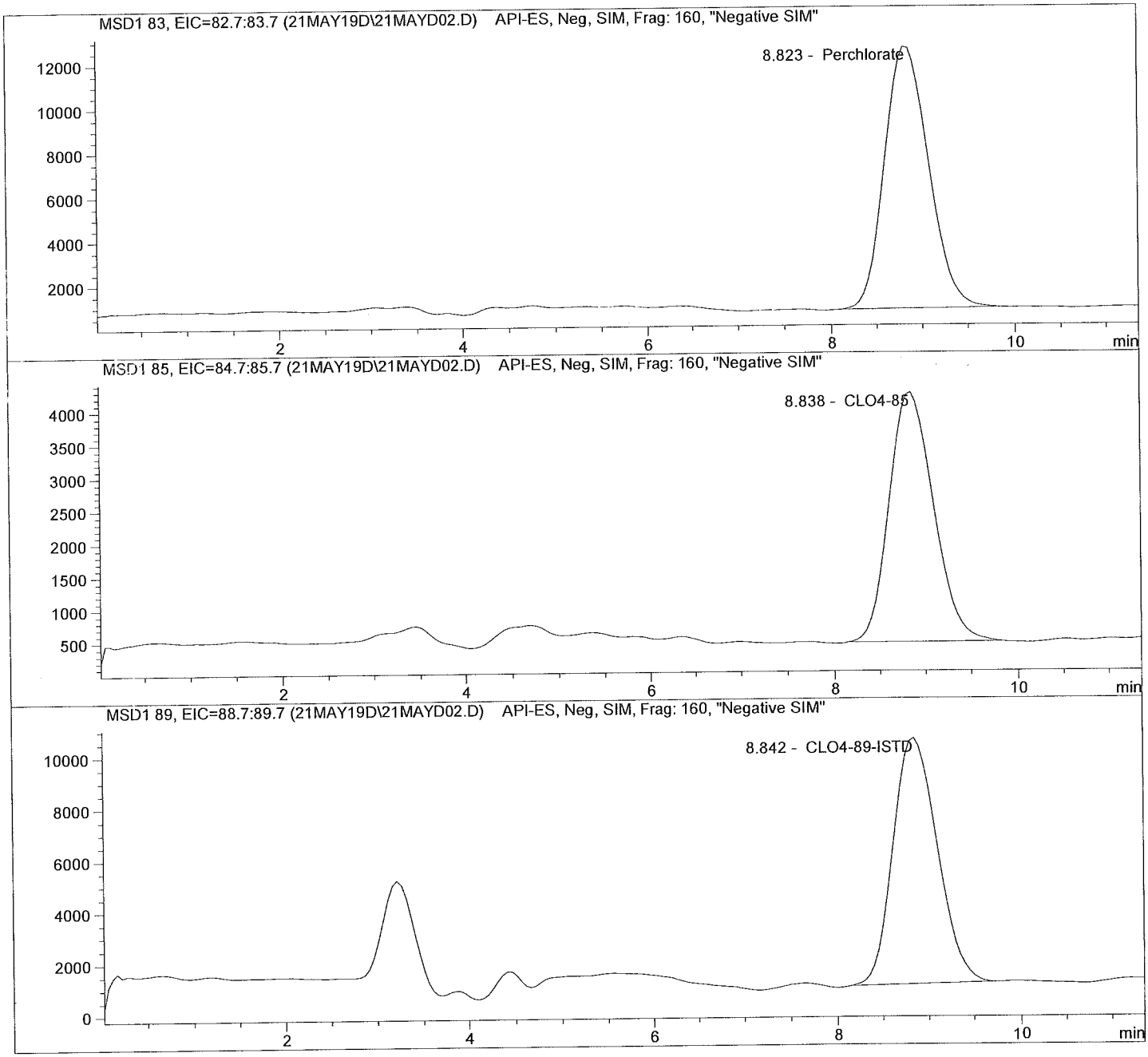
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD02.D Sample Name: 653684 QC@4.0

Injection Date:	5/21/2019 08:02:56	Seq Line:	2
Sample Name:	653684 QC@4.0	Location:	Vial 72
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD02.D Sample Name: 653684 QC@4.0

Injection Date:	5/21/2019 08:02:56	Seq Line:	2
Sample Name:	653684 QC@4.0	Location:	Vial 72
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.823	PBA	396638.7	4.0827	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.838	BBA	127284.0	4.2613	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.842	PBA	319795.5	5.0000	CLO4-89-ISTD

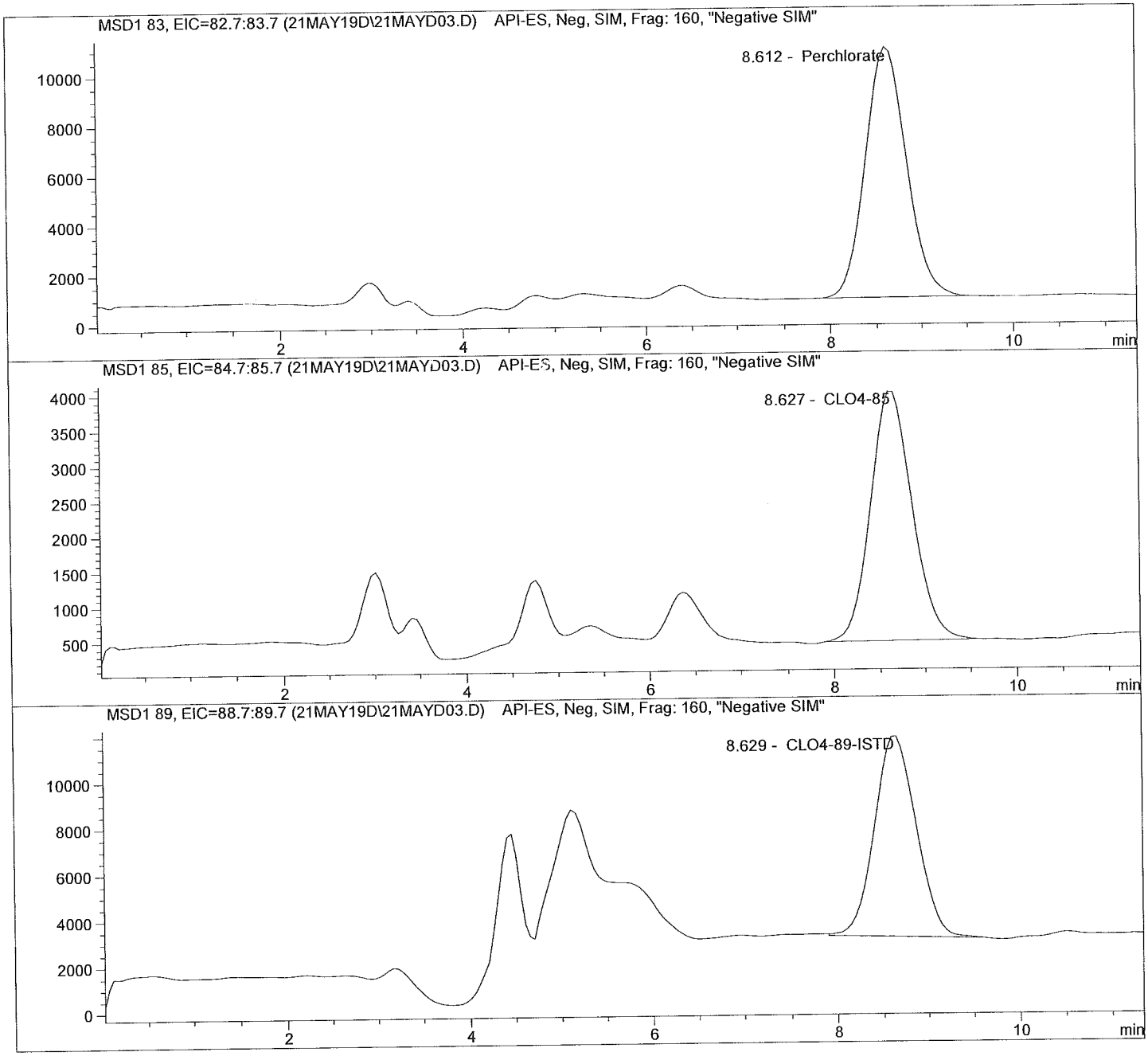
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD03.D Sample Name: 653682 ICS@4.0

Injection Date:	5/21/2019 08:16:19	Seq Line:	3
Sample Name:	653682 ICS@4.0	Location:	Vial 73
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD03.D Sample Name: 653682 ICS@4.0

Injection Date:	5/21/2019 08:16:19	Seq Line:	3
Sample Name:	653682 ICS@4.0	Location:	Vial 73
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.612	PBA	314959.5	3.7442	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.627	PBA	112778.0	4.3408	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.629	BBA	278118.1	5.0000	CLO4-89-ISTD

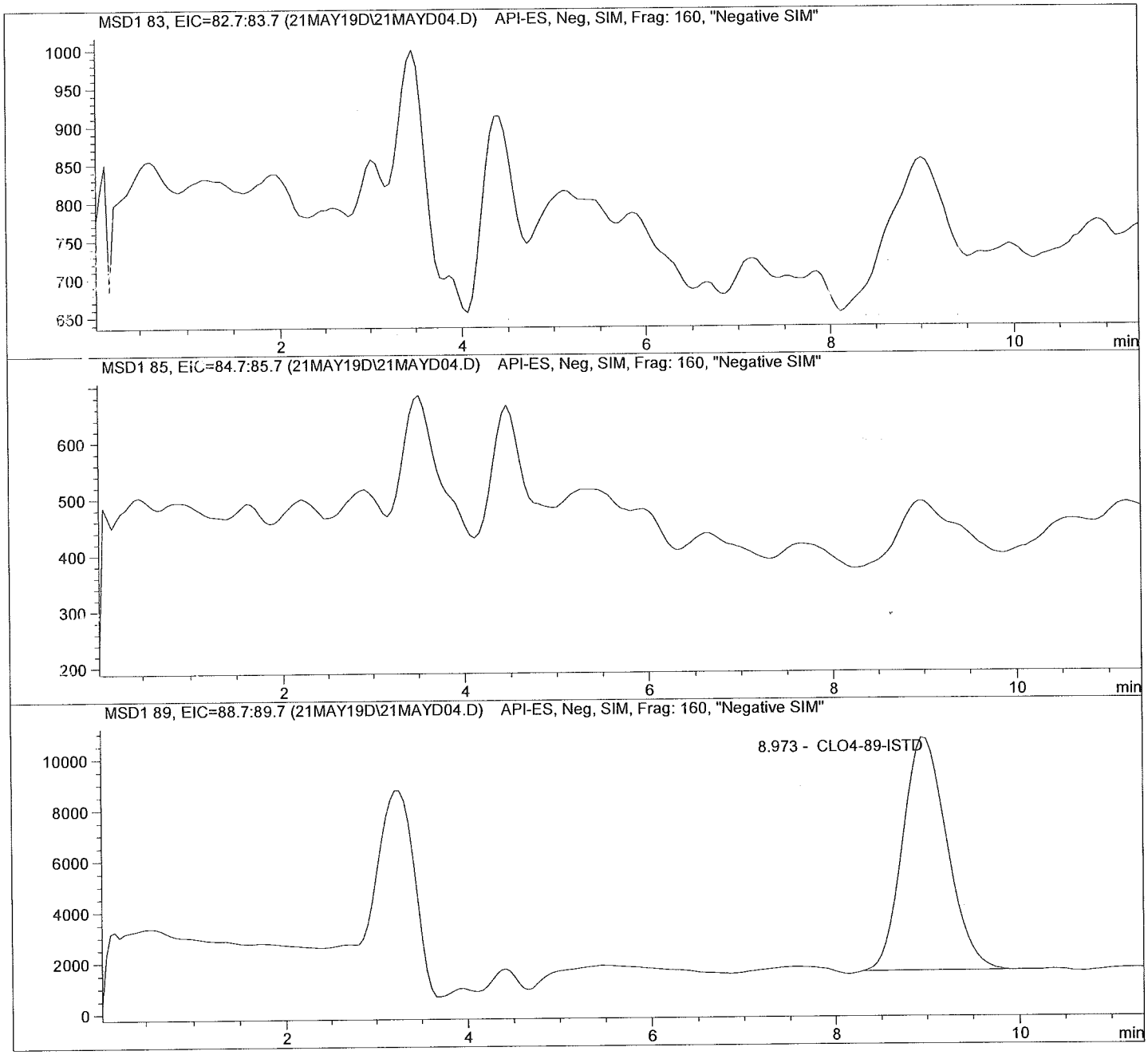
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD04.D Sample Name: 653683 LMB

Injection Date:	5/21/2019 08:29:45	Seq Line:	4
Sample Name:	653683 LMB	Location:	Vial 74
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD04.D Sample Name: 653683 LMB

Injection Date:	5/21/2019 08:29:45	Seq Line:	4
Sample Name:	653683 LMB	Location:	Vial 74
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.973	PBA	307549.9	5.0000	CLO4-89-ISTD

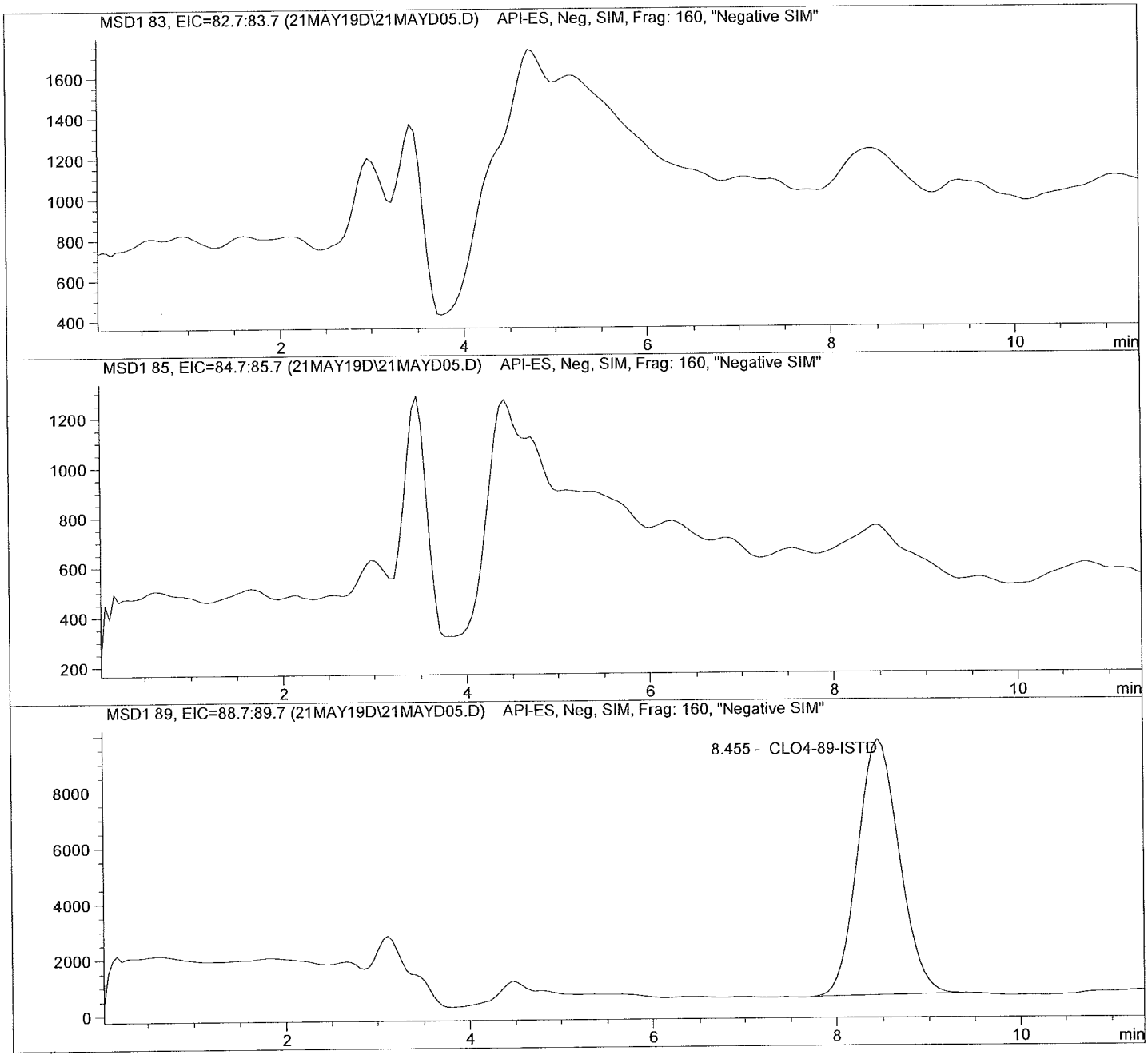
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD05.D Sample Name: 1913332001

Injection Date:	5/21/2019 08:43:07	Seq Line:	5
Sample Name:	1913332001	Location:	Vial 75
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD05.D Sample Name: 1913332001

Injection Date:	5/21/2019 08:43:07	Seq Line:	5
Sample Name:	1913332001	Location:	Vial 75
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.455	PBA	284011.2	5.0000	CLO4-89-ISTD

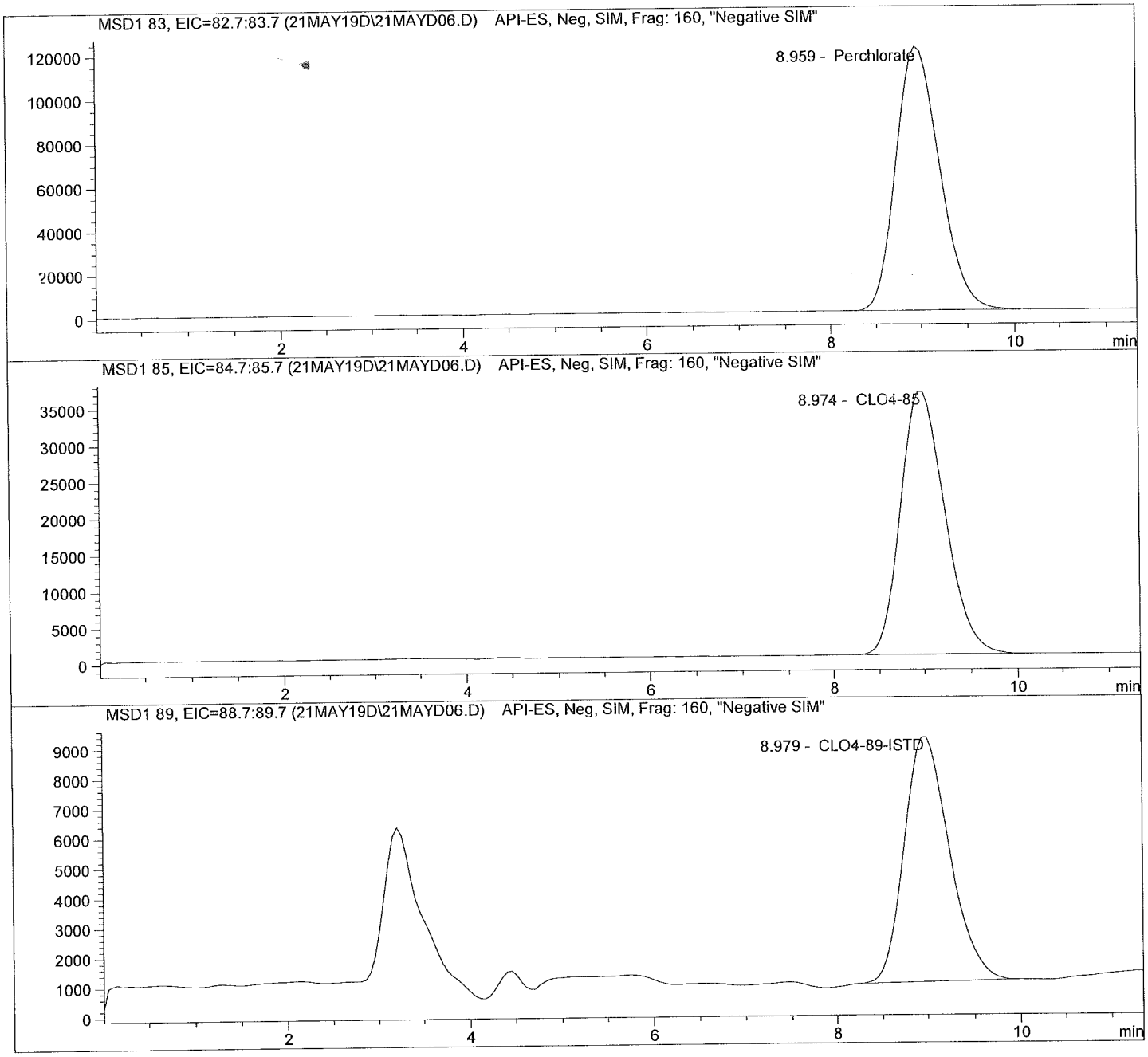
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD06.D Sample Name: 1913338001 100

Injection Date:	5/21/2019 08:56:30	Seq Line:	6
Sample Name:	1913338001 100	Location:	Vial 76
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD06.D Sample Name: 1913338001 100

Injection Date:	5/21/2019 08:56:30	Seq Line:	6
Sample Name:	1913338001 100	Location:	Vial 76
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	100.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.959	PBA	3993682.8	4178.2424	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.974	PBA	1205073.2	4254.4161	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.979	BBA	280005.7	500.0000	CLO4-89-ISTD

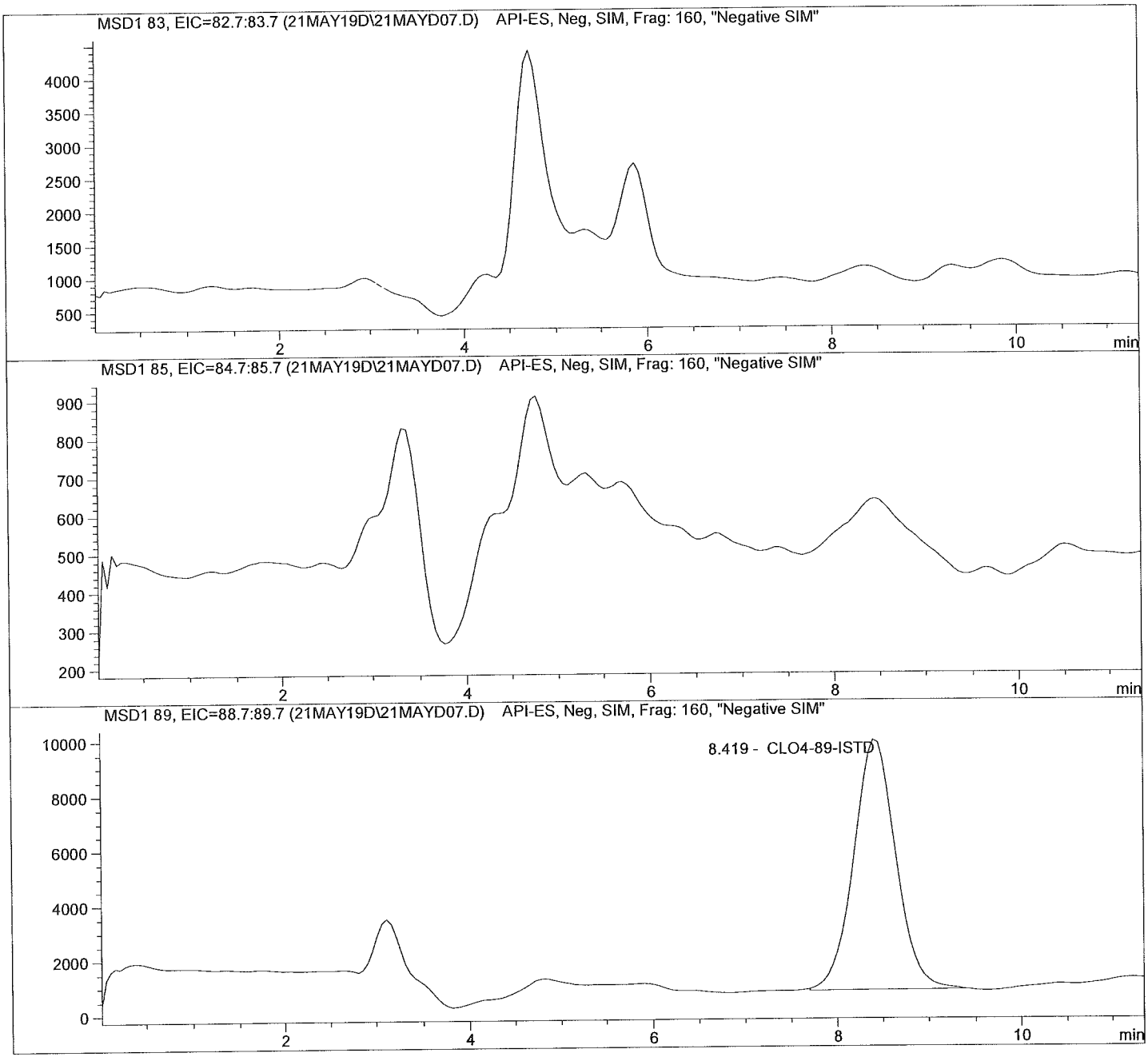
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD07.D Sample Name: 1913342001

Injection Date:	5/21/2019 09:10:03	Seq Line:	7
Sample Name:	1913342001	Location:	Vial 77
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD07.D Sample Name: 1913342001

Injection Date:	5/21/2019 09:10:03	Seq Line:	7
Sample Name:	1913342001	Location:	Vial 77
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.419	BBA	292233.0	5.0000	CLO4-89-ISTD

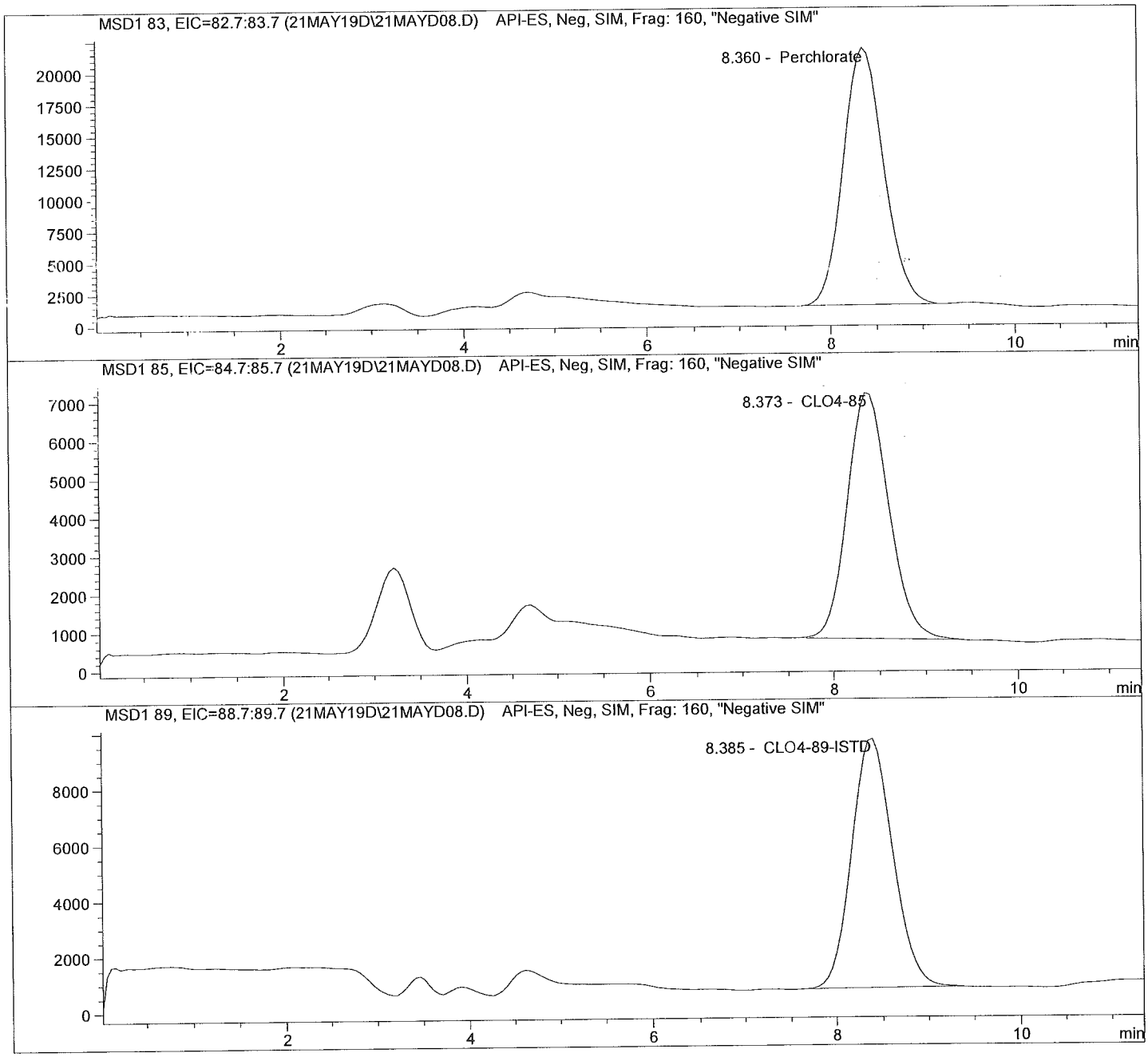
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD08.D Sample Name: 1913342002

Injection Date:	5/21/2019 09:23:25	Seq Line:	8
Sample Name:	1913342002	Location:	Vial 78
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD08.D Sample Name: 1913342002

Injection Date:	5/21/2019 09:23:25	Seq Line:	8
Sample Name:	1913342002	Location:	Vial 78
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.360	PBA	618077.5	7.2126	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.373	BBA	200267.3	7.7327	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.385	PBA	275333.5	5.0000	CLO4-89-ISTD

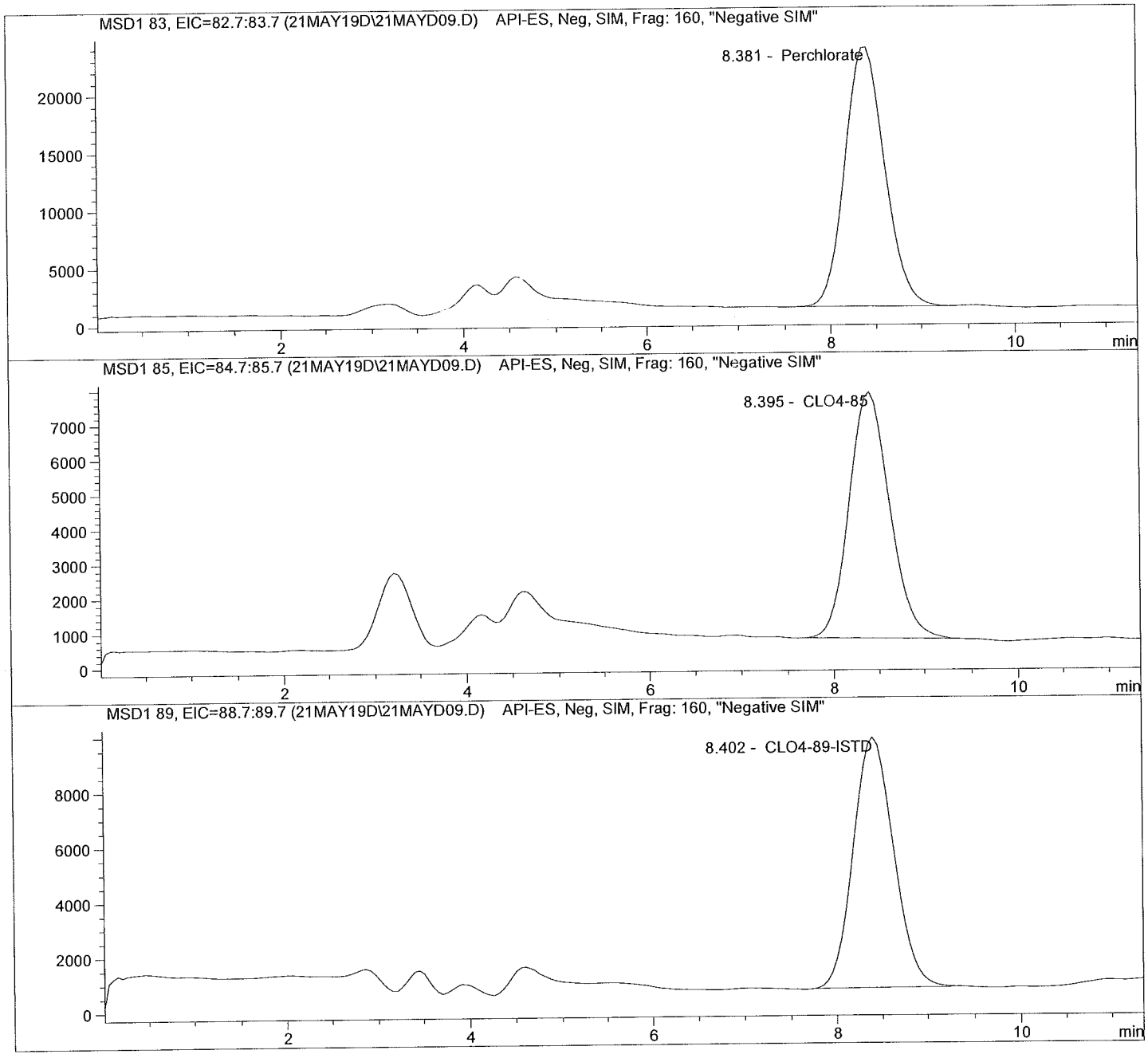
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD09.D Sample Name: 1913342003

Injection Date:	5/21/2019 09:36:53	Seq Line:	9
Sample Name:	1913342003	Location:	Vial 79
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD09.D Sample Name: 1913342003

Injection Date:	5/21/2019 09:36:53	Seq Line:	9
Sample Name:	1913342003	Location:	Vial 79
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.381	PBA	679913.4	7.7657	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.395	PBA	218019.8	8.2536	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.402	PBA	280514.3	5.0000	CLO4-89-ISTD

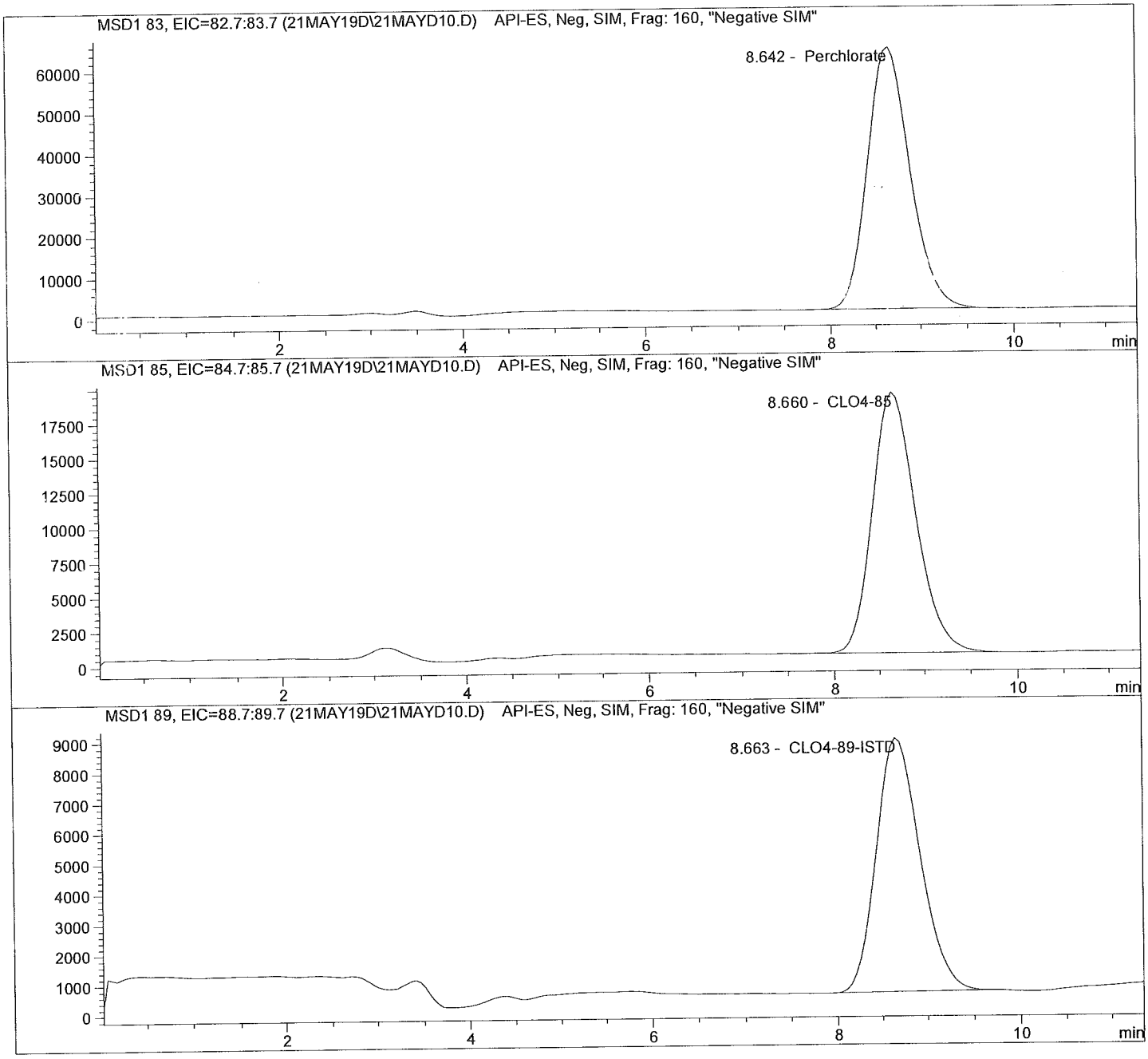
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD10.D Sample Name: 1913342004 10X

Injection Date:	5/21/2019 09:50:15	Seq Line:	10
Sample Name:	1913342004 10X	Location:	Vial 80
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD10.D Sample Name: 1913342004 10X

Injection Date:	5/21/2019 09:50:15	Seq Line:	10
Sample Name:	1913342004 10X	Location:	Vial 80
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.642	BBA	2092939.0	226.5679	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.660	BBA	629787.7	229.3720	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.663	PBA	282645.6	50.0000	CLO4-89-ISTD

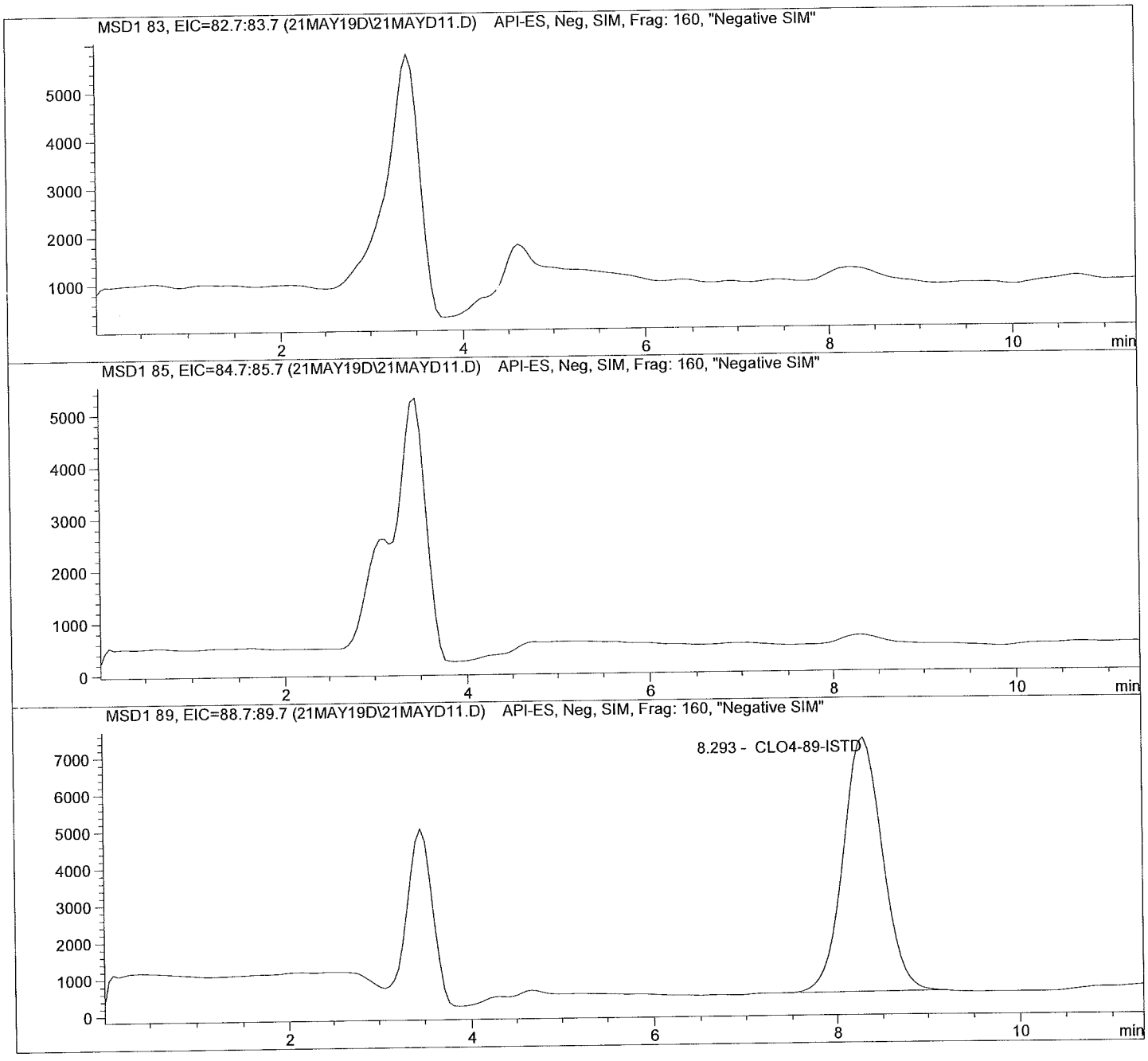
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD11.D Sample Name: 1913342005

Injection Date:	5/21/2019 10:03:44	Seq Line:	11
Sample Name:	1913342005	Location:	Vial 81
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD11.D Sample Name: 1913342005

Injection Date:	5/21/2019 10:03:44	Seq Line:	11
Sample Name:	1913342005	Location:	Vial 81
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.293	BBA	206103.9	5.0000	CLO4-89-ISTD

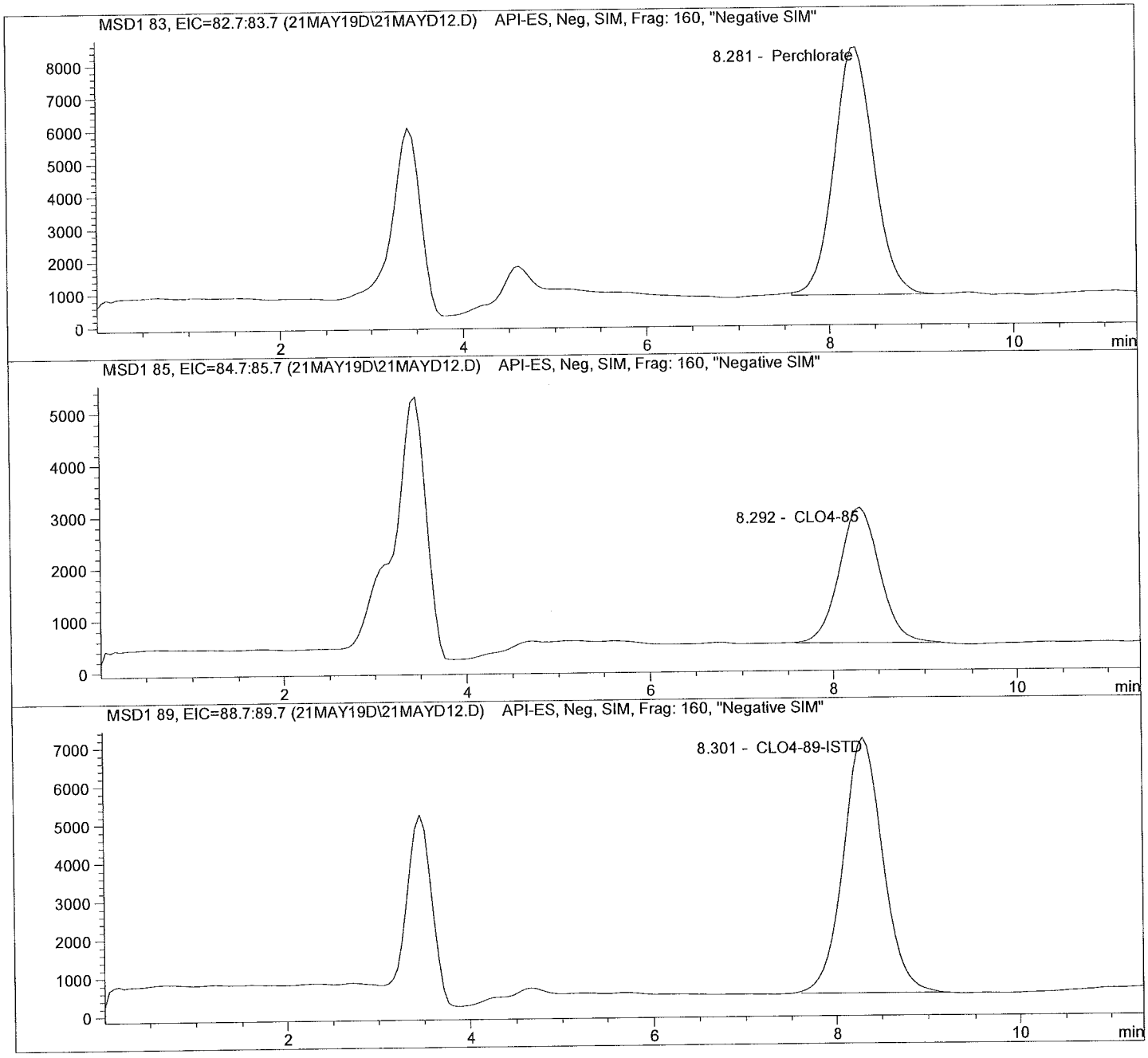
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD12.D Sample Name: 1913342006 MS

Injection Date:	5/21/2019 10:17:04	Seq Line:	12
Sample Name:	1913342006 MS	Location:	Vial 82
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD12.D Sample Name: 1913342006 MS

Injection Date:	5/21/2019 10:17:04	Seq Line:	12
Sample Name:	1913342006 MS	Location:	Vial 82
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.281	BBA	230072.2	3.7779	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.292	BBA	80507.0	4.2826	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.301	BBA	201254.7	5.0000	CLO4-89-ISTD

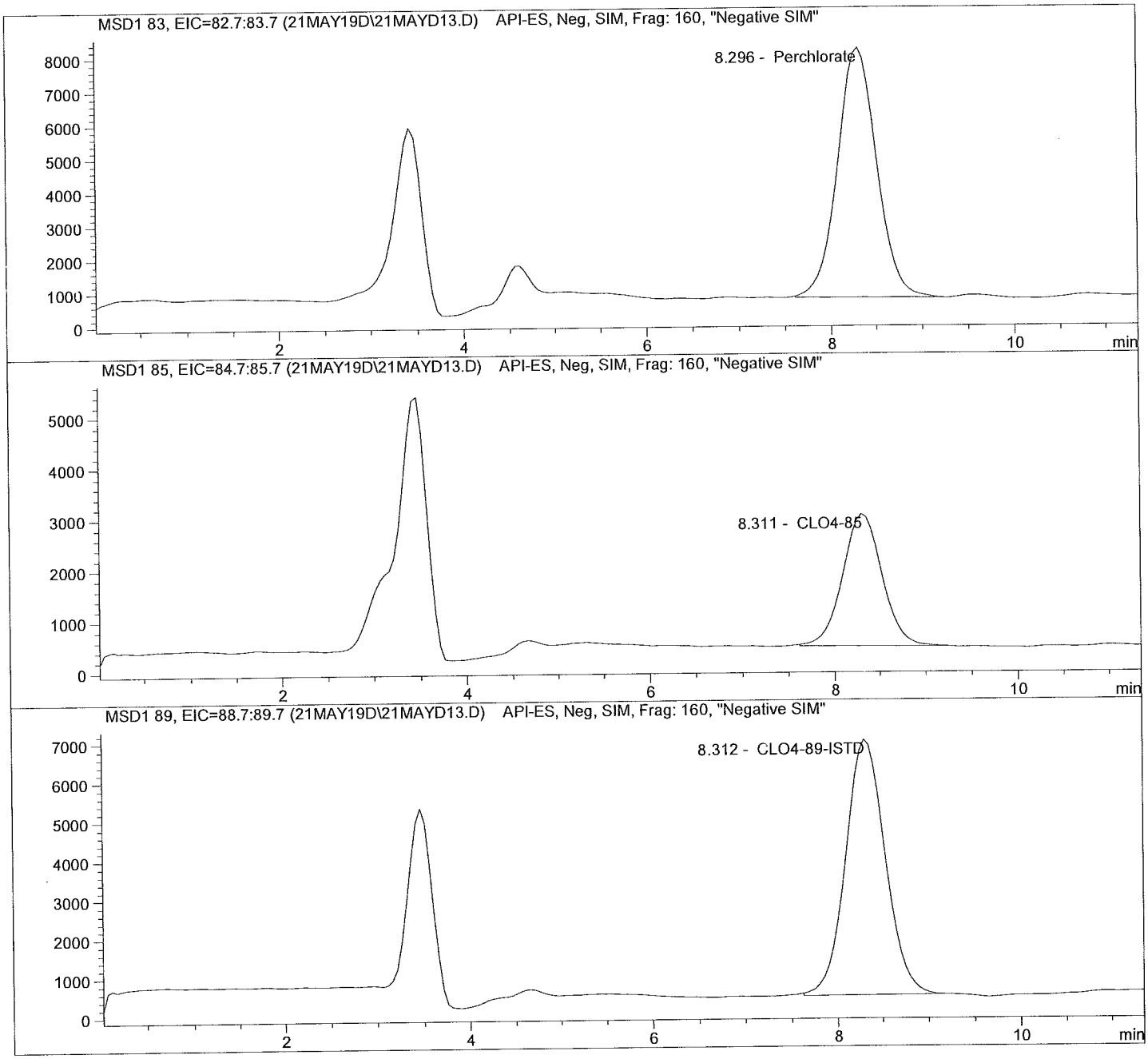
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD13.D Sample Name: 1913342007 SD

Injection Date:	5/21/2019 10:30:27	Seq Line:	13
Sample Name:	1913342007 SD	Location:	Vial 83
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD13.D Sample Name: 1913342007 SD

Injection Date:	5/21/2019 10:30:27	Seq Line:	13
Sample Name:	1913342007 SD	Location:	Vial 83
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.296	BBA	223455.8	3.7214	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.311	BBA	78456.0	4.2299	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.312	BBA	198591.3	5.0000	CLO4-89-ISTD

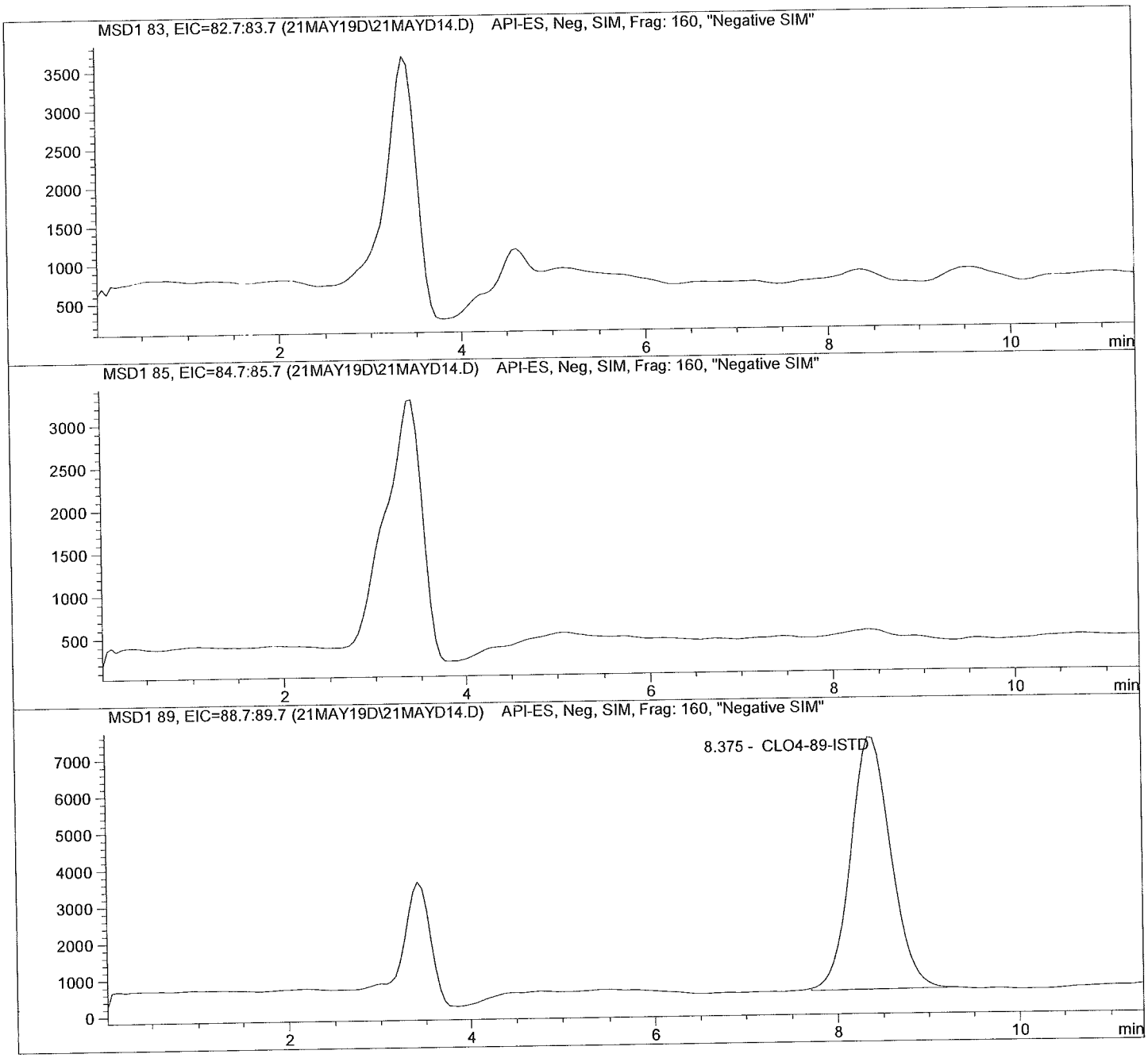
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD14.D Sample Name: 1913342008

Injection Date:	5/21/2019 10:43:48	Seq Line:	14
Sample Name:	1913342008	Location:	Vial 84
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD14.D Sample Name: 1913342008

Injection Date:	5/21/2019 10:43:48	Seq Line:	14
Sample Name:	1913342008	Location:	Vial 84
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.375	BBA	210825.1	5.0000	CLO4-89-ISTD

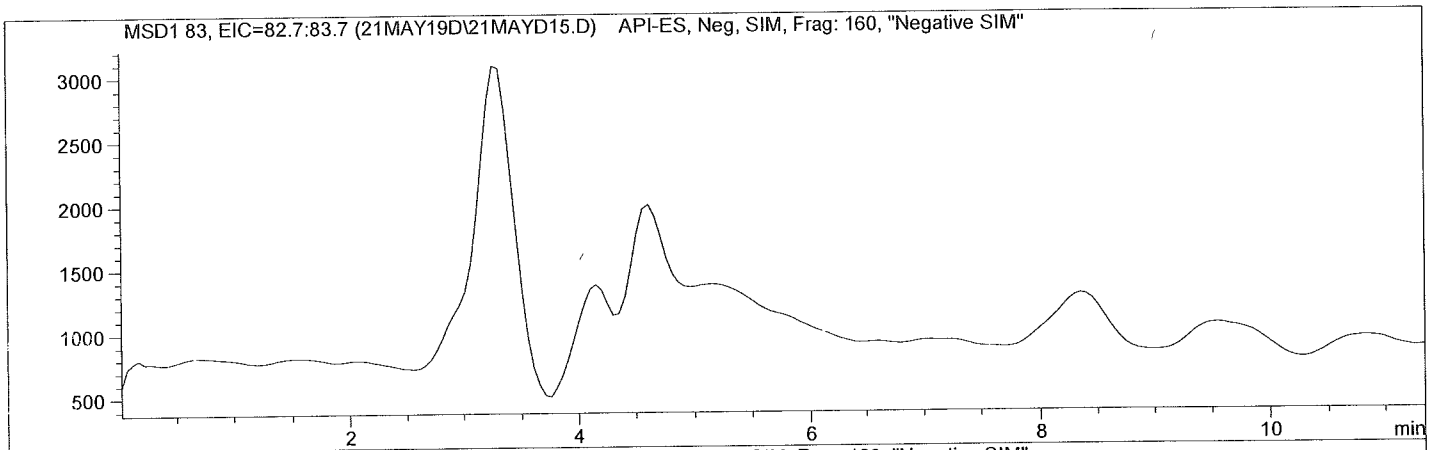
*** End of Report ***

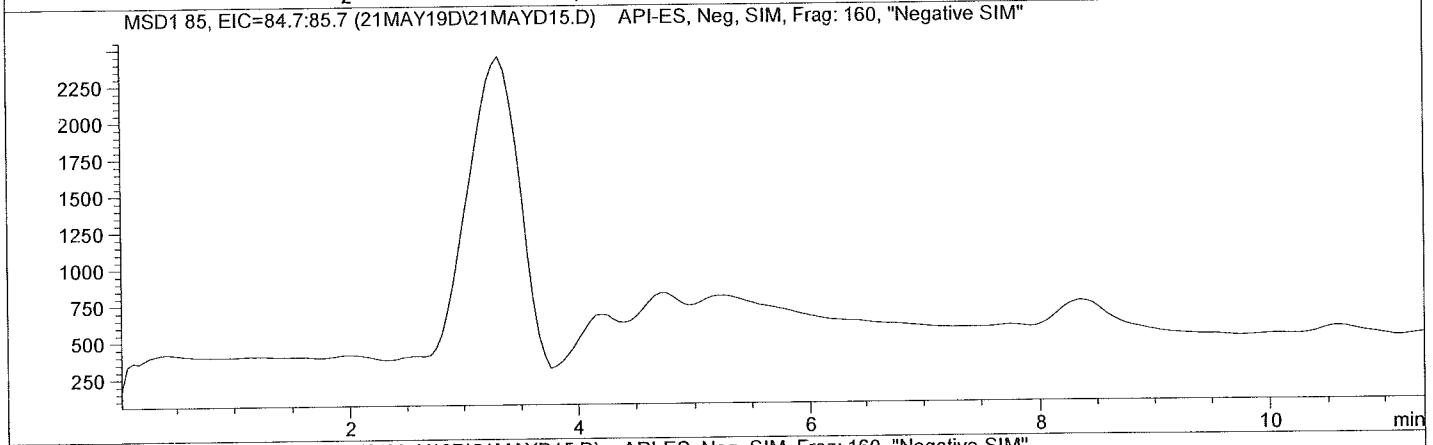
Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD15.D Sample Name: 1913342009

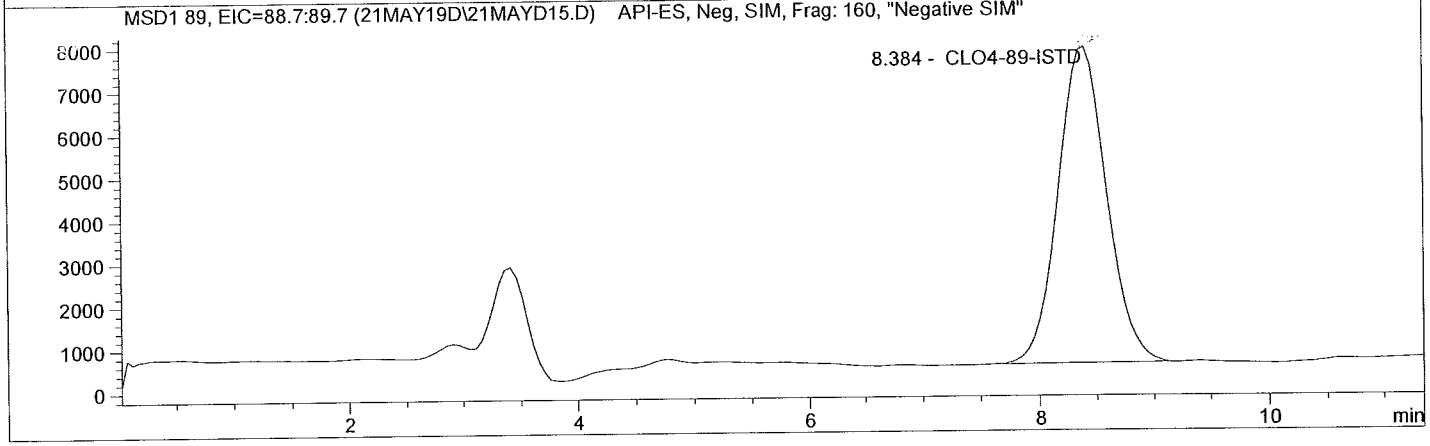
Injection Date:	5/21/2019 10:57:10	Seq Line:	15
Sample Name:	1913342009	Location:	Vial 85
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD15.D Sample Name: 1913342009

Injection Date:	5/21/2019 10:57:10	Seq Line:	15
Sample Name:	1913342009	Location:	Vial 85
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.384	BBA	218072.4	5.0000	CLO4-89-ISTD

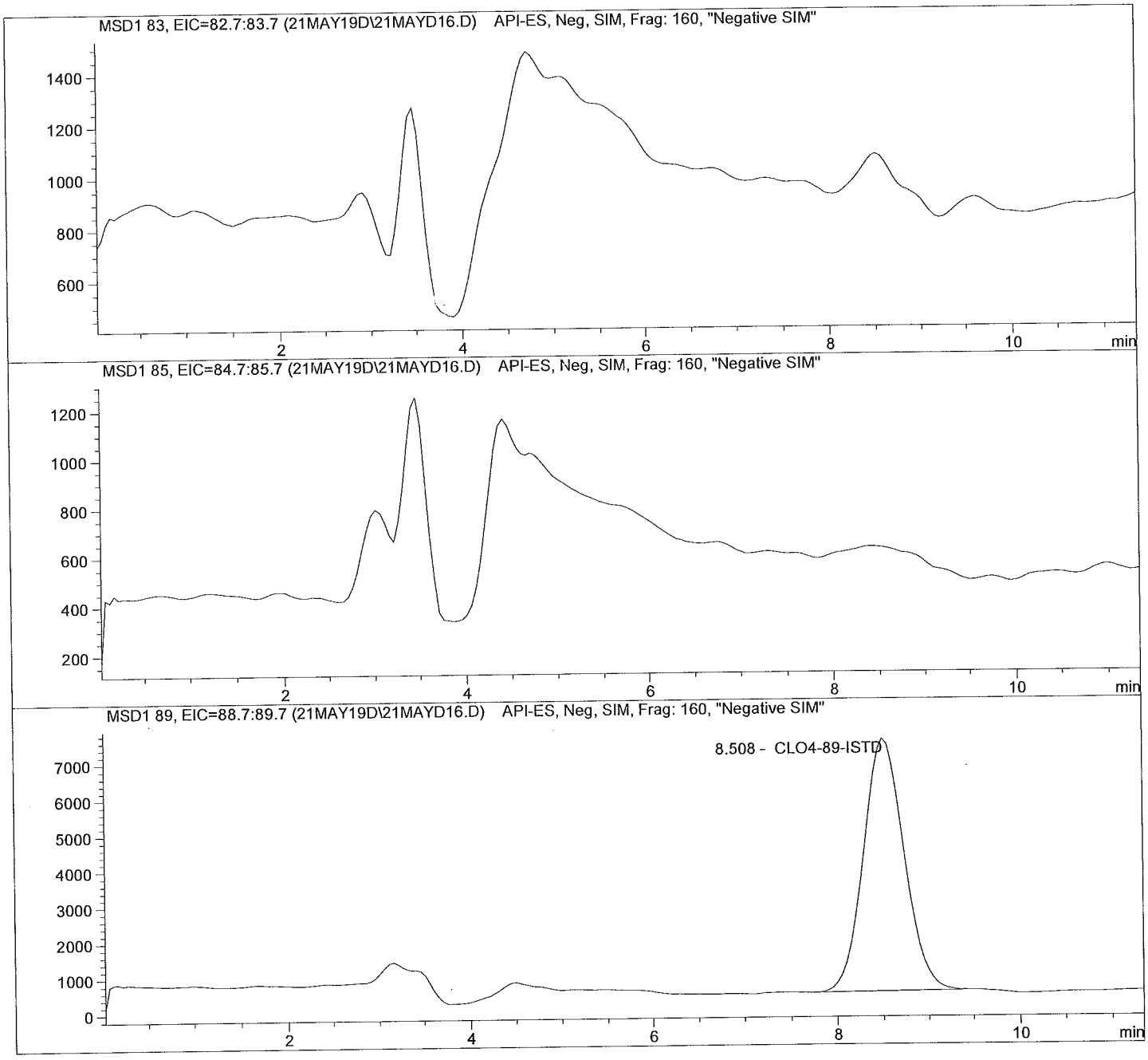
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD16.D Sample Name: 1913345001

Injection Date:	5/21/2019 11:10:33	Seq Line:	16
Sample Name:	1913345001	Location:	Vial 86
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD16.D Sample Name: 1913345001

Injection Date:	5/21/2019 11:10:33	Seq Line:	16
Sample Name:	1913345001	Location:	Vial 86
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.508	PBA	217961.0	5.0000	CLO4-89-ISTD

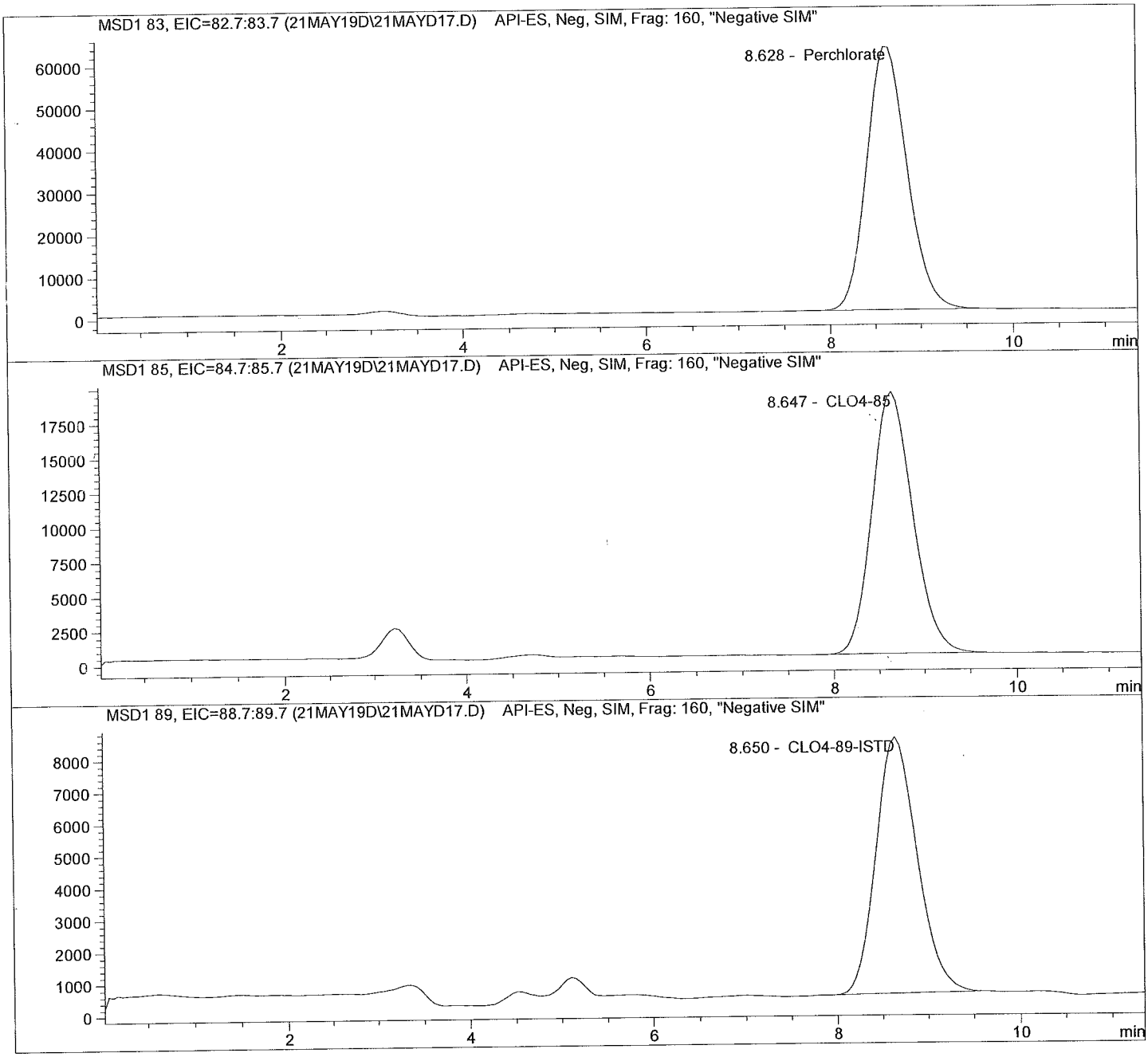
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD17.D Sample Name: 653685 CCV@25

Injection Date:	5/21/2019 11:23:56	Seq Line:	17
Sample Name:	653685 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\21MAY19D\21MAYD17.D Sample Name: 653685 CCV@25

Injection Date:	5/21/2019 11:23:56	Seq Line:	17
Sample Name:	653685 CCV@25	Location:	Vial 71
Acq Operator:	6214	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.628	PBA	1938377.4	23.3659	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.647	PBA	593941.4	24.0719	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.650	PBA	253387.5	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

Method C:\HPCHEM\1\METHODS\CLO4-DP2.M

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

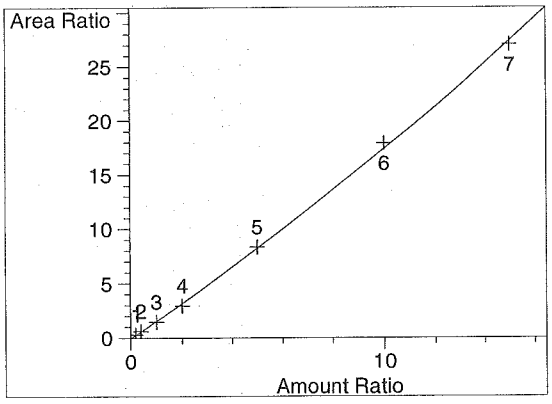
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

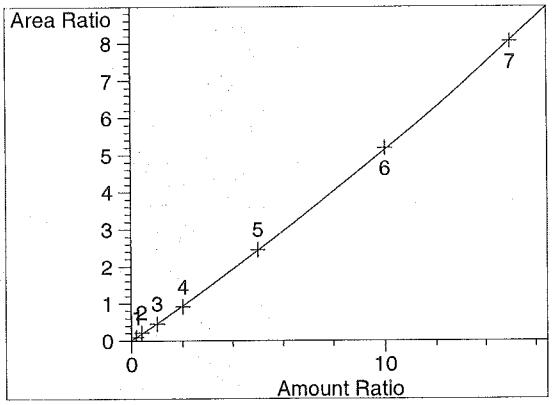
Peak Sum Table

No Entries in table

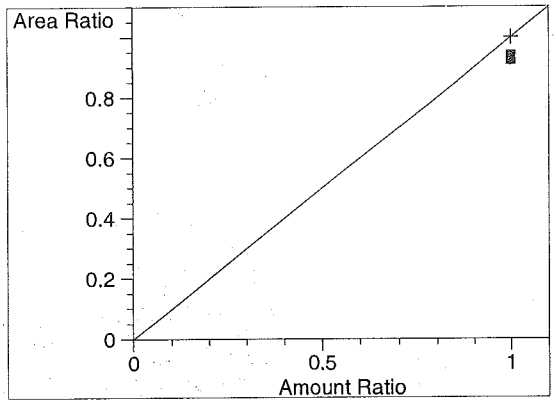
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: y = ax² + bx + c
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: y = ax² + bx + c
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: y = mx + b
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence: C:\HPCHEM\1\SEQUENCE\CLO4\2019\MAR\19MAR19I.S

Sequence Table:

Method and Injection Info Part:

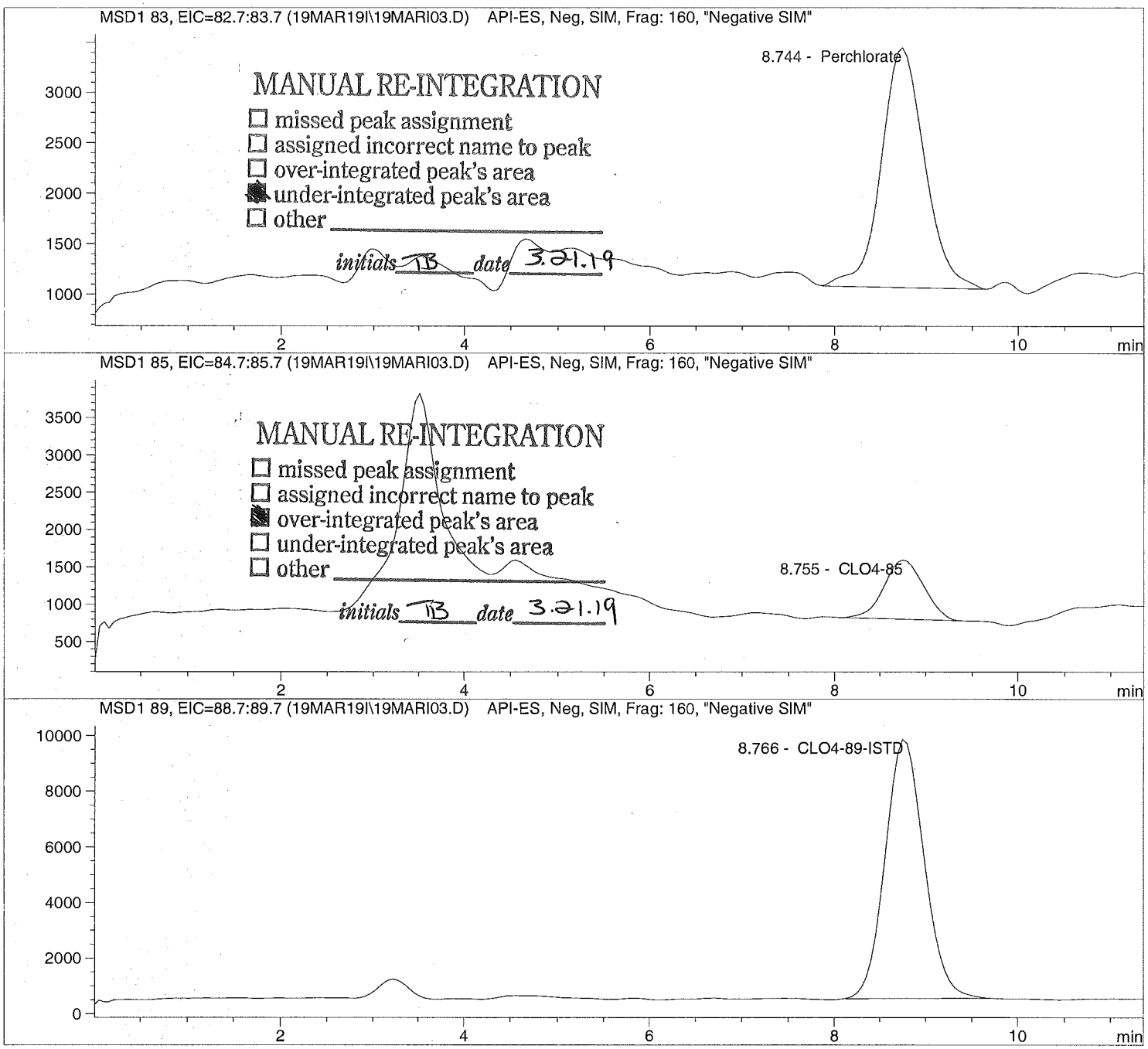
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

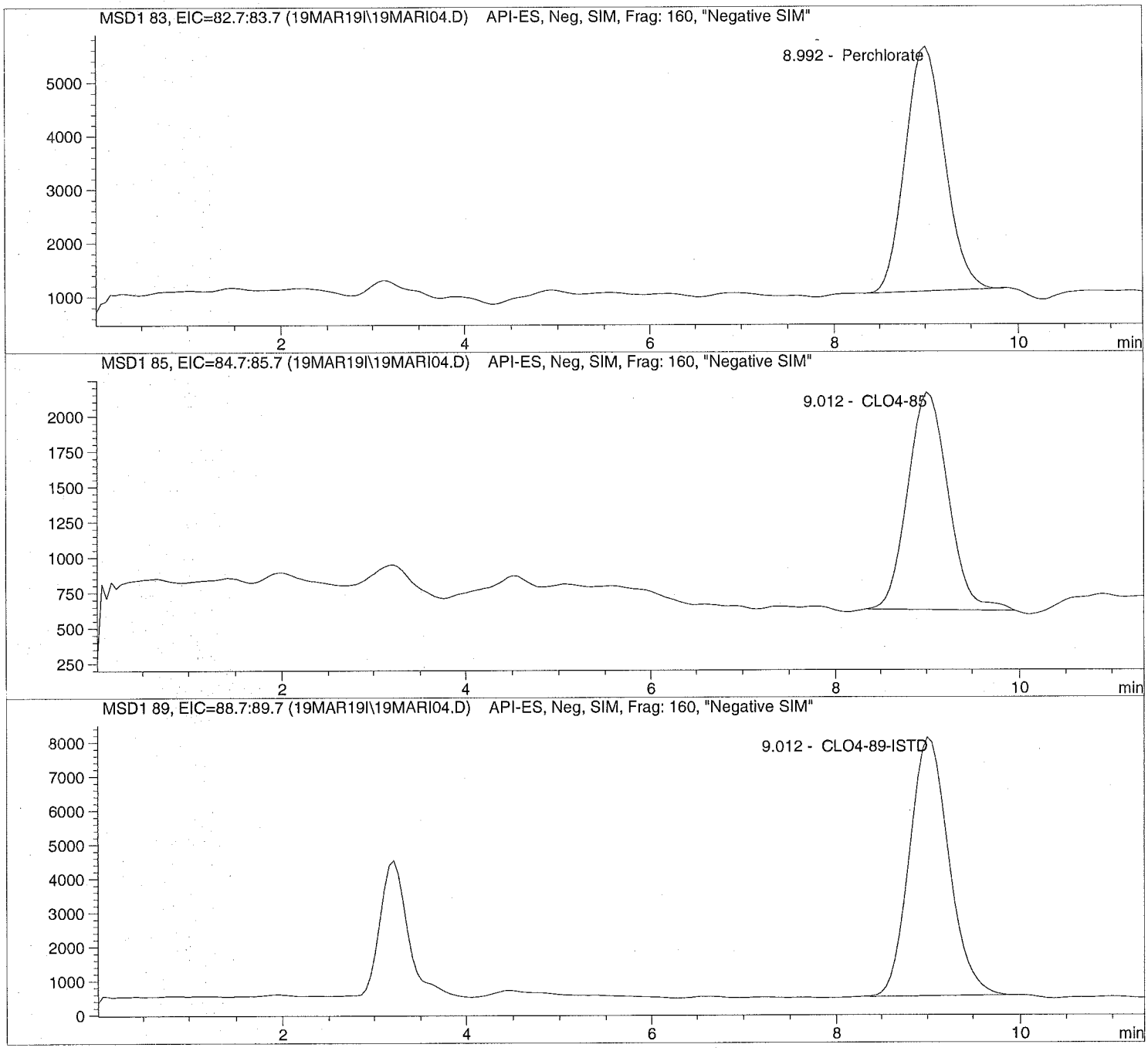
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

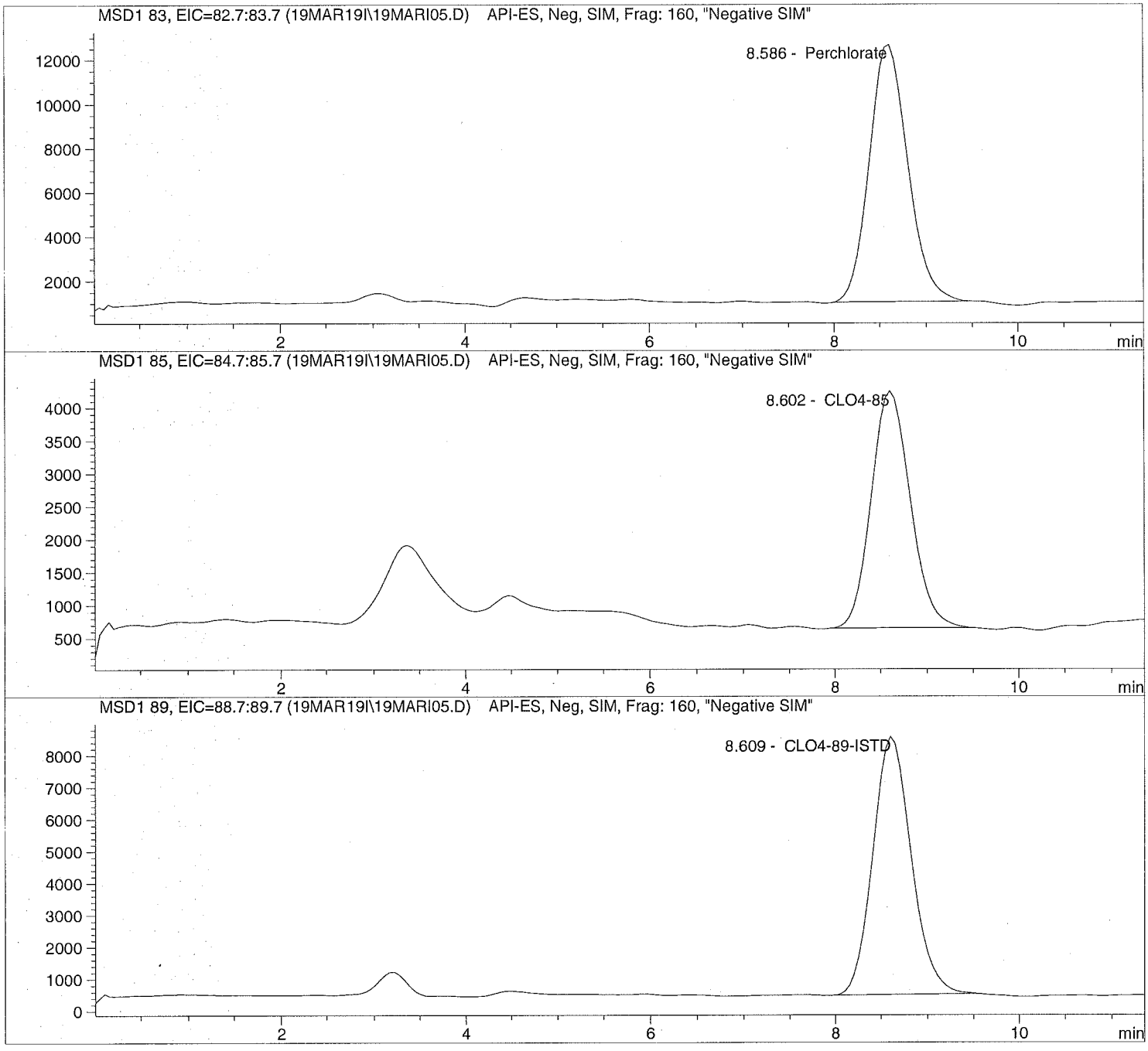
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

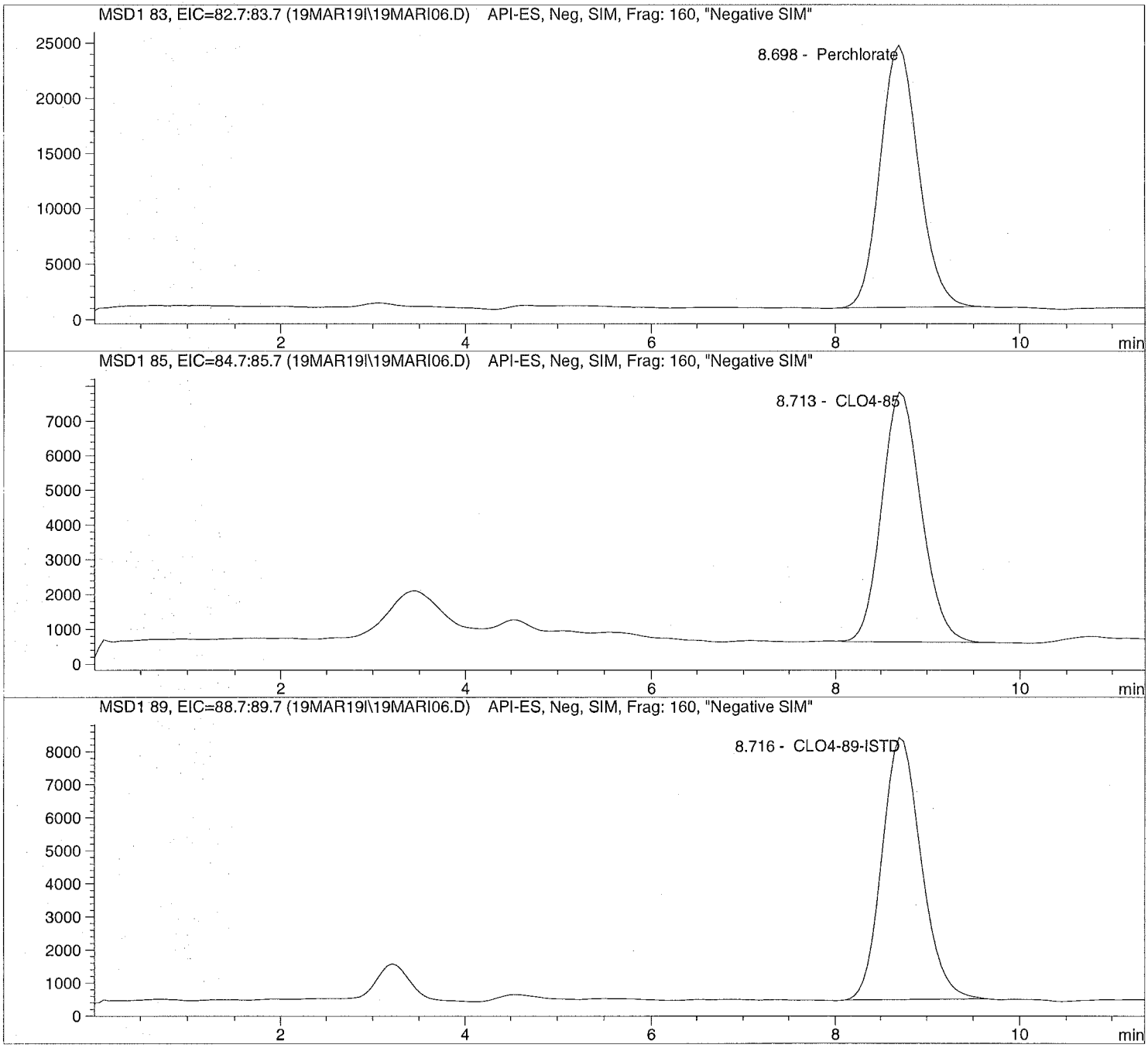
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

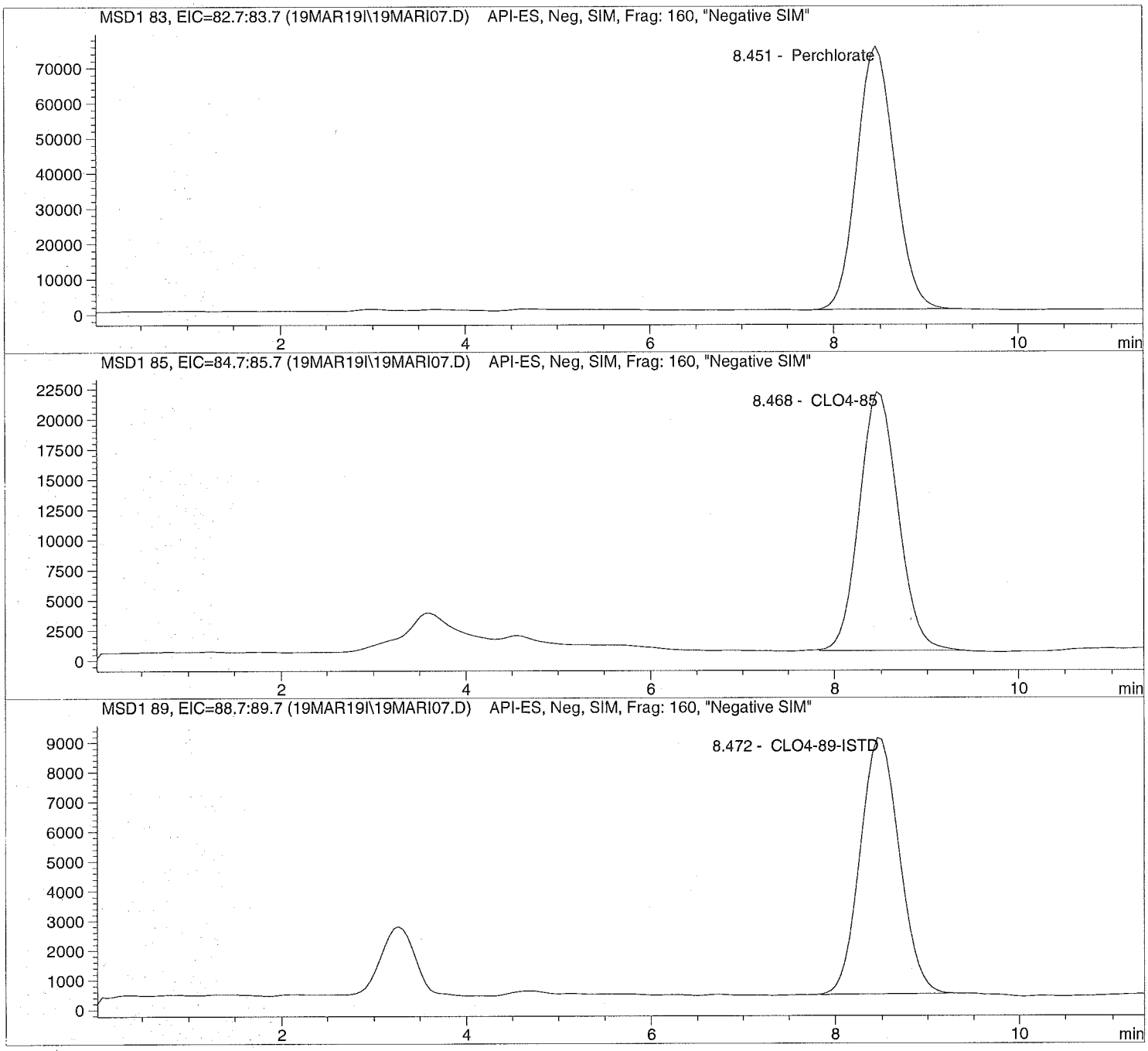
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

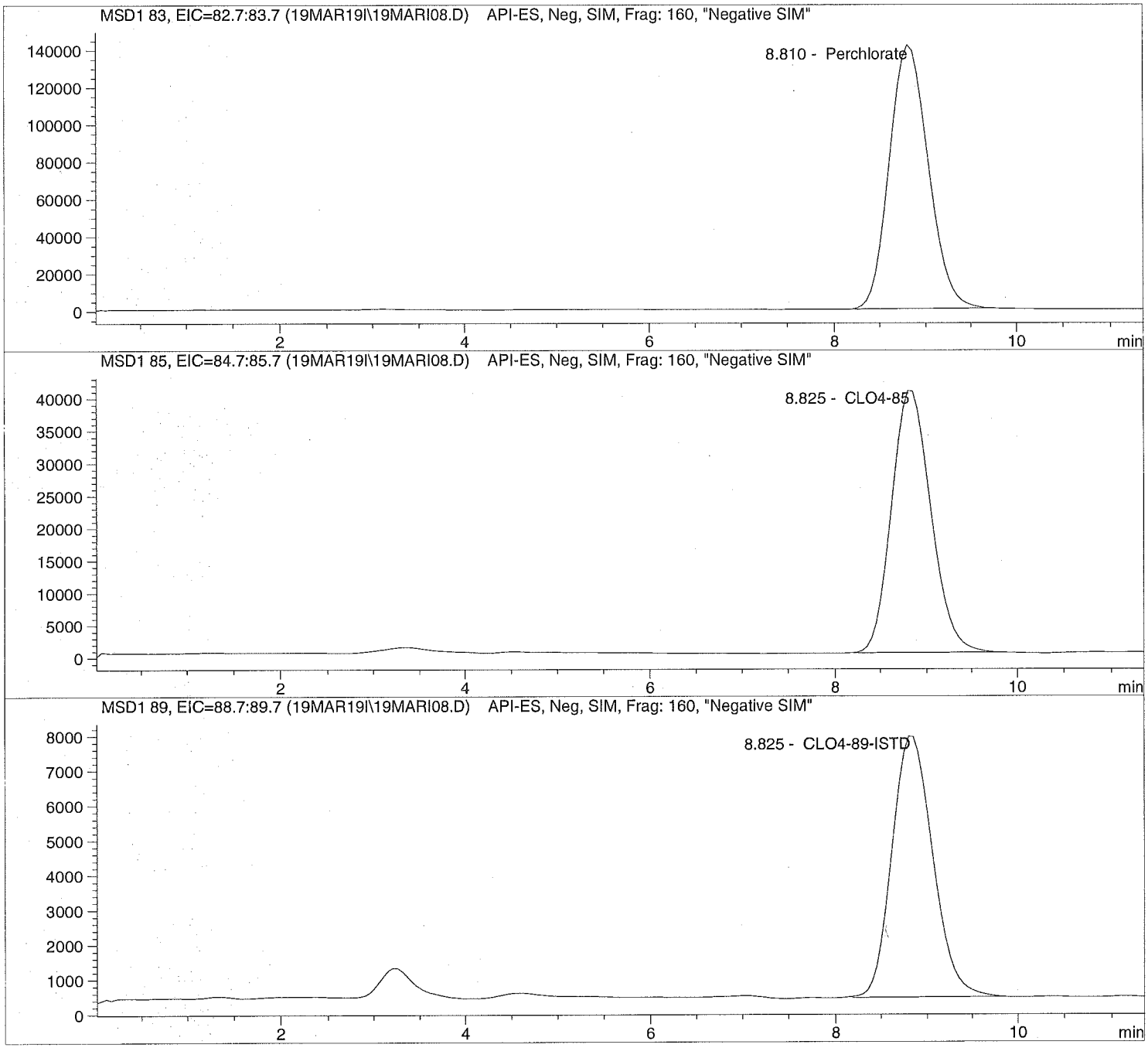
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

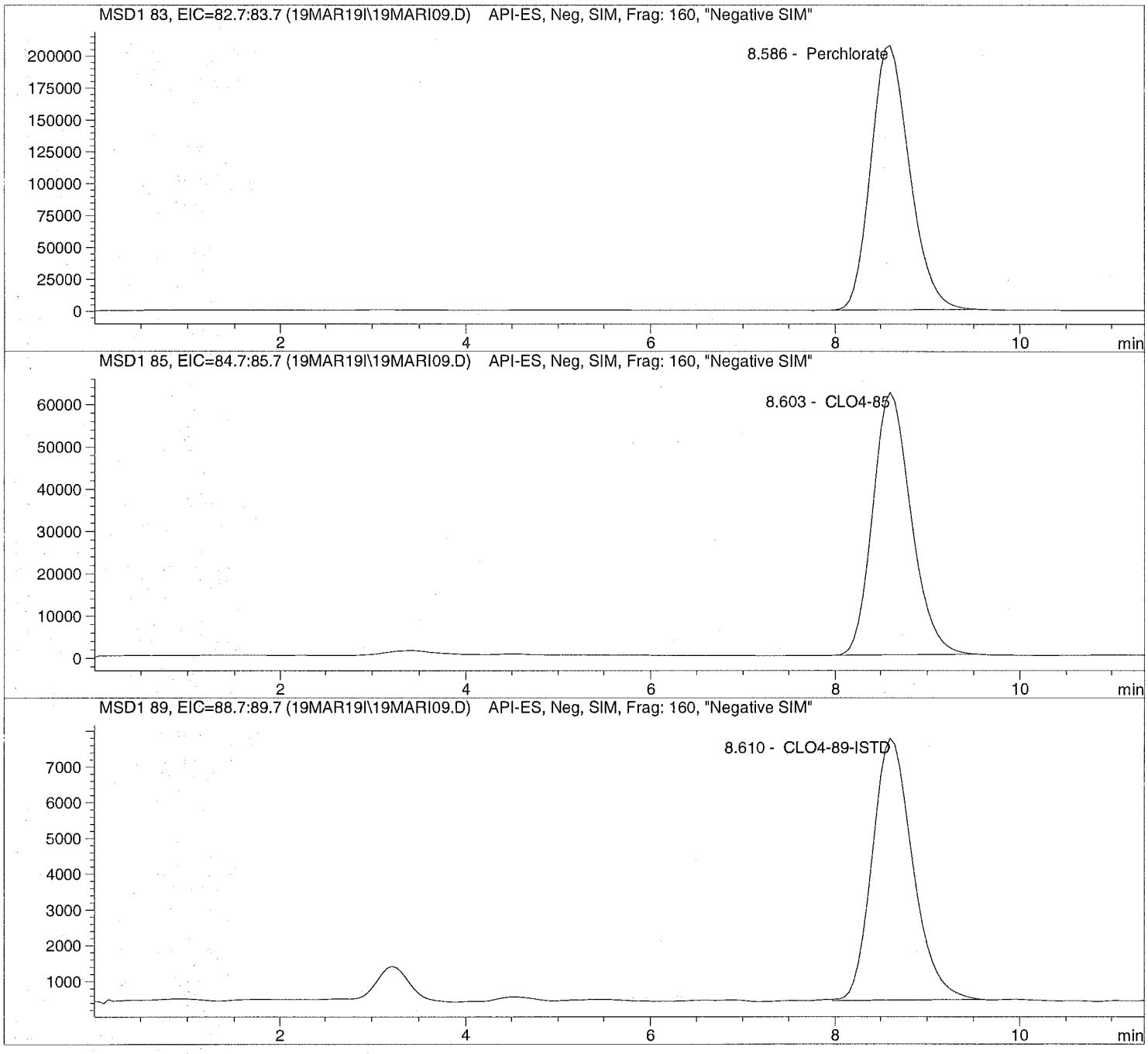
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

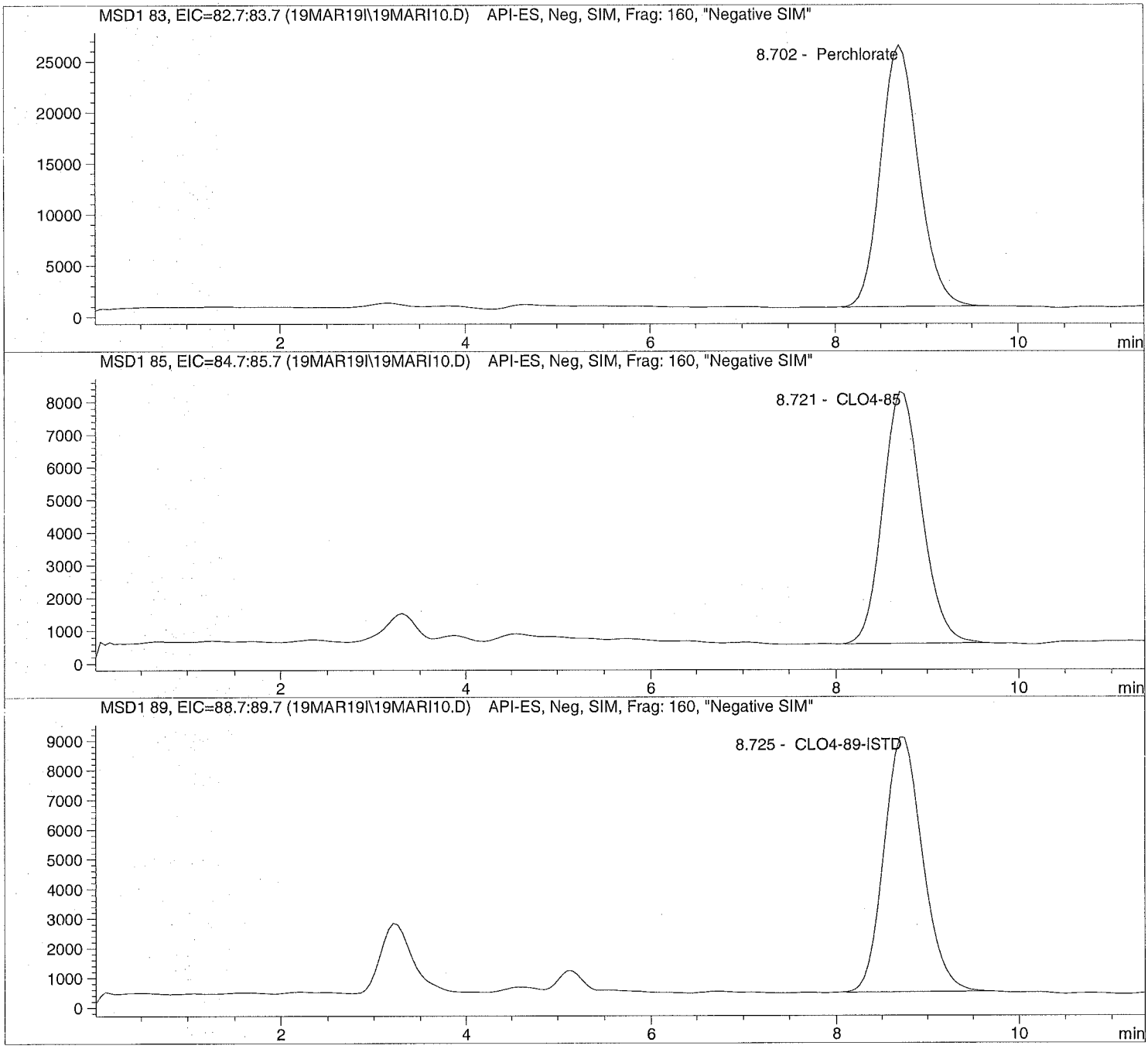
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

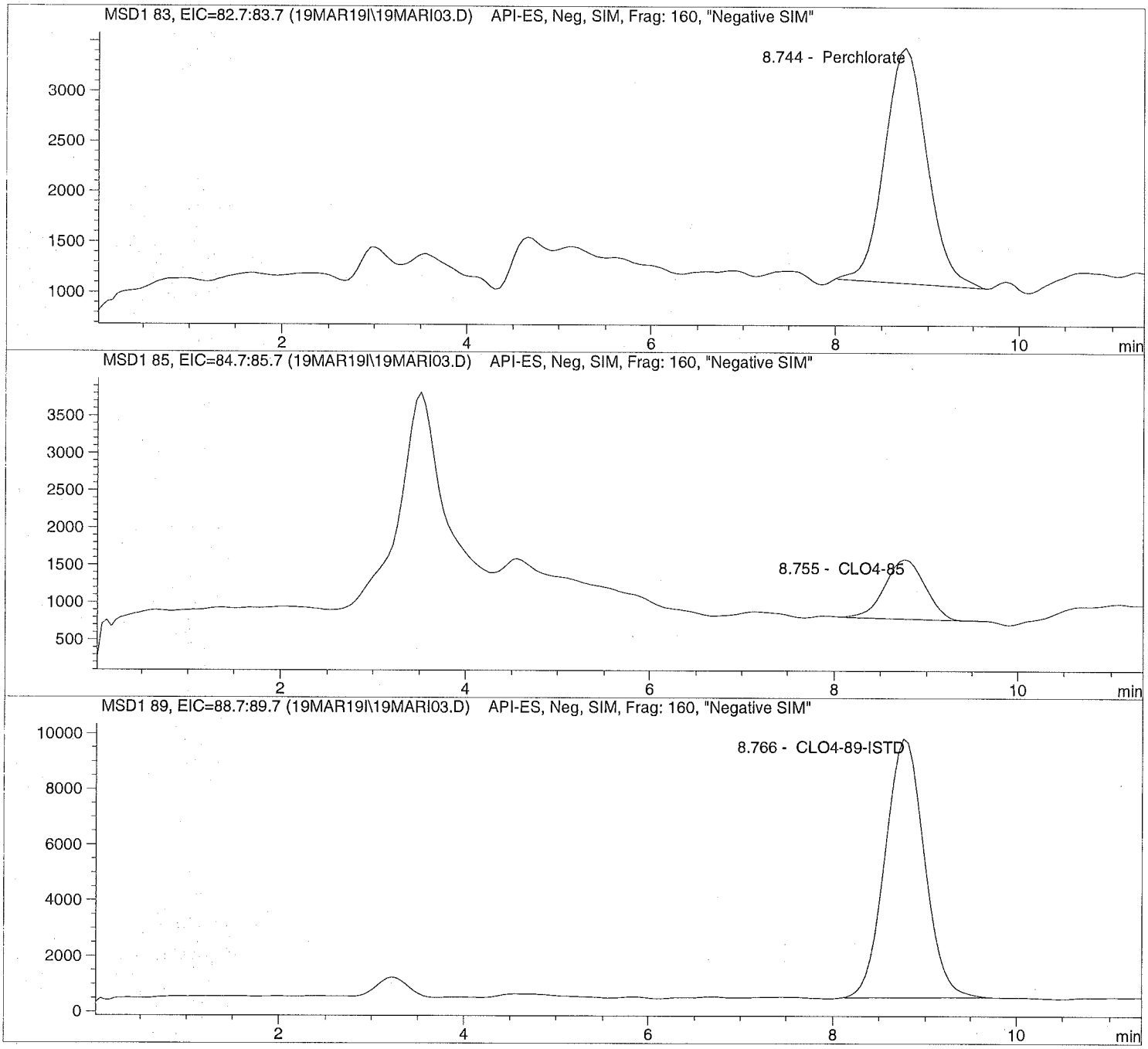
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

May 23, 2019

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

RE: HS19050403

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on May 9, 2019. For your reference, these analyses have been assigned our service request number P1902700.

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 10:58, May 23, 2019

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19050403

Service Request No: P1902700

CASE NARRATIVE

The samples were received intact under chain of custody on May 9, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Carbon Dioxide Analysis

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

The recoveries and relative percent difference for the matrix spike and its duplicate were outside of the DoD control parameters. However all quality control limits were met by the laboratory control sample and its duplicate.

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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19050403

Service Request No: P1902700

The recoveries for the matrix spike and its duplicate were outside of the DoD control parameters. However all quality control limits were met by the laboratory control sample and its duplicate.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

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	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: HS19050403

Service Request: P1902700

Date Received: 5/9/2019
Time Received: 09:17

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW08-190507	P1902700-001	Water	5/7/2019	10:10	X	X
50WW23-190507	P1902700-002	Water	5/7/2019	11:10	X	X

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11276**

SUBCONTRACT TO:

P1902700

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19050403
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19050403-04**	**50WW08-190507**	**Groundwater**	**07 May 2019 10:10**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			16 May 2019
2.	**HS19050403-05**	**50WW23-190507**	**Groundwater**	**07 May 2019 11:10**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			16 May 2019

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

MS/MSD - HS19050403-05

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: MAY 0 8 2019 18:00

Received By: _____ Date/Time: 5/9/19 @ 0917

Cooler ID(s): _____ Temperature(s): 2°C wet ice

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1902700

Project: HS19050403

Sample(s) received on: 5/9/19 Date opened: 5/9/19 by: SANDERSON

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 2° C Thermometer ID T-111 Wet Ice			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Sealing Lid of Cooler 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
P1902700-001.01	40mL VOA NP		6		A	wh 5/13/19
P1902700-001.02	40mL VOA NP				A	
P1902700-001.03	40mL VOA NP				A	
P1902700-001.04	40ml VOA HCL		1		A	mg 5/14/19
P1902700-001.05	40ml VOA HCL				A	
P1902700-001.06	40ml VOA HCL				A	
P1902700-002.01	40mL VOA NP		6		A	wh 5/13/19
P1902700-002.02	40mL VOA NP		6		A	wh 5/13/19
P1902700-002.03	40mL VOA NP		6		A	wh 5/13/19
P1902700-002.04	40mL VOA NP				A	
P1902700-002.05	40mL VOA NP				A	
P1902700-002.06	40mL VOA NP				A	
P1902700-002.07	40mL VOA NP				A	
P1902700-002.08	40mL VOA NP				A	
P1902700-002.09	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: P1902700

Project: HS19050403

Sample(s) received on: 5/9/19 Date opened: 5/9/19 by: SANDERSON

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1902700-002.10	40ml VOA HCL		1		A	mg 5/14/19
P1902700-002.11	40ml VOA HCL		1		A	mg 5/14/19
P1902700-002.12	40ml VOA HCL		1		A	mg 5/14/19
P1902700-002.13	40ml VOA HCL				A	
P1902700-002.14	40ml VOA HCL				A	
P1902700-002.15	40ml VOA HCL				A	
P1902700-002.16	40ml VOA HCL				A	
P1902700-002.17	40ml VOA HCL				A	
P1902700-002.18	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19050403** ALS Project ID: P1902700

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 5/7/19
Date Received: 5/9/19
Date Analyzed: 5/13/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW08-190507	P1902700-001	0.050	**490,000**	2,000	1,700	740	
50WW23-190507	P1902700-002	0.050	**460,000**	2,000	1,700	740	
Method Control Sample	P190513-MB	0.10	860	1,000	860	370	**U**

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1902700
Client Project ID: **HS19050403** ALS Sample ID: P190513-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 5/13/19
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	19,300	20,200	**84**	**88**	80-122	5	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

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW23-190507**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P1902700-002MS
P1902700-002DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/7/19
Date Received: 5/9/19
Date Analyzed: 5/13/19
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	457,000	535,000	580,000	**170**	**269**	80-122	45	30	**N, R**

N = The matrix spike sample recovery is not within control limits. See case narrative.
R = Duplicate precision not met.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW08-190507**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P1902700-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/7/19
Date Received: 5/9/19
Date Analyzed: 5/14/19
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	**1.2**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW23-190507**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P1902700-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/7/19
Date Received: 5/9/19
Date Analyzed: 5/14/19
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P190514-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/14/19
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P190514-LCS
P190514-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: 5/14/19
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	2.50	2.17	2.10	**87**	**84**	73-125	4	26	
74-85-1	Ethene	4.37	4.02	4.38	**92**	**100**	72-133	8	11	
74-84-0	Ethane	4.69	4.26	4.60	**91**	**98**	74-131	7	10	

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

ALS ENVIRONMENTAL

MATRIX SPIKE / DUPLICATE MATRIX SPIKE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **50WW23-190507**
Client Project ID: **HS19050403**

ALS Project ID: P1902700
ALS Sample ID: P1902700-002MS
P1902700-002DMS

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/7/19
Date Received: 5/9/19
Date Analyzed: 5/14/19
Volume(s) Analyzed: 0.10 ml(s)

CAS #	Compound	Spike Amount MS / DMS µg/L	Sample Amount µg/L	Result MS µg/L	Result DMS µg/L	% Recovery MS	% Recovery DMS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
74-82-8	Methane	2.52	ND	1.53	1.50	**61**	**60**	73-125	2	30	**N**
74-85-1	Ethene	4.40	ND	2.68	2.68	**61**	**61**	72-133	0	30	**N**
74-84-0	Ethane	4.72	ND	2.85	2.82	**60**	**60**	74-131	0	30	**N**

N = The matrix spike recovery is not within control limits. See case narrative.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:17:18
Operator : WH
Sample : P1902700-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:50:40 2019
Quant Method : J:\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 :

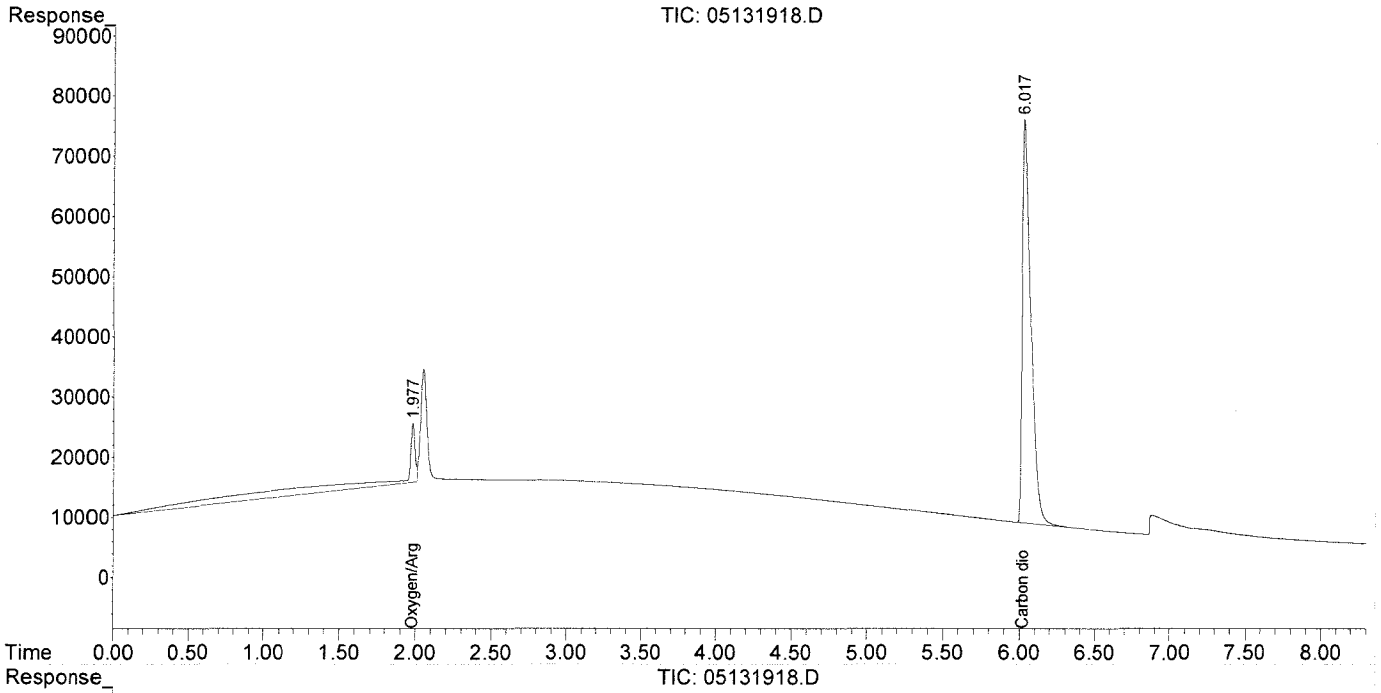
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.978f	1160178	0.244	ppm
2)	Carbon monoxide	1.978f	1160178	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.019	2616318	11146.111	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

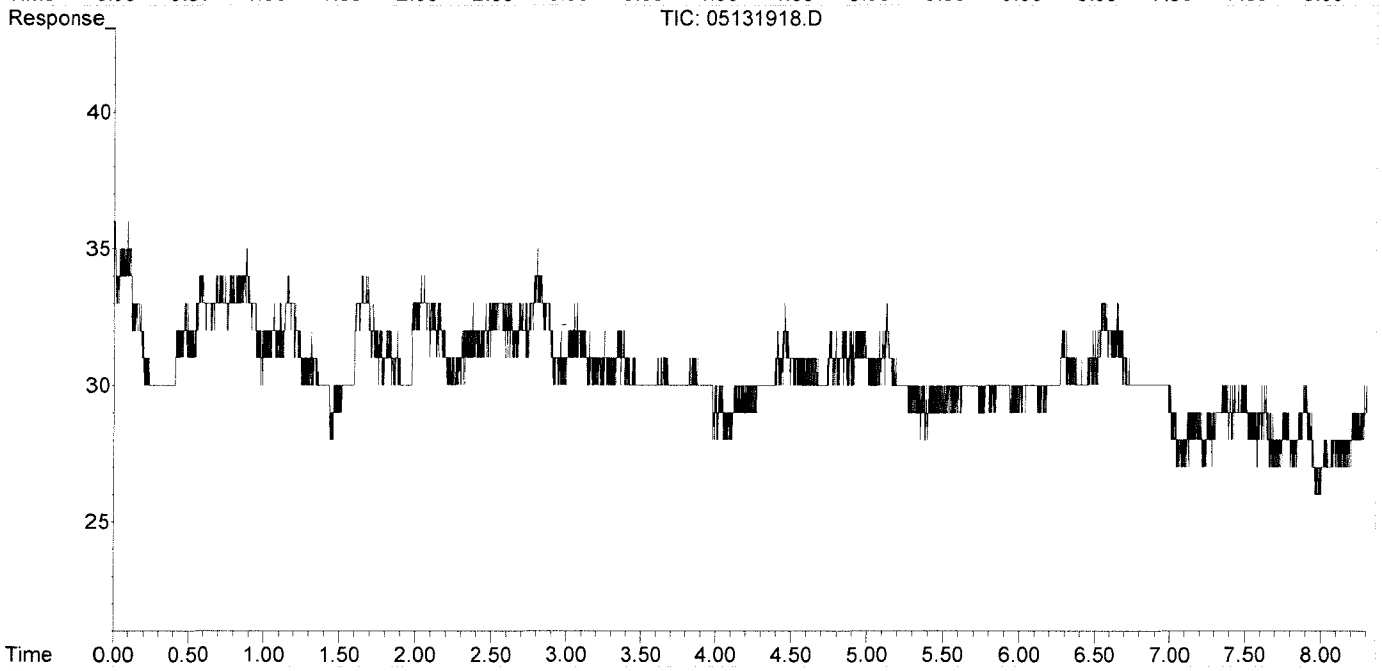
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131918.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:17:18
Operator : WH
Sample : P1902700-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:50:40 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:28:07
Operator : WH
Sample : P1902700-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:51:23 2019
Quant Method : J:\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 :

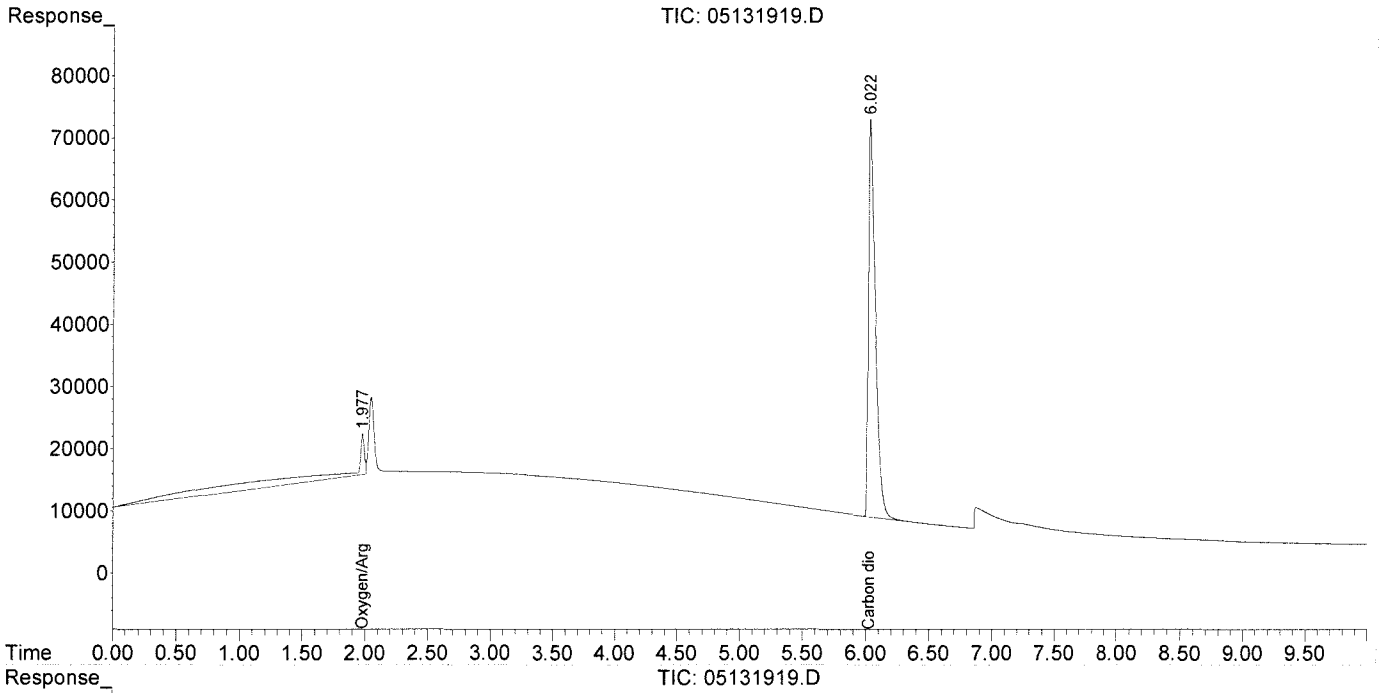
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.978f	1091187	0.229	ppm
2)	Carbon monoxide	1.978f	1091187	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.023	2458815	10475.112	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

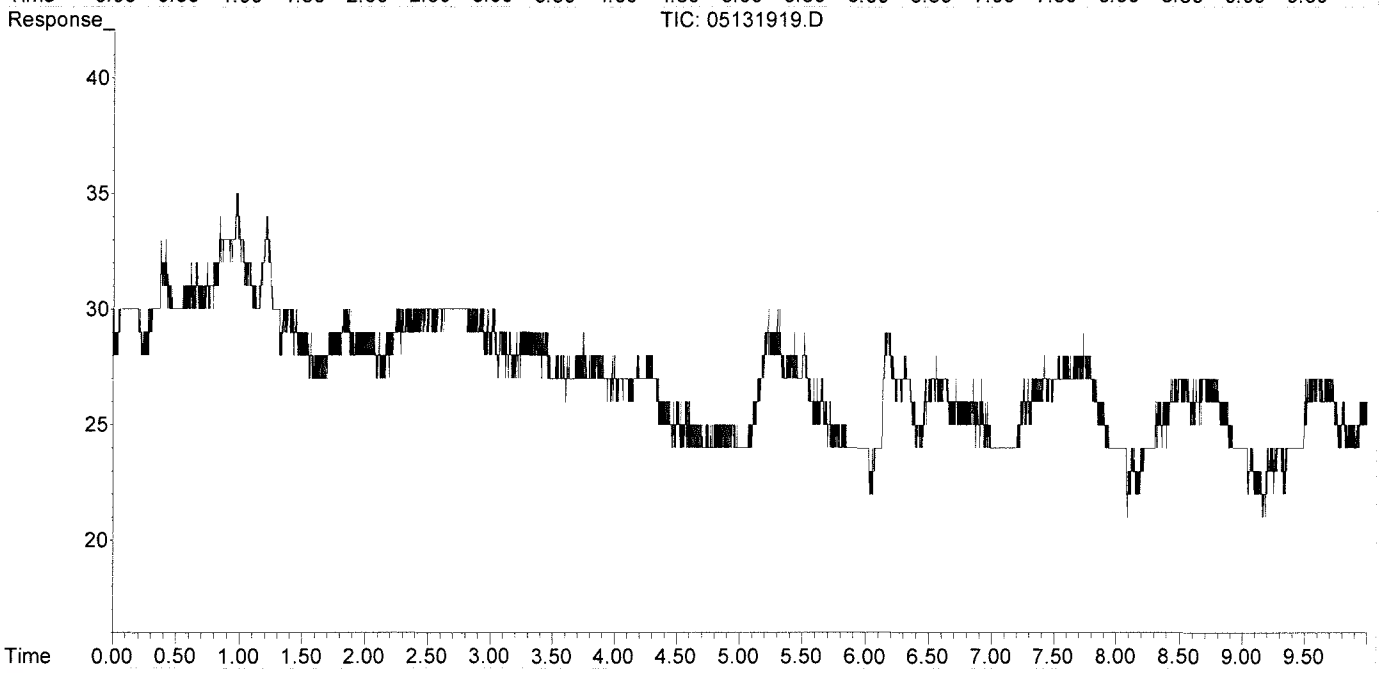
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131919.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:28:07
Operator : WH
Sample : P1902700-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:51:23 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:08:12
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: May 14 10:48:07 2019
Quant Method : J:\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 :

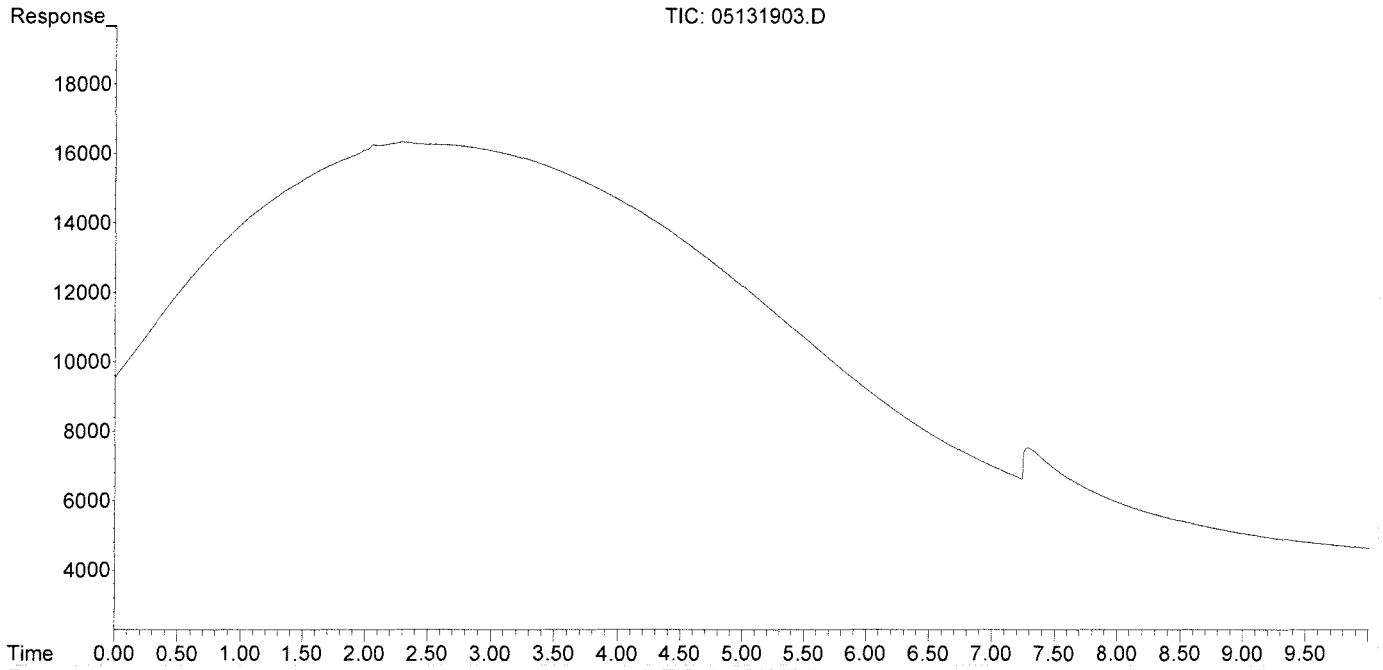
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000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

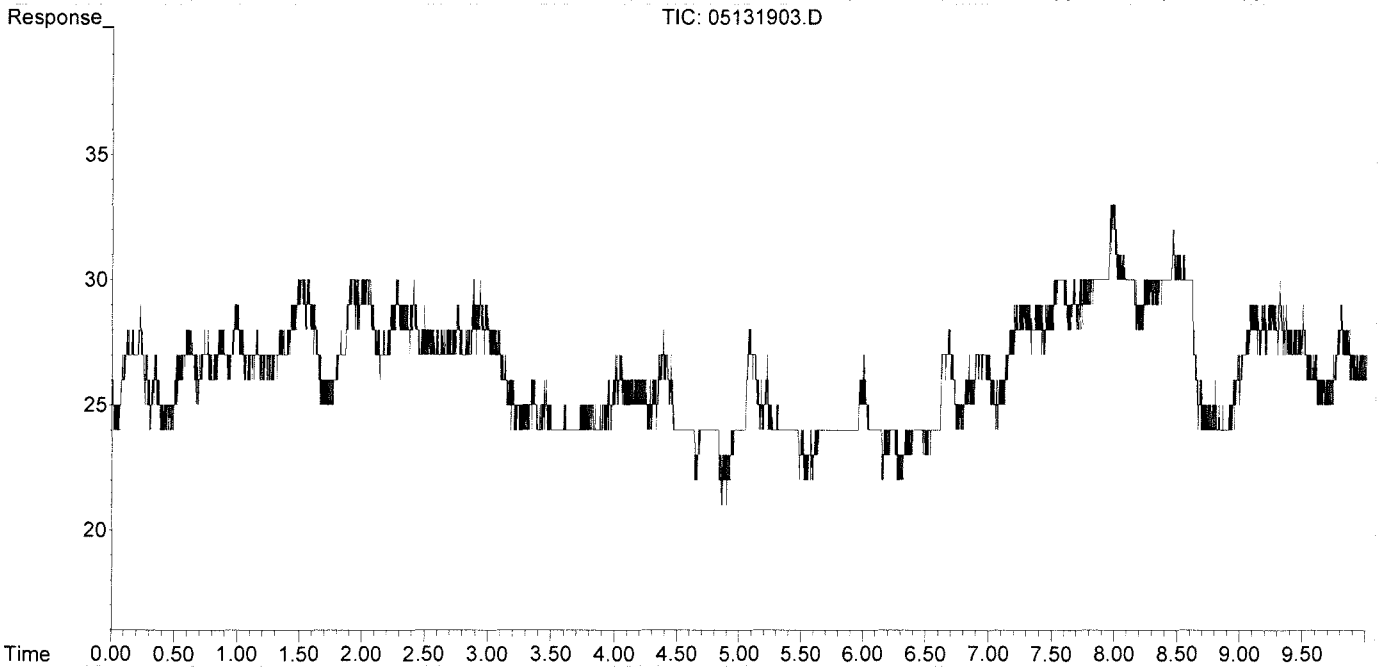
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:08:12
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: May 14 10:48:07 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:48:03
Operator : WH
Sample : P1902700-002ms 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:56:02 2019
Quant Method : J:\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 :

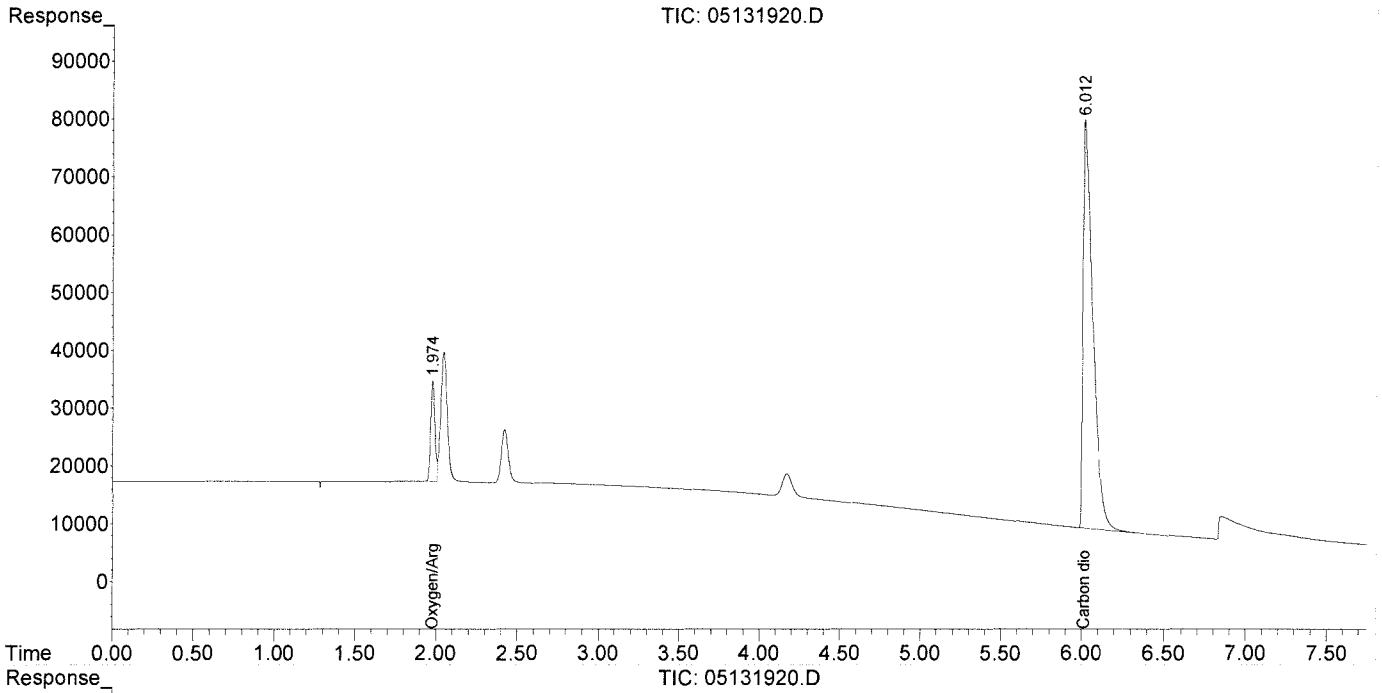
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.975f	313992	0.066	ppm
2)	Carbon monoxide	1.975f	313992	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.014	2878976	12265.094	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

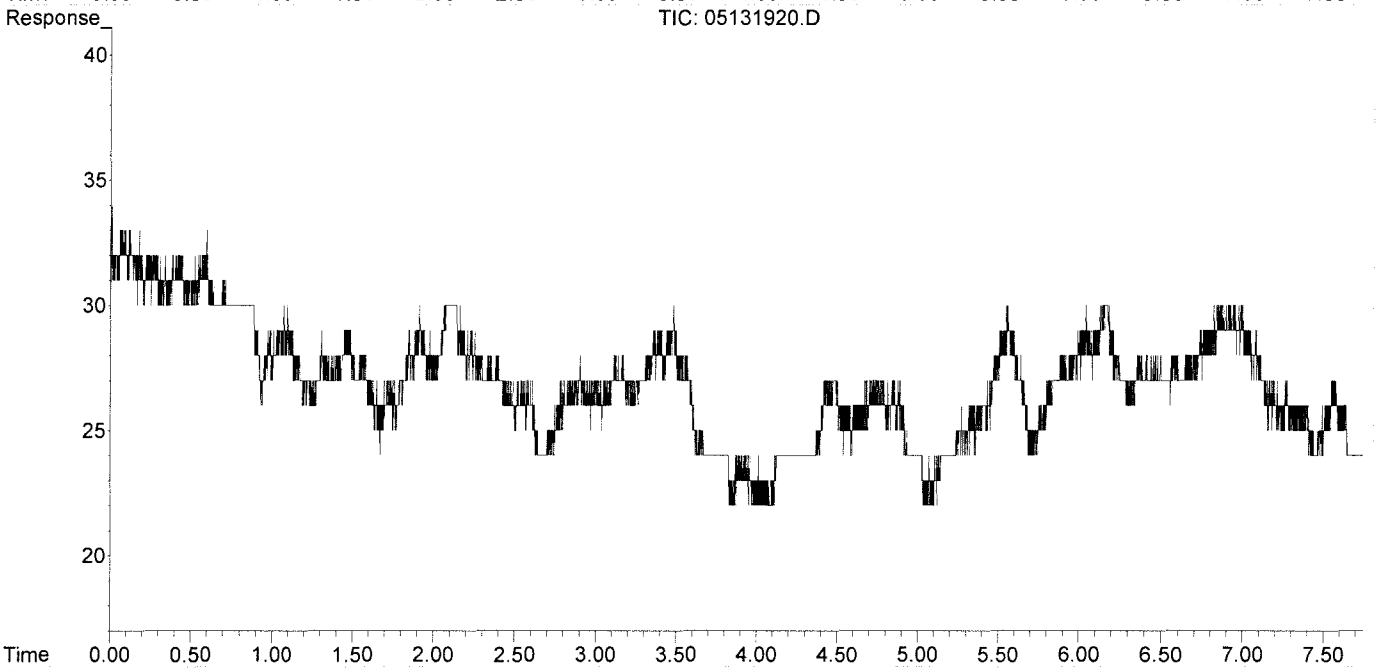
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131920.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:48:03
Operator : WH
Sample : P1902700-002ms 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 15:56:02 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:58:06
Operator : WH
Sample : P1902700-002msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:07:56 2019
Quant Method : J:\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 :

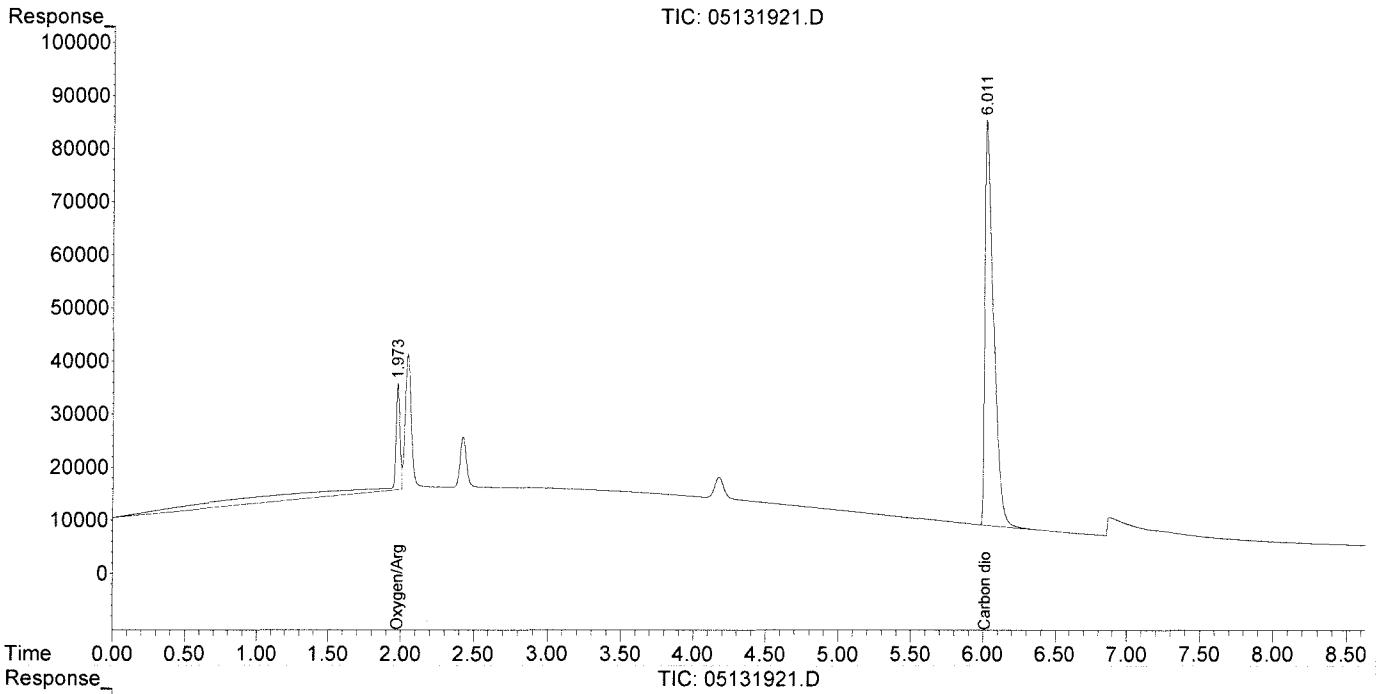
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.973f	1310983	0.275	ppm
2)	Carbon monoxide	1.973f	1310983	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.013	3117081	13279.479	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

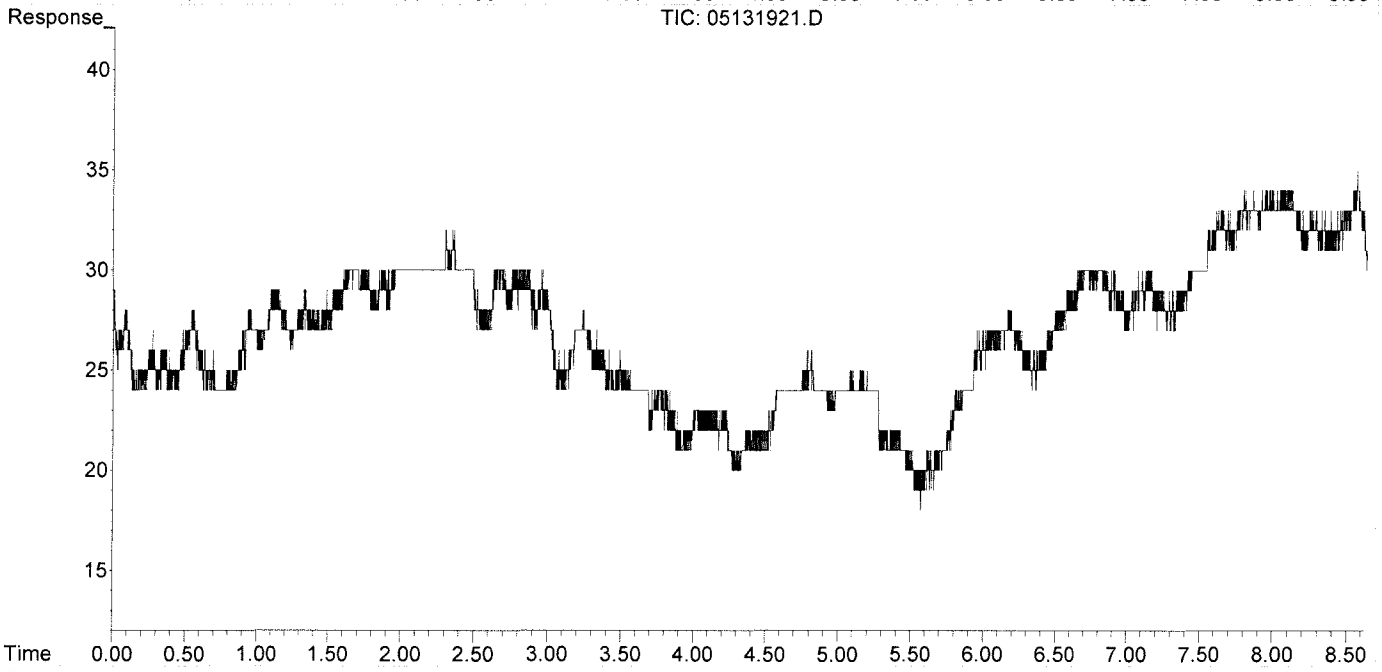
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131921.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 15:58:06
Operator : WH
Sample : P1902700-002msd 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:07:56 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:26:21
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

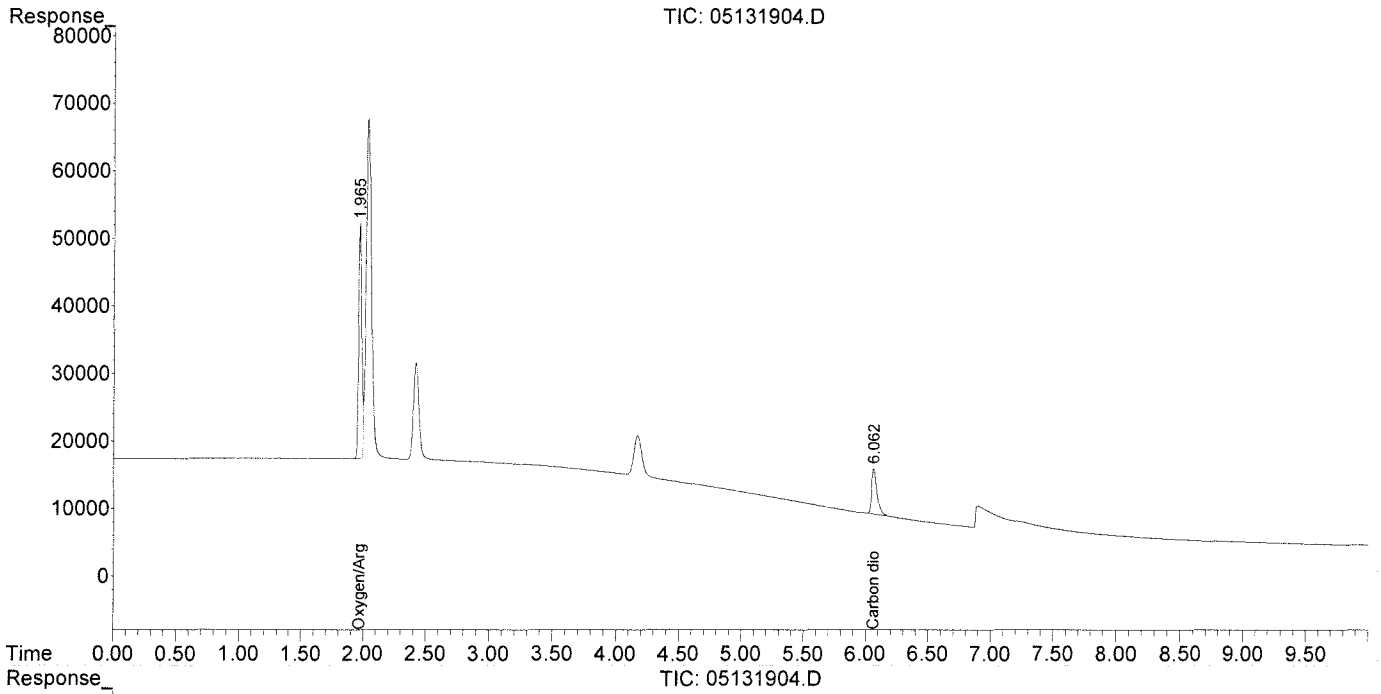
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.965f	612499	0.129	ppm	
2)	Carbon monoxide	1.965f	612499	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.062	207232	882.856	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

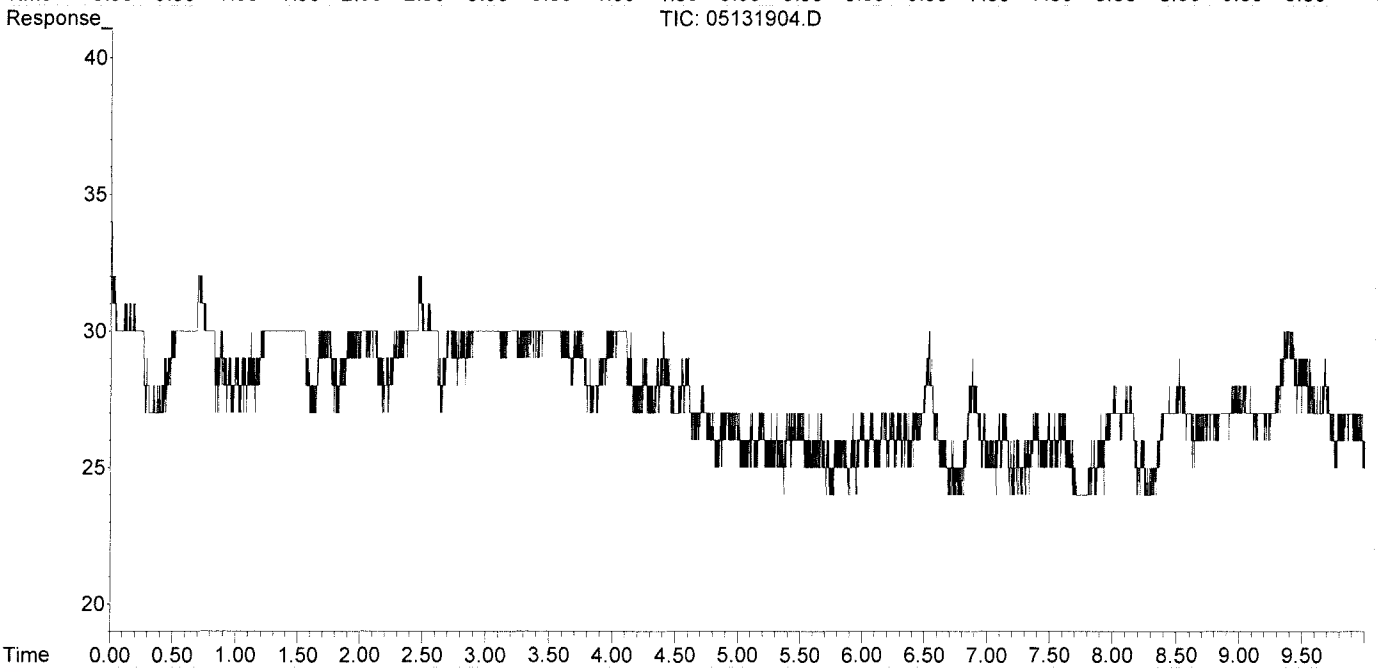
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:26:21
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\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 :

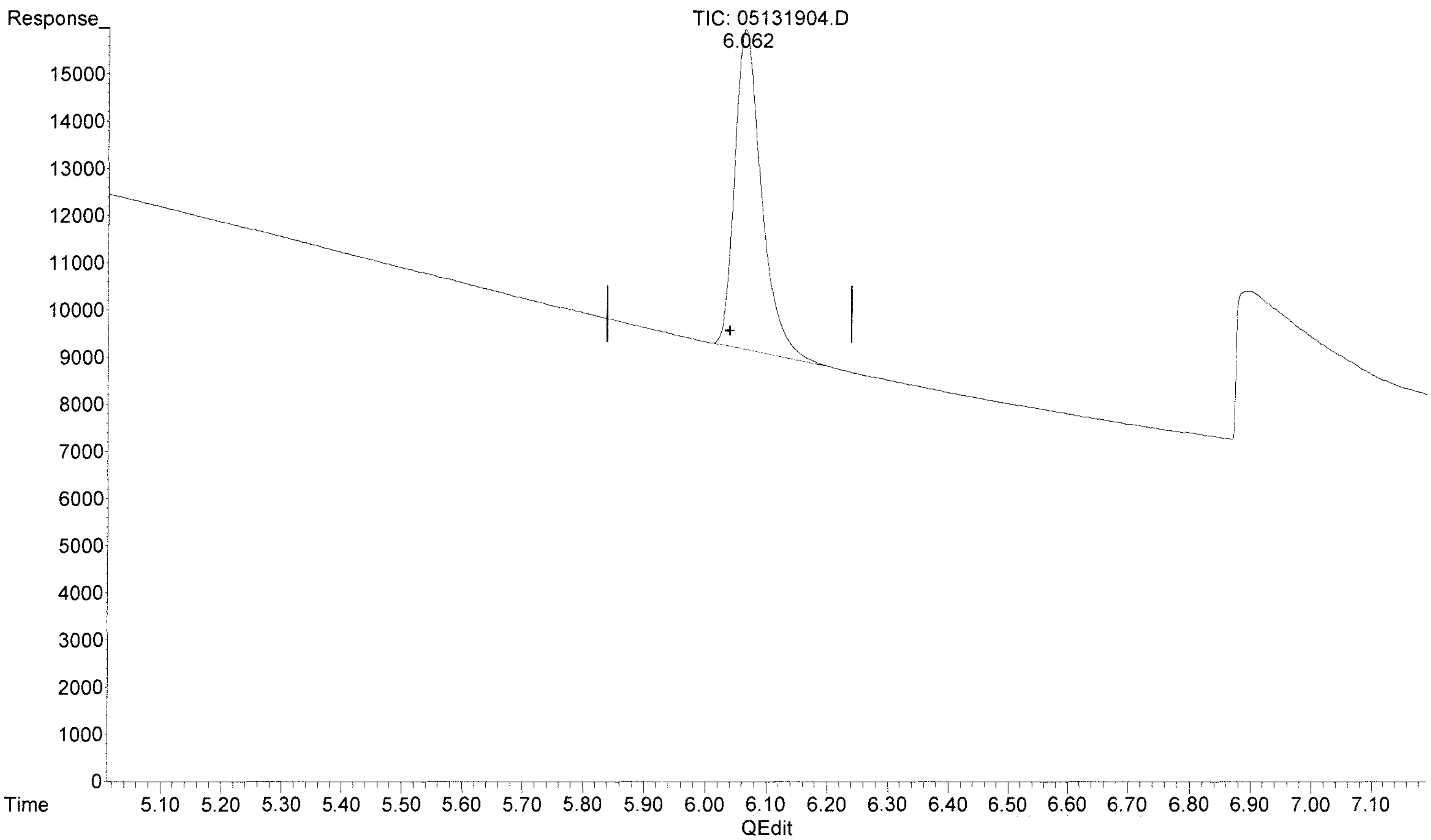




```
Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131904.D
Signal(s) : Signal #1: TCD1A.CH  Signal #2: FID2B.CH
Acq On    : 13-May-2019, 11:26:21
Operator  : WH
Sample    : lcs tcd 0.1ml
Misc      :
ALS Vial  : 1   Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:36:14 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title  : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.062min 882.856 ppm m

response 207232

MR 5/14/19

WS 5/14/19 BLC no previous

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

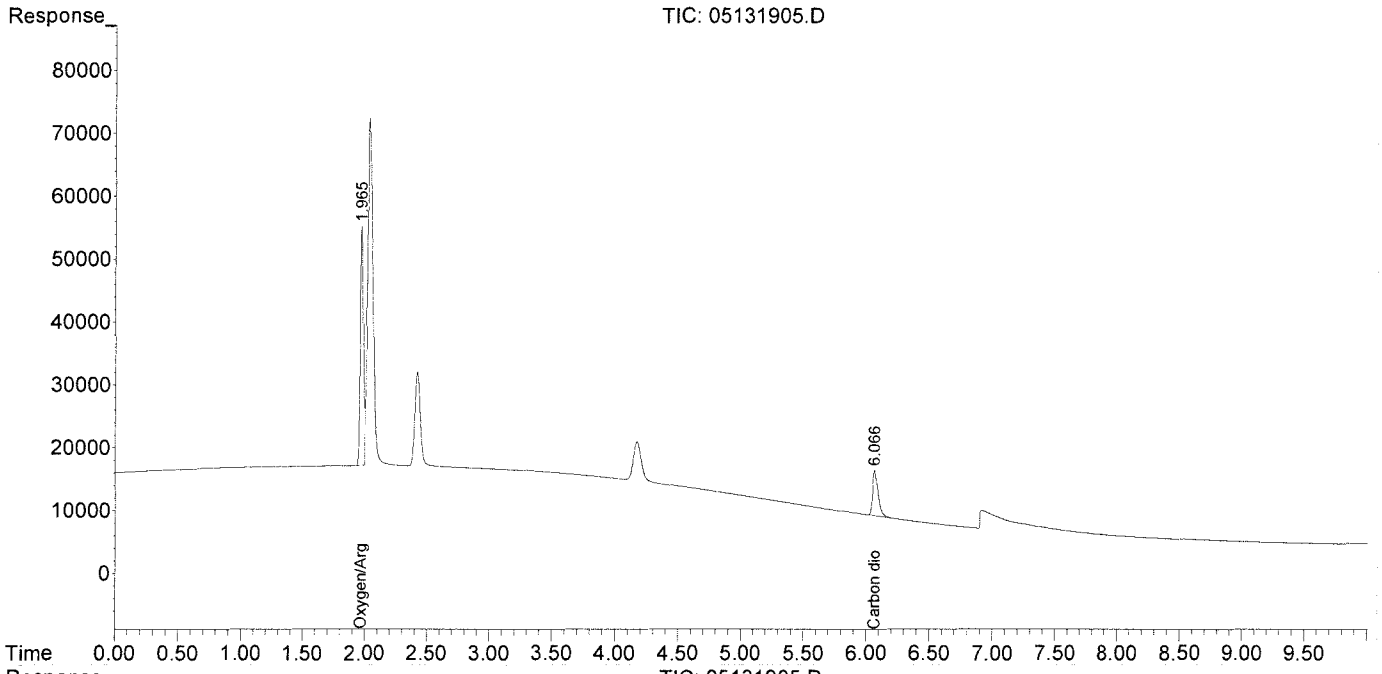
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.966f	665150	0.140	ppm	
2)	Carbon monoxide	1.966f	665150	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.066	217080	924.812	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

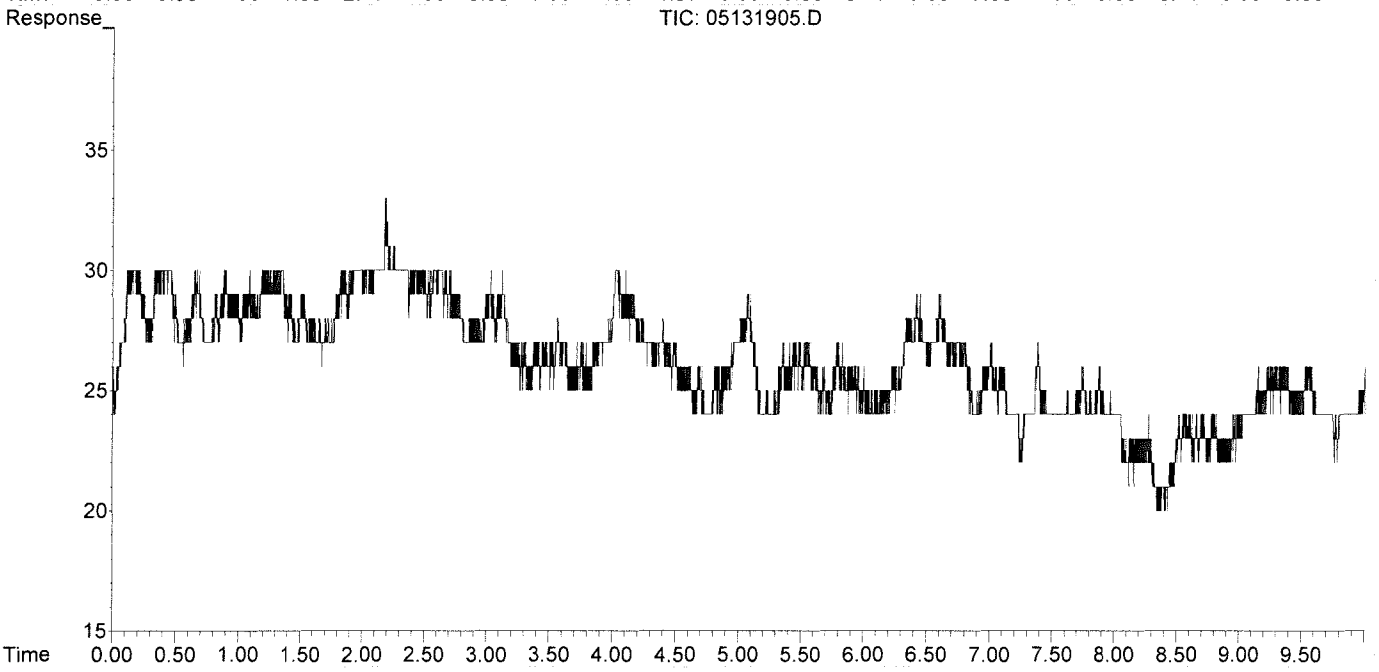
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\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 :

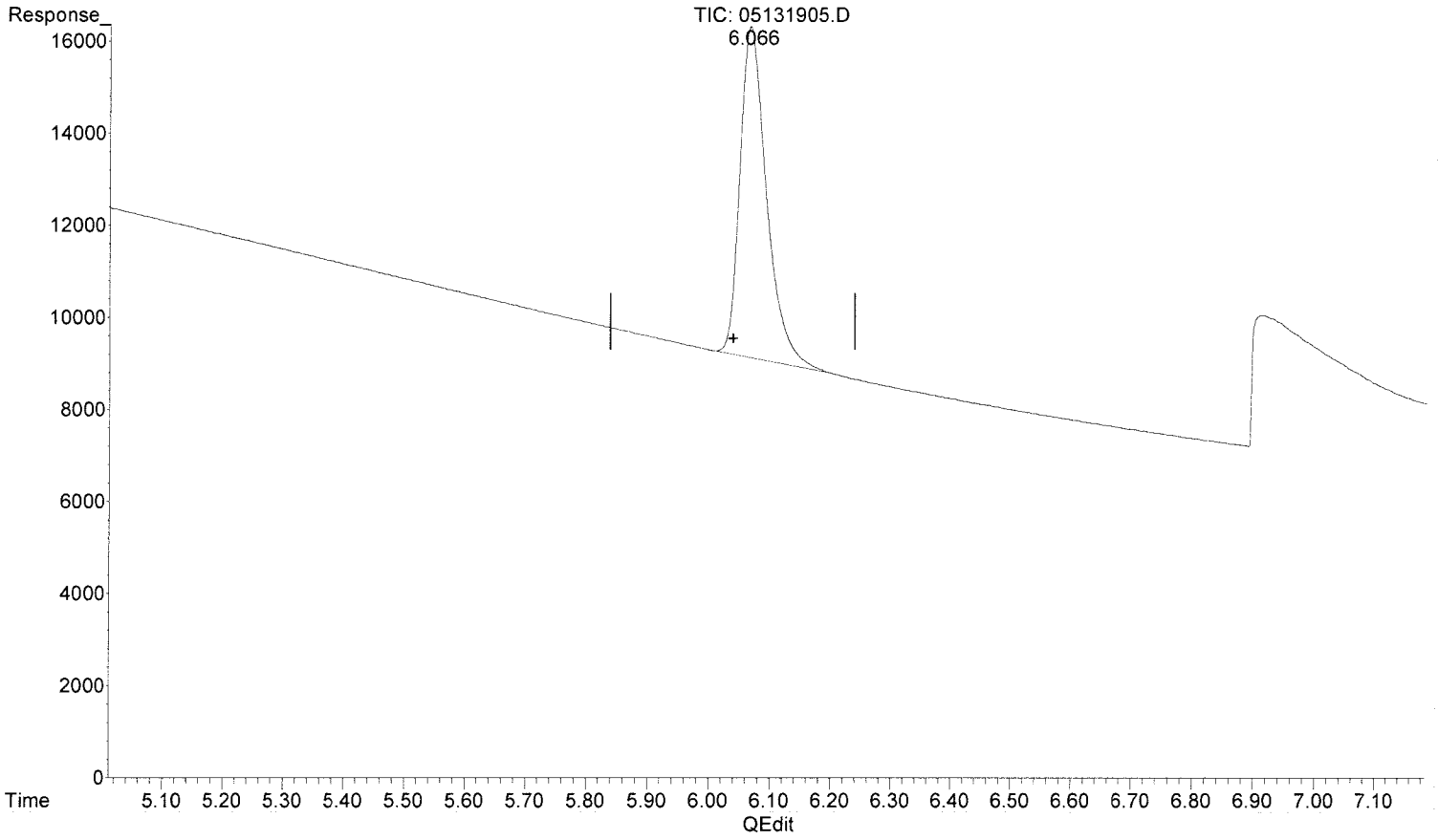




Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 11:41:14
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 11:59:16 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.066min 924.812 ppm m

response 217080

MR 5/14/19

CW 5/14/19 BLC no problems

(+) = 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

Compounds -- Compound #4 -- Carbon dioxide

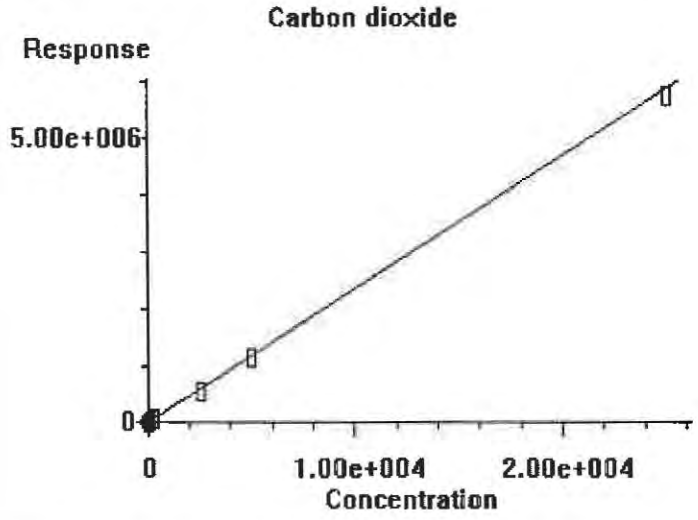
Search by: Ret Time | Name | Index | Find Compound

- 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 :

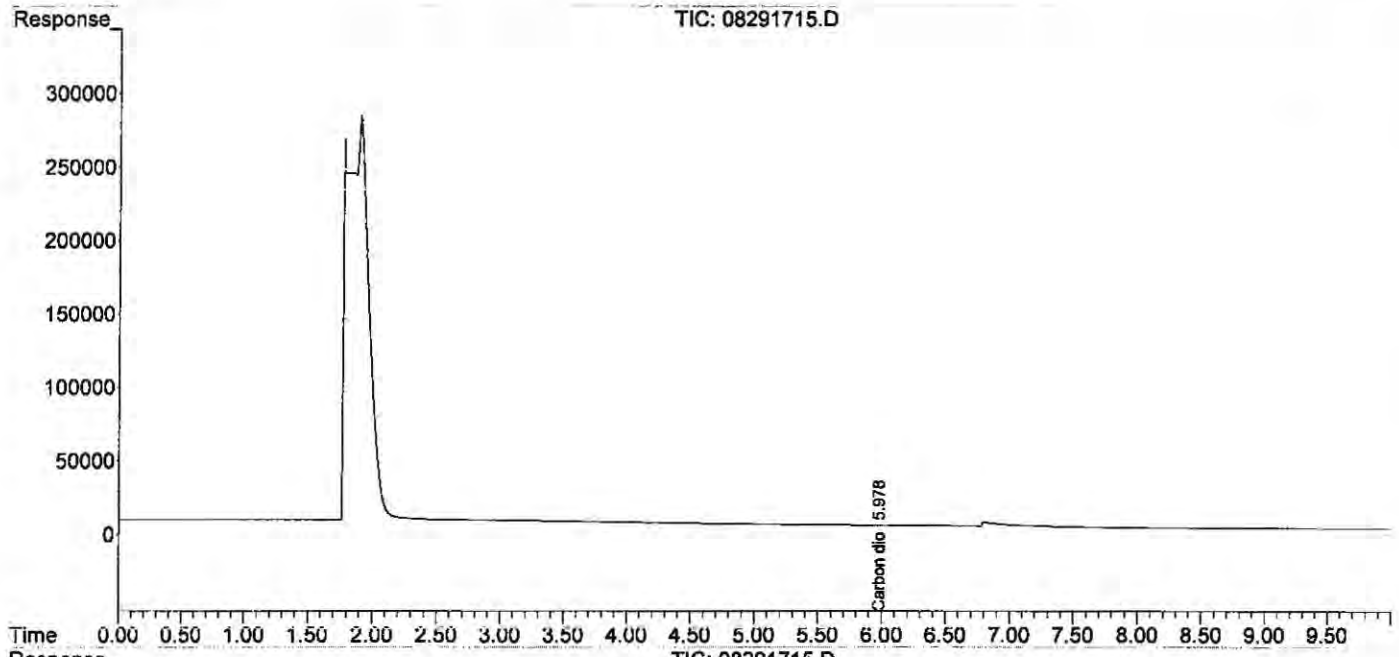
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

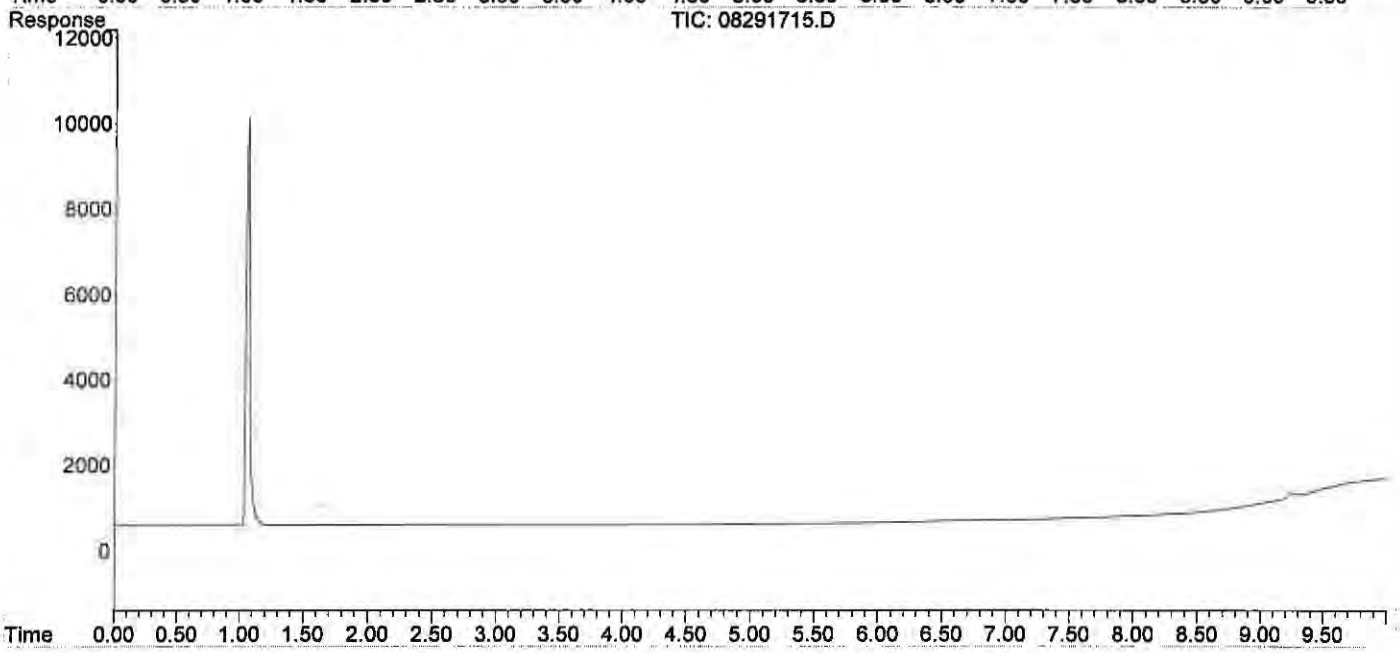
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :



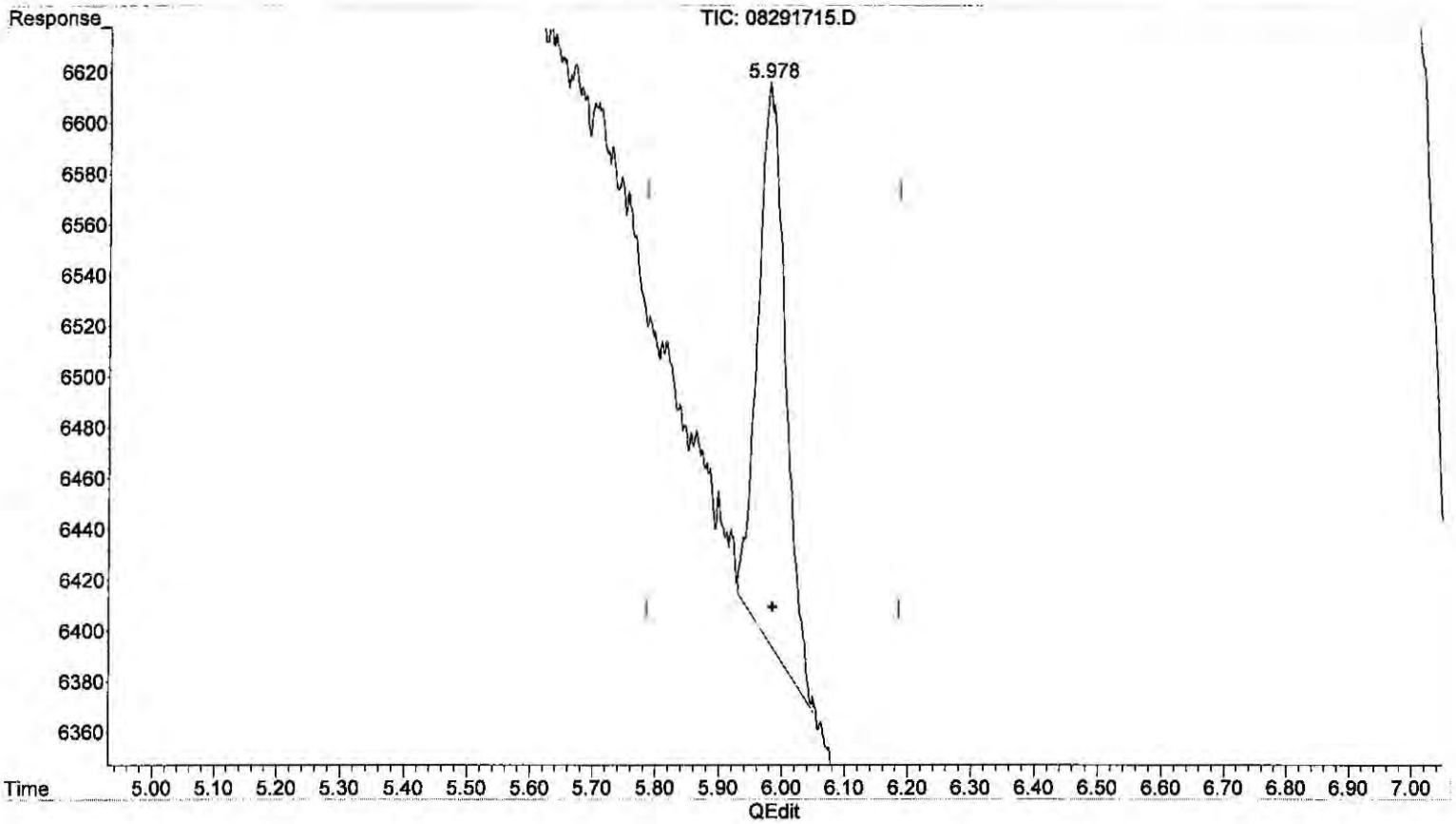


Quantitation Report (Qedit)

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

Quantitation Report (QT Reviewed)

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

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

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

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

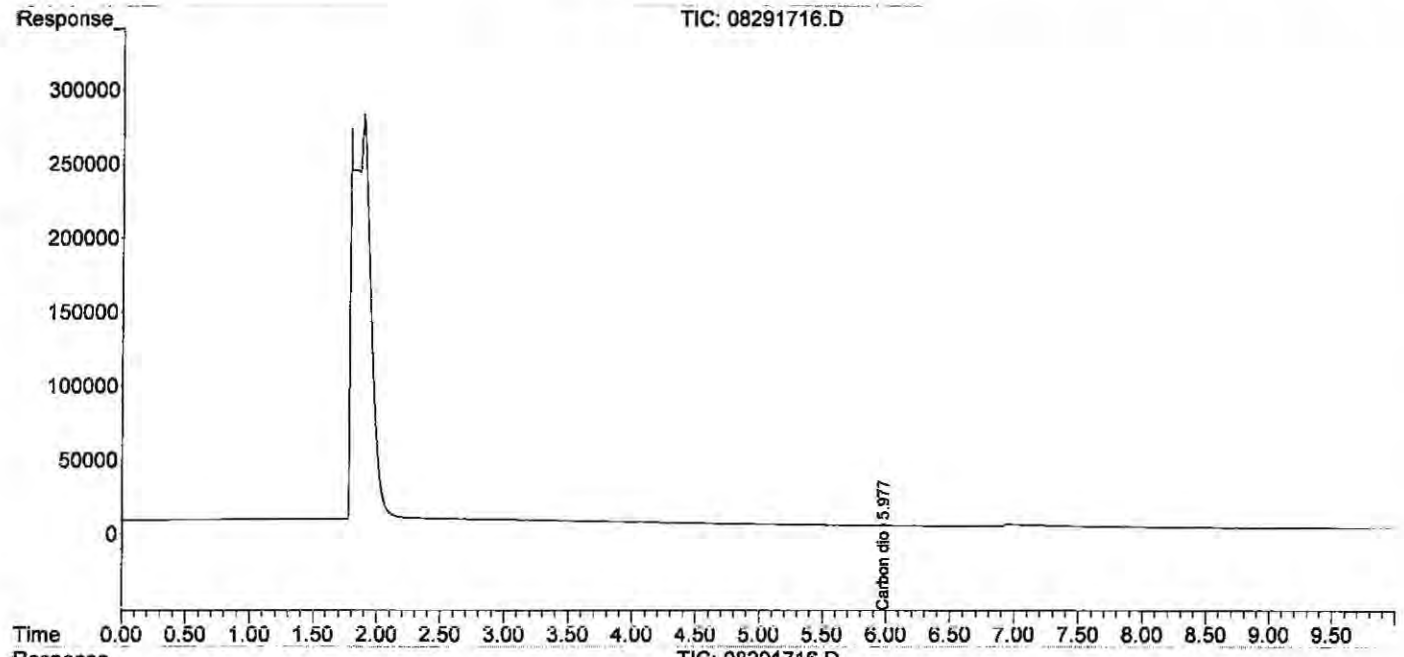
(f)=RT Delta > 1/2 Window (m)=manual int.

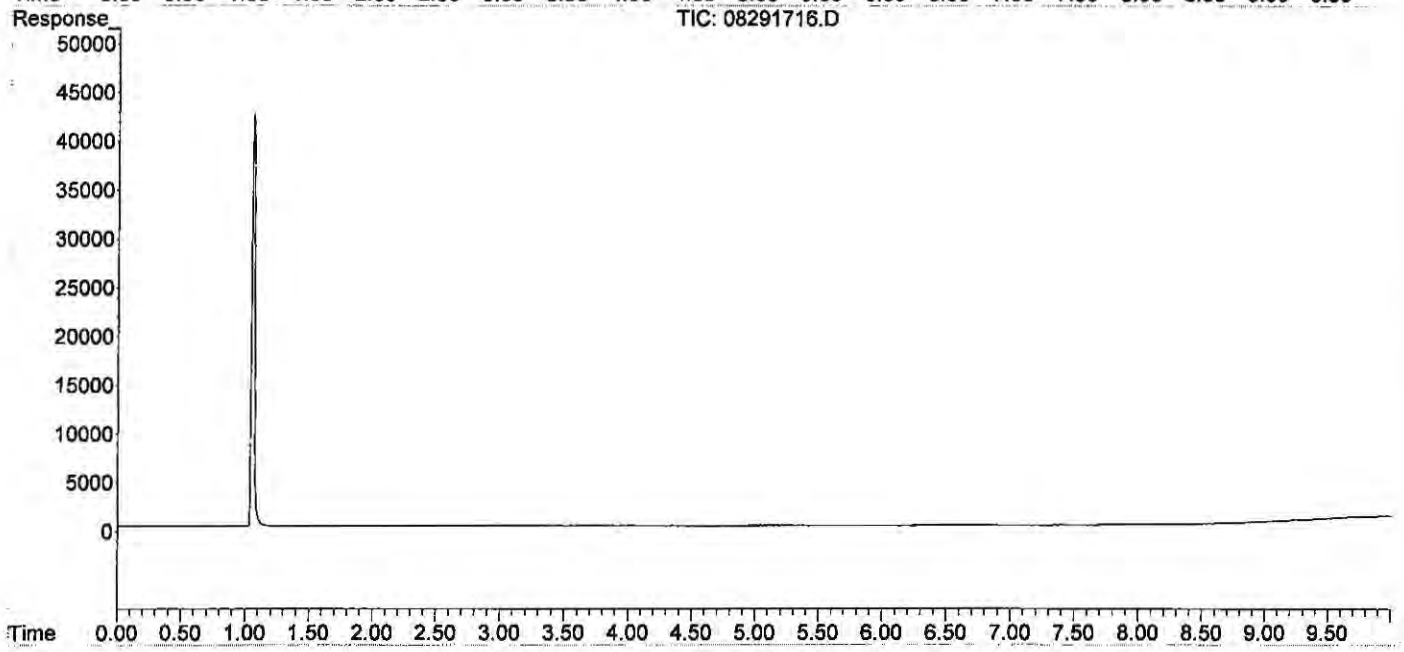
Quantitation Report (QT Reviewed)

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

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

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





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	

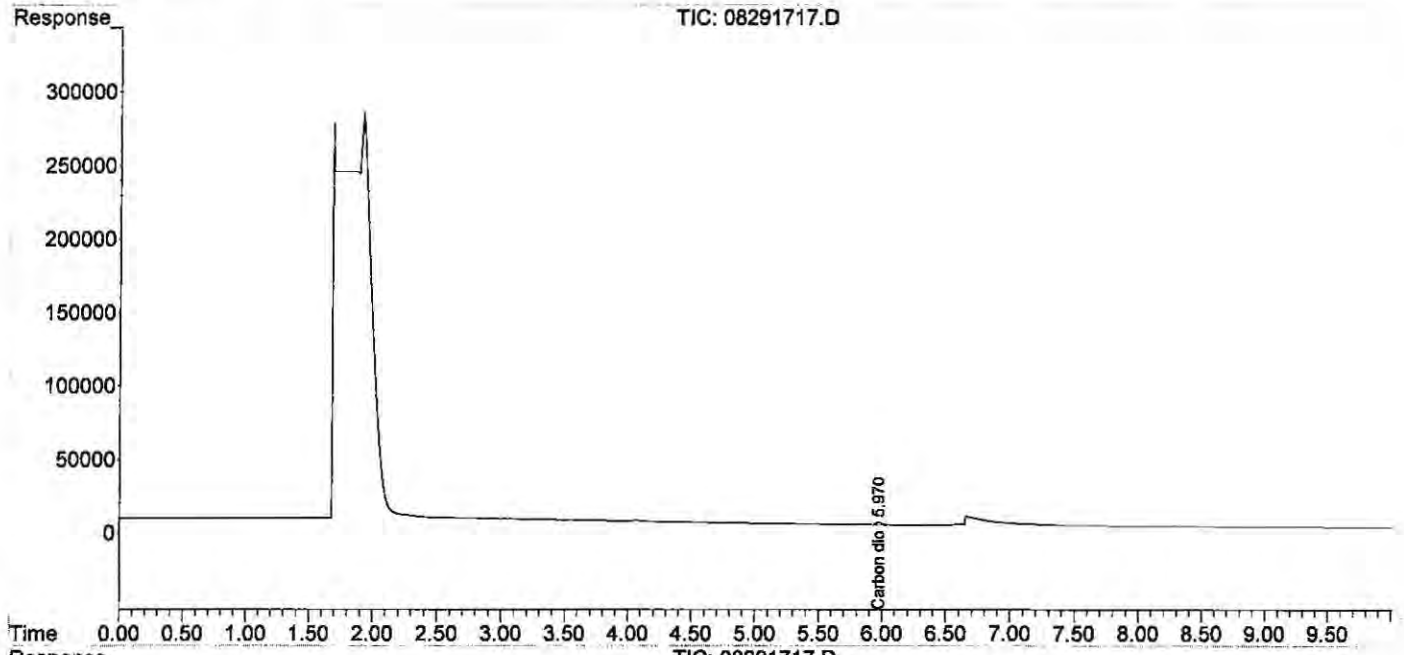
(f)=RT Delta > 1/2 Window (m)=manual int.

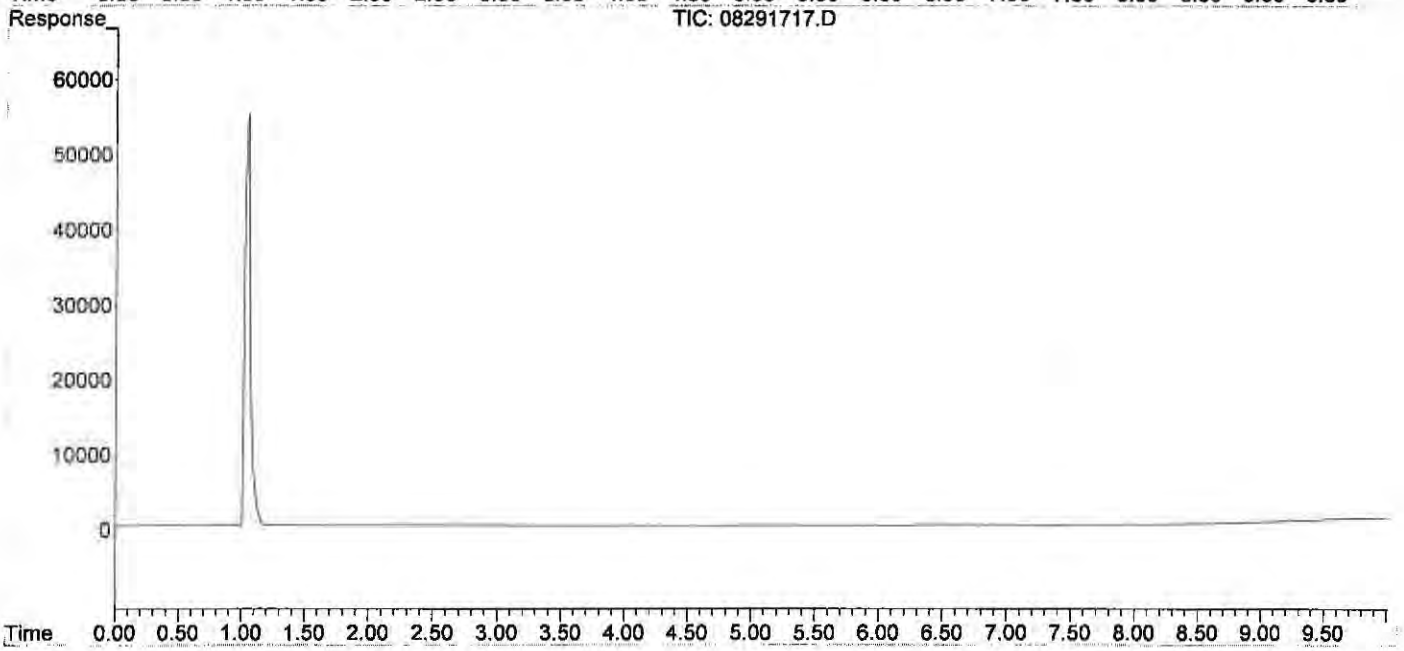
Quantitation Report (QT Reviewed)

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 :



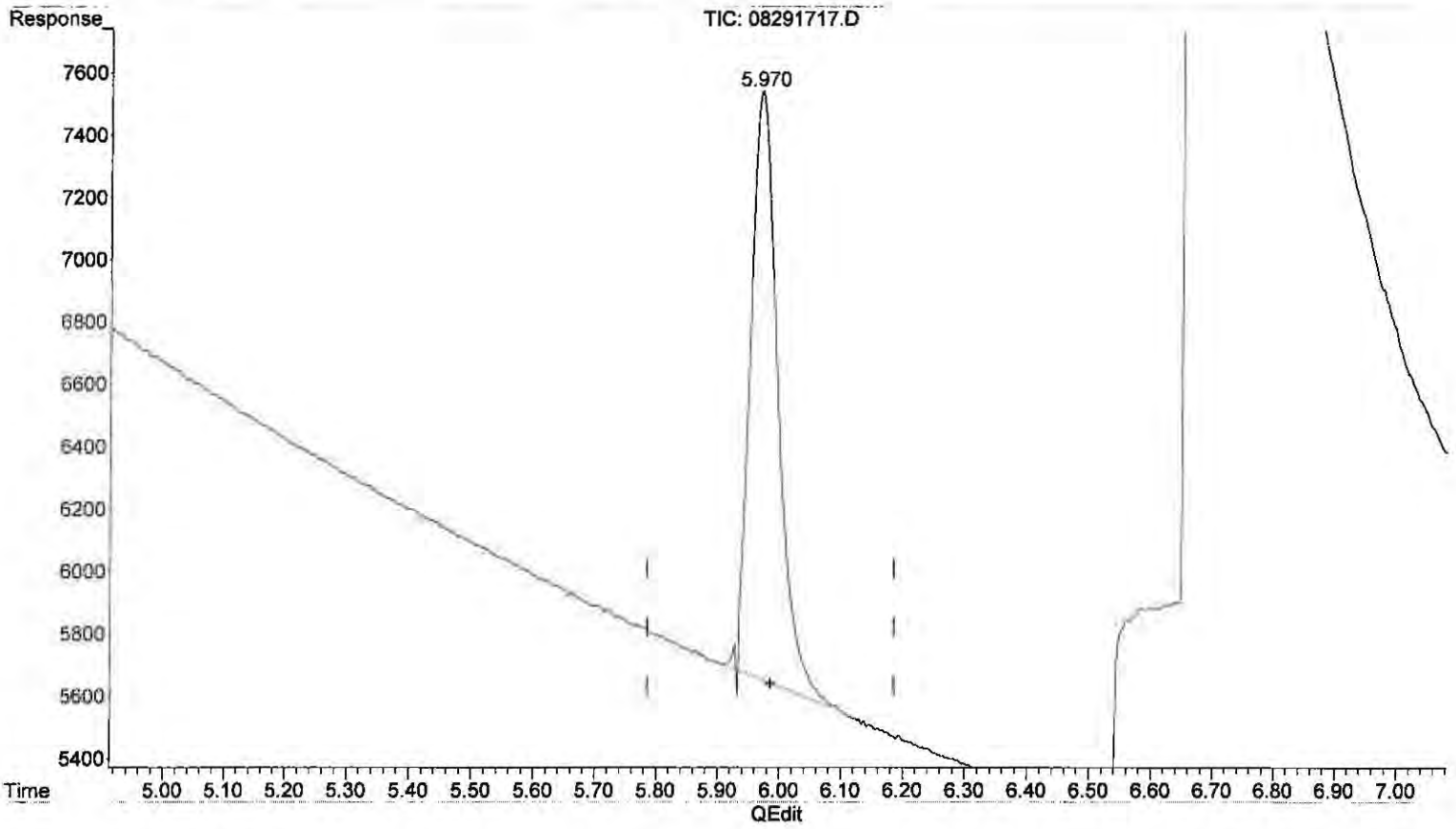


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

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

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

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

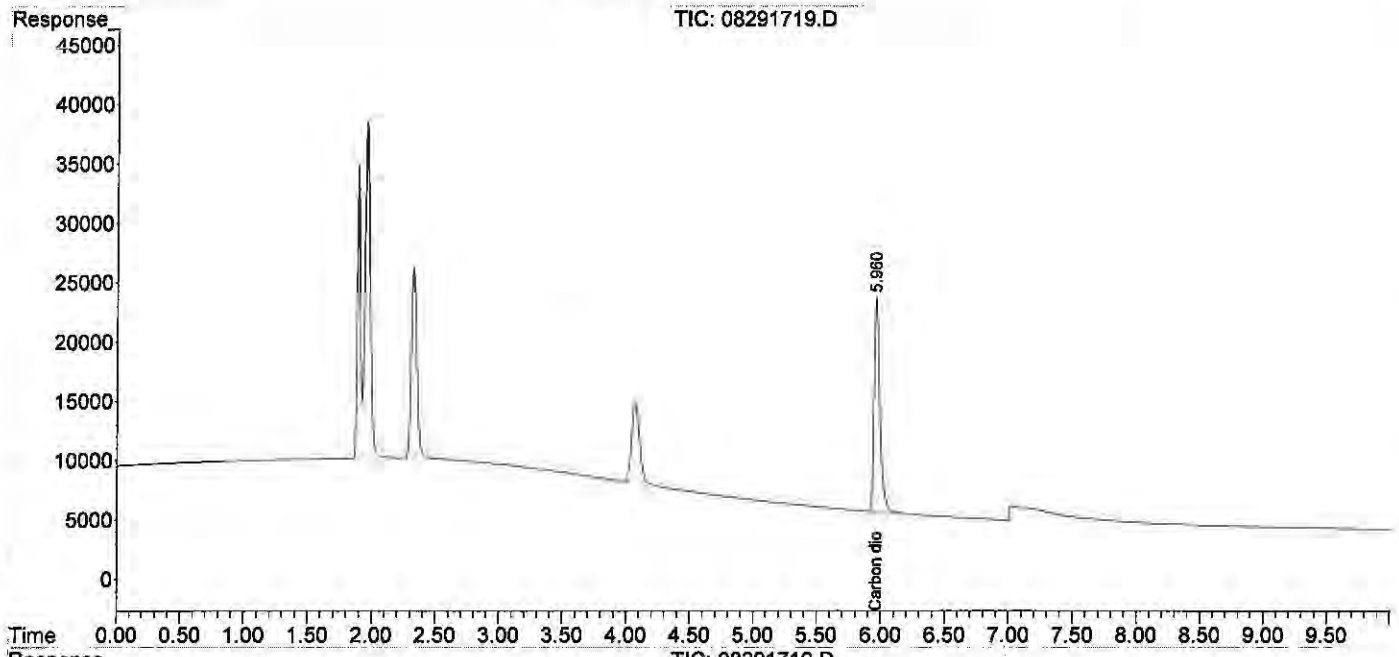
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.891	425113	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.962	568043	2369.673	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

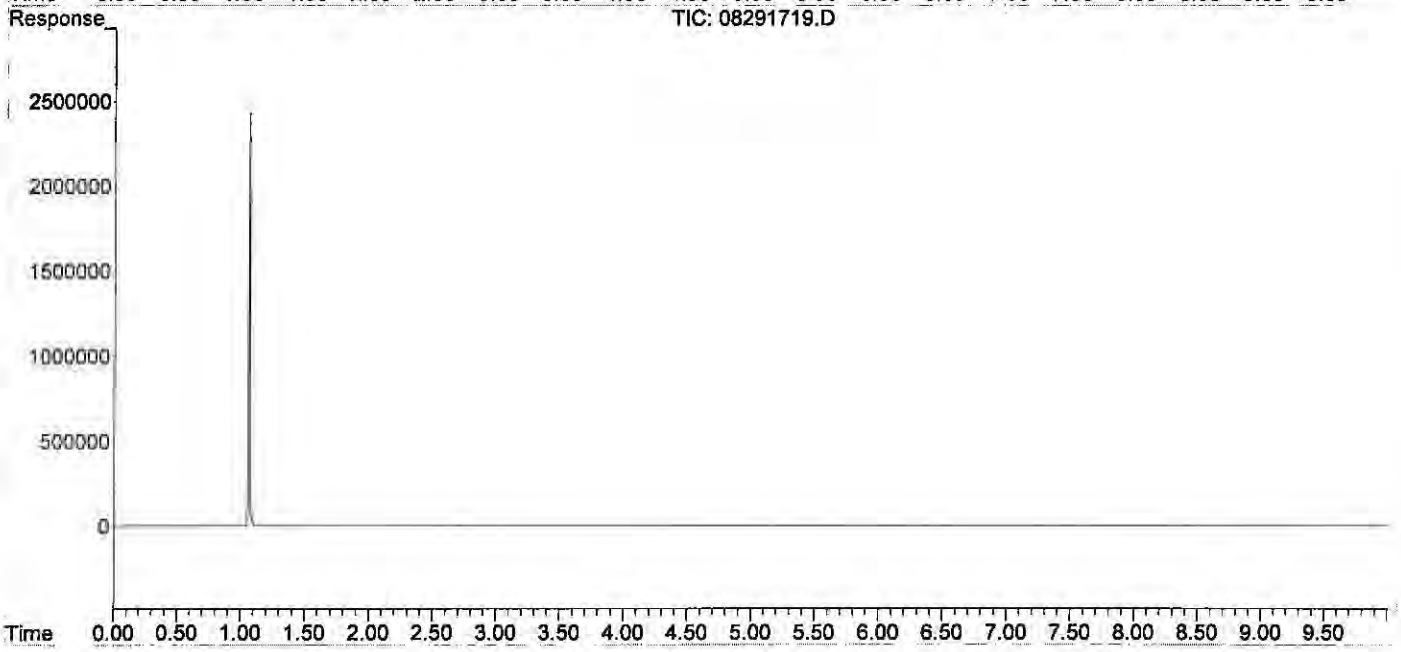
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

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

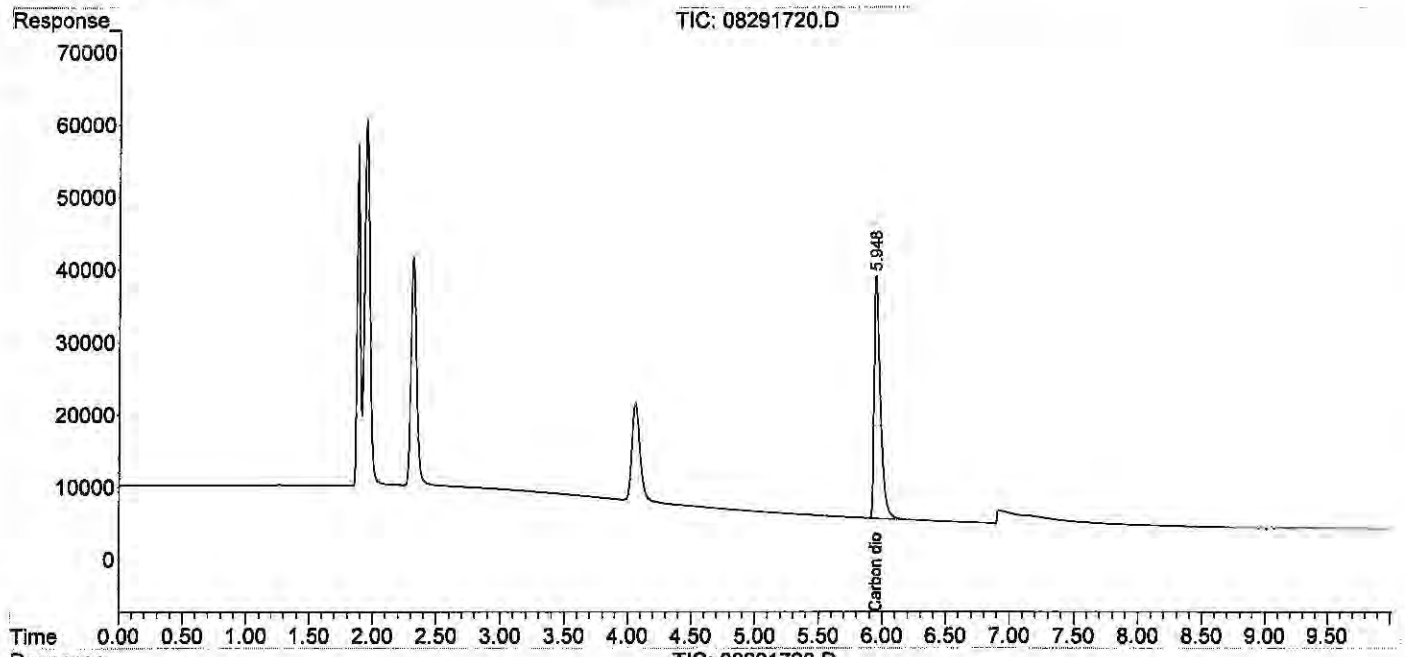
(f)=RT Delta > 1/2 Window (m)=manual int.

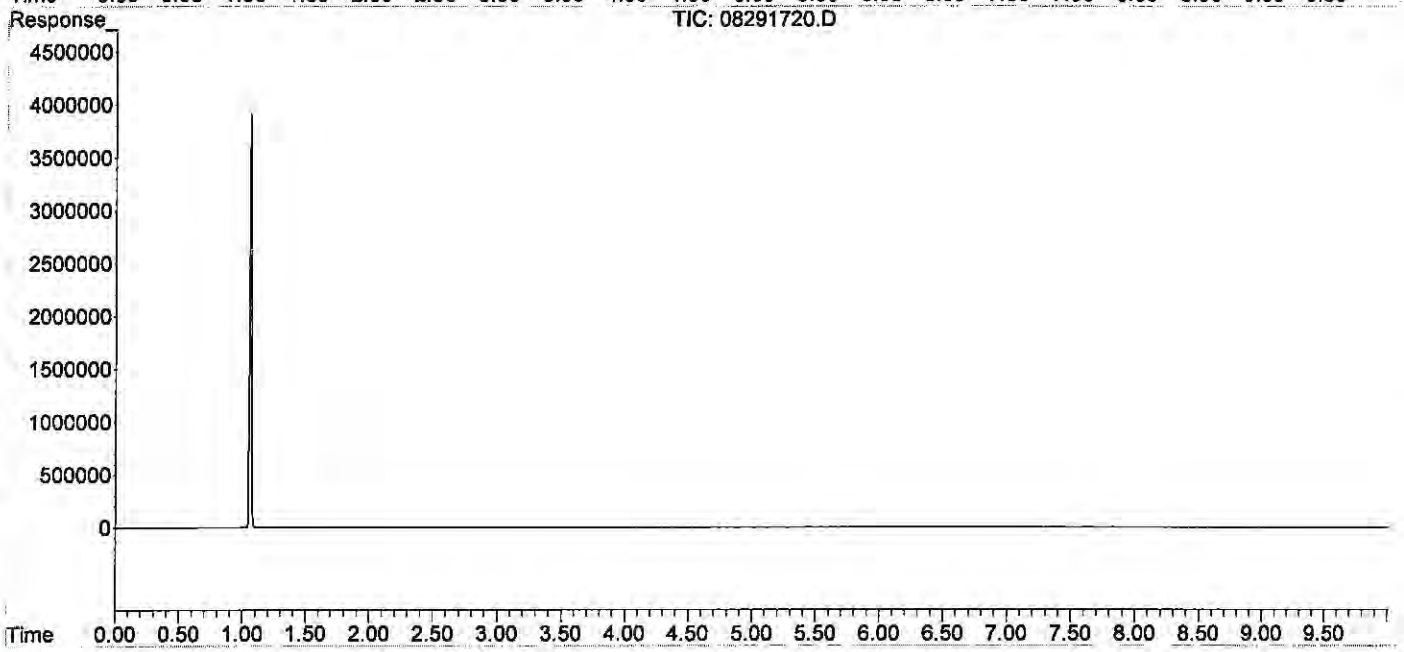
Quantitation Report (QT Reviewed)

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 :





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	

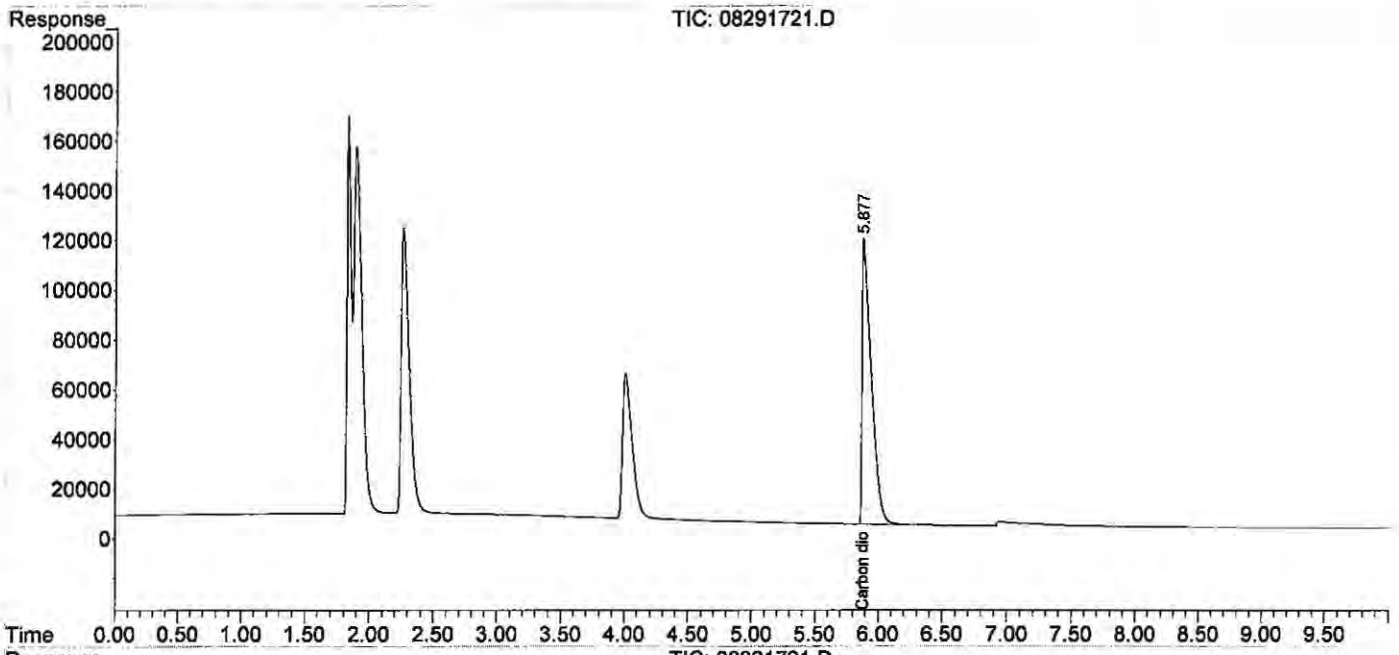
(f)=RT Delta > 1/2 Window (m)=manual int.

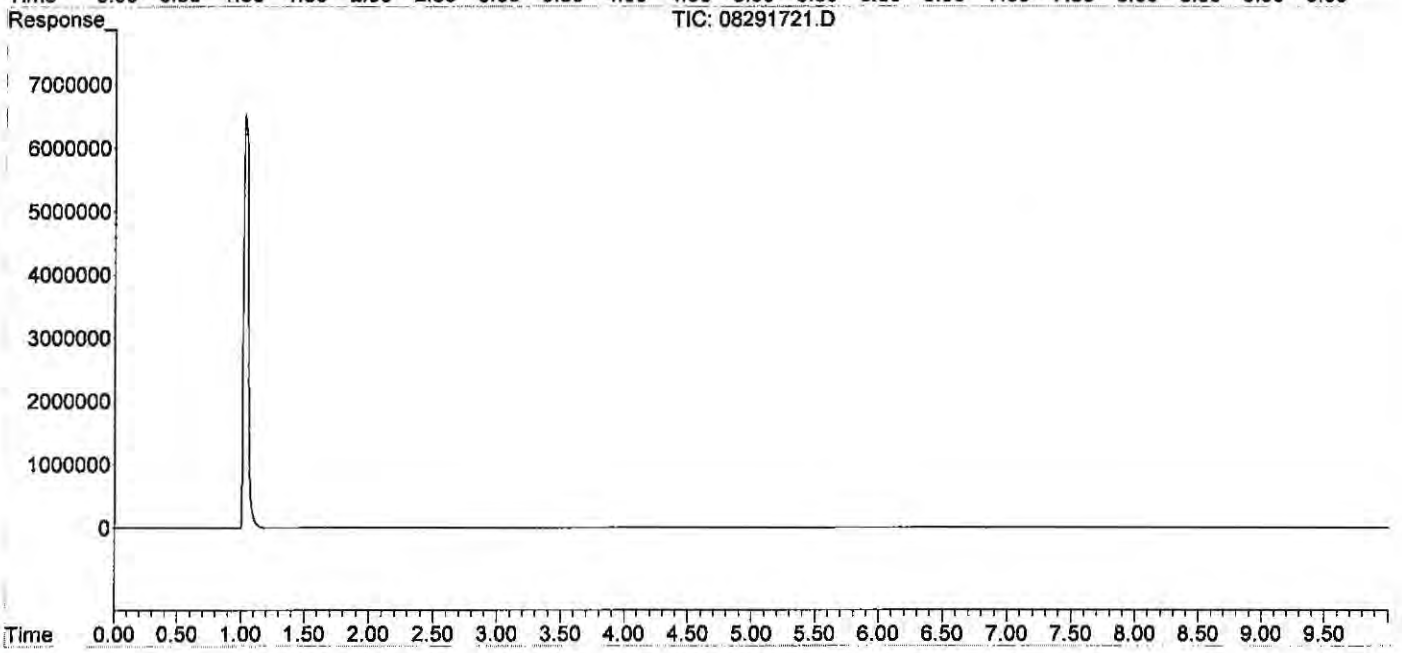
Quantitation Report (QT Reviewed)

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	

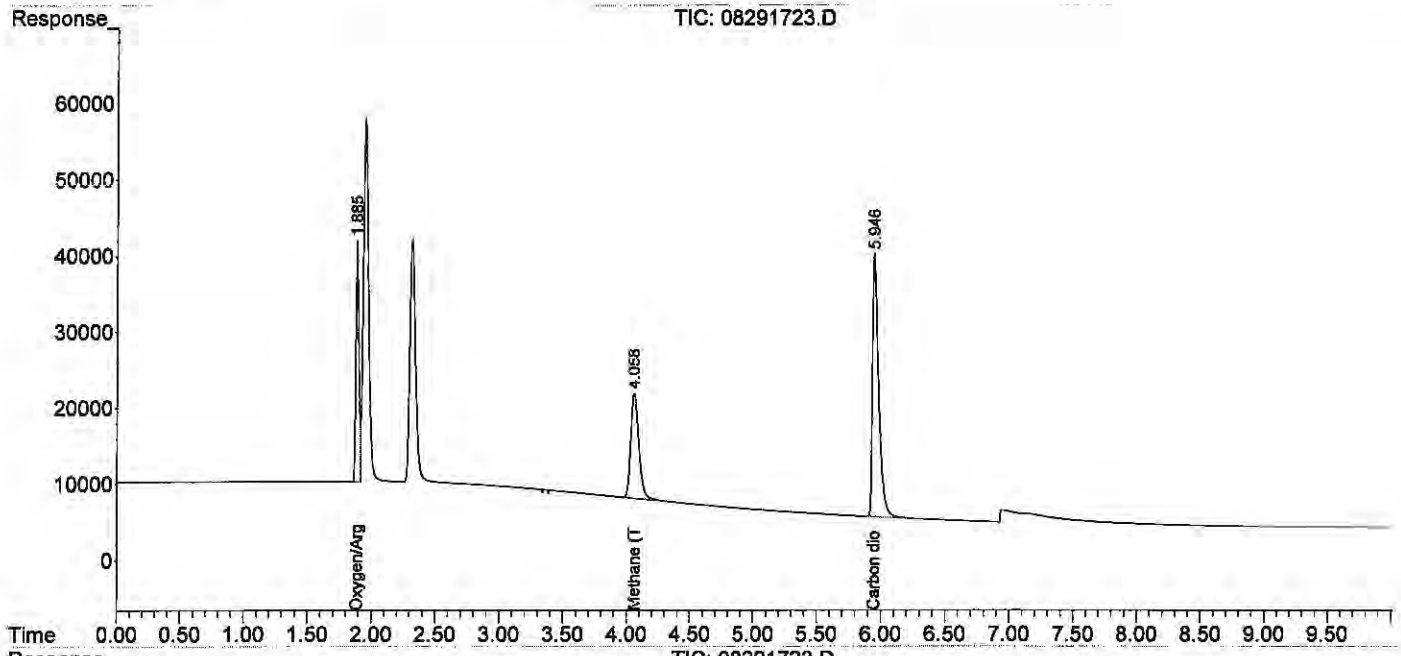
(f)=RT Delta > 1/2 Window (m)=manual int.

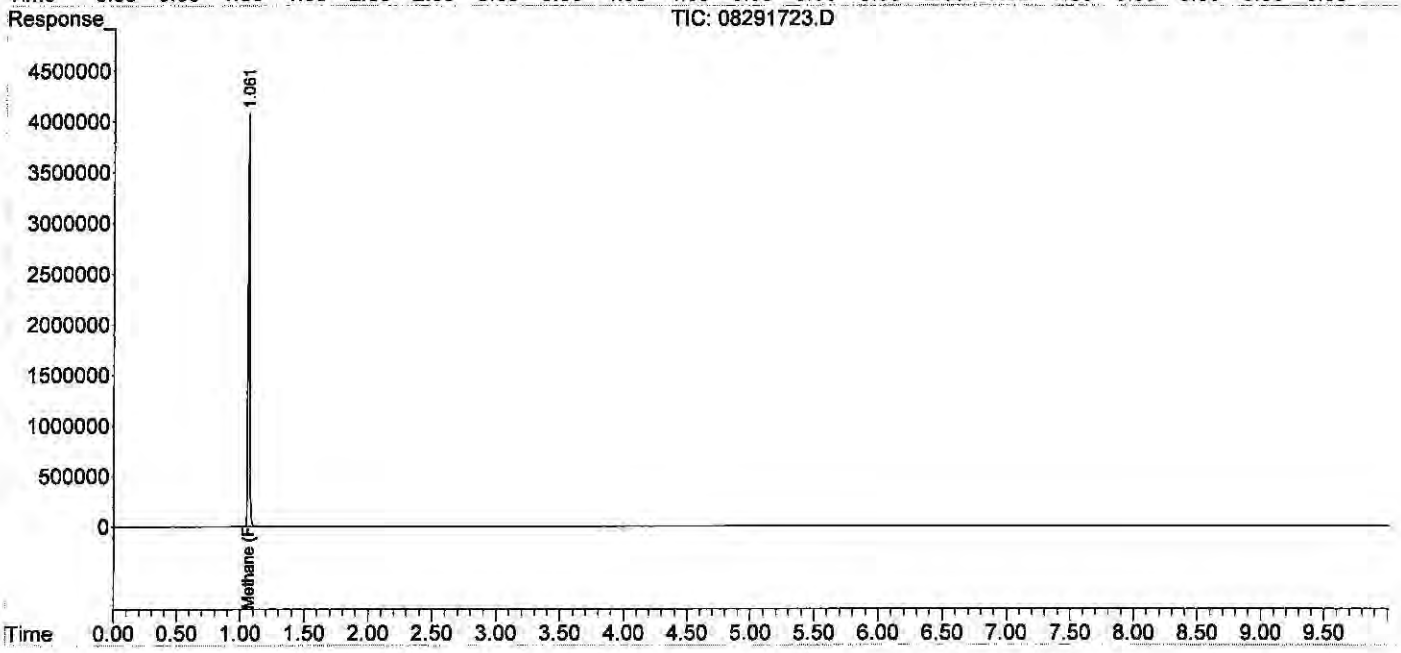
W 9/4/17

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: P1902700
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 05/13/19
Head Space Vol.(ml) : 8.00 ml
Instrument : GC#10
Detector : FID#10, TCD#10
Gas Constant : 24.05684 (20°C)

HEAD SPACE RESULT (ppm)

Sample ID	Inj. Vol.	Carbon Dioxide
std s32-04251903	0.100	4880.961
ACTUAL		5000.00
%Difference		2.4%
mcs 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
lcs tcd 0.1ml	0.100	882.856
lcsd tcd 0.1ml	0.100	924.812
P1902700-001 50ul	0.050	11146.11
P1902700-002 50ul	0.050	10475.11
P1902700-002ms 50ul	0.050	12265.09
P1902700-002msd 50ul	0.050	13279.48
std s32-04251903		4686.707
ACTUAL		5000.00
%Difference		6.3%

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
mcs 0.1ml	0.000
lcs tcd 0.1ml	8828.560
lcsd tcd 0.1ml	9248.120
P1902700-001 50ul	222922.22
P1902700-002 50ul	209502.24
P1902700-002ms 50ul	245301.88
P1902700-002msd 50ul	265589.58

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

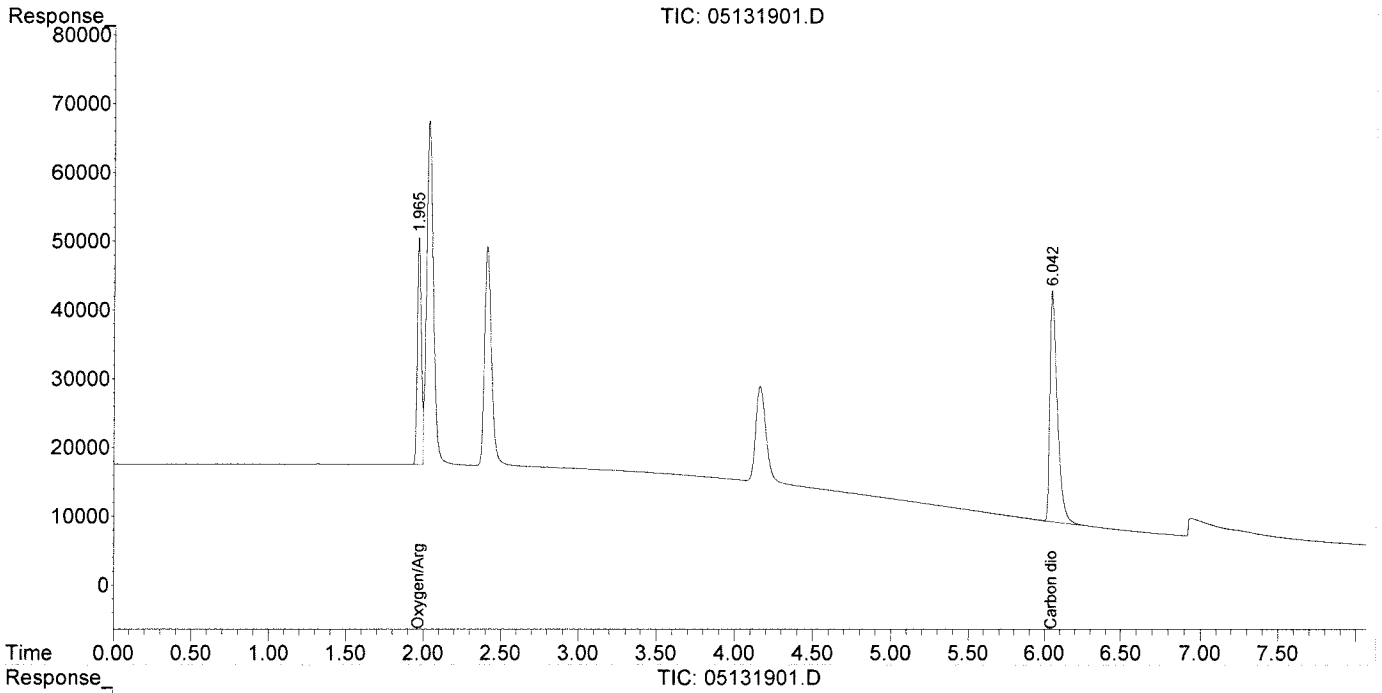
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.965f	585039	0.123	ppm	
2)	Carbon monoxide	1.965f	585039	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.042	1145704	4880.961	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

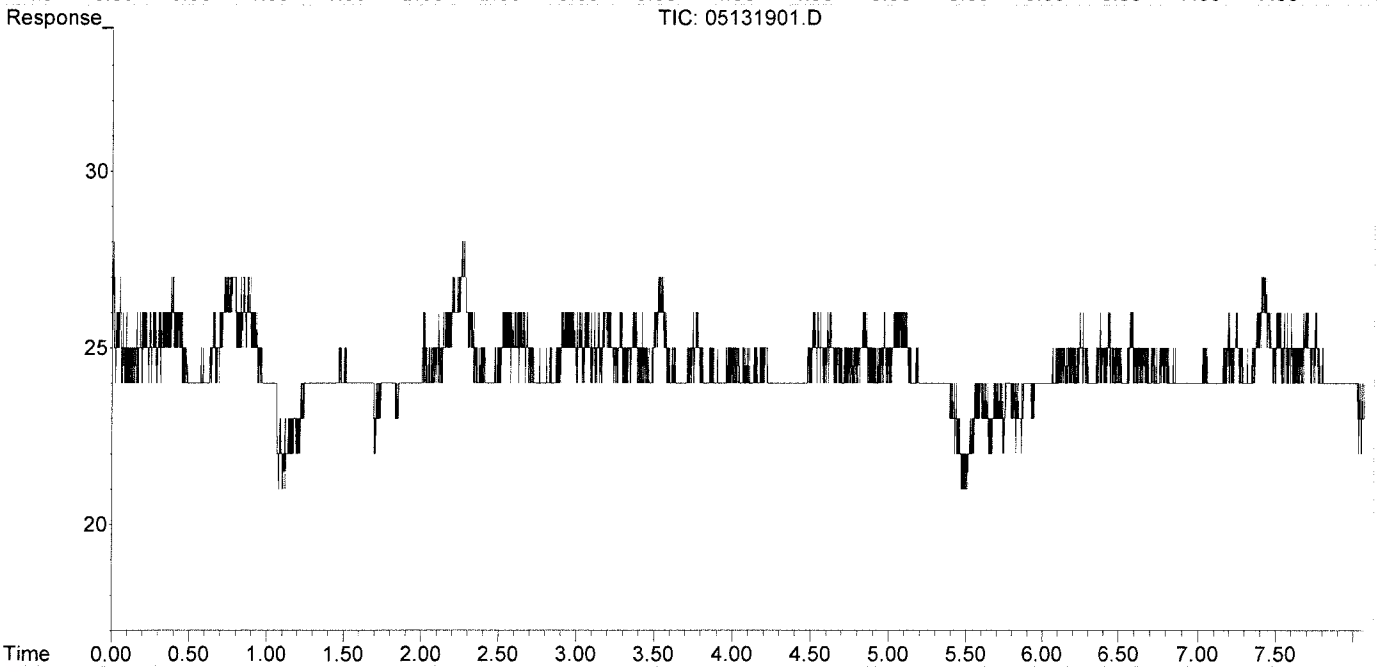
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\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 :

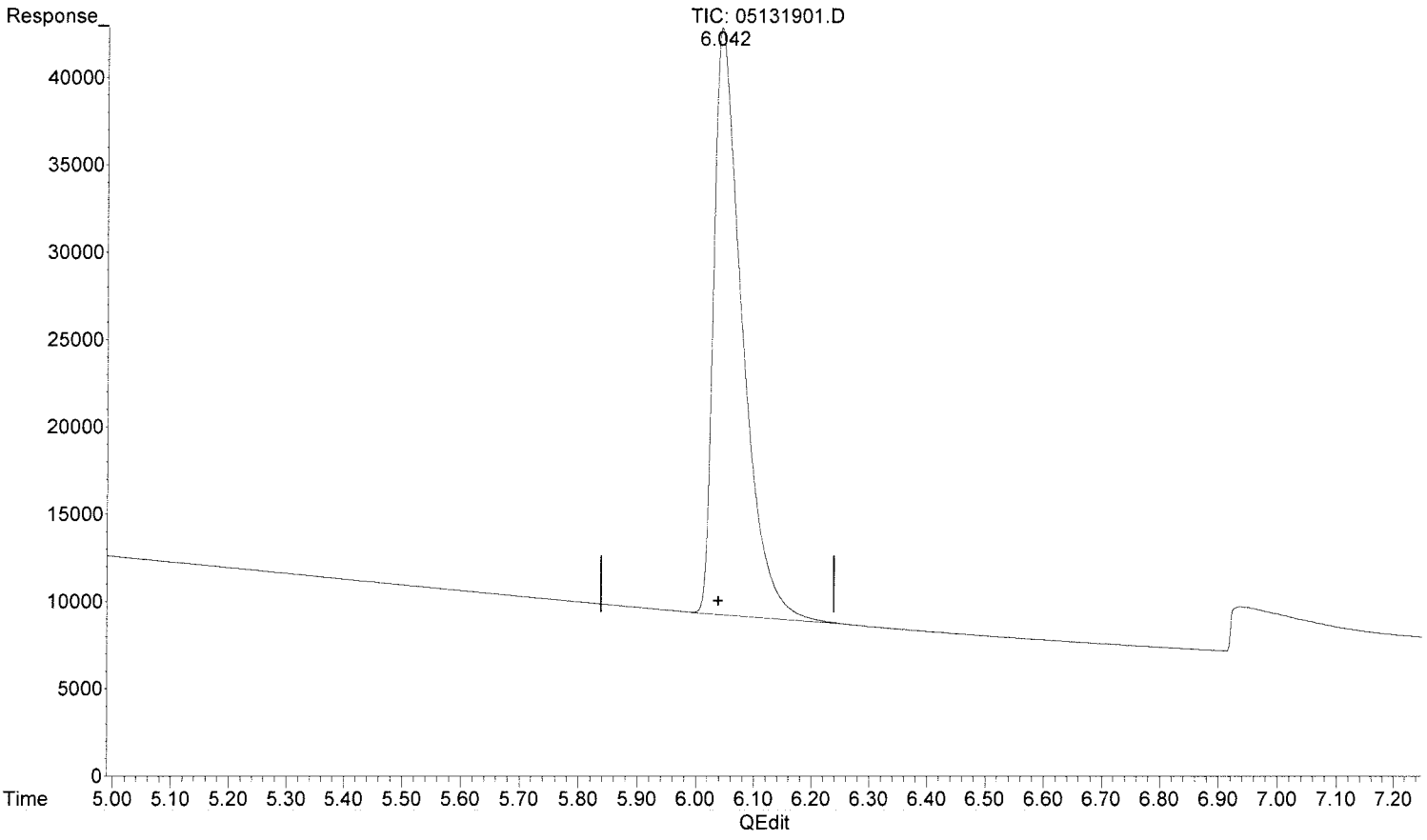




Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 10:39:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 10:52:50 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.042min 4880.961 ppm m

response 1145704

MK 5/14/19

Lab 5/14/19 BL – no previous

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:32:20
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:41:16 2019
Quant Method : J:\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 :

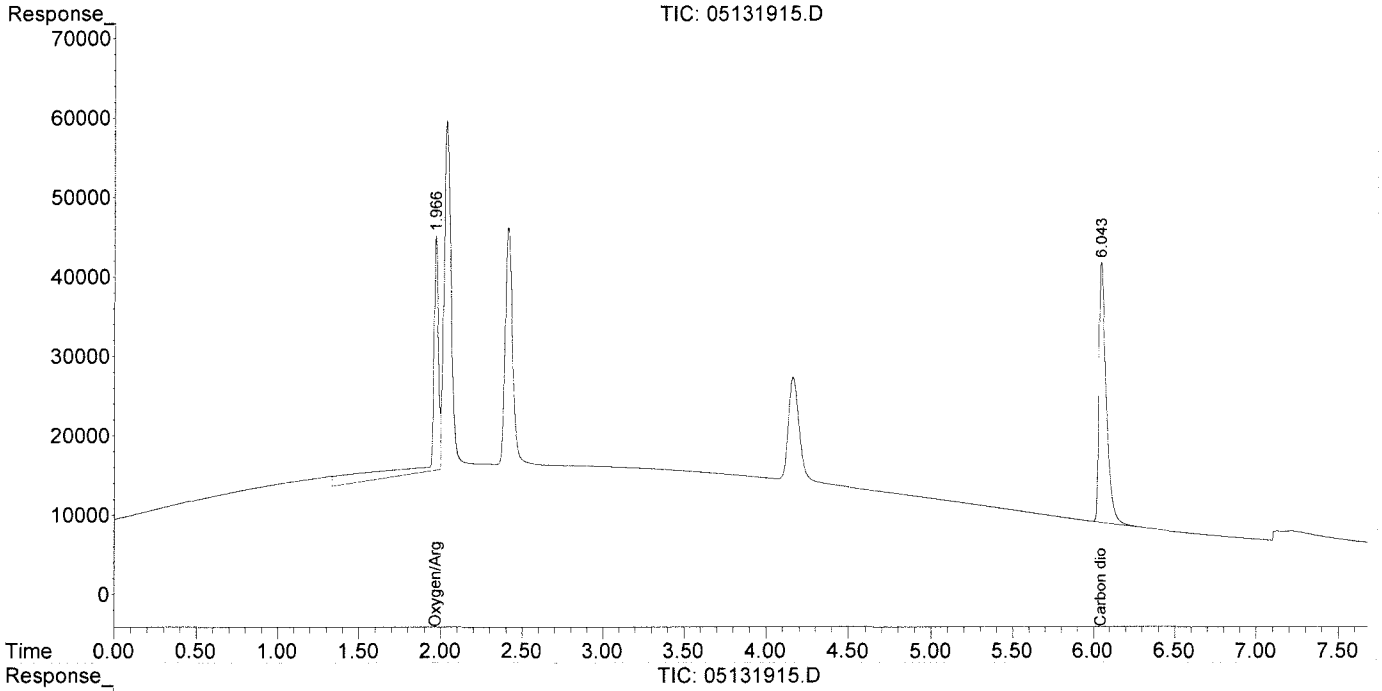
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.967f	853084	0.179	ppm
2)	Carbon monoxide	1.967f	853084	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.044	1078881	4596.279	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

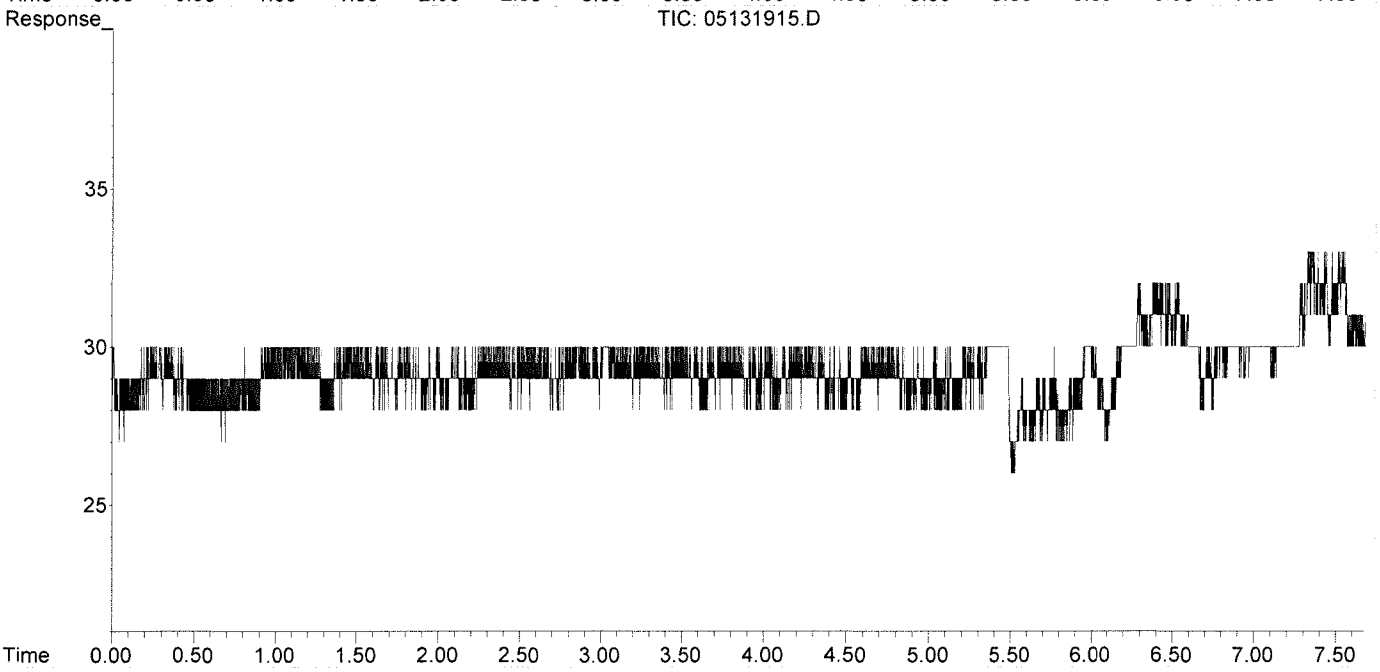
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 14:32:20
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 14:41:16 2019
Quant Method : J:\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_FID\2019_05\13\
Data File : 05131922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 16:11:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:23:56 2019
Quant Method : J:\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 :

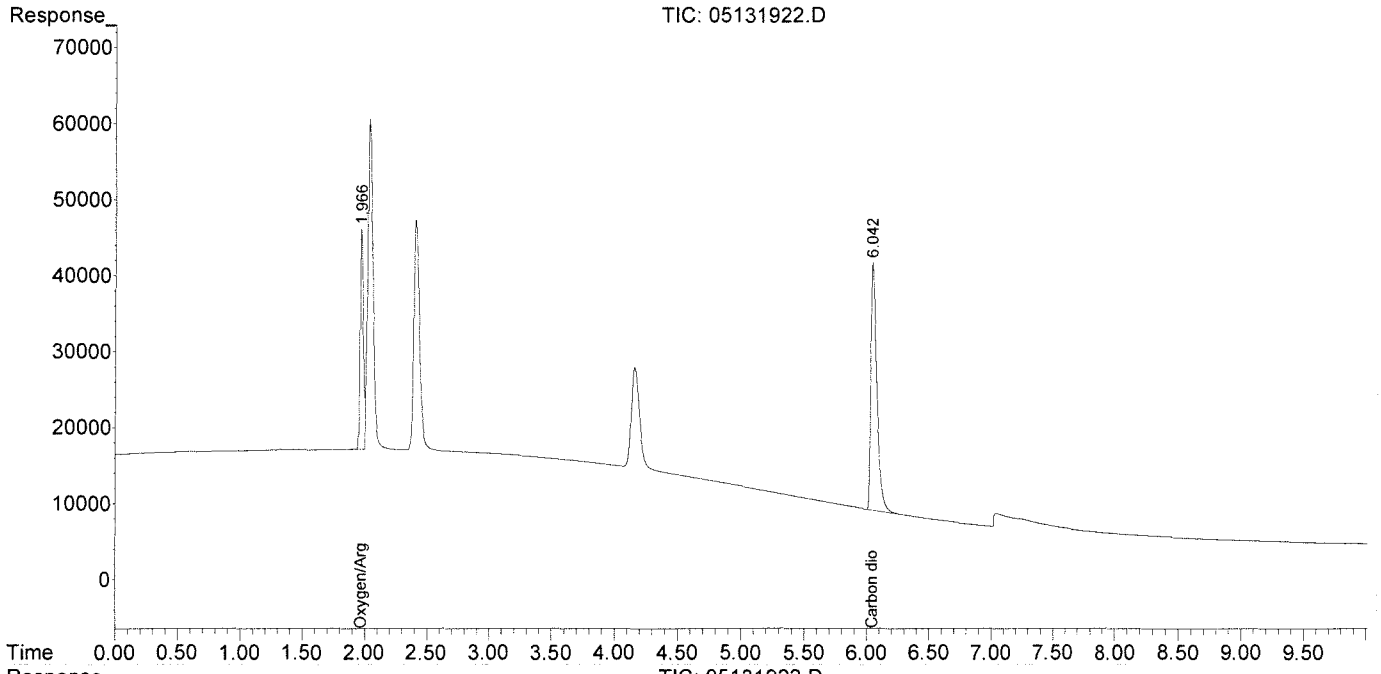
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.967f	514288	0.108	ppm
2)	Carbon monoxide	1.967f	514288	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.042	1100107	4686.707	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

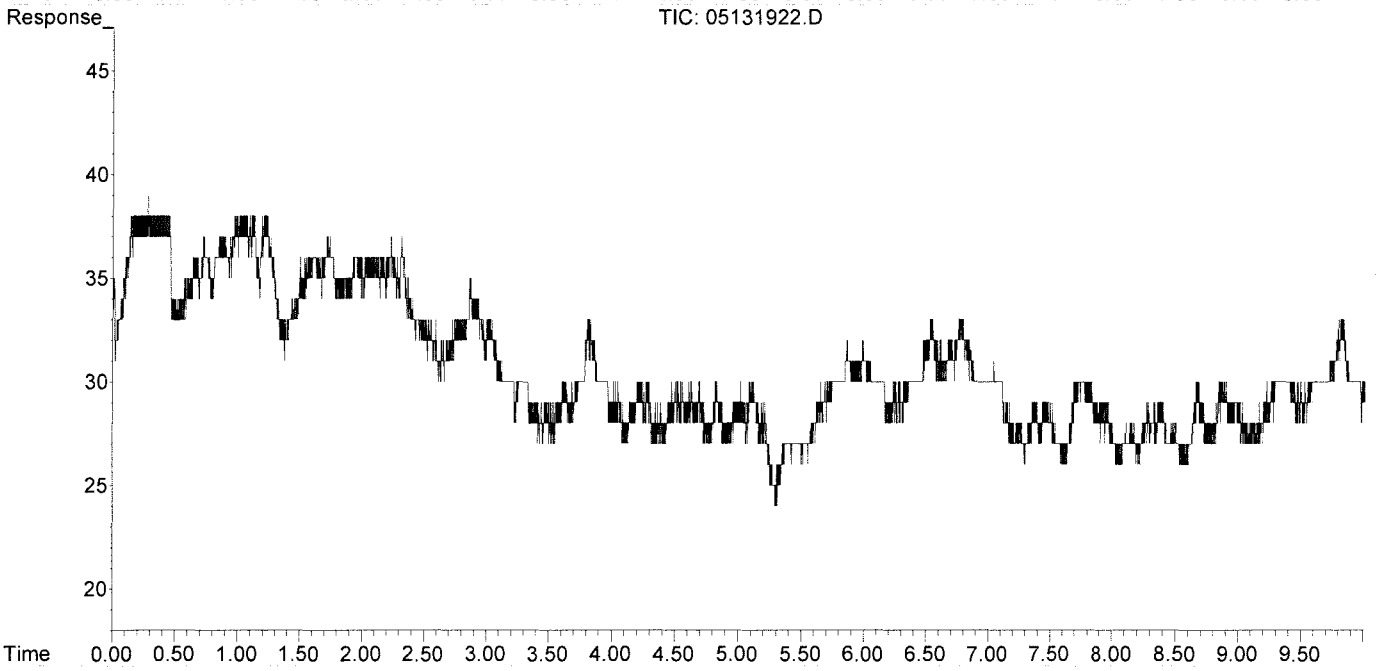
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\13\
Data File : 05131922.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 13-May-2019, 16:11:51
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 13 16:23:56 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_05\13\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	13-May-19, 10:39:51	05131901.D	std s32-04251903		WH	RSKBOTH.M	pass
2	13-May-19, 10:55:14	05131902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	13-May-19, 11:08:12	05131903.D	mcs 0.1ml		WH	RSKBOTH.M	pass
4	13-May-19, 11:26:21	05131904.D	lcs tcd 0.1ml		WH	RSKBOTH.M	pass
5	13-May-19, 11:41:14	05131905.D	lcsd tcd 0.1ml		WH	RSKBOTH.M	pass
6	13-May-19, 12:02:10	05131906.D	P1902518-001 0.1		WH	RSKBOTH.M	
7	13-May-19, 12:13:16	05131907.D	P1902518-001 50ul		WH	RSKBOTH.M	
8	13-May-19, 12:26:26	05131908.D	P1902518-002 50ul		WH	RSKBOTH.M	
9	13-May-19, 12:36:10	05131909.D	P1902518-003 50ul		WH	RSKBOTH.M	
10	13-May-19, 12:47:39	05131910.D	P1902501-001 0.1ml		WH	RSKBOTH.M	
11	13-May-19, 13:03:32	05131911.D	P1902701-001 50ul		WH	RSKBOTH.M	
12	13-May-19, 13:33:30	05131912.D	P1902701-002 50ul		WH	RSKBOTH.M	
13	13-May-19, 14:04:20	05131913.D	P1902701-003 50ul		WH	RSKBOTH.M	
14	13-May-19, 14:19:29	05131914.D	P1902701-004 50u		WH	RSKBOTH.M	
15	13-May-19, 14:32:20	05131915.D	std s32-04251903		WH	RSKBOTH.M	pass
16	13-May-19, 14:42:38	05131916.D	P1902701-005 50ul		WH	RSKBOTH.M	
17	13-May-19, 15:04:14	05131917.D	P1902701-006 50ul		WH	RSKBOTH.M	
18	13-May-19, 15:17:18	05131918.D	P1902700-001 50ul		WH	RSKBOTH.M	
19	13-May-19, 15:28:07	05131919.D	P1902700-002 50ul		WH	RSKBOTH.M	
20	13-May-19, 15:48:03	05131920.D	P1902700-002ms 50ul		WH	RSKBOTH.M	
21	13-May-19, 15:58:06	05131921.D	P1902700-002msd 50ul		WH	RSKBOTH.M	
22	13-May-19, 16:11:51	05131922.D	std s32-04251903		WH	RSKBOTH.M	pass

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:34:27
Operator : WH
Sample : P1902700-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 11:31:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

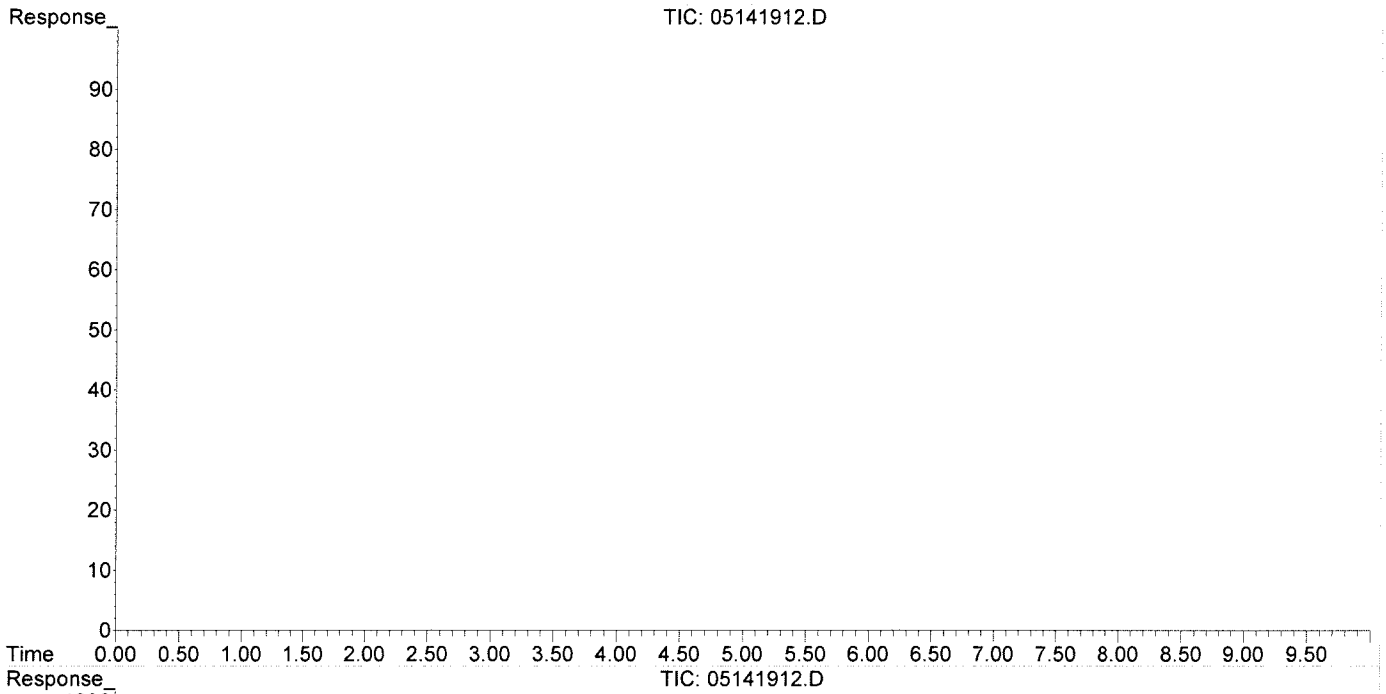
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	5836	0.643	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

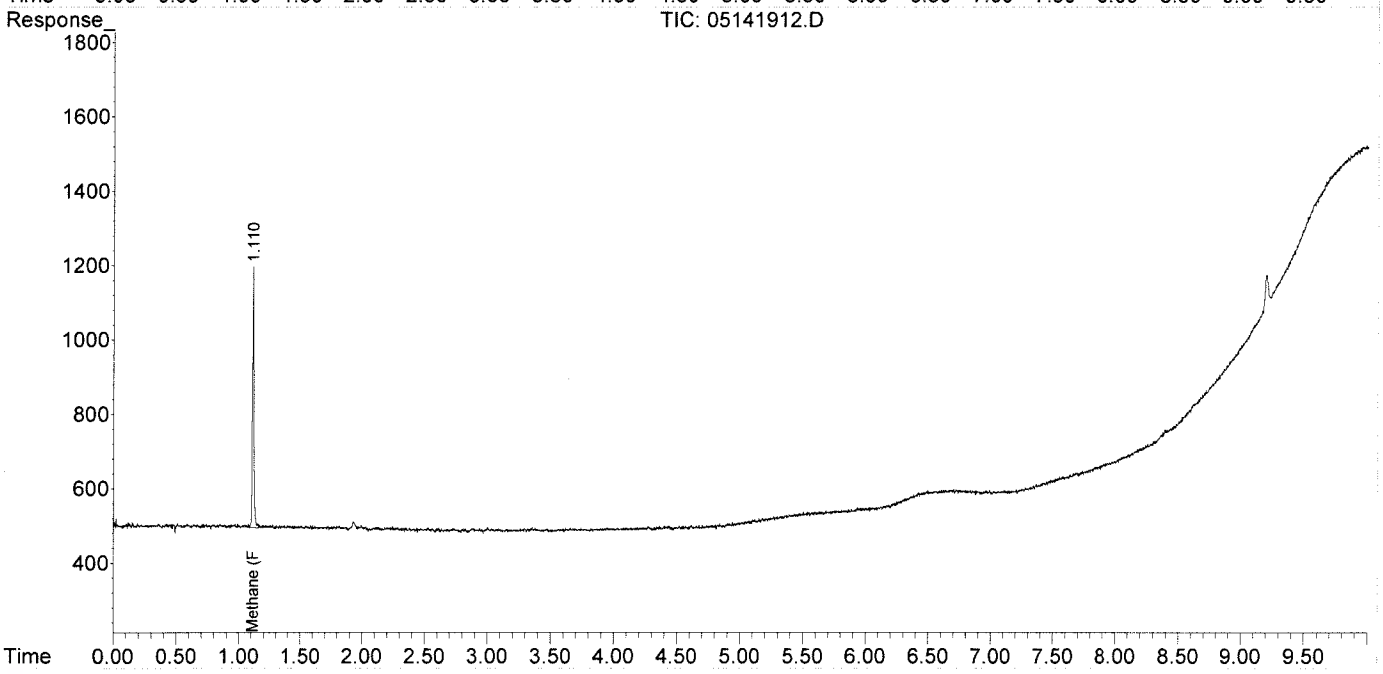
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:34:27
Operator : WH
Sample : P1902700-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 11:31:55 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:57:59
Operator : WH
Sample : P1902700-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 11:32:12 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

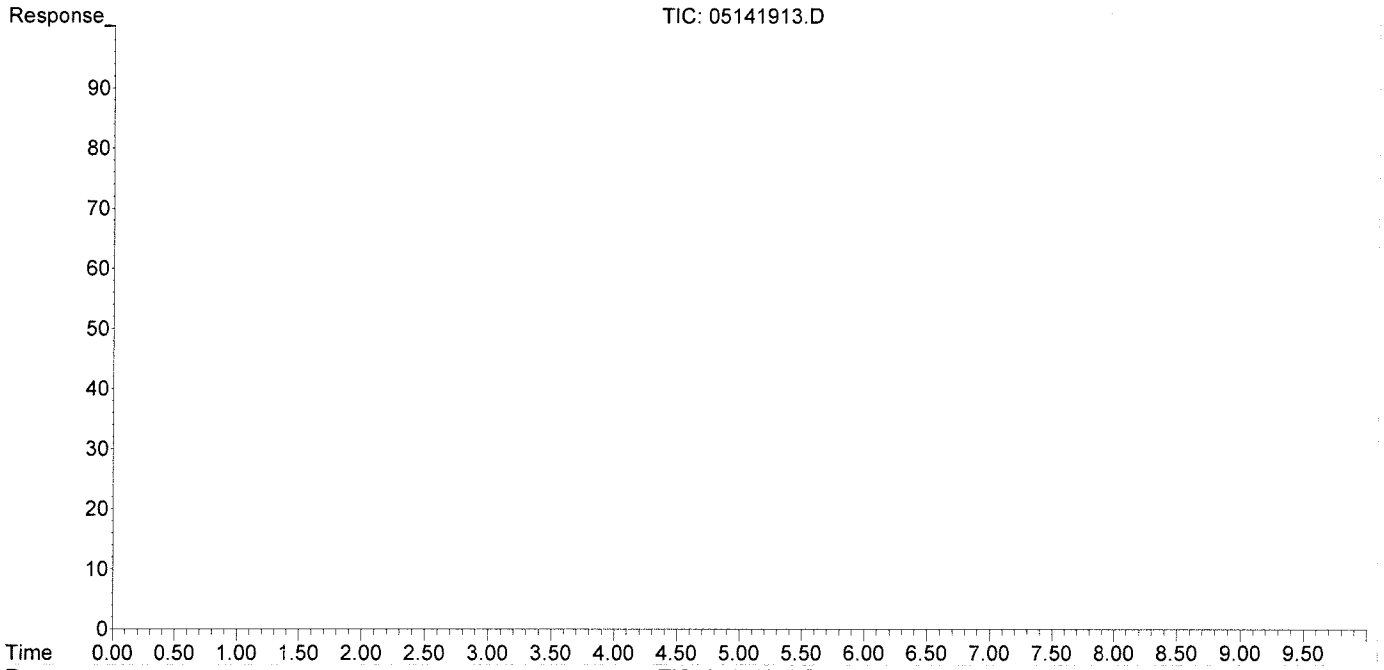
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000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

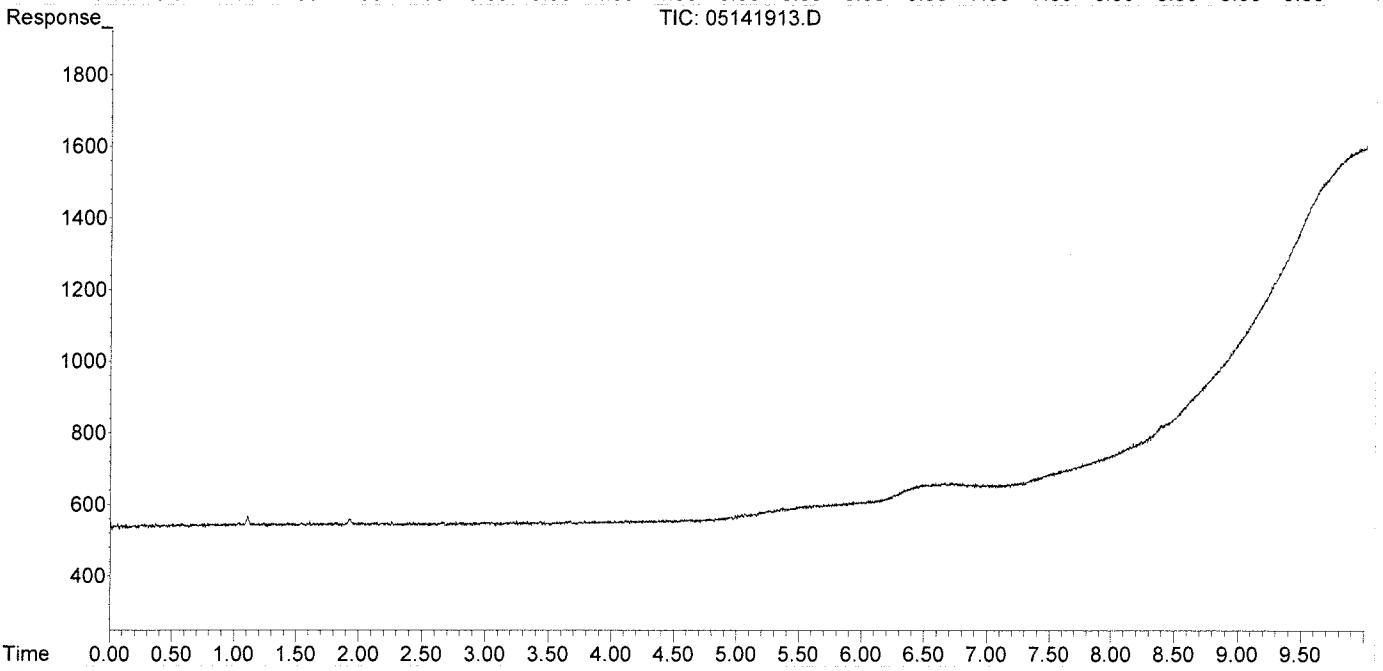
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141913.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 13:57:59
Operator : WH
Sample : P1902700-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 15 11:32:12 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_05\14\
Data File : 05141903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:09:41
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: May 14 11:26:59 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 :

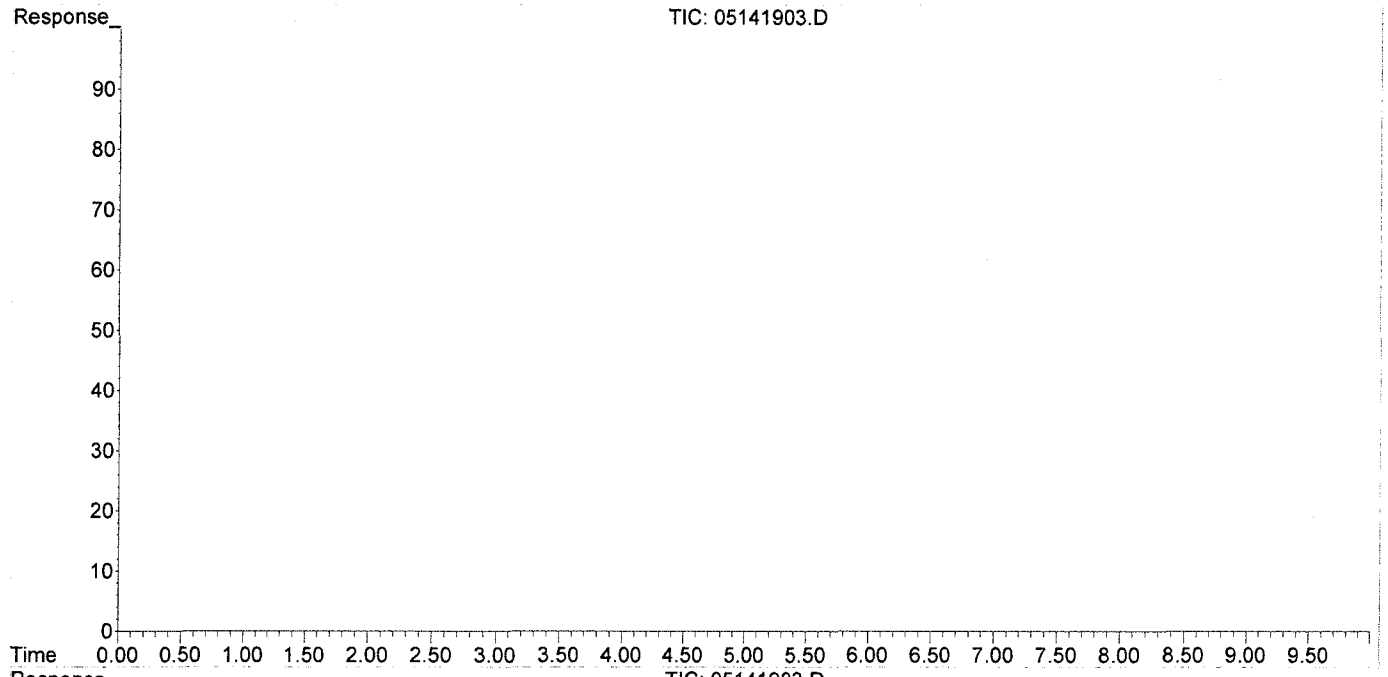
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.103	1880	0.207	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

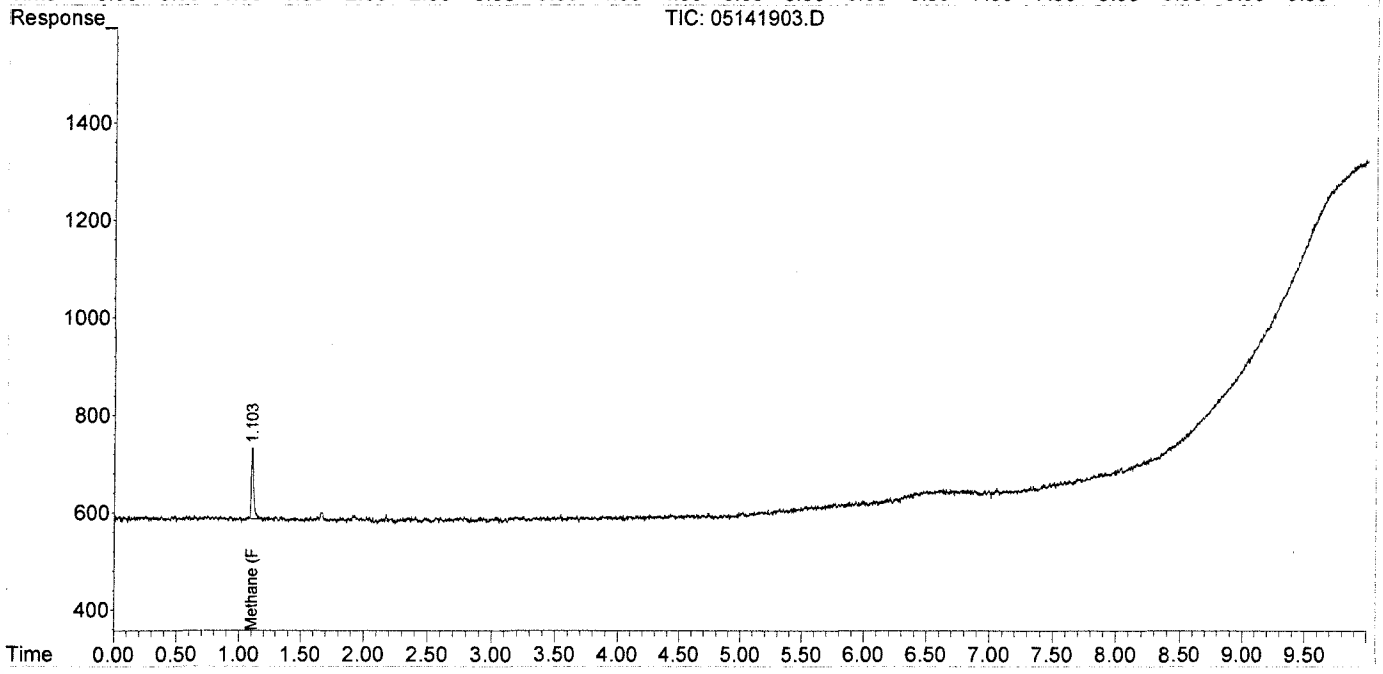
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:09:41
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: May 14 11:26:59 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 :





Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:12:33
Operator : WH
Sample : P1902700-002ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:36:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

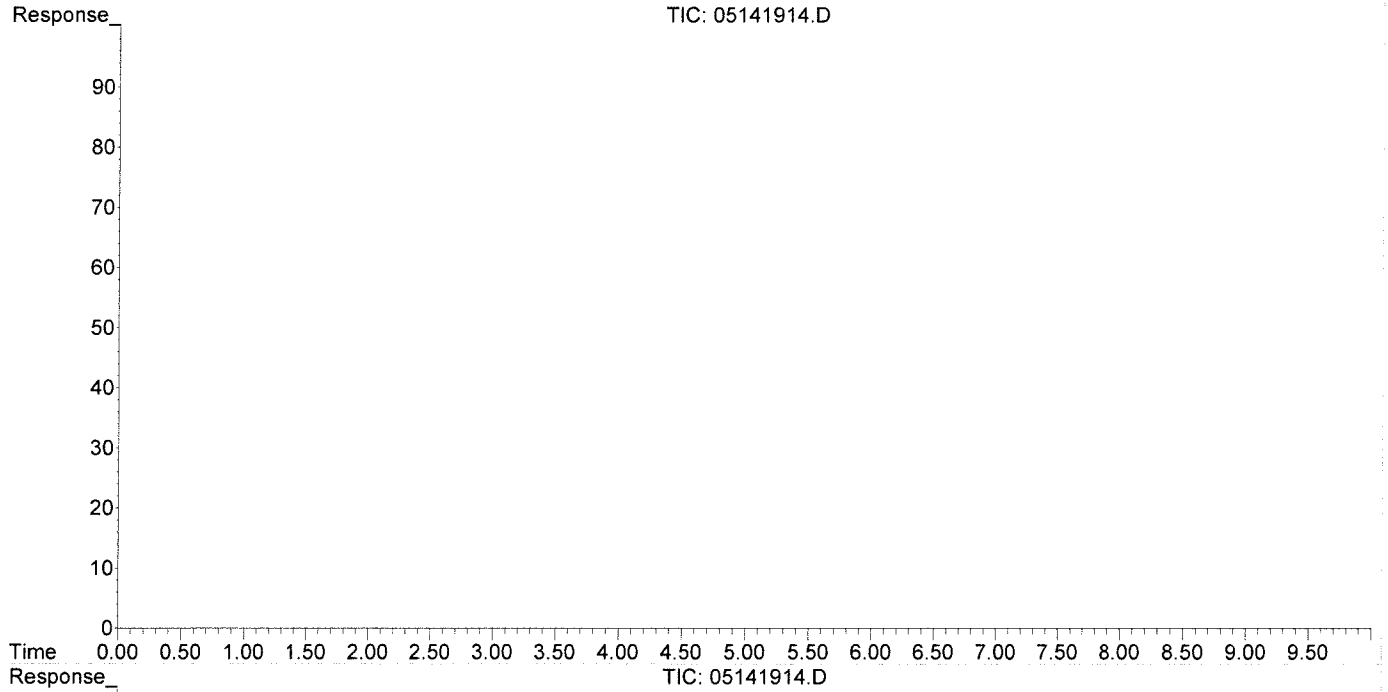
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.109	7314	0.806	ppm
7)	Ethylene	1.667	10085	0.603	ppm
8)	Ethane	1.929	12848	0.758	ppm
9)	Propylene	4.305	13273	0.566	ppm
10)	Propane	4.427	19879	0.799	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.644f	25907	0.973	ppm
13)	n-Butane	6.644f	25907	0.973	ppm

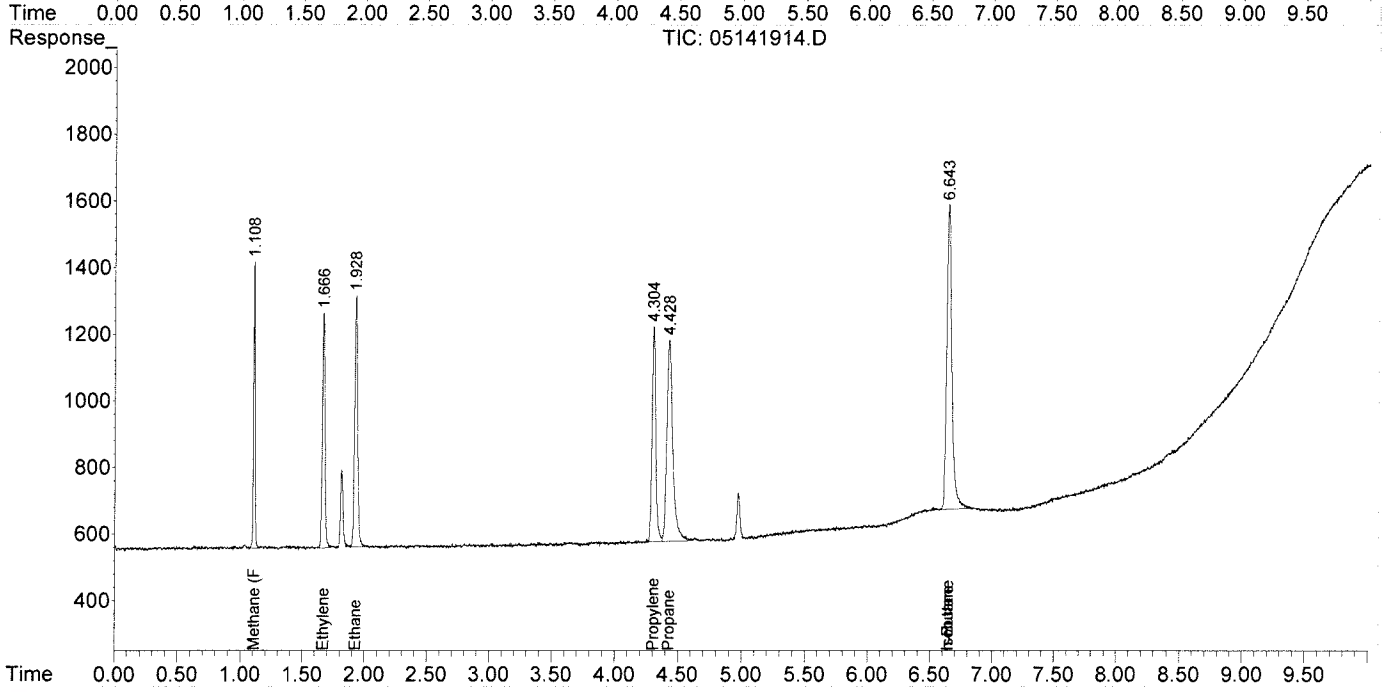
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141914.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:12:33
Operator : WH
Sample : P1902700-002ms 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:36:45 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:26:48
Operator : WH
Sample : P1902700-002msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:37:44 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 :

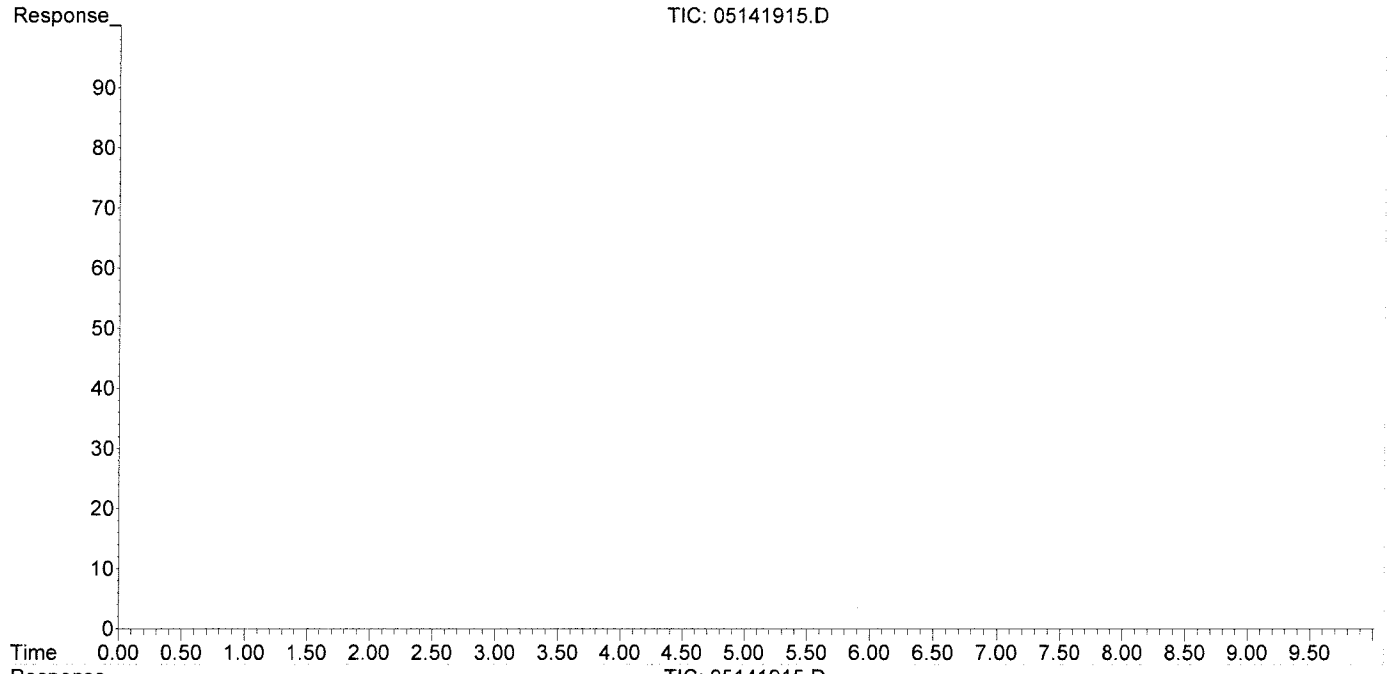
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.111	7136	0.787	ppm
7)	Ethylene	1.669	10091	0.603	ppm
8)	Ethane	1.931	12713	0.750	ppm
9)	Propylene	4.306	13514	0.577	ppm
10)	Propane	4.427	18974	0.763	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.643f	24750	0.930	ppm
13)	n-Butane	6.643f	24750	0.930	ppm

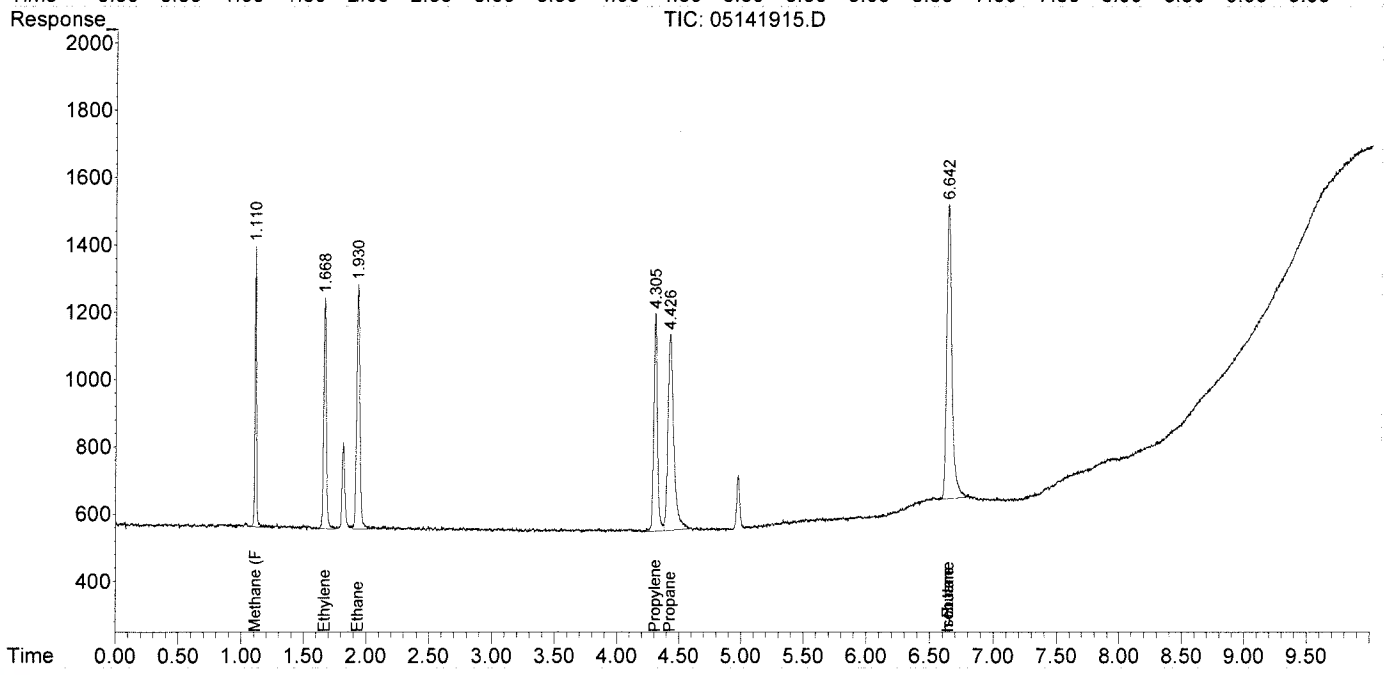
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141915.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:26:48
Operator : WH
Sample : P1902700-002msd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:37:44 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_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :

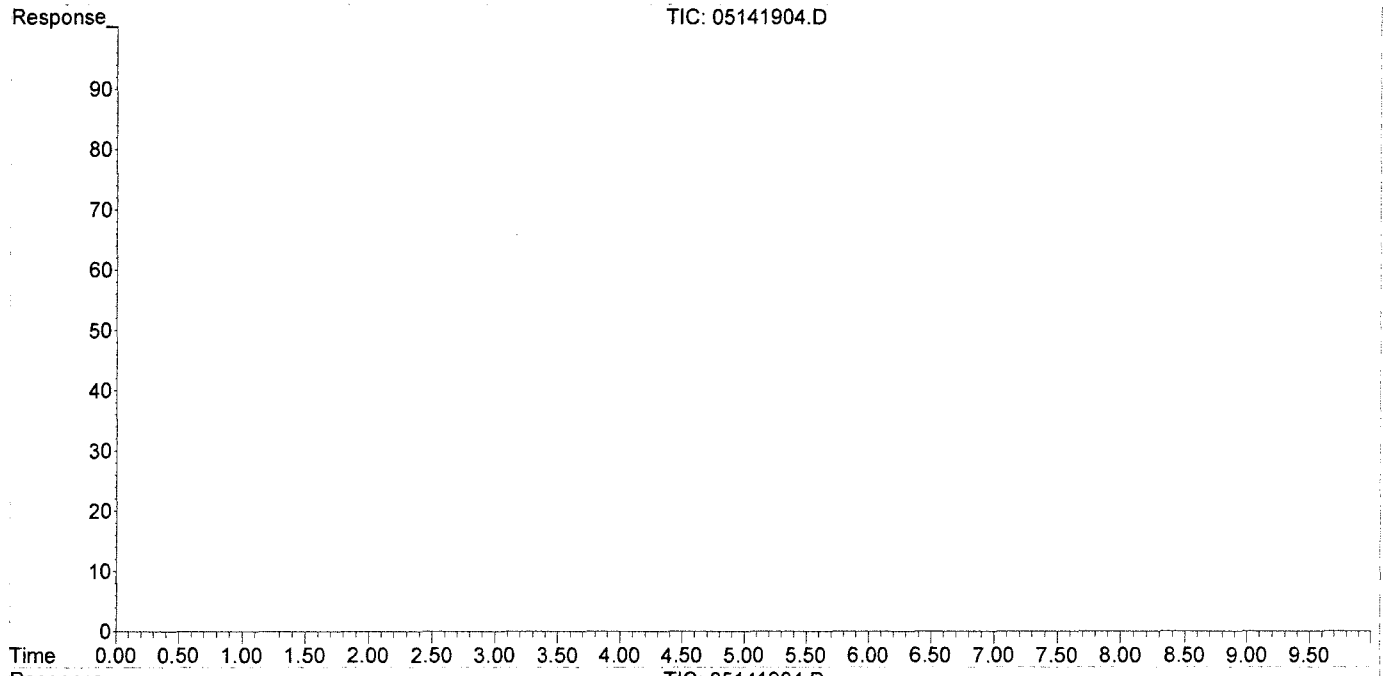
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.107	12224	1.348	ppm	
7)	Ethylene	1.667	15157	0.906	ppm	m
8)	Ethane	1.929	19194	1.132	ppm	
9)	Propylene	4.306	20915	0.893	ppm	
10)	Propane	4.428	29491	1.185	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.644f	39735	1.493	ppm	
13)	n-Butane	6.644f	39735	1.493	ppm	

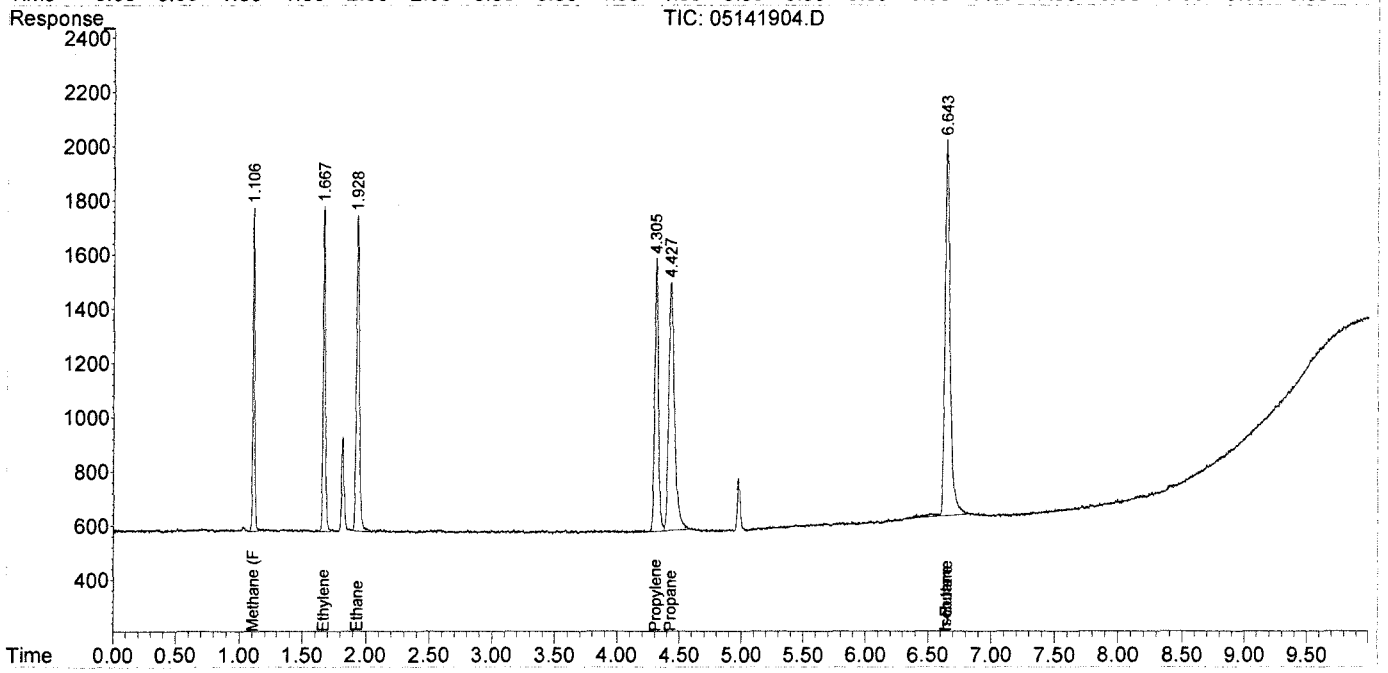
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :

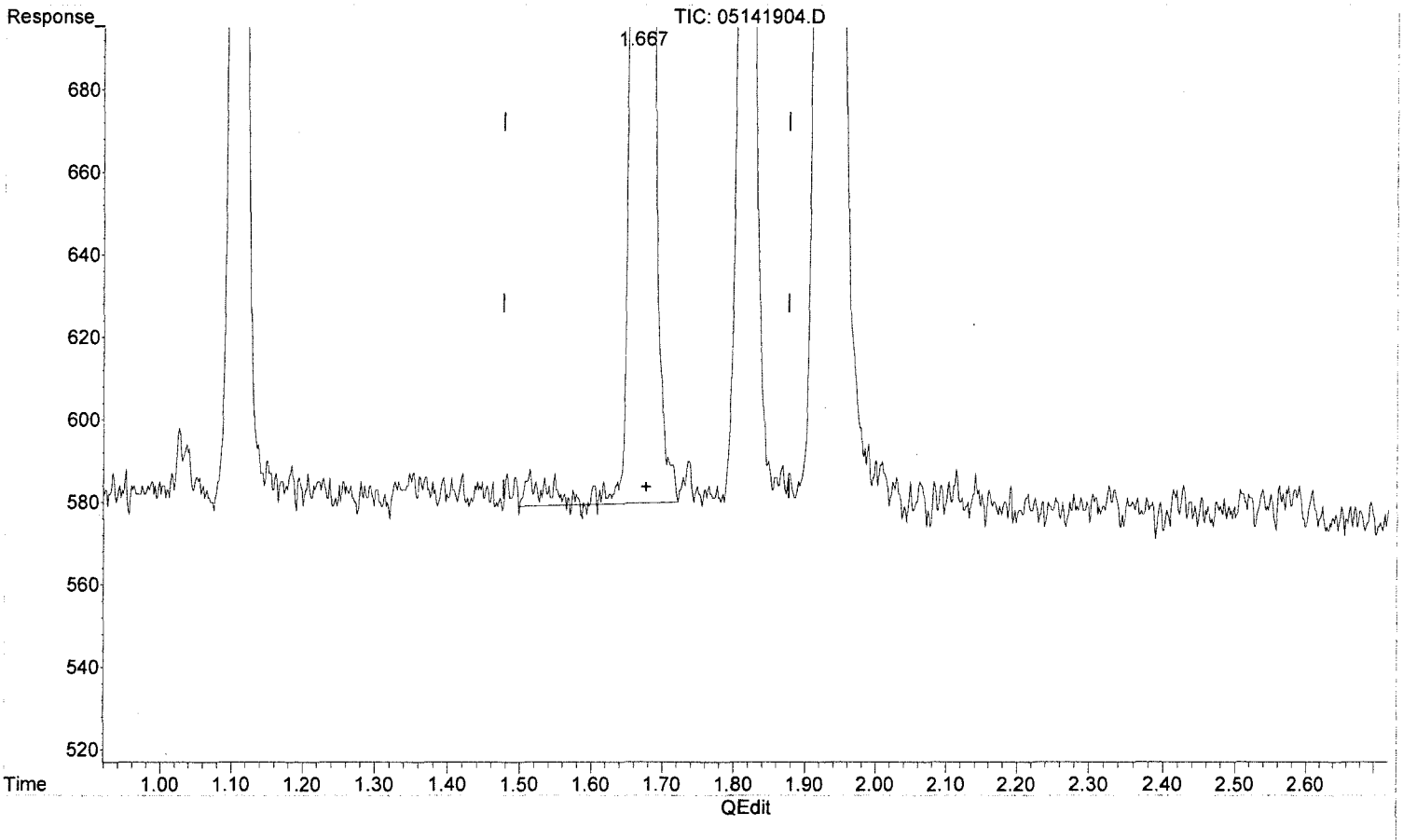




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :



(7) Ethylene

1.667min 0.918 ppm

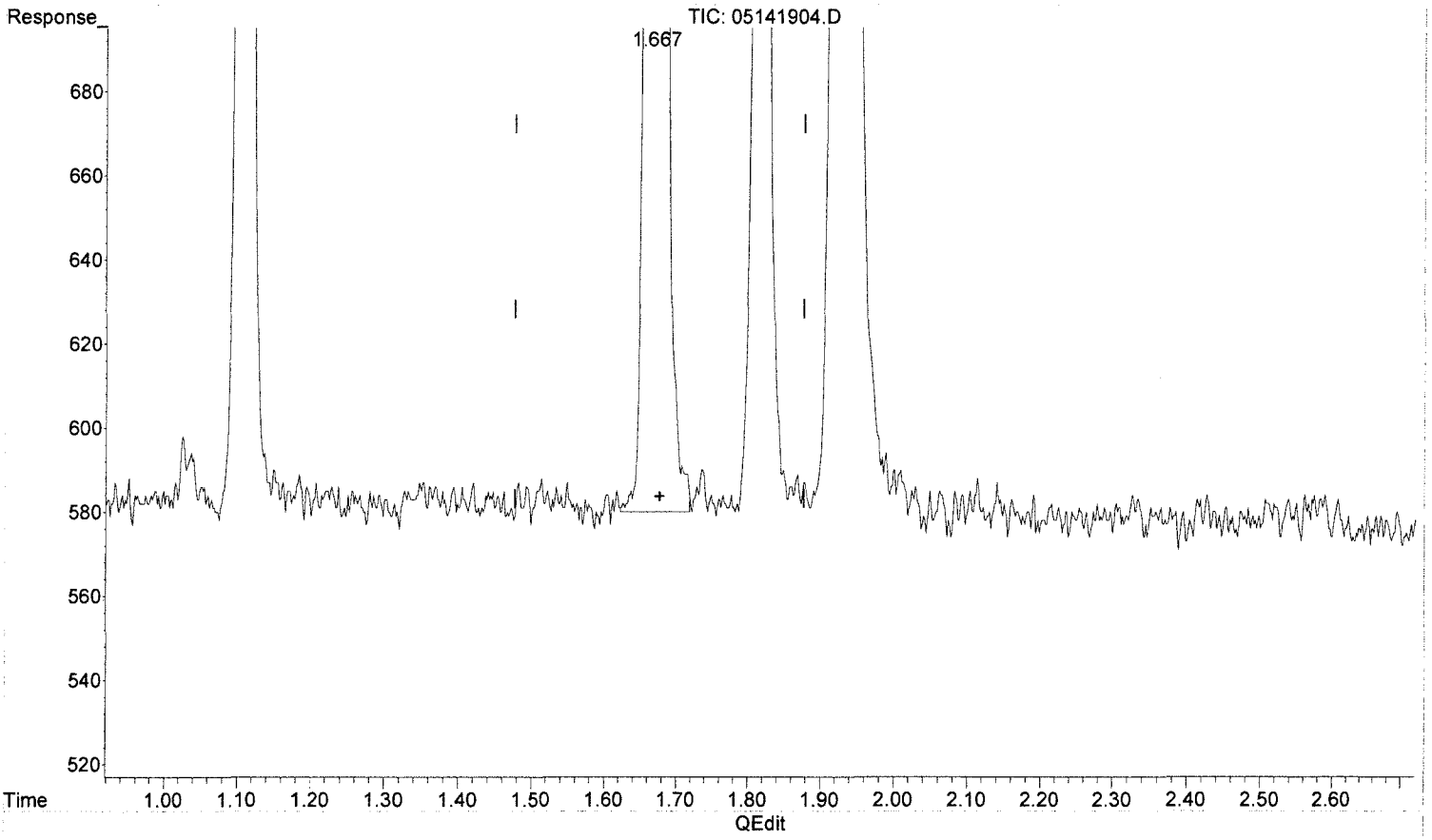
response 15369

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:28:14
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:42:28 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 :



(7) Ethylene

1.667min 0.906 ppm m

response 15157

MR 5/15/19

5/15/19

(+) = Expected Retention Time

RS091217_R.M Wed May 15 10:39:51 2019

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

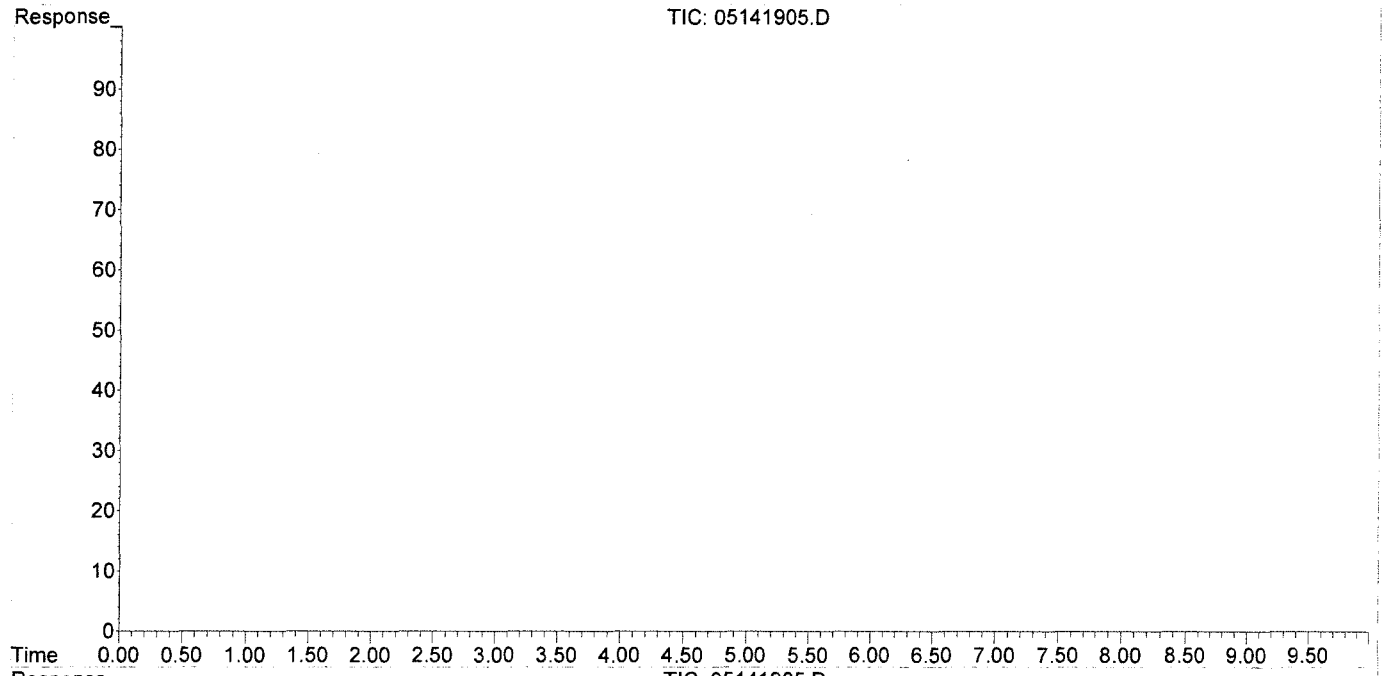
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.108	11902	1.312	ppm	m
7)	Ethylene	1.666	16523	0.987	ppm	
8)	Ethane	1.927	20726	1.223	ppm	
9)	Propylene	4.305	22478	0.959	ppm	
10)	Propane	4.426	32273	1.297	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.645f	43539	1.636	ppm	
13)	n-Butane	6.645f	43539	1.636	ppm	

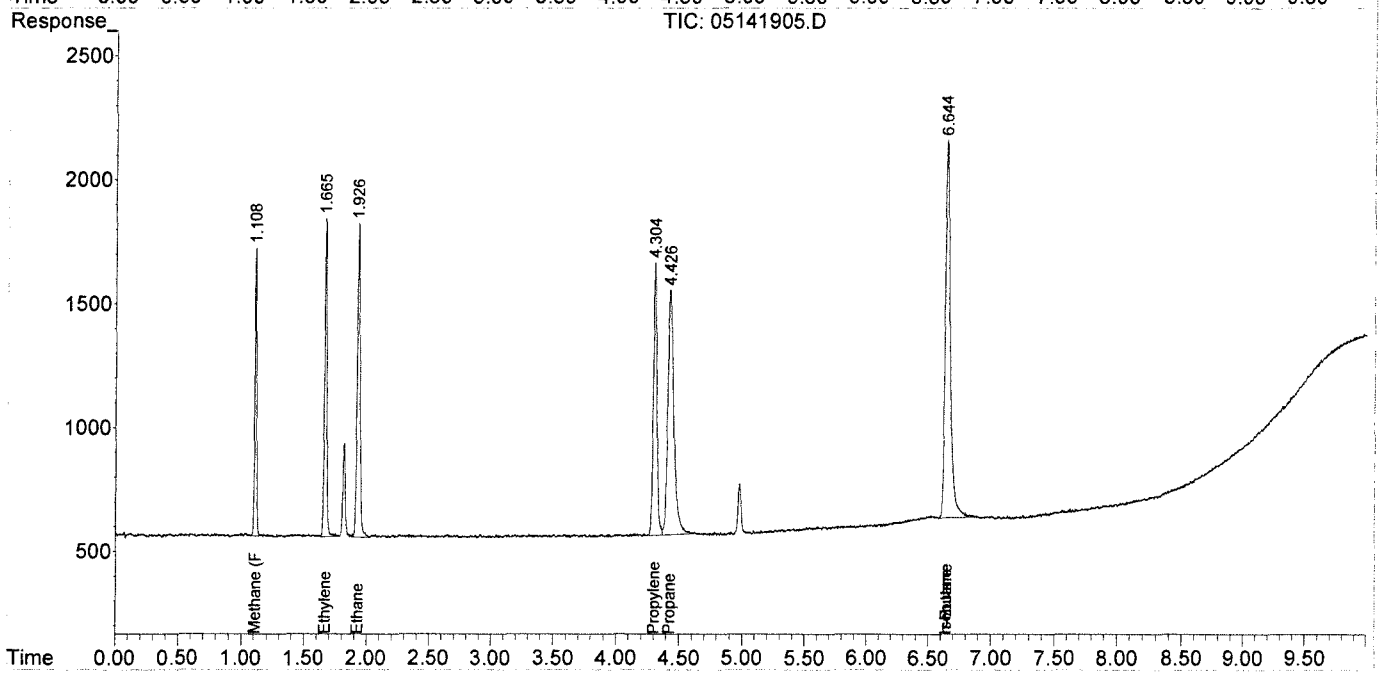
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

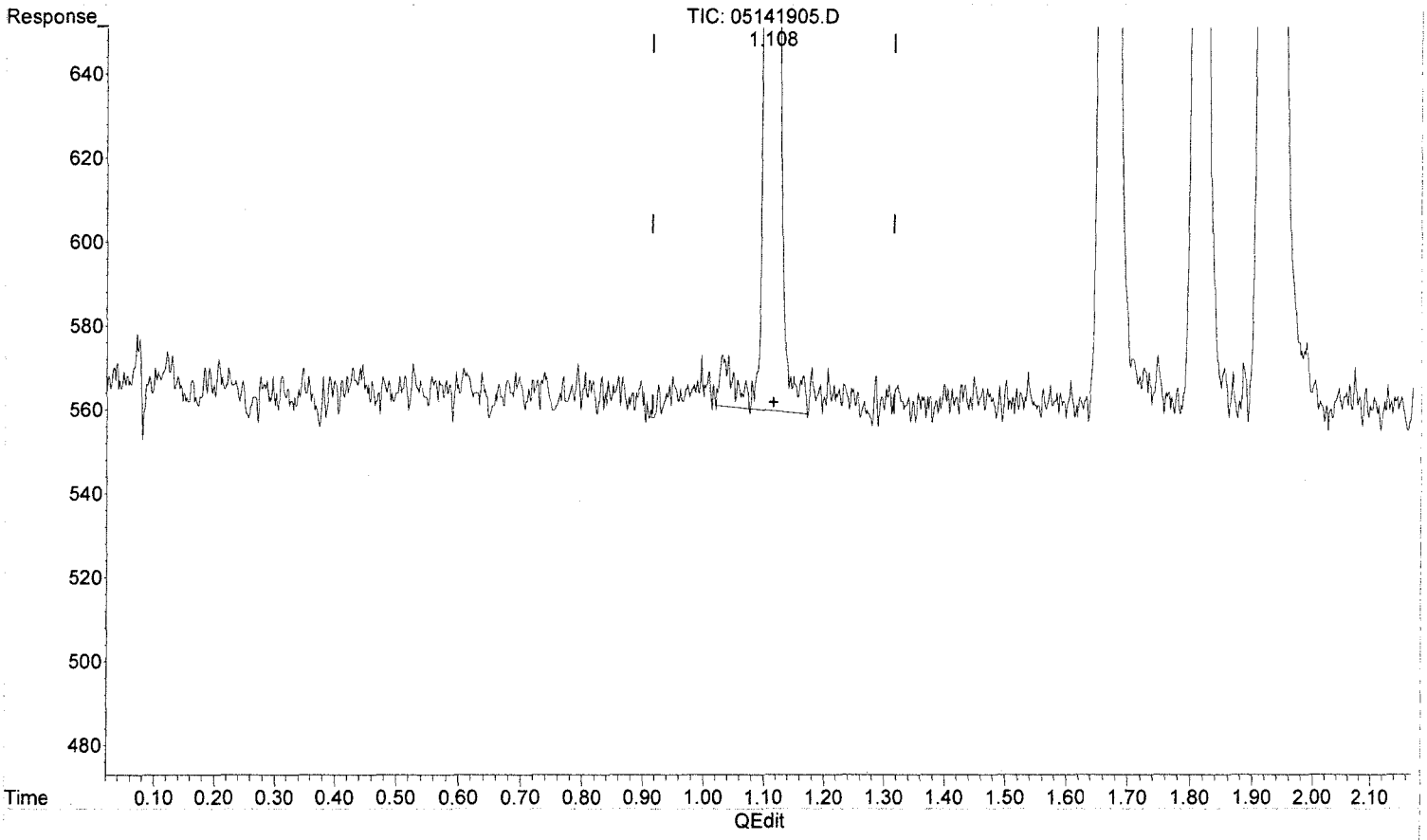




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.109min 1.351 ppm

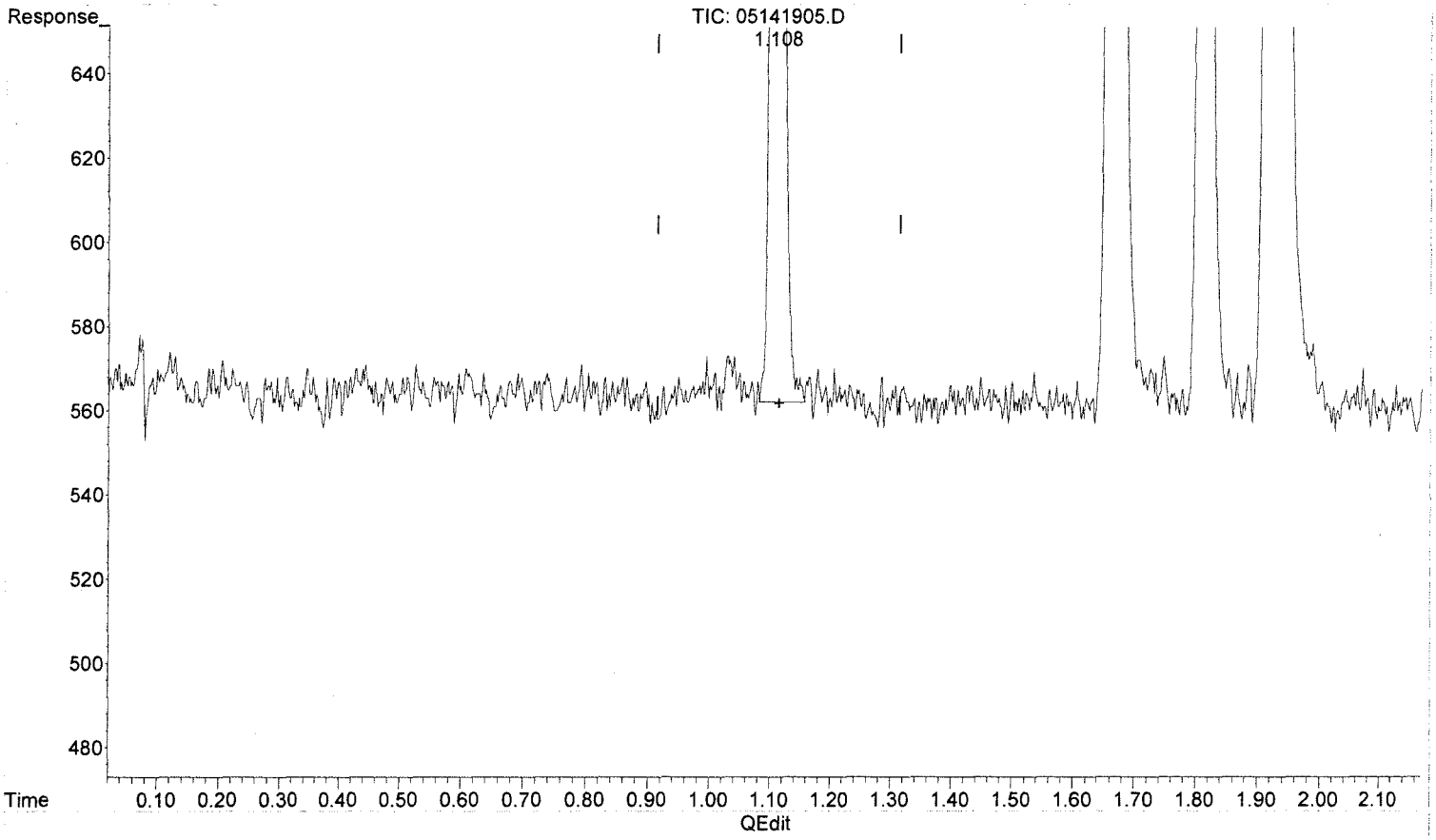
response 12251

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 11:41:20
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 11:57:22 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.108min 1.312 ppm m

response 11902

ME 5/15/19

LOQ 1.5 ppm BLC

(+) = Expected Retention Time

Response Factor Report HP5890

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

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

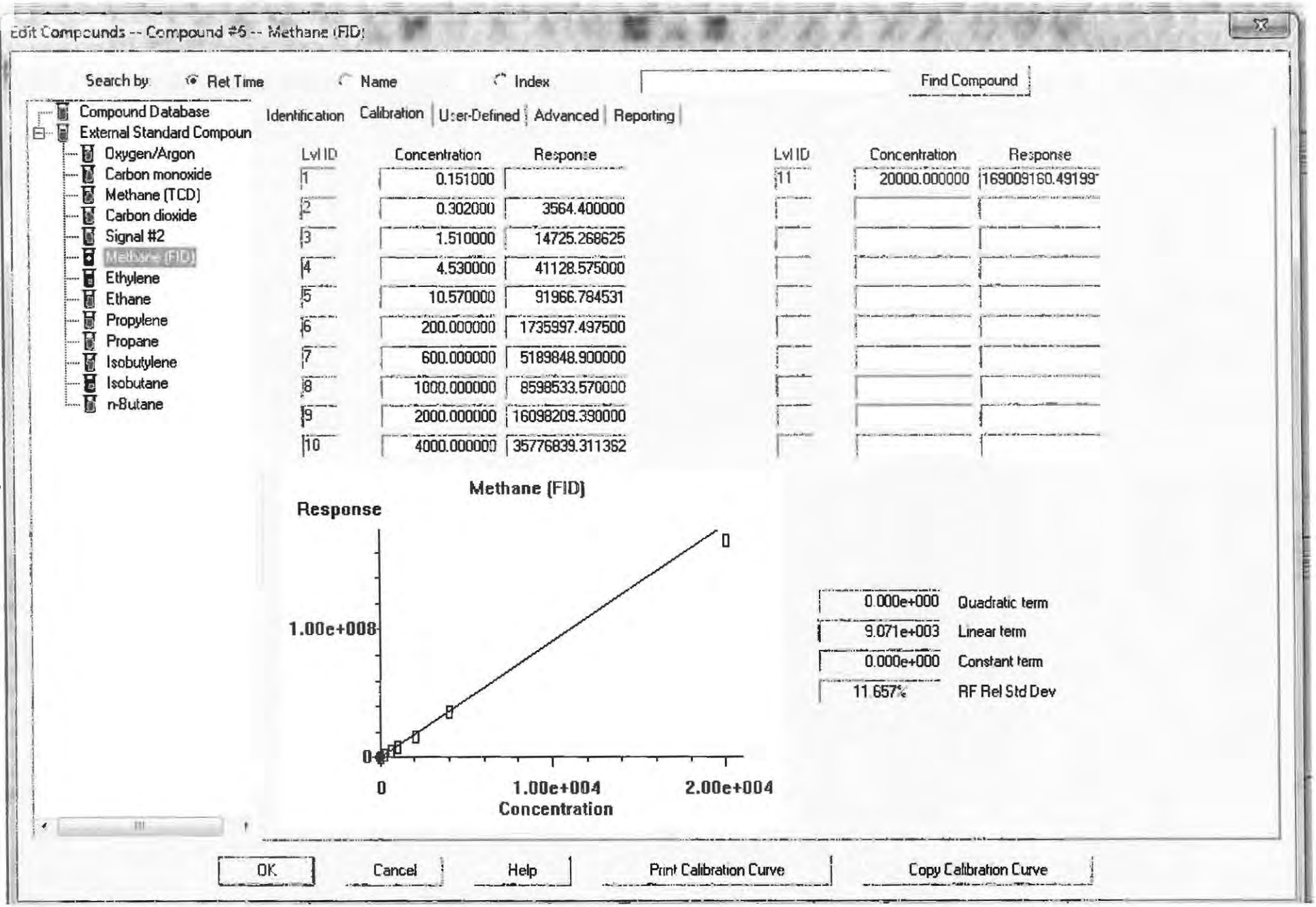
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

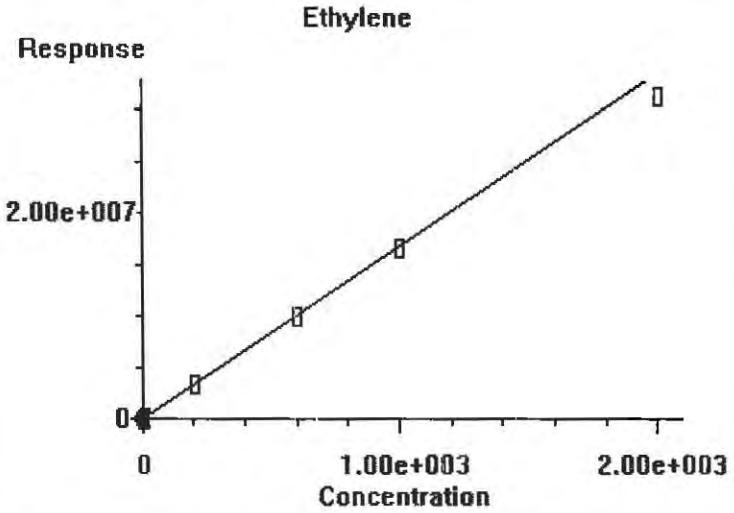
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

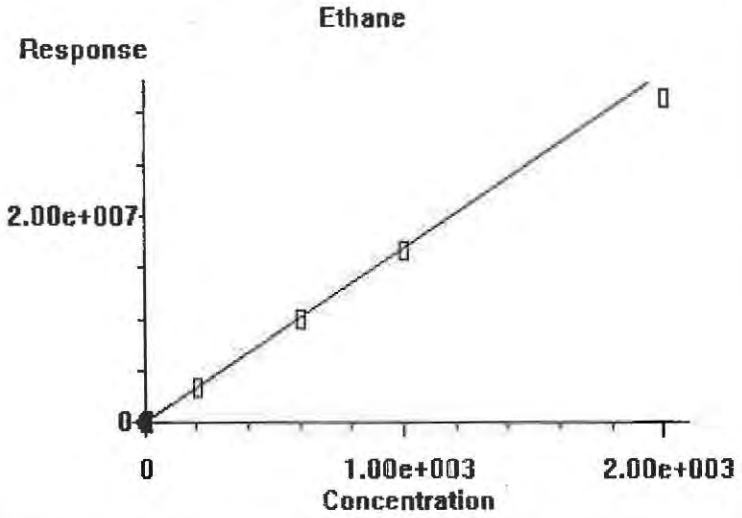
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

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

Edit Compounds -- Compound #9 -- Propylene

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

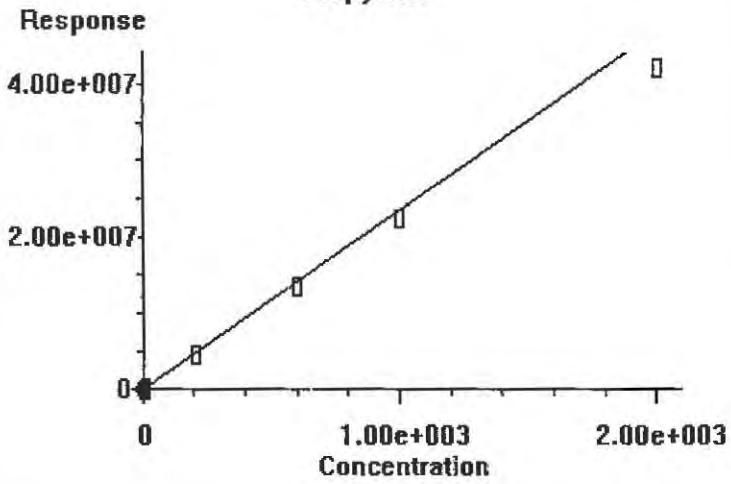
- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	

Propylene



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

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

Edit Compounds -- Compound #10 -- Propane

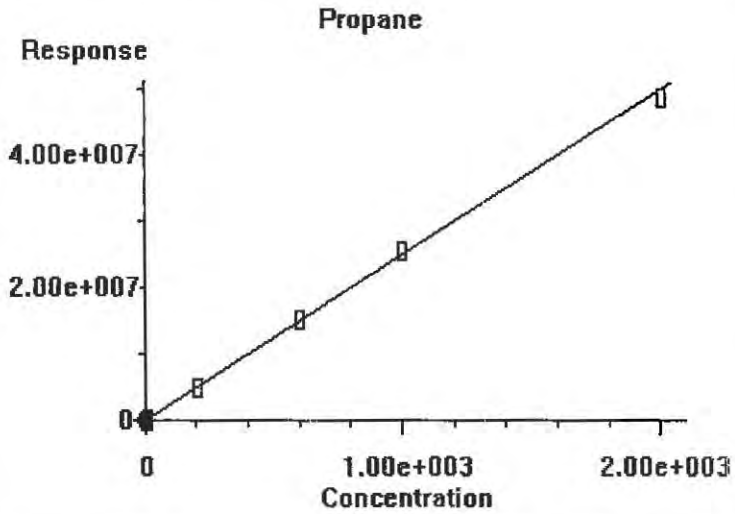
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663916
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

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

Calibration Status Report HP5890

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

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

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

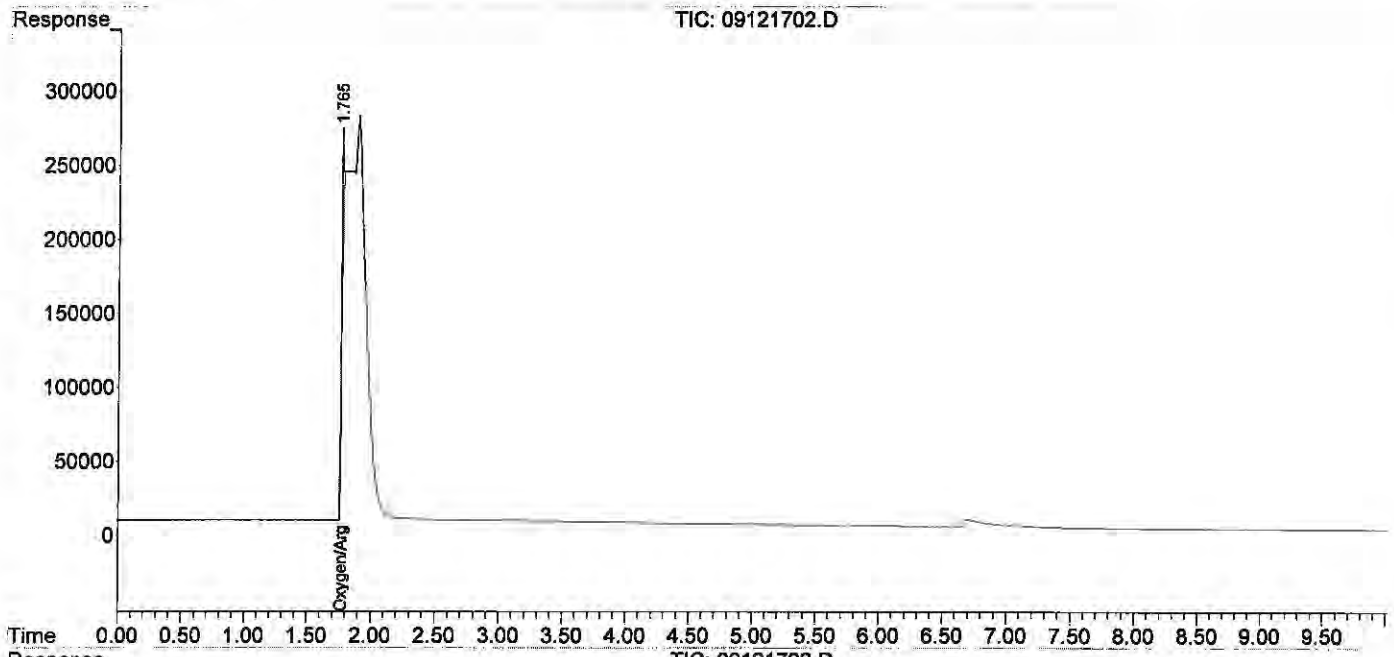
9/13/17

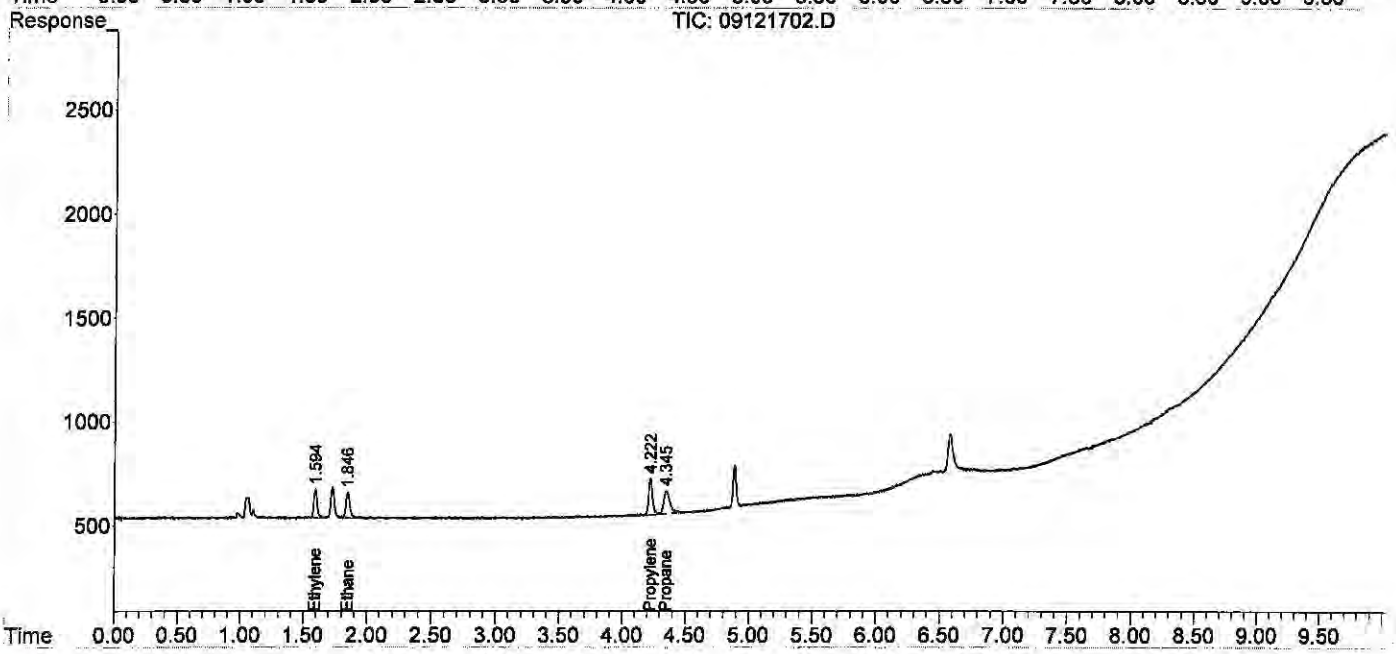
Quantitation Report (QT Reviewed)

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	

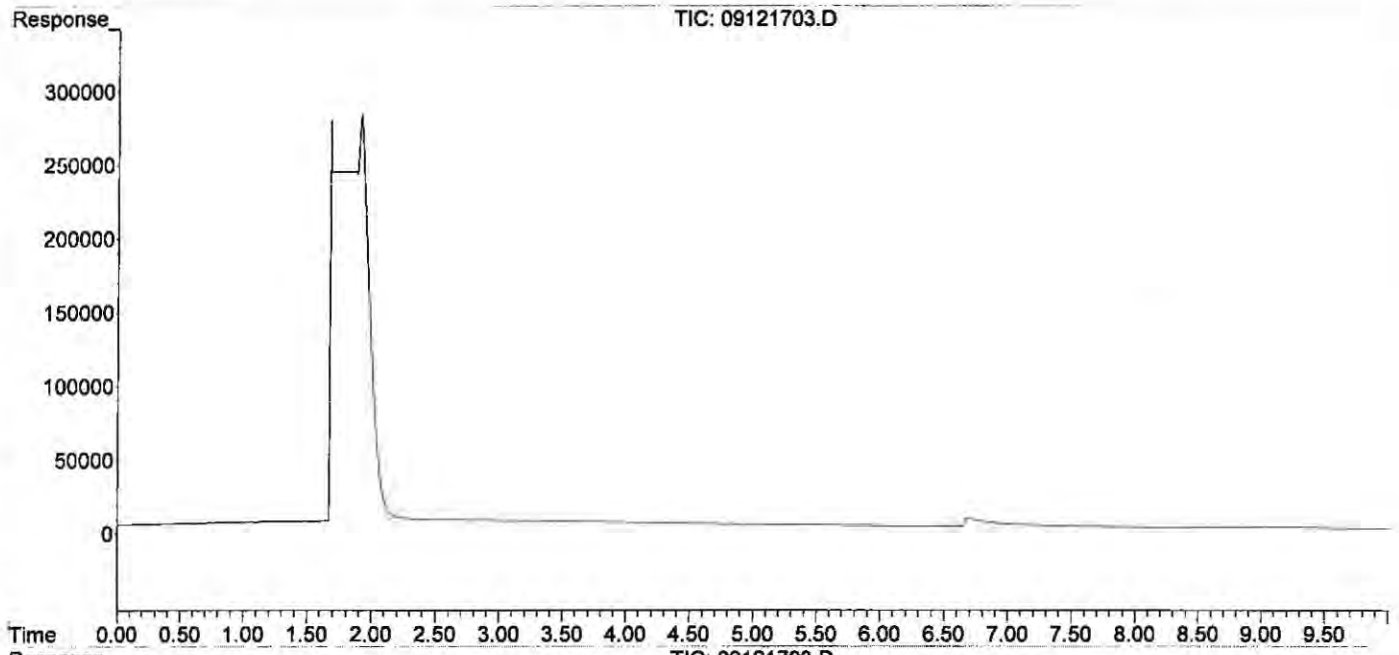
(f)=RT Delta > 1/2 Window (m)=manual int.

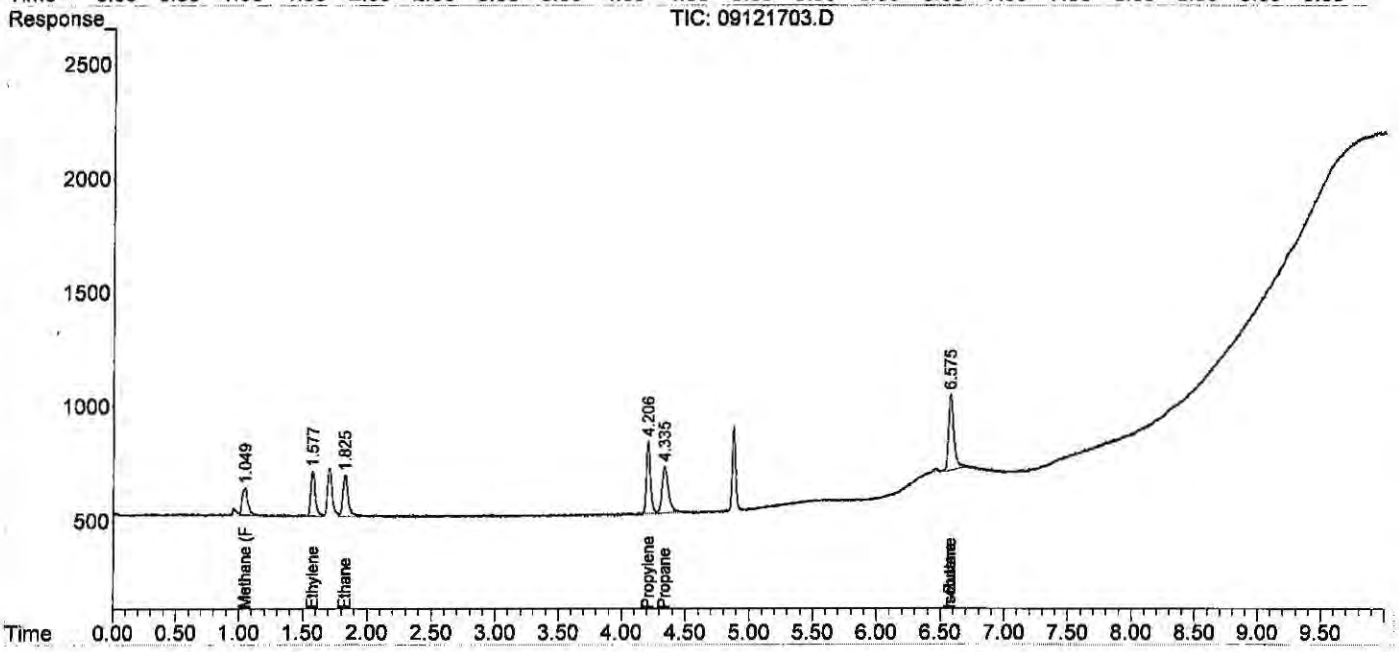
Quantitation Report (QT Reviewed)

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 :



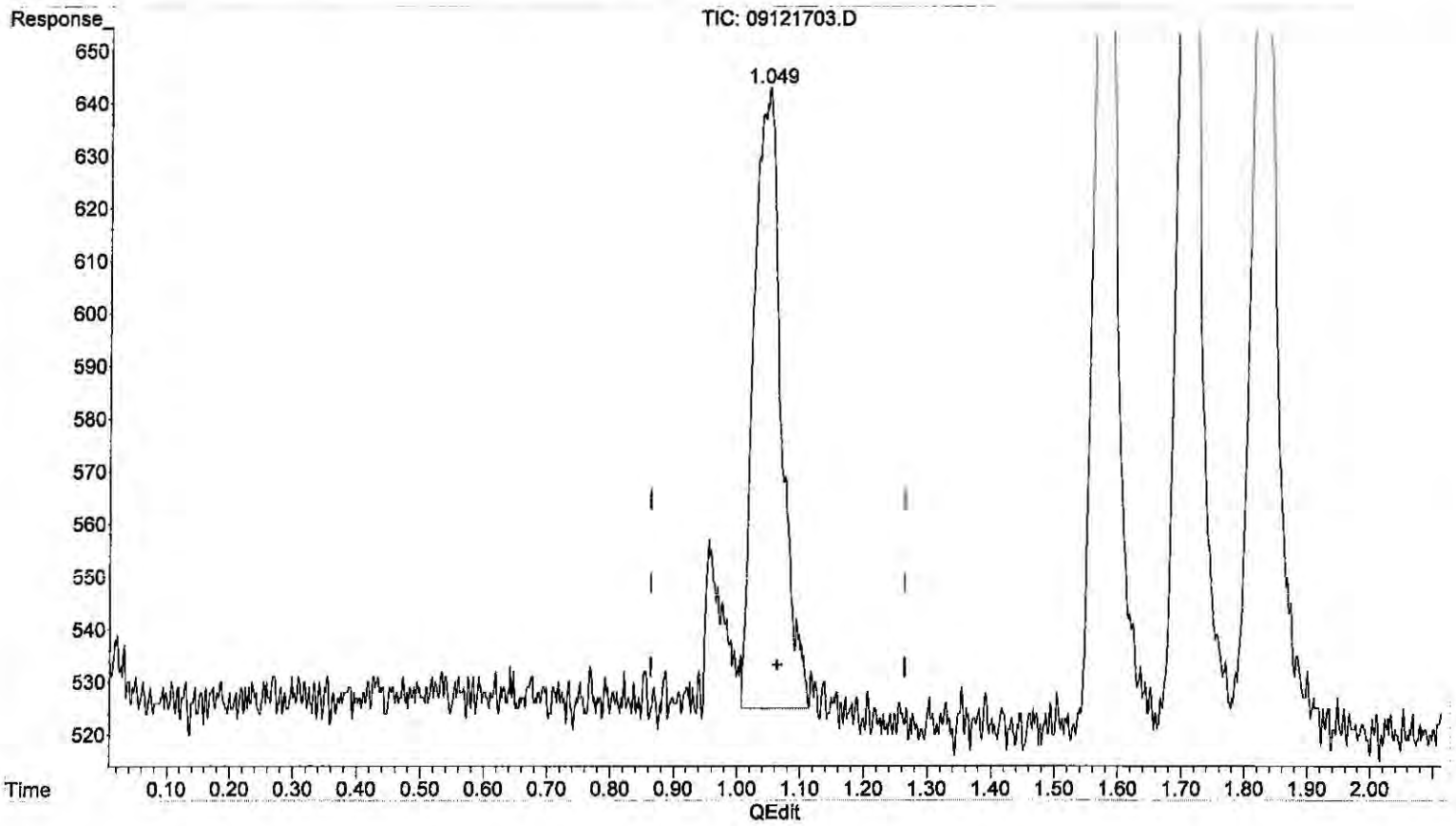


Quantitation Report (Qedit)

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

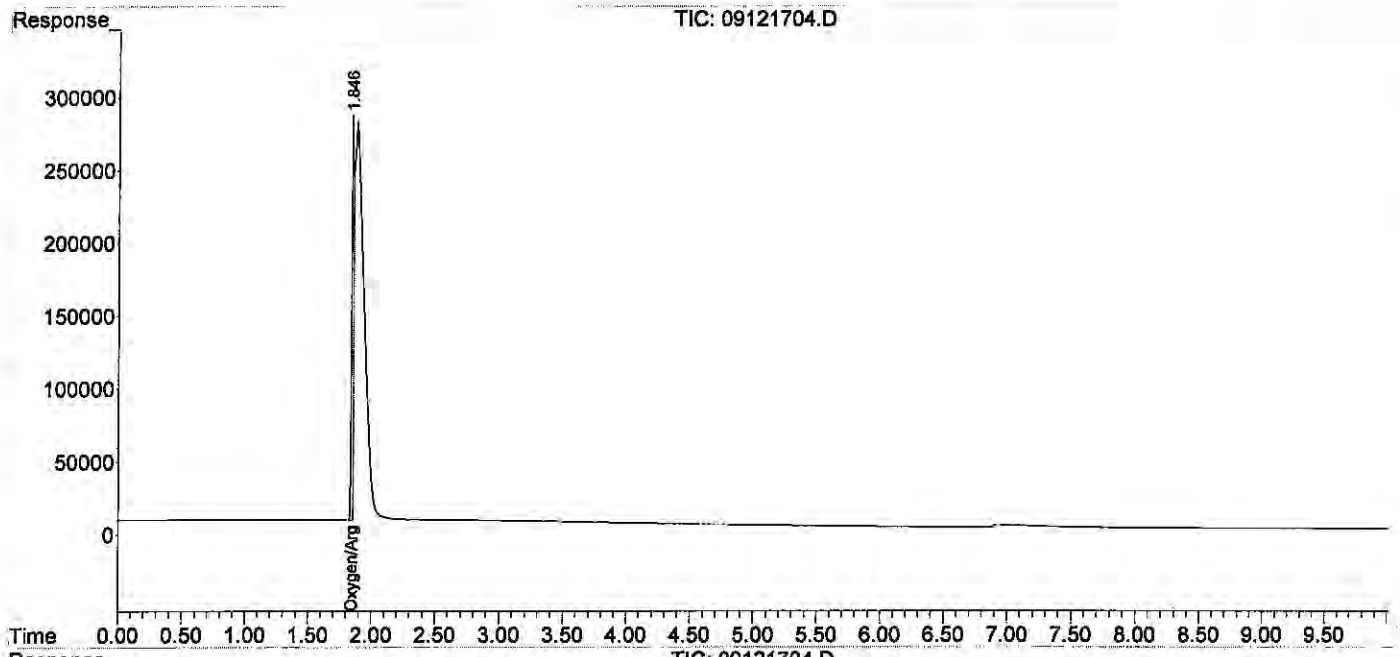
(f)=RT Delta > 1/2 Window (m)=manual int.

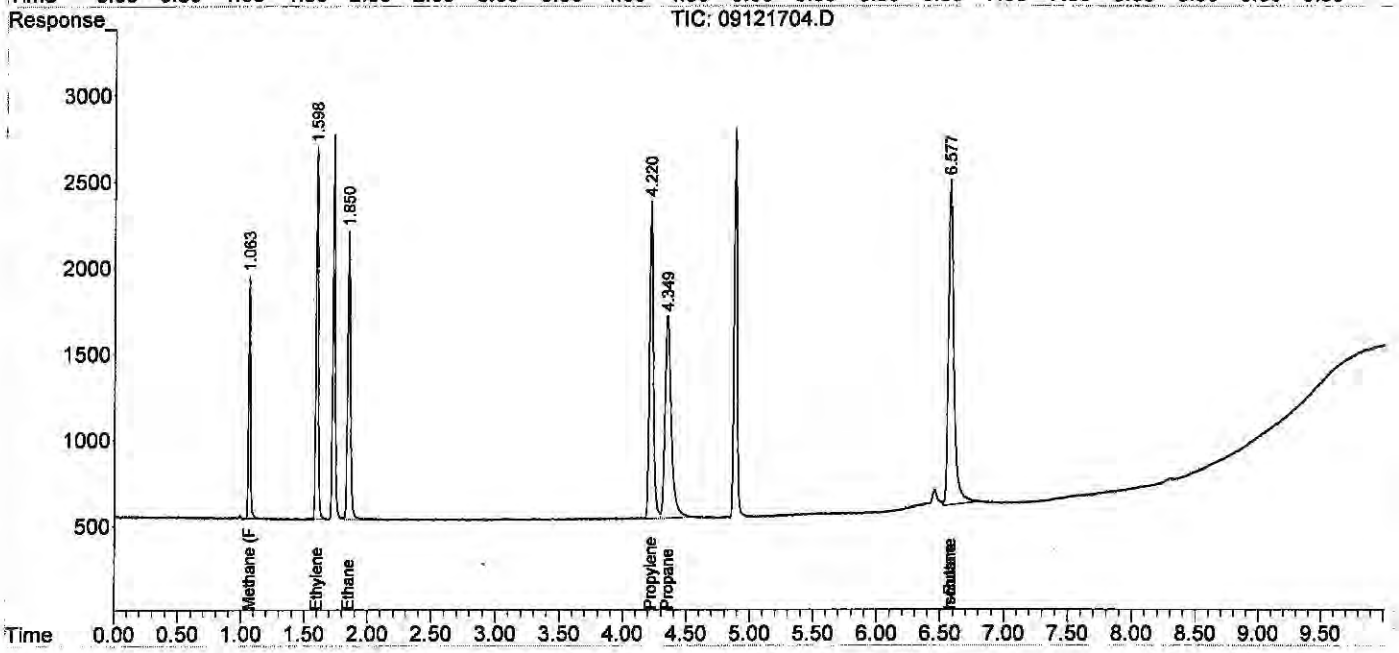
Quantitation Report (QT Reviewed)

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

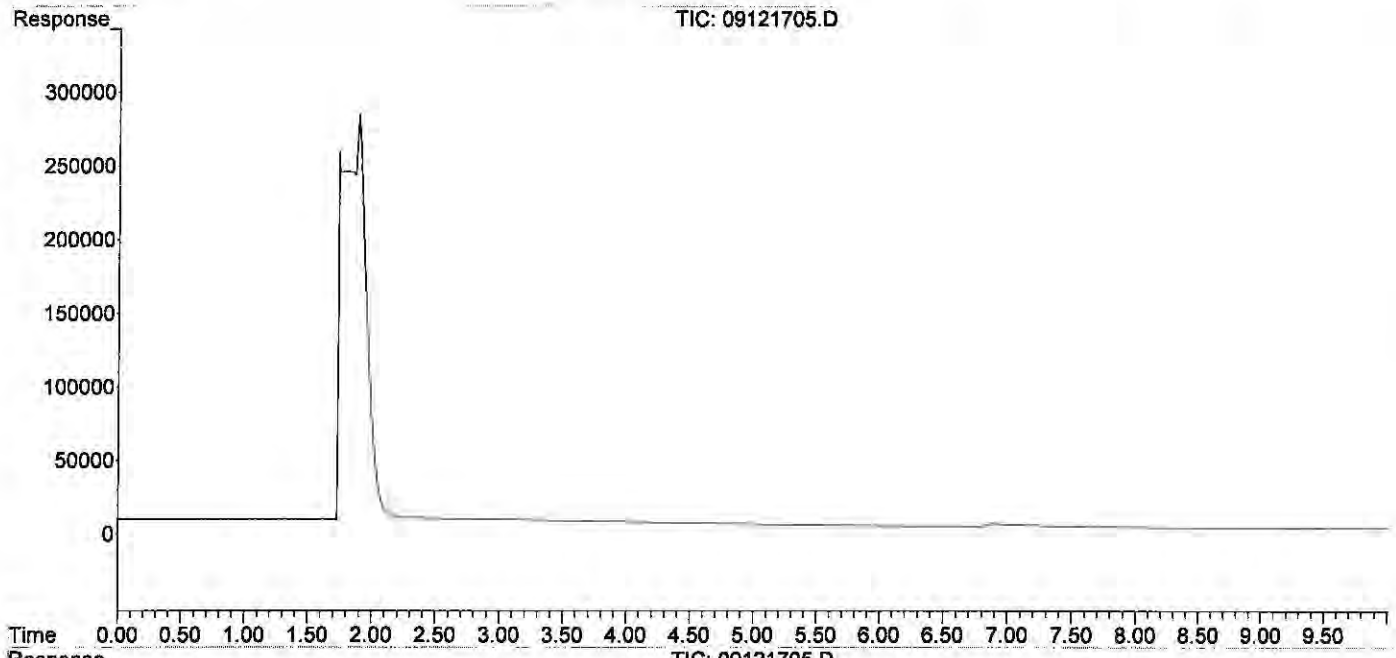
(f)=RT Delta > 1/2 Window (m)=manual int.

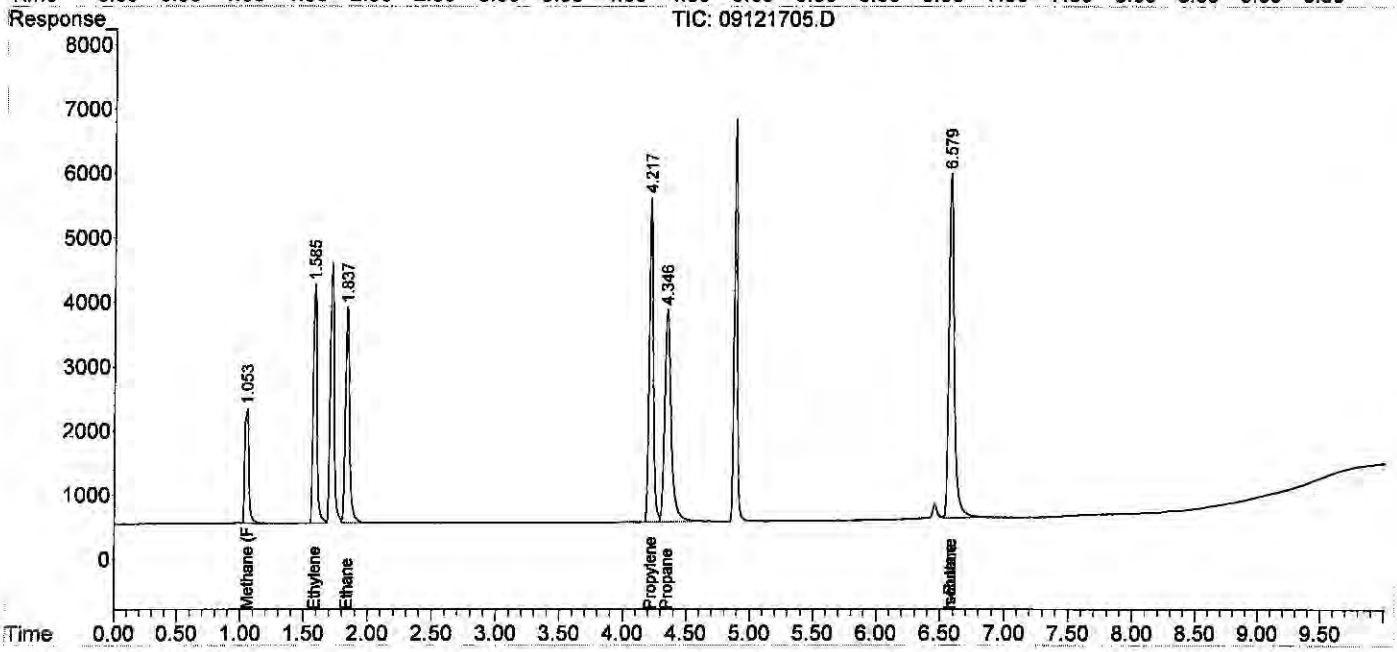
Quantitation Report (QT Reviewed)

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 :





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

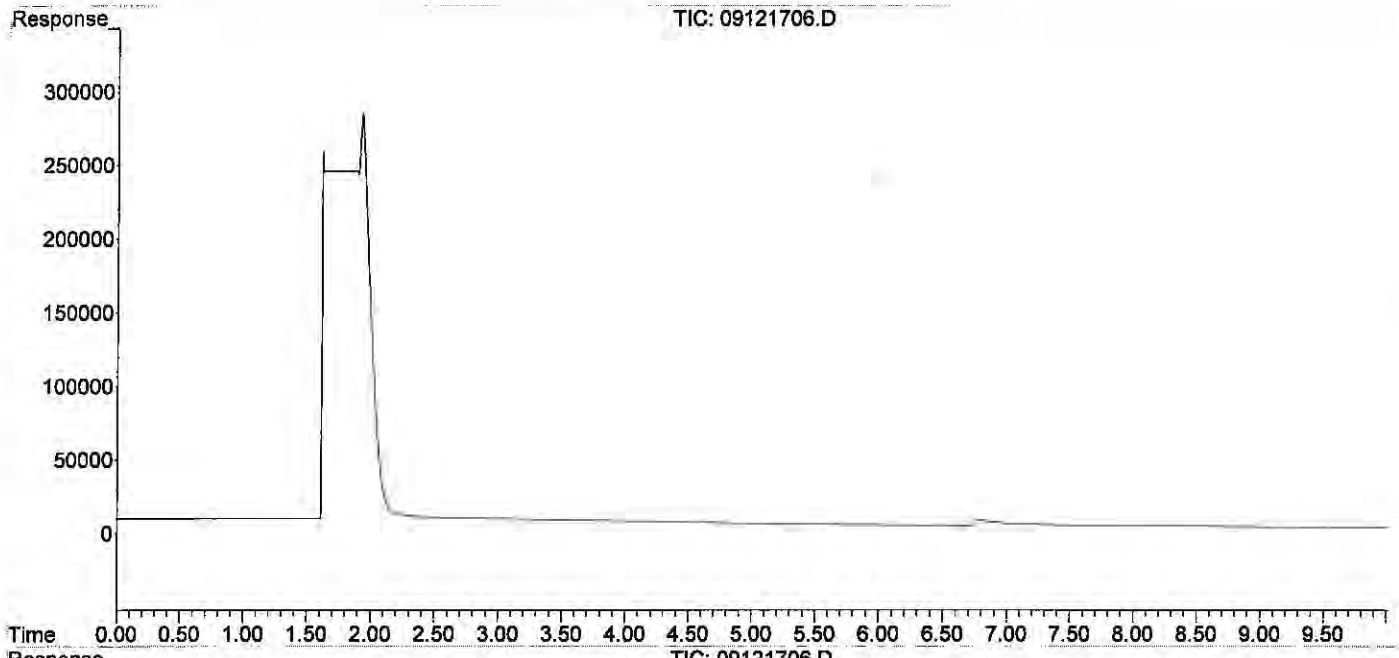
(f)=RT Delta > 1/2 Window (m)=manual int.

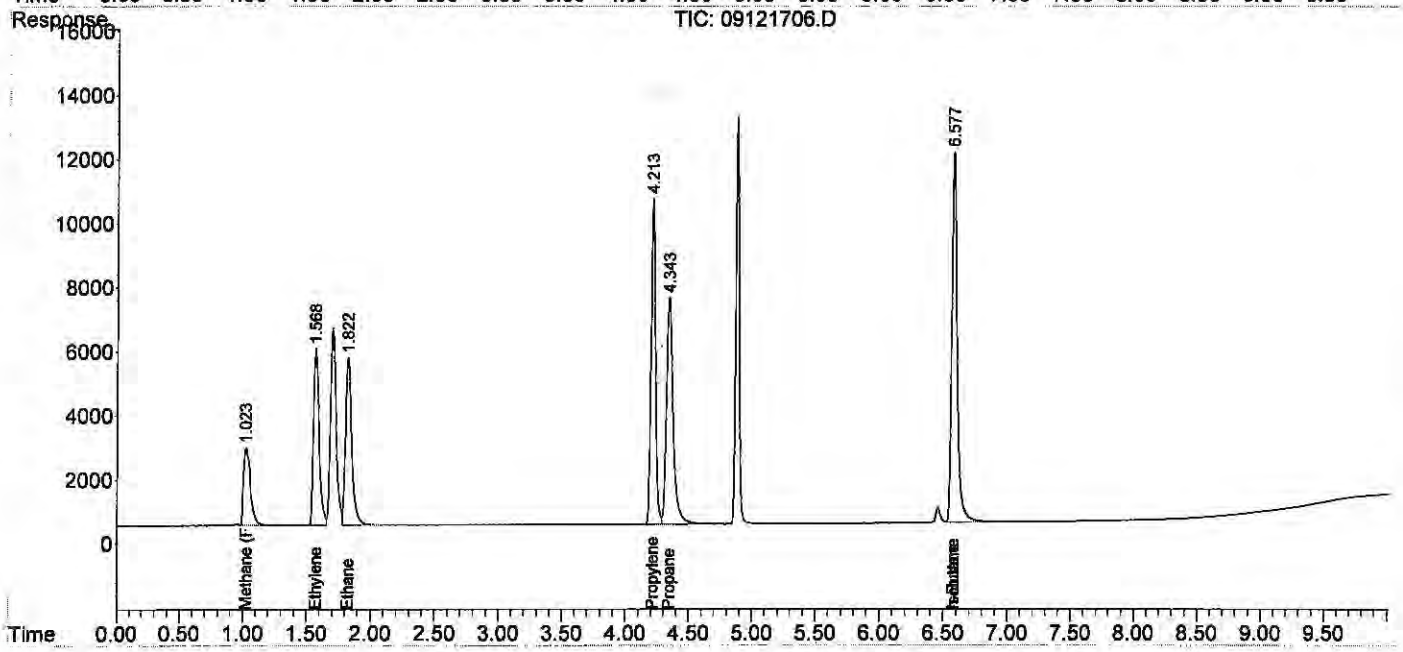
Quantitation Report (QT Reviewed)

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 :

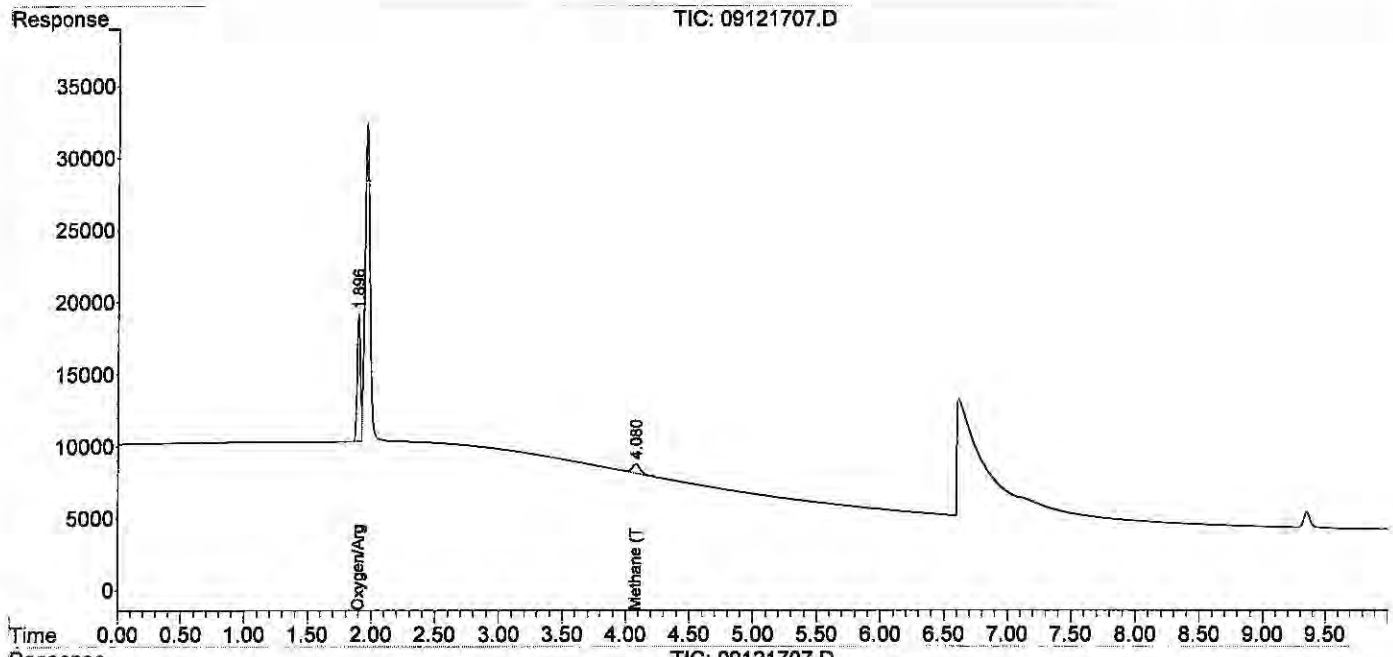
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	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

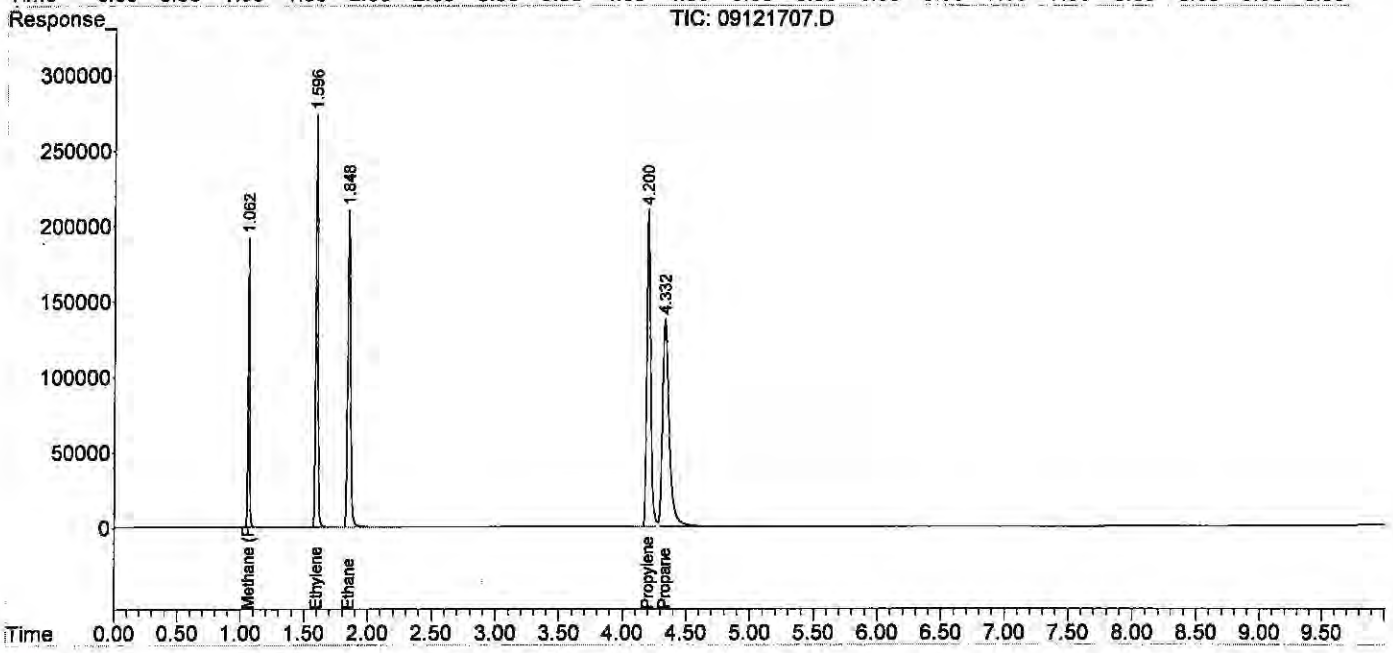
(f)=RT Delta > 1/2 Window (m)=manual int.

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

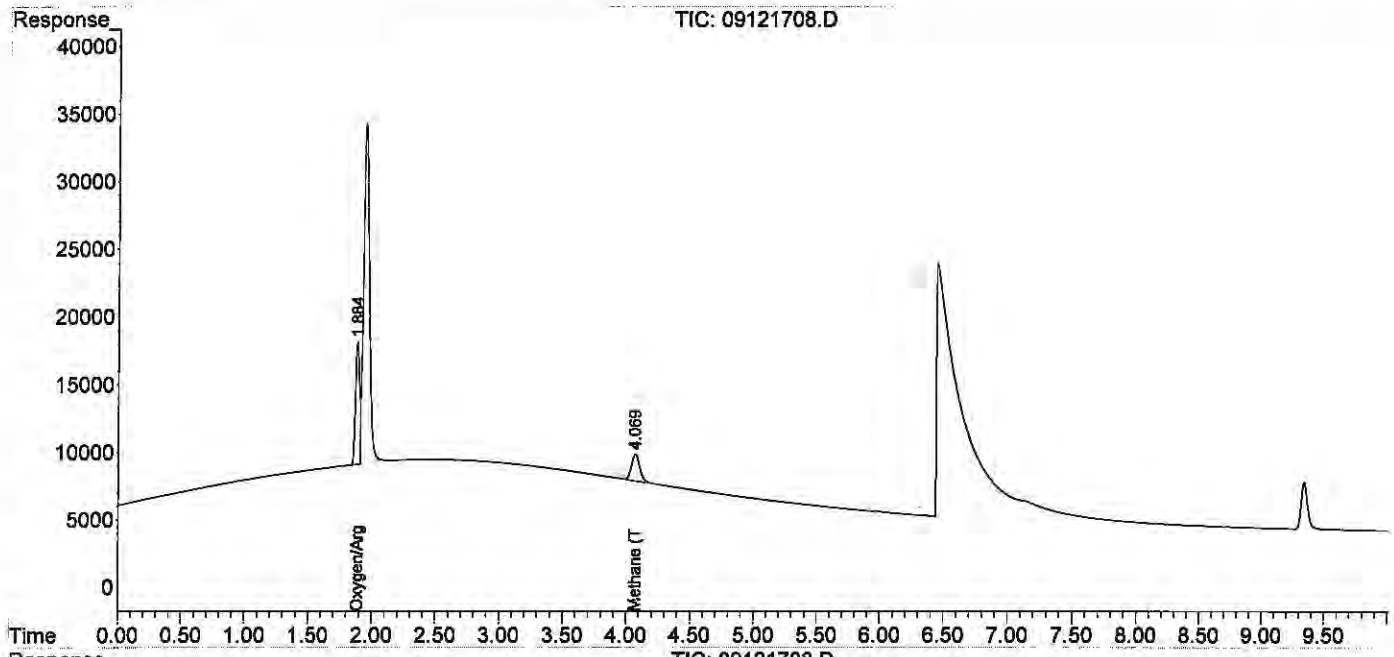
(f)=RT Delta > 1/2 Window (m)=manual int.

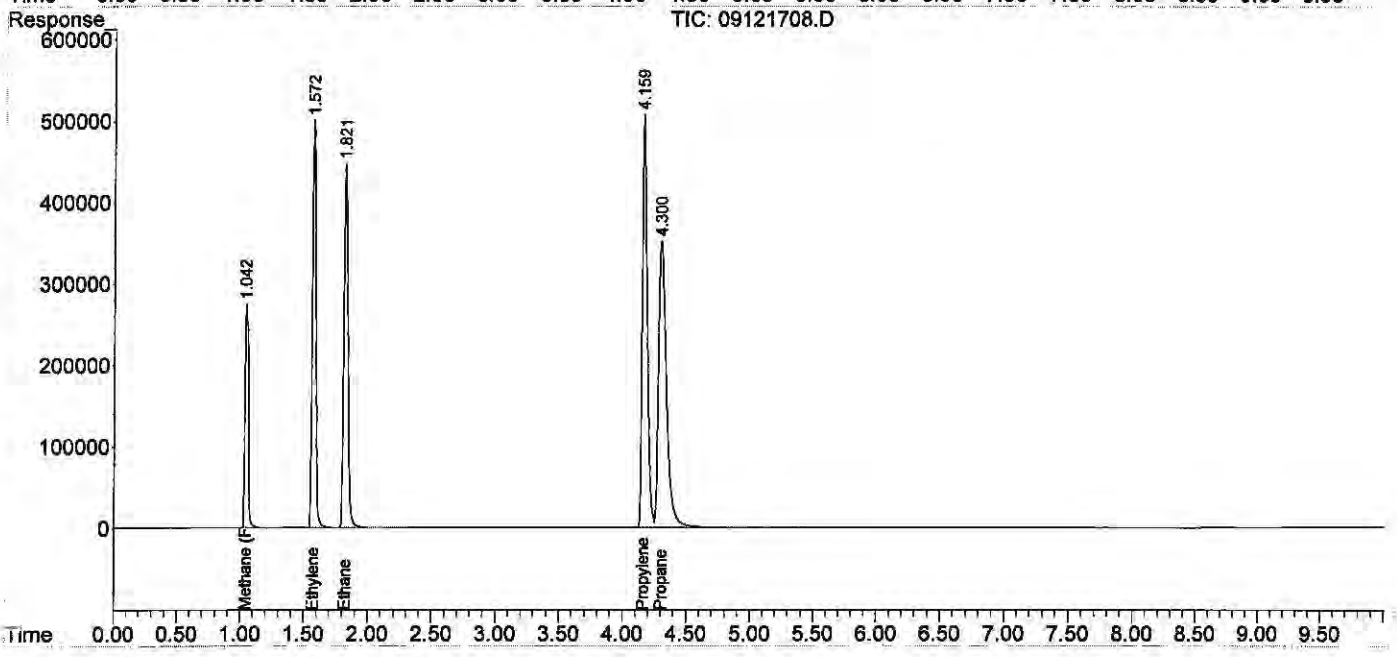
Quantitation Report (QT Reviewed)

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 :

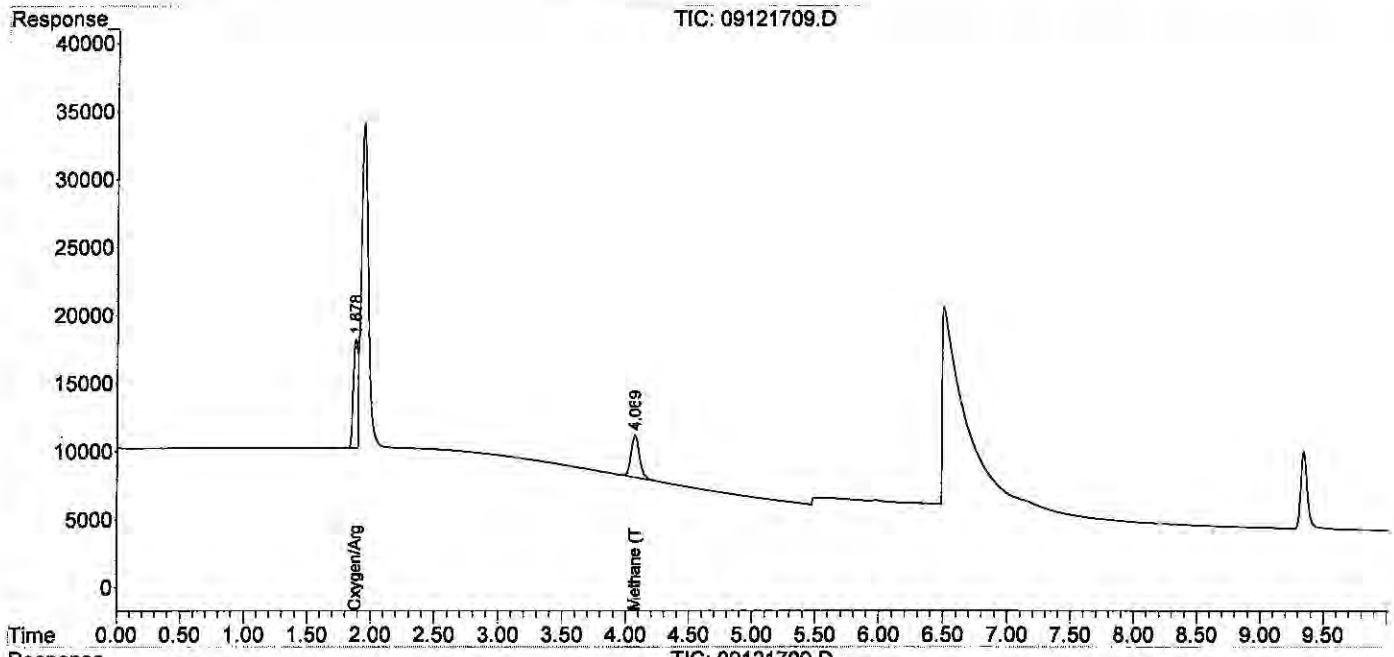
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	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

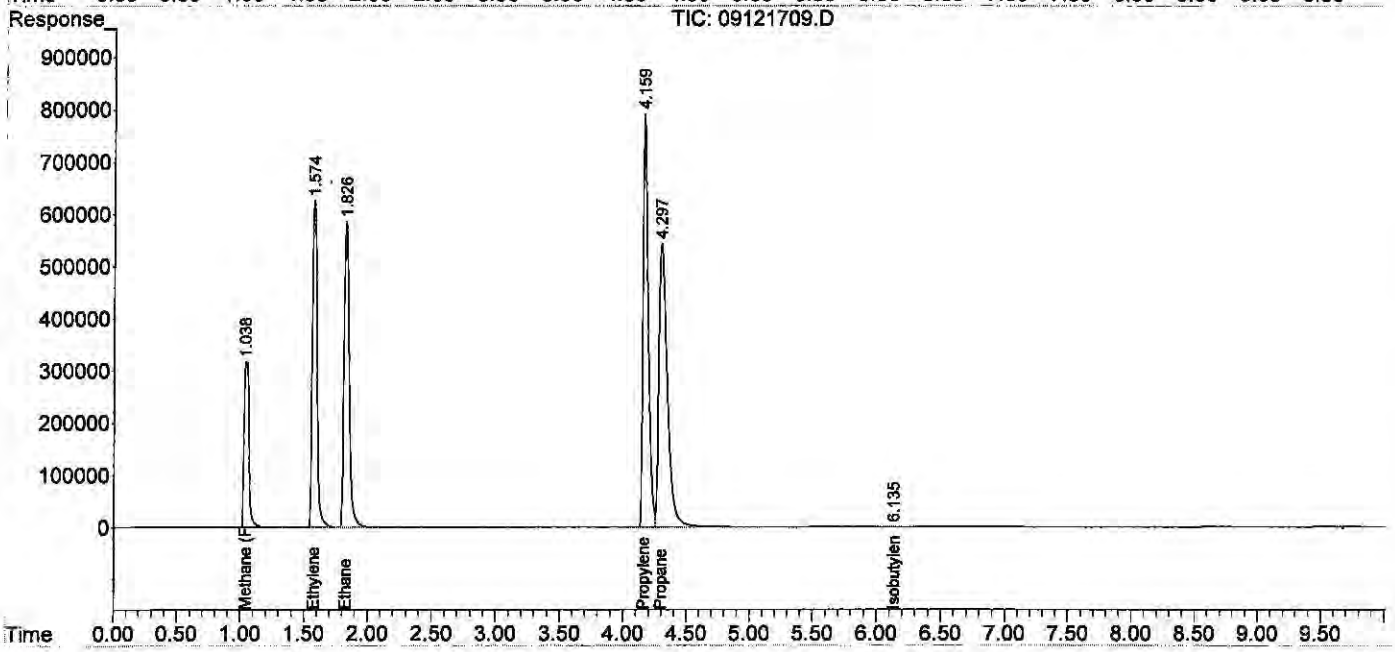
(f)=RT Delta > 1/2 Window (m)=manual int.

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	

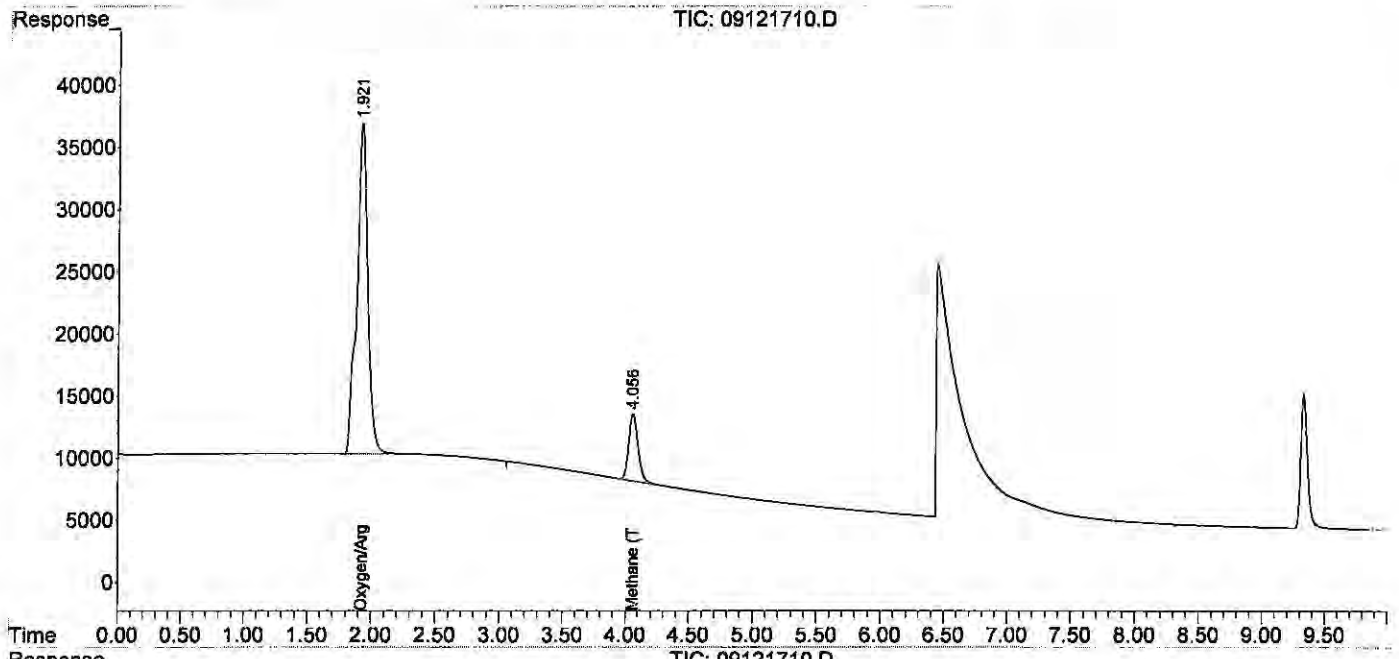
(f)=RT Delta > 1/2 Window (m)=manual int.

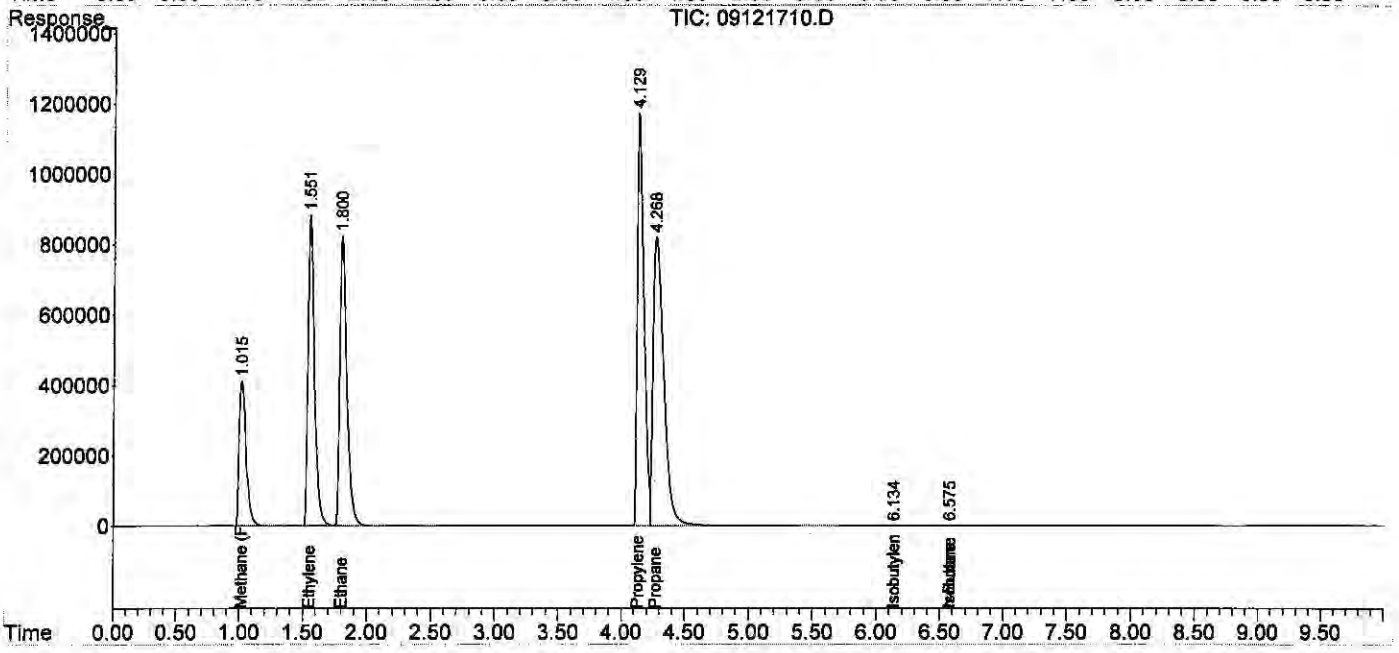
Quantitation Report (QT Reviewed)

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 :



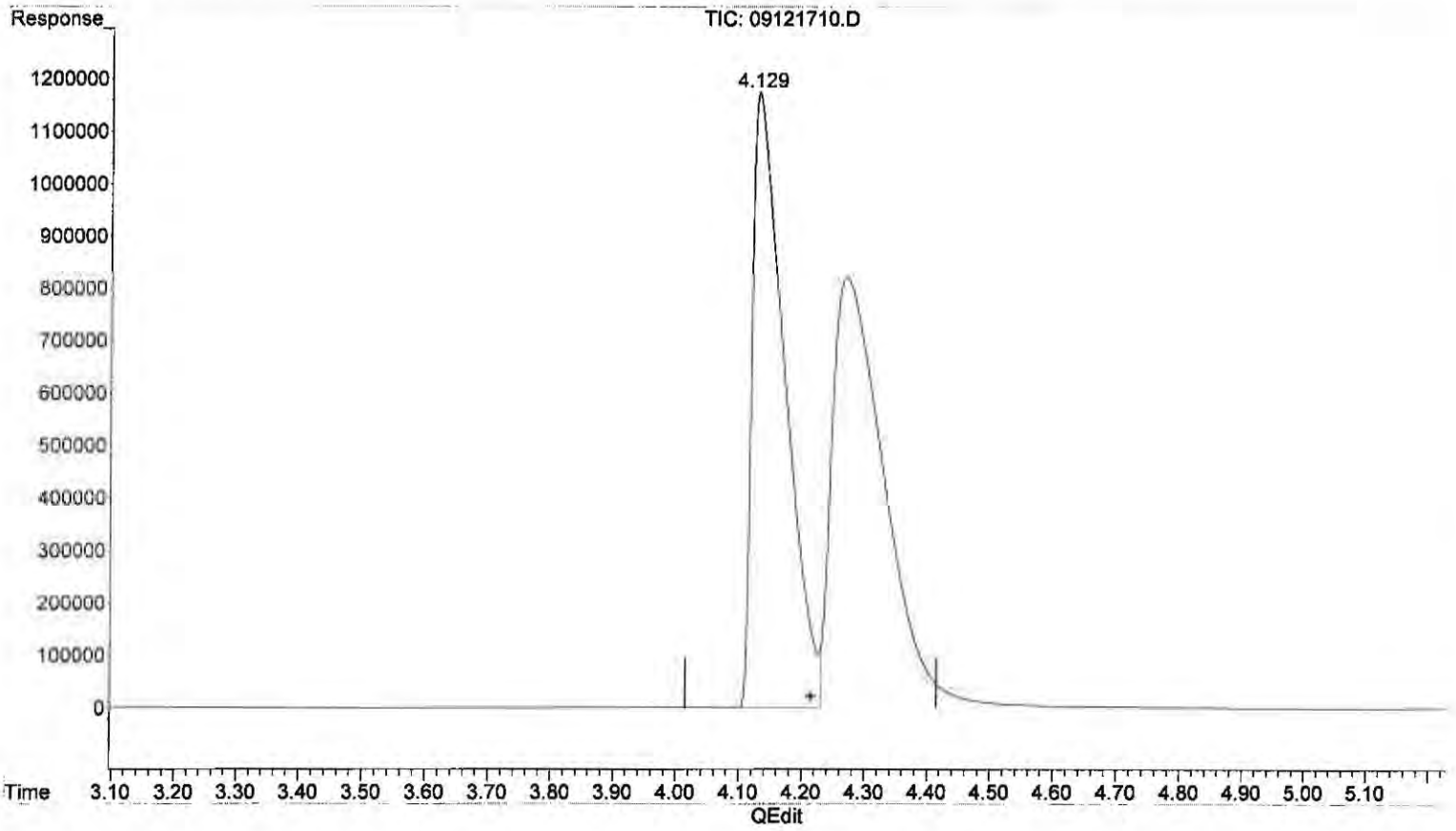


Quantitation Report (Qedit)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121710.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:07
Operator : MC
Sample : 2000ppm 1ml s32-09121701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:12:33 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:12:25 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(9) Propylene
4.129min 1775.341 ppm m
response 42124690

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

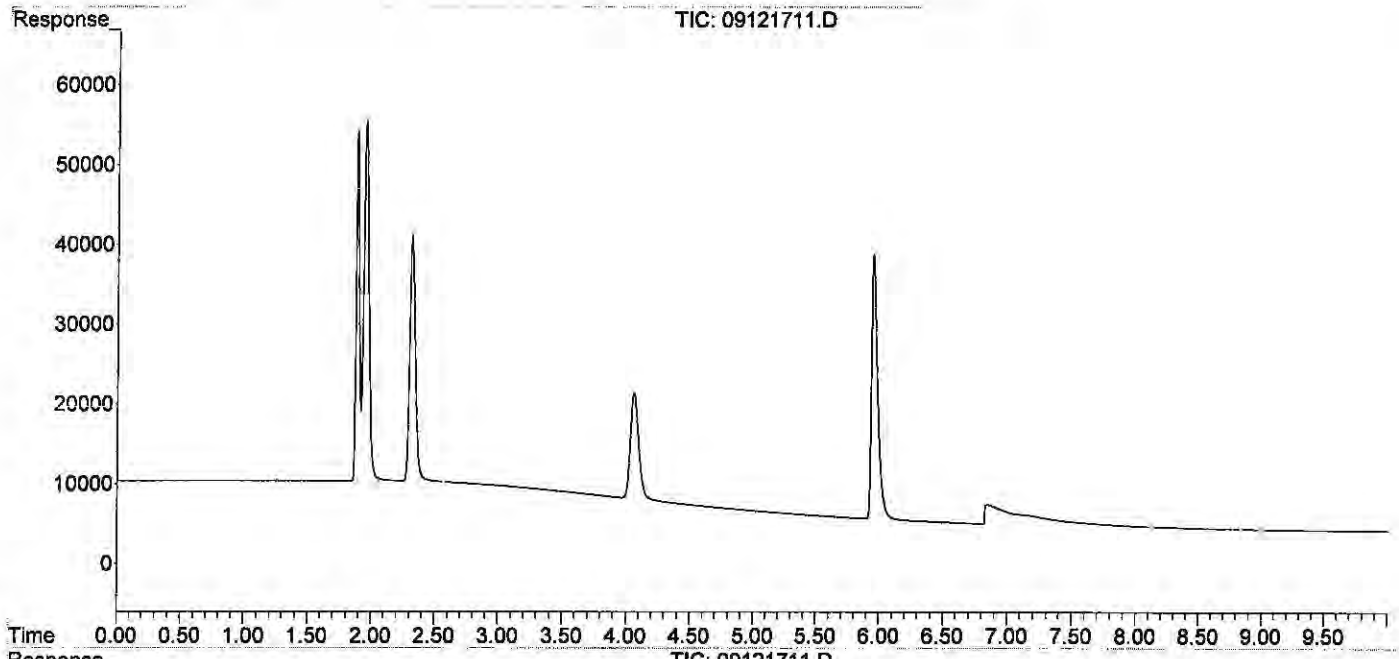
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

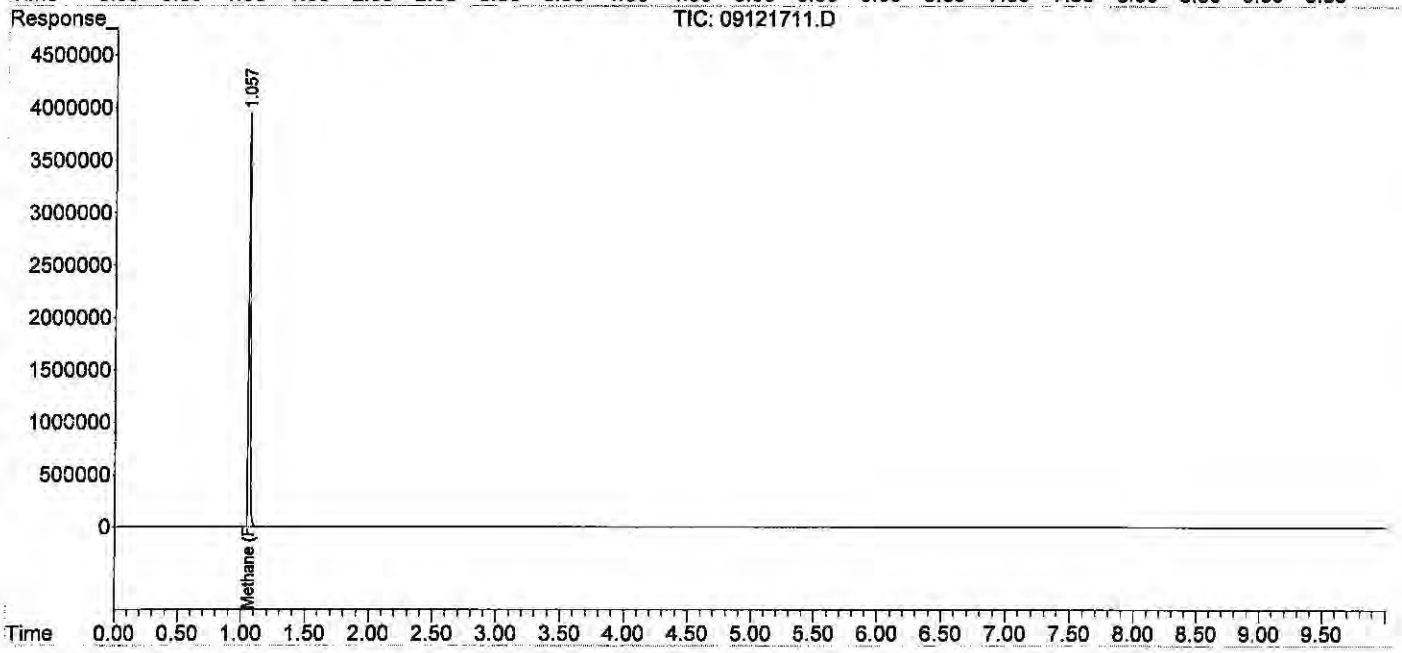
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121711.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 14:48
Operator : MC
Sample : 4000ppm 0.1ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:13:37 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

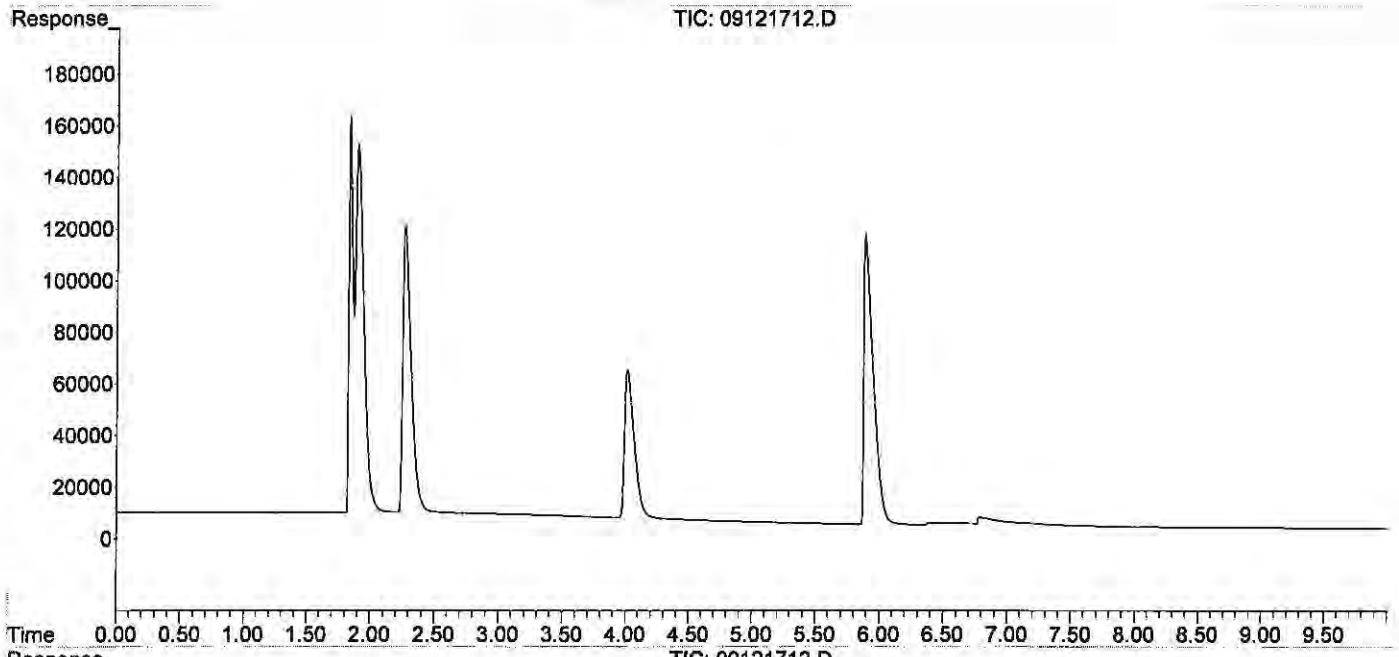
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.836	3190788	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.034	169009160	18492.064	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	ppm	
9)	Propylene	0.000	0	N.D.	ppm	
10)	Propane	0.000	0	N.D.	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	0.000	0	N.D.	ppm	
13)	n-Butane	0.000	0	N.D.	ppm	

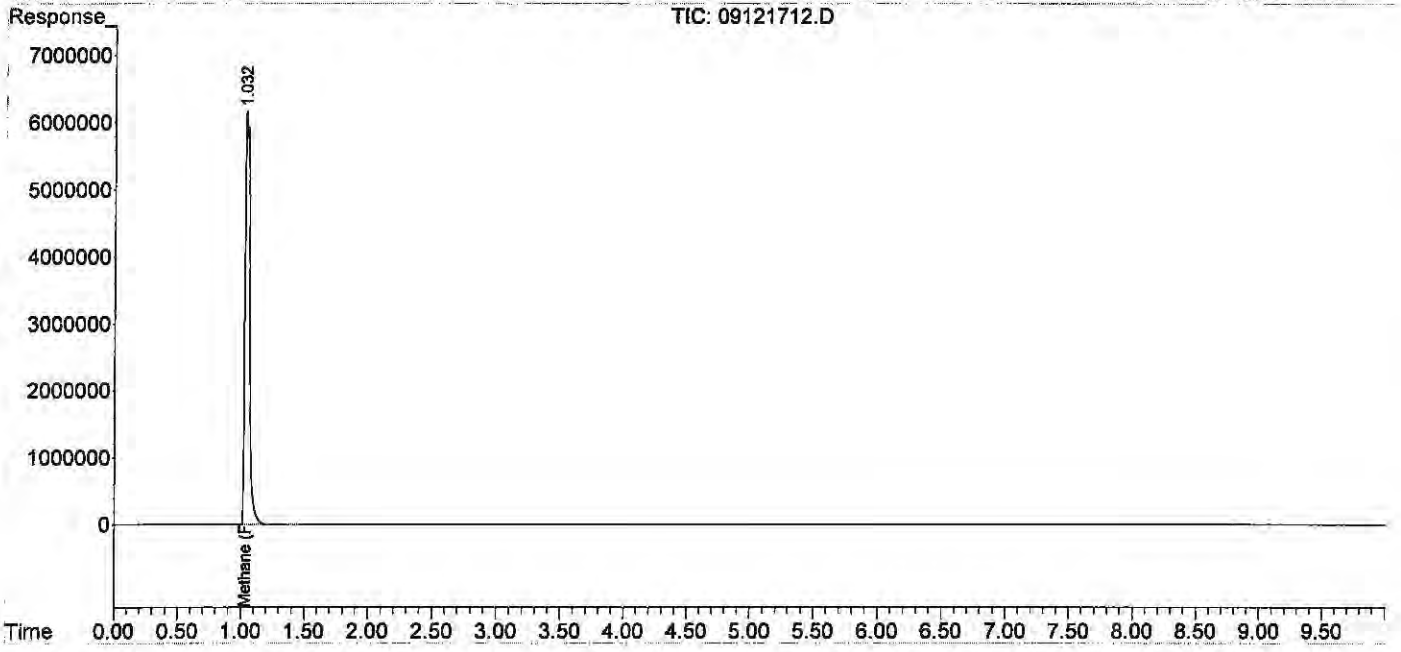
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	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	

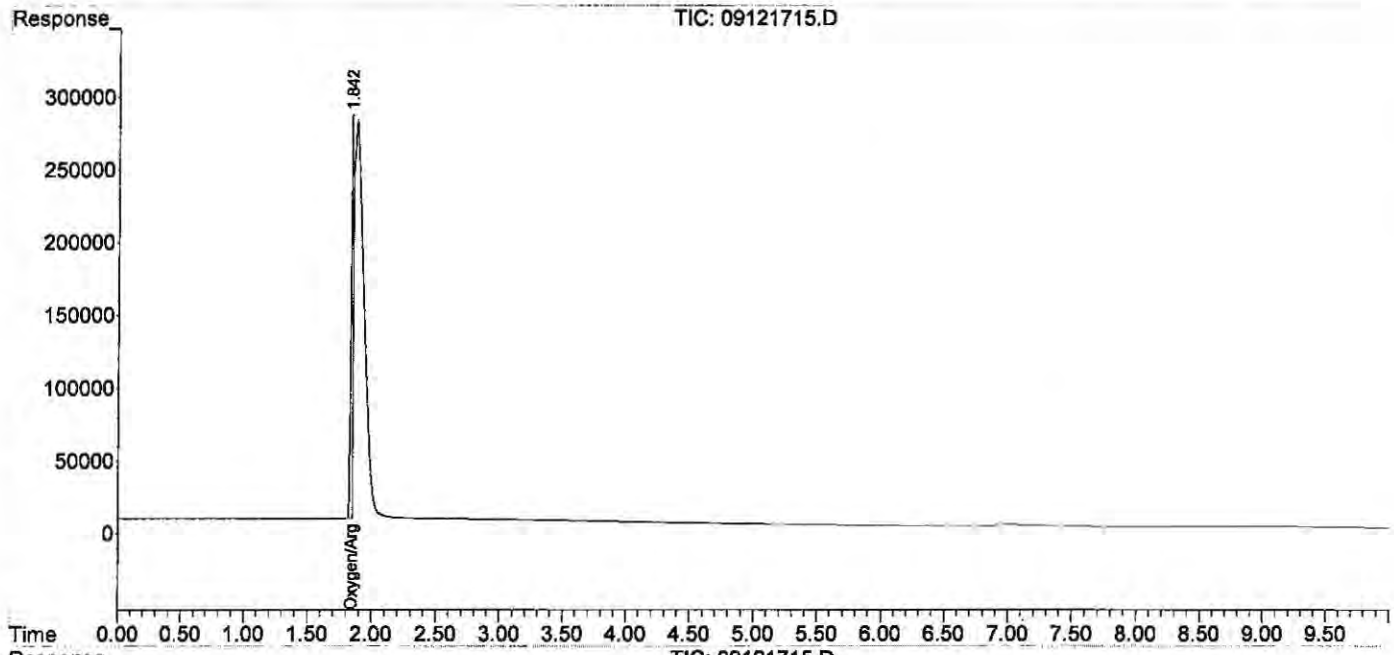
(f)=RT Delta > 1/2 Window (m)=manual int.

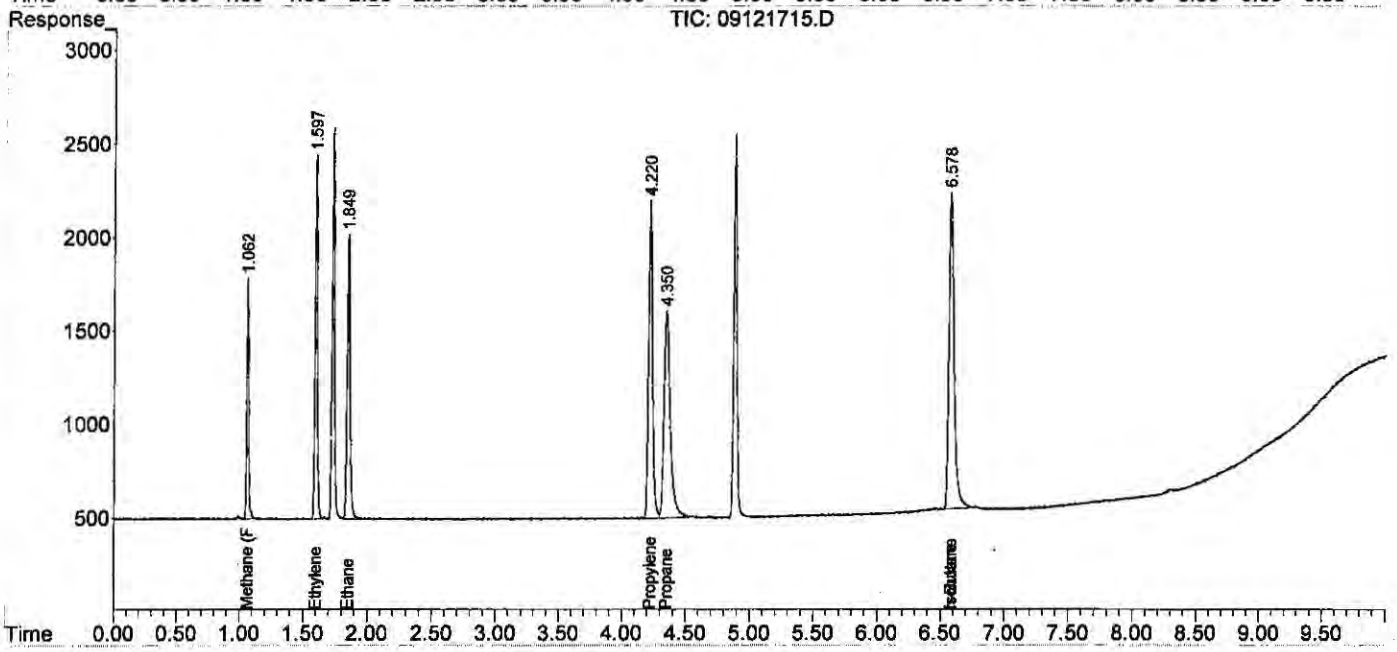
9/14/2017

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: P1902700
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 05/14/19
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 s32-07231801	0.100	1.521	1.526	1.502
ACTUAL		1.51	1.51	1.51
%Difference		0.7%	1.1%	0.5%
mcs 0.1ml	0.100	0.207	0.000	0.000
rb 0.1ml	0.100	0.000	0.000	0.000
lcs fid 0.1ml	0.100	1.348	0.906	1.132
lcsd fid 0.1ml	0.100	1.312	0.987	1.223
P1902700-001 0.1ml	0.100	0.643	0.000	0.000
P1902700-002 0.1ml	0.100	0.000	0.000	0.000
P1902700-002ms 0.1ml	0.100	0.806	0.603	0.758
P1902700-002msd 0.1ml	0.100	0.787	0.603	0.750
std s32-07231801		1.480	1.528	1.512
ACTUAL		1.51	1.51	1.51
%Difference		2.0%	1.2%	0.1%

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	2.070	0.000	0.000
lcs fid 0.1ml	13.480	9.060	11.320
lcsd fid 0.1ml	13.120	9.870	12.230
P1902700-001 0.1ml	6.430	0.000	0.000
P1902700-002 0.1ml	0.000	0.000	0.000
P1902700-002ms 0.1ml	8.060	6.030	7.580
P1902700-002msd 0.1ml	7.870	6.030	7.500

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 10:44:25
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 10:54:02 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 :

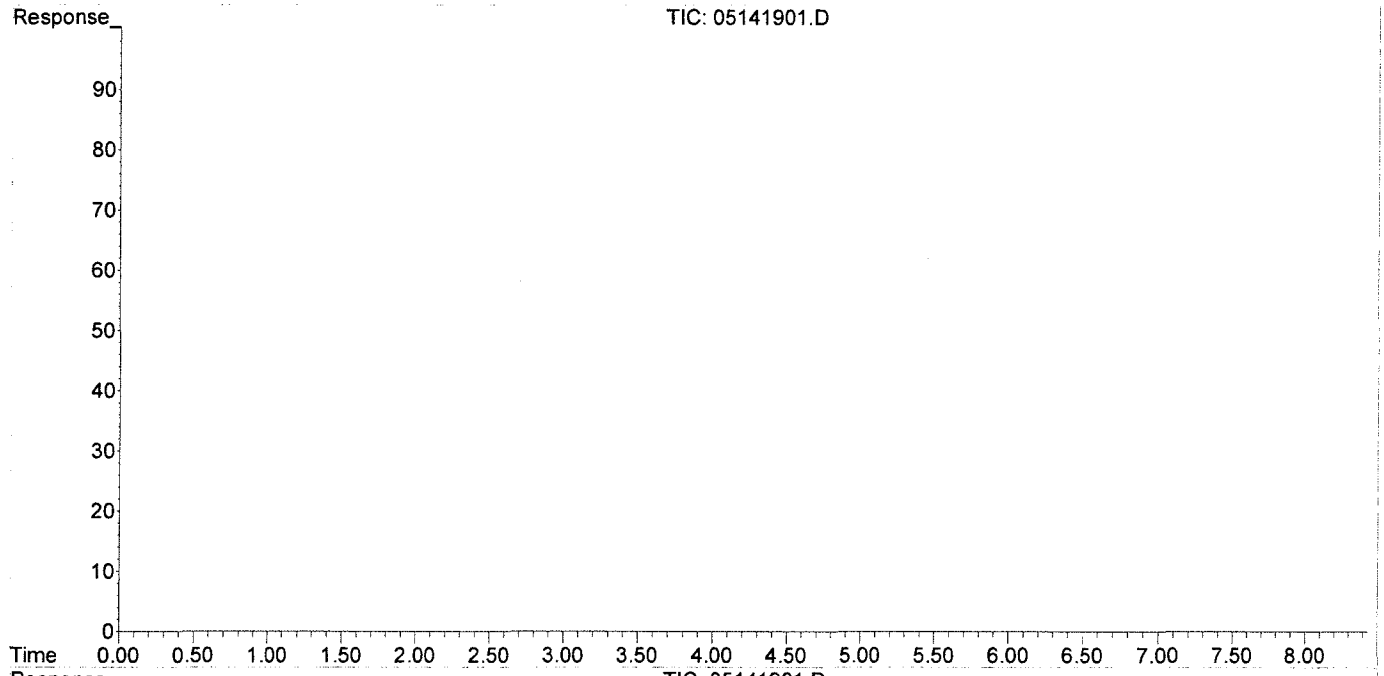
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.108	13794	1.521	ppm
7)	Ethylene	1.670	25538	1.526	ppm
8)	Ethane	1.932	25457	1.502	ppm
9)	Propylene	4.310	37042	1.581	ppm
10)	Propane	4.433	38239	1.537	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.646	50679	1.904	ppm
13)	n-Butane	6.646	50679	1.904	ppm

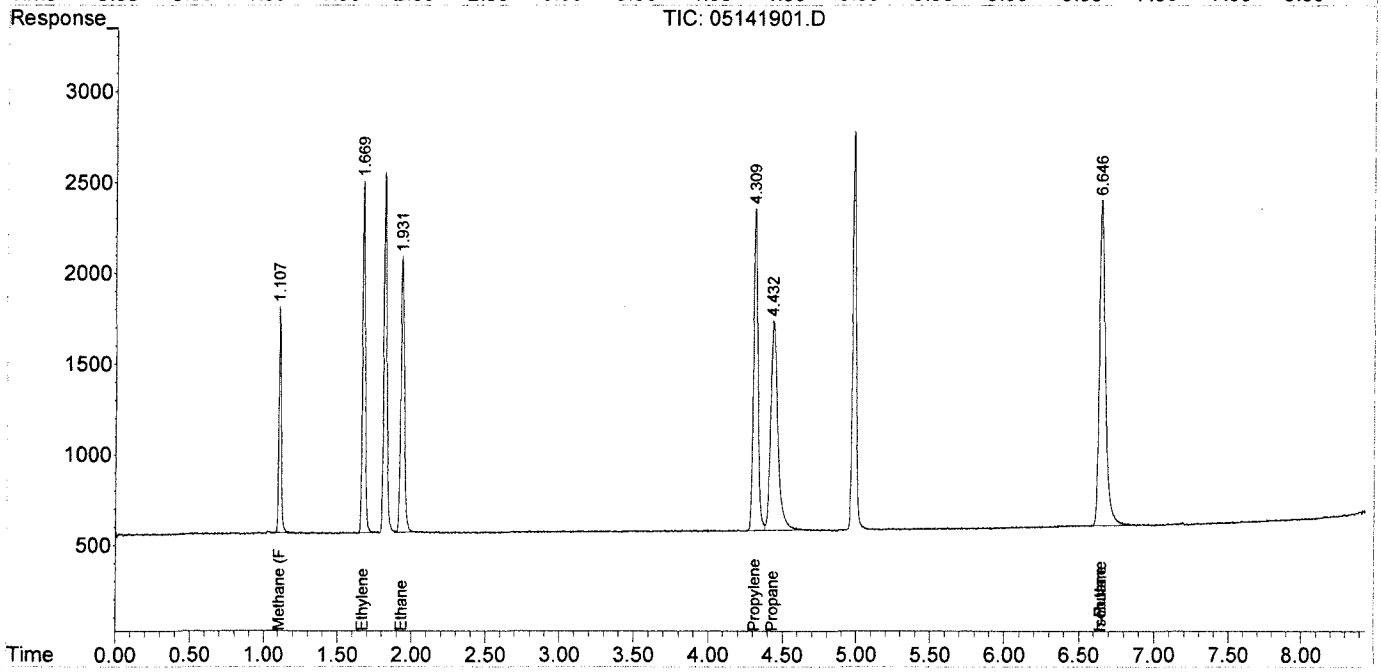
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 10:44:25
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 10:54:02 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_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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 :

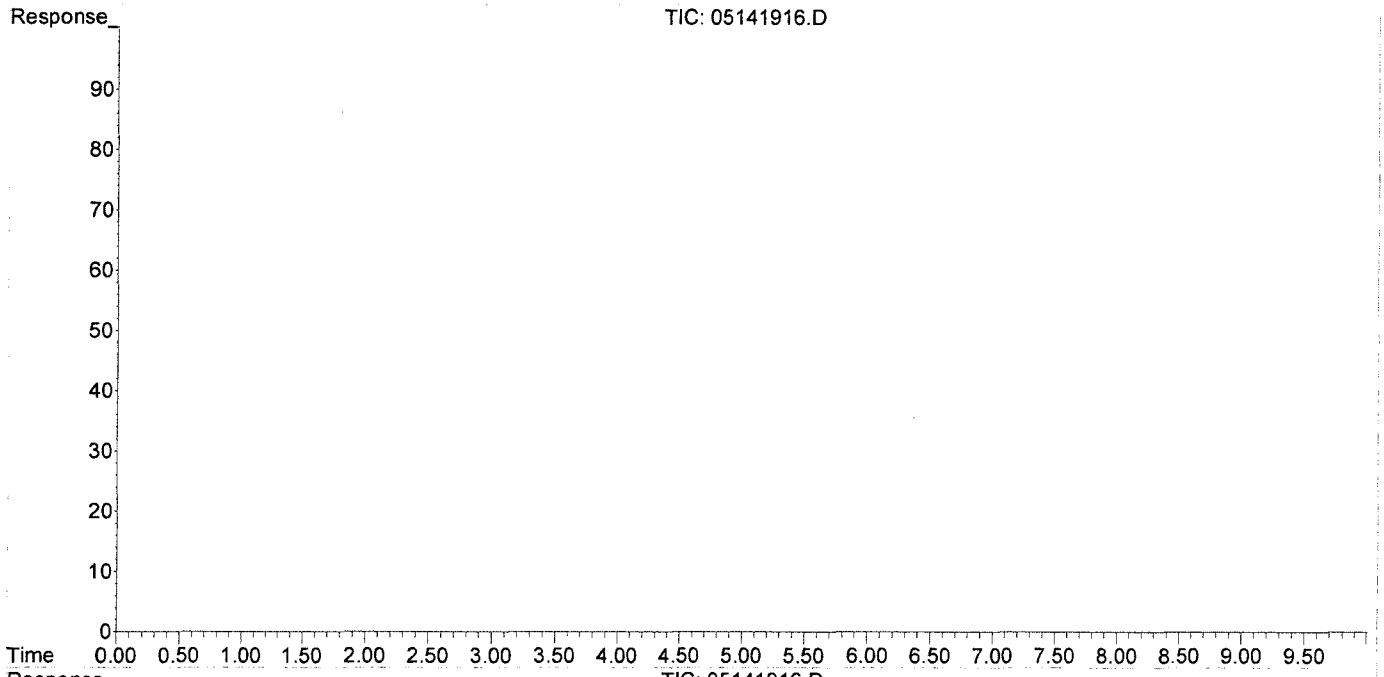
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.106	13422	1.480	ppm	m
7)	Ethylene	1.642	25578	1.528	ppm	
8)	Ethane	1.895	25637	1.512	ppm	
9)	Propylene	4.281	36620	1.563	ppm	
10)	Propane	4.407	37014	1.488	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.640f	50655	1.903	ppm	
13)	n-Butane	6.640f	50655	1.903	ppm	

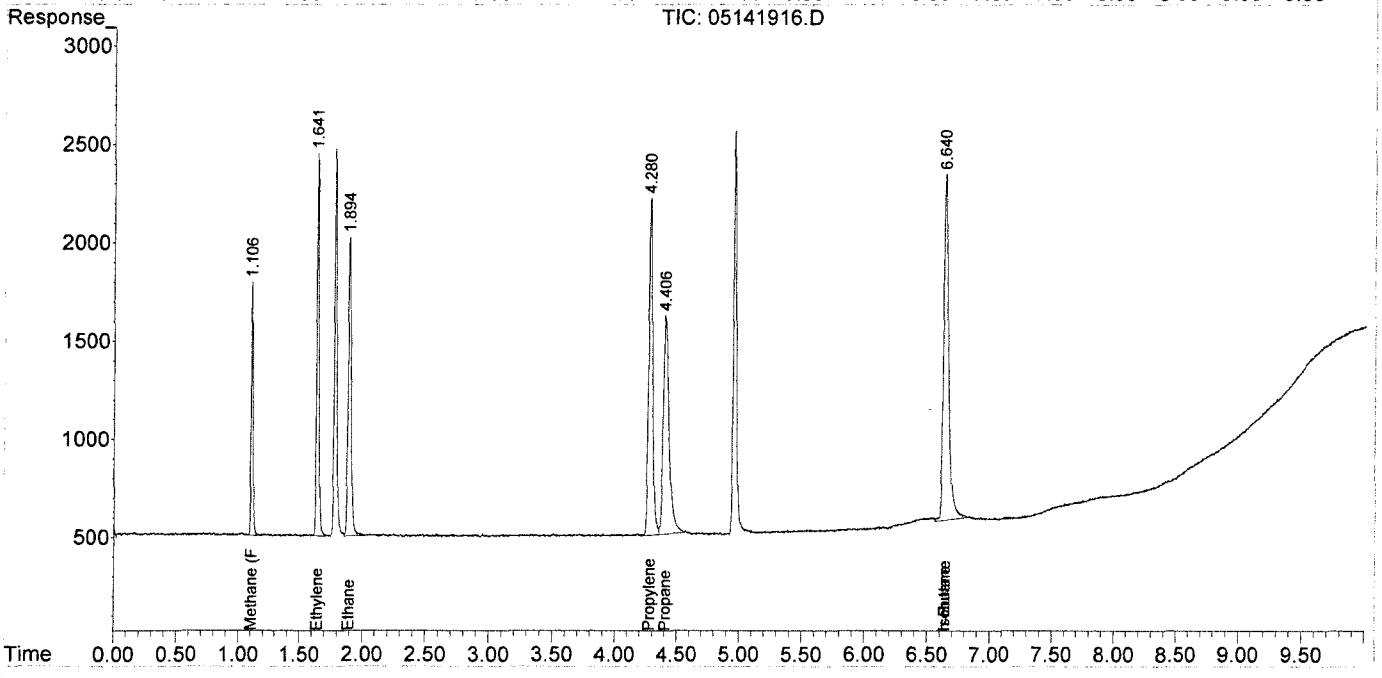
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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 :

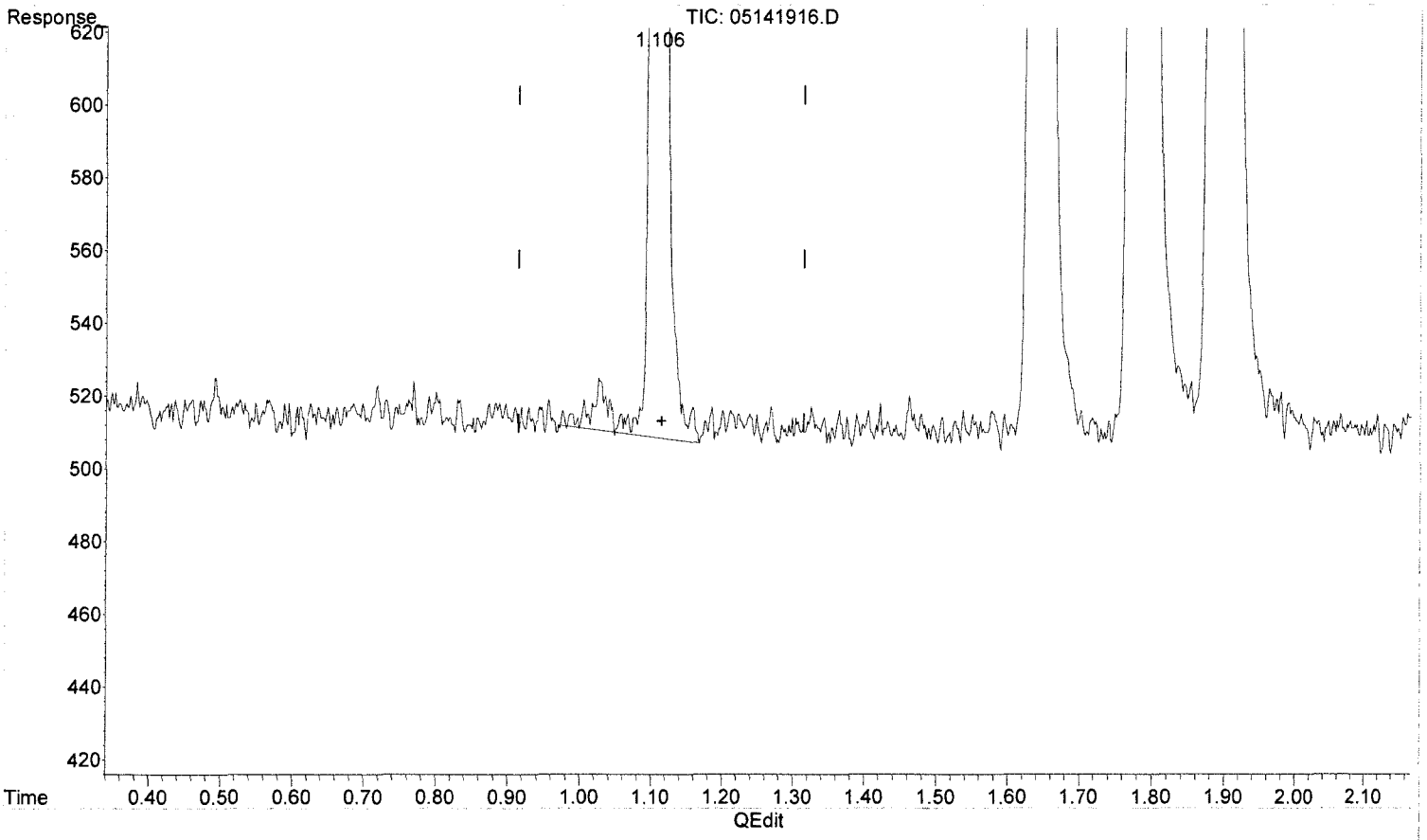




Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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)

1.107min 1.523 ppm

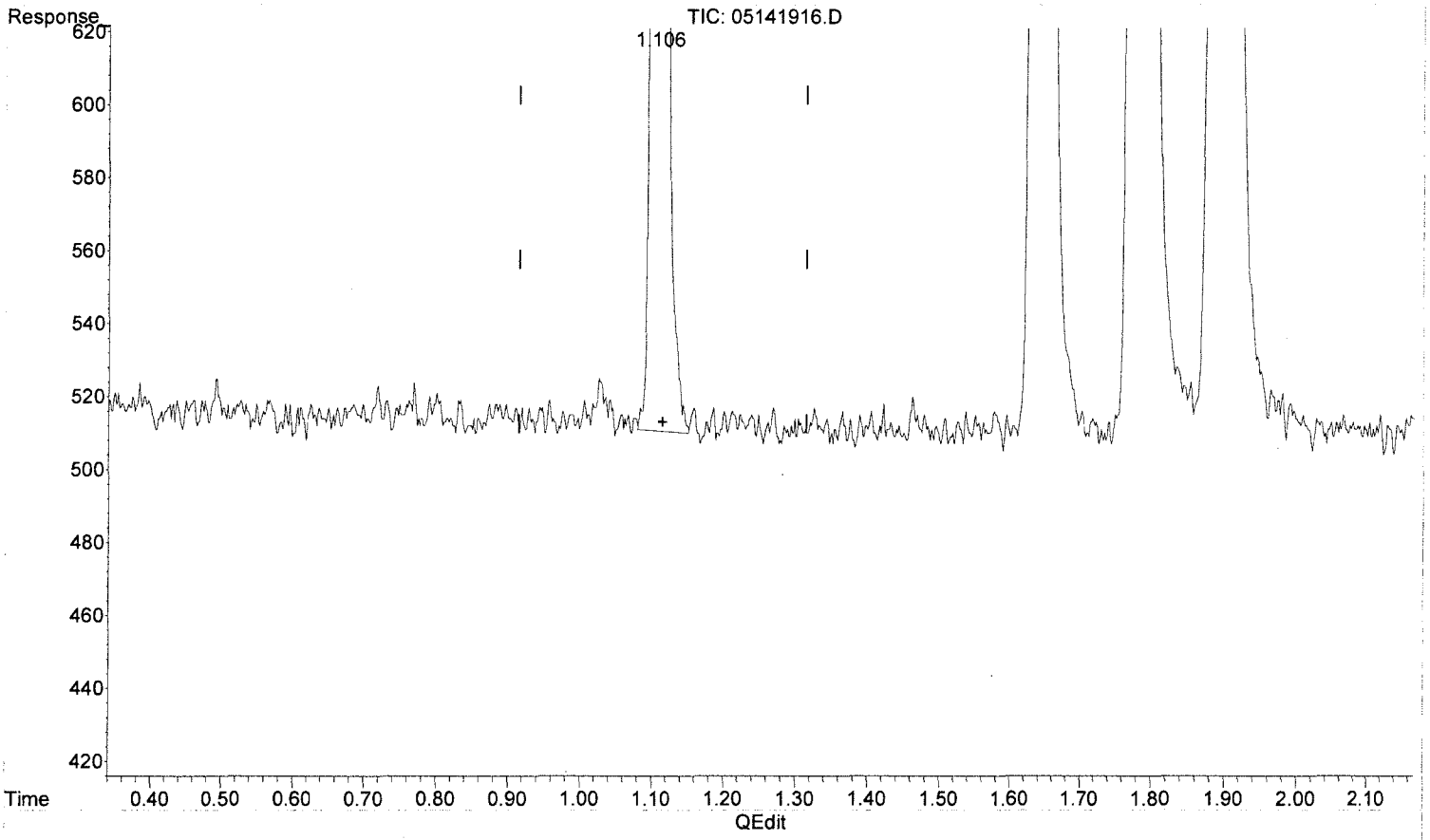
response 13812

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_FID\2019_05\14\
Data File : 05141916.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 14-May-2019, 14:39:35
Operator : WH
Sample : std s32-07231801
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 14 14:51:12 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)

1.106min 1.480 ppm m

response 13422

MR 5/15/19

5/15/19 BLC

(+) = Expected Retention Time

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_05\14\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	14-May-19, 10:44:25	05141901.D	std s32-07231801		WH	RSKBOTH.M	pass
2	14-May-19, 10:56:00	05141902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	14-May-19, 11:09:41	05141903.D	mcs 0.1ml		WH	RSKBOTH.M	pass
4	14-May-19, 11:28:14	05141904.D	lcs fid 0.1ml		WH	RSKBOTH.M	pass
5	14-May-19, 11:41:20	05141905.D	lcsd fid 0.1ml		WH	RSKBOTH.M	pass
6	14-May-19, 11:54:16	05141906.D	P1902701-001 0.1ml		WH	RSKBOTH.M	
7	14-May-19, 12:07:25	05141907.D	P1902701-002 0.1ml		WH	RSKBOTH.M	
8	14-May-19, 12:20:09	05141908.D	P1902701-003 0.1ml		WH	RSKBOTH.M	
9	14-May-19, 12:35:42	05141909.D	P1902701-004 0.1ml		WH	RSKBOTH.M	
10	14-May-19, 12:48:39	05141910.D	P1902701-005 0.1ml		WH	RSKBOTH.M	
11	14-May-19, 13:08:06	05141911.D	P1902701-006 0.1ml		WH	RSKBOTH.M	
12	14-May-19, 13:34:27	05141912.D	P1902700-001 0.1ml		WH	RSKBOTH.M	
13	14-May-19, 13:57:59	05141913.D	P1902700-002 0.1ml		WH	RSKBOTH.M	
14	14-May-19, 14:12:33	05141914.D	P1902700-002ms 0.1ml		WH	RSKBOTH.M	
15	14-May-19, 14:26:48	05141915.D	P1902700-002msd 0.1ml		WH	RSKBOTH.M	
16	14-May-19, 14:39:35	05141916.D	std s32-07231801		WH	RSKBOTH.M	pass
17	14-May-19, 14:52:42	05141917.D	mb 0.5ml		WH	RSKBOTH.M	pass
18	14-May-19, 15:06:36	05141918.D	lcs s32-05061901		WH	RSKBOTH.M	pass
19	14-May-19, 15:22:57	05141919.D	lcsd s32-05061901		WH	RSKBOTH.M	pass
20	14-May-19, 15:38:15	05141920.D	P1902457-014 0.5ml		WH	RSKBOTH.M	
21	14-May-19, 15:49:26	05141921.D	P1902457-015 0.5ml		WH	RSKBOTH.M	
22	14-May-19, 16:05:27	05141922.D	P1902458-003 0.5ml		WH	RSKBOTH.M	
23	14-May-19, 16:28:00	05141923.D	P1902458-004 0.5ml		WH	RSKBOTH.M	
24	14-May-19, 16:56:31	05141924.D	P1902458-023 0.5ml		WH	RSKBOTH.M	
25	14-May-19, 17:11:01	05141925.D	P1902458-024 0.5ml		WH	RSKBOTH.M	
26	14-May-19, 17:24:36	05141926.D	P1902459-012 0.5ml		WH	RSKBOTH.M	
27	14-May-19, 17:38:47	05141927.D	P1902459-013 0.5ml		WH	RSKBOTH.M	
28	14-May-19, 17:52:17	05141928.D	std s32-07231801		WH	RSKBOTH.M	pass

HS19050403 8260 Raw Data

ALS WO# HS19050403

MSVOA06 -Logbook

Batch: 35391
Date: 05-13-2019
Method: 8260
Comments: Target Sequence 190513

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-13-2019 10:57 am	1.00	0.00 mL	0.00 mL	X051301.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD000.25	ICAL1	05-13-2019 11:21 am	1.00	5.00 mL	0.00 mL	X051302.D	Liquid	Y	NA
	0.1 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	05-13-2019 12:09 pm	1.00	5.00 mL	0.00 mL	X051303.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	05-13-2019 12:33 pm	1.00	5.00 mL	0.00 mL	X051304.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	05-13-2019 12:57 pm	1.00	5.00 mL	0.00 mL	X051305.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	05-13-2019 01:21 pm	1.00	5.00 mL	0.00 mL	X051306.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	05-13-2019 01:45 pm	1.00	5.00 mL	0.00 mL	X051307.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	05-13-2019 02:09 pm	1.00	5.00 mL	0.00 mL	X051308.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	05-13-2019 02:33 pm	1.00	5.00 mL	0.00 mL	X051309.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	05-13-2019 02:56 pm	1.00	5.00 mL	0.00 mL	X051310.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	05-13-2019 03:20 pm	1.00	5.00 mL	0.00 mL	X051311.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	05-13-2019 03:44 pm	1.00	5.00 mL	0.00 mL	X051312.D	Liquid	Y	NA
	clean up blank									
13	CCV	CCV	05-13-2019 04:08 pm	1.00	5.00 mL	0.00 mL	X051313.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
14	BLANK	SAMP	05-13-2019 04:32 pm	1.00	5.00 mL	0.00 mL	X051314.D	Liquid	Y	NA
15	VLCSW-190513	LCS	05-13-2019 04:56 pm	1.00	5.00 mL	0.00 mL	X051315.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
16	BLANK	SAMP	05-13-2019 05:20 pm	1.00	5.00 mL	0.00 mL	X051316.D	Liquid	Y	NA
17	VBLKW-190513	MBLK	05-13-2019 05:44 pm	1.00	5.00 mL	0.00 mL	X051317.D	Liquid	Y	NA
18	HS19050082-07	SAMP	05-13-2019 06:08 pm	1.00	5.00 mL	0.00 mL	X051318.D	Liquid	Y	<2
19	HS19050082-04	SAMP	05-13-2019 06:32 pm	1.00	5.00 mL	0.00 mL	X051319.D	Liquid	Y	<2
20	HS19050082-05	SAMP	05-13-2019 06:57 pm	1.00	5.00 mL	0.00 mL	X051320.D	Liquid	Y	<2
21	HS19050082-01	SAMP	05-13-2019 07:21 pm	1.00	5.00 mL	0.00 mL	X051321.D	Liquid	Y	<2
22	HS19050082-01	SAMP	05-13-2019 07:45 pm	5.00	5.00 mL	0.00 mL	X051322.D	Liquid	Y	<2
23	HS19050082-02	SAMP	05-13-2019 08:09 pm	1.00	5.00 mL	0.00 mL	X051323.D	Liquid	Y	<2
24	HS19050082-02	SAMP	05-13-2019 08:33 pm	5.00	5.00 mL	0.00 mL	X051324.D	Liquid	Y	<2
25	HS19050082-03	SAMP	05-13-2019 08:57 pm	1.00	5.00 mL	0.00 mL	X051325.D	Liquid	Y	<2
26	HS19050082-06	SAMP	05-13-2019 09:21 pm	1.00	5.00 mL	0.00 mL	X051326.D	Liquid	Y	<2
27	HS19050082-04MS	MS	05-13-2019 09:45 pm	1.00	5.00 mL	0.00 mL	X051327.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
28	HS19050082-04MSD	MSD	05-13-2019 10:09 pm	1.00	5.00 mL	0.00 mL	X051328.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
29	CCV-END	CCV	05-13-2019 10:33 pm	1.00	5.00 mL	0.00 mL	X051329.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	50.01	100	80-120
trans-1,3-Dichloroprope	50.00	51.68	103	80-120
1,3-Dichlorobenzene	50.00	46.37	93	80-120
2,2-Dichloropropane	50.00	45.93	92	80-120
1,1-Dichloropropene	50.00	43.82	88	80-120
Dibromomethane	50.00	48.95	98	80-120
1,2-Dibromoethane	50.00	48.28	96	80-120
trans-1,2-Dichloroethen	50.00	47.69	95	80-120
1,1,1,2-Tetrachloroetha	50.00	47.56	95	80-120
1,1,1-Trichloroethane	50.00	44.43	89	80-120
1,1,2,2-Tetrachloroetha	50.00	48.28	96	80-120
Toluene	50.00	46.68	93	80-120
1,1,2-Trichloroethane	50.00	49.04	98	80-120
1,1-Dichloroethane	50.00	46.29	92	80-120
1,1-Dichloroethene	50.00	46.44	93	80-120
Trichlorofluoromethane	50.00	43.25	86	80-120
1,2,3-Trichlorobenzene	50.00	53.04	106	80-120
Tetrachloroethene	50.00	44.01	88	80-120
1,2,4-Trichlorobenzene	50.00	50.78	102	80-120
1,2,4-Trimethylbenzene	50.00	45.13	90	80-120
tert-Butylbenzene	50.00	42.78	86	80-120
Trichloroethene	50.00	46.44	93	80-120
1,2-Dichlorobenzene	50.00	46.42	93	80-120
1,2-Dichloroethane	50.00	46.67	93	80-120
1,2-Dichloropropane	50.00	47.58	95	80-120
1,3,5-Trimethylbenzene	50.00	44.43	89	80-120
1,3-Dichloropropane	50.00	47.38	95	80-120
1,4-Dichlorobenzene	50.00	46.57	93	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.28	104	80-120
2-Chlorotoluene	50.00	44.20	88	80-120
2-Hexanone	100.00	97.69	98	80-120
4-Chlorotoluene	50.00	45.04	90	80-120
Styrene	50.00	47.56	95	80-120
4-Methyl-2-Pentanone	100.00	96.71	97	80-120
Acetone	100.00	107.18	107	80-120
Benzene	50.00	47.57	95	80-120
Bromobenzene	50.00	46.95	94	80-120
Bromochloromethane	50.00	48.56	97	80-120
Bromodichloromethane	50.00	48.97	98	80-120
Bromoform	50.00	52.87	106	80-120
Bromomethane	50.00	54.33	109	80-120
Carbon Disulfide	100.00	94.44	94	80-120
Carbon Tetrachloride	50.00	43.48	87	80-120
Chlorobenzene	50.00	47.18	94	80-120
Chloroethane	50.00	46.61	93	80-120
Chloroform	50.00	46.67	93	80-120
Chloromethane	50.00	46.27	92	80-120
cis-1,2-Dichloroethene	50.00	46.49	93	80-120
Dibromochloromethane	50.00	48.94	98	80-120
Dichlorodifluoromethane	50.00	47.02	94	80-120
Ethylbenzene	50.00	44.87	90	80-120
Hexachlorobutadiene	50.00	48.39	97	80-120
Isopropylbenzene	50.00	43.60	87	80-120
m,p-Xylenes	100.00	91.59	92	80-120
Methylene Chloride	50.00	48.68	97	80-120
n-Butylbenzene	50.00	43.74	87	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	43.25	86	80-120
Naphthalene	50.00	52.72	105	80-120
o-Xylene	50.00	46.57	93	80-120
sec-Butylbenzene	50.00	42.06	84	80-120
Vinyl Chloride	50.00	46.68	93	80-120
1,2,3-Trichloropropane	50.00	49.73	99	80-120
p-Isopropyltoluene	50.00	43.49	87	80-120
1,2-Dibromo-3-Chloropro	50.00	54.38	109	80-120
Freon TF	50.00	41.23	82	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Lab File ID: X051301 BFB Injection Date: 05/13/19

Instrument ID: VOA6 BFB Injection Time: 1057

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.7
75	30.0 - 60.0% of mass 95	49.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	84.2
175	5.0 - 9.0% of mass 174	6.8 (8.1)1
176	95.0 - 101.0% of mass 174	81.4 (96.6)1
177	5.0 - 9.0% of mass 176	5.8 (7.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X051302	05/13/19	1121
02	VSTD000.5	VSTD000.5	X051303	05/13/19	1209
03	VSTD001	VSTD001	X051304	05/13/19	1233
04	VSTD002	VSTD002	X051305	05/13/19	1257
05	VSTD005	VSTD005	X051306	05/13/19	1321
06	VSTD020	VSTD020	X051307	05/13/19	1345
07	VSTD050	VSTD050	X051308	05/13/19	1409
08	VSTD100	VSTD100	X051309	05/13/19	1433
09	VSTD150	VSTD150	X051310	05/13/19	1456
10	VSTD200	VSTD200	X051311	05/13/19	1520
11	CCV	CCV	X051313	05/13/19	1608
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.566	0.473	0.477	0.478	0.483
trans-1,3-Dichloropropene		0.484	0.410	0.404	0.406	0.418
1,3-Dichlorobenzene		1.892	1.592	1.511	1.462	1.402
2,2-Dichloropropane		0.732	0.645	0.688	0.579	0.577
1,1-Dichloropropene		0.543	0.470	0.413	0.374	0.369
Dibromomethane		0.242	0.210	0.207	0.206	0.204
1,2-Dibromoethane		0.441	0.353	0.324	0.338	0.333
trans-1,2-Dichloroethene		0.475	0.418	0.412	0.380	0.391
1,1,1,2-Tetrachloroethane		0.502	0.401	0.363	0.369	0.359
1,1,1-Trichloroethane		0.743	0.674	0.648	0.642	0.614
1,1,2,2-Tetrachloroethane		0.825	0.718	0.660	0.677	0.658
Toluene		1.888	1.480	1.426	1.395	1.389
1,1,2-Trichloroethane		0.313	0.253	0.253	0.259	0.250
1,1-Dichloroethane		0.854	0.736	0.722	0.662	0.651
1,1-Dichloroethene		0.466	0.416	0.364	0.353	0.361
Trichlorofluoromethane		0.873	0.761	0.716	0.659	0.682
1,2,3-Trichlorobenzene		1200	1624	3642	9007	35984
Tetrachloroethene		0.467	0.354	0.380	0.344	0.337
1,2,4-Trichlorobenzene		0.894	0.667	0.649	0.665	0.666
1,2,4-Trimethylbenzene		2.914	2.499	2.352	2.326	2.127
tert-Butylbenzene		2.439	2.082	1.967	1.816	1.751
Trichloroethene		0.467	0.391	0.378	0.372	0.362
1,2-Dichlorobenzene		1.820	1.465	1.405	1.391	1.325
1,2-Dichloroethane		0.566	0.441	0.412	0.397	0.390
1,2-Dichloropropane		0.355	0.305	0.303	0.277	0.276
1,3,5-Trimethylbenzene		2.626	2.321	2.263	2.159	2.064
1,3-Dichloropropane		0.625	0.539	0.514	0.514	0.492
1,4-Dichlorobenzene		1.989	1.589	1.472	1.482	1.404
2-Butanone		0.133	0.109	0.104	0.112	0.122
2-Chlorotoluene		2.375	1.972	1.843	1.717	1.672
2-Hexanone		0.219	0.179	0.171	0.166	0.164
4-Chlorotoluene		2.778	2.271	2.053	2.022	1.896
Styrene		1.272	1.070	1.025	1.031	1.004
4-Methyl-2-Pentanone		0.314	0.258	0.240	0.243	0.243
Acetone		2338	2678	4305	8696	29211
Benzene		1.563	1.227	1.167	1.141	1.122
Bromobenzene		1.112	0.929	0.931	0.900	0.870
Bromochloromethane		1373	2379	4001	8842	34144
Bromodichloromethane		0.475	0.430	0.405	0.391	0.391
Bromoform		0.328	0.259	0.240	0.272	0.290
Bromomethane		1971	3476	6441	14764	52051
Carbon Disulfide		1.410	1.177	1.072	1.017	1.037
Carbon Tetrachloride		0.597	0.499	0.444	0.409	0.413
Chlorobenzene		1.176	1.012	1.001	0.968	0.947

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.331	0.332	0.276	0.278	0.261
Chloroform		0.902	0.773	0.743	0.724	0.709
Chloromethane		2738	4458	8492	19144	77890
cis-1,2-Dichloroethene		0.585	0.525	0.467	0.466	0.457
Dibromochloromethane		0.525	0.397	0.352	0.361	0.375
Dichlorodifluoromethane		1776	2995	5725	12226	54883
Ethylbenzene		0.666	0.515	0.498	0.488	0.479
Hexachlorobutadiene		0.533	0.452	0.416	0.387	0.401
Isopropylbenzene		1.947	1.536	1.544	1.455	1.364
m,p-Xylenes		0.760	0.636	0.603	0.606	0.572
Methylene Chloride		3718	5114	7584	15292	55968
n-Butylbenzene		2.409	1.878	1.926	1.784	1.748
n-Propylbenzene		3.644	3.123	3.076	2.904	2.718
Naphthalene		1.187	0.947	0.940	0.965	0.953
o-Xylene		0.752	0.612	0.594	0.596	0.563
sec-Butylbenzene		3.284	2.775	2.674	2.458	2.354
Vinyl Chloride		0.460	0.549	0.441	0.397	0.408
1,2,3-Trichloropropane		0.911	0.748	0.735	0.752	0.755
p-Isopropyltoluene		3.032	2.443	2.420	2.247	2.185
1,2-Dibromo-3-Chloropropane		0.110	0.103	0.099	0.103	0.109
Freon TF		1794	2736	5416	11785	47474
4-Bromofluorobenzene		3387	3897	8070	18579	69486
Dibromofluoromethane		2068	2821	6109	15275	57130
Toluene-d8		8111	10173	21875	51458	202820
1,2-Dichloroethane-d4		2751	2924	6793	14382	56761

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.480	0.512	0.498	0.512
trans-1,3-Dichloropropene	0.427	0.457	0.447	0.461
1,3-Dichlorobenzene	1.370	1.542	1.505	1.563
2,2-Dichloropropane	0.568	0.627	0.586	0.616
1,1-Dichloropropene	0.359	0.408	0.390	0.416
Dibromomethane	0.201	0.212	0.204	0.207
1,2-Dibromoethane	0.332	0.351	0.337	0.342
trans-1,2-Dichloroethene	0.382	0.413	0.391	0.415
1,1,1,2-Tetrachloroethane	0.362	0.394	0.375	0.386
1,1,1-Trichloroethane	0.606	0.690	0.647	0.693
1,1,2,2-Tetrachloroethane	0.632	0.653	0.650	0.658
Toluene	1.345	1.458	1.380	1.428
1,1,2-Trichloroethane	0.241	0.252	0.239	0.245
1,1-Dichloroethane	0.664	0.703	0.657	0.693
1,1-Dichloroethene	0.361	0.411	0.379	0.404
Trichlorofluoromethane	0.661	0.802	0.735	0.795
1,2,3-Trichlorobenzene	82821	193390	278559	405059
Tetrachloroethene	0.323	0.380	0.354	0.370
1,2,4-Trichlorobenzene	0.659	0.800	0.796	0.838
1,2,4-Trimethylbenzene	2.063	2.398	2.329	2.423
tert-Butylbenzene	1.641	2.029	1.938	2.027
Trichloroethene	0.358	0.391	0.373	0.392
1,2-Dichlorobenzene	1.296	1.437	1.418	1.434
1,2-Dichloroethane	0.381	0.407	0.393	0.402
1,2-Dichloropropane	0.271	0.283	0.275	0.283
1,3,5-Trimethylbenzene	1.976	2.346	2.301	2.385
1,3-Dichloropropane	0.483	0.506	0.480	0.496
1,4-Dichlorobenzene	1.377	1.547	1.510	1.563
2-Butanone	0.119	0.130	0.117	0.125
2-Chlorotoluene	1.590	1.813	1.805	1.856
2-Hexanone	0.161	0.173	0.164	0.171
4-Chlorotoluene	1.864	2.126	2.100	2.172
Styrene	0.999	1.072	1.026	1.058
4-Methyl-2-Pentanone	0.237	0.252	0.242	0.250
Acetone	66437	125003		
Benzene	1.118	1.188	1.146	1.190
Bromobenzene	0.854	0.926	0.922	0.942
Bromochloromethane	84393	161297	232598	307407
Bromodichloromethane	0.401	0.428	0.418	0.431
Bromoform	0.296	0.317	0.307	0.315
Bromomethane	129857	273924	399907	526501
Carbon Disulfide	1.039	1.160	1.082	1.147
Carbon Tetrachloride	0.396	0.475	0.451	0.478
Chlorobenzene	0.929	0.994	0.962	0.987

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.258	0.285	0.270	0.276
Chloroform	0.713	0.769	0.717	0.749
Chloromethane	171914	321283	438543	547031
cis-1,2-Dichloroethene	0.456	0.488	0.458	0.479
Dibromochloromethane	0.388	0.411	0.398	0.407
Dichlorodifluoromethane	129152	289308	401283	559973
Ethylbenzene	0.462	0.519	0.496	0.518
Hexachlorobutadiene	0.354	0.470	0.459	0.478
Isopropylbenzene	1.313	1.574	1.491	1.555
m,p-Xylenes	0.561	0.628	0.603	0.620
Methylene Chloride	132351	252013	359557	480088
n-Butylbenzene	1.636	2.041	1.985	2.081
n-Propylbenzene	2.612	3.169	3.138	3.263
Naphthalene	0.934	1.130	1.132	1.212
o-Xylene	0.554	0.615	0.578	0.604
sec-Butylbenzene	2.210	2.793	2.672	2.826
Vinyl Chloride	0.421	0.488	0.455	0.493
1,2,3-Trichloropropane	0.738	0.785	0.783	0.804
p-Isopropyltoluene	2.058	2.584	2.482	2.626
1,2-Dibromo-3-Chloropropane	0.105	0.120	0.114	0.121
Freon TF	105816	255344	356261	492637
4-Bromofluorobenzene	164393	308874	453043	597336
Dibromofluoromethane	138429	259811	375096	491615
Toluene-d8	475062	904394	1314423	1723420
1,2-Dichloroethane-d4	140206	264049	382028	502886

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.49771918		5.915	15.000
trans-1,3-Dichloropropene	AVRG		0.43489503		6.516	15.000
1,3-Dichlorobenzene	AVRG		1.53778202		9.830	15.000
2,2-Dichloropropane	AVRG		0.62425653		8.970	15.000
1,1-Dichloropropene	AVRG		0.41585091		13.985	15.000
Dibromomethane	AVRG		0.21030722		5.868	15.000
1,2-Dibromoethane	AVRG		0.35009458		10.051	15.000
trans-1,2-Dichloroethene	AVRG		0.40859806		7.082	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39008119		11.412	15.000
1,1,1-Trichloroethane	AVRG		0.66203536		6.481	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.68127906		8.678	15.000
Toluene	AVRG		1.46558205		11.175	15.000
1,1,2-Trichloroethane	AVRG		0.25610066		8.667	15.000
1,1-Dichloroethane	AVRG		0.70472897		9.010	15.000
1,1-Dichloroethene	AVRG		0.39074385		9.430	15.000
Trichlorofluoromethane	AVRG		0.74266153		9.738	15.000
1,2,3-Trichlorobenzene	2ORDR	1.51e-002	2.41455480	-0.2430485	0.9984984	0.9900000
Tetrachloroethene	AVRG		0.36759966		11.394	15.000
1,2,4-Trichlorobenzene	AVRG		0.73723146		12.797	15.000
1,2,4-Trimethylbenzene	AVRG		2.38128040		10.205	15.000
tert-Butylbenzene	AVRG		1.96560319		11.656	15.000
Trichloroethene	AVRG		0.38716276		8.358	15.000
1,2-Dichlorobenzene	AVRG		1.44345711		10.476	15.000
1,2-Dichloroethane	AVRG		0.42106536		13.512	15.000
1,2-Dichloropropane	AVRG		0.29197973		9.098	15.000
1,3,5-Trimethylbenzene	AVRG		2.27127443		8.393	15.000
1,3-Dichloropropane	AVRG		0.51664479		8.620	15.000
1,4-Dichlorobenzene	AVRG		1.54811621		11.602	15.000
2-Butanone	AVRG		0.11919462		7.992	15.000
2-Chlorotoluene	AVRG		1.84916500		12.264	15.000
2-Hexanone	AVRG		0.17416142		10.062	15.000
4-Chlorotoluene	AVRG		2.14249997		12.623	15.000
Styrene	AVRG		1.06204057		7.834	15.000
4-Methyl-2-Pentanone	AVRG		0.25352116		9.380	15.000
Acetone	LINR	-3.53e-002	9.50178516		0.9995835	0.9900000
Benzene	AVRG		1.20687793		11.441	15.000
Bromobenzene	AVRG		0.93182068		7.938	15.000
Bromochloromethane	LINR	-1.06e-003	3.74852050		0.9993055	0.9900000
Bromodichloromethane	AVRG		0.41901017		6.336	15.000
Bromoform	AVRG		0.29158923		10.027	15.000
Bromomethane	LINR	2.187e-002	2.17898988		0.9987964	0.9900000
Carbon Disulfide	AVRG		1.12671521		10.734	15.000
Carbon Tetrachloride	AVRG		0.46245484		13.244	15.000
Chlorobenzene	AVRG		0.99733730		7.218	15.000

FORM VI VOA

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.28538895		9.650	15.000
Chloroform	AVRG		0.75567055		7.908	15.000
Chloromethane	LINR	-4.95e-002	2.05623096		0.9961119	0.9900000
cis-1,2-Dichloroethene	AVRG		0.48700328		8.796	15.000
Dibromochloromethane	AVRG		0.40176813		12.536	15.000
Dichlorodifluoromethane	2ORDR	1.15e-002	2.30394197	-0.1305998	0.9971369	0.9900000
Ethylbenzene	AVRG		0.51555123		11.524	15.000
Hexachlorobutadiene	AVRG		0.43899485		12.402	15.000
Isopropylbenzene	AVRG		1.53111578		11.742	15.000
m,p-Xylenes	AVRG		0.62096278		9.244	15.000
Methylene Chloride	LINR	-1.26e-002	2.41541641		0.9990138	0.9900000
n-Butylbenzene	AVRG		1.94329244		11.644	15.000
n-Propylbenzene	AVRG		3.07188810		9.932	15.000
Naphthalene	AVRG		1.04448277		11.277	15.000
o-Xylene	AVRG		0.60751184		9.569	15.000
sec-Butylbenzene	AVRG		2.67178311		11.718	15.000
Vinyl Chloride	AVRG		0.45697874		10.461	15.000
1,2,3-Trichloropropane	AVRG		0.77905637		7.039	15.000
p-Isopropyltoluene	AVRG		2.45293099		11.664	15.000
1,2-Dibromo-3-Chloropropane	AVRG		0.10920891		7.013	15.000
Freon TF	2ORDR	1.665e-002	2.62304412	-0.1766315	0.9965538	0.9900000
4-Bromofluorobenzene	LINR	-1.15e-002	2.40600521		0.9997462	0.9900000
Dibromofluoromethane	LINR	-7.36e-003	2.33872517		0.9994280	0.9900000
Toluene-d8	LINR	-1.15e-002	0.83071157		0.9996002	0.9900000
1,2-Dichloroethane-d4	LINR	-3.58e-003	2.28937081		0.9994182	0.9900000

FORM VI VOA

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

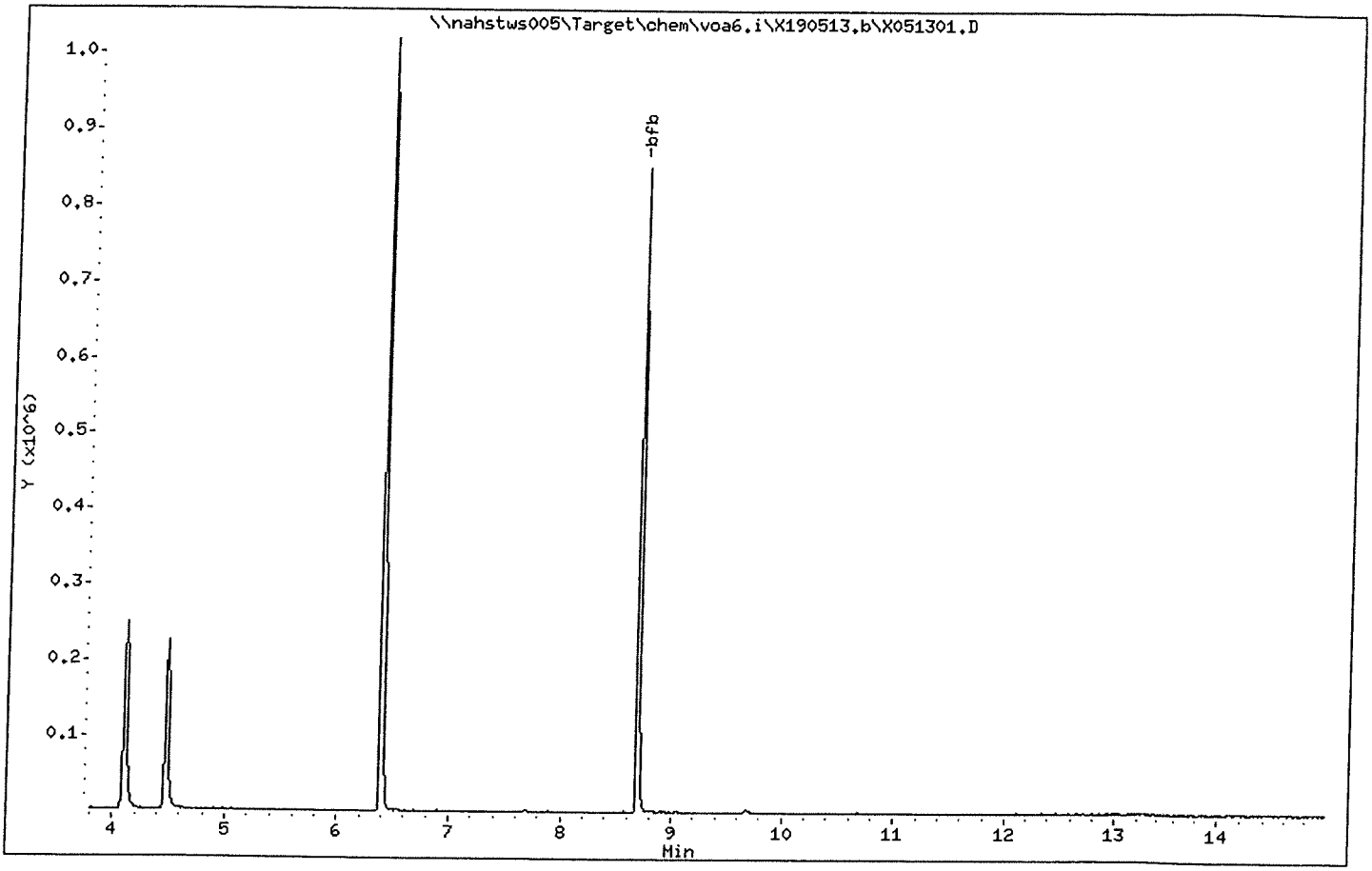
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

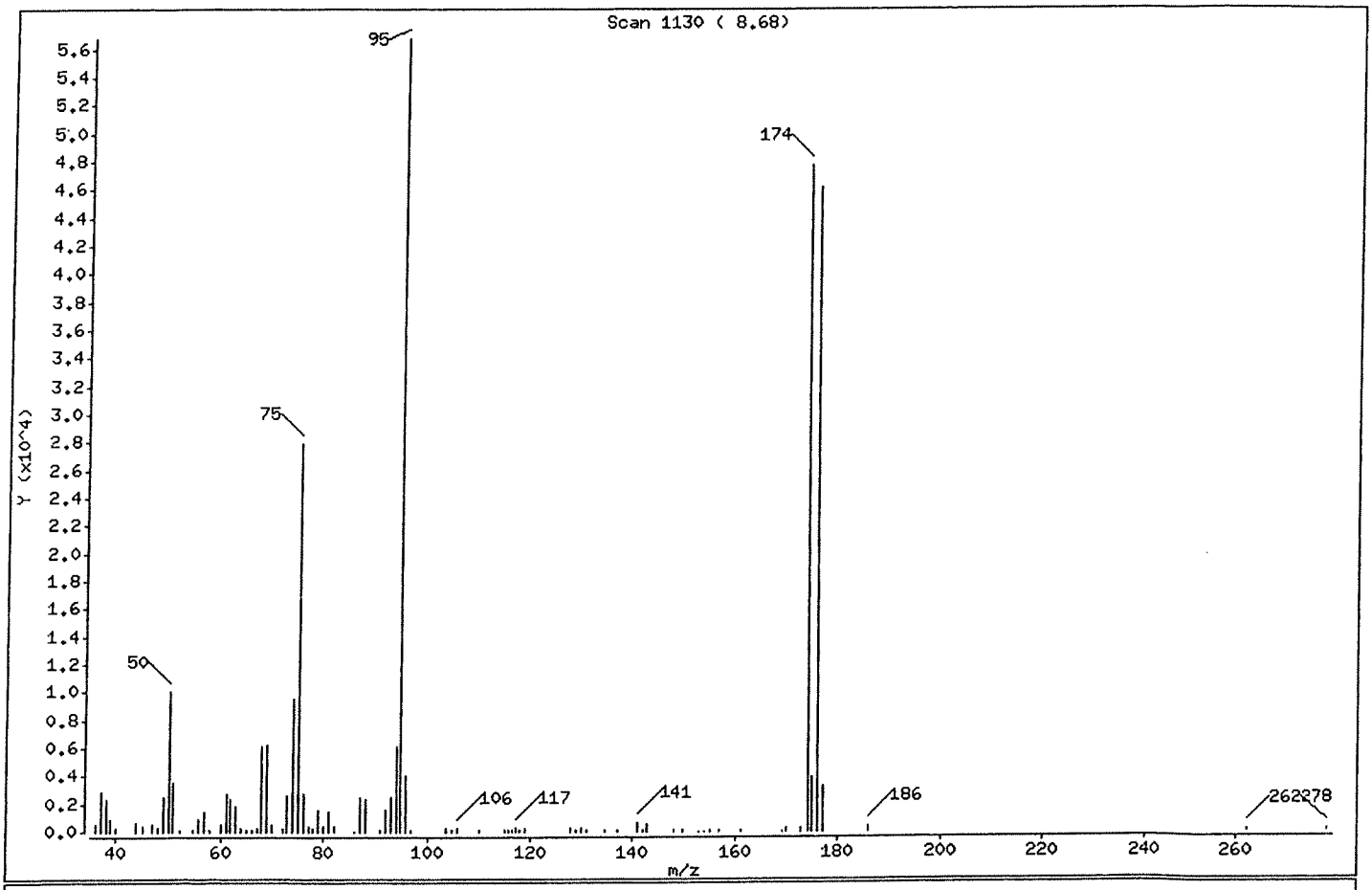
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.74
75	30.00 - 60.00% of mass 95	49.24
96	5.00 - 9.00% of mass 95	7.17
173	Less than 2.00% of mass 174	0.51 (0.61)
174	Greater than 50.00% of mass 95	84.25
175	5.00 - 9.00% of mass 174	6.85 (8.13)
176	95.00 - 101.00% of mass 174	81.36 (96.57)
177	5.00 - 9.00% of mass 176	5.85 (7.19)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

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: X051301.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 85

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	499	65.10	118	93.10	2482	142.10	90
37.10	2826	66.00	81	94.00	6130	142.80	493
38.10	2373	67.10	215	95.00	56736	147.80	141
39.00	976	68.00	6194	96.00	4066	149.90	72
40.10	309	69.00	6198	97.00	85	152.90	59
44.00	623	70.00	553	103.80	217	154.00	52
45.10	455	72.10	254	104.80	70	154.90	137
47.00	582	73.00	2655	105.80	230	156.90	179
48.00	304	74.10	9574	109.90	86	161.10	101
49.00	2490	75.00	27936	115.10	163	169.10	63
50.10	10063	76.10	2714	115.80	146	170.00	243
51.10	3473	77.00	426	116.40	155	172.90	291
52.20	138	77.80	222	117.00	280	174.00	47800
55.00	164	78.90	1585	118.00	150	175.00	3885
56.00	913	79.90	401	118.90	272	176.00	46160
57.10	1397	81.00	1467	127.90	257	177.00	3318
58.00	81	82.00	393	129.00	158	185.90	337
60.10	522	85.90	64	130.00	243	262.10	143
61.10	2794	87.10	2505	130.90	156	278.00	75
62.00	2349	88.00	2334	134.60	73		
63.10	1839	91.10	183	137.00	147		
64.10	270	92.00	1588	141.00	681		

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 13-MAY-2019 11:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 11:21 Cal File: X051302.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	380640	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	493303	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	438880	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	241847	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	1121	0.25000	0.15(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3820	0.25000	0.47(a)
$	30 Dibromofluoromethane	113	4.118	4.111	(0.983)	964	0.25000	(a)
$	48 Toluene-d8	98	6.395	6.388	(0.834)	5074	0.25000	(Ta)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1053	0.25000	0.30(a)
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	1398	0.25000	0.27(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	935	0.25000	0.28(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	841	0.25000	1.12(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	563	0.25000	0.25(aM)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2111	0.25000	0.39(aM)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	959	0.25000	0.32(aM)
	32 1,1-Dichloropropene	75	4.297	4.290	(0.865)	1440	0.25000	0.35(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	448	0.25000	0.97(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	929	0.25000	0.24(a)
	90 1,2,4-Trichlorobenzene	180	11.359	11.338	(1.175)	967	0.25000	0.27(aM)
	79 1,2,4-Trimethylbenzene	105	9.390	9.383	(0.971)	3604	0.25000	0.31(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	89	0.25000	0.16(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	767	0.25000	0.24(a)
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	2087	0.25000	0.29(a)

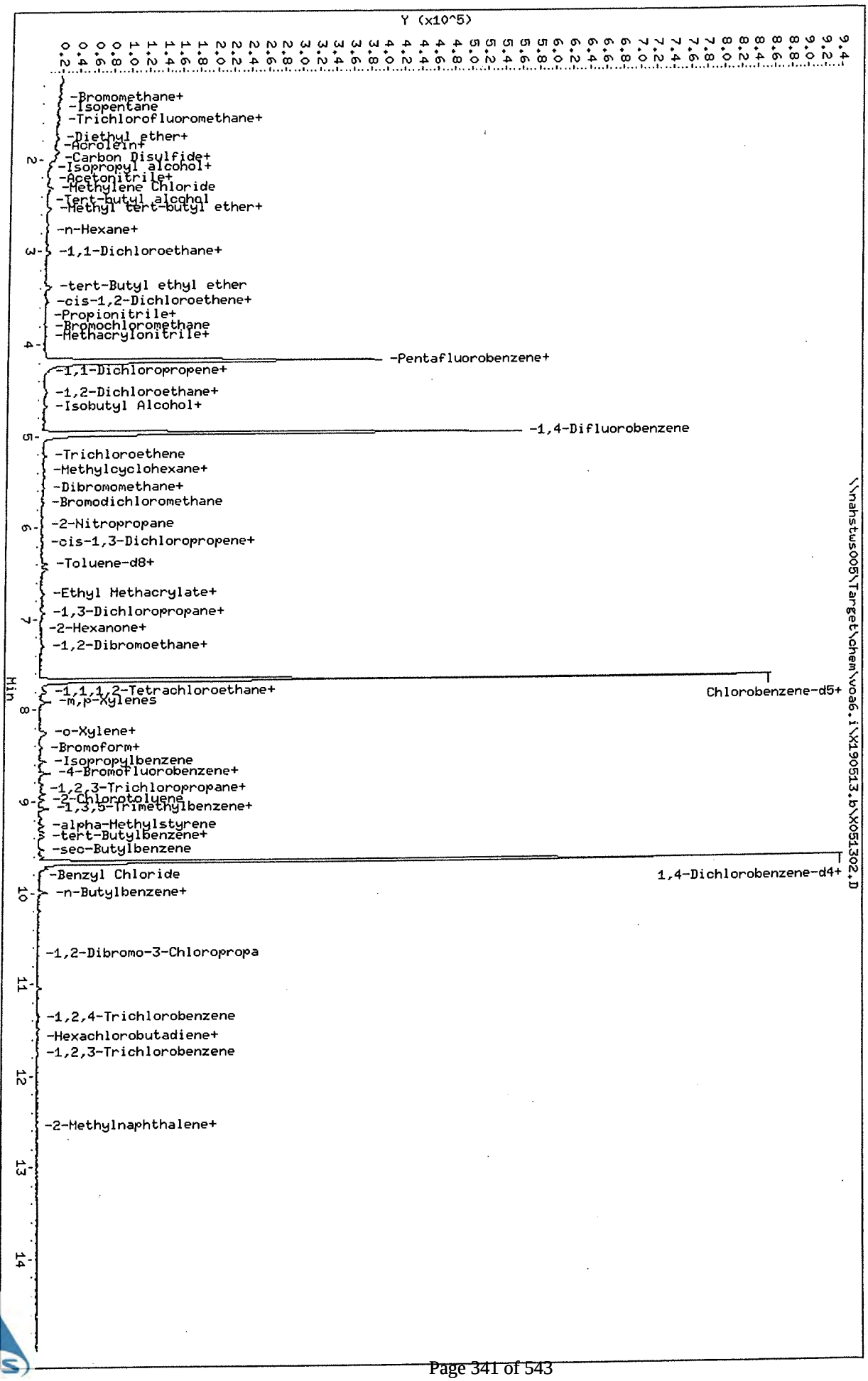
a File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
)ort Date: 06-Jun-2019 10:44

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	4.562	(0.919)	1271	0.25000	0.30 (a)
42 1,2-Dichloropropane	63	5.450	5.443	(1.097)	768	0.25000	0.26 (aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	3592	0.25000	0.32 (a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2204	0.25000	0.29 (a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	1311	0.25000	0.28 (a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	2372	0.25000	0.31 (a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	1358	0.25000	0.28 (aM)
24 2-Butanone	43	3.623	3.581	(0.865)	314	0.50000	0.34 (aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3094	0.25000	0.34 (a)
52 2-Hexanone	43	7.105	7.090	(0.926)	746	0.50000	0.48 (Ta)
77 4-Chlorotoluene	91	9.082	9.075	(0.939)	3064	0.25000	0.29 (a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	3961	0.25000	0.33 (a)
45 4-Methyl-2-Pentanone	43	6.345	6.331	(0.827)	1342	0.50000	0.60 (aM)
10 Acetone	43	1.983	1.976	(0.473)	1372	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3582	0.25000	0.30 (a)
74 Bromobenzene	156	8.817	8.810	(0.912)	1360	0.25000	0.30 (a)
29 Bromochloromethane	128	3.802	3.803	(0.908)	871	0.25000	0.37 (a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1213	0.25000	0.29 (aM)
66 Bromoform	173	8.415	8.416	(1.097)	645	0.25000	0.25 (aM)
6 Bromomethane	94	1.338	1.339	(0.320)	1482	0.25000	1.51 (aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	5105	0.50000	0.59 (a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1602	0.25000	0.35 (aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	2791	0.25000	0.31 (a)
7 Chloroethane	64	1.410	1.403	(0.337)	506	0.25000	0.23 (aM)
28 Chloroform	83	3.910	3.917	(0.933)	1650	0.25000	0.28 (a)
3 Chloromethane	50	1.081	1.081	(0.258)	1663	0.25000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1225	0.25000	0.33 (a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	1356	0.25000	0.27 (a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	1243	0.25000	0.35 (a)
44 Dibromomethane	93	5.565	5.558	(1.120)	635	0.25000	0.30 (a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	819	0.25000	0.82 (aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1392	0.25000	0.30 (a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	676	0.25000	0.31 (aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	4156	0.25000	0.30 (a)
62 m,p-Xylenes	106	7.914	7.907	(1.032)	3220	0.50000	0.59 (a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	1896	0.25000	(aM)
87 n-Butylbenzene	91	10.006	9.999	(1.035)	2998	0.25000	0.31 (a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	4469	0.25000	0.30 (a)
92 Naphthalene	128	11.567	11.546	(1.196)	1115	0.25000	0.22 (aM)
63 o-Xylene	106	8.251	8.244	(1.076)	1474	0.25000	0.27 (a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	4062	0.25000	0.31 (a)
64 Styrene	104	8.272	8.265	(1.078)	2684	0.25000	0.28 (a)
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	3014	0.25000	0.31 (a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1012	0.25000	0.31 (a)
50 Toluene	91	6.453	6.453	(0.841)	4377	0.25000	0.34 (a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1043	0.25000	0.33 (Ta)
51 trans-1,3-Dichloropropene	75	6.696	6.682	(1.347)	1116	0.25000	0.26 (a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1299	0.25000	0.34 (a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	1532	0.25000	0.27 (a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1101	0.25000	0.31 (aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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


Y (x10^5)
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Carbon Disulfide+
-Isopropyl alcohol+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Methyl tert-butyl ether+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-cis-1,2-Dichloroethene+
-Propionitrile+
-Bromochloromethane
-Methacrylonitrile+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Nitropropane
-cis-1,3-Dichloropropene+
-Toluene-d8+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-2-Chlorotoluene
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride
-n-Butylbenzene+
1,4-Dichlorobenzene-d4+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene+
Min
\\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Date : 13-MAY-2019 11:21
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 13-MAY-2019 12:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:09 Cal File: X051303.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	339150	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	450290	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	414823	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	230908	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2751	0.50000	0.74(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3387	0.50000	0.40(a)
$	30 Dibromofluoromethane	113	4.110	4.111	(0.981)	2068	0.50000	0.34(a)
$	48 Toluene-d8	98	6.395	6.388	(0.834)	8111	0.50000	0.23(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2082	0.50000	0.64(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	2521	0.50000	0.56(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1906	0.50000	0.60(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	1794	0.50000	1.52(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1298	0.50000	0.61(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2895	0.50000	0.60(Ta)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1580	0.50000	0.59(aM)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2446	0.50000	0.65(aM)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1200	0.50000	1.38(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	2104	0.50000	0.58(a)
	90 1,2,4-Trichlorobenzene	180	11.352	11.338	(1.174)	2065	0.50000	0.60(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	6729	0.50000	0.61(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	253	0.50000	0.50(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	1828	0.50000	0.62(a)
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	4202	0.50000	0.63(a)

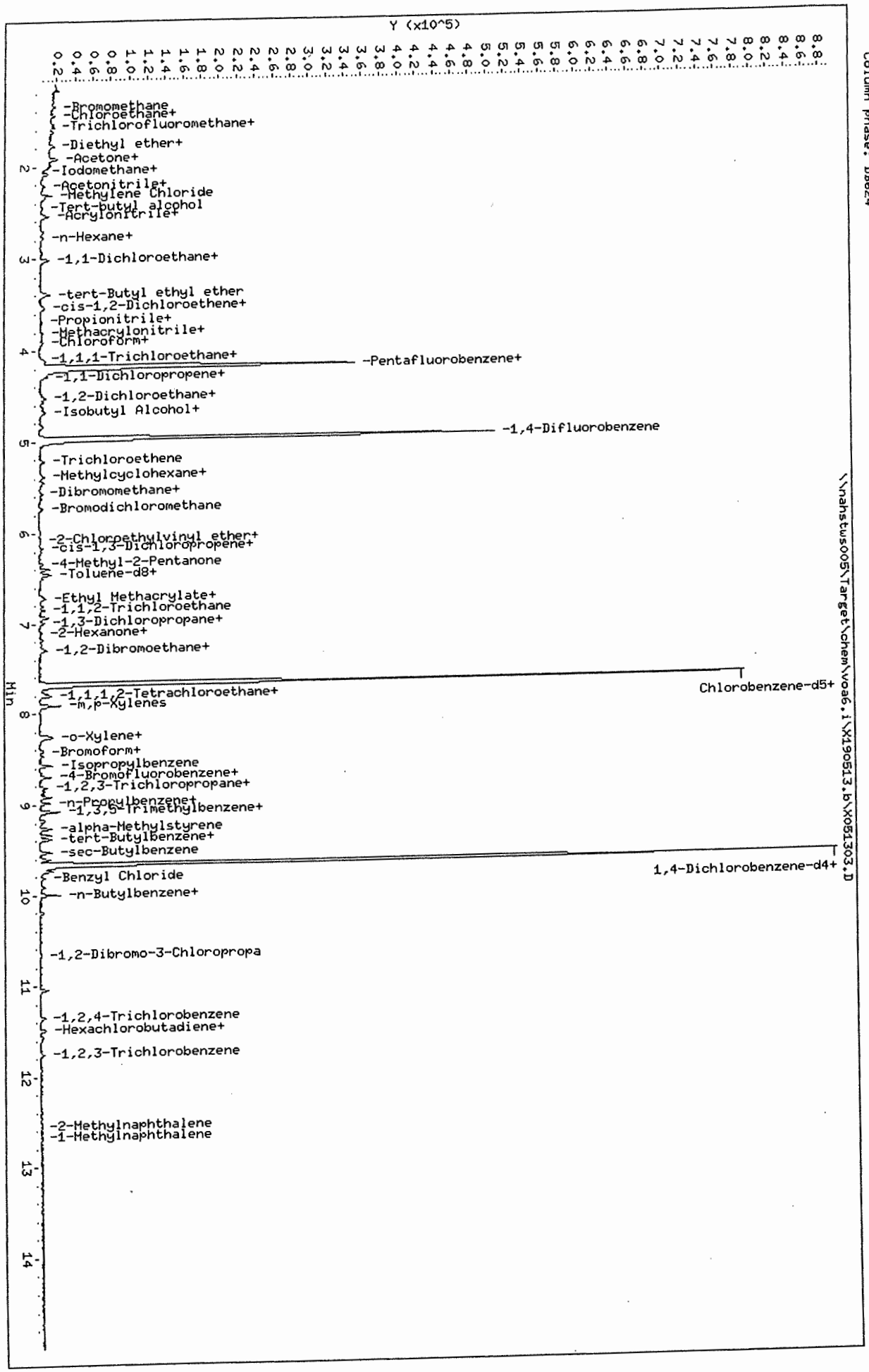
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

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	4.562	(0.919)	2548	0.50000	0.67(aM)
42 1,2-Dichloropropane	63	5.450	5.443	(1.097)	1600	0.50000	0.60(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	6064	0.50000	0.57(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	4368	0.50000	0.61(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	2593	0.50000	0.60(a)
84 1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	4593	0.50000	0.64(a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	2483	0.50000	0.58(aM)
24 2-Butanone	43	3.616	3.581	(0.863)	904	1.00000	1.11(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	5485	0.50000	0.64(a)
52 2-Hexanone	43	7.105	7.090	(0.926)	1814	1.00000	1.25(a)
77 4-Chlorotoluene	91	9.082	9.075	(0.939)	6416	0.50000	0.64(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	7002	0.50000	0.61(a)
45 4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	2610	1.00000	1.24(a)
10 Acetone	43	1.976	1.976	(0.472)	2338	1.00000	1.50(a)
37 Benzene	78	4.519	4.519	(0.909)	7038	0.50000	0.64(a)
74 Bromobenzene	156	8.817	8.810	(0.912)	2569	0.50000	0.59(a)
29 Bromochloromethane	128	3.810	3.803	(0.909)	1373	0.50000	0.70(aM)
39 Bromodichloromethane	83	5.736	5.729	(1.154)	2141	0.50000	0.56(aM)
66 Bromoform	173	8.415	8.416	(1.097)	1360	0.50000	0.56(Ta)
6 Bromomethane	94	1.346	1.339	(0.321)	1971	0.50000	1.72(aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	9564	1.00000	1.25(a)
34 Carbon Tetrachloride	117	4.268	4.275	(0.859)	2687	0.50000	0.64(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	4877	0.50000	0.58(a)
7 Chloroethane	64	1.410	1.403	(0.337)	1123	0.50000	0.58(aM)
28 Chloroform	83	3.917	3.917	(0.935)	3060	0.50000	0.59(a)
3 Chloromethane	50	1.081	1.081	(0.258)	2738	0.50000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1985	0.50000	0.60(a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	2547	0.50000	0.56(a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	2177	0.50000	0.65(a)
44 Dibromomethane	93	5.557	5.558	(1.118)	1090	0.50000	0.57(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1776	0.50000	1.17(aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	2761	0.50000	0.64(a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	1230	0.50000	0.60(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	8078	0.50000	0.63(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	6302	1.00000	1.22(a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	3718	0.50000	0.69(a)
87 n-Butylbenzene	91	9.998	9.999	(1.034)	5563	0.50000	0.61(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	8414	0.50000	0.59(a)
92 Naphthalene	128	11.560	11.546	(1.196)	2741	0.50000	0.56(a)
63 o-Xylene	106	8.251	8.244	(1.076)	3120	0.50000	0.61(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	7583	0.50000	0.61(a)
64 Styrene	104	8.265	8.265	(1.078)	5278	0.50000	0.59(a)
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	5631	0.50000	0.62(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1936	0.50000	0.63(a)
50 Toluene	91	6.453	6.453	(0.841)	7833	0.50000	0.64(a)
20 trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	1611	0.50000	0.58(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	2179	0.50000	0.55(a)
38 Trichloroethene	130	5.221	5.214	(1.050)	2102	0.50000	0.60(a)
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	2962	0.50000	0.58(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1560	0.50000	0.50(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

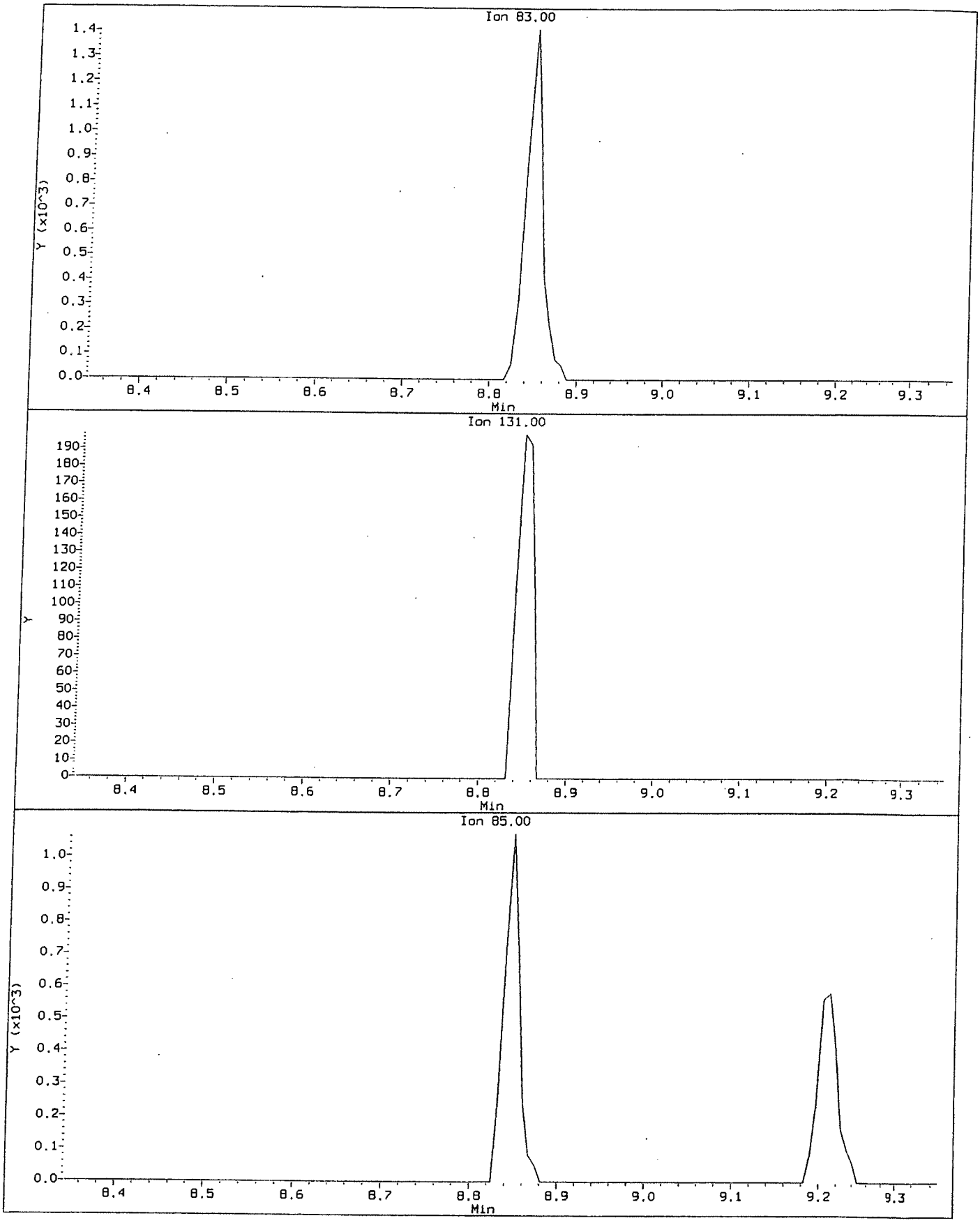
QC Flag Legend

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\X190513.b\X051303.D
Date : 13-MAY-2019 12:09
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
\\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-cis-1,2-Dichloroethene+
-Propionitrile+
-Methacrylonitrile+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene
-Methylcyclohexane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

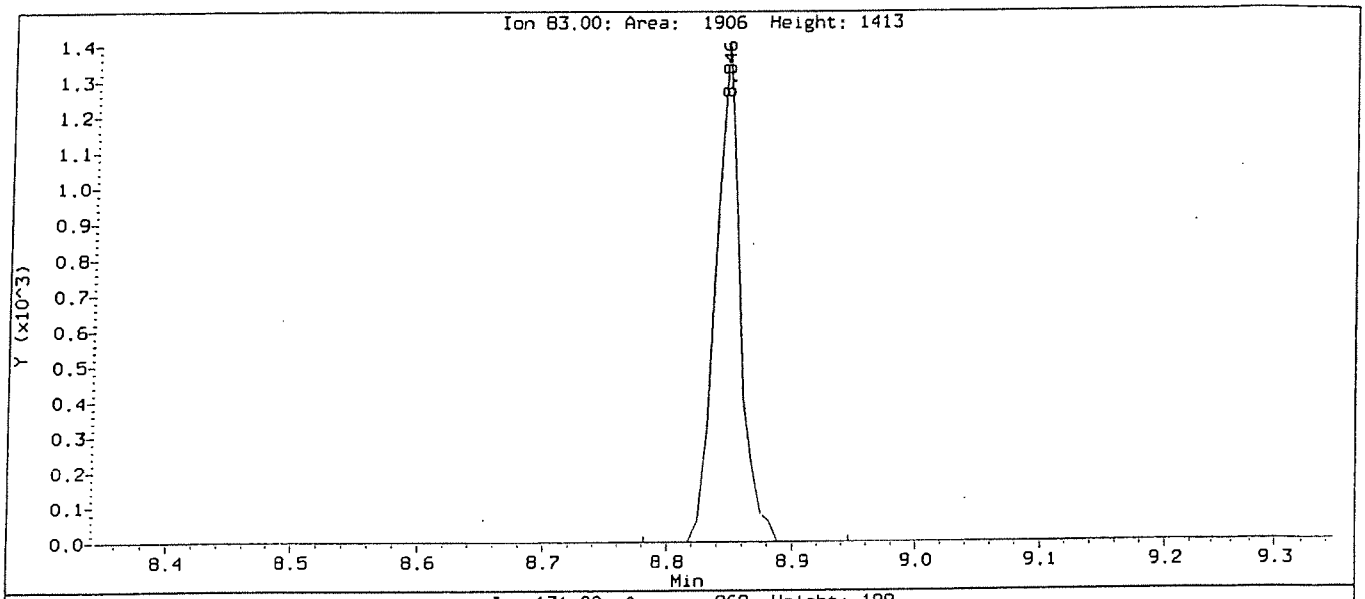
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

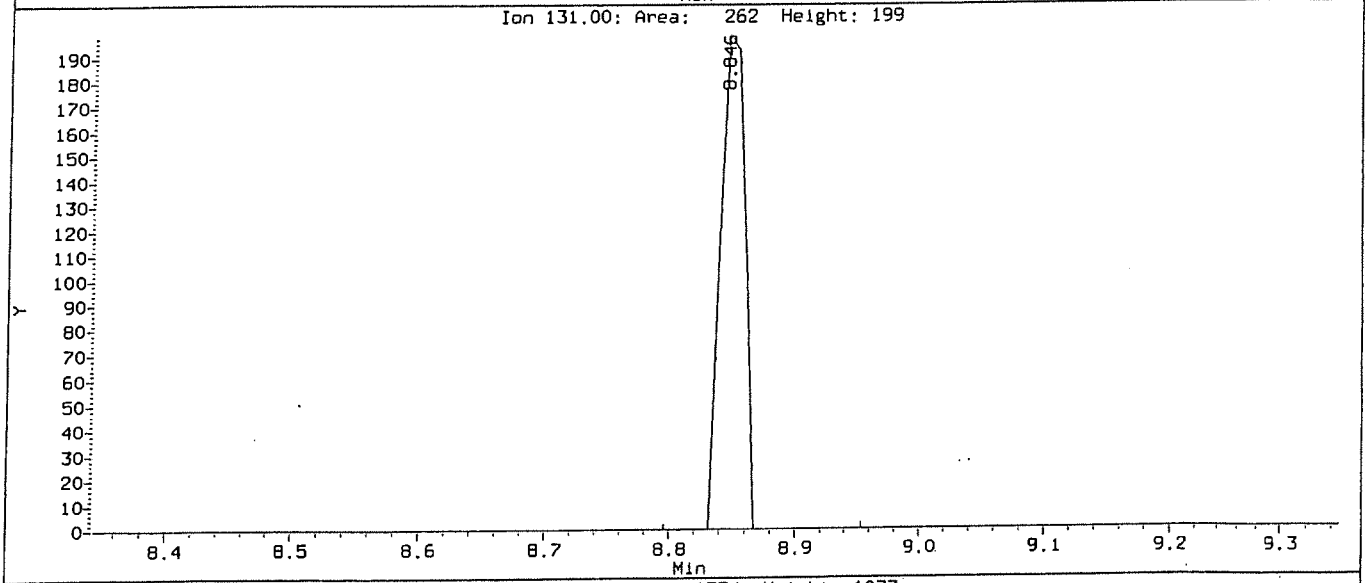
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

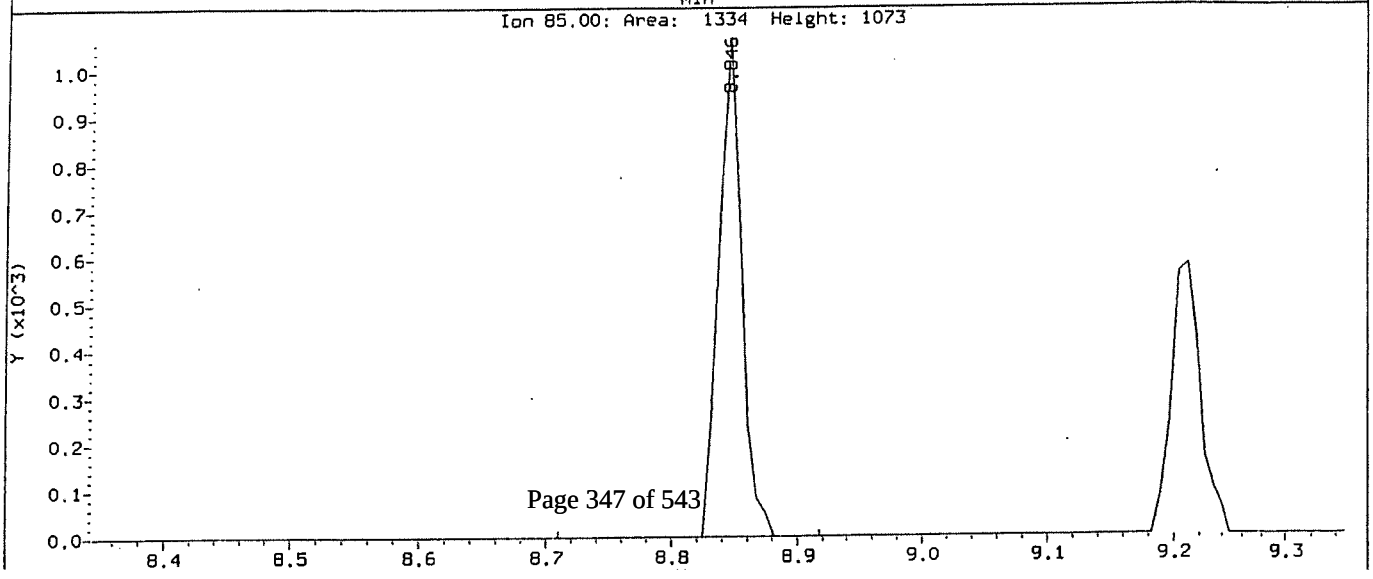


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

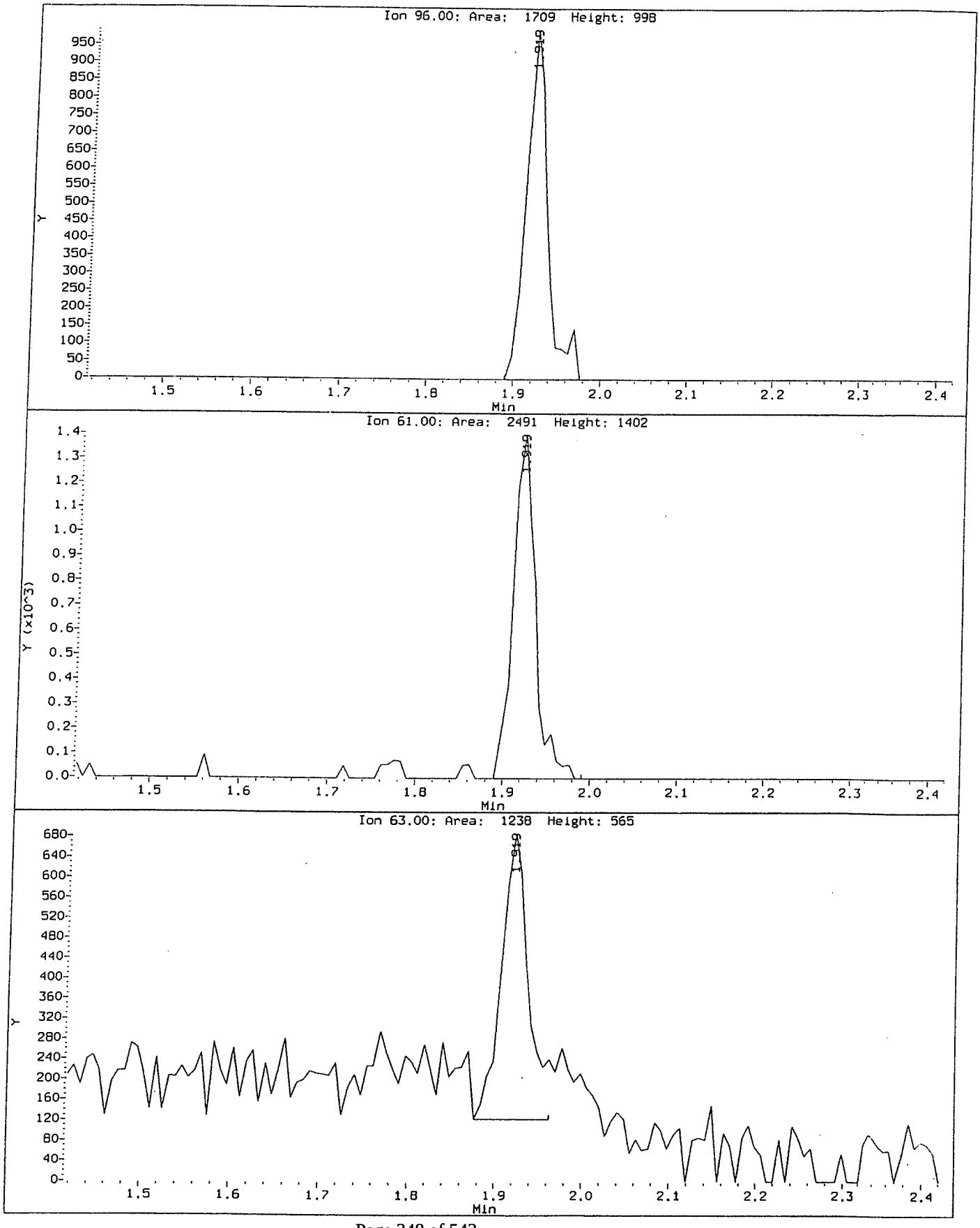






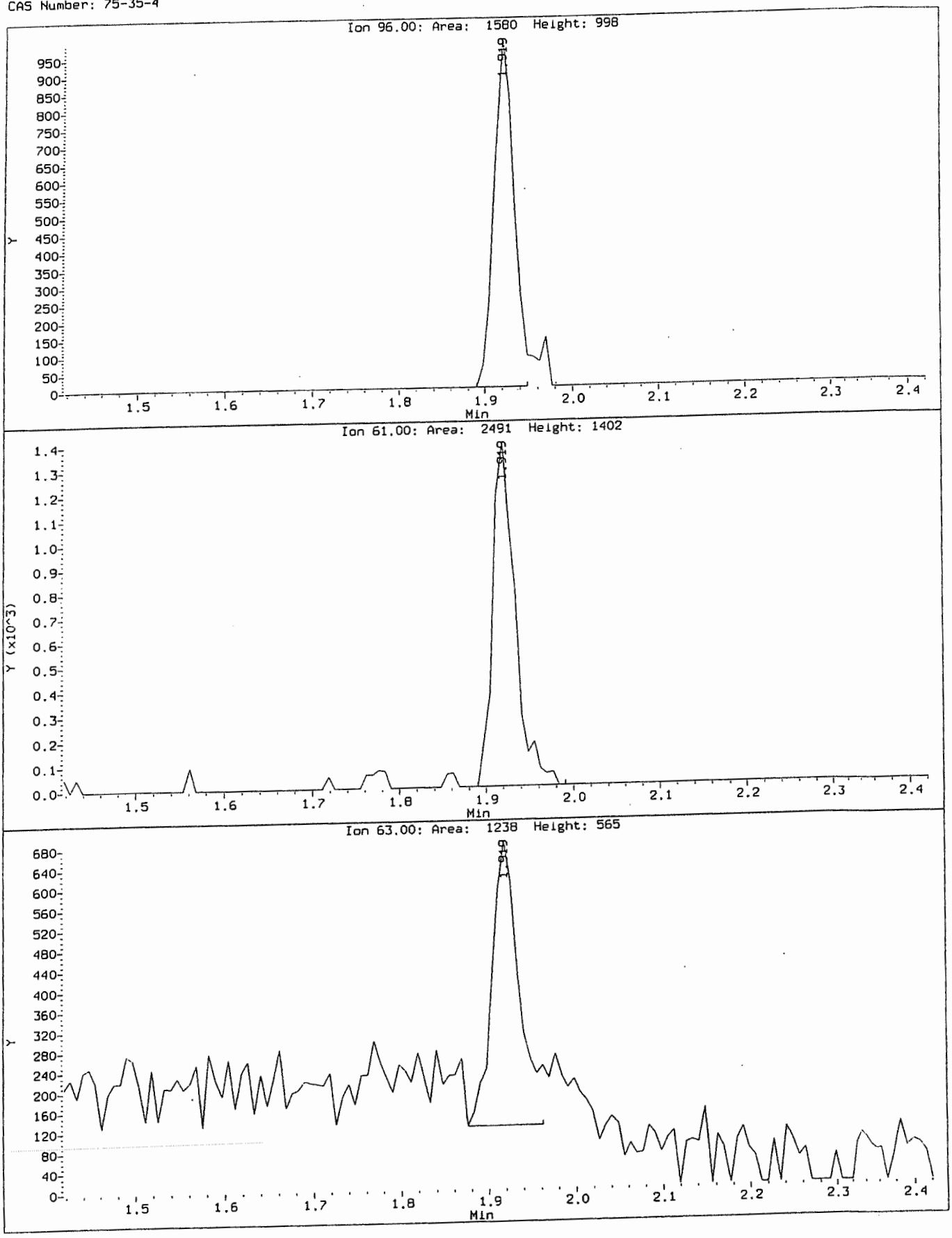
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



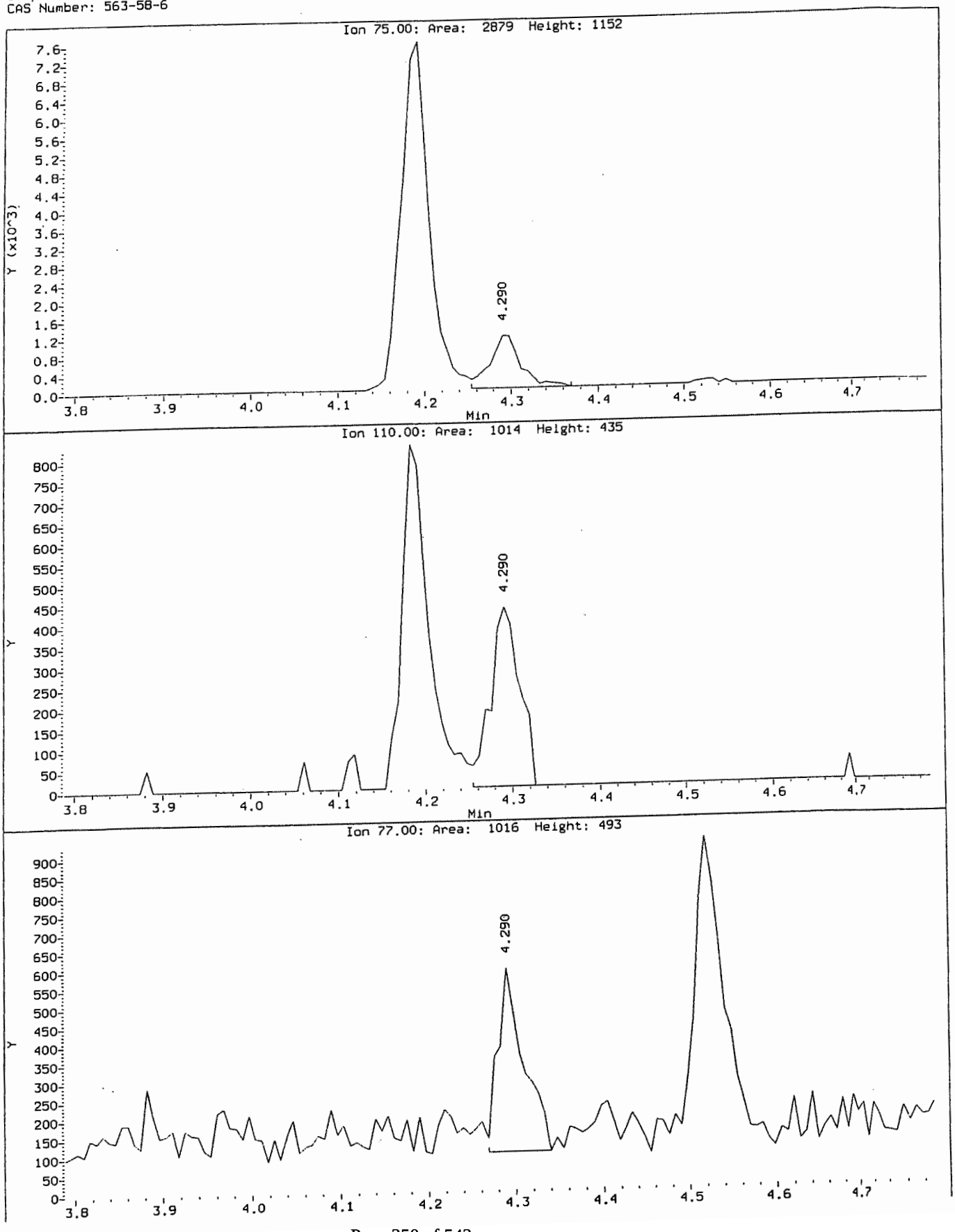
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



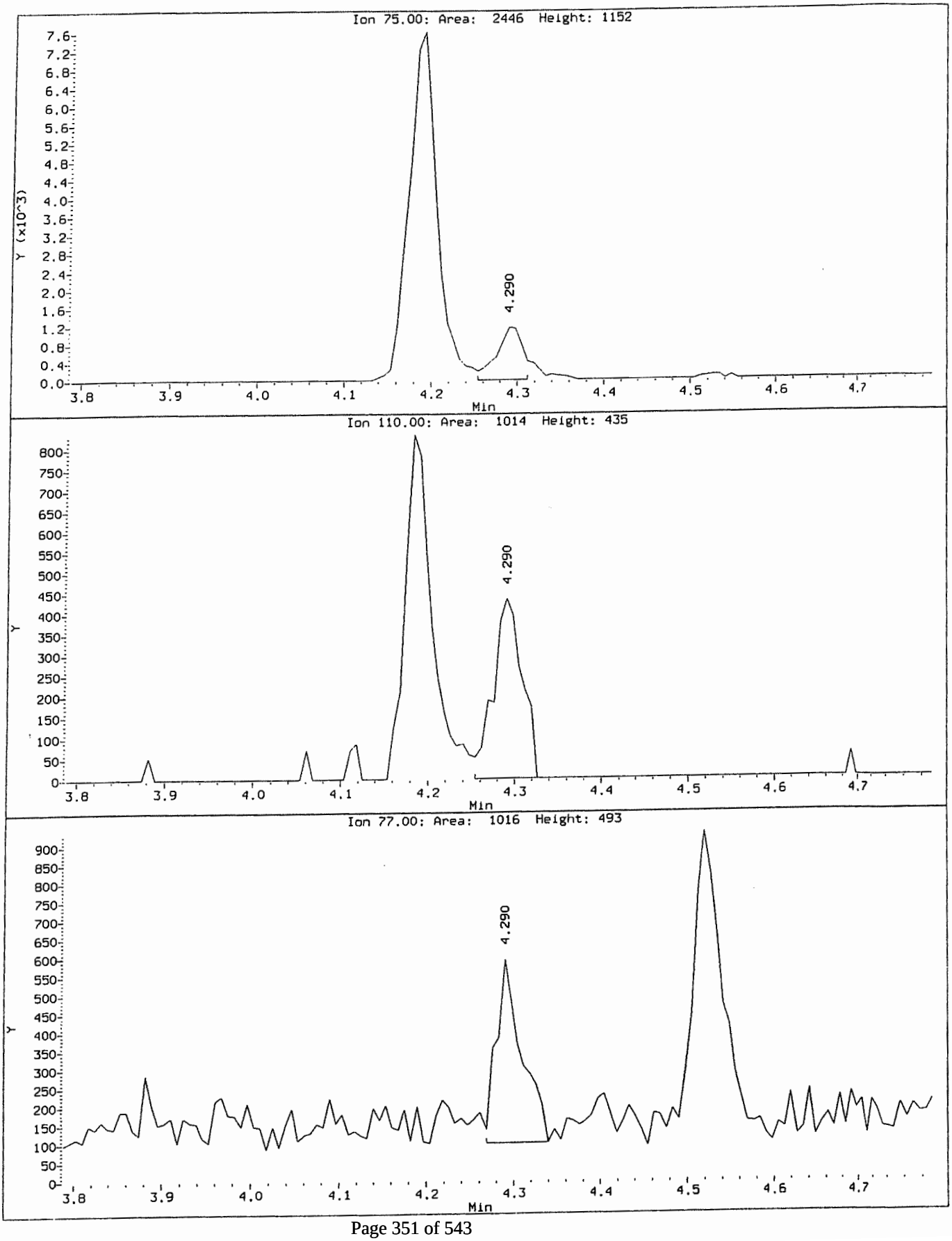
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



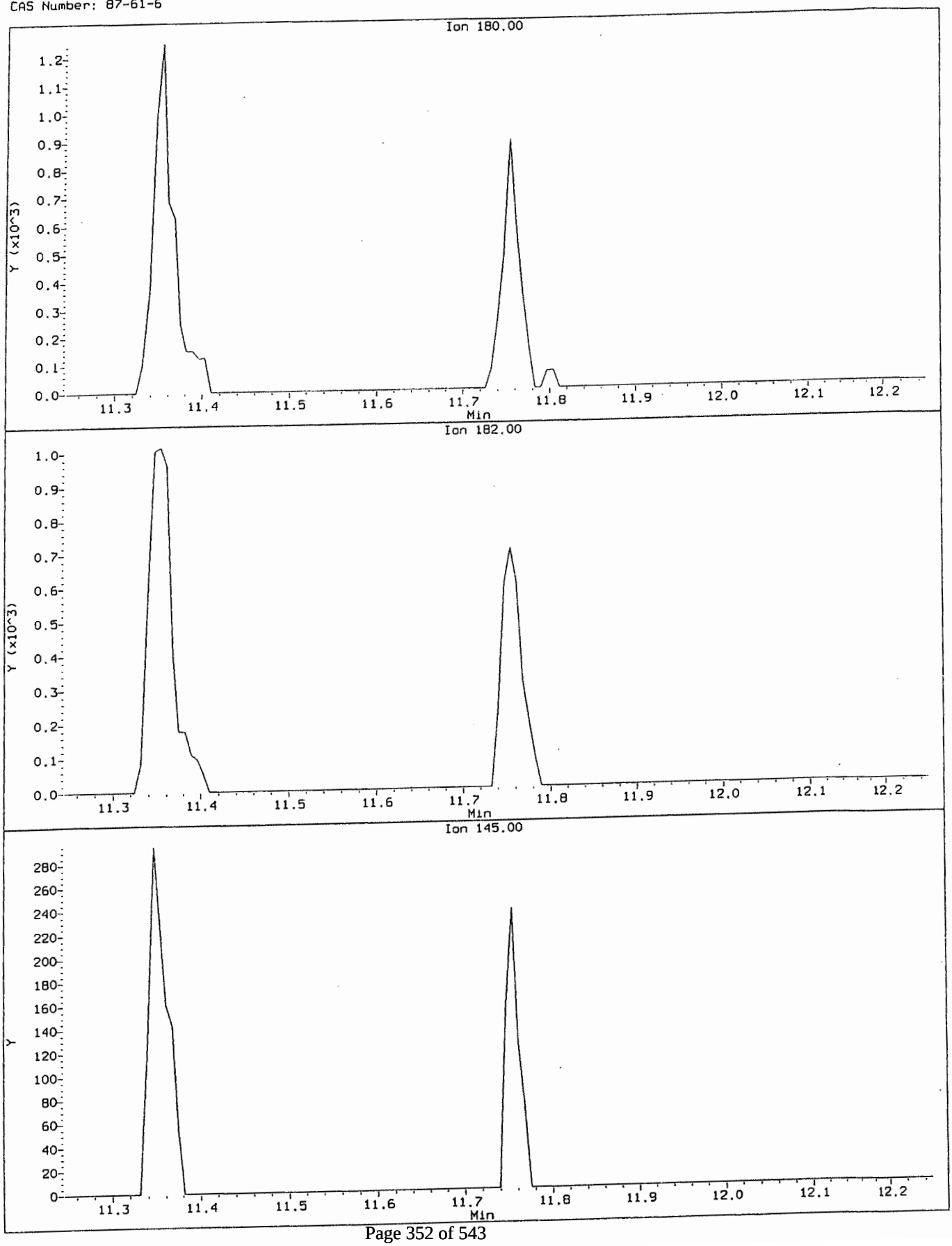
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



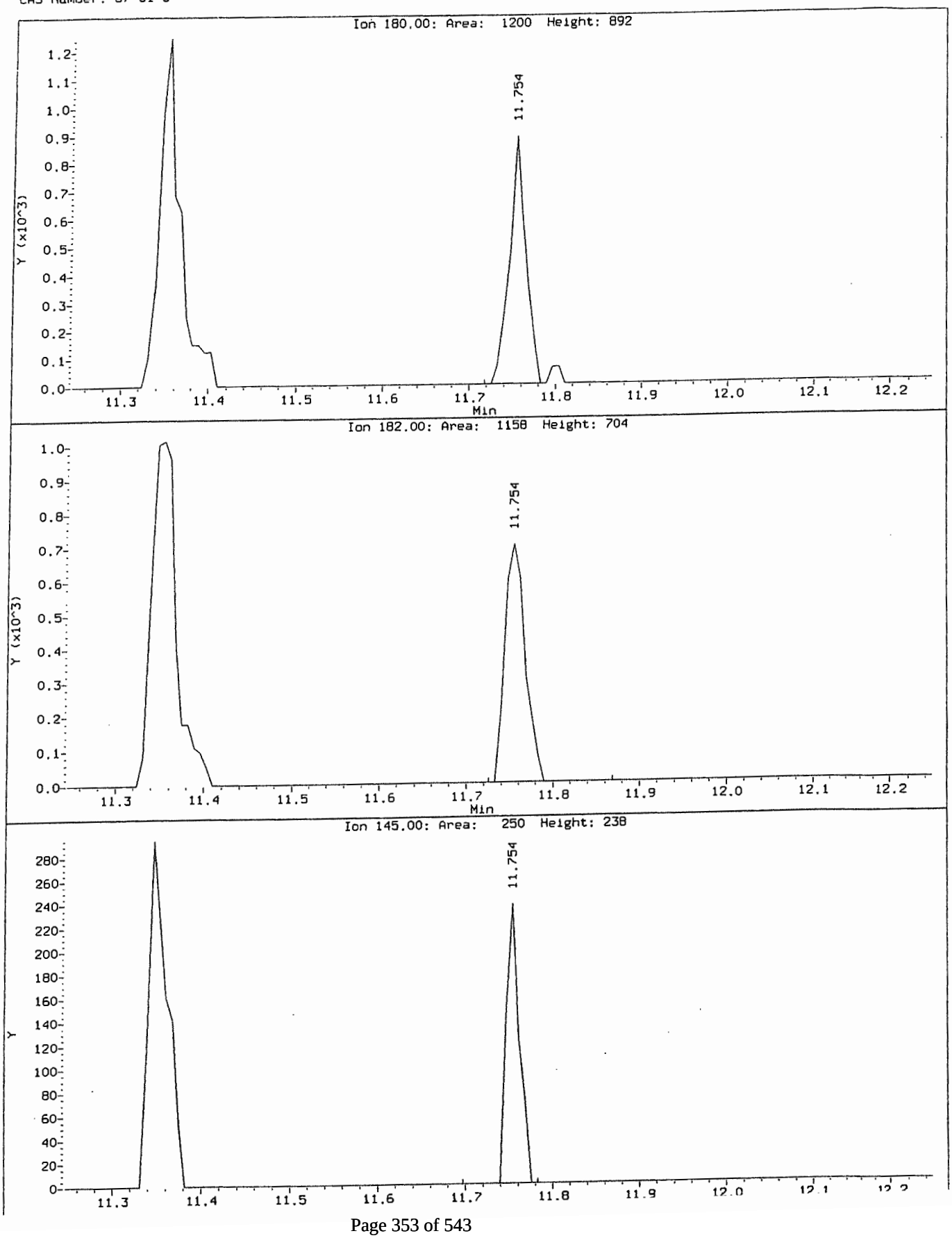
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



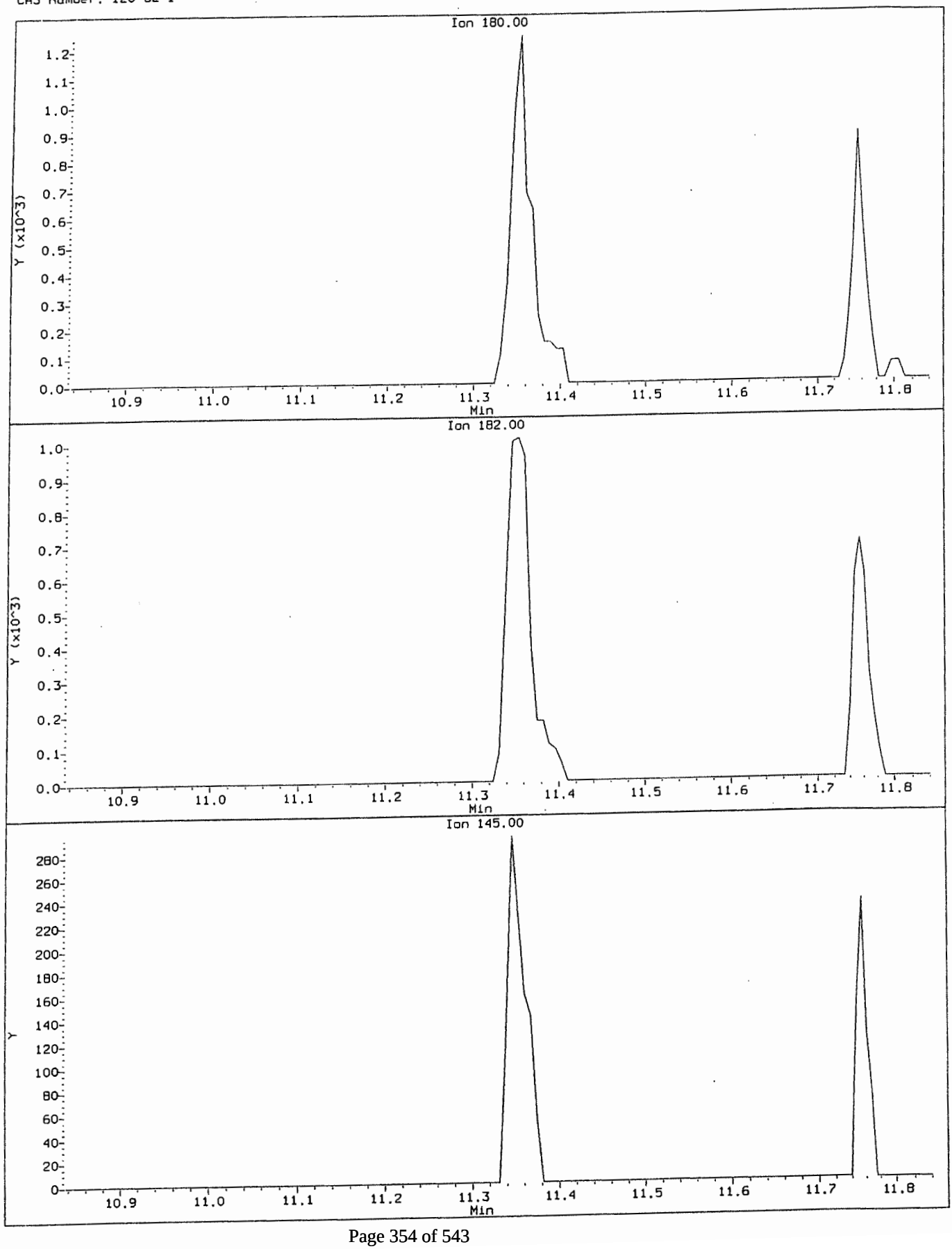
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



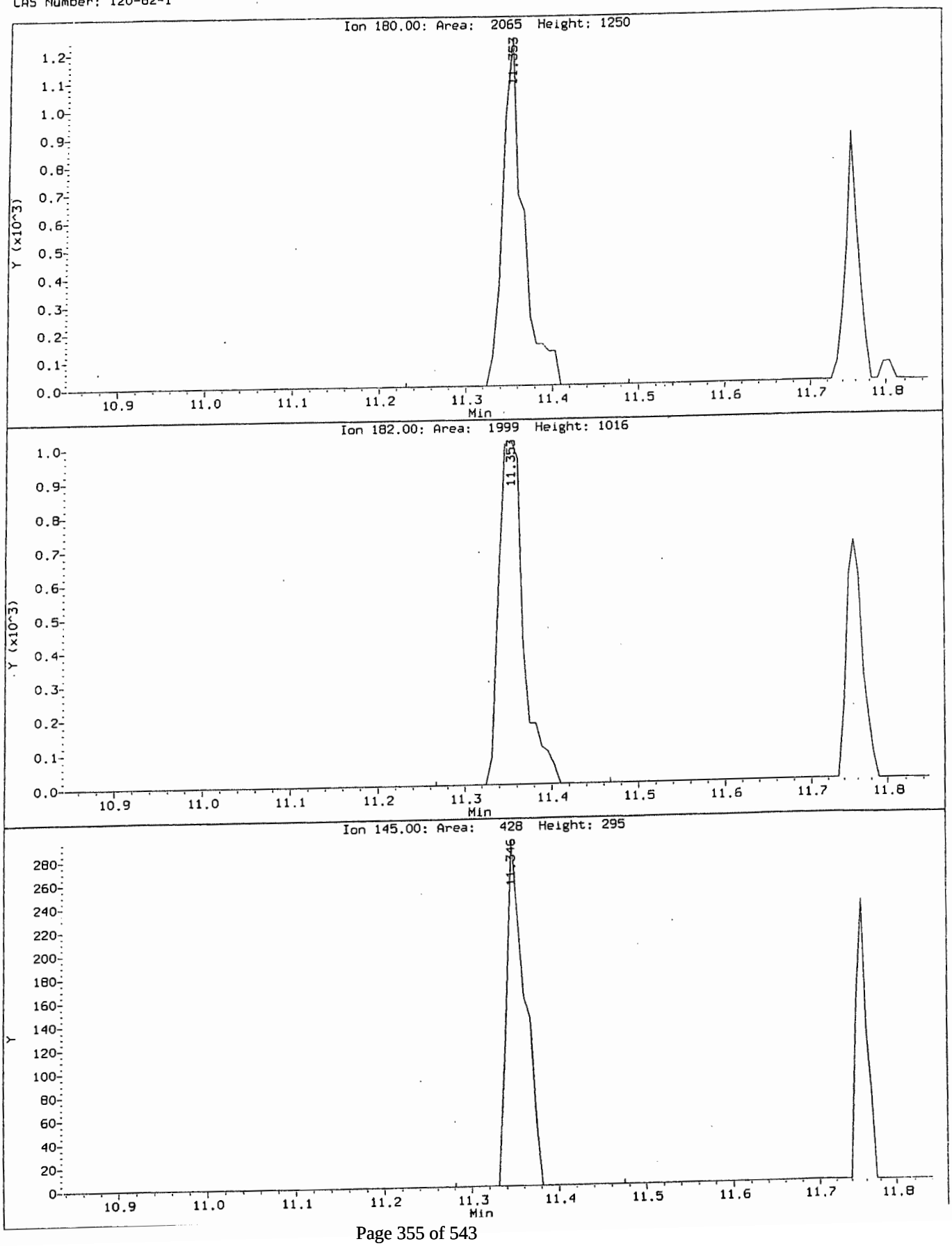
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



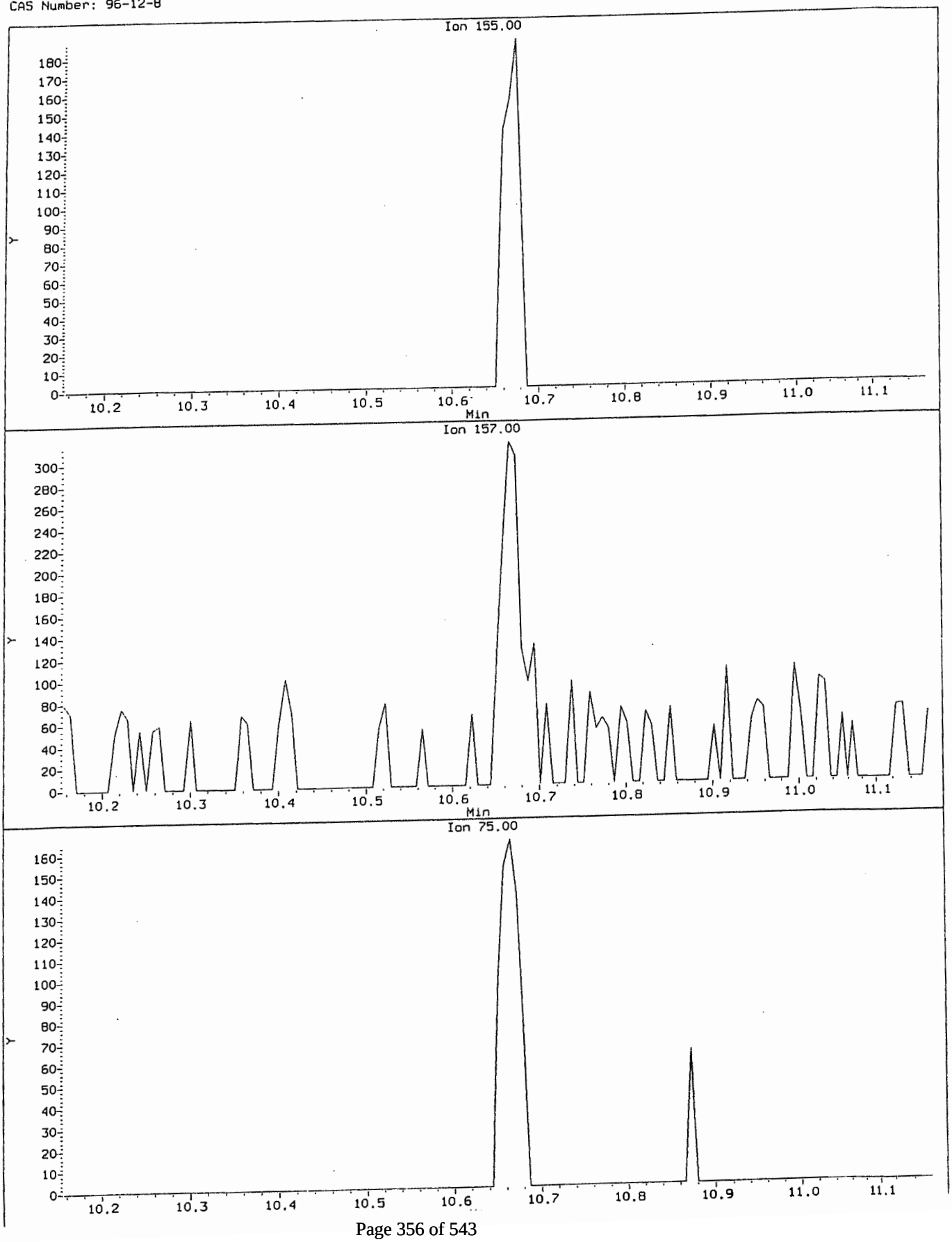
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



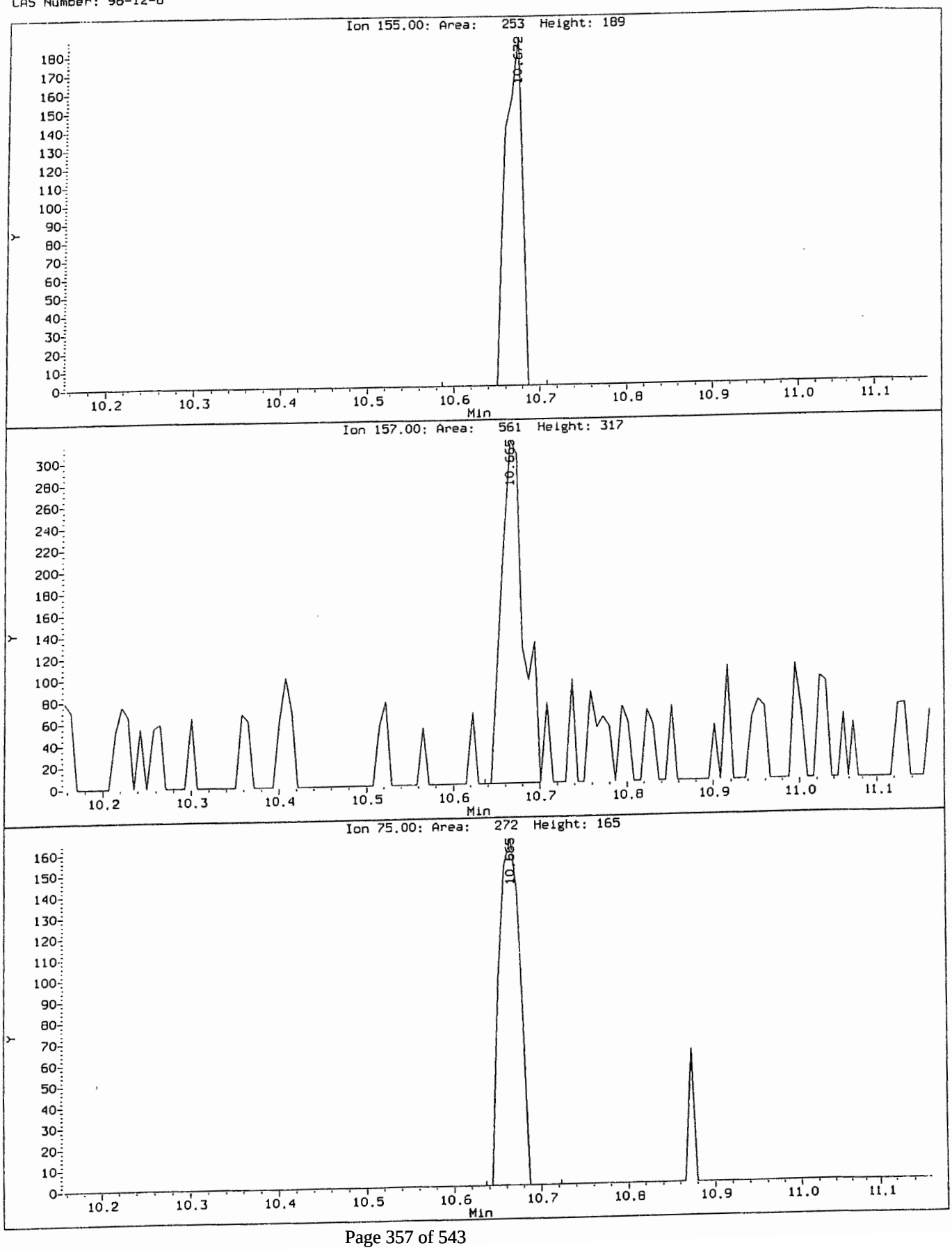
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



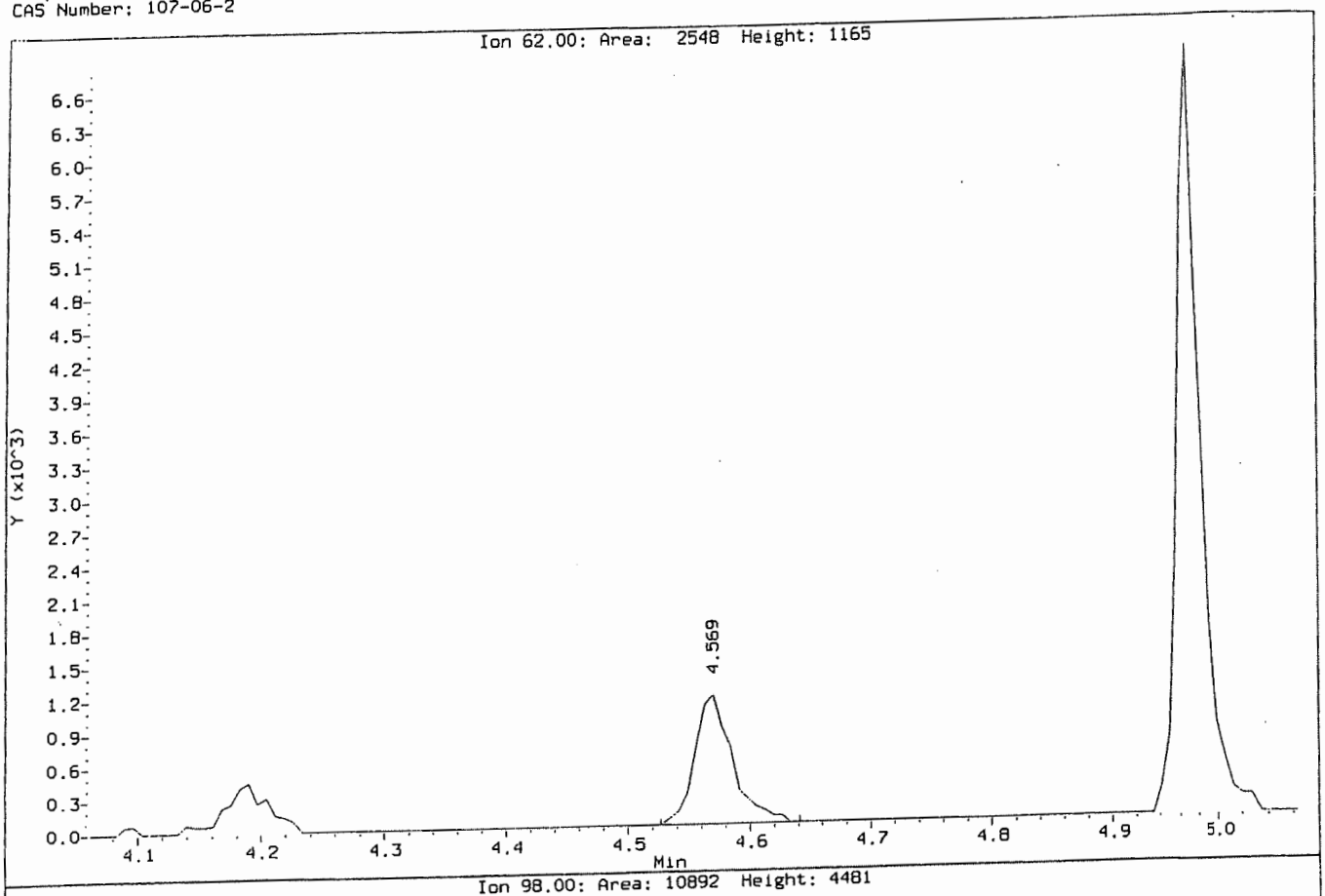
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

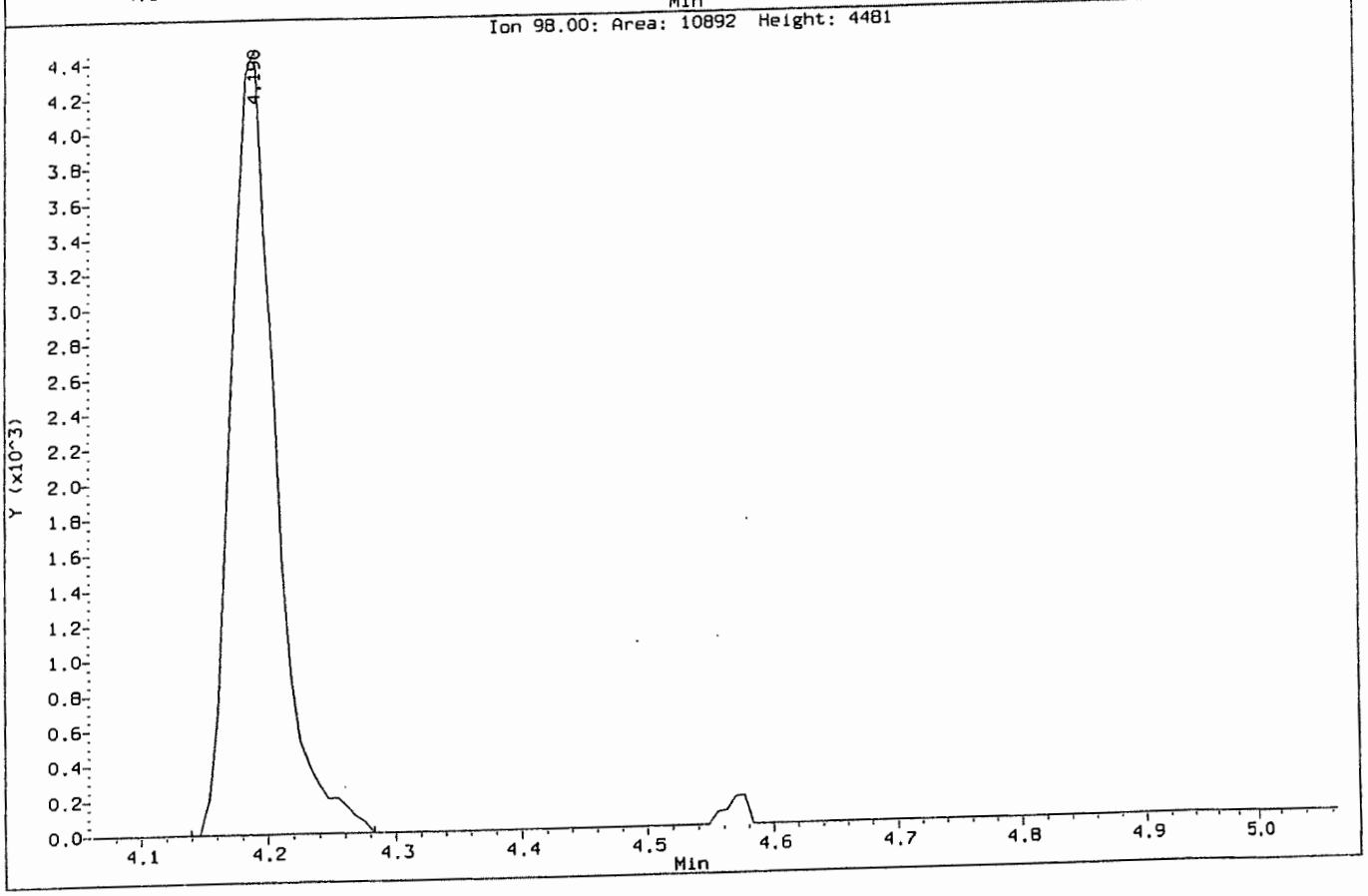
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

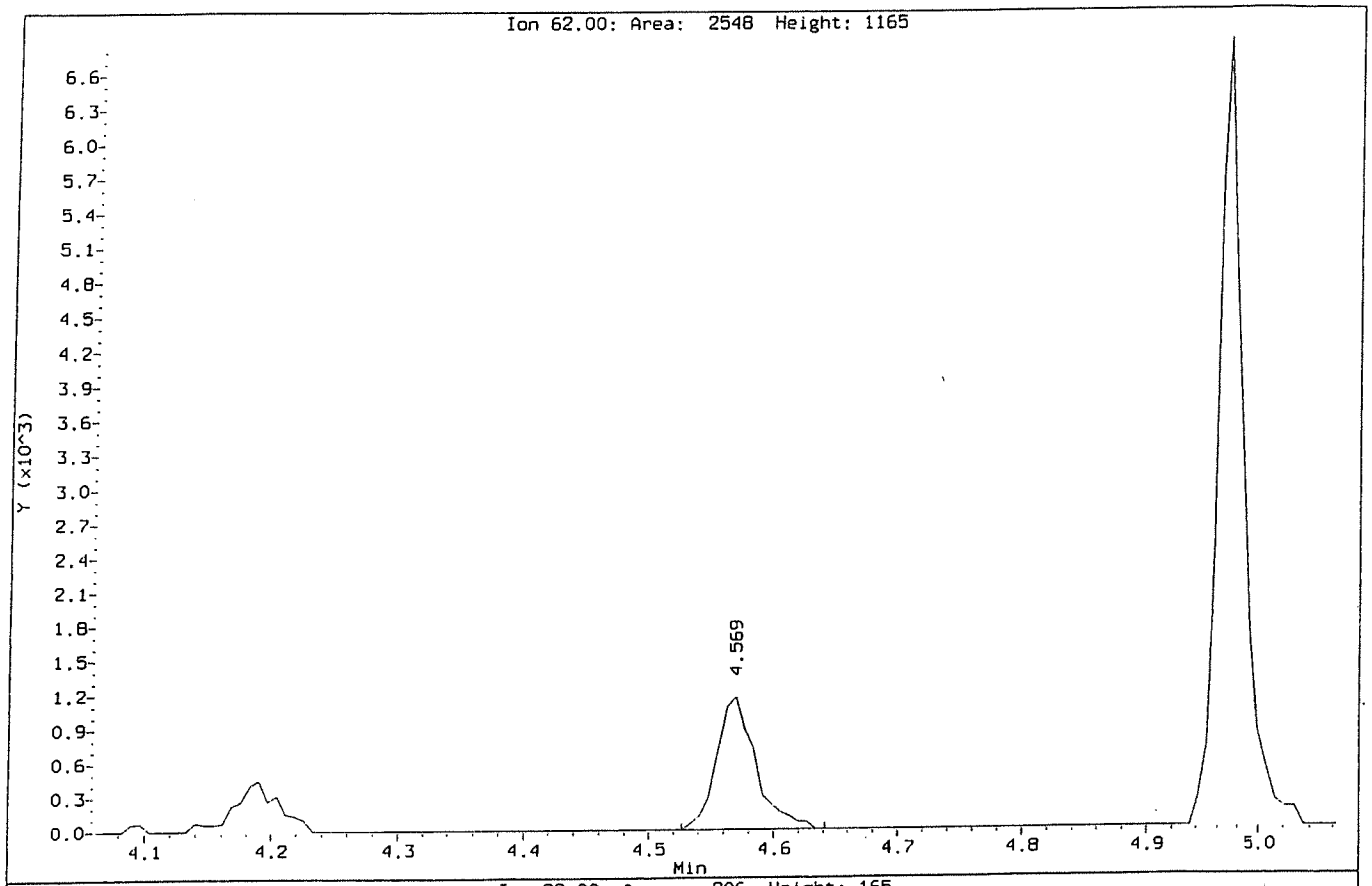
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

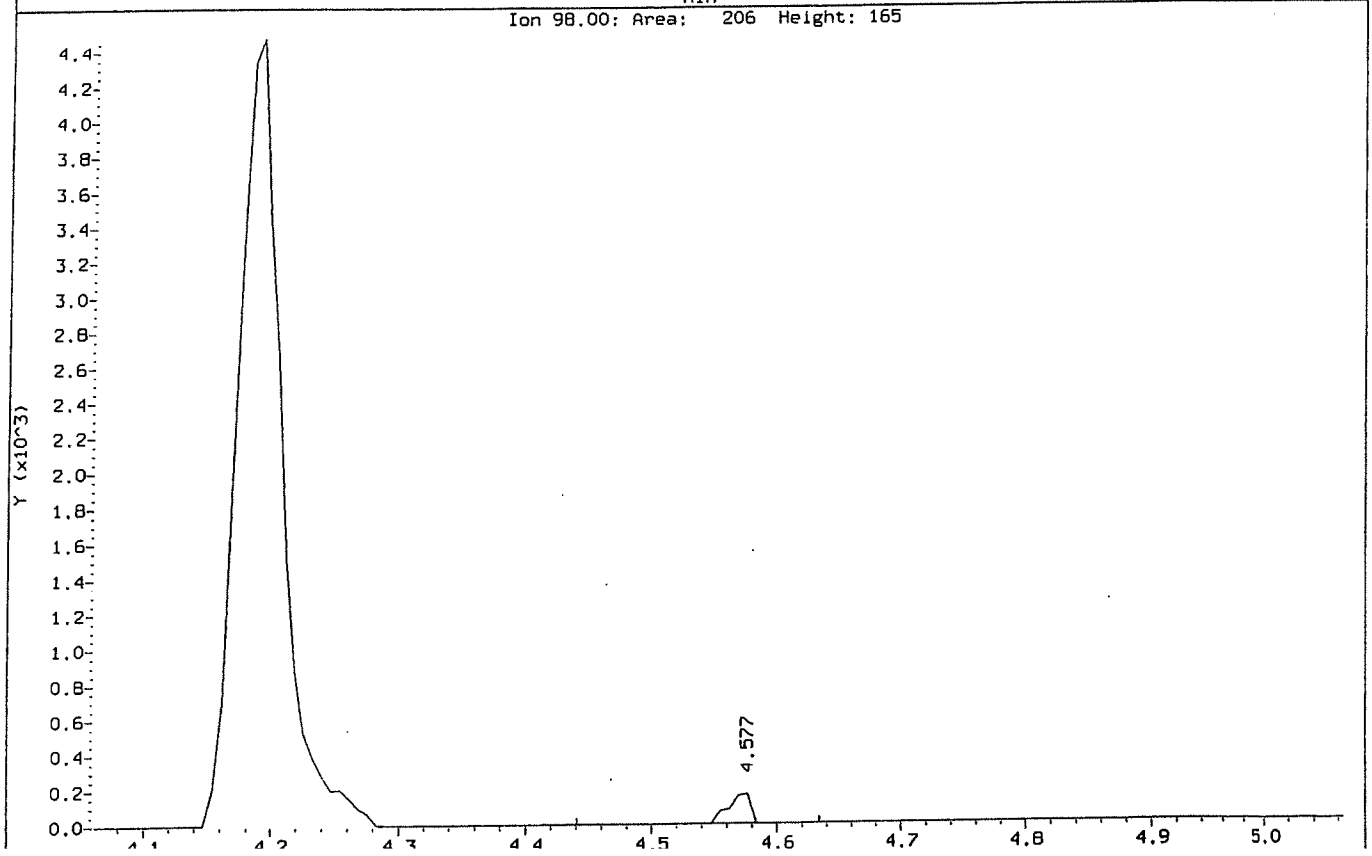




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

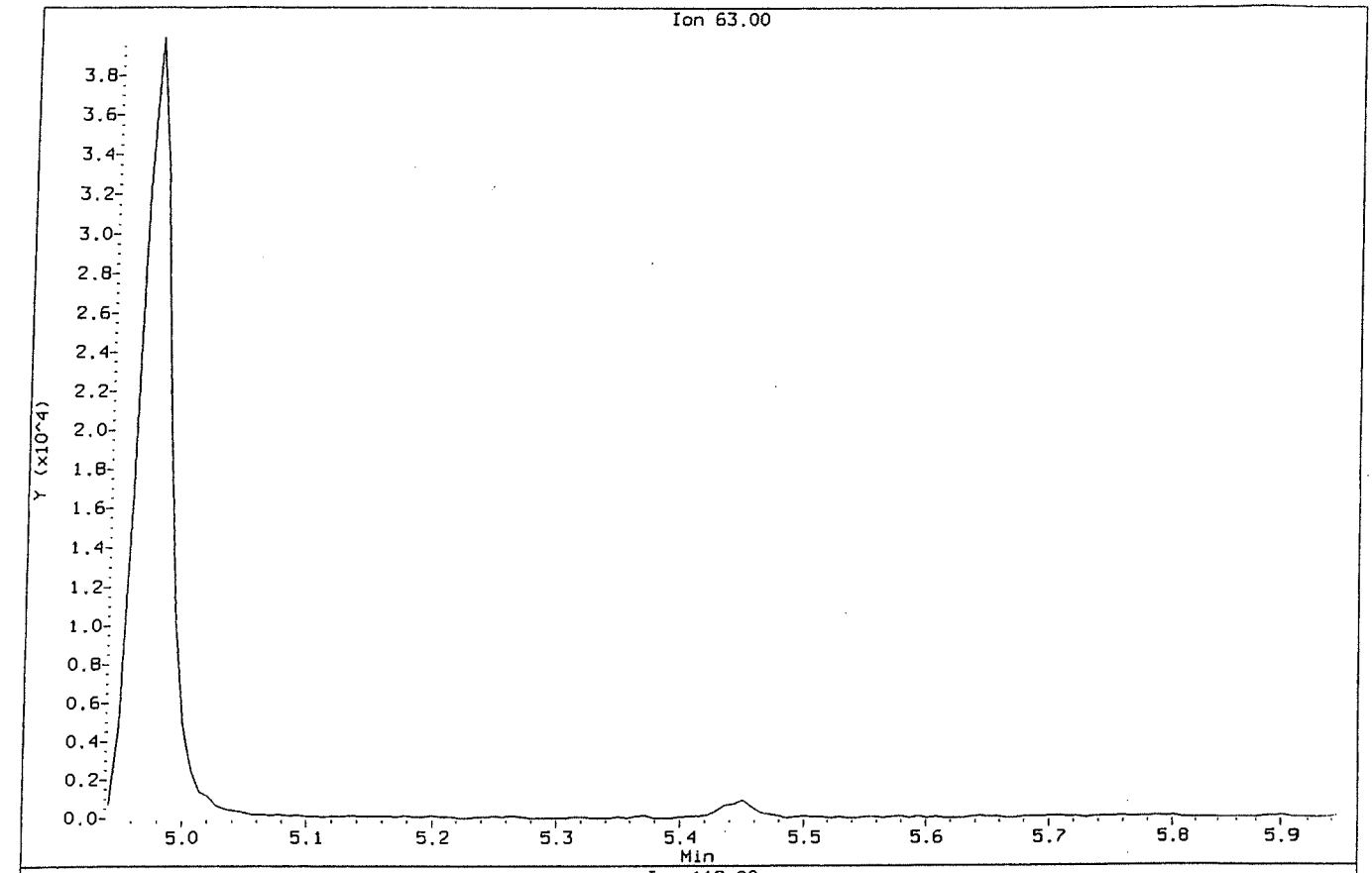
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

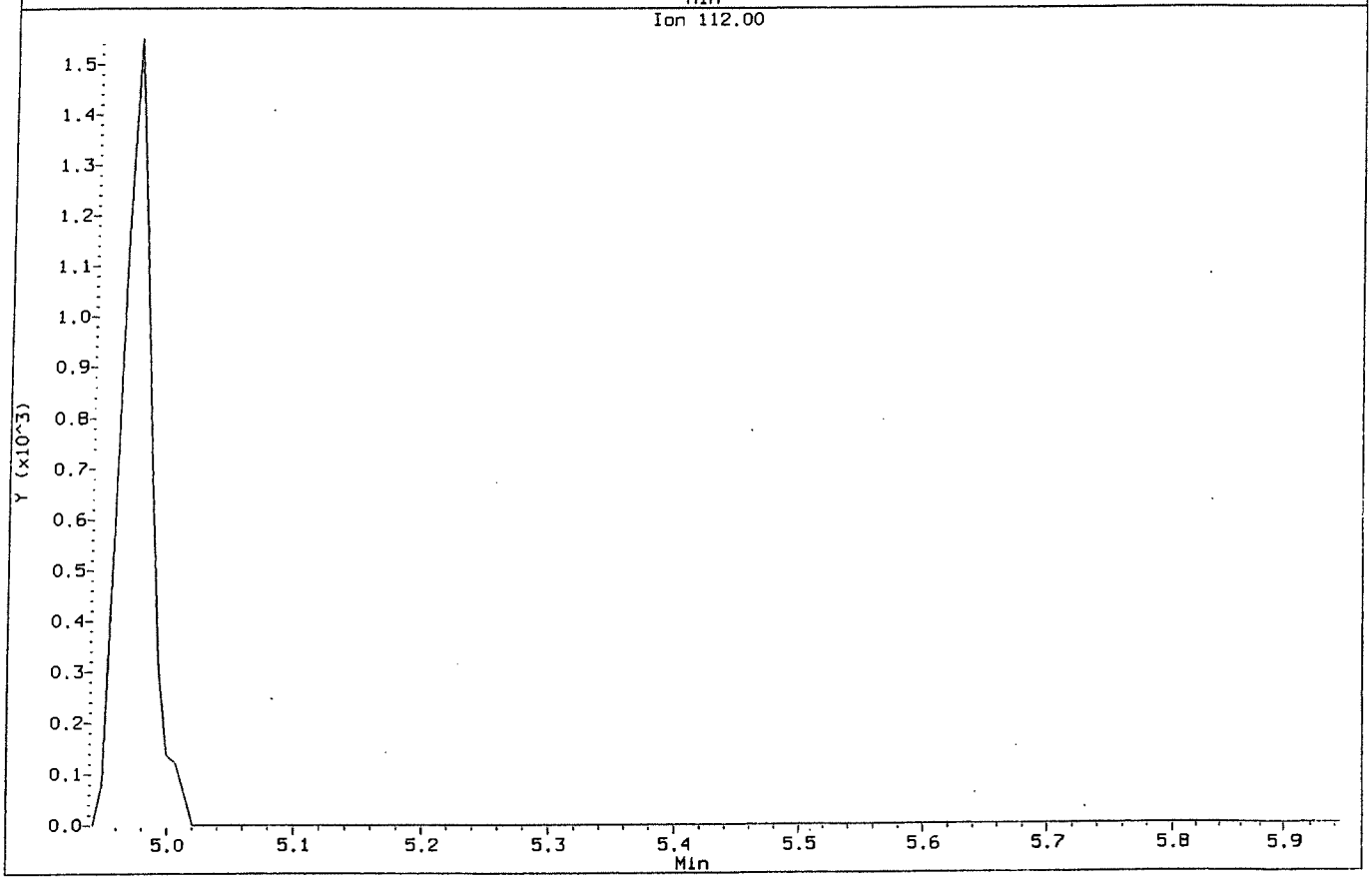




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

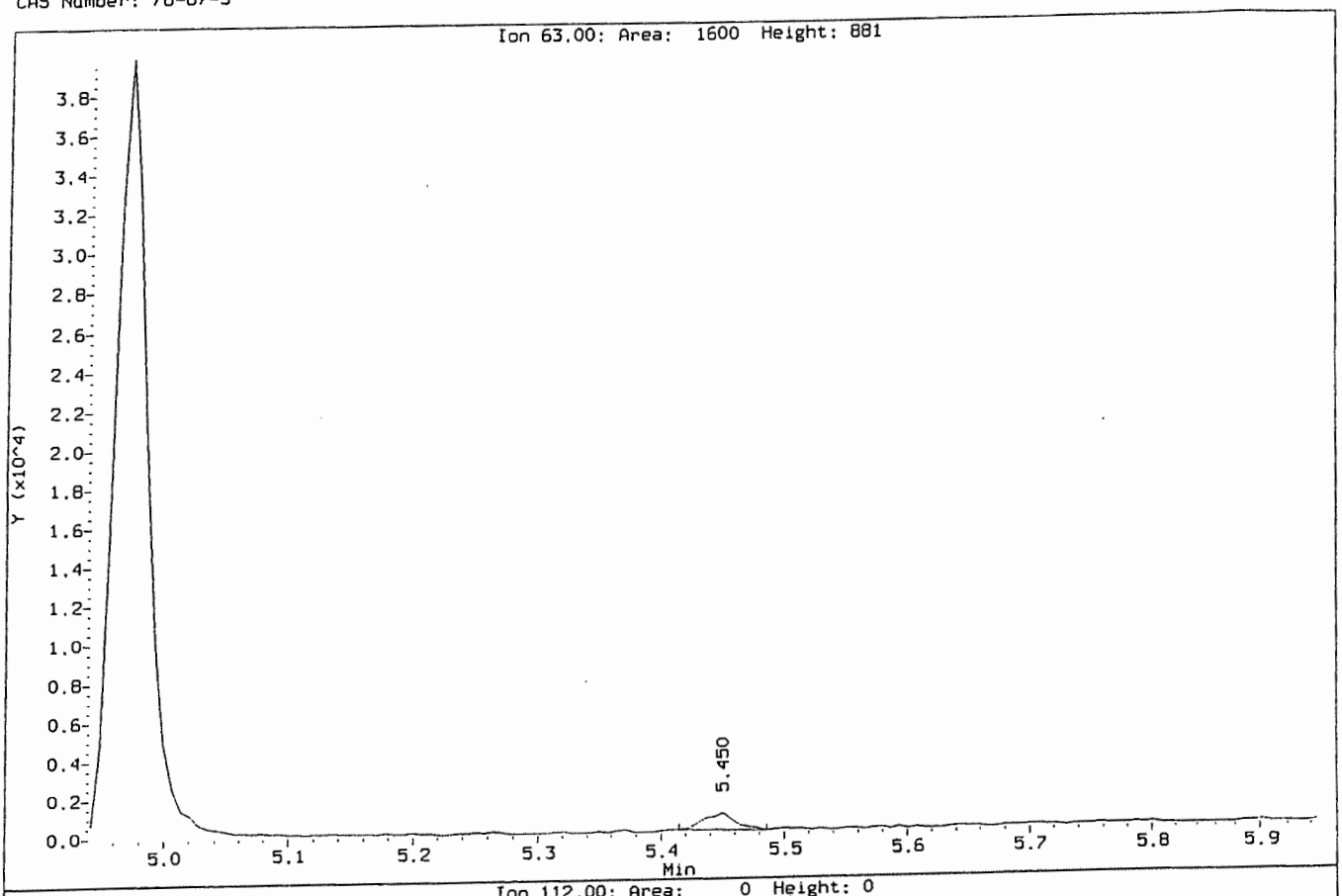
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

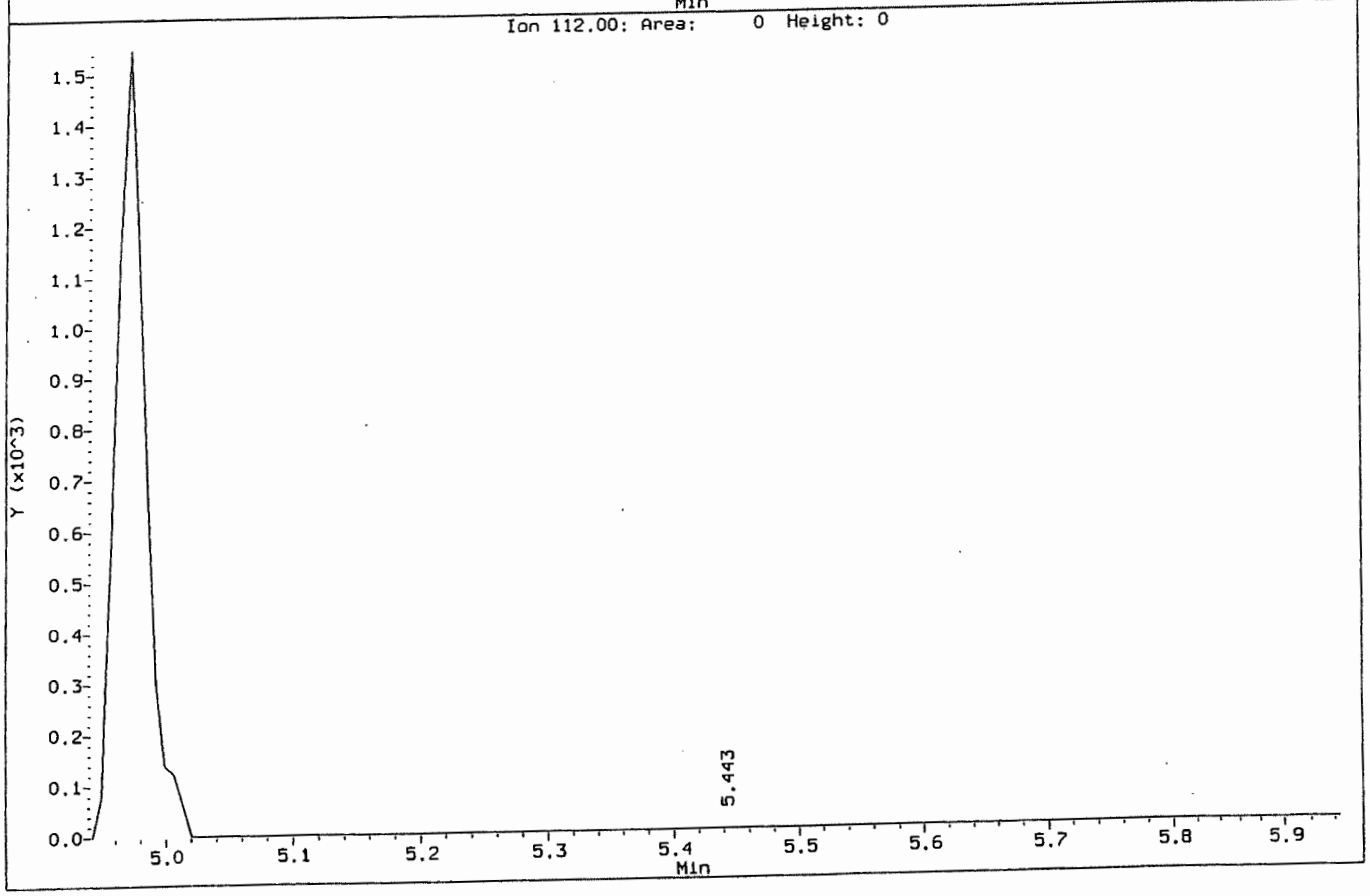




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

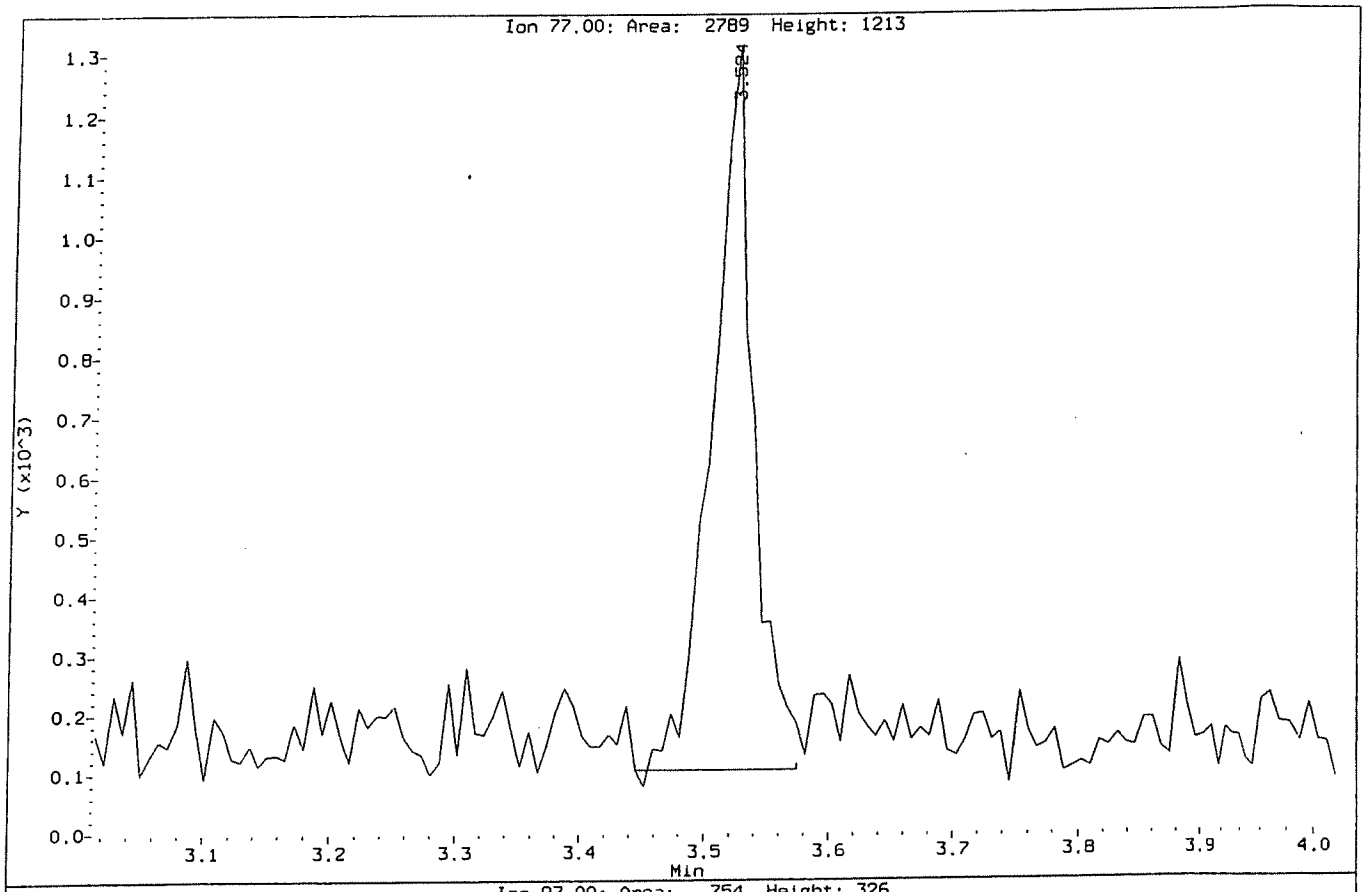
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

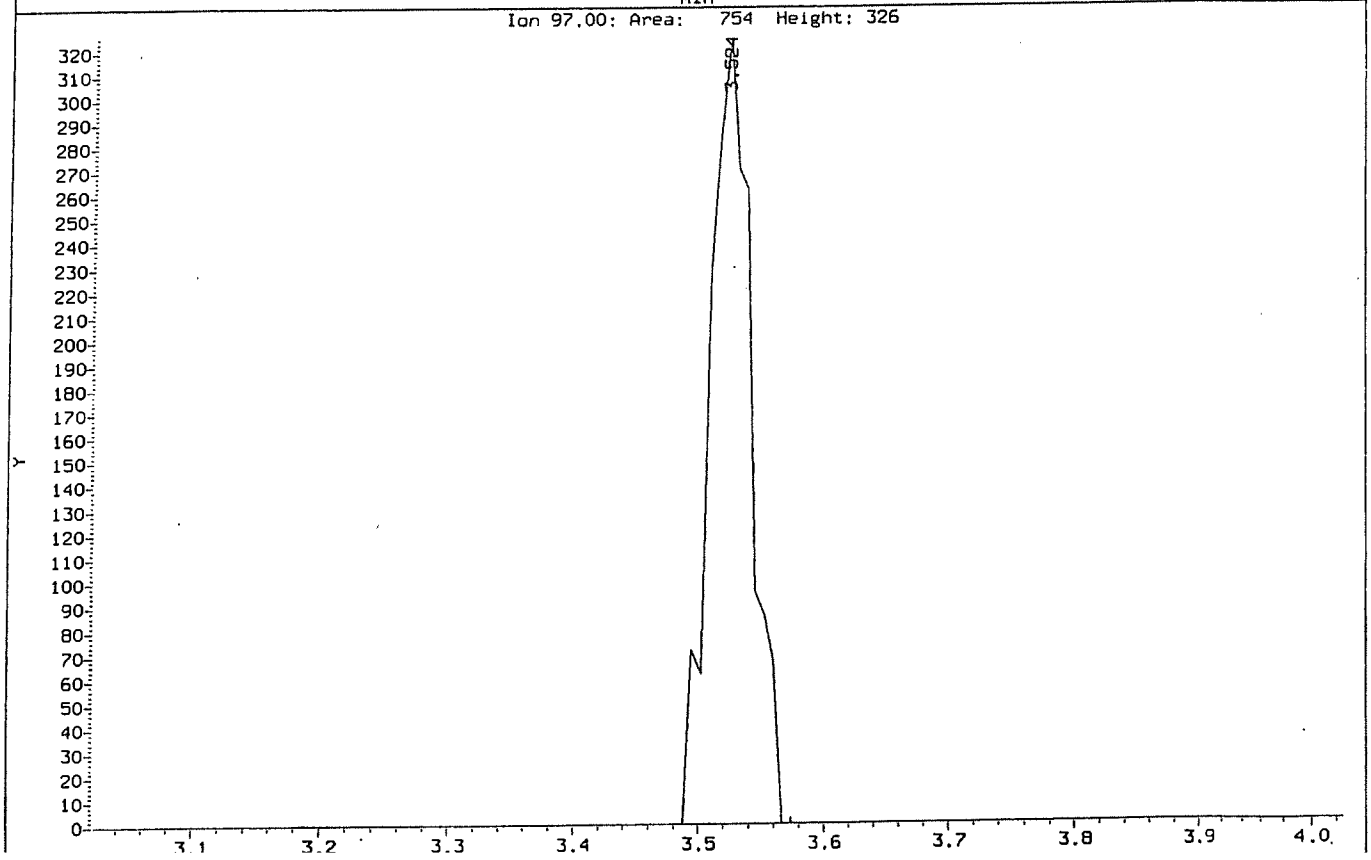




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

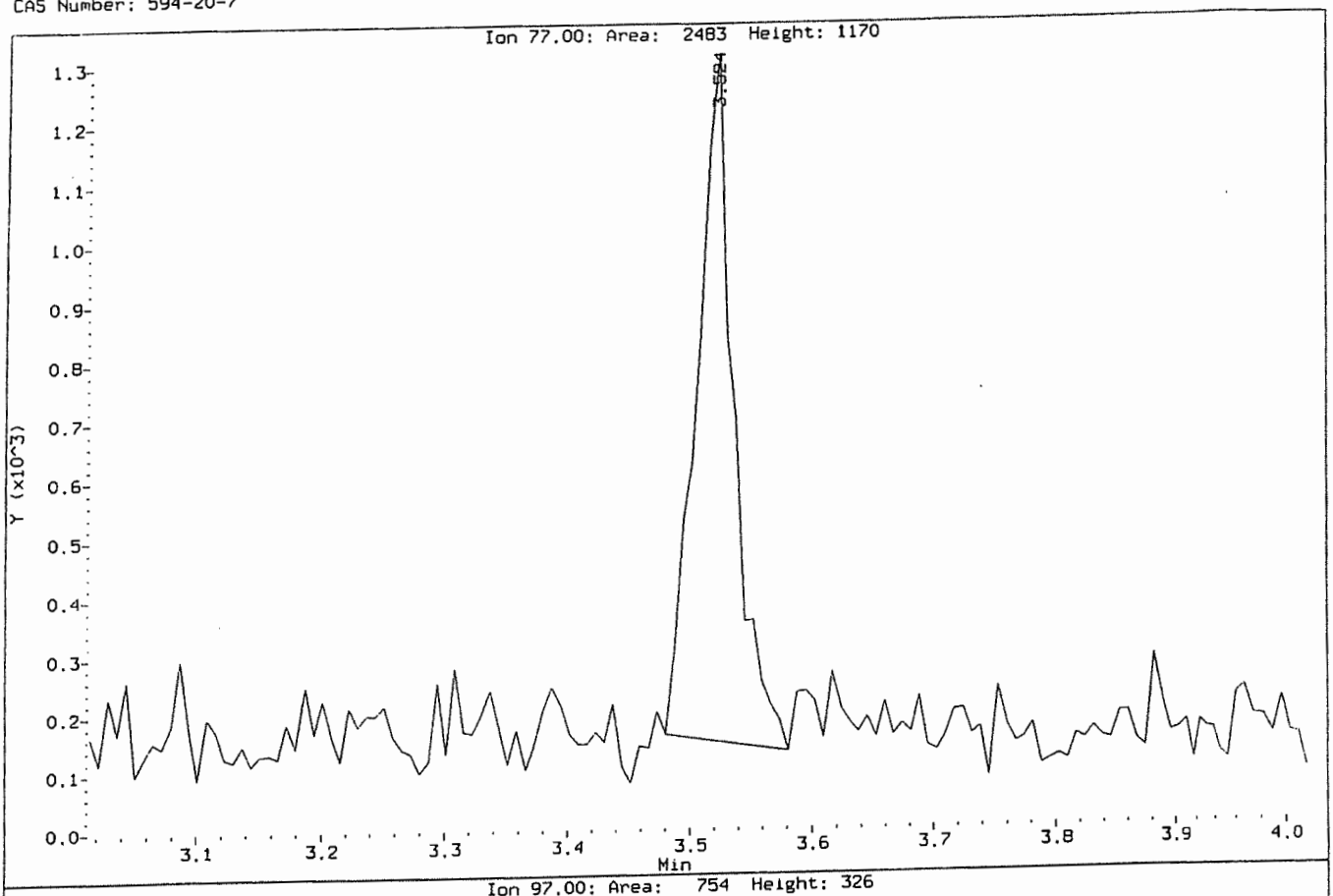
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

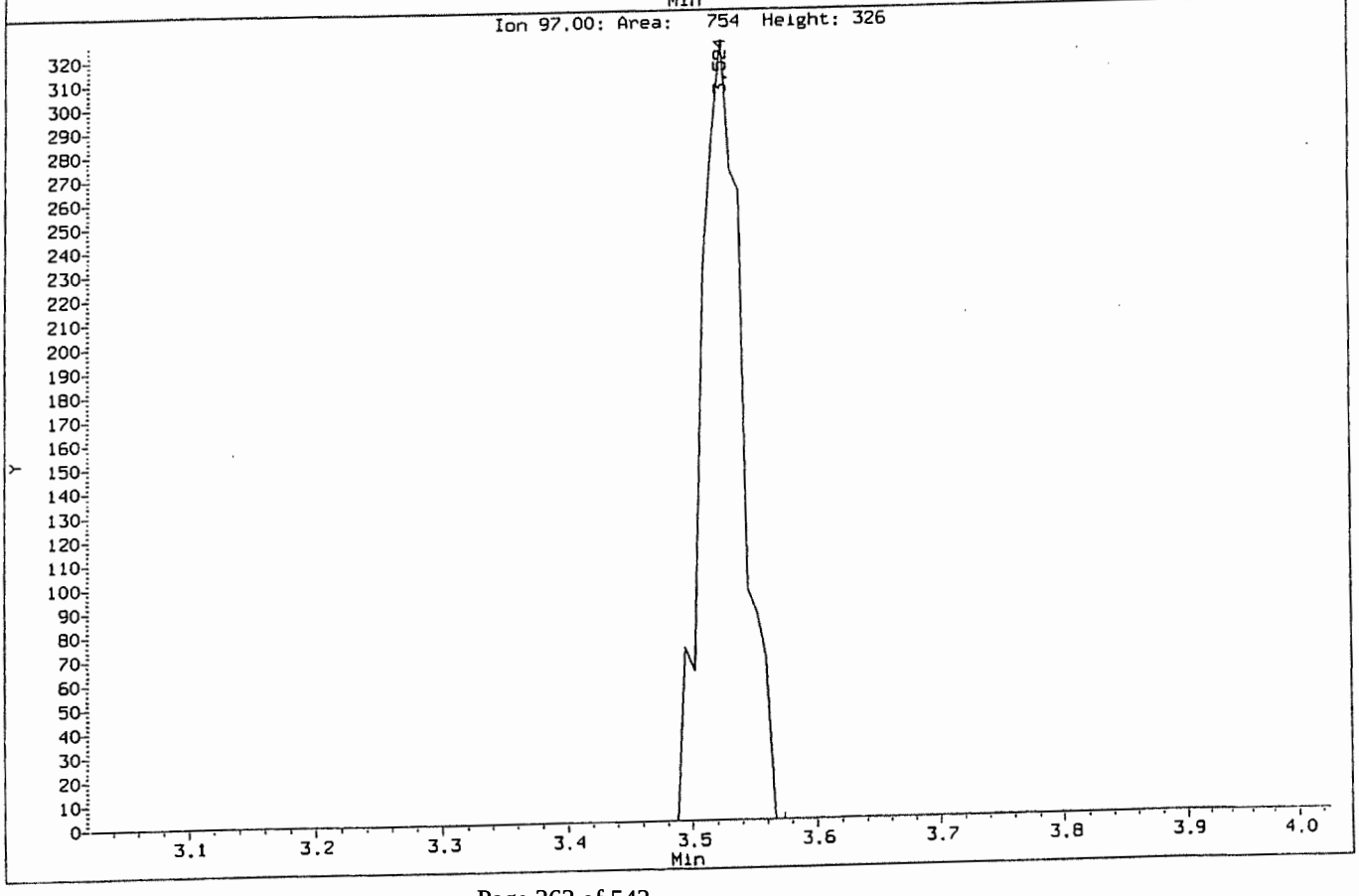




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: V5TD000.5

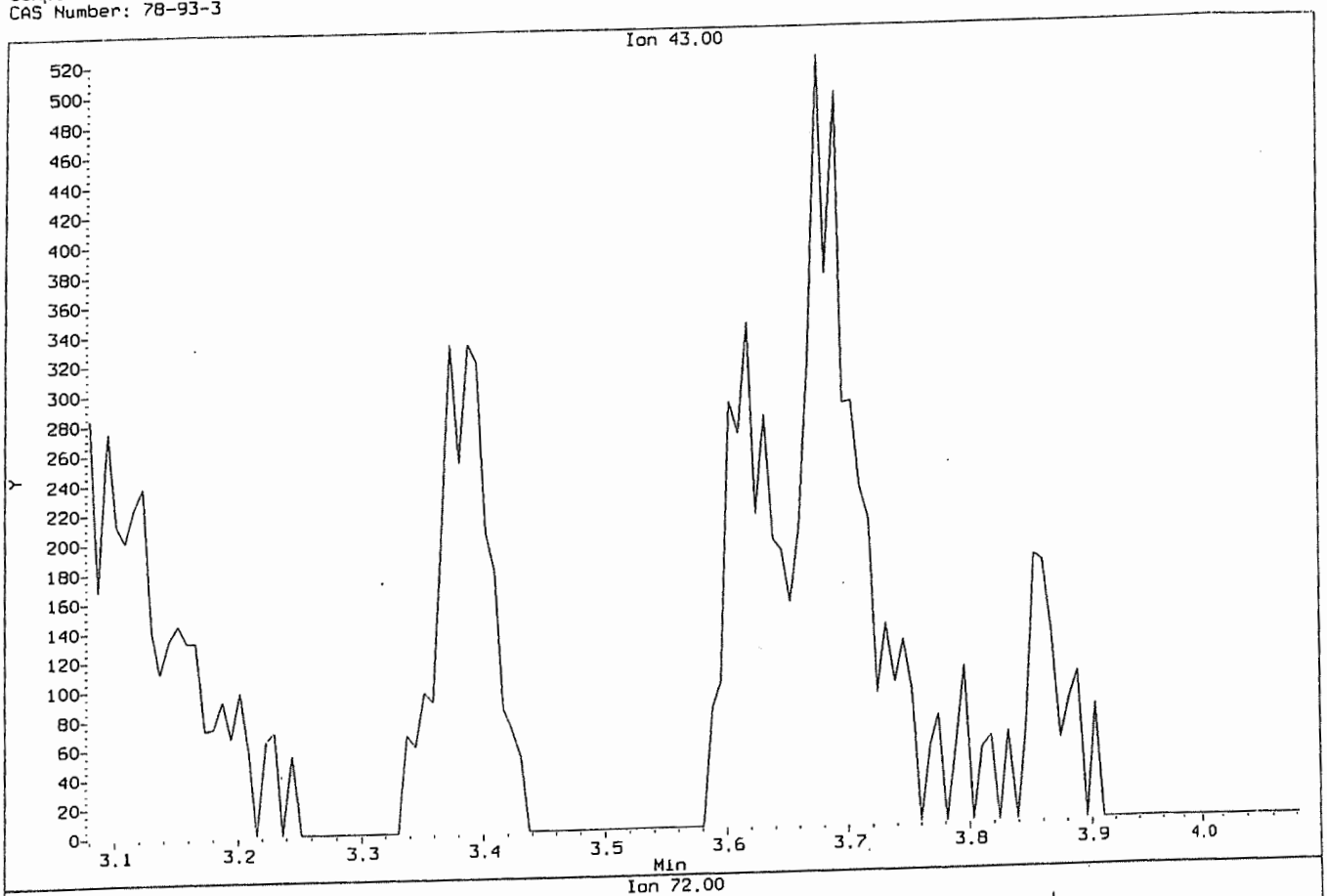
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7

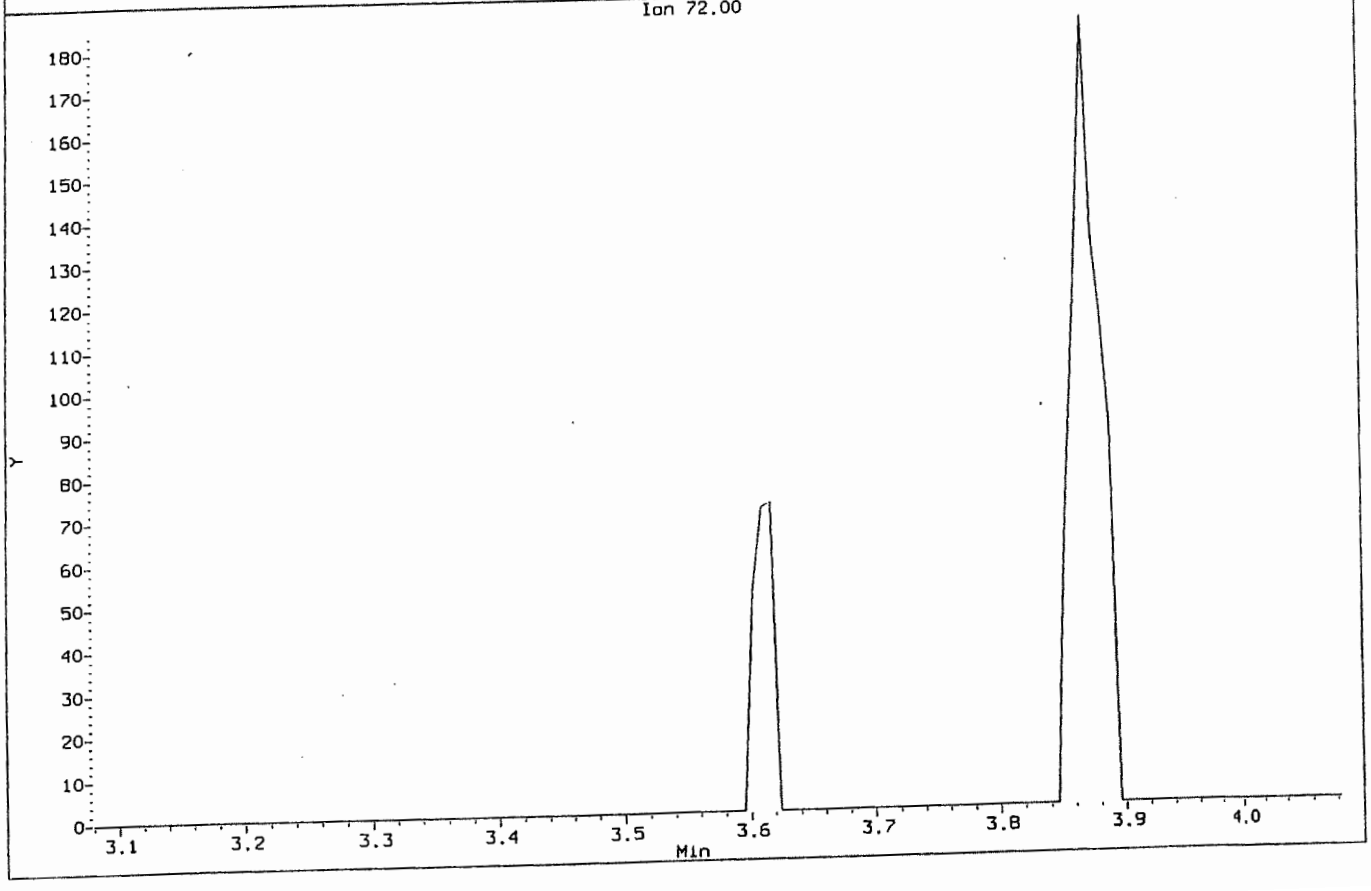




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

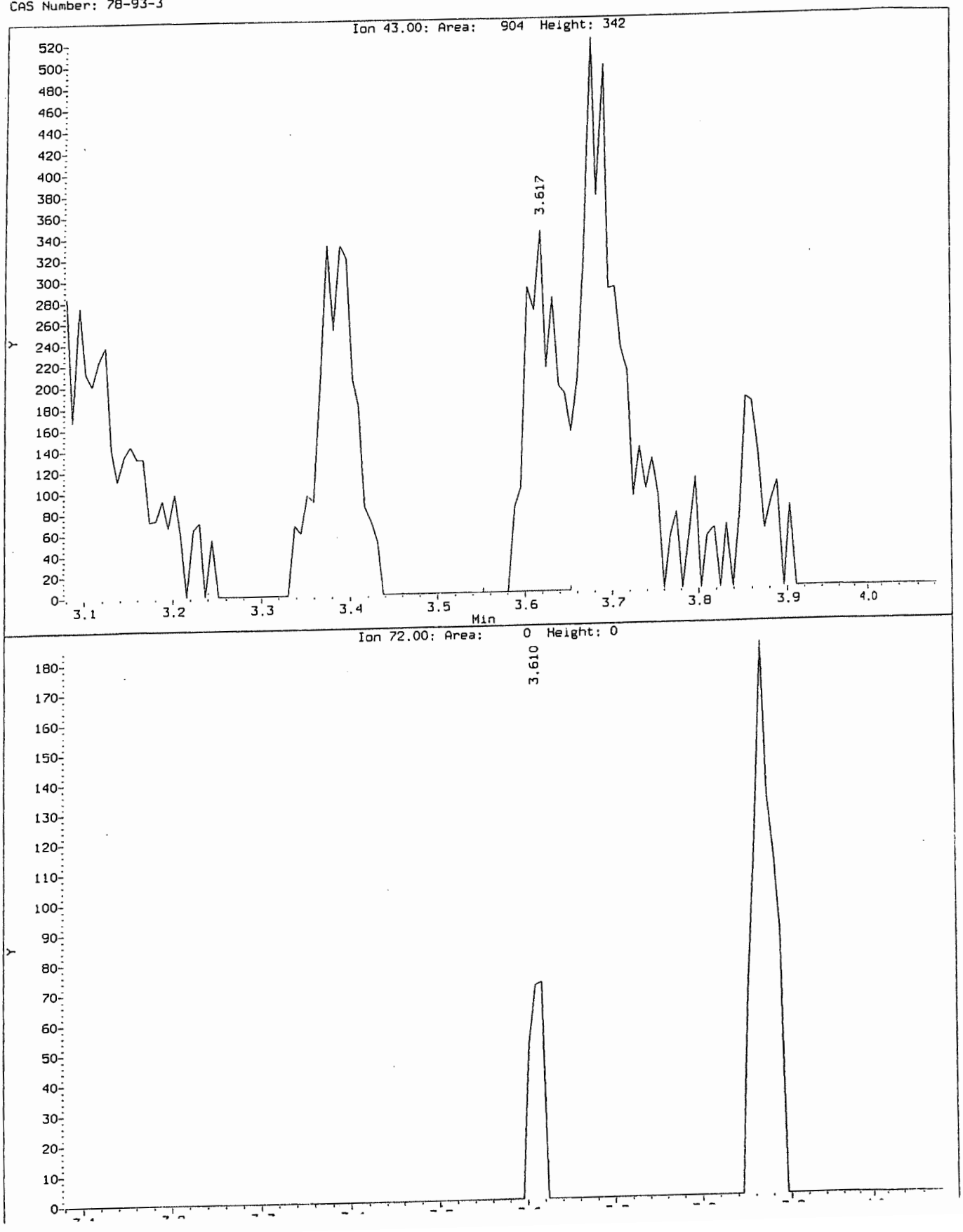
Compound: 2-Butanone
CAS Number: 78-93-3





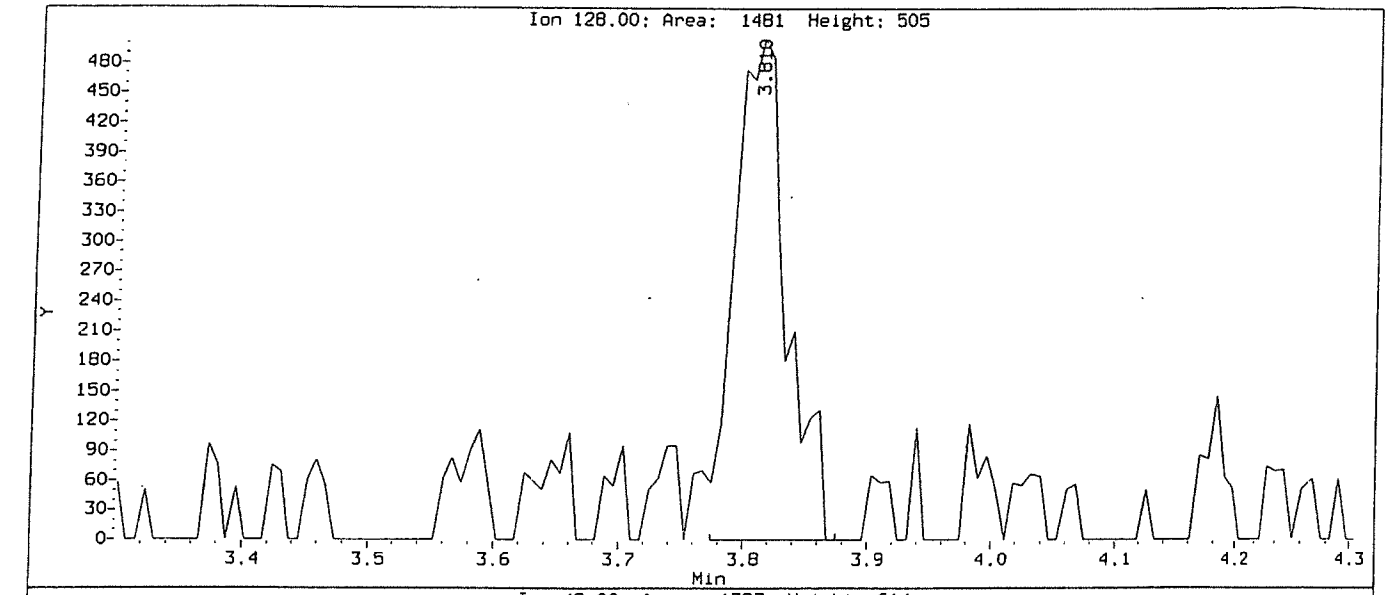
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

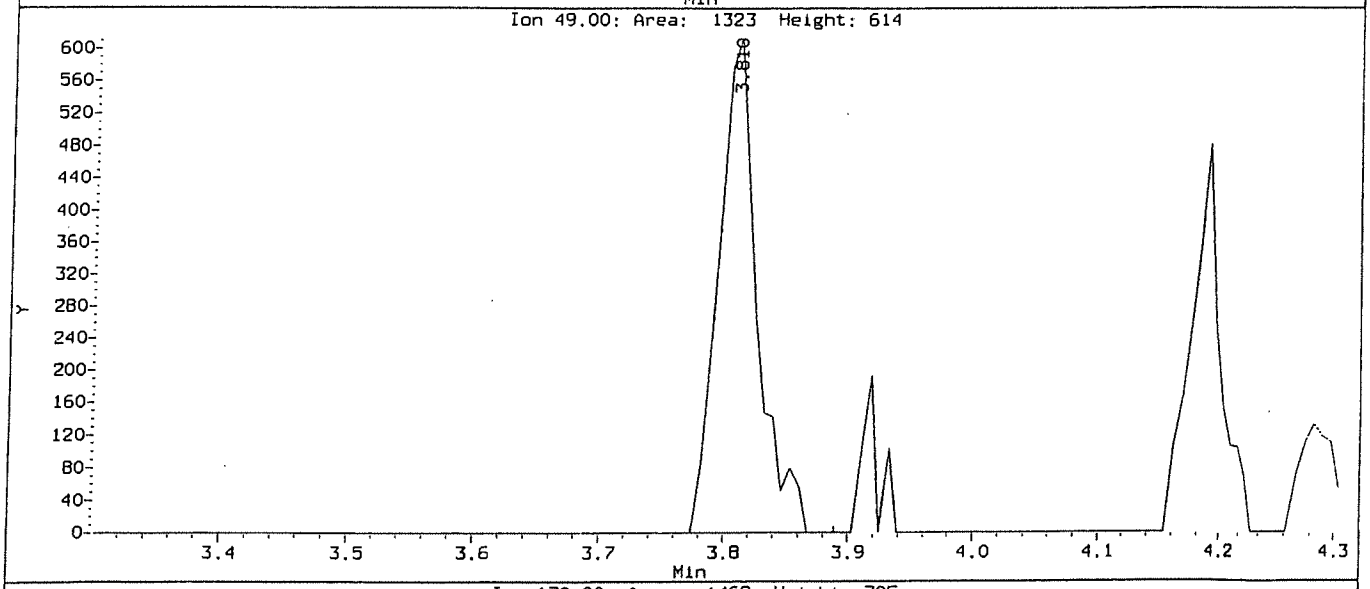
Compound: 2-Butanone
CAS Number: 78-93-3

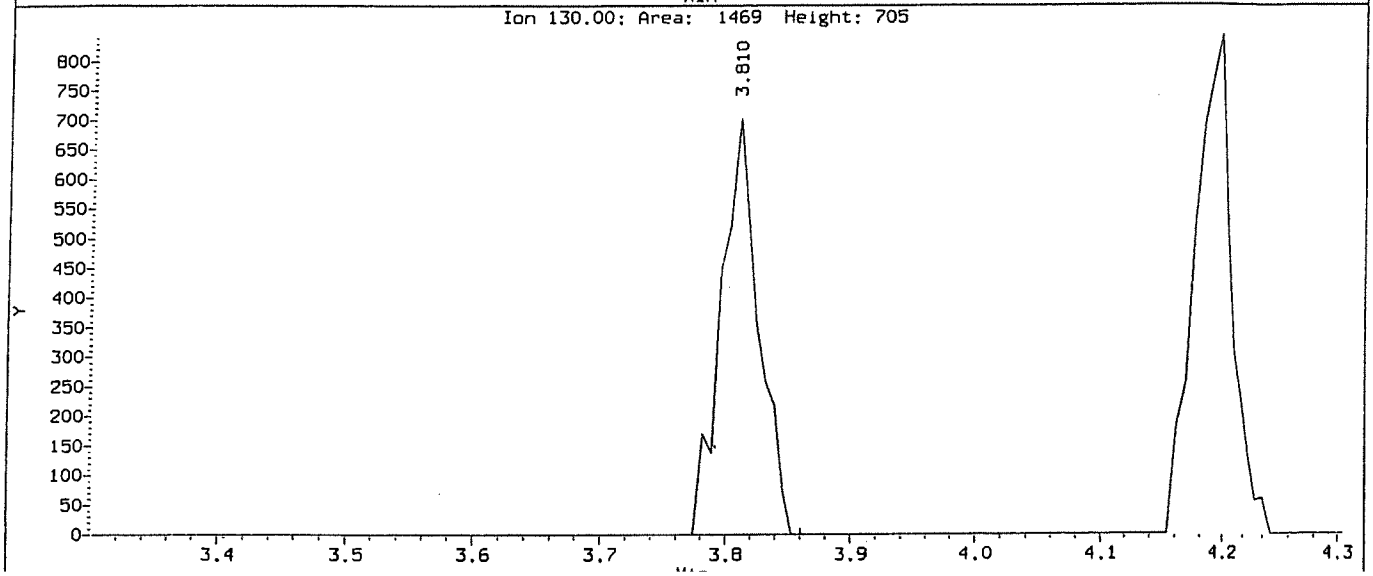


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5

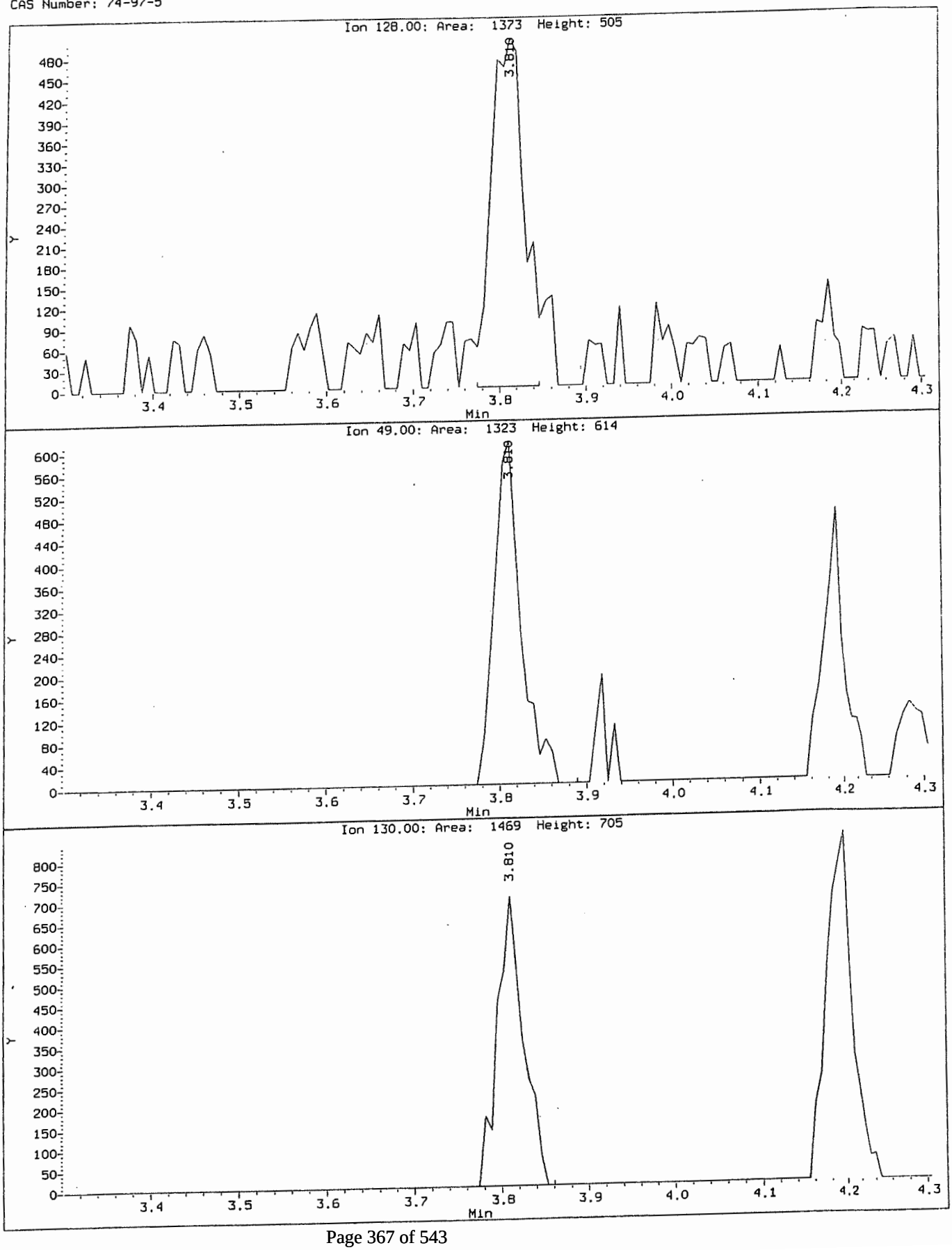






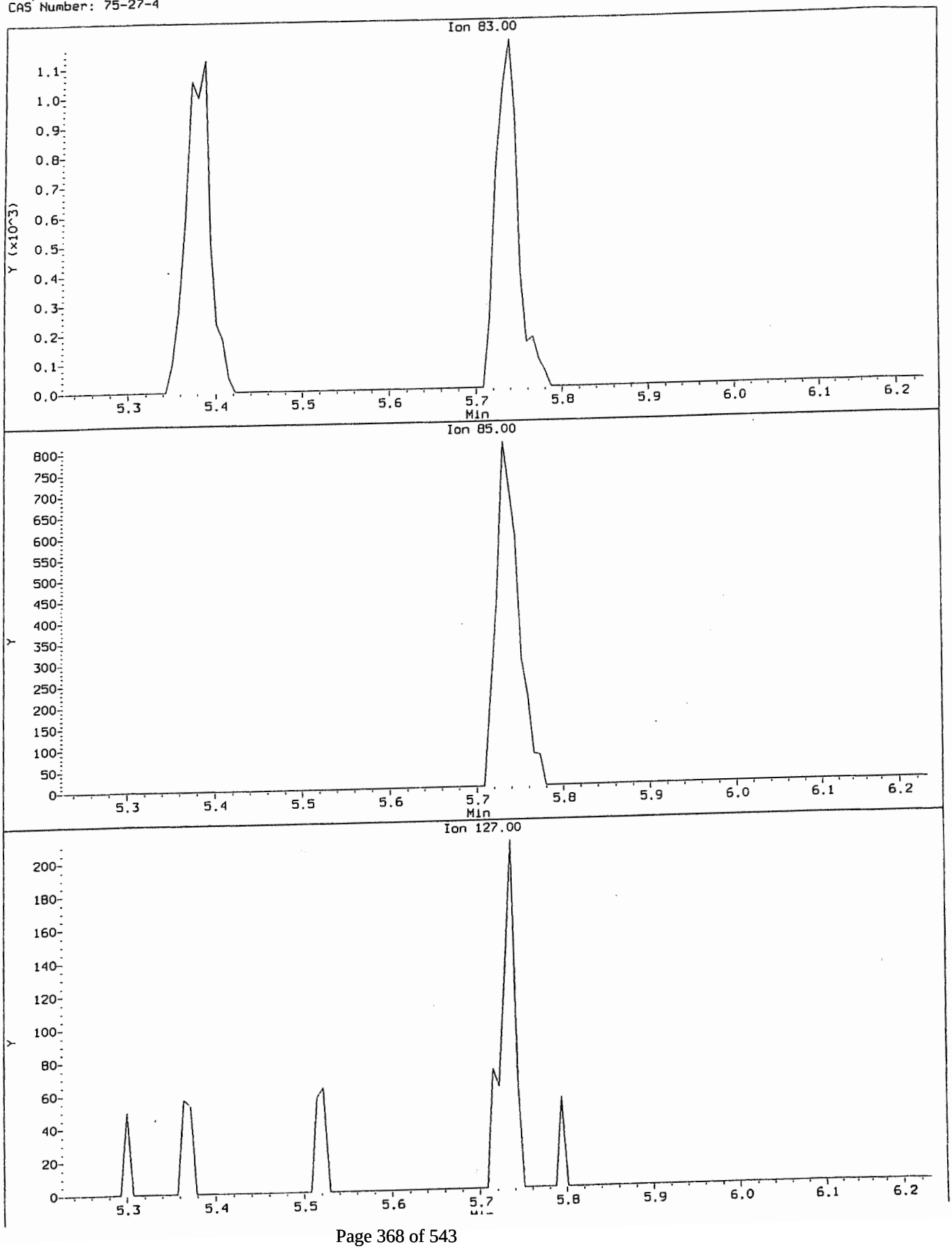
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5



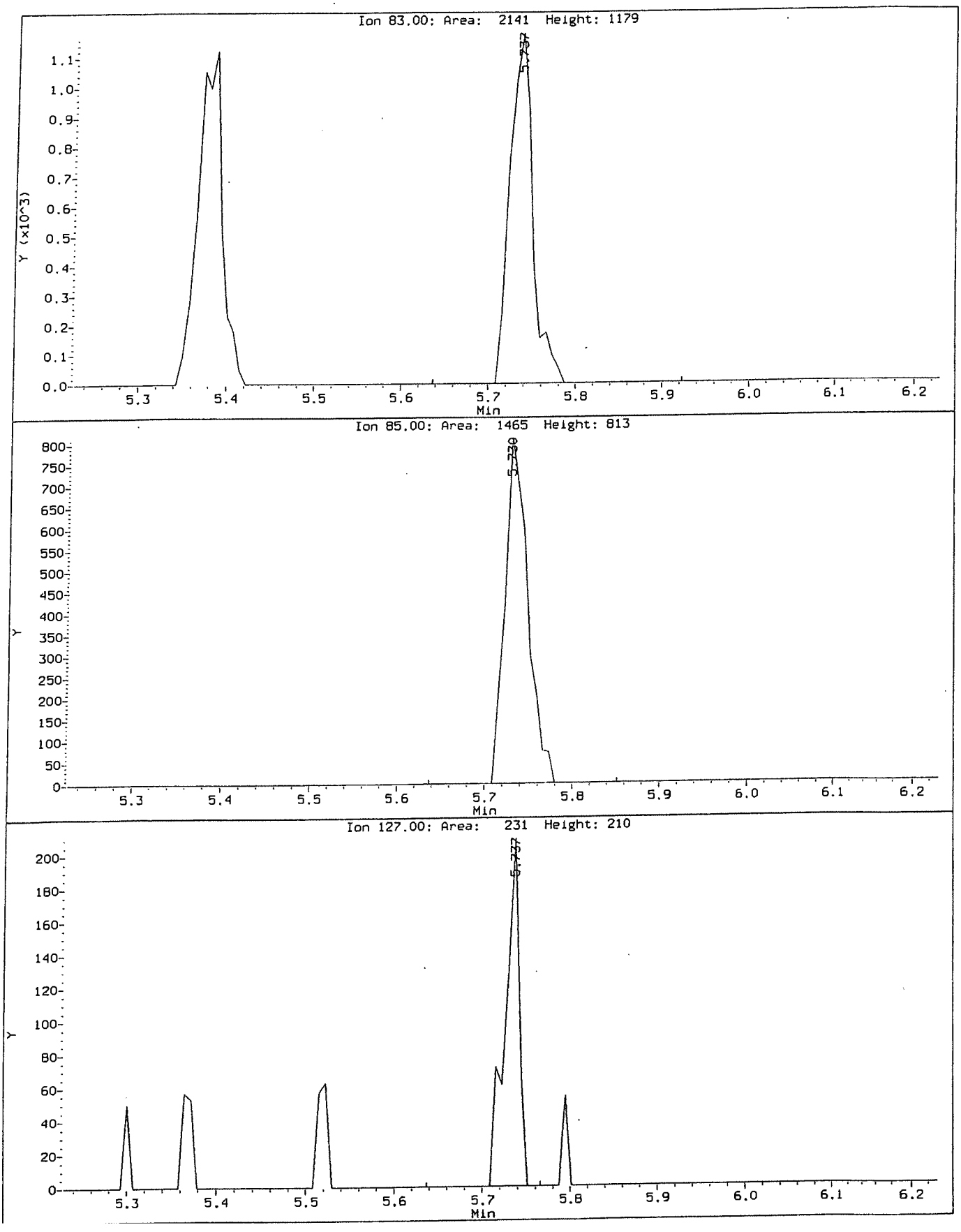
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



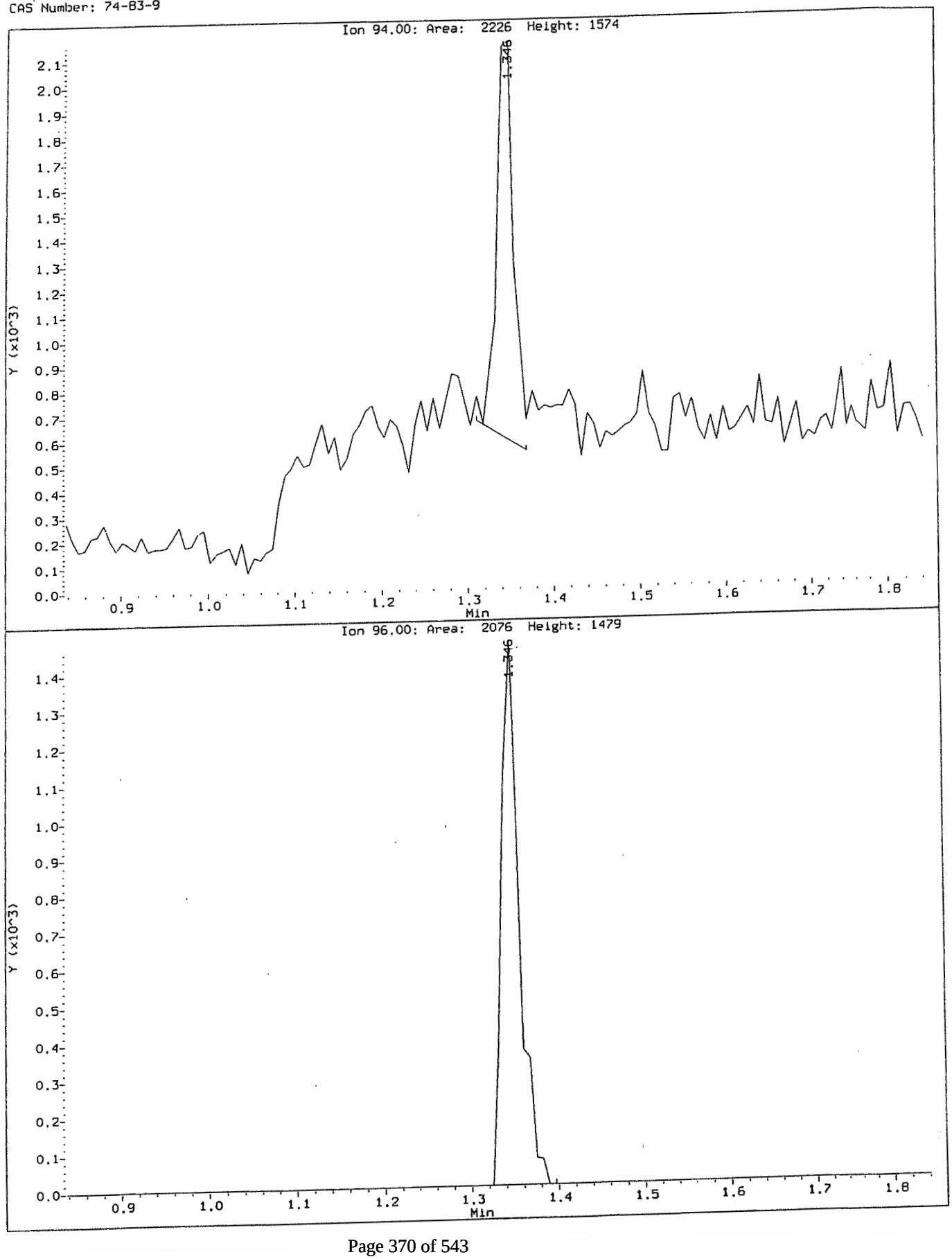
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4



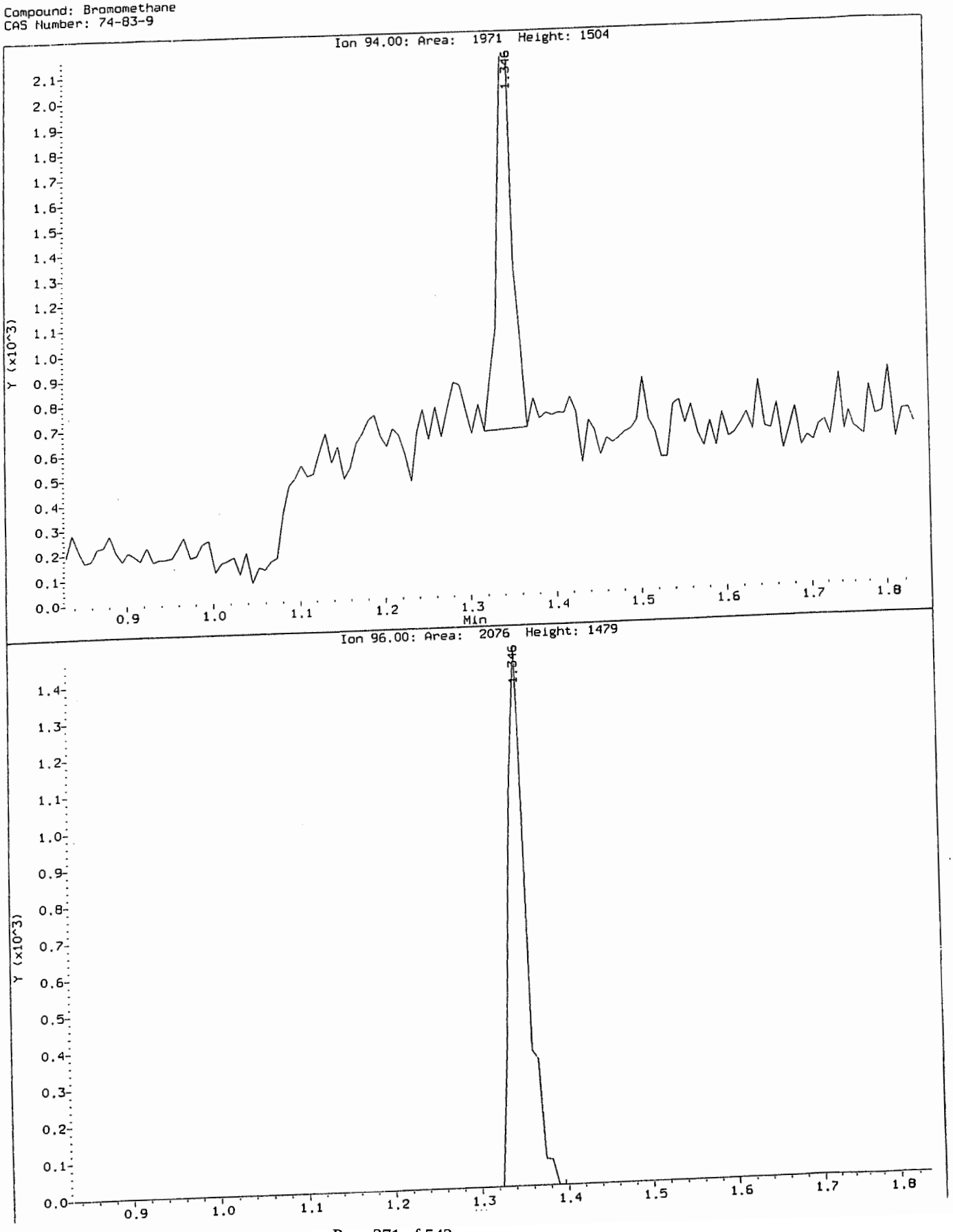
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromomethane
CAS Number: 74-83-9



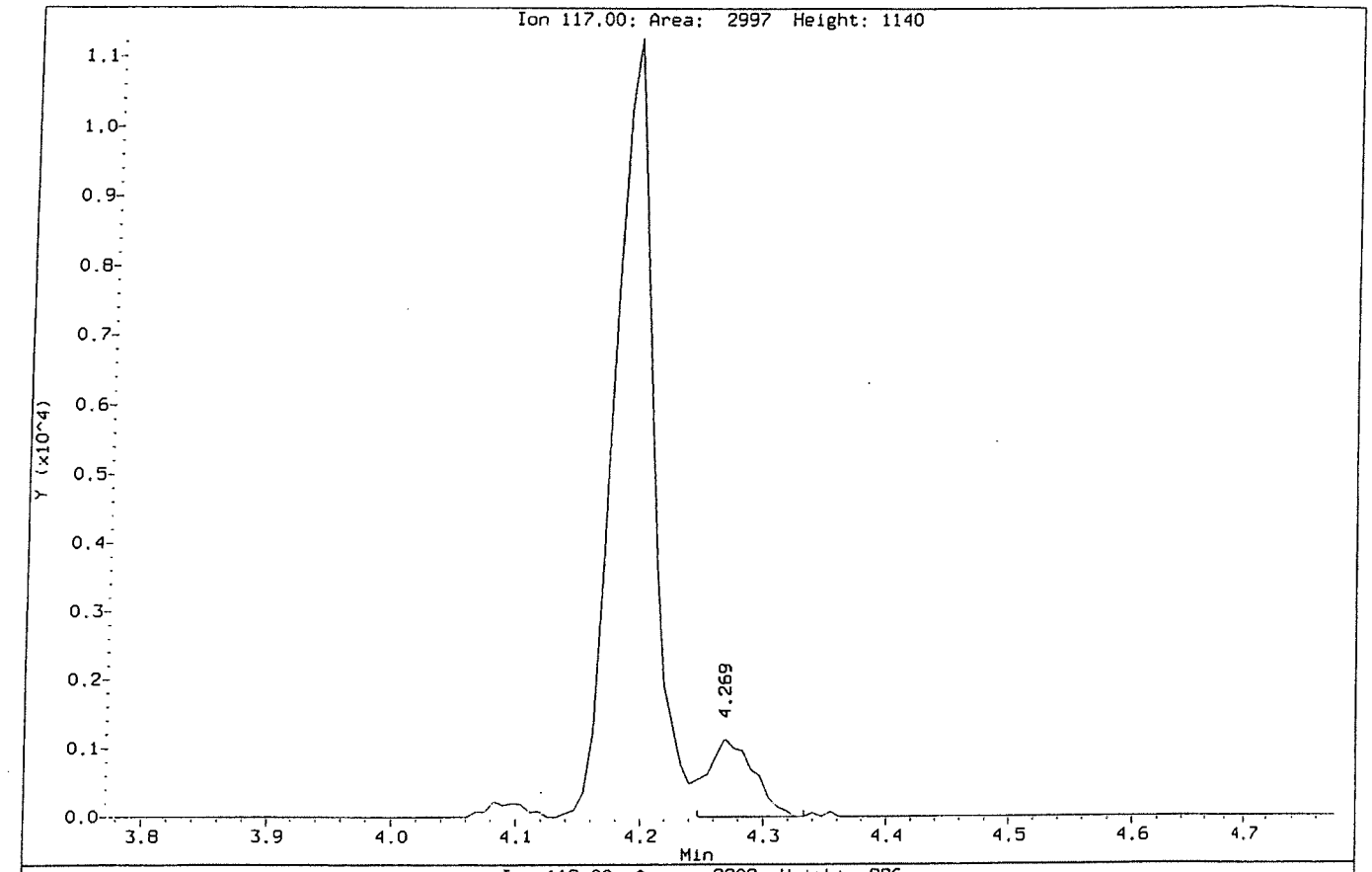
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

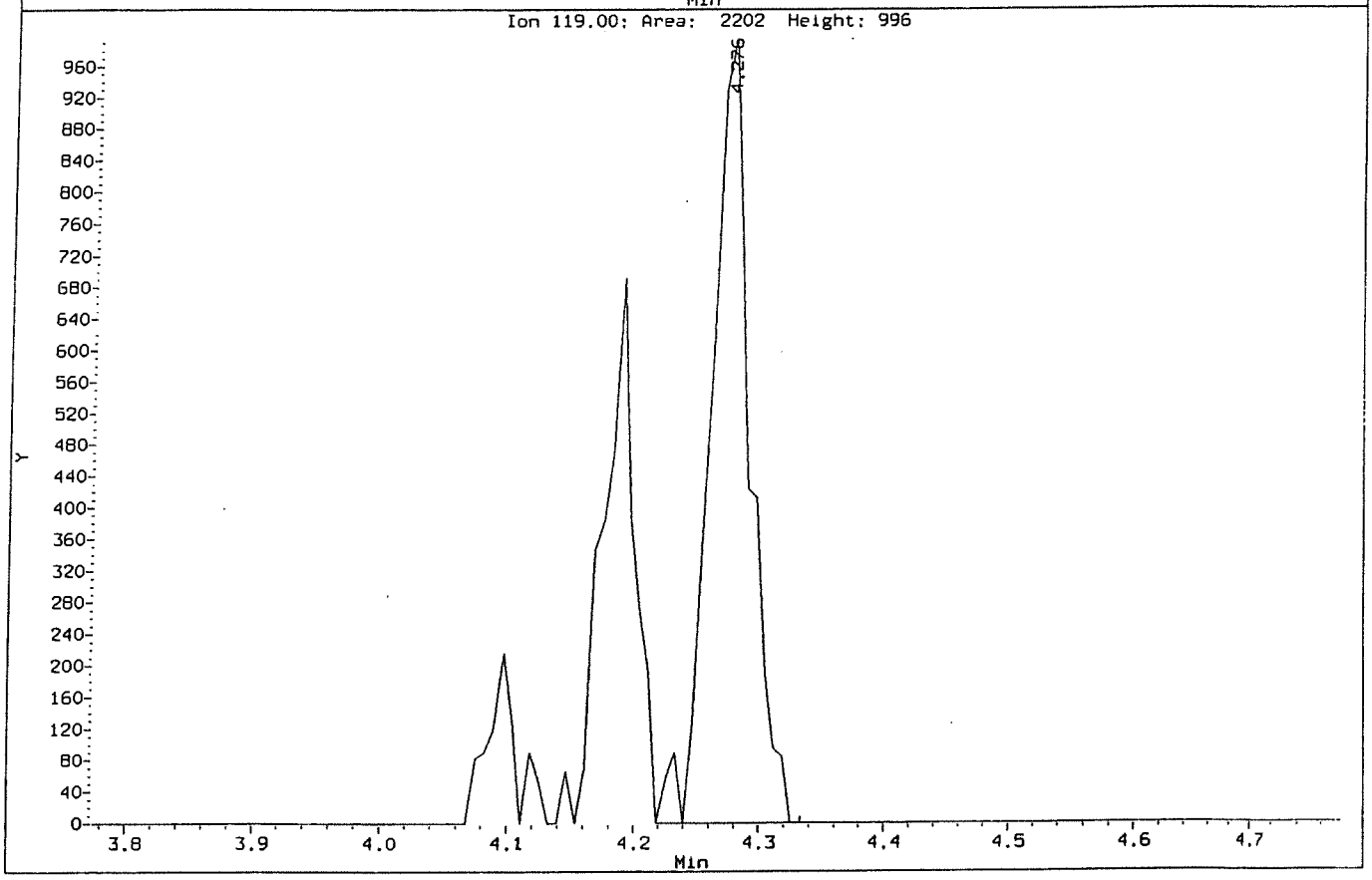
Compound: Bromomethane
CAS Number: 74-83-9



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

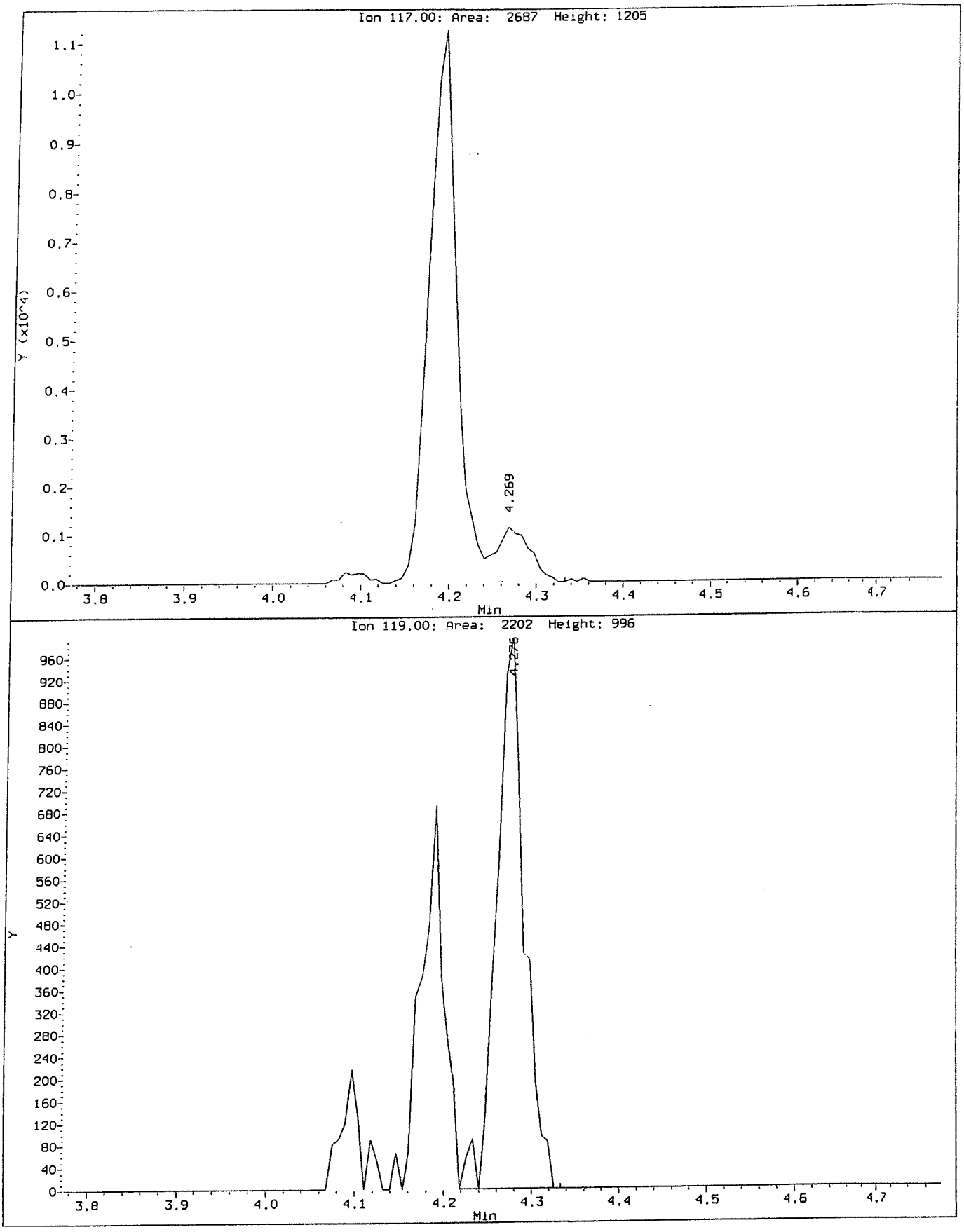
Compound: Carbon Tetrachloride
CAS Number: 56-23-5





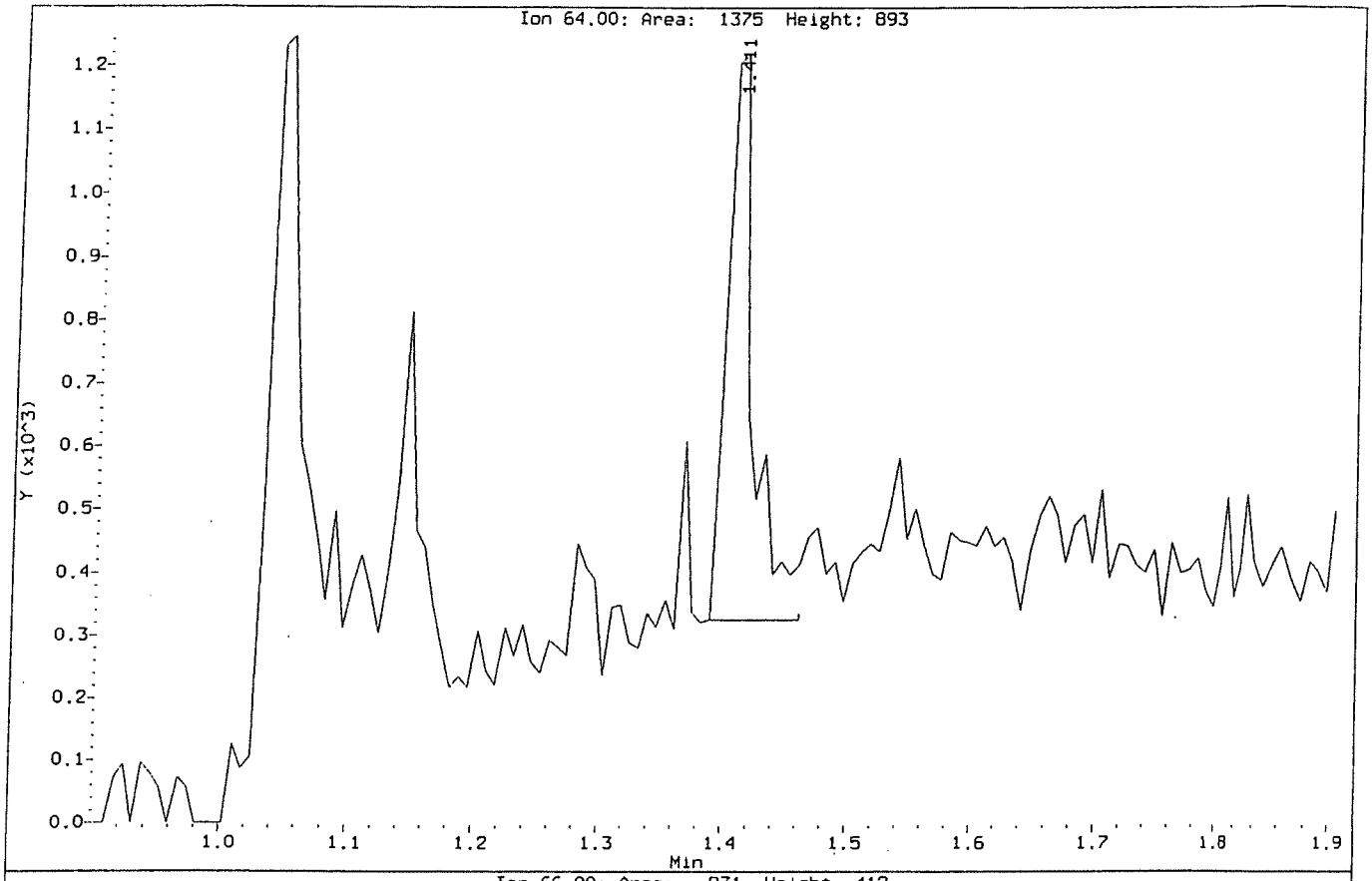
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

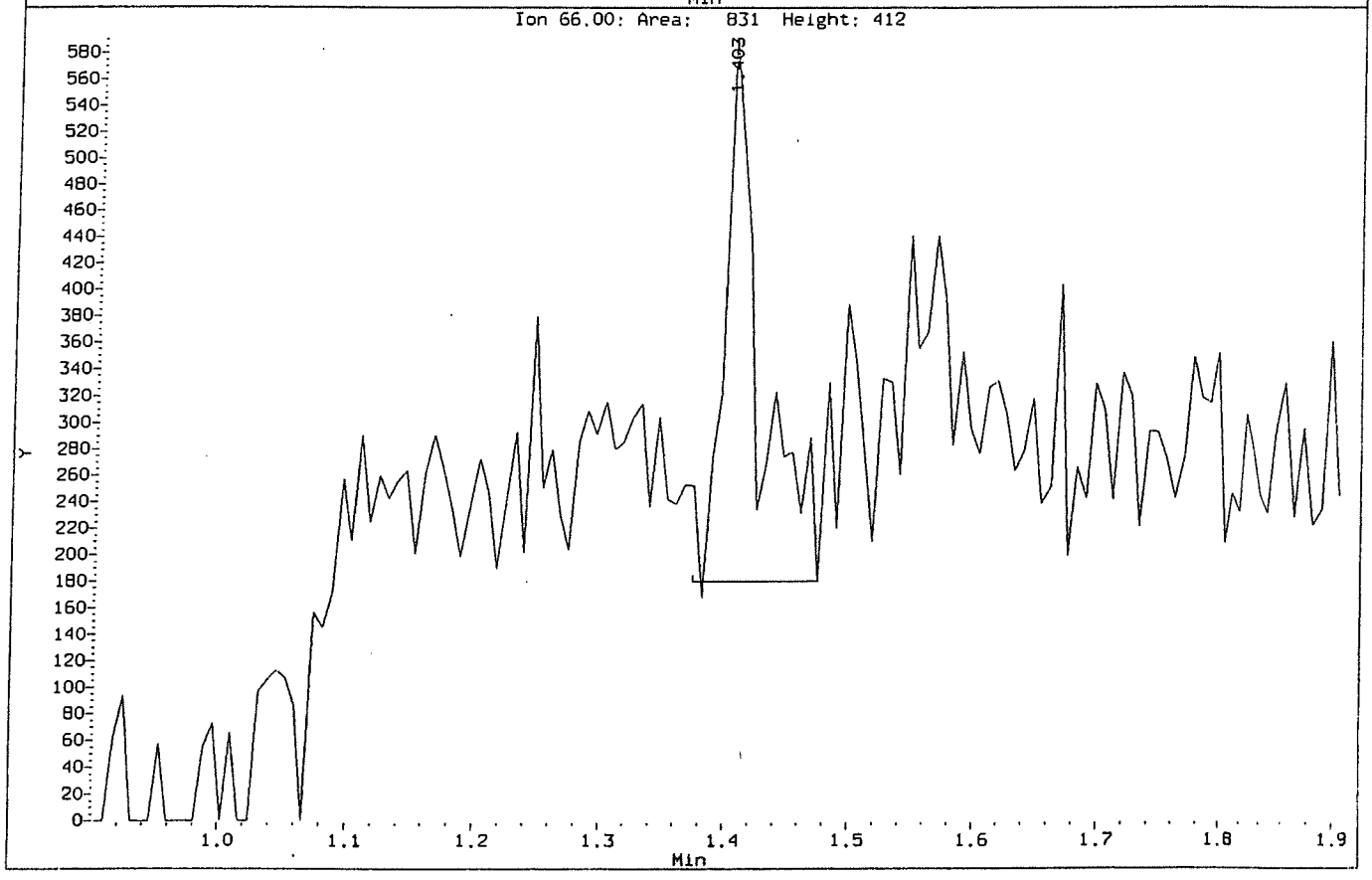
Compound: Carbon Tetrachloride
CAS Number: 56-23-5



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

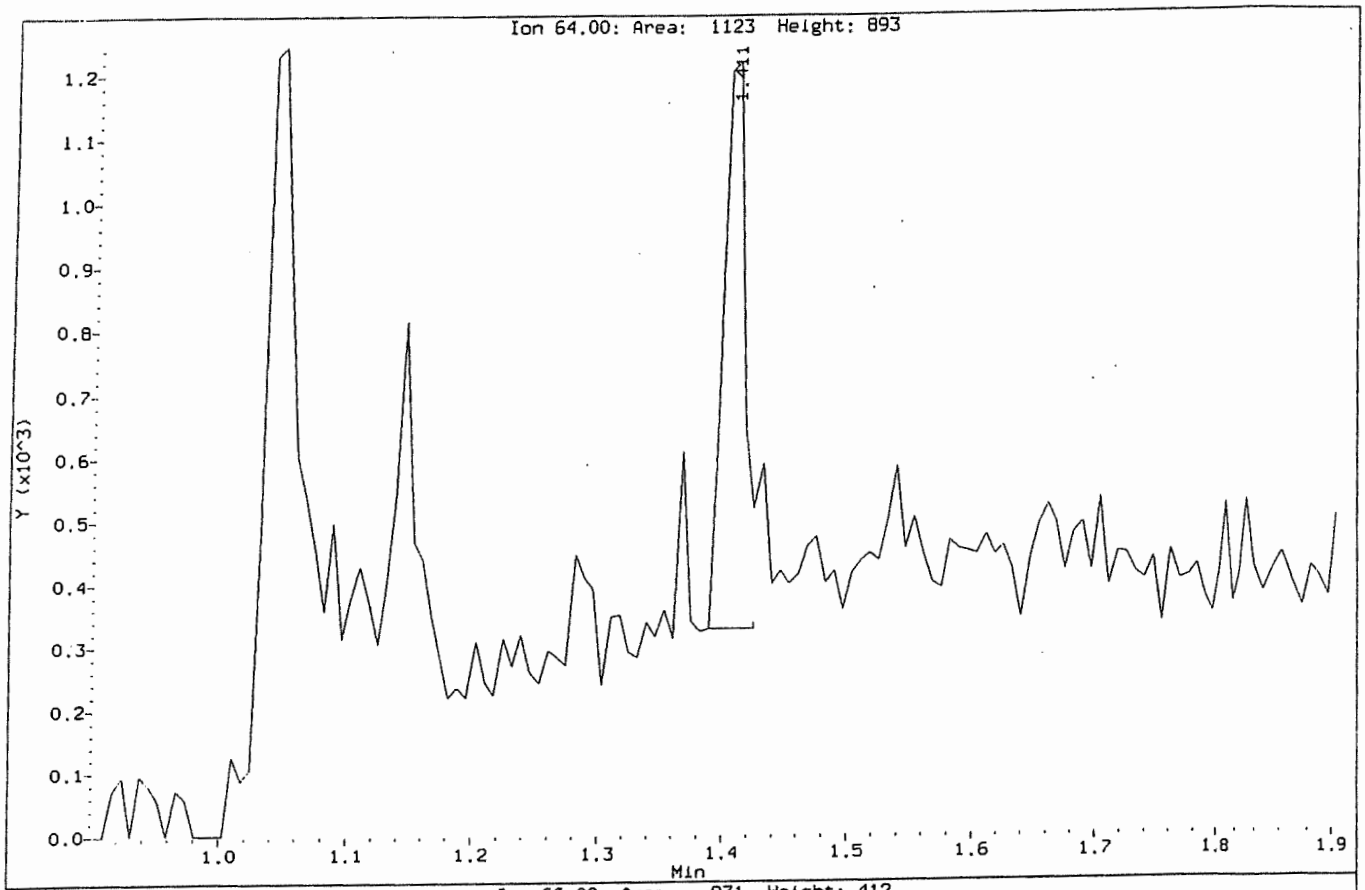
Compound: Chloroethane
CAS Number: 75-00-3

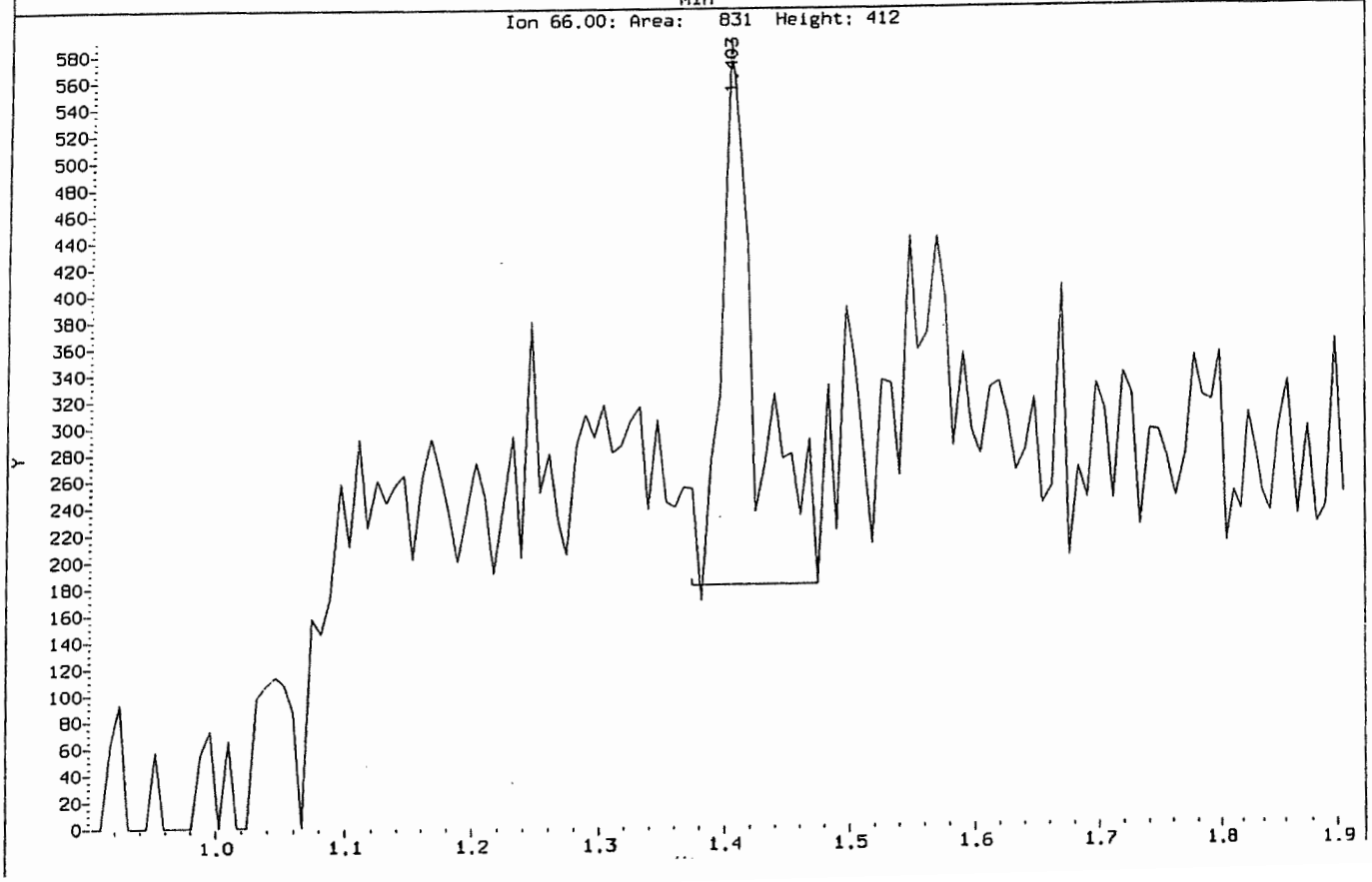




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

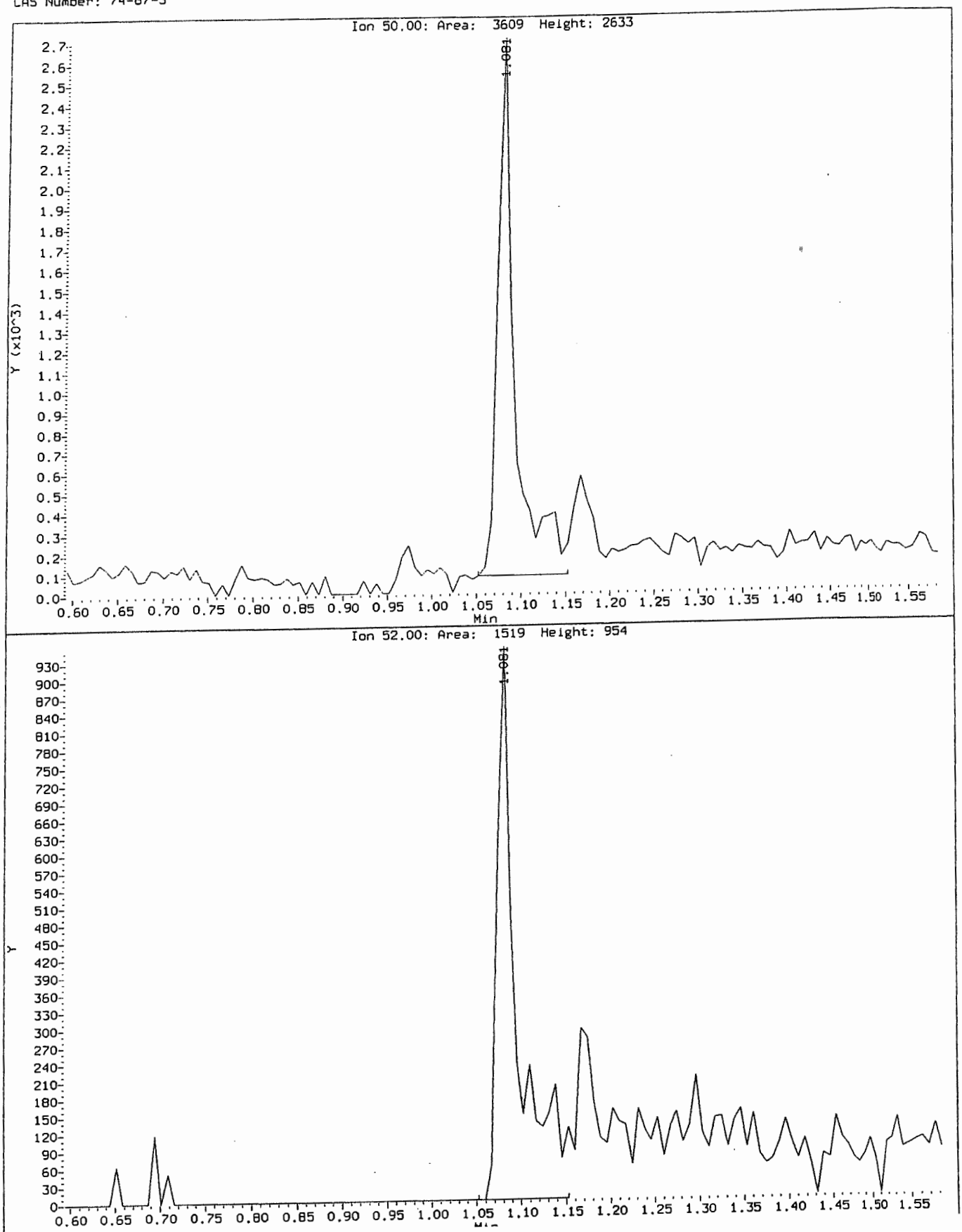
Compound: Chloroethane
CAS Number: 75-00-3





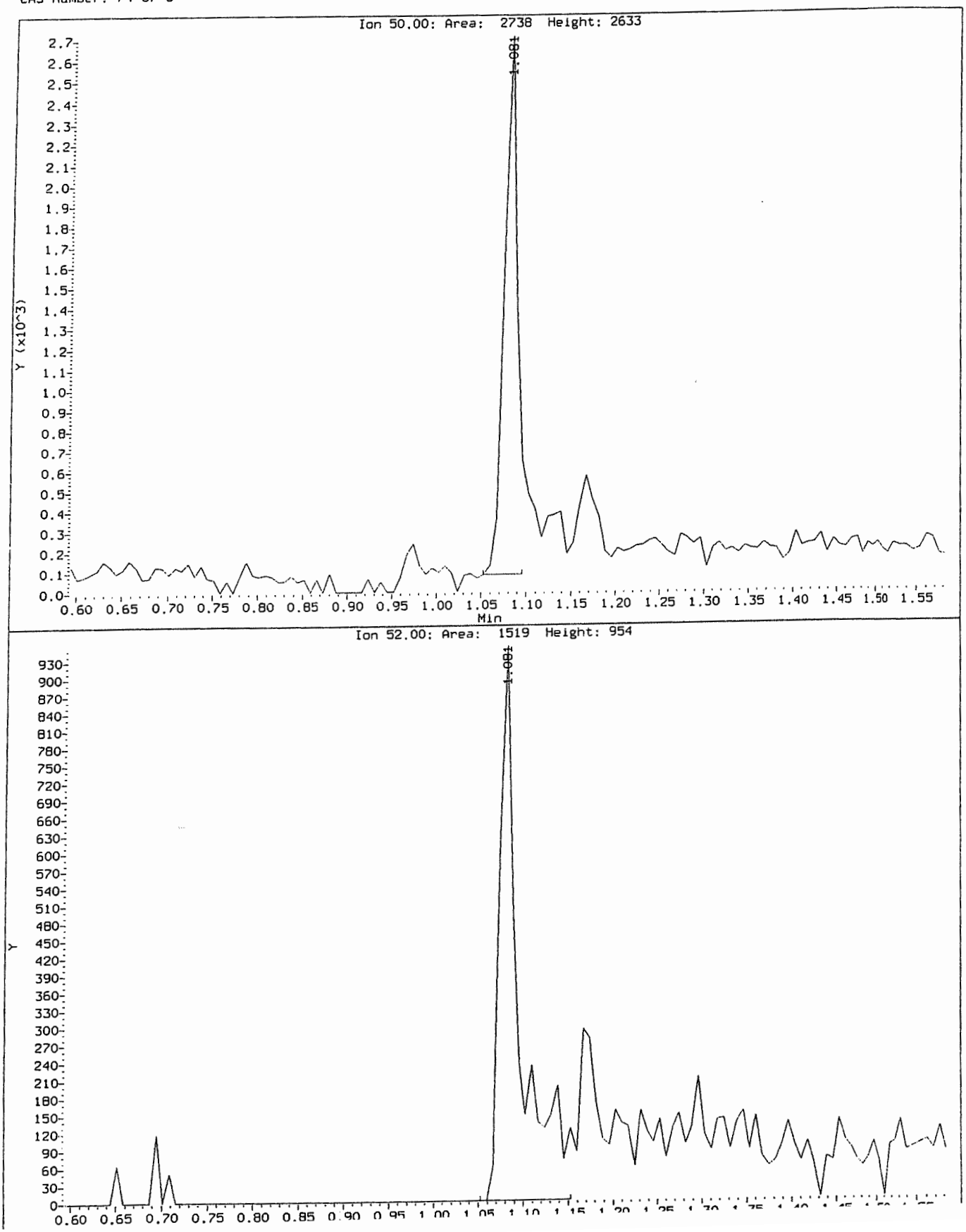
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Chloromethane
CAS Number: 74-87-3



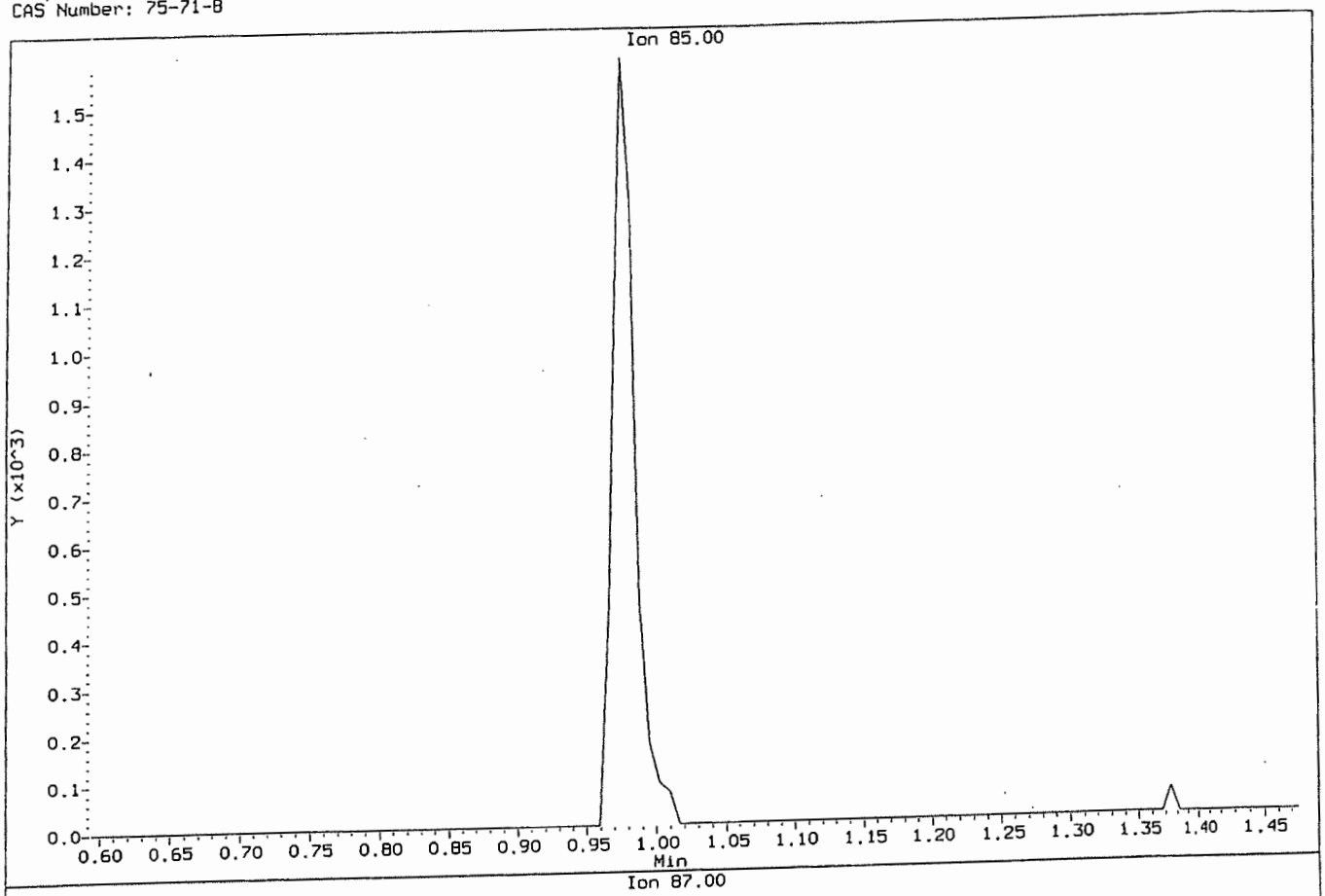
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

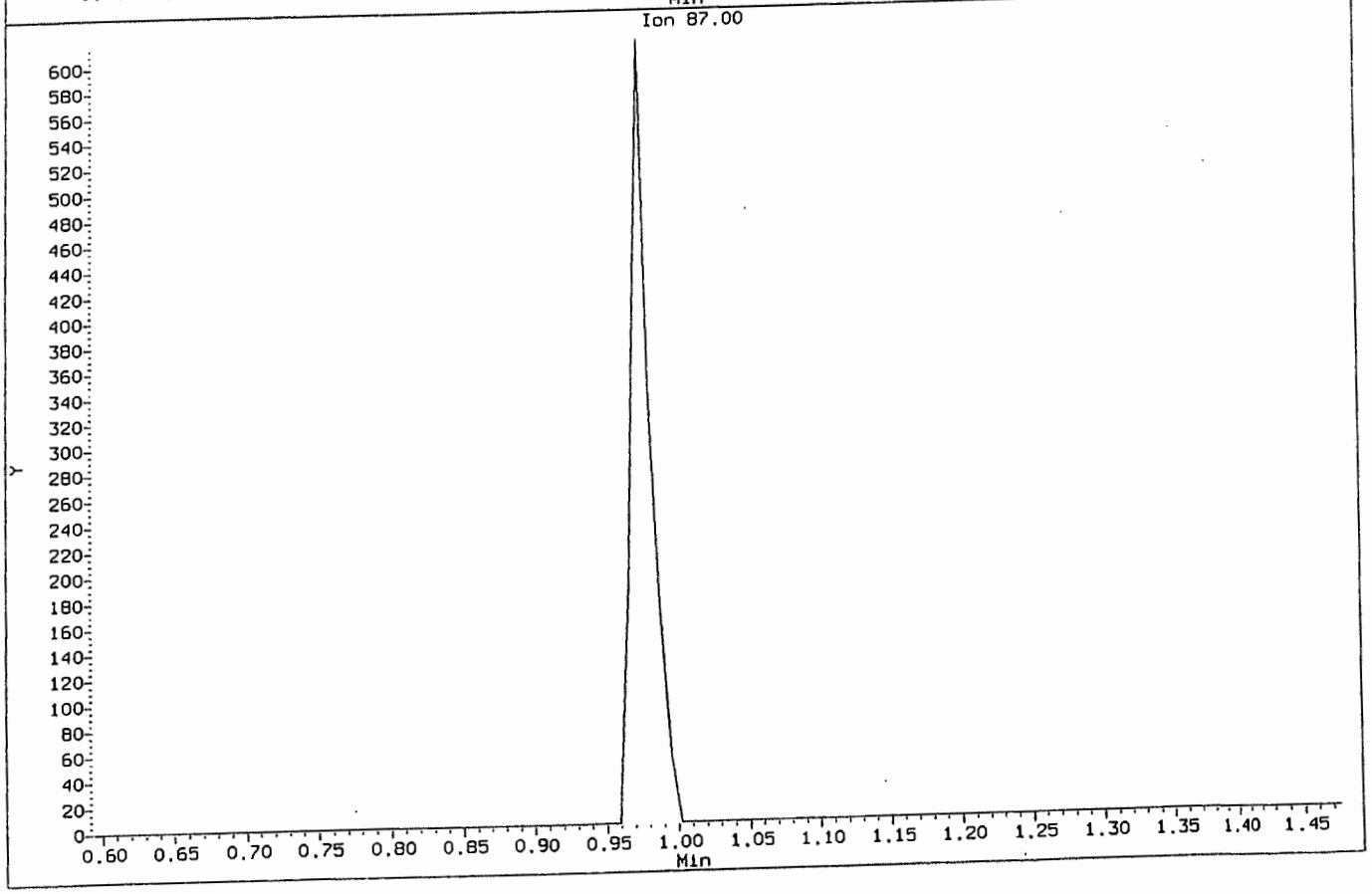
Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

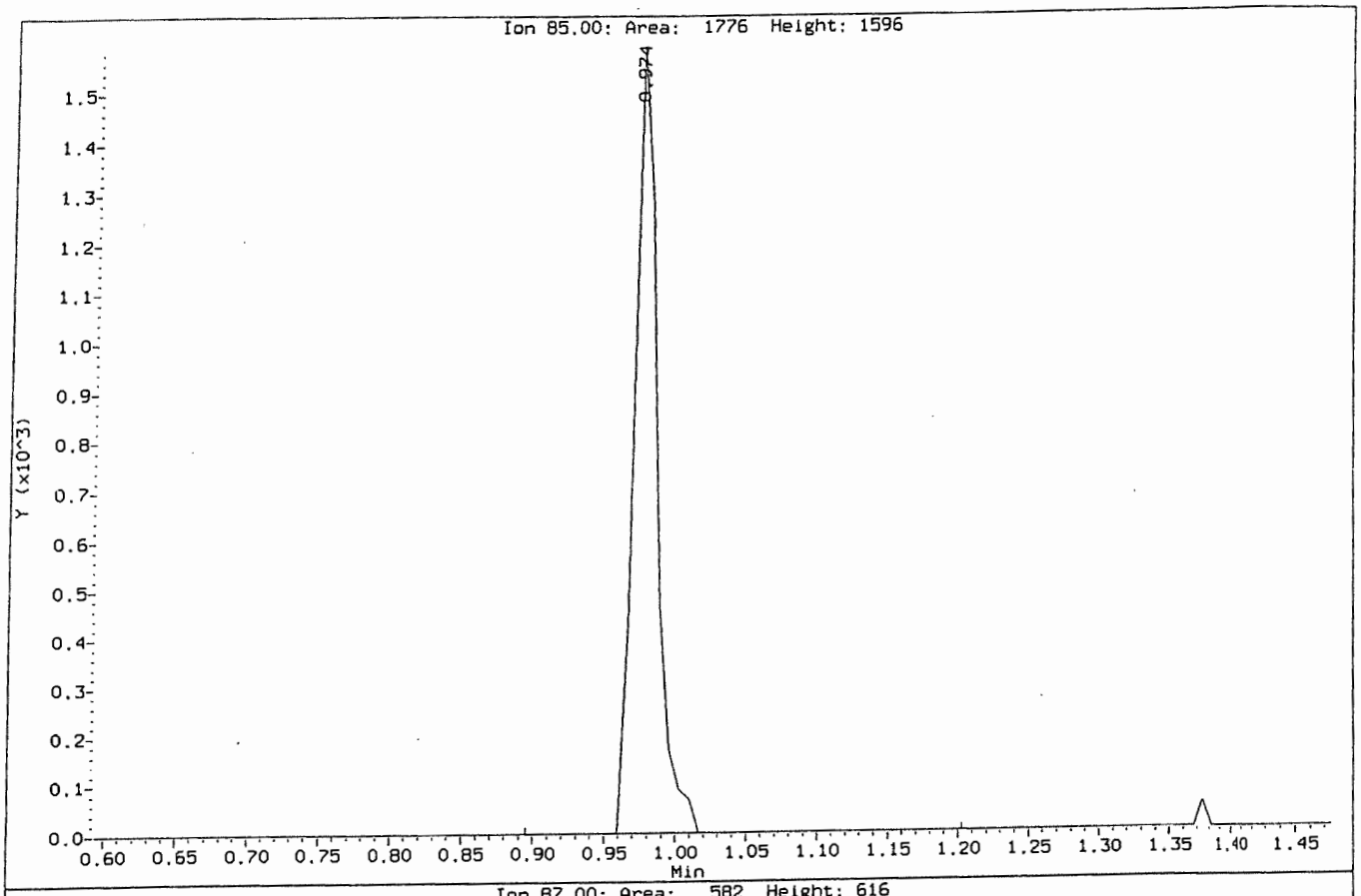
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

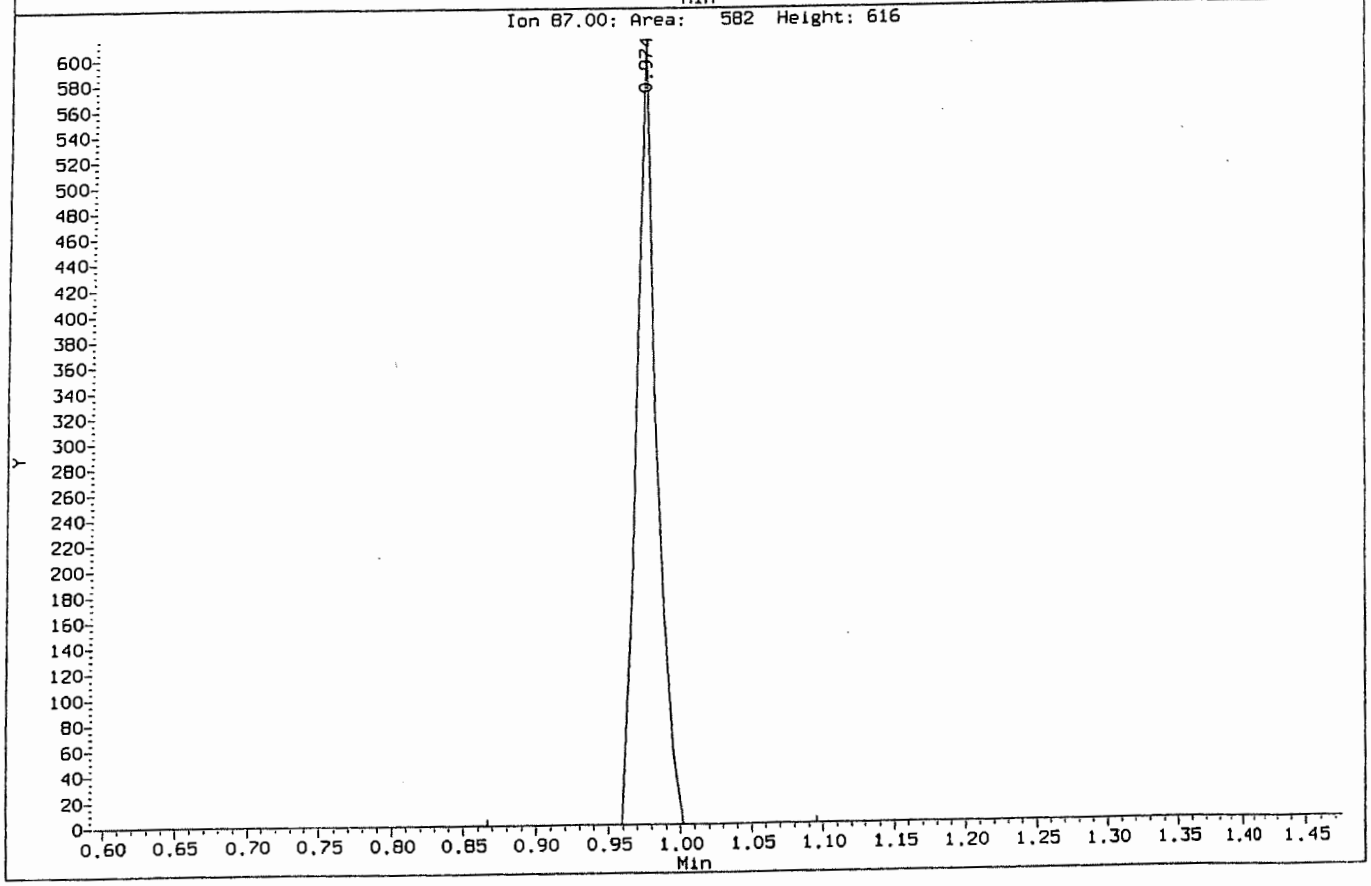




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 13-MAY-2019 12:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:33 Cal File: X051304.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	317314	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436509	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	405959	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	226209	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2924	1.00000	0.87(a)
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3897	1.00000	0.57(a)
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	2821	1.00000	0.67(a)
$ 48 Toluene-d8	98	6.396	6.388	(0.834)	10173	1.00000	0.46(a)
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	3257	1.00000	1.02(a)
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	4281	1.00000	1.01(a)
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	3251	1.00000	1.05(aM)
138 Freon TF	101	1.919	1.919	(0.458)	2736	1.00000	1.96(a)
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2056	1.00000	0.98(a)
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	4674	1.00000	1.04(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2641	1.00000	1.06(a)
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	4103	1.00000	1.13(a)
93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1624	1.00000	1.62(aM)
71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	3382	1.00000	0.95(a)
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	3018	1.00000	0.90(a)
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	11308	1.00000	1.04(a)
89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	465	1.00000	0.94(aM)
57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	2866	1.00000	1.00(a)
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	6630	1.00000	1.01(a)

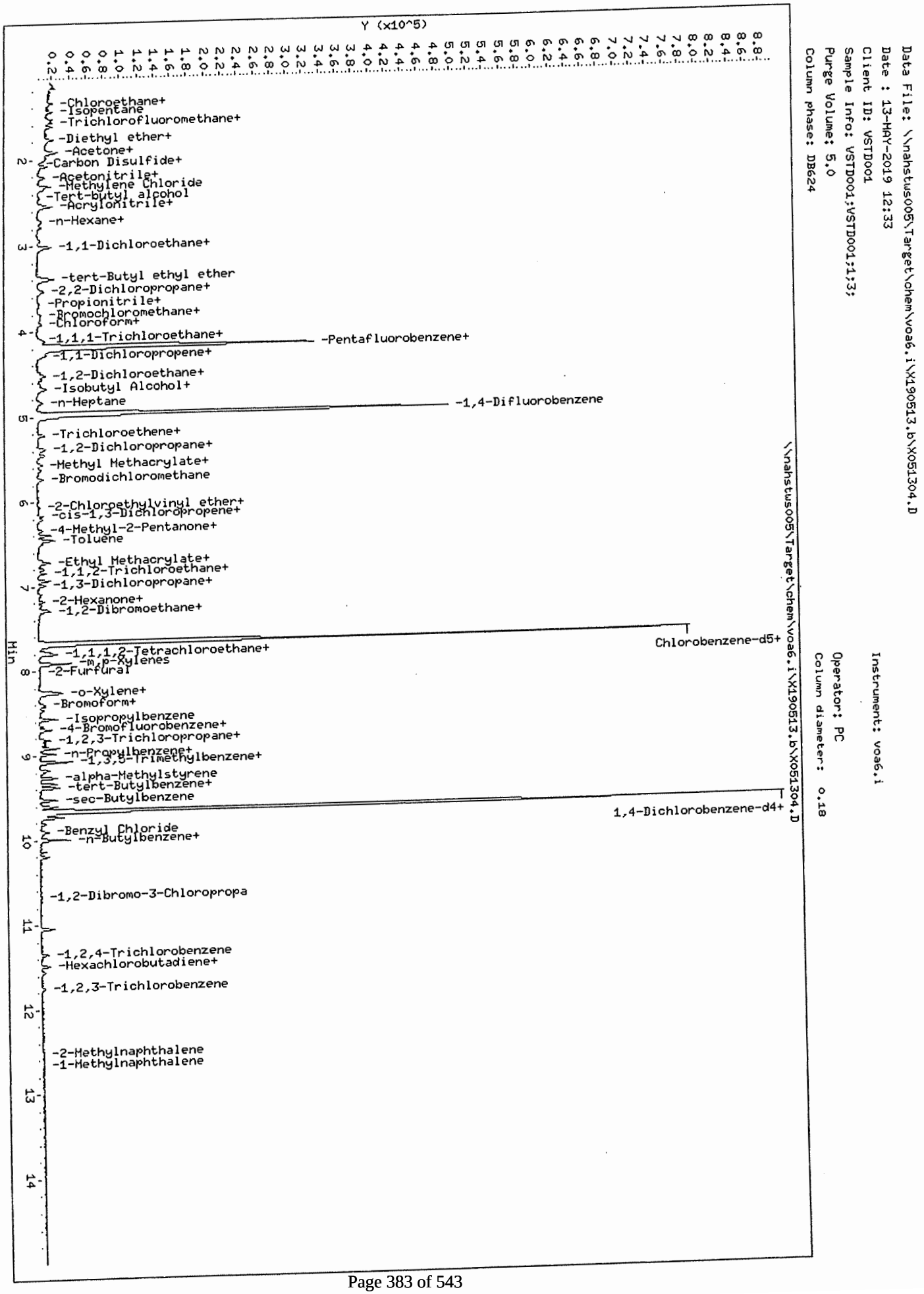
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

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	4.562	(0.919)	3849	1.00000	1.04(aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	2660	1.00000	1.04(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	10502	1.00000	1.02(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	7204	1.00000	1.03(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	4373	1.00000	1.04(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	7189	1.00000	1.02(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	4095	1.00000	1.03(a)
24 2-Butanone	43	3.616	3.581	(0.863)	1388	2.00000	1.83(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	8920	1.00000	1.06(a)
52 2-Hexanone	43	7.097	7.090	(0.925)	2901	2.00000	2.05(a)
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	10275	1.00000	1.06(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	11053	1.00000	0.99(a)
45 4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	4184	2.00000	2.03(a)
10 Acetone	43	1.983	1.976	(0.473)	2678	2.00000	2.24(a)
37 Benzene	78	4.526	4.519	(0.911)	10709	1.00000	1.01(a)
74 Bromobenzene	156	8.809	8.810	(0.911)	4202	1.00000	0.99(a)
29 Bromochloromethane	128	3.810	3.803	(0.909)	2379	1.00000	1.35(a)
39 Bromodichloromethane	83	5.737	5.729	(1.154)	3754	1.00000	1.02(aM)
66 Bromoform	173	8.423	8.416	(1.098)	2104	1.00000	0.88(Ta)
6 Bromomethane	94	1.346	1.339	(0.321)	3476	1.00000	2.28(aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	14936	2.00000	2.08(a)
34 Carbon Tetrachloride	117	4.268	4.275	(0.859)	4360	1.00000	1.07(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	8218	1.00000	1.01(a)
7 Chloroethane	64	1.410	1.403	(0.337)	2109	1.00000	1.16(a)
28 Chloroform	83	3.917	3.917	(0.935)	4905	1.00000	1.02(a)
3 Chloromethane	50	1.081	1.081	(0.258)	4458	1.00000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	3334	1.00000	1.07(a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	4133	1.00000	0.95(a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	3225	1.00000	0.98(a)
44 Dibromomethane	93	5.557	5.558	(1.118)	1829	1.00000	0.99(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	2995	1.00000	1.66(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	4183	1.00000	0.99(a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	2046	1.00000	1.03(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	12473	1.00000	1.00(a)
62 m,p-Xylenes	106	7.914	7.907	(1.032)	10328	2.00000	2.04(a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	5114	1.00000	1.31(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	8499	1.00000	0.96(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	14130	1.00000	1.01(a)
92 Naphthalene	128	11.553	11.546	(1.195)	4284	1.00000	0.90(a)
63 o-Xylene	106	8.251	8.244	(1.076)	4970	1.00000	1.00(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	12554	1.00000	1.03(a)
64 Styrene	104	8.265	8.265	(1.078)	8687	1.00000	1.00(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	9421	1.00000	1.05(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2871	1.00000	0.96(a)
50 Toluene	91	6.453	6.453	(0.841)	12021	1.00000	1.01(a)
20 trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	2652	1.00000	1.02(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	3578	1.00000	0.94(a)
38 Trichloroethene	130	5.221	5.214	(1.050)	3417	1.00000	1.01(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	4828	1.00000	1.02(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	3486	1.00000	1.20(aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

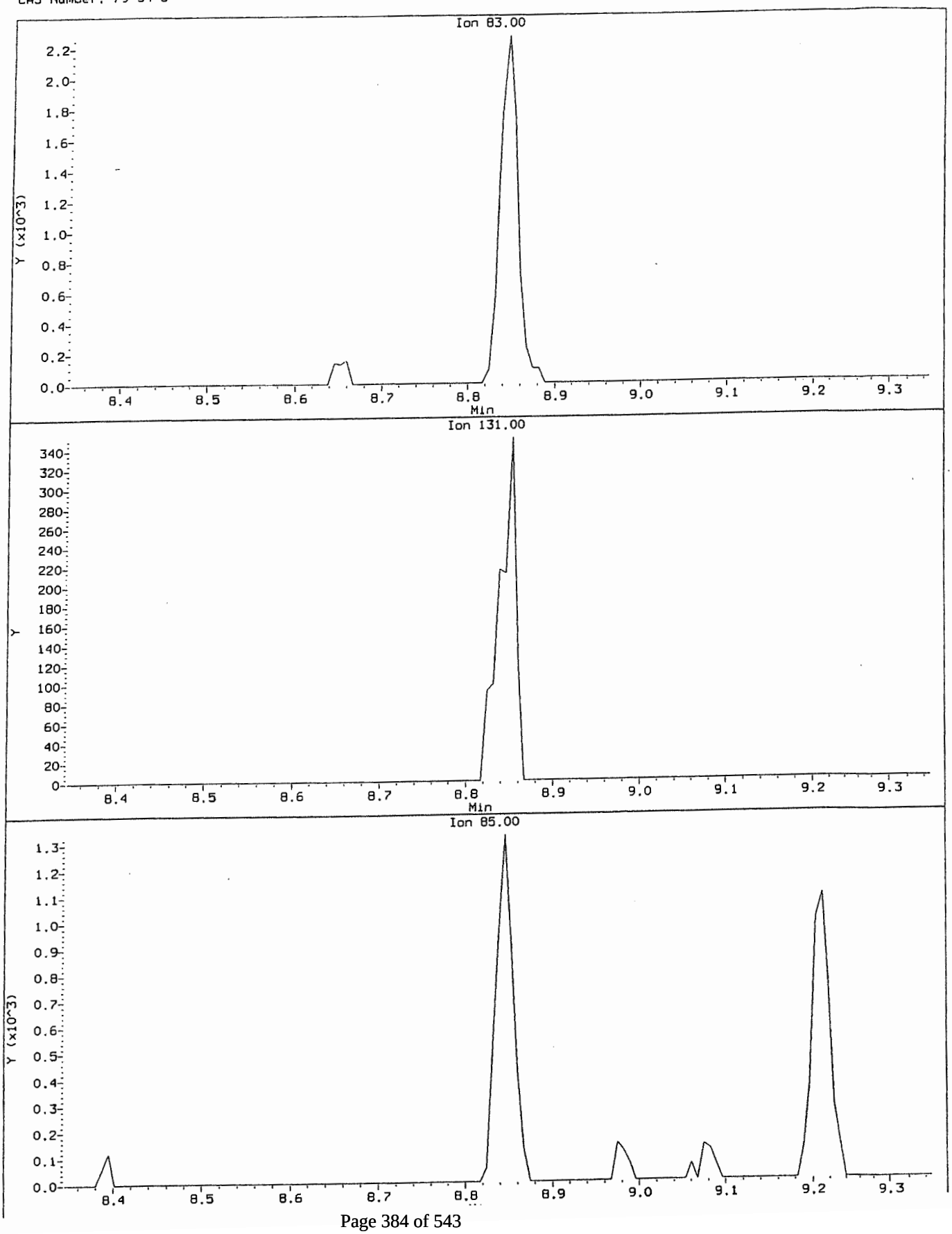
QC Flag Legend

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: \\nahstus005\Target\chem\voa6.i\X190513.b\X051304.D
Date : 13-MAY-2019 12:33
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
\\nahstus005\Target\chem\voa6.i\X190513.b\X051304.D
Y (x10^5)
Min
-Chloroethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Carbon Disulfide+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

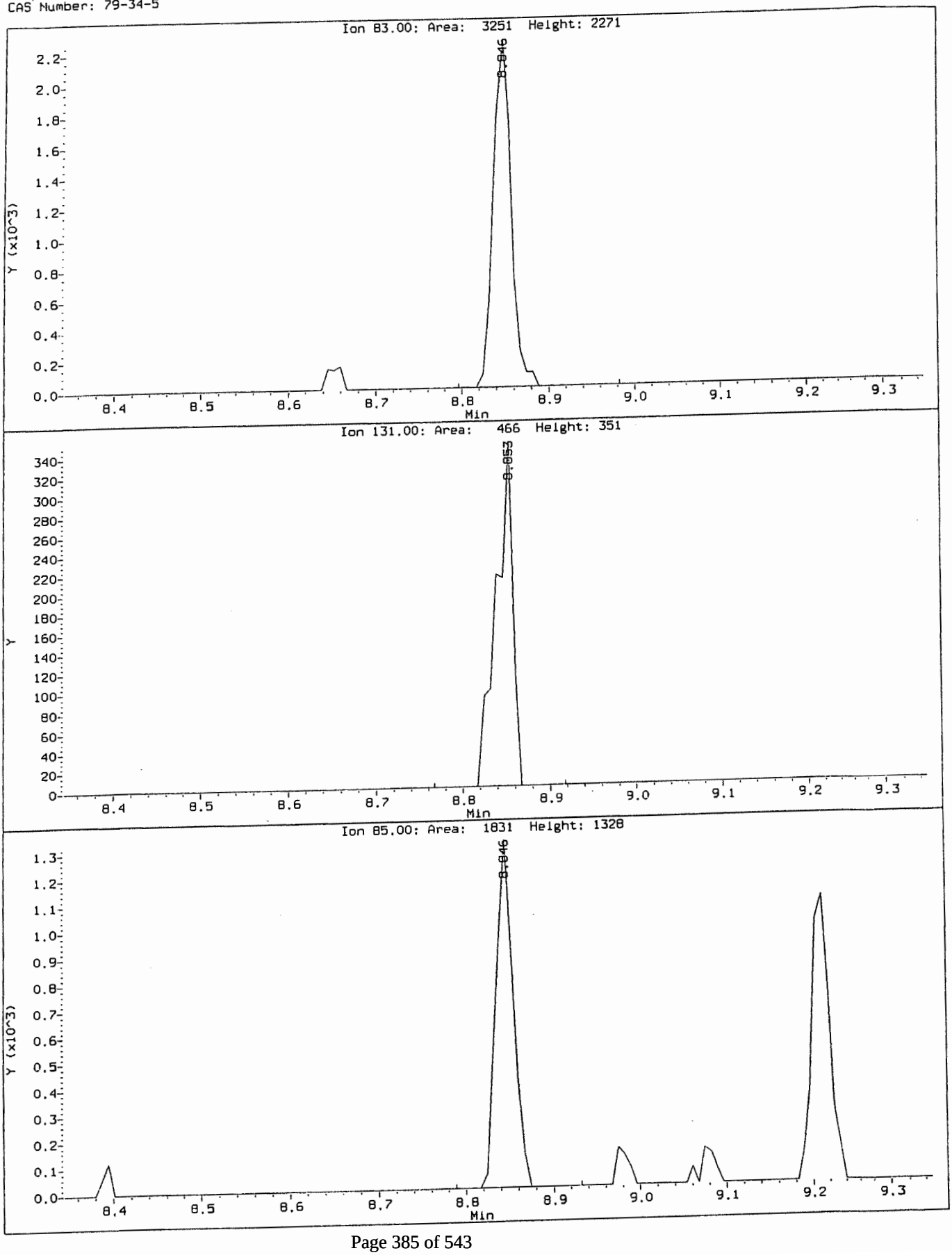
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



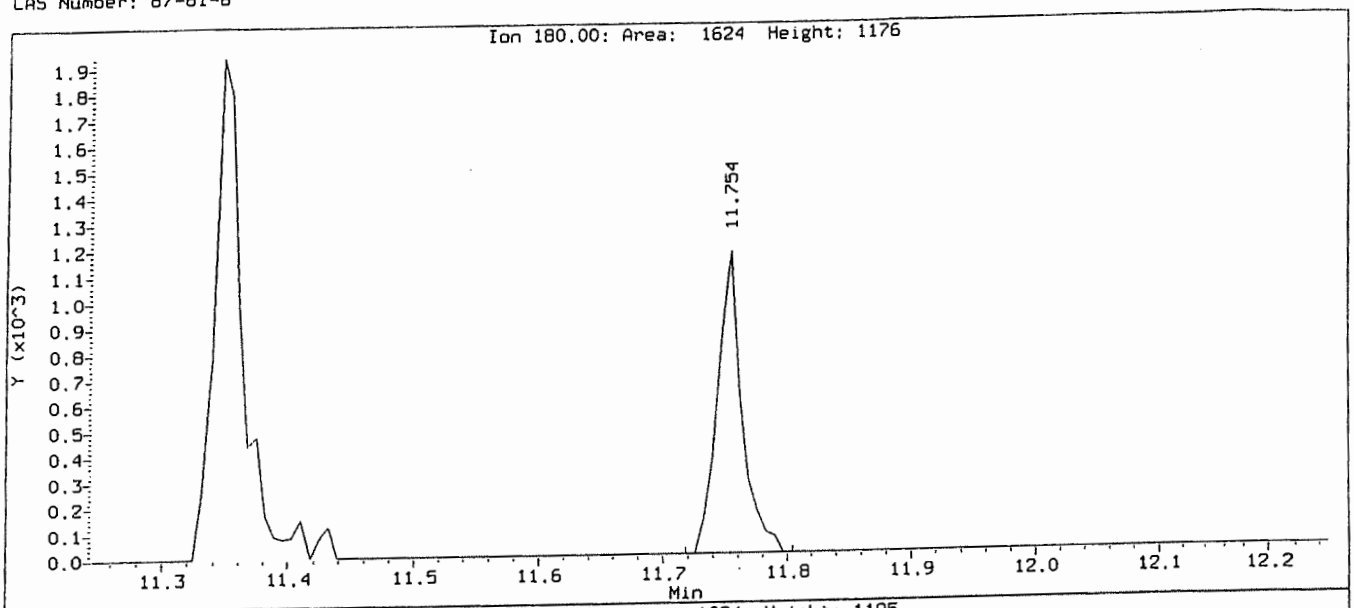
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

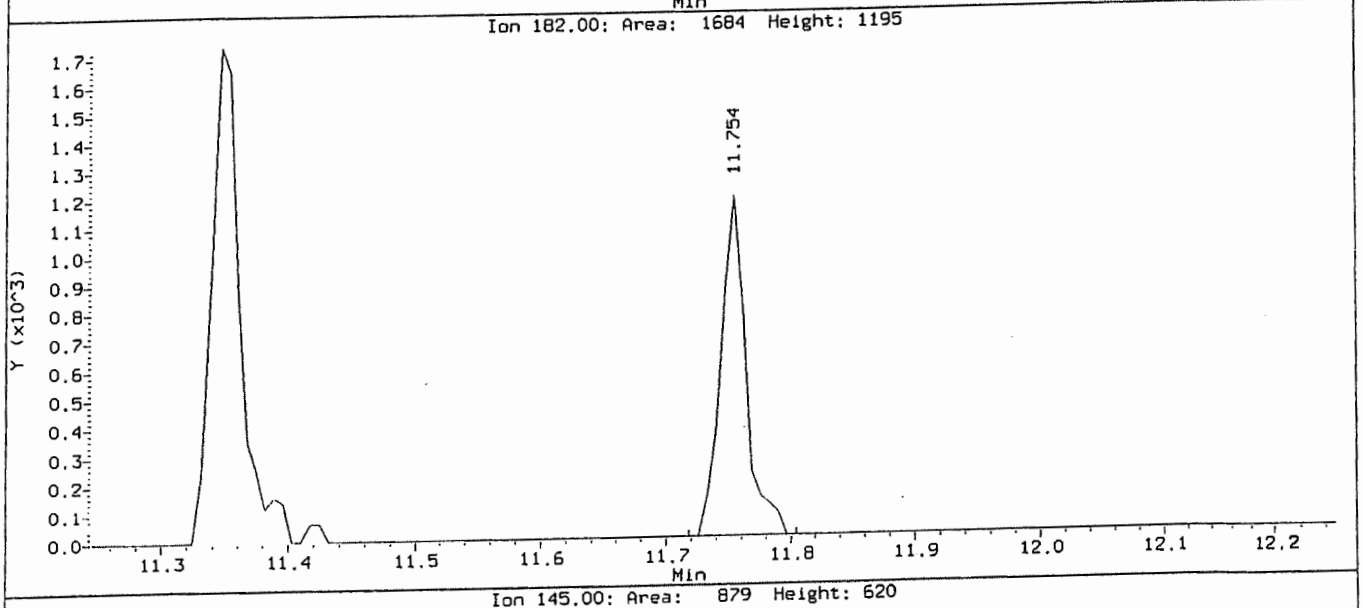
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

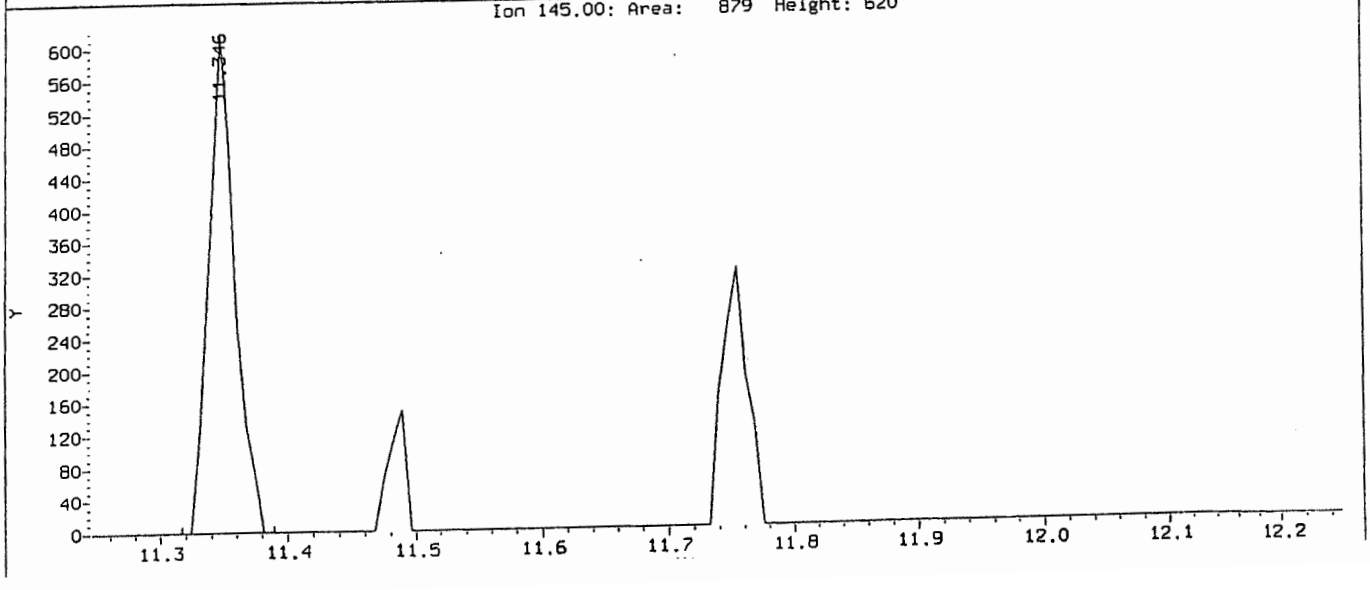


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6

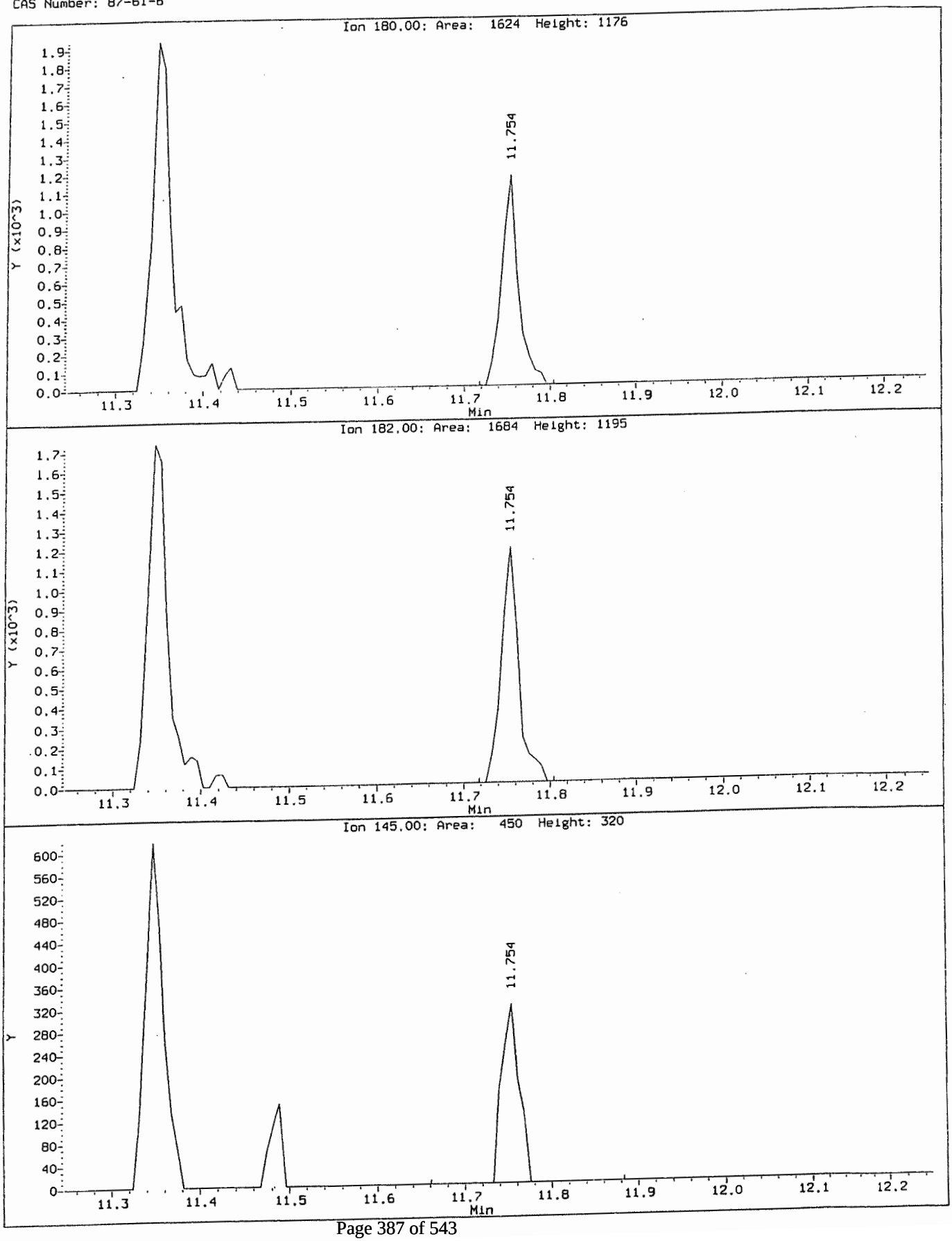






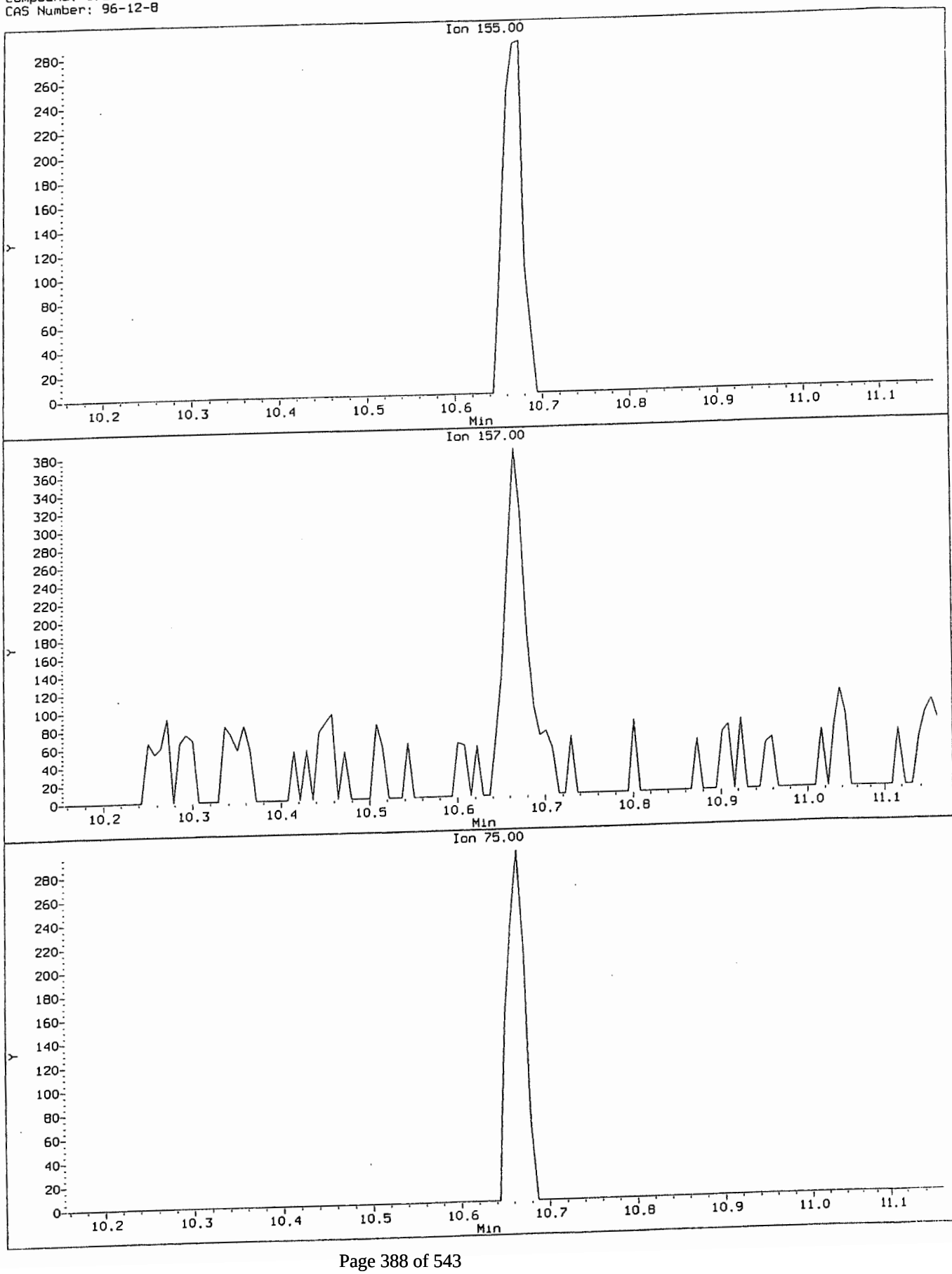
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



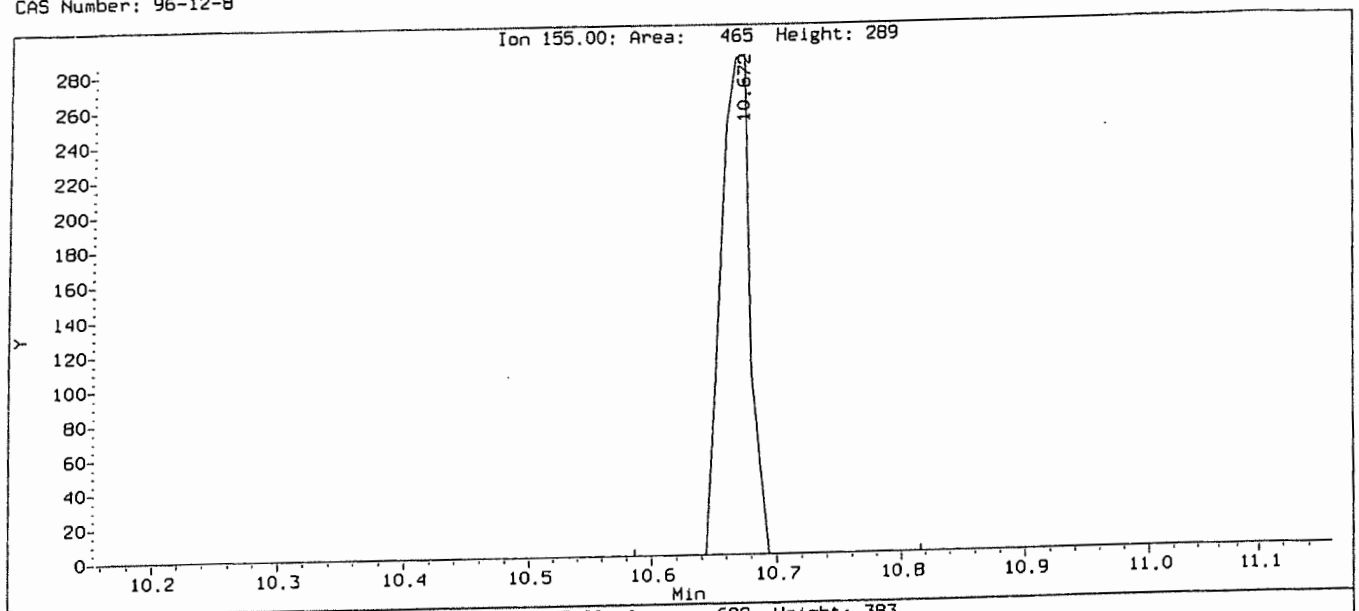
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

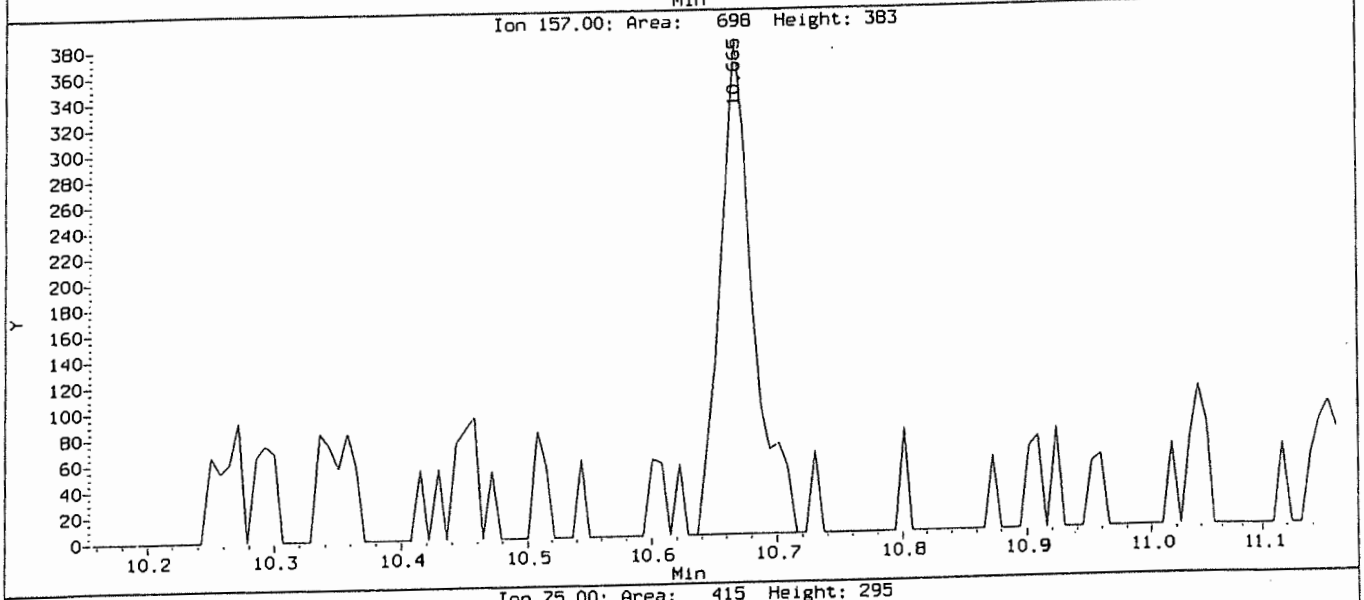
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

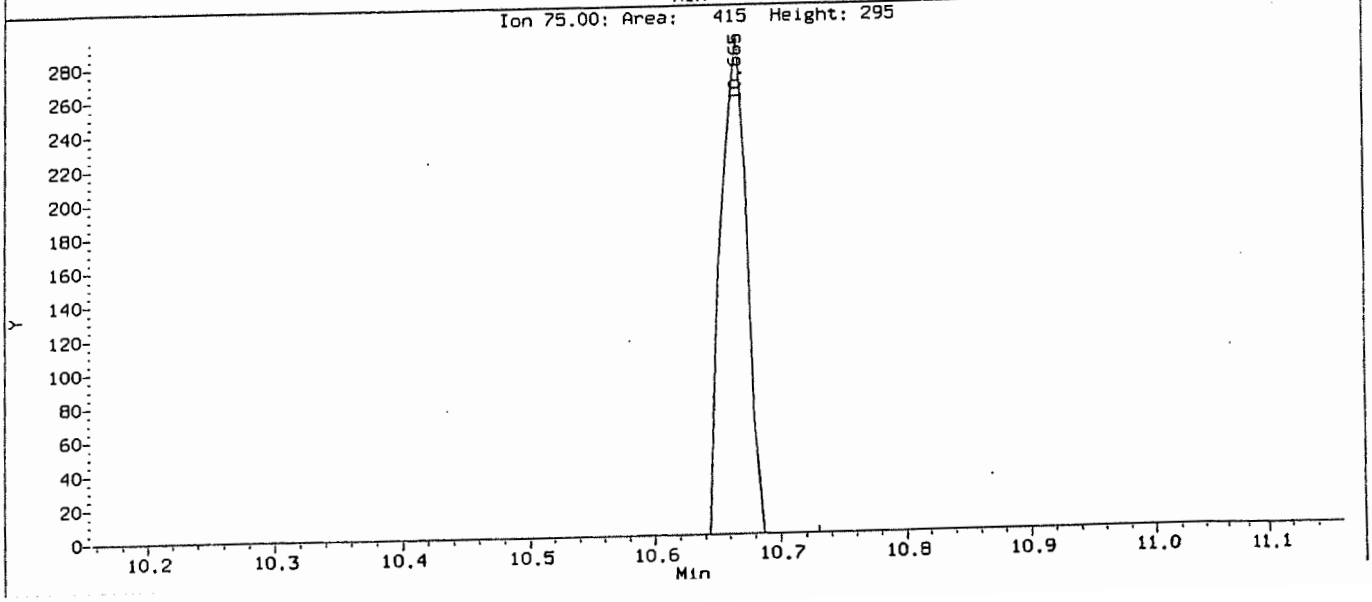


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.1
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

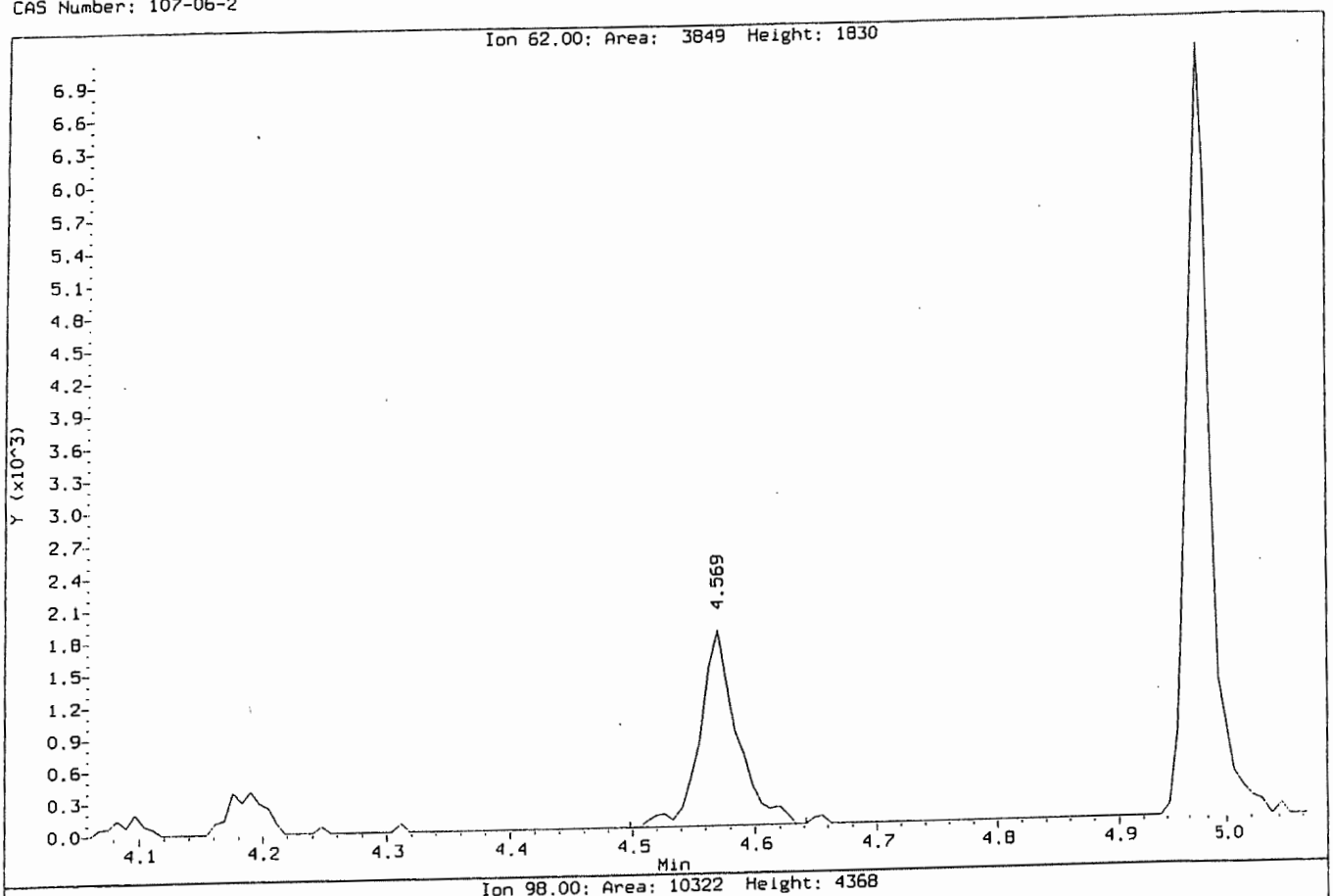


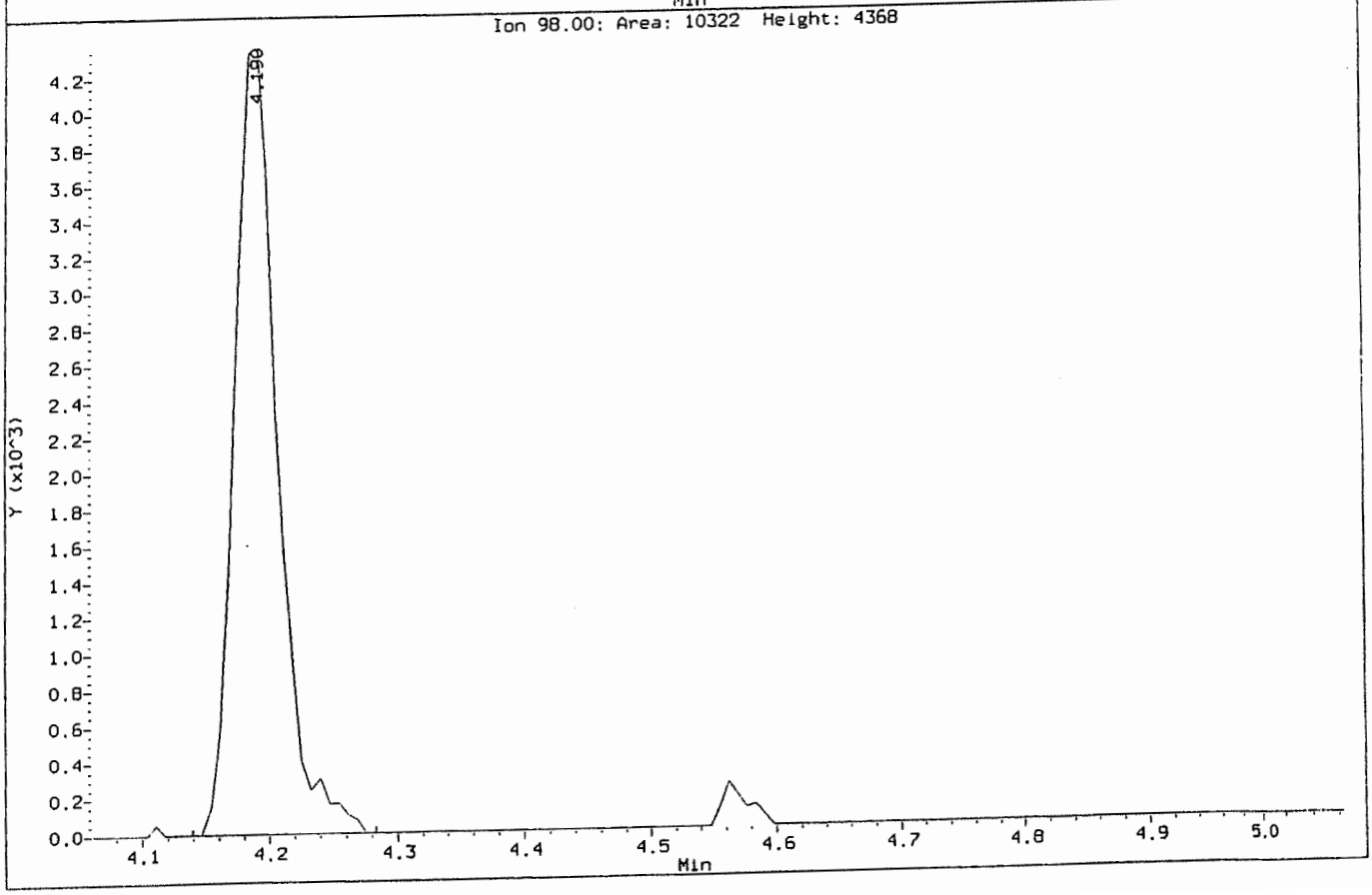




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

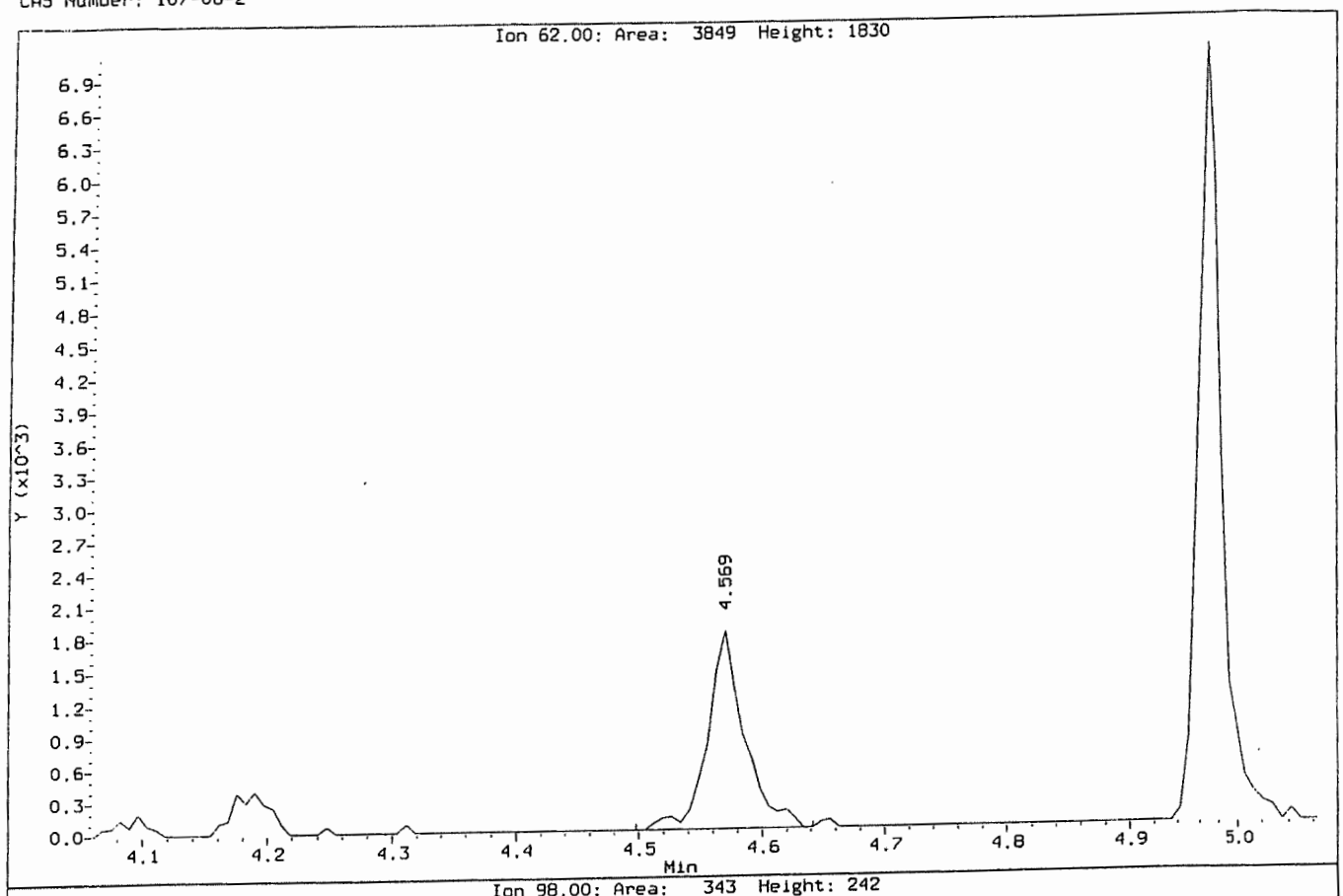
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

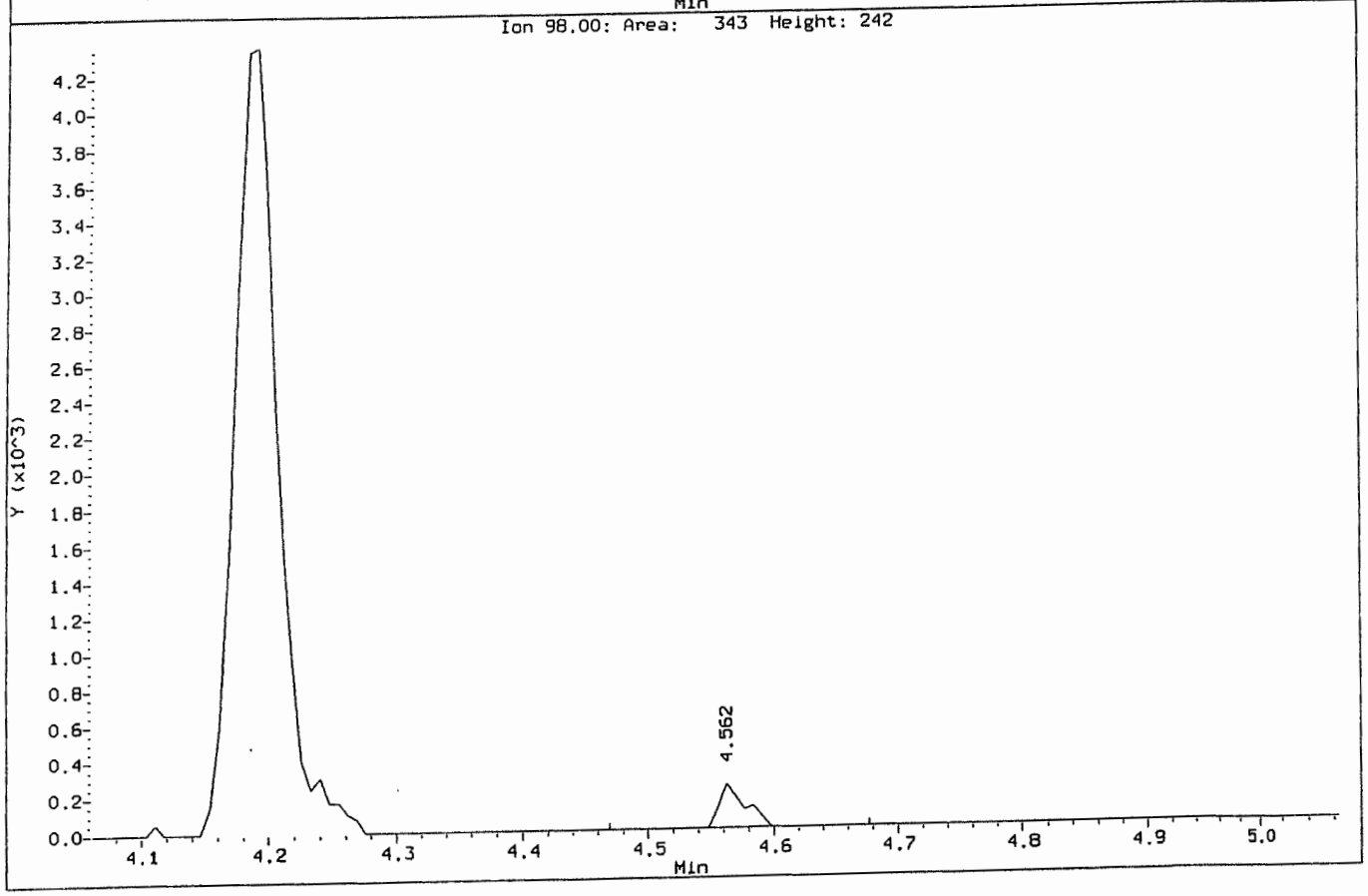




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

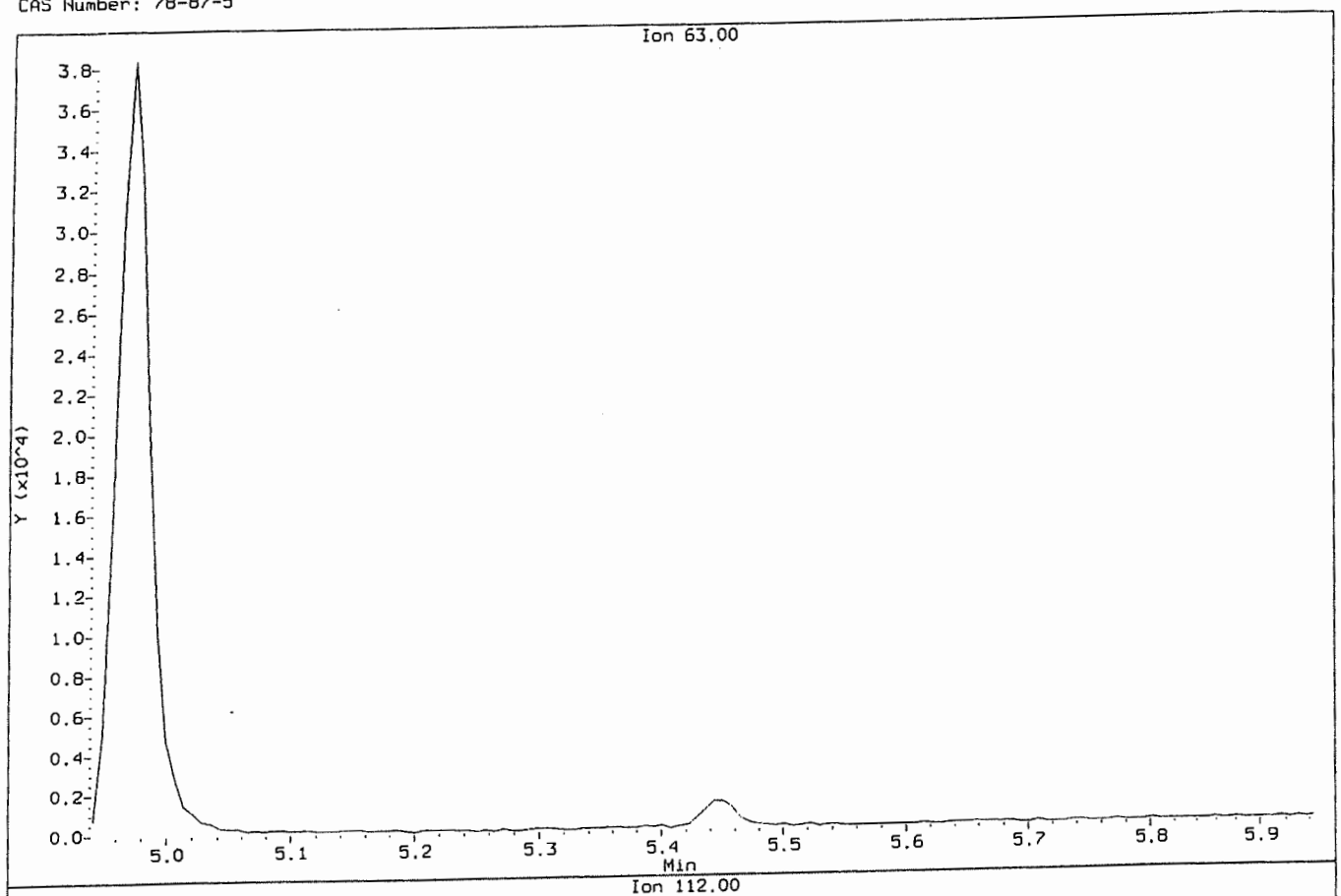
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

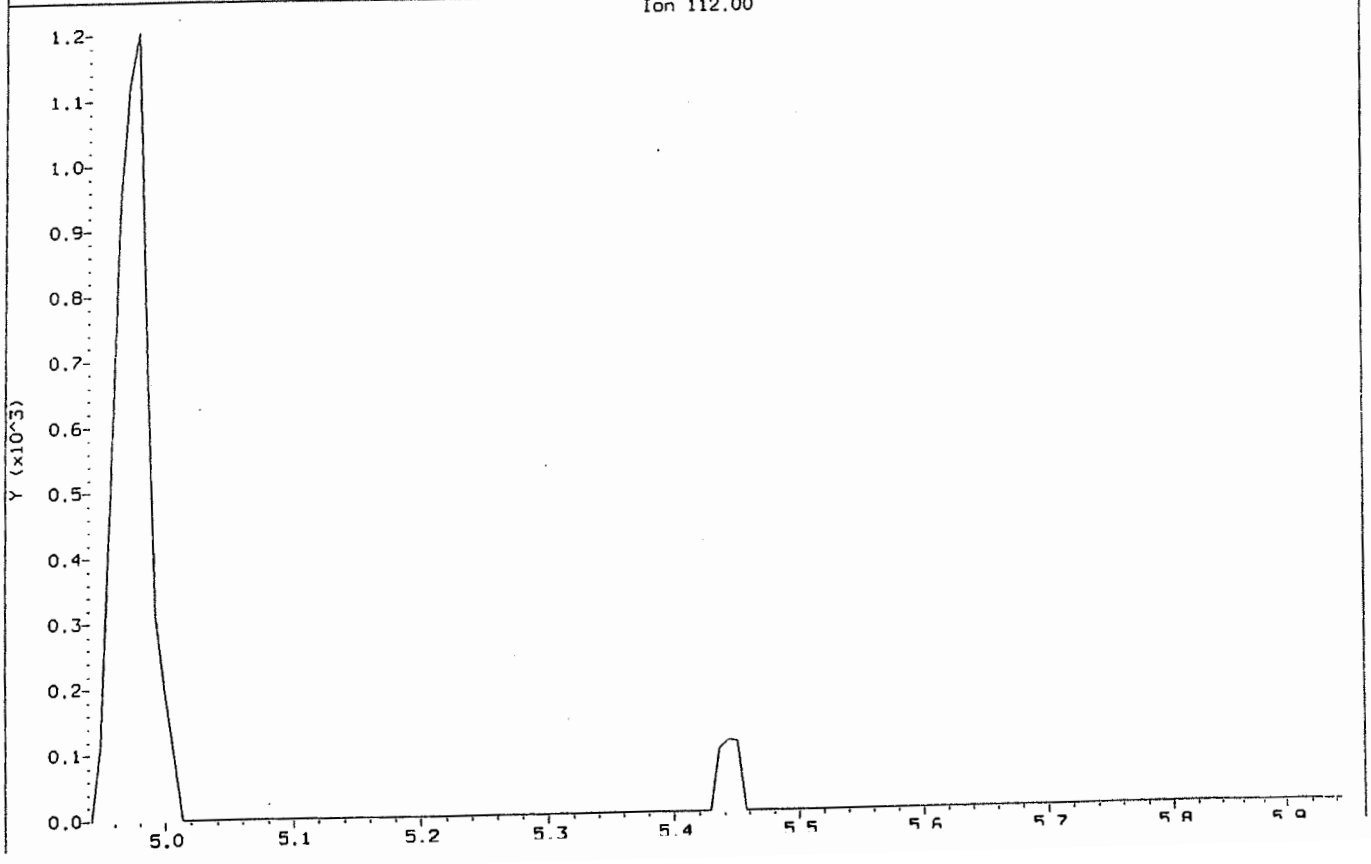




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

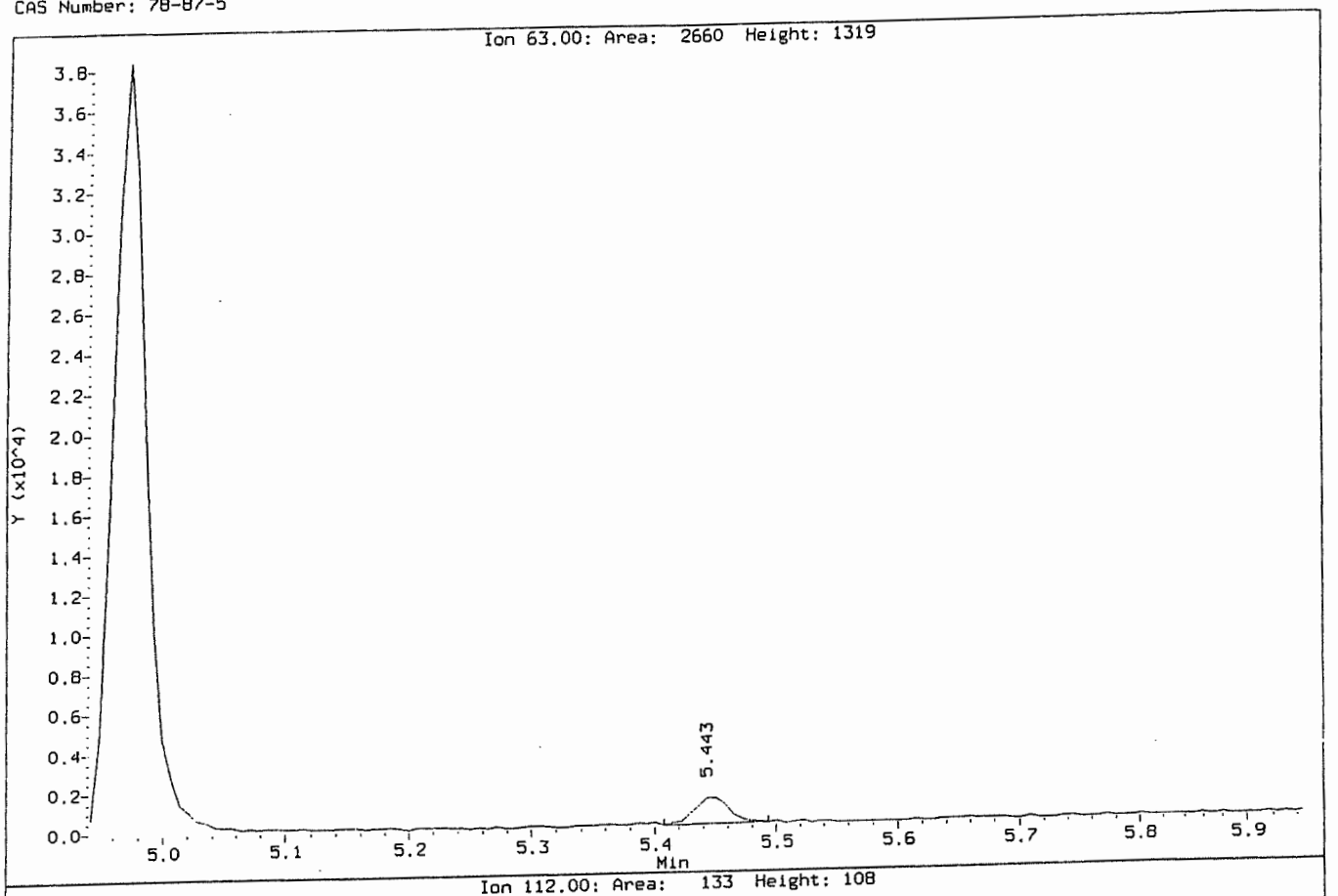
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

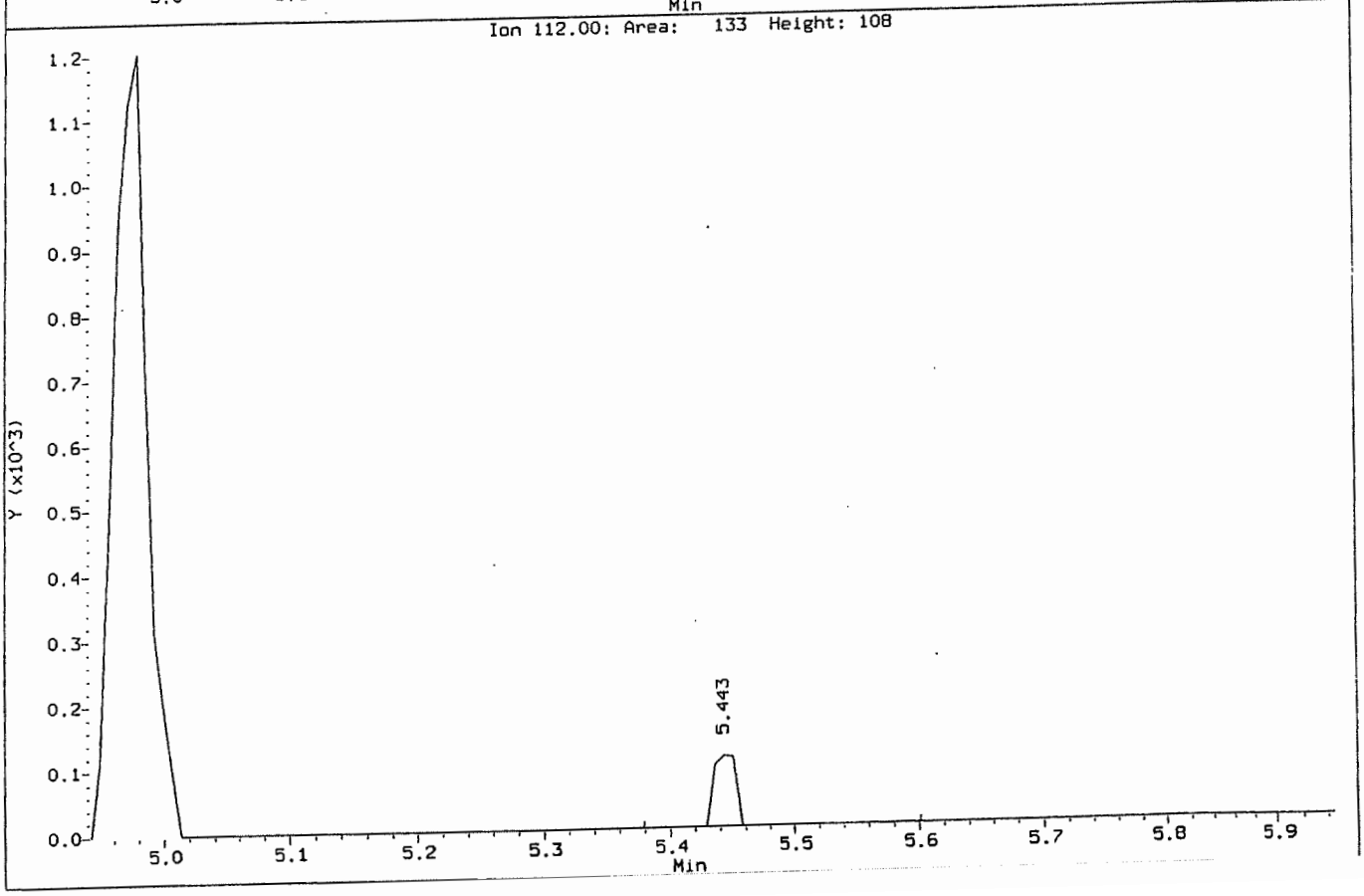




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

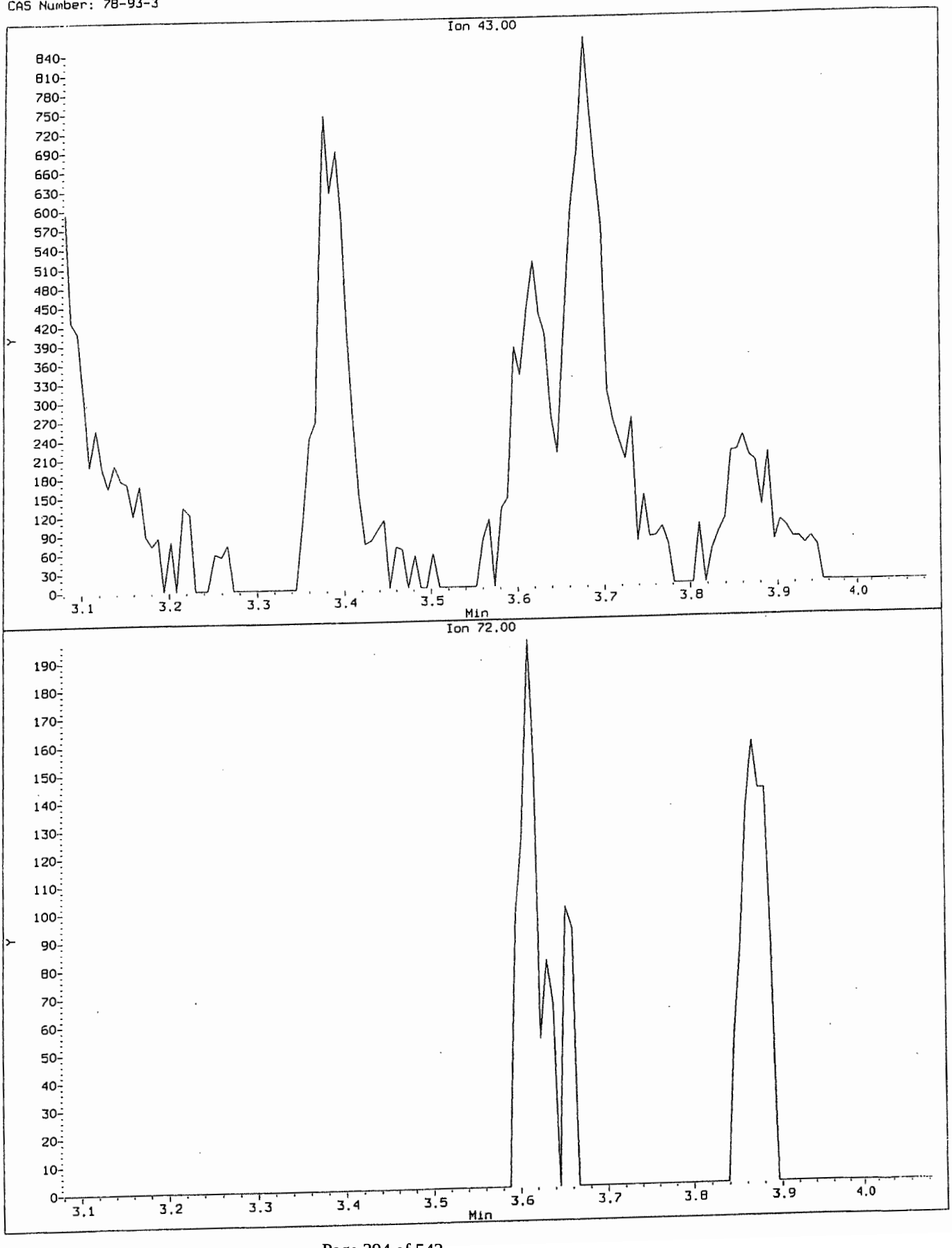
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





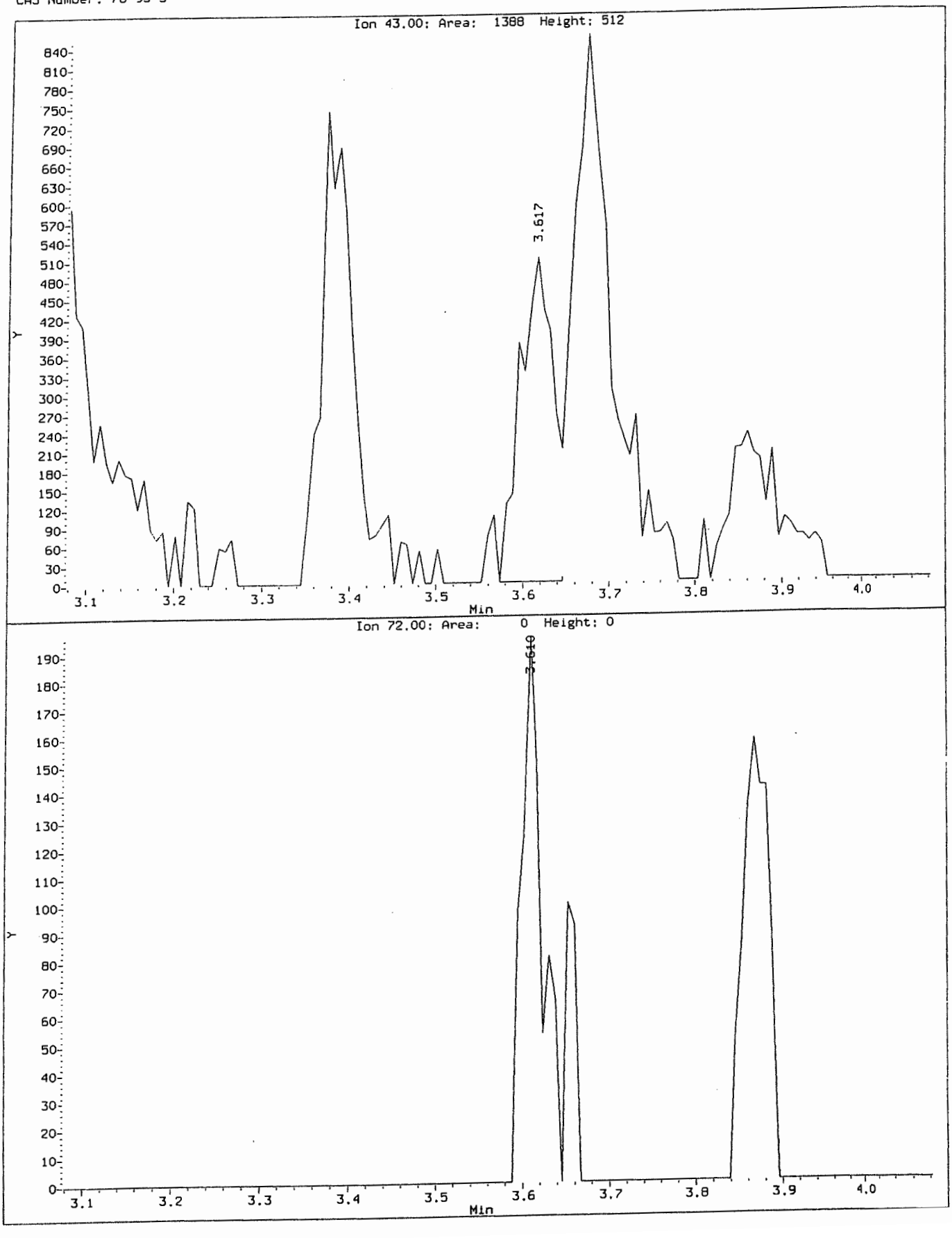
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 2-Butanone
CAS Number: 78-93-3



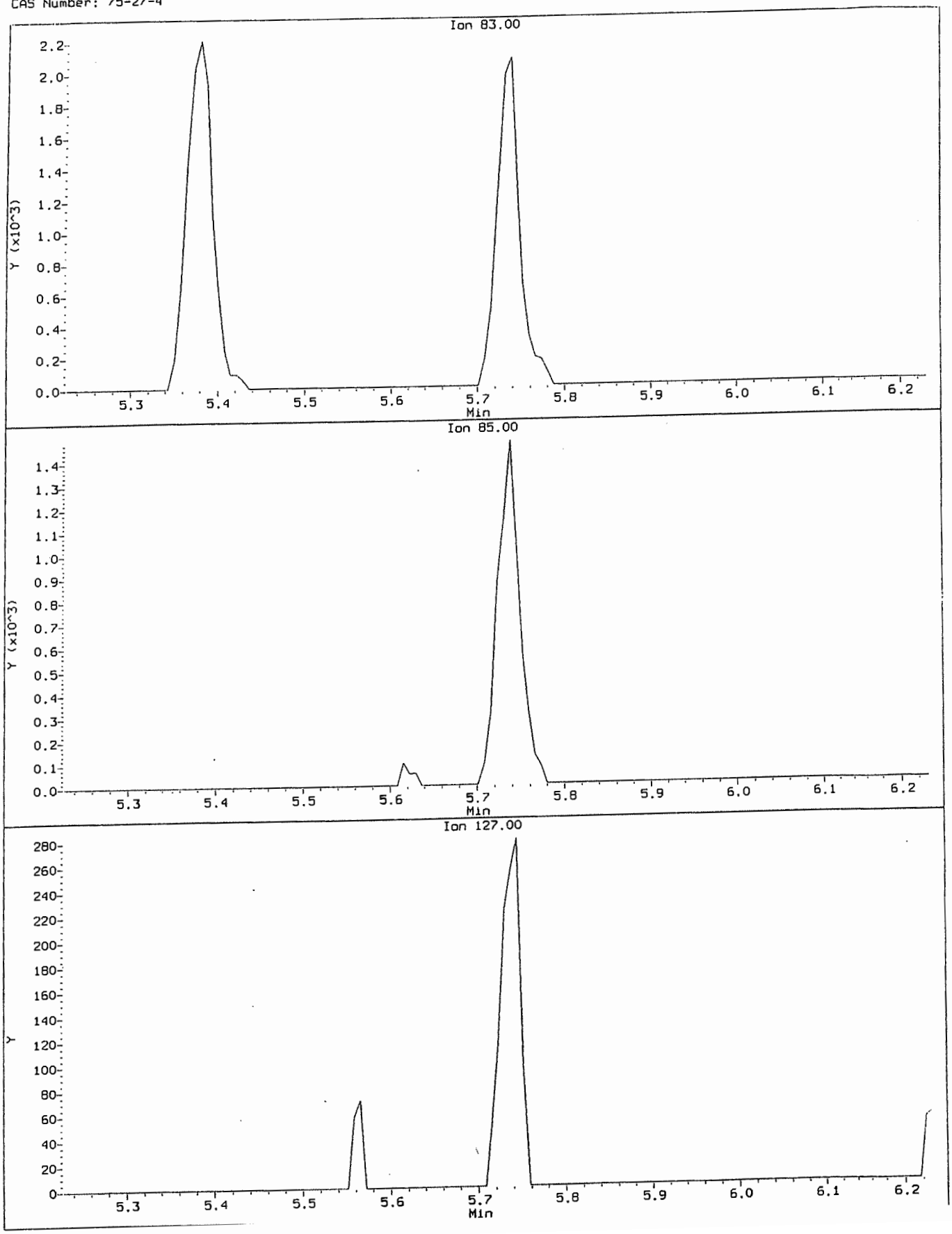
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 2-Butanone
CAS Number: 78-93-3



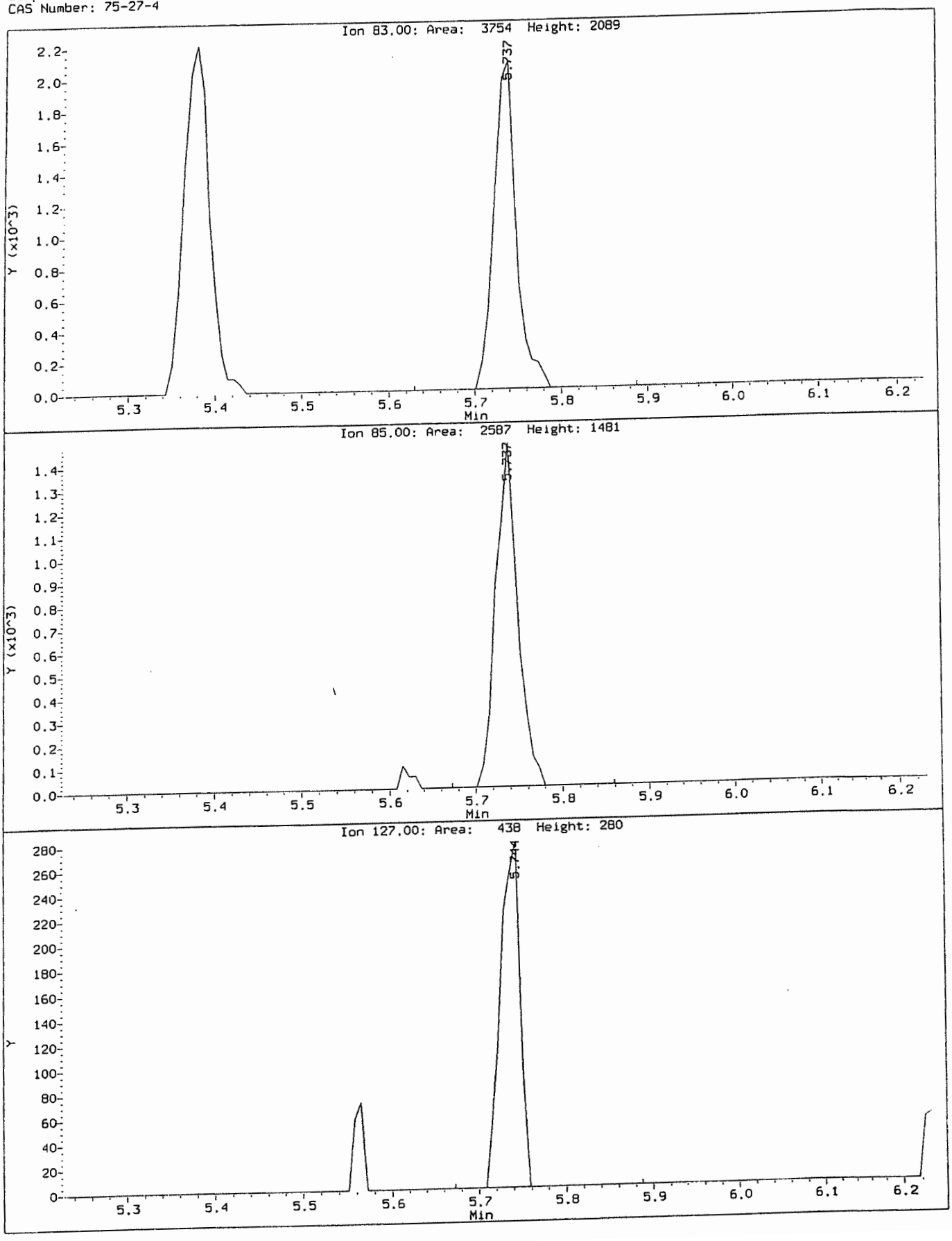
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



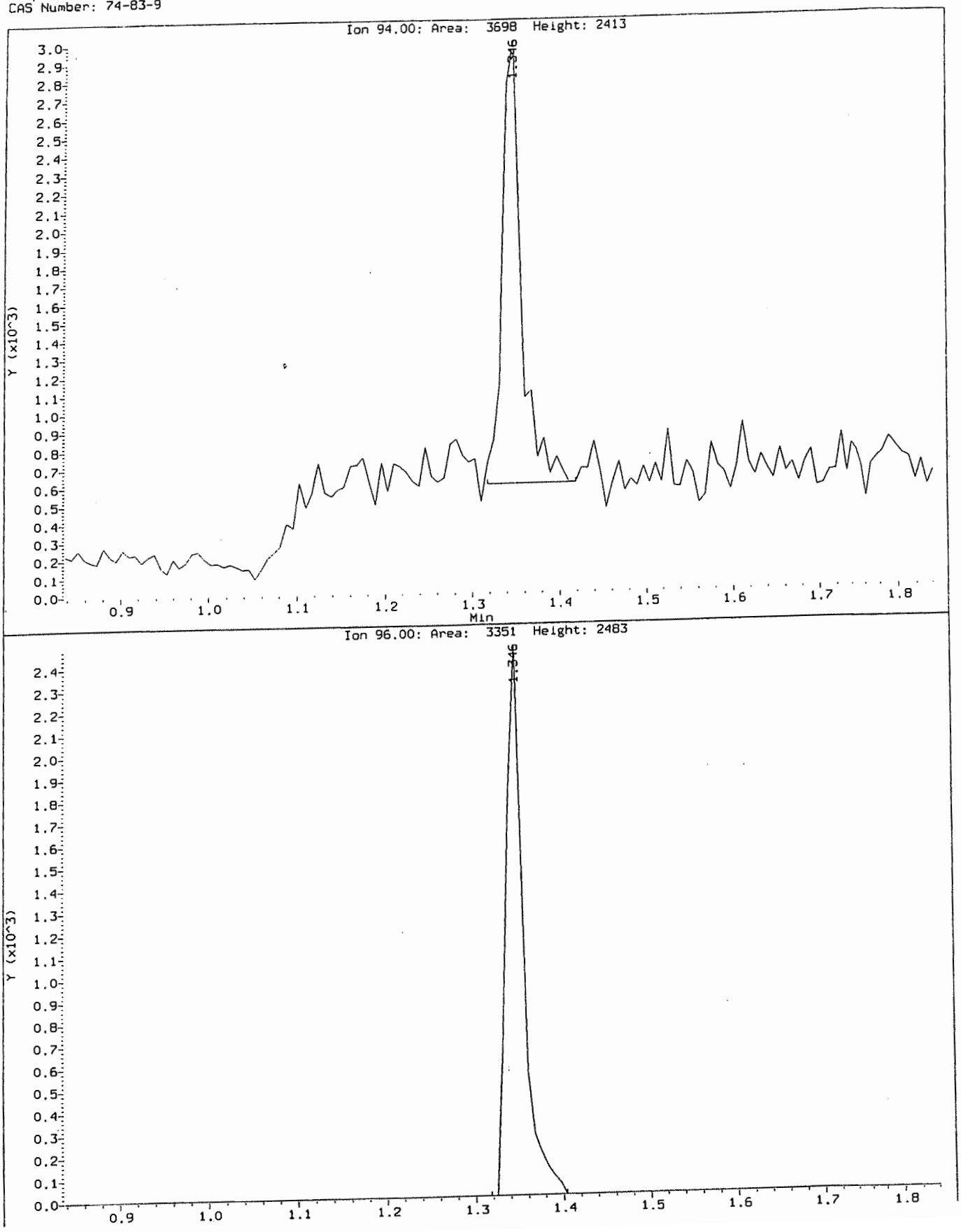
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



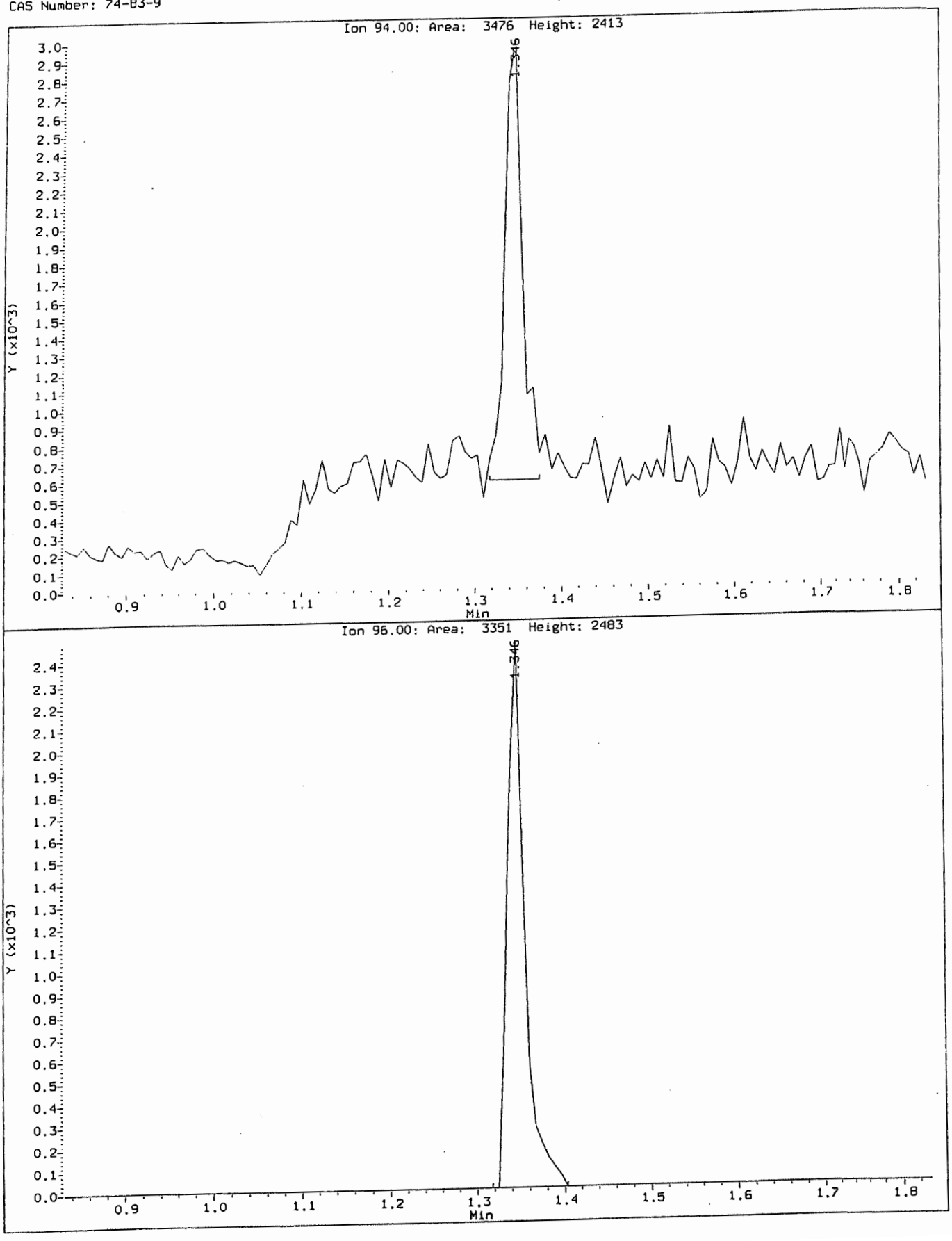
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromomethane
CAS Number: 74-83-9



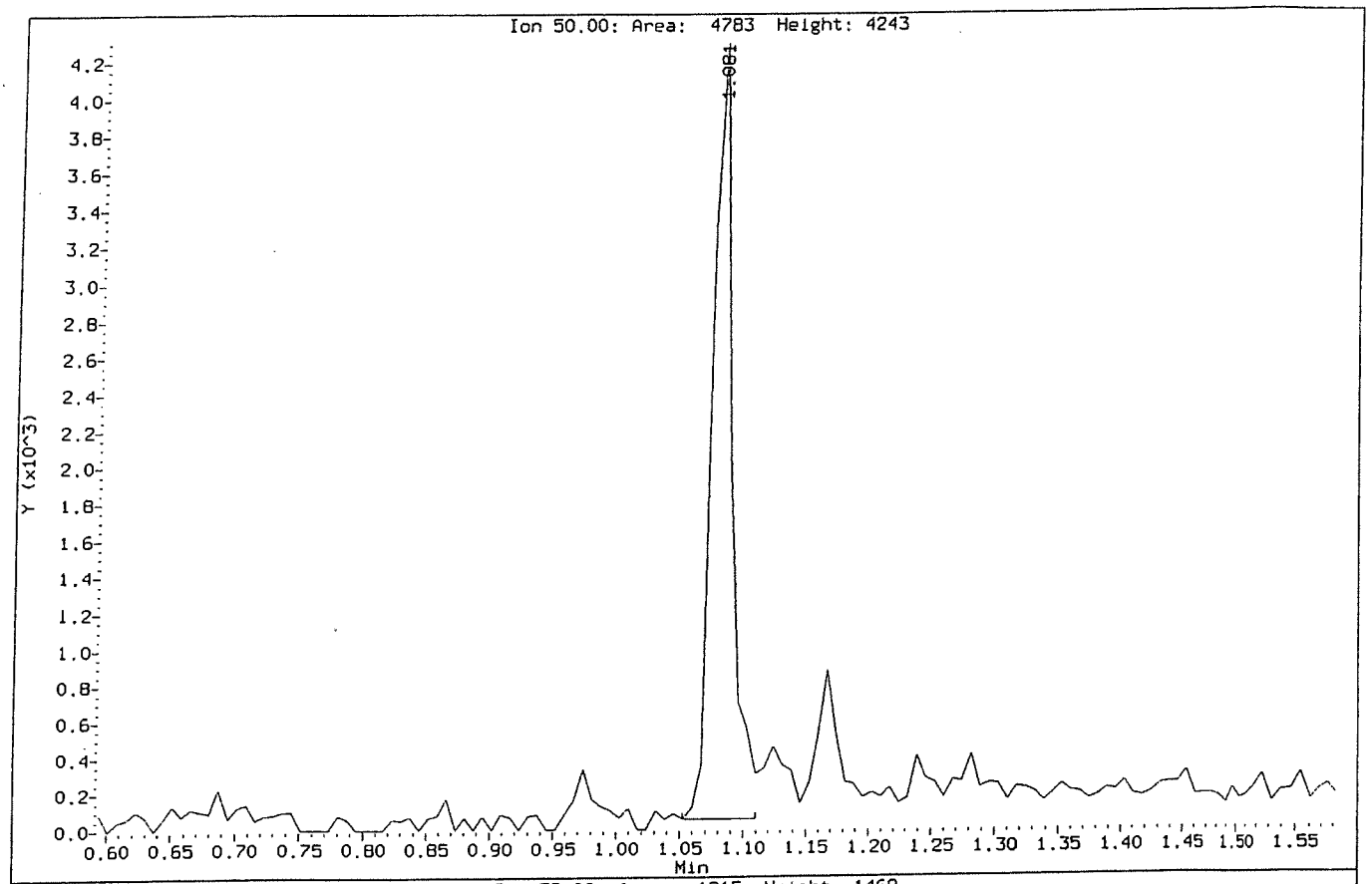
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

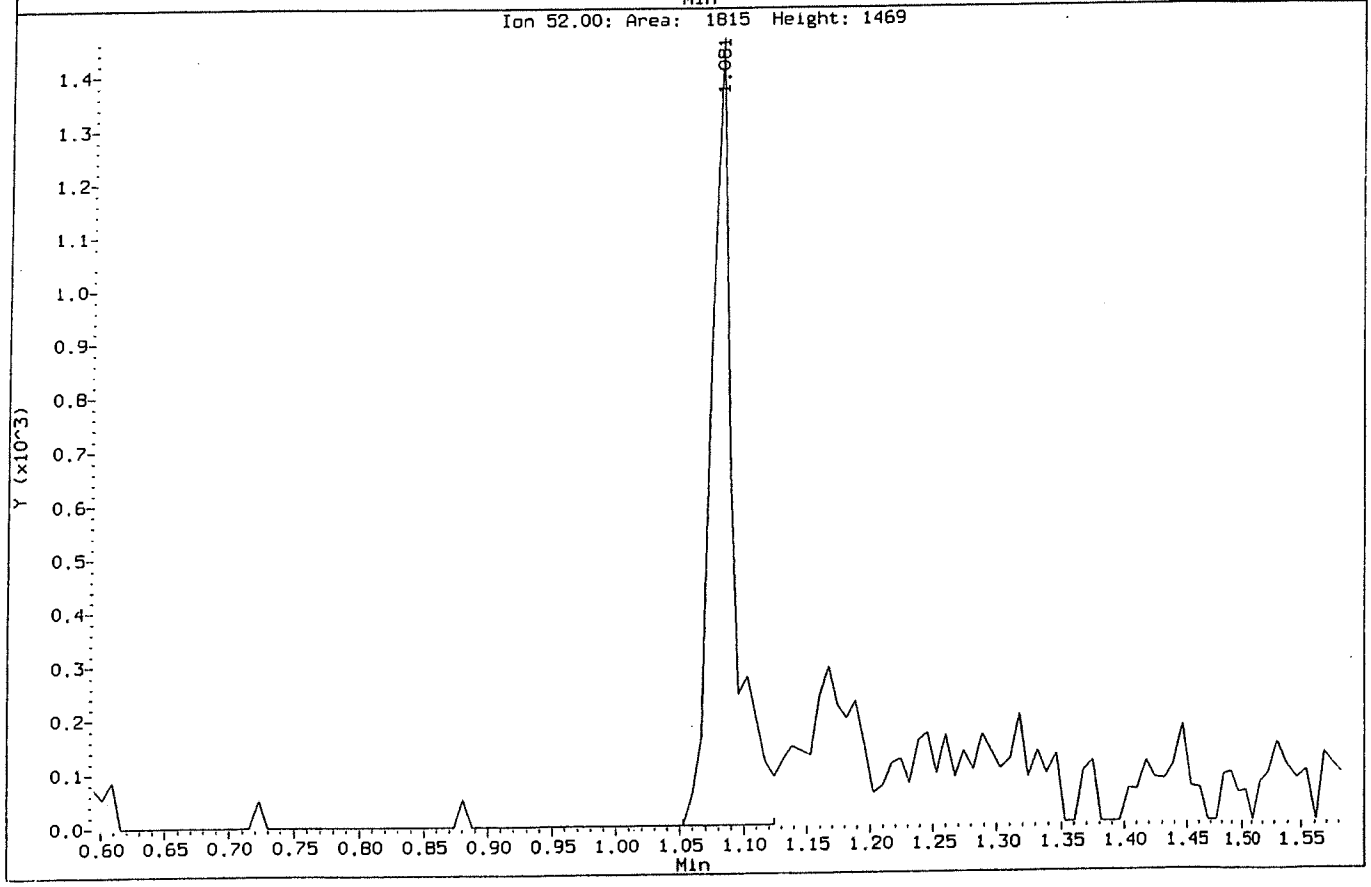
Compound: Bromomethane
CAS Number: 74-83-9



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

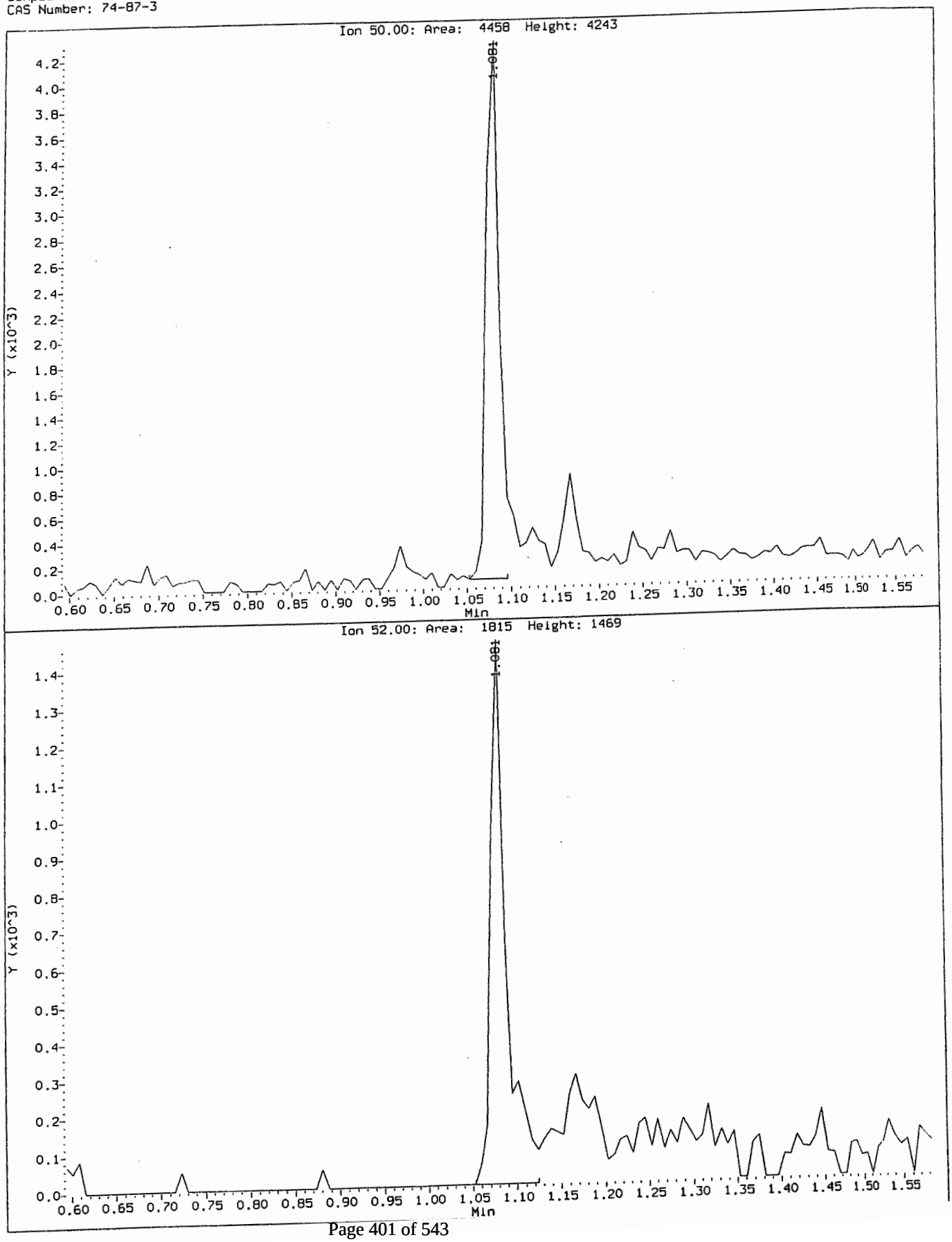
Compound: Chloromethane
CAS Number: 74-87-3





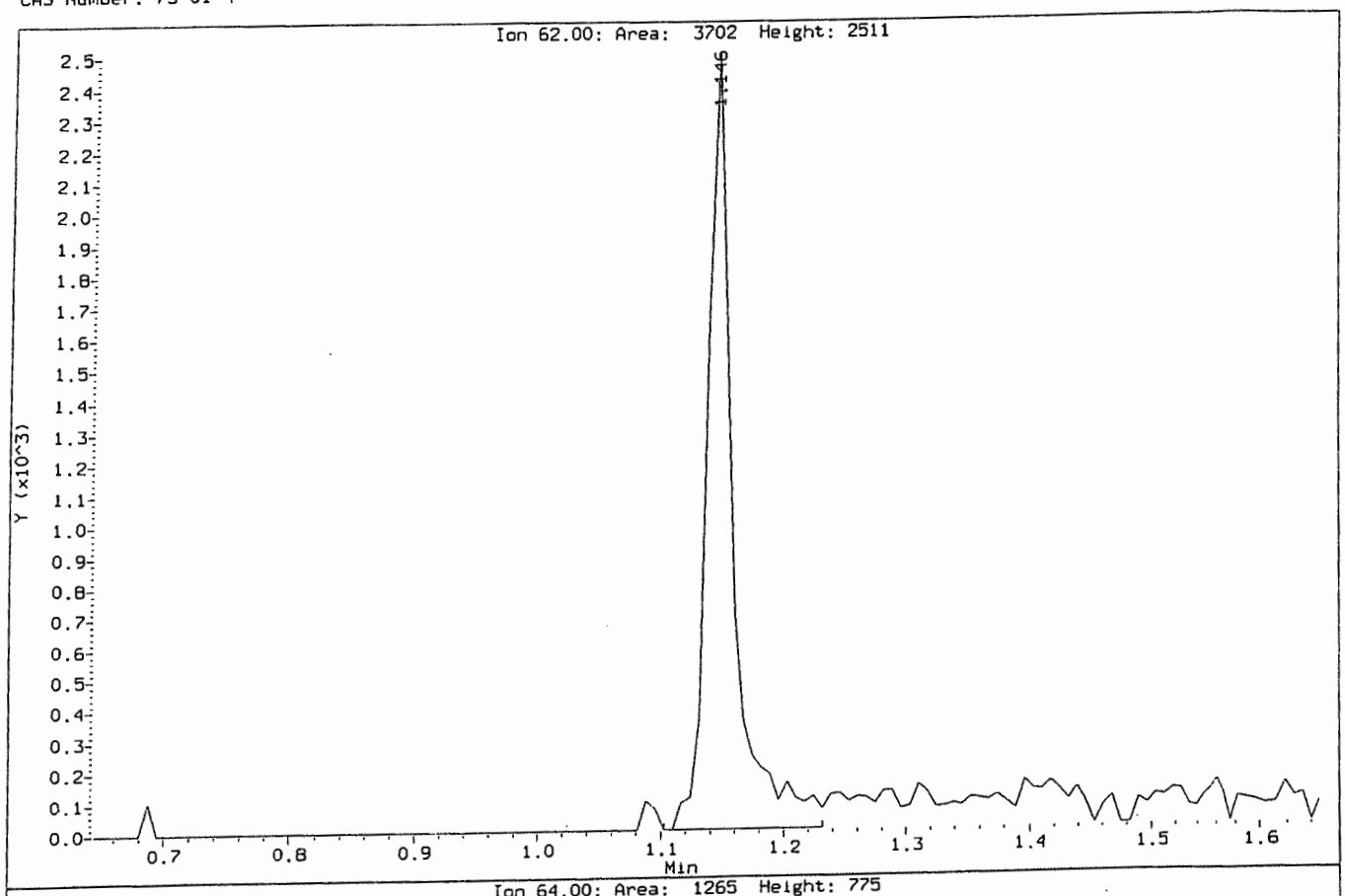
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

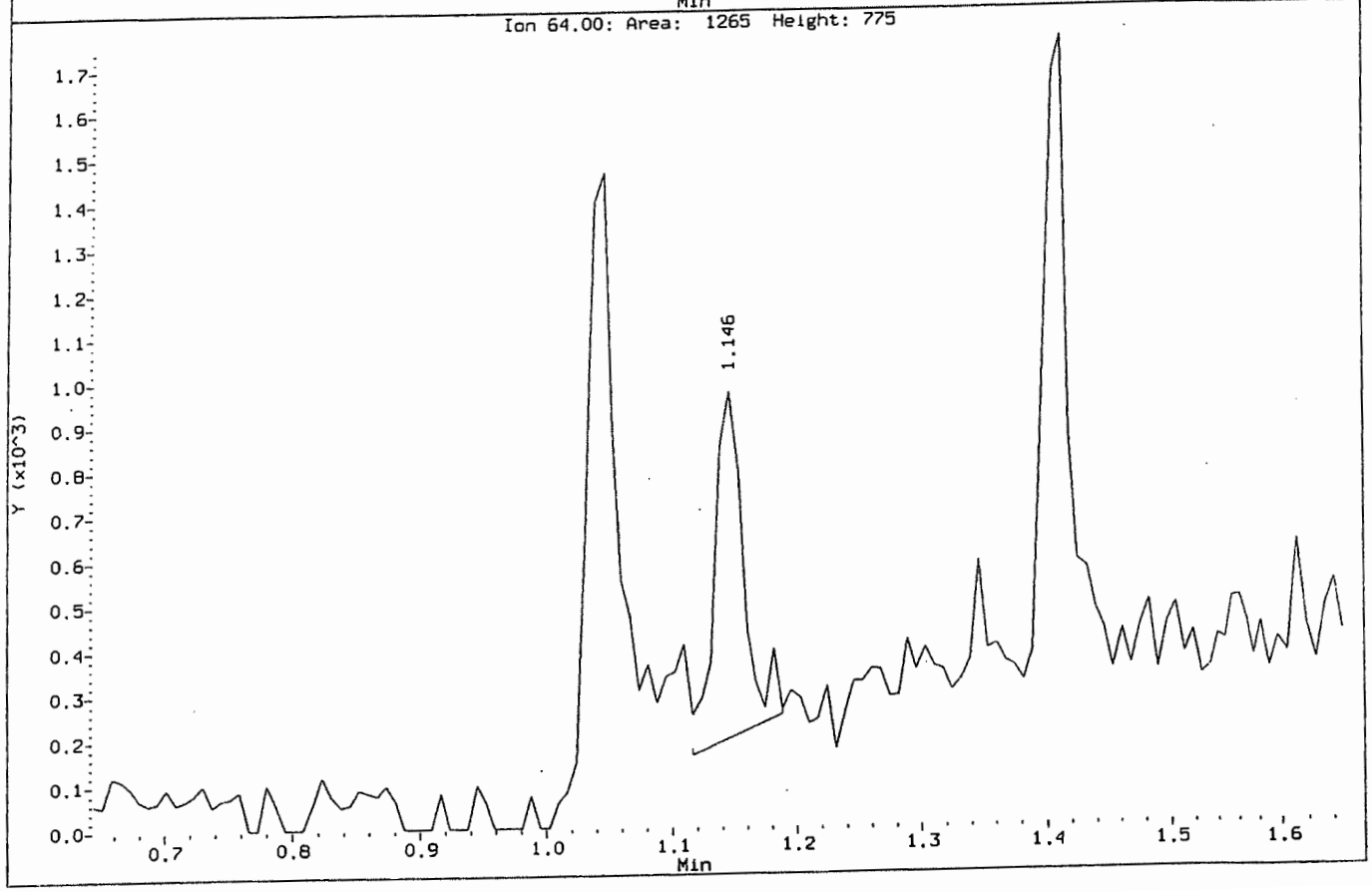
Compound: Chloromethane
CAS Number: 74-87-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

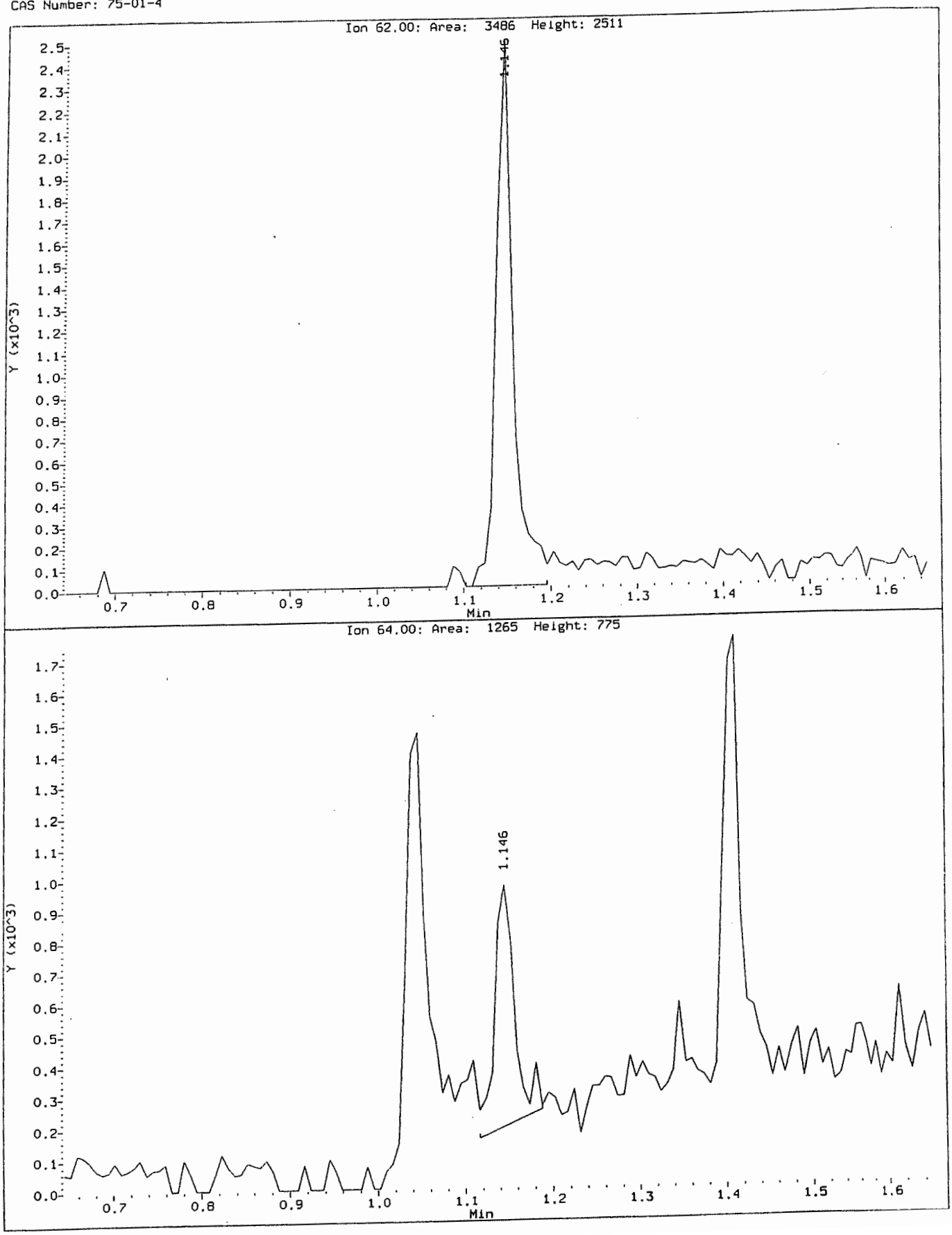
Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 13-MAY-2019 12:57
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:57 Cal File: X051305.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	336590	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	454217	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	422960	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	237025	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	6793	2.00000	2.13(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8070	2.00000	1.71(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	6109	2.00000	1.75(a)
$	48 Toluene-d8	98	6.396	6.388	(0.834)	21875	2.00000	1.57(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	6140	2.00000	1.86(a)
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	8721	2.00000	1.95(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6256	2.00000	1.93(a)
	138 Freon TF	101	1.919	1.919	(0.458)	5416	2.00000	2.94(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4275	2.00000	1.97(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	9725	2.00000	2.04(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4908	2.00000	1.86(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	7510	2.00000	1.98(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3642	2.00000	2.60(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	6967	2.00000	1.88(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	6157	2.00000	1.76(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	22295	2.00000	1.97(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	940	2.00000	1.81(a)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.948)	5474	2.00000	1.84(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	13318	2.00000	1.94(a)

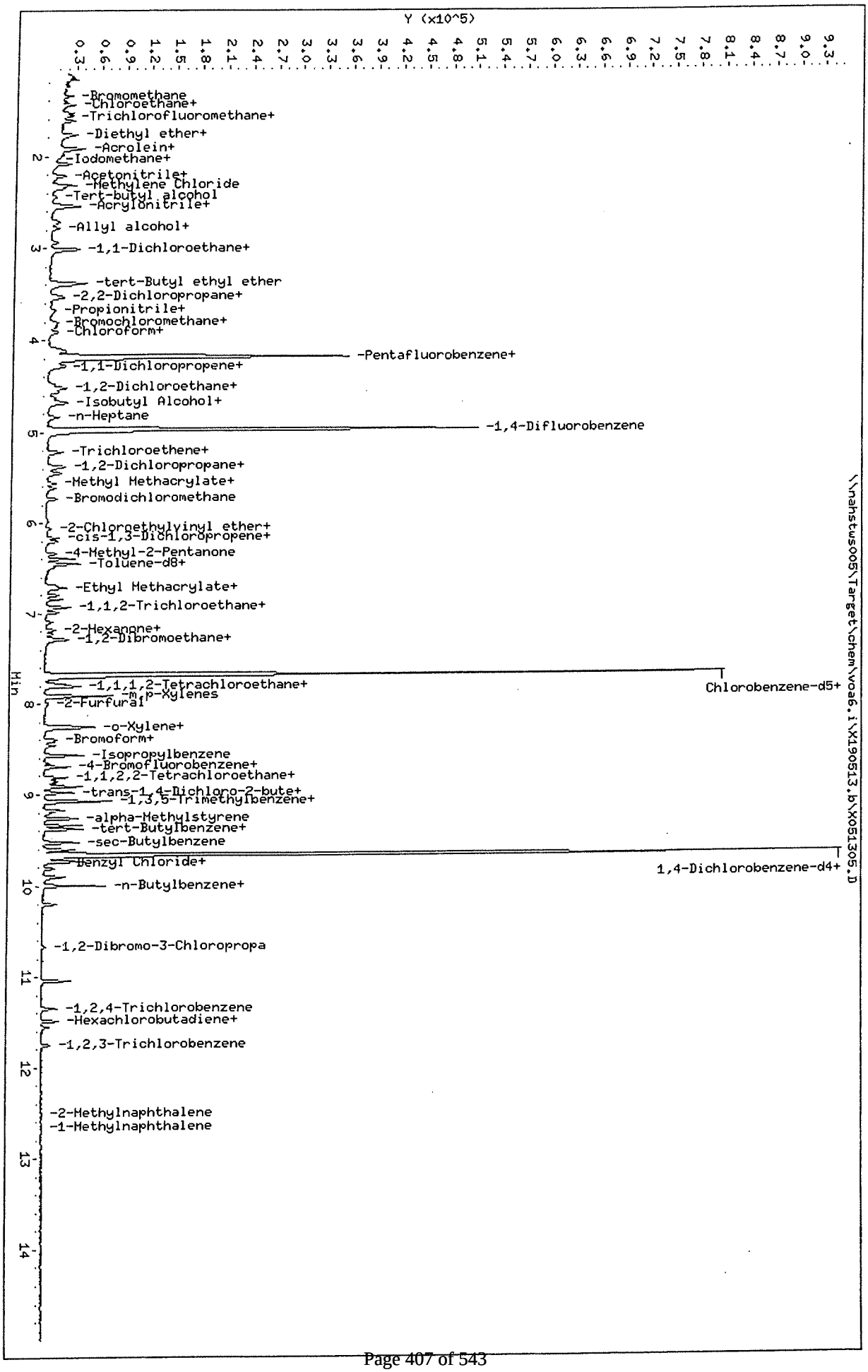
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

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)	7487	2.00000	1.95(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	5499	2.00000	2.07(aM)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	21457	2.00000	1.99(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	14323	2.00000	1.96(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	8704	2.00000	1.99(a)
84 1,4-Dichlorobenzene	146	9.684	9.683	(1.001)	13952	2.00000	1.90(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	9260	2.00000	2.20(a)
24 2-Butanone	43	3.602	3.581	(0.860)	2801	4.00000	3.49(aM)
76 2-Chlorotoluene	91	8.982	8.981	(0.929)	17473	2.00000	1.99(a)
52 2-Hexanone	43	7.098	7.090	(0.925)	5786	4.00000	3.92(a)
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	19468	2.00000	1.91(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	22940	2.00000	1.97(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	8131	4.00000	3.79(a)
10 Acetone	43	1.976	1.976	(0.472)	4305	4.00000	4.30(a)
37 Benzene	78	4.519	4.519	(0.909)	21199	2.00000	1.93(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	8824	2.00000	1.99(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	4001	2.00000	2.17(a)
39 Bromodichloromethane	83	5.737	5.729	(1.154)	7354	2.00000	1.93(a)
66 Bromoform	173	8.416	8.416	(1.097)	4068	2.00000	1.64(Ta)
6 Bromomethane	94	1.346	1.339	(0.321)	6441	2.00000	3.17(a)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	28853	4.00000	3.80(a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	8060	2.00000	1.91(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	16936	2.00000	2.00(a)
7 Chloroethane	64	1.410	1.403	(0.337)	3713	2.00000	1.93(a)
28 Chloroform	83	3.917	3.917	(0.935)	10007	2.00000	1.96(a)
3 Chloromethane	50	1.081	1.081	(0.258)	8492	2.00000	0.11(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	6292	2.00000	1.91(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8666	2.00000	1.91(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	5957	2.00000	1.75(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	3766	2.00000	1.97(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	5725	2.00000	2.53(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	8423	2.00000	1.93(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	3941	2.00000	1.89(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	26124	2.00000	2.01(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	20416	4.00000	3.88(a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	7584	2.00000	2.09(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	18266	2.00000	1.98(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	29163	2.00000	2.00(a)
92 Naphthalene	128	11.553	11.546	(1.195)	8910	2.00000	1.79(a)
63 o-Xylene	106	8.244	8.244	(1.075)	10049	2.00000	1.95(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	25351	2.00000	2.00(a)
64 Styrene	104	8.265	8.265	(1.078)	17337	2.00000	1.92(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	18653	2.00000	2.00(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	6434	2.00000	2.06(a)
50 Toluene	91	6.453	6.453	(0.841)	24123	2.00000	1.94(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	5545	2.00000	2.01(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	7344	2.00000	1.85(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	6876	2.00000	1.95(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	9638	2.00000	1.92(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	5938	2.00000	1.93(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

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.



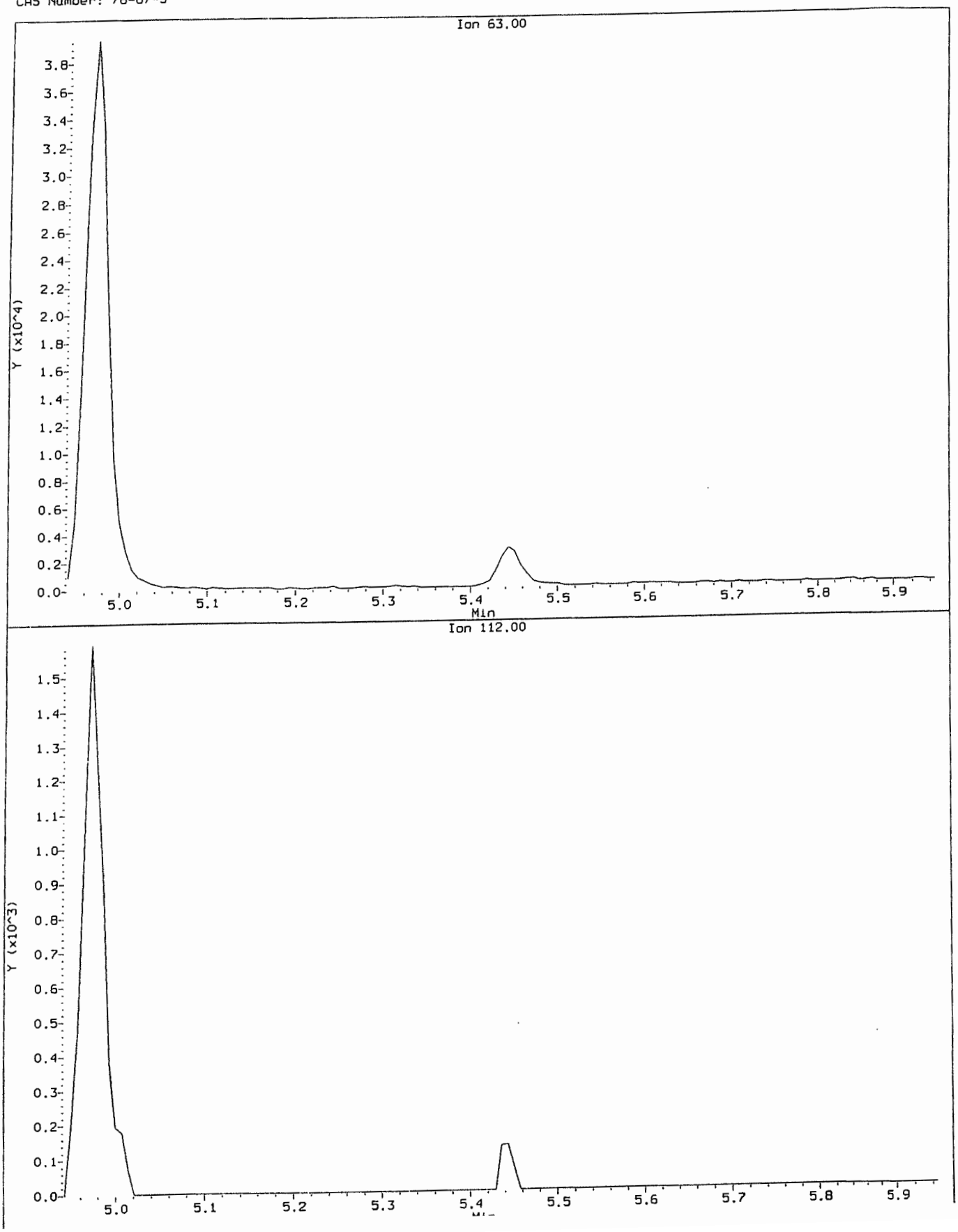
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Date : 13-MAY-2019 12:57
Client ID: VSTD002
Sample Info: VSTD002;VSTD002;1;4;
Purge Volume: 5.0
Column phase: DB624

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

\\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D

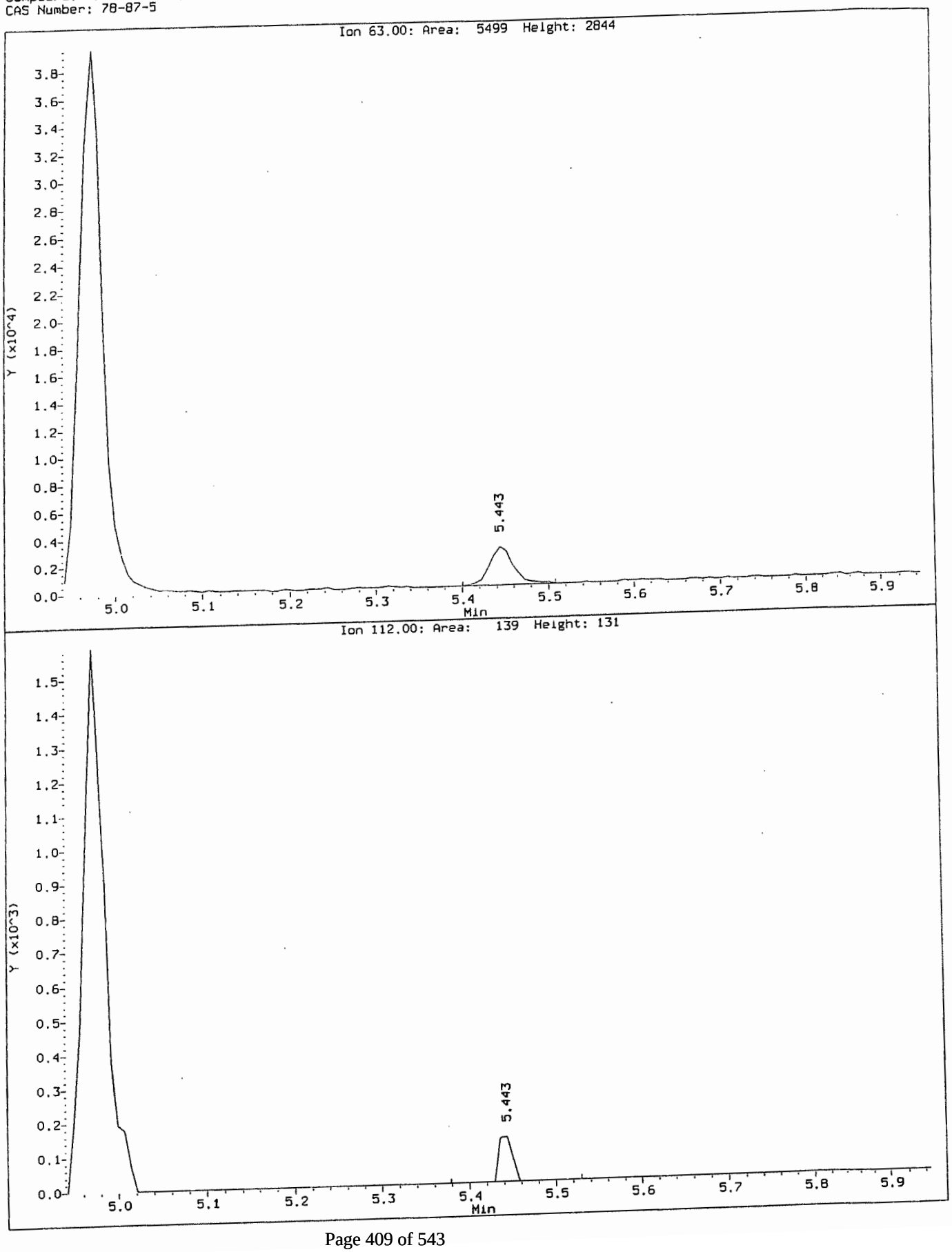
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



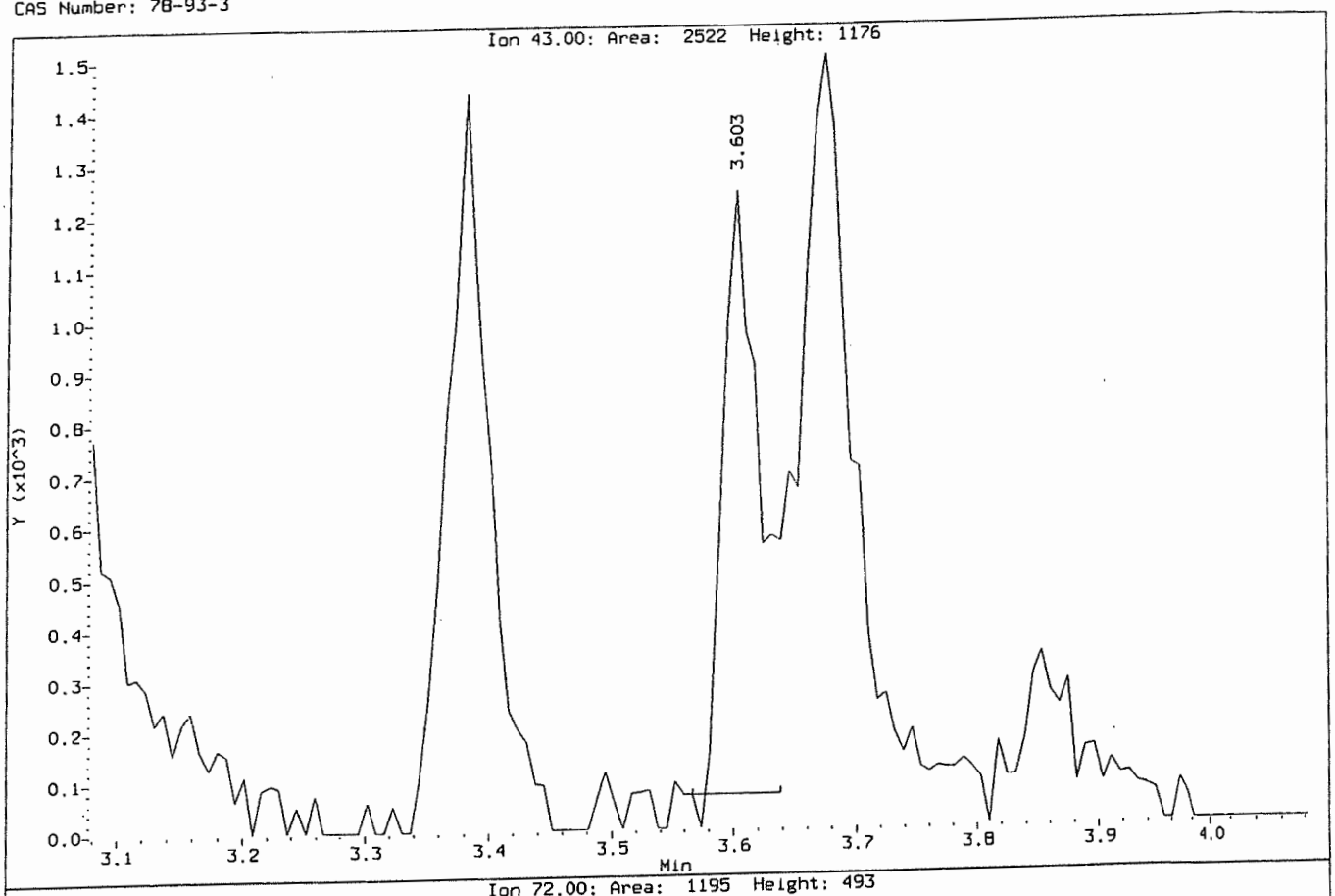
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

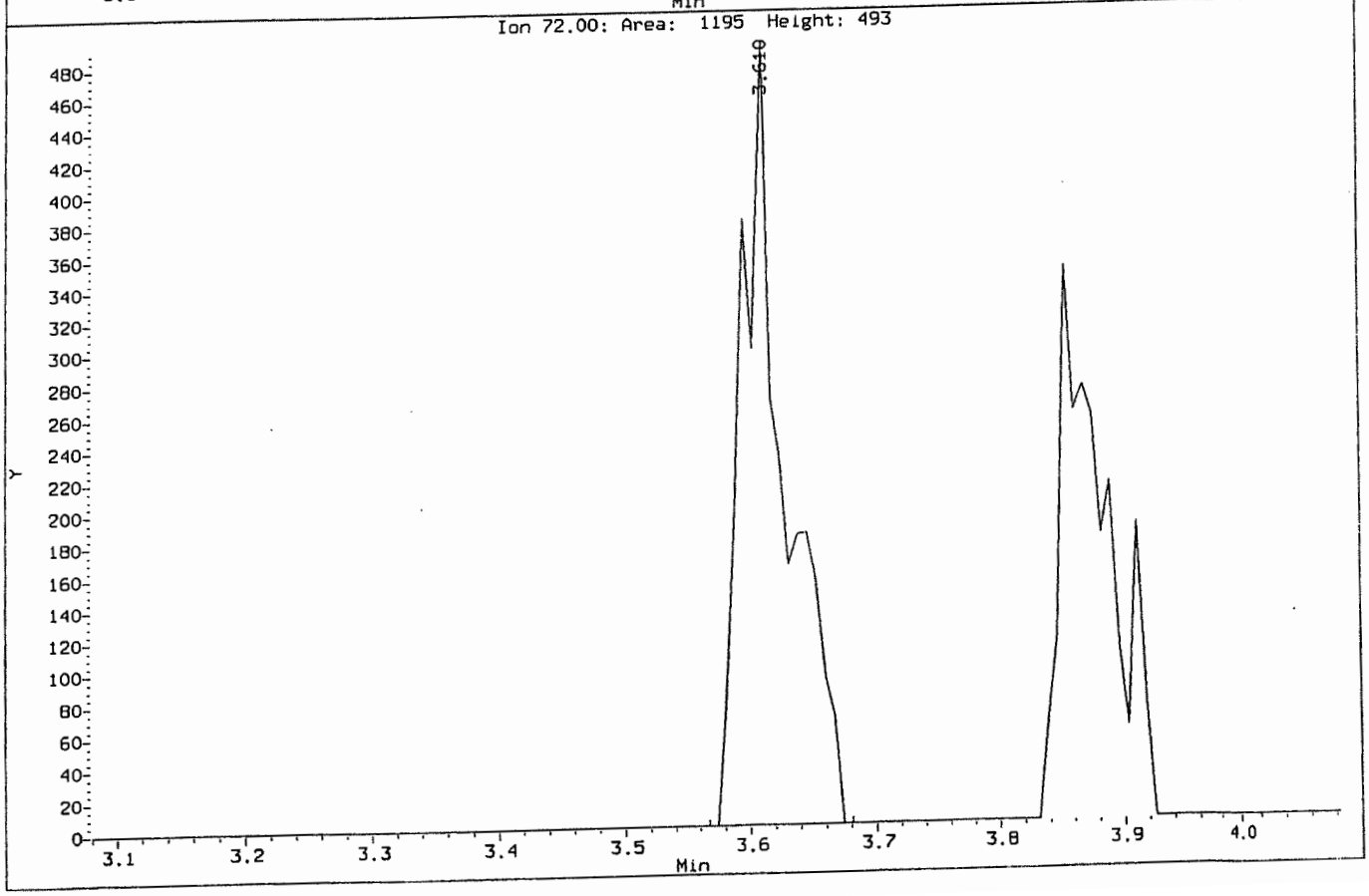
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

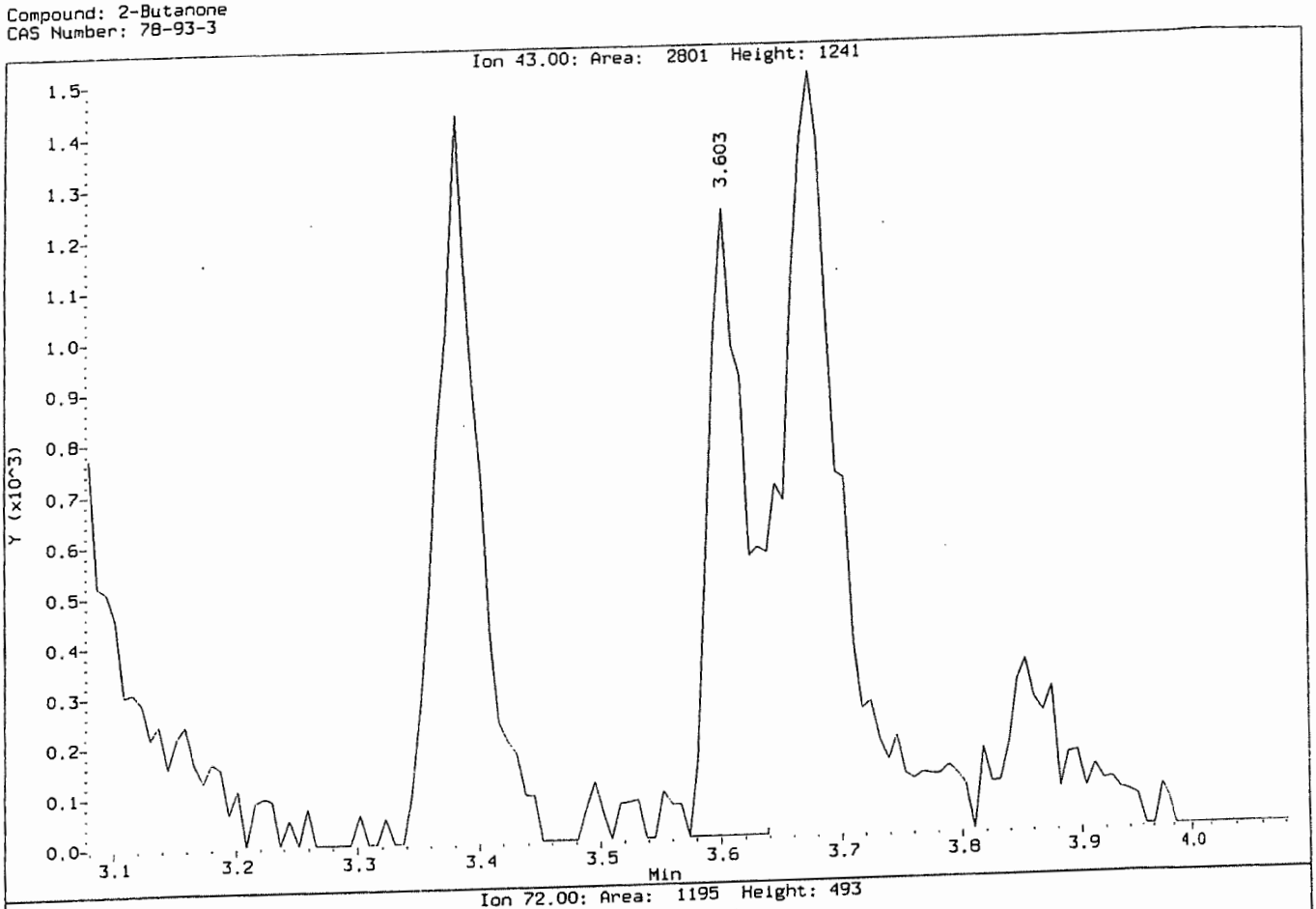
Compound: 2-Butanone
CAS Number: 78-93-3

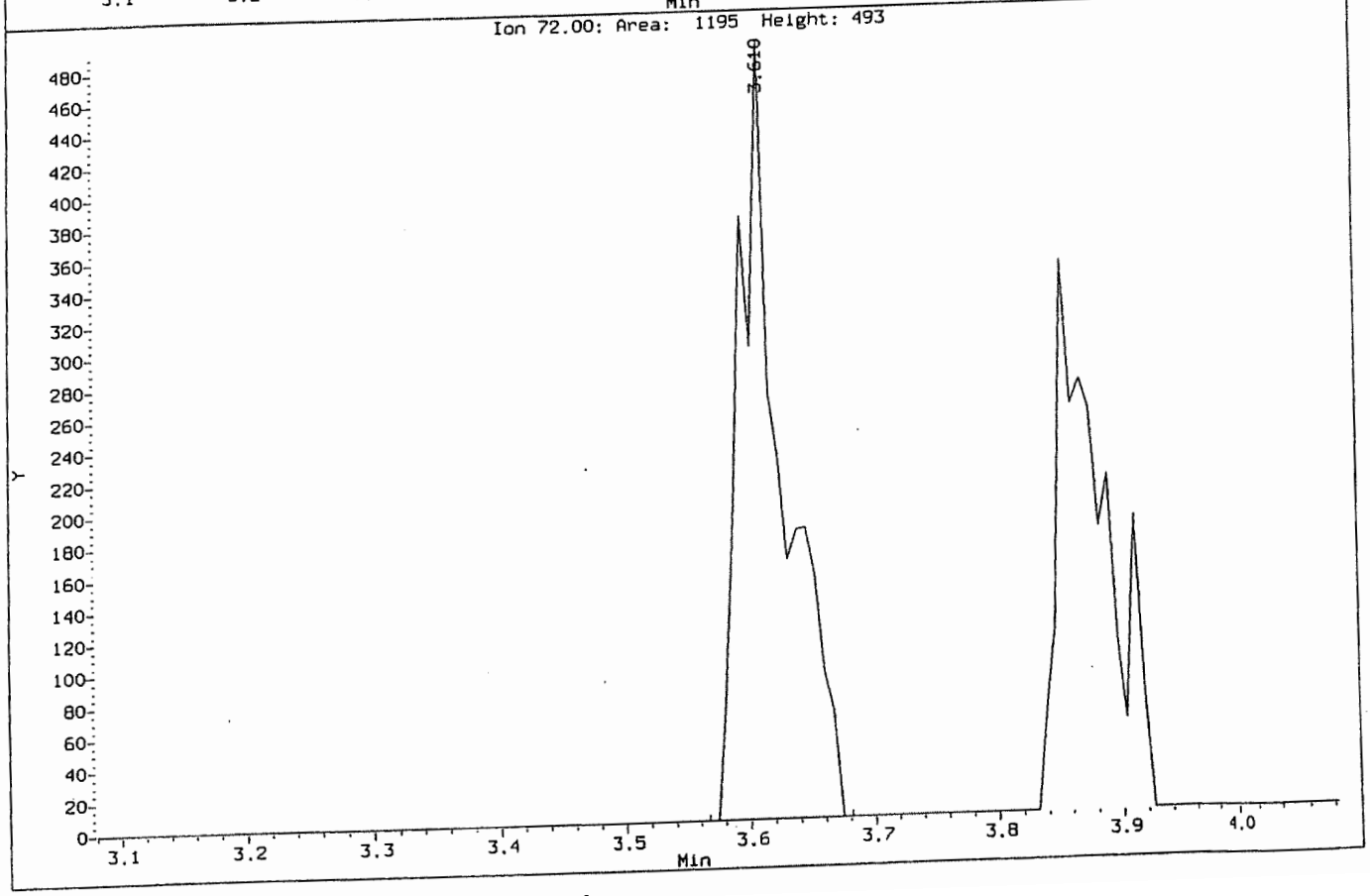




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 2-Butanone
CAS Number: 78-93-3





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 13-MAY-2019 13:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:21 Cal File: X051306.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324585	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436431	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	402955	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	223443	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	14382	5.00000	4.89(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	18579	5.00000	4.97(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	15275	5.00000	5.13
$	48 Toluene-d8	98	6.388	6.388	(0.833)	51458	5.00000	4.73(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	14863	5.00000	4.72(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	20850	5.00000	4.85(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	15131	5.00000	4.96(a)
	138 Freon TF	101	1.919	1.919	(0.458)	11785	5.00000	5.58
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10440	5.00000	5.05
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	21478	5.00000	4.69(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11459	5.00000	4.51(a)
	32 1,1-Dichloropropene	75	4.283	4.290	(0.862)	16303	5.00000	4.49(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	9007	5.00000	5.60
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	16814	5.00000	4.82(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	14864	5.00000	4.51(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	51976	5.00000	4.88(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2301	5.00000	4.71(a)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	13618	5.00000	4.82(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	31085	5.00000	4.81(a)

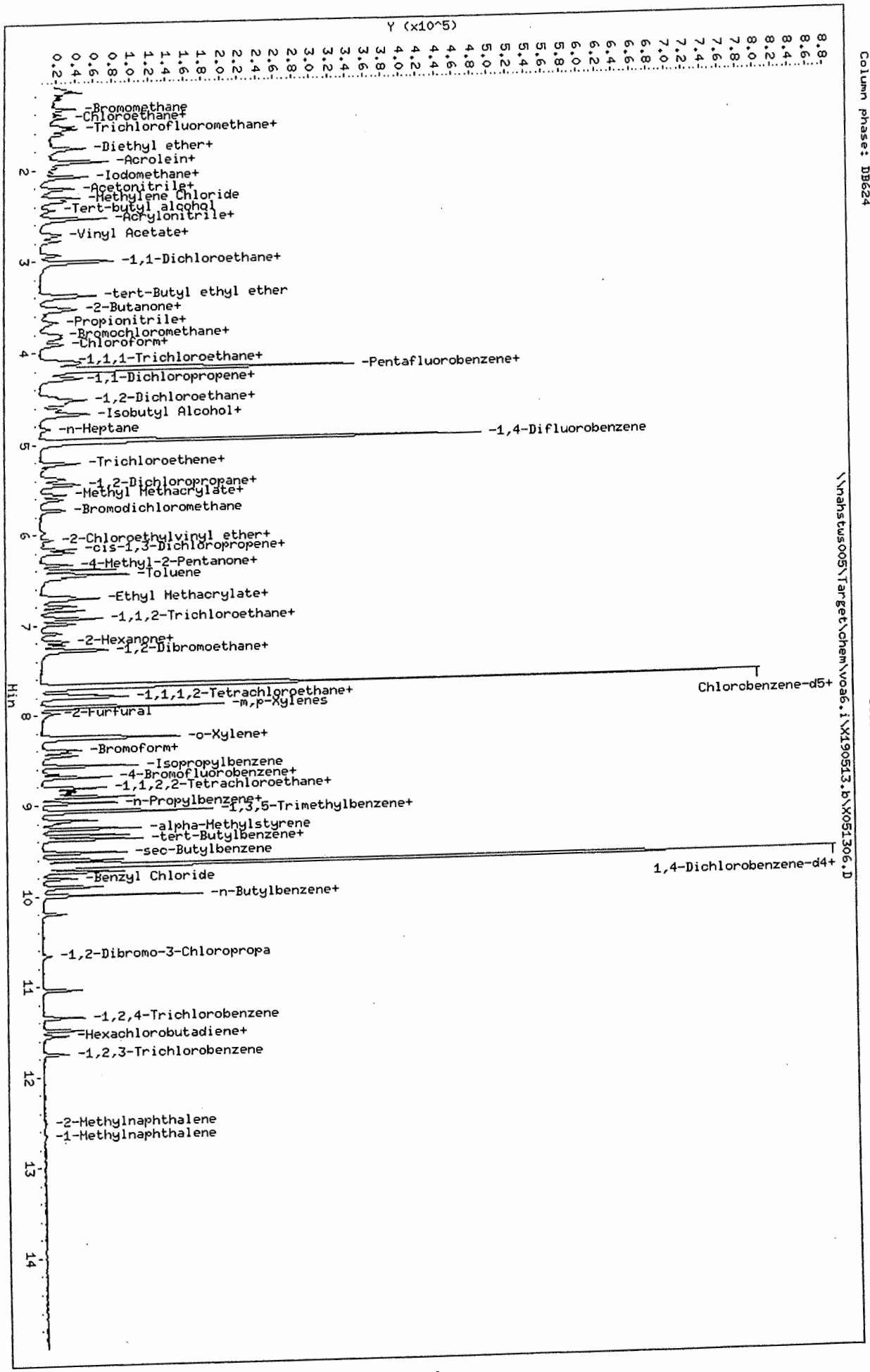
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

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)	17311	5.00000	4.71(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	12106	5.00000	4.75(a)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	48243	5.00000	4.75(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	32676	5.00000	4.75(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	20732	5.00000	4.97(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	33108	5.00000	4.78(a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	18793	5.00000	4.63(a)
24 2-Butanone	43	3.588	3.581	(0.856)	7300	10.0000	9.43
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	38371	5.00000	4.64(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	13397	10.0000	9.54
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	45182	5.00000	4.71(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	50199	5.00000	4.57(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	19592	10.0000	9.58
10 Acetone	43	1.976	1.976	(0.472)	8696	10.0000	10.96
37 Benzene	78	4.519	4.519	(0.909)	49788	5.00000	4.72(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	20106	5.00000	4.82(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	8842	5.00000	5.05
39 Bromodichloromethane	83	5.737	5.729	(1.154)	17064	5.00000	4.66(a)
66 Bromoform	173	8.416	8.416	(1.097)	10950	5.00000	4.65(a)
6 Bromomethane	94	1.346	1.339	(0.321)	14764	5.00000	6.04
19 Carbon Disulfide	76	2.076	2.076	(0.496)	66015	10.0000	9.02
34 Carbon Tetrachloride	117	4.268	4.275	(0.859)	17860	5.00000	4.42(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	38992	5.00000	4.85(a)
7 Chloroethane	64	1.403	1.403	(0.335)	9030	5.00000	4.87(a)
28 Chloroform	83	3.917	3.917	(0.935)	23515	5.00000	4.79(a)
3 Chloromethane	50	1.081	1.081	(0.258)	19144	5.00000	3.58(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	15135	5.00000	4.78(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	20875	5.00000	4.80(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	14546	5.00000	4.49(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	8994	5.00000	4.89(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	12226	5.00000	4.90(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	19652	5.00000	4.72(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	8648	5.00000	4.40(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	58617	5.00000	4.75(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	48815	10.0000	9.75
17 Methylene Chloride	84	2.313	2.306	(0.552)	15292	5.00000	5.06
87 n-Butylbenzene	91	9.999	9.999	(1.034)	39856	5.00000	4.58(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	64885	5.00000	4.72(a)
92 Naphthalene	128	11.546	11.546	(1.194)	21563	5.00000	4.61(a)
63 o-Xylene	106	8.244	8.244	(1.075)	24009	5.00000	4.90(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	54917	5.00000	4.59(a)
64 Styrene	104	8.265	8.265	(1.078)	41545	5.00000	4.85(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	40573	5.00000	4.61(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	13854	5.00000	4.67(a)
50 Toluene	91	6.453	6.453	(0.841)	56231	5.00000	4.76(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	12329	5.00000	4.64(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	17740	5.00000	4.67(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	16216	5.00000	4.79(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	21396	5.00000	4.43(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	12897	5.00000	4.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Date : 13-MAY-2019 13:21
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
\\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Y (x10^5)
Hin
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 13-MAY-2019 13:45
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:45 Cal File: X051307.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

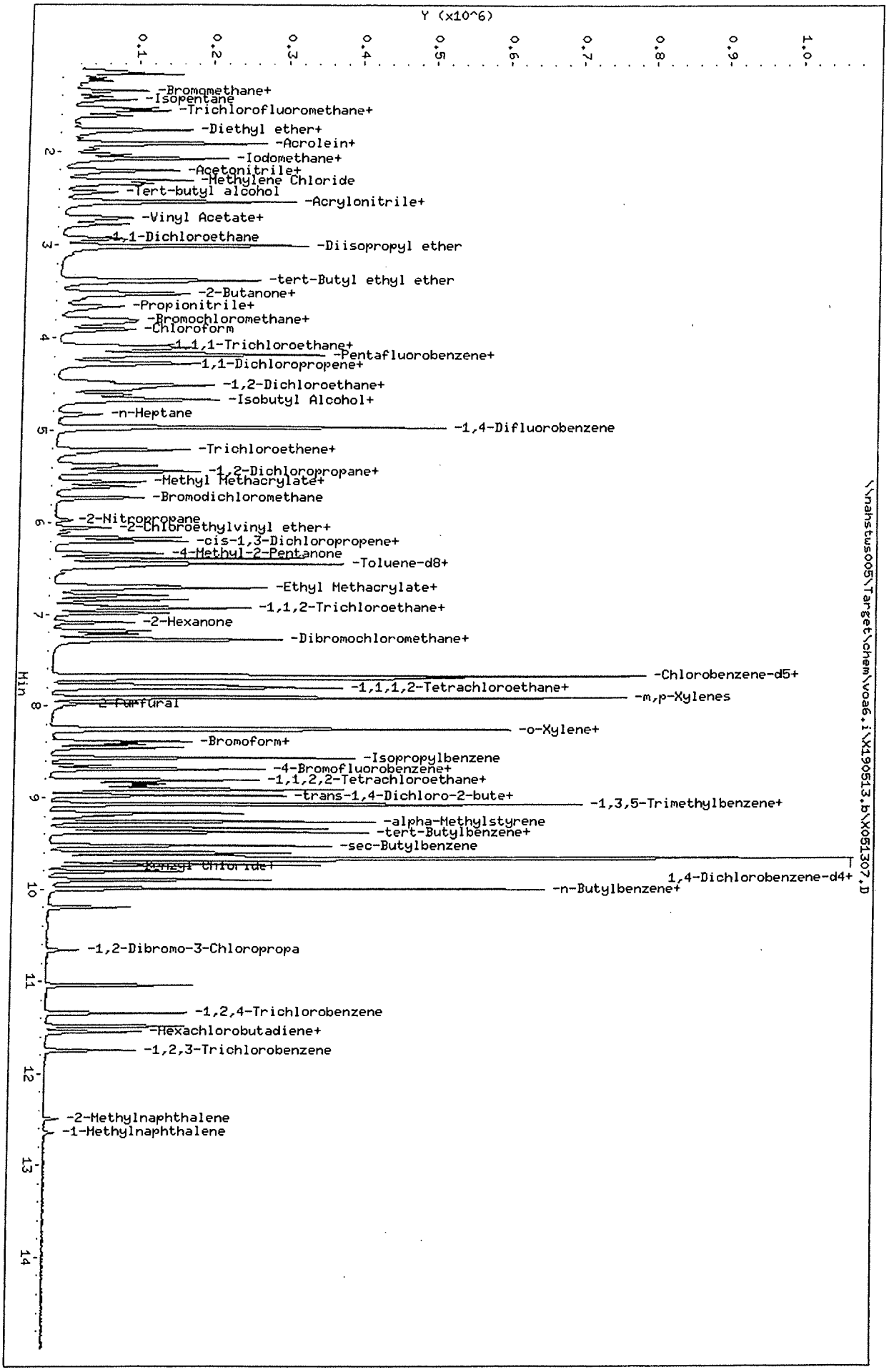
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	335326	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	443439	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	406589	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	228906	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	56761	20.0000	19.19
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	69486	20.0000	19.98
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	57130	20.0000	19.55
$	48 Toluene-d8	98	6.388	6.388	(0.833)	202820	20.0000	20.14
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	58332	20.0000	18.38
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	82433	20.0000	18.56
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	60222	20.0000	19.30
	138 Freon TF	101	1.919	1.919	(0.458)	47474	20.0000	19.22
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	40688	20.0000	19.53
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	87365	20.0000	18.48
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	48461	20.0000	18.49
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	65531	20.0000	17.76
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	35984	20.0000	19.43
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	69145	20.0000	19.38
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	60996	20.0000	18.07
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	194727	20.0000	17.86
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	9949	20.0000	19.89
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	54190	20.0000	19.03
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	121292	20.0000	18.35

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

	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)	69224	20.0000	18.53
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	48958	20.0000	18.90
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	189002	20.0000	18.17
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	128382	20.0000	18.23
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	79936	20.0000	19.02
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	128527	20.0000	18.13
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	77380	20.0000	18.48
24	2-Butanone	43	3.580	3.581	(0.855)	32748	40.0000	40.96
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	153069	20.0000	18.08
52	2-Hexanone	43	7.090	7.090	(0.924)	53463	40.0000	37.74
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	173574	20.0000	17.69
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	200044	20.0000	17.81
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	79192	40.0000	38.41
10	Acetone	43	1.976	1.976	(0.472)	29211	40.0000	39.61
37	Benzene	78	4.519	4.519	(0.909)	199074	20.0000	18.59
74	Bromobenzene	156	8.810	8.810	(0.911)	79677	20.0000	18.67
29	Bromochloromethane	128	3.803	3.803	(0.908)	34144	20.0000	19.03
39	Bromodichloromethane	83	5.729	5.729	(1.153)	69363	20.0000	18.66
66	Bromoform	173	8.416	8.416	(1.097)	47140	20.0000	19.88
6	Bromomethane	94	1.346	1.339	(0.321)	52051	20.0000	18.00
19	Carbon Disulfide	76	2.076	2.076	(0.496)	278177	40.0000	36.81
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	73303	20.0000	17.87
59	Chlorobenzene	112	7.699	7.699	(1.004)	154044	20.0000	18.99
7	Chloroethane	64	1.403	1.403	(0.335)	34994	20.0000	18.28
28	Chloroform	83	3.917	3.917	(0.935)	95150	20.0000	18.77
3	Chloromethane	50	1.081	1.081	(0.258)	77890	20.0000	21.40
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	61324	20.0000	18.77
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	85647	20.0000	19.40
55	Dibromochloromethane	129	7.184	7.184	(0.937)	61054	20.0000	18.68
44	Dibromomethane	93	5.557	5.558	(1.118)	36222	20.0000	19.42
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	54883	20.0000	19.25
61	Ethylbenzene	106	7.807	7.807	(1.018)	77957	20.0000	18.59
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	36741	20.0000	18.28
67	Isopropylbenzene	105	8.566	8.566	(1.117)	221892	20.0000	17.82
62	m,p-Xylenes	106	7.907	7.907	(1.031)	186249	40.0000	36.88
17	Methylene Chloride	84	2.305	2.306	(0.550)	55968	20.0000	19.52
87	n-Butylbenzene	91	9.999	9.999	(1.034)	160071	20.0000	17.99
73	n-Propylbenzene	91	8.917	8.917	(0.922)	248854	20.0000	17.69
92	Naphthalene	128	11.546	11.546	(1.194)	87285	20.0000	18.25
63	o-Xylene	106	8.244	8.244	(1.075)	91643	20.0000	18.55
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	215560	20.0000	17.62
64	Styrene	104	8.265	8.265	(1.078)	163278	20.0000	18.90
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	160317	20.0000	17.81
56	Tetrachloroethene	164	6.933	6.933	(0.904)	54764	20.0000	18.32
50	Toluene	91	6.453	6.453	(0.841)	225977	20.0000	18.96
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52426	20.0000	19.13
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	74135	20.0000	19.22
38	Trichloroethene	130	5.214	5.214	(1.049)	64301	20.0000	18.72
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	91451	20.0000	18.36
5	Vinyl Chloride	62	1.145	1.145	(0.273)	54724	20.0000	17.85



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Date : 13-MAY-2019 13:45
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\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 13-MAY-2019 14:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

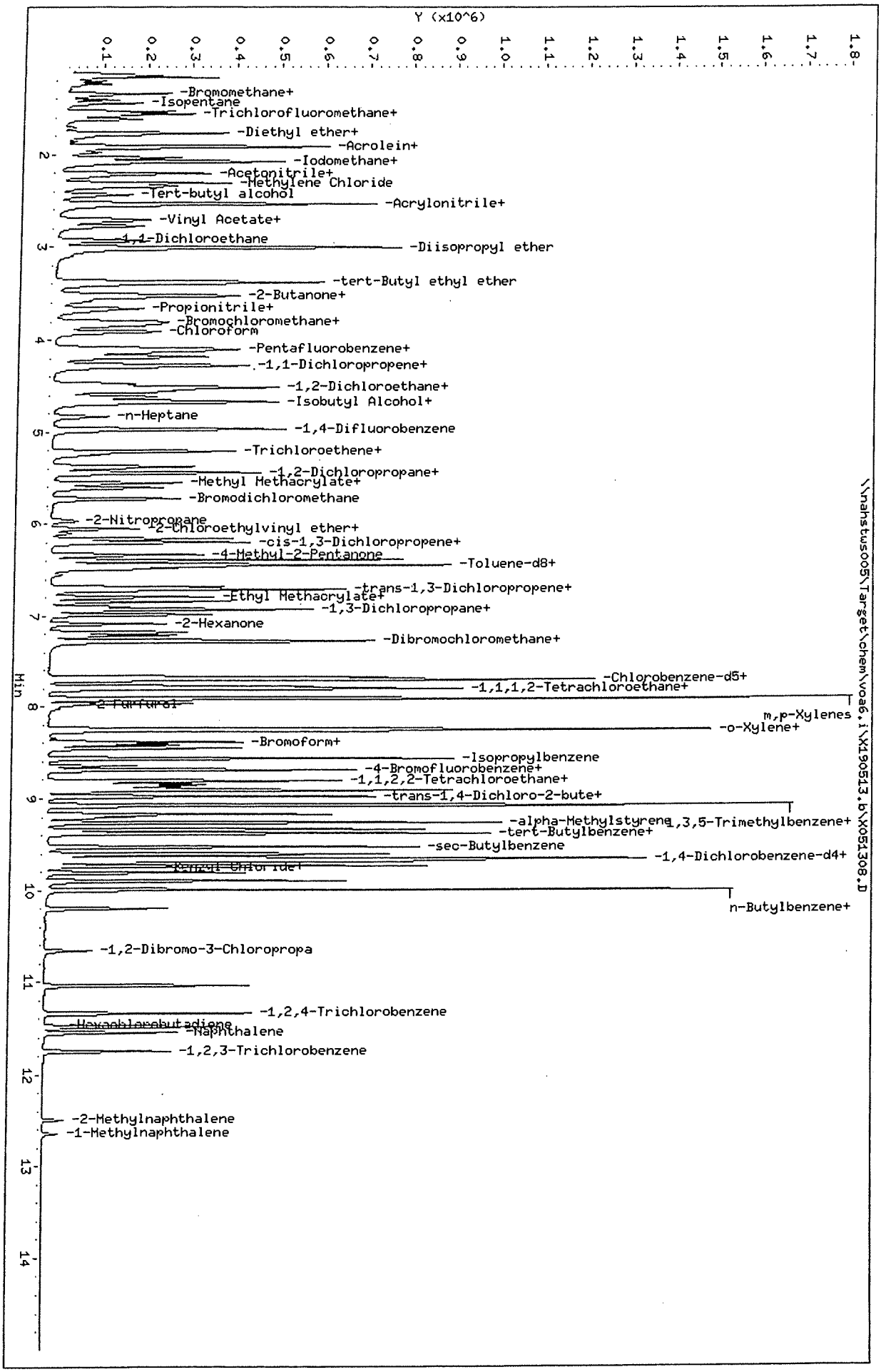
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	320160	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	425107	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	389348	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	218628	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	140206	50.0000	49.94
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	164393	50.0000	50.21
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	138429	50.0000	50.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	475062	50.0000	50.10
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140889	50.0000	46.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	194014	50.0000	45.76
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	138186	50.0000	46.38
138 Freon TF	101	1.919	1.919	(0.458)	105816	50.0000	43.21
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	93933	50.0000	47.10
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	212520	50.0000	47.09
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	115616	50.0000	46.20
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	152541	50.0000	43.14
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82821	50.0000	44.74
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	161346	50.0000	47.36
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	144062	50.0000	44.68
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	451083	50.0000	43.32
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	23010	50.0000	48.18
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	129337	50.0000	47.44
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	283359	50.0000	44.89

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

	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)	162013	50.0000	45.25
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	115394	50.0000	46.48
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	431958	50.0000	43.49
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	299593	50.0000	44.55
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	188132	50.0000	46.76
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	301160	50.0000	44.48
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	181858	50.0000	45.49
24	2-Butanone	43	3.580	3.581	(0.855)	76503	100.000	100.23
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	347555	50.0000	42.98
52	2-Hexanone	43	7.090	7.090	(0.924)	125616	100.000	92.62
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	407466	50.0000	43.49
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	450042	50.0000	41.95
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	184906	100.000	93.66
10	Acetone	43	1.976	1.976	(0.472)	66437	100.000	96.82
37	Benzene	78	4.519	4.519	(0.909)	475353	50.0000	46.32
74	Bromobenzene	156	8.809	8.810	(0.911)	186716	50.0000	45.82
29	Bromochloromethane	128	3.802	3.803	(0.908)	84393	50.0000	49.35
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170552	50.0000	47.87
66	Bromoform	173	8.415	8.416	(1.097)	115291	50.0000	50.77
6	Bromomethane	94	1.338	1.339	(0.320)	129857	50.0000	45.28
19	Carbon Disulfide	76	2.076	2.076	(0.496)	665469	100.000	92.23
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	168134	50.0000	42.76
59	Chlorobenzene	112	7.699	7.699	(1.004)	361678	50.0000	46.57
7	Chloroethane	64	1.403	1.403	(0.335)	82737	50.0000	45.27
28	Chloroform	83	3.917	3.917	(0.935)	228368	50.0000	47.19
3	Chloromethane	50	1.081	1.081	(0.258)	171914	50.0000	52.72
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146016	50.0000	46.82
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	204302	50.0000	48.27
55	Dibromochloromethane	129	7.183	7.184	(0.937)	151217	50.0000	48.33
44	Dibromomethane	93	5.557	5.558	(1.118)	85360	50.0000	47.73
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	129152	50.0000	45.98
61	Ethylbenzene	106	7.799	7.807	(1.017)	179699	50.0000	44.76
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	77466	50.0000	40.35
67	Isopropylbenzene	105	8.566	8.566	(1.117)	511302	50.0000	42.88
62	m,p-Xylenes	106	7.907	7.907	(1.031)	436547	100.000	90.28
17	Methylene Chloride	84	2.305	2.306	(0.550)	132351	50.0000	49.29
87	n-Butylbenzene	91	9.998	9.999	(1.034)	357730	50.0000	42.09
73	n-Propylbenzene	91	8.917	8.917	(0.922)	571181	50.0000	42.52
92	Naphthalene	128	11.546	11.546	(1.194)	204108	50.0000	44.69
63	o-Xylene	106	8.244	8.244	(1.075)	215613	50.0000	45.57
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	483107	50.0000	41.35
64	Styrene	104	8.265	8.265	(1.078)	389051	50.0000	47.04
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	358769	50.0000	41.74
56	Tetrachloroethene	164	6.933	6.933	(0.904)	125799	50.0000	43.94
50	Toluene	91	6.453	6.453	(0.841)	523576	50.0000	45.87
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	122447	50.0000	46.80
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	181537	50.0000	49.09
38	Trichloroethene	130	5.214	5.214	(1.049)	152179	50.0000	46.23
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	211545	50.0000	44.48
5	Vinyl Chloride	62	1.145	1.145	(0.273)	134828	50.0000	46.07



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Date : 13-MAY-2019 14:09
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 13-MAY-2019 14:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:33 Cal File: X051309.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	292113	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	391306	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360434	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	201373	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	264049	100.000	103.29
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	308874	100.000	102.51
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	259811	100.000	103.63
$	48 Toluene-d8	98	6.388	6.388	(0.833)	904394	100.000	103.64
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	284109	100.000	101.03
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	402925	100.000	104.17
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	262985	100.000	95.84
	138 Freon TF	101	1.919	1.919	(0.458)	255344	100.000	108.72
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	181306	100.000	98.20
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	410624	100.000	99.73
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	240073	100.000	105.16
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	319383	100.000	98.13
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	193390	100.000	105.48
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	316012	100.000	100.71
	90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	322239	100.000	108.52
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	965815	100.000	100.70
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	48132	100.000	109.43
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	252995	100.000	100.24
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	578801	100.000	99.56

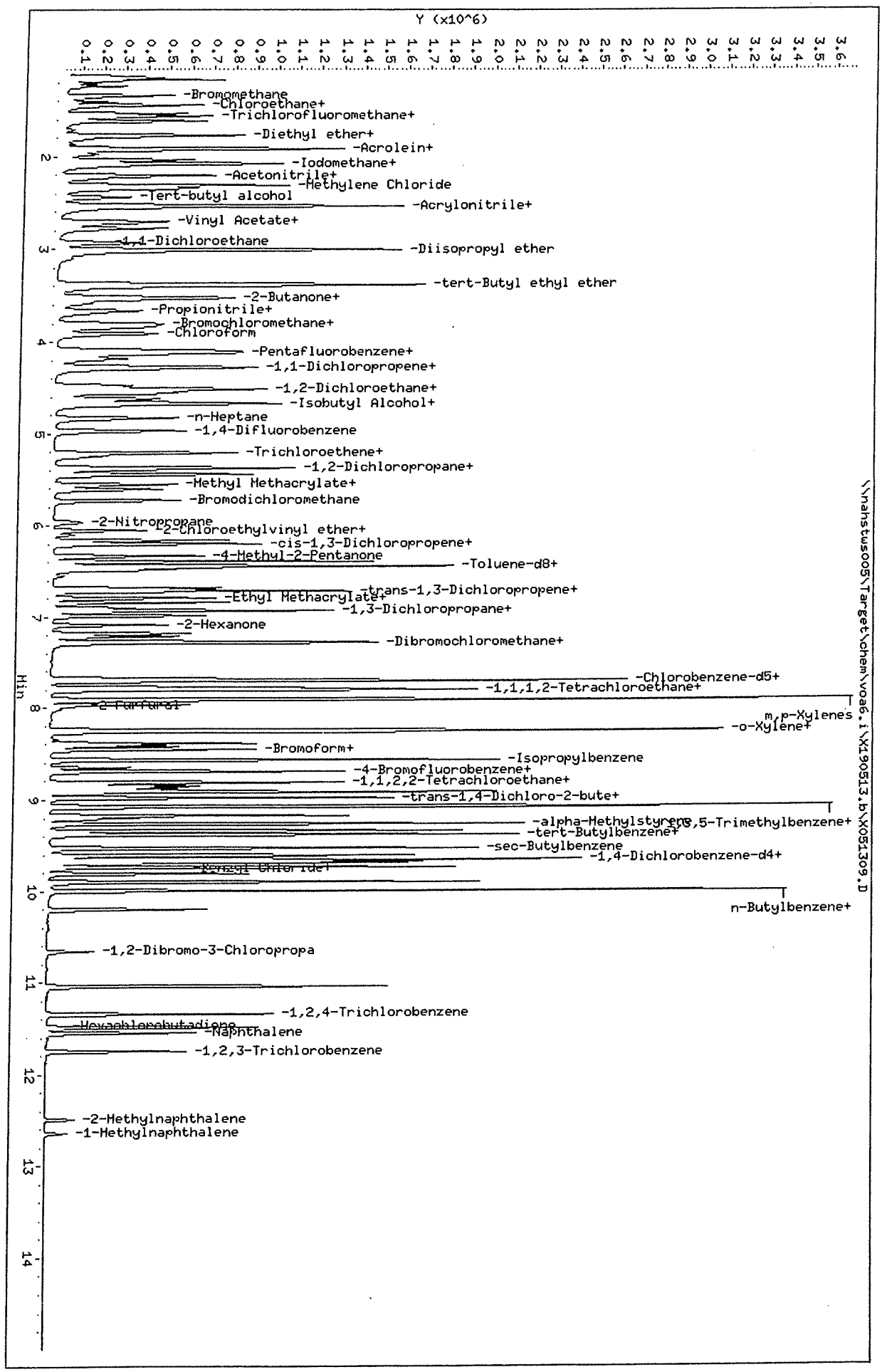
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

	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)	318635	100.000	96.69
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	221211	100.000	96.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	944978	100.000	103.30
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	621092	100.000	100.28
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	364879	100.000	97.97
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	623098	100.000	99.93
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	366161	100.000	100.39
24	2-Butanone	43	3.581	3.581	(0.855)	151605	200.000	217.70(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	730229	100.000	98.05
52	2-Hexanone	43	7.090	7.090	(0.924)	248919	200.000	198.26
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	856339	100.000	99.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1040512	100.000	105.32
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	364057	200.000	199.20
10	Acetone	43	1.976	1.976	(0.472)	125003	200.000	201.53(A)
37	Benzene	78	4.519	4.519	(0.909)	929993	100.000	98.46
74	Bromobenzene	156	8.810	8.810	(0.911)	372863	100.000	99.35
29	Bromochloromethane	128	3.803	3.803	(0.908)	161297	100.000	103.43
39	Bromodichloromethane	83	5.729	5.729	(1.153)	335305	100.000	102.25
66	Bromoform	173	8.416	8.416	(1.097)	228526	100.000	108.71
6	Bromomethane	94	1.339	1.339	(0.320)	273924	100.000	103.25
19	Carbon Disulfide	76	2.069	2.076	(0.494)	1355119	200.000	205.86(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	371502	100.000	102.64
59	Chlorobenzene	112	7.699	7.699	(1.004)	716462	100.000	99.65
7	Chloroethane	64	1.403	1.403	(0.335)	166381	100.000	99.78
28	Chloroform	83	3.917	3.917	(0.935)	449421	100.000	101.79
3	Chloromethane	50	1.081	1.081	(0.258)	321283	100.000	110.60
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	285342	100.000	100.28
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	400420	100.000	102.79
55	Dibromochloromethane	129	7.184	7.184	(0.937)	296437	100.000	102.35
44	Dibromomethane	93	5.558	5.558	(1.118)	165723	100.000	100.68
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	289308	100.000	108.26
61	Ethylbenzene	106	7.807	7.807	(1.018)	374397	100.000	100.74
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	189523	100.000	107.19
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1134655	100.000	102.80
62	m,p-Xylenes	106	7.907	7.907	(1.031)	905742	200.000	202.34(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	252013	100.000	103.56
87	n-Butylbenzene	91	9.999	9.999	(1.034)	822059	100.000	105.03
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1276228	100.000	103.15
92	Naphthalene	128	11.546	11.546	(1.194)	455338	100.000	108.24
63	o-Xylene	106	8.244	8.244	(1.075)	443200	100.000	101.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1124737	100.000	104.52
64	Styrene	104	8.265	8.265	(1.078)	773201	100.000	100.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	817269	100.000	103.23
56	Tetrachloroethene	164	6.933	6.933	(0.904)	274348	100.000	103.53
50	Toluene	91	6.453	6.453	(0.841)	1051135	100.000	99.49
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	241565	100.000	101.19
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	357359	100.000	104.99
38	Trichloroethene	130	5.214	5.214	(1.049)	305934	100.000	100.96
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	468589	100.000	107.99
5	Vinyl Chloride	62	1.145	1.145	(0.273)	285285	100.000	106.85

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Date : 13-MAY-2019 14:33
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 13-MAY-2019 14:56
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	298394	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	392493	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	367164	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	196596	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	382028	150.000	146.37
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	453043	150.000	147.86
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	375096	150.000	146.62
$	48 Toluene-d8	98	6.388	6.388	(0.832)	1314423	150.000	148.12
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	413165	150.000	144.23
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	578942	150.000	146.53
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	383243	150.000	143.06
	138 Freon TF	101	1.919	1.919	(0.458)	356261	150.000	144.82
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	263755	150.000	140.24
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	588315	150.000	139.88
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	339654	150.000	145.65
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	459688	150.000	140.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	278559	150.000	147.41
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	461977	150.000	150.81
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	469429	150.000	161.94
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	1373893	150.000	146.73
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	67079	150.000	156.21
	57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	370924	150.000	144.28
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	836202	150.000	147.33

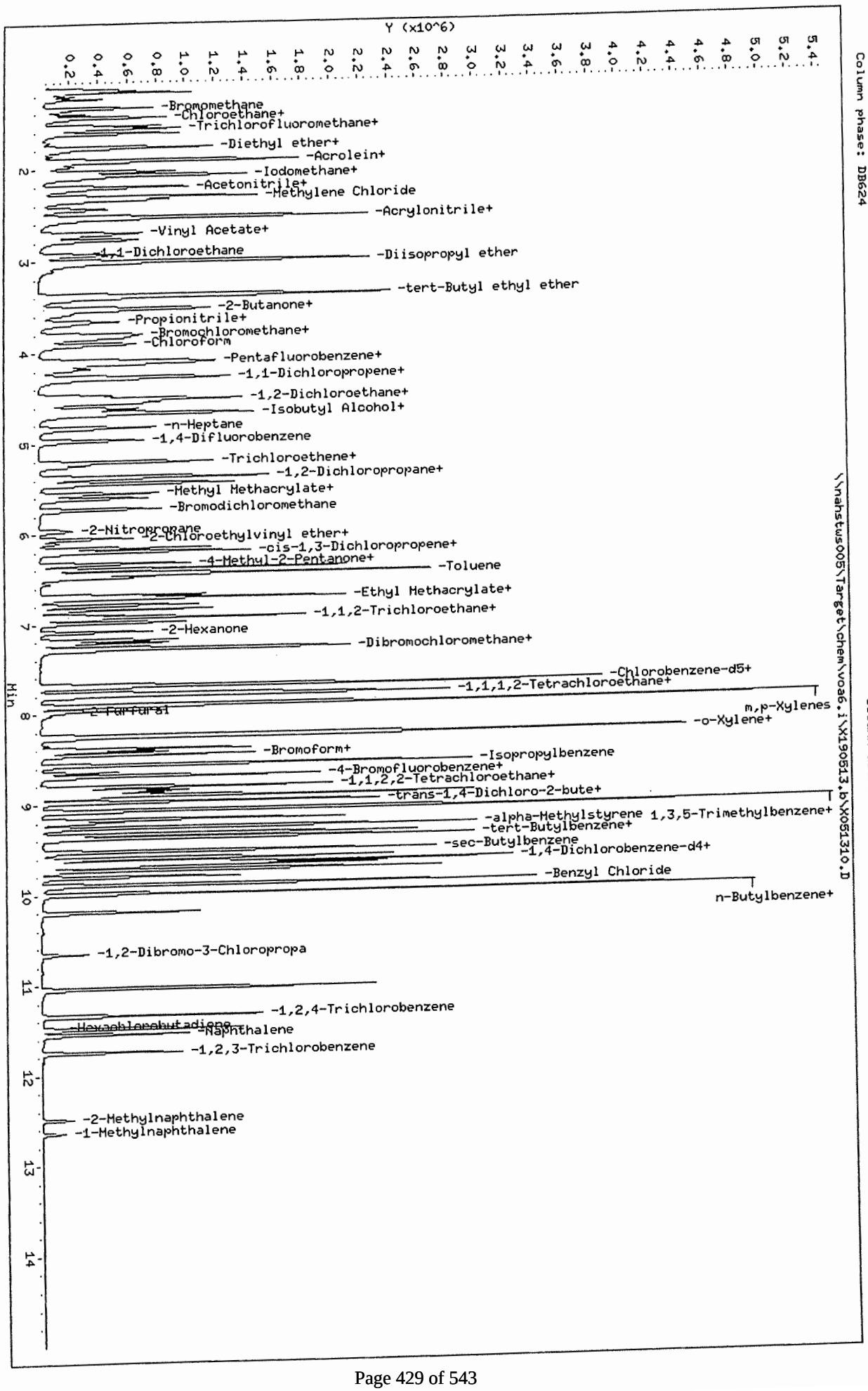
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

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)	463119	150.000	140.11
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	323443	150.000	141.11
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	1356920	150.000	151.94
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	887747	150.000	146.82
54 1,3-Dichloropropane	76	6.990	6.983	(0.910)	528778	150.000	139.37
84 1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	890539	150.000	146.30
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	524778	150.000	140.86
24 2-Butanone	43	3.580	3.581	(0.855)	210306	300.000	295.64(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	1064600	150.000	146.42
52 2-Hexanone	43	7.090	7.090	(0.924)	360424	300.000	281.81(A)
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	1238528	150.000	147.02
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1463745	150.000	151.76
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	534100	300.000	286.89(A)
10 Acetone	43	1.976	1.976	(0.472)	171031	300.000	270.54(A)
37 Benzene	78	4.519	4.519	(0.909)	1349541	150.000	142.44
74 Bromobenzene	156	8.809	8.810	(0.911)	544122	150.000	148.51
29 Bromochloromethane	128	3.802	3.803	(0.908)	232598	150.000	146.04
39 Bromodichloromethane	83	5.729	5.729	(1.153)	492012	150.000	149.58
66 Bromoform	173	8.415	8.416	(1.096)	338199	150.000	157.94
6 Bromomethane	94	1.331	1.339	(0.318)	399907	150.000	147.10
19 Carbon Disulfide	76	2.076	2.076	(0.496)	1937979	300.000	288.21(A)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	531383	150.000	146.37
59 Chlorobenzene	112	7.699	7.699	(1.003)	1060069	150.000	144.74
7 Chloroethane	64	1.403	1.403	(0.335)	242091	150.000	142.14
28 Chloroform	83	3.917	3.917	(0.935)	641887	150.000	142.33
3 Chloromethane	50	1.080	1.081	(0.258)	438543	150.000	148.62
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	410338	150.000	141.18
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	586004	150.000	149.98
55 Dibromochloromethane	129	7.183	7.184	(0.936)	438854	150.000	148.74
44 Dibromomethane	93	5.557	5.558	(1.118)	239830	150.000	145.27
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	401283	150.000	143.68
61 Ethylbenzene	106	7.807	7.807	(1.017)	546077	150.000	144.24
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	270771	150.000	156.86
67 Isopropylbenzene	105	8.566	8.566	(1.116)	1642258	150.000	146.06
62 m,p-Xylenes	106	7.907	7.907	(1.030)	1327636	300.000	291.15(A)
17 Methylene Chloride	84	2.305	2.306	(0.550)	359557	150.000	144.89
87 n-Butylbenzene	91	9.998	9.999	(1.034)	1170649	150.000	153.20
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1850611	150.000	153.21
92 Naphthalene	128	11.546	11.546	(1.194)	667369	150.000	162.50
63 o-Xylene	106	8.244	8.244	(1.074)	636382	150.000	142.65
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1576169	150.000	150.03
64 Styrene	104	8.265	8.265	(1.076)	1130376	150.000	144.94
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	1142864	150.000	147.87
56 Tetrachloroethene	164	6.933	6.933	(0.903)	389913	150.000	144.44
50 Toluene	91	6.453	6.453	(0.840)	1519978	150.000	141.23
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	350188	150.000	143.61
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	526477	150.000	154.21
38 Trichloroethene	130	5.214	5.214	(1.049)	439206	150.000	144.51
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	658059	150.000	148.47
5 Vinyl Chloride	62	1.145	1.145	(0.273)	407406	150.000	149.38

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Date : 13-MAY-2019 14:56
Client ID: VSTD150
Sample Info: VSTD150;VSTD150;1;9;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
\\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 13-MAY-2019 15:20
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 15:20 Cal File: X051311.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	286080	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	381865	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	357837	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	193530	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	502886	200.000	201.03(A)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	597336	200.000	200.24(A)
$	30 Dibromofluoromethane	113	4.104	4.111	(0.979)	491615	200.000	200.58(A)
$	48 Toluene-d8	98	6.389	6.388	(0.832)	1723420	200.000	199.47
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	552744	200.000	197.99
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	793411	200.000	209.45(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	509307	200.000	193.14
	138 Freon TF	101	1.919	1.919	(0.458)	492637	200.000	200.49(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	350115	200.000	191.02
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	793297	200.000	196.74
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	462688	200.000	206.95(A)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	635112	200.000	199.97
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	405059	200.000	200.20(A)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	622664	200.000	206.49(A)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	648664	200.000	227.32(A)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1875483	200.000	203.48(A)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	93868	200.000	222.06(A)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.947)	490366	200.000	195.71
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1110311	200.000	198.72

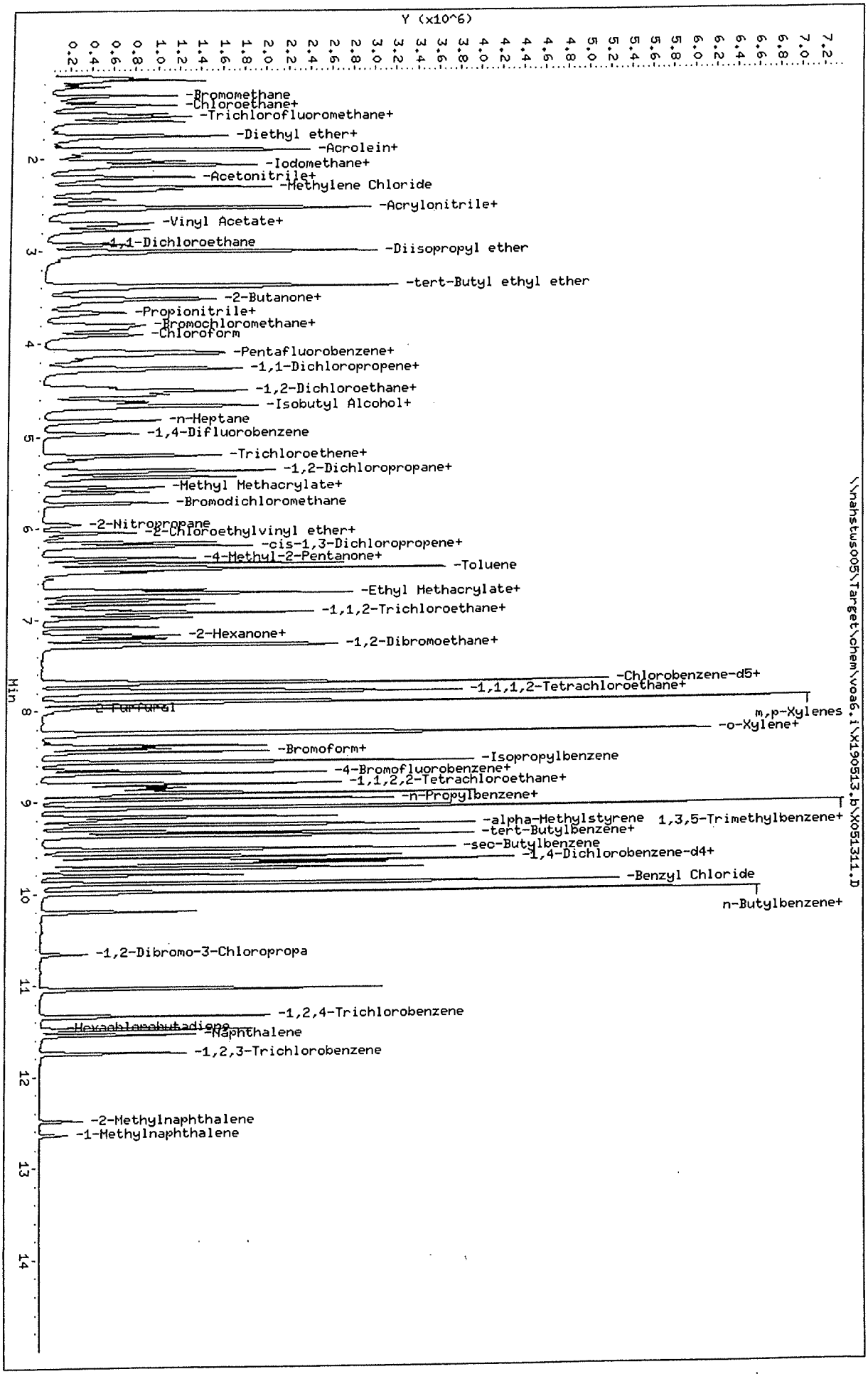
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

	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)	614464	200.000	191.07
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	432183	200.000	193.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	1846118	200.000	209.99(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1210068	200.000	203.29(A)
54	1,3-Dichloropropane	76	6.990	6.983	(0.910)	710269	200.000	192.09
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	1210233	200.000	201.97(A)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	705204	200.000	197.43
24	2-Butanone	43	3.581	3.581	(0.855)	285814	400.000	419.09(A)
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	1436462	200.000	200.69(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	489472	400.000	392.69(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1681145	200.000	202.72(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2032911	200.000	214.11(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	716118	400.000	394.68(A)
10	Acetone	43	1.976	1.976	(0.472)	227028	400.000	375.25(A)
37	Benzene	78	4.519	4.519	(0.909)	1817195	200.000	197.15
74	Bromobenzene	156	8.810	8.810	(0.911)	729145	200.000	202.16(A)
29	Bromochloromethane	128	3.803	3.803	(0.908)	307407	200.000	201.34(A)
39	Bromodichloromethane	83	5.730	5.729	(1.153)	658825	200.000	205.87(A)
66	Bromoform	173	8.416	8.416	(1.096)	451027	200.000	216.13(A)
6	Bromomethane	94	1.331	1.339	(0.318)	526501	200.000	201.60(A)
19	Carbon Disulfide	76	2.069	2.076	(0.494)	2624636	400.000	407.13(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	730650	200.000	206.87(A)
59	Chlorobenzene	112	7.699	7.699	(1.003)	1412889	200.000	197.94
7	Chloroethane	64	1.403	1.403	(0.335)	316439	200.000	193.79
28	Chloroform	83	3.917	3.917	(0.935)	857297	200.000	198.28
3	Chloromethane	50	1.081	1.081	(0.258)	547031	200.000	194.11
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	547797	200.000	196.59
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	782620	200.000	205.88(A)
55	Dibromochloromethane	129	7.184	7.184	(0.936)	583116	200.000	202.79(A)
44	Dibromomethane	93	5.558	5.558	(1.118)	316781	200.000	197.22
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	559973	200.000	201.04(A)
61	Ethylbenzene	106	7.807	7.807	(1.017)	740886	200.000	200.80(A)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	370075	200.000	217.79(A)
67	Isopropylbenzene	105	8.566	8.566	(1.116)	2225949	200.000	203.13(A)
62	m,p-Xylenes	106	7.907	7.907	(1.030)	1774491	400.000	399.29(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	480088	200.000	202.04(A)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1611019	200.000	214.18(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2526016	200.000	212.44(A)
92	Naphthalene	128	11.546	11.546	(1.194)	938681	200.000	232.18(A)
63	o-Xylene	106	8.244	8.244	(1.074)	864147	200.000	198.75
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2188038	200.000	211.58(A)
64	Styrene	104	8.265	8.265	(1.076)	1514827	200.000	199.29
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1569380	200.000	206.27(A)
56	Tetrachloroethene	164	6.933	6.933	(0.903)	529001	200.000	201.07(A)
50	Toluene	91	6.453	6.453	(0.840)	2043661	200.000	194.84
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	474680	200.000	203.04(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	703964	200.000	211.94(A)
38	Trichloroethene	130	5.214	5.214	(1.049)	598505	200.000	202.41(A)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	909806	200.000	214.11(A)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	563712	200.000	215.59(A)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

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



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Date : 13-MAY-2019 15:20
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\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 13-MAY-2019 16:08
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324291	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	414601	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	379195	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	212130	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	134880	47.4310	47.43
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	161981	50.8133	50.81(R)
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	133114	47.6318	47.63(R)
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	470125	50.9220	50.92
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140712	47.5646	47.56
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	190780	44.4311	44.43
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	139566	48.2861	48.28
138 Freon TF	101	1.919	1.919	(0.458)	102076	41.2399	41.23
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	95263	49.0480	49.04
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	211611	46.2968	46.29
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	117717	46.4496	46.44
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	151129	43.8278	43.82
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	96286	53.0497	53.04
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	164395	49.7379	49.73
90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	158836	50.7824	50.78
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	455951	45.1311	45.13
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	25198	54.3846	54.38
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	128201	48.2851	48.28
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	284337	46.4299	46.42

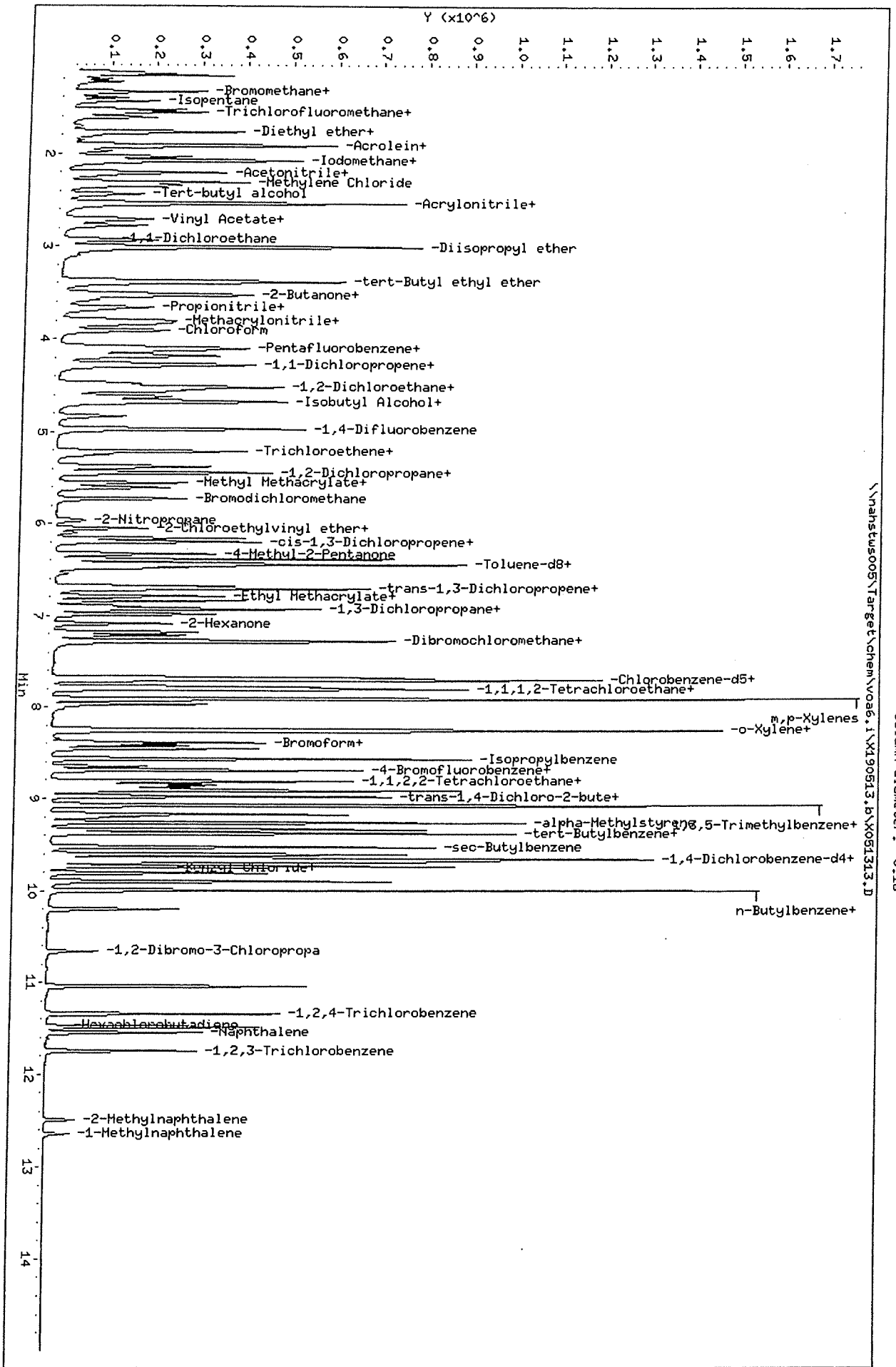
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

						CONCENTRATIONS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	ON-COLUMN (ug/l)	FINAL (ug/l)
33 1,2-Dichloroethane	62	4.562	4.562	(0.918)	162952	46.6713	46.67
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	115220	47.5899	47.58
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	428136	44.4304	44.43
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	302566	46.3760	46.37
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	185679	47.3891	47.38
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	305934	46.5792	46.57
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	185973	45.9327	45.93
24 2-Butanone	43	3.580	3.581	(0.855)	80623	104.289	104.28
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	346767	44.2008	44.20
52 2-Hexanone	43	7.090	7.090	(0.924)	129040	97.6967	97.69
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	409428	45.0427	45.04
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	452692	43.4996	43.49
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	185950	96.7140	96.71
10 Acetone	43	1.976	1.976	(0.472)	74372	107.189	107.18
37 Benzene	78	4.519	4.519	(0.909)	476104	47.5749	47.57
74 Bromobenzene	156	8.810	8.810	(0.911)	185617	46.9519	46.95
29 Bromochloromethane	128	3.803	3.803	(0.908)	84124	48.5672	48.56
39 Bromodichloromethane	83	5.729	5.729	(1.153)	170160	48.9748	48.97
66 Bromoform	173	8.416	8.416	(1.097)	116937	52.8796	52.87
6 Bromomethane	94	1.338	1.339	(0.320)	158469	54.3331	54.33
19 Carbon Disulfide	76	2.076	2.076	(0.496)	690201	94.4488	94.44
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	166746	43.4836	43.48
59 Chlorobenzene	112	7.699	7.699	(1.004)	356926	47.1893	47.18
7 Chloroethane	64	1.403	1.403	(0.335)	86291	46.6191	46.61
28 Chloroform	83	3.917	3.917	(0.935)	228760	46.6748	46.67
3 Chloromethane	50	1.081	1.081	(0.258)	153758	46.2700	46.27
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146864	46.4963	46.49
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	206431	50.0184	50.01
55 Dibromochloromethane	129	7.184	7.184	(0.937)	149124	48.9417	48.94
44 Dibromomethane	93	5.557	5.558	(1.118)	85374	48.9566	48.95
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	133900	47.0266	47.02
61 Ethylbenzene	106	7.807	7.807	(1.018)	175446	44.8724	44.87
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	90131	48.3930	48.39
67 Isopropylbenzene	105	8.566	8.566	(1.117)	506288	43.6011	43.60
62 m,p-Xylenes	106	7.907	7.907	(1.031)	431344	91.5937	91.59
17 Methylene Chloride	84	2.305	2.306	(0.550)	132416	48.6854	48.68
87 n-Butylbenzene	91	9.999	9.999	(1.034)	360691	43.7487	43.74
73 n-Propylbenzene	91	8.917	8.917	(0.922)	563787	43.2591	43.25
92 Naphthalene	128	11.546	11.546	(1.194)	233649	52.7267	52.72
63 o-Xylene	106	8.244	8.244	(1.075)	214602	46.5786	46.57
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	476834	42.0663	42.06
64 Styrene	104	8.265	8.265	(1.078)	383116	47.5660	47.56
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	356817	42.7876	42.78
56 Tetrachloroethene	164	6.933	6.933	(0.904)	122715	44.0180	44.01
50 Toluene	91	6.453	6.453	(0.841)	518873	46.6830	46.68
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	126392	47.6934	47.69
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	186372	51.6816	51.68
38 Trichloroethene	130	5.214	5.214	(1.049)	149121	46.4499	46.44
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	208348	43.2547	43.25
5 Vinyl Chloride	62	1.145	1.145	(0.273)	138377	46.6878	46.68

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

R - Spike/Surrogate failed recovery limits.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Date : 13-MAY-2019 16:08
Client ID: CCV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 35469
Date: 05-16-2019
Method: 8260
Comments: Target Sequence 190516

Analyst: Devak Giga
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-16-2019 09:11 am	1.00	0.00 mL	0.00 mL	X051601.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	05-16-2019 09:35 am	1.00	5.00 mL	0.00 mL	X051602.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
3	CCB	SAMP	05-16-2019 09:59 am	1.00	5.00 mL	0.00 mL	X051603.D	Liquid	Y	NA
	CCB									
4	VLCSW-190516	LCS	05-16-2019 10:23 am	1.00	5.00 mL	0.00 mL	X051604.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
5	BLANK	SAMP	05-16-2019 10:47 am	1.00	5.00 mL	0.00 mL	X051605.D	Liquid	Y	NA
6	VBLKW-190516	MBLK	05-16-2019 11:11 am	1.00	5.00 mL	0.00 mL	X051606.D	Liquid	Y	NA
7	HS19050919-11	SAMP	05-16-2019 11:35 am	1.00	5.00 mL	0.00 mL	X051607.D	Liquid	Y	<2
8	HS19050919-12	SAMP	05-16-2019 11:59 am	1.00	5.00 mL	0.00 mL	X051608.D	Liquid	Y	<2
9	HS19050919-13	SAMP	05-16-2019 12:23 pm	1.00	5.00 mL	0.00 mL	X051609.D	Liquid	Y	<2
10	HS19050917-11	SAMP	05-16-2019 12:48 pm	1.00	5.00 mL	0.00 mL	X051610.D	Liquid	Y	<2
11	HS19050403-08	SAMP	05-16-2019 01:12 pm	1.00	5.00 mL	0.00 mL	X051611.D	Liquid	Y	<2
12	HS19050374-07	SAMP	05-16-2019 01:36 pm	1.00	5.00 mL	0.00 mL	X051612.D	Liquid	Y	<2
13	HS19050403-05	SAMP	05-16-2019 02:00 pm	1.00	5.00 mL	0.00 mL	X051613.D	Liquid	Y	<2
14	HS19050403-07	SAMP	05-16-2019 02:24 pm	1.00	5.00 mL	0.00 mL	X051614.D	Liquid	Y	<2
15	HS19050403-04	SAMP	05-16-2019 02:48 pm	1.00	5.00 mL	0.00 mL	X051615.D	Liquid	Y	<2
16	HS19050403-05MS	MS	05-16-2019 03:12 pm	1.00	5.00 mL	0.00 mL	X051616.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
17	HS19050403-05MSD	MSD	05-16-2019 03:36 pm	1.00	5.00 mL	0.00 mL	X051617.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
18	HS19050917-11MS	MS	05-16-2019 04:00 pm	1.00	5.00 mL	0.00 mL	X051618.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
19	HS19050917-11MSD	MSD	05-16-2019 04:24 pm	1.00	5.00 mL	0.00 mL	X051619.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
20	HS19050374-04	SAMP	05-16-2019 04:51 pm	5.00	5.00 mL	0.00 mL	X051620.D	Liquid	Y	<2
21	HS19050403-04	SAMP	05-16-2019 05:17 pm	5.00	5.00 mL	0.00 mL	X051621.D	Liquid	Y	<2
22	HS19050403-01	SAMP	05-16-2019 05:41 pm	1.00	5.00 mL	0.00 mL	X051622.D	Liquid	Y	<2
23	HS19050403-02	SAMP	05-16-2019 06:05 pm	1.00	5.00 mL	0.00 mL	X051623.D	Liquid	Y	<2
24	HS19050403-03	SAMP	05-16-2019 06:29 pm	1.00	5.00 mL	0.00 mL	X051624.D	Liquid	Y	<2
25	HS19050403-06	SAMP	05-16-2019 06:53 pm	1.00	5.00 mL	0.00 mL	X051625.D	Liquid	Y	<2
26	HS19050374-05	SAMP	05-16-2019 07:17 pm	1.00	5.00 mL	0.00 mL	X051626.D	Liquid	Y	<2
27	HS19050374-06	SAMP	05-16-2019 07:41 pm	1.00	5.00 mL	0.00 mL	X051627.D	Liquid	Y	<2
28	HS19050592-03	SAMP	05-16-2019 08:05 pm	1.00	5.00 mL	0.00 mL	X051628.D	Liquid	Y	<2
29	HS19050567-01	SAMP	05-16-2019 08:29 pm	1.00	5.00 mL	0.00 mL	X051629.D	Liquid	Y	<2
30	CCV-END	CCV	05-16-2019 08:53 pm	1.00	5.00 mL	0.00 mL	X051630.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
31	BFB	TUNE	05-16-2019 09:18 pm	1.00	0.00 mL	0.00 mL	Y051601.D	Liquid	Y	NA
	Auto find/purged									
32	CCV	CCV	05-16-2019 09:41 pm	1.00	5.00 mL	0.00 mL	Y051602.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
33	VLCSW-190516	LCS	05-16-2019 10:05 pm	1.00	5.00 mL	0.00 mL	Y051603.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
34	BLANK	SAMP	05-16-2019 10:29 pm	1.00	5.00 mL	0.00 mL	Y051604.D	Liquid	Y	NA
35	VBLKW-190516	MBLK	05-16-2019 10:53 pm	1.00	5.00 mL	0.00 mL	Y051605.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	HS19050590-07	SAMP	05-16-2019 11:18 pm	1.00	5.00 mL	0.00 mL	Y051606.D	Liquid	Y	<2
37	HS19050590-08	SAMP	05-16-2019 11:42 pm	1.00	5.00 mL	0.00 mL	Y051607.D	Liquid	Y	<2
38	HS19050590-09	SAMP	05-17-2019 12:06 am	1.00	5.00 mL	0.00 mL	Y051608.D	Liquid	Y	<2
39	HS19050590-16	SAMP	05-17-2019 12:30 am	1.00	5.00 mL	0.00 mL	Y051609.D	Liquid	Y	<2
40	HS19050590-17	SAMP	05-17-2019 12:54 am	1.00	5.00 mL	0.00 mL	Y051610.D	Liquid	Y	<2
41	HS19050590-18	SAMP	05-17-2019 01:18 am	1.00	5.00 mL	0.00 mL	Y051611.D	Liquid	Y	<2
42	HS19050590-02	SAMP	05-17-2019 01:42 am	1.00	5.00 mL	0.00 mL	Y051612.D	Liquid	Y	<2
43	HS19050590-02MS	MS	05-17-2019 02:06 am	1.00	5.00 mL	0.00 mL	Y051613.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
44	HS19050590-02MSD	MSD	05-17-2019 02:30 am	1.00	5.00 mL	0.00 mL	Y051614.D	Liquid	Y	<2
	3.2 uL cal std/40 mL sample									
45	HS19050590-03	SAMP	05-17-2019 02:54 am	1.00	5.00 mL	0.00 mL	Y051615.D	Liquid	Y	<2
46	HS19050590-04	SAMP	05-17-2019 03:18 am	1.00	5.00 mL	0.00 mL	Y051616.D	Liquid	Y	<2
47	HS19050590-05	SAMP	05-17-2019 03:42 am	1.00	5.00 mL	0.00 mL	Y051617.D	Liquid	Y	<2
48	HS19050590-06	SAMP	05-17-2019 04:06 am	1.00	5.00 mL	0.00 mL	Y051618.D	Liquid	Y	<2
49	HS19050590-10	SAMP	05-17-2019 04:30 am	1.00	5.00 mL	0.00 mL	Y051619.D	Liquid	Y	<2
50	HS19050590-11	SAMP	05-17-2019 04:54 am	1.00	5.00 mL	0.00 mL	Y051620.D	Liquid	Y	<2
51	HS19050590-12	SAMP	05-17-2019 05:19 am	1.00	5.00 mL	0.00 mL	Y051621.D	Liquid	Y	<2
52	HS19050590-13	SAMP	05-17-2019 05:43 am	1.00	5.00 mL	0.00 mL	Y051622.D	Liquid	Y	<2
53	HS19050590-14	SAMP	05-17-2019 06:07 am	1.00	5.00 mL	0.00 mL	Y051623.D	Liquid	Y	<2
54	HS19050590-15	SAMP	05-17-2019 06:31 am	1.00	5.00 mL	0.00 mL	Y051624.D	Liquid	Y	<2
55	HS19050837-07	SAMP	05-17-2019 06:55 am	1.00	5.00 mL	0.00 mL	Y051625.D	Liquid	Y	<2
56	HS19050685-02	SAMP	05-17-2019 07:19 am	50.00	5.00 mL	0.00 mL	Y051626.D	Liquid	Y	<2
57	HS19050685-08	SAMP	05-17-2019 07:43 am	50.00	5.00 mL	0.00 mL	Y051627.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-190516	102	96	98	95	0
02	VBLKW-190516	98	89	105	85	0
03	HS19050403-0	100	88	104	86	0
04	HS19050403-0	99	87	103	86	0
05	HS19050403-0	100	88	102	86	0
06	HS19050403-0	98	87	104	87	0
07	HS19050403-0	100	90	102	89	0
08	HS19050403-0	100	89	101	87	0
09	HS19050403-0	101	88	104	87	0
10	HS19050403-0	97	90	104	87	0
11	HS19050403-0	98	89	104	87	0
12	HS19050403-0	98	87	104	86	0
13	HS19050403-0	99	88	105	87	0
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-190516

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Lab File ID: X051606 Lab Sample ID: VBLKW-190516

Date Analyzed: 05/16/19 Time Analyzed: 1111

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-190516	VLCSW-190516	X051604	1023
02	HS19050403-0	HS19050403-08	X051611	1312
03	HS19050403-0	HS19050403-05	X051613	1400
04	HS19050403-0	HS19050403-07	X051614	1424
05	HS19050403-0	HS19050403-04	X051615	1448
06	HS19050403-0	HS19050403-05M	X051616	1512
07	HS19050403-0	HS19050403-05M	X051617	1536
08	HS19050403-0	HS19050403-04	X051621	1717
09	HS19050403-0	HS19050403-01	X051622	1741
10	HS19050403-0	HS19050403-02	X051623	1805
11	HS19050403-0	HS19050403-03	X051624	1829
12	HS19050403-0	HS19050403-06	X051625	1853
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Lab File ID: X051601 BFB Injection Date: 05/16/19

Instrument ID: VOA6 BFB Injection Time: 0911

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.9
75	30.0 - 60.0% of mass 95	48.1
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.7 (0.7)1
174	Greater than 50.0% of mass 95	104.0
175	5.0 - 9.0% of mass 174	7.8 (7.5)1
176	95.0 - 101.0% of mass 174	101.2 (97.4)1
177	5.0 - 9.0% of mass 176	7.5 (7.4)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X051602	05/16/19	0935
02	VLCSW-190516	VLCSW-190516	X051604	05/16/19	1023
03	VBLKW-190516	VBLKW-190516	X051606	05/16/19	1111
04	HS19050403-0	HS19050403-08	X051611	05/16/19	1312
05	HS19050403-0	HS19050403-05	X051613	05/16/19	1400
06	HS19050403-0	HS19050403-07	X051614	05/16/19	1424
07	HS19050403-0	HS19050403-04	X051615	05/16/19	1448
08	HS19050403-0	HS19050403-05M	X051616	05/16/19	1512
09	HS19050403-0	HS19050403-05M	X051617	05/16/19	1536
10	HS19050403-0	HS19050403-04	X051621	05/16/19	1717
11	HS19050403-0	HS19050403-01	X051622	05/16/19	1741
12	HS19050403-0	HS19050403-02	X051623	05/16/19	1805
13	HS19050403-0	HS19050403-03	X051624	05/16/19	1829
14	HS19050403-0	HS19050403-06	X051625	05/16/19	1853
15	CCV-END	CCV-END	X051630	05/16/19	2053
16					
17					
18					
19					
20					
21					
22					

FORM V VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 0935

Lab File ID: X051602 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4800742	0.4800742	0.2	3.60	20.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4261766	0.4261766	0.1	2.03	20.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3808663	1.3808663	0.6	10.22	20.00	AVRG
2,2-Dichloropropane	0.6240000	0.5606745	0.5606745	0.1	10.15	20.00	AVRG
1,1-Dichloropropene	0.4160000	0.3557845	0.3557845	0.1	14.47	20.00	AVRG
Dibromomethane	0.2100000	0.2002086	0.2002086	0.1	4.66	20.00	AVRG
1,2-Dibromoethane	0.3500000	0.3337244	0.3337244	0.1	4.65	20.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3791098	0.3791098	0.1	7.08	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3612895	0.3612895	0.1	7.36	20.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5802022	0.5802022	0.1	12.36	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6302029	0.6302029	0.3	7.46	20.00	AVRG
Toluene	1.4650000	1.3541247	1.3541247	0.4	7.57	20.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2419182	0.2419182	0.1	5.50	20.00	AVRG
1,1-Dichloroethane	0.7050000	0.6544378	0.6544378	0.2	7.17	20.00	AVRG
1,1-Dichloroethene	0.3900000	0.3436935	0.3436935	0.1	11.87	20.00	AVRG
Trichlorofluoromethane	0.7430000	0.6158487	0.6158487	0.1	17.11	20.00	AVRG
1,2,3-Trichlorobenzene	47.438614	50.000000	0.4030360	0.1	5.12	20.00	2RDR
Tetrachloroethene	0.3680000	0.3221367	0.3221367	0.2	12.46	20.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.6898709	0.6898709	0.2	6.39	20.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.0871812	2.0871812	0.1	12.34	20.00	AVRG
tert-Butylbenzene	1.9660000	1.6201682	1.6201682	0.1	17.59	20.00	AVRG
Trichloroethene	0.3870000	0.3509314	0.3509314	0.2	9.32	20.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3133405	1.3133405	0.4	8.98	20.00	AVRG
1,2-Dichloroethane	0.4210000	0.3786514	0.3786514	0.1	10.06	20.00	AVRG
1,2-Dichloropropane	0.2920000	0.2752169	0.2752169	0.1	5.75	20.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.0158908	2.0158908	0.1	11.23	20.00	AVRG
1,3-Dichloropropane	0.5160000	0.4849408	0.4849408	0.1	6.02	20.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4113840	1.4113840	0.4	8.82	20.00	AVRG
2-Butanone	0.1190000	0.1212599	0.1212599	0.1	-1.90	20.00	AVRG
2-Chlorotoluene	1.8490000	1.6229928	1.6229928	0.1	12.22	20.00	AVRG
2-Hexanone	0.1740000	0.1643077	0.1643077	0.1	5.57	20.00	AVRG
4-Chlorotoluene	2.1420000	1.8983493	1.8983493	0.1	11.37	20.00	AVRG
Styrene	1.0620000	1.0018186	1.0018186	0.3	5.67	20.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2421784	0.2421784	0.1	4.28	20.00	AVRG
Acetone	94.219333	100.00000	0.1010187	0.1	5.78	20.00	LINR
Benzene	1.2070000	1.1048238	1.1048238	0.5	8.46	20.00	AVRG
Bromobenzene	0.9320000	0.8579904	0.8579904	0.1	7.94	20.00	AVRG
Bromochloromethane	47.871822	50.000000	0.2556989	0.1	4.26	20.00	LINR
Bromodichloromethane	0.4190000	0.3957337	0.3957337	0.2	5.55	20.00	AVRG
Bromoform	0.2920000	0.2927301	0.2927301	0.1	-0.25	20.00	AVRG
Bromomethane	45.719669	50.000000	0.4096043	0.1	8.56	20.00	LINR
Carbon Disulfide	1.1270000	1.0227727	1.0227727	0.1	9.25	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 0935

Lab File ID: X051602 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3819759	0.3819759	0.1	17.32	20.00	AVRG
Chlorobenzene	0.9970000	0.9347003	0.9347003	0.5	6.25	20.00	AVRG
Chloroethane	0.2850000	0.2458583	0.2458583	0.1	13.73	20.00	AVRG
Chloroform	0.7550000	0.6970405	0.6970405	0.2	7.68	20.00	AVRG
Chloromethane	51.608325	50.000000	0.5260590	0.1	-3.22	20.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4490097	0.4490097	0.1	7.80	20.00	AVRG
Dibromochloromethane	0.4020000	0.3827866	0.3827866	0.1	4.78	20.00	AVRG
Dichlorodifluoromethane	43.384473	50.000000	0.3797972	0.1	13.23	20.00	2RDR
Ethylbenzene	0.5160000	0.4704786	0.4704786	0.1	8.82	20.00	AVRG
Hexachlorobutadiene	0.4390000	0.3753205	0.3753205	0.1	14.50	20.00	AVRG
Isopropylbenzene	1.5310000	1.3230626	1.3230626	0.1	13.58	20.00	AVRG
m,p-Xylenes	0.6210000	0.5702722	0.5702722	0.1	8.17	20.00	AVRG
Methylene Chloride	47.905720	50.000000	0.4018687	0.1	4.19	20.00	LINR
n-Butylbenzene	1.9430000	1.6252058	1.6252058	0.5	16.36	20.00	AVRG
n-Propylbenzene	3.0720000	2.6083614	2.6083614	0.1	15.09	20.00	AVRG
Naphthalene	1.0440000	0.9872667	0.9872667	0.2	5.43	20.00	AVRG
o-Xylene	0.6080000	0.5615349	0.5615349	0.3	7.64	20.00	AVRG
sec-Butylbenzene	2.6720000	2.1522017	2.1522017	0.1	19.45	20.00	AVRG
Vinyl Chloride	0.4570000	0.3980669	0.3980669	0.1	12.90	20.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7380920	0.7380920	0.1	5.25	20.00	AVRG
p-Isopropyltoluene	2.4530000	2.0689021	2.0689021	0.1	15.66	20.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1059911	0.1059911	0.05	2.76	20.00	AVRG
Freon TF	41.890258	50.000000	0.3199466	0.1	16.22	20.00	2RDR
4-Bromofluorobenzene	51.948367	50.000000	0.4366057	0.1	-3.90	20.00	LINR
Dibromofluoromethane	50.746921	50.000000	0.4371162	0.1	-1.49	20.00	LINR
Toluene-d8	50.005633	50.000000	1.2177353	0.1	-0.01	20.00	LINR
1,2-Dichloroethane-d4	49.599833	50.000000	0.4348701	0.1	0.80	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 2053

Lab File ID: X051630 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.4605326	0.4605326	0.2	7.52	50.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4136979	0.4136979	0.1	4.90	50.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.3446050	1.3446050	0.6	12.57	50.00	AVRG
2,2-Dichloropropane	0.6240000	0.4816399	0.4816399	0.1	22.81	50.00	AVRG
1,1-Dichloropropene	0.4160000	0.3309260	0.3309260	0.1	20.45	50.00	AVRG
Dibromomethane	0.2100000	0.1979636	0.1979636	0.1	5.73	50.00	AVRG
1,2-Dibromoethane	0.3500000	0.3307629	0.3307629	0.1	5.50	50.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.3667918	0.3667918	0.1	10.10	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3493073	0.3493073	0.1	10.43	50.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.5522392	0.5522392	0.1	16.58	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6532488	0.6532488	0.3	4.08	50.00	AVRG
Toluene	1.4650000	1.2805863	1.2805863	0.4	12.59	50.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2400888	0.2400888	0.1	6.22	50.00	AVRG
1,1-Dichloroethane	0.7050000	0.6392733	0.6392733	0.2	9.32	50.00	AVRG
1,1-Dichloroethene	0.3900000	0.3238314	0.3238314	0.1	16.97	50.00	AVRG
Trichlorofluoromethane	0.7430000	0.5616322	0.5616322	0.1	24.41	50.00	AVRG
1,2,3-Trichlorobenzene	50.139241	50.000000	0.4274462	0.1	-0.28	50.00	2RDR
Tetrachloroethene	0.3680000	0.2942037	0.2942037	0.2	20.05	50.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.6917146	0.6917146	0.2	6.14	50.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.0428412	2.0428412	0.1	14.20	50.00	AVRG
tert-Butylbenzene	1.9660000	1.5743460	1.5743460	0.1	19.92	50.00	AVRG
Trichloroethene	0.3870000	0.3392907	0.3392907	0.2	12.33	50.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.2927593	1.2927593	0.4	10.41	50.00	AVRG
1,2-Dichloroethane	0.4210000	0.3740584	0.3740584	0.1	11.15	50.00	AVRG
1,2-Dichloropropane	0.2920000	0.2696089	0.2696089	0.1	7.67	50.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	1.9436783	1.9436783	0.1	14.41	50.00	AVRG
1,3-Dichloropropane	0.5160000	0.4811713	0.4811713	0.1	6.75	50.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.3490635	1.3490635	0.4	12.85	50.00	AVRG
2-Butanone	0.1190000	0.1257893	0.1257893	0.1	-5.70	50.00	AVRG
2-Chlorotoluene	1.8490000	1.5647820	1.5647820	0.1	15.37	50.00	AVRG
2-Hexanone	0.1740000	0.1703644	0.1703644	0.1	2.09	50.00	AVRG
4-Chlorotoluene	2.1420000	1.8529428	1.8529428	0.1	13.49	50.00	AVRG
Styrene	1.0620000	0.9619903	0.9619903	0.3	9.42	50.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2431524	0.2431524	0.1	3.89	50.00	AVRG
Acetone	95.035522	100.00000	0.1018777	0.1	4.96	50.00	LINR
Benzene	1.2070000	1.0838493	1.0838493	0.5	10.20	50.00	AVRG
Bromobenzene	0.9320000	0.8340291	0.8340291	0.1	10.51	50.00	AVRG
Bromochloromethane	47.588104	50.000000	0.2541852	0.1	4.82	50.00	LINR
Bromodichloromethane	0.4190000	0.3892719	0.3892719	0.2	7.10	50.00	AVRG
Bromoform	0.2920000	0.2947114	0.2947114	0.1	-0.93	50.00	AVRG
Bromomethane	44.566548	50.000000	0.3990203	0.1	10.87	50.00	LINR
Carbon Disulfide	1.1270000	0.9820155	0.9820155	0.1	12.86	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905040

Instrument ID: VOA6 Calibration Date: 05/16/19 Time: 2053

Lab File ID: X051630 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3477183	0.3477183	0.1	24.74	50.00	AVRG
Chlorobenzene	0.9970000	0.8978999	0.8978999	0.5	9.94	50.00	AVRG
Chloroethane	0.2850000	0.2428149	0.2428149	0.1	14.80	50.00	AVRG
Chloroform	0.7550000	0.6822218	0.6822218	0.2	9.64	50.00	AVRG
Chloromethane	48.903062	50.000000	0.4997462	0.1	2.19	50.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.4385667	0.4385667	0.1	9.94	50.00	AVRG
Dibromochloromethane	0.4020000	0.3729853	0.3729853	0.1	7.22	50.00	AVRG
Dichlorodifluoromethane	38.362303	50.000000	0.3343615	0.1	23.28	50.00	2RDR
Ethylbenzene	0.5160000	0.4400106	0.4400106	0.1	14.73	50.00	AVRG
Hexachlorobutadiene	0.4390000	0.3225615	0.3225615	0.1	26.52	50.00	AVRG
Isopropylbenzene	1.5310000	1.2581036	1.2581036	0.1	17.82	50.00	AVRG
m,p-Xylenes	0.6210000	0.5333061	0.5333061	0.1	14.12	50.00	AVRG
Methylene Chloride	48.060800	50.000000	0.4031528	0.1	3.88	50.00	LINR
n-Butylbenzene	1.9430000	1.4941099	1.4941099	0.5	23.10	50.00	AVRG
n-Propylbenzene	3.0720000	2.4931046	2.4931046	0.1	18.84	50.00	AVRG
Naphthalene	1.0440000	1.0573314	1.0573314	0.2	-1.28	50.00	AVRG
o-Xylene	0.6080000	0.5396107	0.5396107	0.3	11.25	50.00	AVRG
sec-Butylbenzene	2.6720000	2.0631450	2.0631450	0.1	22.79	50.00	AVRG
Vinyl Chloride	0.4570000	0.3759563	0.3759563	0.1	17.73	50.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.7576746	0.7576746	0.1	2.74	50.00	AVRG
p-Isopropyltoluene	2.4530000	1.9553054	1.9553054	0.1	20.29	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1138848	0.1138848	0.05	-4.48	50.00	AVRG
Freon TF	36.141071	50.000000	0.2742834	0.1	27.72	50.00	2RDR
4-Bromofluorobenzene	48.649068	50.000000	0.4091801	0.1	2.70	50.00	LINR
Dibromofluoromethane	47.793556	50.000000	0.4118601	0.1	4.41	50.00	LINR
Toluene-d8	47.319568	50.000000	1.1530663	0.1	5.36	50.00	LINR
1,2-Dichloroethane-d4	46.718511	50.000000	0.4096988	0.1	6.56	50.00	LINR

FORM VII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Lab File ID (Standard): X051602 Date Analyzed: 05/16/19

Instrument ID: VOA6 Time Analyzed: 0935

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

		IS1(DCB) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DFB) AREA #	RT #
	12 HOUR STD	222330	9.67	392054	7.68	430446	4.97
	UPPER LIMIT	444660	10.17	784108	8.18	860892	5.47
	LOWER LIMIT	111165	9.17	196027	7.18	215223	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-190516	232199	9.67	404747	7.67	441300	4.97
02	VBLKW-190516	261223	9.67	485311	7.67	552726	4.97
03	HS19050403-0	282900	9.67	501890	7.67	566405	4.97
04	HS19050403-0	257654	9.67	488096	7.67	559217	4.97
05	HS19050403-0	278538	9.67	498122	7.67	561277	4.97
06	HS19050403-0	270994	9.67	487877	7.68	557679	4.97
07	HS19050403-0	267138	9.67	486911	7.67	543822	4.97
08	HS19050403-0	268341	9.67	480662	7.67	533046	4.97
09	HS19050403-0	272287	9.67	486086	7.67	549188	4.97
10	HS19050403-0	248814	9.67	482855	7.68	553373	4.97
11	HS19050403-0	261486	9.67	491458	7.67	558563	4.97
12	HS19050403-0	264529	9.67	490756	7.67	560177	4.97
13	HS19050403-0	259314	9.67	489195	7.67	559268	4.97
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

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

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

FORM VIII VOA

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19050403

Lab File ID (Standard): X051602 Date Analyzed: 05/16/19

Instrument ID: VOA6 Time Analyzed: 0935

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

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	325895	4.19				
	UPPER LIMIT	651790	4.69				
	LOWER LIMIT	162948	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-190516	339389	4.19				
02	VBLKW-190516	447265	4.19				
03	HS19050403-0	457200	4.19				
04	HS19050403-0	448588	4.19				
05	HS19050403-0	447245	4.19				
06	HS19050403-0	451336	4.19				
07	HS19050403-0	435585	4.19				
08	HS19050403-0	423339	4.19				
09	HS19050403-0	438683	4.19				
10	HS19050403-0	442409	4.19				
11	HS19050403-0	442892	4.19				
12	HS19050403-0	447276	4.19				
13	HS19050403-0	452828	4.19				
14							
15							
16							
17							
18							
19							
20							

IS4 = Pentafluorobenzene

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

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

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051601.D Page 1

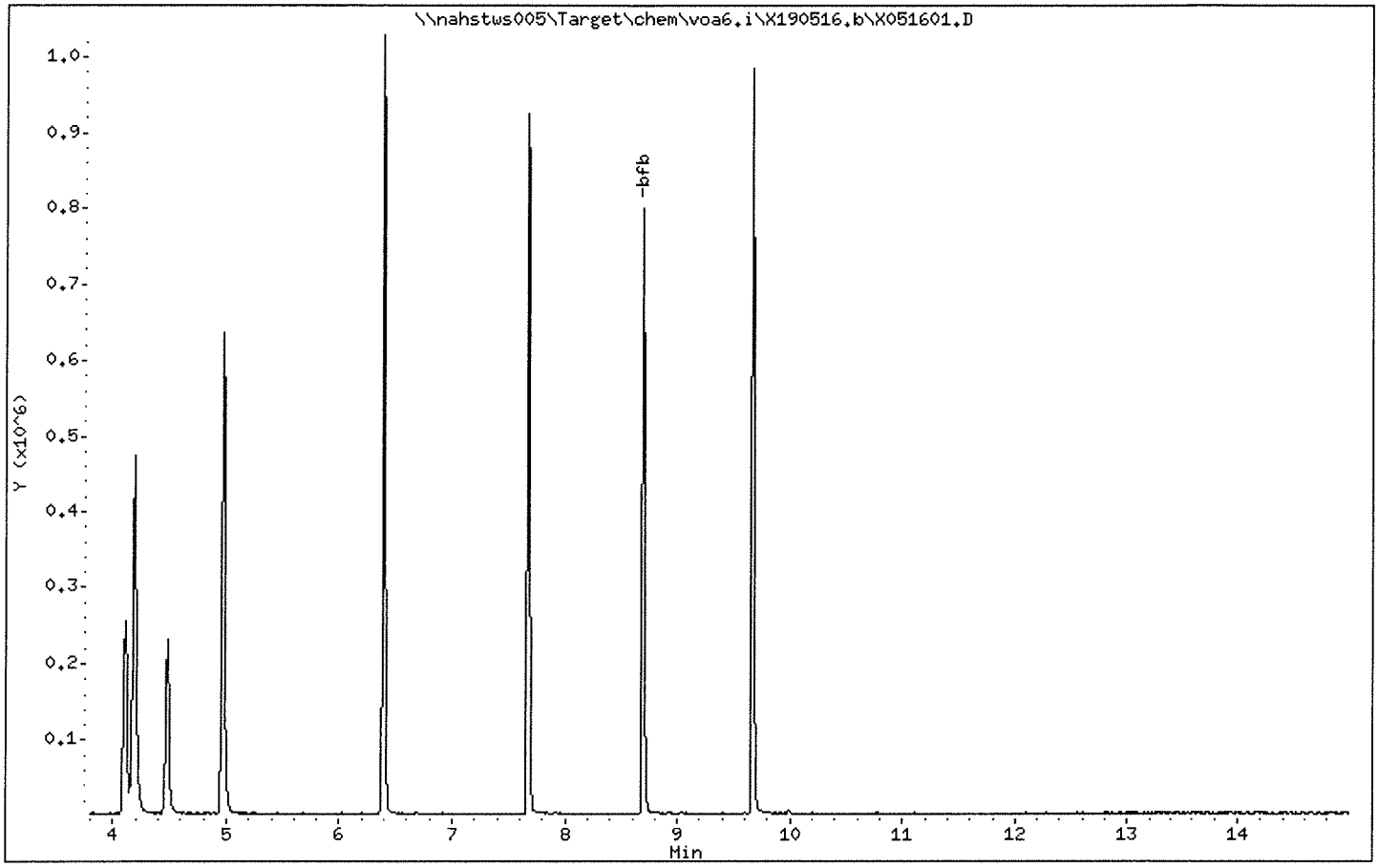
Date : 16-MAY-2019 09:11

Client ID: BFB Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0 Operator: PC

Column phase: DB624 Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051601.D

Date : 16-MAY-2019 09:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

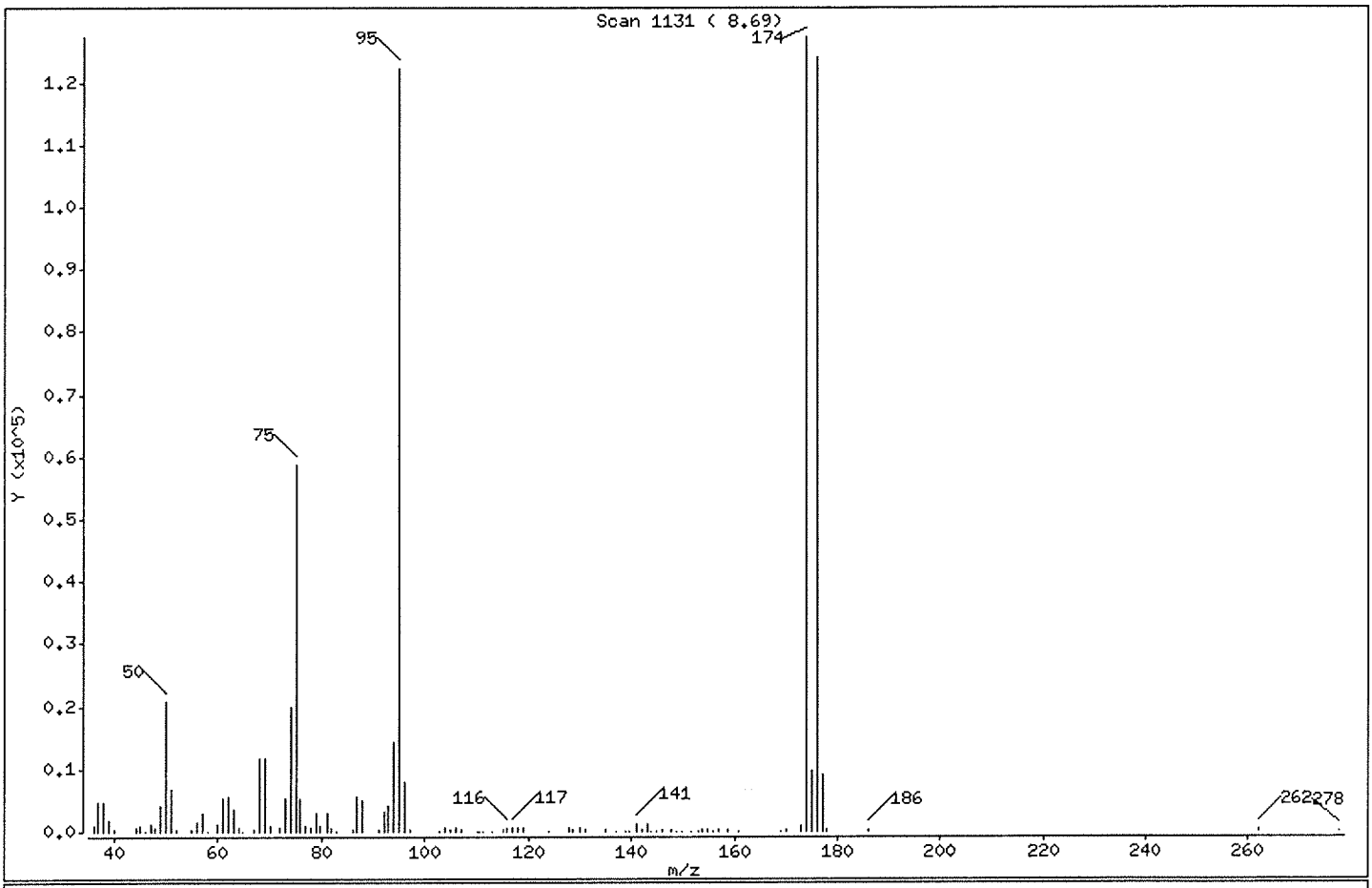
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	16.87
75	30.00 - 60.00% of mass 95	48.12
96	5.00 - 9.00% of mass 95	6.53
173	Less than 2.00% of mass 174	0.70 (0.67)
174	Greater than 50.00% of mass 95	103.96
175	5.00 - 9.00% of mass 174	7.83 (7.53)
176	95.00 - 101.00% of mass 174	101.24 (97.38)
177	5.00 - 9.00% of mass 176	7.50 (7.40)

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051601.D

Date : 16-MAY-2019 09:11

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

Data File: X051601.D
Spectrum: Scan 1131 (8.69)
Location of Maximum: 174.00
Number of points: 101

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	965	69.00	11552	104.90	161	146.10	195
37.00	4753	70.00	971	106.00	543	147.80	280
38.10	4618	71.90	715	107.00	169	148.90	84
39.10	1864	73.10	5349	110.10	142	149.90	145
40.00	336	74.10	19752	110.60	55	151.80	107
44.20	613	75.10	58864	111.10	55	153.00	112
45.00	960	76.00	5401	112.90	94	153.90	155
46.00	63	77.00	843	115.00	229	154.90	359
47.00	1185	78.00	524	116.00	568	156.00	63
48.00	661	78.90	3047	116.90	701	156.80	315
49.00	4211	79.90	958	117.90	586	158.90	168
50.10	20632	81.00	3023	118.90	605	160.70	118
51.10	6622	81.90	561	123.90	80	169.00	65
52.10	300	83.10	69	127.90	568	170.20	153
54.90	291	86.00	202	128.80	252	173.00	857
56.00	1583	87.00	5437	130.00	468	174.00	127168
57.10	2794	88.00	5108	131.00	246	175.00	9582
58.20	109	90.90	413	135.10	216	176.00	123840
60.00	1296	92.00	3344	137.00	141	177.00	9170
61.10	5294	93.00	4094	138.80	87	177.90	207
62.00	5502	94.00	14184	139.60	80	186.20	371
63.00	3573	95.00	122320	140.90	1311	262.10	175
64.00	440	96.10	7984	142.00	161	278.20	104
65.00	130	97.10	353	143.00	1152		
67.00	263	102.90	104	144.00	87		
68.00	11564	104.00	482	144.80	126		

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Report Date: 06-Jun-2019 15:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 16-MAY-2019 09:35
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:20 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

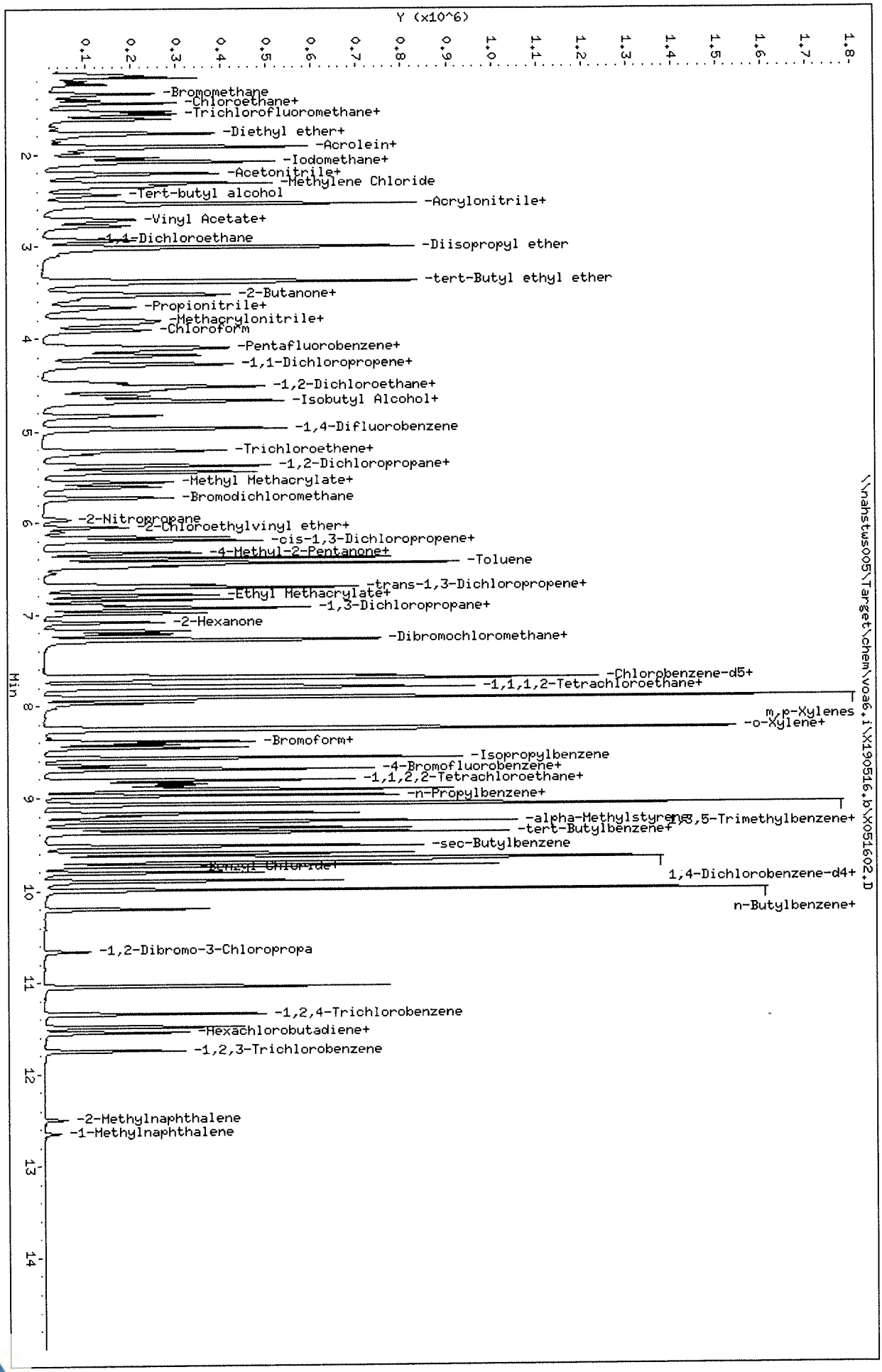
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	325895	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	430446	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	392054	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	222330	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	141722	50.0000	49.59
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	171173	50.0000	51.94
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	142454	50.0000	50.74
$	48 Toluene-d8	98	6.388	6.388	(0.832)	477418	50.0000	50.00
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	141645	50.0000	46.30
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	189085	50.0000	43.81
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	140113	50.0000	46.25
	138 Freon TF	101	1.919	1.919	(0.458)	104269	50.0000	41.89
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	94845	50.0000	47.23
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	213278	50.0000	46.43
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	112008	50.0000	43.97
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	153146	50.0000	42.77
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	89607	50.0000	47.43
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	164100	50.0000	47.37
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	153379	50.0000	46.78
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	464043	50.0000	43.82
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	23565	50.0000	48.52
	57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	130838	50.0000	47.66
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	291995	50.0000	45.49

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Report Date: 06-Jun-2019 15:20

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)	162989	50.0000	44.96
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	118466	50.0000	47.12
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	448193	50.0000	44.37
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	307008	50.0000	44.89
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	190123	50.0000	46.93
84 1,4-Dichlorobenzene	146	9.683	9.691	(1.001)	313793	50.0000	45.58
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	182721	50.0000	44.90
24 2-Butanone	43	3.580	3.581	(0.855)	79036	100.000	101.73
76 2-Chlorotoluene	91	8.981	8.982	(0.929)	360840	50.0000	43.88
52 2-Hexanone	43	7.090	7.090	(0.924)	128835	100.000	94.34
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	422060	50.0000	44.30
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	459979	50.0000	42.17
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	189894	100.000	95.52
10 Acetone	43	1.976	1.976	(0.472)	65843	100.000	94.21
37 Benzene	78	4.519	4.519	(0.909)	475567	50.0000	45.77
74 Bromobenzene	156	8.809	8.810	(0.911)	190757	50.0000	46.03
29 Bromochloromethane	128	3.802	3.803	(0.908)	83331	50.0000	47.87
39 Bromodichloromethane	83	5.729	5.729	(1.153)	170342	50.0000	47.22
66 Bromoform	173	8.415	8.416	(1.096)	114766	50.0000	50.19
6 Bromomethane	94	1.338	1.339	(0.320)	133488	50.0000	45.71
19 Carbon Disulfide	76	2.076	2.076	(0.496)	666633	100.000	90.77
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	164420	50.0000	41.29
59 Chlorobenzene	112	7.699	7.699	(1.003)	366453	50.0000	46.85
7 Chloroethane	64	1.403	1.403	(0.335)	80124	50.0000	43.07
28 Chloroform	83	3.917	3.917	(0.935)	227162	50.0000	46.12
3 Chloromethane	50	1.081	1.081	(0.258)	171440	50.0000	51.60
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	146330	50.0000	46.09
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	206646	50.0000	48.22
55 Dibromochloromethane	129	7.183	7.184	(0.936)	150073	50.0000	47.63
44 Dibromomethane	93	5.557	5.558	(1.118)	86179	50.0000	47.59
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	123774	50.0000	43.38
61 Ethylbenzene	106	7.807	7.800	(1.017)	184453	50.0000	45.62
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	83445	50.0000	42.74
67 Isopropylbenzene	105	8.566	8.566	(1.116)	518712	50.0000	43.20
62 m,p-Xylenes	106	7.907	7.907	(1.030)	447155	100.000	91.83
17 Methylene Chloride	84	2.313	2.306	(0.552)	130967	50.0000	47.90
87 n-Butylbenzene	91	9.998	9.999	(1.034)	361332	50.0000	41.81
73 n-Propylbenzene	91	8.917	8.917	(0.922)	579917	50.0000	42.45
92 Naphthalene	128	11.546	11.546	(1.194)	219499	50.0000	47.26
63 o-Xylene	106	8.244	8.244	(1.074)	220152	50.0000	46.21
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	478499	50.0000	40.27
64 Styrene	104	8.265	8.265	(1.076)	392767	50.0000	47.16
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	360212	50.0000	41.21
56 Tetrachloroethene	164	6.933	6.933	(0.903)	126295	50.0000	43.81
50 Toluene	91	6.453	6.453	(0.840)	530890	50.0000	46.19
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	123550	50.0000	46.39
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	183446	50.0000	48.99
38 Trichloroethene	130	5.214	5.214	(1.049)	151057	50.0000	45.32
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	200702	50.0000	41.46
5 Vinyl Chloride	62	1.145	1.145	(0.273)	129728	50.0000	43.55



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051602.D
Date : 16-MAY-2019 09:35
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Report Date: 06-Jun-2019 15:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Lab Smp Id: VLCSW-190516 Client Smp ID: VLCSW-190516
Inj Date : 16-MAY-2019 10:23
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-190516;VLCSW-190516;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:20 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

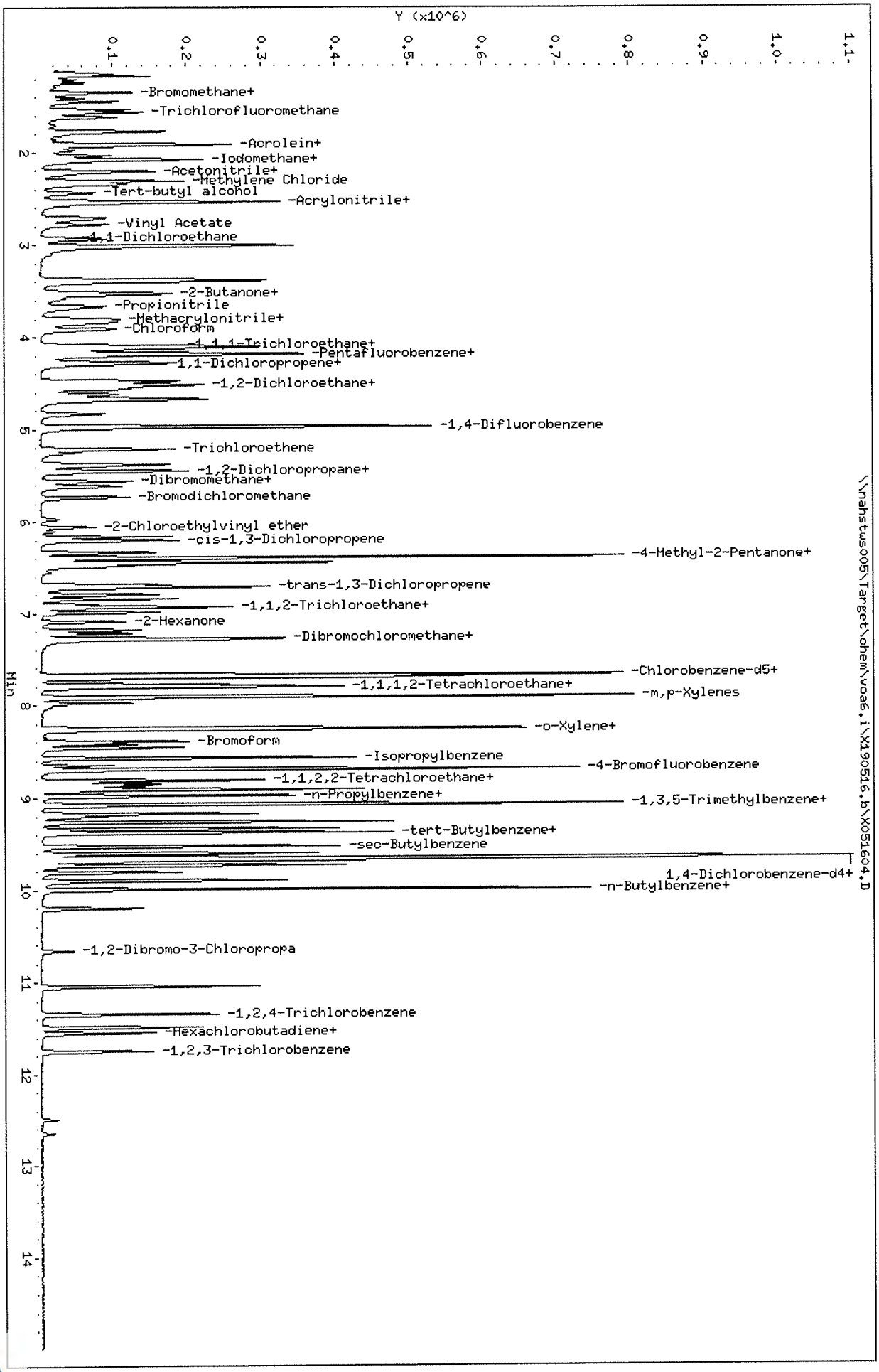
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	339389	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	441300	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	404747	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	232199	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	142059	47.7343	47.73
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	174506	51.2918	51.29
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	140416	48.0124	48.01
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	482815	48.9733	48.97
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	61049	19.3335	19.33
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	81132	18.0544	18.05
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	62713	19.8218	19.82
138 Freon TF	101	1.919	1.919	(0.458)	44629	17.9262	17.92
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	42506	20.5034	20.50
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	90339	18.8854	18.88
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	47920	18.0675	18.06
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	64753	17.6424	17.64
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	44564	23.4776	23.47
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	72656	20.0822	20.08
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	74233	21.6822	21.68
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	217912	19.7052	19.70
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	10629	20.9577	20.95
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	57221	20.1909	20.19
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	132011	19.6932	19.69

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Report Date: 06-Jun-2019 15:20

	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)	71754	19.3078	19.30
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	52117	20.2238	20.22
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	206102	19.5399	19.53
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	140960	19.7383	19.73
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	83502	19.9660	19.96
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	142185	19.7770	19.77
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	78987	18.6408	18.64
24	2-Butanone	43	3.588	3.581	(0.856)	33388	41.2673	41.26
76	2-Chlorotoluene	91	8.981	8.982	(0.929)	164103	19.1096	19.10
52	2-Hexanone	43	7.090	7.090	(0.924)	56845	40.3206	40.32
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	190813	19.1777	19.17
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	218709	19.1995	19.19
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	83169	40.5260	40.52
10	Acetone	43	1.976	1.976	(0.472)	30613	41.0867	41.08
37	Benzene	78	4.519	4.519	(0.909)	208233	19.5489	19.54
74	Bromobenzene	156	8.809	8.810	(0.911)	83985	19.4079	19.40
29	Bromochloromethane	128	3.803	3.803	(0.908)	36776	20.2566	20.25
39	Bromodichloromethane	83	5.729	5.729	(1.153)	72952	19.7264	19.72
66	Bromoform	173	8.416	8.416	(1.097)	49186	20.8380	20.83
6	Bromomethane	94	1.346	1.339	(0.321)	62204	21.0620	21.06
19	Carbon Disulfide	76	2.076	2.076	(0.496)	288216	37.6857	37.68
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	71084	17.4156	17.41
59	Chlorobenzene	112	7.699	7.699	(1.004)	162370	20.1118	20.11
7	Chloroethane	64	1.403	1.403	(0.335)	33807	17.4519	17.45
28	Chloroform	83	3.917	3.917	(0.935)	97726	19.0524	19.05
3	Chloromethane	50	1.081	1.081	(0.258)	70781	18.9652	18.96
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	62548	18.9214	18.92
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	87909	20.0117	20.01
55	Dibromochloromethane	129	7.183	7.184	(0.937)	64021	19.6849	19.68
44	Dibromomethane	93	5.557	5.558	(1.118)	36822	19.8376	19.83
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	52468	18.2277	18.22
61	Ethylbenzene	106	7.807	7.800	(1.018)	81209	19.4589	19.45
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	41261	20.2390	20.23
67	Isopropylbenzene	105	8.566	8.566	(1.117)	239459	19.3201	19.32
62	m,p-Xylenes	106	7.907	7.907	(1.031)	197783	39.3468	39.34
17	Methylene Chloride	84	2.313	2.306	(0.552)	56321	19.4134	19.41
87	n-Butylbenzene	91	9.999	9.999	(1.034)	174955	19.3864	19.38
73	n-Propylbenzene	91	8.917	8.917	(0.922)	270338	18.9501	18.95
92	Naphthalene	128	11.546	11.546	(1.194)	103382	21.3134	21.31
63	o-Xylene	106	8.244	8.244	(1.075)	97965	19.9206	19.92
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	229504	18.4969	18.49
64	Styrene	104	8.265	8.265	(1.078)	173087	20.1331	20.13
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	172204	18.8650	18.86
56	Tetrachloroethene	164	6.933	6.933	(0.904)	56019	18.8255	18.82
50	Toluene	91	6.453	6.453	(0.841)	231348	19.5003	19.50
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52150	18.8031	18.80
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	78484	20.4471	20.44
38	Trichloroethene	130	5.214	5.214	(1.049)	66100	19.3439	19.34
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	86407	17.1408	17.14
5	Vinyl Chloride	62	1.145	1.145	(0.273)	55061	17.7509	17.75



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051604.D
Date : 16-MAY-2019 10:23
Client ID: VLCSW-190516
Sample Info: VLCSW-190516;VLCSW-190516;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\X190516.b\X051606.D
Report Date: 06-Jun-2019 15:16

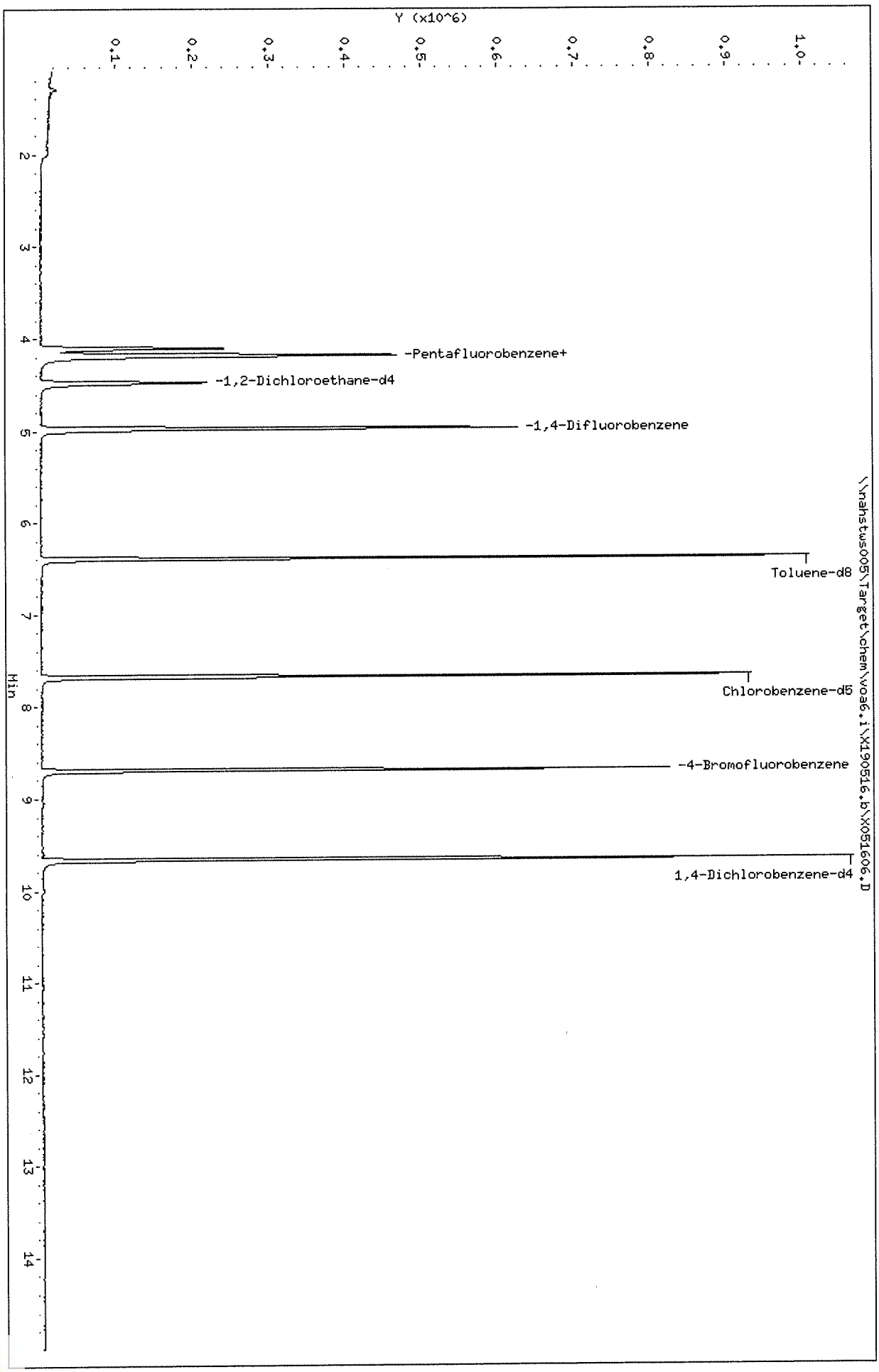
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D
Lab Smp Id: VBLKW-190516 Client Smp ID: VBLKW-190516
Inj Date : 16-MAY-2019 11:11
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-190516;VBLKW-190516;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 6 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	447265	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	552726	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.678	(1.000)	485311	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	261223	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	167659	42.7299	42.72
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	199119	48.7828	48.78
$	30 Dibromofluoromethane	113	4.110	4.103	(0.981)	171267	44.4095	44.40
$	48 Toluene-d8	98	6.388	6.388	(0.833)	619416	52.4393	52.43


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D
Date : 16-MAY-2019 11:11
Client ID: VBLKW-190516
Sample Info: VBLKW-190516;VBLKW-190516;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051606.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051611.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051611.D
Lab Smp Id: HS19050403-08 Client Smp ID: HS19050403-08
Inj Date : 16-MAY-2019 13:12
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-08;HS19050403-08;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 11
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

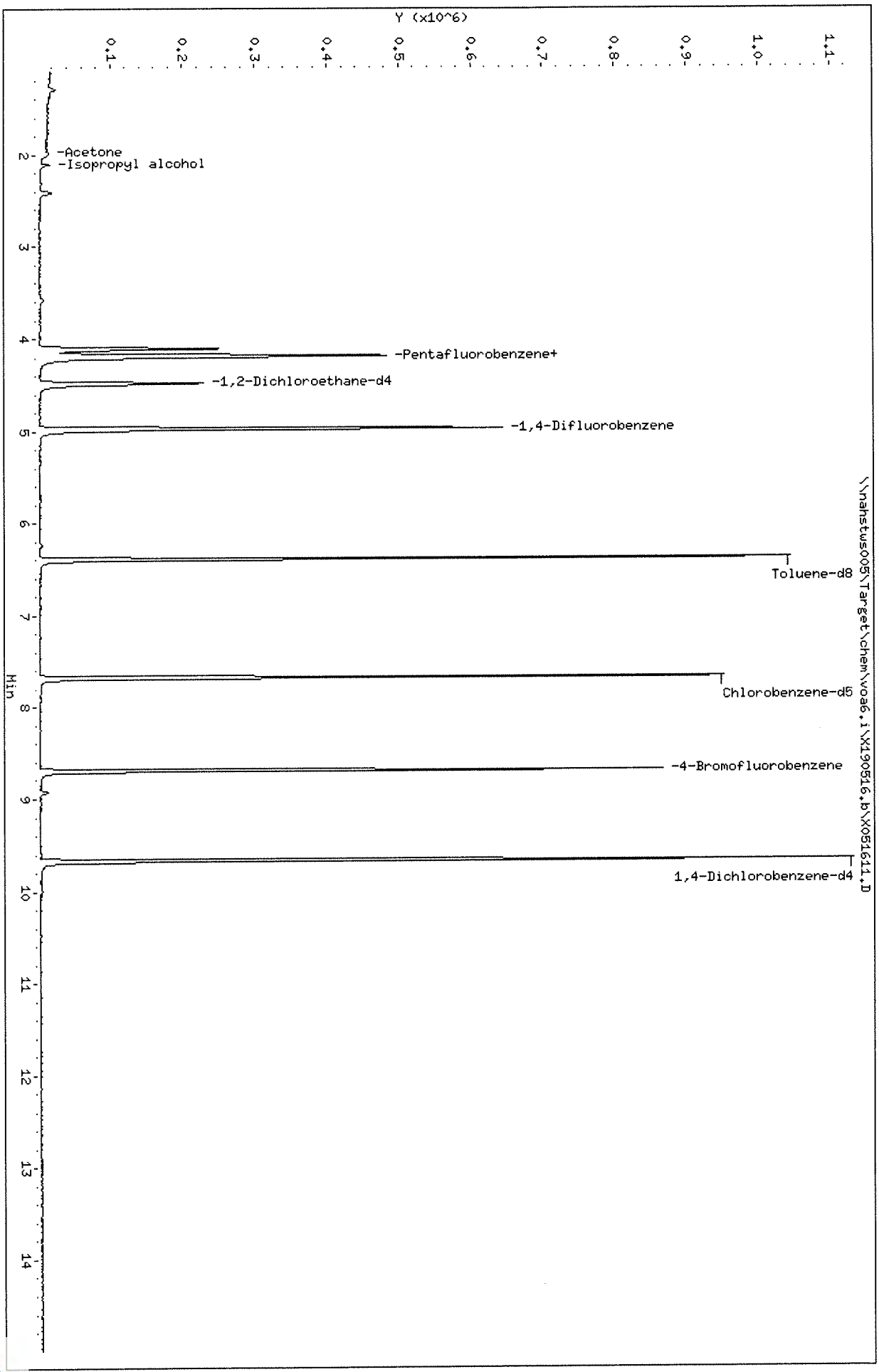
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	457200	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	566405	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	501890	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	282900	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	172811	43.0873	43.08
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	211585	50.1403	50.14
$ 30 Dibromofluoromethane	113	4.110	4.103	(0.981)	172672	43.7958	43.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	633538	51.8568	51.85
10 Acetone	43	1.976	1.976	(0.472)	4169	2.56563	2.56(a)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051611.D
Date : 16-MAY-2019 13:12
Client ID: HS19050403-08
Sample Info: HS19050403-08;HS19050403-08;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Acetone
-Isopropyl alcohol
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051611.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051611.D

Date : 16-MAY-2019 13:12

Client ID: HS19050403-08

Instrument: voa6.i

Sample Info: HS19050403-08;HS19050403-08;;;

Purge Volume: 5.0

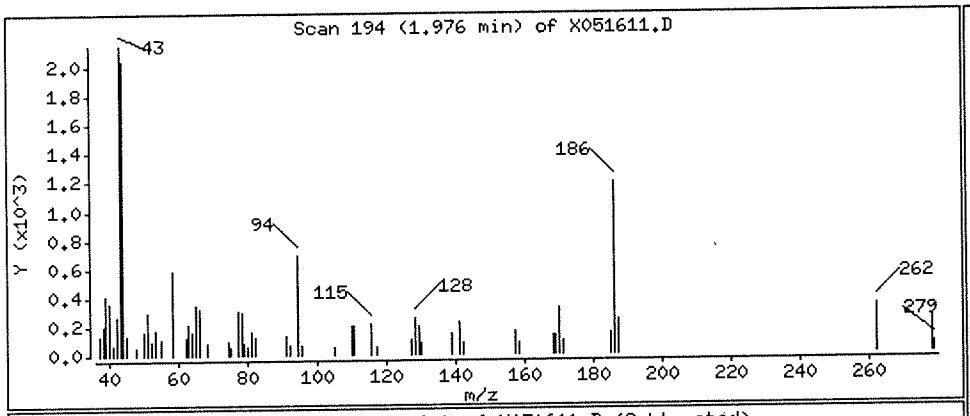
Operator: PC

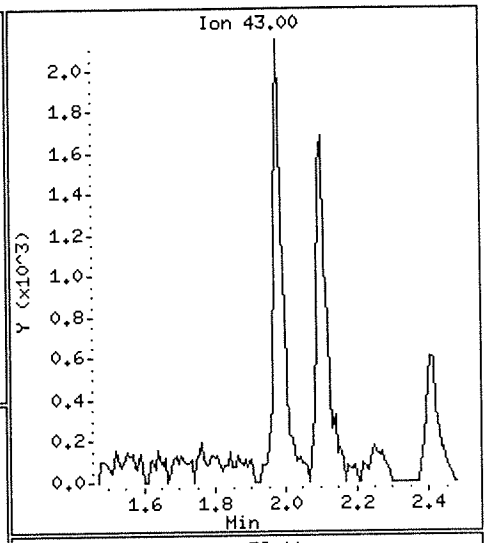
Column phase: DB624

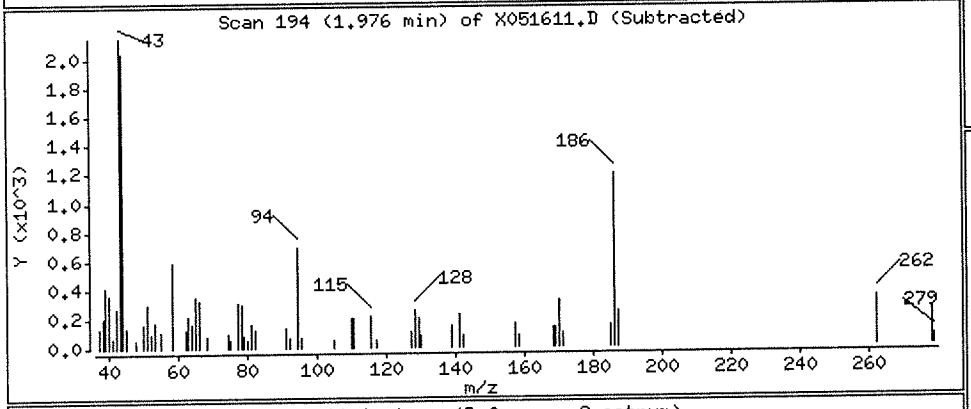
Column diameter: 0.18

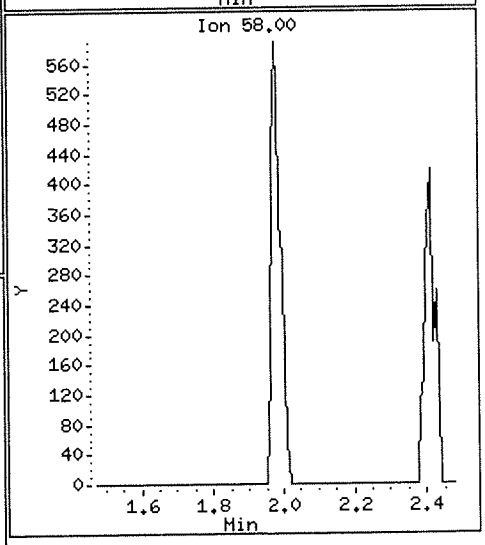
10 Acetone

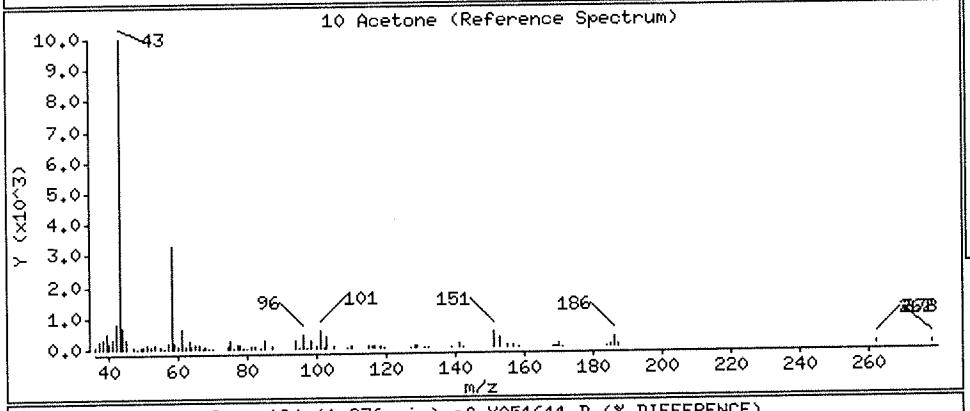
Concentration: 2.56 ug/l

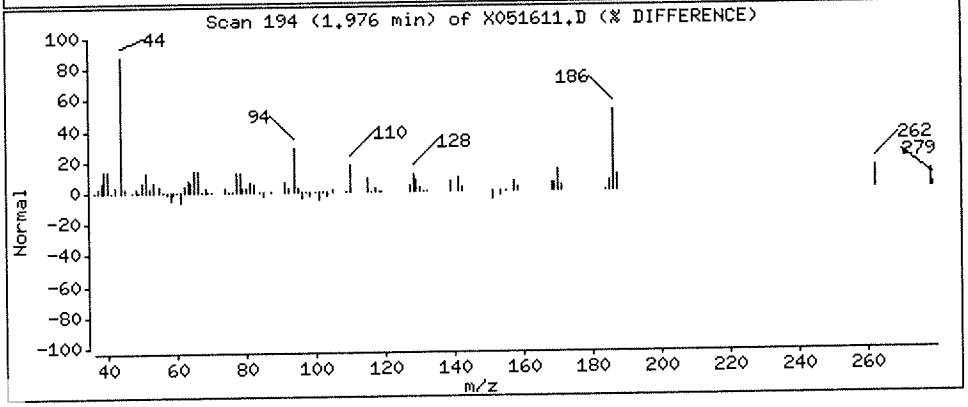












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051613.D
Report Date: 06-Jun-2019 15:16

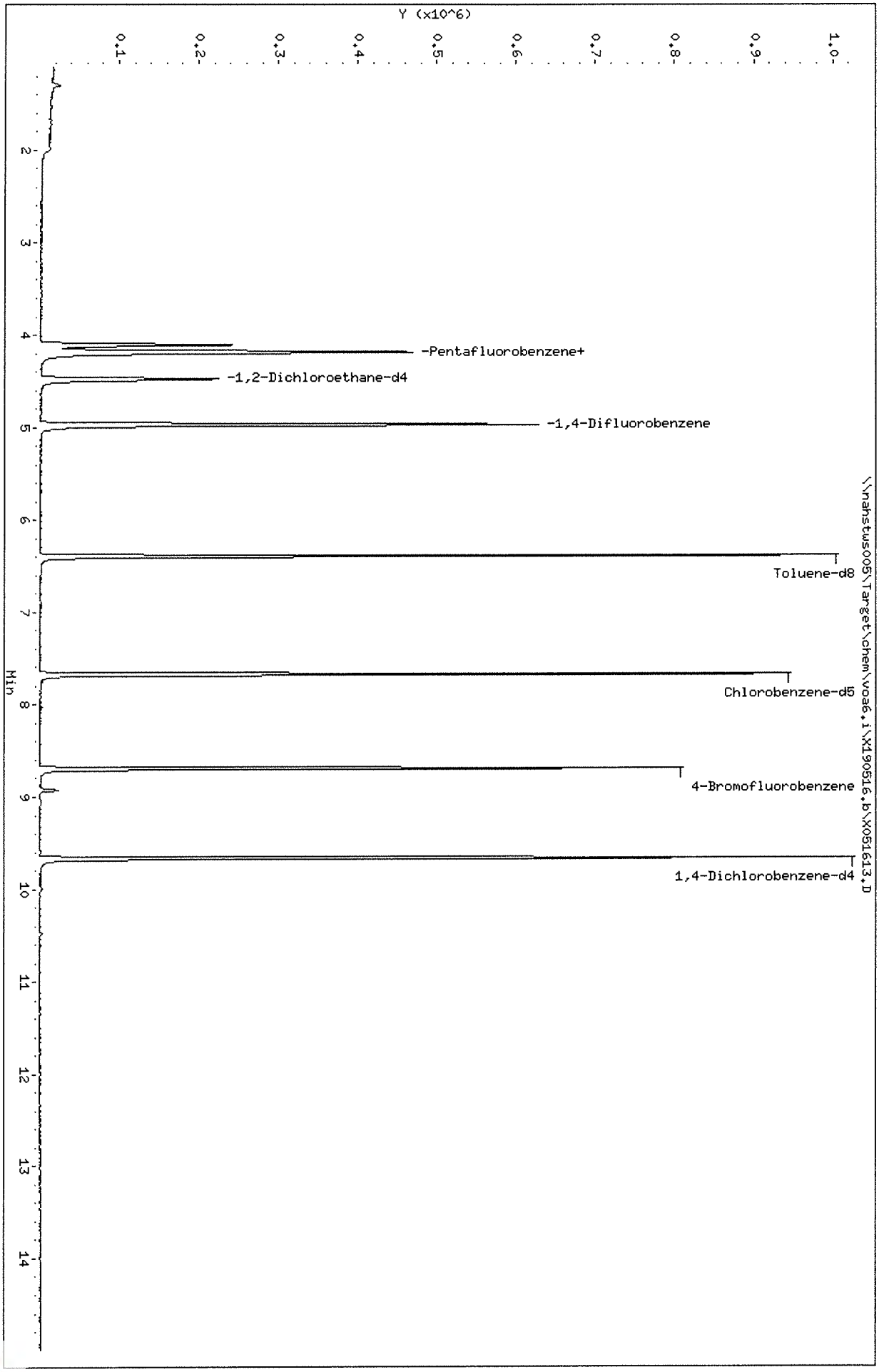
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051613.D
Lab Smp Id: HS19050403-05 Client Smp ID: HS19050403-05
Inj Date : 16-MAY-2019 14:00
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-05;HS19050403-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

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

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	448588	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	559217	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	488096	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	257654	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	169581	43.0938	43.09
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	202916	49.4370	49.43
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	168724	43.6145	43.61
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	612547	51.5523	51.55


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051613.D
Date : 16-MAY-2019 14:00
Client ID: HS19050403-05
Sample Info: HS19050403-05;HS19050403-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051613.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D
Lab Smp Id: HS19050403-07 Client Smp ID: HS19050403-07
Inj Date : 16-MAY-2019 14:24
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-07;HS19050403-07;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

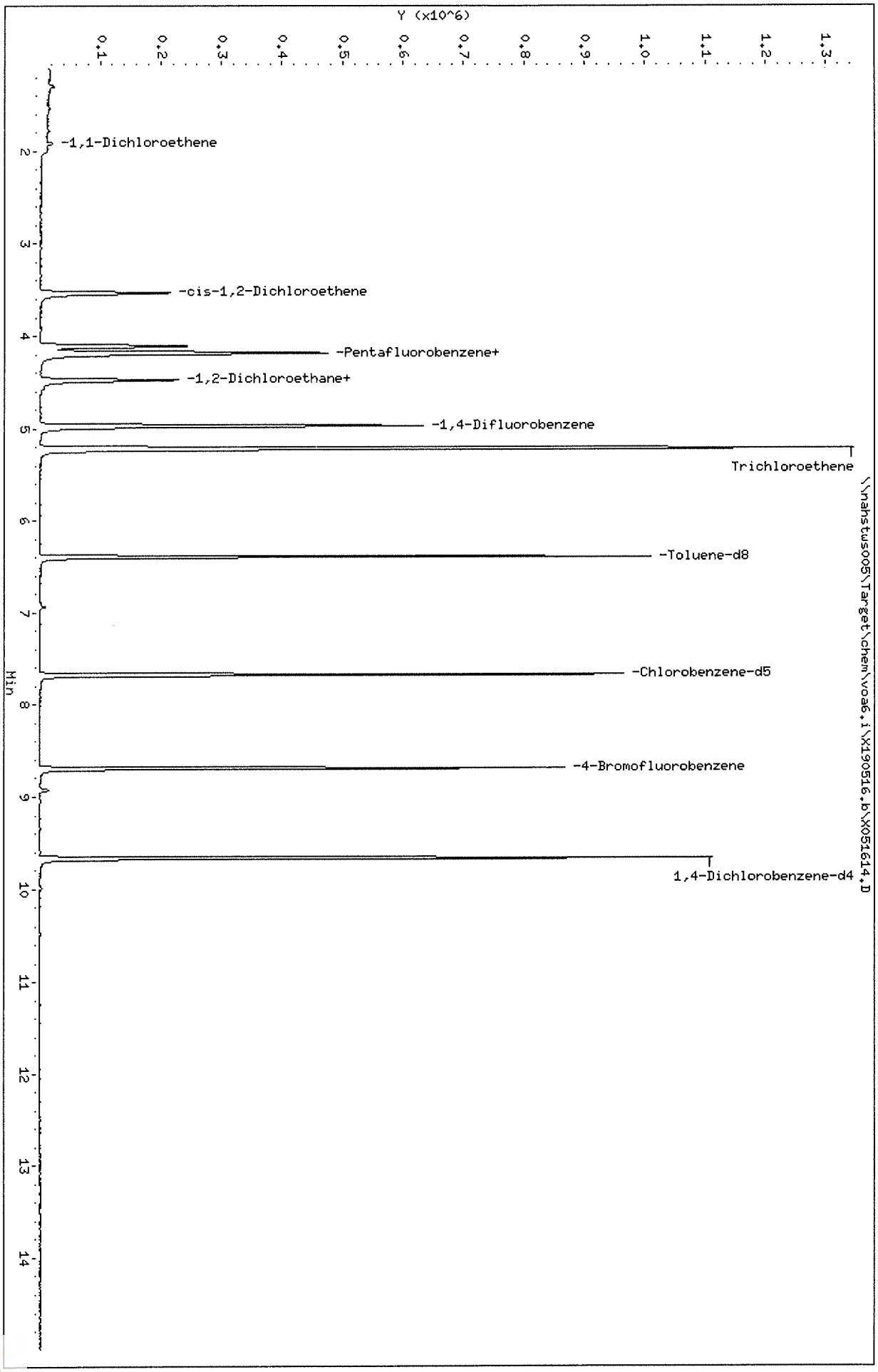
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	447245	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	561277	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	498122	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	278538	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	169535	43.2119	43.21
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	209008	49.9016	49.90
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	170449	44.1976	44.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	618583	51.0064	51.00
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4243	1.21396	1.21(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	4444	0.94019	0.94(a)
27 cis-1,2-Dichloroethene	96	3.530	3.537	(0.843)	121218	27.8266	27.82
38 Trichloroethene	130	5.214	5.214	(1.049)	496397	114.216	114.21

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D
Date : 16-MAY-2019 14:24
Client ID: HS19050403-07
Sample Info: HS19050403-07;HS19050403-07;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-1,1-Dichloroethene
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D

Date : 16-MAY-2019 14:24

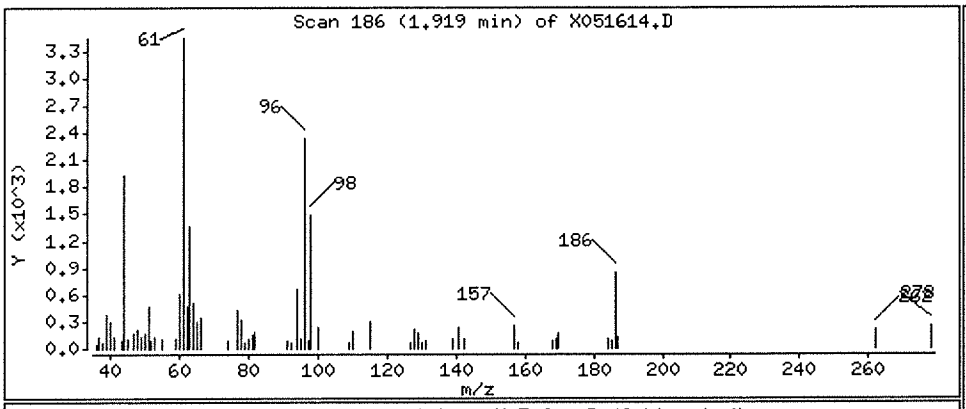
Client ID: HS19050403-07 Instrument: voa6.i

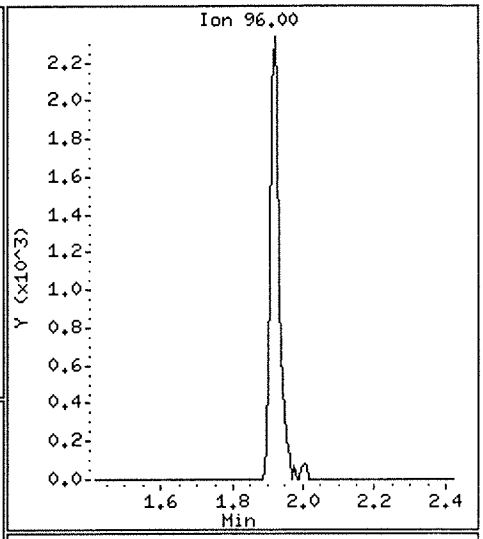
Sample Info: HS19050403-07;HS19050403-07;;;

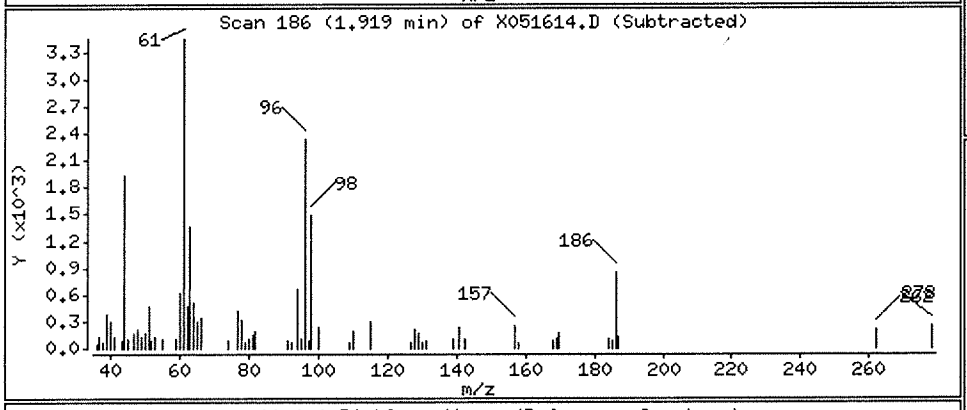
Purge Volume: 5.0 Operator: PC

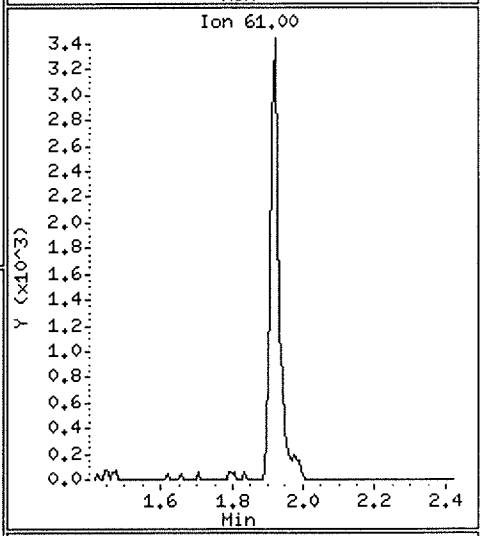
Column phase: DB624 Column diameter: 0.18

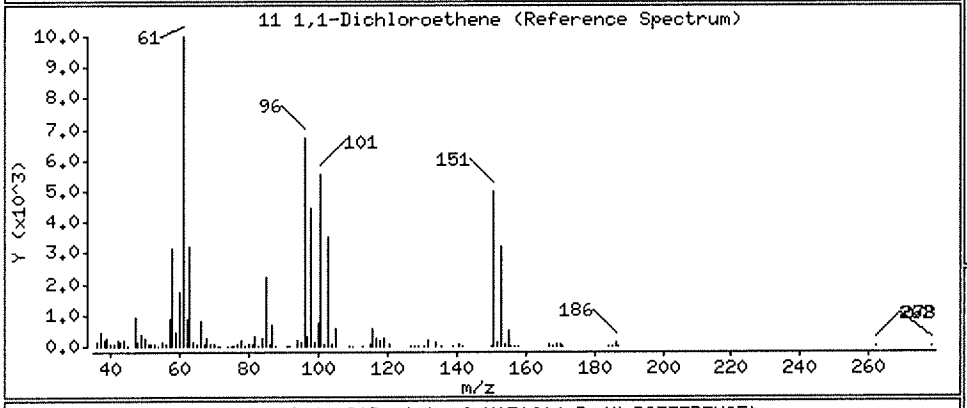
11 1,1-Dichloroethene Concentration: 1.21 ug/l

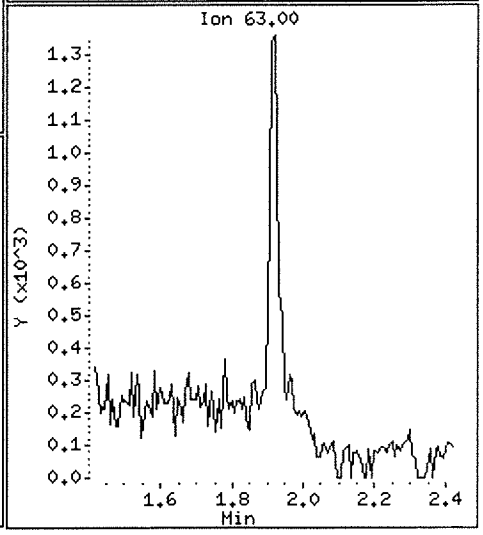


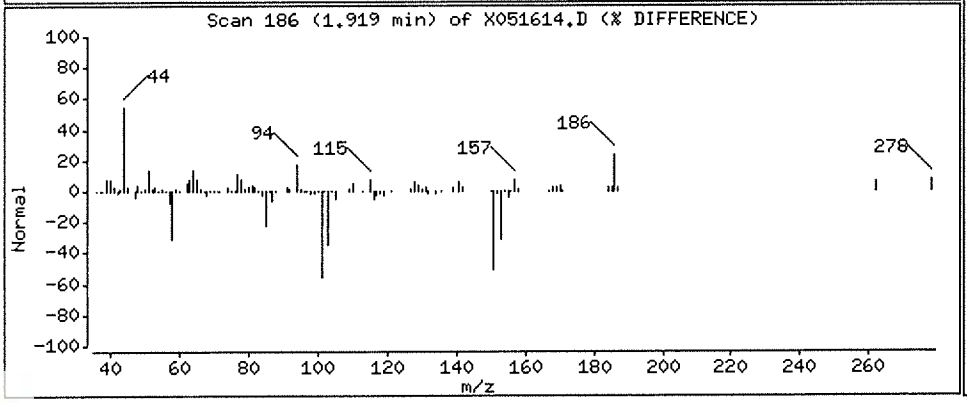












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D

Date : 16-MAY-2019 14:24

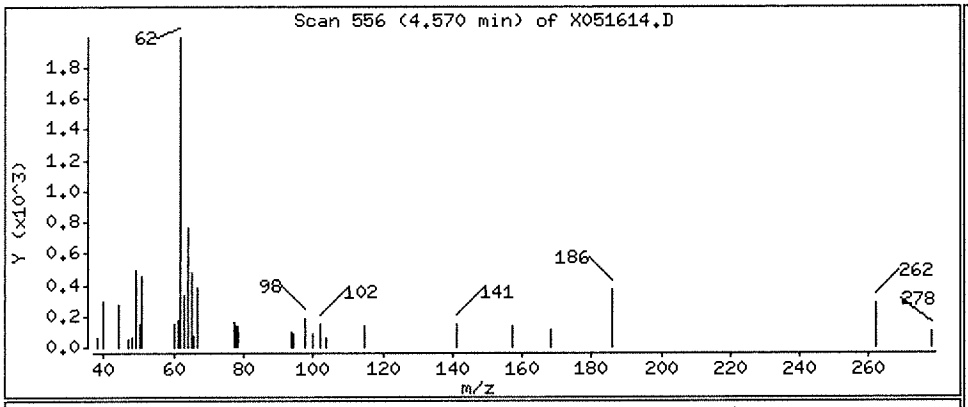
Client ID: HS19050403-07 Instrument: voa6.i

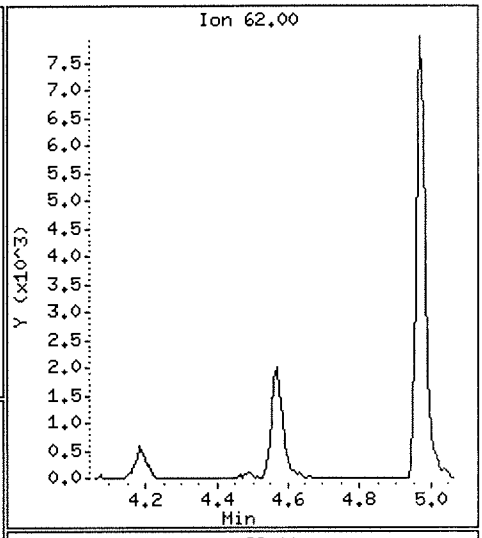
Sample Info: HS19050403-07;HS19050403-07;;;

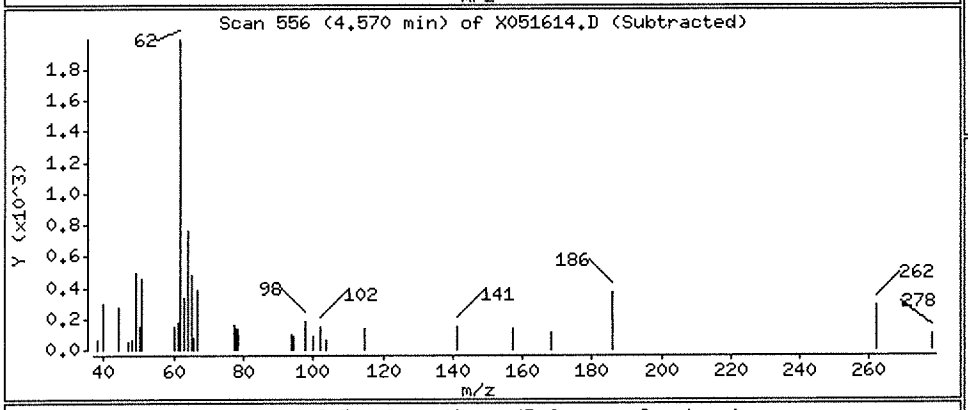
Purge Volume: 5.0 Operator: PC

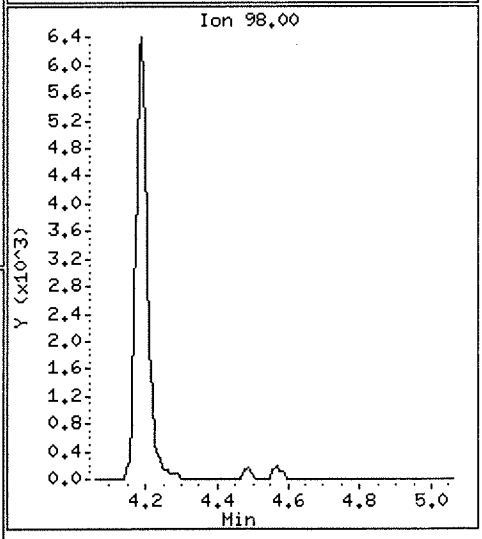
Column phase: DB624 Column diameter: 0.18

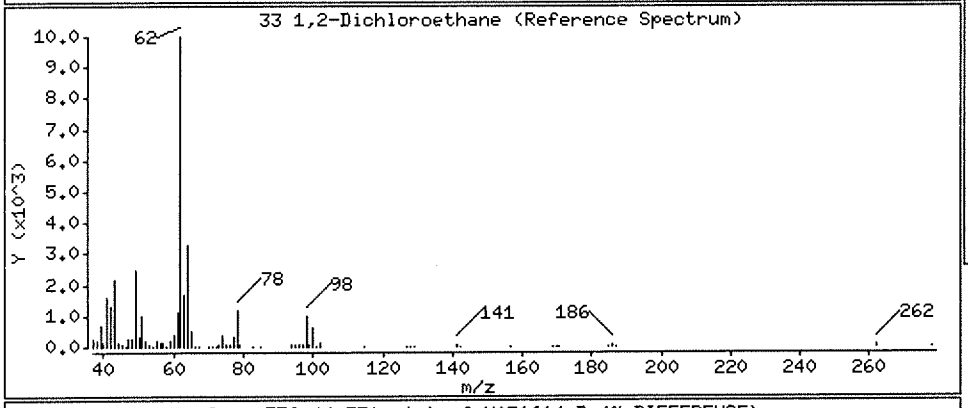
33 1,2-Dichloroethane Concentration: 0.94 ug/l

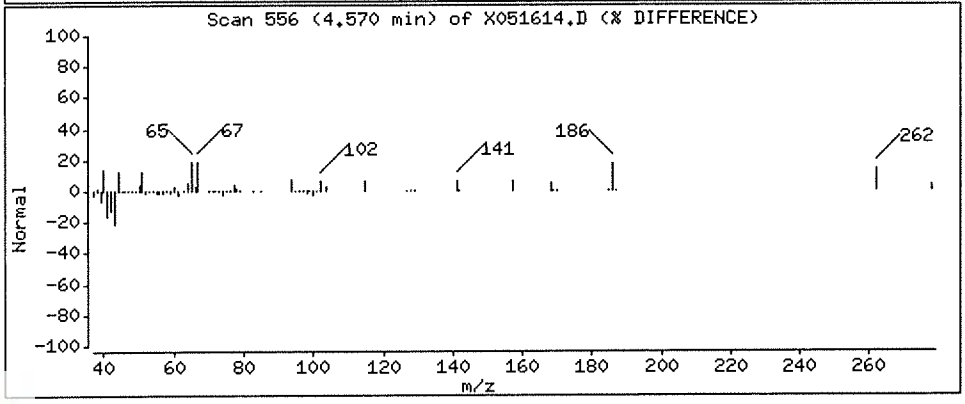












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D

Date : 16-MAY-2019 14:24

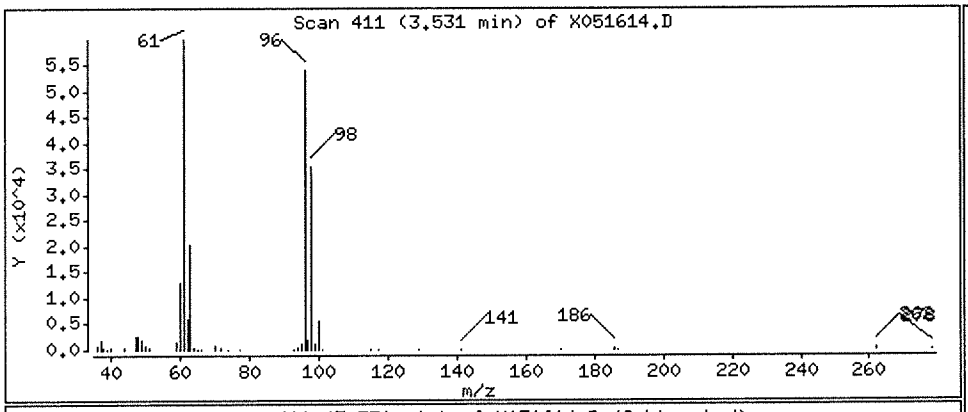
Client ID: HS19050403-07 Instrument: voa6.i

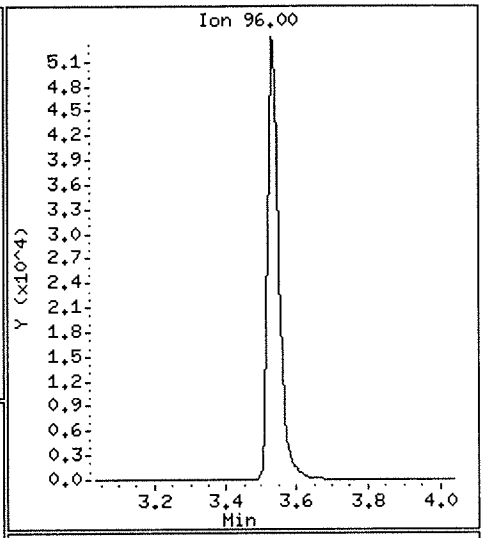
Sample Info: HS19050403-07;HS19050403-07;;;

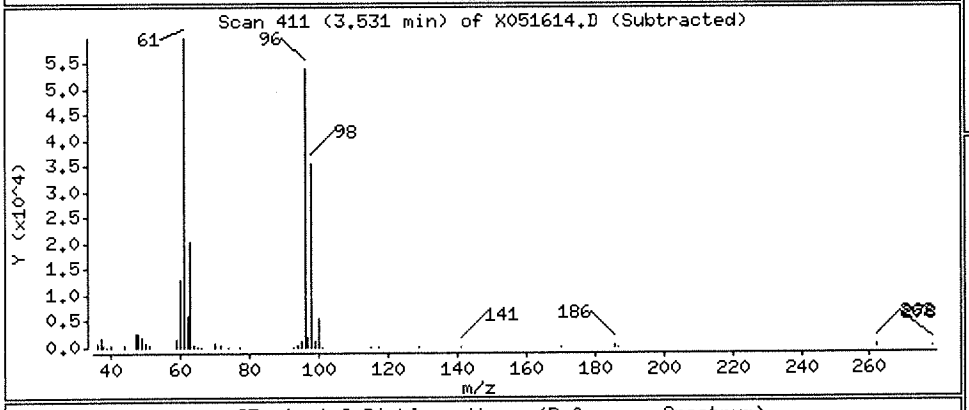
Purge Volume: 5.0 Operator: PC

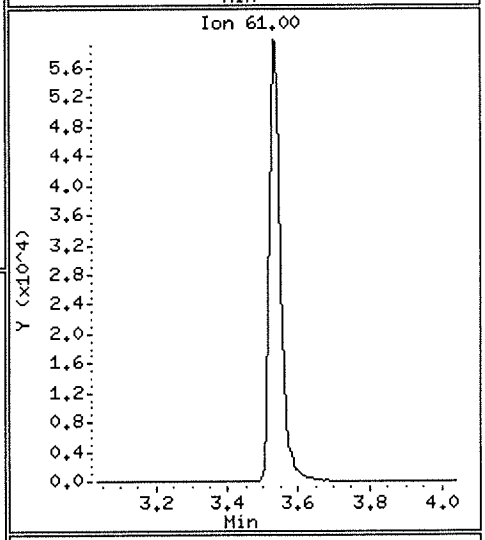
Column phase: DB624 Column diameter: 0.18

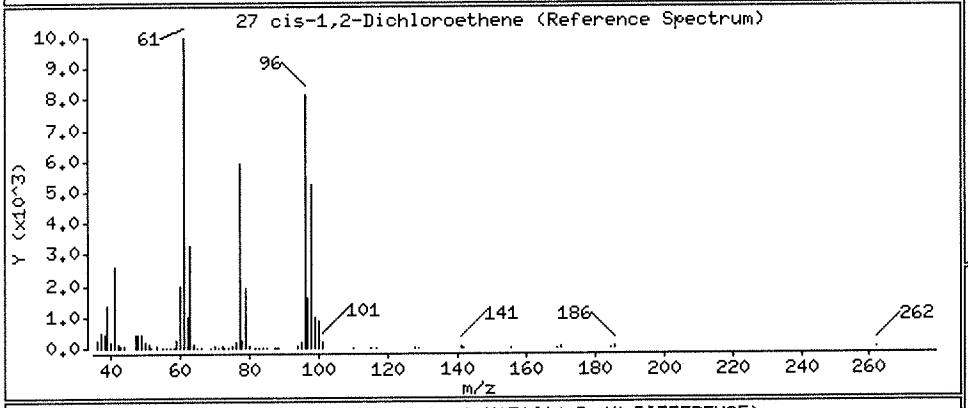
27 cis-1,2-Dichloroethene Concentration: 27.82 ug/l

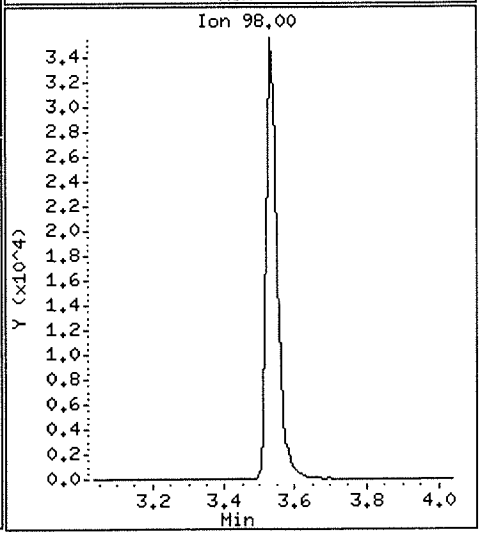


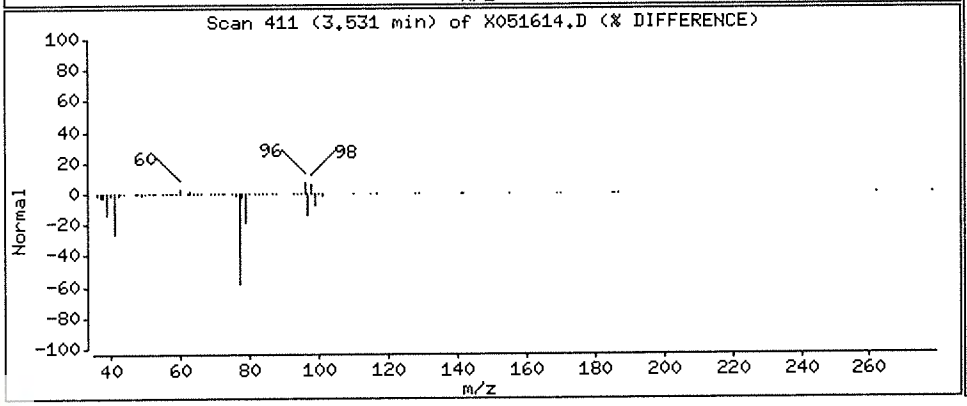












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051614.D

Date : 16-MAY-2019 14:24

Client ID: HS19050403-07

Instrument: voa6.i

Sample Info: HS19050403-07;HS19050403-07;;;

Purge Volume: 5.0

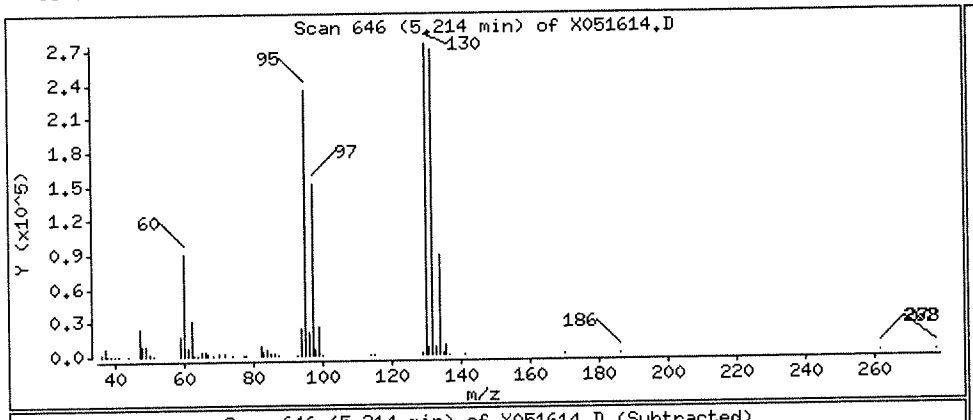
Operator: PC

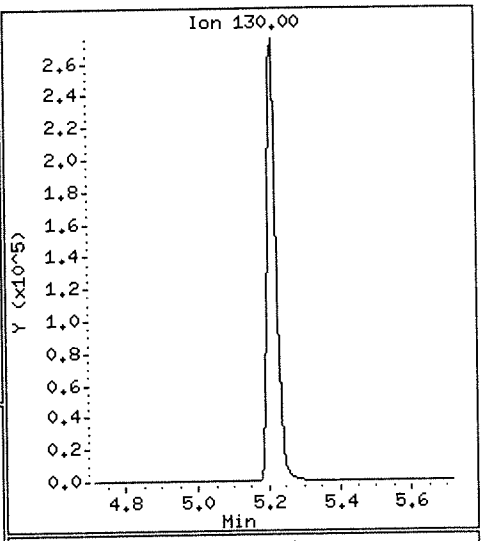
Column phase: DB624

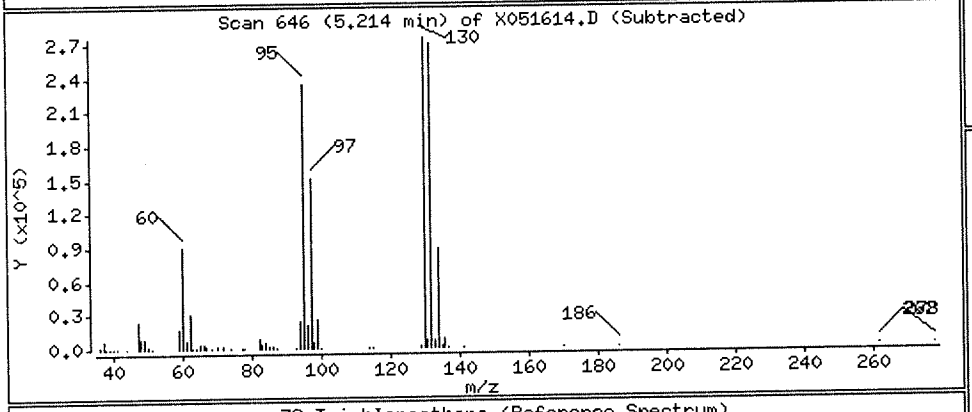
Column diameter: 0.18

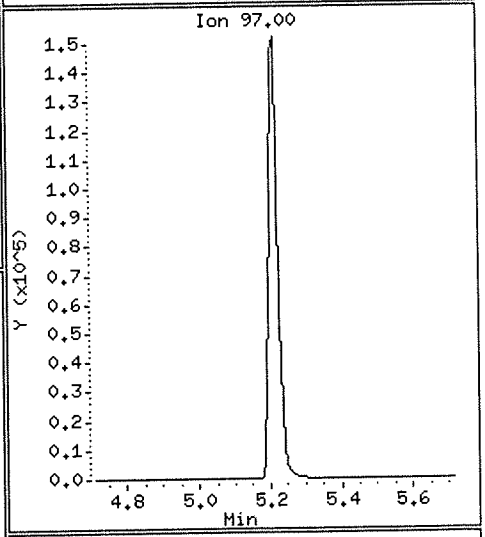
38 Trichloroethene

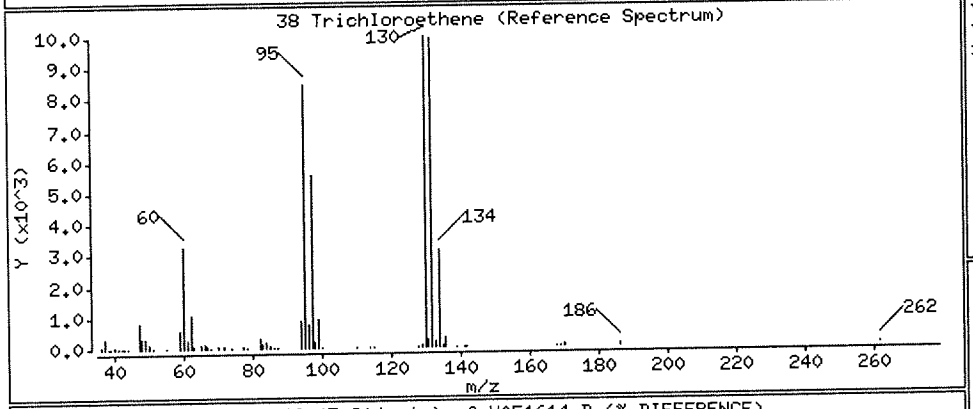
Concentration: 114.21 ug/l

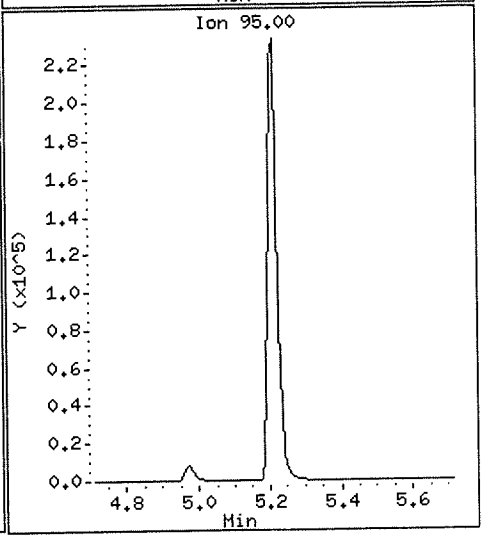


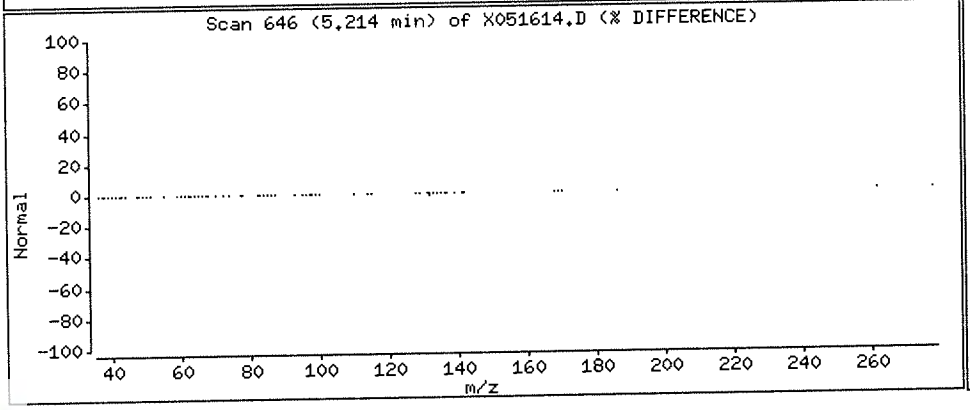












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D
Lab Smp Id: HS19050403-04 Client Smp ID: HS19050403-04
Inj Date : 16-MAY-2019 14:48
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-04;HS19050403-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

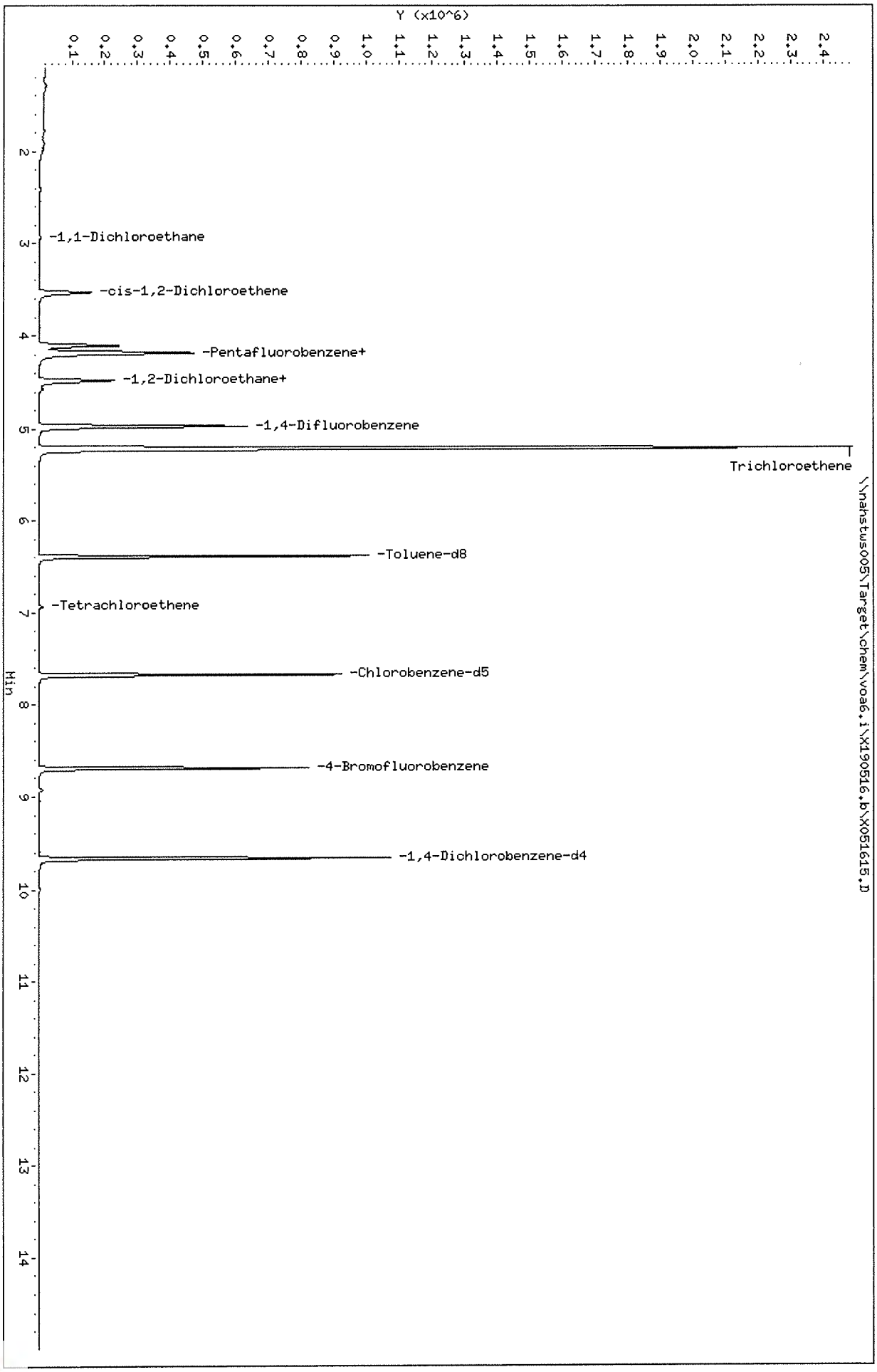
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	451336	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	557679	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	487877	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	270994	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	172765	43.6378	43.63
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	201544	49.1211	49.12
$	30 Dibromofluoromethane	113	4.103	4.103	(0.979)	169767	43.6170	43.61
$	48 Toluene-d8	98	6.388	6.388	(0.832)	617311	51.9813	51.98
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2947	0.46326	0.46(a)
	33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	9660	2.05690	2.05(a)
	27 cis-1,2-Dichloroethene	96	3.530	3.537	(0.843)	89909	20.4523	20.45
	56 Tetrachloroethene	164	6.933	6.933	(0.903)	2683	0.74801	0.74(a)
	38 Trichloroethene	130	5.214	5.214	(1.049)	906943	210.026	210.02(A)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D
Date : 16-MAY-2019 14:48
Client ID: HS19050403-04
Sample Info: HS19050403-04;HS19050403-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4
2 3 4 5 6 7 8 9 10 11 12 13 14
Min
-1,1-Dichloroethane
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Tetrachloroethene
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Date : 16-MAY-2019 14:48

Client ID: HS19050403-04

Instrument: voa6.i

Sample Info: HS19050403-04;HS19050403-04;;;

Operator: PC

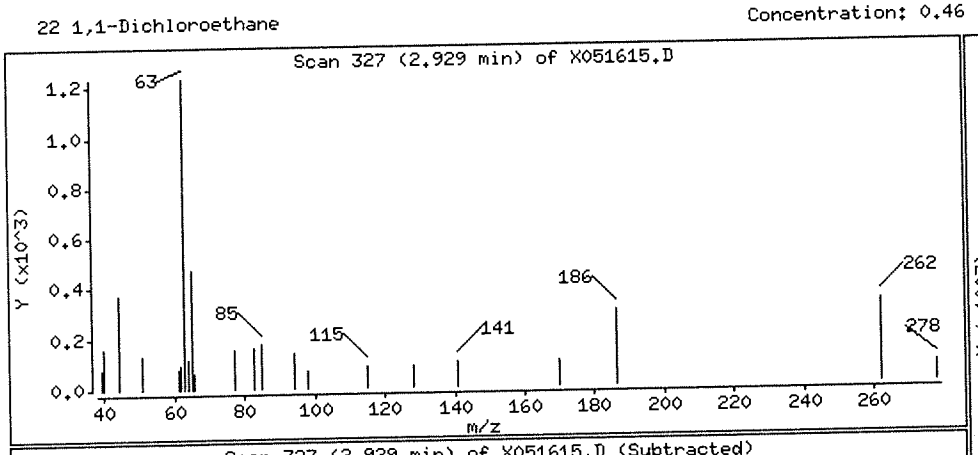
Purge Volume: 5.0

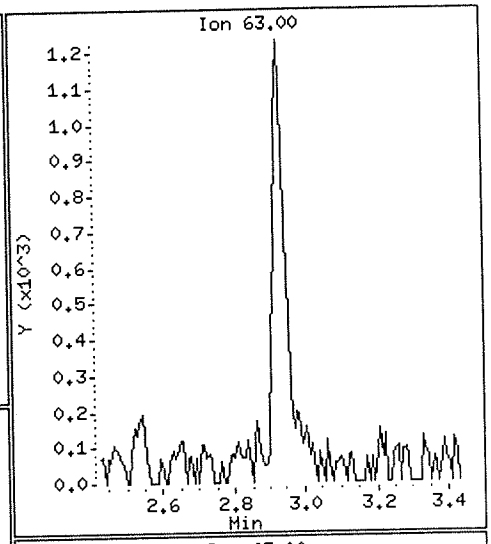
Column phase: DB624

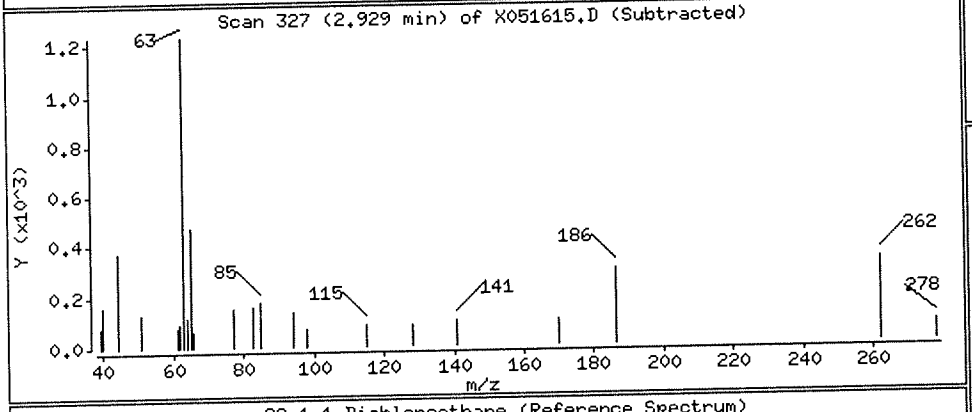
Column diameter: 0.18

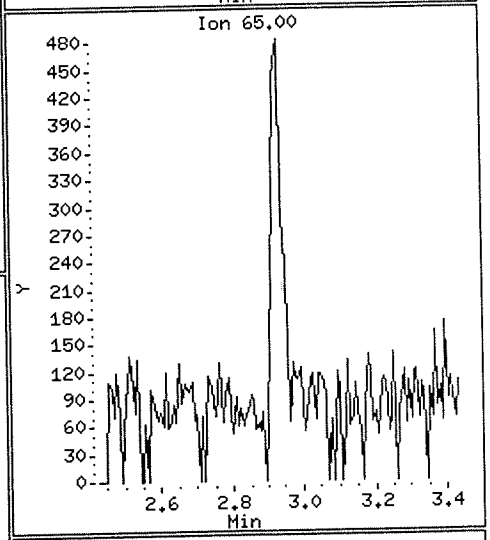
22 1,1-Dichloroethane

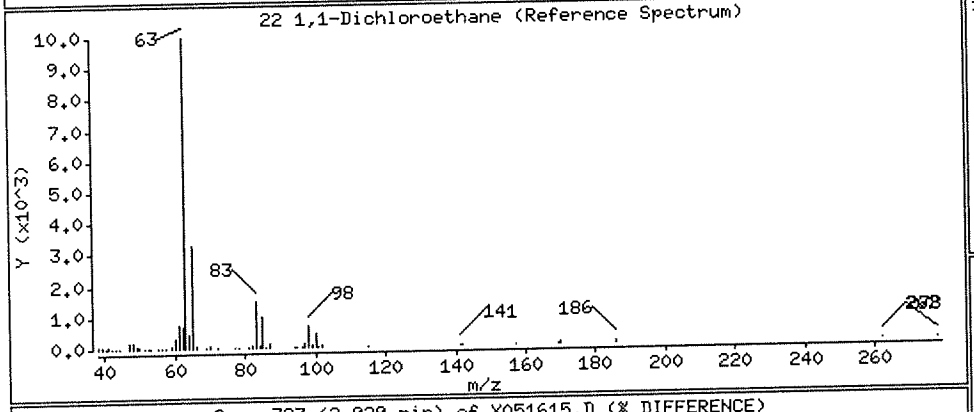
Concentration: 0.46 ug/l

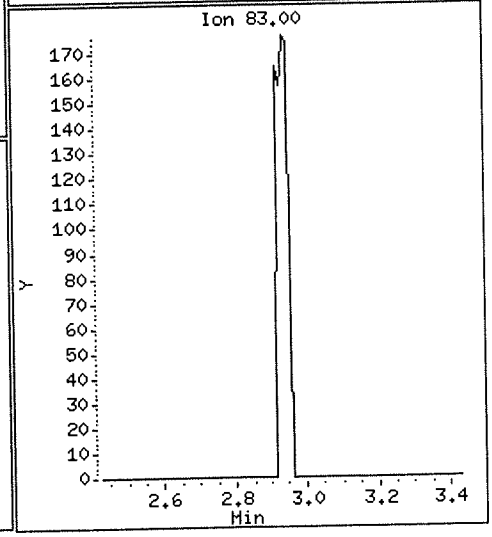


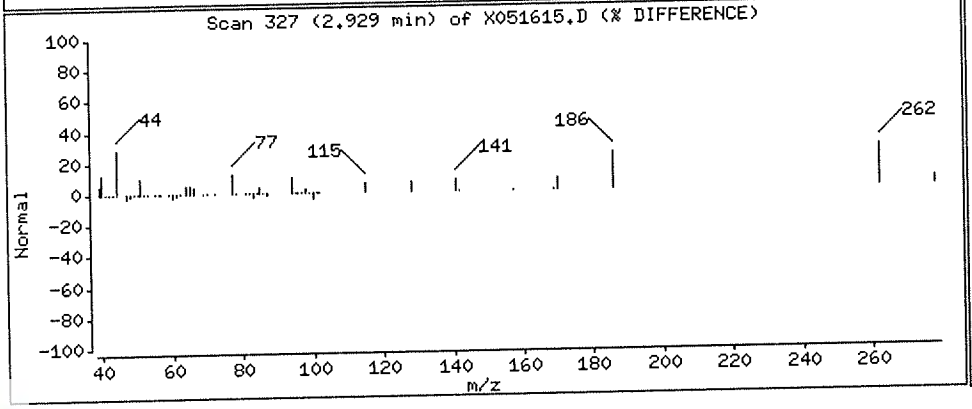












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Date : 16-MAY-2019 14:48

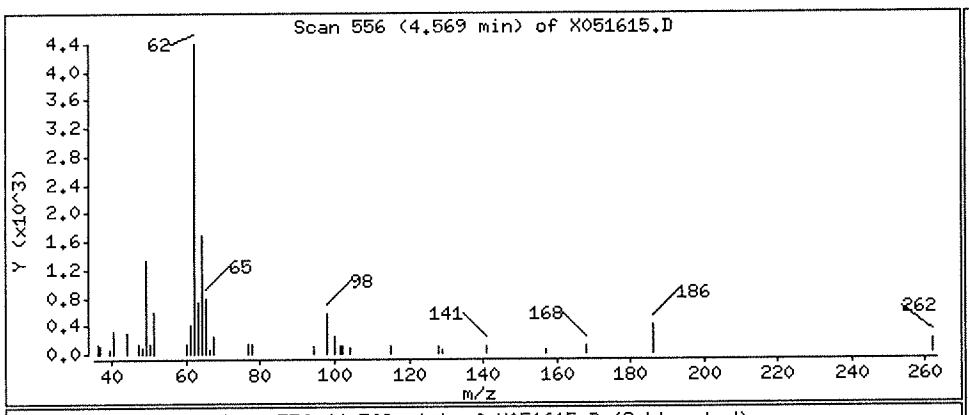
Client ID: HS19050403-04 Instrument: voa6.i

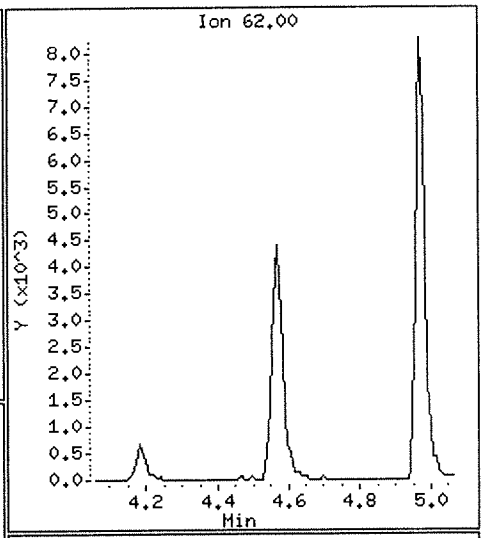
Sample Info: HS19050403-04;HS19050403-04;;;

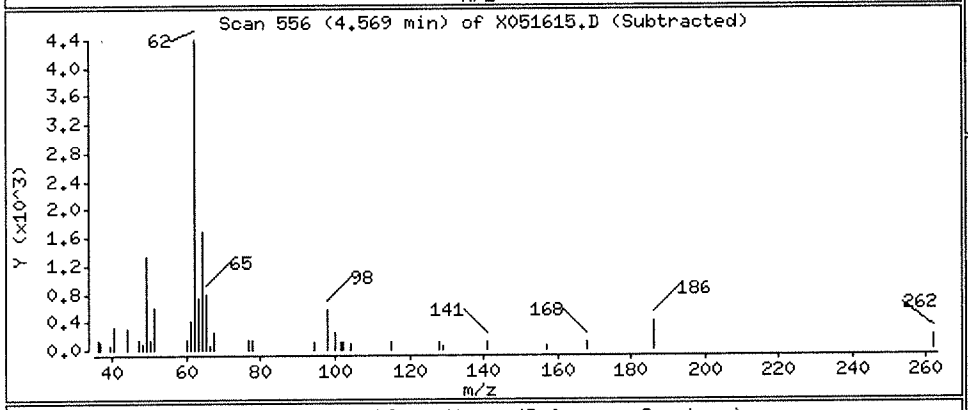
Purge Volume: 5.0 Operator: PC

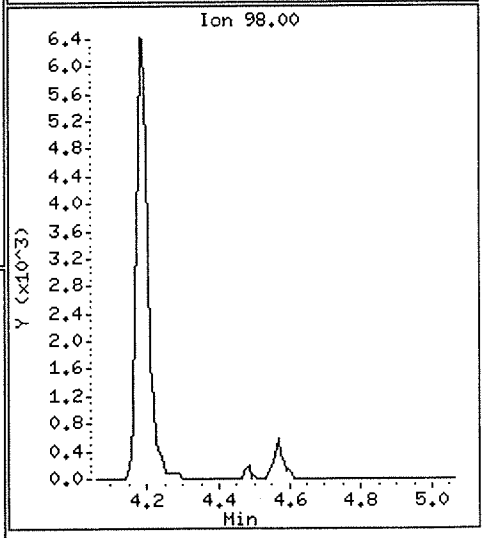
Column phase: DB624 Column diameter: 0.18

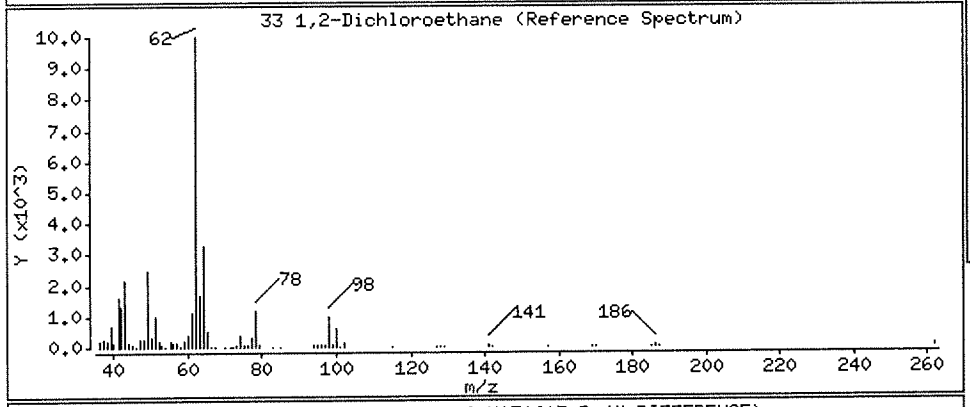
33 1,2-Dichloroethane Concentration: 2.05 ug/l

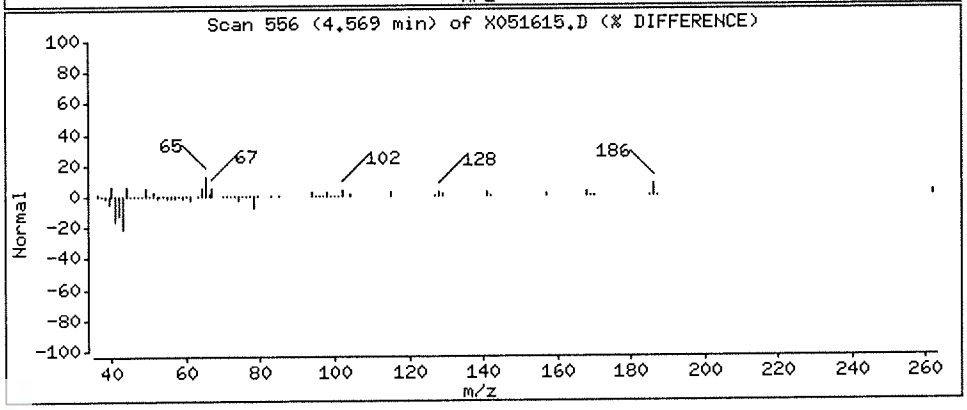












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Date : 16-MAY-2019 14:48

Client ID: HS19050403-04

Instrument: voa6.i

Sample Info: HS19050403-04;HS19050403-04;;;

Purge Volume: 5.0

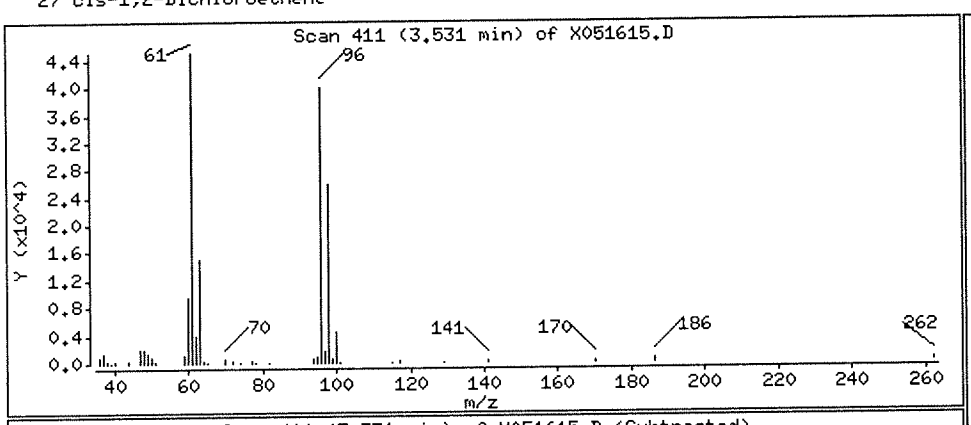
Operator: PC

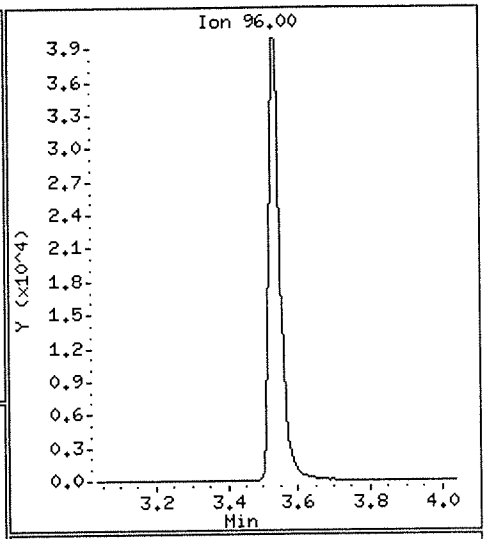
Column phase: DB624

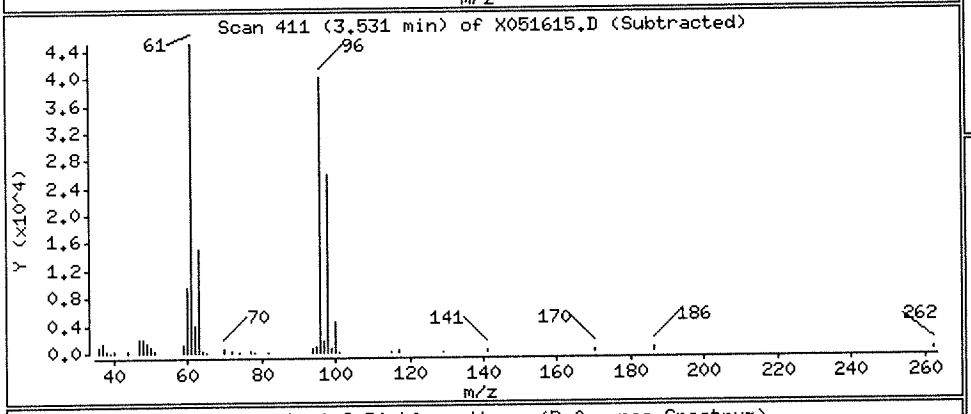
Column diameter: 0.18

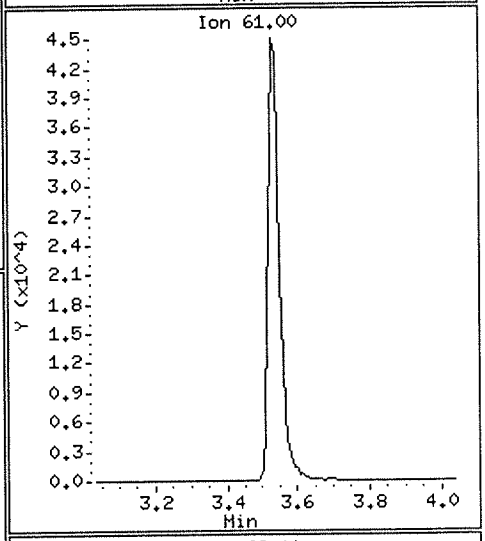
27 cis-1,2-Dichloroethene

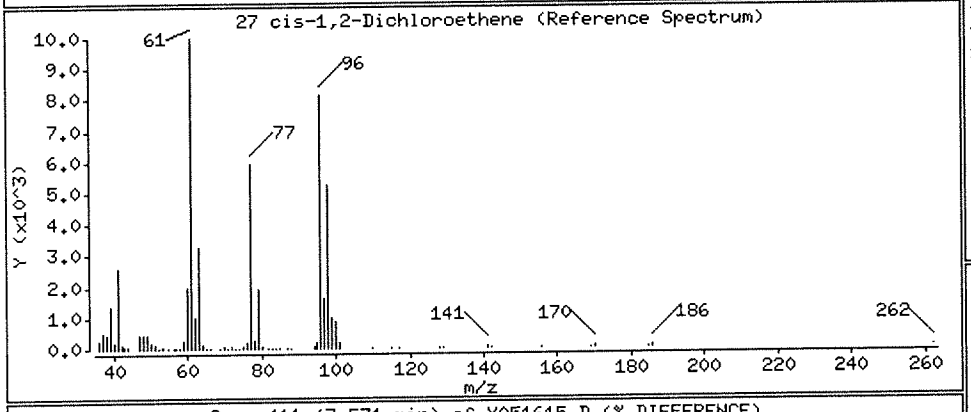
Concentration: 20.45 ug/l

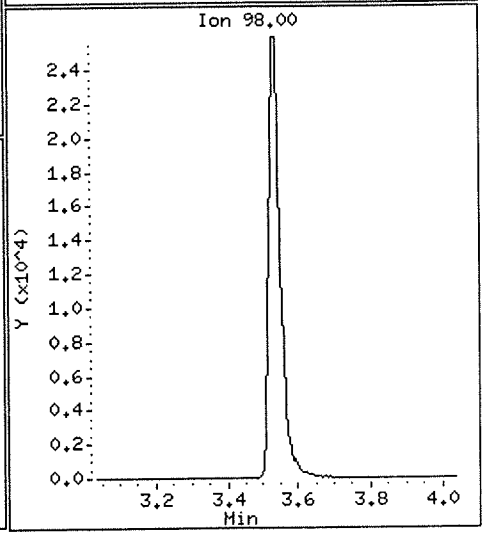


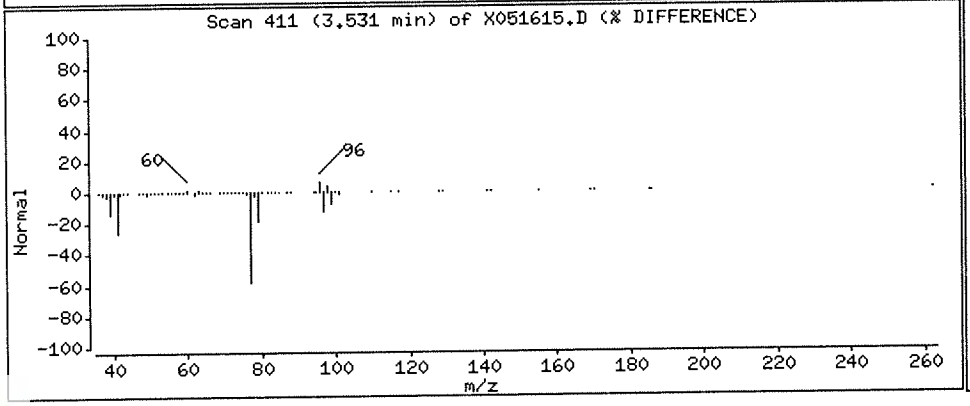












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Date : 16-MAY-2019 14:48

Client ID: HS19050403-04

Instrument: voa6.i

Sample Info: HS19050403-04;HS19050403-04;;;

Purge Volume: 5.0

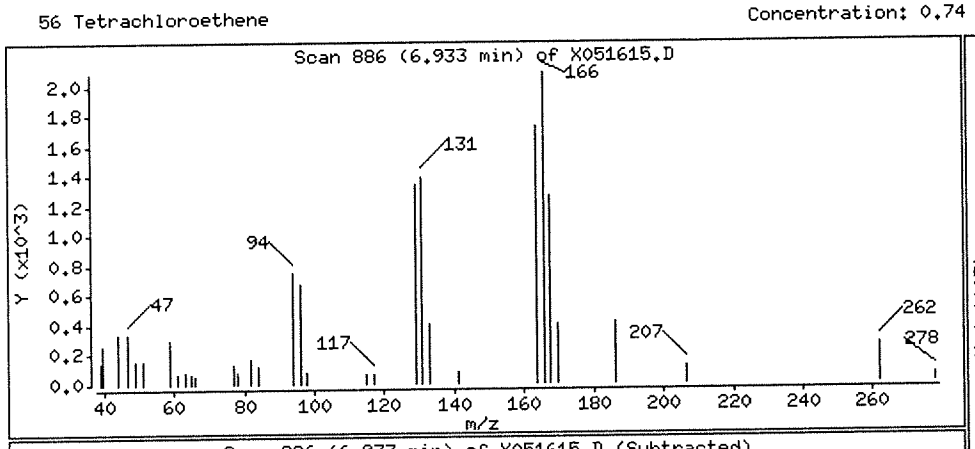
Operator: PC

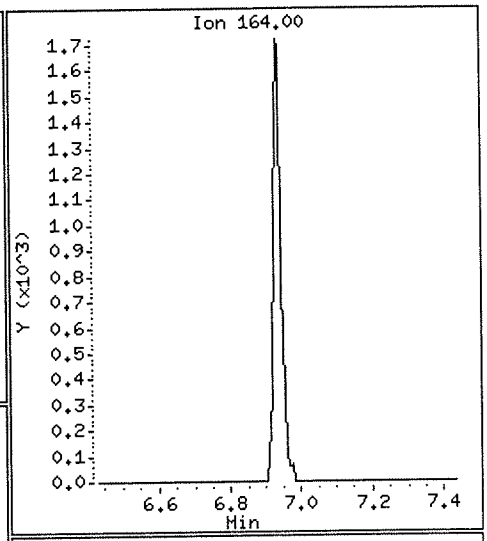
Column phase: DB624

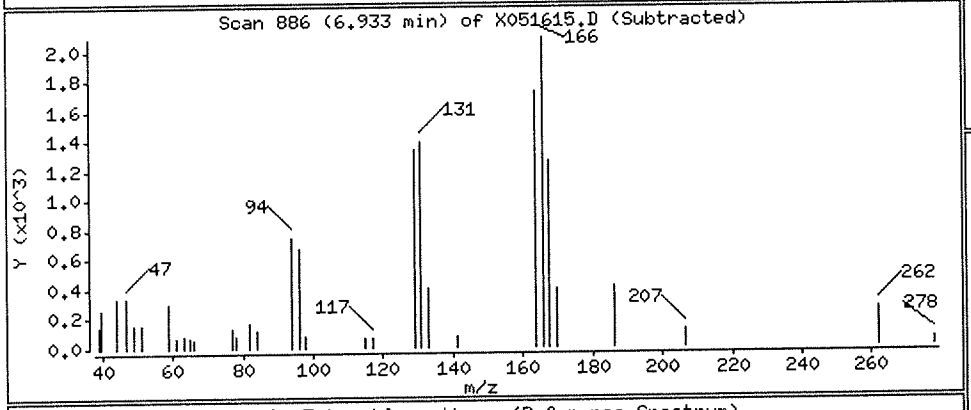
Column diameter: 0.18

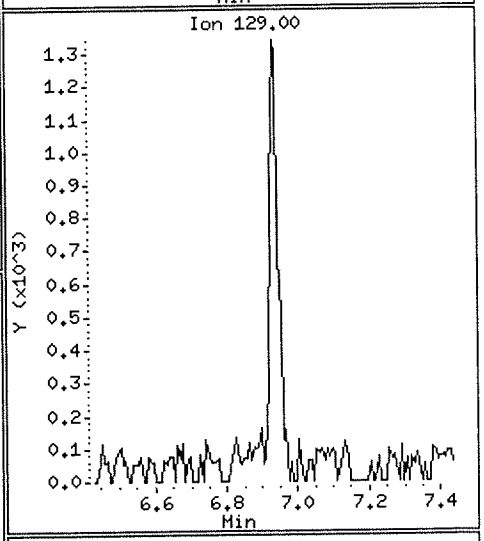
56 Tetrachloroethene

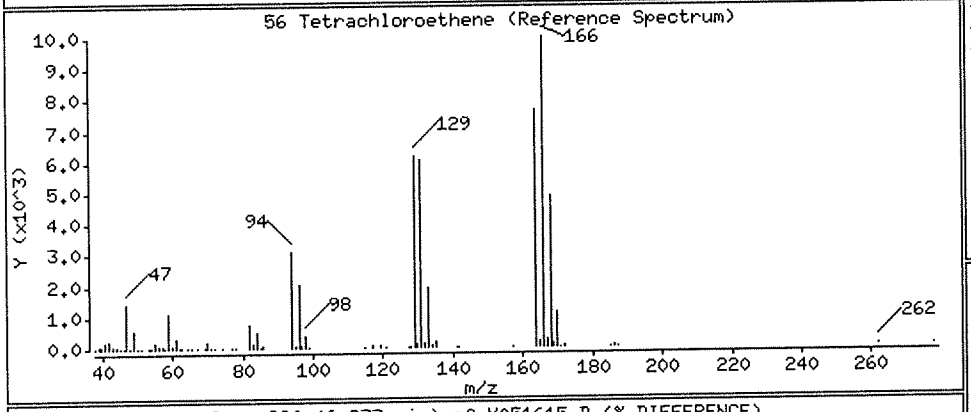
Concentration: 0.74 ug/l

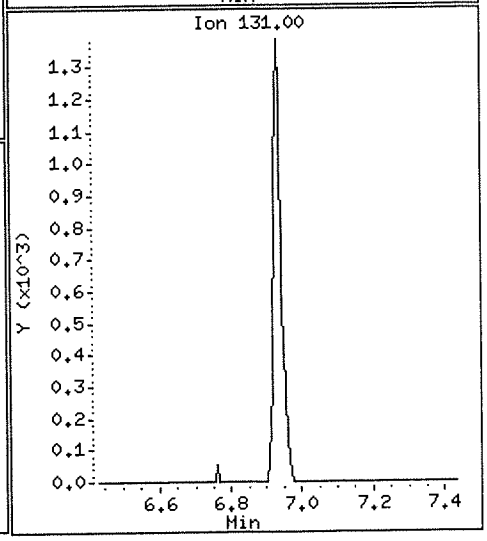


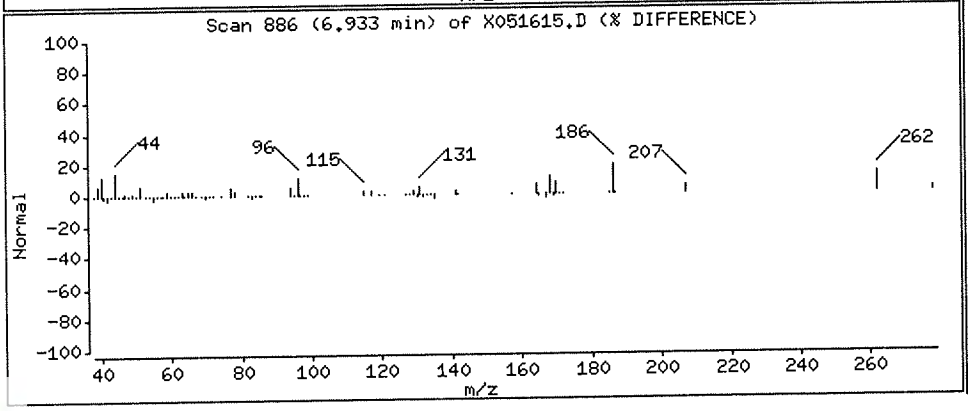












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051615.D

Date : 16-MAY-2019 14:48

Client ID: HS19050403-04

Instrument: voa6.i

Sample Info: HS19050403-04;HS19050403-04;;;

Purge Volume: 5.0

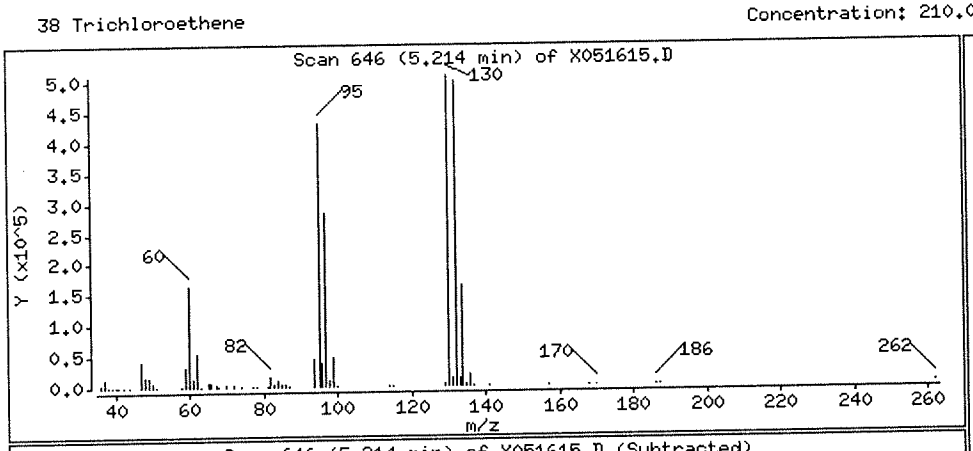
Operator: PC

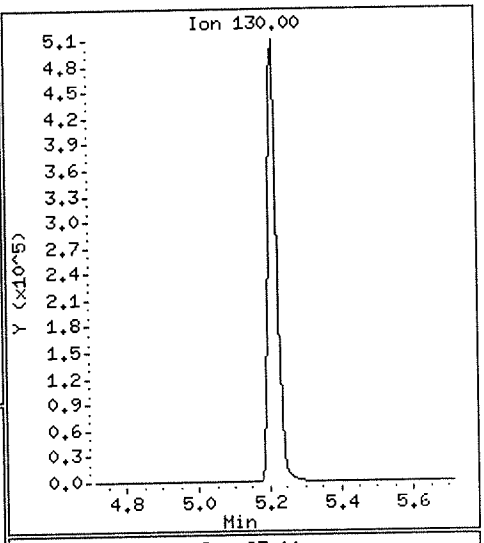
Column phase: DB624

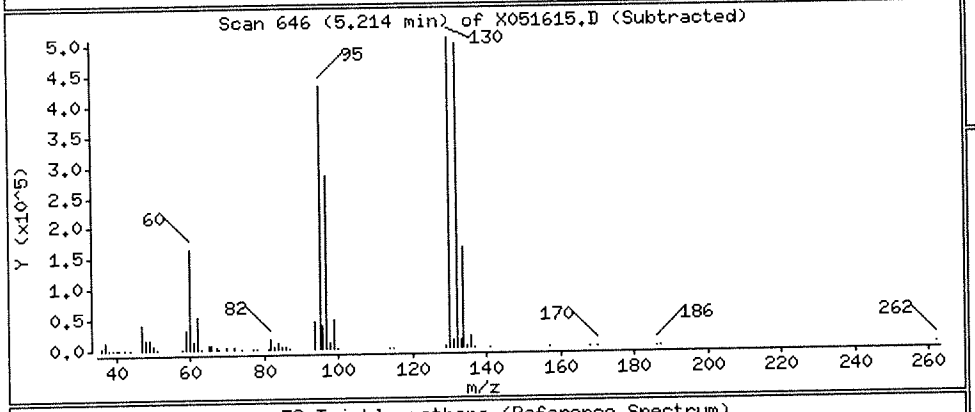
Column diameter: 0.18

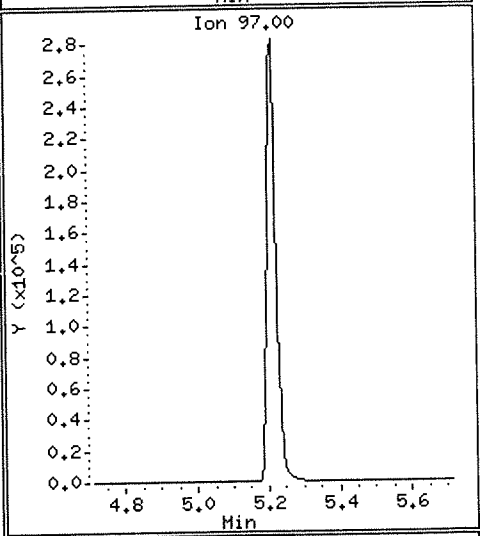
38 Trichloroethene

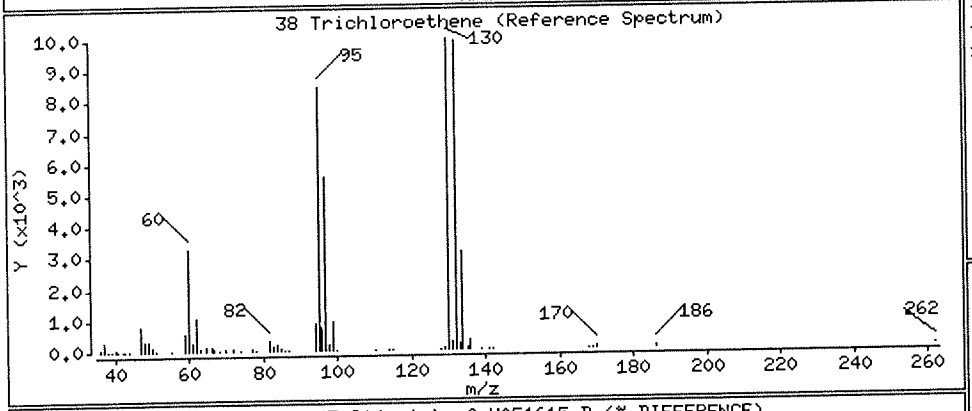
Concentration: 210.02 ug/l

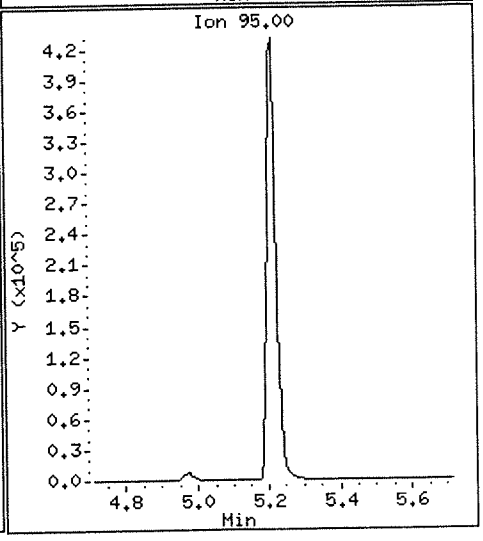


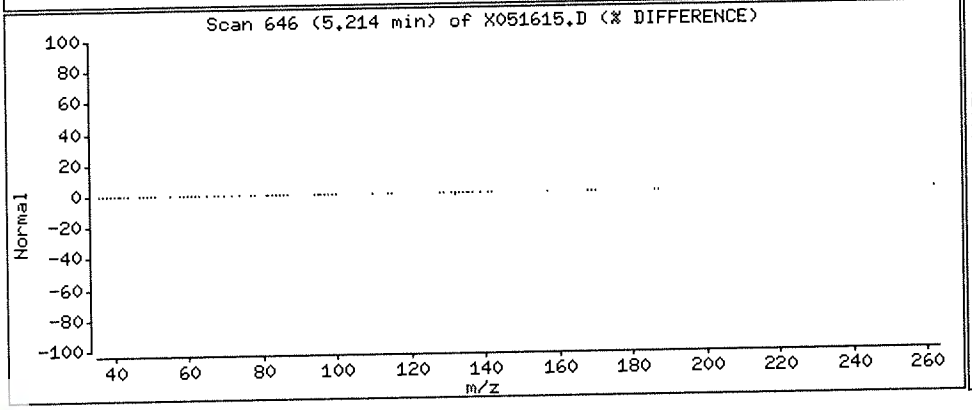












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Report Date: 06-Jun-2019 15:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Lab Smp Id: HS19050403-05MS Client Smp ID: HS19050403-05MS
Inj Date : 16-MAY-2019 15:12
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-05MS;HS19050403-05MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:20 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 16 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

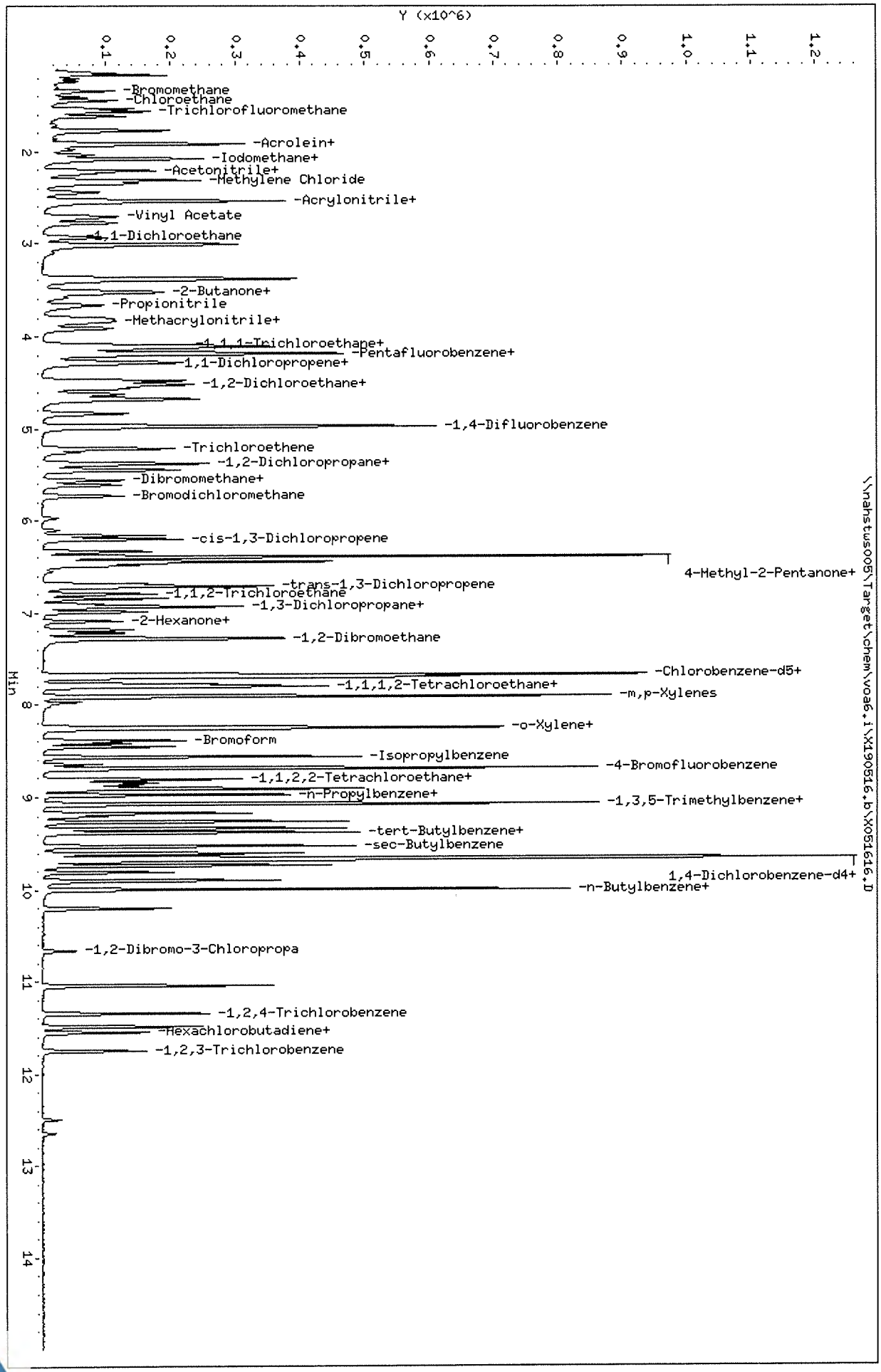
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	435585	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	543822	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	486911	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	267138	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	170160	44.5377	44.53
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	205555	50.2107	50.21
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	168598	44.8937	44.89
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	601942	50.7745	50.77
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	66023	17.3804	17.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	95079	16.4854	16.48
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	69129	18.9920	18.99
138 Freon TF	101	1.919	1.919	(0.458)	57071	17.8648	17.86
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	44291	17.7593	17.75
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	97801	15.9301	15.93
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	54832	16.1079	16.10
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	80389	17.7735	17.77
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	49207	22.5808	22.58
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	77053	18.5121	18.51
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	79945	20.2965	20.29
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	227153	17.8543	17.85
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	12917	22.1380	22.13
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	59718	17.5162	17.51
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	141734	18.3783	18.37

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Report Date: 06-Jun-2019 15:20

	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)	75028	16.3828	16.38
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	55455	17.4623	17.46
75	1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	224450	18.4963	18.49
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	149193	18.1588	18.15
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	88243	17.5392	17.53
84	1,4-Dichlorobenzene	146	9.690	9.691	(1.002)	149817	18.1131	18.11
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	87460	16.0821	16.08
24	2-Butanone	43	3.588	3.581	(0.856)	40272	38.7832	38.78
76	2-Chlorotoluene	91	8.981	8.982	(0.929)	179838	18.2029	18.20
52	2-Hexanone	43	7.090	7.090	(0.924)	61546	36.2884	36.28
77	4-Chlorotoluene	91	9.074	9.075	(0.939)	205183	17.9248	17.92
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	254817	19.4436	19.44
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	89058	36.0727	36.07
10	Acetone	43	1.976	1.976	(0.472)	32500	33.6810	33.68
37	Benzene	78	4.519	4.519	(0.909)	221215	16.8525	16.85
74	Bromobenzene	156	8.809	8.810	(0.911)	85727	17.2195	17.21
29	Bromochloromethane	128	3.802	3.803	(0.908)	37455	16.0635	16.06
39	Bromodichloromethane	83	5.729	5.729	(1.153)	75291	16.5208	16.52
66	Bromoform	173	8.415	8.416	(1.097)	51611	18.1757	18.17
6	Bromomethane	94	1.338	1.339	(0.320)	51940	14.0848	14.08
19	Carbon Disulfide	76	2.069	2.076	(0.494)	329568	33.5759	33.57
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	83424	16.5857	16.58
59	Chlorobenzene	112	7.699	7.699	(1.004)	172748	17.7865	17.78
7	Chloroethane	64	1.403	1.403	(0.335)	38773	15.5951	15.59
28	Chloroform	83	3.917	3.917	(0.935)	103261	15.6856	15.68
3	Chloromethane	50	1.081	1.081	(0.258)	77216	15.7488	15.74
27	cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	66756	15.7346	15.73
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	95963	17.7269	17.72
55	Dibromochloromethane	129	7.183	7.184	(0.937)	67622	17.2835	17.28
44	Dibromomethane	93	5.557	5.558	(1.118)	38831	16.9761	16.97
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	52761	14.4325	14.43
61	Ethylbenzene	106	7.807	7.800	(1.018)	88822	17.6917	17.69
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	46886	19.9902	19.99
67	Isopropylbenzene	105	8.566	8.566	(1.117)	269024	18.0428	18.04
62	m,p-Xylenes	106	7.907	7.907	(1.031)	217881	36.0308	36.03
17	Methylene Chloride	84	2.305	2.306	(0.550)	60929	16.2650	16.26
87	n-Butylbenzene	91	9.998	9.999	(1.034)	199020	19.1687	19.16
73	n-Propylbenzene	91	8.917	8.917	(0.922)	315280	19.2099	19.20
92	Naphthalene	128	11.546	11.546	(1.194)	114633	20.5420	20.54
63	o-Xylene	106	8.244	8.244	(1.075)	107677	18.2007	18.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	281432	19.7154	19.71
64	Styrene	104	8.265	8.265	(1.078)	177958	17.2067	17.20
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	201349	19.1729	19.17
56	Tetrachloroethene	164	6.933	6.933	(0.904)	65972	18.4291	18.42
50	Toluene	91	6.453	6.453	(0.841)	250260	17.5348	17.53
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	59149	16.6168	16.61
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	80068	16.9273	16.92
38	Trichloroethene	130	5.214	5.214	(1.049)	77389	18.3780	18.37
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	104652	16.1754	16.17
5	Vinyl Chloride	62	1.145	1.145	(0.273)	65783	16.5240	16.52



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051616.D
Date : 16-MAY-2019 15:12
Client ID: HS19050403-05MS
Sample Info: HS19050403-05MS;HS19050403-05MS;3;;MS
Purge Volume: 5.0
Column phase: DB624

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

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Report Date: 06-Jun-2019 15:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Lab Smp Id: HS19050403-05MSD Client Smp ID: HS19050403-05MSD
Inj Date : 16-MAY-2019 15:36
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-05MSD;HS19050403-05MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:20 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 16 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

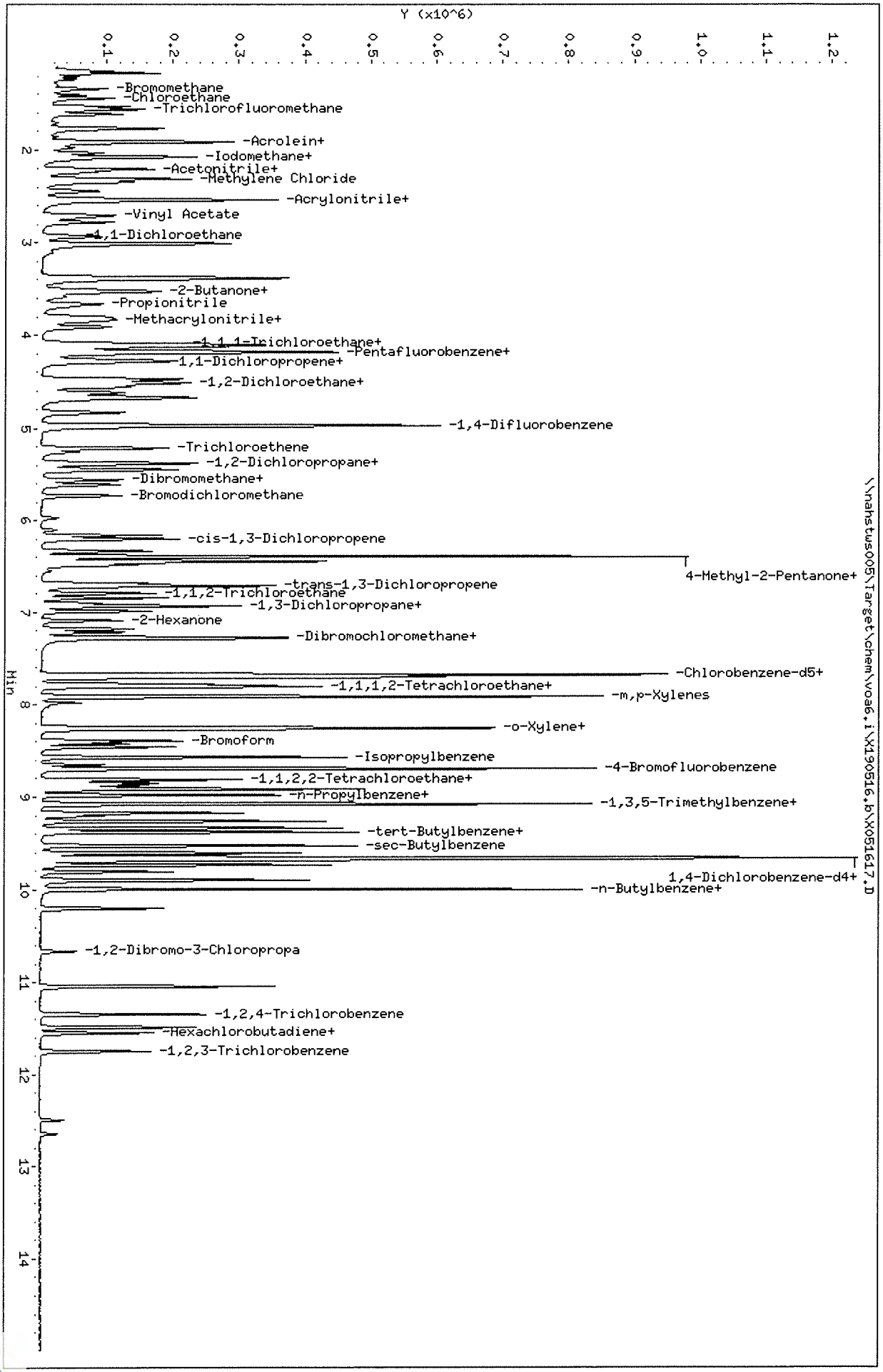
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	423339	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	533046	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	480662	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	268341	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	161854	43.5853	43.58
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	202749	50.1687	50.16
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	162745	44.5862	44.58
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	593257	50.6916	50.69
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	63901	17.0405	17.04
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	89771	16.0154	16.01
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	69417	18.9856	18.98
138 Freon TF	101	1.919	1.919	(0.458)	54411	17.5435	17.54
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	44031	17.8846	17.88
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	91396	15.3175	15.31
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	51217	15.4812	15.48
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	75801	17.0979	17.09
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	51389	23.4294	23.42
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	75951	18.1655	18.16
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	80832	20.4297	20.42
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	220126	17.2244	17.22
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	12481	21.2948	21.29
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	58546	17.3957	17.39
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	138844	17.9228	17.92

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051617.D
Report Date: 06-Jun-2019 15:20

	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)	72749	16.2063	16.20
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	50899	16.3517	16.35
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	214729	17.6159	17.61
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	145916	17.6804	17.68
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	85873	17.2900	17.28
84	1,4-Dichlorobenzene	146	9.683	9.691	(1.001)	147078	17.7022	17.70
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	80311	15.1948	15.19
24	2-Butanone	43	3.581	3.581	(0.855)	37042	36.7045	36.70
76	2-Chlorotoluene	91	8.981	8.982	(0.929)	170318	17.1620	17.16
52	2-Hexanone	43	7.090	7.090	(0.924)	61737	36.8743	36.87
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	197282	17.1573	17.15
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	242821	18.4452	18.44
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	88181	36.1819	36.18
10	Acetone	43	1.976	1.976	(0.472)	31327	33.3900	33.39
37	Benzene	78	4.519	4.519	(0.909)	209038	16.2468	16.24
74	Bromobenzene	156	8.810	8.810	(0.911)	84211	16.8391	16.83
29	Bromochloromethane	128	3.803	3.803	(0.908)	34611	15.2706	15.27
39	Bromodichloromethane	83	5.729	5.729	(1.153)	72208	16.1646	16.16
66	Bromoform	173	8.416	8.416	(1.097)	50756	18.1070	18.10
6	Bromomethane	94	1.339	1.339	(0.320)	46162	12.9736	12.97
19	Carbon Disulfide	76	2.069	2.076	(0.494)	307920	32.2779	32.27
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	78600	15.9426	15.94
59	Chlorobenzene	112	7.699	7.699	(1.004)	166267	17.3418	17.34
7	Chloroethane	64	1.403	1.403	(0.335)	35624	14.7430	14.74
28	Chloroform	83	3.917	3.917	(0.935)	98230	15.3530	15.35
3	Chloromethane	50	1.081	1.081	(0.258)	69188	14.3263	14.32
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	63181	15.3227	15.32
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	93586	17.6373	17.63
55	Dibromochloromethane	129	7.184	7.184	(0.937)	67628	17.5098	17.50
44	Dibromomethane	93	5.558	5.558	(1.118)	37680	16.8059	16.80
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	49154	13.8624	13.86
61	Ethylbenzene	106	7.807	7.800	(1.018)	84659	17.0817	17.08
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	46061	19.5505	19.55
67	Isopropylbenzene	105	8.566	8.566	(1.117)	256175	17.4044	17.40
62	m,p-Xylenes	106	7.907	7.907	(1.031)	211102	35.3636	35.36
17	Methylene Chloride	84	2.306	2.306	(0.550)	57201	15.6901	15.69
87	n-Butylbenzene	91	9.999	9.999	(1.034)	193762	18.5786	18.57
73	n-Propylbenzene	91	8.917	8.917	(0.922)	301087	18.2629	18.26
92	Naphthalene	128	11.546	11.546	(1.194)	117727	21.0019	21.00
63	o-Xylene	106	8.244	8.244	(1.075)	104031	17.8130	17.81
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	271572	18.9394	18.93
64	Styrene	104	8.265	8.265	(1.078)	173996	17.0423	17.04
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	197548	18.7266	18.72
56	Tetrachloroethene	164	6.933	6.933	(0.904)	62079	17.5671	17.56
50	Toluene	91	6.453	6.453	(0.841)	235736	16.7319	16.73
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	55332	15.9942	15.99
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	79192	17.0806	17.08
38	Trichloroethene	130	5.214	5.214	(1.049)	71382	17.2942	17.29
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	98547	15.6724	15.67
5	Vinyl Chloride	62	1.145	1.145	(0.273)	60832	15.7224	15.72



Data File: \\nahstus005\Target\chem\voa6.i\X190516.b\X051617.D
Date : 16-MAY-2019 15:36
Client ID: HS19050403-05HSD
Sample Info: HS19050403-05HSD;HS19050403-05HSD;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\X190516.b\X051621.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051621.D
Lab Smp Id: HS19050403-04 Client Smp ID: HS19050403-04
Inj Date : 16-MAY-2019 17:17
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-04;HS19050403-04;;;
Misc Info : HS18090001;WATER;0;5;
Comment :
Method : \\NAHSTWS005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 19
Dil Factor: 5.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTWS005

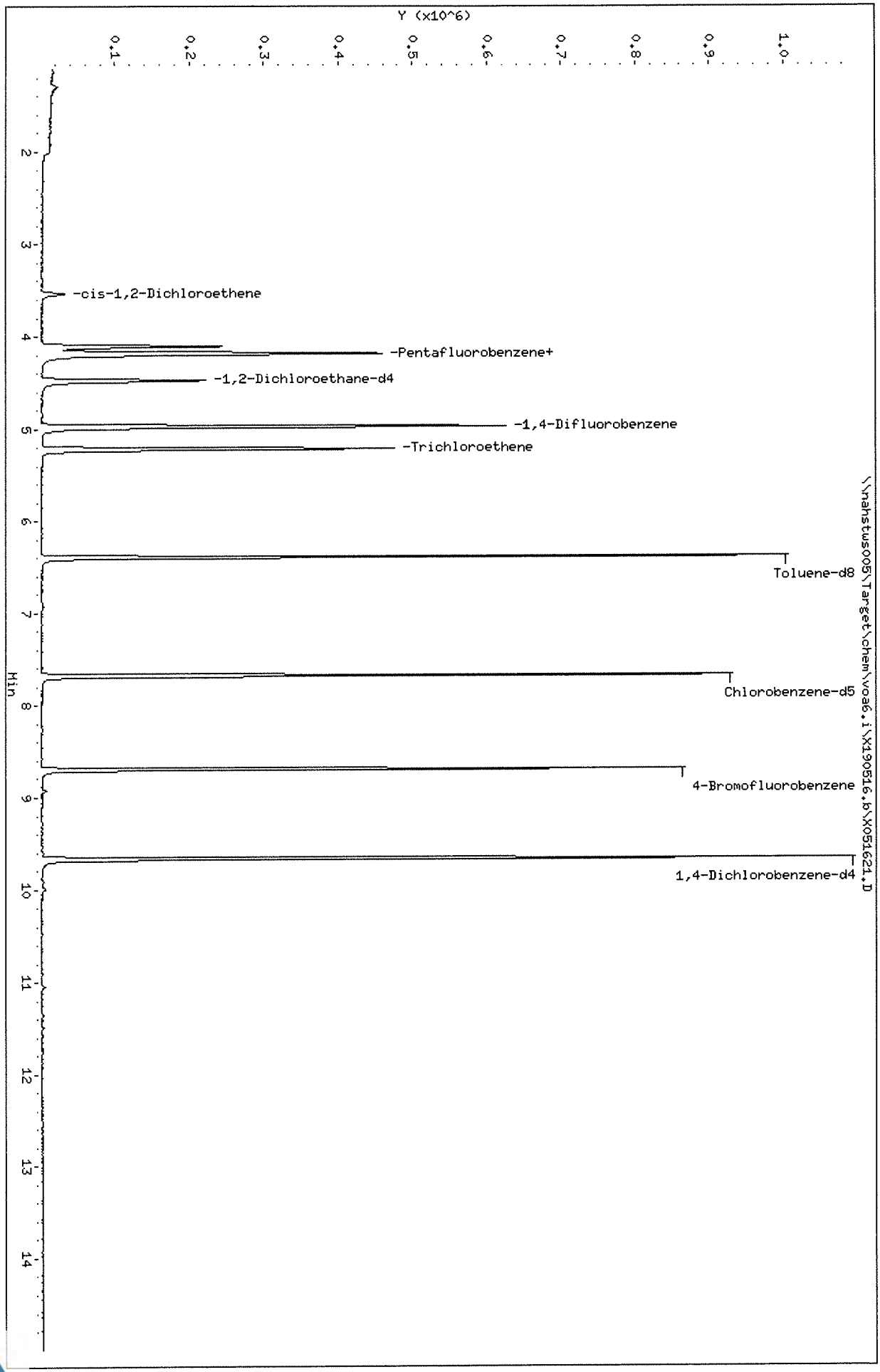
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	438683	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	549188	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	486086	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	272287	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	167954	43.6463	43.64
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	206580	50.5506	50.55
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	167499	44.2811	44.28
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	614419	51.9278	51.92
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	17145	4.01259	20.06(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	174674	41.0756	205.37

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051621.D
Date : 16-MAY-2019 17:17
Client ID: HS19050403-04
Sample Info: HS19050403-04;HS19050403-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051621.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051621.D

Date : 16-MAY-2019 17:17

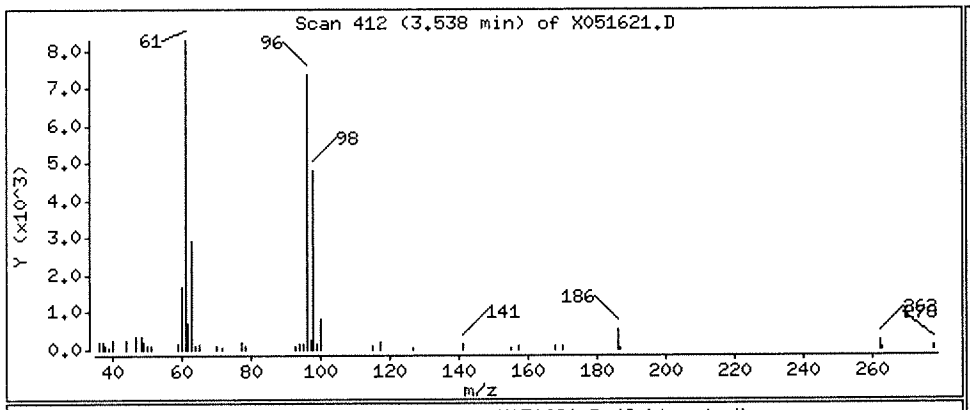
Client ID: HS19050403-04 Instrument: voa6.i

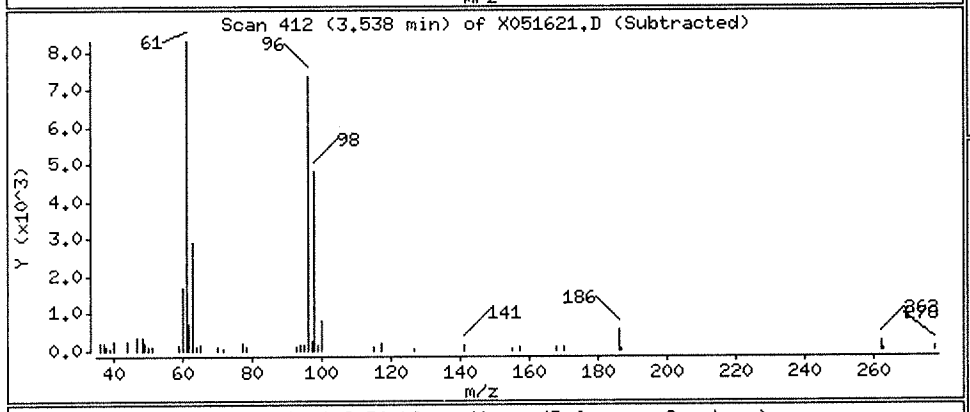
Sample Info: HS19050403-04;HS19050403-04;;;

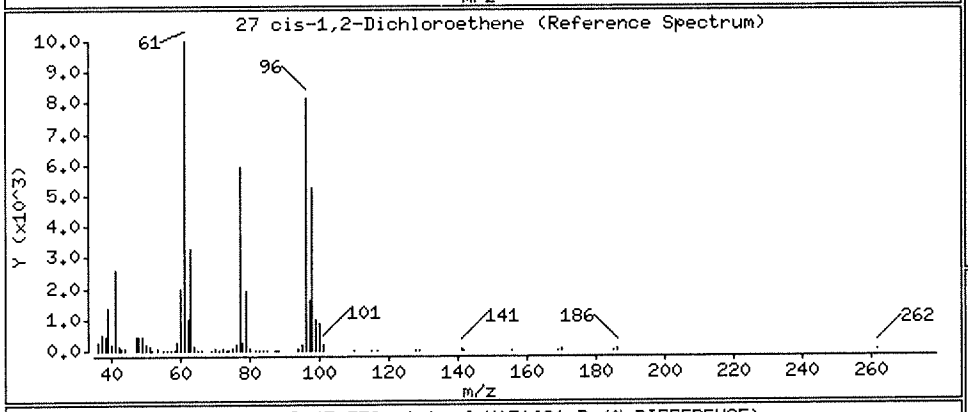
Purge Volume: 5.0 Operator: PC

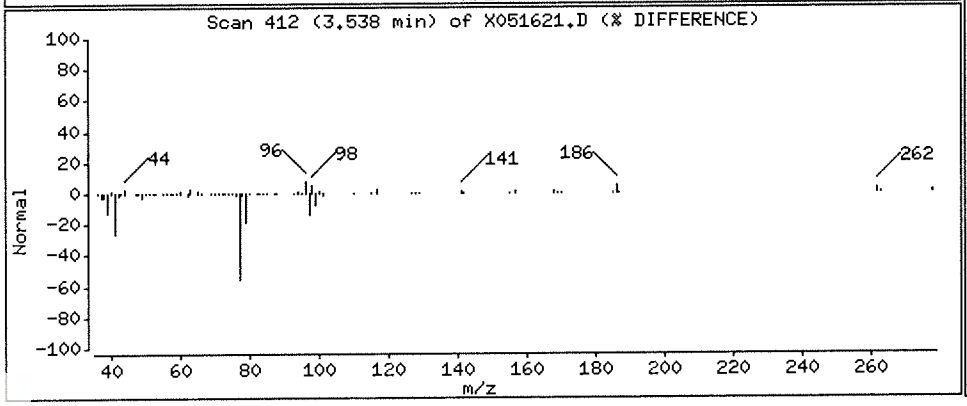
Column phase: DB624 Column diameter: 0.18

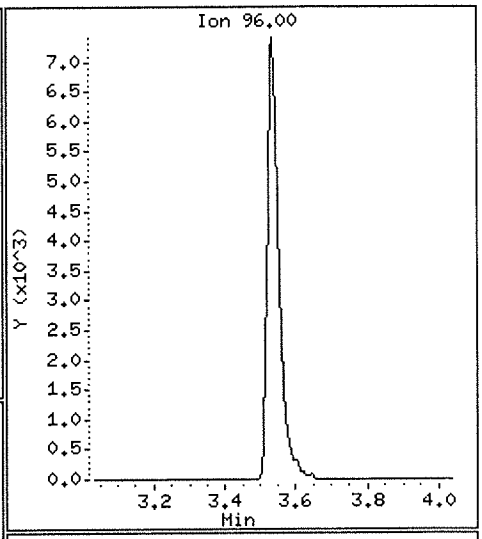
27 cis-1,2-Dichloroethene Concentration: 20.06 ug/l

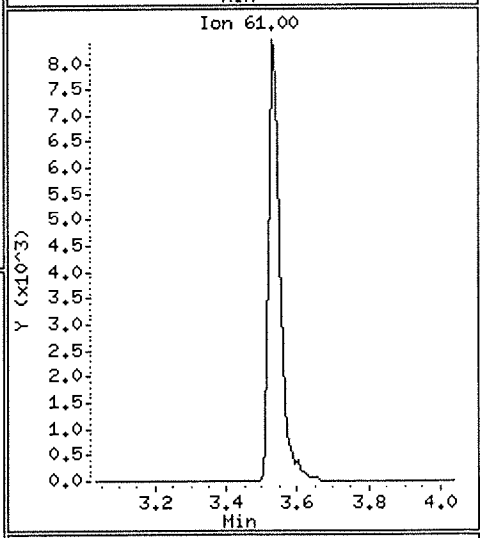


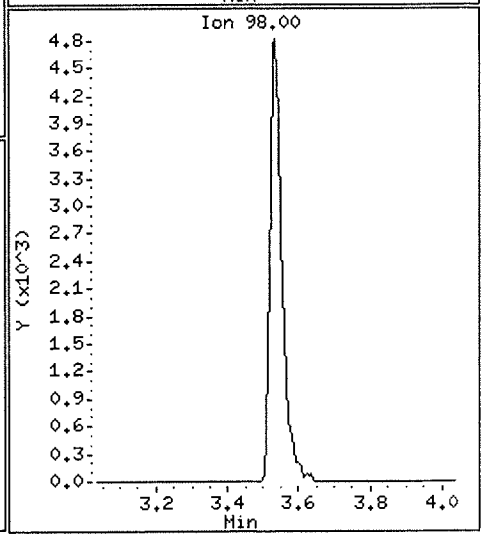












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051621.D

Date : 16-MAY-2019 17:17

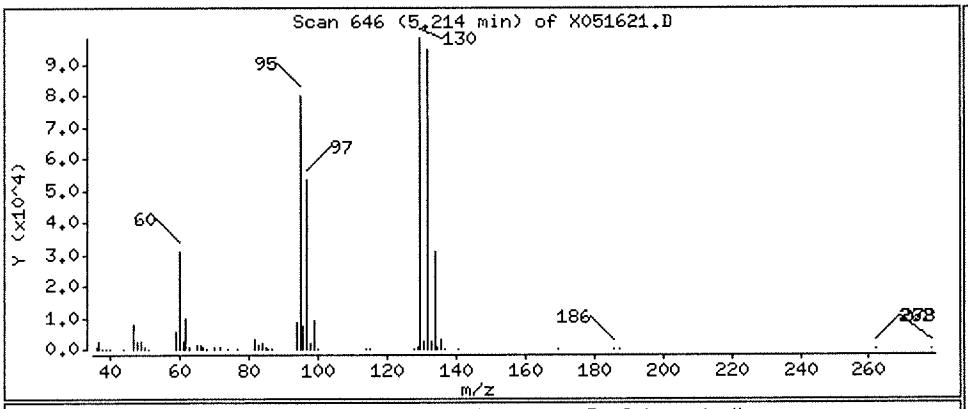
Client ID: HS19050403-04 Instrument: voa6.i

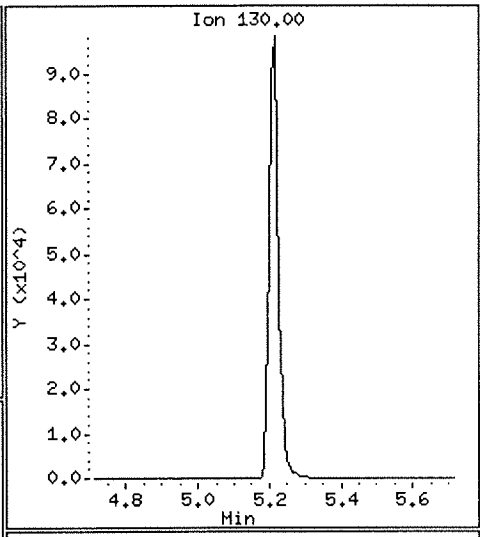
Sample Info: HS19050403-04;HS19050403-04;;;

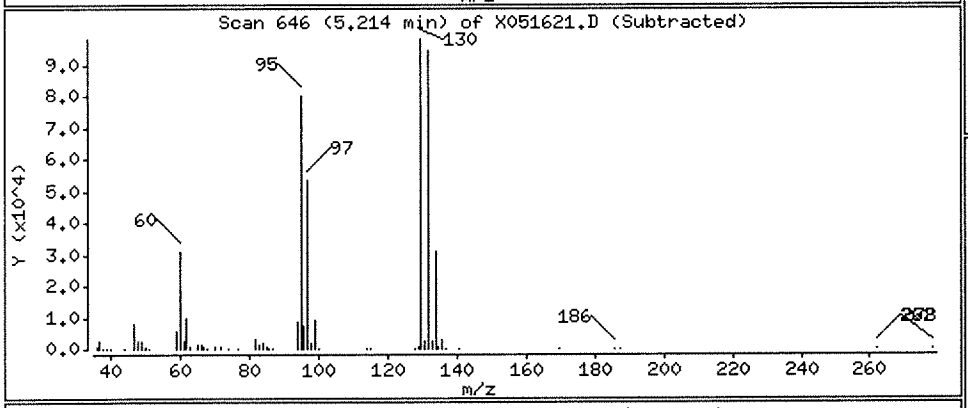
Purge Volume: 5.0 Operator: PC

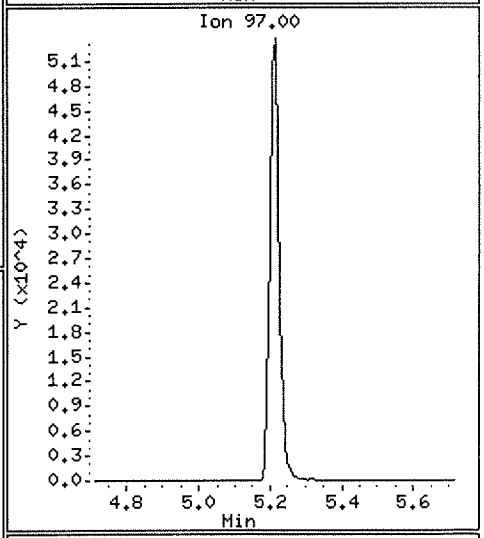
Column phase: DB624 Column diameter: 0.18

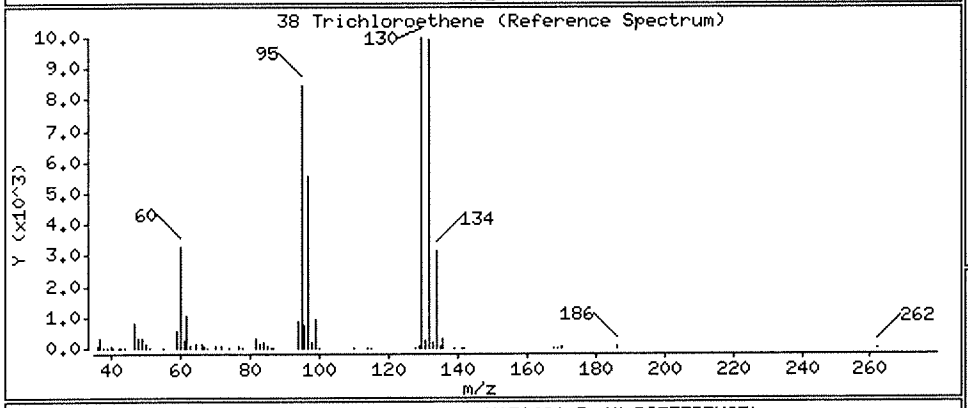
38 Trichloroethene Concentration: 205.37 ug/l

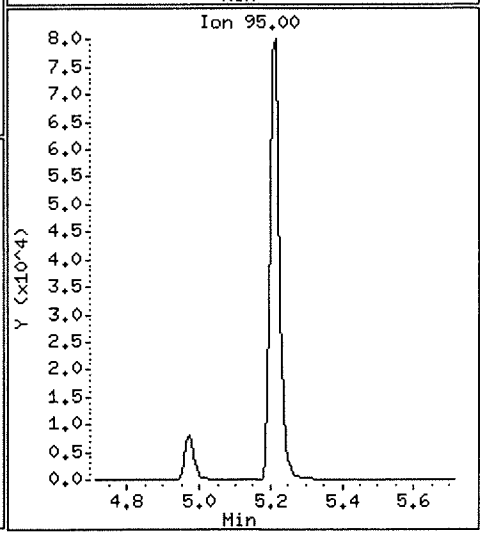


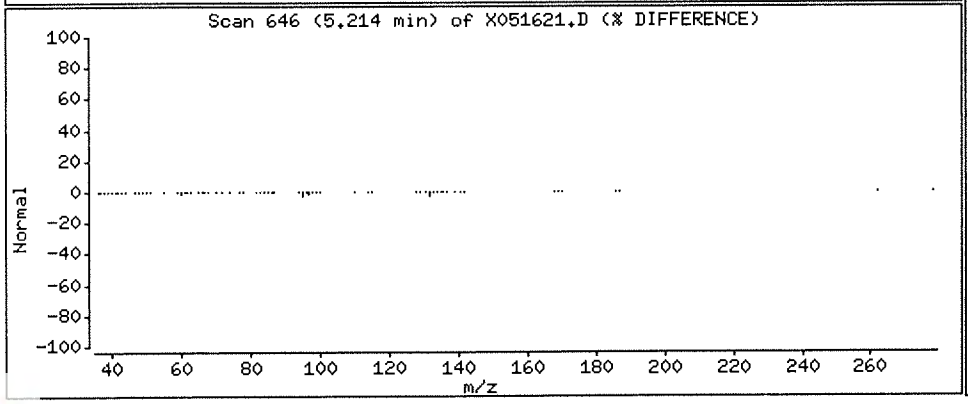












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051622.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051622.D
Lab Smp Id: HS19050403-01 Client Smp ID: HS19050403-01
Inj Date : 16-MAY-2019 17:41
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-01;HS19050403-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 20
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTWS005

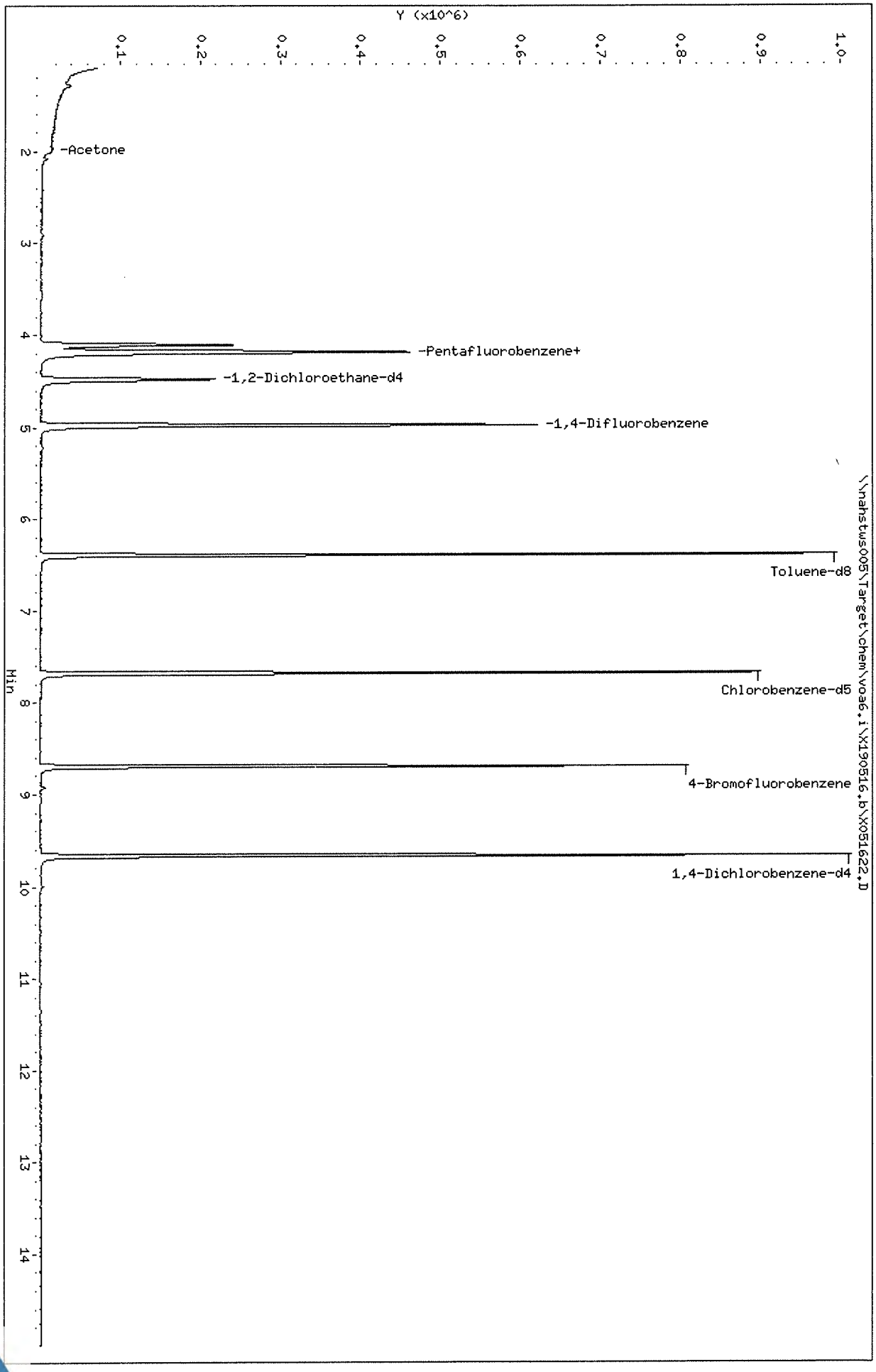
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	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)	442409	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	553373	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	482855	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	248814	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	168738	43.4800	43.48
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	197093	48.5291	48.52
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	170873	44.7968	44.79
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	610376	51.9313	51.93
10 Acetone	43	1.983	1.976	(0.473)	4179	2.72120	2.72(a)

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051622.D
Date : 16-MAY-2019 17:41
Client ID: HS19050403-01
Sample Info: HS19050403-01;HS19050403-01;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-Acetone
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051622.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051622.D

Date : 16-MAY-2019 17:41

Client ID: HS19050403-01

Instrument: voa6.i

Sample Info: HS19050403-01;HS19050403-01;;;

Purge Volume: 5.0

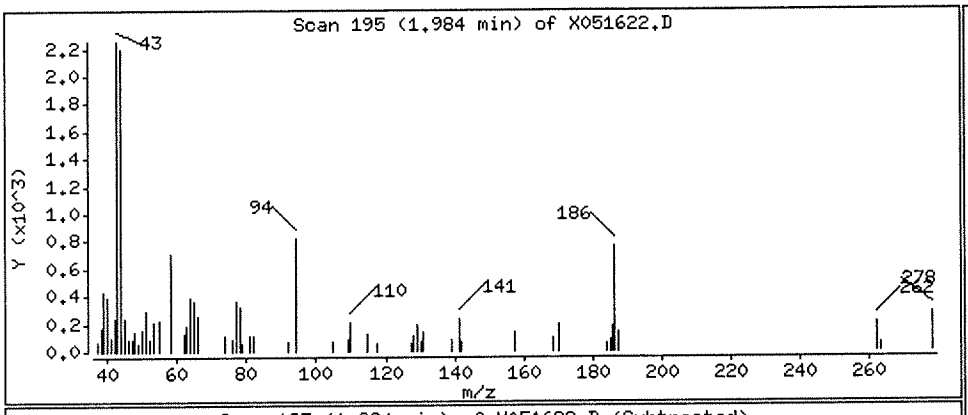
Operator: PC

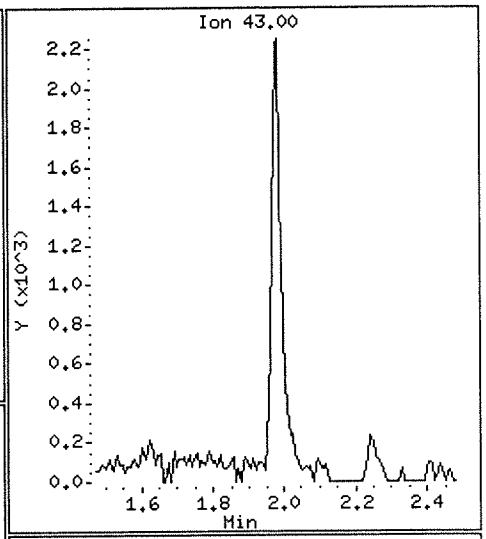
Column phase: DB624

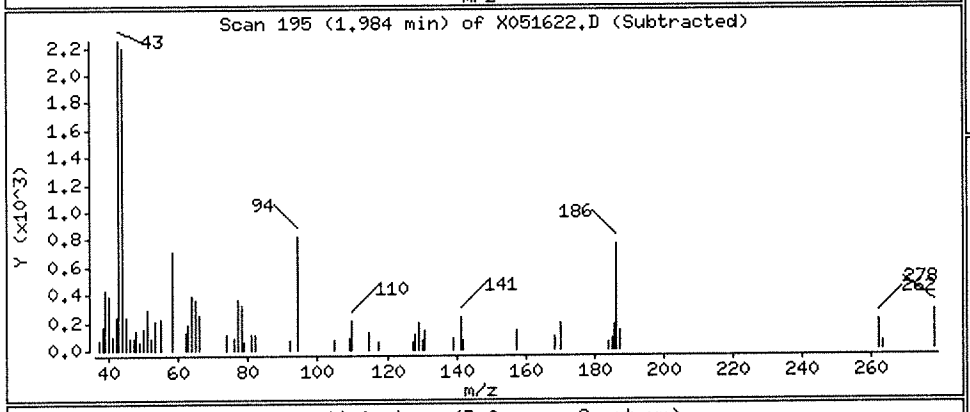
Column diameter: 0.18

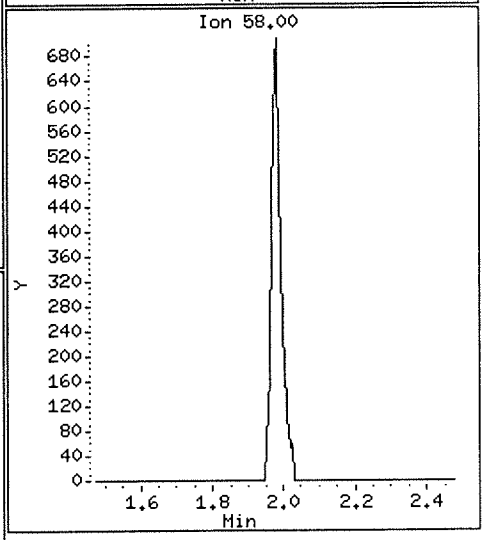
10 Acetone

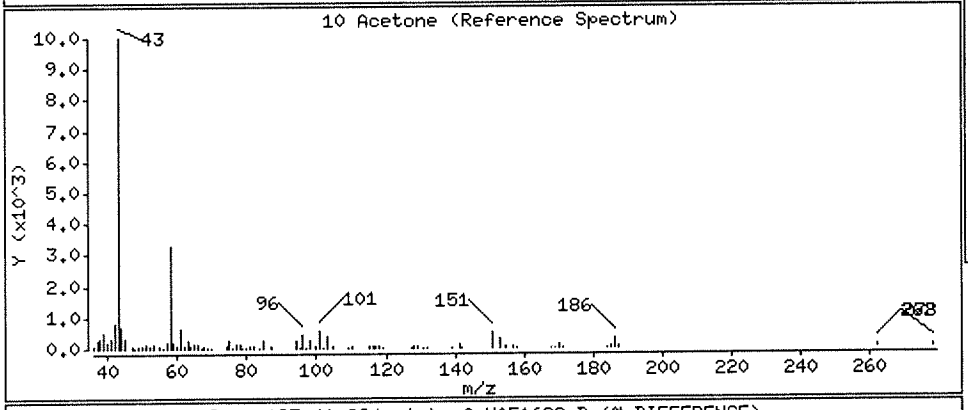
Concentration: 2.72 ug/l

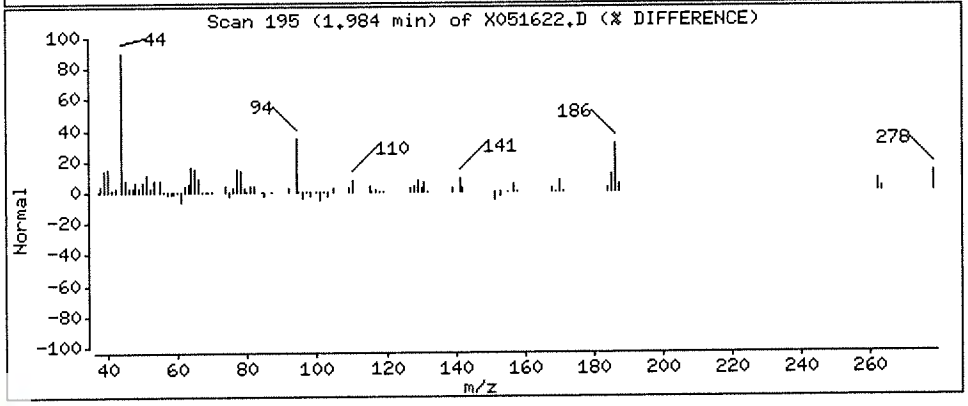












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D
Lab Smp Id: HS19050403-02 Client Smp ID: HS19050403-02
Inj Date : 16-MAY-2019 18:05
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-02;HS19050403-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 21
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTWS005

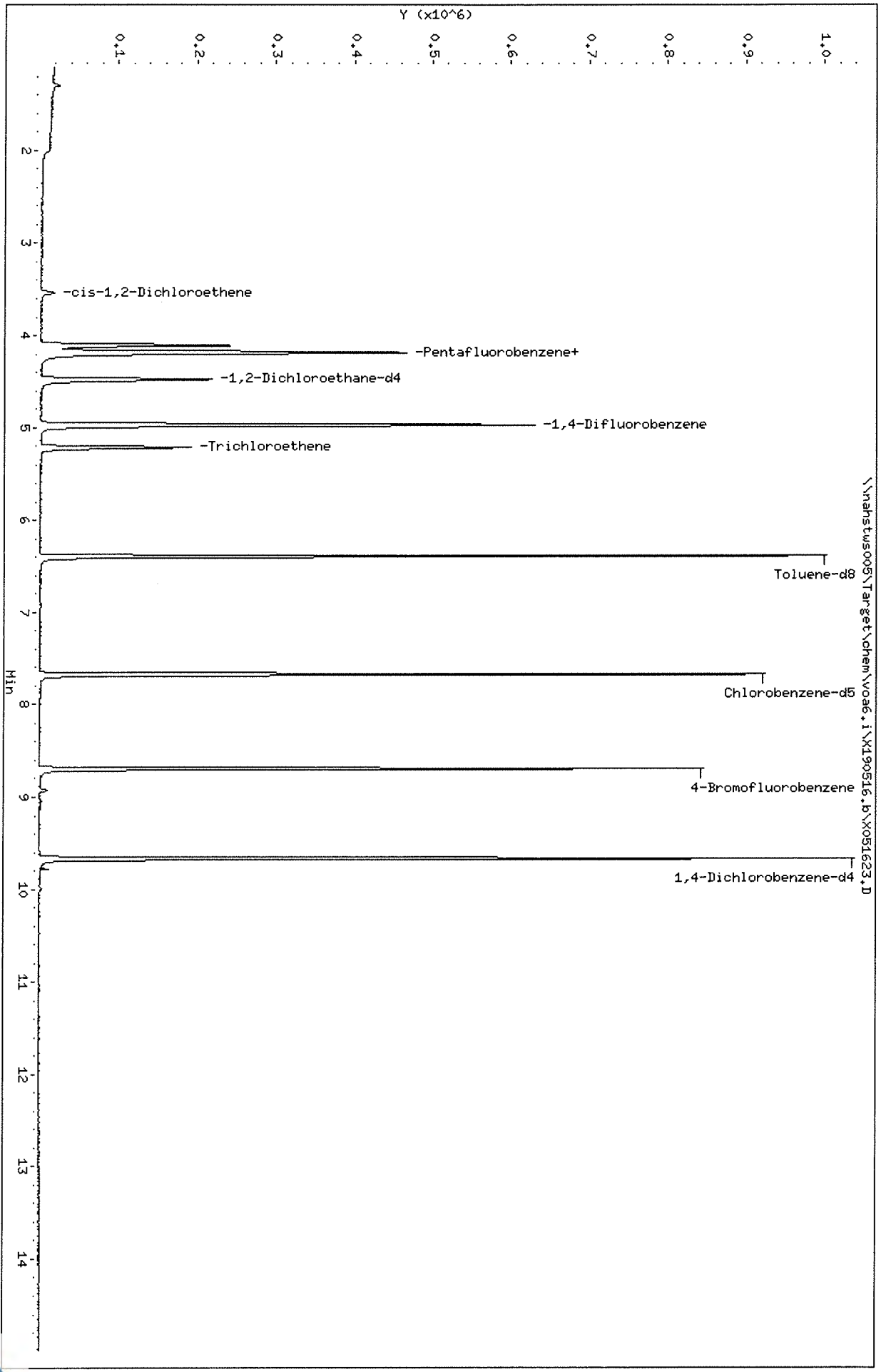
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	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)	442892	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	558563	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.678	(1.000)	491458	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	261486	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	169954	43.7467	43.74
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	203206	49.1658	49.16
$ 30 Dibromofluoromethane	113	4.110	4.103	(0.981)	170305	44.5976	44.59
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	621313	51.9366	51.93
27 cis-1,2-Dichloroethene	96	3.537	3.537	(0.844)	9298	2.15541	2.15(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	69947	16.1724	16.17

QC Flag Legend

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


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D
Date : 16-MAY-2019 18:05
Client ID: HS19050403-02
Sample Info: HS19050403-02;HS19050403-02;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D

Date : 16-MAY-2019 18:05

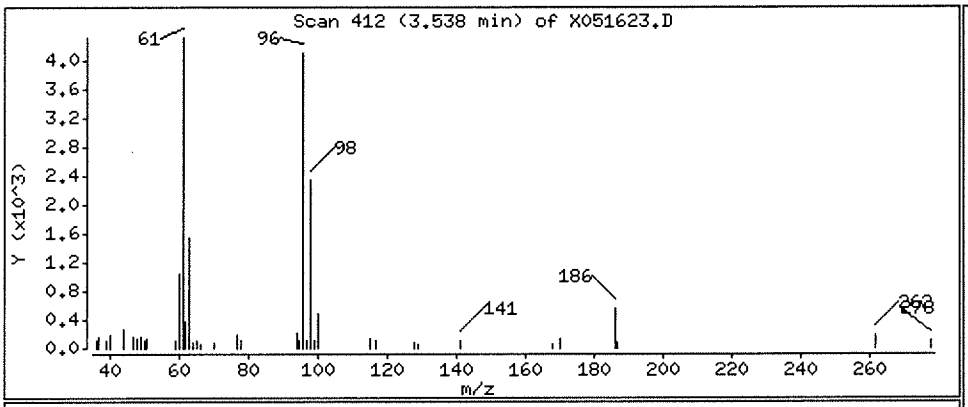
Client ID: HS19050403-02 Instrument: voa6.i

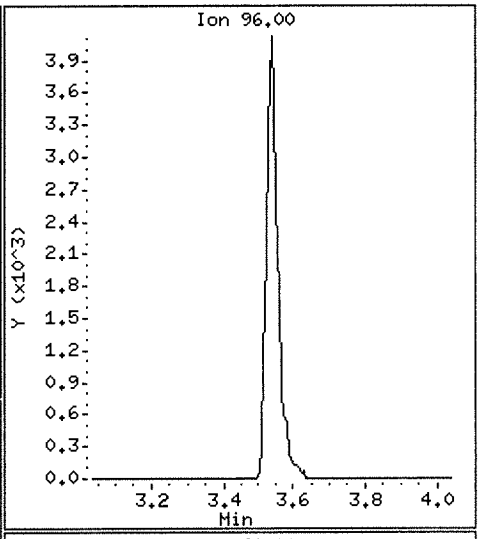
Sample Info: HS19050403-02;HS19050403-02;;;

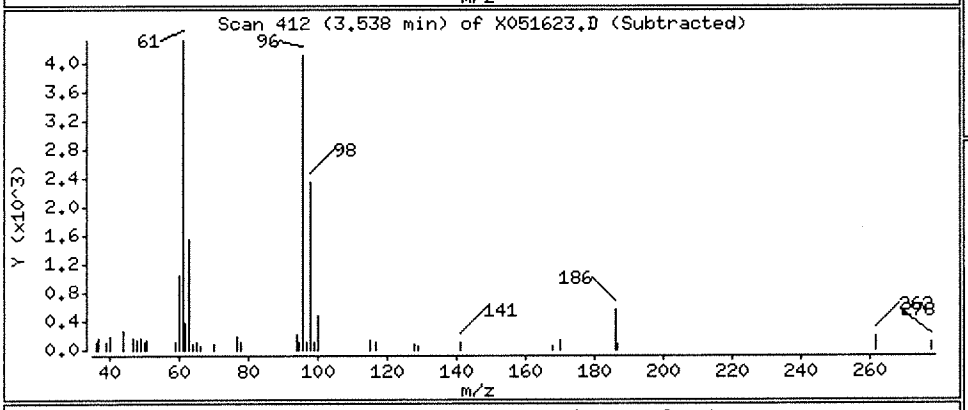
Purge Volume: 5.0 Operator: PC

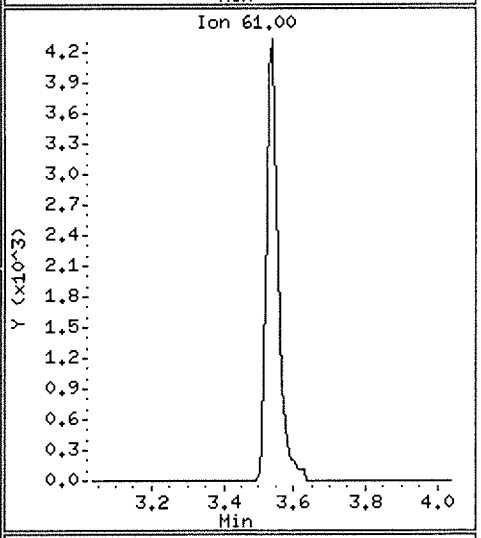
Column phase: DB624 Column diameter: 0.18

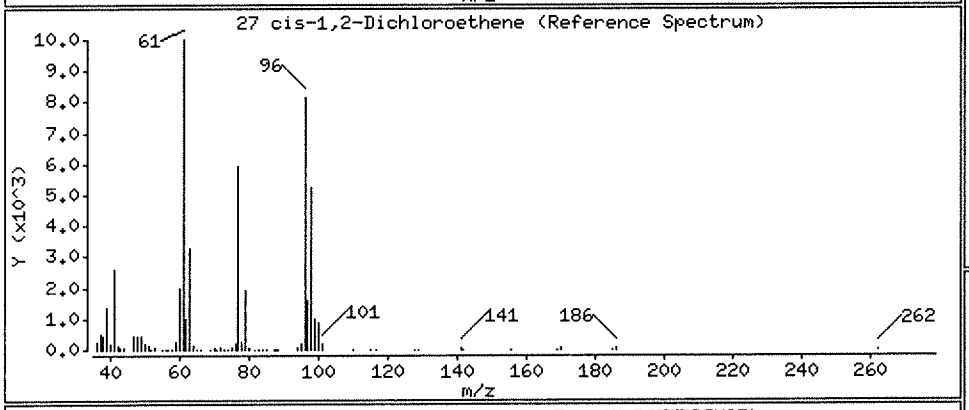
27 cis-1,2-Dichloroethene Concentration: 2.15 ug/l

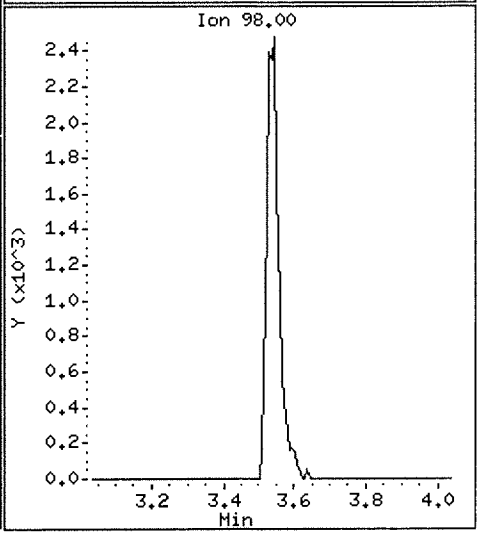


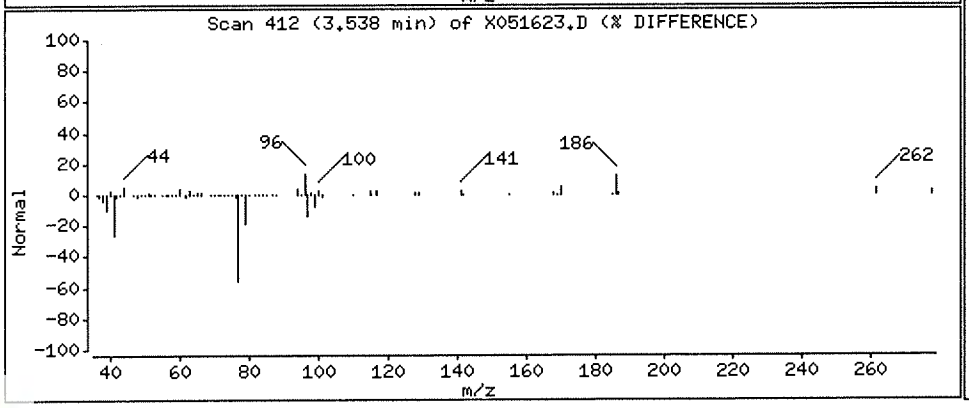












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051623.D

Date : 16-MAY-2019 18:05

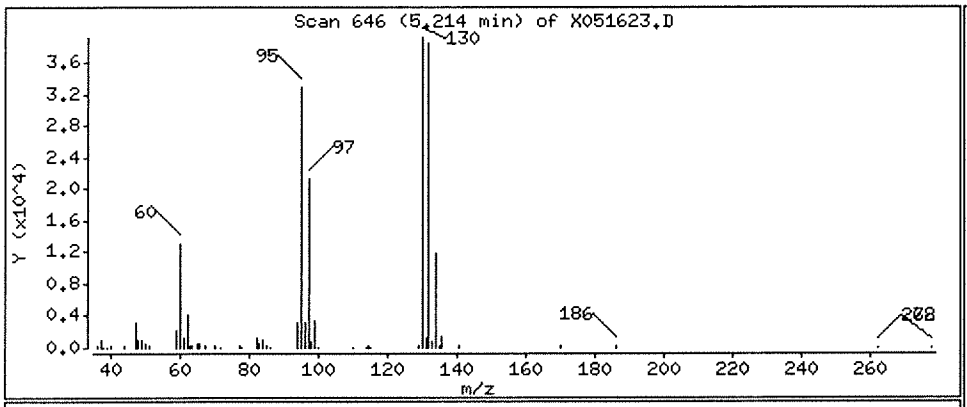
Client ID: HS19050403-02 Instrument: voa6.i

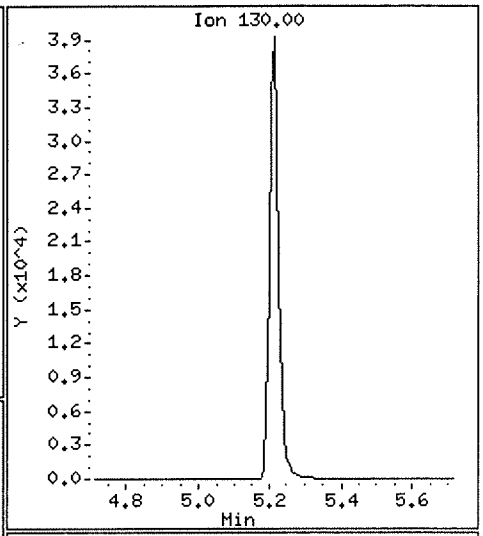
Sample Info: HS19050403-02;HS19050403-02;;;

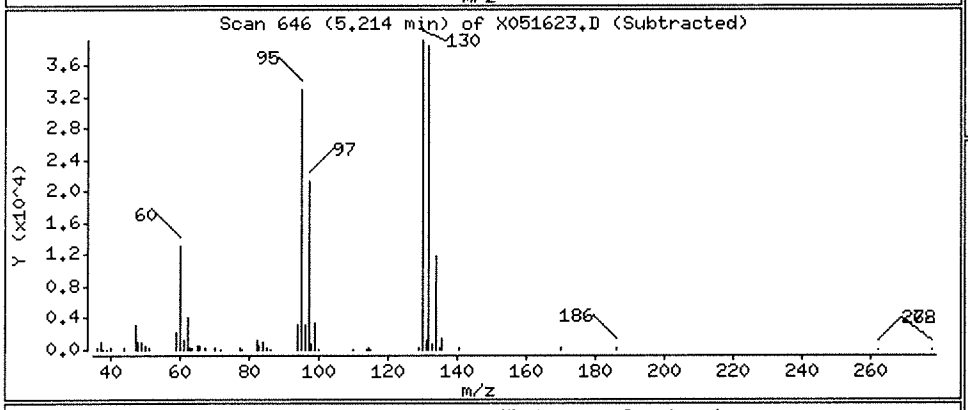
Purge Volume: 5.0 Operator: PC

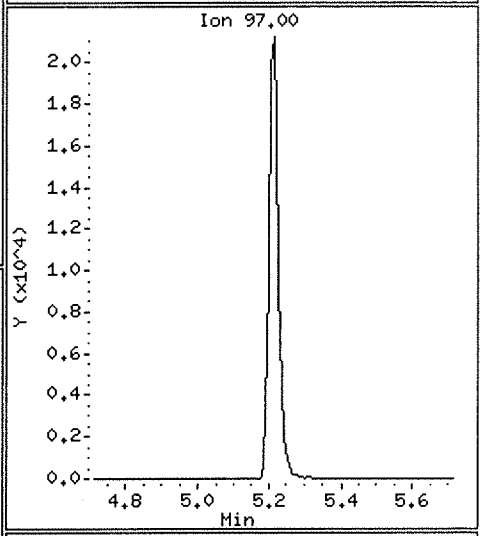
Column phase: DB624 Column diameter: 0.18

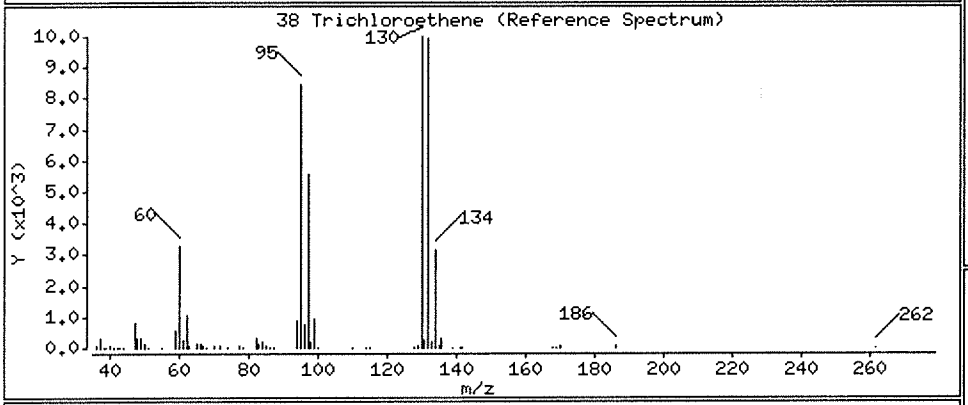
38 Trichloroethene Concentration: 16.17 ug/l

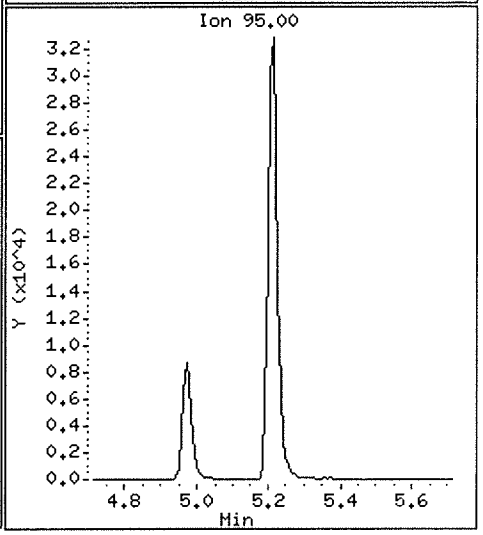


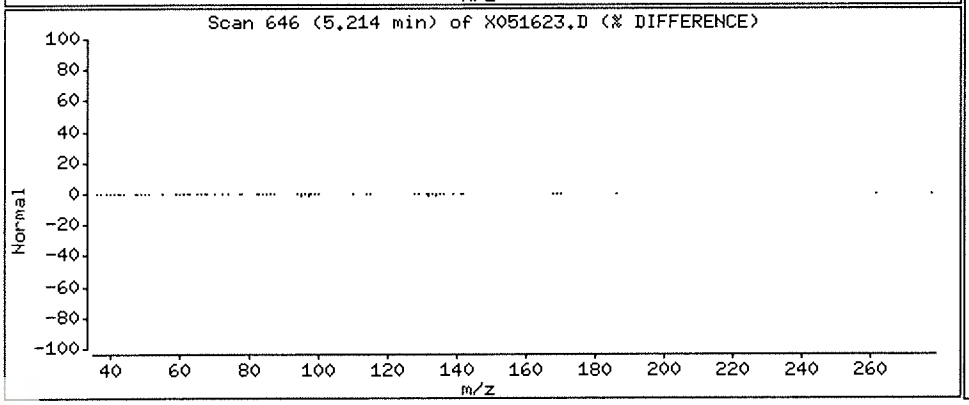












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051624.D
Report Date: 06-Jun-2019 15:16

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051624.D
Lab Smp Id: HS19050403-03 Client Smp ID: HS19050403-03
Inj Date : 16-MAY-2019 18:29
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-03;HS19050403-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 22
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTWS005

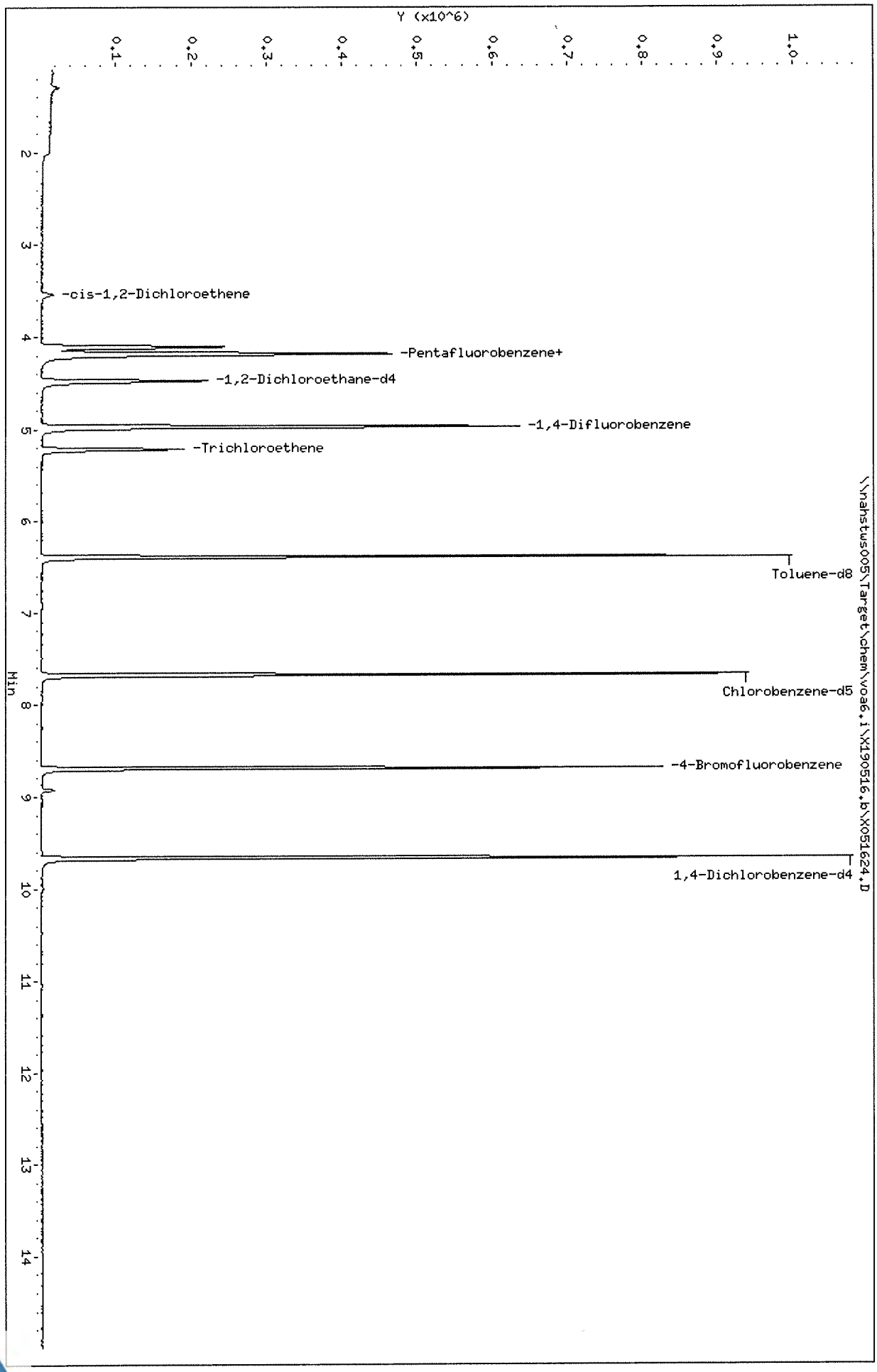
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	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)	447276	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	560177	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	490756	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	264529	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	168440	42.9287	42.92
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	202585	49.0848	49.08
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	167700	43.4758	43.47
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	621694	52.0439	52.04
27 cis-1,2-Dichloroethene	96	3.538	3.537	(0.844)	8934	2.05073	2.05(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	70014	16.1412	16.14

QC Flag Legend

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


Data File: \\nahstus005\Target\chem\voa6.i\X190516.b\X051624.D
Date : 16-MAY-2019 18:29
Client ID: HS19050403-03
Sample Info: HS19050403-03;HS19050403-03;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2
3
4
5
6
7
8
9
10
11
12
13
14
Min
-cis-1,2-Dichloroethene
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
-Trichloroethene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstus005\Target\chem\voa6.i\X190516.b\X051624.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051624.D

Date : 16-MAY-2019 18:29

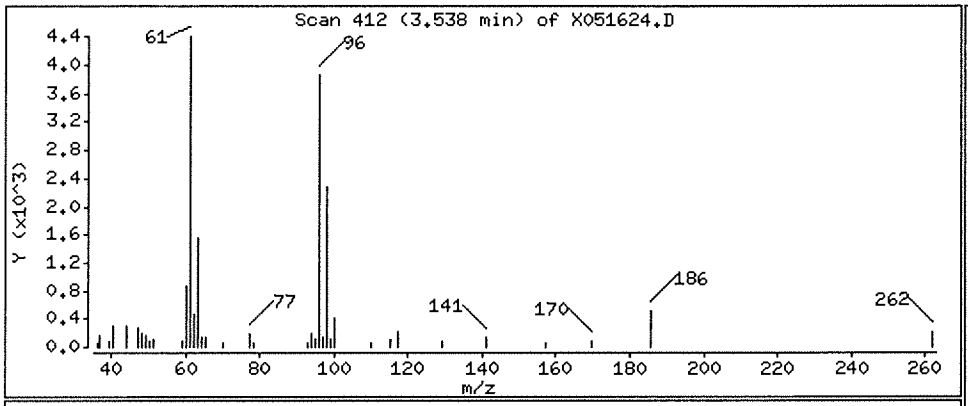
Client ID: HS19050403-03 Instrument: voa6.i

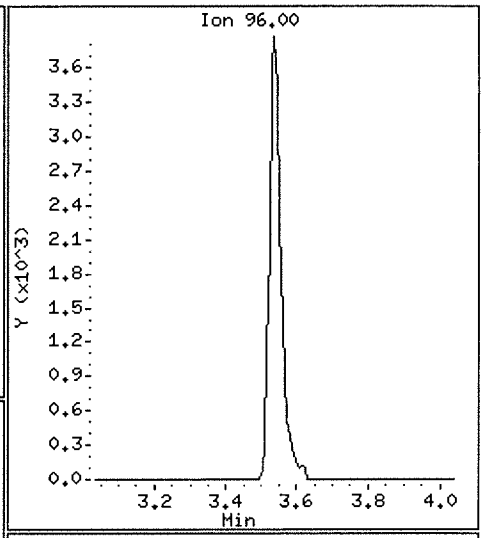
Sample Info: HS19050403-03;HS19050403-03;;;

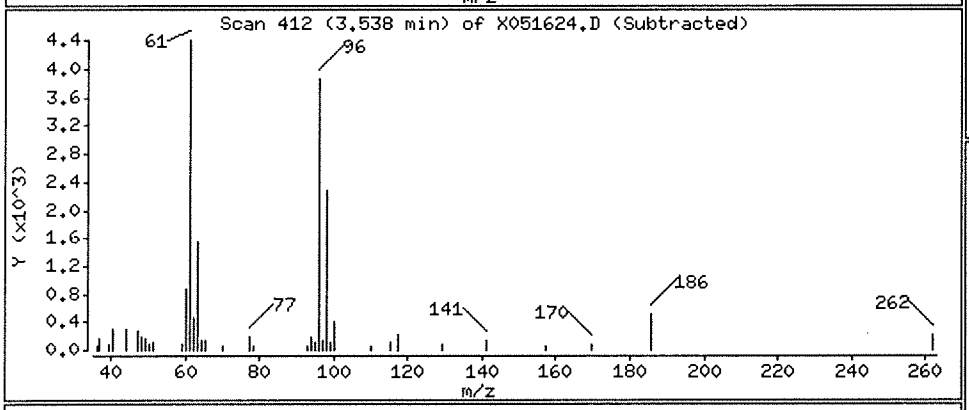
Purge Volume: 5.0 Operator: PC

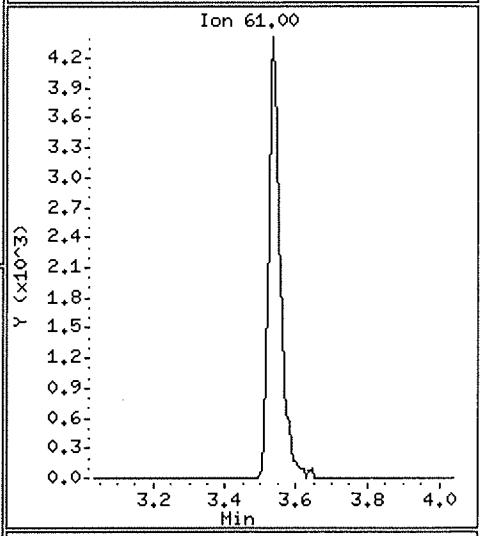
Column phase: DB624 Column diameter: 0.18

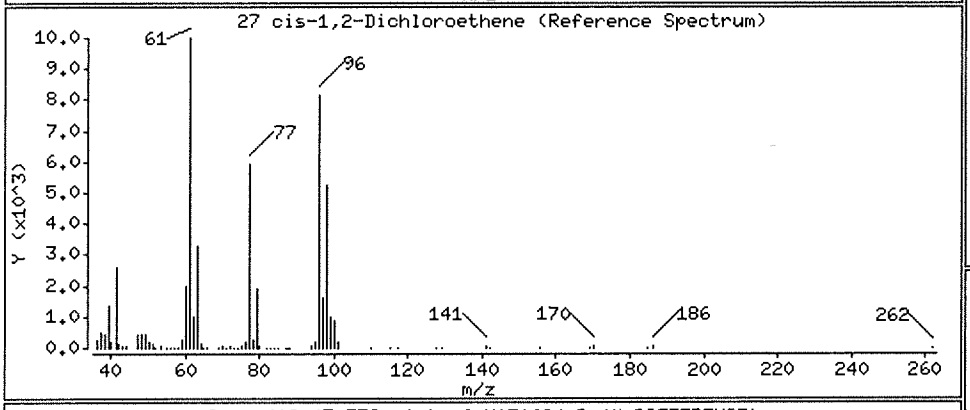
27 cis-1,2-Dichloroethene Concentration: 2.05 ug/l

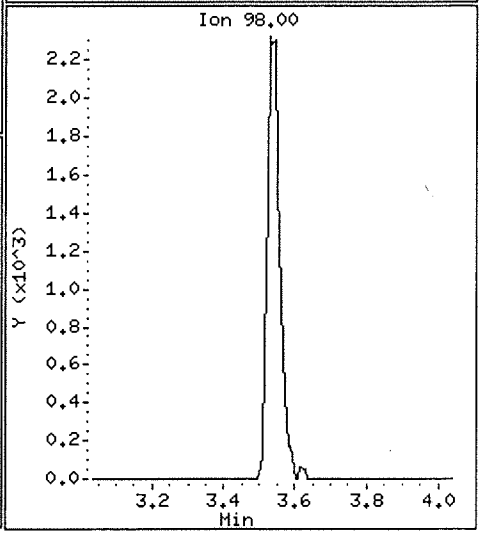


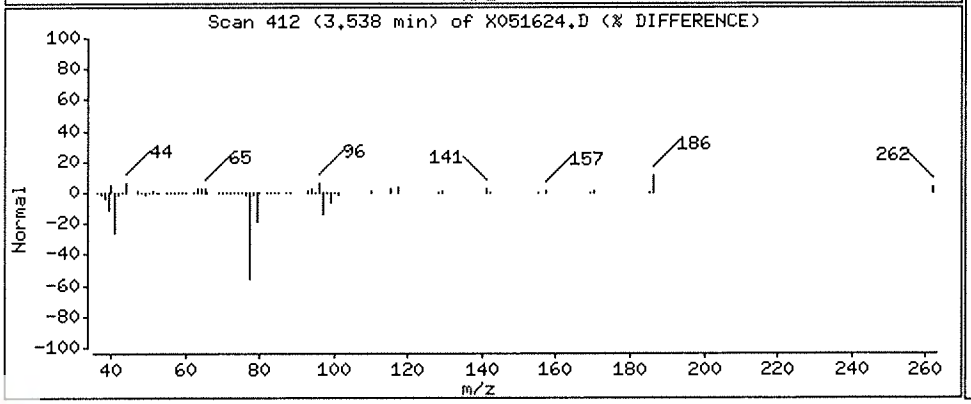












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051624.D

Date : 16-MAY-2019 18:29

Client ID: HS19050403-03

Instrument: voa6.i

Sample Info: HS19050403-03;HS19050403-03;;;

Purge Volume: 5.0

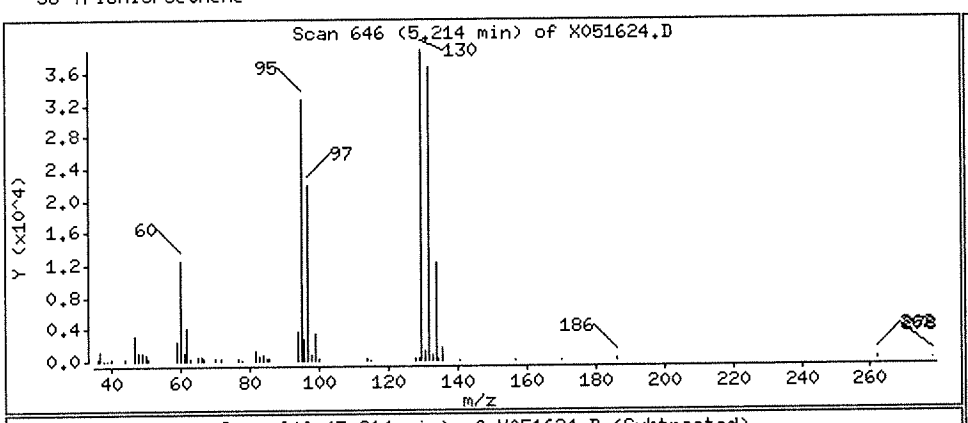
Operator: PC

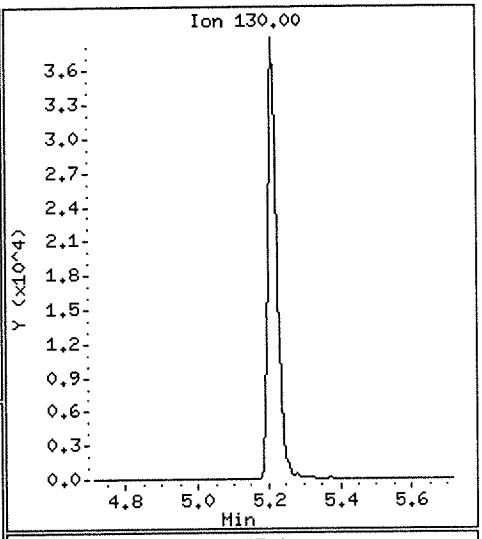
Column phase: DB624

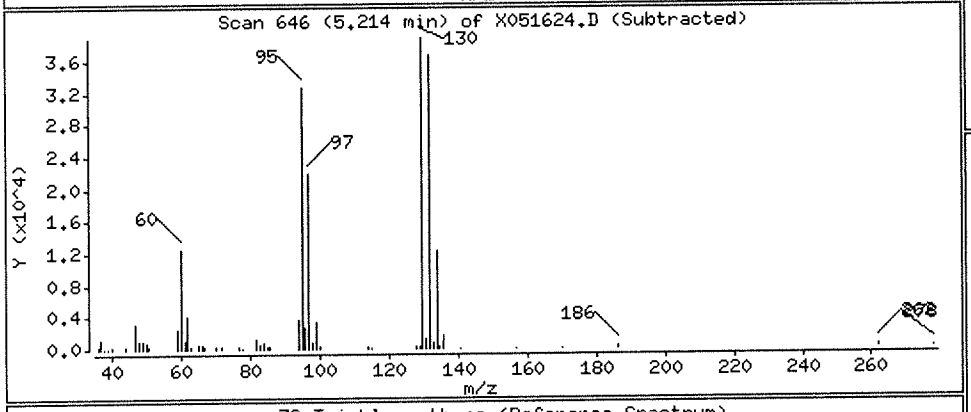
Column diameter: 0.18

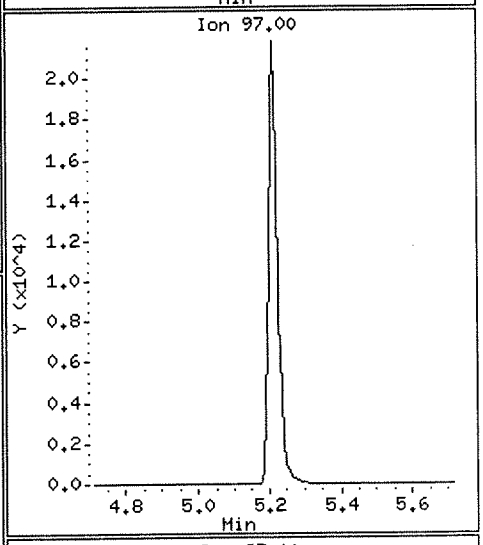
38 Trichloroethene

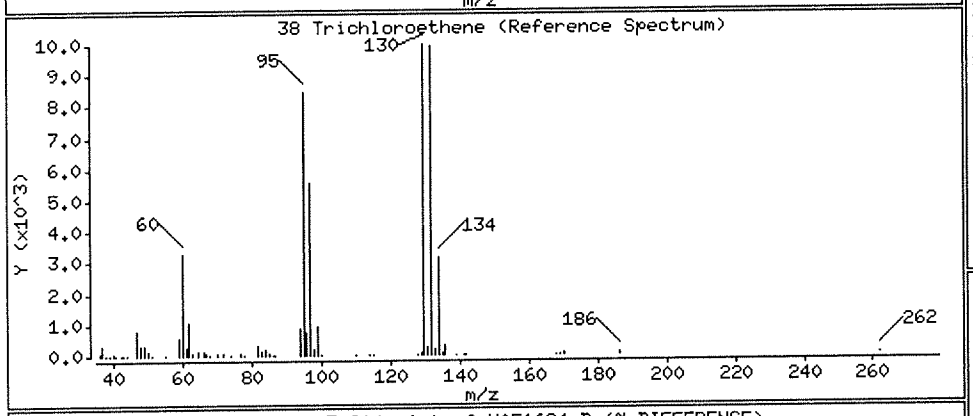
Concentration: 16.14 ug/l

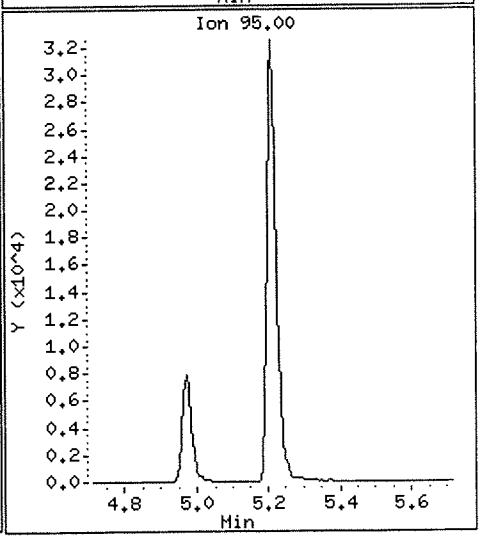


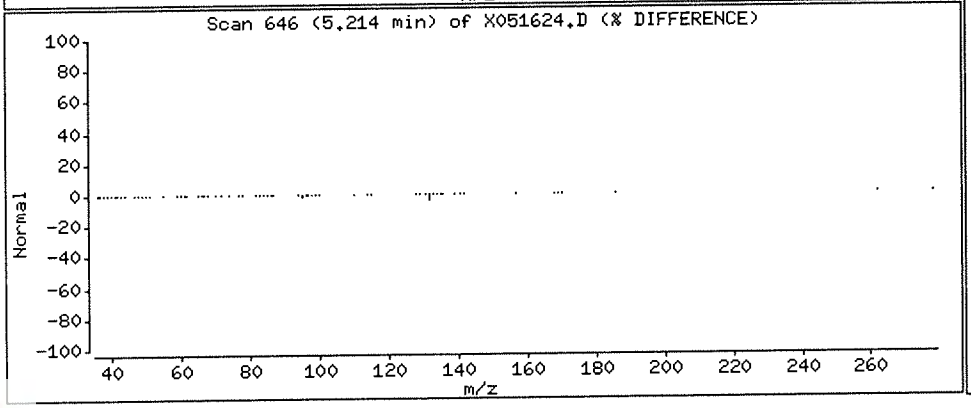












Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051625.D
Report Date: 06-Jun-2019 15:16

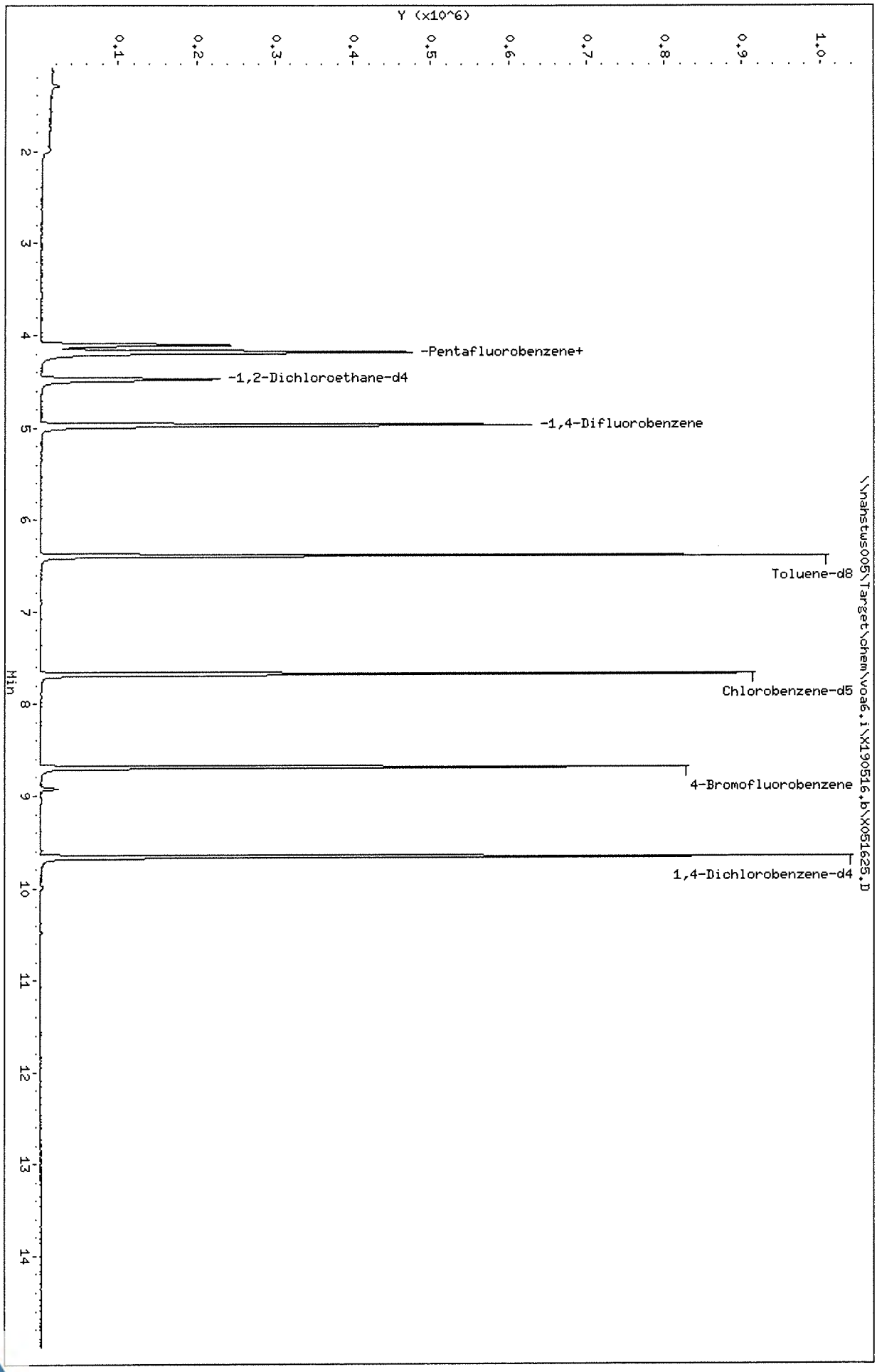
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051625.D
Lab Smp Id: HS19050403-06 Client Smp ID: HS19050403-06
Inj Date : 16-MAY-2019 18:53
Operator : PC Inst ID: voa6.i
Smp Info : HS19050403-06;HS19050403-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:13 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14
Processing Host: NAHSTWS005

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

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	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)	452828	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	559268	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	489195	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	259314	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	172582	43.4472	43.44
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	202839	49.3057	49.30
$ 30 Dibromofluoromethane	113	4.111	4.103	(0.981)	171499	43.9193	43.91
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	625124	52.5031	52.50


Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051625.D
Date : 16-MAY-2019 18:53
Client ID: HS19050403-06
Sample Info: HS19050403-06;HS19050403-06;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190516.b\X051625.D

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Report Date: 06-Jun-2019 15:20

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 16-MAY-2019 20:53
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\X190516.b\8260W.m
Meth Date : 06-Jun-2019 15:20 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 28 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

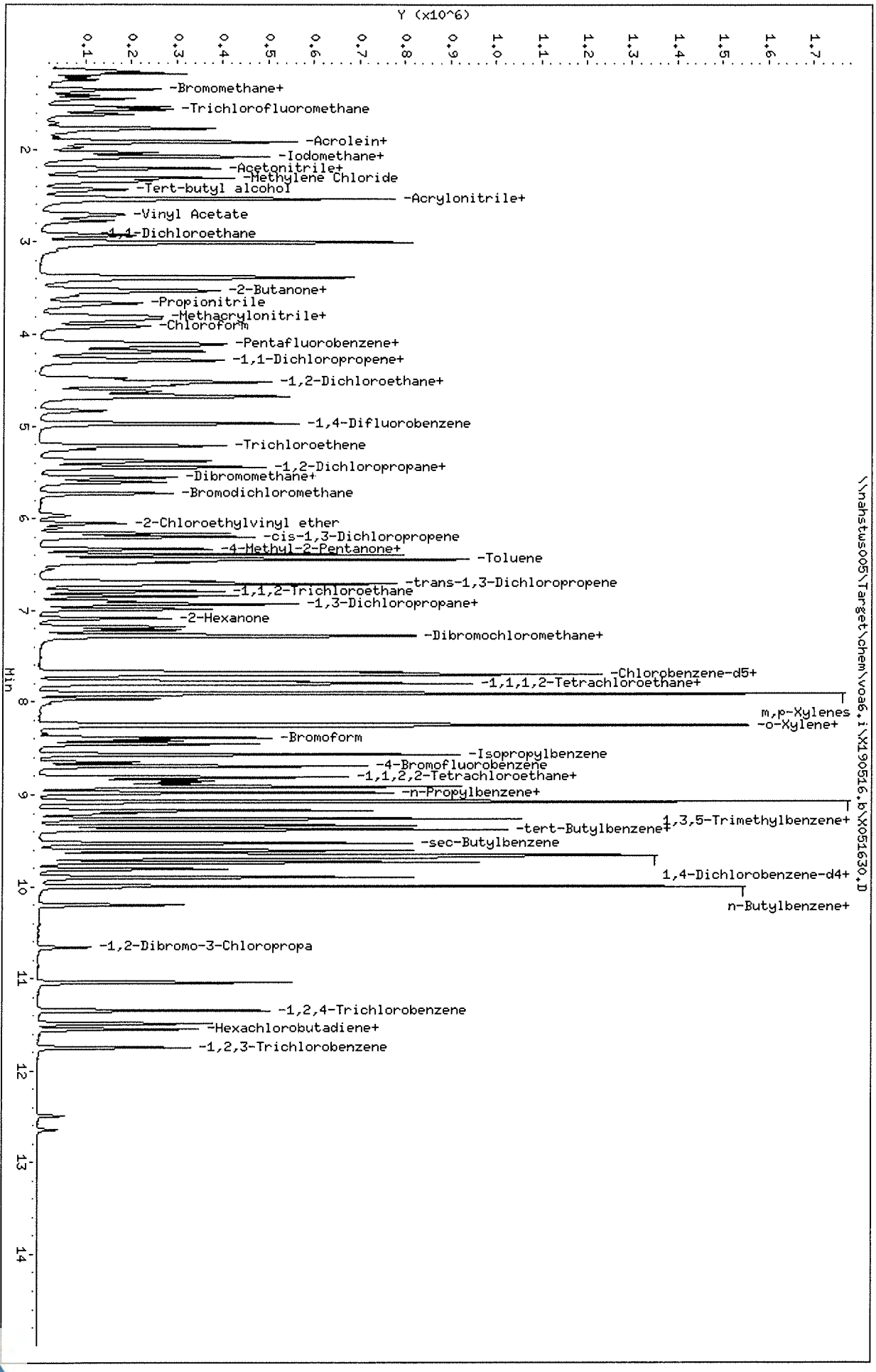
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

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

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	336845	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	444607	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	411606	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	228775	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	138005	50.0000	46.71
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	168421	50.0000	48.64
$ 30 Dibromofluoromethane	113	4.103	4.103	(0.979)	138733	50.0000	47.79
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	474609	50.0000	47.31
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	143777	50.0000	44.77
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	186019	50.0000	41.70
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	149447	50.0000	47.94
138 Freon TF	101	1.919	1.919	(0.458)	92391	50.0000	36.14
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	98822	50.0000	46.87
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	215336	50.0000	45.35
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	109081	50.0000	41.43
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	147132	50.0000	39.78
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	97789	50.0000	50.13
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	173337	50.0000	48.62
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	158247	50.0000	46.91
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	467351	50.0000	42.89
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	26054	50.0000	52.14
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	136144	50.0000	47.23
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	295751	50.0000	44.77

Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Report Date: 06-Jun-2019 15:20

	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)	166309	50.0000	44.41
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	119870	50.0000	46.16
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	444665	50.0000	42.78
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	307612	50.0000	43.71
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	198053	50.0000	46.56
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	308632	50.0000	43.57
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	162238	50.0000	38.57
24	2-Butanone	43	3.581	3.581	(0.855)	84743	100.000	105.53
76	2-Chlorotoluene	91	8.982	8.982	(0.929)	357983	50.0000	42.31
52	2-Hexanone	43	7.090	7.090	(0.924)	140246	100.000	97.81
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	423907	50.0000	43.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	447325	50.0000	39.85
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	200166	100.000	95.91
10	Acetone	43	1.976	1.976	(0.472)	68634	100.000	95.03
37	Benzene	78	4.519	4.519	(0.909)	481887	50.0000	44.90
74	Bromobenzene	156	8.810	8.810	(0.911)	190805	50.0000	44.75
29	Bromochloromethane	128	3.803	3.803	(0.908)	85621	50.0000	47.58
39	Bromodichloromethane	83	5.729	5.729	(1.153)	173073	50.0000	46.45
66	Bromoform	173	8.416	8.416	(1.097)	121305	50.0000	50.53
6	Bromomethane	94	1.339	1.339	(0.320)	134408	50.0000	44.56
19	Carbon Disulfide	76	2.076	2.076	(0.496)	661574	100.000	87.15
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	154598	50.0000	37.59
59	Chlorobenzene	112	7.699	7.699	(1.004)	369581	50.0000	45.01
7	Chloroethane	64	1.403	1.403	(0.335)	81791	50.0000	42.54
28	Chloroform	83	3.917	3.917	(0.935)	229803	50.0000	45.14
3	Chloromethane	50	1.081	1.081	(0.258)	168337	50.0000	48.90
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	147729	50.0000	45.02
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	204756	50.0000	46.26
55	Dibromochloromethane	129	7.184	7.184	(0.937)	153523	50.0000	46.41
44	Dibromomethane	93	5.558	5.558	(1.118)	88016	50.0000	47.06
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	112628	50.0000	38.36
61	Ethylbenzene	106	7.800	7.800	(1.017)	181111	50.0000	42.67
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	73794	50.0000	36.73
67	Isopropylbenzene	105	8.566	8.566	(1.117)	517843	50.0000	41.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	439024	100.000	85.88
17	Methylene Chloride	84	2.306	2.306	(0.550)	135800	50.0000	48.06
87	n-Butylbenzene	91	9.999	9.999	(1.034)	341815	50.0000	38.44
73	n-Propylbenzene	91	8.917	8.917	(0.922)	570360	50.0000	40.57
92	Naphthalene	128	11.546	11.546	(1.194)	241891	50.0000	50.61
63	o-Xylene	106	8.244	8.244	(1.075)	222107	50.0000	44.41
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	471996	50.0000	38.60
64	Styrene	104	8.265	8.265	(1.078)	395961	50.0000	45.28
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	360171	50.0000	40.04
56	Tetrachloroethene	164	6.933	6.933	(0.904)	121096	50.0000	40.01
50	Toluene	91	6.453	6.453	(0.841)	527097	50.0000	43.68
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	123552	50.0000	44.88
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	183933	50.0000	47.56
38	Trichloroethene	130	5.214	5.214	(1.049)	150851	50.0000	43.81
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	189183	50.0000	37.81
5	Vinyl Chloride	62	1.145	1.145	(0.273)	126639	50.0000	41.13



Data File: \\nahstws005\Target\chem\voa6.i\X190516.b\X051630.D
Date : 16-MAY-2019 20:53
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

HS19050403 Wet Chem Raw Data.

ALS WO# HS19050403

Sequence: 050819_9056_W HS19050403
Operator: alshs.nouser

Printed: 6/4/2019 3:24:40 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	040319CLO3	Finished
2	STD2		Standard	92	1.0000	040319CLO3	Finished
3	STD3		Standard	93	1.0000	040319CLO3	Finished
4	STD4		Standard	94	1.0000	040319CLO3	Finished
5	STD5		Standard	95	1.0000	040319CLO3	Finished
6	STD6		Standard	96	1.0000	040319CLO3	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	040319CLO3	Finished
8	ICB		Unknown	98	1.0000	040319CLO3	Finished
9	CCV1		Unknown	93	1.0000	040319CLO3	Finished
10	CCB		Unknown	94	1.0000	040319CLO3	Finished
11	HS19050374-04DF10		Unknown	58	10.0000	040319CLO3	Finished
12	HS19050374-05DF10		Unknown	59	10.0000	040319CLO3	Finished
13	HS19050374-06		Unknown	60	1.0000	040319CLO3	Finished
14	HS19050374-06MS		Unknown	61	1.0000	040319CLO3	Finished
15	HS19050374-06MSD		Unknown	62	1.0000	040319CLO3	Finished
16	HS19050333-01		Unknown	67	1.0000	040319CLO3	Finished
17	HS19050336-01		Unknown	68	1.0000	040319CLO3	Finished
18	HS19050374-04		Unknown	69	1.0000	040319CLO3	Finished
19	HS19050374-05DF2		Unknown	70	2.0000	040319CLO3	Finished
20	CCV		Unknown	91	1.0000	040319CLO3	Finished
21	CCB		Unknown	92	1.0000	040319CLO3	Finished
22	MBLK1-050619		Unknown	51	1.0000	040319CLO3	Finished
23	LCS1-050619		Unknown	52	1.0000	040319CLO3	Finished
24	LCSD1-050619		Unknown	53	1.0000	040319CLO3	Finished
25	HS19050374-01DF5		Unknown	54	5.0000	040319CLO3	Finished
26	HS19050374-02DF10		Unknown	55	10.0000	040319CLO3	Finished
27	CCV1		Unknown	93	1.0000	040319CLO3	Finished
28	CCB		Unknown	94	1.0000	040319CLO3	Finished
29	HS19050374-03DF5		Unknown	56	5.0000	040319CLO3	Finished
30	HS19050374-03DF10		Unknown	57	10.0000	040319CLO3	Finished
31	HS19050332-01DF5		Unknown	63	5.0000	040319CLO3	Finished
32	HS19050332-02DF5		Unknown	64	5.0000	040319CLO3	Finished
33	HS19050332-03DF5		Unknown	65	5.0000	040319CLO3	Finished
34	HS19050382-01DF50		Unknown	66	50.0000	040319CLO3	Finished
35	CCV		Unknown	91	1.0000	040319CLO3	Finished
36	CCB	END KAMIL	Unknown	92	1.0000	040319CLO3	Finished
37	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
38	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
39	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
40	HS19050264-03DF10		Unknown	45	10.0000	040319CLO3	Finished
41	HS19050264-03MSDF10		Unknown	46	10.0000	040319CLO3	Finished
42	HS19050264-03MSDDF10		Unknown	47	10.0000	040319CLO3	Finished

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	4/3/2019 6:56:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	4/3/2019 7:10:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	4/3/2019 7:25:17 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	4/3/2019 7:39:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	4/3/2019 7:54:34 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	4/3/2019 8:09:12 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	4/3/2019 8:23:50 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	4/3/2019 8:38:29 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV1	5/8/2019 11:04:21 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
10	CCB	5/8/2019 11:19:05 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
11	HS19050374-04DF10	5/8/2019 11:33:50 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
12	HS19050374-05DF10	5/8/2019 11:48:35 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
13	HS19050374-06	5/8/2019 12:03:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
14	HS19050374-06MS	5/8/2019 12:18:04 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
15	HS19050374-06MSD	5/8/2019 12:32:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
16	HS19050333-01	5/8/2019 12:47:33 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
17	HS19050336-01	5/8/2019 1:02:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
18	HS19050374-04	5/8/2019 1:17:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
19	HS19050374-05DF2	5/8/2019 1:31:47 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
20	CCV	5/8/2019 1:46:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
21	CCB	5/8/2019 2:01:16 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
22	MBLK1-050619	5/8/2019 2:16:01 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
23	LCS1-050619	5/8/2019 2:30:46 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
24	LCSD1-050619	5/8/2019 2:45:30 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
25	HS19050374-01DF5	5/8/2019 3:00:15 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
26	HS19050374-02DF10	5/8/2019 3:14:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
27	CCV1	5/8/2019 3:29:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
28	CCB	5/8/2019 3:44:29 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
29	HS19050374-03DF5	5/8/2019 3:59:14 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
30	HS19050374-03DF10	5/8/2019 4:13:58 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
31	HS19050332-01DF5	5/8/2019 4:28:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
32	HS19050332-02DF5	5/8/2019 4:43:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
33	HS19050332-03DF5	5/8/2019 4:58:12 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
34	HS19050382-01DF50	5/8/2019 5:12:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
35	CCV	5/8/2019 5:27:41 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
36	CCB	5/8/2019 5:42:26 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
37	DI H2O	5/8/2019 5:57:11 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
38	DI H2O	5/8/2019 6:11:55 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
39	DI H2O	5/8/2019 6:26:40 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
40	HS19050264-03DF10	5/8/2019 6:41:25 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
41	HS19050264-03MSDF10	5/8/2019 6:56:09 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
42	HS19050264-03MSDDF10	5/8/2019 7:10:54 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	5133bfaf-5607-11e9-b6db-bd957e66751c		
2	STD2	1.00	5ce63c75-5609-11e9-b6db-bd957e66751c		
3	STD3	1.00	687c1d33-560b-11e9-b6db-bd957e66751c		
4	STD4	1.00	742510a1-560d-11e9-b6db-bd957e66751c		
5	STD5	1.00	7fce040f-560f-11e9-b6db-bd957e66751c		
6	STD6	1.00	8b4e6fc7-5611-11e9-b6db-bd957e66751c		
7	ICV	1.00	96e1ee2f-5613-11e9-b6db-bd957e66751c		
8	ICB	1.00	a277ceed-5615-11e9-b6db-bd957e66751c		
9	CCV1	1.00	cf7966bf-71aa-11e9-b6dc-cecc464ab826		
10	CCB	1.00	debebc7f-71ac-11e9-b6dc-cecc464ab826		
11	HS19050374-04DF10	1.00	edfa88df-71ae-11e9-b6dc-cecc464ab826		
12	HS19050374-05DF10	1.00	fd4967ff-71b0-11e9-b6dc-cecc464ab826		
13	HS19050374-06	1.00	0c912017-71b3-11e9-b6dc-cecc464ab826		
14	HS19050374-06MS	1.00	1bd675d7-71b5-11e9-b6dc-cecc464ab826		
15	HS19050374-06MSD	1.00	2b03f427-71b7-11e9-b6dc-cecc464ab826		
16	HS19050333-01	1.00	3a4bac3f-71b9-11e9-b6dc-cecc464ab826		
17	HS19050336-01	1.00	49a414bf-71bb-11e9-b6dc-cecc464ab826		
18	HS19050374-04	1.00	58e4a5cf-71bd-11e9-b6dc-cecc464ab826		
19	HS19050374-05DF2	1.00	683f70a7-71bf-11e9-b6dc-cecc464ab826		
20	CCV	1.00	779a3b7f-71c1-11e9-b6dc-cecc464ab826		
21	CCB	1.00	86d3a587-71c3-11e9-b6dc-cecc464ab826		
22	MBLK1-050619	1.00	9618fb47-71c5-11e9-b6dc-cecc464ab826		
23	LCS1-050619	1.00	a55beeaf-71c7-11e9-b6dc-cecc464ab826		
24	LCSD1-050619	1.00	b49c7fbf-71c9-11e9-b6dc-cecc464ab826		
25	HS19050374-01DF5	1.00	c3e247ab-71cb-11e9-b6dc-cecc464ab826		
26	HS19050374-02DF10	1.00	d32854a7-71cd-11e9-b6dc-cecc464ab826		
27	CCV1	1.00	e280bd27-71cf-11e9-b6dc-cecc464ab826		
28	CCB	1.00	f201ad7f-71d1-11e9-b6dc-cecc464ab826		
29	HS19050374-03DF5	1.00	0144a0e7-71d4-11e9-b6dc-cecc464ab826		
30	HS19050374-03DF10	1.00	108c58ff-71d6-11e9-b6dc-cecc464ab826		
31	HS19050332-01DF5	1.00	1fc8255f-71d8-11e9-b6dc-cecc464ab826		
32	HS19050332-02DF5	1.00	2f08b66f-71da-11e9-b6dc-cecc464ab826		
33	HS19050332-03DF5	1.00	3e52d0df-71dc-11e9-b6dc-cecc464ab826		
34	HS19050382-01DF50	1.00	4d8c3ae7-71de-11e9-b6dc-cecc464ab826		
35	CCV	1.00	5ce96817-71e0-11e9-b6dc-cecc464ab826		
36	CCB	1.00	6c338287-71e2-11e9-b6dc-cecc464ab826		
37	DI H2O	1.00	7b6cec8f-71e4-11e9-b6dc-cecc464ab826		
38	DI H2O	1.00	8aafdff7-71e6-11e9-b6dc-cecc464ab826		
39	DI H2O	1.00	9a084877-71e8-11e9-b6dc-cecc464ab826		
40	HS19050264-03DF10	1.00	a950008f-71ea-11e9-b6dc-cecc464ab826		
41	HS19050264-03MSDF10	1.00	b8a3a45f-71ec-11e9-b6dc-cecc464ab826		
42	HS19050264-03MSDDF10	1.00	c7eb5c77-71ee-11e9-b6dc-cecc464ab826		

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19050264-04DF5		Unknown	48	5.0000	040319CLO3	Finished
44	HS19050342-01		Unknown	49	1.0000	040319CLO3	Finished
45	HS19050342-03		Unknown	50	1.0000	040319CLO3	Finished
46	CCV		Unknown	91	1.0000	040319CLO3	Finished
47	CCB		Unknown	92	1.0000	040319CLO3	Finished
48	WBLKW1-190508		Unknown	12	1.0000	040319CLO3	Finished
49	WLCSW1-190508		Unknown	13	1.0000	040319CLO3	Finished
50	WLCSDW1-190508		Unknown	14	1.0000	040319CLO3	Finished
51	HS19050395-01DF5		Unknown	15	5.0000	040319CLO3	Finished
52	HS19050419-01DF2		Unknown	16	2.0000	040319CLO3	Finished
53	HS19050419-02DF2		Unknown	17	2.0000	040319CLO3	Finished
54	HS19050419-03DF2		Unknown	18	2.0000	040319CLO3	Finished
55	HS19050415-01DF50		Unknown	19	50.0000	040319CLO3	Finished
56	HS19050415-01MSDF50		Unknown	20	50.0000	040319CLO3	Finished
57	HS19050415-01MSDDF50		Unknown	21	50.0000	040319CLO3	Finished
58	CCV1		Unknown	93	50.0000	040319CLO3	Finished
59	CCB		Unknown	94	50.0000	040319CLO3	Finished
60	HS19050403-04DF10		Unknown	22	10.0000	040319CLO3	Finished
61	HS19050403-05DF10		Unknown	23	10.0000	040319CLO3	Finished
62	HS19050403-05DF50		Unknown	24	50.0000	040319CLO3	Finished
63	HS19050403-05MSDF50		Unknown	25	50.0000	040319CLO3	Finished
64	HS19050403-05MSDDF50		Unknown	26	50.0000	040319CLO3	Finished
65	HS19041441-01DF10		Unknown	27	10.0000	040319CLO3	Finished
66	HS19041441-02		Unknown	28	1.0000	040319CLO3	Finished
67	HS19041441-03		Unknown	29	1.0000	040319CLO3	Finished
68	HS19041441-04		Unknown	30	1.0000	040319CLO3	Finished
69	HS19050446-01		Unknown	31	1.0000	040319CLO3	Finished
70	CCV		Unknown	91	1.0000	040319CLO3	Finished
71	CCB		Unknown	92	1.0000	040319CLO3	Finished
72	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
73	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
74	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
75	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
76	CCV		Unknown	91	1.0000	040319CLO3	Finished
77	CCB		Unknown	92	1.0000	040319CLO3	Finished
78	WBLKW1-190508		Unknown	12	1.0000	040319CLO3	Finished
79	HS19041441-04DF5		Unknown	32	1.0000	040319CLO3	Finished
80	HS19041582-24DF5		Unknown	33	5.0000	040319CLO3	Finished
81	CCV1		Unknown	93	1.0000	040319CLO3	Finished
82	CCB		Unknown	94	1.0000	040319CLO3	Finished
83	HS19050264-03DF10		Unknown	34	10.0000	040319CLO3	Finished
84	HS19050264-03MSDF10		Unknown	35	10.0000	040319CLO3	Finished

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19050264-04DF5	5/8/2019 7:25:38 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
44	HS19050342-01	5/8/2019 7:40:23 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
45	HS19050342-03	5/8/2019 7:55:08 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
46	CCV	5/8/2019 8:09:52 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
47	CCB	5/8/2019 8:24:37 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
48	WBLKW1-190508	5/8/2019 8:39:22 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
49	WLCSW1-190508	5/8/2019 8:54:06 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
50	WLCSDW1-190508	5/8/2019 9:08:51 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
51	HS19050395-01DF5	5/8/2019 9:23:36 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
52	HS19050419-01DF2	5/8/2019 9:38:20 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
53	HS19050419-02DF2	5/8/2019 9:53:05 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
54	HS19050419-03DF2	5/8/2019 10:07:49 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
55	HS19050415-01DF50	5/8/2019 10:22:34 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
56	HS19050415-01MSDF50	5/8/2019 10:37:19 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
57	HS19050415-01MSDDF50	5/8/2019 10:52:03 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
58	CCV1	5/8/2019 11:06:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
59	CCB	5/8/2019 11:21:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
60	HS19050403-04DF10	5/8/2019 11:36:17 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
61	HS19050403-05DF10	5/8/2019 11:51:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
62	HS19050403-05DF50	5/9/2019 12:05:46 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
63	HS19050403-05MSDF50	5/9/2019 12:20:31 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
64	HS19050403-05MSDDF50	5/9/2019 12:35:15 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
65	HS19041441-01DF10	5/9/2019 12:50:00 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
66	HS19041441-02	5/9/2019 1:04:45 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
67	HS19041441-03	5/9/2019 1:19:29 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
68	HS19041441-04	5/9/2019 1:34:14 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
69	HS19050446-01	5/9/2019 1:48:59 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
70	CCV	5/9/2019 2:03:43 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
71	CCB	5/9/2019 2:18:28 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
72	DI H2O	5/9/2019 2:33:12 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
73	DI H2O	5/9/2019 2:47:57 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
74	DI H2O	5/9/2019 11:16:04 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
75	DI H2O	5/9/2019 11:30:49 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
76	CCV	5/9/2019 11:45:34 AM	Anions Gradient Program-200mA-26Mm	10.0	1.00
77	CCB	5/9/2019 12:00:18 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
78	WBLKW1-190508	5/9/2019 12:15:03 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
79	HS19041441-04DF5	5/9/2019 12:29:48 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
80	HS19041582-24DF5	5/9/2019 12:44:32 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
81	CCV1	5/9/2019 12:59:17 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
82	CCB	5/9/2019 1:14:02 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
83	HS19050264-03DF10	5/9/2019 1:28:46 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
84	HS19050264-03MSDF10	5/9/2019 1:43:31 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19050264-04DF5	1.00	d72728d7-71f0-11e9-b6dc-cecc464ab826		
44	HS19050342-01	1.00	e6714347-71f2-11e9-b6dc-cecc464ab826		
45	HS19050342-03	1.00	f5c7496f-71f4-11e9-b6dc-cecc464ab826		
46	CCV	1.00	0507da7f-71f7-11e9-b6dc-cecc464ab826		
47	CCB	1.00	144acde7-71f9-11e9-b6dc-cecc464ab826		
48	WBLKW1-190508	1.00	23b8ab7f-71fb-11e9-b6dc-cecc464ab826		
49	WLCSW1-190508	1.00	32f21587-71fd-11e9-b6dc-cecc464ab826		
50	WLCSDW1-190508	1.00	422b7f8f-71ff-11e9-b6dc-cecc464ab826		
51	HS19050395-01DF5	1.00	517599ff-7201-11e9-b6dc-cecc464ab826		
52	HS19050419-01DF2	1.00	60b88d67-7203-11e9-b6dc-cecc464ab826		
53	HS19050419-02DF2	1.00	7002a7d7-7205-11e9-b6dc-cecc464ab826		
54	HS19050419-03DF2	1.00	7f47fd97-7207-11e9-b6dc-cecc464ab826		
55	HS19050415-01DF50	1.00	8e8d5357-7209-11e9-b6dc-cecc464ab826		
56	HS19050415-01MSDF50	1.00	9dd2a917-720b-11e9-b6dc-cecc464ab826		
57	HS19050415-01MSDDF50	1.00	ad10d7cf-720d-11e9-b6dc-cecc464ab826		
58	CCV1	1.00	bc562d8f-720f-11e9-b6dc-cecc464ab826		
59	CCB	1.00	cba50caf-7211-11e9-b6dc-cecc464ab826		
60	HS19050403-04DF10	1.00	dae59dbf-7213-11e9-b6dc-cecc464ab826		
61	HS19050403-05DF10	1.00	ea262ecf-7215-11e9-b6dc-cecc464ab826		
62	HS19050403-05DF50	1.00	f9615b8b-7217-11e9-b6dc-cecc464ab826		
63	HS19050403-05MSDF50	1.00	0896de97-721a-11e9-b6dc-cecc464ab826		
64	HS19050403-05MSDDF50	1.00	17f1a96f-721c-11e9-b6dc-cecc464ab826		
65	HS19041441-01DF10	1.00	27264ec7-721e-11e9-b6dc-cecc464ab826		
66	HS19041441-02	1.00	367c54ef-7220-11e9-b6dc-cecc464ab826		
67	HS19041441-03	1.00	45c66f5f-7222-11e9-b6dc-cecc464ab826		
68	HS19041441-04	1.00	55023bbf-7224-11e9-b6dc-cecc464ab826		
69	HS19050446-01	1.00	644eb887-7226-11e9-b6dc-cecc464ab826		
70	CCV	1.00	738ce73f-7228-11e9-b6dc-cecc464ab826		
71	CCB	1.00	82d701af-722a-11e9-b6dc-cecc464ab826		
72	DI H2O	1.00	9212ce0f-722c-11e9-b6dc-cecc464ab826		
73	DI H2O	1.00	a16d98e7-722e-11e9-b6dc-cecc464ab826		
74	DI H2O	1.00	3ddc77af-7275-11e9-b6dc-cecc464ab826		
75	DI H2O	1.00	ac9764df-7277-11e9-b6dc-cecc464ab826		
76	CCV	1.00	bbd3313f-7279-11e9-b6dc-cecc464ab826		
77	CCB	1.00	cb1ae957-727b-11e9-b6dc-cecc464ab826		
78	WBLKW1-190508	1.00	da69c877-727d-11e9-b6dc-cecc464ab826		
79	HS19041441-04DF5	1.00	e9bb09ef-727f-11e9-b6dc-cecc464ab826		
80	HS19041582-24DF5	1.00	f8fdfd57-7281-11e9-b6dc-cecc464ab826		
81	CCV1	1.00	085665d7-7284-11e9-b6dc-cecc464ab826		
82	CCB	1.00	1799593f-7286-11e9-b6dc-cecc464ab826		
83	HS19050264-03DF10	1.00	26e11157-7288-11e9-b6dc-cecc464ab826		
84	HS19050264-03MSDF10	1.00	3628c96f-728a-11e9-b6dc-cecc464ab826		

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
85	HS19050264-03MSDDF10		Unknown	36	10.0000	040319CLO3	Finished
86	HS19050264-05DF5		Unknown	37	5.0000	040319CLO3	Finished
87	HS19050342-01		Unknown	38	1.0000	040319CLO3	Finished
88	HS19050342-03		Unknown	39	1.0000	040319CLO3	Finished
89	HS19050374-03DF10		Unknown	40	10.0000	040319CLO3	Finished
90	HS19050382-01DF50		Unknown	41	50.0000	040319CLO3	Finished
91	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
92	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
93	CCV		Unknown	91	1.0000	040319CLO3	Finished
94	CCB		Unknown	92	1.0000	040319CLO3	Finished
95	HS19050415-05DF100		Unknown	42	100.0000	040319CLO3	Finished
96	HS19050415-05MSDF100		Unknown	43	100.0000	040319CLO3	Finished
97	HS19050415-05MSDDF100		Unknown	44	100.0000	040319CLO3	Finished
98	CCV1		Unknown	93	100.0000	040319CLO3	Finished
99	CCB		Unknown	94	100.0000	040319CLO3	Finished

Sequence: 050819_9056_W
Operator: alshs.nouser
Printed: 6/4/2019 3:24:40 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
85	HS19050264-03MSDDF10	5/9/2019 1:58:16 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
86	HS19050264-05DF5	5/9/2019 2:13:00 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
87	HS19050342-01	5/9/2019 2:27:45 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
88	HS19050342-03	5/9/2019 2:42:29 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
89	HS19050374-03DF10	5/9/2019 2:57:14 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
90	HS19050382-01DF50	5/9/2019 3:11:59 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
91	DI H2O	5/9/2019 3:26:43 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
92	DI H2O	5/9/2019 3:41:28 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
93	CCV	5/9/2019 3:56:13 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
94	CCB	5/9/2019 4:10:57 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
95	HS19050415-05DF100	5/9/2019 4:25:42 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
96	HS19050415-05MSDF100	5/9/2019 4:40:27 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
97	HS19050415-05MSDDF100	5/9/2019 4:55:11 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
98	CCV1	5/9/2019 5:09:56 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00
99	CCB	5/9/2019 5:24:40 PM	Anions Gradient Program-200mA-26Mm	10.0	1.00

Sequence: 050819_9056_W
Operator: alshs.nouser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 99

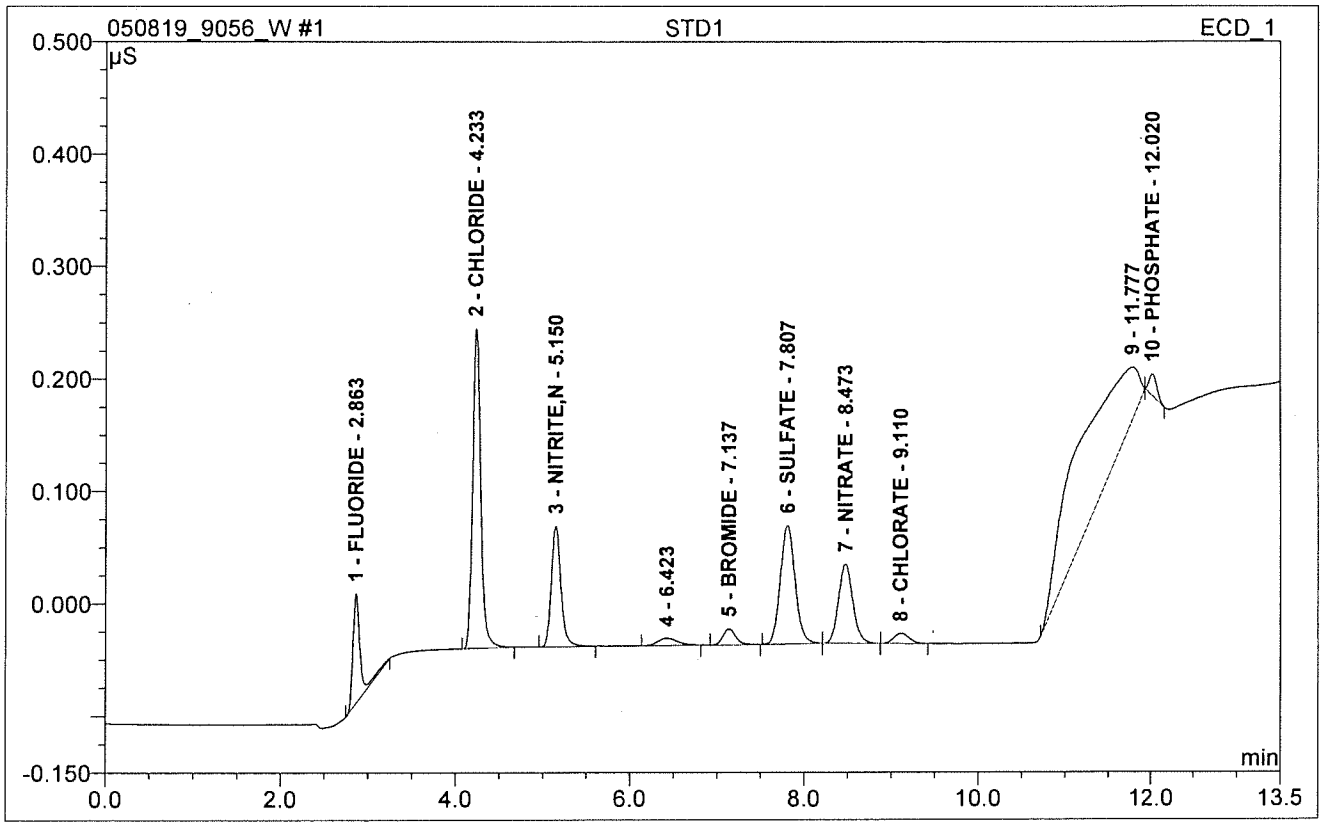
Created: 6/4/2019 3:09:26 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
85	HS19050264-03MSDDF10	1.00	4585f69f-728c-11e9-b6dc-cecc464ab826		
86	HS19050264-05DF5	1.00	54c1c2ff-728e-11e9-b6dc-cecc464ab826		
87	HS19050342-01	1.00	640718bf-7290-11e9-b6dc-cecc464ab826		
88	HS19050342-03	1.00	7351332f-7292-11e9-b6dc-cecc464ab826		
89	HS19050374-03DF10	1.00	829688ef-7294-11e9-b6dc-cecc464ab826		
90	HS19050382-01DF50	1.00	91e5680f-7296-11e9-b6dc-cecc464ab826		
91	DI H2O	1.00	a136a987-7298-11e9-b6dc-cecc464ab826		
92	DI H2O	1.00	b08a4d57-729a-11e9-b6dc-cecc464ab826		
93	CCV	1.00	bfd6ca1f-729c-11e9-b6dc-cecc464ab826		
94	CCB	1.00	cf090d1f-729e-11e9-b6dc-cecc464ab826		
95	HS19050415-05DF100	1.00	de4e62df-72a0-11e9-b6dc-cecc464ab826		
96	HS19050415-05MSDF100	1.00	eda6cb5f-72a2-11e9-b6dc-cecc464ab826		
97	HS19050415-05MSDDF100	1.00	fcec211f-72a4-11e9-b6dc-cecc464ab826		
98	CCV1	1.00	0c2f1487-72a7-11e9-b6dc-cecc464ab826		
99	CCB	1.00	1b746a47-72a9-11e9-b6dc-cecc464ab826		

1 STD1

297.020.7208

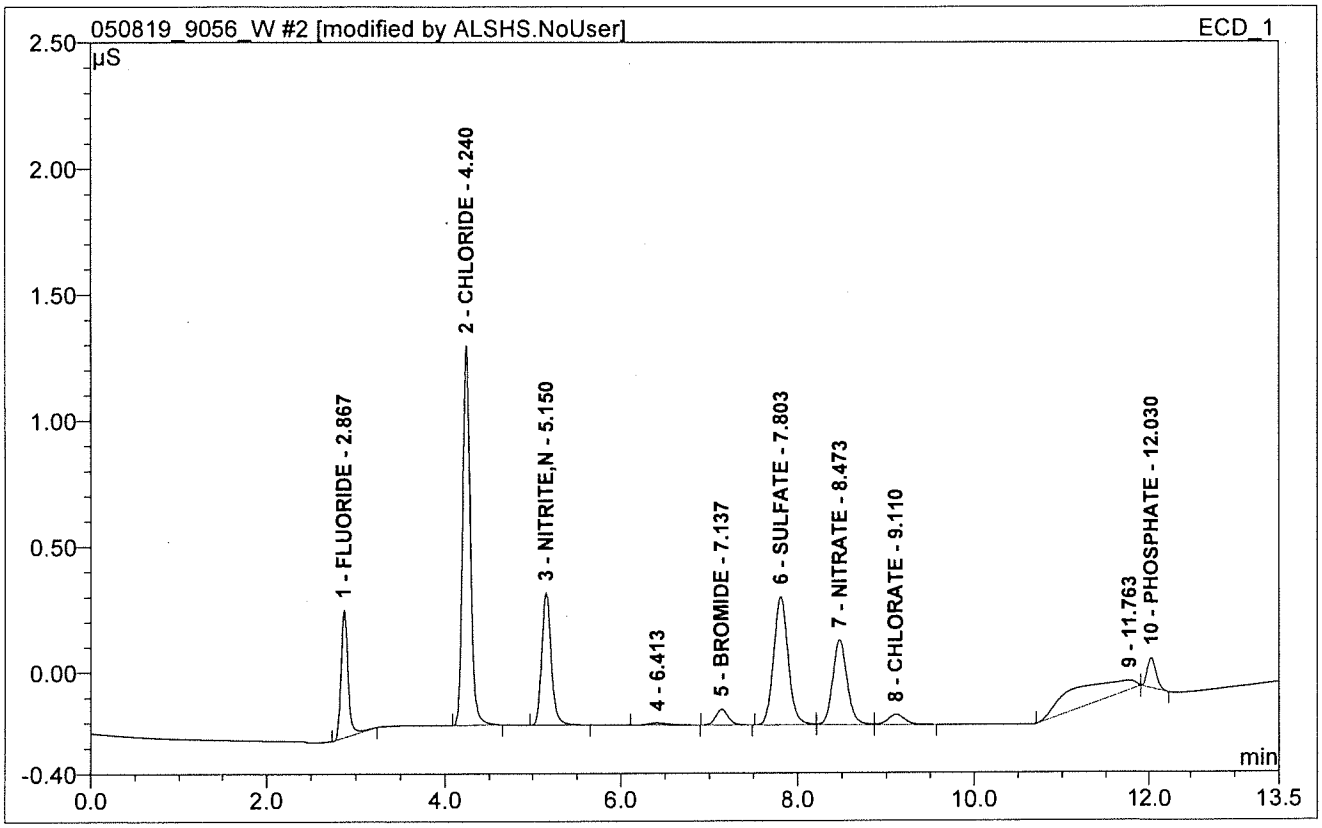
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.098	0.009	5.35	0.107	1.
2	4.23	CHLORIDE	0.284	0.031	17.95	0.536	1.
3	5.15	NITRITE,N	0.107	0.014	8.11	0.101	1.
5	7.14	BROMIDE	0.014	0.002	1.43	0.118	1.
6	7.81	SULFATE	0.105	0.021	12.21	0.593	1.
7	8.47	NITRATE	0.071	0.014	8.03	0.125	1.
8	9.11	CHLORATE	0.009	0.002	1.09	0.111	1.
10	12.02	PHOSPHATE	0.020	0.002	1.24	0.150	1.
Total:			0.709	0.094	55.42	1.842	

2 STD2

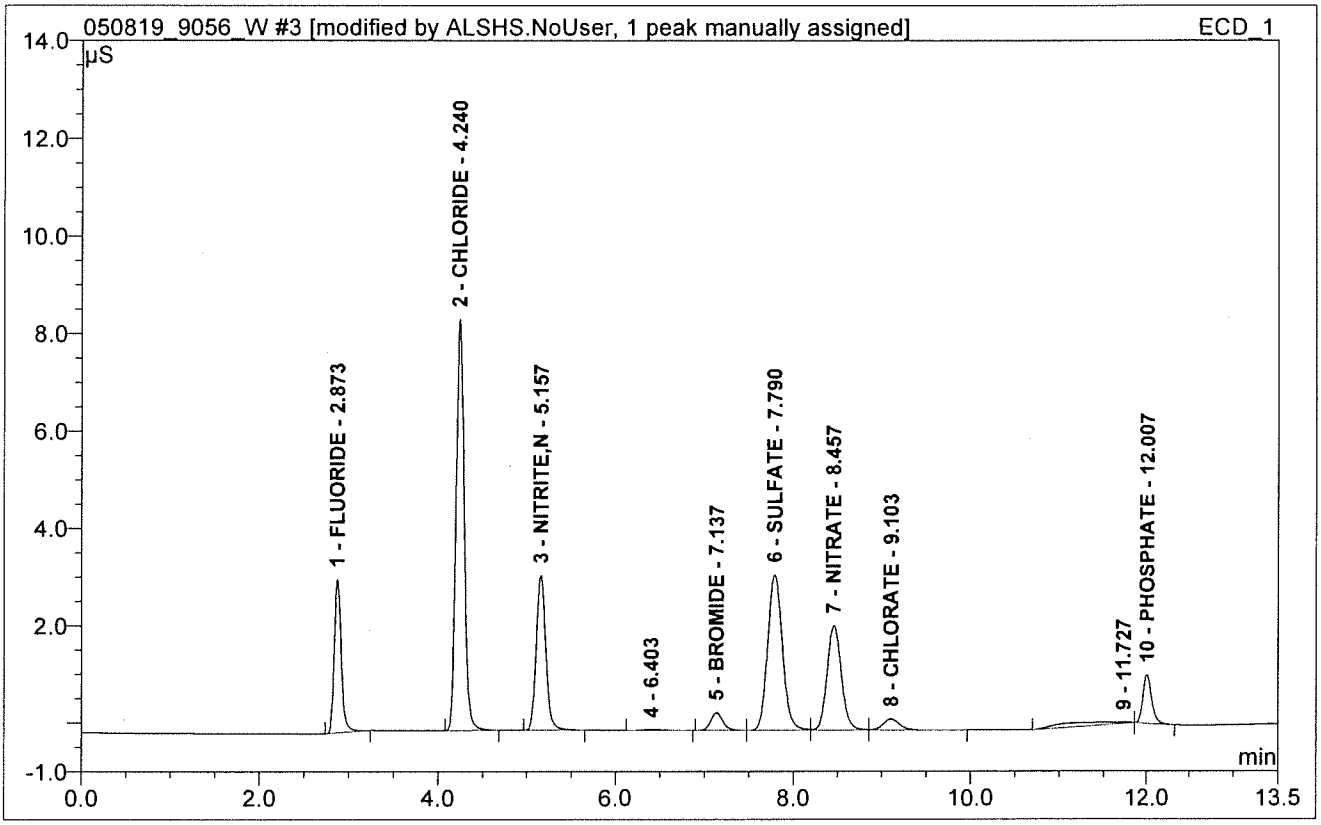
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	0.504	0.045	8.54	0.358	1.
2	4.24	CHLORIDE	1.506	0.155	29.66	1.904	1.
3	5.15	NITRITE,N	0.524	0.065	12.35	0.364	1.
5	7.14	BROMIDE	0.062	0.010	1.93	0.360	1.
6	7.80	SULFATE	0.508	0.097	18.58	1.762	1.
7	8.47	NITRATE	0.336	0.064	12.15	0.348	1.
8	9.11	CHLORATE	0.041	0.009	1.70	0.375	1.
10	12.03	PHOSPHATE	0.120	0.015	2.79	0.306	1.
Total:			3.600	0.459	87.69	5.778	

3 STD3

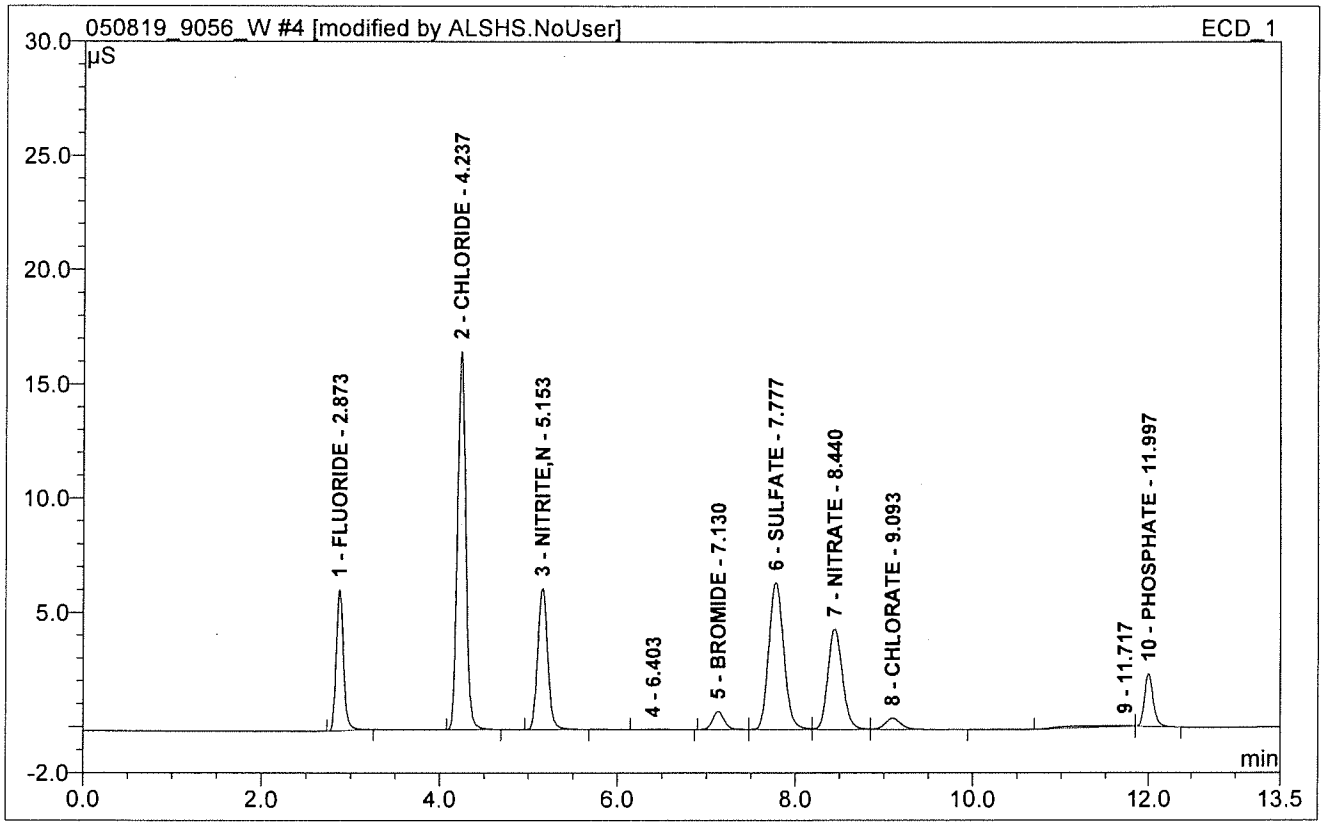
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.165	0.287	9.91	2.068	1.
2	4.24	CHLORIDE	8.444	0.901	31.10	10.080	1.
3	5.16	NITRITE,N	3.193	0.401	13.83	2.101	1.
5	7.14	BROMIDE	0.362	0.057	1.97	1.837	1.
6	7.79	SULFATE	3.210	0.616	21.25	9.683	1.
7	8.46	NITRATE	2.169	0.404	13.93	1.867	1.
8	9.10	CHLORATE	0.229	0.050	1.71	1.900	1.
10	12.01	PHOSPHATE	1.006	0.122	4.22	1.648	1.
Total:			21.778	2.838	97.92	31.183	

4 STD4

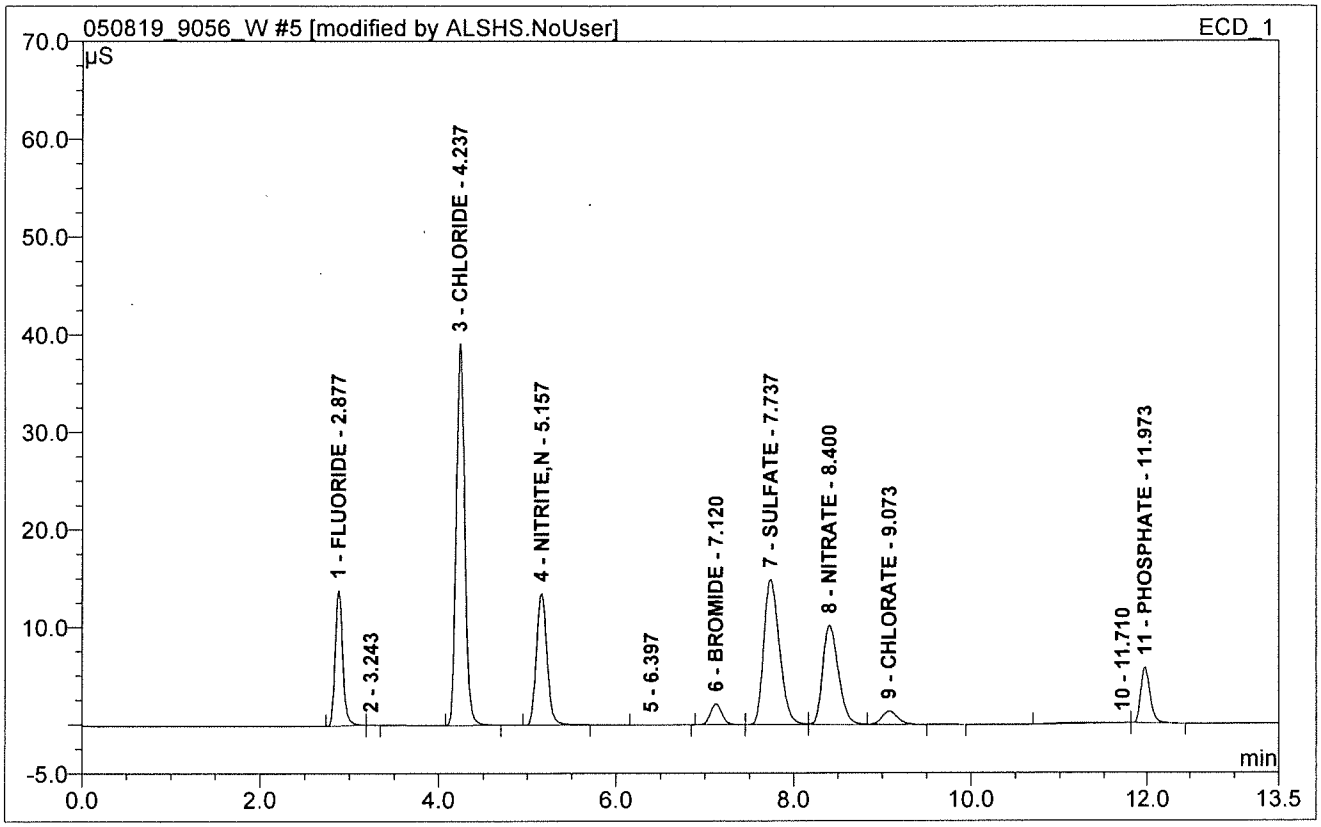
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.167	0.578	9.89	4.120	1.
2	4.24	CHLORIDE	16.548	1.792	30.65	19.847	1.
3	5.15	NITRITE,N	6.168	0.806	13.78	4.192	1.
5	7.13	BROMIDE	0.789	0.122	2.08	3.866	1.
6	7.78	SULFATE	6.411	1.264	21.62	19.589	1.
7	8.44	NITRATE	4.402	0.844	14.42	3.832	1.
8	9.09	CHLORATE	0.490	0.104	1.78	3.943	1.
10	12.00	PHOSPHATE	2.288	0.280	4.79	3.614	1.
Total:			43.263	5.790	99.00	63.003	

5 STD5

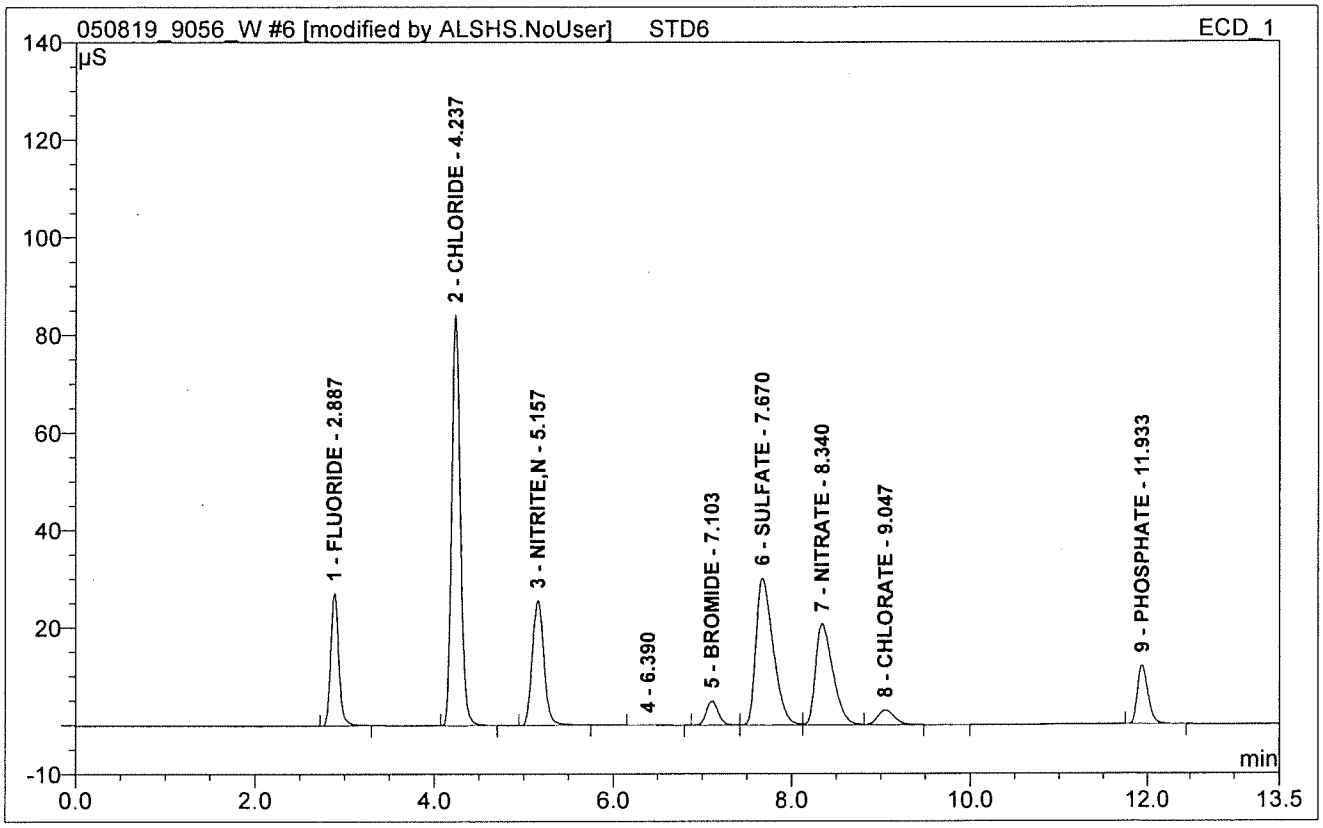
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.88	FLUORIDE	13.911	1.368	9.67	9.690	1.
3	4.24	CHLORIDE	39.139	4.301	30.41	47.342	1.
4	5.16	NITRITE,N	13.545	1.886	13.34	9.771	1.
6	7.12	BROMIDE	2.139	0.326	2.31	10.318	1.
7	7.74	SULFATE	14.998	3.094	21.88	47.543	1.
8	8.40	NITRATE	10.240	2.101	14.86	9.449	1.
9	9.07	CHLORATE	1.339	0.270	1.91	10.172	1.
11	11.97	PHOSPHATE	5.699	0.738	5.22	9.315	1.
Total:			101.010	14.086	99.60	153.600	

6 STD6

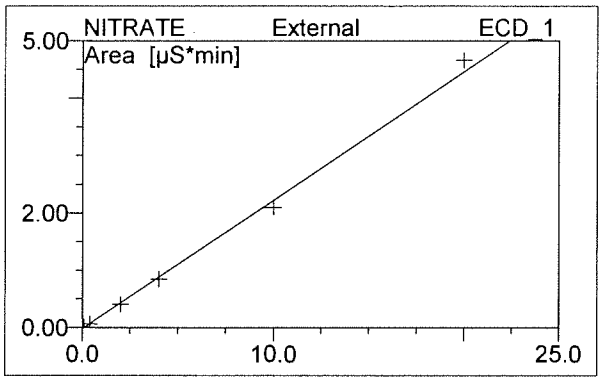
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

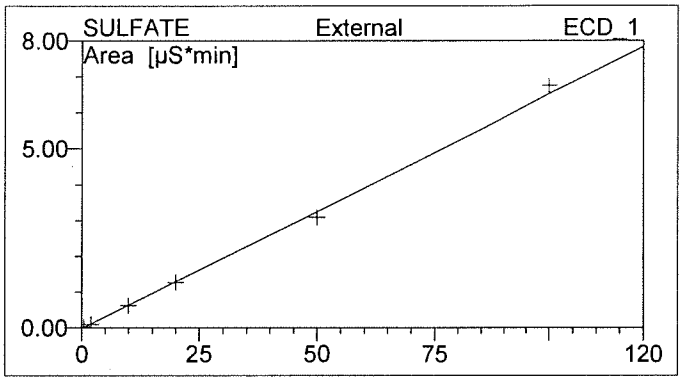


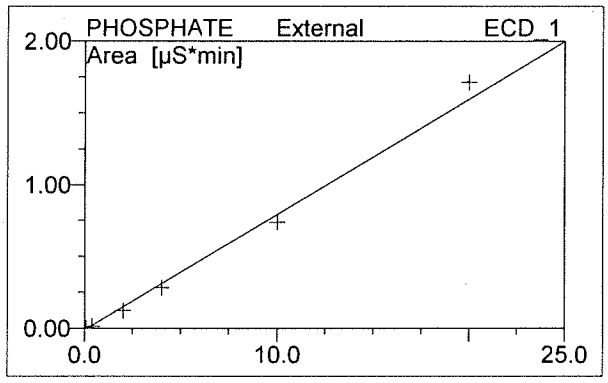
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.89	FLUORIDE	27.202	2.852	9.32	20.158	1.
2	4.24	CHLORIDE	84.194	9.360	30.60	102.790	1.
3	5.16	NITRITE,N	25.559	3.861	12.62	19.970	1.
5	7.10	BROMIDE	4.923	0.763	2.49	24.066	1.
6	7.67	SULFATE	30.095	6.746	22.05	103.329	1.
7	8.34	NITRATE	20.708	4.660	15.23	20.879	1.
8	9.05	CHLORATE	2.949	0.625	2.04	23.464	1.
9	11.93	PHOSPHATE	11.975	1.715	5.60	21.467	1.
Total:			207.605	30.582	99.97	336.123	

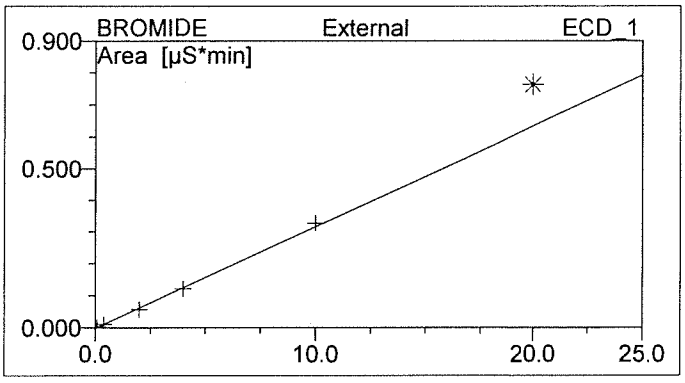
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

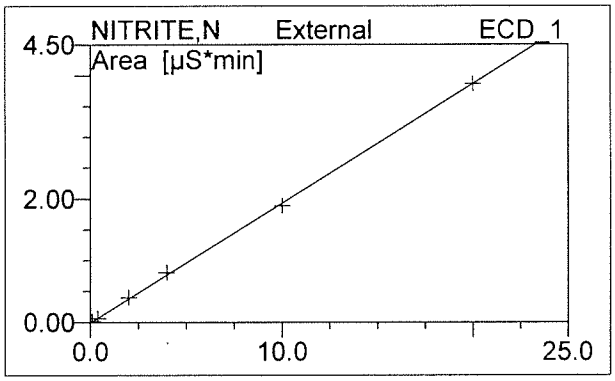
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

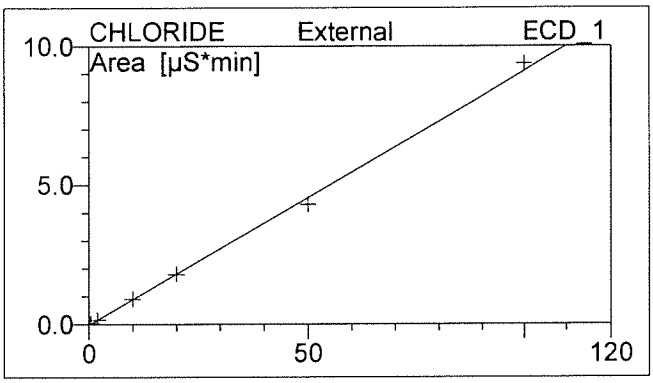
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.936	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.865	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.933	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.761	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.825	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.711	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.921	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.117	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.0000

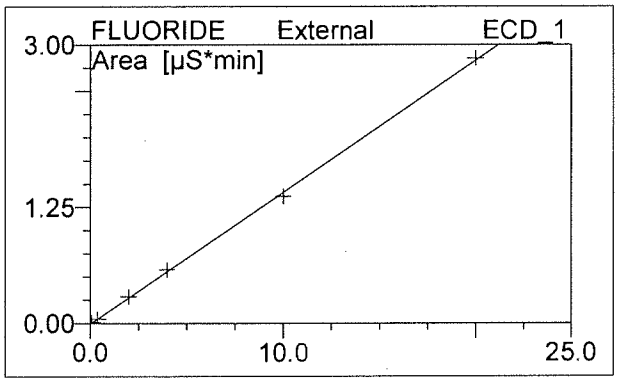
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.5397	0.0147	22.2265

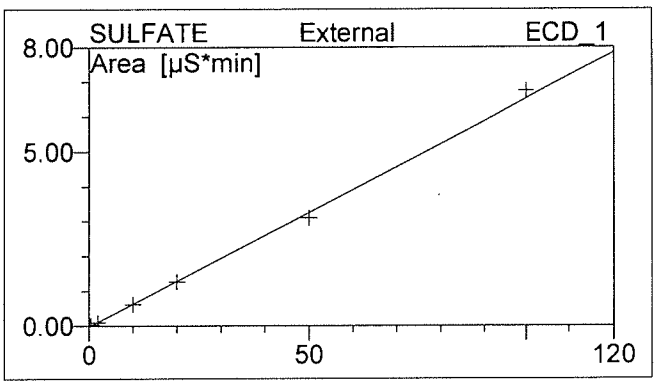
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.000**
Recording Time:	**4/3/2019 8:09**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\050819_9056_W.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

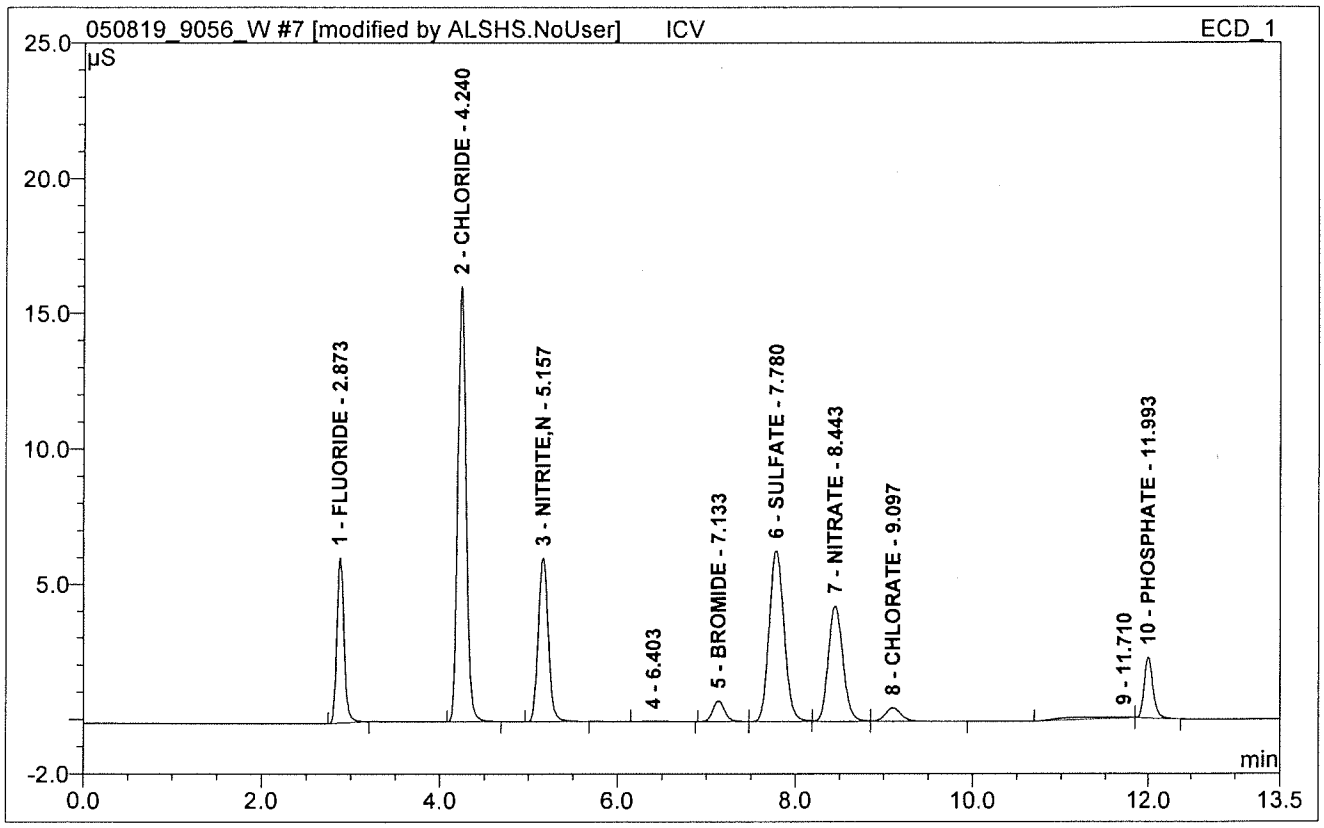
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.9360	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.8652	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.9328	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.7608	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.8254	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.7112	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.9208	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.1166	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.540	0.015	22.226

7 ICV

297.020.6806

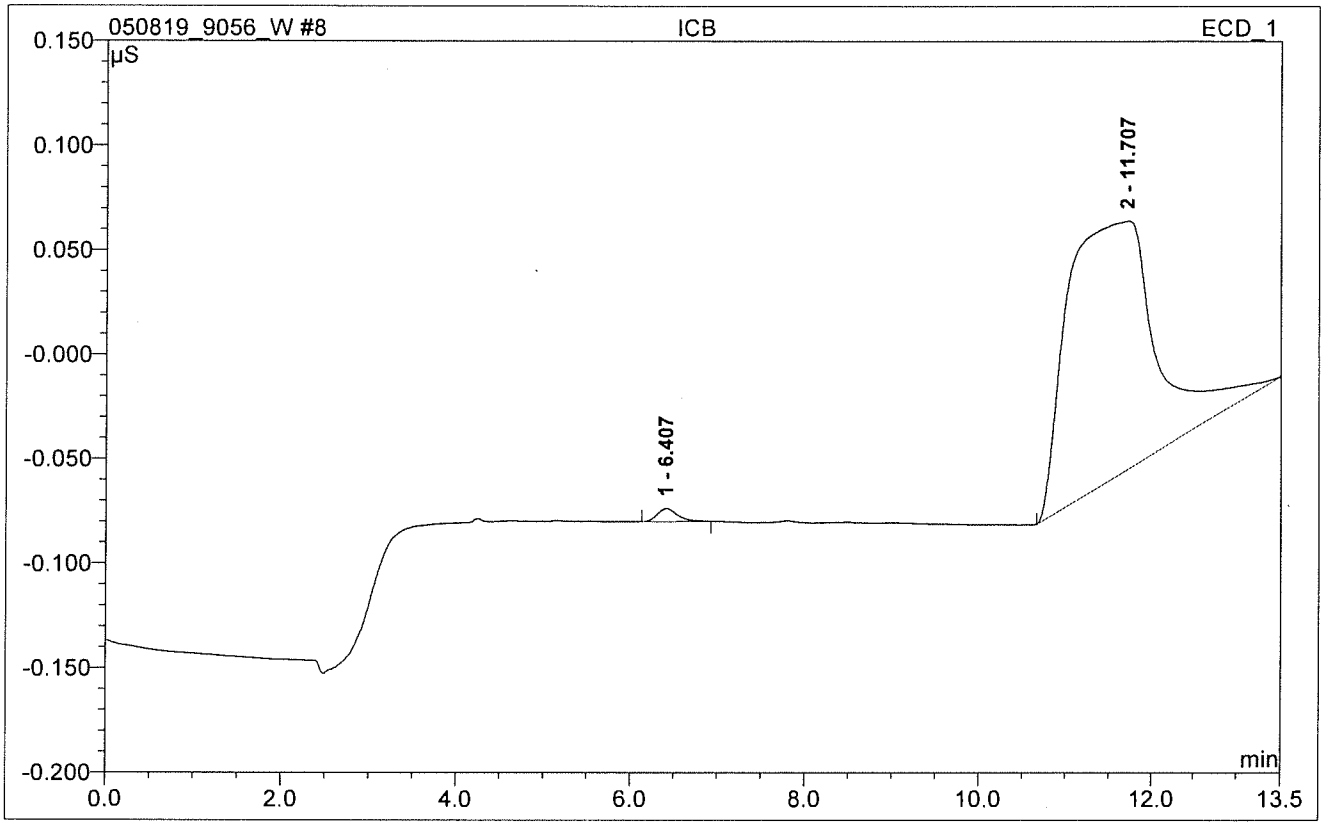
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.120	0.572	10.00	4.075	1.
2	4.24	CHLORIDE	16.070	1.742	30.46	19.294	1.
3	5.16	NITRITE,N	6.066	0.792	13.85	4.120	1.
5	7.13	BROMIDE	0.771	0.119	2.08	3.784	1.
6	7.78	SULFATE	6.333	1.239	21.67	19.210	1.
7	8.44	NITRATE	4.275	0.817	14.29	3.715	1.
8	9.10	CHLORATE	0.498	0.106	1.85	3.999	1.
10	11.99	PHOSPHATE	2.227	0.272	4.77	3.516	1.
Total:			42.362	5.659	98.97	61.712	

8 ICB

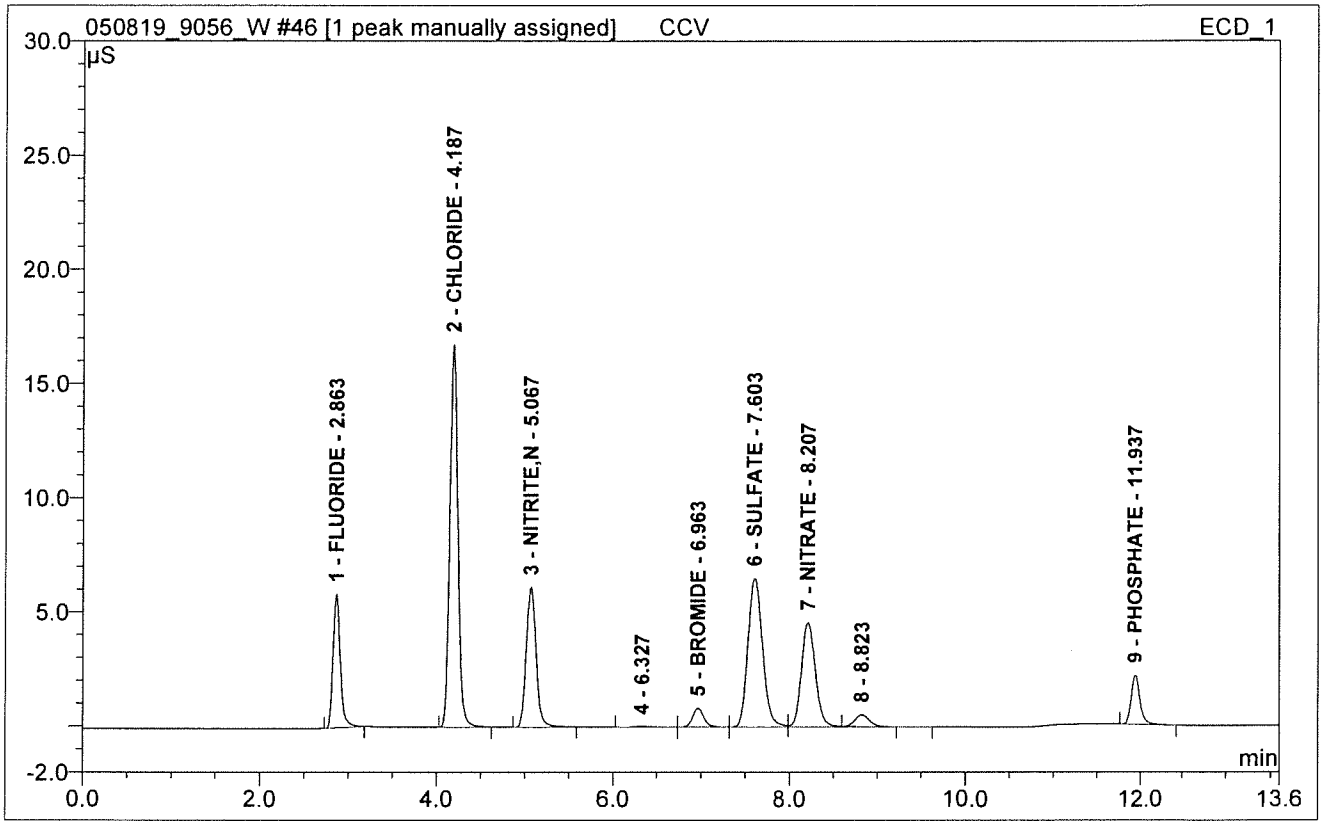
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



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

46 CCV

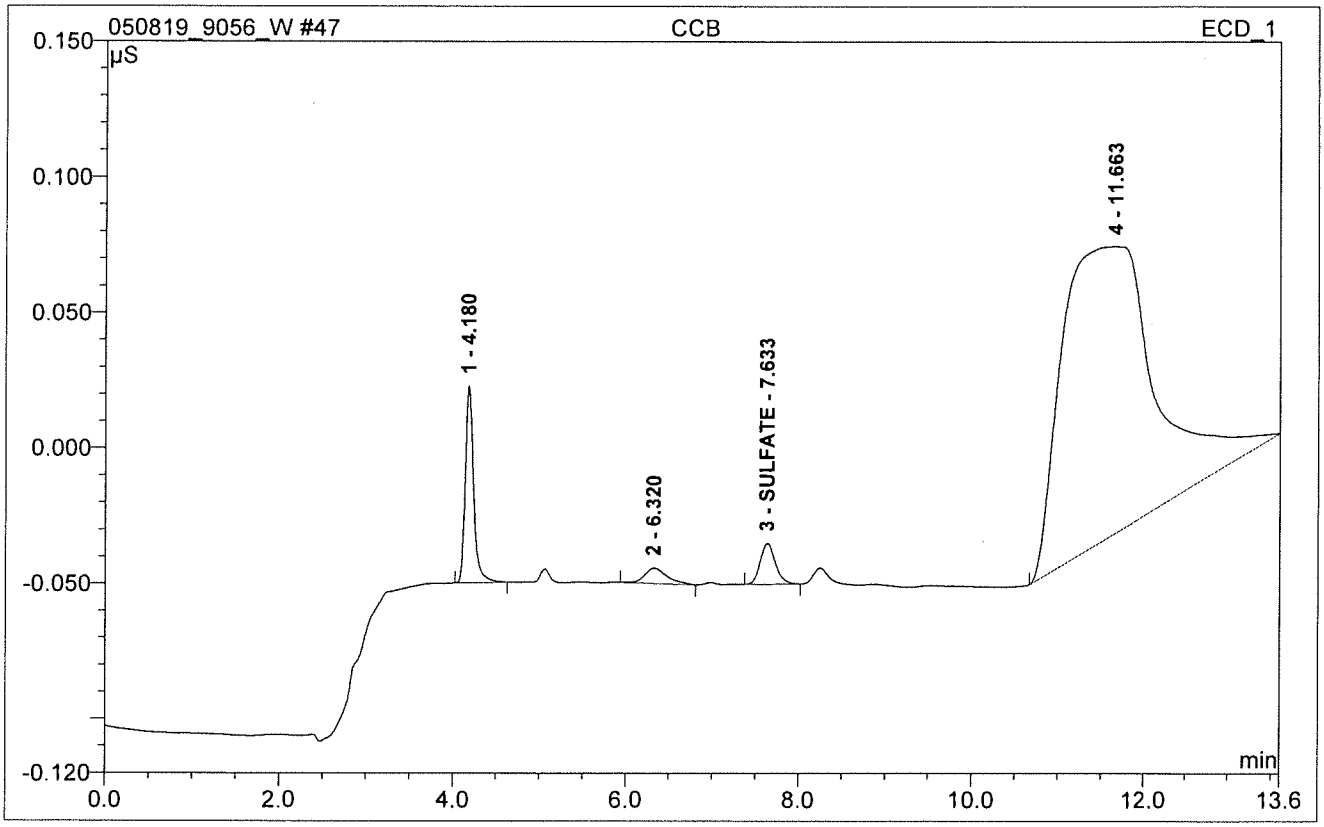
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 20:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.850	0.556	9.68	3.963	1.
2	4.19	CHLORIDE	16.751	1.781	31.01	19.723	1.
3	5.07	NITRITE,N	6.121	0.794	13.82	4.129	1.
5	6.96	BROMIDE	0.824	0.124	2.15	3.932	1.
6	7.60	SULFATE	6.517	1.257	21.89	19.481	1.
7	8.21	NITRATE	4.570	0.861	15.00	3.912	1.
9	11.94	PHOSPHATE	2.136	0.263	4.58	3.399	1.
Total:			42.770	5.636	98.13	58.539	

47 CCB

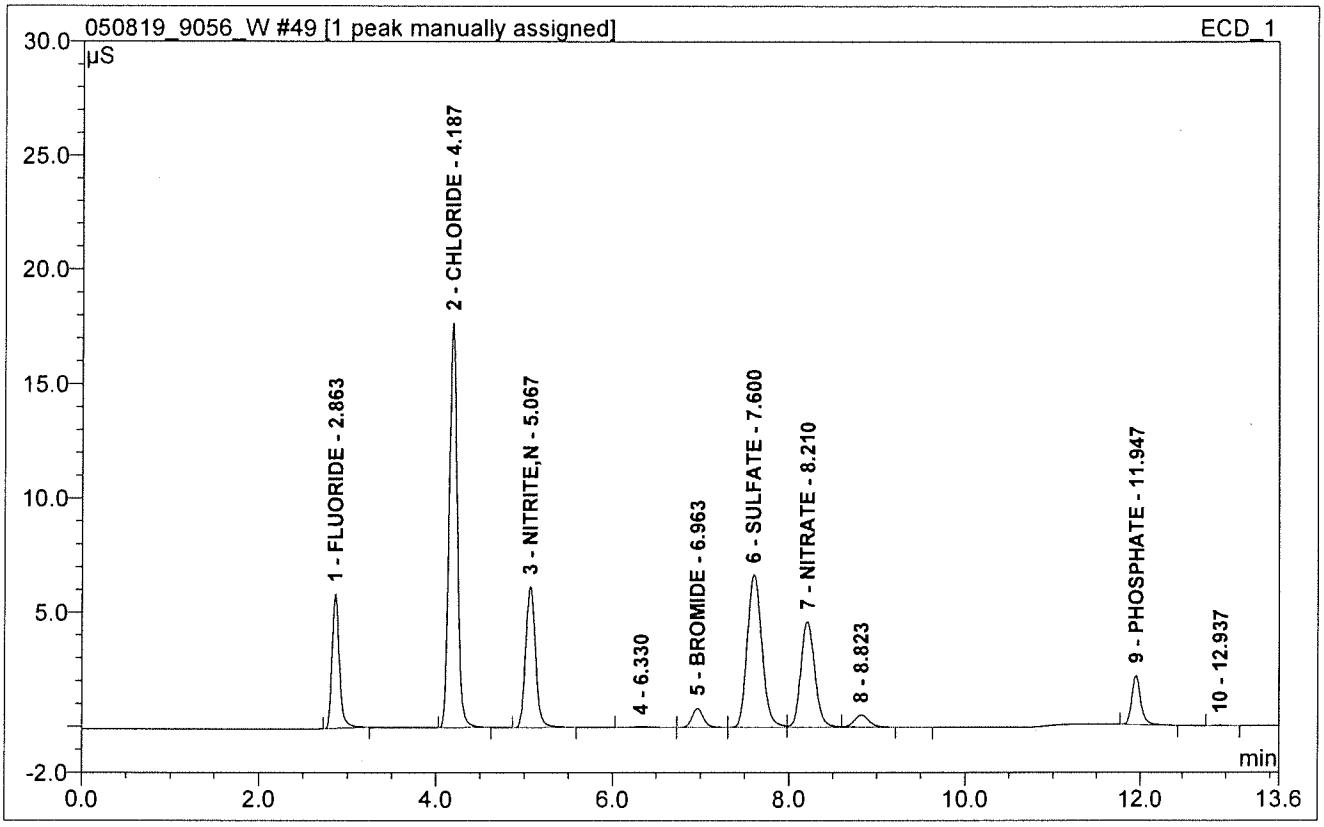
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 20:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	7.63	SULFATE	0.015	0.003	2.03	0.323	1.
Total:			0.015	0.003	2.03	0.323	

49 WLCSW1-190508

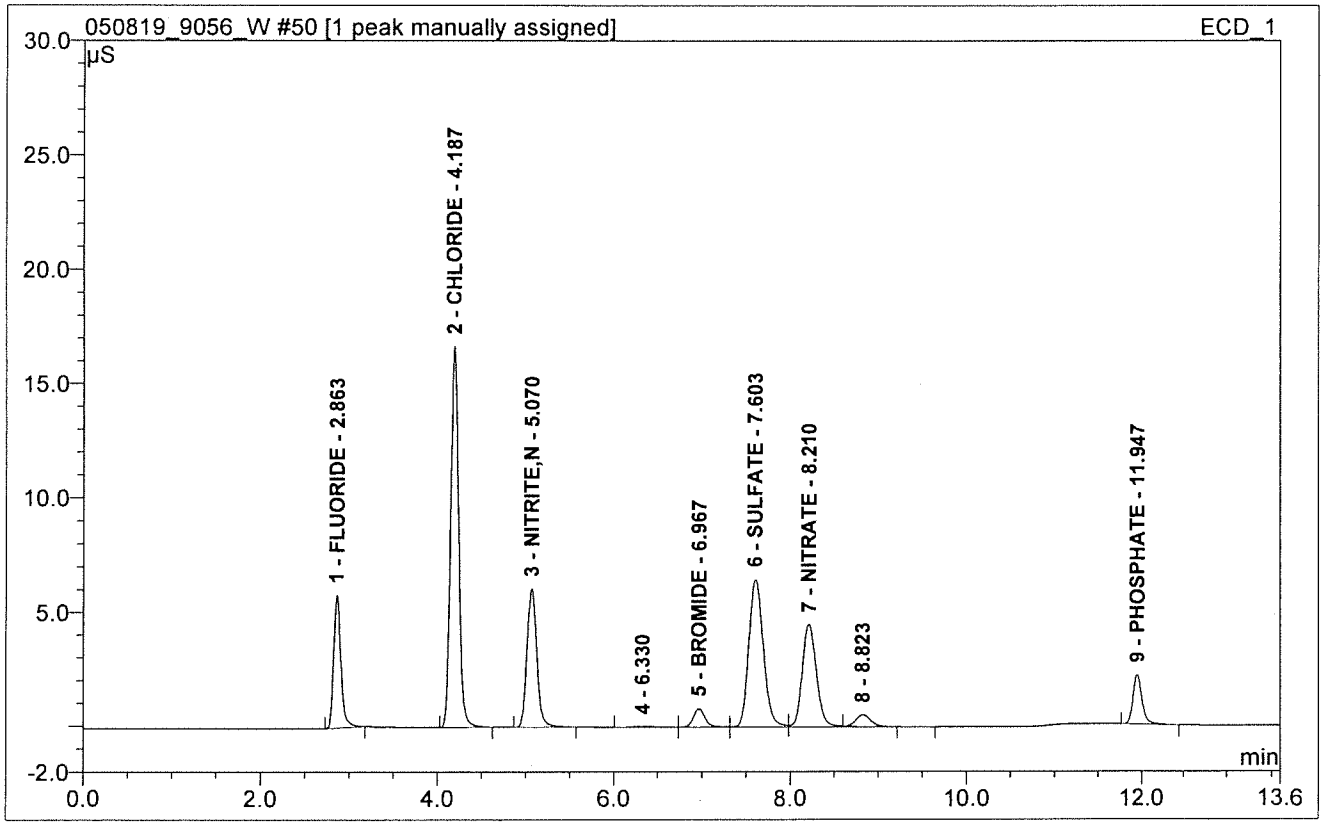
Sample Name:	**WLCSW1-190508**	*Injection Volume:*	**10.0**
Vial Number:	**13**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 20:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.880	0.564	9.54	4.019	1.
2	4.19	CHLORIDE	17.704	1.885	31.88	20.862	1.
3	5.07	NITRITE,N	6.155	0.798	13.50	4.154	1.
5	6.96	BROMIDE	0.837	0.126	2.13	4.011	1.
6	7.60	SULFATE	6.673	1.292	21.86	20.020	1.
7	8.21	NITRATE	4.630	0.876	14.81	3.974	1.
9	11.95	PHOSPHATE	2.125	0.260	4.40	3.366	1.
Total:			44.004	5.802	98.12	60.405	

50 WLCSDW1-190508

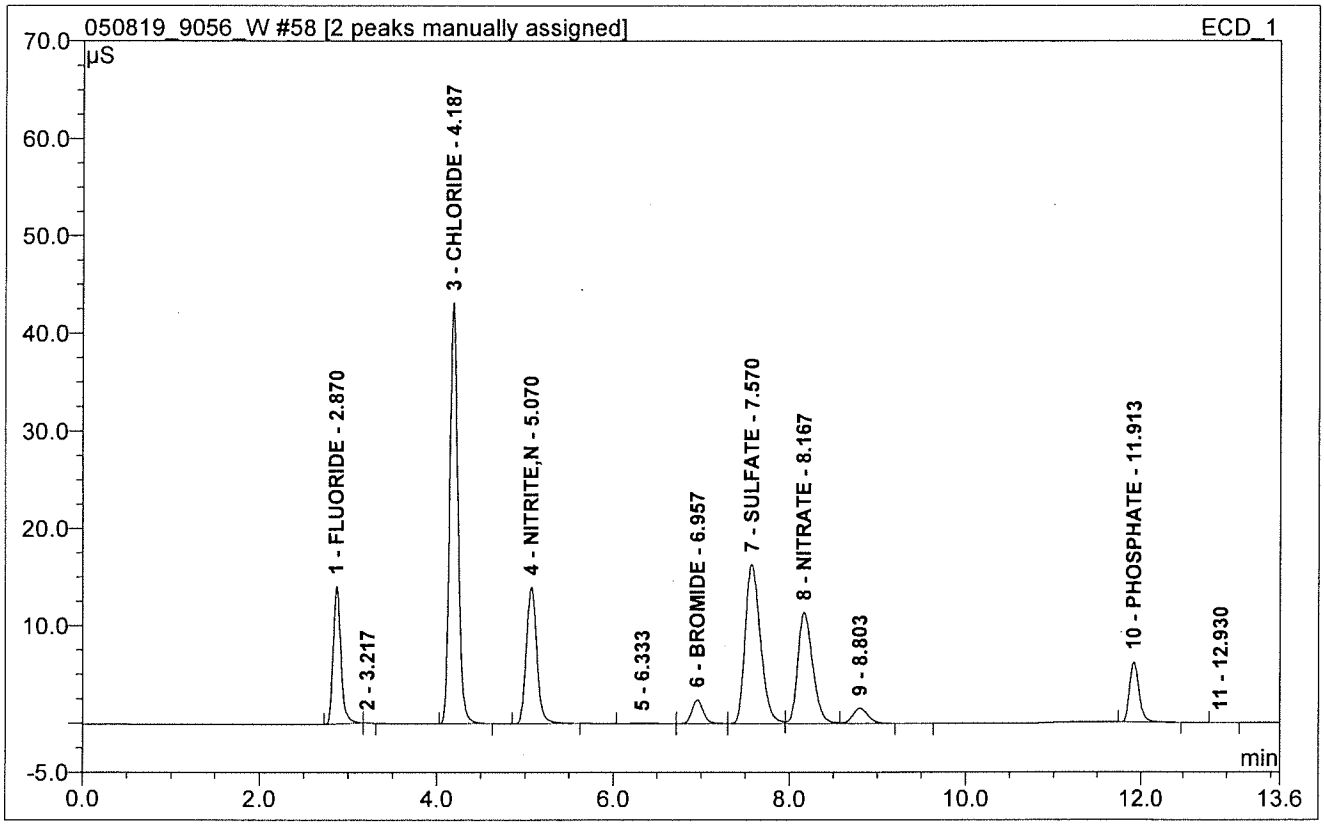
Sample Name:	**WLCSDW1-190508**	*Injection Volume:*	**10.0**
Vial Number:	**14**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/8/2019 21:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	5.837	0.554	9.69	3.948	1.
2	4.19	CHLORIDE	16.676	1.771	30.99	19.608	1.
3	5.07	NITRITE,N	6.082	0.788	13.79	4.102	1.
5	6.97	BROMIDE	0.817	0.123	2.15	3.917	1.
6	7.60	SULFATE	6.478	1.251	21.90	19.391	1.
7	8.21	NITRATE	4.532	0.856	14.98	3.886	1.
9	11.95	PHOSPHATE	2.165	0.265	4.64	3.422	1.
Total:			42.587	5.608	98.14	58.274	

58 CCV1

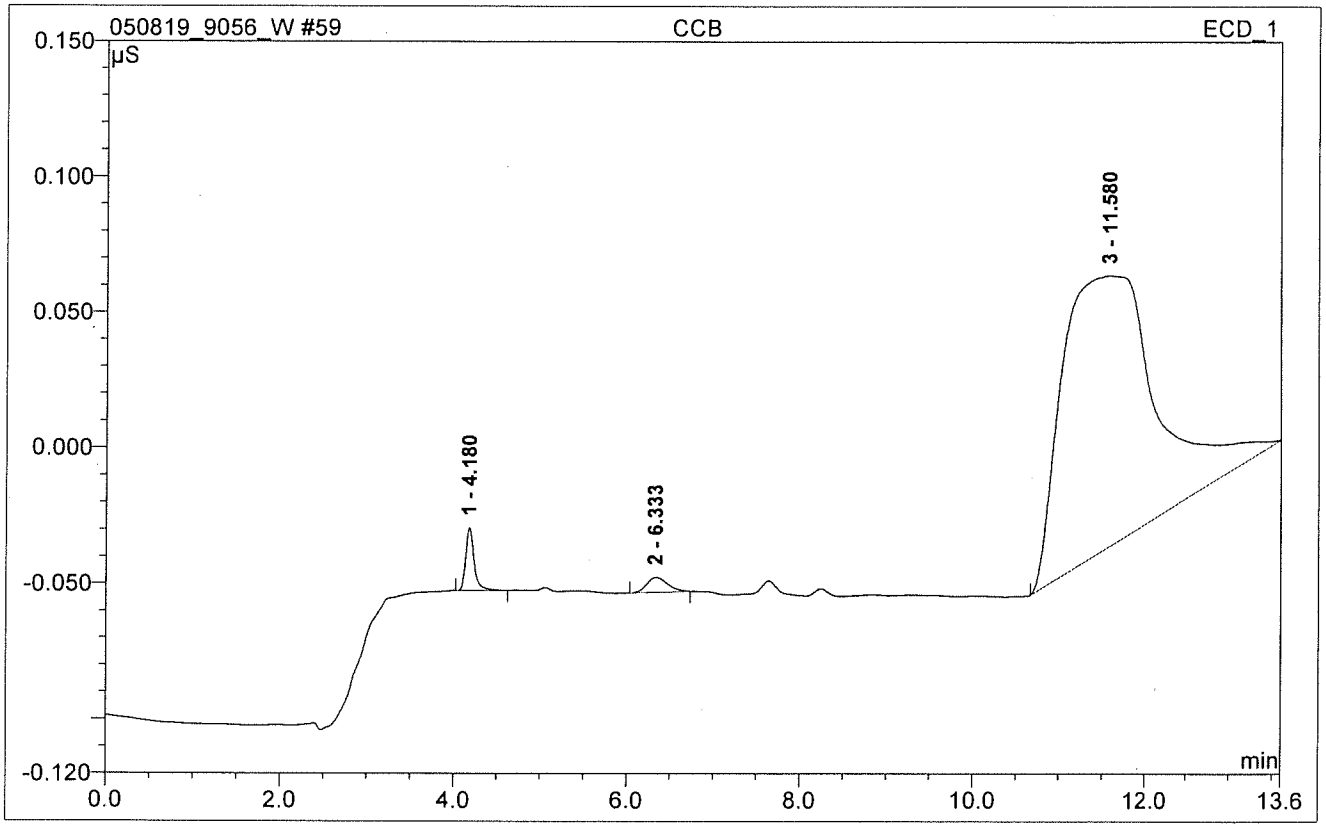
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/8/2019 23:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	14.094	1.420	9.43	502.819	50.
3	4.19	CHLORIDE	43.161	4.648	30.86	2557.084	50.
4	5.07	NITRITE,N	14.005	1.961	13.02	508.047	50.
6	6.96	BROMIDE	2.415	0.360	2.39	568.532	50.
7	7.57	SULFATE	16.361	3.300	21.91	2534.368	50.
8	8.17	NITRATE	11.401	2.279	15.13	512.154	50.
10	11.91	PHOSPHATE	6.122	0.783	5.20	493.672	50.
Total:			107.558	14.751	97.95	7676.675	

59 CCB

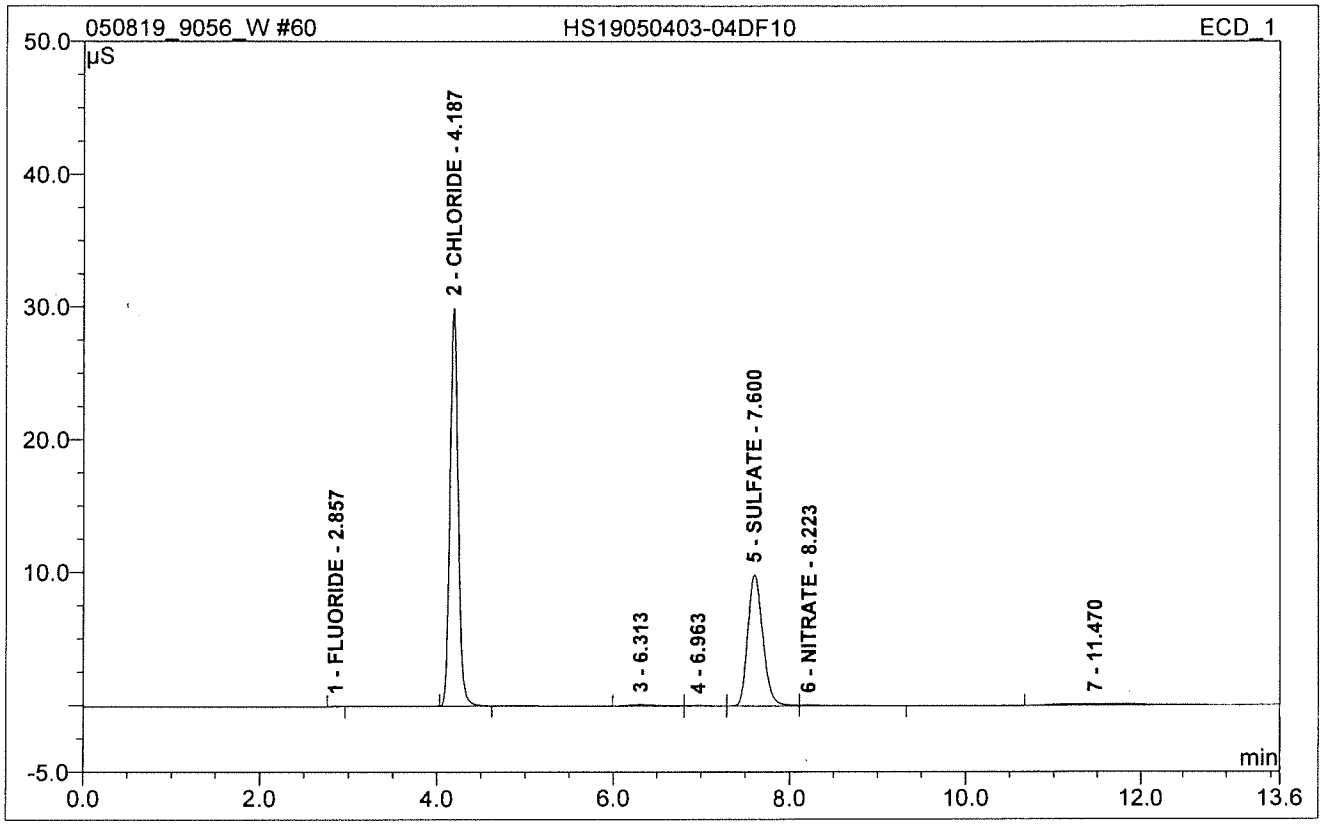
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/8/2019 23:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



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

60 HS19050403-04DF10

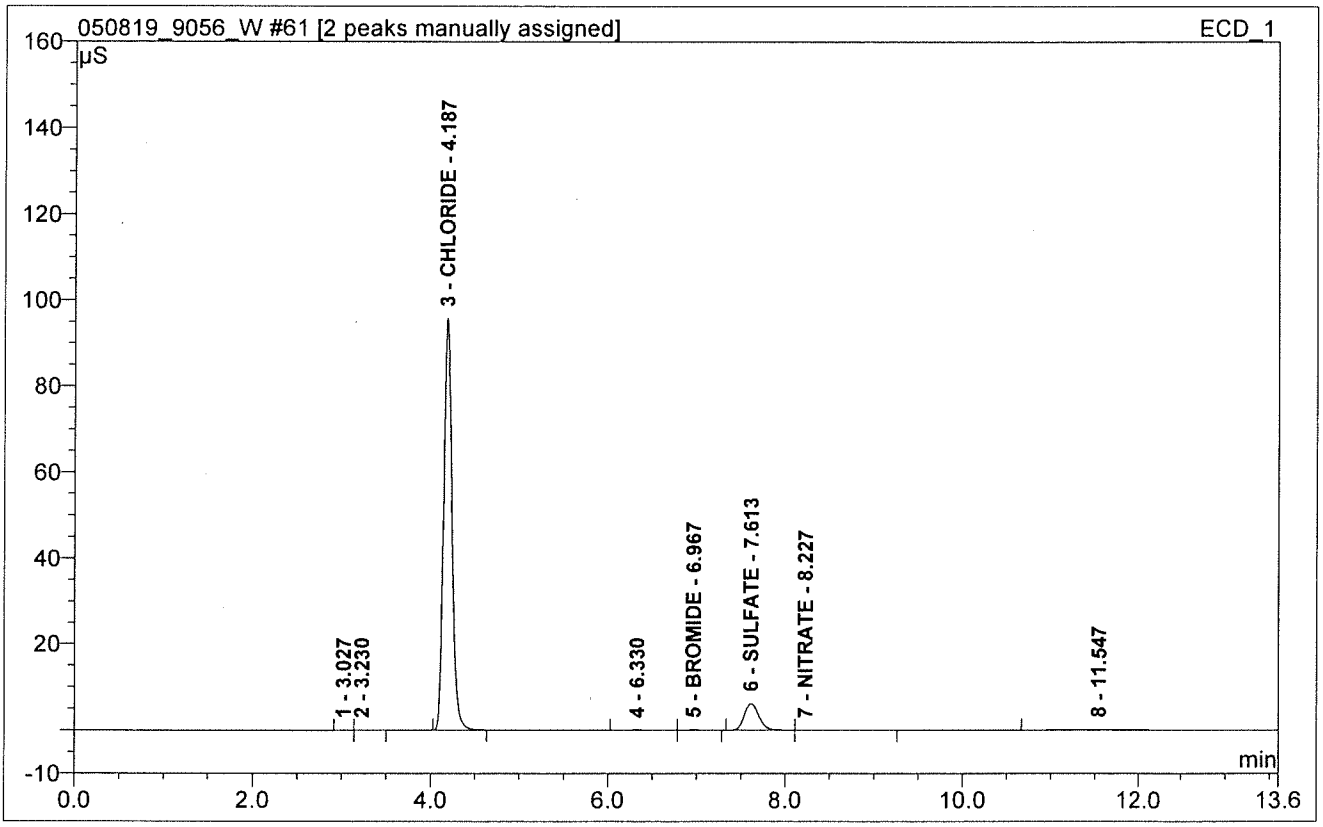
Sample Name:	**HS19050403-04DF10**	*Injection Volume:*	**10.0**
Vial Number:	**22**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 23:36**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.042	0.003	0.06	0.665	10.
2	4.19	CHLORIDE	29.943	3.212	59.93	354.054	10.
5	7.60	SULFATE	9.847	1.952	36.42	300.956	10.
6	8.22	NITRATE	0.054	0.016	0.30	1.366	10.
Total:			39.886	5.184	96.72	657.042	

61 HS19050403-05DF10

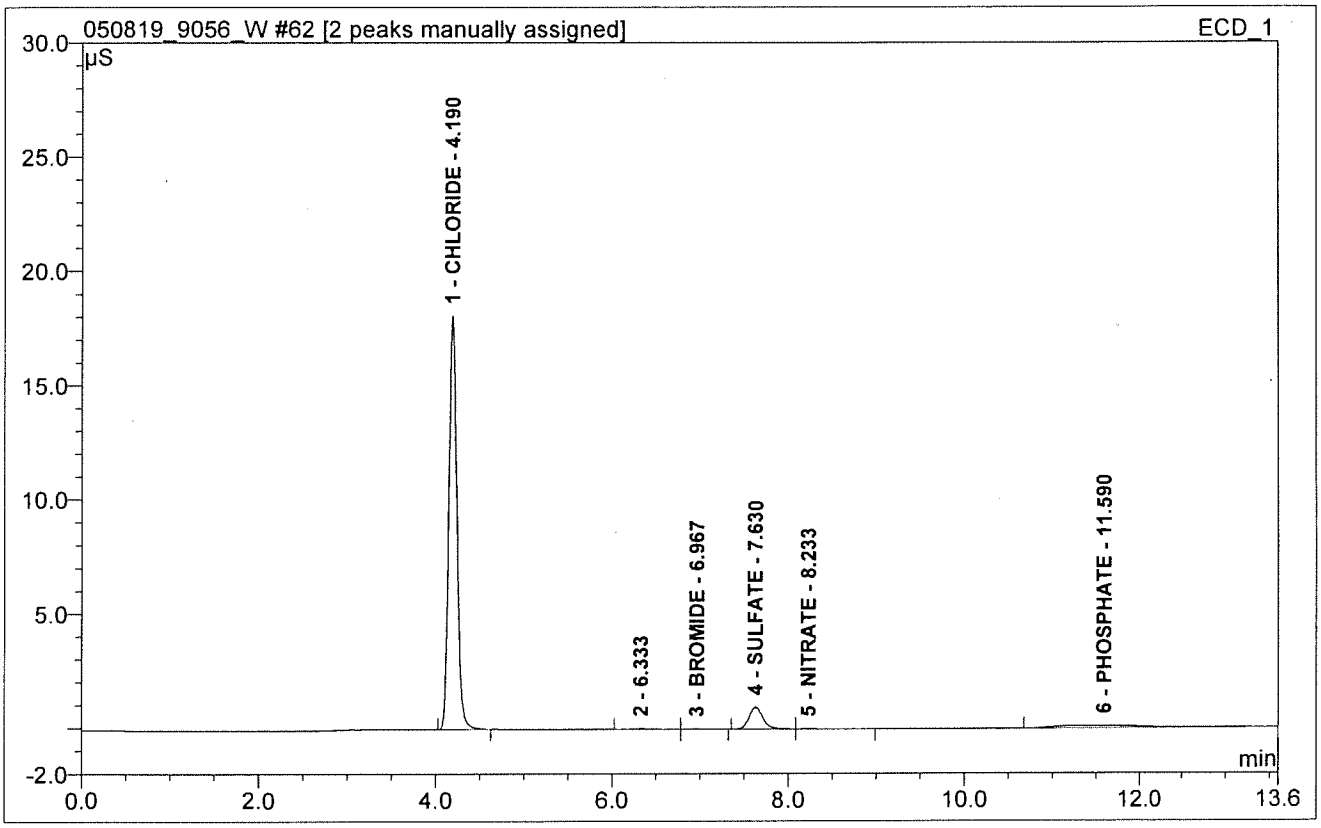
Sample Name:	**HS19050403-05DF10**	*Injection Volume:*	**10.0**
Vial Number:	**23**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**10.**
Recording Time:	**5/8/2019 23:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	4.19	CHLORIDE	95.714	10.483	88.38	1150.948	10.
5	6.97	BROMIDE	0.087	0.014	0.11	4.678	10.
6	7.61	SULFATE	6.185	1.192	10.05	184.816	10.
7	8.23	NITRATE	0.039	0.011	0.10	1.145	10.
Total:			102.025	11.700	98.64	1341.586	

62 HS19050403-05DF50

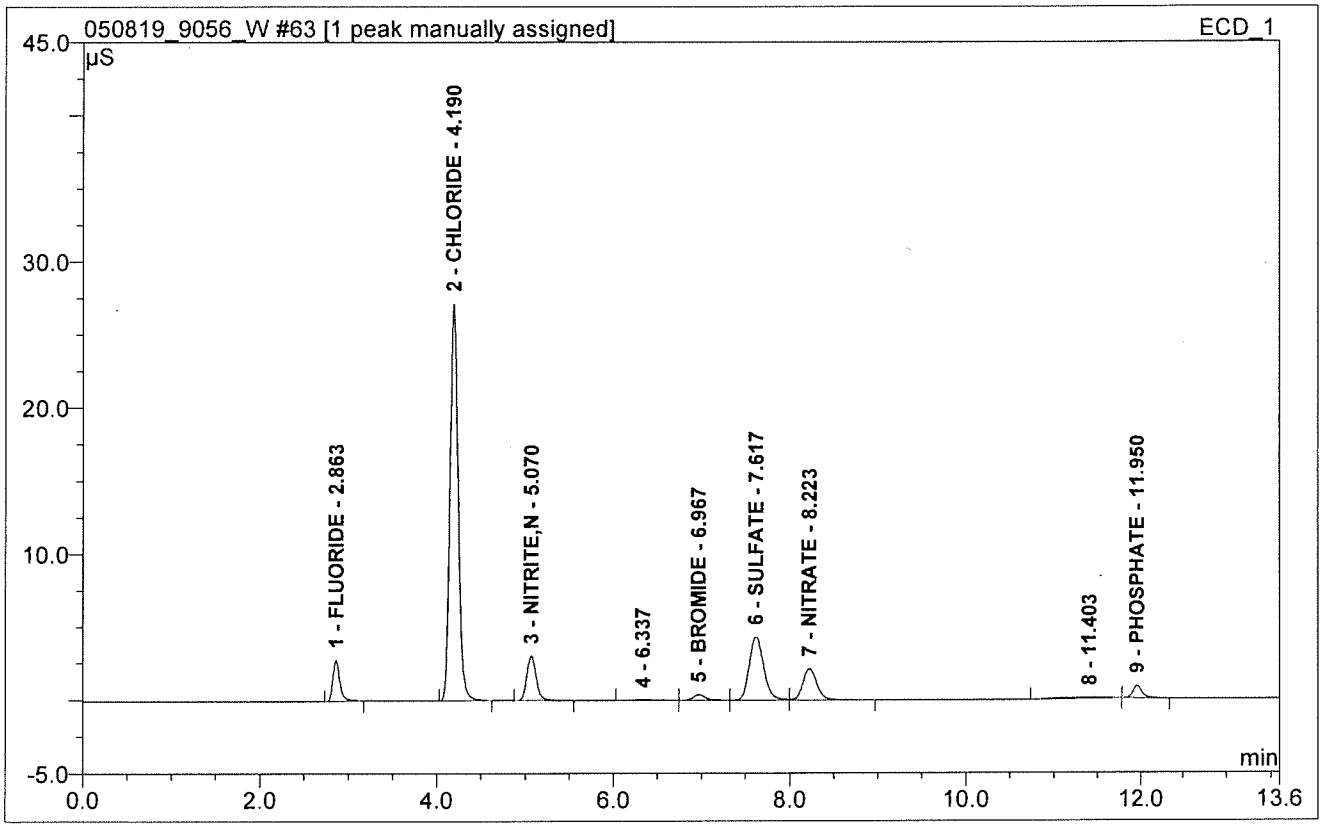
Sample Name:	**HS19050403-05DF50**	*Injection Volume:*	**10.0**
Vial Number:	**24**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/9/2019 0:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.19	CHLORIDE	18.097	1.925	85.49	1064.835	50.
3	6.97	BROMIDE	0.016	0.003	0.12	6.342	50.
4	7.63	SULFATE	0.964	0.178	7.92	150.016	50.
5	8.23	NITRATE	0.017	0.004	0.19	4.154	50.
6	11.59	PHOSPHATE	0.103	0.134	5.95	89.629	50.
Total:			19.196	2.244	99.67	1314.976	

63 HS19050403-05MSDF50

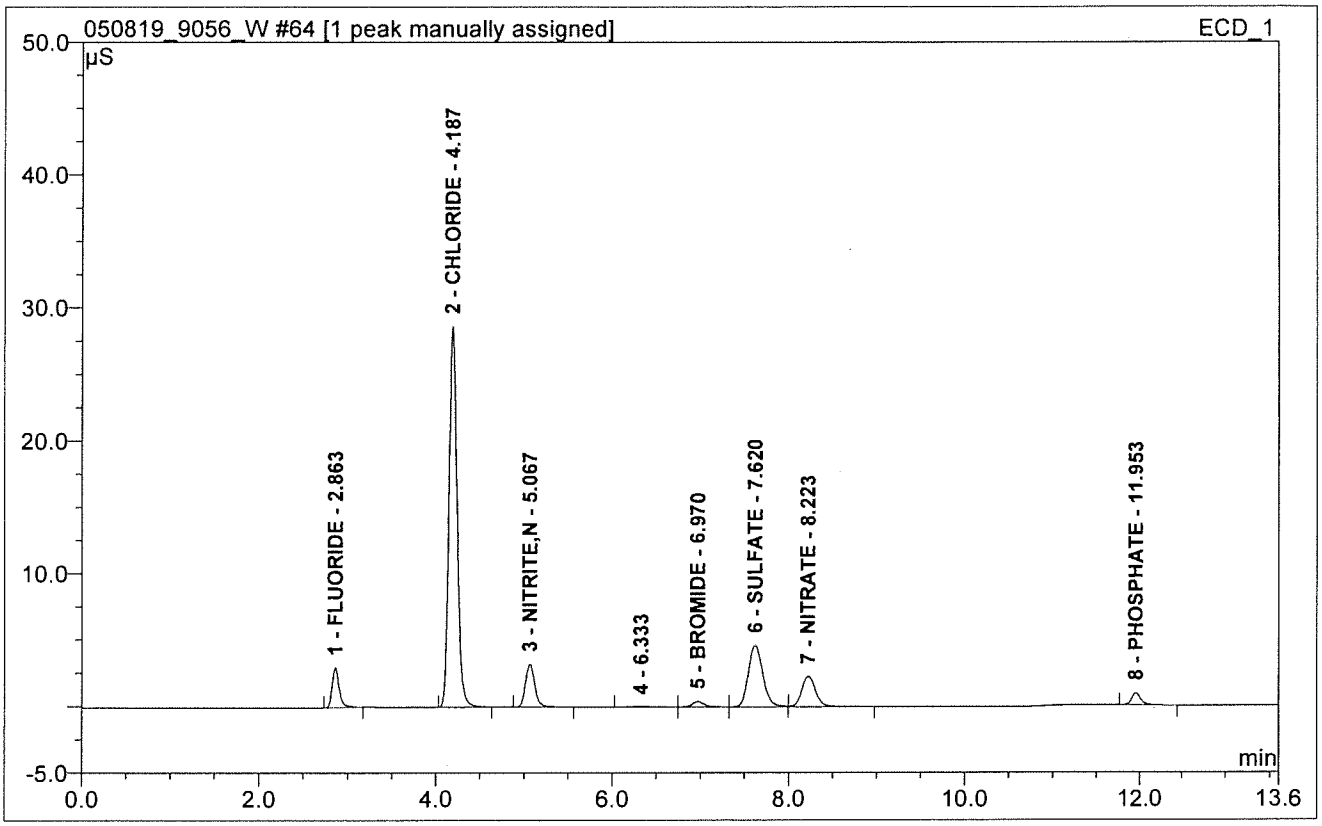
Sample Name:	**HS19050403-05MSDF50**	*Injection Volume:*	**10.0**
Vial Number:	**25**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/9/2019 0:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	2.811	0.258	5.20	93.201	50.
2	4.19	CHLORIDE	27.161	2.909	58.54	1604.368	50.
3	5.07	NITRITE,N	3.039	0.376	7.57	98.724	50.
5	6.97	BROMIDE	0.379	0.059	1.18	94.373	50.
6	7.62	SULFATE	4.337	0.825	16.59	643.748	50.
7	8.22	NITRATE	2.156	0.393	7.91	90.949	50.
9	11.95	PHOSPHATE	0.831	0.104	2.08	70.630	50.
Total:			40.714	4.924	99.07	2695.992	

64 HS19050403-05MSDDF50

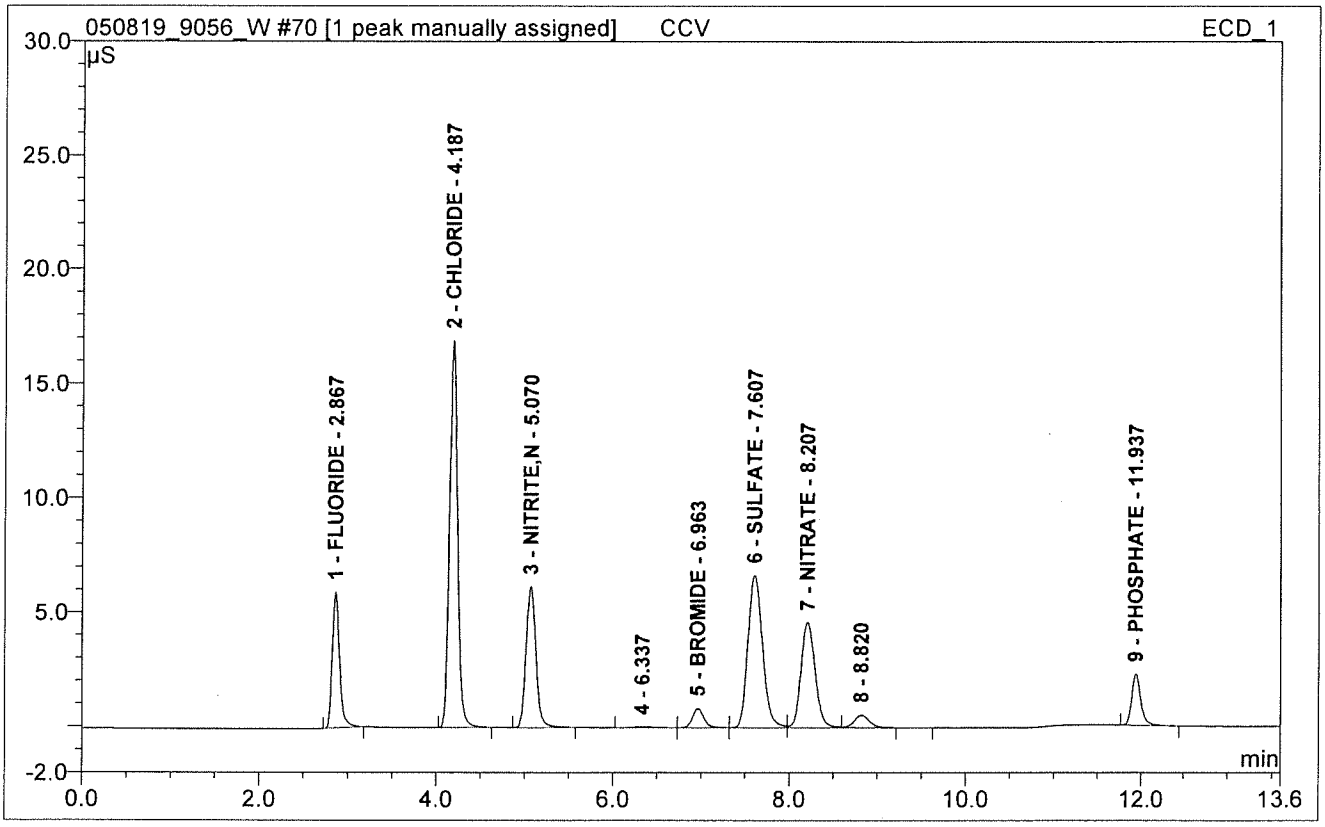
Sample Name:	**HS19050403-05MSDDF50**	*Injection Volume:*	**10.0**
Vial Number:	**26**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/9/2019 0:35**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	2.987	0.274	5.25	98.855	50.
2	4.19	CHLORIDE	28.643	3.070	58.73	1692.144	50.
3	5.07	NITRITE,N	3.208	0.399	7.64	104.580	50.
5	6.97	BROMIDE	0.405	0.062	1.19	100.336	50.
6	7.62	SULFATE	4.610	0.879	16.81	685.038	50.
7	8.22	NITRATE	2.290	0.418	8.00	96.552	50.
8	11.95	PHOSPHATE	0.901	0.112	2.14	75.767	50.
Total:			43.043	5.214	99.76	2853.272	

70 CCV

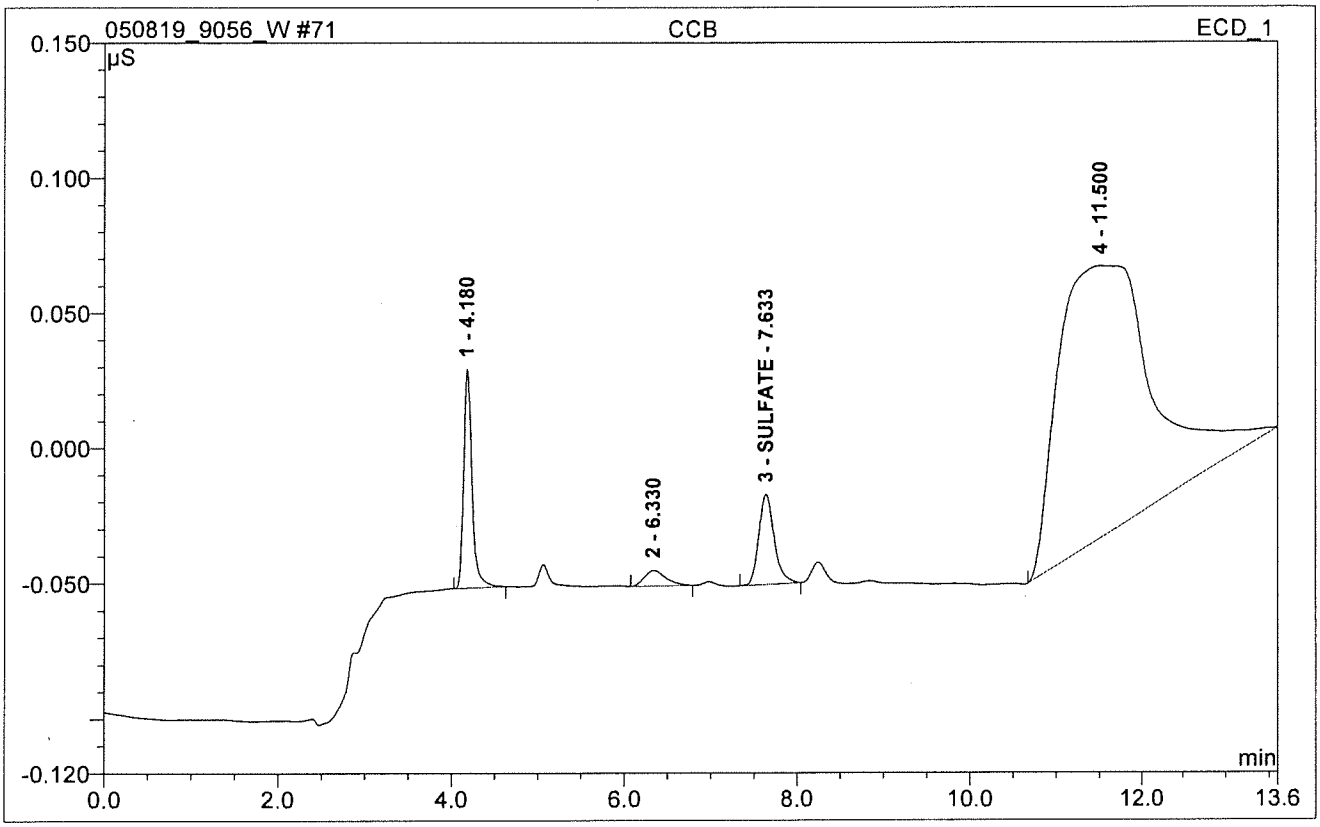
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 2:03**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.947	0.565	9.69	4.026	1.
2	4.19	CHLORIDE	16.898	1.797	30.83	19.894	1.
3	5.07	NITRITE,N	6.171	0.800	13.72	4.161	1.
5	6.96	BROMIDE	0.842	0.127	2.18	4.033	1.
6	7.61	SULFATE	6.674	1.286	22.07	19.928	1.
7	8.21	NITRATE	4.609	0.871	14.95	3.954	1.
9	11.94	PHOSPHATE	2.224	0.272	4.67	3.513	1.
Total:			43.364	5.718	98.12	59.508	

71 CCB

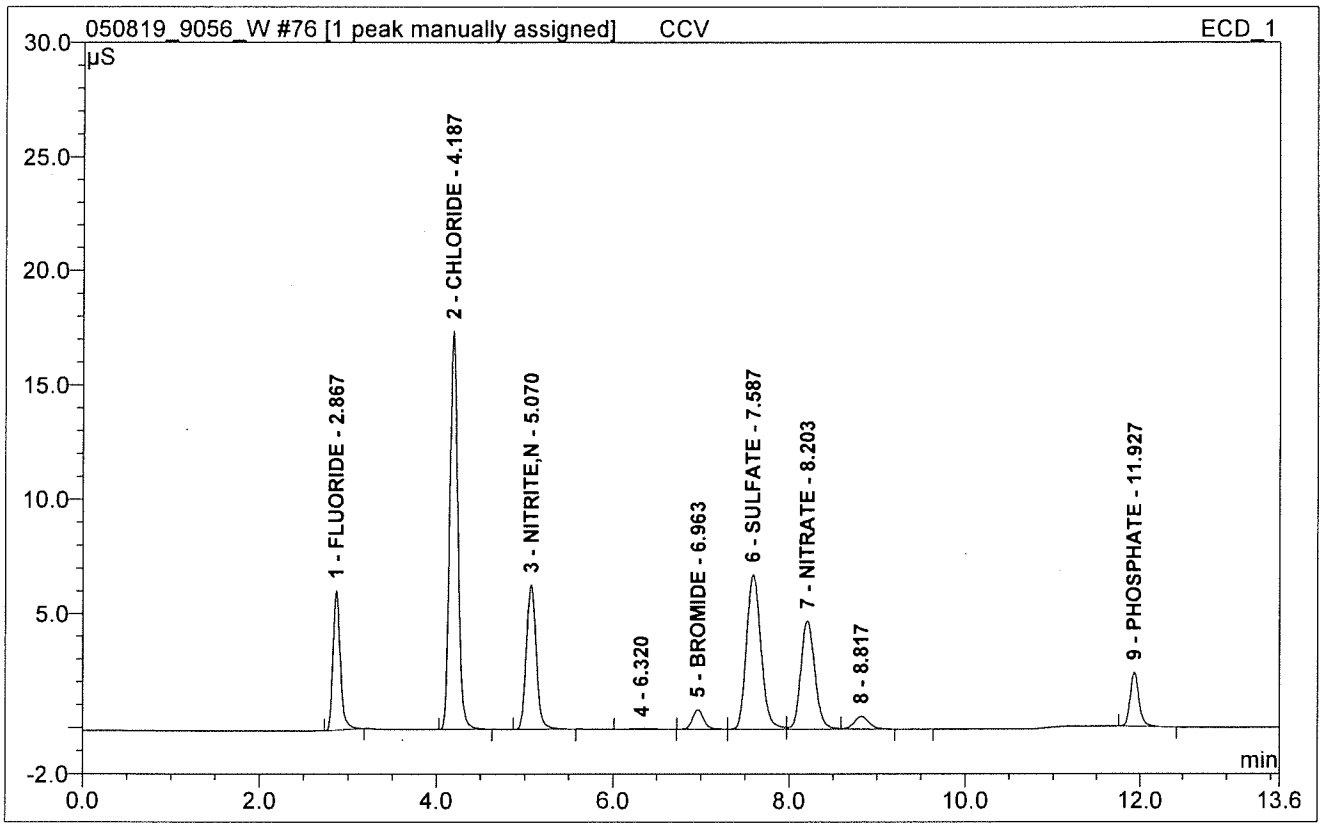
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 2:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	7.63	SULFATE	0.033	0.007	4.63	0.380	1.
Total:			0.033	0.007	4.63	0.380	

76 CCV

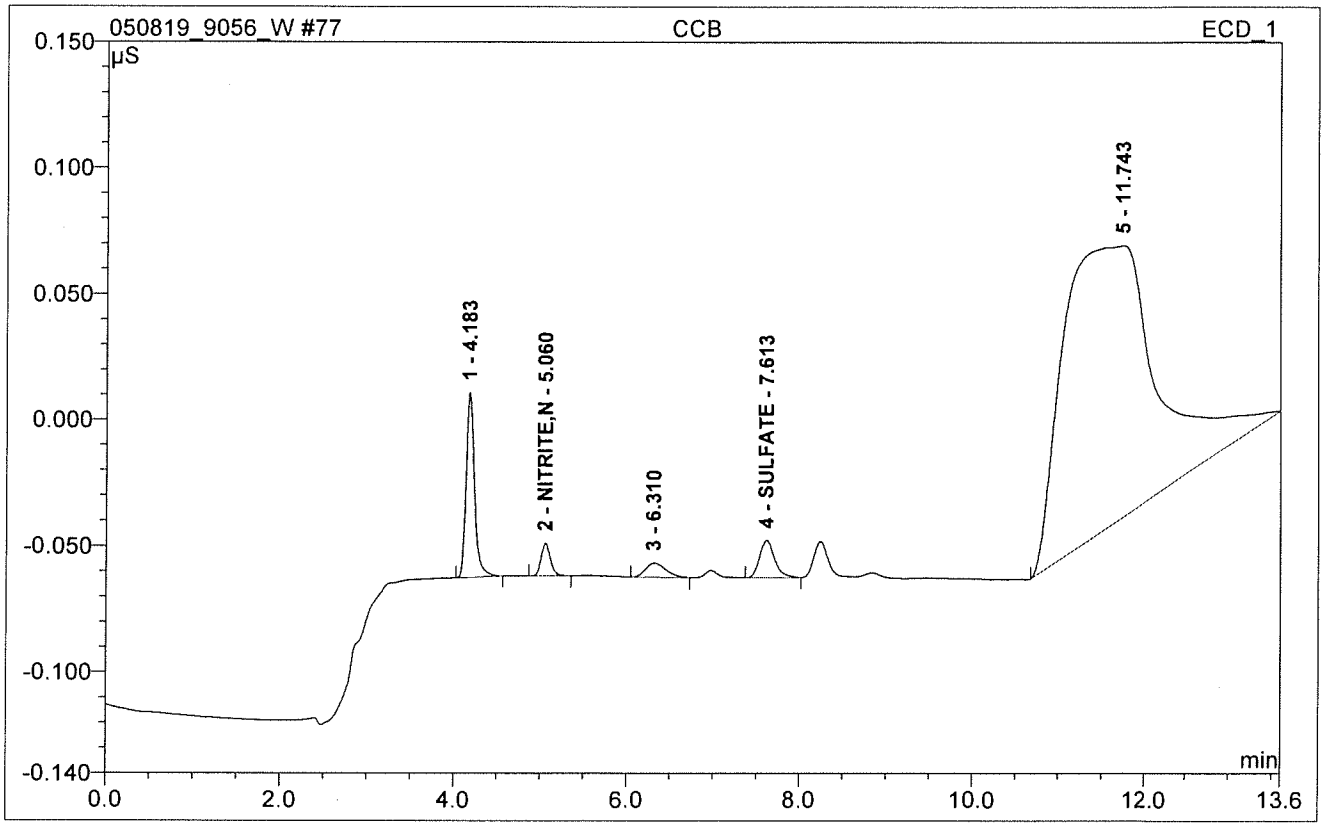
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 11:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.108	0.582	9.71	4.147	1.
2	4.19	CHLORIDE	17.400	1.855	30.95	20.531	1.
3	5.07	NITRITE,N	6.326	0.824	13.75	4.288	1.
5	6.96	BROMIDE	0.863	0.130	2.17	4.139	1.
6	7.59	SULFATE	6.778	1.308	21.82	20.259	1.
7	8.20	NITRATE	4.750	0.900	15.02	4.086	1.
9	11.93	PHOSPHATE	2.332	0.282	4.70	3.629	1.
Total:			44.556	5.881	98.13	61.078	

77 CCB

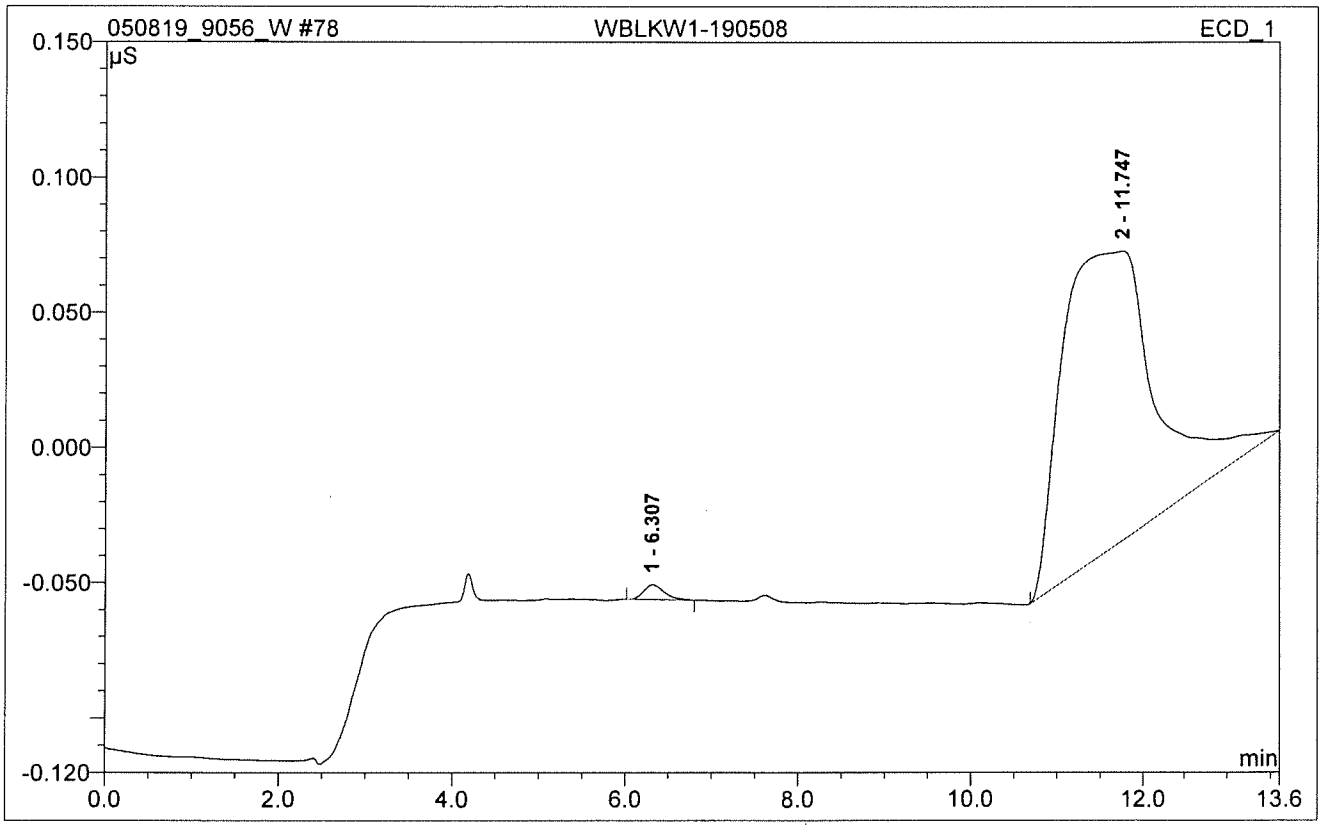
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 12:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	5.06	NITRITE,N	0.013	0.002	1.02	0.039	1.
4	7.61	SULFATE	0.015	0.003	1.90	0.322	1.
Total:			0.028	0.005	2.92	0.360	

78 WBLKW1-190508

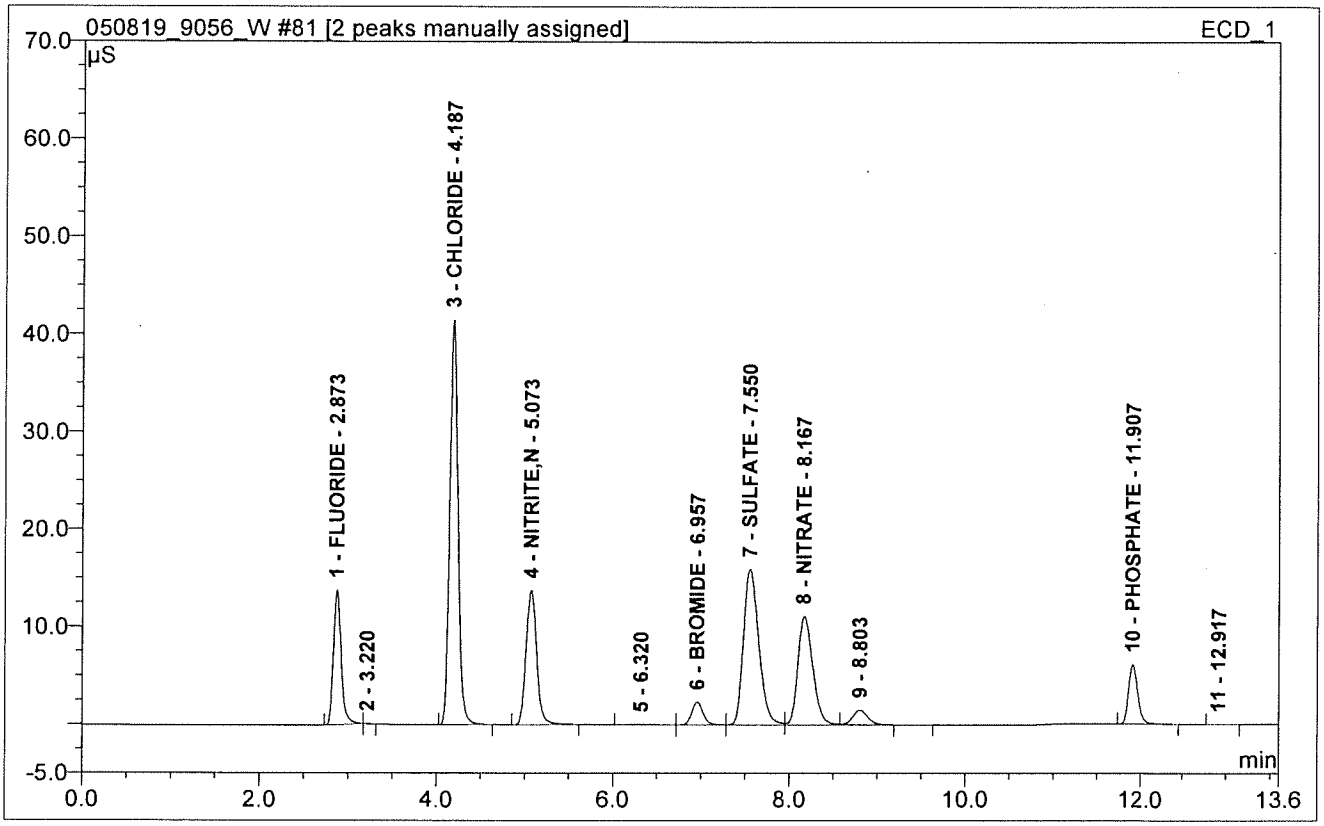
Sample Name:	**WBLKW1-190508**	*Injection Volume:*	**10.0**
Vial Number:	**12**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 12:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



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

81 CCV1

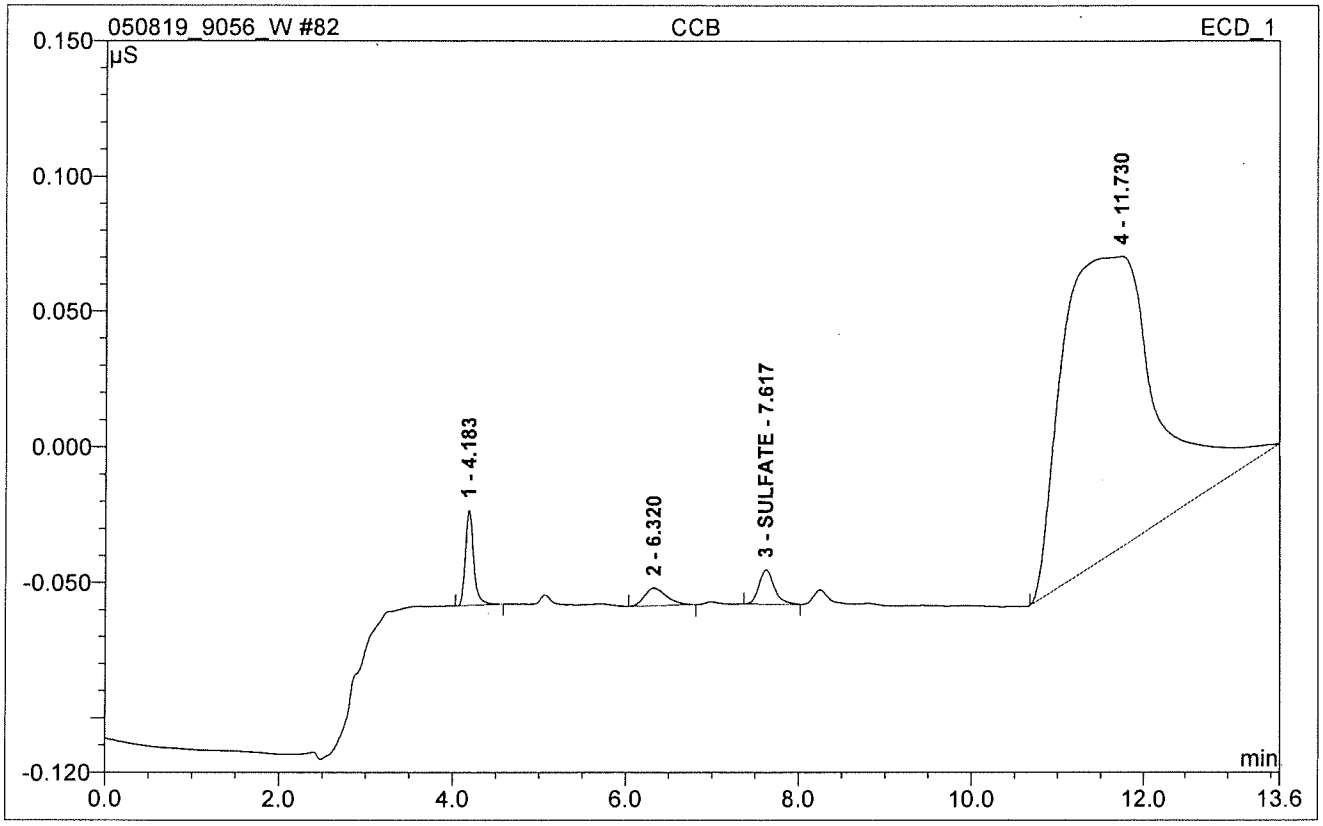
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 12:59**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	13.777	1.390	9.48	9.846	1.
3	4.19	CHLORIDE	41.478	4.487	30.60	49.383	1.
4	5.07	NITRITE,N	13.744	1.923	13.11	9.961	1.
6	6.96	BROMIDE	2.333	0.349	2.38	11.024	1.
7	7.55	SULFATE	15.947	3.223	21.98	49.514	1.
8	8.17	NITRATE	11.136	2.230	15.21	10.025	1.
10	11.91	PHOSPHATE	6.058	0.765	5.22	9.649	1.
Total:			104.473	14.367	97.97	149.401	

82 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-200mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/9/2019 13:14**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.60**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
3	7.62	SULFATE	0.013	0.003	1.73	0.316	1.
Total:			0.013	0.003	1.73	0.316	

HS19051031 LHAAP50 501032 Cover Page

ALS WO# HS19051031

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

Table of Contents

Table of Contents (continued)

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

WorkOrder: HS19051031

LHAAP-50 501032

Aptim Environmental & Infrastucture, Inc.

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

06-Jul-2019

HS19051031 LHAAP50 501032 REV01 Final

ALS WO# HS19051031

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

July 06, 2019

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

Work Order: **HS19051031**

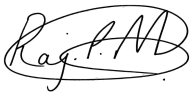
Laboratory Results for: **LHAAP-50 501032**

Dear Susan,

ALS Environmental received 6 sample(s) on May 17, 2019 for the analysis presented in the following report.

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

Regards,



Generated By: JUMOKE.LAWAL
RJ Modashia
Project Manager

ALS Houston, US Date: 06-jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Work Order: HS19051031

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19051031-01	50WW18-190516	Groundwater		16-May-2019 08:40	17-May-2019 10:30	☐
HS19051031-02	50WW17-190516	Groundwater		16-May-2019 09:35	17-May-2019 10:30	☐
HS19051031-03	50WW21-190516	Groundwater		16-May-2019 10:25	17-May-2019 10:30	☐
HS19051031-04	50WW12-190516	Groundwater		16-May-2019 11:30	17-May-2019 10:30	☐
HS19051031-05	50WW12-190516-FD	Groundwater		16-May-2019 11:30	17-May-2019 10:30	☐
HS19051031-06	Trip Blank	Water		16-May-2019 00:00	17-May-2019 10:30	☐

Revision:1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP-50 501032
Work Order:

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.
- Revised to correct the sample ID for Trip blank as per the COC

Work Order Comments

- The analysis for Methane, Methene, Ethane and CO2 by RSK175 was subcontracted to ALS Simi Valley, CA. Final report attached.
- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.
- The analysis for TOC was subcontracted to ALS Environmental in Kelso, WA. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R339038

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

WetChemistry by Method SW9056

Batch ID: R338732

Sample ID: 50WW12-190516 (HS19051031-04)

- The reporting limit is elevated due to dilution needed to eliminate matrix-related interference for analyte(s): (Nitrogen, Nitrate (As N))

Sample ID: 50WW12-190516-FD (HS19051031-05)

- The reporting limit is elevated due to dilution needed to eliminate matrix-related interference for analyte(s): (Nitrogen, Nitrate (As N))

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW18-190516
Collection Date: 16-May-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-01
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	23-May-2019 20:26
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 20:26
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 20:26
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 20:26
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 20:26
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 20:26
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:26
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW18-190516
Collection Date: 16-May-2019 08:40

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-01
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 20:26
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 20:26
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 20:26
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 20:26
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:26
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:26
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:26
Surr: 1,2-Dichloroethane-d4	*85.4*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 20:26*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 20:26*
Surr: Dibromofluoromethane	*88.9*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 20:26*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 20:26*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW17-190516
Collection Date: 16-May-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-02
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	23-May-2019 20:50
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 20:50
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 20:50
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 20:50
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 20:50
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 20:50
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 20:50
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW17-190516
Collection Date: 16-May-2019 09:35

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-02
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 20:50
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 20:50
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 20:50
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 20:50
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 20:50
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 20:50
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 20:50
Surr: 1,2-Dichloroethane-d4	*85.9*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 20:50*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 20:50*
Surr: Dibromofluoromethane	*90.0*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 20:50*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 20:50*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW21-190516
Collection Date: 16-May-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-03
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	23-May-2019 21:14
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 21:14
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 21:14
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 21:14
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 21:14
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 21:14
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:14
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW21-190516
Collection Date: 16-May-2019 10:25

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-03
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 21:14
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 21:14
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 21:14
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 21:14
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:14
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:14
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:14
Surr: 1,2-Dichloroethane-d4	*84.8*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 21:14*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 21:14*
Surr: Dibromofluoromethane	*89.3*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 21:14*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 21:14*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-04
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	23-May-2019 21:38
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
1,1-Dichloroethane	**0.82**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 21:38
1,1-Dichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 21:38
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,2-Dichloroethane	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 21:38
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 21:38
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 21:38
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 21:38
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 21:38
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 21:38
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 21:38
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-04
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 21:38
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 21:38
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 21:38
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 21:38
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 21:38
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Trichloroethene	**170**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 21:38
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 21:38
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 21:38
Surr: 1,2-Dichloroethane-d4	*84.8*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 21:38*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 21:38*
Surr: Dibromofluoromethane	*88.2*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 21:38*
Surr: Toluene-d8	*107*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 21:38*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**936**		**10.0**	**25.0**	**25.0**	**mg/L**	50	17-May-2019 19:47
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	17-May-2019 19:29
Sulfate	**498**		**1.00**	**2.50**	**2.50**	**mg/L**	5	17-May-2019 19:29
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 12:12

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-04
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	01-Jun-2019 11:53

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516-FD
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-05
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	23-May-2019 22:02
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
1,1-Dichloroethane	**0.79**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 22:02
1,1-Dichloroethene	**2.2**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 22:02
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,2-Dichloroethane	**1.5**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 22:02
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 22:02
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 22:02
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 22:02
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 22:02
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 22:02
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 22:02
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516-FD
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-05
Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 22:02
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 22:02
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 22:02
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 22:02
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 22:02
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Trichloroethene	**170**		**0.20**	**0.50**	**1.0**	**UG/L**	1	23-May-2019 22:02
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 22:02
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 22:02
Surr: 1,2-Dichloroethane-d4	*86.2*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 22:02*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 22:02*
Surr: Dibromofluoromethane	*89.8*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 22:02*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 22:02*
ANIONS BY SW9056A		**Method:SW9056**						Analyst: KMU
Chloride	**973**		**10.0**	**25.0**	**25.0**	**mg/L**	50	17-May-2019 21:10
Nitrogen, Nitrate (As N)	0.500	U	0.150	0.500	0.500	mg/L	5	17-May-2019 20:56
Sulfate	**470**		**10.0**	**25.0**	**25.0**	**mg/L**	50	17-May-2019 21:10
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25
SUBCONTRACT ANALYSIS - RSK		**Method:NA**						Analyst: SUBCA
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 12:12

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

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: 50WW12-190516-FD
Collection Date: 16-May-2019 11:30

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-05
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	01-Jun-2019 11:53

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: Trip Blank
Collection Date: 16-May-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-06
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	23-May-2019 14:25
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 14:25
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	23-May-2019 14:25
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	23-May-2019 14:25
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 14:25
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	23-May-2019 14:25
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	23-May-2019 14:25
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
Sample ID: Trip Blank
Collection Date: 16-May-2019 00:00

ANALYTICAL REPORT
WorkOrder:HS19051031
Lab ID:HS19051031-06
Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	23-May-2019 14:25
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	23-May-2019 14:25
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	23-May-2019 14:25
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	23-May-2019 14:25
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	23-May-2019 14:25
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	23-May-2019 14:25
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	23-May-2019 14:25
Surr: 1,2-Dichloroethane-d4	*85.8*			**0**	*81-118*	*%REC*	*1*	*23-May-2019 14:25*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*23-May-2019 14:25*
Surr: Dibromofluoromethane	*88.9*			**0**	*80-119*	*%REC*	*1*	*23-May-2019 14:25*
Surr: Toluene-d8	*103*			**0**	*89-112*	*%REC*	*1*	*23-May-2019 14:25*

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

ALS Houston, US Date: 06-jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R338732	**Test Name :** ANIONS BY SW9056A			**Matrix:** Groundwater		
HS19051031-04	50WW12-190516	16 May 2019 11:30			17 May 2019 19:47	50
HS19051031-04	50WW12-190516	16 May 2019 11:30			17 May 2019 19:29	5
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			17 May 2019 21:10	50
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			17 May 2019 20:56	5
Batch ID R339038	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19051031-06	Trip Blank	16 May 2019 00:00			23 May 2019 14:25	1
Batch ID R339038	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19051031-01	50WW18-190516	16 May 2019 08:40			23 May 2019 20:26	1
HS19051031-02	50WW17-190516	16 May 2019 09:35			23 May 2019 20:50	1
HS19051031-03	50WW21-190516	16 May 2019 10:25			23 May 2019 21:14	1
HS19051031-04	50WW12-190516	16 May 2019 11:30			23 May 2019 21:38	1
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			23 May 2019 22:02	1
Batch ID R339603	**Test Name :** SUBCONTRACT ANALYSIS - TOC ANALYSIS			**Matrix:** Groundwater		
HS19051031-04	50WW12-190516	16 May 2019 11:30			01 Jun 2019 11:53	1
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			01 Jun 2019 11:53	1
Batch ID R339630	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Groundwater		
HS19051031-01	50WW18-190516	16 May 2019 08:40			03 Jun 2019 09:25	1
HS19051031-02	50WW17-190516	16 May 2019 09:35			03 Jun 2019 09:25	1
HS19051031-03	50WW21-190516	16 May 2019 10:25			03 Jun 2019 09:25	1
HS19051031-04	50WW12-190516	16 May 2019 11:30			03 Jun 2019 09:25	1
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			03 Jun 2019 09:25	1
Batch ID R339660	**Test Name :** SUBCONTRACT ANALYSIS - RSK			**Matrix:** Groundwater		
HS19051031-04	50WW12-190516	16 May 2019 11:30			03 Jun 2019 12:12	1
HS19051031-05	50WW12-190516-FD	16 May 2019 11:30			03 Jun 2019 12:12	1

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190523** Units: **UG/L** Analysis Date: **23-May-2019 13:37**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088106** PrepDate: DF: **1**

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

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190523** Units: **UG/L** Analysis Date: **23-May-2019 13:37**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088106** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	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	*42.31*	*1.0*	*50*	*0*	*84.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.85*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*44.45*	*1.0*	*50*	*0*	*88.9*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190523** Units: **UG/L** Analysis Date: **23-May-2019 13:37**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088106** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*54.01*	*1.0*	*50*	*0*	*108*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190523** Units: **UG/L** Analysis Date: **23-May-2019 12:49**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088105** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	19.5	1.0	20	0	97.5	78 - 124				
1,1,1-Trichloroethane	19.76	1.0	20	0	98.8	74 - 131				
1,1,2,2-Tetrachloroethane	21.3	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	19.2	1.0	20	0	96.0	70 - 136				
1,1,2-Trichloroethane	21.63	1.0	20	0	108	80 - 119				
1,1-Dichloroethane	21.15	1.0	20	0	106	77 - 125				
1,1-Dichloroethene	19.2	1.0	20	0	96.0	71 - 131				
1,1-Dichloropropene	19.25	1.0	20	0	96.3	78 - 125				
1,2,3-Trichlorobenzene	23.82	1.0	20	0	119	69 - 129				
1,2,3-Trichloropropane	20.72	1.0	20	0	104	73 - 122				
1,2,4-Trichlorobenzene	21.55	1.0	20	0	108	69 - 130				
1,2,4-Trimethylbenzene	20.1	1.0	20	0	101	76 - 124				
1,2-Dibromo-3-chloropropane	21.37	1.0	20	0	107	62 - 128				
1,2-Dibromoethane	20.6	1.0	20	0	103	77 - 121				
1,2-Dichlorobenzene	20.04	1.0	20	0	100	80 - 119				
1,2-Dichloroethane	19.59	1.0	20	0	97.9	73 - 128				
1,2-Dichloropropane	21.97	1.0	20	0	110	78 - 122				
1,3,5-Trimethylbenzene	20.04	1.0	20	0	100	75 - 124				
1,3-Dichlorobenzene	19.64	1.0	20	0	98.2	80 - 119				
1,3-Dichloropropane	21.54	1.0	20	0	108	80 - 119				
1,4-Dichlorobenzene	19.74	1.0	20	0	98.7	79 - 118				
2,2-Dichloropropane	20.16	1.0	20	0	101	60 - 139				
2-Butanone	47.43	2.0	40	0	119	56 - 143				
2-Chlorotoluene	20.07	1.0	20	0	100	79 - 122				
2-Hexanone	44.27	2.0	40	0	111	57 - 139				
4-Chlorotoluene	20.07	1.0	20	0	100	78 - 122				
4-Isopropyltoluene	19.32	1.0	20	0	96.6	77 - 127				
4-Methyl-2-pentanone	45.74	2.0	40	0	114	67 - 130				
Acetone	40.23	2.0	40	0	101	39 - 160				
Benzene	21.84	1.0	20	0	109	79 - 120				
Bromobenzene	19.73	1.0	20	0	98.6	80 - 120				
Bromochloromethane	21.37	1.0	20	0	107	78 - 123				
Bromodichloromethane	20.71	1.0	20	0	104	79 - 125				
Bromoform	20.06	1.0	20	0	100	66 - 130				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190523** Units: **UG/L** Analysis Date: **23-May-2019 12:49**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088105** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	21.23	1.0	20	0	106	53 - 141				
Carbon disulfide	46.74	2.0	40	0	117	64 - 133				
Carbon tetrachloride	17.45	1.0	20	0	87.2	72 - 136				
Chlorobenzene	20.98	1.0	20	0	105	82 - 118				
Chloroethane	19.26	1.0	20	0	96.3	60 - 138				
Chloroform	20.78	1.0	20	0	104	79 - 124				
Chloromethane	20.24	1.0	20	0	101	50 - 139				
cis-1,2-Dichloroethene	21.13	1.0	20	0	106	78 - 123				
cis-1,3-Dichloropropene	21.98	1.0	20	0	110	75 - 124				
Dibromochloromethane	19.61	1.0	20	0	98.1	74 - 126				
Dibromomethane	21.04	1.0	20	0	105	79 - 123				
Dichlorodifluoromethane	19.93	1.0	20	0	99.6	32 - 152				
Ethylbenzene	20.92	1.0	20	0	105	79 - 121				
Hexachlorobutadiene	19.44	1.0	20	0	97.2	66 - 134				
Isopropylbenzene	20.09	1.0	20	0	100	72 - 131				
m,p-Xylene	41.56	2.0	40	0	104	80 - 121				
Methylene chloride	22.29	2.0	20	0	111	74 - 124				
Naphthalene	22.91	1.0	20	0	115	61 - 128				
n-Butylbenzene	19.72	1.0	20	0	98.6	75 - 128				
n-Propylbenzene	19.52	1.0	20	0	97.6	76 - 126				
o-Xylene	21.13	1.0	20	0	106	78 - 122				
sec-Butylbenzene	19.19	1.0	20	0	95.9	77 - 126				
Styrene	21.17	1.0	20	0	106	78 - 123				
tert-Butylbenzene	19.28	1.0	20	0	96.4	78 - 124				
Tetrachloroethene	19.19	1.0	20	0	96.0	74 - 129				
Toluene	20.92	1.0	20	0	105	80 - 121				
trans-1,2-Dichloroethene	21.16	1.0	20	0	106	75 - 124				
trans-1,3-Dichloropropene	21.68	1.0	20	0	108	73 - 127				
Trichloroethene	20.35	1.0	20	0	102	79 - 123				
Trichlorofluoromethane	17.92	1.0	20	0	89.6	65 - 141				
Vinyl chloride	20.25	1.0	20	0	101	58 - 137				
Surr: 1,2-Dichloroethane-d4	*47.78*	*1.0*	*50*	*0*	*95.6*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*54.28*	*1.0*	*50*	*0*	*109*	*85 - 114*				
Surr: Dibromofluoromethane	*49.4*	*1.0*	*50*	*0*	*98.8*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190523** Units: **UG/L** Analysis Date: **23-May-2019 12:49**
Client ID: Run ID: **VOA6_339038** SeqNo: **5088105** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*46.25*	*1.0*	*50*	*0*	*92.5*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051208-01MS** Units: **UG/L** Analysis Date: **23-May-2019 16:50**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089895** 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	17.41	1.0	20	0	87.0	78 - 124				
1,1,1-Trichloroethane	16.6	1.0	20	0	83.0	74 - 131				
1,1,2,2-Tetrachloroethane	21.34	1.0	20	0	107	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.46	1.0	20	0	87.3	70 - 136				
1,1,2-Trichloroethane	19.36	1.0	20	0	96.8	80 - 119				
1,1-Dichloroethane	16.85	1.0	20	0	84.2	77 - 125				
1,1-Dichloroethene	15.97	1.0	20	0	79.8	71 - 131				
1,1-Dichloropropene	18.18	1.0	20	0	90.9	78 - 125				
1,2,3-Trichlorobenzene	23.28	1.0	20	0	116	69 - 129				
1,2,3-Trichloropropane	20.1	1.0	20	0	100	73 - 122				
1,2,4-Trichlorobenzene	20.86	1.0	20	0	104	69 - 130				
1,2,4-Trimethylbenzene	19.56	1.0	20	0	97.8	76 - 124				
1,2-Dibromo-3-chloropropane	21.49	1.0	20	0	107	62 - 128				
1,2-Dibromoethane	18.38	1.0	20	0	91.9	77 - 121				
1,2-Dichlorobenzene	19.44	1.0	20	0	97.2	80 - 119				
1,2-Dichloroethane	15.78	1.0	20	0	78.9	73 - 128				
1,2-Dichloropropane	18.44	1.0	20	0	92.2	78 - 122				
1,3,5-Trimethylbenzene	20.39	1.0	20	0	102	75 - 124				
1,3-Dichlorobenzene	19.4	1.0	20	0	97.0	80 - 119				
1,3-Dichloropropane	19.16	1.0	20	0	95.8	80 - 119				
1,4-Dichlorobenzene	19.2	1.0	20	0	96.0	79 - 118				
2,2-Dichloropropane	15.29	1.0	20	0	76.4	60 - 139				
2-Butanone	39.69	2.0	40	0	99.2	56 - 143				
2-Chlorotoluene	20.32	1.0	20	0	102	79 - 122				
2-Hexanone	40.16	2.0	40	0	100	57 - 139				
4-Chlorotoluene	19.95	1.0	20	0	99.7	78 - 122				
4-Isopropyltoluene	20.56	1.0	20	0	103	77 - 127				
4-Methyl-2-pentanone	42.86	2.0	40	0	107	67 - 130				
Acetone	39.28	2.0	40	11.37	69.8	39 - 160				
Benzene	18.07	1.0	20	0	90.3	79 - 120				
Bromobenzene	18.37	1.0	20	0	91.9	80 - 120				
Bromochloromethane	16.33	1.0	20	0	81.6	78 - 123				
Bromodichloromethane	16.47	1.0	20	0	82.3	79 - 125				
Bromoform	17.35	1.0	20	0	86.7	66 - 130				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051208-01MS** Units: **UG/L** Analysis Date: **23-May-2019 16:50**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089895** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	12.22	1.0	20	0	61.1	53 - 141				
Carbon disulfide	35.81	2.0	40	0	89.5	64 - 133				
Carbon tetrachloride	15.71	1.0	20	0	78.5	72 - 136				
Chlorobenzene	18.87	1.0	20	0	94.3	82 - 118				
Chloroethane	17.53	1.0	20	0	87.6	60 - 138				
Chloroform	16.52	1.0	20	0	82.6	79 - 124				
Chloromethane	13.72	1.0	20	0	68.6	50 - 139				
cis-1,2-Dichloroethene	16.51	1.0	20	0	82.5	78 - 123				
cis-1,3-Dichloropropene	18.33	1.0	20	0	91.7	75 - 124				
Dibromochloromethane	17.38	1.0	20	0	86.9	74 - 126				
Dibromomethane	17.16	1.0	20	0	85.8	79 - 123				
Dichlorodifluoromethane	13.55	1.0	20	0	67.8	32 - 152				
Ethylbenzene	18.69	1.0	20	0	93.5	79 - 121				
Hexachlorobutadiene	19.72	1.0	20	0	98.6	66 - 134				
Isopropylbenzene	18.9	1.0	20	0	94.5	72 - 131				
m,p-Xylene	38.27	2.0	40	0	95.7	80 - 121				
Methylene chloride	17.13	2.0	20	0	85.7	74 - 124				
Naphthalene	22.01	1.0	20	0	110	61 - 128				
n-Butylbenzene	20.9	1.0	20	0	105	75 - 128				
n-Propylbenzene	20.99	1.0	20	0	105	76 - 126				
o-Xylene	19.56	1.0	20	0	97.8	78 - 122				
sec-Butylbenzene	21.38	1.0	20	0	107	77 - 126				
Styrene	18.43	1.0	20	0	92.1	78 - 123				
tert-Butylbenzene	20.87	1.0	20	0	104	78 - 124				
Tetrachloroethene	18.44	1.0	20	0	92.2	74 - 129				
Toluene	18.8	1.0	20	0	94.0	80 - 121				
trans-1,2-Dichloroethene	17.02	1.0	20	0	85.1	75 - 124				
trans-1,3-Dichloropropene	17.36	1.0	20	0	86.8	73 - 127				
Trichloroethene	17.35	1.0	20	0	86.8	79 - 123				
Trichlorofluoromethane	14.65	1.0	20	0	73.2	65 - 141				
Vinyl chloride	16.4	1.0	20	0	82.0	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.37*	*1.0*	*50*	*0*	*90.7*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*52.21*	*1.0*	*50*	*0*	*104*	*85 - 114*				
Surr: Dibromofluoromethane	*45.51*	*1.0*	*50*	*0*	*91.0*	*80 - 119*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051208-01MS** Units: **UG/L** Analysis Date: **23-May-2019 16:50**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089895** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.95*	*1.0*	*50*	*0*	*108*	*89 - 112*				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051208-01MSD** Units: **UG/L** Analysis Date: **23-May-2019 17:14**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089896** 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	16.8	1.0	20	0	84.0	78 - 124	17.41	3.56	20	
1,1,1-Trichloroethane	16.03	1.0	20	0	80.1	74 - 131	16.6	3.52	20	
1,1,2,2-Tetrachloroethane	21.34	1.0	20	0	107	71 - 121	21.34	0	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	16.8	1.0	20	0	84.0	70 - 136	17.46	3.9	20	
1,1,2-Trichloroethane	18.78	1.0	20	0	93.9	80 - 119	19.36	3.01	20	
1,1-Dichloroethane	17.15	1.0	20	0	85.8	77 - 125	16.85	1.77	20	
1,1-Dichloroethene	15.44	1.0	20	0	77.2	71 - 131	15.97	3.35	20	
1,1-Dichloropropene	17.44	1.0	20	0	87.2	78 - 125	18.18	4.2	20	
1,2,3-Trichlorobenzene	23.29	1.0	20	0	116	69 - 129	23.28	0.0635	20	
1,2,3-Trichloropropane	20.35	1.0	20	0	102	73 - 122	20.1	1.24	20	
1,2,4-Trichlorobenzene	21.11	1.0	20	0	106	69 - 130	20.86	1.2	20	
1,2,4-Trimethylbenzene	19.32	1.0	20	0	96.6	76 - 124	19.56	1.24	20	
1,2-Dibromo-3-chloropropane	21.51	1.0	20	0	108	62 - 128	21.49	0.124	20	
1,2-Dibromoethane	18.04	1.0	20	0	90.2	77 - 121	18.38	1.89	20	
1,2-Dichlorobenzene	19.66	1.0	20	0	98.3	80 - 119	19.44	1.11	20	
1,2-Dichloroethane	15.95	1.0	20	0	79.8	73 - 128	15.78	1.05	20	
1,2-Dichloropropane	18.62	1.0	20	0	93.1	78 - 122	18.44	0.948	20	
1,3,5-Trimethylbenzene	20.28	1.0	20	0	101	75 - 124	20.39	0.566	20	
1,3-Dichlorobenzene	19.51	1.0	20	0	97.5	80 - 119	19.4	0.524	20	
1,3-Dichloropropane	18.59	1.0	20	0	92.9	80 - 119	19.16	3	20	
1,4-Dichlorobenzene	19.48	1.0	20	0	97.4	79 - 118	19.2	1.4	20	
2,2-Dichloropropane	14.72	1.0	20	0	73.6	60 - 139	15.29	3.77	20	
2-Butanone	40.95	2.0	40	0	102	56 - 143	39.69	3.13	20	
2-Chlorotoluene	20.12	1.0	20	0	101	79 - 122	20.32	0.972	20	
2-Hexanone	39.44	2.0	40	0	98.6	57 - 139	40.16	1.82	20	
4-Chlorotoluene	19.85	1.0	20	0	99.2	78 - 122	19.95	0.499	20	
4-Isopropyltoluene	20.77	1.0	20	0	104	77 - 127	20.56	1.02	20	
4-Methyl-2-pentanone	40.5	2.0	40	0	101	67 - 130	42.86	5.67	20	
Acetone	39.93	2.0	40	11.37	71.4	39 - 160	39.28	1.64	20	
Benzene	17.64	1.0	20	0	88.2	79 - 120	18.07	2.41	20	
Bromobenzene	18.22	1.0	20	0	91.1	80 - 120	18.37	0.842	20	
Bromochloromethane	16.23	1.0	20	0	81.2	78 - 123	16.33	0.571	20	
Bromodichloromethane	16.33	1.0	20	0	81.6	79 - 125	16.47	0.839	20	
Bromoform	17.2	1.0	20	0	86.0	66 - 130	17.35	0.86	20	

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051208-01MSD** Units: **UG/L** Analysis Date: **23-May-2019 17:14**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089896** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	12.23	1.0	20	0	61.2	53 - 141	12.22	0.114	20	
Carbon disulfide	34.7	2.0	40	0	86.8	64 - 133	35.81	3.14	20	
Carbon tetrachloride	15.13	1.0	20	0	75.7	72 - 136	15.71	3.74	20	
Chlorobenzene	18.16	1.0	20	0	90.8	82 - 118	18.87	3.83	20	
Chloroethane	17.12	1.0	20	0	85.6	60 - 138	17.53	2.37	20	
Chloroform	15.97	1.0	20	0	79.9	79 - 124	16.52	3.38	20	
Chloromethane	13.76	1.0	20	0	68.8	50 - 139	13.72	0.288	20	
cis-1,2-Dichloroethene	16.39	1.0	20	0	81.9	78 - 123	16.51	0.729	20	
cis-1,3-Dichloropropene	18.11	1.0	20	0	90.5	75 - 124	18.33	1.24	20	
Dibromochloromethane	17.15	1.0	20	0	85.8	74 - 126	17.38	1.3	20	
Dibromomethane	16.89	1.0	20	0	84.5	79 - 123	17.16	1.6	20	
Dichlorodifluoromethane	12.94	1.0	20	0	64.7	32 - 152	13.55	4.6	20	
Ethylbenzene	17.94	1.0	20	0	89.7	79 - 121	18.69	4.1	20	
Hexachlorobutadiene	19.72	1.0	20	0	98.6	66 - 134	19.72	0.0309	20	
Isopropylbenzene	18.21	1.0	20	0	91.1	72 - 131	18.9	3.72	20	
m,p-Xylene	36.7	2.0	40	0	91.7	80 - 121	38.27	4.18	20	
Methylene chloride	17.09	2.0	20	0	85.5	74 - 124	17.13	0.219	20	
Naphthalene	22.06	1.0	20	0	110	61 - 128	22.01	0.222	20	
n-Butylbenzene	20.89	1.0	20	0	104	75 - 128	20.9	0.0898	20	
n-Propylbenzene	20.77	1.0	20	0	104	76 - 126	20.99	1.07	20	
o-Xylene	18.77	1.0	20	0	93.8	78 - 122	19.56	4.12	20	
sec-Butylbenzene	20.91	1.0	20	0	105	77 - 126	21.38	2.21	20	
Styrene	17.89	1.0	20	0	89.4	78 - 123	18.43	2.97	20	
tert-Butylbenzene	20.7	1.0	20	0	104	78 - 124	20.87	0.801	20	
Tetrachloroethene	17.55	1.0	20	0	87.7	74 - 129	18.44	4.96	20	
Toluene	17.95	1.0	20	0	89.7	80 - 121	18.8	4.63	20	
trans-1,2-Dichloroethene	16.97	1.0	20	0	84.9	75 - 124	17.02	0.302	20	
trans-1,3-Dichloropropene	16.91	1.0	20	0	84.6	73 - 127	17.36	2.62	20	
Trichloroethene	17.05	1.0	20	0	85.3	79 - 123	17.35	1.74	20	
Trichlorofluoromethane	14.24	1.0	20	0	71.2	65 - 141	14.65	2.79	20	
Vinyl chloride	16.01	1.0	20	0	80.0	58 - 137	16.4	2.43	20	
Surr: 1,2-Dichloroethane-d4	*43.38*	*1.0*	*50*	*0*	*86.8*	*81 - 118*	*45.37*	*4.48*	*20*	
Surr: 4-Bromofluorobenzene	*51.71*	*1.0*	*50*	*0*	*103*	*85 - 114*	*52.21*	*0.97*	*20*	
Surr: Dibromofluoromethane	*45.46*	*1.0*	*50*	*0*	*90.9*	*80 - 119*	*45.51*	*0.114*	*20*	

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R339038 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051208-01MSD** Units: **UG/L** Analysis Date: **23-May-2019 17:14**
Client ID: Run ID: **VOA6_339038** SeqNo: **5089896** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*53.15*	*1.0*	*50*	*0*	*106*	*89 - 112*	*53.95*	*1.49*	*20*	

The following samples were analyzed in this batch: HS19051031-01 HS19051031-02 HS19051031-03 HS19051031-04 HS19051031-05 HS19051031-06

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R338732 (0) **Instrument:** ICS2100 **Method:** ANIONS BY SW9056A

MBLK Sample ID: **WBLKW1-051719** Units: **mg/L** Analysis Date: **17-May-2019 17:17**
Client ID: Run ID: **ICS2100_338732** SeqNo: **5081118** PrepDate: DF: **1**

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

LCS Sample ID: **WLCSW1-051719** Units: **mg/L** Analysis Date: **17-May-2019 17:34**
Client ID: Run ID: **ICS2100_338732** SeqNo: **5081119** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.16	0.500	20	0	101	80 - 120				
Nitrogen, Nitrate (As N)	3.939	0.100	4	0	98.5	80 - 120				
Sulfate	19.74	0.500	20	0	98.7	80 - 120				

LCSD Sample ID: **WLCSDW1-051719** Units: **mg/L** Analysis Date: **17-May-2019 17:49**
Client ID: Run ID: **ICS2100_338732** SeqNo: **5081120** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.6	0.500	20	0	103	80 - 120	20.16	2.16	20	
Nitrogen, Nitrate (As N)	4.017	0.100	4	0	100	80 - 120	3.939	1.96	20	
Sulfate	20.13	0.500	20	0	101	80 - 120	19.74	1.93	20	

MS Sample ID: **HS19051024-03MS** Units: **mg/L** Analysis Date: **18-May-2019 00:21**
Client ID: Run ID: **ICS2100_338732** SeqNo: **5081132** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	15.32	0.500	10	5.378	99.4	80 - 120				
Nitrogen, Nitrate (As N)	2.316	0.100	2	0.415	95.0	80 - 120				
Sulfate	13.02	0.500	10	3.135	98.9	80 - 120				

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: HS19051031

QC BATCH REPORT

Batch ID: R338732 (0) **Instrument:** ICS2100 **Method:** ANIONS BY SW9056A

MSD Sample ID: **HS19051024-03MSD** Units: **mg/L** Analysis Date: **18-May-2019 00:35**
Client ID: Run ID: **ICS2100_338732** SeqNo: **5081133** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	15.08	0.500	10	5.378	97.1	80 - 120	15.32	1.57	20	
Nitrogen, Nitrate (As N)	2.278	0.100	2	0.415	93.2	80 - 120	2.316	1.65	20	
Sulfate	12.79	0.500	10	3.135	96.6	80 - 120	13.02	1.78	20	

The following samples were analyzed in this batch: HS19051031-04 HS19051031-05

Revision: 1

ALS Houston, US Date: 06-Jul-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50 501032
WorkOrder: **HS19051031**

QUALIFIERS, ACRONYMS, UNITS

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

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

CERTIFICATIONS,ACCREDITATIONS & LICENSES

Agency	Number	Expire Date
Arkansas	19-028-0	27-Mar-2020
California	2919, 2019-2020	30-Apr-2020
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
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
Oklahoma	2018-156	31-Aug-2019
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 06-Jul-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19051031

Date/Time Received: **17-May-2019 10:30**
Received by: **PMG**

Checklist completed by: *Raegen Giga* eSignature 17-May-2019 Date

Reviewed by: *RJ Modashia* eSignature 18-May-2019 Date

Matrices: **GW**

Carrier name: **US Postal Svc**

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):	3.7c uc/c	IR 25	
Cooler(s)/Kit(s):	25126		
Date/Time sample(s) sent to storage:	05/17/2019 14:00		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of

COC ID: LHAAP50-MAY2019-ALS

TURNAROUND TIME:

RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FedInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-50			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd , Suite 210			Mail Reports To	Susan Huang		
	PMB 202							Address	4005 Port Chicago Highway, Suite 200		
City	Marshall	State	TX	City	Houston	State	TX	City	Concord	State	CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	Postal Code	94520	Country	USA
Phone Number	713 243.7264			Phone Number	281.575.2279 or 281.530.5656						
Project Manager	Praveen Srivastav							Shipping Company			

SAMPLE DETAILS

ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	Sample Container and Preservatives	ANALYSIS	3-40 ml VOA/HCL — Vocs by 8260B	3-40 ml VOA/HCL — MEE by RSK175	3-40 ml VOA/Cool to 6 deg C — CO2 by RSK175	2-40ml Amber/H2SO4 — TOC by Sm5310C	1-250ml /Cool to 6 deg C — Anions (chloride/sulfate/nitrate) by 9056	1-125ml /Cool to 6 deg C — Perchlorate by 6850
SDWW18-190516	LHAAP 50	17.35	17.58		WG	5/16/19	0840	4			X					X
SDWW17-190516	LHAAP50	17.63	17.81		WG	5/16/19	0935	4			X					X
SDWW21-190516	LHAAP50	22.00	22.25		WG	5/16/19	1025	4			X					X
SDWW12-190516	LHAAP50	17.40	17.63		WG	5/16/19	1130	13			X	X	X	X	X	X
SDWW12-190516-FD	LHAAP50	17.40	17.63		WG	5/16/19	1130	13			X	X	X	X	X	X
Trip BLANK	LHAAP50				WQ	5/16/19		2			X					

HS19051031

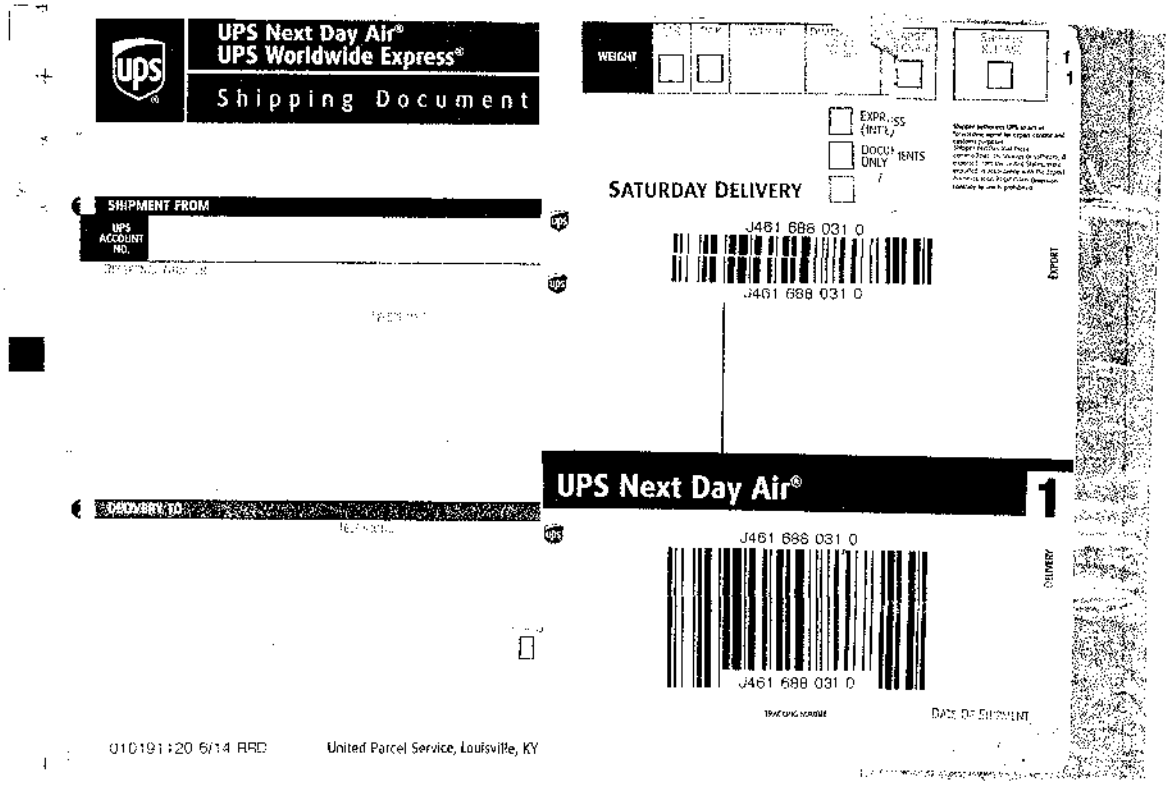
Aptim Environmental & Infrastucture, Inc.

LHAAP-50 501032

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	Sean Blessing/BHATE	5/16/19 1430	MD	5/17/19 10:30

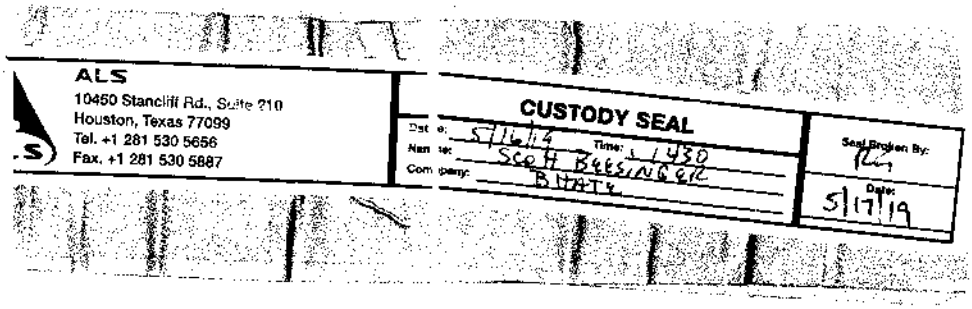
25126 3-7°
#25
cl - 0.0"

00967708



10450 STANCLIFF RD
STE 210
HOUSTON TX 77099

P: TGREEN S: 709C I: 24
709 – 1008
J4516880310 1030



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

May 31, 2019 **Analytical Report for Service Request No:** K1904556

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

RE: HS19051031

Dear RJ,

Enclosed are the results of the sample(s) submitted to our laboratory May 18, 2019
For your reference, these analyses have been assigned our service request number **K1904556.**

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

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

Table of Contents

Acronyms

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

Inorganic Data Qualifiers

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

Metals Data Qualifiers

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

Organic Data Qualifiers

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

Additional Petroleum Hydrocarbon Specific Qualifiers

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

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

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

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

Case Narrative

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

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

ALS Environmental

Client: ALS Environmental - US
Project: HS19051031
Sample Matrix: Water

Service Request: K1904556
Date Received: 05/18/2019

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:

Two water samples were received for analysis at ALS Environmental on 05/18/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 05/31/2019

Chain of Custody

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

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11335**

SUBCONTRACT TO:

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

Phone: +1 360 501 3312

K190455b

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:	HS19051031
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19051031-04**	**50WW12-190516**	**Groundwater**	**16 May 2019 11:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			03 Jun 2019
2.	**HS19051031-05**	**50WW12-190516-FD**	**Groundwater**	**16 May 2019 11:30**
	TOC Analysis with DOD Level IV/EQuIS APTIM EDD			03 Jun 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By:	J. Malcom	Date/Time:	5/17/19 18:00
Received By:		Date/Time:	5/18/19 1010
Cooler ID(s):		Temperature(s):	

PC KC

Cooler Receipt and Preservation Form

Client ALS/Houston Service Request *K19* 045516

Received: 5/18/19 Opened: 5/18/19 By: [illegible] Unloaded: 5/18/19 By: [illegible]

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, sides
   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
1.0	0.8	0.7	0.5	-0.2	308	11335	4809 7533 9053	

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

Sample ID on Bottle	Sample ID on COC	Identified by:

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

Notes, Discrepancies, & Resolutions: _____

General Chemistry

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	K1904556
Project:	HS19051031	**Date Collected:**	05/16/19
Sample Matrix:	Water	**Date Received:**	05/18/19
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
50WW12-190516	K1904556-001	**1.77**	0.50	0.20	0.07	1	05/23/19 06:21	
50WW12-190516-FD	K1904556-002	**1.71**	0.50	0.20	0.07	1	05/23/19 06:49	
Method Blank	K1904556-MB	ND U	0.50	0.20	0.07	1	05/22/19 20:10	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	ALS Environmental - US	**Service Request:**	K1904556
Project	HS19051031	**Date Collected:**	05/16/19
Sample Matrix:	Water	**Date Received:**	05/18/19
Analysis Method:	SM 5310 C	**Units:**	mg/L
Prep Method:	None	**Basis:**	NA

Replicate Sample Summary
Carbon, Total Organic

Sample Name:	Lab Code:	MRL	LOQ	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
50WW12-190516	K1904556-001DUP	0.50	0.20	0.07	1.77	1.75	1.76	<1	10	05/23/19
50WW12-190516-FD	K1904556-002DUP	0.50	0.20	0.07	1.71	1.68	1.70	2	10	05/23/19

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:**	K1904556
Project:	HS19051031	**Date Analyzed:**	05/22/19
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:	636316

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1904556-LCS	25.7	25.0	103	83-117

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:** K1904556
Project: HS19051031

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	636316	KQ1906831-05	05/22/19 19:41	25.0	25.4	102	90-110
CCV2	636316	KQ1906831-06	05/22/19 23:44	25.0	25.0	100	90-110
CCV3	636316	KQ1906831-07	05/23/19 04:54	25.0	25.4	102	90-110
CCV4	636316	KQ1906831-08	05/23/19	25.0	24.7	99	90-110

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: ALS Environmental - US **Service Request:**K1904556
Project: HS19051031

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	636316	KQ1906831-01	05/22/19 19:55	0.50	0.20	0.07	ND	U
CCB2	636316	KQ1906831-02	05/22/19 23:59	0.50	0.20	0.07	ND	U
CCB3	636316	KQ1906831-03	05/23/19 05:09	0.50	0.20	0.07	ND	U
CCB4	636316	KQ1906831-04	05/23/19	0.50	0.20	0.07	ND	U

Raw Data

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

General Chemistry

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

Work Request # Original ( ) K1904503, 4518, 4527, 4531, 4535, 4545, 4546, 4547, 4556, 4295, 4502, 4532, 4531

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

Date Analyzed: 5/22/19

Analyst: BCD

Analysis: TOC/DOC

TOC: 636316, 636320

Run # DOC: 636321

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: K1904545-5/5d report a high %RSD, but these samples are less than 5x the MRL.
K1904547-2/2d report a high %RSD due to suspected non-homogenous sample that is turbid.
K1904547-4/4d is over the calibration range, and has been sent for RA.

Final Approved by: [signature] Date: 05/24/19

DQREPORT

00967728

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 636316 **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
K1904503-001	Carbon, Total Organic	N/A		Water	1.64 mg/L	10 mL	1.64 mg/L	1	0.07	0.50			5/22/19 20:54:00	N	IV
K1904518-001	Carbon, Total Organic	N/A		Water	1.34 mg/L	10 mL	1.34 mg/L	1	0.07	0.50			5/22/19 21:52:00	N	II
K1904527-006	Carbon, Total Organic	N/A		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 05:53:00	N	III
K1904531-001	Carbon, Total Organic	N/A		Surface Water	3.00 mg/L	10 mL	3.00 mg/L	1	0.07	0.50			5/23/19 07:17:00	N	IV
K1904535-001	Carbon, Total Organic	N/A		Water	1.63 mg/L	10 mL	1.63 mg/L	1	0.07	0.50			5/22/19 22:20:00	N	II
K1904535-002	Carbon, Total Organic	N/A		Water	1.88 mg/L	10 mL	1.88 mg/L	1	0.07	0.50			5/22/19 22:48:00	N	II
K1904545-001	Carbon, Total Organic	N/A		Water	0.89 mg/L	10 mL	0.89 mg/L	1	0.07	0.50			5/22/19 23:16:00	N	II
K1904545-002	Carbon, Total Organic	N/A		Water	2.41 mg/L	10 mL	2.41 mg/L	1	0.07	0.50			5/23/19 00:13:00	N	II
K1904545-003	Carbon, Total Organic	N/A		Water	15.03 mg/L	10 mL	15.0 mg/L	1	0.07	0.50			5/23/19 00:41:00	N	II
K1904545-004	Carbon, Total Organic	N/A		Water	16.19 mg/L	10 mL	16.2 mg/L	1	0.07	0.50			5/23/19 01:09:00	N	II
K1904545-005	Carbon, Total Organic	N/A		Water	0.93 mg/L	10 mL	0.93 mg/L	1	0.07	0.50			5/23/19 01:37:00	N	II
K1904545-006	Carbon, Total Organic	N/A		Water	0.60 mg/L	10 mL	0.60 mg/L	1	0.07	0.50			5/23/19 02:06:00	N	II
K1904545-007	Carbon, Total Organic	N/A		Water	0.51 mg/L	10 mL	0.51 mg/L	1	0.07	0.50			5/23/19 02:34:00	N	II
K1904546-001	Carbon, Total Organic	N/A		Water	2.48 mg/L	10 mL	2.48 mg/L	1	0.07	0.50			5/23/19 03:02:00	N	II
K1904546-002	Carbon, Total Organic	N/A		Water	2.53 mg/L	10 mL	2.53 mg/L	1	0.07	0.50			5/23/19 03:30:00	N	II
K1904547-001	Carbon, Total Organic	N/A		Water	99.95 mg/L	10 mL	1000 mg/L	10	0.7	5.0			5/23/19 03:58:00	N	II
K1904547-002	Carbon, Total Organic	N/A		Water	7.10 mg/L	10 mL	710 mg/L	100	7	50			5/23/19 04:26:00	N	II
K1904556-001	Carbon, Total Organic	N/A		Water	1.77 mg/L	10 mL	1.77 mg/L	1	0.07	0.50			5/23/19 06:21:00	N	IV
K1904556-002	Carbon, Total Organic	N/A		Water	1.71 mg/L	10 mL	1.71 mg/L	1	0.07	0.50			5/23/19 06:49:00	N	IV
KQ1906831-01	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/22/19 19:55:00	N	IV
KQ1906831-02	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/22/19 23:59:00	N	IV
KQ1906831-03	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 05:09:00	N	IV
KQ1906831-04	Carbon, Total Organic	CCB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19	N	IV
KQ1906831-05	Carbon, Total Organic	CCV		Water	25.41 mg/L	10 mL	25.4 mg/L	1					5/22/19 19:41:00	N	IV
KQ1906831-06	Carbon, Total Organic	CCV		Water	25.05 mg/L	10 mL	25.0 mg/L	1					5/22/19 23:44:00	N	IV
KQ1906831-07	Carbon, Total Organic	CCV		Water	25.45 mg/L	10 mL	25.4 mg/L	1					5/23/19 04:54:00	N	IV
KQ1906831-08	Carbon, Total Organic	CCV		Water	24.67 mg/L	10 mL	24.7 mg/L	1					5/23/19	N	IV
KQ1906831-09	Carbon, Total Organic	MB		Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/22/19 20:10:00	N	IV
KQ1906831-10	Carbon, Total Organic	LCS		Water	25.69 mg/L	10 mL	25.7 mg/L	1	0.07	0.50	103		5/22/19 20:25:00	N	IV
KQ1906831-11	Carbon, Total Organic	DUP	K1904503-001	Water	1.69 mg/L	10 mL	1.69 mg/L	1	0.07	0.50		3	5/22/19 20:54:00	N	IV
KQ1906831-12	Carbon, Total Organic	DUP	K1904518-001	Water	1.34 mg/L	10 mL	1.34 mg/L	1	0.07	0.50		<1	5/22/19 21:52:00	N	II
KQ1906831-13	Carbon, Total Organic	DUP	K1904535-001	Water	1.61 mg/L	10 mL	1.61 mg/L	1	0.07	0.50		1	5/22/19 22:20:00	N	II
KQ1906831-14	Carbon, Total Organic	DUP	K1904535-002	Water	1.83 mg/L	10 mL	1.83 mg/L	1	0.07	0.50		3	5/22/19 22:48:00	N	II
KQ1906831-15	Carbon, Total Organic	DUP	K1904545-001	Water	0.85 mg/L	10 mL	0.85 mg/L	1	0.07	0.50		4	5/22/19 23:16:00	N	II
KQ1906831-16	Carbon, Total Organic	DUP	K1904545-002	Water	2.42 mg/L	10 mL	2.42 mg/L	1	0.07	0.50		<1	5/23/19 00:13:00	N	II

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

Printed 5/24/19 13:14

Results Summary

05/24/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 636316 **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
KQ1906831-17	Carbon, Total Organic	DUP	K1904545-003	Water	15.44 mg/L	10 mL	15.4 mg/L	1	0.07	0.50		3	5/23/19 00:41:00	N	II
KQ1906831-18	Carbon, Total Organic	DUP	K1904545-004	Water	15.81 mg/L	10 mL	15.8 mg/L	1	0.07	0.50		2	5/23/19 01:09:00	N	II
KQ1906831-19	Carbon, Total Organic	DUP	K1904545-005	Water	0.62 mg/L	10 mL	0.62 mg/L	1	0.07	0.50		40*	5/23/19 01:37:00	N	II
KQ1906831-20	Carbon, Total Organic	DUP	K1904545-006	Water	0.60 mg/L	10 mL	0.60 mg/L	1	0.07	0.50		<1	5/23/19 02:06:00	N	II
KQ1906831-21	Carbon, Total Organic	DUP	K1904545-007	Water	0.50 mg/L	10 mL	0.50 mg/L	1	0.07	0.50		2	5/23/19 02:34:00	N	II
KQ1906831-22	Carbon, Total Organic	DUP	K1904546-001	Water	2.49 mg/L	10 mL	2.49 mg/L	1	0.07	0.50		<1	5/23/19 03:02:00	N	II
KQ1906831-23	Carbon, Total Organic	DUP	K1904546-002	Water	2.54 mg/L	10 mL	2.54 mg/L	1	0.07	0.50		<1	5/23/19 03:30:00	N	II
KQ1906831-24	Carbon, Total Organic	DUP	K1904547-001	Water	123.17 mg/L	10 mL	1230 mg/L	10	0.7	5.0		21*	5/23/19 03:58:00	N	II
KQ1906831-25	Carbon, Total Organic	DUP	K1904547-002	Water	5.06 mg/L	10 mL	506 mg/L	100	7	50		34*	5/23/19 04:26:00	N	II
KQ1906831-26	Carbon, Total Organic	DUP	K1904527-006	Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/23/19 05:53:00	N	III
KQ1906831-27	Carbon, Total Organic	DUP	K1904556-001	Water	1.75 mg/L	10 mL	1.75 mg/L	1	0.07	0.50		<1	5/23/19 06:21:00	N	IV
KQ1906831-28	Carbon, Total Organic	DUP	K1904556-002	Water	1.68 mg/L	10 mL	1.68 mg/L	1	0.07	0.50		2	5/23/19 06:49:00	N	IV
KQ1906831-29	Carbon, Total Organic	DUP	K1904531-001	Surface Water	2.98 mg/L	10 mL	2.98 mg/L	1	0.07	0.50		<1	5/23/19 07:17:00	N	IV
KQ1906831-30	Carbon, Total Organic	MS	K1904503-001	Water	27.96 mg/L	10 mL	28.0 mg/L	1	0.07	0.50	105		5/22/19 21:22:00	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:** 636320 **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
K1904295-004	Carbon, Total Organic	N/A		Water	5.68 mg/L	10 mL	568 mg/L	100	7	50			5/23/19 13:25:00	N	II
K1904295-005	Carbon, Total Organic	N/A		Water	6.05 mg/L	10 mL	605 mg/L	100	7	50			5/23/19 13:53:00	N	II
K1904502-001	Carbon, Total Organic	N/A		Water	1.48 mg/L	10 mL	1.48 mg/L	1	0.07	0.50			5/23/19 11:32:00	N	I
K1904502-002	Carbon, Total Organic	N/A		Water	16.84 mg/L	10 mL	16.8 mg/L	1	0.07	0.50			5/23/19 12:00:00	N	I
K1904502-003	Carbon, Total Organic	N/A		Water	2.54 mg/L	10 mL	2.54 mg/L	1	0.07	0.50			5/23/19 12:29:00	N	I
K1904502-004	Carbon, Total Organic	N/A		Water	1.03 mg/L	10 mL	1.03 mg/L	1	0.07	0.50			5/23/19 12:57:00	N	I
K1904532-001	Carbon, Total Organic	N/A		Surface Water	3.06 mg/L	10 mL	3.06 mg/L	1	0.07	0.50			5/23/19 07:45:00	N	III
K1904532-002	Carbon, Total Organic	N/A		Surface Water	10.94 mg/L	10 mL	10.9 mg/L	1	0.07	0.50			5/23/19 08:13:00	Y	III
K1904532-003	Carbon, Total Organic	N/A		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 09:40:00	N	III
K1904532-004	Carbon, Total Organic	N/A		Surface Water	2.89 mg/L	10 mL	2.89 mg/L	1	0.07	0.50			5/23/19 10:08:00	N	III
K1904532-005	Carbon, Total Organic	N/A		Surface Water	6.59 mg/L	10 mL	6.59 mg/L	1	0.07	0.50			5/23/19 10:36:00	N	III
K1904532-006	Carbon, Total Organic	N/A		Surface Water	6.69 mg/L	10 mL	6.69 mg/L	1	0.07	0.50			5/23/19 11:04:00	N	III
KQ1906832-01	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 05:09:00	N	III
KQ1906832-02	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 09:25:00	N	III
KQ1906832-03	Carbon, Total Organic	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 14:36:00	N	III
KQ1906832-04	Carbon, Total Organic	CCV		Surface Water	25.45 mg/L	10 mL	25.4 mg/L	1					5/23/19 04:54:00	N	III
KQ1906832-05	Carbon, Total Organic	CCV		Surface Water	24.67 mg/L	10 mL	24.7 mg/L	1					5/23/19 09:10:00	N	III
KQ1906832-06	Carbon, Total Organic	CCV		Surface Water	24.70 mg/L	10 mL	24.7 mg/L	1					5/23/19 14:21:00	N	III
KQ1906832-07	Carbon, Total Organic	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 05:24:00	N	III
KQ1906832-08	Carbon, Total Organic	LCS		Surface Water	25.10 mg/L	10 mL	25.1 mg/L	1	0.07	0.50	100		5/23/19 05:38:00	N	III
KQ1906832-09	Carbon, Total Organic	MS	K1904532-002	Surface Water	35.57 mg/L	10 mL	35.6 mg/L	1	0.07	0.50	99		5/23/19 08:41:00	N	III
KQ1906832-10	Carbon, Total Organic	DUP	K1904532-001	Surface Water	3.06 mg/L	10 mL	3.06 mg/L	1	0.07	0.50		<1	5/23/19 07:45:00	N	III
KQ1906832-11	Carbon, Total Organic	DUP	K1904532-002	Surface Water	10.84 mg/L	10 mL	10.8 mg/L	1	0.07	0.50		<1	5/23/19 08:13:00	N	III
KQ1906832-12	Carbon, Total Organic	DUP	K1904532-003	Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50		NC	5/23/19 09:40:00	N	III
KQ1906832-13	Carbon, Total Organic	DUP	K1904532-004	Surface Water	3.05 mg/L	10 mL	3.05 mg/L	1	0.07	0.50		5	5/23/19 10:08:00	N	III

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

05/24/19

Analytical Results Summary

Instrument Name: K-TOC-03 **Analyst:** BDITZLER **Analysis Lot:** 636320 **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
KQ1906832-14	Carbon, Total Organic	DUP	K1904532-005	Surface Water	6.50 mg/L	10 mL	6.50 mg/L	1	0.07	0.50		1	5/23/19 10:36:00	N	III
KQ1906832-15	Carbon, Total Organic	DUP	K1904532-006	Surface Water	6.62 mg/L	10 mL	6.62 mg/L	1	0.07	0.50		1	5/23/19 11:04:00	N	III
KQ1906832-16	Carbon, Total Organic	DUP	K1904502-001	Water	1.46 mg/L	10 mL	1.46 mg/L	1	0.07	0.50		2	5/23/19 11:32:00	N	I
KQ1906832-17	Carbon, Total Organic	DUP	K1904502-002	Water	16.64 mg/L	10 mL	16.6 mg/L	1	0.07	0.50		1	5/23/19 12:00:00	N	I
KQ1906832-18	Carbon, Total Organic	DUP	K1904502-003	Water	2.43 mg/L	10 mL	2.43 mg/L	1	0.07	0.50		4	5/23/19 12:29:00	N	I
KQ1906832-19	Carbon, Total Organic	DUP	K1904502-004	Water	1.03 mg/L	10 mL	1.03 mg/L	1	0.07	0.50		<1	5/23/19 12:57:00	N	I
KQ1906832-20	Carbon, Total Organic	DUP	K1904295-004	Water	5.77 mg/L	10 mL	577 mg/L	100	7	50		2	5/23/19 13:25:00	N	II
KQ1906832-21	Carbon, Total Organic	DUP	K1904295-005	Water	6.06 mg/L	10 mL	606 mg/L	100	7	50		<1	5/23/19 13:53:00	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:** 636321 **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
K1904531-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	9.08 mg/L	10 mL	9.08 mg/L	1	0.07	0.50			5/23/19 15:20:00	N	IV
K1904532-001	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	7.95 mg/L	10 mL	7.95 mg/L	1	0.07	0.50			5/23/19 15:48:00	N	III
K1904532-002	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	15.48 mg/L	10 mL	15.5 mg/L	1	0.07	0.50			5/23/19 16:16:00	Y	III
K1904532-003	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	4.13 mg/L	10 mL	4.13 mg/L	1	0.07	0.50			5/23/19 17:13:00	N	III
K1904532-004	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	6.96 mg/L	10 mL	6.96 mg/L	1	0.07	0.50			5/23/19 17:41:00	N	III
K1904532-005	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	11.10 mg/L	10 mL	11.1 mg/L	1	0.07	0.50			5/23/19 18:09:00	N	III
K1904532-006	Carbon, Dissolved Organic (DOC)	N/A		Surface Water	8.31 mg/L	10 mL	8.31 mg/L	1	0.07	0.50			5/23/19 19:07:00	N	III
KQ1906833-01	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 14:36:00	N	IV
KQ1906833-02	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 18:52:00	N	IV
KQ1906833-03	Carbon, Dissolved Organic (DOC)	CCB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 19:50:00	N	IV
KQ1906833-04	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.70 mg/L	10 mL	24.7 mg/L	1					5/23/19 14:21:00	N	IV
KQ1906833-05	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	24.39 mg/L	10 mL	24.4 mg/L	1					5/23/19 18:37:00	N	IV
KQ1906833-06	Carbon, Dissolved Organic (DOC)	CCV		Surface Water	25.08 mg/L	10 mL	25.1 mg/L	1					5/23/19 19:07:00	N	IV
KQ1906833-07	Carbon, Dissolved Organic (DOC)	MB		Surface Water	0.00 mg/L	10 mL	0.50 mg/L U	1	0.07	0.50			5/23/19 14:50:00	N	IV
KQ1906833-08	Carbon, Dissolved Organic (DOC)	LCS		Surface Water	24.93 mg/L	10 mL	24.9 mg/L	1	0.07	0.50	100		5/23/19 15:05:00	N	IV
KQ1906833-09	Carbon, Dissolved Organic (DOC)	DUP	K1904531-001	Surface Water	9.06 mg/L	10 mL	9.06 mg/L	1	0.07	0.50		<1	5/23/19 15:20:00	N	IV
KQ1906833-10	Carbon, Dissolved Organic (DOC)	DUP	K1904532-001	Surface Water	7.90 mg/L	10 mL	7.90 mg/L	1	0.07	0.50		<1	5/23/19 15:48:00	N	III
KQ1906833-11	Carbon, Dissolved Organic (DOC)	DUP	K1904532-002	Surface Water	15.17 mg/L	10 mL	15.2 mg/L	1	0.07	0.50		2	5/23/19 16:16:00	N	III
KQ1906833-12	Carbon, Dissolved Organic (DOC)	DUP	K1904532-003	Surface Water	4.13 mg/L	10 mL	4.13 mg/L	1	0.07	0.50		<1	5/23/19 17:13:00	N	III
KQ1906833-13	Carbon, Dissolved Organic (DOC)	DUP	K1904532-004	Surface Water	6.98 mg/L	10 mL	6.98 mg/L	1	0.07	0.50		<1	5/23/19 17:41:00	N	III
KQ1906833-14	Carbon, Dissolved Organic (DOC)	DUP	K1904532-005	Surface Water	10.92 mg/L	10 mL	10.9 mg/L	1	0.07	0.50		2	5/23/19 18:09:00	N	III
KQ1906833-15	Carbon, Dissolved Organic (DOC)	DUP	K1904532-006	Surface Water	8.31 mg/L	10 mL	8.31 mg/L	1	0.07	0.50		<1	5/23/19 19:07:00	N	III
KQ1906833-16	Carbon, Dissolved Organic (DOC)	MS	K1904532-002	Surface Water	39.49 mg/L	10 mL	39.5 mg/L	1	0.07	0.50	96		5/23/19 16:44:00	N	III

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

Printed 5/24/19 13:33

Results Summary

05/24/19

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	C] CCV 25 ppm [25 p	1	25.405	0.0000	25.4053	25.4053	25.4	5/22/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/22/2019
4	MB1	1	0.000	0.0000	0.0000	0	<0.5	5/22/2019
5	[TOC] LCS [24ppm]	1	25.687	0.0000	25.6874	25.6874	25.7	5/22/2019
6	K1904503-001	1	1.639	0.0000	1.6387	1.6387	1.64	5/22/2019
7	K1904503-001d	1	1.687	0.0000	1.6866	1.6866	1.7	5/22/2019
8	K1904503-001ms	1	27.957	0.0000	27.9572	27.9572	28	5/22/2019
9	K1904518-001	1	1.340	0.0000	1.3404	1.3404	1.34	5/22/2019
10	K1904518-001d	1	1.337	0.0000	1.3370	1.337	1.34	5/22/2019
11	K1904535-001	1	1.634	0.0000	1.6342	1.6342	1.6	5/22/2019
12	K1904535-001d	1	1.613	0.0000	1.6128	1.6128	1.61	5/22/2019
13	K1904535-002	1	1.881	0.0000	1.8814	1.8814	1.88	5/22/2019
14	K1904535-002d	1	1.834	0.0000	1.8342	1.8342	1.83	5/22/2019
15	K1904545-001	1	0.885	0.0000	0.8852	0.8852	0.9	5/22/2019
16	K1904545-001d	1	0.849	0.0000	0.8485	0.8485	0.8	5/22/2019
17	C] CCV 25 ppm [25 p	1	25.049	0.0000	25.0489	25.0489	25.05	5/22/2019
18	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/22/2019
19	K1904545-002	1	2.407	0.0000	2.4073	2.4073	2.4	5/23/2019
20	K1904545-002d	1	2.420	0.0000	2.4203	2.4203	2.42	5/23/2019
21	K1904545-003	1	15.025	0.0000	15.0250	15.025	15.03	5/23/2019
22	K1904545-003d	1	15.443	0.0000	15.4434	15.4434	15.4	5/23/2019
23	K1904545-004	1	16.186	0.0000	16.1857	16.1857	16.2	5/23/2019
24	K1904545-004d	1	15.815	0.0000	15.8145	15.8145	15.81	5/23/2019
25	K1904545-005	1	0.933	0.0000	0.9325	0.9325	0.93	5/23/2019

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: RCP	Date Analyzed	5/22/19
Reviewed By:	Date Reviewed	05/24/19

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	K1904545-005d	1	0.621	0.0000	0.6206	0.6206	0.62	5/23/2019
27	K1904545-006	1	0.596	0.0000	0.5957	0.5957	0.60	5/23/2019
28	K1904545-006d	1	0.595	0.0000	0.5951	0.5951	0.6	5/23/2019
29	K1904545-007	1	0.512	0.0000	0.5122	0.5122	0.5	5/23/2019
30	K1904545-007d	1	0.500	0.0000	0.5002	0.5002	0.5	5/23/2019
31	K1904546-001	1	2.478	0.0000	2.4782	2.4782	2.5	5/23/2019
32	K1904546-001d	1	2.487	0.0000	2.4873	2.4873	2.5	5/23/2019
33	K1904546-002	1	2.531	0.0000	2.5306	2.5306	2.5	5/23/2019
34	K1904546-002d	1	2.536	0.0000	2.5359	2.5359	2.5	5/23/2019
35	K1904547-001	10	99.953	0.0000	99.9529	999.529	999.5	5/23/2019
36	K1904547-001d	10	123.172	0.0000	123.1718	1231.718	1231.7	5/23/2019
37	K1904547-002	100	7.105	0.0000	7.1048	710.48	710.5	5/23/2019
38	K1904547-002d	100	5.062	0.0000	5.0623	506.23	506.2	5/23/2019
39	C] CCV 25 ppm [25 p	1	25.449	0.0000	25.4492	25.4492	25.4	5/23/2019
40	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
41	K1904527-006	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
42	K1904527-006d	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
43	K1904556-001	1	1.766	0.0000	1.7656	1.7656	1.8	5/23/2019
44	K1904556-001d	1	1.749	0.0000	1.7485	1.7485	1.7	5/23/2019
45	K1904556-002	1	1.711	0.0000	1.7111	1.7111	1.7	5/23/2019
46	K1904556-002d	1	1.679	0.0000	1.6792	1.6792	1.7	5/23/2019
47	K1904531-001	1	2.997	0.0000	2.9966	2.9966	3.0	5/23/2019
48	K1904531-001d	1	2.977	0.0000	2.9770	2.977	3.0	5/23/2019
49	C] CCV 25 ppm [25 p	1	24.666	0.0000	24.6660	24.666	24.7	5/23/2019
50	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019

Analyzed By:	BCP	Date Analyzed	5/22/19
Reviewed By:	[signature]	Date Reviewed	05/24/19

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	C] CCV 25 ppm [25 p	1	25.449	0.0000	25.4492	25.4492	25.4	5/23/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
4	MB2	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
5	[TOC] LCS [24ppm]	1	25.102	0.0000	25.1021	25.1021	25.1	5/23/2019
6	K1904532-001	1	3.056	0.0000	3.0557	3.0557	3.06	5/23/2019
7	K1904532-001d	1	3.065	0.0000	3.0645	3.0645	3.1	5/23/2019
8	K1904532-002	1	10.942	0.0000	10.9420	10.942	11	5/23/2019
9	K1904532-002d	1	10.841	0.0000	10.8411	10.8411	10.84	5/23/2019
10	K1904532-002ms	1	35.568	0.0000	35.5676	35.5676	35.57	5/23/2019
11	C] CCV 25 ppm [25 p	1	24.666	0.0000	24.6660	24.666	24.7	5/23/2019
12	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
13	K1904532-003	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
14	K1904532-003d	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
15	K1904532-004	1	2.893	0.0000	2.8926	2.8926	2.9	5/23/2019
16	K1904532-004d	1	3.047	0.0000	3.0468	3.0468	3.0	5/23/2019
17	K1904532-005	1	6.595	0.0000	6.5946	6.5946	6.59	5/23/2019
18	K1904532-005d	1	6.497	0.0000	6.4971	6.4971	6.5	5/23/2019
19	K1904532-006	1	6.691	0.0000	6.6914	6.6914	6.7	5/23/2019
20	K1904532-006d	1	6.618	0.0000	6.6184	6.6184	6.62	5/23/2019
21	K1904502-001	1	1.482	0.0000	1.4815	1.4815	1.48	5/23/2019
22	K1904502-001d	1	1.459	0.0000	1.4594	1.4594	1.5	5/23/2019
23	K1904502-002	1	16.839	0.0000	16.8392	16.8392	16.8	5/23/2019
24	K1904502-002d	1	16.644	0.0000	16.6437	16.6437	16.64	5/23/2019
25	K1904502-003	1	2.543	0.0000	2.5428	2.5428	2.54	5/23/2019

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: BCV	Date Analyzed	5/22/19	
Reviewed By:	Date Reviewed	05/24/19	

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	K1904502-003d	1	2.432	0.0000	2.4319	2.4319	2.43	5/23/2019
27	K1904502-004	1	1.029	0.0000	1.0290	1.029	1.03	5/23/2019
28	K1904502-004d	1	1.033	0.0000	1.0330	1.033	1.0	5/23/2019
29	K1904295-004	100	5.682	0.0000	5.6822	568.22	568.2	5/23/2019
30	K1904295-004d	100	5.771	0.0000	5.7712	577.12	577.1	5/23/2019
31	K1904295-005	100	6.048	0.0000	6.0477	604.77	604.8	5/23/2019
32	K1904295-005d	100	6.064	0.0000	6.0635	606.35	606.4	5/23/2019
33	C] CCV 25 ppm [25 p	1	24.696	0.0000	24.6961	24.6961	24.7	5/23/2019
34	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
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:	BCP	Date Analyzed	5/23/19
Reviewed By:		Date Reviewed	05/29/19

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	C] CCV 25 ppm [25 p	1	24.696	0.0000	24.6961	24.6961	24.7	5/23/2019
3	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
4	MB3	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
5	[TOC] LCS [25ppm]	1	24.928	0.0000	24.9281	24.9281	24.9	5/23/2019
6	K1904531-001	1	9.077	0.0000	9.0769	9.0769	9.08	5/23/2019
7	K1904531-001d	1	9.063	0.0000	9.0631	9.0631	9.1	5/23/2019
8	K1904532-001	1	7.947	0.0000	7.9470	7.947	8	5/23/2019
9	K1904532-001d	1	7.897	0.0000	7.8969	7.8969	7.90	5/23/2019
10	K1904532-002	1	15.482	0.0000	15.4821	15.4821	15.48	5/23/2019
11	K1904532-002d	1	15.170	0.0000	15.1704	15.1704	15.2	5/23/2019
12	K1904532-002ms	1	39.489	0.0000	39.4894	39.4894	39.49	5/23/2019
13	K1904532-003	1	4.135	0.0000	4.1349	4.1349	4.13	5/23/2019
14	K1904532-003d	1	4.130	0.0000	4.1295	4.1295	4.13	5/23/2019
15	K1904532-004	1	6.957	0.0000	6.9573	6.9573	7.0	5/23/2019
16	K1904532-004d	1	6.978	0.0000	6.9782	6.9782	7.0	5/23/2019
17	K1904532-005	1	11.097	0.0000	11.0968	11.0968	11.10	5/23/2019
18	K1904532-005d	1	10.922	0.0000	10.9223	10.9223	10.9	5/23/2019
19	C] CCV 25 ppm [25 p	1	24.389	0.0000	24.3888	24.3888	24.4	5/23/2019
20	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
21	K1904532-006	1	8.308	0.0000	8.3078	8.3078	8.31	5/23/2019
22	K1904532-006d	1	8.308	0.0000	8.3078	8.3078	8.3	5/23/2019
23	C] CCV 25 ppm [25 p	1	25.080	0.0000	25.0803	25.0803	25.1	5/23/2019
24	[TOC] CCB [0 ppm]	1	0.000	0.0000	0.0000	0	<0.5	5/23/2019
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: BD		Date Analyzed 5/24/19	
Reviewed By:		Date Reviewed 05/24/19	

Revision 1, 2010 R:\WET\ANALYSES\TOC\TEMPLATE\TOCwaterLIMS

TOC: 636316, 636320
DOC: 636321

Schedule: 05222019b

Version: 2
Instrument: Fusion1
Last Saved by: Fusion1 (Fusion1)
Last Saved on: 2019/05/22 17:40 - 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 [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	K1904503-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
4	Sample	K1904503-001.01 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
5	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
6	Sample	K1904518-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
7	Sample	K1904535-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
8	Sample	K1904535-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
9	Sample	K1904545-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
B	Check Standard	[TOC] CCV 25 ppm [25 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
D	Check Standard	[TOC] CCB [0 ppm]	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
10	Sample	K1904545-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
11	Sample	K1904545-003.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
12	Sample	K1904545-004.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
13	Sample	K1904545-005.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
14	Sample	K1904545-006.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
15	Sample	K1904545-007.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
16	Sample	K1904546-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
17	Sample	K1904546-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
18	Sample	K1904547-001.01 10x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
19	Sample	K1904547-002.01 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
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	K1904527-006.02	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
22	Sample	K1904556-001.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
23	Sample	K1904556-002.01	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
24	Sample	K1904531-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
25	Sample	K1904532-001.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
26	Sample	K1904532-002.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
27	Sample	K1904532-002.03 ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
28	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
29	Sample	K1904532-003.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
30	Sample	K1904532-004.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
31	Sample	K1904532-005.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
32	Sample	K1904532-006.03	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
33	Sample	K1904502-001.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
34	Sample	K1904502-002.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
35	Sample	K1904502-003.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
36	Sample	K1904502-004.05	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
37	Sample	K1904295-004.01 100x	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
38	Sample	K1904295-005.01 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

Printed on: May 24, 2019 09:05:43

05/24/19

Schedule: 05222019b

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	K1904531-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
41	Sample	K1904532-001.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
42	Sample	K1904532-002.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
43	Sample	K1904532-002.04 doc ms	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
44	Sample	RB	CAS_salt_010711 (CAS_salt_010711)	1	True	Ready
45	Sample	K1904532-003.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
46	Sample	K1904532-004.04 doc	CAS_salt_010711 (CAS_salt_010711)	2	True	Ready
47	Sample	K1904532-005.04 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	K1904532-006.04 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
					False	

Fusion Report - 05222019b
Wednesday, May 22, 2019 05:40 PM

(View - Reps, Unused Reps, Meta-Data, Signature, History)
Printed on 2019/05/24 09:05 - Friday

Report Summary Information

Company Location:	Gen Chem Lab		
Schedule Name:	05222019b	Engine Version:	1.1.5.1
Instrument Name:	Fusion1	Firmware Version:	1.2.0696
Report Version:	1 of 1	Connection:	RS232 COM1
Report Creation by Operators (schedule version):	Fusion1 (Fusion1) (v2)		
Comment:			

Report Results

05/24/19 Humphrey

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/05/22 17:40

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	12.53	16.35	3.82	49.70	05:24
2	TC Clean	4.18	7.21	3.03	50.02	04:06
3	TC Clean	2.02	5.20	3.18	50.03	03:55
4	TC Clean	1.84	4.97	3.13	50.02	03:55

Sample Type: Clean — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◈	(clean)		Clean	2019/05/22 18:02

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.60	3.65	3.04	49.77	05:24
2	TC Clean	3.44	6.54	3.10	50.03	04:01
3	TC Clean	1.68	4.80	3.13	50.05	03:49
4	TC Clean	2.02	5.12	3.10	50.05	03:46

Sample Type: Clean From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(clean)		Clean	2019/05/22 18:24

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.82	3.91	3.09	49.64	05:12
2	TC Clean	3.47	6.70	3.23	50.01	04:02
3	TC Clean	2.01	5.19	3.18	50.02	03:45
4	TC Clean	1.98	5.14	3.16	50.05	03:48

Sample Type: Blank (Creating v1259) From Schedule Version 2

	Pos	Analysis Type	Sample ID	Start Time
◆	(blank)		Reagent/Acid Blank	2019/05/22 18:46

Rep #	Base Analysis Type	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	IC Clean	0.58	3.87	3.29	49.62	05:23
2	TC Clean	3.81	7.05	3.24	50.02	04:05
3	TC Clean	2.21	5.29	3.08	50.02	03:49
4	TC Clean	2.16	5.32	3.16	49.76	07:04
5	Reagent Blank	8.27	11.25	2.98	49.73	08:11
6	Acid Blank	2.31	5.24	2.94	49.80	05:32

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	D	TOC	RB	0.9130 ppm	0.0000 ppm	0.0000%	2019/05/22 19:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9130	9.1303	15.26	18.27	3.01	49.88	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.4053 ppm (PASS)	0.0000 ppm	0%	2019/05/22 19:41

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4053	254.0528	181.91	185.03	3.12	49.85	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%	2019/05/22 19:55

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	8.53	11.63	3.10	49.82	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 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	1	TOC	MB1	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/22 20:10

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.45	10.53	3.08	49.82	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.6874 ppm (PASS)	0.0000 ppm	0%	2019/05/22 20:25

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

	Type									
C	TOC	25.0 ppm	1	25.6874	256.8739	183.83	186.81	2.98	49.80	10:31

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

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	2	TOC	ICS	0.1031 ppm	0.0000 ppm	0.0000%	2019/05/22 20:39

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.1031	1.0307	9.77	12.80	3.04	49.80	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	3	TOC	K1904503-001.01	1.6627 ppm	0.0339 ppm	2.0400%	2019/05/22 20:54

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6387	16.3873	20.19	23.17	2.98	49.83	10:30
2	TOC	1.6866	16.8661	20.52	23.54	3.03	49.83	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	4	TOC	K1904503-001.01 ms	27.9572 ppm	0.0000 ppm	0.0000%	2019/05/22 21:22

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	27.9572	279.5717	198.84	201.87	3.03	49.80	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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%	2019/05/22 21:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.43	11.43	3.00	49.84	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	6	TOC	K1904518-001.01	1.3387 ppm	0.0024 ppm	0.1800%	2019/05/22 21:52

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.3404	13.4041	18.17	21.36	3.20	49.84	10:26
2	TOC	1.3370	13.3702	18.14	21.30	3.15	49.85	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	7	TOC	K1904535-001.01	1.6235 ppm	0.0151 ppm	0.9300%	2019/05/22 22:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.6342	16.3417	20.16	23.19	3.03	49.86	10:29
2	TOC	1.6128	16.1281	20.02	23.03	3.01	49.86	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	8	TOC	K1904535-002.01	1.8578 ppm	0.0333 ppm	1.7900%	2019/05/22 22:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.8814	18.8137	21.84	24.69	2.85	49.88	10:27
2	TOC	1.8342	18.3423	21.52	24.56	3.04	49.88	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	9	TOC	K1904545-001.01	0.8668 ppm	0.0259 ppm	2.9900%	2019/05/22 23:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.8852	8.8519	15.08	18.06	2.99	49.88	10:28
2	TOC	0.8485	8.4851	14.83	17.85	3.02	49.90	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.0489 ppm	0.0000 ppm	0%	2019/05/22 23:44

							(PASS)			

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0489	250.4891	179.49	182.49	3.00	49.89	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%	2019/05/22 23:59

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.71	10.53	2.83	49.92	10:30

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

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	10	TOC	K1904545-002.01	2.4138 ppm	0.0092 ppm	0.3800%	2019/05/23 00:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4073	24.0730	25.41	28.32	2.91	49.91	10:26
2	TOC	2.4203	24.2027	25.50	28.49	2.99	49.92	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	11	TOC	K1904545-003.01	15.2342 ppm	0.2958 ppm	1.9400%	2019/05/23 00:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.0250	150.2497	111.06	114.00	2.94	49.93	10:25
2	TOC	15.4434	154.4336	113.90	117.17	3.27	49.94	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

		Type			(ppmC)		
◈	12	TOC	K1904545-004.01	16.0001 ppm	0.2625 ppm	1.6400%	2019/05/23 01:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.1857	161.8571	118.94	122.05	3.12	49.93	10:29
2	TOC	15.8145	158.1446	116.42	119.61	3.20	49.93	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	13	TOC	K1904545-005.01	0.7765 ppm	0.2205 ppm	28.4000%	2019/05/23 01:37

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.9325	9.3248	15.40	18.57	3.17	49.96	10:29
2	TOC	0.6206	6.2060	13.28	16.43	3.15	49.98	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	14	TOC	K1904545-006.01	0.5954 ppm	0.0004 ppm	0.0700%	2019/05/23 02:06

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5957	5.9571	13.11	16.06	2.95	49.96	10:31
2	TOC	0.5951	5.9512	13.11	16.17	3.06	49.96	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	15	TOC	K1904545-007.01	0.5062 ppm	0.0084 ppm	1.6700%	2019/05/23 02:34

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.5122	5.1218	12.54	15.62	3.07	49.97	10:29
2	TOC	0.5002	5.0024	12.46	15.48	3.02	49.97	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	16	TOC	K1904546-001.01	2.4827 ppm	0.0065 ppm	0.2600%	2019/05/23 03:02

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.4782	24.7816	25.89	28.77	2.88	49.99	10:28
2	TOC	2.4873	24.8730	25.95	28.95	3.00	49.96	10:28

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	17	TOC	K1904546-002.01	2.5333 ppm	0.0038 ppm	0.1500%	2019/05/23 03:30

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5306	25.3061	26.24	29.38	3.14	49.98	10:30
2	TOC	2.5359	25.3591	26.28	29.15	2.87	49.98	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	18	TOC	K1904547-001.01 10x	111.5624 ppm	16.4182 ppm	14.7200%	2019/05/23 03:58

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	99.9529	999.5294	687.54	690.54	3.00	50.01	10:27
2	TOC	123.1718	1231.7176	845.15	849.34	4.19	50.01	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	19	TOC	K1904547-002.01 100x	6.0835 ppm	1.4442 ppm	23.7400%	2019/05/23 04:26

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.1048	71.0475	57.29	61.22	3.93	50.01	10:28
2	TOC	5.0623	50.6231	43.43	46.70	3.27	50.01	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.4492 ppm (PASS)	0.0000 ppm	0%	2019/05/23 04:54

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.4492	254.4918	182.21	185.27	3.06	50.01	10:31

Completion State	Success Action	Method	Calibration	STD Conc - Pos B
Success - Criteria	Do Nothing	CAS_salt_010711	CAS_salt_010711	50 ppmC

met.	(v4)	(v30)

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/23 05:09

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	9.07	12.16	3.08	50.02	10:32

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

Sample Type: Sample From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	20	TOC	MB2	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/23 05:24

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.57	10.65	3.08	50.02	10:33

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.1021 ppm (PASS)	0.0000 ppm	0%	2019/05/23 05:38

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	25.1021	251.0209	179.85	182.82	2.97	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

◆	21	TOC	K1904527-006.02	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/23 05:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.67	11.98	3.31	50.02	10:28
2	TOC	0.0000	0.0000	8.52	11.71	3.19	50.06	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	22	TOC	K1904556-001.01	1.7570 ppm	0.0121 ppm	0.6900%	2019/05/23 06:21

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7656	17.6558	21.05	24.08	3.03	50.03	10:28
2	TOC	1.7485	17.4849	20.94	23.92	2.98	50.03	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	23	TOC	K1904556-002.01	1.6952 ppm	0.0225 ppm	1.3300%	2019/05/23 06:49

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.7111	17.1107	20.68	23.81	3.13	50.04	10:29
2	TOC	1.6792	16.7925	20.47	23.53	3.06	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	24	TOC	K1904531-001.03	2.9868 ppm	0.0139 ppm	0.4600%	2019/05/23 07:17

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.9966	29.9658	29.41	32.42	3.01	50.06	10:28
2	TOC	2.9770	29.7699	29.28	32.32	3.05	50.01	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	25	TOC	K1904532-001.03	3.0601 ppm	0.0063 ppm	0.2000%	2019/05/23 07:45

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	3.0557	30.5566	29.81	32.83	3.02	50.01	10:26
2	TOC	3.0645	30.6450	29.87	32.88	3.01	50.00	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	26	TOC	K1904532-002.03	10.8915 ppm	0.0714 ppm	0.6600%	2019/05/23 08:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	10.9420	109.4200	83.34	86.34	3.00	49.97	10:26
2	TOC	10.8411	108.4108	82.66	85.63	2.97	50.00	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	27	TOC	K1904532-002.03 ms	35.5676 ppm	0.0000 ppm	0.0000%	2019/05/23 08:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	35.5676	355.6758	250.50	253.54	3.05	49.98	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	28	TOC	RB	0.3261 ppm	0.0000 ppm	0.0000%	2019/05/23 08:56

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.3261	3.2611	11.28	14.34	3.06	49.97	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	24.6660 ppm (PASS)	0.0000 ppm	0%	2019/05/23 09:10

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6660	246.6602	176.89	180.11	3.21	49.96	10:30

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

Sample Type: Check Standard --> CCB From Schedule Version 2

	Pos	BAT	Concentration (ppm)	Dil	Sample ID	Min / Max (% dev)	Result	Std. Dev.	RSD	Start Time
◈	D	TOC	0.0000	1:1	[TOC] CCB [0 ppm]	0 / infinity (NA / NA)	0.0000 ppm (PASS)	0.0000 ppm	0%	2019/05/23 09:25

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	7.32	10.59	3.28	49.95	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
◈	29	TOC	K1904532-003.03	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/23 09:40

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	7.10	10.01	2.90	49.94	10:24
2	TOC	0.0000	0.0000	7.07	10.05	2.97	49.99	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	30	TOC	K1904532-004.03	2.9697 ppm	0.1091 ppm	3.6700%	2019/05/23 10:08

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.8926	28.9257	28.70	31.68	2.98	49.92	10:26
2	TOC	3.0468	30.4682	29.75	32.68	2.93	49.91	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	31	TOC	K1904532-005.03	6.5458 ppm	0.0690 ppm	1.0500%	2019/05/23 10:36

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.5946	65.9458	53.83	56.90	3.07	49.89	10:26
2	TOC	6.4971	64.9706	53.17	56.33	3.16	49.90	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

		Analysis			Std. Dev.		

	Pos	Type	Sample ID	Result (ppmC)	(ppmC)	RSD	Start Time
◈	32	TOC	K1904532-006.03	6.6549 ppm	0.0516 ppm	0.7700%	2019/05/23 11:04

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.6914	66.9137	54.49	57.46	2.97	49.88	10:27
2	TOC	6.6184	66.1845	53.99	57.04	3.04	49.87	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	33	TOC	K1904502-001.05	1.4705 ppm	0.0156 ppm	1.0600%	2019/05/23 11:32

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.4815	14.8154	19.12	22.14	3.01	50.00	10:28
2	TOC	1.4594	14.5945	18.97	21.98	3.01	49.93	10:25

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	34	TOC	K1904502-002.05	16.7415 ppm	0.1382 ppm	0.8300%	2019/05/23 12:00

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	16.8392	168.3922	123.37	126.36	2.99	50.00	10:31
2	TOC	16.6437	166.4373	122.04	125.11	3.06	49.89	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	35	TOC	K1904502-003.05	2.4874 ppm	0.0784 ppm	3.1500%	2019/05/23 12:29

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	2.5428	25.4284	26.33	29.17	2.84	50.00	10:30
2	TOC	2.4319	24.3190	25.58	28.51	2.94	49.88	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	36	TOC	K1904502-004.05	1.0310 ppm	0.0028 ppm	0.2700%	2019/05/23 12:57

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	1.0290	10.2898	16.05	19.13	3.07	49.96	10:28
2	TOC	1.0330	10.3295	16.08	19.07	2.99	49.99	10:25

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	37	TOC	K1904295-004.01 100x	5.7267 ppm	0.0629 ppm	1.1000%	2019/05/23 13:25

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	5.6822	56.8223	47.64	50.52	2.88	49.93	10:25
2	TOC	5.7712	57.7121	48.24	51.09	2.84	49.98	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◆	38	TOC	K1904295-005.01 100x	6.0556 ppm	0.0111 ppm	0.1800%	2019/05/23 13:53

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.0477	60.4773	50.12	53.14	3.02	50.03	10:28
2	TOC	6.0635	60.6349	50.23	53.26	3.04	49.94	10:30

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	24.6961 ppm (PASS)	0.0000 ppm	0%	2019/05/23 14:21

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.6961	246.9608	177.10	180.04	2.95	49.95	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 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%	2019/05/23 14:36

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

	Type									
D	TOC	0 ppm	1	0.0000	0.0000	7.09	10.13	3.05	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%	2019/05/23 14:50

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	6.15	9.20	3.06	49.96	10:31

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	24.9281 ppm (PASS)	0.0000 ppm	0%	2019/05/23 15:05

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
C	TOC	25.0 ppm	1	24.9281	249.2811	178.67	181.70	3.02	49.98	10:32

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	K1904531-001.04 doc	9.0700 ppm	0.0098 ppm	0.1100%	2019/05/23 15:20

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	9.0769	90.7692	70.68	73.87	3.19	49.98	10:28
2	TOC	9.0631	90.6308	70.59	73.57	2.98	49.96	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

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

◈	41	TOC	K1904532-001.04 doc	7.9219 ppm	0.0354 ppm	0.4500%	2019/05/23 15:48

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	7.9470	79.4698	63.01	66.00	2.98	49.99	10:24
2	TOC	7.8969	78.9689	62.67	65.64	2.96	49.98	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	42	TOC	K1904532-002.04 doc	15.3262 ppm	0.2204 ppm	1.4400%	2019/05/23 16:16

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	15.4821	154.8211	114.16	117.27	3.11	49.95	10:32
2	TOC	15.1704	151.7038	112.04	115.15	3.10	50.02	10:28

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	43	TOC	K1904532-002.04 doc ms	39.4894 ppm	0.0000 ppm	0.0000%	2019/05/23 16:44

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	39.4894	394.8939	277.12	280.20	3.08	49.98	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	44	TOC	RB	0.0000 ppm	0.0000 ppm	0.0000%	2019/05/23 16:59

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	0.0000	0.0000	8.52	11.70	3.18	49.99	10:32

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	45	TOC	K1904532-003.04 doc	4.1322 ppm	0.0039 ppm	0.0900%	2019/05/23 17:13

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	4.1349	41.3493	37.14	40.16	3.03	50.03	10:30
2	TOC	4.1295	41.2947	37.10	40.19	3.09	50.02	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC)	CAS_salt_010711	CAS_salt_010711

(v1259) (v4) (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	46	TOC	K1904532-004.04 doc	6.9677 ppm	0.0148 ppm	0.2100%	2019/05/23 17:41

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	6.9573	69.5728	56.29	59.33	3.04	50.03	10:31
2	TOC	6.9782	69.7820	56.44	59.41	2.98	50.04	10:26

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	CAS_salt_010711 (v4)	CAS_salt_010711 (v30)

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	47	TOC	K1904532-005.04 doc	11.0095 ppm	0.1234 ppm	1.1200%	2019/05/23 18:09

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	11.0968	110.9683	84.39	87.53	3.14	50.01	10:29
2	TOC	10.9223	109.2226	83.21	86.34	3.13	50.02	10:29

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	24.3888 ppm (PASS)	0.0000 ppm	0%	2019/05/23 18:37

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	24.3888	243.8877	175.01	178.09	3.08	49.99	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 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%	2019/05/23 18:52

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.94	10.11	3.17	49.93	10:30

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

Sample Type: Sample — From Schedule Version 2

	Pos	Analysis Type	Sample ID	Result (ppmC)	Std. Dev. (ppmC)	RSD	Start Time
◈	48	TOC	K1904532-006.04 doc	8.3078 ppm	0.0000 ppm	0.0000%	2019/05/23 19:07

Rep #	Base Analysis Type	ppm	µg	Adjusted (Abs)	NDIR (Abs)	Baseline (Abs)	Pressure (psig)	Run Time
1	TOC	8.3078	83.0777	65.46	68.48	3.02	49.88	10:29
2	TOC	8.3078	83.0777	65.46	68.52	3.06	49.85	10:27

Dilution	Blank Contribution	Method	Calibration
1:10	(TC) 9.0674 (IC) (v1259)	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)	25.0803 ppm (PASS)	0.0000 ppm	0%	2019/05/23 19:35

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
B	TOC	25 ppm	1	25.0803	250.8029	179.71	182.76	3.06	49.82	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%	2019/05/23 19:50

Pos	Base Analysis Type	ID	Rep #	ppm	µg	Adjusted	NDIR	Baseline	Pressure	Run Time
D	TOC	0 ppm	1	0.0000	0.0000	6.97	9.89	2.93	49.79	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

Meta Data Used in this Report

Blanks

Version	Reagent (Abs)	Acid (Abs)	DI IC (Abs)	DI TC (Abs)	DI TOC (Abs)	Save Time	Operator
v1258	5.1363	1.2620	0.0000	0.0000	0.0000	2019/05/22 12:47	Fusion1 (Fusion1)
v1259	2.7557	2.3080	0.0000	0.0000	0.0000	2019/05/22 19:26	Fusion1 (Fusion1)

Calibrations

Name: CAS_salt_010711 (TOC)

Version: v30

Ver Creation: 2019/03/05 17:42

Comment:

Operator: Fusion1 (Fusion1)

Basic Analysis Type: TOC

Calibration curve formula: TOC: y = 6.788x + 9.463

r^2 value: TOC: r^2 = 0.99963

Basic Analysis Type: TOC

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

Methods

Name: CAS_salt_010711 (TOC)

Version: v4

Ver Creation: 2019/02/21 17:57

Comment:

Operator: Fusion1 (Fusion1)

Parameter	Value
SampleVolume	10.0 mL
Dilution	1:10
AcidVolume	0.5 ml
ReagentVolume	2.0 ml
UVReactorPrerinse	Off
UVReactorPrerinseVolume	5.0
NumberOfUVReactorPrerinses	1
ICSpargeTime	1.00 mins

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

DetectorSweepFlow	500 ml/min
PreSpargeTime	2.00 mins
SystemFlow	500 ml/min

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	2019/05/23 20:06

StarLIMS Run: 636316, 636320, 636321

Analysis: TOC

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

CCV: 11-GEN-05-77K 50 ppm LCS: 11-GEN-05-77D 25.0 ppm

ICAL Date: 3/6/19

ICAL ID: 11-GEN-05-76H

ICS ID: 11-GEN-05-74A

ICS TV: 25.0 ppm ICS % R = 2

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-05-78B

21 % H3PO4: 11-GEN-05-78C

Equipment ID: K-TOC-03

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

FILTER ID: NA

Prepped 05/21/2019

Analyzed By: RCJ	Date Analyzed: 5/22/2019
Reviewed By:	Date Reviewed: 05/24/19

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1914602, 1914603, 1914871, 1915147

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2256 (240075)

General Set Information: There were nine field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1914603004/05 was analyzed and reported from a 1:10,000 dilutions. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 655029) was less than 1/2 the CRDL. The recovery for the LCS (655030) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on sample 1914602001 (Client ID: LH18/24-SP650_051419_BIX). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 5.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 655027) is reported from the analysis of the Laboratory Control Sample (LCS – 655030) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03).

Thomas Bosch May 30, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: May 30, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1914603**
Project ID: HS19051031
Purchase Order: HS19051031
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
50WW18-190516	1914603001	05/16/19	05/18/19	
50WW17-190516	1914603002	05/16/19	05/18/19	
50WW21-190516	1914603003	05/16/19	05/18/19	
50WW12-190516	1914603004	05/16/19	05/18/19	
50WW12-190517-FD	1914603005	05/16/19	05/18/19	

ANALYTICAL REPORT

Workorder: 34-1914603
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW18-190516** | Sampling Site: NA | Collected: 05/16/2019
Lab ID: 1914603001 | Media: 125 mL Nalgene | Received: 05/18/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 11:01 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW17-190516** | Sampling Site: NA | Collected: 05/16/2019
Lab ID: 1914603002 | Media: 125 mL Nalgene | Received: 05/18/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 11:15 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW21-190516** | Sampling Site: NA | Collected: 05/16/2019
Lab ID: 1914603003 | Media: 125 mL Nalgene | Received: 05/18/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 11:28 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW12-190516** | Sampling Site: NA | Collected: 05/16/2019
Lab ID: 1914603004 | Media: 125 mL Nalgene | Received: 05/18/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 11:41 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**65000**	10000	20000	40000	10000	

ANALYTICAL REPORT

Workorder: 34-1914603
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID:	**50WW12-190517-FD**	Sampling Site:	NA	Collected:	05/16/2019
Lab ID:	1914603005	Media:	125 mL Nalgene	Received:	05/18/2019
Matrix:	Water	Sampling Parameter:	NA		

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable	**Analysis:** EPA 6850, DoD QSM Water	**Instrument ID:**	LCMS04
	Batch: ELMS/2256 (HBN: 240075)	**Percent Solid:**	NA
	Analyzed: 05/28/2019 11:55	**Report Basis:**	Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	**76000**	10000	20000	40000	10000	

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 05/29/2019 10:39	/S/ Stephen Brose 05/30/2019 11:52

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1914603
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1914603

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2256 (HBN: 240075)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 655029
Analyzed: 05/28/2019 10:08
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 655030
Analyzed: 05/28/2019 09:39
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.20	4.00	105	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1914602001	**MS:**	655031
Analyzed:	05/28/2019 10:21	**Analyzed:**	05/28/2019 10:34
Dilution:	1	**Dilution:**	1
Units:	ug/L	**Units:**	ug/L

	MSD:	655032
	Analyzed:	05/28/2019 10:48
	Dilution:	1
	Units:	ug/L

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.09	5	102	78.8	123.8	4.88	97.7	4.08	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch	/S/ Stephen Brose
05/29/2019 13:04	05/30/2019 11:52

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

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

18698/#2

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11333**

1914603

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19051031
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19051031-01**	**50WW18-190516**	**Groundwater**	**16 May 2019 08:40**
	SUB_Perch-6850			03 Jun 2019
2.	**HS19051031-02**	**50WW17-190516**	**Groundwater**	**16 May 2019 09:35**
	SUB_Perch-6850			03 Jun 2019
3.	**HS19051031-03**	**50WW21-190516**	**Groundwater**	**16 May 2019 10:25**
	SUB_Perch-6850			03 Jun 2019
4.	**HS19051031-04**	**50WW12-190516**	**Groundwater**	**16 May 2019 11:30**
	SUB_Perch-6850			03 Jun 2019
5.	**HS19051031-05**	**50WW12-190516-FD**	**Groundwater**	**16 May 2019 11:30**
	SUB_Perch-6850			03 Jun 2019

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

QC Level: DOD IV (DoD Data Package)

Subcontract Chain of Custody

SAMPLING STATE: **Texas**

COC ID: **11333**

Relinquished By: [signature]

Date/Time: 5/17/19 1800.

Received By: [signature]

Date/Time: 5/18/2019 857

Cooler ID(s): 9467

Temperature(s): 2°

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19051031	*Split:*	**Workorder ID:** 1914603	**Level:** ENV_LVL4
Client: ALS Environmental (Houston)		**Account:** 8101	**Type:** 125Poly
Comments:			**Preservatives**

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Count	Requested Analysis: EPA 6850, DoD QSM
1	05/16/2019 08:40	50WW18-190516	1914603001		Water	A	1	A
2	05/16/2019 09:35	50WW17-190516	1914603002		Water	A	1	A
3	05/16/2019 10:25	50WW21-190516	1914603003		Water	A	1	A
4	05/16/2019 11:30	50WW12-190516	1914603004		Water	A	1	A
5	05/16/2019 11:30	50WW12-190517-FD	1914603005	FLDDUP	Water	A	1	A
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Wrathy-Julie	05/18/2019 08:51	ALS Sample Receiving	Sample Login
Julie Wrathy	5/21/19 1000	14B	Storage
R.33.1	5.24.19/12:30	T. Boss	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 914603

Date/Time of Receipt: 5/18/2019 / 857 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Coolant/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9467	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: [signature] [signature] Signature — Meredith Edwards Printed Name — 5/18/2019 Date

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? YES ☐ NO ☐

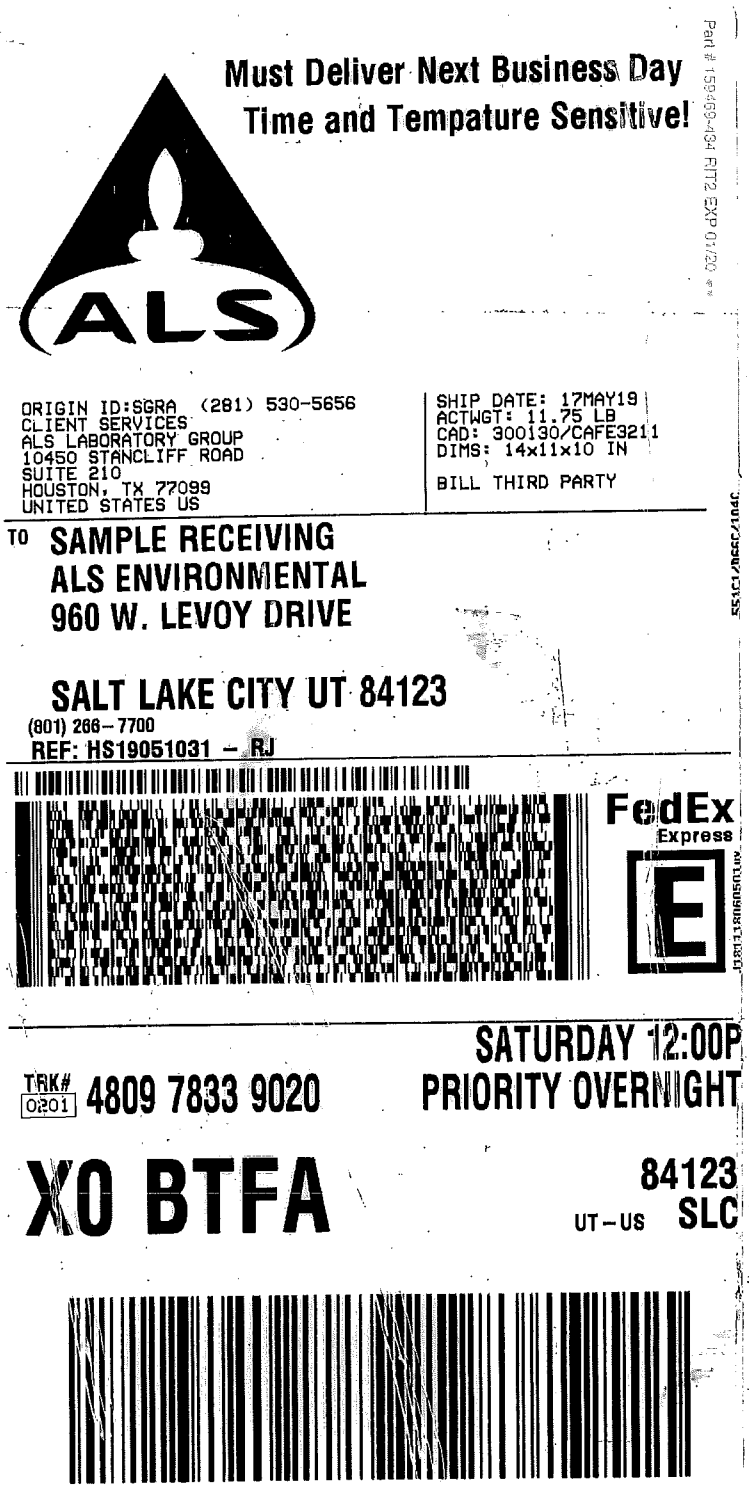
Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ Printed Name — Returned to Sample Receipt by: _____ Signature — Date: _____

CRIR.doc — Revised 01/01/2018



Must Deliver Next Business Day
Time and Tempature Sensitive!

Part # 159469-494 RITZ EXP 07/20

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 17MAY19
ACTWGT: 11.75 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19051031 - RJ

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 4809 7833 9020

XO BTFA

84123
UT-US SLC

Batch Worklist

Batch: ELMS/ 2256 **Created:** 5/28/2019 08:41 **Instrument:** **HBN:** 240075

Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1914602 [ENV_LVL4]
Workorder: 1914603 [ENV_LVL4]
Workorder: 1914871 [ENV_LVL4]
Workorder: 1915147 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	655026	CCV for HBN 240075 [ELMS/2256]				CCV	3		E685041C3Q	5311		5/29/2019	
2	655027	RLVS for HBN 240075 [ELMS/2256				RLVS	3		E685041C3Q	5311		5/29/2019	
3	655028	ICS for HBN 240075 [ELMS/2256]				ICS	3		E6850..D3Q	5311		5/29/2019	
4	655029	LMB for HBN 240075 [ELMS/2256]				LMB	3		E6850Q413Q	5311		5/29/2019	
5	655030	LCS for HBN 240075 [ELMS/2256]				LCS	3		E6850Q413Q	5311		5/29/2019	
6	1914602001	LH18/24-SP650_051419_BIX				SAMPLE	3	1914602001-A	E6850Q41.3	5480	6/11/2019	5/31/2019	
7	655031	LH18/24-SP650...(1914602001MS)				MS	3		E6850Q413Q	5311		5/29/2019	
8	655032	LH18/24-SP65...(1914602001MSD)				MSD	3		E6850Q413Q	5311		5/29/2019	
9	1914603001	50WW18-190516				SAMPLE	3	1914603001-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
10	1914603002	50WW17-190516				SAMPLE	3	1914603002-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
11	1914603003	50WW21-190516				SAMPLE	3	1914603003-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
12	1914603004	50WW12-190516				SAMPLE	3	1914603004-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
13	1914603005	50WW12-190517-FD				FLDDUP	3	1914603005-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
14	1914871001	LH18/24-SP650_05119_BIX				SAMPLE	3	1914871001-A	E6850Q41.3	5480	6/18/2019	6/6/2019	
15	1915147001	50WW15-190523				SAMPLE	3	1915147001-A	E6850Q41.3	5480	6/20/2019	5/29/2019	
16	1915147002	50WW27-190523				SAMPLE	3	1915147002-A	E6850Q41.3	5480	6/20/2019	5/29/2019	
17	655033	CCV for HBN 240075 [ELMS/2256]				CCV	3		E685041C3Q	5311		5/29/2019	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1914602 (001), 1914603 (001-05), 1914871 (001), 1915147 (001)
ELMS Batch/HBN ID: 2256 (240075)
Prep Date: 05/24/2019 Analysis Date: 05/28/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\MAY\28MAY19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 655030; Target = 4.0µg/L. ASTM type II water was used for LMB 655029.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1914602001 (Client ID: LH18/24-SP650_051419_BIX). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:
1) Results reported in µg/L. Field samples 1914603004/05 required 1:10,000 dilutions. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\MAY\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\240075-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 655027) is reported from the analysis of the Laboratory Control Sample (LCS – 655030) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03).

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2256 HBN: 240075 Sample Set IDs if Applicable: 1914602 1914603 1914871 / 1915147	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#		
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK	Description - 6850 Stock AccStd 1,000ug/mL

Standard: 43659	**Created By:** Thomas Bosch	**Amount:** 100 mL
MFG: AccuStandard	**Create Date:** 09/17/2018 09:09AM	**Expires:** 07/25/2020
MFG Lot: 218065075		**Usable:** No
Part ID: IC-PER-10X-1		**Lab Lot:** CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — Description - 6850 QC Intrmdt Std-QC 10ug/mL

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Signal Word: None

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

231 IB

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (1804, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy J. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	655026 CCV@25	Vial 71	1	Control	1	2.51535e6	9.014	26.37917
*	655030 QC@4.0	Vial 72	1	Control	2	4.51078e5	8.943	4.19596
*	655028 ICS@4.0	Vial 73	1	Control	3	4.02631e5	8.668	4.27965
*	655029 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1914602001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	655031 146021S	Vial 76	1	Sample	6	4.52005e5	8.454	5.08666
*	655032 146021D	Vial 77	1	Sample	7	4.57024e5	8.493	4.88333
*	1914603001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1914603002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	1914603003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	1914603004 10K	Vial 81	1	Sample	11	6.15140e5	9.032	6.46842e4
*	1914603005 10K	Vial 82	1	Sample	12	7.46250e5	9.051	7.56269e4
*	1914871001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1915147001	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1915147002	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	655033 CCV@25	Vial 71	1	Control	16	2.26382e6	9.030	25.44543

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	655026 CCV@25	Vial 71	1	Control	1	7.44700e5	9.032	26.32416
*	655030 QC@4.0	Vial 72	1	Control	2	1.45202e5	8.967	4.39774
*	655028 ICS@4.0	Vial 73	1	Control	3	1.38337e5	8.681	4.78850
*	655029 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1914602001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	655031 146021S	Vial 76	1	Sample	6	1.50468e5	8.472	5.54931
*	655032 146021D	Vial 77	1	Sample	7	1.53323e5	8.504	5.36140
*	1914603001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1914603002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	1914603003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	1914603004 10K	Vial 81	1	Sample	11	1.94510e5	9.049	6.75291e4
*	1914603005 10K	Vial 82	1	Sample	12	2.32860e5	9.068	7.82104e4
*	1914871001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1915147001	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1915147002	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	655033 CCV@25	Vial 71	1	Control	16	6.82139e5	9.049	25.81384

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	655026 CCV@25	Vial 71	1	Control	1	2.89154e5	9.034	5.00000
*	655030 QC@4.0	Vial 72	1	Control	2	3.53403e5	8.961	5.00000
*	655028 ICS@4.0	Vial 73	1	Control	3	3.08985e5	8.691	5.00000
*	655029 LMB	Vial 74	1	Control	4	3.47474e5	9.079	5.00000
*	1914602001	Vial 75	1	Sample	5	3.09553e5	8.502	5.00000
*	655031 146021S	Vial 76	1	Sample	6	2.89563e5	8.478	5.00000
*	655032 146021D	Vial 77	1	Sample	7	3.05514e5	8.517	5.00000
*	1914603001	Vial 78	1	Sample	8	2.25289e5	8.279	5.00000
*	1914603002	Vial 79	1	Sample	9	2.22697e5	8.383	5.00000
*	1914603003	Vial 80	1	Sample	10	2.34373e5	8.224	5.00000
*	1914603004 10K	Vial 81	1	Sample	11	3.06845e5	9.055	5.00000e4
*	1914603005 10K	Vial 82	1	Sample	12	3.16468e5	9.072	5.00000e4
*	1914871001	Vial 83	1	Sample	13	2.66978e5	8.492	5.00000
*	1915147001	Vial 84	1	Sample	14	2.34476e5	8.342	5.00000
*	1915147002	Vial 85	1	Sample	15	2.47416e5	8.369	5.00000
*	655033 CCV@25	Vial 71	1	Control	16	2.70388e5	9.054	5.00000

Sequence Table:

Method and Injection Info Part:

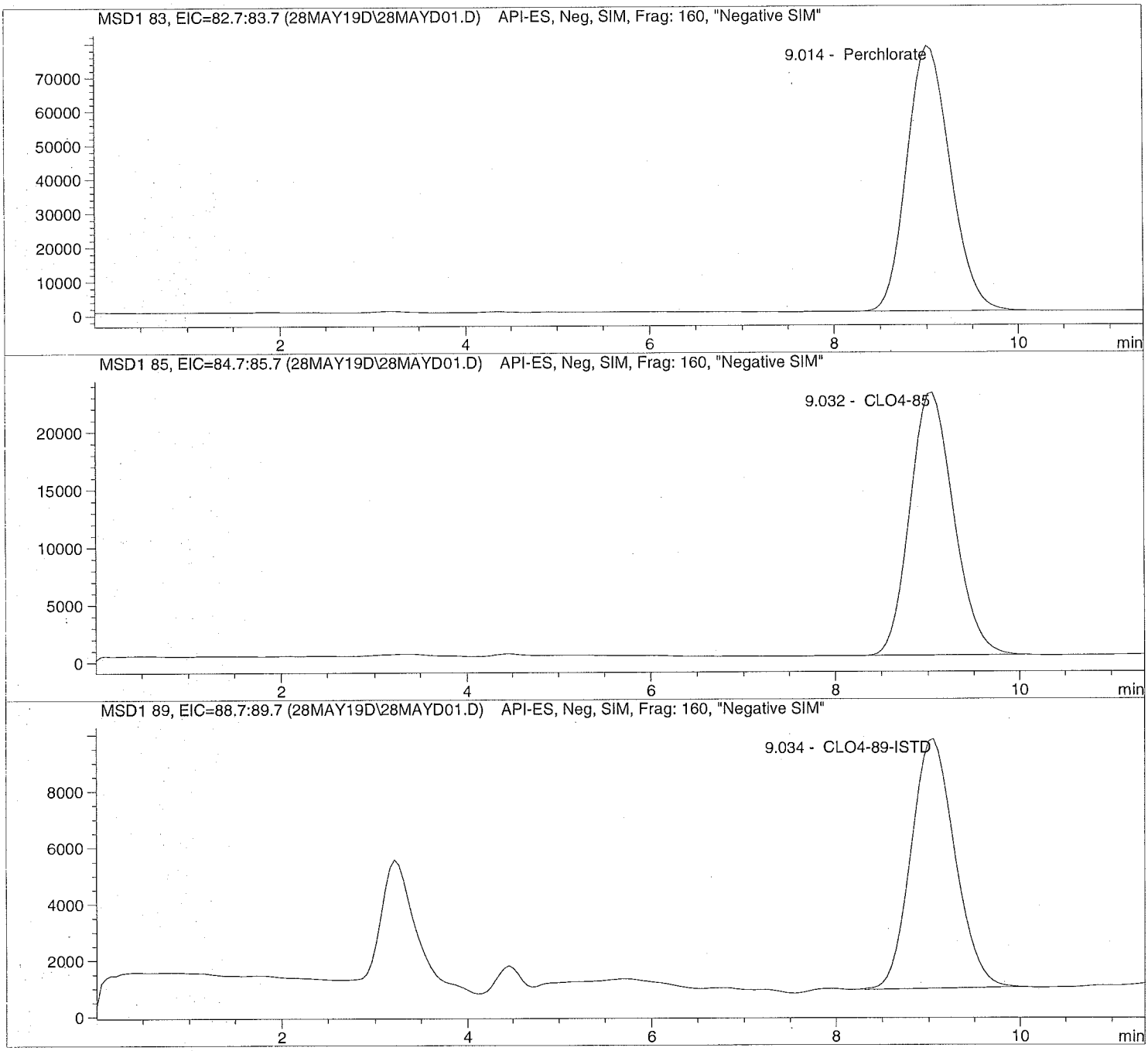
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	655026	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	655030	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	655028	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	655029	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1914602001		CLO4-AQN	1	Sample		
6	Vial 76	655031	146021S	CLO4-AQN	1	Sample		
7	Vial 77	655032	146021D	CLO4-AQN	1	Sample		
8	Vial 78	1914603001		CLO4-AQN	1	Sample		
9	Vial 79	1914603002		CLO4-AQN	1	Sample		
10	Vial 80	1914603003		CLO4-AQN	1	Sample		
11	Vial 81	1914603004	10K	CLO4-AQN	1	Sample		
12	Vial 82	1914603005	10K	CLO4-AQN	1	Sample		
13	Vial 83	1914871001		CLO4-AQN	1	Sample		
14	Vial 84	1915147001		CLO4-AQN	1	Sample		
15	Vial 85	1915147002		CLO4-AQN	1	Sample		
16	Vial 71	655033	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD01.D Sample Name: 655026 CCV@25

Injection Date:	5/28/2019 09:22:28	Seq Line:	1
Sample Name:	655026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD01.D Sample Name: 655026 CCV@25

Injection Date:	5/28/2019 09:22:28	Seq Line:	1
Sample Name:	655026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.014	PBA	2515348.3	26.3792	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.032	PBA	744700.3	26.3242	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.034	BBA	289154.0	5.0000	CLO4-89-ISTD

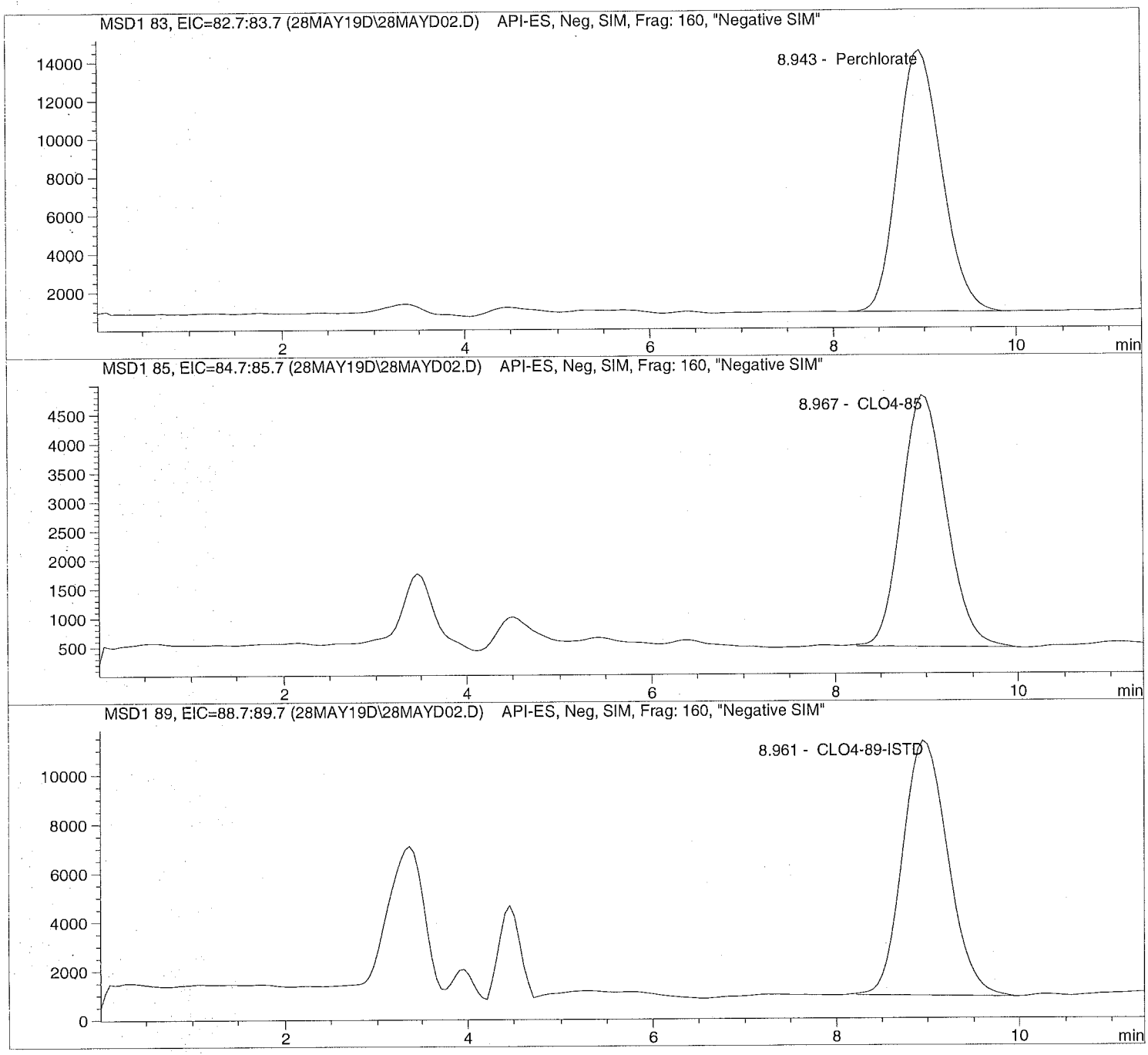
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD02.D Sample Name: 655030 QC@4.0

Injection Date:	5/28/2019 09:39:12	Seq Line:	2
Sample Name:	655030 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD02.D Sample Name: 655030 QC@4.0

Injection Date:	5/28/2019 09:39:12	Seq Line:	2
Sample Name:	655030 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.943	PBA	451078.5	4.1960	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.967	BBA	145201.9	4.3977	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.961	BBA	353402.8	5.0000	CLO4-89-ISTD

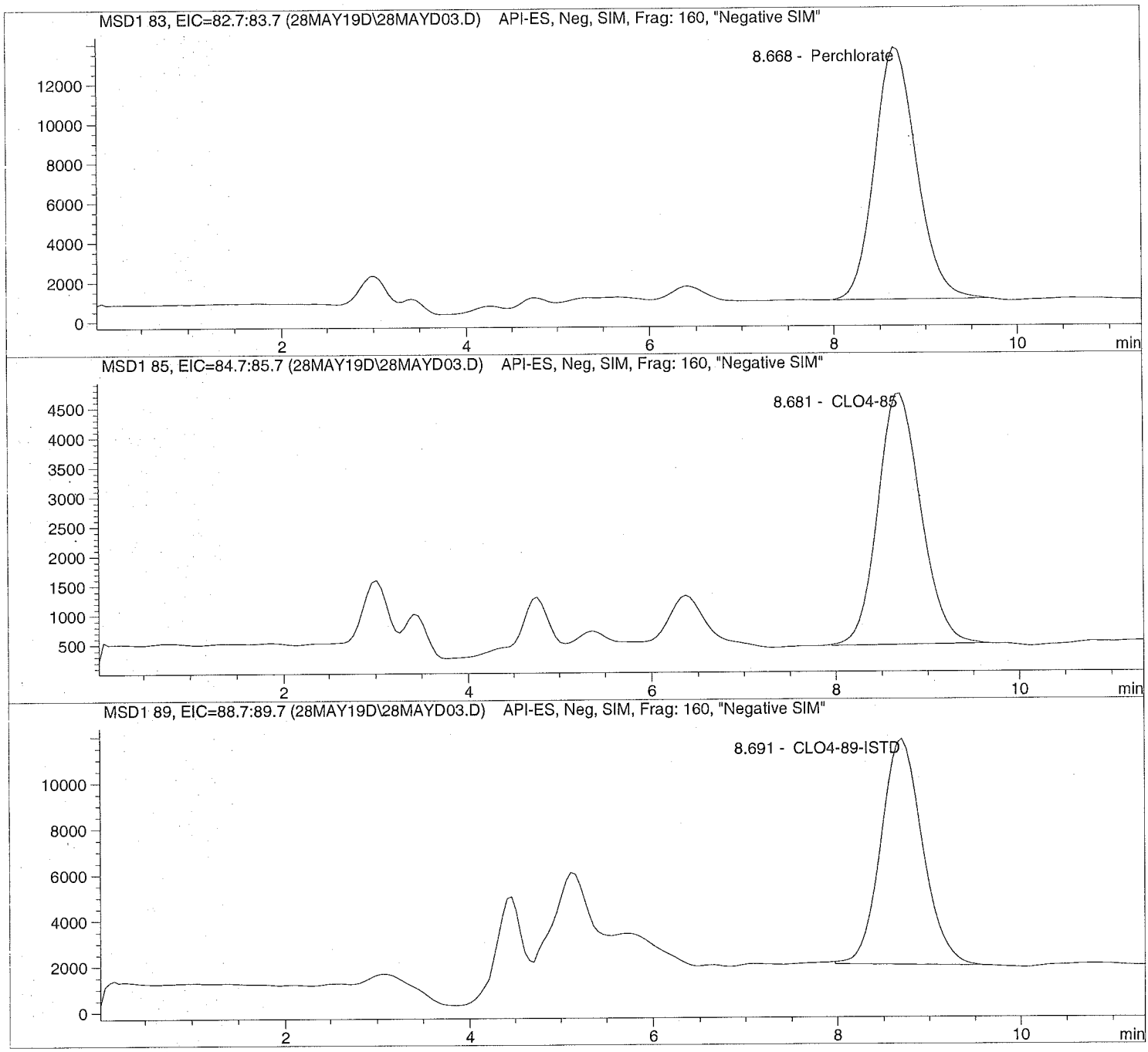
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD03.D Sample Name: 655028 ICS@4.0

Injection Date:	5/28/2019 09:54:31	Seq Line:	3
Sample Name:	655028 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD03.D Sample Name: 655028 ICS@4.0

Injection Date:	5/28/2019 09:54:31	Seq Line:	3
Sample Name:	655028 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.668	PBA	402631.1	4.2796	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.681	BBA	138337.3	4.7885	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.691	BBA	308984.7	5.0000	CLO4-89-ISTD

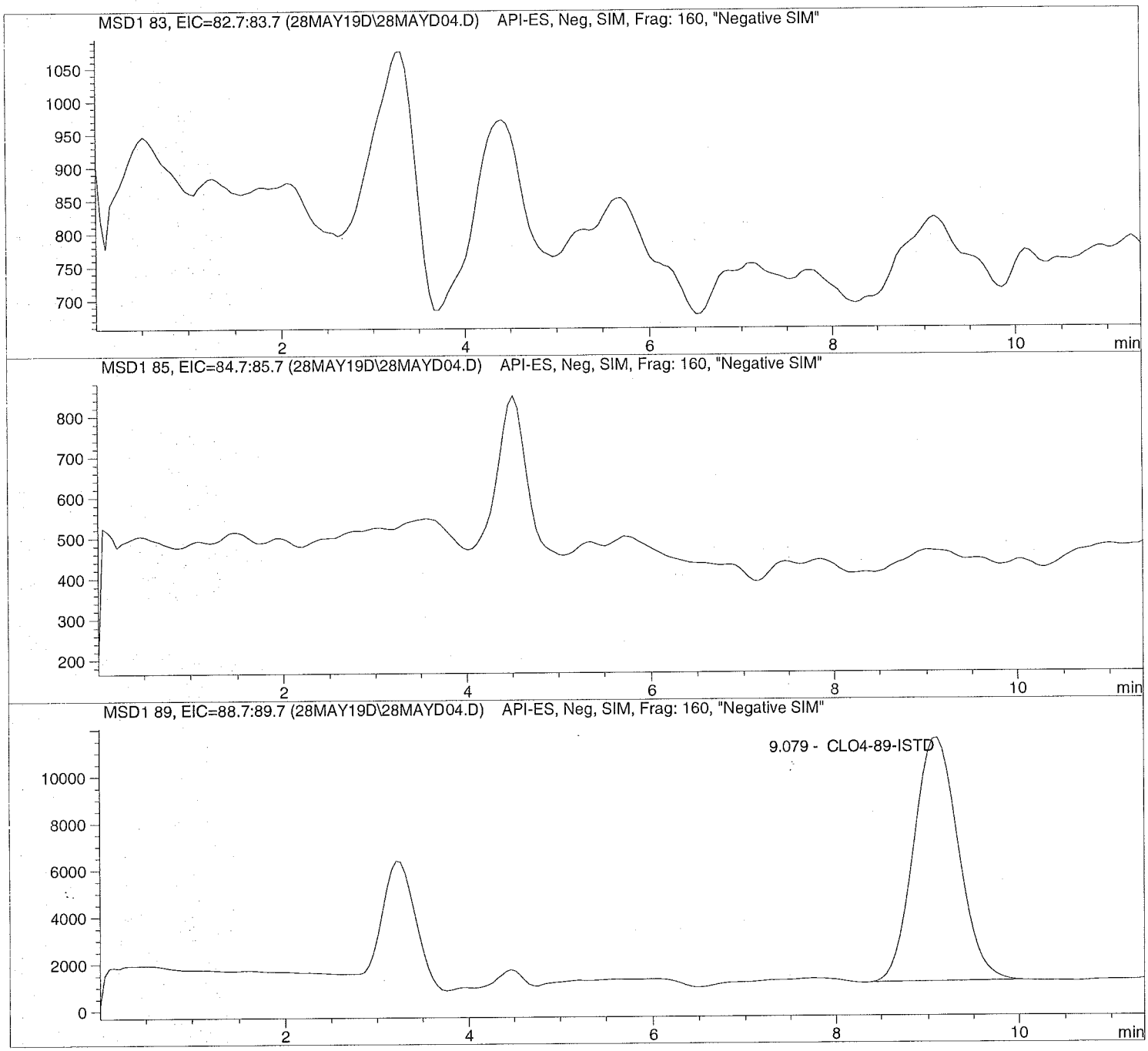
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD04.D Sample Name: 655029 LMB

Injection Date:	5/28/2019 10:08:00	Seq Line:	4
Sample Name:	655029 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD04.D Sample Name: 655029 LMB

Injection Date:	5/28/2019 10:08:00	Seq Line:	4
Sample Name:	655029 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.079	PBA	347474.2	5.0000	CLO4-89-ISTD

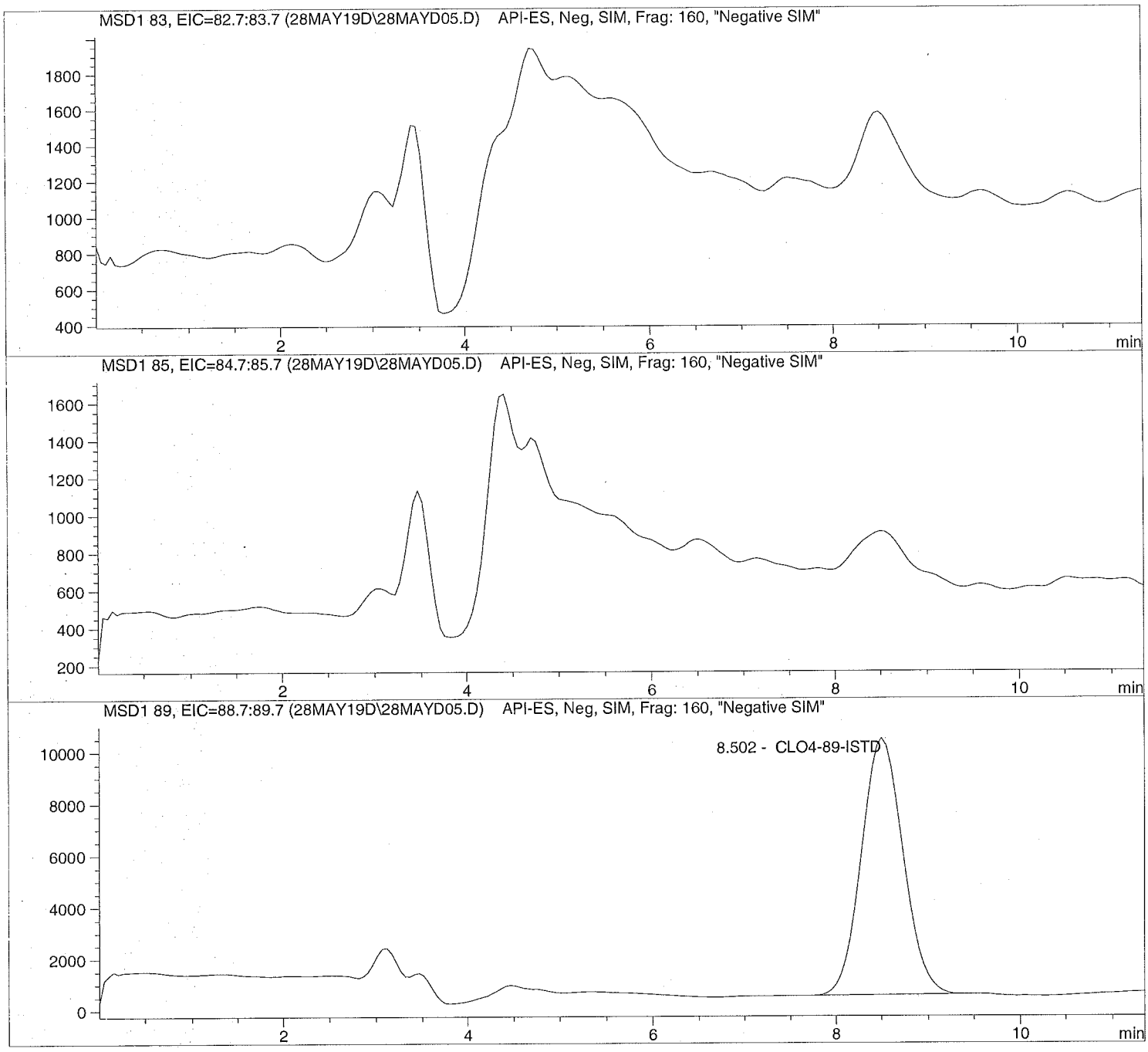
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD05.D Sample Name: 1914602001

Injection Date:	5/28/2019 10:21:23	Seq Line:	5
Sample Name:	1914602001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD05.D Sample Name: 1914602001

Injection Date:	5/28/2019 10:21:23	Seq Line:	5
Sample Name:	1914602001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	309553.4	5.0000	CLO4-89-ISTD

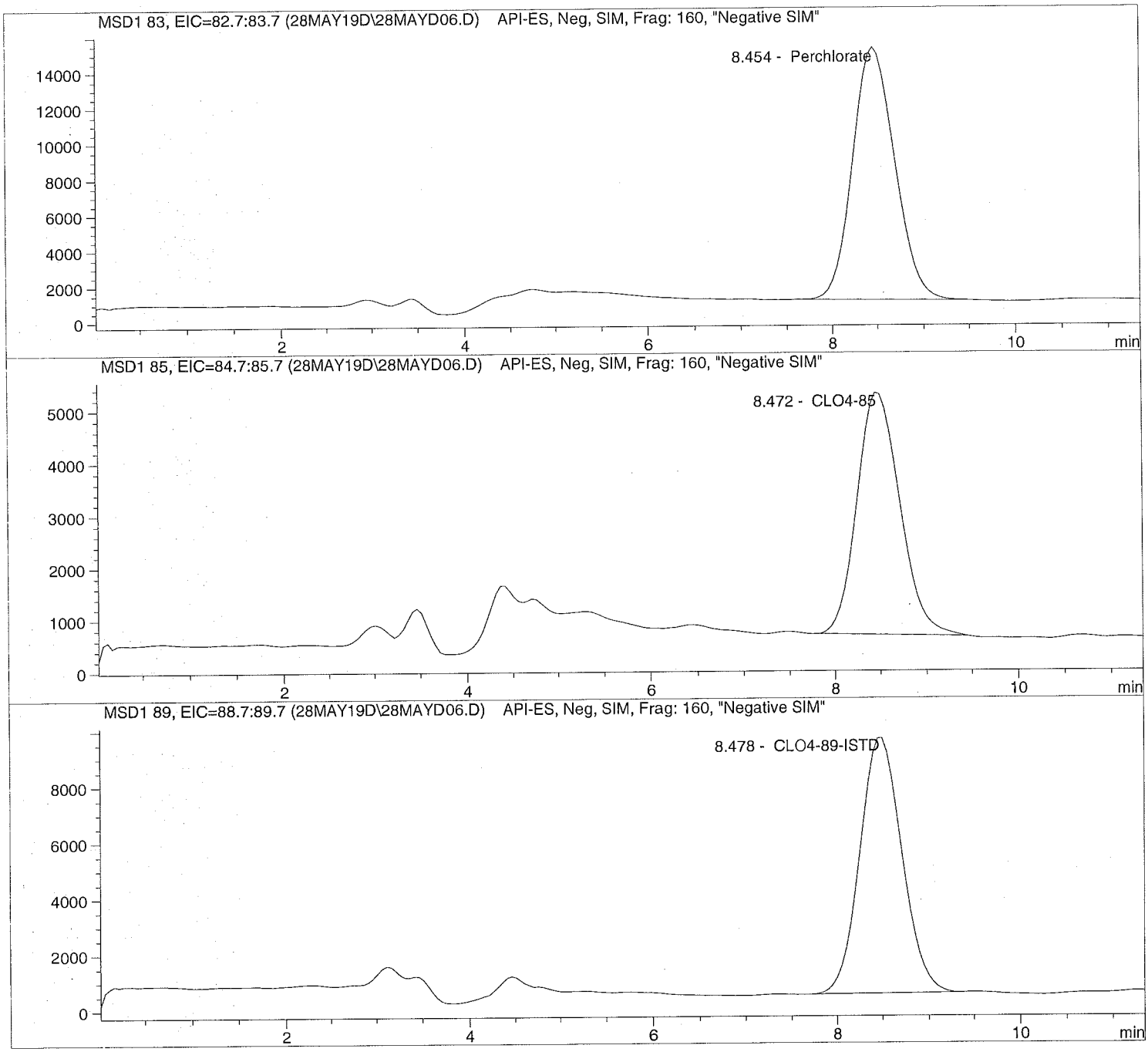
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD06.D Sample Name: 655031 146021S

Injection Date:	5/28/2019 10:34:49	Seq Line:	6
Sample Name:	655031 146021S	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD06.D Sample Name: 655031 146021S

Injection Date:	5/28/2019 10:34:49	Seq Line:	6
Sample Name:	655031 146021S	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.454	BBA	452005.2	5.0867	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	PBA	150468.2	5.5493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	289563.3	5.0000	CLO4-89-ISTD

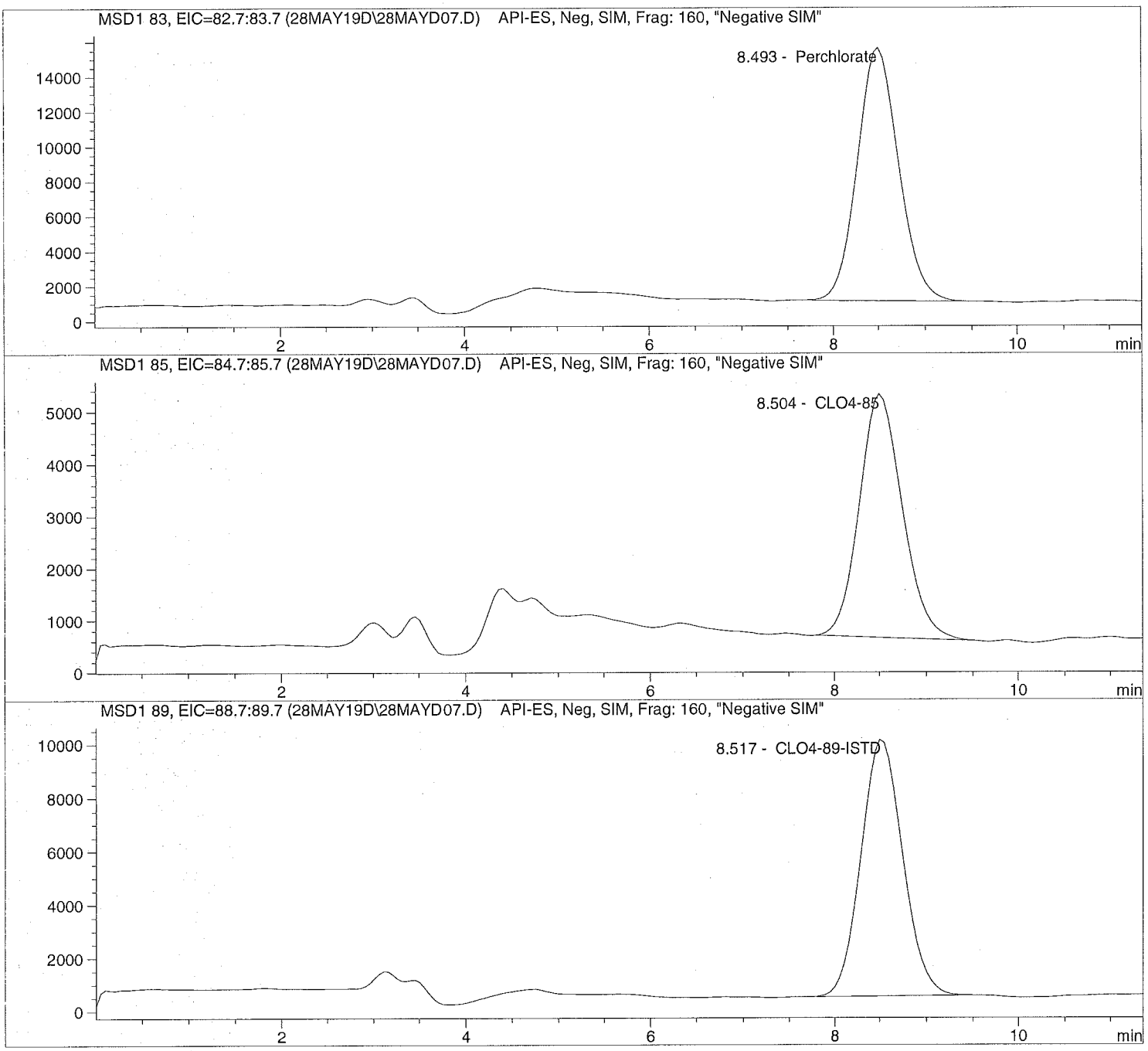
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD07.D Sample Name: 655032 146021D

Injection Date:	5/28/2019 10:48:16	Seq Line:	7
Sample Name:	655032 146021D	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD07.D Sample Name: 655032 146021D

Injection Date:	5/28/2019 10:48:16	Seq Line:	7
Sample Name:	655032 146021D	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.493	BBA	457024.3	4.8833	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.504	PBA	153322.9	5.3614	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	305513.7	5.0000	CLO4-89-ISTD

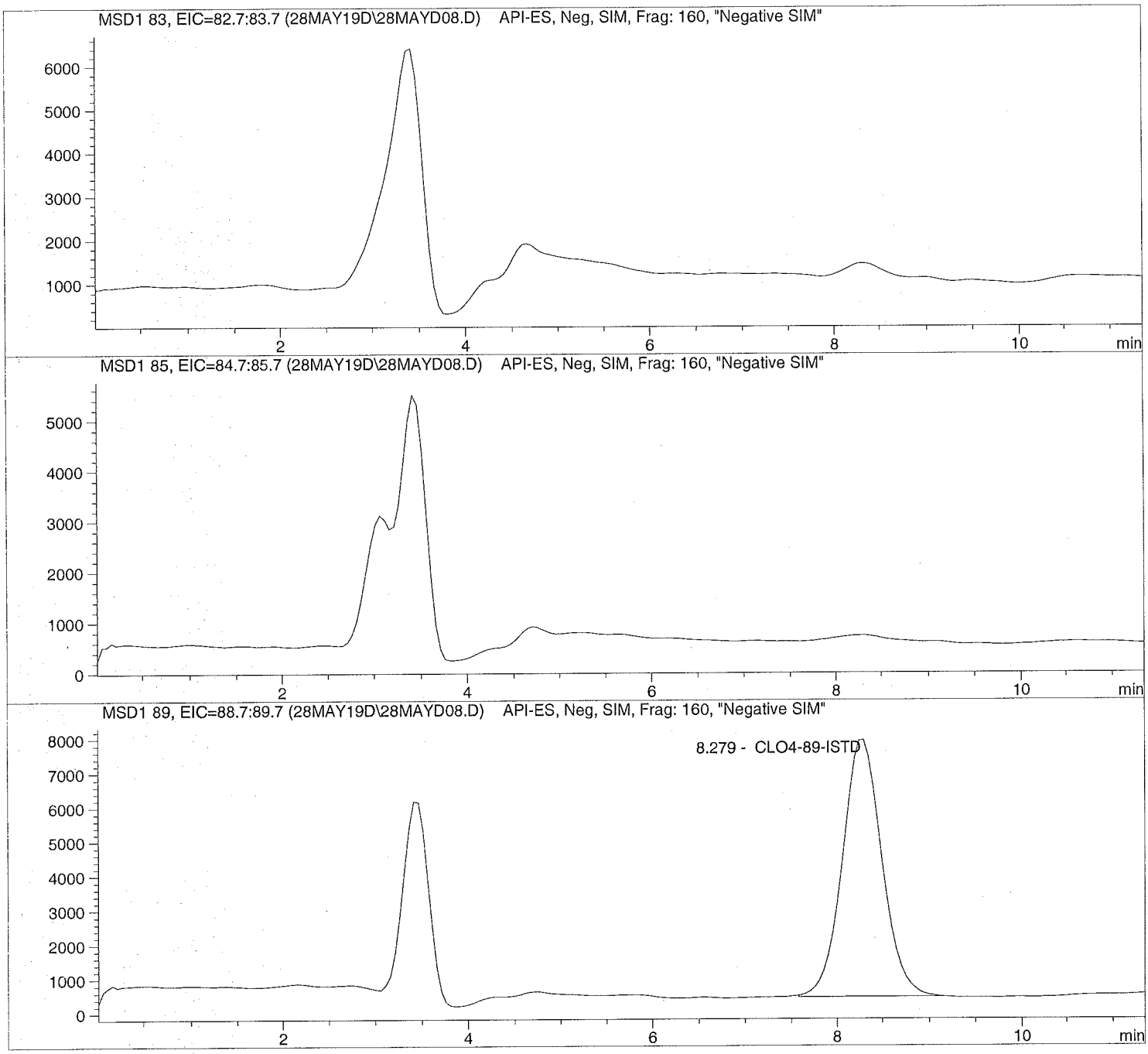
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD08.D Sample Name: 1914603001

Injection Date:	5/28/2019 11:01:42	Seq Line:	8
Sample Name:	1914603001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD08.D Sample Name: 1914603001

Injection Date:	5/28/2019 11:01:42	Seq Line:	8
Sample Name:	1914603001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.279	BBA	225288.9	5.0000	CLO4-89-ISTD

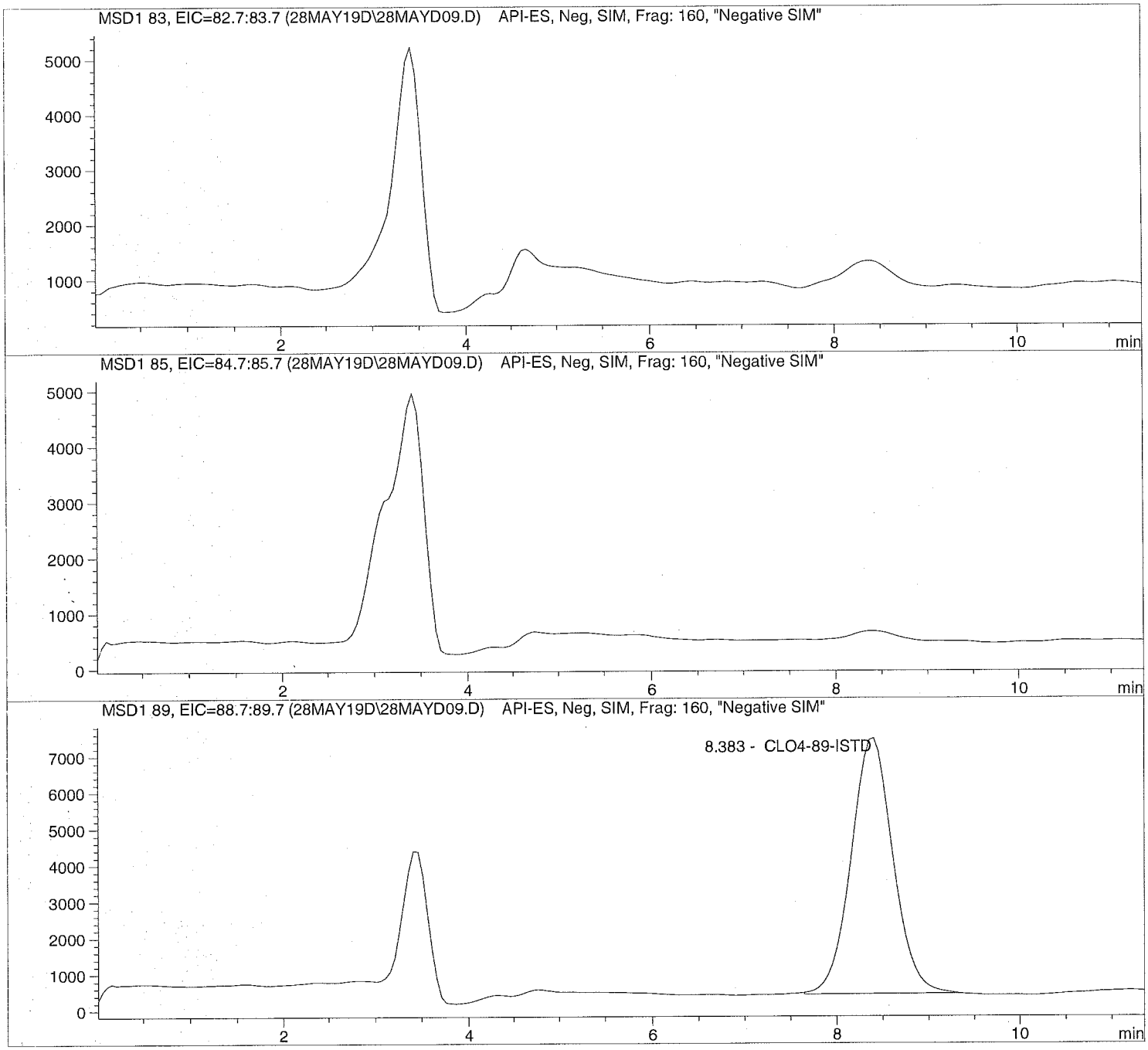
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD09.D Sample Name: 1914603002

Injection Date:	5/28/2019 11:15:07	Seq Line:	9
Sample Name:	1914603002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD09.D Sample Name: 1914603002

Injection Date:	5/28/2019 11:15:07	Seq Line:	9
Sample Name:	1914603002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.383	BBA	222696.7	5.0000	CLO4-89-ISTD

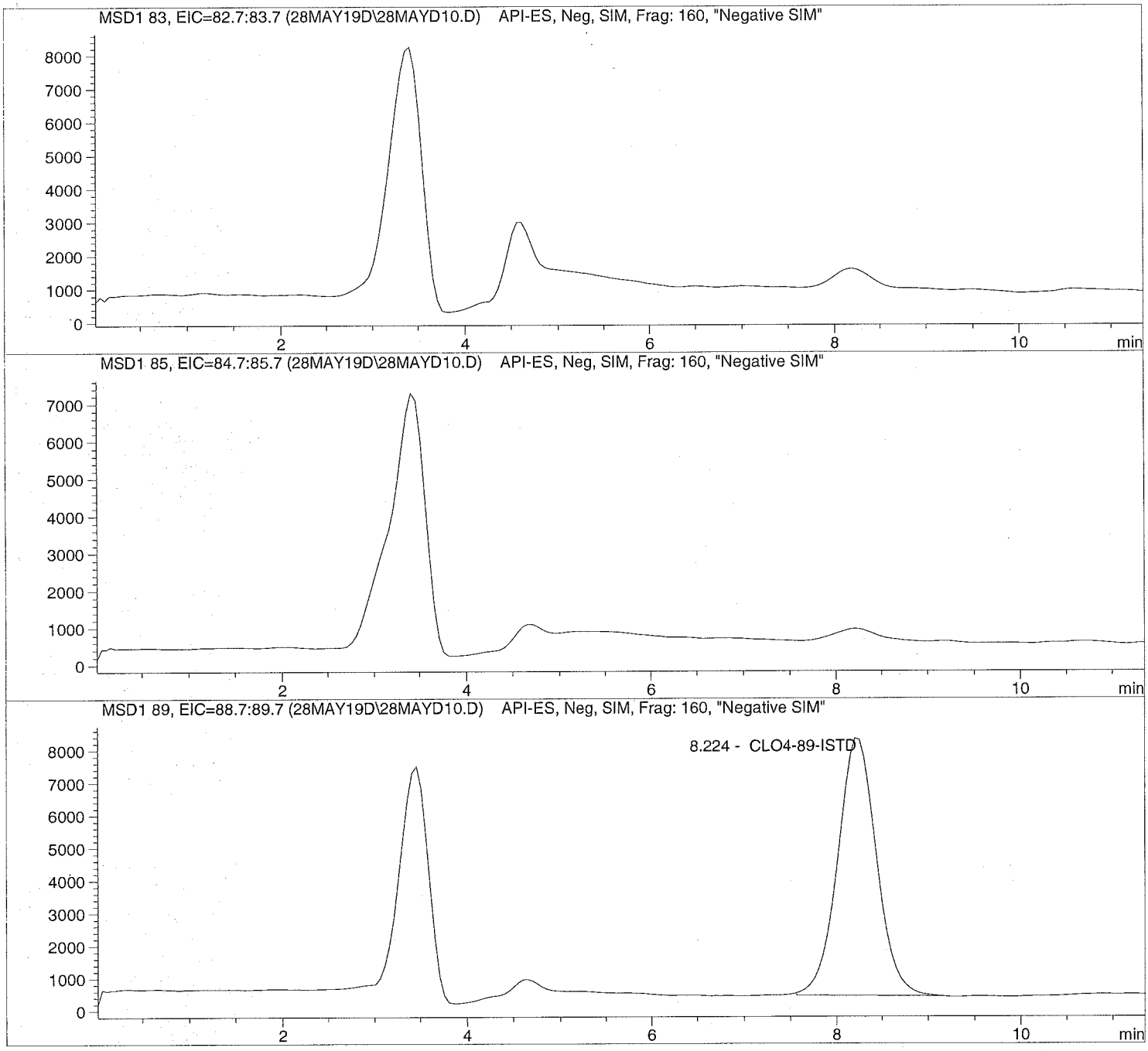
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD10.D Sample Name: 1914603003

Injection Date:	5/28/2019 11:28:30	Seq Line:	10
Sample Name:	1914603003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD10.D Sample Name: 1914603003

Injection Date:	5/28/2019 11:28:30	Seq Line:	10
Sample Name:	1914603003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.224	BBA	234372.9	5.0000	CLO4-89-ISTD

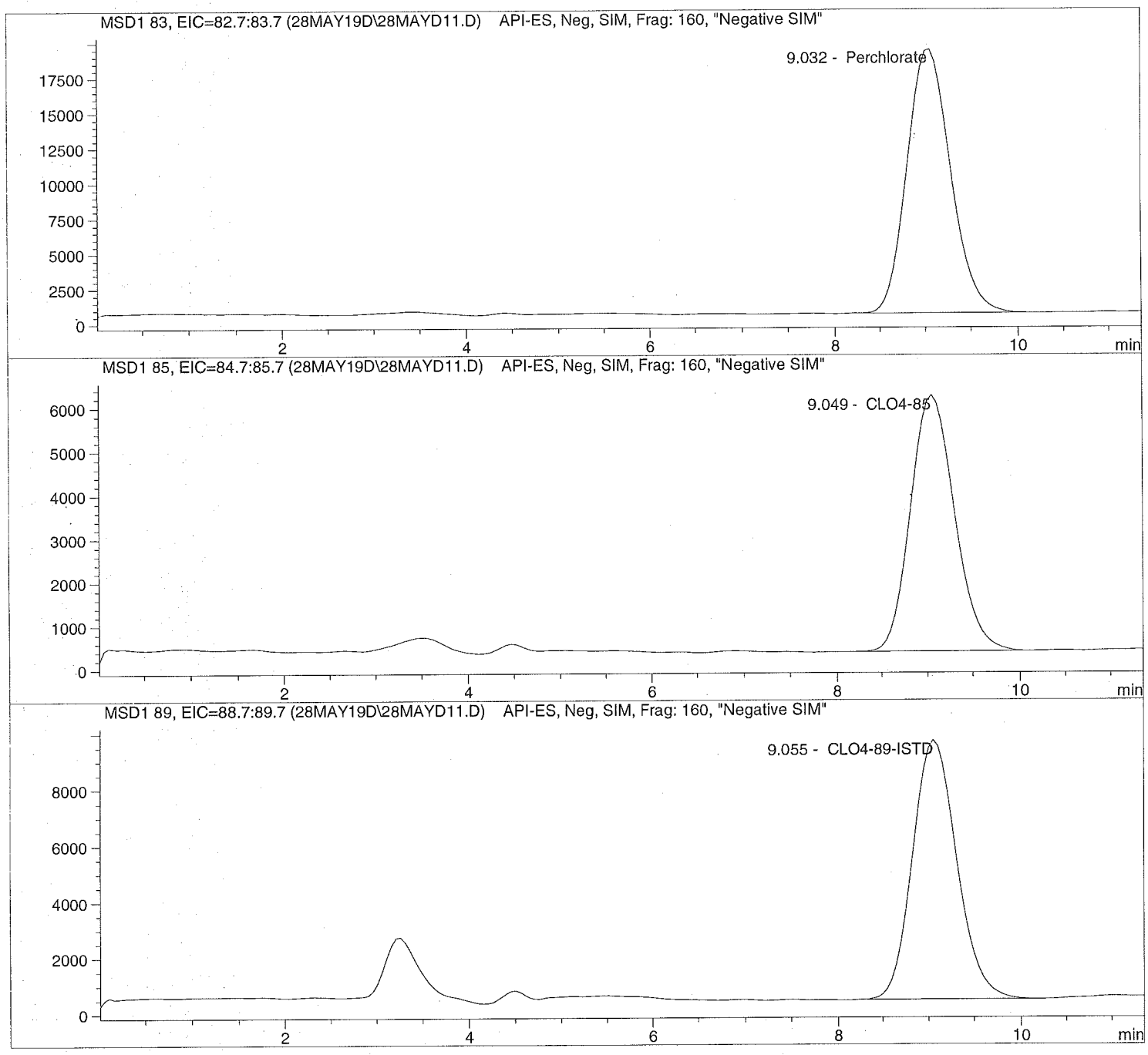
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD11.D Sample Name: 1914603004 10K

Injection Date:	5/28/2019 11:41:53	Seq Line:	11
Sample Name:	1914603004 10K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD11.D Sample Name: 1914603004 10K

Injection Date:	5/28/2019 11:41:53	Seq Line:	11
Sample Name:	1914603004 10K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.032	BBA	615140.4	64684.2479	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.049	BBA	194510.4	67529.1287	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.055	BBA	306844.5	50000.0000	CLO4-89-ISTD

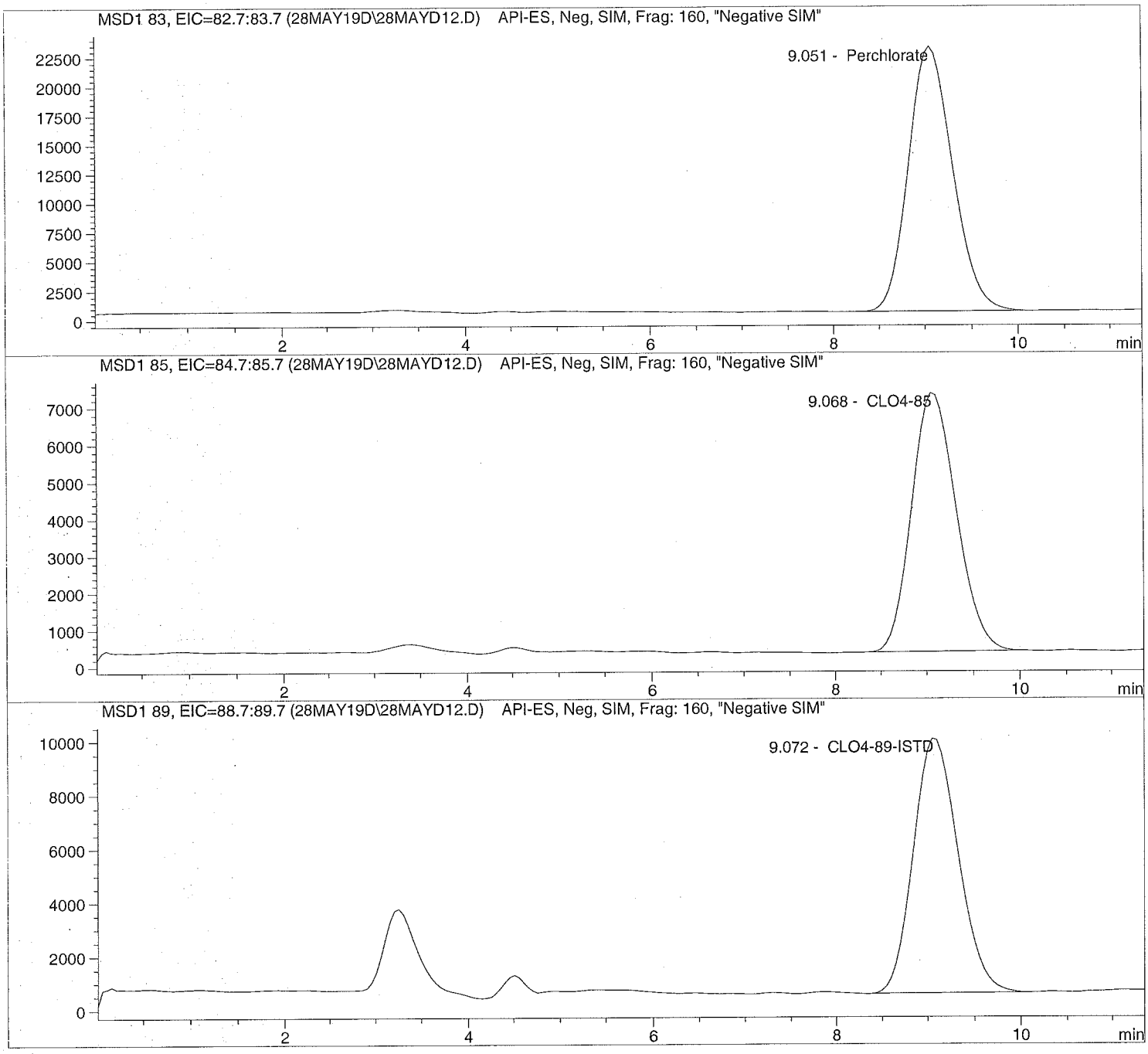
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD12.D Sample Name: 1914603005 10K

Injection Date:	5/28/2019 11:55:16	Seq Line:	12
Sample Name:	1914603005 10K	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD12.D Sample Name: 1914603005 10K

Injection Date:	5/28/2019 11:55:16	Seq Line:	12
Sample Name:	1914603005 10K	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.051	PBA	746250.2	75626.8976	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.068	BBA	232859.8	78210.3806	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.072	PBA	316467.9	50000.0000	CLO4-89-ISTD

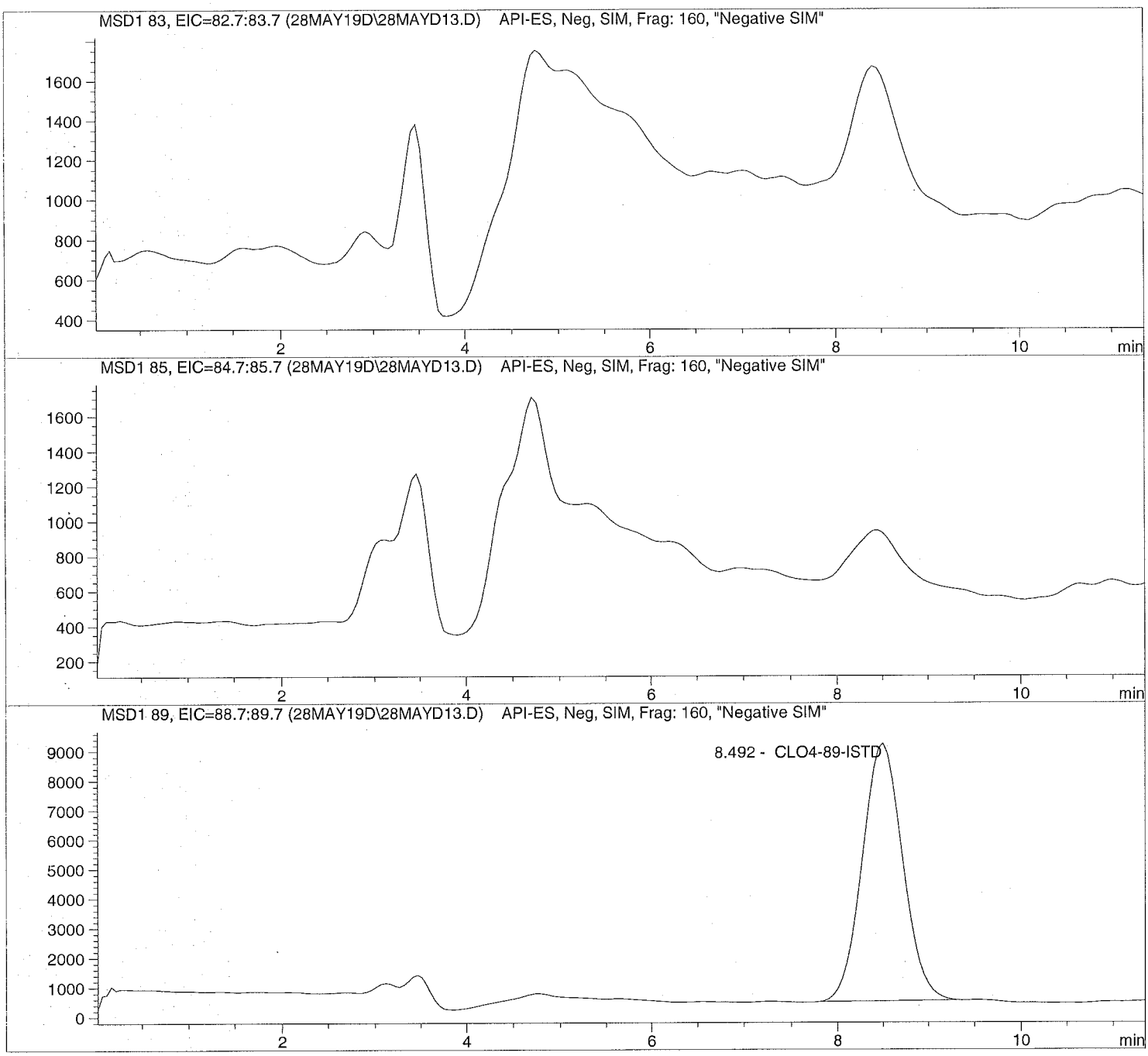
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD13.D Sample Name: 1914871001

Injection Date:	5/28/2019 12:08:42	Seq Line:	13
Sample Name:	1914871001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD13.D Sample Name: 1914871001

Injection Date:	5/28/2019 12:08:42	Seq Line:	13
Sample Name:	1914871001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.492	PBA	266978.1	5.0000	CLO4-89-ISTD

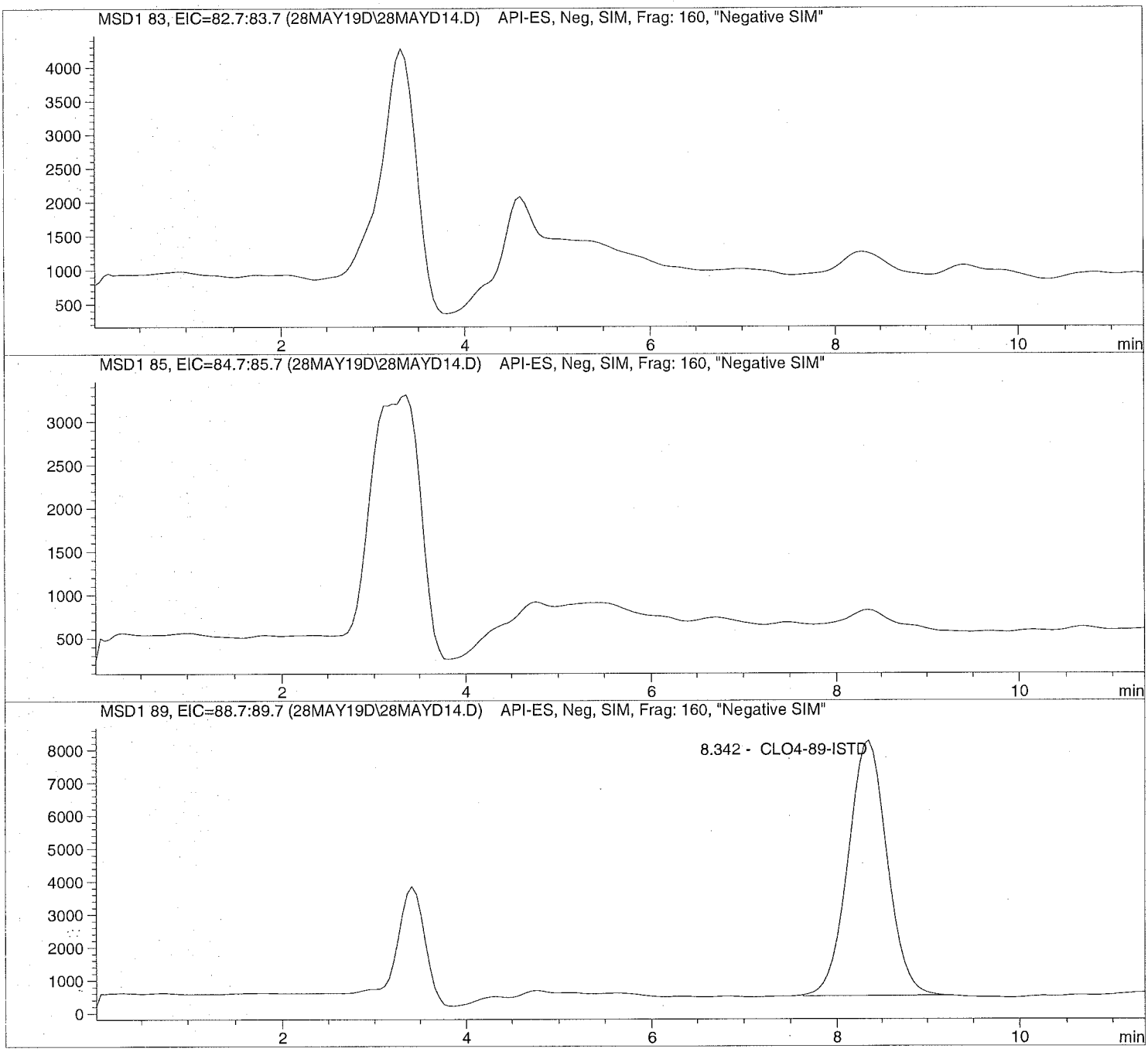
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD14.D Sample Name: 1915147001

Injection Date:	5/28/2019 12:22:08	Seq Line:	14
Sample Name:	1915147001	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD14.D Sample Name: 1915147001

Injection Date:	5/28/2019 12:22:08	Seq Line:	14
Sample Name:	1915147001	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	BBA	234476.0	5.0000	CLO4-89-ISTD

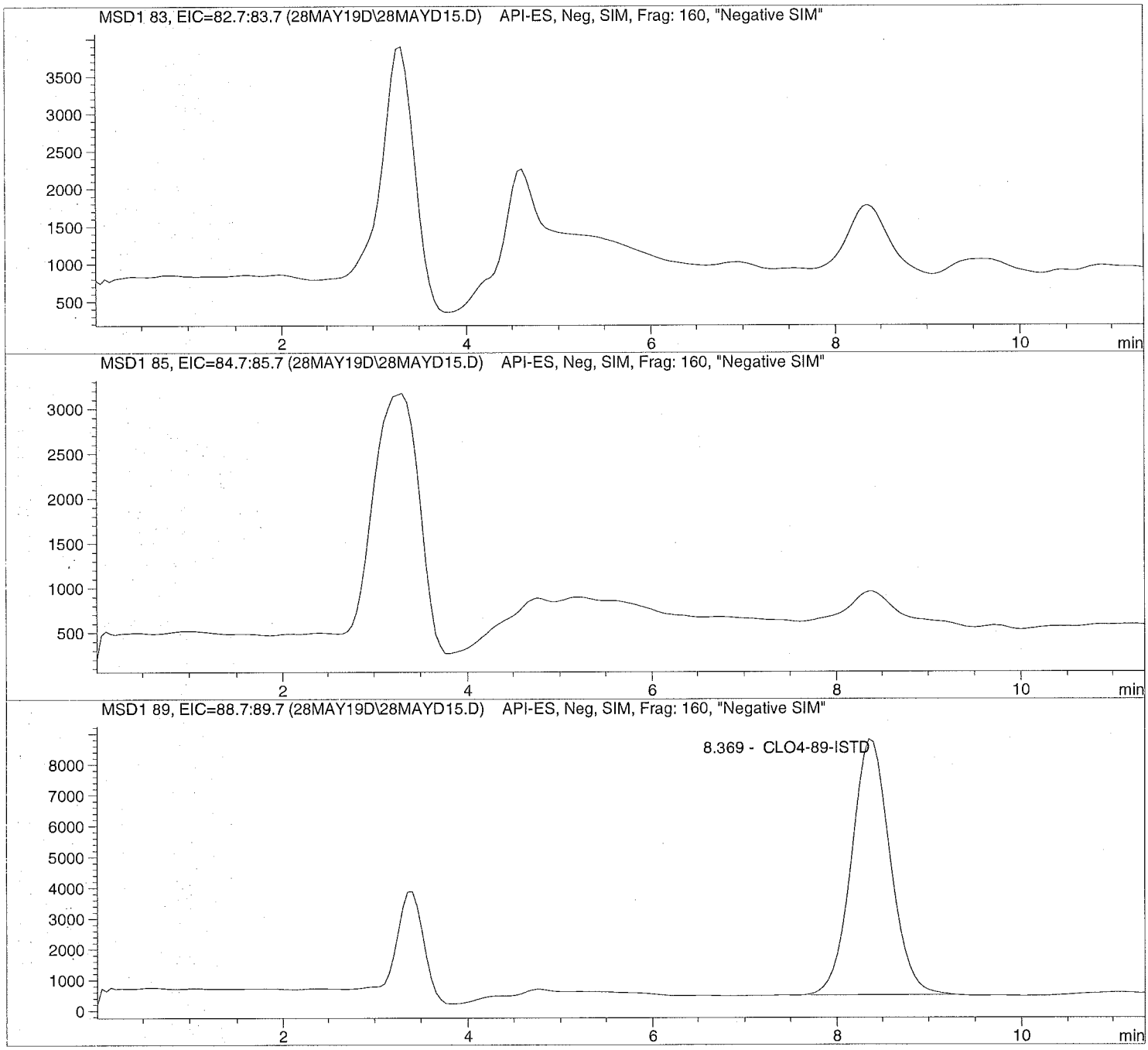
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD15.D Sample Name: 1915147002

Injection Date:	5/28/2019 12:35:29	Seq Line:	15
Sample Name:	1915147002	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD15.D Sample Name: 1915147002

Injection Date:	5/28/2019 12:35:29	Seq Line:	15
Sample Name:	1915147002	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.369	BBA	247415.5	5.0000	CLO4-89-ISTD

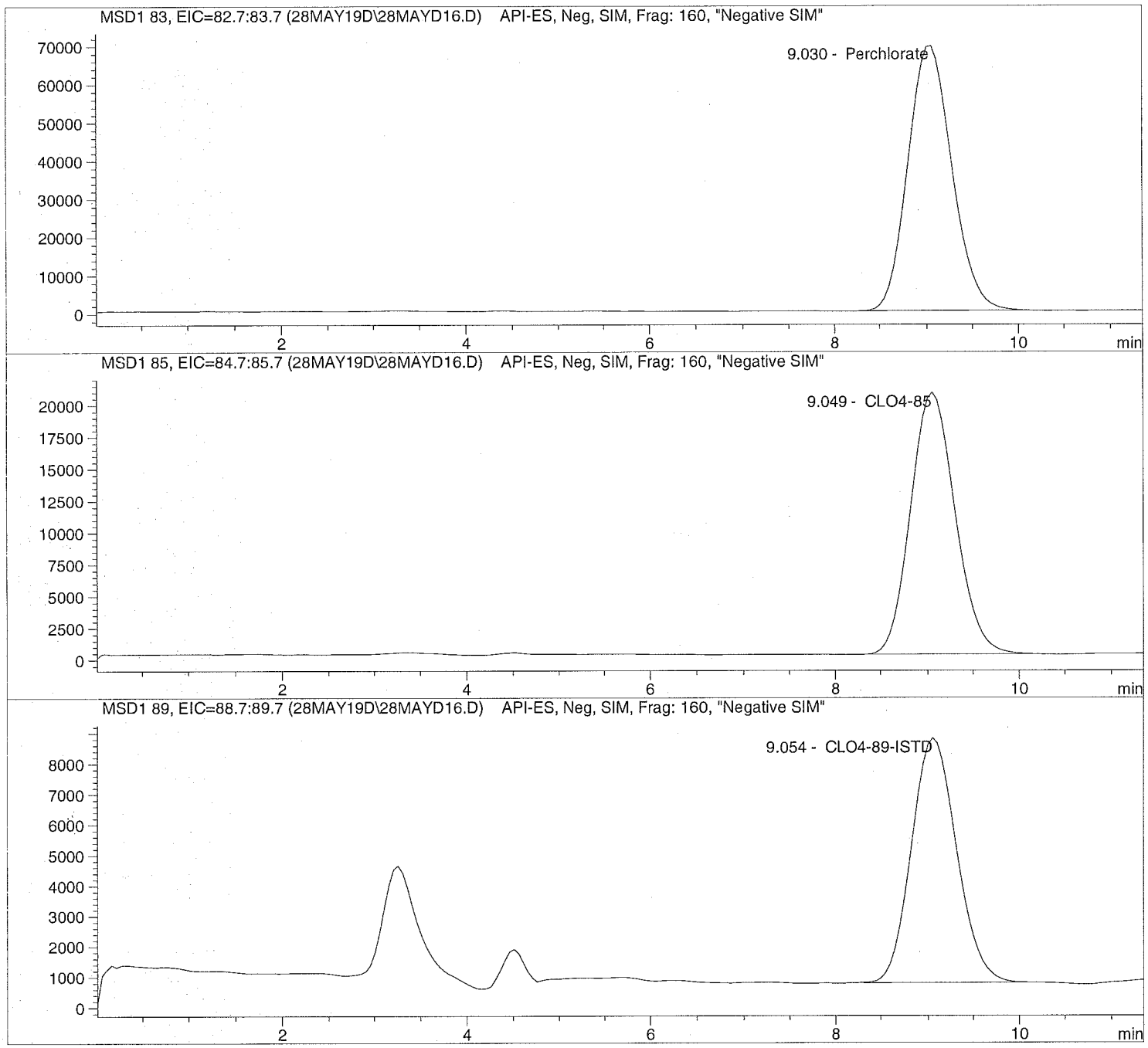
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD16.D Sample Name: 655033 CCV@25

Injection Date:	5/28/2019 13:28:26	Seq Line:	16
Sample Name:	655033 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD16.D Sample Name: 655033 CCV@25

Injection Date:	5/28/2019 13:28:26	Seq Line:	16
Sample Name:	655033 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Fri, 12. Apr. 2019,07:52:58 am
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.030	PBA	2263822.8	25.4454	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.049	PBA	682139.4	25.8138	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.054	BBA	270387.5	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

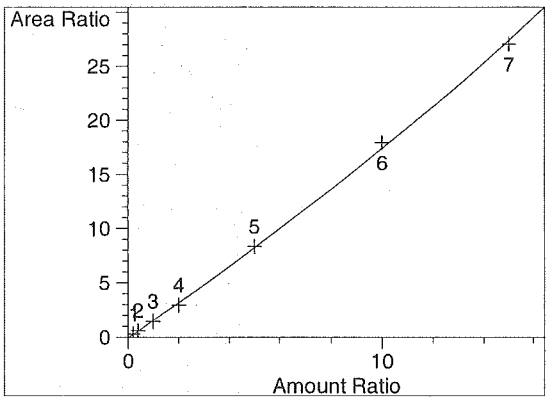
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

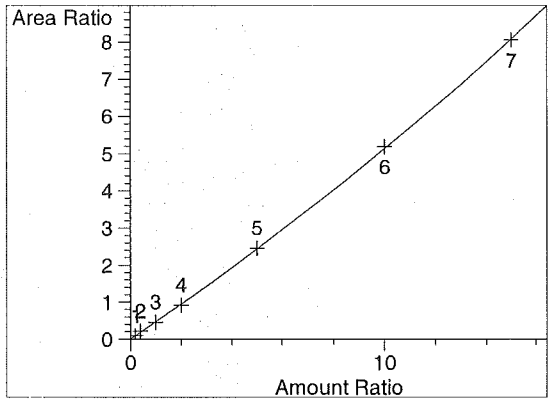
Peak Sum Table

No Entries in table

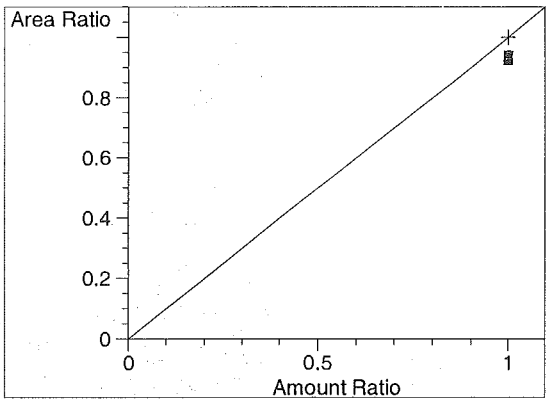
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Report: C:\HPCHEM\1\DATA\19MAR19I\19MAR19D.B

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

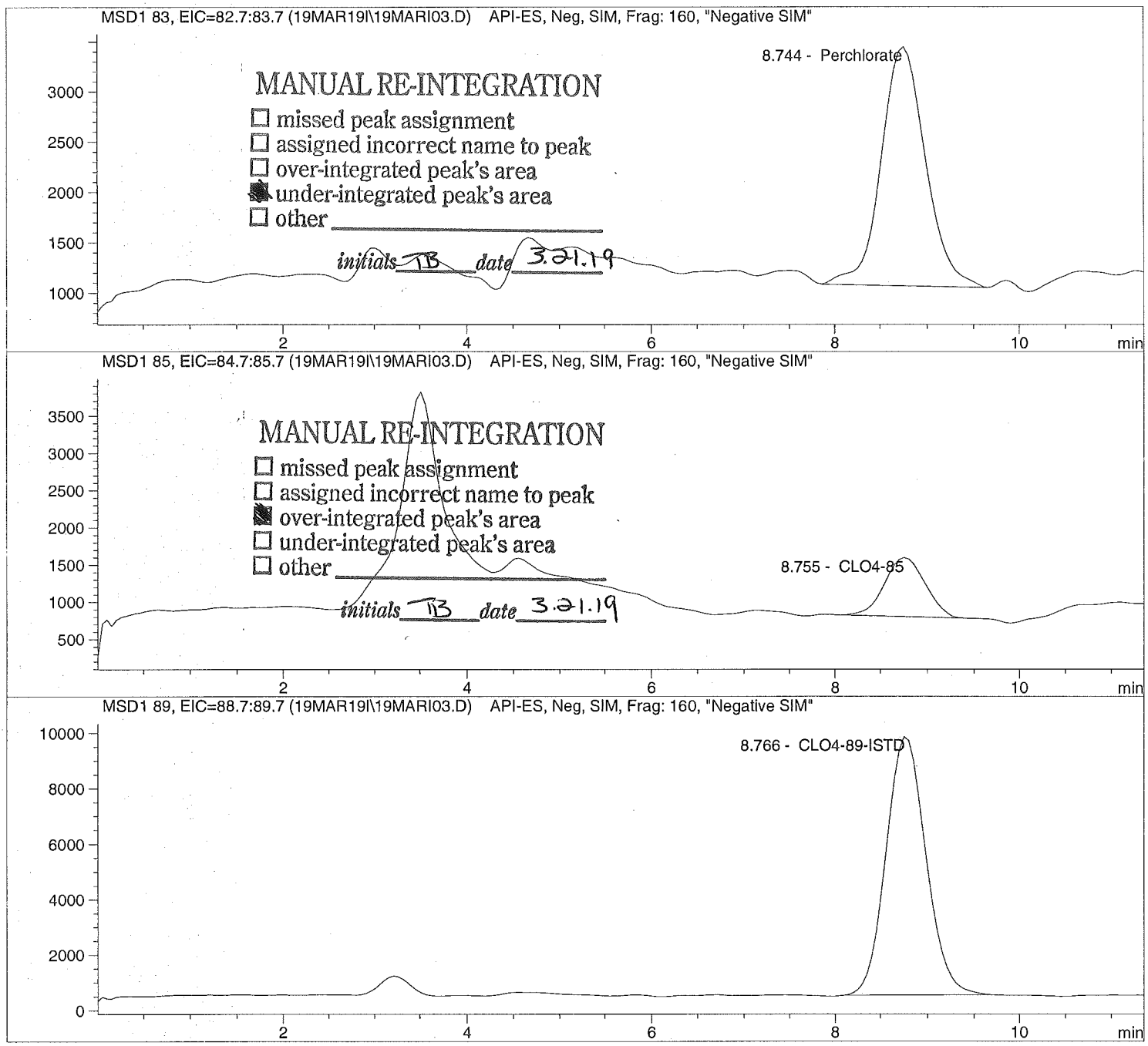
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

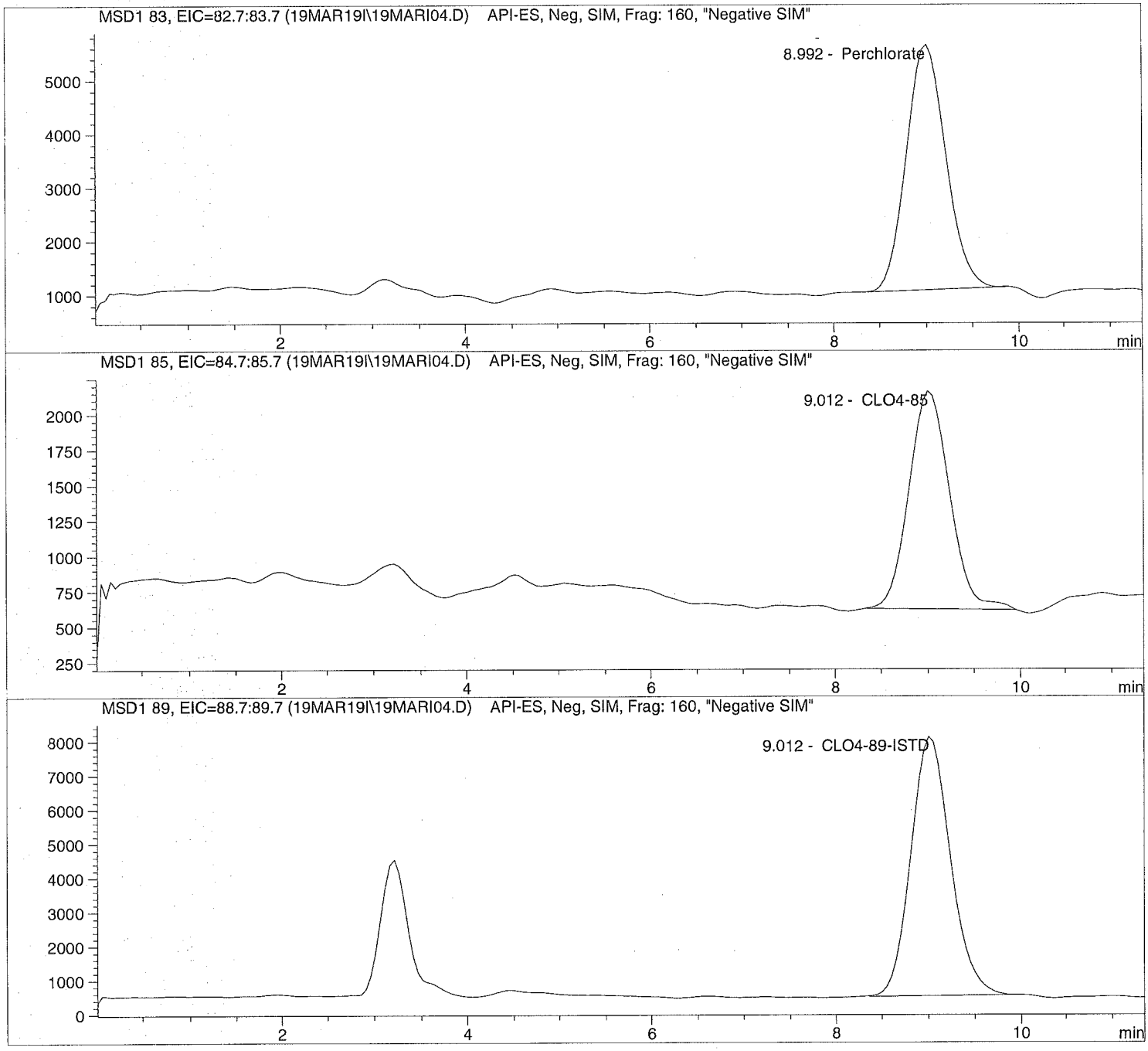
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

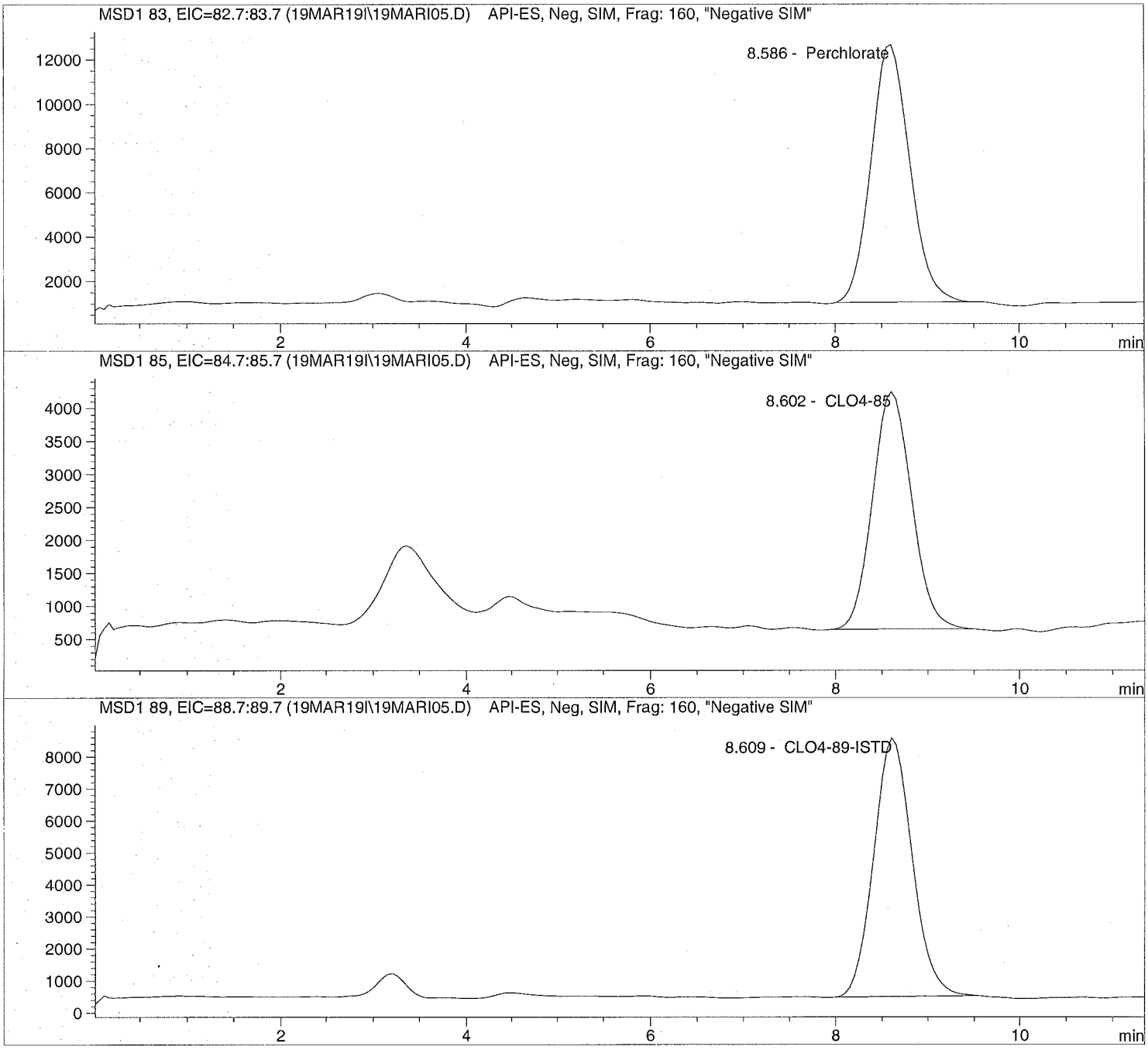
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

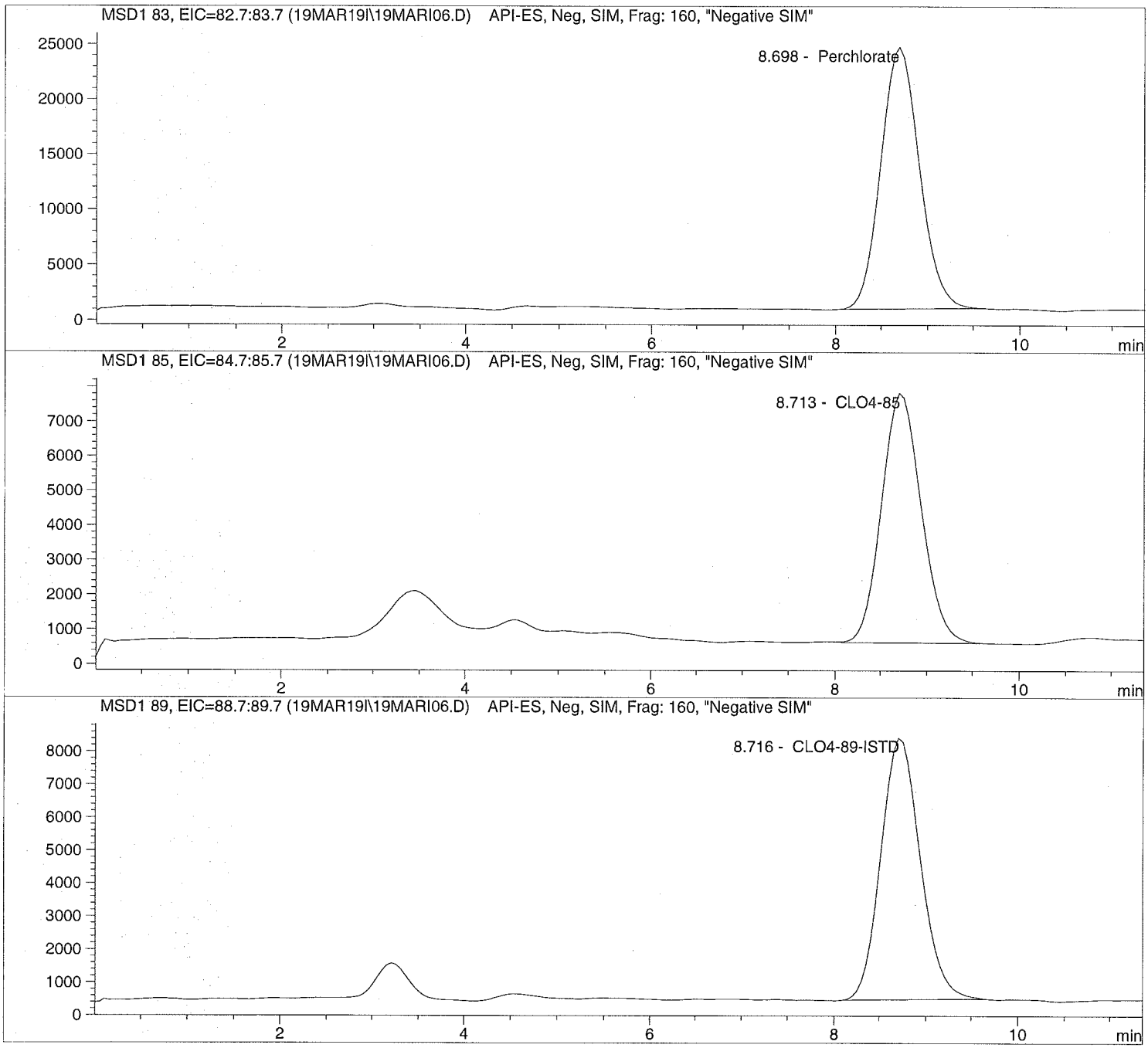
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

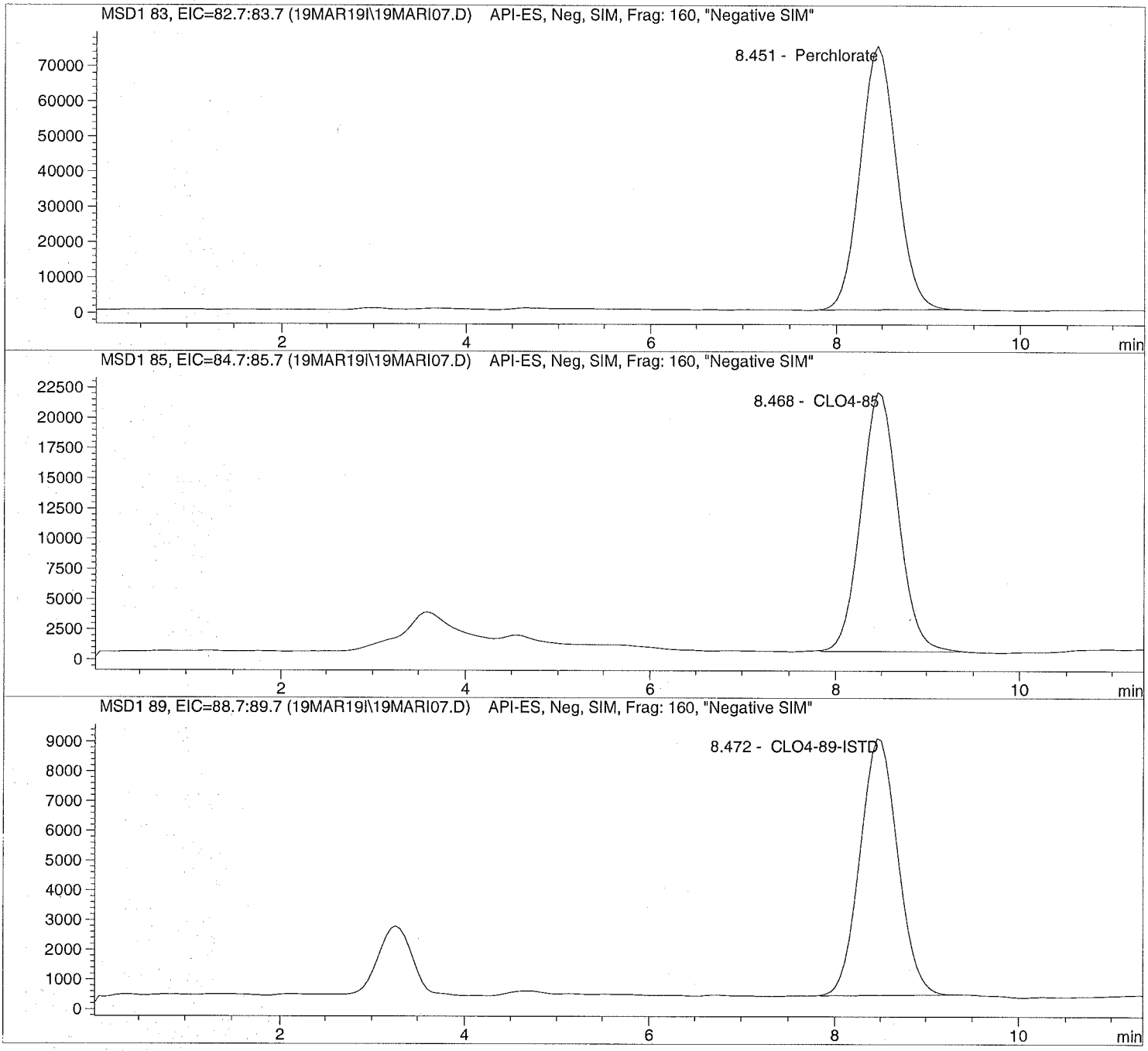
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

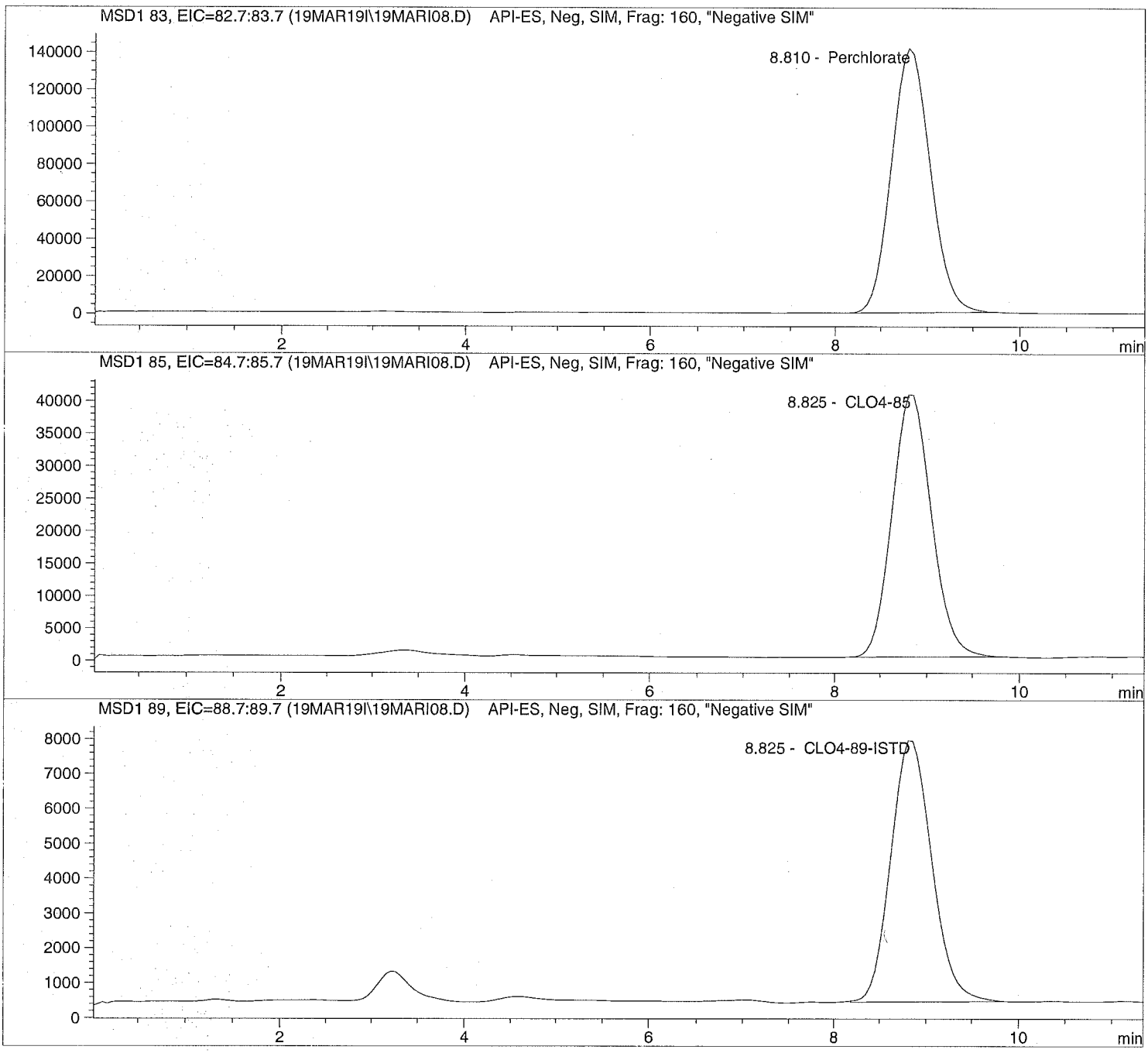
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

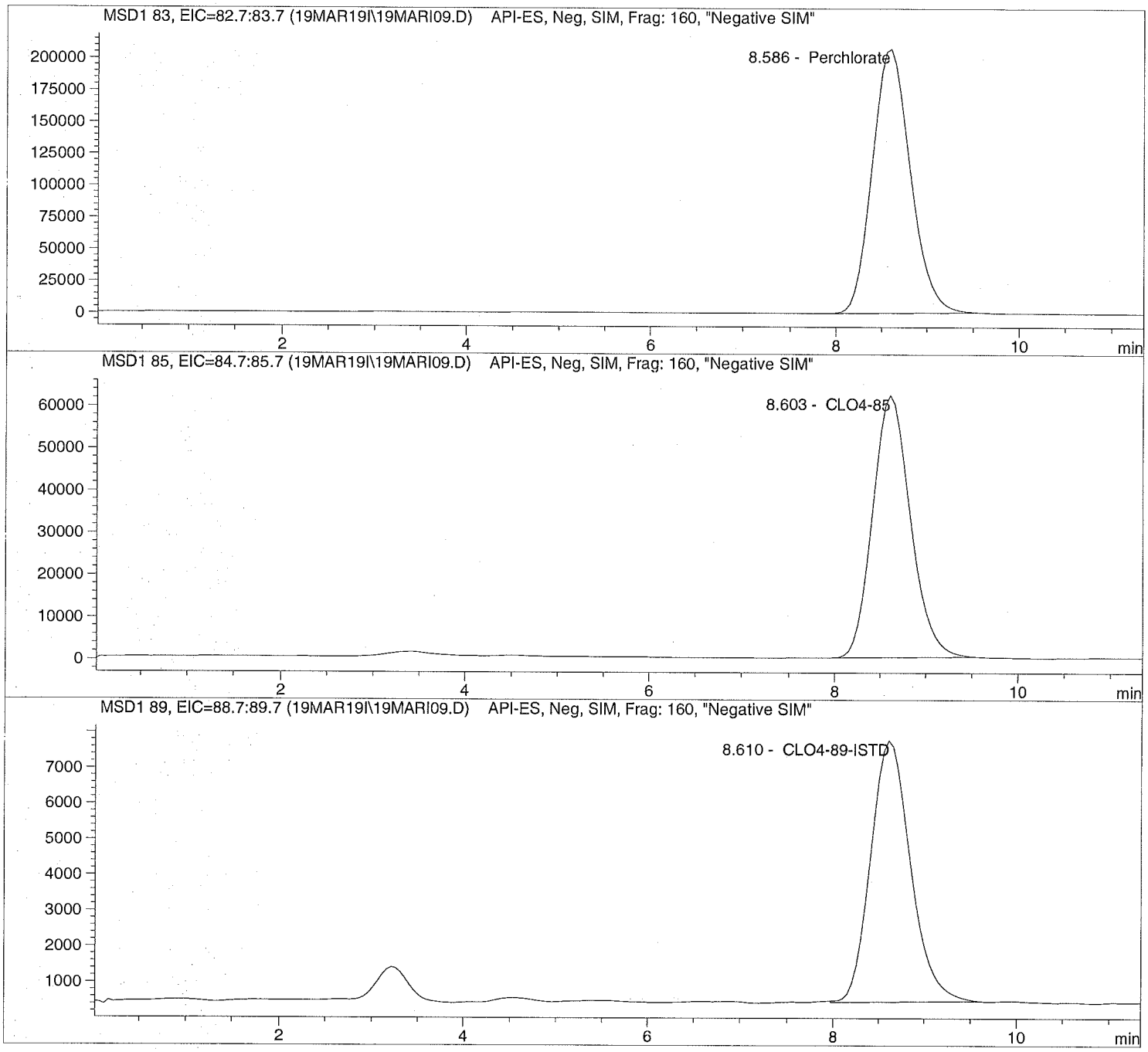
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

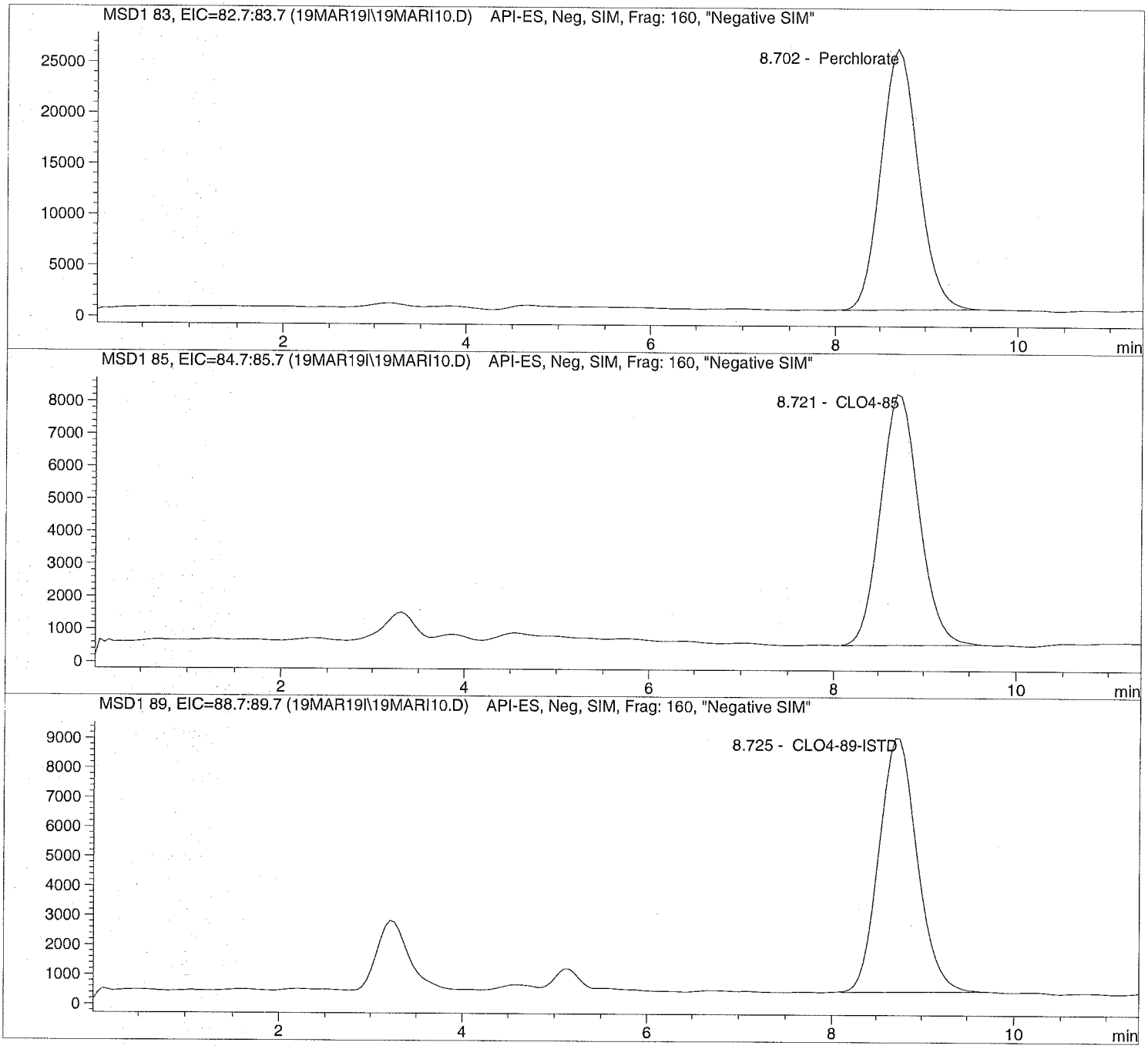
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

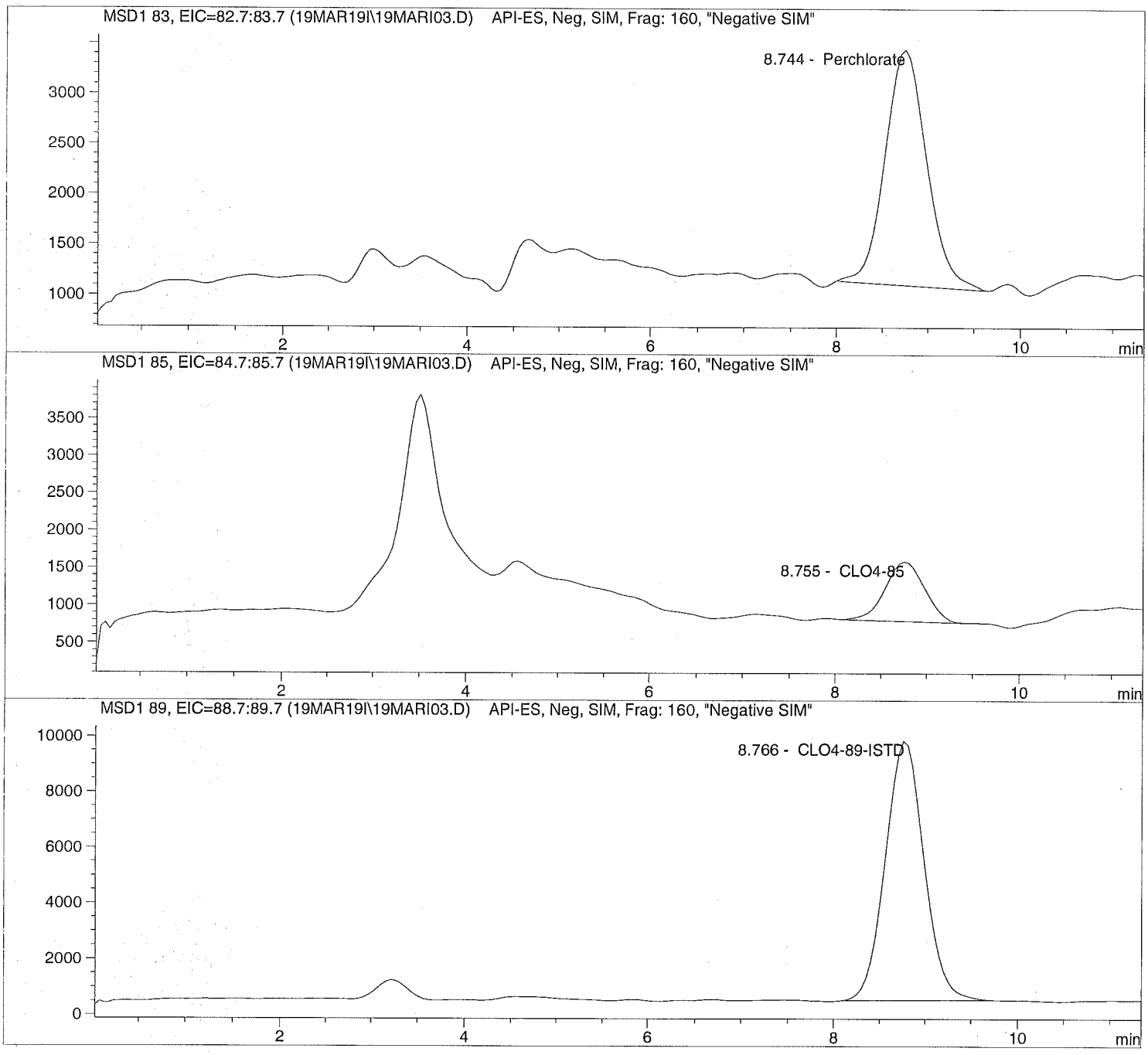
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

June 3, 2019

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

RE: HS19051031

Dear RJ:

Enclosed are the results of the samples submitted to our laboratory on May 18, 2019. For your reference, these analyses have been assigned our service request number P1902859.

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 9:51, June 03, 2019

Hayden Akers
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: ALS Laboratory Group
Project: HS19051031

Service Request No: P1902859

CASE NARRATIVE

The samples were received intact under chain of custody on May 18, 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.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

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	T104704413-18-9
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272018-9
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: HS19051031

Service Request: P1902859

Date Received: 5/18/2019
Time Received: 09:07

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	RSK 175 - CO2	RSK 175 - Gases
50WW12-190516	P1902859-001	Water	5/16/2019	11:30	X	X
50WW12-190516-FD	P1902859-002	Water	5/16/2019	11:30	X	X

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

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11334**

SUBCONTRACT TO:

ALS Environmental
2655 Park Center Drive, Suite A
Simi Valley, CA 93065

Phone: +1 805 526 7161

CUSTOMER INFORMATION:

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

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19051031
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19051031-04**	**50WW12-190516**	**Groundwater**	**16 May 2019 11:30**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			03 Jun 2019
2.	**HS19051031-05**	**50WW12-190516-FD**	**Groundwater**	**16 May 2019 11:30**
	MEE + CO2. DOD IV. Equis EDD. EQuIS 5.0 - Longhorn			03 Jun 2019

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

QC Level: DOD IV (DoD Data Package)

Relinquished By: J. MANAWI Date/Time: 5/17/19 18:00

Received By: VIA FEDEX Date/Time: 5/18/19 0907

Cooler ID(s): Temperature(s): TEMP BLANK 0°C

ALS Environmental
Sample Acceptance Check Form

Client: ALS Laboratory Group Work order: P1902859

Project: HS19051031

Sample(s) received on: 5/18/19 Date opened: 5/18/19 by: SANDERSON

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

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Did **sample containers** arrive in good condition?	☒	☐	☐
3	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
4	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
5	Was **sample volume** received adequate for analysis?	☒	☐	☐
6	Are samples within specified holding times?	☒	☐	☐
7	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature: ° C Blank Temperature: 0° C Thermometer ID T-111 Wet Ice			
8	Were **custody seals** on outside of cooler/Box/Container?	☒	☐	☐
	Location of seal(s)? Sealing lid of cooler 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
P1902859-001.01	40mL VOA NP		7		A	wh 5/24/19
P1902859-001.02	40mL VOA NP				A	
P1902859-001.03	40mL VOA NP				A	
P1902859-001.04	40ml VOA HCL		1		A	wh 5/22/19
P1902859-001.05	40ml VOA HCL				A	
P1902859-001.06	40ml VOA HCL				A	
P1902859-002.01	40mL VOA NP		7		A	wh 5/24/19
P1902859-002.02	40mL VOA NP				A	
P1902859-002.03	40mL VOA NP				A	
P1902859-002.04	40ml VOA HCL		1		A	wh 5/22/19
P1902859-002.05	40ml VOA HCL				A	
P1902859-002.06	40ml VOA HCL				A	

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

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Project ID: **HS19051031** ALS Project ID: P1902859

Carbon Dioxide

Test Code: RSK 175
Instrument ID: HP5890A/GC10/TCD
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date(s) Collected: 5/16/19
Date Received: 5/18/19
Date Analyzed: 5/24/19

Client Sample ID	ALS Sample ID	Injection Volume ml(s)	Result µg/L	LOQ µg/L	LOD µg/L	MDL µg/L	Data Qualifier
50WW12-190516	P1902859-001	0.050	**490,000**	2,000	1,700	740	
50WW12-190516-FD	P1902859-002	0.050	**580,000**	2,000	1,700	740	
Method Control Sample	P190524-MB	0.10	860	1,000	860	370	**U**

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample** ALS Project ID: P1902859
Client Project ID: **HS19051031** ALS Sample ID: P190524-DLCS

Test Code: RSK 175 Date Collected: NA
Instrument ID: HP5890A/GC10/TCD Date Received: NA
Analyst: Wade Henton Date Analyzed: 5/24/19
Matrix: Water Volume(s) Analyzed: NA ml(s)
Test Notes:

CAS #	Compound	Spike Amount LCS / DLCS ug/L	Result$_1$ LCS ug/L	Result$_1$ DLCS ug/L	% Recovery LCS	% Recovery DLCS	DOD Acceptance Limits	RPD	RPD Limit	Data Qualifier
124-38-9	Carbon Dioxide	22,900	20,500	20,300	**90**	**89**	80-122	1	12	

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-190516**
Client Project ID: **HS19051031**

ALS Project ID: P1902859
ALS Sample ID: P1902859-001

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/16/19
Date Received: 5/18/19
Date Analyzed: 5/22/19
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	**1.4**	1.3	1.0	0.51	
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

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

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **50WW12-190516-FD**
Client Project ID: **HS19051031**

ALS Project ID: P1902859
ALS Sample ID: P1902859-002

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: 5/16/19
Date Received: 5/18/19
Date Analyzed: 5/22/19
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	**1.2**	1.3	1.0	0.51	**J**
74-85-1	Ethene	0.55	1.0	0.55	0.24	**U**
74-84-0	Ethane	0.47	0.60	0.47	0.16	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
LOQ = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **ALS Laboratory Group**
Client Sample ID: **Method Control Sample**
Client Project ID: **HS19051031**

ALS Project ID: P1902859
ALS Sample ID: P190522-MB

Test Code: RSK 175
Instrument ID: HP5890A/GC10/FID
Analyst: Wade Henton
Matrix: Water
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 5/22/19
Volume(s) Analyzed: 0.10 ml(s)

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

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

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE / DUPLICATE LABORATORY CONTROL SAMPLE SUMMARY

Client: **ALS Laboratory Group**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **HS19051031**

ALS Project ID: P1902859
ALS Sample ID: P190522-LCS
P190522-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: 5/22/19
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	2.38	2.54	**94**	**101**	73-125	7	26	
74-85-1	Ethene	4.40	4.70	5.17	**107**	**118**	72-133	10	11	
74-84-0	Ethane	4.72	4.39	4.79	**93**	**101**	74-131	8	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_05\24\
Data File : 05241907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 14:50:41
Operator : WH
Sample : P1902859-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 15:00:12 2019
Quant Method : J:\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 :

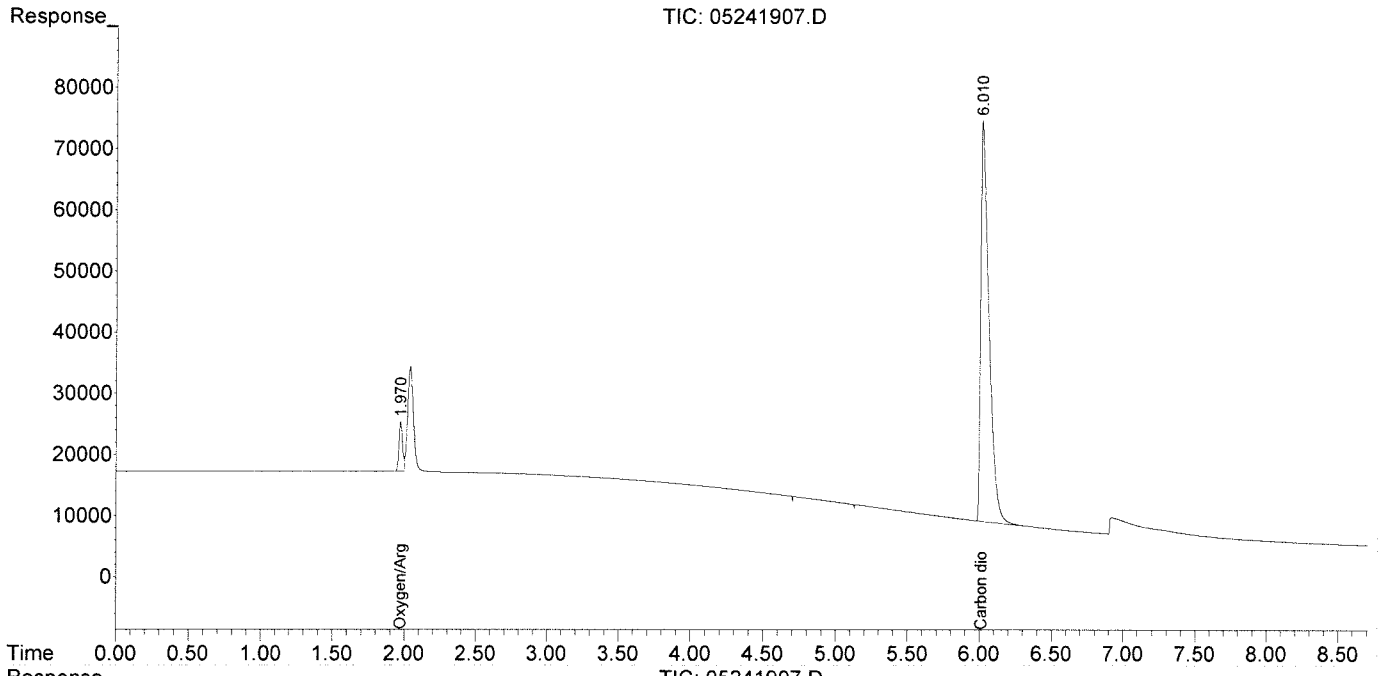
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.971f	145105	0.030	ppm
2)	Carbon monoxide	1.971f	145105	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.010	2612741	11130.872	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

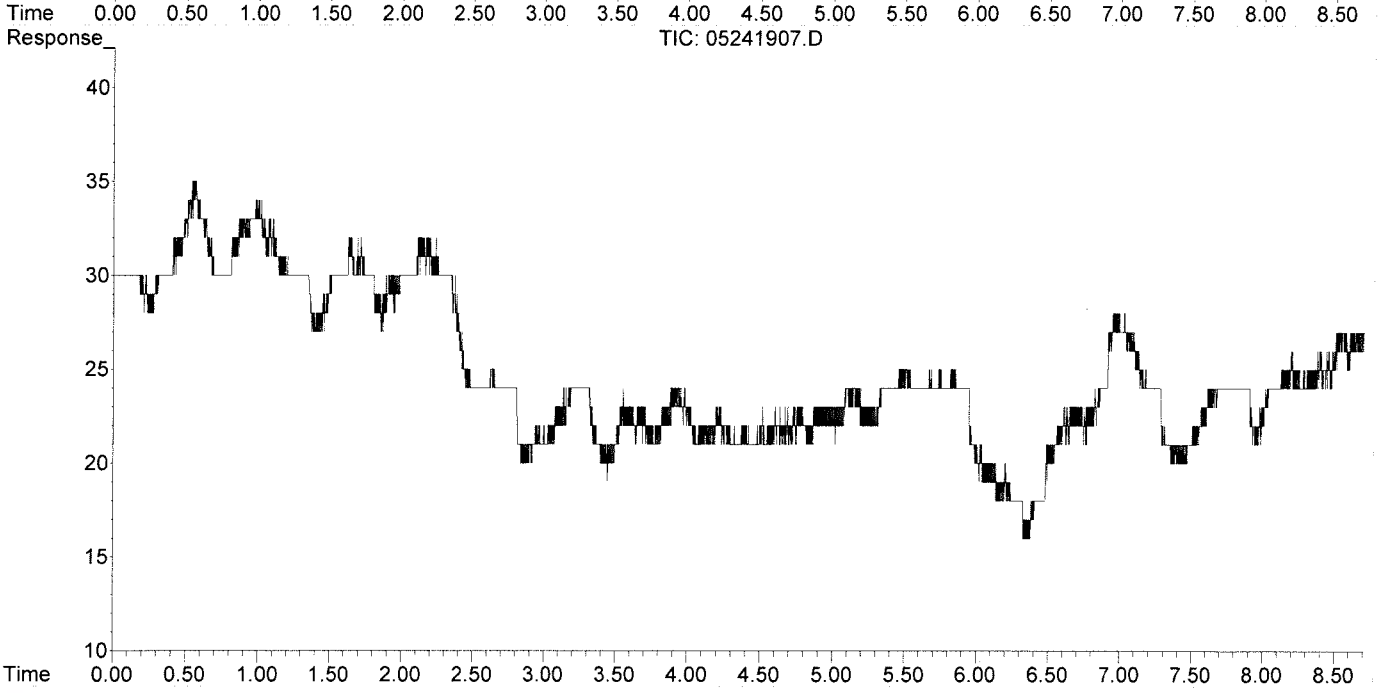
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 14:50:41
Operator : WH
Sample : P1902859-001 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 15:00:12 2019
Quant Method : J:\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_05\24\
Data File : 05241908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 15:02:54
Operator : WH
Sample : P1902859-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 27 15:29:34 2019
Quant Method : J:\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 :

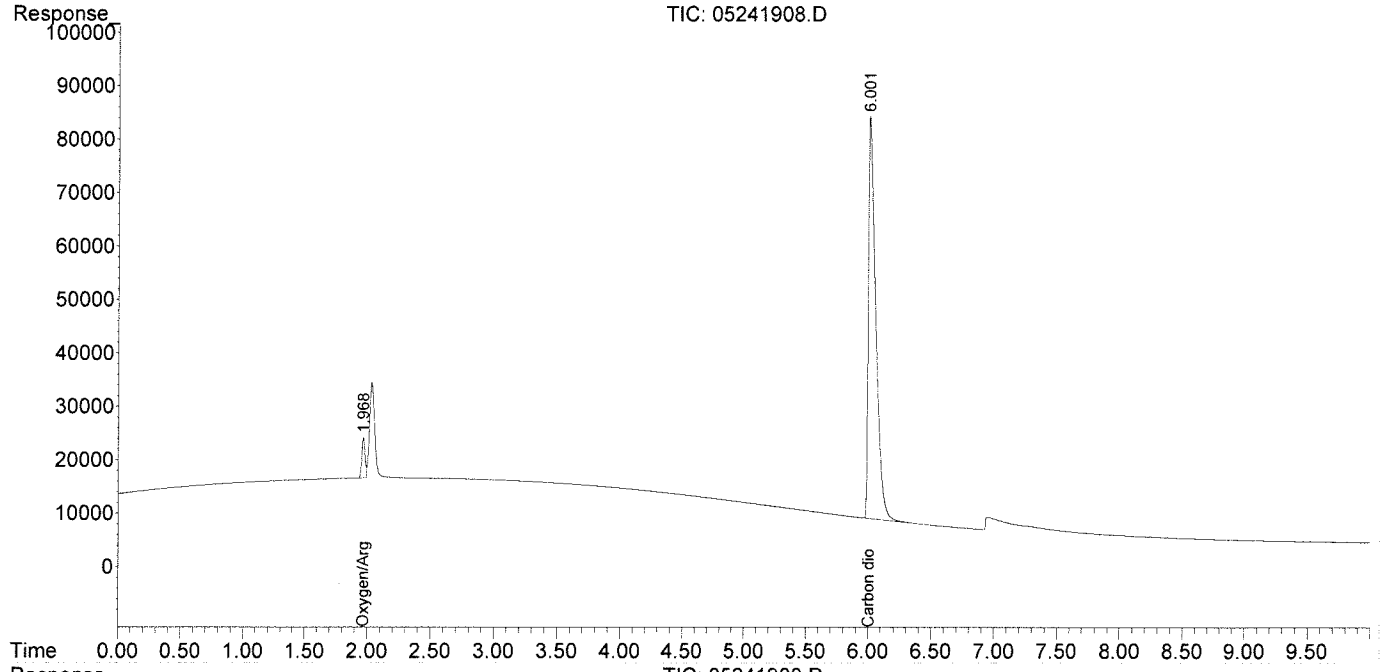
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	135489	0.028	ppm
2)	Carbon monoxide	1.968f	135489	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.002	3096529	13191.920	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

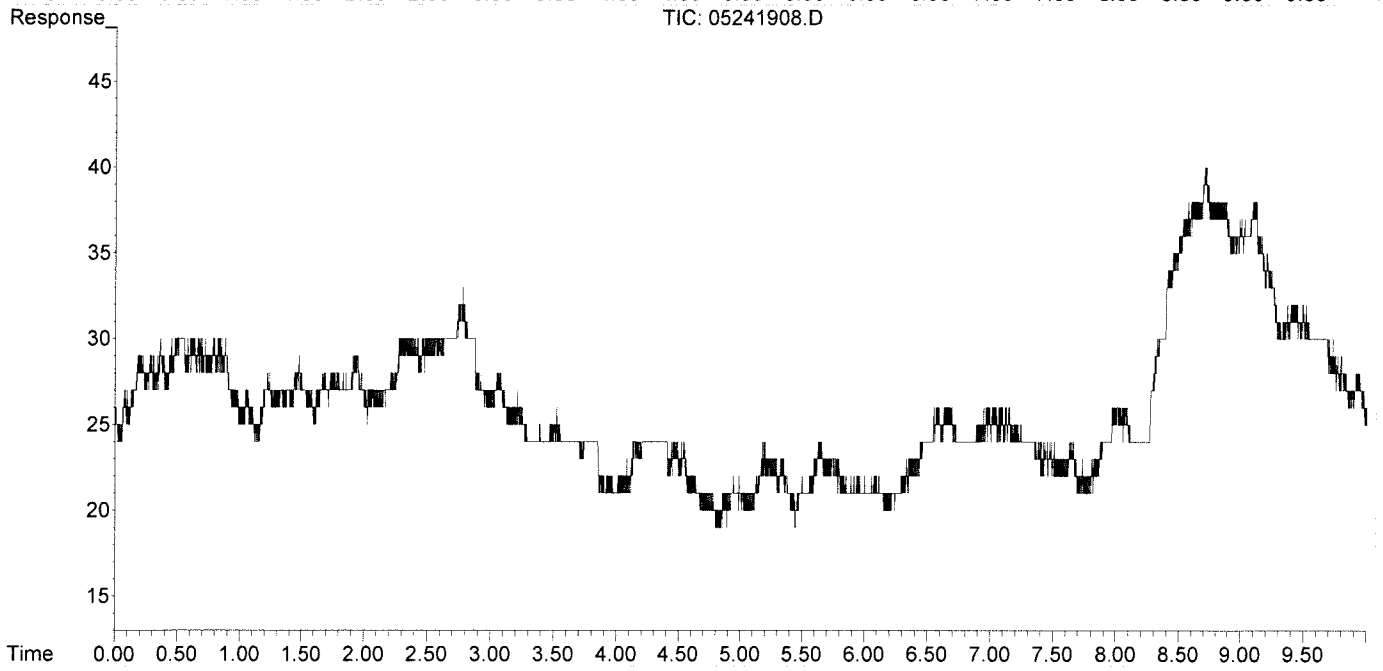
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 15:02:54
Operator : WH
Sample : P1902859-002 50ul
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 27 15:29:34 2019
Quant Method : J:\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_05\24\
Data File : 05241903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 12:06:42
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: May 24 13:13:11 2019
Quant Method : J:\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 :

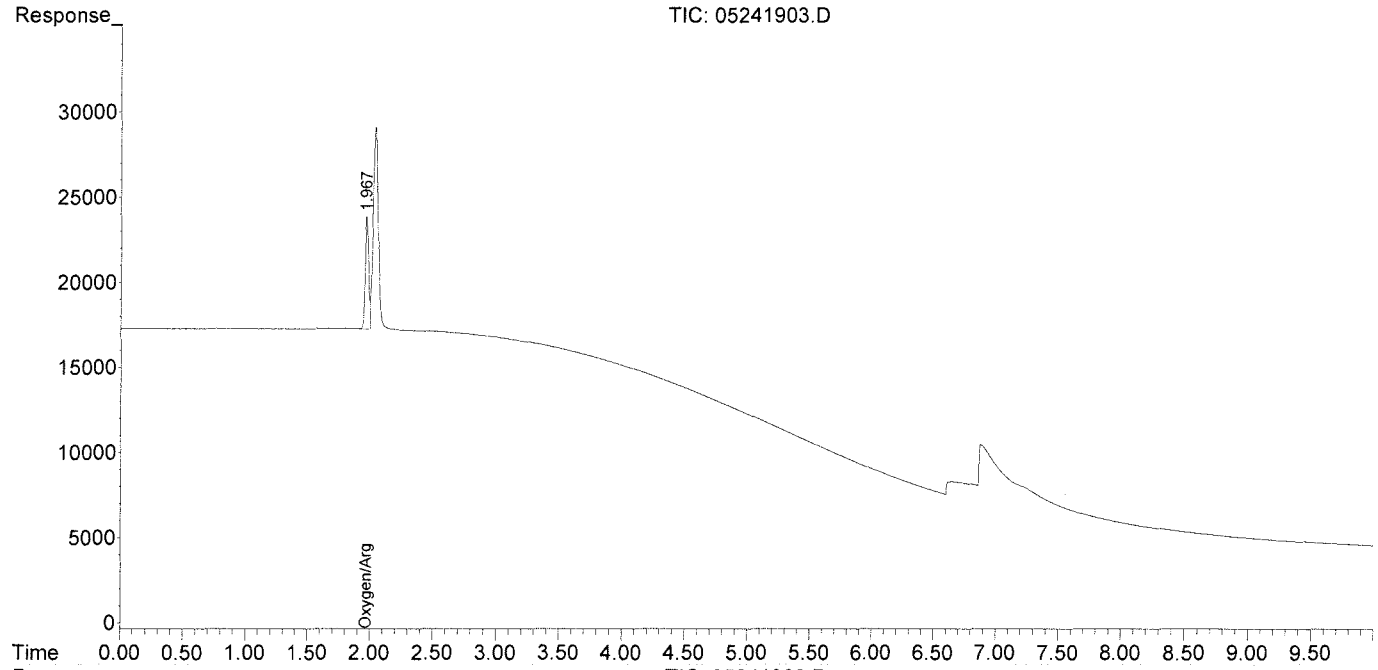
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.968f	121838	0.026	ppm
2)	Carbon monoxide	1.968f	121838	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

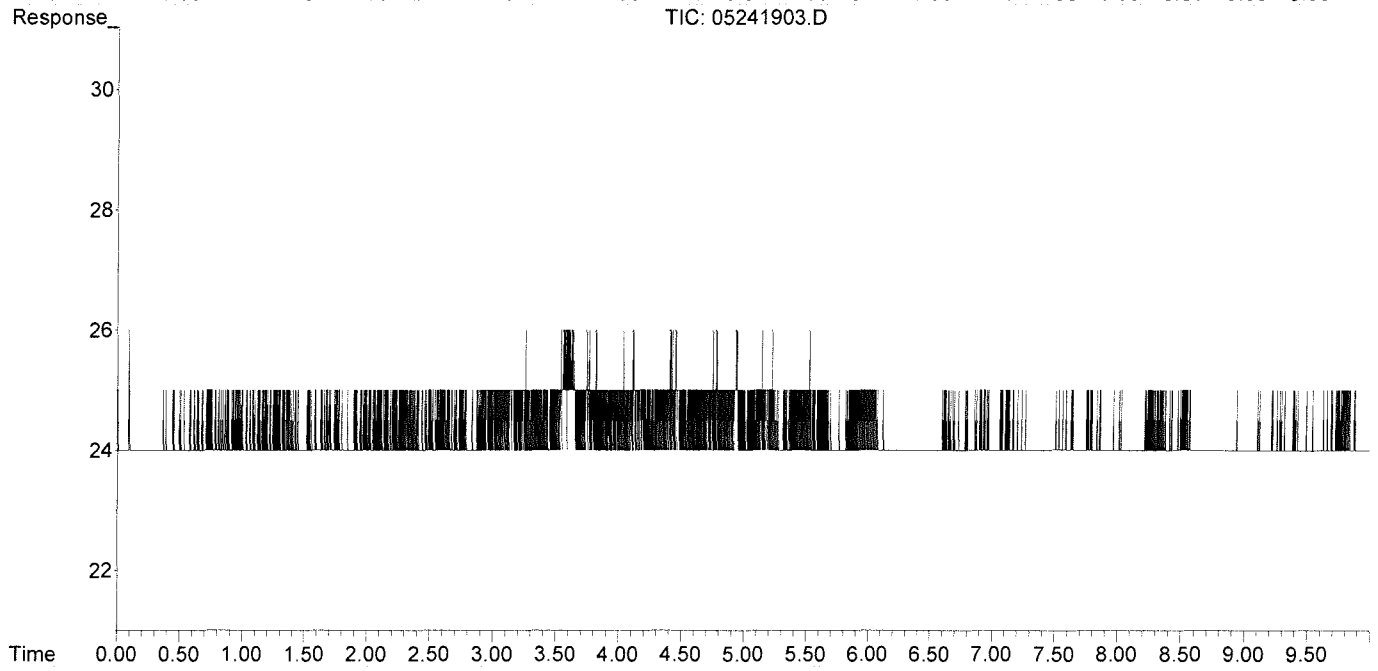
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241903.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 12:06:42
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: May 24 13:13:11 2019
Quant Method : J:\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_05\24\
Data File : 05241904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 13:58:46
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 14:07:15 2019
Quant Method : J:\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 :

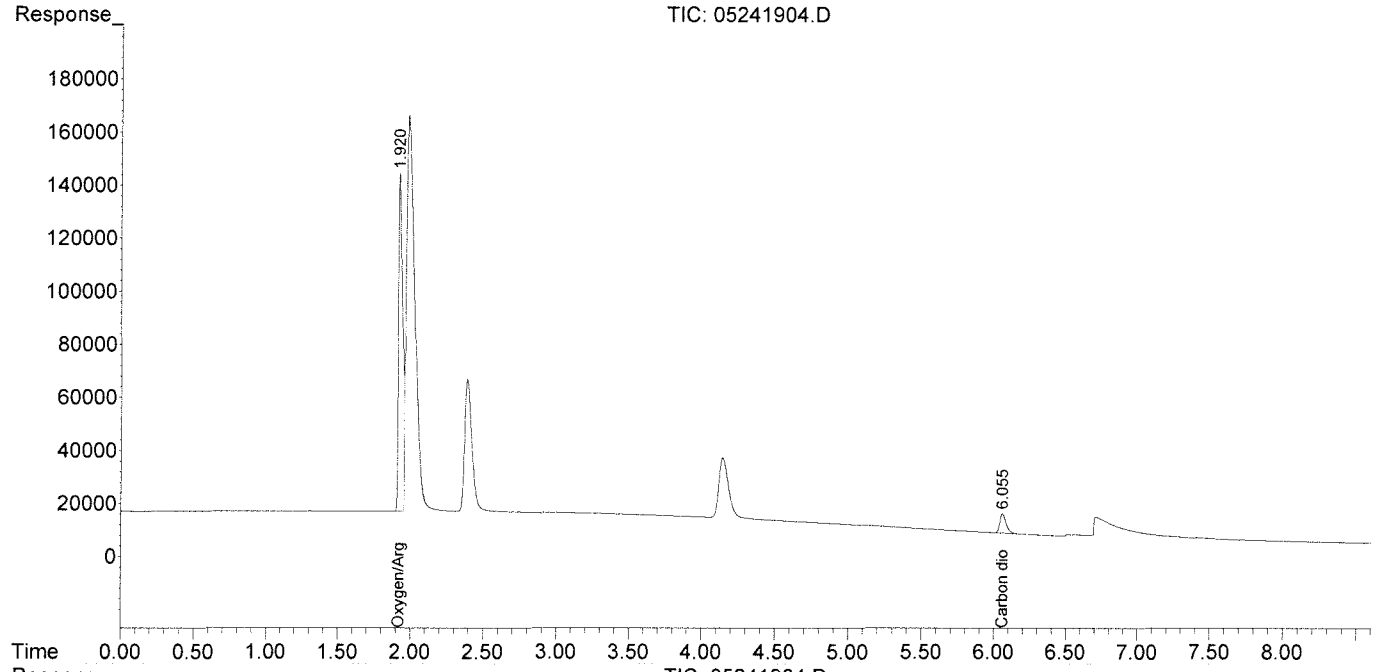
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.921f	2450330	0.515	ppm
2)	Carbon monoxide	1.921f	2450330	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.056	220748	940.438	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

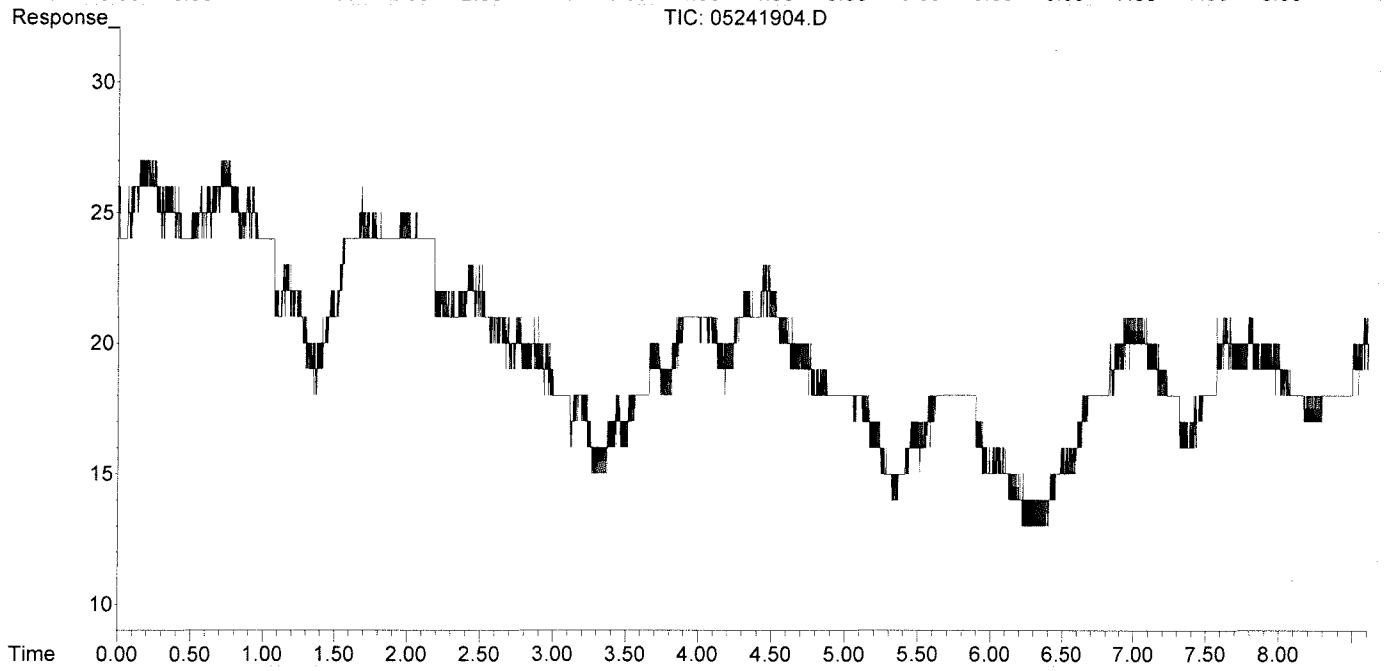
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 13:58:46
Operator : WH
Sample : lcs tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 14:07:15 2019
Quant Method : J:\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_05\24\
Data File : 05241905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 14:09:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 14:30:16 2019
Quant Method : J:\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 :

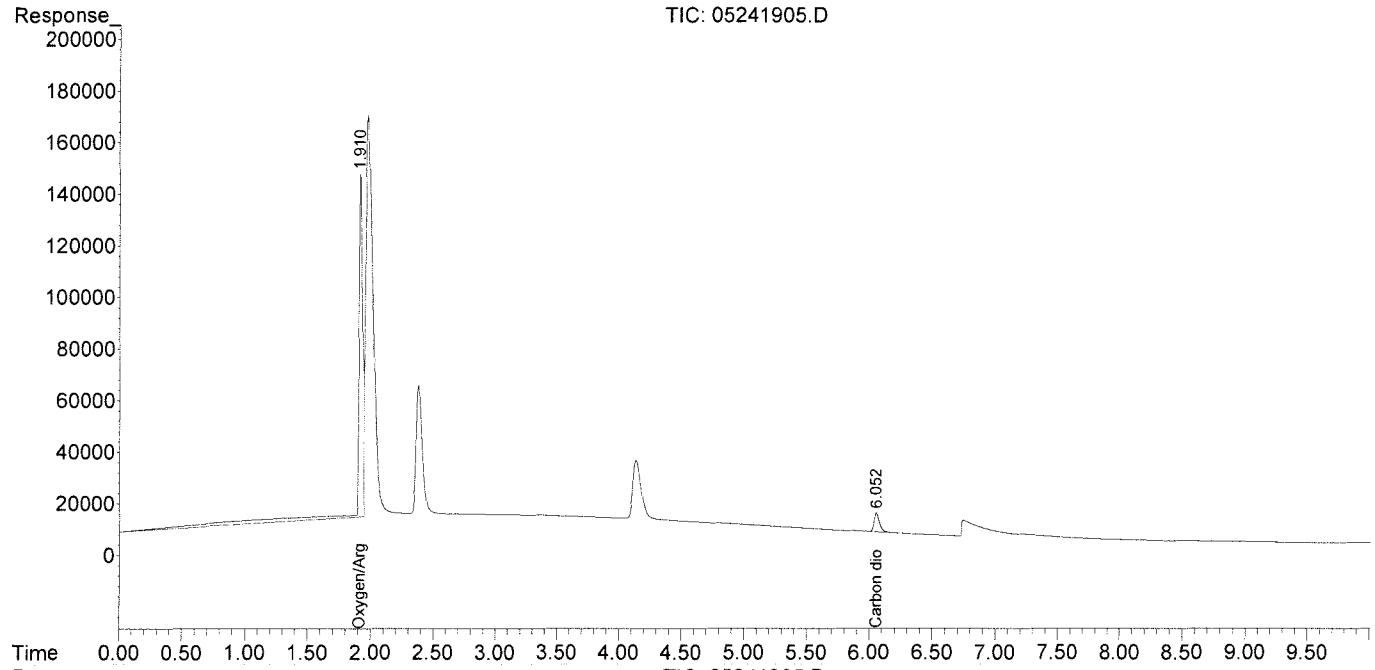
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.910f	3588434	0.754	ppm
2)	Carbon monoxide	1.910f	3588434	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.052	218827	932.251	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	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

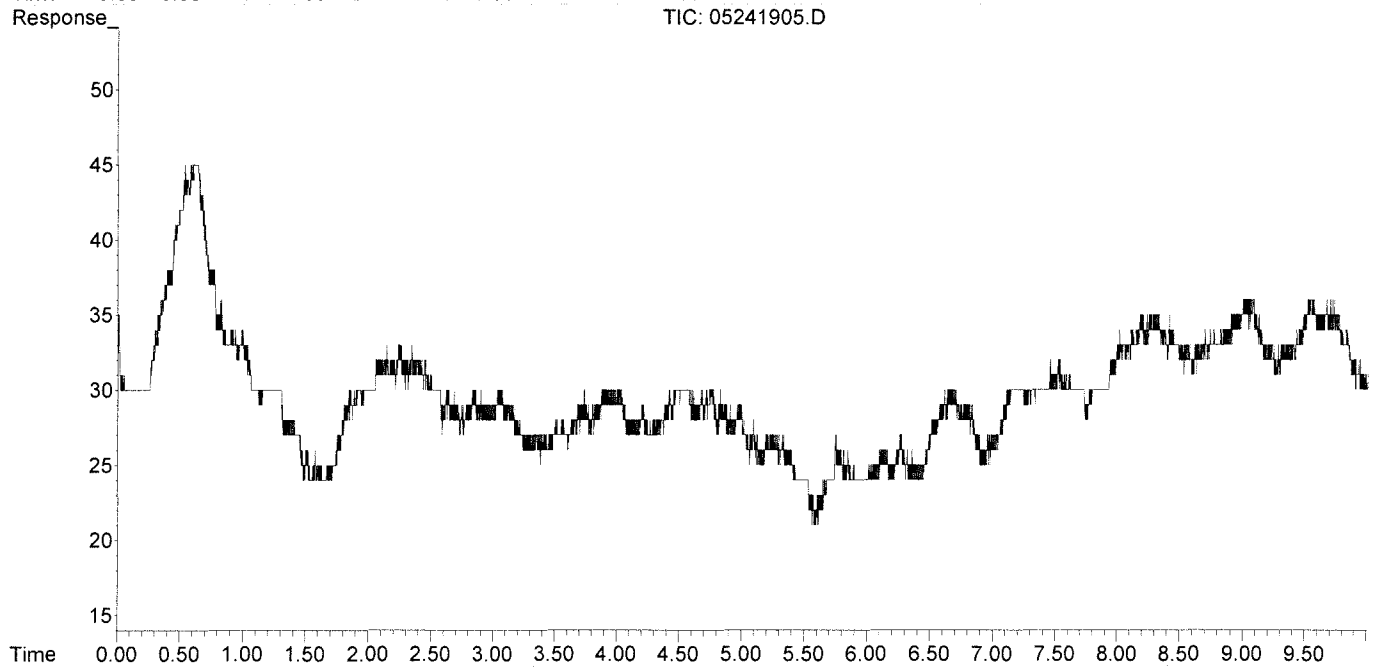
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 14:09:43
Operator : WH
Sample : lcsd tcd 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 14:30:16 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Response Factor Report HP5890

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

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

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

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

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

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

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

dit Compounds -- Compound #4 -- Carbon dioxide

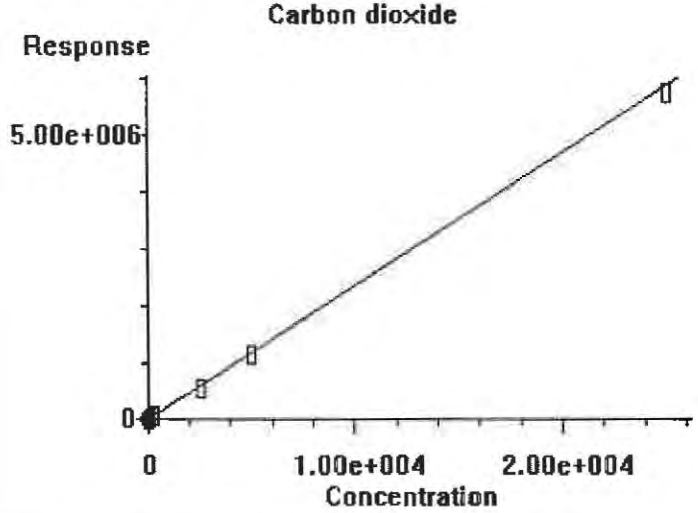
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

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

Lvl ID	Concentration	Response



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

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

Calibration Status Report HP5890

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

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

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

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

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

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

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

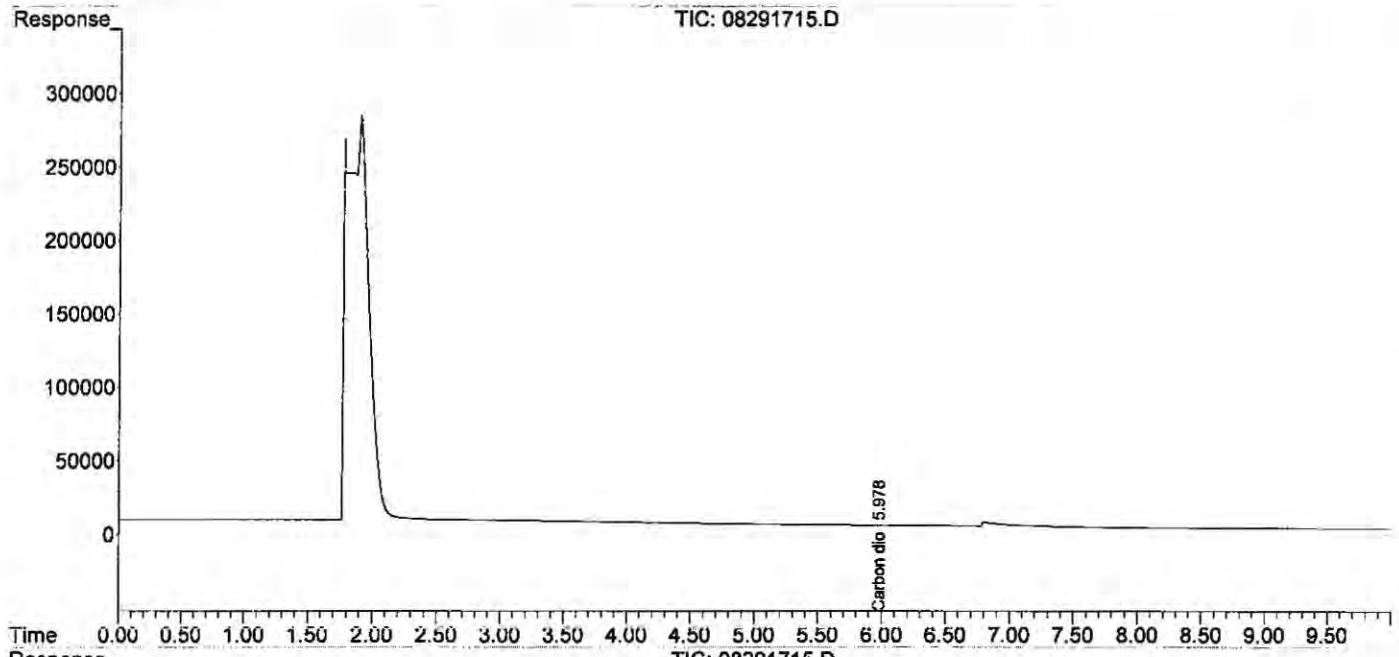
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.776	277465	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	5.978	6794	27.870	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.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

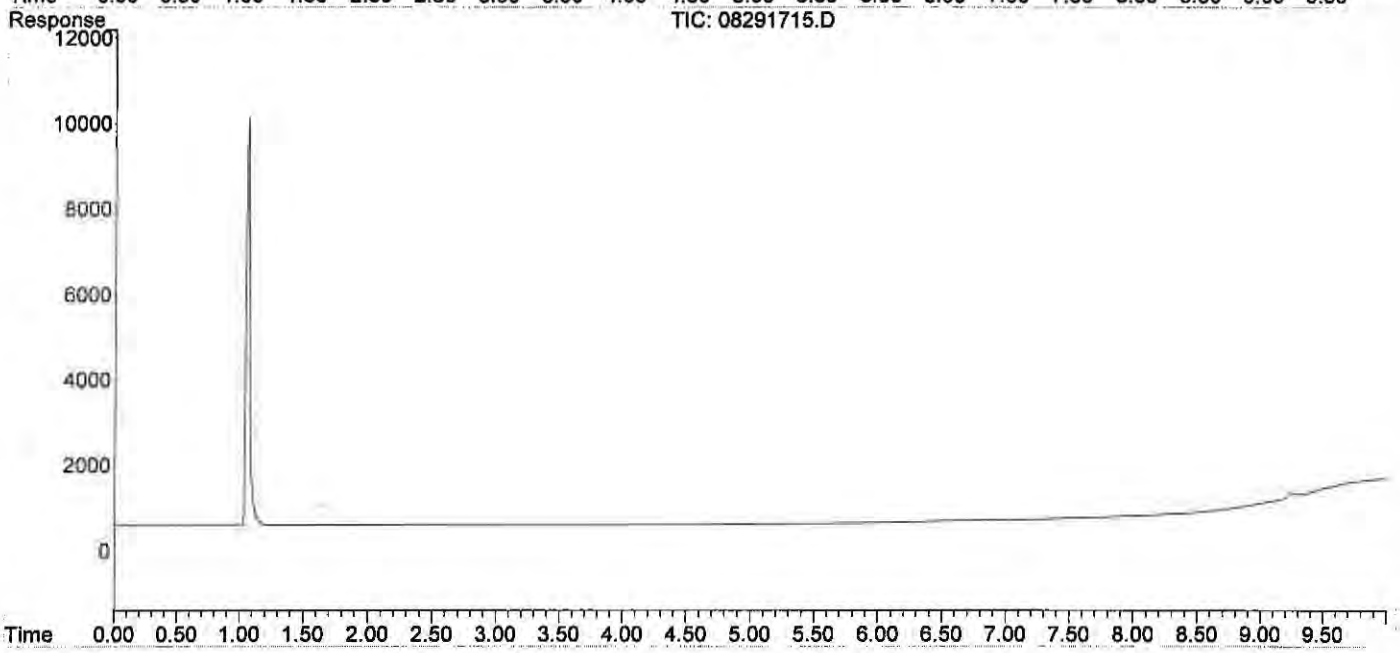
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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

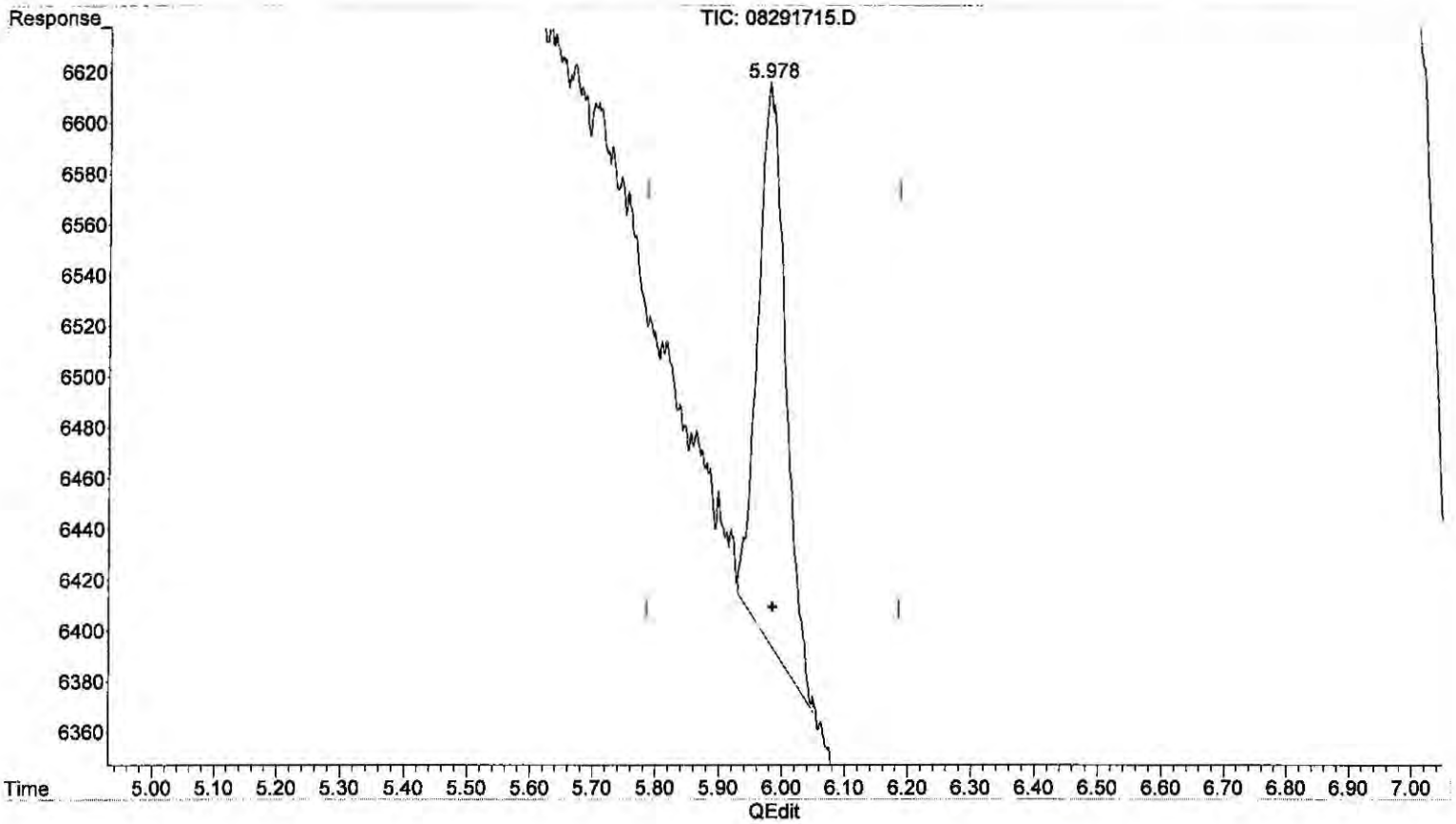




Data Path : J:\GC10\DATA\RSK_FID\2017_08\29\
Data File : 08291715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 29-Aug-2017, 14:07
Operator : MC
Sample : 25ppm s32-08291701 0.25ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

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

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



(4) Carbon dioxide

5.978min 27.870 ppm m

response 6794

9/30/17
BW
M.
prelim

9/1/17

(+) = 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	

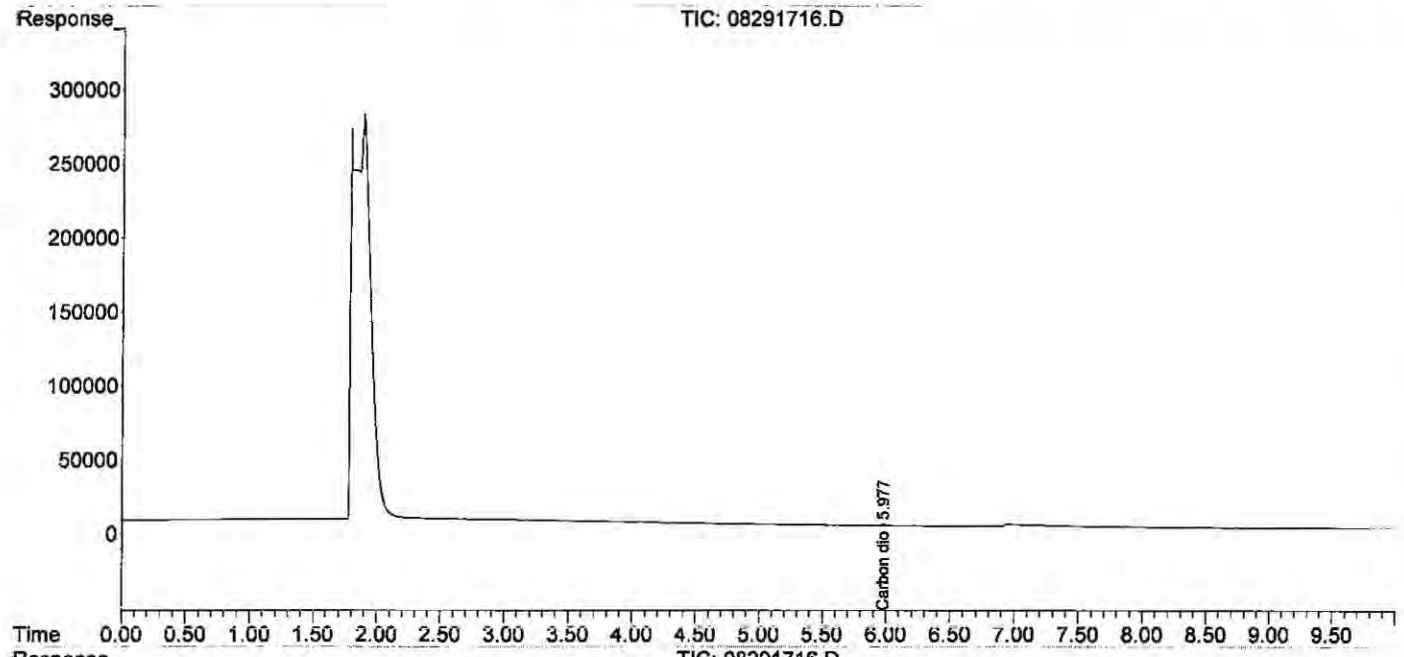
(f)=RT Delta > 1/2 Window (m)=manual int.

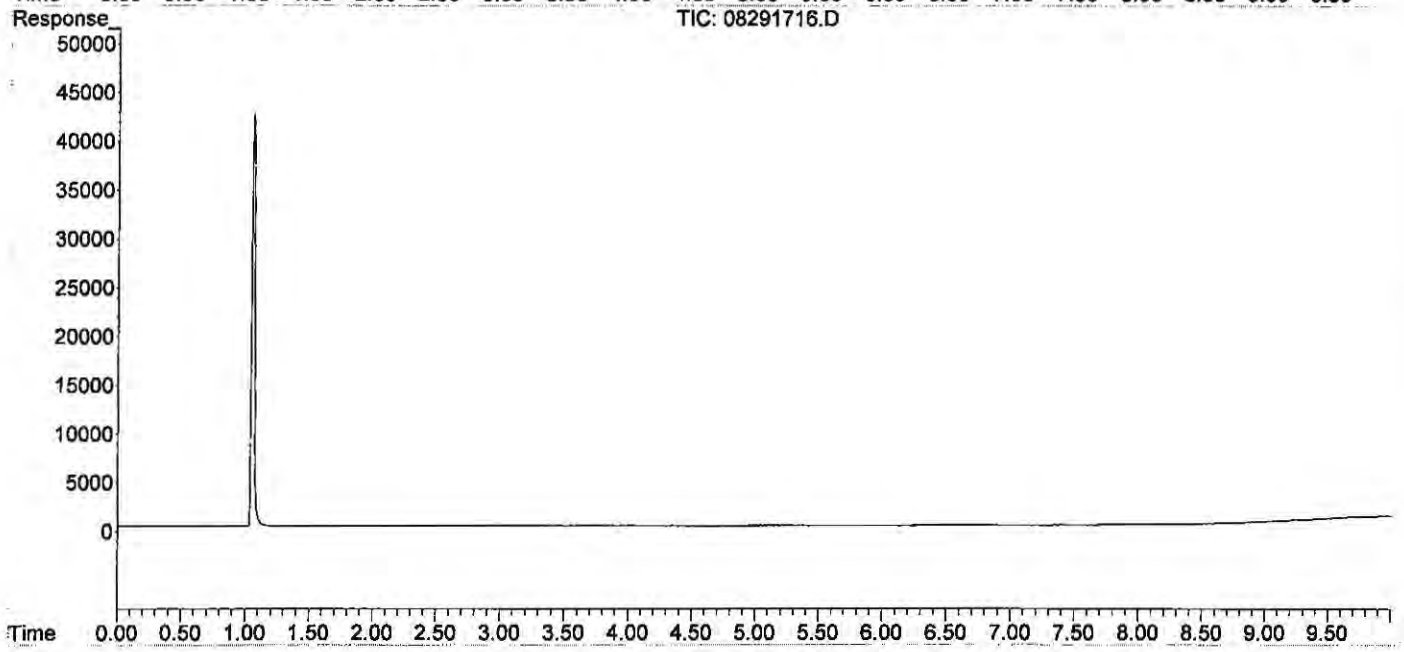
Quantitation Report (QT Reviewed)

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

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

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





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	

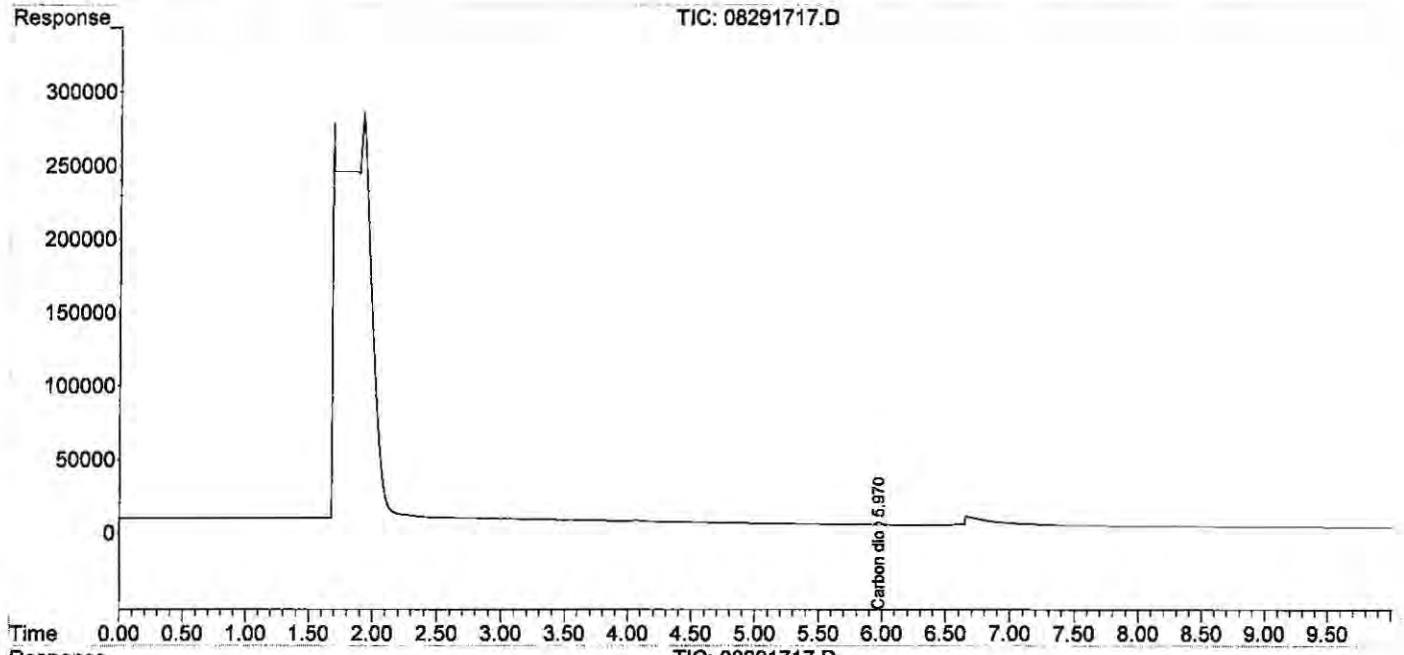
(f)=RT Delta > 1/2 Window (m)=manual int.

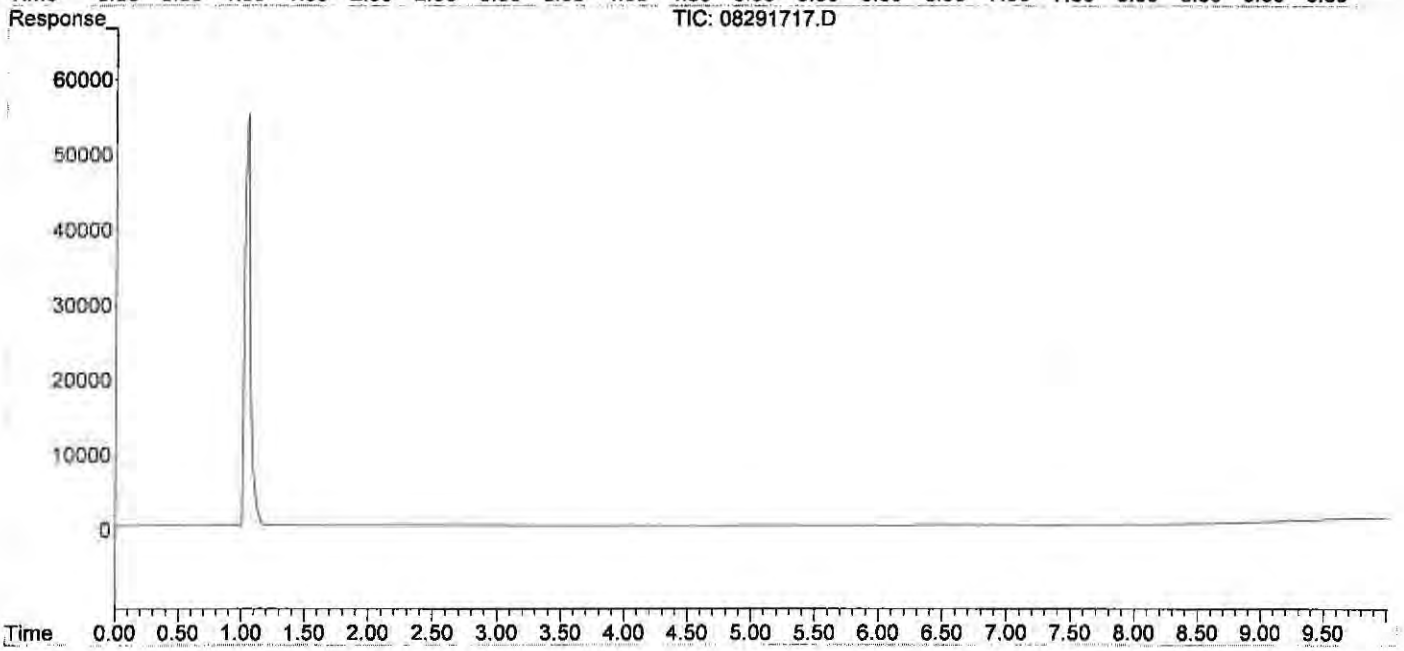
Quantitation Report (QT Reviewed)

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 :



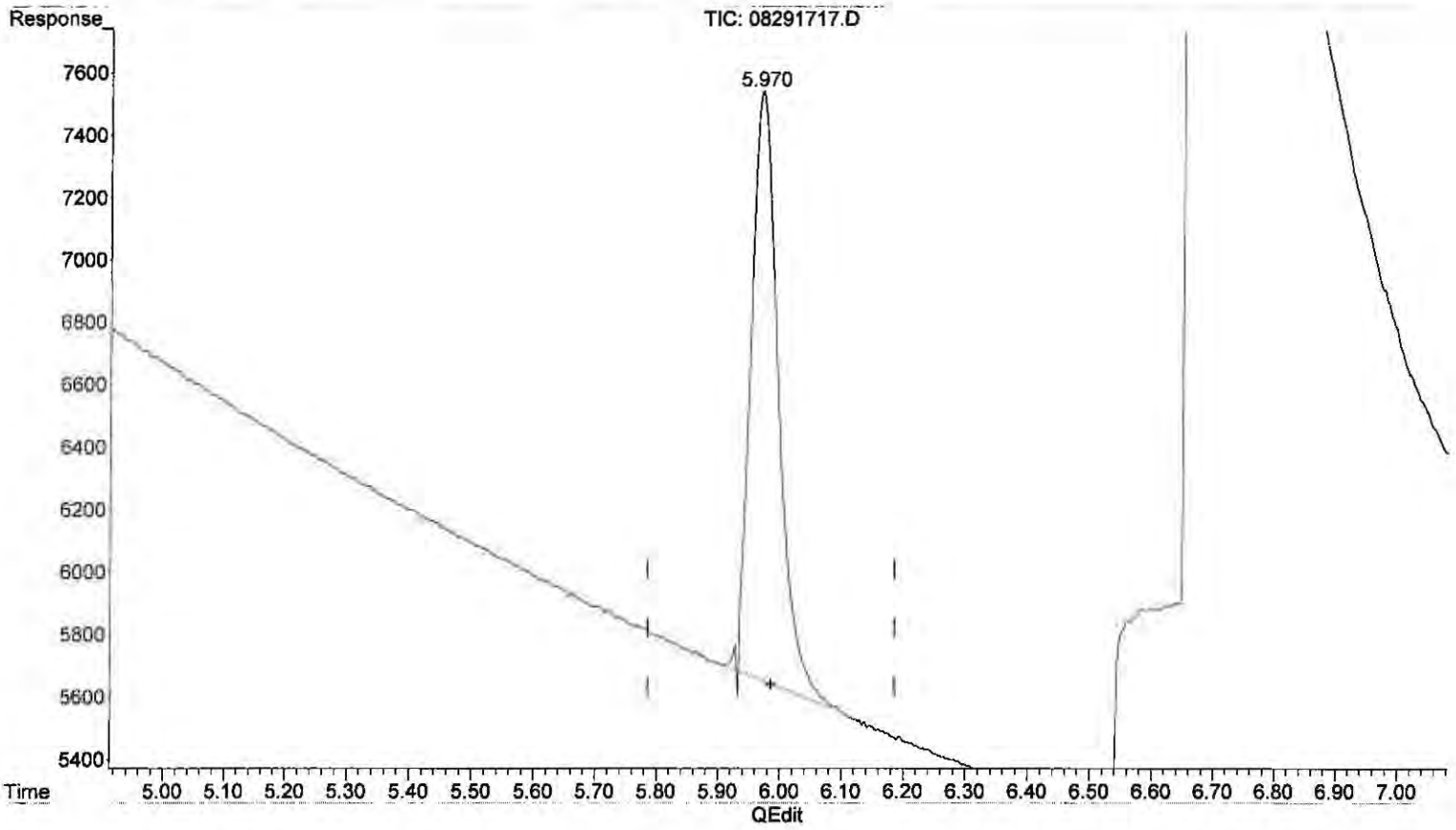


Quantitation Report (Qedit)

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

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

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



(4) Carbon dioxide

5.970min 240.204 ppm m

response 58461

(+) = Expected Retention Time

Quantitation Report (QT Reviewed)

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

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

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

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

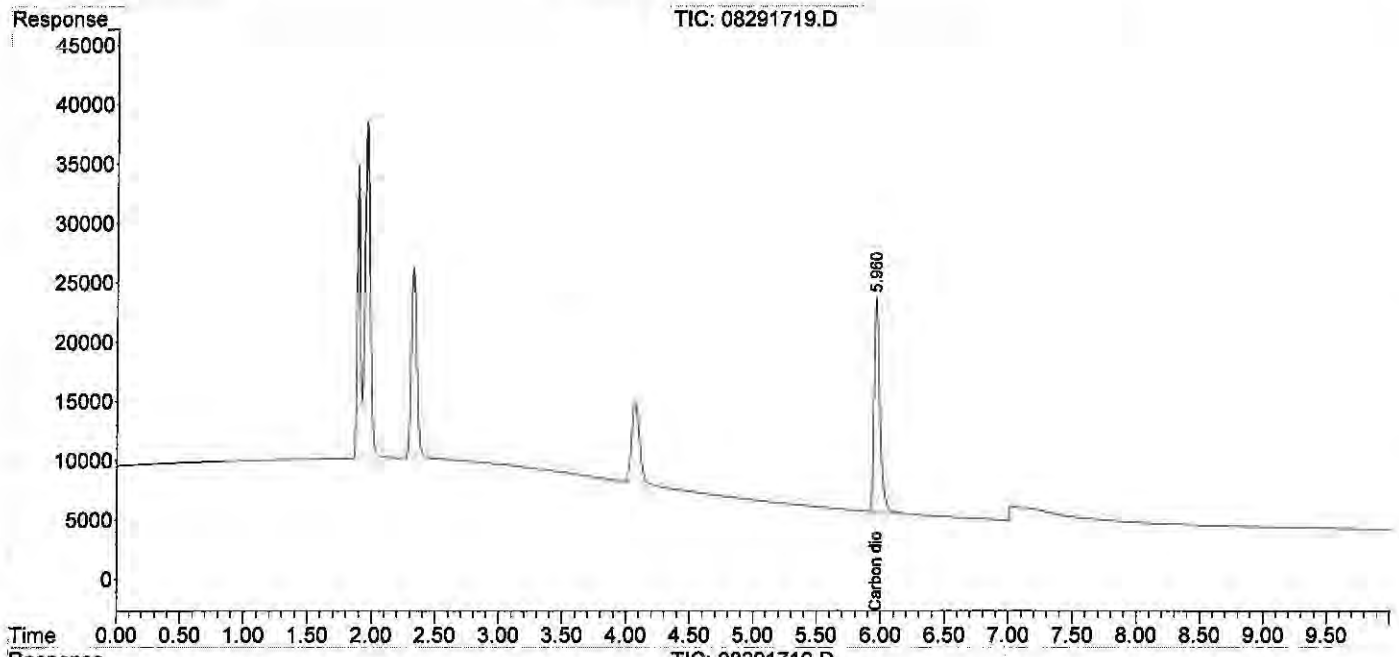
(f)=RT Delta > 1/2 Window (m)=manual int.

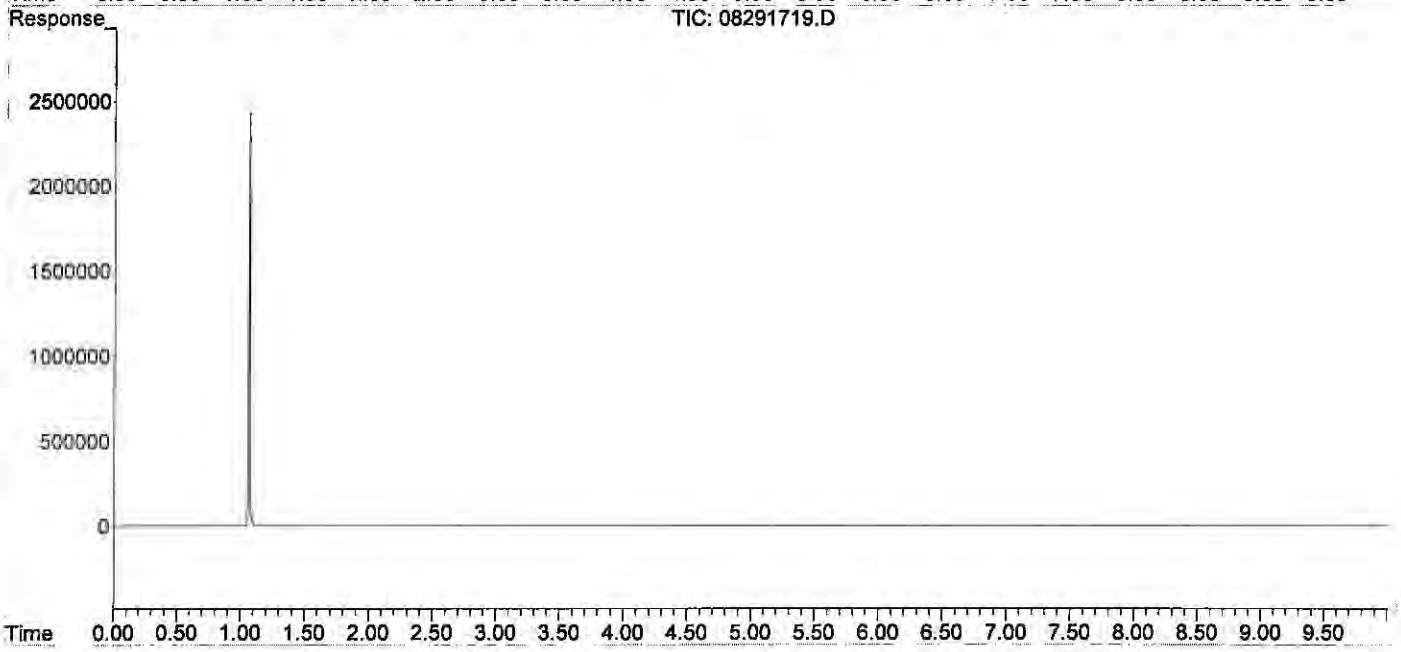
Quantitation Report (QT Reviewed)

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	

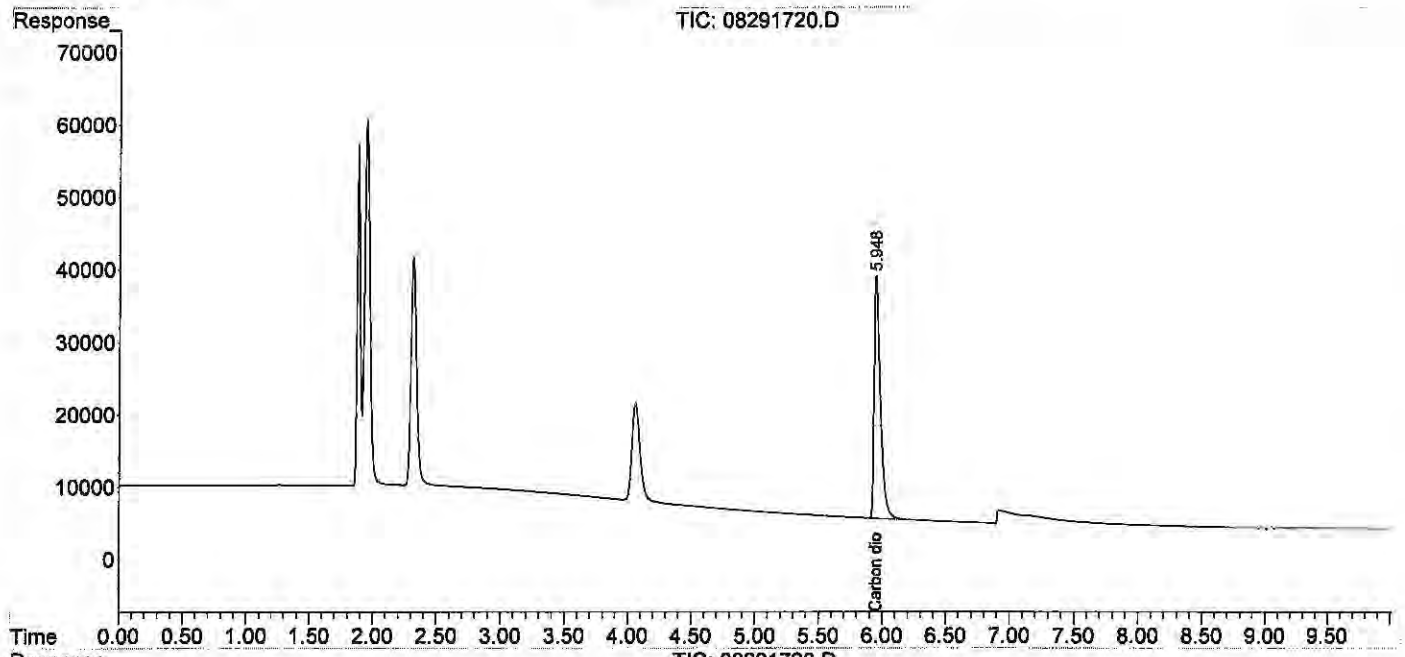
(f)=RT Delta > 1/2 Window (m)=manual int.

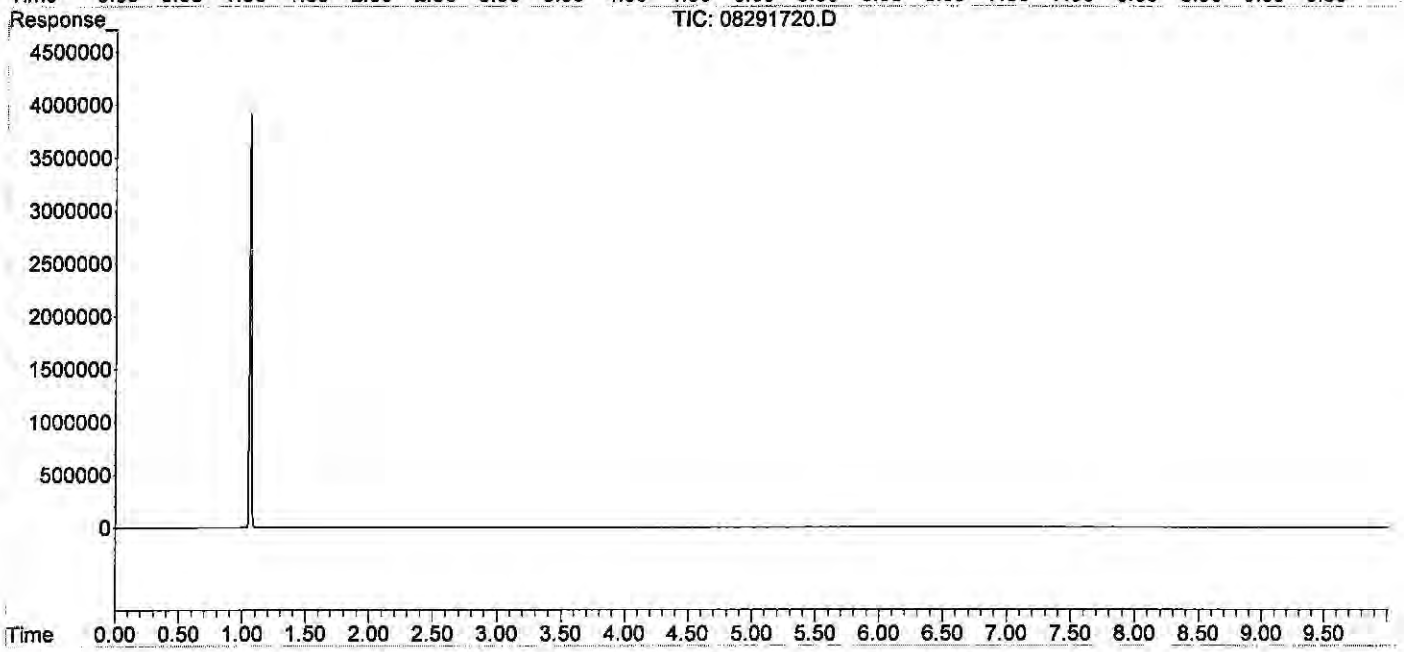
Quantitation Report (QT Reviewed)

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 :





Quantitation Report (QT Reviewed)

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

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

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

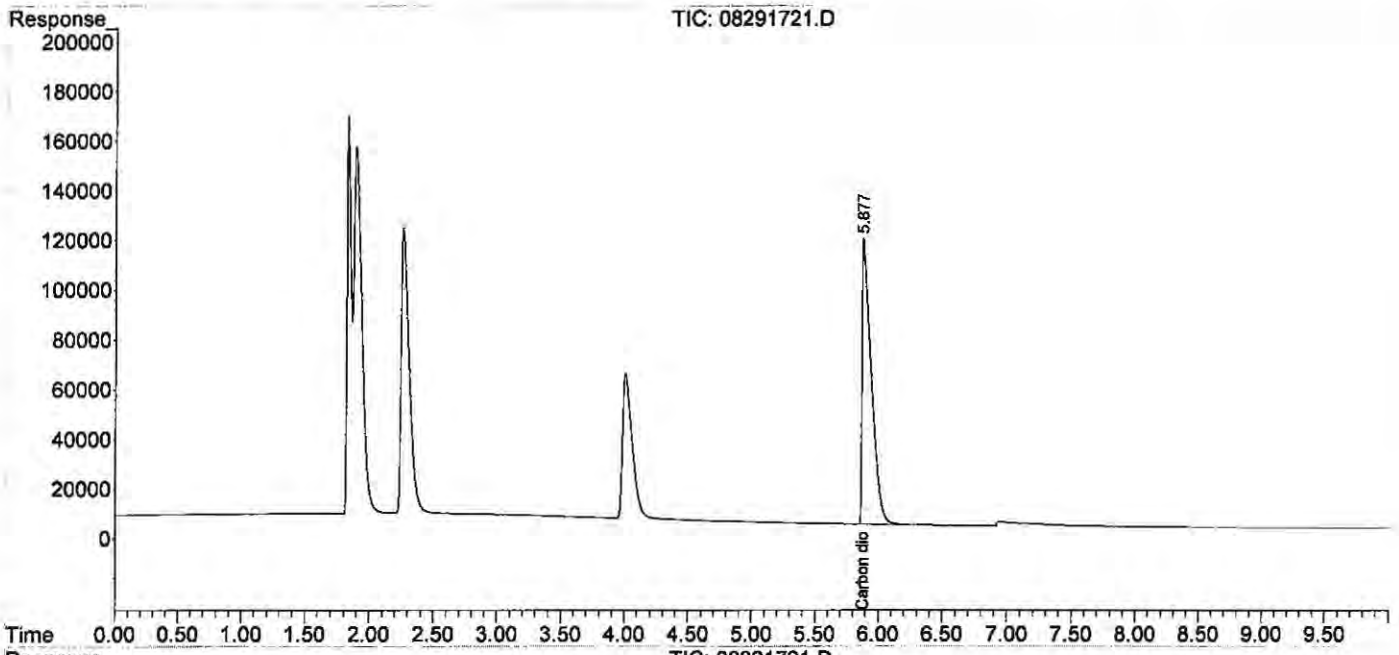
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	1.827	3325463	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	5.879f	5744295	24443.288	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000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

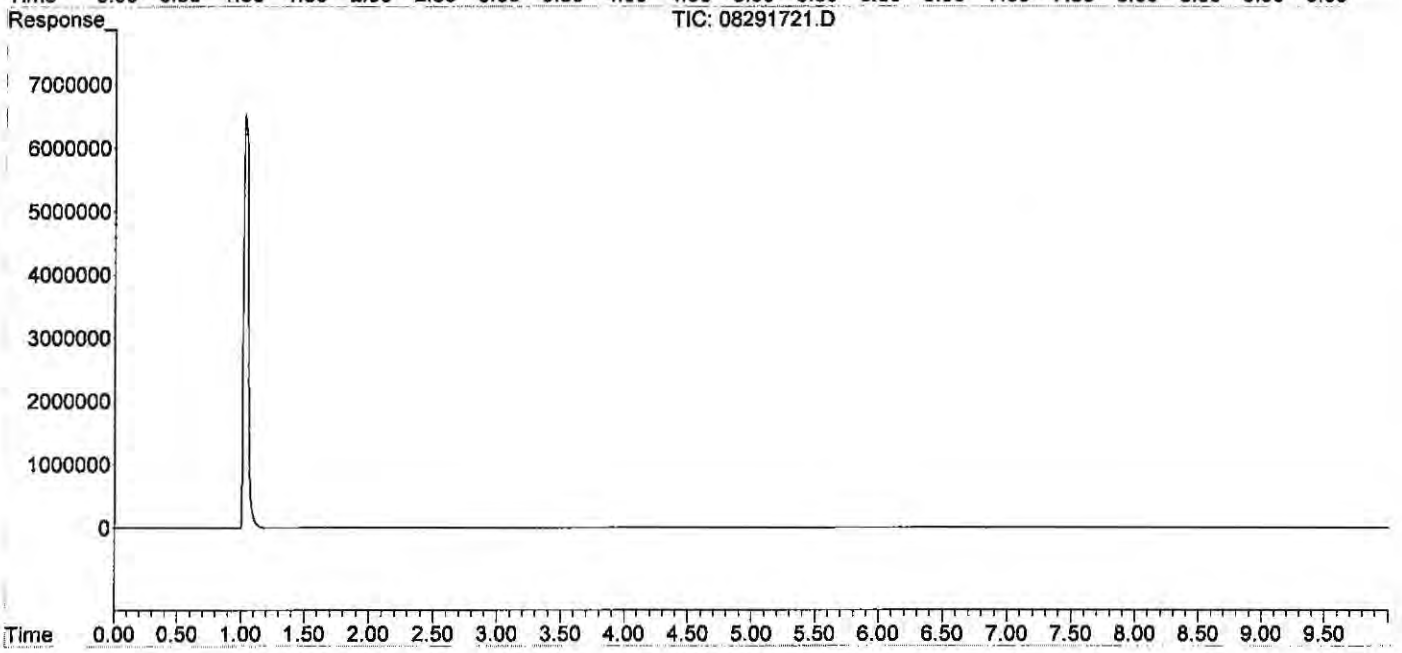
(f)=RT Delta > 1/2 Window (m)=manual int.

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

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

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





Quantitation Report (QT Reviewed)

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

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

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

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

Actual %D
5000 99.16

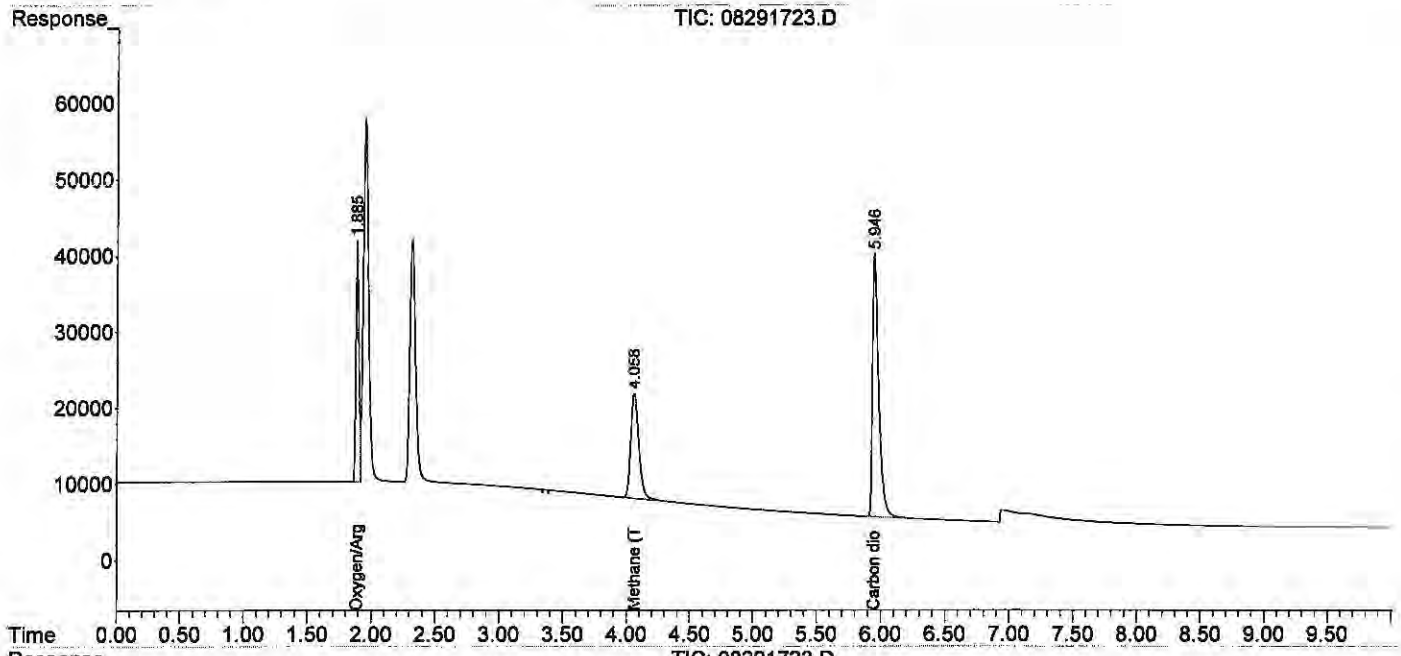
(f)=RT Delta > 1/2 Window (m)=manual int.

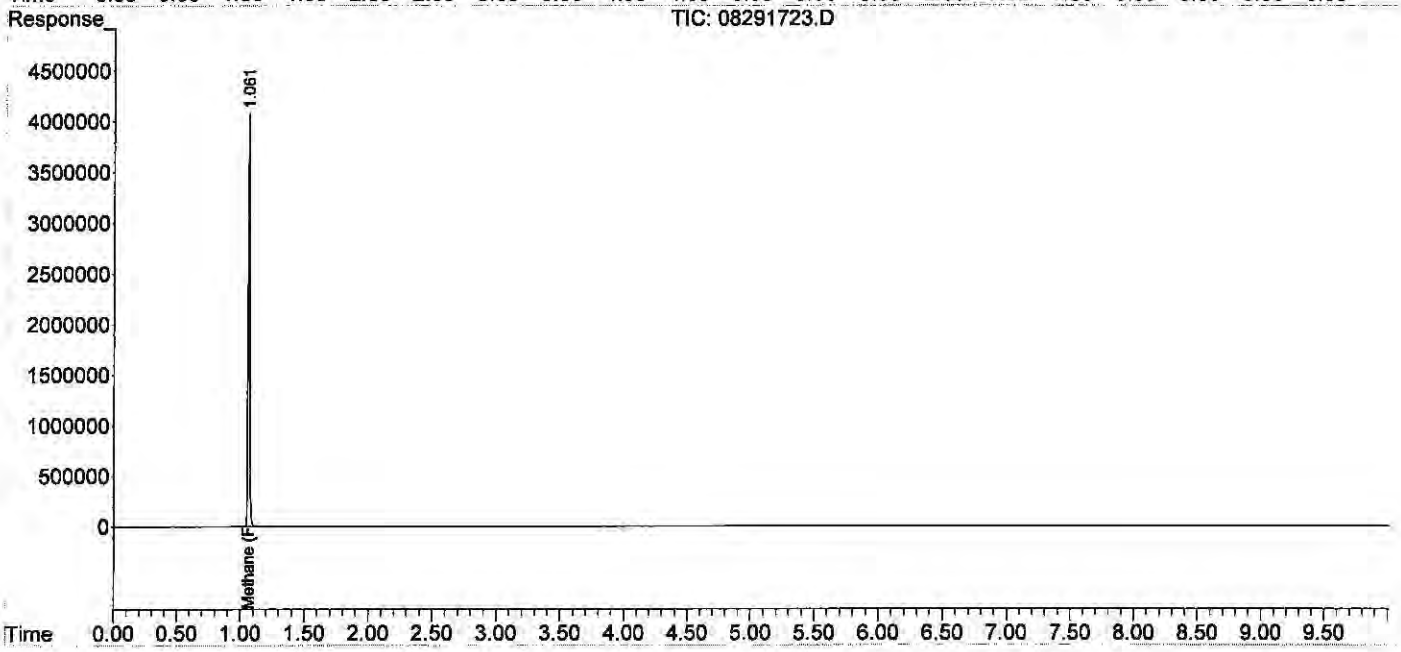
W 9/4/17

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

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

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





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: P1902859 | Date Analysis : 05/24/19 | 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 s32-04251903	0.100	4852.491
ACTUAL		5000.00
%Difference		3.0%
mcs 0.1ml	0.100	0.000
rb 0.1ml	0.100	0.000
lcs tcd 0.1ml	0.100	940.438
lcsd tcd 0.1ml	0.100	932.251
P1902859-001 50ul	0.050	11130.87
P1902859-002 50ul	0.050	13191.92

FINAL HEAD SPACE RESULT (ppm)

	Carbon Dioxide
WWt.	44.10
HENRY'S CONSTANT	1.42E+03
RL	100.00
mcs 0.1ml	0.000
lcs tcd 0.1ml	9404.380
lcsd tcd 0.1ml	9322.510
P1902859-001 50ul	222617.44
P1902859-002 50ul	263838.40

std s32-04251903	4993.462
ACTUAL	5000.00
%Difference	0.1%

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 10:58:29
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 11:33:24 2019
Quant Method : J:\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 :

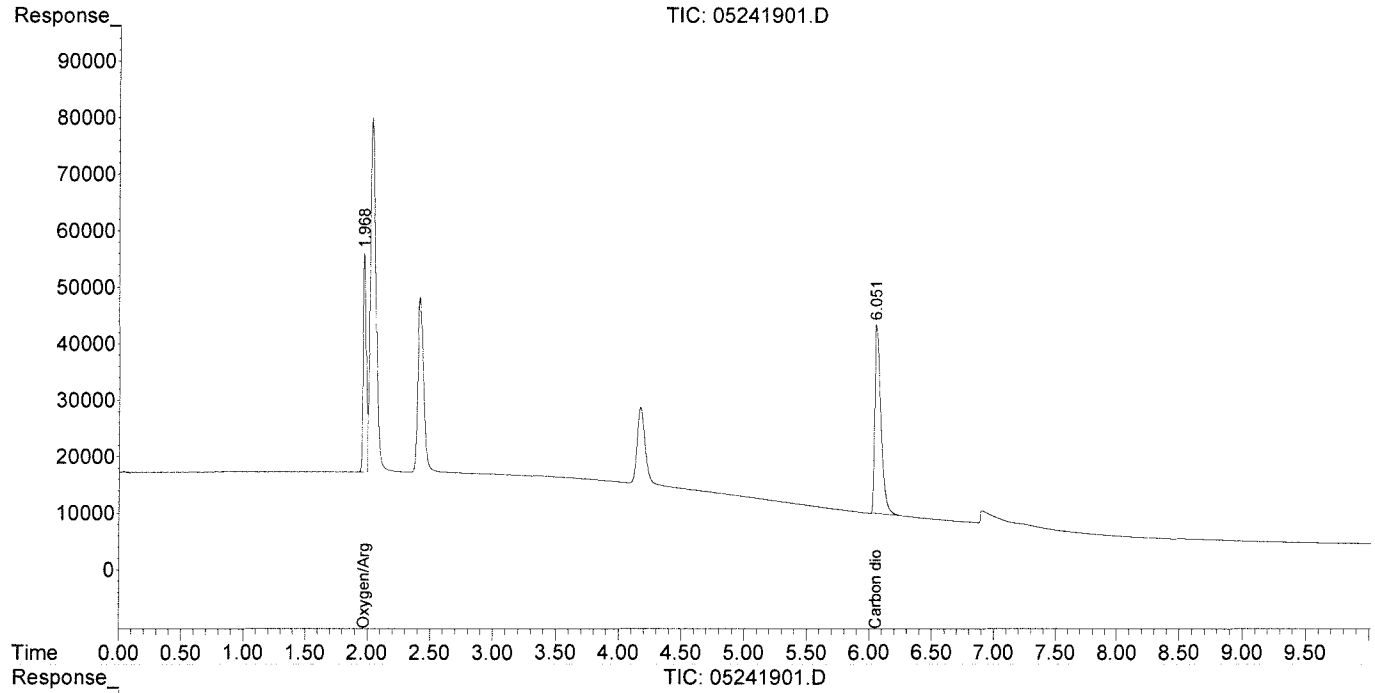
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.969f	676958	0.142	ppm	
2)	Carbon monoxide	1.969f	676958	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	6.051	1139021	4852.491	ppm	m
6)	Methane (FID)	0.000	0	N.D.	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	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	

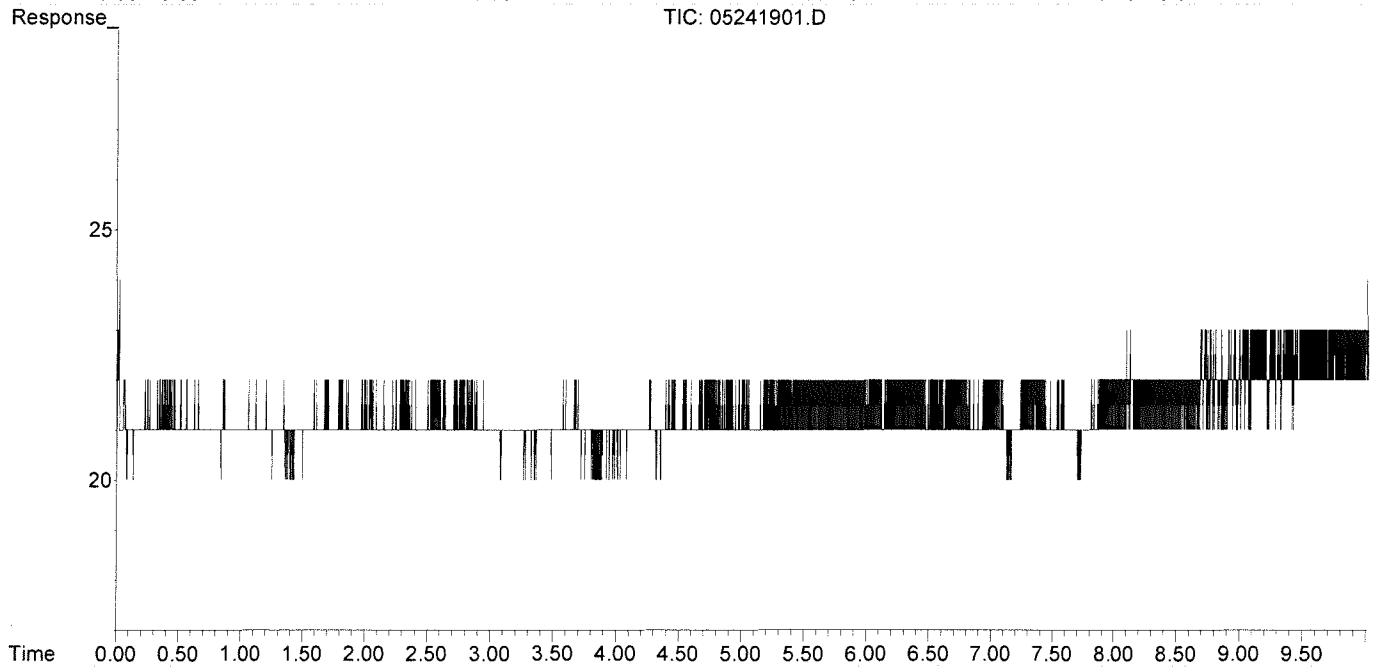
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 10:58:29
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 11:33:24 2019
Quant Method : J:\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 :

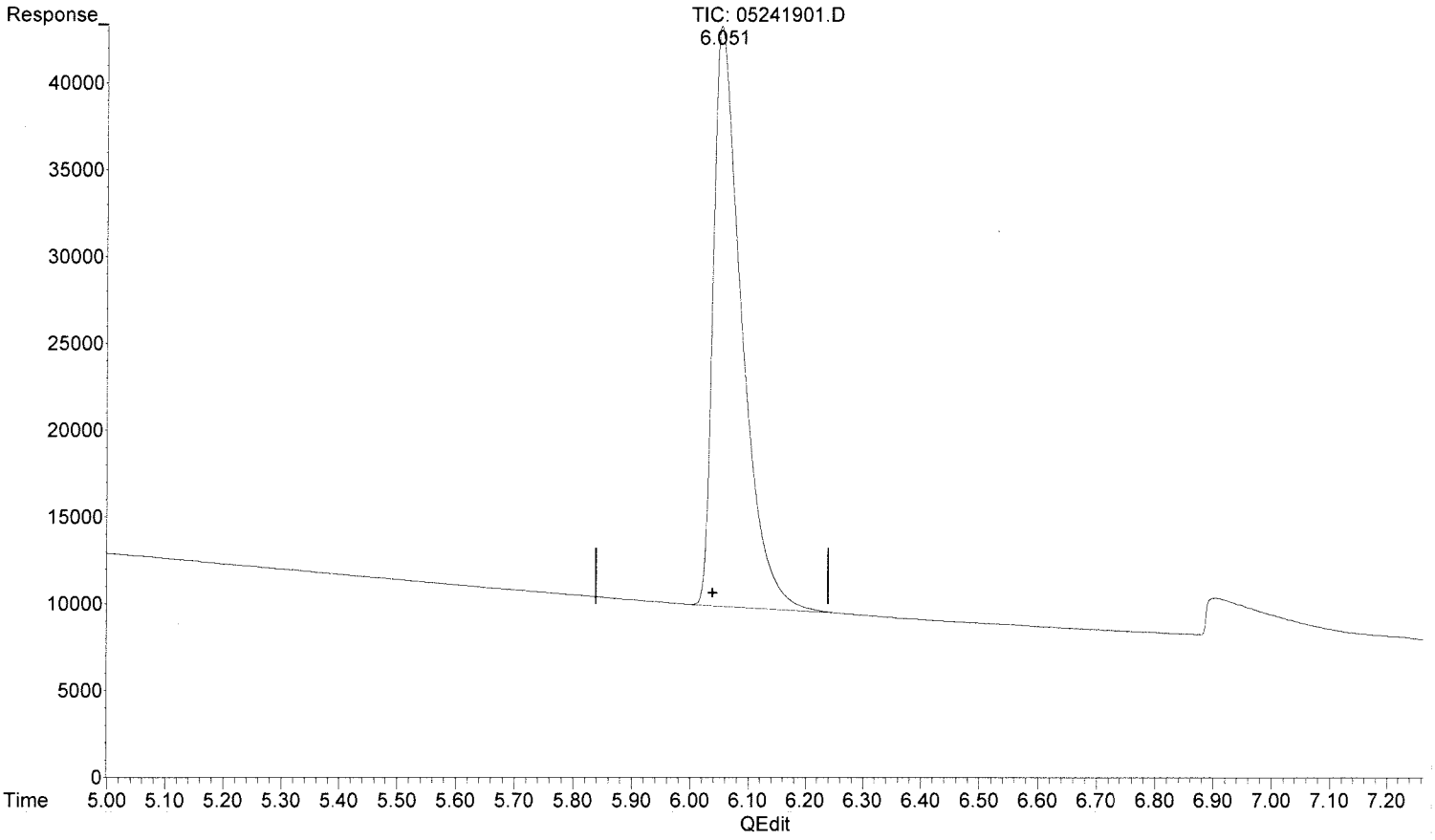




Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241901.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 10:58:29
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 11:33:24 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(4) Carbon dioxide

6.051min 4852.491 ppm m

response 1139021

MR 5/28/19

5/27/19 no previous bl

(+) = Expected Retention Time

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 16:14:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 16:35:37 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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

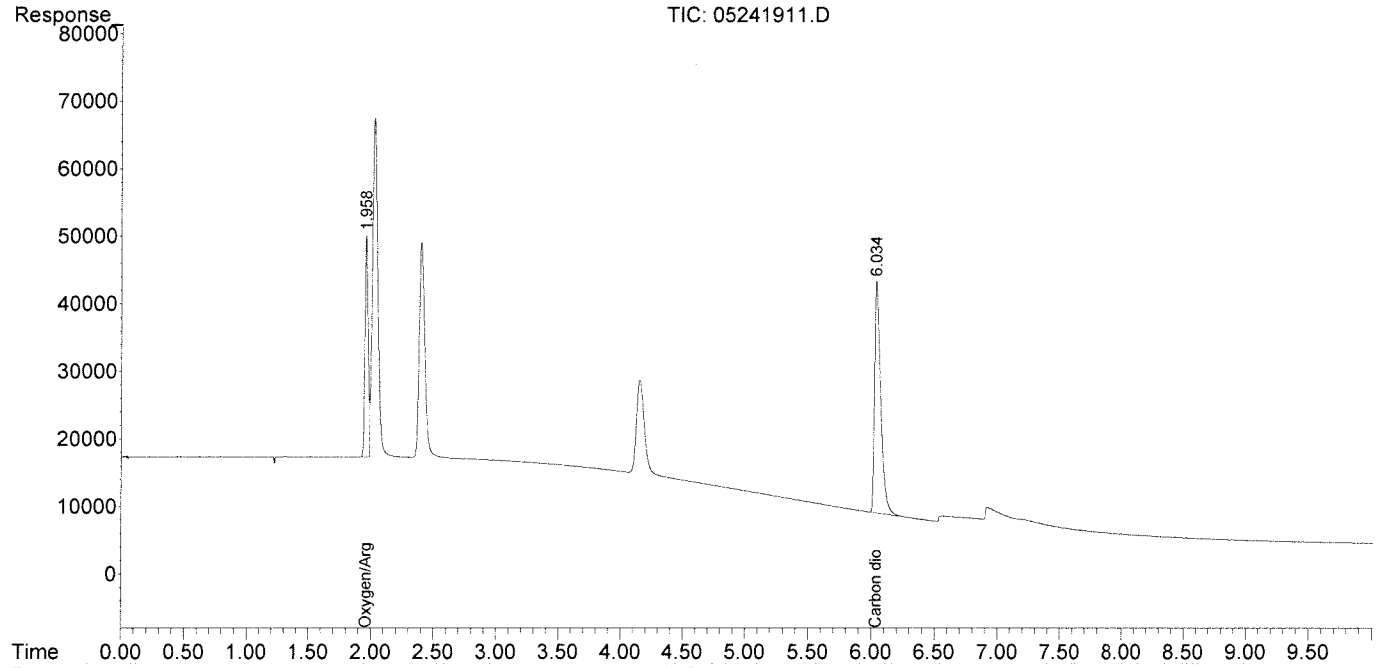
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.959f	577703	0.121	ppm
2)	Carbon monoxide	1.959f	577703	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	6.035	1172111	4993.462	ppm
6)	Methane (FID)	0.000	0	N.D.	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	0	N.D.	ppm
10)	Propane	0.000	0	N.D.	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

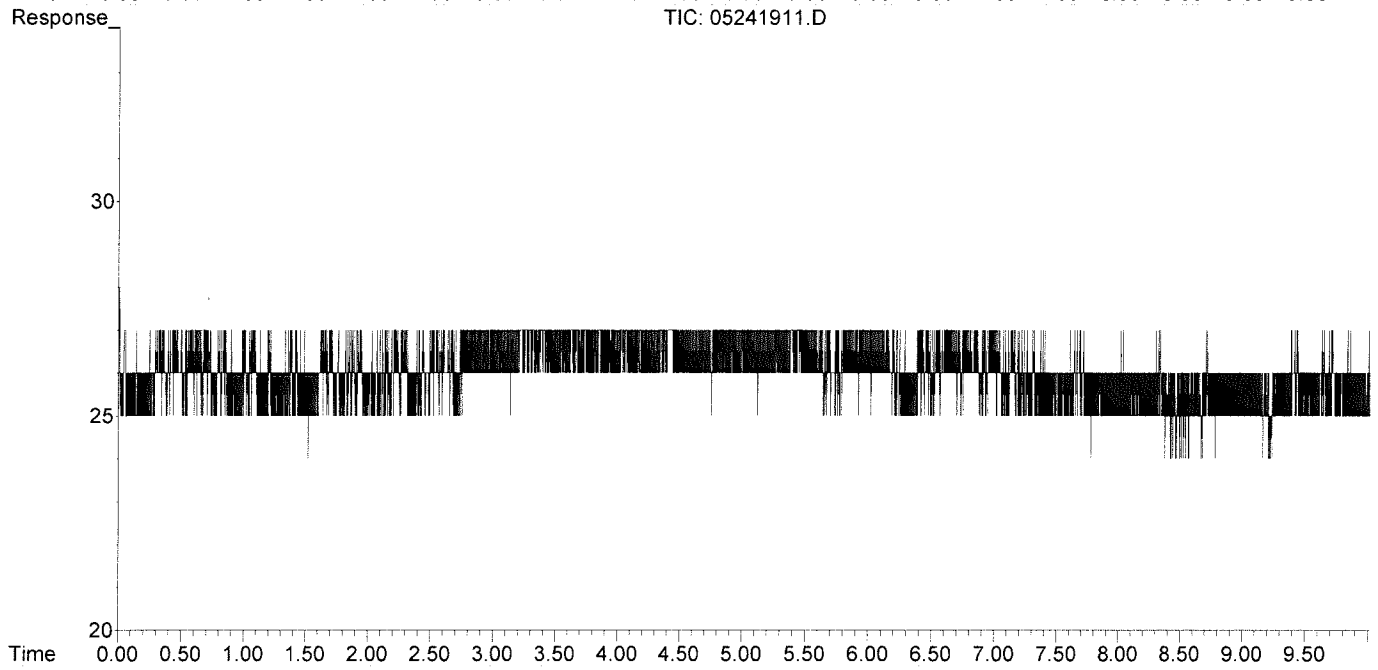
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_TCD\2019_05\24\
Data File : 05241911.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 24-May-2019, 16:14:39
Operator : WH
Sample : std s32-04251903
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 24 16:35:37 2019
Quant Method : J:\GC10\METHODS\RS082817_CO2.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Tue Aug 29 16:13:13 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Injection Log

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

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

Injection Log

Directory: I:\GC10\DATA\RSK_TCD\2019_05\24\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	24-May-19, 10:58:29	05241901.D	std s32-04251903		WH	RSKBOTH.M	pass
2	24-May-19, 11:35:47	05241902.D	rb 0.1ml		WH	RSKBOTH.M	pass
3	24-May-19, 12:06:42	05241903.D	mcs 0.1ml		WH	RSKBOTH.M	pass
4	24-May-19, 13:58:46	05241904.D	lcs tcd 0.1ml		WH	RSKBOTH.M	pass
5	24-May-19, 14:09:43	05241905.D	lcsd tcd 0.1ml		WH	RSKBOTH.M	pass
6	24-May-19, 14:31:43	05241906.D	P1902859-001 0.1		WH	RSKBOTH.M	
7	24-May-19, 14:50:41	05241907.D	P1902859-001 50ul		WH	RSKBOTH.M	
8	24-May-19, 15:02:54	05241908.D	P1902859-002 50ul		WH	RSKBOTH.M	
9	24-May-19, 15:26:54	05241909.D	J1902747-006 50ul		WH	RSKBOTH.M	
10	24-May-19, 15:42:59	05241910.D	J1902760-005 50ul		WH	RSKBOTH.M	
11	24-May-19, 16:14:39	05241911.D	std s32-04251903		WH	RSKBOTH.M	pass
12	24-May-19, 17:08:01	05241912.D	mcs di		WH	RSKBOTH.M	

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:12:57
Operator : WH
Sample : P1902859-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 15:50:20 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 :

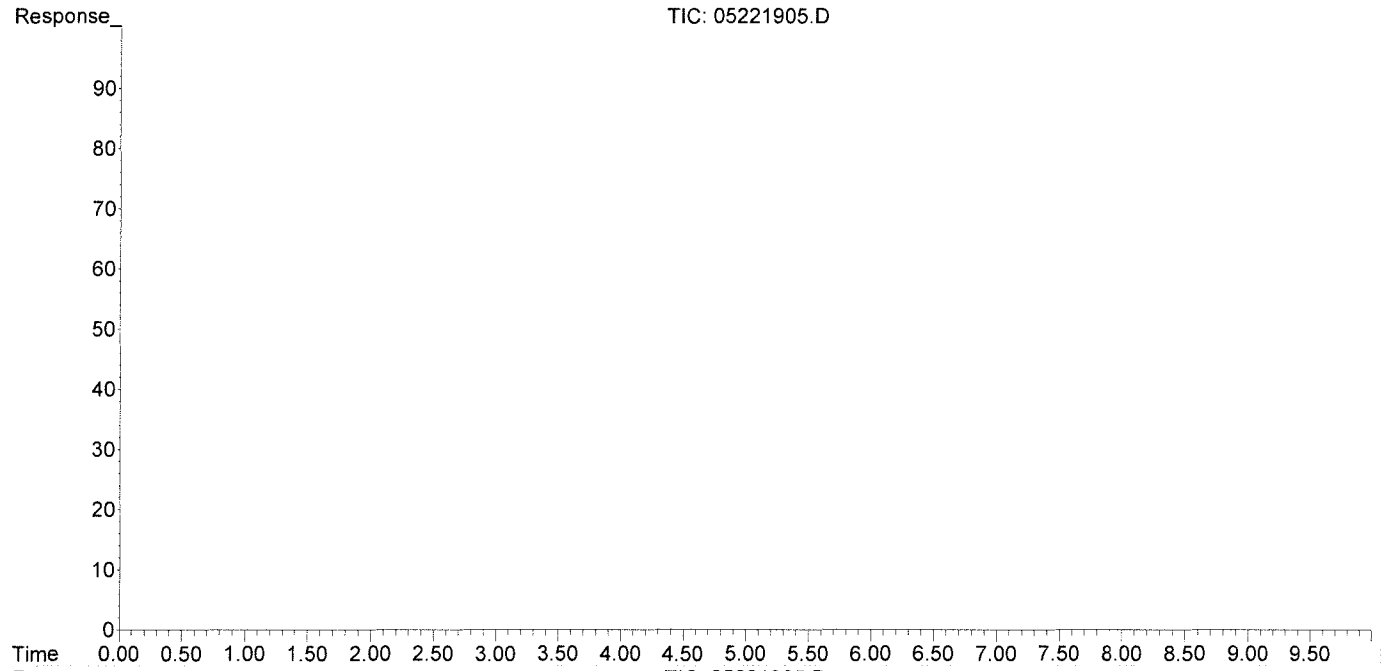
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.112	6586	0.726	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

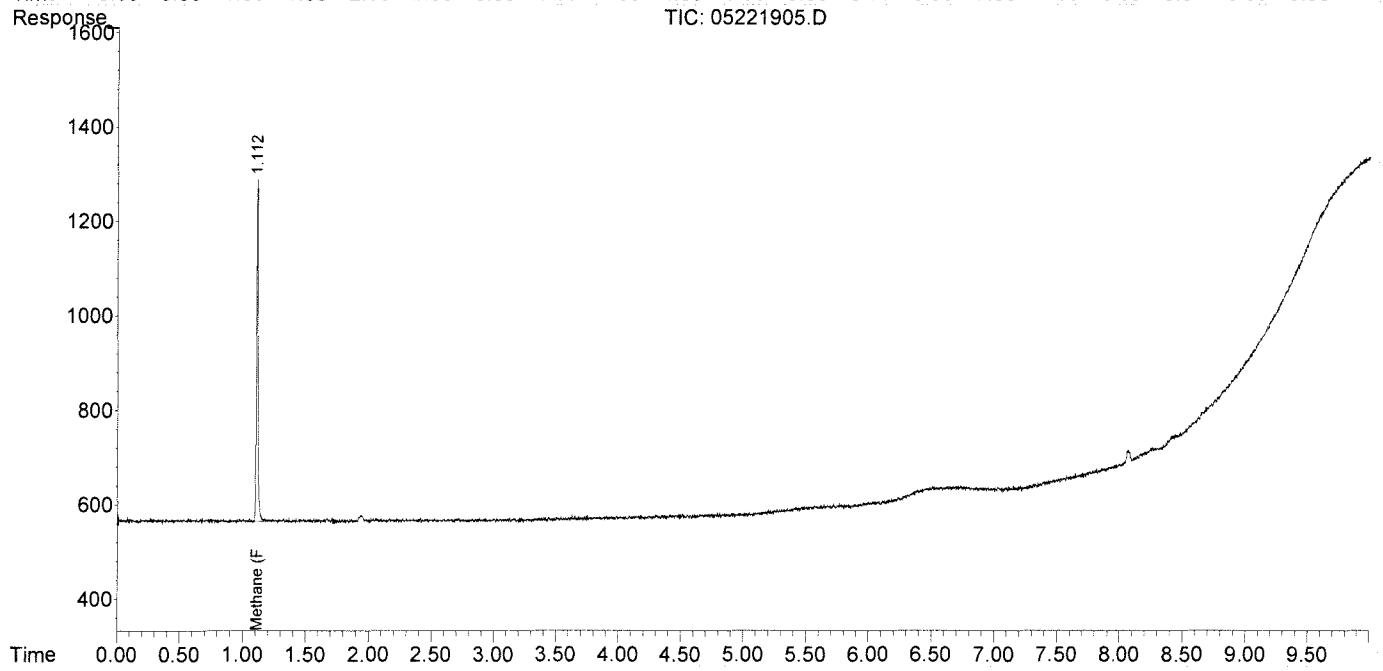
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221905.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:12:57
Operator : WH
Sample : P1902859-001 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 15:50:20 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_05\22\
Data File : 05221906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:27:02
Operator : WH
Sample : P1902859-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 15:50:48 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 :

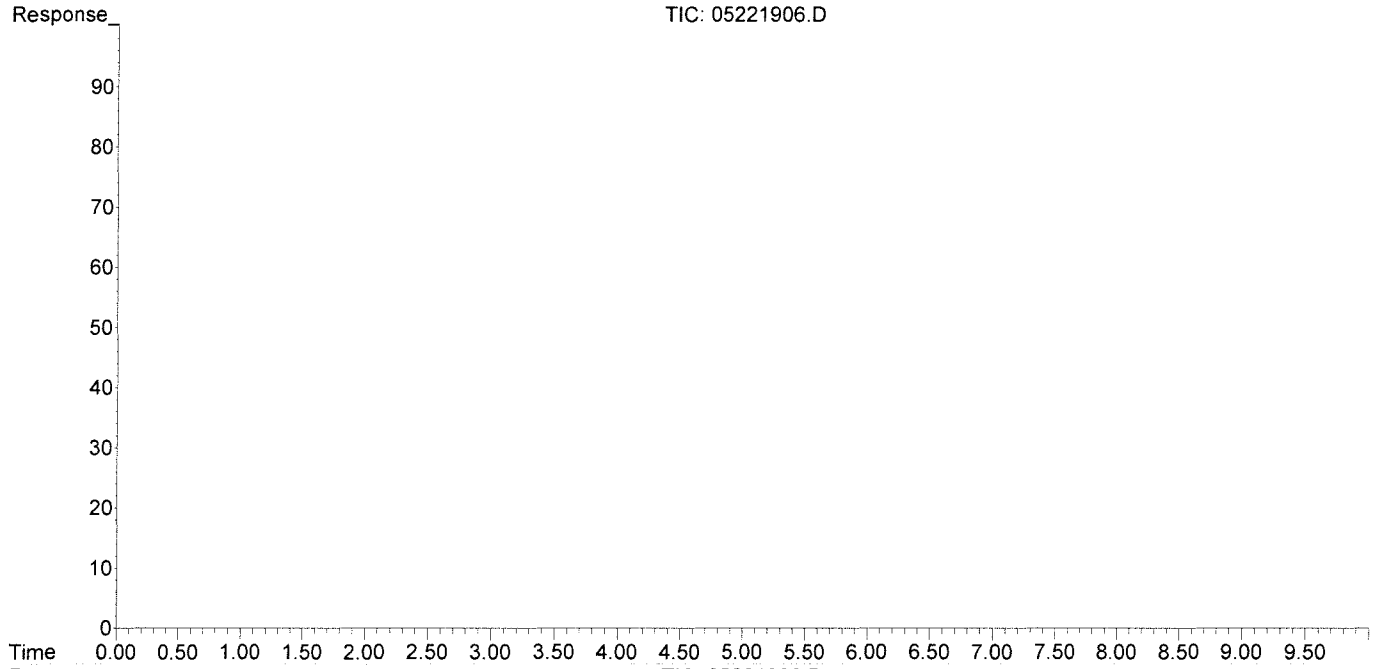
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.112	5801	0.640	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	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

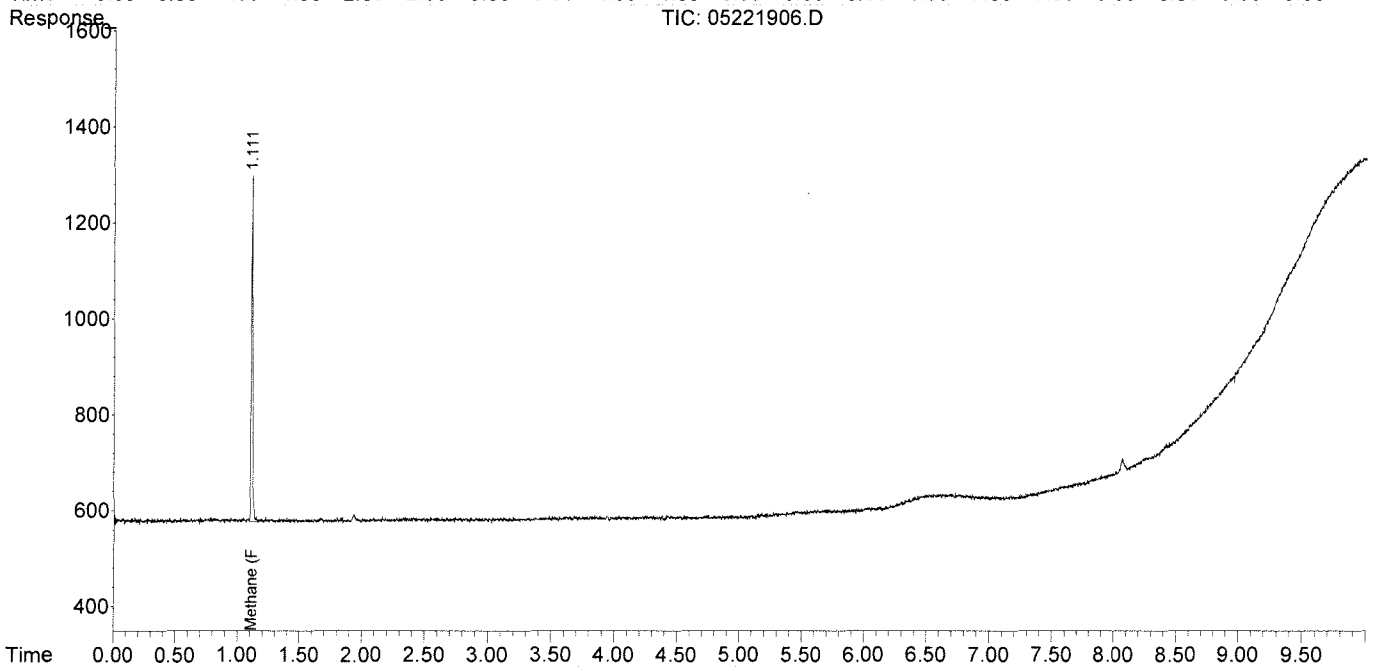
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221906.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:27:02
Operator : WH
Sample : P1902859-002 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 15:50:48 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_05\22\
Data File : 05221904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 11:55:17
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: May 22 12:10:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

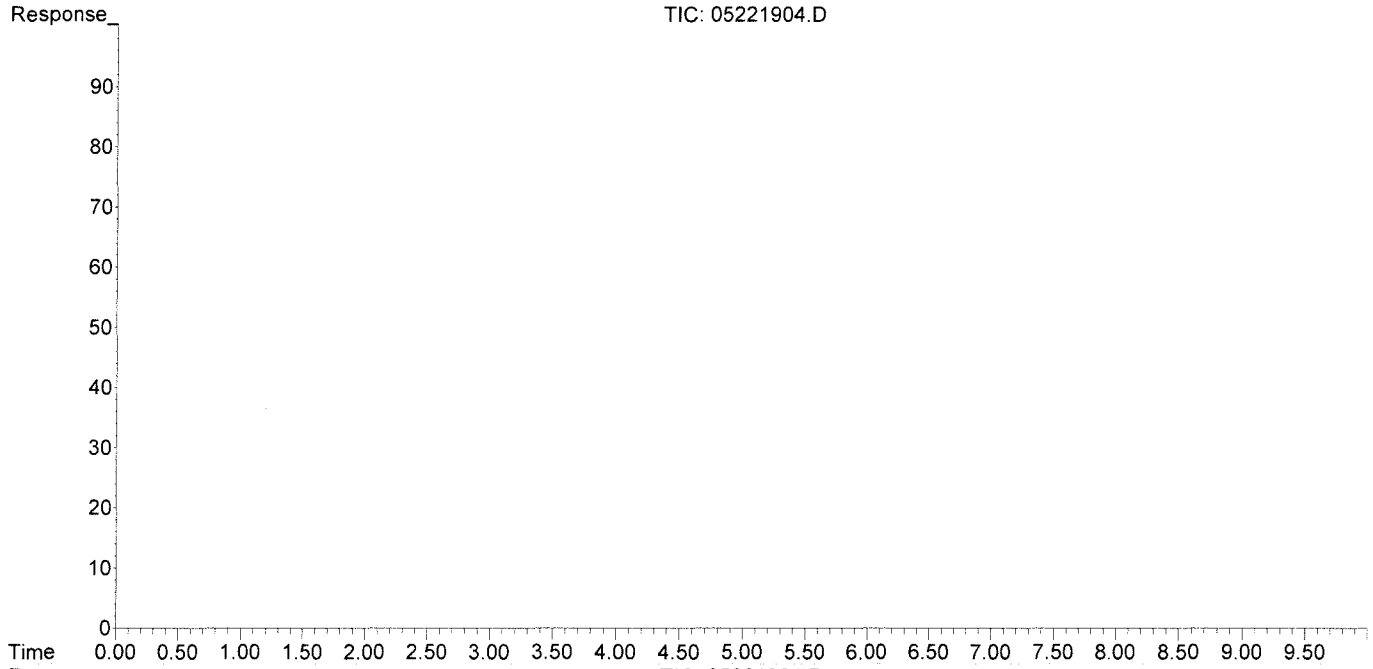
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.105	766	0.084	ppm
7)	Ethylene	0.000	0	N.D.	ppm
8)	Ethane	0.000	0	N.D.	ppm
9)	Propylene	0.000	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

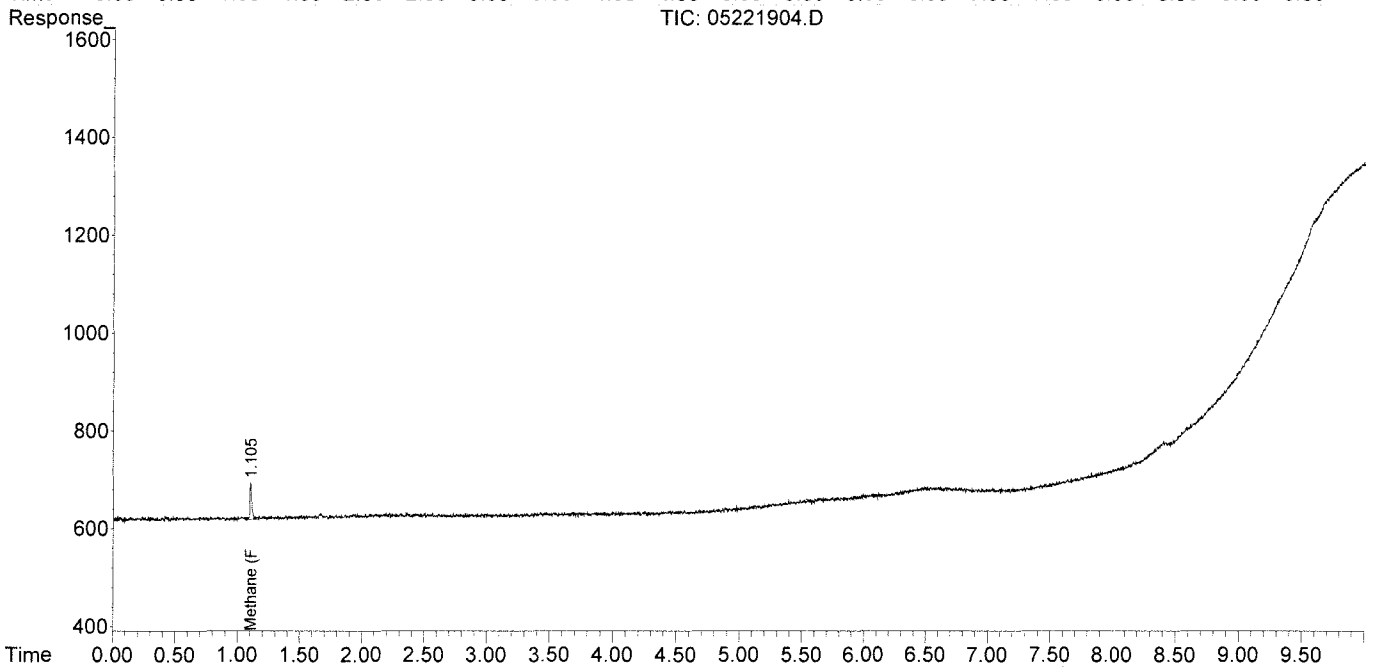
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221904.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 11:55:17
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: May 22 12:10:09 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:42:15
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 14:15:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

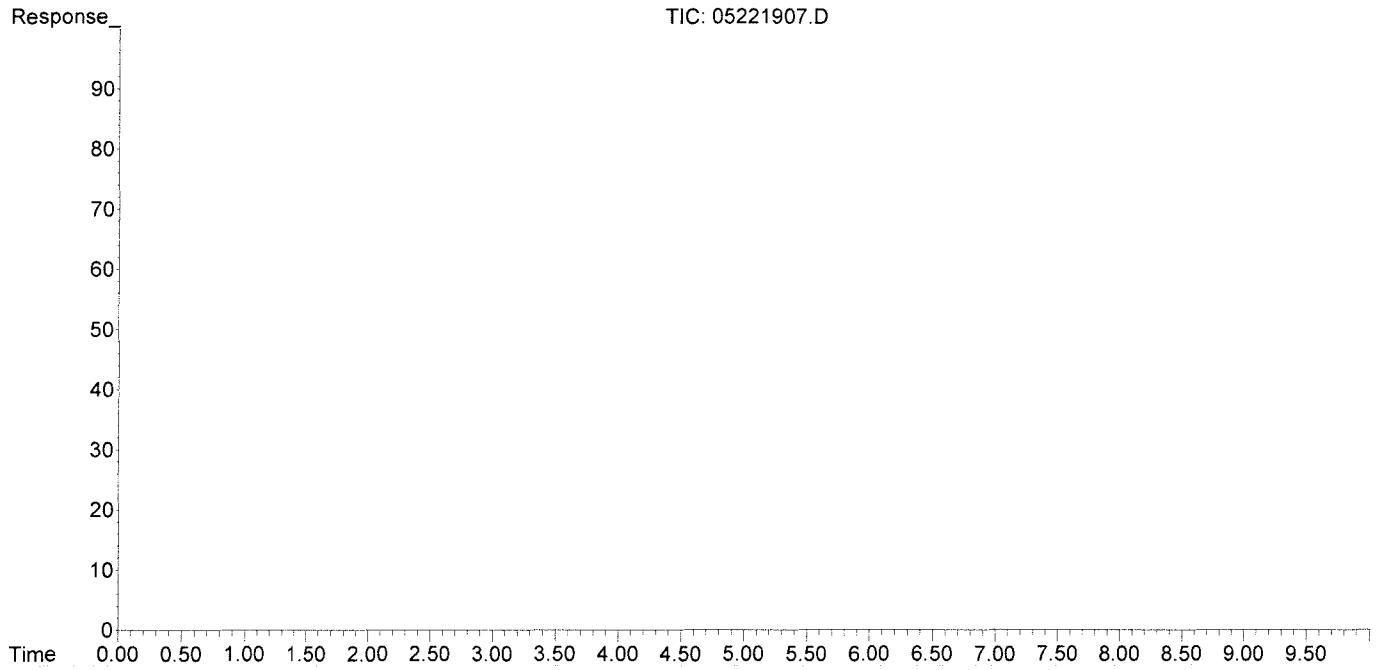
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	12109	1.335	ppm
7)	Ethylene	1.673	17714	1.059	ppm
8)	Ethane	1.935	19799	1.168	ppm
9)	Propylene	4.315	23887	1.019	ppm
10)	Propane	4.438	29243	1.175	ppm
11)	Isobutylene	0.000	0	N.D.	ppm
12)	Isobutane	6.653	38383	1.442	ppm
13)	n-Butane	6.653	38383	1.442	ppm

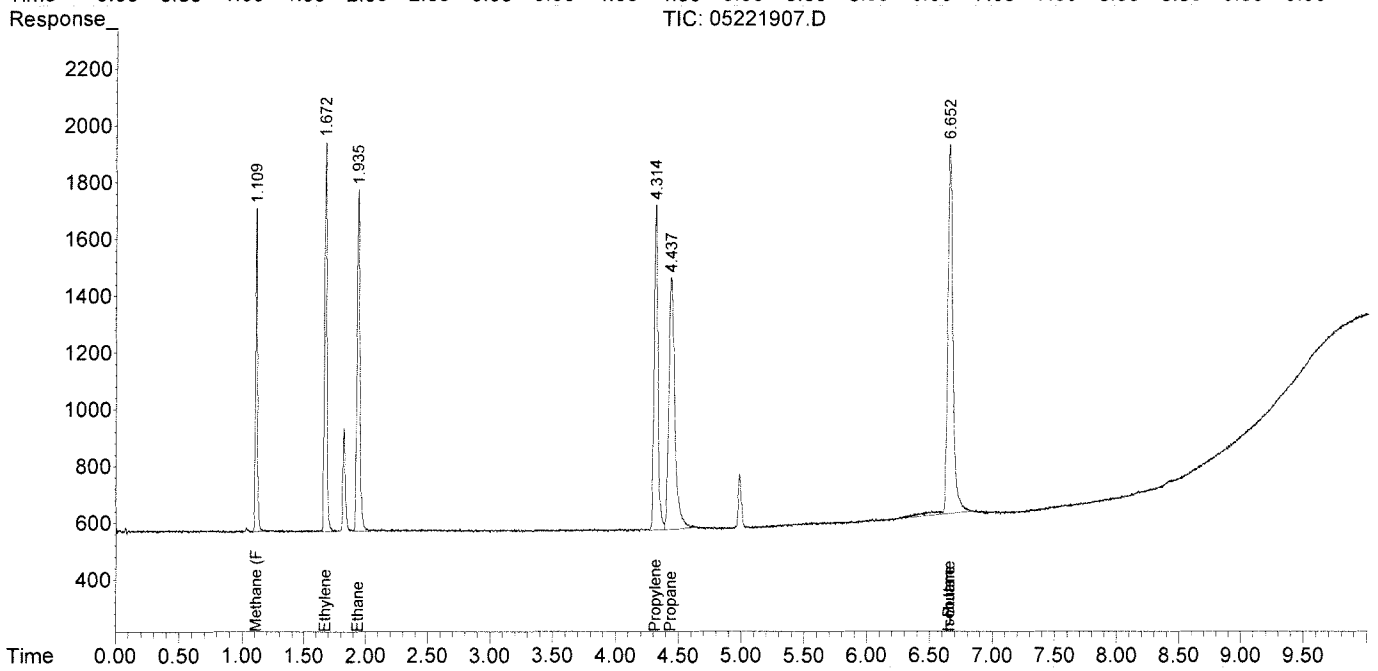
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221907.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:42:15
Operator : WH
Sample : lcs fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 14:15:17 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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





Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:54:48
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 14:15:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

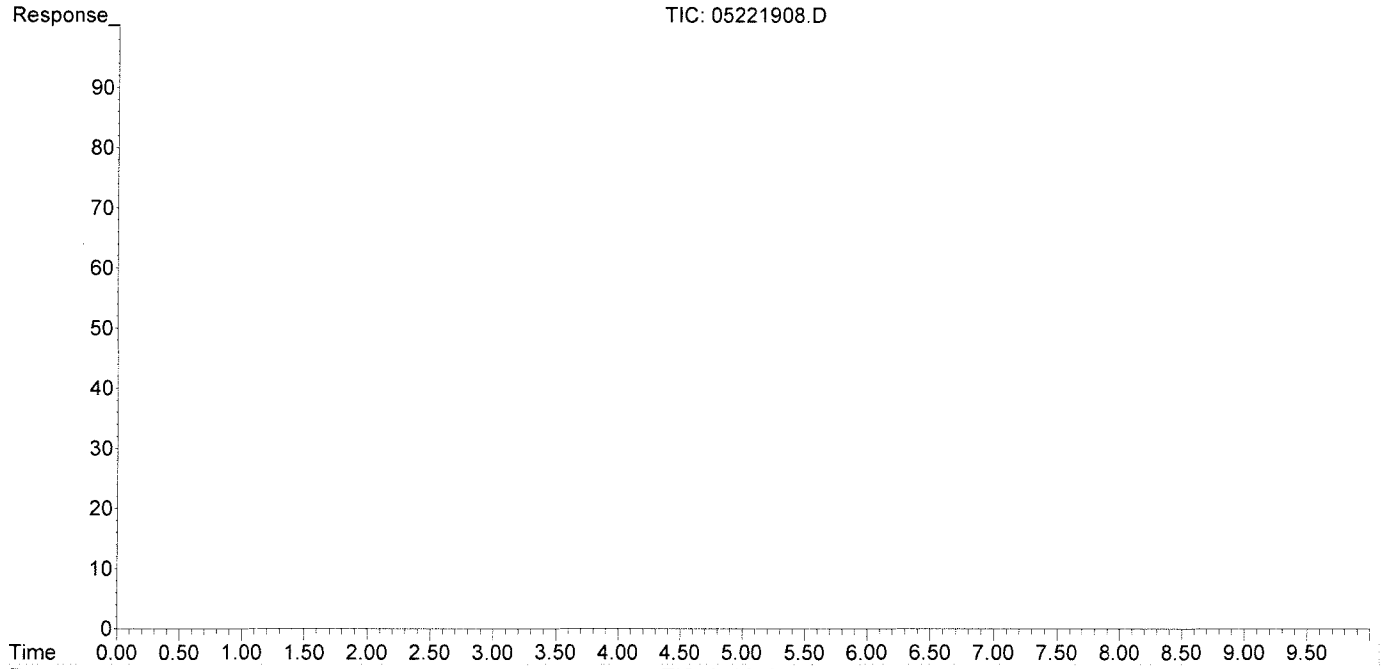
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	
2)	Carbon monoxide	0.000	0	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.106	12857	1.417	ppm	m
7)	Ethylene	1.641	19469	1.163	ppm	
8)	Ethane	1.895	21617	1.275	ppm	
9)	Propylene	4.286	26595	1.135	ppm	
10)	Propane	4.411	32193	1.294	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.650	41401	1.555	ppm	
13)	n-Butane	6.650	41401	1.555	ppm	

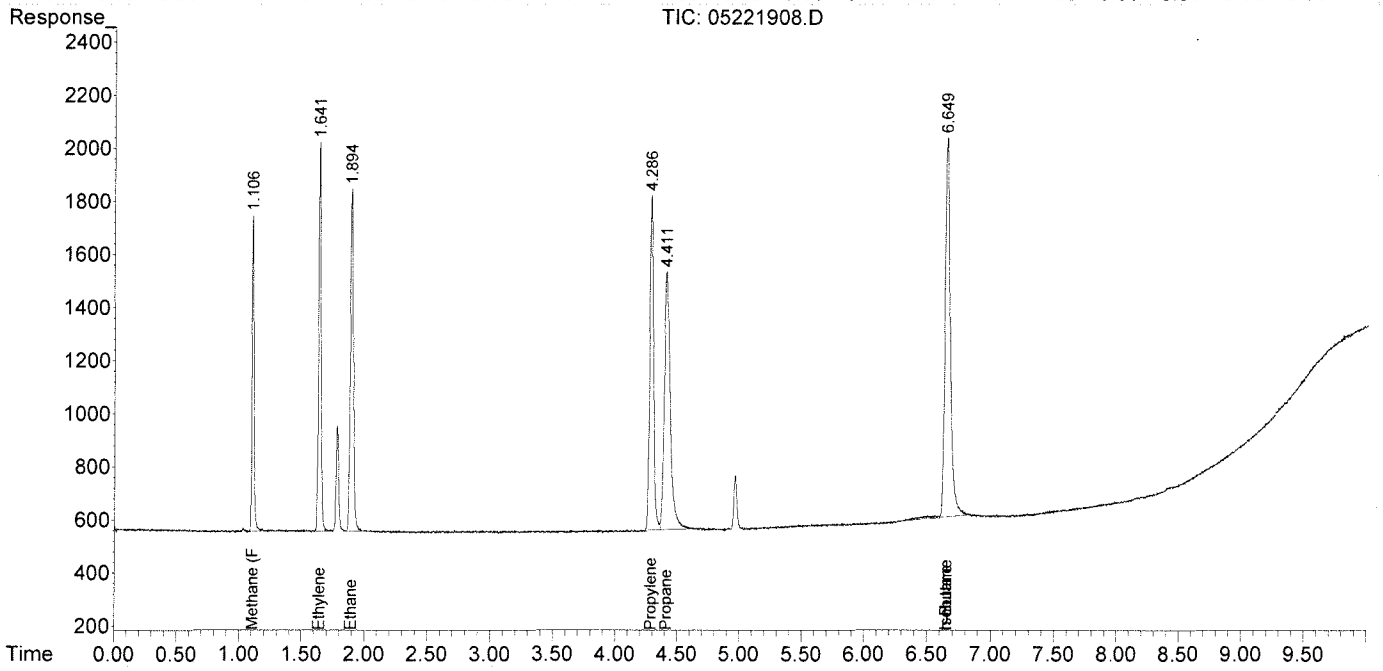
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:54:48
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 14:15:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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

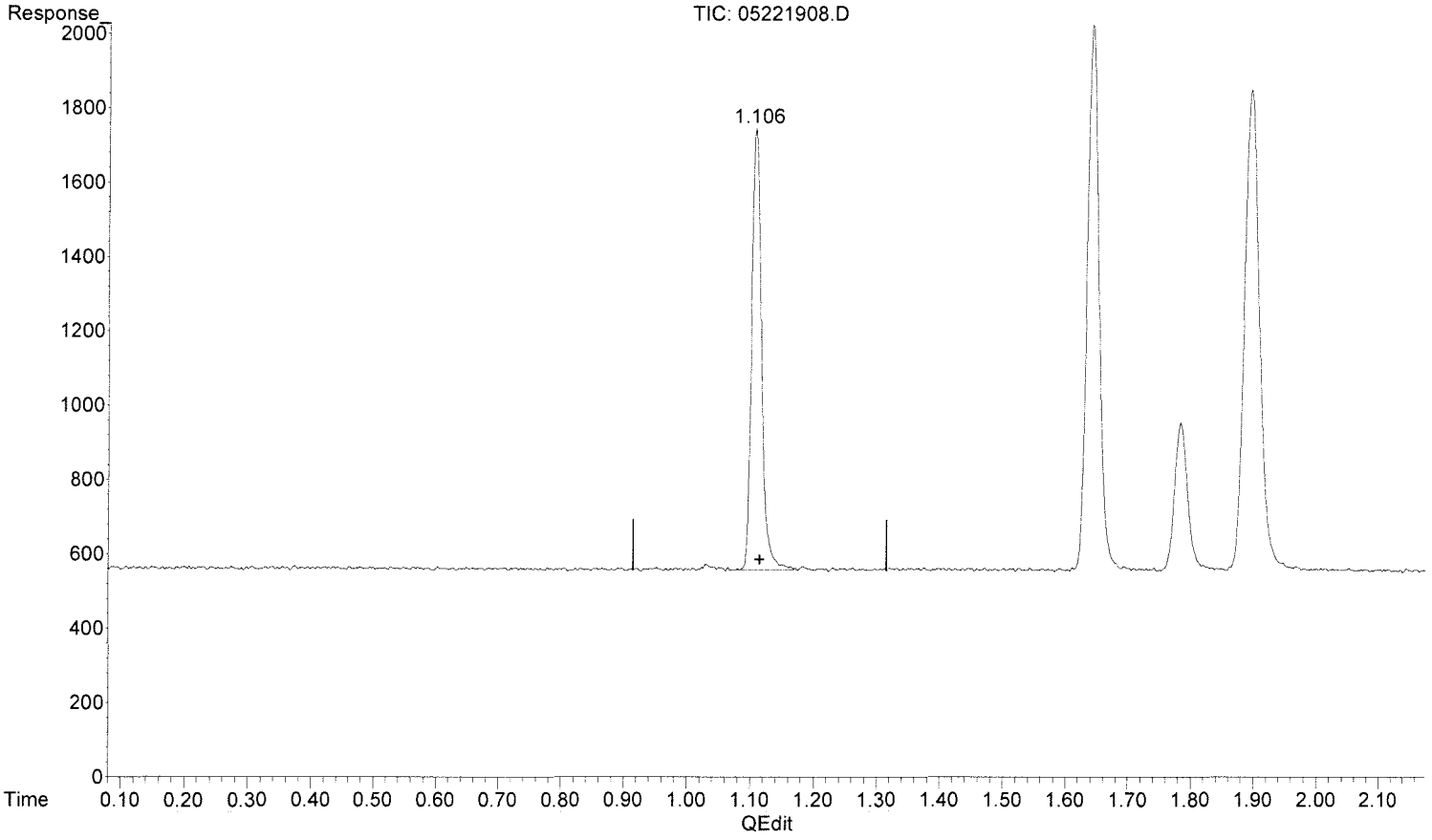




Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221908.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 12:54:48
Operator : WH
Sample : lcsd fid 0.1ml
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: May 22 14:15:29 2019
Quant Method : I:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:14:47 2017
Response via : Initial Calibration
Integrator: ChemStation

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



(6) Methane (FID)

1.106min 1.417 ppm m

response 12857

MK 5/23/19

(+) = Expected Retention Time

Response Factor Report HP5890

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

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

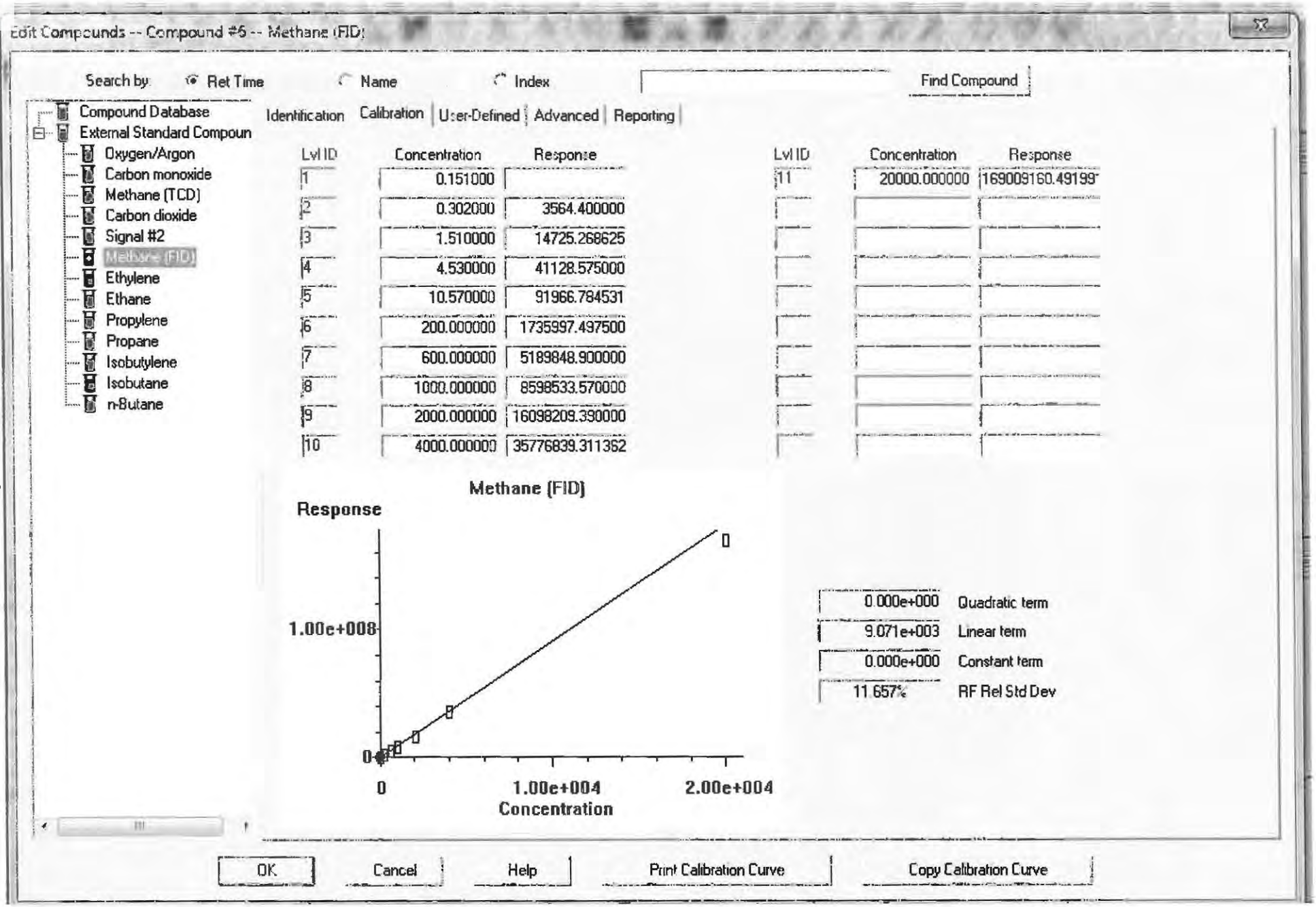
	Compound	1	2	3	4	5	6	Avg		%RSD
1)	Oxygen/Argon	3.739		1.014			0.001	0.793	E6	189.17
2)	Carbon monoxide	3.739		1.014			0.001	0.594	E6	221.92
3)	Methane (TCD)						2.161	0.951	E2	106.37
4)	Carbon dioxide	2.365	2.569	2.558	2.361	2.459	2.314	2.438	E2	4.44

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

	Compound	1	2	3	4	5	6	Avg		%RSD
6)	Methane (FID)		1.180	0.975	0.908	0.870	0.868	0.907	E4	11.66
7)	Ethylene	1.736	1.638	1.780	1.720	1.628	1.670	1.673	E4	3.90
8)	Ethane	1.781	1.676	1.784	1.730	1.692	1.675	1.695	E4	3.83
9)	Propylene	2.505	2.296	2.592	2.480	2.346	2.252	2.343	E4	6.56
10)	Propane	2.439	2.283	2.645	2.555	2.433	2.522	2.488	E4	4.20
11)	Isobutylene							0.652	E1	138.46
12)	Isobutane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17
13)	n-Butane	6.058	4.793	2.214	1.553	1.353		2.662	E4	86.17

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

RS091217_R.M Wed Sep 13 15:11:48 2017


Edit Compounds -- Compound #6 -- Methane (FID)
Search by: Ret Time Name Index
Find Compound
Compound Database
External Standard Compoun
Oxygen/Argon
Carbon monoxide
Methane (TCD)
Carbon dioxide
Signal #2
Methane (FID)
Ethylene
Ethane
Propylene
Propane
Isobutylene
Isobutane
n-Butane
Identification Calibration User-Defined Advanced Reporting
Lvl ID Concentration Response
1 0.151000
2 0.302000 3564.400000
3 1.510000 14725.268625
4 4.530000 41128.575000
5 10.570000 91966.784531
6 200.000000 1735997.497500
7 600.000000 5189848.900000
8 1000.000000 8598533.570000
9 2000.000000 16098209.390000
10 4000.000000 35776839.311362
Lvl ID Concentration Response
11 20000.000000 169009160.49199
Methane (FID)
Response
1.00e+008
0
0
1.00e+004
2.00e+004
Concentration
0.000e+000 Quadratic term
9.071e+003 Linear term
0.000e+000 Constant term
11.657% RF Rel Std Dev
OK
Cancel
Help
Print Calibration Curve
Copy Calibration Curve

Edit Compounds -- Compound #7 -- Ethylene

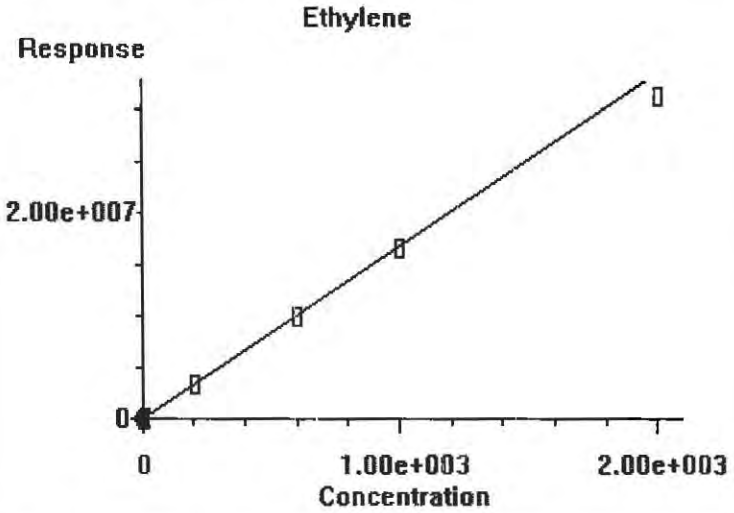
Search by: Ret Time | Name | Index | Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2621.970000
2	0.302000	4946.731301
3	1.510000	26884.746847
4	4.530000	77902.721497
5	10.570000	172085.529560
6	200.000000	3339702.313219
7	600.000000	10007758.776971
8	1000.000000	16608503.805988
9	2000.000000	31192443.898600
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.673e+004	Linear term
0.000e+000	Constant term
3.897%	RF Rel Std Dev

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

Edit Compounds -- Compound #8 -- Ethane

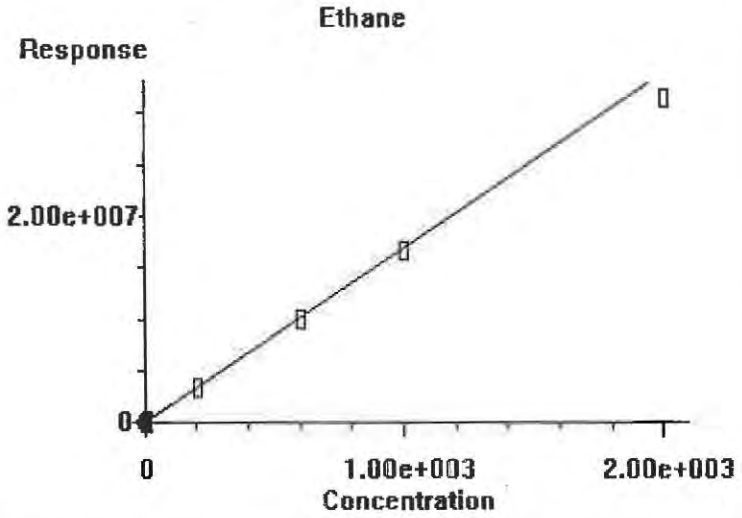
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	2689.928008
2	0.302000	5060.331943
3	1.510000	26943.667500
4	4.530000	78353.525045
5	10.570000	178840.731148
6	200.000000	3350442.319129
7	600.000000	10048964.218029
8	1000.000000	16703164.879012
9	2000.000000	31424217.938900
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
1.695e+004	Linear term
0.000e+000	Constant term
3.831%	RF Rel Std Dev

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

Edit Compounds -- Compound #9 -- Propylene

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

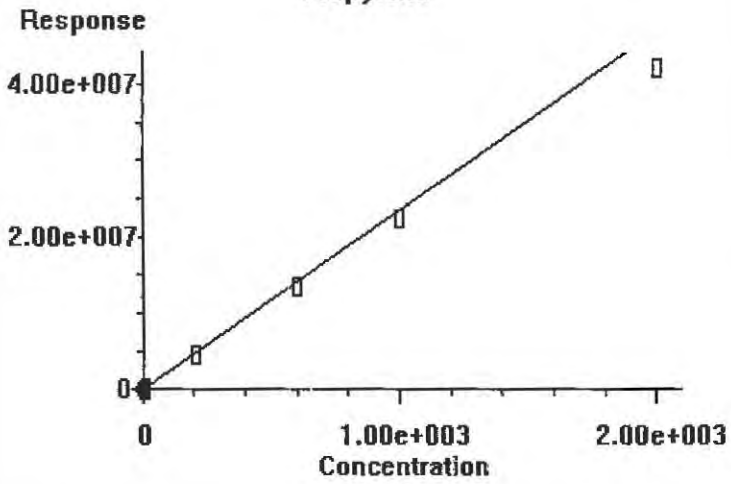
- Compound Database
- External Standard Compoun
  - Oxygen/Argon
  - Carbon monoxide
  - Methane (TCD)
  - Carbon dioxide
  - Signal #2
  - Methane (FID)
  - Ethylene
  - Ethane
  - Propylene
  - Propane
  - Isobutylene
  - Isobutane
  - n-Butane

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3782.537646
2	0.302000	6933.285530
3	1.510000	39139.518208
4	4.530000	112341.896872
5	10.570000	248003.903623
6	200.000000	4504060.086084
7	600.000000	13569342.761419
8	1000.000000	22494887.720990
9	2000.000000	42124689.656800
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	

Propylene



0.000e+000	Quadratic term
2.343e+004	Linear term
0.000e+000	Constant term
6.559%	RF Rel Std Dev

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

Edit Compounds -- Compound #10 -- Propane

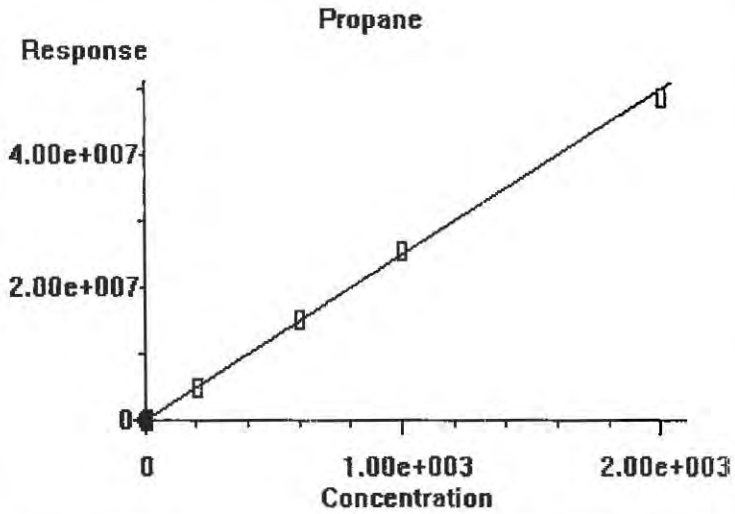
Search by: Ret Time | Name | Index — Find Compound

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

Identification | Calibration | User-Defined | Advanced | Reporting

Lvl ID	Concentration	Response
1	0.151000	3682.897354
2	0.302000	6894.237803
3	1.510000	39934.166792
4	4.530000	115723.428128
5	10.570000	257124.432806
6	200.000000	5043035.663316
7	600.000000	15251325.797404
8	1000.000000	25459410.657938
9	2000.000000	48583085.287451
10	4000.000000	

Lvl ID	Concentration	Response
11	20000.000000	



0.000e+000	Quadratic term
2.488e+004	Linear term
0.000e+000	Constant term
4.200%	RF Rel Std Dev

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

Calibration Status Report HP5890

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

#	ID	Conc	ISTD Conc	Path\File
1	1	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121702.D
2	2	0	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121703.D
3	3	3	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121704.D
4	4	10	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121705.D
5	5	25	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121706.D
6	6	125	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121707.D
7	7	5000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121708.D
8	8	25000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121709.D
9	9	2000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121710.D
10	10	30000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121711.D
11	11	20000	0	J:\GC10\DATA\RSK_FID\2017_09\12\09121712.D

#	ID	Update Time	Quant Time	Acquisition Time
1	1	Sep 13 11:04 2017	Sep 12 15:03 2017	12-Sep-2017, 10:52
2	2	Sep 13 11:05 2017	Sep 13 11:05 2017	12-Sep-2017, 11:05
3	3	Sep 13 11:06 2017	Sep 13 11:05 2017	12-Sep-2017, 11:45
4	4	Sep 13 11:09 2017	Sep 13 11:06 2017	12-Sep-2017, 12:09
5	5	Sep 13 11:09 2017	Sep 13 11:09 2017	12-Sep-2017, 12:30
6	6	Sep 13 11:10 2017	Sep 13 11:10 2017	12-Sep-2017, 12:47
7	7	Sep 13 11:11 2017	Sep 13 11:10 2017	12-Sep-2017, 13:00
8	8	Sep 13 11:12 2017	Sep 13 11:11 2017	12-Sep-2017, 13:47
9	9	Sep 13 11:12 2017	Sep 13 11:12 2017	12-Sep-2017, 14:07
10	10	Sep 13 11:14 2017	Sep 13 11:13 2017	12-Sep-2017, 14:48
11	11	Sep 13 11:14 2017	Sep 13 11:14 2017	12-Sep-2017, 15:21

RS091217_R.M Wed Sep 13 15:11:22 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.767	373920	0.128	ppm	
2)	Carbon monoxide	1.767	373920	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	0.000	0	N.D.	ppm	d
7)	Ethylene	1.595	2622	0.156	ppm	
8)	Ethane	1.848	2690	0.156	ppm	
9)	Propylene	4.222	3783	0.154	ppm	
10)	Propane	4.348	3683	0.139	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.582f	6058	NoCal	ppm	
13)	n-Butane	6.582f	6058	NoCal	ppm	

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

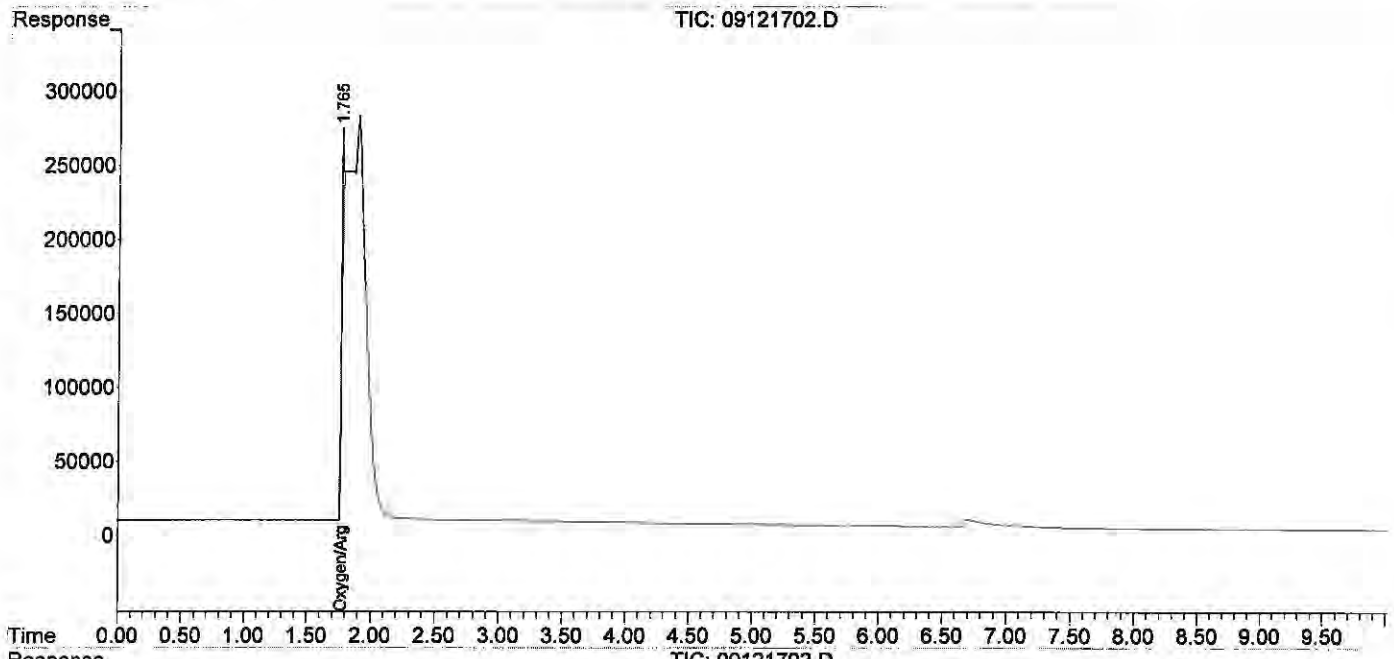
9/13/17

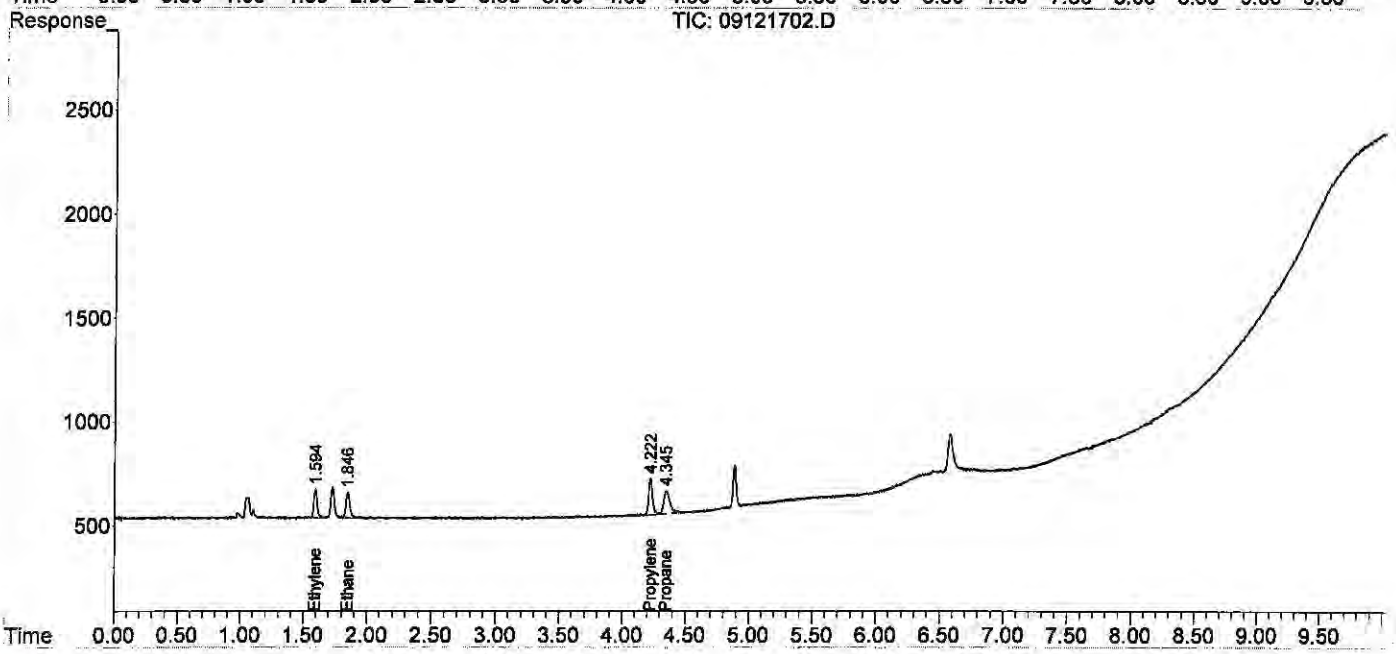
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121702.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 10:52
Operator : MC
Sample : 0.151ppm 0.250ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 12 11:03:15 2017
Quant Method : I:\GC10\METHODS\RS082417.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Fri Aug 25 09:19:14 2017
Response via : Initial Calibration
Integrator: ChemStation

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





RS091217_R.M Wed Sep 13 14:58:18 2017

Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121703.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 11:05
Operator : MC
Sample : 0.302ppm 0.5ml s32-09121702
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:05:03 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:04:50 2017
Response via : Initial Calibration
Integrator: ChemStation

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

	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.913f	-25181981	N.D.	ppm	
2)	Carbon monoxide	1.913f	-25181981	1.089	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.049	3564	0.391	ppm	m
7)	Ethylene	1.577	4947	0.292	ppm	
8)	Ethane	1.828	5060	0.293	ppm	
9)	Propylene	4.207	6933	0.281	ppm	
10)	Propane	4.337	6894	0.268	ppm	
11)	Isobutylene	0.000	0	N.D.	ppm	
12)	Isobutane	6.579f	9587	0.158	ppm	
13)	n-Butane	6.579f	9587	0.158	ppm	

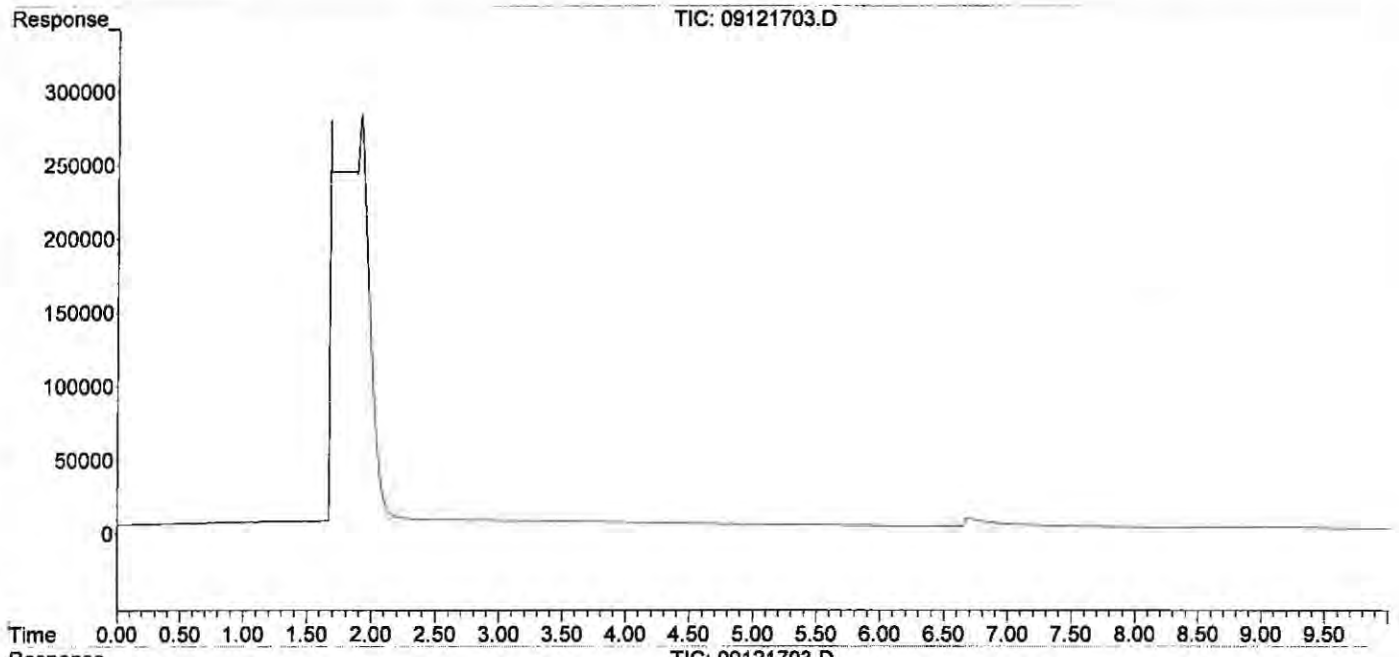
(f)=RT Delta > 1/2 Window (m)=manual int.

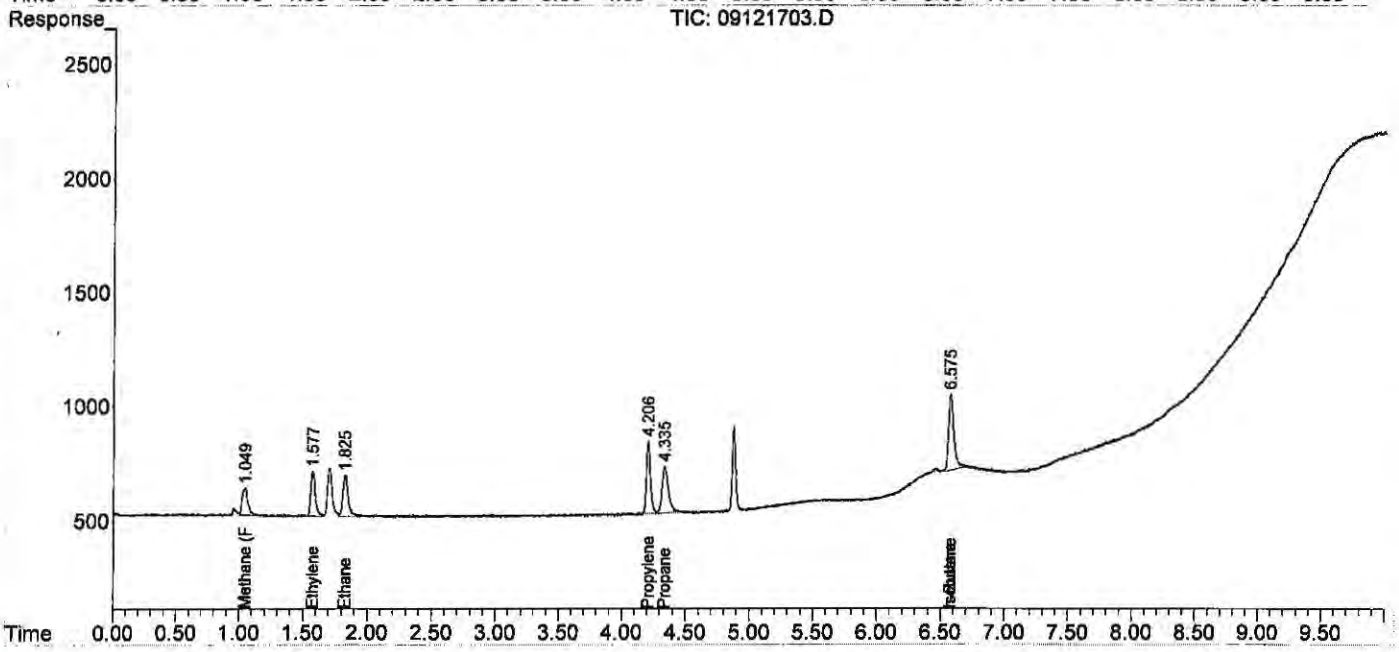
Quantitation Report (QT Reviewed)

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 :



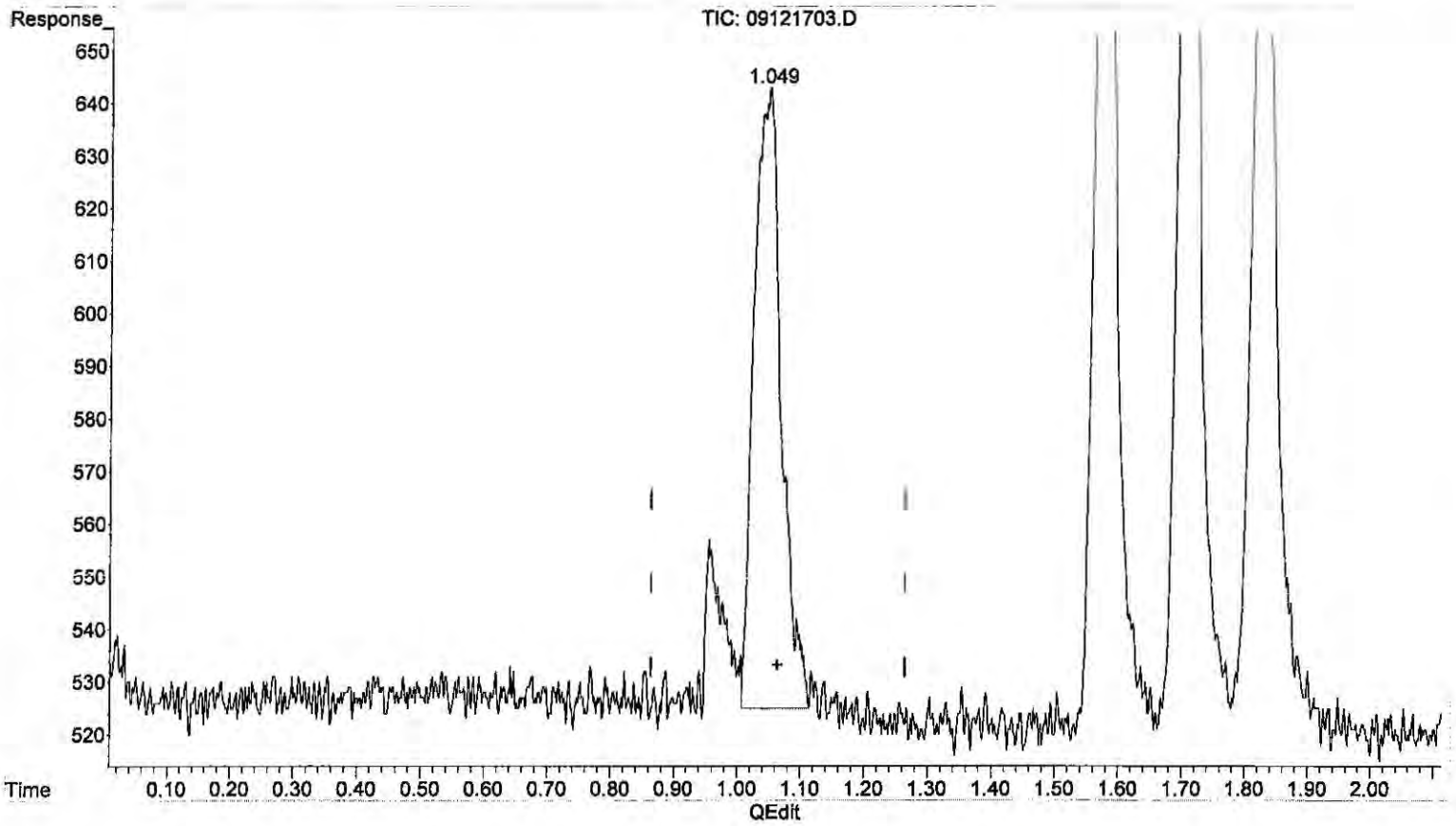


Quantitation Report (Qedit)

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 :

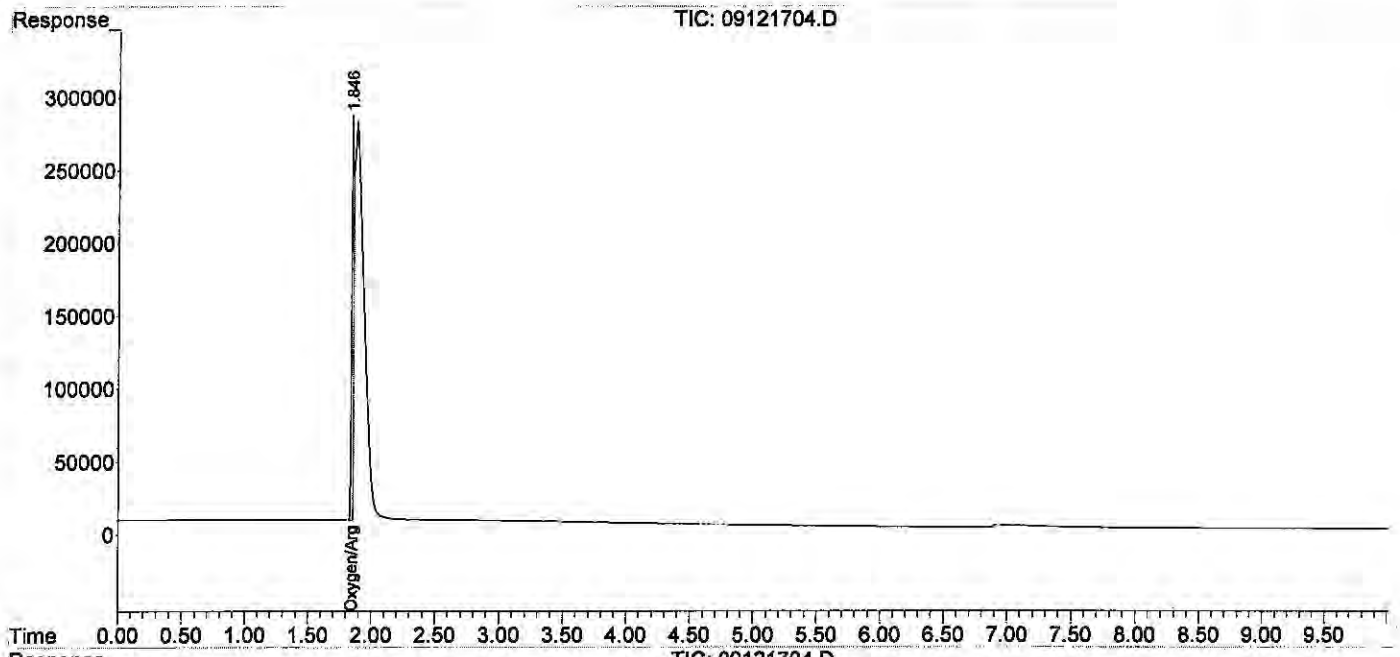
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.847	2536230	1.056	ppm
2)	Carbon monoxide	1.847	2536230	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.064	14725	1.613	ppm
7)	Ethylene	1.598	26885	1.582	ppm
8)	Ethane	1.851	26944	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

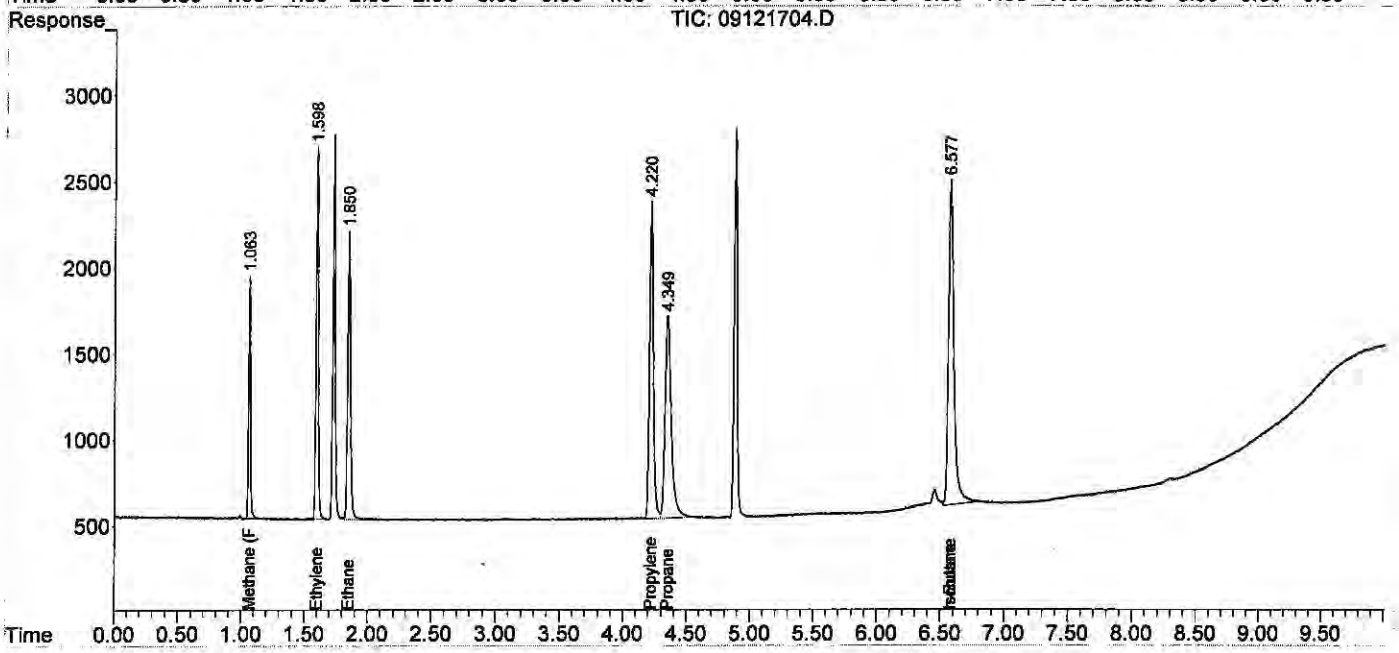
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :





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

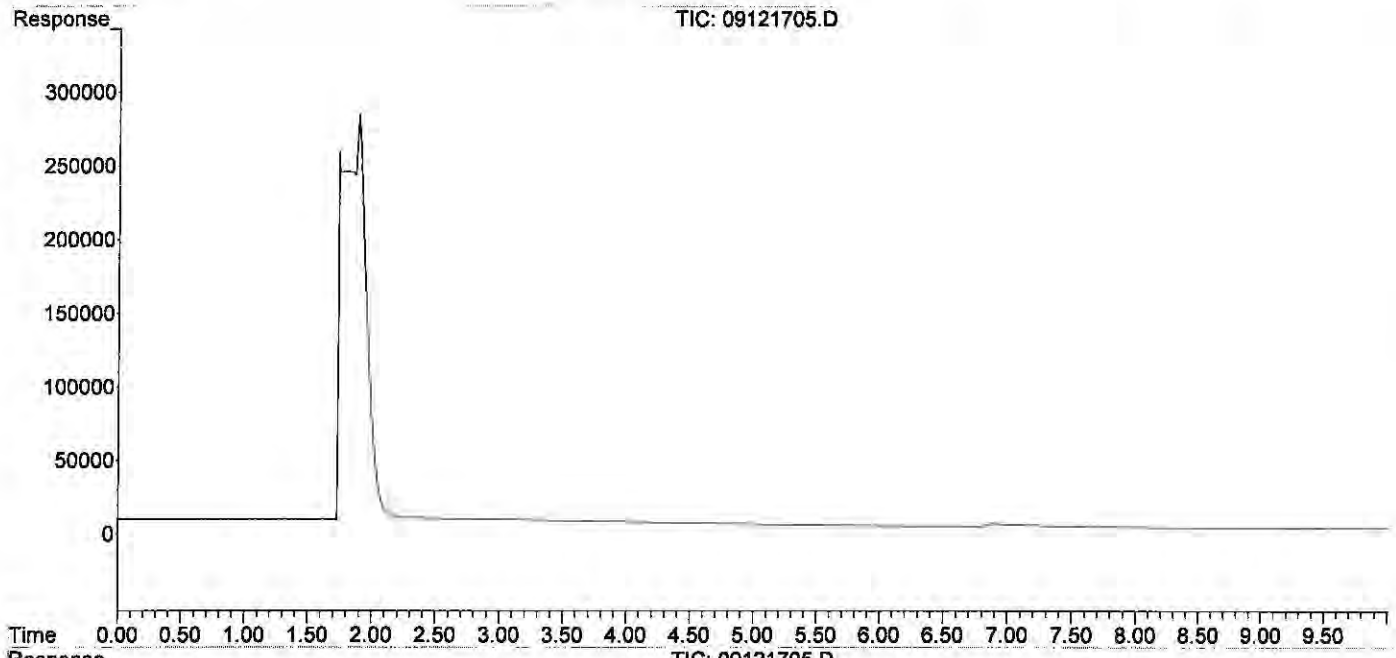
(f)=RT Delta > 1/2 Window (m)=manual int.

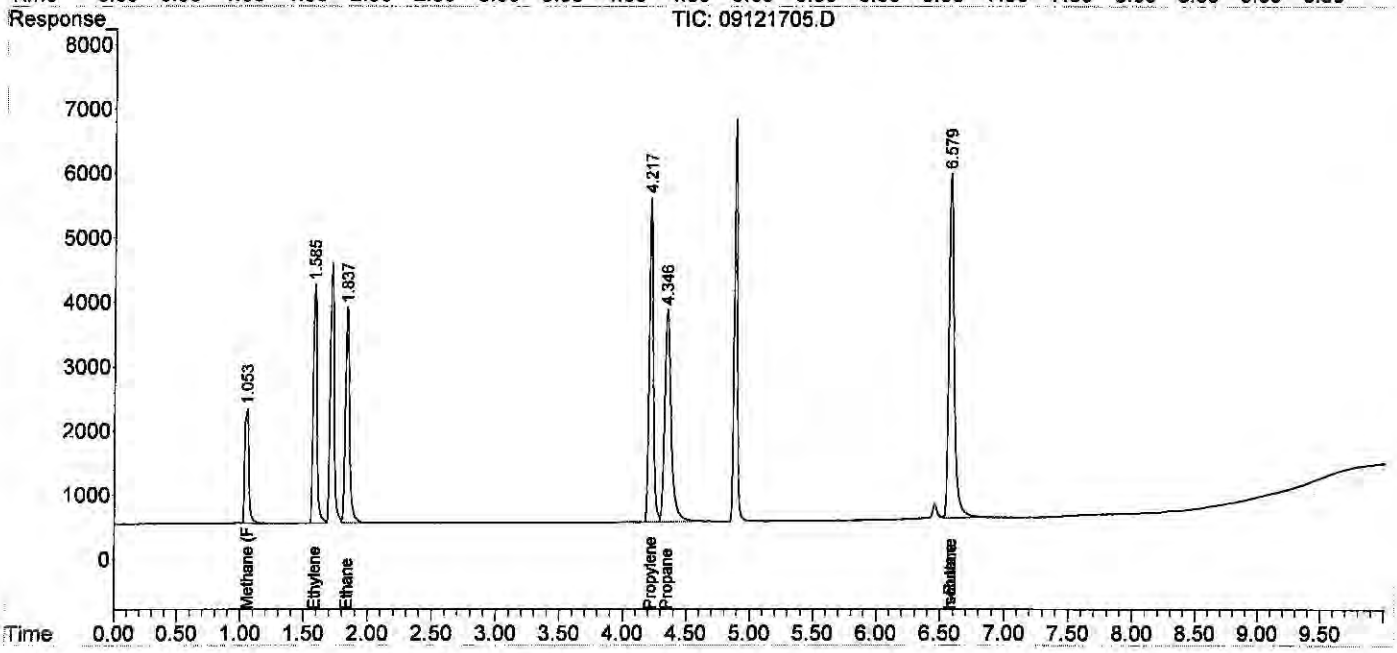
Quantitation Report (QT Reviewed)

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 :





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

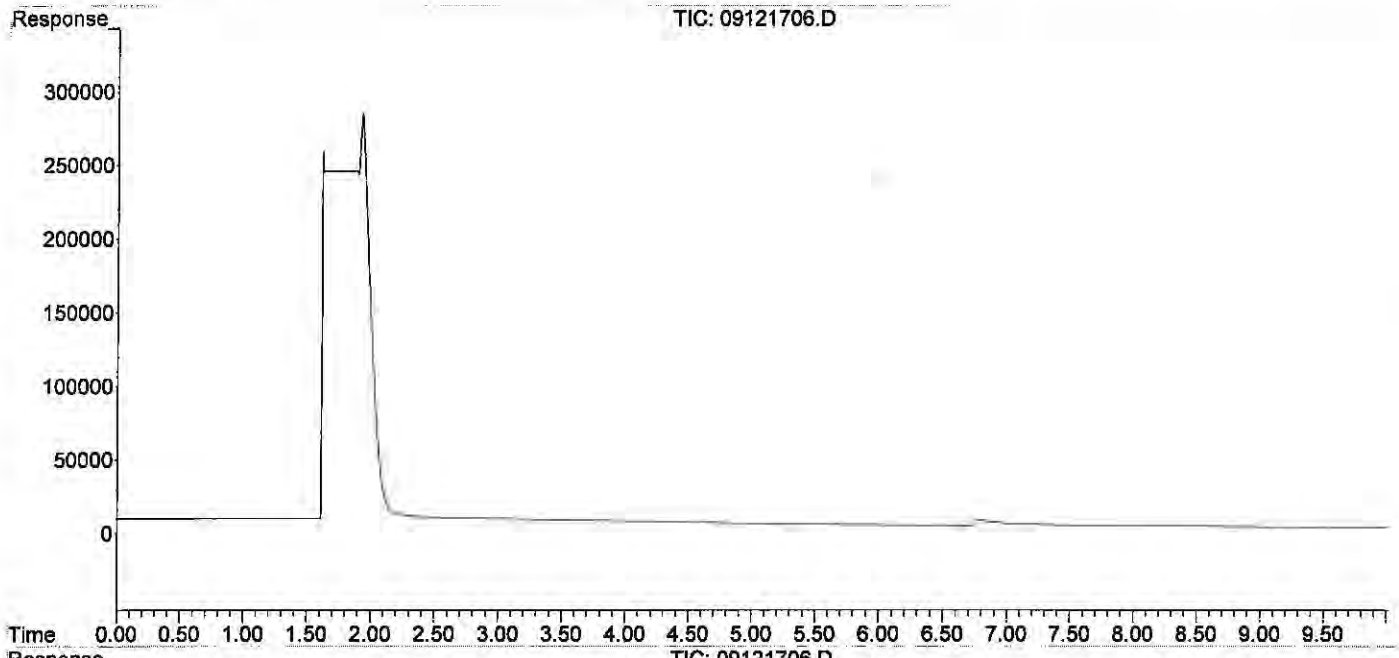
(f)=RT Delta > 1/2 Window (m)=manual int.

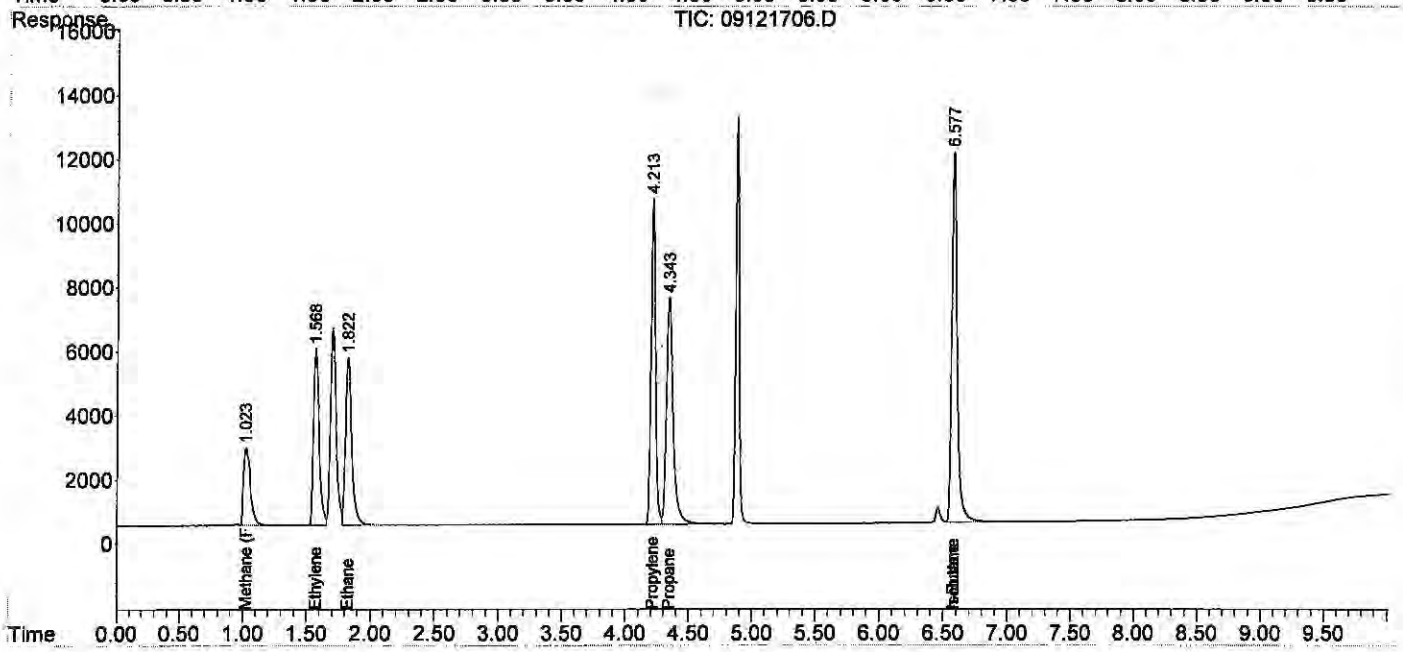
Quantitation Report (QT Reviewed)

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 :

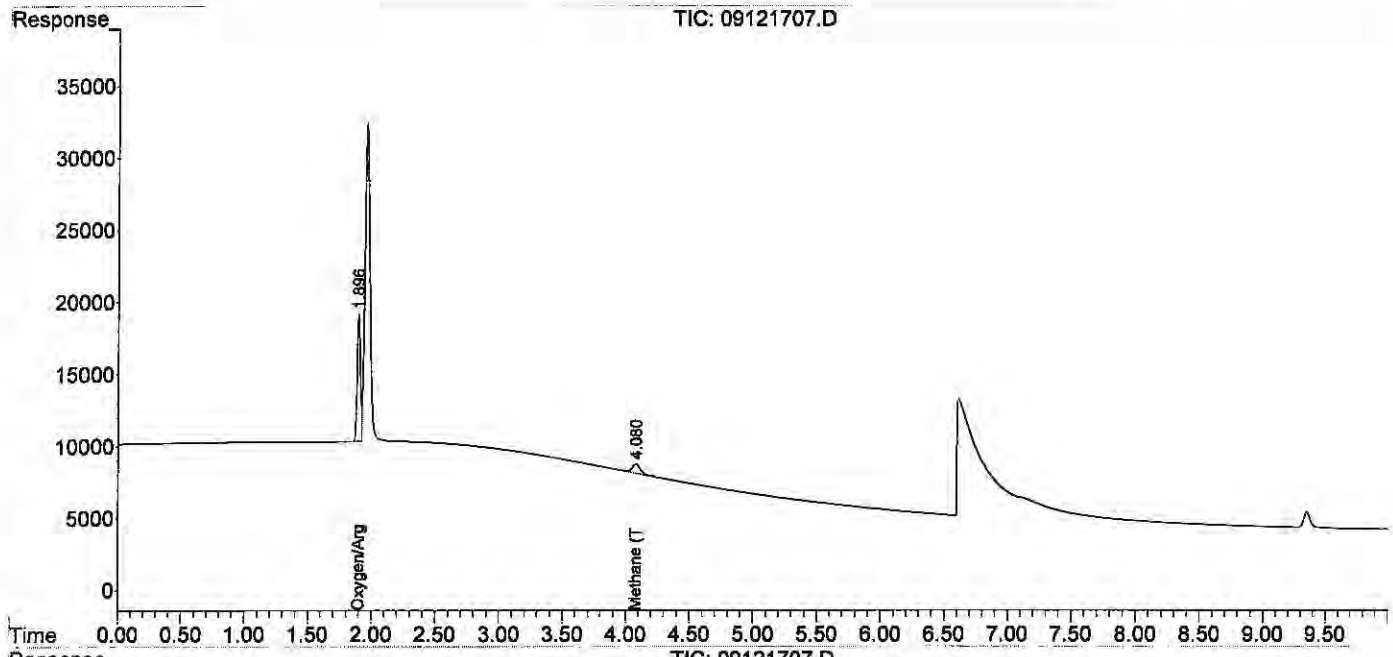
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.897	155286	0.065	ppm
2)	Carbon monoxide	1.897	155286	N.D.	ppm
3)	Methane (TCD)	4.079f	27015	2856.472	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.063	1735997	190.792	ppm
7)	Ethylene	1.597	3339702	198.758	ppm
8)	Ethane	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

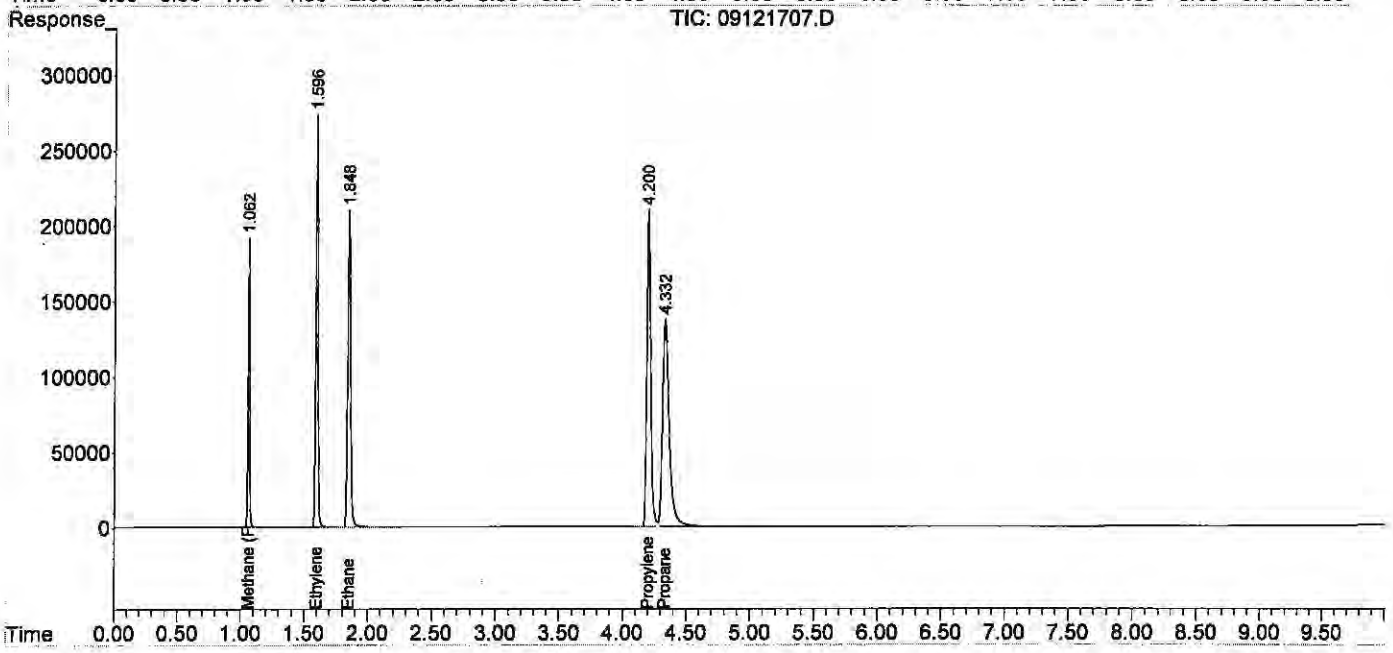
(f)=RT Delta > 1/2 Window (m)=manual int.

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

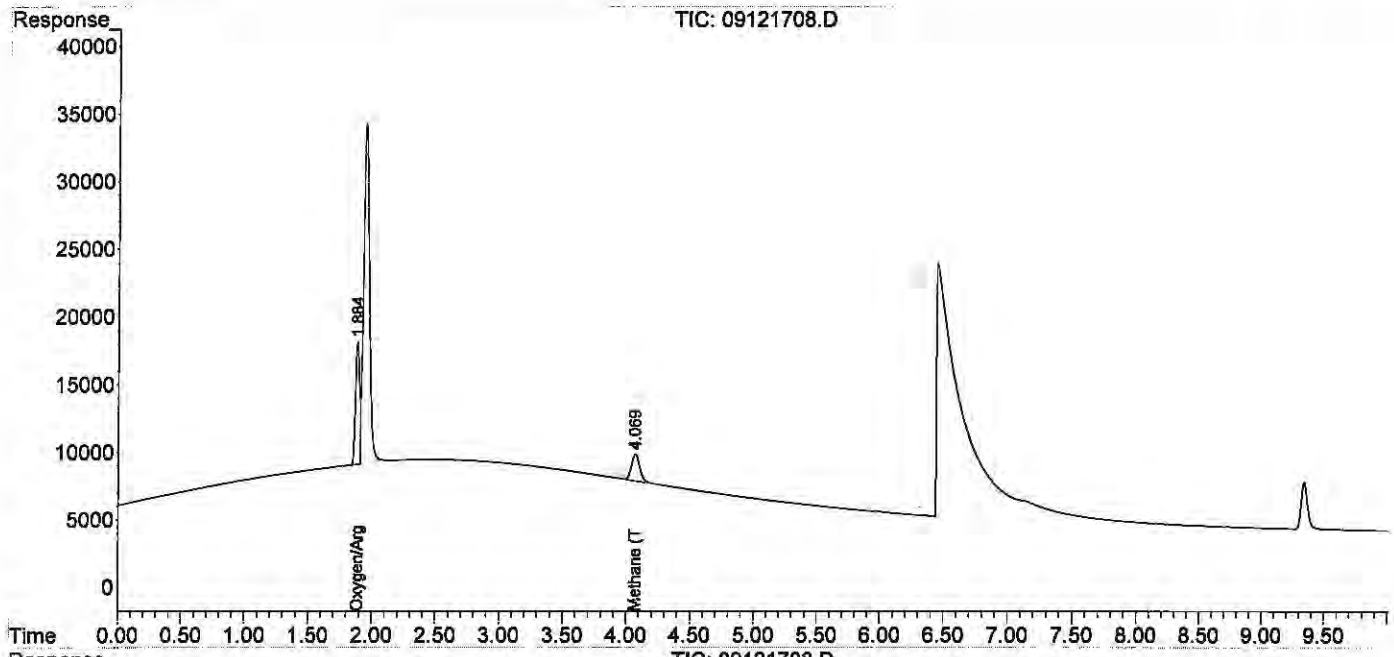
(f)=RT Delta > 1/2 Window (m)=manual int.

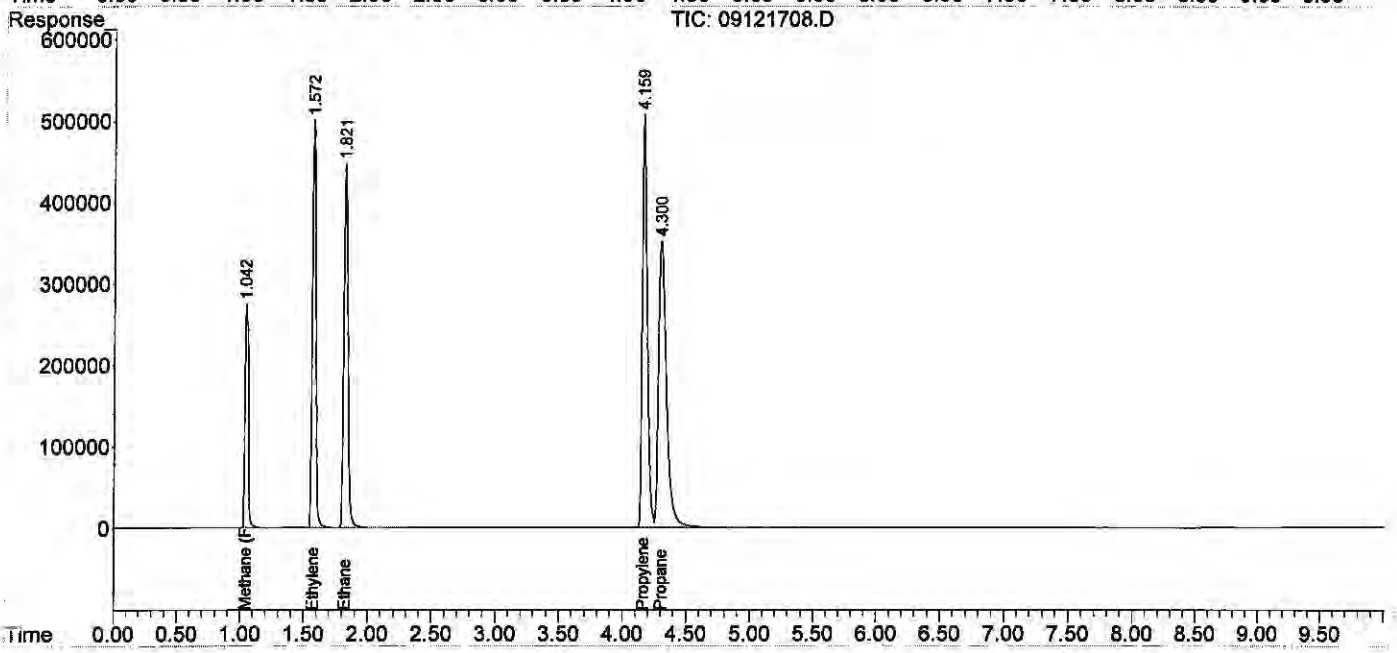
Quantitation Report (QT Reviewed)

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 :

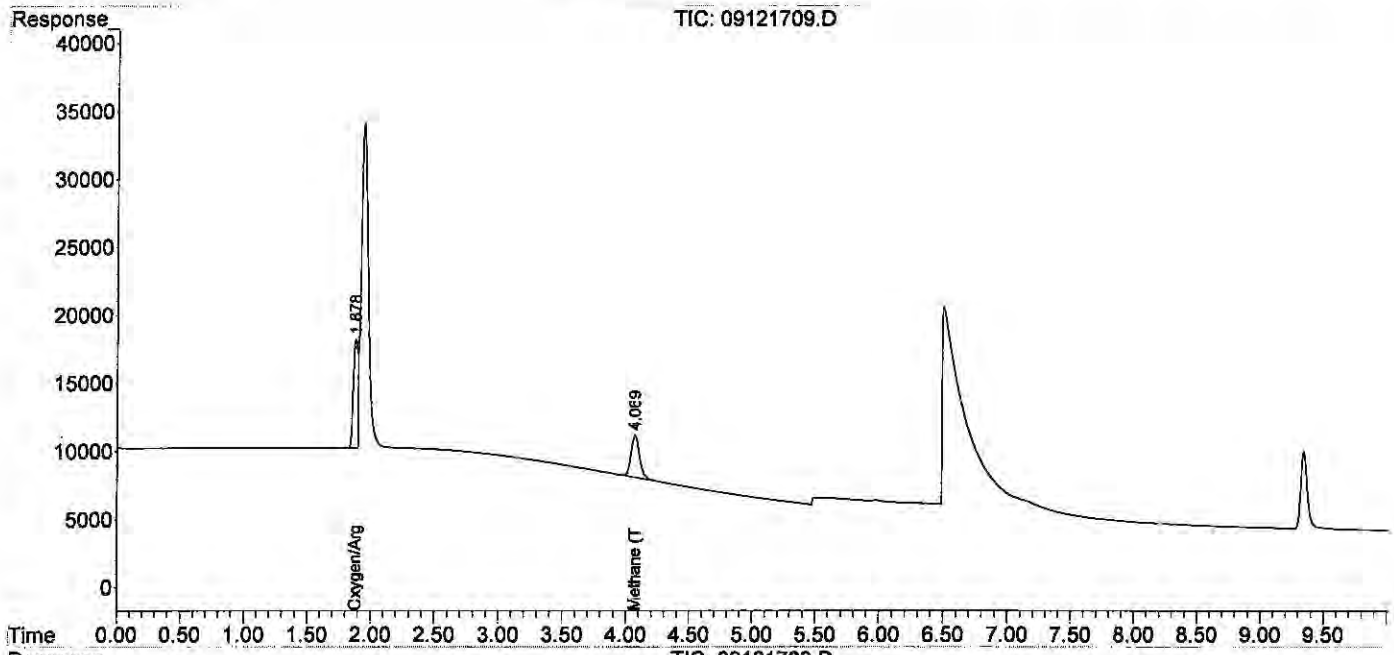
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	1.879	192611	0.162	ppm
2)	Carbon monoxide	1.879	192611	N.D.	ppm
3)	Methane (TCD)	4.070f	145492	1244.729	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.039	8598534	945.644	ppm
7)	Ethylene	1.576	16608504	981.887	ppm
8)	Ethane	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

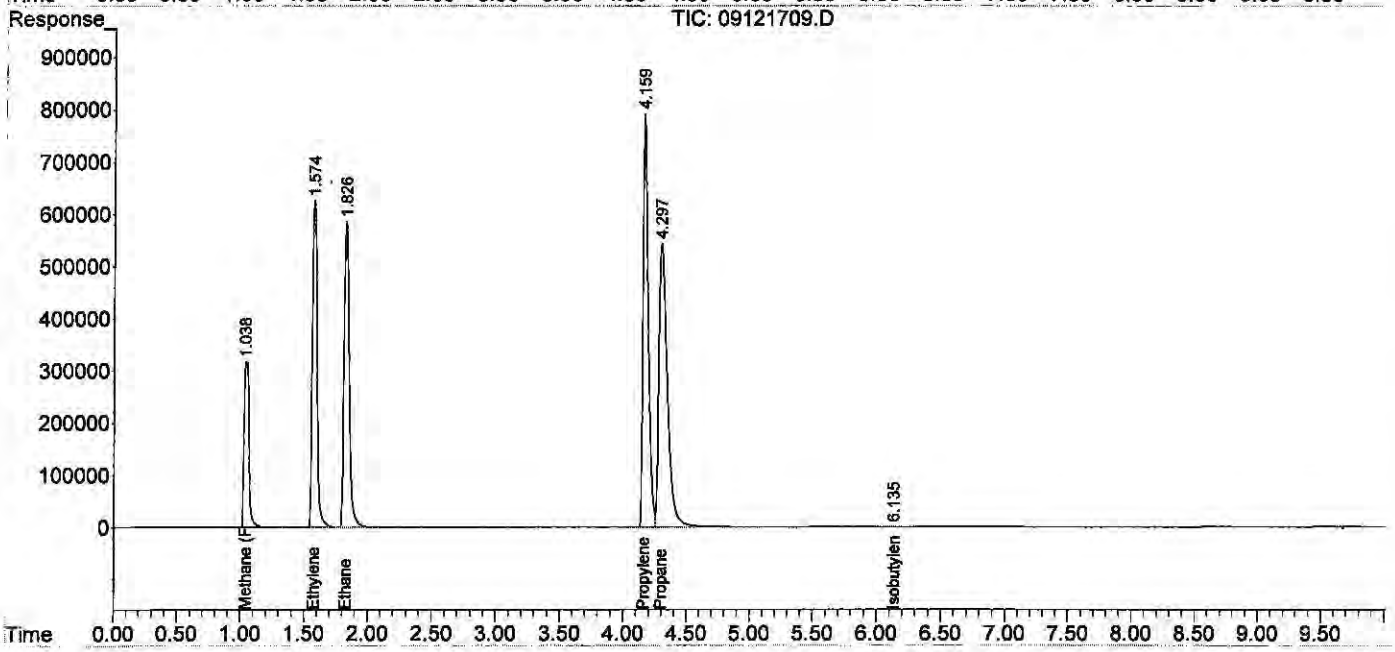
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :





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 :

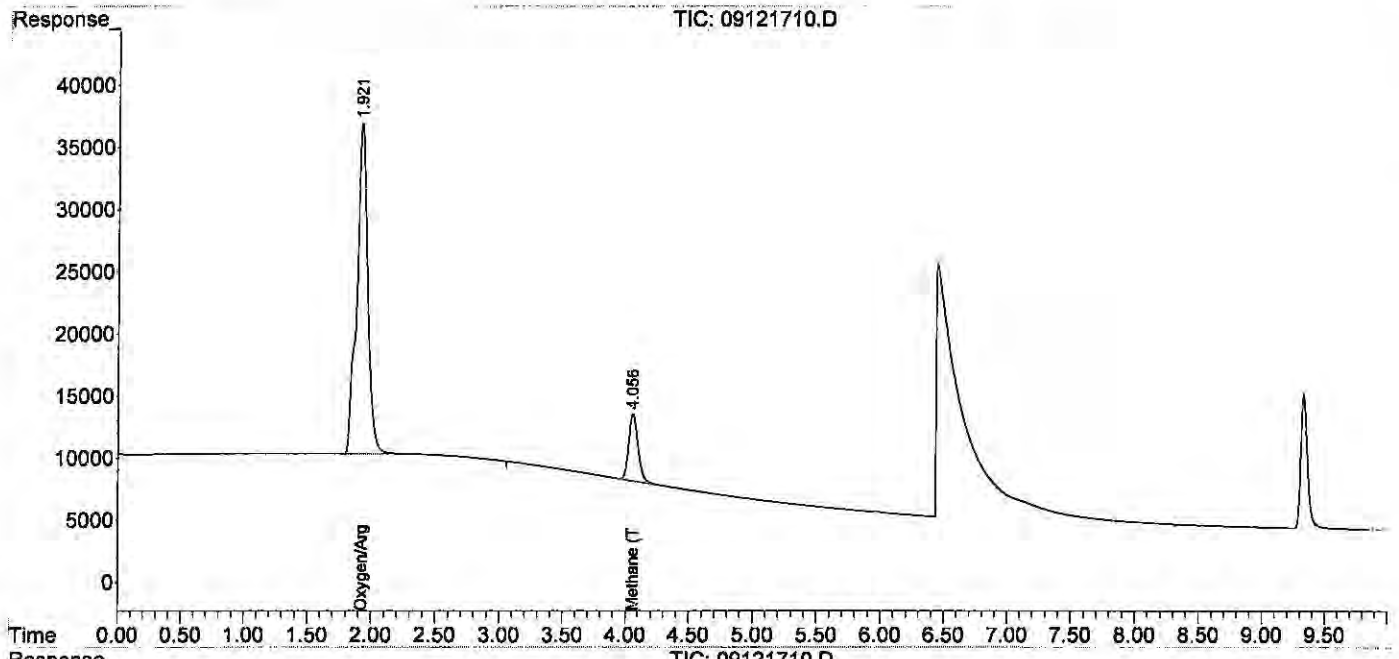
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.922f	1578147	1.659	ppm	
2)	Carbon monoxide	1.922f	1578147	N.D.	ppm	
3)	Methane (TCD)	4.057f	281651	3526.607	ppm	
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.016	16098209	1763.622	ppm	
7)	Ethylene	1.552	31192444	1848.268	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	

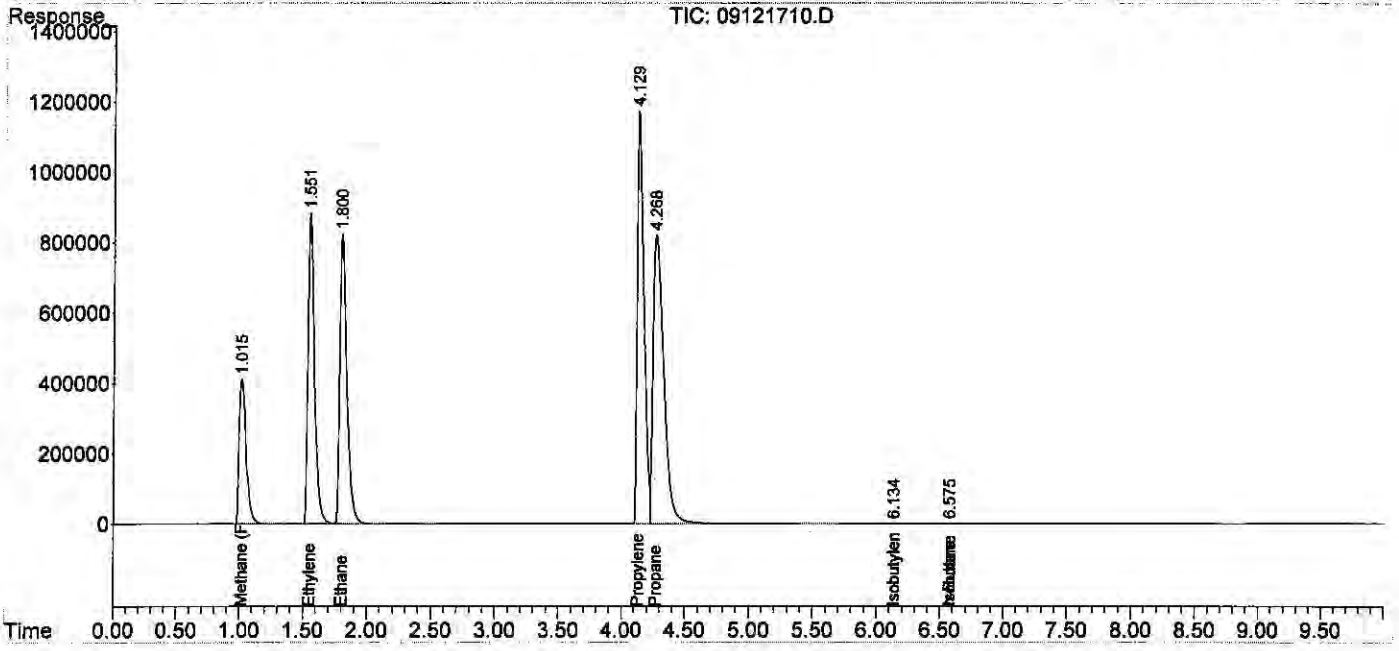
(f)=RT Delta > 1/2 Window (m)=manual int.

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 :



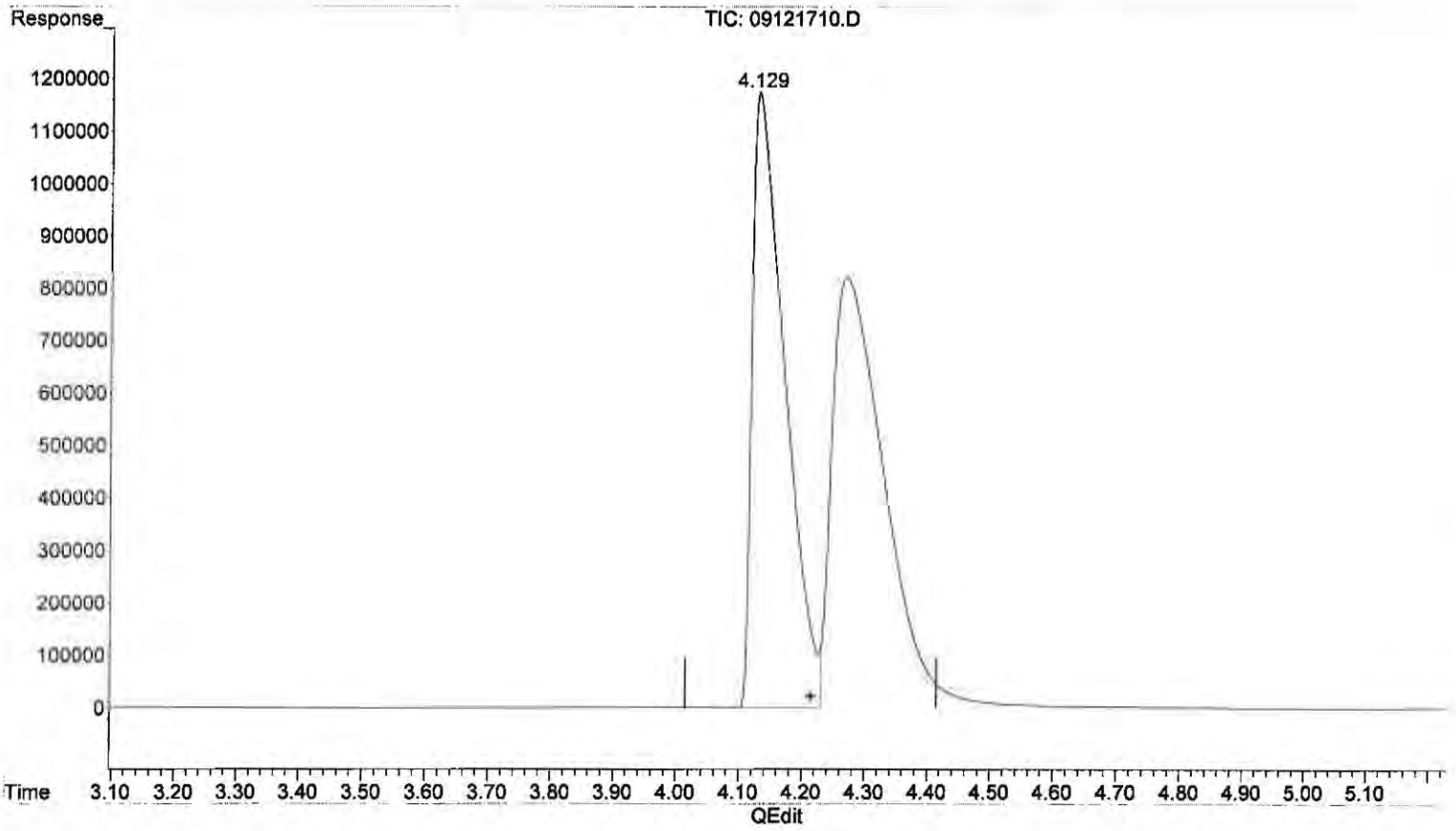


Quantitation Report (Qedit)

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

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 :

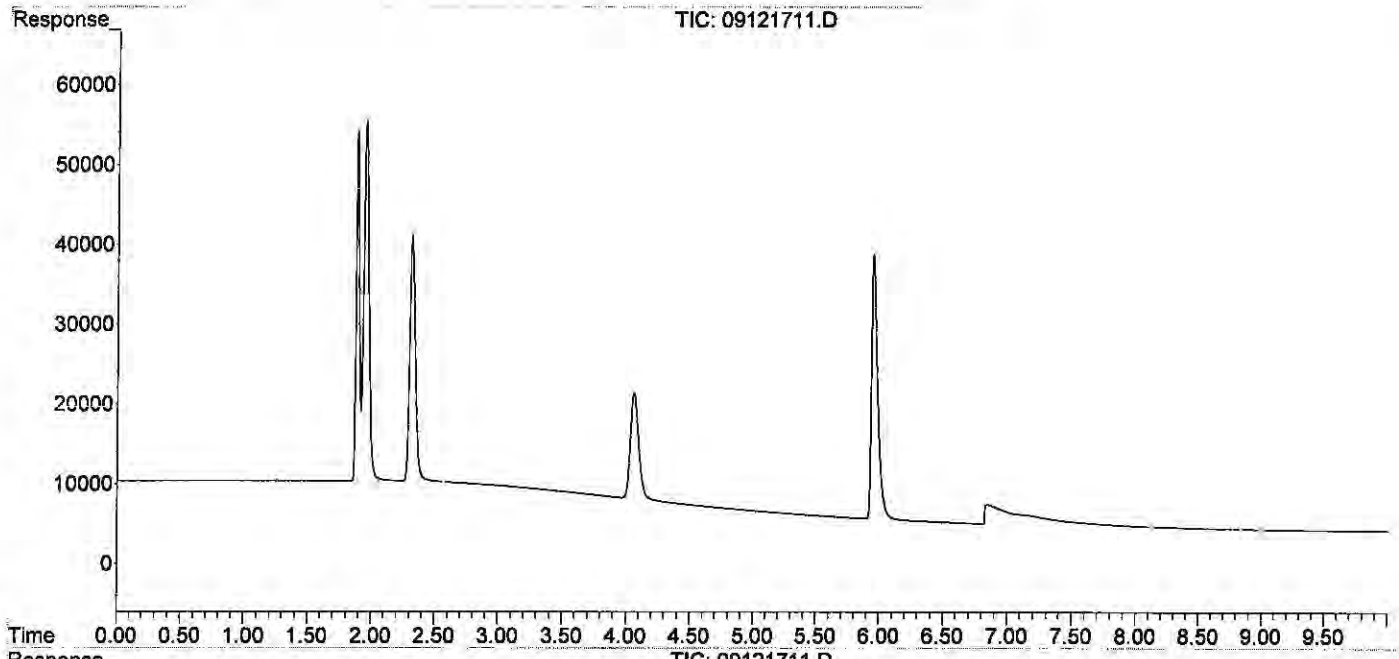
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	0.000	0	N.D.	ppm	d
2)	Carbon monoxide	0.000	0	N.D.	ppm	d
3)	Methane (TCD)	0.000	0	N.D.	ppm	d
4)	Carbon dioxide	0.000	0	N.D.	ppm	d
6)	Methane (FID)	1.059	35776839	3925.122	ppm	
7)	Ethylene	0.000	0	N.D.	ppm	
8)	Ethane	0.000	0	N.D.	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	

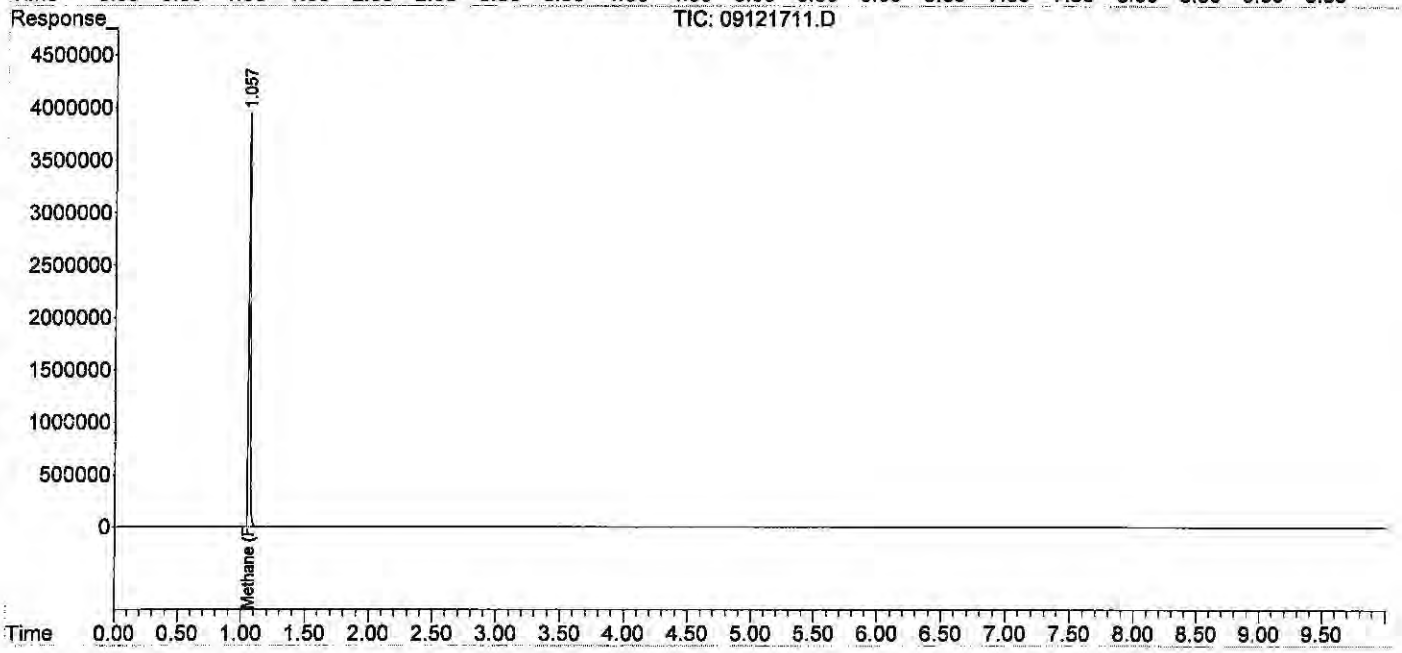
(f)=RT Delta > 1/2 Window (m)=manual int.

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	

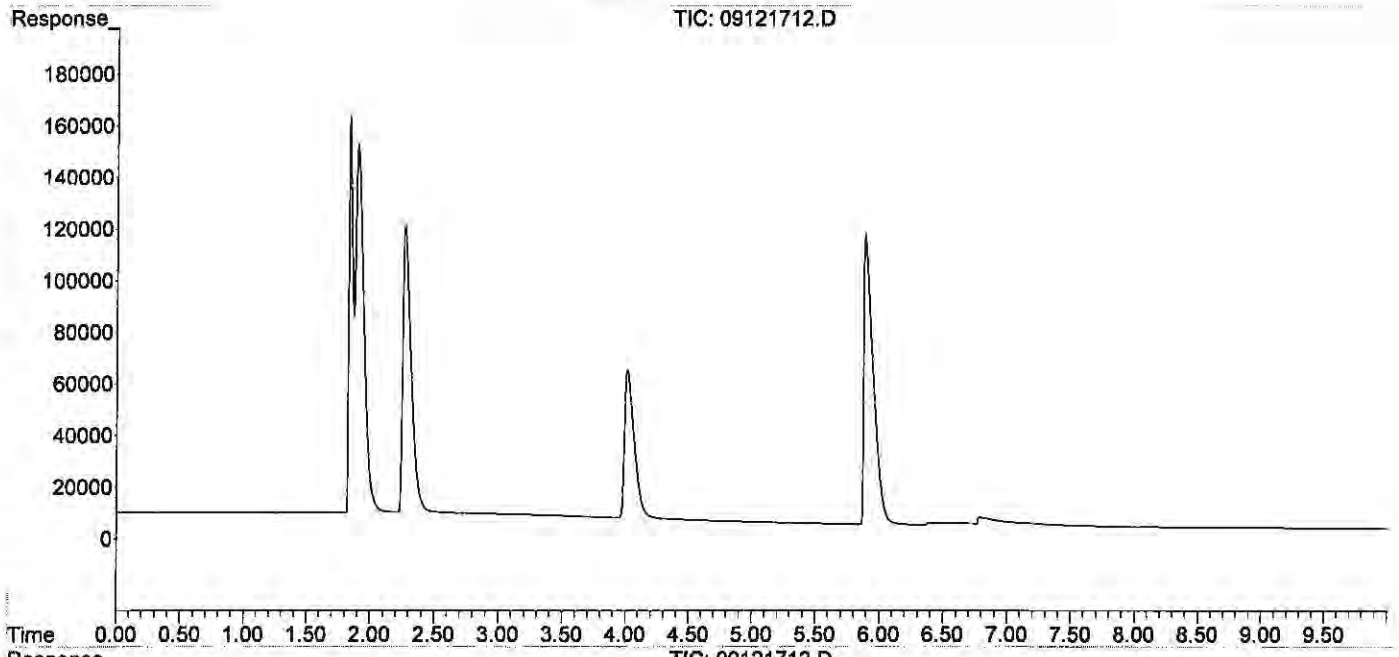
(f)=RT Delta > 1/2 Window (m)=manual int.

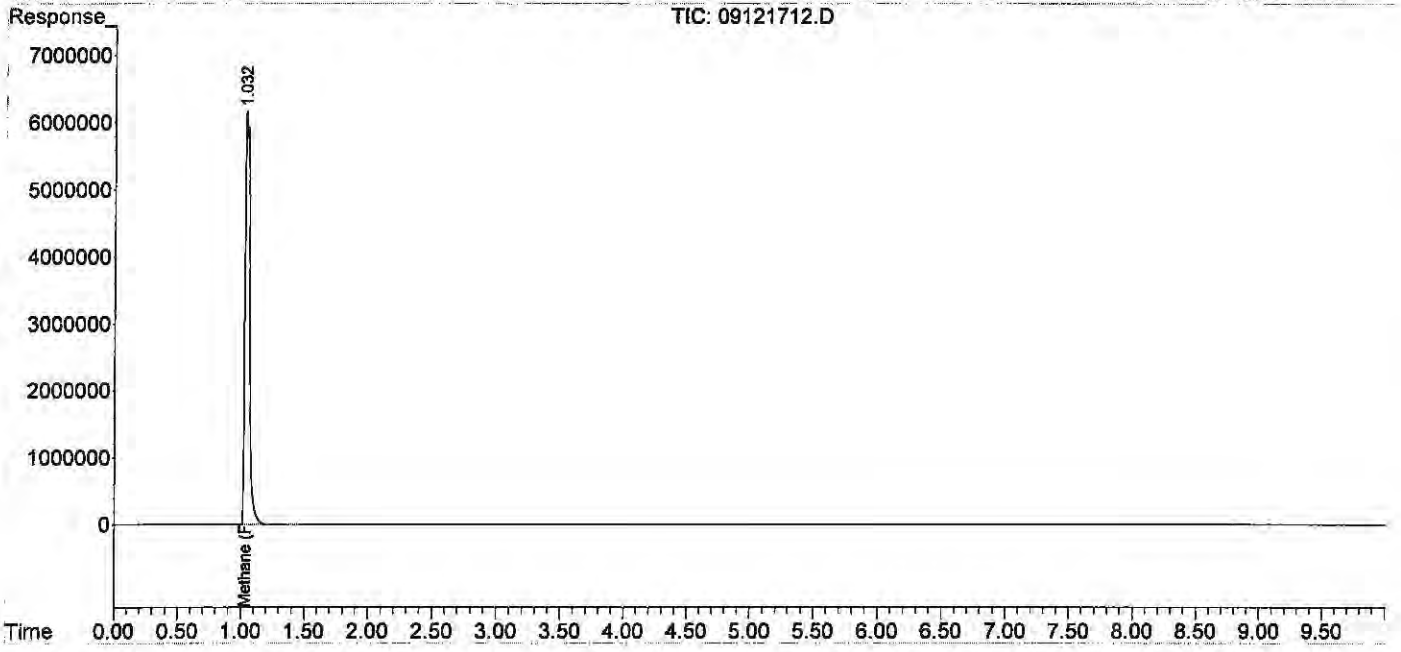
Quantitation Report (QT Reviewed)

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121712.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 15:21
Operator : MC
Sample : 20000ppm 0.5ml s32-08231701
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:14:17 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





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 :

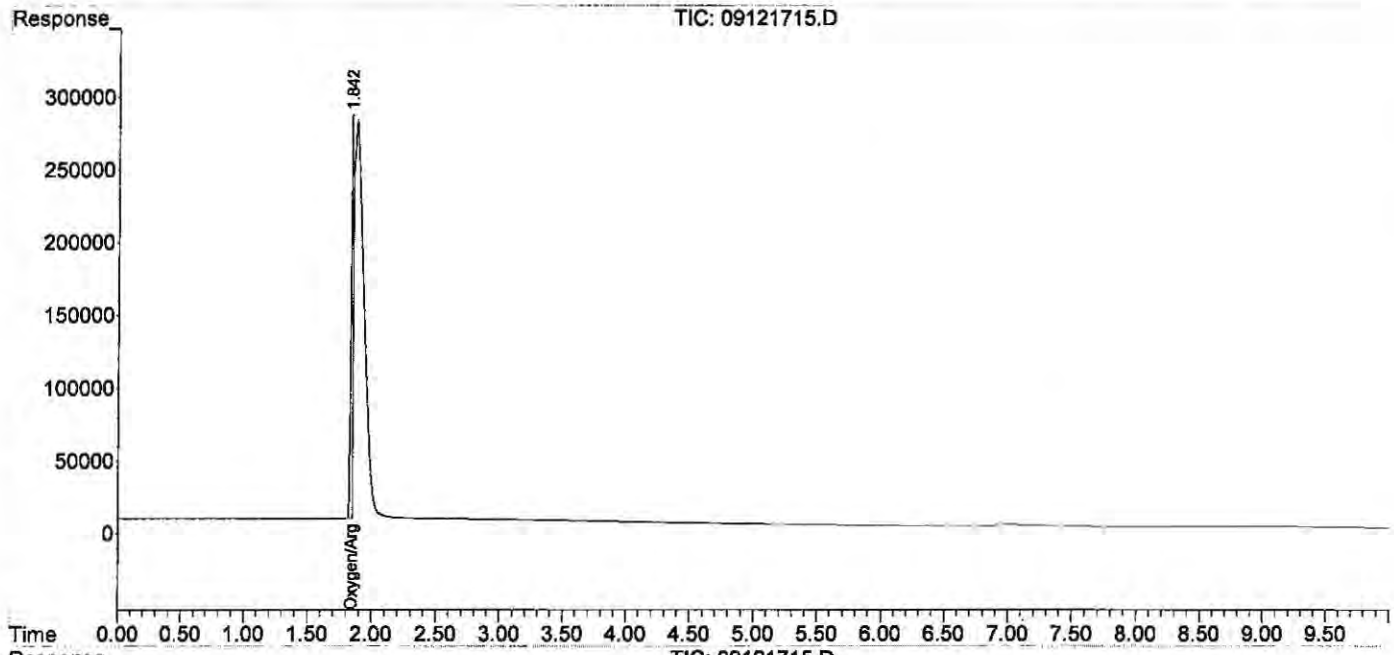
	Compound	R.T.	Response	Conc	Units	
Target Compounds						
1)	Oxygen/Argon	1.843	2922459	3.687	ppm	
2)	Carbon monoxide	1.843	2922459	N.D.	ppm	
3)	Methane (TCD)	0.000	0	N.D.	ppm	actual %D
4)	Carbon dioxide	0.000	0	N.D.	ppm	
6)	Methane (FID)	1.063	13748	1.516	ppm	1.50 101.1
7)	Ethylene	1.598	24153	1.443	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	9/14/17
13)	n-Butane	6.579f	48019	1.804	ppm	

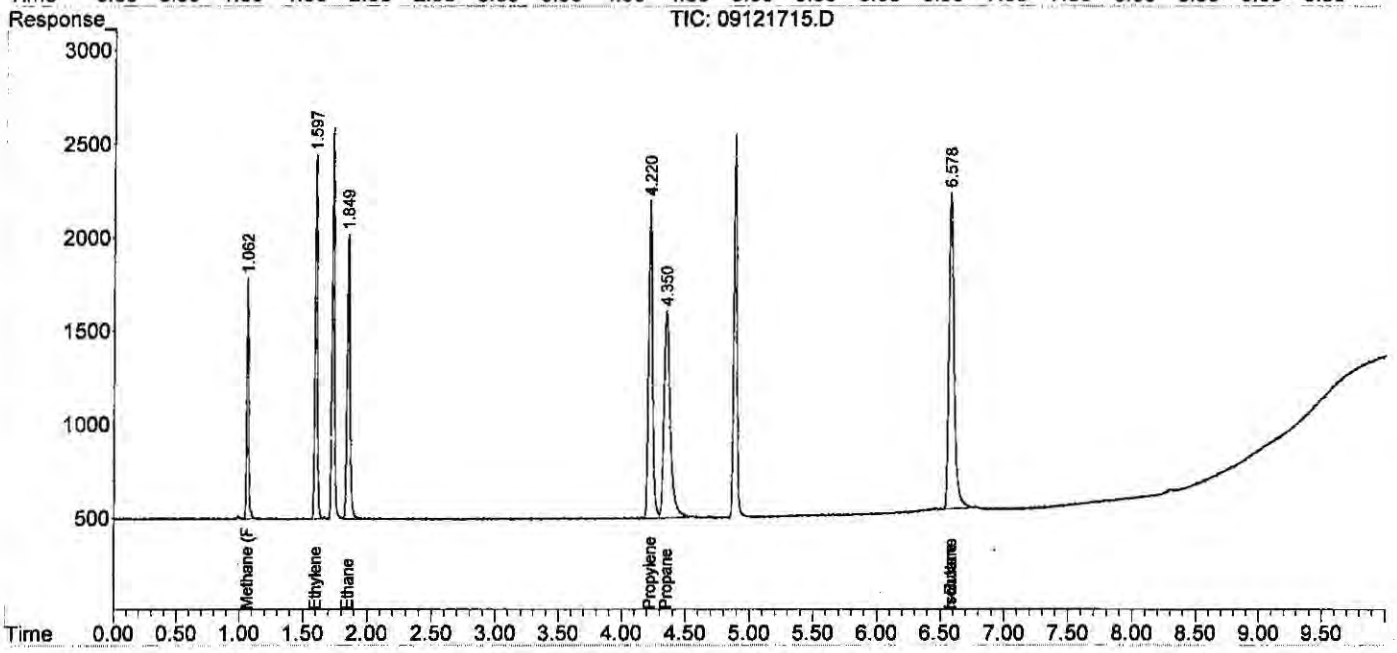
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2017_09\12\
Data File : 09121715.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 12-Sep-2017, 16:15
Operator : MC
Sample : icv s30-05241604
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File signal 1: autoint1.e
Integration File signal 2: autoint2.e
Quant Time: Sep 13 11:15:11 2017
Quant Method : J:\GC10\METHODS\RS091217_R.M
Quant Title : RSK175, VOA-DISGAS, VOA-TO3C1C6
QLast Update : Wed Sep 13 11:13:29 2017
Response via : Initial Calibration
Integrator: ChemStation

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





ALS Environmental

Method : RSK175 Headspace Method for Dissolved Hydrocarbon in Water by FID/TCD
Client : ALS Laboratory Group
Service Request: P1902859
Sample Vol. (ml) : 32.00 ml
Analyst : WH
Date Analysis : 05/22/19
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	89.922	95.632	94.728
ACTUAL		101.50	100.90	101.40
%Difference		11.4%	5.2%	6.6%
mcs 0.1ml	0.100	0.084	0.000	0.000
rb 0.1ml	0.100	0.060	0.000	0.000
lcs fid 0.1ml	0.100	1.335	1.059	1.168
lcsd fid 0.1ml	0.100	1.417	1.163	1.275
P1902859-001 0.1ml	0.100	0.726	0.000	0.000
P1902859-002 0.1ml	0.100	0.640	0.000	0.000

FINAL HEAD SPACE RESULT (ppm)

	Methane	Ethylene	Ethane
WWt.	16.04	28.05	30.07
HENRY'S CONSTANT	3.76E+04	1.02E+04	2.63E+04
RL	1.30	1.00	0.60
mcs 0.1ml	0.840	0.000	0.000
lcs fid 0.1ml	13.350	10.590	11.680
lcsd fid 0.1ml	14.170	11.630	12.750
P1902859-001 0.1ml	7.260	0.000	0.000
P1902859-002 0.1ml	6.400	0.000	0.000

std s32-05221901	93.920	99.837	99.096
ACTUAL	101.50	100.90	101.40
%Difference	7.5%	1.1%	2.3%

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221902.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 10:49:27
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: May 22 11:04:16 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 :

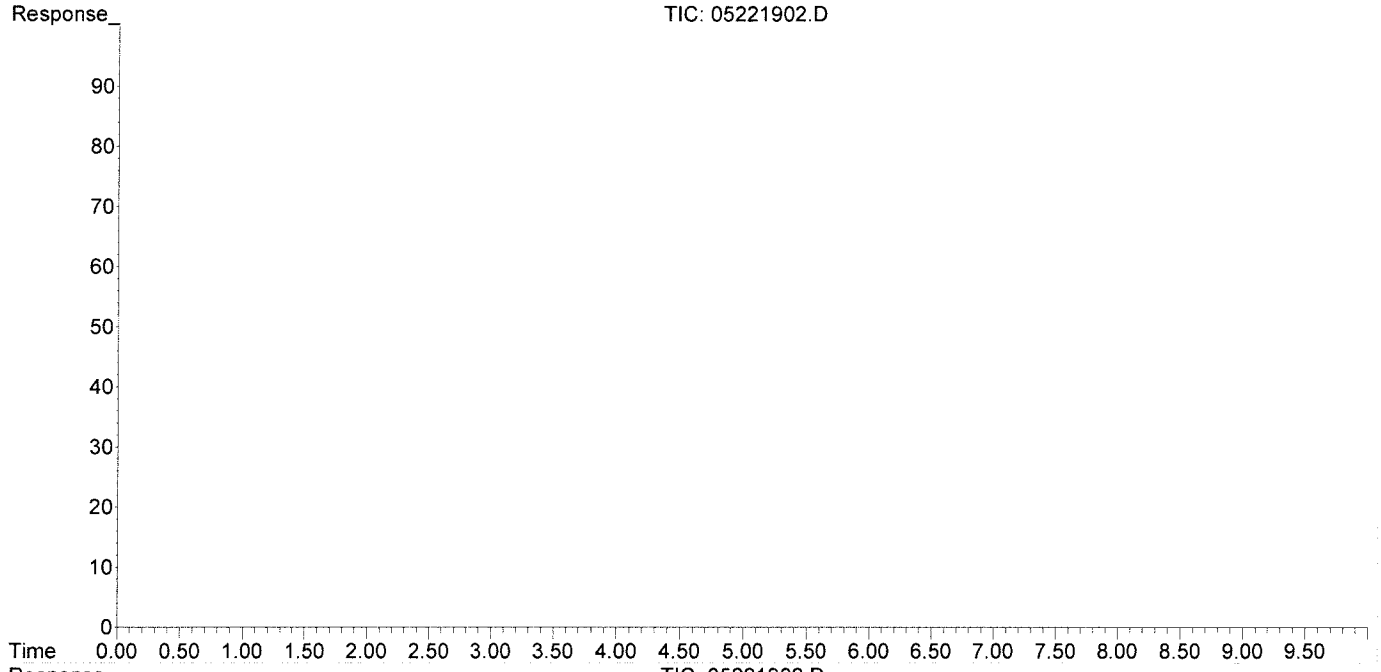
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.110	815654	89.922	ppm
7)	Ethylene	1.672	1600338	95.632	ppm
8)	Ethane	1.934	1605651	94.728	ppm
9)	Propylene	4.310	2352926	100.417	ppm
10)	Propane	4.434	2407244	96.753	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

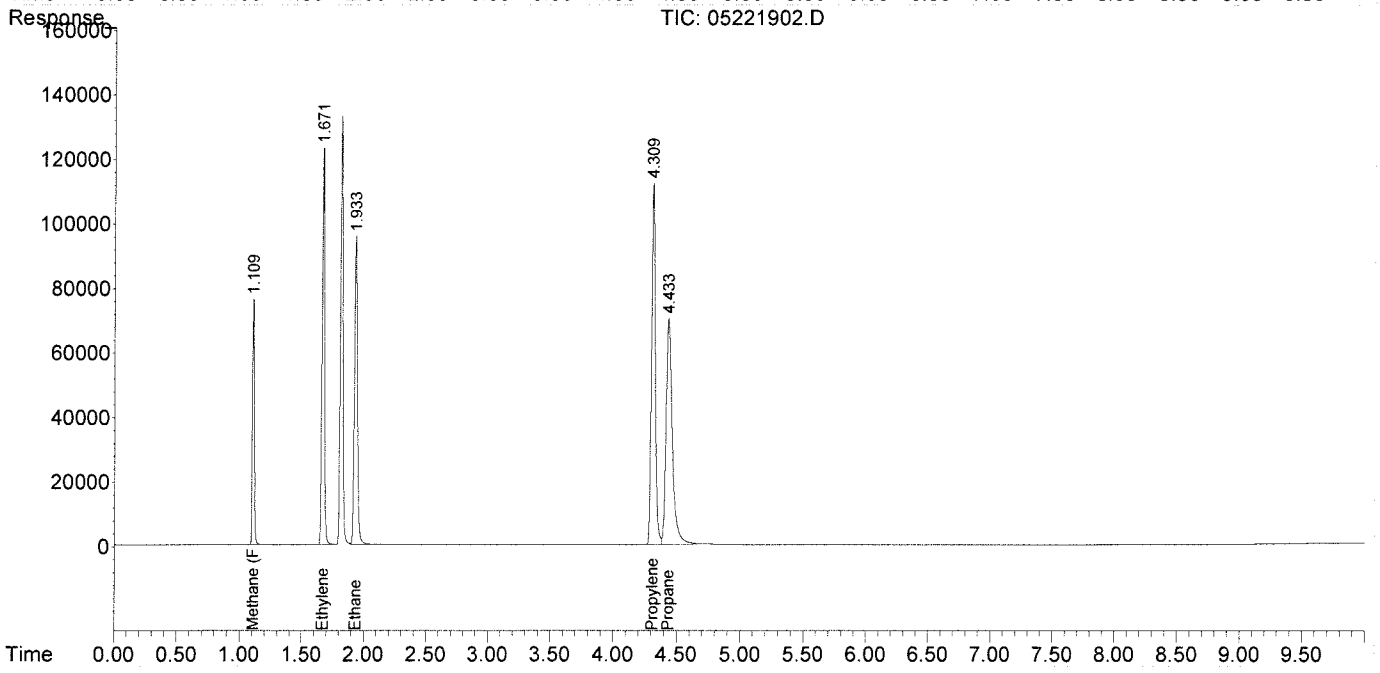
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221902.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 10:49:27
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: May 22 11:04:16 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_05\22\
Data File : 05221912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 15:18:11
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: May 22 15:35:36 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 :

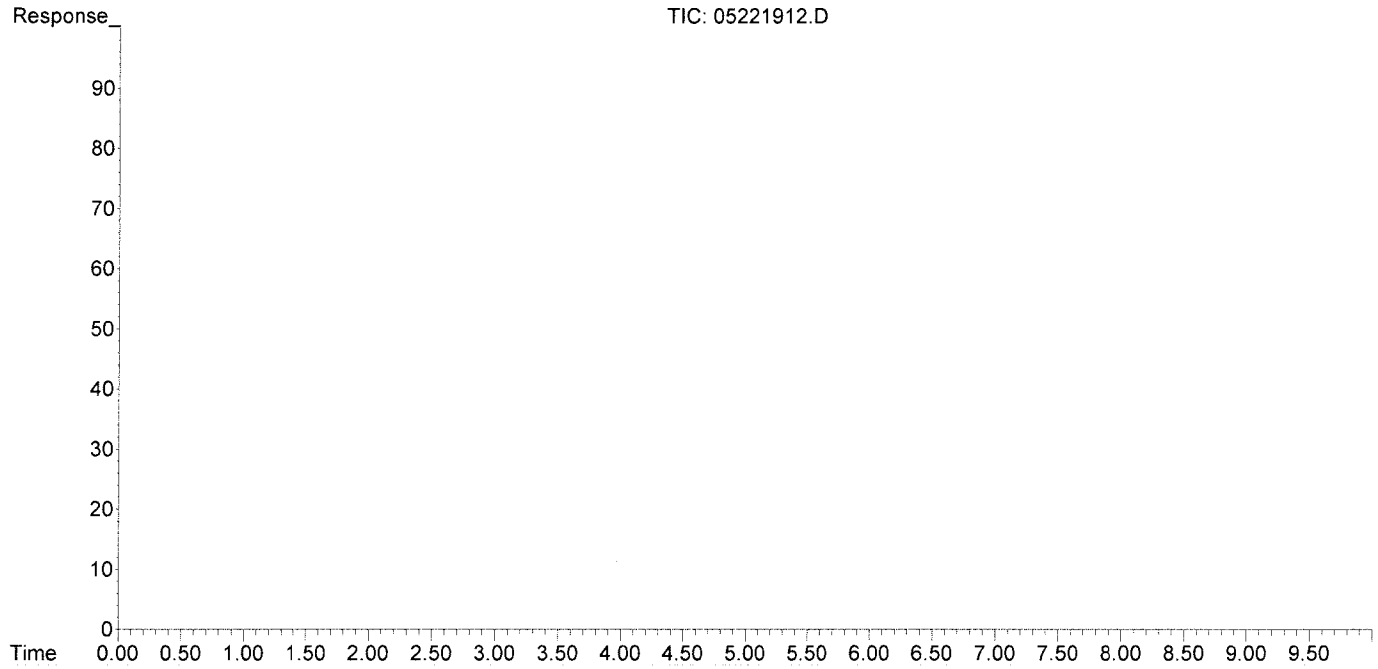
	Compound	R.T.	Response	Conc	Units
Target Compounds					
1)	Oxygen/Argon	0.000	0	N.D.	ppm
2)	Carbon monoxide	0.000	0	N.D.	ppm
3)	Methane (TCD)	0.000	0	N.D.	ppm
4)	Carbon dioxide	0.000	0	N.D.	ppm
6)	Methane (FID)	1.106	851914	93.920	ppm
7)	Ethylene	1.668	1670703	99.837	ppm
8)	Ethane	1.930	1679692	99.096	ppm
9)	Propylene	4.306	2450527	104.583	ppm
10)	Propane	4.431	2513590	101.028	ppm
11)	Isobutylene	6.073f	6802	1043.390	ppm
12)	Isobutane	0.000	0	N.D.	ppm
13)	n-Butane	0.000	0	N.D.	ppm

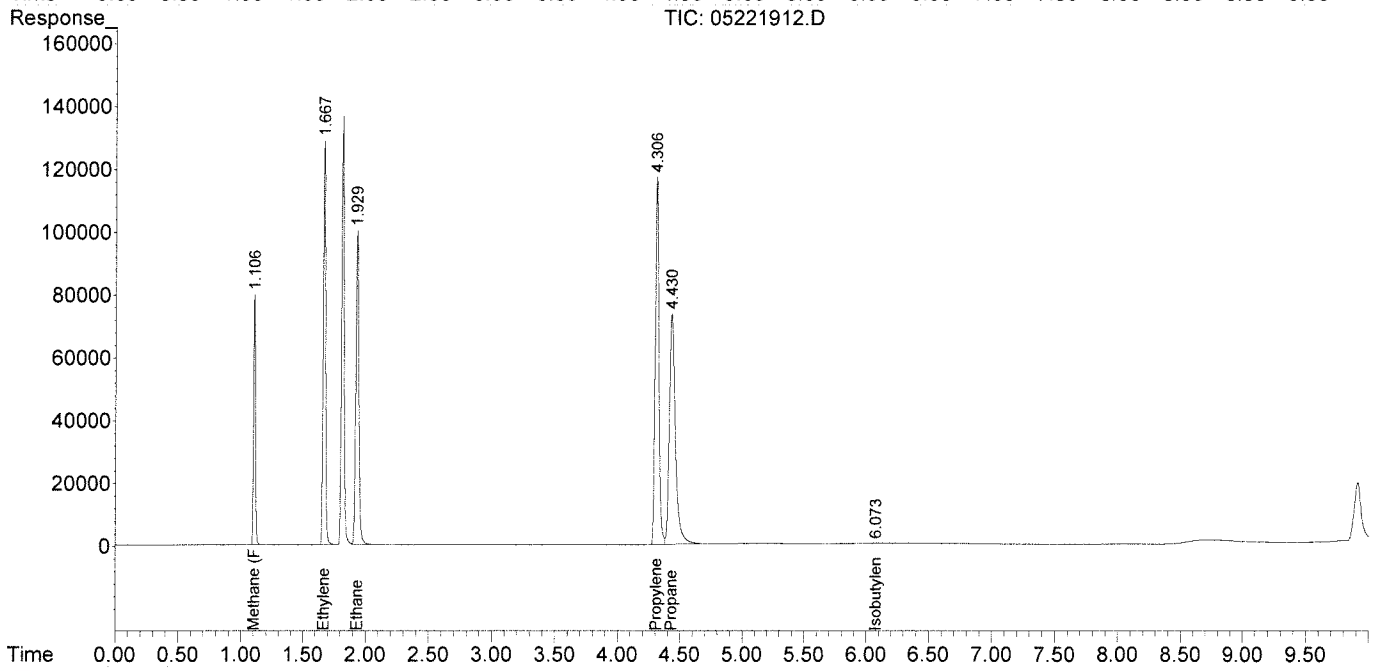
(f)=RT Delta > 1/2 Window (m)=manual int.

Data Path : J:\GC10\DATA\RSK_FID\2019_05\22\
Data File : 05221912.D
Signal(s) : Signal #1: TCD1A.CH Signal #2: FID2B.CH
Acq On : 22-May-2019, 15:18:11
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: May 22 15:35:36 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 :





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_05\22\

	Date/Time	File Name	Sample ID	Misc Info	Operator	Acquisition Method	Comments
1	22-May-19, 10:23:52	05221901.D	std s32-05221901		WH	RSKBOTH.M	pass
2	22-May-19, 10:49:27	05221902.D	std s32-05221901		WH	RSKBOTH.M	pass
3	22-May-19, 11:05:44	05221903.D	rb 0.1ml		WH	RSKBOTH.M	pass
4	22-May-19, 11:55:17	05221904.D	mcs 0.1ml		WH	RSKBOTH.M	pass
5	22-May-19, 12:12:57	05221905.D	P1902859-001 0.1ml		WH	RSKBOTH.M	
6	22-May-19, 12:27:02	05221906.D	P1902859-002 0.1ml		WH	RSKBOTH.M	
7	22-May-19, 12:42:15	05221907.D	lcs fid 0.1ml		WH	RSKBOTH.M	pass
8	22-May-19, 12:54:48	05221908.D	lcsd fid 0.1ml		WH	RSKBOTH.M	pass
9	22-May-19, 14:20:17	05221909.D	J1902731-002 0.1ml		WH	RSKBOTH.M	
10	22-May-19, 14:41:05	05221910.D	J1902731-004 0.1ml		WH	RSKBOTH.M	
11	22-May-19, 15:02:44	05221911.D	J1902731-005 0.1ml		WH	RSKBOTH.M	
12	22-May-19, 15:18:11	05221912.D	std s32-05221901		WH	RSKBOTH.M	pass

HS19051031 8260 Raw Data

ALS WO# HS19051031

MSVOA06 -Logbook

Batch: 35391
Date: 05-13-2019
Method: 8260
Comments: Target Sequence 190513

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-13-2019 10:57 am	1.00	0.00 mL	0.00 mL	X051301.D	Liquid	Y	NA
	Auto find/purged									
2	VSTD000.25	ICAL1	05-13-2019 11:21 am	1.00	5.00 mL	0.00 mL	X051302.D	Liquid	Y	NA
	0.1 uL cal std/100 mL DI									
3	VSTD000.5	ICAL2	05-13-2019 12:09 pm	1.00	5.00 mL	0.00 mL	X051303.D	Liquid	Y	NA
	0.10 uL cal std/50 mL DI									
4	VSTD001	ICAL3	05-13-2019 12:33 pm	1.00	5.00 mL	0.00 mL	X051304.D	Liquid	Y	NA
	0.20 uL cal std/50 mL DI									
5	VSTD002	ICAL4	05-13-2019 12:57 pm	1.00	5.00 mL	0.00 mL	X051305.D	Liquid	Y	NA
	0.40 uL cal std/50 mL DI									
6	VSTD005	ICAL5	05-13-2019 01:21 pm	1.00	5.00 mL	0.00 mL	X051306.D	Liquid	Y	NA
	1.0 uL cal std/50 mL DI									
7	VSTD020	ICAL6	05-13-2019 01:45 pm	1.00	5.00 mL	0.00 mL	X051307.D	Liquid	Y	NA
	4.0 uL cal std/50 mL DI									
8	VSTD050	ICAL7	05-13-2019 02:09 pm	1.00	5.00 mL	0.00 mL	X051308.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
9	VSTD100	ICAL8	05-13-2019 02:33 pm	1.00	5.00 mL	0.00 mL	X051309.D	Liquid	Y	NA
	20 uL cal std/50 mL DI									
10	VSTD150	ICAL9	05-13-2019 02:56 pm	1.00	5.00 mL	0.00 mL	X051310.D	Liquid	Y	NA
	30 uL cal std/50 mL DI									
11	VSTD200	ICAL	05-13-2019 03:20 pm	1.00	5.00 mL	0.00 mL	X051311.D	Liquid	Y	NA
	40 uL cal std/50 mL DI									
12	BLANK	SAMP	05-13-2019 03:44 pm	1.00	5.00 mL	0.00 mL	X051312.D	Liquid	Y	NA
	clean up blank									
13	CCV	CCV	05-13-2019 04:08 pm	1.00	5.00 mL	0.00 mL	X051313.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
14	BLANK	SAMP	05-13-2019 04:32 pm	1.00	5.00 mL	0.00 mL	X051314.D	Liquid	Y	NA
15	VLCSW-190513	LCS	05-13-2019 04:56 pm	1.00	5.00 mL	0.00 mL	X051315.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
16	BLANK	SAMP	05-13-2019 05:20 pm	1.00	5.00 mL	0.00 mL	X051316.D	Liquid	Y	NA
17	VBLKW-190513	MBLK	05-13-2019 05:44 pm	1.00	5.00 mL	0.00 mL	X051317.D	Liquid	Y	NA
18	HS19050082-07	SAMP	05-13-2019 06:08 pm	1.00	5.00 mL	0.00 mL	X051318.D	Liquid	Y	<2
19	HS19050082-04	SAMP	05-13-2019 06:32 pm	1.00	5.00 mL	0.00 mL	X051319.D	Liquid	Y	<2
20	HS19050082-05	SAMP	05-13-2019 06:57 pm	1.00	5.00 mL	0.00 mL	X051320.D	Liquid	Y	<2
21	HS19050082-01	SAMP	05-13-2019 07:21 pm	1.00	5.00 mL	0.00 mL	X051321.D	Liquid	Y	<2
22	HS19050082-01	SAMP	05-13-2019 07:45 pm	5.00	5.00 mL	0.00 mL	X051322.D	Liquid	Y	<2
23	HS19050082-02	SAMP	05-13-2019 08:09 pm	1.00	5.00 mL	0.00 mL	X051323.D	Liquid	Y	<2
24	HS19050082-02	SAMP	05-13-2019 08:33 pm	5.00	5.00 mL	0.00 mL	X051324.D	Liquid	Y	<2
25	HS19050082-03	SAMP	05-13-2019 08:57 pm	1.00	5.00 mL	0.00 mL	X051325.D	Liquid	Y	<2
26	HS19050082-06	SAMP	05-13-2019 09:21 pm	1.00	5.00 mL	0.00 mL	X051326.D	Liquid	Y	<2
27	HS19050082-04MS	MS	05-13-2019 09:45 pm	1.00	5.00 mL	0.00 mL	X051327.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
28	HS19050082-04MSD	MSD	05-13-2019 10:09 pm	1.00	5.00 mL	0.00 mL	X051328.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
29	CCV-END	CCV	05-13-2019 10:33 pm	1.00	5.00 mL	0.00 mL	X051329.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									

MSVOA06 -Logbook

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-66-01
CAL STD ID	30502-76-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
cis-1,3-Dichloropropene	50.00	50.01	100	80-120
trans-1,3-Dichloroprope	50.00	51.68	103	80-120
1,3-Dichlorobenzene	50.00	46.37	93	80-120
2,2-Dichloropropane	50.00	45.93	92	80-120
1,1-Dichloropropene	50.00	43.82	88	80-120
Dibromomethane	50.00	48.95	98	80-120
1,2-Dibromoethane	50.00	48.28	96	80-120
trans-1,2-Dichloroethen	50.00	47.69	95	80-120
1,1,1,2-Tetrachloroetha	50.00	47.56	95	80-120
1,1,1-Trichloroethane	50.00	44.43	89	80-120
1,1,2,2-Tetrachloroetha	50.00	48.28	96	80-120
Toluene	50.00	46.68	93	80-120
1,1,2-Trichloroethane	50.00	49.04	98	80-120
1,1-Dichloroethane	50.00	46.29	92	80-120
1,1-Dichloroethene	50.00	46.44	93	80-120
Trichlorofluoromethane	50.00	43.25	86	80-120
1,2,3-Trichlorobenzene	50.00	53.04	106	80-120
Tetrachloroethene	50.00	44.01	88	80-120
1,2,4-Trichlorobenzene	50.00	50.78	102	80-120
1,2,4-Trimethylbenzene	50.00	45.13	90	80-120
tert-Butylbenzene	50.00	42.78	86	80-120
Trichloroethene	50.00	46.44	93	80-120
1,2-Dichlorobenzene	50.00	46.42	93	80-120
1,2-Dichloroethane	50.00	46.67	93	80-120
1,2-Dichloropropane	50.00	47.58	95	80-120
1,3,5-Trimethylbenzene	50.00	44.43	89	80-120
1,3-Dichloropropane	50.00	47.38	95	80-120
1,4-Dichlorobenzene	50.00	46.57	93	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
2-Butanone	100.00	104.28	104	80-120
2-Chlorotoluene	50.00	44.20	88	80-120
2-Hexanone	100.00	97.69	98	80-120
4-Chlorotoluene	50.00	45.04	90	80-120
Styrene	50.00	47.56	95	80-120
4-Methyl-2-Pentanone	100.00	96.71	97	80-120
Acetone	100.00	107.18	107	80-120
Benzene	50.00	47.57	95	80-120
Bromobenzene	50.00	46.95	94	80-120
Bromochloromethane	50.00	48.56	97	80-120
Bromodichloromethane	50.00	48.97	98	80-120
Bromoform	50.00	52.87	106	80-120
Bromomethane	50.00	54.33	109	80-120
Carbon Disulfide	100.00	94.44	94	80-120
Carbon Tetrachloride	50.00	43.48	87	80-120
Chlorobenzene	50.00	47.18	94	80-120
Chloroethane	50.00	46.61	93	80-120
Chloroform	50.00	46.67	93	80-120
Chloromethane	50.00	46.27	92	80-120
cis-1,2-Dichloroethene	50.00	46.49	93	80-120
Dibromochloromethane	50.00	48.94	98	80-120
Dichlorodifluoromethane	50.00	47.02	94	80-120
Ethylbenzene	50.00	44.87	90	80-120
Hexachlorobutadiene	50.00	48.39	97	80-120
Isopropylbenzene	50.00	43.60	87	80-120
m,p-Xylenes	100.00	91.59	92	80-120
Methylene Chloride	50.00	48.68	97	80-120
n-Butylbenzene	50.00	43.74	87	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 3
WATER VOLATILE METHOD SPIKE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Matrix Spike - Sample No.: CCV

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE AMOUNT ()	% REC #	QC. LIMITS REC.
n-Propylbenzene	50.00	43.25	86	80-120
Naphthalene	50.00	52.72	105	80-120
o-Xylene	50.00	46.57	93	80-120
sec-Butylbenzene	50.00	42.06	84	80-120
Vinyl Chloride	50.00	46.68	93	80-120
1,2,3-Trichloropropane	50.00	49.73	99	80-120
p-Isopropyltoluene	50.00	43.49	87	80-120
1,2-Dibromo-3-Chloropro	50.00	54.38	109	80-120
Freon TF	50.00	41.23	82	80-120

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

* Values outside of QC limits

COMMENTS: _____

_____

FORM III VOA

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Lab File ID: X051301 BFB Injection Date: 05/13/19

Instrument ID: VOA6 BFB Injection Time: 1057

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.7
75	30.0 - 60.0% of mass 95	49.2
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.5 (0.6)1
174	Greater than 50.0% of mass 95	84.2
175	5.0 - 9.0% of mass 174	6.8 (8.1)1
176	95.0 - 101.0% of mass 174	81.4 (96.6)1
177	5.0 - 9.0% of mass 176	5.8 (7.2)2

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

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD000.25	VSTD000.25	X051302	05/13/19	1121
02	VSTD000.5	VSTD000.5	X051303	05/13/19	1209
03	VSTD001	VSTD001	X051304	05/13/19	1233
04	VSTD002	VSTD002	X051305	05/13/19	1257
05	VSTD005	VSTD005	X051306	05/13/19	1321
06	VSTD020	VSTD020	X051307	05/13/19	1345
07	VSTD050	VSTD050	X051308	05/13/19	1409
08	VSTD100	VSTD100	X051309	05/13/19	1433
09	VSTD150	VSTD150	X051310	05/13/19	1456
10	VSTD200	VSTD200	X051311	05/13/19	1520
11	CCV	CCV	X051313	05/13/19	1608
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
cis-1,3-Dichloropropene		0.566	0.473	0.477	0.478	0.483
trans-1,3-Dichloropropene		0.484	0.410	0.404	0.406	0.418
1,3-Dichlorobenzene		1.892	1.592	1.511	1.462	1.402
2,2-Dichloropropane		0.732	0.645	0.688	0.579	0.577
1,1-Dichloropropene		0.543	0.470	0.413	0.374	0.369
Dibromomethane		0.242	0.210	0.207	0.206	0.204
1,2-Dibromoethane		0.441	0.353	0.324	0.338	0.333
trans-1,2-Dichloroethene		0.475	0.418	0.412	0.380	0.391
1,1,1,2-Tetrachloroethane		0.502	0.401	0.363	0.369	0.359
1,1,1-Trichloroethane		0.743	0.674	0.648	0.642	0.614
1,1,2,2-Tetrachloroethane		0.825	0.718	0.660	0.677	0.658
Toluene		1.888	1.480	1.426	1.395	1.389
1,1,2-Trichloroethane		0.313	0.253	0.253	0.259	0.250
1,1-Dichloroethane		0.854	0.736	0.722	0.662	0.651
1,1-Dichloroethene		0.466	0.416	0.364	0.353	0.361
Trichlorofluoromethane		0.873	0.761	0.716	0.659	0.682
1,2,3-Trichlorobenzene		1200	1624	3642	9007	35984
Tetrachloroethene		0.467	0.354	0.380	0.344	0.337
1,2,4-Trichlorobenzene		0.894	0.667	0.649	0.665	0.666
1,2,4-Trimethylbenzene		2.914	2.499	2.352	2.326	2.127
tert-Butylbenzene		2.439	2.082	1.967	1.816	1.751
Trichloroethene		0.467	0.391	0.378	0.372	0.362
1,2-Dichlorobenzene		1.820	1.465	1.405	1.391	1.325
1,2-Dichloroethane		0.566	0.441	0.412	0.397	0.390
1,2-Dichloropropane		0.355	0.305	0.303	0.277	0.276
1,3,5-Trimethylbenzene		2.626	2.321	2.263	2.159	2.064
1,3-Dichloropropane		0.625	0.539	0.514	0.514	0.492
1,4-Dichlorobenzene		1.989	1.589	1.472	1.482	1.404
2-Butanone		0.133	0.109	0.104	0.112	0.122
2-Chlorotoluene		2.375	1.972	1.843	1.717	1.672
2-Hexanone		0.219	0.179	0.171	0.166	0.164
4-Chlorotoluene		2.778	2.271	2.053	2.022	1.896
Styrene		1.272	1.070	1.025	1.031	1.004
4-Methyl-2-Pentanone		0.314	0.258	0.240	0.243	0.243
Acetone		2338	2678	4305	8696	29211
Benzene		1.563	1.227	1.167	1.141	1.122
Bromobenzene		1.112	0.929	0.931	0.900	0.870
Bromochloromethane		1373	2379	4001	8842	34144
Bromodichloromethane		0.475	0.430	0.405	0.391	0.391
Bromoform		0.328	0.259	0.240	0.272	0.290
Bromomethane		1971	3476	6441	14764	52051
Carbon Disulfide		1.410	1.177	1.072	1.017	1.037
Carbon Tetrachloride		0.597	0.499	0.444	0.409	0.413
Chlorobenzene		1.176	1.012	1.001	0.968	0.947

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF0.25: X051302 RF0.5: X051303 RF1: X051304
RF2: X051305 RF5: X051306 RF20: X051307

COMPOUND	RF0.25	RF0.5	RF1	RF2	RF5	RF20
Chloroethane		0.331	0.332	0.276	0.278	0.261
Chloroform		0.902	0.773	0.743	0.724	0.709
Chloromethane		2738	4458	8492	19144	77890
cis-1,2-Dichloroethene		0.585	0.525	0.467	0.466	0.457
Dibromochloromethane		0.525	0.397	0.352	0.361	0.375
Dichlorodifluoromethane		1776	2995	5725	12226	54883
Ethylbenzene		0.666	0.515	0.498	0.488	0.479
Hexachlorobutadiene		0.533	0.452	0.416	0.387	0.401
Isopropylbenzene		1.947	1.536	1.544	1.455	1.364
m,p-Xylenes		0.760	0.636	0.603	0.606	0.572
Methylene Chloride		3718	5114	7584	15292	55968
n-Butylbenzene		2.409	1.878	1.926	1.784	1.748
n-Propylbenzene		3.644	3.123	3.076	2.904	2.718
Naphthalene		1.187	0.947	0.940	0.965	0.953
o-Xylene		0.752	0.612	0.594	0.596	0.563
sec-Butylbenzene		3.284	2.775	2.674	2.458	2.354
Vinyl Chloride		0.460	0.549	0.441	0.397	0.408
1,2,3-Trichloropropane		0.911	0.748	0.735	0.752	0.755
p-Isopropyltoluene		3.032	2.443	2.420	2.247	2.185
1,2-Dibromo-3-Chloropropane		0.110	0.103	0.099	0.103	0.109
Freon TF		1794	2736	5416	11785	47474
4-Bromofluorobenzene		3387	3897	8070	18579	69486
Dibromofluoromethane		2068	2821	6109	15275	57130
Toluene-d8		8111	10173	21875	51458	202820
1,2-Dichloroethane-d4		2751	2924	6793	14382	56761

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
cis-1,3-Dichloropropene	0.480	0.512	0.498	0.512
trans-1,3-Dichloropropene	0.427	0.457	0.447	0.461
1,3-Dichlorobenzene	1.370	1.542	1.505	1.563
2,2-Dichloropropane	0.568	0.627	0.586	0.616
1,1-Dichloropropene	0.359	0.408	0.390	0.416
Dibromomethane	0.201	0.212	0.204	0.207
1,2-Dibromoethane	0.332	0.351	0.337	0.342
trans-1,2-Dichloroethene	0.382	0.413	0.391	0.415
1,1,1,2-Tetrachloroethane	0.362	0.394	0.375	0.386
1,1,1-Trichloroethane	0.606	0.690	0.647	0.693
1,1,2,2-Tetrachloroethane	0.632	0.653	0.650	0.658
Toluene	1.345	1.458	1.380	1.428
1,1,2-Trichloroethane	0.241	0.252	0.239	0.245
1,1-Dichloroethane	0.664	0.703	0.657	0.693
1,1-Dichloroethene	0.361	0.411	0.379	0.404
Trichlorofluoromethane	0.661	0.802	0.735	0.795
1,2,3-Trichlorobenzene	82821	193390	278559	405059
Tetrachloroethene	0.323	0.380	0.354	0.370
1,2,4-Trichlorobenzene	0.659	0.800	0.796	0.838
1,2,4-Trimethylbenzene	2.063	2.398	2.329	2.423
tert-Butylbenzene	1.641	2.029	1.938	2.027
Trichloroethene	0.358	0.391	0.373	0.392
1,2-Dichlorobenzene	1.296	1.437	1.418	1.434
1,2-Dichloroethane	0.381	0.407	0.393	0.402
1,2-Dichloropropane	0.271	0.283	0.275	0.283
1,3,5-Trimethylbenzene	1.976	2.346	2.301	2.385
1,3-Dichloropropane	0.483	0.506	0.480	0.496
1,4-Dichlorobenzene	1.377	1.547	1.510	1.563
2-Butanone	0.119	0.130	0.117	0.125
2-Chlorotoluene	1.590	1.813	1.805	1.856
2-Hexanone	0.161	0.173	0.164	0.171
4-Chlorotoluene	1.864	2.126	2.100	2.172
Styrene	0.999	1.072	1.026	1.058
4-Methyl-2-Pentanone	0.237	0.252	0.242	0.250
Acetone	66437	125003		
Benzene	1.118	1.188	1.146	1.190
Bromobenzene	0.854	0.926	0.922	0.942
Bromochloromethane	84393	161297	232598	307407
Bromodichloromethane	0.401	0.428	0.418	0.431
Bromoform	0.296	0.317	0.307	0.315
Bromomethane	129857	273924	399907	526501
Carbon Disulfide	1.039	1.160	1.082	1.147
Carbon Tetrachloride	0.396	0.475	0.451	0.478
Chlorobenzene	0.929	0.994	0.962	0.987

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

LAB FILE ID: RF50: X051308 RF100: X051309 RF150: X051310
RF200: X051311

COMPOUND	RF50	RF100	RF150	RF200
Chloroethane	0.258	0.285	0.270	0.276
Chloroform	0.713	0.769	0.717	0.749
Chloromethane	171914	321283	438543	547031
cis-1,2-Dichloroethene	0.456	0.488	0.458	0.479
Dibromochloromethane	0.388	0.411	0.398	0.407
Dichlorodifluoromethane	129152	289308	401283	559973
Ethylbenzene	0.462	0.519	0.496	0.518
Hexachlorobutadiene	0.354	0.470	0.459	0.478
Isopropylbenzene	1.313	1.574	1.491	1.555
m,p-Xylenes	0.561	0.628	0.603	0.620
Methylene Chloride	132351	252013	359557	480088
n-Butylbenzene	1.636	2.041	1.985	2.081
n-Propylbenzene	2.612	3.169	3.138	3.263
Naphthalene	0.934	1.130	1.132	1.212
o-Xylene	0.554	0.615	0.578	0.604
sec-Butylbenzene	2.210	2.793	2.672	2.826
Vinyl Chloride	0.421	0.488	0.455	0.493
1,2,3-Trichloropropane	0.738	0.785	0.783	0.804
p-Isopropyltoluene	2.058	2.584	2.482	2.626
1,2-Dibromo-3-Chloropropane	0.105	0.120	0.114	0.121
Freon TF	105816	255344	356261	492637
4-Bromofluorobenzene	164393	308874	453043	597336
Dibromofluoromethane	138429	259811	375096	491615
Toluene-d8	475062	904394	1314423	1723420
1,2-Dichloroethane-d4	140206	264049	382028	502886

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
cis-1,3-Dichloropropene	AVRG		0.49771918		5.915	15.000
trans-1,3-Dichloropropene	AVRG		0.43489503		6.516	15.000
1,3-Dichlorobenzene	AVRG		1.53778202		9.830	15.000
2,2-Dichloropropane	AVRG		0.62425653		8.970	15.000
1,1-Dichloropropene	AVRG		0.41585091		13.985	15.000
Dibromomethane	AVRG		0.21030722		5.868	15.000
1,2-Dibromoethane	AVRG		0.35009458		10.051	15.000
trans-1,2-Dichloroethene	AVRG		0.40859806		7.082	15.000
1,1,1,2-Tetrachloroethane	AVRG		0.39008119		11.412	15.000
1,1,1-Trichloroethane	AVRG		0.66203536		6.481	15.000
1,1,2,2-Tetrachloroethane	AVRG		0.68127906		8.678	15.000
Toluene	AVRG		1.46558205		11.175	15.000
1,1,2-Trichloroethane	AVRG		0.25610066		8.667	15.000
1,1-Dichloroethane	AVRG		0.70472897		9.010	15.000
1,1-Dichloroethene	AVRG		0.39074385		9.430	15.000
Trichlorofluoromethane	AVRG		0.74266153		9.738	15.000
1,2,3-Trichlorobenzene	2ORDR	1.51e-002	2.41455480	-0.2430485	0.9984984	0.9900000
Tetrachloroethene	AVRG		0.36759966		11.394	15.000
1,2,4-Trichlorobenzene	AVRG		0.73723146		12.797	15.000
1,2,4-Trimethylbenzene	AVRG		2.38128040		10.205	15.000
tert-Butylbenzene	AVRG		1.96560319		11.656	15.000
Trichloroethene	AVRG		0.38716276		8.358	15.000
1,2-Dichlorobenzene	AVRG		1.44345711		10.476	15.000
1,2-Dichloroethane	AVRG		0.42106536		13.512	15.000
1,2-Dichloropropane	AVRG		0.29197973		9.098	15.000
1,3,5-Trimethylbenzene	AVRG		2.27127443		8.393	15.000
1,3-Dichloropropane	AVRG		0.51664479		8.620	15.000
1,4-Dichlorobenzene	AVRG		1.54811621		11.602	15.000
2-Butanone	AVRG		0.11919462		7.992	15.000
2-Chlorotoluene	AVRG		1.84916500		12.264	15.000
2-Hexanone	AVRG		0.17416142		10.062	15.000
4-Chlorotoluene	AVRG		2.14249997		12.623	15.000
Styrene	AVRG		1.06204057		7.834	15.000
4-Methyl-2-Pentanone	AVRG		0.25352116		9.380	15.000
Acetone	LINR	-3.53e-002	9.50178516		0.9995835	0.9900000
Benzene	AVRG		1.20687793		11.441	15.000
Bromobenzene	AVRG		0.93182068		7.938	15.000
Bromochloromethane	LINR	-1.06e-003	3.74852050		0.9993055	0.9900000
Bromodichloromethane	AVRG		0.41901017		6.336	15.000
Bromoform	AVRG		0.29158923		10.027	15.000
Bromomethane	LINR	2.187e-002	2.17898988		0.9987964	0.9900000
Carbon Disulfide	AVRG		1.12671521		10.734	15.000
Carbon Tetrachloride	AVRG		0.46245484		13.244	15.000
Chlorobenzene	AVRG		0.99733730		7.218	15.000

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date(s): 05/13/19 05/13/19

Column: DB624 ID: 0.18 (mm) Calibration Time(s): 1121 1520

COMPOUND	CURVE	COEFFICENTS A0	A1	A2	%RSD OR R^2	MAX %RSD OR R^2
Chloroethane	AVRG		0.28538895		9.650	15.000
Chloroform	AVRG		0.75567055		7.908	15.000
Chloromethane	LINR	-4.95e-002	2.05623096		0.9961119	0.9900000
cis-1,2-Dichloroethene	AVRG		0.48700328		8.796	15.000
Dibromochloromethane	AVRG		0.40176813		12.536	15.000
Dichlorodifluoromethane	2ORDR	1.15e-002	2.30394197	-0.1305998	0.9971369	0.9900000
Ethylbenzene	AVRG		0.51555123		11.524	15.000
Hexachlorobutadiene	AVRG		0.43899485		12.402	15.000
Isopropylbenzene	AVRG		1.53111578		11.742	15.000
m,p-Xylenes	AVRG		0.62096278		9.244	15.000
Methylene Chloride	LINR	-1.26e-002	2.41541641		0.9990138	0.9900000
n-Butylbenzene	AVRG		1.94329244		11.644	15.000
n-Propylbenzene	AVRG		3.07188810		9.932	15.000
Naphthalene	AVRG		1.04448277		11.277	15.000
o-Xylene	AVRG		0.60751184		9.569	15.000
sec-Butylbenzene	AVRG		2.67178311		11.718	15.000
Vinyl Chloride	AVRG		0.45697874		10.461	15.000
1,2,3-Trichloropropane	AVRG		0.77905637		7.039	15.000
p-Isopropyltoluene	AVRG		2.45293099		11.664	15.000
1,2-Dibromo-3-Chloropropane	AVRG		0.10920891		7.013	15.000
Freon TF	2ORDR	1.665e-002	2.62304412	-0.1766315	0.9965538	0.9900000
4-Bromofluorobenzene	LINR	-1.15e-002	2.40600521		0.9997462	0.9900000
Dibromofluoromethane	LINR	-7.36e-003	2.33872517		0.9994280	0.9900000
Toluene-d8	LINR	-1.15e-002	0.83071157		0.9996002	0.9900000
1,2-Dichloroethane-d4	LINR	-3.58e-003	2.28937081		0.9994182	0.9900000

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

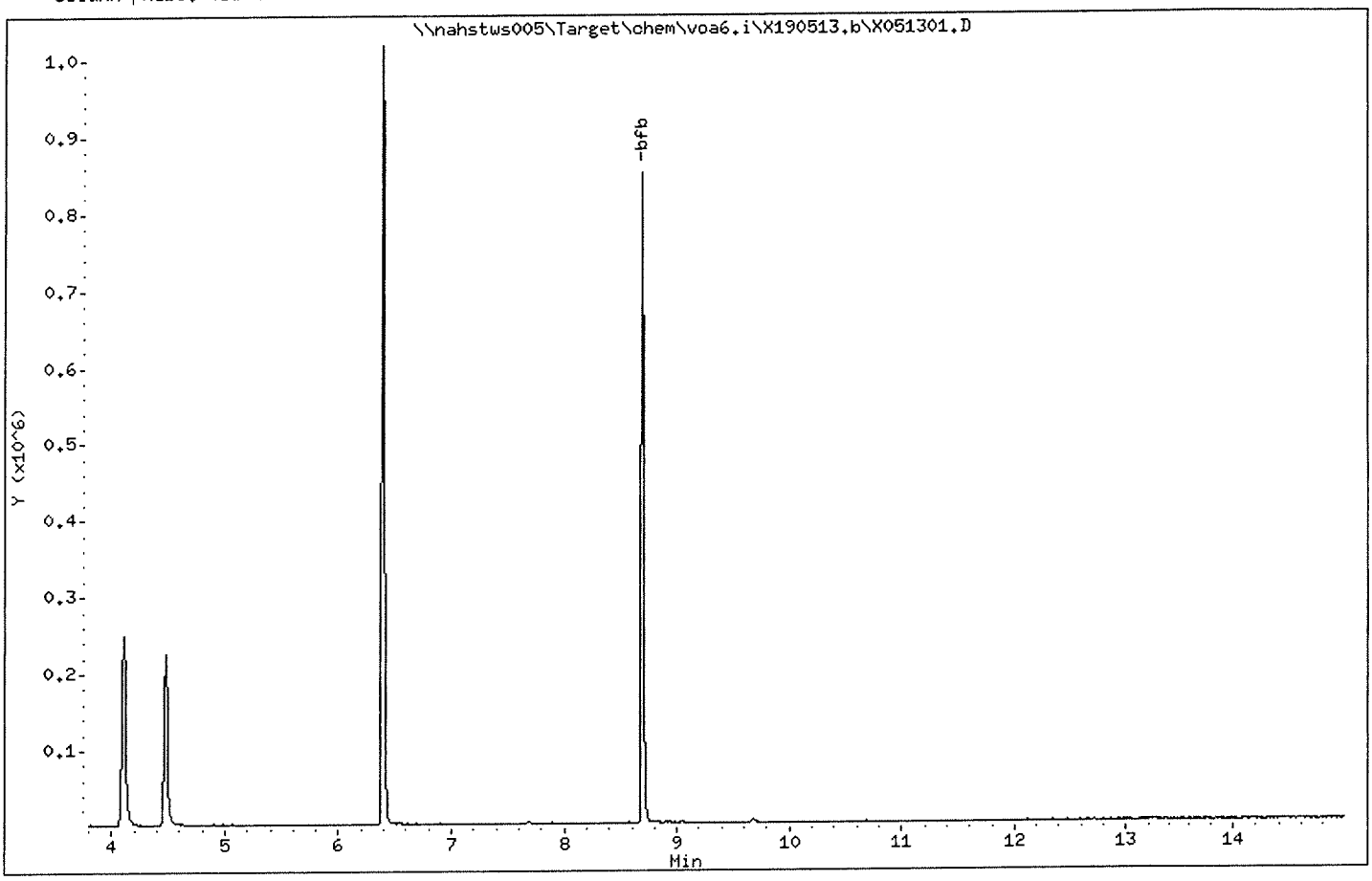
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

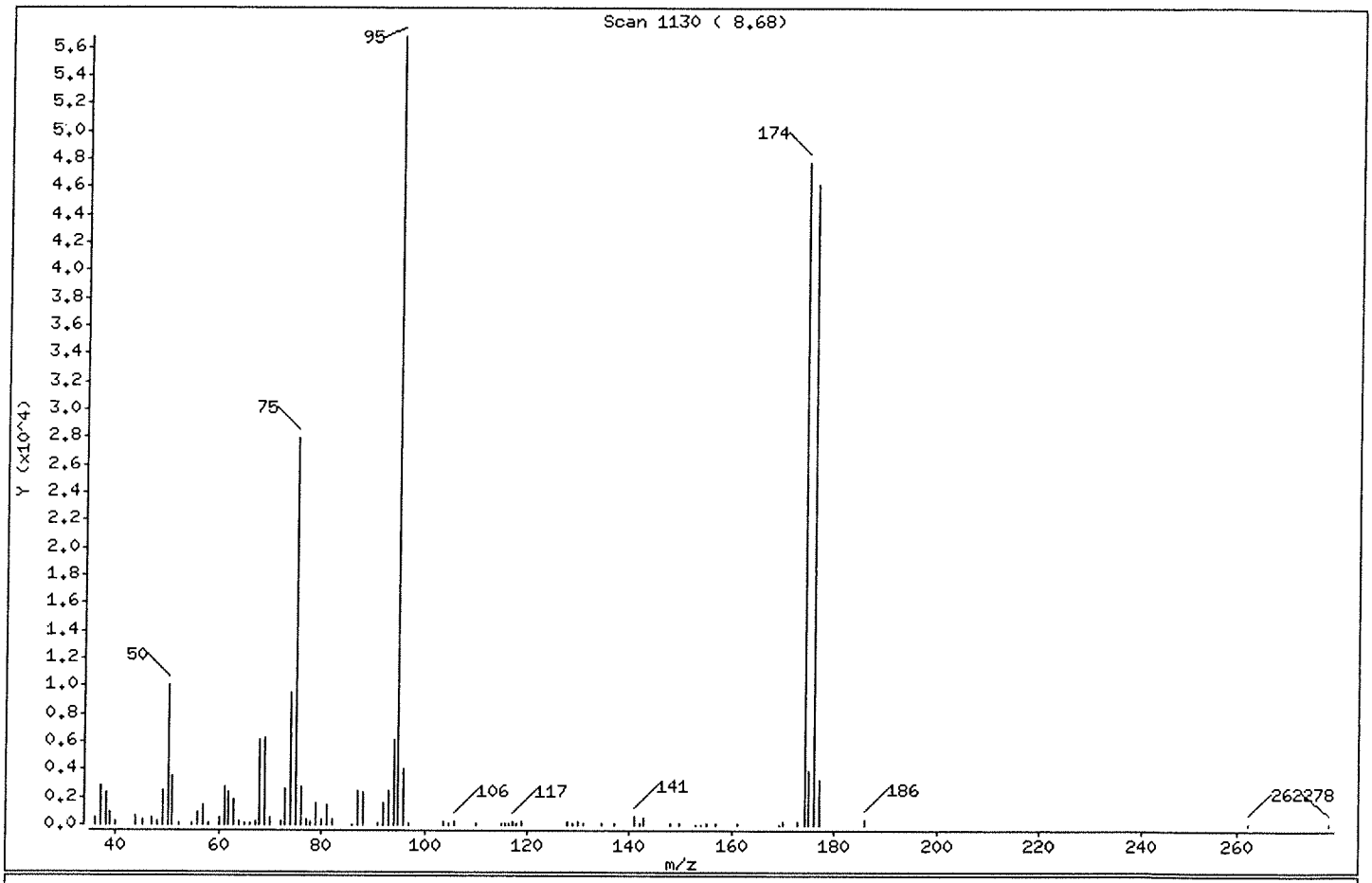
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.74
75	30.00 - 60.00% of mass 95	49.24
96	5.00 - 9.00% of mass 95	7.17
173	Less than 2.00% of mass 174	0.51 (0.61)
174	Greater than 50.00% of mass 95	84.25
175	5.00 - 9.00% of mass 174	6.85 (8.13)
176	95.00 - 101.00% of mass 174	81.36 (96.57)
177	5.00 - 9.00% of mass 176	5.85 (7.19)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051301.D

Date : 13-MAY-2019 10:57

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: X051301.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 85

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	499	65.10	118	93.10	2482	142.10	90
37.10	2826	66.00	81	94.00	6130	142.80	493
38.10	2373	67.10	215	95.00	56736	147.80	141
39.00	976	68.00	6194	96.00	4066	149.90	72
40.10	309	69.00	6198	97.00	85	152.90	59
44.00	623	70.00	553	103.80	217	154.00	52
45.10	455	72.10	254	104.80	70	154.90	137
47.00	582	73.00	2655	105.80	230	156.90	179
48.00	304	74.10	9574	109.90	86	161.10	101
49.00	2490	75.00	27936	115.10	163	169.10	63
50.10	10063	76.10	2714	115.80	146	170.00	243
51.10	3473	77.00	426	116.40	155	172.90	291
52.20	138	77.80	222	117.00	280	174.00	47800
55.00	164	78.90	1585	118.00	150	175.00	3885
56.00	913	79.90	401	118.90	272	176.00	46160
57.10	1397	81.00	1467	127.90	257	177.00	3318
58.00	81	82.00	393	129.00	158	185.90	337
60.10	522	85.90	64	130.00	243	262.10	143
61.10	2794	87.10	2505	130.90	156	278.00	75
62.00	2349	88.00	2334	134.60	73		
63.10	1839	91.10	183	137.00	147		
64.10	270	92.00	1588	141.00	681		

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Lab Smp Id: VSTD000.25 Client Smp ID: VSTD000.25
Inj Date : 13-MAY-2019 11:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 11:21 Cal File: X051302.D
Als bottle: 2 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	380640	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	493303	50.0000	
*	47 Chlorobenzene-d5	117	7.670	7.671	(1.000)	438880	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	241847	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	1121	0.25000	0.15(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3820	0.25000	0.47(a)
$	30 Dibromofluoromethane	113	4.118	4.111	(0.983)	964	0.25000	(a)
$	48 Toluene-d8	98	6.395	6.388	(0.834)	5074	0.25000	(Ta)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	1053	0.25000	0.30(a)
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	1398	0.25000	0.27(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	935	0.25000	0.28(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	841	0.25000	1.12(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	563	0.25000	0.25(aM)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2111	0.25000	0.39(aM)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	959	0.25000	0.32(aM)
	32 1,1-Dichloropropene	75	4.297	4.290	(0.865)	1440	0.25000	0.35(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	448	0.25000	0.97(aM)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	929	0.25000	0.24(a)
	90 1,2,4-Trichlorobenzene	180	11.359	11.338	(1.175)	967	0.25000	0.27(aM)
	79 1,2,4-Trimethylbenzene	105	9.390	9.383	(0.971)	3604	0.25000	0.31(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	89	0.25000	0.16(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	767	0.25000	0.24(a)
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	2087	0.25000	0.29(a)

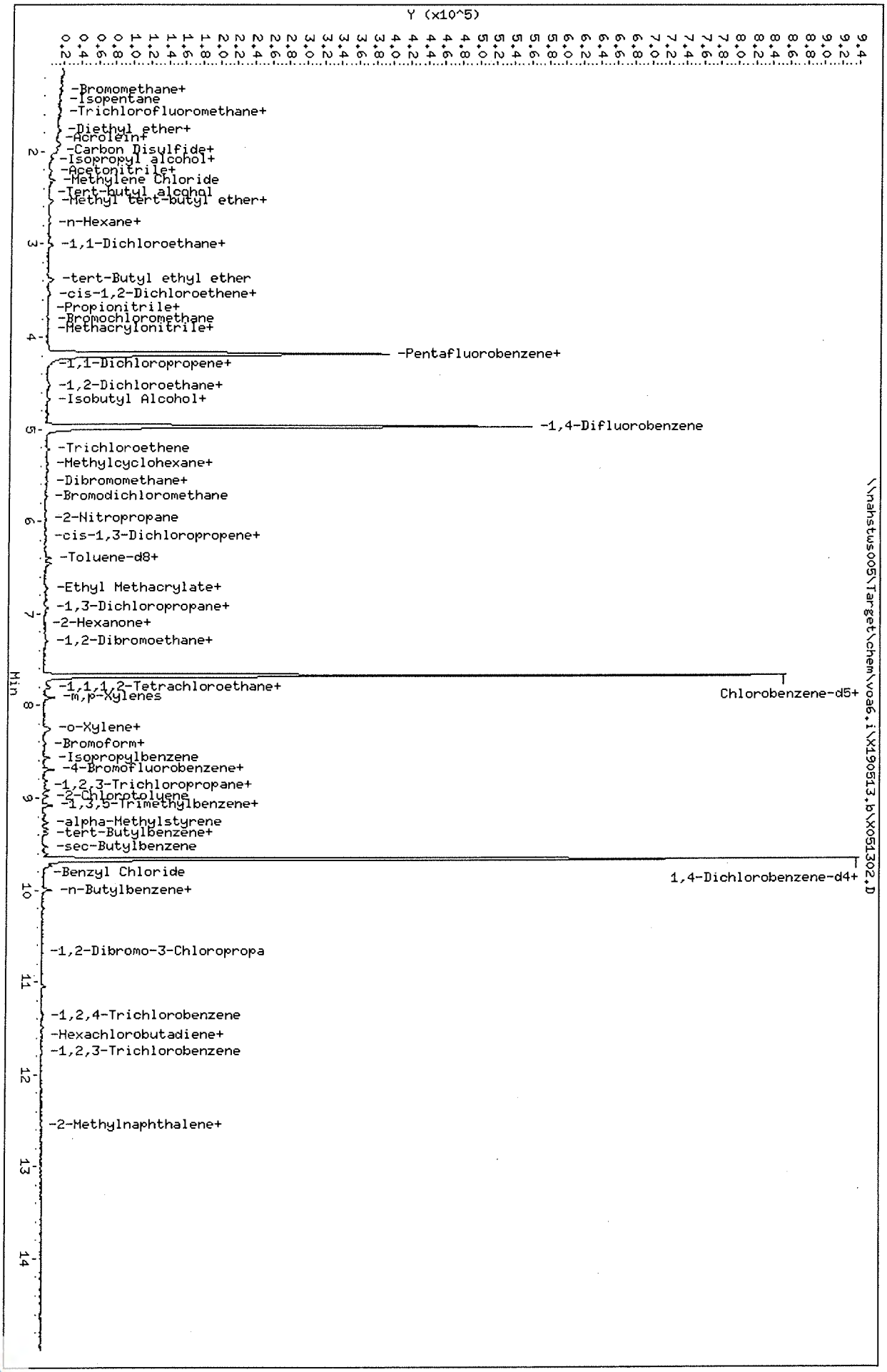
a File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
ort Date: 06-Jun-2019 10:44

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	4.562	(0.919)	1271	0.25000	0.30(a)
42 1,2-Dichloropropane	63	5.450	5.443	(1.097)	768	0.25000	0.26(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	3592	0.25000	0.32(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	2204	0.25000	0.29(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	1311	0.25000	0.28(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	2372	0.25000	0.31(a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	1358	0.25000	0.28(aM)
24 2-Butanone	43	3.623	3.581	(0.865)	314	0.50000	0.34(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	3094	0.25000	0.34(a)
52 2-Hexanone	43	7.105	7.090	(0.926)	746	0.50000	0.48(Ta)
77 4-Chlorotoluene	91	9.082	9.075	(0.939)	3064	0.25000	0.29(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	3961	0.25000	0.33(a)
45 4-Methyl-2-Pentanone	43	6.345	6.331	(0.827)	1342	0.50000	0.60(aM)
10 Acetone	43	1.983	1.976	(0.473)	1372	0.50000	(aM)
37 Benzene	78	4.519	4.519	(0.909)	3582	0.25000	0.30(a)
74 Bromobenzene	156	8.817	8.810	(0.912)	1360	0.25000	0.30(a)
29 Bromochloromethane	128	3.802	3.803	(0.908)	871	0.25000	0.37(a)
39 Bromodichloromethane	83	5.729	5.729	(1.153)	1213	0.25000	0.29(aM)
66 Bromoform	173	8.415	8.416	(1.097)	645	0.25000	0.25(aM)
6 Bromomethane	94	1.338	1.339	(0.320)	1482	0.25000	1.51(aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	5105	0.50000	0.59(a)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	1602	0.25000	0.35(aM)
59 Chlorobenzene	112	7.699	7.699	(1.004)	2791	0.25000	0.31(a)
7 Chloroethane	64	1.410	1.403	(0.337)	506	0.25000	0.23(aM)
28 Chloroform	83	3.910	3.917	(0.933)	1650	0.25000	0.28(a)
3 Chloromethane	50	1.081	1.081	(0.258)	1663	0.25000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1225	0.25000	0.33(a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	1356	0.25000	0.27(a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	1243	0.25000	0.35(a)
44 Dibromomethane	93	5.565	5.558	(1.120)	635	0.25000	0.30(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	819	0.25000	0.82(aM)
61 Ethylbenzene	106	7.807	7.807	(1.018)	1392	0.25000	0.30(a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	676	0.25000	0.31(aM)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	4156	0.25000	0.30(a)
62 m,p-Xylenes	106	7.914	7.907	(1.032)	3220	0.50000	0.59(a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	1896	0.25000	(aM)
87 n-Butylbenzene	91	10.006	9.999	(1.035)	2998	0.25000	0.31(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	4469	0.25000	0.30(a)
92 Naphthalene	128	11.567	11.546	(1.196)	1115	0.25000	0.22(aM)
63 o-Xylene	106	8.251	8.244	(1.076)	1474	0.25000	0.27(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	4062	0.25000	0.31(a)
64 Styrene	104	8.272	8.265	(1.078)	2684	0.25000	0.28(a)
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	3014	0.25000	0.31(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	1012	0.25000	0.31(a)
50 Toluene	91	6.453	6.453	(0.841)	4377	0.25000	0.34(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	1043	0.25000	0.33(Ta)
51 trans-1,3-Dichloropropene	75	6.696	6.682	(1.347)	1116	0.25000	0.26(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	1299	0.25000	0.34(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	1532	0.25000	0.27(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	1101	0.25000	0.31(aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051302.D
Report Date: 06-Jun-2019 10:44

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\X190513.b\X051302.D
Date : 13-MAY-2019 11:21
Client ID: VSTD000.25
Sample Info: VSTD000.25;VSTD000.25;1;1;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Lab Smp Id: VSTD000.5 Client Smp ID: VSTD000.5
Inj Date : 13-MAY-2019 12:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:09 Cal File: X051303.D
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	339150	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	450290	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	414823	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	230908	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2751	0.50000	0.74(Ta)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3387	0.50000	0.40(a)
$	30 Dibromofluoromethane	113	4.110	4.111	(0.981)	2068	0.50000	0.34(a)
$	48 Toluene-d8	98	6.395	6.388	(0.834)	8111	0.50000	0.23(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	2082	0.50000	0.64(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	2521	0.50000	0.56(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	1906	0.50000	0.60(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	1794	0.50000	1.52(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	1298	0.50000	0.61(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	2895	0.50000	0.60(Ta)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	1580	0.50000	0.59(aM)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	2446	0.50000	0.65(aM)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1200	0.50000	1.38(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	2104	0.50000	0.58(a)
	90 1,2,4-Trichlorobenzene	180	11.352	11.338	(1.174)	2065	0.50000	0.60(aM)
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	6729	0.50000	0.61(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	253	0.50000	0.50(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	1828	0.50000	0.62(a)
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	4202	0.50000	0.63(a)

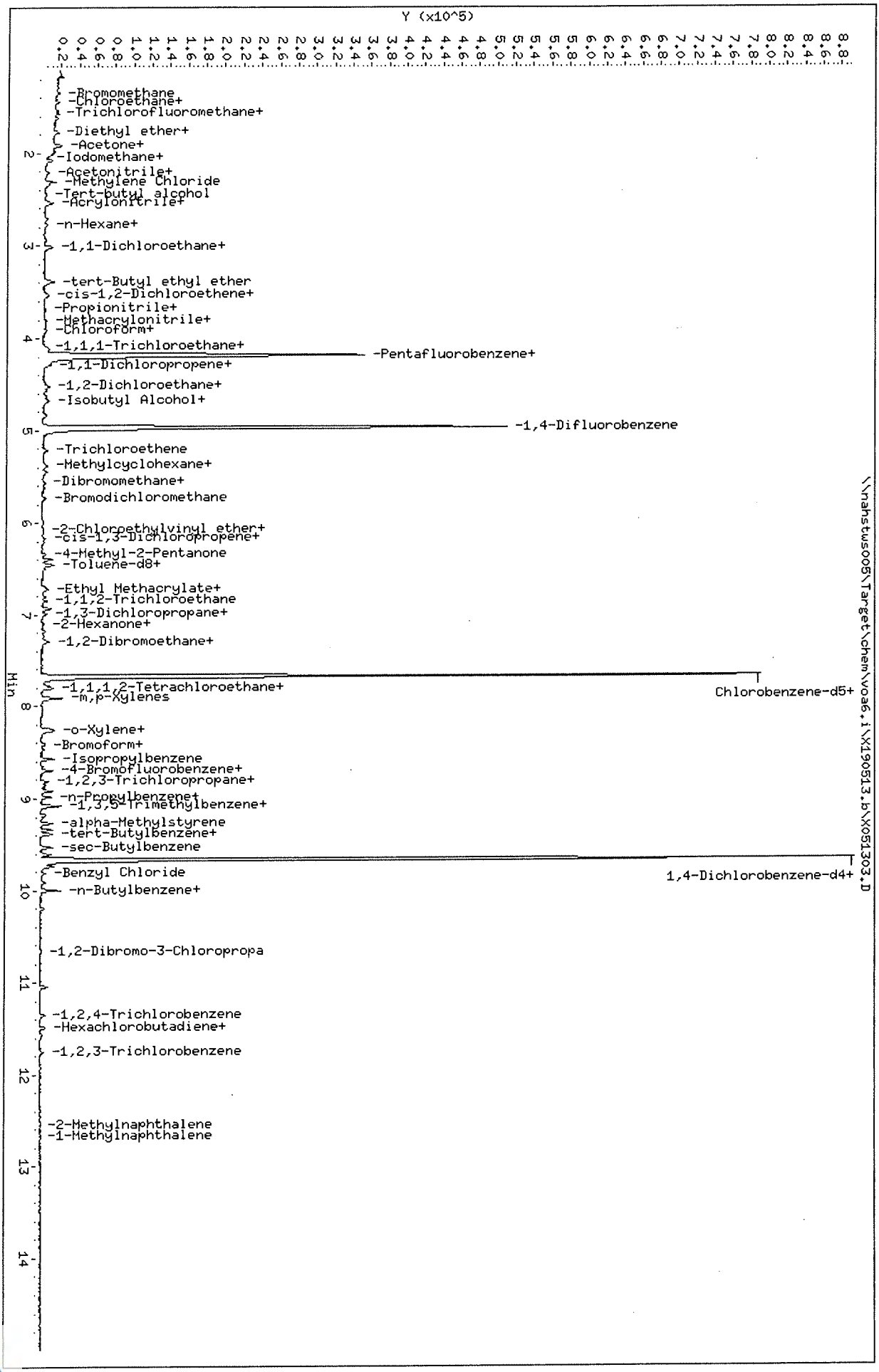
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

	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	4.562	(0.919)	2548	0.50000	0.67(aM)
42	1,2-Dichloropropane	63	5.450	5.443	(1.097)	1600	0.50000	0.60(aM)
75	1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	6064	0.50000	0.57(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	4368	0.50000	0.61(a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	2593	0.50000	0.60(a)
84	1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	4593	0.50000	0.64(a)
26	2,2-Dichloropropane	77	3.523	3.516	(0.841)	2483	0.50000	0.58(aM)
24	2-Butanone	43	3.616	3.581	(0.863)	904	1.00000	1.11(aM)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	5485	0.50000	0.64(a)
52	2-Hexanone	43	7.105	7.090	(0.926)	1814	1.00000	1.25(a)
77	4-Chlorotoluene	91	9.082	9.075	(0.939)	6416	0.50000	0.64(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	7002	0.50000	0.61(a)
45	4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	2610	1.00000	1.24(a)
10	Acetone	43	1.976	1.976	(0.472)	2338	1.00000	1.50(a)
37	Benzene	78	4.519	4.519	(0.909)	7038	0.50000	0.64(a)
74	Bromobenzene	156	8.817	8.810	(0.912)	2569	0.50000	0.59(a)
29	Bromochloromethane	128	3.810	3.803	(0.909)	1373	0.50000	0.70(aM)
39	Bromodichloromethane	83	5.736	5.729	(1.154)	2141	0.50000	0.56(aM)
66	Bromoform	173	8.415	8.416	(1.097)	1360	0.50000	0.56(Ta)
6	Bromomethane	94	1.346	1.339	(0.321)	1971	0.50000	1.72(aM)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	9564	1.00000	1.25(a)
34	Carbon Tetrachloride	117	4.268	4.275	(0.859)	2687	0.50000	0.64(aM)
59	Chlorobenzene	112	7.699	7.699	(1.004)	4877	0.50000	0.58(a)
7	Chloroethane	64	1.410	1.403	(0.337)	1123	0.50000	0.58(aM)
28	Chloroform	83	3.917	3.917	(0.935)	3060	0.50000	0.59(a)
3	Chloromethane	50	1.081	1.081	(0.258)	2738	0.50000	(aM)
27	cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	1985	0.50000	0.60(a)
46	cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	2547	0.50000	0.56(a)
55	Dibromochloromethane	129	7.183	7.184	(0.937)	2177	0.50000	0.65(a)
44	Dibromomethane	93	5.557	5.558	(1.118)	1090	0.50000	0.57(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	1776	0.50000	1.17(aM)
61	Ethylbenzene	106	7.807	7.807	(1.018)	2761	0.50000	0.64(a)
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	1230	0.50000	0.60(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	8078	0.50000	0.63(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	6302	1.00000	1.22(a)
17	Methylene Chloride	84	2.313	2.306	(0.552)	3718	0.50000	0.69(a)
87	n-Butylbenzene	91	9.998	9.999	(1.034)	5563	0.50000	0.61(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	8414	0.50000	0.59(a)
92	Naphthalene	128	11.560	11.546	(1.196)	2741	0.50000	0.56(a)
63	o-Xylene	106	8.251	8.244	(1.076)	3120	0.50000	0.61(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	7583	0.50000	0.61(a)
64	Styrene	104	8.265	8.265	(1.078)	5278	0.50000	0.59(a)
78	tert-Butylbenzene	119	9.339	9.340	(0.966)	5631	0.50000	0.62(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	1936	0.50000	0.63(a)
50	Toluene	91	6.453	6.453	(0.841)	7833	0.50000	0.64(a)
20	trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	1611	0.50000	0.58(a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	2179	0.50000	0.55(a)
38	Trichloroethene	130	5.221	5.214	(1.050)	2102	0.50000	0.60(a)
8	Trichlorofluoromethane	101	1.560	1.561	(0.373)	2962	0.50000	0.58(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	1560	0.50000	0.50(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Report Date: 06-Jun-2019 10:44

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.



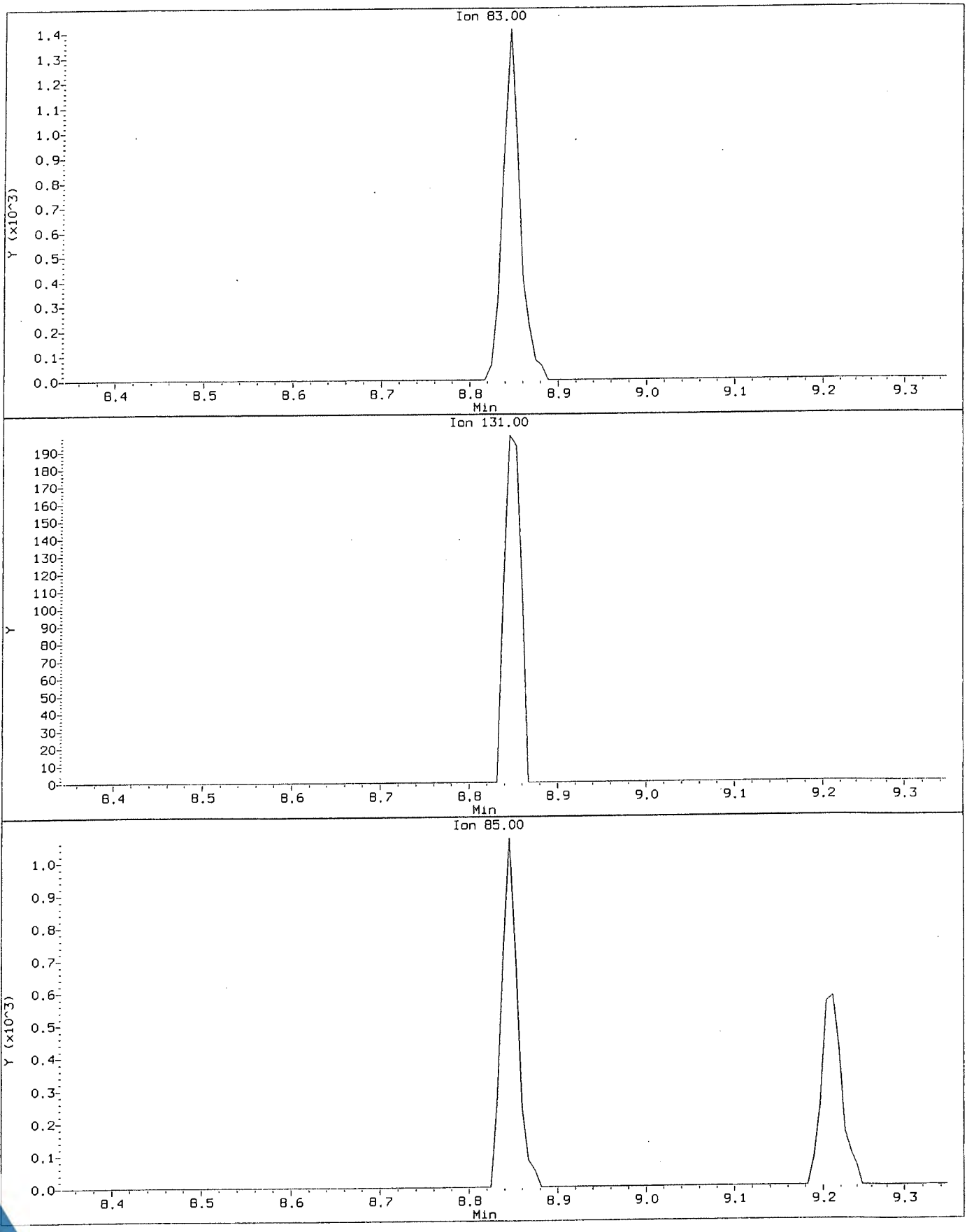
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Date : 13-MAY-2019 12:09
Client ID: VSTD000.5
Sample Info: VSTD000.5;VSTD000.5;1;2;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

\\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D

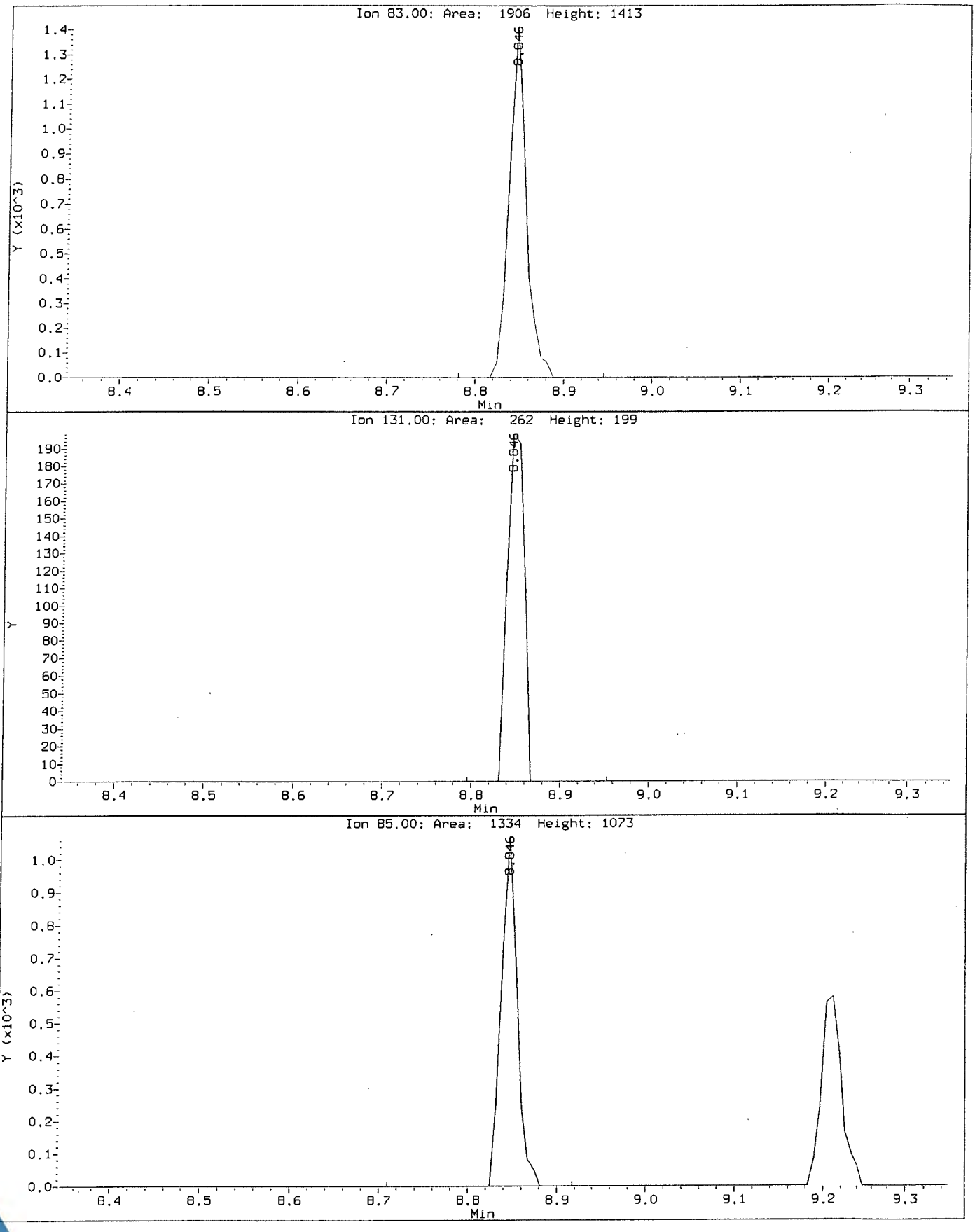
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



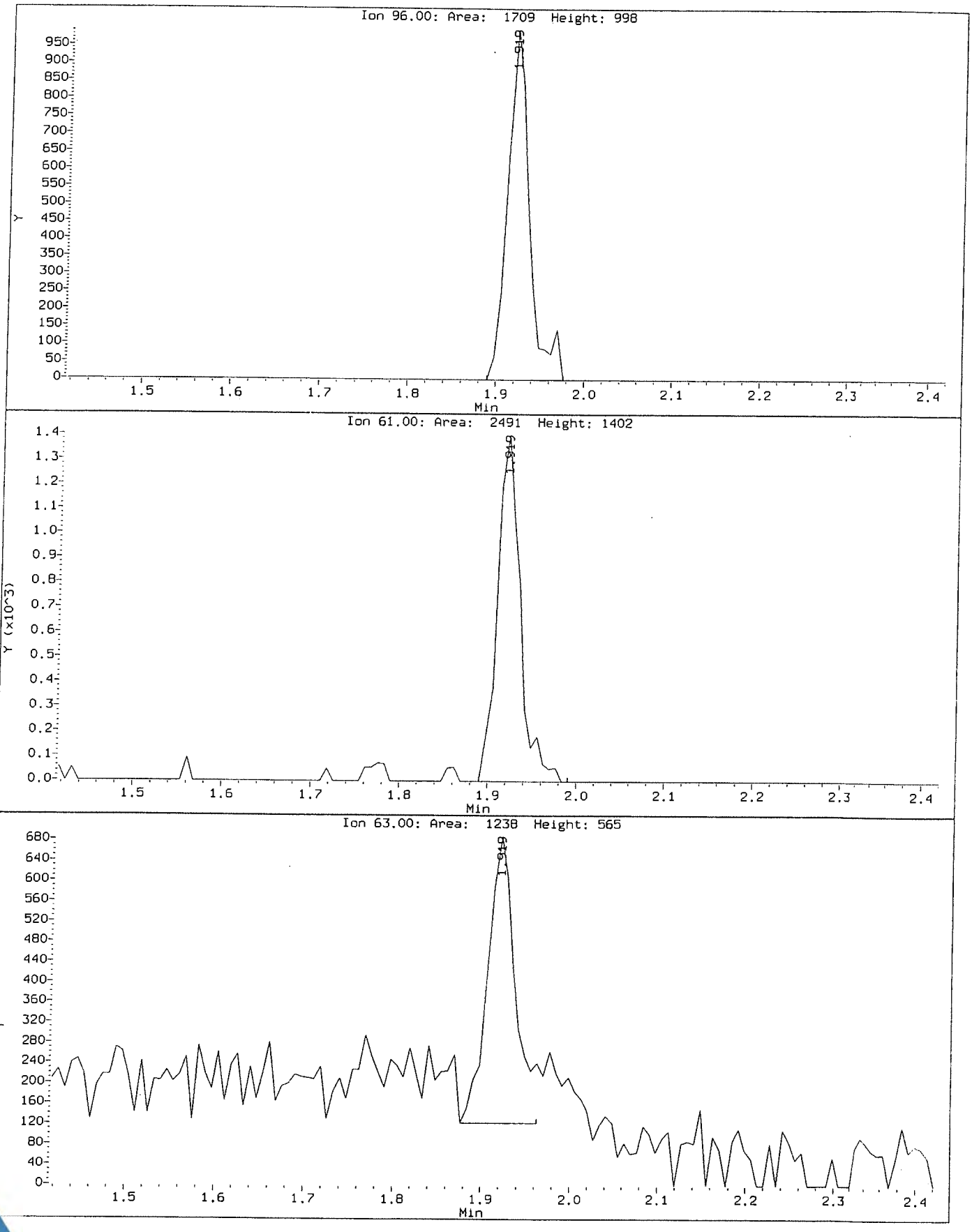
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5



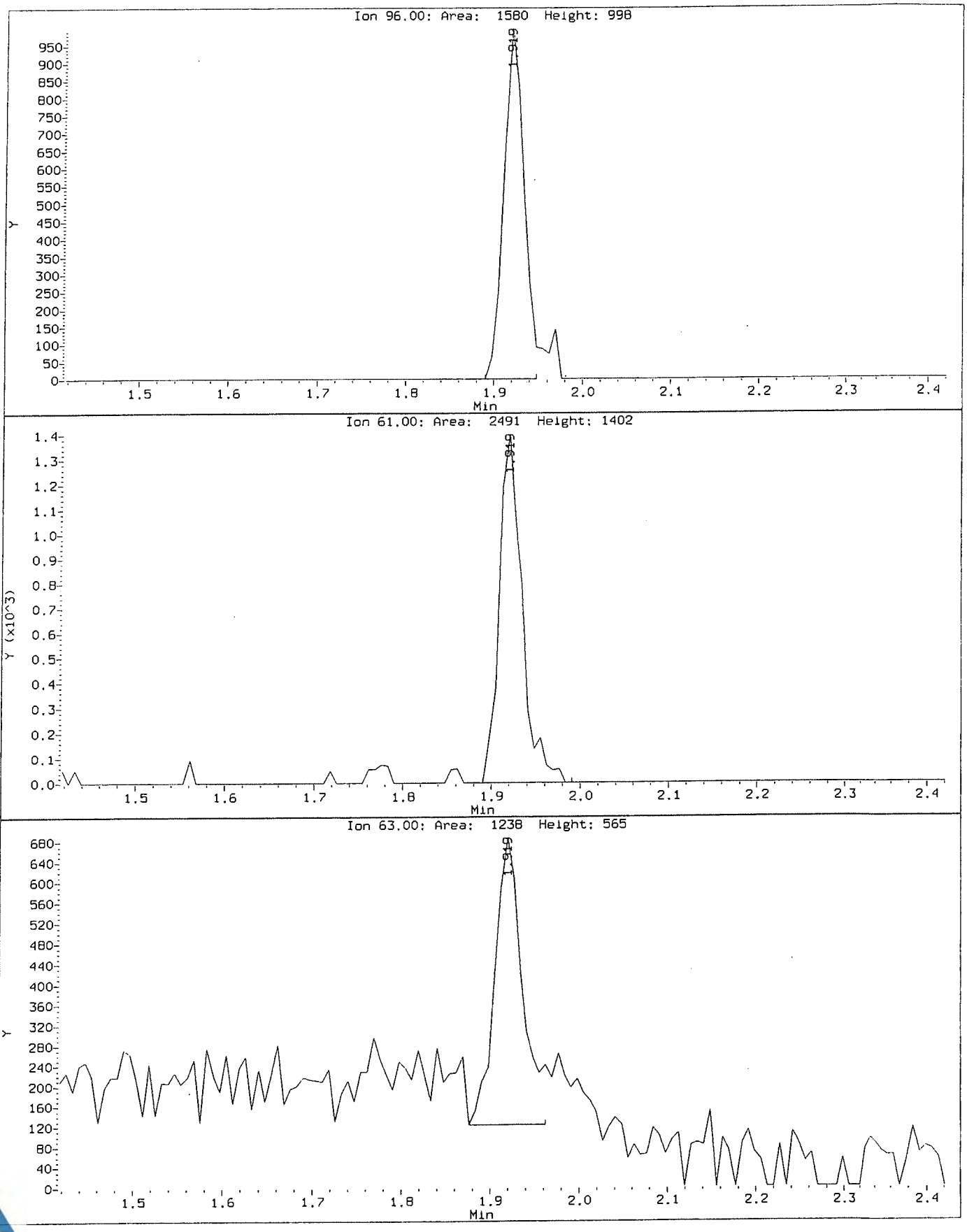
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloroethene
CAS Number: 75-35-4



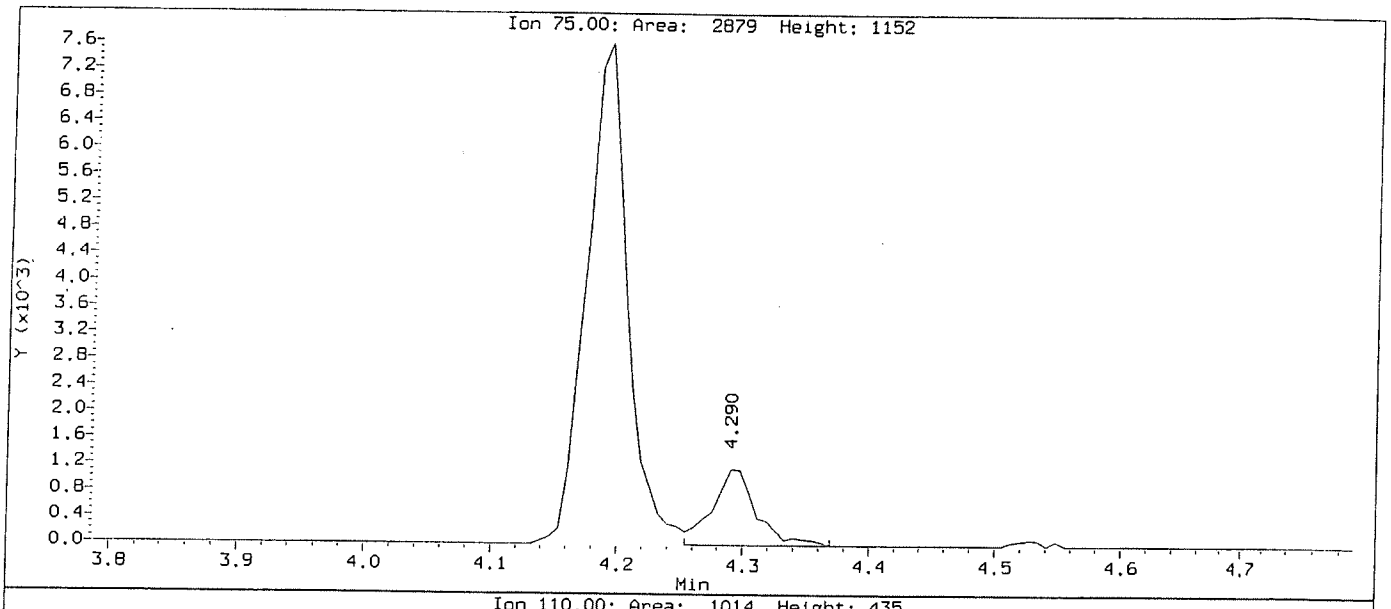
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

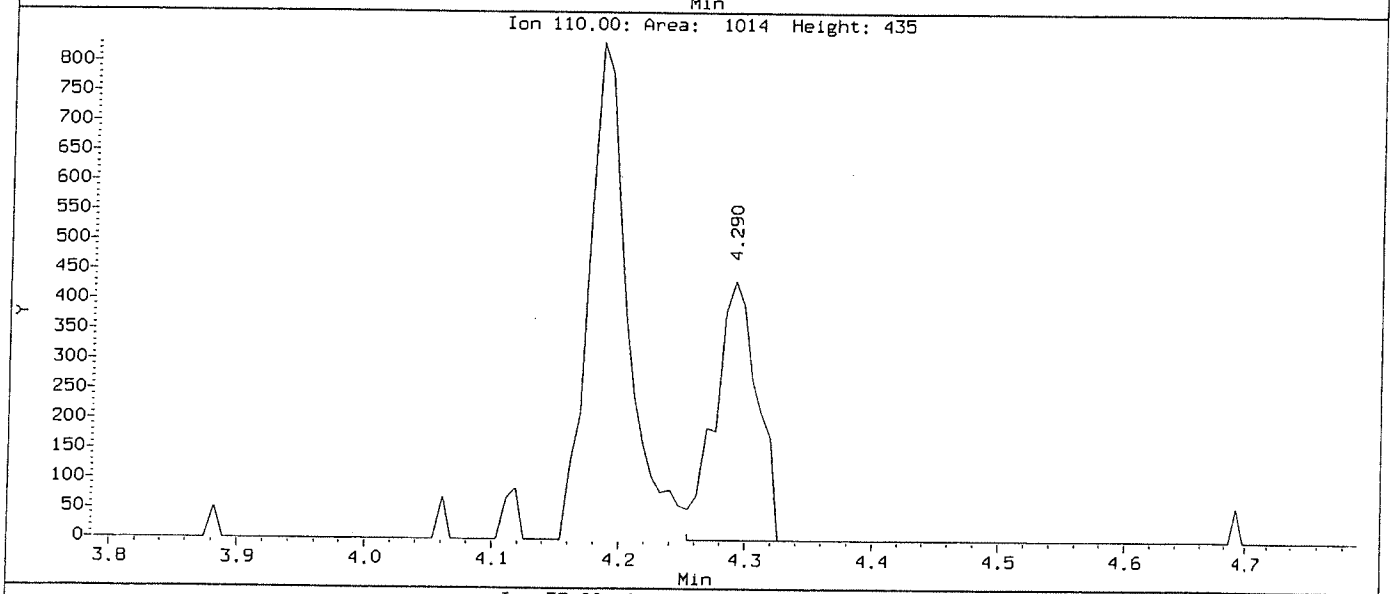
Compound: 1,1-Dichloroethene
CAS Number: 75-35-4

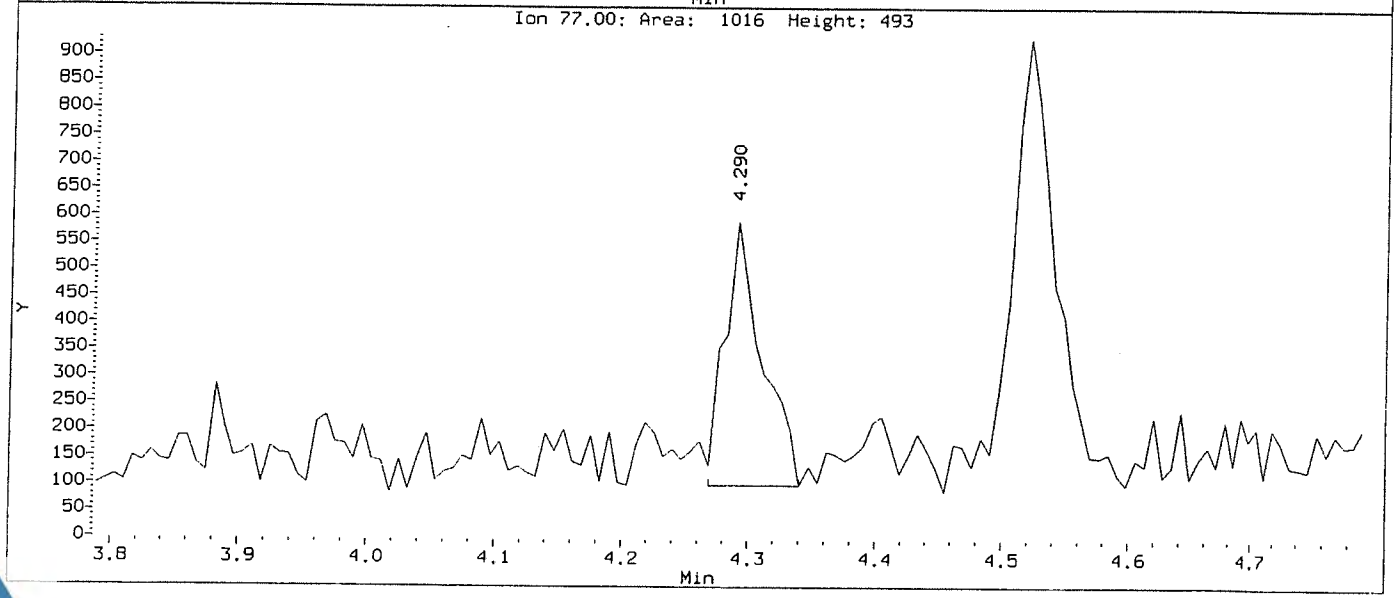


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6

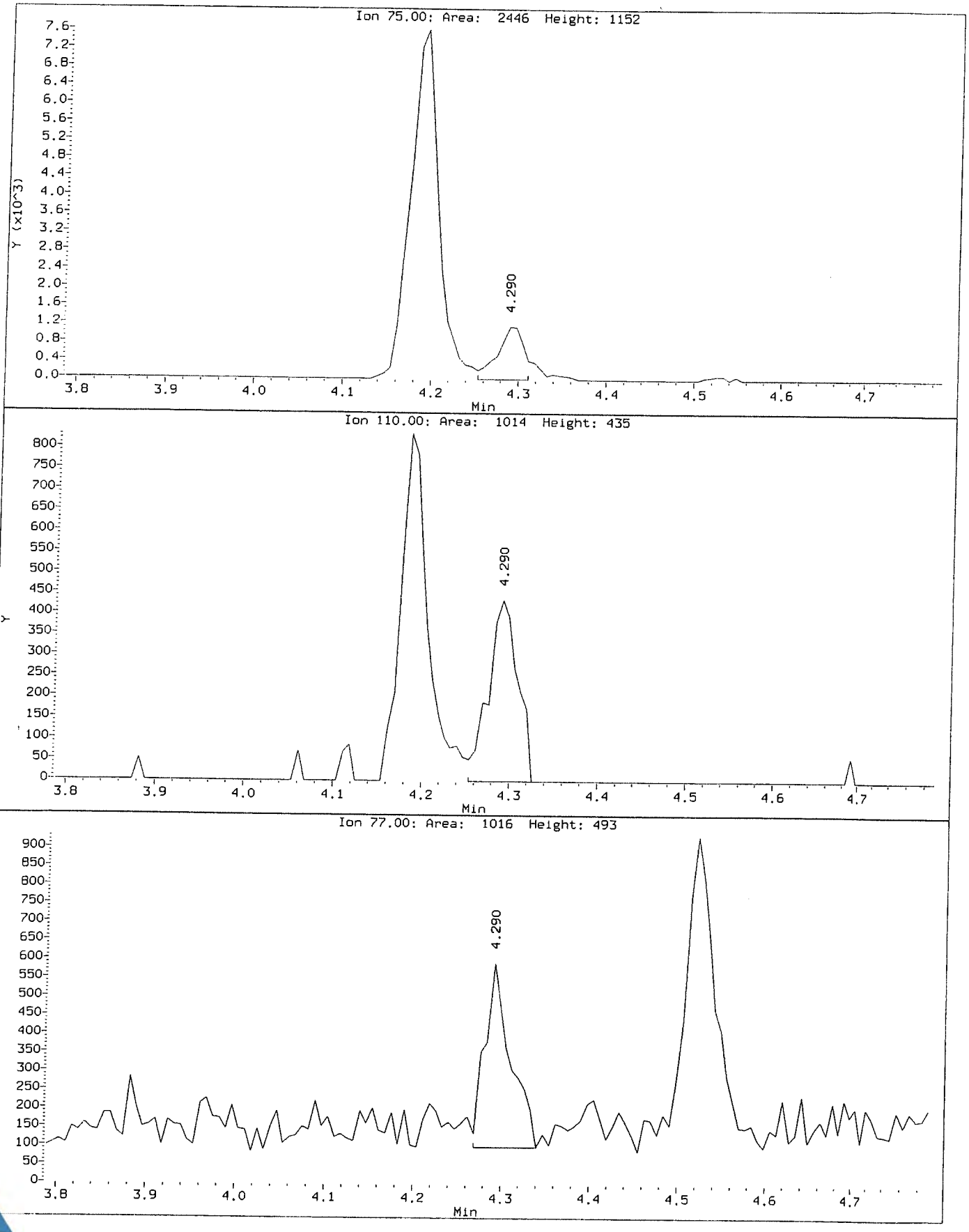






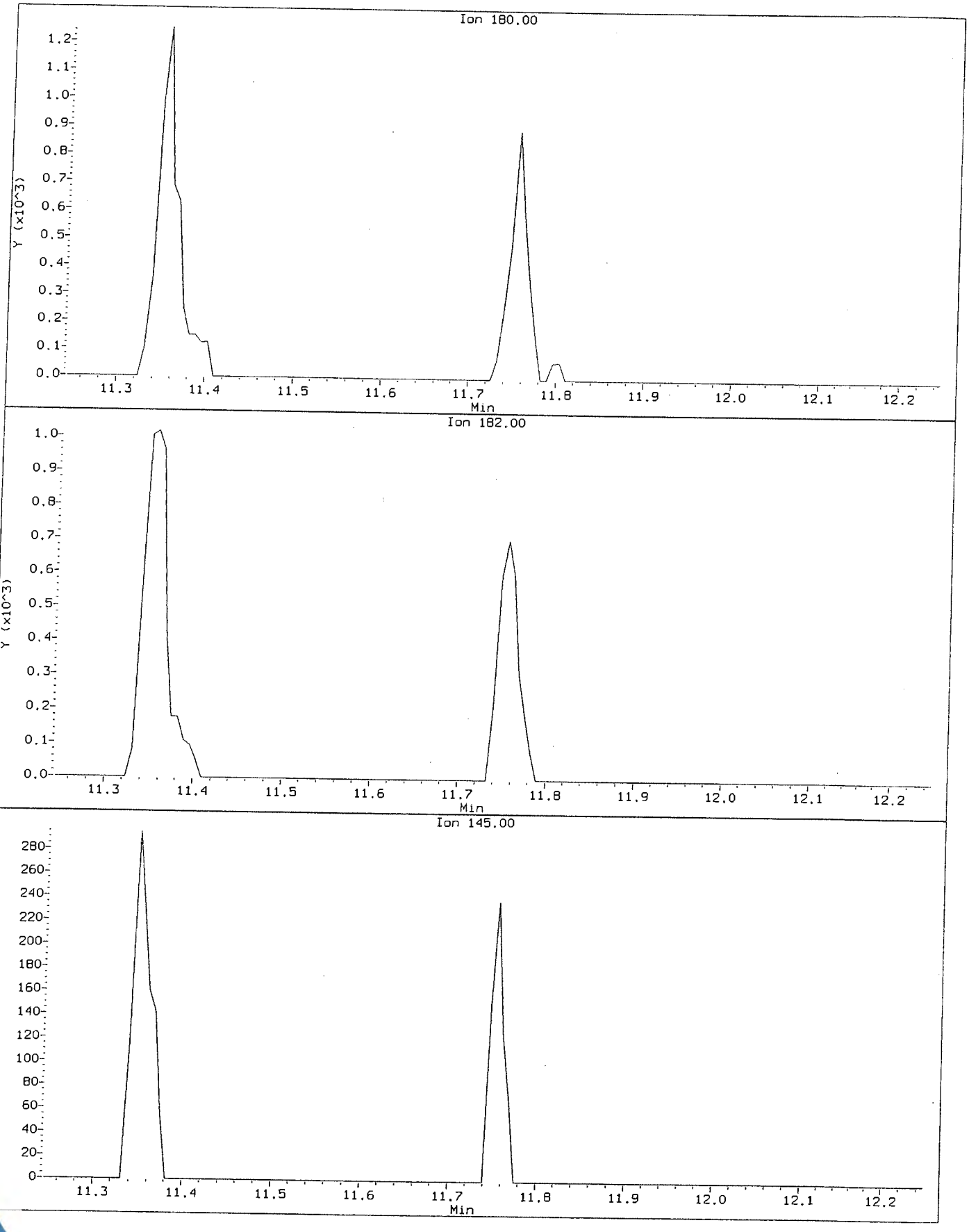
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,1-Dichloropropene
CAS Number: 563-58-6



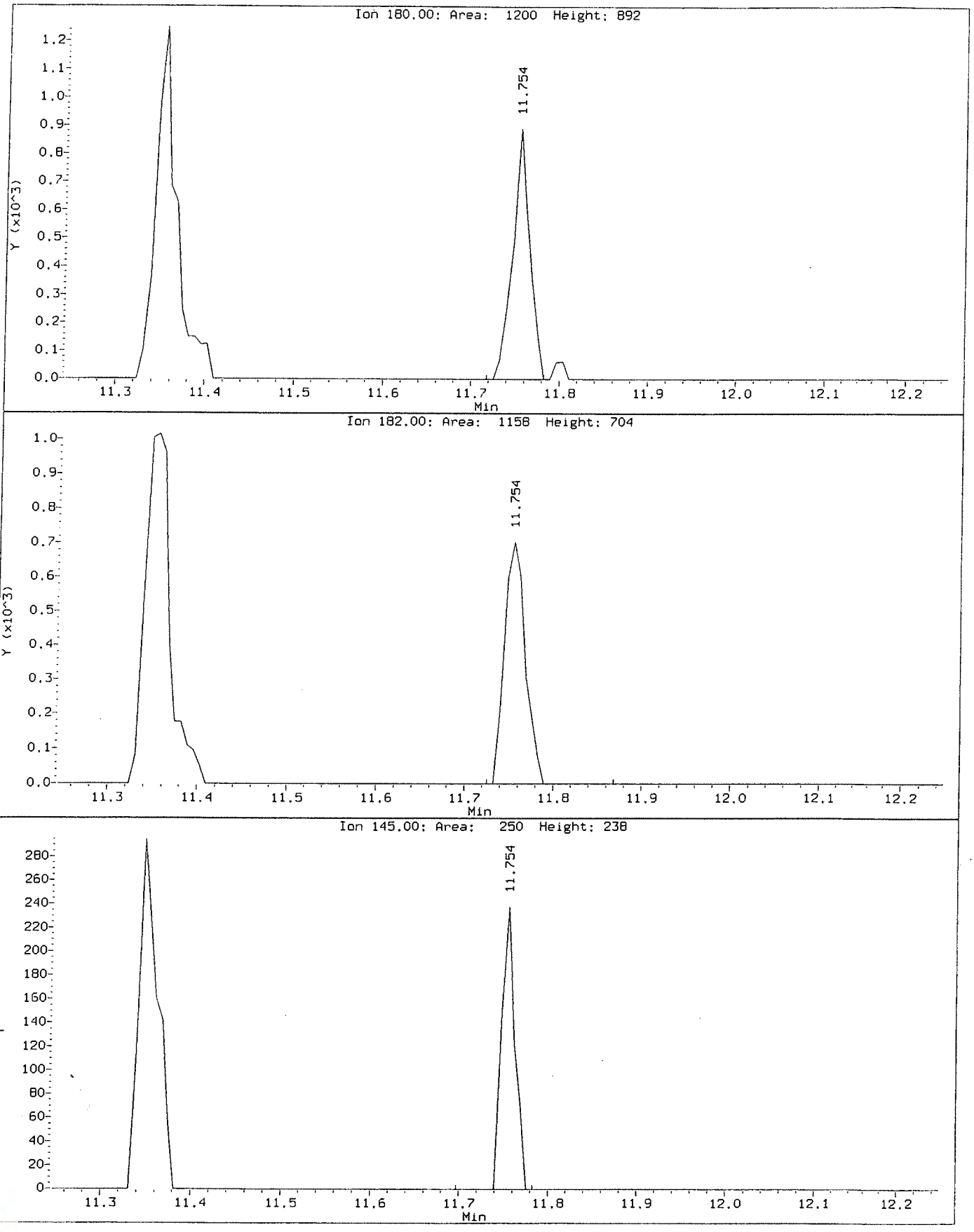
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



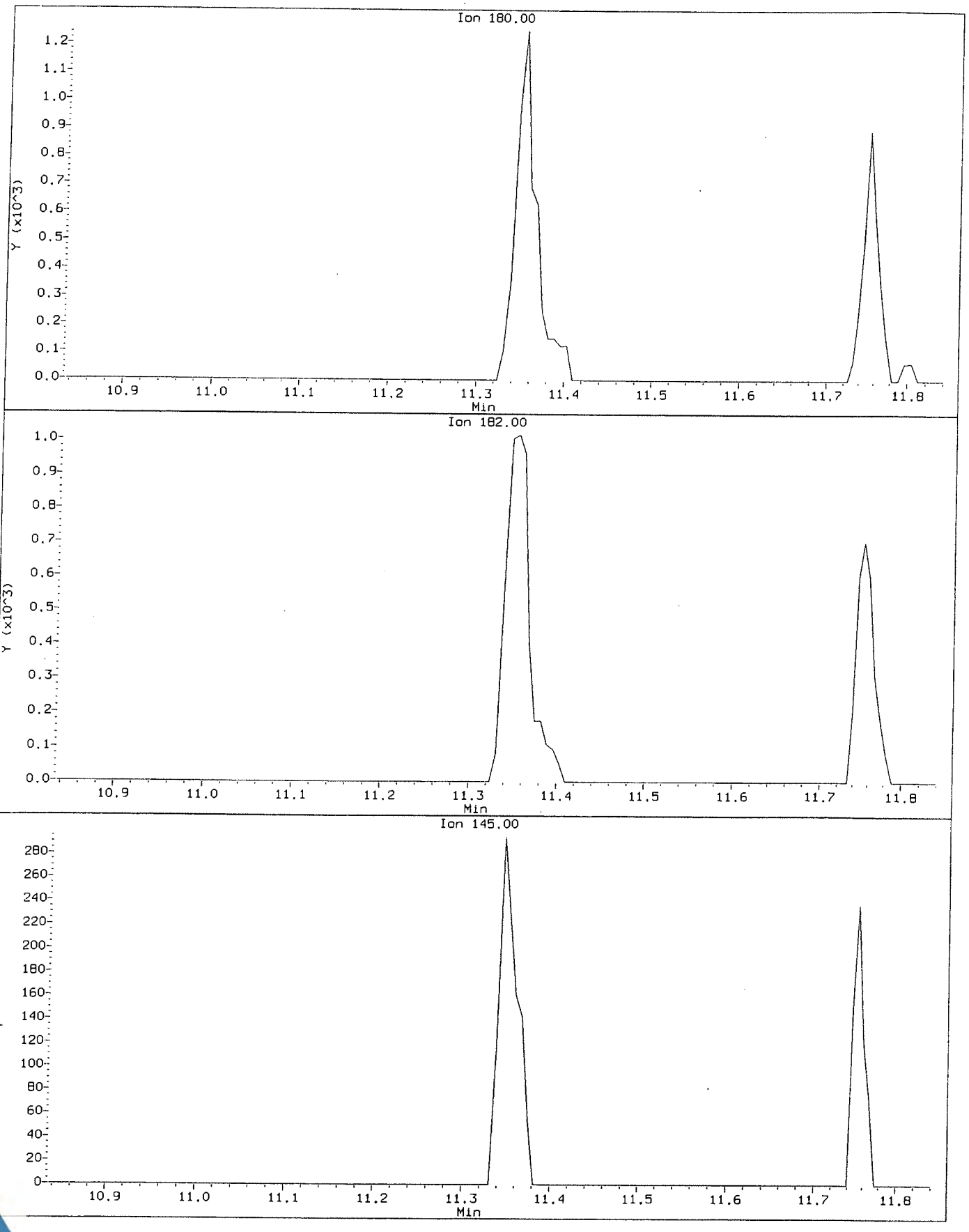
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



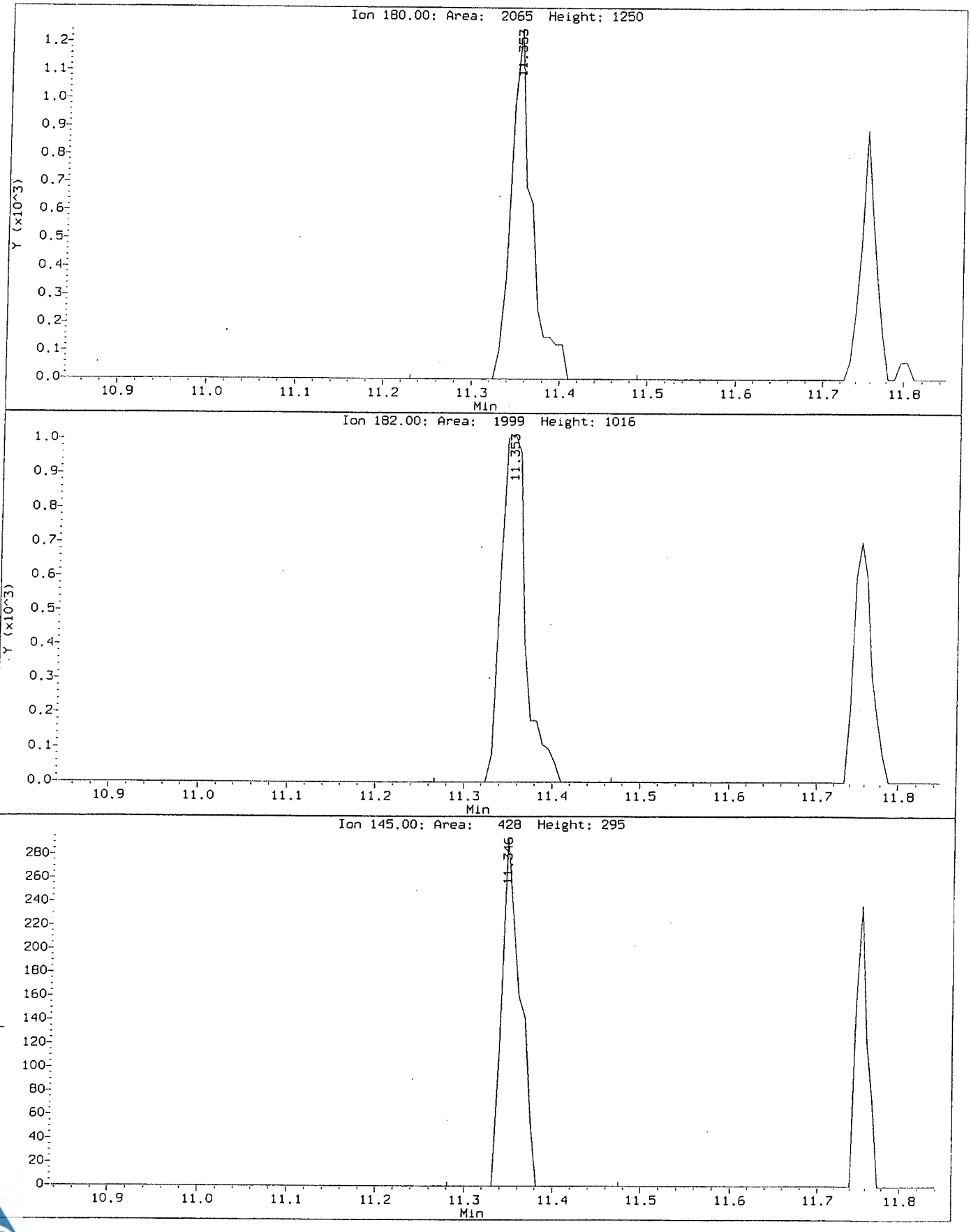
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



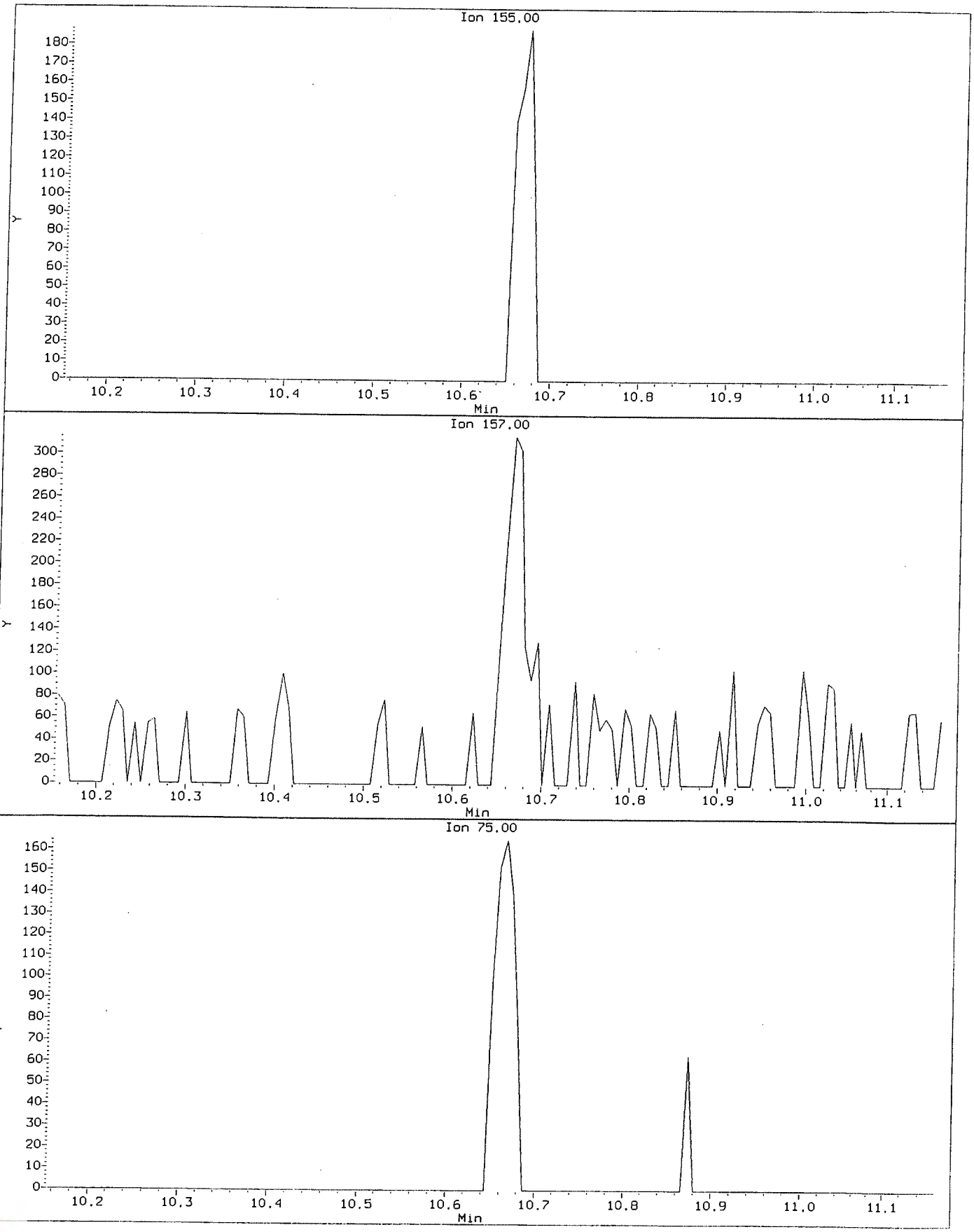
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2,4-Trichlorobenzene
CAS Number: 120-82-1



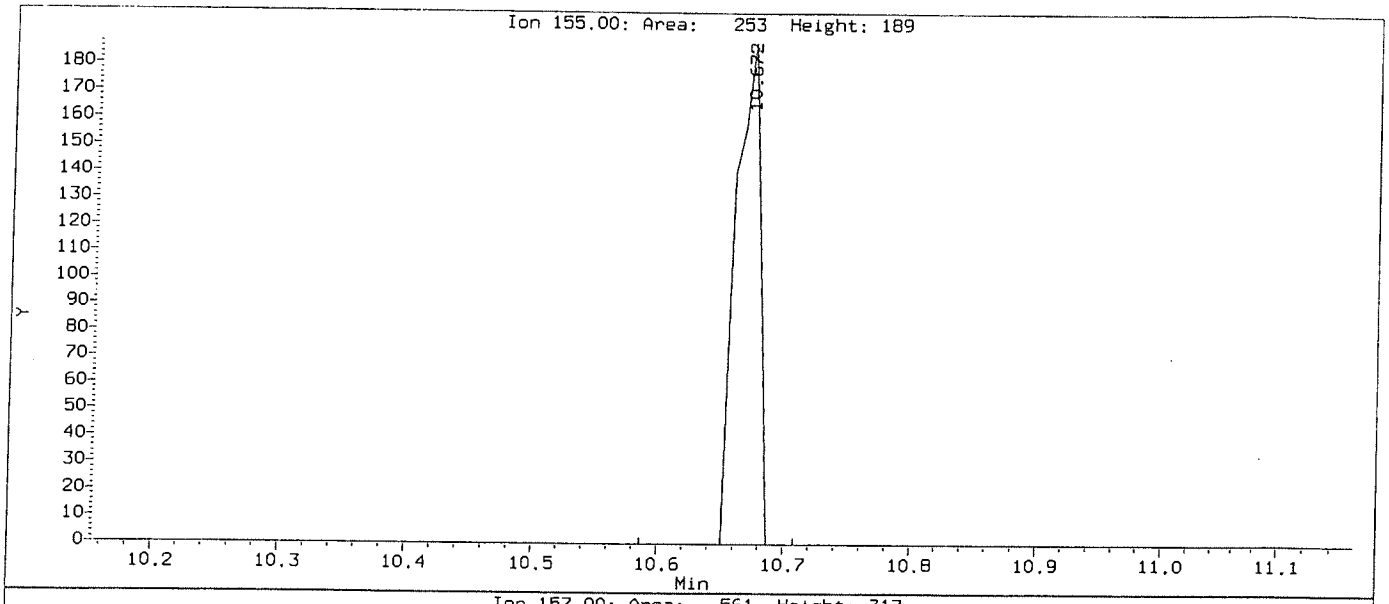
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

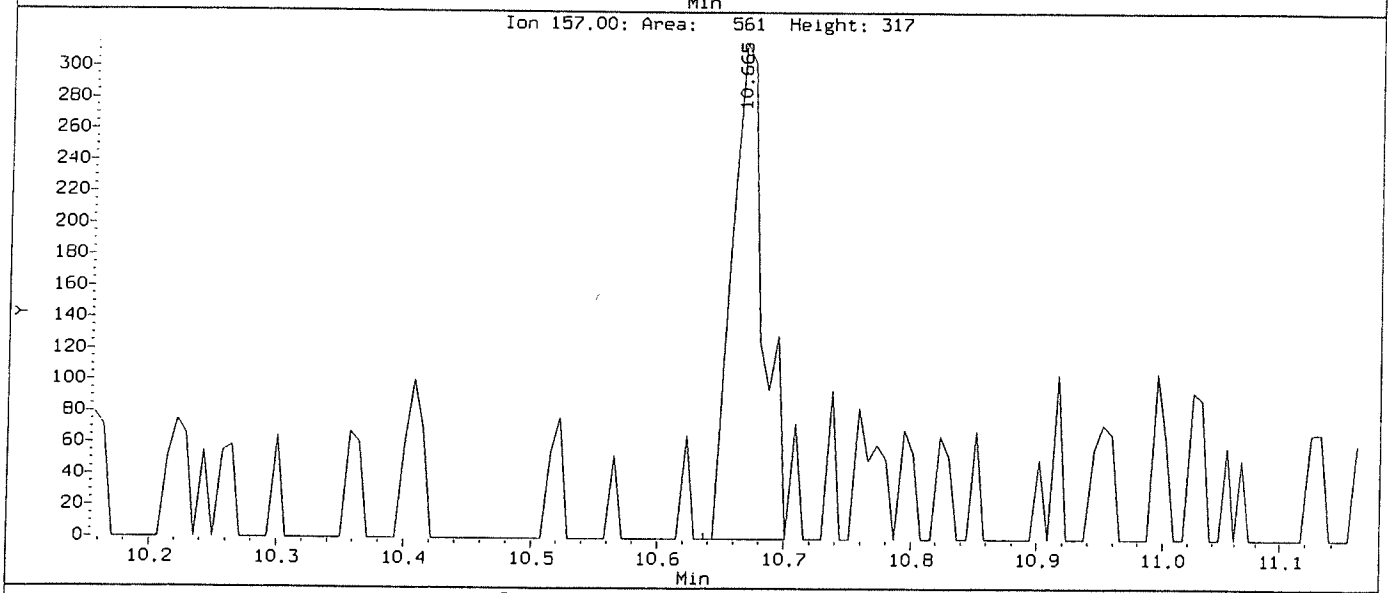
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

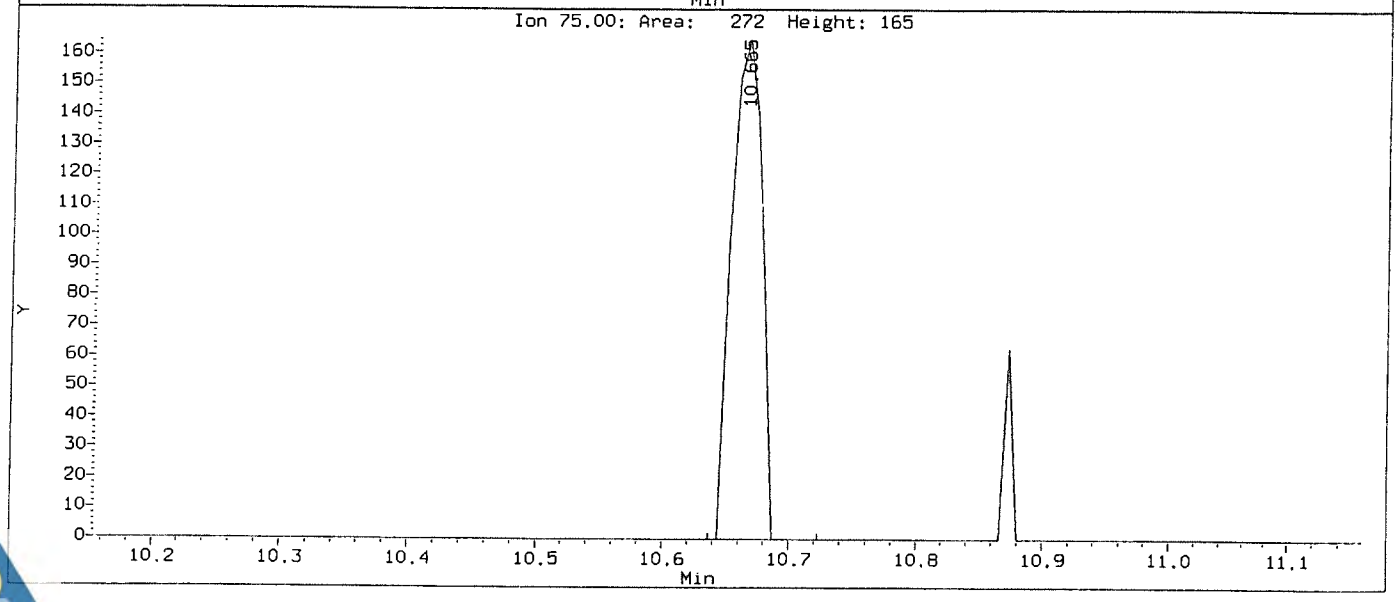


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

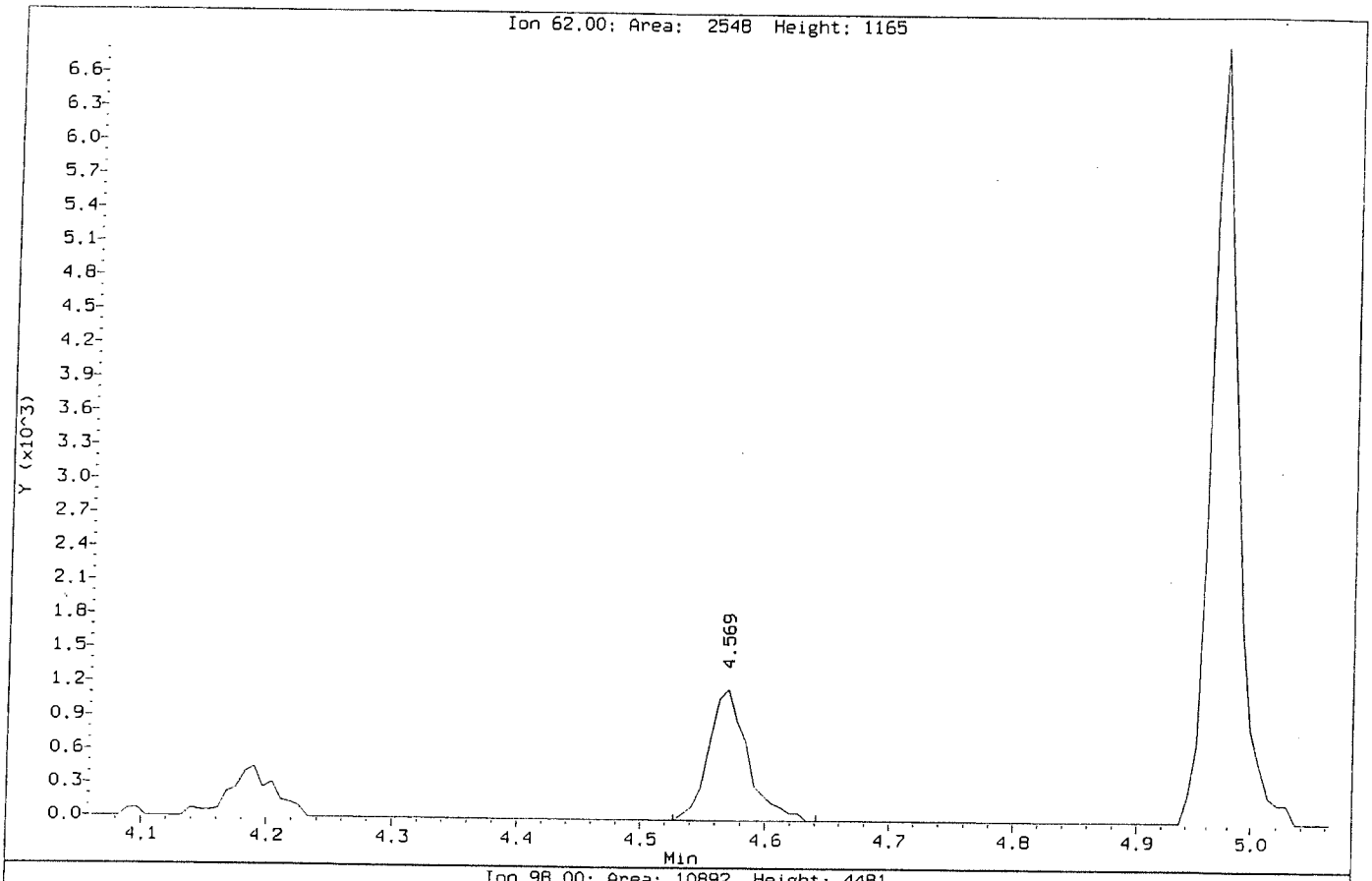


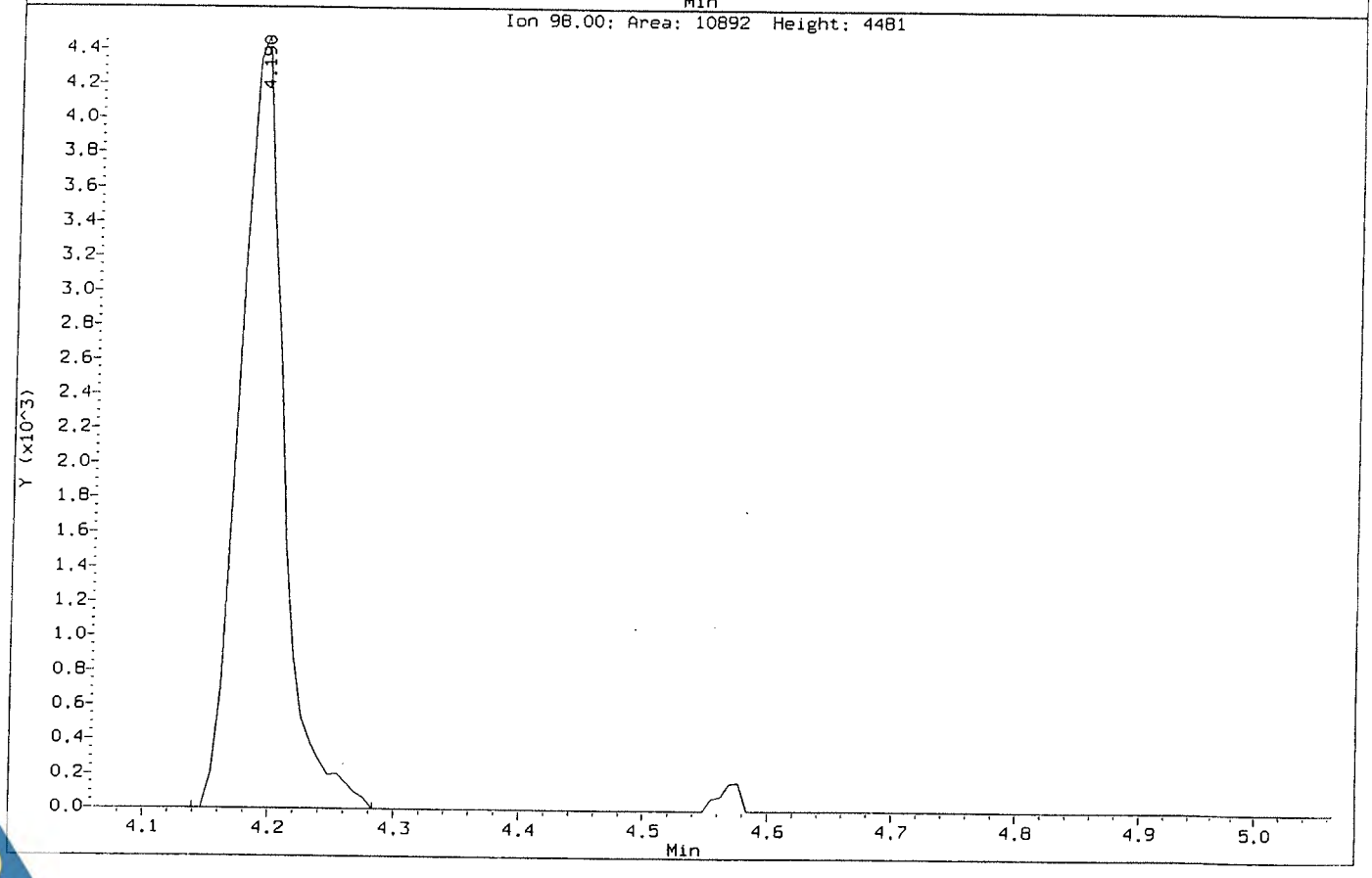




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

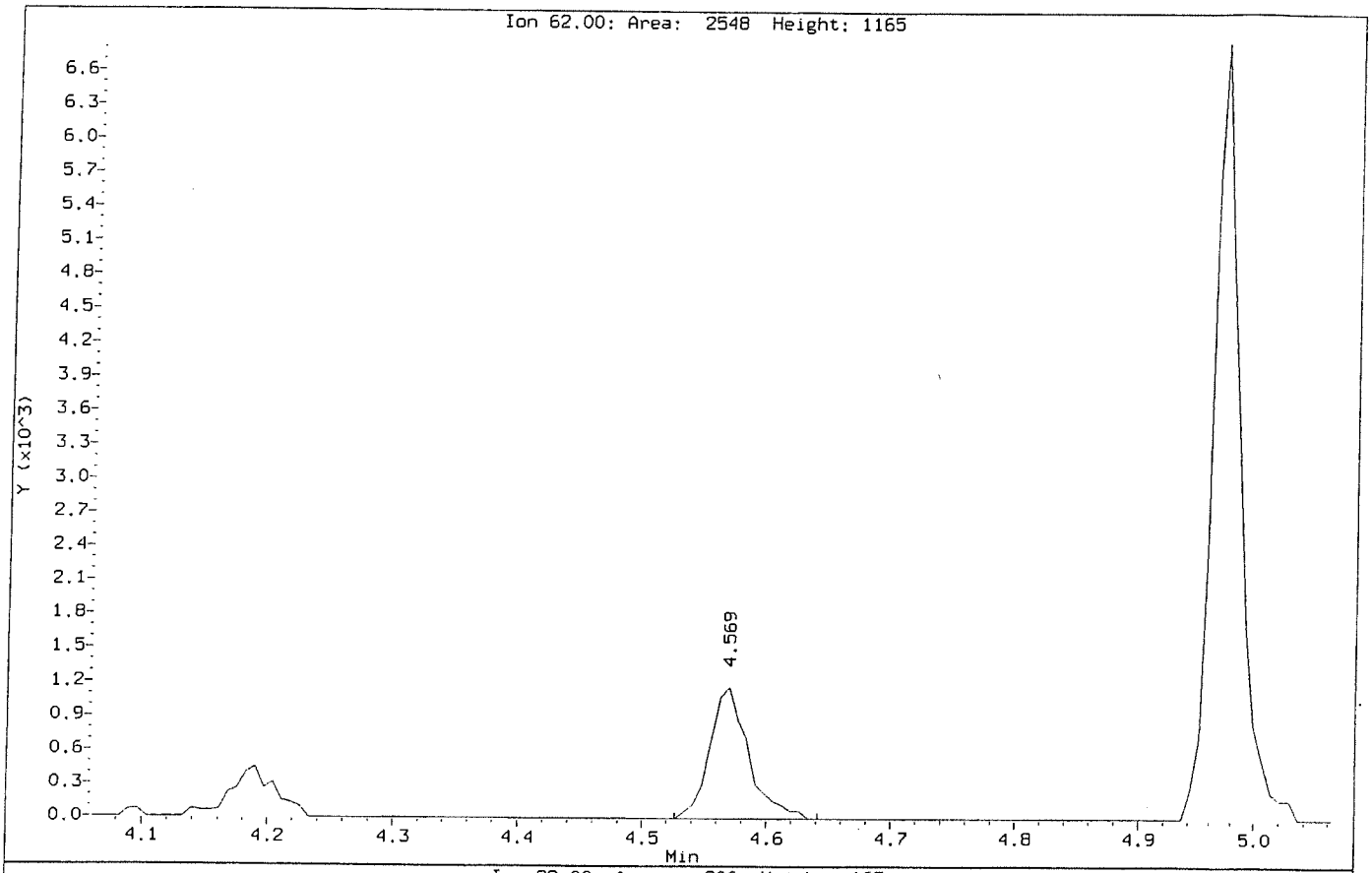
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

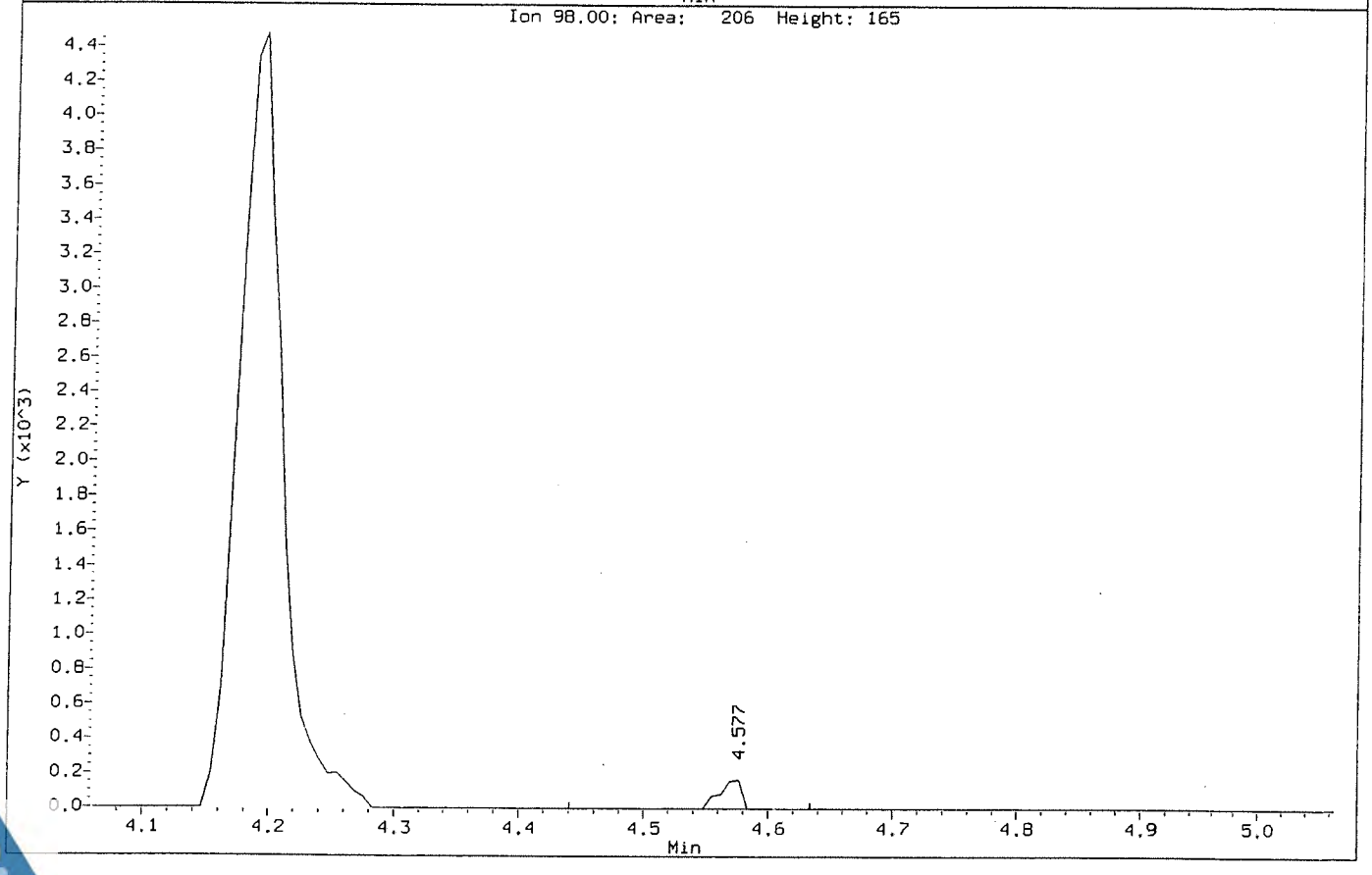




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

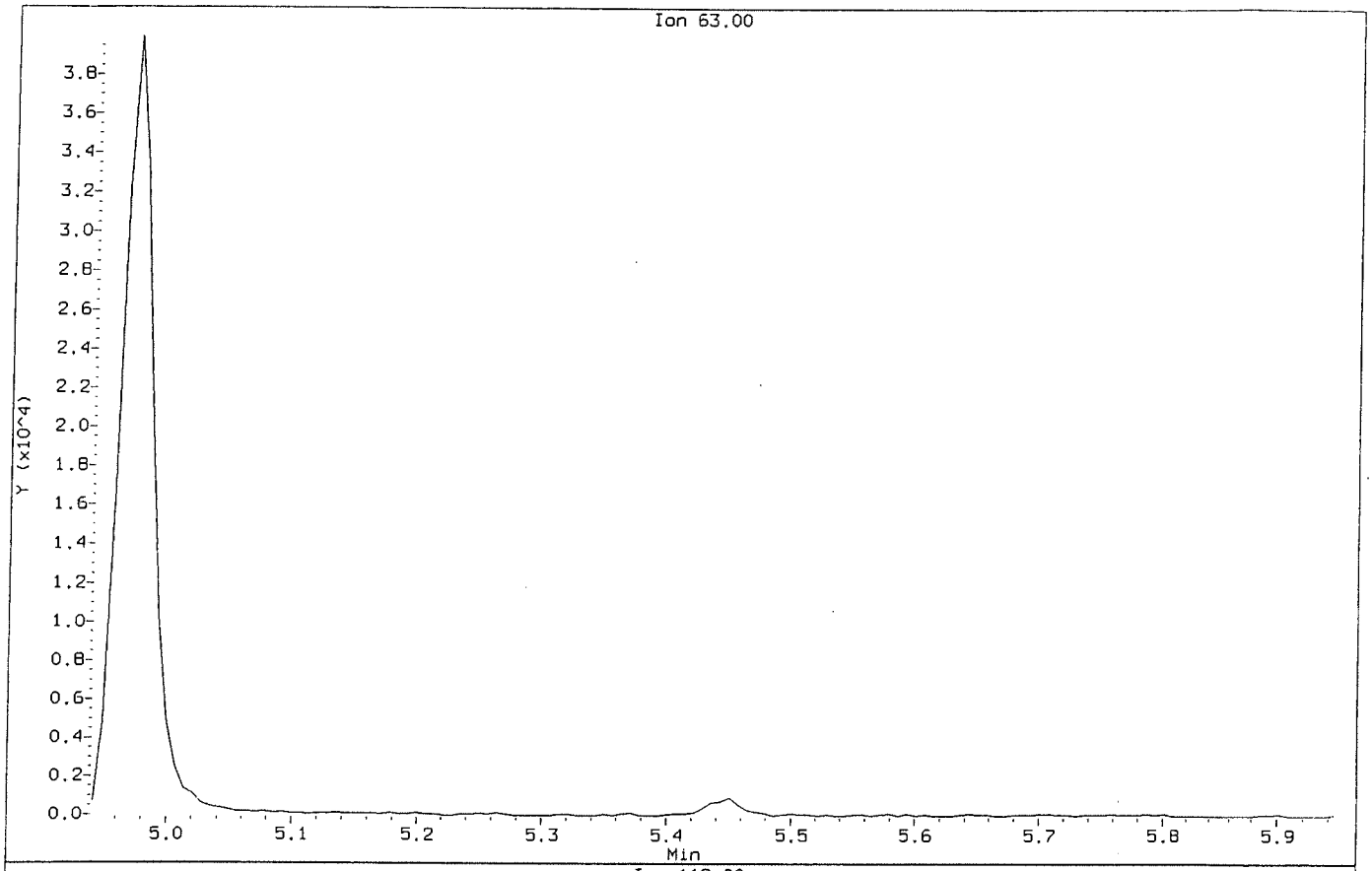
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

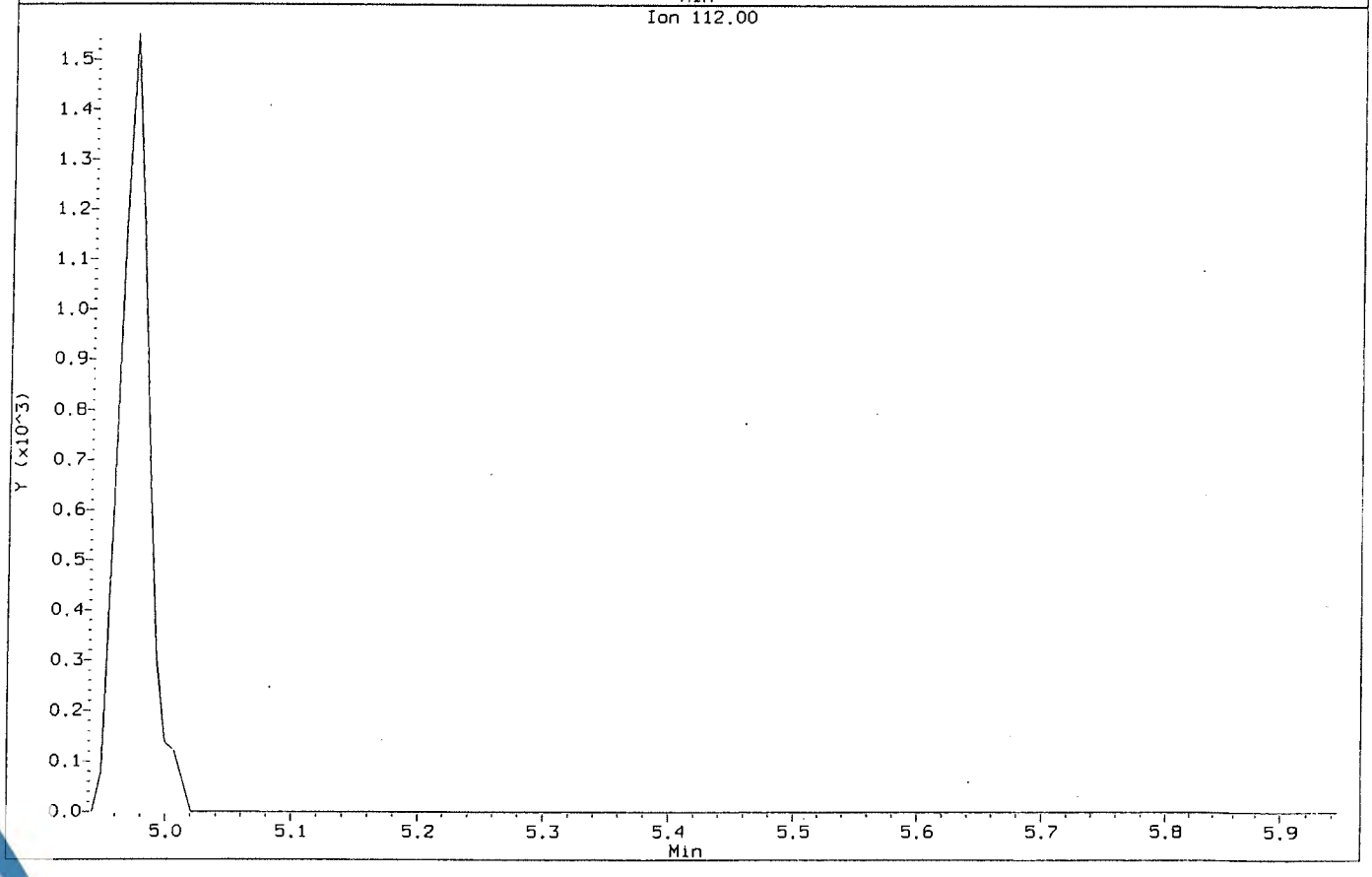




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

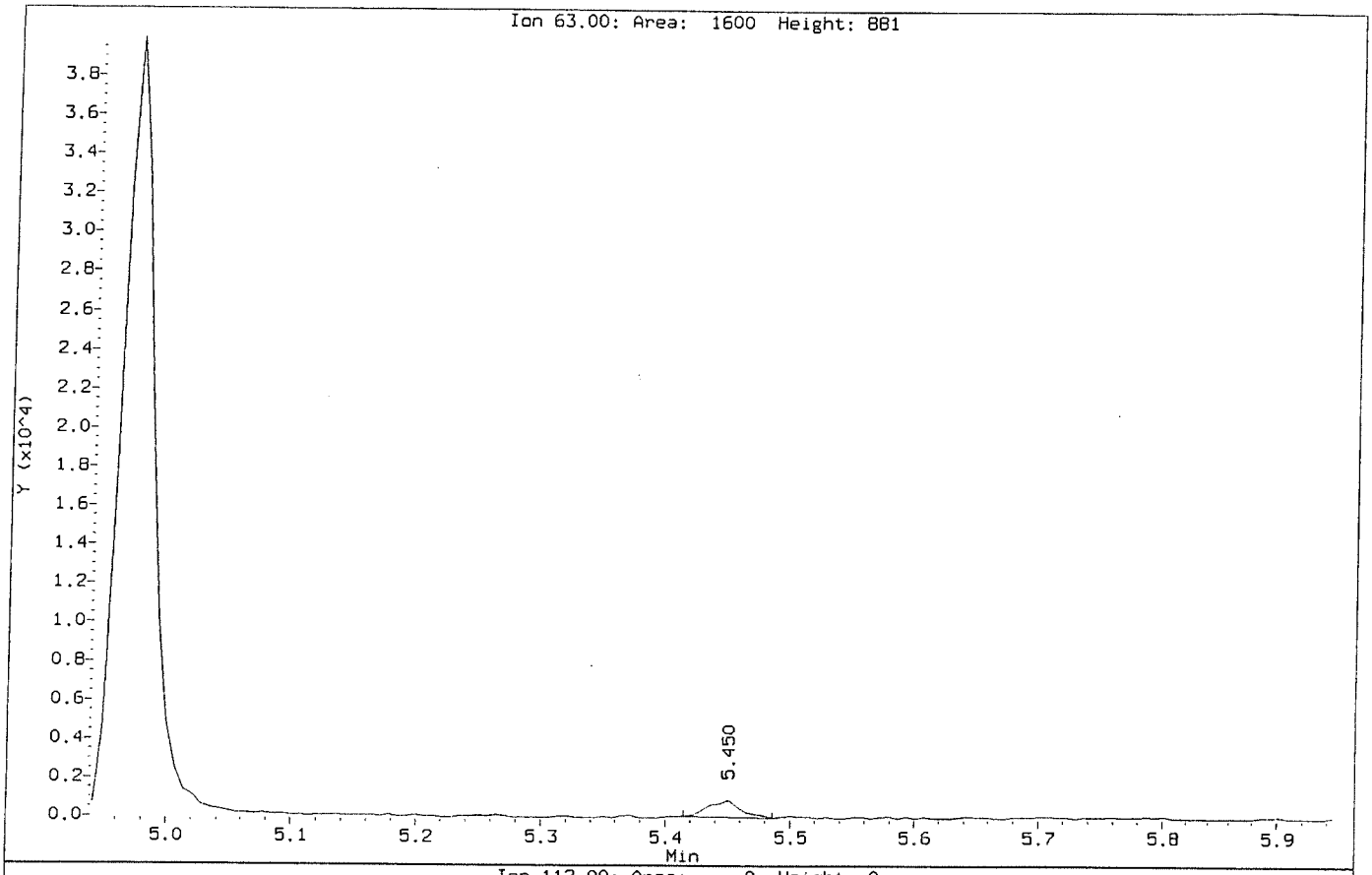
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

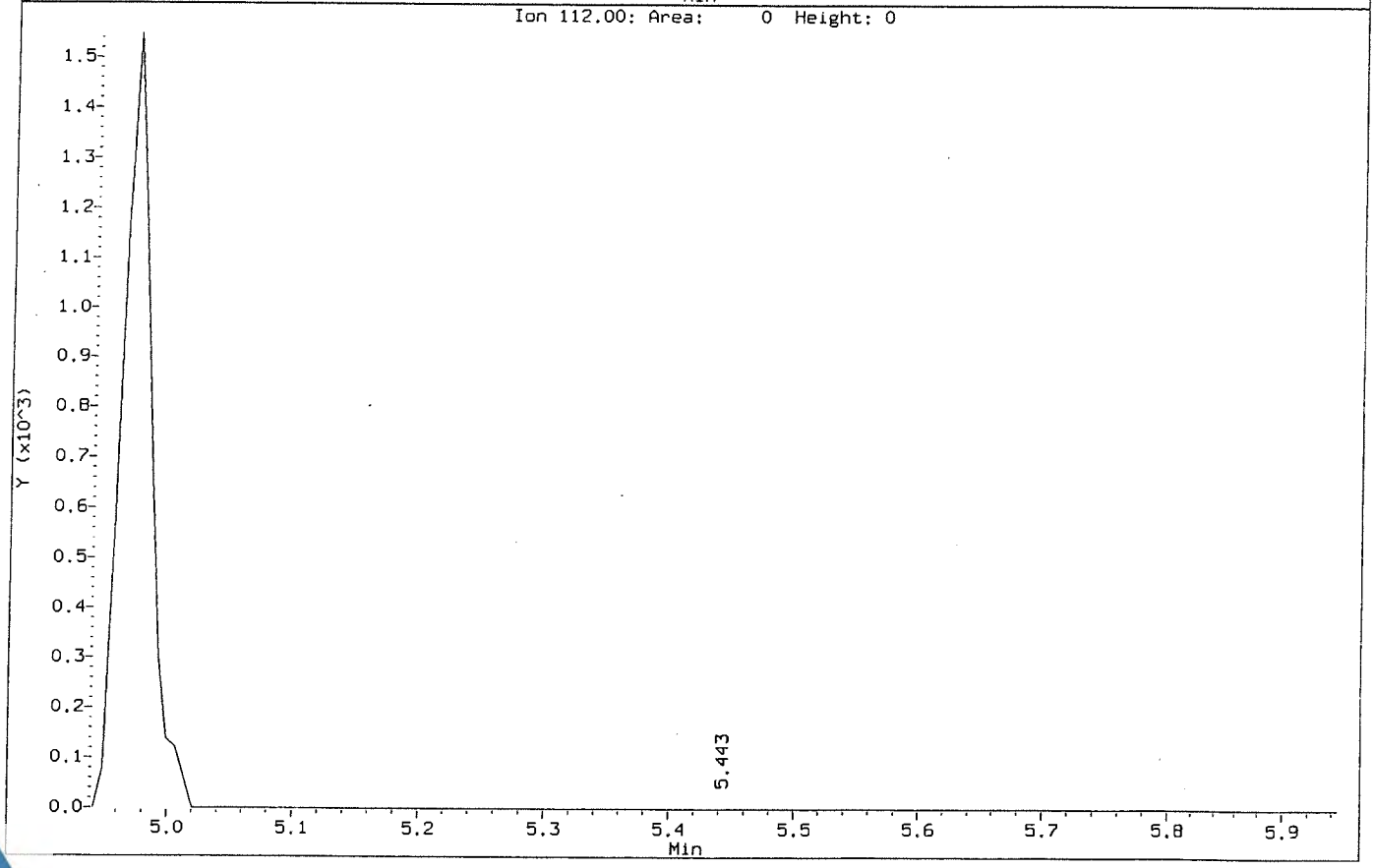




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

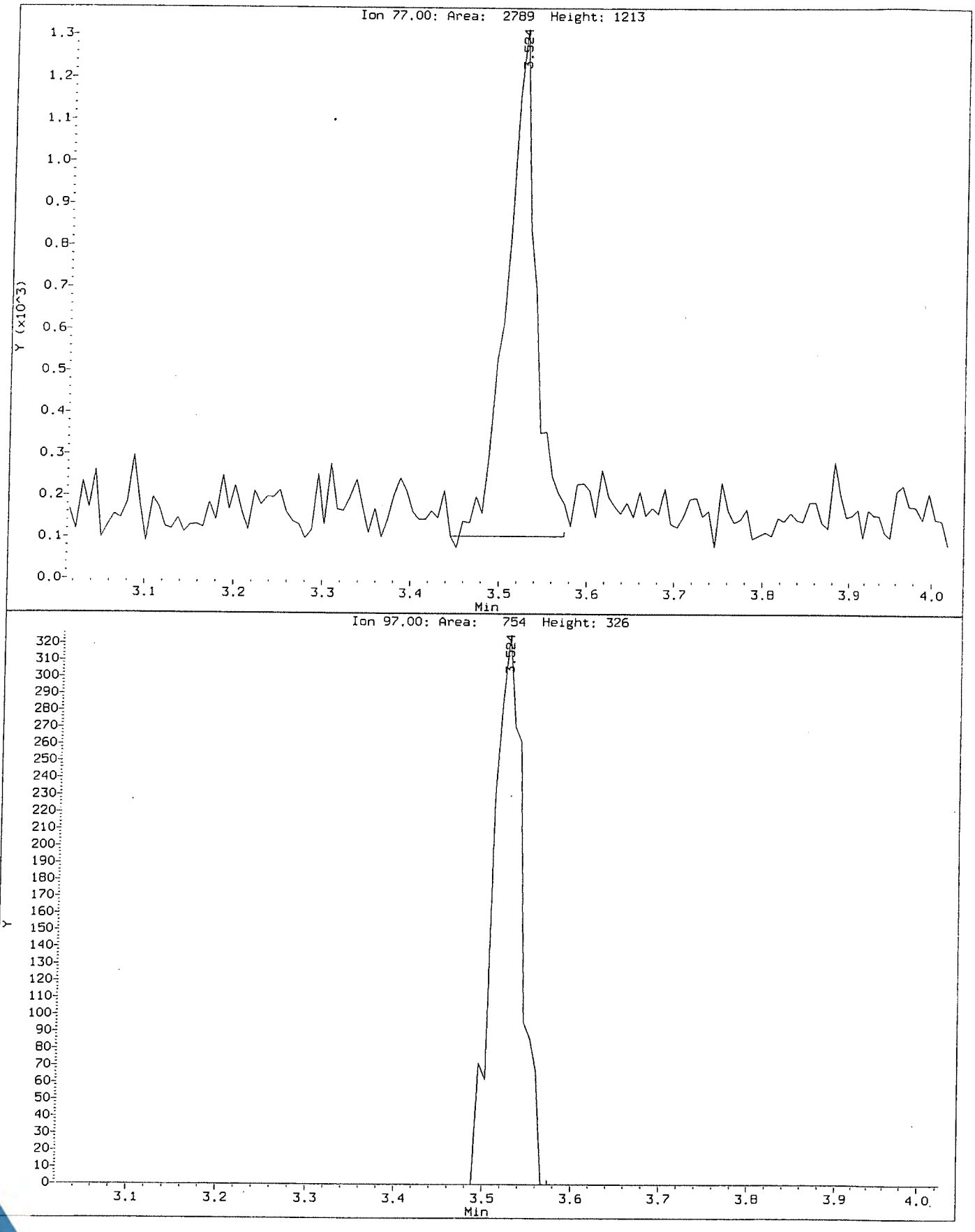
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





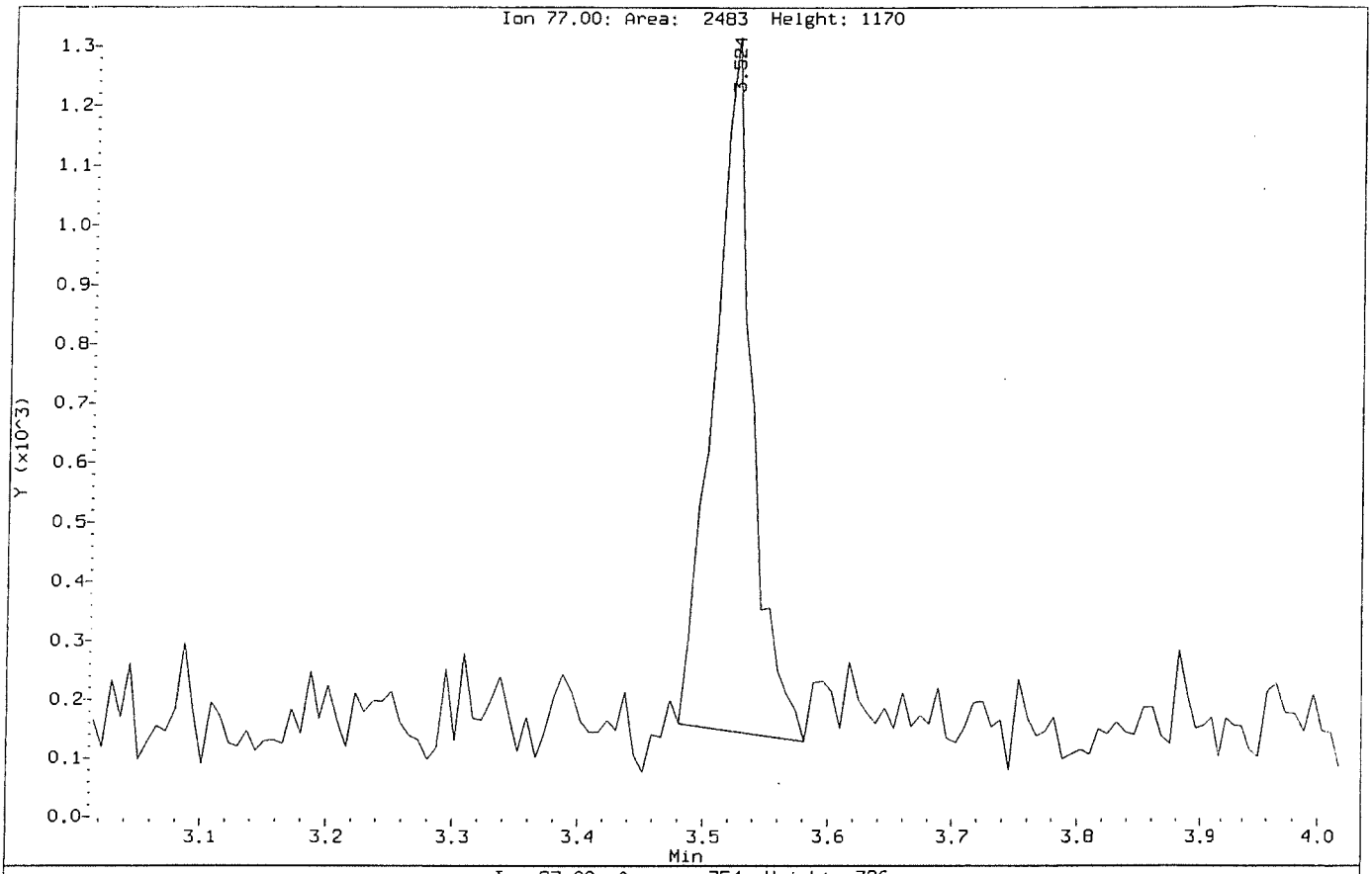
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

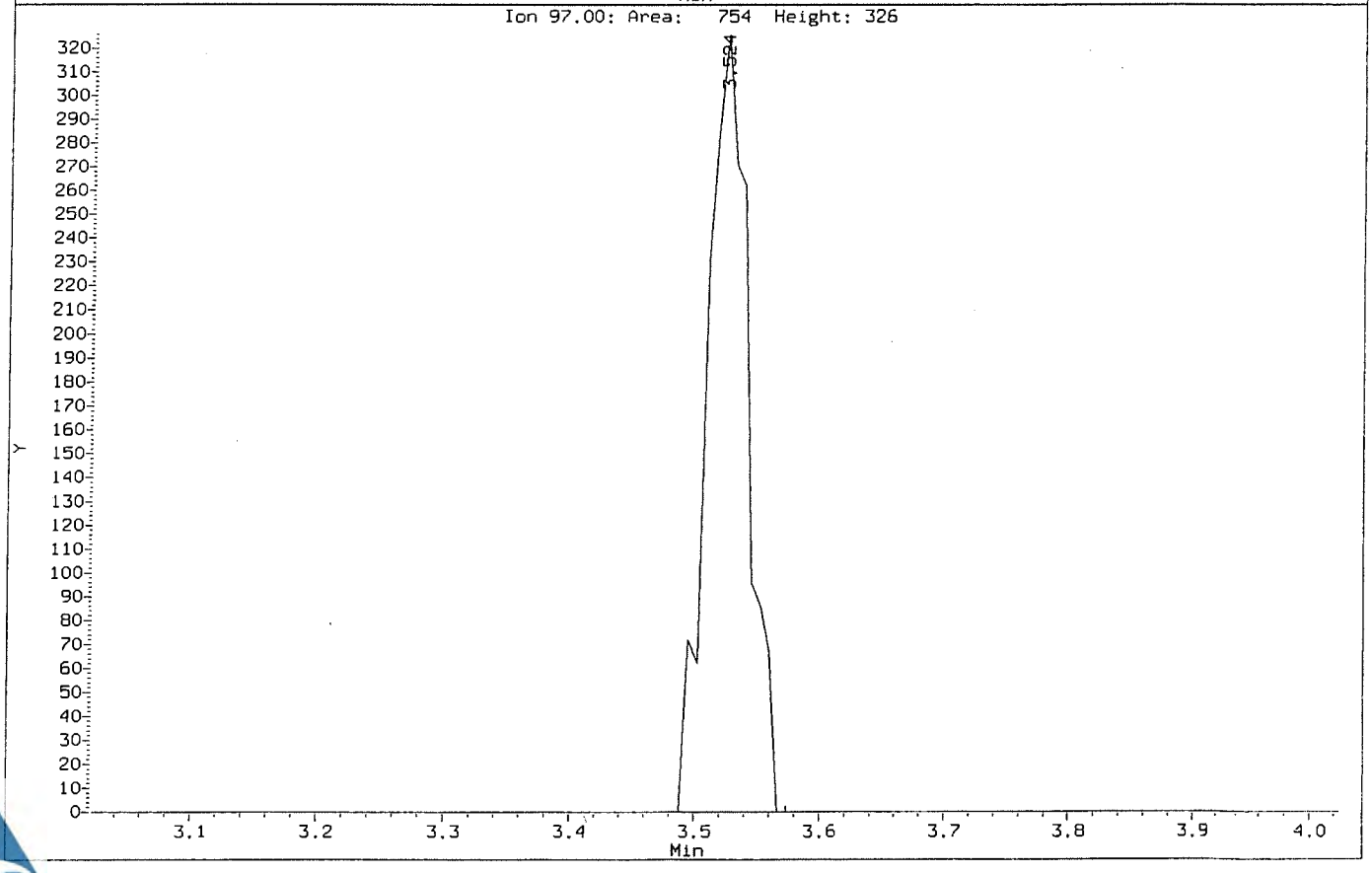
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

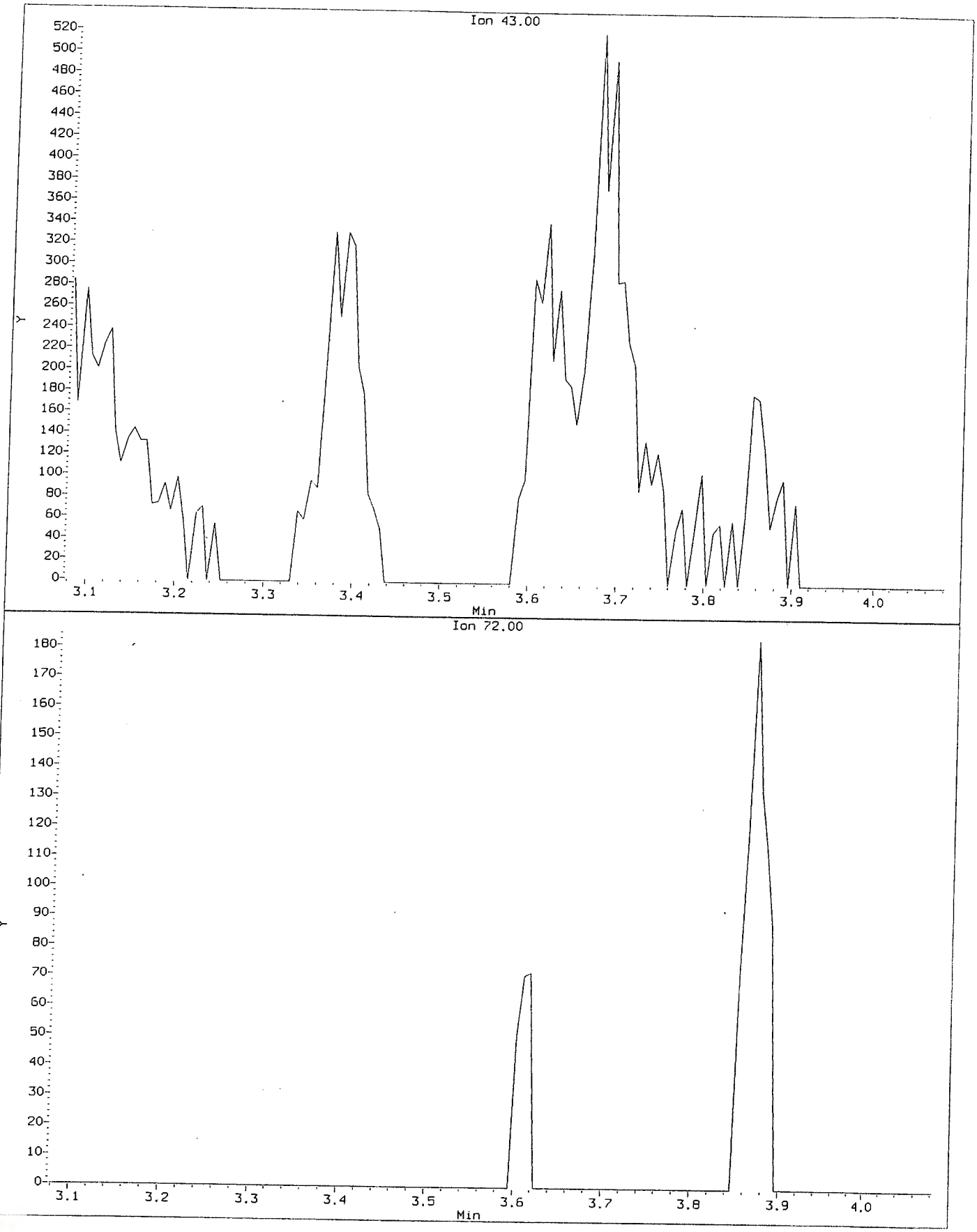
Compound: 2,2-Dichloropropane
CAS Number: 594-20-7





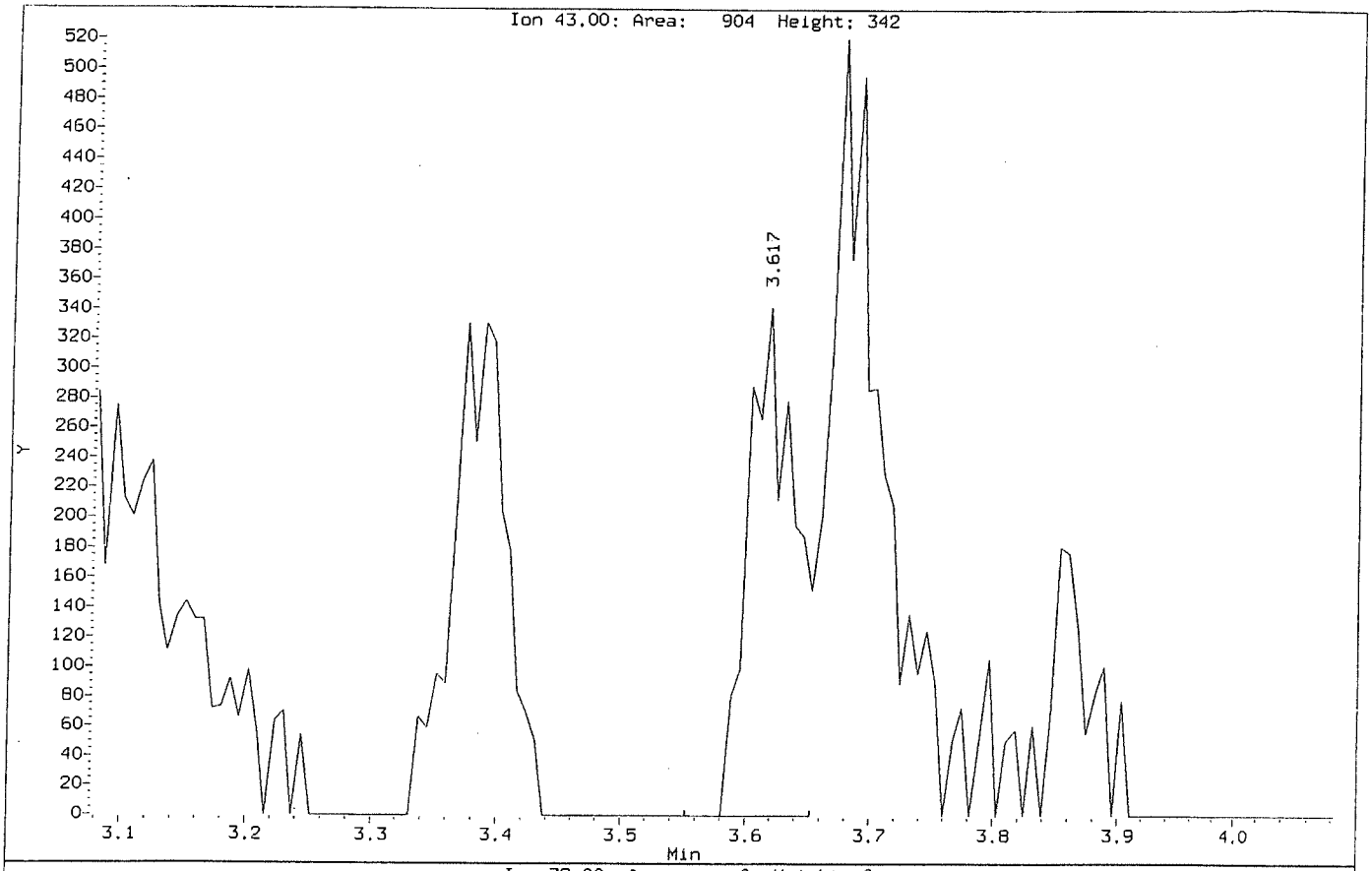
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

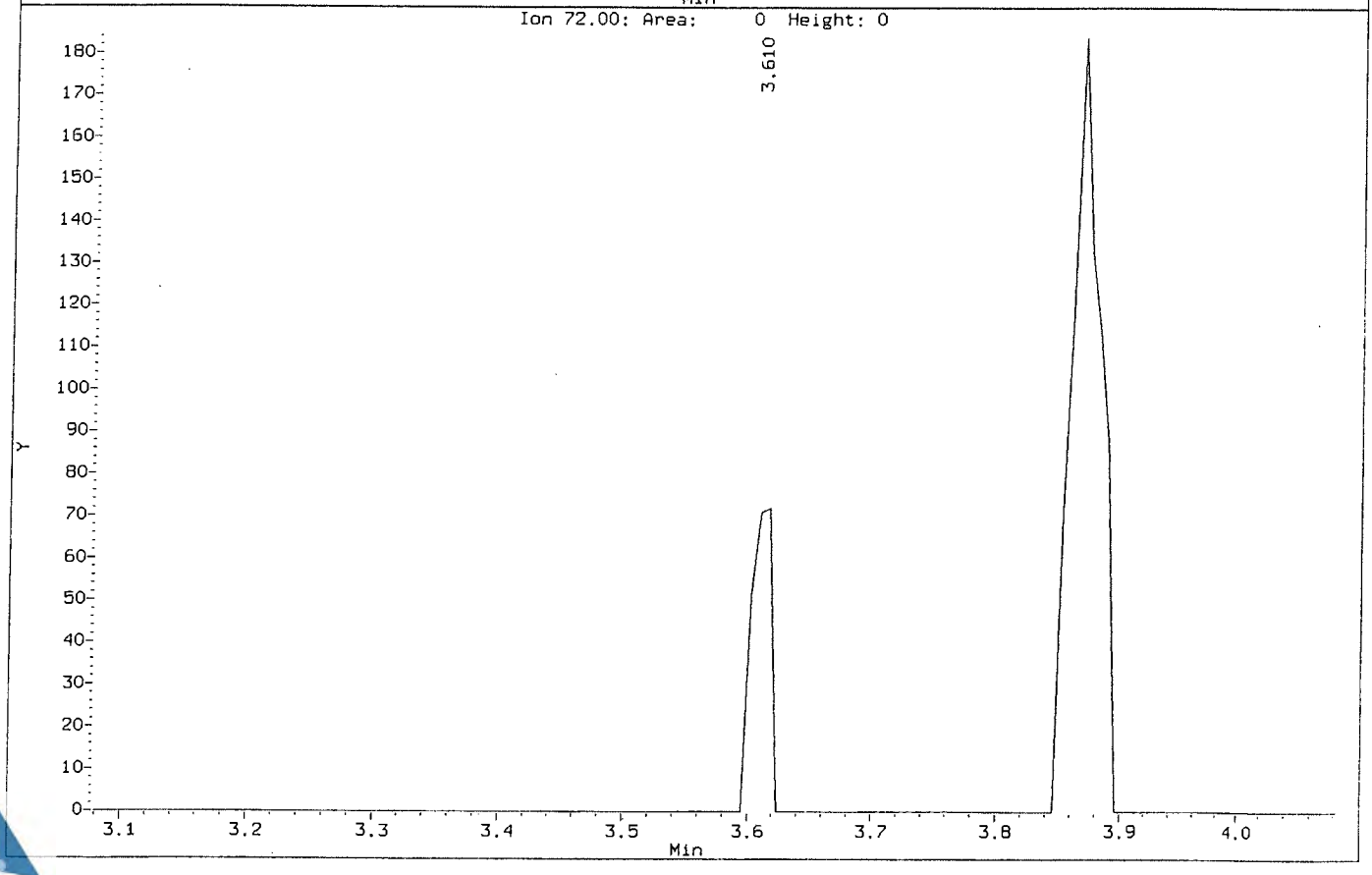
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

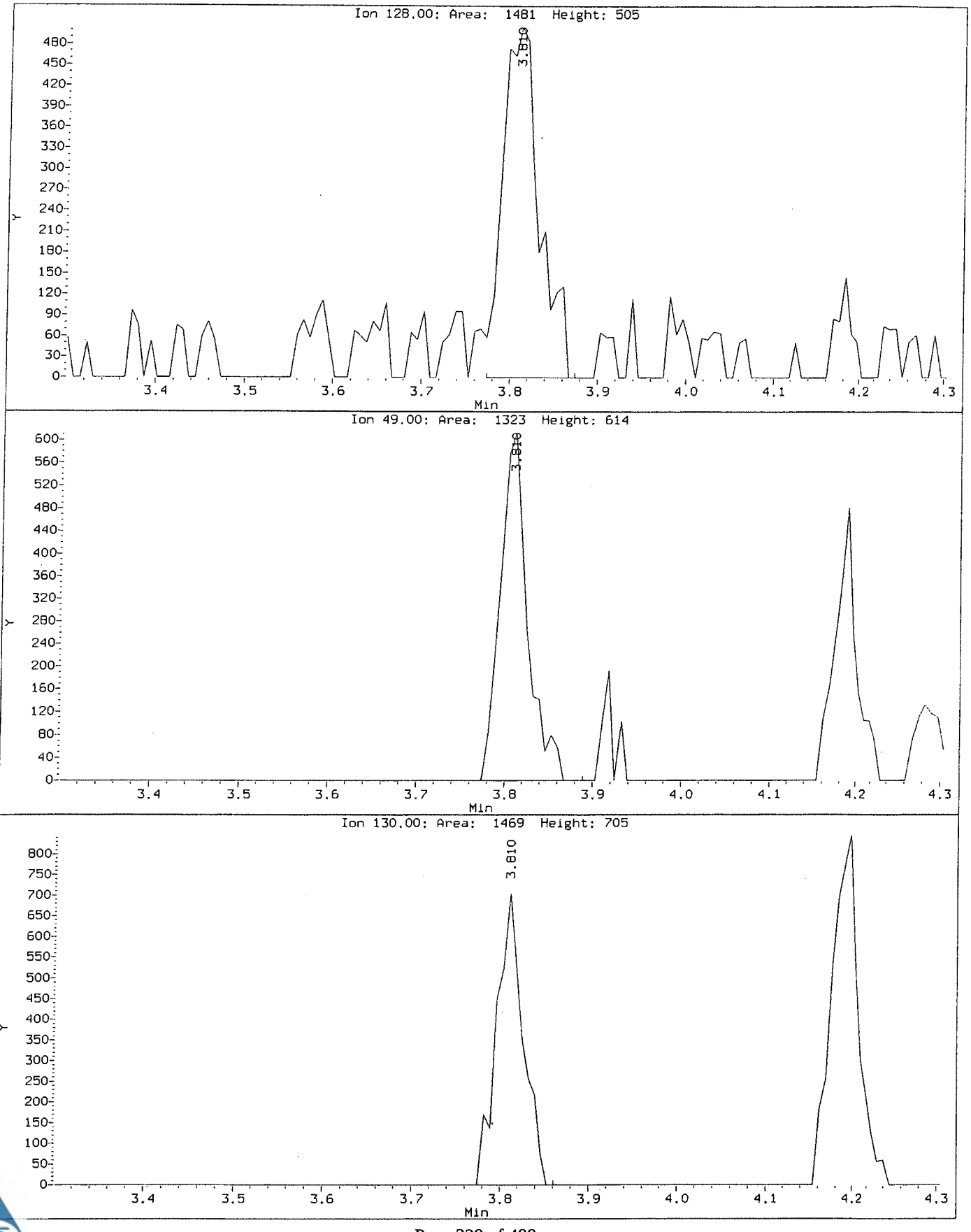
Compound: 2-Butanone
CAS Number: 78-93-3





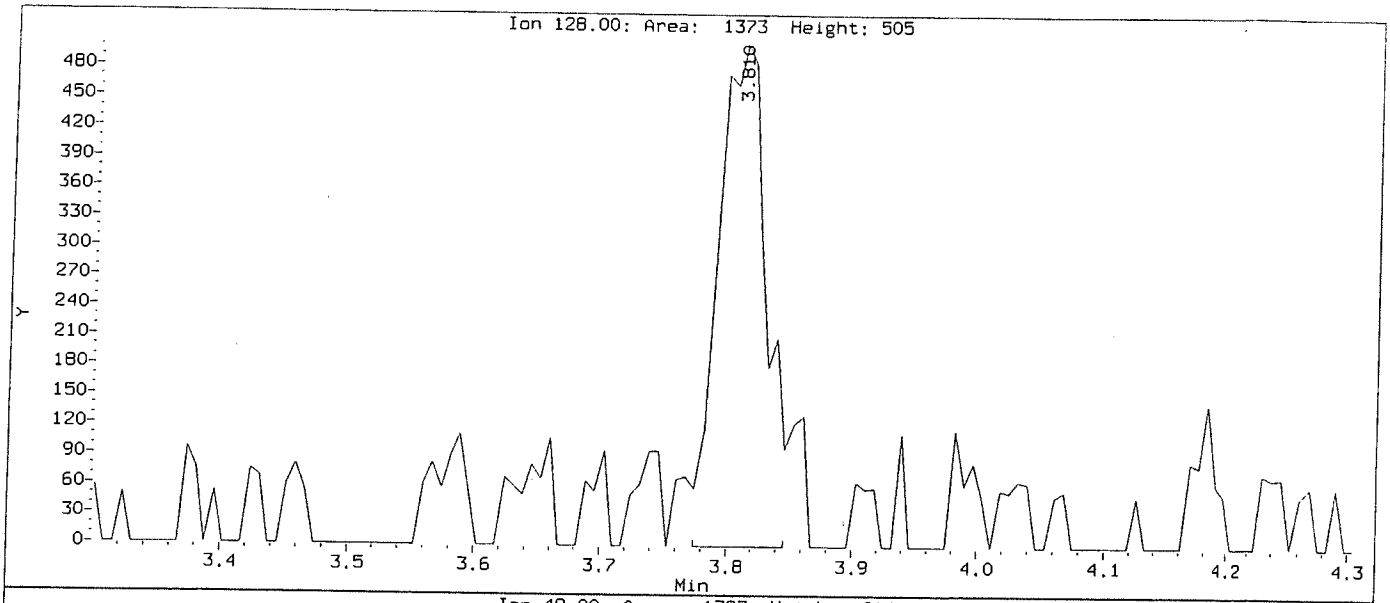
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

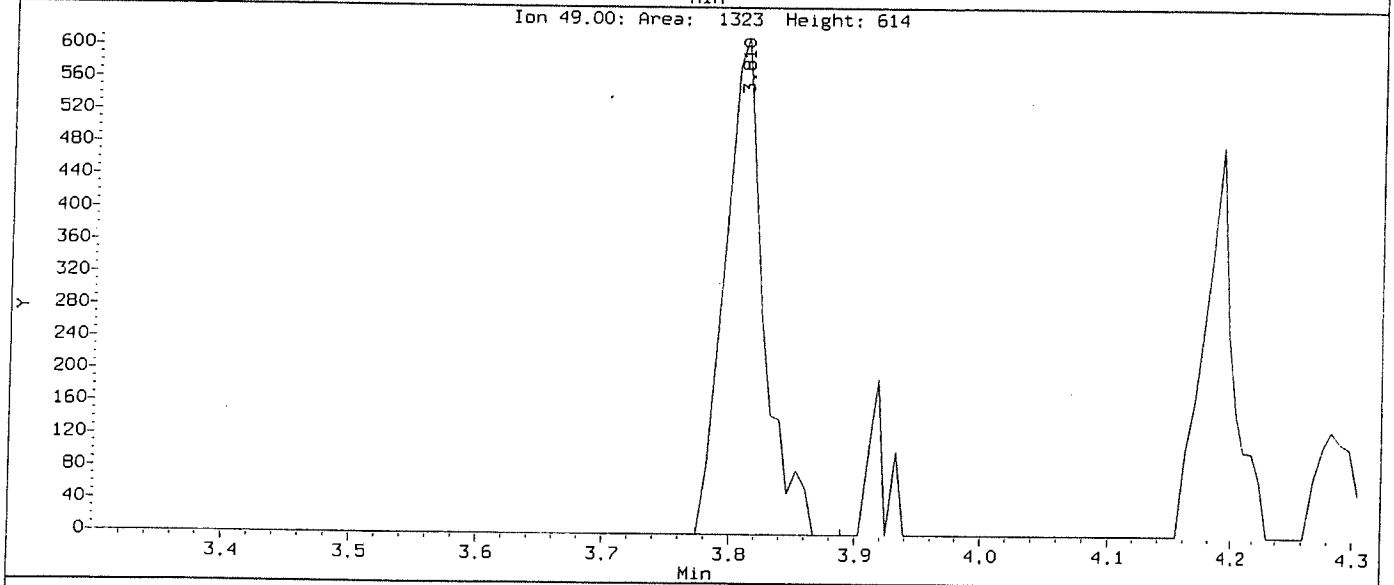
Compound: Bromochloromethane
CAS Number: 74-97-5

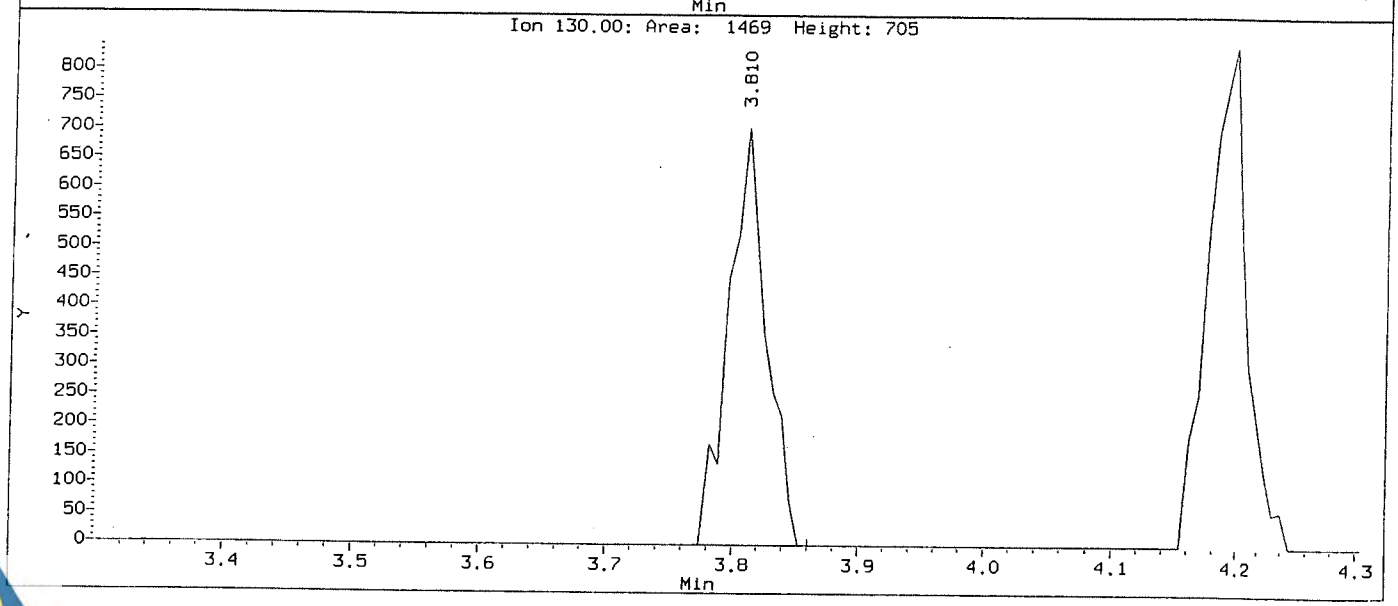


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromochloromethane
CAS Number: 74-97-5

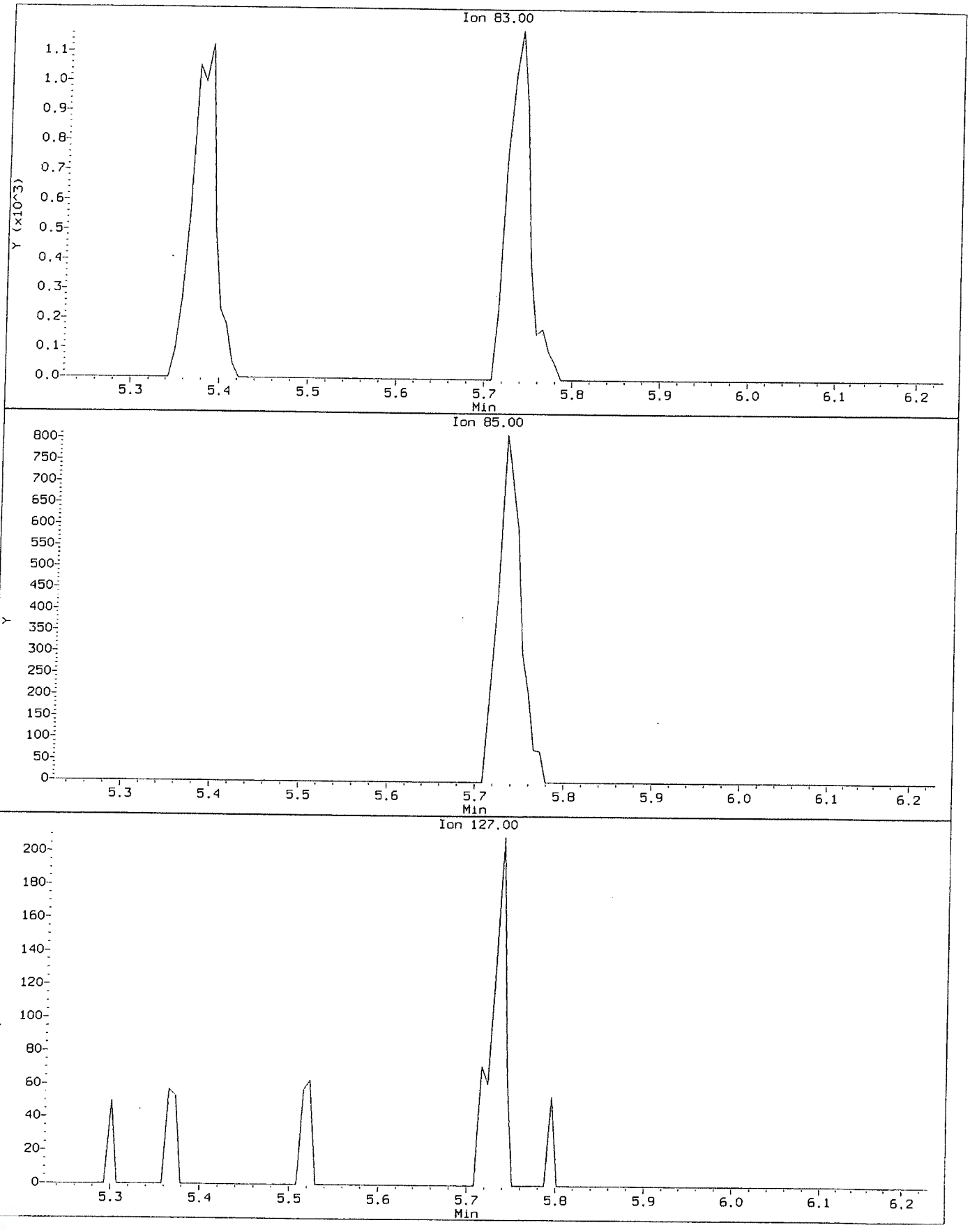






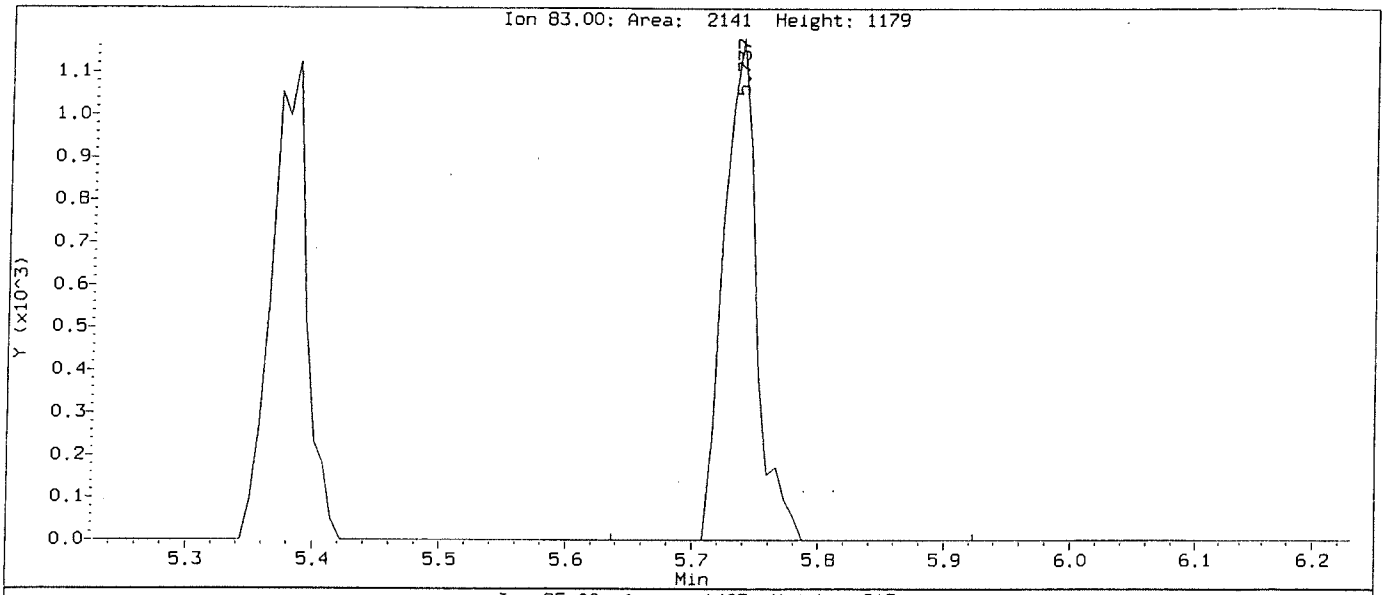
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

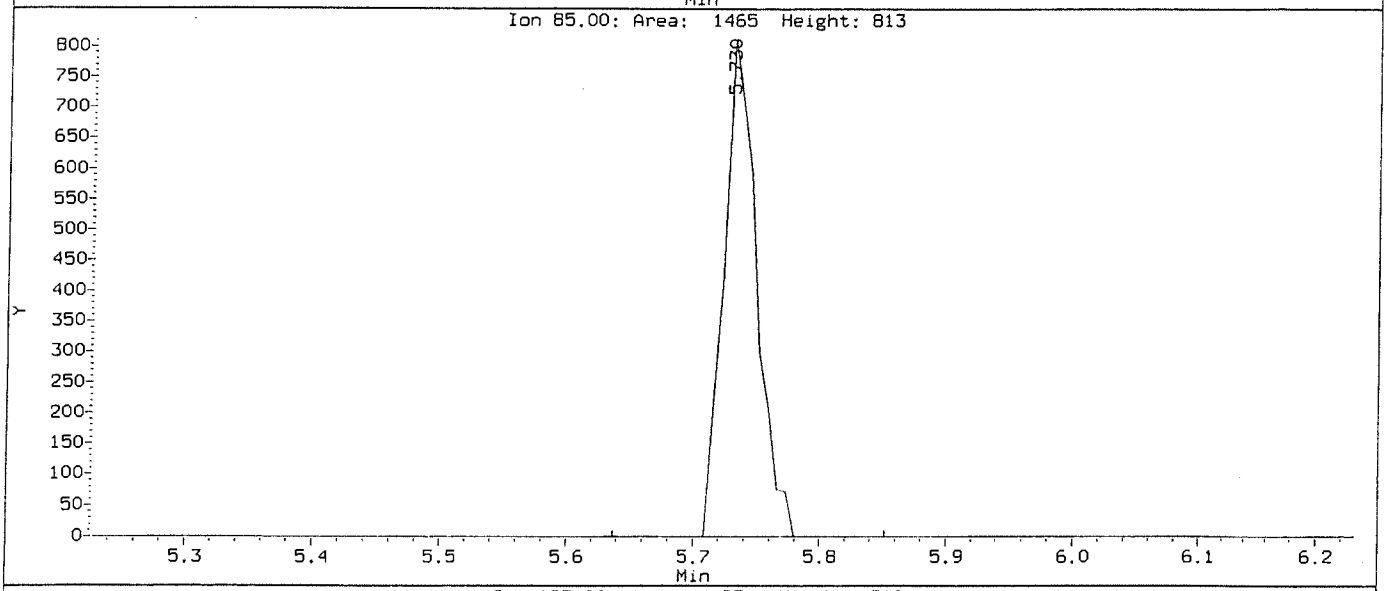
Compound: Bromodichloromethane
CAS Number: 75-27-4

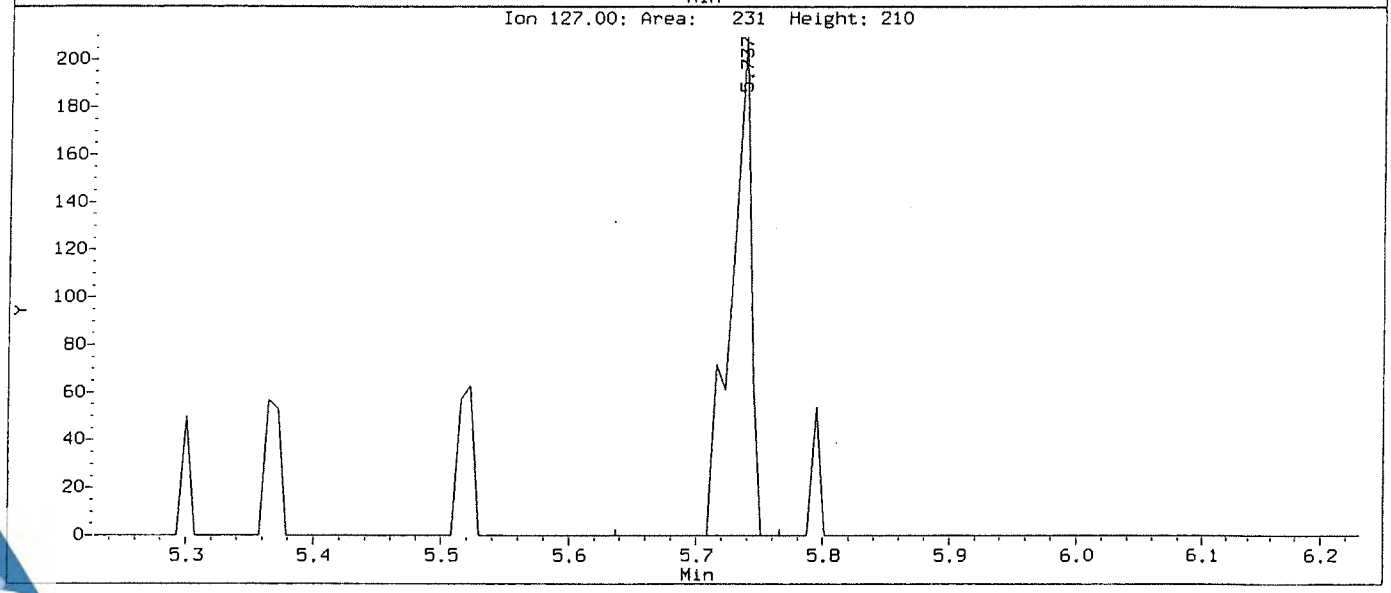


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Bromodichloromethane
CAS Number: 75-27-4

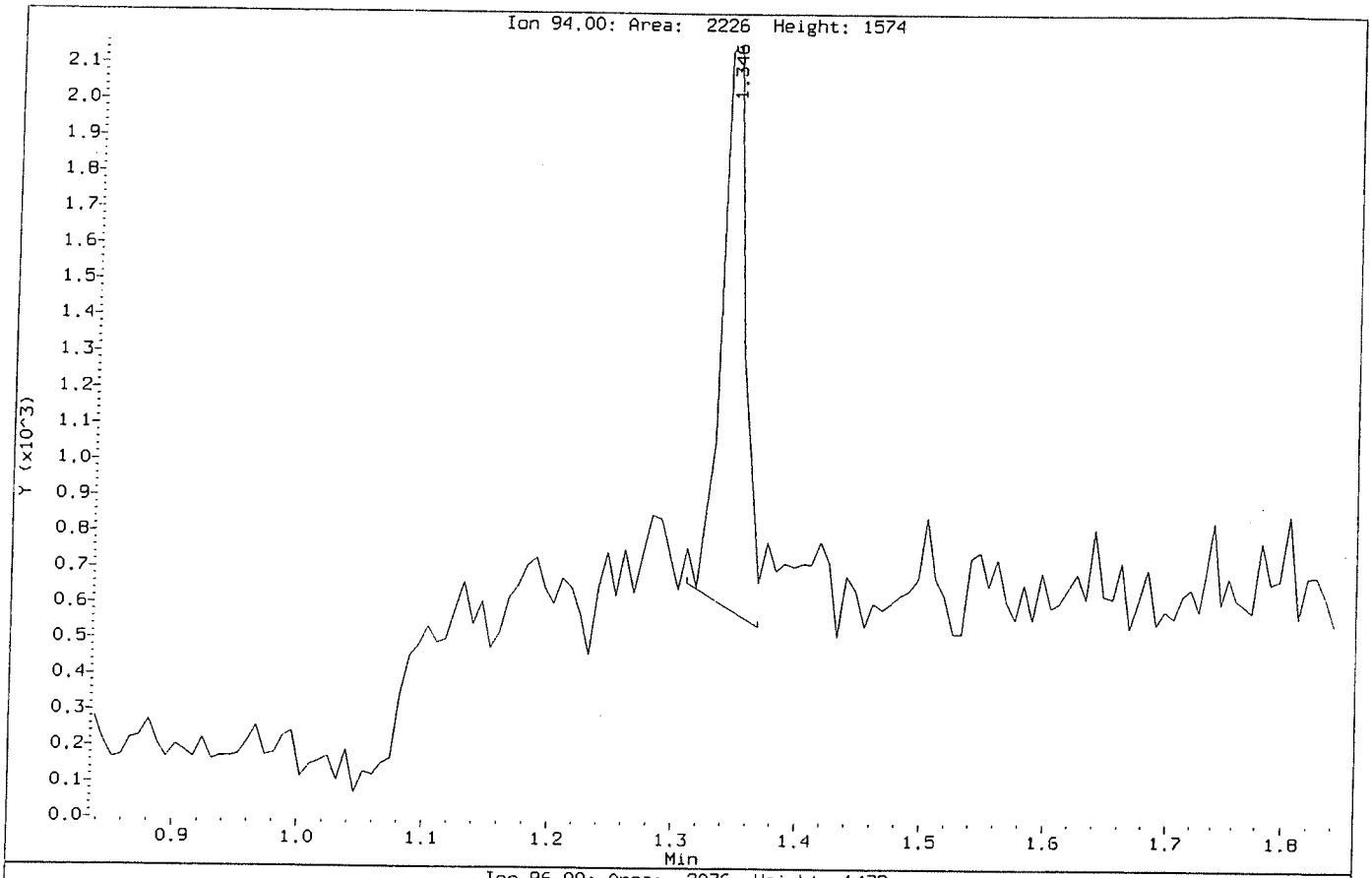


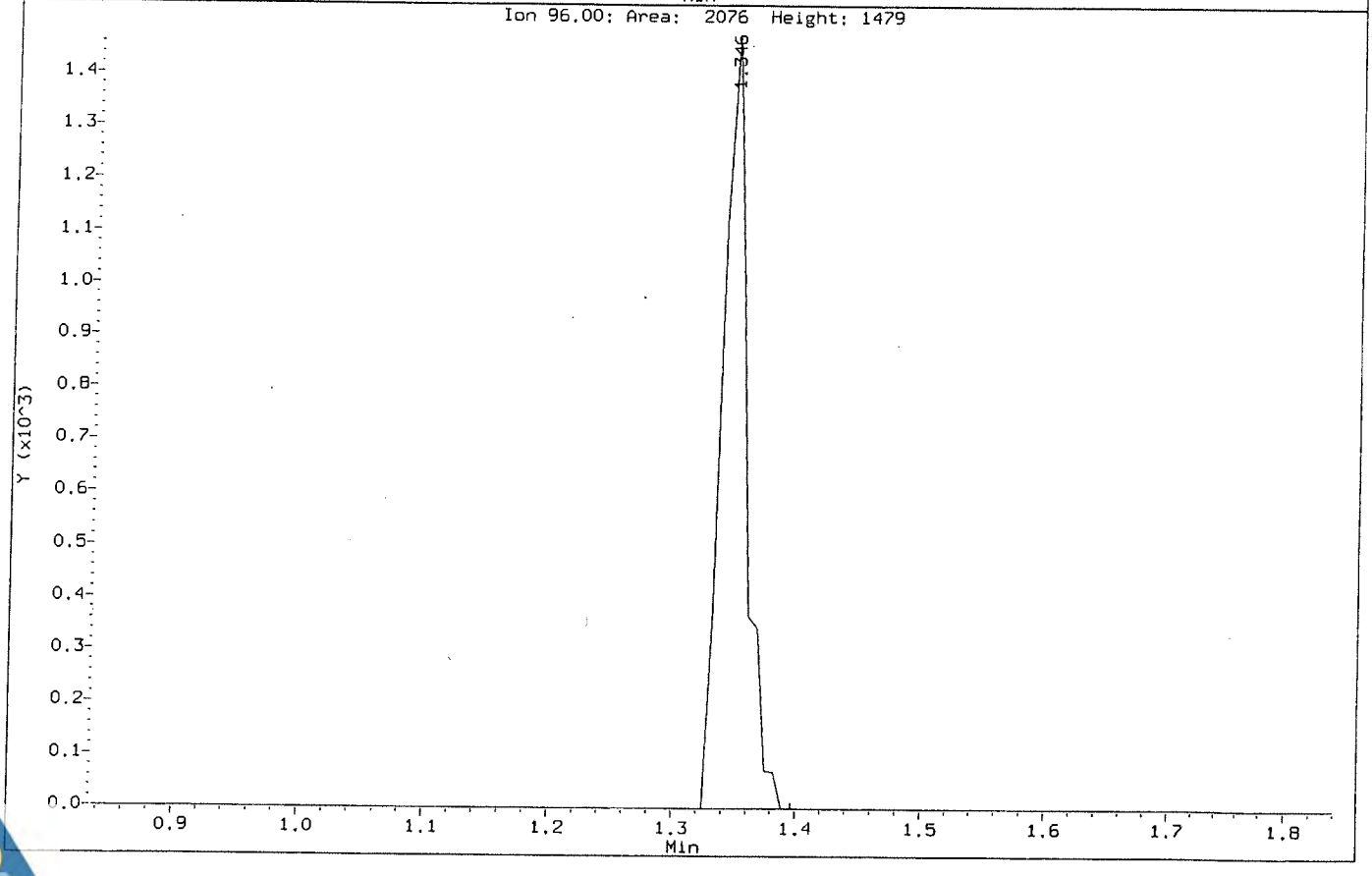




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

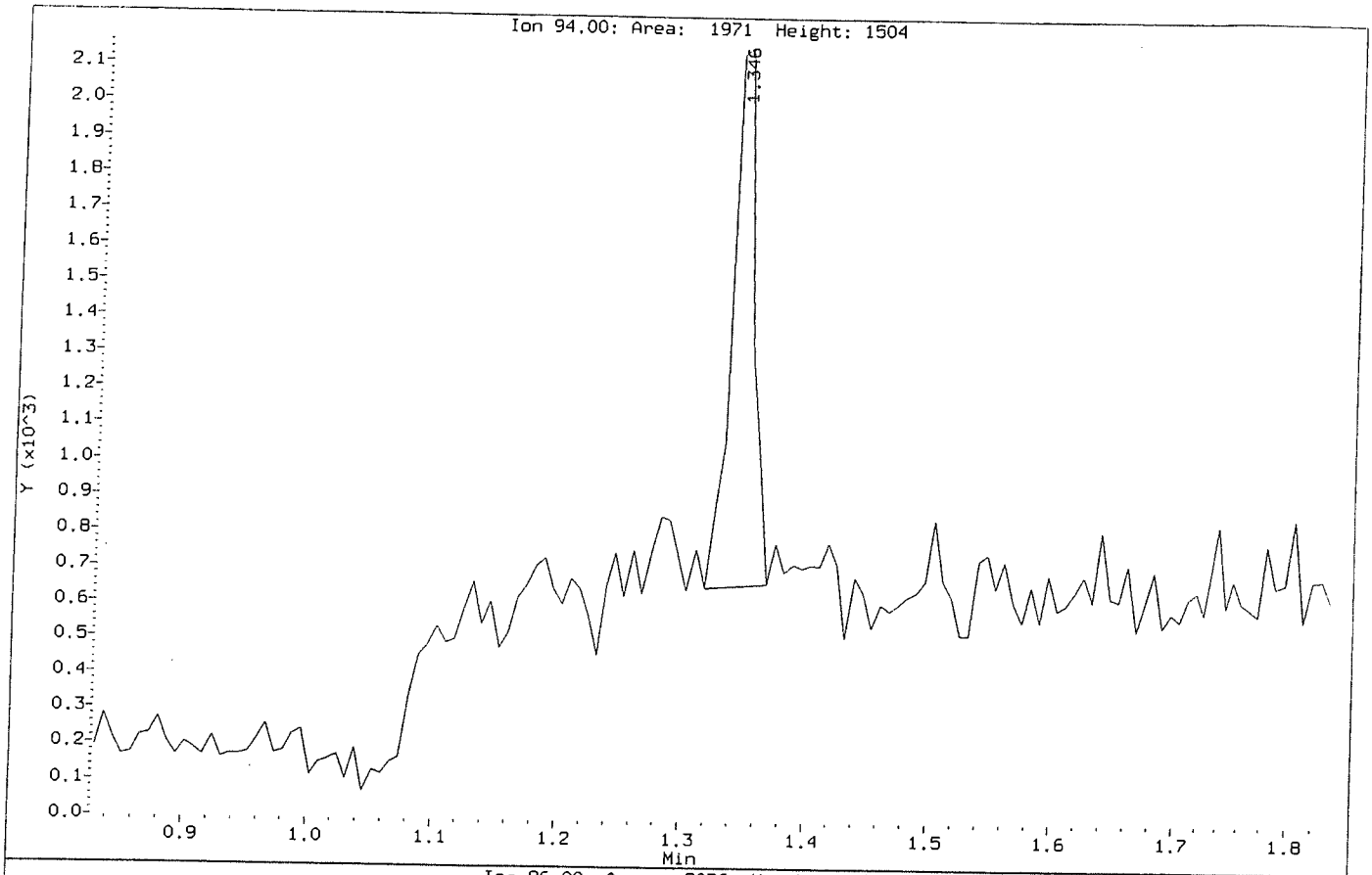
Compound: Bromomethane
CAS Number: 74-83-9

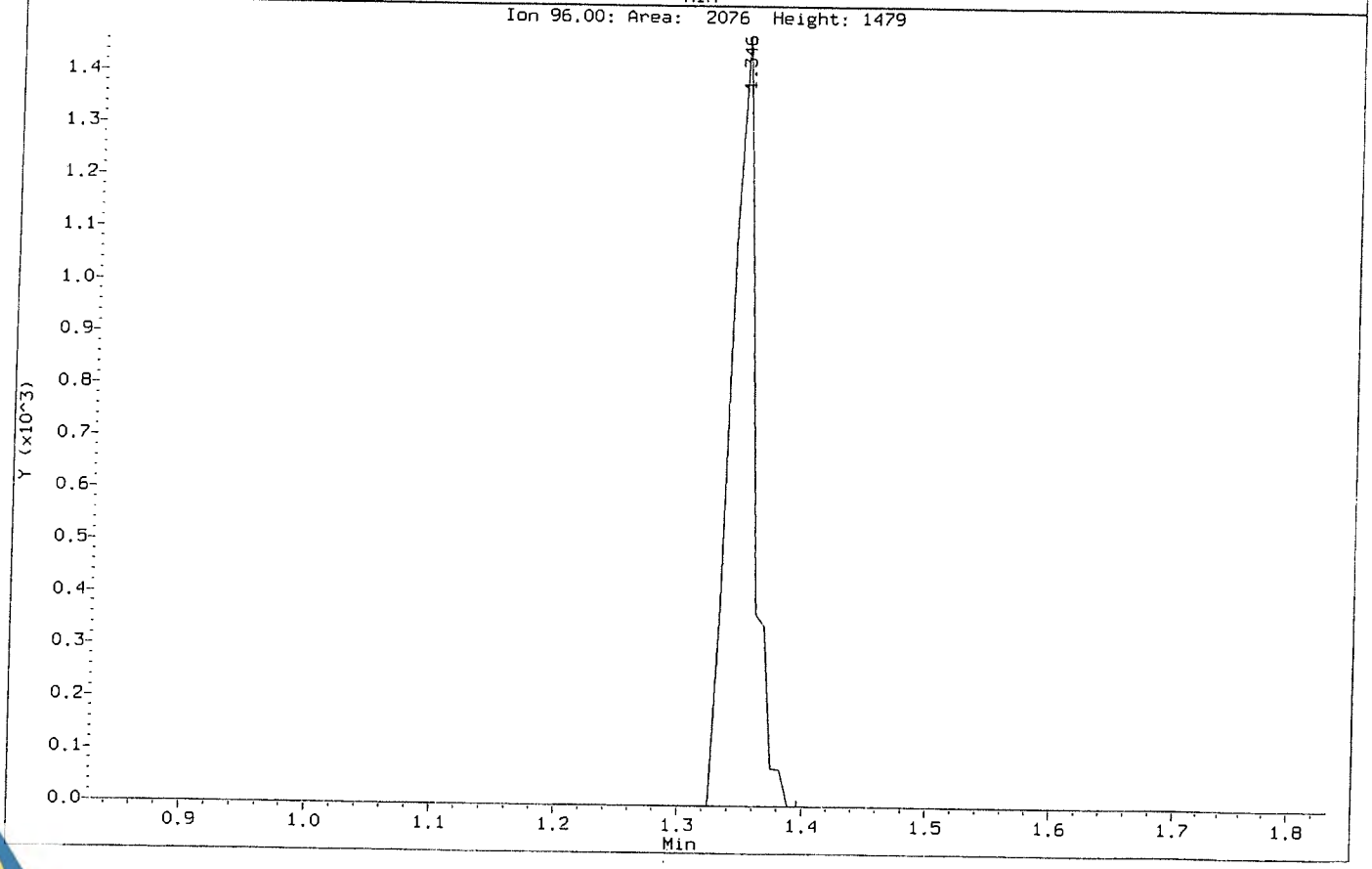




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

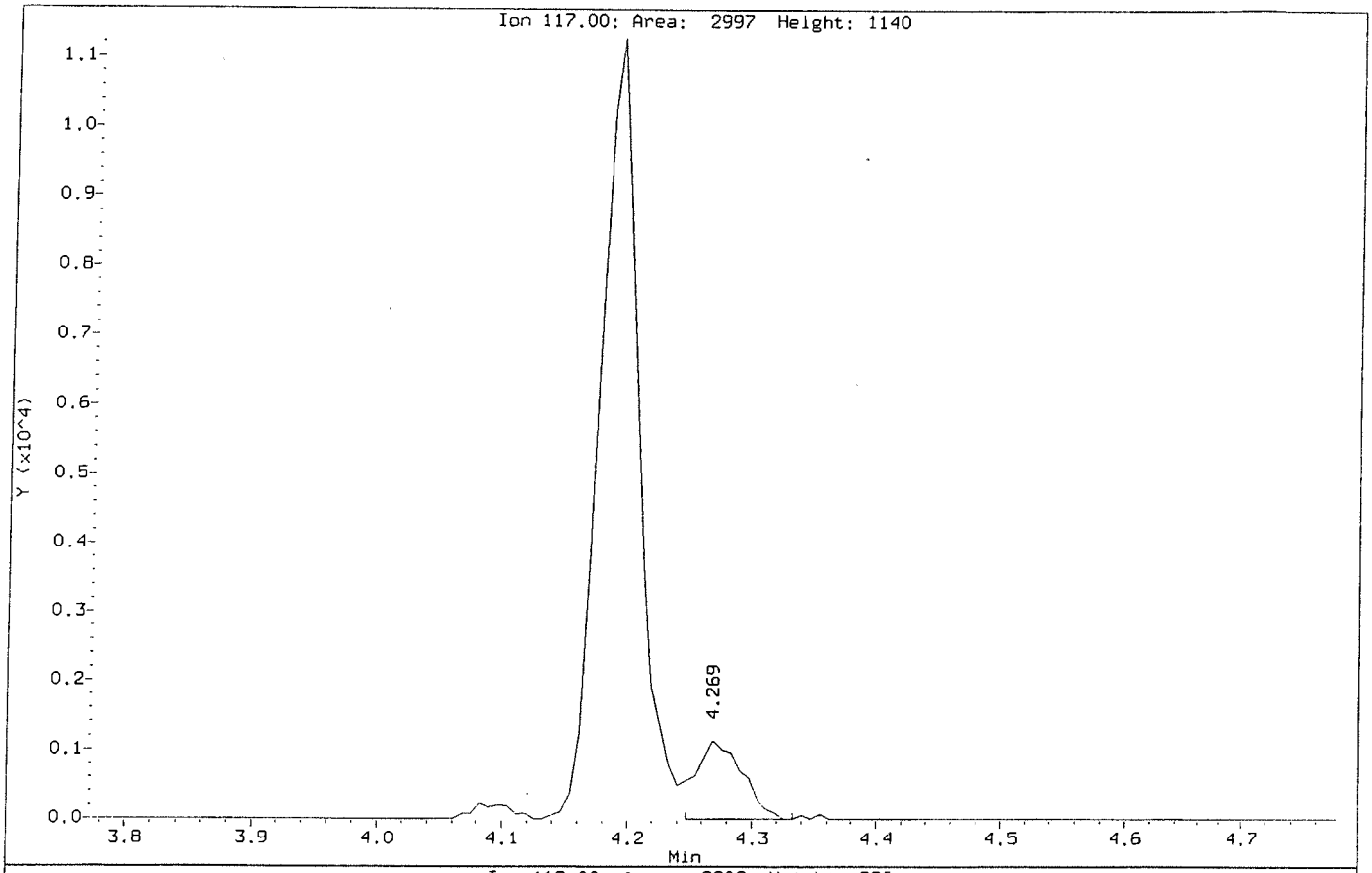
Compound: Bromomethane
CAS Number: 74-83-9

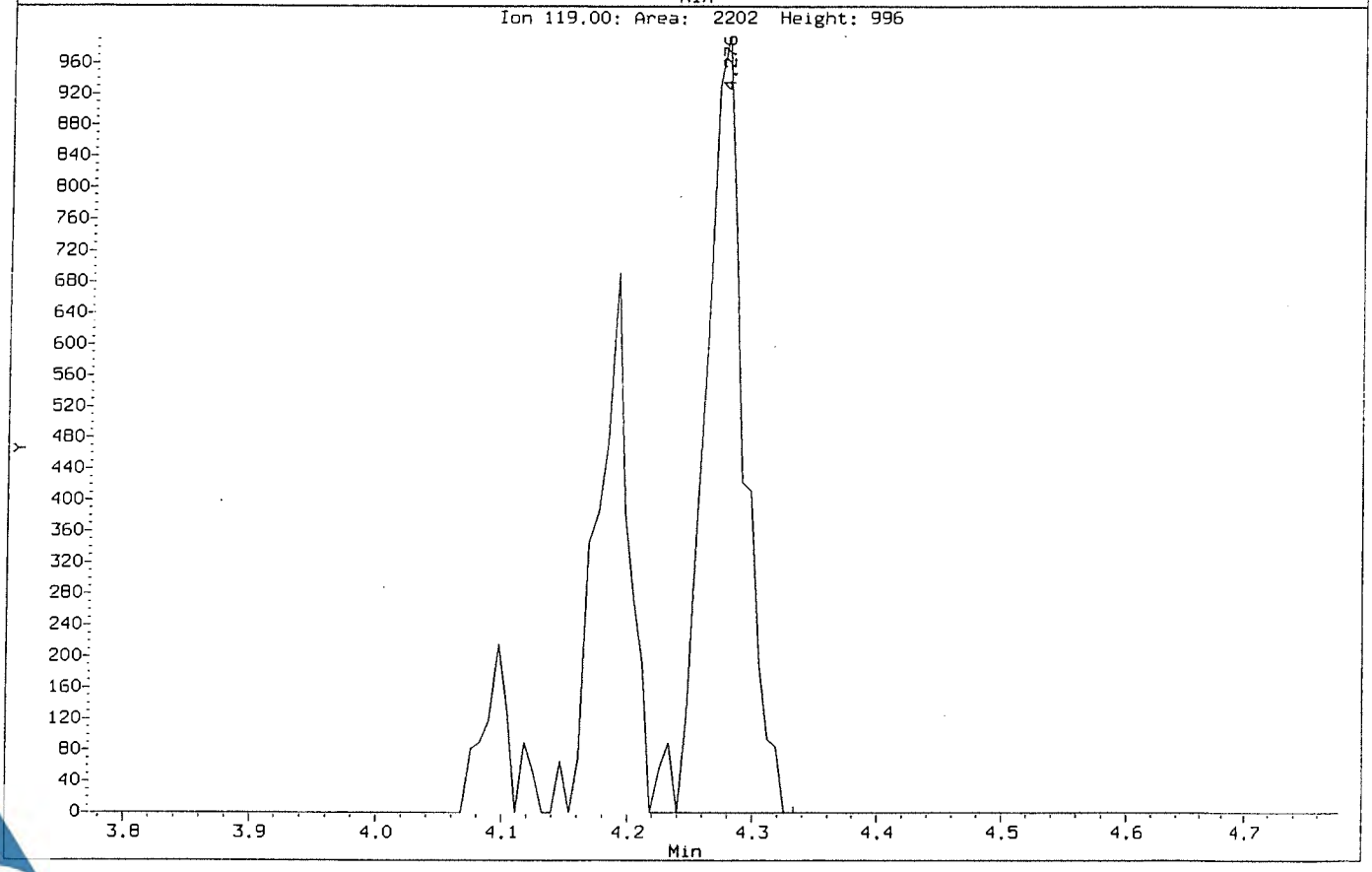




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

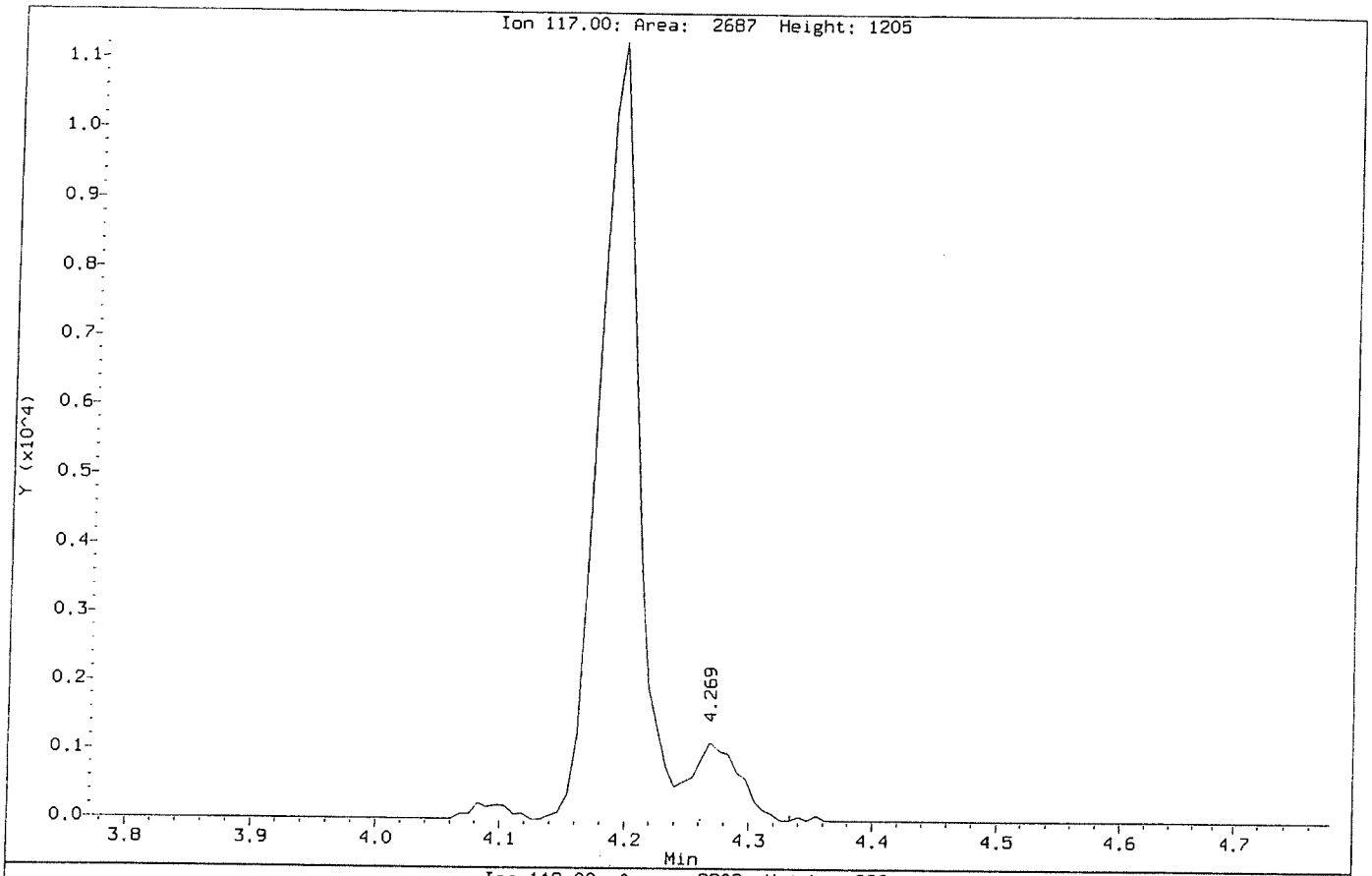
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

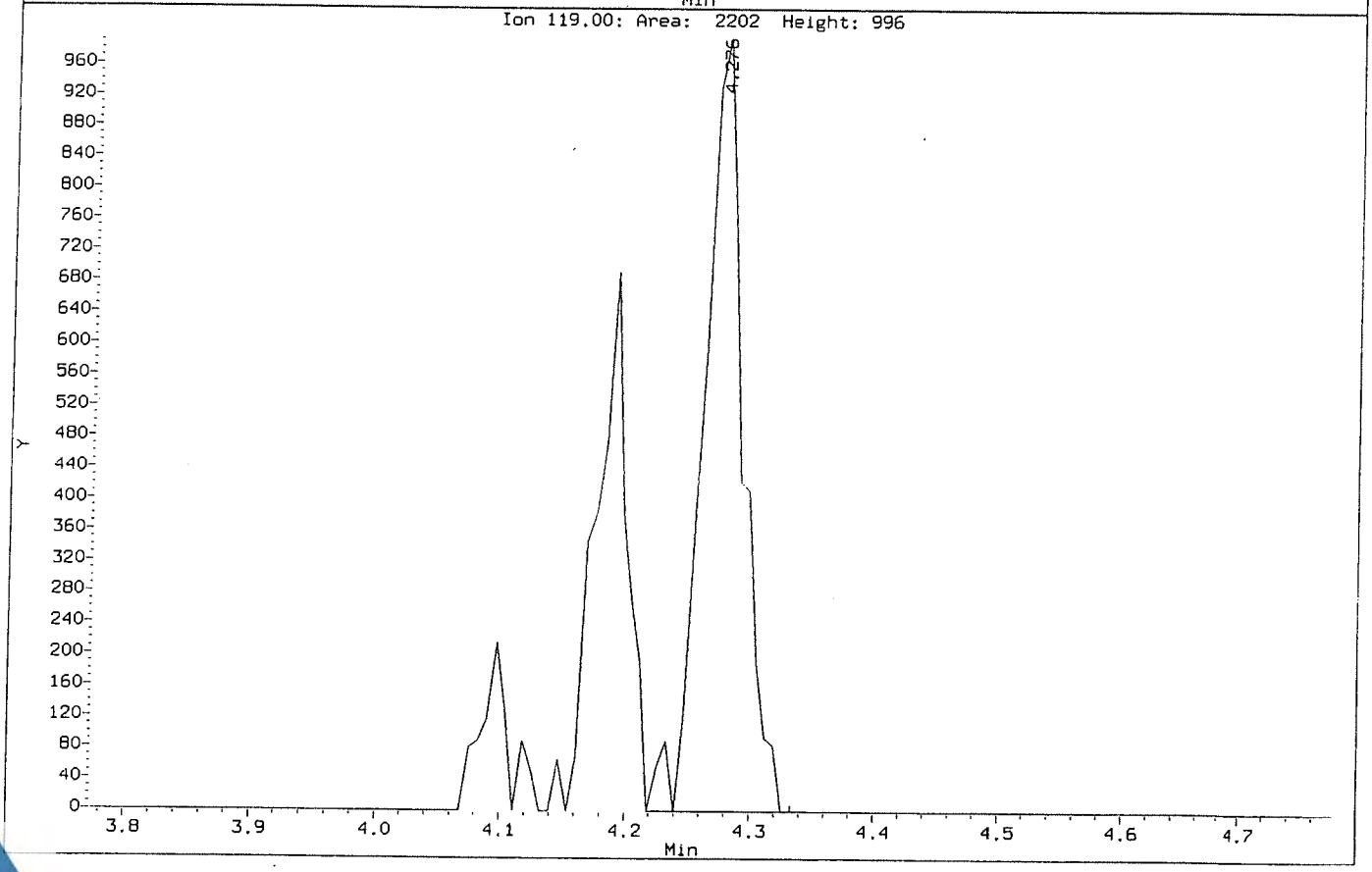




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

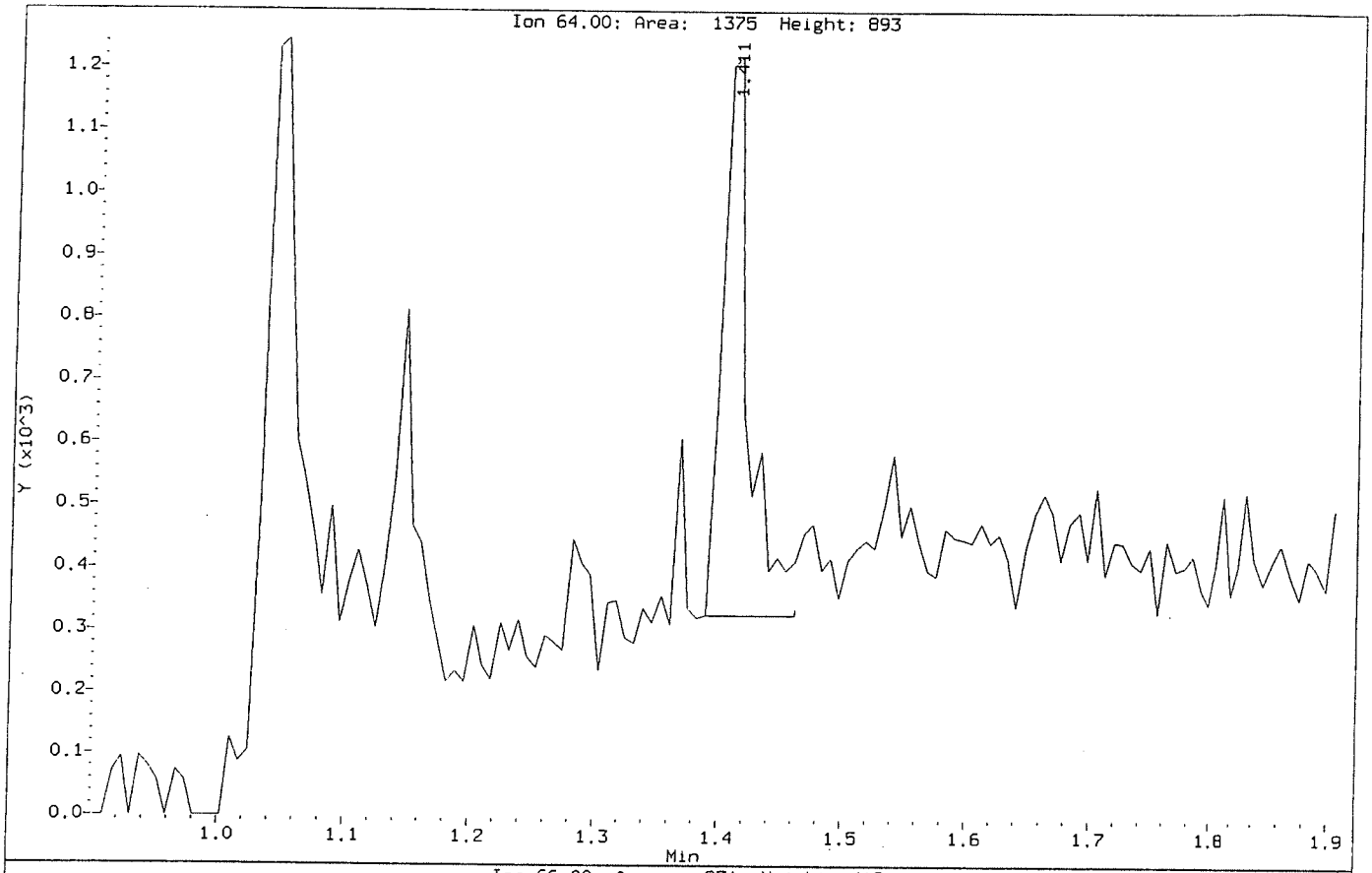
Compound: Carbon Tetrachloride
CAS Number: 56-23-5

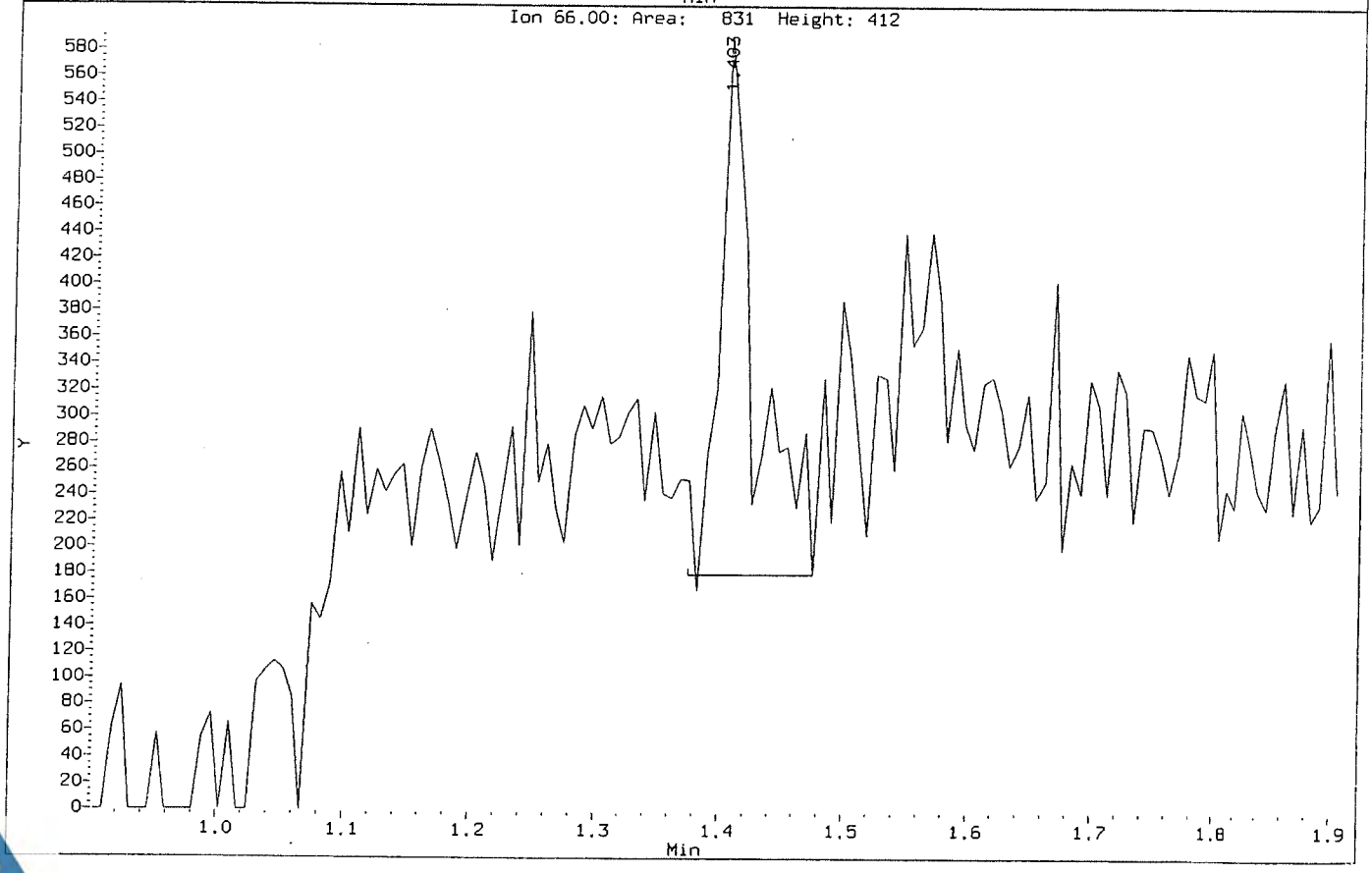




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

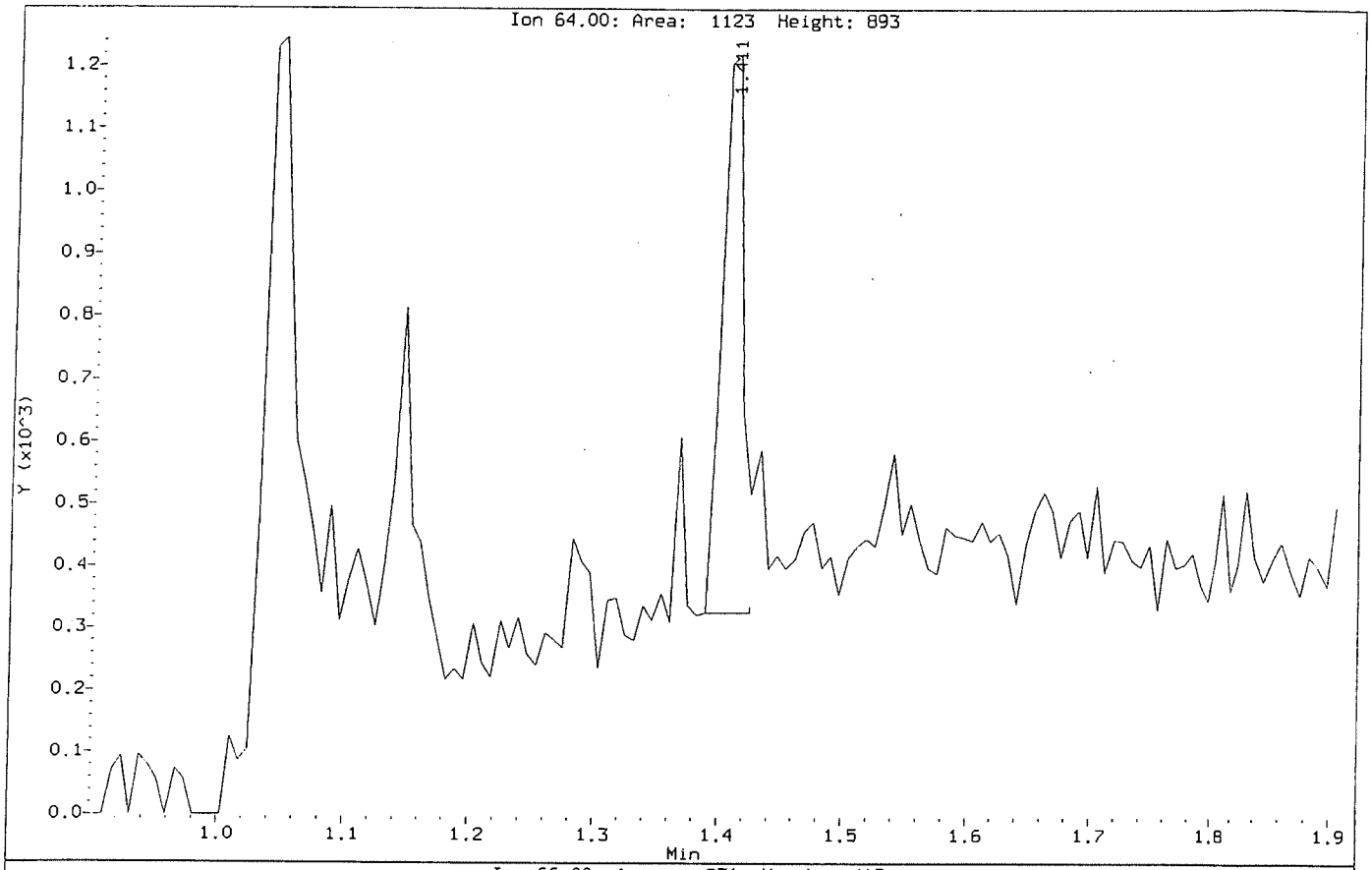
Compound: Chloroethane
CAS Number: 75-00-3

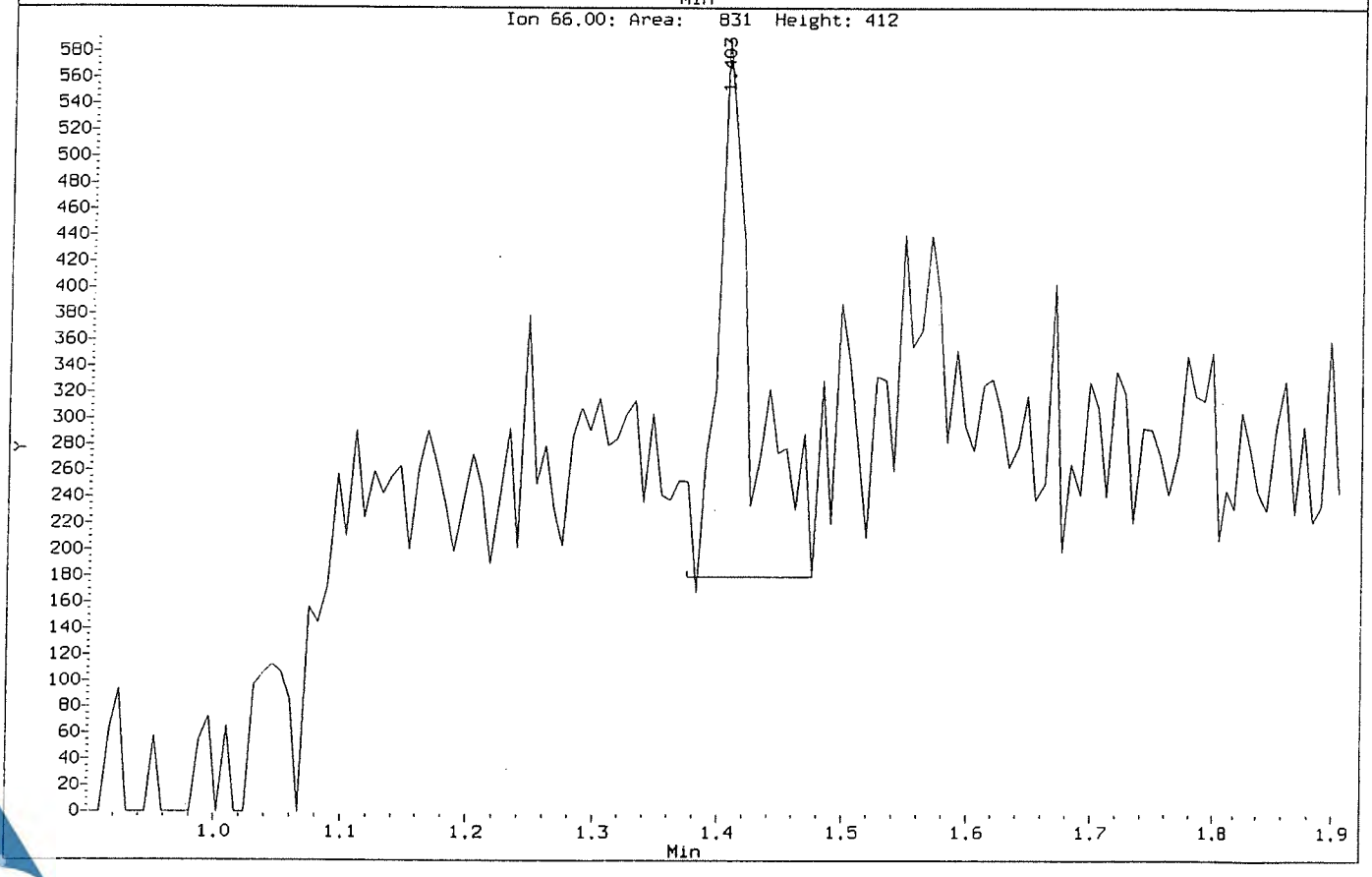




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

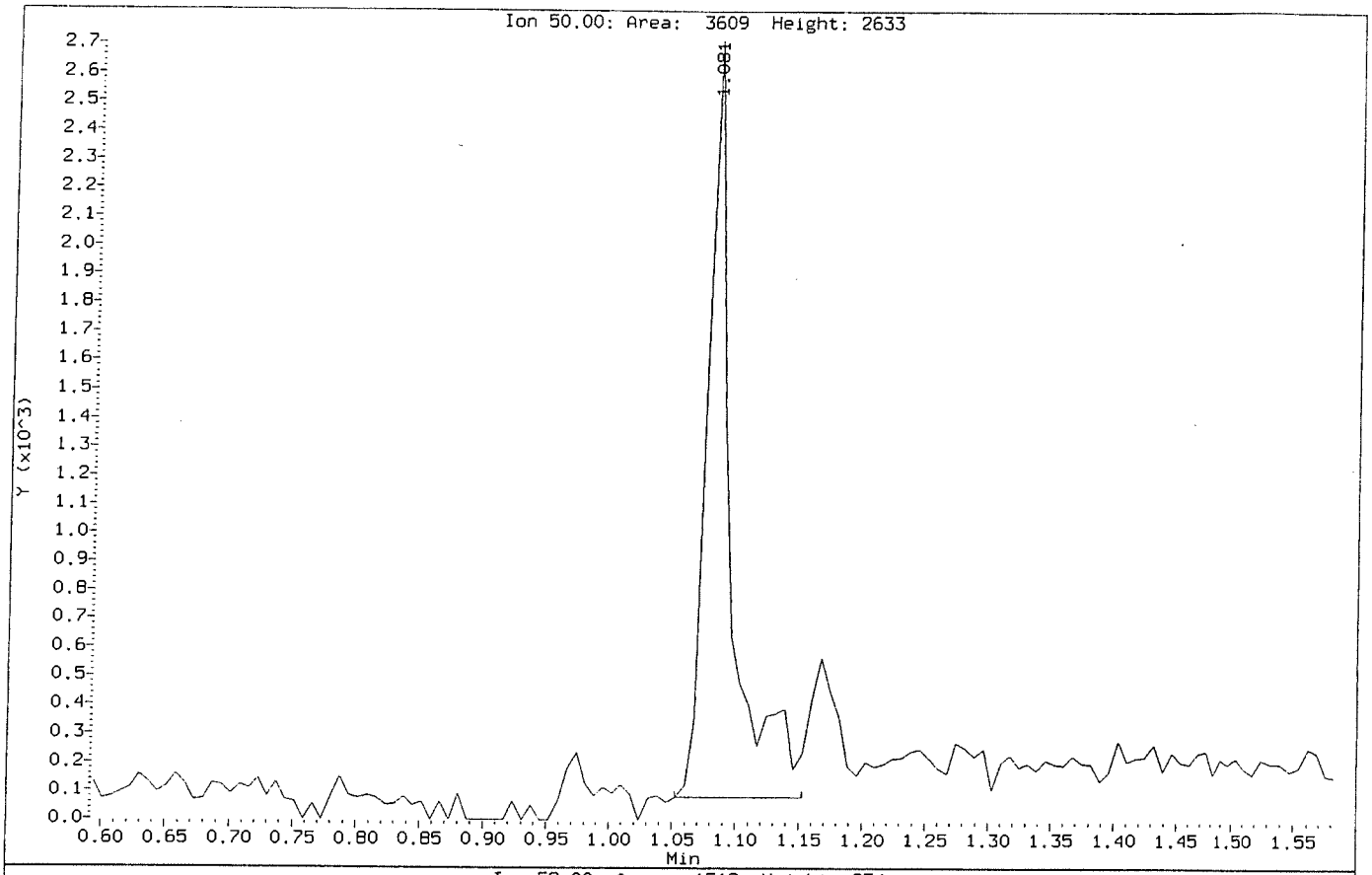
Compound: Chloroethane
CAS Number: 75-00-3

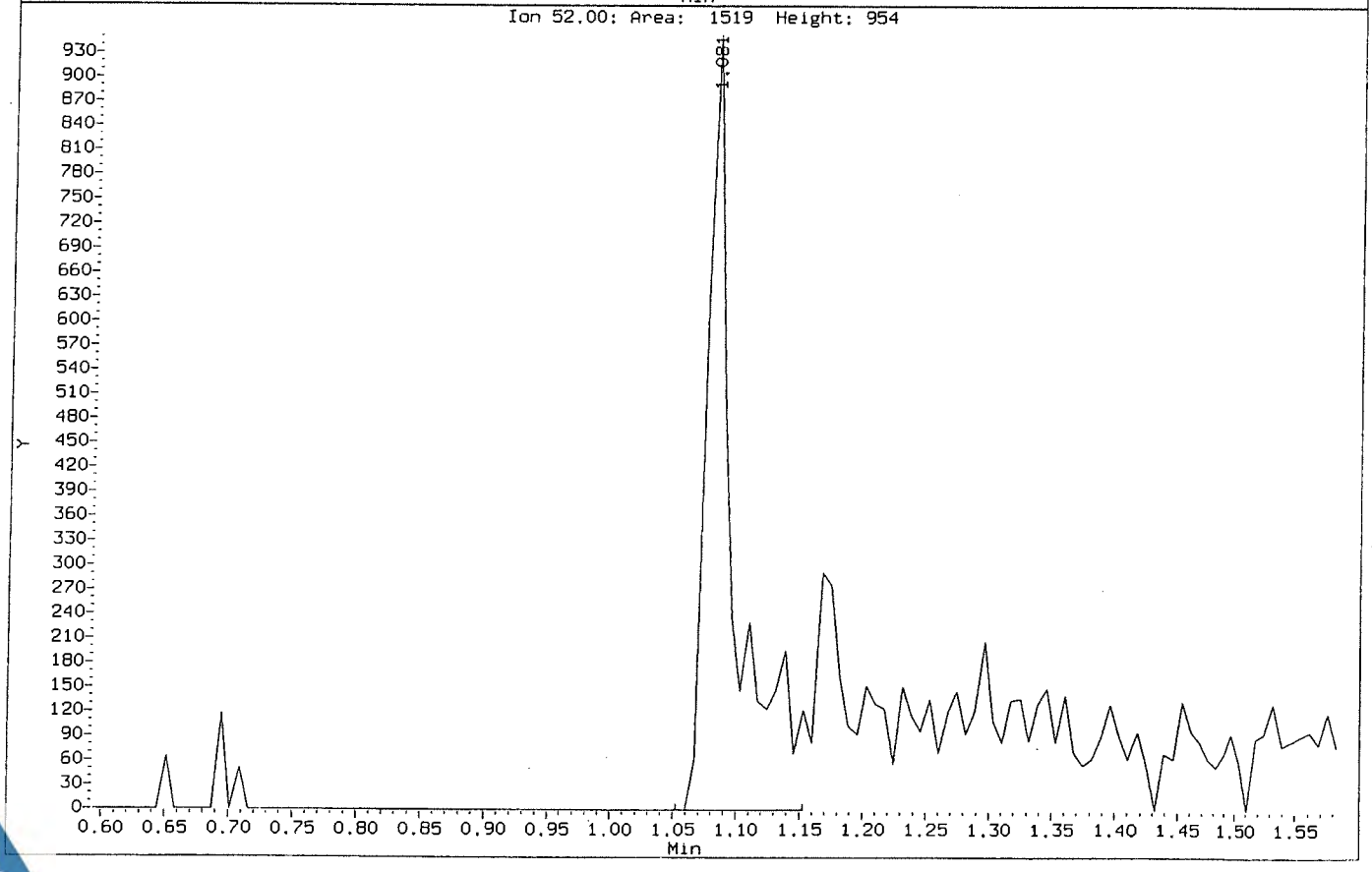




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

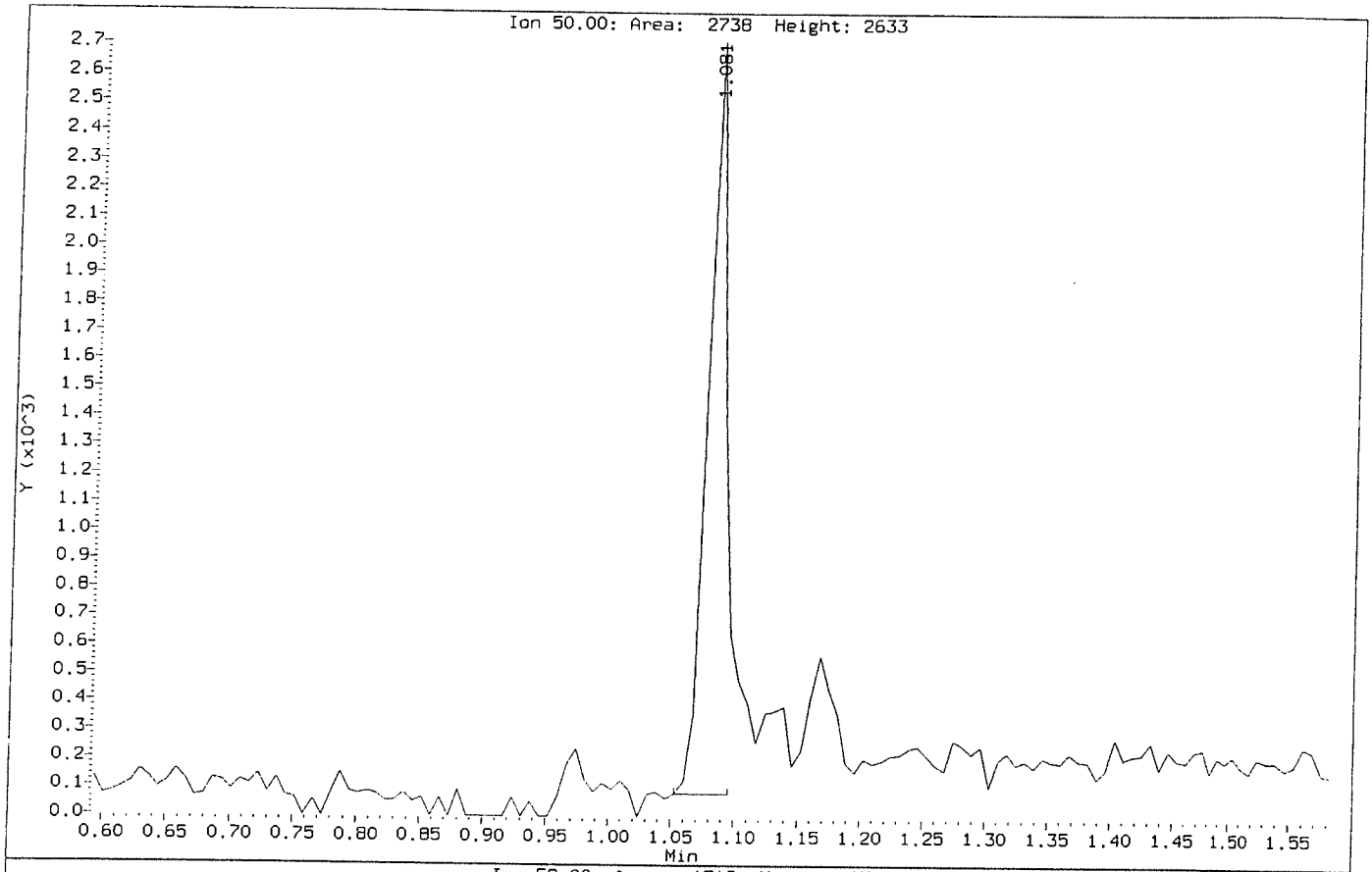
Compound: Chloromethane
CAS Number: 74-87-3

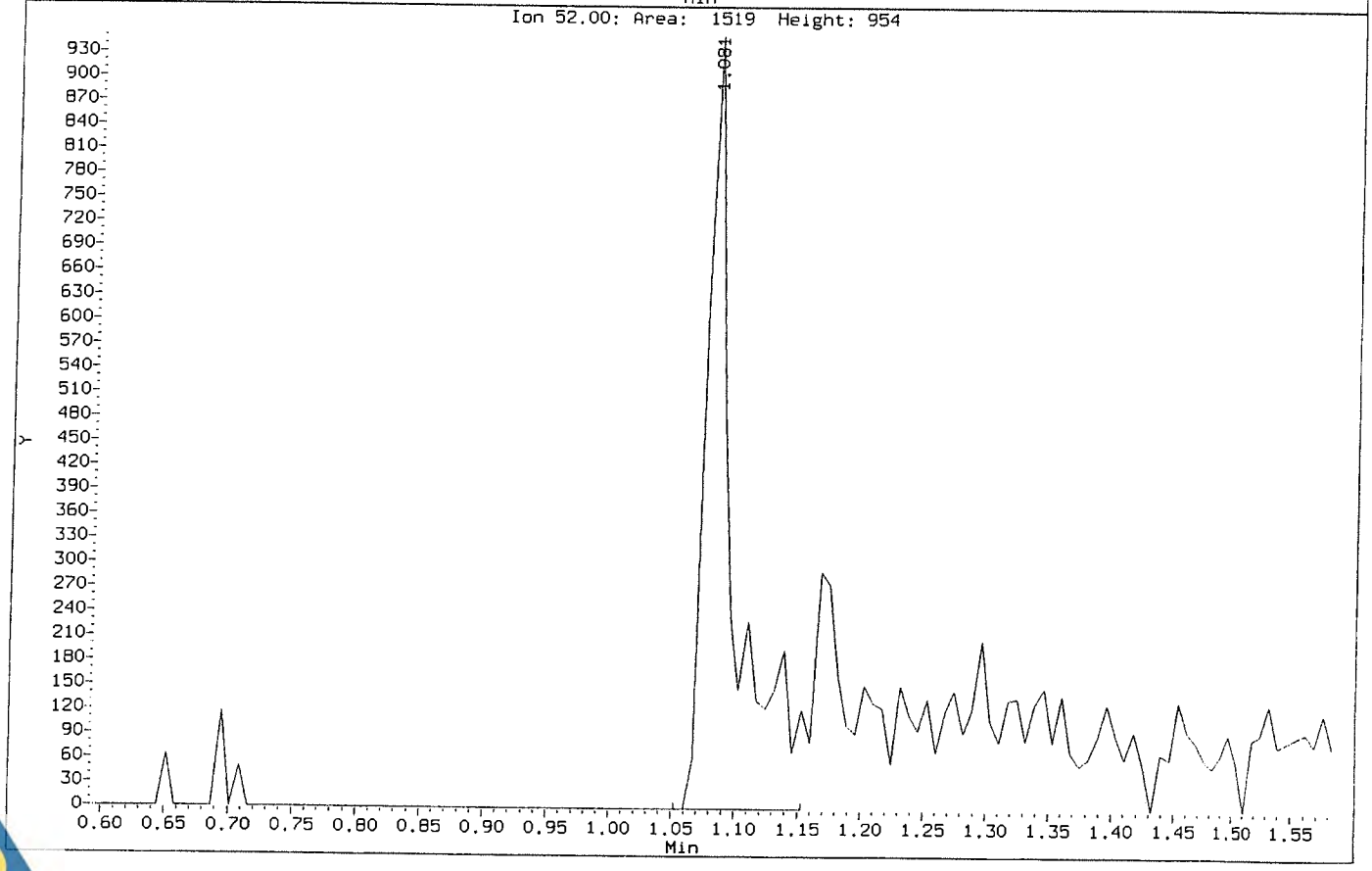




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

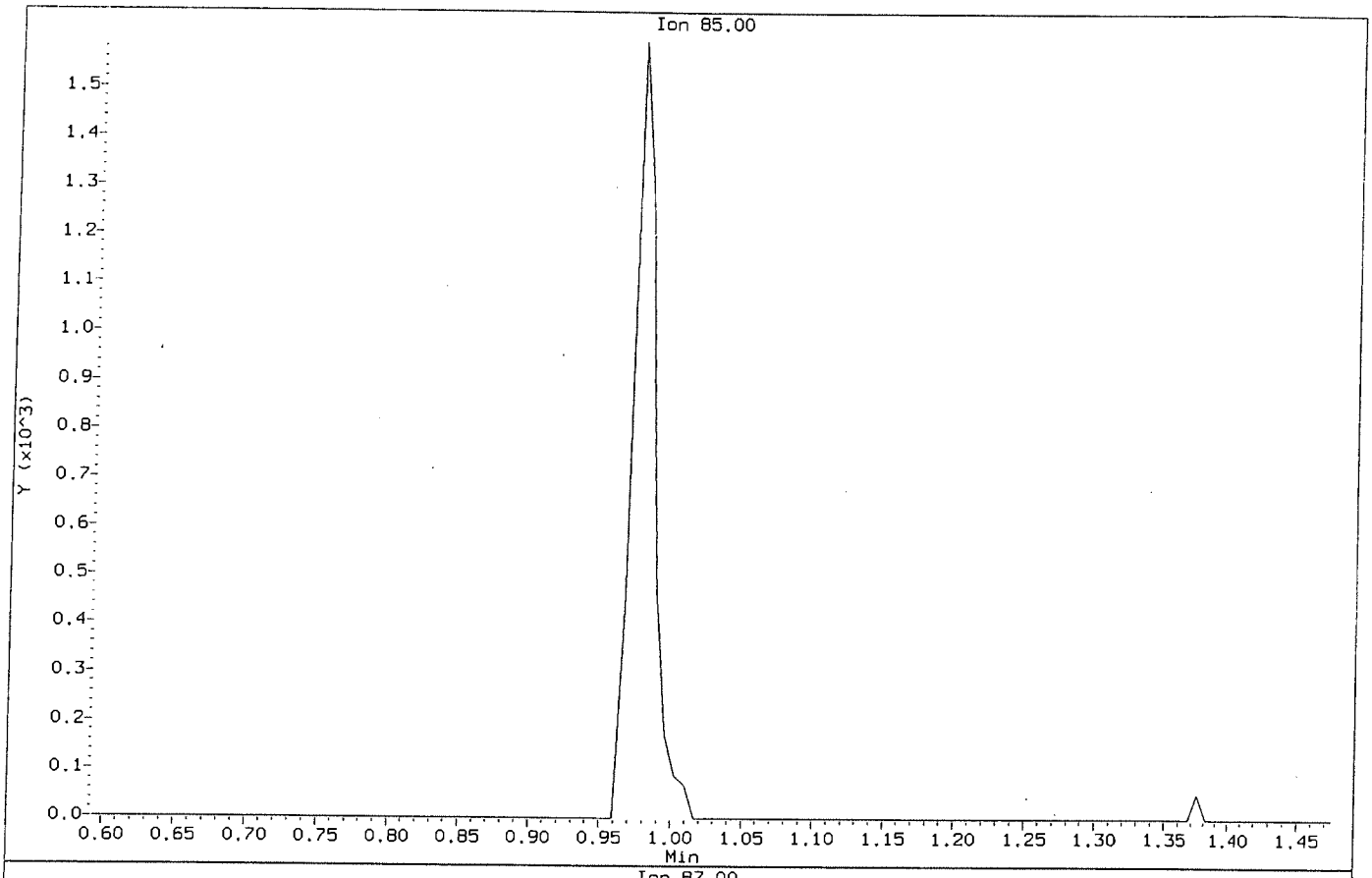
Compound: Chloromethane
CAS Number: 74-87-3

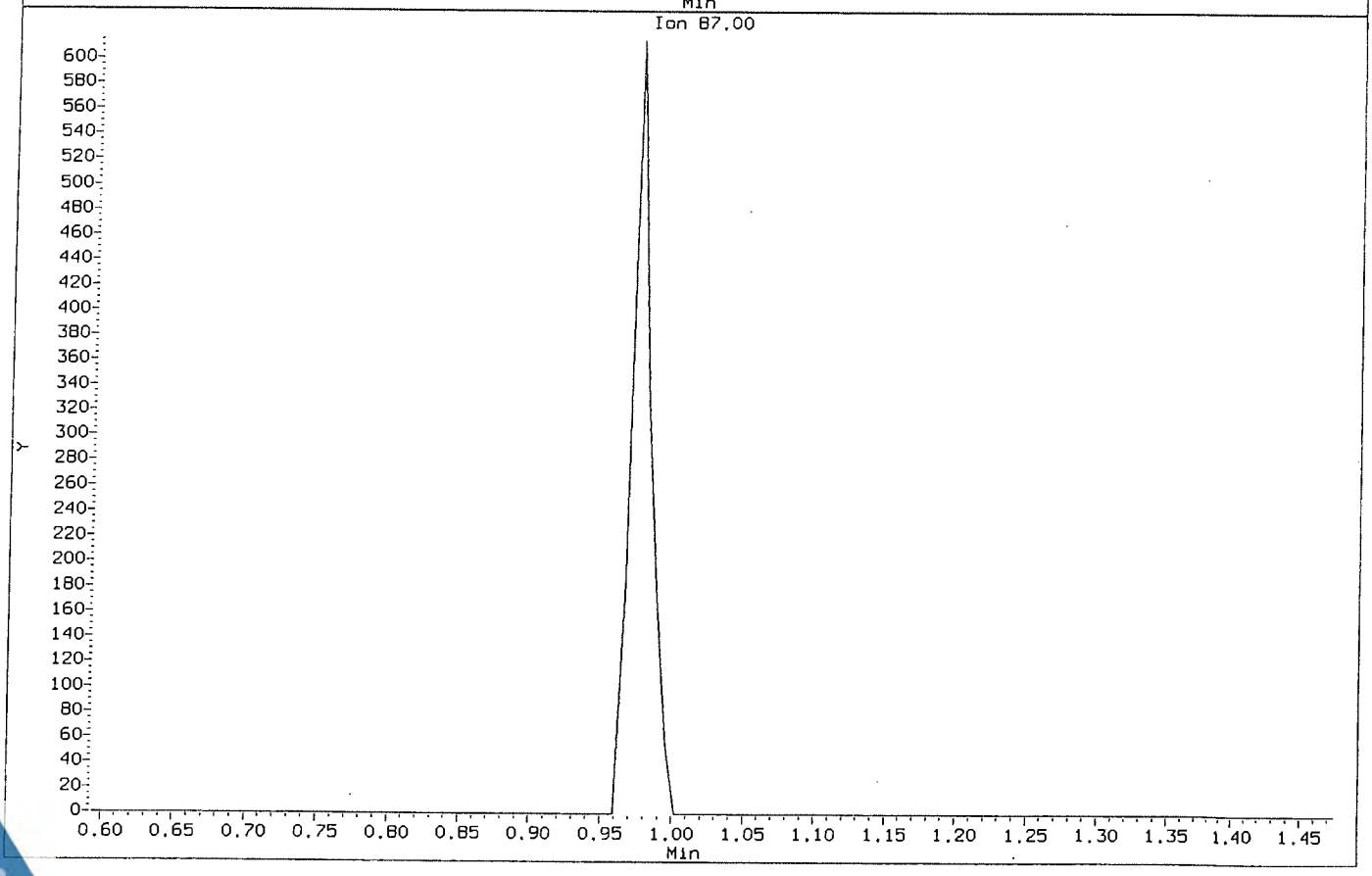




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

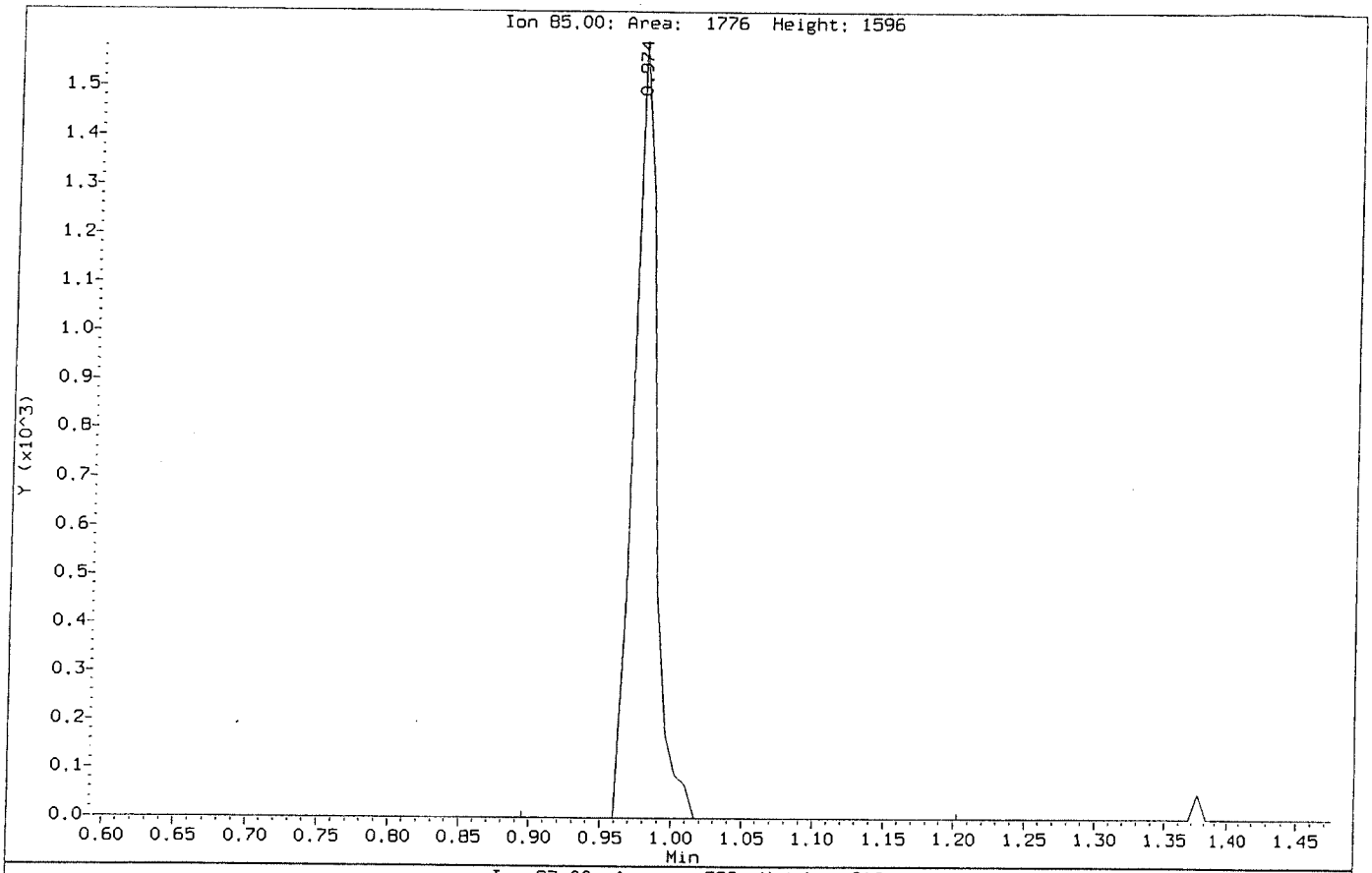
Compound: Dichlorodifluoromethane
CAS Number: 75-71-8

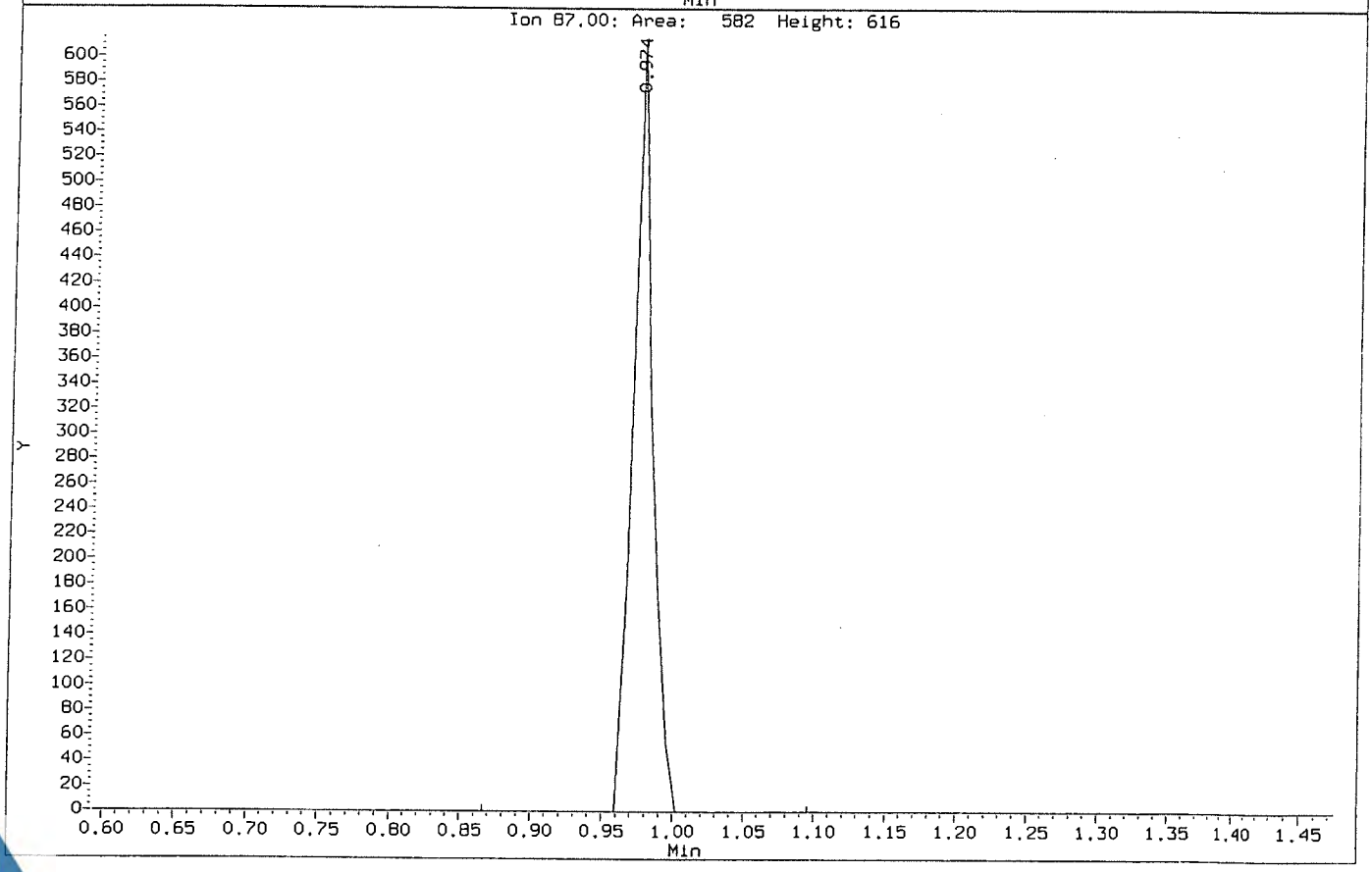




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051303.D
Injection Date: 13-MAY-2019 12:09
Instrument: voa6.i
Client Sample ID: VSTD000.5

Compound: Dichlorodifluoromethane
CAS Number: 75-71-8





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Lab Smp Id: VSTD001 Client Smp ID: VSTD001
Inj Date : 13-MAY-2019 12:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:33 Cal File: X051304.D
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	317314	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436509	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	405959	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	226209	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	2924	1.00000	0.87(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	3897	1.00000	0.57(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	2821	1.00000	0.67(a)
$	48 Toluene-d8	98	6.396	6.388	(0.834)	10173	1.00000	0.46(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	3257	1.00000	1.02(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	4281	1.00000	1.01(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	3251	1.00000	1.05(aM)
	138 Freon TF	101	1.919	1.919	(0.458)	2736	1.00000	1.96(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	2056	1.00000	0.98(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	4674	1.00000	1.04(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	2641	1.00000	1.06(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	4103	1.00000	1.13(a)
	93 1,2,3-Trichlorobenzene	180	11.753	11.746	(1.216)	1624	1.00000	1.62(aM)
	71 1,2,3-Trichloropropane	75	8.874	8.867	(0.918)	3382	1.00000	0.95(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	3018	1.00000	0.90(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	11308	1.00000	1.04(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.672	10.658	(1.104)	465	1.00000	0.94(aM)
	57 1,2-Dibromoethane	107	7.269	7.262	(0.948)	2866	1.00000	1.00(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	6630	1.00000	1.01(a)

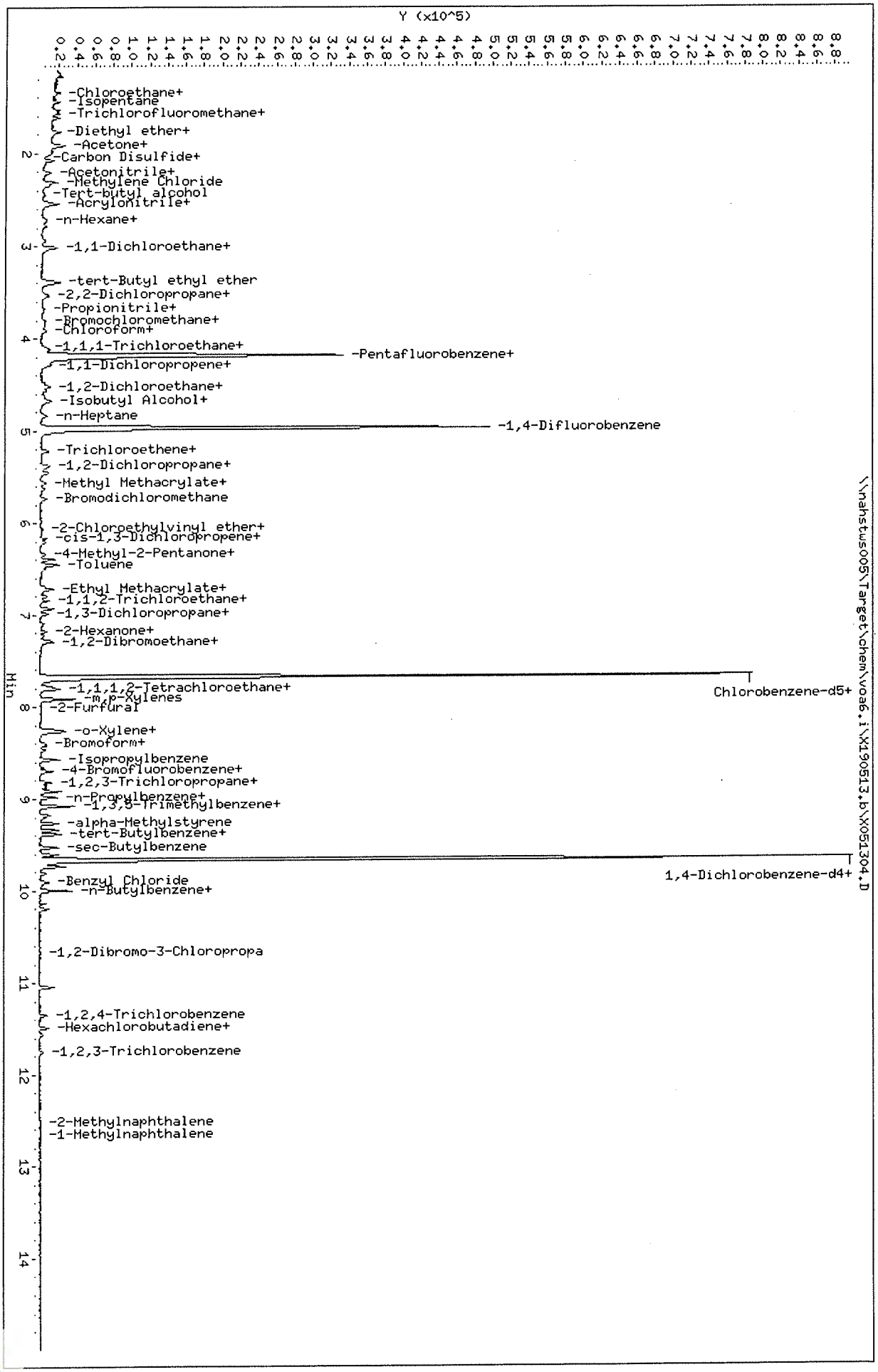
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

						AMOUNTS	
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/l)	ON-COL (ug/l)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	3849	1.00000	1.04(aM)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	2660	1.00000	1.04(aM)
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	10502	1.00000	1.02(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	7204	1.00000	1.03(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	4373	1.00000	1.04(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	7189	1.00000	1.02(a)
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	4095	1.00000	1.03(a)
24 2-Butanone	43	3.616	3.581	(0.863)	1388	2.00000	1.83(aM)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	8920	1.00000	1.06(a)
52 2-Hexanone	43	7.097	7.090	(0.925)	2901	2.00000	2.05(a)
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	10275	1.00000	1.06(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	11053	1.00000	0.99(a)
45 4-Methyl-2-Pentanone	43	6.338	6.331	(0.826)	4184	2.00000	2.03(a)
10 Acetone	43	1.983	1.976	(0.473)	2678	2.00000	2.24(a)
37 Benzene	78	4.526	4.519	(0.911)	10709	1.00000	1.01(a)
74 Bromobenzene	156	8.809	8.810	(0.911)	4202	1.00000	0.99(a)
29 Bromochloromethane	128	3.810	3.803	(0.909)	2379	1.00000	1.35(a)
39 Bromodichloromethane	83	5.737	5.729	(1.154)	3754	1.00000	1.02(aM)
66 Bromoform	173	8.423	8.416	(1.098)	2104	1.00000	0.88(Ta)
6 Bromomethane	94	1.346	1.339	(0.321)	3476	1.00000	2.28(aM)
19 Carbon Disulfide	76	2.076	2.076	(0.496)	14936	2.00000	2.08(a)
34 Carbon Tetrachloride	117	4.268	4.275	(0.859)	4360	1.00000	1.07(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	8218	1.00000	1.01(a)
7 Chloroethane	64	1.410	1.403	(0.337)	2109	1.00000	1.16(a)
28 Chloroform	83	3.917	3.917	(0.935)	4905	1.00000	1.02(a)
3 Chloromethane	50	1.081	1.081	(0.258)	4458	1.00000	(aM)
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	3334	1.00000	1.07(a)
46 cis-1,3-Dichloropropene	75	6.166	6.159	(1.241)	4133	1.00000	0.95(a)
55 Dibromochloromethane	129	7.183	7.184	(0.937)	3225	1.00000	0.98(a)
44 Dibromomethane	93	5.557	5.558	(1.118)	1829	1.00000	0.99(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	2995	1.00000	1.66(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	4183	1.00000	0.99(a)
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	2046	1.00000	1.03(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	12473	1.00000	1.00(a)
62 m,p-Xylenes	106	7.914	7.907	(1.032)	10328	2.00000	2.04(a)
17 Methylene Chloride	84	2.313	2.306	(0.552)	5114	1.00000	1.31(a)
87 n-Butylbenzene	91	9.999	9.999	(1.034)	8499	1.00000	0.96(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	14130	1.00000	1.01(a)
92 Naphthalene	128	11.553	11.546	(1.195)	4284	1.00000	0.90(a)
63 o-Xylene	106	8.251	8.244	(1.076)	4970	1.00000	1.00(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	12554	1.00000	1.03(a)
64 Styrene	104	8.265	8.265	(1.078)	8687	1.00000	1.00(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	9421	1.00000	1.05(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	2871	1.00000	0.96(a)
50 Toluene	91	6.453	6.453	(0.841)	12021	1.00000	1.01(a)
20 trans-1,2-Dichloroethene	96	2.542	2.535	(0.607)	2652	1.00000	1.02(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	3578	1.00000	0.94(a)
38 Trichloroethene	130	5.221	5.214	(1.050)	3417	1.00000	1.01(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	4828	1.00000	1.02(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	3486	1.00000	1.20(aM)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Report Date: 06-Jun-2019 10:44

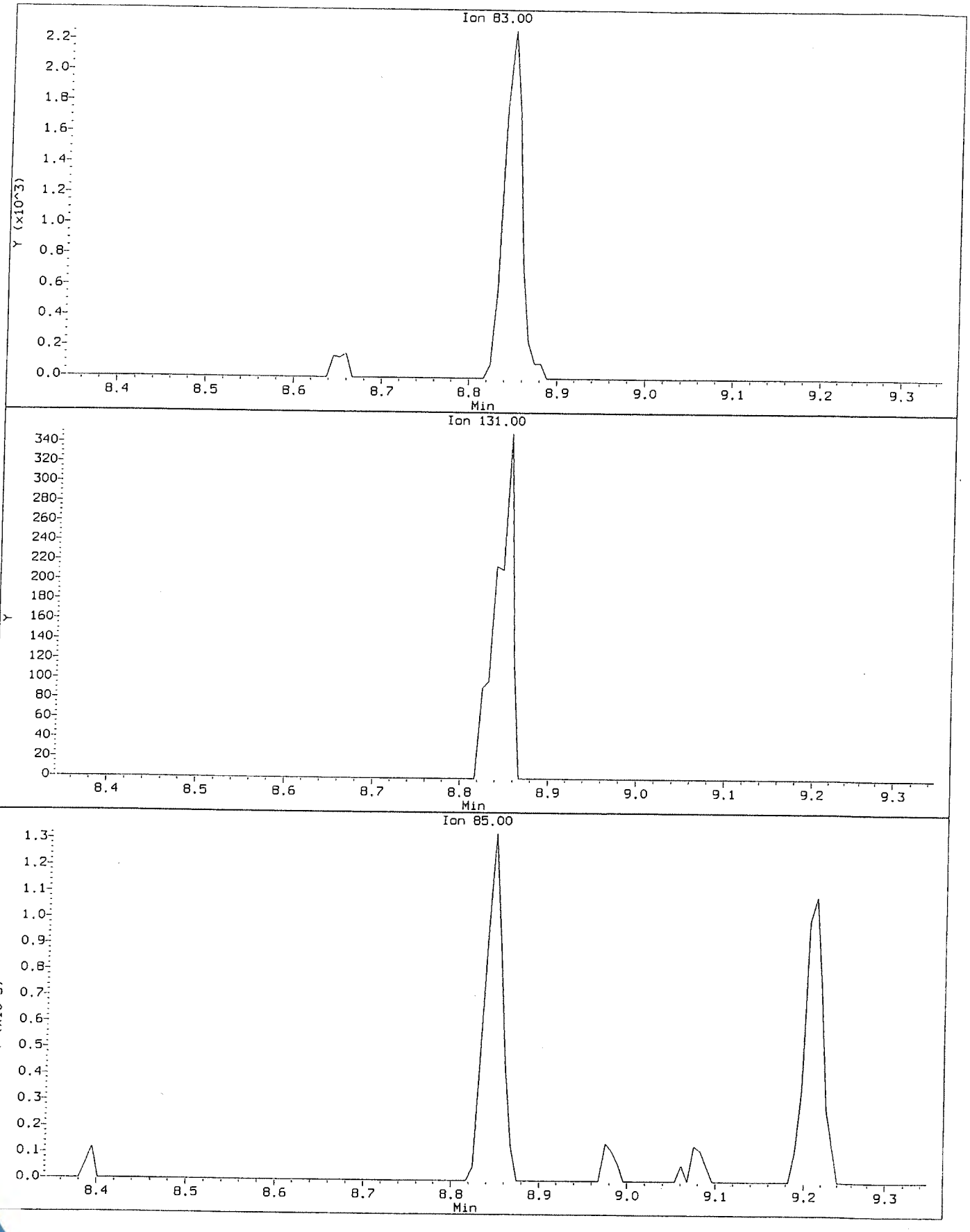
QC Flag Legend

T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^5)
Min
-Chloroethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acetone+
-Carbon Disulfide+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-n-Hexane+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-1,3-Dichloropropane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
Chlorobenzene-d5+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,2,3-Trichloropropane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Date : 13-MAY-2019 12:33
Client ID: VSTD001
Sample Info: VSTD001;VSTD001;1;3;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

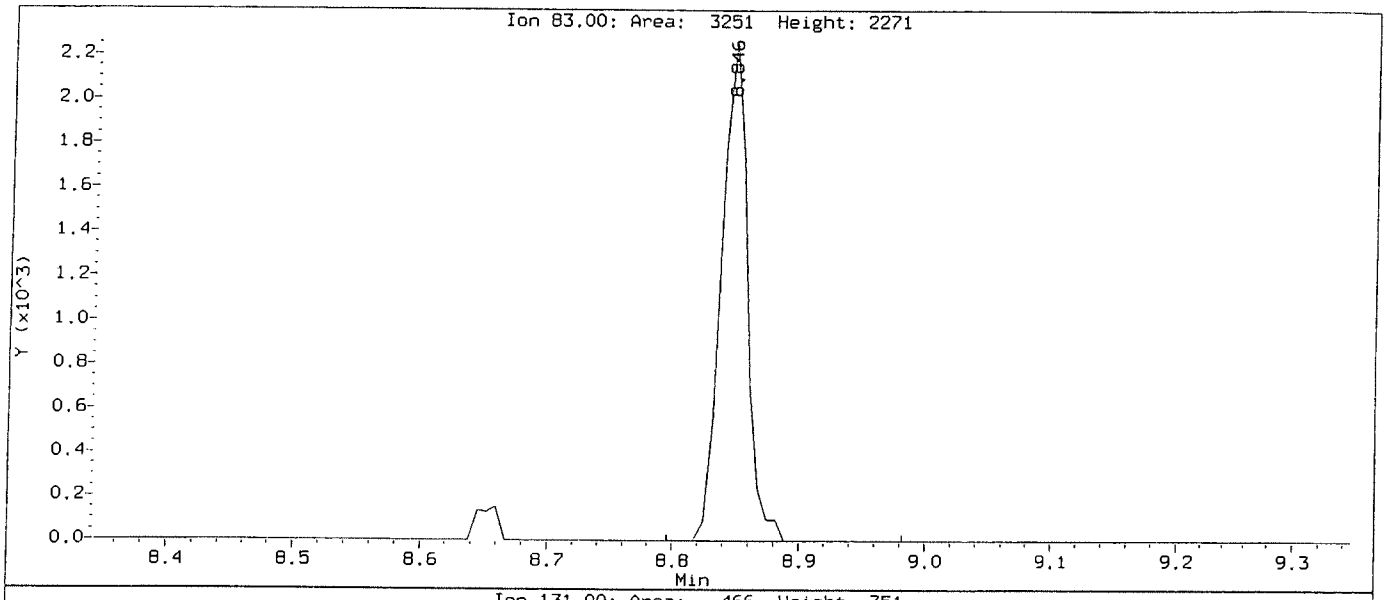
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

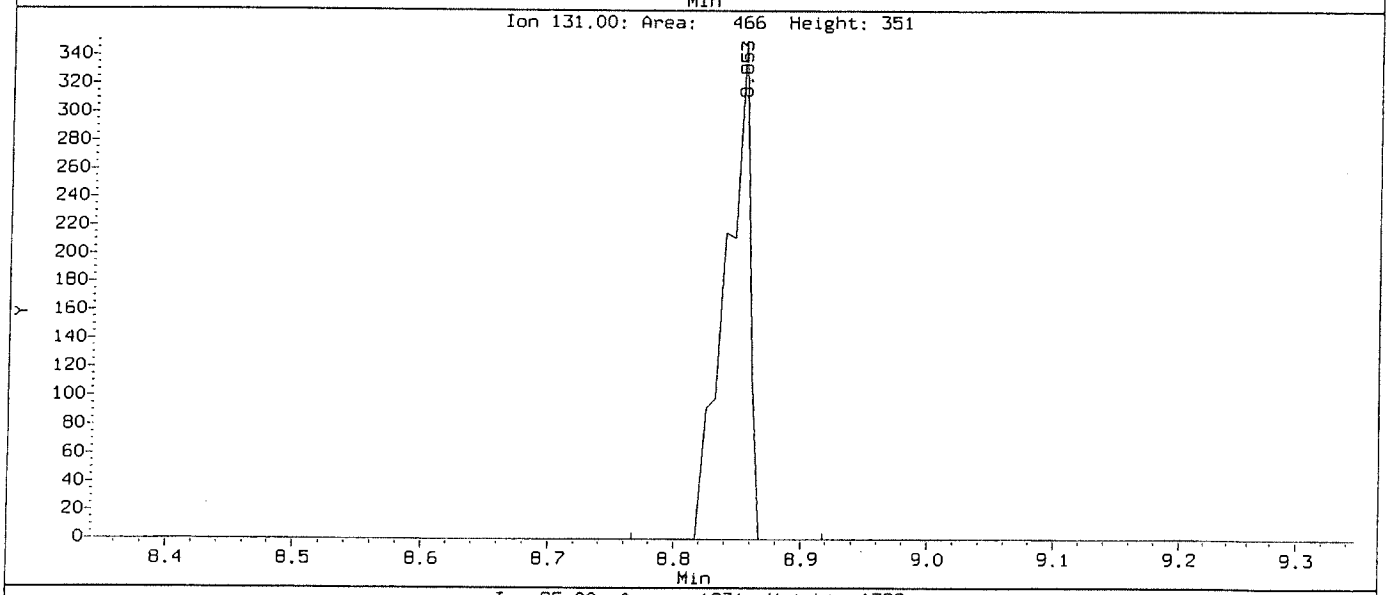
Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

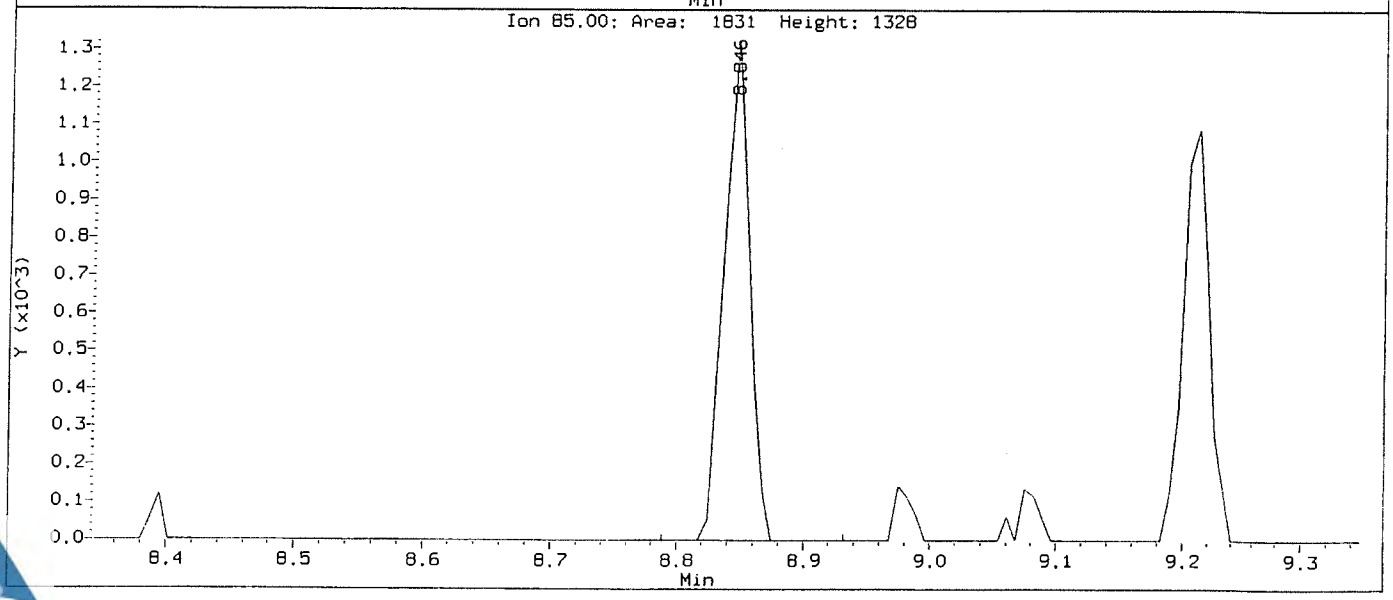


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,1,2,2-Tetrachloroethane
CAS Number: 79-34-5

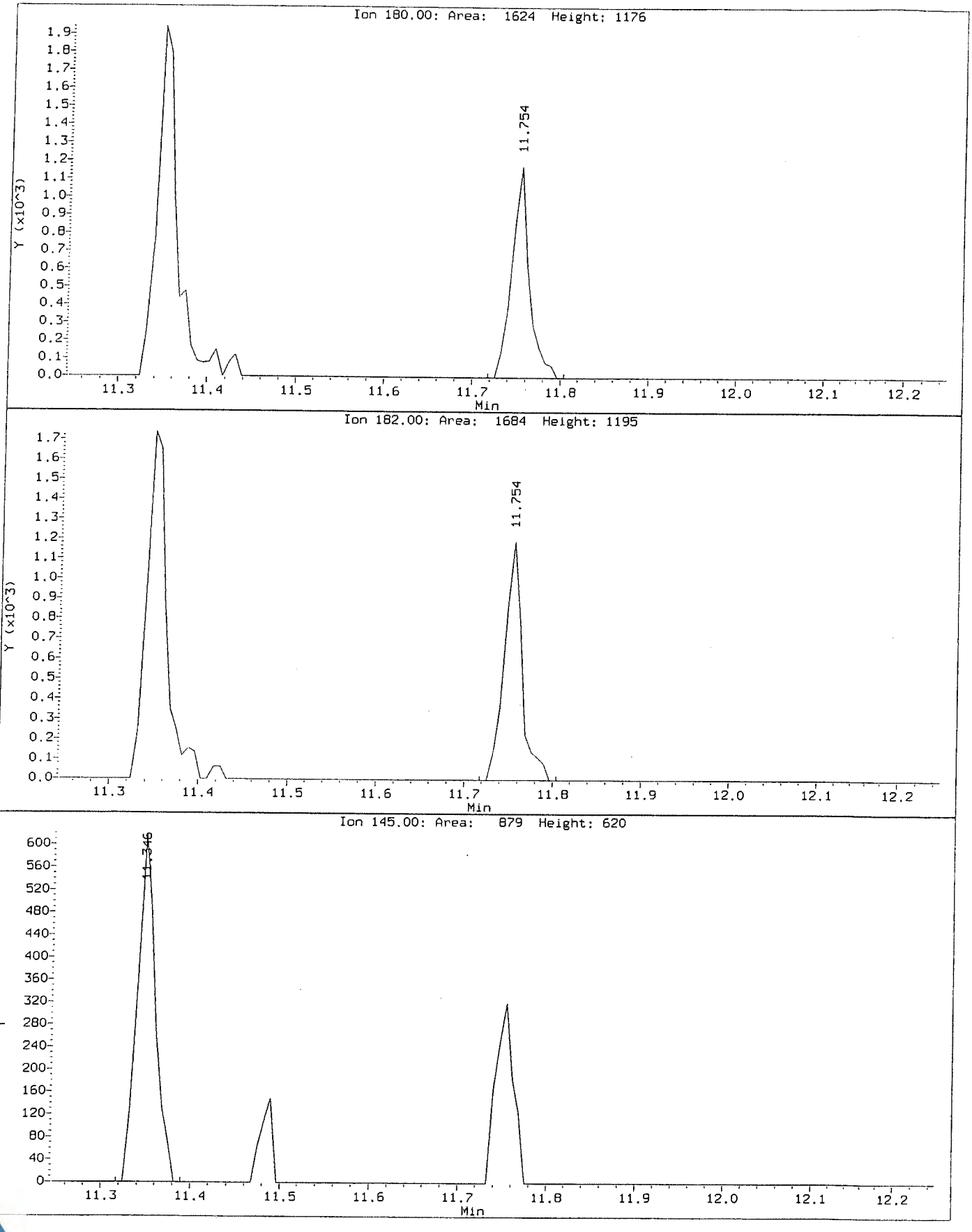






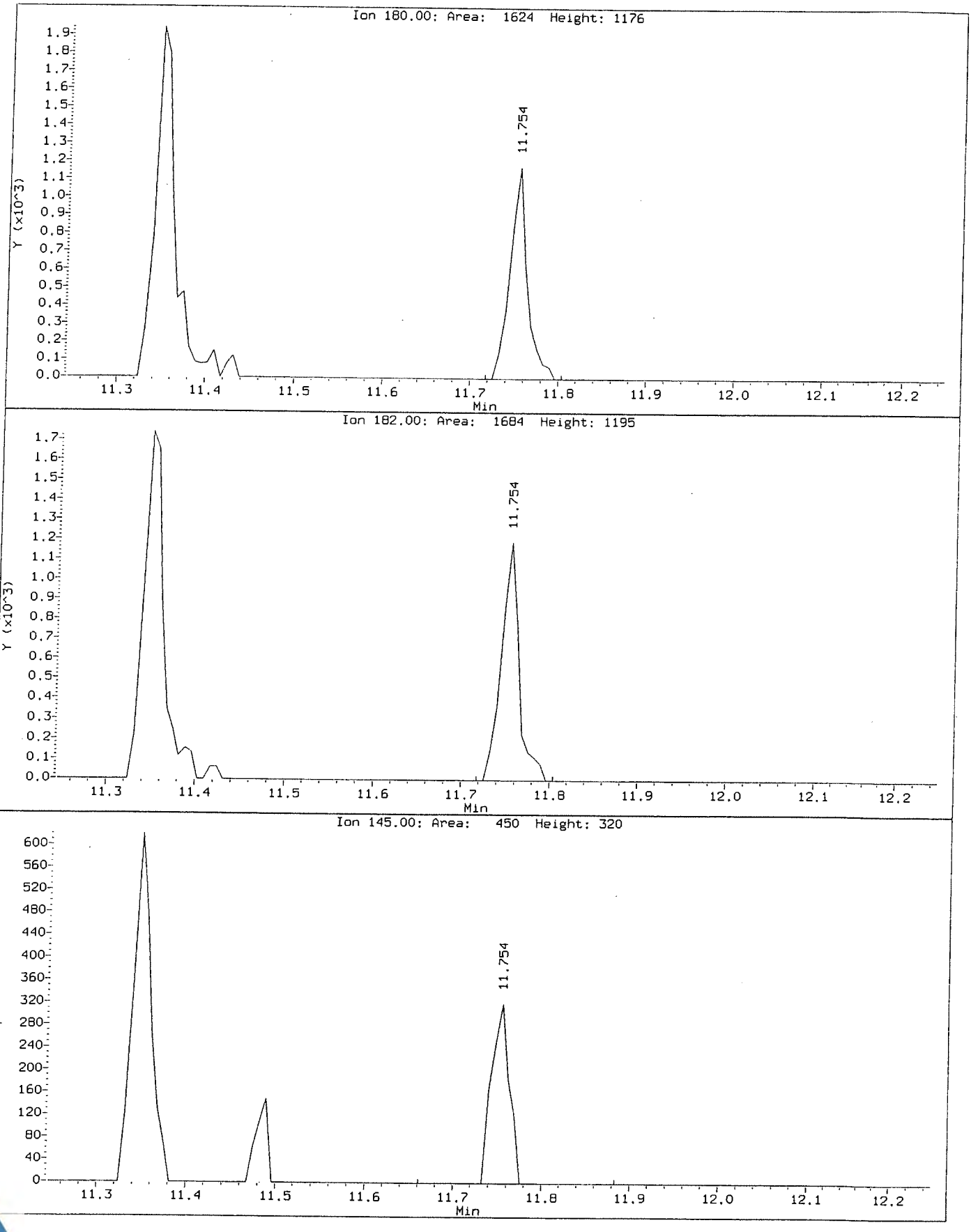
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



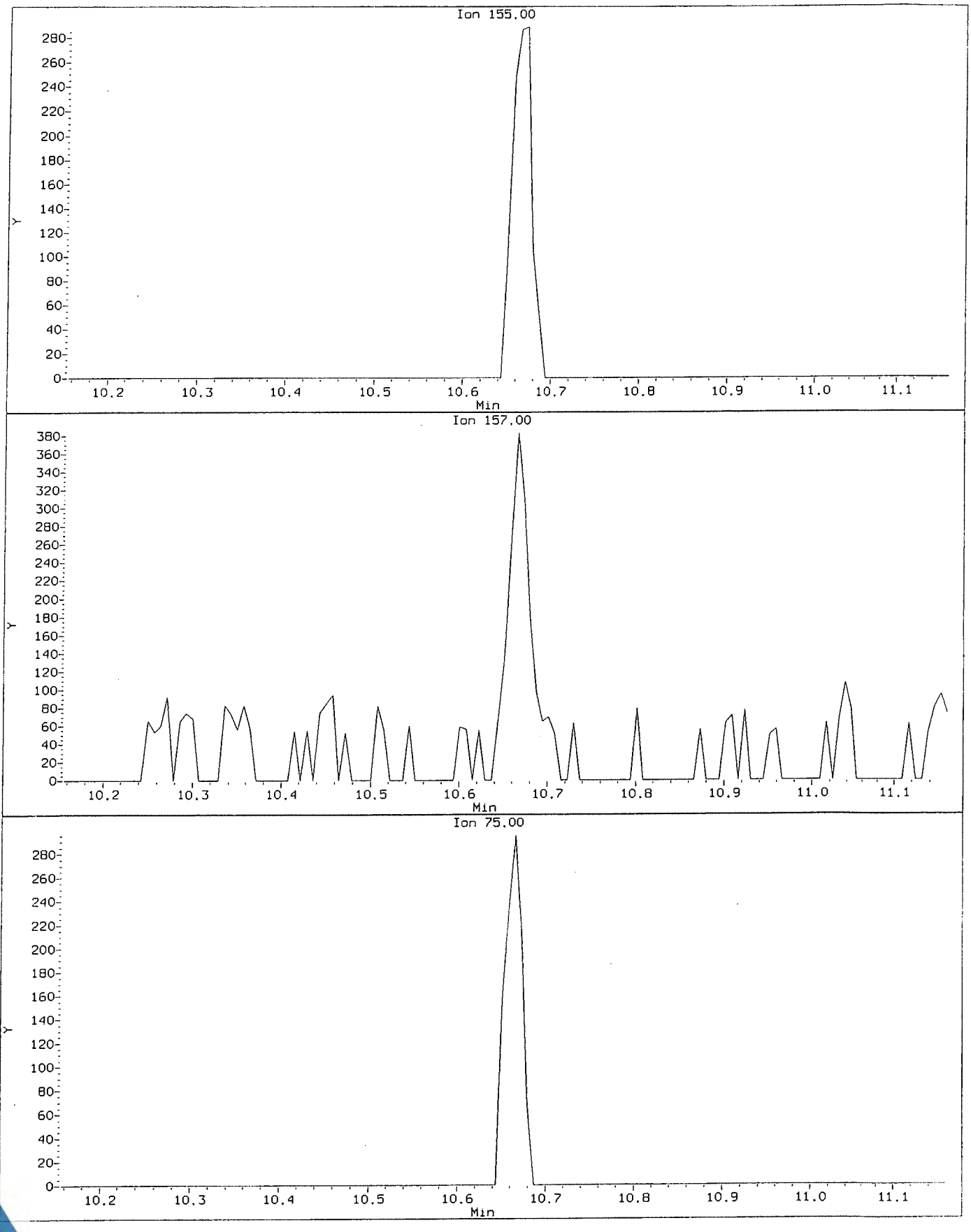
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2,3-Trichlorobenzene
CAS Number: 87-61-6



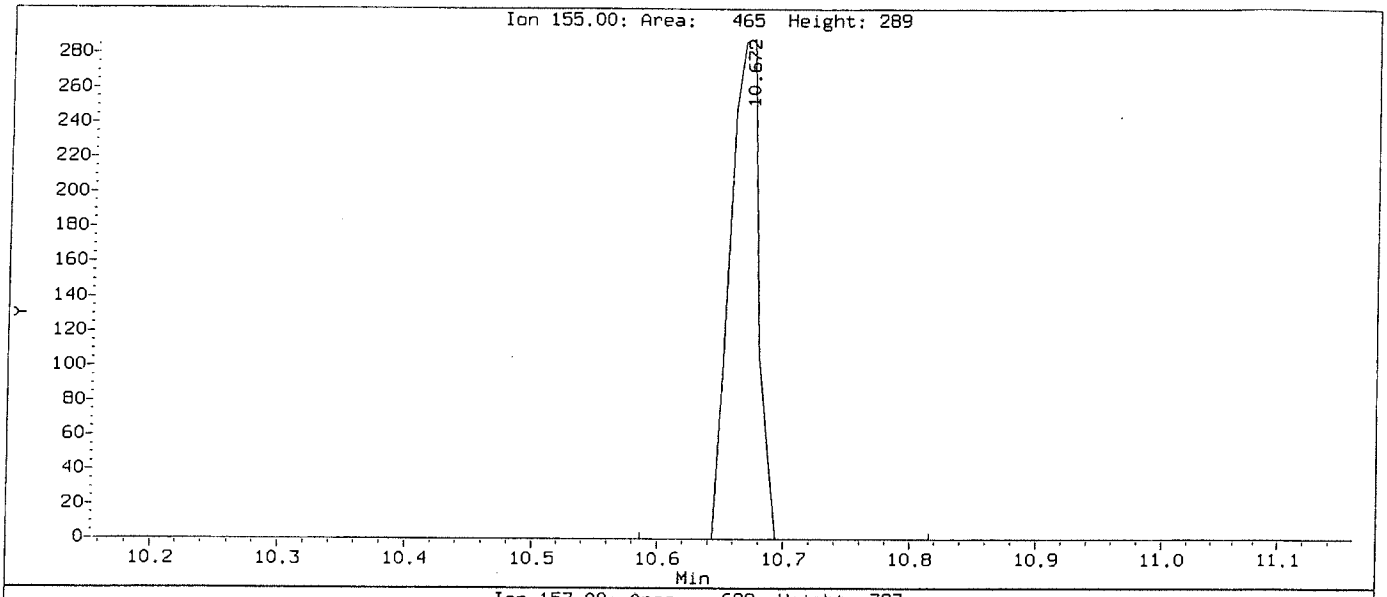
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

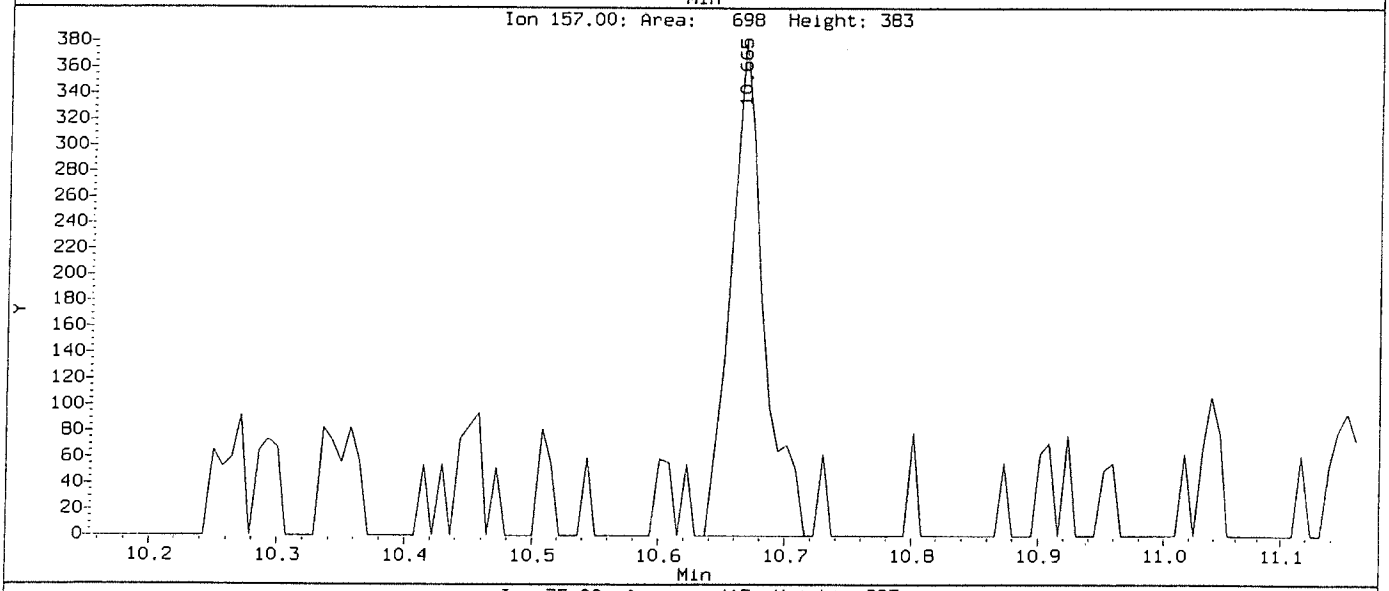
Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

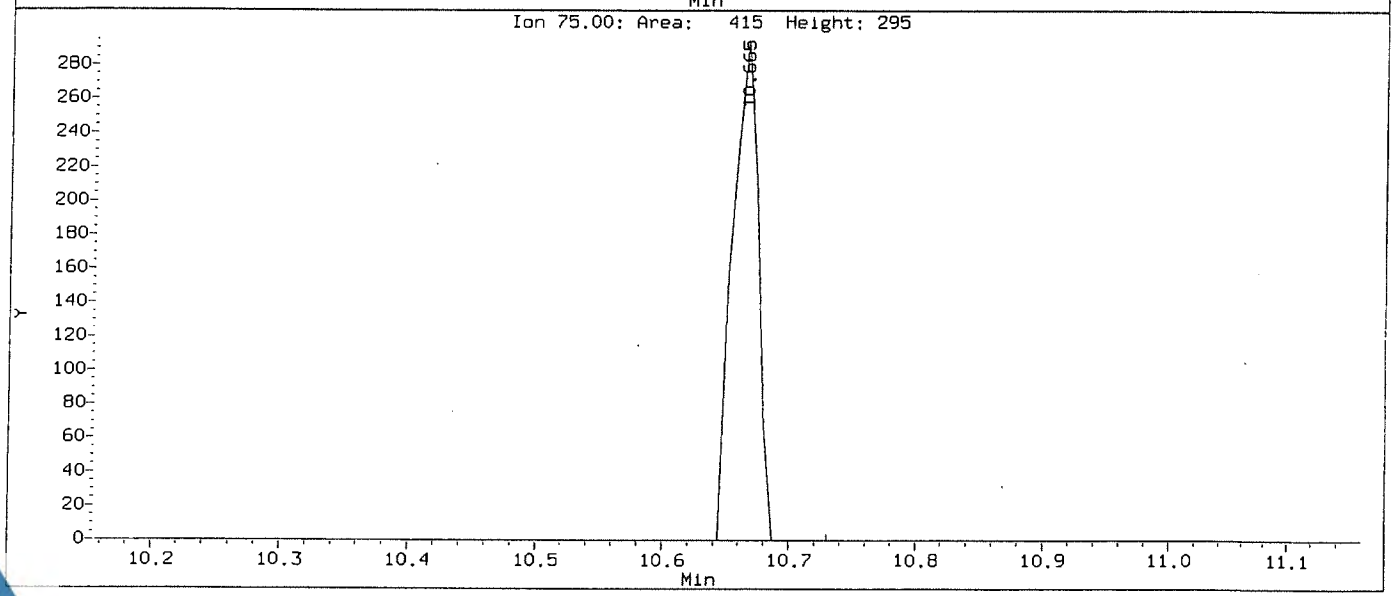


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: 1,2-Dibromo-3-Chloropropane
CAS Number: 96-12-8

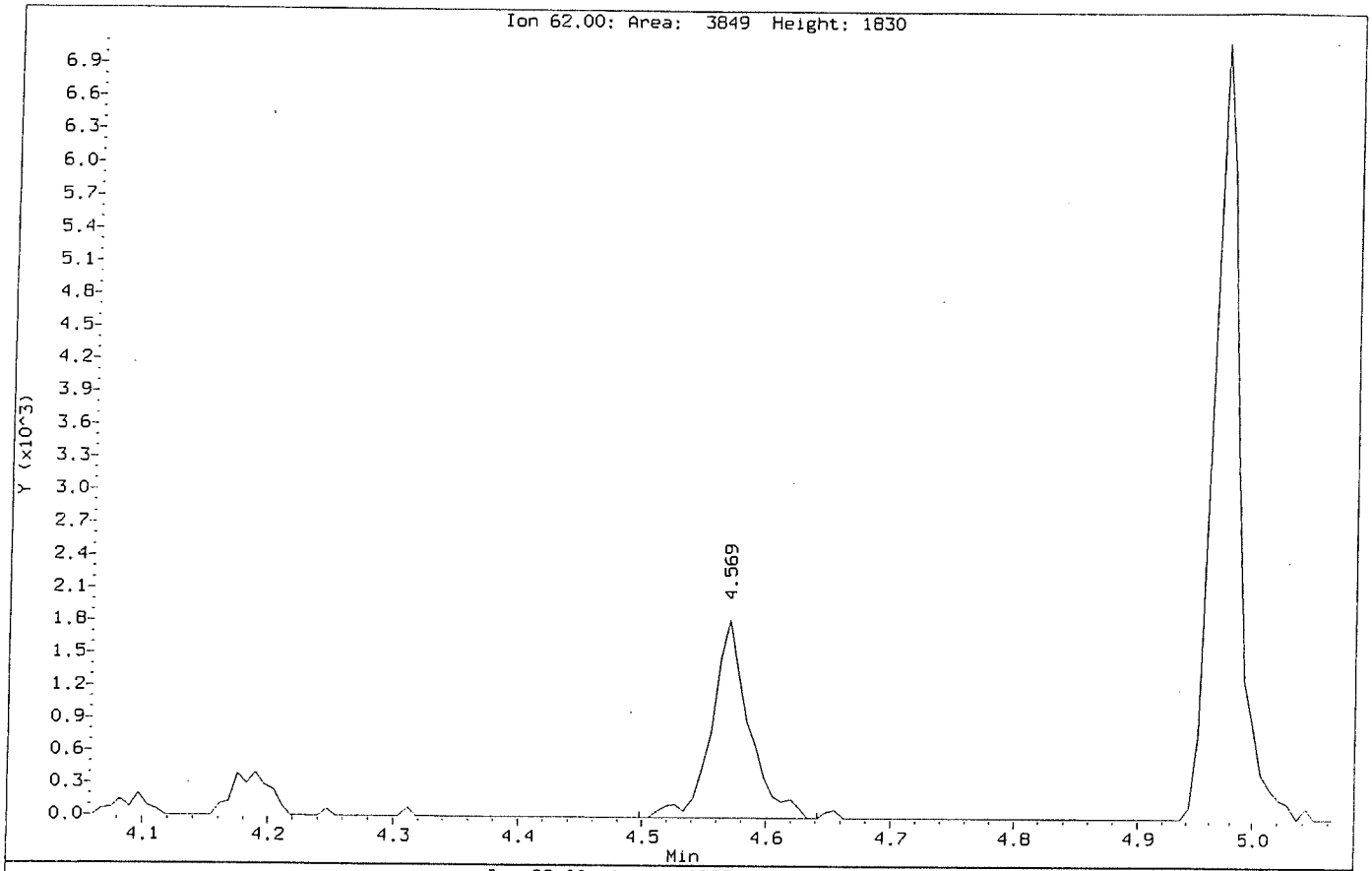


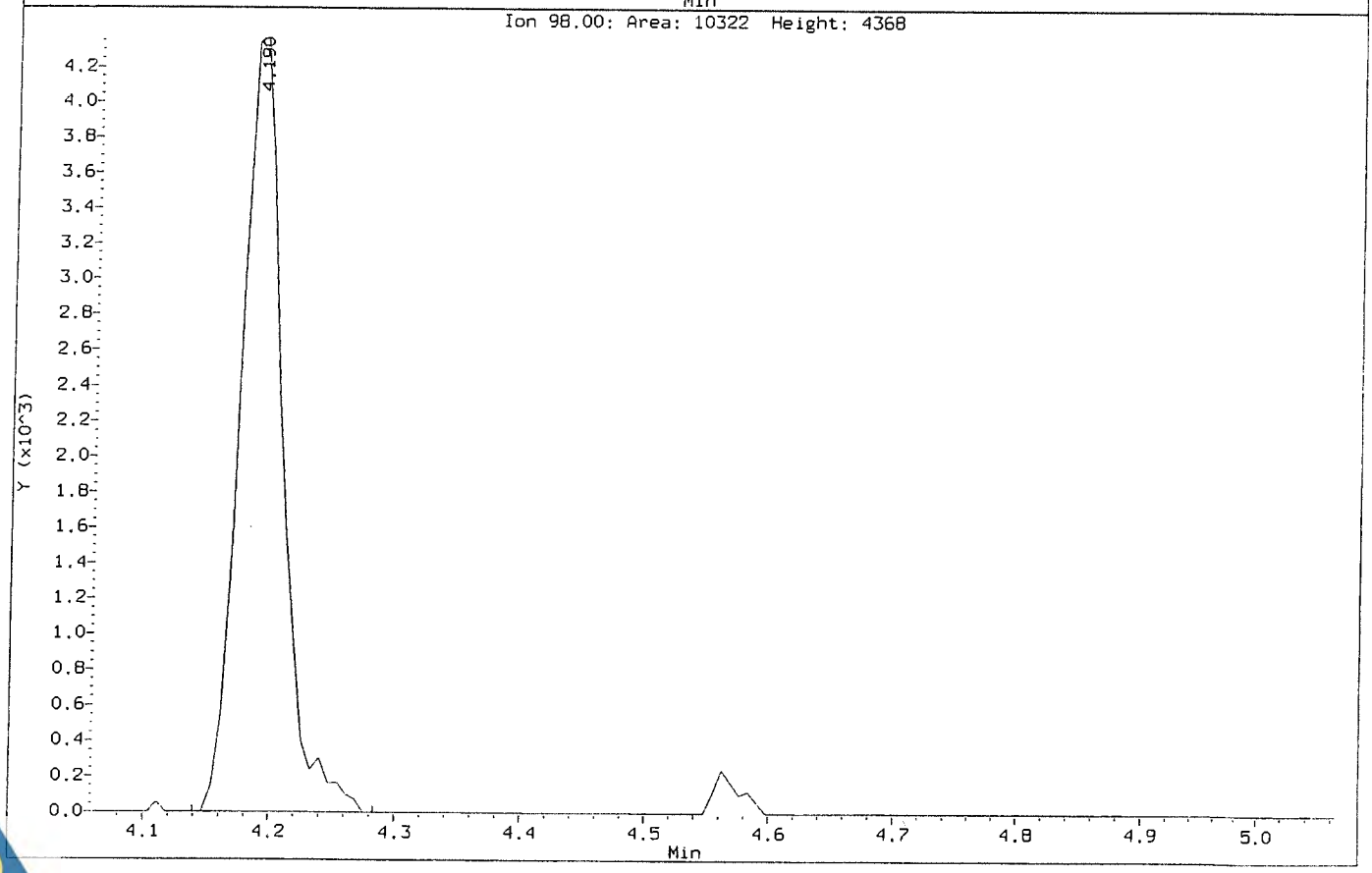




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

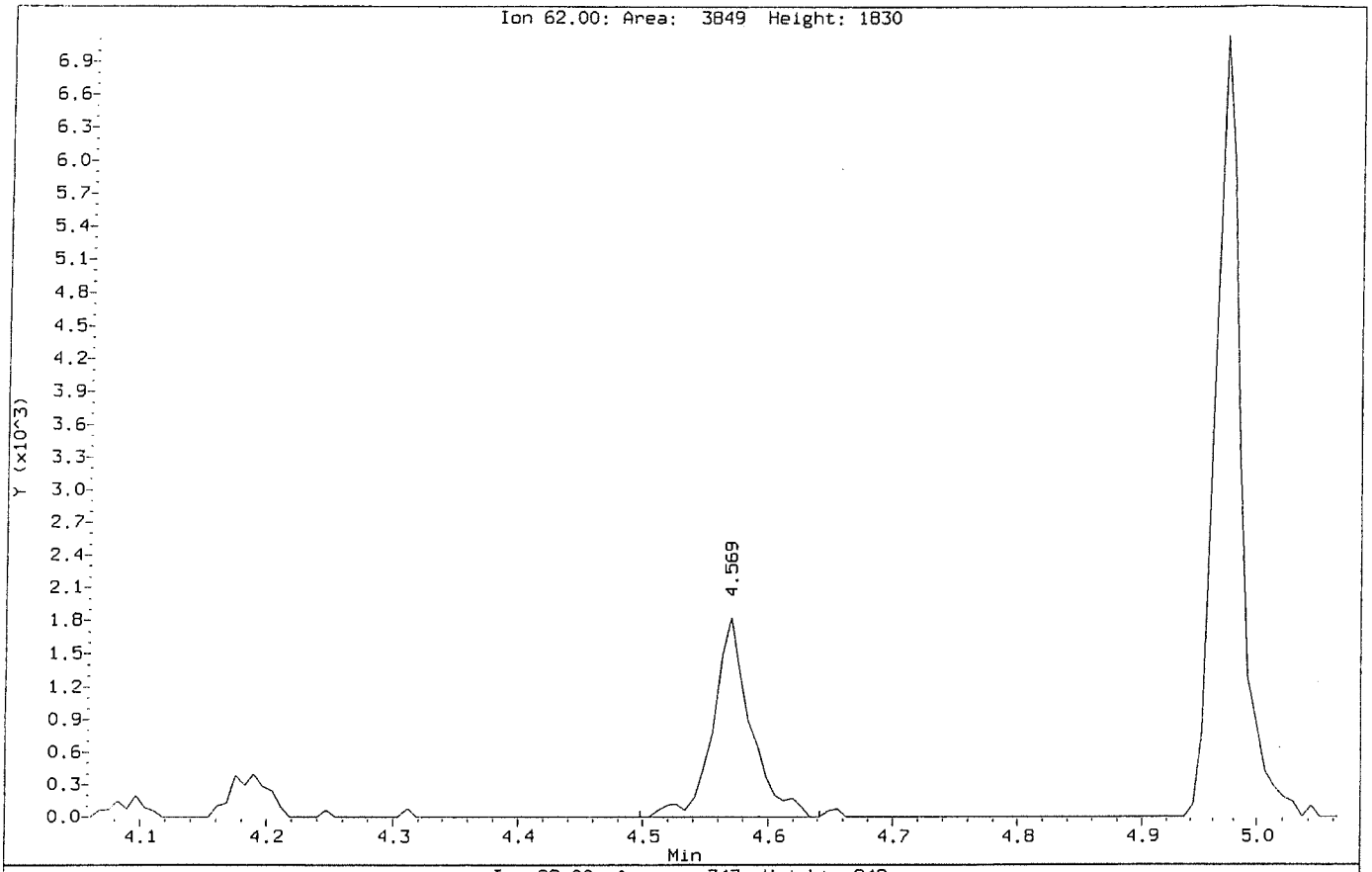
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2

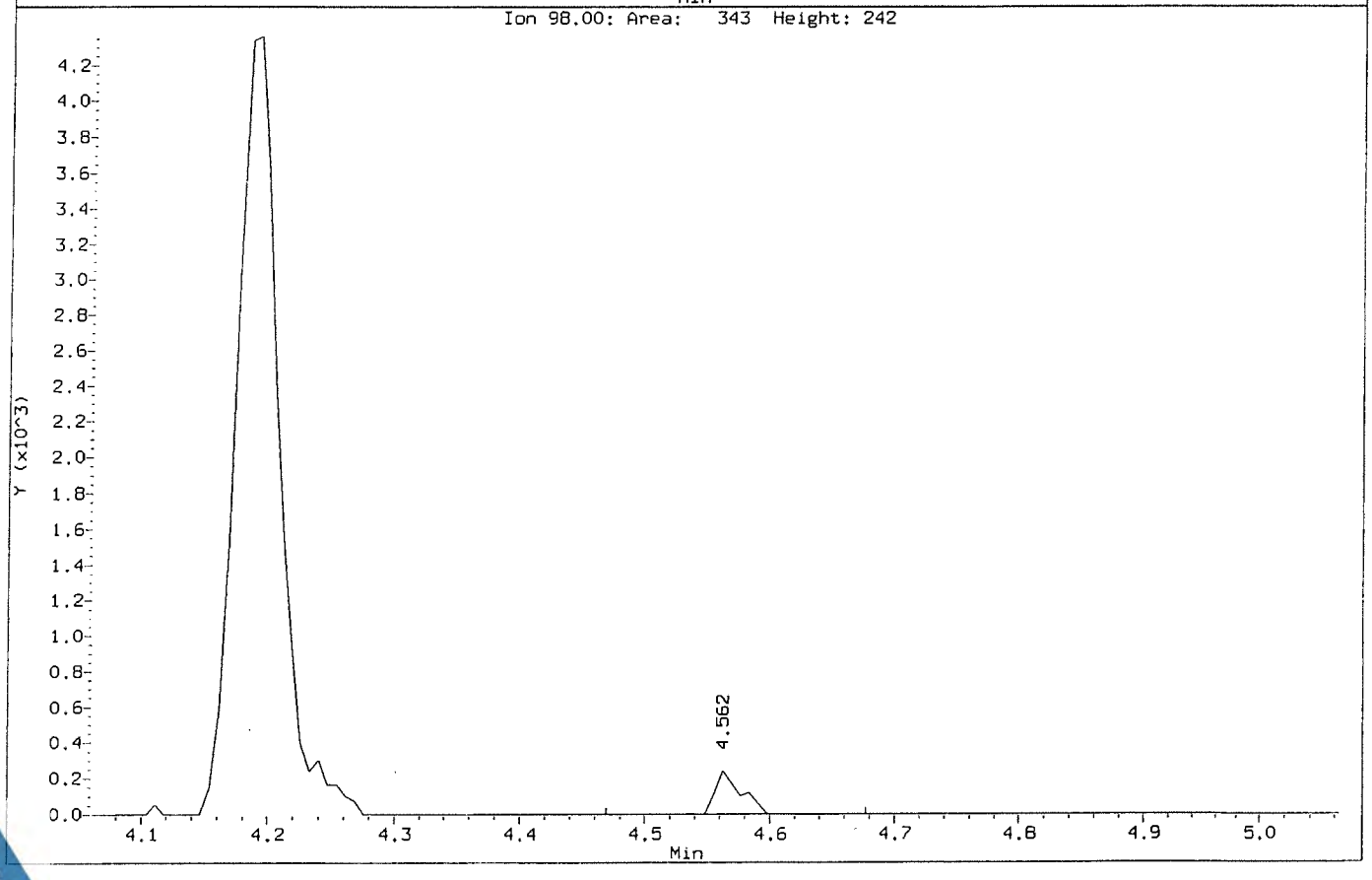




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

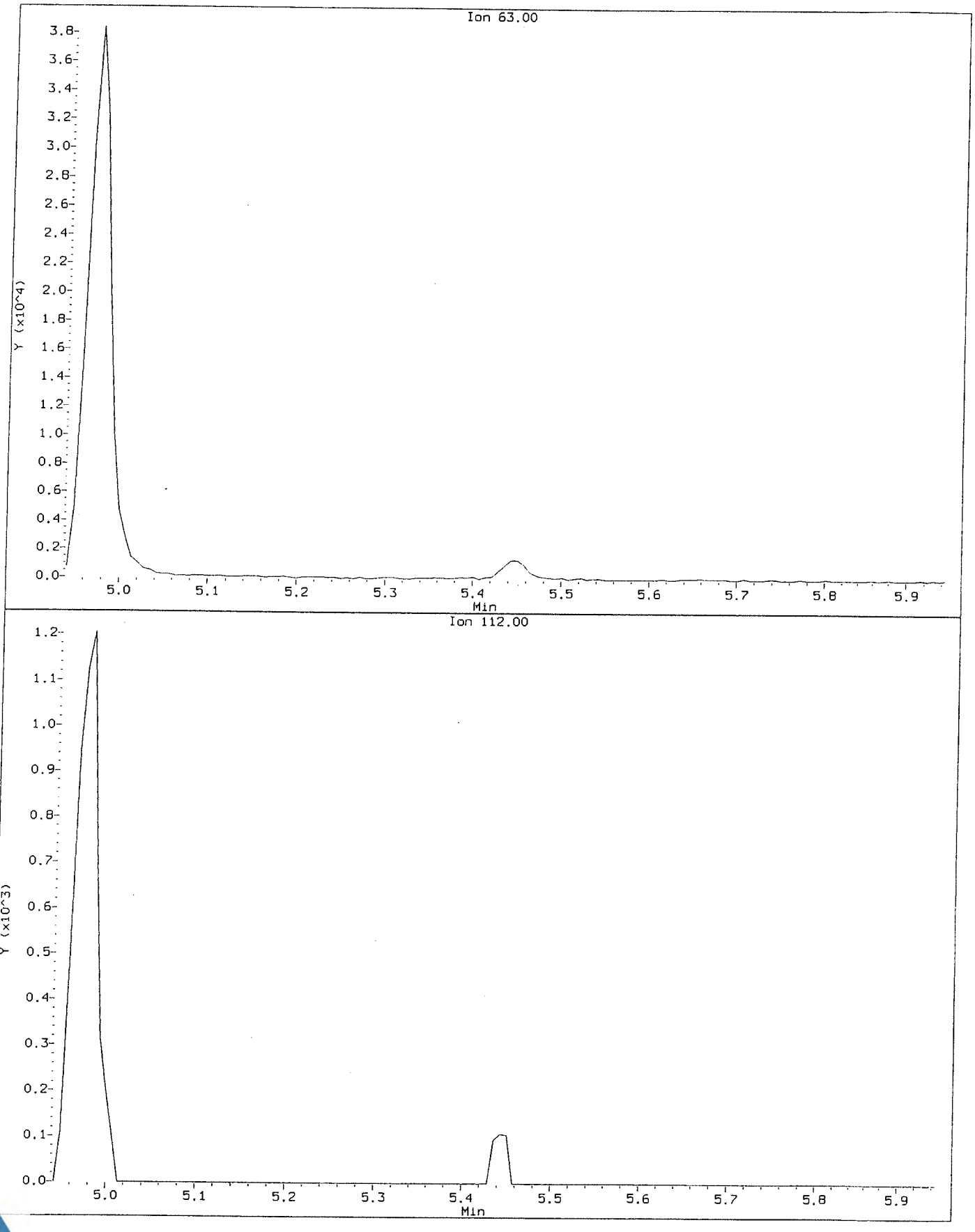
Compound: 1,2-Dichloroethane
CAS Number: 107-06-2





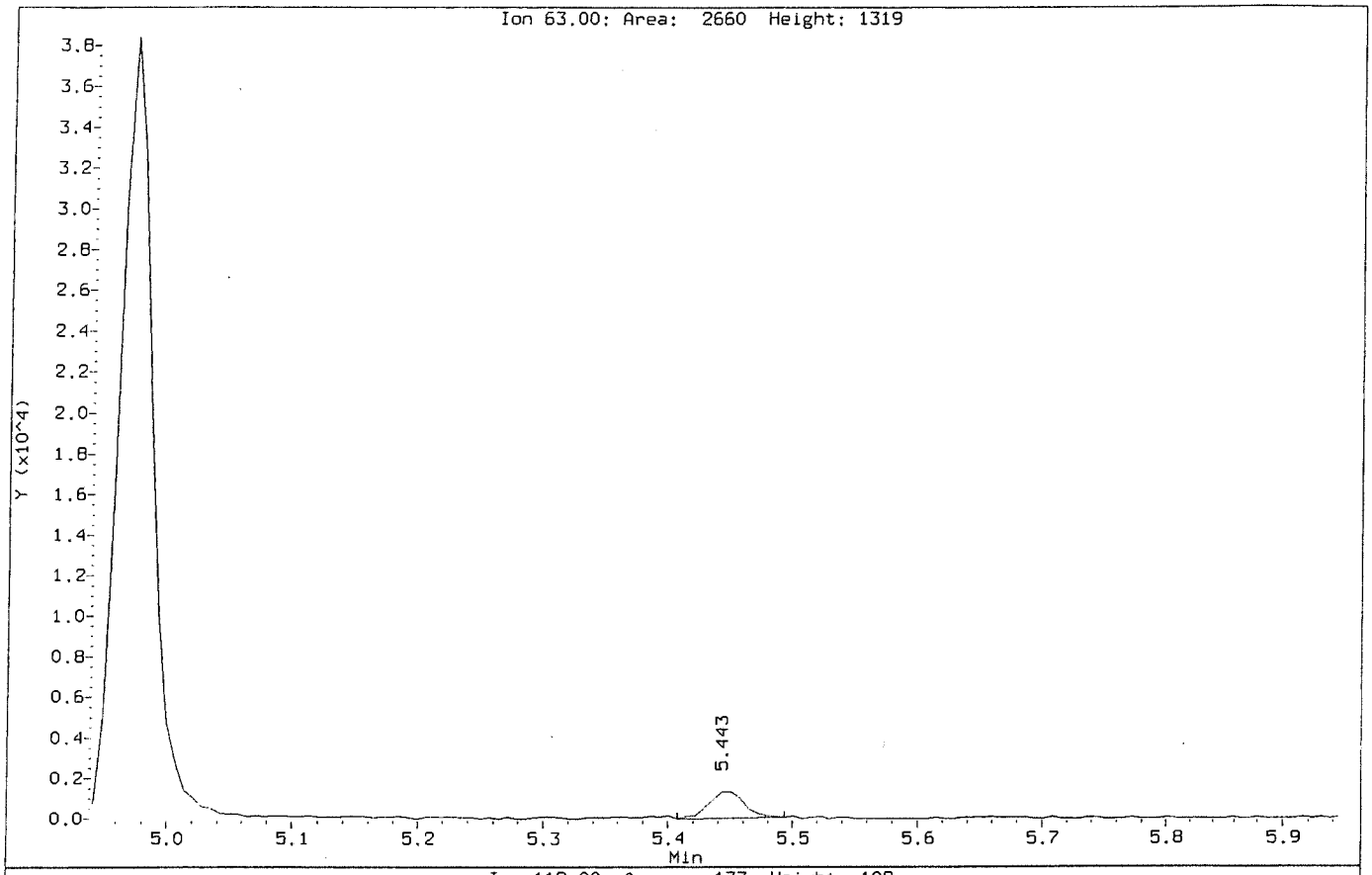
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

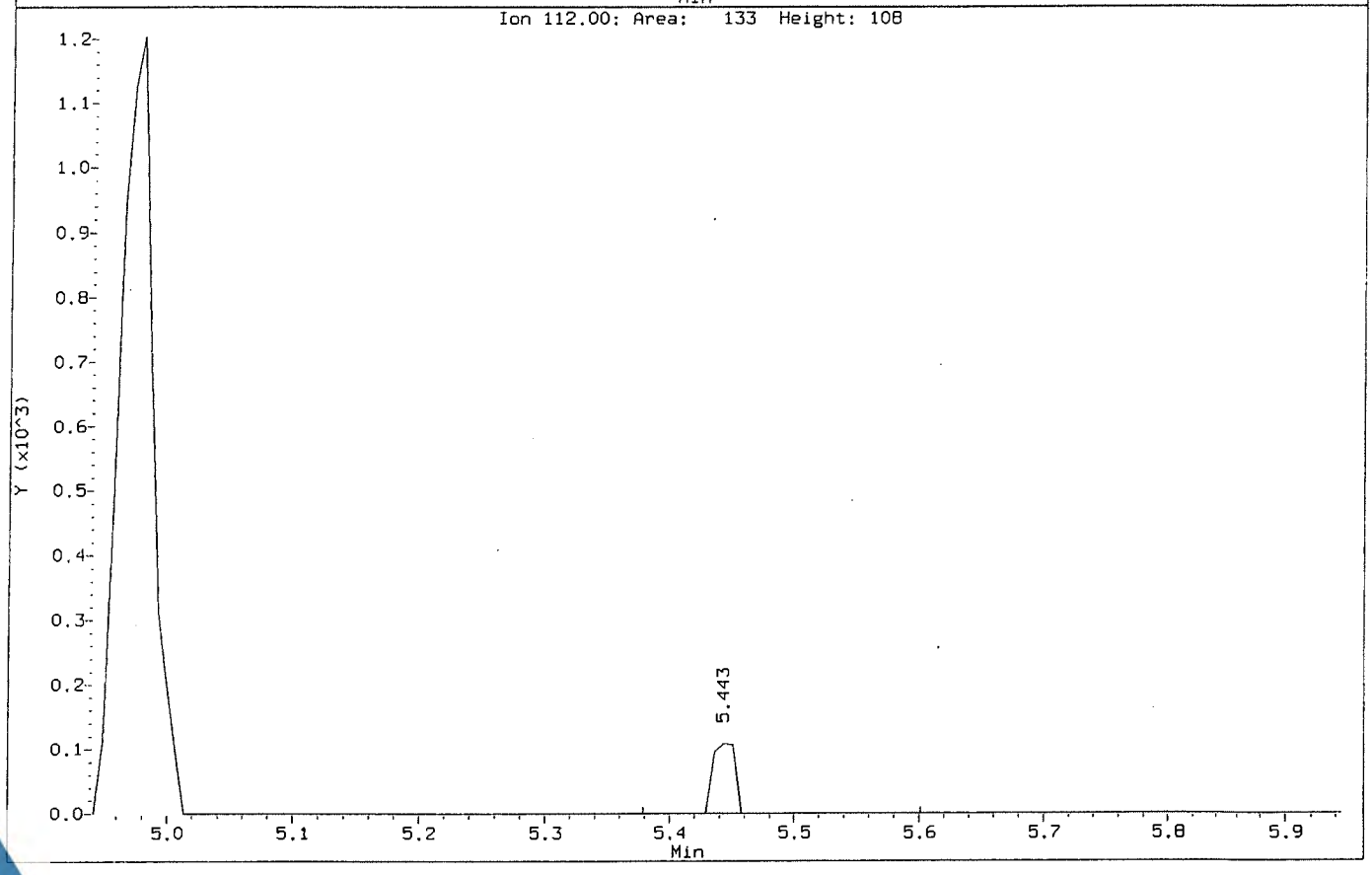
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

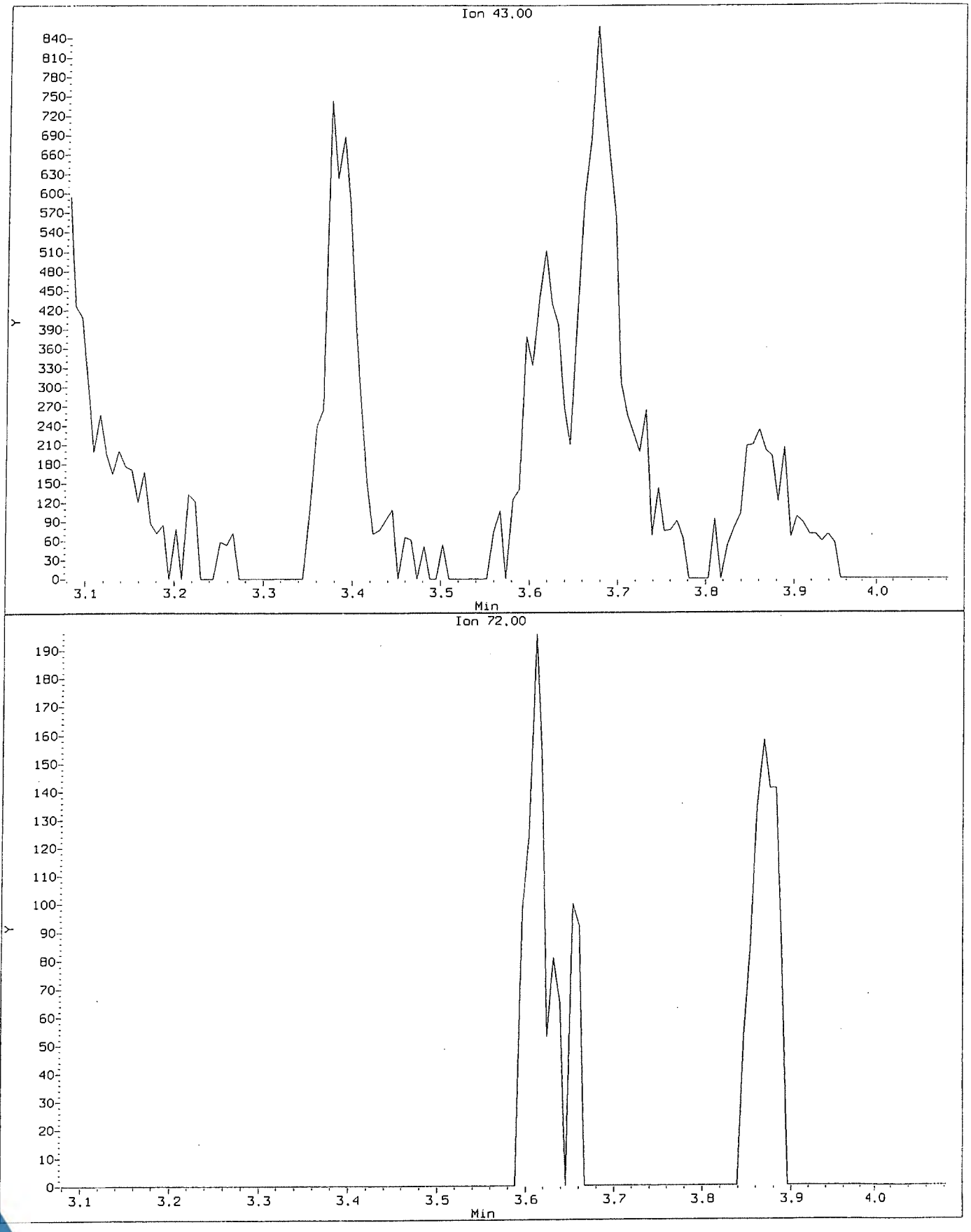
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





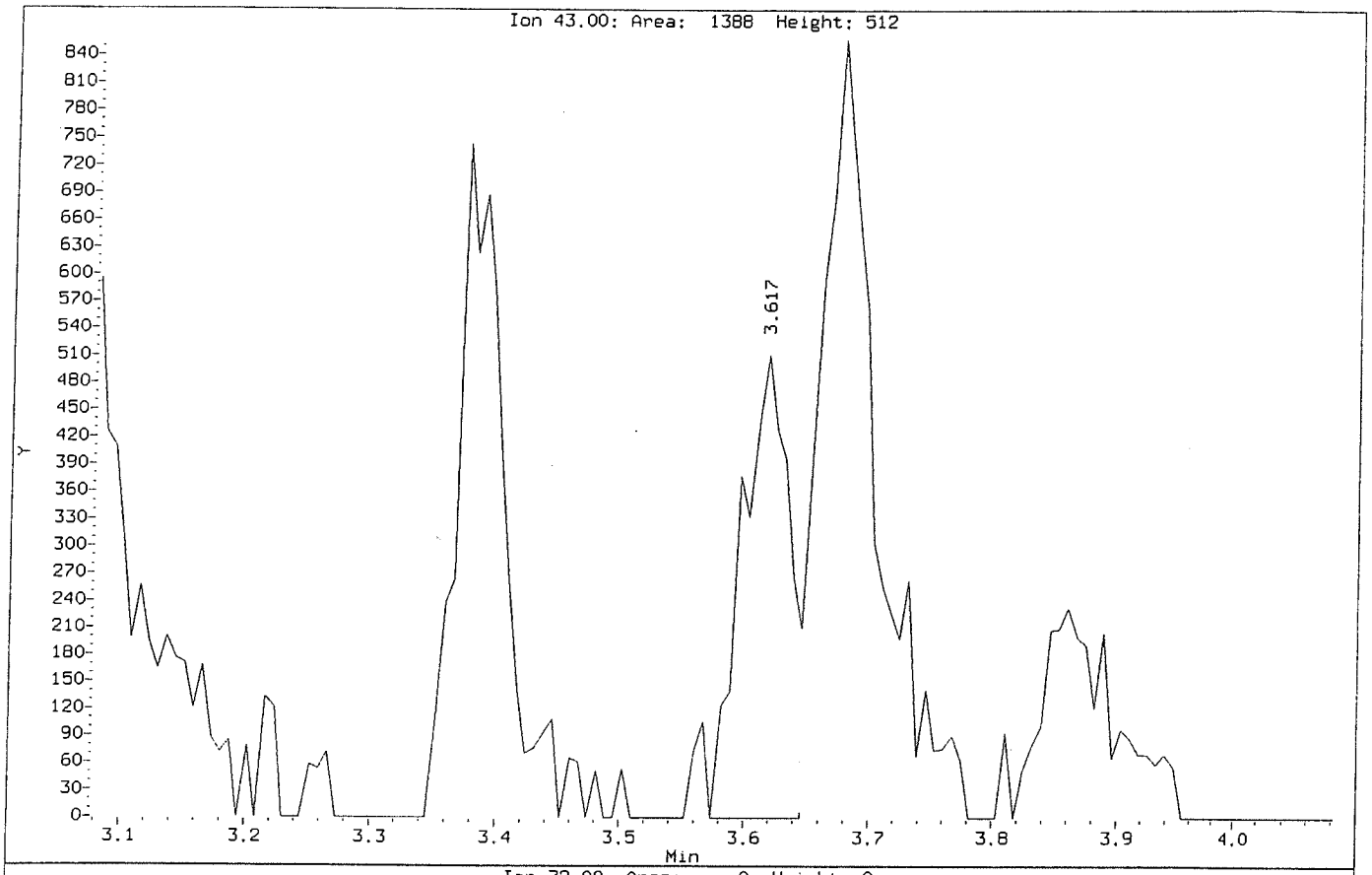
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

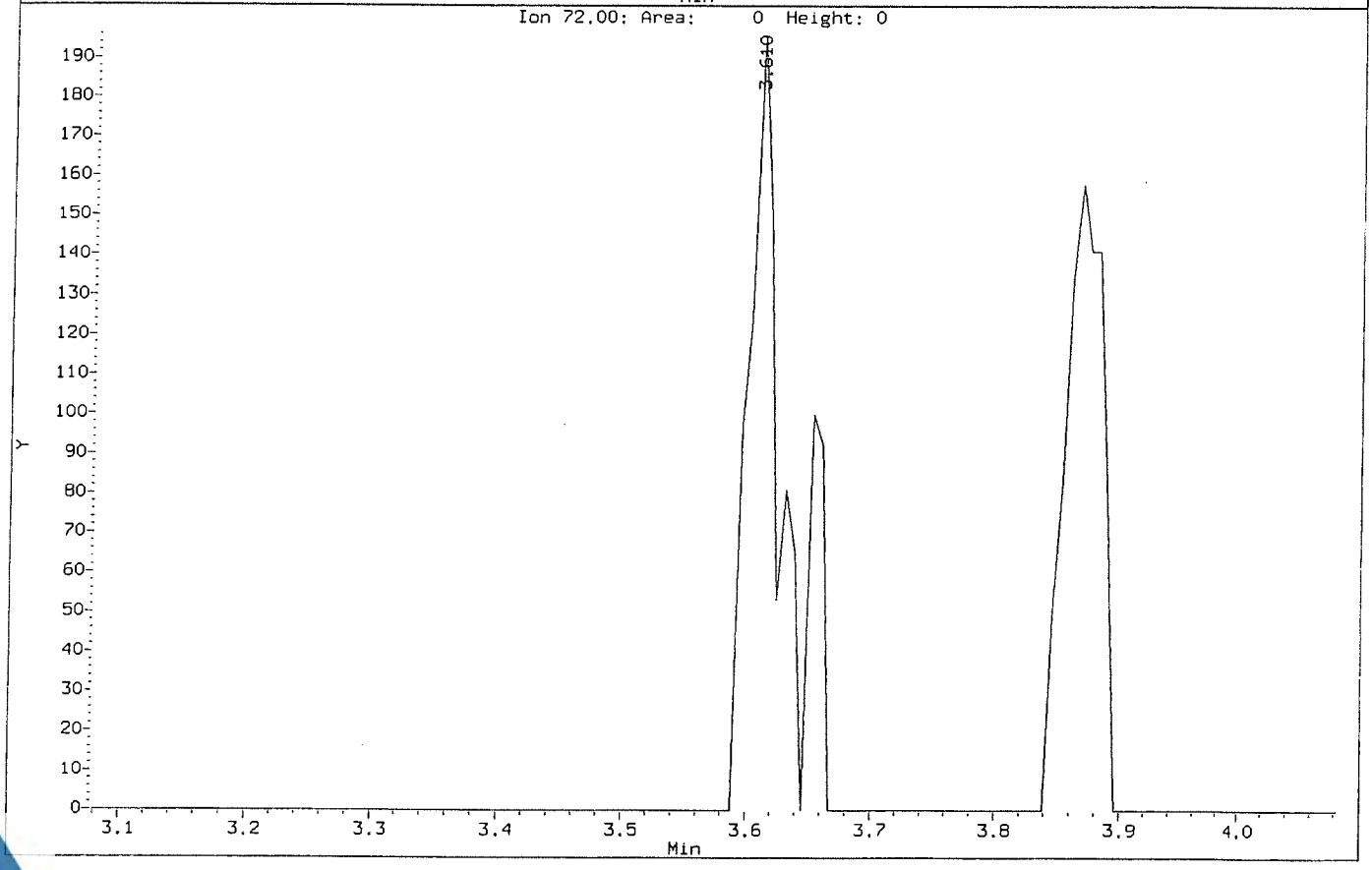
Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

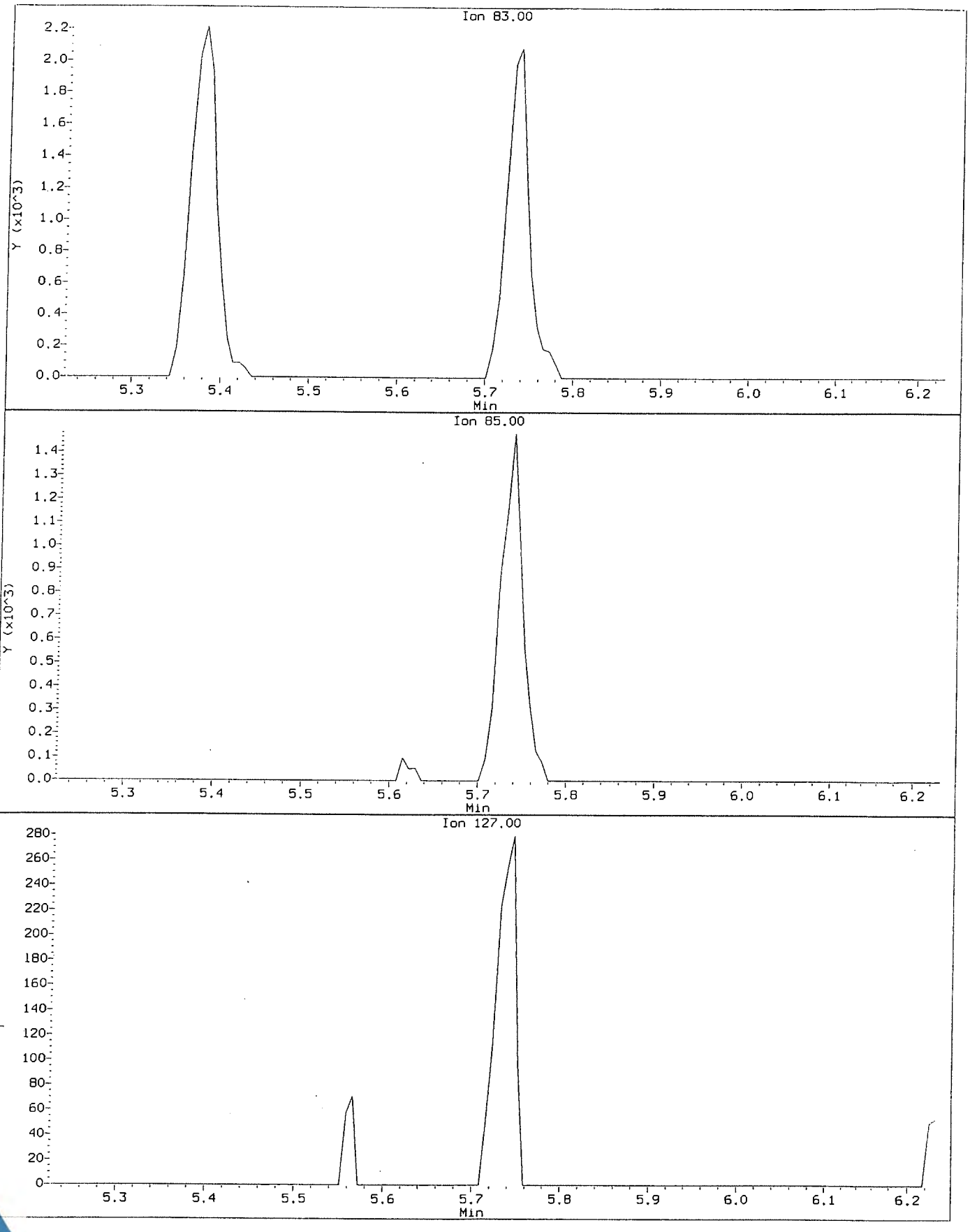
Compound: 2-Butanone
CAS Number: 78-93-3





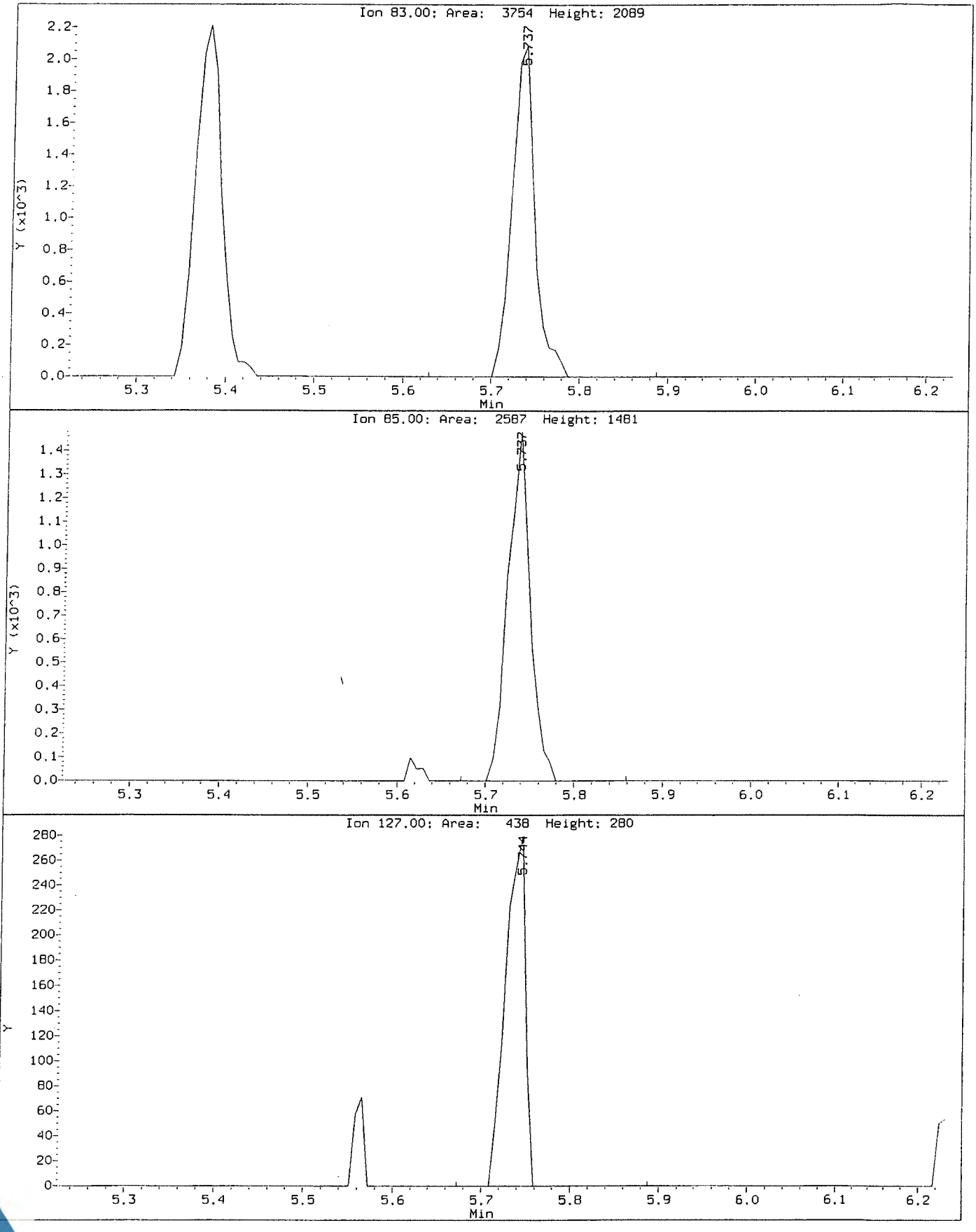
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Bromodichloromethane
CAS Number: 75-27-4



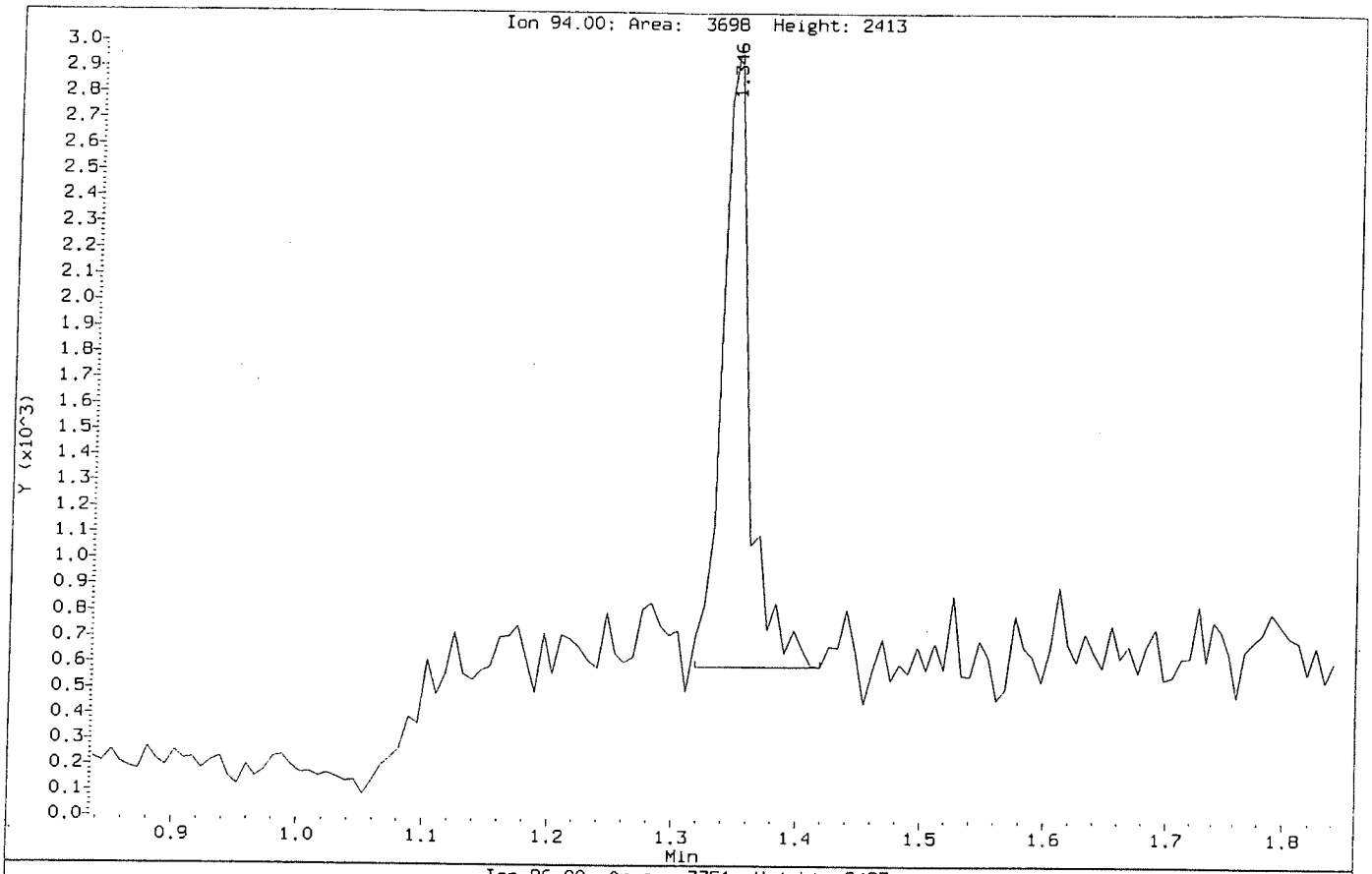
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

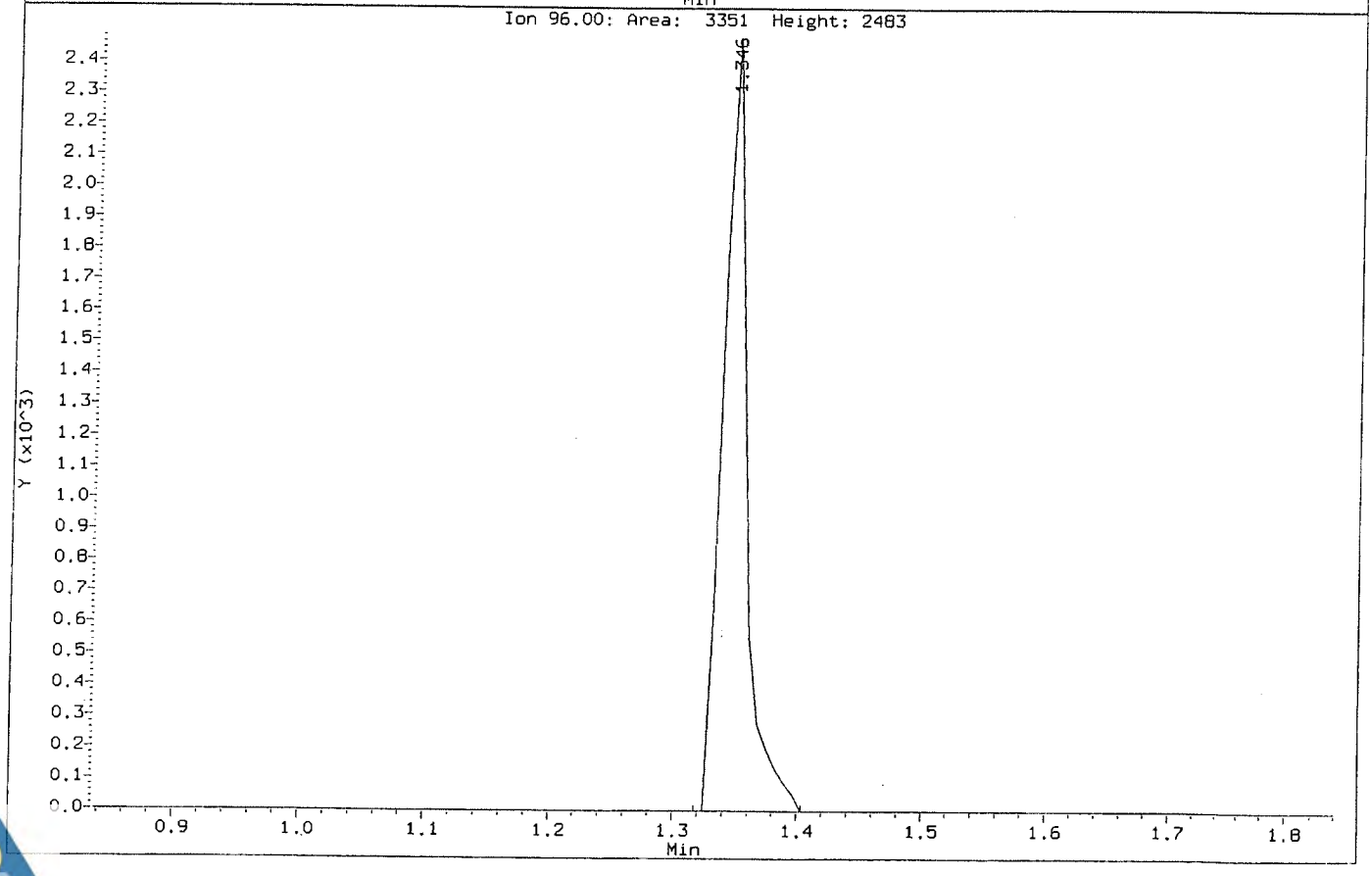
Compound: Bromodichloromethane
CAS Number: 75-27-4



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

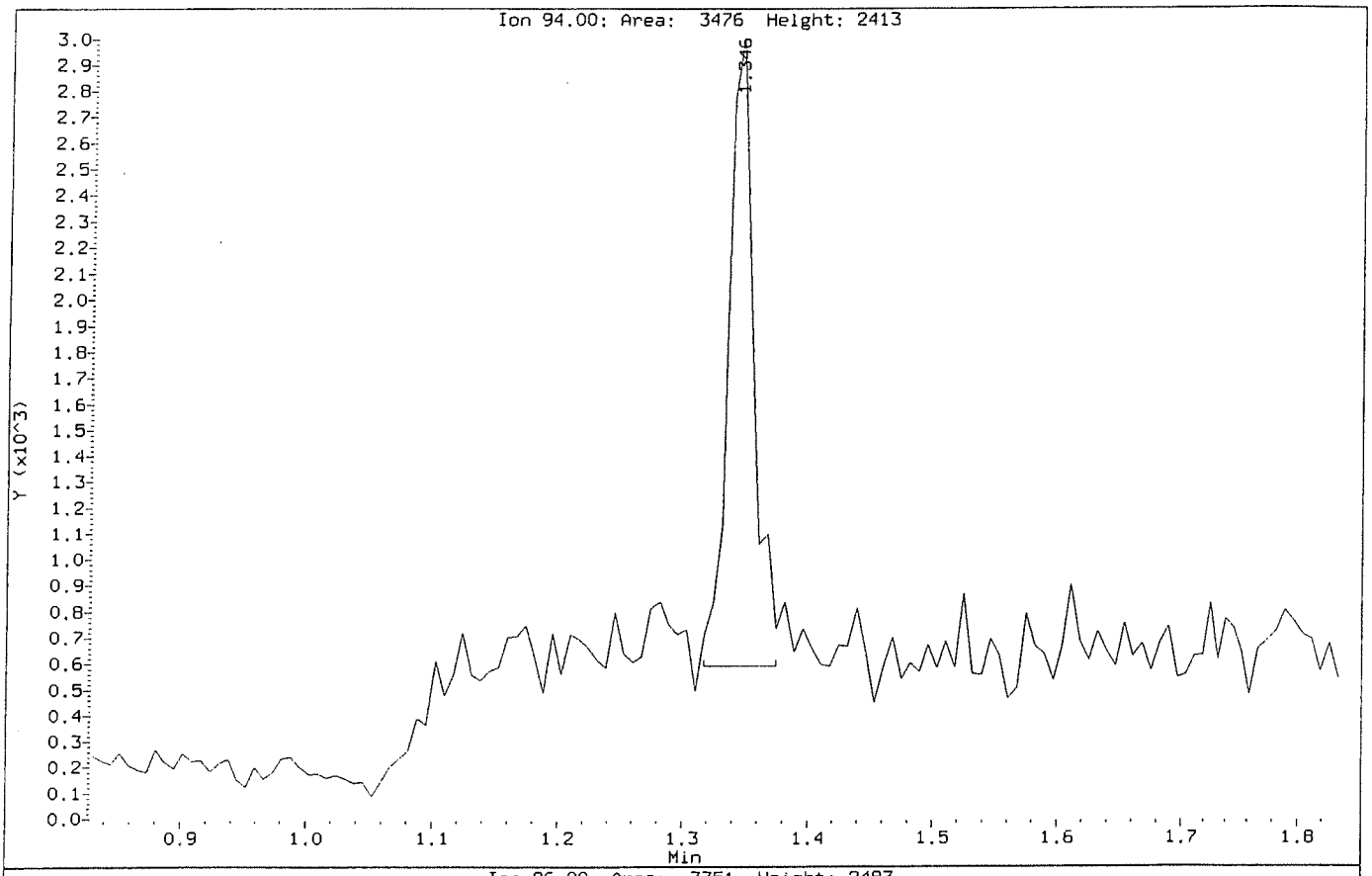
Compound: Bromomethane
CAS Number: 74-83-9

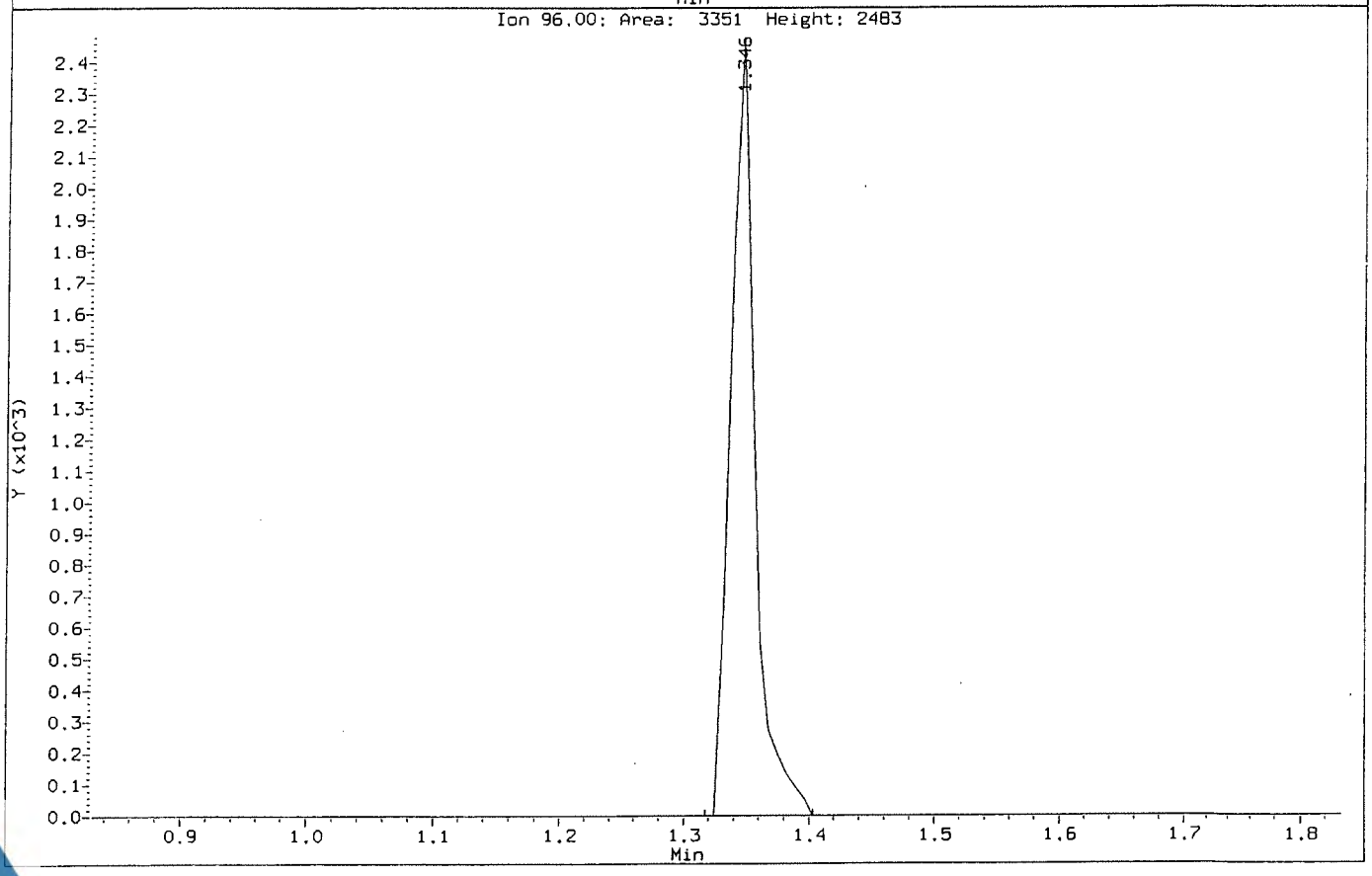




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

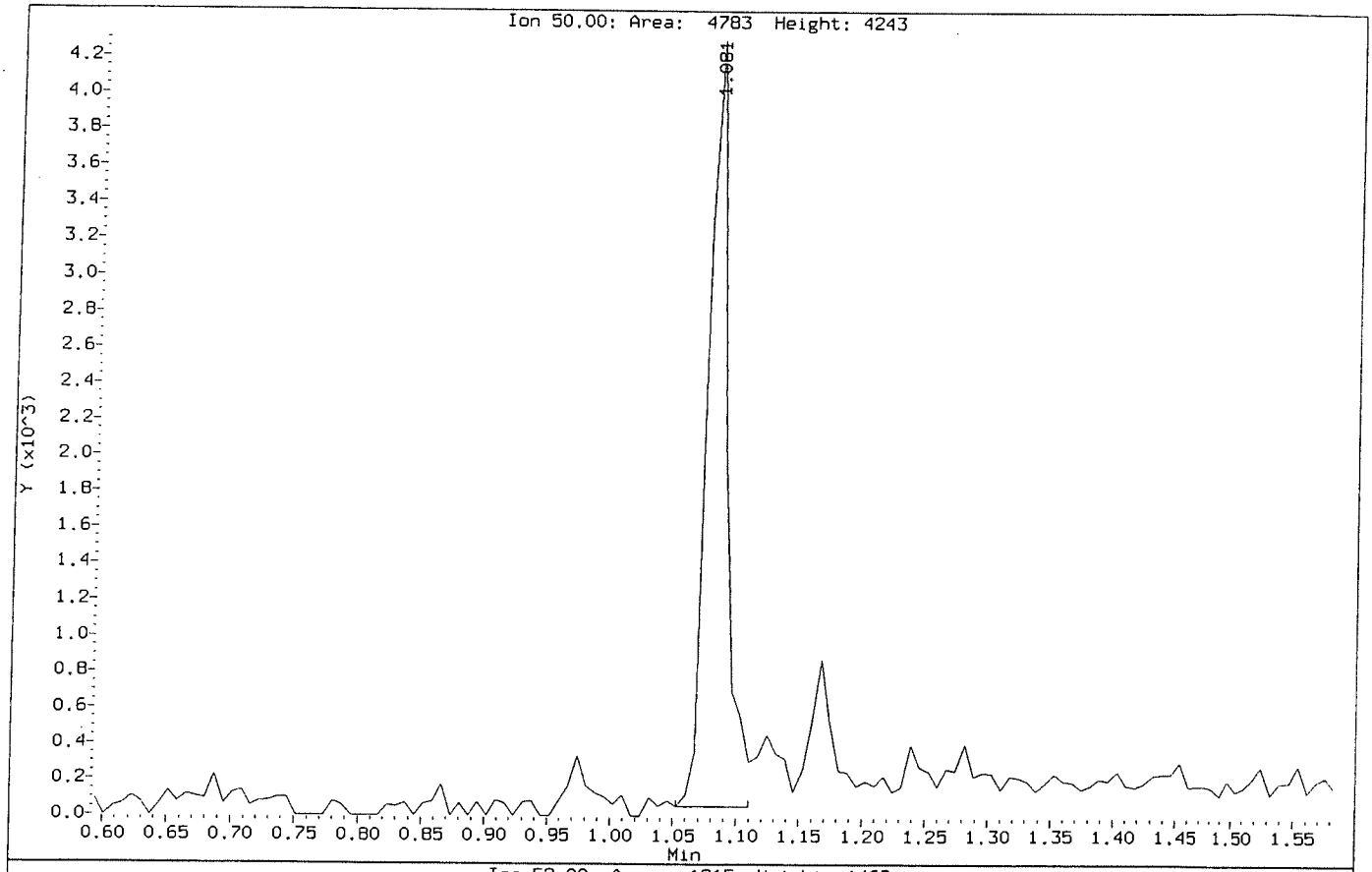
Compound: Bromomethane
CAS Number: 74-83-9

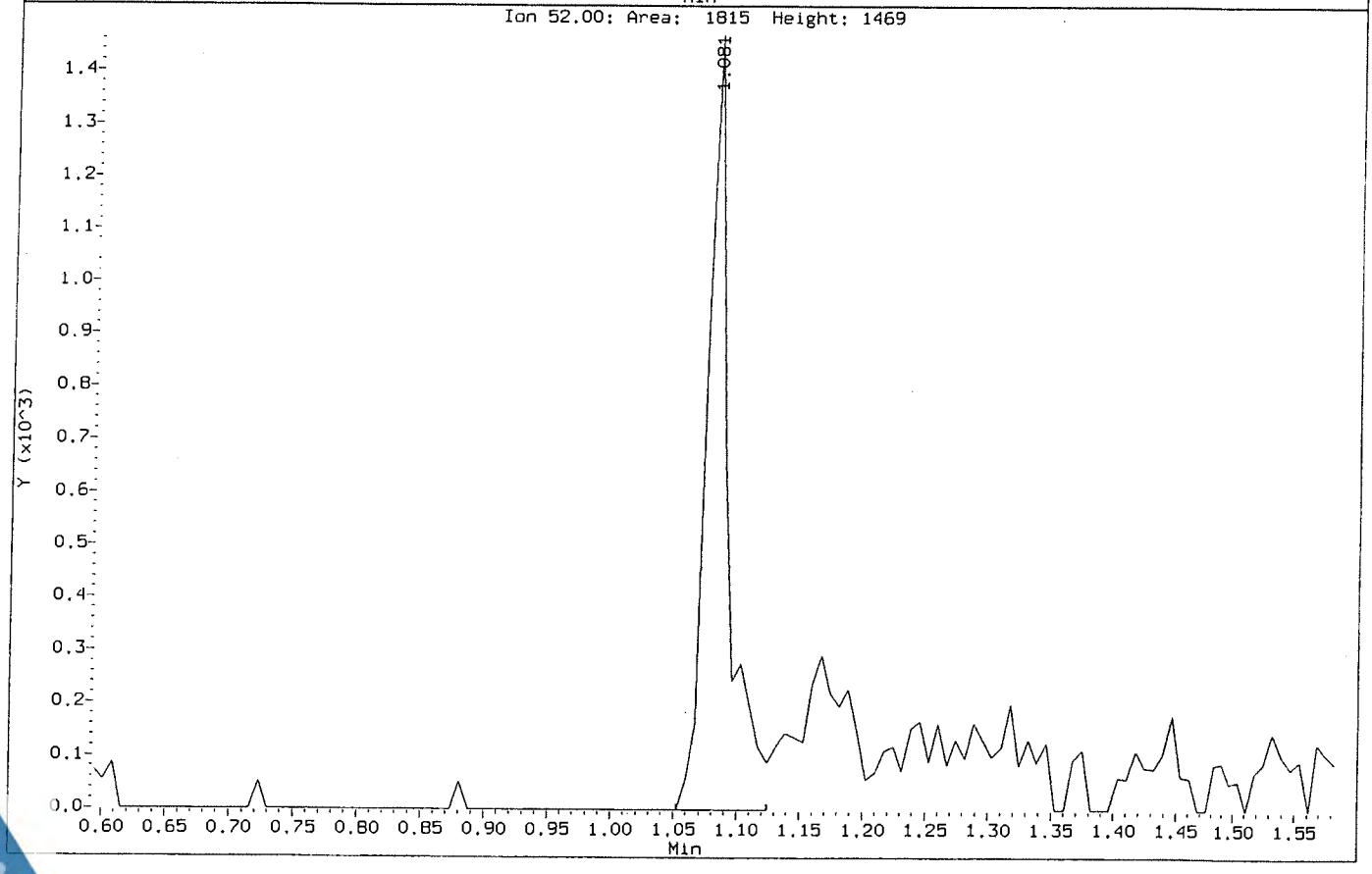




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

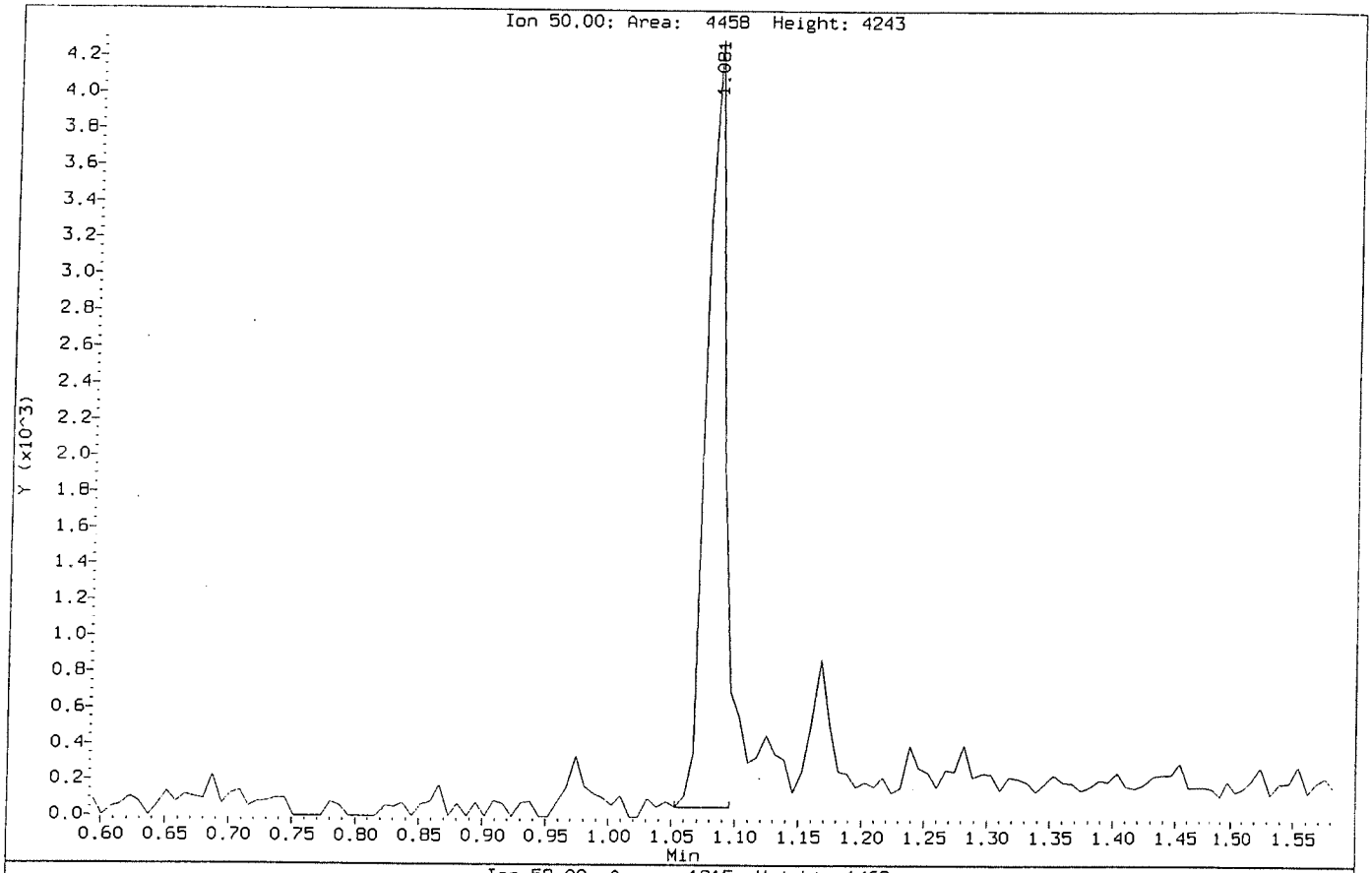
Compound: Chloromethane
CAS Number: 74-87-3

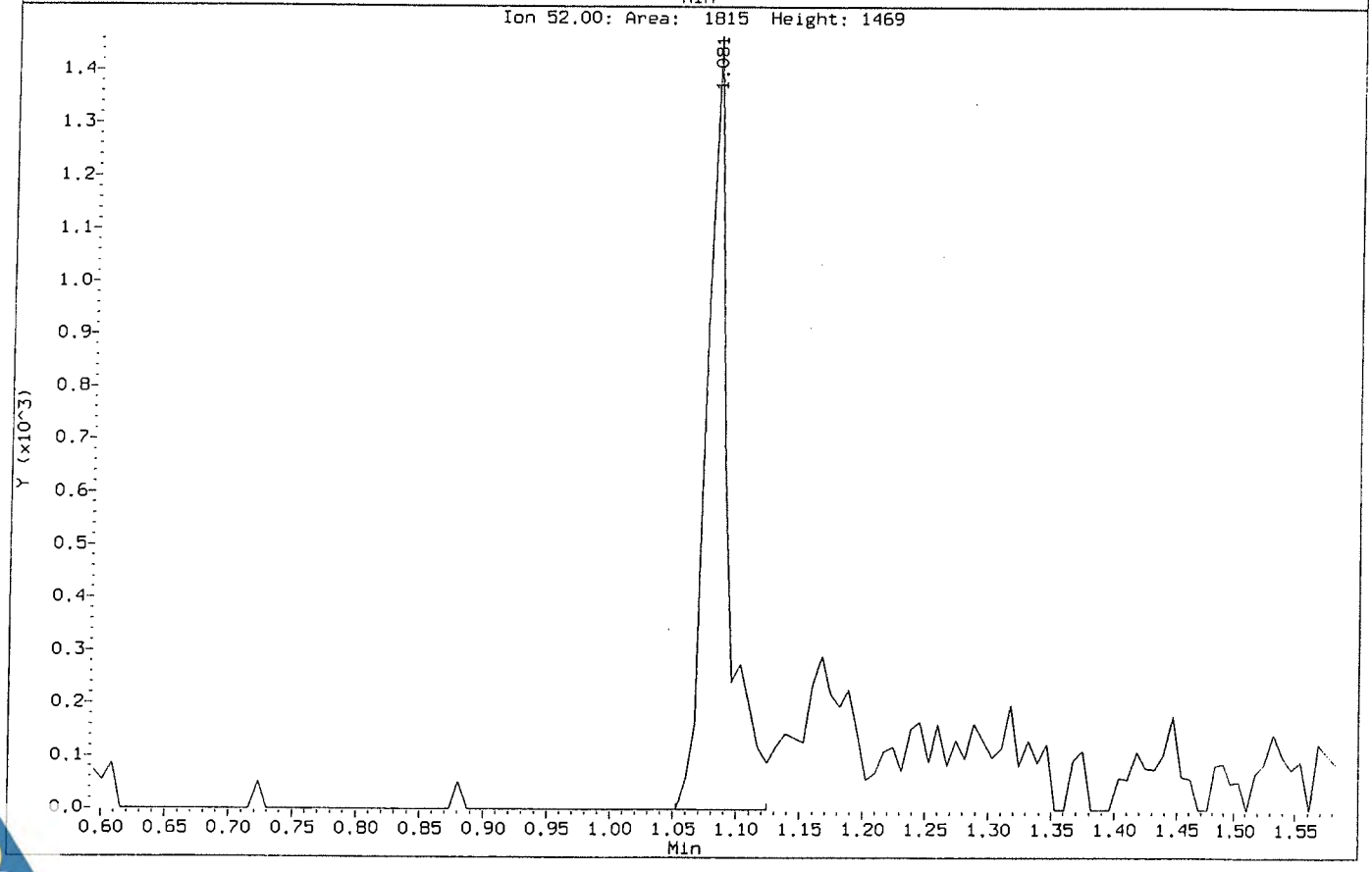




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

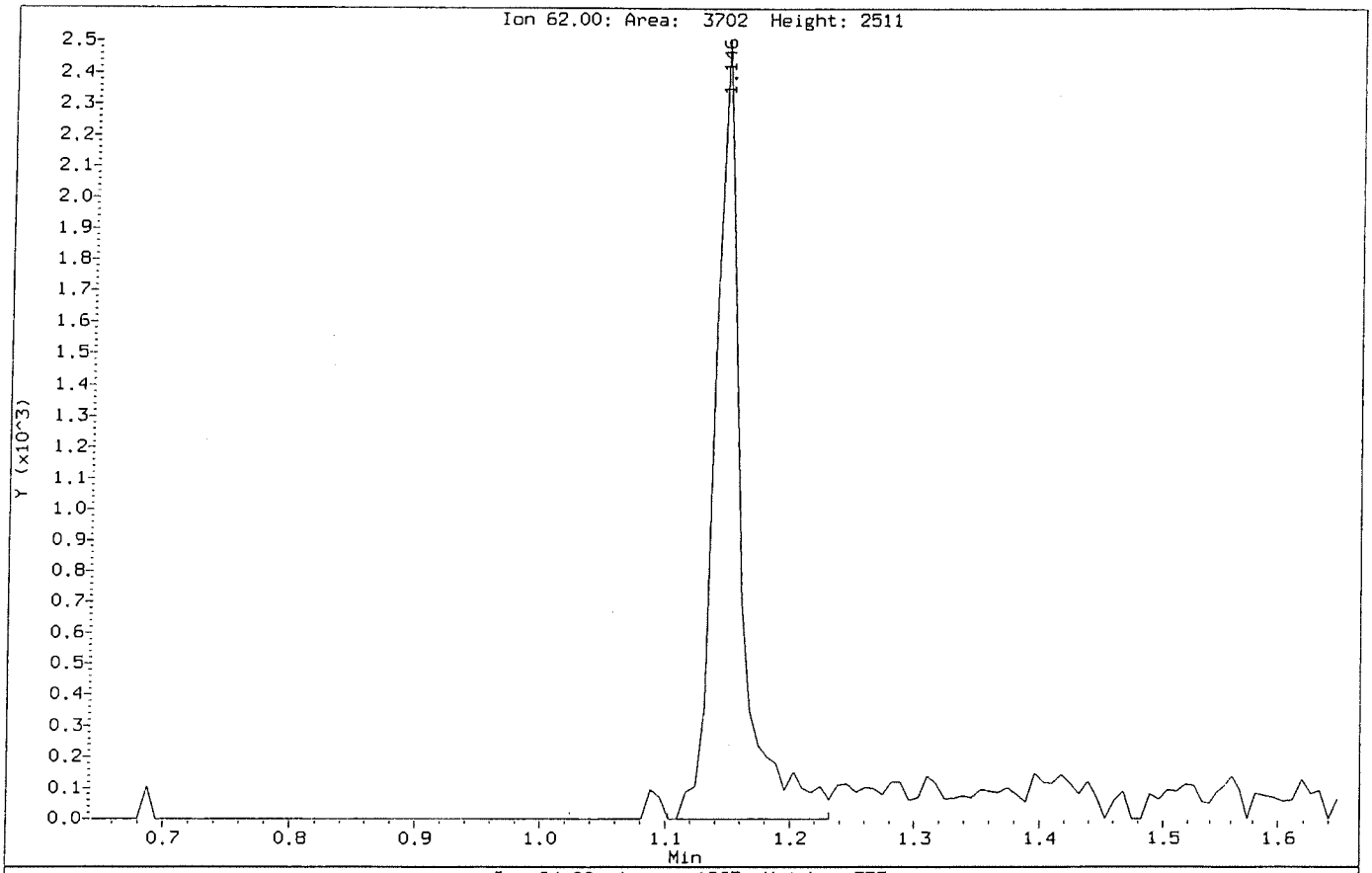
Compound: Chloromethane
CAS Number: 74-87-3

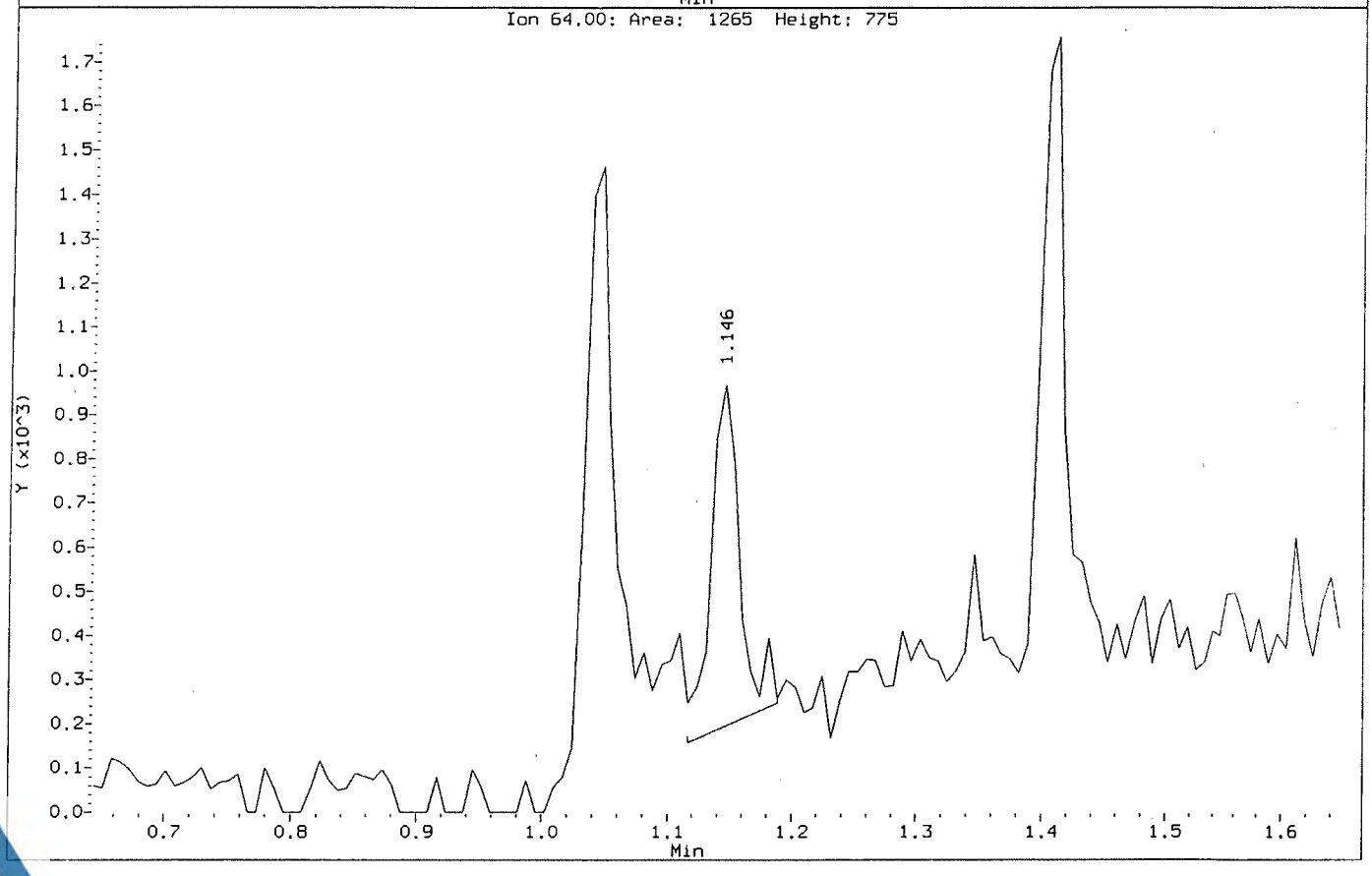




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

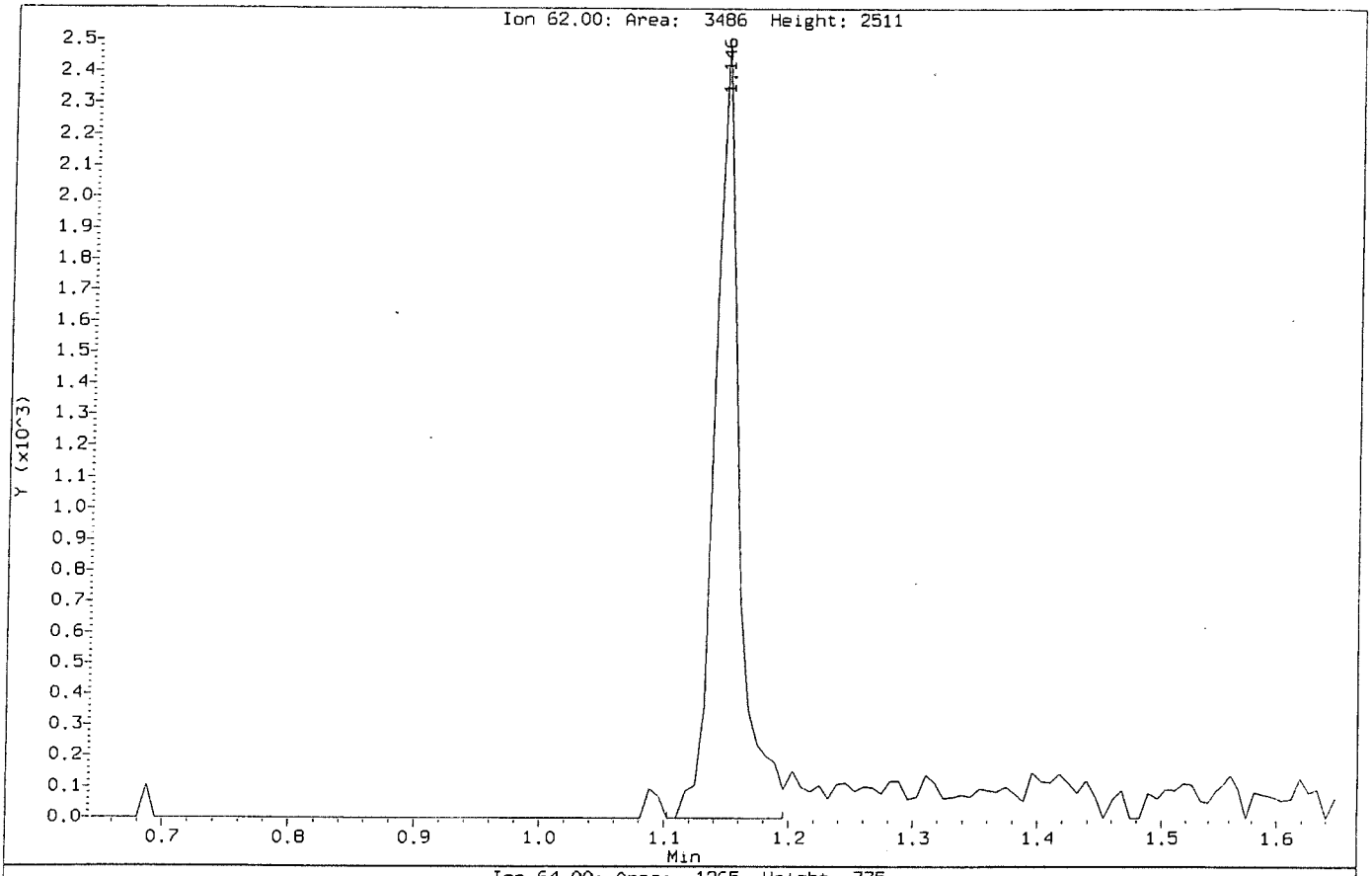
Compound: Vinyl Chloride
CAS Number: 75-01-4

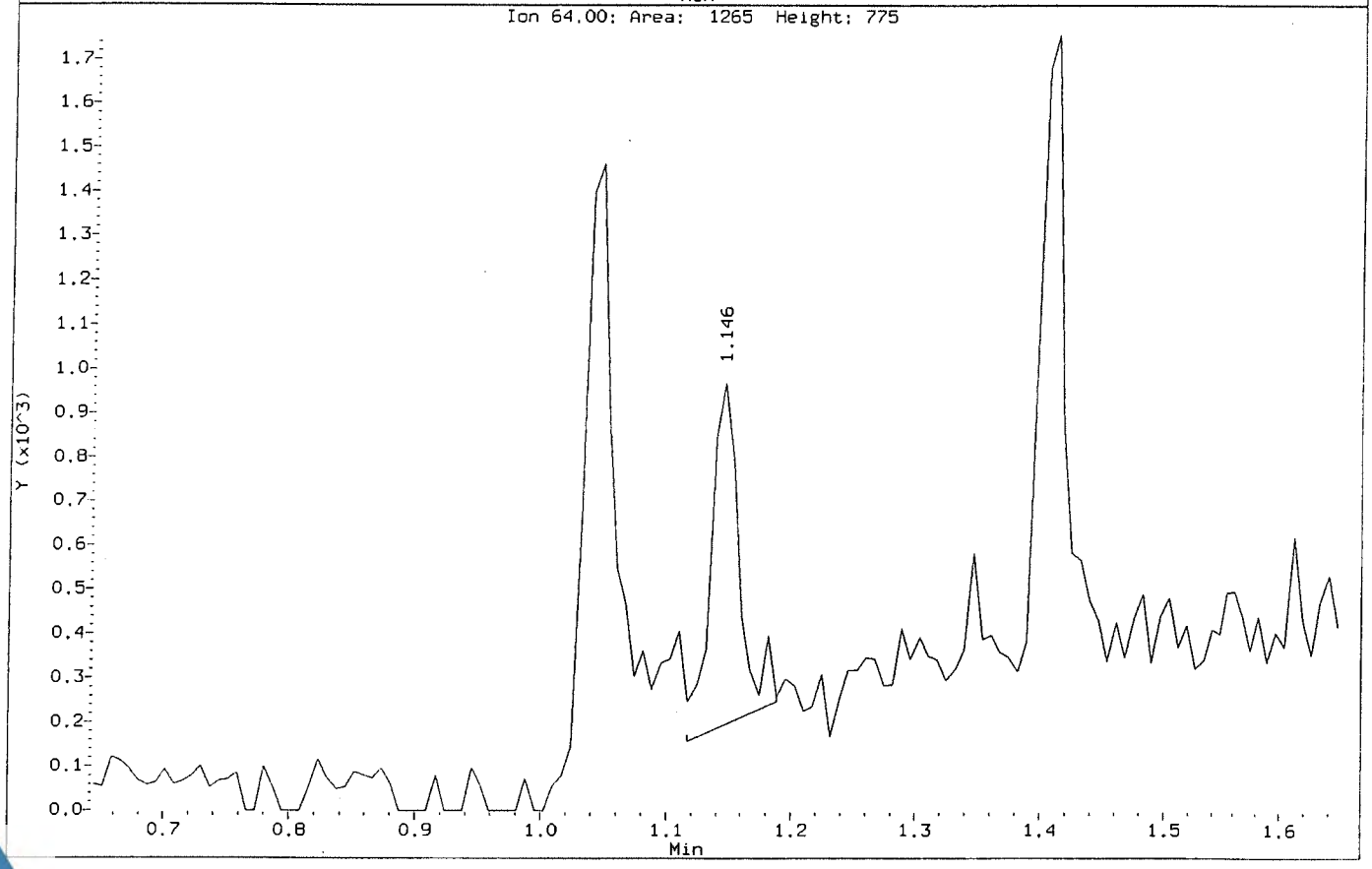




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051304.D
Injection Date: 13-MAY-2019 12:33
Instrument: voa6.i
Client Sample ID: VSTD001

Compound: Vinyl Chloride
CAS Number: 75-01-4





Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Lab Smp Id: VSTD002 Client Smp ID: VSTD002
Inj Date : 13-MAY-2019 12:57
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 12:57 Cal File: X051305.D
Als bottle: 6 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	336590	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	454217	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	422960	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	237025	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	6793	2.00000	2.13(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	8070	2.00000	1.71(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	6109	2.00000	1.75(a)
$	48 Toluene-d8	98	6.396	6.388	(0.834)	21875	2.00000	1.57(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	6140	2.00000	1.86(a)
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	8721	2.00000	1.95(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	6256	2.00000	1.93(a)
	138 Freon TF	101	1.919	1.919	(0.458)	5416	2.00000	2.94(a)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	4275	2.00000	1.97(a)
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	9725	2.00000	2.04(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	4908	2.00000	1.86(a)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	7510	2.00000	1.98(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	3642	2.00000	2.60(a)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	6967	2.00000	1.88(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	6157	2.00000	1.76(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	22295	2.00000	1.97(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.658	(1.103)	940	2.00000	1.81(a)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.948)	5474	2.00000	1.84(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	13318	2.00000	1.94(a)

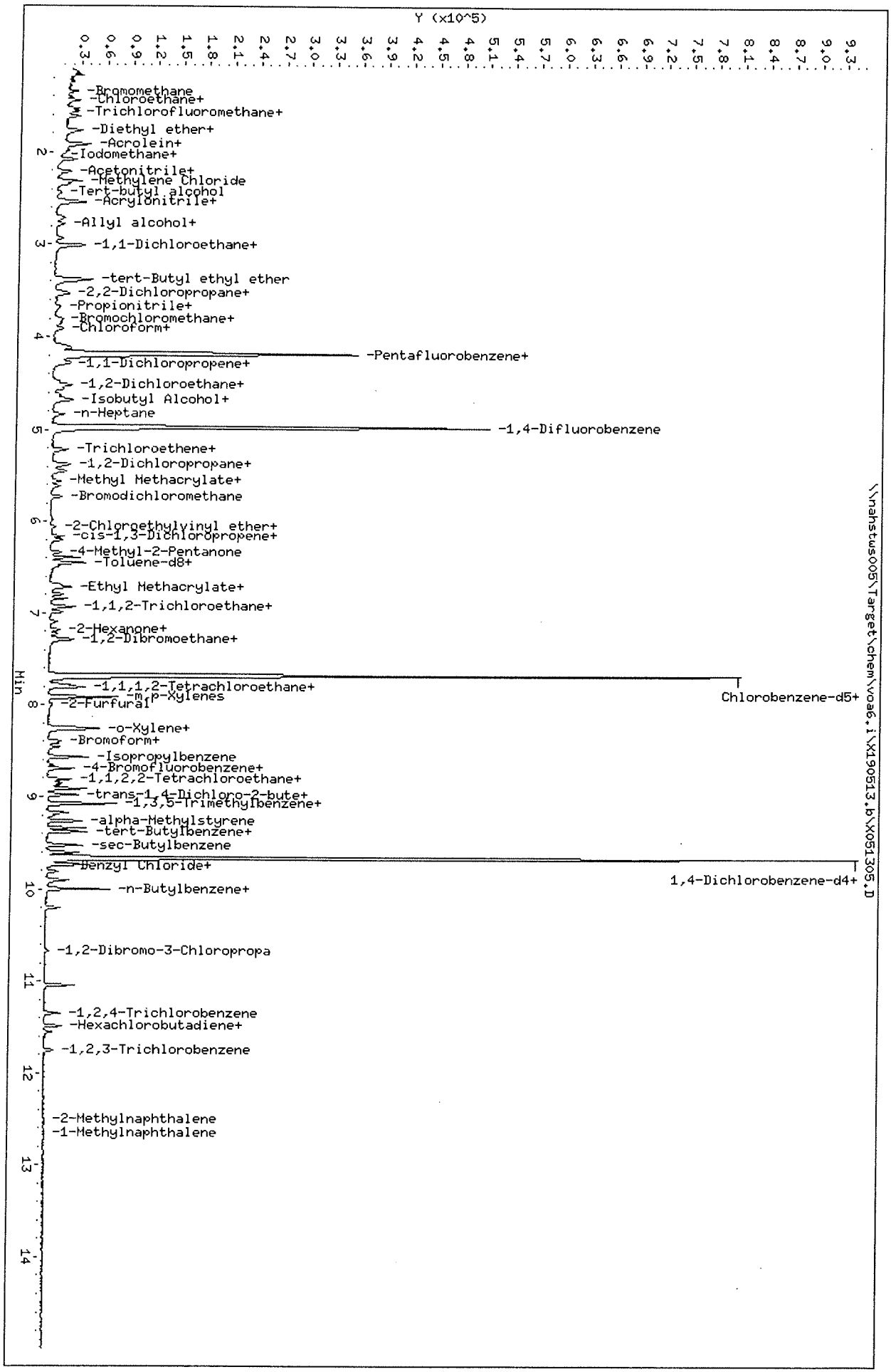
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

	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)	7487	2.00000	1.95(a)
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	5499	2.00000	2.07(aM)
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	21457	2.00000	1.99(a)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	14323	2.00000	1.96(a)
54	1,3-Dichloropropane	76	6.990	6.983	(0.911)	8704	2.00000	1.99(a)
84	1,4-Dichlorobenzene	146	9.684	9.683	(1.001)	13952	2.00000	1.90(a)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	9260	2.00000	2.20(a)
24	2-Butanone	43	3.602	3.581	(0.860)	2801	4.00000	3.49(aM)
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	17473	2.00000	1.99(a)
52	2-Hexanone	43	7.098	7.090	(0.925)	5786	4.00000	3.92(a)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	19468	2.00000	1.91(a)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	22940	2.00000	1.97(a)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	8131	4.00000	3.79(a)
10	Acetone	43	1.976	1.976	(0.472)	4305	4.00000	4.30(a)
37	Benzene	78	4.519	4.519	(0.909)	21199	2.00000	1.93(a)
74	Bromobenzene	156	8.810	8.810	(0.911)	8824	2.00000	1.99(a)
29	Bromochloromethane	128	3.803	3.803	(0.908)	4001	2.00000	2.17(a)
39	Bromodichloromethane	83	5.737	5.729	(1.154)	7354	2.00000	1.93(a)
66	Bromoform	173	8.416	8.416	(1.097)	4068	2.00000	1.64(Ta)
6	Bromomethane	94	1.346	1.339	(0.321)	6441	2.00000	3.17(a)
19	Carbon Disulfide	76	2.076	2.076	(0.496)	28853	4.00000	3.80(a)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	8060	2.00000	1.91(a)
59	Chlorobenzene	112	7.699	7.699	(1.004)	16936	2.00000	2.00(a)
7	Chloroethane	64	1.410	1.403	(0.337)	3713	2.00000	1.93(a)
28	Chloroform	83	3.917	3.917	(0.935)	10007	2.00000	1.96(a)
3	Chloromethane	50	1.081	1.081	(0.258)	8492	2.00000	0.11(a)
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	6292	2.00000	1.91(a)
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	8666	2.00000	1.91(a)
55	Dibromochloromethane	129	7.184	7.184	(0.937)	5957	2.00000	1.75(a)
44	Dibromomethane	93	5.558	5.558	(1.118)	3766	2.00000	1.97(a)
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	5725	2.00000	2.53(a)
61	Ethylbenzene	106	7.807	7.807	(1.018)	8423	2.00000	1.93(a)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	3941	2.00000	1.89(a)
67	Isopropylbenzene	105	8.566	8.566	(1.117)	26124	2.00000	2.01(a)
62	m,p-Xylenes	106	7.907	7.907	(1.031)	20416	4.00000	3.88(a)
17	Methylene Chloride	84	2.313	2.306	(0.552)	7584	2.00000	2.09(a)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	18266	2.00000	1.98(a)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	29163	2.00000	2.00(a)
92	Naphthalene	128	11.553	11.546	(1.195)	8910	2.00000	1.79(a)
63	o-Xylene	106	8.244	8.244	(1.075)	10049	2.00000	1.95(a)
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	25351	2.00000	2.00(a)
64	Styrene	104	8.265	8.265	(1.078)	17337	2.00000	1.92(a)
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	18653	2.00000	2.00(a)
56	Tetrachloroethene	164	6.933	6.933	(0.904)	6434	2.00000	2.06(a)
50	Toluene	91	6.453	6.453	(0.841)	24123	2.00000	1.94(a)
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	5545	2.00000	2.01(a)
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	7344	2.00000	1.85(a)
38	Trichloroethene	130	5.214	5.214	(1.049)	6876	2.00000	1.95(a)
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	9638	2.00000	1.92(a)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	5938	2.00000	1.93(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Report Date: 06-Jun-2019 10:44

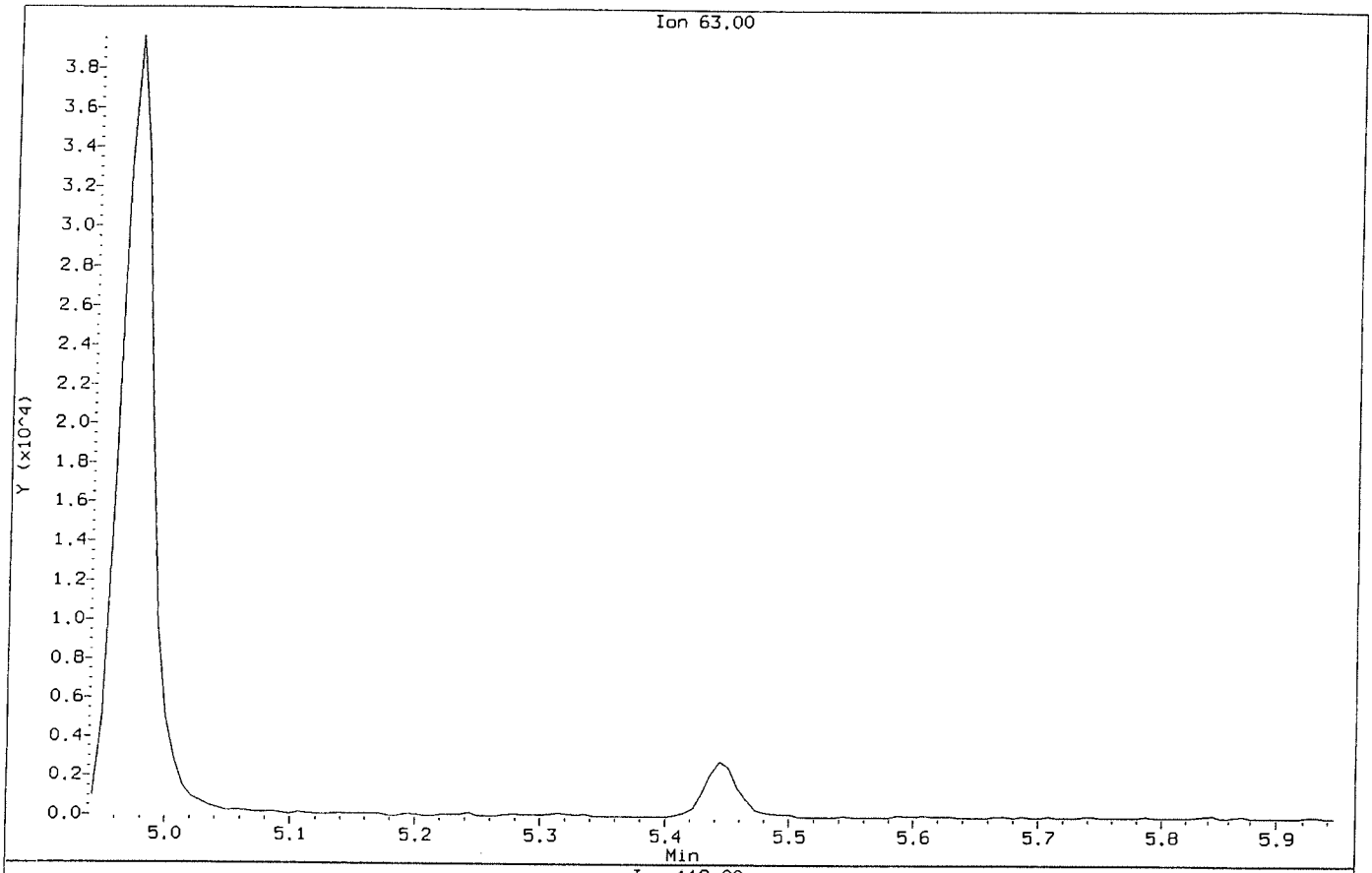
QC Flag Legend

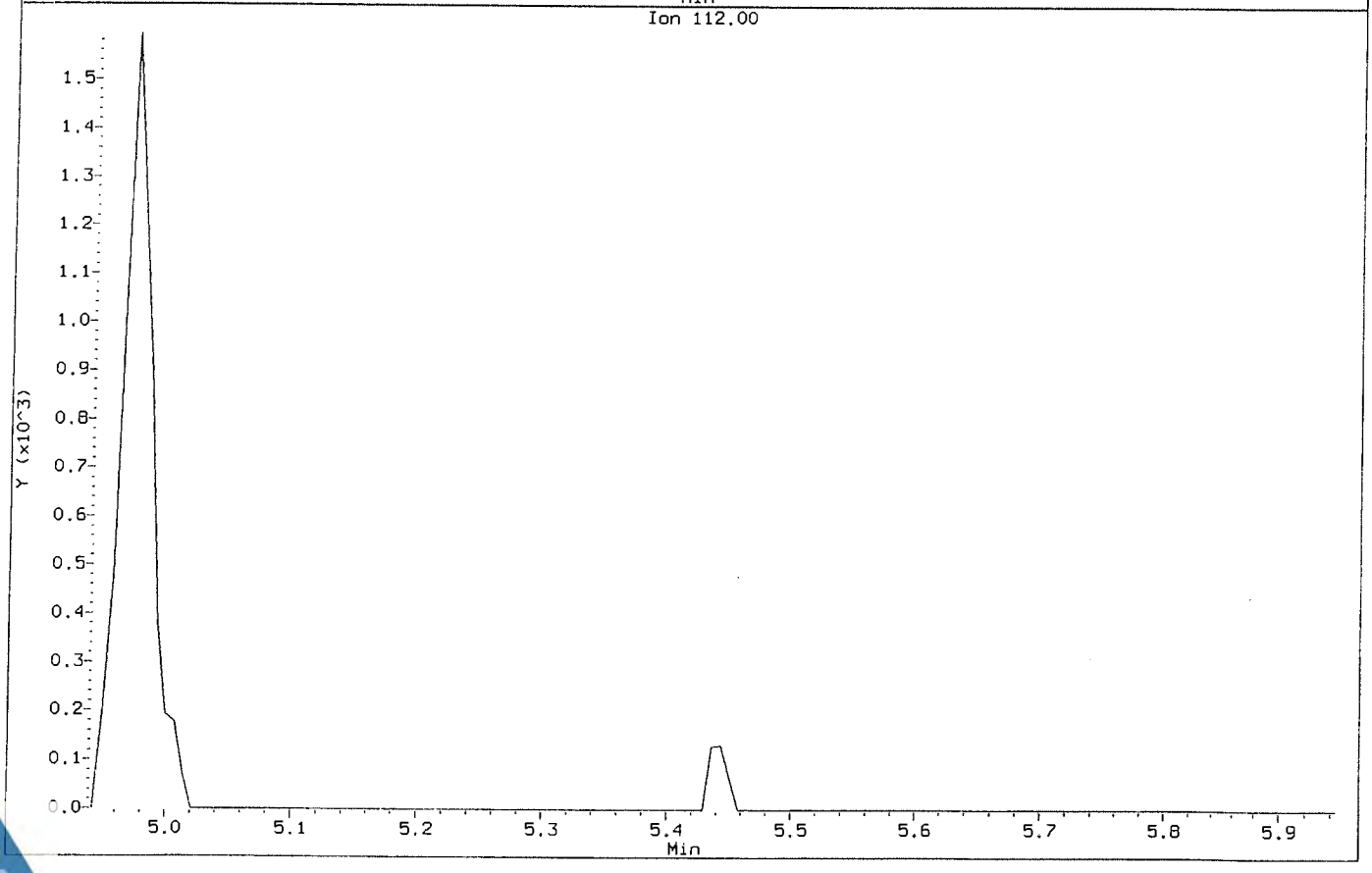
T - Target compound detected outside RT window.
a - Target compound detected but, quantitated amount
    Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.


Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Allyl alcohol+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2,2-Dichloropropane+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chlorgethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
Chlorobenzene-d5+
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
-Benzyl Chloride+
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Date : 13-MAY-2019 12:57
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\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

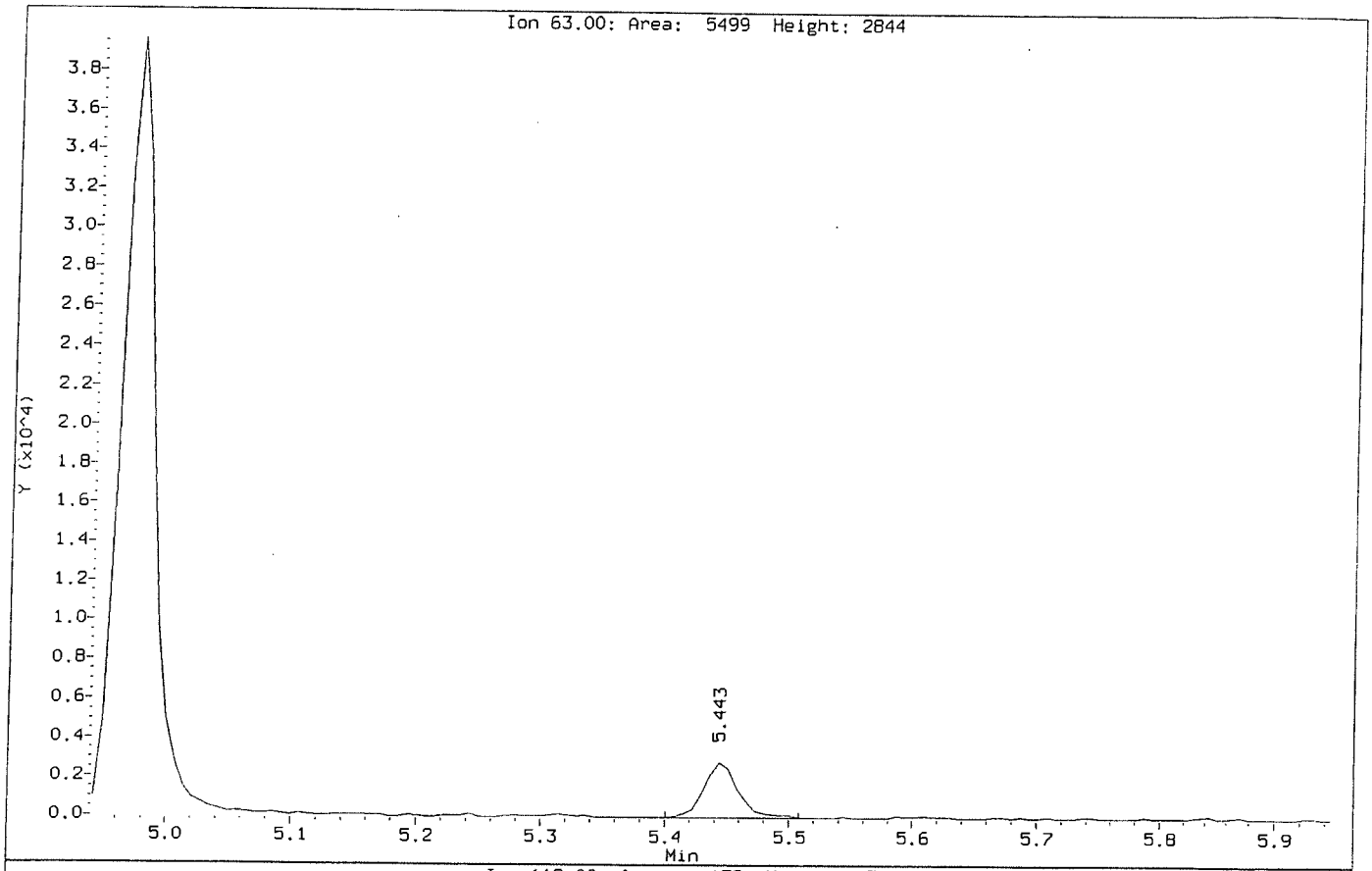
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5

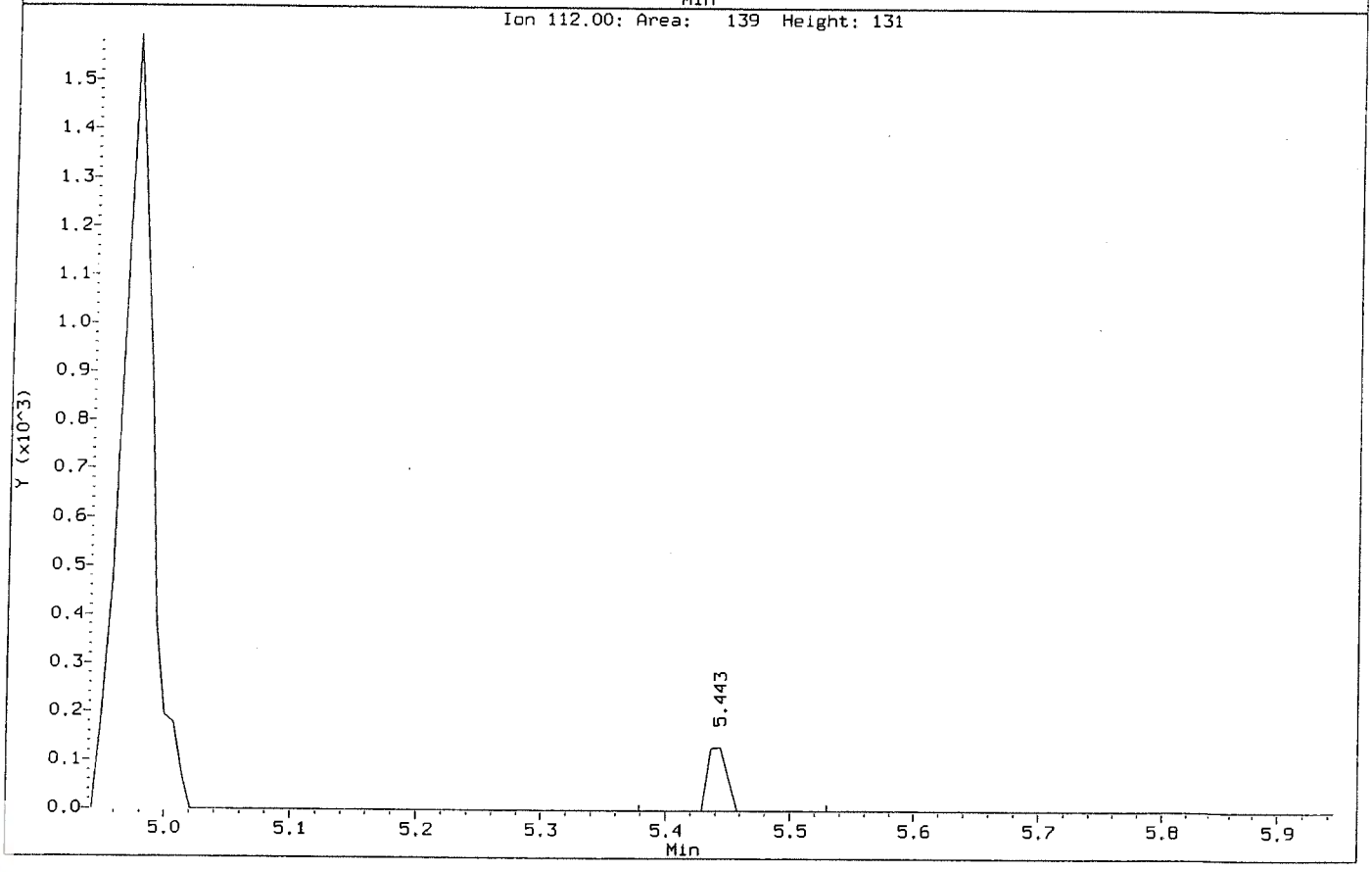




Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

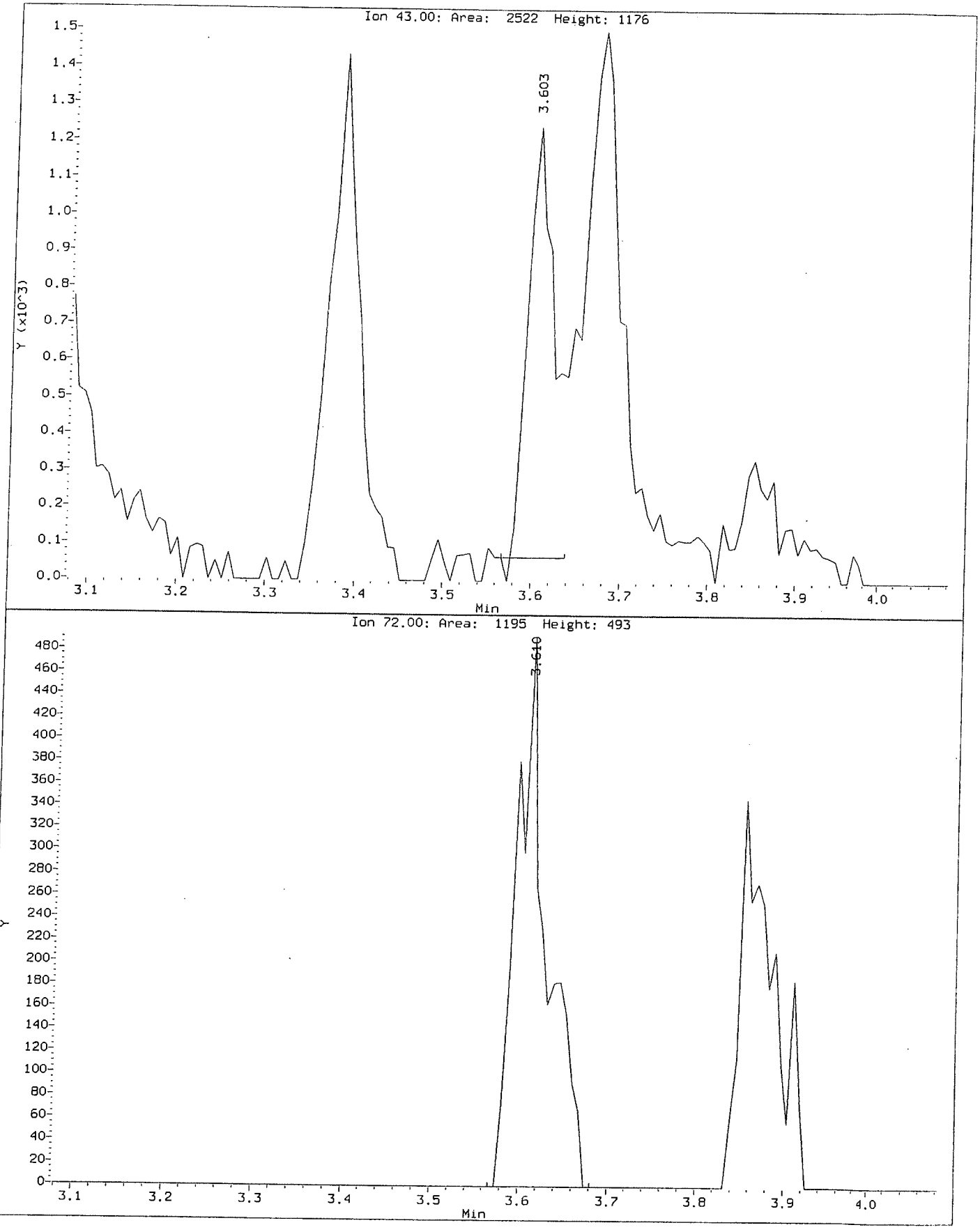
Compound: 1,2-Dichloropropane
CAS Number: 78-87-5





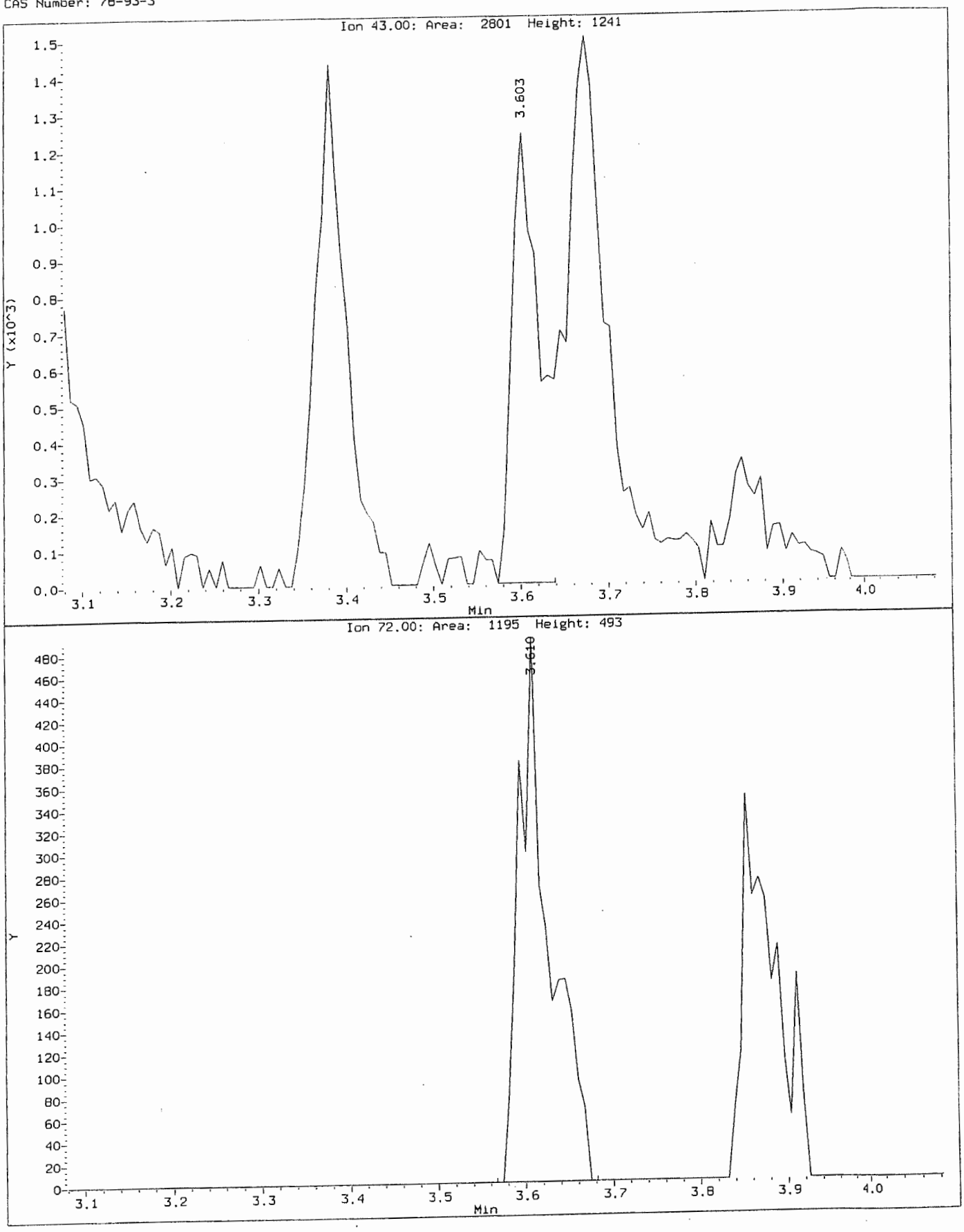
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\Before\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051305.D
Injection Date: 13-MAY-2019 12:57
Instrument: voa6.i
Client Sample ID: VSTD002

Compound: 2-Butanone
CAS Number: 78-93-3



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Lab Smp Id: VSTD005 Client Smp ID: VSTD005
Inj Date : 13-MAY-2019 13:21
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:21 Cal File: X051306.D
Als bottle: 7 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324585	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	436431	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	402955	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	223443	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	14382	5.00000	4.89(a)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	18579	5.00000	4.97(a)
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	15275	5.00000	5.13
$	48 Toluene-d8	98	6.388	6.388	(0.833)	51458	5.00000	4.73(a)
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	14863	5.00000	4.72(a)
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	20850	5.00000	4.85(a)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	15131	5.00000	4.96(a)
	138 Freon TF	101	1.919	1.919	(0.458)	11785	5.00000	5.58
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	10440	5.00000	5.05
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	21478	5.00000	4.69(a)
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	11459	5.00000	4.51(a)
	32 1,1-Dichloropropene	75	4.283	4.290	(0.862)	16303	5.00000	4.49(a)
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	9007	5.00000	5.60
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	16814	5.00000	4.82(a)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	14864	5.00000	4.51(a)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	51976	5.00000	4.88(a)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	2301	5.00000	4.71(a)
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	13618	5.00000	4.82(a)
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	31085	5.00000	4.81(a)

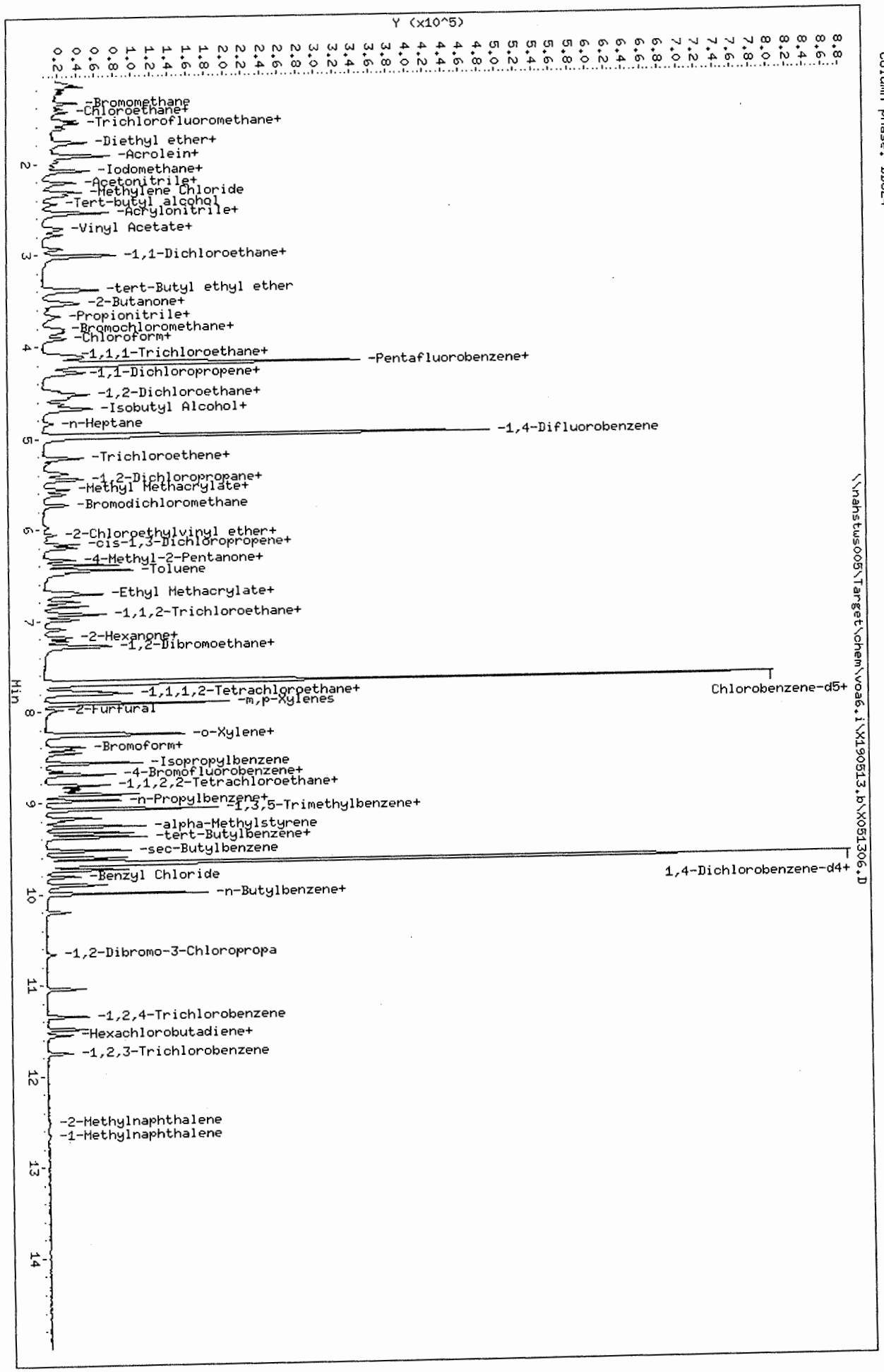
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

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)	17311	5.00000	4.71(a)
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	12106	5.00000	4.75(a)
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	48243	5.00000	4.75(a)
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	32676	5.00000	4.75(a)
54 1,3-Dichloropropane	76	6.990	6.983	(0.911)	20732	5.00000	4.97(a)
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	33108	5.00000	4.78(a)
26 2,2-Dichloropropane	77	3.523	3.516	(0.841)	18793	5.00000	4.63(a)
24 2-Butanone	43	3.588	3.581	(0.856)	7300	10.0000	9.43
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	38371	5.00000	4.64(a)
52 2-Hexanone	43	7.090	7.090	(0.924)	13397	10.0000	9.54
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	45182	5.00000	4.71(a)
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	50199	5.00000	4.57(a)
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	19592	10.0000	9.58
10 Acetone	43	1.976	1.976	(0.472)	8696	10.0000	10.96
37 Benzene	78	4.519	4.519	(0.909)	49788	5.00000	4.72(a)
74 Bromobenzene	156	8.810	8.810	(0.911)	20106	5.00000	4.82(a)
29 Bromochloromethane	128	3.803	3.803	(0.908)	8842	5.00000	5.05
39 Bromodichloromethane	83	5.737	5.729	(1.154)	17064	5.00000	4.66(a)
66 Bromoform	173	8.416	8.416	(1.097)	10950	5.00000	4.65(a)
6 Bromomethane	94	1.346	1.339	(0.321)	14764	5.00000	6.04
19 Carbon Disulfide	76	2.076	2.076	(0.496)	66015	10.0000	9.02
34 Carbon Tetrachloride	117	4.268	4.275	(0.859)	17860	5.00000	4.42(a)
59 Chlorobenzene	112	7.699	7.699	(1.004)	38992	5.00000	4.85(a)
7 Chloroethane	64	1.403	1.403	(0.335)	9030	5.00000	4.87(a)
28 Chloroform	83	3.917	3.917	(0.935)	23515	5.00000	4.79(a)
3 Chloromethane	50	1.081	1.081	(0.258)	19144	5.00000	3.58(a)
27 cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	15135	5.00000	4.78(a)
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	20875	5.00000	4.80(a)
55 Dibromochloromethane	129	7.184	7.184	(0.937)	14546	5.00000	4.49(a)
44 Dibromomethane	93	5.558	5.558	(1.118)	8994	5.00000	4.89(a)
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	12226	5.00000	4.90(a)
61 Ethylbenzene	106	7.807	7.807	(1.018)	19652	5.00000	4.72(a)
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	8648	5.00000	4.40(a)
67 Isopropylbenzene	105	8.566	8.566	(1.117)	58617	5.00000	4.75(a)
62 m,p-Xylenes	106	7.907	7.907	(1.031)	48815	10.0000	9.75
17 Methylene Chloride	84	2.313	2.306	(0.552)	15292	5.00000	5.06
87 n-Butylbenzene	91	9.999	9.999	(1.034)	39856	5.00000	4.58(a)
73 n-Propylbenzene	91	8.917	8.917	(0.922)	64885	5.00000	4.72(a)
92 Naphthalene	128	11.546	11.546	(1.194)	21563	5.00000	4.61(a)
63 o-Xylene	106	8.244	8.244	(1.075)	24009	5.00000	4.90(a)
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	54917	5.00000	4.59(a)
64 Styrene	104	8.265	8.265	(1.078)	41545	5.00000	4.85(a)
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	40573	5.00000	4.61(a)
56 Tetrachloroethene	164	6.933	6.933	(0.904)	13854	5.00000	4.67(a)
50 Toluene	91	6.453	6.453	(0.841)	56231	5.00000	4.76(a)
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	12329	5.00000	4.64(a)
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	17740	5.00000	4.67(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	16216	5.00000	4.79(a)
8 Trichlorofluoromethane	101	1.568	1.561	(0.374)	21396	5.00000	4.43(a)
5 Vinyl Chloride	62	1.145	1.145	(0.273)	12897	5.00000	4.34(a)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Date : 13-MAY-2019 13:21
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
\\nahstws005\Target\chem\voa6.i\X190513.b\X051306.D
Y (x10^5)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane+
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Chlorpethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone+
-Toluene
-Ethyl Methacrylate+
-1,1,2-Trichloroethane+
-2-Hexanone+
-1,2-Dibromoethane+
Chlorobenzene-d5+
-1,1,1,2-Tetrachlorpethane+
-m,p-Xylenes
-2-Furfural
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
-1,3,5-Trimethylbenzene+
-alpha-Methylstyrene
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Lab Smp Id: VSTD020 Client Smp ID: VSTD020
Inj Date : 13-MAY-2019 13:45
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 13:45 Cal File: X051307.D
Als bottle: 8 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

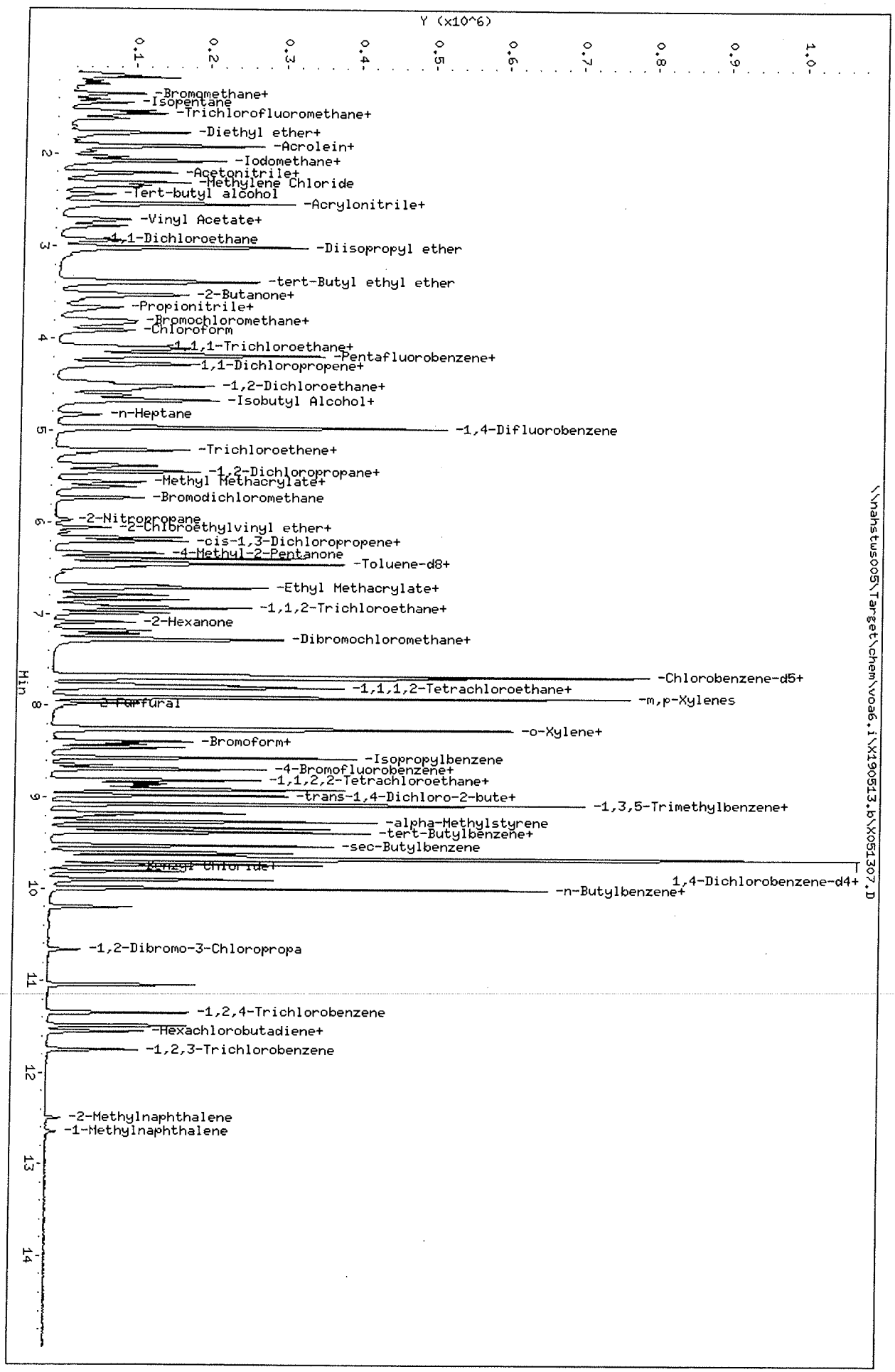
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	335326	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	443439	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	406589	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	228906	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.483	4.476	(1.070)	56761	20.0000	19.19
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	69486	20.0000	19.98
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	57130	20.0000	19.55
$	48 Toluene-d8	98	6.388	6.388	(0.833)	202820	20.0000	20.14
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	58332	20.0000	18.38
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	82433	20.0000	18.56
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	60222	20.0000	19.30
	138 Freon TF	101	1.919	1.919	(0.458)	47474	20.0000	19.22
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	40688	20.0000	19.53
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	87365	20.0000	18.48
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	48461	20.0000	18.49
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	65531	20.0000	17.76
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	35984	20.0000	19.43
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	69145	20.0000	19.38
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	60996	20.0000	18.07
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	194727	20.0000	17.86
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	9949	20.0000	19.89
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	54190	20.0000	19.03
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	121292	20.0000	18.35

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Report Date: 06-Jun-2019 10:44

	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)	69224	20.0000	18.53
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	48958	20.0000	18.90
75	1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	189002	20.0000	18.17
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	128382	20.0000	18.23
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	79936	20.0000	19.02
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	128527	20.0000	18.13
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	77380	20.0000	18.48
24	2-Butanone	43	3.580	3.581	(0.855)	32748	40.0000	40.96
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	153069	20.0000	18.08
52	2-Hexanone	43	7.090	7.090	(0.924)	53463	40.0000	37.74
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	173574	20.0000	17.69
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	200044	20.0000	17.81
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	79192	40.0000	38.41
10	Acetone	43	1.976	1.976	(0.472)	29211	40.0000	39.61
37	Benzene	78	4.519	4.519	(0.909)	199074	20.0000	18.59
74	Bromobenzene	156	8.810	8.810	(0.911)	79677	20.0000	18.67
29	Bromochloromethane	128	3.803	3.803	(0.908)	34144	20.0000	19.03
39	Bromodichloromethane	83	5.729	5.729	(1.153)	69363	20.0000	18.66
66	Bromoform	173	8.416	8.416	(1.097)	47140	20.0000	19.88
6	Bromomethane	94	1.346	1.339	(0.321)	52051	20.0000	18.00
19	Carbon Disulfide	76	2.076	2.076	(0.496)	278177	40.0000	36.81
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	73303	20.0000	17.87
59	Chlorobenzene	112	7.699	7.699	(1.004)	154044	20.0000	18.99
7	Chloroethane	64	1.403	1.403	(0.335)	34994	20.0000	18.28
28	Chloroform	83	3.917	3.917	(0.935)	95150	20.0000	18.77
3	Chloromethane	50	1.081	1.081	(0.258)	77890	20.0000	21.40
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	61324	20.0000	18.77
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	85647	20.0000	19.40
55	Dibromochloromethane	129	7.184	7.184	(0.937)	61054	20.0000	18.68
44	Dibromomethane	93	5.557	5.558	(1.118)	36222	20.0000	19.42
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	54883	20.0000	19.25
61	Ethylbenzene	106	7.807	7.807	(1.018)	77957	20.0000	18.59
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	36741	20.0000	18.28
67	Isopropylbenzene	105	8.566	8.566	(1.117)	221892	20.0000	17.82
62	m,p-Xylenes	106	7.907	7.907	(1.031)	186249	40.0000	36.88
17	Methylene Chloride	84	2.305	2.306	(0.550)	55968	20.0000	19.52
87	n-Butylbenzene	91	9.999	9.999	(1.034)	160071	20.0000	17.99
73	n-Propylbenzene	91	8.917	8.917	(0.922)	248854	20.0000	17.69
92	Naphthalene	128	11.546	11.546	(1.194)	87285	20.0000	18.25
63	o-Xylene	106	8.244	8.244	(1.075)	91643	20.0000	18.55
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	215560	20.0000	17.62
64	Styrene	104	8.265	8.265	(1.078)	163278	20.0000	18.90
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	160317	20.0000	17.81
56	Tetrachloroethene	164	6.933	6.933	(0.904)	54764	20.0000	18.32
50	Toluene	91	6.453	6.453	(0.841)	225977	20.0000	18.96
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	52426	20.0000	19.13
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	74135	20.0000	19.22
38	Trichloroethene	130	5.214	5.214	(1.049)	64301	20.0000	18.72
8	Trichlorofluoromethane	101	1.568	1.561	(0.374)	91451	20.0000	18.36
5	Vinyl Chloride	62	1.145	1.145	(0.273)	54724	20.0000	17.85



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051307.D
Date : 13-MAY-2019 13:45
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\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Lab Smp Id: VSTD050 Client Smp ID: VSTD050
Inj Date : 13-MAY-2019 14:09
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 9 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

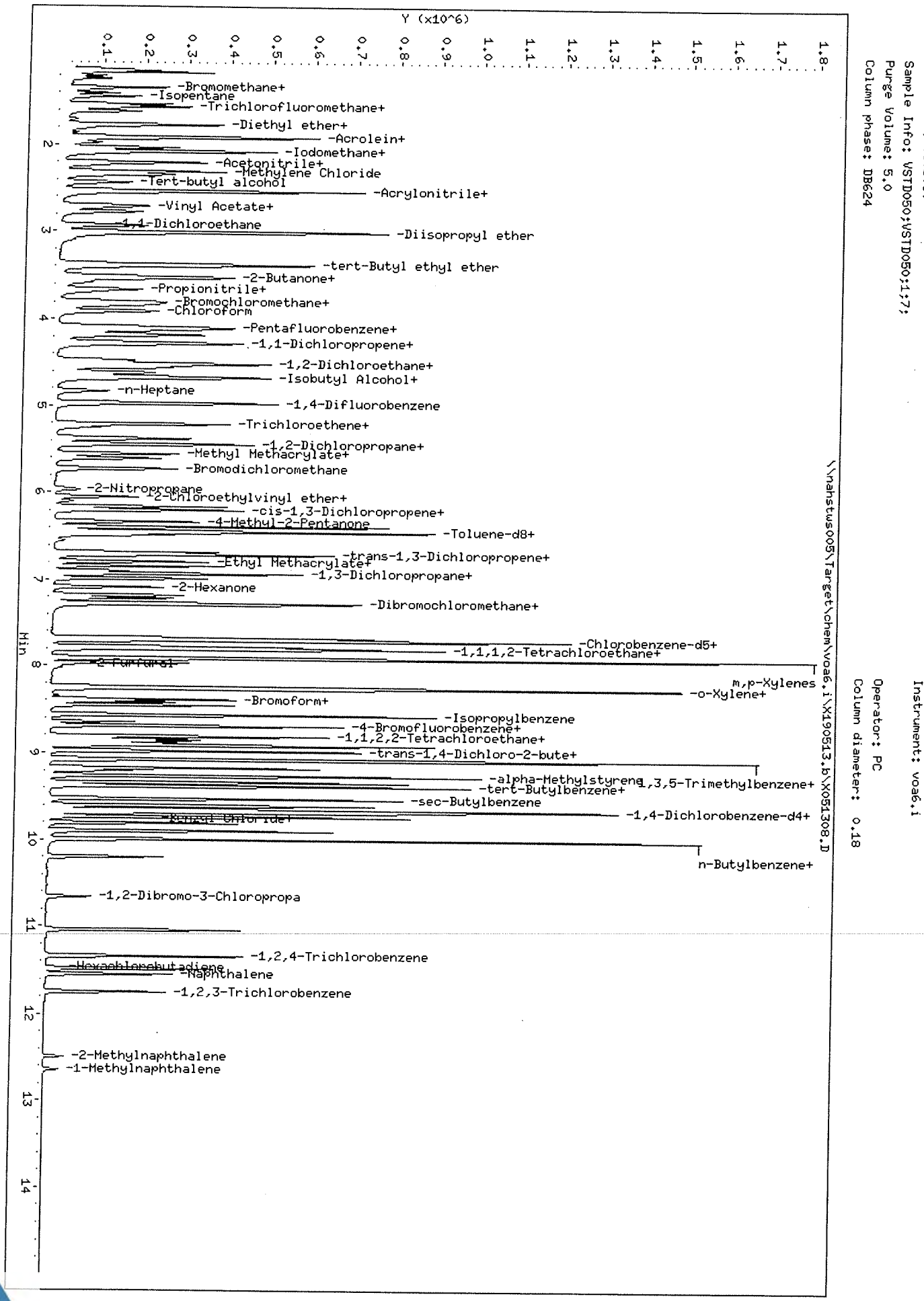
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	320160	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	425107	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	389348	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	218628	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	140206	50.0000	49.94
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	164393	50.0000	50.21
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	138429	50.0000	50.19
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	475062	50.0000	50.10
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140889	50.0000	46.38
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	194014	50.0000	45.76
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	138186	50.0000	46.38
138 Freon TF	101	1.919	1.919	(0.458)	105816	50.0000	43.21
53 1,1,2-Trichloroethane	83	6.840	6.847	(0.892)	93933	50.0000	47.10
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	212520	50.0000	47.09
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	115616	50.0000	46.20
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	152541	50.0000	43.14
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	82821	50.0000	44.74
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	161346	50.0000	47.36
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	144062	50.0000	44.68
79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	451083	50.0000	43.32
89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	23010	50.0000	48.18
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	129337	50.0000	47.44
88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	283359	50.0000	44.89

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Report Date: 06-Jun-2019 10:44

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)	162013	50.0000	45.25
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	115394	50.0000	46.48
75 1,3,5-Trimethylbenzene	105	9.067	9.075	(0.938)	431958	50.0000	43.49
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	299593	50.0000	44.55
54 1,3-Dichloropropane	76	6.983	6.983	(0.910)	188132	50.0000	46.76
84 1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	301160	50.0000	44.48
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	181858	50.0000	45.49
24 2-Butanone	43	3.580	3.581	(0.855)	76503	100.000	100.23
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	347555	50.0000	42.98
52 2-Hexanone	43	7.090	7.090	(0.924)	125616	100.000	92.62
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	407466	50.0000	43.49
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	450042	50.0000	41.95
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	184906	100.000	93.66
10 Acetone	43	1.976	1.976	(0.472)	66437	100.000	96.82
37 Benzene	78	4.519	4.519	(0.909)	475353	50.0000	46.32
74 Bromobenzene	156	8.809	8.810	(0.911)	186716	50.0000	45.82
29 Bromochloromethane	128	3.802	3.803	(0.908)	84393	50.0000	49.35
39 Bromodichloromethane	83	5.729	5.729	(1.153)	170552	50.0000	47.87
66 Bromoform	173	8.415	8.416	(1.097)	115291	50.0000	50.77
6 Bromomethane	94	1.338	1.339	(0.320)	129857	50.0000	45.28
19 Carbon Disulfide	76	2.076	2.076	(0.496)	665469	100.000	92.23
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	168134	50.0000	42.76
59 Chlorobenzene	112	7.699	7.699	(1.004)	361678	50.0000	46.57
7 Chloroethane	64	1.403	1.403	(0.335)	82737	50.0000	45.27
28 Chloroform	83	3.917	3.917	(0.935)	228368	50.0000	47.19
3 Chloromethane	50	1.081	1.081	(0.258)	171914	50.0000	52.72
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146016	50.0000	46.82
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	204302	50.0000	48.27
55 Dibromochloromethane	129	7.183	7.184	(0.937)	151217	50.0000	48.33
44 Dibromomethane	93	5.557	5.558	(1.118)	85360	50.0000	47.73
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	129152	50.0000	45.98
61 Ethylbenzene	106	7.799	7.807	(1.017)	179699	50.0000	44.76
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	77466	50.0000	40.35
67 Isopropylbenzene	105	8.566	8.566	(1.117)	511302	50.0000	42.88
62 m,p-Xylenes	106	7.907	7.907	(1.031)	436547	100.000	90.28
17 Methylene Chloride	84	2.305	2.306	(0.550)	132351	50.0000	49.29
87 n-Butylbenzene	91	9.998	9.999	(1.034)	357730	50.0000	42.09
73 n-Propylbenzene	91	8.917	8.917	(0.922)	571181	50.0000	42.52
92 Naphthalene	128	11.546	11.546	(1.194)	204108	50.0000	44.69
63 o-Xylene	106	8.244	8.244	(1.075)	215613	50.0000	45.57
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	483107	50.0000	41.35
64 Styrene	104	8.265	8.265	(1.078)	389051	50.0000	47.04
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	358769	50.0000	41.74
56 Tetrachloroethene	164	6.933	6.933	(0.904)	125799	50.0000	43.94
50 Toluene	91	6.453	6.453	(0.841)	523576	50.0000	45.87
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	122447	50.0000	46.80
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	181537	50.0000	49.09
38 Trichloroethene	130	5.214	5.214	(1.049)	152179	50.0000	46.23
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	211545	50.0000	44.48
5 Vinyl Chloride	62	1.145	1.145	(0.273)	134828	50.0000	46.07


Y (x10^6)
Min
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Furfural
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051308.D
Date : 13-MAY-2019 14:09
Client ID: VSTD050
Sample Info: VSTD050;VSTD050;1;7;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Lab Smp Id: VSTD100 Client Smp ID: VSTD100
Inj Date : 13-MAY-2019 14:33
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:33 Cal File: X051309.D
Als bottle: 10 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	292113	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	391306	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	360434	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	201373	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	264049	100.000	103.29
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	308874	100.000	102.51
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	259811	100.000	103.63
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	904394	100.000	103.64
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	284109	100.000	101.03
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	402925	100.000	104.17
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	262985	100.000	95.84
138 Freon TF	101	1.919	1.919	(0.458)	255344	100.000	108.72
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	181306	100.000	98.20
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	410624	100.000	99.73
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	240073	100.000	105.16
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	319383	100.000	98.13
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	193390	100.000	105.48
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	316012	100.000	100.71
90 1,2,4-Trichlorobenzene	180	11.338	11.338	(1.173)	322239	100.000	108.52
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	965815	100.000	100.70
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	48132	100.000	109.43
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	252995	100.000	100.24
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	578801	100.000	99.56

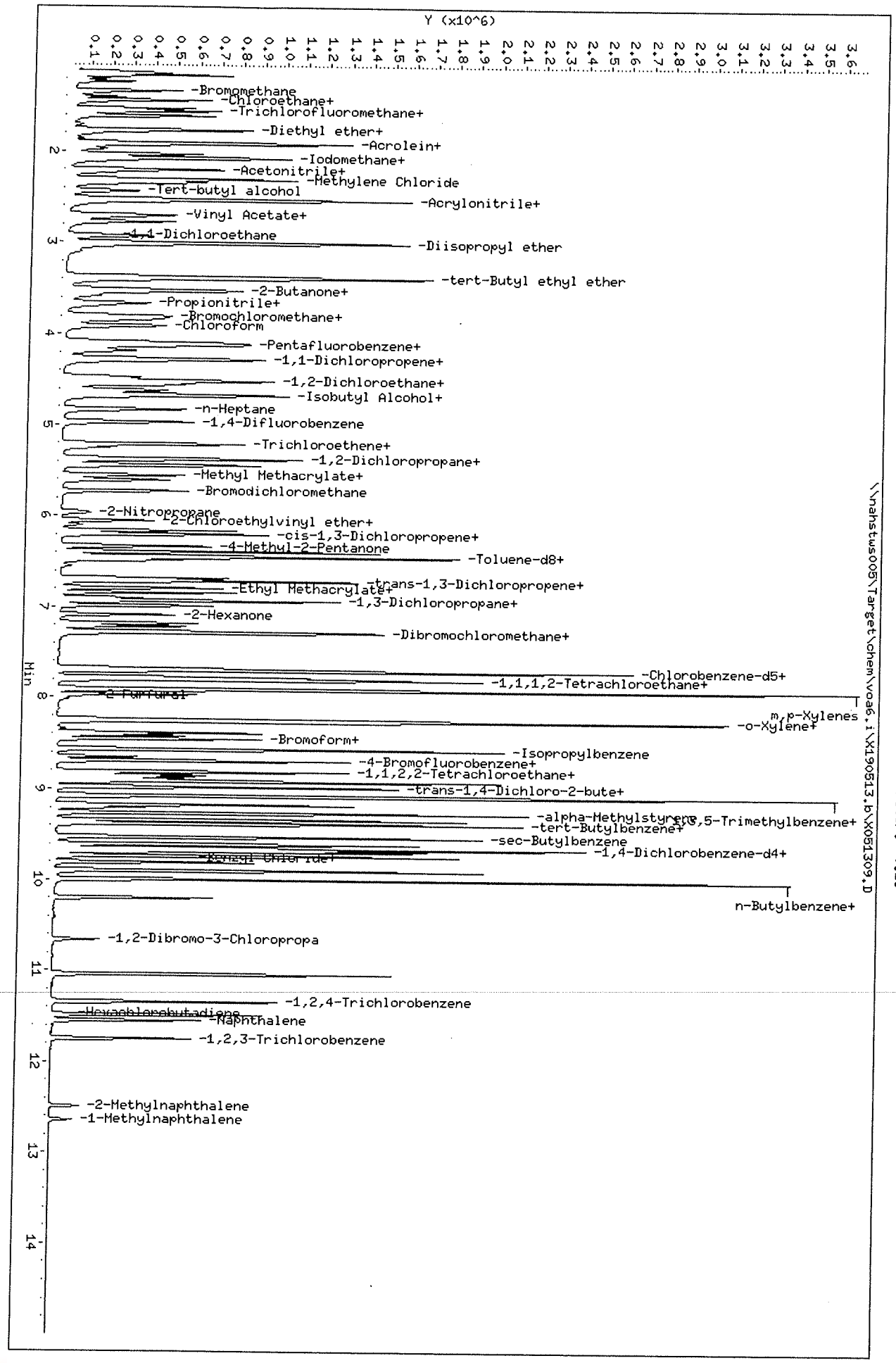
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

	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)	318635	100.000	96.69
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	221211	100.000	96.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	944978	100.000	103.30
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	621092	100.000	100.28
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	364879	100.000	97.97
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	623098	100.000	99.93
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	366161	100.000	100.39
24	2-Butanone	43	3.581	3.581	(0.855)	151605	200.000	217.70(A)
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	730229	100.000	98.05
52	2-Hexanone	43	7.090	7.090	(0.924)	248919	200.000	198.26
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	856339	100.000	99.24
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	1040512	100.000	105.32
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	364057	200.000	199.20
10	Acetone	43	1.976	1.976	(0.472)	125003	200.000	201.53(A)
37	Benzene	78	4.519	4.519	(0.909)	929993	100.000	98.46
74	Bromobenzene	156	8.810	8.810	(0.911)	372863	100.000	99.35
29	Bromochloromethane	128	3.803	3.803	(0.908)	161297	100.000	103.43
39	Bromodichloromethane	83	5.729	5.729	(1.153)	335305	100.000	102.25
66	Bromoform	173	8.416	8.416	(1.097)	228526	100.000	108.71
6	Bromomethane	94	1.339	1.339	(0.320)	273924	100.000	103.25
19	Carbon Disulfide	76	2.069	2.076	(0.494)	1355119	200.000	205.86(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	371502	100.000	102.64
59	Chlorobenzene	112	7.699	7.699	(1.004)	716462	100.000	99.65
7	Chloroethane	64	1.403	1.403	(0.335)	166381	100.000	99.78
28	Chloroform	83	3.917	3.917	(0.935)	449421	100.000	101.79
3	Chloromethane	50	1.081	1.081	(0.258)	321283	100.000	110.60
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	285342	100.000	100.28
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	400420	100.000	102.79
55	Dibromochloromethane	129	7.184	7.184	(0.937)	296437	100.000	102.35
44	Dibromomethane	93	5.558	5.558	(1.118)	165723	100.000	100.68
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	289308	100.000	108.26
61	Ethylbenzene	106	7.807	7.807	(1.018)	374397	100.000	100.74
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	189523	100.000	107.19
67	Isopropylbenzene	105	8.566	8.566	(1.117)	1134655	100.000	102.80
62	m,p-Xylenes	106	7.907	7.907	(1.031)	905742	200.000	202.34(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	252013	100.000	103.56
87	n-Butylbenzene	91	9.999	9.999	(1.034)	822059	100.000	105.03
73	n-Propylbenzene	91	8.917	8.917	(0.922)	1276228	100.000	103.15
92	Naphthalene	128	11.546	11.546	(1.194)	455338	100.000	108.24
63	o-Xylene	106	8.244	8.244	(1.075)	443200	100.000	101.20
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	1124737	100.000	104.52
64	Styrene	104	8.265	8.265	(1.078)	773201	100.000	100.99
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	817269	100.000	103.23
56	Tetrachloroethene	164	6.933	6.933	(0.904)	274348	100.000	103.53
50	Toluene	91	6.453	6.453	(0.841)	1051135	100.000	99.49
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	241565	100.000	101.19
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	357359	100.000	104.99
38	Trichloroethene	130	5.214	5.214	(1.049)	305934	100.000	100.96
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	468589	100.000	107.99
5	Vinyl Chloride	62	1.145	1.145	(0.273)	285285	100.000	106.85

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.


Y (x10^6)
Min
-Bromomethane
-Chloroethane+
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Bromochloromethane+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-n-Heptane
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-2-Furfural
-m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene
-1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051309.D
Date : 13-MAY-2019 14:33
Client ID: VSTD100
Sample Info: VSTD100;VSTD100;1;8;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Lab Smp Id: VSTD150 Client Smp ID: VSTD150
Inj Date : 13-MAY-2019 14:56
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 11 Calibration Sample, Level: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	298394	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	392493	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	367164	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	196596	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	382028	150.000	146.37
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	453043	150.000	147.86
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	375096	150.000	146.62
$	48 Toluene-d8	98	6.388	6.388	(0.832)	1314423	150.000	148.12
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	413165	150.000	144.23
	31 1,1,1-Trichloroethane	97	4.096	4.089	(0.978)	578942	150.000	146.53
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	383243	150.000	143.06
	138 Freon TF	101	1.919	1.919	(0.458)	356261	150.000	144.82
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	263755	150.000	140.24
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	588315	150.000	139.88
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	339654	150.000	145.65
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	459688	150.000	140.81
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	278559	150.000	147.41
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	461977	150.000	150.81
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	469429	150.000	161.94
	79 1,2,4-Trimethylbenzene	105	9.382	9.383	(0.970)	1373893	150.000	146.73
	89 1,2-Dibromo-3-Chloropropane	155	10.657	10.658	(1.102)	67079	150.000	156.21
	57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	370924	150.000	144.28
	88 1,2-Dichlorobenzene	146	9.998	9.999	(1.034)	836202	150.000	147.33

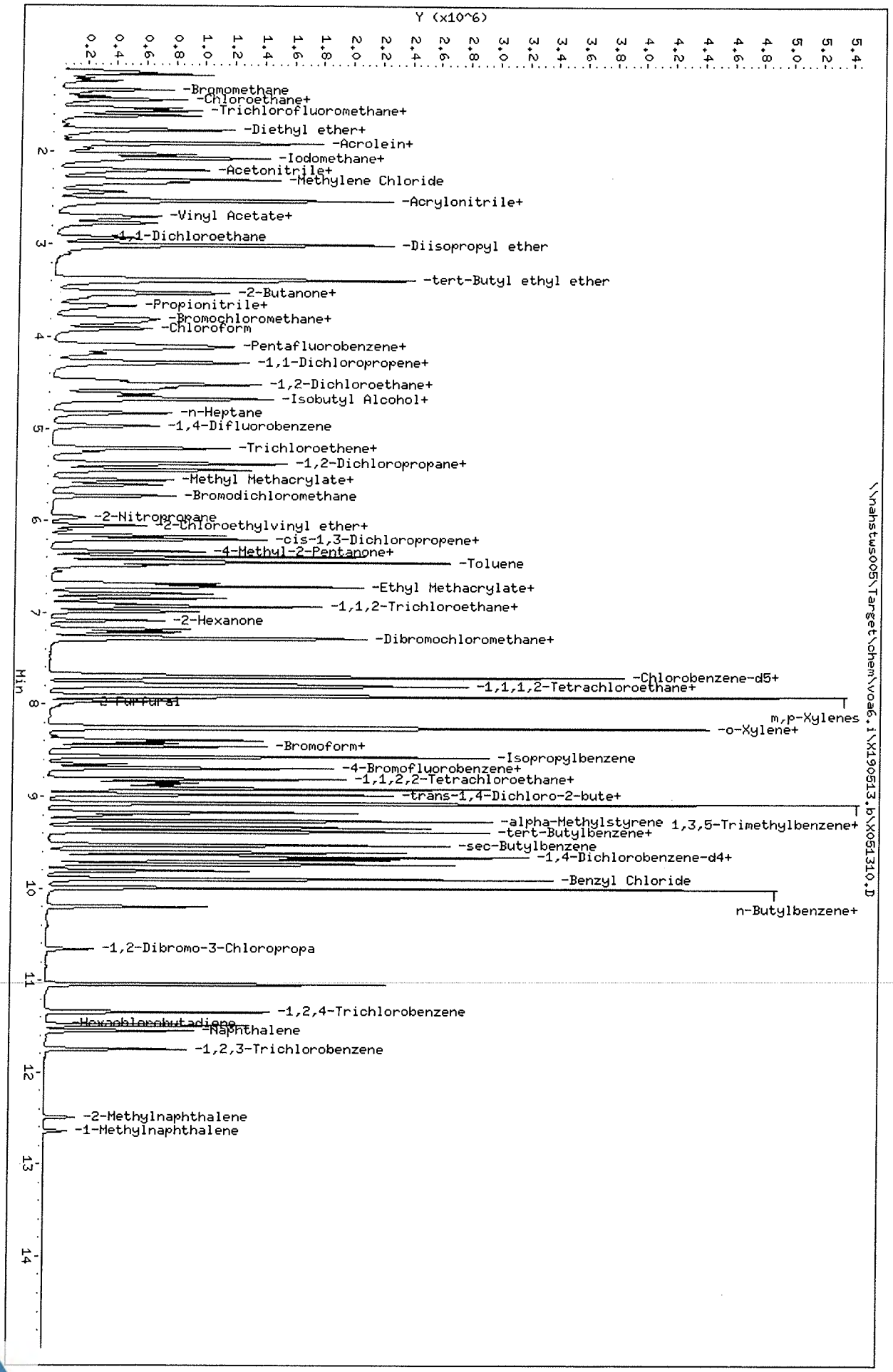
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

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)	463119	150.000	140.11
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	323443	150.000	141.11
75 1,3,5-Trimethylbenzene	105	9.074	9.075	(0.939)	1356920	150.000	151.94
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	887747	150.000	146.82
54 1,3-Dichloropropane	76	6.990	6.983	(0.910)	528778	150.000	139.37
84 1,4-Dichlorobenzene	146	9.690	9.683	(1.002)	890539	150.000	146.30
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	524778	150.000	140.86
24 2-Butanone	43	3.580	3.581	(0.855)	210306	300.000	295.64(A)
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	1064600	150.000	146.42
52 2-Hexanone	43	7.090	7.090	(0.924)	360424	300.000	281.81(A)
77 4-Chlorotoluene	91	9.074	9.075	(0.939)	1238528	150.000	147.02
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	1463745	150.000	151.76
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	534100	300.000	286.89(A)
10 Acetone	43	1.976	1.976	(0.472)	171031	300.000	270.54(A)
37 Benzene	78	4.519	4.519	(0.909)	1349541	150.000	142.44
74 Bromobenzene	156	8.809	8.810	(0.911)	544122	150.000	148.51
29 Bromochloromethane	128	3.802	3.803	(0.908)	232598	150.000	146.04
39 Bromodichloromethane	83	5.729	5.729	(1.153)	492012	150.000	149.58
66 Bromoform	173	8.415	8.416	(1.096)	338199	150.000	157.94
6 Bromomethane	94	1.331	1.339	(0.318)	399907	150.000	147.10
19 Carbon Disulfide	76	2.076	2.076	(0.496)	1937979	300.000	288.21(A)
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	531383	150.000	146.37
59 Chlorobenzene	112	7.699	7.699	(1.003)	1060069	150.000	144.74
7 Chloroethane	64	1.403	1.403	(0.335)	242091	150.000	142.14
28 Chloroform	83	3.917	3.917	(0.935)	641887	150.000	142.33
3 Chloromethane	50	1.080	1.081	(0.258)	438543	150.000	148.62
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	410338	150.000	141.18
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	586004	150.000	149.98
55 Dibromochloromethane	129	7.183	7.184	(0.936)	438854	150.000	148.74
44 Dibromomethane	93	5.557	5.558	(1.118)	239830	150.000	145.27
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	401283	150.000	143.68
61 Ethylbenzene	106	7.807	7.807	(1.017)	546077	150.000	144.24
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	270771	150.000	156.86
67 Isopropylbenzene	105	8.566	8.566	(1.116)	1642258	150.000	146.06
62 m,p-Xylenes	106	7.907	7.907	(1.030)	1327636	300.000	291.15(A)
17 Methylene Chloride	84	2.305	2.306	(0.550)	359557	150.000	144.89
87 n-Butylbenzene	91	9.998	9.999	(1.034)	1170649	150.000	153.20
73 n-Propylbenzene	91	8.917	8.917	(0.922)	1850611	150.000	153.21
92 Naphthalene	128	11.546	11.546	(1.194)	667369	150.000	162.50
63 o-Xylene	106	8.244	8.244	(1.074)	636382	150.000	142.65
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	1576169	150.000	150.03
64 Styrene	104	8.265	8.265	(1.076)	1130376	150.000	144.94
78 tert-Butylbenzene	119	9.339	9.340	(0.966)	1142864	150.000	147.87
56 Tetrachloroethene	164	6.933	6.933	(0.903)	389913	150.000	144.44
50 Toluene	91	6.453	6.453	(0.840)	1519978	150.000	141.23
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	350188	150.000	143.61
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	526477	150.000	154.21
38 Trichloroethene	130	5.214	5.214	(1.049)	439206	150.000	144.51
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	658059	150.000	148.47
5 Vinyl Chloride	62	1.145	1.145	(0.273)	407406	150.000	149.38

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051310.D
Date : 13-MAY-2019 14:56
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\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Lab Smp Id: VSTD200 Client Smp ID: VSTD200
Inj Date : 13-MAY-2019 15:20
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\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 15:20 Cal File: X051311.D
Als bottle: 12 Calibration Sample, Level: 10
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	286080	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	381865	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.671	(1.000)	357837	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	193530	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	502886	200.000	201.03(A)
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	597336	200.000	200.24(A)
$	30 Dibromofluoromethane	113	4.104	4.111	(0.979)	491615	200.000	200.58(A)
$	48 Toluene-d8	98	6.389	6.388	(0.832)	1723420	200.000	199.47
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	552744	200.000	197.99
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	793411	200.000	209.45(A)
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	509307	200.000	193.14
	138 Freon TF	101	1.919	1.919	(0.458)	492637	200.000	200.49(A)
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	350115	200.000	191.02
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	793297	200.000	196.74
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	462688	200.000	206.95(A)
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	635112	200.000	199.97
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	405059	200.000	200.20(A)
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	622664	200.000	206.49(A)
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	648664	200.000	227.32(A)
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	1875483	200.000	203.48(A)
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	93868	200.000	222.06(A)
	57 1,2-Dibromoethane	107	7.270	7.262	(0.947)	490366	200.000	195.71
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	1110311	200.000	198.72

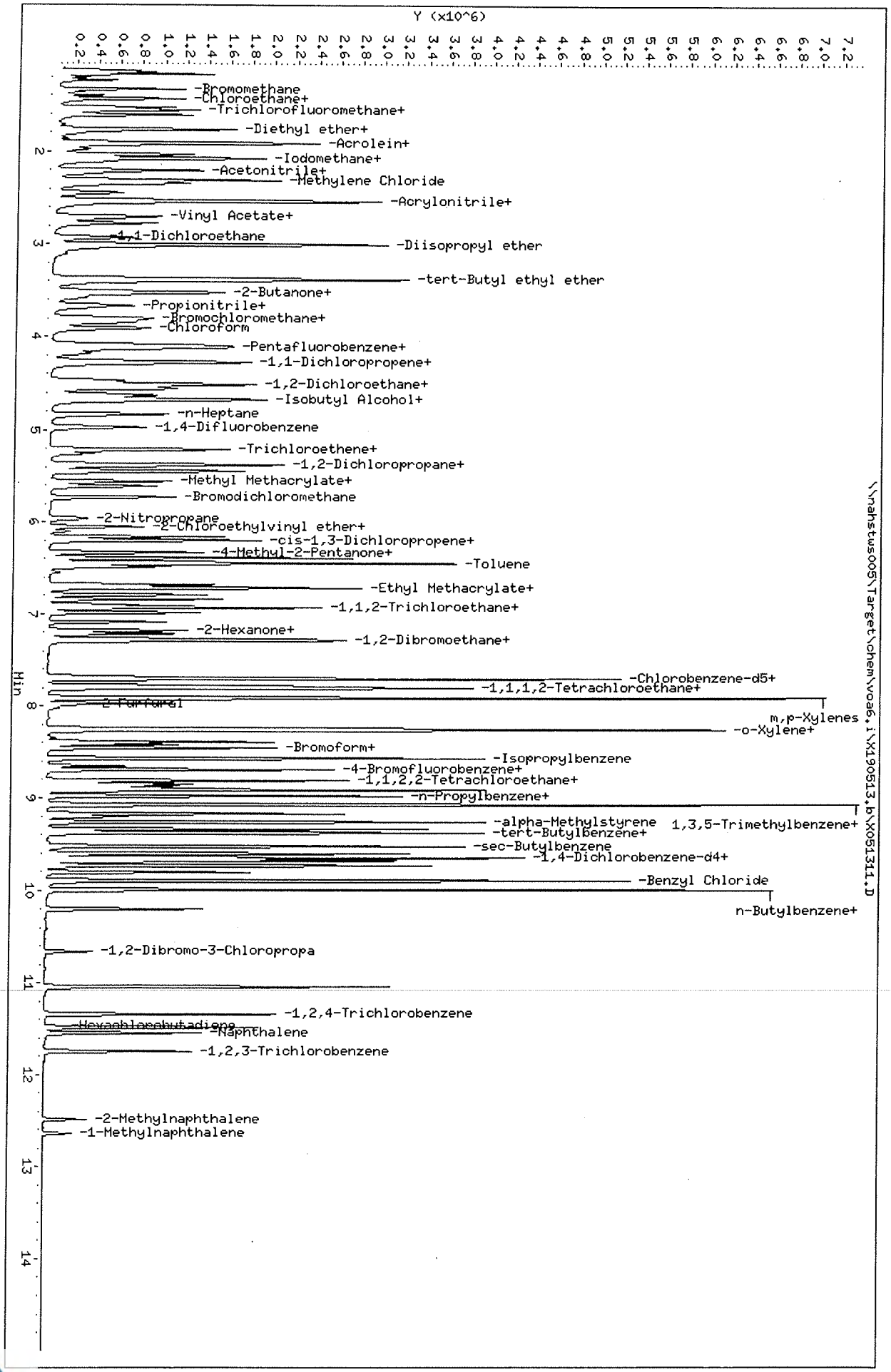
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

	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)	614464	200.000	191.07
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	432183	200.000	193.80
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	1846118	200.000	209.99(A)
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	1210068	200.000	203.29(A)
54	1,3-Dichloropropane	76	6.990	6.983	(0.910)	710269	200.000	192.09
84	1,4-Dichlorobenzene	146	9.691	9.683	(1.002)	1210233	200.000	201.97(A)
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	705204	200.000	197.43
24	2-Butanone	43	3.581	3.581	(0.855)	285814	400.000	419.09(A)
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	1436462	200.000	200.69(A)
52	2-Hexanone	43	7.090	7.090	(0.924)	489472	400.000	392.69(A)
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	1681145	200.000	202.72(A)
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	2032911	200.000	214.11(A)
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	716118	400.000	394.68(A)
10	Acetone	43	1.976	1.976	(0.472)	227028	400.000	375.25(A)
37	Benzene	78	4.519	4.519	(0.909)	1817195	200.000	197.15
74	Bromobenzene	156	8.810	8.810	(0.911)	729145	200.000	202.16(A)
29	Bromochloromethane	128	3.803	3.803	(0.908)	307407	200.000	201.34(A)
39	Bromodichloromethane	83	5.730	5.729	(1.153)	658825	200.000	205.87(A)
66	Bromoform	173	8.416	8.416	(1.096)	451027	200.000	216.13(A)
6	Bromomethane	94	1.331	1.339	(0.318)	526501	200.000	201.60(A)
19	Carbon Disulfide	76	2.069	2.076	(0.494)	2624636	400.000	407.13(A)
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	730650	200.000	206.87(A)
59	Chlorobenzene	112	7.699	7.699	(1.003)	1412889	200.000	197.94
7	Chloroethane	64	1.403	1.403	(0.335)	316439	200.000	193.79
28	Chloroform	83	3.917	3.917	(0.935)	857297	200.000	198.28
3	Chloromethane	50	1.081	1.081	(0.258)	547031	200.000	194.11
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	547797	200.000	196.59
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	782620	200.000	205.88(A)
55	Dibromochloromethane	129	7.184	7.184	(0.936)	583116	200.000	202.79(A)
44	Dibromomethane	93	5.558	5.558	(1.118)	316781	200.000	197.22
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	559973	200.000	201.04(A)
61	Ethylbenzene	106	7.807	7.807	(1.017)	740886	200.000	200.80(A)
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	370075	200.000	217.79(A)
67	Isopropylbenzene	105	8.566	8.566	(1.116)	2225949	200.000	203.13(A)
62	m,p-Xylenes	106	7.907	7.907	(1.030)	1774491	400.000	399.29(A)
17	Methylene Chloride	84	2.306	2.306	(0.550)	480088	200.000	202.04(A)
87	n-Butylbenzene	91	9.999	9.999	(1.034)	1611019	200.000	214.18(A)
73	n-Propylbenzene	91	8.917	8.917	(0.922)	2526016	200.000	212.44(A)
92	Naphthalene	128	11.546	11.546	(1.194)	938681	200.000	232.18(A)
63	o-Xylene	106	8.244	8.244	(1.074)	864147	200.000	198.75
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	2188038	200.000	211.58(A)
64	Styrene	104	8.265	8.265	(1.076)	1514827	200.000	199.29
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	1569380	200.000	206.27(A)
56	Tetrachloroethene	164	6.933	6.933	(0.903)	529001	200.000	201.07(A)
50	Toluene	91	6.453	6.453	(0.840)	2043661	200.000	194.84
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	474680	200.000	203.04(A)
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	703964	200.000	211.94(A)
38	Trichloroethene	130	5.214	5.214	(1.049)	598505	200.000	202.41(A)
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	909806	200.000	214.11(A)
5	Vinyl Chloride	62	1.145	1.145	(0.273)	563712	200.000	215.59(A)

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.



Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051311.D
Date : 13-MAY-2019 15:20
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\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 13-MAY-2019 16:08
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;ICV
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190513.b\8260W.m
Meth Date : 06-Jun-2019 10:33 Devak.Giga Quant Type: ISTD
Cal Date : 13-MAY-2019 14:56 Cal File: X051310.D
Als bottle: 14 QC Sample: METHSPIKE
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	324291	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	414601	50.0000	
*	47 Chlorobenzene-d5	117	7.671	7.671	(1.000)	379195	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	212130	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	134880	47.4310	47.43
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	161981	50.8133	50.81(R)
$	30 Dibromofluoromethane	113	4.103	4.111	(0.979)	133114	47.6318	47.63(R)
$	48 Toluene-d8	98	6.388	6.388	(0.833)	470125	50.9220	50.92
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	140712	47.5646	47.56
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	190780	44.4311	44.43
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	139566	48.2861	48.28
	138 Freon TF	101	1.919	1.919	(0.458)	102076	41.2399	41.23
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	95263	49.0480	49.04
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	211611	46.2968	46.29
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	117717	46.4496	46.44
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	151129	43.8278	43.82
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	96286	53.0497	53.04
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	164395	49.7379	49.73
	90 1,2,4-Trichlorobenzene	180	11.345	11.338	(1.173)	158836	50.7824	50.78
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	455951	45.1311	45.13
	89 1,2-Dibromo-3-Chloropropane	155	10.658	10.658	(1.102)	25198	54.3846	54.38
	57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	128201	48.2851	48.28
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	284337	46.4299	46.42

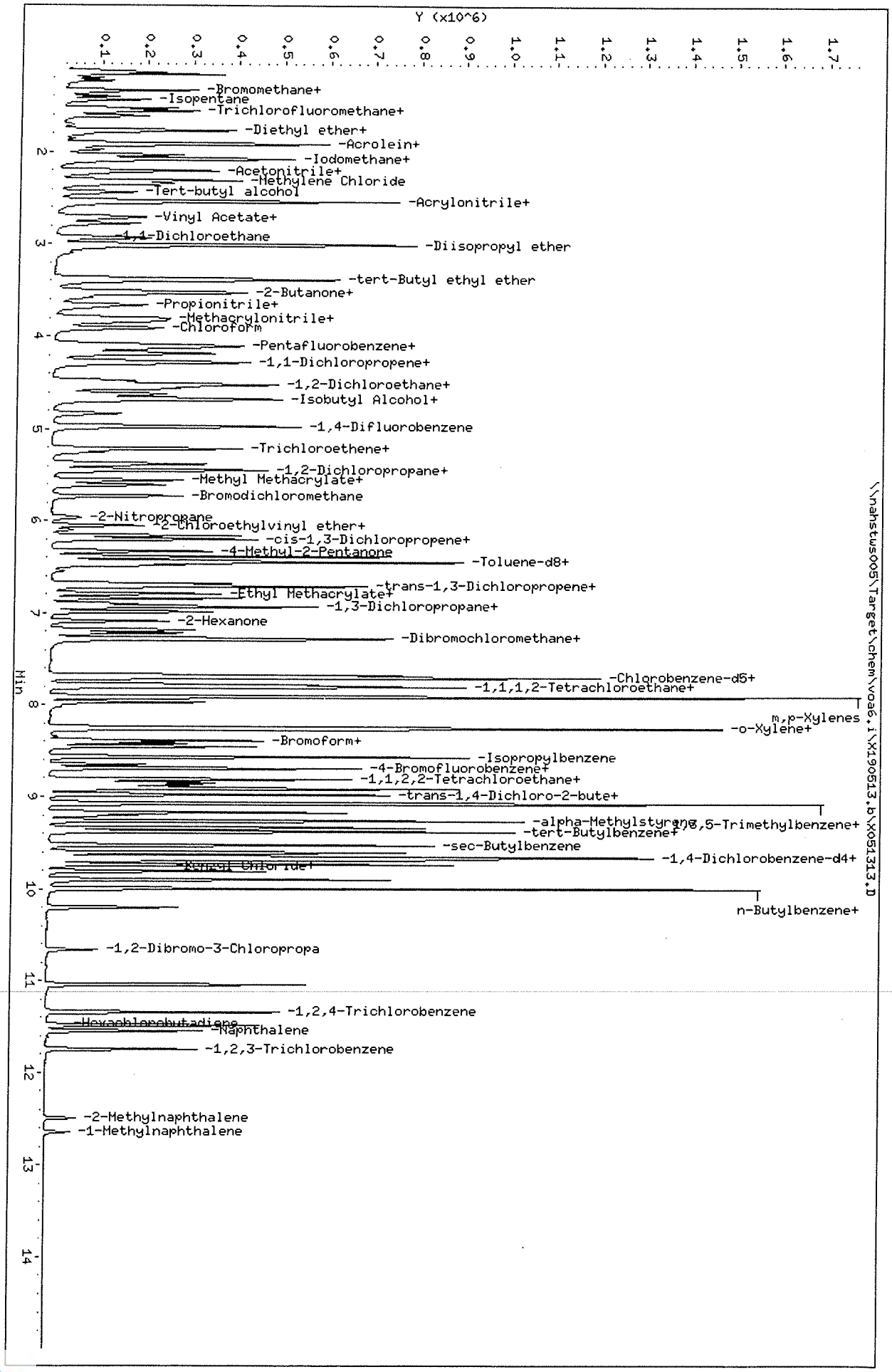
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

	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)	162952	46.6713	46.67
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	115220	47.5899	47.58
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	428136	44.4304	44.43
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	302566	46.3760	46.37
54	1,3-Dichloropropane	76	6.983	6.983	(0.910)	185679	47.3891	47.38
84	1,4-Dichlorobenzene	146	9.683	9.683	(1.001)	305934	46.5792	46.57
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	185973	45.9327	45.93
24	2-Butanone	43	3.580	3.581	(0.855)	80623	104.289	104.28
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	346767	44.2008	44.20
52	2-Hexanone	43	7.090	7.090	(0.924)	129040	97.6967	97.69
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	409428	45.0427	45.04
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	452692	43.4996	43.49
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	185950	96.7140	96.71
10	Acetone	43	1.976	1.976	(0.472)	74372	107.189	107.18
37	Benzene	78	4.519	4.519	(0.909)	476104	47.5749	47.57
74	Bromobenzene	156	8.810	8.810	(0.911)	185617	46.9519	46.95
29	Bromochloromethane	128	3.803	3.803	(0.908)	84124	48.5672	48.56
39	Bromodichloromethane	83	5.729	5.729	(1.153)	170160	48.9748	48.97
66	Bromoform	173	8.416	8.416	(1.097)	116937	52.8796	52.87
6	Bromomethane	94	1.338	1.339	(0.320)	158469	54.3331	54.33
19	Carbon Disulfide	76	2.076	2.076	(0.496)	690201	94.4488	94.44
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	166746	43.4836	43.48
59	Chlorobenzene	112	7.699	7.699	(1.004)	356926	47.1893	47.18
7	Chloroethane	64	1.403	1.403	(0.335)	86291	46.6191	46.61
28	Chloroform	83	3.917	3.917	(0.935)	228760	46.6748	46.67
3	Chloromethane	50	1.081	1.081	(0.258)	153758	46.2700	46.27
27	cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	146864	46.4963	46.49
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	206431	50.0184	50.01
55	Dibromochloromethane	129	7.184	7.184	(0.937)	149124	48.9417	48.94
44	Dibromomethane	93	5.557	5.558	(1.118)	85374	48.9566	48.95
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	133900	47.0266	47.02
61	Ethylbenzene	106	7.807	7.807	(1.018)	175446	44.8724	44.87
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	90131	48.3930	48.39
67	Isopropylbenzene	105	8.566	8.566	(1.117)	506288	43.6011	43.60
62	m,p-Xylenes	106	7.907	7.907	(1.031)	431344	91.5937	91.59
17	Methylene Chloride	84	2.305	2.306	(0.550)	132416	48.6854	48.68
87	n-Butylbenzene	91	9.999	9.999	(1.034)	360691	43.7487	43.74
73	n-Propylbenzene	91	8.917	8.917	(0.922)	563787	43.2591	43.25
92	Naphthalene	128	11.546	11.546	(1.194)	233649	52.7267	52.72
63	o-Xylene	106	8.244	8.244	(1.075)	214602	46.5786	46.57
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	476834	42.0663	42.06
64	Styrene	104	8.265	8.265	(1.078)	383116	47.5660	47.56
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	356817	42.7876	42.78
56	Tetrachloroethene	164	6.933	6.933	(0.904)	122715	44.0180	44.01
50	Toluene	91	6.453	6.453	(0.841)	518873	46.6830	46.68
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	126392	47.6934	47.69
51	trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	186372	51.6816	51.68
38	Trichloroethene	130	5.214	5.214	(1.049)	149121	46.4499	46.44
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	208348	43.2547	43.25
5	Vinyl Chloride	62	1.145	1.145	(0.273)	138377	46.6878	46.68

Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Report Date: 06-Jun-2019 10:44

QC Flag Legend

R - Spike/Surrogate failed recovery limits.


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane+
-Isopentane
-Trichlorofluoromethane+
-Diethyl ether+
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate+
-1,1-Dichloroethane
-Diisopropyl ether
-tert-Butyl ethyl ether
-2-Butanone+
-Propionitrile+
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-Isobutyl Alcohol+
-1,4-Difluorobenzene
-Trichloroethene+
-1,2-Dichloropropane+
-Methyl Methacrylate+
-Bromodichloromethane
-2-Nitropropane
-2-Chloroethylvinyl ether+
-cis-1,3-Dichloropropene+
-4-Methyl-2-Pentanone
-Toluene-d8+
-trans-1,3-Dichloropropene+
-Ethyl Methacrylate+
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-o-Xylene+
-Bromoform+
-Isopropylbenzene
-4-Bromofluorobenzene+
-1,1,2,2-Tetrachloroethane+
-trans-1,4-Dichloro-2-bute+
-alpha-Methylstyrene
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
-Benzyl Chloride+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
-2-Methylnaphthalene
-1-Methylnaphthalene
\\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Data File: \\nahstws005\Target\chem\voa6.i\X190513.b\X051313.D
Date : 13-MAY-2019 16:08
Client ID: CCV
Sample Info: CCV;CCV;2;;ICV
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

MSVOA06 -Logbook

Batch: 35393
Date: 05-23-2019
Method: 8260
Comments: Target Sequence 190523

Analyst: Presenta Cabascango
Reviewer:
Laboratory: Houston

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
1	BFB	TUNE	05-23-2019 11:13 am	1.00	0.00 mL	0.00 mL	X052301.D	Liquid	Y	NA
	Auto find/purged									
2	CCV	CCV	05-23-2019 11:37 am	1.00	5.00 mL	0.00 mL	X052302.D	Liquid	Y	NA
	10 uL cal/50 mL DI									
3	BLANK	SAMP	05-23-2019 12:01 pm	1.00	5.00 mL	0.00 mL	X052303.D	Liquid	Y	NA
4	CCB	SAMP	05-23-2019 12:25 pm	1.00	5.00 mL	0.00 mL	X052304.D	Liquid	Y	NA
	CCB									
5	VLCSW-190523	LCS	05-23-2019 12:49 pm	1.00	5.00 mL	0.00 mL	X052305.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
6	BLANK	SAMP	05-23-2019 01:13 pm	1.00	5.00 mL	0.00 mL	X052306.D	Liquid	Y	NA
7	VBLKW-190523	MBLK	05-23-2019 01:37 pm	1.00	5.00 mL	0.00 mL	X052307.D	Liquid	Y	NA
8	HS19050920-02	SAMP	05-23-2019 02:01 pm	1.00	5.00 mL	0.00 mL	X052308.D	Liquid	Y	<2
9	HS19051031-06	SAMP	05-23-2019 02:25 pm	1.00	5.00 mL	0.00 mL	X052309.D	Liquid	Y	<2
10	HS19051208-09	SAMP	05-23-2019 02:50 pm	1.00	5.00 mL	0.00 mL	X052310.D	Liquid	Y	<2
11	HS19050920-01	SAMP	05-23-2019 03:14 pm	1.00	5.00 mL	0.00 mL	X052311.D	Liquid	Y	<2
12	HS19051208-01	SAMP	05-23-2019 03:38 pm	1.00	5.00 mL	0.00 mL	X052312.D	Liquid	Y	<2
13	HS19051208-02	SAMP	05-23-2019 04:02 pm	1.00	5.00 mL	0.00 mL	X052313.D	Liquid	Y	<2
14	HS19051208-03	SAMP	05-23-2019 04:26 pm	1.00	5.00 mL	0.00 mL	X052314.D	Liquid	Y	<2
15	HS19051208-01MS	MS	05-23-2019 04:50 pm	1.00	5.00 mL	0.00 mL	X052315.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
16	HS19051208-01MSD	MSD	05-23-2019 05:14 pm	1.00	5.00 mL	0.00 mL	X052316.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
17	HS19051022-02	SAMP	05-23-2019 05:38 pm	25.00	5.00 mL	0.00 mL	X052317.D	Liquid	Y	<2
18	HS19051068-01	SAMP	05-23-2019 06:02 pm	10.00	5.00 mL	0.00 mL	X052318.D	Liquid	Y	<2
19	HS19051208-04	SAMP	05-23-2019 06:26 pm	1.00	5.00 mL	0.00 mL	X052319.D	Liquid	Y	<2
20	HS19051208-05	SAMP	05-23-2019 06:50 pm	1.00	5.00 mL	0.00 mL	X052320.D	Liquid	Y	<2
21	HS19051208-06	SAMP	05-23-2019 07:14 pm	1.00	5.00 mL	0.00 mL	X052321.D	Liquid	Y	<2
22	HS19051208-07	SAMP	05-23-2019 07:38 pm	1.00	5.00 mL	0.00 mL	X052322.D	Liquid	Y	<2
23	HS19051208-08	SAMP	05-23-2019 08:02 pm	1.00	5.00 mL	0.00 mL	X052323.D	Liquid	Y	<2
24	HS19051031-01	SAMP	05-23-2019 08:26 pm	1.00	5.00 mL	0.00 mL	X052324.D	Liquid	Y	<2
25	HS19051031-02	SAMP	05-23-2019 08:50 pm	1.00	5.00 mL	0.00 mL	X052325.D	Liquid	Y	<2
26	HS19051031-03	SAMP	05-23-2019 09:14 pm	1.00	5.00 mL	0.00 mL	X052326.D	Liquid	Y	<2
27	HS19051031-04	SAMP	05-23-2019 09:38 pm	1.00	5.00 mL	0.00 mL	X052327.D	Liquid	Y	<2
28	HS19051031-05	SAMP	05-23-2019 10:02 pm	1.00	5.00 mL	0.00 mL	X052328.D	Liquid	Y	<2
29	HS19051179-01	SAMP	05-23-2019 10:27 pm	1.00	5.00 mL	0.00 mL	X052329.D	Liquid	Y	<2
30	CCV-END	CCV	05-23-2019 10:51 pm	1.00	5.00 mL	0.00 mL	X052330.D	Liquid	Y	NA
	10 uL cal std/50 mL DI									
31	BFB	TUNE	05-23-2019 11:15 pm	1.00	0.00 mL	0.00 mL	Y052301.D	Liquid	Y	NA
	Auto find/purged									
32	CCV	CCV	05-23-2019 11:38 pm	1.00	5.00 mL	0.00 mL	Y052302.D	Liquid	Y	NA
	10 uL cal/50 mL DI									
33	CCB	SAMP	05-24-2019 12:03 am	1.00	5.00 mL	0.00 mL	Y052303.D	Liquid	Y	NA
	CCB									
34	VLCSW-190523	LCS	05-24-2019 12:26 am	1.00	5.00 mL	0.00 mL	Y052304.D	Liquid	Y	NA
	4 uL LCS std/50 mL DI									
35	BLANK	SAMP	05-24-2019 12:50 am	1.00	5.00 mL	0.00 mL	Y052305.D	Liquid	Y	NA

MSVOA06 -Logbook

#	Samp ID	Type	Analyzed	DF	Init Wt/Vol	Final Vol	File ID	Matrix	Status	pH
36	VBLKW-190523	MBLK	05-24-2019 01:15 am	1.00	5.00 mL	0.00 mL	Y052306.D	Liquid	Y	NA
37	HS19051195-06	SAMP	05-24-2019 01:39 am	1.00	5.00 mL	0.00 mL	Y052307.D	Liquid	Y	<2
38	HS19051163-01	SAMP	05-24-2019 02:03 am	1.00	5.00 mL	0.00 mL	Y052308.D	Liquid	Y	<2
39	HS19051195-02	SAMP	05-24-2019 02:29 am	10.00	5.00 mL	0.00 mL	Y052309.D	Liquid	Y	<2
40	HS19051163-01MS	MS	05-24-2019 02:53 am	1.00	5.00 mL	0.00 mL	Y052310.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
41	HS19051163-01MSD	MSD	05-24-2019 03:17 am	1.00	5.00 mL	0.00 mL	Y052311.D	Liquid	Y	NA
	3.2 uL cal std/40 mL sample									
42	HS19051163-02	SAMP	05-24-2019 03:41 am	1.00	5.00 mL	0.00 mL	Y052312.D	Liquid	Y	<2
43	HS19051163-03	SAMP	05-24-2019 04:05 am	1.00	5.00 mL	0.00 mL	Y052313.D	Liquid	Y	<2
44	HS19051163-04	SAMP	05-24-2019 04:30 am	1.00	5.00 mL	0.00 mL	Y052314.D	Liquid	Y	<2
45	HS19051163-05	SAMP	05-24-2019 04:54 am	1.00	5.00 mL	0.00 mL	Y052315.D	Liquid	Y	<2
46	HS19051195-01	SAMP	05-24-2019 05:18 am	1.00	5.00 mL	0.00 mL	Y052316.D	Liquid	Y	<2
47	HS19051195-03	SAMP	05-24-2019 05:42 am	1.00	5.00 mL	0.00 mL	Y052317.D	Liquid	Y	<2
48	HS19051195-04	SAMP	05-24-2019 06:06 am	1.00	5.00 mL	0.00 mL	Y052318.D	Liquid	Y	<2
49	HS19051195-05	SAMP	05-24-2019 06:30 am	1.00	5.00 mL	0.00 mL	Y052319.D	Liquid	Y	<2
50	HS19051348-01	SAMP	05-24-2019 06:54 am	1.00	5.00 mL	0.00 mL	Y052320.D	Liquid	Y	<2
51	HS19051348-02	SAMP	05-24-2019 07:18 am	1.00	5.00 mL	0.00 mL	Y052321.D	Liquid	Y	<2
52	HS19051348-03	SAMP	05-24-2019 07:42 am	1.00	5.00 mL	0.00 mL	Y052322.D	Liquid	Y	<2
53	HS19051348-04	SAMP	05-24-2019 08:06 am	1.00	5.00 mL	0.00 mL	Y052323.D	Liquid	Y	<2
54	HS19051348-05	SAMP	05-24-2019 08:30 am	1.00	5.00 mL	0.00 mL	Y052324.D	Liquid	Y	<2
55	HS19051348-06	SAMP	05-24-2019 08:54 am	1.00	5.00 mL	0.00 mL	Y052325.D	Liquid	Y	<2
56	HS19051348-07	SAMP	05-24-2019 09:18 am	1.00	5.00 mL	0.00 mL	Y052326.D	Liquid	Y	<2
57	HS19051348-08	SAMP	05-24-2019 09:42 am	1.00	5.00 mL	0.00 mL	Y052327.D	Liquid	Y	<2
58	HS19051080-01	SAMP	05-24-2019 10:07 am	1.00	5.00 mL	0.00 mL	Y052328.D	Liquid	Y	<2

Chemical	Value
SURR SPK ID	30502-73-03
IS ID	30502-73-04
LCS/MS ID	30603-67-01
CAL STD ID	30502-77-01/02
BFB ID	30502-73-03
pH Paper	634-61-19

FORM 2
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

	CLIENT SAMPLE NO.	SMC1 #	SMC2 #	SMC3 (TOL) #	OTHER (DCE) #	TOT OUT
01	VLCSW-190523	108	99	92	96	0
02	VBLKW-190523	104	89	108	85	0
03	HS19051031-0	104	89	103	86	0
04	HS19051208-0	104	91	108	91	0
05	HS19051208-0	103	91	106	87	0
06	HS19051031-0	104	89	105	85	0
07	HS19051031-0	104	90	105	86	0
08	HS19051031-0	104	89	105	85	0
09	HS19051031-0	105	88	107	85	0
10	HS19051031-0	104	90	104	86	0
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

		QC LIMITS
SMC1	= 4-Bromofluorobenzene	(70-130)
SMC2	= Dibromofluoromethane	(70-130)
SMC3 (TOL)	= Toluene-d8	(0-130)
OTHER(DCE)	= 1,2-Dichloroethane-d4	(0-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM 4
VOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

VBLKW-190523

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Lab File ID: X052307 Lab Sample ID: VBLKW-190523

Date Analyzed: 05/23/19 Time Analyzed: 1337

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-190523	VLCSW-190523	X052305	1249
02	HS19051031-0	HS19051031-06	X052309	1425
03	HS19051208-0	HS19051208-01M	X052315	1650
04	HS19051208-0	HS19051208-01M	X052316	1714
05	HS19051031-0	HS19051031-01	X052324	2026
06	HS19051031-0	HS19051031-02	X052325	2050
07	HS19051031-0	HS19051031-03	X052326	2114
08	HS19051031-0	HS19051031-04	X052327	2138
09	HS19051031-0	HS19051031-05	X052328	2202
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM 5
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Lab File ID: X052301 BFB Injection Date: 05/23/19

Instrument ID: VOA6 BFB Injection Time: 1113

GC Column: DB624 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.8
75	30.0 - 60.0% of mass 95	46.0
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.4
173	Less than 2.0% of mass 174	0.6 (0.8)1
174	Greater than 50.0% of mass 95	74.7
175	5.0 - 9.0% of mass 174	5.7 (7.6)1
176	95.0 - 101.0% of mass 174	72.6 (97.3)1
177	5.0 - 9.0% of mass 176	5.6 (7.7)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CCV	CCV	X052302	05/23/19	1137
02	VLCSW-190523	VLCSW-190523	X052305	05/23/19	1249
03	VBLKW-190523	VBLKW-190523	X052307	05/23/19	1337
04	HS19051031-0	HS19051031-06	X052309	05/23/19	1425
05	HS19051208-0	HS19051208-01M	X052315	05/23/19	1650
06	HS19051208-0	HS19051208-01M	X052316	05/23/19	1714
07	HS19051031-0	HS19051031-01	X052324	05/23/19	2026
08	HS19051031-0	HS19051031-02	X052325	05/23/19	2050
09	HS19051031-0	HS19051031-03	X052326	05/23/19	2114
10	HS19051031-0	HS19051031-04	X052327	05/23/19	2138
11	HS19051031-0	HS19051031-05	X052328	05/23/19	2202
12	CCV-END	CCV-END	X052330	05/23/19	2251
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Instrument ID: VOA6 Calibration Date: 05/23/19 Time: 1137

Lab File ID: X052302 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.5283413	0.5283413	0.2	-6.09	20.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4612663	0.4612663	0.1	-6.04	20.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.4682606	1.4682606	0.6	4.53	20.00	AVRG
2,2-Dichloropropane	0.6240000	0.6107906	0.6107906	0.1	2.12	20.00	AVRG
1,1-Dichloropropene	0.4160000	0.3950798	0.3950798	0.1	5.03	20.00	AVRG
Dibromomethane	0.2100000	0.2140692	0.2140692	0.1	-1.94	20.00	AVRG
1,2-Dibromoethane	0.3500000	0.3515209	0.3515209	0.1	-0.43	20.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.4176222	0.4176222	0.1	-2.36	20.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3751266	0.3751266	0.1	3.81	20.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.6361228	0.6361228	0.1	3.91	20.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.6910165	0.6910165	0.3	-1.47	20.00	AVRG
Toluene	1.4650000	1.4833944	1.4833944	0.4	-1.26	20.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2630673	0.2630673	0.1	-2.76	20.00	AVRG
1,1-Dichloroethane	0.7050000	0.7334179	0.7334179	0.2	-4.03	20.00	AVRG
1,1-Dichloroethene	0.3900000	0.3622368	0.3622368	0.1	7.12	20.00	AVRG
Trichlorofluoromethane	0.7430000	0.6474948	0.6474948	0.1	12.85	20.00	AVRG
1,2,3-Trichlorobenzene	52.487892	50.000000	0.4487821	0.1	-4.98	20.00	2RDR
Tetrachloroethene	0.3680000	0.3417765	0.3417765	0.2	7.12	20.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.7315854	0.7315854	0.2	0.73	20.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.2921556	2.2921556	0.1	3.73	20.00	AVRG
tert-Butylbenzene	1.9660000	1.8088832	1.8088832	0.1	7.99	20.00	AVRG
Trichloroethene	0.3870000	0.3810542	0.3810542	0.2	1.54	20.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3937854	1.3937854	0.4	3.41	20.00	AVRG
1,2-Dichloroethane	0.4210000	0.3906603	0.3906603	0.1	7.21	20.00	AVRG
1,2-Dichloropropane	0.2920000	0.3150180	0.3150180	0.1	-7.88	20.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.1995809	2.1995809	0.1	3.14	20.00	AVRG
1,3-Dichloropropane	0.5160000	0.5309622	0.5309622	0.1	-2.90	20.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4689304	1.4689304	0.4	5.11	20.00	AVRG
2-Butanone	0.1190000	0.1382213	0.1382213	0.1	-16.15	20.00	AVRG
2-Chlorotoluene	1.8490000	1.7516799	1.7516799	0.1	5.26	20.00	AVRG
2-Hexanone	0.1740000	0.1870775	0.1870775	0.1	-7.52	20.00	AVRG
4-Chlorotoluene	2.1420000	2.0642023	2.0642023	0.1	3.63	20.00	AVRG
Styrene	1.0620000	1.0971517	1.0971517	0.3	-3.31	20.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2806789	0.2806789	0.1	-10.94	20.00	AVRG
Acetone	95.898794	100.00000	0.1027863	0.1	4.10	20.00	LINR
Benzene	1.2070000	1.2447975	1.2447975	0.5	-3.13	20.00	AVRG
Bromobenzene	0.9320000	0.8753922	0.8753922	0.1	6.07	20.00	AVRG
Bromochloromethane	52.942653	50.000000	0.2827540	0.1	-5.88	20.00	LINR
Bromodichloromethane	0.4190000	0.4201878	0.4201878	0.2	-0.28	20.00	AVRG
Bromoform	0.2920000	0.2944449	0.2944449	0.1	-0.84	20.00	AVRG
Bromomethane	46.822422	50.000000	0.4197260	0.1	6.36	20.00	LINR
Carbon Disulfide	1.1270000	1.1853260	1.1853260	0.1	-5.18	20.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date: 05/23/19 Time: 1137

Lab File ID: X052302 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3976239	0.3976239	0.1	13.93	20.00	AVRG
Chlorobenzene	0.9970000	0.9990656	0.9990656	0.5	-0.21	20.00	AVRG
Chloroethane	0.2850000	0.2740572	0.2740572	0.1	3.84	20.00	AVRG
Chloroform	0.7550000	0.7705382	0.7705382	0.2	-2.06	20.00	AVRG
Chloromethane	58.070702	50.000000	0.5889155	0.1	-16.14	20.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.5024474	0.5024474	0.1	-3.17	20.00	AVRG
Dibromochloromethane	0.4020000	0.3880867	0.3880867	0.1	3.46	20.00	AVRG
Dichlorodifluoromethane	47.545139	50.000000	0.4176249	0.1	4.91	20.00	2RDR
Ethylbenzene	0.5160000	0.5197965	0.5197965	0.1	-0.74	20.00	AVRG
Hexachlorobutadiene	0.4390000	0.4252489	0.4252489	0.1	3.13	20.00	AVRG
Isopropylbenzene	1.5310000	1.4879071	1.4879071	0.1	2.81	20.00	AVRG
m,p-Xylenes	0.6210000	0.6251448	0.6251448	0.1	-0.67	20.00	AVRG
Methylene Chloride	53.569804	50.000000	0.4487681	0.1	-7.14	20.00	LINR
n-Butylbenzene	1.9430000	1.8758113	1.8758113	0.5	3.46	20.00	AVRG
n-Propylbenzene	3.0720000	2.9177305	2.9177305	0.1	5.02	20.00	AVRG
Naphthalene	1.0440000	1.1233111	1.1233111	0.2	-7.60	20.00	AVRG
o-Xylene	0.6080000	0.6201120	0.6201120	0.3	-1.99	20.00	AVRG
sec-Butylbenzene	2.6720000	2.4723046	2.4723046	0.1	7.47	20.00	AVRG
Vinyl Chloride	0.4570000	0.4620438	0.4620438	0.1	-1.10	20.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.8078014	0.8078014	0.1	-3.70	20.00	AVRG
p-Isopropyltoluene	2.4530000	2.3277097	2.3277097	0.1	5.11	20.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1120317	0.1120317	0.05	-2.78	20.00	AVRG
Freon TF	47.001240	50.000000	0.3607886	0.1	6.00	20.00	2RDR
4-Bromofluorobenzene	53.430432	50.000000	0.4489254	0.1	-6.86	20.00	LINR
Dibromofluoromethane	50.494850	50.000000	0.4349606	0.1	-0.99	20.00	LINR
Toluene-d8	46.407641	50.000000	1.1311110	0.1	7.18	20.00	LINR
1,2-Dichloroethane-d4	46.250217	50.000000	0.4056078	0.1	7.50	20.00	LINR

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Instrument ID: VOA6 Calibration Date: 05/23/19 Time: 2251

Lab File ID: X052330 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

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	0.4980000	0.5229550	0.5229550	0.2	-5.01	50.00	AVRG
trans-1,3-Dichloropropene	0.4350000	0.4483223	0.4483223	0.1	-3.06	50.00	AVRG
1,3-Dichlorobenzene	1.5380000	1.4658022	1.4658022	0.6	4.69	50.00	AVRG
2,2-Dichloropropane	0.6240000	0.5079528	0.5079528	0.1	18.60	50.00	AVRG
1,1-Dichloropropene	0.4160000	0.3956672	0.3956672	0.1	4.89	50.00	AVRG
Dibromomethane	0.2100000	0.2159544	0.2159544	0.1	-2.84	50.00	AVRG
1,2-Dibromoethane	0.3500000	0.3560762	0.3560762	0.1	-1.74	50.00	AVRG
trans-1,2-Dichloroethene	0.4080000	0.4304397	0.4304397	0.1	-5.50	50.00	AVRG
1,1,1,2-Tetrachloroethane	0.3900000	0.3688940	0.3688940	0.1	5.41	50.00	AVRG
1,1,1-Trichloroethane	0.6620000	0.6241749	0.6241749	0.1	5.71	50.00	AVRG
1,1,2,2-Tetrachloroethane	0.6810000	0.7236831	0.7236831	0.3	-6.27	50.00	AVRG
Toluene	1.4650000	1.4620092	1.4620092	0.4	0.20	50.00	AVRG
1,1,2-Trichloroethane	0.2560000	0.2714169	0.2714169	0.1	-6.02	50.00	AVRG
1,1-Dichloroethane	0.7050000	0.7533687	0.7533687	0.2	-6.86	50.00	AVRG
1,1-Dichloroethene	0.3900000	0.3700211	0.3700211	0.1	5.12	50.00	AVRG
Trichlorofluoromethane	0.7430000	0.6450267	0.6450267	0.1	13.19	50.00	AVRG
1,2,3-Trichlorobenzene	49.259905	50.000000	0.4194837	0.1	1.48	50.00	2RDR
Tetrachloroethene	0.3680000	0.3264325	0.3264325	0.2	11.30	50.00	AVRG
1,2,4-Trichlorobenzene	0.7370000	0.7084614	0.7084614	0.2	3.87	50.00	AVRG
1,2,4-Trimethylbenzene	2.3810000	2.2957651	2.2957651	0.1	3.58	50.00	AVRG
tert-Butylbenzene	1.9660000	1.8099292	1.8099292	0.1	7.94	50.00	AVRG
Trichloroethene	0.3870000	0.3781409	0.3781409	0.2	2.29	50.00	AVRG
1,2-Dichlorobenzene	1.4430000	1.3957032	1.3957032	0.4	3.28	50.00	AVRG
1,2-Dichloroethane	0.4210000	0.3942348	0.3942348	0.1	6.36	50.00	AVRG
1,2-Dichloropropane	0.2920000	0.3168133	0.3168133	0.1	-8.50	50.00	AVRG
1,3,5-Trimethylbenzene	2.2710000	2.2156795	2.2156795	0.1	2.44	50.00	AVRG
1,3-Dichloropropane	0.5160000	0.5387356	0.5387356	0.1	-4.41	50.00	AVRG
1,4-Dichlorobenzene	1.5480000	1.4881210	1.4881210	0.4	3.87	50.00	AVRG
2-Butanone	0.1190000	0.1463532	0.1463532	0.1	-22.98	50.00	AVRG
2-Chlorotoluene	1.8490000	1.8051965	1.8051965	0.1	2.37	50.00	AVRG
2-Hexanone	0.1740000	0.1902858	0.1902858	0.1	-9.36	50.00	AVRG
4-Chlorotoluene	2.1420000	2.0893735	2.0893735	0.1	2.46	50.00	AVRG
Styrene	1.0620000	1.1029874	1.1029874	0.3	-3.86	50.00	AVRG
4-Methyl-2-Pentanone	0.2530000	0.2815590	0.2815590	0.1	-11.29	50.00	AVRG
Acetone	100.29973	100.00000	0.1074179	0.1	-0.30	50.00	LINR
Benzene	1.2070000	1.2619365	1.2619365	0.5	-4.55	50.00	AVRG
Bromobenzene	0.9320000	0.8991592	0.8991592	0.1	3.52	50.00	AVRG
Bromochloromethane	52.687915	50.000000	0.2813949	0.1	-5.38	50.00	LINR
Bromodichloromethane	0.4190000	0.4216381	0.4216381	0.2	-0.63	50.00	AVRG
Bromoform	0.2920000	0.2929269	0.2929269	0.1	-0.32	50.00	AVRG
Bromomethane	47.792926	50.000000	0.4286338	0.1	4.41	50.00	LINR
Carbon Disulfide	1.1270000	1.2340659	1.2340659	0.1	-9.50	50.00	AVRG

FORM VII VOA

FORM 7B
VOLATILE CALIBRATION VERIFICATION SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS1905103

Instrument ID: VOA6 Calibration Date: 05/23/19 Time: 2251

Lab File ID: X052330 Init. Calib. Date(s): 05/13/19 05/13/19

Init. Calib. Times: 1121 1520

GC Column: DB624 ID: 0.18 (mm)

COMPOUND	RRF or AMOUNT	RRF50.000 or AMOUNT	CCAL RRF50.000	MIN RRF	%D or %DRIFT	MAX %D or %DRIFT	CURV TYPE
Carbon Tetrachloride	0.4620000	0.3959654	0.3959654	0.1	14.29	50.00	AVRG
Chlorobenzene	0.9970000	0.9996151	0.9996151	0.5	-0.26	50.00	AVRG
Chloroethane	0.2850000	0.2783816	0.2783816	0.1	2.32	50.00	AVRG
Chloroform	0.7550000	0.7750070	0.7750070	0.2	-2.65	50.00	AVRG
Chloromethane	56.170054	50.000000	0.5704288	0.1	-12.34	50.00	LINR
cis-1,2-Dichloroethene	0.4870000	0.5118690	0.5118690	0.1	-5.11	50.00	AVRG
Dibromochloromethane	0.4020000	0.3921592	0.3921592	0.1	2.45	50.00	AVRG
Dichlorodifluoromethane	46.932011	50.000000	0.4120398	0.1	6.14	50.00	2RDR
Ethylbenzene	0.5160000	0.5061045	0.5061045	0.1	1.92	50.00	AVRG
Hexachlorobutadiene	0.4390000	0.3725798	0.3725798	0.1	15.13	50.00	AVRG
Isopropylbenzene	1.5310000	1.4313027	1.4313027	0.1	6.51	50.00	AVRG
m,p-Xylenes	0.6210000	0.6092948	0.6092948	0.1	1.88	50.00	AVRG
Methylene Chloride	56.700792	50.000000	0.4746932	0.1	-13.40	50.00	LINR
n-Butylbenzene	1.9430000	1.7918709	1.7918709	0.5	7.78	50.00	AVRG
n-Propylbenzene	3.0720000	2.9183733	2.9183733	0.1	5.00	50.00	AVRG
Naphthalene	1.0440000	1.0721802	1.0721802	0.2	-2.70	50.00	AVRG
o-Xylene	0.6080000	0.6096211	0.6096211	0.3	-0.27	50.00	AVRG
sec-Butylbenzene	2.6720000	2.4638079	2.4638079	0.1	7.79	50.00	AVRG
Vinyl Chloride	0.4570000	0.4609667	0.4609667	0.1	-0.87	50.00	AVRG
1,2,3-Trichloropropane	0.7790000	0.8227033	0.8227033	0.1	-5.61	50.00	AVRG
p-Isopropyltoluene	2.4530000	2.2799353	2.2799353	0.1	7.06	50.00	AVRG
1,2-Dibromo-3-Chloropropane	0.1090000	0.1130634	0.1130634	0.05	-3.73	50.00	AVRG
Freon TF	44.773456	50.000000	0.3429574	0.1	10.45	50.00	2RDR
4-Bromofluorobenzene	53.775514	50.000000	0.4517939	0.1	-7.55	50.00	LINR
Dibromofluoromethane	49.747589	50.000000	0.4285703	0.1	0.50	50.00	LINR
Toluene-d8	45.673106	50.000000	1.1134265	0.1	8.65	50.00	LINR
1,2-Dichloroethane-d4	45.747422	50.000000	0.4012154	0.1	8.50	50.00	LINR

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Lab File ID (Standard): X052302 Date Analyzed: 05/23/19

Instrument ID: VOA6 Time Analyzed: 1137

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS1(DCB) AREA #	IS1(DCB) RT #	IS2(CBZ) AREA #	IS2(CBZ) RT #	IS3(DFB) AREA #	IS3(DFB) RT #
	12 HOUR STD	279180	9.67	482637	7.68	518837	4.97
	UPPER LIMIT	558360	10.17	965274	8.18	1037674	5.47
	LOWER LIMIT	139590	9.17	241319	7.18	259419	4.47
	CLIENT SAMPLE NO.						
01	VLCSW-190523	280121	9.67	488442	7.67	520483	4.97
02	VBLKW-190523	311348	9.67	605445	7.67	697797	4.97
03	HS19051031-0	349410	9.67	641710	7.68	694002	4.97
04	HS19051208-0	322611	9.67	608793	7.67	704056	4.97
05	HS19051208-0	312890	9.67	607900	7.68	688315	4.97
06	HS19051031-0	345903	9.67	636267	7.68	715459	4.97
07	HS19051031-0	335683	9.67	627866	7.67	716348	4.97
08	HS19051031-0	334477	9.67	636337	7.68	709199	4.97
09	HS19051031-0	331482	9.67	617723	7.68	711695	4.97
10	HS19051031-0	350768	9.67	636440	7.68	709737	4.97
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (CBZ) = Chlorobenzene-d5
IS3 (DFB) = 1,4-Difluorobenzene

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM 8
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: HS19051031

Lab File ID (Standard): X052302 Date Analyzed: 05/23/19

Instrument ID: VOA6 Time Analyzed: 1137

GC Column: DB624 ID: 0.18 (mm) Heated Purge: (Y/N) N

		IS4 AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	379793	4.19				
	UPPER LIMIT	759586	4.69				
	LOWER LIMIT	189897	3.69				
	CLIENT SAMPLE NO.						
01	VLCSW-190523	381165	4.19				
02	VBLKW-190523	542493	4.19				
03	HS19051031-0	533701	4.19				
04	HS19051208-0	540638	4.19				
05	HS19051208-0	533851	4.19				
06	HS19051031-0	553659	4.19				
07	HS19051031-0	549569	4.19				
08	HS19051031-0	552842	4.19				
09	HS19051031-0	555752	4.19				
10	HS19051031-0	548434	4.19				
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\X190523.b\X052301.D

Date : 23-MAY-2019 11:13

Client ID: BFB

Instrument: voa6.i

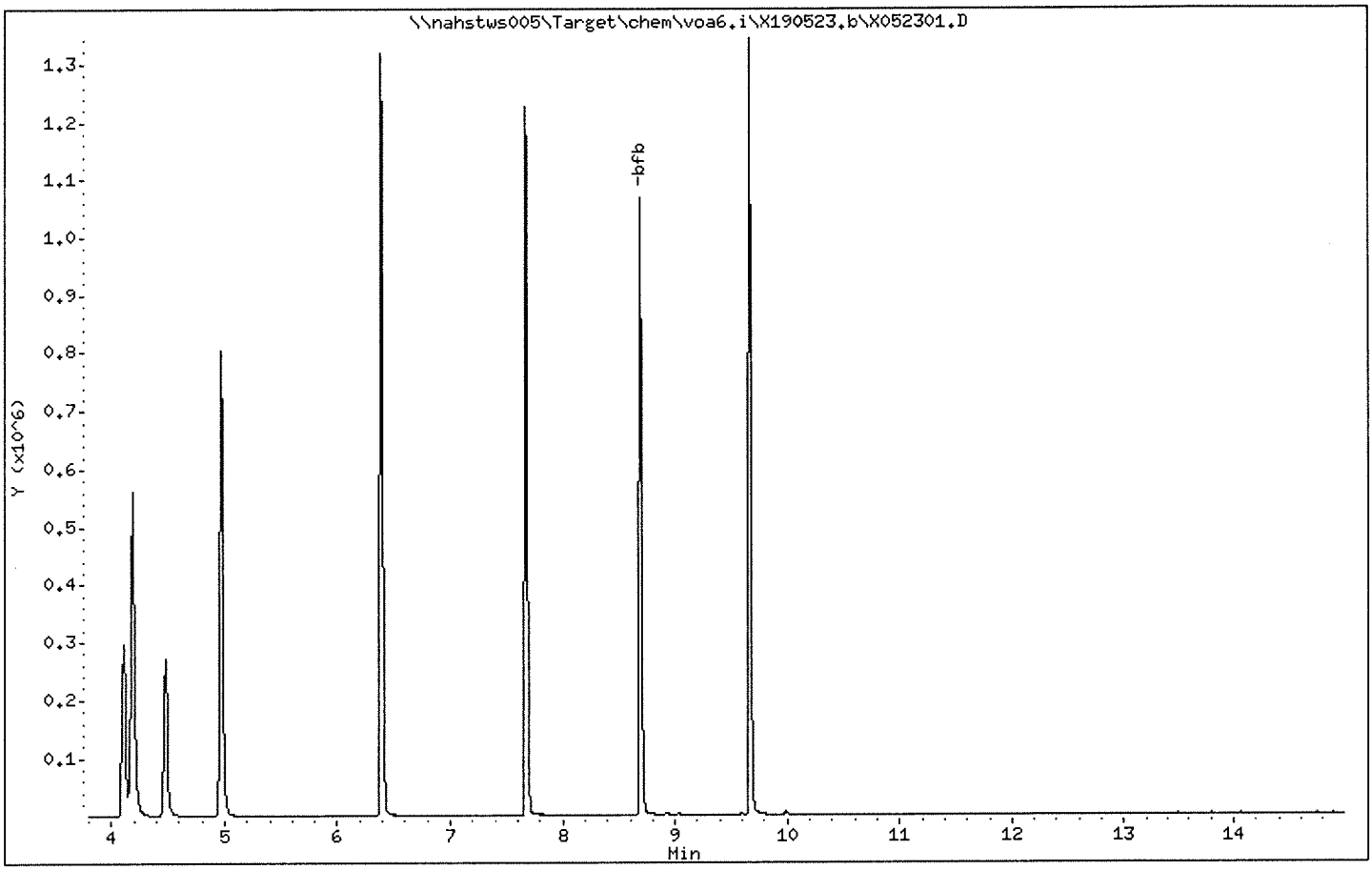
Sample Info: BFB;BFB;3;;BFB

Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25



Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052301.D

Date : 23-MAY-2019 11:13

Client ID: BFB

Instrument: voa6.i

Sample Info: BFB;BFB;3;;BFB

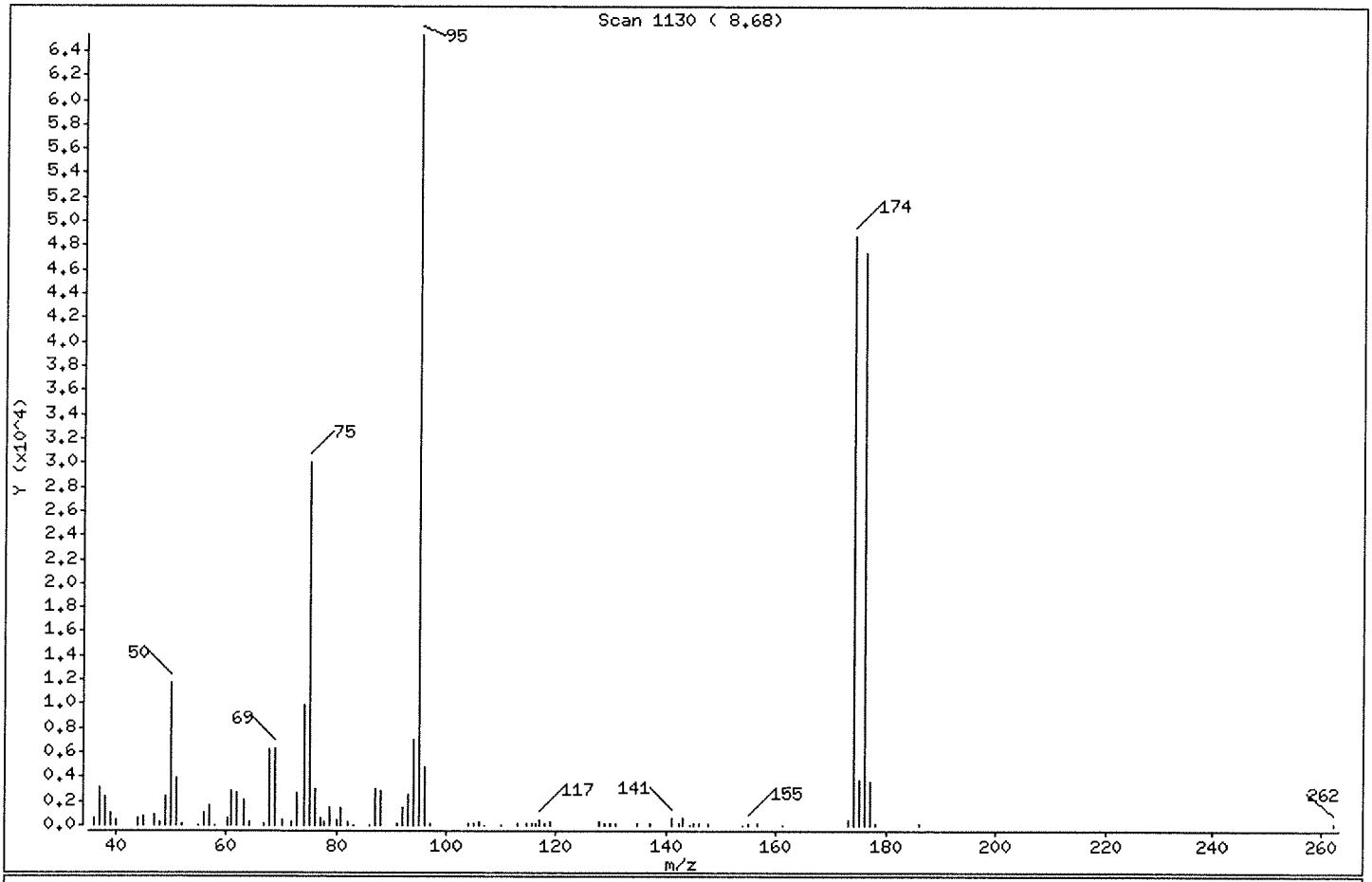
Volume Injected (uL): 2.0

Operator: PC

Column phase: DB624

Column diameter: 0.25

1 bfb



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
95	Base Peak, 100% relative abundance	100.00
50	15.00 - 40.00% of mass 95	17.84
75	30.00 - 60.00% of mass 95	46.03
96	5.00 - 9.00% of mass 95	7.37
173	Less than 2.00% of mass 174	0.58 (0.78)
174	Greater than 50.00% of mass 95	74.68
175	5.00 - 9.00% of mass 174	5.67 (7.59)
176	95.00 - 101.00% of mass 174	72.65 (97.28)
177	5.00 - 9.00% of mass 176	5.58 (7.68)

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052301.D

Date : 23-MAY-2019 11:13

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: X052301.D
Spectrum: Scan 1130 (8.68)
Location of Maximum: 95.00
Number of points: 85

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	573	66.80	169	94.10	7082	140.90	615
37.00	3096	68.00	6331	95.00	65336	142.20	104
38.00	2477	69.00	6334	96.10	4814	143.00	564
39.10	1109	70.10	510	97.10	206	144.20	65
40.00	400	72.00	372	103.80	151	145.10	79
44.10	648	73.00	2642	104.80	97	146.00	93
45.00	680	74.00	9979	105.90	231	147.80	159
47.10	927	75.10	30072	107.10	74	153.90	68
48.10	334	76.10	3042	109.80	75	154.90	128
49.00	2478	77.00	536	113.00	77	156.60	78
50.10	11659	77.90	366	114.70	84	161.10	68
51.00	3916	78.90	1479	115.70	206	173.00	382
52.10	125	80.00	427	116.10	206	174.00	48792
54.80	64	80.90	1563	116.90	380	175.00	3703
56.00	989	82.00	346	118.00	194	176.00	47464
57.00	1666	83.10	59	119.00	271	177.00	3643
57.90	53	86.10	70	127.80	226	178.00	116
60.10	596	87.00	2991	128.70	125	186.20	143
61.00	2926	88.00	2891	129.80	185	262.20	159
62.00	2684	90.90	159	130.90	132		
63.10	2038	92.10	1467	134.90	106		
64.20	238	93.00	2512	137.00	85		

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052302.D
Report Date: 06-Jun-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052302.D
Lab Smp Id: CCV Client Smp ID: CCV
Inj Date : 23-MAY-2019 11:37
Operator : PC Inst ID: voa6.i
Smp Info : CCV;CCV;2;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:55 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

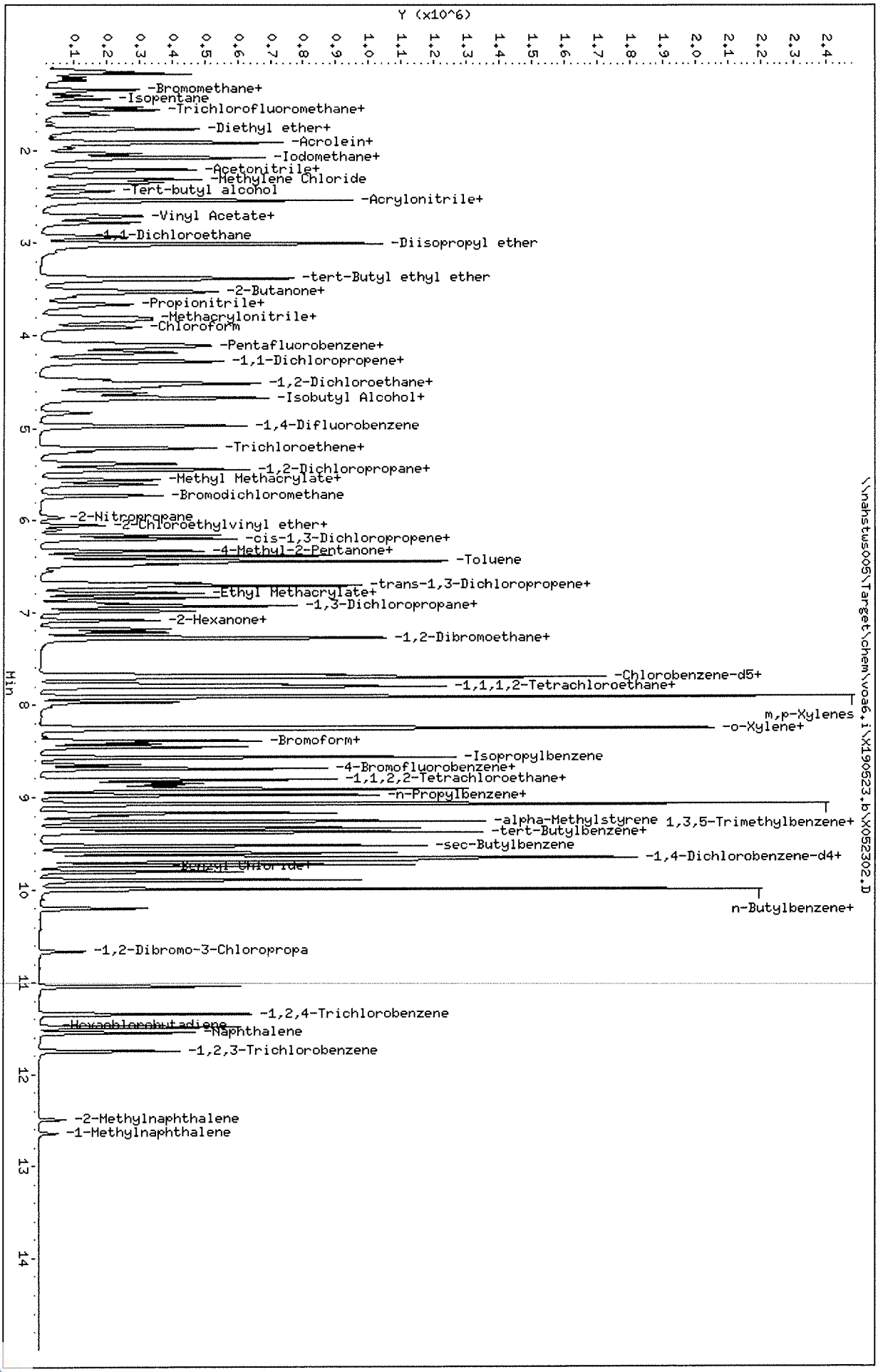
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	379793	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	518837	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	482637	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	279180	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	154047	50.0000	46.25
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	216668	50.0000	53.43
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	165195	50.0000	50.49
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	545916	50.0000	46.40
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	181050	50.0000	48.08
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	241595	50.0000	48.04
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	192918	50.0000	50.71
138 Freon TF	101	1.919	1.919	(0.458)	137025	50.0000	47.00
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	126966	50.0000	51.36
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	278547	50.0000	52.03
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	137575	50.0000	46.35
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	204982	50.0000	47.50
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	125291	50.0000	52.48
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	225522	50.0000	51.84
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	204244	50.0000	49.61
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	639924	50.0000	48.12
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.665	(1.102)	31277	50.0000	51.29
57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	169657	50.0000	50.20
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	389117	50.0000	48.27

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052302.D
Report Date: 06-Jun-2019 15:56

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)	202689	50.0000	46.38
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	163443	50.0000	53.94
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	614079	50.0000	48.42
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	409909	50.0000	47.73
54 1,3-Dichloropropane	76	6.990	6.990	(0.910)	256262	50.0000	51.38
84 1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	410096	50.0000	47.44
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	231974	50.0000	48.92
24 2-Butanone	43	3.580	3.581	(0.855)	104991	100.000	115.96
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	489034	50.0000	47.36
52 2-Hexanone	43	7.090	7.090	(0.924)	180581	100.000	107.41
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	576284	50.0000	48.17
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	649850	50.0000	47.44
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	270932	100.000	110.71
10 Acetone	43	1.976	1.976	(0.472)	78075	100.000	95.89
37 Benzene	78	4.519	4.519	(0.909)	645847	50.0000	51.57
74 Bromobenzene	156	8.809	8.810	(0.911)	244392	50.0000	46.97
29 Bromochloromethane	128	3.803	3.803	(0.908)	107388	50.0000	52.94
39 Bromodichloromethane	83	5.729	5.729	(1.153)	218009	50.0000	50.14
66 Bromoform	173	8.416	8.416	(1.096)	142110	50.0000	50.48
6 Bromomethane	94	1.338	1.339	(0.320)	159409	50.0000	46.82
19 Carbon Disulfide	76	2.076	2.076	(0.496)	900357	100.000	105.20
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	206302	50.0000	42.99
59 Chlorobenzene	112	7.699	7.699	(1.003)	482186	50.0000	50.08
7 Chloroethane	64	1.403	1.403	(0.335)	104085	50.0000	48.01
28 Chloroform	83	3.917	3.917	(0.935)	292645	50.0000	50.98
3 Chloromethane	50	1.081	1.081	(0.258)	223666	50.0000	58.07
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	190826	50.0000	51.58
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	274123	50.0000	53.07
55 Dibromochloromethane	129	7.183	7.184	(0.936)	187305	50.0000	48.29
44 Dibromomethane	93	5.557	5.558	(1.118)	111067	50.0000	50.89
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	158611	50.0000	47.54
61 Ethylbenzene	106	7.807	7.807	(1.017)	250873	50.0000	50.41
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	118721	50.0000	48.43
67 Isopropylbenzene	105	8.566	8.566	(1.116)	718119	50.0000	48.58
62 m,p-Xylenes	106	7.907	7.907	(1.030)	603436	100.000	100.67
17 Methylene Chloride	84	2.305	2.313	(0.550)	170439	50.0000	53.56
87 n-Butylbenzene	91	9.999	9.999	(1.034)	523689	50.0000	48.26
73 n-Propylbenzene	91	8.917	8.917	(0.922)	814572	50.0000	47.49
92 Naphthalene	128	11.546	11.546	(1.194)	313606	50.0000	53.77
63 o-Xylene	106	8.244	8.244	(1.074)	299289	50.0000	51.03
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	690218	50.0000	46.26
64 Styrene	104	8.265	8.265	(1.076)	529526	50.0000	51.65
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	505004	50.0000	46.01
56 Tetrachloroethene	164	6.933	6.933	(0.903)	164954	50.0000	46.48
50 Toluene	91	6.453	6.453	(0.840)	715941	50.0000	50.60
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	158610	50.0000	51.10
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	239322	50.0000	53.03
38 Trichloroethene	130	5.214	5.214	(1.049)	197705	50.0000	49.21
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	245914	50.0000	43.59
5 Vinyl Chloride	62	1.145	1.145	(0.273)	175481	50.0000	50.55



Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052302.D
Date : 23-MAY-2019 11:37
Client ID: CCV
Sample Info: CCV;CCV;2;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052305.D
Report Date: 06-Jun-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052305.D
Lab Smp Id: VLCSW-190523 Client Smp ID: VLCSW-190523
Inj Date : 23-MAY-2019 12:49
Operator : PC Inst ID: voa6.i
Smp Info : VLCSW-190523;VLCSW-190523;3;;LCS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:55 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 5 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

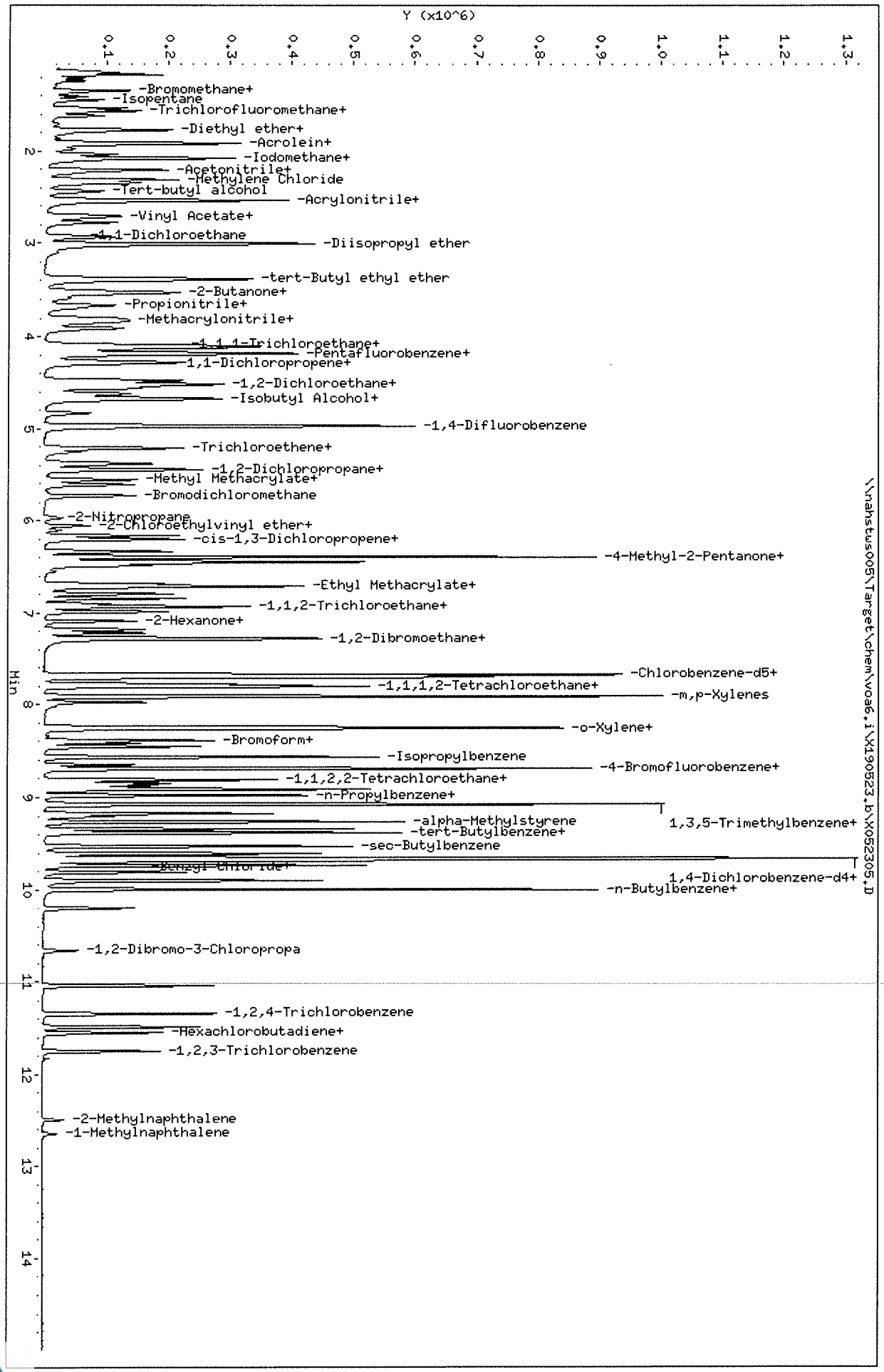
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	381165	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	520483	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	488442	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	280121	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	159705	47.7823	47.78
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	222721	54.2794	54.27
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	162209	49.3957	49.39
$ 48 Toluene-d8	98	6.389	6.388	(0.833)	550679	46.2543	46.25
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	74301	19.4983	19.49
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	99721	19.7589	19.75
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	81300	21.3005	21.30
138 Freon TF	101	1.919	1.919	(0.458)	53890	19.1987	19.19
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	54120	21.6324	21.63
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	113650	21.1546	21.15
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	57206	19.2047	19.20
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	83333	19.2505	19.25
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	54588	23.8201	23.82
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	90439	20.7210	20.72
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	89028	21.5550	21.55
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	268194	20.1031	20.10
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	13074	21.3685	21.36
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	70463	20.6031	20.60
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	162094	20.0441	20.04

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052305.D
Report Date: 06-Jun-2019 15:56

	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)	85865	19.5898	19.58
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	66762	21.9654	21.96
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	255017	20.0412	20.04
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	169217	19.6415	19.64
54	1,3-Dichloropropane	76	6.983	6.990	(0.910)	108717	21.5408	21.54
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	171245	19.7442	19.74
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	95963	20.1650	20.16
24	2-Butanone	43	3.588	3.581	(0.856)	43094	47.4261	47.42
76	2-Chlorotoluene	91	8.982	8.981	(0.929)	207870	20.0651	20.06
52	2-Hexanone	43	7.090	7.090	(0.924)	75322	44.2718	44.27
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	240934	20.0725	20.07
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	265528	19.3219	19.32
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	113272	45.7368	45.73
10	Acetone	43	1.976	1.976	(0.472)	33690	40.2252	40.22
37	Benzene	78	4.519	4.519	(0.909)	274400	21.8416	21.84
74	Bromobenzene	156	8.810	8.810	(0.911)	102978	19.7259	19.72
29	Bromochloromethane	128	3.803	3.803	(0.908)	43577	21.3748	21.37
39	Bromodichloromethane	83	5.730	5.729	(1.153)	90338	20.7114	20.71
66	Bromoform	173	8.416	8.416	(1.097)	57145	20.0615	20.06
6	Bromomethane	94	1.339	1.339	(0.320)	70432	21.2253	21.22
19	Carbon Disulfide	76	2.076	2.076	(0.496)	401471	46.7409	46.74
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	83994	17.4479	17.44
59	Chlorobenzene	112	7.699	7.699	(1.004)	204433	20.9829	20.98
7	Chloroethane	64	1.403	1.403	(0.335)	41913	19.2650	19.26
28	Chloroform	83	3.917	3.917	(0.935)	119696	20.7780	20.77
3	Chloromethane	50	1.081	1.081	(0.258)	84211	20.2376	20.23
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	78436	21.1271	21.12
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	113886	21.9811	21.98
55	Dibromochloromethane	129	7.184	7.184	(0.937)	76969	19.6109	19.61
44	Dibromomethane	93	5.558	5.558	(1.118)	46055	21.0371	21.03
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	64662	19.9293	19.92
61	Ethylbenzene	106	7.807	7.807	(1.018)	105336	20.9152	20.91
91	Hexachlorobutadiene	225	11.489	11.489	(1.188)	47816	19.4419	19.44
67	Isopropylbenzene	105	8.566	8.566	(1.117)	300442	20.0867	20.08
62	m,p-Xylenes	106	7.907	7.907	(1.031)	252090	41.5573	41.55
17	Methylene Chloride	84	2.306	2.313	(0.550)	72341	22.2927	22.29
87	n-Butylbenzene	91	9.999	9.999	(1.034)	214703	19.7208	19.72
73	n-Propylbenzene	91	8.917	8.917	(0.922)	335948	19.5205	19.52
92	Naphthalene	128	11.546	11.546	(1.194)	134044	22.9071	22.90
63	o-Xylene	106	8.244	8.244	(1.075)	125405	21.1309	21.13
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	287242	19.1898	19.18
64	Styrene	104	8.265	8.265	(1.077)	219685	21.1747	21.17
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	212332	19.2816	19.28
56	Tetrachloroethene	164	6.933	6.933	(0.904)	68913	19.1904	19.19
50	Toluene	91	6.453	6.453	(0.841)	299460	20.9163	20.91
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	65912	21.1605	21.16
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	98164	21.6836	21.68
38	Trichloroethene	130	5.214	5.214	(1.049)	81999	20.3460	20.34
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	101434	17.9164	17.91
5	Vinyl Chloride	62	1.145	1.145	(0.273)	70530	20.2458	20.24



Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052305.D
Date : 23-MAY-2019 12:49
Client ID: VLCSW-190523
Sample Info: VLCSW-190523;VLCSW-190523;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\X190523.b\X052307.D
Report Date: 06-Jun-2019 15:55

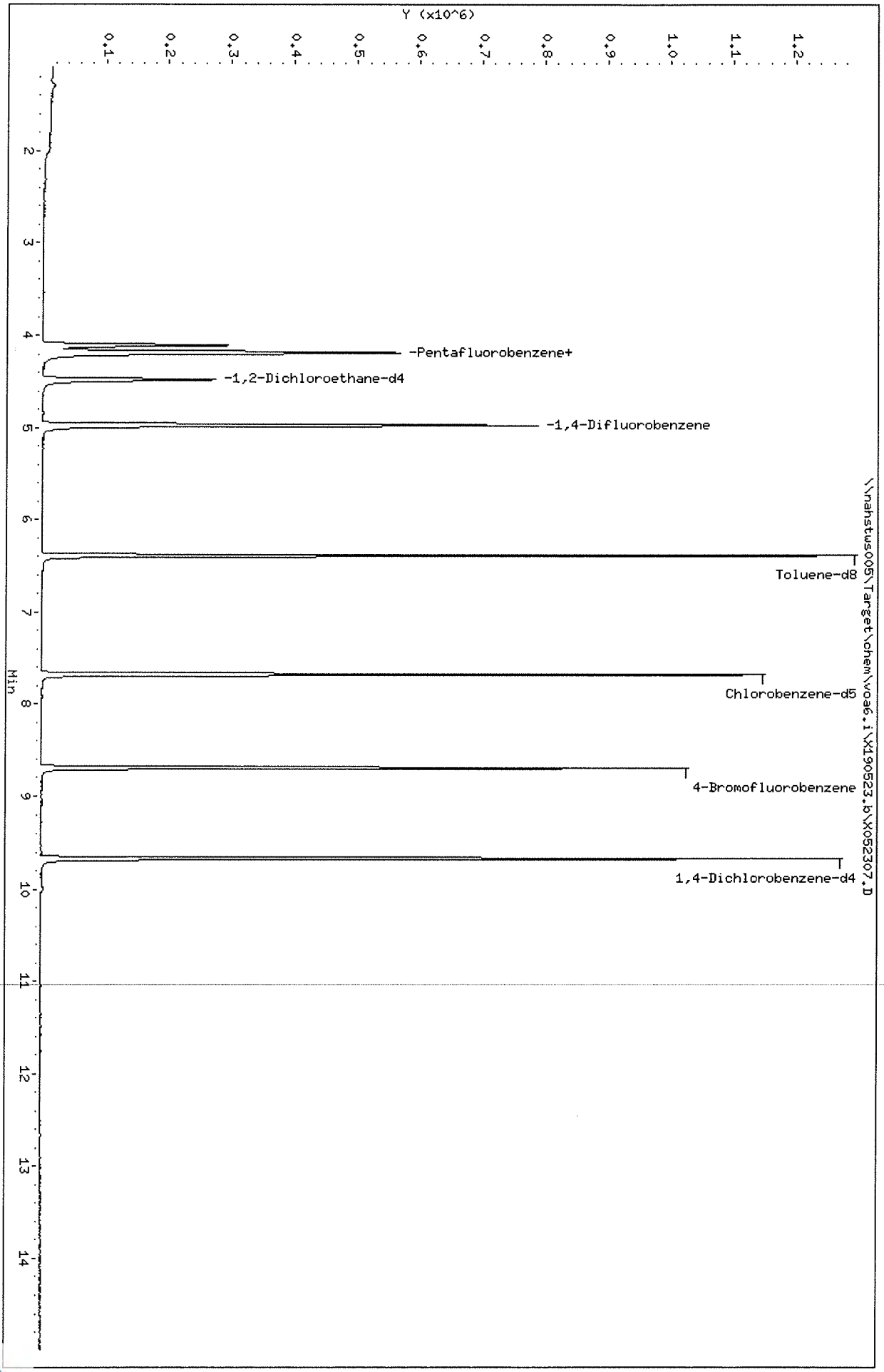
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052307.D
Lab Smp Id: VBLKW-190523 Client Smp ID: VBLKW-190523
Inj Date : 23-MAY-2019 13:37
Operator : PC Inst ID: voa6.i
Smp Info : VBLKW-190523;VBLKW-190523;3;;BLANK
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 7 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	542493	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	697797	50.0000	
* 47 Chlorobenzene-d5	117	7.670	7.678	(1.000)	605445	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	311348	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	201387	42.3145	42.31
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	263856	51.8521	51.85
$ 30 Dibromofluoromethane	113	4.110	4.111	(0.981)	207902	44.4462	44.44
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	795633	54.0094	54.00


Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052307.D
Date : 23-MAY-2019 13:37
Client ID: VBLKW-190523
Sample Info: VBLKW-190523;VBLKW-190523;3;;BLANK
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190523.b\X052307.D

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052309.D
Report Date: 06-Jun-2019 15:55

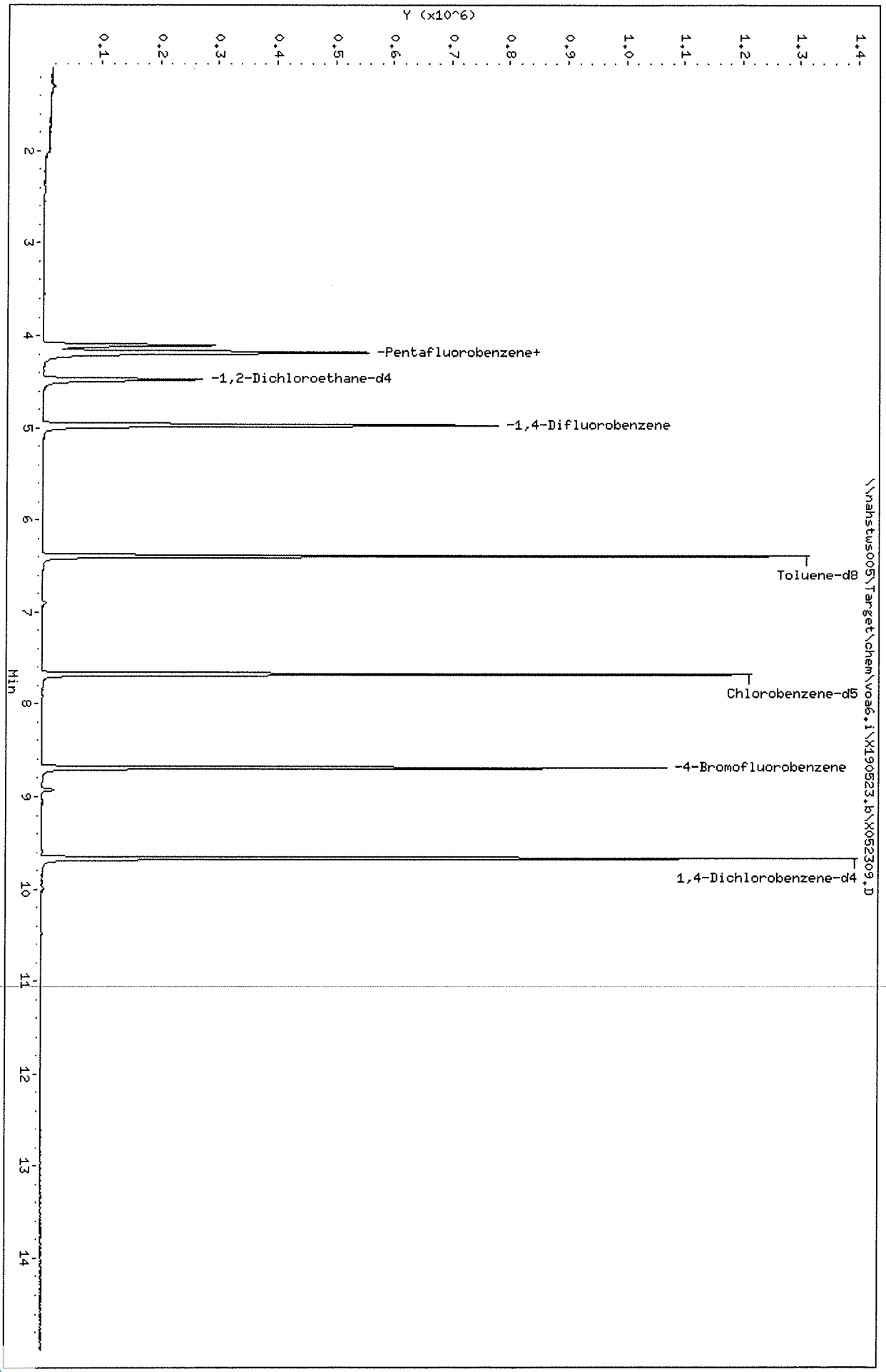
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052309.D
Lab Smp Id: HS19051031-06 Client Smp ID: HS19051031-06
Inj Date : 23-MAY-2019 14:25
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-06;HS19051031-06;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 9
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	533701	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	694002	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	641710	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	349410	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	200770	42.8822	42.88
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	280214	51.9558	51.95
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	204484	44.4355	44.43
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	807275	51.6783	51.67


Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052309.D
Date : 23-MAY-2019 14:25
Client ID: HS19051031-06
Sample Info: HS19051031-06;HS19051031-06;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190523.b\X052309.D

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052315.D
Report Date: 06-Jun-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052315.D
Lab Smp Id: HS19051208-01MS Client Smp ID: HS19051208-01MS
Inj Date : 23-MAY-2019 16:50
Operator : PC Inst ID: voa6.i
Smp Info : HS19051208-01MS;HS19051208-01MS;3;;MS
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:55 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 15 QC Sample: MS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

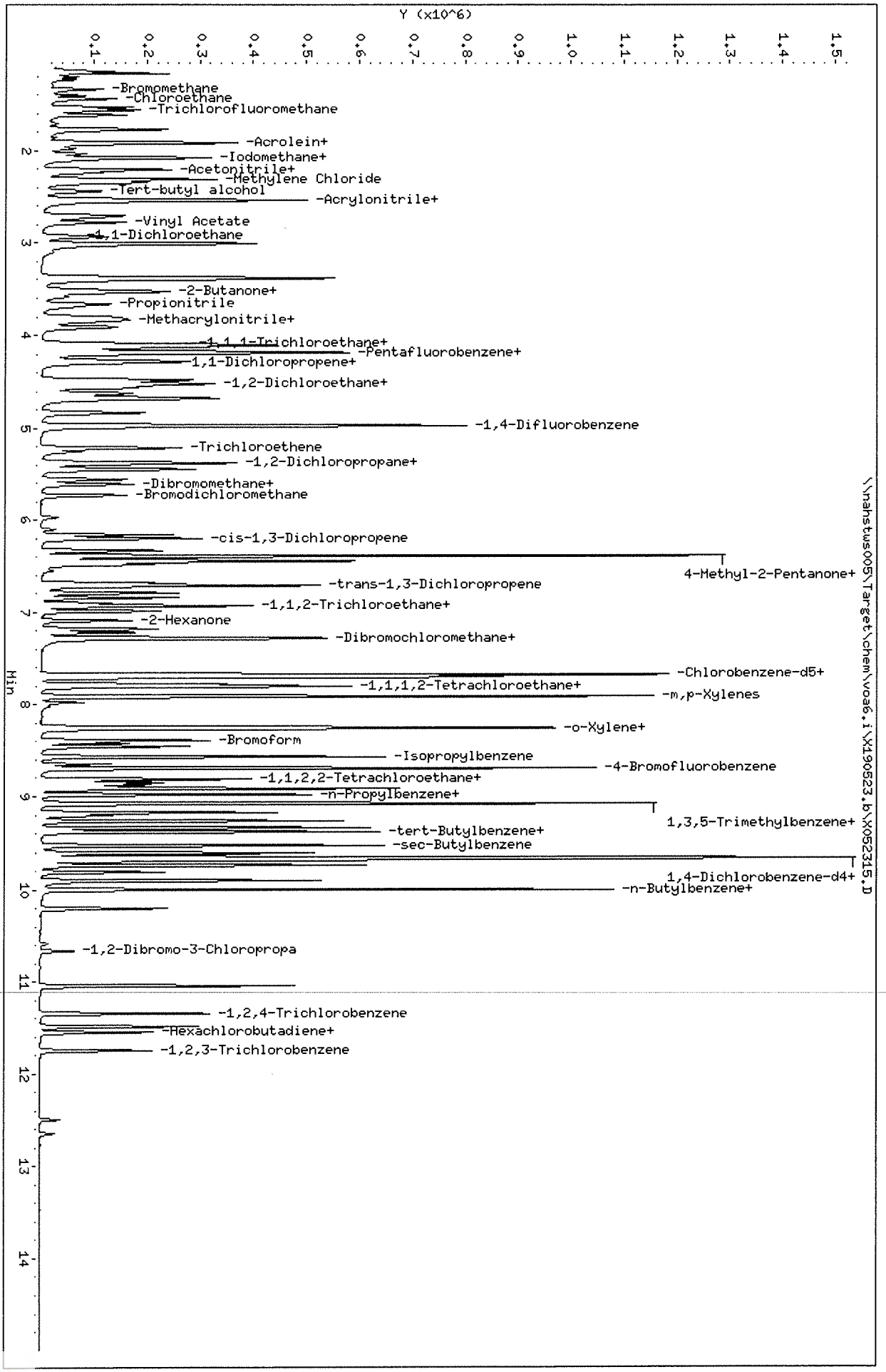
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	540638	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	704056	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	608793	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	322611	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	215144	45.3730	45.37
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	267136	52.2119	52.21
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	212120	45.5123	45.51
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	799167	53.9503	53.95
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.014)	82674	17.4066	17.40
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	118852	16.6031	16.60
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	93785	21.3353	21.33
138 Freon TF	101	1.919	1.919	(0.458)	69150	17.4631	17.46
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.893)	60361	19.3574	19.35
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	128398	16.8500	16.84
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	67469	15.9689	15.96
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	106479	18.1840	18.18
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	61357	23.2765	23.27
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	101035	20.0999	20.09
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	99235	20.8618	20.86
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	300501	19.5581	19.55
89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	15140	21.4862	21.48
57 1,2-Dibromoethane	107	7.262	7.262	(0.947)	78351	18.3806	18.38
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	181061	19.4407	19.44

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052315.D
Report Date: 06-Jun-2019 15:56

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)	93581	15.7834	15.78
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	75833	18.4446	18.44
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	298852	20.3928	20.39
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	192524	19.4035	19.40
54 1,3-Dichloropropane	76	6.990	6.990	(0.911)	120498	19.1553	19.15
84 1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	191830	19.2045	19.20
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	103176	15.2855	15.28
24 2-Butanone	43	3.580	3.581	(0.855)	51149	39.6866	39.68
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	242460	20.3215	20.32
52 2-Hexanone	43	7.090	7.090	(0.924)	85170	40.1638	40.16
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	275743	19.9469	19.94
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	325417	20.5611	20.56
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	132317	42.8649	42.86
10 Acetone	43	1.976	1.976	(0.472)	46709	39.2793	39.27
37 Benzene	78	4.519	4.519	(0.909)	307030	18.0668	18.06
74 Bromobenzene	156	8.809	8.810	(0.911)	110460	18.3723	18.37
29 Bromochloromethane	128	3.803	3.803	(0.908)	47248	16.3269	16.32
39 Bromodichloromethane	83	5.729	5.729	(1.153)	97161	16.4676	16.46
66 Bromoform	173	8.416	8.416	(1.097)	61587	17.3467	17.34
6 Bromomethane	94	1.338	1.339	(0.320)	55213	12.2200	12.22
19 Carbon Disulfide	76	2.069	2.076	(0.494)	436282	35.8110	35.81
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	102286	15.7076	15.70
59 Chlorobenzene	112	7.699	7.699	(1.004)	229089	18.8652	18.86
7 Chloroethane	64	1.403	1.403	(0.335)	54087	17.5275	17.52
28 Chloroform	83	3.917	3.917	(0.935)	134986	16.5204	16.52
3 Chloromethane	50	1.081	1.081	(0.258)	85174	13.7207	13.72
27 cis-1,2-Dichloroethene	96	3.537	3.530	(0.844)	86931	16.5084	16.50
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	128490	18.3336	18.33
55 Dibromochloromethane	129	7.183	7.184	(0.937)	85014	17.3786	17.37
44 Dibromomethane	93	5.557	5.558	(1.118)	50829	17.1641	17.16
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	61305	13.5535	13.55
61 Ethylbenzene	106	7.807	7.807	(1.018)	117339	18.6927	18.69
91 Hexachlorobutadiene	225	11.488	11.489	(1.188)	55862	19.7219	19.72
67 Isopropylbenzene	105	8.566	8.566	(1.117)	352359	18.9007	18.90
62 m,p-Xylenes	106	7.907	7.907	(1.031)	289314	38.2652	38.26
17 Methylene Chloride	84	2.305	2.313	(0.550)	79500	17.1309	17.13
87 n-Butylbenzene	91	9.999	9.999	(1.034)	262106	20.9040	20.90
73 n-Propylbenzene	91	8.917	8.917	(0.922)	416123	20.9946	20.99
92 Naphthalene	128	11.546	11.546	(1.194)	148344	22.0120	22.01
63 o-Xylene	106	8.244	8.244	(1.075)	144677	19.5589	19.55
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	368486	21.3752	21.37
64 Styrene	104	8.265	8.265	(1.078)	238302	18.4284	18.42
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	264661	20.8682	20.86
56 Tetrachloroethene	164	6.933	6.933	(0.904)	82528	18.4385	18.43
50 Toluene	91	6.453	6.453	(0.841)	335434	18.7974	18.79
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	75212	17.0237	17.02
51 trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	106308	17.3598	17.35
38 Trichloroethene	130	5.214	5.214	(1.049)	94591	17.3508	17.35
8 Trichlorofluoromethane	101	1.560	1.561	(0.373)	117625	14.6478	14.64
5 Vinyl Chloride	62	1.145	1.145	(0.273)	81039	16.4007	16.40


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
-Bromomethane
-Chloroethane
-Trichlorofluoromethane
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Propionitrile
-Methacrylonitrile+
-1,1,1-Trichloroethane+
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-cis-1,3-Dichloropropene
4-Methyl-2-Pentanone+
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
-m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
1,4-Dichlorobenzene-d4+
-n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene+
-1,2,3-Trichlorobenzene
\\nahstws005\Target\chem\voa6.i\X190523.b\X052315.D
Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052315.D
Date : 23-MAY-2019 16:50
Client ID: HS19051208-01HS
Sample Info: HS19051208-01HS;HS19051208-01HS;3;;HS
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052316.D
Report Date: 06-Jun-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052316.D
Lab Smp Id: HS19051208-01MSD Client Smp ID: HS19051208-01MSD
Inj Date : 23-MAY-2019 17:14
Operator : PC Inst ID: voa6.i
Smp Info : HS19051208-01MSD;HS19051208-01MSD;3;;MSD
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:55 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 15 QC Sample: MSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

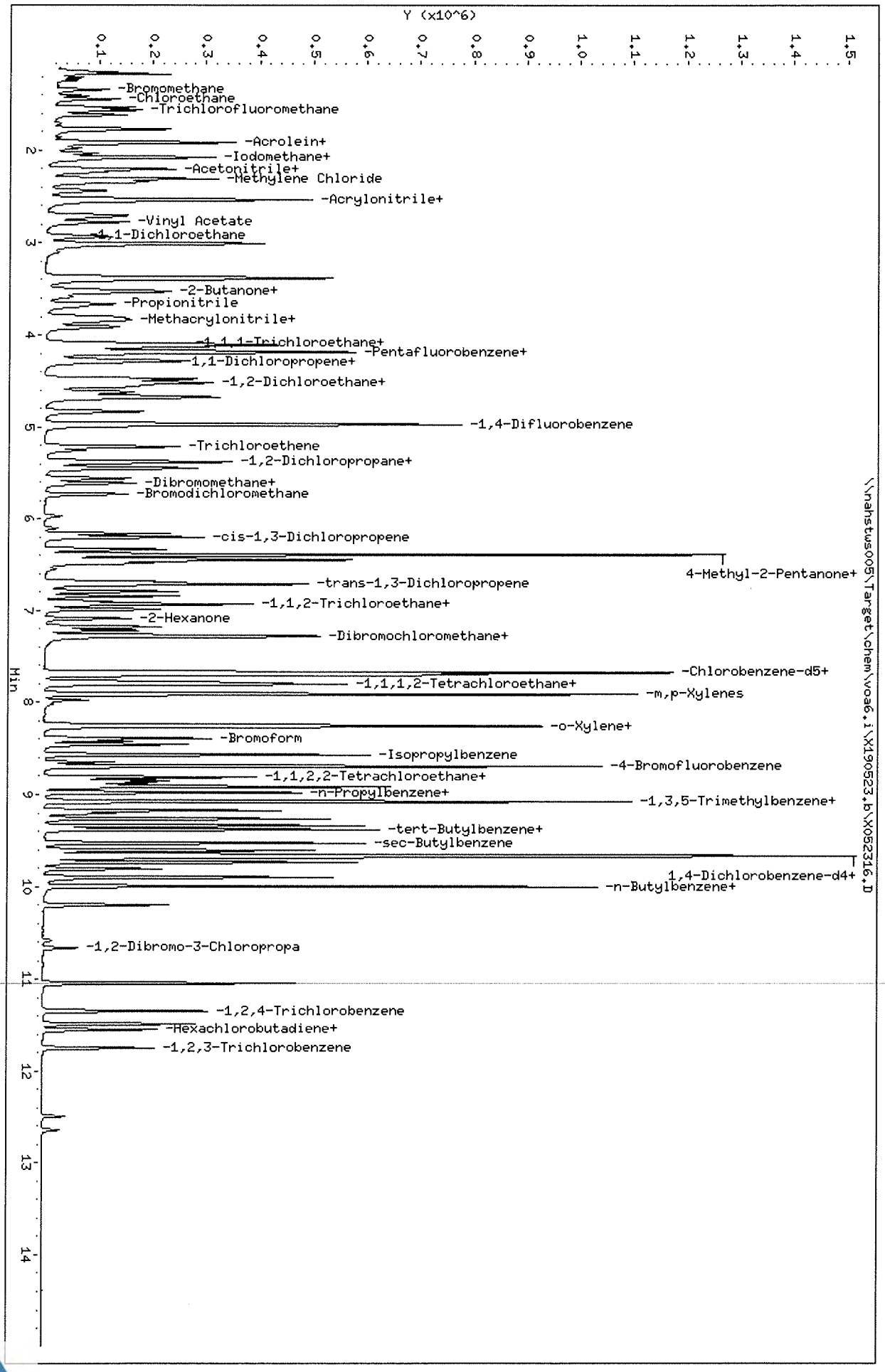
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	CONCENTRATIONS FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	533851	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	688315	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	607900	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	312890	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	203164	43.3834	43.38
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	264197	51.7078	51.70
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	209221	45.4606	45.46
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	786302	53.1514	53.15
60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	79664	16.7975	16.79
31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	113302	16.0290	16.02
68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	90959	21.3353	21.33
138 Freon TF	101	1.919	1.919	(0.458)	65516	16.7950	16.79
53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	58487	18.7839	18.78
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	129051	17.1510	17.15
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	64430	15.4435	15.44
32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	99812	17.4352	17.43
93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	59548	23.2913	23.29
71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	99214	20.3508	20.35
90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	97410	21.1144	21.11
79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	287848	19.3166	19.31
89 1,2-Dibromo-3-Chloropropane	155	10.658	10.665	(1.102)	14702	21.5128	21.51
57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	76771	18.0364	18.03
88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	177558	19.6569	19.65

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052316.D
Report Date: 06-Jun-2019 15:56

	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)	92455	15.9501	15.95
42	1,2-Dichloropropane	63	5.443	5.443	(1.095)	74844	18.6203	18.62
75	1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	288210	20.2777	20.27
83	1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	187704	19.5055	19.50
54	1,3-Dichloropropane	76	6.990	6.990	(0.910)	116761	18.5885	18.58
84	1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	188674	19.4754	19.47
26	2,2-Dichloropropane	77	3.516	3.516	(0.839)	98110	14.7197	14.71
24	2-Butanone	43	3.588	3.581	(0.856)	52113	40.9486	40.94
76	2-Chlorotoluene	91	8.981	8.981	(0.929)	232879	20.1249	20.12
52	2-Hexanone	43	7.090	7.090	(0.924)	83512	39.4398	39.43
77	4-Chlorotoluene	91	9.075	9.075	(0.939)	266102	19.8475	19.84
82	p-Isopropyltoluene	119	9.655	9.655	(0.999)	318854	20.7723	20.77
45	4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	124835	40.5005	40.50
10	Acetone	43	1.976	1.976	(0.472)	46854	39.9302	39.93
37	Benzene	78	4.519	4.519	(0.909)	293031	17.6373	17.63
74	Bromobenzene	156	8.810	8.810	(0.911)	106233	18.2182	18.21
29	Bromochloromethane	128	3.803	3.803	(0.908)	46390	16.2339	16.23
39	Bromodichloromethane	83	5.729	5.729	(1.153)	94195	16.3300	16.33
66	Bromoform	173	8.416	8.416	(1.096)	60970	17.1982	17.19
6	Bromomethane	94	1.338	1.339	(0.320)	54588	12.2339	12.23
19	Carbon Disulfide	76	2.076	2.076	(0.496)	417486	34.7039	34.70
34	Carbon Tetrachloride	117	4.275	4.275	(0.860)	96329	15.1311	15.13
59	Chlorobenzene	112	7.699	7.699	(1.003)	220162	18.1568	18.15
7	Chloroethane	64	1.403	1.403	(0.335)	52158	17.1172	17.11
28	Chloroform	83	3.917	3.917	(0.935)	128860	15.9711	15.97
3	Chloromethane	50	1.081	1.081	(0.258)	84310	13.7602	13.76
27	cis-1,2-Dichloroethene	96	3.538	3.530	(0.844)	85216	16.3885	16.38
46	cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	124065	18.1070	18.10
55	Dibromochloromethane	129	7.183	7.184	(0.936)	83796	17.1548	17.15
44	Dibromomethane	93	5.557	5.558	(1.118)	48902	16.8910	16.89
2	Dichlorodifluoromethane	85	0.973	0.973	(0.232)	57677	12.9445	12.94
61	Ethylbenzene	106	7.807	7.807	(1.017)	112456	17.9411	17.94
91	Hexachlorobutadiene	225	11.488	11.489	(1.188)	54162	19.7158	19.71
67	Isopropylbenzene	105	8.566	8.566	(1.116)	338993	18.2104	18.21
62	m,p-Xylenes	106	7.907	7.907	(1.030)	277062	36.6986	36.69
17	Methylene Chloride	84	2.313	2.313	(0.552)	78336	17.0933	17.09
87	n-Butylbenzene	91	9.999	9.999	(1.034)	253980	20.8853	20.88
73	n-Propylbenzene	91	8.917	8.917	(0.922)	399289	20.7711	20.77
92	Naphthalene	128	11.546	11.546	(1.194)	144194	22.0610	22.06
63	o-Xylene	106	8.244	8.244	(1.074)	138632	18.7692	18.76
81	sec-Butylbenzene	105	9.526	9.526	(0.985)	349577	20.9084	20.90
64	Styrene	104	8.265	8.265	(1.076)	230995	17.8895	17.88
78	tert-Butylbenzene	119	9.340	9.340	(0.966)	254638	20.7017	20.70
56	Tetrachloroethene	164	6.933	6.933	(0.903)	78416	17.5456	17.54
50	Toluene	91	6.453	6.453	(0.840)	319776	17.9462	17.94
20	trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	74044	16.9724	16.97
51	trans-1,3-Dichloropropene	75	6.689	6.682	(1.346)	101246	16.9113	16.91
38	Trichloroethene	130	5.214	5.214	(1.049)	90884	17.0521	17.05
8	Trichlorofluoromethane	101	1.561	1.561	(0.373)	112951	14.2446	14.24
5	Vinyl Chloride	62	1.145	1.145	(0.273)	78098	16.0064	16.00



Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052316.D
Date : 23-MAY-2019 17:14
Client ID: HS19051208-01MSD
Sample Info: HS19051208-01MSD;HS19051208-01MSD;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\X190523.b\X052324.D
Report Date: 06-Jun-2019 15:55

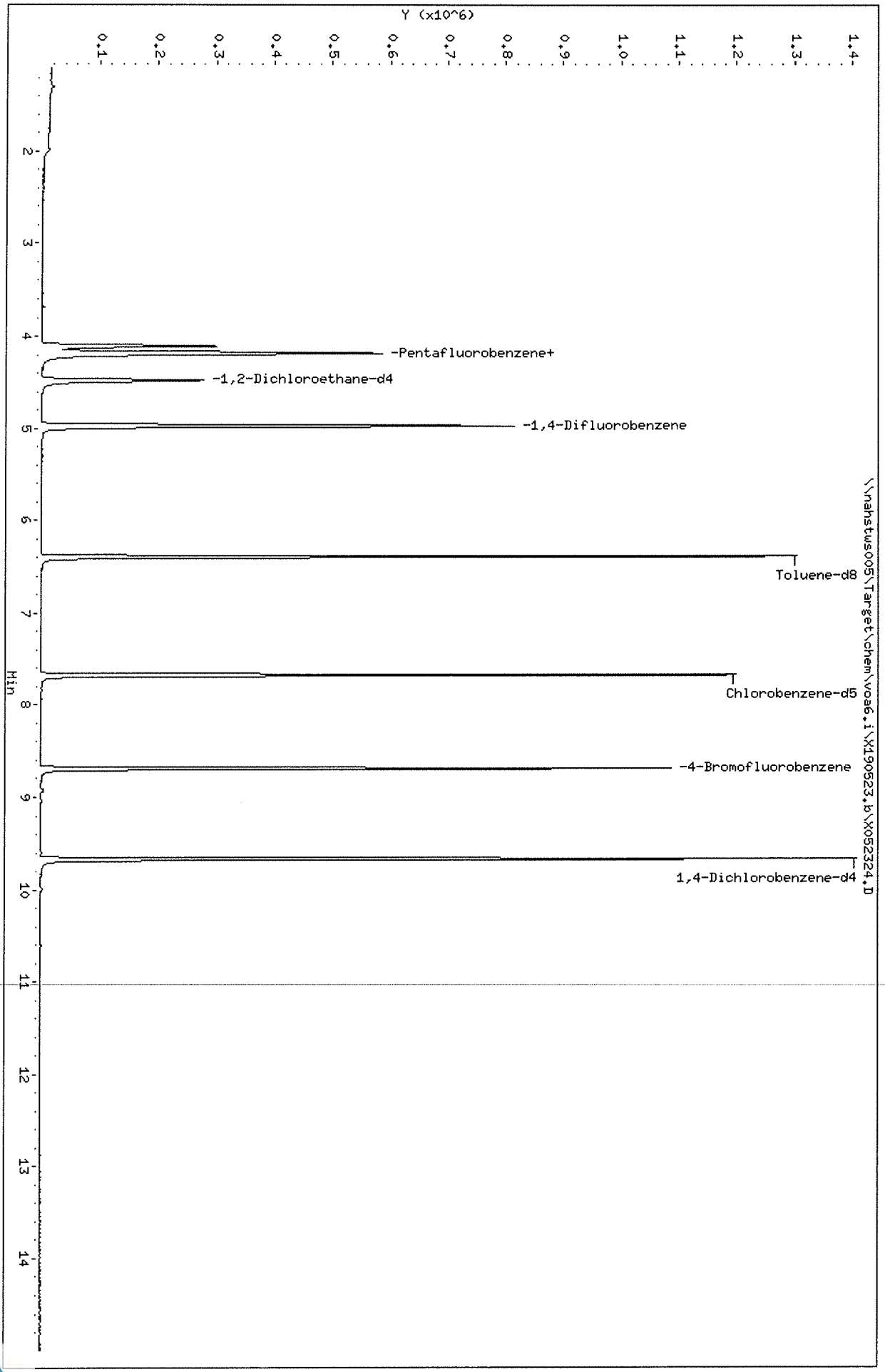
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052324.D
Lab Smp Id: HS19051031-01 Client Smp ID: HS19051031-01
Inj Date : 23-MAY-2019 20:26
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-01;HS19051031-01;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 23
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	553659	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	715459	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	636267	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	345903	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	207444	42.7098	42.70
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	277639	51.9183	51.91
$ 30 Dibromofluoromethane	113	4.110	4.111	(0.981)	212128	44.4349	44.43
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	813375	52.5235	52.52


Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052324.D
Date : 23-MAY-2019 20:26
Client ID: HS19051031-01
Sample Info: HS19051031-01;HS19051031-01;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
-4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190523.b\X052324.D

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052325.D
Report Date: 06-Jun-2019 15:55

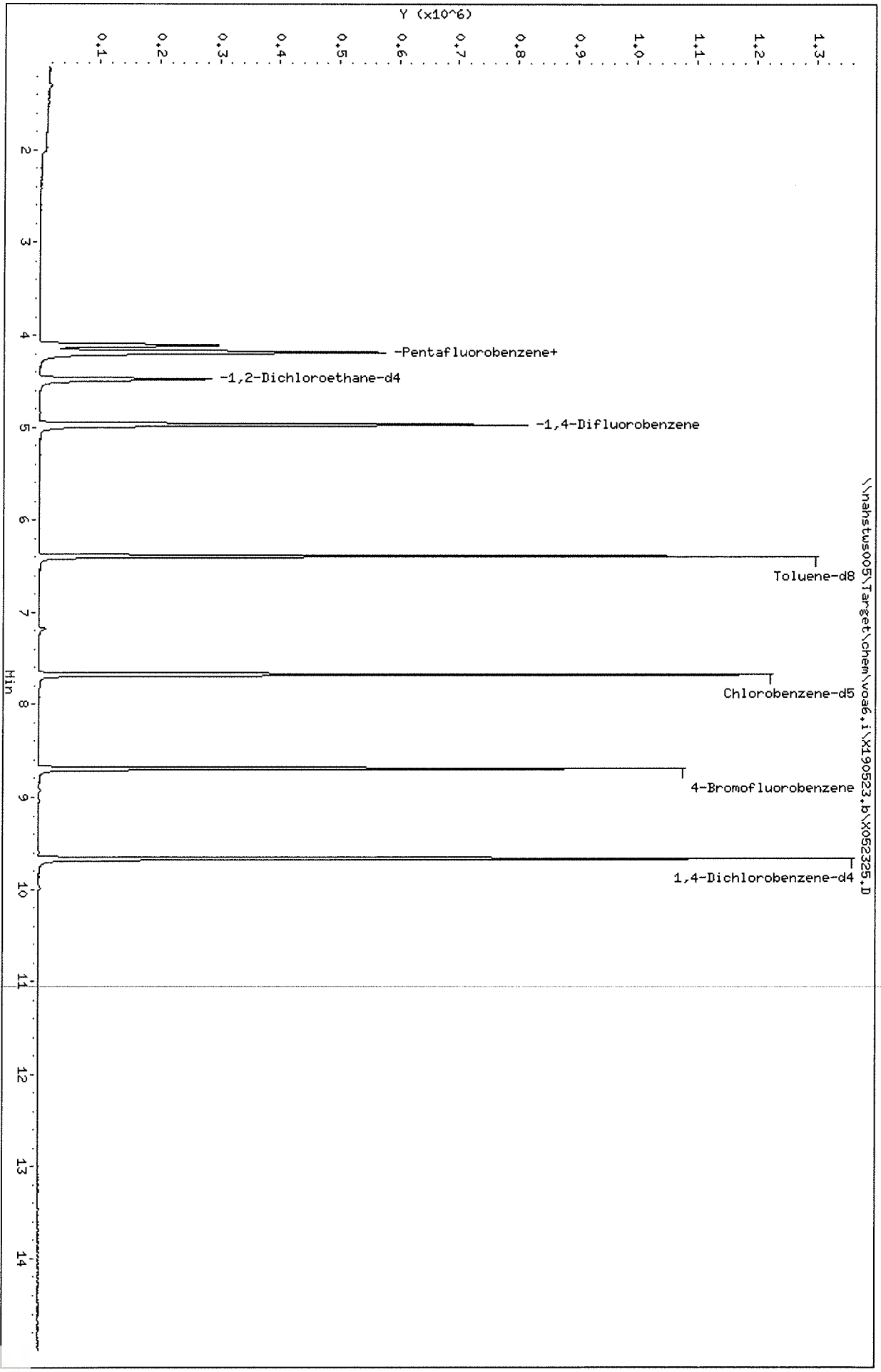
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052325.D
Lab Smp Id: HS19051031-02 Client Smp ID: HS19051031-02
Inj Date : 23-MAY-2019 20:50
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-02;HS19051031-02;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 24
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	549569	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	716348	50.0000	
* 47 Chlorobenzene-d5	117	7.671	7.678	(1.000)	627866	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	335683	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	207043	42.9454	42.94
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.134)	275069	52.1283	52.12
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	213227	45.0022	45.00
$ 48 Toluene-d8	98	6.388	6.388	(0.833)	802777	52.5329	52.53



Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052325.D
Date : 23-MAY-2019 20:50
Client ID: HS19051031-02
Sample Info: HS19051031-02;HS19051031-02;;;
Purge Volume: 5.0
Column phase: DB624

Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052326.D
Report Date: 06-Jun-2019 15:55

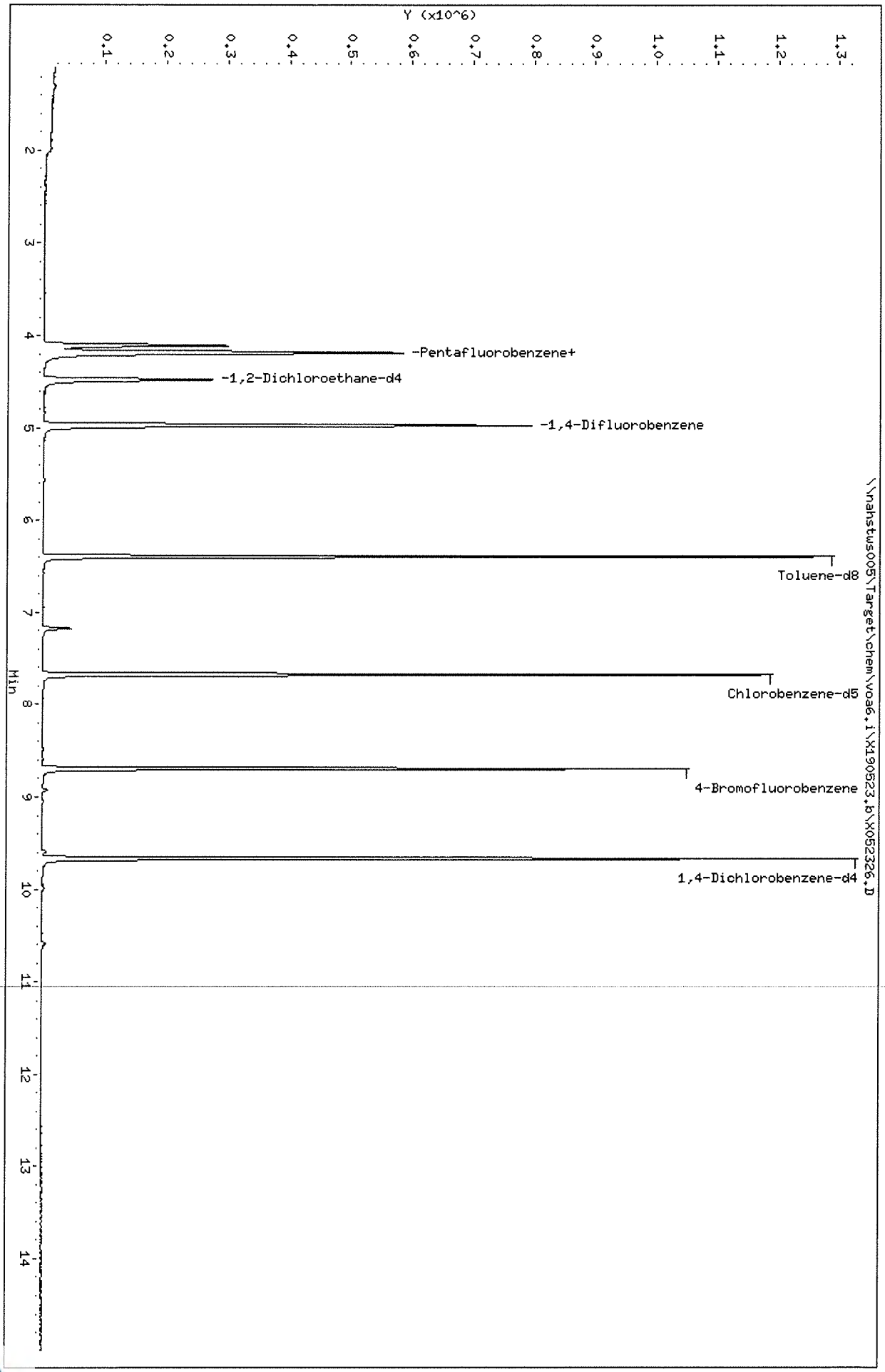
ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052326.D
Lab Smp Id: HS19051031-03 Client Smp ID: HS19051031-03
Inj Date : 23-MAY-2019 21:14
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-03;HS19051031-03;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 25
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	552842	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	709199	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	636337	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	334477	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	205533	42.3775	42.37
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	277585	51.9024	51.90
$ 30 Dibromofluoromethane	113	4.110	4.111	(0.981)	212738	44.6302	44.63
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	815072	52.6284	52.62


Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052326.D
Date : 23-MAY-2019 21:14
Client ID: HS19051031-03
Sample Info: HS19051031-03;HS19051031-03;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
Min
-Pentafluorobenzene+
-1,2-Dichloroethane-d4
-1,4-Difluorobenzene
Toluene-d8
Chlorobenzene-d5
4-Bromofluorobenzene
1,4-Dichlorobenzene-d4
\\nahstws005\Target\chem\voa6.i\X190523.b\X052326.D

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D
Report Date: 06-Jun-2019 15:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D
Lab Smp Id: HS19051031-04 Client Smp ID: HS19051031-04
Inj Date : 23-MAY-2019 21:38
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-04;HS19051031-04;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 26
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

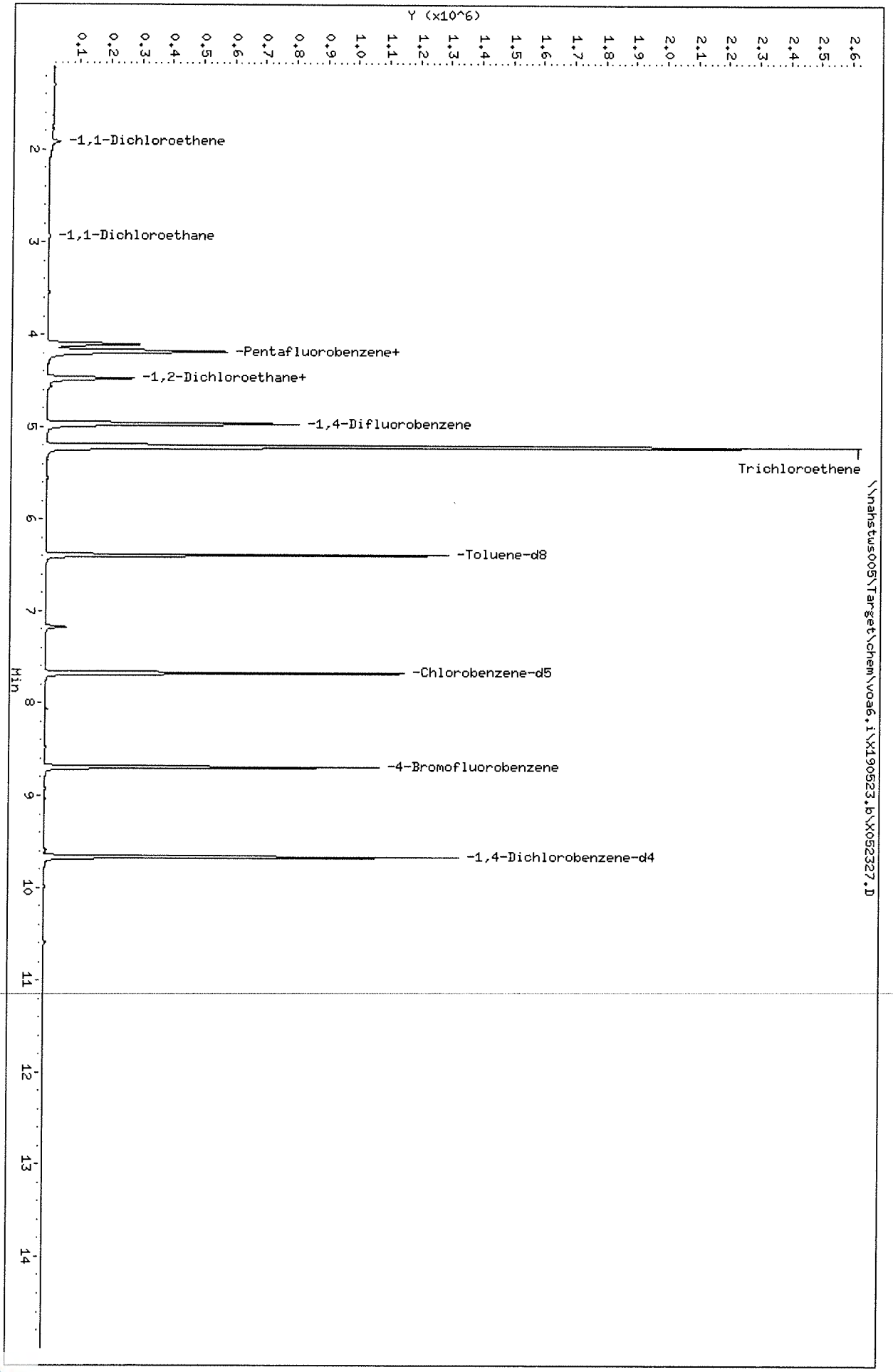
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	555752	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	711695	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	617723	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	331482	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	206668	42.3884	42.38
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	272191	52.4332	52.43
$ 30 Dibromofluoromethane	113	4.103	4.111	(0.979)	211272	44.0861	44.08
$ 48 Toluene-d8	98	6.388	6.388	(0.832)	802206	53.3665	53.36
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	6408	0.81807	0.81(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	9416	2.16802	2.16(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	9111	1.52017	1.52(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	947524	171.938	171.93

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D
Date : 23-MAY-2019 21:38
Client ID: HS19051031-04
Sample Info: HS19051031-04;HS19051031-04;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18
Y (x10^6)
-1,1-Dichloroethene
-1,1-Dichloroethane
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
Min
\\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D

Date : 23-MAY-2019 21:38

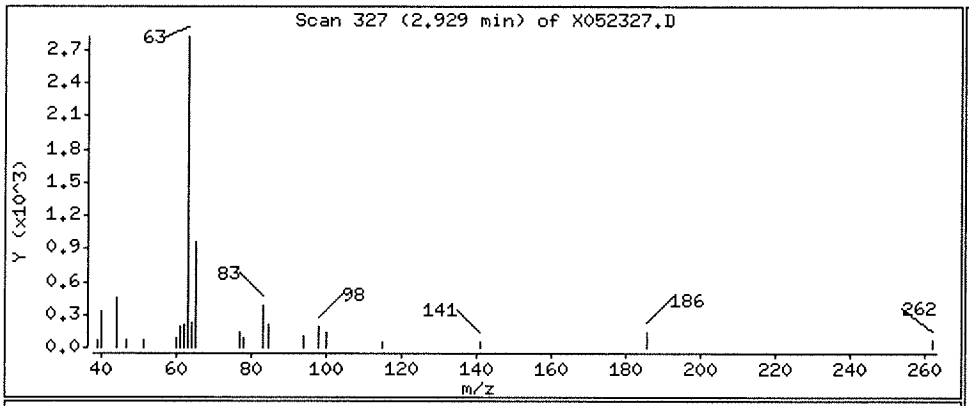
Client ID: HS19051031-04 Instrument: voa6.i

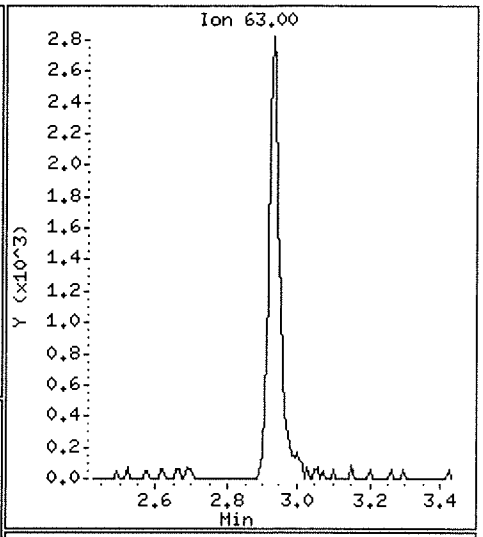
Sample Info: HS19051031-04;HS19051031-04;;;

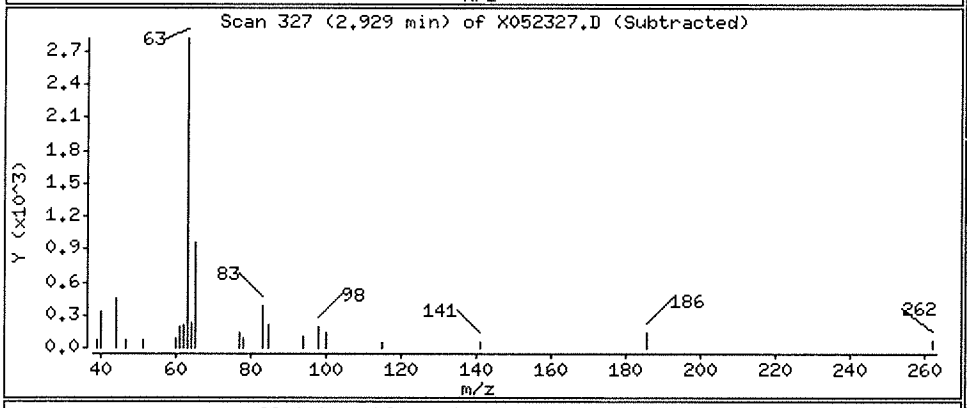
Purge Volume: 5.0 Operator: PC

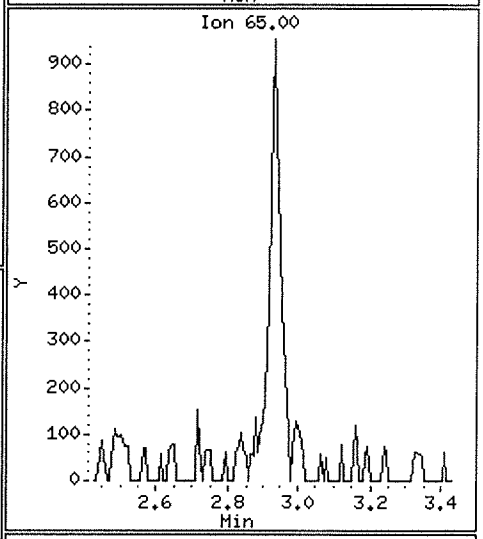
Column phase: DB624 Column diameter: 0.18

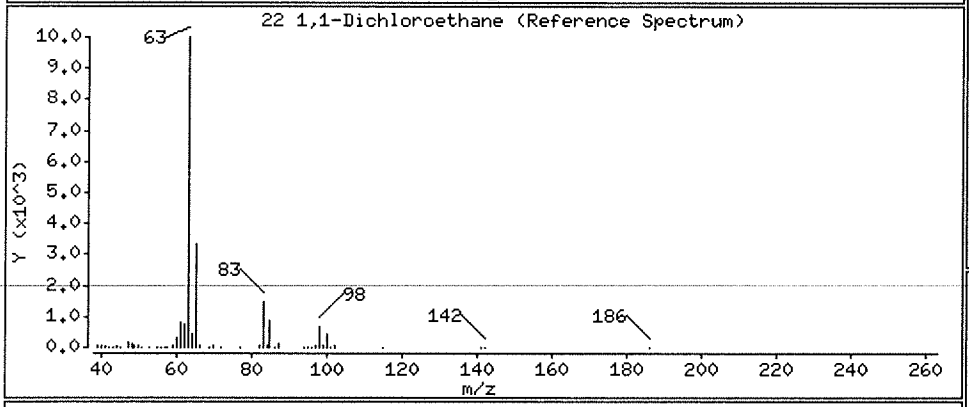
22 1,1-Dichloroethane Concentration: 0.81 ug/l

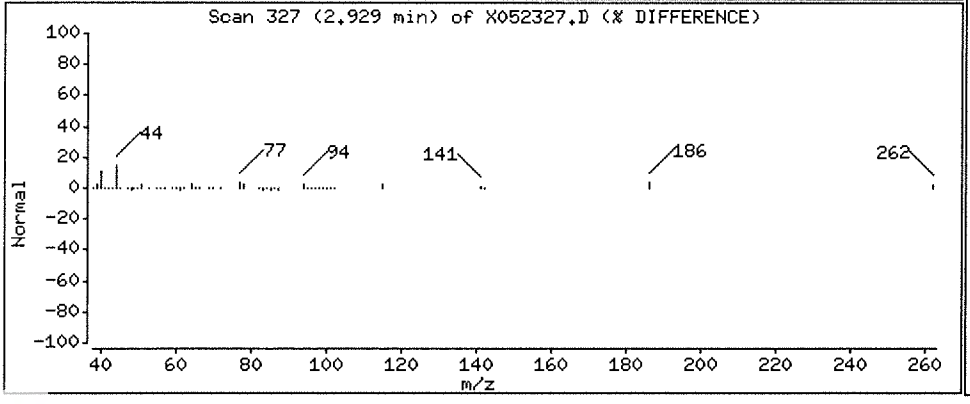


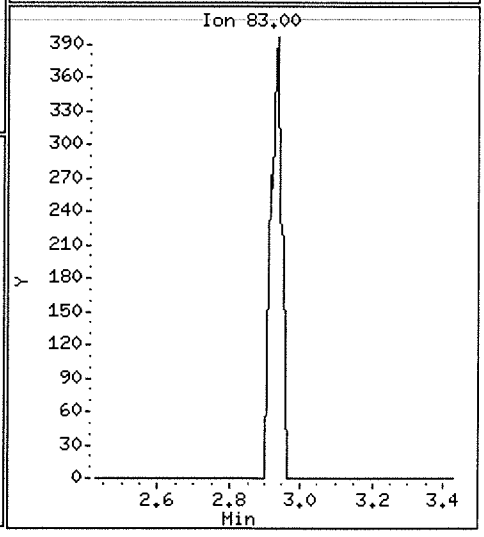












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D

Date : 23-MAY-2019 21:38

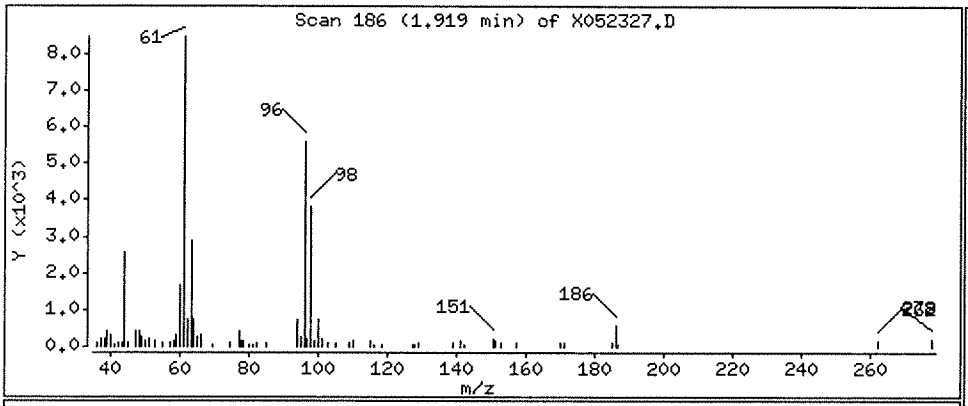
Client ID: HS19051031-04 Instrument: voa6.i

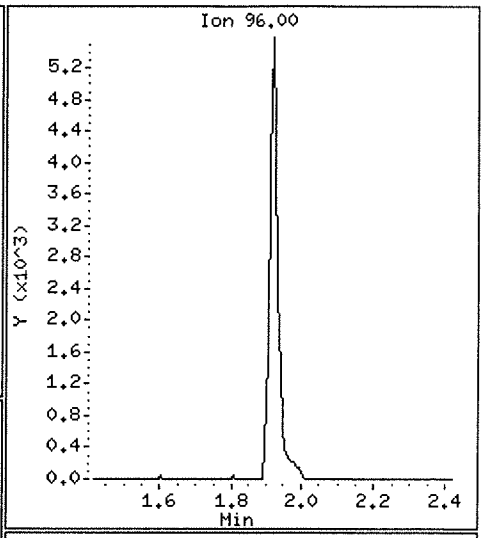
Sample Info: HS19051031-04;HS19051031-04;;;

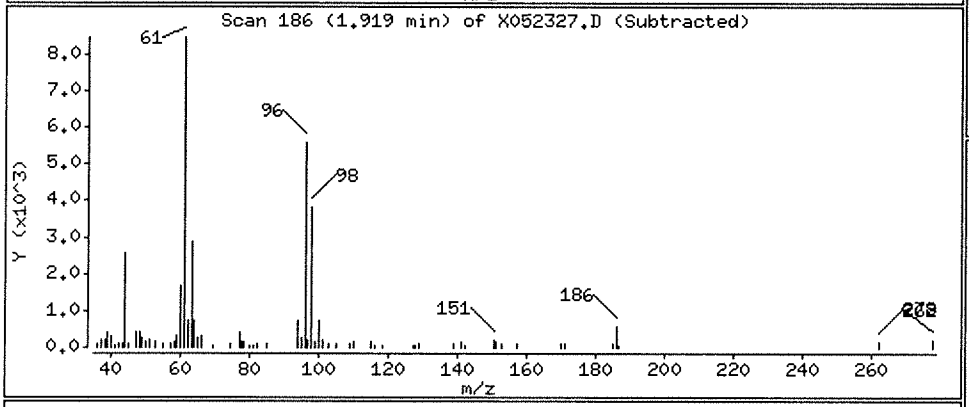
Purge Volume: 5.0 Operator: PC

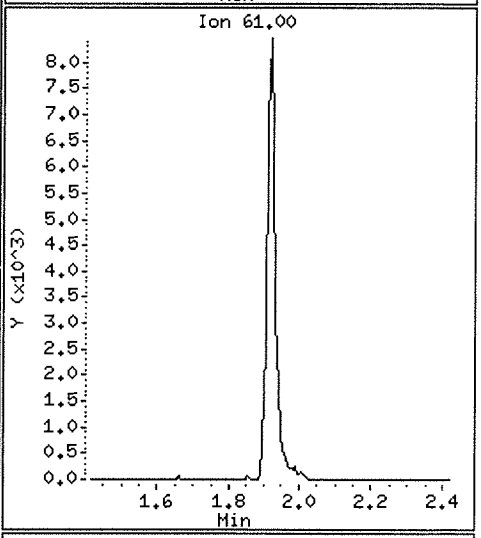
Column phase: DB624 Column diameter: 0.18

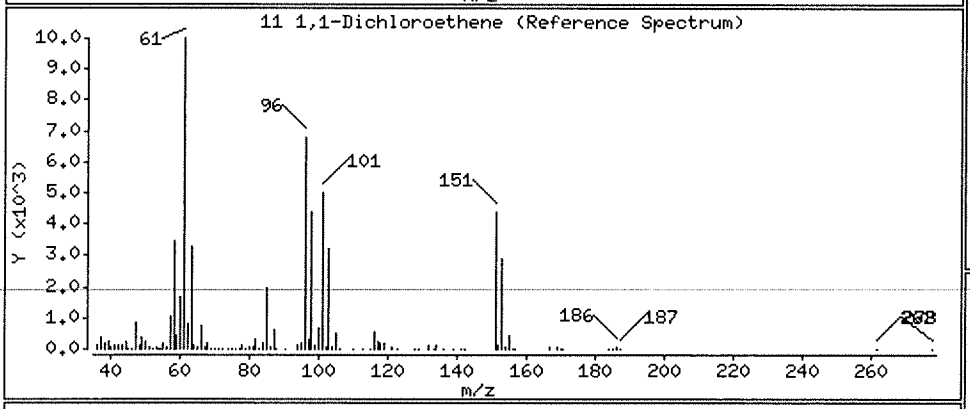
11 1,1-Dichloroethene Concentration: 2.16 ug/l

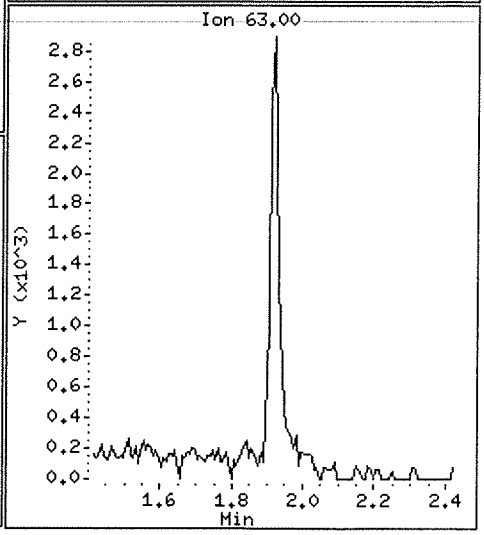


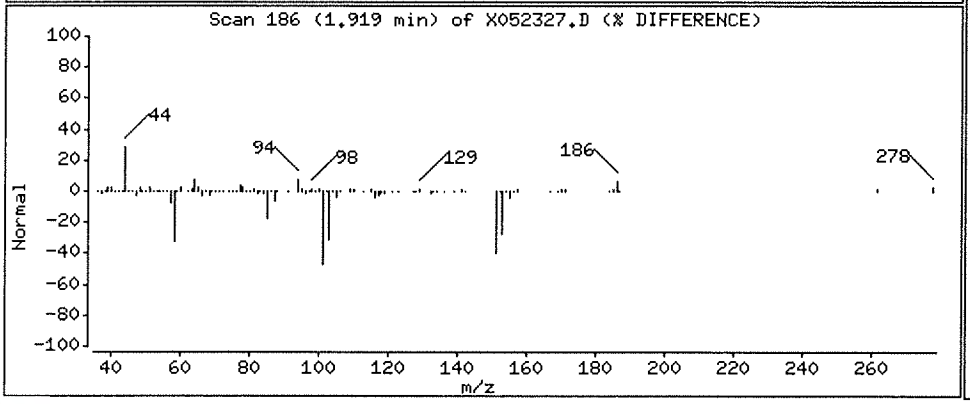












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D

Date : 23-MAY-2019 21:38

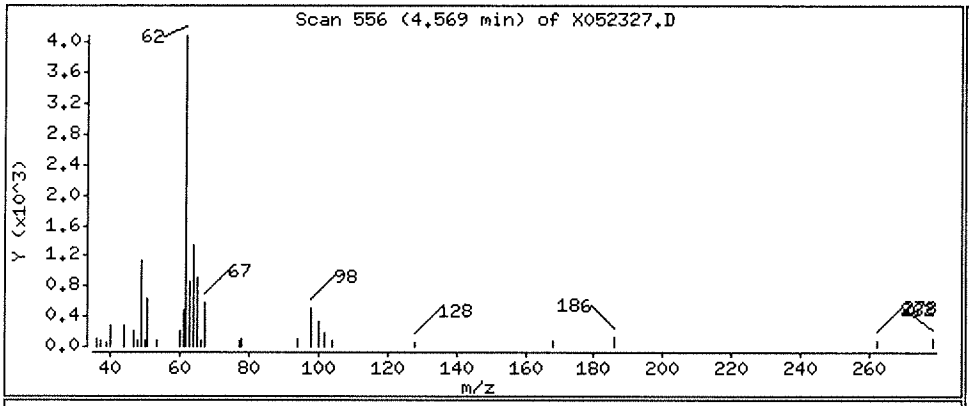
Client ID: HS19051031-04 Instrument: voa6.i

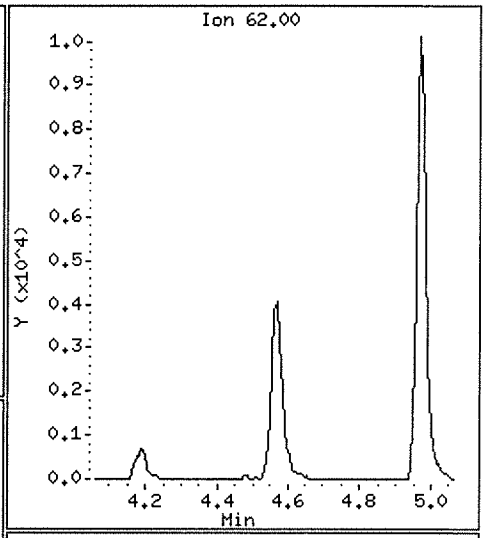
Sample Info: HS19051031-04;HS19051031-04;;;

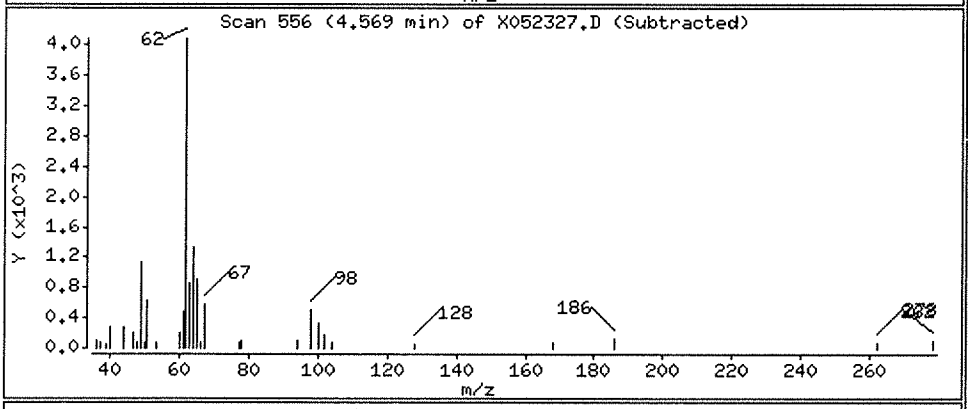
Purge Volume: 5.0 Operator: PC

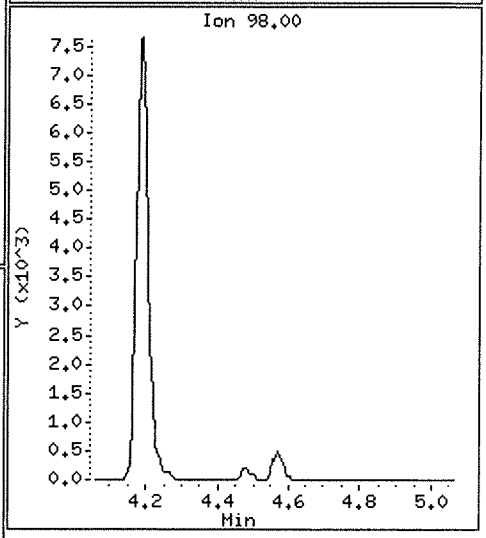
Column phase: DB624 Column diameter: 0.18

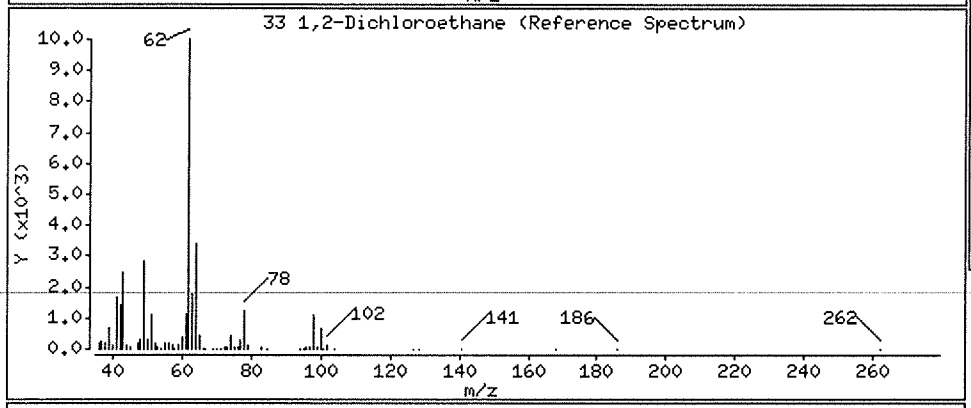
33 1,2-Dichloroethane Concentration: 1.52 ug/l

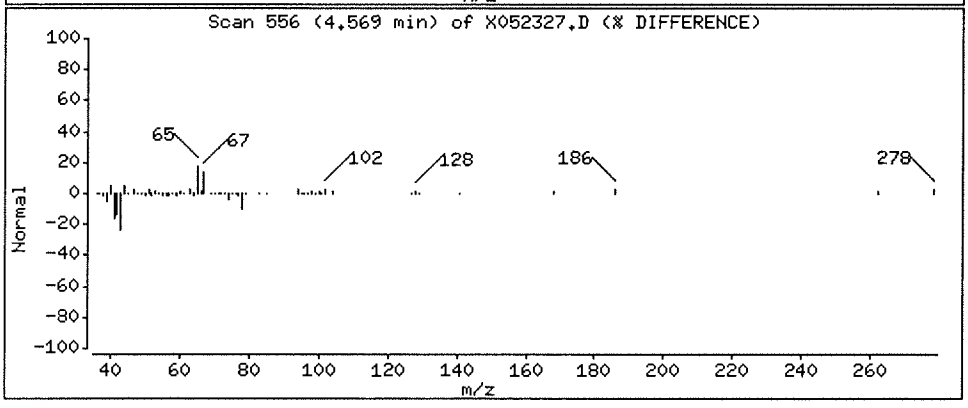












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052327.D

Date : 23-MAY-2019 21:38

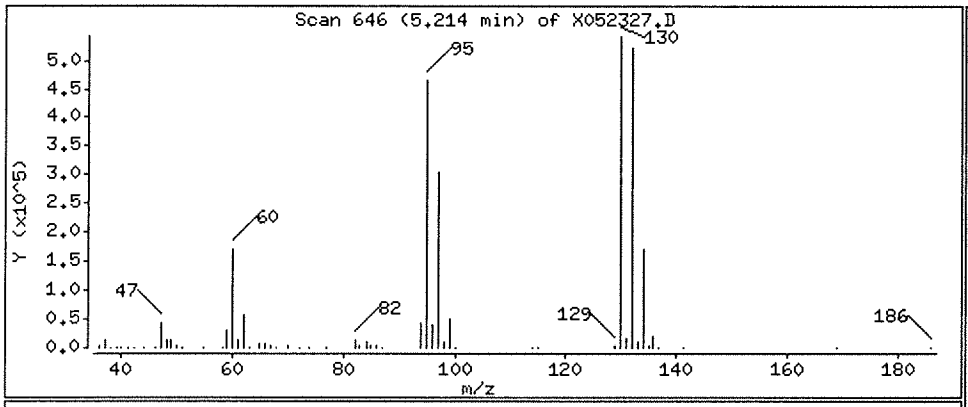
Client ID: HS19051031-04 Instrument: voa6.i

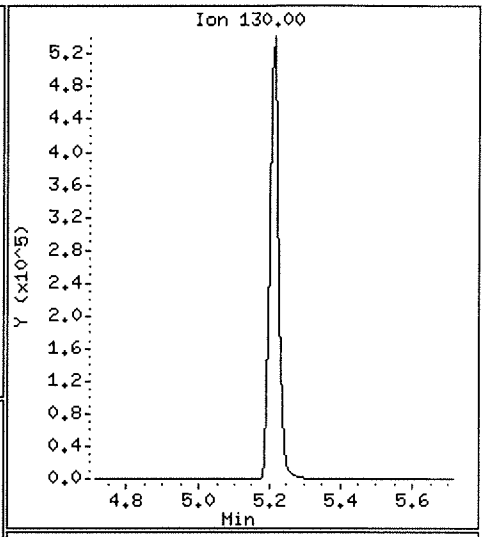
Sample Info: HS19051031-04;HS19051031-04;;;

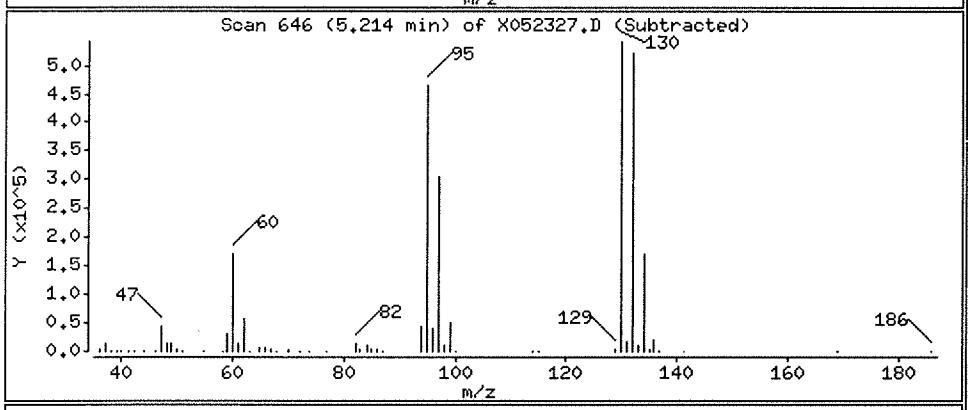
Purge Volume: 5.0 Operator: PC

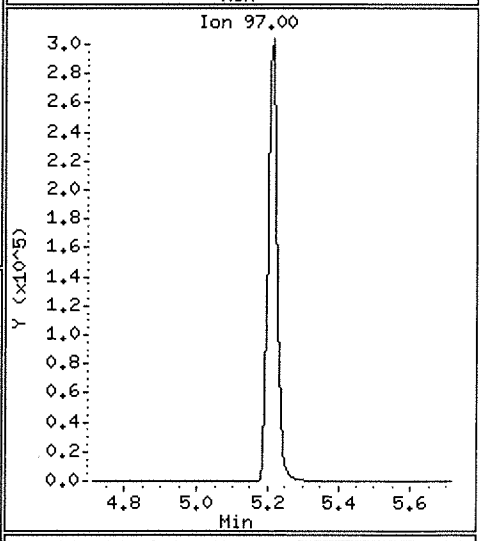
Column phase: DB624 Column diameter: 0.18

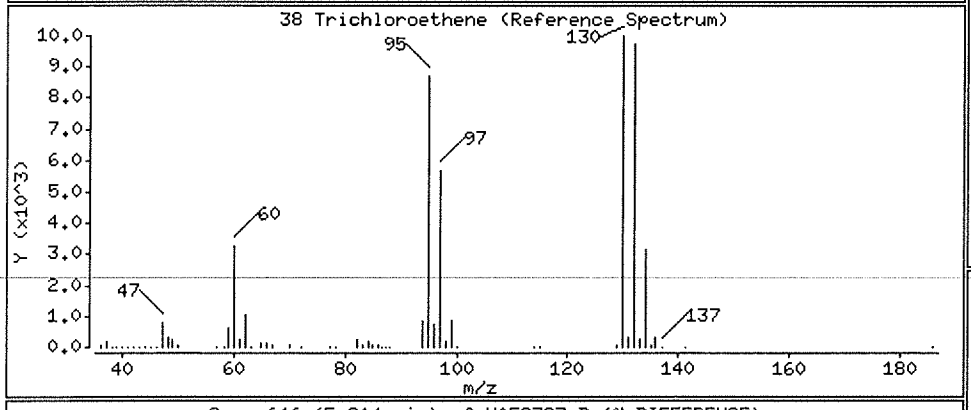
38 Trichloroethene Concentration: 171.93 ug/l

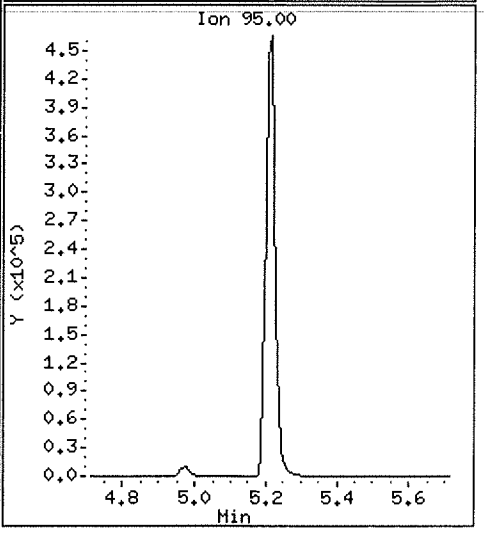


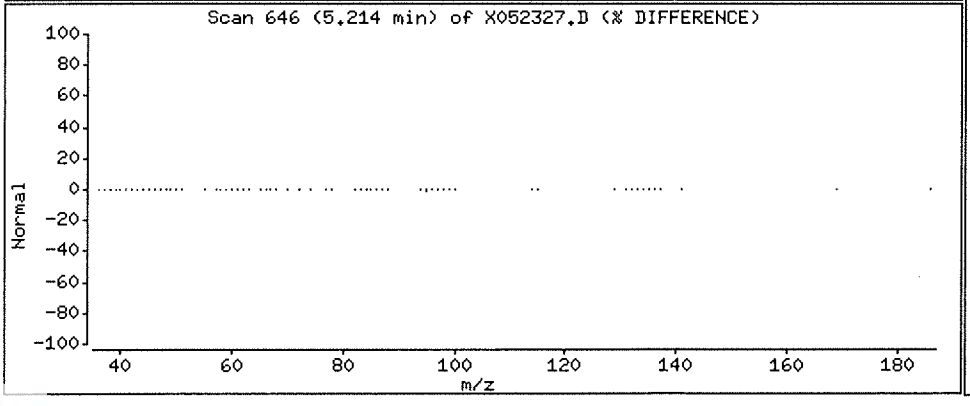












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D
Report Date: 06-Jun-2019 15:55

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D
Lab Smp Id: HS19051031-05 Client Smp ID: HS19051031-05
Inj Date : 23-MAY-2019 22:02
Operator : PC Inst ID: voa6.i
Smp Info : HS19051031-05;HS19051031-05;;;
Misc Info : HS18090001;WATER;0;1;
Comment :
Method : \\nahstws005\Target\chem\voa6.i\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:53 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 27
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

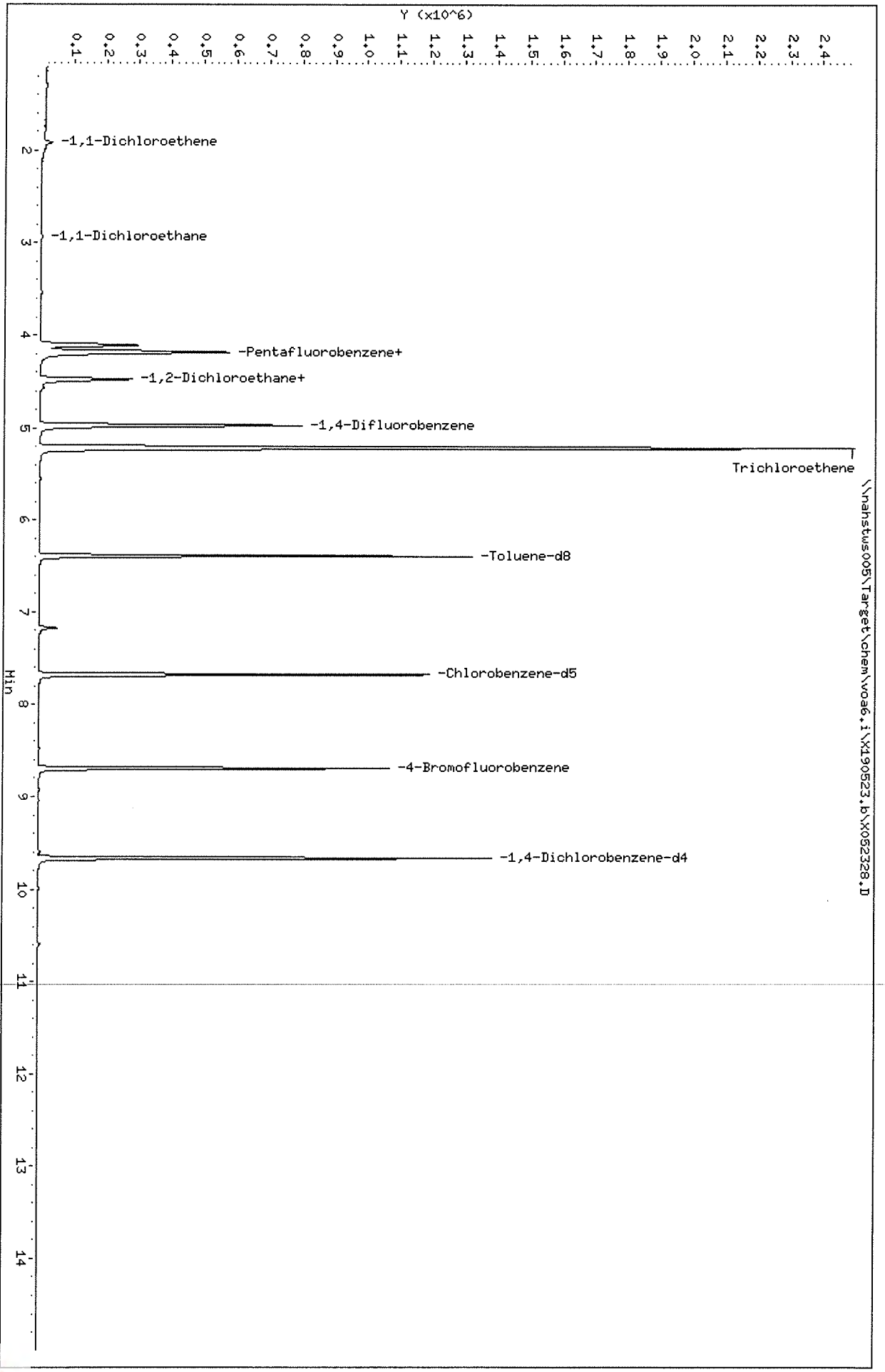
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/l)	FINAL (ug/l)
* 1 Pentafluorobenzene	168	4.189	4.189	(1.000)	548434	50.0000	
* 36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	709737	50.0000	
* 47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	636440	50.0000	
* 70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	350768	50.0000	
$ 35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	207394	43.1079	43.10
$ 69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	277048	51.7924	51.79
$ 30 Dibromofluoromethane	113	4.111	4.111	(0.981)	212305	44.8995	44.89
$ 48 Toluene-d8	98	6.389	6.388	(0.832)	805962	52.0253	52.02
22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	6076	0.78603	0.78(a)
11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	9227	2.15285	2.15(a)
33 1,2-Dichloroethane	62	4.569	4.562	(0.919)	8832	1.47769	1.47(a)
38 Trichloroethene	130	5.214	5.214	(1.049)	913072	166.144	166.14

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).


Y (x10^6)
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
-1,1-Dichloroethene
-1,1-Dichloroethane
-Pentafluorobenzene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
Trichloroethene
-Toluene-d8
-Chlorobenzene-d5
-4-Bromofluorobenzene
-1,4-Dichlorobenzene-d4
Min
2
3
4
5
6
7
8
9
10
11
12
13
14
\\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D
Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D
Date : 23-MAY-2019 22:02
Client ID: HS19051031-05
Sample Info: HS19051031-05;HS19051031-05;;;
Purge Volume: 5.0
Column phase: DB624
Instrument: voa6.i
Operator: PC
Column diameter: 0.18

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D

Date : 23-MAY-2019 22:02

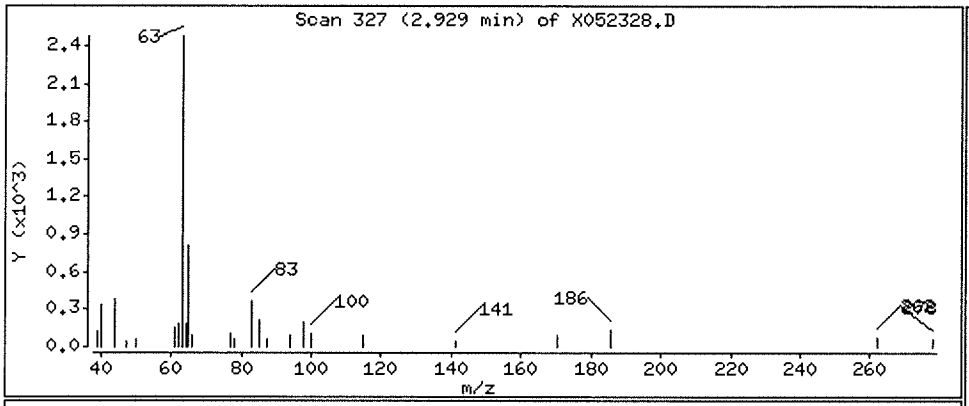
Client ID: HS19051031-05 Instrument: voa6.i

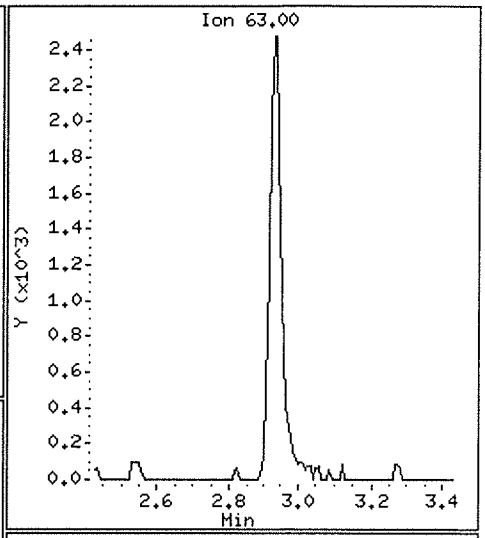
Sample Info: HS19051031-05;HS19051031-05;;;

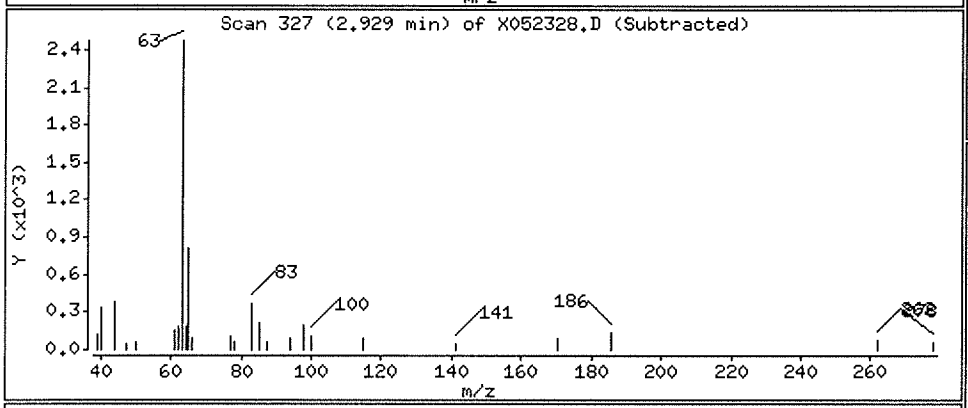
Purge Volume: 5.0 Operator: PC

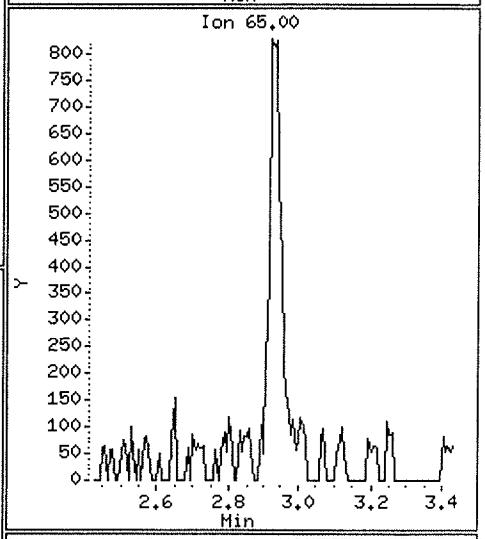
Column phase: DB624 Column diameter: 0.18

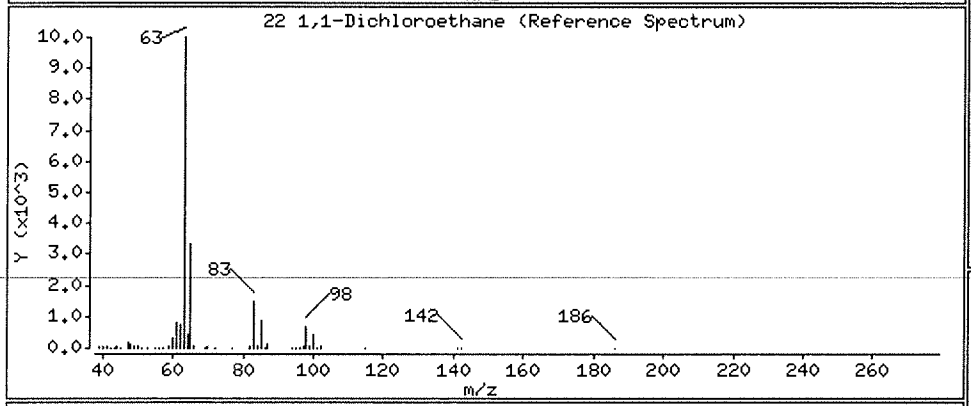
22 1,1-Dichloroethane Concentration: 0.78 ug/l

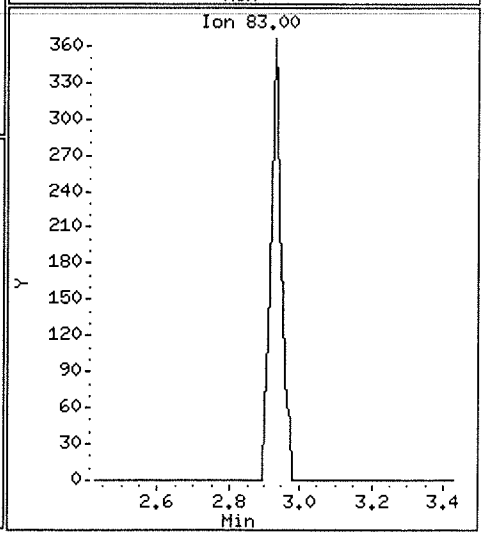


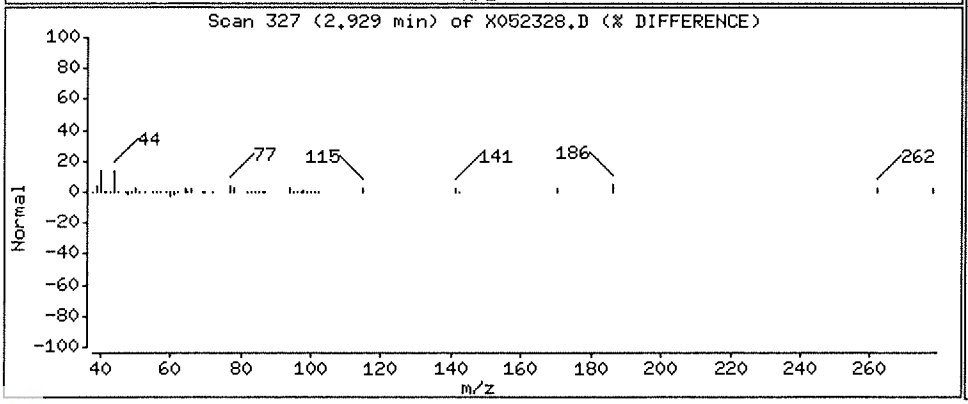












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D

Date : 23-MAY-2019 22:02

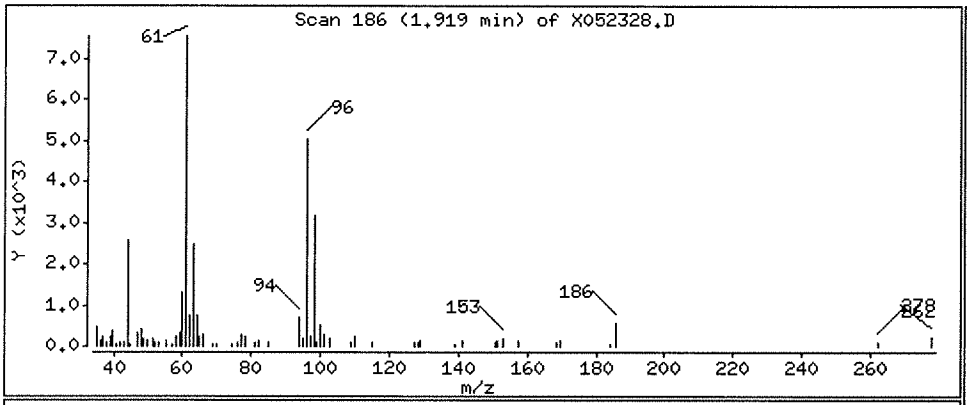
Client ID: HS19051031-05 Instrument: voa6.i

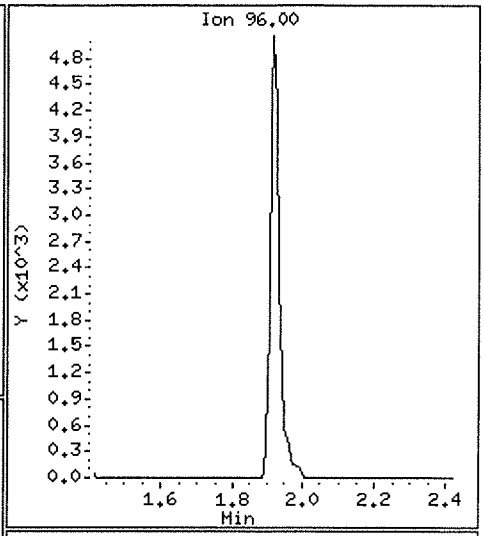
Sample Info: HS19051031-05;HS19051031-05;;;

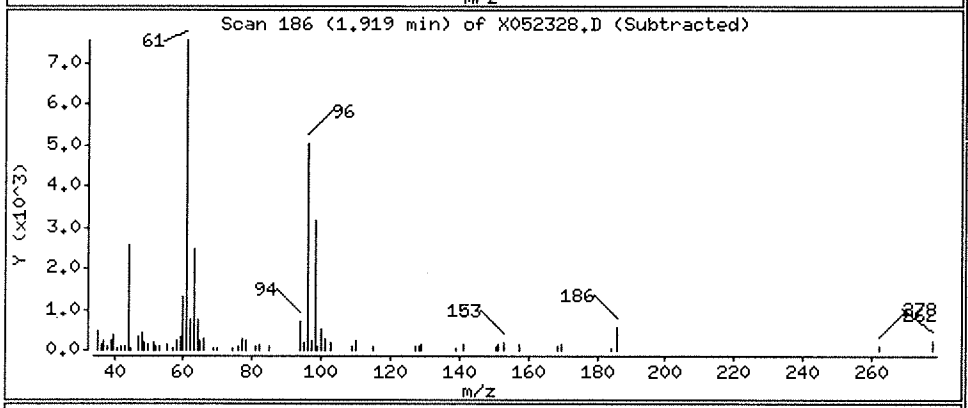
Purge Volume: 5.0 Operator: PC

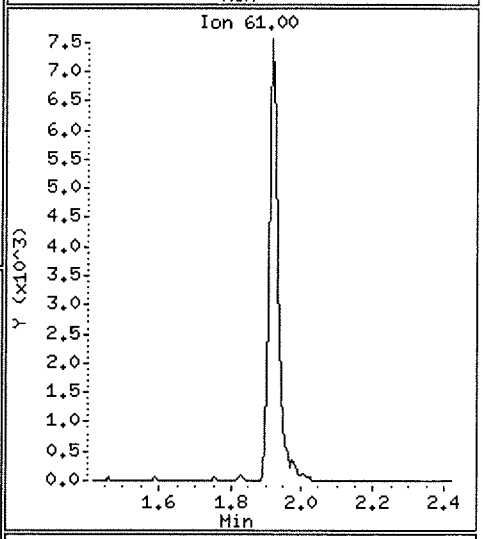
Column phase: DB624 Column diameter: 0.18

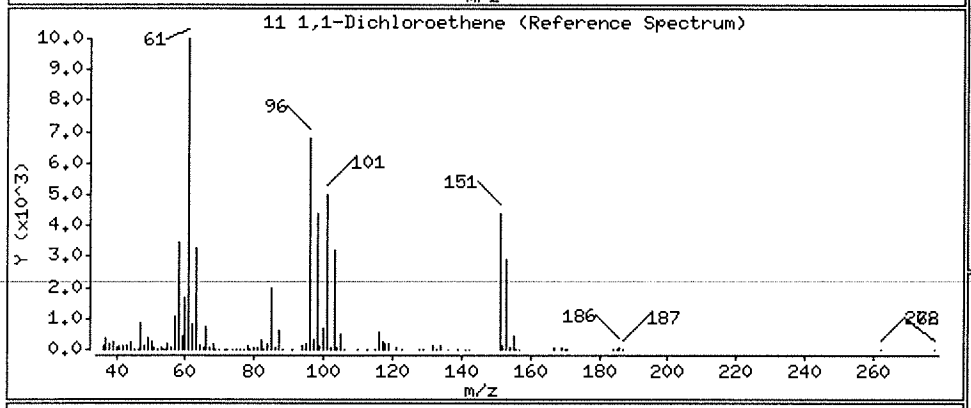
11 1,1-Dichloroethene Concentration: 2.15 ug/l

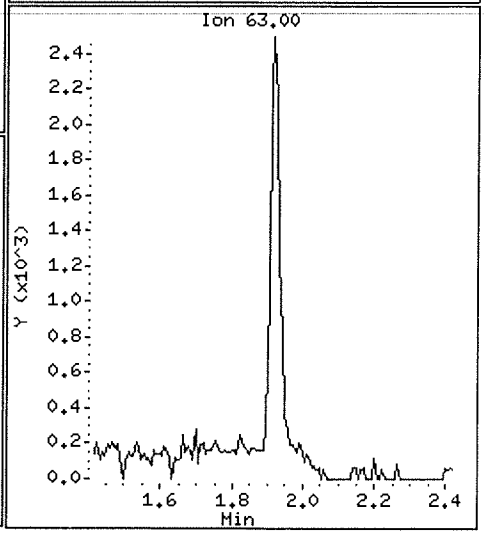


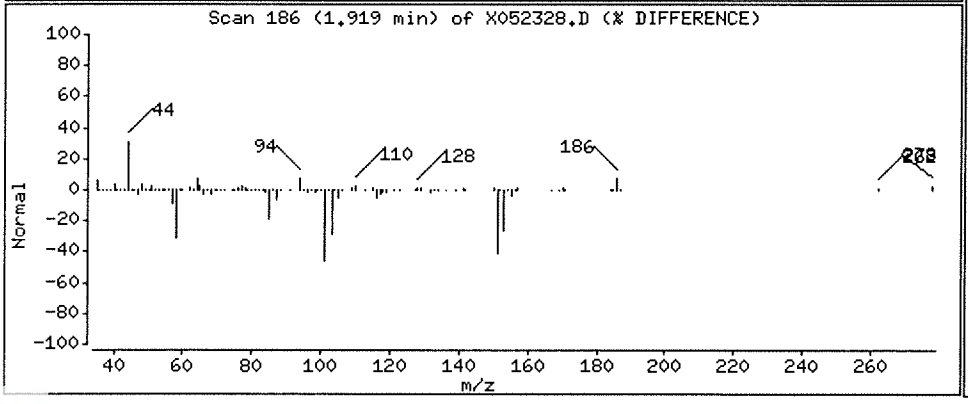












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D

Date : 23-MAY-2019 22:02

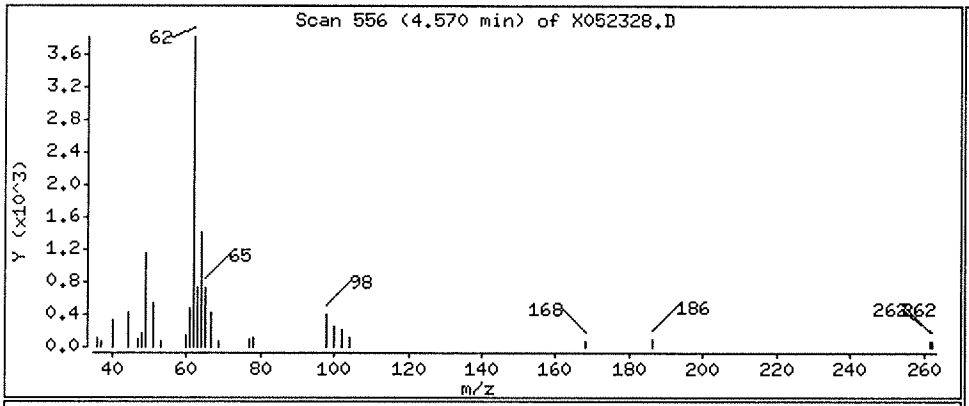
Client ID: HS19051031-05 Instrument: voa6.i

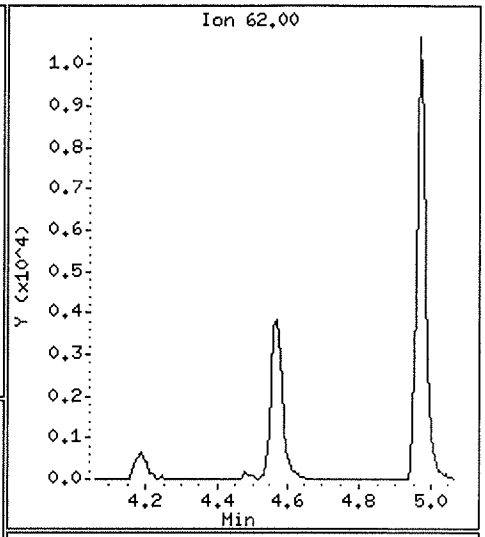
Sample Info: HS19051031-05;HS19051031-05;;;

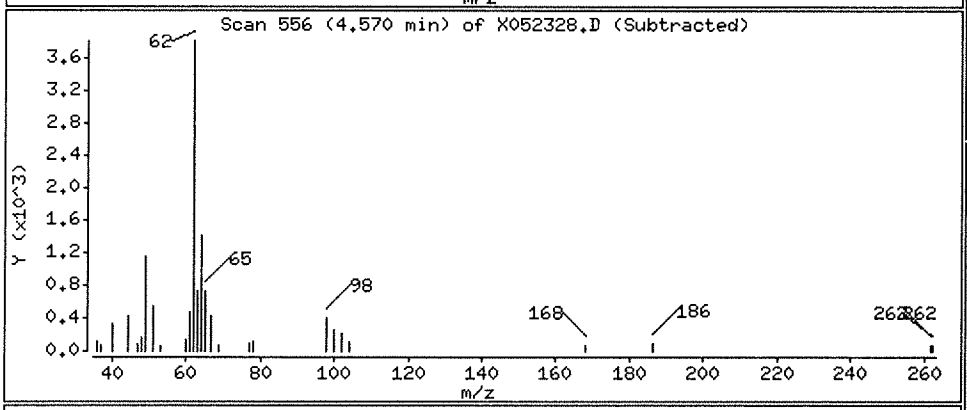
Purge Volume: 5.0 Operator: PC

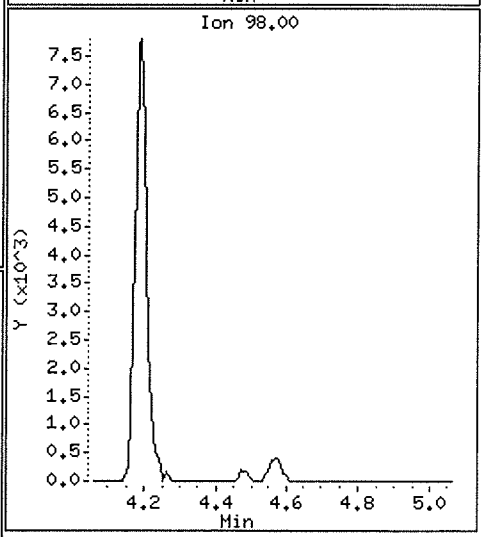
Column phase: DB624 Column diameter: 0.18

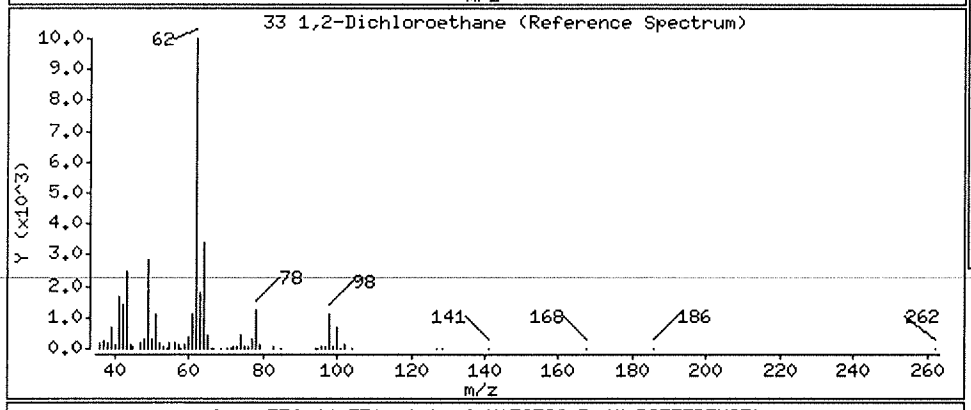
33 1,2-Dichloroethane Concentration: 1.47 ug/l

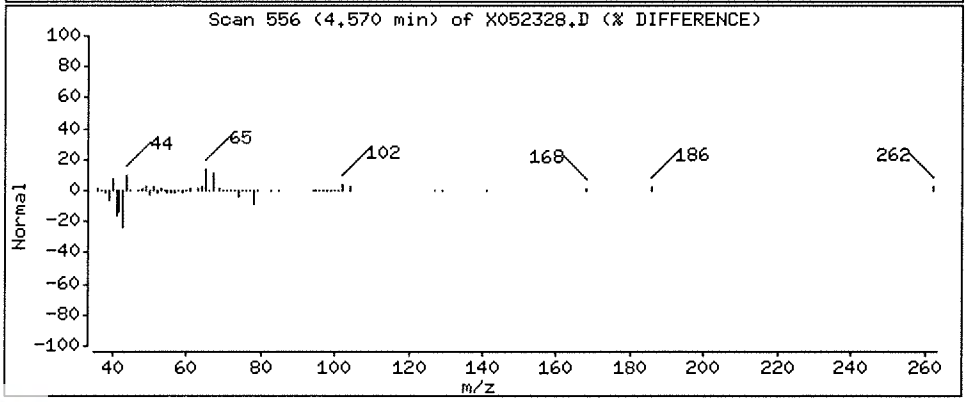












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052328.D

Date : 23-MAY-2019 22:02

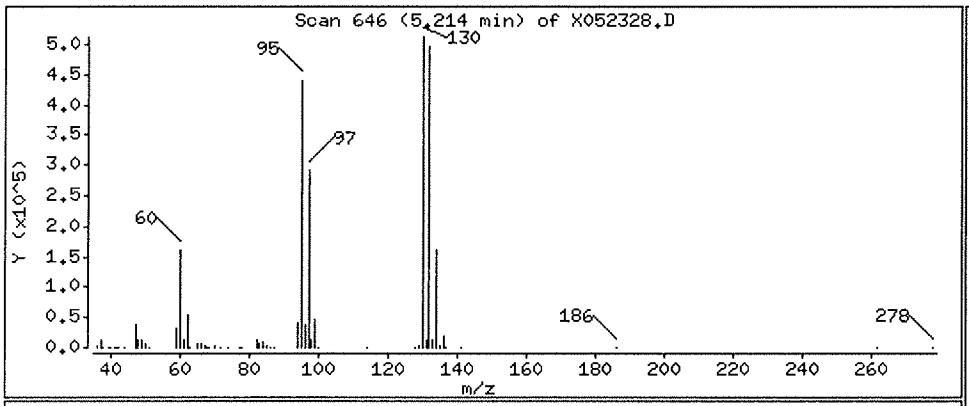
Client ID: HS19051031-05 Instrument: voa6.i

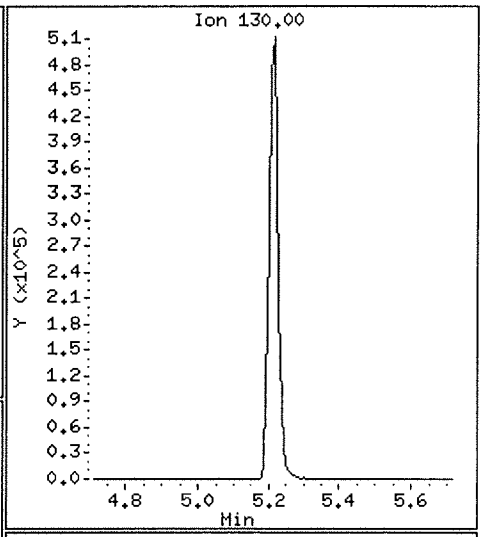
Sample Info: HS19051031-05;HS19051031-05;;;

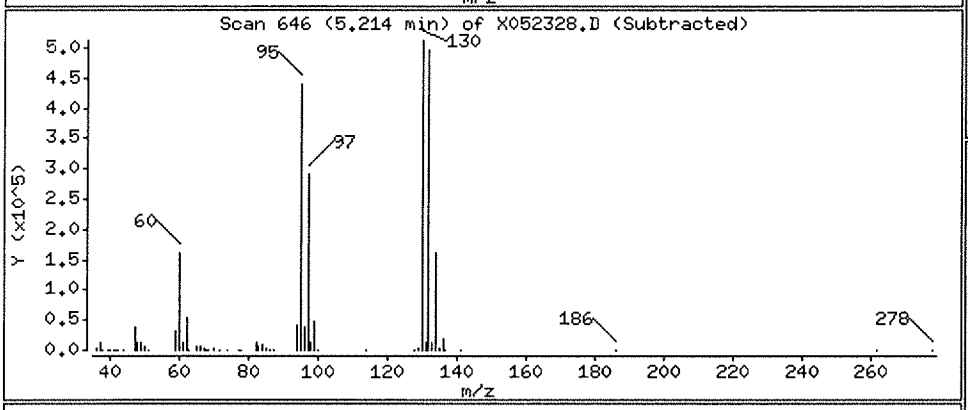
Purge Volume: 5.0 Operator: PC

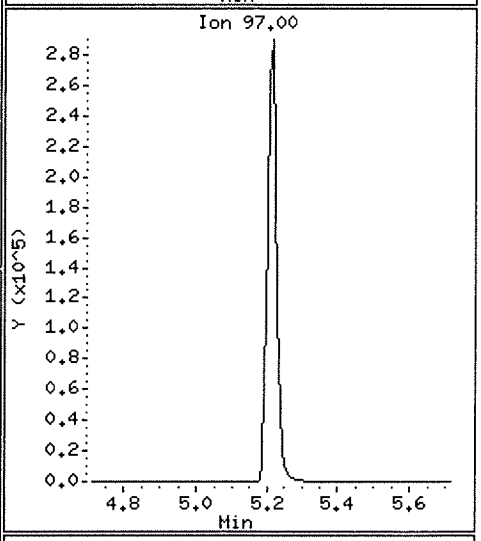
Column phase: DB624 Column diameter: 0.18

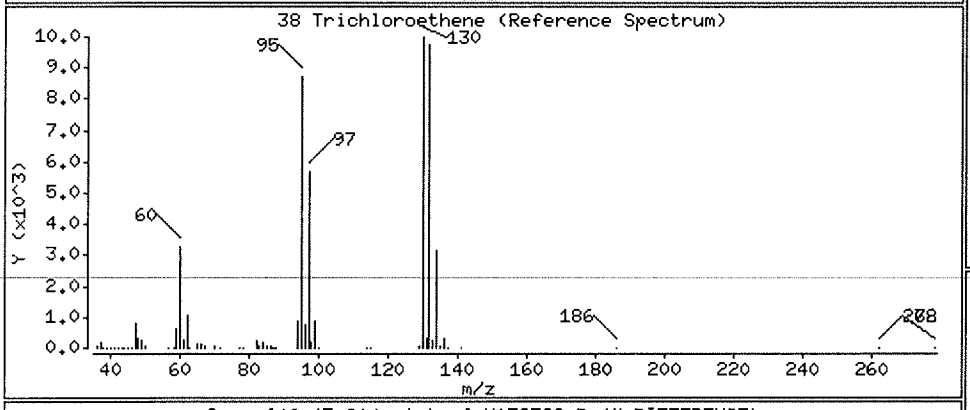
38 Trichloroethene Concentration: 166.14 ug/l

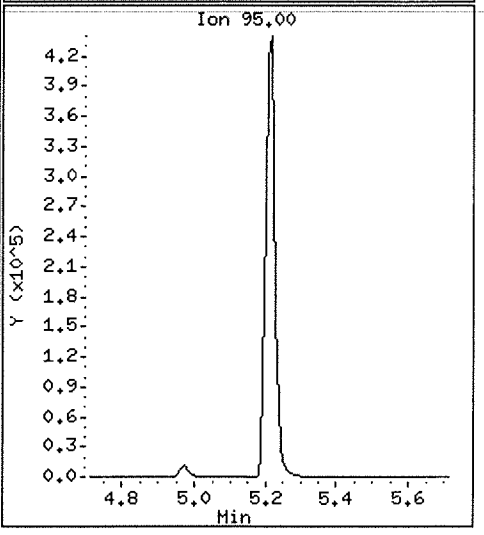


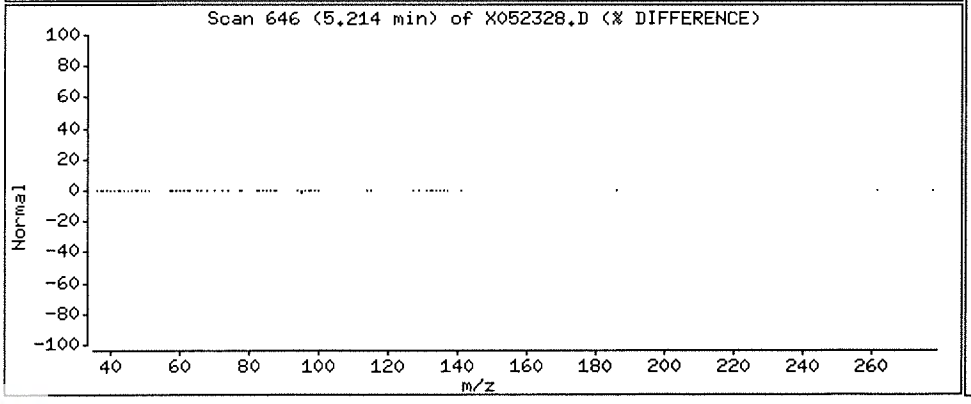












Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052330.D
Report Date: 06-Jun-2019 15:56

ALS Laboratory Group

Data file : \\nahstws005\Target\chem\voa6.i\X190523.b\X052330.D
Lab Smp Id: CCV-END Client Smp ID: CCV-END
Inj Date : 23-MAY-2019 22:51
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\X190523.b\8260W.m
Meth Date : 06-Jun-2019 15:55 voa6.i Quant Type: ISTD
Cal Date : 13-MAY-2019 14:09 Cal File: X051308.D
Als bottle: 29 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: CBIHOUSTONDOD.sub
Target Version: 4.14

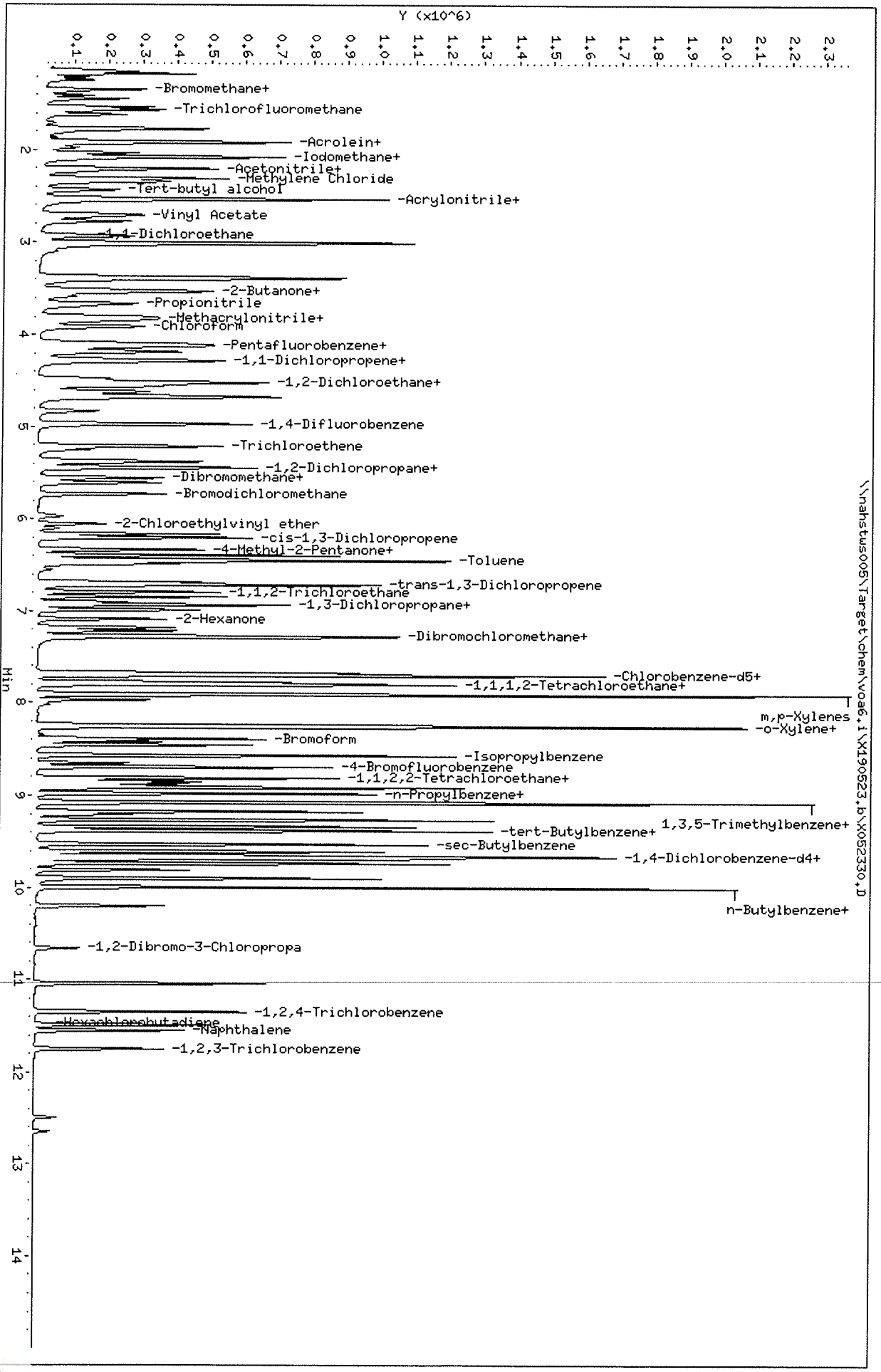
Concentration Formula: Amt * DF * (Uf/Vo)*1 * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	5.000	ng unit correction factor
Vo	5.000	sample purged
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/l)	AMOUNTS ON-COL (ug/l)
*	1 Pentafluorobenzene	168	4.189	4.189	(1.000)	377665	50.0000	
*	36 1,4-Difluorobenzene	114	4.970	4.970	(1.000)	513113	50.0000	
*	47 Chlorobenzene-d5	117	7.678	7.678	(1.000)	478010	50.0000	
*	70 1,4-Dichlorobenzene-d4	152	9.669	9.669	(1.000)	264754	50.0000	
$	35 1,2-Dichloroethane-d4	65	4.476	4.476	(1.068)	151525	50.0000	45.74
$	69 4-Bromofluorobenzene	95	8.695	8.695	(1.132)	215962	50.0000	53.77
$	30 Dibromofluoromethane	113	4.111	4.111	(0.981)	161856	50.0000	49.74
$	48 Toluene-d8	98	6.388	6.388	(0.832)	532229	50.0000	45.67
	60 1,1,1,2-Tetrachloroethane	131	7.778	7.778	(1.013)	176335	50.0000	47.28
	31 1,1,1-Trichloroethane	97	4.089	4.089	(0.976)	235729	50.0000	47.14
	68 1,1,2,2-Tetrachloroethane	83	8.845	8.845	(0.915)	191598	50.0000	53.11
	138 Freon TF	101	1.919	1.919	(0.458)	129523	50.0000	44.77
	53 1,1,2-Trichloroethane	83	6.847	6.847	(0.892)	129740	50.0000	52.99
	22 1,1-Dichloroethane	63	2.929	2.929	(0.699)	284521	50.0000	53.45
	11 1,1-Dichloroethene	96	1.919	1.919	(0.458)	139744	50.0000	47.34
	32 1,1-Dichloropropene	75	4.290	4.290	(0.863)	203022	50.0000	47.57
	93 1,2,3-Trichlorobenzene	180	11.746	11.746	(1.215)	111060	50.0000	49.25
	71 1,2,3-Trichloropropane	75	8.867	8.867	(0.917)	217814	50.0000	52.80
	90 1,2,4-Trichlorobenzene	180	11.345	11.345	(1.173)	187568	50.0000	48.04
	79 1,2,4-Trimethylbenzene	105	9.383	9.383	(0.970)	607813	50.0000	48.20
	89 1,2-Dibromo-3-Chloropropane	155	10.665	10.665	(1.103)	29934	50.0000	51.76
	57 1,2-Dibromoethane	107	7.262	7.262	(0.946)	170208	50.0000	50.85
	88 1,2-Dichlorobenzene	146	9.999	9.999	(1.034)	369518	50.0000	48.34

Data File: \\nahstws005\Target\chem\voa6.i\X190523.b\X052330.D
Report Date: 06-Jun-2019 15:56

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)	202287	50.0000	46.81
42 1,2-Dichloropropane	63	5.443	5.443	(1.095)	162561	50.0000	54.25
75 1,3,5-Trimethylbenzene	105	9.075	9.075	(0.939)	586610	50.0000	48.77
83 1,3-Dichlorobenzene	146	9.612	9.612	(0.994)	388077	50.0000	47.65
54 1,3-Dichloropropane	76	6.990	6.990	(0.910)	257521	50.0000	52.13
84 1,4-Dichlorobenzene	146	9.691	9.691	(1.002)	393986	50.0000	48.06
26 2,2-Dichloropropane	77	3.516	3.516	(0.839)	191836	50.0000	40.68
24 2-Butanone	43	3.581	3.581	(0.855)	110545	100.000	122.78
76 2-Chlorotoluene	91	8.981	8.981	(0.929)	477933	50.0000	48.81
52 2-Hexanone	43	7.090	7.090	(0.924)	181917	100.000	109.25
77 4-Chlorotoluene	91	9.075	9.075	(0.939)	553170	50.0000	48.76
82 p-Isopropyltoluene	119	9.655	9.655	(0.999)	603622	50.0000	46.47
45 4-Methyl-2-Pentanone	43	6.331	6.331	(0.825)	269176	100.000	111.05
10 Acetone	43	1.976	1.976	(0.472)	81136	100.000	100.29
37 Benzene	78	4.519	4.519	(0.909)	647516	50.0000	52.28
74 Bromobenzene	156	8.810	8.810	(0.911)	238056	50.0000	48.24
29 Bromochloromethane	128	3.803	3.803	(0.908)	106273	50.0000	52.68
39 Bromodichloromethane	83	5.729	5.729	(1.153)	216348	50.0000	50.31
66 Bromoform	173	8.416	8.416	(1.096)	140022	50.0000	50.22
6 Bromomethane	94	1.339	1.339	(0.320)	161880	50.0000	47.79
19 Carbon Disulfide	76	2.076	2.076	(0.496)	932127	100.000	109.52
34 Carbon Tetrachloride	117	4.275	4.275	(0.860)	203175	50.0000	42.81
59 Chlorobenzene	112	7.699	7.699	(1.003)	477826	50.0000	50.11
7 Chloroethane	64	1.403	1.403	(0.335)	105135	50.0000	48.77
28 Chloroform	83	3.917	3.917	(0.935)	292693	50.0000	51.27
3 Chloromethane	50	1.081	1.081	(0.258)	215431	50.0000	56.17
27 cis-1,2-Dichloroethene	96	3.530	3.530	(0.843)	193315	50.0000	52.55
46 cis-1,3-Dichloropropene	75	6.159	6.159	(1.239)	268335	50.0000	52.53
55 Dibromochloromethane	129	7.184	7.184	(0.936)	187456	50.0000	48.80
44 Dibromomethane	93	5.558	5.558	(1.118)	110809	50.0000	51.34
2 Dichlorodifluoromethane	85	0.973	0.973	(0.232)	155613	50.0000	46.93
61 Ethylbenzene	106	7.807	7.807	(1.017)	241923	50.0000	49.08
91 Hexachlorobutadiene	225	11.489	11.489	(1.188)	98642	50.0000	42.43
67 Isopropylbenzene	105	8.566	8.566	(1.116)	684177	50.0000	46.74
62 m,p-Xylenes	106	7.907	7.907	(1.030)	582498	100.000	98.12
17 Methylene Chloride	84	2.313	2.313	(0.552)	179275	50.0000	56.70
87 n-Butylbenzene	91	9.999	9.999	(1.034)	474405	50.0000	46.10
73 n-Propylbenzene	91	8.917	8.917	(0.922)	772651	50.0000	47.50
92 Naphthalene	128	11.546	11.546	(1.194)	283864	50.0000	51.32
63 o-Xylene	106	8.244	8.244	(1.074)	291405	50.0000	50.17
81 sec-Butylbenzene	105	9.526	9.526	(0.985)	652303	50.0000	46.10
64 Styrene	104	8.265	8.265	(1.076)	527239	50.0000	51.92
78 tert-Butylbenzene	119	9.340	9.340	(0.966)	479186	50.0000	46.04
56 Tetrachloroethene	164	6.933	6.933	(0.903)	156038	50.0000	44.40
50 Toluene	91	6.453	6.453	(0.840)	698855	50.0000	49.87
20 trans-1,2-Dichloroethene	96	2.535	2.535	(0.605)	162562	50.0000	52.67
51 trans-1,3-Dichloropropene	75	6.682	6.682	(1.344)	230040	50.0000	51.54
38 Trichloroethene	130	5.214	5.214	(1.049)	194029	50.0000	48.83
8 Trichlorofluoromethane	101	1.561	1.561	(0.373)	243604	50.0000	43.42
5 Vinyl Chloride	62	1.145	1.145	(0.273)	174091	50.0000	50.43


Y (x10^6)
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
Min
1 2 3 4 5 6 7 8 9 10 11 12 13 14
-Bromomethane+
-Trichlorofluoromethane
-Acrolein+
-Iodomethane+
-Acetonitrile+
-Methylene Chloride
-Tert-butyl alcohol
-Acrylonitrile+
-Vinyl Acetate
-1,1-Dichloroethane
-2-Butanone+
-Propionitrile
-Methacrylonitrile+
-Chloroform
-Pentafluorobenzene+
-1,1-Dichloropropene+
-1,2-Dichloroethane+
-1,4-Difluorobenzene
-Trichloroethene
-1,2-Dichloropropane+
-Dibromomethane+
-Bromodichloromethane
-2-Chloroethylvinyl ether
-cis-1,3-Dichloropropene
-4-Methyl-2-Pentanone+
-Toluene
-trans-1,3-Dichloropropene
-1,1,2-Trichloroethane
-1,3-Dichloropropane+
-2-Hexanone
-Dibromochloromethane+
-Chlorobenzene-d5+
-1,1,1,2-Tetrachloroethane+
m,p-Xylenes
-o-Xylene+
-Bromoform
-Isopropylbenzene
-4-Bromofluorobenzene
-1,1,2,2-Tetrachloroethane+
-n-Propylbenzene+
1,3,5-Trimethylbenzene+
-tert-Butylbenzene+
-sec-Butylbenzene
-1,4-Dichlorobenzene-d4+
n-Butylbenzene+
-1,2-Dibromo-3-Chloropropa
-1,2,4-Trichlorobenzene
-Hexachlorobutadiene
-Naphthalene
-1,2,3-Trichlorobenzene
\\nahstws005\Target\chem\voa6,i\X190523,b\X052330,D
Data File: \\nahstws005\Target\chem\voa6,i\X190523,b\X052330,D
Date : 23-MAY-2019 22:51
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

HS19051031 Wet Chemistry Raw Data

ALS WO# HS19051031

Sequence: 051719 HS19051031
Operator: ALSHS.NoUser

Printed: 6/28/2019 8:19:31 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
1	STD1	297.020.7208	Standard	91	1.0000	040319CLO3	Finished
2	STD2		Standard	92	1.0000	040319CLO3	Finished
3	STD3		Standard	93	1.0000	040319CLO3	Finished
4	STD4		Standard	94	1.0000	040319CLO3	Finished
5	STD5		Standard	95	1.0000	040319CLO3	Finished
6	STD6		Standard	96	1.0000	040319CLO3	Finished
7	ICV	297.020.6806	Unknown	97	1.0000	040319CLO3	Finished
8	ICB		Unknown	98	1.0000	040319CLO3	Finished
9	CCV		Unknown	91	1.0000	040319CLO3	Finished
10	CCB		Unknown	92	1.0000	040319CLO3	Finished
11	HS19051010-01		Unknown	36	1.0000	040319CLO3	Finished
12	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
13	HS19050810-01		Unknown	15	1.0000	040319CLO3	Finished
14	HS19050927-12		Unknown	90	1.0000	040319CLO3	Finished
15	DI H2O		Unknown	33	1.0000	040319CLO3	Finished
16	DI H2O		Unknown	34	1.0000	040319CLO3	Finished
17	DI H2O		Unknown	35	1.0000	040319CLO3	Finished
18	HS19050936-01DF10		Unknown	14	10.0000	040319CLO3	Finished
19	HS19050963-01DF20		Unknown	37	20.0000	040319CLO3	Finished
20	CCV		Unknown	91	1.0000	040319CLO3	Finished
21	CCB		Unknown	92	1.0000	040319CLO3	Finished
22	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
23	CCV		Unknown	91	1.0000	040319CLO3	Finished
24	CCB		Unknown	92	1.0000	040319CLO3	Finished
25	WBLKW1-051719		Unknown	33	1.0000	040319CLO3	Finished
26	WLCSW1-051719		Unknown	34	1.0000	040319CLO3	Finished
27	WLCSDW1-051719		Unknown	35	1.0000	040319CLO3	Finished
28	HS19051037-03DF5		Unknown	47	5.0000	040319CLO3	Finished
29	HS19051037-04DF5		Unknown	48	5.0000	040319CLO3	Finished
30	HS19051037-05DF20		Unknown	49	20.0000	040319CLO3	Finished
31	HS19051037-06DF20		Unknown	50	20.0000	040319CLO3	Finished
32	HS19051031-04DF5		Unknown	47	5.0000	040319CLO3	Finished
33	HS19051031-04DF50		Unknown	39	50.0000	040319CLO3	Finished
34	DI H2O		Unknown	94	1.0000	040319CLO3	Finished
35	CCV1		Unknown	93	1.0000	040319CLO3	Finished
36	CCB		Unknown	94	1.0000	040319CLO3	Finished
37	HS19051031-05DF5		Unknown	40	5.0000	040319CLO3	Finished
38	HS19051031-05DF50		Unknown	41	50.0000	040319CLO3	Finished
39	DI H2O		Unknown	94	1.0000	040319CLO3	Finished
40	HS19051037-01		Unknown	42	1.0000	040319CLO3	Finished
41	HS19051037-01MS		Unknown	43	1.0000	040319CLO3	Finished
42	HS19051037-01MSD		Unknown	44	1.0000	040319CLO3	Finished

Sequence: 051719
Operator: ALSHS.NoUser

Printed: 6/28/2019 8:19:31 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
1	STD1	4/3/2019 6:56:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
2	STD2	4/3/2019 7:10:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
3	STD3	4/3/2019 7:25:17 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
4	STD4	4/3/2019 7:39:55 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
5	STD5	4/3/2019 7:54:34 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
6	STD6	4/3/2019 8:09:12 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
7	ICV	4/3/2019 8:23:50 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
8	ICB	4/3/2019 8:38:29 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
9	CCV	5/17/2019 12:08:20 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
10	CCB	5/17/2019 12:22:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
11	HS19051010-01	5/17/2019 12:37:37 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
12	DI H2O	5/17/2019 12:52:15 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
13	HS19050810-01	5/17/2019 1:26:11 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
14	HS19050927-12	5/17/2019 1:40:49 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
15	DI H2O	5/17/2019 1:55:28 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
16	DI H2O	5/17/2019 2:10:06 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
17	DI H2O	5/17/2019 2:24:45 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
18	HS19050936-01DF10	5/17/2019 2:39:23 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
19	HS19050963-01DF20	5/17/2019 2:54:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
20	CCV	5/17/2019 3:11:21 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
21	CCB	5/17/2019 3:26:00 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
22	DI H2O	5/17/2019 4:18:56 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
23	CCV	5/17/2019 4:33:34 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
24	CCB	5/17/2019 4:48:13 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
25	WBLKW1-051719	5/17/2019 5:17:32 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
26	WLCSW1-051719	5/17/2019 5:34:50 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
27	WLCSDW1-051719	5/17/2019 5:49:29 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
28	HS19051037-03DF5	5/17/2019 6:28:02 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
29	HS19051037-04DF5	5/17/2019 6:42:40 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
30	HS19051037-05DF20	5/17/2019 6:57:19 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
31	HS19051037-06DF20	5/17/2019 7:11:57 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
32	HS19051031-04DF5	5/17/2019 7:29:16 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
33	HS19051031-04DF50	5/17/2019 7:47:36 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
34	DI H2O	5/17/2019 8:04:55 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
35	CCV1	5/17/2019 8:19:33 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
36	CCB	5/17/2019 8:41:30 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
37	HS19051031-05DF5	5/17/2019 8:56:08 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
38	HS19051031-05DF50	5/17/2019 9:10:46 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
39	DI H2O	5/17/2019 9:25:25 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
40	HS19051037-01	5/17/2019 9:40:04 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
41	HS19051037-01MS	5/17/2019 9:54:42 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
42	HS19051037-01MSD	5/17/2019 10:09:20 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00

Sequence: 051719
Operator: ALSHS.NoUser

Printed: 6/28/2019 8:19:31 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
1	STD1	1.00	5133bfaf-5607-11e9-b6db-bd957e66751c		
2	STD2	1.00	5ce63c75-5609-11e9-b6db-bd957e66751c		
3	STD3	1.00	687c1d33-560b-11e9-b6db-bd957e66751c		
4	STD4	1.00	742510a1-560d-11e9-b6db-bd957e66751c		
5	STD5	1.00	7fce040f-560f-11e9-b6db-bd957e66751c		
6	STD6	1.00	8b4e6fc7-5611-11e9-b6db-bd957e66751c		
7	ICV	1.00	96e1ee2f-5613-11e9-b6db-bd957e66751c		
8	ICB	1.00	a277ceed-5615-11e9-b6db-bd957e66751c		
9	CCV	1.00	ddf22c57-78c5-11e9-b6dc-cecc464ab826		
10	CCB	1.00	49316cf7-78c8-11e9-b6dc-cecc464ab826		
11	HS19051010-01	1.00	54c904ef-78ca-11e9-b6dc-cecc464ab826		
12	DI H2O	1.00	60609ce7-78cc-11e9-b6dc-cecc464ab826		
13	HS19050810-01	1.00	be196467-78d0-11e9-b6dc-cecc464ab826		
14	HS19050927-12	1.00	29327f87-78d3-11e9-b6dc-cecc464ab826		
15	DI H2O	1.00	34d8658f-78d5-11e9-b6dc-cecc464ab826		
16	DI H2O	1.00	4074c237-78d7-11e9-b6dc-cecc464ab826		
17	DI H2O	1.00	4c1f6cef-78d9-11e9-b6dc-cecc464ab826		
18	HS19050936-01DF10	1.00	57c7b54f-78db-11e9-b6dc-cecc464ab826		
19	HS19050963-01DF20	1.00	6366744f-78dd-11e9-b6dc-cecc464ab826		
20	CCV	1.00	6eefbe37-78df-11e9-b6dc-cecc464ab826		
21	CCB	1.00	da768527-78e1-11e9-b6dc-cecc464ab826		
22	DI H2O	1.00	e04d6407-78e8-11e9-b6dc-cecc464ab826		
23	CCV	1.00	4b7e5697-78eb-11e9-b6dc-cecc464ab826		
24	CCB	1.00	56c9a38f-78ed-11e9-b6dc-cecc464ab826		
25	WBLKW1-051719	1.00	0f97cbef-78f1-11e9-b6dc-cecc464ab826		
26	WLCSW1-051719	1.00	7ad85991-78f3-11e9-b6dc-cecc464ab826		
27	WLCSDW1-051719	1.00	e5f6bb47-78f5-11e9-b6dc-cecc464ab826		
28	HS19051037-03DF5	1.00	e95b3fbf-78fa-11e9-b6dc-cecc464ab826		
29	HS19051037-04DF5	1.00	543d84f7-78fd-11e9-b6dc-cecc464ab826		
30	HS19051037-05DF20	1.00	5fdea64f-78ff-11e9-b6dc-cecc464ab826		
31	HS19051037-06DF20	1.00	6b7b02f7-7901-11e9-b6dc-cecc464ab826		
32	HS19051031-04DF5	1.00	76c8b247-7903-11e9-b6dc-cecc464ab826		
33	HS19051031-04DF50	1.00	06687597-7906-11e9-b6dc-cecc464ab826		
34	DI H2O	1.00	7183f30f-7908-11e9-b6dc-cecc464ab826		
35	CCV1	1.00	dcebbb87-790a-11e9-b6dc-cecc464ab826		
36	CCB	1.00	8e2324bf-790d-11e9-b6dc-cecc464ab826		
37	HS19051031-05DF5	1.00	f92b8f77-790f-11e9-b6dc-cecc464ab826		
38	HS19051031-05DF50	1.00	04ca4e77-7912-11e9-b6dc-cecc464ab826		
39	DI H2O	1.00	10585d0f-7914-11e9-b6dc-cecc464ab826		
40	HS19051037-01	1.00	1c00a56f-7916-11e9-b6dc-cecc464ab826		
41	HS19051037-01MS	1.00	27a68b77-7918-11e9-b6dc-cecc464ab826		
42	HS19051037-01MSD	1.00	334a0f27-791a-11e9-b6dc-cecc464ab826		

Sequence: 051719
Operator: ALSHS.NoUser

Printed: 6/28/2019 8:19:31 PM

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	Comment	Type	Pos.	Dil. Factor	Method	Status
43	HS19051037-01DF5		Unknown	45	5.0000	040319CLO3	Finished
44	HS19051037-02DF5		Unknown	46	5.0000	040319CLO3	Finished
45	DI H2O		Unknown	94	1.0000	040319CLO3	Finished
46	HS19051024-01DF5		Unknown	51	5.0000	040319CLO3	Finished
47	CCV		Unknown	91	1.0000	040319CLO3	Finished
48	CCB		Unknown	92	1.0000	040319CLO3	Finished
49	HS19051024-02DF5		Unknown	52	5.0000	040319CLO3	Finished
50	HS19051024-03		Unknown	53	1.0000	040319CLO3	Finished
51	HS19051024-03MS		Unknown	54	1.0000	040319CLO3	Finished
52	HS19051024-03MSD		Unknown	55	1.0000	040319CLO3	Finished
53	HS19051024-04DF5		Unknown	56	5.0000	040319CLO3	Finished
54	HS19051024-05DF5		Unknown	57	5.0000	040319CLO3	Finished
55	HS19050984-01DF100		Unknown	58	100.0000	040319CLO3	Finished
56	HS19050988-01DF100		Unknown	59	100.0000	040319CLO3	Finished
57	HS19051045-01DF100		Unknown	60	100.0000	040319CLO3	Finished
58	DI H2O		Unknown	10	1.0000	040319CLO3	Finished
59	CCV		Unknown	91	1.0000	040319CLO3	Finished
60	CCB		Unknown	92	1.0000	040319CLO3	Finished
61	WBLKW2-051719		Unknown	61	1.0000	040319CLO3	Finished
62	WLCSW2-051719		Unknown	62	1.0000	040319CLO3	Finished
63	WLCSDW2-051719		Unknown	63	1.0000	040319CLO3	Finished
64	HS19050254-07DF50		Unknown	64	50.0000	040319CLO3	Finished
65	HS19050254-08DF10		Unknown	65	10.0000	040319CLO3	Finished
66	HS19050254-09		Unknown	66	1.0000	040319CLO3	Finished
67	HS19050254-09MS		Unknown	67	1.0000	040319CLO3	Finished
68	HS19050254-09MSD		Unknown	68	1.0000	040319CLO3	Finished
69	HS19050254-10DF10		Unknown	69	10.0000	040319CLO3	Finished
70	HS19050254-11DF50		Unknown	70	50.0000	040319CLO3	Finished
71	CCV1		Unknown	93	1.0000	040319CLO3	Finished
72	CCB		Unknown	94	1.0000	040319CLO3	Finished
73	HS19050254-13DF200		Unknown	71	200.0000	040319CLO3	Finished
74	HS19050254-14DF200		Unknown	72	200.0000	040319CLO3	Finished
75	HS19050254-15DF10		Unknown	73	10.0000	040319CLO3	Finished
76	HS19050254-16DF500		Unknown	74	500.0000	040319CLO3	Finished
77	HS19050254-17DF500		Unknown	75	500.0000	040319CLO3	Finished
78	HS19050254-18DF10		Unknown	76	10.0000	040319CLO3	Finished
79	HS19050254-19DF50		Unknown	77	50.0000	040319CLO3	Finished
80	HS19050254-20DF50		Unknown	78	50.0000	040319CLO3	Finished
81	HS19050254-21DF200		Unknown	79	200.0000	040319CLO3	Finished
82	HS19050254-22DF20		Unknown	80	20.0000	040319CLO3	Finished
83	CCV		Unknown	91	1.0000	040319CLO3	Finished
84	CCB		Unknown	92	1.0000	040319CLO3	Finished

Sequence: 051719
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	Inj. Date/Time	Program	Inj. Vol.	*Initial_Vol_Wt
43	HS19051037-01DF5	5/17/2019 10:23:59 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
44	HS19051037-02DF5	5/17/2019 10:38:37 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
45	DI H2O	5/17/2019 10:53:16 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
46	HS19051024-01DF5	5/17/2019 11:07:54 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
47	CCV	5/17/2019 11:22:33 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
48	CCB	5/17/2019 11:37:11 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
49	HS19051024-02DF5	5/17/2019 11:51:50 PM	Anions Gradient Program-150mA-26Mm	10.0	1.00
50	HS19051024-03	5/18/2019 12:06:28 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
51	HS19051024-03MS	5/18/2019 12:21:07 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
52	HS19051024-03MSD	5/18/2019 12:35:45 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
53	HS19051024-04DF5	5/18/2019 12:50:24 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
54	HS19051024-05DF5	5/18/2019 1:05:02 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
55	HS19050984-01DF100	5/18/2019 1:19:41 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
56	HS19050988-01DF100	5/18/2019 1:34:19 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
57	HS19051045-01DF100	5/18/2019 1:48:58 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
58	DI H2O	5/18/2019 2:03:37 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
59	CCV	5/18/2019 2:18:15 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
60	CCB	5/18/2019 2:32:54 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
61	WBLKW2-051719	5/18/2019 2:47:32 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
62	WLCSW2-051719	5/18/2019 3:02:10 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
63	WLCSDW2-051719	5/18/2019 3:16:49 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
64	HS19050254-07DF50	5/18/2019 3:31:27 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
65	HS19050254-08DF10	5/18/2019 3:46:06 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
66	HS19050254-09	5/18/2019 4:00:44 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
67	HS19050254-09MS	5/18/2019 4:15:23 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
68	HS19050254-09MSD	5/18/2019 4:30:01 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
69	HS19050254-10DF10	5/18/2019 4:44:40 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
70	HS19050254-11DF50	5/18/2019 4:59:18 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
71	CCV1	5/18/2019 5:13:57 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
72	CCB	5/18/2019 5:28:35 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
73	HS19050254-13DF200	5/18/2019 5:43:14 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
74	HS19050254-14DF200	5/18/2019 5:57:52 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
75	HS19050254-15DF10	5/18/2019 6:12:31 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
76	HS19050254-16DF500	5/18/2019 6:27:09 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
77	HS19050254-17DF500	5/18/2019 6:41:48 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
78	HS19050254-18DF10	5/18/2019 6:56:26 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
79	HS19050254-19DF50	5/18/2019 7:11:05 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
80	HS19050254-20DF50	5/18/2019 7:25:43 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
81	HS19050254-21DF200	5/18/2019 7:40:22 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
82	HS19050254-22DF20	5/18/2019 7:55:00 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
83	CCV	5/18/2019 8:09:38 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00
84	CCB	5/18/2019 8:24:17 AM	Anions Gradient Program-150mA-26Mm	10.0	1.00

Sequence: 051719
Operator: ALSHS.NoUser

Title:
Datasource: DB7CGHK1_local
Location: ICS2100\Sequences and Data\2019
Timebase: ICS2100
#Samples: 201

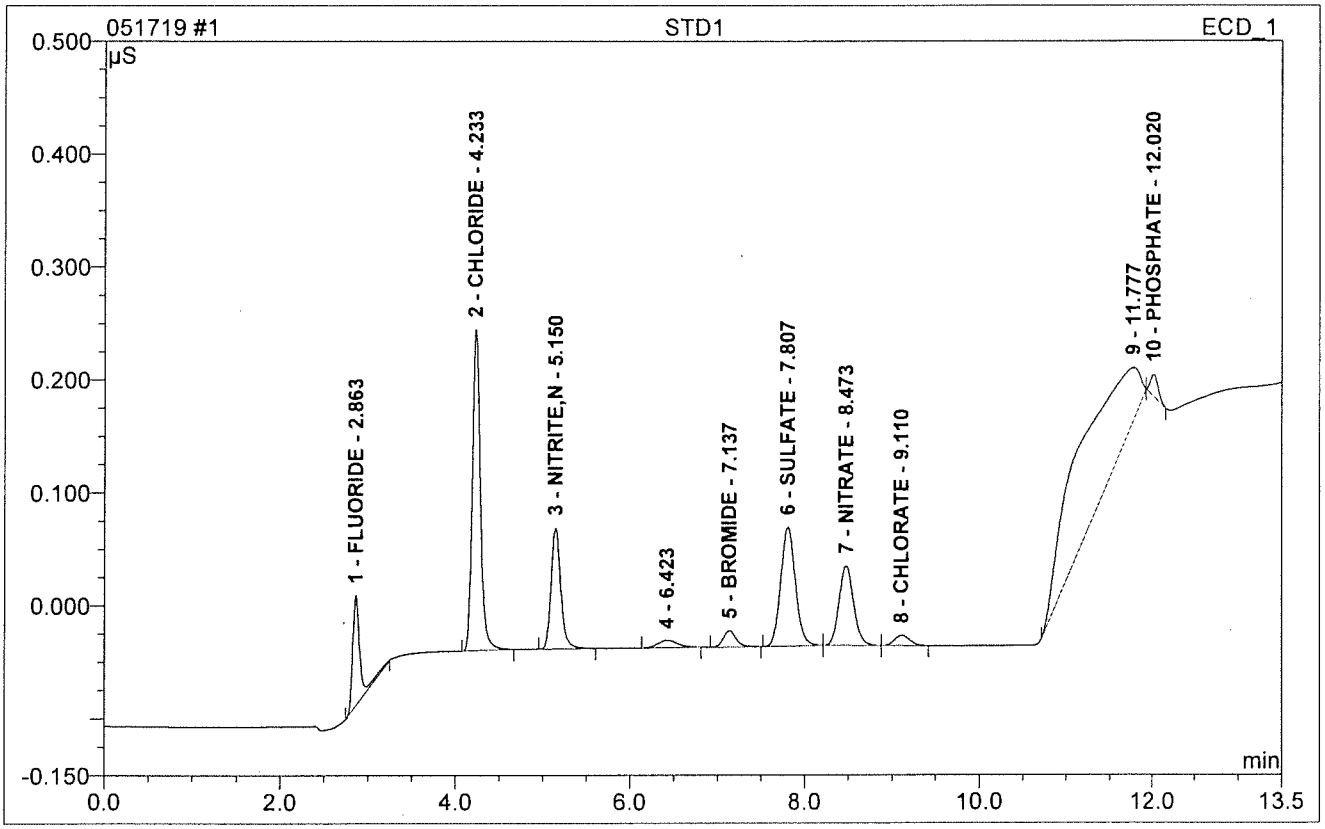
Created: 5/17/2019 6:19:25 PM by alshs.nouser
(Modified, not saved)

No.	Name	*Final_Volume	GUID	Auto Purif.Frac.	Auto Purif.Ref.
43	HS19051037-01DF5	1.00	3edce26f-791c-11e9-b6dc-cecc464ab826		
44	HS19051037-02DF5	1.00	4a911687-791e-11e9-b6dc-cecc464ab826		
45	DI H2O	1.00	5617fe17-7920-11e9-b6dc-cecc464ab826		
46	HS19051024-01DF5	1.00	61aad15f-7922-11e9-b6dc-cecc464ab826		
47	CCV	1.00	6d4e550f-7924-11e9-b6dc-cecc464ab826		
48	CCB	1.00	78f43b17-7926-11e9-b6dc-cecc464ab826		
49	HS19051024-02DF5	1.00	848e3567-7928-11e9-b6dc-cecc464ab826		
50	HS19051024-03	1.00	90341b6f-792a-11e9-b6dc-cecc464ab826		
51	HS19051024-03MS	1.00	9bce15bf-792c-11e9-b6dc-cecc464ab826		
52	HS19051024-03MSD	1.00	a76cd4bf-792e-11e9-b6dc-cecc464ab826		
53	HS19051024-04DF5	1.00	b30b93bf-7930-11e9-b6dc-cecc464ab826		
54	HS19051024-05DF5	1.00	be9c04af-7932-11e9-b6dc-cecc464ab826		
55	HS19050984-01DF100	1.00	ca3ac3af-7934-11e9-b6dc-cecc464ab826		
56	HS19050988-01DF100	1.00	d5cd96f7-7936-11e9-b6dc-cecc464ab826		
57	HS19051045-01DF100	1.00	e1652eef-7938-11e9-b6dc-cecc464ab826		
58	DI H2O	1.00	ed60e957-793a-11e9-b6dc-cecc464ab826		
59	CCV	1.00	f91ea6cf-793c-11e9-b6dc-cecc464ab826		
60	CCB	1.00	04957867-793f-11e9-b6dc-cecc464ab826		
61	WBLKW2-051719	1.00	102fc107-7941-11e9-b6dc-cecc464ab826		
62	WLCSW2-051719	1.00	1bce8007-7943-11e9-b6dc-cecc464ab826		
63	WLCSDW2-051719	1.00	2763b5a7-7945-11e9-b6dc-cecc464ab826		
64	HS19050254-07DF50	1.00	331f10c7-7947-11e9-b6dc-cecc464ab826		
65	HS19050254-08DF10	1.00	3eaabd07-7949-11e9-b6dc-cecc464ab826		
66	HS19050254-09	1.00	4a497c07-794b-11e9-b6dc-cecc464ab826		
67	HS19050254-09MS	1.00	55d9ecf7-794d-11e9-b6dc-cecc464ab826		
68	HS19050254-09MSD	1.00	618bbeb7-794f-11e9-b6dc-cecc464ab826		
69	HS19050254-10DF10	1.00	6d1e91ff-7951-11e9-b6dc-cecc464ab826		
70	HS19050254-11DF50	1.00	78baeea7-7953-11e9-b6dc-cecc464ab826		
71	CCV1	1.00	8460d4af-7955-11e9-b6dc-cecc464ab826		
72	CCB	1.00	8fff93af-7957-11e9-b6dc-cecc464ab826		
73	HS19050254-13DF200	1.00	9b9e52af-7959-11e9-b6dc-cecc464ab826		
74	HS19050254-14DF200	1.00	a733884f-795b-11e9-b6dc-cecc464ab826		
75	HS19050254-15DF10	1.00	b2dbd0af-795d-11e9-b6dc-cecc464ab826		
76	HS19050254-16DF500	1.00	be75caff-795f-11e9-b6dc-cecc464ab826		
77	HS19050254-17DF500	1.00	ca1489ff-7961-11e9-b6dc-cecc464ab826		
78	HS19050254-18DF10	1.00	d5ac21f7-7963-11e9-b6dc-cecc464ab826		
79	HS19050254-19DF50	1.00	e143b9ef-7965-11e9-b6dc-cecc464ab826		
80	HS19050254-20DF50	1.00	ece01697-7967-11e9-b6dc-cecc464ab826		
81	HS19050254-21DF200	1.00	f87a10e7-7969-11e9-b6dc-cecc464ab826		
82	HS19050254-22DF20	1.00	04166d8f-796c-11e9-b6dc-cecc464ab826		
83	CCV	1.00	0fa219cf-796e-11e9-b6dc-cecc464ab826		
84	CCB	1.00	1b459d7f-7970-11e9-b6dc-cecc464ab826		

1 STD1

297.020.7208

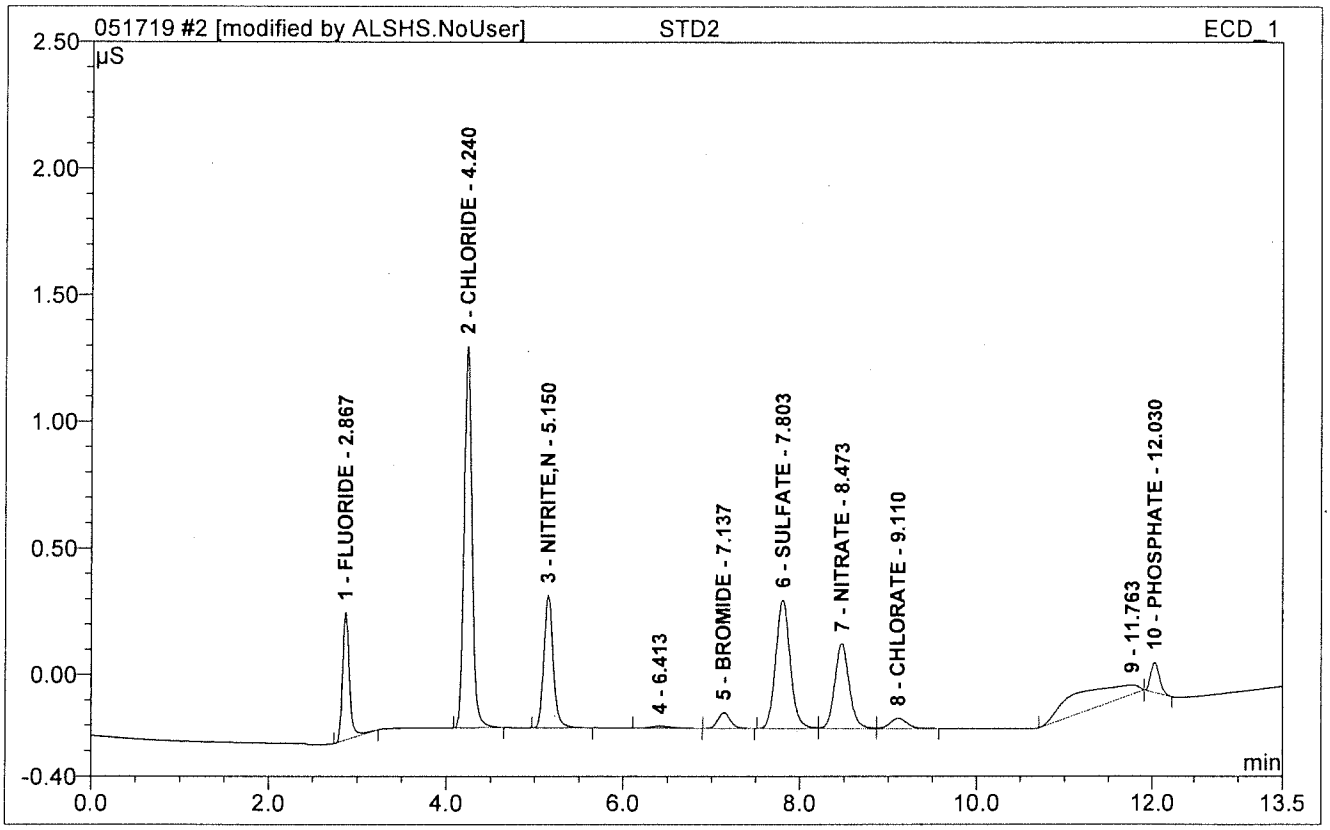
Sample Name:	**STD1**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 6:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.098	0.009	5.35	0.107	1.
2	4.23	CHLORIDE	0.284	0.031	17.95	0.536	1.
3	5.15	NITRITE,N	0.107	0.014	8.11	0.101	1.
5	7.14	BROMIDE	0.014	0.002	1.43	0.118	1.
6	7.81	SULFATE	0.105	0.021	12.21	0.593	1.
7	8.47	NITRATE	0.071	0.014	8.03	0.125	1.
8	9.11	CHLORATE	0.009	0.002	1.09	0.111	1.
10	12.02	PHOSPHATE	0.020	0.002	1.24	0.150	1.
Total:			0.709	0.094	55.42	1.842	

2 STD2

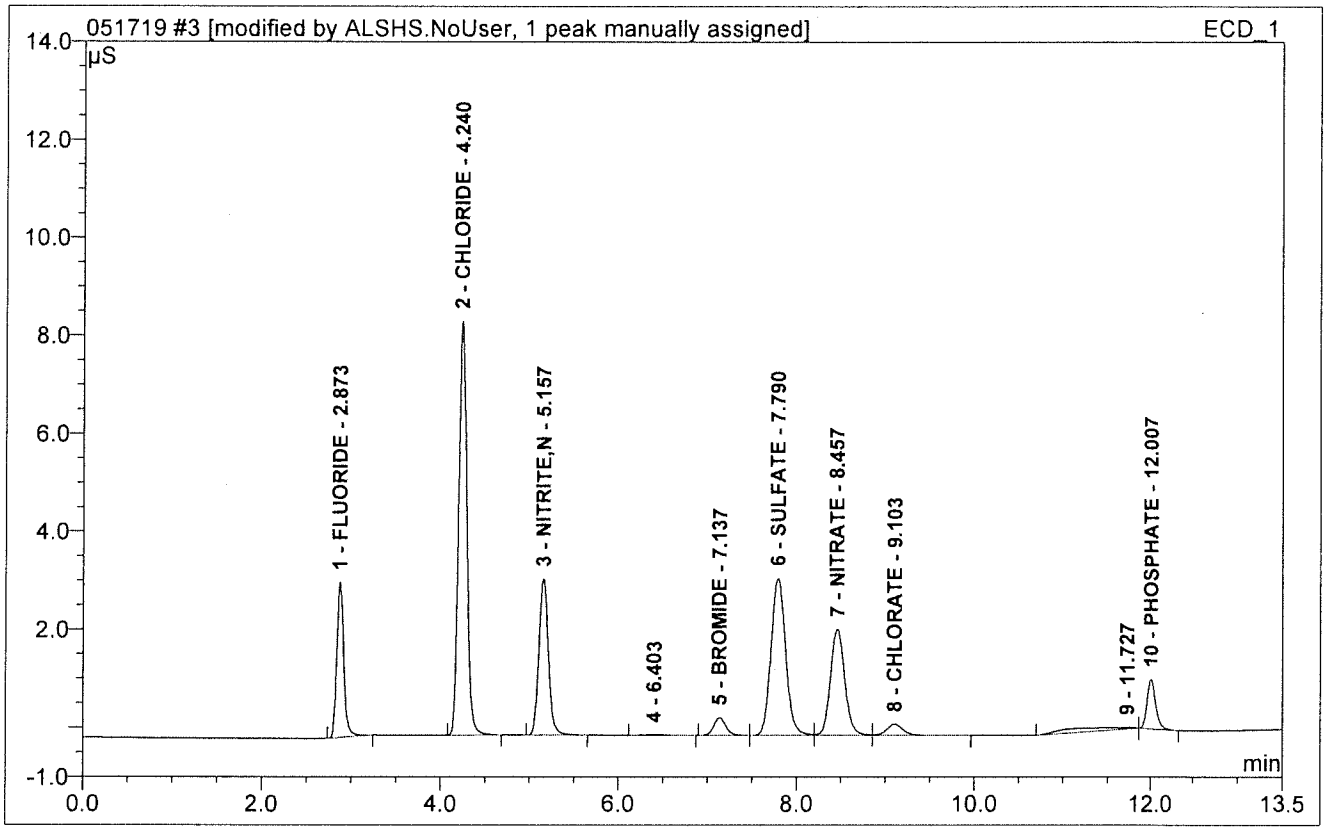
Sample Name:	**STD2**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	0.504	0.045	8.54	0.358	1.
2	4.24	CHLORIDE	1.506	0.155	29.66	1.904	1.
3	5.15	NITRITE,N	0.524	0.065	12.35	0.364	1.
5	7.14	BROMIDE	0.062	0.010	1.93	0.360	1.
6	7.80	SULFATE	0.508	0.097	18.58	1.762	1.
7	8.47	NITRATE	0.336	0.064	12.15	0.348	1.
8	9.11	CHLORATE	0.041	0.009	1.70	0.375	1.
10	12.03	PHOSPHATE	0.120	0.015	2.79	0.306	1.
Total:			3.600	0.459	87.69	5.778	

3 STD3

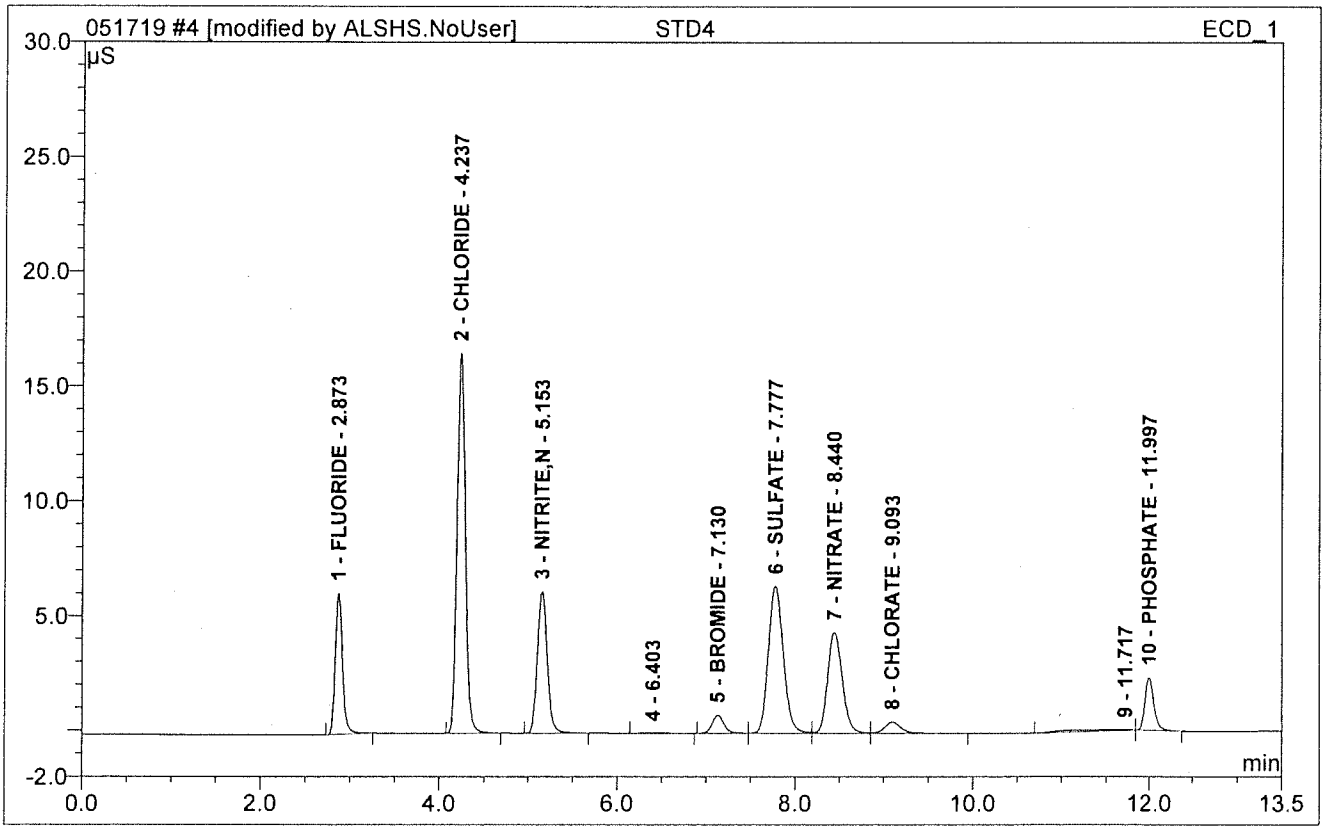
Sample Name:	**STD3**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	3.165	0.287	9.91	2.068	1.
2	4.24	CHLORIDE	8.444	0.901	31.10	10.080	1.
3	5.16	NITRITE,N	3.193	0.401	13.83	2.101	1.
5	7.14	BROMIDE	0.362	0.057	1.97	1.837	1.
6	7.79	SULFATE	3.210	0.616	21.25	9.683	1.
7	8.46	NITRATE	2.169	0.404	13.93	1.867	1.
8	9.10	CHLORATE	0.229	0.050	1.71	1.900	1.
10	12.01	PHOSPHATE	1.006	0.122	4.22	1.648	1.
Total:			21.778	2.838	97.92	31.183	

4 STD4

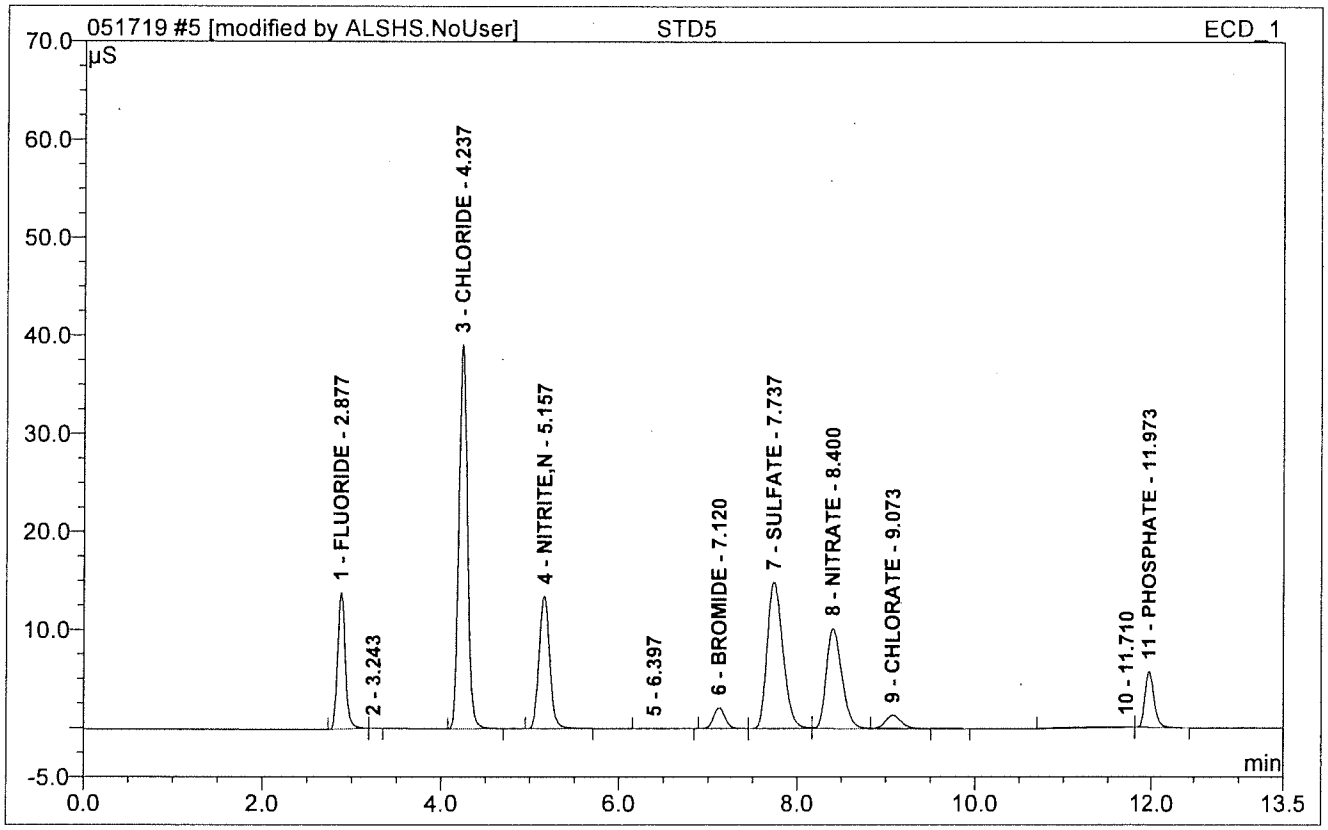
Sample Name:	**STD4**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.167	0.578	9.89	4.120	1.
2	4.24	CHLORIDE	16.548	1.792	30.65	19.847	1.
3	5.15	NITRITE,N	6.168	0.806	13.78	4.192	1.
5	7.13	BROMIDE	0.789	0.122	2.08	3.866	1.
6	7.78	SULFATE	6.411	1.264	21.62	19.589	1.
7	8.44	NITRATE	4.402	0.844	14.42	3.832	1.
8	9.09	CHLORATE	0.490	0.104	1.78	3.943	1.
10	12.00	PHOSPHATE	2.288	0.280	4.79	3.614	1.
Total:			43.263	5.790	99.00	63.003	

5 STD5

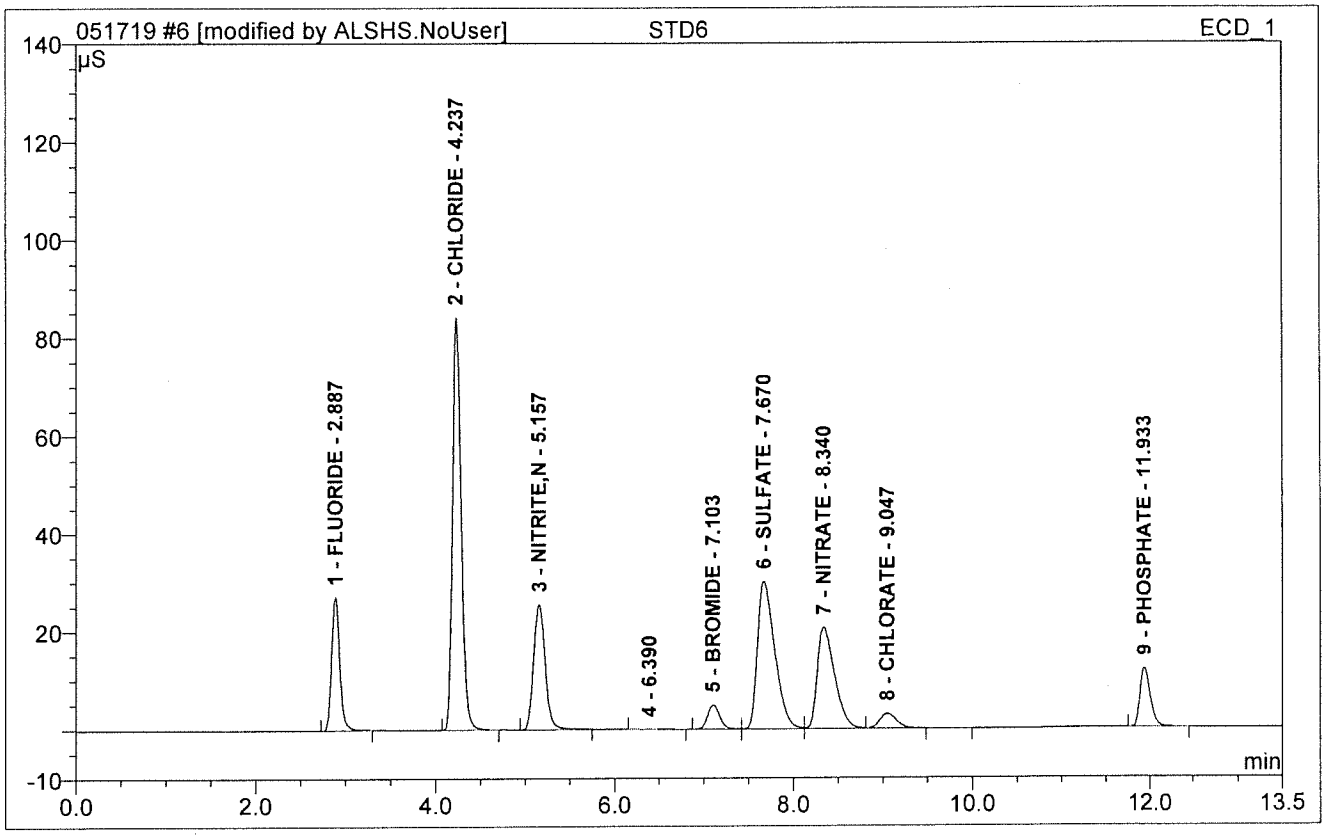
Sample Name:	**STD5**	*Injection Volume:*	**10.0**
Vial Number:	**95**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 7:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.88	FLUORIDE	13.911	1.368	9.67	9.690	1.
3	4.24	CHLORIDE	39.139	4.301	30.41	47.342	1.
4	5.16	NITRITE,N	13.545	1.886	13.34	9.771	1.
6	7.12	BROMIDE	2.139	0.326	2.31	10.318	1.
7	7.74	SULFATE	14.998	3.094	21.88	47.543	1.
8	8.40	NITRATE	10.240	2.101	14.86	9.449	1.
9	9.07	CHLORATE	1.339	0.270	1.91	10.172	1.
11	11.97	PHOSPHATE	5.699	0.738	5.22	9.315	1.
Total:			101.010	14.086	99.60	153.600	

6 STD6

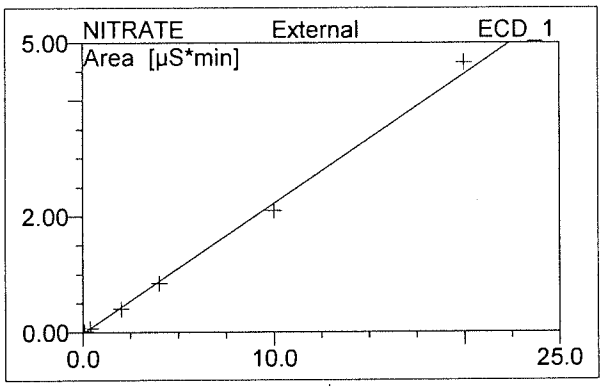
Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**

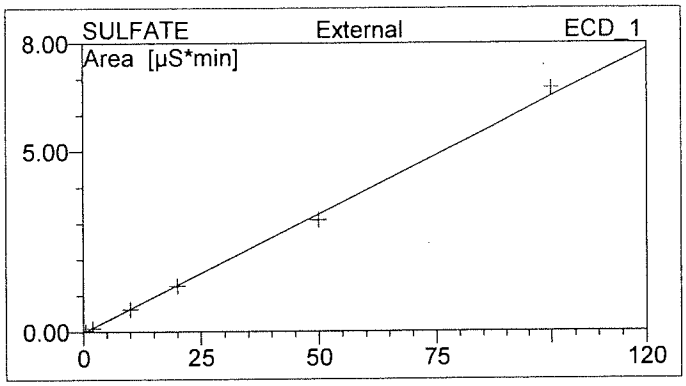


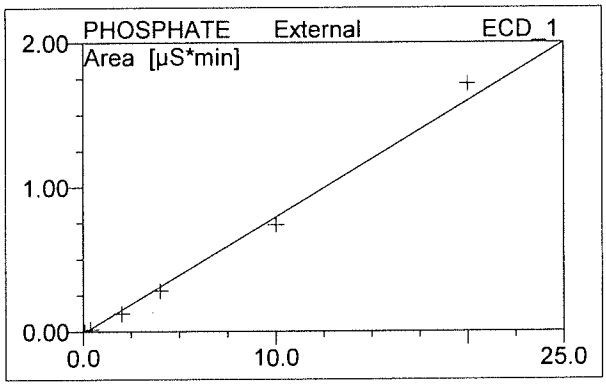
No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.89	FLUORIDE	27.202	2.852	9.32	20.158	1.
2	4.24	CHLORIDE	84.194	9.360	30.60	102.790	1.
3	5.16	NITRITE,N	25.559	3.861	12.62	19.970	1.
5	7.10	BROMIDE	4.923	0.763	2.49	24.066	1.
6	7.67	SULFATE	30.095	6.746	22.05	103.329	1.
7	8.34	NITRATE	20.708	4.660	15.23	20.879	1.
8	9.05	CHLORATE	2.949	0.625	2.04	23.464	1.
9	11.93	PHOSPHATE	11.975	1.715	5.60	21.467	1.
Total:			207.605	30.582	99.97	336.123	

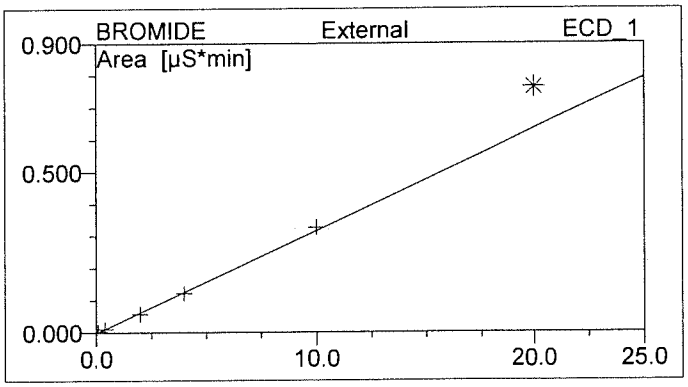
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:09**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**









Can't open raw data file "C:\Chromel\data\ICS2100\
Sequences and Data\2019\051719.SEQ\CD_1.CHL\
6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences
and Data\2019\051719.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

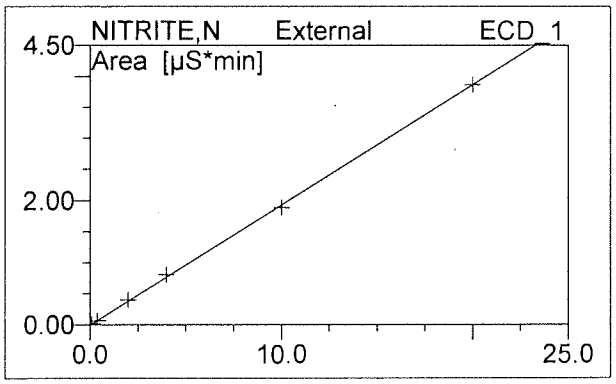
Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

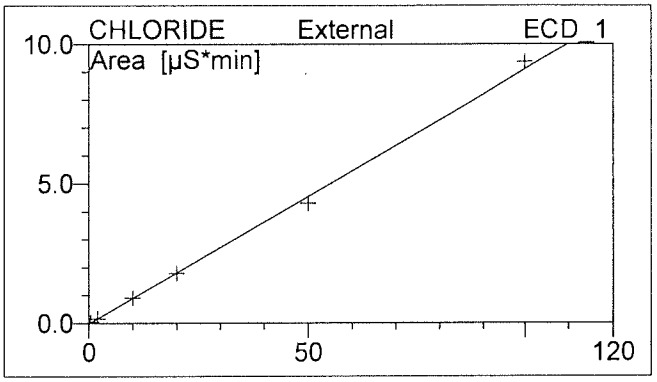
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.936	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.865	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.933	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.761	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.825	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.711	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.921	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.117	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.0000

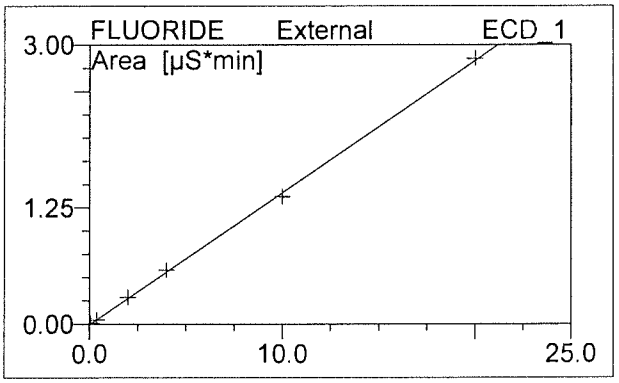
No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.5397	0.0147	22.2265

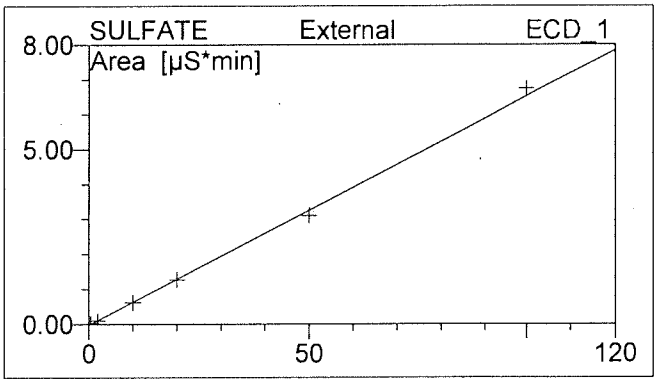
6 STD6

Sample Name:	**STD6**	*Injection Volume:*	**10.0**
Vial Number:	**96**	*Channel:*	**ECD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.000**
Recording Time:	**4/3/2019 8:09**	*Sample Weight/Volume:*	**1.000**
Run Time (min):	**13.50**	*Final Volume:*	**1.000**









Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd".
The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

Can't open raw data file "C:\Chromel\data\ICS2100\Sequences and Data\2019\051719.SEQ\CD_1.CHL\6.acd". The system cannot find the path specified.

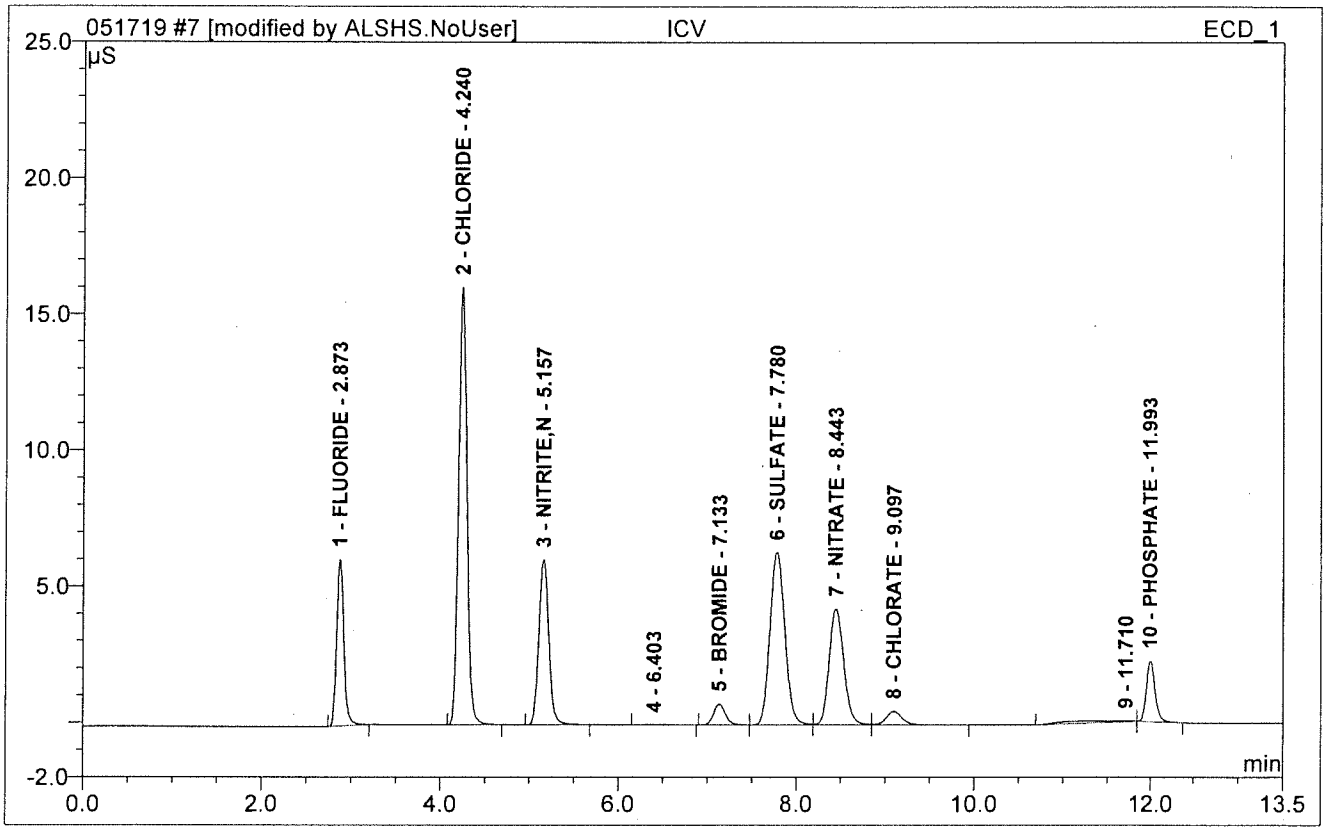
No.	Ret.Time min	Peak Name	Cal.Type	Points	Coeff.Det. %	Offset	Slope	Curve
1	2.89	FLUORIDE	XLOff	6	99.9360	-0.0060	0.1418	0.000
2	4.24	CHLORIDE	XLOff	6	99.8652	-0.0184	0.0912	0.000
3	5.16	NITRITE,N	XLOff	6	99.9328	-0.0059	0.1936	0.000
5	7.10	BROMIDE	XLOff	5	99.7608	-0.0013	0.0318	0.000
6	7.67	SULFATE	XLOff	6	99.8254	-0.0181	0.0655	0.000
7	8.34	NITRATE	XLOff	6	99.7112	-0.0143	0.2239	0.000
8	9.05	CHLORATE	XLOff	5	99.9208	-0.0011	0.0267	0.000
9	11.93	PHOSPHATE	XLOff	6	99.1166	-0.0100	0.0803	0.000
Average:					99.7586	-0.0094	0.1068	0.000

No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	RF-Value	Std.Dev.	RSD %
1	2.89	FLUORIDE	XLOff	6	99.968	7.052	0.007	12.138
2	4.24	CHLORIDE	XLOff	6	99.933	10.960	0.033	17.543
3	5.16	NITRITE,N	XLOff	6	99.966	5.165	0.010	12.088
5	7.10	BROMIDE	XLOff	5	99.880	31.480	0.002	19.872
6	7.67	SULFATE	XLOff	6	99.913	15.277	0.027	20.728
7	8.34	NITRATE	XLOff	6	99.856	4.466	0.023	27.275
8	9.05	CHLORATE	XLOff	5	99.960	37.469	0.001	11.426
9	11.93	PHOSPHATE	XLOff	6	99.557	12.449	0.015	56.740
Average:					99.8791	15.540	0.015	22.226

7 ICV

297.020.6806

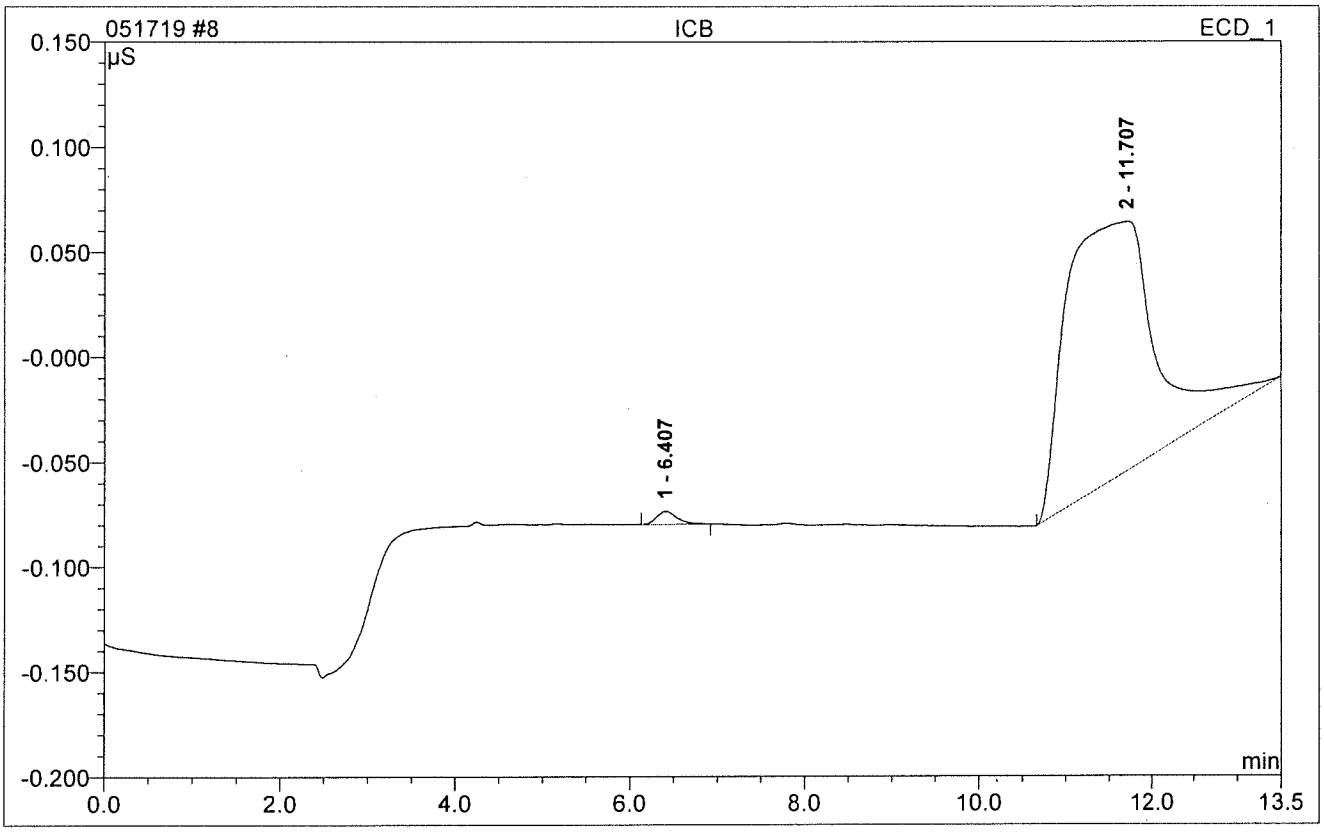
Sample Name:	**ICV**	*Injection Volume:*	**10.0**
Vial Number:	**97**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.120	0.572	10.00	4.075	1.
2	4.24	CHLORIDE	16.070	1.742	30.46	19.294	1.
3	5.16	NITRITE,N	6.066	0.792	13.85	4.120	1.
5	7.13	BROMIDE	0.771	0.119	2.08	3.784	1.
6	7.78	SULFATE	6.333	1.239	21.67	19.210	1.
7	8.44	NITRATE	4.275	0.817	14.29	3.715	1.
8	9.10	CHLORATE	0.498	0.106	1.85	3.999	1.
10	11.99	PHOSPHATE	2.227	0.272	4.77	3.516	1.
Total:			42.362	5.659	98.97	61.712	

8 ICB

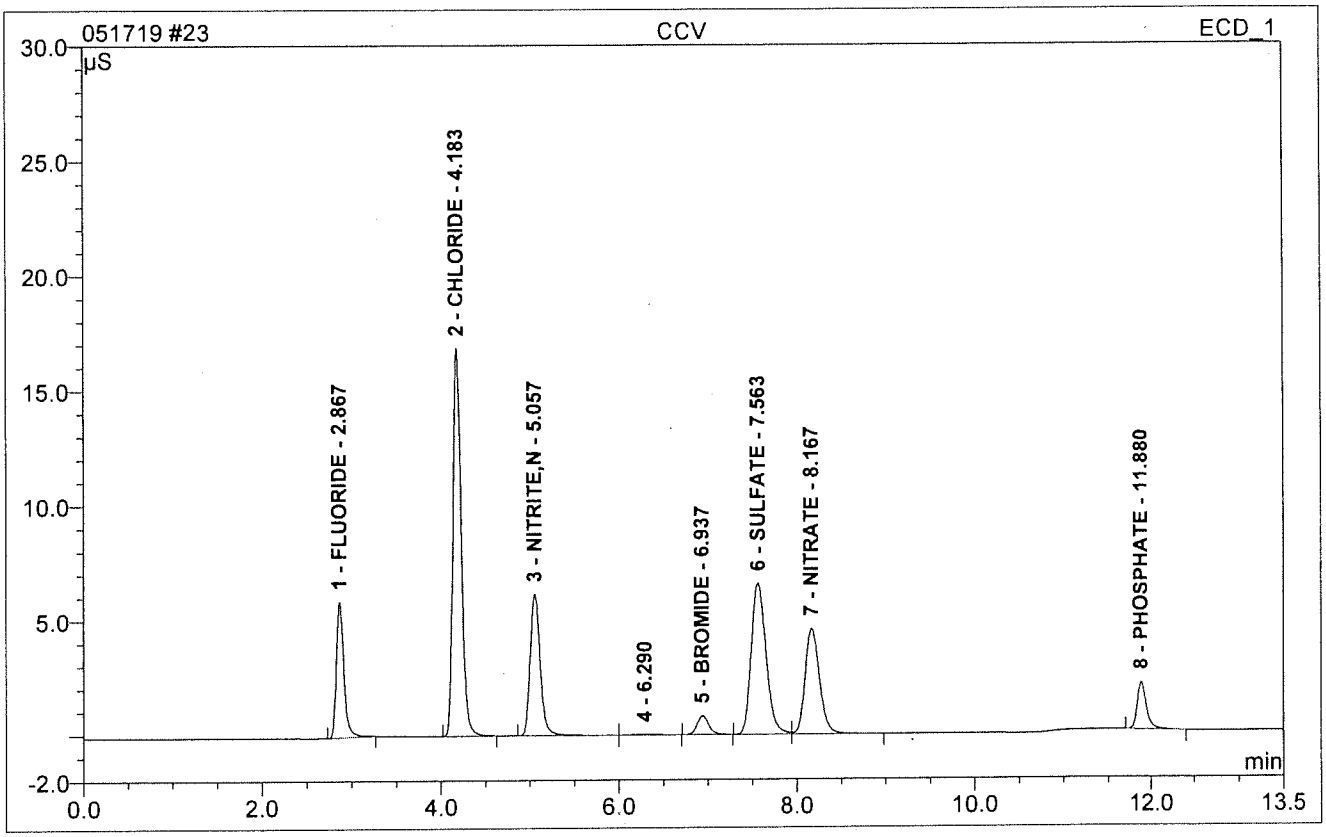
Sample Name:	**ICB**	*Injection Volume:*	**10.0**
Vial Number:	**98**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**4/3/2019 8:38**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

23 CCV

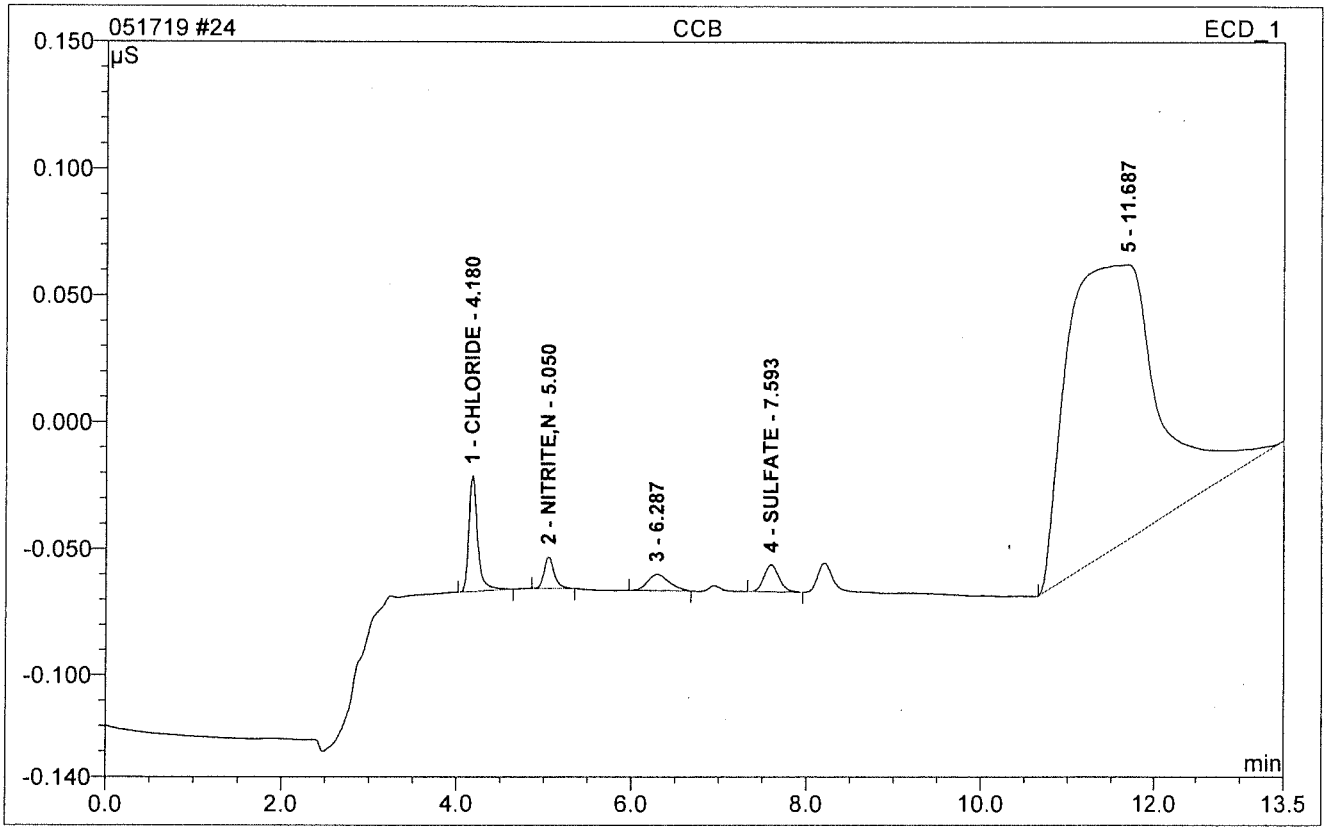
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 16:33**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.935	0.578	10.02	4.117	1.
2	4.18	CHLORIDE	16.871	1.831	31.75	20.273	1.
3	5.06	NITRITE,N	6.176	0.816	14.15	4.245	1.
5	6.94	BROMIDE	0.824	0.124	2.15	3.938	1.
6	7.56	SULFATE	6.596	1.279	22.17	19.813	1.
7	8.17	NITRATE	4.611	0.870	15.08	3.948	1.
8	11.88	PHOSPHATE	2.052	0.261	4.52	3.373	1.
Total:			43.064	5.758	99.84	59.708	

24 CCB

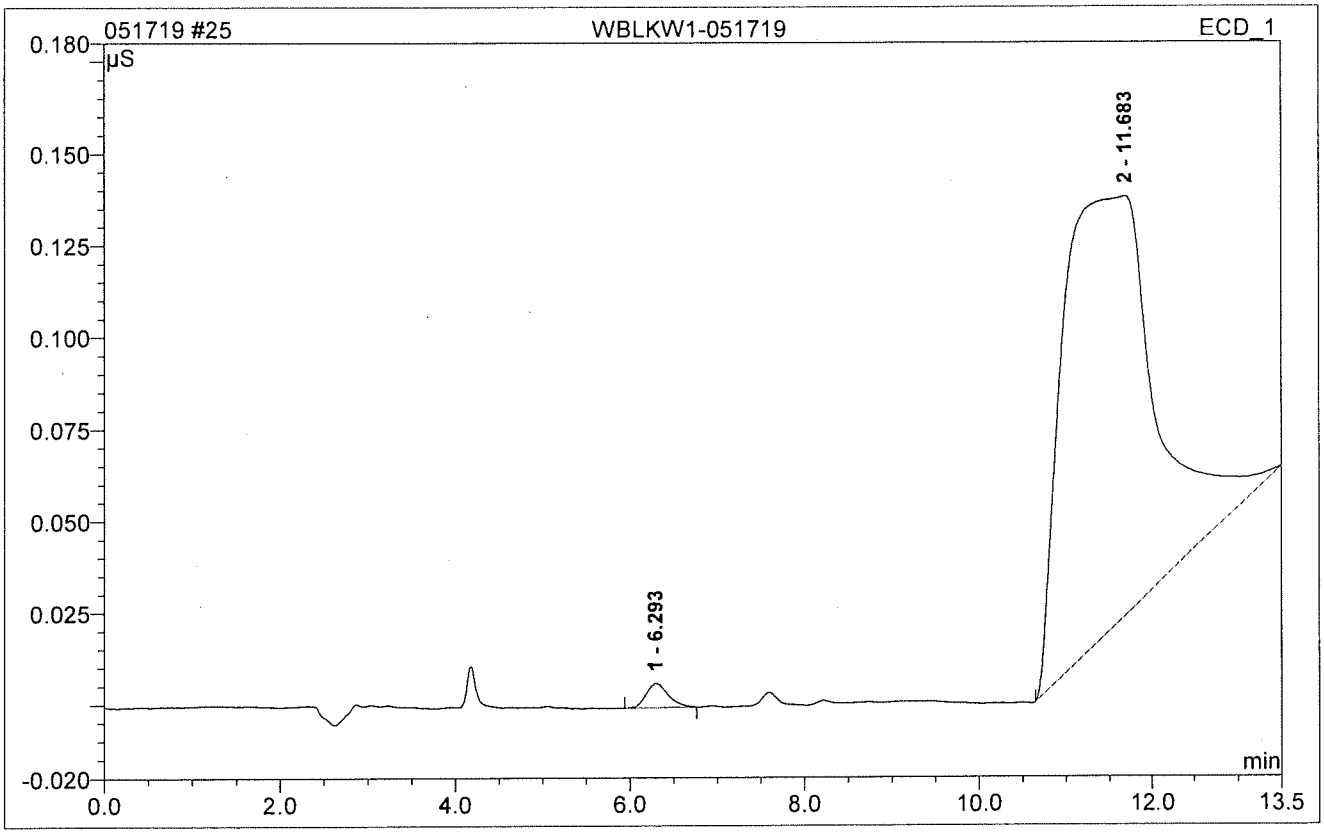
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 16:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.18	CHLORIDE	0.046	0.005	3.54	0.260	1.
2	5.05	NITRITE,N	0.012	0.002	1.12	0.039	1.
4	7.59	SULFATE	0.011	0.002	1.43	0.309	1.
Total:			0.069	0.009	6.08	0.608	

25 WBLKW1-051719

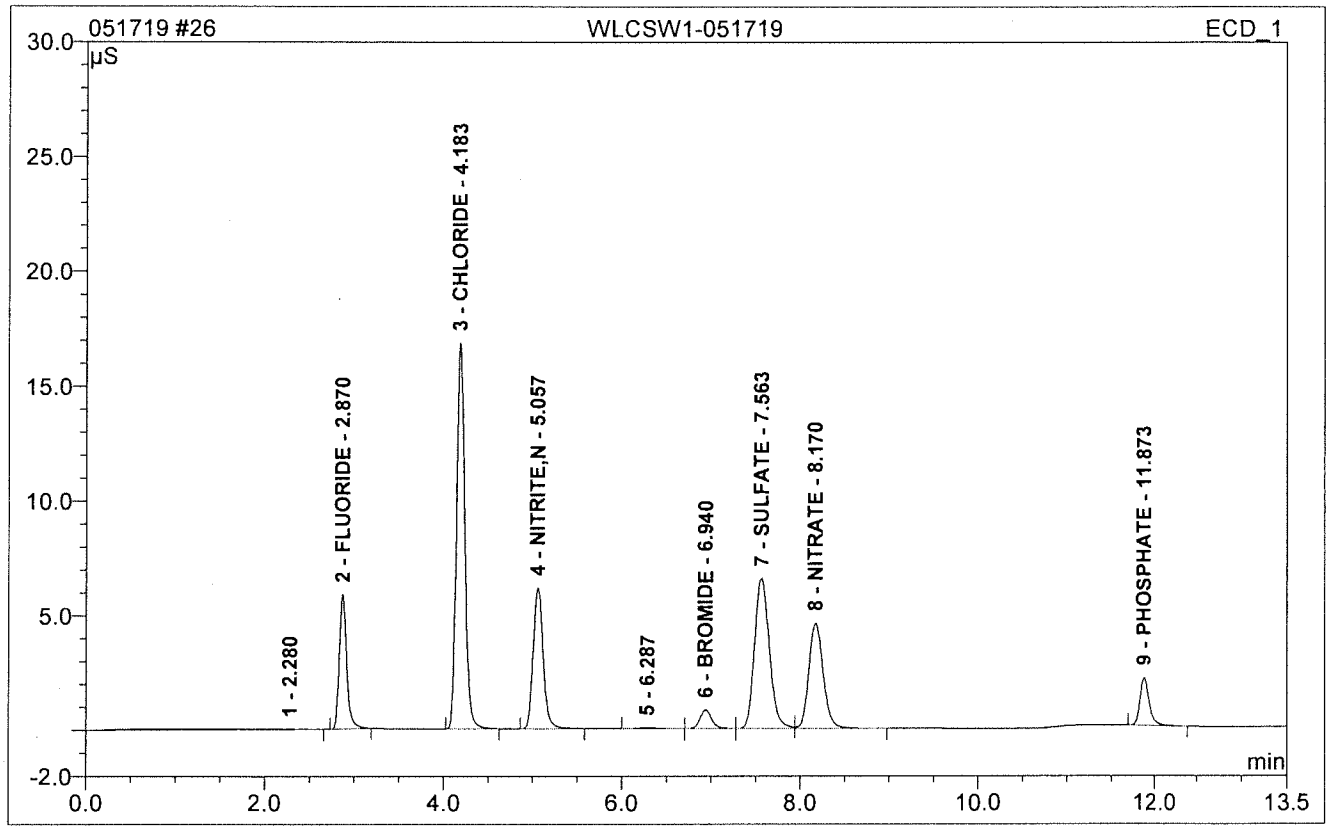
Sample Name:	**WBLKW1-051719**	*Injection Volume:*	**10.0**
Vial Number:	**33**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 17:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
Total:			0.000	0.000	0.00	0.000	

26 WLCSW1-051719

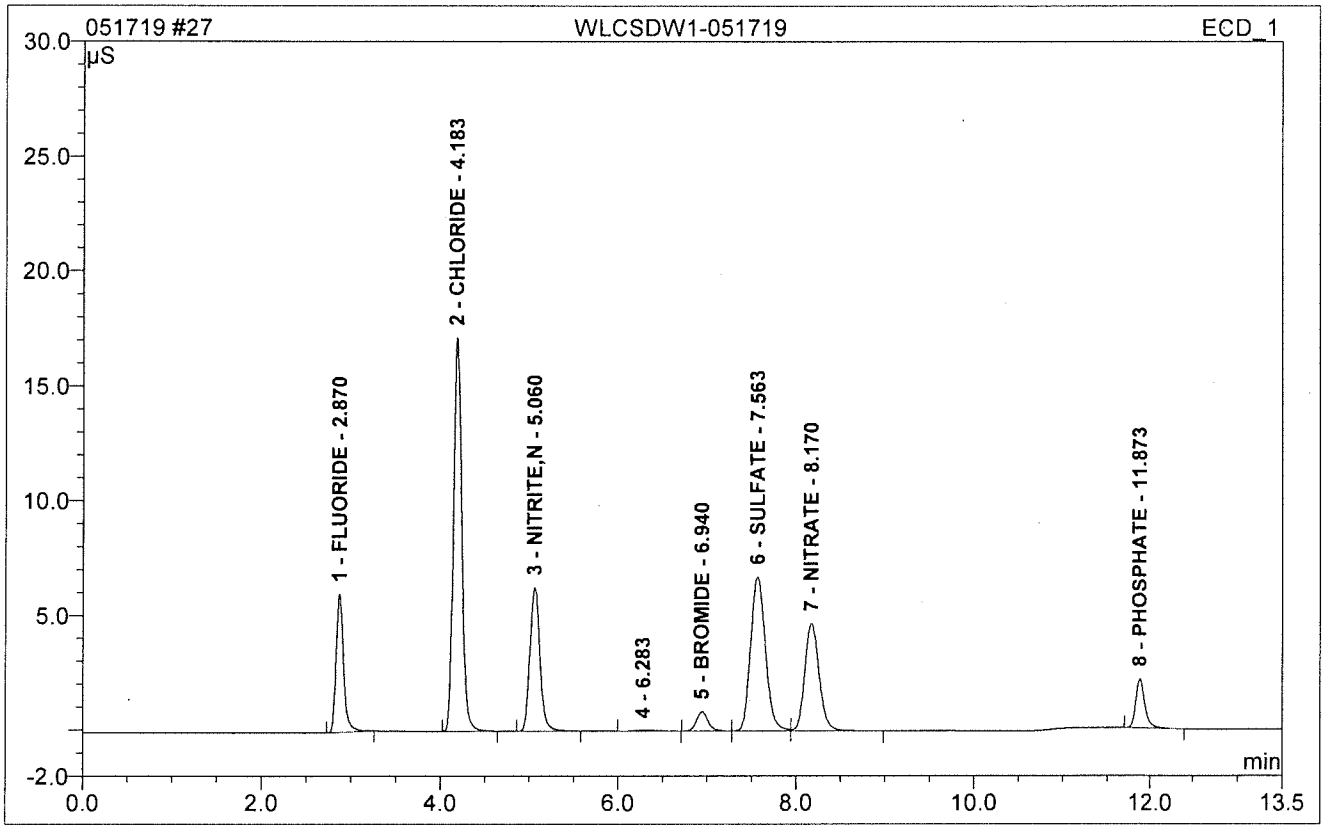
Sample Name:	**WLCSW1-051719**	*Injection Volume:*	**10.0**
Vial Number:	**34**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 17:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	2.87	FLUORIDE	5.856	0.563	9.73	4.015	1.
3	4.18	CHLORIDE	16.810	1.821	31.46	20.162	1.
4	5.06	NITRITE,N	6.146	0.808	13.95	4.203	1.
6	6.94	BROMIDE	0.821	0.124	2.14	3.937	1.
7	7.56	SULFATE	6.560	1.274	22.01	19.741	1.
8	8.17	NITRATE	4.598	0.868	14.98	3.939	1.
9	11.87	PHOSPHATE	2.069	0.261	4.51	3.378	1.
Total:			42.860	5.719	98.78	59.373	

27 WLCSDW1-051719

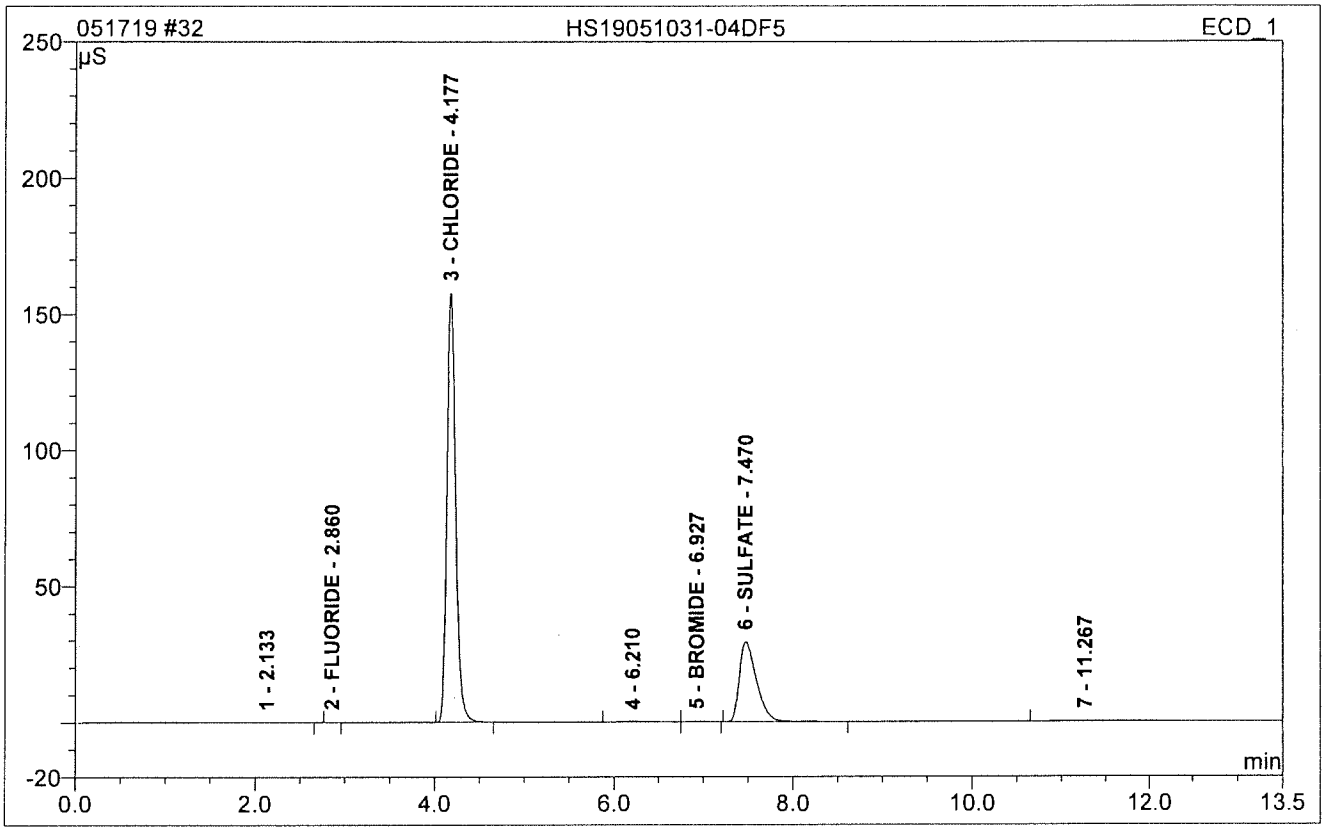
Sample Name:	**WLCSDW1-051719**	*Injection Volume:*	**10.0**
Vial Number:	**35**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 17:49**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	6.033	0.586	10.00	4.177	1.
2	4.18	CHLORIDE	17.139	1.861	31.75	20.602	1.
3	5.06	NITRITE,N	6.267	0.825	14.07	4.291	1.
5	6.94	BROMIDE	0.842	0.127	2.16	4.037	1.
6	7.56	SULFATE	6.712	1.299	22.16	20.126	1.
7	8.17	NITRATE	4.698	0.885	15.09	4.017	1.
8	11.87	PHOSPHATE	2.129	0.268	4.57	3.463	1.
Total:			43.820	5.852	99.81	60.712	

32 HS19051031-04DF5

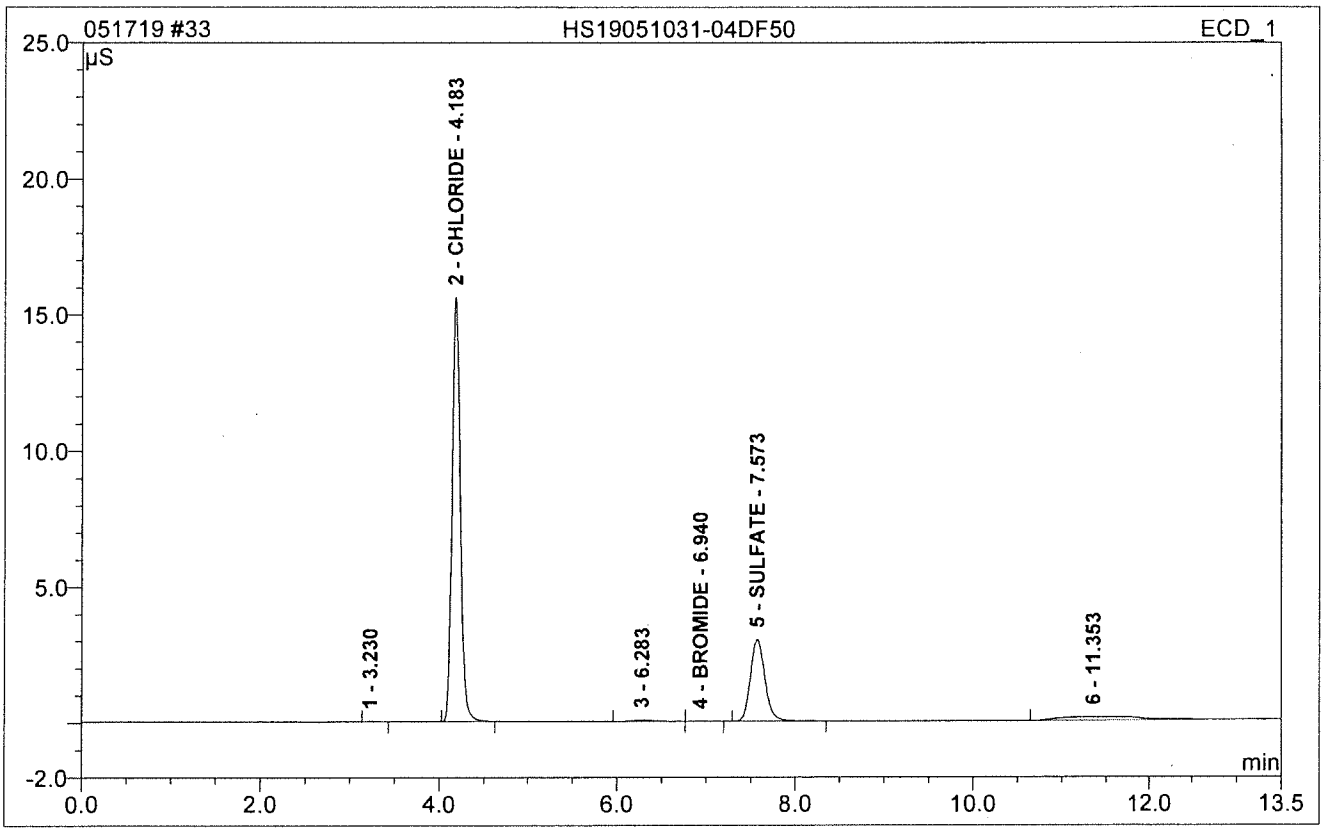
Sample Name:	**HS19051031-04DF5**	*Injection Volume:*	**10.0**
Vial Number:	**47**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**5.**
Recording Time:	**5/17/2019 19:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	2.86	FLUORIDE	0.019	0.002	0.01	0.268	5.
3	4.18	CHLORIDE	157.625	17.801	72.33	976.505	5.
5	6.93	BROMIDE	0.176	0.028	0.12	4.693	5.
6	7.47	SULFATE	29.300	6.497	26.40	497.665	5.
Total:			187.120	24.329	98.85	1479.131	

33 HS19051031-04DF50

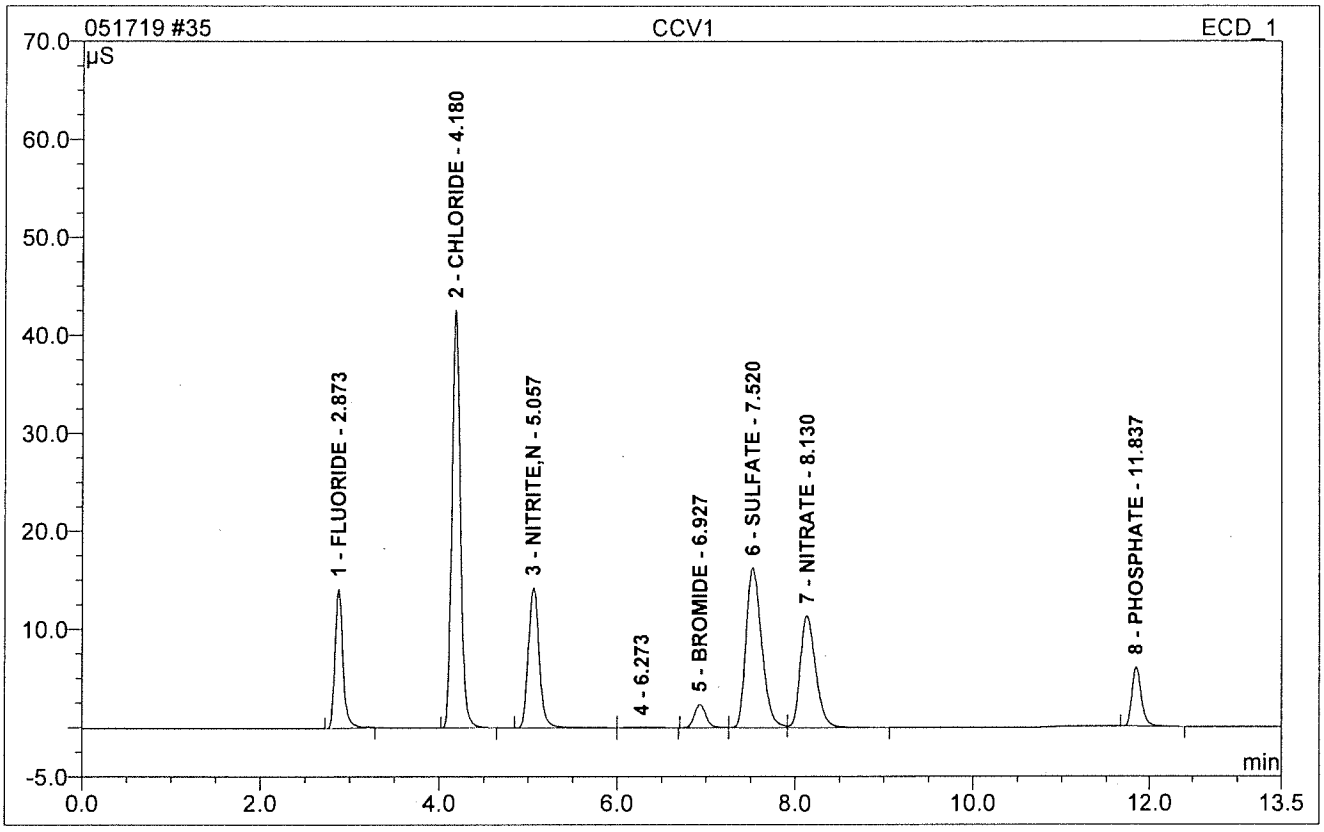
Sample Name:	**HS19051031-04DF50**	*Injection Volume:*	**10.0**
Vial Number:	**39**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/17/2019 19:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	4.18	CHLORIDE	15.586	1.689	69.69	935.621	50.
4	6.94	BROMIDE	0.014	0.002	0.09	5.578	50.
5	7.57	SULFATE	3.003	0.570	23.53	449.428	50.
Total:			18.603	2.261	93.32	1390.628	

35 CCV1

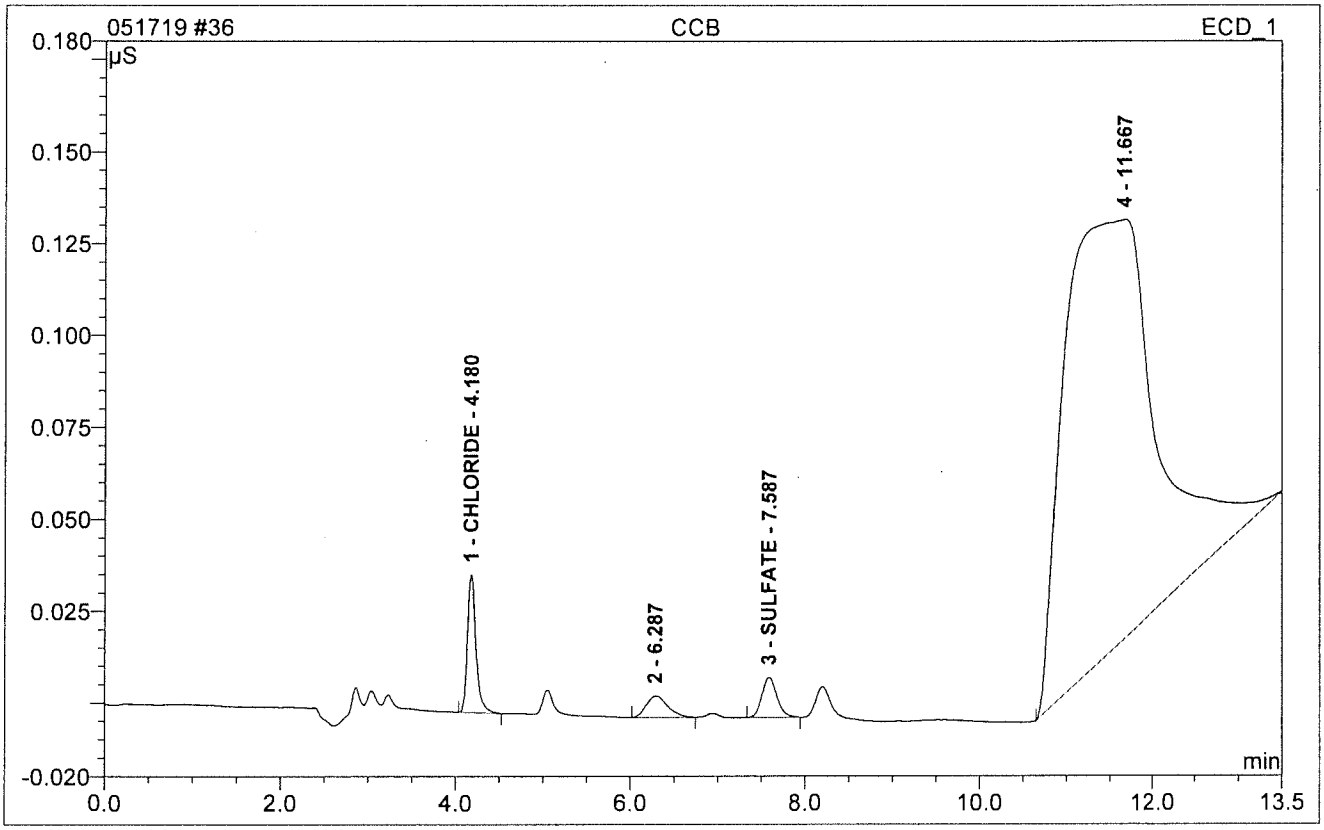
Sample Name:	**CCV1**	*Injection Volume:*	**10.0**
Vial Number:	**93**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 20:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	14.183	1.460	9.76	10.336	1.
2	4.18	CHLORIDE	42.578	4.688	31.34	51.585	1.
3	5.06	NITRITE,N	14.270	2.031	13.58	10.522	1.
5	6.93	BROMIDE	2.380	0.358	2.39	11.303	1.
6	7.52	SULFATE	16.275	3.323	22.21	51.040	1.
7	8.13	NITRATE	11.424	2.300	15.38	10.337	1.
8	11.84	PHOSPHATE	6.016	0.782	5.23	9.860	1.
Total:			107.126	14.942	99.89	154.982	

36 CCB

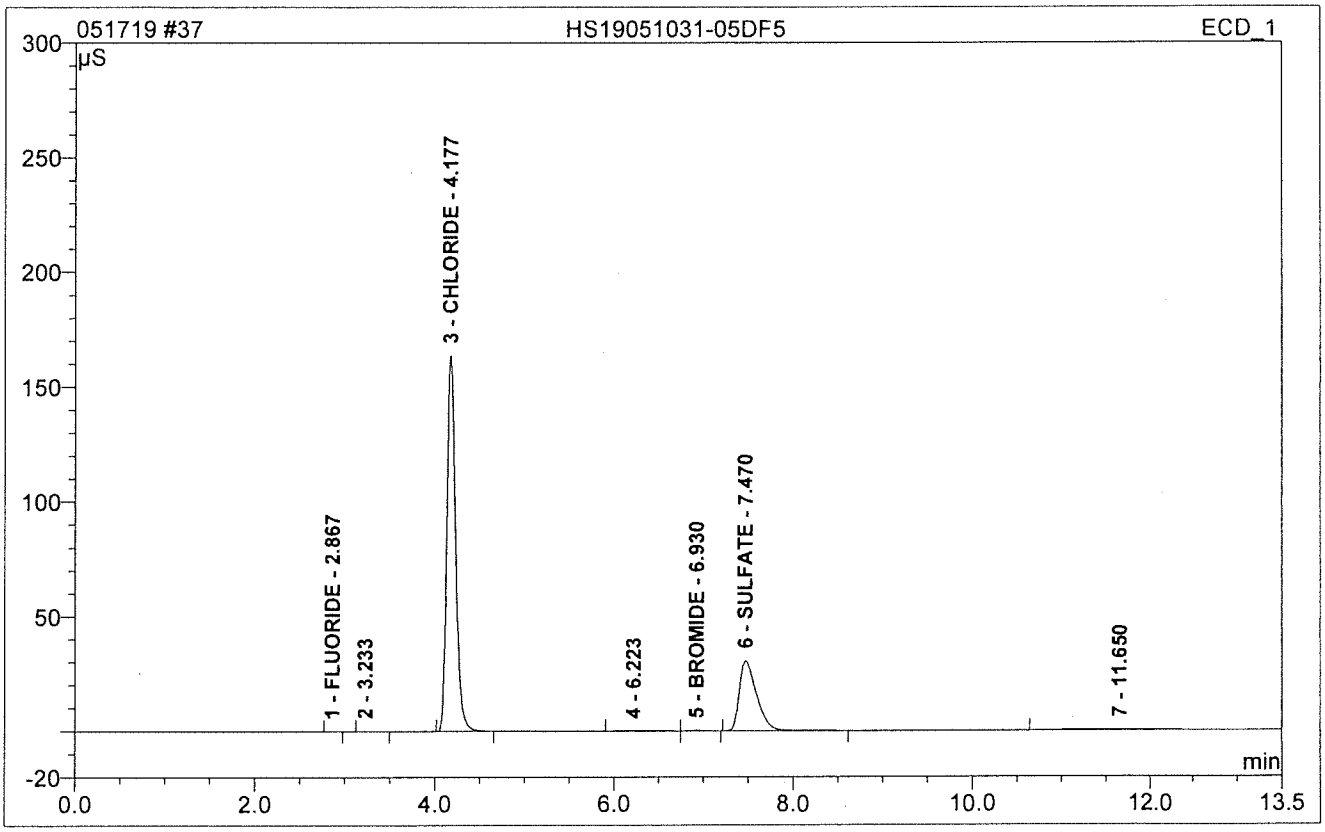
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**94**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 20:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	4.18	CHLORIDE	0.038	0.004	2.75	0.248	1.
3	7.59	SULFATE	0.011	0.002	1.42	0.310	1.
Total:			0.049	0.006	4.17	0.558	

37 HS19051031-05DF5

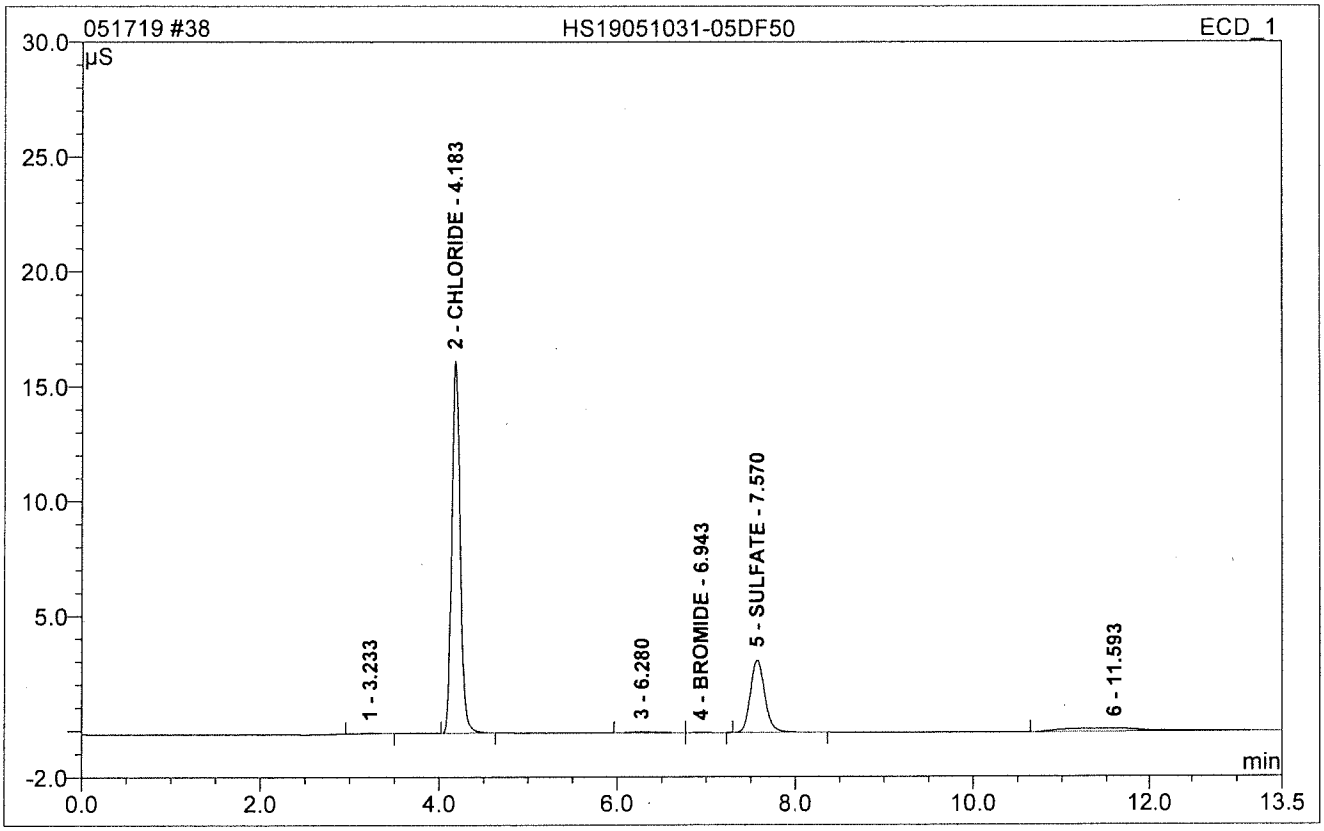
Sample Name:	**HS19051031-05DF5**	*Injection Volume:*	**10.0**
Vial Number:	**40**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**5.**
Recording Time:	**5/17/2019 20:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	0.021	0.002	0.01	0.275	5.
3	4.18	CHLORIDE	163.630	18.524	72.07	1016.095	5.
5	6.93	BROMIDE	0.177	0.027	0.10	4.421	5.
6	7.47	SULFATE	30.410	6.758	26.29	517.603	5.
Total:			194.238	25.310	98.47	1538.394	

38 HS19051031-05DF50

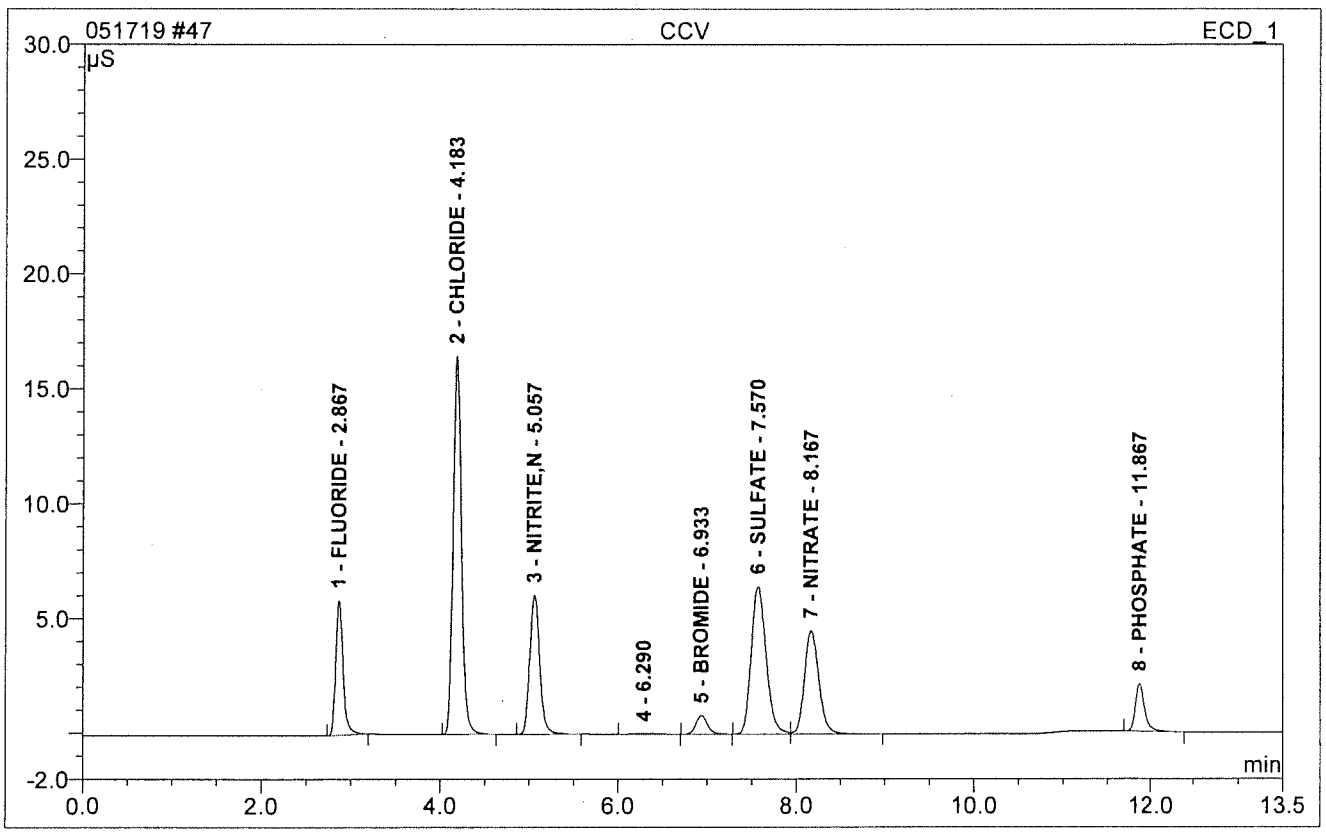
Sample Name:	**HS19051031-05DF50**	*Injection Volume:*	**10.0**
Vial Number:	**41**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**50.**
Recording Time:	**5/17/2019 21:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	4.18	CHLORIDE	16.173	1.757	69.71	973.036	50.
4	6.94	BROMIDE	0.017	0.003	0.11	6.606	50.
5	7.57	SULFATE	3.145	0.597	23.67	469.597	50.
Total:			19.334	2.357	93.50	1449.239	

47 CCV

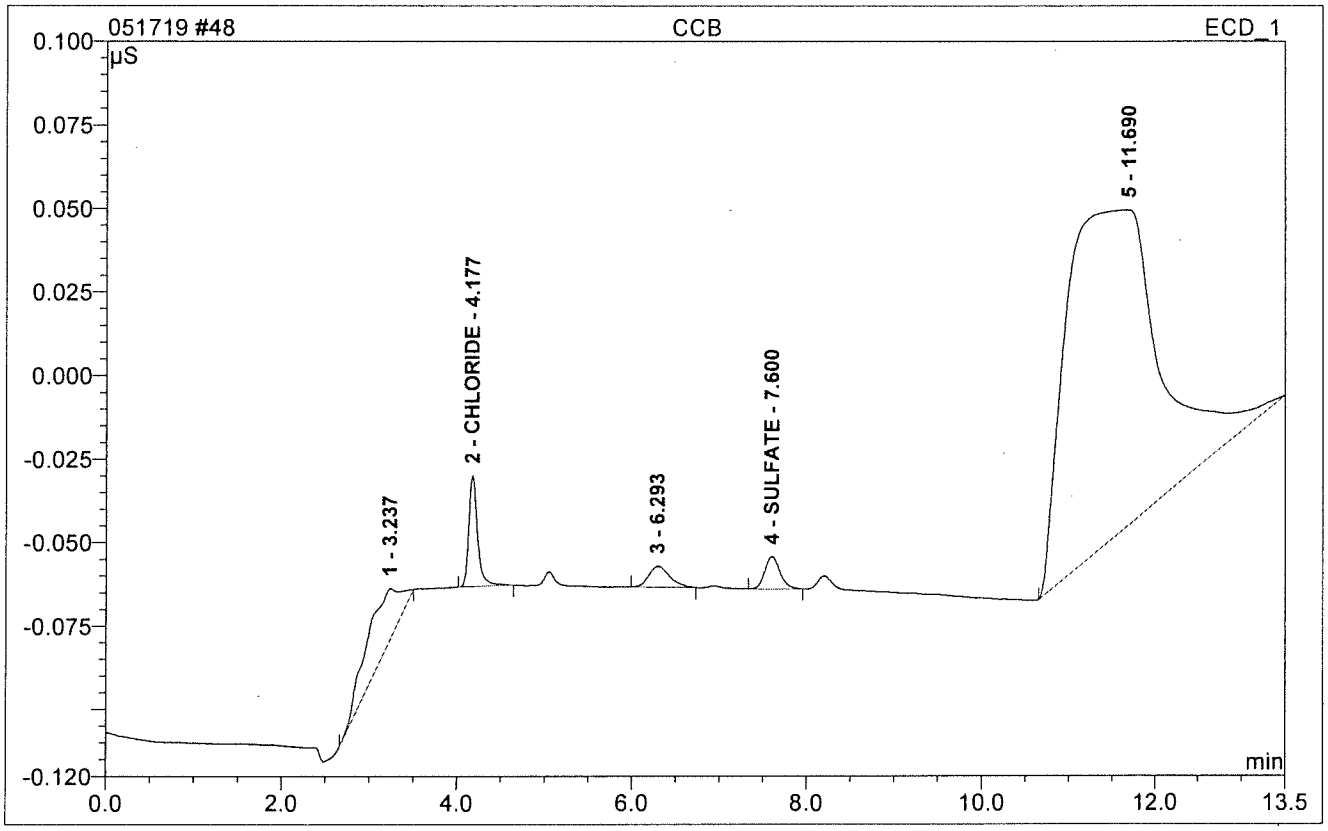
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 23:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.874	0.563	9.98	4.012	1.
2	4.18	CHLORIDE	16.470	1.788	31.69	19.801	1.
3	5.06	NITRITE,N	6.068	0.793	14.05	4.126	1.
5	6.93	BROMIDE	0.816	0.122	2.16	3.887	1.
6	7.57	SULFATE	6.442	1.255	22.23	19.444	1.
7	8.17	NITRATE	4.511	0.851	15.08	3.865	1.
8	11.87	PHOSPHATE	2.077	0.263	4.66	3.395	1.
Total:			42.258	5.635	99.85	58.531	

48 CCB

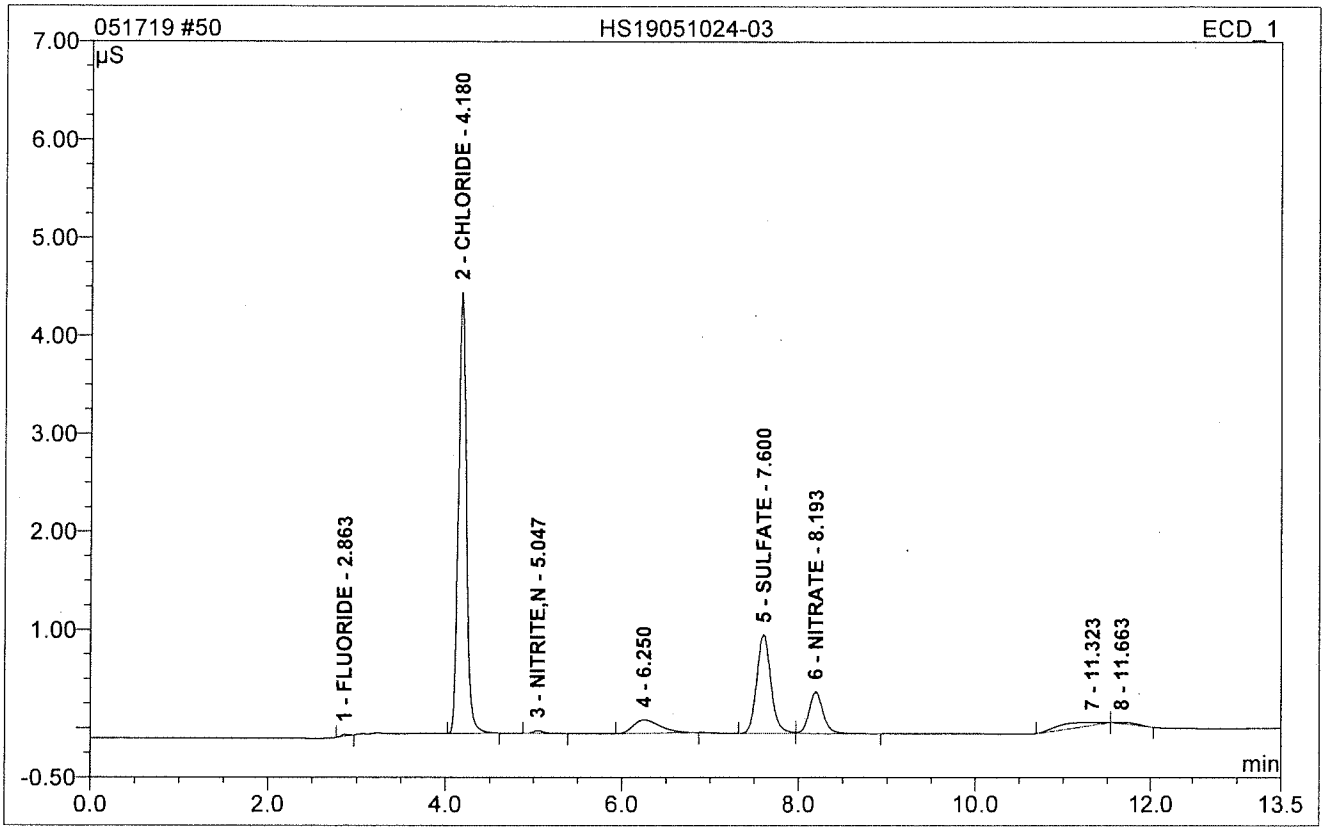
Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/17/2019 23:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	4.18	CHLORIDE	0.033	0.004	2.73	0.243	1.
4	7.60	SULFATE	0.010	0.002	1.42	0.306	1.
Total:			0.043	0.006	4.15	0.550	

50 HS19051024-03

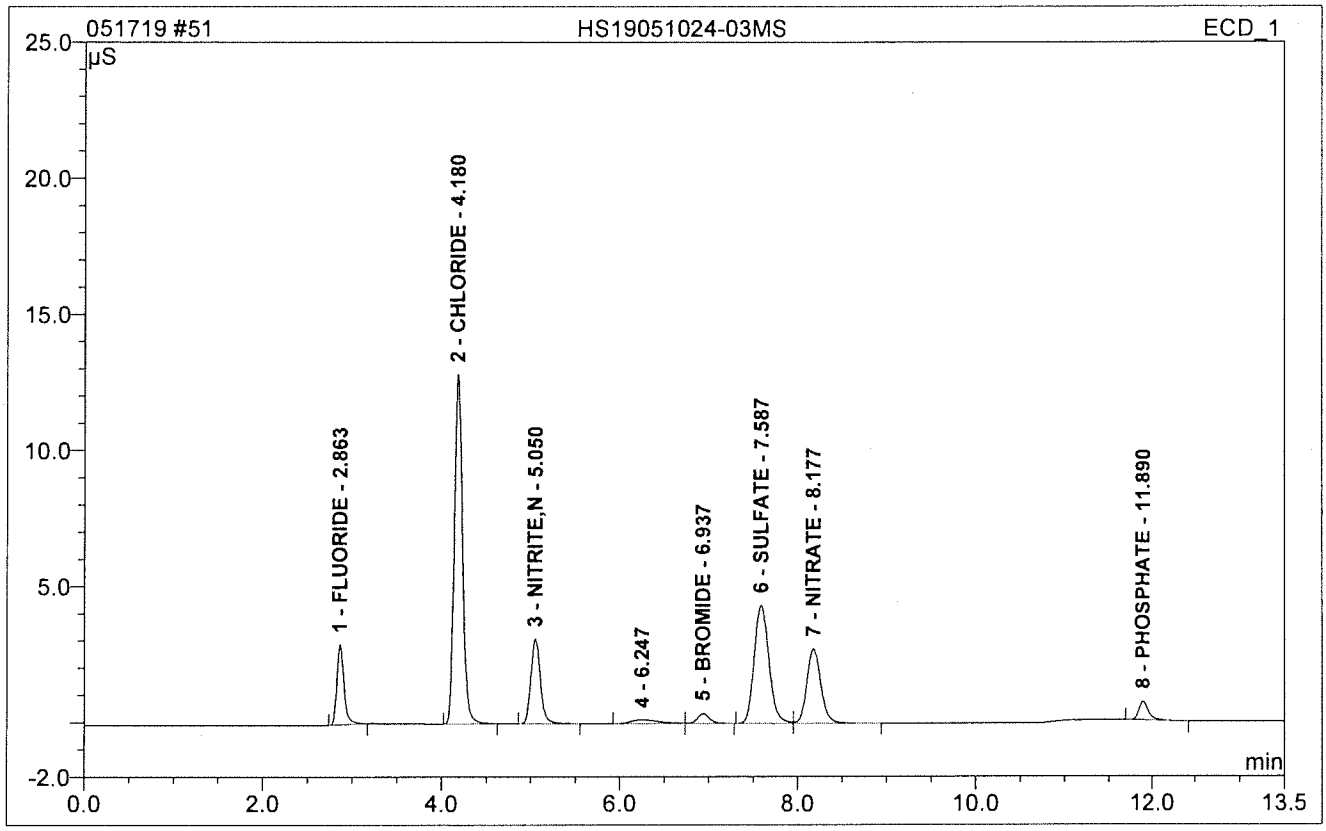
Sample Name:	**HS19051024-03**	*Injection Volume:*	**10.0**
Vial Number:	**53**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/18/2019 0:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	0.020	0.002	0.20	0.054	1.
2	4.18	CHLORIDE	4.498	0.472	57.42	5.378	1.
3	5.05	NITRITE,N	0.028	0.004	0.44	0.049	1.
5	7.60	SULFATE	1.004	0.187	22.75	3.135	1.
6	8.19	NITRATE	0.423	0.079	9.55	0.415	1.
Total:			5.973	0.743	90.36	9.031	

51 HS19051024-03MS

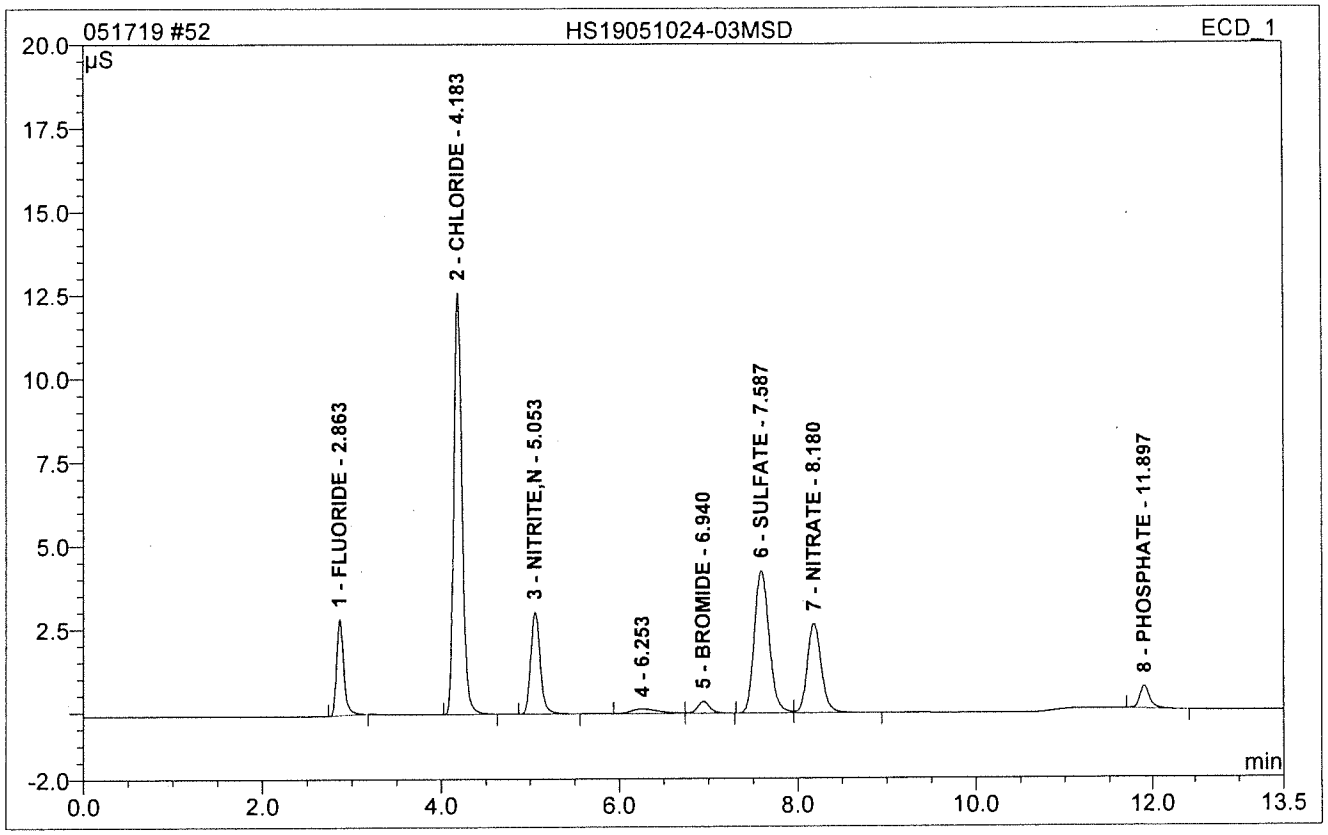
Sample Name:	**HS19051024-03MS**	*Injection Volume:*	**10.0**
Vial Number:	**54**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/18/2019 0:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	2.942	0.273	7.64	1.970	1.
2	4.18	CHLORIDE	12.841	1.380	38.53	15.322	1.
3	5.05	NITRITE,N	3.108	0.388	10.84	2.034	1.
5	6.94	BROMIDE	0.365	0.058	1.61	1.856	1.
6	7.59	SULFATE	4.344	0.834	23.30	13.021	1.
7	8.18	NITRATE	2.734	0.504	14.08	2.316	1.
8	11.89	PHOSPHATE	0.689	0.091	2.56	1.263	1.
Total:			27.022	3.529	98.56	37.782	

52 HS19051024-03MSD

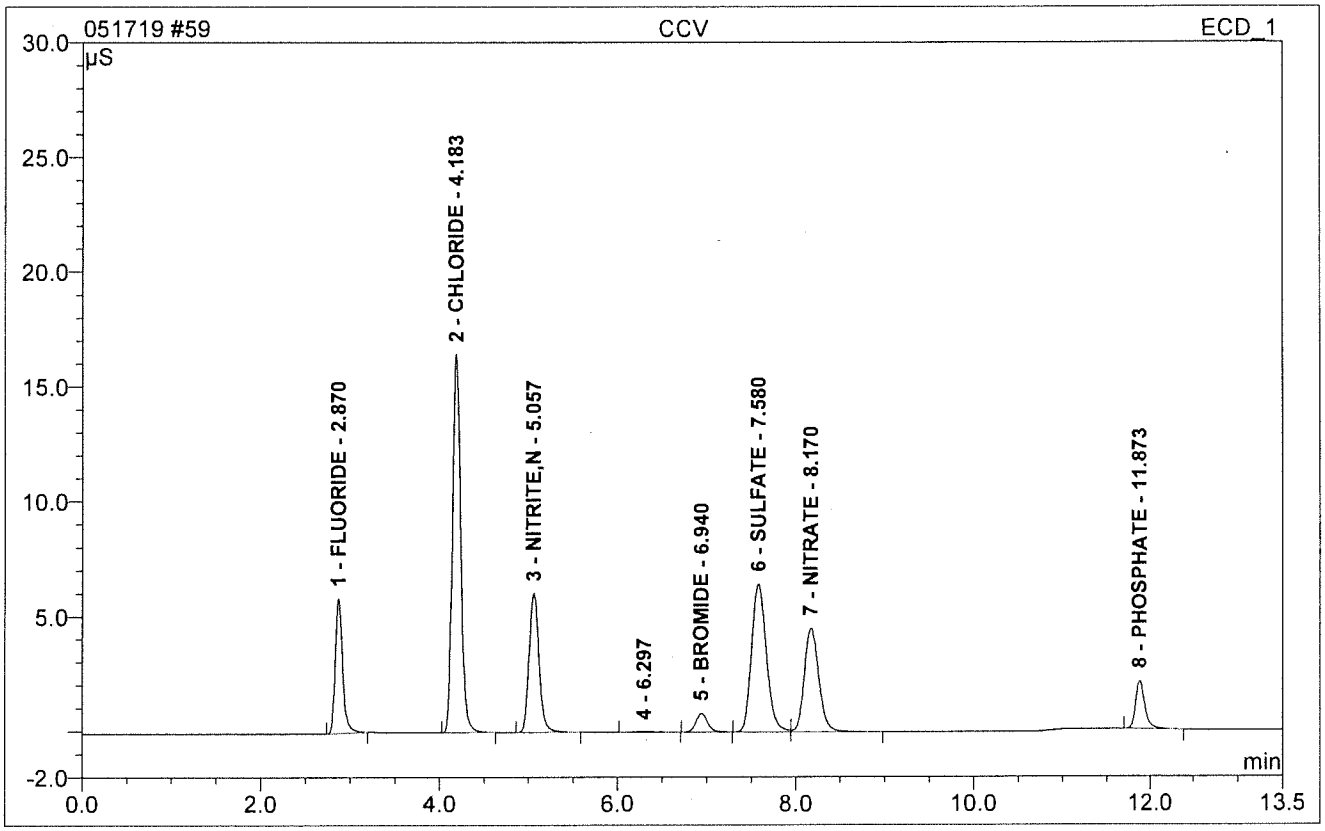
Sample Name:	**HS19051024-03MSD**	*Injection Volume:*	**10.0**
Vial Number:	**55**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/18/2019 0:35**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.86	FLUORIDE	2.889	0.269	7.63	1.936	1.
2	4.18	CHLORIDE	12.617	1.358	38.56	15.084	1.
3	5.05	NITRITE,N	3.066	0.383	10.86	2.006	1.
5	6.94	BROMIDE	0.359	0.057	1.61	1.828	1.
6	7.59	SULFATE	4.269	0.819	23.26	12.791	1.
7	8.18	NITRATE	2.689	0.496	14.08	2.278	1.
8	11.90	PHOSPHATE	0.684	0.091	2.58	1.253	1.
Total:			26.573	3.471	98.58	37.176	

59 CCV

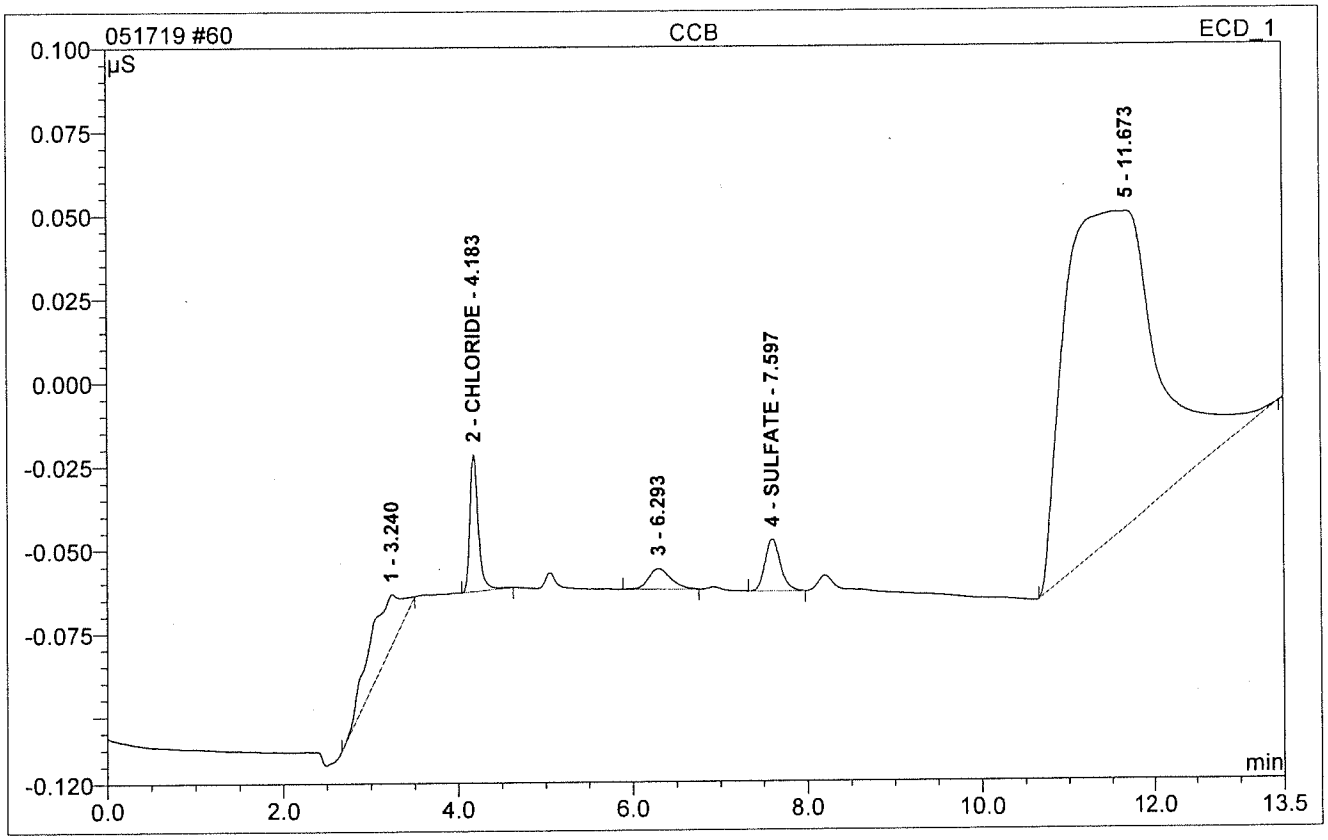
Sample Name:	**CCV**	*Injection Volume:*	**10.0**
Vial Number:	**91**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/18/2019 2:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
1	2.87	FLUORIDE	5.864	0.562	9.96	4.005	1.
2	4.18	CHLORIDE	16.464	1.785	31.62	19.760	1.
3	5.06	NITRITE,N	6.055	0.794	14.07	4.130	1.
5	6.94	BROMIDE	0.819	0.123	2.18	3.908	1.
6	7.58	SULFATE	6.444	1.256	22.25	19.458	1.
7	8.17	NITRATE	4.526	0.853	15.12	3.876	1.
8	11.87	PHOSPHATE	2.093	0.262	4.65	3.392	1.
Total:			42.265	5.635	99.85	58.528	

60 CCB

Sample Name:	**CCB**	*Injection Volume:*	**10.0**
Vial Number:	**92**	*Channel:*	**ECD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Anions Gradient Program-150mA-26Mm**	*Bandwidth:*	**n.a.**
Quantif. Method:	**040319CLO3**	*Dilution Factor:*	**1.**
Recording Time:	**5/18/2019 2:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**13.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height µS	Area µS*min	Rel.Area %	Amount	Dil.Fac.
2	4.18	CHLORIDE	0.041	0.005	3.27	0.252	1.
4	7.60	SULFATE	0.016	0.003	2.26	0.325	1.
Total:			0.057	0.008	5.53	0.577	

10450 Stancliff Rd. Suite 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887

June 03, 2019

Susan Huang
Aptim Environmental & Infrastucture, Inc.
2500 City West Blvd., Suite 1700
Houston, TX 77042

Work Order: **HS19051514**

Laboratory Results for: **LHAAP-50**

Dear Susan,

ALS Environmental received 3 sample(s) on May 24, 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-jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
Work Order: HS19051514

SAMPLE SUMMARY

Lab Samp ID	Client Sample ID	Matrix	TagNo	Collection Date	Date Received	Hold
HS19051514-01	50WW15-190523	Groundwater		23-May-2019 10:00	24-May-2019 09:00	☐
HS19051514-02	50WW27-190523	Groundwater		23-May-2019 10:45	24-May-2019 09:00	☐
HS19051514-03	Trip Blank	Water		23-May-2019 00:00	24-May-2019 09:00	☐

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc. **CASE NARRATIVE**
Project: LHAAP-50
Work Order:

Work Order Comments

- The analysis for Perchlorate was subcontracted to ALS Salt Lake City, UT. Final report attached.

GCMS Volatiles by Method SW8260

Batch ID: R339360

Sample ID: CCV

- 2-Butanone exceeded %D limits for CCV. Samples are ND for this compound.

Sample ID: HS19051518-03MS

- MS and MSD are for an unrelated sample

Sample ID: HS19051518-09MS

- MS and MSD are for an unrelated sample

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-50
Sample ID: 50WW15-190523
Collection Date: 23-May-2019 10:00

ANALYTICAL REPORT
WorkOrder:HS19051514
Lab ID:HS19051514-01
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	28-May-2019 14:56
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 14:56
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	28-May-2019 14:56
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	28-May-2019 14:56
Acetone	**5.6**		**0.40**	**1.0**	**2.0**	**UG/L**	1	28-May-2019 14:56
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	28-May-2019 14:56
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:56
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-50 WorkOrder:HS19051514
Sample ID: 50WW15-190523 Lab ID:HS19051514-01
Collection Date: 23-May-2019 10:00 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
cis-1,2-Dichloroethene	**2.9**		**0.20**	**0.50**	**1.0**	**UG/L**	1	28-May-2019 14:56
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	28-May-2019 14:56
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	28-May-2019 14:56
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 14:56
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	28-May-2019 14:56
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:56
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Tetrachloroethene	**0.87**	J	**0.30**	**0.50**	**1.0**	**UG/L**	1	28-May-2019 14:56
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Trichloroethene	**2.3**		**0.20**	**0.50**	**1.0**	**UG/L**	1	28-May-2019 14:56
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:56
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:56
Surr: 1,2-Dichloroethane-d4	*88.2*			**0**	*81-118*	*%REC*	*1*	*28-May-2019 14:56*
Surr: 4-Bromofluorobenzene	*103*			**0**	*85-114*	*%REC*	*1*	*28-May-2019 14:56*
Surr: Dibromofluoromethane	*92.4*			**0**	*80-119*	*%REC*	*1*	*28-May-2019 14:56*
Surr: Toluene-d8	*106*			**0**	*89-112*	*%REC*	*1*	*28-May-2019 14:56*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastructure, Inc.
Project: LHAAP-50
Sample ID: 50WW27-190523
Collection Date: 23-May-2019 10:45

ANALYTICAL REPORT
WorkOrder:HS19051514
Lab ID:HS19051514-02
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	28-May-2019 15:20
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 15:20
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	28-May-2019 15:20
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	28-May-2019 15:20
Acetone	**5.3**		**0.40**	**1.0**	**2.0**	**UG/L**	1	28-May-2019 15:20
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	28-May-2019 15:20
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 15:20
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-50 WorkOrder:HS19051514
Sample ID: 50WW27-190523 Lab ID:HS19051514-02
Collection Date: 23-May-2019 10:45 Matrix:Groundwater

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
cis-1,2-Dichloroethene	**0.74**	J	**0.20**	**0.50**	**1.0**	**UG/L**	1	28-May-2019 15:20
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	28-May-2019 15:20
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	28-May-2019 15:20
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 15:20
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	28-May-2019 15:20
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 15:20
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 15:20
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 15:20
Surr: 1,2-Dichloroethane-d4	*86.5*			**0**	*81-118*	*%REC*	*1*	*28-May-2019 15:20*
Surr: 4-Bromofluorobenzene	*105*			**0**	*85-114*	*%REC*	*1*	*28-May-2019 15:20*
Surr: Dibromofluoromethane	*89.4*			**0**	*80-119*	*%REC*	*1*	*28-May-2019 15:20*
Surr: Toluene-d8	*104*			**0**	*89-112*	*%REC*	*1*	*28-May-2019 15:20*
SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)		**Method:NA**						Analyst: SUB
Subcontract Analysis	See Attached		0	0		NA	1	03-Jun-2019 09:25

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-50 WorkOrder:HS19051514
Sample ID: Trip Blank Lab ID:HS19051514-03
Collection Date: 23-May-2019 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C	**Method:SW8260**							Analyst: PC
1,1,1,2-Tetrachloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1,1-Trichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1,2,2-Tetrachloroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1,2-Trichloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,1-Dichloropropene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2,3-Trichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2,3-Trichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2,4-Trichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2,4-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2-Dibromo-3-chloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2-Dibromoethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2-Dichlorobenzene	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2-Dichloroethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
1,2-Dichloropropane	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
1,3,5-Trimethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,3-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
1,3-Dichloropropane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
1,4-Dichlorobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
2,2-Dichloropropane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
2-Butanone	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 14:08
2-Chlorotoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
2-Hexanone	1.0	U	1.0	1.0	2.0	UG/L	1	28-May-2019 14:08
4-Chlorotoluene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
4-Isopropyltoluene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
4-Methyl-2-pentanone	1.0	U	0.70	1.0	2.0	UG/L	1	28-May-2019 14:08
Acetone	1.0	U	0.40	1.0	2.0	UG/L	1	28-May-2019 14:08
Benzene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Bromobenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
Bromochloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Bromodichloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Bromoform	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
Bromomethane	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
Carbon disulfide	1.0	U	0.60	1.0	2.0	UG/L	1	28-May-2019 14:08
Carbon tetrachloride	0.50	U	0.50	0.50	1.0	UG/L	1	28-May-2019 14:08
Chlorobenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Chloroethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc. **ANALYTICAL REPORT**
Project: LHAAP-50 WorkOrder:HS19051514
Sample ID: Trip Blank Lab ID:HS19051514-03
Collection Date: 23-May-2019 00:00 Matrix:Water

ANALYSES	RESULT	QUAL	DL	LOD	LOQ	UNITS	DILUTION FACTOR	DATE ANALYZED
VOLATILES ORGANICS BY METHOD 8260C		**Method:SW8260**						Analyst: PC
Chloroform	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Chloromethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
cis-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
cis-1,3-Dichloropropene	0.50	U	0.10	0.50	1.0	UG/L	1	28-May-2019 14:08
Dibromochloromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Dibromomethane	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Dichlorodifluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Ethylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Hexachlorobutadiene	1.0	U	1.0	1.0	1.0	UG/L	1	28-May-2019 14:08
Isopropylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
m,p-Xylene	1.0	U	0.50	1.0	2.0	UG/L	1	28-May-2019 14:08
Methylene chloride	1.0	U	0.40	1.0	2.0	UG/L	1	28-May-2019 14:08
n-Butylbenzene	0.50	U	0.40	0.50	1.0	UG/L	1	28-May-2019 14:08
n-Propylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Naphthalene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
o-Xylene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
sec-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Styrene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
tert-Butylbenzene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Tetrachloroethene	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Toluene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
trans-1,2-Dichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
trans-1,3-Dichloropropene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Trichloroethene	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Trichlorofluoromethane	0.50	U	0.30	0.50	1.0	UG/L	1	28-May-2019 14:08
Vinyl chloride	0.50	U	0.20	0.50	1.0	UG/L	1	28-May-2019 14:08
Surr: 1,2-Dichloroethane-d4	*86.8*			**0**	*81-118*	*%REC*	*1*	*28-May-2019 14:08*
Surr: 4-Bromofluorobenzene	*104*			**0**	*85-114*	*%REC*	*1*	*28-May-2019 14:08*
Surr: Dibromofluoromethane	*90.7*			**0**	*80-119*	*%REC*	*1*	*28-May-2019 14:08*
Surr: Toluene-d8	*105*			**0**	*89-112*	*%REC*	*1*	*28-May-2019 14:08*

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

DATES REPORT

Sample ID	Client Samp ID	Collection Date	TCLP Date	Prep Date	Analysis Date	DF
Batch ID R339360	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Water		
HS19051514-03	Trip Blank	23 May 2019 00:00			28 May 2019 14:08	1
Batch ID R339360	**Test Name :** VOLATILES ORGANICS BY METHOD 8260C			**Matrix:** Groundwater		
HS19051514-01	50WW15-190523	23 May 2019 10:00			28 May 2019 14:56	1
HS19051514-02	50WW27-190523	23 May 2019 10:45			28 May 2019 15:20	1
Batch ID R339630	**Test Name :** SUBCONTRACT ANALYSIS - PERCHLORATE (EPA 6850)			**Matrix:** Groundwater		
HS19051514-01	50WW15-190523	23 May 2019 10:00			03 Jun 2019 09:25	1
HS19051514-02	50WW27-190523	23 May 2019 10:45			03 Jun 2019 09:25	1

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190528** Units: **UG/L** Analysis Date: **28-May-2019 13:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096401** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1,2-Tetrachloroethane	0.50	1.0								U
1,1,1-Trichloroethane	0.50	1.0								U
1,1,2,2-Tetrachloroethane	0.50	1.0								U
1,1,2-Trichlor-1,2,2-trifluoroethane	0.50	1.0								U
1,1,2-Trichloroethane	0.50	1.0								U
1,1-Dichloroethane	0.50	1.0								U
1,1-Dichloroethene	0.50	1.0								U
1,1-Dichloropropene	0.50	1.0								U
1,2,3-Trichlorobenzene	0.50	1.0								U
1,2,3-Trichloropropane	0.50	1.0								U
1,2,4-Trichlorobenzene	0.50	1.0								U
1,2,4-Trimethylbenzene	0.50	1.0								U
1,2-Dibromo-3-chloropropane	0.50	1.0								U
1,2-Dibromoethane	0.50	1.0								U
1,2-Dichlorobenzene	0.50	1.0								U
1,2-Dichloroethane	0.50	1.0								U
1,2-Dichloropropane	0.50	1.0								U
1,3,5-Trimethylbenzene	0.50	1.0								U
1,3-Dichlorobenzene	0.50	1.0								U
1,3-Dichloropropane	0.50	1.0								U
1,4-Dichlorobenzene	0.50	1.0								U
2,2-Dichloropropane	0.50	1.0								U
2-Butanone	1.0	2.0								U
2-Chlorotoluene	0.50	1.0								U
2-Hexanone	1.0	2.0								U
4-Chlorotoluene	0.50	1.0								U
4-Isopropyltoluene	0.50	1.0								U
4-Methyl-2-pentanone	1.0	2.0								U
Acetone	1.0	2.0								U
Benzene	0.50	1.0								U
Bromobenzene	0.50	1.0								U
Bromochloromethane	0.50	1.0								U
Bromodichloromethane	0.50	1.0								U
Bromoform	0.50	1.0								U

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190528** Units: **UG/L** Analysis Date: **28-May-2019 13:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096401** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	0.50	1.0								U
Carbon disulfide	1.0	2.0								U
Carbon tetrachloride	0.50	1.0								U
Chlorobenzene	0.50	1.0								U
Chloroethane	0.50	1.0								U
Chloroform	0.50	1.0								U
Chloromethane	0.50	1.0								U
cis-1,2-Dichloroethene	0.50	1.0								U
cis-1,3-Dichloropropene	0.50	1.0								U
Dibromochloromethane	0.50	1.0								U
Dibromomethane	0.50	1.0								U
Dichlorodifluoromethane	0.50	1.0								U
Ethylbenzene	0.50	1.0								U
Hexachlorobutadiene	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	*43.15*	*1.0*	*50*	*0*	*86.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.64*	*1.0*	*50*	*0*	*103*	*85 - 114*				
Surr: Dibromofluoromethane	*45.48*	*1.0*	*50*	*0*	*91.0*	*80 - 119*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MBLK Sample ID: **VBLKW-190528** Units: **UG/L** Analysis Date: **28-May-2019 13:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096401** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.21*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190528** Units: **UG/L** Analysis Date: **28-May-2019 12:56**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096400** 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	20.47	1.0	20	0	102	78 - 124				
1,1,1-Trichloroethane	21.21	1.0	20	0	106	74 - 131				
1,1,2,2-Tetrachloroethane	21.54	1.0	20	0	108	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	21.45	1.0	20	0	107	70 - 136				
1,1,2-Trichloroethane	22.34	1.0	20	0	112	80 - 119				
1,1-Dichloroethane	22.66	1.0	20	0	113	77 - 125				
1,1-Dichloroethene	20.2	1.0	20	0	101	71 - 131				
1,1-Dichloropropene	21.41	1.0	20	0	107	78 - 125				
1,2,3-Trichlorobenzene	23.4	1.0	20	0	117	69 - 129				
1,2,3-Trichloropropane	21.01	1.0	20	0	105	73 - 122				
1,2,4-Trichlorobenzene	21.17	1.0	20	0	106	69 - 130				
1,2,4-Trimethylbenzene	20.88	1.0	20	0	104	76 - 124				
1,2-Dibromo-3-chloropropane	21.18	1.0	20	0	106	62 - 128				
1,2-Dibromoethane	21.51	1.0	20	0	108	77 - 121				
1,2-Dichlorobenzene	20.42	1.0	20	0	102	80 - 119				
1,2-Dichloroethane	20.71	1.0	20	0	104	73 - 128				
1,2-Dichloropropane	24.1	1.0	20	0	120	78 - 122				
1,3,5-Trimethylbenzene	20.65	1.0	20	0	103	75 - 124				
1,3-Dichlorobenzene	20.16	1.0	20	0	101	80 - 119				
1,3-Dichloropropane	22.14	1.0	20	0	111	80 - 119				
1,4-Dichlorobenzene	20.29	1.0	20	0	101	79 - 118				
2,2-Dichloropropane	21.64	1.0	20	0	108	60 - 139				
2-Butanone	50.84	2.0	40	0	127	56 - 143				
2-Chlorotoluene	20.38	1.0	20	0	102	79 - 122				
2-Hexanone	47.09	2.0	40	0	118	57 - 139				
4-Chlorotoluene	20.55	1.0	20	0	103	78 - 122				
4-Isopropyltoluene	20.22	1.0	20	0	101	77 - 127				
4-Methyl-2-pentanone	47.58	2.0	40	0	119	67 - 130				
Acetone	48.28	2.0	40	0	121	39 - 160				
Benzene	23	1.0	20	0	115	79 - 120				
Bromobenzene	19.7	1.0	20	0	98.5	80 - 120				
Bromochloromethane	21.86	1.0	20	0	109	78 - 123				
Bromodichloromethane	22	1.0	20	0	110	79 - 125				
Bromoform	21.08	1.0	20	0	105	66 - 130				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

LCS Sample ID: **VLCSW-190528** Units: **UG/L** Analysis Date: **28-May-2019 12:56**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096400** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	20.18	1.0	20	0	101	53 - 141				
Carbon disulfide	51.71	2.0	40	0	129	64 - 133				
Carbon tetrachloride	19.13	1.0	20	0	95.6	72 - 136				
Chlorobenzene	21.65	1.0	20	0	108	82 - 118				
Chloroethane	21.89	1.0	20	0	109	60 - 138				
Chloroform	22.12	1.0	20	0	111	79 - 124				
Chloromethane	21.47	1.0	20	0	107	50 - 139				
cis-1,2-Dichloroethene	22.2	1.0	20	0	111	78 - 123				
cis-1,3-Dichloropropene	23.48	1.0	20	0	117	75 - 124				
Dibromochloromethane	20.43	1.0	20	0	102	74 - 126				
Dibromomethane	22.08	1.0	20	0	110	79 - 123				
Dichlorodifluoromethane	19.97	1.0	20	0	99.8	32 - 152				
Ethylbenzene	21.82	1.0	20	0	109	79 - 121				
Hexachlorobutadiene	21.39	1.0	20	0	107	66 - 134				
Isopropylbenzene	21.09	1.0	20	0	105	72 - 131				
m,p-Xylene	43.73	2.0	40	0	109	80 - 121				
Methylene chloride	24.73	2.0	20	0	124	74 - 124				
Naphthalene	22.02	1.0	20	0	110	61 - 128				
n-Butylbenzene	21.23	1.0	20	0	106	75 - 128				
n-Propylbenzene	20.32	1.0	20	0	102	76 - 126				
o-Xylene	21.97	1.0	20	0	110	78 - 122				
sec-Butylbenzene	19.94	1.0	20	0	99.7	77 - 126				
Styrene	22.37	1.0	20	0	112	78 - 123				
tert-Butylbenzene	19.97	1.0	20	0	99.9	78 - 124				
Tetrachloroethene	20.39	1.0	20	0	102	74 - 129				
Toluene	21.89	1.0	20	0	109	80 - 121				
trans-1,2-Dichloroethene	22.61	1.0	20	0	113	75 - 124				
trans-1,3-Dichloropropene	22.91	1.0	20	0	115	73 - 127				
Trichloroethene	21.46	1.0	20	0	107	79 - 123				
Trichlorofluoromethane	18.36	1.0	20	0	91.8	65 - 141				
Vinyl chloride	19.64	1.0	20	0	98.2	58 - 137				
Surr: 1,2-Dichloroethane-d4	*45.51*	*1.0*	*50*	*0*	*91.0*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*56.04*	*1.0*	*50*	*0*	*112*	*85 - 114*				
Surr: Dibromofluoromethane	*50.96*	*1.0*	*50*	*0*	*102*	*80 - 119*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

LCS Sample ID: **VLCSW-190528** Units: **UG/L** Analysis Date: **28-May-2019 12:56**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096400** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*44.61*	*1.0*	*50*	*0*	*89.2*	*89 - 112*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051518-09MS** Units: **UG/L** Analysis Date: **28-May-2019 20:32**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096418** 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	17.06	1.0	20	0	85.3	78 - 124				
1,1,1-Trichloroethane	16.31	1.0	20	0	81.5	74 - 131				
1,1,2,2-Tetrachloroethane	20.11	1.0	20	0	101	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	16.82	1.0	20	0	84.1	70 - 136				
1,1,2-Trichloroethane	18.58	1.0	20	0	92.9	80 - 119				
1,1-Dichloroethane	16.69	1.0	20	0	83.5	77 - 125				
1,1-Dichloroethene	15.74	1.0	20	0	78.7	71 - 131				
1,1-Dichloropropene	17.36	1.0	20	0	86.8	78 - 125				
1,2,3-Trichlorobenzene	20.64	1.0	20	0	103	69 - 129				
1,2,3-Trichloropropane	18.72	1.0	20	0	93.6	73 - 122				
1,2,4-Trichlorobenzene	18.58	1.0	20	0	92.9	69 - 130				
1,2,4-Trimethylbenzene	18.65	1.0	20	0	93.3	76 - 124				
1,2-Dibromo-3-chloropropane	19.25	1.0	20	0	96.3	62 - 128				
1,2-Dibromoethane	17.08	1.0	20	0	85.4	77 - 121				
1,2-Dichlorobenzene	18.49	1.0	20	0	92.4	80 - 119				
1,2-Dichloroethane	15.42	1.0	20	0	77.1	73 - 128				
1,2-Dichloropropane	18.41	1.0	20	0	92.1	78 - 122				
1,3,5-Trimethylbenzene	19.37	1.0	20	0	96.8	75 - 124				
1,3-Dichlorobenzene	18.76	1.0	20	0	93.8	80 - 119				
1,3-Dichloropropane	18.15	1.0	20	0	90.8	80 - 119				
1,4-Dichlorobenzene	18.47	1.0	20	0	92.4	79 - 118				
2,2-Dichloropropane	14.81	1.0	20	0	74.0	60 - 139				
2-Butanone	36.83	2.0	40	0	92.1	56 - 143				
2-Chlorotoluene	19.43	1.0	20	0	97.1	79 - 122				
2-Hexanone	35.89	2.0	40	0	89.7	57 - 139				
4-Chlorotoluene	19.31	1.0	20	0	96.5	78 - 122				
4-Isopropyltoluene	19.62	1.0	20	0	98.1	77 - 127				
4-Methyl-2-pentanone	37.34	2.0	40	0	93.3	67 - 130				
Acetone	35.75	2.0	40	2.755	82.5	39 - 160				
Benzene	17.38	1.0	20	0	86.9	79 - 120				
Bromobenzene	17.29	1.0	20	0	86.5	80 - 120				
Bromochloromethane	16.09	1.0	20	0	80.5	78 - 123				
Bromodichloromethane	16.19	1.0	20	0	80.9	79 - 125				
Bromoform	16.93	1.0	20	0	84.6	66 - 130				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19051518-09MS** Units: **UG/L** Analysis Date: **28-May-2019 20:32**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096418** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	12.68	1.0	20	0	63.4	53 - 141				
Carbon disulfide	35.29	2.0	40	0	88.2	64 - 133				
Carbon tetrachloride	15.49	1.0	20	0	77.5	72 - 136				
Chlorobenzene	17.96	1.0	20	0	89.8	82 - 118				
Chloroethane	10.8	1.0	20	0	54.0	60 - 138				S
Chloroform	16.02	1.0	20	0	80.1	79 - 124				
Chloromethane	14.1	1.0	20	0	70.5	50 - 139				
cis-1,2-Dichloroethene	16.47	1.0	20	0	82.4	78 - 123				
cis-1,3-Dichloropropene	17.79	1.0	20	0	88.9	75 - 124				
Dibromochloromethane	16.76	1.0	20	0	83.8	74 - 126				
Dibromomethane	16.48	1.0	20	0	82.4	79 - 123				
Dichlorodifluoromethane	12.19	1.0	20	0	61.0	32 - 152				
Ethylbenzene	17.99	1.0	20	0	89.9	79 - 121				
Hexachlorobutadiene	16.41	1.0	20	0	82.1	66 - 134				
Isopropylbenzene	18.62	1.0	20	0	93.1	72 - 131				
m,p-Xylene	37.64	2.0	40	0	94.1	80 - 121				
Methylene chloride	17.06	2.0	20	0	85.3	74 - 124				
Naphthalene	19.15	1.0	20	0	95.8	61 - 128				
n-Butylbenzene	19.75	1.0	20	0	98.8	75 - 128				
n-Propylbenzene	19.91	1.0	20	0	99.6	76 - 126				
o-Xylene	19.17	1.0	20	0	95.8	78 - 122				
sec-Butylbenzene	20.05	1.0	20	0	100	77 - 126				
Styrene	18.04	1.0	20	0	90.2	78 - 123				
tert-Butylbenzene	19.89	1.0	20	0	99.4	78 - 124				
Tetrachloroethene	18.11	1.0	20	0	90.6	74 - 129				
Toluene	17.63	1.0	20	0	88.1	80 - 121				
trans-1,2-Dichloroethene	17.11	1.0	20	0	85.5	75 - 124				
trans-1,3-Dichloropropene	16.94	1.0	20	0	84.7	73 - 127				
Trichloroethene	16.78	1.0	20	0	83.9	79 - 123				
Trichlorofluoromethane	14.27	1.0	20	0	71.4	65 - 141				
Vinyl chloride	15.77	1.0	20	0	78.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*44.63*	*1.0*	*50*	*0*	*89.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*53.05*	*1.0*	*50*	*0*	*106*	*85 - 114*				
Surr: Dibromofluoromethane	*46.04*	*1.0*	*50*	*0*	*92.1*	*80 - 119*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051518-09MS** Units: **UG/L** Analysis Date: **28-May-2019 20:32**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096418** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*52.18*	*1.0*	*50*	*0*	*104*	*89 - 112*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19051518-03MS** Units: **UG/L** Analysis Date: **28-May-2019 19:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096416** 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	16.94	1.0	20	0	84.7	78 - 124				
1,1,1-Trichloroethane	16.21	1.0	20	0	81.1	74 - 131				
1,1,2,2-Tetrachloroethane	19.84	1.0	20	0	99.2	71 - 121				
1,1,2-Trichlor-1,2,2-trifluoroethane	17.43	1.0	20	0	87.2	70 - 136				
1,1,2-Trichloroethane	17.67	1.0	20	0	88.3	80 - 119				
1,1-Dichloroethane	16.65	1.0	20	0	83.2	77 - 125				
1,1-Dichloroethene	15.81	1.0	20	0	79.1	71 - 131				
1,1-Dichloropropene	17.55	1.0	20	0	87.8	78 - 125				
1,2,3-Trichlorobenzene	19.58	1.0	20	0	97.9	69 - 129				
1,2,3-Trichloropropane	18.66	1.0	20	0	93.3	73 - 122				
1,2,4-Trichlorobenzene	18.28	1.0	20	0	91.4	69 - 130				
1,2,4-Trimethylbenzene	18.93	1.0	20	0	94.7	76 - 124				
1,2-Dibromo-3-chloropropane	19.02	1.0	20	0	95.1	62 - 128				
1,2-Dibromoethane	17.11	1.0	20	0	85.5	77 - 121				
1,2-Dichlorobenzene	18.72	1.0	20	0	93.6	80 - 119				
1,2-Dichloroethane	15.46	1.0	20	0	77.3	73 - 128				
1,2-Dichloropropane	18.06	1.0	20	0	90.3	78 - 122				
1,3,5-Trimethylbenzene	19.61	1.0	20	0	98.1	75 - 124				
1,3-Dichlorobenzene	18.68	1.0	20	0	93.4	80 - 119				
1,3-Dichloropropane	17.63	1.0	20	0	88.1	80 - 119				
1,4-Dichlorobenzene	18.75	1.0	20	0	93.8	79 - 118				
2,2-Dichloropropane	14.78	1.0	20	0	73.9	60 - 139				
2-Butanone	37.71	2.0	40	0	94.3	56 - 143				
2-Chlorotoluene	19.45	1.0	20	0	97.3	79 - 122				
2-Hexanone	34.73	2.0	40	0	86.8	57 - 139				
4-Chlorotoluene	19.4	1.0	20	0	97.0	78 - 122				
4-Isopropyltoluene	20.08	1.0	20	0	100	77 - 127				
4-Methyl-2-pentanone	34.58	2.0	40	0	86.4	67 - 130				
Acetone	34.33	2.0	40	9.727	61.5	39 - 160				
Benzene	17.32	1.0	20	0	86.6	79 - 120				
Bromobenzene	18.11	1.0	20	0	90.6	80 - 120				
Bromochloromethane	15.66	1.0	20	0	78.3	78 - 123				
Bromodichloromethane	15.97	1.0	20	0	79.8	79 - 125				
Bromoform	16.37	1.0	20	0	81.9	66 - 130				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MS Sample ID: **HS19051518-03MS** Units: **UG/L** Analysis Date: **28-May-2019 19:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromomethane	13.66	1.0	20	0	68.3	53 - 141				
Carbon disulfide	34.53	2.0	40	0	86.3	64 - 133				
Carbon tetrachloride	15.71	1.0	20	0	78.5	72 - 136				
Chlorobenzene	17.85	1.0	20	0	89.3	82 - 118				
Chloroethane	10.9	1.0	20	0	54.5	60 - 138				S
Chloroform	15.91	1.0	20	0	79.6	79 - 124				
Chloromethane	13.85	1.0	20	0	69.2	50 - 139				
cis-1,2-Dichloroethene	16.2	1.0	20	0	81.0	78 - 123				
cis-1,3-Dichloropropene	17.56	1.0	20	0	87.8	75 - 124				
Dibromochloromethane	16.26	1.0	20	0	81.3	74 - 126				
Dibromomethane	16.34	1.0	20	0	81.7	79 - 123				
Dichlorodifluoromethane	13.44	1.0	20	0	67.2	32 - 152				
Ethylbenzene	18.08	1.0	20	0	90.4	79 - 121				
Hexachlorobutadiene	18.71	1.0	20	0	93.5	66 - 134				
Isopropylbenzene	18.21	1.0	20	0	91.0	72 - 131				
m,p-Xylene	36.3	2.0	40	0	90.8	80 - 121				
Methylene chloride	16.8	2.0	20	0	84.0	74 - 124				
Naphthalene	18.18	1.0	20	0	90.9	61 - 128				
n-Butylbenzene	20.28	1.0	20	0	101	75 - 128				
n-Propylbenzene	20.53	1.0	20	0	103	76 - 126				
o-Xylene	18.41	1.0	20	0	92.0	78 - 122				
sec-Butylbenzene	20.83	1.0	20	0	104	77 - 126				
Styrene	17.56	1.0	20	0	87.8	78 - 123				
tert-Butylbenzene	20.36	1.0	20	0	102	78 - 124				
Tetrachloroethene	21.28	1.0	20	3.611	88.3	74 - 129				
Toluene	17.17	1.0	20	0	85.9	80 - 121				
trans-1,2-Dichloroethene	16.95	1.0	20	0	84.8	75 - 124				
trans-1,3-Dichloropropene	16.6	1.0	20	0	83.0	73 - 127				
Trichloroethene	17.26	1.0	20	0	86.3	79 - 123				
Trichlorofluoromethane	14.95	1.0	20	0	74.7	65 - 141				
Vinyl chloride	16.35	1.0	20	0	81.8	58 - 137				
Surr: 1,2-Dichloroethane-d4	*43.66*	*1.0*	*50*	*0*	*87.3*	*81 - 118*				
Surr: 4-Bromofluorobenzene	*51.15*	*1.0*	*50*	*0*	*102*	*85 - 114*				
Surr: Dibromofluoromethane	*44.72*	*1.0*	*50*	*0*	*89.4*	*80 - 119*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MS Sample ID: **HS19051518-03MS** Units: **UG/L** Analysis Date: **28-May-2019 19:44**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096416** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.06*	*1.0*	*50*	*0*	*102*	*89 - 112*				

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051518-09MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:57**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096419** 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	16.33	1.0	20	0	81.6	78 - 124	17.06	4.39	20	
1,1,1-Trichloroethane	16.14	1.0	20	0	80.7	74 - 131	16.31	1.05	20	
1,1,2,2-Tetrachloroethane	19.51	1.0	20	0	97.5	71 - 121	20.11	3.04	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	16.65	1.0	20	0	83.3	70 - 136	16.82	0.987	20	
1,1,2-Trichloroethane	17.87	1.0	20	0	89.3	80 - 119	18.58	3.9	20	
1,1-Dichloroethane	16.69	1.0	20	0	83.5	77 - 125	16.69	0.028	20	
1,1-Dichloroethene	15.23	1.0	20	0	76.1	71 - 131	15.74	3.31	20	
1,1-Dichloropropene	17.2	1.0	20	0	86.0	78 - 125	17.36	0.969	20	
1,2,3-Trichlorobenzene	20.1	1.0	20	0	100	69 - 129	20.64	2.69	20	
1,2,3-Trichloropropane	18.29	1.0	20	0	91.4	73 - 122	18.72	2.35	20	
1,2,4-Trichlorobenzene	17.84	1.0	20	0	89.2	69 - 130	18.58	4.06	20	
1,2,4-Trimethylbenzene	18.06	1.0	20	0	90.3	76 - 124	18.65	3.24	20	
1,2-Dibromo-3-chloropropane	18.26	1.0	20	0	91.3	62 - 128	19.25	5.27	20	
1,2-Dibromoethane	17.01	1.0	20	0	85.1	77 - 121	17.08	0.404	20	
1,2-Dichlorobenzene	18.21	1.0	20	0	91.0	80 - 119	18.49	1.51	20	
1,2-Dichloroethane	15.31	1.0	20	0	76.6	73 - 128	15.42	0.719	20	
1,2-Dichloropropane	18.15	1.0	20	0	90.8	78 - 122	18.41	1.42	20	
1,3,5-Trimethylbenzene	18.61	1.0	20	0	93.1	75 - 124	19.37	4	20	
1,3-Dichlorobenzene	18.12	1.0	20	0	90.6	80 - 119	18.76	3.5	20	
1,3-Dichloropropane	17.92	1.0	20	0	89.6	80 - 119	18.15	1.27	20	
1,4-Dichlorobenzene	17.98	1.0	20	0	89.9	79 - 118	18.47	2.71	20	
2,2-Dichloropropane	14.43	1.0	20	0	72.1	60 - 139	14.81	2.6	20	
2-Butanone	37.14	2.0	40	0	92.9	56 - 143	36.83	0.85	20	
2-Chlorotoluene	18.73	1.0	20	0	93.6	79 - 122	19.43	3.66	20	
2-Hexanone	35.4	2.0	40	0	88.5	57 - 139	35.89	1.38	20	
4-Chlorotoluene	18.64	1.0	20	0	93.2	78 - 122	19.31	3.5	20	
4-Isopropyltoluene	18.96	1.0	20	0	94.8	77 - 127	19.62	3.42	20	
4-Methyl-2-pentanone	37.28	2.0	40	0	93.2	67 - 130	37.34	0.167	20	
Acetone	35.71	2.0	40	2.755	82.4	39 - 160	35.75	0.129	20	
Benzene	17.18	1.0	20	0	85.9	79 - 120	17.38	1.18	20	
Bromobenzene	17.21	1.0	20	0	86.1	80 - 120	17.29	0.443	20	
Bromochloromethane	16.05	1.0	20	0	80.2	78 - 123	16.09	0.298	20	
Bromodichloromethane	16.16	1.0	20	0	80.8	79 - 125	16.19	0.167	20	
Bromoform	16.6	1.0	20	0	83.0	66 - 130	16.93	1.97	20	

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051518-09MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:57**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096419** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	12.08	1.0	20	0	60.4	53 - 141	12.68	4.83	20	
Carbon disulfide	34.18	2.0	40	0	85.5	64 - 133	35.29	3.19	20	
Carbon tetrachloride	15.1	1.0	20	0	75.5	72 - 136	15.49	2.56	20	
Chlorobenzene	17.59	1.0	20	0	88.0	82 - 118	17.96	2.07	20	
Chloroethane	10.28	1.0	20	0	51.4	60 - 138	10.8	4.96	20	S
Chloroform	15.84	1.0	20	0	79.2	79 - 124	16.02	1.11	20	
Chloromethane	13.82	1.0	20	0	69.1	50 - 139	14.1	2.05	20	
cis-1,2-Dichloroethene	16.34	1.0	20	0	81.7	78 - 123	16.47	0.785	20	
cis-1,3-Dichloropropene	17.56	1.0	20	0	87.8	75 - 124	17.79	1.29	20	
Dibromochloromethane	16.34	1.0	20	0	81.7	74 - 126	16.76	2.53	20	
Dibromomethane	16.63	1.0	20	0	83.2	79 - 123	16.48	0.9	20	
Dichlorodifluoromethane	12.25	1.0	20	0	61.2	32 - 152	12.19	0.441	20	
Ethylbenzene	17.54	1.0	20	0	87.7	79 - 121	17.99	2.53	20	
Hexachlorobutadiene	16.21	1.0	20	0	81.0	66 - 134	16.41	1.23	20	
Isopropylbenzene	17.94	1.0	20	0	89.7	72 - 131	18.62	3.71	20	
m,p-Xylene	35.67	2.0	40	0	89.2	80 - 121	37.64	5.38	20	
Methylene chloride	16.7	2.0	20	0	83.5	74 - 124	17.06	2.17	20	
Naphthalene	18.75	1.0	20	0	93.7	61 - 128	19.15	2.14	20	
n-Butylbenzene	19.26	1.0	20	0	96.3	75 - 128	19.75	2.49	20	
n-Propylbenzene	19.41	1.0	20	0	97.0	76 - 126	19.91	2.59	20	
o-Xylene	18.25	1.0	20	0	91.2	78 - 122	19.17	4.91	20	
sec-Butylbenzene	19.53	1.0	20	0	97.6	77 - 126	20.05	2.64	20	
Styrene	17.35	1.0	20	0	86.8	78 - 123	18.04	3.85	20	
tert-Butylbenzene	19.28	1.0	20	0	96.4	78 - 124	19.89	3.09	20	
Tetrachloroethene	17.49	1.0	20	0	87.5	74 - 129	18.11	3.47	20	
Toluene	17.29	1.0	20	0	86.5	80 - 121	17.63	1.93	20	
trans-1,2-Dichloroethene	16.9	1.0	20	0	84.5	75 - 124	17.11	1.21	20	
trans-1,3-Dichloropropene	16.75	1.0	20	0	83.8	73 - 127	16.94	1.07	20	
Trichloroethene	16.68	1.0	20	0	83.4	79 - 123	16.78	0.599	20	
Trichlorofluoromethane	14.04	1.0	20	0	70.2	65 - 141	14.27	1.65	20	
Vinyl chloride	15.33	1.0	20	0	76.6	58 - 137	15.77	2.83	20	
Surr: 1,2-Dichloroethane-d4	*43.14*	*1.0*	*50*	*0*	*86.3*	*81 - 118*	*44.63*	*3.39*	*20*	
Surr: 4-Bromofluorobenzene	*52.51*	*1.0*	*50*	*0*	*105*	*85 - 114*	*53.05*	*1.03*	*20*	
Surr: Dibromofluoromethane	*45.73*	*1.0*	*50*	*0*	*91.5*	*80 - 119*	*46.04*	*0.662*	*20*	

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051518-09MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:57**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096419** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*51.45*	*1.0*	*50*	*0*	*103*	*89 - 112*	*52.18*	*1.41*	*20*	

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19051518-03MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:08**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096417** 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	16	1.0	20	0	80.0	78 - 124	16.94	5.75	20	
1,1,1-Trichloroethane	15.77	1.0	20	0	78.9	74 - 131	16.21	2.75	20	
1,1,2,2-Tetrachloroethane	18.64	1.0	20	0	93.2	71 - 121	19.84	6.25	20	
1,1,2-Trichlor-1,2,2-trifluoroethane	16.98	1.0	20	0	84.9	70 - 136	17.43	2.61	20	
1,1,2-Trichloroethane	17.14	1.0	20	0	85.7	80 - 119	17.67	3.05	20	
1,1-Dichloroethane	16.4	1.0	20	0	82.0	77 - 125	16.65	1.5	20	
1,1-Dichloroethene	15.22	1.0	20	0	76.1	71 - 131	15.81	3.81	20	
1,1-Dichloropropene	16.76	1.0	20	0	83.8	78 - 125	17.55	4.58	20	
1,2,3-Trichlorobenzene	19.56	1.0	20	0	97.8	69 - 129	19.58	0.132	20	
1,2,3-Trichloropropane	17.76	1.0	20	0	88.8	73 - 122	18.66	4.96	20	
1,2,4-Trichlorobenzene	17.76	1.0	20	0	88.8	69 - 130	18.28	2.88	20	
1,2,4-Trimethylbenzene	17.6	1.0	20	0	88.0	76 - 124	18.93	7.28	20	
1,2-Dibromo-3-chloropropane	17.77	1.0	20	0	88.8	62 - 128	19.02	6.8	20	
1,2-Dibromoethane	16.72	1.0	20	0	83.6	77 - 121	17.11	2.3	20	
1,2-Dichlorobenzene	17.52	1.0	20	0	87.6	80 - 119	18.72	6.62	20	
1,2-Dichloroethane	14.96	1.0	20	0	74.8	73 - 128	15.46	3.3	20	
1,2-Dichloropropane	17.36	1.0	20	0	86.8	78 - 122	18.06	3.96	20	
1,3,5-Trimethylbenzene	18.21	1.0	20	0	91.1	75 - 124	19.61	7.4	20	
1,3-Dichlorobenzene	17.5	1.0	20	0	87.5	80 - 119	18.68	6.53	20	
1,3-Dichloropropane	17.21	1.0	20	0	86.0	80 - 119	17.63	2.4	20	
1,4-Dichlorobenzene	17.31	1.0	20	0	86.5	79 - 118	18.75	8.03	20	
2,2-Dichloropropane	14.19	1.0	20	0	71.0	60 - 139	14.78	4.05	20	
2-Butanone	38.16	2.0	40	0	95.4	56 - 143	37.71	1.19	20	
2-Chlorotoluene	18.25	1.0	20	0	91.3	79 - 122	19.45	6.38	20	
2-Hexanone	34.49	2.0	40	0	86.2	57 - 139	34.73	0.689	20	
4-Chlorotoluene	17.96	1.0	20	0	89.8	78 - 122	19.4	7.68	20	
4-Isopropyltoluene	18.49	1.0	20	0	92.5	77 - 127	20.08	8.22	20	
4-Methyl-2-pentanone	34.87	2.0	40	0	87.2	67 - 130	34.58	0.835	20	
Acetone	34.32	2.0	40	9.727	61.5	39 - 160	34.33	0.0434	20	
Benzene	16.64	1.0	20	0	83.2	79 - 120	17.32	4.02	20	
Bromobenzene	16.49	1.0	20	0	82.5	80 - 120	18.11	9.37	20	
Bromochloromethane	15.54	1.0	20	0	77.7	78 - 123	15.66	0.776	20	S
Bromodichloromethane	15.66	1.0	20	0	78.3	79 - 125	15.97	1.97	20	S
Bromoform	15.86	1.0	20	0	79.3	66 - 130	16.37	3.2	20	

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument: VOA6** **Method: VOLATILES ORGANICS BY METHOD 8260C**

MSD Sample ID: **HS19051518-03MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:08**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096417** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD %RPD	RPD Limit	Qual
Bromomethane	13.12	1.0	20	0	65.6	53 - 141	13.66	4.03	20	
Carbon disulfide	33.34	2.0	40	0	83.3	64 - 133	34.53	3.51	20	
Carbon tetrachloride	14.98	1.0	20	0	74.9	72 - 136	15.71	4.74	20	
Chlorobenzene	16.88	1.0	20	0	84.4	82 - 118	17.85	5.63	20	
Chloroethane	8.901	1.0	20	0	44.5	60 - 138	10.9	20.2	20	SR
Chloroform	15.49	1.0	20	0	77.4	79 - 124	15.91	2.7	20	S
Chloromethane	13.38	1.0	20	0	66.9	50 - 139	13.85	3.4	20	
cis-1,2-Dichloroethene	15.64	1.0	20	0	78.2	78 - 123	16.2	3.51	20	
cis-1,3-Dichloropropene	17.05	1.0	20	0	85.2	75 - 124	17.56	2.94	20	
Dibromochloromethane	15.98	1.0	20	0	79.9	74 - 126	16.26	1.74	20	
Dibromomethane	15.85	1.0	20	0	79.3	79 - 123	16.34	3.07	20	
Dichlorodifluoromethane	12.72	1.0	20	0	63.6	32 - 152	13.44	5.44	20	
Ethylbenzene	17.06	1.0	20	0	85.3	79 - 121	18.08	5.82	20	
Hexachlorobutadiene	18.32	1.0	20	0	91.6	66 - 134	18.71	2.1	20	
Isopropylbenzene	17.44	1.0	20	0	87.2	72 - 131	18.21	4.32	20	
m,p-Xylene	34.79	2.0	40	0	87.0	80 - 121	36.3	4.25	20	
Methylene chloride	16.51	2.0	20	0	82.5	74 - 124	16.8	1.75	20	
Naphthalene	17.68	1.0	20	0	88.4	61 - 128	18.18	2.76	20	
n-Butylbenzene	18.98	1.0	20	0	94.9	75 - 128	20.28	6.65	20	
n-Propylbenzene	18.84	1.0	20	0	94.2	76 - 126	20.53	8.56	20	
o-Xylene	17.63	1.0	20	0	88.2	78 - 122	18.41	4.32	20	
sec-Butylbenzene	19.2	1.0	20	0	96.0	77 - 126	20.83	8.11	20	
Styrene	16.76	1.0	20	0	83.8	78 - 123	17.56	4.66	20	
tert-Butylbenzene	18.7	1.0	20	0	93.5	78 - 124	20.36	8.52	20	
Tetrachloroethene	19.95	1.0	20	3.611	81.7	74 - 129	21.28	6.46	20	
Toluene	16.52	1.0	20	0	82.6	80 - 121	17.17	3.91	20	
trans-1,2-Dichloroethene	16.3	1.0	20	0	81.5	75 - 124	16.95	3.95	20	
trans-1,3-Dichloropropene	16.21	1.0	20	0	81.0	73 - 127	16.6	2.36	20	
Trichloroethene	16.47	1.0	20	0	82.4	79 - 123	17.26	4.65	20	
Trichlorofluoromethane	14.34	1.0	20	0	71.7	65 - 141	14.95	4.15	20	
Vinyl chloride	15.29	1.0	20	0	76.5	58 - 137	16.35	6.72	20	
Surr: 1,2-Dichloroethane-d4	*44.45*	*1.0*	*50*	*0*	*88.9*	*81 - 118*	*43.66*	*1.8*	*20*	
Surr: 4-Bromofluorobenzene	*52.12*	*1.0*	*50*	*0*	*104*	*85 - 114*	*51.15*	*1.86*	*20*	
Surr: Dibromofluoromethane	*45.42*	*1.0*	*50*	*0*	*90.8*	*80 - 119*	*44.72*	*1.54*	*20*	

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: HS19051514

QC BATCH REPORT

Batch ID: R339360 (0) **Instrument:** VOA6 **Method:** VOLATILES ORGANICS BY METHOD 8260C

MSD Sample ID: **HS19051518-03MSD** Units: **UG/L** Analysis Date: **28-May-2019 20:08**
Client ID: Run ID: **VOA6_339360** SeqNo: **5096417** PrepDate: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Surr: Toluene-d8	*50.98*	*1.0*	*50*	*0*	*102*	*89 - 112*	*51.06*	*0.152*	*20*	

The following samples were analyzed in this batch: HS19051514-01 HS19051514-02 HS19051514-03

ALS Houston, US Date: 03-Jun-19

Client: Aptim Environmental & Infrastucture, Inc.
Project: LHAAP-50
WorkOrder: **HS19051514**

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
Illinois	004438	29-Jun-2019
Louisiana	03087	30-Jun-2019
Dept of Defense	ANAB L2231	20-Dec-2021
Kansas	E-10352 2018-2019	31-Jul-2019
Oklahoma	2018-156	31-Aug-2019
North Carolina	624-2019	31-Dec-2019
Maryland	343, 2018-2019	30-Jun-2019
Arkansas	19-028-0	27-Mar-2020
Texas	TX104704231-19-23	30-Apr-2020

ALS Houston, US Date: 03-Jun-19

Sample Receipt Checklist

Client Name: CBI-Houston
Work Order: HS19051514
Date/Time Received: **24-May-2019 09:00**
Received by: **NDR**

Checklist completed by: *Paresh M. Giga* eSignature 24-May-2019 Date
Reviewed by: *RJ Modashia* eSignature 24-May-2019 Date

Matrices: **GW/Water**
Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
VOA/TX1005/TX1006 Solids in hermetically sealed vials?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	1 Page(s)
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	COC IDs:LHAAP50-May2019-ALS
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):	4.5c U/C	IR11
Cooler(s)/Kit(s):	44853	
Date/Time sample(s) sent to storage:	5/24/19 14:40	

Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:
Contacted By: Regarding:

Comments:

Corrective Action:

APTIM

Page 1 of _____

COC ID: LHAAP50-MAY2019-ALS | TURNAROUND TIME: | RUSH:

PROJECT/CLIENT INFO				LABORATORY				OTHER INFO			
Facility Name	Longhorn AAP			Lab Name	ALS Laboratories			Email Invoice To	FedInvoices@aptim.com		
Project Number	501032			Lab Contact	RJ Modashia						
	LHAAP-50			Email	RJ.Modashia@alsglobal.com			Email Report To	Susan.Huang@aptim.com		
Address	1203-B East Grand Avenue			Address	10450 Stancliff Rd., Suite 210			Mail Reports To	Susan Huang		
	PMB 202							Address	4005 Port Chicago Highway, Suite 200		
City	Marshall	State	TX	City	Houston	State	TX	City	Concord	State	CA
Postal Code	75670	Country	USA	Postal Code	77099	Country	USA	Postal Code	94520	Country	USA
Phone Number	713.243.7264			Phone Number	281.575.2279 or 281.530.5656						
Project Manager	Praveen Srivastav							Shipping Company			

SAMPLE DETAILS / ANALYSIS REQUESTED

Sample ID	Location	Start Depth	End Depth	Depth Unit	Field Matrix	Date	Time (24hr)	# Of Cont.	ANALYSIS	Sample Container and Preservatives: Vocs by 8260B (3-40 ml VOA/HCL)	MEE by RSK175 (3-40 ml VOA/HCL)	CO2 by RSK175 (3-40 ml VOA/Cool to 6 deg C)	TOC by Sm5310C (2-40ml Amber/H2SO4)	Anions (chloride/sulfate/nitrate) by 9056 (1-250ml/Cool to 6 deg C)	Perchlorate by 6850 (1-125ml/Cool to 6 deg C)
SDWW15-190523	LHAAP 50	17.21	17.45		WG	5/23/19	1000	4		X					X
SDWW27-190523	LHAAP50	17.20	17.41		WG	5/23/19	1045	4		X					X
TRIP BLANK	LHAAP50				W	5/23/19		2		X					

HS19051514
Aptim Environmental & Infrastucture, Inc.
LHAAP-50

ADDITIONAL COMMENTS/SPECIAL INSTRUCTIONS	RELINQUISHED BY/AFFILIATION	DATE/TIME	ACCEPTED BY/AFFILIATION	DATE/TIME
	[illegible]/BHATE	5/23/19 1430	NR - Aus	5/24/19 09.20

44853 Temp 4.5 °C
UK # 11 of 9

ALS
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

u4853

CUSTODY SEAL

Date: 5/23/19 Time: 1430
Name: Scott Beesinger
Company: BHAT

Seal Broken By: SBM
Date: 05/24/19

u4853 MAY 24 2019

Must Deliver Next Business Day
Time and Tempature Sensitive!

u4853

ORIGIN ID:SGRA (903) 930-6193
SCOTT BEESINGER
APTIM ENVIROMENTAL & INFASTRUCTURE
1203-B EAST GRAND AVE
PMB 202
MARSHALL, TX 75670
UNITED STATES US

SHIP DATE: 24APR19
ACTWGT: 1.00 LB MAN
CAD: 300130/CAFE3211
DIMS: 26x14x14 IN

TO CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON TX 77099
(281) 530-5656
REF: LHAAP 50 - RJ

RMA:

FedEx Express

FedEx
TRK# 0271 4809 7833 1258

FRI - 24 MAY 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

FTD 152705 23MAY19 0SGA 553C1/D65C/8C0A

Case Narrative

Method: 6850
Analysis: Perchlorate
Analysis SOP: LC-MS-CLO4
ALS WO ID(s): 1914602, 1914603, 1914871, 1915147

Client: ALS Laboratories (Houston, TX)
Matrix: Water
ELMS Batch (HBN): 2256 (240075)

General Set Information: There were nine field samples in these Work Orders. The samples were analyzed for perchlorate.

Method Summary: Each sample was prepared as noted below and analyzed using an Agilent 1100 LC/MSD system in select ion monitoring (SIM) mode at m/z 83 and 85, which corresponds to the loss of one oxygen atom from the perchlorate molecule. ChemStation software was used for instrument control and data analysis. The ion ratio of m/z 83 to 85 was used to positively identify the response peak as perchlorate. Quantitation was performed using the m/z 83 peak area. An internal standard (ISTD) of ^{18}O labeled perchlorate was added to each sample to establish the perchlorate peak retention time and used in quantitation.

Sample Preparation: A 10.0mL aliquot of each sample was transferred into a 15-mL centrifuge tube. 50µL of an ^{18}O labeled perchlorate solution was added to each sample as an internal standard. The samples were then capped, vortexed, and filtered into autosampler vial using Phenex PES membrane 0.45µm Syringe filters.

Holding Times: Holding times were met for all analyses.

Dilutions: Field samples 1914603004/05 was analyzed and reported from a 1:10,000 dilutions. The reporting limits have been adjusted accordingly.

Method QC data: The method blank (LMB 655029) was less than 1/2 the CRDL. The recovery for the LCS (655030) was within acceptable parameters.

MS/MSD Analysis: MS/MSD was performed on sample 1914602001 (Client ID: LH18/24-SP650_051419_BIX). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. The spike target was 5.µg/L. The MS/MSD percent recoveries and relative percent difference (RPD) were within the performance limits.

Instrument QC: Instrument initial and continuing calibrations were performed in accordance with published procedures.

NC/CAR(s): NA

Sample Calculation: Samples were reported in µg/L. Results were calculated in µg/L by the equation (A)x(B),

where: A = Analyte concentration from the standard curve (µg/L)
B = Dilution performed at time of analysis

Miscellaneous Comments: These samples were analyzed in accordance with the requirements found in the DOD QSM Version 5.1.1. The Reporting Limit Verification Standard (RLVS – 655027) is reported from the analysis of the Laboratory Control Sample (LCS – 655030) at a level of 4.0µg/L. Due to limitations of the Chemstation Software, some of the chromatographic peaks may require manual integrations. A manual integration was performed for one of the Initial Calibration analyses (datafile: 19MARI03).

Thomas Bosch May 30, 2019
Analyst Date

ANALYTICAL REPORT

Report Date: May 30, 2019

RJ Modashia
ALS Environmental (Houston)
10450 Stancliff Road
Suite 210
Houston, TX 77099

Phone: 281 530-5656

E-mail: RJ.Modashia@ALSGlobal.com

Workorder: **34-1915147**
Project ID: HS19051514
Purchase Order: HS19051514
Project Manager Kevin W. Griffiths

Client Sample ID	Lab ID	Collect Date	Receive Date	Sampling Site
50WW15-190523	1915147001	05/23/19	05/25/19	TEXAS
50WW27-190523	1915147002	05/23/19	05/25/19	TEXAS

ANALYTICAL REPORT

Workorder: 34-1915147
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

Analytical Results

Sample ID: **50WW15-190523** | Sampling Site: TEXAS | Collected: 05/23/2019
Lab ID: 1915147001 | Media: 125 mL Nalgene | Received: 05/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 12:22 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Sample ID: **50WW27-190523** | Sampling Site: TEXAS | Collected: 05/23/2019
Lab ID: 1915147002 | Media: 125 mL Nalgene | Received: 05/25/2019
Matrix: Water | Sampling Parameter: NA

Analysis Method - EPA 6850, DoD QSM

Preparation: Not Applicable
Analysis: EPA 6850, DoD QSM Water | **Instrument ID:** LCMS04
Batch: ELMS/2256 (HBN: 240075) | **Percent Solid:** NA
Analyzed: 05/28/2019 12:35 | **Report Basis:** Wet

Analyte	Result (ug/L)	DL (ug/L)	LOD (ug/L)	LOQ (ug/L)	Dilution	Qual
Perchlorate	ND	1.0	2.0	4.0	1	U

Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Method	Analyst	Peer Review
EPA 6850, DoD QSM	/S/ Thomas Bosch 05/29/2019 10:39	/S/ Stephen Brose 05/30/2019 11:52

Laboratory Contact Information

ALS Environmental
960 W Levoy Drive
Salt Lake City, Utah 84123

Phone: (801) 266-7700
Email: alslt.lab@ALSGlobal.com
Web: www.alsslc.com

ANALYTICAL REPORT

Workorder: 34-1915147
Client: ALS Environmental (Houston)
Project Manager: Kevin W. Griffiths

General Lab Comments

The results provided in this report relate only to the items tested.
Samples were received in acceptable condition unless otherwise noted.
Samples have not been blank corrected unless otherwise noted.
This test report shall not be reproduced, except in full, without written approval of ALS.

ALS provides professional analytical services for all samples submitted. ALS is not in a position to interpret the data and assumes no responsibility for the quality of the samples submitted.

All quality control samples processed with the samples in this report yielded acceptable results unless otherwise noted.

ALS is accredited for specific fields of testing (scopes) in the following testing sectors. The quality system implemented at ALS conforms to accreditation requirements and is applied to all analytical testing performed by ALS. The following table lists testing sector, accreditation body, accreditation number and website. Please contact these accrediting bodies or your ALS project manager for the current scope of accreditation that applies to your analytical testing.

Testing Sector	Accreditation Body (Standard)	Certificate Number	Website
Environmental	PJLA (DoD ELAP)	L17-506	http://www.pjlabs.com
	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com
	Utah (TNI)	UT00953	http://lams.nelac-institute.org/search
	Nevada (TNI)	UT00953201-1	https://ndep.nv.gov/water/lab-certification
	Iowa (TNI)	IA# 376	http://www.shl.uiowa.edu/labcert/idnr/
	Kansas	E-10416	http://www.kdheks.gov/envlab/disclaimer.html
	Oklahoma (TNI)	IJ# 9980	http://www.deq.state.ok.us/CSDnew/labcert.htm
	Texas (TNI)	T104704456-18-9	https://www.tceq.texas.gov/assets/public/compliance/compliance_support/qa/txnelap_lab_list.pdf
Industrial Hygiene	AIHA (ISO 17025 & AIHA IHLAP)	101574	http://www.aihaaccreditedlabs.org
	DOECAP-AP	L18-606	http://www.pjlabs.com
	Washington	C596	https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Laboratory-Accreditation
Dietary Supplements	PJLA (ISO 17025)	L17-507-R1	http://www.pjlabs.com

Result Symbol Definitions

MDL = Method Detection Limit, a statistical estimate of method/media/instrument sensitivity.
RL = Reporting Limit, a verified value of method/media/instrument sensitivity.
CRDL = Contract Required Detection Limit
Reg. Limit = Regulatory Limit.
ND = Not Detected, testing result not detected above the MDL or RL.
< Means this testing result is less than the numerical value.
** No result could be reported, see sample comments for details.

Qualifier Symbol Definitions

U = Qualifier indicates that the analyte was not detected above the MDL.
J = Qualifier Indicates that the analyte value is between the MDL and the RL. It is also used to indicate an estimated value for tentatively identified compounds in mass spectrometry where a 1:1 response is assumed.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds calibration range.
P = Qualifier indicates that the RPD between the two columns is greater than 40%.

Quality Control Sample Batch Report

Analysis Information

Workorder: 1915147

Limits:	Client SOW/Contract Specified	**Preparation:**	NA	**Analysis:**	EPA 6850, DoD QSM
Basis:	DoD QSM	**Batch:**	NA	**Batch:**	ELMS/2256 (HBN: 240075)
		Prepared By:	NA	**Analyzed By:**	Thomas Bosch

Blank

LMB: 655029
Analyzed: 05/28/2019 10:08
Units: ug/L

Analyte	Result	MDL	RL
Perchlorate	ND	1	2.00

Laboratory Control Sample

LCS: 655030
Analyzed: 05/28/2019 09:39
Dilution: 1
Units: ug/L

Analyte	Result	Target	% Rec	QC Limits	
Perchlorate	4.20	4.00	105	78.8	123.8

Matrix Spike - Matrix Spike Duplicate

Sample:	1914602001	**MS:**	655031				**MSD:**	655032			
Analyzed:	05/28/2019 10:21	**Analyzed:**	05/28/2019 10:34				**Analyzed:**	05/28/2019 10:48			
Dilution:	1	**Dilution:**	1				**Dilution:**	1			
Units:	ug/L	**Units:**	ug/L				**Units:**	ug/L			

Analyte	Result	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
Perchlorate	ND	5.09	5	102	78.8	123.8	4.88	97.7	4.08	0.0	20.0

QC Report Authorization (/S/ is an electronic signature that complies with 21 CFR Part 11)

Analyst	Peer Review
/S/ Thomas Bosch 05/29/2019 13:04	/S/ Stephen Brose 05/30/2019 11:52

Symbols and Definitions

✱ - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
◆ - Sample and Matrix Duplicate less than 5 times the reporting limit
● - Result is above the calibration range
- The Matrix Spike, Matrix Spike duplicate or Matrix Duplicate is reported for your information only. The sample matrix may be inappropriate for the method selected.

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

1915147

1915147

RUSH

10450 Stancliff Rd, Ste 210
Houston, TX 77099
T: +1 281 530 5656
F: +1 281 530 5887
www.alsglobal.com

Subcontract Chain of Custody

SAMPLING STATE: **Texas** **COC ID:** **11402**

SUBCONTRACT TO:

ALS Laboratory Group
960 LeVoy Dr
Salt Lake City, UT 84123

Phone: +1 801 266 7700

CUSTOMER INFORMATION:

Company:	ALS Houston
Contact:	RJ Modashia
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Email:	RJ.Modashia@alsglobal.com
Alternate Contact:	
Email:	

INVOICE INFORMATION:

Company:	ALS Houston
Contact:	Accounts Payable
Address:	10450 Stancliff Rd, Ste 210
Phone:	+1 281 530 5656
Reference:	HS19051514
TSR:	Sonia West

	LAB SAMPLE ID	CLIENT SAMPLE ID	MATRIX	COLLECT DATE
	ANALYSIS REQUESTED			DUE DATE
1.	**HS19051514-01**	**50WW15-190523**	**Groundwater**	**23 May 2019 10:00**
	SUB_Perch-6850			30 May 2019
2.	**HS19051514-02**	**50WW27-190523**	**Groundwater**	**23 May 2019 10:45**
	SUB_Perch-6850			30 May 2019

Comments: Please analyze for the analysis listed above.
Send report to the emails shown above.

QC Level: DOD IV (DoD Data Package)

Relinquished By: _____ Date/Time: 5/24/19 1800.

Received By: _____ Date/Time: 5/25/2019 910

Cooler ID(s): 9441 Temperature(s): 2

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: HS19051514	Split:	Workorder ID: 1915147	Level: ENV_LVL4	Requested Analysis
Client: ALS Environmental (Houston)		Account: 8101	Type: 125Poly	
Comments:			Preservatives	
			COOL	

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	EPA 6850, DoD QSM
1	05/23/2019 10:00	50WW15-190523	1915147001		Water	A	1	A
2	05/23/2019 10:00	50WW27-190523	1915147002		Water	A	1	A
3								
4								
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Edwards, Meredith D.	05/25/2019 09:10	ALS Sample Receiving	Sample Login
Meredith Edwards	5/25/2019 1016	JB	Storage
R.33.1	5.28.19 08.15	T Boone	6850

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS-Salt Lake City-Related Information Report (CRIR)

Cooler or Container Information Checklist (Fill In or Circle)

Client Name: ALS Houston — Project/Task/Site: 1915147

Date/Time of Receipt: 5/25/19 910 — Number of Coolers Received: 1

Condition of Coolers:	Acceptable/Unacceptable	Temperature Control:	Present/Not Included
Cooler Custody Seals:	Present/Absent/NA Intact/Broken/NA	Location Temp Taken:	Control/Between Samples
Container Custody Seals:	Present/Absent/NA Intact/Broken/NA	Are all temperatures within project specific guidelines?	Yes/No/NA
Ice Present:	Yes/No/NA Frozen/Melted/NA	VOA Headspace Present?	Yes/No/NA

pH Check Performed:							
	Metals	Yes/No/NA	Total Phenolics	Yes/No/NA	NO3/NO2	Yes/No/NA
	Cyanide	Yes/No/NA	TPH – 418.1	Yes/No/NA	Oil & Grease	Yes/No/NA
	Sulfide	Yes/No/NA	COD	Yes/No/NA	Total Phosphorous	Yes/No/NA
	Ammonia	Yes/No/NA	TKN	Yes/No/NA	Gross A.B, Gamma Spec	Yes/No/NA

Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.	Cooler Received	DCL Cooler No.	Temp.
1	C19 9441	2 °C	4	C19	°C	7	C19	°C
2	C19	°C	5	C19	°C	8	C19	°C
3	C19	°C	6	C19	°C	9	C19	°C

Taken By: Meredith Edmonds (Signature) — Meredith Edmonds (Printed Name) — 5/27/19 (Date)

Client-Related Information

☐ Missing Cooler	☐ Missing Samples/Bottles	☐ Incorrect Preservation	☐ Insufficient Sample Volume
☐ Cooler Conditions	☐ Broken/Leaking Samples	☐ pH Criteria Not Met	☐ Chain of Custody Problems
☐ Missing Paperwork	☐ Incorrect Bottle Type	☐ Residual Chlorine Present	☐ Other:
☐ Missing/Incorrect Bottle Labels	☐ Cooler Temperatures Out of Range	☐ Head Space in Bottles	

Briefly Describe the Problem and the Action Taken:

Client Notified? YES ☐ NO ☐

Response Required Within 24 Hours

Project Management

Project Manager Comments:

ALS Project Manager: _____ (Printed Name) Returned to Sample Receipt by: _____ (Signature) Date: _____

CRIR.doc — Revised 01/01/2018

Must Deliver Next Business Day
Time and Tempature Sensitive!

ALS

ORIGIN ID:SGRA (281) 530-5656
CLIENT SERVICES
ALS LABORATORY GROUP
10450 STANCLIFF ROAD
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 24MAY19
ACTWGT: 10.50 LB
CAD: 300130/CAFE3211
DIMS: 14x11x10 IN

BILL THIRD PARTY

TO SAMPLE RECEIVING
ALS ENVIRONMENTAL
960 W. LEVOY DRIVE

SALT LAKE CITY UT 84123
(801) 266-7700
REF: HS19051514 - RJ

FedEx Express

TRK# 0201 4809 7834 3582

SATURDAY 12:00P
PRIORITY OVERNIGHT

XO BTFA

84123
UT-US SLC

Part # 158469-434 RITZ EXP 01/20

551C1/D66C/104C

J1811180605U1uv

Batch Worklist

Batch: ELMS/ 2256 **Created:** 5/28/2019 08:41 **Instrument:** **HBN:** 240075
Rule: EPA 6850, DoD QSM Water **Analyst:** T. Bosch **Status:** WP

Workorder: 1914602 [ENV_LVL4]
Workorder: 1914603 [ENV_LVL4]
Workorder: 1914871 [ENV_LVL4]
Workorder: 1915147 [ENV_LVL4]

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	655026	CCV for HBN 240075 [ELMS/2256]				CCV	3		E685041C3Q	5311		5/29/2019	
2	655027	RLVS for HBN 240075 [ELMS/2256				RLVS	3		E685041C3Q	5311		5/29/2019	
3	655028	ICS for HBN 240075 [ELMS/2256]				ICS	3		E6850..D3Q	5311		5/29/2019	
4	655029	LMB for HBN 240075 [ELMS/2256]				LMB	3		E6850Q413Q	5311		5/29/2019	
5	655030	LCS for HBN 240075 [ELMS/2256]				LCS	3		E6850Q413Q	5311		5/29/2019	
6	1914602001	LH18/24-SP650_051419_BIX				SAMPLE	3	1914602001-A	E6850Q41.3	5480	6/11/2019	5/31/2019	
7	655031	LH18/24-SP650...(1914602001MS)				MS	3		E6850Q413Q	5311		5/29/2019	
8	655032	LH18/24-SP65...(1914602001MSD)				MSD	3		E6850Q413Q	5311		5/29/2019	
9	1914603001	50WW18-190516				SAMPLE	3	1914603001-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
10	1914603002	50WW17-190516				SAMPLE	3	1914603002-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
11	1914603003	50WW21-190516				SAMPLE	3	1914603003-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
12	1914603004	50WW12-190516				SAMPLE	3	1914603004-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
13	1914603005	50WW12-190517-FD				FLDDUP	3	1914603005-A	E6850Q41.3	5480	6/13/2019	5/31/2019	
14	1914871001	LH18/24-SP650_05119_BIX				SAMPLE	3	1914871001-A	E6850Q41.3	5480	6/18/2019	6/6/2019	
15	1915147001	50WW15-190523				SAMPLE	3	1915147001-A	E6850Q41.3	5480	6/20/2019	5/29/2019	
16	1915147002	50WW27-190523				SAMPLE	3	1915147002-A	E6850Q41.3	5480	6/20/2019	5/29/2019	
17	655033	CCV for HBN 240075 [ELMS/2256]				CCV	3		E685041C3Q	5311		5/29/2019	

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Analytical Documentation

ALS Work Order #'s & Sample #( )'s: 1914602 (001), 1914603 (001-05), 1914871 (001), 1915147 (001)
ELMS Batch/HBN ID: 2256 (240075)
Prep Date: 05/24/2019 Analysis Date: 05/28/2019 Analyst: T. Bosch
Analyte: **Perchlorate** Matrix: **Water** Method: **6850**
Sequence: \\HPCHEM\1\SEQUENCE\CLO4\2019\MAY\28MAY19D.s
Reported DL: **1.0µg/L** Reported LOD: **2.0µg/L** Reported LOQ: **4.0µg/L**

SAMPLE PREPARATION/ANALYSIS:

Water: Samples were prepared by Thomas Bosch. 10.0mL of each sample was pipetted into a 15-mL centrifuge tube, and 50µL of an oxygen-18 labeled perchlorate solution was added as an internal standard. The samples were capped, vortexed, and filtered with Phenex PES membrane 0.45µm Syringe filters prior to analysis.

REAGENTS: Eluent A1: 95% ASTM Type II water (ALS)/ 5% ACN (B&J Lot AH015-4)/0.1% glacial acetic acid (JT-Baker Lot 04802).
Eluent B1: 95% ACN (B&J Lot AH015-4)/ 5% ASTM Type II water (ALS)/0.1% glacial acetic acid (JT-Baker Lot 04802).

STANDARDS: Internal Standard Spiking Solution Horizon# 43730. Dilutions of Working Standard Solution ID 43702 used for CCV's, LODV's, RLVS and IPC.

CALIBRATION CURVE: Used curve from 03/19/2019, sequence 19MAR19D.s Offline Quantitation Method: CLO4-DP2.M

INSTRUMENT CONDITIONS: Samples were analyzed with an Agilent 1100 LC/MSD system, in negative SIM mode, monitoring m/z 83, 85, and 89.
Instrument ID: LCMS04 Online Acquisition Method: CLO4-AQN.M Fragmentor: 160 Output Gain: 7 Injection Volume: 35µL
Column: KP-RPPX C8 separator, 250mm Mobile Phase: 70% Eluent A1; 30% Eluent B1

FLOW GRADIENT:

Time (min.)	Flow (mL/min)
0	0.65
5.8	0.65
5.9	0.25
10.3	0.25
10.5	0.65
12.0	0.65

QC DATA: 4.0µL of QC Solution Horizon ID 47516 was used for LCS 655030; Target = 4.0µg/L. ASTM type II water was used for LMB 655029.

MS/MSD: The Matrix Spike and duplicate (MS/MSD) were performed on sample 1914602001 (Client ID: LH18/24-SP650_051419_BIX). 5.0µl of Working Standard Solution Horizon ID 43701 was added to 10.0mL of sample preparation. Spike target = 5.0µg/L.

COMMENTS:
1) Results reported in µg/L. Field samples 1914603004/05 required 1:10,000 dilutions. The reporting limits have been adjusted accordingly.
2) All QC, Blank, CCV, and MS/MSD results were within method parameters.
3) Sample data can be viewed at two directories within the ALS system: \\ALSLTWS013\LCMS\LCMS04\2019\MAY\HBN# or through NuGenesis\Tree\PrintData\LCMS\DefaultView.
4) Notebook: \\alsltws013\ORGANIC\BOSCH\LCMS\Perchlorates\Waters\2019\240075-DoD-ALS-Hstn LCMS4 or through \\ALSLTWS013\DATAREVIEW\HBN#
5) The Reporting Limit Verification Standard (RLVS – 655027) is reported from the analysis of the Laboratory Control Sample (LCS – 655030) at a level of 4.0µg/L.
6) Due to limitations of the Chemstation Software, some of the chromatographic peaks require manual integration. Manual Integrations were performed for one of the Initial Calibration analyses (datafile: 19MARI03).

5.5 Chromatography (GC, HPLC and LC/MS) Technical Review

Note: It is the peer reviewer's responsibility to ensure that appropriate criteria are used as defined in the HORIZON PROFILE. The evaluation criteria are prioritized as per Section 2.2 of this SOP. These items must be checked for all projects. The following checklist will be completed by both the analyst and the peer reviewer and scanned into the HBN folder with the raw data.

Chromatography (GC, HPLC, LC/MS) Technical Review Criteria Batch(es)/SDG: ELMS: 2256 HBN: 240075 Sample Set IDs if Applicable: 1914602 1914603 1914871 / 1915147	Analyst Initials	Reviewer Initials
Calibration standards analyzed and meets criteria	TB	SB
Standards traceability checked and meets criteria	TB	SB
Standard curve coefficients evaluated and meet criteria	TB	SB
ICVs analyzed and meet acceptance criteria	TB	SB
CCVs analyzed and meet acceptance criteria	TB	SB
Method Blanks analyzed and meet acceptance criteria	TB	SB
Retention Time Windows checked	TB	SB
For method 8081A, Endrin/DDT Breakdown is checked for compliance	—	—
Surrogate recoveries checked and appropriately addressed	—	—
Method Preparation Blanks analyzed and meet acceptance criteria	TB	SB
MSs, MSDs, and/or MDs analyzed and calculations checked; applicable flags applied on QC reports; LCSs analyzed and meet acceptance criteria when performed	TB	SB
RLVS analyzed	TB	SB
Preparation and analysis hold times met	TB	SB
Preparation deviations and re-preparations noted when performed	TB	SB
Analysis deviations and re-analyses noted when performed	TB	SB
Sample dilution factors noted on reports	TB	SB
Electronic records in HBN transcription accuracy and completeness checked	TB	SB
Preparation and analysis calculations checked	TB	SB
NCRs are completed as necessary NC/CAR#		
Report forms are complete and accurate	TB	SB
Manual integrations checked	TB	SB

STANDARD REPORT

Working Standard - CLO4 WRK

CLO4 WRK — Description - 6850 WKG Std 100.ug/L

Standard: 43702
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 WRK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43701	CLO4 INT	6850 Intermdt AccStd 10.ug/mL	CLO4 INT	0.1 mL	09/18/2019

STANDARD REPORT

Constituent

Stock Standard - CLO4 STOCK

CLO4 STOCK		Description - 6850 Stock AccStd 1,000ug/mL
Standard: 43659	Created By: Thomas Bosch	Amount: 100 mL
MFG: AccuStandard	Create Date: 09/17/2018 09:09AM	Expires: 07/25/2020
MFG Lot: 218065075		Usable: No
Part ID: IC-PER-10X-1		Lab Lot: CLO4 STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Working Standard - CLO4 INT

CLO4 INT — Description - 6850 Intermdt AccStd 10.ug/mL

Standard: 43701
MFG: ALS/SLC
MFG Lot: TNB: 09/18/2018
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 09/18/2018 02:09PM

Amount: 10 mL
Expires: 09/18/2019
Usable: Yes
Lab Lot: CLO4 INT

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
43659	CLO4 STOCK	6850 Stock AccStd 1,000ug/mL	CLO4 STOCK	0.1 mL	07/25/2020

STANDARD REPORT

Working Standard - CLO4 QC WRK

CLO4 QC WRK — **Description - 6850 QC WKG STD 100ug/L**

Standard: 47516
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC WRK 100.ug/L

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	100 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
47515	CLO4 QC INT	6850 QC Intrmdt Std-QC 10ug/mL	CLO4 QC INT 10.ug/mL	0.1 mL	03/31/2020

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O		Description - ASTM Type II Water
Standard: 109	Created By: ALS Support (Lims)	Amount: 1000 L
MFG: DCL In House	Create Date: 10/06/2005 09:10AM	Expires: 11/07/2025
MFG Lot: Not Provided		Usable: Yes
Part ID: Not Provided		Lab Lot: LAB 109

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - CLO4 QCSTOCK

CLO4 QCSTOCK — **Description - 6850 QC Stock STD 1,000ug/mL**

Standard: 36748
MFG: Ultra Scientific
MFG Lot: CP-0860
Part ID: ICC-013

Created By: Thomas Bosch
Create Date: 05/11/2017 01:05PM

Amount: 100 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC STOCK

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - CLO4 QC INT

CLO4 QC INT — **Description - 6850 QC Intrmdt Std-QC 10ug/mL**

Standard: 47515
MFG: ALS/SLC
MFG Lot: TNB: 05/06/2019
Pipette ID: Not Provided

Created By: Thomas Bosch
Create Date: 05/06/2019 03:05PM

Amount: 10 mL
Expires: 03/31/2020
Usable: Yes
Lab Lot: CLO4 QC INT 10.ug/mL

Pos.	Analyte	Name	Concentration
1	14797-73-0	Perchlorate	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	9.9 mL	11/07/2025
36748	CLO4 QCSTOCK	6850 QC Stock STD 1,000ug/mL	CLO4 QC STOCK	0.1 mL	03/31/2020

STANDARD REPORT

Working Standard - CLO4ISTDWRK

CLO4ISTDWRK — Description - Perchlorate ISTD Wrk 1,000ug/L

Standard: 43730	**Created By:** Thomas Bosch	**Amount:** 25 mL
MFG: ALS/SLC	**Create Date:** 09/20/2018 09:09AM	**Expires:** 09/20/2019
MFG Lot: TNB: 05/09/2018	**Verified By:** Thomas Bosch	**Usable:** Yes
Pipette ID: Not Provided	**Verify Date:**	**Lab Lot:** CLO4ISTDWRK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	1000 ug/L
2	14797-73-0-89	Perchlorate 89	1000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
43729	CLO4ISTDSTK	Perchlorate ISTD Stock	CLO4ISTDSTK	0.25 mL	04/28/2026

STANDARD REPORT

Constituent

Stock Standard - CLO4ISTDSTK

CLO4ISTDSTK — Description - Perchlorate ISTD Stock

Standard: 43729
MFG: Cambridge Isotope
MFG Lot: SDFF-012A
Part ID: OLM-7310-S

Created By: Thomas Bosch
Create Date: 09/20/2018 09:09AM
Verified By: Thomas Bosch
Verify Date:

Amount: 1 mL
Expires: 04/28/2026
Usable: Yes
Lab Lot: CLO4ISTDSTK

Pos.	Analyte	Name	Concentration
1	14797-73-0-8385	Perchlorate 83:85 Ratio	100 ug/mL
2	14797-73-0-89	Perchlorate 89	100 ug/mL

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Product Name: Perchlorate IC Standard

Description:
This Reference Material (RM) was gravimetrically prepared in accordance with ISO Guide 34 and under ULTRA Scientific's ISO 9001 registered quality system. The neat materials used for this product have been verified by ULTRA's ISO 17025 laboratory and under ULTRA's ISO Guide 34 accreditation. The analyte concentrations were verified by ULTRA's ISO 17025 accredited laboratory. For each analyte, the true value, with its uncertainty value calculated at the 95% confidence level, is reported below.

Analyte	Starting Material	Lot Number	Purity (%)	Calculated Value	True Value	Traceability & Method
perchlorate	potassium perchlorate	RM07987	100	1001 ± 5 µg/mL	976 ± 6 µg/mL	NIST SRM 3141A; ICP-OES

Solvent: water (low TOC, < 50 ppb)

Storage: Store at Room Temperature (15° to 30°C).

Traceability:
Traceability has been established through an unbroken chain of comparisons, each having stated uncertainties. Comparisons are based on appropriate physical or chemical measurements, including gravimetric or volumetric dilution, where the mass or volume of a solution before and after dilution is measured. The balances used for these measurements are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1, ISO 9001, ISO 17025, and ISO Guide 34. Calibrated Class A glassware is used for volumetric measurements. Thermometers are calibrated against a NIST traceable thermometer in accordance with NIST Special Publication 819.

Estimation of Uncertainties:
The true value is reported, with its uncertainty value calculated at the 95% confidence level.

Homogeneity:
This RM was formulated and unitized according to an in-house procedure and is guaranteed to be homogeneous. There is no minimum sub-sample size required.

Intended Use:
This RM is intended for the preparation of working reference samples for use in routine laboratory analyses, calibration of instruments, validation of analytical methods, assessments of measurement methods and continuing calibration verification.

Instructions for Use:
Sample aliquots for analysis should be withdrawn at 20°C to 25°C immediately after opening and should be processed without delay for the true value to be valid within the stated uncertainties. Do not pipet from the bottle. Do not return any material removed for pipetting to the bottle. Tightly cap the bottle after removing any material and store according to the instructions noted above.

Hazards:
Refer to the Safety Data Sheet for information regarding this RM.

Expiration of Certification:
The certification of this RM is valid, within the measurement uncertainty specified, until the expiration date specified above, provided the RM is handled and stored in accordance with the instructions given in this certificate. This certification is nullified if the RM is damaged, contaminated, or otherwise modified.

ANAB ACCREDITED ANAB ACCREDITED

ULTRA SCIENTIFIC
Analytical Solutions

Certificate of Analysis

ISO Guide 34 Reference Material

Product Number: ICC-013
Lot Number: CP-0860

Lot Issue Date: 29-Feb 2016
Expiration Date: 31-Mar 2020

Maintenance of Certification:
The real-time, long term stability of the RM may be monitored over the lifetime of the certification. If substantive changes occur that affect the certification before the expiration of this certificate, ULTRA Scientific will notify the purchaser.

Peter A. King, Ph.D.
VP, Technical Operations

Daniel J. Lamendola
Director of QA/RA

125 Market Street
New Haven, CT 06513
USA

AccuStandard®

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

S 43659

AccuTrace™ Reference Standard

Catalog No: IC-PER-10X-1
Description: Perchlorate Standard
Element: Perchlorate (ClO_4)
SRM: Ind. Std.
Lot: 218065075
Matrix: Water
Hazards: *Refer to SDS for complete safety information*

Date Certified: Jun 25, 2018
Expiration: Jul 25, 2020
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)
Included on ISO/IEC 17025 Scope of Accreditation: Yes
Included on ISO 17034 Scope of Accreditation: Yes

GHS

Signal Word: None

Component		SRM #	Prepared Concentration (µg/mL)
ClO_4	Perchlorate	Ind. Std.	1000

The gravimetric uncertainty for this product is ±0.24%.
The final solution was checked against an independent standard to verify its concentration.
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as ASTM Type I 18 megohm deionized water.
All solutions are filtered through a 0.2 µm filter prior to being bottled.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

Cambridge Isotope Laboratories, Inc.

Certificate of Analysis

Quality Standards:
ISO Guide 34 • ISO/IEC 17025 • ISO 13485 • cGMP

23118

Product Name: (Isotopic Label & Enrichment Specification)	PERCHLORIC ACID, SODIUM SALT (18O4, 90%+) 100 UG/ML IN WATER
Lot Number:	SDDG-013
Catalog Number:	OLM-7310-S

Product Information

Chemical Purity Specification:	≥98%
Labeled CAS Number:	NA
Unlabeled CAS Number:	7601-89-0
MW*:	130.4
Chemical Formula:	NaCl*O4
Storage:	Store at room temperature away from light and moisture.
Stability:	See storage and expiration date.

Certification

Cambridge Isotope Laboratories, Inc. guarantees that this material meets or exceeds the specifications stated. Absolute identity as well as chemical and isotopic purities are assured by the use of unambiguous synthetic routes and multiple chemical analyses whenever possible. Results are representative of QC testing at time of release from Quality Control unless otherwise stated.

Volumetric measurements were made with Class A glassware. Gravimetry is traceable to the NIST through calibrated balances and certified, calibrated, standard weights. The calibrations are traceable to the NIST under Test No. 822/270236-04. The calibrations also meet specifications outlined in ISO 9001, ISO/IEC 17025, ANSI/NSCL Z540-1-1994, NCR Document 10CFR50 Appendix B, and applicable subdocuments.

This COA references the bulk catalog number before packaging. The COA also applies to the CIL finished good catalog number. Some possible packaging sizes and their corresponding suffix are -1.2, -1, -0.5, -10, or -0.1.

* *For isotopically labeled compounds, MW listed is for the fully enriched product.*

Approved by: T. J. Eckersley

Timothy I. Eckersley, Ph.D., Quality Assurance

Quality Control Tests and Results

QC Release Date	2/27/2014
Expiration Date	2/27/2024
Concentration Based on Gravimetry	102 µg/mL
Chemical Purity of Neat Material(s)	98%
LC/MS for Concentration	109.4 ± 2.8 µg/mL (k=2)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
*	655026 CCV@25	Vial 71	1	Control	1	2.51535e6	9.014	26.37917
*	655030 QC@4.0	Vial 72	1	Control	2	4.51078e5	8.943	4.19596
*	655028 ICS@4.0	Vial 73	1	Control	3	4.02631e5	8.668	4.27965
*	655029 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1914602001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	655031 146021S	Vial 76	1	Sample	6	4.52005e5	8.454	5.08666
*	655032 146021D	Vial 77	1	Sample	7	4.57024e5	8.493	4.88333
*	1914603001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1914603002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	1914603003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	1914603004 10K	Vial 81	1	Sample	11	6.15140e5	9.032	6.46842e4
*	1914603005 10K	Vial 82	1	Sample	12	7.46250e5	9.051	7.56269e4
*	1914871001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1915147001	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1915147002	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	655033 CCV@25	Vial 71	1	Control	16	2.26382e6	9.030	25.44543

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
*	655026 CCV@25	Vial 71	1	Control	1	7.44700e5	9.032	26.32416
*	655030 QC@4.0	Vial 72	1	Control	2	1.45202e5	8.967	4.39774
*	655028 ICS@4.0	Vial 73	1	Control	3	1.38337e5	8.681	4.78850
*	655029 LMB	Vial 74	1	Control	4	0.00000	0.000	0.00000
*	1914602001	Vial 75	1	Sample	5	0.00000	0.000	0.00000
*	655031 146021S	Vial 76	1	Sample	6	1.50468e5	8.472	5.54931
*	655032 146021D	Vial 77	1	Sample	7	1.53323e5	8.504	5.36140
*	1914603001	Vial 78	1	Sample	8	0.00000	0.000	0.00000
*	1914603002	Vial 79	1	Sample	9	0.00000	0.000	0.00000
*	1914603003	Vial 80	1	Sample	10	0.00000	0.000	0.00000
*	1914603004 10K	Vial 81	1	Sample	11	1.94510e5	9.049	6.75291e4
*	1914603005 10K	Vial 82	1	Sample	12	2.32860e5	9.068	7.82104e4
*	1914871001	Vial 83	1	Sample	13	0.00000	0.000	0.00000
*	1915147001	Vial 84	1	Sample	14	0.00000	0.000	0.00000
*	1915147002	Vial 85	1	Sample	15	0.00000	0.000	0.00000
*	655033 CCV@25	Vial 71	1	Control	16	6.82139e5	9.049	25.81384

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
*	655026 CCV@25	Vial 71	1	Control	1	2.89154e5	9.034	5.00000
*	655030 QC@4.0	Vial 72	1	Control	2	3.53403e5	8.961	5.00000
*	655028 ICS@4.0	Vial 73	1	Control	3	3.08985e5	8.691	5.00000
*	655029 LMB	Vial 74	1	Control	4	3.47474e5	9.079	5.00000
*	1914602001	Vial 75	1	Sample	5	3.09553e5	8.502	5.00000
*	655031 146021S	Vial 76	1	Sample	6	2.89563e5	8.478	5.00000
*	655032 146021D	Vial 77	1	Sample	7	3.05514e5	8.517	5.00000
*	1914603001	Vial 78	1	Sample	8	2.25289e5	8.279	5.00000
*	1914603002	Vial 79	1	Sample	9	2.22697e5	8.383	5.00000
*	1914603003	Vial 80	1	Sample	10	2.34373e5	8.224	5.00000
*	1914603004 10K	Vial 81	1	Sample	11	3.06845e5	9.055	5.00000e4
*	1914603005 10K	Vial 82	1	Sample	12	3.16468e5	9.072	5.00000e4
*	1914871001	Vial 83	1	Sample	13	2.66978e5	8.492	5.00000
*	1915147001	Vial 84	1	Sample	14	2.34476e5	8.342	5.00000
*	1915147002	Vial 85	1	Sample	15	2.47416e5	8.369	5.00000
*	655033 CCV@25	Vial 71	1	Control	16	2.70388e5	9.054	5.00000

Sequence Table:

Method and Injection Info Part:

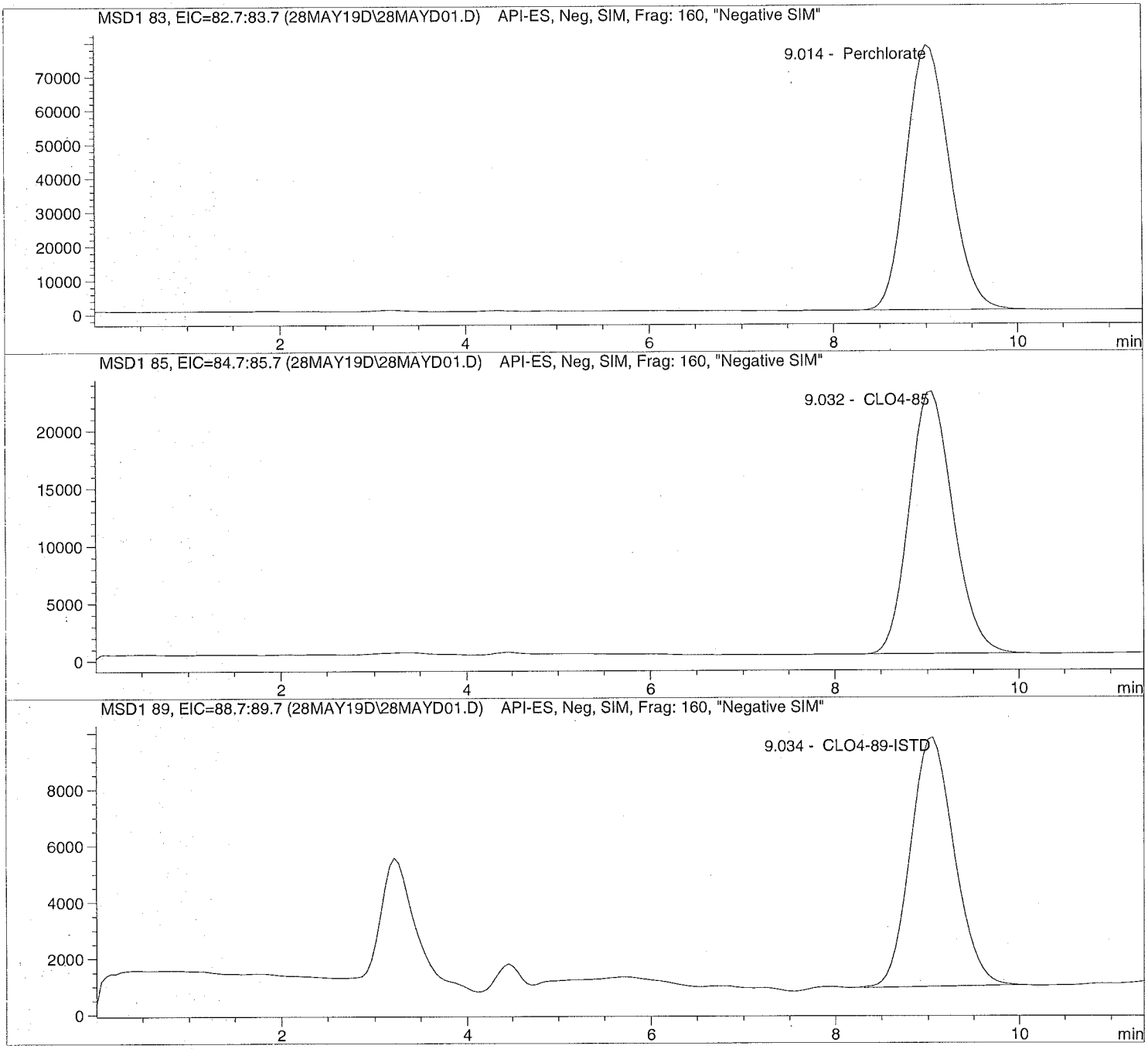
Line	Location	SampleName		Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	655026	CCV@25	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	655030	QC@4.0	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	655028	ICS@4.0	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	655029	LMB	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	1914602001		CLO4-AQN	1	Sample		
6	Vial 76	655031	146021S	CLO4-AQN	1	Sample		
7	Vial 77	655032	146021D	CLO4-AQN	1	Sample		
8	Vial 78	1914603001		CLO4-AQN	1	Sample		
9	Vial 79	1914603002		CLO4-AQN	1	Sample		
10	Vial 80	1914603003		CLO4-AQN	1	Sample		
11	Vial 81	1914603004	10K	CLO4-AQN	1	Sample		
12	Vial 82	1914603005	10K	CLO4-AQN	1	Sample		
13	Vial 83	1914871001		CLO4-AQN	1	Sample		
14	Vial 84	1915147001		CLO4-AQN	1	Sample		
15	Vial 85	1915147002		CLO4-AQN	1	Sample		
16	Vial 71	655033	CCV@25	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD01.D Sample Name: 655026 CCV@25

Injection Date:	5/28/2019 09:22:28	Seq Line:	1
Sample Name:	655026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD01.D Sample Name: 655026 CCV@25

Injection Date:	5/28/2019 09:22:28	Seq Line:	1
Sample Name:	655026 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.014	PBA	2515348.3	26.3792	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.032	PBA	744700.3	26.3242	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.034	BBA	289154.0	5.0000	CLO4-89-ISTD

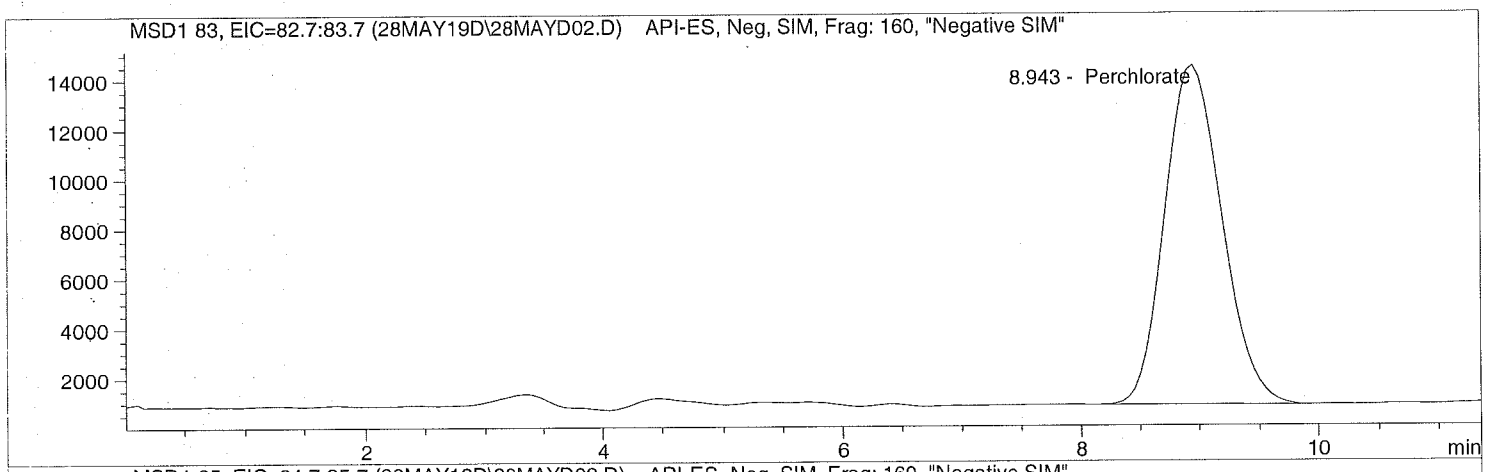
*** End of Report ***

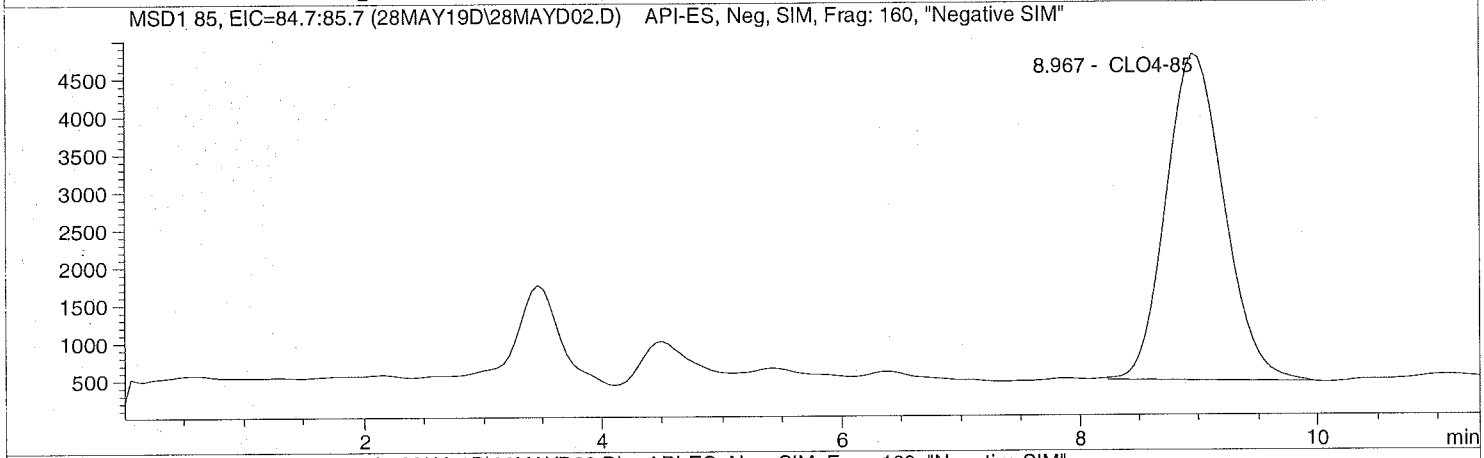
Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD02.D Sample Name: 655030 QC@4.0

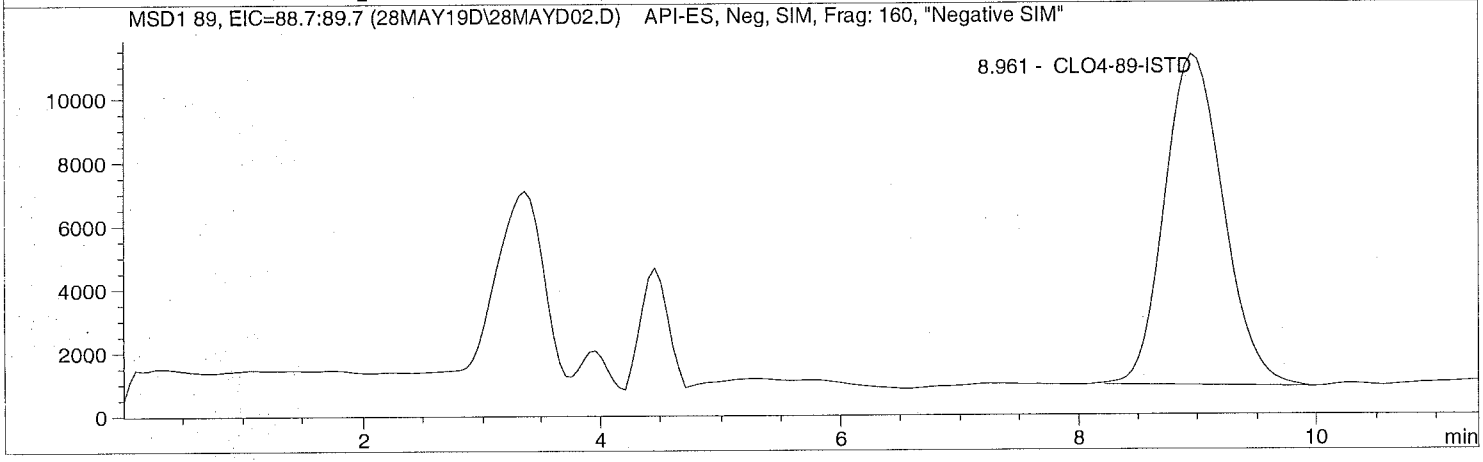
Injection Date:	5/28/2019 09:39:12	Seq Line:	2
Sample Name:	655030 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD02.D Sample Name: 655030 QC@4.0

Injection Date:	5/28/2019 09:39:12	Seq Line:	2
Sample Name:	655030 QC@4.0	Location:	Vial 72
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.943	PBA	451078.5	4.1960	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.967	BBA	145201.9	4.3977	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.961	BBA	353402.8	5.0000	CLO4-89-ISTD

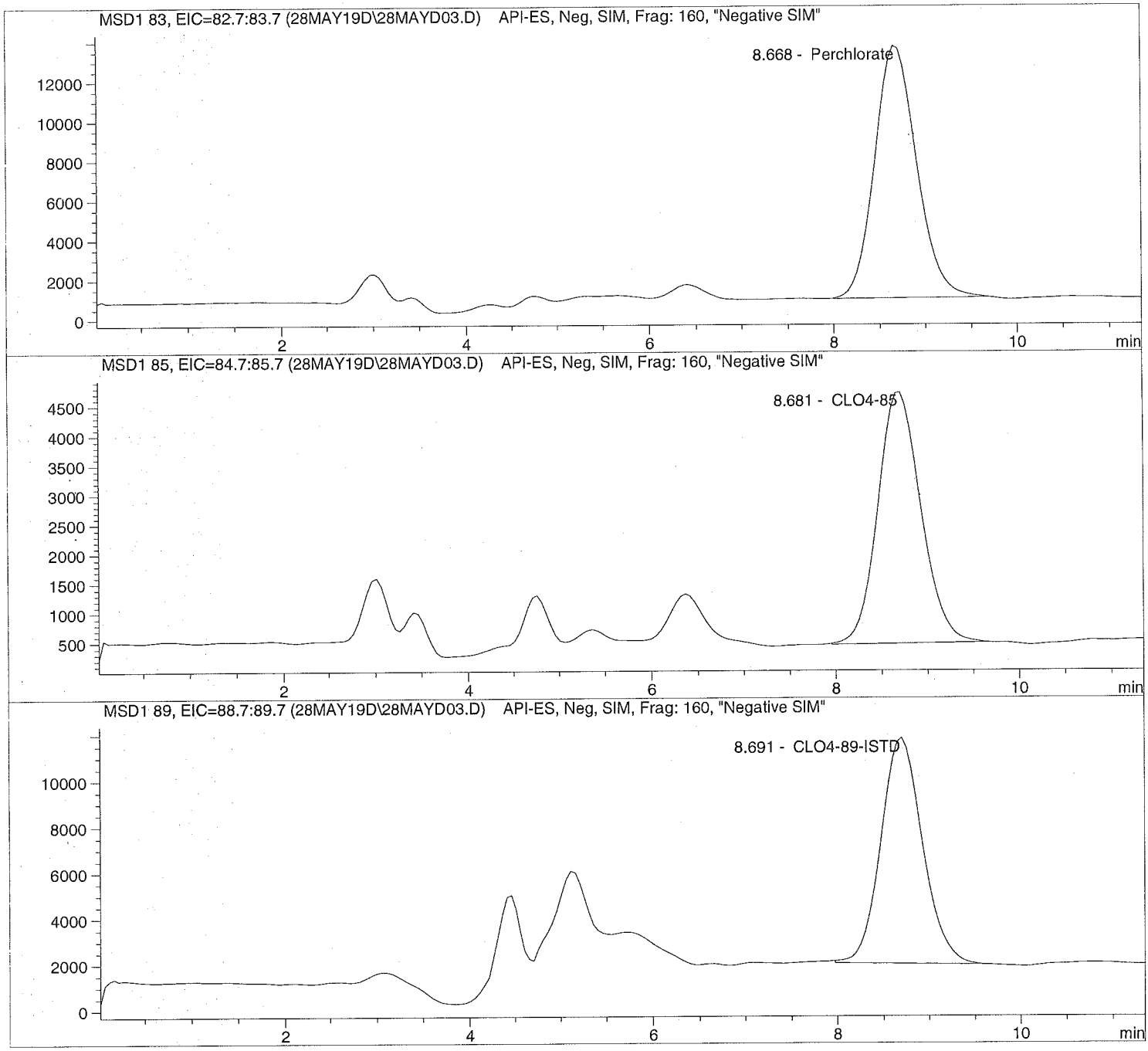
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD03.D Sample Name: 655028 ICS@4.0

Injection Date:	5/28/2019 09:54:31	Seq Line:	3
Sample Name:	655028 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD03.D Sample Name: 655028 ICS@4.0

Injection Date:	5/28/2019 09:54:31	Seq Line:	3
Sample Name:	655028 ICS@4.0	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	4.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.668	PBA	402631.1	4.2796	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.681	BBA	138337.3	4.7885	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.691	BBA	308984.7	5.0000	CLO4-89-ISTD

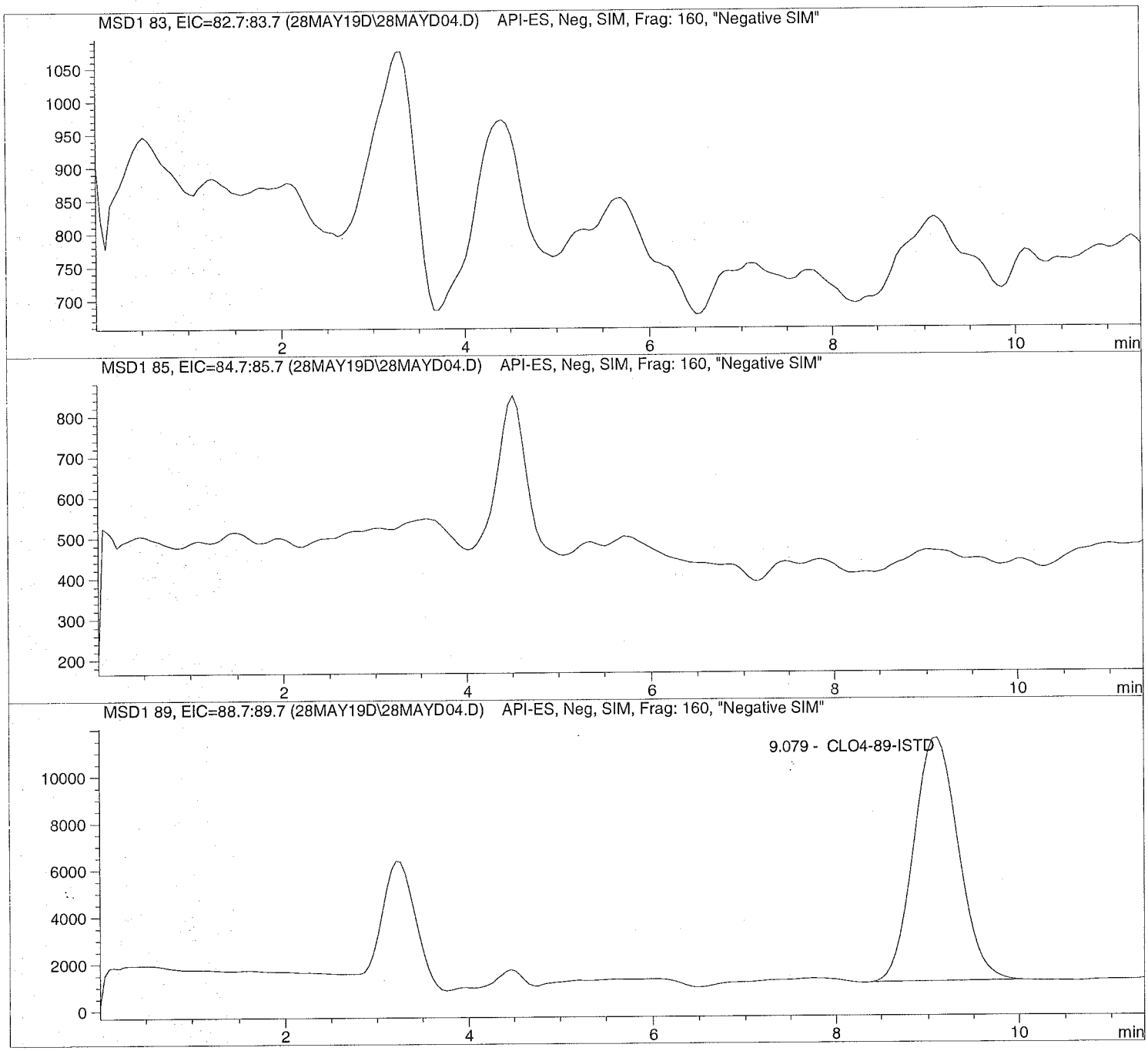
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD04.D Sample Name: 655029 LMB

Injection Date:	5/28/2019 10:08:00	Seq Line:	4
Sample Name:	655029 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD04.D Sample Name: 655029 LMB

Injection Date:	5/28/2019 10:08:00	Seq Line:	4
Sample Name:	655029 LMB	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.079	PBA	347474.2	5.0000	CLO4-89-ISTD

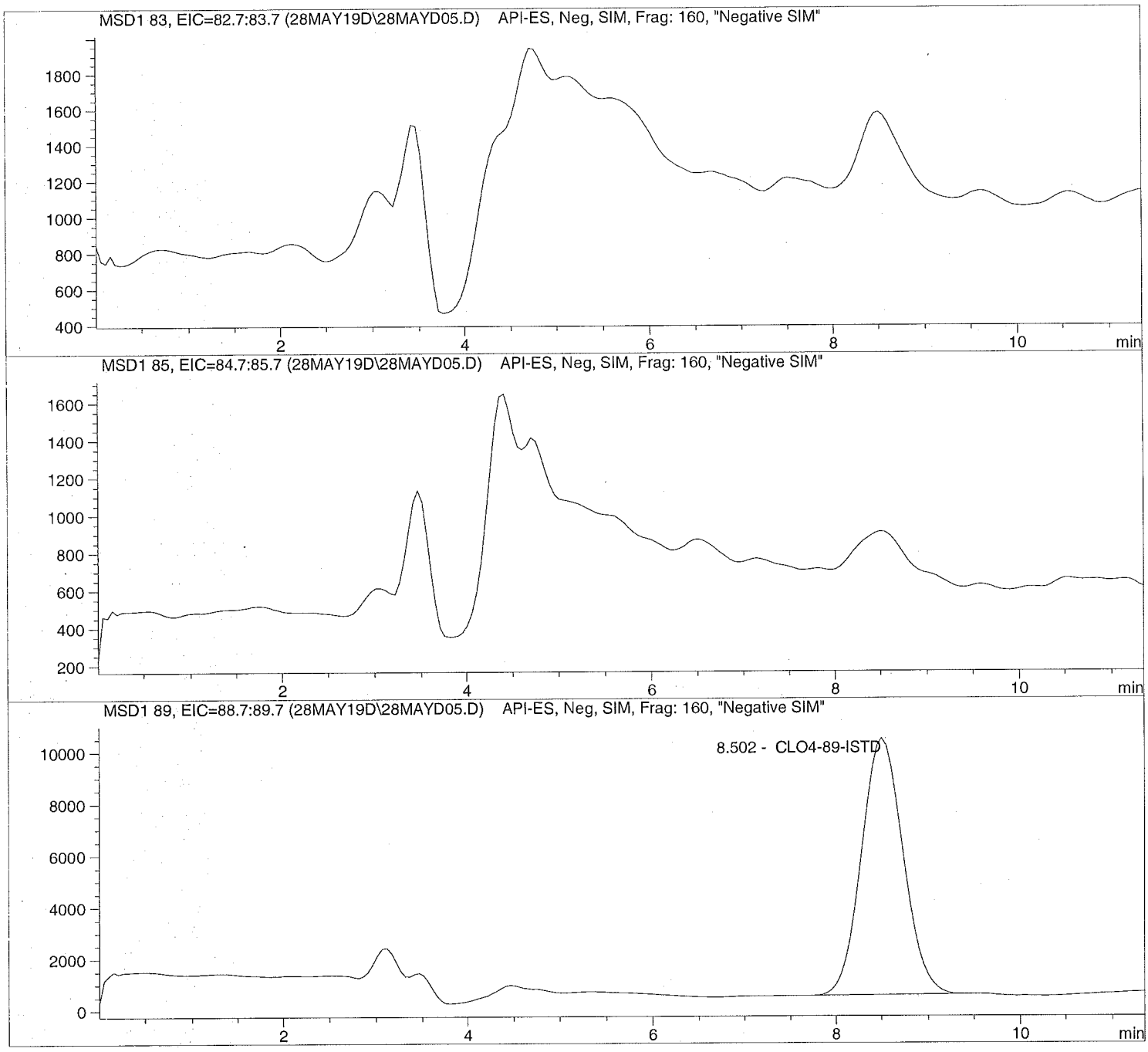
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD05.D Sample Name: 1914602001

Injection Date:	5/28/2019 10:21:23	Seq Line:	5
Sample Name:	1914602001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD05.D Sample Name: 1914602001

Injection Date:	5/28/2019 10:21:23	Seq Line:	5
Sample Name:	1914602001	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.502	PBA	309553.4	5.0000	CLO4-89-ISTD

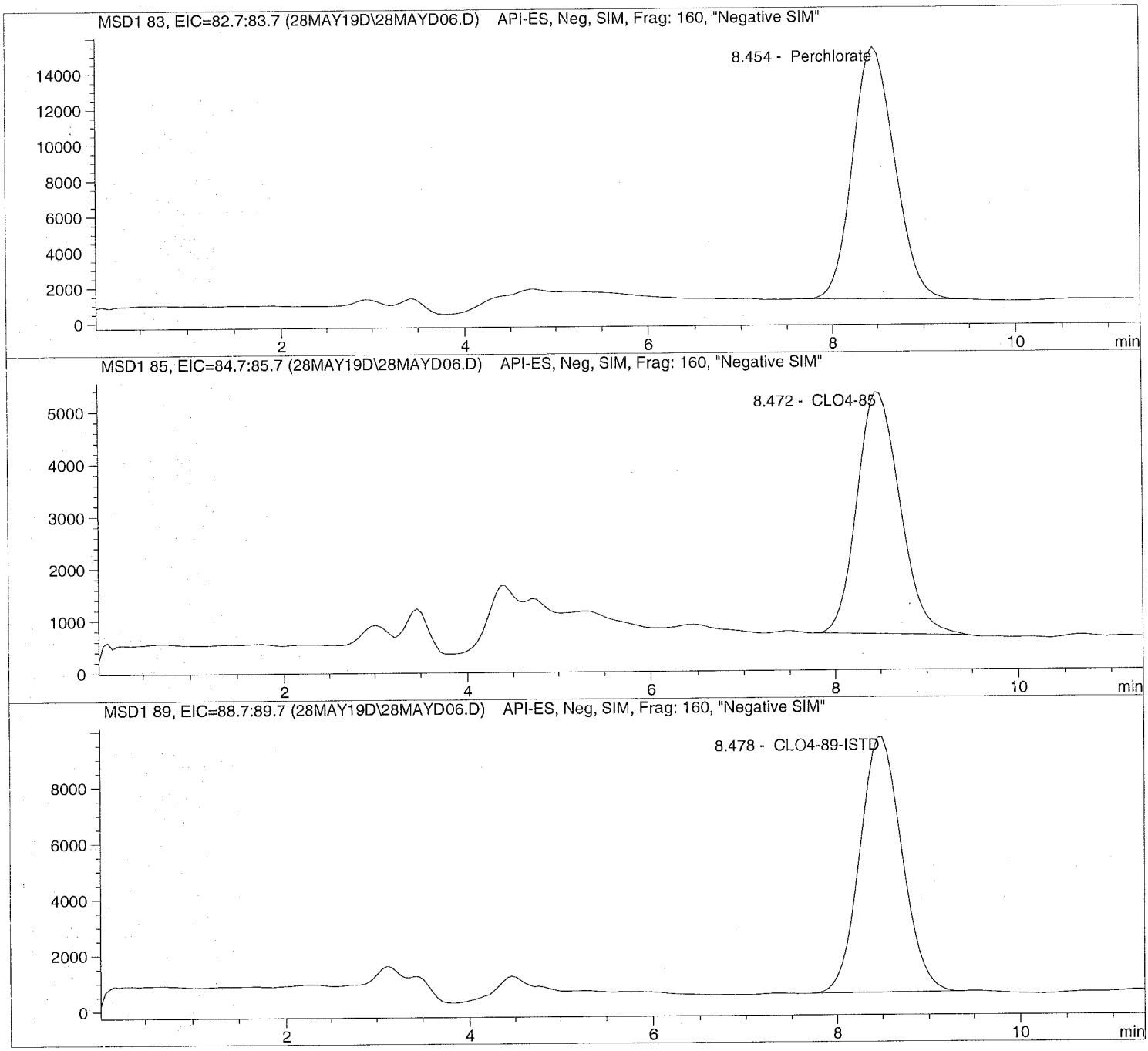
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD06.D Sample Name: 655031 146021S

Injection Date:	5/28/2019 10:34:49	Seq Line:	6
Sample Name:	655031 146021S	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD06.D Sample Name: 655031 146021S

Injection Date:	5/28/2019 10:34:49	Seq Line:	6
Sample Name:	655031 146021S	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.454	BBA	452005.2	5.0867	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	PBA	150468.2	5.5493	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.478	PBA	289563.3	5.0000	CLO4-89-ISTD

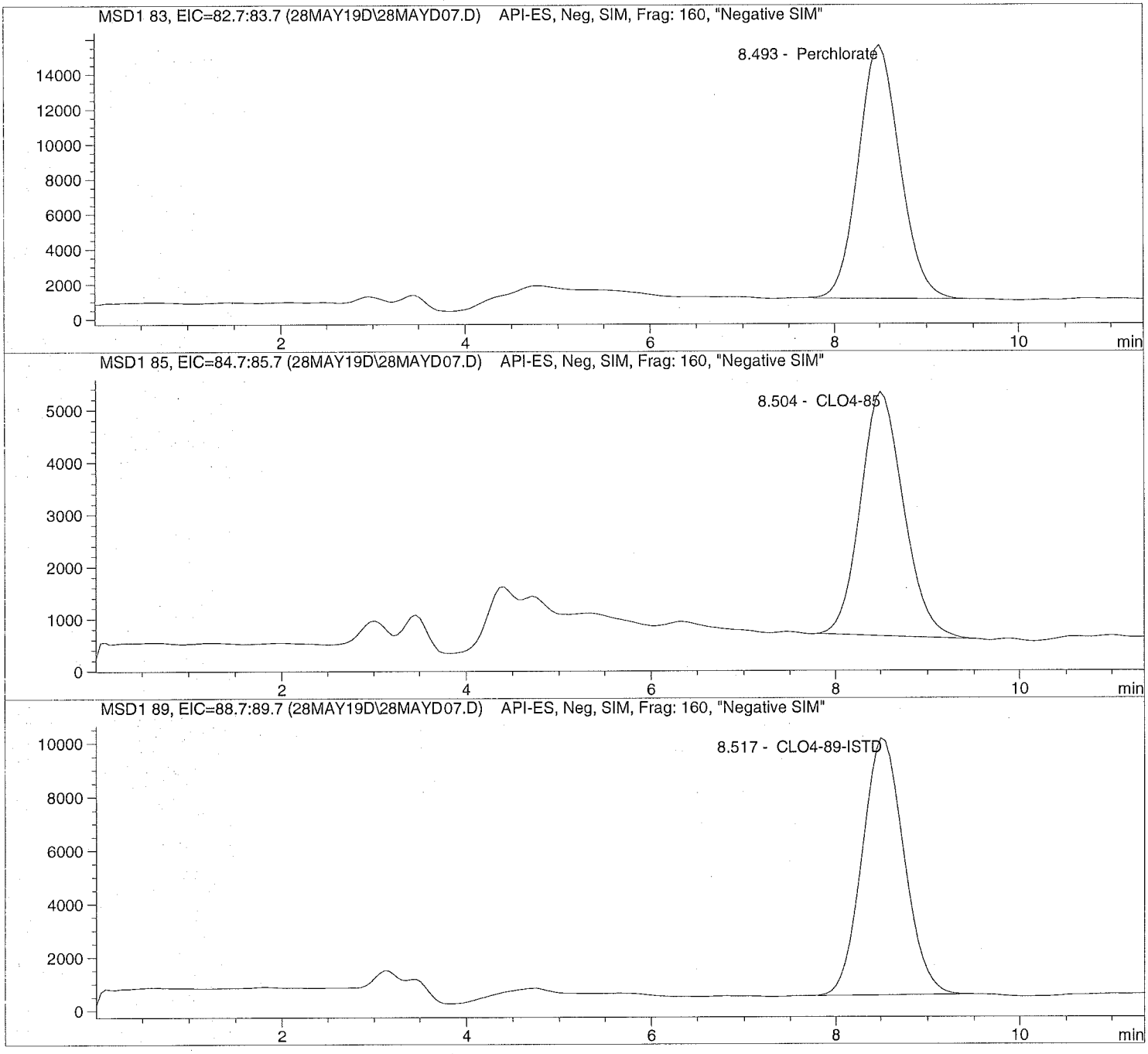
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD07.D Sample Name: 655032 146021D

Injection Date:	5/28/2019 10:48:16	Seq Line:	7
Sample Name:	655032 146021D	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD07.D Sample Name: 655032 146021D

Injection Date:	5/28/2019 10:48:16	Seq Line:	7
Sample Name:	655032 146021D	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.493	BBA	457024.3	4.8833	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.504	PBA	153322.9	5.3614	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.517	PBA	305513.7	5.0000	CLO4-89-ISTD

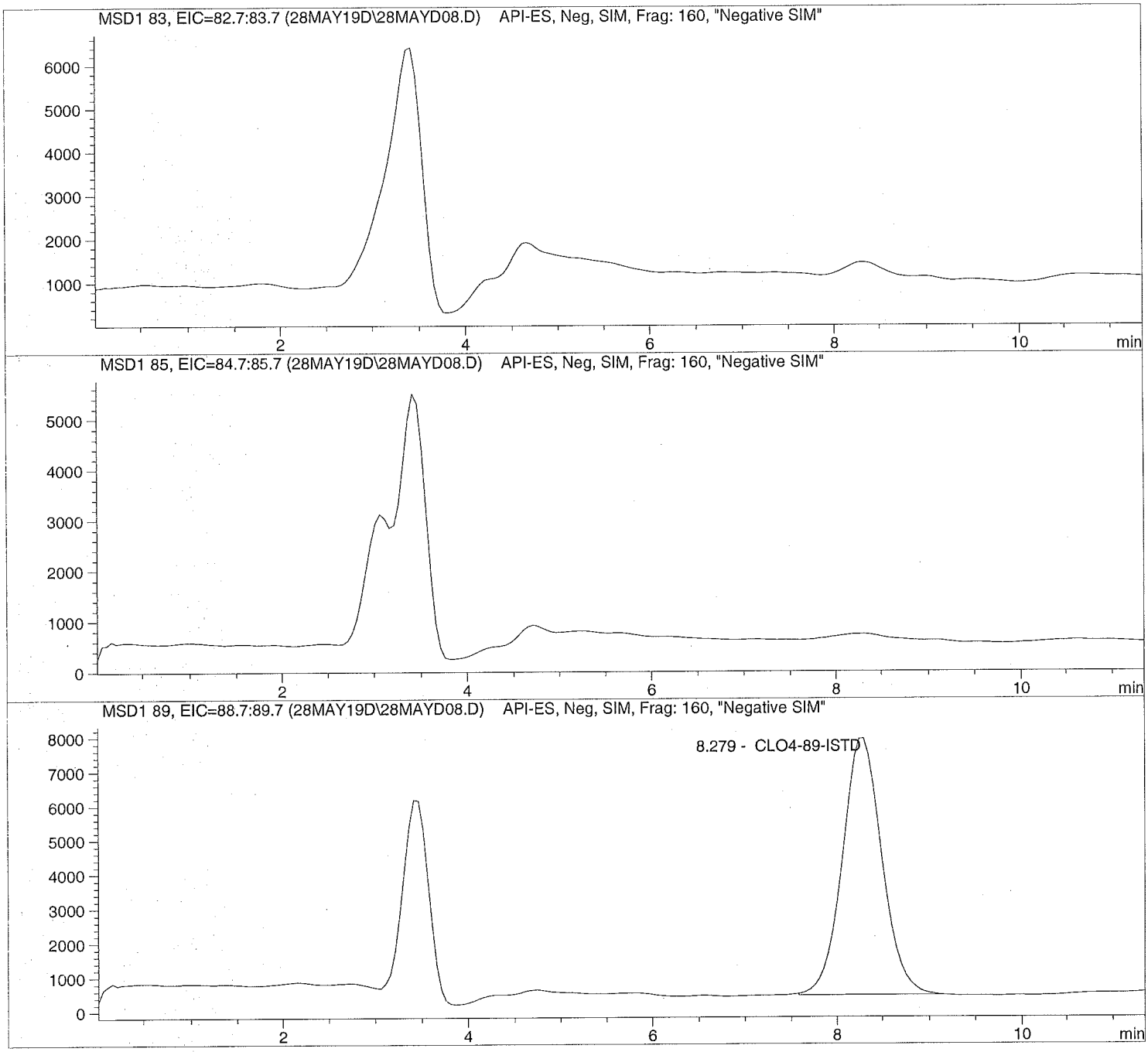
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD08.D Sample Name: 1914603001

Injection Date:	5/28/2019 11:01:42	Seq Line:	8
Sample Name:	1914603001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD08.D Sample Name: 1914603001

Injection Date:	5/28/2019 11:01:42	Seq Line:	8
Sample Name:	1914603001	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.279	BBA	225288.9	5.0000	CLO4-89-ISTD

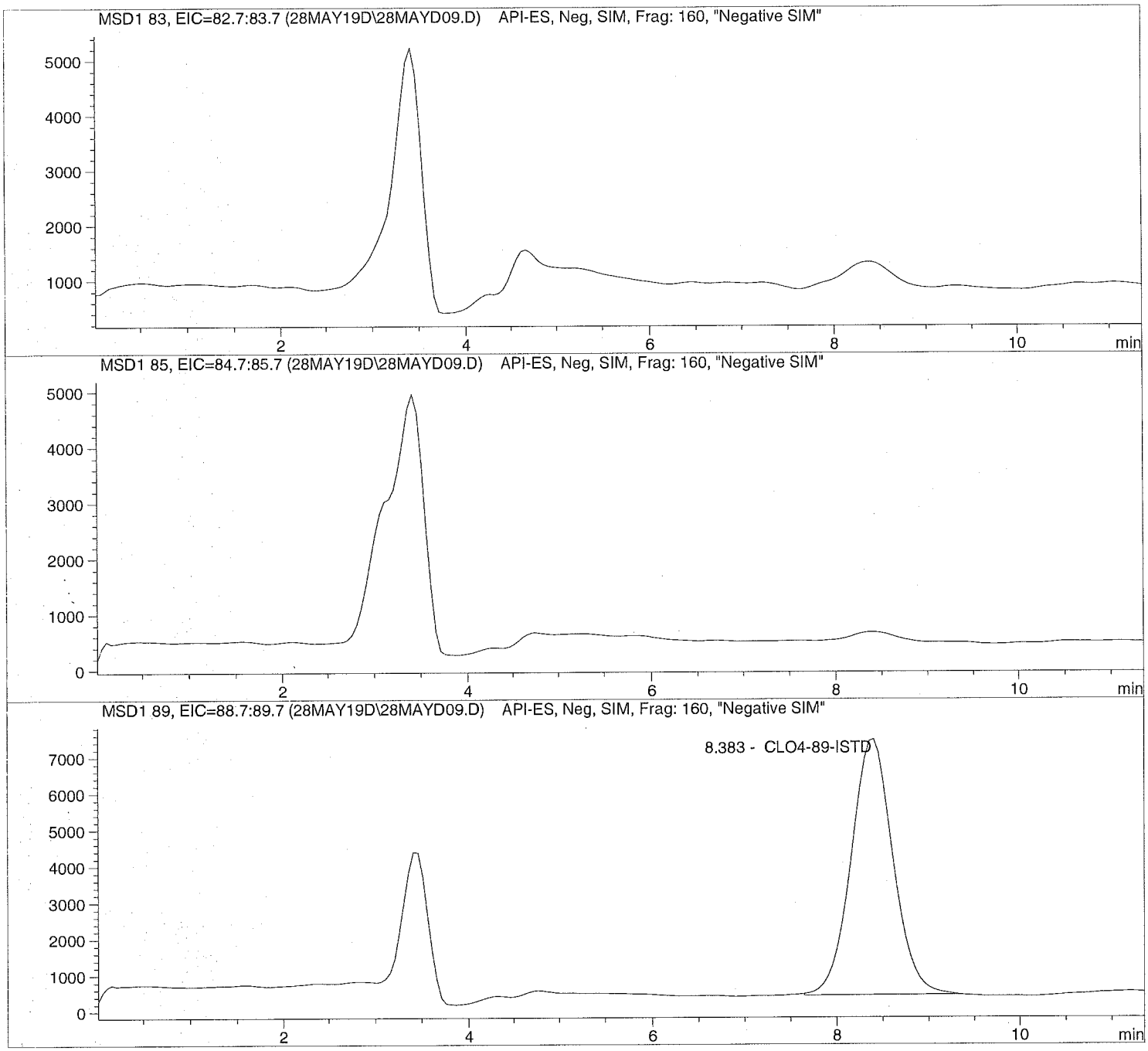
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD09.D Sample Name: 1914603002

Injection Date:	5/28/2019 11:15:07	Seq Line:	9
Sample Name:	1914603002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD09.D Sample Name: 1914603002

Injection Date:	5/28/2019 11:15:07	Seq Line:	9
Sample Name:	1914603002	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.383	BBA	222696.7	5.0000	CLO4-89-ISTD

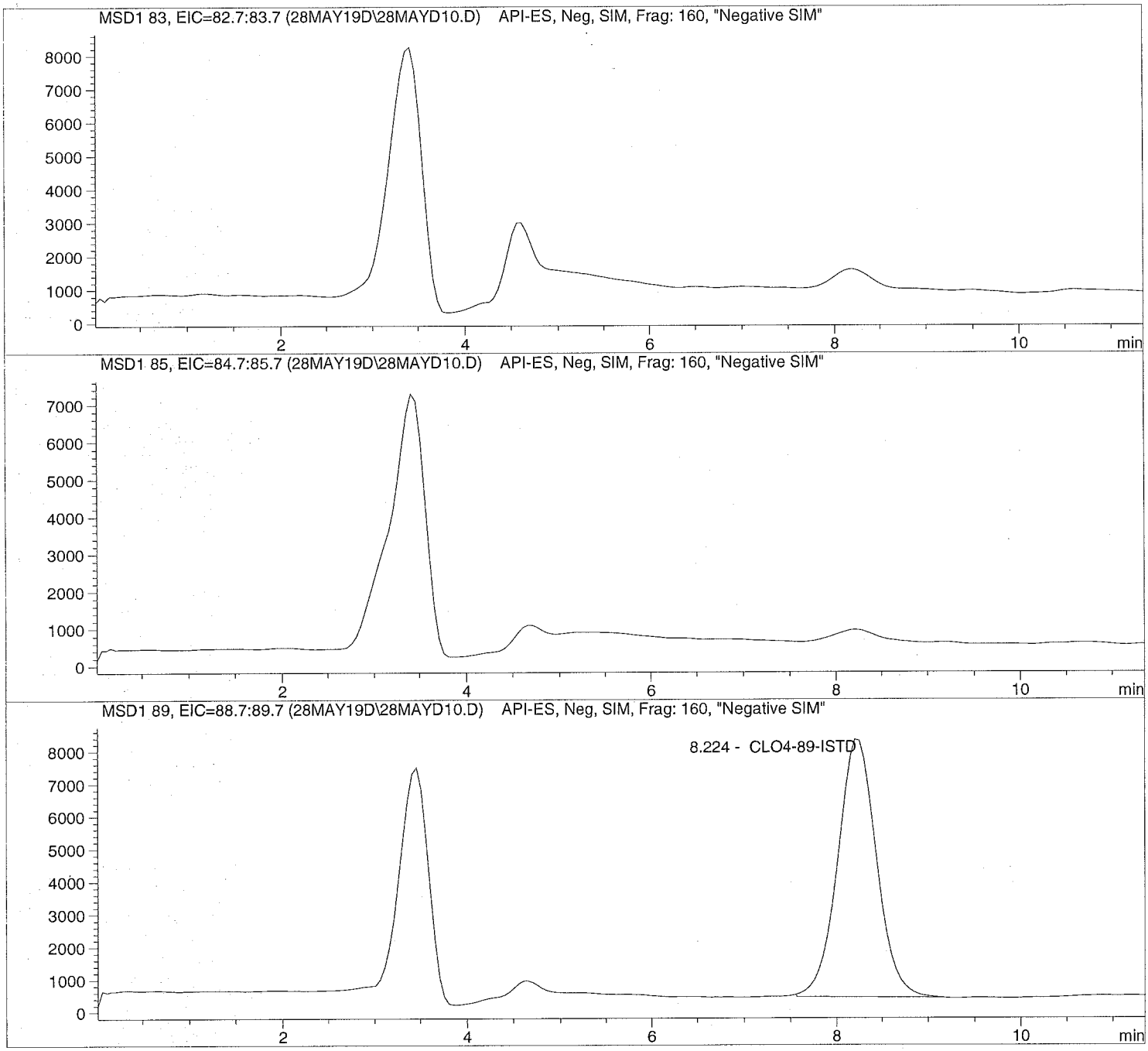
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD10.D Sample Name: 1914603003

Injection Date:	5/28/2019 11:28:30	Seq Line:	10
Sample Name:	1914603003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD10.D Sample Name: 1914603003

Injection Date:	5/28/2019 11:28:30	Seq Line:	10
Sample Name:	1914603003	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.224	BBA	234372.9	5.0000	CLO4-89-ISTD

*** End of Report ***

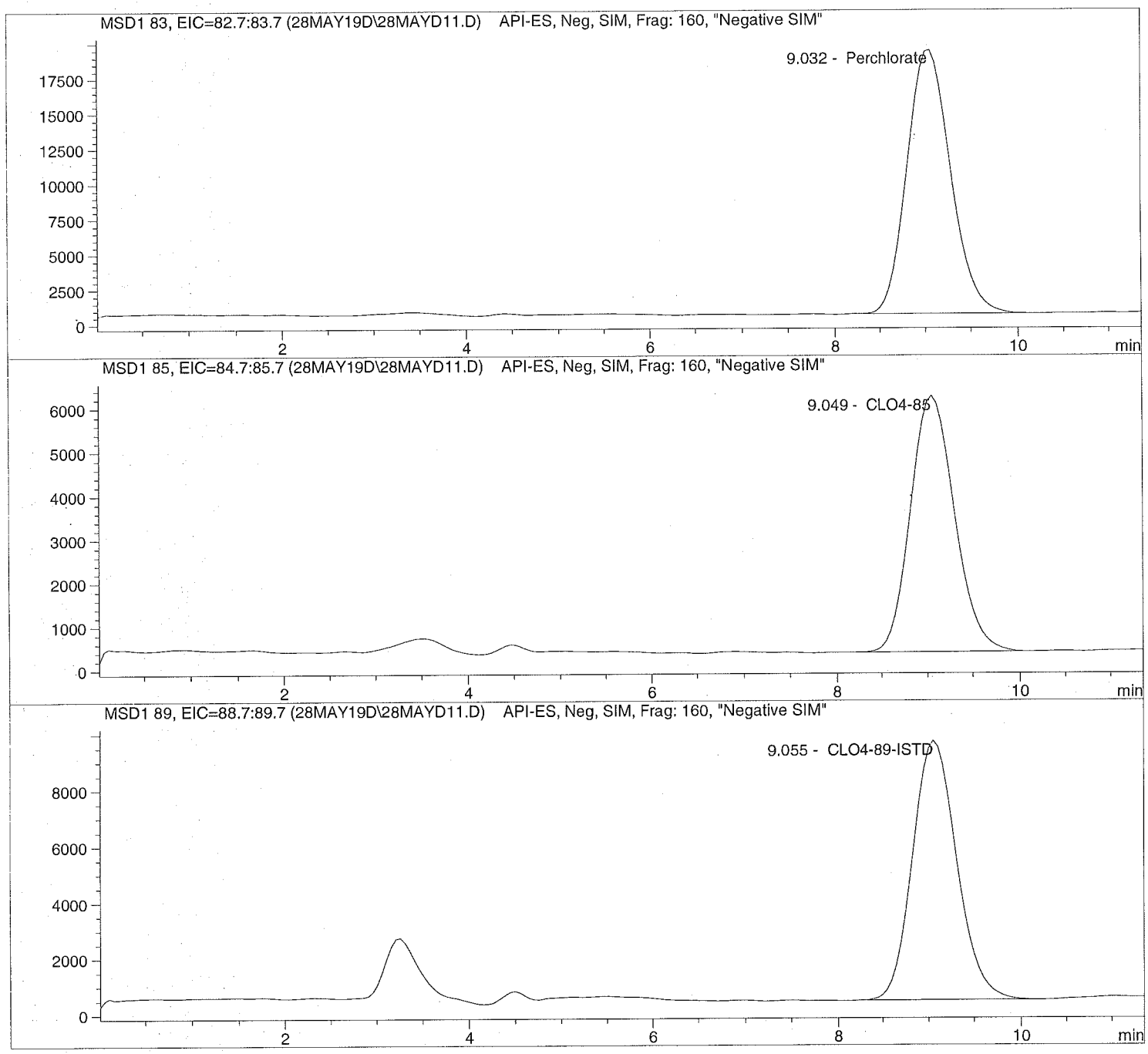
LC

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD11.D Sample Name: 1914603004 10K

Injection Date:	5/28/2019 11:41:53	Seq Line:	11
Sample Name:	1914603004 10K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD11.D Sample Name: 1914603004 10K

Injection Date:	5/28/2019 11:41:53	Seq Line:	11
Sample Name:	1914603004 10K	Location:	Vial 81
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.032	BBA	615140.4	64684.2479	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.049	BBA	194510.4	67529.1287	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.055	BBA	306844.5	50000.0000	CLO4-89-ISTD

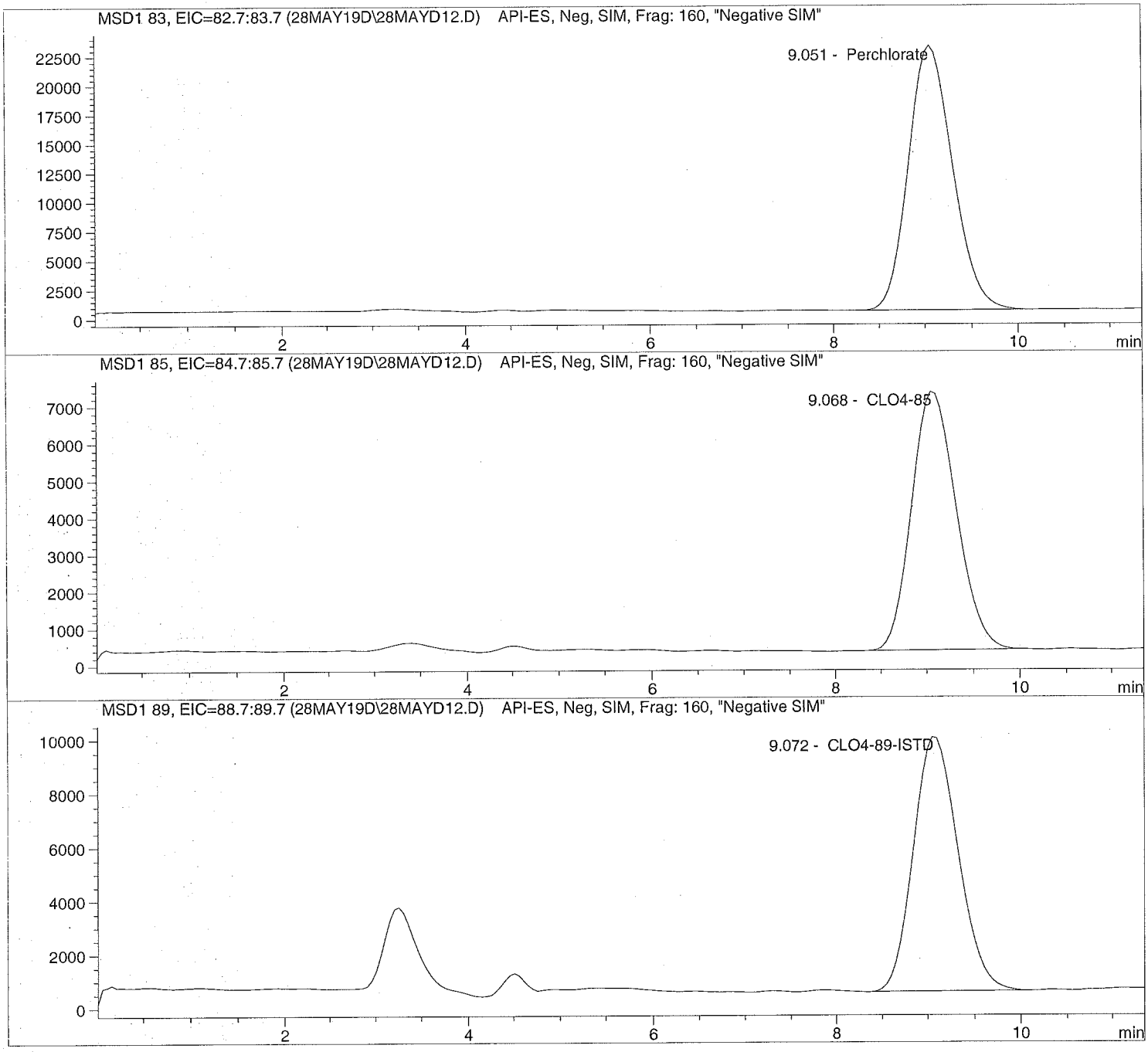
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD12.D Sample Name: 1914603005 10K

Injection Date:	5/28/2019 11:55:16	Seq Line:	12
Sample Name:	1914603005 10K	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD12.D Sample Name: 1914603005 10K

Injection Date:	5/28/2019 11:55:16	Seq Line:	12
Sample Name:	1914603005 10K	Location:	Vial 82
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	10000.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.051	PBA	746250.2	75626.8976	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.068	BBA	232859.8	78210.3806	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.072	PBA	316467.9	50000.0000	CLO4-89-ISTD

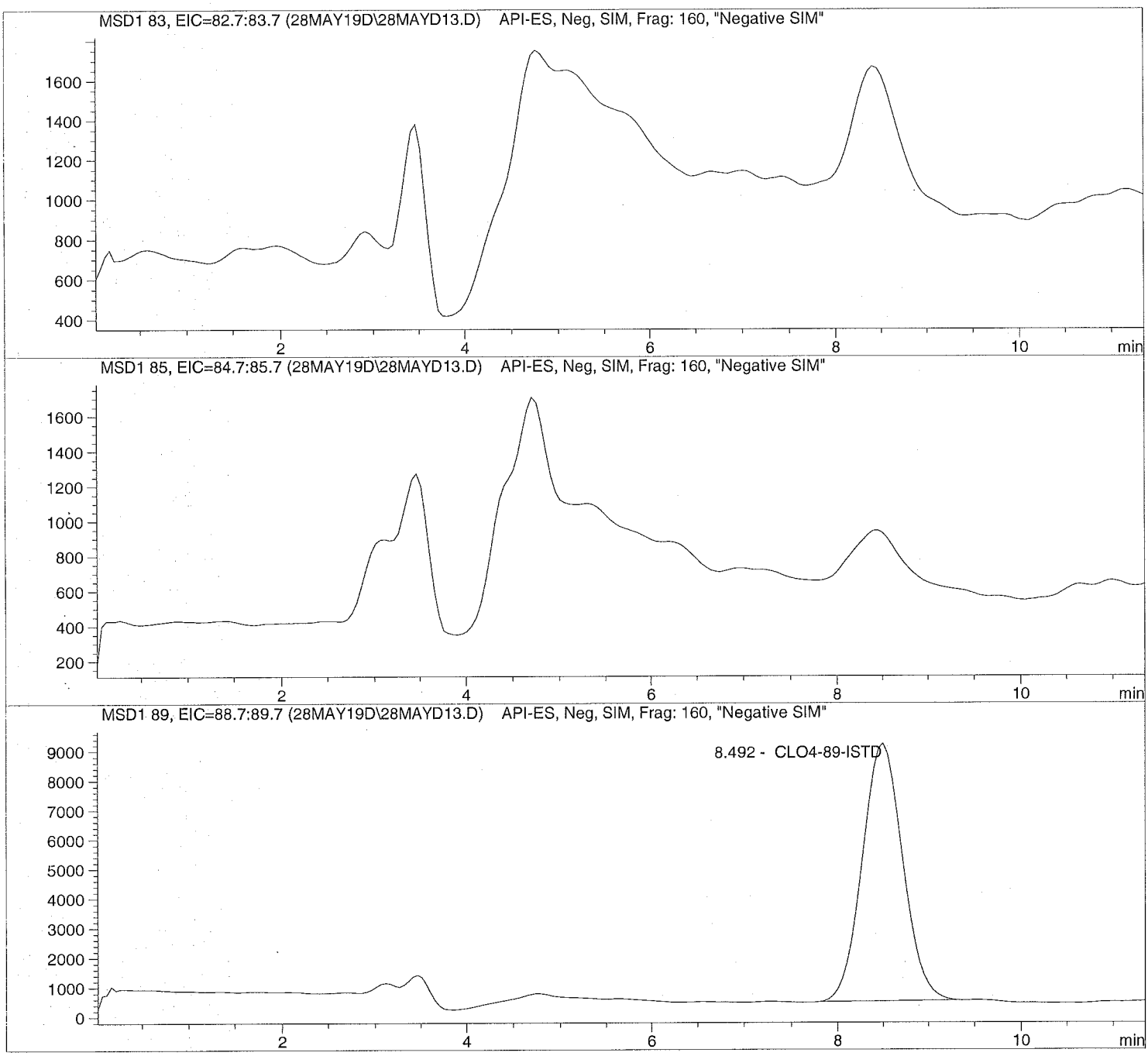
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD13.D Sample Name: 1914871001

Injection Date:	5/28/2019 12:08:42	Seq Line:	13
Sample Name:	1914871001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD13.D Sample Name: 1914871001

Injection Date:	5/28/2019 12:08:42	Seq Line:	13
Sample Name:	1914871001	Location:	Vial 83
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.492	PBA	266978.1	5.0000	CLO4-89-ISTD

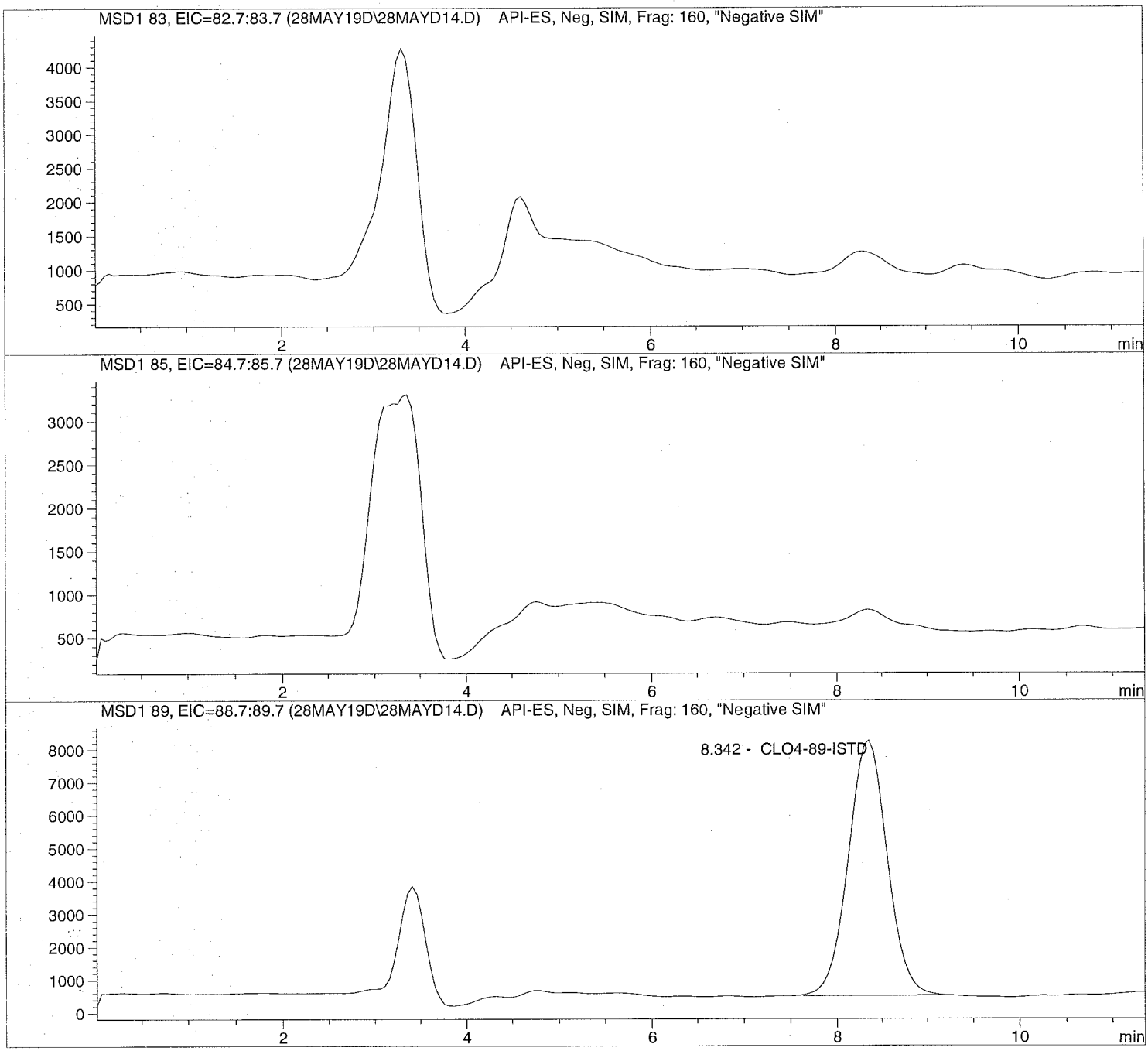
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD14.D Sample Name: 1915147001

Injection Date:	5/28/2019 12:22:08	Seq Line:	14
Sample Name:	1915147001	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



LC

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD14.D Sample Name: 1915147001

Injection Date:	5/28/2019 12:22:08	Seq Line:	14
Sample Name:	1915147001	Location:	Vial 84
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.342	BBA	234476.0	5.0000	CLO4-89-ISTD

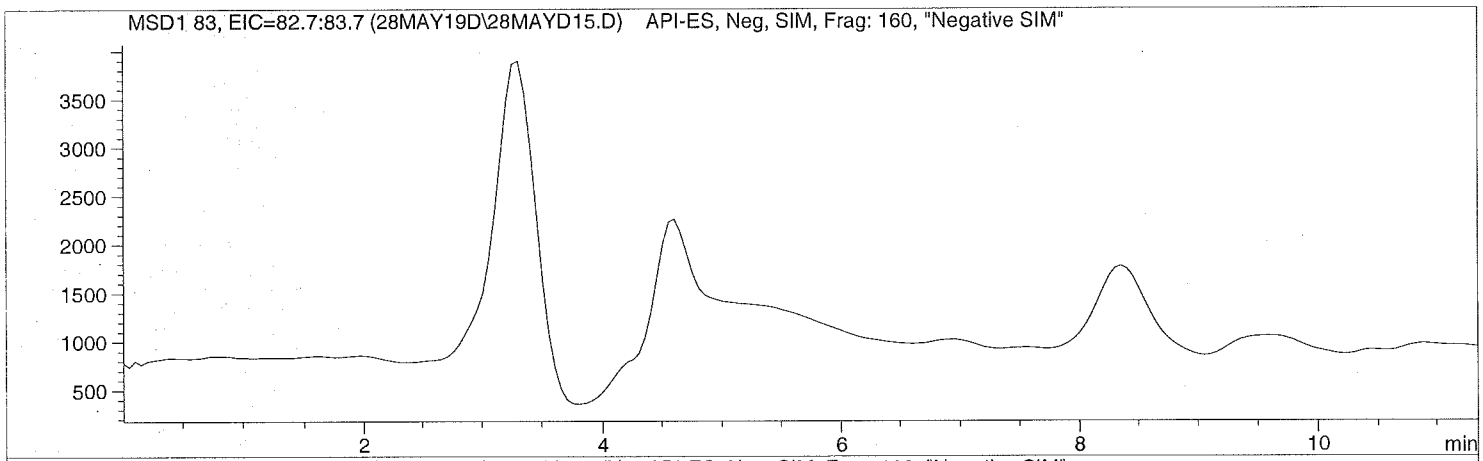
*** End of Report ***

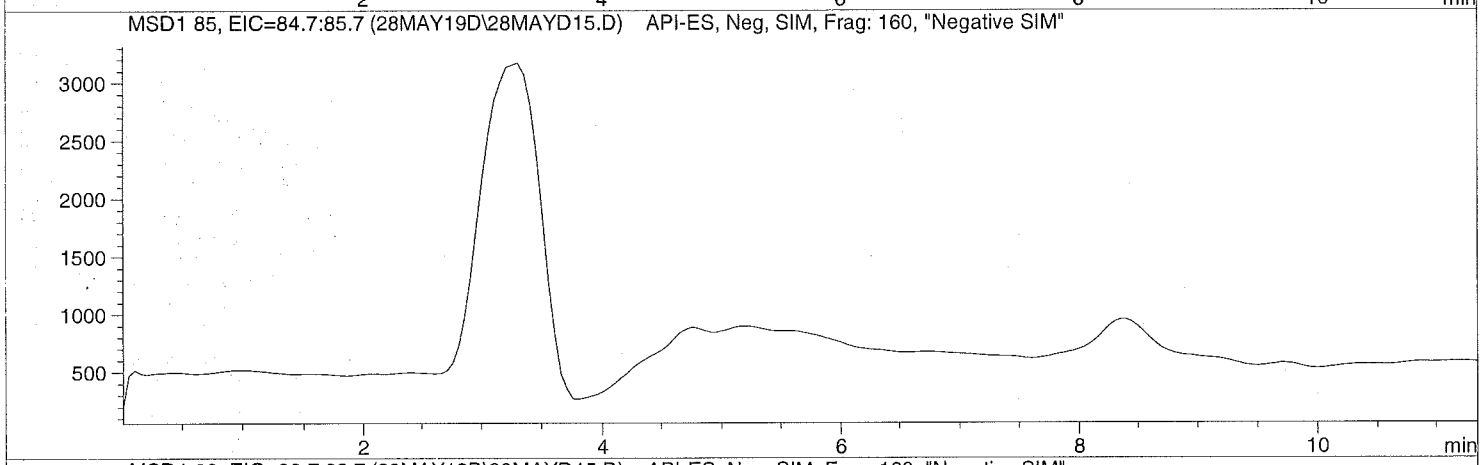
Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD15.D Sample Name: 1915147002

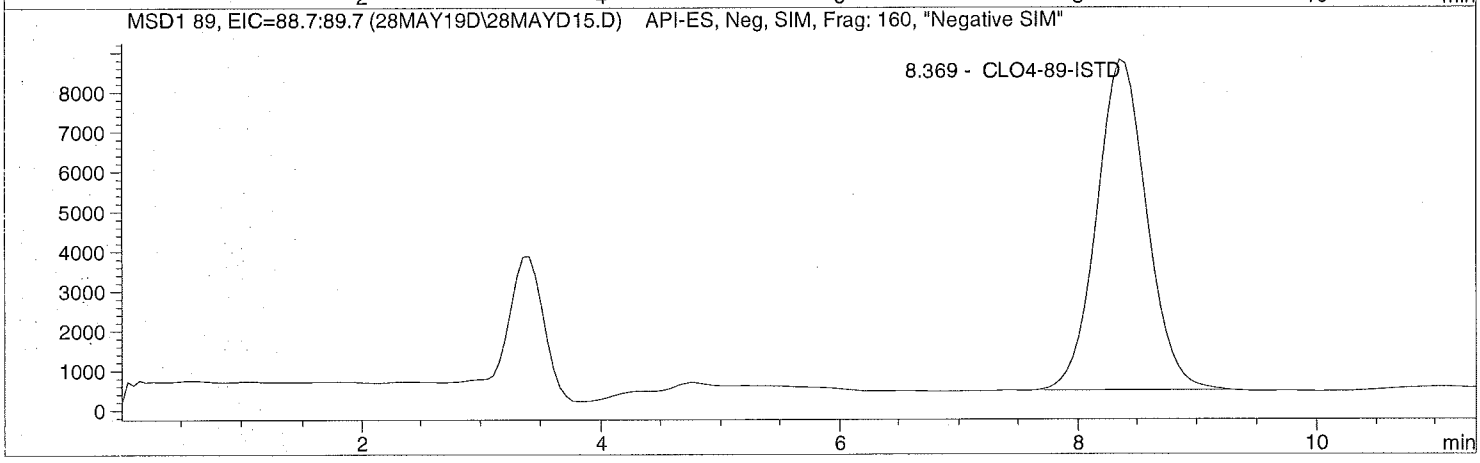
Injection Date:	5/28/2019 12:35:29	Seq Line:	15
Sample Name:	1915147002	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis







Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD15.D Sample Name: 1915147002

Injection Date:	5/28/2019 12:35:29	Seq Line:	15
Sample Name:	1915147002	Location:	Vial 85
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
0.000		0.0	0.0000	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.369	BBA	247415.5	5.0000	CLO4-89-ISTD

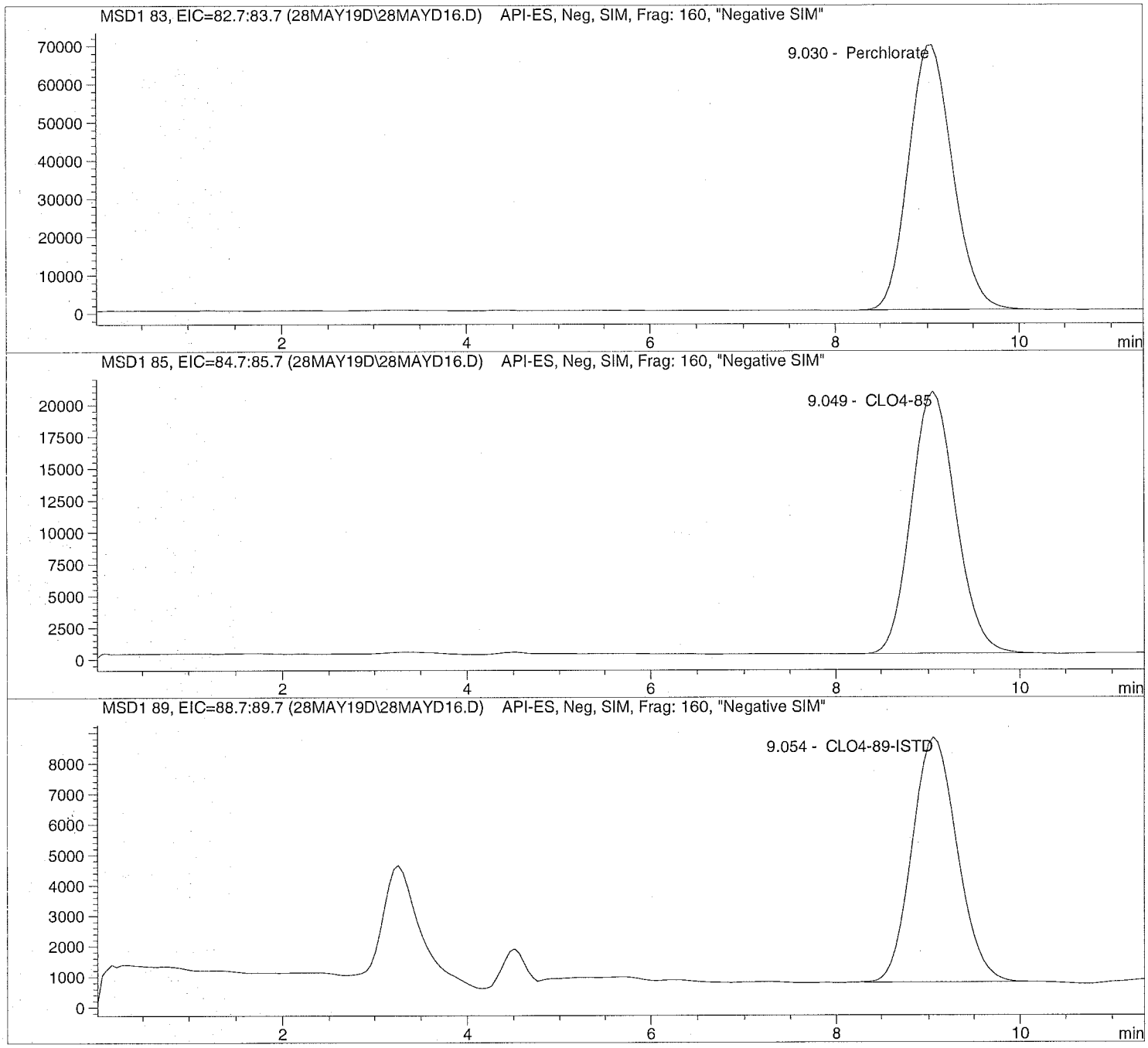
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD16.D Sample Name: 655033 CCV@25

Injection Date:	5/28/2019 13:28:26	Seq Line:	16
Sample Name:	655033 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis



LC

Data file: C:\HPCHEM\1\DATA\28MAY19D\28MAYD16.D Sample Name: 655033 CCV@25

Injection Date:	5/28/2019 13:28:26	Seq Line:	16
Sample Name:	655033 CCV@25	Location:	Vial 71
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	35 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 4/12/2019 07:54:13

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Fri, 12. Apr. 2019,07:52:58 am
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	0.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.030	PBA	2263822.8	25.4454	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.049	PBA	682139.4	25.8138	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.054	BBA	270387.5	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

Initial Calibration

Calibration Table

Perchlorate

Calib. Data Modified : 3/19/2019 2:35:19 PM

Calculate : Internal Standard
Based on : Peak Area

Rel. Reference Window : 20.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 20.000 %
Abs. Non-ref. Window : 0.000 min
Use Multiplier & Dilution Factor with ISTDs
Uncalibrated Peaks : not reported
Partial Calibration : No recalibration if peaks missing

Curve Type : Quadratic (some peaks differ, see below)
Origin : Ignored (some peaks differ, see below)
Weight : Linear (Amnt) (some peaks differ, see below)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Default Sample ISTD Information (if not set in sample table):

ISTD #	ISTD Amount	Name
1	5.00000	CLO4-89-ISTD

Signal 1: MSD1 83, EIC=82.7:83.7
Signal 2: MSD1 85, EIC=84.7:85.7
Signal 3: MSD1 89, EIC=88.7:89.7

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
8.744	1	1	1.00000	7.76074e4	1.28854e-5		1	Perchlorate
		2	2.00000	1.35273e5	1.47849e-5			
		3	5.00000	3.37764e5	1.48033e-5			
		4	10.00000	6.83454e5	1.46316e-5			
		5	25.00000	2.08433e6	1.19943e-5			
		6	50.00000	4.13334e6	1.20968e-5			
		7	75.00000	5.99313e6	1.25143e-5			
8.755	2	1	1.00000	2.36780e4	4.22333e-5		1	CLO4-85
		2	2.00000	4.69486e4	4.25998e-5			
		3	5.00000	1.06124e5	4.71147e-5			
		4	10.00000	2.13523e5	4.68335e-5			
		5	25.00000	6.14295e5	4.06971e-5			
		6	50.00000	1.19814e6	4.17315e-5			
		7	75.00000	1.78355e6	4.20509e-5			
8.766	3	1	5.00000	2.73208e5	1.83011e-5	+I1		CLO4-89-ISTD
		2	5.00000	2.24886e5	2.22335e-5			
		3	5.00000	2.33196e5	2.14412e-5			
		4	5.00000	2.34454e5	2.13262e-5			
		5	5.00000	2.50568e5	1.99547e-5			
		6	5.00000	2.30977e5	2.16472e-5			

RetTime [min]	Sig	Lvl	Amount	Area	Amt/Area	Ref	Grp	Name
		7	5.00000	2.21504e5	2.25729e-5			

More compound-specific settings:

Compound: Perchlorate
- Time Window : From 6.654 min To 12.544 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

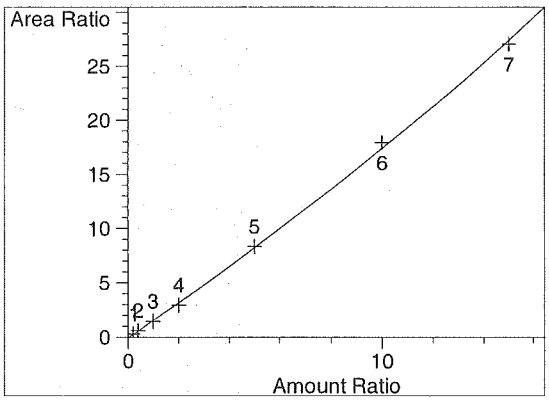
Compound: CLO4-85
- Time Window : From 6.650 min To 12.505 min
- Curve Type : Quadratic
- Origin : Ignored
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 0.5
  - Level 3 : 0.2
  - Level 4 : 0.1
  - Level 5 : 0.04
  - Level 6 : 0.02
  - Level 7 : 0.013333

Compound: CLO4-89-ISTD
- Time Window : From 6.659 min To 12.466 min
- Curve Type : Linear
- Origin : Included
- Calibration Level Weights:/
  - Level 1 : 1
  - Level 2 : 1
  - Level 3 : 1
  - Level 4 : 1
  - Level 5 : 1
  - Level 6 : 1
  - Level 7 : 1

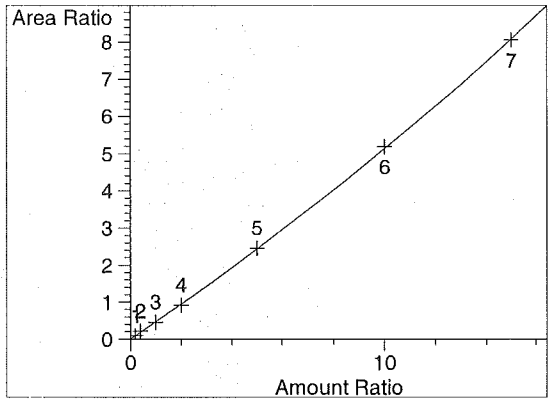
Peak Sum Table

No Entries in table

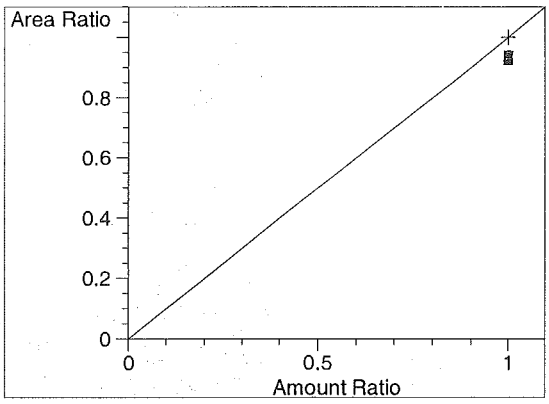
Calibration Curves



Perchlorate at exp. RT: 8.744
MSD1 83, EIC=82.7:83.7
Correlation: 0.99957
Residual Std. Dev.: 0.30744
Formula: $y = ax^2 + bx + c$
a: 1.76988e-2
b: 1.56480
c: -4.92430e-2
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-85 at exp. RT: 8.755
MSD1 85, EIC=84.7:85.7
Correlation: 0.99983
Residual Std. Dev.: 0.03473
Formula: $y = ax^2 + bx + c$
a: 5.13396e-3
b: 4.62055e-1
c: 4.97209e-4
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.5
Level 3 : 0.2
Level 4 : 0.1
Level 5 : 0.04
Level 6 : 0.02
Level 7 : 0.013333



CLO4-89-ISTD at exp. RT: 8.766
MSD1 89, EIC=88.7:89.7
Correlation: 1.00000
Residual Std. Dev.: 0.00000
Formula: $y = mx + b$
m: 1.00000
b: 0.00000
x: Amount Ratio
y: Area Ratio
Calibration Level Weights:
Level 1 : 1
Level 2 : 1
Level 3 : 1
Level 4 : 1
Level 5 : 1
Level 6 : 1
Level 7 : 1

Batch Review Method:
C:\HPCHEM\1\METHODS\CLO4-DP2.M

['#' ==> Run has not been reprocessed with Batch Review Method
'*' ==> Run has been saved with batch file]

#	Sample	Location	Inj	SampleType	Run	Perchlorate Area	Perchlorat RT	Perchlorate Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	7.76074e4	8.744	1.06245
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	1.35273e5	8.992	2.06969
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	3.37764e5	8.586	4.73474
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	6.83454e5	8.698	9.27727
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.08433e6	8.451	25.29036
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	4.13334e6	8.810	51.36844
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	5.99313e6	8.586	74.16754
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	7.34719e5	8.702	9.25940

#	Sample	Location	Inj	SampleType	Run	CLO4-85 Area	CLO4-85 RT	CLO4-85 Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.36780e4	8.755	9.30535e-1
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	4.69486e4	9.012	2.24255
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	1.06124e5	8.602	4.86656
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.13523e5	8.713	9.64312
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	6.14295e5	8.468	25.12159
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	1.19814e6	8.825	50.46721
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	1.78355e6	8.603	74.72019
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.27495e5	8.721	9.54024

#	Sample	Location	Inj	SampleType	Run	CLO4-89-ISTD Area	CLO4-89-IS RT	CLO4-89-ISTD Amount
#*	CLO4@ 1.0ug/L	Vial 73	1	Control	3	2.73208e5	8.766	5.00000
#*	CLO4@ 2.0ug/L	Vial 74	1	Control	4	2.24886e5	9.012	5.00000
#*	CLO4@ 5.0ug/L	Vial 75	1	Control	5	2.33196e5	8.609	5.00000
#*	CLO4@ 10.ug/L	Vial 76	1	Control	6	2.34454e5	8.716	5.00000
#*	CLO4@ 25.ug/L	Vial 77	1	Control	7	2.50568e5	8.472	5.00000
#*	CLO4@ 50.ug/L	Vial 78	1	Control	8	2.30977e5	8.825	5.00000
#*	CLO4@ 75.ug/L	Vial 79	1	Control	9	2.21504e5	8.610	5.00000
#*	ICAL Verf@10ug/L	Vial 80	1	Control	10	2.52544e5	8.725	5.00000

*** End of Report ***

Sequence Table:

Method and Injection Info Part:

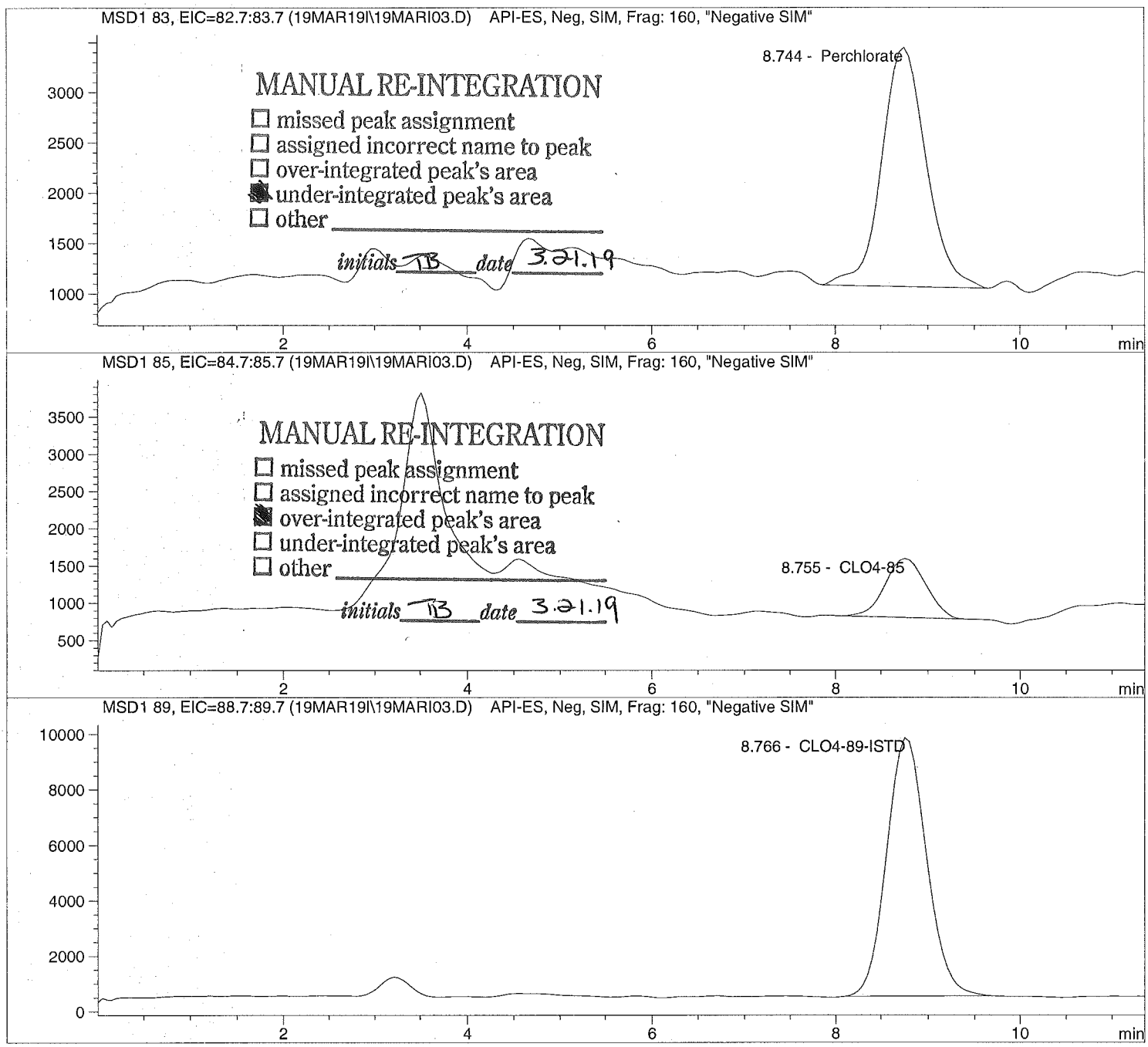
Line	Location	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	Vial 71	CLO4@ 0.2ug/L	CLO4-AQN	1	Ctrl Samp		
2	Vial 72	CLO4@ 0.5ug/L	CLO4-AQN	1	Ctrl Samp		
3	Vial 73	CLO4@ 1.0ug/L	CLO4-AQN	1	Ctrl Samp		
4	Vial 74	CLO4@ 2.0ug/L	CLO4-AQN	1	Ctrl Samp		
5	Vial 75	CLO4@ 5.0ug/L	CLO4-AQN	1	Ctrl Samp		
6	Vial 76	CLO4@ 10.ug/L	CLO4-AQN	1	Ctrl Samp		
7	Vial 77	CLO4@ 25.ug/L	CLO4-AQN	1	Ctrl Samp		
8	Vial 78	CLO4@ 50.ug/L	CLO4-AQN	1	Ctrl Samp		
9	Vial 79	CLO4@ 75.ug/L	CLO4-AQN	1	Ctrl Samp		
10	Vial 80	ICAL Verf@10ug/L	CLO4-AQN	1	Ctrl Samp		

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	MM	77607.4	1.0625	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	MM	23678.0	0.9305	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

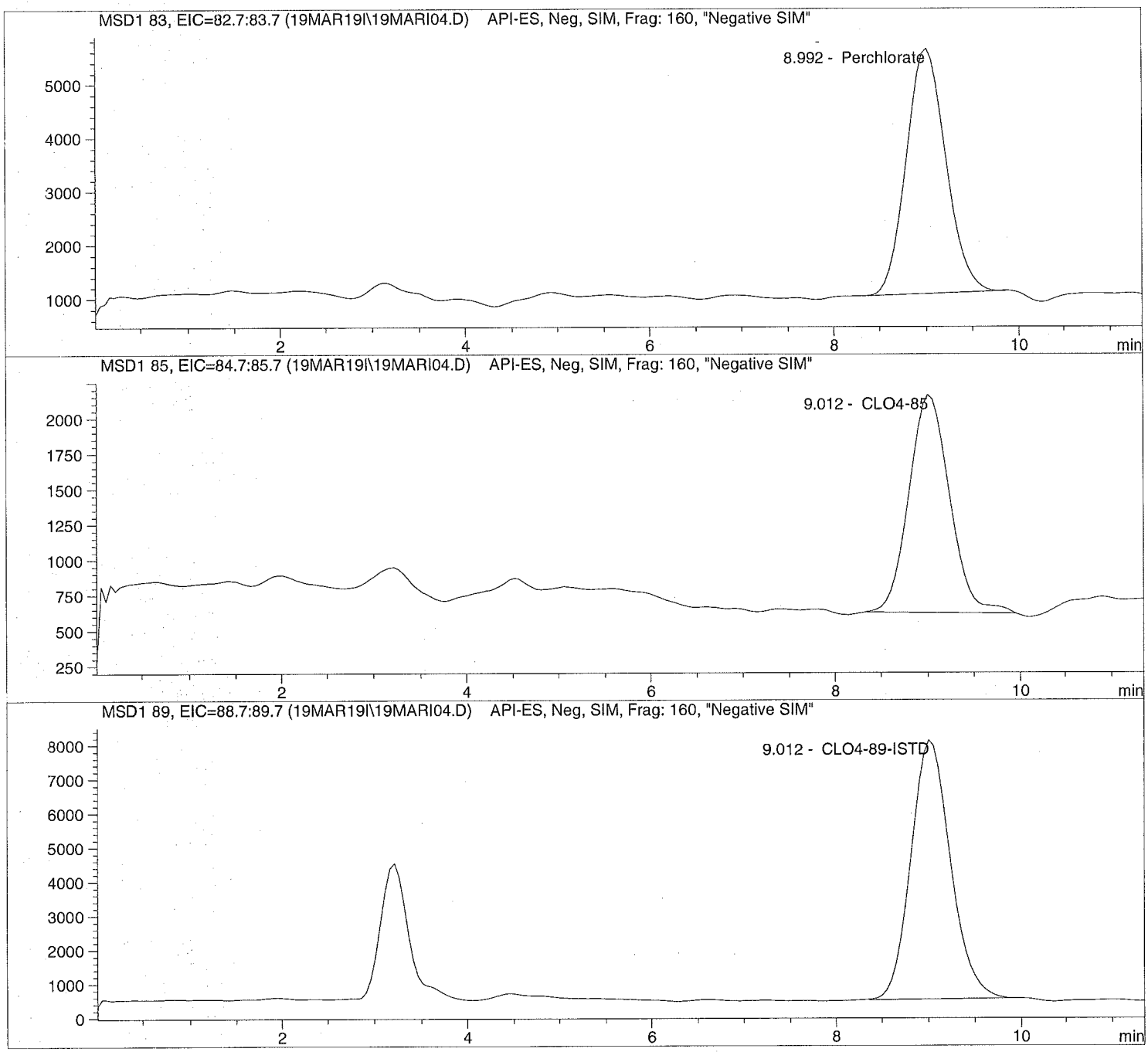
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI04.D Sample Name: CLO4@ 2.0ug/L

Injection Date:	3/19/2019 09:53:00	Seq Line:	4
Sample Name:	CLO4@ 2.0ug/L	Location:	Vial 74
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	2.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.992	BBA	135272.8	2.0697	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	46948.6	2.2425	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
9.012	BBA	224885.9	5.0000	CLO4-89-ISTD

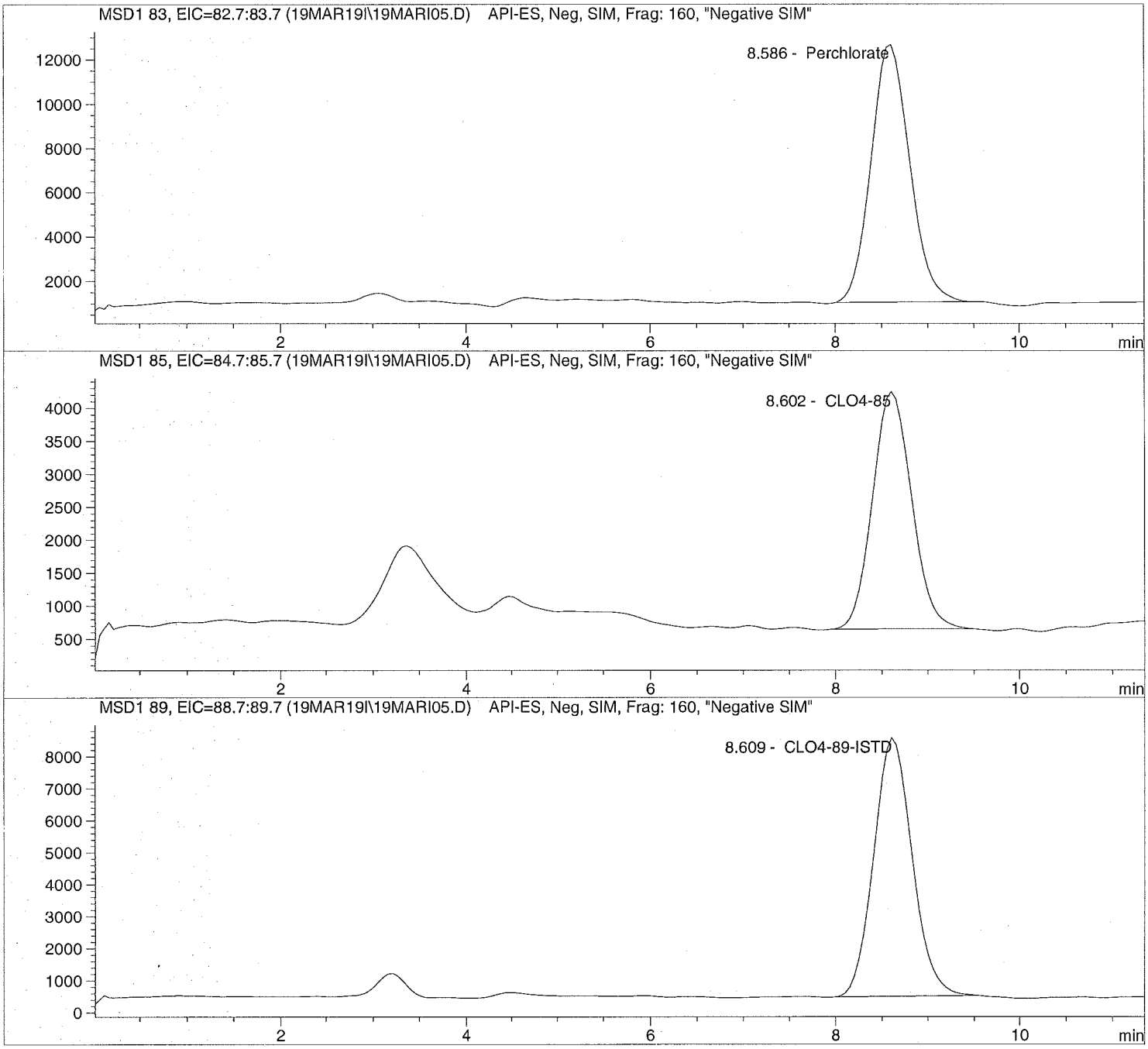
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



LC

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI05.D Sample Name: CLO4@ 5.0ug/L

Injection Date:	3/19/2019 10:06:16	Seq Line:	5
Sample Name:	CLO4@ 5.0ug/L	Location:	Vial 75
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	5.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	337763.6	4.7347	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.602	PBA	106124.0	4.8666	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.609	PBA	233196.3	5.0000	CLO4-89-ISTD

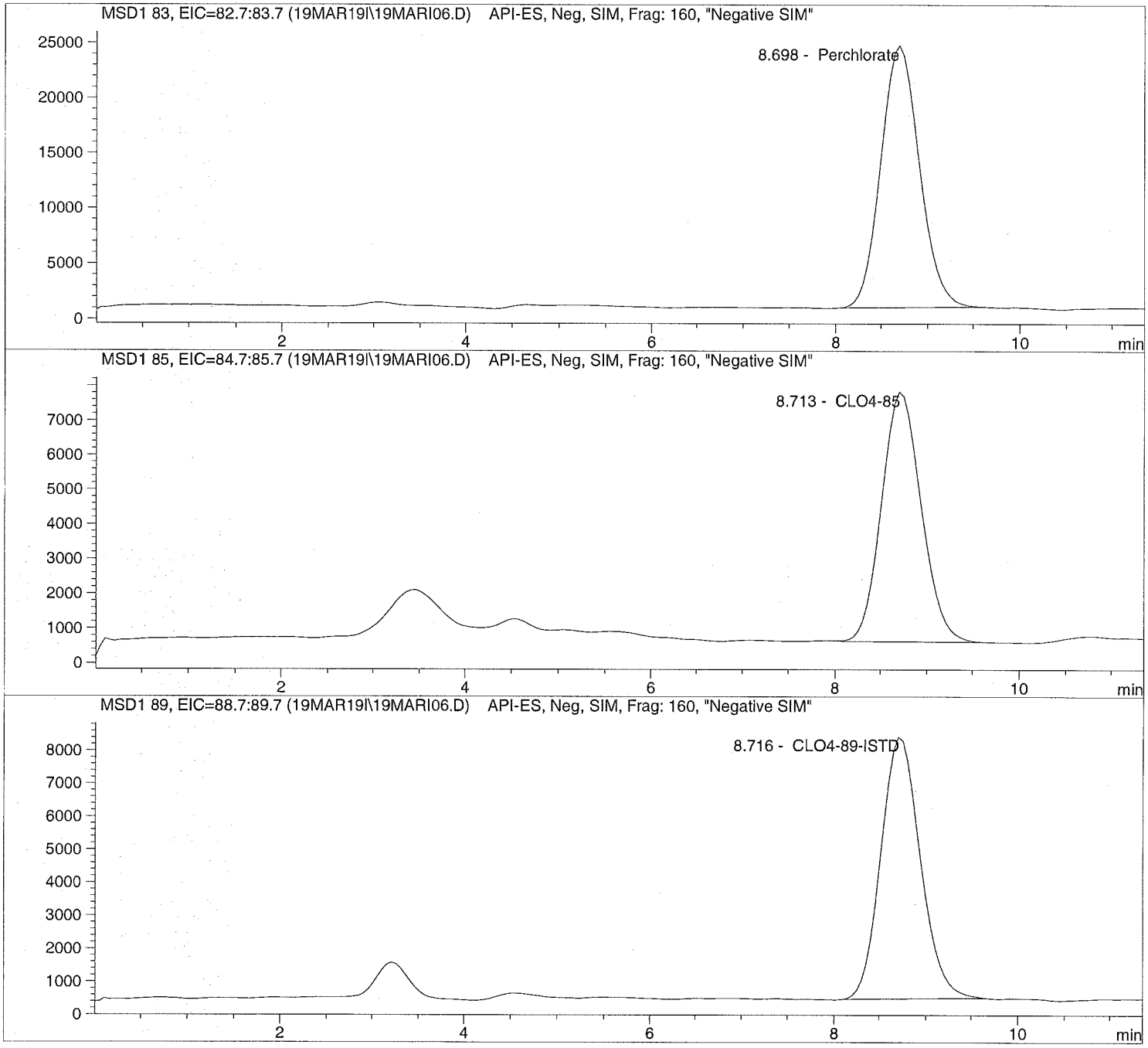
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



LC

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI06.D Sample Name: CLO4@ 10.ug/L

Injection Date:	3/19/2019 10:19:32	Seq Line:	6
Sample Name:	CLO4@ 10.ug/L	Location:	Vial 76
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.698	PBA	683454.4	9.2773	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.713	BBA	213522.6	9.6431	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.716	PBA	234453.6	5.0000	CLO4-89-ISTD

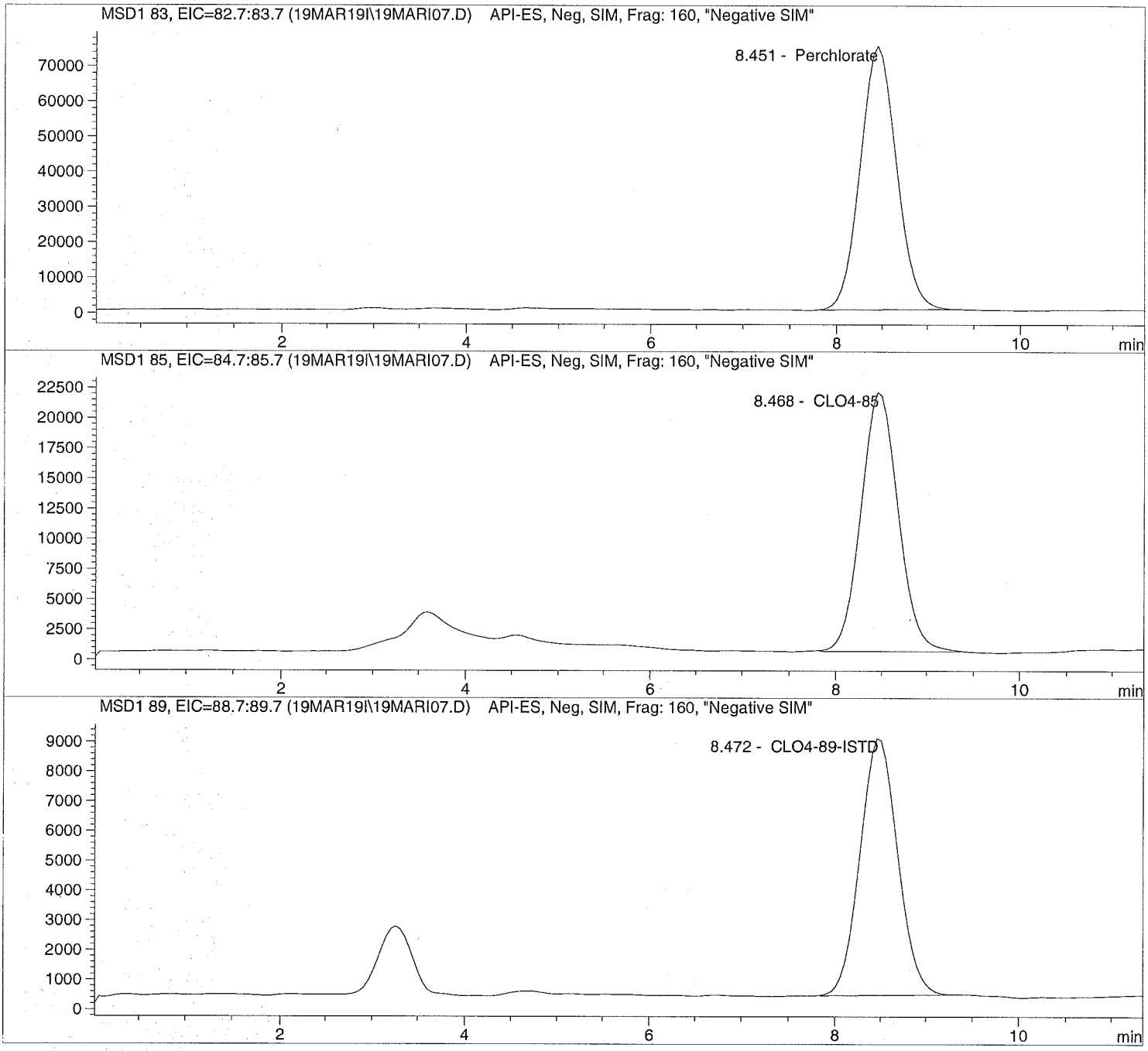
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI07.D Sample Name: CLO4@ 25.ug/L

Injection Date:	3/19/2019 10:32:49	Seq Line:	7
Sample Name:	CLO4@ 25.ug/L	Location:	Vial 77
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By: Signal
Calib. Data Modified: Tue, 19. Mar. 2019,02:35:19 pm
Multiplier: 1.000000
Dilution: 1.000000
Sample Amount: 25.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.451	PBA	2084327.4	25.2904	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.468	BBA	614294.8	25.1216	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.472	BBA	250568.0	5.0000	CLO4-89-ISTD

*** End of Report ***

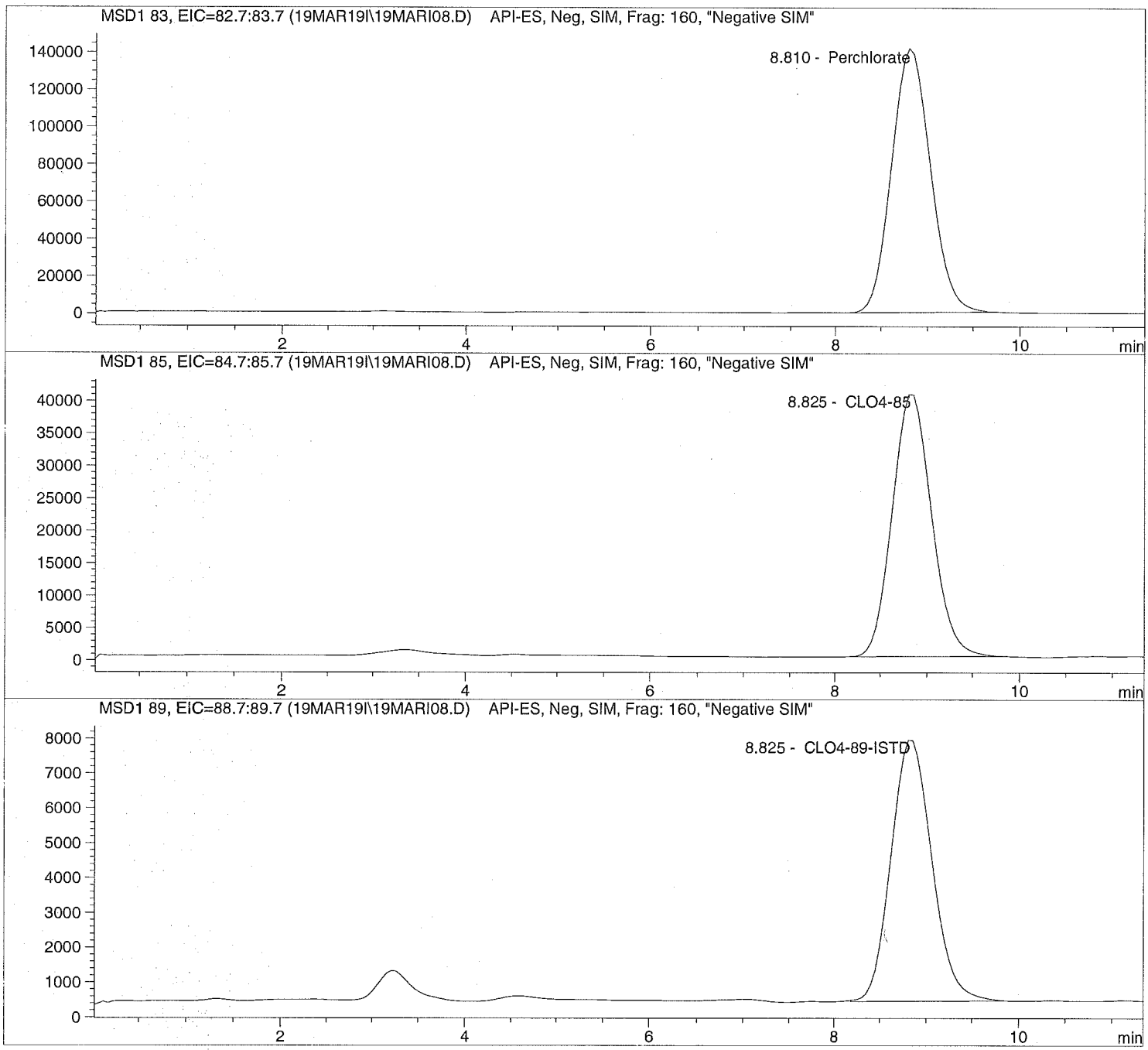
LC

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI08.D Sample Name: CLO4@ 50.ug/L

Injection Date:	3/19/2019 10:46:05	Seq Line:	8
Sample Name:	CLO4@ 50.ug/L	Location:	Vial 78
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method:	CLO4-AQN.M
Analysis Method:	C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed:	3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	50.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.810	PBA	4133340.5	51.3684	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	1198135.6	50.4672	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.825	BBA	230976.7	5.0000	CLO4-89-ISTD

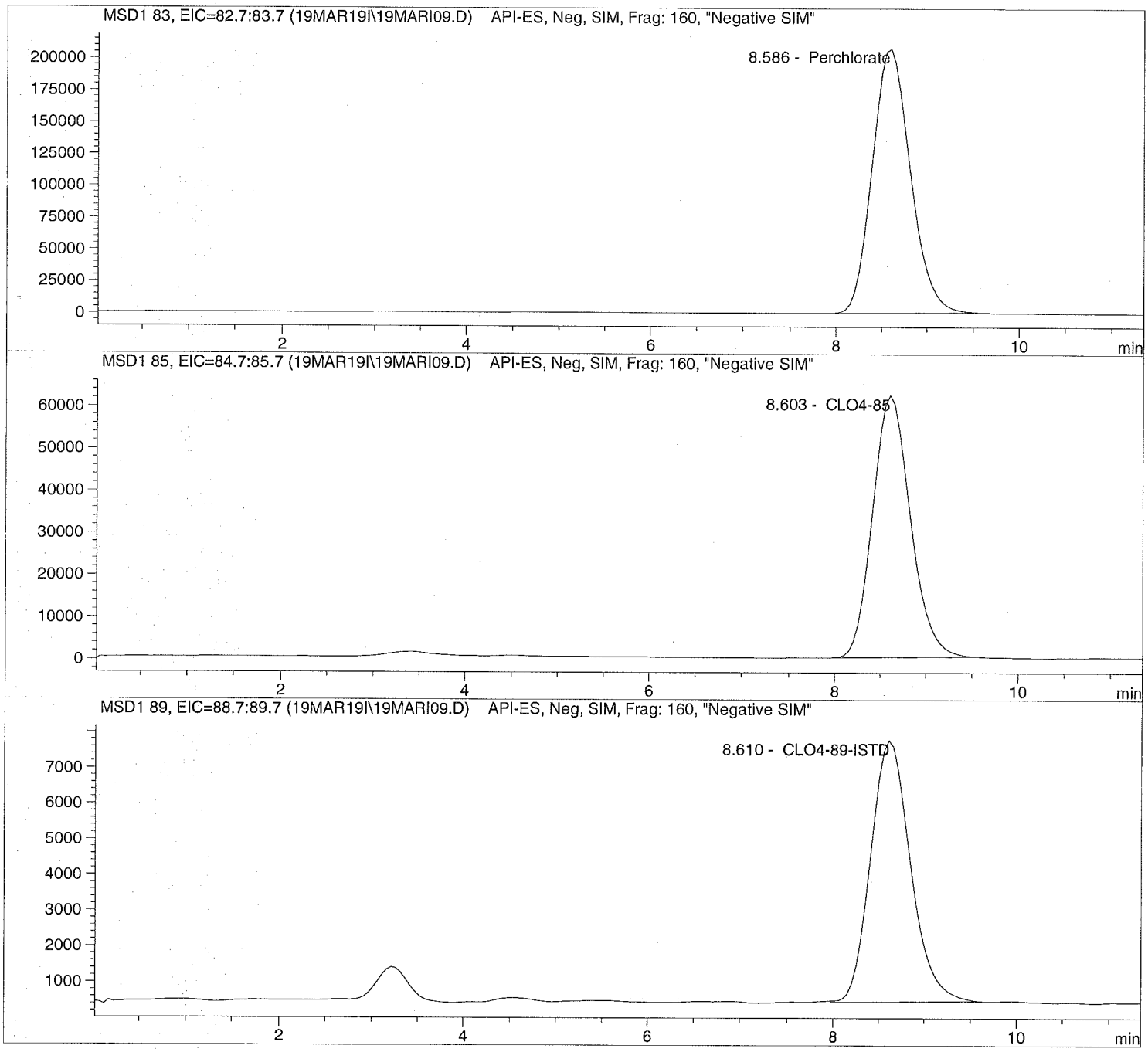
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI09.D Sample Name: CLO4@ 75.ug/L

Injection Date:	3/19/2019 10:59:22	Seq Line:	9
Sample Name:	CLO4@ 75.ug/L	Location:	Vial 79
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	75.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.586	PBA	5993128.0	74.1675	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.603	PBA	1783554.4	74.7202	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.610	BBA	221504.5	5.0000	CLO4-89-ISTD

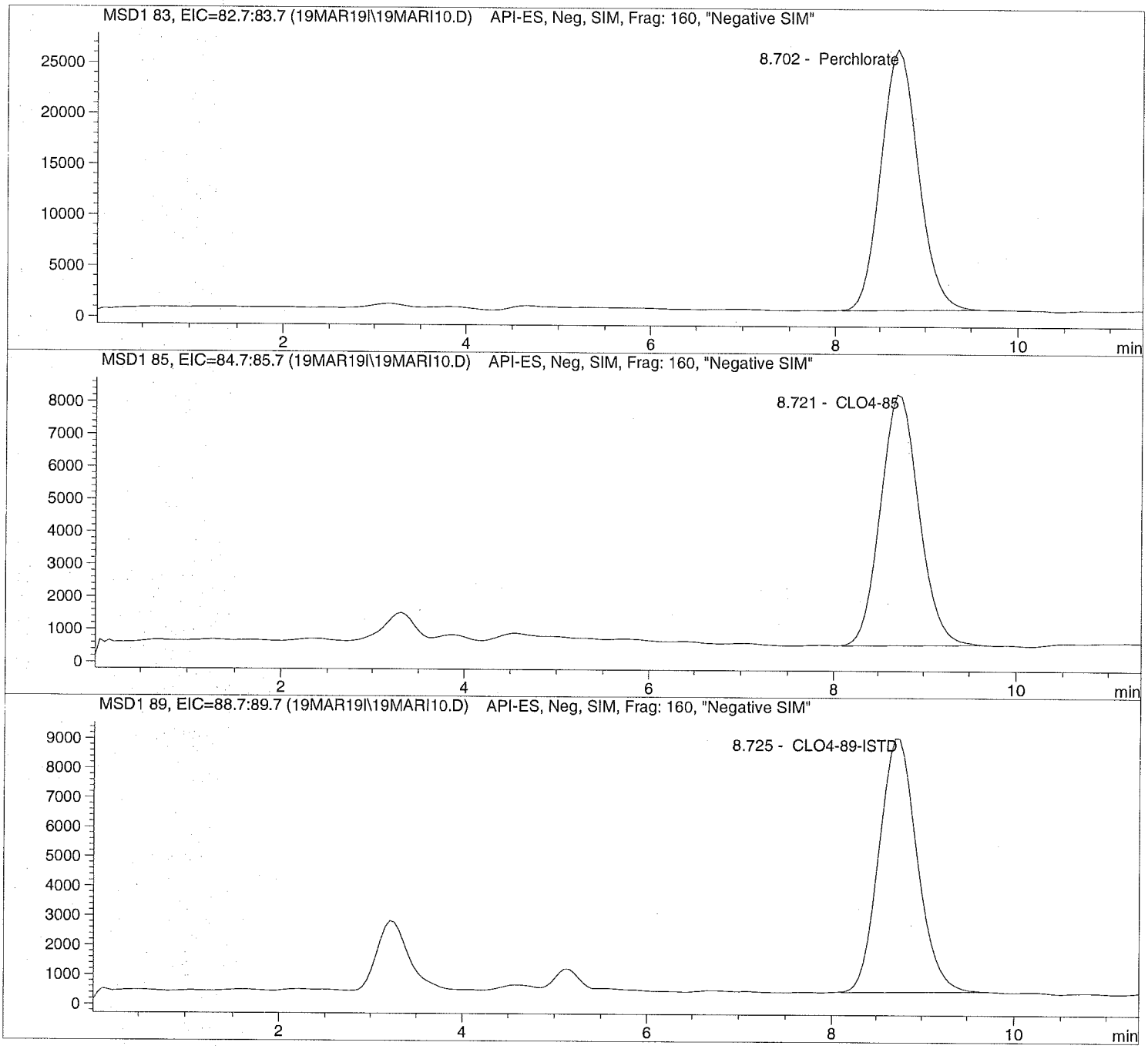
*** End of Report ***

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI10.D Sample Name: ICAL Verf@10ug/L

Injection Date:	3/19/2019 11:12:42	Seq Line:	10
Sample Name:	ICAL Verf@10ug/L	Location:	Vial 80
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:35:22

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	10.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.702	PBA	734718.7	9.2594	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.721	PBA	227494.7	9.5402	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.725	BBA	252544.4	5.0000	CLO4-89-ISTD

*** End of Report ***

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Raw Data

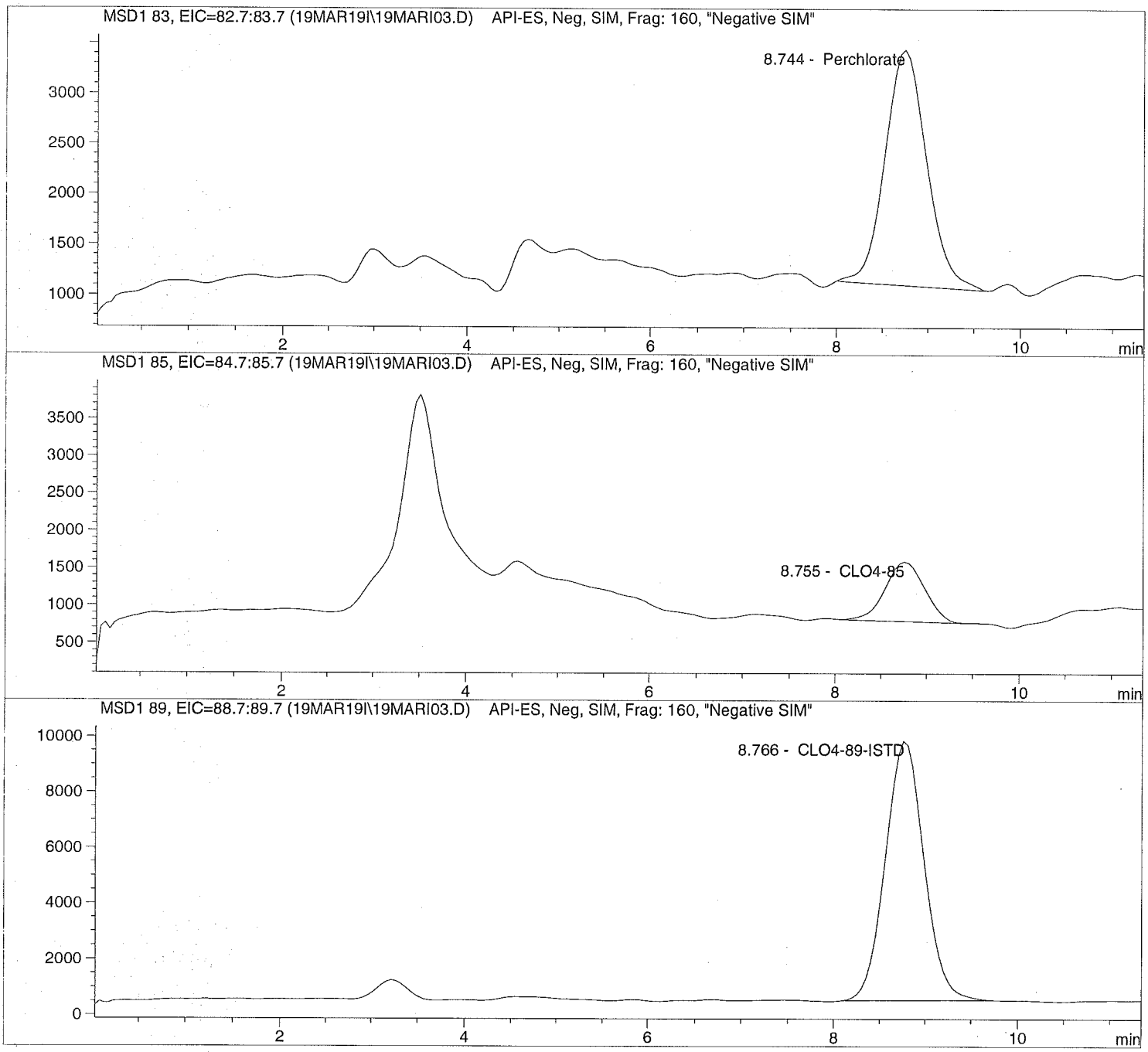
Unmodified

Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis



Data file: C:\HPCHEM\1\DATA\19MAR19I\19MARI03.D Sample Name: CLO4@ 1.0ug/L

Injection Date:	3/19/2019 09:39:40	Seq Line:	3
Sample Name:	CLO4@ 1.0ug/L	Location:	Vial 73
Acq Operator:	TNB	Inj. No.:	1
		Inj. Vol.:	30 µl

Acq. Method: CLO4-AQN.M
Analysis Method: C:\HPCHEM\1\METHODS\CLO4-DP2.M
Last Changed: 3/19/2019 14:38:25

Perchlorate analysis

Sample Information

Sorted By:	Signal
Calib. Data Modified:	Tue, 19. Mar. 2019,02:35:19 pm
Multiplier:	1.000000
Dilution:	1.000000
Sample Amount:	1.000

LCMS Results

Signal1: MSD1 83, EIC=82.7:83.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.744	BBA	74166.3	1.0224	Perchlorate

Signal2: MSD1 85, EIC=84.7:85.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.755	BBA	24138.1	0.9487	CLO4-85

Signal3: MSD1 89, EIC=88.7:89.7

RT [min]	Type	Area	Amount [ug/sample]	Compound Name
8.766	BBA	273207.6	5.0000	CLO4-89-ISTD

*** End of Report ***